FASHION INSTITUTE OF TECHNOLOGY
MUSEUM LIGHTING (GC)
INVITATION FOR BID NUMBER C1590

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SECTION I:
NOTICE TO BIDDERS

SECTION I: NOTICE TO BIDDERS

FASHION INSTITUTE OF TECHNOLOGY
MUSEUM LIGHTING (GC)
INVITATION FOR BID NUMBER C1590

For the purposes of this project (the "Project") the Fashion Institute of Technology and its auxiliary organization, "The Museum at FIT", shall hereinafter be collectively referred to as "FIT" unless otherwise distinguished herein. Neither the Fashion Institute of Technology nor "The Museum at FIT" will be responsible for receipt of any Bid which does not comply with the instructions as set forth further in this document.

FIT is **ONLY** accepting electronic scanned bids for the subject project. You must email your bid to purchasingbids@fitnyc.edu in PDF format and it should include all the requested documents (See Attachment A – Bid Checklist) including a scanned image of your bid security (Certified Check of 2 percent or Bid Bond of 10 percent of your total bid price), we'll also need you to mail us the original copy of the bid security to have on file. The bid security must either be mailed to 227 W 27th Street, New York, NY 10001 or dropped off at 333 7th Avenue (16th Floor), New York, NY 10001. Bids must be received by **Wednesday, August 30, 2023, on or before 12:00 P.M**. All bidders will be notified of the bid results within the hour. Bid results are not official until each package has been fully reviewed.

ATTACHMENT A - BID CHECKLIST

FASHION INSTITUTE OF TECHNOLOGY &
MUSEUM LIGHTING (GC)
INVITATION FOR BID NUMBER C1590

Bidder shall meet the following requirements and submit necessary information with the Bid. Failure to comply with these requirements shall be grounds for rejection of your Bid.

☐ Did you attend the **mandatory** site inspection?

☐ Did you include all required documentation? (As per Bidder Requirements – i.e. proof of being in business, permits, licenses, certifications, etc.)

☐ Did you include the Form of Bid? (See Section VIII.)

☐ Did you include the Non-Collusive Bidding Certification? (See Section IX.)

☐ Did you complete in full the Bid Analysis Form, (See Attachment C)

☐ Did you sign for each Addendum to this project, if any were published? (It is the contractor's responsibility to check FIT's "Current Bid Opportunities" webpage for addendums prior to submitting their bid.)
https://www.fitnyc.edu/about/administration/finance/purchasing/current-bids.php

☐ Did you complete the Contractor Reference Sheet? **Do not list FIT as your projects of similar size and scope.** (See Attachment B)

☐ Can you provide the required levels of insurance coverage? See: General Conditions – Article 15

☐ Did you include the Bid Security?

☐ Can the bidder provide references to at least three (3) different prior contracts that have been completed within the past five (5) years that are similar in size and scope to the project indicated for this Contract?

☐ Did you provide proof of years in business/date of incorporation?

☐ Sub-contracting percentage shall **not exceed 60%** of the project cost.

☐ Did you include an audited or reviewed financial report for the last two (2) years with your bid?

ATTACHMENT B - CONTRACTOR REFERENCE SHEET
FASHION INSTITUTE OF TECHNOLOGY
MUSEUM LIGHTING (GC)
INVITATION FOR BID NUMBER C1590

FIT requests a minimum of three references for **completed** projects of similar size and scope. Please complete the following information for each reference: **(Do not list FIT as your projects of similar size and scope.)**

Contact Name/Title: ____
Company Name/Address: ____
Phone Number: ____
Project Name: ____
Project Cost: ____
Project Start/End Date: ____
For FIT Use Only – Reference Responses
Quality of Work: _____________ Site Maintenance: ______________
Scheduling: ___ Cooperation: ___ Safety Standards: _______________
Permits: ____________ Report Submittals: ______Payments: _____
Other Relevant Factors: ____
Overall Performance Rating: Excellent___ Satisfactory___ Marginal___ Unsatisfactory___

Contact Name/Title: ____
Company Name/Address: ____
Phone Number: ____
Project Name: ____
Project Cost: ____
Project Start/End Date: ____
For FIT Use Only – Reference Responses
Quality of Work: _____________ Site Maintenance: ______________
Scheduling: ___ Cooperation: ___ Safety Standards: _______________
Permits: ____________ Report Submittals: ______Payments: _____
Other Relevant Factors: ____
Overall Performance Rating: Excellent___ Satisfactory___ Marginal___ Unsatisfactory___

Contact Name/Title: ____
Company Name/Address: ____
Phone Number: ____
Project Name: ____
Project Cost: ____
Project Start/End Date: ____
For FIT Use Only – Reference Responses
Quality of Work: _____________ Site Maintenance: ______________
Scheduling: ___ Cooperation: ___ Safety Standards: _______________
Permits: ____________ Report Submittals: ______Payments: _____
Other Relevant Factors: ____
Overall Performance Rating: Excellent___ Satisfactory___ Marginal___ Unsatisfactory___

FIT
Interviewer: __________________ Signature: ____________________Date: ___________

SECTION II:
BID TERMS AND CONDITIONS

SECTION II. BID TERMS AND CONDITIONS

SPECIFICATIONS FOR
FASHION INSTITUTE OF TECHNOLOGY
MUSEUM LIGHTING (GC)
INVITATION FOR BID NUMBER C1590

I. INTRODUCTION

The Fashion Institute of Technology, a community college of art and design, business and technology of the State University of New York, currently has an enrollment of approximately 10,000 full and part-time students. Located in the Chelsea area of Manhattan, FIT's facilities are composed of a twelve building complex containing administrative/academic offices, classrooms, computer labs, and studios. There are three (3) residence halls located on West 27th Street that currently house approximately 1,250 students and one (1) residence hall located at 406 West 31st Street that houses approximately 1,100 students. F.I.T. Student Housing Corporation is a separate, not-for-profit corporation that was established pursuant to the laws of the State of New York to own and operate these residence halls for the benefit of the College and its students. For purposes of this project all references to FIT shall be recognized to refer to the Fashion Institute of Technology (hereafter, "FIT" or the "College") and "The Museum at FIT" together, unless specifically designated otherwise. The successful responsive and responsible bidder (hereinafter "Contractor") shall be required to enter into a contract with FIT based on the Contract Documents, (including Notice to Bidders, Bid Terms and Conditions, Contract Terms and Conditions, General Requirements, General Conditions, Labor & Material Payment Bond, Performance Bond, Form of Bid, Non-Collusive Bidding Certification, Substitution Form Request, Contract, Affirmative Action Form, Change Order, Form, Contractor's Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Specifications, and Drawings), attached hereto and incorporated herein.

II. SUMMARY OF SCOPE OF WORK

The Work of the Project is defined by the immediately following Project Description herein below and by the Contract Documents.

Project Description**:** Provide labor, materials, tests, tools and equipment to complete the renovation of the lower level Museum. Contractor may begin procurement of materials following award. Contractor may begin survey of existing conditions on December 1st, 2023. A detailed scope of work is outlined in specification Section 011100 "Summary of Work."

This works includes the demolition of the tall ceiling and demolition at the lower ceiling. Both galleries will receive new light fixtures, controls, fire alarm system, ceiling paint, mechanical diffusers and sprinklers in the scope of work.

The installation of all equipment in accordance with the Manufacturer's Installation/Operation & Maintenance Manuals & Instructions shall be followed.

III. BIDDER REQUIREMENTS

Bidder shall meet the following requirements and submit necessary information with the Bid. Failure to comply with these requirements shall be grounds for rejection of your Bid. FIT reserves the right to reject bids with incomplete information or bid security, or contain conditions not specified in the Bid Terms and Condition herein, or which are presented on a different form other than that provided to bidders. FIT reserves the right to determine whether a Bidder has substantially met all the Bid requirements and to ask for additional information prior to making such a determination.

A. **Bidder shall have been primarily a General Contractor with work experience of the size, scope and nature to be performed under this Contract for a minimum of five (5) years as of the Bid Opening Date. Proof shall be submitted with the Bid.**

B. Bidder shall have satisfactorily performed work of the size, scope and nature to be performed under this Contract, as evidenced by **references from at least three (3) different successfully completed contracts in an installation similar to those indicated for this Contract in the past five (5) years.** Bidder shall include for each reference: project location, dollar value of contract; initiation and completion date, name, title, address and telephone number of contact person. References cannot be members of FIT staff or FIT consultants.

C. **Bidder shall attend the mandatory pre-bid meeting and site inspection. Failure to comply with this requirement shall be grounds for rejection of the Bid.**

D. Bidder is responsible for all necessary field measurements, all necessary data on the existing conditions and verification of all quantities and dimensions listed in the Project Specifications and Drawings, if applicable.

E. By submitting a Bid, Bidder agrees that s/he has examined the Contract Documents, visited the site, noted all conditions and limitations affecting the Work, and fully understands the nature of the Work. Bidder is required to inform FIT in writing immediately of any instance where changed conditions are encountered.

F. Bidder shall submit documentation of financial viability, including balance sheets and profit and loss statement for the prior two (2) years, with the Bid.

G. Bidder, upon request, shall submit copies of current licenses and certifications applicable to the work, including, but not limited to, licenses issued by the Commissioner of Buildings of the City of New York. Proof of the following certificates will also be required: 10 Hour OSHA Outreach Training Program; Asbestos Awareness Training, FDNY Certificate of Fitness, with the Bid.

IV. APPROVAL OF SUBCONTRACTORS

Subcontracting shall be permitted **not to exceed 60%** of the work of the Project as determined by FIT. The ratio of the contractors and subcontractors work must be included with your bid submission. All subcontractors are required to gain prior written approval by FIT's Facilities Director. The General Contractor will be the Prime Contractor (hereinafter "Contractor) and shall be permitted to Subcontract the following types of Services:

- Services to develop, amend and/or upgrade EHS Plan
- Demolition
- Carpentry
- Painting
- HVAC
- Fire Alarm
- Electrical
- Sprinkler

The Contractor will require that the terms of this Contract apply to the sub-contractors and shall cause all sub-contractors to comply with the terms of this contract.

V. BID SECURITY

Failure to provide Bid Security in the prescribed manner shall result in the rejection of the Bid.

Bidder shall provide Bid Security in the form of either a bid deposit or a bid bond, at Bidders option. The bid deposit shall be in the form of a certified check made payable to "Fashion Institute of Technology" in an amount no less than two percent (2%) of the total bid price. The bid bond shall be in an amount no less than ten percent (10%) of the total bid price.

VI. PRE-BID SITE INSPECTION AND QUESTIONS

A **mandatory** Pre-Bid Site Inspection for prospective Bidders will be held on **Monday, August 14, 2023 at 10:00 A.M. at the Fashion Institute of Technology, "Goodman Building" Lobby also known as the "Gladys Marcus Library/The Museum at FIT/School of Graduate Studies or the "E Building" Lobby, located at the southwest corner of 7th Avenue and 27th Street.** We highly encourage the Bidder to invite their sub-contractors as this will the one and only site visit prior to awarding the project **Failure of the Bidder to attend the mandatory pre bid site inspection shall be grounds for rejection of your Bid. Please also bring a business card.**

Bidder shall examine the Bid documents carefully. Before bidding, Bidder shall make any requests for interpretation of Bid documents or clarification of any ambiguity therein that should have been detected by a reasonably prudent Bidder. Questions shall be submitted in writing to the attention of Purchasing Department via email: purchasingbids@fitnyc.edu, no

later than **Friday, August 18, 2023 on or before 3:00 P.M.** Answers shall be provided in the form of and Addendum and be posted on the FIT purchasing department website. Reference Bid number **C1590.**

VII. BID DESIGNATION

A. FIT is **ONLY** accepting electronic scanned bids for the subject project. You must email your bid to purchasingbids@fitnyc.edu in PDF format and it should include all the requested documents (See Attachment A – Bid Checklist) including a scanned image of your bid security (Certified Check of 2 percent or Bid Bond of 10 percent of your total bid price), we'll also need you to mail us the original copy of the bid security to have on file. The bid security must either be mailed to **227 W 27th Street, New York, NY 10001** or dropped off at **333 7th Avenue (16th Floor), New York, NY 10001**. Bids must be received by **Wednesday, August 30, 2023, on or before 12:00 P.M**. All bidders will be notified of the bid results within the hour. Bid results are not official until each package has been fully reviewed.

B. Bids received late will not be considered.

VIII. PREPARATION OF THE BIDS

A. Bids must be submitted on the forms supplied by FIT in the Bidder's full legal name or the Bidder's full legal name plus a registered assumed name. All blank spaces for bid prices must be filled in, using both words and figures, words to take precedence over figures. **Conditional bids shall not be accepted.** Bids shall not contain any recapitulation of the Work to be done. Bidder exclusions shall be grounds for bid rejection. Do not modify the bid forms supplied by FIT

B. Bids that are illegible or that contain omission, alterations, additions or items not called for in the bidding documents may be rejected as not responsive. Any bid which modifies, limits, or restricts all or any part of such bid, other than as expressly provided for in the Notice to Bidders, Bid Terms and Conditions, and Contract Terms and Conditions, may be rejected as not responsive.

C. FIT may reject any bid not prepared and submitted in accordance with the provisions of the Notice to Bidders, Bid Terms and Conditions, and Contract Terms and Conditions. Neither FIT nor The Museum at FIT will be responsible for receipt of any Bid which does not comply with these instructions. Only those Bids emailed to the FIT Purchasing Dept. inbox (purchasingbids@fitnyc.edu) on or before **Wednesday, August 30, 2023, on or before 12:00 PM** will be considered.

D. Any bid may be withdrawn prior to the scheduled time for the opening of bids or authorized postponement thereof and any bid received after such time and date shall not be considered.

E. No Bidder may withdraw a bid within ninety (90) days after the actual date of the opening thereof.

IX. AWARD OF CONTRACT

A. The award of the Contract shall be made to the Bidder submitting the lowest responsible bid if, in the opinion of FIT, the bid is responsive to the bid solicitation, and such Bidder is responsible and qualified to perform the work involved in the sole discretion of FIT. The lowest bidder will be considered the contractor with the lowest bid for the base bid. In case FIT will decide to include the 'alternate' in the scope of work, the lowest bidder will be considered the contractor with the lowest total of the base bid plus the alternate bid.

B. FIT reserves the right to reject any bid or all bids, to waive any informalities or irregularities or omissions in any bid received.

C. During the term of the Contract, the Contractor shall promptly notify FIT of any change in the ownership of the Contractor. Failure to notify FIT may result in termination of the Contract.

D. FIT reserves the right, exercisable in its sole discretion, to cancel and withdraw from the Project at any time in advance of the award.

E. Prior to the opening of the bids, Bidder shall promptly notify FIT of Change in ownership of the Bidder. Failure to notify with this bid shall be grounds for rejection of the Bid.

X. DAMAGES FOR FAILURE TO ENTER INTO CONTRACT

The successful Bidder, upon failure or refusal to execute and deliver the Contract and bond required within ten (10) days after such Bidder has received notice of the acceptance of such bid, shall forfeit to FIT as damages for such failure or refusal, the security deposited with the Bid or the sum of the difference between the total bid of the successful Bidder and the total bid of the Bidder submitting the next lowest bid, whichever sum shall be higher.

XI. PREVAILING WAGE

This contract is subject to New York State Labor Law 220, Article 8 Prevailing Wage Schedules. The Contractor shall submit with, each invoice, certified payrolls for all labor. Submission of a Certified Payroll with invoice in full compliance with labor laws is a condition of payment.

Contractor and its subcontractors shall pay at least the prevailing wage rate and pay or provided the prevailing supplements in accordance with the Labor Law.

A copy of the prevailing wage schedule, for New York County, can be found at the New York State Department of Labor website. **(PRC# 2023007526)**

www.labor.ny.gov

Bidder must also comply with all applicable federal, state, and local laws rules, regulations, requirements, and codes, including but not limited to, the statues regulations, laws, rules and

requirements specifically referenced in the documents annexed hereto.

XII. M/WBE AND SDVOB

FIT encourages minority and women business enterprise participation in this project by contractors, subcontractors and suppliers, and all bidders are expected to cooperate with that commitment. Also, bidders are encouraged to use Service-Disabled Veteran-Owned Businesses (SDVOB). A directory of New York State Certified Minority and Women's Business Enterprises is available from: Empire State Development Corporation, Minority and Women's Business Development Division at: http://www.esd.ny.gov/mwbe.html to assist potential bidders in locating sources of M/WBE subcontractors and reaching these goals. SDVOBs can be readily identified on the directory of certified businesses at: https://online.ogs.ny.gov/SDVOB/search."

XIII. MISCELLANEOUS

A. FIT reserves the right to request clarifications from bidders for purposes of assuring a full understanding of responsiveness and further reserves the right to permit revisions from all bidders who might be, in FIT's sole discretion determined to be viable bidders for contract award, prior to the award.

B. FIT reserves the right to reject separable portions of any offer, to negotiate terms and conditions consistent with the bid, and to make an award for any or all remaining portions.

C. FIT reserves the right to eliminate mandatory requirements unmet by all bidders.

D. Any additional vendor terms which are attached or referenced with a submission shall not be considered part of the bid or proposal, but shall be deemed included for informational purposes only.

E. Unless otherwise specifically stated in the Bid Terms and Conditions, all specifications and requirements constitute minimum requirements. All bids must meet or exceed stated specifications and requirements.

F. FIT reserves the right to make an award to the responsive and responsible bidder whose product or service meets the terms, conditions, and specifications of the Bid and whose bid is considered to best serve FIT's interest. In determining the responsiveness and responsibility of the bidder, FIT may consider the following factors, including but not limited to: the ability, capacity, and skill of the bidder to perform as required; whether the bidder can perform promptly, or within the time specified without delay or interference; the character, integrity, reputation, judgment, experience and efficiency of the bidder; the quality of past performance by the bidder; the previous and existing compliance by the bidder with relevant laws and regulations; the sufficiency of the bidder's financial resources; the availability, quality, and adaptability of the bidder's equipment, supplies and/or services to the required use; and the ability of the bidder to provide future maintenance, service, and parts.

SECTION III:
CONTRACT TERMS AND CONDITIONS

SECTION III. CONTRACT TERMS AND CONDITIONS

I. COMPLIANCE REQUIREMENTS

All work hereunder, including but not limited to material and installations, shall be in compliance with the Contract Documents including both specifications and drawings, as well as all applicable state and local building codes (such as the New York City Building Code) and the rules, regulations of governmental agencies and utility companies having jurisdiction over the work.

The following additional notes shall be considered as part of the officially filed drawings:

NONE

THE WORK:

Unless modified by the Contract Documents, the work of each section of the specifications shall include all labor, materials, testing, tools and equipment necessary and reasonably incidental to **renovate FIT Museum's lower galleries, including but not limited to upgrades to the ceiling, lighting, mechanical, sprinkler, and fire alarm systems.**

WORKMANSHIP:

All work shall be performed by persons skilled in the work. Work shall be installed true to dimension, plumb and level with neat, accurate cutting and fitting of all materials in accordance with recognized standards of workmanship.

ON-SITE VERIFICATION:

The Contractor shall verify all dimensions and site conditions prior to commencing the work. Dimensions may not be scaled from drawings. Should there be a discrepancy, Contractor is to notify FIT Facilities Director and Architect immediately for clarification.

COORDINATION OF THE WORK:

The Contractor shall be responsible for the coordination of the work and the means and methods of construction and provide FIT with the resume of Contractor's project manager ("Project Manager"). FIT's Facilities Director shall approve the Project Manager and reserves the right to request a replacement Project Manager upon reasonable notice.

WORK HOURS:

Regular work hours are from **7:00 am to 6:00 pm** unless otherwise specified in the Contract Documents. Contractor will have reasonable access to the site in order to complete the work in the given time frame. Contractor shall comply with FIT's additional work rules related to such extended access. All labor costs required to meet this deadline are the sole responsibility of the Contractor and shall be included in the contract price. FIT reserves the right to put the work on hold on three (3) occasions during the course of construction for any length of time and for any reason.

PERFORMANCE AND PAYMENT BONDS

In addition to the insurance and bond requirements specified in the General Conditions, Performance and Payment Bonds shall be required for the Work of this Contract.

A. Simultaneously with the delivery of the executed Contract, Contractor shall furnish to FIT and maintain, at its own cost and expense a Performance Bond in an amount at least equal to one hundred percent (100%) of the contract price as security for faithful performance of the Contract and also a Labor and Material Payment Bond in an amount at least equal to one hundred percent (100%) of the Contract price for the payment of all persons performing labor on the project under the contract or furnishing materials in connection with the Contract. The surety on such bonds shall be a surety company rated B+ or better by A.M. Best Company, shall be licensed to do business in the State of New York, and shall hold a certificate of authority as an acceptable surety on federal bonds or otherwise satisfactory to FIT.

B. Attorneys-in-fact who sign said bonds on behalf of a surety must affix to each bond a certified and effectively dated copy of their power of appointment.

CONFLICTS, ERRORS AND OMISSIONS:

1. The Contract Documents and typical details apply throughout the work unless noted otherwise.

2. In the event that certain features of the work are not fully shown on the drawings, Contractor must obtain clarification from the FIT Facilities Director and Architect through the use of an AIA Standard RFI form (copies can be obtained from the Architect) before proceeding with the work.

3. In the event of conflicts with the drawings and/or specifications, the Contractor must promptly notify the FIT Facilities Director and Architect. The Architect will determine which shall govern.

MANUFACTURER'S PRODUCTS AND FABRICATIONS:

1. All manufacturers and fabricators printed warnings for handling of their products must be strictly observed.

2. All products and materials must be provided and installed in strict accordance with the requirements and recommendations of the manufacturer. In the event of conflict between the drawings or the specifications and the manufacturer's requirements and recommendations, Contractor must notify FIT Facilities Director and Architect to obtain clarification before proceeding with the work.

3. Contractor must verify all materials and manufactured items to be in conformance with applicable codes and regulations.

DELIVERY AND STORAGE OF MATERIALS:

1. All materials shall be new and delivered to the site in original, unbroken containers.

2. All materials shall be inspected by the Contractor at time of delivery and Contractor shall reject material evidencing damage or other defects.

3. Contractor shall provide secure and environmentally compatible storage facilities for all materials in accordance with the recommendations of the manufacturer.

PROJECT SCHEDULE:

1. Contractor shall attend a Project Initiation Conference, prior to the commencement of work at the site. Attending this Conference on behalf of the Contractor shall be a representative of FIT and the Project Manager assigned to the project. Contractor shall submit at this Conference a detailed timeline indicating the important milestones of the project and establishing an estimated date of substantial completion in accordance with Contract Documents. He/she shall also present all submittals required by the Contract Documents, such as Insurance Certificates, product tear sheets (not at the initial conference), copy of the General Liability insurance policy (amended to reflect required additional insureds), etc. Project access, storage locations, required crew size and other relevant issues shall also be addressed at this Conference.

2. Time is of the essence. Contractor shall be required to commence work of the **Museum Lighting** (GC) project within five (5) working days of receipt of a Notice to Proceed from FIT. The shop drawings process and ordering need to proceed first. Work shall commence on or about **December 1st, 2023**. Contractor must be de-mobilized and leave the job site on **June 1, 2024**. Only close- out, administrative tasks may continue beyond the closing date. Unless otherwise specified, the work is to be performed solely between the hours of **7:00 A.M. to 6:00 P.M.** Monday through Friday, legal and union holidays excluded. All labor costs encountered to meet this deadline are the sole responsibility of the Contractor and shall be included in the Bid Price. FIT reserves the right, at no financial liability associated with the same, to put the Project work on hold on as many as three (3) separate occasions during the course of the Project for any length of time and for any reason**.**

3. On Monday of each week during the construction period, the Contractor shall email to FIT's Facility Director (or such other individual as FIT may designate at its sole discretion) a written report outlining the work completed during the preceding week and the work planned for the upcoming week. Included will be any unforeseen or anticipated problems regarding implementation of the work, in addition to Change Order requests, submission data, etc. Daily reports **MUST** be submitted to the CM and or the Facilities Department Designee.

4. Job meetings will be held at the site on dates to be determined by Architect and FIT. These meetings shall be attended by an officer of the Contractor, the Project Manager, FIT's representative, and the Architect. The purpose of these meetings will be to review the status of the project, discuss any potential changes to the project scope, and resolve

any problems relating to successful completion of the work.

5. Owner's meetings will be held weekly via zoom and in person when needed. The dates to be determined by the Architect and FIT. These meetings shall be attended by the Contractors Project Manager, FIT, and the Architect. The purpose of these meetings is to keep the Owners informed of the process and to discuss any issues relating to the successful completion of the work.

PAYMENT:

In accordance with, and in addition to, the payment requirements of the Contract Documents, the Contractor shall provide sufficient and appropriate documentation for all invoices to FIT including submittal of invoices for actual cost of materials, labor rates, and certified payrolls. Filing of such payrolls shall comply with the New York State Labor Law and is a condition precedent to payment. FIT reserves the right to request additional information and/or documentation at any time.

Contractor is required to submit Monthly Contractor's Compliance Form (as attached in Section XII. Affirmative Action Form) with each Payment Requisition.

Contractor is required to submit a Certificate of Monthly Payment/Lien Waiver signed by each Sub-contractor with each Payment Requisition.

Contractor is required to submit Waste Management Form with each Payment Requisition.

LABOR HARMONY:

A. Contractor is advised that he/she must maintain labor harmony throughout the duration of the Contract. All labor disputes, slowdowns, strikes and/or sympathy actions will be the sole responsibility of the Contractor to resolve in order to maintain harmony.

B. All costs, delays and scheduling impacts associated with any labor dispute that arises from such action or inaction will be borne by the Contractor.

C. Contractor will also be responsible for all costs, damages and scheduling impacts which affect and disrupt any other workers on site as well as FIT employees.

D. It will be the Contractor's responsibility to resolve all labor disputes immediately.

Contractor is further advised that FIT has a large union presence on the campus. All work performed by the Contractor must provide the required labor harmony to perform work without labor incident or dispute which can delay, obstruct or effect the work and project schedule, or interfere with FIT's ability to operate.

II. GENERAL NOTES

In accordance with, and in addition to, the requirements of the Contract Documents:

1. All work listed on the construction notes and shown or implied on all drawings shall be supplied and installed by the Contractor unless otherwise noted on drawings and/or in specifications.

2. Contractor to determine coordination of trades.

3. Contractor shall verify all dimensions and conditions shown on drawings and shall notify FIT Facilities Director and Architect of any discrepancies, omissions, and/or conflicts before proceeding with the work.

4. Contractor must comply with the rules and regulations of agencies having jurisdiction and shall conform to all construction and safety codes, statutes and ordinances. All fees, taxes, permits and applications to be obtained through governmental agencies shall be the responsibility of the Contractor.

5. Contractor shall comply with the rules and regulations of the building as to hours of availability of loading docks and elevators for the purposes of delivery, waste removal and other needs related to the work. Coordination with FIT Facilities Department is required for the handling materials, movement in and out of building, equipment and debris to avoid conflict and interference with normal building operations.

6. All drawings and construction notes are complementary and what is called for by any will be binding as if called for by all.

7. Contractor shall maintain a current and complete set of construction documents on the construction site during all phases of construction.

8. Do not scale drawings; dimensions shown govern. Larger scale drawings shall govern over smaller scale.

9. Contractor shall maintain a current and complete set of shop drawings on the construction site.

10. Contractor shall maintain a current and complete RFI (Request for Information) log on the construction site.

11. Contractor shall submit for approval, prior to commencing work, a list of all sub-contractors to FIT's Facilities Director, with the name, address and phone number of the principal contact of each sub-contractor. In addition, he will file with the owner the emergency numbers available for 24-hour contact.

12. All work shall be performed by skilled and qualified workmen in accordance with the best practices of the trades involved and in compliance with building regulations and/or governmental laws, statutes, or ordinances.

13. All materials shall be new, unused and of professional quality, unless otherwise noted, installed as per manufacturer's recommendations and instructions.

14. For purposes of the Specifications and Drawings sections in the Contract, the use of the words "Supplied By" or "Provided" in connection with any item specified is intended to mean that such item shall be furnished, installed and connected where so required.

15. All approvals of submittals shall be for design intent only. Contractor shall be responsible for quantities, dimensions and compliance with Contract Documents and for information pertaining to fabrication processes or techniques of first class construction and for coordination with other trades.

16. All work shall be erected and installed plumb, level, square, true and in proper alignment.

17. Contractor shall be responsible for cutting, patching and restoration required for this work.

18. If, during the course of construction, Contractor believes materials that might contain asbestos may be disturbed during performance of the work, Contractor shall immediately notify FIT of the area(s) of concern, and stop work if that area would be disturbed by the continuing work.

19. All correspondence to FIT shall be directed to the attention of the FIT Facilities Director with a copy of the same forwarded to the Architect.

20. Contractor shall at all times keep the premises free of accumulation of waste materials and rubbish; premises to be broom swept clean daily. At the completion of the work, Contractor shall leave the job site free of construction debris and materials, and "broom clean" including thorough cleaning of toilets, bathrooms, electrical closets, stairwells, and all areas of work or staging, etc.

21. Contractor shall provide all necessary protection against dirt and damage within the premises, as well as public areas, and shall be responsible for keeping these areas clean and free of materials at all times.

22. Contractor shall verify location of existing utilities and coordinate with location shown on drawings.

23. During construction, security and fire exit doors must remain unobstructed at all times.

24. Contractor shall take every precaution to properly protect all existing construction to remain. Contractor shall be responsible for all damaged areas to be returned to original condition.

25. Contractor shall schedule construction in such a manner so as not to disturb areas outside of the area under construction during normal operating hours. The Contractor shall coordinate with FIT Facilities Director minimum of 24 hours prior to any disruption of services to those areas not under construction even if such a disruption occurs during or after normal operating hours.

26. Contractor shall staff the project with a Project Manager with at least 5 years' experience in this type of project scope, with similar complexity and schedule requirements.

27. The acceptance of shop drawings containing deviations not specifically brought to the attention of FIT, or containing errors or omissions of any sort, shall not relieve Contractor of the responsibility for executing the Work in accordance with the Contract Documents and Contract Terms and Condition.

III. DEMOLITION NOTES

In accordance with, and in addition to, the requirements of the Contract Documents. It shall be Contractor's responsibility to perform the following:

1. Prior to commencement of selective removals and demolition work, inspect the areas in which the work will be performed.

2. Any asbestos contaminated material will be removed by FIT's certified asbestos abatement contractor prior to the work of this contract.

3. Provide temporary barricades and other forms of protection required to protect all FIT personnel, inclusive of its faculty, staff and students as well as the general public from injury due to selective removals and demolition work.

4. Remove and dispose of exposed bolts, supports, brackets, cleats, grounds, and other items, that are no longer required for the purpose for which they were originally installed.

5. Where existing work is required to be removed and replaced but found to be defective in any way, it shall be reported to the FIT Facilities Director and Architect before it is disturbed.

6. All existing work damaged or lost as a result of performing the required new work, shall be patched, repaired or replaced with new, and finished to match the existing work, or as the individual case requires at the Contractor's expense.

7. Perform cutting, drilling and removals in a manner which will prevent damage to construction which is to remain.

8. Promptly repair any and all damages to all property and finishes caused by the removals and demolition work; to FIT's satisfaction and at no extra cost to FIT.

9. Cut, patch, paint and finish existing walls, ceiling and/or floor disturbed to match existing.

10. Perform patching around items penetrating existing construction in a manner that will maintain the water and fire resistive capability of existing construction. Should either of these be compromised, it is the responsibility of the Contractor to repair prior to completion.

11. Remove debris, rubbish and other materials resulting from the removals and demolitions from the building immediately; transport and legally dispose of materials off-site. Disposal method shall be in accordance with city, state and federal statues regulations, and ordinances.

12. Work of this section shall conform to all requirements of the New York City Building Code and all applicable regulations and guidelines of all governmental authorities having jurisdiction, including, but not limited to, Safety, Health and Anti-Pollution regulations.

13. Work is to conform to OSHA requirements.

IV. ADDITIONAL CONTRACTOR'S RESPONSIBILITIES

In accordance with, and in addition to, the requirements of the Contract Documents:

1. Contractor shall coordinate all work with FIT Facilities Department and Director.

2. Contractor to provide daily crew manpower log/count to FIT.

3. Contractor shall perform work in a neat workmanlike manner in accordance with accepted industry standards**.**

4. FIT Facilities Department shall notify Contractor before commencing work which floors are accessible by Contractor.

5. Contractor shall mask all signs, window frames, door frames, etc. when painting around them.

6. Contractor shall use Benjamin Moore, Regal Paint, or approved equal.

7. Employee Identification and Building Access: All Managers and their crew must wear at all times company identification. All Managers and their crew must sign in and out, upon entering and leaving the facility, at the FIT front security desk.

8. After Bid opening, FIT will evaluate and review submissions and notify the lowest Bidder, who is deemed most responsive and responsible. Within five (5) business days of such written notification, such Bidder shall submit the following information. Failure to comply with these requirements in whole or part shall constitute grounds for rejection of the Bid. FIT reserves the right to

determine whether a Bidder has substantially met these requirements and to ask for additional information. Documentation of the following:

a. Health and safety training program and procedures for employees and on-site EHS Coordinator.

b. Copies of current licenses and certifications applicable to the Work, including but not limited to licenses issued by the Fire Department of New York, Department of Buildings of the City of New York, must be provided to FIT Facilities.

9. Contractor shall complete the attached Outline for Preparing Work-Specific Environment, Health and Safety Plan ("EHS Plan") which will be reviewed and approved by FIT's EHS Compliance Director prior to commencement of work. Contractor shall include the costs of completing the EHS Plan in the Bid price. Proof of the 10 Hour OSHA Outreach Training Program for Construction certificate will be required.

10. Contractor shall provide as described in the FIT Safety EHS Plan, legible copies of SDS sheets and estimates of anticipated amounts of chemicals Contractor intends to store on site to the FIT's Director of EHS Compliance for review and approval at least ten (10) days before Contractor allows on-site storage.

11. Contractor shall ensure that legible copies of all SDS are available at the location of chemical storage and available for review at all times. Contractor shall take all necessary precautions necessary to prevent vapors, fumes, or dust from leaving the work area. This includes but is not limited to the construction of negatively ventilated containments as controls.

12. Contractor shall provide as described in the FIT Safety EHS Plan a written statement of the types of project waste disposed, including the amounts and the name of the waste disposal facility for each type of waste disposed. Contractor shall provide the statement with each Payment Application. Contractor shall provide a separate copy of the statement to FIT's Director of EHS Compliance.

13. Contractor may not store Hazardous Waste on site at any time. Contractor may not generate or accumulate Hazardous Waste on site without the written approval of FIT's Director of EHS Compliance. Contractor shall obtain FIT's Director of EHS Compliance approval at least ten (10) days before the Contractor generates or accumulates Hazardous Waste on site beginning with demolition work.

14. Off-site shipments of Universal or Hazardous Waste. The Contractor may not allow the off-site removal of Universal or Hazardous Waste without the written approval of the FIT Director of EHS Compliance. Contractor will ensure that the FIT Director of EHS Compliance alone signs any shipping

papers for the off-site removal of Universal or Hazardous Waste.

15. Contractor's personnel must report daily to the FIT Security area in the Lobby of Building "C", the Feldman Center before entering FIT's site. All Contractor's personnel must obtain temporary FIT identification that shall be displayed at all times while on the FIT site. While on FIT property, all Contractor's personnel shall be subject to all FIT campus policies and procedures, including, but not limited to, prohibitions related to tobacco, drug, and alcohol use, and policies and procedures regarding appropriate and civil conduct. Contractor's personnel shall not fraternize with FIT students and employees beyond what is necessary to complete their work or any assigned Projects. FIT policies may be found at https://www.fitnyc.edu/policies/. FIT reserves the right, in its sole determination, to eject from the campus, any Contractor personnel violating such policies, in addition to any other rights and remedies.

V. PERMITS

Contractor shall be responsible for obtaining all required Permits and paying all costs and fees associated therewith. New York City Department of Buildings (DOB) Work Permit will be required for this project. Contractor will also be required to perform the following functions as it relates to this project:

A. Contractor shall submit to FIT and Architect appropriate Workman's Compensation and New York State Disability insurance certificates for use in securing the required Work Permits to be posted at the site. The Contractor shall provide FIT's Facility Director with the appropriate insurance tracking numbers assigned to their firm by the NYC Department of Buildings.

B. The Contractor shall submit to FIT and Architect a copy of all Licenses as issued by the NYC Department of Buildings.

C. Permits for the work shall be posted by the Contractor in a conspicuous location at the site at all times. No work shall begin until the necessary DOB work permits have been obtained by the Contractor.

D. The Contractor shall be responsible for obtaining any other governmental permits and approvals required to undertake the work, and shall pay any and all fees associated therewith.

VI. PROJECT MANAGER

1. The Contractor shall provide the services of an experienced Project Manager,

who shall be in continual responsible charge of the work and shall have a valid Certificate of Fitness by the New York City Department of Buildings.

2. The Project Manager shall be on site at all times, shall speak fluent English, shall maintain on the site a complete set of these specifications (including any addenda and/or change orders, as well as all project drawings and all applicable manufacturers' instruction sheets), and shall have full authorization to make all field changes as directed by FIT's Facility Director and Architect.

3. The Project Manager shall be required to maintain a daily log at the site indicating the following:

   -the date

   -the number of workers at the site on said date

   -the specific portions and locations of the Work completed on said date

4. The Project Manager (or another authorized representative of the Contractor) shall telephone FIT's Facility Director at least once daily throughout the construction period, to report on the day's activities and the work planned for the following day.

5. The name of the Project Manager shall be submitted to FIT's Facility Director prior to initiation of the project. This Manager shall remain in charge of the project for its entire length, at FIT's discretion, unless said Manager no longer remains in the employ of the Contractor. In such case, a capable and experienced replacement shall be immediately assigned subject to approval by FIT's Facilities Director.

6. No telephone service is available at the site for use by the Contractor; therefore, the Contractor shall equip the Project Manager with a cellular telephone at the site for the duration of the Project. The Contractor shall provide FIT and Architect with the appropriate contact numbers at the initiation of the Project.

VII. SUBMISSIONS AND SUBSTITUTIONS

1. All submissions called for in the Contract Documents shall be submitted at least twenty (20) working days prior to proposed initiation of any related work.

2. FIT and FIT's Architect and Engineer will review and accept or take other appropriate action regarding Contractor submittals such as Shop Drawings, Product Data and Samples, but only for the limited purpose of checking for conformance with information given and the design concept expressed in the Contract Documents. FIT's review of all shop drawings submitted by the Contractor shall be for concept only and does not remove the Contractor's

responsibility for insuring that all specific details of the installation shall be performed in such a way so as to achieve satisfactory results. Acceptance by FIT and the Architect of Contractor submittals does not relieve the Contractor from responsibility for errors which may exist in the submitted data.

3. Where the phrase "or approved equal" or "equal as approved by FIT" occurs in the Contract Documents, the Contractor may not assume that the materials, equipment, or methods will be approved as equal unless the item has been specifically approved by FIT and the Architect.

4. Any proposed substitute products or procedures are to be submitted to FIT's assigned Architect/Engineer for prior approval with any proposed price adjustments to the contract within 14 days of the signing of the agreement between FIT and the Contractor, so that FIT and the Architect are permitted adequate time for review.

VIII. PROGRESS PAYMENTS

1. All submissions called for in the Contract Documents shall be submitted at least twenty (20) working days prior to proposed initiation of any related work.

2. Progress payments will be made to the Contractor based solely on actual work completed. Furthermore, payment will not be made for the purchase of materials, nor for their transfer onto the site, nor for any costs associated with mobilization.

3. Payment requests shall be submitted to FIT's Facilities Director on AIA Documents G702 and G703.

4. Payments will be authorized based upon FIT's field visits and review of work. All FIT's decisions regarding progress payments shall be final.

5. The values quoted on the bid form shall constitute the Schedule of Values for AIA Document G703. Additional breakdown of the bid form shall be provided on the Schedule of Values and will be used for progress payments.

6. No progress payments will be processed without submission by the Contractor of properly executed Affidavit of Payment and Release of Liens (AIA Documents G706 and G706A or equivalent forms as may be requested by FIT), up-to-date weekly written reports and timeline in bar chart form, and all submittals, certificates, permits, etc. required pursuant to the terms of the contract.

7. A 10% retainage shall be deducted from all progress payments made by FIT.

8. Payment requests shall be submitted to FIT not more than once per month.

9. Contractor shall provide sufficient and appropriate documentation for all

invoices to FIT including submittal of invoices for actual cost of materials, labor rates and certified payrolls. Filing of such payrolls shall comply with the Labor Law and is a condition precedent to payment. FIT reserves the right to request additional information at any time. Contractor required to submit Monthly Contractor's Compliance Form with each Payment Requisition.

10. Contractor required to submit a Certificate of Monthly Payment signed by each Sub- contractor with each Payment Requisition.

11. Contractor shall be required to submit a detailed Trade Payment Breakdown.

IX. SITE VISITS BY ARCHITECT/ENGINEER

1. Failure by Architect/Engineer to detect and/or notify the Contractor of any aspect of the Contractor's actions or materials that are not in conformance with the Contract Documents shall not remove the Contractor's responsibility to adhere to the Contract Documents in all instances, including but not limited to the Contractor's responsibility to expeditiously correct and/or replace all defective work.

2. Architect/Engineer will be the final judge as to whether the work is satisfactorily performed, and shall have the authority to order that any work deemed unacceptable or not in conformance with the Contract Documents be redone by the Contractor at no cost to FIT.

3. Architect/Engineer shall have no responsibility for the presence, discovery, identification, handling, removal or disposal of, or exposure of persons to hazardous materials in any form at the Project site.

X. CHANGE ORDERS

1. FIT may order changes in the work of any quantity and without invalidating the Agreement so long as the Contract Sum and/or Contract Time of Completion are adjusted accordingly. All such changes in the work shall be authorized by written Change Order. All Change Orders shall be reviewed by Architect and authorized by a representative of FIT.

2. No work shall be performed by the Contractor unless it is specifically included in the Contract Scope of Work or authorized in advance by a bulletin issued by the Architect which will serve as the backup paperwork for a change order. The contractor needs to submit a Change Order. All work to proceed prior to approval of change orders. Change Orders will be negotiated fairly in separate meetings. All written Change Orders are to be signed by all parties.

3. Any sums to be paid to Contractor as a result of any Change Order or any sums to be credited to FIT as a result of any Change Order shall be computed by one of the following methods:

   (1) As agreed upon between the parties to the contract in writing prior to commencement of the work required by the Change Order, or;

   (2) By Unit Prices detailed in the Contract Documents or subsequently agreed upon.

XI. GUARANTEES

1. All work on this project shall be guaranteed by the Contractor for a period of not less than five (5) years, or longer where covered by manufacturer warranty. Warranty to start on the day of the final signoff by FIT.

2. If within the guarantee period any of the work is found to be defective or not in conformance with the Contract Documents, the Contractor shall correct it promptly at his own expense after receipt of written notice from FIT.

XII. FINAL PAYMENT

1. Final payment (retainage) shall be released to the Contractor thirty (30) days after the project has been signed off by FIT and Architect/Engineer and the Contractor has satisfied all requirements of the Contract Documents.

2. In addition to any other requirements of the Contract Documents final payment shall not become due until the Contractor has delivered to FIT and Architect a fully executed 1-year guarantee for all work performed under this project, as well as a complete release of all liens arising out of this Contract, or receipts in full covering all labor, materials, equipment, applicable finance charges, and fines for which a lien could be filed. If such lien remains unsatisfied after payments are made, the Contractor shall refund to FIT all money that FIT may be compelled to pay in discharging such lien, including all costs and reasonable attorneys' fees.

3. A Performance Bond and a Labor & Material Payment Bond, a copy of the "Contractor's Affidavit of Payment of Debts and Claims (AIA Document G706)" and "Consent of Surety to Final Payment (AIA Document G707)" shall be submitted by the Contractor prior to the release of final payment.

4. One (1) set each of record drawings (measuring 24 inches by 36 inches) indicating the "As- Built" manner of installation of all work, shall be submitted to FIT prior to the release of final payment.

5. Once the project has reached substantial completion, FIT and Architect will prepare a "Certificate of Substantial Completion". This certificate must be signed by all parties (Engineer, FIT and Contractor), to acknowledge the date the project has reached substantial completion, and confirm agreement on a final punch-list of work to be performed. The Contractor shall be responsible for completing all punch-list items prior to release of final payment.

XIII. SUPPLEMENTAL CONDITIONS

Project Schedule. Contractor shall complete all work as specified within the time period specified in the Contract Documents, inclusive of rain days, but excluding any shutdowns authorized by FIT.

XIV. PREVENTIVE MAINTENANCE SCHEDULE

Prior to final payment, the contractor shall provide a recommended maintenance schedule from the manufacturer for quarterly, semi-annual and yearly requirements, including part numbers where applicable, upon completion of the job.

BID ANALYSIS FORM FOLLOWS

ATTACHMENT C – BID ANALYSIS FORM

FASHION INSTITUTE OF TECHNOLOGY &
MUSEUM LIGHTING (GC)
INVITATION FOR BID NUMBER C1590
NYS PREVAILING WAGE SCHEDULE PRC # 2023007526

BID BREAKDOWN

Line	Description	Total LaborCost	Total Materials, Tools & Equipment	Line Total
1	SELECTIVE DEMOLITION	$	$	$
2	MASONRY	$	$	$
3	LIGHTWEIGHT INSULATING CONCRETE	$	$	$
4	METALS	$	$	$
5	WOOD, PLASTICS &COMPOSITES	$	$	$
6	THERMAL & MOISTURE PROTECTION	$	$	$
7	OPENINGS	$	$	$
8	FINISHES	$	$	$
9	SPECIALTIES	$	$	$
10	EQUIPMENT	$	$	$
11	FURNISHINGS	$	$	$
12	PLUMBING	$	$	$
13	HVAC	$	$	$
14	ELECTRICAL	$	$	$
15	ELECTRONIC SAFETY &SECURITY	$	$	$
16	GENERAL REQUIREMENTS	$	$	$
17	GENERAL CONDITIONS	$	$	$

TOTAL BID PRICE (1-17) **$_____**

As stated in Section IV of the front-end documents: Subcontracting shall be permitted **not to exceed 60%** of the work of the project. Please provide the ratio of the contractors and subcontractors work that will be used on this project.

Contractor _____%, Subcontractor(s) _____%

For Bidding Purposes: the following sections pricing should cover the following items:

General Requirements: permits & licenses; project meetings; administrative overhead for submissions and shop drawings; progress photos; temporary facilities & controls; storage & protection of materials; project closeout; and project record documents.

General Conditions: supervision of work; all testing; coordination drawings; safety programs; insurance and performance & payment bonds.

The undersigned, having carefully examined all Contract Documents, including Notice to Bidders, Bid Terms and Conditions, Contract Terms and Conditions, General Requirements, General Conditions, Labor & Material Payment Bond, Performance Bond, Form of Bid, Non-Collusive Bidding Certification, Substitution Form Request, Contract, Affirmative Action Form, Change Order, Form, Contractor's Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Specifications, and Drawings and having examined the existing conditions by on-site visit(s), hereby submits this Bid Analysis, covering all labor, materials, equipment, tools, machinery, licensing, insurance, taxes, and fees required to perform the specified work at the above-referenced site, in accordance with the Contract Documents. **No exclusions & no exceptions**.

Company Name and Address of Bidder:

_____

_____

_____

Signature of Bidder _____ Date_____

Printed Name and Title of Representative: _____

Email Address: _____

Telephone:_____

EIN#:_____

IMPORTANT:
This bid analysis form is the **only** pricing format acceptable. Bidders **must** submit pricing using this form. **FIT will not accept bid responses on any other form.**

NOTE:
FIT will not sign any bidder generated contract, agreement or scope of work. FIT Bid and Terms and Conditions apply. Bidder requirement for FIT to sign any document will be grounds for rejection. Bidder inclusion of any conditions, clarifications, exceptions or changes which are not in compliance with FIT Bid and Terms and Conditions will be grounds for rejection.

SECTION IV.
GENERAL REQUIREMENTS

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01010 -- SUMMARY OF THE WORK

.01 - Work Under The Contract

The Work shall be as described in the Contract Documents.

.02 - Work by Others

Should any other contractor be engaged by the Owner to perform work on the Site or in areas adjoining or adjacent to the Site, the Contractor and such other contractor shall coordinate the work of the Contractor and such other contractor.

.03 - Items Not Included

The following items shown on the drawings are not included in the Work:

A. Items indicated "By Others".

B. Items indicated "N.I.C." (Not in Contract)

C. Existing construction not indicated or specified to be removed, replaced or altered.

.04 - Openings and Chases

A. The Contractor shall build openings, including but not limited to channels, chases and flues as required to complete the Work as set forth in the Contract and as directed by the Owner before any work is installed.

B. After the installation and completion of any work for which openings, including but not limited to, channels, chases and flues, have been provided for the Contractor, the Contractor shall build in, over, around and finish all such openings as required to complete the Work.

C. If a contractor fails to furnish drawings and information required in connection with such openings before the General Construction Contractor performs any Work affected thereby, said contractor who so fails to furnish such drawings and information shall bear the cost of all cutting and refinishing including that part of the General Construction Contractor’s Work affected.

D. The Contractor shall Furnish and Install all sleeves, inserts, hangers and supports required for the execution of the Work.

E. Specific instructions shall be obtained from the Owner or the Owner's Representative before cutting beams or other structural members, arches or lintels.

F. The Contractor shall not endanger the Work and shall not cut or alter the Work unless prior approval and instructions are received from the Owner or the Owner's Representative.

.05 - Surveys and Layout

A. If, for any reason, stakes, batter boards or monuments are disturbed, it shall be the responsibility of the Contractor to reestablish them.

B. The Owner or the Owner's Representative may order construction work suspended at any time when location of monuments, stakes, bench marks and other layout markings established by the Contractor are not adequate to permit checking the Work.

C. The Contractor shall Provide and shall maintain axis lines on each floor and shall establish and shall maintain grade marks 4' 0" above the finished floor on each floor level.

D. The Contractor shall Furnish such stakes and other required equipment, tools and materials, and all labor as may be required in laying out any part of the Work.

.06 - Scheduling

A. The Contractor shall deliver to the Owner schedules and forms in accordance with the Contract.

B. The Owner or the Owner's Representative may require the Contractor to modify schedules which the Contractor has submitted either before or after such schedules are approved so that:

1. The Work shall not be delayed.

2. Changes in the Work are reflected in the schedules of the Contractor.

.07 - Contractor Use of Premises

While performing the Work, the Contractor shall take every precaution against injuries to persons and damage to property.

01080 -- PERMITS AND COMPLIANCE

.01 - Permits and Licenses

The Contractor shall obtain, maintain and pay for all permits and licenses necessary for the execution of the Work and for the use of such Work when completed.

Prior to final payment the Contractor shall deliver to the Owner’s Representative all permits and certificates of approval issued by any agency having jurisdiction.

.02 - Compliance

The Contractor shall give all notices, pay all fees and comply with all laws, rules and regulations applicable to the Work.

.03 - Additional Compliance

The Contractor, Subcontractors, and the employees of the Contractor and Subcontractors, shall comply with all regulations governing conduct, access to the premises, operation of equipment and systems and conduct while in or near the premises and shall perform the Work in such a manner as not to unreasonably interrupt or interfere with the conduct of business of the Institution.

.04 - Royalties and Patents

It is the sole responsibility of the Contractor to determine what, if any, patents are applicable to the Project. The Contractor shall pay all royalties and/or license fees. The Contractor shall defend all suits or claims for infringement of any patent rights and save the Owner, Architect, Engineer, Environmental Consultant and Construction Manager harmless from loss, including attorney's fees, on account thereof.

01200 -- PROJECT MEETINGS

.01 - Project meetings shall be held to accomplish the following:

A. Coordinate the Work.

B. Establish a sound working procedure and relationship between all contractors, the Owner and the Owner's Representative.

C. Review requisitions, proposals and change orders.

D. Review the progress of the Work, review quality of work in place and review approval required by the Work and review delivery of materials.

E. Expedite the Work to completion within the scheduled time limit.

F. Review progress payments.

.02 - Initial Job Meeting (Orientation Meeting)

The Owner or the Owner's Representative shall call an initial job meeting which the Contractor shall attend. This meeting shall be called prior to the start of construction.

.03 - Job Progress Meetings

A. Job progress meetings shall be scheduled by the Owner or the Owner's Representative during the course of construction. The Contractor or the Contractor's duly authorized representative and such Subcontractors as required by the Contractor or the Owner or the Owner's Representative shall be present at all job progress meetings. The Contractors and Subcontractors shall answer questions on progress, workmanship, approvals required, delivery of material and other subjects concerning the Work. The purpose of such meetings is to coordinate the efforts of all

concerned so that the Work proceeds without delay to completion as required by the Contract.

B. The Owner or the Owner's Representative may require any schedule to be modified so that changes in the Work, delays or acceleration of any segment of the Work shall be reflected in such schedule. The Contractor shall cooperate with the Owner or the Owner's Representative in providing data for such changes in or modifications of schedules.

01300 -- SUBMITTALS

.01 - Schedules & Records

A. Within the time set forth in the Contract, the Contractor is required to complete and submit to the Owner or the Owner's Representative the following forms:

1. Submit construction progress schedule to the Owner or the Owner's Representative no later than thirty (30) calendar days after receipt by the Contractor of notice to proceed.

2. Submit names and addresses of all Subcontractors to the Owner or the Owner's Representative within thirty (30) calendar days of approval of the construction progress schedule.

3. Submit to the Owner or the Owner's Representative the date on which the Contractor proposes to award each subcontract a minimum of ten (10) days prior to such proposed award.

4. Submit Shop Drawings and material sample schedule to the Owner or the Owner's Representative no later than thirty (30) days after approval of the construction progress schedule. Such schedule shall include the date of all Shop Drawings, samples and materials shall be submitted and the date approval is required.

5. Submit to the Owner or the Owner's Representative on a form approved by the Owner, a schedule of anticipated monthly requisition amounts. Such schedule shall be submitted from time to time as directed by the Owner, the first such submission being required to be made by the Contractor within ten (10) days of receipt by the Contractor of a written order to proceed issued by the Owner. The amounts employed in preparing such schedules in no way shall be binding upon the Owner.

B. Sample forms shall be provided by the Owner or the Owner's Representative for the above mentioned schedules and records.

01311 – PROJECT ANALYSIS

.01 - Project Control and Progress Meetings

A. The Contractor shall attend all scheduling meetings as directed by the Owner or the Owner's Representative.

B. In addition to the Owner or the Owner's Representative and the Contractor's Superintendent and Scheduling Coordinator, such meetings shall also be attended by representatives of such subcontractors as the Contractor, the Owner or the Owner's Representative may deem advisable. The agenda for such meetings shall include the progress and current status of the Work, proposed solutions for problem areas and a review of schedules for future Work in order to meet the Contractor's objectives and his obligations under the Contract. Consideration shall be given to establishing actual start dates, actual completion dates, planned starts and finishes, quantities installed, man hours worked, as well as other data relevant to the performance of the Contract.

C. At least one week before each meeting described in subsection .01A of this Division 01311, the Contractor shall furnish progress data in the form required by the Owner or the Owner's Representative as follows:

1. The status of all activities as of date determined by the Owner or the Owner's Representative.

2. A list of actual start and completion dates for all activities.

3. Projected durations of completion of those activities in progress.

4. Relevant data of submittals in progress including equipment releases and equipment in fabrication.

5. All other information which in the discretion of the Owner or its Representative, may be required to complete the Project Schedule Update.

.02 – Payment

The Contractor's Payment Breakdown and Monthly Requisition as called for by Section 17.01 of the General Conditions of the Contract shall be the basis by which the Contractor is to be paid.

.03 - Time of Completion

It is the sole responsibility of the Contractor to complete the Work within the time of completion required by the Contract.

01340 -- SHOP DRAWINGS AND SAMPLES

.01 - Contractor Submittal

A. The Contractor shall submit the Shop Drawings and samples required by the Architect and the Contractor shall adhere to all submittal and scheduling requirements for Shop Drawings and samples. After examination of such Shop Drawings and samples by the Architect and the return of such items by the Architect to the Contractor, the Contractor shall make corrections indicated and shall furnish to the Architect the required number of corrected copies of Shop Drawings or samples.

B. Shop Drawings shall be accompanied by a letter of transmittal to the Owner or the Owner's Representative requesting approval and date approval is desired.

C. Each Shop Drawings and letter of transmittal shall be identified with the following information:

1. Project title

2. Contract name

3. Date of the drawing, including dates of any revisions

4. Name of Contractor, name of Subcontractor, material supplier and manufacturer, as applicable

5. Name of person or firm preparing Shop Drawings

6. Contract drawing numbers and specifications, section division and paragraph numbers used as references in preparing Shop Drawings, and titles of items to which the Shop Drawing refers.

D. Shop Drawings shall show the design, dimensions, connections and other details necessary to insure that the Shop Drawings accurately interpret the Contract Documents and shall also show adjoining Work in such Detail as required to provide proper connections with said adjoining Work. Where adjoining connected Work requires Shop Drawings, such Shop Drawings shall be submitted to the Owner or the Owner's Representative for approval at the same time so that connections can be checked.

E. The Contractor shall verify all field measurements. Measurements available prior to submittal of Shop Drawings shall be shown and so noted on the Shop Drawings. Measurements not available prior to submission of Shop Drawings shall be noted on the Shop Drawings as not available and such measurements shall be obtained prior to fabrication.

F. The Contractor shall submit manufacturer's drawings and specifications when necessary to fully explain apparatus or equipment required by the Work. These manufacturer's drawings and specifications shall be treated as Shop Drawings. Manufacturer's catalog numbers alone are not acceptable as sufficient information for compliance with this requirement.

G. Samples shall be accompanied by a letter of transmittal to the Owner or the Owner's Representative requesting approval, and date approval is desired.

H. Each sample shall be labeled with the following information:

1. Project title

2. Contract name

3. Date of submission

4. Name and quality of the material

5. Name of Contractor, name of Subcontractor, material supplier and manufacturer, as applicable

6. Contract drawing numbers and specification section, division and paragraph numbers used as reference in preparing samples.

I. Samples shall be of sufficient size and number to show the quality, type, color, finish and texture of the material required to be furnished by the Contractor pursuant to the Contract.

.02 - Contractor Review

The Contractor shall review, verify and determine all field measurements, field construction criteria, materials, catalog numbers and similar data, shall coordinate each Shop Drawing and sample with the requirements of the Contract and shall determine whether or not such Shop Drawings are in conformity with the provisions of the Contract before submitting the Shop Drawings to the Architect for approval.

.03 - Contractor Responsibility

The Architect's approval of Shop Drawings and samples shall not relieve the Contractor of responsibility for any deviation from the requirements of the Contract. The Contractor shall be responsible for the accuracy of the Shop Drawings and samples and for the conformity of Shop Drawings and samples with the Contract unless the Contractor has notified the Architect of the deviation in writing at the time of submission and has received from the Architect written approval of the specified deviations. The Architect's approval shall not relieve the Contractor of responsibility for errors or omissions in the Shop Drawings or samples.

.04 - Commencement of Work

No portion of the Work shall be commenced until required Shop Drawings or samples are approved by the Architect.

01380 -- PROGRESS PHOTOGRAPHS

.01 - Contractor Submission

A. The Contractor shall furnish to the Owner, progress photographs of the Work as follows: three (3) 8" x 10" glossy prints of each of the following views:

1. Two (2) different views of the area in which the building or buildings are to be located, taken before excavation starts.

2. Two (2) different views for each building when footings are in place and forms completed.

3. Four (4) different views for each building when foundations are completed.

4. Four (4) different views for each building when exterior wall is fifty per cent (50%) completed.

5. Four (4) different views for each building when the structure is ready for roofing.

6. Four (4) different exterior views in color for each building at completion.

7. Six (6) interior views in color for each building as directed upon completion.

B. A title identifying the view shown by each photograph and date taken shall appear on the back of each print.

01500 -- TEMPORARY FACILITIES AND CONTROLS

.01 - Requirements

The Contractor shall Provide the temporary facilities and controls as hereinafter specified and as required by law.

.02 - Temporary Lighting and Electric Service

The Contractor shall Provide and maintain all temporary lighting and power required in connection with the Contractor's operations from the commencement of the Work until the completion of each structure or for such other time as

directed by the Owner or the Owner's Representative. When the use of such temporary lighting and power is no longer required, all temporary wiring and equipment shall be completely removed by the Contractor. The Contractor shall make the necessary application to the lighting company and pay for all charges, costs and expenses incidental to the installation and maintenance of temporary lighting and power as required in connection with the Contractor's operations, and the Contractor shall pay for all power used. The minimum temporary lighting to be provided is at the rate of one-quarter watt per square foot and is to be maintained in each room and changed as required when interior walls are being erected. The required temporary lighting must be maintained for twenty-four (24) hours a day and seven (7) days a week at all stair levels and in all corridors below ground; in all other spaces temporary lighting is to be maintained only during working hours. All temporary wiring and equipment shall be in conformity with the National Electric Code. Three-phase temporary power circuits shall be installed as required to operate construction equipment of the various trades and to Install and test equipment such as pumps and elevators. The Contractor shall Install and maintain temporary or permanent service for the permanently installed building equipment such as sump pumps, boilers, boiler controls, fans, pumps, so that such equipment may be operated when required and so ordered by the Owner or the Owner's Representative for drainage or for temporary heat.

.03 - Material Hoists

A. General

1. Material hoists shall be operated by diesel, gasoline or steam engines and shall be complete with all equipment necessary for operation. Such hoists shall run from grade to roof, shall be installed immediately following the structural framing, centering or form work, and centering or form work unless otherwise approved by the Owner or the Owner's Representative. Electrically operated hoists shall not be used except as otherwise allowed by the Contract.

2. Material hoists shall meet any and all requirements of law, rule or regulation.

3. Hoist cars shall be of required size and design for the hoisting of all normal size building materials.

B. The Contractor shall:

1. Furnish, install, maintain and operate at the Contractor's expense, all hoisting equipment required for the Work.

2. Furnish all labor required for the Work.

.04 - Temporary Use of Permanent Elevator as Equipment Material Hoist

A. The Contractor shall:

1. Use the temporary hoists until a building is completed, or until the Contractor may, with the Owner's permission, use the equipment of one (1) elevator in a building for temporary service after the permanent elevator equipment and the permanent electric service have been installed.

2. If the Contractor elects to use such permanent elevator equipment, the Contractor shall:

a. Provide adequate protection for such equipment and shall operate such equipment within a capacity not to exceed that allowed by law, rule or regulation.

b. Provide for the maintenance of the elevator equipment as approved by the Owner or the Owner's Representative.

c. Leave such equipment in perfect condition.

B. The permanent elevator equipment shall be ready for use when required by the Work and shall permit any use approved by the Owner or the Owner's Representative.

.05- Temporary Enclosures

The Contractor shall:

A. Provide, install and maintain any temporary weather resistant enclosures for all openings in exterior walls and roof that are not enclosed.

B. After building is enclosed, maintain proper temperatures required by the Contract.

.06 - Temporary Fence Enclosures

The Contractor shall Provide, Install and maintain any temporary fence enclosures required by the Contract.

.07 - Maintenance of Permanent Roadways

The Contractor shall immediately remove dirt and debris which may collect on permanent roadways due to the Work.

.08 – Traffic Control

A. Routes to and from the location of the Work shall be as indicated in the Contract or as directed by the Owner or the Owner's Representative.

B. Parking areas for the use of those engaged in the Work shall be as indicated in the Contract or as directed by the Owner or the Owner's Representative.

.09 - Fire Prevention Control

The Contractor Shall:

A. Provide private unlisted telephone service reserved for fire calls at a location or locations approved by the Owner or the Owner's Representative. Such service shall be in addition to any other telephone service. The Contractor shall pay all costs thereof until completion and acceptance of the Work or as otherwise directed by the Owner or the Owner's Representative.

B. Comply with the safety provisions of the National Fire Protection Association's "National Fire Codes" pertaining to the Work and, particularly, in connection with any cutting or welding performed as part of the Work.

.10 - Pollution Control

The Contractor shall:

A. Comply with all laws, rules and regulations governing pollution control, including but not limited to those of the Department of Environmental Conservation of the State of New York.

B. Take all necessary precautions including, but not limited to digging and maintaining settling basins and dams; diverting streams, and taking all other actions that may be necessary to prevent silt, and waste of any kind from being deposited, silting and reduction of quality of streams below the construction area and downstream properties as a result of the Work.

C. Refrain from the disposal of volatile fluid wastes into storm or sanitary sewer systems, approved sewage disposal systems or any waterway.

D. Refrain from burning trash or waste materials.

.11 - Temporary Field Office

A. The Contractor may Provide a temporary office structure, for the Contractor's use during the course of the Work.

1. The Contractor must receive prior written approval from the Owner or the Owner's Representative for such temporary office structure in relation to location, type of structure, and included facilities.

2. All toilet and sink facilities in any such office structure shall be connected to an approved sewage disposal system.

3. The Contractor shall remove the temporary office structure from the Site and shall repair the Site and finish the area as directed by the Owner or the Owner's Representative.

B. The Contractor shall:

1. Provide a temporary office structure completely separate from any other office structures at a location approved by the Owner or the Owner's Representative until the Work is completed and is accepted.

2. Provide such office structure for the exclusive use of the Owner.

3. Bear all costs in relation to the furnishing, construction and removal of such office structure.

4. Repair and refinish the area as directed by the Owner or the Owner's Representative.

5. Construct such office structure and furnish such office structure as required by the Contract.

6. Maintain such office structure in a sanitary condition and in proper repair, properly heat the structure, furnish the fuel and furnish all utilities and pay all utility charges.

7. Install a telephone for the sole use of the Owner or the Owner's Representative and pay all service and local toll charges incurred as a result of the use of such telephone service.

C. With the prior written approval of the Owner or the Owner's Representative any other Contractor may erect a substantial office structure at the Site for the use of such Contractor in relation to the Work.

1. All toilet and sink facilities in any such office structure shall be connected to an approved sewage disposal system.

2. Such Contractor shall remove the temporary office structure from the Site and shall repair the Site and finish the area as directed by the Owner or the Owner's Representative.

D. When adequate space is available in a building, the Contractor may transfer such office to available space with the prior written permission of the Owner or the Owner's Representative.

E. Trailers providing comparable facilities may be accepted at the discretion of the Owner or the Owner's Representative.

.12 - Rubbish Removal

A. The Contractor shall:

1. Keep the Work free from rubbish at all times.

2. Clean all enclosed structures daily.

3. Remove rubbish from the Site at least once a week.

B. The Contractor shall conform with the following:

1. Burning of rubbish shall not be permitted.

2. All rubbish shall be lowered by way of chutes, taken down by hoists, or lowered in receptacles. Under no circumstances shall any rubbish be dropped or thrown from one (1) level to another inside or outside any building.

.13 - Discontinuance, Changes and Removal

The Contractor shall:

A. Discontinue all temporary services required by the Contract when so directed by the Owner or the Owner's Representative. The discontinuance of any such temporary service prior to the completion of the Work shall not render the Owner liable for any additional cost entailed thereby.

B. Remove and relocate such temporary facilities as directed by the Owner or the Owner's Representative without additional cost to the Owner, and shall restore the Site and the work to a condition satisfactory to the Owner.

.14 - Project Identification

A. No signs or advertisements shall be displayed on the site except as required by the Contract.

B. The Contractor shall Furnish, erect and maintain the Site, the exact location thereof to be designated by the Owner or the Owner's Representative, a construction sign, in the form provided by the Contract.

.15 - Moisture and Condensation Control

The Contractor shall provide for ventilation of all structures until Physical Completion and acceptance of the Work and shall control such ventilation to avoid excessive rates of drying of construction materials, including but not limited to concrete and to plaster, and to prevent condensation on sensitive surfaces.

.16 - Protective Services

The Contractor shall provide security services required by the Contract.

01600 -- MATERIAL AND EQUIPMENT

.01 - Storage and Protection

A. Materials stored on the Site shall be neatly piled and protected, and shall be stored in an orderly fashion in locations that shall not interfere with the progress of the Work or with the daily functioning of the Institution.

B. Should it become necessary during the course of the Work to move materials or equipment stored on the Site, the Contractor, at the direction of the Owner or the Owner's Representative, shall move such material or equipment.

01700 -- PROJECT CLOSE OUT

.01 - Final Cleanup

A. The Contractor shall leave the Work ready for use and occupancy without the need of further cleaning of any kind.

B. The Contractor shall remove all tools, appliances, projects signs, material and equipment from the premises as soon as possible upon completion of the Work.

C. The Work is to be turned over to the Owner in new condition, in proper repair and in perfect adjustment.

.02 - Required Close Out Documentation

A. Prior to final payment the Owner shall receive the following documents as required by the Contract:

1. The Contractor's general guarantee.

2. Specific guarantees, material, equipment and other items of work.

3. All certificates obtained in connection with the Work.

4. All final photographs of the Work.

B. The Owner shall also receive from the Contractor prior to final payment:

1. A complete listing of all Subcontractors, business addresses and items supplied by each such Subcontractor.

2. A listing of manufacturer's of major materials, equipment and systems installed in the Work.

3. A copy of all test data taken in connection with the Work.

4. Three (3) copies of all operation and maintenance manuals.

5. All keys, tools, screens, spare construction material, finishing material and equipment required to be furnish to the Owner as part of the Work.

.03 - Orientation Instruction

Prior to final payment appropriate maintenance personnel of the Owner shall be oriented and instructed by the Contractor in the operation of all systems and equipment as required by the Contract.

.04 - Project Close Out Inspections

A. When the Work has reached such a point of completion that the building or buildings, equipment or apparatus or any part thereof required by the Owner for occupancy or use can be so occupied and used for the purpose intended, the Owner or the Owner's Representative shall make a detailed inspection of the Work to insure that all requirements of the Contract have been met and that the Work is complete and is acceptable.

B. A copy of the report of the inspection shall be furnished to the Contractor as the inspection progresses so that the Contractor may proceed without delay with any part of the Work found to be incomplete or defective.

C. When the items appearing on the report of inspection have been completed or corrected, the Contractor shall so advise the Owner and the Owner's Representative. After receipt of the notification, the Owner or the Owner's Representative shall inform the Contractor of the date and time of final inspection. A copy of the report of the final inspection containing all

remaining contract exceptions, omissions and incompletions shall be furnished to the Contractor.

D. After receipt of notification of completion and all remaining contract exceptions, omissions and incompletions from the Contractor, the Owner and the Owner's Representative shall make an inspection to verify completion of the exception items appearing on the report of final inspection.

01720 -- PROJECT RECORD DOCUMENTS

.01 - Project Record Drawings

A. The purpose of the project drawings is to record the actual location of the Work in place including but not limited to underground lines, concealed piping within buildings, concealed valves and control equipment, and to record changes in the Work.

B. In addition to the sets of contract drawings that are required by the Contractor on the Site to perform the Work, the Contractor shall maintain, at the Site, one (1) copy of all drawings, specifications and addenda that are part of the Contract as awarded. Each of these documents should be clearly marked "Project Record Copy", maintained in a clean and neat condition available at all times for inspection by the Owner or the Owner's Representative, and shall not be used for any other purpose during the progress of the Work.

C. Project Record Requirements

1. The Contractor shall mark-up the "Project Record Copy" to show:

(a) Approved changes in the Work.

(b) Location of underground Work and concealed Work.

(c) Details not shown in the original Contract Documents.

(d) Any relocation of Work.

(e) All changed in dimensions.

(f) All access doors.

(g) Location of all plumbing, heating, ventilating, air conditioning or electrical assemblies.

2. Such information shall include, but shall not be limited to:

(a) Footing depth in relation to finished grade elevations.

(b) Any change in floor elevations.

(c) Any structural changes.

(d) Any substitutions.

(e) Elevations and locations of all underground utilities, services, or structures referenced to permanent above-ground structures or monuments.

(f) Designation of all utilities as to the size and use of such utilities.

(g) All invert elevations of manholes.

(h) The location of all utilities, services and appurtenances concealed in building structures that have been installed different from that required by the Contract.

(i) Any approved change order.

D. The Contractor shall keep the Project Record Documents up-to-date from day to day as the Work progresses. Appropriate documents are to be updated promptly and accurately; no Work is to be permanently concealed until all required information has been recorded.

E. The project record drawings are to be submitted by the Contractor to the Owner or the Owner's Representative when all the Work is completed and is approved by the Owner and the Owner's Representative before the Contractor may request final payment.

01740 -- WARRANTIES, GUARANTEES, AND BONDS

See the Contract Documents for details.

SECTION V.
GENERAL CONDITIONS

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General Conditions

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ARTICLE 1 -- DEFINITIONS

Section 1.01 - The following terms as used in the Contract Documents shall be defined as follows:

Beneficial Occupancy - The use, occupancy or operation by the Owner of the Work, or any part thereof, as evidenced by a notification of Beneficial Occupancy executed by the Owner.

Construction Completion - Acceptance by the Owner of the Work as evidenced by a Notification of Construction Completion executed by the Architect.

Construction Manager - A person, persons, firm, partnership or corporation, regularly engaged in the management of construction projects, and so designated by the Owner.

Consultant - A person, persons, firm, partnership or corporation providing Architectural, Engineering or other professional services, and so designated by the Owner.

Contract - The agreement between the Owner and the Contractor consisting of the Contract Documents including all amendments and supplements thereto.

Contract Documents - The Contract, Notice to Bidders, Bid Checklist, Bid Terms and Conditions, Contractor Reference Sheet, Contract Terms and Conditions, Bid Analysis Form, Affirmative Action Form, Change Order Form, Contractors Trade Payment Breakdown, Safety EHS Plan, Prevailing Wage Schedule, Information for Bidders, Form of Bid, General Conditions, General Requirements, Bonds, Drawings, Specifications, Addenda, Change Orders and any supplementary data together with all provisions of law deemed to be inserted in the Contract or incorporated by reference.

Contractor - A person, persons, firm, partnership or corporation with whom the Contract is entered into by the Owner to perform the Work.

Extra Work - Any work in addition to the Work initially required to be performed by the Contractor pursuant to the Contract.

Furnish - To deliver to the site ready for installation.

Install - To unload at the delivery point at the Site and perform every operation necessary to establish secure mounting and correct operation at the proper location.

Owner – The Fashion Institute of Technology and/or its auxiliary corporations, as applicable.

Owner's Representative - A person, persons, firm, partnership or corporation so designated by the Owner.

Project - Work at the Site(s) carried out pursuant to one or more sets of Contract Documents.

Provide - To Furnish and Install complete in place and ready for operation and use.

Shop Drawings - Diagrams, fabrication drawings, illustration, schedules, test data, performance charts, cuts brochures and other data which are submitted by the Contractor to the Architect and illustrate any portion of the Work. These drawings and data are reviewed and acted upon by the architect.

Site - The area within the Contract limit, as indicated by the Contract.

Subcontract - An agreement between the Contractor and Subcontractor for work on the Site.

Subcontractor - A person, persons, firm, partnership or corporation under contract with the Contractor, or under contract with any subcontractor, to provide labor and material at the Site.

Substantial Completion - Stage of construction at which the Architect determines there is a minimal amount of the Work to be completed, or Work to be corrected.

Work - The performance of all obligations imposed upon the Contractor by the Contract.

ARTICLE 2 -- CONTRACT DOCUMENTS

Section 2.01 - Captions

The table of contents, titles, captions, headings, running headlines and marginal notes contained herein and in said documents are solely to facilitate reference to various provisions of the Contract Documents and in no way affect the interpretation of the provisions to which they refer.

Section 2.02 - Conflicting Conditions

Should any provision in any of the Contract Documents be in conflict or inconsistent with any of the General Conditions or Supplements thereto, the General Conditions or Supplements thereto shall govern.

Section 2.03 - Notice and Service Thereof

Any notice to the Contractor from the Owner relative to any part of the Contract shall be in writing and service considered complete when said notice is mailed to the Contractor at the last address given by the Contractor, or when delivered in person to said Contractor or the Contractor's authorized representative.

Section 2.04 - Nomenclature

Materials, equipment or other Work described in words which have a generally accepted technical or trade meaning shall be interpreted as having said meaning in connection with the Contract.

Section 2.05 - Invalid Provisions

If any term or provision of the Contract Documents or the application thereof to any person, firm or corporation or circumstance shall, to any extent, be determined to be invalid or unenforceable, the remainder of the Contract Documents, or the application of such terms or provisions to persons, firms or corporations or circumstances other than those to which it is held invalid or unenforceable, shall not be affected thereby and each term or provision of the Contract Documents shall be valid and be enforced to the fullest extent permitted by law.

ARTICLE 3 -- INTERPRETATION OF CONTRACT DOCUMENTS

Section 3.01 – Owner/Architect

A. The Owner's representative/Architect shall give all orders and directions contemplated under the Contract relative to the execution of the Work. The Architect shall determine the amount, quality, acceptability of the Work and shall decide all questions which may arise in relation to said Work. The Owner's estimates and decisions shall be final except as otherwise expressly provided. In the event that any question arises between the Owner and Contractor concerning the Contract, the decision of the Owner shall be a condition precedent to the right of the Contractor to receive any money or payment under the Contract.

B. Any differences or conflicts concerning performance which may arise between the Contractor and other contractors performing Work for the Owner shall be adjusted and determined by the Owner's representative.

C. The Owner may act through a representative designated by the Owner.

Section 3.02 - Meaning and Intent of Contract Documents

The meaning and intent of all Contract Documents shall be as interpreted by the Architect.

Section 3.03 - Order of Preference

A. Figured dimensions shall take precedence over scaled dimensions. Larger scale drawings shall take precedence over smaller scale drawings. Latest addenda shall take precedence over previous addenda and earlier dated drawings and specifications.

B. Should a conflict occur in or between or among any parts of the Contract Documents that are entitled to equal preference, the better quality or greater quantity of material, of the more specific compared to the general, shall govern, unless the Architect/Owner's representative directs otherwise.

C. Drawings and specifications are complementary. Anything shown on the drawings and not mentioned in the specifications, or mentioned in the specifications and not shown on the drawings, shall have the same effect as if shown or mentioned in both.

ARTICLE 4 -- MATERIALS AND LABOR

Section 4.01 - Contractor's Obligations

A. The Contractor shall, in a good workmanlike manner, perform all the Work required by the Contract Documents within the time specified in the Contract.

B. The Contractor shall Furnish, erect, maintain, and remove such construction plant and such temporary Work as may be required for the performance of its work. The Contractor shall be responsible for the safety, efficiency and adequacy of the Contractor's plant, appliances and methods, and for damage which may result from failure or improper construction, maintenance or operation of said plant, appliances and methods. The Contractor shall comply with all terms of the Contract, and shall, carry on and complete the entire Work to the satisfaction of the Owner.

C. Any labor, materials or means whose employment or utilization during the course of this Contract may tend to or in any way cause or result in strike, work stoppages, delays, suspension of Work or similar troubles by workmen employed by the Contractor, its subcontractors or material suppliers, or by any of the trades working in or about the buildings and premises where Work is being performed under this Contract, or by other contractors, their subcontractors or material suppliers pursuant to other contracts shall not be allowed. Any violation by the Contractor of this requirement may in the sole judgment of the Owner be considered as proper and sufficient cause for declaring the Contractor to be in default, and for the Owner to take action against the Contractor as set forth in the General Conditions Article entitled "Termination" or such other action as the Owner may deem proper.

Section 4.02 - Contractor's Title to Materials

A. No materials or supplies for the Work shall be purchased by the Contractor or by any Subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by any other party. The Contractor warrants that the Contractor has full, good and clear title to all materials and supplies used by the Contractor in the Work, or resold to the Owner pursuant to the Contract free from all liens, claims or encumbrances.

B. All materials, equipment and articles which become the property of the Owner shall be new unless specifically stated otherwise.

Section 4.03 - "Or Equal" Clause

A. Whenever a material, article or piece of equipment is identified on the plans or in the specifications by reference to manufacturers' or vendors' names, trade names, catalogue number or make, said identification is intended to establish a standard. Any material, article or equipment of other manufacturers and vendors which performs satisfactorily the duties imposed by the general design may be considered equally acceptable provided that, in the opinion of the Architect/Engineer, the material, article or equipment so proposed is of equal quality, substance and function and the Contractor shall not Provide, Furnish or Install any said proposed material, article or equipment without the prior written approval of the Architect/Engineer. The burden of proof and all costs related thereto concerning the "or equal" nature of the substitute item, whether approved or disapproved, shall be borne by the Contractor.

B. Where the Architect/Engineer, pursuant to the provisions of this Section, approves a product proposed by the Contractor and said proposed product requires a revision of the Work covered by this Contract, or the Work covered by other contracts, all changes to the Work of all contracts, revision or redesign, and all new drawings and details required therefore shall be provided by the Contractor at the cost of the Contractor and shall be subject to the approval of the Consultant.

C. No substitution will be permitted which may result in a delay to the Project.

Section 4.04 - Quality, Quantity and Labeling

A. The Contractor shall Furnish materials and equipment of the quality and quantity specified in the Contract.

B. When materials are specified to conform to any standard, the materials delivered to the Site shall bear manufacturer's labels stating that the materials meet said standards.

C. The above requirements shall not restrict or affect the Owner's right to test materials as provided in the Contract.

D. The Contractor shall develop and implement quality control plans to assure itself and the Owner that all Work performed by the Contractor and its Subcontractors complies fully with all Contract requirements, and shall submit the plans to the Owner as required by the Contract. See Submittals Section of the General Requirements. The Contractor's quality control plans shall be independent of any testing or inspection performed by or on behalf of the Owner.

ARTICLE 5 -- CONTRACTOR

Section 5.01 - Supervision by Contractor

A. The Contractor shall provide full-time competent supervision for the duration of the Contract; during the course of on-site work the Contractor shall provide a full-time on-site superintendent who shall have full authority to act for the Contractor at all times. The Superintendent shall be able to read, write and speak English fluently, as well as communicate with the workers.

B. If at any time the supervisory staff is not satisfactory to the Owner, the Contractor shall, if directed by the Owner, immediately replace such supervisory staff with other staff satisfactory to the Owner.

C. The Contractor shall remove from the Work any employee of the Contractor or of any Subcontractor when so directed by the Owner.

Section 5.02 - Representations of Contractor

The Contractor represents and warrants:

A. That it is financially solvent and is experienced in and competent to perform the Work, and has the staff, equipment, subcontractors and suppliers available to complete the Work within the time specified for the Contract price.

B. That it is familiar with all Federal, State or other laws, ordinances, orders, rules and regulations that may in any way affect the Work.

C. That any temporary and permanent Work required by the Contract can be satisfactorily constructed, and that said construction will not injure any person or damage any property.

D. That it has carefully examined the Contract and the Site of the Work and that, from the Contractor's own investigations and through the bid process and requirements is satisfied as to the nature and materials likely to be encountered, the character of equipment and other facilities needed

for the performance of the Work, the general and local conditions and all other materials or items which may affect the Work.

E. That it is satisfied that the Work can be performed and completed as required in the Contract, and warrants that it has not been influenced by any oral statement or promise of the Owner or the Consultant.

SECTION 5.03 – COPIES OF CONTRACT DOCUMENTS FOR CONTRACTORS

A. The Owner shall furnish to the Contractor, without charge, up to five (5) copies of Contract Documents.

B. Any sets in excess of the number mentioned above may be furnished to the Contractor at the cost of reproduction and mailing or delivery.

SECTION 5.04 - MEETINGS

The Contractor shall attend all meetings as directed by the Owner or the Owner's Representative.

SECTION 5.05 – RELATED WORK

To ascertain the relationship of its work to all Work required by the Contract Documents, the Contractor shall examine the Contract Documents for Work of its Contract and any related work of other contracts.

SECTION 5.06 – ERRORS OR DISCREPANCIES

The Contractor shall examine the Contract thoroughly before commencing the Work and report in writing any errors or discrepancies to the Owner or the Owner's Representative within five (5) days of discovery.

ARTICLE 6 -- SITE CONDITIONS

SECTION 6.01 – SUBSURFACE OR SITE CONDITIONS FOUND DIFFERENT

A. The Contractor acknowledges that the Contract amount set forth in its bid includes such provisions which the Contractor deems proper for all Site

conditions the Contractor could reasonably anticipate encountering as indicated in the Contract or from the Contractor's inspection and examination of the Site prior to submission of bids.

SECTION 6.02 – VERIFYING DIMENSIONS AND CONDITIONS

A. The Contractor shall take all measurements and verify all dimensions and conditions at the Site before proceeding with the Work. If said dimensions or conditions are found to be in conflict with the Contract, the Contractor immediately shall refer said conflict to the Architect in writing. The Contractor shall comply with any revised Contract Documents.

B. During the progress of Work, the Contractor shall verify all field measurements prior to fabrication of building components or equipment and proceed with the fabrication to meet field conditions.

C. The Contractor shall consult all Contract Documents to determine exact location of all Work and verify spatial relationships of all Work. Any question concerning said location or spatial relationships may be submitted in a manner approved by the Architect.

D. Special locations for equipment, pipelines, ductwork and other such items of Work, where not dimensioned on plans, shall be determined in consultation with other affected contractors.

E. The Contractor shall be responsible for the proper fitting of the Work in place.

SECTION 6.03 - SURVEYS

Unless otherwise expressly provided in the Contract, the Owner shall furnish the Contractor all surveys of the property necessary for the Work, but the Contractor shall lay out the Work.

ARTICLE 7 -- INSPECTION AND ACCEPTANCE

SECTION 7.01 – ACCESS TO THE WORK

The Owner, the Owner's Representative, and the architect shall at all times have access to the Work and the Contractor shall provide proper facilities for said access.

SECTION 7.02 – NOTICE FOR TESTING

If the Contract Documents, the Owner's instructions, laws, rules, ordinances or regulations require that any Work be inspected or tested, the Contractor shall give the Architect and/or Owner's representative a minimum of three (3) work days written notice of readiness of the Work for inspection or testing and the date fixed for said inspections or testing.

SECTION 7.03 – REEXAMINATION OF WORK

Reexamination of any part of the Work may be ordered by the Owner, and if so ordered, the Work must be uncovered by the Contractor. If said Work is found to be in accordance with the Contract, the Owner shall pay the cost of reexamination. If said Work is not found to be in accordance with the Contract, the Contractor shall pay the cost of reexamination and replacement.

SECTION 7.04 – INSPECTION OF WORK

All Work, all materials whether or not incorporated in the Work, all processes of manufacture and all methods of construction shall be, at all times and places, subject to the inspection of the Owner or the Owner's Representative or the architect, and the Architect shall be the final judge of the quality and suitability of the Work, materials, processes of manufacture and methods of construction for the purposes for which said Work, materials, processes of manufacture and methods of construction are used. Any Work not approved by the Architect shall be reconstructed, made good, replaced or corrected immediately by the Contractor including all Work of other contractors destroyed or damaged by said removal or replacement. Rejected material shall be removed immediately from the Site. Acceptance of material and workmanship by the Owner shall not relieve the Contractor from the Contractor's obligation to replace all Work which is not in compliance with the Contract.

SECTION 7.05 – DEFECTIVE OR DAMAGED WORK

If, in the opinion of the Owner, it is undesirable to replace any defective or damaged materials or to reconstruct or correct any portion of the Work damaged or not performed in accordance with the Contract, the compensation to be paid to the Contractor shall be reduced by an amount which, in the judgment of the Owner, shall be deemed to be equitable.

SECTION 7.06 - TESTING

All materials and equipment used in the Work shall be subject to inspection and testing in accordance with accepted standards to establish conformance with specifications and suitability for uses intended, unless otherwise specified in the Contract. If any Work shall be covered or concealed without the approval or consent of the Architect, said Work shall, if required by the Architect, be uncovered for examination. Any inspection by the Architect or by a testing laboratory on behalf of the Owner does not relieve the Contractor of the responsibility to maintain quality control of materials, equipment and installation to conform to the requirements of the Contract. If any test results are below specified minimums, the Architect may order additional testing. The cost of said additional testing, any additional professional services required, and any other expenses incurred by the Owner as a result of said additional testing shall be at the Contractor's expense. The Owner may deduct such costs from moneys due the Contractor.

SECTION 7.07 - ACCEPTANCE

No previous inspection shall relieve the Contractor of the obligation to perform the Work in accordance with the Contract. No payment, either partial or full, by the Owner to the Contractor shall excuse any failure by the Contractor to comply fully with the Contract Documents. The Contractor shall remedy all defects and deficiencies, paying the cost of any damage to other Work resulting therefrom.

ARTICLE 8 -- CHANGES IN THE WORK

SECTION 8.01 - CHANGES

A. Without invalidating the Contract, the Owner/Architect may order Extra Work or make changes by altering, adding to, or deducting from the Work, the Contract consideration being adjusted accordingly. No claims for Extra Work shall be allowed unless such Extra Work is ordered in writing by the Owner/Architect. No changes in the Work shall be made unless such Work is ordered in writing by the Owner/Architect or Owner’s Representative. If the time for completion is affected by this change, the revised time for completion shall be included in the change order. The Owner may order the Contractor to perform the Extra Work and proceed under the Dispute Article.

B. The amount by which the Contract consideration is to be increased or decreased by any change order may be determined by the Owner by one or more of the following methods:

1. By applying the applicable unit price or prices contained in the Contract.

2. By estimating the fair and reasonable cost of the Extra Work:

   a. Labor, including all wages, required wage supplements and insurance required by law, paid to employees below the rank of superintendent directly employed at the Site. Wages are the prevailing rate of wages defined in the Contract Documents and supplemental updates.

   b. Premiums or taxes paid by the Contractor for worker's compensation insurance, unemployment insurance, FICA tax and other payroll taxes as required by law, net of actual and anticipated refunds and rebates.

   c. Materials

   d. Equipment, excluding hand tools, which in the judgment of the Owner, would have been or will be employed in the Work. It is the duty of the Contractor to utilize either rented or self-owned equipment that is of a nature and size appropriate for the Work to be performed. The Owner reserves the right to determine reasonable and appropriate equipment sizing, and at the Owner's discretion, to adjust the costs allowed to reflect a smaller or less elaborate piece of equipment more suitable for performance of the Extra Work.

3. By determining the actual cost of the Extra Work in the same manner as in Article 8, Section 8.01, Subsection B. 2. except that the actual costs of the Contractor shall be used in lieu of estimated costs.

C. The Owner shall have the option of determining by which method the Contractor shall proceed with said Extra Work. Wages are the prevailing rate of wages defined in the Contract Documents and supplemental updates. The Contractor shall submit a signed and notarized Labor Rate Worksheet(s) to the Owner to be used to determine hourly rates for various classifications of workers. The Contractor agrees to provide documentation verifying costs and calculations at the Owner's request.

D. Regardless of the method used by the Owner in determining the value of a change order, the Contractor shall, within the time-frame given by the Owner, submit to the Owner or Owner's Representative a detailed breakdown of the Contractor's estimate of the value of the omitted or Extra Work.

E. Unless otherwise specifically provided for in a change order, the compensation specified therein for Extra Work includes full payment for the Extra Work covered thereby, and the Contractor waives all rights to any other compensation for said Extra Work, damage or expense.

F. The Contractor shall furnish satisfactory bills, payrolls and vouchers covering all items of cost and when requested by the Owner shall give the Owner access to all accounts and records relating thereto, including records of subcontractors and material suppliers.

G. Increased bonding costs for the Work which may result from Owner issued Changes in the Work will be addressed by the Owner at the completion of the Project Work upon submission of satisfactory proof of Contractor's increased cost.

H. Increased contractual liability insurance premium costs which may result from changes in the Work will be addressed by the Owner at the completion of the Work upon submission of satisfactory proof of Contractor's increased cost.

SECTION 8.02 – OVERHEAD AND PROFIT ALLOWANCE

A. See Example A for changes in the Work performed directly by the Contractor, whether a base cost is arrived at by estimated cost or actual cost method; add to base cost a sum equal to twenty percent. See Exceptions - Paragraphs "D" and "E".

Example A:

Contractor base cost	$1,000
20% overhead and profit	200
Total	$1,200

B. See Example B for changes in the Work performed by a Subcontractor under contract with the Contractor, where estimated or actual cost is Ten Thousand Dollars ($10,000.00) or less; add to the base cost a sum equal to twenty percent of cost, for the benefit of the Subcontractor. For the benefit of the Contractor; add an additional sum equal to ten percent of the Subcontractor's base cost.

Example B:

Subcontractor base cost	$1,000
20% Subcontractor overhead and profit	200
Subcontractor Total	$1,200
10% Contractor overhead and profit on base cost	100
Total	$1,300

C. See Example C for changes in the Work performed by a Subcontractor, under contract with the Contractor, which exceeds a base cost of Ten Thousand Dollars ($10,000) in estimated or actual cost; add to the base cost a sum equal to twenty percent of cost for the benefit of the Subcontractor. For the benefit of the Contractor; add an additional sum equal to ten percent of the first Ten Thousand Dollars ($10,000) of the Subcontractor's base cost, plus five percent of the next Ninety Thousand Dollars ($90,000) of the Subcontractor's base cost, plus three percent of any sum in excess of One Hundred Thousand Dollars ($100,000) of the Subcontractor's base cost.

Example C:

Subcontractor base cost	$200,000
20% Subcontractor overhead and profit	40,000
Subcontractor Total	$240,000
10% Contractor overhead and profit on first $10,000 base cost	1,000
5% on next $90,000 base cost	4,500
3% on base cost over $100,000	3,000
Total	$248,500

D. See Example D for overhead and profit on major equipment such as: switchgear, transformers, air handling units, boilers, etc. For extra equipment purchases by the Contractor or Subcontractors which exceeds a base cost of Ten Thousand dollars ($10,000) in estimated or actual cost; add to the base cost for the benefit of the Contractor a sum equal to ten percent of the first Ten Thousand dollars ($10,000) of the vendor's base cost plus five percent of the next Ninety Thousand dollars ($90,000) of the vendor's base cost, plus three percent of any sum in excess of One Hundred Thousand dollars ($100,000) of the vendor's base cost. If the equipment is supplied by the Subcontractor, the Contractor is entitled to a maximum of ten (10) percent of the first Ten Thousand dollars ($10,000) of the base cost.

Example D:

Vendor base cost	$200,000
10% Contractor or Subcontractor overhead and profit on first $10,000 base cost	1,000
5% on next $90,000 base cost	4,500
3% on base cost over $100,000	3,000
Contractor or Subcontractor Total	$208,500
10% Contractor overhead and profit on first $10,000 base cost when equipment is supplied by the Subcontractor, no other mark-up allowed	1,000
Total	$209,500

E. See Example E for overhead and profit on a material only Change Order. For increased material purchases by the Contractor or Subcontractors which exceed a base cost of Ten Thousand dollars ($10,000) in estimated or actual costs; add to the base cost for the benefit of the Contractor a sum equal to ten percent of the first Ten Thousand dollars ($10,000) of the supplier's cost plus five percent of the next Ninety Thousand dollars ($90,000) of the supplier's cost, plus three percent of any sum in excess of One Hundred Thousand dollars ($100,000) of the supplier's cost. If the material is supplied by the Subcontractor, the Contractor is entitled to a maximum of ten (10) percent of the first Ten Thousand dollars ($10,000) of the base cost.

Example E:

Material cost (net difference between original contract and revised)	$200,000
10% Contractor or Subcontractor overhead and profit on first $10,000 base cost	1,000
5% on next $90,000 base cost	4,500
3% on base cost over $100,000	3,000
Contractor or Subcontractor Total	$208,500
10% Contractor overhead and profit on first $10,000 base cost when material is supplied by the Subcontractor, no other mark-up allowed	1,000
Total	$209,500

F. Other than the overhead and profit described in General Conditions Section 7.02A, no further overhead and profit will be allowed for changes to the Work performed by a Subcontractor under Subcontract with the Contactor or for major equipment or material supplier determined to be an affiliate of or controlled by the Contractor. An affiliate is considered any firm or entity in which the Contractor or any individual listed on the Contractor's NYS Vendor Responsibility Questionnaire either owns 5% or more of the shares of, or is one of the five largest shareholders, a director, officer, member, partner or proprietor of said Subcontractor, major equipment or material supplier; a controlled firm is any firm or entity which, in the opinion of the Owner, is controlled by the Contractor or any individual listed on the Contractor's NYS Vendor Responsibility Questionnaire.

1. The Owner, in its sole and exclusive discretion, will determine if a firm or entity is an affiliate of or controlled by the Contractor.

G. No overhead and profit shall be paid for changes in the Work performed by a Subcontractor not under Subcontract with the Contractor. No overhead and profit shall be paid on the premium portion of overtime pay. Where the changes in the Work involve both an increase and a reduction in similar or related Work, the overhead and profit allowance shall be applied only to the cost of the increase that exceeds the cost of the reduction.

SECTION 8.02A – DEDUCT CHANGE ORDER

The amount of credit to be allowed by the Contractor to the Owner for a deletion or change which results in a decrease in the Contract amount shall be as determined by the Owner. The credit shall include the overhead and profit allocable to the deleted or changed Work unless the Owner, in its sole and exclusive discretion, determines otherwise.

SECTION 8.03 – FORM OF CHANGE ORDERS

All Change Orders shall be processed, executed and approved on AIA document G701, which is included herein and made part of the Contract Documents. No alteration to this form shall be acceptable to the Owner and no payment for Extra Work shall be due the Contractor unless it executes a Change Order on said form.

ARTICLE 9 -- TIME OF COMPLETION

SECTION 9.01 – TIME OF COMPLETION

A. The Work shall be commenced at the time stated in the Owner's written notice to proceed, and shall be completed no later than the time of completion specified in the Contract Documents. Notwithstanding anything to the contrary, a schedule submitted by the Contractor showing a time of completion earlier than that specified in the Contract shall not entitle the Contractor to any additional compensation in the event the earlier time of completion is not realized.

B. It is hereby understood and mutually agreed, by and between the Contractor and the Owner, that the time for completion of the Work, as specified in the Contract Documents, is an essential and material condition of the Contract.

C. The Contractor agrees that the Work shall be prosecuted regularly, diligently and uninterruptedly at such rate of progress as shall insure full completion thereof within the time specified. It is expressly understood and agreed, by and between the Contractor and the Owner, that the time for completion of the Work described herein is a reasonable time for completion of the same.

D. If the Contractor shall neglect, fail or refuse to complete the Work within the time specified, or any proper extension thereof granted by the Owner, the Contractor agrees to pay to the Owner for loss of beneficial use of the structure an amount specified in the Contract, not as a penalty, but as liquidated damages, for each and every calendar day that the Contractor is in default. Default shall include abandonment of the Work by the Contractor.

E. Said amount of liquidated damages is agreed upon by and between the Contractor and the Owner because of the impracticability and extreme difficulty of fixing and ascertaining the actual damages which the Owner would sustain for loss of beneficial use of the structure in the event of delay in completion, and said amount is agreed to be the amount of damages sustained by the Owner and said amount may be retained from time to time by the Owner.

F. It is further agreed that time is of the essence for each and every portion of the Work. In any instance in which additional time is allowed for the completion of any Work, the new time of completion established by said extension shall be of the essence. The Contractor shall not be charged with liquidated damages or any excess cost if the Owner determines that the Contractor is without fault and that the delay in completion of the Work is due:

1. to an unforeseeable cause beyond the control and without the fault of, or negligence of the Contractor, and approved by the Owner, including, but not limited to, acts of God or of public enemy, acts of the Owner, fires, epidemics, quarantine, restrictions, strikes, freight embargoes and unusually severe weather; and

2. to any delays of Subcontractors or suppliers occasioned by any of the causes specified in Subsections 1. of this paragraph.

The Contractor shall, within ten (10) days from the beginning of any such delay, notify the Owner, in writing, of the causes of the delay.

G. The time for completion can be extended only by Change Order approved by the Owner and may be extended for:

1. all of the Work, or

2. only that portion of the Work altered by the Change Order.

H. The foregoing liquidated damages are intended to compensate the Owner only for the loss of beneficial use of the structure. In addition, the Contractor shall be liable to the Owner for whatever actual damages (other than actual loss of beneficial use) the Owner may incur as a result of any actions or inactions of the Contractor or its Subcontractors including, without limitation, interest expense and carrying costs, liabilities to other Contractors working on the project or other third parties, job extension costs and other losses incurred by the Owner. The provisions of this paragraph are for the exclusive use of the Owner, and shall not accrue to other contractors or third parties.

ARTICLE 10 -- TERMINATION OR SUSPENSION

SECTION 10.01 – TERMINATION FOR CAUSE

In the event that any provision of the Contract is violated by the Contractor or by any Subcontractor, the Owner may serve written notice upon the Contractor and upon the Contractor's surety, if any, of the Owner's intention to terminate the Contract; such notice shall contain the reasons for the intention to terminate the Contract upon a date specified by the Owner. If the violation or delay shall not cease or arrangements satisfactory to the Owner shall not be made, the Contract shall terminate upon the date so specified by the Owner. In the event of any such termination, the Owner may take over the Work and prosecute same to completion by Contract or otherwise for the account and at the expense of the Contractor, and the Contractor and Contractor's surety shall be liable to the Owner for all costs occasioned the Owner thereby. In the event of such termination the Owner may take possession of and may utilize such materials, appliances and plant as may be on the Site and necessary or useful in completing the Work.

SECTION 10.02 – TERMINATION FOR CONVENIENCE OF OWNER

The Owner, at any time, may terminate the Contract in whole or in part. Any such termination shall be effected by delivering to the Contractor a notice of termination specifying the extent to which performance of Work under the Contract is terminated and the date upon which the termination becomes effective. Upon receipt of the notice of termination, the Contractor shall act promptly to minimize the expenses resulting from the termination. The Owner shall pay the Contractor for Work of the Contract performed by the Contractor and accepted by the Owner for the period extending from the date of the last approved Application for Payment up to the effective date of the termination, including retainage. In no event shall the Contractor be entitled to compensation in excess of the total consideration of the Contract. . In the event of such termination the Owner may take over the Work and prosecute the Contract to completion and may take possession of and may utilize such materials, appliances, and equipment as may be on the Site and necessary or useful in completing the Work.

SECTION 10.03 – OWNER’S RIGHT TO DO WORK

The Owner may, after notice to the Contractor, without terminating the Contract and without prejudice to any other right or remedy the Owner may have, perform or have performed by others all of the Work or any part thereof and may deduct the cost thereof from any moneys due or to become due the Contractor.

SECTION 10.04 – SUSPENSION OF WORK

A. The Owner may order the Contractor in writing to suspend, delay or interrupt performance of all or any part of the Work for a reasonable period of time as the Owner may determine. The order shall contain the reason or reasons for issuance which may include but shall not be limited to the following: latent field conditions, substantial program revisions, acquisition of rights of way or real property, financial crisis, labor disputes, civil unrest or acts of God.

B. Upon receipt of a suspension order, the Contractor shall, as soon as practicable, cease performance of the Work as ordered and take immediate affirmative measures to protect such Work from loss or damage.

C. The Contractor specifically agrees that such suspension, interruption or delay of the performance of the Work pursuant to this Article shall not increase the cost of performance of the Work of this Contract.

D. Time for completion of the Work may be extended to such time as the Owner determines shall compensate for the time lost by the suspension, interruption or delay, such determination to be set forth in writing.

ARTICLE 11 -- DISPUTES

SECTION 11.01 – CLAIMS FOR EXTRA WORK

A. If the Contractor claims that any Work which the Contractor has been ordered to perform will be Extra Work, or that any action or omission of the Owner is contrary to the terms and provisions of the Contract and will require the Contractor to perform Extra Work the Contractor shall:

1. Promptly comply with said order.

2. File with the Owner and the architect within fifteen (15) working days after being ordered to perform the Work claimed by the Contractor to be Extra Work or within fifteen (15) working days after commencing performance of the Work, whichever date shall be earlier, or within fifteen (15) working days after the said action or omission on the part of the Owner occurred, a written notice of the basis of the Contractor's claim, including estimated cost, and request for a determination thereof.

3. Proceed diligently, pending and subsequent to the determination of the Owner with respect to any said disputed matter, with the performance of the Work in accordance with all instructions of the Owner.

B. No claim for Extra Work shall be allowed unless the same was done pursuant to a written order of the Owner. The Contractor's failure to comply with any or all parts of this Article shall be deemed to be:

1. a conclusive and binding determination on the part of the Contractor that said order, Work, action or omission does not involve Extra Work and is not contrary to the terms and provisions of the Contract,

2. a waiver by the Contractor of all claims for additional compensation or damages as a result of said order, Work, action or omission.

C. The value of claims for Extra Work, if allowed, shall be determined by the methods described in the Contract.

SECTION 11.02 – CLAIMS FOR DELAY

No claims for increased costs, charges, expenses or damages of any kind shall be made by the Contractor against the Owner for any delays or hindrances from any cause whatsoever; provided that the Owner, in the Owner's discretion, may compensate the Contractor for any said delays by extending the time for completion of the Work as specified in the Contract.

SECTION 11.03 – FINALITY OF DECISIONS

A. Any decision or determination of the Architect, Owner or the Owner's Representative shall be final, binding and conclusive on the Contractor unless the Contractor shall, within ten (10) working days after said decision, make and deliver to the Owner a verified written statement of the Contractor's contention that said decision is contrary to a provision of the Contract. The Owner shall determine the validity of the Contractor's contention. Pending the decision of the Owner, the Contractor shall proceed in accordance with the original decision.

B. Wherever it is required in the Contract that an application must be made to the Owner or a determination made by the Owner, the decision of the Owner on said application or the determination of the Owner under the Contract shall be final, conclusive and binding upon the Contractor unless the Contractor, within ten (10) working days after receiving notice of the Owner's decision or determination, files a written statement with the Owner that the Contractor reserves the Contractor's rights in connection with the matters covered by said decision or determination.

ARTICLE 12 -- SUBCONTRACTS

SECTION 12.01 – SUBCONTRACTING

A. The Contractor may utilize the services of Subcontractors subject to the bid terms and conditions.

B. The Contractor shall submit to the Owner, in writing, the name of each proposed Subcontractor as required by the Contract or earlier when requested. The Owner reserves the right to disapprove any proposed Subcontractor. Such disapproval shall not result in additional cost to the Owner.

C. The Contractor shall be fully responsible for the Work, acts and omissions of Subcontractors, and of persons either directly or indirectly employed by Subcontractors.

D. The Contractor shall cause appropriate provisions to be inserted in all subcontracts relative to the Work to bind Subcontractors to the Contractor by the terms of the Contract Documents insofar as applicable to the work of Subcontractors.

E. The Contractor's use of Subcontractors shall not diminish the Contractor's obligation to complete the Work in accordance with the Contract Documents. The Contractor shall control and coordinate the work of Subcontractors.

F. Nothing contained in the Contract or any subcontract shall create any contractual relationship between Subcontractors and the Owner.

ARTICLE 13 -- CONTRACT COORDINATION AND COOPERATION

SECTION 13.01 – COOPERATION WITH OTHER CONTRACTORS

A. During the progress of the Work, other contractors may be engaged in performing work. The Contractor shall coordinate the Contractor's Work with the work of said other contractors in such a manner as the Owner may direct.

B. If the Owner shall determine that the Contractor is failing to coordinate the Work with the work of other contractors as the Owner has directed:

1. the Owner shall have the right to withhold any payments due under the Contract until the Owner's directions are complied with by the Contractor; and

2. the Contractor shall assume the defense and pay on behalf of the Owner any and all claims or judgments or damages and from any costs or damages to which the Owner may be subjected or which the Owner may suffer or incur by reason of the Contractor's failure to promptly comply with the Owner's directions.

C. If the Contractor notifies the Owner, in writing, that another contractor on the Site is failing to coordinate the work of said contractor with the Work, the Owner shall investigate the charge. If the Owner finds it to be true, the Owner shall promptly issue such directions to the other contractor with respect thereto as the situation may require. The Owner shall not be liable for any damages suffered by the Contractor by reason of the other contractor's failure to promptly comply with the directions so issued by the Owner, or by reason of another contractor's default in performance.

D. Should the Contractor sustain any damage through any act or omission of any other contractor having a contract with the Owner or through any act or omission of any Subcontractor of said other contractor, the Contractor shall have no claim against the Owner for said damage.

E. Should any other contractor having or which shall have a contract with the Owner sustain damage through any act or omission of the Contractor or through any act or omission of a Subcontractor, the Contractor shall reimburse said other contractor for all said damages and shall indemnify and hold the Owner harmless from all said claims.

F. The Owner cannot guarantee the responsibility, efficiency, unimpeded operations or performance of any Contractor. The Contractor acknowledges these conditions and shall bear the risk of all delays including, but not limited to, delays caused by the presence or operations of other contractors and delays attendant upon any construction schedule approved by the Owner and the Owner shall not incur any liability by reason of any delay.

SECTION 13.02 – SEPARATE CONTRACTS

A. The Owner may award other contracts, work under which may proceed simultaneously with the execution of the Work. The Contractor shall coordinate the Contractor's operations with those of other contractors as directed by the Owner. Cooperation shall be required in the arrangements for access, the storage of material and in the detailed execution of the Work.

B. The Contractor shall keep informed of the progress and workmanship of other contractors and any Subcontractors and shall notify the Owner in writing immediately of lack of progress or defective workmanship on the part of other contractors or subcontractors, where said delay or defective workmanship may interfere with the Contractor's operations.

C. Failure of a Contractor to keep so informed and failure to give notice of lack of progress or defective workmanship by others shall be construed as acceptance by the Contractor of said progress and workmanship as being satisfactory for proper coordination with the Work.

D. Where the Contractor shall perform Work in close proximity to work of other contractors or subcontractors, or where there is evidence that Work of the Contractor may interfere with work of other contractors or subcontractors, the Contractor shall assist in arranging space conditions to make satisfactory adjustment for the performance of said work and the Work. If the Contractor performs work in a manner which causes interference with the work of other contractors or subcontractors, the Contractor shall make changes necessary to correct the condition.

SECTION 13.03 – COORDINATED COMPOSITE DRAWINGS

The Contractor shall prepare coordinated composite scale reproducible drawings and sections, on reproducible paper, clearly showing how the Work of the Contractor is to be performed in relation to work of other contractors or subcontractors.

ARTICLE 14 -- PROTECTION OF RIGHTS, PERSONS AND PROPERTY

SECTION 14.01 – ACCIDENT PREVENTION

The Contractor shall, at all times, take every precaution against injuries to persons or damage to property and for the safety of persons on or about the Site or engaged in the performance of the Work.

SECTION 14.02 – SAFETY PROGRAMS

The Contractor shall be responsible for the initiation, maintenance and supervision of safety precautions and programs in connection with the Work.

SECTION 14.03 – PROTECTION OF WORK AND PROPERTY

A. The Contractor shall, at all times, guard the Owner's property from injury or loss in connection with the Work. The Contractor shall, at all times, guard and protect the Contractor's Work, and adjacent property. The Contractor shall replace or make good any said loss or injury unless said loss or injury is caused directly by the Owner.

B. The Contractor shall have full responsibility to protect and maintain all materials and supplies on and off site in proper condition and forthwith repair, replace and make good any damage thereto until construction completion. The Contractor shall maintain an inventory of all materials and supplies for the Project that are delivered to the Site or approved for off-site storage facilities.

C. The Contractor shall report any loss, theft, burglary, vandalism or damage of materials or installed work to the Owner by phone and fax as soon as it is discovered. If vandalism, theft, or burglary are suspected as the cause of the loss, the Contractor shall notify site security personnel and the municipal police. The Contractor shall also protect the place of the loss until released from protection by the Owner or the Owner's Representative. The Contractor shall insure that no potential evidence relating to the loss is removed from the place of the loss.

SECTION 14.04 – ADJOINING PROPERTY

The Contractor shall protect all adjoining property and shall repair or replace any said property damaged or destroyed during the progress of the Work.

SECTION 14.05 – RISKS ASSUMED BY THE CONTRACTOR

A. The Contractor solely assumes the following distinct and several risks whether said risks arise from acts or omissions, whether supervisory or otherwise, of the Owner, of any Subcontractor, of third persons or from any other cause, including unforeseen obstacles and difficulties which may be encountered in the execution of the Work, whether said risks are within or beyond the control of the Contractor and whether said risks involve any legal duty, primary or otherwise, imposed upon the Owner, excepting only risks which arise from faulty designs as shown by the plans and specifications or from the negligence of the Owner or the Owner's members, officers, representatives or employees that caused the loss, damage or injuries hereinafter set forth:

1. The risk of loss or damage, includes direct or indirect damage or loss, of whatever nature to the Work or to any plant, equipment, tools, materials or property furnished, used, installed or received by the Owner, the Construction Manager, the Contractor or any Subcontractor, material or workmen performing services or furnishing materials for the Work. The Contractor shall bear said risk of loss or damage until construction completion or until completion or removal of said plant, equipment, tools, materials or property from the Site and the vicinity thereof, whichever event occurs last. In the event of said loss or damage, the Contractor immediately shall repair, replace or make good any said loss or damage.

2. The risk of claims, just or unjust, by third persons against the Contractor or the Owner and the Construction Manager on account of wrongful death, bodily injuries and property damage, direct or consequential, loss or damage of any kind whatsoever arising or alleged to arise out of or as a result of or in connection with the performance by the Contractor of the Work, whether actually caused by or resulting from the performance of the Work, or out of or in connection with the Contractor's operations or presence at or in the vicinity of the Site. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained prior to the construction completion of the Work. The Contractor shall bear the risk for all deaths, injuries, damages or losses sustained or alleged to have been sustained resulting from the Contractor's negligence or alleged negligence which is discovered, appears or is manifested after acceptance by the Owner.

3. The Contractor assumes entire responsibility and liability for any and all damage or injury of any kind or nature whatsoever, including death resulting therefrom, to all persons, whether employees of the Contractor or otherwise, and to all property, caused by, resulting from, arising out of or occurring in connection with the execution of the Work. If any person shall make said claim for any damage or injury, including death resulting therefrom, or any alleged breach of any statutory duty or obligation on the part of the Owner, the Owner's Representative, Construction Manager, servants and employees, the Contractor shall assume the defense and pay on behalf of the Owner, the Owner's Representative, the Construction Manager, servants and employees, any and all loss, expense, damage or injury that the Owner, the Owner's Representative, Construction Manager, servants and employees, may sustain as the result of any claim, provided however, the Contractor shall not be obligated to indemnify the Owner, the Owner's Representative, Construction Manager, servants and employees for their own negligence, if any. The Contractor agrees to assume, and pay on behalf of the Owner and the Owner's Representative, Construction Manager, servants and employees, the defense of any action at law or equity which may be brought against the Owner and the Owner's Representative, Construction Manager, servants and employees. The assumption of defense and liability by the Contractor includes, but is not limited to the amount of any legal fees associated with defending, all costs of investigation, expert evaluation and any other costs including any judgment or interest or penalty that may be entered against the Owner and the Owner's Representative, Construction Manager, servants and employees, in any said action.

4. The Contractor is advised that the Work required under this Contract may impose certain obligations and requirements mandated by the U.S. Department of Labor Occupational Safety and Health Administration regulations, Title 29 CFR Part 1926.62 Lead Exposure in Construction, relative to the potential exposure to lead by its employees. The Contractor assumes entire responsibility and liability for complying fully in all respects with these regulations.

B. The Contractor's obligations under this Article shall not be deemed waived, limited or discharged by the enumeration or procurement of any insurance for liability for damages. The Contractor shall notify its insurance carrier within twenty four (24) hours after receiving a notice of loss or damage or claim from the Owner.

The Contractor shall make a claim on its insurer specifically under the provisions of the contractual liability coverages and any other coverages afforded the Owner including those of being an additional insured where applicable.

C. Neither Final Acceptance of the Work nor making any payment shall release the Contractor from the Contractor's obligations under this Article. The enumeration elsewhere in the Contract of particular risks assumed by the Contractor or of particular claims for which the Contractor is responsible shall not be deemed to limit the effect of the provisions of this Article or to imply that the Contractor assumes or is responsible for only risks or claims of the type enumerated; and neither the enumeration in this Article nor the enumeration elsewhere in the Contract of particular risks assumed by the Contractor of particular claims for which the Contractor is responsible shall be deemed to limit the risks which the Contractor would assume or the claims for which the Contractor would be responsible in the absence of said enumerations.

Upon the conclusion of any action, proceeding or lawsuit, should a final binding determination of responsibility be made which allocates responsibility to the Owner, or the Owner's members, officers, employees or representatives, the Owner agrees that the obligation to indemnify and hold harmless shall not be applicable to the portion of any uninsured money judgment for which the Owner is responsible, and the Owner agrees to pay the Contractor the percentage of uninsured defense costs which the Contractor incurred based upon an apportionment of the Owner's allocated responsibility.

The Contractor agrees that any claim or costs of the Owner and/or Construction Manager arising from obligations in this Article and/or Article 15 shall be set off or deducted from payments due the Contractor.

ARTICLE 15--INSURANCE AND CONTRACT SECURITY

SECTION 15.01 – INSURANCE PROVIDED BY CONTRACTOR

A. The Contractor shall procure and maintain all of the insurance required under this Article until all Work, including punch list items, is complete.

The Contractor shall provide insurance as follows:

1. Workers' Compensation and Employers Liability Insurance

    a. Statutory Workers' Compensation (including occupational disease)

b. Employers Liability (with a minimum limit of $1,000,000) New York Statutory Endorsement

2. Commercial General Liability (CGL) with a combined single limit for Bodily Injury, Personal Injury and Property Damage of at least $2,000,000 per occurrence & aggregate. The limit may be provided through a combination of primary and umbrella/excess liability policies.

Coverage shall provide and encompass the following:

a. Written on an occurrence form;

b. Endorsement naming the following as additional insureds: The Fashion Institute of Technology, its auxiliary corporations, the State University of New York, the New York City Department of Education and the City and State of New York, the Construction Manager (if applicable) and other entities specified.

c. Policy or policies must be endorsed to be primary as respects the coverage afforded the Additional Insureds and such policy shall be primary to any other insurance maintained by the Owner. Any other insurance maintained by the Owner shall be excess of and shall not contribute with the Contractor's or Subcontractor's insurance, regardless of the "other insurance" clause contained in the Owner's own policy of insurance.

3. Commercial Automobile Liability and Property Damage Insurance covering all owned, leased, hired and non-owned vehicles used in connection with the Work with a combined single limit for Bodily Injury and Property Damage of at least $1,000,000 per occurrence. The limit may be provided through a combination of primary and umbrella/excess liability policies.

4. Umbrella/excess liability insurance with limits of:

$5,000,000 per occurrence
$5,000,000 general aggregate

B. Before commencement of Work, the Contractor shall submit to the Owner for approval two (2) Certificates of Insurance, indicating the Project. Certificates shall provide thirty (30) days' written notice prior to the cancellation, non- renewal, or material modification of any policy. Upon request, the Contractor shall furnish the Owner and the Construction Manager with certified copies of each policy. In addition, where applicable, the Contractor shall provide copies of Certificates of Insurance to the Construction Manager.

Certificates shall be forwarded to Owner in care of: Purchasing

Sammy Li
Purchasing Deputy Director
FIT Purchasing
333 Seventh Avenue, 15th Floor
New York, NY 10001

Certificate(s) of Insurance, when submitted to the Owner, constitutes a warranty by the Contractor that the insurance coverage described is in effect for the policy term shown.

Should the Contractor engage a Subcontractor, the same conditions as are applicable to the Contractor under these insurance requirements shall apply to each Subcontractor of every tier. Proof thereof shall be supplied to the Owner at the address listed above.

C. All insurance required to be procured and maintained must be procured from insurance companies licensed to do business in the State of New York and rated at least B+ by A.M. Best and Company, or meet such other requirements as are acceptable to the Owner.

D. Should the Contractor fail to provide or maintain any insurance required by this Contract, the Owner may, after providing written notice to the Contractor, purchase insurance complying with the requirements of this Article and charge back such purchase to the Contractor.

E. At any time that the coverage provisions and limits on the policies required herein do not meet the provisions and limits set forth above, the Contractor shall immediately cease Work on the Project. The Contractor shall not resume Work on the Project until authorized to do so by the Owner. Any delay or time lost as a result of the Contractor not having insurance required by this Article shall not give rise to a delay claim or any other claim against the Owner or the Client.

F. Notwithstanding any other provision in this Article, the Owner may require the Contractor to provide, at the expense of the Owner, any other form or limit of insurance necessary to secure the interests of the Owner.

G. The Contractor shall secure, pay for, and maintain Property Insurance necessary for protection against the loss of owned, borrowed or rented capital equipment and tools, including any tools owned by employees, and any tools or equipment, staging towers, and forms owned, borrowed or rented by the Contractor. The requirement to secure and maintain such insurance is solely for the benefit of the Contractor. Failure of the Contractor to secure such insurance or to maintain adequate levels of coverage shall not render the Additional Insureds or their

agents and employees responsible for any losses; and the Additional Insureds, their agents and employees shall have no such liability.

H. Neither the procurement nor the maintenance of any type of insurance by the Owner, the Contractor or the Construction Manager shall in any way be construed or deemed to limit, discharge, waive or release the Contractor from any of the obligations or risks accepted by the Contractor or to be a limitation on the nature or extent of said obligations and risks.

SECTION 15.01A – OTHER INSURANCE PROVIDED BY CONTRACTOR

Railroad Protective Liability insurance: If any Work of the Contract is to be performed on or within fifty (50) feet of a railroad property or railroad right of way or will require entrance upon railroad property or right of way or will require assignment of a railroad employee, the Contractor shall provide and maintain a Railroad Protective Liability policy with the policy limits required by the owner(s) of the railroad, including the MTA. For purposes of this paragraph, a subway is a railroad. The policy form shall be ISO-RIMA or an equivalent form approved by the owner(s) of the railroad. The railroad owner(s) shall be the named insured on the policy and the definition of "physical damage to property" shall mean direct and accidental loss of or damage to all property of any named insured and all property in any named insured's care, custody, or control. If the Contractor shall provide a Railroad Protective Liability insurance policy, the Contractor and any Subcontractor performing on or within fifty (50) feet of railroad property or railroad right of way or entering railroad property or right of way or requiring assignment of a railroad employee shall have their CGL insurance policy endorsed to delete the exclusion of coverage for Work within fifty (50) feet of railroad property.

SECTION 15.02 – GENERAL CONFORMANCE

The Contractor and Subcontractors shall not violate, or be permitted to violate, any term or condition of their insurance policies, and shall at all times satisfy the safety requirements of the Owner and of the insurance companies issuing such policies.

SECTION 15.03 – CONTRACT SECURITY

The Contractor shall furnish a surety bond in an amount at least equal to one hundred (100%) of the Contract price as security for the faithful performance of the Contract and also labor and material bond in the form set forth in the Contract in an amount at least equal to one hundred (100%) of the Contract price for the payment of all persons performing labor or providing materials in connection with the Work. The surety on said bond shall be a surety company authorized to do business in the State of New York and shall be rated at least B+ by A.M. Best and Company, or meet such other requirements as are acceptable to the Owner.

SECTION 15.04 – ADDITIONAL OR SUBSTITUTE BOND

If at any time the Owner shall become dissatisfied with any surety or sureties upon the performance bond, or the labor and material payment bond, or if for any other reason said bonds shall cease to be adequate security to the Owner, the Contractor shall, within five (5) days after notice from the Owner to do so, substitute an acceptable bond or bonds in such form and sum and signed by such other surety or sureties as may be satisfactory to the Owner. The premiums on said bond or bonds shall be paid by the Contractor. No further payments shall be deemed due nor shall be made until the new surety or sureties shall have furnished an acceptable bond or bonds to the Owner.

SECTION 15.05 – FAILURE TO COMPLY WITH PROVISIONS OF ARTICLE 15

The Contract may, at the sole option of the Owner, be declared void and of no effect if the Contractor fails to comply with the provisions of Article 15.

ARTICLE 16 -- USE OR OCCUPANCY PRIOR TO ACCEPTANCE BY OWNER

SECTION 16.01 – OCCUPANCY PRIOR TO ACCEPTANCE

NOT APPLICABLE

ARTICLE 17 -- PAYMENT

SECTION 17.01 – PROVISION FOR PAYMENT

A. The Owner may make a partial payment to the Contractor on the basis of an approved estimate of the Work performed during each preceding business month. The Owner shall retain ten percent (10%) of the amount of each said estimate.

The Contractor shall submit a detailed Contract Payment Breakdown prior to the Contractor's first application for payment. The model contract payment breakdown included in the Contract Documents shall establish the minimum level of detail required for the Contractor's payment breakdown. It is understood and the Contractor acknowledges that this model is included as an administrative tool for

the purpose of illustrating a format and minimum level of detail required for the Contract Payment Breakdown and shall not be considered as delineating the Contractor's Scope of Work. The Owner may request further and more detailed Contract Payment Breakdown. Further, the Owner reserves the right to accept only those cost distributions which, in the Owner's opinion, are reasonable, equitably balanced and correspond to the estimated quantities in the Contract Documents.

No payment shall be made by the Owner until the Contract Payment Breakdown is approved by the Owner.

Each monthly partial payment requisition must include Affirmative Action Form AAP 7.0, Contractor's Compliance Report, properly executed, as a condition precedent to requisition payment by the Owner.

B. In preparing estimates for partial payment, material delivered to the Site and properly stored and secured at the Site, and Material approved to be stored off-site under such conditions as the Owner shall prescribe may be taken into consideration. All costs related to the storage of materials are the sole responsibility of the Contractor.

The Owner will provide an Agreement for Materials Stored Off-Site and specific forms which the Contractor must complete and submit with any request for approval of partial payment for such material. Required information includes but is not limited to: a general description of the material; a detailed list of the materials; a pre-approved storage area; segregation and identification of the material; insurance covering full value against all risks of loss or damage, with non-cancellation provision; immediate replacement agreement in event of loss or damage; agreement to pay the expense of all inspections of the material; ownership provisions; delivery guarantee; project completion statement; bill of sale, releases, and inventory.

C. Any partial payment made shall not be construed as a waiver of the right of the Owner to require the fulfillment of all the terms of the Contract.

D. After the Owner has determined Substantial Completion of the Work, the Contractor shall submit to the Owner, for the Owner's approval, a detailed estimate of the value of the known remaining items of Work as set forth by the Owner and a schedule of completion for said items of Work. The Owner shall review that estimate and make the final determination.

The Owner, when all the Work is substantially complete, shall pay to the Contractor the balance due the Contractor pursuant to the Contract, less:

1. two (2) times the value of any remaining items of Work to be completed or corrected; and

2. an amount necessary to satisfy any and all claims, liens or judgments against the Contractor.

As the remaining items of Work are completed and accepted by the Owner, the

Owner shall pay the appropriate amount pursuant to the duly completed and submitted monthly requisitions.

The list of remaining Work items may be expanded to include additional items of corrective or completion Work until final acceptance as certified by the Owner's execution of "Notification of Construction Completion". Appropriate payments may be withheld to cover the value of these items pursuant to this Section.

E. All Monthly Requisitions submitted by the Contractor shall be on AIA documents G702 and G703. The Contractor shall furnish such affidavits, vouchers and receipts as to delivery and payment for materials as required by the Owner to substantiate each and every payment requested. The Contractor and its Subcontractors will submit with all applications for payment copies of the certified payrolls and certification of payment of wage supplements in a form satisfactory to the Owner. The submission of Contractor and Subcontractor certified payrolls is required at least monthly. No progress payments will be processed without submission by the Contractor of properly executed Affidavit of Payment and Release of Liens (AIA Documents G706 and G706A)."

Section 17.02 - Acceptance of the First Payment Pursuant to Section 17.01 D. of the Contract Constitutes Release

The acceptance by the Contractor of the first payment pursuant to Section 17.01 D. shall be and shall operate as a release to the Owner of all claims by and all liability to the Contractor for all things in connection with the Work and for every act and neglect of the Owner and others relating to or arising out of the Work. No payment, final or otherwise, shall operate to release the Contractor or the Contractor's sureties from any obligations under this Contract or the performance or labor and material payment bonds.

SECTION 17.03 – RELEASE AND CONSENT OF SURETY

Notwithstanding any other provision of the Contract Documents to the contrary, the first payment pursuant to Section 17.01 D. shall not become due until the Contractor submits to the Owner a General Release and a Consent of Surety to said payment pursuant to Section 17.01 D., both in form and content acceptable to the Owner.

SECTION 17.04 - LIENS

Upon the Owner's receipt of a lien, a sum which shall be one and one-half (1 1/2) times the amount stated to be due in the notice of lien shall be deducted from the current payment due the Contractor. This sum shall be withheld until the lien is discharged.

SECTION 17.05 – WITHHOLDING OF PAYMENTS

A. The Owner may withhold from the Contractor any part of any payment as may, in the judgment of the Owner, be necessary:

1. to assure payment of just claims of any persons supplying labor or materials for the Work;

2. to protect the Owner from loss due to defective Work not remedied; or

3. to protect the Owner, Construction Manager or Consultant from loss due to failure to defend, loss due to injury to persons or damage to the Work or property of other contractors, Subcontractors or others caused by the act or neglect of the Contractor or Subcontractors.

4. to assure payment of fines and penalties which may be imposed on the Contractor pursuant to the provisions of this Contract.

B. The Owner shall have the right to apply any such amounts so withheld, in such manner as the Owner may deem proper to satisfy said claims, fines and penalties or to secure said protection. Said application of the money shall be deemed payments for the account of the Contractor.

C. The provisions of this Article 17 are solely for the benefit of the Owner, and any action or non-action hereunder by the Owner shall not give rise to any liability on the part of the Owner.

SECTION 17.06 – OWNER'S RIGHT TO AUDIT AND INSPECTION OF RECORDS

The Contractor shall maintain and keep, for a period of at least six (6) years after the date of final payment, all records and other data relating to the Work, including records of Subcontractors and material suppliers. The Owner or the Owner's Representative shall have the right to inspect and audit all records and other data of the Contractor, Subcontractors and material suppliers relating to the Work.

SECTION 17.07 – FALSE STATEMENTS/INFORMATION

A. False statements, information or data submitted on or with applications for payment may result in one or more of the following actions:

1. Termination of the Contract for cause;
2. Disapproval of future bids or contracts and sub-contracts;
3. Withholding of final payment on the Contract; and
4. Civil and/or criminal prosecution.

B. These provisions are solely for the benefit of the Owner, and any action or non-action hereunder by the Owner shall not give rise to any liability on the part of the Owner.

ARTICLE 18 -- TAX EXEMPTION

SECTION 18.01 – TAX EXEMPTION

A. The Owner is exempt from payment of Federal, State, local taxes and sales and compensating use taxes of the State of New York and of cities and counties on all materials and supplies incorporated into the completed Work. These taxes are not to be included in bids. This exception does not apply to tools, machinery, equipment or other property leased by or to the Contractor or a Subcontractor, or to supplies and materials which, even though they are consumed, are not incorporated into the completed Work, and the Contractor and Subcontractors shall be responsible for and pay any and all applicable taxes, including sales and compensating use taxes, on said leased tools, machinery, equipment or other property and upon all said unincorporated supplies and materials.

B. The Contractor and Subcontractors shall obtain any and all necessary certificates or other documentation from the appropriate governmental agency or agencies, and use said certificates or other documentation as required by law, rule or regulation.

ARTICLE 19 -- GUARANTEE

SECTION 19.01 - GUARANTEE

The Contractor shall in all respects guarantee the Work to the Owner and be responsible for all material, equipment and workmanship of the Work. The Contractor shall forthwith repair, replace or remedy in a manner approved by the Owner, any said material, equipment, workmanship, or other part of the Work found by the Owner to be defective or otherwise faulty and not acceptable to the Owner, which defect or fault appears during the minimum period of one (1) year, or such longer period as may be prescribed by the Contract, from the date of Construction Completion or any part thereof, by the Owner. The Contractor shall also pay for any damage to the Work resulting from said defect or fault.

ARTICLE 20 -- STANDARD PROVISIONS

SECTION 20.01 – PROVISIONS REQUIRED BY LAW DEEMED INSERTED

Each and every provision of law and clause required by law to be inserted in the Contract shall be deemed to be inserted therein and the Contract shall read and shall be enforced as though so included therein.

SECTION 20.02 – COMPLIANCE WITH LAWS, RULES AND REGULATIONS

The Contractor shall comply fully with all applicable laws, rules and regulations.

SECTION 20.03 – LAW GOVERNING THE CONTRACT

The Contract shall be governed by the laws of the state of New York.

SECTION 20.04 - ASSIGNMENT

The Contractor shall not assign the Contract in whole or in part without prior written consent of the Owner. If the Contractor assigns all or part of any moneys due or to become due under the Contract, the instrument of assignment shall contain a clause substantially to the effect that the Contractor and assignee agree that the assignee's right in and to any moneys due or to become due to the Contractor shall be subject to all prior claims for services rendered or materials supplied in connection with the performance of the Work.

SECTION 20.05 – NO THIRD PARTY RIGHTS

Nothing in the Contract shall create or shall give to third parties any claim or right of action against the Owner, the Fashion Institute of Technology, the State University of New York, Board of Education of the City of New York, the City or State of New York and the Construction Manager beyond such as may legally exist irrespective of the Contract.

SECTION 20.06 – CONTRACT DEEMED EXECUTORY

The Contractor agrees that the Contract shall be deemed executory to the extent of moneys available and that no liability shall be incurred by the Owner beyond the moneys available therefore.

SECTION 20.07 – ANTI-RIOT PROVISIONS

A. The Contractor agrees that no part of the Contract funds shall be used to make payments, give assistance, or supply services, in any form, to any individual convicted in any Federal, State or local court of competent jurisdiction for inciting, promoting, or carrying on a riot or engaging in any group activity resulting in material damage to property or injury to persons found to be in violation of Federal, State or local laws designed to protect persons or property.

B. The Contractor and each Subcontractor shall notify their employees of all rules and

regulations adopted pursuant to Article 129-A of the Education Law of the State of New York. Notices containing the text of the aforementioned rules and regulations shall be posted by the Contractor at the Site.

SECTION 20.08 – DOMESTIC STEEL

The Contractor agrees, that if the value of this contract exceeds $100,000 all structural steel, reinforcing steel and other major steel items to be incorporated in the Work of this Contract shall be produced and made in whole or substantial part in the United States, its territories or possessions.

SECTION 20.09 – PROTECTION OF LIVES AND HEALTH

A. Each Contractor and Subcontractor shall comply with all applicable provisions of the laws of the State of New York, the United States of America and with all applicable rules and regulations adopted or promulgated by agencies or municipalities of the State of New York or the United States of America. The Contractor's and Subcontractor's attention is specifically called to the applicable rules and regulations, codes and bulletins of the New York State Department of Labor and to the standards imposed under the Federal Occupational Safety and Health Act of 1970, as amended.

B. The Contractor shall maintain an accurate record of all cases of death, occupational disease, and injury requiring medical attention or causing loss of time from work, arising out of and in the course of employment of Work under the Contract, and shall immediately notify the Owner in writing of any injury which results in hospitalization or death. The Contractor shall provide to the Owner a copy of Form C-2, Employers Report of Injury/Illness within twenty- four (24) hours of any job related injury on the Owner's job site. Further, a copy of the OSHA Log of Injury and Illness shall also be provided to the Owner for any reporting period in which a job related injury or illness is recorded. The Contractor shall also provide a list of witnesses to the Owner. The list shall include at least the full name, home address, occupation and telephone number of each person who saw or has knowledge of the incident which caused the injury or illness.

C. The Contractor alone shall be responsible for the safety, efficiency and adequacy of the Contractor's Work, plant, appliances and methods, and for any damage which may result from the failure or the improper construction, maintenance or operation of such Work, plant, appliances and methods.

D. If, in the performance of the Work, a harmful hazard is created for which appliances or methods of elimination have been approved by regulatory authorities, the Contractor shall install, maintain and operate said appliances or methods.

E. The Owner may impose a payment penalty on the Contractor for any act of non-compliance with this section. The payment penalty shall not exceed one twentieth

(1/20) of the Contract price or a maximum of One Thousand Dollars ($1,000.00) for each time the Contractor fails to perform or to provide the information, reports or forms required in this section. This payment penalty is not exclusive, the Owner may avail itself of any other contractual remedy available.

F. The Owner, Owner's Representative, or Architect may inspect the Site at any time without notice to the Contractor. If the Owner or its representatives find that the Contractor is not complying with Section 20.10 A or any other provision of Section 20.10, the Owner may send written notice to the Contractor to correct any deficiency. Upon re-inspection, if the Owner finds the deficiencies have not been corrected, or in instances where a safety violation (s) must be corrected before Work continues and the Contractor is given three (3) hours to make correction (s) and they are not made, the Owner may let a separate contract to correct any deficiencies and back charge the cost of the separate contract to the Contractor at a premium rate. The Contractor cannot pass these additional charges on to the Owner. No action taken under this section shall be deemed as a basis for any delay claim or any other claim against the Owner by the Contractor.

G. The Contractor shall preserve and safeguard the scene of an accident involving a ladder, scaffold, mobile machinery, equipment, safety railing or uncovered floor opening or any other incident where the injured person required emergency medical treatment. The Contractor shall "tape off" the area, and not allow any material object or property to be altered, changed, moved or removed from the accident site. In addition to "taping off" the accident site, the Contractor shall telephone and send a facsimile or email to Owner immediately, and post a person at the accident site to protect it. Safeguarding and protecting the accident site shall only be abandoned by the Contractor upon release by the Owner or the Owner's Representative. Failure of the Contractor to comply with the provisions of this paragraph shall be deemed a breach of this Contract. In addition to any other contractual remedies available, the Owner may satisfy the breach by imposing the penalties set out in paragraph 20.10 E or void the entire Contract and retain any or all amounts due the Contractor under this Contract.

SECTION 20.10 – PROHIBITED INTERESTS / ETHICAL CONDUCT

A. No officer, employee, architect, attorney, engineer, inspector or consultant of or for the Owner authorized on behalf of the Owner to exercise any legislative, executive, administrative, supervisory or other similar functions in connection with the Contract or the Work, shall become personally interested, directly or indirectly, in the Contract, material supply contract, subcontract, insurance contract, or any other contract pertaining to the Work.

B. The Owner strongly discourages the Contractor from offering or giving anything of value to employees of the Owner under circumstances which may constitute, or even suggest, impropriety. Contractor, or its agents, shall not directly or indirectly offer or give any gift whether in the form of money, service, loan, travel, lodging, meals, refreshments, entertainment, discount, forbearance or promise, or in any other form, to an employee or any representatives of the Owner.

C. To promote a working relationship with the Owner based on ethical business practices, the Contractor shall:

- furnish all goods, materials and services to the Owner as contractually required and specified,
- submit complete and accurate reports to the Owner and its representatives as required,
- not seek, solicit, demand or accept any information, verbal or written, from the Owner or its representatives that provides an unfair advantage over a competitor,
- not engage in any activity or course of conduct that restricts open and fair competition on Owner-related projects and transactions,
- not engage in any course of conduct with Owner employees or its representatives that constitutes a conflict of interest, in fact or in appearance, and
- not offer or give any unlawful gifts or gratuities, or engage in bribery or other criminal activity.

D. The Owner encourages the Contractor to advance and support ethical business conduct and practices among its directors, officers and employees, through the adoption of corporate ethics awareness training programs and written codes of conduct.

E. Although the Contractor may employ relatives of Owner's employees, the Owner must be made aware of such circumstances as soon as possible, in writing, to ensure a conflict of interest situation does not arise. The Owner reserves the right to request that the Contractor modify the work assignment of a relative of an Owner's

employee or representative where a conflict of interest, or the appearance thereof, is deemed to exist.

F. The Contractor may hire former employees of the Owner. However, as a general rule, former employees of the Owner may neither appear nor practice before the Owner, nor receive compensation for services rendered on a matter before the Owner, for a period of *two (2) years* following their separation from service with the Owner. In addition, former employees of the Owner are subject to a *"lifetime bar"* from appearing before the Owner or receiving compensation for services regarding any transaction in which they personally participated or which was under their active consideration during their tenure with the Owner.

G. The Contractor agrees to notify Stephen Tuttle, Esq., the Owner's attorney, at (212) 217-4030 of any activity by an employee of the Owner that is inconsistent with the contents of this Section.

H. Any violation of these provisions shall justify termination of this Contract and may result in Owner's rejection of the Contractor's bids or proposals for future contracts.

SECTION 20.11 – STATE AND FEDERAL LABOR LAW PROVISIONS

A. Although the Work of this Contract is not public work, the Owner intends that all applicable provisions of the Labor Law of the State of New York shall be carried out in the performance of the Work.

B. The Contractor specifically agrees to comply with Labor Law, Sections 220 and 220-d as amended, that:

1. no laborer, workman or mechanic, in the employ of the Contractor, Subcontractor or other person doing or contracting to do the whole or any part of the Work contemplated by the Contract shall be permitted or required to work more than eight (8) hours in any one (1) calendar day and more than five (5) days in any one week, except in the extraordinary emergencies set forth in the Labor Law;

2. the wages paid for a legal day's work shall be not less than the prevailing rate of wages as defined by law;

3. the minimum hourly rate of wage to be paid and supplement provided shall be not less than that stated in the Contract and as shall be designated by the Industrial Commissioner of the State of New York; and

4. the Contractor and every Subcontractor shall post in a prominent and accessible place on the Site, a legible statement of all minimum wage rates and supplements to be paid or provided for the various classes of laborers and mechanics to be engaged in the Work and all deductions, if any,

required by law to be made from unpaid wages actually earned by the laborers and mechanics so engaged.

C. The minimum wage rates, if any, herein specified for apprentices shall apply only to persons working with the tools of the trade which such persons are learning under the direct supervision of journeyman mechanics. Except as otherwise required by law, the number of apprentices in each trade or occupation employed by the Contractor or any Subcontractor shall not exceed the number permitted by the applicable standards of the New York State Department of Labor, or, in the absence of such standards, the number permitted under the usual practice prevailing between the unions and the employers' association of the respective trades or occupations.

D. All employees of the Contractor and each Subcontractor shall be paid in accordance with the provisions of the Labor Law. Certified payroll copies shall be provided to the Owner as specified in these General Conditions and otherwise upon request.

E. The Contractor agrees that, in case of underpayment of wages to any worker engaged in the Work by the Contractor or any Subcontractor, the Owner shall withhold from the Contractor out of payments due an amount sufficient to pay such worker the difference between the wages required to be paid under the Contract and the wages actually paid such worker for the total number of hours worked, and that the Owner may disburse such amount so withheld by the Owner for and on account of the Contractor to the employee to whom such amount is due. The Contractor further agrees that the amount to be withheld pursuant to this paragraph may be in addition to the percentages to be retained by the Owner pursuant to other provisions of the Contract.

F. Pursuant to subdivision 3 of section 220 and section 220-d of the Labor Law the Contract shall be forfeited and no sum paid for any Work done thereunder upon a Contractor's or Subcontractor's second conviction for willfully paying or providing less than:

1. the stipulated wage scale or supplement as established by the fiscal officer, or
2. less than the stipulated minimum hourly wage scale as designated by the Industrial Commissioner.

G. Pursuant Labor Law, Section 220-e, the Contractor specifically agrees:

1. That in the hiring of employees for the performance of Work under the Contract or any subcontract hereunder, or for the manufacture, sale or distribution of materials, equipment or supplies hereunder, but limited to operation performed within the territorial limits of the State of New York, no Contractor, Subcontractor, nor any person acting on behalf of such Contractor or Subcontractor, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the Work to which the employment relates;

2. That no Contractor, Subcontractor, nor any person on behalf of such Contractor or Subcontractor shall, in any manner, discriminate against or intimidate any employee hired for the performance of work under the Contract on account of race, creed, color, disability, sex or national origin;

3. That there may be deducted from the amount payable to the Contractor, by the Owner under the Contract, a penalty of fifty dollars ($50.00) for each person for each calendar day during which such person was discriminated against or intimidated in violation of the terms of the Contract; and

4. That the Contract may be canceled or terminated by the Owner and all moneys due or to become due hereunder may be forfeited for a second or any subsequent violation of the terms or conditions of this section of the Contract, or when one final determination involves the falsification of payroll records or the kickback of wages and/or supplements.

H. The Contractor specifically agrees:

1. That the Contractor shall certify its payrolls and keep these certified records on site and available, and provide copies to the Owner upon request.

2. That the Contractor shall provide each worker with a written notice informing the worker of the prevailing wage requirements for the job. The notice shall contain a simple statement or declaration for the worker's

SECTION 20.12 - NONDISCRIMINATION

During the performance of the Work, the Contractor agrees as follows:

A. The Contractor will not discriminate against any employee or applicant for employment because of race, religion/creed, color, sex, sexual orientation, gender, gender identity/expression, national origin, age, disability, marital status, or any other protected category.

B. If directed to do so by the Commissioner of Human Rights, the Contractor will send to each labor union or representative of workers with which the Contractor has or is bound by a collective bargaining or other agreement or understanding, a notice, to be provided by the State Commissioner of Human Rights, advising such labor union or representative of the Contractor's agreement under clauses A through G (hereinafter called "non-discrimination clauses"). If the Contractor was directed to do so by the Owner as part of the bid or negotiation of this Contract, the Contractor shall request such labor union or representative to furnish a written statement that such labor union or representative will not discriminate because of race, creed, color, sex, national origin, age, disability or marital status, and that such labor union or representative will cooperate, within the limits of its legal and contractual authority, in the implementation of the policy and provisions of these nondiscrimination clauses and that it consents and agrees that recruitment, employment and the terms and conditions of employment under this Contract shall be in accordance with the purposes and provisions of these nondiscrimination clauses. If such labor union or representative fails or refuses to comply with such a request that it furnish such a statement, the Contractor shall promptly notify the State Commissioner of Human Rights of such failure or refusal.

C. If directed to do so by the Commissioner of Human Rights, the Contractor shall post and keep posted in conspicuous places, available to employees and applicants for employment, notices to be provided by the State Commissioner of Human Rights setting forth the substance of the provisions of clauses A and B and such provisions of the State's laws against discrimination as the State Commissioner of Human Rights shall determine.

D. The Contractor shall state, in all solicitations or advertisement for employees placed by or on behalf of the Contractor, that all qualified applicants will be afforded equal employment opportunities without discrimination because of race, creed, color, sex, national origin, age, disability or marital status.

E. The Contractor shall comply with the provisions of Section 290-299 of the Executive Law and with the Civil Rights Law, will furnish all information and reports deemed necessary by the State Commissioner of Human Rights under these nondiscriminatory clauses and such sections of the Executive Law, and will permit access to the Contractor's books, records and accounts by the State Commissioner for the purposes of investigation to ascertain compliance with these nondiscrimination clauses and such sections of the Executive Law and Civil Rights Law.

F. This Contract may be forthwith canceled, terminated or suspended, in whole or in part, by the Owner upon the basis of a finding made by the State Commissioner of Human Rights that the Contractor has not complied with these nondiscrimination clauses, and the Contractor may be declared ineligible for future contracts made by or on behalf of the State or a public authority or agency of the State, until the Contractor satisfies the State Commissioner of Human Rights that the Contractor has established and is carrying out a program in conformity with the provisions of these nondiscrimination clauses. Such finding shall be made by the State Commissioner of Human Rights after conciliation efforts by the Commissioner have failed to achieve compliance with these nondiscrimination clauses and after a verified complaint has been filed with the Commissioner, notice thereof has been given to the Contractor and an opportunity has been afforded the Contractor to be heard publicly in accordance with the Executive Law. Such sanctions may be imposed and remedies invoked independently of or in addition to sanctions and remedies otherwise provided by law.

G. The Contractor shall include the provisions of clauses A through F above in every subcontractor purchase order in such a manner that such provisions will be binding upon each Subcontractor or vendor as to operation to be performed within the State of New York. The Contractor shall take such action in enforcing such provisions of such Subcontract or purchase order as the State Commissioner of Human Rights or the Owner may direct, including sanctions or remedies for noncompliance. If the Contractor becomes involved in or is threatened with litigation with a Subcontractor or vendor as a result of such direction by the State Commissioner of Human Rights or the Owner, the Contractor shall promptly so notify the Attorney General, requesting the Attorney General to intervene and to protect the interests of the State of New York.

SECTION 20.13 – LIMITATION ON ACTIONS

No action or proceeding shall lie in favor of or shall be maintained by the Contractor against the Owner unless such action shall be commenced within six (6) months after receipt by the Owner of the Contractor's final requisition or, if the Contract is terminated by the Owner, unless such action is commenced within six (6) months after the date of such termination.

SECTION 20.14 – WAIVER OF REMEDIES

Inasmuch as the Contractor can be compensated adequately by money damages for any breach of the Contract which may be committed by the Owner, the Contractor agrees that no default, act or omission of the Owner shall constitute a material breach of Contract entitling the Contractor to cancel or rescind the same or to suspend or abandon performance thereof; and the Contractor hereby waives any and all rights and remedies to which the Contractor might otherwise be or become entitled to because of any wrongful act or omission of the Owner saving only the Contractor's right to money damages.

SECTION 20.15 – WAIVER OF CERTAIN CAUSES OF ACTION

No action or proceeding shall lie or shall be maintained by the Contractor, nor anyone claiming under or through the Contractor, against the Owner upon any claim arising out of or based upon the Contract, relating to the giving of notices or information.

SECTION 20.16 – CONTRACTOR RELATIONSHIP

The relationship created by the Contract between the Owner and the Contractor is one of an independent contractor and it is no way to be construed as creating an agency relationship between the Owner and the Contractor nor is it to be construed as, in any way or under any circumstances, creating or appointing the Contractor as an agent of the Owner for any purpose whatsoever.

SECTION 20.17 – FAILURE TO COMPLY WITH THIS ARTICLE

The Contract shall be void and of no effect unless the Contractor complies with the provisions of this Article 20.

SECTION 20.18 – YEAR 2000 WARRANTY

SECTION DELETED

SECTION 20.19 – FALSE RECORDS/KICKBACKS

The Contractor agrees that this Contract may be canceled or terminated for cause by the Owner and all moneys due or to become due hereunder may be forfeited upon the Owner's determination that the Contractor has submitted false records to the Owner and/or that the Contractor has participated in the kickback of wages. Said determination by the Owner must first allow the Contractor an opportunity to show why its Contract should not be canceled or terminated for cause for said actions.

ARTICLE 21- COOPERATION WITH INVESTIGATIONS

The Contractor agrees to cooperate fully and faithfully with any investigation, audit or inquiry conducted by the Owner or any other duly authorized representative of the Owner ("Representative").

The Contractor shall grant the Owner or the Representative the right to examine all books, records, files, accounts, computer records, documents and correspondence, including electronically-stored information, in the possession or control of the Contractor, its subsidiaries and affiliated companies and any other company directly or indirectly controlled by the Contractor, relating to the Contract. These shall include, but not be limited to: Subcontracts; bid files; payroll and personnel records; cancelled checks; correspondence; memoranda; reports; audits; vendor qualification records; original estimate files; change order/amendment estimate files; detailed worksheets; Subcontractor, consultant and supplier proposals for both successful and unsuccessful bids; back-charge logs; any records detailing cash, trade, or volume discounts earned; insurance proceeds, rebates or dividends received; payroll and personnel records; tax returns, and the supporting documentation for the aforesaid books and records.

At the Owner's or the Representative's request, said materials shall be provided in a computer readable format, where available. At the request of the Owner or the Representative, the Contractor shall execute such documents, if any, as are necessary to give the Owner or the Representative access to Contract-related books, documents or records which are, in whole or part, under control of the Contractor but not currently in the Contractor's physical possession. The Contractor shall not enter into any agreement with a Subcontractor, consultant or supplier, in connection with the Contract, that does not contain a right to audit clause in favor of the Owner. The Contractor shall assist the Owner or the Representative in obtaining access to past and present Subcontractor, consultant and supplier amendment/change order files (including detailed documentation covering negotiated settlements), accounts, computer records, documents, correspondence, and any other books and records in the possession of Subcontractors, consultants and suppliers pertaining to the Contract, and, if appropriate, enforce the right-to-audit provisions of such agreements.

The Contractor shall assist the Owner or the Representative in obtaining access to, interviews with, and information from all former and current persons employed and/or retained by the Contractor, for purposes of the Contract.

The Contractor shall require each Subcontractor to include in all agreements that the

Subcontractor may hereinafter enter into with any and all Subcontractors, consultants and suppliers, in connection with the Contract, a right-to-audit clause in favor of the Owner conferring rights and powers of the type outlined in this section. The Contractor shall not enter into any Subcontract with a Subcontractor in connection with the Contract that does not contain such a provision.

The Contractor shall not make any payments to a Subcontractor, consultant or supplier from whom the Contractor has failed to obtain and supply to the Owner or the Representative complete, accurate and truthful information in compliance with a request from the Owner or the Representative to the Contractor.

Any violation of the provisions of this Article shall justify termination of this Contract and may result in the Owner's rejection of the Contractor's bids or proposals for future contracts.

SECTION VI.
LABOR & MATERIAL PAYMENT BOND

LABOR & MATERIAL PAYMENT BOND

KNOW ALL BY THESE PRESENTS:

That_____
(Here insert the name and address or legal title of the Contractor)

_____

as Principal, hereinafter called Principal, and _____

_____
(Here insert the legal title of Surety)

_____
(Address)

as Surety, hereinafter called Surety, are held and firmly bound unto The Fashion Institute of Technology, as applicable, as Obligee, hereinafter called Owner, for the use and benefit of the claimants as hereinbelow defined, in the amount of _____

_____and /100 Dollars ($_____)

WHEREAS, Principal has by written agreement dated _____

entered into a Contract with Owner for _____

_____

in accordance with the Contract Documents and any changes thereto, which are made a part hereof, and are hereinafter referred to as the Contract.

NOW, THEREFORE, THE CONDITION OF THIS OBLIGATION is such that if the Principal shall promptly make payment to all claimants as hereinafter defined, for all labor and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void; otherwise such obligation shall remain in full force and effect, subject, however, to the following conditions:

1. A claimant is defined as one having a direct Contract with the Principal or with a Subcontractor of the Principal for labor, material, or both, used or reasonably required for use in the performance of the Contract, labor and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment directly applicable to the Contract.

2. The above named Principal and Surety hereby jointly and severally agree with the Owner that every claimant as herein defined, who has not been paid in full

before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work or labor was done or performed, or materials were furnished by such claimant, may sue on this bond for the use of such claimant, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon. The Owner shall not be liable for the payment of any costs or expenses of any such suit.

3. No suit or action shall be commenced hereunder by any claimant:

   a. Unless claimant, other than one having a direct contract with the Principal, shall have given written notice to any two (2) of the following: 1) the Principal, 2) the Owner, or 3) the Surety above named, within ninety (90) days after such claimant did or performed the last of the work or labor, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work or labor was done or performed. Such notice shall be served by mailing the same by registered mail or certified mail, postage prepaid, in an envelope addressed to the Principal, Owner, or Surety, at any place where an office is regularly maintained by said Principal, Owner, or Surety for the transaction of business, or served in any manner in which legal process may be served in the State in which the aforesaid project is located, save that such service need not be made by a public officer.

   b. After the expiration of one (1) year following the date on which Principal ceased work of said Contract, however, if any limitation embodied in this bond is prohibited by any law controlling the construction hereof such limitation shall be deemed to be amended so as to be equal to the minimum period of limitation permitted by such law.

   c. Other than in a State court of competent jurisdiction in and for the county or other political subdivision of the State in which the project, or any part thereof, is situated, or in the United States District Court for the district in which the project, or any part thereof, is situated, and not elsewhere.

4. The penal sum of this Bond is in addition to any other Bond furnished by the Contractor and in no way shall be impaired or affected by any other Bond.

5. The amount of this Bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of Mechanics' Liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this Bond.

Signed this_____day of_____20__.

IN THE PRESENCE OF:

_____	_____
(Principal)	(Surety)
_____	_____
(Signature)	(Signature)
_____	_____
(Print Name and Title)	(Print Name and Title)
_____	_____
(Address)	(Address)
_____	_____
(City, State, Zip)	(City, State, Zip)

Telephone (____)_____

Fax No. _____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

STATE OF_____) ss:

COUNTY OF_____)

On the_____day of_____in the year 20__, before me personally came_____to me known, who, being by me duly sworn, did depose and say that (s)he resides at_____, that (s)he is the _____ of_____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

_____

Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

STATE OF_____)ss:

COUNTY OF_____)

On the_____ day of_____ in the year 20__, before me personally came

_____, to me known and known to me to be a member of the firm_____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purpose mentioned therein.

_____
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF_____) ss:

COUNTY OF_____)

On the_____day of_____in the year 20__, before me personally came _____, to me known and known to me to be the person described in and who executed the foregoing instrument and (s)he duly acknowledged that (s)he executed the same.

_____
Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF NEW YORK)

COUNTY OF_____) ss:

On the_____day of_____in the year 20__, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____ _____, that (s)he is the _____of_____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

_____
Notary Public

SECTION VII.
PERFORMANCE BOND

PERFORMANCE BOND

KNOW ALL BY THESE PRESENTS:

That_____
(Here insert the name and address or legal title of the Contractor)

_____

as Principal, hereinafter called Principal, and _____

_____
(Here insert the legal title of Surety)

_____
(Address)

as Surety, hereinafter called Surety, are held and firmly bound unto The Fashion Institute of Technology, as applicable, as Obligee, hereinafter called Owner, in the amount of _____

_____and _____ /100 Dollars ($_____) for the payment whereof Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS, CONTRACTOR has by written agreement dated _____

entered into a Contract with Owner for _____

_____

in accordance with the Contract Documents and any changes thereto, which are made a part hereof, and are hereinafter referred to as the Contract.

1. If the Contractor performs the Contract, the Surety and the Contractor shall have no obligation under this Bond, except to participate in conferences as provided in Subparagraph 2.1.

2. If there is no Owner default, the Surety's obligation under this Bond shall arise after:

2.1 The Owner has notified the Contractor, the Surety at its address described in Paragraph 8. below that the Owner is considering declaring a Contractor in default.

2.2 The Owner has declared a Contractor in default and formally terminated the Contractor's right to complete the Contract.

2.3 The Owner has agreed to pay the Balance of the Contract Price to the Surety in accordance with the terms of the Contract or to a Contractor selected to perform the Contract in accordance with the terms of the Contract with the Owner.

3. When the Owner has satisfied the conditions of Paragraph 2 herein., the Surety shall, at the Owner's option, promptly and at the Surety's expense take on the following actions:

3.1 Arrange for the Contractor, with consent of the Owner, to perform and complete the Contract; or

3.2 Undertake to perform and complete the Contract itself, through its agents or through independent contractors; or

3.3 Obtain bids or negotiated proposals from qualified contractors acceptable to the Owner for a contract for performance and completion of the Contract, arrange for a contract to be prepared for execution by the Owner and the Contractor selected with the Owner's concurrence, to be secured with performance and payment bonds executed by a qualified Surety equivalent to the bonds issued on the Contract, and pay to the Owner the amount of damages as described in Paragraph 5. in excess of the Balance of the Contract Price incurred by the Owner resulting from the Contractor default.

4. If the Surety does not proceed with reasonable promptness, the Surety shall be deemed to be in default on this Bond, and the Owner shall be entitled to enforce any remedy available to the Owner.

5. After the Owner has terminated the Contractor's right to complete the Contract, and if the Surety elects to act under Subparagraph 3.1, 3.2, or 3.3 above, then the responsibilities of the Surety to the Owner shall not be greater than those of the Contractor under the Contract, and the responsibilities of the Owner to the Surety shall not be greater than those of the Owner under the Contract. To the limit of the amount of this Bond, but subject to commitment by the Owner of the Balance of the Contract Price to mitigation of costs and damages on the Contract, the Surety is obligated without duplication for:

5.1 The responsibilities of the Contractor for correction of defective work and completion of the Contract;

5.2 Additional legal, design, professional, and delay costs resulting from the Contractor's Default, and resulting from the actions or failure to act of the Surety under Paragraph 3.; and

5.3 Liquidated Damages, or if no liquidated damages are specified in the Contract, actual damages caused by delayed performance or non-performance of the Contractor. 3

6. The Surety shall not be liable to the Owner or others for obligations of the Contractor that are unrelated to the Contract, and the Balance of the Contract Price shall not be reduced or set off on account of any such unrelated obligations. No right of action shall accrue on this Bond to any person or entity other than the Owner or its heirs, executors, administrators or successors.

7. The Surety hereby waives notice of any change, including changes of time, to the Contract

or to related subcontracts, purchase orders, and other obligations.

8. Notice of the Surety and the Contractor shall be mailed or delivered to the address shown on the signature page. Notice to the Owner shall be mailed or delivered to the address shown in the preamble.

9. Definitions:

9.1 Balance of the Contract Price: The total amount payable by the Owner to the Contractor under the Contract after all proper adjustments have been made, including allowance to the Contractor of any amounts received or to be received by the Owner in settlement of insurance or other claims for damages to which the Contractor is entitled, reduced by all valid and proper payments made to or on behalf of the Contractor under the Contract.

9.2 Contract: The agreement between the Owner and the Contractor identified on the signature page, including all Contract Documents and changes thereto.

9.3 Contractor Default: Failure of the Contractor, which has neither been remedied nor waived, to perform or otherwise to comply with the terms of the Contract.

9.4 Owner Default: Failure of the Owner, which has neither been remedied nor waived, to pay the Contractor as required by the Contract or to perform and complete or comply with the other terms thereof.

The penal sum of this Bond is in addition to any other Bond furnished by the Contractor and in no way shall be impaired or affected by any other Bond.

Any suit under this Bond must be instituted before the expiration of two (2) years from the date on which Final Payment is made under this Contract.

Signed this_____day of_____20__.

IN THE PRESENCE OF:

_____	_____
(Principal)	(Surety)
_____	_____
(Signature)	(Signature)
_____	_____
(Print Name and Title)	(Print Name and Title)

_____ (Address)

_____ (City, State, Zip)

_____ (Address)

_____ (City, State, Zip)

Telephone (____)_____

Fax No. _____

ACKNOWLEDGEMENT OF PRINCIPAL, IF A CORPORATION

STATE OF_____) ss:

COUNTY OF_____)

On the_____ day of_____ in the year 20__, before me personally came

_____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at_____, that (s)he is the_____of _____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

_____
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF A PARTNERSHIP

STATE OF_____)ss:

COUNTY OF_____)

On the_____ day of_____ in the year 20__, before me personally came

_____, to me known and known to me to be a member of the firm _____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purpose mentioned therein.

_____
Notary Public

ACKNOWLEDGEMENT OF PRINCIPAL, IF AN INDIVIDUAL

STATE OF_____) ss:

COUNTY OF_____)

On the _____ day of _____ in the year 20_, before me personally

came_____, to me known and known to me to be the person described in and who executed the foregoing instrument and (s)he duly acknowledged that (s)he executed the same.

_____

Notary Public

ACKNOWLEDGEMENT OF SURETY

STATE OF NEW YORK)

COUNTY OF_____) ss:

On the _____ day of_____ in the year 20_, before me personally came

_____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____

_____, that (s)he is the_____ of_____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

_____

Notary Public

SECTION VIII.
FORM OF BID

FORM OF BID

(Contract for Total of All Materials and Labor)

The Fashion Institute of Technology
(Owner)

For:

The Fashion Institute of Technology is requesting Bids for the Work described in Section II. Bid Terms and Conditions, II. Summary of Scope of Work and as shown and described on the drawings and specifications provided with this document at the Fashion Institute of Technology's "_____" located on 27th street campus. To be known from this point forward as the "_____"

Pursuant to and in compliance with the Owner's advertisement for bids dated_____, 201 and the Contract Documents relating hereto, the undersigned hereby offers to provide all plant, labor, materials, supplies, equipment, and other facilities and things necessary or proper for or incidental to, the General Contracting and Electrical Work as required by, and in strict accordance with, the applicable provisions of the Contract Documents, as defined in the General Conditions, including changes thereto, and all of the addenda issued by the Owner and sent to the undersigned by facsimile transmission or delivered to the bidder prior to the date of opening of bids, whether received by the undersigned or not, for the total sum of

_____Dollars

($_____).

The Bid may be withdrawn at any time prior to the scheduled time for the opening of bids or any authorized postponement thereof.

If written notice of the acceptance of the Bid is sent to the undersigned by certified or registered mail or by facsimile transmission or delivered to the undersigned within ninety (90) days after the date of opening of the bids, or any time thereafter before the Bid is withdrawn, the undersigned shall, within eight (8) days after the date of such mailing, facsimile transmission, or delivery of such notice, execute and deliver a Contract in the Form of Contract included in the Contract Documents.

The undersigned hereby designates as the undersigned's office to which such notice of acceptance may be mailed, transmitted, or delivered as _____
_____
_____

SECTION IX.

NON-COLLUSIVE BIDDING CERTIFICATION

Non-collusive Bidding Certification

By submission of this bid, each bidder and each person signing on behalf of any bidder certifies, and, in the case of a joint bid, each party thereto certifies as to its own organization, under penalty of perjury, that to the best of its knowledge and belief:

1. The prices in the bid have been arrived at independently without collusion, consultation, communication or agreement, for the purpose of restricting competition, as to any matter relating to such prices with any other bidder or with any competitor;

2. Unless otherwise required by law, the prices which have been quoted in the bid have not been knowingly disclosed by the bidder and will not knowingly be disclosed by the bidder prior to opening, directly or indirectly, to any other bidder or to any competitor; and

3. No attempt has been made or will be made by the bidder to induce any other person, partnership, or corporation to submit or not to submit a bid for the purpose of restricting competition.

Firm Name _____

Address _____

_____

By_____
(Signature and Title)

Dated: _____

Telephone (____)_____Fax No. (____)_____

_____
(Taxpayer ID or Social Security Number)

ACKNOWLEDGEMENT OF BIDDER, IF A CORPORATION

STATE OF NEW YORK)
COUNTY OF_____) ss:

On the_____day of_____, 20_, before me personally came _____

to me known, who, being by me duly sworn, did depose and say that (s)he resides at _____

_____, that (s)he is the_____of _____

_____, the corporation described in and which executed the above instrument;

and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

_____
Notary Public

ACKNOWLEDGEMENT OF BIDDER, IF A PARTNERSHIP

STATE OF NEW YORK)
COUNTY OF_____) ss:

On the_____day of_____, 20__, before me personally came _____ to me known and known to me to be a member of the firm _____ _____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purposes mentioned therein.

_____
Notary Public

ACKNOWLEDGEMENT OF BIDDER, IF AN INDIVIDUAL

STATE OF NEW YORK)
COUNTY OF_____) ss:

On the_____day of_____, 20__, before me personally came _____ to me known and known to me to be the person described in and who executed the foregoing instrument, and (s)he duly acknowledged that (s)he executed the same.

_____
Notary Public

SECTION X:

SUBSTITUTION FORM REQUEST

FASHION INSTITUTE OF TECHNOLOGY

SUBSTITUTION REQUEST FORM

1.1 CONDITIONS OF SUBSTITUTIONS

A. Substitution indicated on this Form is a proposed substitute to requirements indicated in the Contract Documents. Substitution listed has not been included in an Addendum. Submit one Form for each proposed substitution.
B. For each proposed Substitution, state difference in price or "No Change" where Substitution is offered.
C. Attach complete technical data, specifications, and description of substitutions.
D. Architect reserves the right to accept or reject any or all proposed substitutions.

1.2 SUBSTITUTION REQUEST

The following information is hereby submitted for a substitution to the specified item.

Specification Section and Title: _____

Paragraph_____ Page_____ Specified Item _____

Proposed Substitution: _____

Manufacturer:_____ Address:_____ Phone: _____

Trade Name:_____ Model No: _____

Price Difference:_____ or No Change _____

The Undersigned certifies:

A. Proposed substitution has been fully investigated and determined to be equal or superior in all respects to specified product.
B. Same warranty will be furnished for proposed substitution as for specified product.
C. Same maintenance service and source of replacement parts, as applicable is available.
D. Proposed substitution will have no adverse effect on other trades and will not affect or delay progress schedule.
E. Proposed substitution does not affect dimensions and functional clearances.
F. Payment will be made for changes to the building design, including A/E design, detailing, and construction costs caused by the substitution.

Submitted by: _____

Signed by: _____

Firm: _____

Address: _____

Telephone: _____ FAX: _____

ARCHITECT'S REVIEW AND ACTION

□ Substitution Approved – Make submittals in accordance with General Requirements
□ Substitution Approved As Noted – Make submittals in accordance with General Requirements.
□ Substitution Rejected – Use specified materials.
□ Substitution Request Received Too Late. Use specified materials.

Signed by: _____

Supporting Data Attached: □ Drawings □ Product Data □ Samples □ Tests
□ Reports □ Other_____

SECTION XI.
CONTRACT

TO BE SIGNED ONLY UPON AWARD

CONTRACT

This Agreement made as of the_____day of_____20____, by and between the _____, hereinafter referred to as the "**OWNER**" and _____hereinafter referred to as the "Contractor", for Work at _____

_____

WITNESSETH: That the **OWNER** and the Contractor for the consideration named agree as follows:

1. The Contractor shall Provide and shall perform all Work of every kind or nature whatsoever required and all other things necessary to complete in a proper and workmanlike manner the _____

_____

_____in strict accordance with the Contract Documents as defined in the General Conditions (and of which a listing of specifications and drawings are attached hereto) and in strict accordance with such changes as are ordered and approved pursuant to the Contract, and shall perform all other obligations imposed on such Contractor by the Contract.

2. The Contractor agrees to perform all Work and labor required, necessary, proper for, or incidental to the Work, and to Furnish all supplies and materials required, necessary, proper for, or incidental to the Work for the total sum of_____ _____and 00/100 Dollars ($_____ _____.00), which sum shall be deemed to be in full consideration for the performance by the Contractor of all the duties and obligations of such Contractor under the Contract.

3. The Contractor shall commence Work on the Contract at a time to be specified in a written notice to proceed issued by the OWNER and complete the project no later than_____.

IN WITNESS WHEREOF, the parties hereto have executed this Contract the day and year first above written.

Fashion Institute of Technology

_____

Sherry Brabham, VP of Finance

_____

(Name of Contractor)

By_____

(Signature)

_____

(Print Name and Title)

ACKNOWLEDGEMENT OF CONTRACTOR, IF A CORPORATION

STATE OF_____)
COUNTY OF_____) ss:

On the_____day of_____in the year 20____, before me personally came _____ to me known, who, being by me duly sworn, did depose and say that (s)he resides at_____, that (s)he is the_____of_____, the corporation described in and which executed the above instrument; and that (s)he signed her/his name thereto by order of the Board of Directors of said corporation.

_____
Notary Public

ACKNOWLEDGEMENT OF CONTRACTOR, IF A PARTNERSHIP

STATE OF_____)
COUNTY OF_____) ss:

On the_____day of_____in the year 20__, before me personally came _____to me known and known to me to be a member of the firm_____, described in and who executed the foregoing instrument, and (s)he duly acknowledged to me that (s)he executed the same for and in behalf of said firm for the uses and purpose mentioned therein.

_____
Notary Public

ACKNOWLEDGEMENT OF CONTRACTOR, IF AN INDIVIDUAL

STATE OF_____)
COUNTY OF_____) ss:

On the_____day of_____in the year 20__, before me personally came_____, to me known and known to me to be the person described in and who executed the foregoing instrument and (s)he duly acknowledged that (s)he executed the same.

_____
Notary Public

SECTION XII.
AFFIRMATIVE ACTION FORM

MONTHLY CONTRACTOR'S COMPLIANCE REPORT FORM AAP 7.0

INSTRUCTION SHEET

ALL PAYMENT REQUISITION, CONTRACTOR AND PROJECT INFORMATION ON THE TOP PORTION OF THE FORM MUST BE COMOPLETELY FILLED OUT. PLEASE NOTE:

False statements, information or data submitted on or with application for payment may result in one or more of the following actions: Termination of Contract for cause; Disapproval of future bids, or contracts or subcontracts; Withholding of final payments on the contract; and Civil and/or criminal prosecution.

PART B- PAYMENTS TO SUBCONTRACTORS AND SUPPLIERS

1) ALL FIRMS THAT YOU ARE UTILIZING ON THE JOB MUST BE LISTED EACH TIME **REGARDLESS** IF THEY ARE SCHEDULED TO RECEIVE PAYMENTS OUT OF THE PROCEEDS OF THE REQUISITION FOR PAYMENT.

2) All relevant information for each subcontractor and/or supplier must be filled in. This includes firm's complete name, address, phone number and Federal ID #. In addition, if the firm is a **NYS CERTIFIED MBEIWBE**, please indicate as such in the appropriate box.

   AS A REMINDER, ONLY THOSE FIRMS THAT HAVE NYS CERTIFICATION BY THE EMPIRE STATE DEVELOPMENT CORPORATION CAN BE COUNTED TOWARDS THE MBE/WBE GOAL ACHIEVEMENT FOR THE PROJECT.

3) The percentage of the job or purchases completed must be filled in and in addition, please indicate the number of change orders issued on any subcontract agreement or the number of purchase orders issued to date if purchasing supplies.

4) A description of the work being performed by a subcontractor or the type of supplies being purchased must be filled in.

DEFINITIONS

INTENDED PAYMENT: This is the amount of money that you intend to pay to each firm with the money that you will receive from the accompanying requisition. **This is not** the amount that you intend to pay over the life of the contract.

AMOUNT PAID TO DATE: This is the amount of money that has **ACTUALLY** been paid to date from previous requisitions submitted. It does not include the amount that you intend to pay from this requisition. THIS AMOUNT WILL BE VERIFIED BY OUR OFFICE PRIOR TO CLOSE OUT OF THE JOB BY THE RECEIPT OF COPIES OF CANCELED CHECKS OR PAID INVOICES.

CURRENT VALUE OF SUBCONTRACT: This is the total value to date of any subcontract agreement that has been issued to the firm by your company. It should be inclusive of any change orders issued to the original contract. **NOTE:** THIS LINE IS FOR SUBCONTRACTOR INFORMATION ONLY. IF THE FIRM LISTED IS A SUPPLIER THAT YOU ARE PURCHASING SUPPLIES OR MATERIAL FROM, LEAVE BLANK AND GO TO THE NEXT LINE.

TOTAL VALUE OF ALL PURCHASE ORDERS: This is the total amount of **all** purchase orders that will be issued to the firm for the entire job. The number of purchase orders issued to date should be reflected in the area indicated to the left. **NOTE:** THIS LINE IS FOR SUPPLIER INFORMATION ONLY. IF THE FIRM IS A SUBCONTRACTOR, LEAVE THIS AREA BLANK. A SUBCONTRACTOR AGREEMENT SHOULD BE ISSUED WHICH WOIULD BE REFLECTED ON THE PREVIOUS LINE.

The current form that you should be utilizing is form: AAP 7.0 Revised 1/9/08. This form must be included with each payment requisition submitted or the payment will not be processed.

If the form is not filled out according to the above instructions, your next payment requisition may be held until corrections are made. In addition, each report submitted must have an original signature and date.

MONTHLY CONTRACTOR'S COMPLIANCE REPORT

Payment Requisition Date _____
Payment Requisition Amount $._____
FIT Contract Number _____

CONTRACTOR INFORMATION

Name_____ Federal ID No. _____

Address_____

Contact Person_____ Telephone Number _____

PROJECT INFORMATION

Institution_____ City and Zip Code _____

Work Description _____

Part B – Payments to Subcontractors and Suppliers: Provide name, address and telephone number of **ALL** subcontractors to which you have awarded a subcontract or suppliers to which you have issued a purchase order. Place **X** in check box to indicate whether they are a New York State certified MBE or WBE or Other. In addition, for each firm listed below you must also include: the firms federal identification number; amount of intended payment to be made from proceeds of the accompanying requisition; percent complete, amount paid to date; the number of change orders or purchase orders; current value of subcontract (including change orders) or cumulative value of purchase orders; and a brief description of the work or service. All subcontractors or suppliers with whom you have an agreement should be listed below, even if they are not scheduled to receive a payment out of the proceeds of the attached requisition for payment. For further details, see Instruction Sheet

Firm_____ ☐ MBE ☐ WBE ☐ Other Fed. ID# _____

Address_____ Phone#_____ Intended Payment$._____

Address _____ Percent Complete_____ Amount Paid to Date$_____

No. of Change Orders._____ Current Value of Subcontract $_____

No. of Purchase Orders Issued _____ Total Value of Purchase Orders $ _____

Work Description _____

Firm_____ ☐ MBE ☐ WBE ☐ Other Fed. ID# _____

Address_____ Phone #_____ Intended Payment$._____

Address _____ Percent Complete_____ Amount Paid to Date$_____

No. of Change Orders._____ Current Value of Subcontract $_____

No. of Purchase Orders Issued _____ Total Value of Purchase Orders $ _____

Work Description _____

False statements, information or data submitted on or with application for payment may result in one or more of the following actions: Termination of Contract for cause; Disapproval of future bids, or contracts or subcontracts; Withholding of final payments on the contract; and Civil and/or criminal prosecution.

_____ _____
Name of Principalor Officer (Type or Print) Title of Principal or Officer {Type or Print)

_____ _____
Signature of Principal or Officer Date

SECTION XIII.
CHANGE ORDER FORM

CHANGE ORDER

TO:

Contractor:_____ Contract No. _____

Street: _____ Contract Date: _____

City, State, Zip:_____ Original Contract Amount: $ _____

Phone No. _____ Total Approved Change Orders: _____

Current Contract Amount: $_____

You are hereby directed to perform all labor and to provide all materials necessary to carry out the Work described below:

Full consideration for this change order shall be on **INCREASE/DECREASE** of the original contract amount by:

_____Dollars.

Labor = _____

Materials = _____

INCREASE/DECREASE of the original schedule by days. In accepting and executing this change order, the Contractor, its heirs, executors, administrators, successors, and assigns hereby release and forever discharge the Owner, its successors, and assigns from any and all actions, causes of action, claims and demands whatsoever in law or in equity which the Contractor ever had, now has, or may have against the Owner in any way arising out of this change.

Recommended by:
CONSTRUCTION MANAGER OR ARCHITECT

Name: _____

_____

By: _____ Date: _____

Approved by:

Name:_____

By: _____ Date:_____

Accepted by:
CONTRACTOR

Name:_____

By: _____ Date: _____

OWNER

Name:_____

By: _____ Date: _____

SECTION XIV.
CONTRACTOR'S
TRADE PAYMENT BREAKDOWN

TRADE PAYMENT BREAKDOWN

PROJECT: _____ **CONTRACT # C**

CONTRACTOR: _____

			CONTRACT AMOUNT			
ITEM no.	**DESCRIPTION**	**UNIT MEAS.**	**QUANTITY**	**LABOR**	**MATERIAL**	**TOTAL**
1	Mobilization	LS				
2	Bonds	LS				
3	Insurance	LS				
4	Safety Program	MTLY				
5	Supervision	MTLY				
6	Permits/Licenses	LS				
7	CPM Schedules	LS				
8	Samples - Submittals	LS				
9	Data Submittals	LS				
10	Field Coordination	MTLY				
11	Coordinate with HVAC, Electrical	MTLY				
12	Coordinate with Plumbing/Fire Prevention	MTLY				
13	Coordinate with Kitchen Equipment Contractor	MTLY				
14	Temporary Electric	LS				
15	Temporary Light	LS				
16	Temporary Facilities	MTLY				
17	Fire Prevention	LS				
18	Temporary Field Office	MTLY				
19	Material Hoisting	LS				
20	Hoisting Operations	LS				
21	Storage	LS				
22	Warranties, Etc.	LS				

EXHIBIT A: SAFETY EHS PLAN

EXHIBIT A. SAFTEY EHS PLAN

FASHION INSTITUTE OF TECHNOLOGY

OUTLINE FOR PREPARING WORK-SPECIFIC ENVIROMENT, HEALTH AND SAFETY (EHS) PLAN

Before commencing work on site at FIT, Contractor shall prepare a work-specific EHS Plan and submit the EHS Plan to both the Facilities Management and EHS Departments for review and approval. Such approval shall be given in a timely manner.

I) A work-specific EHS Plan is required in the following instances:

A) When proposed work will:

1) use regulated hazardous chemicals;

2) have the potential to generate fumes, vapors or dusts;

3) involve cutting torches or other spark-generating equipment ("hot" work);

4) generate any waste;

5) involve high-energy systems or

6) require any type of air monitoring.

B) When work involves the removal of less than 25 liner feet, or 10 square feet, of asbestos-containing material (that is greater than 1% asbestos). For work involving more than these amounts of asbestos, Contractor must consult with the EHS Department for additional guidelines.

C) When work involves the use of tools and equipment in areas where FIT employees or students are present.

D) When work involves construction, other than minor repairs or alterations to on-campus facilities.

E) When work involves dangerous environments, such as confined spaces, hazardous energy, use scaffolds greater than 10 feet high, or vehicle-mounted articulated booms.

II) Use the outline below to develop the work-specific EHS Plan. Contractor shall amend the work-specific EHS Plan as needed to accommodate work on-campus as it proceeds.

DESCRIPTION OF CONTENTS OF WORK-SPECIFIC EHS PLAN

III) GENERAL INFORMATION – PROJECT PLANNING

A) List primary information about Contractor's firm and that of sub-

contractors, if any, Project Name, FIT Bid Number and Contractor's safety-related performance measurements on Table 1.

B) Describe the scope of work and list a breakdown of its specific tasks.

C) Provide a project schedule that, at a minimum, shows the anticipated start date of the work, the duration of each phase of the work, the anticipated date of completion of each phase, and the project completion date.

D) List name of Contractor's on-site EHS Coordinator and the names of all OSHA- competent persons needed to carry out the scope of work on Table 2. The EHS Coordinator shall serve as the primary contact with FIT's Director of EHS Compliance during all work.

IV) WORK-SPECIFIC HAZARD ANALYSIS/RISK ASSESSMENT

A) Describe each task associated with the work of the project.

B) List the potential hazards, if any, associated with each task.

C) Provide copies of Contractor's EH&S program applicable to scope of work.

D) List the types of protective work practices or personal protective equipment (PPE) Contractor will employ to carry-out each task.

E) Describe the types of exposure assessments that are needed to address potential hazardous exposures related to the work of the project. These include:

1) Work practices and engineering controls Contractor will use to prevent exposure of Contractor's employees to hazardous chemicals or hazardous energy;

2) Work practices and engineering controls Contractor will use to prevent exposure of FIT students and staff to any detectable chemical exposure;

3) Contractor's use of respiratory protection and other protective equipment (PPE) and

4) Qualitative or quantitative monitoring protocols, personal and area monitoring equipment, and contaminant action levels.

F) Attach copies of certified documentation of "Hazard Assessment and Equipment Selection" required by 29 CFR 1910.132 (d)(2) that complies with 1910 Subpart I Appendix B for all tasks in the work-specific EHS Plan.

G) Attach a copy of Contractor's written Hazard Communication Program that OSHA requires for the work-specific EHS Plan.

V) WORK-SPECIFIC ENVIRONMENTAL, HEALTH AND SAFETY ELEMENTS

A) To address health and safety issues, the work-specific EHS Plan shall:

1) Describe criteria for upgrading or downgrading personal protective equipment (PPE) or modifying work practices to control hazardous exposures during the work;

2) Describe criteria Contractor will use to set up exclusion zones, including physical barriers and decontamination zones, as needed to prevent spread of debris and restrict access of unauthorized persons to work areas;

3) List equipment Contractor will use for routine and emergency on-site communication;

4) Describe utility clearance and marking procedures to prevent damage to buried utilities, or to lines, piping, or cables located inside of walls and ceilings, if applicable;

5) Describe decontamination and cleaning procedures for Contractor's employees and equipment to prevent the spread of debris. This includes procedures during work, at the end of each work day, and at the completion of the project before FIT's final inspection of the work area;

6) Identify measures to manage dangerous environments, such as confined spaces, scaffold work greater than 10 feet, or articulated booms;

7) List "Hot Work" procedures involved in the work of the project. This may include, but not be limited to, work such as welding, burning, open flames, tar melting or other type of melting pots, grinding that throws sparks. (See Appendix 1 - "Daily Safety Management Work Permit");

8) Identify the need for air monitoring or special testing to carry out the work. Include a listing of monitoring equipment or special tests and the Action Levels that Contractor will apply to project work;

9) Describe safety procedures for excavations more than four 4 feet deep and sloping or shoring procedures where excavations will exceed 5 feet deep;

10) Describe fire protection and explosive hazard review;

11) List the name and address of Contractor's on-contract Confined Space rescue team;

12) Describe spill control procedures for chemical products Contractor will have on-campus during work. Include a listing of spill control or containment supplies that Contractor will have on-hand in case of a spill;

13) Describe the need for site coordination with FIT employees, other contractors on-site and other adjacent work groups. This includes identification of hazardous energy Lock Out and Tag Out

requirements to make to work area safe and

14) Provide a listing of other safety equipment that Contractor will have on site during the work of the project.

B) To address oil, chemical and waste management issues, the work-specific EHS Plan shall:

1) Provide estimates of the types and amounts of waste (both hazardous and non-hazardous) that Contractor anticipates the work will generate. As applicable, provide a copy of a waste analysis plan that lists the types of analysis required, the USEPA SW-846 method number and the method detection limits;

2) Provide facility name, USEPA ID number, and a contact name for each facility that will transport and dispose of each of the waste streams identified above. Provide this information for any facility that will dispose of residuals from the treatment of project waste, as applicable;

3) On a copy of a drawing that will be provided by FIT, identify location where Contractor proposes to accumulate waste during work, to set-up exclusion zones and to provide employee decontamination areas;

4) Provide a statement that describes the methods that Contractor will use to minimize the amount of waste generated from the work of the project;

5) Provide a tabular listing, along with copies of Safety Data Sheets (SDS), for any chemical products that Contractor intends to store or use on-site during the work. The listing shall include the product name, manufacturer's name, type, amounts, intended storage location on FIT site, the specific use of the chemical and identification of any NYCDEP/USEPA regulated hazardous substances that Contractor intends to store or use on-site during the work. In all cases, Contractor must submit the listing before chemical products are delivered to the FIT campus;

6) On a copy of a drawing that will be provided by FIT, identify location where Contractor proposes to store chemical products on-site during work;

7) Identify the need, if any, to amend existing FIT emergency contingency planning documents. Such documents include, but are not limited to: Spill Prevention Control and Countermeasure Plan, Spill Prevention Report, Right-to-Know Survey and

8) List permits and Certificates of Fitness (NYCDEP, NYSDEC, USEPA, FDNY) needed to carry-out the scope of work and have copies on-site of permits and Certificates to carry-out project work.

VI) ON-SITE DOCUMENTATION

A) Contractor shall record initial and daily safety-related procedures on Table 3. These shall include:

1) Before start of the work, FIT's Project Manager will conduct a FIT Hazard Communication briefing for Contractor's employees;

2) Before start of the work, FIT's Project Manager and Contractor's on-site EHS Coordinator shall conduct a briefing for FIT employees in areas adjacent to work areas about proposed work;

3) Review of FIT Emergency Evacuation Procedures;

4) Listing of initial and ongoing project status meetings on-site with FIT Project Manager to address EHS concerns safety and health and

5) Scheduled and unscheduled employee safety briefings, toolbox talks.

B) Contractor shall provide a summary of the on-site EHS Coordinator's EHS-related training and experience relevant to the work of the project.

C) Contractor's employees shall sign-in daily with FIT Security in the A-Building Lobby.

D) For each work shift necessary to complete the project, Contractor's on-site EHS Coordinator shall open and fill out the "Daily Safety Management Work Permit" (See Appendix 1) at the start of each work shift and close the Permit at the end of each work shift.

VII) EMERGENCY RESPONSE PLANNING

Contractor shall review the summary of the Emergency Response Contact Names listed on Table 4 and provide the information as follows:

A) On a site map that will be provided by FIT, identify the primary and secondary routes for the evacuation of Contractor's employees, including the "rally point" where Contractor's employees will assemble and carry-out an accountability check in case of an evacuation;

B) List emergency response contacts with titles and telephone numbers. Contractor shall immediately call FIT Security and the FIT Project Manager in the event of a spill of oil, chemicals, waste water, or hazardous materials;

C) Identify the name, address and route to nearest hospital or Contractor's wellness center and

D) Provide a listing of emergency equipment for first aid, personal protection, spill response, fire protection and rescue.

TABLE 1

Project Name: _____Bid Number: _____

CONTACTOR ORGANIZATION CHART AND SAFETY DATA

COMPANY	:	Name: Address: Phone:
President	:	Name: Phone:
Vice President – Operations		Name: Phone:
Director of Environmental, Health, and Safety	:	Name: Phone:
Contractor EHS Program Development	:	Name: Phone:
OSHA Total Case Recordable Rate (TCRR)	:	
Days Away from work, or Restricted work or job Transfer (DART)	:	
Experience Modification Rate (EMR)	:	

Listing of On-site Subcontractors for project work, as applicable -

COMPANY NAME	ADDRESS	PHONE NUMBER	TASKS

TABLE 2

ON-SITE SUPERVISORY PERSONNEL

TITLE	:	**NAME(S) AND ON-SITE PHONE NUMBER**
On-site EHS Coordinator	:	
Contractor Project Managers	:	
FIT's Project Manager(s)	:	
<u>Contractor's Competent Persons</u>		List all that Apply – Indicate not applicable areas for department /project work as "NA" For subcontractor employees, place subcontractor firm name in parenthesis after the employee's name
• Confined Spaces	:	
• Excavations	:	
• Industrial Hygiene	:	
• Electrical--Lock Out/Tag Out	:	
• PPE, Respiratory Protection	:	
• Hazard Communication (Required for each department and project. Identify responsible employee for each subcontractor)	:	
• Fall Protection	:	
• Scaffolds	:	
• Cranes & Derricks	:	
• Blasting & Use of Explosives	:	

TABLE 2 (Cont'd)

ON-SITE SUPERVISORY PERSONNEL **Page 2 of 2**

• Asbestos (Attach copies of Company license, supervisor and handler certificates for all employee that will perform work) :
• Lead
• Silica
• Hot Work (Complete and submit permits daily - see Appendix 1)
• FDNY Certificate of Fitness-Torch Operations
• FDNY Certificate of Fitness-Fire Guard
• FDNY Certificate of Fitness-Fire proofing
• FDNY Certificate of Fitness-Powder Activated Tools
• FDNY Certificate of Fitness-Air Compressors_____
• FDNY Certificate of Fitness-Use of LPG and Use in Tar Kettles
• FDNY REFRIGERATING SYSTEM OPERATING ENGINEER
• FDNY Certificate of Fitness-Other_____
• FDNY Certificate of Fitness-Other_____
•
•

TABLE 3

LISTING OF REQUIRED EMPLOYEE/SUPERVISORY BRIEFINGS
Page 1 of 1

DATE	TOPIC	Comments	TYPE (Monthly Supervisor/Bi-weekly Employee/Supervisor	Comments
	FIT Haz Com Briefing	At start of Work		
	Briefing for FIT Employees in work area(s)	FIT briefing for all FIT Department Supervisors in areas where work may potentially affect FIT employees or students at start of work. Record name of FIT employee(s) briefed	Complete Daily Safety Management Work Permit (See Appendix 1)	
	Review of FIT Emergency Evacuation Procedures	At start of Work		

TABLE 4

EMERGENCY CONTACT NAMES & TELEPHONE NUMBERS

TITLE	CONTACT NAME	EMERGENCY PHONE NUMBERS
Contractor: MAIN OFFICE		
Contractor President:		
On-site EHS Coordinator		
FIT Facilities Management	**Executive Director:** George Jefremow **Assoc. Executive Director:** Allen King	Phone: 212-217-4423 Phone: 212-217-4424
FIT Environmental, Health and Safety Department	**Director:** Paul DeBiase paul_debiase@fitnyc.edu **Acting Coordinator:** Kathy Espinoza-Caraba kathy_espinozacaraba@fitnyc.edu	Phone: 212-217-3752 Phone: 212-217-3754
Contractor Project Manager(s)		
FIT Public Safety	Central Control	212-217-7777, or Use Red Phone
Occupational Safety And Health Administration, – Area Director	Provide Zip Code for the location of Accident	800-321-6742
Location of nearest hospital and/or contractor's wellness center		
Rally Point and Accountability Check Location	In case of Building Evacuation Alarm	

Note: Call FIT Central Control at 212-217-7777 in case or any emergency such as fire, chemical spills, injury requiring medical treatment, or exposure of contractor or FIT personnel to fumes, vapors, or dusts.

EXHIBIT B: PREVAILING WAGE SCHEDULE

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Fashion Institute of Technolog

Sam Li, Deputy Director of Purchasing
227 W 27th St
New York NY 10001

Schedule Year	2022 through 2023
Date Requested	06/28/2023
PRC#	2023007526

Location	Fashion Institute of Technolog
Project ID#	C1590
Project Type	Provide labor, materials, tests, tools and equipment to complete the Museum Lighting Project.

PREVAILING WAGE SCHEDULE FOR ARTICLE 8 PUBLIC WORK PROJECT

Attached is the current schedule(s) of the prevailing wage rates and prevailing hourly supplements for the project referenced above. A unique Prevailing Wage Case Number (PRC#) has been assigned to the schedule(s) for your project.

The schedule is effective from July 2022 through June 2023. All updates, corrections, posted on the 1st business day of each month, and future copies of the annual determination are available on the Department's website www.labor.ny.gov. Updated PDF copies of your schedule can be accessed by entering your assigned PRC# at the proper location on the website.

It is the responsibility of the contracting agency or its agent to annex and make part, the attached schedule, to the specifications for this project, when it is advertised for bids and /or to forward said schedules to the successful bidder(s), immediately upon receipt, in order to insure the proper payment of wages.

Please refer to the "General Provisions of Laws Covering Workers on Public Work Contracts" provided with this schedule, for the specific details relating to other responsibilities of the Department of Jurisdiction.

Upon completion or cancellation of this project, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

NOTICE OF COMPLETION / CANCELLATION OF PROJECT

Date Completed: _____ Date Cancelled: _____

Name & Title of Representative: _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

General Provisions of Laws Covering Workers on Article 8 Public Work Contracts

Introduction

The Labor Law requires public work contractors and subcontractors to pay laborers, workers, or mechanics employed in the performance of a public work contract not less than the prevailing rate of wage and supplements (fringe benefits) in the locality where the work is performed.

Responsibilities of the Department of Jurisdiction

A Department of Jurisdiction (Contracting Agency) includes a state department, agency, board or commission: a county, city, town or village; a school district, board of education or board of cooperative educational services; a sewer, water, fire, improvement and other district corporation; a public benefit corporation; and a public authority awarding a public work contract.

The Department of Jurisdiction (Contracting Agency) awarding a public work contract MUST obtain a Prevailing Rate Schedule listing the hourly rates of wages and supplements due the workers to be employed on a public work project. This schedule may be obtained by completing and forwarding a "Request for wage and Supplement Information" form (PW 39) to the Bureau of Public Work. The Prevailing Rate Schedule MUST be included in the specifications for the contract to be awarded and is deemed part of the public work contract.

Upon the awarding of the contract, the law requires that the Department of Jurisdiction (Contracting Agency) furnish the following information to the Bureau: the name and address of the contractor, the date the contract was let and the approximate dollar value of the contract. To facilitate compliance with this provision of the Labor Law, a copy of the Department's "Notice of Contract Award" form (PW 16) is provided with the original Prevailing Rate Schedule.

The Department of Jurisdiction (Contracting Agency) is required to notify the Bureau of the completion or cancellation of any public work project. The Department's PW 200 form is provided for that purpose.

Both the PW 16 and PW 200 forms are available for completion online.

Hours

No laborer, worker, or mechanic in the employ of a contractor or subcontractor engaged in the performance of any public work project shall be permitted to work more than eight hours in any day or more than five days in any week, except in cases of extraordinary emergency. The contractor and the Department of Jurisdiction (Contracting Agency) may apply to the Bureau of Public Work for a dispensation permitting workers to work additional hours or days per week on a particular public work project.

There are very few exceptions to this rule. Complete information regarding these exceptions is available on the "Request for a dispensation to work overtime" form (PW30) and "4 Day / 10 Hour Work Schedule" form (PW 30.1).

Wages and Supplements

The wages and supplements to be paid and/or provided to laborers, workers, and mechanics employed on a public work project shall be not less than those listed in the current Prevailing Rate Schedule for the locality where the work is performed. If a prime contractor on a public work project has not been provided with a Prevailing Rate Schedule, the contractor must notify the Department of Jurisdiction (Contracting Agency) who in turn must request an original Prevailing Rate Schedule form the Bureau of Public Work. Requests may be submitted by: mail to NYSDOL, Bureau of Public Work, State Office Bldg. Campus, Bldg. 12, Rm. 130, Albany, NY 12240; Fax to Bureau of Public Work (518) 485-1870; or electronically at the NYSDOL website www.labor.ny.gov.

Upon receiving the original schedule, the Department of Jurisdiction (Contracting Agency) is REQUIRED to provide complete copies to all prime contractors who in turn MUST, by law, provide copies of all applicable county schedules to each subcontractor and obtain from each subcontractor, an affidavit certifying such schedules were received. If the original schedule expired, the contractor may obtain a copy of the new annual determination from the NYSDOL website www.labor.ny.gov.

The Commissioner of Labor makes an annual determination of the prevailing rates. This determination is in effect from July 1st through June 30th of the following year. The annual determination is available on the NYSDOL website www.labor.ny.gov.

Payrolls and Payroll Records

Every contractor and subcontractor MUST keep original payrolls or transcripts subscribed and affirmed as true under penalty of perjury. As per Article 6 of the Labor law, contractors and subcontractors are required to establish, maintain, and preserve for not less than six (6) years, contemperaneous, true, and accurate payroll records. At a minimum, payrolls must show the following information for each person employed on a public work project: Name, Address, Last 4 Digits of Social Security Number, Classification(s) in which the worker was employed, Hourly wage rate(s) paid, Supplements paid

or provided, and Daily and weekly number of hours worked in each classification.

The filing of payrolls to the Department of Jurisdiction is a condition of payment.Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury. The Department of Jurisdiction (Contracting Agency) shall collect, review for facial validity, and maintain such payrolls.

In addition, the Commissioner of Labor may require contractors to furnish, with ten (10) days of a request, payroll records sworn to as their validity and accuracy for public work and private work. Payroll records include, but are not limited to time cards, work description sheets, proof that supplements were provided, cancelled payroll checks and payrolls. Failure to provide the requested information within the allotted ten (10) days will result in the withholding of up to 25% of the contract, not to exceed $100,000.00. If the contractor or subcontractor does not maintain a place of business in New York State and the amount of the contract exceeds $25,000.00, payroll records and certifications must be kept on the project worksite.

The prime contractor is responsible for any underpayments of prevailing wages or supplements by any subcontractor.

All contractors or their subcontractors shall provide to their subcontractors a copy of the Prevailing Rate Schedule specified in the public work contract as well as any subsequently issued schedules. A failure to provide these schedules by a contractor or subcontractor is a violation of Article 8, Section 220-a of the Labor Law.

All subcontractors engaged by a public work project contractor or its subcontractor, upon receipt of the original schedule and any subsequently issued schedules, shall provide to such contractor a verified statement attesting that the subcontractor has received the Prevailing Rate Schedule and will pay or provide the applicable rates of wages and supplements specified therein. (See NYS Labor Laws, Article 8 . Section 220-a).

Determination of Prevailing Wage and Supplement Rate Updates Applicable to All Counties

The wages and supplements contained in the annual determination become effective July 1st whether or not the new determination has been received by a given contractor. Care should be taken to review the rates for obvious errors. Any corrections should be brought to the Department's attention immediately. It is the responsibility of the public work contractor to use the proper rates. If there is a question on the proper classification to be used, please call the district office located nearest the project. Any errors in the annual determination will be corrected and posted to the NYSDOL website on the first business day of each month. Contractors are responsible for paying these updated rates as well, retroactive to July 1st.

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. To the extent possible, the Department posts rates in its possession that cover periods of time beyond the July 1st to June 30th time frame covered by a particular annual determination. Rates that extend beyond that instant time period are informational ONLY and may be updated in future annual determinations that actually cover the then appropriate July 1st to June 30th time period.

Withholding of Payments

When a complaint is filed with the Commissioner of Labor alleging the failure of a contractor or subcontractor to pay or provide the prevailing wages or supplements, or when the Commissioner of Labor believes that unpaid wages or supplements may be due, payments on the public work contract shall be withheld from the prime contractor in a sufficient amount to satisfy the alleged unpaid wages and supplements, including interest and civil penalty, pending a final determination.

When the Bureau of Public Work finds that a contractor or subcontractor on a public work project failed to pay or provide the requisite prevailing wages or supplements, the Bureau is authorized by Sections 220-b and 235.2 of the Labor Law to so notify the financial officer of the Department of Jurisdiction (Contracting Agency) that awarded the public work contract. Such officer MUST then withhold or cause to be withheld from any payment due the prime contractor on account of such contract the amount indicated by the Bureau as sufficient to satisfy the unpaid wages and supplements, including interest and any civil penalty that may be assessed by the Commissioner of Labor. The withholding continues until there is a final determination of the underpayment by the Commissioner of Labor or by the court in the event a legal proceeding is instituted for review of the determination of the Commissioner of Labor.

The Department of Jurisdiction (Contracting Agency) shall comply with this order of the Commissioner of Labor or of the court with respect to the release of the funds so withheld.

Summary of Notice Posting Requirements

The current Prevailing Rate Schedule must be posted in a prominent and accessible place on the site of the public work project. The prevailing wage schedule must be encased in, or constructed of, materials capable of withstanding adverse weather conditions and be titled "PREVAILING RATE OF WAGES" in letters no smaller than two (2) inches by two (2) inches.

The "Public Work Project" notice must be posted at the beginning of the performance of every public work contract, on each job site.

Every employer providing workers. compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers. Compensation Board in a conspicuous place on the jobsite.

Every employer subject to the NYS Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers, notices furnished by the State Division of Human Rights.

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the NYS Department of Labor.

Apprentices

Employees cannot be paid apprentice rates unless they are individually registered in a program registered with the NYS Commissioner of Labor. The allowable ratio of apprentices to journeyworkers in any craft classification can be no greater than the statewide building trade ratios promulgated by the Department of Labor and included with the Prevailing Rate Schedule. An employee listed on a payroll as an apprentice who is not registered as above or is performing work outside the classification of work for which the apprentice is indentured, must be paid the prevailing journeyworker's wage rate for the classification of work the employee is actually performing.

NYSDOL Labor Law, Article 8, Section 220-3, require that only apprentices individually registered with the NYS Department of Labor may be paid apprenticeship rates on a public work project. No other Federal or State Agency of office registers apprentices in New York State.

Persons wishing to verify the apprentice registration of any person must do so in writing by mail, to the NYSDOL Office of Employability Development / Apprenticeship Training, State Office Bldg. Campus, Bldg. 12, Albany, NY 12240 or by Fax to NYSDOL Apprenticeship Training (518) 457-7154. All requests for verification must include the name and social security number of the person for whom the information is requested.

The only conclusive proof of individual apprentice registration is written verification from the NYSDOL Apprenticeship Training Albany Central office. Neither Federal nor State Apprenticeship Training offices outside of Albany can provide conclusive registration information.

It should be noted that the existence of a registered apprenticeship program is not conclusive proof that any person is registered in that program. Furthermore, the existence or possession of wallet cards, identification cards, or copies of state forms is not conclusive proof of the registration of any person as an apprentice.

Interest and Penalties

In the event that an underpayment of wages and/or supplements is found:

- Interest shall be assessed at the rate then in effect as prescribed by the Superintendent of Banks pursuant to section 14-a of the Banking Law, per annum from the date of underpayment to the date restitution is made.
- A Civil Penalty may also be assessed, not to exceed 25% of the total of wages, supplements, and interest due.

Debarment

Any contractor or subcontractor and/or its successor shall be ineligible to submit a bid on or be awarded any public work contract or subcontract with any state, municipal corporation or public body for a period of five (5) years when:

- Two (2) willful determinations have been rendered against that contractor or subcontractor and/or its successor within any consecutive six (6) year period.
- There is any willful determination that involves the falsification of payroll records or the kickback of wages or supplements.

Criminal Sanctions

Willful violations of the Prevailing Wage Law (Article 8 of the Labor Law) may be a felony punishable by fine or imprisonment of up to 15 years, or both.

Discrimination

No employee or applicant for employment may be discriminated against on account of age, race, creed, color, national origin, sex, disability or marital status.

No contractor, subcontractor nor any person acting on its behalf, shall by reason of race, creed, color, disability, sex or national origin discriminate against any citizen of the State of New York who is qualified and available to perform the work to which the employment relates (NYS Labor Law, Article 8, Section 220-e(a)).

No contractor, subcontractor, nor any person acting on its behalf, shall in any manner, discriminate against or intimidate any employee on account of race, creed, color, disability, sex, or national origin (NYS Labor Law, Article 8, Section 220-e(b)).

The Human Rights Law also prohibits discrimination in employment because of age, marital status, or religion.

There may be deducted from the amount payable to the contractor under the contract a penalty of $50.00 for each calendar day during which such person was discriminated against or intimidated in violation of the provision of the contract (NYS Labor Law, Article 8, Section 220-e(c)).

The contract may be cancelled or terminated by the State or municipality. All monies due or to become due thereunder may be forfeited for a second or any subsequent violation of the terms or conditions of the anti-discrimination sections of the contract (NYS Labor Law, Article 8, Section 220-e(d)).

Every employer subject to the New York State Human Rights Law must conspicuously post at its offices, places of employment, or employment training centers notices furnished by the State Division of Human Rights.

Workers' Compensation

In accordance with Section 142 of the State Finance Law, the contractor shall maintain coverage during the life of the contract for the benefit of such employees as required by the provisions of the New York State Workers' Compensation Law.

A contractor who is awarded a public work contract must provide proof of workers' compensation coverage prior to being allowed to begin work.

The insurance policy must be issued by a company authorized to provide workers' compensation coverage in New York State. Proof of coverage must be on form C-105.2 (Certificate of Workers' Compensation Insurance) and must name this agency as a certificate holder.

If New York State coverage is added to an existing out-of-state policy, it can only be added to a policy from a company authorized to write workers' compensation coverage in this state. The coverage must be listed under item 3A of the information page.

The contractor must maintain proof that subcontractors doing work covered under this contract secured and maintained a workers' compensation policy for all employees working in New York State.

Every employer providing worker's compensation insurance and disability benefits must post notices of such coverage in the format prescribed by the Workers' Compensation Board in a conspicuous place on the jobsite.

Unemployment Insurance

Employers liable for contributions under the Unemployment Insurance Law must conspicuously post on the jobsite notices furnished by the New York State Department of Labor.

Kathy Hochul, Governor

Roberta Reardon, Commissioner

Fashion Institute of Technolog

Sam Li, Deputy Director of Purchasing
227 W 27th St
New York NY 10001

Schedule Year 2022 through 2023
Date Requested 06/28/2023
PRC# 2023007526

Location	Fashion Institute of Technolog
Project ID#	C1590
Project Type	Provide labor, materials, tests, tools and equipment to complete the Museum Lighting Project.

Notice of Contract Award

New York State Labor Law, Article 8, Section 220.3a requires that certain information regarding the awarding of public work contracts, be furnished to the Commissioner of Labor. One "Notice of Contract Award" (PW 16, which may be photocopied), **MUST** be completed for **EACH** prime contractor on the above referenced project.

Upon notifying the successful bidder(s) of this contract, enter the required information and mail **OR** fax this form to the office shown at the bottom of this notice, **OR** fill out the electronic version via the NYSDOL website.

Contractor Information
All information must be supplied

Federal Employer Identification Number: _____

Name: _____

Address: _____

_____

City: _____ State: _____ Zip: _____

Amount of Contract: $_____

Approximate Starting Date: ____/____/____

Approximate Completion Date: ____/____/____

Contract Type:
- [ ] (01) General Construction
- [ ] (02) Heating/Ventilation
- [ ] (03) Electrical
- [ ] (04) Plumbing
- [ ] (05) Other : _____

Phone: (518) 457-5589 Fax: (518) 485-1870
W. Averell Harriman State Office Campus, Bldg. 12, Room 130, Albany, NY 12240

Social Security Numbers on Certified Payrolls:

The Department of Labor is cognizant of the concerns of the potential for misuse or inadvertent disclosure of social security numbers. Identity theft is a growing problem and we are sympathetic to contractors' concern regarding inclusion of this information on payrolls if another identifier will suffice.

For these reasons, the substitution of the use of the last four digits of the social security number on certified payrolls submitted to contracting agencies on public work projects is now acceptable to the Department of Labor. This change does not affect the Department's ability to request and receive the entire social security number from employers during its public work/ prevailing wage investigations.

Construction Industry Fair Play Act: Required Posting for Labor Law Article 25-B § 861-d

Construction industry employers must post the "Construction Industry Fair Play Act" notice in a prominent and accessible place on the job site. Failure to post the notice can result in penalties of up to $1,500 for a first offense and up to $5,000 for a second offense. The posting is included as part of this wage schedule. Additional copies may be obtained from the NYS DOL website, https://dol.ny.gov/public-work-and-prevailing-wage
If you have any questions concerning the Fair Play Act, please call the State Labor Department toll-free at 1-866-435-1499 or email us at: dol.misclassified@labor.ny.gov .

Worker Notification: (Labor Law §220, paragraph a of subdivision 3-a)

Effective June 23, 2020

This provision is an addition to the existing wage rate law, Labor Law §220, paragraph a of subdivision 3-a. It requires contractors and subcontractors to provide written notice to all laborers, workers or mechanics of the *prevailing wage and supplement rate* for their particular job classification *on each pay stub**. It also requires contractors and subcontractors to *post a notice* at the beginning of the performance of every public work contract *on each job site* that includes the telephone number and address for the Department of Labor and a statement informing laborers, workers or mechanics of their right to contact the Department of Labor if he/she is not receiving the proper prevailing rate of wages and/or supplements for his/her job classification. The required notification will be provided with each wage schedule, may be downloaded from our website *www.labor.ny.gov* or be made available upon request by contacting the Bureau of Public Work at 518-457-5589. *In the event the required information will not fit on the pay stub, an accompanying sheet or attachment of the information will suffice.

(12.20)

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

Budget Policy & Reporting Manual

B-610

Public Work Enforcement Fund

effective date December 7, 2005

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1. Purpose and Scope:

This Item describes the Public Work Enforcement Fund (the Fund, PWEF) and its relevance to State agencies and public benefit corporations engaged in construction or reconstruction contracts, maintenance and repair, and announces the recently-enacted increase to the percentage of the dollar value of such contracts that must be deposited into the Fund. This item also describes the roles of the following entities with respect to the Fund:

- New York State Department of Labor (DOL),
- The Office of the State of Comptroller (OSC), and
- State agencies and public benefit corporations.

2. Background and Statutory References:

DOL uses the Fund to enforce the State's Labor Law as it relates to contracts for construction or reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law. State agencies and public benefit corporations participating in such contracts are required to make payments to the Fund.

Chapter 511 of the Laws of 1995 (as amended by Chapter 513 of the Laws of 1997, Chapter 655 of the Laws of 1999, Chapter 376 of the Laws of 2003 and Chapter 407 of the Laws of 2005) established the Fund.

3. Procedures and Agency Responsibilities:

The Fund is supported by transfers and deposits based on the value of contracts for construction and reconstruction, maintenance and repair, as defined in subdivision two of Section 220 of the Labor Law, into which all State agencies and public benefit corporations enter.

Chapter 407 of the Laws of 2005 increased the amount required to be provided to this fund to .10 of one-percent of the total cost of each such contract, to be calculated at the time agencies or public benefit corporations enter into a new contract or if a contract is amended. The provisions of this bill became effective August 2, 2005.

To all State Departments, Agency Heads and Public Benefit Corporations
IMPORTANT NOTICE REGARDING PUBLIC WORK ENFORCEMENT FUND

OSC will report to DOL on all construction-related ("D") contracts approved during the month, including contract amendments, and then DOL will bill agencies the appropriate assessment monthly. An agency may then make a determination if any of the billed contracts are exempt and so note on the bill submitted back to DOL. For any instance where an agency is unsure if a contract is or is not exempt, they can call the Bureau of Public Work at the number noted below for a determination. Payment by check or journal voucher is due to DOL within thirty days from the date of the billing. DOL will verify the amounts and forward them to OSC for processing.

For those contracts which are not approved or administered by the Comptroller, monthly reports and payments for deposit into the Public Work Enforcement Fund must be provided to the Administrative Finance Bureau at the DOL within 30 days of the end of each month or on a payment schedule mutually agreed upon with DOL.

Reports should contain the following information:

- Name and billing address of State agency or public benefit corporation;
- State agency or public benefit corporation contact and phone number;
- Name and address of contractor receiving the award;
- Contract number and effective dates;
- Contract amount and PWEF assessment charge (if contract amount has been amended, reflect increase or decrease to original contract and the adjustment in the PWEF charge); and
- Brief description of the work to be performed under each contract.

Checks and Journal Vouchers, payable to the "New York State Department of Labor" should be sent to:

Department of Labor
Administrative Finance Bureau-PWEF Unit
Building 12, Room 464
State Office Campus
Albany, NY 12240

Any questions regarding billing should be directed to NYSDOL's Administrative Finance Bureau-PWEF Unit at (518) 457-3624 and any questions regarding Public Work Contracts should be directed to the Bureau of Public Work at (518) 457-5589.

NEW YORK STATE OF OPPORTUNITY. Department of Labor

Required Notice under Article 25-B of the Labor Law

Attention All Employees, Contractors and Subcontractors: You are Covered by the Construction Industry Fair Play Act

The law says that you are an employee unless:

- You are free from direction and control in performing your job, **and**
- You perform work that is not part of the usual work done by the business that hired you, **and**
- You have an independently established business.

Your employer cannot consider you to be an independent contractor unless all three of these facts apply to your work.

It is against the law for an employer to misclassify employees as independent contractors or pay employees off the books.

Employee Rights: If you are an employee, you are entitled to state and federal worker protections. These include:

- Unemployment Insurance benefits, if you are unemployed through no fault of your own, able to work, and otherwise qualified,
- Workers' compensation benefits for on-the-job injuries,
- Payment for wages earned, minimum wage, and overtime (under certain conditions),
- Prevailing wages on public work projects,
- The provisions of the National Labor Relations Act, and
- A safe work environment.

It is a violation of this law for employers to retaliate against anyone who asserts their rights under the law. Retaliation subjects an employer to civil penalties, a private lawsuit or both.

Independent Contractors: If you are an independent contractor**, you must pay all taxes and Unemployment Insurance contributions required by New York State and Federal Law.**

Penalties for paying workers off the books or improperly treating employees as independent contractors:

• **Civil Penalty**	First offense: Up to $2,500 per employee Subsequent offense(s): Up to $5,000 per employee
• **Criminal Penalty**	First offense: Misdemeanor - up to 30 days in jail, up to a $25,000 fine and debarment from performing public work for up to one year. Subsequent offense(s): Misdemeanor - up to 60 days in jail or up to a $50,000 fine and debarment from performing public work for up to 5 years.

If you have questions about your employment status or believe that your employer may have violated your rights and you want to file a complaint, call the Department of Labor at (866) 435-1499 or send an email to dol.misclassified@labor.ny.gov. All complaints of fraud and violations are taken seriously. You can remain anonymous.

Employer Name:

IA 999 (09/16)

New York State Department of Labor
Bureau of Public Work

Attention Employees

THIS IS A:

PUBLIC WORK PROJECT

If you are employed on this project as a **worker, laborer, or mechanic** you are entitled to receive the **prevailing wage and supplements rate** for the classification at which you are working.

Chapter 629 of the Labor Laws of 2007:

These wages are set by law and must be posted at the work site. They can also be found at:

https://dol.ny.gov/public-work-and-prevailing-wage

If you feel that you have not received proper wages or benefits, please call our nearest office.*

Albany	(518) 457-2744	Patchogue	(631) 687-4882
Binghamton	(607) 721-8005	Rochester	(585) 258-4505
Buffalo	(716) 847-7159	Syracuse	(315) 428-4056
Garden City	(516) 228-3915	Utica	(315) 793-2314
New York City	(212) 932-2419	White Plains	(914) 997-9507
Newburgh	(845) 568-5156		

* For New York City government agency construction projects, please contact the Office of the NYC Comptroller at (212) 669-4443, or www.comptroller.nyc.gov – click on Bureau of Labor Law.

Contractor Name: _____

Project Location: _____

Requirements for OSHA 10 Compliance

Article 8 §220-h requires that when the advertised specifications, for every contract for public work, is $250,000.00 or more the contract must contain a provision requiring that every worker employed in the performance of a public work contract shall be certified as having completed an OSHA 10 safety training course. The clear intent of this provision is to require that all employees of public work contractors, required to be paid prevailing rates, receive such training “prior to the performing any work on the project.”

The Bureau will enforce the statute as follows:

All contractors and sub contractors must attach a copy of proof of completion of the OSHA 10 course to the first certified payroll submitted to the contracting agency and on each succeeding payroll where any new or additional employee is first listed.

Proof of completion may include but is not limited to:

- Copies of bona fide course completion card (*Note: Completion cards do not have an expiration date.)*
- Training roster, attendance record of other documentation from the certified trainer pending the issuance of the card.
- Other valid proof

**A certification by the employer attesting that all employees have completed such a course is not sufficient proof that the course has been completed.

Any questions regarding this statute may be directed to the New York State Department of Labor, Bureau of Public Work at 518-457-5589.

WICKS

Public work projects are subject to the Wicks Law requiring separate specifications and bidding for the plumbing, heating and electrical work, when the total project's threshold is $3 million in Bronx, Kings, New York, Queens and, Richmond counties; $1.5 million in Nassau, Suffolk and Westchester counties; and $500,000 in all other counties.

For projects below the monetary threshold, bidders must submit a sealed list naming each subcontractor for the plumbing, HVAC and electrical and the amount to be paid to each. The list may not be changed unless the public owner finds a legitimate construction need, including a change in specifications or costs or the use of a Project Labor Agreement (PLA), and must be open to public inspection.

Allows the state and local agencies and authorities to waive the Wicks Law and use a PLA if it will provide the best work at the lowest possible price. If a PLA is used, all contractors shall participate in apprentice training programs in the trades of work it employs that have been approved by the Department of Labor (DOL) for not less than three years. They shall also have at least one graduate in the last three years and use affirmative efforts to retain minority apprentices. PLA's would be exempt from Wicks, but deemed to be public work subject to prevailing wage enforcement.

The Commissioner of Labor shall have the power to enforce separate specification requirement s on projects, and may issue stop-bid orders against public owners for non-compliance.

Other new monetary thresholds, and similar sealed bidding for non-Wicks projects, would apply to certain public authorities including municipal housing authorities, NYC Construction Fund, Yonkers Educational Construction Fund, NYC Municipal Water Finance Authority, Buffalo Municipal Water Finance Authority, Westchester County Health Care Association, Nassau County Health Care Corp., Clifton-Fine Health Care Corp., Erie County Medical Center Corp., NYC Solid Waste Management Facilities, and the Dormitory Authority.

Contractors must pay subcontractors within a 7 days period.

(07.19)

Introduction to the Prevailing Rate Schedule

Information About Prevailing Rate Schedule

This information is provided to assist you in the interpretation of particular requirements for each classification of worker contained in the attached Schedule of Prevailing Rates.

Classification

It is the duty of the Commissioner of Labor to make the proper classification of workers taking into account whether the work is heavy and highway, building, sewer and water, tunnel work, or residential, and to make a determination of wages and supplements to be paid or provided. It is the responsibility of the public work contractor to use the proper rate. If there is a question on the proper classification to be used, please call the district office located nearest the project. District office locations and phone numbers are listed below.

Prevailing Wage Schedules are issued separately for "General Construction Projects" and "Residential Construction Projects" on a county-by-county basis.

General Construction Rates apply to projects such as: Buildings, Heavy & Highway, and Tunnel and Water & Sewer rates.

Residential Construction Rates generally apply to construction, reconstruction, repair, alteration, or demolition of one family, two family, row housing, or rental type units intended for residential use.

Some rates listed in the Residential Construction Rate Schedule have a very limited applicability listed along with the rate. Rates for occupations or locations not shown on the residential schedule must be obtained from the General Construction Rate Schedule. Please contact the local Bureau of Public Work office before using Residential Rate Schedules, to ensure that the project meets the required criteria.

Payrolls and Payroll Records

Contractors and subcontractors are required to establish, maintain, and preserve for not less that six (6) years, contemporaneous, true, and accurate payroll records.

Every contractor and subcontractor shall submit to the Department of Jurisdiction (Contracting Agency), within thirty (30) days after issuance of its first payroll and every thirty (30) days thereafter, a transcript of the original payrolls, subscribed and affirmed as true under penalty of perjury.

Paid Holidays

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

Overtime

At a minimum, all work performed on a public work project in excess of eight hours in any one day or more than five days in any workweek is overtime. However, the specific overtime requirements for each trade or occupation on a public work project may differ. Specific overtime requirements for each trade or occupation are contained in the prevailing rate schedules.

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays.

The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Supplemental Benefits

Particular attention should be given to the supplemental benefit requirements. Although in most cases the payment or provision of supplements is straight time for all hours worked, some classifications require the payment or provision of supplements, or a portion of the supplements, to be paid or provided at a premium rate for premium hours worked. Supplements may also be required to be paid or provided on paid holidays, regardless of whether the day is worked. The Overtime Codes and Notes listed on the particular wage classification will indicate these conditions as required.

Effective Dates

When you review the schedule for a particular occupation, your attention should be directed to the dates above the column of rates. These are the dates for which a given set of rates is effective. The rate listed is valid until the next effective rate change or until the new annual determination which takes effect on July 1 of each year. All contractors and subcontractors are required to pay the current prevailing rates of wages and supplements. If you have any questions please contact the Bureau of Public Work or visit the New York State Department of Labor website (www.labor.ny.gov) for current wage rate information.

Apprentice Training Ratios

The following are the allowable ratios of registered Apprentices to Journey-workers.

For example, the ratio 1:1,1:3 indicates the allowable initial ratio is one Apprentice to one Journeyworker. The Journeyworker must be in place on the project before an Apprentice is allowed. Then three additional Journeyworkers are needed before a second Apprentice is allowed. The last ratio repeats indefinitely. Therefore, three more Journeyworkers must be present before a third Apprentice can be hired, and so on.

Please call Apprentice Training Central Office at (518) 457-6820 if you have any questions.

Title (Trade)	Ratio
Boilermaker (Construction)	1:1,1:4
Boilermaker (Shop)	1:1,1:3
Carpenter (Bldg.,H&H, Pile Driver/Dockbuilder)	1:1,1:4
Carpenter (Residential)	1:1,1:3
Electrical (Outside) Lineman	1:1,1:2
Electrician (Inside)	1:1,1:3
Elevator/Escalator Construction & Modernizer	1:1,1:2
Glazier	1:1,1:3
Insulation & Asbestos Worker	1:1,1:3
Iron Worker	1:1,1:4
Laborer	1:1,1:3
Mason	1:1,1:4
Millwright	1:1,1:4
Op Engineer	1:1,1:5
Painter	1:1,1:3
Plumber & Steamfitter	1:1,1:3
Roofer	1:1,1:2
Sheet Metal Worker	1:1,1:3
Sprinkler Fitter	1:1,1:2

If you have any questions concerning the attached schedule or would like additional information, please contact the nearest BUREAU of PUBLIC WORK District Office or write to:

New York State Department of Labor
Bureau of Public Work
State Office Campus, Bldg. 12
Albany, NY 12240

District Office Locations:	Telephone #	FAX #
Bureau of Public Work - Albany	518-457-2744	518-485-0240
Bureau of Public Work - Binghamton	607-721-8005	607-721-8004
Bureau of Public Work - Buffalo	716-847-7159	716-847-7650
Bureau of Public Work - Garden City	516-228-3915	516-794-3518
Bureau of Public Work - Newburgh	845-568-5287	845-568-5332
Bureau of Public Work - New York City	212-932-2419	212-775-3579
Bureau of Public Work - Patchogue	631-687-4882	631-687-4902
Bureau of Public Work - Rochester	585-258-4505	585-258-4708
Bureau of Public Work - Syracuse	315-428-4056	315-428-4671
Bureau of Public Work - Utica	315-793-2314	315-793-2514
Bureau of Public Work - White Plains	914-997-9507	914-997-9523
Bureau of Public Work - Central Office	518-457-5589	518-485-1870

New York County General Construction

Asbestos Worker — 06/01/2023

JOB DESCRIPTION Asbestos Worker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
Per Hour: 07/01/2022

Asbestos Worker Removal & Abatement Only*	$ 44.00

NOTE: *On Mechanical Systems that are NOT to be SCRAPPED.

SUPPLEMENTAL BENEFITS
Per Hour:

Asbestos Worker Removal & Abatement Only	$ 8.70

OVERTIME PAY
See (B, B2, *E, J) on OVERTIME PAGE
*Hours worked on Saturdays are paid at time and one half only if forty hours have been worked during the week.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8) on HOLIDAY PAGE

REGISTERED APPRENTICES
Apprentice Removal & Abatement Only:
1000 hour terms at the following percentage of Journeyman's rates.

1st	2nd	3rd	4th
78%	80%	83%	89%

SUPPLEMENTAL BENEFIT
Per Hour:

Apprentice Removal & Abatement	$ 8.70

4-12a - Removal Only

Boilermaker — 06/01/2023

JOB DESCRIPTION Boilermaker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
Per Hour: 07/01/2022

Boilermaker	$ 63.38
Repairs & Renovations	63.38

SUPPLEMENTAL BENEFITS
Per Hour:

Boilermaker	32% of hourly
Repair $ Renovations	Wage Paid + $ 25.38

NOTE: "Hourly Wage Paid" shall include any and all premium(s) pay.

Repairs & Renovation Includes replacement of parts and repairs & renovation of existing unit.

OVERTIME PAY
See (D, O) on OVERTIME PAGE
Repairs & Renovation see (B,E,Q)

HOLIDAY
Paid: See (8, 16, 23, 24) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 12, 15, 16, 22, 23, 24, 25) on HOLIDAY PAGE
NOTE: *Employee must work in pay week to receive Holiday Pay.

**Employee gets 4 times the hourly wage rate for working Labor Day.

REGISTERED APPRENTICES
Wage per hour:
(1/2) Year Terms at the following percentage of Boilermaker's Wage

1st	2nd	3rd	4th	5th	6th	7th
65%	70%	75%	80%	85%	90%	95%

Supplemental Benefits Per Hour:

Apprentice(s)	32% of Hourly Wage Paid Plus Amount Below
1st Term	$ 19.41
2nd Term	20.26
3rd Term	21.11
4th Term	21.96
5th Term	22.82
6th Term	23.68
7th Term	24.52

NOTE: "Hourly Wage Paid" shall include any and all premium(s)

4-5

Broadband — 06/01/2023

JOB DESCRIPTION Broadband **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	10/01/2022	06/15/2023
Field Tech Install/Repair	$ 48.91	$ 50.87

For outside work (excluding installation on building construction/alteration/renovation projects), stopping at first point of attachment (demarcation), installing/maintaining/repairing broadband internet service.

SUPPLEMENTAL BENEFITS

Per Hour:		
	$ 23.17	$ 23.24

OVERTIME PAY
See (B, K, *R) on OVERTIME PAGE
Note: *Two and one half times the hourly rate after the 8th hour

HOLIDAY
Paid: See (5, 6, 7, 11, 12) on HOLIDAY PAGE

4-CWA-Dist1

Carpenter — 06/01/2023

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per hour:	07/01/2022
Piledriver	$ 58.16 + 9.54*
Dockbuilder	$ 58.16 + 9.54*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per hour:

Journeyworker $ 44.54

OVERTIME PAY
See (B, E2, O) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour
(1)year terms:

1st	2nd	3rd	4th
$24.60 + 5.05*	$30.20 + 5.05*	$38.58 + 5.05*	$46.97 + 5.05*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

All Terms: $ 31.03

8-1556 Db

Carpenter 06/01/2023

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per hour: 07/01/2022

Carpet/Resilient
Floor Coverer $ 55.05 + 8.25*
*This portion is not subject to overtime premiums

INCLUDES HANDLING & INSTALLATION OF ARTIFICIAL TURF AND SIMILAR TURF INDOORS/OUTDOORS.

SUPPLEMENTAL BENEFITS
Per hour:
$ 39.40

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE.

Paid for 1st & 2nd yr.
Apprentices See (5,6,11,13,16,18,19,25)
Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wage per hour - (1) year terms:

1st	2nd	3rd	4th
$ 24.80 + 1.85*	$ 27.80 + 2.35*	$ 32.05 + 2.85*	$ 39.93 + 3.85*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

1st	2nd	3rd	4th
$ 14.80	$ 15.80	$ 18.90	$ 19.90

8-2287

Carpenter **06/01/2023**

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per Hour: 07/01/2022

Marine Construction:

Marine Diver	$ 73.03
	+ 9.54*
Marine Tender	$ 62.11
	+ 9.54*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker	$ 44.54

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18, 19) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 13, 16, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms.

1st year	$ 24.60
	+ 5.05*
2nd year	30.20
	+ 5.05*
3rd year	38.58
	+ 5.05*
4th year	56.97
	+ 5.05*

*This portion is not subject to overtime premiums

Supplemental Benefits
Per Hour:

All terms	$ 31.03

8-1456MC

Carpenter **06/01/2023**

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES
Per hour: 07/01/2022

Building

Millwright	$ 57.80
	+ 12.62*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per hour:

Millwright	$ 43.16

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18,19) on HOLIDAY PAGE.

Overtime See (5,6,8,11,13,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms:

1st.	2nd.	3rd.	4th.
$31.24	$36.69	$42.14	$53.04
+ 6.75*	+ 7.92*	+ 9.09*	+ 11.43*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:
One (1) year terms:

1st.	2nd.	3rd.	4th.
$29.01	$31.54	$34.72	$39.14

8-740.1

Carpenter **06/01/2023**

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
Per Hour:

	07/01/2022
Timberman	$ 53.05
	+ 10.01*

*This portion not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per Hour:

	07/01/2022
	$ 43.75

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE.

Paid: for 1st & 2nd yr.
Apprentices See (5,6,11,13,25)

Overtime: See (5,6,11,13,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:
One (1) year terms:

1st	2nd	3rd	4th
$22.42	$27.53	$35.18	$42.84
+ 5.30*	+ 5.30*	+ 5.30*	+5.30*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:
All terms $ 30.74

8-1556 Tm

Carpenter **06/01/2023**

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Westchester

PARTIAL COUNTIES
Orange: South of but including the following, Waterloo Mills, Slate Hill, New Hampton, Goshen, Blooming Grove, Mountainville, east to the Hudson River.
Putnam: South of but including the following, Cold Spring, TompkinsCorner, Mahopac, Croton Falls, east to Connecticut border.
Suffolk: West of Port Jefferson and Patchogue Road to Route 112 to the Atlantic Ocean.

WAGES

Per hour:	07/01/2022	10/18/2022
Core Drilling:		
Driller	$ 42.27	$ 43.38
	+ 2.30*	+ 2.50*
Driller Helper	33.47	34.47
	+ 2.30*	+ 2.50*

Note: Hazardous Waste Pay Differential:
For Level C, an additional 15% above wage rate per hour
For Level B, an additional 15% above wage rate per hour
For Level A, an additional 15% above wage rate per hour
Note: When required to work on water: an additional $ 3.00 per hour.

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per hour:		
Driller and Helper	$ 28.30	$ 28.85

OVERTIME PAY
See (B, G, P) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

8-1536-CoreDriller

Carpenter — 06/01/2023

JOB DESCRIPTION Carpenter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, New York, Putnam, Queens, Richmond

PARTIAL COUNTIES
Nassau: That portion of the county that lies west of Seaford Creekand south of the Southern State Parkway.

WAGES

Per hour:	07/01/2022
Show Exhibit	$ 55.00
	+ 9.50**
Bldg. Carpenter*	$55.05
	+ 8.25**

* Not applicable in Putnam County
**This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS

Per hour worked:	
Show Exhibit	$ 44.20
Bldg. Carpenter	39.40

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (18,19) on HOLIDAY PAGE.

Paid:for 1st & 2nd yr.

Apprentices See (5,6,11,13,16,18,19,25)

Overtime: See (5,6,11,13,16,18,19,25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour: Show Exhibit

(1) year terms:

1st.	2nd.	3rd.	4th.
$22.00	$27.50	$35.75	$44.00
+ 4.75*	+ 4.75*	+ 4.75*	+ 4.75*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:
All terms $ 30.25

Wages per hour: Bldg. Carpenter
(1) year terms:

1st	2nd	3rd	4th
$19.80	$22.80	$27.05	$34.93
+ 1.85*	+ 2.30*	+ 2.80*	+ 3.80*

*This portion is not subject to overtime premiums.

Supplemental benefits per hour:

1st	2nd	3rd	4th
$14.82	$15.87	$18.97	$19.97

8-EXHIB

Carpenter - Building High Rise Concrete Form Work 06/01/2023

JOB DESCRIPTION Carpenter - Building High Rise Concrete Form Work **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES
Nassau: Work performed beginning at the Intersection of the City Line & North Shore of Long Island, then running Southerly to the Southern State Pkwy, then East to Seaford Creek in Nassau County, then South to Atlantic Ocean, then West to Southern tip of Richmond County

WAGES
Per hour: 07/01/2022
Building High Rise:

Concrete Carpenter A $ 51.48
+ 8.43**

Concrete Carpenter B* $ 40.89
+ 1.85**

*NOTE: Tier B work excludes erection of decking, perimeter debris netting, leading edge work, self & climbing form systems and the installation of cocoon systems.

**This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per hour:

Concrete Carpenter A $ 36.16
Concrete Carpenter B $ 16.05

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

One (1) year terms:

Concrete Carpenter	1st	2nd	3rd	4th
Apprentices	$ 18.27	$ 24.70	$ 31.28	$ 38.90
	+ .65*	+ 1.78*	+ 1.91*	+ 2.06*

*This portion is not subject to overtime premiums

Supplemental benefits per hour:

Concrete Carpenter:	
Apprentices	All Terms
	$ 15.75

8-NYC Bldg/212

Carpenter - Heavy&Highway — 06/01/2023

JOB DESCRIPTION Carpenter - Heavy&Highway **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES
Nassau: That portion of the county that lies West of Seaford Creek and South of the Southern State Parkway.

WAGES
Per hour:

	07/01/2022
Heavy & Highway	
Carpenter	$ 58.16
	+ 9.54*

*This portion is not subject to overtime premiums

SUPPLEMENTAL BENEFITS
Per hour worked:

Heavy & Highway	
Carpenter	$ 44.54

OVERTIME PAY
See (B, E2, Q) on OVERTIME PAGE

HOLIDAY

Paid:	See (1) on HOLIDAY PAGE
Overtime:	See (5, 6, 11, 13, 25) on HOLIDAY PAGE
Paid : for 1st & 2nd yr	
Apprentices	See (5, 6, 11, 13, 25)

REGISTERED APPRENTICES
Wage per hour:
One (1) year terms:

	1st	2nd	3rd	4th
Heavy & Highway	$ 24.60	$ 30.20	$ 38.58	$ 46.97
	+ 5.05*	+ 5.05*	+ 5.05*	+ 5.05*

*This portion is not subject to overtime premiums

Supplemental Benefits:
Per Hour:

	All terms
	$ 31.03

8-NYC H/H

Electrician — 06/01/2023

JOB DESCRIPTION Electrician **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022	01/01/2023

Tree Trimmer	$ 33.22	$ 34.21
Ground Person	20.69	20.69

Applies to line clearance, tree work, and right-of-way preparation on all new or existing overhead, electrical, telephone, and CATV lines.

SUPPLEMENTAL BENEFITS
Per hour:

Tree Trimmer	$ 12.44	$ 12.81
Ground Person	7.75	7.75

OVERTIME PAY
See (B, *H, Q) on OVERTIME PAGE
*Worked performed on Sundays & Holidays outside of 7.00am - 4.00pm shall be paid at double time, in addition to the holiday pay if applicable.

HOLIDAY
HOLIDAY:
Paid: See (5,6,10,11,15,16,26) on HOLIDAY PAGE.

(An additional floating holiday after four years service)

Overtime: See (5,6,10,11,15,16,26) on HOLIDAY PAGE.

9-3T

Electrician — 06/01/2023

JOB DESCRIPTION Electrician **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2022	04/12/2023
Electrician	$ 31.25	$ 31.25
Telephone	31.25	31.25

Maintenance and Jobbing-Electrical and teledata work of limited duration and scope, consisting of repairs and/or replacement of electrical and teledata equipment.

- Includes all work necessary to retrofit, service, maintain and repair all kinds of lighting fixtures and local lighting controls and washing and cleaning of foregoing fixtures.

SUPPLEMENTAL BENEFITS
Journeyworker:

07/01/2022	04/12/2023
$ 25.30	$ 26.55
27.28*	28.52*

* Applies to overtime hours

OVERTIME PAY
See (B, H) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

9-3m

Electrician — 06/01/2023

JOB DESCRIPTION Electrician **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond, Westchester

WAGES

Per hour:	07/01/2022	03/09/2023
Service Technician	$ 35.40	$ 36.40

Service and Maintenance on Alarm and Security Systems.

Maintenance, repair and /or replacement of defective (or damaged) equipment on, but not limited to, Burglar - Fire - Security - CCTV - Card Access - Life Safety Systems and associated devices. (Whether by service contract of T&M by customer request.)

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker:	$ 20.18	$ 21.07

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 17, 25, 26) on HOLIDAY PAGE

9-3H

Electrician — 06/01/2023

JOB DESCRIPTION Electrician **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per Hour:

	07/01/2022	04/13/2023
Electrician Audio/Sound and Temporary Light/ Power	$ 59.00	$ 61.00
Evening(Swing Shift):		
Electrician Audio/Sound and Temporary Light/ Power	69.23	71.57
Night (Graveyard Shift): Electrician Audio/Sound and Temporary Light	77.54	80.17
Solar-Photovoltaic Systems		
Group 1 All tasks not listed in Group 2	59.00	61.00
Group 2	31.25	31.25

D.C portion and associated mechanical equipment related to solar systems
(excluding battery storage and its associated equipment) including work related to
Weather Stations and Data Acquisitions/Monitoring Systems on solar photovoltaic systems.

Mounting of PV modules.
Mounting of DC optimizers to back of modules if the installation calls for this equipment.
Mounting of microinverters to back of modules and install trunk cabling on racking if called for.
Module to module connection of PV modules to adjacent modules. If racking manufacturer provides integrated inter-row cable management, install string jumper to complete the string in full in same sub-array.
If racking manufacturer does not provide integrated inter-row cable management, run conduit between rows, bond it and run string jumper to complete string in full in same sub-array.
Installation of weather stations and other weather station relevant sensors as specified.
Installation of data acquisition system (DAS) for PV system monitoring.

SUPPLEMENTAL BENEFITS
Per Hour:

Electrician	$ 61.50	$ 63.84
	65.22*	67.69*

Swing Shift:	69.97	72.58
	74.34*	77.10*
Graveyard Shift:	77.12	79.96
	82.01*	85.02*
Temporary Light/Power:	28.10	28.56
	31.16*	31.81*
Group 1:	61.50	63.84
	65.22*	67.69*
Group 2:	25.30	26.55
	27.28*	28.52*

* Applies when premium wages are paid.

Temporary Light and Power benefit rate applies for three or less workers.

Reduce benefit rate by 6.2% for any employee who has accumulated wages of $137,700 for the same employer.

OVERTIME PAY
See (A, H) on OVERTIME PAGE
See (B) for Temporary Light and Power

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages Per Hour:

One (1) year terms First term:	07/01/2022	04/13/2023
0-6 mos.	$ 18.00	$ 18.00
7-12 mos.	18.50	18.50
Second term:		
0-6 mos.	19.50	19.50
7-12 mos.	20.50	20.50
Third term:		
0-6 mos.	21.50	21.50
7-12 mos.	22.50	22.50
Fourth term:		
0-6 mos.	23.50	23.50
7-12 mos.	25.50	25.50
Fifth term/MIJ:		
0-12 mos.	26.75	26.75
13-18 mos.	31.25	31.25

Supplemental Benefits per hour:

One (1) year terms:

First Term:	Regular	Overtime	Regular	Overtime
0-6 mos.	$ 15.68	$ 16.88	$ 16.68	$ 17.87
7-12 mos.	15.94	17.17	16.69	17.92
Second Term:				
0-6 mos.	16.47	17.76	17.48	18.78
7-12 mos.	16.99	18.35	17.74	19.10
Third Term:				
0-6 mos.	17.52	18.94	18.56	19.98
7-12 mos.	18.04	19.53	18.79	20.28
Fourth Term:				
0-6 mos.	18.56	20.12	19.63	21.19
7-12 mos.	19.61	21.30	20.36	22.05
Fifth Term/MIJ:				
1-12 mos.	22.88	24.57	24.13	25.82

13-18 mos.	25.30	27.28	26.55	28.52

9-3

Electrician - Highway and Street Lighting, Traffic Signals and Controls — 06/01/2023

JOB DESCRIPTION Electrician - Highway and Street Lighting, Traffic Signals and Controls **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022	04/19/2023
Electro Pole Electrician	$ 59.00	$ 61.00
Electro Pole Foundation Installer	44.66	46.66
Electro Pole Maintainer	38.61	40.61

SUPPLEMENTAL BENEFITS
Per Hour:

	07/01/2022	04/19/2023
Electro Pole Electrician	$ 63.50	$ 65.91
	67.23*	69.77*
Electro Pole Foundation Installer	48.04	50.05
	50.86*	53.00*
Electro Pole Maintainer	43.40	45.40
	45.83*	47.97*

* Applies when premium wages are paid
Note:Reduce benefit rate by 6.2% for any employee who has accumulated wages in $137,700 for the same employer.

OVERTIME PAY
See (A, B, E4, F, K) on OVERTIME PAGE
B - Applies to Electro Pole Foundation Installer
E4 - Applies to Electro Pole Maintainer

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

9-3J

Elevator Constructor — 06/01/2023

JOB DESCRIPTION Elevator Constructor **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

PARTIAL COUNTIES
Rockland: Entire County except for the Township of Stony Point
Westchester: Entire County except for the Townships of Bedford, Lewisboro, Cortland, Mt. Kisco, North Salem, Pound Ridge, Somers and Yorktown.

WAGES
Per hour:

	07/01/2022	03/17/2023
Elevator Constructor	$ 75.14	$ 77.49
Modernization & Service/Repair	59.09	60.89

Four(4), ten(10) hour days may be worked at straight time during a week, Monday thru Friday.

NOTE- In order to use the '4 Day/10 Hour Work Schedule', as your normal schedule, you must submit an 'Employer Registration for Use of 4 Day/10 Hour Work Schedule' form PW30.1; and there must be a dispensation of hours in place on the project. If the PW30.1 IS NOT SUBMITTED you will be liable for overtime payments for work over the allotted hours per day listed.

SUPPLEMENTAL BENEFITS
Per Hour:

Elevator Constructor	$ 43.914	$ 45.574
Modernization & Service/Repairs	42.787	44.412

OVERTIME PAY
Constructor See (D, M, T) on OVERTIME PAGE.

Modern/Service See (B, F, S) on OVERTIME PAGE.

HOLIDAY
Paid: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES PER HOUR:
*Note:1st, 2nd, 3rd Terms are based on Average wage of Constructor & Modernization.
Terms 4 thru 9 Based on Journeyman's wage of classification Working in.

6 MONTH TERMS:

1st Term*	2nd & 3rd Term*	4th & 5th Term	6th & 7th Term	8th & 9th Term
50%	50%	55%	65%	75%

SUPPLEMENTAL BENEFITS

Elevator Constructor		
1st Term	$ 0.00	$ 0.00
2nd & 3rd Term	34.772	36.024
4th & 5th Term	35.606	36.943
6th & 7th Term	37.052	38.448
8th & 9th Term	38.497	39.953
Modernization & Service/Repair		
1st Term	$ 0.00	$ 0.00
2nd & 3rd Term	34.672	35.694
4th & 5th Term	35.195	36.525
6th & 7th Term	36.571	37.948
8th & 9th Term	37.938	39.38

Glazier 06/01/2023

JOB DESCRIPTION Glazier **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES

Per hour:	7/01/2022	11/01/2022
Glazier & Glass Tinting	$ 59.59	$ 60.34
*Scaffolding	61.55	62.55
Window Film **Repair & Maintenance	30.11	30.11

*Scaffolding includes swing scaffold, mechanical equipment, scissor jacks, man lifts, booms & buckets 24' or more, but not pipe scaffolding.

**Repair & Maintenance- All repair & maintenance work on a particular building whenever performed, where the total cumulative contract value is under $148,837.

SUPPLEMENTAL BENEFITS

Per hour:	7/01/2022	11/01/2022
Glazier & Glass Tinting	$ 37.55	$ 38.05
Window Film Repair & Maintenance	22.01	22.01

OVERTIME PAY
See (B,H,V) on OVERTIME PAGE.
For 'Repair & Maintenance' see (B, B2, I, S) on overtime page.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6, 16, 25) on HOLIDAY PAGE
For 'Repair & Maintenance'
Paid: See(5, 6, 16, 25)
Overtime: See(5, 6, 16, 25)

REGISTERED APPRENTICES
Wage per hour:
(1) year terms at the following wage rates:

	7/01/2022	11/01/2022
1st term	$ 21.15	$ 21.45
2nd term	29.07	29.45
3rd term	35.20	35.65
4th term	47.38	47.98

Supplemental Benefits:
(Per hour)

1st term	$ 17.15	$ 17.35
2nd term	24.42	24.67
3rd term	27.06	27.36
4th term	32.15	32.55

8-1087 (DC9 NYC)

Insulator - Heat & Frost — 06/01/2023

JOB DESCRIPTION Insulator - Heat & Frost **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2022	06/01/2023
Insulators Heat & Frost	$ 70.01	Additional $ 1.10/Hr.

SUPPLEMENTAL BENEFITS
Per Hour:

Insulators Heat & Frost	$ 35.16

OVERTIME PAY
See (B, E, *Q, V) on OVERTIME PAGE
* Triple time for Labor Day (If worked)

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages:
1 year terms.
Wages Per Hour:

1st	2nd	3rd	4th
$ 28.00	$ 35.02	$ 42.01	$ 49.02

Supplemental Benefits:

$ 14.06	$ 17.59	$ 21.10	$ 24.62

4-12

Ironworker **06/01/2023**

JOB DESCRIPTION Ironworker **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:	07/01/2022	01/01/2023
		Additional
Stone Derrickmen Rigger	$ 72.26	+ $ 1.64
Stone Handset Derrickman	70.11	+ $ 1.11

SUPPLEMENTAL BENEFITS

Per hour:	
Stone Derrickmen Rigger	$ 42.10
Stone Handset Derrickman	42.09

OVERTIME PAY
See (B, D1, *E, Q, **V) on OVERTIME PAGE
*Time and one-half shall be paid for all work on Saturday up to eight (8) hours and double time shall be paid for all work thereafter.
** Benefits same premium as wages on Holidays only

HOLIDAY
Paid: See (18) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 25) on HOLIDAY PAGE
Work stops at schedule lunch break with full day's pay.

REGISTERED APPRENTICES
Wage per hour:

Stone Derrickmen Rigger:

	1st	2nd	3rd	4th
07/01/2022	$ 35.58	$ 50.89	$ 56.71	$ 62.48

Supplemental benefits:

Per hour:				
07/01/2022	21.61	31.97	31.97	31.97

Stone Handset:

1/2 year terms at the following hourly wage rate:

	1st	2nd	3rd	4th
07/01/2022	34.50	49.43	54.99	61.00

Supplemental benefits:

Per hour:				
07/01/2022	21.60	31.96	31.96	31.96

9-197D/R

Ironworker **06/01/2023**

JOB DESCRIPTION Ironworker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per Hour:	07/01/2022	01/01/2023
Ornamental	$ 46.65	$ 46.90
Chain Link Fence	46.65	46.90
Guide Rail	46.65	46.90

SUPPLEMENTAL BENEFITS

Per hour:
Journeyworker: $ 62.04 $ 63.04

OVERTIME PAY
See (B, B1, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Apprentices Hired after 9/1/18:
1 year terms

	07/01/2022	01/01/2023
1st Term	$ 20.63	$ 21.13
2nd Term	24.22	24.77
3rd Term	27.80	28.40
4th Term	31.38	32.06

Supplemental Benefits per hour:

1st Term	$ 17.90	$ 17.90
2nd Term	19.15	19.15
3rd Term	20.41	20.41
4th Term	21.67	21.67

4-580-Or

Ironworker **06/01/2023**

JOB DESCRIPTION Ironworker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
PER HOUR:

	07/01/2022	01/01/2023
Ironworker:		
Structural	$ 55.70	$ 56.45
Bridges		
Machinery		

SUPPLEMENTAL BENEFITS
PER HOUR PAID:

Journeyman	$ 85.35	$ 86.35

OVERTIME PAY
See (B, B1, Q, *V) on OVERTIME PAGE
*NOTE: Benefits are calculated for every hour paid

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 18, 19) on HOLIDAY PAGE

REGISTERED APPRENTICES
WAGES PER HOUR:

6 month terms at the following rate:

1st	$ 28.97	$ 29.35
2nd	29.57	29.95
3rd - 6th	30.18	30.56

Supplemental Benefits
PER HOUR PAID:

All Terms	$ 59.18	$ 59.94

4-40/361-Str

Ironworker **06/01/2023**

JOB DESCRIPTION Ironworker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES

Rockland: Southern section - south of Convent Road and east of Blue Hills Road.

WAGES
Per hour:

	07/01/2022	07/01/2023
Reinforcing & Metal Lathing	$ 56.90	Additional $ 1.50
"Base" Wage	$ 55.20 plus $ 1.70	

"Base" Wage is used to calculate overtime hours only.

SUPPLEMENTAL BENEFITS
Per hour:

Reinforcing & Metal Lathing	$ 41.18

OVERTIME PAY
See (B, E, Q, *X) on OVERTIME PAGE
*Only $23.50 per Hour for non worked hours

Supplemental Benefit Premiums for Overtime Hours worked:

Time & One Half	$ 47.68
Double Time	$ 54.18

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 13, *18, **19, 25) on HOLIDAY PAGE
*Note: Work performed after first 4 Hours.

REGISTERED APPRENTICES
(1) year terms at the following wage rates:

1st term	2nd term	3rd term	4th Term
Wage Per Hour:			
$ 22.55	$ 23.60	$ 24.60	$ 37.18
"Base" Wage			
$ 21.00 plus $1.55	$ 22.00 plus $1.60	$ 23.00 plus $1.60	$ 35.60 plus $1.58

"Base" Wage is used to calculate overtime hours ONLY.

SUPPLEMENTAL BENIFITS
Per Hour:

1st term	2nd term	3rd term	4th Term
$ 18.17	$ 17.17	$ 16.22	$ 22.50

4-46Reinf

Laborer 06/01/2023

JOB DESCRIPTION Laborer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

Striper (Highway/streets):	07/01/2022	07/01/2023 Additional
Striping-Machine Operator	$ 39.00	$ 3.00
Striping Thermoplastic	43.00	
Flagger - Traffic Safety*	37.00	

Note: * Includes but is not limited to: Positioning of cones and directing of traffic using hand held devices. Excludes the Driver/Operator of equipment used in protection of traffic safety.

SUPPLEMENTAL BENEFITS
Per hour paid:

Journeyworker	$ 15.27

OVERTIME PAY
See (B, H) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 8, 13) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 13) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

1st Term (1-2000 hours)	$ 30.36
2nd Term (2001-4000 hours)	32.00

Supplemental Benefits per hour:

All Terms	15.27

9-1010-LS

Laborer — 06/01/2023

JOB DESCRIPTION Laborer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2022	07/01/2023
Laborer/Excavation		Additional
**Asbestos and Lead Abatement & Removal, Hazardous Waste Removal (including soil)	$ 44.00	$ 2.30
Basic	44.00	
Flagman	44.00	
Pipelayer	44.00	
*Tree Work, *Landscape	44.00	

*Includes trimming, cutting, planting and/or removal of trees.
** Applies to Heavy & Highway projects

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 50.43

Note: No payment of Supplemental Benefits is required on paid holidays, when employees do not work.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
When an observed holiday falls on a Saturday, work done shall be paid at double time.

HOLIDAY
Paid: See (2, 20) on HOLIDAY PAGE
Overtime: See (2, 5, 6, 11, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

1000 hour terms at the following hourly wage rate.

		07/01/2022
1st	0 - 1000	$ 22.00
2nd	1001-2000	26.40
3rd	2001-3000	33.00
4th	3001-4000	39.60

Supplemental Benefits per hour:

All Apprentices	50.43

9-731Ex

Laborer **06/01/2023**

JOB DESCRIPTION Laborer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

GROUP 14: Blasters.

GROUP 16: Tunnel workers - including Miners, Drill Runners, Iron Men, Maintenance Men, Conveyor Men, Safety Miners, Riggers, Block Layers, Cement Finishers, Rod Men, Caulkers, Powder Carriers, Miners' Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Derail Men, Form Men, Bottom Bell, Top Bell or Signal men, Form Workers, Movers, Concrete Workers, Shaft Men, Tunnel Laborers and Caulkers' Helpers.

GROUP 17: All others including: Powder Watchmen, Top Laborers and Changehouse Attendants.

Wages: (per hour)	07/01/2022
Laborer (Tunnel)-FREE AIR:	
Group 14	$ 71.94
Group 16	68.80
Group 17*	63.59
Small Bore Micro Tunnel Machines	80% of rates above
For Repairs on Existing Water Tunnels	90% of rates above
For Repairs of Sewer & Drainage Tunnels	85% of rates above
For Repair & Maintenance of all Subway & Vehicular Tunnels	80% of rates above

*An additional $3.00 per day when using an air spade, jack hammer or pavement breaker.

Note: For jobs bid before July 1, 2010 employer shall pay $6.00 per day for each one half (1/2) mile or fraction starting from a point 500 feet from the shaft. For all jobs bid after July 1, 2010, said premium shall be $10.00 per day.

SUPPLEMENTAL BENEFITS
Per hour:

GROUP 14	$ 51.27
GROUP 16	49.16
GROUP 17	45.51
Small Bore Micro Tunnel Machines	80% of rates above
For Repairs on Existing Water Tunnels	90% of rates above
For Repairs of Sewer & Drainage Tunnels	85% of rates above
For Repair & Maintenance of all Subway& Vehicular Tunnels	80% of rates above

OVERTIME PAY

OVERTIME: For Laborer (Free Air) See (D, M, R*) on OVERTIME PAGE.
For Repair Categories & Micro Tunneling See (B, F, R*) on OVERTIME PAGE.
* Straight time first 8 hours, double time after 8 hours.

HOLIDAY
Paid: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Good Friday may be exchanged for one of the holidays listed.

9-147Tnl/Free

Laborer - Building — 06/01/2023

JOB DESCRIPTION Laborer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022	01/01/2023
Basic Laborer and Mason Tender	$ 42.70*	$ 43.80**

*Before calculating premium wage deduct $2.75
**Before calculating premium wage deduct $3.00

SUPPLEMENTAL BENEFITS
Per hour:

Basic Laborer and Mason Tender	$ 29.24	$29.39

OVERTIME PAY
See (B, B2, E, E2, Q, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE
(Easter is paid at Time and One-half if worked)

REGISTERED APPRENTICES
Wage per hour:

1000 hour terms at the following wage rate:

Term:	1st	2nd	3rd	4th
Basic Laborer and Mason Tender				
07/01/2022	$ 21.45*	$ 23.40*	$ 24.90*	$ 27.40*
01/01/2023	$ 21.80*	$ 23.55*	$ 25.05*	$ 27.55*

*Before calculating premium wage deduct $0.50

Supplemental Benefits per hour:

All Terms	
07/01/2022	$ 10.32
01/01/2023	$ 10.47

9-MTDC(79)

Laborer - Building — 06/01/2023

JOB DESCRIPTION Laborer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022
Skilled Interior Demolition Laborer:	$ 39.19*
General Interior Demolition Laborer:	28.38**

* Before calculating overtime wages deduct $1.50

**General Demolition Laborer performs manual work and work incidental to demolition, such as loading and carting of debris from work site to an area where it can be loaded into trucks for removal. Also performs clean-up of the site when demolition is complete.

SUPPLEMENTAL BENEFITS
Per Hour:

Skilled Interior Demolition Laborer:	24.60
General Interior Demolition Laborer:	18.92

OVERTIME PAY
See (B, B2, I, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage Per Hour:

1000 hour terms at the following wage rate:

1st	2nd	3rd	4th
$ 21.20*	$ 23.15*	$ 24.65*	$ 27.15*

* Before calculating overtime wages deduct $0.50

Supplemental Benefits per hour:

All Terms:	10.32

9-MTDC (79-ID)

Laborer - Building — 06/01/2023

JOB DESCRIPTION Laborer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour: 07/01/2022

Laborer:
Laborer-Concrete
(including flag person) $ 42.53
+ $6.75*

* This portion is not subjected to overtime premiums.

SUPPLEMENTAL BENEFITS
Per Hour
$ 19.70
+ $8.00**

** This portion subjected to overtime premiums only on codes (E,Q)

OVERTIME PAY
OVERTIME: See (A,E,Q) on OVERTIME PAGE attached.
See (B,E,Q,) for work below street level to top of foundation.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
Terms based on hours listed:

1st	2nd	3rd
0-1334	1334-2668	2669-4000
$ 19.04 +$1.99*	$ 21.26 +$5.82*	$ 26.83 +$6.30*

* This portion is not subjected to overtime premiums.

Supplemental Benefits:
Per hour:

$ 12.20	$ 16.20	$ 16.20
+$2.00*	+$2.45*	+$3.55*

Journeyworker rate applies after 4000 hours
*This portion subjected to same premium as wages.

9-6A/18A/20-C

Laborer - Building — 06/01/2023

JOB DESCRIPTION Laborer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2022	01/01/2023
Building:		Additional
Plasterer Tender and Spray Fireproofing Tender	$ 42.70*	$ 1.25

* Before calculating overtime wages deduct $2.75.

SUPPLEMENTAL BENEFITS

Per hour:	
Journeyworker	$ 29.24

OVERTIME PAY
See (B, B2, E, E2, Q, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

1000 hours terms at the following wage.

1st	2nd	3rd	4th
$21.45*	$23.40*	$24.90*	$27.40*

* Before calculating overtime wages deduct $ 0.50

Supplemental Benefits per hour:

07/01/2022	
All Terms:	$ 10.32

9-30 (79)

Laborer - Building — 06/01/2023

JOB DESCRIPTION Laborer - Building **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2022	01/02/2023
Asbestos, Lead and Hazardous Material Abatement Laborer	$ 38.05	$ 39.50*

(Re-Roofing Removal See Roofer)
NOTE: Asbestos removed from Mechanical Systems not to be scrapped
See Asbestos Worker

SUPPLEMENTAL BENEFITS

Per Hour:		
Laborer	$ 19.10	$ 19.65

OVERTIME PAY
See (B, B2, I) on OVERTIME PAGE
*Calculate at $38.55 per hour then add $0.95

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 28) on HOLIDAY PAGE

REGISTERED APPRENTICES
1000 hour terms at the following;
Per Hour:

1st term	$ 20.00	$ 20.50*
2nd Term	21.00	21.50**
3rd Term	24.00	24.50***
4th Term	26.00	26.50****

SUPPLEMENTAL BENEFIT
Per Hour:

All Terms	$ 14.25	$ 14.25

OVERTIME PAY:
*Calculate at $20.00 per hour then add $0.50
**Calculate at $21.00 per hour then add $0.50
***Calculate at $24.00 per hour then add $0.50
****Calculate at $26.00 per hour then add $0.50

4-NYDC(78)

Laborer - Building — 06/01/2023

JOB DESCRIPTION Laborer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022	01/01/2023
Skilled Demolition Laborer:	$ 41.08*	$ 41.93***
General Demolition Laborer:	29.66**	30.51****

*Before calculating overtime wages deduct $2.85
**Before calculating overtime wages deduct $2.20
***Before calculating overtime wages deduct $3.00
****Before calculating overtime wages deduct $2.35

**General Demolition Laborer performs manual work and work incidental to demolition, such as loading and carting of debris from work site to an area where it can be loaded into trucks for removal. Also performs clean-up of the site when demolition is complete.

NOTE: Total Demolition Only: Demolition shall be the complete demolition (wrecking) or dismantling of entire buildings or structures. Also may include the removal of all or any portion of a roof in which structural change is to occur. Structural change is defined as the removal of structural slabs, steel members, concrete members and penetration through the structural slab.

SUPPLEMENTAL BENEFITS
Per hour:
Journeyworker:

Skilled Demolition Laborer:	$ 28.12	$ 28.27
General Demolition Laborer:	21.18	21.33

OVERTIME PAY
See (B, E, E2, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:
(1) year terms at the following wage.

1st	2nd	3rd	4th
07/01/2022			

$ 21.20* $ 23.15* $ 24.65* $ 27.15*
*Before calculating overtime wages deduct $0.40

01/01/2023
$ 21.80* $ 23.55* $ 25.05* $ 27.55*
*Before calculating overtime wages deduct $0.50

Supplemental Benefits per hour:

All Terms:
07/01/2022 $ 10.27
01/0/2023 $ 10.47

9-79/95

Laborer - Concrete & Asphalt Paving 06/01/2023

JOB DESCRIPTION Laborer - Concrete & Asphalt Paving **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Group 1: Slurry Seal Coater, Maintenance Safety Surface, Small Power Tool Operator, Play Equipment Installer, Temporary Fence Installer & Repairs, Laborer.

Group 2: Production Paving Work: Shoveler, small equipment operator.

Per hour:	07/01/2022
Concrete Formsetter	$ 55.10
Asphalt Screedman / Micro Paver	55.70
Asphalt Raker	55.10
Group 1	51.23
Group 2	51.23

SUPPLEMENTAL BENEFITS
Per hour:

Journeyworker	$ 43.44

Note: No payment of supplemental benefits is required on paid holidays, when employees do not work.

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
Note: Saturday premium rate applies from 7:00 am on Saturday to 6:59 am Sunday
Note: Sunday premium rate applies from Sunday 7:00 am to Monday 6:59 am.

HOLIDAY
Paid: See (5, *11, 20) on HOLIDAY PAGE
HOLIDAY:
Overtime: See (21,22)** on HOLIDAY PAGE.

Note: See (5,20) Holiday pay -at the single time pay rate-shall be prorated based on 25% of a day's wages and benefits for each day worked during that calendar week.

**New Year's Day and Christmas Day: If an employee is performing work on these (2) days the employee will receive the single rate plus 25%.

* Columbus Day shall be an unpaid holiday. In the event work is performed on Columbus Day, wages shall be paid on a double time basis.

Note-When Independence day falls on Saturday, it will be observed on that Saturday, however, when it occurs on a Sunday, it will be observed on the Monday.

REGISTERED APPRENTICES
Wage per hour:

2000 hours term:

1st term	2nd term
1-1999	2000-4000
$ 37.11	$ 38.75

Supplemental Benefits per hour:
2000 hours term:

1st term	2nd term
1-1999	2000-4000
$ 17.15	$ 17.15

9-1010H/H

Laborer - Trac Drill — 06/01/2023

JOB DESCRIPTION Laborer - Trac Drill **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Group 1:Chipper/Jackhammer, Powder Carrier, Hydraulic Chuck tender, Chuck Tender and Nipper, Magazine Keeper

Group 2: Hydraulic Trac Drill

Group 3: Air Trac, Wagon and Quarry bar

Group 4: Blaster

Per Hour:	07/01/2022
Group 1	$ 44.00
Group 2	51.35
Group 3	50.52
Group 4	57.21

SUPPLEMENTAL BENEFITS
Per Hour:

All Classifications	50.43

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
When an observed holiday falls on a Saturday, work done shall be paid at double time.

HOLIDAY
Paid: See (2, 20) on HOLIDAY PAGE
Overtime: See (2, 5, 6, 11, 20) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

1000 hour terms at the following hourly wage rate.

		07/01/2022
1st	0 - 1000	$ 22.00
2nd	1001-2000	26.40
3rd	2001-3000	33.00
4th	3001-4000	39.60

Supplemental Benefits per hour:

All Apprentices	50.43

9-731/29

Laborer - Tunnel — 06/01/2023

JOB DESCRIPTION Laborer - Tunnel **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
GROUP 5: Blasters and Mucking Machine Operators

GROUP 6: Tunnel Workers* * (including Miners, Drill Runners, Iron Men, Maintenance Men, Inside Muck Lock Tender, Pumpmen, Electricians, Cement Finishers, Rod Men, Caulkers, Carpenters, Hydraulic Men, Shield Drivers, Monorail Operators, Motor Men, Conveyor Men, Safety Miners, Powder Carriers, Pan Men, Riggers, Miner's Helpers, Chuck Tenders, Track Men, Nippers, Brake Men, Form Workers, Concrete Workers, Tunnel Laborers, Caulker's Helpers), Hose Men, Grout Men, Gravel Men, Derail Men and Cable Men.

GROUP 7: Top Nipper

GROUP 8,9: Outside Man Lock Tender, Outside Muck Lock Tender, Shaft Men, Gauge Tender and Signal Men.

GROUP 10: Powder Watchmen, Top Laborers and Changehouse Attendants.

WAGES: (per hour)

	07/01/2022
Laborer(Compressed Air):	
GROUP 5	$ 75.42
GROUP 6	72.73
GROUP 7	71.52
GROUP 8,9	70.09
GROUP 10	61.62

Note: For jobs bid before July l, 2010 employer shall pay $6.00 per day for each one half (1/2) mile or fraction starting from a point 500 feet from the shaft. For all jobs bid after July 1, 2010, said premium shall be $10.00 per day.

SUPPLEMENTAL BENEFITS
SUPPLEMENTAL BENEFITS:
per hour:

GROUP 5	$ 53.35
GROUP 6	51.70
GROUP 7	50.66
GROUP 8,9	49.85
GROUP 10	47.25

OVERTIME PAY
See (D, M, *R) on OVERTIME PAGE
NOTE: Time and one-half to be paid for all overtime repair-maintenance work on existing equipment and facilities.

* Straight time first 8 hours, double time after 8 hours.

HOLIDAY
Paid: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 12, 15, 16, 25) on HOLIDAY PAGE
Good Friday may be exchanged for one of the holidays listed.

9-147Tnl/Comp Air

Mason — 06/01/2023

JOB DESCRIPTION Mason **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2022	07/01/2023 Additional
Brick/Block Layer	$ 65.23	$ 2.41
Base Wage for OT Calculation	54.18	

SUPPLEMENTAL BENEFITS
Per Hour:

Brick/Block Layer	$ 30.60

OVERTIME PAY
See (A, E, E2, Q) on OVERTIME PAGE
Note: OT Calculated on Base Wage plus $ 11.10/hr.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(800 hour) Terms at the following Percentage of Journey workers "Base Wage" plus $ 6.35/hr.:

1st	2nd	3rd	4th	5th
50%	60%	70%	80%	90%

Supplemental Benefits per hour:

All Apprentices $ 21.45

4-1Brk

Mason - Building 06/01/2023

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
Building

	07/01/2022
Wages per hour:	
Mosaic & Terrazzo Mechanic	$ 59.21
Mosaic & Terrazzo Finisher	57.60

SUPPLEMENTAL BENEFITS
Per hour:

Mosaic & Terrazzo Mechanic	$ 26.21* + $11.73
Mosaic & Terrazzo Finisher	$ 26.21* + $11.72

*This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (A, E, Q) on OVERTIME PAGE
07/01/2022- Deduct $7.00 from hourly wages before calculating overtime.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
Easter Sunday is an observed holiday.Holidays falling on a Saturday will be observed on that Saturday. Holidays falling on a Sunday will be celebrated on the Monday.

REGISTERED APPRENTICES
Wages Per hour:

1st 0-1500	2nd 1501-3000	3rd 3001-3750	4th 3751-4500	5th 4501-5250	6th 5251-6000
$ 22.82	$ 29.34	$ 31.32	$ 36.55	$ 41.77	$ 46.99

Supplemental Benefits per hour:

$4.62* +$6.56	$5.94* +$8.43	$15.73* +$11.24	$18.35* +$13.11	$20.97* +$14.99	$23.59* +$16.85

*This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/3

Mason - Building **06/01/2023**

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2022	12/05/2022	06/05/2023 Additional
Tile Setters	$ 62.41	$ 63.03	$ 0.73

SUPPLEMENTAL BENEFITS
Per Hour:

	$ 26.06*	$ 26.16*
	+ 10.04	+ $10.04

*This portion of benefits subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (B, *E, Q, V) on OVERTIME PAGE
Work beyond 10 hours on Saturday shall be paid at double the hourly wage rate.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

750 hour terms at the following wage rate:

	1st 1-750	2nd 751-1500	3rd 1501-2250	4th 2251-3000	5th 3001-3750	6th 3751-4500	7th 4501-5250	8th 5251-6000	9th 6001-6750	10th 6501-7000
07/01/2022	$21.23	$26.11	$33.26	$38.14	$41.67	$45.04	$48.60	$53.47	$56.25	$60.33
12/05/2022	$21.47	$26.39	$33.60	$38.52	$42.06	$45.47	$49.05	$53.96	$56.77	$60.90

Supplemental Benefits per hour:

	1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
07/01/2022	$12.55* + $.69	$12.55* + $.74	$15.16* + $.84	$15.16* + $.88	$16.75* +$1.28	$18.30* +$1.33	$19.35* +$1.70	$19.40* +$1.75	$17.45* +$5.90	$22.80* +$6.42
12/05/2022	$12.55* + $.71	$12.55* + $.76	$15.16* + $.86	$15.16* + $.90	$16.16* + $1.32	$17.66* + $1.37	$18.66* + $1.76	$18.66* + $1.81	$16.66* + $5.96	$21.91* + $6.51

*This portion of benefits subject to same premium rate as shown for overtime wages.

9-7/52

Mason - Building **06/01/2023**

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2022
Building-Marble Restoration:	
Marble, Stone &	$ 46.60

Terrazzo Polisher, etc

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker:

Building-Marble Restoration:
Marble, Stone &
Polisher $ 29.77

OVERTIME PAY
See (B, *E, Q, V) on OVERTIME PAGE
*ON SATURDAYS, 8TH HOUR AND SUCCESSIVE HOURS PAID AT DOUBLE HOURLY RATE.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
1ST TERM APPRENTICE GETS PAID FOR ALL OBSERVED HOLIDAYS.

REGISTERED APPRENTICES
WAGES per hour:

900 hour term at the following wage:

1st	2nd	3rd	4th
1-900	901-1800	1801-2700	2701
$ 32.61	$ 37.28	$ 41.94	$ 46.60

Supplemental Benefits Per Hour:

27.07	27.97	28.87	29.77

9-7/24-MP

Mason - Building 06/01/2023

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Dutchess, Kings, Nassau, New York, Orange, Putnam, Queens, Richmond, Rockland, Suffolk, Sullivan, Ulster, Westchester

WAGES
Wages: 07/01/2022

Marble Cutters & Setters $ 62.17

SUPPLEMENTAL BENEFITS
Per Hour:

Journeyworker $ 38.27

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage Per Hour:

750 hour terms at the following wage.

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
1-750	751-1500	1501-2250	2251-3000	3001-3750	3751-4500	4501-5250	5251-6000	6001-6751	6751-7500
$ 24.88	$ 27.97	$ 31.08	$ 34.17	$ 37.29	$ 40.39	$ 43.51	$ 46.61	$ 52.82	$ 59.05

Supplemental Benefits per hour:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 20.55	$ 22.04	$ 23.52	$ 25.01	$ 26.47	$ 27.96	$ 29.42	$ 30.91	$ 33.86	$ 36.81

9-7/4

Mason - Building **06/01/2023**

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES

Per hour:	07/01/2022	12/05/2022	06/05/2023 Additional
Tile Finisher	$ 48.00	$ 48.44	$ 0.60

SUPPLEMENTAL BENEFITS
Per Hour:

	$ 22.91*	$ 23.06*
	+ $9.86	+ $9.86

* This portion of benefits is subject to same premium rate as shown for overtime wages.

OVERTIME PAY
See (A, *E, Q) on OVERTIME PAGE
Double time rate after 10 hours on Saturdays

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE

9-7/88-tf

Mason - Building **06/01/2023**

JOB DESCRIPTION Mason - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2022
Marble, Stone, etc.	
Maintenance Finishers:	$ 27.01

Note 1: An additional $2.00 per hour for time spent grinding floor using "60 grit" and below.
Note 2: Flaming equipment operator shall be paid an additional $25.00 per day.

SUPPLEMENTAL BENEFITS
Per Hour:

Marble, Stone, etc	
Maintenance Finishers:	$ 14.40

OVERTIME PAY
See (B, *E, Q, V) on OVERTIME PAGE
*Double hourly rate after 8 hours on Saturday

HOLIDAY
Paid: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 15, 25) on HOLIDAY PAGE
1st term apprentice gets paid for all observed holidays.

REGISTERED APPRENTICES
WAGES per hour:

	07/01/2022
0-750	$ 21.67
751-1500	22.38
1501-2250	23.10
2251-3000	23.80
3001-3750	24.87
3751-4500	26.29
4501+	27.01

Supplemental Benefits:

Per hour:

0-750	11.52
751-1500	11.90
1501-2250	12.29
2251-3000	12.67
3001-3750	13.25
3751-4500	14.01
4501+	14.40

9-7/24M-MF

Mason - Building / Heavy&Highway **06/01/2023**

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk, Westchester

WAGES
Per hour: 07/01/2022

Marble-Finisher	$ 48.97

SUPPLEMENTAL BENEFITS
Journeyworker:
per hour

Marble- Finisher	$ 35.76

OVERTIME PAY
See (B, E, Q, V) on OVERTIME PAGE
Work beyond 8 hours on a Saturday shall be paid at double the rate.

HOLIDAY
Overtime: See (5, 6, 8, 11, 15, 16, 25) on HOLIDAY PAGE
When an observed holiday falls on a Sunday, it will be observed the next day.

9-7/20-MF

Mason - Building / Heavy&Highway **06/01/2023**

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
Per Hour: 07/01/2022

Cement Mason	$ 53.77

SUPPLEMENTAL BENEFITS
Per Hour:

Cement Mason	$ 34.16
1.5 X overtime rate	$ 61.70
2 X overtime rate	$ 68.32

OVERTIME PAY
See (B1, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 11, 13, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1) year terms at the following Percentage of Journeyworkers Wage.

1st Term	$ 19.92
2nd Term	$ 24.82
3rd Term	$ 30.22

Supplement Benefits per hour paid:

		1.5X OT	2X OT
1st Term	$ 14.36	$ 21.55	$ 28.72
2nd Term	$ 14.66	$ 22.00	$ 29.32

3rd Term	$ 14.77	$ 22.16	$ 29.54

4-780

Mason - Building / Heavy&Highway 06/01/2023

JOB DESCRIPTION Mason - Building / Heavy&Highway **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
NOTE: Shall include but not limited to Precast concrete slabs (London Walks)Marble and Granite pavers 2'x 2' or larger.
Per Hour:

	07/01/2022	05/01/2023 Additional
Stone Setter	$ 69.72	$ 2.17
Base Rate	52.06	
Stone Tender	52.12	
Base Rate	44.54	

SUPPLEMENTAL BENEFITS
Per Hour:

Stone Setter	$ 37.07
Stone Tender	21.35

OVERTIME PAY
See (*C, **E, Q) on OVERTIME PAGE
Base Rates are use to Calculate Overtime Premiums then adding in:
$16.70/Hr. for Stone Setter and $7.58/Hr. for Stone Tender
* On weekdays the eighth (8th) and ninth (9th) hours are time and one-half all work thereafter is paid at double the hourly rate.
** The first nine (9) hours on Saturday is paid at time and one-half all work thereafter is paid at double the hourly rate.

HOLIDAY
Paid: See (*18) on HOLIDAY PAGE
Overtime: See (5, 6, 10) on HOLIDAY PAGE
Paid: *Must work first 1/2 of day

REGISTERED APPRENTICES
Per Hour:

Stone Setter(800 hour) terms at the following Percentage of Stone Setters Base wage rate per hour plus $8.16:

1st	2nd	3rd	4th	5th	6th
50%	60%	70%	80%	90%	100%

Supplemental Benefits:

All Apprentices	$ 23.95

4-1Stn

Mason - Heavy&Highway 06/01/2023

JOB DESCRIPTION Mason - Heavy&Highway **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
Per Hour:

	07/01/2022
Pointer, Caulkers & Cleaners	$ 59.09

SUPPLEMENTAL BENEFITS
Per Hour:

Pointer, Cleaners & Caulkers	$ 31.22

OVERTIME PAY
See (B, E2, H) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:

One (1) year terms at the following wage rates.

1st	2nd	3rd	4th
$ 29.86	$ 33.74	$ 39.02	$ 47.05

Apprentices Supplemental Benefits:
(per hour paid)

$ 15.30	$ 19.85	$ 23.60	$ 24.60

4-1PCC

Operating Engineer - Building 06/01/2023

JOB DESCRIPTION Operating Engineer - Building **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Putnam, Queens, Richmond, Westchester

PARTIAL COUNTIES
Dutchess: that part of Dutchess County lying south of the North City Line of the City of Poughkeepsie.

WAGES
NOTE: Construction surveying
Party Chief--One who directs a survey party
Instrument Man--One who runs the instrument and assists Party Chief.
Rodman--One who holds the rod and assists the Survey Crew

Wages:(Per Hour)	07/01/2022
Building Construction:	
Party Chief	$ 76.64
Instrument Man	60.50
Rodman	40.64
Steel Erection:	
Party Chief	79.41
Instrument Man	62.85
Rodman	43.48

Heavy Construction-NYC counties only:
(Foundation, Excavation.)

Party Chief	84.60
Instrument man	63.79
Rodman	54.52

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2022
Building Construction	$ 26.69* +$ 7.40
Steel Erection	27.29* +$ 7.40
Heavy Construction	25.25* +$ 7.15

* This portion subject to same premium as wages

Non-Worked Holiday Supplemental Benefit:
16.45

OVERTIME PAY
See (A, B, E, Q) on OVERTIME PAGE

Code "A" applies to Building Construction and has double the rate after 7 hours on Saturdays.
Code "B" applies to Heavy Construction and Steel Erection and had double the rate after 8 hours on Saturdays.

HOLIDAY
Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

9-15Db

Operating Engineer - Building, Maintenance, Steel Erection & Heavy Construction **06/01/2023**

JOB DESCRIPTION Operating Engineer - Building, Maintenance, Steel Erection & Heavy Construction **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
STEEL ERECTION:

Group 1: Derrick, travelers, tower, crawler tower & climbing cranes

Group 2: Oiler (Truck Crane)

Group 3: Oiler (Crawler Crane)

BUILDING CONSTRUCTION:

Group 1: Installing, repairing, maintaining, dismantling of all equipment including Steel cutting& bending machines, mechanical heaters, mine hoists, climbing cranes, tower cranes, Linden Peine, Lorain, Liebherr, Mannes and machines of a similar nature; Well Point system, Deep Well pumps, Concrete mixers with loading devices, Concrete plants, motor generators (When used for temporary power and lights(Driving maintenance trucks and mounted-welded machines)-All Pumps(excluding River Cofferdam Pumps and Well Point Pumps), Motorized Concrete Buggies(When three or more are on job site), Skid-Steer and similar machines

Group 2:Maintenance of: Pumps, Generators, Mixers, Heaters

Group 3: Oilers of all gasoline, electric, diesel or air operated Gradalls; Concrete Pumps, Overhead Cranes in Power Houses, Assist in oiling, greasing and repairing of all machines, including: Driving Truck Cranes, Driving and operating Fuel and Grease Trucks, Cherry Pickers(Hydraulic Cranes) over 70,000 GVW and machines of a similar nature

Group 4: Oiler on Crawler Cranes, Backhoes, Trenching Machines, Gunite Machines, Compressors(3 or more in battery)

Group 5: Maintenance on Radiant Mechanical Heaters

HEAVY CONSTRUCTION (Excavation, Foundations, etc)

Group 1:Maintenance of: Generators, Light Towers

Group 2:Maintenance of: Pumps, Mixers including mudsucking

Group 3: Base Mounted Tower Cranes

Group 4: Installing, repairing, maintaining, dismantling(of all equipment including Steel cutting & Bending machines, Fusion Coupling Machines, Vermeer Trenching machines, on-site crushing plant, mechanical heaters(1 through 7),Mine hoists, Tower Cranes, Linden Peine, Lorrain, Lebherr, Mannes or machines of a similar nature, Wellpoints)-Driving maintenance trucks and truck mounted welding machines, burning, welding-operating of accumilator for shield-driven tunnels, in addition to the performance of other duties: Handling, installation, jointing, coupling of all permanent steel and plastic pipe. RIDE UPON MOLES-tunnel boring machines-MICRO TUNNELING SYSTEMS, All temporary pipefitting;When three or more motorized concrete buggies(Ride type)are utilized on the jobsite they shall be serviced, maintained and repaired by the maintenance engineer. The Operating Engineer on autogrades(C.M.I.)is to be assisted by the maintenance engineer who shall in addition perform other duties.

WAGES:	
Per hour:	07/01/2022
Steel Erection:	
Group 1	$ 78.26
Group 2	73.64
Group 3	57.51
Building Construction:	
Group 1	$ 73.13
Group 2	58.08

Group 3	69.81
Group 4	53.34
Group 5	46.79

Heavy Construction:

Group 1	$ 55.76
Group 2	57.01
Group 3	103.68
Group 4	80.71

SUPPLEMENTAL BENEFITS

Per Hour: 07/01/2022

Building Construction	$ 27.80* plus $7.40
Steel Erection & Heavy	28.30* plus $7.40

* This portion of benefits subject to same premium as wages.

Non-Worked Holiday Supplemental Benefits:
23.47

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 15, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages Per Hour:
(1) year terms at the following wage rates:

1st	2nd	3rd	4th.
$ 36.11	$ 42.97	$ 46.40	$ 49.83

Supplemental Benefits:
Per Hour:
All Terms $ 12.55* Plus 7.40

* This portion of benefits subject to same premium as wages.

9-15Ab

Operating Engineer - Building / Heavy&Highway — 06/01/2023

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
EQUIPMENT COVERED: Jet-Rodder/Vacuum Truck, Flusher, Sewer Rodder, Stetco Hoist and similar, Sewer Winch/Tugger Hoist and similar, Vacall/Vactor, Closed Circuit Television Inspection Equipment, Chemical Grouting Equipment and similar, John Beame, Meyers and similar.

Per Hour: 07/01/2022

Maintenance Engineer (Sewer Systems)	$ 80.71

SUPPLEMENTAL BENEFITS
Per Hour: 07/01/2022

Journeyman	26.05* plus $ 7.40

*This portion of benefits subject to same premium as wages.

Non-Worked Holiday Supplemental Benefits:
16.95

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES
Per Hour:
(1) year terms at the following wage rates.

1st	2nd	3rd	4th
$36.11	$42.97	$46.40	$49.83

Supplemental Benefits:
Per Hour:

All Apprentices: $ 12.55* plus $ 7.40

* This portion of benefits subject to the same premium as overtime wages

9-15Sewer

Operating Engineer - Building / Heavy&Highway **06/01/2023**

JOB DESCRIPTION Operating Engineer - Building / Heavy&Highway **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2022	08/01/2022
Well Driller	$ 39.45	$ 40.63
Well Driller Helper	34.17	34.17
Hazardous Waste Differential Added to Hourly Wage:		
Level A	$ 3.00	$ 3.00
Level B	2.00	2.00
Level C	1.00	1.00
Monitoring Well Work Add to Hourly Wage:		
Level A	$ 3.00	$ 3.00
Level B	2.00	2.00

SUPPLEMENTAL BENEFITS
Per Hour:

Well Driller & Helper	10% of straight time rate plus $ 13.50	10% of straight time rate plus $ 13.50

Additional $ 4.25/Hr. for Premium Time Hours Worked

OVERTIME PAY
See (B2, P, S) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 16, 23) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 23) on HOLIDAY PAGE

REGISTERED APPRENTICES
Apprentices at 12 Month Terms

Wages Per Hour:

1st Term	$ 28.00	$ 28.00
2nd Term	29.00	29.00
3rd Term	30.00	30.00

SUPPLEMENTAL BENEFITS
Per Hour:
All Terms 10% of Wage + $ 13.50

Additional $4.25/Hr. for premium time hours worked.

4-138well

Operating Engineer - Building & Steel Erection 06/01/2023

JOB DESCRIPTION Operating Engineer - Building & Steel Erection **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES

Per Hour:	07/01/2022
STEEL ERECTION:	
Three Drum Derricks	$ 101.88
Cranes, Two Drum Derricks, Hydraulic Cranes & Fork Lifts, Boom Trucks	98.19
Compressors, Welding Machines	61.54
Compressors (not combined with welding machines)	58.96
BUILDING CONSTRUCTION:	
Cranes, Stone Derrick, Boom Trucks, Hydraulic Cranes,	98.72
Double Drum	93.64
4 Pole Hoists and Single Drum Hoists	87.38
Fork Lifts, Plaster(Platform Machine)Plaster Bucket, Concrete Pumps and all other equipment used for hoisting	80.14
*House Cars and Rack & Pinion	70.75
*House Cars (New Projects)	58.07
Erecting and dismantling Cranes	88.24
Compressors, Welding Machines(Cutting Concrete-Tank Work), Paint Spraying, Sand Blasting, Pumps(With the exclusion of concrete pumps), House Car (Settlement basis only), All Engines irrespective of power(Power-Vac)used to drive auxiliary equipment Air, Hydraulic, etc., Boilers, Jacking System	61.80

APPLICABLE TO ALL CATEGORIES:
CRANES: Crawler Or Truck

	In Addition To Above Crane Rates
100' to 149' Boom	$ 1.75/hr
150' to 249' "	$ 2.00/hr
250' to 349' "	$ 2.25/hr
350' to 450' "	$ 2.75/hr
Tower Crane	$ 2.00/hr

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2022
All Operator Classes	$ 24.65* plus $ 6.20

* This portion of the benefits is subject to the same premium as shown for overtime wages.

OVERTIME PAY
See (*B, **C, ***D, O) on OVERTIME PAGE
*Applies to House Cars and Rack & Pinion after 8 hours worked in a day, Saturday, Sunday and Holidays
**Applies to Building Construction category
***Applies to Steel Erection

HOLIDAY
Paid: See (5, 6, 7, 8, 11, 12, 16, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 8, 11, 12, 16, 26) on HOLIDAY PAGE
Codes 8 and 12 apply ONLY to Steel Erection
Code 16 applies ONLY to Building Construction

REGISTERED APPRENTICES
Wage Per Hour:

Apprentices (1) year terms at the following rates:

	1st	2nd	3rd
07/01/2022	$ 41.98	$ 50.77	$ 59.56

Supplemental Benefits Per Hour:

	07/01/2022
Straight Time	$ 13.65*
	plus $ 5.95

* This portion of benefits subject to the same premium as shown for overtime wages.

9-14 B&S

Operating Engineer - Heavy Construction 1 **06/01/2023**

JOB DESCRIPTION Operating Engineer - Heavy Construction 1 **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
(For Groups 23 - 28, see Operating Engineer - Heavy Construction 2)

Group 1: Tower Crane/Climbing Crane
Group 2: Backhoes (Including all track and rubber tire backhoes over 37,000 lbs), Power Shovels, Steel Erection: Hydraulic Clam Shells, Moles and machines of a similar nature
Group 3: Mine Hoists, Cranes, etc, used as Mine Hoists
Group 4: Gradalls, Keystones, Cranes (With digging buckets), Bridge Cranes, Trenching Machines, Vermeer Cutter and machines of a similar nature
Group 5: Pile Drivers and Rigs (Employing Dock-Builders Foreman), Derrick Boats, Tunnel Shovels,
Group 6: All Drills and machines of a similar nature
Group 7: Back-Filling Machines and Cranes, Mucking Machines, Dual Drum Pavers
Group 8: Mixers (Concrete with loading attachment), Concrete Pavers, Cableways, Land Derricks, Power House (Low pressure units)
Group 9: Concrete Pumps, Concrete Plant, Stone Crushers, Double Drum Hoists, Power Houses (Other than above)
Group 10: Concrete Mixer
Group 11: Elevators
Group 12: Concrete Breaking Machines, Single Drum Hoists, Load Masters, Locomotives and Dinkies (Over 10 tons), Hydraulic Crane-Second Engineer
Group 13: On-Site Concrete Plant Engineers, On-Site Asphalt Plant Engineer and Vibratory Console
Group 14: Barrier Mover, Barrier Transport and machines of a similar nature
Group 15: Compressors (Portable, 3 or more), Truck Compressor (Engineer Driver), Tugger Machines, Well Point Pumps, Chum Drill
Group 16: Boilers(High pressure),Compressors, Pumps(River Cofferdam) and Welding Machines(except where arc is operated by another Operating Engineer) Push Button Machines, All Engines, irrespective of power(Power Pac) used to drive auxiliary equipment, Air, Hydraulic, etc.
Group 17: Utility-Horizontal Boring Rig
Group 18: Utility Compressors
Group 19: Paving-Asphalt Spreader, Autogrades (C.M.I.), Roto-Mill
Group 20: Paving-Asphalt Roller
Group 21 Paving-Asphalt Plant
Group 22: Roller (non paving, all sizes)

WAGES:(per hour)	07/01/2022
Group 1	$ 114.55
Group 2	95.85
Group 3	98.69
Group 4	96.50
Group 5	94.74
Group 6	91.28
Group 7	92.85
Group 8	90.39
Group 9	88.65
Group 10	85.08
Group 11	80.01
Group 12	81.61
Group 13	82.16
Group 14	74.51

Group 15	63.86
Group 16	59.91
Group 17	86.36
Group 18	59.57
Group 19	90.39
Group 20	88.27
Group 21	75.84
Group 22	88.27

Cranes: Crawler or Truck

100' to 149'	$0.50 per hour additional to above Crane Rates
150' to 249'	$0.75 per hour additional to above Crane Rates
250' to 349'	$1.00 per hour additional to above crane Rates
350' to 450'	$1.50 per hour additional to above crane Rates

SUPPLEMENTAL BENEFITS
Per Hour:
Groups 1-22
Regular Time $ 24.65* plus $ 6.20

* This portion of benefits subject to the same premium as shown for wages.

Non-Worked Holiday Supplemental Benefits:
$ 18.50

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES
Per Hour:
(1) year terms at the following wage rates:

	1st	2nd	3rd
Groups 1-22	41.98	50.77	59.56

Supplemental Benefits:
Per Hour:
Groups 1-22
Regular Time $ 13.65* plus $ 5.95

* This portion of benefits is subject to the SAME PREMIUM as shown for overtime wages

9-14 HC

Operating Engineer - Heavy Construction 2 — 06/01/2023

JOB DESCRIPTION Operating Engineer - Heavy Construction 2 **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
(For Groups 1 - 22, see Operating Engineer - Heavy Construction 1)

Group 23: Cherry Picker (Over 20 tons), Loader (Over 6 yards)

Group 24: Backhoes and Loaders (Up to 37,000lbs), Bulldozers, Scrapers, Turn-A-Pulls, Tugger Hoists, Tractors, Hysters, Roustabout Cranes, Conveyors, Ballast Regulators (Ride On), Track Removal Machine or similar, Motor Graders, Locomotives (10 tons and under),Curb & Gutter Pavers and machines of a similar nature

Group 25: Post Hole Digger, Ditch Winch, Road Finishing Machines, Rollers (5 tons and under, Dual Purpose Trucks, Forklifts, Dempsey Dumpsters, Fireman

Group 26: Service Engineer (Gradalls, Concrete Pumps, Cold Planers Grader)

Group 27: Service Mechanic (Shovels, Draglines, Crawler Cranes, Backhoes, Trenching Machines, Compressors (3 or more in battery)

Group 28: Steam Equipment Operator (Water rigs, steam shovels, power boilers, derrick boats)

WAGES:(per hour)	07/01/2022
Group 23	$ 83.31
Group 24	81.06
Group 25	77.28
Group 26	73.48
Group 27	53.11
Group 28	77.28

Cranes: Crawler or Truck

100' to 149'	$0.50 per hour additional to above Crane Rates
150' to 249'	$0.75 per hour additional to above Crane Rates
250' to 349'	$1.00 per hour additional to above crane Rates
350' to 450'	$1.50 per hour additional to above crane Rates

SUPPLEMENTAL BENEFITS
Per Hour:
Groups 23-28
Regular Time 26.05* plus $7.40

* This portion of benefits subject to the same premium as shown for wages.

Non-Worked Holiday Supplemental Benefits:
16.95

OVERTIME PAY
See (D, O) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

REGISTERED APPRENTICES
Per Hour:
(1) year terms at the following wage rates:

	1st	2nd	3rd	4th
Groups 23-28	$36.11	$42.97	$46.40	$49.83

Supplemental Benefits:
Per Hour:
Groups 23-28

Regular Time $ 12.55* plus $ 7.40

* This portion of benefits is subject to the SAME PREMIUM as shown for overtime wages

9-15 HC

Operating Engineer - Marine Dredging — 06/01/2023

JOB DESCRIPTION Operating Engineer - Marine Dredging **DISTRICT** 4

ENTIRE COUNTIES
Albany, Bronx, Cayuga, Clinton, Columbia, Dutchess, Essex, Franklin, Greene, Jefferson, Kings, Monroe, Nassau, New York, Orange, Oswego, Putnam, Queens, Rensselaer, Richmond, Rockland, St. Lawrence, Suffolk, Ulster, Washington, Wayne, Westchester

WAGES
These wages do not apply to Operating Engineers on land based construction projects. For those projects, please see the Operating Engineer Heavy/Highway Rates. The wage rates below for all equipment and operators are only for marine dredging work in navigable waters found in the counties listed above.

Per Hour:	07/01/2022	10/01/2022
CLASS A1 Deck Captain, Leverman Mechanical Dredge Operator Licensed Tug Operator 1000HP or more.	$ 42.66	$ 43.94
CLASS A2 Crane Operator (360 swing)	38.02	39.16
CLASS B	To conform to Operating Engineer	

Dozer, Front Loader Operator on Land	Prevailing Wage in locality where work is being performed including benefits.	
CLASS B1 Derrick Operator (180 swing) Spider/Spill Barge Operator Operator II, Fill Placer, Engineer, Chief Mate, Electrician, Chief Welder, Maintenance Engineer Licensed Boat, Crew Boat Operator	36.89	38.00
CLASS B2 Certified Welder	34.73	35.77
CLASS C1 Drag Barge Operator, Steward, Mate, Assistant Fill Placer	33.78	34.79
CLASS C2 Boat Operator	32.69	33.67
CLASS D Shoreman, Deckhand, Oiler, Rodman, Scowman, Cook, Messman, Porter/Janitor	27.16	27.97

SUPPLEMENTAL BENEFITS
Per Hour:
THE FOLLOWING SUPPLEMENTAL BENEFITS APPLY TO ALL CATEGORIES

All Classes A & B	$ 11.40 plus 6% of straight time wage, Overtime hours add $ 0.63	$ 11.85 plus 6% of straight time wage, Overtime hours add $ 0.63
All Class C	$ 11.10 plus 6% of straight time wage, Overtime hours add $ 0.48	$ 11.60 plus 6% of straight time wage, Overtime hours add $ 0.50
All Class D	$ 10.80 plus 6% of straight time wage, Overtime hours add $ 0.33	$ 11.35 plus 6% of straight time wage, Overtime hours add $ 0.38

OVERTIME PAY
See (B2, F, R) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 8, 15, 26) on HOLIDAY PAGE

4-25a-MarDredge

Operating Engineer - Survey Crew - Consulting Engineer — 06/01/2023

JOB DESCRIPTION Operating Engineer - Survey Crew - Consulting Engineer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

PARTIAL COUNTIES
Dutchess: That part in Duchess County lying South of the North City line of Poughkeepsie.

WAGES
Feasibility and preliminary design surveying, any line and grade surveying for inspection or supervision of construction.

Per hour: 07/01/2022
Survey Classifications

Party Chief	$ 46.44
Instrument Man	38.60
Rodman	33.64

SUPPLEMENTAL BENEFITS
Per Hour:

All Crew Members:	$ 21.60

OVERTIME PAY
OVERTIME:.... See (B, E*, Q, V) ON OVERTIME PAGE.
*Doubletime paid on the 9th hour on Saturday.

HOLIDAY
Paid: See (5, 6, 7, 11, 16) on HOLIDAY PAGE
Overtime: See (5, 6, 7, 11, 16) on HOLIDAY PAGE

9-15dconsult

Painter — 06/01/2023

JOB DESCRIPTION Painter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Putnam, Queens, Richmond, Suffolk, Westchester

WAGES

Per hour:	07/01/2022
Brush	$ 51.45*
Abatement/Removal of lead based or lead containing paint on materials to be repainted.	51.45*
Spray & Scaffold	$ 54.45*
Fire Escape	54.45*
Decorator	54.45*
Paperhanger/Wall Coverer	53.83*

*Subtract $ 0.10 to calculate premium rate.

SUPPLEMENTAL BENEFITS
Per hour:

Paperhanger	$ 33.15
All others	30.88
Premium	37.72**

**Applies only to "All others" category, not paperhanger journeyworker.

OVERTIME PAY
See (A, H) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
One (1) year terms at the following wage rate.

Per hour:	07/01/2022
Appr 1st term...	$ 19.95*
Appr 2nd term...	25.56*
Appr 3rd term...	31.00*
Appr 4th term...	41.52*

*Subtract $ 0.10 to calculate premium rate.

Supplemental benefits:
Per Hour:

Appr 1st term...	$ 15.22
Appr 2nd term...	18.90
Appr 3rd term...	21.81

Appr 4th term... 27.58

8-NYDC9-B/S

Painter 06/01/2023

JOB DESCRIPTION Painter **DISTRICT** 8

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

PARTIAL COUNTIES
Nassau: Atlantic Beach, Ceaderhurst, East Rockaway,Hewlett, Hewlett Bay, Hewlett Neck, Hewlett Park, Inwood, Lawrence, Lido Beach, Long Beach, parts of Lynbrook, parts of Oceanside, parts of Valley Stream, and Woodmere. Starting on South side of Sunrise Hwy in Valley Stream running east to Windsor and Rockaway Ave, Rockville is the boundary line up to Lawson Blvd, turning right going west all the above territory. Starting at Union Turnpike &Lakeville Rd going north to northern Blvd. the west side of Lakeville Rd to Northern Blvd. At Northern Blvd doing east the district north of Northern blvd to Port Washington blvd. West of Port Washington blvd to St.Francis Hospital then north of first traffic light to Port Washington & Sands Point, Manor Haven, & Harbour Acres.

WAGES

Per hour:	07/01/2022
Drywall Taper	$ 55.10

SUPPLEMENTAL BENEFITS

Per Hour:	
Journeyworker:	$ 23.88

OVERTIME PAY
See (A, H) on OVERTIME PAGE

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6, 8, 11, 18, 19, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wage per hour:

1st term	$ 21.29
2nd term	27.84
3rd term	33.29
4th term	44.20

Supplemental Benefits per hour:

1st term	$ 14.43
2nd term	18.16
3rd term	19.30
4th term	21.59

8-NYC9-1974-DWT

Painter - Bridge & Structural Steel 06/01/2023

JOB DESCRIPTION Painter - Bridge & Structural Steel **DISTRICT** 8

ENTIRE COUNTIES
Albany, Bronx, Clinton, Columbia, Dutchess, Essex, Franklin, Fulton, Greene, Hamilton, Kings, Montgomery, Nassau, New York, Orange, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Suffolk, Sullivan, Ulster, Warren, Washington, Westchester

WAGES
Per Hour:
STEEL:

Bridge Painting:	07/01/2022	10/01/2022
	$ 53.00	$ 54.50
	+ 9.63*	+ 10.10*

ADDITIONAL $6.00 per hour for POWER TOOL/SPRAY, whether straight time or overtime.

NOTE: All premium wages are to be calculated on base rate per hour only.

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

NOTE: Generally, for Bridge Painting Contracts, ALL WORKERS on and off the bridge (including Flagmen) are to be paid Painter's Rate; the contract must be ONLY for Bridge Painting.

SHIFT WORK:

When directly specified in public agency or authority contract documents for an employer to work a second shift and works the second shift with employees other than from the first shift, all employees who work the second shift will be paid 10% of the base wage shift differential in lieu of overtime for the first eight (8) hours worked after which the employees shall be paid at time and one half of the regular wage rate. When a single irregular work shift is mandated in the job specifications or by the contracting agency, wages shall be paid at time and one half for single shifts between the hours of 3pm-11pm or 11pm-7am.

SUPPLEMENTAL BENEFITS

Per Hour:
Journeyworker:

$ 10.90	$ 11.78
+ 30.60*	+ 30.75*

* For the period of May 1st to November 15th, this amount is payable up to 40 hours. For the period of Nov 16th to April 30th, this amount is payable up to 50 hours. EXCEPTION: First and last week of employment, and for the weeks of Memorial Day, Independence Day and Labor Day, where the amount is paid for the actual number of hours worked (no cap).

OVERTIME PAY

See (B, F, R) on OVERTIME PAGE

HOLIDAY

Paid: See (1) on HOLIDAY PAGE
Overtime: See (4, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES

Wage - Per hour:
Apprentices: (1) year terms

1st year	$ 21.20	$ 21.80
	+ 3.86	+ 4.04
2nd year	$ 31.80	$ 32.70
	+ 5.78	+ 6.06
3rd year	$ 42.40	$ 43.60
	+ 7.70	+ 8.08

Supplemental Benefits - Per hour:

1st year	$ .25	$ .25
	+ 12.24	+ 12.34
2nd year	$ 10.90	$ 10.90
	+ 18.36	+ 18.51
3rd year	$ 10.90	$ 10.90
	+ 24.48	+ 24.68

NOTE: All premium wages are to be calculated on base rate per hour only.

8-DC-9/806/155-BrSS

Painter - Metal Polisher — 06/01/2023

JOB DESCRIPTION Painter - Metal Polisher **DISTRICT** 8

ENTIRE COUNTIES

Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES

	07/01/2022
Metal Polisher	$ 37.78
Metal Polisher*	38.80
Metal Polisher**	41.78

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2022
Journeyworker:	
All classification	$ 11.24

OVERTIME PAY
See (B, E, P, T) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE
Overtime: See (5, 6, 9, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages per hour:
One (1) year term at the following wage rates:

	07/01/2022
1st year	$ 16.00
2nd year	17.00
3rd year	18.00
1st year*	$ 16.39
2nd year*	17.44
3rd year*	18.54
1st year**	$ 18.50
2nd year**	19.50
3rd year**	20.50

*Note: Applies on New Construction & complete renovation
** Note: Applies when working on scaffolds over 34 feet.

Supplemental benefits:
Per hour:

1st year	$ 7.99
2nd year	7.99
3rd year	7.99

8-8A/28A-MP

Plasterer — 06/01/2023

JOB DESCRIPTION Plasterer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
Per hour:

	07/01/2022
Building:	
Plasterer/Traditional & Spraying Fireproofing	$ 51.00*

SUPPLEMENTAL BENEFITS

Per hour:	
Journeyworker	$ 23.15

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE
*When calculating overtime pay, subtract $5.00 from wages.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Wages:
(per hour)
800 hours term:

1st term	$ 28.19
2nd term	30.59
3rd term	35.88
4th term	38.43

Supplemental Benefits:
(per hour):
(800) hours term:

1st term	$ 14.70
2nd term	15.60
3rd term	17.43
4th term	18.35

Plumber **06/01/2023**

JOB DESCRIPTION Plumber **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022
Plumber	$ 72.50
Temporary Service**	$ 58.08

** Temporary Service- Includes Maintenance of cooling & heating apparatus, maintenance work on pneumatic systems during the construction period, and work on temporary heat. All hours paid at straight time, including holidays.

**THERE ARE NO HELPERS UNDER THIS CLASSIFICATION.

On tower work, bridges, elevated highway, or buildings, where pipe is being installed, fifty (50) or more feet vertically in a free drop from its base, an additional $1.00 per hour.

SHIFT WORK:
Shift work, when directly specified in public agency or authority contract documents, and continues for a period of not less than ten (10) consecutive work days. A shift shall consist of seven(7) hours with one-half (1/2) hour for lunch after the first four (4) hours of each shift. A premium of thirty percent (30%) for wages and supplemental benefits on shift work performed Monday through Friday on the 4 P.M. and midnight shifts.
For shift work performed on weekends the shift premium shall be fifty percent (50%) of wages and supplemental benefits.
For shift work performed on holidays designated below, double time wages and supplemental benefits shall be paid. Also noted that the normal workday Monday through Friday 8:00 A.M. to 3:00 P.M. is not considered shift work, and therefore not subject to shift premium.

SUPPLEMENTAL BENEFITS
Per hour:

Plumber	$ 41.45
Temporary Service	$ 33.08

OVERTIME PAY
Plumber See (C, O, V) on OVERTIME PAGE.

HOLIDAY
Plumber
Overtime: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE.
Repairs & Maintenance
Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Wages per hour:

(1/2) year terms at the following wage:

1st	2nd	3rd&4th	5th&6th	7th&8th	9th	10th
$16.78	$19.78	$28.99	$31.09	$33.94	$35.34	$47.41

Supplemental Benefits:
(1/2) year term at the following dollar amount:

1st	2nd	3rd-10th
$5.43	$6.43	$21.95

9-1 Const

Plumber - Pump & Tank: Oil Trades Installation & Maintenance — 06/01/2023

JOB DESCRIPTION Plumber - Pump & Tank: Oil Trades Installation & Maintenance **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022
Pump & Tank	$ 69.31

SUPPLEMENTAL BENEFITS
Per hour:

Plumber	$ 26.33

OVERTIME PAY
Pump & Tank See (B, F, H) on OVERTIME PAGE.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE.

9-1-P&T

Plumber - Repairs & Maintenance — 06/01/2023

JOB DESCRIPTION Plumber - Repairs & Maintenance **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per hour:

	07/01/2022
Repairs & Maintenance	$ 47.50

*Repair & Maintenance work is any repair and/or replacement of present plumbing system that does not change existing roughing or water supply lines. Projects regardless of work type which have approved plans and specifications wherein the plumbing exceeds $725,000 are excluded.

SUPPLEMENTAL BENEFITS
Per hour:

Repair Maintenance	$ 19.06

OVERTIME PAY
Repairs & Maintenance See (B, H) on OVERTIME PAGE.

HOLIDAY
Repairs & Maintenance
Paid: See (1) on HOLIDAY PAGE.
Overtime: See (5, 6, 25) on HOLIDAY PAGE.

REGISTERED APPRENTICES
Note: The Repairs & Maintenance Category has NO Apprentices.

9-1 R&M

Roofer 06/01/2023

JOB DESCRIPTION Roofer **DISTRICT** 9

ENTIRE COUNTIES
Bronx, Dutchess, Kings, New York, Orange, Putnam, Queens, Richmond, Rockland, Sullivan, Ulster, Westchester

WAGES

Per Hour:	07/01/2022	05/01/2023 Additional
Roofer/Waterproofer	$ 45.25 + $7.00*	$ 2.00

* This portion is not subjected to overtime premiums.

Note: Abatement/Removal of Asbestos containing roofs and roofing material is classified as Roofer.

SUPPLEMENTAL BENEFITS
Per Hour: $ 30.62

OVERTIME PAY
See (B, H) on OVERTIME PAGE
Note: An observed holiday that falls on a Sunday will be observed the following Monday.

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6) on HOLIDAY PAGE

REGISTERED APPRENTICES
(1) year term

1st	2nd	3rd	4th
$ 15.84	$ 22.63 + 3.50*	$ 27.15 + 4.20*	$ 33.94 + 5.26*

Supplements:

1st	2nd	3rd	4th
$ 3.88	$ 15.48	$ 18.50	$ 23.04

* This portion is not subjected to overtime premiums.

9-8R

Sheetmetal Worker 06/01/2023

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Rockland, Suffolk, Westchester

WAGES

Per Hour:	07/01/2022
Sign Erector	$ 53.79

NOTE: Structurally Supported Overhead Highway Signs(See STRUCTURAL IRON WORKER CLASS)

SUPPLEMENTAL BENEFITS

Per Hour:	07/01/2022
Sign Erector	$ 53.33

OVERTIME PAY
See (A, F, S) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE
Overtime: See (5, 6, 10, 11, 12, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
Per Hour:
6 month Terms at the following percentage of Sign Erectors wage rate:

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
35%	40%	45%	50%	55%	60%	65%	70%	75%	80%

SUPPLEMENTAL BENEFITS
Per Hour:

07/01/2022

1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th
$ 14.34	$ 16.26	$ 18.17	$ 20.10	$ 28.02	$ 30.47	$ 33.72	$ 36.27	$ 38.77	$ 41.29

4-137-SE

Sheetmetal Worker — 06/01/2023

JOB DESCRIPTION Sheetmetal Worker **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2022
Sheetmetal Worker	$ 57.60
Temporary Operation or Maintenance of Fans	47.33

SUPPLEMENTAL BENEFITS

Per Hour:	
Sheetmetal Worker	$ 49.24
Maintenance Worker	49.24

OVERTIME PAY
See (B, E, E2, Q, V) on OVERTIME PAGE
For Maintenance See Codes B,E, Q & V

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 15, 16, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
Per Hour:Wages

Six(6) Month Terms As Follows:

1st & 2nd Term	$ 20.19
3rd & 4th Term	25.96
5th & 6th Term	31.71
7th & 8th Term	40.37
9th Term	46.10

Per Hour: Supplemental Benifits

1st & 2nd Term	$ 18.10
3rd & 4th Term	24.79
5th & 6th Term	29.25
7th & 8th Term	35.90
9th Term	40.37

4-28

Steamfitter — 06/01/2023

JOB DESCRIPTION Steamfitter **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES

Per Hour:	07/01/2022
AC Service/Heat Service & Refrigeration	$ 43.85

Refrigeration, A/C, Oil Burner and Stoker Service and Repair.
NOTE: Refrigeration Compressor installation. (Not to exceed 5 Hp combined on any one project).
NOTE: Air Condition / Heating Compressor installation.(Not to exceed 15 tons combined on any one project).

SUPPLEMENTAL BENEFITS
Per Hour Worked:

AC Service/Heat Service	$ 19.96
Per Hour Paid:	16.45

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 25, 26) on HOLIDAY PAGE

REGISTERED APPRENTICES
1 year terms
Wages per hour:

1st Term	$ 21.23
2nd Term	25.63
3rd Term	29.85
4th Term	36.05

Benefits per hour Worked:		Per Hour Paid:
1st Term	$ 13.29	$ 9.78
2nd Term	14.57	11.06
3rd Term	15.91	12.40
4th Term	17.72	14.21

4-638B-StmFtrRef

Steamfitter **06/01/2023**

JOB DESCRIPTION Steamfitter **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, Nassau, New York, Queens, Richmond, Suffolk

WAGES
Per Hour: 07/01/2022

Sprinkler/Steam AC/Heat Fitter	$ 68.61
Temporary Heat & AC Fitter	52.16

Note: Add 15% to Hourly Wage for "Contracting Agency" Mandated Off Shift Work.

SUPPLEMENTAL BENEFITS
Per Hour:

Sprinkler/Steam Fitter	$ 52.74
Temporary Heat & AC Fitter	43.29

Note: Add 15% to Hourly Benefit for "Contracting Agency" Mandated Off Shift Work.

OVERTIME PAY
Note: The posted overtime rates are applicable after 8 hours plus Saturday, Sunday and Holidays on Fire Protection/Sprinkler contracts under $3,000,000.00 and HVAC/Mechanical contracts under $30,000,000.00:

Sprinkler/Steam	Wages $ 137.22	Benefit $ 103.50
Temp Heat/AC	Wages $ 104.32	Benefit $ 84.60

HOLIDAY
Paid: See (1) on HOLIDAY PAGE
Overtime: See (5, 6, 11, 16, 25) on HOLIDAY PAGE

REGISTERED APPRENTICES
1 year Terms at the Following:

WAGES per hour:

1st Term	2nd Term	3rd Term	4th Term	5th Term
$ 27.48	$ 34.34	$ 41.19	$ 48.05	$ 54.90

SUPPLEMENTAL BENEFIT per hour:

1st Term	2nd Term	3rd Term	4th Term	5th Term
$ 21.60	$ 26.80	$ 31.98	$ 37.18	$ 42.36

Premium Time Amounts:

41.52	51.86	62.18	75.52	82.84

4-638A-StmSpFtr

Teamster - Heavy Construction — 06/01/2023

JOB DESCRIPTION Teamster - Heavy Construction **DISTRICT** 4

ENTIRE COUNTIES
Bronx, Kings, New York, Queens, Richmond

WAGES
Per Hour:

Dump Trucks/Drivers (Debris Removal, Street Level and below)

	07/01/2022
Dump Trucks	$ 43.835
Tractor Trailers	46.115
Euclid/Turnapull	46.68

Effective 7/1/2020 an Additional $2.75/Hr. to be allocated.

SUPPLEMENTAL BENEFITS
Per Hour:

Dump Trucks	
Up to 40 Hours Worked	$ 51.5525
ALL OTHERS	
Up to 40 Hours Worked	51.5025

OVERTIME PAY
See (B, E, Q) on OVERTIME PAGE

HOLIDAY
Paid: See (5, 6, 11, 15, 16, 25) on HOLIDAY PAGE
Note: Employees receive 2 hours of Holiday Pay for each day worked in holiday week (not to exceed 8 hours)
Note: Employees receive 5 1/3 hours of Holiday Pay for each day worked in Thanksgiving Holiday Week.

4-282

Welder — 06/01/2023

JOB DESCRIPTION Welder **DISTRICT** 1

ENTIRE COUNTIES
Albany, Allegany, Bronx, Broome, Cattaraugus, Cayuga, Chautauqua, Chemung, Chenango, Clinton, Columbia, Cortland, Delaware, Dutchess, Erie, Essex, Franklin, Fulton, Genesee, Greene, Hamilton, Herkimer, Jefferson, Kings, Lewis, Livingston, Madison, Monroe, Montgomery, Nassau, New York, Niagara, Oneida, Onondaga, Ontario, Orange, Orleans, Oswego, Otsego, Putnam, Queens, Rensselaer, Richmond, Rockland, Saratoga, Schenectady, Schoharie, Schuyler, Seneca, St. Lawrence, Steuben, Suffolk, Sullivan, Tioga, Tompkins, Ulster, Warren, Washington, Wayne, Westchester, Wyoming, Yates

WAGES
Per hour 07/01/2022

Welder: To be paid the same rate of the mechanic performing the work.*

*EXCEPTION: If a specific welder certification is required, then the 'Certified Welder' rate in that trade tag will be paid.

OVERTIME PAY

HOLIDAY

1-As Per Trade

Overtime Codes

Following is an explanation of the code(s) listed in the OVERTIME section of each classification contained in the attached schedule. Additional requirements may also be listed in the HOLIDAY section.

NOTE: Supplemental Benefits are 'Per hour worked' (for each hour worked) unless otherwise noted

(AA)	Time and one half of the hourly rate after 7 and one half hours per day
(A)	Time and one half of the hourly rate after 7 hours per day
(B)	Time and one half of the hourly rate after 8 hours per day
(B1)	Time and one half of the hourly rate for the 9th & 10th hours week days and the 1st 8 hours on Saturday. Double the hourly rate for all additional hours
(B2)	Time and one half of the hourly rate after 40 hours per week
(C)	Double the hourly rate after 7 hours per day
(C1)	Double the hourly rate after 7 and one half hours per day
(D)	Double the hourly rate after 8 hours per day
(D1)	Double the hourly rate after 9 hours per day
(E)	Time and one half of the hourly rate on Saturday
(E1)	Time and one half 1st 4 hours on Saturday; Double the hourly rate all additional Saturday hours
(E2)	Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E3)	Between November 1st and March 3rd Saturday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather, provided a given employee has worked between 16 and 32 hours that week
(E4)	Saturday and Sunday may be used as a make-up day at straight time when a day is lost during that week due to inclement weather
(E5)	Double time after 8 hours on Saturdays
(F)	Time and one half of the hourly rate on Saturday and Sunday
(G)	Time and one half of the hourly rate on Saturday and Holidays
(H)	Time and one half of the hourly rate on Saturday, Sunday, and Holidays
(I)	Time and one half of the hourly rate on Sunday
(J)	Time and one half of the hourly rate on Sunday and Holidays
(K)	Time and one half of the hourly rate on Holidays
(L)	Double the hourly rate on Saturday
(M)	Double the hourly rate on Saturday and Sunday
(N)	Double the hourly rate on Saturday and Holidays
(O)	Double the hourly rate on Saturday, Sunday, and Holidays
(P)	Double the hourly rate on Sunday
(Q)	Double the hourly rate on Sunday and Holidays
(R)	Double the hourly rate on Holidays
(S)	Two and one half times the hourly rate for Holidays

(S1) Two and one half times the hourly rate the first 8 hours on Sunday or Holidays One and one half times the hourly rate all additional hours.

(T) Triple the hourly rate for Holidays

(U) Four times the hourly rate for Holidays

(V) Including benefits at SAME PREMIUM as shown for overtime

(W) Time and one half for benefits on all overtime hours.

(X) Benefits payable on Paid Holiday at straight time. If worked, additional benefit amount will be required for worked hours. (Refer to other codes listed.)

Holiday Codes

PAID Holidays:

Paid Holidays are days for which an eligible employee receives a regular day's pay, but is not required to perform work. If an employee works on a day listed as a paid holiday, this remuneration is in addition to payment of the required prevailing rate for the work actually performed.

OVERTIME Holiday Pay:

Overtime holiday pay is the premium pay that is required for work performed on specified holidays. It is only required where the employee actually performs work on such holidays. The applicable holidays are listed under HOLIDAYS: OVERTIME. The required rate of pay for these covered holidays can be found in the OVERTIME PAY section listings for each classification.

Following is an explanation of the code(s) listed in the HOLIDAY section of each classification contained in the attached schedule. The Holidays as listed below are to be paid at the wage rates at which the employee is normally classified.

(1)	None
(2)	Labor Day
(3)	Memorial Day and Labor Day
(4)	Memorial Day and July 4th
(5)	Memorial Day, July 4th, and Labor Day
(6)	New Year's, Thanksgiving, and Christmas
(7)	Lincoln's Birthday, Washington's Birthday, and Veterans Day
(8)	Good Friday
(9)	Lincoln's Birthday
(10)	Washington's Birthday
(11)	Columbus Day
(12)	Election Day
(13)	Presidential Election Day
(14)	1/2 Day on Presidential Election Day
(15)	Veterans Day
(16)	Day after Thanksgiving
(17)	July 4th
(18)	1/2 Day before Christmas
(19)	1/2 Day before New Years
(20)	Thanksgiving
(21)	New Year's Day
(22)	Christmas
(23)	Day before Christmas
(24)	Day before New Year's
(25)	Presidents' Day
(26)	Martin Luther King, Jr. Day
(27)	Memorial Day
(28)	Easter Sunday

(29) Juneteenth

New York State Department of Labor - Bureau of Public Work
State Office Building Campus
Building 12 - Room 130
Albany, New York 12240

REQUEST FOR WAGE AND SUPPLEMENT INFORMATION

As Required by Articles 8 and 9 of the NYS Labor Law

Fax (518) 485-1870 or mail this form for new schedules or for determination for additional occupations.

This Form Must Be Typed

Submitted By: (Check Only One) ☐ Contracting Agency ☐ Architect or Engineering Firm ☐ Public Work District Office Date:

A. Public Work Contract to be let by: (Enter Data Pertaining to Contracting/Public Agency)

1. Name and complete address ☐ (Check if new or change)

Telephone: ( ) Fax: ( )
E-Mail:

2. NY State Units (see Item 5)

- ☐ 01 DOT
- ☐ 02 OGS
- ☐ 03 Dormitory Authority
- ☐ 04 State University Construction Fund
- ☐ 05 Mental Hygiene Facilities Corp.
- ☐ 06 OTHER N.Y. STATE UNIT
- ☐ 07 City
- ☐ 08 Local School District
- ☐ 09 Special Local District, i.e., Fire, Sewer, Water District
- ☐ 1O Village
- ☐ 11 Town
- ☐ 12 County
- ☐ 13 Other Non-N.Y. State (Describe)

3. SEND REPLY TO ☐ check if new or change)
Name and complete address:

Telephone:( ) Fax: ( )
E-Mail:

4. SERVICE REQUIRED. Check appropriate box and provide project information.

- ☐ New Schedule of Wages and Supplements.
  APPROXIMATE BID DATE :
- ☐ Additional Occupation and/or Redetermination

PRC NUMBER ISSUED PREVIOUSLY FOR THIS PROJECT :

OFFICE USE ONLY

B. PROJECT PARTICULARS

5. Project Title _____

Description of Work _____

Contract Identification Number _____

Note: For NYS units, the OSC Contract No. _____

6. Location of Project:
Location on Site _____

Route No/Street Address _____

Village or City _____

Town _____

County _____

7. Nature of Project - Check One:

- ☐ 1. New Building
- ☐ 2. Addition to Existing Structure
- ☐ 3. Heavy and Highway Construction (New and Repair)
- ☐ 4. New Sewer or Waterline
- ☐ 5. Other New Construction (Explain)
- ☐ 6. Other Reconstruction, Maintenance, Repair or Alteration
- ☐ 7. Demolition
- ☐ 8. Building Service Contract

8. OCCUPATION FOR PROJECT :

- ☐ Construction (Building, Heavy Highway/Sewer/Water)
- ☐ Tunnel
- ☐ Residential
- ☐ Landscape Maintenance
- ☐ Elevator maintenance
- ☐ Exterminators, Fumigators
- ☐ Fire Safety Director, NYC Only
- ☐ Guards, Watchmen
- ☐ Janitors, Porters, Cleaners, Elevator Operators
- ☐ Moving furniture and equipment
- ☐ Trash and refuse removal
- ☐ Window cleaners
- ☐ Other (Describe)

9. Has this project been reviewed for compliance with the Wicks Law involving separate bidding? YES ☐ NO ☐

10. Name and Title of Requester

Signature

SEE PAGE TWO FOR LAWS RELATING TO PUBLIC WORK CONTRACTS

NEW YORK STATE DEPARTMENT OF LABOR
Bureau of Public Work - Debarment List

LIST OF EMPLOYERS INELIGIBLE TO BID ON OR BE AWARDED ANY PUBLIC WORK CONTRACT

Under Article 8 and Article 9 of the NYS Labor Law, a contractor, sub-contractor and/or its successor shall be debarred and ineligible to submit a bid on or be awarded any public work or public building service contract/sub-contract with the state, any municipal corporation or public body for a period of five (5) years from the date of debarment when:

- Two (2) final determinations have been rendered within any consecutive six-year (6) period determining that such contractor, sub-contractor and/or its successor has WILLFULLY failed to pay the prevailing wage and/or supplements;
- One (1) final determination involves falsification of payroll records or the kickback of wages and/or supplements.

The agency issuing the determination and providing the information, is denoted under the heading 'Fiscal Officer'. DOL = New York State Department of Labor; NYC = New York City Comptroller's Office; AG = New York State Attorney General's Office; DA = County District Attorney's Office.

Debarment Database: To search for contractors, sub-contractors and/or their successors debarred from bidding or being awarded any public work contract or subcontract under NYS Labor Law Articles 8 and 9, or under NYS Workers' Compensation Law Section 141-b, access the database at this link: https://applications.labor.ny.gov/EDList/searchPage.do

For inquiries where WCB is listed as the "Agency", please call 1-866-546-9322

NYSDOL Bureau of Public Work Debarment List 06/20/2023

Article 8

AGENCY	Fiscal Officer	FEIN	EMPLOYER NAME	EMPLOYER DBA NAME	ADDRESS	DEBARMENT START DATE	DEBARMENT END DATE
DOL	DOL	*****5754	0369 CONTRACTORS, LLC		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL	*****4018	ADIRONDACK BUILDING RESTORATION INC.		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	AG	*****1812	ADVANCED BUILDERS & LAND DEVELOPMENT, INC.		400 OSER AVE #2300HAUPPAUGE NY 11788	09/11/2019	09/11/2024
DOL	DOL	*****1687	ADVANCED SAFETY SPRINKLER INC		261 MILL ROAD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	NYC		ALL COUNTY SEWER & DRAIN, INC.		7 GREENFIELD DR WARWICK NY 10990	03/25/2022	03/25/2027
DOL	NYC		AMJED PARVEZ		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		ANGELO F COKER		2610 SOUTH SALINA STREET SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL		ANGELO GARCIA		515 WEST AVE UNIT PH 13NORWALK CT 06850	05/12/2021	05/12/2026
DOL	DOL		ANGELO TONDO		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL		ANITA SALERNO		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL	*****4231	ANKER'S ELECTRIC SERVICE, INC.		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	NYC		ARADCO CONSTRUCTION CORP		115-46 132RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL		ARNOLD A. PAOLINI		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC		ARSHAD MEHMOOD		168-42 88TH AVENUE JAMAICA NY 11432	11/20/2019	11/20/2024
DOL	NYC	*****2591	AVI 212 INC.		260 CROPSEY AVENUE APT 11GBROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	NYC		AVM CONSTRUCTION CORP		117-72 123RD ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	NYC		AZIDABEGUM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****8421	B & B DRYWALL, INC		206 WARREN AVE APT 1WHITE PLAINS NY 10603	12/14/2021	12/14/2026
DOL	NYC		BALWINDER SINGH		421 HUDSON ST SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	NYC	*****8416	BEAM CONSTRUCTION, INC.		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	DOL		BERNARD BEGLEY		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	NYC	*****2113	BHW CONTRACTING, INC.		401 HANOVER AVENUE STATEN ISLAND NY 10304	01/11/2021	01/11/2026
DOL	DOL	*****3627	BJB CONSTRUCTION CORP.		38 LONG RIDGE ROAD BEDFORD NY 10506	12/18/2019	12/18/2024
DOL	DOL	*****4512	BOB BRUNO EXCAVATING, INC		5 MORNINGSIDE DR AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		BOGDAN MARKOVSKI		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL		BRADLEY J SCHUKA		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	DOL		BRUCE P. NASH JR.		5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL	*****9383	C.C. PAVING AND EXCAVATING, INC.		2610 SOUTH SALINA ST SUITE 12SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	*****4083	C.P.D. ENTERPRISES, INC		P.O BOX 281 WALDEN NY 12586	03/03/2020	03/03/2025
DOL	DOL	*****5161	CALADRI DEVELOPMENT CORP.		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	DOL	*****3391	CALI ENTERPRISES, INC.		1223 PARK STREET PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		CALVIN WALTERS		465 EAST THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024

NYSDOL Bureau of Public Work Debarment List 06/20/2023

Article 8

DOL	AG	*****7247	CENTURY CONCRETE CORP		2375 RAYNOR ST RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0026	CHANTICLEER CONSTRUCTION LLC		4 BROTHERS ROAD WAPPINGERS FALLS NY 12590	10/20/2020	10/20/2025
DOL	NYC		CHARLES ZAHRADKA		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL		CHRISTOPHER GRECO		26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL		CHRISTOPHER J MAINI		19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL		CHRISTOPHER PAPASTEFANOU A/K/A CHRIS PAPASTEFANOU		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****1927	CONSTRUCTION PARTS WAREHOUSE, INC.	CPW	5841 BUTTERNUT ROAD EAST SYRACUSE NY 13057	09/12/2018	09/12/2023
DOL	DOL		CRAIG JOHANSEN		10 SOUTH 5TH ST LOCUST VALLEY NY 11560	09/26/2022	09/26/2027
DOL	DOL	*****3228	CROSS-COUNTY LANDSCAPING AND TREE SERVICE, INC.	ROCKLAND TREE SERVICE	26 NORTH MYRTLE AVENUE SPRING VALLEY NY 10956	02/18/2021	02/18/2026
DOL	DOL	*****2524	CSI ELECTRICAL & MECHANICAL INC		42-32 235TH ST DOUGLASTON NY 11363	01/14/2019	01/14/2024
DOL	DOL	*****7619	DANCO CONSTRUCTION UNLIMITED INC.		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL		DANIEL ROBERT MCNALLY		7 GREENFIELD DRIVE WARWICK NY 10990	03/25/2022	03/25/2027
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DOL		DARIAN L COKER		2610 SOUTH SALINA ST SUITE 2CSYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	NYC		DAVID WEINER		14 NEW DROP LANE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024
DOL	DOL		DELPHI PAINTING & DECORATING CO INC		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****5175	EAGLE MECHANICAL AND GENERAL CONSTRUCTION LLC		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025
DOL	AG		EDWIN HUTZLER		23 NORTH HOWELLS RD BELLPORT NY 11713	08/04/2021	08/04/2026
DOL	DA		EDWIN HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****0780	EMES HEATING & PLUMBING CONTR		5 EMES LANE MONSEY NY 10952	01/20/2002	01/20/3002
DOL	NYC	*****5917	EPOCH ELECTRICAL, INC		97-18 50TH AVE CORONA NY 11368	04/19/2018	04/19/2024
DOL	DOL		FAIGY LOWINGER		11 MOUNTAIN RD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DOL		FRANK BENEDETTO		19 CATLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DOL	*****4722	FRANK BENEDETTO AND CHRISTOPHER J MAINI	B & M CONCRETE	19 CAITLIN AVE JAMESTOWN NY 14701	09/17/2018	09/17/2023
DOL	DA		FREDERICK HUTZLER		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	NYC	*****6616	G & G MECHANICAL ENTERPRISES, LLC.		1936 HEMPSTEAD TURNPIKE EAST MEDOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		GABRIEL FRASSETTI			04/10/2019	04/10/2024
DOL	NYC		GAYATRI MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		GEOFF CORLETT		415 FLAGGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DA		GEORGE LUCEY		150 KINGS STREET BROOKLYN NY 11231	01/19/1998	01/19/2998
DOL	DOL		GIGI SCHNECKENBURGER		261 MILL RD EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DA		GIOVANNA TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL		HANS RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	DOL		HERBERT CLEMEN		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027

DOL	DOL		IRENE KASELIS		32 PENNINGTON AVE WALDWICK NJ 07463	05/30/2019	05/30/2024
DOL	DOL	*****9211	J. WASE CONSTRUCTION CORP.		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		J.M.J CONSTRUCTION		151 OSTRANDER AVENUE SYRACUSE NY 13205	11/21/2022	11/21/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON CONSTRUCTION		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		J.R. NELSON, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	12/12/2022	12/12/2027
DOL	DOL		J.R.N COMPANIES, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL	*****1147	J.R.N. CONSTRUCTION, LLC		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JAMES J. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL		JAMES LIACONE		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JAMES RACHEL		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		JASON P. RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****7993	JBS DIRT, INC.		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****5368	JCH MASONRY & LANDSCAPING INC.		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	DOL	*****2435	JEFFEL D. JOHNSON	JMJ7 AND SON	5553 CAIRNSTRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JEFFEL JOHNSON ELITE CARPENTER REMODEL AND CONSTRUCTION		C2 EVERGREEN CIRCLE LIVERPOOL NY 13090	11/21/2022	11/21/2027
DOL	DOL	*****2435	JEFFREY M. JOHNSON	JMJ7 AND SON	5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	NYC		JENNIFER GUERRERO		1936 HEMPSTEAD TURNPIKE EAST MEADOW NY 11554	11/29/2019	11/29/2024
DOL	DOL		JIM PLAUGHER		17613 SANTE FE LINE ROAD WAYNEFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		JMJ7 & SON CONSTRUCTION, LLC		5553 CAIRNS TRAIL LIVERPOOL NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 AND SONS CONTRACTORS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS		7014 13TH AVENUE BROOKLYN NY 11228	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS AND SONS		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JMJ7 CONTRACTORS, LLC		5553 CAIRNS TRAIL CLAY NY 13041	11/21/2022	11/21/2027
DOL	DOL		JOHN GOCEK		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL		JOHN MARKOVIC		47 MANDON TERRACE HAWTHORN NJ 07506	03/29/2021	03/29/2026
DOL	DOL		JOHN WASE		8545 RT 9W ATHENS NY 12015	03/09/2021	03/09/2026
DOL	DOL		JON E DEYOUNG		261 MILL RD P.O BOX 296EAST AURORA NY 14052	05/29/2019	05/29/2024
DOL	DOL		JORGE RAMOS		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	DOL		JORI PEDERSEN		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023

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DOL	DOL		JOSE CHUCHUCA		35 CLINTON AVE OSSINING NY 10562	09/12/2018	09/12/2023
DOL	DOL		JOY MARTIN		2404 DELAWARE AVE NIGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****5116	JP RACE PAINTING, INC. T/A RACE PAINTING		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL	*****1147	JRN CONSTRUCTION, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		JRN PAVING, LLC		531 THIRD STREET ALBANY NY 12206	12/22/2022	12/22/2027
DOL	DOL		JULIUS AND GITA BEHREND		5 EMES LANE MONSEY NY 10952	11/20/2002	11/20/3002
DOL	DOL		KARIN MANGIN		796 PHELPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	DOL		KATE E. CONNOR		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL	*****2959	KELC DEVELOPMENT, INC		7088 INTERSTATE ISLAND RD SYRACUSE NY 13209	03/31/2021	03/31/2026
DOL	DOL		KIMBERLY F. BAKER		7901 GEE ROAD CANASTOTA NY 13032	08/17/2021	08/17/2026
DOL	DOL	*****3490	L & M CONSTRUCTION/DRYWALL INC.		1079 YONKERS AVE YONKERS NY 10704	08/07/2018	08/07/2023
DOL	DA	*****8816	LAKE CONSTRUCTION AND DEVELOPMENT CORPORATION		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	10/25/2022	10/25/2027
DOL	DOL		LEROY E. NELSON JR		531 THIRD ST ALBANY NY 12206	12/22/2022	12/22/2027
DOL	AG	*****3291	LINTECH ELECTRIC, INC.		3006 TILDEN AVE BROOKLYN NY 11226	02/16/2022	02/16/2027
DOL	DA	*****4460	LONG ISLAND GLASS & STOREFRONTS, LLC		4 MANHASSET TRL RIDGE NY 11961	09/06/2018	09/06/2023
DOL	DOL		LOUIS A. CALICCHIA		1223 PARK ST. PEEKSKILL NY 10566	05/17/2021	05/17/2026
DOL	NYC		LUBOMIR PETER SVOBODA		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	NYC		M & L STEEL & ORNAMENTAL IRON CORP.		27 HOUSMAN AVE STATEN ISLAND NY 10303	12/26/2019	12/26/2024
DOL	DOL	*****2196	MAINSTREAM SPECIALTIES, INC.		11 OLD TOWN RD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DA		MANUEL P TOBIO		150 KINGS STREET BROOKLYN NY 14444	08/19/1998	08/19/2998
DOL	DA		MANUEL TOBIO		150 KINGS STREET BROOKLYN NY 11231	08/19/1998	08/19/2998
DOL	NYC		MAREK FABIJANOWSKI		50 MAIN ST WHITE PLAINS NY 10606	01/04/2019	01/04/2024
DOL	NYC		MARIA NUBILE		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DOL		MATTHEW P. KILGORE		4156 WILSON ROAD EAST TABERG NY 13471	03/26/2019	03/26/2024
DOL	DOL		MICHAEL LENIHAN		1079 YONKERS AVE UNIT 4YONKERS NY 10704	08/07/2018	08/07/2023
DOL	DOL	*****4829	MILESTONE ENVIRONMENTAL CORPORATION		704 GINESI DRIVE SUITE 29MORGANVILLE NJ 07751	04/10/2019	04/10/2024
DOL	NYC	*****9926	MILLENNIUM FIRE PROTECTION, LLC		325 W. 38TH STREET SUITE 204NEW YORK NY 10018	11/14/2019	11/14/2024
DOL	NYC	*****0627	MILLENNIUM FIRE SERVICES, LLC		14 NEW DROP LNE 2ND FLOORSTATEN ISLAND NY 10306	11/14/2019	11/14/2024

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DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	10/25/2022	10/25/2027
DOL	DOL	*****1320	MJC MASON CONTRACTING, INC.		42 FOWLER AVENUE CORTLAND MANOR NY 10567	01/24/2023	01/24/2028
DOL	NYC		MUHAMMED A. HASHEM		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	NYC		NAMOW, INC.		84-22 GRAND AVENUE ELMHURST NY 11373	03/10/2020	03/10/2025
DOL	DA	*****9786	NATIONAL INSULATION & GC CORP		180 MILLER PLACE HICKSVILLE NY 11801	12/12/2018	12/12/2023
DOL	NYC		NAVIT SINGH		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	03/01/2022	03/01/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	11/15/2022	11/15/2027
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	09/29/2021	09/29/2026
DOL	DOL		NICHOLE E. FRASER A/K/A NICHOLE RACE		3469 STATE RT. 69 PERISH NY 13131	02/09/2022	02/09/2027
DOL	DOL	*****7429	NICOLAE I. BARBIR	BESTUCCO CONSTRUCTION, INC.	444 SCHANTZ ROAD ALLENTOWN PA 18104	09/17/2020	09/17/2025
DOL	NYC	*****5643	NYC LINE CONTRACTORS, INC.		402 JERICHO TURNPIKE NEW HYDE PARK NY 11040	08/10/2022	08/10/2027
DOL	DOL		PAULINE CHAHALES		935 S LAKE BLVD MAHOPAC NY 10541	03/02/2021	03/02/2026
DOL	DOL		PETER STEVENS		11 OLD TOWN ROAD SELKIRK NY 12158	02/02/2021	02/02/2026
DOL	DOL		PETER STEVENS		8269 21ST ST BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL	*****0466	PRECISION BUILT FENCES, INC.		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	NYC		RASHEL CONSTRUCTION CORP		524 MCDONALD AVENUE BROOKLYN NY 11218	09/17/2020	09/17/2025
DOL	DOL	*****1068	RATH MECHANICAL CONTRACTORS, INC.		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	DOL	*****2633	RAW POWER ELECTRIC CORP.		3 PARK CIRCLE MIDDLETOWN NY 10940	07/11/2022	07/11/2027
DOL	DA	*****7559	REGAL CONTRACTING INC.		24 WOODBINE AVE NORTHPORT NY 11768	10/01/2020	10/01/2025
DOL	DOL	*****9148	RICH T CONSTRUCTION		107 WILLOW WOOD LANE CAMILLUS NY 13031	11/13/2018	11/13/2023
DOL	DOL		RICHARD MACONE		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL		RICHARD REGGIO		1617 MAIN ST PEEKSKILL NY 10566	03/03/2020	03/03/2025
DOL	DOL	*****9148	RICHARD TIMIAN	RICH T CONSTRUCTION	108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	10/16/2018	10/16/2023
DOL	DOL		RICHARD TIMIAN JR.		108 LAMONT AVE SYRACUSE NY 13209	11/13/2018	11/13/2023
DOL	DOL		ROBBYE BISSESAR		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	01/11/2003	01/11/3003
DOL	DOL		ROBERT A. VALERINO		3841 LANYARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL		ROBERT BRUNO		5 MORNINGSIDE DRIVE AUBURN NY 13021	05/28/2019	05/28/2024
DOL	DOL		RODERICK PUGH		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL	*****4880	RODERICK PUGH CONSTRUCTION INC.		404 OAK ST SUITE 101SYRACUSE NY 13203	07/23/2018	07/23/2023
DOL	DOL		ROMEO WARREN		161 ROBYN RD MONROE NY 10950	07/11/2022	07/11/2027
DOL	DOL		RONALD MESSEN		14B COMMERCIAL AVE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****7172	RZ & AL INC.		198 RIDGE AVENUE VALLEY STREAM NY 11581	06/06/2022	06/06/2027
DOL	DOL	*****1365	S & L PAINTING, INC.		11 MOUNTAIN ROAD P.O BOX 408MONROE NY 10950	03/20/2019	03/20/2024

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DOL	DOL	*****7730	S C MARTIN GROUP INC.		2404 DELAWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL		SAL FRESINA MASONRY CONTRACTORS, INC.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		SAL MASONRY CONTRACTORS, INC.		(SEE COMMENTS) SYRACUSE NY 13202	07/16/2021	07/16/2026
DOL	DOL	*****9874	SALFREE ENTERPRISES INC		P.O BOX 14 2821 GARDNER RDPOMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		SALVATORE A FRESINA A/K/A SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	DOL		SAM FRESINA		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13218	07/16/2021	07/16/2026
DOL	NYC	*****0349	SAM WATERPROOFING INC		168-42 88TH AVENUE APT.1 AJAMAICA NY 11432	11/20/2019	11/20/2024
DOL	DA	*****0476	SAMCO ELECTRIC CORP.		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	NYC	*****1130	SCANA CONSTRUCTION CORP.		863 WASHINGTON STREET FRANKLIN SQUARE NY 11010	03/10/2020	03/10/2025
DOL	DOL	*****2045	SCOTT DUFFIE	DUFFIE'S ELECTRIC, INC.	P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	DOL		SCOTT DUFFIE		P.O BOX 111 CORNWALL NY 12518	03/03/2020	03/03/2025
DOL	NYC	*****6597	SHAIRA CONSTRUCTION CORP.		421 HUDSON STREET SUITE C5NEW YORK NY 10014	02/20/2019	02/20/2024
DOL	DOL		SHANE NOLAN		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL		SHULEM LOWINGER		11 MOUNTAIN ROAD 28 VAN BUREN DRMONROE NY 10950	03/20/2019	03/20/2024
DOL	DA		SILVANO TRAVALJA		3735 9TH ST LONG ISLAND CITY NY 11101	01/05/2023	01/05/2028
DOL	DOL	*****0816	SOLAR ARRAY SOLUTIONS, LLC		9365 WASHINGTON ST LOCKPORT IL 60441	07/23/2018	07/23/2023
DOL	DOL	*****0440	SOLAR GUYS INC.		8970 MIKE GARCIA DR MANASSAS VA 20109	07/16/2021	07/16/2026
DOL	NYC		SOMATIE RAMSUNAHAI		115-46 132ND ST SOUTH OZONE PARK NY 11420	09/17/2020	09/17/2025
DOL	DOL	*****2221	SOUTH BUFFALO ELECTRIC, INC.		1250 BROADWAY ST BUFFALO NY 14212	02/03/2020	02/03/2025
DOL	NYC	*****3661	SPANIER BUILDING MAINTENANCE CORP		200 OAK DRIVE SYOSSET NY 11791	03/14/2022	03/14/2027
DOL	DOL		STANADOS KALOGELAS		485 RAFT AVENUE HOLBROOK NY 11741	10/19/2021	10/19/2026
DOL	DOL	*****3496	STAR INTERNATIONAL INC		89-51 SPRINGFIELD BLVD QUEENS VILLAGE NY 11427	08/11/2003	08/11/3003
DOL	DOL	*****6844	STEAM PLANT AND CHX SYSTEMS INC.		14B COMMERCIAL AVENUE ALBANY NY 12065	11/14/2019	11/14/2024
DOL	DOL	*****9933	STEED GENERAL CONTRACTORS, INC.		1445 COMMERCE AVE BRONX NY 10461	05/30/2019	05/30/2024
DOL	DOL	*****9528	STEEL-IT, LLC.		17613 SANTE FE LINE ROAD WAYNESFIELD OH 45896	07/16/2021	07/16/2026
DOL	DOL		STEFANOS PAPASTEFANOU, JR. A/K/A STEVE PAPASTEFANOU, JR.		256 WEST SADDLE RIVER RD UPPER SADDLE RIVER NJ 07458	05/30/2019	05/30/2024
DOL	DOL		STEVE TATE		415 FLAGER AVE #302STUART FL 34994	10/31/2018	10/31/2023
DOL	DOL		STEVEN MARTIN		2404 DELWARE AVE NIAGARA FALLS NY 14305	09/12/2018	09/12/2023
DOL	DOL	*****3800	SUBURBAN RESTORATION CO. INC.		5-10 BANTA PLACE FAIR LAWN PLACE NJ 07410	03/29/2021	03/29/2026
DOL	DOL	*****1060	SUNN ENTERPRISES GROUP, LLC		370 W. PLEASANTVIEW AVE SUITE 2.329HACKENSACK NJ 07601	02/11/2019	02/11/2024
DOL	DOL	*****9150	SURGE INC.		8269 21ST STREET BELLEROSE NY 11426	12/22/2022	12/22/2027
DOL	DOL		SYED RAZA		198 RIDGE AVENUE NY 11581	06/06/2022	06/06/2027
DOL	DOL	*****8209	SYRACUSE SCALES, INC.		158 SOLAR ST SYRACUSE NY 13204	01/07/2019	01/07/2024
DOL	DOL		TERRY THOMPSON		11371 RIDGE RD WOLCOTT NY 14590	02/03/2020	02/03/2025

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DOL	DOL	*****9733	TERSAL CONSTRUCTION SERVICES INC		107 FACTORY AVE P.O BOX 11070SYRACUSE NY 13208	07/16/2021	07/16/2026
DOL	DOL		TERSAL CONTRACTORS, INC.		221 GARDNER RD P.O BOX 14POMPEI NY 13138	07/16/2021	07/16/2026
DOL	DOL		TERSAL DEVELOPMENT CORP.		1935 TEALL AVENUE SYRACUSE NY 13206	07/16/2021	07/16/2026
DOL	DOL		TEST		P.O BOX 123 ALBANY NY 12204	05/20/2020	05/20/2025
DOL	DOL	*****6789	TEST1000		P.O BOX 123 ALBANY NY 12044	03/01/2021	03/01/2026
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	12/04/2018	12/04/2023
DOL	DOL	*****5766	THE COKER CORPORATION	COKER CORPORATIO N	2610 SOUTH SALINA ST SUITE 14SYRACUSE NY 13205	09/17/2020	09/17/2025
DOL	DA	*****4106	TRIPLE H CONCRETE CORP		2375 RAYNOR STREET RONKONKOMA NY 11779	08/04/2021	08/04/2026
DOL	DOL	*****8210	UPSTATE CONCRETE & MASONRY CONTRACTING CO INC		449 WEST MOMBSHA ROAD MONROE NY 10950	06/06/2022	06/06/2027
DOL	DOL	*****6392	V.M.K CORP.		8617 THIRD AVE BROOKLYN NY 11209	09/17/2018	09/17/2023
DOL	DOL	*****6418	VALHALLA CONSTRUCTION, LLC.		796 PHLEPS ROAD FRANKLIN LAKES NJ 07417	12/01/2020	12/01/2025
DOL	NYC	*****2426	VICKRAM MANGRU	VICK CONSTRUCTI ON	21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	NYC		VICKRAM MANGRU		21 DAREWOOD LANE VALLEY STREAM NY 11581	09/17/2020	09/17/2025
DOL	DOL		VICTOR ALICANTI		42-32 235TH ST DOUGLASTON NY 11363	01/14/2019	01/14/2024
DOL	NYC		VIKTAR PATONICH		2630 CROPSEY AVE BROOKLYN NY 11214	10/30/2018	10/30/2023
DOL	DOL		VIKTORIA RATH		24 ELDOR AVENUE NEW CITY NY 10956	02/03/2020	02/03/2025
DOL	NYC	*****3673	WALTERS AND WALTERS, INC.		465 EAST AND THIRD ST MT. VERNON NY 10550	09/09/2019	09/09/2024
DOL	DOL	*****3296	WESTERN NEW YORK CONTRACTORS, INC.		3841 LAYNARD COURT NEW PORT RICHEY FL 34652	07/09/2019	07/09/2024
DOL	DOL	*****8266	WILLIAM CHRIS MCCLENDON	MCCLENDON ASPHALT PAVING	1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM CHRIS MCCLENDON		1646 FALLS STREET NIAGARA FALLS NY 14303	05/01/2023	05/01/2028
DOL	DOL		WILLIAM G. PROERFRIEDT		85 SPRUCEWOOD ROAD WEST BABYLON NY 11704	01/19/2021	01/19/2026
DOL	DOL	*****5924	WILLIAM G. PROPHY, LLC	WGP CONTRACTIN G, INC.	54 PENTAQUIT AVE BAYSHORE NY 11706	01/19/2021	01/19/2026
DOL	DOL	*****4730	XGD SYSTEMS, LLC	TDI GOLF	415 GLAGE AVE #302STUART FL 34994	10/31/2018	10/31/2023

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DOCUMENT 006000 - PROJECT FORMS

1.1 GENERAL CONDITIONS

A. The following form of the General Conditions shall be used for Project:

1. Requirements as stipulated in Owner's document bound within this Document.

1.2 ADMINISTRATIVE FORMS

A. Preconstruction Forms:

1. Form of Performance Bond and Labor and Material Bond: Requirements as stipulated in Owner’s document bound within this Document.

B. Information and Modification Forms:

1. Form for Request for Interpretation (RFI): Bound within this Document.

C. Payment Forms:

1. Requirements as stipulated in Owner’s document bound within this Document.

END OF DOCUMENT 006000

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Work by Owner.
4. Access to site.
5. Indoor Air Quality during construction.
6. Coordination with occupants.
7. Work restrictions.
8. Specification and drawing conventions.
9. Correlation and Intent of the Contract Documents
10. Miscellaneous provisions.

    a. Request for Interpretation.
    b. Proposal Request.

1.3 PROJECT INFORMATION

Project Identification:	Fashion Institute of Technology Museum Lighting New York, NY 10001
Owner:	Fashion Institute of Technology (FIT) Owner’s Representative: Allen King Tel: 212-219-4424

1.4 WORK COVERED BY CONTRACT DOCUMENTS

A. The Scope of Work for this Project generally consists of the following:

1. Renovation at FIT Museum’s cellar level galleries, including but not limited to upgrades to the ceiling, lighting, mechanical, sprinkler, and fire alarm systems.

B. Types of Contracts:

1. Project will be constructed a single Prime Contract. Contracts for this Project include the following:

    a. Prime Contract, including electrical and general trades and mechanical.

C. Prime Contractor: Work in the Prime Contract includes, but is not limited to, the following:

1. General trades work.
2. Interior finish work.
3. Mechanical work.
4. Electrical work.
5. Fire Alarm work.
6. Remaining work not identified as work under other contracts.
7. Selective demolition and cutting and patching not identified as work under other contracts.

D. Temporary facilities and controls in the General Trades Contract include, but are not limited to, the following:

1. Temporary facilities and controls that are not otherwise specifically assigned to the Electrical Contract.
2. Unpiped temporary toilet fixtures (if Owner’s facilities are not available for use), wash facilities, and drinking water facilities, including disposable supplies.
3. General waste disposal facilities.
4. Barricades, warning signs, and lights.
5. Security enclosure and lockup.
6. Environmental protection.
7. Restoration of Owner's existing facilities used as temporary facilities.
8. Staging and scaffolding.
9. Temporary heating, cooling and ventilation, including temporary connections.
10. Indoor air quality measures as identified below.

1.5 PROJECT COORDINATION

A. Prime Contractor coordination activities of Project include, but are not limited to, the following:

1. Provide overall coordination of the Work, including that of owner direct purchase contracts.
2. Coordinate compliance with FIT’s fire safety requirements during construction.
3. Coordinate shared access to workspaces.
4. Coordinate product selections for compatibility.
5. Provide overall coordination of temporary facilities and controls.
6. Coordinate, schedule, and approve interruptions of permanent and temporary utilities, including those necessary to make connections for temporary services.
7. Coordinate construction and operations of the Work with work performed by each Contract.
8. Coordinate sequencing and scheduling of the Work. Include the following:

a. Initial Coordination Meeting: At earliest possible date, arrange and conduct a meeting with contractors for sequencing and coordinating the Work; negotiate reasonable adjustments to schedules.
b. Prepare a combined contractors' construction schedule for entire Project. Base schedule on preliminary construction schedule. Secure time commitments for performing critical construction activities from contractors. Show activities of each contract on a separate sheet. Prepare a simplified summary sheet indicating combined construction activities of contracts.

1) Submit schedules for approval.
2) Distribute copies of approved schedules to contractors.

9. Provide photographic documentation.
10. Provide quality-assurance and quality-control services.
11. Coordinate sequence of activities to accommodate tests and inspections, and coordinate schedule of tests and inspections.
12. Provide information necessary to adjust, move, or relocate existing utility structures affected by construction.
13. Provide progress cleaning of common areas and coordinate progress cleaning of areas or pieces of equipment where more than one contractor has worked.
14. Coordinate cutting and patching.
15. Coordinate protection of the Work.
16. Coordinate firestopping.
17. Coordinate completion of interrelated punch list items.
18. Coordinate preparation of Project record documents if information from more than one contractor is to be integrated with information from other contractors to form one combined record.
19. Print and submit record documents if installations by more than one contractor are indicated on the same contract drawing or shop drawing.
20. Collect record Specification Sections from contractors, collate Sections into numeric order, and submit complete set.
21. Coordinate preparation of operation and maintenance manuals if information from more than one contractor is to be integrated with information from other contractors to form one combined record.

B. Each Contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of the Work. Each Contractor shall coordinate its operations with operations, included in different Sections, that depend on each other for proper installation, connection, and operation.

1. Unless otherwise indicated, the work described in this Section for each contract shall be complete systems and assemblies, including products, components, accessories, and installation required by the Contract Documents.
2. Blocking, backing panels, sleeves, and metal fabrication supports for the work of each contract shall be the work of each contract for its own work.
3. Furnishing of access panels for the work of each contract shall be the work of each contract for its own work. Installation of access panels shall be the work of each contract for its own work.
4. Painting for the work of each contract shall be the work of the General Construction Contract.

5. Cutting and Patching: Provided under each contract for its own work.
6. Through-penetration firestopping for the work of each contract shall be provided by each contract for its own work.

C. Temporary facilities and controls in the Prime Contractors Contract include, but are not limited to, the following:

1. Installation, operation, maintenance, and removal of each temporary facility necessary for its own normal construction activity, and costs and use charges associated with each facility, except as otherwise provided for in this Section.
2. Plug-in electric power cords and extension cords, supplementary plug-in task lighting, and special lighting necessary exclusively for its own activities.
3. Temporary enclosures for its own construction activities.
4. Waste disposal facilities, including collection and legal disposal of its own hazardous, dangerous, unsanitary, or other harmful waste materials.
5. Progress cleaning of work areas affected by its operations on a daily basis.
6. Secure lockup of its own tools, materials, and equipment.
7. Construction aids and miscellaneous services and facilities necessary exclusively for its own construction activities.
8. FIT's fire safety requirements during construction.

1.6 WORK BY OWNER

A. General: Cooperate fully with Owner so work may be carried out smoothly, without interfering with or delaying work under this Contract or work by Owner. Coordinate the Work of this Contract with work performed by Owner.

1. Install all tracks prior to concurrent work by Owner.

B. Concurrent Work: Owner will perform the following construction operations at Project site. Those operations will be conducted simultaneously with work under this Contract.

1. Receive and store lights in location outside of project scope determined by the Owner.
2. Installation of lighting fixtures in Contractor-installed tracks.
3. Focusing and testing of Owner-installed lighting fixtures.

C. Subsequent Work: Owner will perform the following additional work at site after Substantial Completion. Completion of that work will depend on successful completion of preparatory work under this Contract.

1. Exhibition build-out of gallery space.

1.7 ACCESS TO SITE

A. Prime Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

D. Connections to Electrical Equipment and Systems: Contractor is not permitted to tie into electrical equipment or systems until the FIT Facilities Management Department has reviewed and approved the connection.

1. Submit written procedures to the Owner’s Representative, detailing the proposed connection Work.
2. After procedures have been approved, notify the Owner’s Representative at least three working days prior to the connection Work so that arrangements can be made to have a FIT Facilities Management Department Representative witness the Work.

1.8 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas where work is being performed. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.
2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

B. Owner Limited Occupancy of Completed Areas of Construction: Owner reserves the right to occupy and to place and install equipment in completed portions of the Work, prior to Substantial Completion of the Work, provided such occupancy does not interfere with completion of the Work. Such placement of equipment and limited occupancy shall not constitute acceptance of the total Work.

1. Architect will prepare a Certificate of Substantial Completion for each specific portion of the Work to be occupied prior to Owner acceptance of the completed Work.
2. Obtain a Certificate of Occupancy from authorities having jurisdiction before limited Owner occupancy.

3. Before limited Owner occupancy, mechanical and electrical systems shall be fully operational, and required tests and inspections shall be successfully completed. On occupancy, Owner will operate and maintain mechanical and electrical systems serving occupied portions of Work.
4. On occupancy, Owner will assume responsibility for maintenance and custodial service for occupied portions of Work.

1.9 INDOOR AIR QUALITY DURING CONSTRUCTION

A. Dust, odor, and HVAC-Control Plan: Submit coordination drawing and narrative that indicates the dust, odor, and HVAC-control measures proposed for use, proposed locations, and proposed time frame for their operation. Identify further options if proposed measures are later determined to be inadequate. Include the following:

1. Locations of dust-control partitions.
2. HVAC system isolation schematic drawing.
3. Location of proposed air-filtration system discharge.
4. Other dust and odor-control measures.

B. Filter Replacement: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system.

C. Temporary Partitions: Provide floor-to-ceiling dustproof partitions to limit dust and dirt migration and to separate areas occupied by Owner from fumes and noise.

1. Construct dustproof partitions with two layers of 6-mil polyethylene sheet on each side. Cover floor with two layers of 6-mil polyethylene sheet, extending sheets 18 inches up the sidewalls. Overlap and tape full length of joints. Cover floor with fire-retardant-treated plywood.

    a. Construct vestibule and airlock at each entrance through temporary partition with not less than 48 inches between doors. Maintain water-dampened foot mats in vestibule.

2. Seal joints and perimeter. Equip partitions with gasketed dustproof doors and security locks where openings are required.
3. Protect air-handling equipment.
4. Provide walk-off mats at each entrance through temporary partition.

1.10 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.

1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.

B. On-Site Work Hours: As indicated in Owner’s General Requirements.

1. Unless noted otherwise, Work is to be performed between the hours of 7:00 a.m. to 6:00 p.m., Monday through Friday, legal and union holidays excluded.
2. Major mobilization if required is to be performed at night, between the hours of 9:00 p.m. to 6:00 a.m., Monday through Friday.
3. All work conducted which causes significant noise that is considered a disturbance to the school shall be conducted, at contractor's expense, during the time period between 9:00 p.m. and 6:00 a.m. Work considered to be a disturbance or a disruption to the school includes but is not necessarily limited to installation of pencil rods at existing concrete substrate.
4. Hours for Utility Shutdowns: As approved in writing by Owner with not less than 72 hours' notice. Shutdowns shall be conducted, at contractor's expense, during the time period between 10:00 p.m. and 6:00 a.m.
5. Hours for Core Drilling: As approved in writing by Owner with not less than 72 hours notice. Core drilling shall be conducted, at Contractor's expense, during the time period between 10:00 p.m. and 6:00 a.m.
6. 24 Hour Access: The Owner will make the work site available as needed, including three shifts (24 hour access) as coordinated and approved in writing by Owner. All additional costs associated with work outside of normal business working hours shall be accounted for in the Contractor's bid.
7. Weekend Hours: As approved in writing by Owner.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Owner not less than two days in advance of proposed utility interruptions.
2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, any level of odors, or other disruption to Owner occupancy with Owner.

1. Notify Owner not less than 72 hours in advance of proposed disruptive operations.
2. Obtain Owner's written permission before proceeding with disruptive operations.

E. Nonsmoking Building: Smoking is not permitted within the building or within 25 feet of entrances, operable windows, or outdoor-air intakes.

F. Controlled Substances: Use of tobacco products and other controlled substances on Project site is not permitted.

G. Employee Identification: Comply with the Facility's Visitor Identification Policy. A copy of the current policy will be distributed at the initial job meeting.

1.11 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:

1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.12 CORRELATION AND INTENT OF THE CONTRACT DOCUMENTS

A. The intent of the Contract Documents is to include all items necessary for the proper execution and completion of the work by the Contractor. The contract Documents are complementary, and what is required by one shall be as binding as if required by all; performance by the Contractor shall be required to the extent consistent with the Contract Documents and reasonably inferable from them as being necessary to produce the indicated results.

B. In the case of an inconsistency between Drawings and Specifications or within either Document not clarified by Addendum, the better quality or greater quantity of Work shall be provided in accordance with the Architect's interpretation.

C. If an item is shown on the Drawings but not specified, the Contractor shall provide the item of the same quality as similar items specified, as determined by the Architect. If an item is specified but not shown on the Drawings, it shall be located as directed by the Architect.

D. The Drawings are indications of the design intent as well as specific instructions. The "details" included on Drawings show the intent of all similar areas. If questions arise about the construction of an area not specifically detailed, consult with the Architect who will provide further "details" and instructions. Such further documentation, if consistent with the Contract Documents, shall not alter the Contract Sum.

E. If the Contractor, in the course of construction, finds any conflict, error, or discrepancy on or between the Drawings and Specifications or any of the related Contract Documents, such conflict, error, or discrepancy shall be immediately referred to the Architect, in writing. Architect shall issue an interpretation, in writing, to the Contractor within (10) days after receipt of the written request. No additional compensation will be paid to the Contractor as a result of an interpretation of the Contract Documents.

1.13 MISCELLANEOUS PROVISIONS

A. Electronic digital data files of the Contract Drawings will not be provided by Architect for Contractor's use in preparing submittals.

B. Request for Interpretation (RFI):

1. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form bound in the Project Manual.
2. Architect’s Action: Architect will review each RFI, determine action required, and respond. Allow five working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
3. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
4. On receipt of Architect’s action, update RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within five days if contractor disagrees with response.

C. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Work Change Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within time specified in Proposal Request or 10 days, when not otherwise specified, after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    e. Use form acceptable to Architect.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012300 - ALTERNATES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for alternates.

1.3 DEFINITIONS

A. Alternate: An amount proposed by bidders and stated on the Bid Form for certain work defined in the bidding requirements that may be added to or deducted from the base bid amount if the Owner decides to accept a corresponding change either in the amount of construction to be completed or in the products, materials, equipment, systems, or installation methods described in the Contract Documents.

1. Alternates described in this Section are part of the Work only if enumerated in the Agreement.
2. The cost or credit for each alternate is the net addition to or deduction from the Contract Sum to incorporate alternates into the Work. No other adjustments are made to the Contract Sum.

1.4 PROCEDURES

A. Coordination: Revise or adjust affected adjacent work as necessary to completely integrate work of the alternate into Project.

1. Include, as part of each alternate, miscellaneous devices, accessory objects, and similar items incidental to or required for a complete installation, whether or not indicated as part of alternate.

B. Execute accepted alternates under the same conditions as other Work of the Contract.

C. Schedule: A Part 3 "Schedule of Alternates" Article is included at the end of this Section. Specification Sections referenced in schedule contain requirements for materials necessary to achieve the work described under each alternate.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 SCHEDULE OF ALTERNATES

A. Alternate No. 01: Acoustical finish system.

1. Base Bid: Provide gypsum board ceiling at Tall Ceiling Gallery as indicated on Drawings and as specified.
2. Alternate: In lieu of gypsum board ceiling at Tall Ceiling Gallery, provide acoustical plaster system at locations indicated on Drawings and as specified in Section 098316 "Acoustical Finish System."

END OF SECTION 012300

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for substitutions.

1.3 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 ACTION SUBMITTALS

A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use facsimile of form provided in Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation method cannot be provided, if applicable.
b. Coordination of information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitutions with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes, such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific

features and requirements indicated. Indicate deviations, if any, from the Work specified.

d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. List of similar installations for completed projects, with project names and addresses as well as names and addresses of architects and owners.
h. Material test reports from a qualified testing agency, indicating and interpreting test results for compliance with requirements indicated.
i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
j. Detailed comparison of Contractor's construction schedule using proposed substitutions with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
k. Cost information, including a proposal of change, if any, in the Contract Sum.
l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents, except as indicated in substitution request, is compatible with related materials and is appropriate for applications indicated.
m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.6 PROCEDURES

A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

1.7 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.

1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Substitution request is fully documented and properly submitted.
c. Requested substitution will not adversely affect Contractor's construction schedule.
d. Requested substitution has received necessary approvals of authorities having jurisdiction.
e. Requested substitution is compatible with other portions of the Work.
f. Requested substitution has been coordinated with other portions of the Work.
g. Requested substitution provides specified warranty.
h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Not allowed.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

DLR Group
Architecture Engineering Planning Interiors

REQUEST FOR INTERPRETATION

Client:
Project:
Comm. No.:
File No.:

DATE: RFI NO.:
INITIATED BY:
DIRECTED TO:
RE:

SUBJECT:

SIGNED: _____

REPLY:

The Work shall be carried out in accordance with the supplemental information or clarifications included in the Reply and issued in accordance with the Contract Documents without change in the Contract Sum or Contract Time. Proceeding with the Work in accordance with the Reply indicates your acknowledgment that there will be no change in the Contract Sum or Contract Time.

Where the Reply requires a change to the Contract Sum or Contract Time, submit a detailed breakdown indicating the increased sum or time required. Proceed with the Reply ONLY when the Owner and the Architect give written authorization for the change to the Contract Sum or Contract Time.

REPLY ISSUED BY: FIRM: DATE:

DISTRIBUTION:

___ Owner:
___ Contractor:
___ Mechanical Engineer:
___ Electrical Engineer:
___ Structural Engineer:
___ Other:
___ Other:
___ Other:

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspection services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.

1. Specific quality-assurance and quality-control requirements for individual work results are specified in their respective Specification Sections. Requirements in individual Sections may also cover production of standard products.
2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and quality-control procedures that facilitate compliance with the Contract Document requirements.
3. Requirements for Contractor to provide quality-assurance and quality-control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
4. Specific test and inspection requirements are not specified in this Section.

1.3 DEFINITIONS

A. Experienced: When used with an entity or individual, "experienced" unless otherwise further described means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

B. Field Quality-Control Tests: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.

1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).

D. Mockups: Full-size physical assemblies that are constructed on-site either as freestanding temporary built elements or as part of permanent construction. Mockups are constructed to verify selections made under Sample submittals; to demonstrate aesthetic effects and qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

E. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.

F. Product Tests: Tests and inspections that are performed by a nationally recognized testing laboratory (NRTL) according to 29 CFR 1910.7, by a testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program (NVLAP), or by a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.

G. Source Quality-Control Tests: Tests and inspections that are performed at the source; for example, plant, mill, factory, or shop.

H. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

I. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

J. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.

1.4 DELEGATED-DESIGN SERVICES

A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.

1. If criteria indicated are not sufficient to perform services or certification required, submit a written request for additional information to Architect.

1.5 CONFLICTING REQUIREMENTS

A. Conflicting Standards and Other Requirements: If compliance with two or more standards or requirements are specified and the standards or requirements establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for direction before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 ACTION SUBMITTALS

A. Shop Drawings: For integrated exterior mockups.

1. Include plans, sections, and elevations, indicating materials and size of mockup construction.
2. Indicate manufacturer and model number of individual components.
3. Provide axonometric drawings for conditions difficult to illustrate in two dimensions.

B. Delegated-Design Services Submittal: In addition to Shop Drawings, Product Data, and other required submittals, submit a statement signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional, indicating that the products and systems are in compliance with performance and design criteria indicated. Include list of codes, loads, and other factors used in performing these services.

1.7 INFORMATIONAL SUBMITTALS

A. Contractor's Quality-Control Plan: For quality-assurance and quality-control activities and responsibilities.

B. Qualification Data: For Contractor's quality-control personnel.

C. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

D. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1. Specification Section number and title.
2. Entity responsible for performing tests and inspections.
3. Description of test and inspection.
4. Identification of applicable standards.

5. Identification of test and inspection methods.
6. Number of tests and inspections required.
7. Time schedule or time span for tests and inspections.
8. Requirements for obtaining samples.
9. Unique characteristics of each quality-control service.

E. Reports: Prepare and submit certified written reports and documents as specified.

F. Permits, Licenses, and Certificates: For Owner's record, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents established for compliance with standards and regulations bearing on performance of the Work.

1.8 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspection.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
2. Statement that equipment complies with requirements.
3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
4. Statement whether conditions, products, and installation will affect warranty.
5. Other required items indicated in individual Specification Sections.

1.9 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, applying, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.

F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspection indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of

manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1. Contractor responsibilities include the following:

   a. Provide test specimens representative of proposed products and construction.
   b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
   c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
   d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.

2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

J. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1. Build mockups of size indicated.
2. Build mockups in location indicated or, if not indicated, as directed by Architect.
3. Notify Architect seven days in advance of dates and times when mockups will be constructed.
4. Employ supervisory personnel who will oversee mockup construction. Employ workers that will be employed to perform same tasks during the construction at Project.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Architect's approval of mockups before starting corresponding work, fabrication, or construction.

   a. Allow seven days for initial review and each re-review of each mockup.

7. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.
8. Demolish and remove mockups when directed unless otherwise indicated.

1.10 QUALITY CONTROL

A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.

1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspection they are engaged to perform.
2. Payment for these services will be made from testing and inspection allowances, as authorized by Change Orders.
3. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor.

B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities, whether specified or not, to verify and document that the Work complies with requirements.

1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
2. Engage a qualified testing agency to perform quality-control services.

    a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.

3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspection will be performed.
4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
5. Testing and inspection requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform duties of Contractor.

E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections.

F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

G. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspection.

1. Schedule times for tests, inspections, obtaining samples, and similar activities.

H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update as the Work progresses.

1. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:

1. Date test or inspection was conducted.
2. Description of the Work tested or inspected.
3. Date test or inspection results were transmitted to Architect.
4. Identification of testing agency or special inspector conducting test or inspection.

B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's reference during normal working hours.

1. Submit log at Project closeout as part of Project Record Documents.

3.2 REPAIR AND PROTECTION

A. General: On completion of testing, inspection, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."

B. Protect construction exposed by or for quality-control service activities.

C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Requirements:

1. Section 012500 "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.

1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
3. Comparable Product: Product that is demonstrated and approved by Architect through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a single manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation. In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification.

C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications. Submit a comparable product request, if applicable.

1.4 ACTION SUBMITTALS

A. Comparable Product Request Submittal: Submit request for consideration of each comparable product. Identify basis-of-design product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Include data to indicate compliance with the requirements specified in "Comparable Products" Article.
2. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

    a. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

1.5 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1. Each contractor is responsible for providing products and construction methods compatible with products and construction methods of other contractors.
2. If a dispute arises between contractors over concurrently selectable but incompatible products, Architect will determine which products shall be used.

B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.

1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.
2. Equipment Nameplates: Provide a permanent nameplate on each item of service-connected or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:

a. Name of product and manufacturer.
b. Model and serial number.
c. Capacity.
d. Speed.
e. Ratings.

3. See individual identification sections in Divisions 21, 23, and 26 for additional identification requirements.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:

1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:

1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.
7. Provide a secure location and enclosure at Project site for storage of materials and equipment by Owner's construction forces. Coordinate location with Owner.

1.7 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.

1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. See other Sections for specific content requirements and particular requirements for submitting special warranties.

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.

1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties meeting requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.
6. Or Equal: For products specified by name and accompanied by the term "or equal," or "or approved equal," or "or approved," comply with requirements in "Comparable Products" Article to obtain approval for use of an unnamed product.

    a. Submit additional documentation required by Architect in order to establish equivalency of proposed products. Evaluation of "or equal" product status is by the Architect, whose determination is final.

B. Product Selection Procedures:

1. Sole Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

a. Sole product may be indicated by the phrase: "Subject to compliance with requirements, provide the following: …"

2. Sole Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

   a. Sole manufacturer/source may be indicated by the phrase: "Subject to compliance with requirements, provide products by the following: …"

3. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

   a. Limited list of products may be indicated by the phrase: "Subject to compliance with requirements, provide one of the following: …"

4. Non-Limited List of Products: Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, which complies with requirements.

   a. Non-limited list of products is indicated by the phrase: "Subject to compliance with requirements, available products that may be incorporated in the Work include, but are not limited to, the following: …"

5. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.

   a. Limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, provide products by one of the following: …"

6. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, which complies with requirements.

   a. Non-limited list of manufacturers is indicated by the phrase: "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following: …"

7. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:

1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant product qualities include attributes such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
2. Evidence that proposed product provides specified warranty.
3. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
4. Samples, if requested.

B. Submittal Requirements: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:

1. Installation of the Work.
2. Cutting and patching.
3. Progress cleaning.
4. Protection of installed construction.

B. Related Requirements:

1. Section 011000 "Summary" for limits on use of Project site.
2. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.

B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

1.4 INFORMATIONAL SUBMITTALS

A. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:

1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
3. Products: List products to be used for patching and firms or entities that will perform patching work.
4. Dates: Indicate when cutting and patching will be performed.

5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.

    a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

B. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept hazardous materials, for hazardous waste disposal.

1.5 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.

1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:

    a. Primary operational systems and equipment.
    b. Fire separation assemblies.
    c. Air or smoke barriers.
    d. Fire-suppression systems.
    e. Plumbing piping systems.
    f. Mechanical systems piping and ducts.
    g. Control systems.
    h. Communication systems.
    i. Fire-detection and -alarm systems.
    j. Conveying systems.
    k. Electrical wiring systems.
    l. Operating systems of special construction.

3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:

    a. Water, moisture, or vapor barriers.
    b. Membranes and flashings.
    c. Exterior curtain-wall construction.
    d. Sprayed fire-resistive material.

e. Equipment supports.
f. Piping, ductwork, vessels, and equipment.
g. Noise- and vibration-control elements and systems.

4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

B. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.

B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.

B. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:

1. Description of the Work.
2. List of detrimental conditions, including substrates.
3. List of unacceptable installation tolerances.
4. Recommended corrections.

C. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect.

3.3 CONSTRUCTION LAYOUT

A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings. If discrepancies are discovered, notify Architect promptly.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

1. Make vertical work plumb and make horizontal work level.
2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

F. Tools and Equipment: Where possible, select tools or equipment that minimize production of excessive noise levels.

G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.

1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
2. Allow for building movement, including thermal expansion and contraction.
3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

J. Repair or remove and replace damaged, defective, or nonconforming Work.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.

C. Temporary Support: Provide temporary support of work to be cut.

D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

E. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching according to requirements in Section 011000 "Summary."

F. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to minimize interruption to occupied areas.

G. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
5. Proceed with patching after construction operations requiring cutting are complete.

H. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.

1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.

    a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    b. Restore damaged pipe covering to its original condition.

3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.

a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.

I. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.

1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

a. Use containers intended for holding waste materials of type to be stored.

4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

1. Remove liquid spills promptly.
2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.7 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.

C. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.

B. Related Requirements:

1. Section 011000 "Summary" for restrictions on use of the premises, Owner-occupancy requirements, and phasing requirements.
2. Section 017300 "Execution" for cutting and patching procedures.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

C. Existing to Remain (ETR): Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.

1. Inspect and discuss condition of construction to be selectively demolished.
2. Review structural load limitations of existing structure.

3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
5. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property, for dust control and, for noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Use of elevator and stairs.
5. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Predemolition Photographs or Video: Show existing conditions of adjoining construction, including finish surfaces, that might be misconstrued as damage caused by demolition operations. Submit before Work begins.

1.7 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is not expected that hazardous materials will be encountered in the Work.

1. Hazardous materials will be removed by Owner before start of the Work.
2. If suspected hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Hazardous materials will be removed by Owner under a separate contract.

E. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Verify that hazardous materials have been remediated before proceeding with building demolition operations.

C. Survey of Existing Conditions: Record existing conditions by use of preconstruction photographs or video.

1. Inventory and record the condition of items to be removed and salvaged. Provide photographs or video of conditions that might be misconstrued as damage caused by salvage operations.
2. Before selective demolition or removal of existing building elements that will be reproduced or duplicated in final Work, make permanent record of measurements, materials, and construction details required to make exact reproduction.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Owner will arrange to shut off indicated services/systems when requested by Contractor.
2. Arrange to shut off utilities with utility companies.
3. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
4. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    f. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
3. Cover and protect furniture, furnishings, and equipment that have not been removed.

B. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least four hours after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
9. Dispose of demolished items and materials promptly.

B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.

3.5 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

3.6 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 061053 - MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Wood blocking.

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal or greater size but less than 5 inches nominal size in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

1.5 INFORMATIONAL SUBMITTALS

A. Evaluation Reports: For the following, from ICC-ES:

1. Fire-retardant-treated wood.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Stack lumber flat with spacers beneath and between each bundle to provide air circulation. Protect lumber from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

A. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, provide lumber that complies with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Provide lumber graded by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. Dress lumber, S4S, unless otherwise indicated.

2.2 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Treatment shall not promote corrosion of metal fasteners.
2. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.

C. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

E. Application: Treat all miscellaneous carpentry unless otherwise indicated.

2.3 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.

B. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

C. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

2.4 FASTENERS

A. General: Provide fasteners of size and type indicated that comply with requirements specified in this article for material and manufacture.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Screws for Fastening to Metal Framing: ASTM C 1002, length as recommended by screw manufacturer for material being fastened.

D. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

E. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC58 or ICC-ES AC308 as appropriate for the substrate.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

B. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

C. Securely attach carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code.
2. ICC-ES evaluation report for fastener.

3.2 WOOD BLOCKING AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

END OF SECTION 061053

SECTION 078413 - PENETRATION FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Penetrations in fire-resistance-rated walls.
2. Penetrations in horizontal assemblies.

B. Related Requirements:

1. Section 078443 "Joint Firestopping" for joints in or between fire-resistance-rated construction, at exterior curtain-wall/floor intersections, and in smoke barriers.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each penetration firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing and inspecting agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing and inspecting agency's illustration for a particular penetration firestopping system, submit illustration, with modifications marked, approved by penetration firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly. Obtain approval of authorities having jurisdiction prior to submittal.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each penetration firestopping system, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that penetration firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with its "Qualified Firestop Contractor Program Requirements."

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install penetration firestopping system when ambient or substrate temperatures are outside limits permitted by penetration firestopping system manufacturers or when substrates are wet because of rain, frost, condensation, or other causes.

B. Install and cure penetration firestopping materials per manufacturer's written instructions using natural means of ventilations or, where this is inadequate, forced-air circulation.

1.9 COORDINATION

A. Coordinate construction of openings and penetrating items to ensure that penetration firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of sleeves, openings, core-drilled holes, or cut openings to accommodate penetration firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. Perform penetration firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
2. Test per testing standards referenced in "Penetration Firestopping Systems" Article. Provide rated systems complying with the following requirements:

a. Penetration firestopping systems shall bear classification marking of a qualified testing agency.

1) UL in its "Fire Resistance Directory."
2) Intertek Group in its "Directory of Listed Building Products."
3) FM Global in its "Building Materials Approval Guide."

2.2 PENETRATION FIRESTOPPING SYSTEMS

A. Penetration Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated. Penetration firestopping systems shall be compatible with one another, with the substrates forming openings, and with penetrating items if any.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. 3M Fire Protection Products.
b. Hilti, Inc.
c. RectorSeal.
d. Specified Technologies, Inc.
e. Tremco, Inc.

B. Penetrations in Fire-Resistance-Rated Walls: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

1. F-Rating: Not less than the fire-resistance rating of constructions penetrated.

C. Penetrations in Horizontal Assemblies: Penetration firestopping systems with ratings determined per ASTM E 814 or UL 1479, based on testing at a positive pressure differential of 0.01-inch wg.

1. F-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated.
2. T-Rating: At least one hour, but not less than the fire-resistance rating of constructions penetrated except for floor penetrations within the cavity of a wall.
3. W-Rating: Provide penetration firestopping systems showing no evidence of water leakage when tested according to UL 1479.

D. Exposed Penetration Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, per ASTM E 84.

E. Accessories: Provide components for each penetration firestopping system that are needed to install fill materials and to maintain ratings required. Use only those components specified by penetration firestopping system manufacturer and approved by qualified testing and inspecting agency for conditions indicated.

1. Permanent forming/damming/backing materials.
2. Substrate primers.
3. Collars.
4. Steel sleeves.

2.3 FILL MATERIALS

A. Cast-in-Place Firestop Devices: Factory-assembled devices for use in cast-in-place concrete floors and consisting of an outer sleeve lined with an intumescent strip, a flange attached to one end of the sleeve for fastening to concrete formwork, and a neoprene gasket.

B. Latex Sealants: Single-component latex formulations that do not re-emulsify after cure during exposure to moisture.

C. Firestop Devices: Factory-assembled collars formed from galvanized steel and lined with intumescent material sized to fit specific diameter of penetrant.

D. Intumescent Composite Sheets: Rigid panels consisting of aluminum-foil-faced intumescent elastomeric sheet bonded to galvanized-steel sheet.

E. Intumescent Putties: Nonhardening, water-resistant, intumescent putties containing no solvents or inorganic fibers.

F. Intumescent Wrap Strips: Single-component intumescent elastomeric sheets with aluminum foil on one side.

G. Mortars: Prepackaged dry mixes consisting of a blend of inorganic binders, hydraulic cement, fillers and lightweight aggregate formulated for mixing with water at Project site to form a nonshrinking, homogeneous mortar.

H. Pillows/Bags: Reusable heat-expanding pillows/bags consisting of glass-fiber cloth cases filled with a combination of mineral-fiber, water-insoluble expansion agents, and fire-retardant additives. Where exposed, cover openings with steel-reinforcing wire mesh to protect pillows/bags from being easily removed.

I. Silicone Foams: Multicomponent, silicone-based liquid elastomers that, when mixed, expand and cure in place to produce a flexible, nonshrinking foam.

J. Silicone Sealants: Single-component, silicone-based, neutral-curing elastomeric sealants.

2.4 MIXING

A. Penetration Firestopping Materials: For those products requiring mixing before application, comply with penetration firestopping system manufacturer's written instructions for accurate proportioning of materials, water (if required), type of mixing equipment, selection of mixer speeds, mixing containers, mixing time, and other items or procedures needed to produce products of uniform quality with optimum performance characteristics for application indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for opening configurations, penetrating items, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Before installing penetration firestopping systems, clean out openings immediately to comply with manufacturer's written instructions and with the following requirements:

1. Remove from surfaces of opening substrates and from penetrating items foreign materials that could interfere with adhesion of penetration firestopping materials.
2. Clean opening substrates and penetrating items to produce clean, sound surfaces capable of developing optimum bond with penetration firestopping materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

A. General: Install penetration firestopping systems to comply with manufacturer's written installation instructions and published drawings for products and applications.

B. Install forming materials and other accessories of types required to support fill materials during their application and in the position needed to produce cross-sectional shapes and depths required to achieve fire ratings.

1. After installing fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not forming permanent components of firestopping.

C. Install fill materials by proven techniques to produce the following results:

1. Fill voids and cavities formed by openings, forming materials, accessories and penetrating items to achieve required fire-resistance ratings.
2. Apply materials so they contact and adhere to substrates formed by openings and penetrating items.

3. For fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Wall Identification: Permanently label walls containing penetration firestopping systems with the words "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," using lettering not less than 3 inches high and with minimum 0.375-inch strokes.

1. Locate in accessible concealed floor, floor-ceiling, or attic space at 15 feet from end of wall and at intervals not exceeding 30 feet.

B. Penetration Identification: Identify each penetration firestopping system with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of penetration firestopping system edge so labels are visible to anyone seeking to remove penetrating items or firestopping systems. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Penetration Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing and inspecting agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2174.

B. Where deficiencies are found or penetration firestopping system is damaged or removed because of testing, repair or replace penetration firestopping system to comply with requirements.

C. Proceed with enclosing penetration firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

A. Clean off excess fill materials adjacent to openings as the Work progresses by methods and with cleaning materials that are approved in writing by penetration firestopping system manufacturers and that do not damage materials in which openings occur.

B. Provide final protection and maintain conditions during and after installation that ensure that penetration firestopping systems are without damage or deterioration at time of Substantial

Completion. If, despite such protection, damage or deterioration occurs, immediately cut out and remove damaged or deteriorated penetration firestopping material and install new materials to produce systems complying with specified requirements.

END OF SECTION 078413

SECTION 078443 - JOINT FIRESTOPPING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Joints in or between fire-resistance-rated constructions.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for penetrations in fire-resistance-rated walls, horizontal assemblies, and smoke barriers and for wall identification.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Product Schedule: For each joint firestopping system. Include location, illustration of firestopping system, and design designation of qualified testing agency.

1. Engineering Judgments: Where Project conditions require modification to a qualified testing agency's illustration for a particular joint firestopping system condition, submit illustration, with modifications marked, approved by joint firestopping system manufacturer's fire-protection engineer as an engineering judgment or equivalent fire-resistance-rated assembly.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Product Test Reports: For each joint firestopping system, for tests performed by a qualified testing agency.

1.6 CLOSEOUT SUBMITTALS

A. Installer Certificates: From Installer indicating that joint firestopping systems have been installed in compliance with requirements and manufacturer's written instructions.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: A firm that has been approved by FM Global according to FM Global 4991, "Approval of Firestop Contractors," or been evaluated by UL and found to comply with UL's "Qualified Firestop Contractor Program Requirements."

1.8 PROJECT CONDITIONS

A. Environmental Limitations: Do not install joint firestopping systems when ambient or substrate temperatures are outside limits permitted by joint firestopping system manufacturers or when substrates are wet due to rain, frost, condensation, or other causes.

B. Install and cure joint firestopping systems per manufacturer's written instructions using natural means of ventilation or, where this is inadequate, forced-air circulation.

1.9 COORDINATION

A. Coordinate construction of joints to ensure that joint firestopping systems can be installed according to specified firestopping system design.

B. Coordinate sizing of joints to accommodate joint firestopping systems.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics:

1. Perform joint firestopping system tests by a qualified testing agency acceptable to authorities having jurisdiction.
2. Test per testing standards referenced in "Joint Firestopping Systems" Article. Provide rated systems complying with the following requirements:

a. Joint firestopping systems shall bear classification marking of a qualified testing agency.

1) UL in its "Fire Resistance Directory."
2) Intertek Group in its "Directory of Listed Building Products."

2.2 JOINT FIRESTOPPING SYSTEMS

A. Joint Firestopping Systems: Systems that resist spread of fire, passage of smoke and other gases, and maintain original fire-resistance rating of assemblies in or between which joint firestopping systems are installed. Joint firestopping systems shall accommodate building movements without impairing their ability to resist the passage of fire and hot gases.

B. Joints in or between Fire-Resistance-Rated Construction: Provide joint firestopping systems with ratings determined per ASTM E 1966 or UL 2079.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. 3M Fire Protection Products.
   b. Hilti, Inc.
   c. Roxul Inc.
   d. Specified Technologies, Inc.
   e. Thermafiber, Inc.; an Owens Corning company.
   f. Tremco, Inc.

2. Fire-Resistance Rating: Equal to or exceeding the fire-resistance rating of the wall, floor, or roof in or between which it is installed.

C. Exposed Joint Firestopping Systems: Flame-spread and smoke-developed indexes of less than 25 and 450, respectively, as determined per ASTM E 84.

D. Accessories: Provide components of fire-resistive joint systems, including primers and forming materials, that are needed to install elastomeric fill materials and to maintain ratings required. Use only components specified by joint firestopping system manufacturer and approved by the qualified testing agency for conditions indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for joint configurations, substrates, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning: Before installing fire-resistive joint systems, clean joints immediately to comply with fire-resistive joint system manufacturer's written instructions and the following requirements:

1. Remove from surfaces of joint substrates foreign materials that could interfere with adhesion of elastomeric fill materials or compromise fire-resistive rating.
2. Clean joint substrates to produce clean, sound surfaces capable of developing optimum bond with elastomeric fill materials. Remove loose particles remaining from cleaning operation.
3. Remove laitance and form-release agents from concrete.

B. Prime substrates where recommended in writing by joint firestopping system manufacturer using that manufacturer's recommended products and methods. Confine primers to areas of bond; do not allow spillage and migration onto exposed surfaces.

3.3 INSTALLATION

A. General: Install fire-resistive joint systems to comply with manufacturer's written installation instructions and published drawings for products and applications indicated.

B. Install forming materials and other accessories of types required to support elastomeric fill materials during their application and in position needed to produce cross-sectional shapes and depths required to achieve fire ratings indicated.

1. After installing elastomeric fill materials and allowing them to fully cure, remove combustible forming materials and other accessories not indicated as permanent components of fire-resistive joint system.

C. Install elastomeric fill materials for fire-resistive joint systems by proven techniques to produce the following results:

1. Elastomeric fill voids and cavities formed by joints and forming materials as required to achieve fire-resistance ratings indicated.
2. Apply elastomeric fill materials so they contact and adhere to substrates formed by joints.
3. For elastomeric fill materials that will remain exposed after completing the Work, finish to produce smooth, uniform surfaces that are flush with adjoining finishes.

3.4 IDENTIFICATION

A. Joint Identification: Identify joint firestopping systems with legible metal or plastic labels. Attach labels permanently to surfaces adjacent to and within 6 inches of joint edge so labels are visible to anyone seeking to remove or joint firestopping system. Use mechanical fasteners or self-adhering-type labels with adhesives capable of permanently bonding labels to surfaces on which labels are placed. Include the following information on labels:

1. The words "Warning - Joint Firestopping - Do Not Disturb. Notify Building Management of Any Damage."
2. Contractor's name, address, and phone number.
3. Designation of applicable testing agency.
4. Date of installation.
5. Manufacturer's name.
6. Installer's name.

3.5 FIELD QUALITY CONTROL

A. Inspecting Agency: Owner will engage a qualified testing agency to perform tests and inspections according to ASTM E 2393.

B. Where deficiencies are found or joint firestopping systems are damaged or removed due to testing, repair or replace joint firestopping systems so they comply with requirements.

C. Proceed with enclosing joint firestopping systems with other construction only after inspection reports are issued and installations comply with requirements.

3.6 CLEANING AND PROTECTION

A. Clean off excess elastomeric fill materials adjacent to joints as the Work progresses by methods and with cleaning materials that are approved in writing by joint firestopping system manufacturers and that do not damage materials in which joints occur.

B. Provide final protection and maintain conditions during and after installation that ensure joint firestopping systems are without damage or deterioration at time of Substantial Completion. If damage or deterioration occurs despite such protection, cut out and remove damaged or deteriorated fire-resistive joint systems immediately and install new materials to produce fire-resistive joint systems complying with specified requirements.

END OF SECTION 078443

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Latex joint sealants.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

C. Joint-Sealant Schedule: Include the following information:

1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified testing agency.

B. Preconstruction Laboratory Test Reports: From sealant manufacturer, indicating the following:

1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
2. Interpretation of test results and written recommendations for primers and substrate preparation are needed for adhesion.

C. Sample Warranties: For special warranties.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: An authorized representative who is trained and approved by manufacturer.

B. Product Testing: Test joint sealants using a qualified testing agency.

1. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

C. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.6 PRECONSTRUCTION TESTING

A. Preconstruction Laboratory Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.

1. Adhesion Testing: Use ASTM C 794 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
2. Compatibility Testing: Use ASTM C 1087 to determine sealant compatibility when in contact with glazing and gasket materials.
3. Submit manufacturer's recommended number of pieces of each type of material, including joint substrates, joint-sealant backings, and miscellaneous materials.
4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.
5. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures, including use of specially formulated primers.
6. Testing will not be required if joint-sealant manufacturers submit data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, staining of, and compatibility with joint substrates and other materials matching those submitted.

1.7 FIELD CONDITIONS

A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.8 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

C. Special warranties specified in this article exclude deterioration or failure of joint sealants from the following:

1. Movement of the structure caused by stresses on the sealant exceeding sealant manufacturer's written specifications for sealant elongation and compression.
2. Disintegration of joint substrates from causes exceeding design specifications.
3. Mechanical damage caused by individuals, tools, or other outside agents.
4. Changes in sealant appearance caused by accumulation of dirt or other atmospheric contaminants.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

B. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 LATEX JOINT SEALANTS

A. Acrylic Latex: Acrylic latex or siliconized acrylic latex, ASTM C 834, Type OP, Grade NF.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following, or approved equal:

a. Pecora Corporation.
b. Sherwin-Williams Company (The).
c. Tremco Incorporated.

2.3 JOINT-SEALANT BACKING

A. Sealant Backing Material, General: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.4 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and

approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends of sealant backings.
2. Do not stretch, twist, puncture, or tear sealant backings.
3. Remove absorbent sealant backings that have become wet before sealant application, and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

3. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.4 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.5 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out, remove, and repair damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

3.6 JOINT-SEALANT SCHEDULE

A. Joint-Sealant Application: Interior joints in vertical surfaces and horizontal nontraffic surfaces not subject to significant movement.

1. Joint Sealant: Acrylic latex.
2. Joint-Sealant Color: As selected by Architect from manufacturer's full range of colors.

END OF SECTION 079200

SECTION 083113 - ACCESS DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes access doors and frames for ceilings.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details material descriptions, dimensions of individual components and profiles, and finishes.

B. Product Schedule: For access doors and frames.

PART 2 - PRODUCTS

2.1 ACCESS DOORS AND FRAMES

A. Recessed Access Doors with Concealed Flanges:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Karp Associates, Inc; RDW or comparable product by one of the following:

    a. ACUDOR Products, Inc.
    b. Babcock-Davis.
    c. Milcor by Duravent; Duravent Group.
    d. Nystrom, Inc.

2. Description: Door face recessed 5/8 inch for gypsum board infill; with concealed flange for gypsum board installation and concealed hinge.
3. Locations: Ceiling.
4. Door Size: As indicated on drawings.
5. Uncoated Steel Sheet for Door: Nominal 0.060 inch, 16 gage, factory primed.
6. Latch and Lock: Cam latch, screwdriver operated.

2.2 MATERIALS

A. Steel Sheet: Uncoated or electrolytic zinc coated, ASTM A 879/A 879M, with cold-rolled steel sheet substrate complying with ASTM A 1008/A 1008M, Commercial Steel (CS), exposed.

B. Frame Anchors: Same material as door face.

2.3 FABRICATION

A. General: Provide access door and frame assemblies manufactured as integral units ready for installation.

B. Recessed Access Doors: Form face of panel to provide recess for application of applied finish. Reinforce panel as required to prevent buckling. Provide access sleeves for each latch operator and install in holes cut through finish.

C. Latch and Lock Hardware:

1. Quantity: Furnish number of latches required to hold doors tightly closed.

2.4 FINISHES

A. Appearance of Finished Work: Noticeable variations in same piece are not acceptable.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with manufacturer's written instructions for installing access doors and frames.

3.3 ADJUSTING

A. Adjust doors and hardware, after installation, for proper operation.

END OF SECTION 083113

SECTION 092216 - NON-STRUCTURAL METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Non-load-bearing steel framing systems for interior partitions.
2. Suspension systems for interior ceilings and soffits.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.4 INFORMATIONAL SUBMITTALS

A. Product Certificates: For each type of code-compliance certification for studs and tracks.

B. Evaluation Reports: For embossed steel studs and tracks, from ICC-ES or other qualified testing agency acceptable to authorities having jurisdiction.

1.5 QUALITY ASSURANCE

A. Code-Compliance Certification of Studs and Tracks: Provide documentation that framing members are certified according to the product-certification program of the Certified Steel Stud Association, the Steel Framing Industry Association, or the Steel Stud Manufacturers Association.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated on Drawings, according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

B. Horizontal Deflection: For wall assemblies, limited to 1/240 of the wall height based on horizontal loading of 5 lbf/sq. ft..

2.2 FRAMING SYSTEMS

A. Framing Members, General: Comply with ASTM C 754 for conditions indicated.

1. Steel Sheet Components: Comply with ASTM C 645 requirements for metal unless otherwise indicated.
2. Protective Coating: ASTM A 653/A 653M, G40, hot-dip galvanized unless otherwise indicated.

B. Studs and Tracks: ASTM C 645.

1. Steel Studs and Tracks:

a. Minimum Base-Metal Thickness: As required by performance requirements for horizontal deflection.
b. Depth: As indicated on Drawings.

2.3 SUSPENSION SYSTEMS

A. Tie Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.

B. Wire Hangers: ASTM A 641/A 641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.

C. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-metal thickness of 0.0538 inch and minimum 1/2-inch- wide flanges.

1. Depth: 1-1/2 inches unless otherwise indicated on drawings.

D. Furring Channels (Furring Members):

1. Cold-Rolled Channels: 0.0538-inch uncoated-steel thickness, with minimum 1/2-inch-wide flanges, 3/4 inch deep.
2. Steel Studs and Tracks: ASTM C 645.

a. Minimum Base-Metal Thickness: 0.0329 inch.
b. Depth: As indicated on Drawings.

3. Hat-Shaped, Rigid Furring Channels: ASTM C 645, 7/8 inch deep.

a. Minimum Base-Metal Thickness: 0.0329 inch.

2.4 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards.

1. Fasteners for Steel Framing: Of type, material, size, corrosion resistance, holding power, and other properties required to fasten steel members to substrates.

B. Isolation Strip at Exterior Walls: Provide one of the following:

1. Asphalt-Saturated Organic Felt: ASTM D 226/D 226M, Type I (No. 15 asphalt felt), nonperforated.
2. Foam Gasket: Adhesive-backed, closed-cell vinyl foam strips that allow fastener penetration without foam displacement, 1/8 inch thick, in width to suit steel stud size.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates, with Installer present, and including welded hollow-metal frames, cast-in anchors, and structural framing, for compliance with requirements and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Suspended Assemblies: Coordinate installation of suspension systems with installation of overhead structure to ensure that inserts and other provisions for anchorages to building structure have been installed to receive hangers at spacing required to support the Work and that hangers will develop their full strength.

3.3 INSTALLATION, GENERAL

A. Installation Standard: ASTM C 754.

1. Gypsum Board Assemblies: Also comply with requirements in ASTM C 840 that apply to framing installation.

B. Install framing and accessories plumb, square, and true to line, with connections securely fastened.

C. Install supplementary framing, and blocking to support fixtures, equipment services, heavy trim, grab bars, toilet accessories, furnishings, or similar construction.

D. Install bracing at terminations in assemblies.

E. Do not bridge building control and expansion joints with non-load-bearing steel framing members. Frame both sides of joints independently.

3.4 INSTALLING FRAMED ASSEMBLIES

A. Install framing system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Single-Layer Application: 16 inches o.c. unless otherwise indicated.

B. Where studs are installed directly against exterior masonry walls or dissimilar metals at exterior walls, install isolation strip between studs and exterior wall.

C. Install studs so flanges within framing system point in same direction.

D. Install tracks at floors and overhead supports. Extend framing full height to structural supports or substrates above suspended ceilings except where partitions are indicated to terminate at suspended ceilings. Continue framing around ducts that penetrate partitions above ceiling.

1. Slip-Type Head Joints: Where framing extends to overhead structural supports, install to produce joints at tops of framing systems that prevent axial loading of finished assemblies.
2. Door Openings: Screw vertical studs at jambs to jamb anchor clips on door frames; install track section (for cripple studs) at head and secure to jamb studs.

    a. Install two studs at each jamb unless otherwise indicated.
    b. Install cripple studs at head adjacent to each jamb stud, with a minimum 1/2-inch clearance from jamb stud to allow for installation of control joint in finished assembly.
    c. Extend jamb studs through suspended ceilings and attach to underside of overhead structure.

3. Other Framed Openings: Frame openings other than door openings the same as required for door openings unless otherwise indicated. Install framing below sills of openings to match framing required above door heads.
4. Sound-Rated Partitions: Install framing to comply with sound-rated assembly indicated.

E. Installation Tolerance: Install each framing member so fastening surfaces vary not more than 1/8 inch from the plane formed by faces of adjacent framing.

3.5 INSTALLING CEILING SUSPENSION SYSTEMS

A. Install suspension system components according to spacings indicated, but not greater than spacings required by referenced installation standards for assembly types.

1. Hangers: 48 inches o.c.
2. Carrying Channels (Main Runners): 48 inches o.c.
3. Furring Channels (Furring Members): 16 inches o.c.

B. Isolate suspension systems from building structure where they abut or are penetrated by building structure to prevent transfer of loading imposed by structural movement.

C. Suspend hangers from building structure as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structural or suspension system.

    a. Splay hangers only where required to miss obstructions and offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.

2. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with locations of hangers required to support standard suspension system members, install supplemental suspension members and hangers in the form of trapezes or equivalent devices.
3. Wire Hangers: Secure by looping and wire tying, either directly to structures or to inserts, eye screws, or other devices and fasteners that are secure and appropriate for substrate, and in a manner that will not cause hangers to deteriorate or otherwise fail.
4. Do not attach hangers to permanent metal forms. Furnish cast-in-place hanger inserts that extend through forms.
5. Do not attach hangers to rolled-in hanger tabs of composite steel floor deck.
6. Do not connect or suspend steel framing from ducts, pipes, or conduit.

D. Installation Tolerances: Install suspension systems that are level to within 1/8 inch in 12 feet measured lengthwise on each member that will receive finishes and transversely between parallel members that will receive finishes.

END OF SECTION 092216

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Interior gypsum board.

B. Related Requirements:

1. Section 092216 "Non-Structural Metal Framing" for non-structural steel framing and suspension systems that support gypsum board panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For the following products:

1. Trim Accessories: Full-size Sample in 12-inch- long length for each trim accessory indicated.

1.4 DELIVERY, STORAGE AND HANDLING

A. Store materials inside under cover and keep them dry and protected against weather, condensation, direct sunlight, construction traffic, and other potential causes of damage. Stack panels flat and supported on risers on a flat platform to prevent sagging.

1.5 FIELD CONDITIONS

A. Environmental Limitations: Comply with ASTM C 840 requirements or gypsum board manufacturer's written instructions, whichever are more stringent.

B. Do not install paper-faced gypsum panels until installation areas are enclosed and conditioned.

C. Do not install panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. STC-Rated Assemblies: For STC-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 90 and classified according to ASTM E 413 by an independent testing agency.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Wallboard: ASTM C 1396/C 1396M.

1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

B. Gypsum Ceiling Board: ASTM C 1396/C 1396M.

1. Thickness: 1/2 inch.
2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.

B. Aluminum Trim: Extruded accessories of profiles and dimensions indicated.

1. Basis-of-Design: Subject to compliance with requirements, provide Fry Reglet Trim, or approved equal.
2. Shapes: As indicated on drawings.

3. Aluminum: Alloy and temper with not less than the strength and durability properties of ASTM B 221, Alloy 6063-T5.
4. Finish: Corrosion-resistant primer compatible with joint compound and finish materials specified.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use drying-type, all-purpose compound.
5. Skim Coat: For final coat of Level 5 finish, use drying-type, all-purpose compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Laminating Adhesive: Adhesive or joint compound recommended for directly adhering gypsum panels to continuous substrate.

C. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

1. Use screws complying with ASTM C 954 for fastening panels to steel members from 0.033 to 0.112 inch thick.
2. For fastening cementitious backer units, use screws of type and size recommended by panel manufacturer.

D. Sound-Attenuation Blankets: ASTM C 665, Type I (blankets without membrane facing) produced by combining thermosetting resins with mineral fibers manufactured from glass, slag wool, or rock wool.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas and substrates including welded hollow-metal frames and support framing, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

B. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 APPLYING AND FINISHING PANELS, GENERAL

A. Comply with ASTM C 840.

B. Install ceiling panels across framing to minimize the number of abutting end joints and to avoid abutting end joints in central area of each ceiling. Stagger abutting end joints of adjacent panels not less than one framing member.

C. Install panels with face side out. Butt panels together for a light contact at edges and ends with not more than 1/16 inch of open space between panels. Do not force into place.

D. Locate edge and end joints over supports, except in ceiling applications where intermediate supports or gypsum board back-blocking is provided behind end joints. Do not place tapered edges against cut edges or ends. Stagger vertical joints on opposite sides of partitions. Do not make joints other than control joints at corners of framed openings.

E. Form control and expansion joints with space between edges of adjoining gypsum panels.

F. Cover both faces of support framing with gypsum panels in concealed spaces (above ceilings, etc.), except in chases braced internally.

1. Unless concealed application is indicated or required for sound, fire, air, or smoke ratings, coverage may be accomplished with scraps of not less than 8 sq. ft. in area.
2. Fit gypsum panels around ducts, pipes, and conduits.
3. Where partitions intersect structural members projecting below underside of floor/roof slabs and decks, cut gypsum panels to fit profile formed by structural members; allow 1/4- to 3/8-inch- wide joints to install sealant.

G. Attachment to Steel Framing: Attach panels so leading edge or end of each panel is attached to open (unsupported) edges of stud flanges first.

H. STC-Rated Assemblies: Seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written instructions for locating edge trim and closing off sound-flanking paths around or through assemblies, including sealing partitions above acoustical ceilings.

I. Install sound attenuation blankets before installing gypsum panels unless blankets are readily installed after panels have been installed on one side.

3.3 APPLYING INTERIOR GYPSUM BOARD

A. Single-Layer Application:

1. On ceilings, apply gypsum panels before wall/partition board application to greatest extent possible and at right angles to framing unless otherwise indicated.
2. On partitions/walls, apply gypsum panels vertically (parallel to framing) unless otherwise indicated, and minimize end joints.

    a. Stagger abutting end joints not less than one framing member in alternate courses of panels.

3. Fastening Methods: Apply gypsum panels to supports with steel drill screws.

B. Laminating to Substrate: Where gypsum panels are indicated as directly adhered to a substrate (other than studs, joists, furring members, or base layer of gypsum board), comply with gypsum board manufacturer's written instructions and temporarily brace or fasten gypsum panels until fastening adhesive has set.

3.4 INSTALLING TRIM ACCESSORIES

A. General: For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

B. Control Joints: Install control joints according to ASTM C 840 and in specific locations approved by Architect for visual effect.

C. Aluminum Trim: Install in locations indicated on Drawings.

3.5 FINISHING GYPSUM BOARD

A. General: Treat gypsum board joints, interior angles, edge trim, control joints, penetrations, fastener heads, surface defects, and elsewhere as required to prepare gypsum board surfaces for decoration. Promptly remove residual joint compound from adjacent surfaces.

B. Prefill open joints and damaged surface areas.

C. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

D. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Where indicated on Drawings.
3. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.
4. Level 5: Where indicated on drawings.

3.6 PROTECTION

A. Protect adjacent surfaces from drywall compound and promptly remove from floors and other non-drywall surfaces. Repair surfaces stained, marred, or otherwise damaged during drywall application.

B. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

C. Remove and replace panels that are wet, moisture damaged, and mold damaged.

1. Indications that panels are wet or moisture damaged include, but are not limited to, discoloration, sagging, or irregular shape.
2. Indications that panels are mold damaged include, but are not limited to, fuzzy or splotchy surface contamination and discoloration.

END OF SECTION 092900

SECTION 098316 – ACOUSTICAL FINISH SYSTEM

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Acoustical finish system.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Show locations and installation of control and expansion joints, including plans, elevations, sections, details of components, and attachments to other work.

C. Samples: For each acoustical finish system required and for each color and texture specified, 6 inches square in size, applied to a rigid backing by Installer for this Project.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Items penetrating finished ceiling and ceiling-mounted items including the following:

a. Lighting fixtures.
b. Diffusers.
c. Grilles.
d. Speakers.
e. Sprinklers.
f. Access panels.

2. Minimum Drawing Scale: 1/4 inch = 1 foot

1.5 QUALITY ASSURANCE

A. Mockups: Build mockups to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Build mockups for each substrate, color and finish texture indicated for acoustical finish system, including accessories.

a. Size: 100 sq. ft. in surface area.

2. Simulate finished lighting conditions for review of mockups.
3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

B. Certified Installers: Contractor shall be certified by manufacturer to install acoustical finish system.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials inside under cover, and keep them dry and protected against damage from weather, moisture, direct sunlight, contamination, corrosion, construction traffic, and other causes.

1.7 FIELD CONDITIONS

A. Comply with acoustical finish system manufacturer's written recommendations.

B. Room Temperatures: Maintain temperatures at not less than 55 deg F or greater than 80 deg F for at least seven days before application of acoustical finish system, continuously during application, and for seven days after plaster has set or until plaster has dried.

C. Avoid conditions that result in acoustical finish drying out too quickly.

1. Distribute heat evenly; prevent concentrated or uneven heat on plaster.
2. Maintain relative humidity levels for prevailing ambient temperature that produce normal drying conditions.
3. Ventilate building spaces in a manner that prevents drafts of air from contacting surfaces during plaster application and until plaster is dry.

1.8 WARRANTY

A. Special Manufacturer's Warranty: Manufacturer agrees to repair or replace areas of acoustical finish system that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Acoustical Performance:

1. Sound Absorption (ASTM C423-84): NRC 0.80.
2. Sound Transmission Class (ASTM E90): STC 30.

B. Fire Performance (ASTM E84): Class A.

1. Flame Spread: 15.
2. Smoke Development: 15.

C. Compressive Strength (ASTM E761): Minimum 200 psi

2.2 ACOUSTICAL FINISH SYSTEM

A. Acoustical Plaster System: Consisting of a sound-absorbing board made from recycled glass, attached to suspended metal framing system, and finished with a base coat and lightly textured finish coat of acoustical plaster.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Pyrok; StarSilent Panel System, or approved equal.

B. Components:

1. Sound Board: Manufactured from post-consumer recycled glass.

a. Thickness: 25 mm.

2. Base Plaster Coat: Manufacturer’s standard acoustically transparent plaster.
3. Finish Plaster Coat: Manufacturer’s standard acoustically transparent plaster.

a. Basis-of-Design Product: Subject to compliance with requirements, provide Pyrok; Superfine Finish System, or approved equal
b. Application: Spray-applied.

4. Adhesive: Manufacturer’s standard adhesive for joining sound boards and covering screw heads.
5. Screws: Zinc coated drywall screws.
6. Foam Tape: Manufacturer’s standard foam tape for ceiling-wall joint treatment.

C. Finish:

1. Lightly textured, spray-applied plaster finish as approved by Architect.
2. Color: Custom to match Benjamin Moore 2132-10, unless otherwise directed by Architect.

2.3 SUSPENSION SYSTEM

A. Tie Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.062-inch- diameter wire, or double strand of 0.048-inch- diameter wire.

B. Wire Hangers: ASTM A641/A641M, Class 1 zinc coating, soft temper, 0.16 inch in diameter.

C. Carrying Channels (Main Runners): Cold-rolled, commercial-steel sheet with a base-steel thickness of 0.0538 inch and minimum 1/2-inch- wide flanges.

1. Depth: 1-1/2 inch.
2. Spacing: 48 inches on center.

D. Furring Channels (Furring Members):

1. Hat-Shaped, Rigid Furring Channels: ASTM C645, 7/8 inch deep.

a. Minimum Base-Steel Thickness: 20 gauge.

2. Spacing: As recommended by manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Protect adjacent work from soiling, spattering, moisture deterioration, and other harmful effects caused by plastering.

3.3 INSTALLATION

A. Install acoustical finish system in accordance with manufacturer’s written instructions and standard details.

B. During installation, provide lighting which replicates actual finished lighting.

3.4 CLEANING AND PROTECTION

A. Remove temporary protection and enclosure of other work after plastering is complete. Promptly remove plaster from door frames, windows, and other surfaces not indicated to be plastered. Repair floors, walls, and other surfaces stained, marred, or otherwise damaged during plastering.

END OF SECTION 098316

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes surface preparation and the application of paint systems on interior substrates.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product. Include preparation requirements and application instructions.

1. Include Printout of current "MPI Approved Products List" for each product category specified, with the proposed product highlighted.
2. Indicate VOC content.

B. Samples for Initial Selection: For each type of topcoat product.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat.

1. Submit Samples on rigid backing, 8 inches (200 mm) square.
2. Apply coats on Samples in steps to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules. Include color designations.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. (3.8 L) of each material and color applied.

1.5 QUALITY ASSURANCE

A. Mockups: Apply mockups of each paint system indicated and each color and finish selected to verify preliminary selections made under Sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Architect will select one surface to represent surfaces and conditions for application of each paint system.

    a. Vertical and Horizontal Surfaces: Provide samples of at least 100 sq. ft. (9 sq. m).
    b. Other Items: Architect will designate items or areas required.

2. Final approval of color selections will be based on mockups.

    a. If preliminary color selections are not approved, apply additional mockups of additional colors selected by Architect at no added cost to Owner.

3. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
4. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F (7 deg C).

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F (10 and 35 deg C).

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F (3 deg C) above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to products listed in the Interior Painting Schedule for the paint category indicated.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Materials for use within each paint system shall be compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, products shall be recommended in writing by topcoat manufacturers for use in paint system and on substrate indicated.

2.3 SOURCE QUALITY CONTROL

A. Testing of Paint Materials: Owner reserves the right to invoke the following procedure:

1. Owner will engage the services of a qualified testing agency to sample paint materials. Contractor will be notified in advance and may be present when samples are taken. If paint materials have already been delivered to Project site, samples may be taken at Project site. Samples will be identified, sealed, and certified by testing agency.
2. Testing agency will perform tests for compliance with product requirements.
3. Owner may direct Contractor to stop applying paints if test results show materials being used do not comply with product requirements. Contractor shall remove noncomplying paint materials from Project site, pay for testing, and repaint surfaces painted with rejected materials. Contractor will be required to remove rejected materials from previously painted surfaces if, on repainting with complying materials, the two paints are incompatible.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Gypsum Board: 12 percent.

C. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

D. Verify suitability of substrates, including surface conditions and compatibility, with existing finishes and primers.

E. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates and paint systems indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dust, dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers or apply tie coat as required to produce paint systems indicated.

D. Previously Painted Surfaces: Clean surface of all foreign material. Abrade existing painted surfaces. Apply test area, allowing paint to dry one week before testing adhesion. If adhesion is poor, provide additional abrasion or remove previous coating down to substrate. Retest surface for adhesion, and perform additional surface preparation until adhesion testing is successful.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions and to recommendations in "MPI Manual."

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in occupied spaces:

a. Equipment, including panelboards.
b. Uninsulated metal piping.
c. Uninsulated plastic piping.
d. Pipe hangers and supports.
e. Metal conduit.
f. Plastic conduit.
g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
h. Other items as directed by Architect.

2. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Gypsum Board Ceiling – Latex Flat Finish

1. Primer: 1 coat SW ProMar 200 Zero VOC Interior Latex Primer
2. Finish: 2 coats SW ProMar 200 Zero VOC Interior Latex Flat

B. Gypsum Board Walls – Latex Finish

1. Primer: 1 coat SW ProMar 200 Zero VOC Interior Latex Primer
2. Finish: 2 coats SW ProMar 200 Zero VOC Interior Latex

    a. Sheen as directed by Architect in field.

END OF SECTION 099123

SECTION 211313

WET-PIPE FIRE SPRINKLER SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Wet-pipe sprinkler systems for buildings and structures.

1. Work includes designing and **modifying an existing** wet-pipe automatic sprinkler system to afford automatic fire suppression throughout project area as provided on Drawings, complete and fully operational.

B. Section also includes the following system components:

1. Pipes, fittings, and specialties.
2. Specialty valves.
3. Sprinklers.
4. Pressure gages.

C. Related Requirements:

1. Section 078413 "Penetration Firestopping" for systems installed in fire-resistance-rated walls, horizontal assemblies, and smoke barriers.

1.2 DEFINITIONS

A. ABET: Accreditation Board for Engineering and Technology.

B. AHJ: Authority Having Jurisdiction. Typically, this is the Fire Protection Engineering Branch/Environmental Safety Division.

C. ASME: American Society of Mechanical Engineers.

D. ASTM: American Society for Testing and Materials.

E. AWS: American Welding Society.

F. COTR: Contracting Officer’s Technical Representative.

G. FPE: Fire Protection Engineer.

H. NFPA: National Fire Protection Association.

I. NICET: National Institute for Certification in Engineering Technologies.

J. UL: Underwriter's Laboratories.

1.3 SYSTEM PERFORMANCE REQUIREMENTS

A. Provide design, equipment, materials, and workmanship in accordance with required and advisory provisions of NFPA 13, except as specifically modified herein. Appendix Sections A and B and advisory provisions of NFPA 13 are considered mandatory with the word "shall" substituted for the word "should" wherever it appears.

B. System Design: Provide system as indicated on the Drawings except where modified herein.

1. Light Hazard Areas:

a. Sprinkler Spacing:

1) Maximum spacing of 225 square feet (20.9 square meters) per sprinkler.
2) Maximum distance from sprinkler to any wall shall not exceed 7 feet-6 inches (2.3 meters).

b. Design Area: Operating area used in hydraulic calculations shall be hydraulically most remote 1,500 square feet (139 square meters).
c. Discharge Density: Water application to protection area per sprinkler shall be minimum of 0.10 GPM/SF (4.1 liters per minute/square meters).

2. Ordinary Hazard Group 1 Areas:

a. Sprinkler Spacing:

1) Maximum spacing of 130 square feet per sprinkler (12.1 square meters). Exception: Individual office, computer processing, or computer equipment type rooms 225 square feet (20.9 square meters) floor area or less may be protected by single sprinkler.
2) The maximum distance from sprinkler to any wall shall not exceed 7 feet-6 inches (2.3 meters).

b. Design Area: Operating area used in hydraulic calculations shall be hydraulically most remote 3,000 square feet (279 square meters).
c. Discharge Density: Water application to protection area per sprinkler shall be minimum of 0.15 GPM/SF (6.1 liters per minute/square meter).

3. Ordinary Hazard Group II Areas:

a. Sprinkler Spacing:

1) Maximum spacing of 130 square feet (12.1 square meters) per sprinkler.

b. Design Area: Operating area used in hydraulic calculations shall be hydraulically most remote 3,000 square feet (279 square meters).
c. Discharge Density: Water application to protection area per sprinkler shall be minimum of 0.20 GPM/SF (8.1 liters per minute/square meter).

C. Calculations: In accordance with NFPA 13 Area/Density Hydraulic Calculation Method unless noted otherwise and include the following:

1. Hose Stream Allowance: Provide 250 GPM (945 lpm) hose stream allowance, taken off at point of connection to stairwell riser.
2. Calculate all sprinklers in the design area according to their maximum allowed spacing.
3. Base calculations on water supply information provided on drawings.
4. Provide hydraulic calculations back to known source of water. Contractor responsible for survey.
5. Minimum sprinkler operating pressure per NFPA 13 requirements and UL Listing or FM Approval.
6. Calculate all sprinklers within remote design area to include sprinklers located within soffits, restrooms, closets, etc.
7. Velocity pressures may be neglected.
8. Velocities in piping: Not exceed 20 feet (6.1 meters) per second.
9. Perform hydraulic calculations on computer-based program.
10. Determine sprinkler operating area by the "S" and "L" method per NFPA 13. Operating area shall not be calculated by the area of the room divided by the number of sprinklers in the room.

D. Pipe Schedule: Where specifically indicated on Drawings provide design of sprinkler work using pipe schedule method per NFPA 13 requirements.

E. Components and Installation: Capable of producing piping systems with following minimum working pressure ratings except where indicated otherwise.

1. Sprinkler Systems: 175 PSIG (1200 kPa).

F. System Drainage: Design entire sprinkler system to drain to point of connection to existing as indicated on Drawings. Where not possible due to unavoidable interferences or conflicts with existing building elements or new coordinated construction, auxiliary drains shall be installed to provide complete system drainage and shall:

1. Be requested for on shop drawings and specifically approved by the Government Fire Protection Engineer, and
2. Drain direct to a closed drain system or to a janitorial sink. Where neither is reasonably present in the project area, the auxiliary drain shall terminate in an accessible location

approved by the Government Fire Protection Engineer and shall be provided with a male threaded garden hose connection with cap.

1.4 SUBMITTALS

A. Pre-construction submittals: Submit five copies unless otherwise specified of the following in accordance with Section 017300. Submit all items required by this article at one time as a complete package. Partial submittals will not be accepted and will be returned without review.

1. Product Data: Manufacturers descriptive literature and product specifications for each product to be used, including but not limited to the following:

a. Pipe, fittings, and mechanical couplings.
b. Alarm and check valves.
c. Control valves including gate and butterfly.
d. Test and drain valves.
e. Pressure, waterflow, and tamper switches.
f. Sprinklers and escutcheons.
g. Pipe hangers, ATR, and supports.
h. Pressure gauges.
i. Valve identification signs.
j. Other associated equipment.

2. Product Samples: Complete, finished, and ready to use samples of the following:

a. Section reserved.

3. Shop Drawings: Detailed shop drawings of sprinkler system drawn at a minimum 1/8 inch = 1 foot (1:100 scale) on uniform size sheets no smaller than 24 inches by 36 inches (610 mm by 910 mm). Drawings shall be in accordance with NFPA 13 “Working Drawings” and shall fully indicate the intended installation. System design by the field installation crew is not permitted. Information shall include but not be limited to:

a. Plan view, sections, and details of system piping. Indicate locations of sprinkler piping in relation to reflected ceilings, showing pipe lengths and diameters. Show elevations of ceiling, piping, and structural deck above.
b. Boundaries of design area clearly defined, hydraulic nodes, and names of main data file used for calculations.
c. The signature and seal as applicable of the designer in responsible charge as qualified under the quality assurance article.
d. Water flow test information and location.

4. Hydraulic calculations:

a. Paper printouts of the Hydraulic Summary Data, Pipe Output Data, Node Output Data, and Supply/Demand Graph as generated by the hydraulic program, verifying each system designed, signed and dated by the system designer.
b. Electronic copy (one copy only) of the hydraulic program Main Data file on flash drive. Flash drive shall be new without previous usage and shall not contain other files.

5. Certifications: Submit documentation to establish qualifications required by Quality Assurance Article.

a. Designer qualifications: Photocopy of current NICET certification, FPE diploma, or PE registration with listing of required experience respectively.
b. Installer Qualification - Corporate: Listing of required corporate experience in similar projects with certification of satisfactory performance for a period of not less than 18 months.
c. Installer Qualifications - Installation Crew: Listing of required experience of lead installer or on-site supervisor in similar projects, with certification of satisfactory performance for a period of not less than 18 months.
d. Welder Qualifications: Photocopy of current welder's certification from an independent training or testing organization.

B. Close-Out Submittals: Submit three copies unless otherwise specified of the following items in accordance with Section 017300. Submit all items required by this article at one time as a complete package within 14 calendar days of successful hydrostatic test of system. Partial submittals will not be accepted and will be returned without review.

1. Record Drawings: Detailed drawings showing the final system layout. Drawings shall be similar to the shop drawings submitted under "Pre-construction" article with the following modifications:

a. Information such as pipe cut lengths, fabrication data, and relocation's or removal of existing piping, sprinklers, or equipment shall not appear.
b. Field modifications shall be incorporated to reflect recorded conditions.
c. Drawings shall be prominently marked in the lower right hand corner with the words "RECORD DOCUMENT" in nominal one inch high red letters, signed and dated by the lead installer or on-site supervisor.

2. Signed NFPA 13 Contractor's Material and Test Certificate for Aboveground Piping.

1.5 QUALITY ASSURANCE

A. Listing and Labeling: Materials, equipment specialties, and accessories shall be listed as required by NFPA 13 for their intended use and service by Underwriters Laboratories, Inc.

B. Comply with requirements of Authority Having Jurisdiction for submittals, approvals, materials, hose threads, installation, inspections, and testing.

C. Designer Qualifications: Design shall be produced by person(s):

1. Currently certified NICET Level III or Level IV in Fire Protection Engineering Technology, technical sub-field of Automatic Sprinkler System Layout, or
2. Engineering graduate from an ABET accredited University with a B.S. or M.S. in Fire Protection Engineering, or
3. A registered Professional Engineer licensed in the State of New York with at least three years of experience in automatic sprinkler system design.

D. Installer Qualifications - Corporate: Installation shall be performed by a sprinkler or other qualified contractor experienced in the installation of automatic sprinkler systems who:

1. Has been engaged in such business and maintained an office within a 75 mile (120 kilometer) radius of the project site for a minimum of three most recent years, and
2. Has successfully completed a minimum of five comparable installations that have satisfactorily performed for a period of not less than 18 months.

E. Installer Qualifications - Installation Crew: Field installation crew shall possess a lead fitter or on-site supervisor experienced in the installation of sprinkler systems who:

1. Has been engaged in such business for a minimum of three most recent years, and
2. Has successfully completed a minimum of five comparable installations that have satisfactorily performed for a period of not less than 18 months.

F. Welder Qualifications: All welding shall be performed in the shop by person(s) tested and certified to meet or exceed requirements of AWS specification D10.9, Level AR-3.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Standardization Requirements: Supply all like items by same manufacturer. Provide standardized materials, equipment, and accessories to the greatest extent practicable.

B. Sprinklers:

1. Reliable Sprinkler Corp.
2. Tyco.
3. Viking
4. Approved Equivalent.

2.2 PIPES

A. General: Application of following pipe materials are indicated in Part 3 - Sprinkler Systems Piping Application article.

B. Pipe: Typical sprinkler piping shall be black steel manufactured to ASTM A135, A53, or A795 standards, except where required to be galvanized. Galvanize black steel pipe in accordance with ASTM A123 where exposed to weather and as shown on Drawings.

2.3 PIPE FITTINGS

A. General: Application of the following pipe fitting materials are indicated in Part 3 - Sprinkler System Piping Applications article.

B. Cast-iron Threaded Fittings: ASME B16.4, Class 125, standard pattern, with threads according to ASME B1.20.1.

C. Malleable-Iron Threaded Fittings: ASME B16.3, Class 150, standard pattern, with threads according to ASME B1.20.1.

D. Grooved-End Fittings for Steel Pipe: UL-listed and FM-approved, ASTM A536, Grade 65-45-12 ductile iron or ASTM A47 Grade 32510 malleable iron, with grooves or shoulders designed to accept grooved couplings.

E. Cast-iron Threaded Flanges: ASME B16.1, Class 125, raised ground face, bolt holes spot faced.

F. Steel Flanges and Flanged Fittings: ASME B16.5.

G. Steel Fittings: ASTM A234M (ASTM A234), seamless or welded; ASME B16.9, butt-welding; or ASME B16.11, socket-welding type for welded joints.

H. Plain-End Pipe Fittings: Steel press-seal fittings, locking lug fittings, and other mechanical fittings utilizing plain-end pipe are prohibited.

2.5 SPRINKLERS

A. General: Application of the following sprinkler materials are indicated in Part 3 - Sprinkler Application article.

B. Automatic Sprinklers: With heat-responsive element conforming to UL 199, for applications except residential.

1. Pendant and Upright sprinklers: Reliable Model G.
2. Semi-recessed sprinklers: Reliable Model G with Model GRC threaded escutcheon.
3. Dry sidewall sprinklers: Reliable Model G Recessed.
4. Specialty sprinklers: As specifically indicated on the Drawings.
5. No substitutions.

C. Sprinkler types and categories are as indicated and as required by application. Provide sprinklers with chrome plated finish, 165°F (74°C) temperature rating, ½ inch orifice and thread size, except:

1. 212° F (100° C) sprinklers shall be installed in elevator machine rooms and hoistways.
2. High temperature rated sprinklers shall be installed in areas subject to abnormal heating conditions, such as near heaters and steam lines.

3. Where specifically noted on the Drawings.

D. Sprinkler Guards: Wire-cage type, including fastening device for attaching to sprinkler.

PART 3 - EXECUTION

3.1 SPRINKLER SYSTEM PIPING APPLICATIONS

A. Use pipe, tube, fittings, and joining methods according to following applications.

1. Sizes 2 inches (50 mm) and Smaller: Schedule 40 steel pipe with:

a. Threaded ends, cast-iron or malleable-iron fittings, and threaded joints, or

b. Rolled or groove ends, grooved-end steel pipe fittings, and grooved-coupling joints.

2. Sizes 2-1/2 through 4-inches (65 mm through 100 mm): Schedule 10 steel pipe with:

a. Rolled or groove ends, grooved-end steel pipe fittings, and grooved-coupling joints.

3. Sizes 6-inches (150 mm) and Larger: Schedule 30 (Schedule 40 for 6 inch (150 mm)) steel pipe with:

a. Rolled or groove ends, grooved-end steel pipe fittings, and grooved-coupling joints.

B. Galvanized pipe:

1. Threaded ends, cast-iron or malleable-iron galvanized fittings, or
2. Cut groove ends, galvanized grooved-end steel pipe fittings, and galvanized grooved-coupling joints.

C. Nipples shall be a minimum 4 inch (100 mm) in length.

3.2 JOINT CONSTRUCTION

A. Grooved-End Pipe and Grooved-End Fitting Joints: Use grooved-end fittings, couplings, and rubber gaskets that are made by same manufacturer and that are listed for use together. Groove pipe and assemble joints with grooved coupling, gasket, lubricant, and bolts according to coupling and fitting manufacturer's written instructions.

B. Hole cut methods utilizing side outlet tees with rubber gasketed fittings are not permitted.

1. Exception: Hole cut method may be used when connecting to existing systems only when:

a. Removal of existing pipe or installation of grooved fitting is not readily possible.
b. Specifically approved by the Government Fire Protection Engineer.
c. Hole cut coupons are retrieved and attached to main pipe at fitting.

C. Restricting orifices, reducing flanges, unions, and bushings are prohibited.

D. Dissimilar Materials Piping Joints: Make joints using adapters compatible with both piping materials.

E. Welded outlets joints are permitted when shop welded in accordance with the standards of AWS D10.9 Level AR-3 or higher standard. Weld-O-Lets or approved equal may be used only when outlet is one- half size of main or smaller.

3.3 PIPING INSTALLATIONS

A. General: Use approved fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes. Run piping parallel or at right angles to walls and other piping.

1. Welding: Perform welding in shop; field welding not permitted

B. Install all piping above ceiling in areas with finished or suspended ceiling maintaining minimum of 10 inch (254 mm) clearance between bottom of piping and underside of ceiling. Ceiling elevations may not be lowered, and drop down or decorative soffits not permitted.

C. Hangers and Supports: Comply with NFPA 13.

1. Install hanger and support spacing and locations for steel piping joined with grooved mechanical couplings according to manufacturer's written instructions for rigid systems.
2. Concrete Anchors: Drilled and inserted expansion devices, similar to Hilti HDI. Power or powder actuated fasteners not permitted.
3. Trapeze Type Supports: Bolted angles or channels. Pipe to form trapeze supports not permitted.
4. All-thread Rod, Hangers, and Nuts: Electroplated zinc finish.

D. Provide sleeves of minimum Schedule 10 piping where piping passes through concrete or masonry walls, floors, and gypsum board corridor walls. Core-drilling of masonry and concrete may be provided in lieu of pipe sleeves when cavities in core-drilled hole are completely grouted smooth. Secure sleeves in position during construction. Provide sleeves of length equal to thickness of walls. Provide sleeves to extend 2 inches (50 mm) above surface of floors. Provide 1/2 inch (13 mm) minimum clearance between exterior of piping and interior of sleeve or core-drilled hole on all sides.

E. Provide 4 inches (100 mm) clearance between face of fitting and penetration of wall or floor.

F. Clean, prime, and paint exposed piping, fittings and equipment to uniform finish, except pipe in electrical and telephone closets. Chrome or brass finished items, flow switches, and tamper switches shall not be painted. Paint color shall be Coronado “938 Safety Red” Rust SCAT WB Acrylic Enamel, Manufactured by Benjamin Moore, unless noted otherwise on Drawings. The paint manufacturer and final color selection shall be presented to the AHJ for acceptance.

G. Clean and paint concealed piping nominal 2-1/2 inches (65 mm) and larger with 2 inch (50 mm) wide red bands 4 feet (1200 mm) O/C, and concealed piping regardless of size on each side of wall penetrations. Paint color shall be Coronado "938 Safety Red" Rust SCAT WB Acrylic Enamel, Manufactured by Benjamin Moore, unless noted otherwise on Drawings. The paint manufacturer and final color selection shall be presented to the AHJ for acceptance.

H. Piping shall be installed parallel with or at right angles to walls and other piping, except that relocation of existing sprinklers by armovers up to 5 feet (1.5 meters) are permitted to occur at direct angles.

I. Neatly space piping with plumb risers. Install piping straight and true to bear evenly on hangers and supports. Support sprinkler piping directly from building construction and independent of other piping, services, or equipment.

J. Fasten hangers and supports to existing concrete construction with concrete anchors. Do not exceed maximum allowable working tensile or shear loads or ¼ of average ultimate tensile or shear loads for specific anchor size using 2,000 psi (1,378 kPa) concrete.

3.4 SPRINKLER APPLICATIONS

A. Sprinkler selection:

1. Rooms without Ceilings: Upright sprinklers.
2. Rooms with Suspended Ceilings or Finish Ceilings, Recessed Lighting: Semi-Recessed pendent sprinklers.
3. Rooms with suspended or Finish Ceilings, Surface Mounted Lighting: Pendant sprinklers with two-piece escutcheon
4. Specialty Sprinklers: As indicated on Drawings.

B. Spaces Subject to Freezing: Upright, pendent dry-type, and sidewall dry-type sprinklers.

C. Sprinkler Finishes: Use sprinklers with following finishes:

1. Upright, Pendent, and Sidewall Sprinklers: Chrome-plated; Two-piece escutcheons shall be bright chrome.
2. Concealed Sprinklers: Rough brass, with factory-painted white cover plate.
3. Recessed Sprinklers: Bright chrome, with bright chrome escutcheon.
4. Specialty Sprinklers: As indicated on Drawings.

3.5 SPRINKLER INSTALLATIONS

A. Locate sprinklers in located in finished ceilings using ceiling tiles in "center of tile" locations.

B. Locate sprinklers to align symmetrically with diffusers, grills, light fixtures, and suspended ceiling tiles.

C. Locate sprinklers minimum of 12 inches (300 mm) from supply or return air diffusers.

D. Provide wire sprinkler guards in areas subject to possible physical damage, in all shop areas, in areas where sprinklers are less than 7 feet (2.1 m) above the floor level, and where specifically indicated on the Drawings.

E. Provide return-bend arrangement to serve individual pendent sprinklers in all areas.

1. Exception No. 1: Return-bends not required for sprinklers serving restrooms and public corridors.
2. Exception No. 2: Return bends not required when clearance between bottom of piping to underside of ceiling exceeds 18 inches (460 mm).

3.9 FIRESTOPPING

A. Firestopping materials and installation methods are specified in Section 078413 – "Penetration Firestopping."

3.10 FIELD QUALITY CONTROL

A. Field Changes: System shall be installed substantially in accordance with Approved Shop Drawings. Where changes from Approved Shop Drawings are required for coordination with other trades or for other cause, revise and resubmit Shop Drawings for review prior to installation in accordance with Section 013300. Exception: Resubmittal of Shop Drawings is not required if proposed changes are not material to system design intent or performance, and result in none of following:

1. Decrease in pipe size,
2. Increase by five or more fittings along flow path from supply source to any individual sprinkler,
3. Increase by 9.8 ft (3 m) or more of piping along flow path from supply source to any individual sprinkler,
4. Trapping of any additional length of piping,
5. Change in system drainage pattern, direction of flow or elevation,
6. Change in remote operating area, or
7. Conflict with any requirement of this project specification.

B. Hydrostatic Testing:

1. Contractor shall perform hydrostatic test for all sprinkler projects involving the addition or relocation of 5 or more sprinklers, ten or more fittings, or 20 ft (6 m) or more of piping in any one sprinkler control zone.
2. Where the existing sprinkler control zone valve is not "drop-tight" and leakage is suspected, or when the addition or modification is made to an existing system affecting more than 20 sprinklers, the new portion shall be isolated from the rest of the system using test blanks or another approved method then tested.
3. Test shall include:

a. Contractor-only Test: To provide initial verification of system integrity. No visible leaks and a 0 psi (0 kPa) pressure drop over two hours is considered acceptable.
b. Official Test: In accordance with procedures and requirements of NFPA 13 to verify system integrity and as-built documentation with Government witness.

1) Official hydrostatic test to be scheduled only after a successful Contractor-only Test.
2) Contractor shall request through the COTR to schedule a time and date for the official test, at least 10 business days prior to desired date.
3) Testing must occur before piping is concealed by suspended or finish ceiling or walls.
4) Contractor shall have present during test updated shop drawings reflecting all field modifications for Government review.
5) Contractor shall provide a stepladder and flashlight for Government use during the hydrostatic test.
6) Contractor shall provide a completed Contractor's Material & Test Certificate for Aboveground Piping, as contained in NFPA 13 for the Government Fire Protection Engineer signature at completion of testing.

3.11 CLEANING

A. General: Comply with Section 017300. Clean dirt and debris from sprinklers. Replace sprinklers having paint other than factory finish with new sprinklers. Cleaning and reuse of painted sprinklers not permitted.

3.12 COMMISSIONING

A. Starting Procedures: Follow manufacturer's written procedures. If no procedures are prescribed by manufacturer, then proceed as follows: .

1. Verify that specialty valves, trim, fittings, controls, and accessories have been installed correctly and operate correctly.
2. Verify that specified tests of piping are complete.
3. Check that damaged sprinklers and sprinklers with paint or coating not specified have been replaced with new, correct type of sprinklers.
4. Check that sprinklers are correct type, have correct finish and temperature ratings, and have guards where required for applications.
5. Fill wet-pipe sprinkler systems with water.

END OF SECTION 211313

SECTION 230713
DUCT INSULATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes insulating the following duct services:

1. Indoor, concealed supply and outdoor air.
2. Indoor, exposed supply and outdoor air.
3. Indoor, concealed return located in unconditioned space.
4. Indoor, concealed return located in indirectly conditioned space with roof exposure.

B. Related Sections:

1. Section 233113 "Metal Ducts" for duct liners.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated. Include thermal conductivity, water-vapor permeance thickness, and jackets (both factory- and field-applied if any).

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at elbows, fittings, dampers, specialties and flanges for each type of insulation.
3. Detail application of field-applied jackets.
4. Detail application at linkages of control devices.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For qualified Installer.

B. Material Test Reports: From a qualified testing agency acceptable to authorities having jurisdiction indicating, interpreting, and certifying test results for compliance of insulation materials, sealers, attachments, cements, and jackets, with requirements indicated. Include dates of tests and test methods employed.

C. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Installer Qualifications: Skilled mechanics who have successfully completed an apprenticeship program or another craft training program certified by the Department of Labor, Bureau of Apprenticeship and Training.

B. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Packaging: Insulation material containers shall be marked by manufacturer with appropriate ASTM standard designation, type and grade, and maximum use temperature.

1.7 COORDINATION

A. Coordinate sizes and locations of supports, hangers, and insulation shields specified in Section 230529 "Hangers and Supports for HVAC and Plumbing Piping and Equipment."

B. Coordinate clearance requirements with duct Installer for duct insulation application. Before preparing ductwork Shop Drawings, establish and maintain clearance requirements for installation of insulation and field-applied jackets and finishes and for space required for maintenance.

1.8 SCHEDULING

A. Schedule insulation application after pressure testing systems and, where required, after installing and testing heat tracing. Insulation application may begin on segments that have satisfactory test results.

B. Complete installation and concealment of plastic materials as rapidly as possible in each area of construction.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in "Duct Insulation Schedule, General," "Indoor Duct and Plenum Insulation Schedule," and "Aboveground, Outdoor Duct and Plenum Insulation Schedule" articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

F. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type III with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Manufacturers: Subject to compliance with requirements, provide products nu one of the following:

a. CertainTeed Corporation.
b. Knauf Insulation.
c. Johns Manville; a Berkshire Hathaway company.
d. Owens Corning.
e. USG
f. Approved Equal.

G. Mineral-Fiber Board Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 612, Type IA or Type IB. For duct and plenum applications, provide insulation with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Manufacturers: Subject to compliance with requirements, provide products nu one of the

following:

a. CertainTeed Corporation.
b. Knauf Insulation.
c. Johns Manville; a Berkshire Hathaway company.
d. Owens Corning.
e. USG
f. Approved Equal.

H. Mineral-Fiber, Pipe and Tank Insulation: Mineral or glass fibers bonded with a thermosetting resin. Semirigid board material with factory-applied ASJ complying with ASTM C 1393, Type II or Type IIIA Category 2, or with properties similar to ASTM C 612, Type IB. Nominal density is 2.5 lb/cu. ft. (40 kg/cu. m) or more. Thermal conductivity (k-value) at 100 deg F (55 deg C) is 0.29 Btu x in./h x sq. ft. x deg F (0.042 W/m x K) or less. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Manufacturers: Subject to compliance with requirements, provide products nu one of the following:

a. CertainTeed Corporation.
b. Knauf Insulation.
c. Johns Manville; a Berkshire Hathaway company.
d. Owens Corning.
e. USG
f. Approved Equal.

2.2 FIRE-RATED INSULATION SYSTEMS

A. Fire-Rated Board: Structural-grade, press-molded, xonolite calcium silicate, fireproofing board suitable for operating temperatures up to 1700 deg F (927 deg C). Comply with ASTM C 656, Type II, Grade 6. Tested and certified to provide a 1-hour fire rating by an NRTL acceptable to authorities having jurisdiction.

B. Fire-Rated Blanket: High-temperature, flexible, blanket insulation with FSK jacket that is tested and certified to provide a 1-hour fire rating by an NRTL acceptable to authorities having jurisdiction.

2.3 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

C. ASJ Adhesive, and FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for

bonding insulation jacket lap seams and joints.

1. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

D. PVC Jacket Adhesive: Compatible with PVC jacket.

1. For indoor applications, adhesive shall have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.4 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.

1. For indoor applications, use mastics that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Vapor-Barrier Mastic: Water based; suitable for indoor use on below ambient services.

1. Water-Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm (0.009 metric perm) at 43-mil (1.09-mm) dry film thickness.
2. Service Temperature Range: Minus 20 to plus 180 deg F (Minus 29 to plus 82 deg C).
3. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.
4. Color: White.

C. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.

1. Water-Vapor Permeance: ASTM F 1249, 1.8 perms (1.2 metric perms) at 0.0625-inch (1.6-mm) dry film thickness.
2. Service Temperature Range: Minus 20 to plus 180 deg F (Minus 29 to plus 82 deg C).
3. Solids Content: 60 percent by volume and 66 percent by weight.
4. Color: White.

2.5 SEALANTS

A. FSK and Metal Jacket Flashing Sealants:

1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Fire- and water-resistant, flexible, elastomeric sealant.
3. Service Temperature Range: Minus 40 to plus 250 deg F (Minus 40 to plus 121 deg C).
4. Color: Aluminum.
5. For indoor applications, sealants shall have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. ASJ Flashing Sealants, and Vinyl and PVC Jacket Flashing Sealants:

1. Materials shall be compatible with insulation materials, jackets, and substrates.
2. Fire- and water-resistant, flexible, elastomeric sealant.

3. Service Temperature Range: Minus 40 to plus 250 deg F (Minus 40 to plus 121 deg C).
4. Color: White.
5. For indoor applications, sealants shall have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

2.6 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. ASJ: White, kraft-paper, fiberglass-reinforced scrim with aluminum-foil backing; complying with ASTM C 1136, Type I.
2. ASJ-SSL: ASJ with self-sealing, pressure-sensitive, acrylic-based adhesive covered by a removable protective strip; complying with ASTM C 1136, Type I.
3. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.
4. Jacket: Aluminum-foil, fiberglass-reinforced scrim with polyethylene backing; complying with ASTM C 1136, Type II.
5. Vinyl Jacket: White vinyl with a permeance of 1.3 perms (0.86 metric perm) when tested according to ASTM E 96/E 96M, Procedure A, and complying with NFPA 90A and NFPA 90B.

2.7 FIELD-APPLIED JACKETS

A. Field-applied jackets shall comply with ASTM C 921, Type I, unless otherwise indicated.

B. FSK Jacket: Aluminum-foil-face, fiberglass-reinforced scrim with kraft-paper backing.

C. PVC Jacket: High-impact-resistant, UV-resistant PVC complying with ASTM D 1784, Class 16354-C; thickness as scheduled; roll stock ready for shop or field cutting and forming. Thickness is indicated in field-applied jacket schedules.

1. Adhesive: As recommended by jacket material manufacturer.
2. Color: White.

D. Metal Jacket:

1. Aluminum Jacket: Comply with ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105, or 5005, Temper H-14.

a. Sheet and roll stock ready for shop or field sizing.
b. Finish and thickness are indicated in field-applied jacket schedules.
c. Moisture Barrier for Indoor Applications: 1-mil- (0.025-mm-) thick, heat-bonded polyethylene and kraft paper.
d. Moisture Barrier for Outdoor Applications: 2.5-mil- (0.063-mm-) thick polysurlyn.

2.8 TAPES

A. ASJ Tape: White vapor-retarder tape matching factory-applied jacket with acrylic adhesive, complying with ASTM C 1136.

1. Width: 3 inches (75 mm).
2. Thickness: 11.5 mils (0.29 mm).
3. Adhesion: 90 ounces force/inch (1.0 N/mm) in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch (7.2 N/mm) in width.
6. ASJ Tape Disks and Squares: Precut disks or squares of ASJ tape.

B. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Width: 3 inches (75 mm).
2. Thickness: 6.5 mils (0.16 mm).
3. Adhesion: 90 ounces force/inch (1.0 N/mm) in width.
4. Elongation: 2 percent.
5. Tensile Strength: 40 lbf/inch (7.2 N/mm) in width.
6. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

C. PVC Tape: White vapor-retarder tape matching field-applied PVC jacket with acrylic adhesive; suitable for indoor and outdoor applications.

1. Width: 2 inches (50 mm).
2. Thickness: 6 mils (0.15 mm).
3. Adhesion: 64 ounces force/inch (0.7 N/mm) in width.
4. Elongation: 500 percent.
5. Tensile Strength: 18 lbf/inch (3.3 N/mm) in width.

D. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Width: 2 inches (50 mm).
2. Thickness: 3.7 mils (0.093 mm).
3. Adhesion: 100 ounces force/inch (1.1 N/mm) in width.
4. Elongation: 5 percent.
5. Tensile Strength: 34 lbf/inch (6.2 N/mm) in width.

2.9 SECUREMENTS

A. Bands:

1. Aluminum: ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch (0.51 mm) thick, 1/2 inch (13 mm) wide with wing seal.

B. Insulation Pins and Hangers:

1. Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- (2.6-mm-) diameter shank, length to suit depth

of insulation indicated.

2. Cupped-Head, Capacitor-Discharge-Weld Pins: Copper- or zinc-coated steel pin, fully annealed for capacitor-discharge welding, 0.106-inch- (2.6-mm-) diameter shank, length to suit depth of insulation indicated with integral 1-1/2-inch (38-mm) galvanized carbon-steel washer.

3. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- (0.41-mm-) thick, galvanized-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches (38 mm) in diameter.

   a. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.

C. Staples: Outward-clinching insulation staples, nominal 3/4-inch- (19-mm-) wide, stainless steel or Monel.

D. Wire: 0.062-inch (1.6-mm) soft-annealed, stainless steel.

2.10 CORNER ANGLES

A. PVC Corner Angles: 30 mils (0.8 mm) thick, minimum 1 by 1 inch (25 by 25 mm), PVC according to ASTM D 1784, Class 16354-C. White or color-coded to match adjacent surface.

B. Aluminum Corner Angles: 0.040 inch (1.0 mm) thick, minimum 1 by 1 inch (25 by 25 mm), aluminum according to ASTM B 209 (ASTM B 209M), Alloy 3003, 3005, 3105, or 5005; Temper H-14.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions for compliance with requirements for installation tolerances and other conditions affecting performance of insulation application.

1. Verify that systems to be insulated have been tested and are free of defects.
2. Verify that surfaces to be insulated are clean and dry.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.3 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces;

free of voids throughout the length of ducts and fittings.

B. Install insulation materials, vapor barriers or retarders, jackets, and thicknesses required for each item of duct system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Keep insulation materials dry during application and finishing.

G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

H. Install insulation with least number of joints practical.

I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.

J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

K. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth.
2. Cover circumferential joints with 3-inch- (75-mm-) wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches (100 mm) o.c.
3. Overlap jacket longitudinal seams at least 1-1/2 inches (38 mm). Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at **4 inches (100 mm)** o.c.

    a. For below ambient services, apply vapor-barrier mastic over staples.

4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at

ends adjacent to duct flanges and fittings.

L. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches (100 mm) beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.4 PENETRATIONS

A. Insulation Installation at Roof Penetrations: Install insulation continuously through roof penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation above roof surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside roof flashing at least 2 inches (50 mm) below top of roof flashing.
4. Seal jacket to roof flashing with flashing sealant.

B. Insulation Installation at Aboveground Exterior Wall Penetrations: Install insulation continuously through wall penetrations.

1. Seal penetrations with flashing sealant.
2. For applications requiring only indoor insulation, terminate insulation inside wall surface and seal with joint sealant. For applications requiring indoor and outdoor insulation, install insulation for outdoor applications tightly joined to indoor insulation ends. Seal joint with joint sealant.
3. Extend jacket of outdoor insulation outside wall flashing and overlap wall flashing at least 2 inches (50 mm).
4. Seal jacket to wall flashing with flashing sealant.

C. Insulation Installation at Interior Wall and Partition Penetrations (That Are Not Fire Rated): Install insulation continuously through walls and partitions.

D. Insulation Installation at Fire-Rated Wall and Partition Penetrations: Terminate insulation at fire damper sleeves for fire-rated wall and partition penetrations. Externally insulate damper sleeves to match adjacent insulation and overlap duct insulation at least 2 inches (50 mm).

1. Comply with requirements in Section 078413 "Penetration Firestopping" and fire-resistive joint sealers.

E. Insulation Installation at Floor Penetrations:

1. Duct: For penetrations through fire-rated assemblies, terminate insulation at fire damper sleeves and externally insulate damper sleeve beyond floor to match adjacent duct insulation. Overlap damper sleeve and duct insulation at least 2 inches (50 mm).
2. Seal penetrations through fire-rated assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.5 INSTALLATION OF MINERAL-FIBER INSULATION

A. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 50 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

    a. On duct sides with dimensions 18 inches (450 mm) and smaller, place pins along longitudinal centerline of duct. Space 3 inches (75 mm) maximum from insulation end joints, and 16 inches (400 mm) o.c.
    b. On duct sides with dimensions larger than 18 inches (450 mm), place pins 16 inches (400 mm) o.c. each way, and 3 inches (75 mm) maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
    c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
    d. Do not overcompress insulation during installation.
    e. Impale insulation over pins and attach speed washers.
    f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches (50 mm) from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch (13-mm) outward-clinching staples, 1 inch (25 mm) o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

    a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
    b. Install vapor stops for ductwork and plenums operating below 50 deg F (10 deg C) at 18-foot (5.5-m) intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches (75 mm).

5. Overlap unfaced blankets a minimum of 2 inches (50 mm) on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches (450 mm) o.c.
6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- (150-mm-) wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches (150 mm) o.c.

B. Board Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 50 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

    a. On duct sides with dimensions 18 inches (450 mm) and smaller, place pins along longitudinal centerline of duct. Space 3 inches (75 mm) maximum from insulation end joints, and 16 inches (400 mm) o.c.
    b. On duct sides with dimensions larger than 18 inches (450 mm), space pins 16 inches (400 mm) o.c. each way, and 3 inches (75 mm) maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
    c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.
    d. Do not overcompress insulation during installation.
    e. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches (50 mm) from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch (13-mm) outward-clinching staples, 1 inch (25 mm) o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

    a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
    b. Install vapor stops for ductwork and plenums operating below 50 deg F (10 deg C) at 18-foot (5.5-m) intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches (75 mm).

5. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Groove and score insulation to fit as closely as possible to outside and inside radius of elbows. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
6. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- (150-mm-) wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches (150 mm) o.c.

3.6 FIELD-APPLIED JACKET INSTALLATION

A. Where FSK jackets are indicated, install as follows:

1. Draw jacket material smooth and tight.
2. Install lap or joint strips with same material as jacket.
3. Secure jacket to insulation with manufacturer's recommended adhesive.
4. Install jacket with 1-1/2-inch (38-mm) laps at longitudinal seams and 3-inch- (75-mm-) wide joint strips at end joints.
5. Seal openings, punctures, and breaks in vapor-retarder jackets and exposed insulation with vapor-barrier mastic.

B. Where PVC jackets are indicated, install with 1-inch (25-mm) overlap at longitudinal seams and end joints; for horizontal applications, install with longitudinal seams along top and bottom of tanks and vessels. Seal with manufacturer's recommended adhesive.

1. Apply two continuous beads of adhesive to seams and joints, one bead under lap and the finish bead along seam and joint edge.

C. Where metal jackets are indicated, install with 2-inch (50-mm) overlap at longitudinal seams and end joints. Overlap longitudinal seams arranged to shed water. Seal end joints with weatherproof sealant recommended by insulation manufacturer. Secure jacket with stainless-steel bands 12 inches (300 mm) o.c. and at end joints.

3.7 FIRE-RATED INSULATION SYSTEM INSTALLATION

A. Where fire-rated insulation system is indicated, secure system to ducts and duct hangers and supports to maintain a continuous fire rating.

B. Insulate duct access panels and doors to achieve same fire rating as duct.

C. Install firestopping at penetrations through fire-rated assemblies. Fire-stop systems are specified in Section 078413 "Penetration Firestopping."

3.8 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform tests and inspections.

C. Tests and Inspections:

1. Inspect ductwork, randomly selected by Architect, by removing field-applied jacket and insulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.

D. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.9 DUCT INSULATION SCHEDULE, GENERAL

A. Plenums and Ducts Requiring Insulation:

1. Indoor, concealed supply and outdoor air.
2. Indoor, exposed supply and outdoor air.
3. Indoor, concealed return located in unconditioned space.
4. Indoor, concealed return located in indirectly conditioned space with roof exposure.
5. Indoor, exposed return located in unconditioned space.

B. Items Not Insulated:

1. Fibrous-glass ducts.
2. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
3. Factory-insulated flexible ducts.
4. Factory-insulated plenums and casings.
5. Flexible connectors.
6. Vibration-control devices.
7. Factory-insulated access panels and doors.

3.10 INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Concealed, round and flat-oval, supply-air, and outdoor-air duct insulation shall be the following:

1. Mineral-Fiber Blanket: 1-1/2 inches (38 mm) thick and 0.75-lb/cu. ft. (12-kg/cu. m) nominal density.

B. Concealed, rectangular, supply-air, and outdoor-air duct insulation shall be the following:

1. Mineral-Fiber Blanket: 1-1/2 inches (38 mm) thick and 0.75-lb/cu. ft. (12-kg/cu. m) nominal density.

C. Concealed, supply-air, and outdoor-air plenum insulation shall be the following:

1. Mineral-Fiber Board: 1-1/2 inches (38 mm) thick and 3-lb/cu. ft. (48-kg/cu. m) nominal

density.

D. Where indicated on plans provide internal lining.

3.11 INDOOR, FIELD-APPLIED JACKET SCHEDULE

A. Install jacket over insulation material. For insulation with factory-applied jacket, install the field-applied jacket over the factory-applied jacket.

B. Ducts and Plenums, Concealed:

1. None.

C. Ducts and Plenums, Exposed and located within 10 ft of the floor in equipment rooms:

1. None.
2. PVC: 20 mils (0.5 mm) thick.

END OF SECTION 230713

SECTION 233113
METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Single-wall rectangular ducts and fittings.
2. Single-wall round ducts and fittings.
3. Sheet metal materials.
4. Acoustical duct liner.
5. Sealants and gaskets.
6. Hangers and supports.

B. Related Sections:

1. Section 233300 "Air Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports shall withstand the effects of gravity loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of the following products:

1. Liners and adhesives.
2. Sealants and gaskets.

B. Shop Drawings:

1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
2. Factory- and shop-fabricated ducts and fittings.
3. Duct layout indicating sizes, configuration, liner material, and static-pressure classes.
4. Elevation of top of ducts.
5. Dimensions of main duct runs from building grid lines.
6. Fittings.
7. Reinforcement and spacing.
8. Seam and joint construction.
9. Penetrations through fire-rated and other partitions.
10. Equipment installation based on equipment being used on Project.
11. Locations for duct accessories, including dampers, turning vanes, and access doors and panels.
12. Hangers and supports, including methods for duct and building attachment and vibration isolation.

C. Delegated-Design Submittal:

1. Sheet metal thicknesses.
2. Joint and seam construction and sealing.
3. Reinforcement details and spacing.
4. Materials, fabrication, assembly, and spacing of hangers and supports.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Duct installation in congested spaces, indicating coordination with general construction, building components, and other building services. Indicate proposed changes to duct layout.
2. Suspended ceiling components.
3. Structural members to which duct will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Penetrations of smoke barriers and fire-rated construction.
6. Items penetrating finished ceiling including the following:

    a. Lighting fixtures.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.
    f. Perimeter moldings.

B. Welding certificates.

C. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel," for hangers and supports.
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum," for aluminum supports.
3. AWS D9.1M/D9.1, "Sheet Metal Welding Code," for duct joint and seam welding.

PART 2 - PRODUCTS

2.1 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 SINGLE-WALL ROUND DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Round Duct Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals,

and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Transverse Joints in Ducts Larger Than 60 Inches (1524 mm) in Diameter: Flanged.

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Round Duct Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Fabricate round ducts larger than 90 inches (2286 mm) in diameter with butt-welded longitudinal seams.
2. Fabricate flat-oval ducts larger than 72 inches (1830 mm) in width (major dimension) with butt-welded longitudinal seams.

D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SHEET METAL MATERIALS

A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

1. Galvanized Coating Designation: G60 (Z180).
2. Finishes for Surfaces Exposed to View: Mill phosphatized.

C. Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

1. Where black- and galvanized-steel shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket materials.

D. Tie Rods: Galvanized steel, 1/4-inch (6-mm) minimum diameter for lengths 36 inches (900 mm) or less; 3/8-inch (10-mm) minimum diameter for lengths longer than 36 inches (900 mm).

2.4 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index

of 50 when tested according to UL 723; certified by an NRTL.

B. Two-Part Tape Sealing System:

1. Tape: Woven cotton fiber impregnated with mineral gypsum and modified acrylic/silicone activator to react exothermically with tape to form hard, durable, airtight seal.
2. Tape Width: 4 inches (102 mm).
3. Sealant: Modified styrene acrylic.
4. Water resistant.
5. Mold and mildew resistant.
6. Maximum Static-Pressure Class: 10-inch wg (2500 Pa), positive and negative.
7. Service: Indoor and outdoor.
8. Service Temperature: Minus 40 to plus 200 deg F (Minus 40 to plus 93 deg C).
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum.

C. Water-Based Joint and Seam Sealant:

1. Application Method: Brush on.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. Water resistant.
5. Mold and mildew resistant.
6. VOC: Maximum 75 g/L (less water).
7. Maximum Static-Pressure Class: 10-inch wg (2500 Pa), positive and negative.
8. Service: Indoor or outdoor.
9. Substrate: Compatible with galvanized sheet steel, stainless steel, or aluminum sheets.
10. Maximum Static-Pressure Class: 10-inch wg (2500 Pa), positive or negative.
11. Service: Indoor or outdoor.
12. Substrate: Compatible with galvanized sheet steel, stainless steel, or aluminum sheets.

D. Flanged Joint Sealant: Comply with ASTM C 920.

1. General: Single-component, acid-curing, silicone, elastomeric.
2. Type: S.
3. Grade: NS.
4. Class: 25.
5. Use: O.

E. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

F. Round Duct Joint O-Ring Seals:

1. Seal shall provide maximum leakage class of 3 cfm/100 sq. ft. at 1-inch wg (0.14 L/s per sq. m at 250 Pa) and shall be rated for10-inch wg (2500-Pa) static-pressure class, positive or negative.
2. EPDM O-ring to seal in concave bead in coupling or fitting spigot.
3. Double-lipped, EPDM O-ring seal, mechanically fastened to factory-fabricated couplings and fitting spigots.

2.5 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1 (Table 5-1M), "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.

E. Steel Cables for Stainless-Steel Ducts: Stainless steel complying with ASTM A 492.

F. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

H. Trapeze and Riser Supports:

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install round ducts in maximum practical lengths.

D. Install ducts with fewest possible joints.

E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and

perpendicular to building lines.

G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

H. Install ducts with a clearance of 1 inch (25 mm), plus allowance for insulation thickness.

I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches (38 mm).

K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Section 233300 "Air Duct Accessories" for fire and smoke dampers.

L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."

3.2 DUCT SEALING

A. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":

1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
2. Outdoor, Supply-Air Ducts: Seal Class A.
3. Outdoor, Exhaust Ducts: Seal Class C.
4. Outdoor, Return-Air Ducts: Seal Class C.
5. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg (500 Pa) and Lower: Seal Class B.
6. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg (500 Pa): Seal Class A.
7. Unconditioned Space, Exhaust Ducts: Seal Class C if under negative pressure. Seal Class A if under positive pressure.
8. Unconditioned Space, Return-Air Ducts: Seal Class B.
9. Conditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg (500 Pa) and Lower: Seal Class B.
10. Conditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg (500 Pa): Seal Class A.
11. Conditioned Space, Exhaust Ducts: Seal Class B if under negative pressure. Seal Class A if under positive pressure..
12. Conditioned Space, Return-Air Ducts: Seal Class C.

3.3 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Building Attachments: Concrete inserts, powder-actuated fasteners, or structural-steel fasteners appropriate for construction materials to which hangers are being attached.

1. Where practical, install concrete inserts before placing concrete.
2. Install powder-actuated concrete fasteners after concrete is placed and completely cured.
3. Use powder-actuated concrete fasteners for standard-weight aggregate concretes or for slabs more than 4 inches (100 mm) thick.
4. Do not use powder-actuated concrete fasteners for lightweight-aggregate concretes or for slabs less than 4 inches (100 mm) thick.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1 (Table 5-1M), "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches (610 mm) of each elbow and within 48 inches (1200 mm) of each branch intersection.

D. Hangers Exposed to View: Threaded rod and angle or channel supports.

E. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet (5 m).

F. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.4 CONNECTIONS

A. Make connections to equipment with flexible connectors complying with Section 233300 "Air Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.5 PAINTING

A. Paint interior of metal ducts that are visible through registers and grilles and that do not have duct liner. Apply one coat of flat, black, latex paint over a compatible galvanized-steel primer. Paint materials and application requirements are specified in Section 099123 "Interior Painting".

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Leakage Tests:

1. Comply with SMACNA's "HVAC Air Duct Leakage Test Manual." Submit a test report for each test.
2. Test the following systems:

    a. Ducts with a Pressure Class Higher Than 3-Inch wg (750 Pa): Test representative duct sections totaling no less than 25 percent of total installed duct area for each designated pressure class.

3. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
4. Test for leaks before applying external insulation.
5. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If static-pressure classes are not indicated, test system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure.
6. Give seven days' advance notice for testing.

C. Duct System Cleanliness Tests:

1. Visually inspect duct system to ensure that no visible contaminants are present.
2. Test sections of metal duct system, chosen randomly by Owner, for cleanliness according to "Vacuum Test" in NADCA ACR, "Assessment, Cleaning and Restoration of HVAC Systems."

    a. Acceptable Cleanliness Level: Net weight of debris collected on the filter media shall not exceed 0.75 mg/100 sq. cm.

D. Duct system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.7 DUCT CLEANING

A. Clean new and existing duct system(s) before testing, adjusting, and balancing.

B. Use service openings for entry and inspection.

1. Create new openings and install access panels appropriate for duct static-pressure class if required for cleaning access. Provide insulated panels for insulated or lined duct. Patch insulation and liner as recommended by duct liner manufacturer. Comply with Section 233300 "Air Duct Accessories" for access panels and doors.
2. Disconnect and reconnect flexible ducts as needed for cleaning and inspection.
3. Remove and reinstall ceiling to gain access during the cleaning process.

C. Particulate Collection and Odor Control:

1. When venting vacuuming system inside the building, use HEPA filtration with 99.97

percent collection efficiency for 0.3-micron-size (or larger) particles.

2. When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.

D. Clean the following components by removing surface contaminants and deposits:

1. Air outlets and inlets (registers, grilles, and diffusers).
2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
4. Coils and related components.
5. Return-air ducts, dampers, actuators, and turning vanes except in ceiling plenums and mechanical equipment rooms.
6. Supply-air ducts, dampers, actuators, and turning vanes.
7. Dedicated exhaust and ventilation components and makeup air systems.

E. Mechanical Cleaning Methodology:

1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.
4. Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet. Replace fibrous-glass duct liner that is damaged, deteriorated, or delaminated or that has friable material, mold, or fungus growth.
5. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
6. Provide drainage and cleanup for wash-down procedures.
7. Antimicrobial Agents and Coatings: Apply EPA-registered antimicrobial agents if fungus is present. Apply antimicrobial agents according to manufacturer's written instructions after removal of surface deposits and debris.

3.8 START UP

A. Air Balance: Comply with requirements in Section 230593 "Testing, Adjusting, and Balancing for HVAC."

3.9 DUCT SCHEDULE

A. Fabricate ducts with galvanized sheet steel except as otherwise indicated and as follows:

B. Supply Ducts:

1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:

   a. Pressure Class: Positive 2-inch wg (500 Pa).
   b. SMACNA Leakage Class for Rectangular: 12.
   c. SMACNA Leakage Class for Round and Flat Oval: 6.

2. Ducts Connected to Constant-Volume Air-Handling Units:

   a. Pressure Class: Positive **2-inch wg (500 Pa)** .
   b. SMACNA Leakage Class for Rectangular: 6.
   c. SMACNA Leakage Class for Round: 3.

3. Ducts Connected to Equipment Not Listed Above:

   a. Pressure Class: Positive **2-inch wg (500 Pa)**.
   b. SMACNA Leakage Class for Rectangular: 6.
   c. SMACNA Leakage Class for Round: 3.

C. Return Ducts:

1. Ducts Connected to Fan Coil Units, Furnaces, Heat Pumps, and Terminal Units:

   a. Pressure Class: Positive or negative **1-inch wg (250 Pa)**
   b. SMACNA Leakage Class for Rectangular: 12.
   c. SMACNA Leakage Class for Round: 6.

2. Ducts Connected to Air-Handling Units:

   a. Pressure Class: Positive or negative **2-inch wg (500 Pa)**
   b. SMACNA Leakage Class for Rectangular: 12.
   c. SMACNA Leakage Class for Round: 6.

3. Ducts Connected to Equipment Not Listed Above:

   a. Pressure Class: Positive or negative **2-inch wg (500 Pa)**.
   b. SMACNA Leakage Class for Rectangular: 12.
   c. SMACNA Leakage Class for Round: 6.

D. Exhaust Ducts:

1. Ducts Connected to Fans Exhausting (ASHRAE 62.1, Class 1 and 2) Air:

   a. Pressure Class: Negative **1-inch wg (250 Pa)**.
   b. SMACNA Leakage Class for Rectangular: 12.
   c. SMACNA Leakage Class for Round: 6.

2. Ducts Connected to Air-Handling Units:

a. Pressure Class: Positive or negative **2-inch wg (500 Pa)**
b. SMACNA Leakage Class for Rectangular: 6.
c. SMACNA Leakage Class for Round: 3.

3. Ducts Connected to Equipment Not Listed Above:

a. Pressure Class: Positive or negative **2-inch wg (500 Pa)**.
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round: 6.

E. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel.

2. Stainless-Steel Ducts:

a. Exposed to Airstream: Match duct material.
b. Not Exposed to Airstream: Match duct material.

3. Aluminum Ducts: Aluminum.

F. Elbow Configuration:

1. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows."

a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.

1) Radius-to Diameter Ratio: 1.5.

b. Round Elbows, 12 Inches (305 mm) and Smaller in Diameter: Stamped or pleated.
c. Round Elbows, 14 Inches (356 mm) and Larger in Diameter: Standing seam.

G. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."

a. Rectangular Main to Rectangular Branch: 45-degree entry.
b. Rectangular Main to Round Branch: Spin in.

2. Round and Flat Oval: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.

a. Velocity 1000 fpm (5 m/s) or Lower: 90-degree tap.

b. Velocity 1000 to 1500 fpm (5 to 7.6 m/s): Conical tap.
c. Velocity 1500 fpm (7.6 m/s) or Higher: 45-degree lateral.

END OF SECTION 233113

SECTION 233300

AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Backdraft and pressure relief dampers.
2. Barometric relief dampers.
3. Manual volume dampers.
4. Control dampers.
5. Fire dampers.
6. Smoke dampers.
7. Combination fire and smoke dampers.
8. Corridor dampers.
9. Flange connectors.
10. Duct silencers.
11. Turning vanes.
12. Remote damper operators.
13. Duct-mounted access doors.
14. Flexible connectors.
15. Flexible ducts.
16. Duct security bars.
17. Duct accessory hardware.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. For duct silencers, include pressure drop and dynamic insertion loss data. Include breakout noise calculations for high transmission loss casings.

B. Sustainable Design Submittals:

1. Product data showing compliance with ASHRAE 62.1.

C. Shop Drawings: For duct accessories. Include plans, elevations, sections, details and attachments to other work.

1. Detail duct accessories fabrication and installation in ducts and other construction. Include dimensions, weights, loads, and required clearances; and method of field assembly into duct systems and other construction. Include the following:

a. Special fittings.
b. Manual volume damper installations.
c. Control-damper installations.
d. Fire-damper, smoke-damper, and combination fire- and smoke-damper, damper installations, including sleeves; and duct-mounted access doors and remote damper operators.
e. Duct security bars.
f. Wiring Diagrams: For power, signal, and control wiring.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted access panels and access doors required for access to duct accessories are shown and coordinated with each other, using input from Installers of the items involved.

B. Source quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For air duct accessories to include in operation and maintenance manuals.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fusible Links: Furnish quantity equal to 10 percent of amount installed.

PART 2 - PRODUCTS

2.1 ASSEMBLY DESCRIPTION

A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

2.2 MATERIALS

A. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

1. Galvanized Coating Designation: G90 (Z275).
2. Exposed-Surface Finish: Mill phosphatized.

B. Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304, and having a No. 2 finish for concealed ducts and No. 4 finish for exposed ducts.

C. Aluminum Sheets: Comply with ASTM B 209 (ASTM B 209M), Alloy 3003, Temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.

D. Extruded Aluminum: Comply with ASTM B 221 (ASTM B 221M), Alloy 6063, Temper T6.

E. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.

F. Tie Rods: Galvanized steel, 1/4-inch (6-mm) minimum diameter for lengths 36 inches (900 mm) or less; 3/8-inch (10-mm) minimum diameter for lengths longer than 36 inches (900 mm).

2.3 MANUAL VOLUME DAMPERS

A. Standard, Steel, Manual Volume Dampers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. American Warming and Ventilating; a Mestek Architectural Group company.
   b. Nailor Industries Inc.
   c. Pottorff.
   d. Ruskin Company.
   e. Approved Equal.

2. Standard leakage rating, with linkage outside airstream.

3. Suitable for horizontal or vertical applications.
4. Frames:

   a. Frame: Hat-shaped, 0.094-inch- (2.4-mm-) thick, galvanized sheet steel.
   b. Mitered and welded corners.
   c. Flanges for attaching to walls and flangeless frames for installing in ducts.

5. Blades:

    a. Multiple or single blade.
    b. Opposed-blade design.
    c. Stiffen damper blades for stability.
    d. Galvanized-steel, 0.064 inch (1.62 mm) thick.

6. Blade Axles: Galvanized steel.

7. Bearings:

    a. Oil-impregnated bronze.
    b. Dampers in ducts with pressure classes of 3-inch wg (750 Pa) or less shall have axles full length of damper blades and bearings at both ends of operating shaft.

8. Tie Bars and Brackets: Galvanized steel.

B. Standard, Aluminum, Manual Volume Dampers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. American Warming and Ventilating; a Mestek Architectural Group company.
    b. Nailor Industries Inc.
    c. Pottorff.
    d. Ruskin Company.
    e. Approved Equal.

2. Standard leakage rating, with linkage outside airstream.

3. Suitable for horizontal or vertical applications.
4. Frames: Hat-shaped, 0.10-inch- (2.5-mm-) thick, aluminum sheet channels; frames with flanges for attaching to walls and flangeless frames for installing in ducts.
5. Blades:

    a. Multiple or single blade.
    b. Opposed-blade design.
    c. Stiffen damper blades for stability.
    d. Roll-Formed Aluminum Blades: 0.10-inch- (2.5-mm-) thick aluminum sheet.

6. Blade Axles: Nonferrous metal.
7. Bearings:

    a. Oil-impregnated bronze.
    b. Dampers in ducts with pressure classes of 3-inch wg (750 Pa) or less shall have axles full length of damper blades and bearings at both ends of operating shaft.

8. Tie Bars and Brackets: Aluminum.

2.4 FLEXIBLE DUCTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Flexmaster U.S.A., Inc.
2. McGill AirFlow LLC.
3. Ward Industries; a brand of Hart & Cooley, Inc.
4. Approved Equal.

B. Noninsulated, Flexible Duct: UL 181, Class 0, interlocking spiral of aluminum foil.

1. Pressure Rating: 8-inch wg (2280 Pa) positive or negative.
2. Maximum Air Velocity: 5000 fpm (25 m/s).
3. Temperature Range: Minus 100 to plus 435 deg F (Minus 73 to plus 224 deg C).

C. Insulated, Flexible Duct: UL 181, Class 0, interlocking spiral of aluminum foil; fibrous-glass insulation; aluminizedvapor-barrier film.

1. Pressure Rating: 8-inch wg (2280 Pa) positive or negative.
2. Maximum Air Velocity: 5000 fpm (25 m/s).
3. Temperature Range: Minus 20 to plus 250 deg F (Minus 29 to plus 121 deg C).
4. Insulation R-value: Comply with ASHRAE/IESNA 90.1.

D. Flexible Duct Connectors:

1. Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action in sizes 3 through 18 inches (75 through 460 mm), to suit duct size.
2. Non-Clamp Connectors: Adhesive plus sheet metal screws.

2.5 DUCT ACCESSORY HARDWARE

A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct-insulation thickness.

B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.

B. Install duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.

C. Compliance with ASHRAE/IESNA 90.1-2004 includes Section 6.4.3.3.3 - "Shutoff Damper Controls," restricts the use of backdraft dampers, and requires control dampers for certain applications. Install backdraft or control dampers at inlet or outlet of exhaust fans or exhaust ducts as close as possible to exhaust fan unless otherwise indicated and as shown on the drawings.

D. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts. Where dampers are installed in ducts having duct liner, install dampers with hat channels of same depth as liner, and terminate liner with nosing at hat channel.

1. Install steel volume dampers in steel ducts.
2. Install aluminum volume dampers in aluminum ducts.

E. Set dampers to fully open position before testing, adjusting, and balancing.

F. Connect diffusers or light troffer boots to ducts with maximum 60-inch (1500-mm) lengths of flexible duct clamped or strapped in place.

G. Install duct test holes where required for testing and balancing purposes.

H. Install thrust limits at centerline of thrust, symmetrical on both sides of equipment. Attach thrust limits at centerline of thrust and adjust to a maximum of 1/4-inch (6-mm) movement during start and stop of fans.

3.2 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Operate dampers to verify full range of movement.
2. Inspect locations of access doors and verify that purpose of access door can be performed.
3. Operate fire, smoke, and combination fire and smoke dampers to verify full range of movement and verify that proper heat-response device is installed.
4. Inspect turning vanes for proper and secure installation.
5. Operate remote damper operators to verify full range of movement of operator and damper.

END OF SECTION 233300

SECTION 233713.13
AIR DIFFUSERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Rectangular and square ceiling diffusers.
2. Louver face diffusers.
3. Linear bar diffusers.
4. Linear slot diffusers.
5. Light troffer diffusers.
6. High-capacity drum louver diffusers.

B. Related Requirements:

1. Section 233300 "Air Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to diffusers.
2. Section 233713.23 "Air Registers and Grilles" for adjustable-bar register and grilles, fixed-face registers and grilles, and linear bar grilles.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
2. Diffuser Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Ceiling suspension assembly members.

2. Method of attaching hangers to building structure.
3. Size and location of initial access modules for acoustical tile.

4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
5. Duct access panels.

B. Source quality-control reports.

PART 2 - PRODUCTS

2.1 RECTANGULAR AND SQUARE CEILING DIFFUSERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. METALAIRE, Inc.
2. Nailor Industries Inc.
3. Price Industries.
4. Titus.
5. Approved Equal.

B. Devices shall be specifically designed for variable-air-volume flows.

C. Material: Steel.

D. Finish: Baked enamel, white.

E. Face Size: As indicated on drawings.

F. Face Style: Plaque.

G. Mounting: To match application.

H. Pattern: Fixed.

2.2 LOUVER FACE DIFFUSERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. METALAIRE, Inc.
2. Nailor Industries Inc.
3. Price Industries.
4. Titus.
5. Approved Equal.

B. Devices shall be specifically designed for variable-air-volume flows.

C. Material: Steel.

D. Finish: Baked enamel, white.

E. Face Size: as indicated on Drawings.

F. Face: Louvered.

G. Mounting: To match application.

H. Pattern: Four-way core style, unless indicated otherwise on Drawings.

2.3 SOURCE QUALITY CONTROL

A. Verification of Performance: Rate diffusers according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas where diffusers are installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install diffusers level and plumb.

B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

C. Install diffusers with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.3 ADJUSTING

A. After installation, adjust diffusers to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 23371313

SECTION 233713.23

AIR REGISTERS AND GRILLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Adjustable blade face registers.
2. Fixed face grilles.

B. Related Requirements:

1. Section 233300 "Air Duct Accessories" for fire and smoke dampers and volume-control dampers not integral to registers and grilles.
2. Section 233713.13 "Air Diffusers" for various types of air diffusers.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
2. Register and Grille Schedule: Indicate drawing designation, room location, quantity, model number, size, and accessories furnished.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Ceiling suspension assembly members.
2. Method of attaching hangers to building structure.
3. Size and location of initial access modules for acoustical tile.
4. Ceiling-mounted items including lighting fixtures, diffusers, grilles, speakers, sprinklers, access panels, and special moldings.
5. Duct access panels.

B. Source quality-control reports.

PART 2 - PRODUCTS

2.1 REGISTERS

A. Adjustable Blade Face Supply Register

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. METALAIRE, Inc.
    b. Nailor Industries Inc.
    c. Price Industries.
    d. Titus.
    e. Approved Equal.

2. Material: Steel.

3. Finish: Baked enamel, white.
4. Face Blade Arrangement: Horizontal spaced 3/4 inch (19 mm) apart.
5. Core Construction: Removable.
6. Rear-Blade Arrangement: Vertical spaced 3/4 inch (19 mm) apart.
7. Frame: 1-1/4 inches (32 mm) wide.
8. Mounting: Countersunk screw.
9. Accessories:

    a. Rear-blade gang operator.

2.2 GRILLES

A. Fixed Face Return Grille

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Nailor Industries Inc.
    b. Price Industries.
    c. Titus.
    d. Approved Equal.

2. Material: Steel.

3. Finish: Baked enamel, white.
4. Face Blade Arrangement: Horizontal; spaced 3/4 inch (19 mm) apart.
5. Face Arrangement: Perforated core.
6. Core Construction: Integral.
7. Frame: 1-1/4 inches (32 mm) wide.

8. Mounting Frame: Filter.
9. Mounting: Countersunk screw Lay in.
10. Accessory: Filter.

2.3 SOURCE QUALITY CONTROL

A. Verification of Performance: Rate registers and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine areas where registers and grilles are installed for compliance with requirements for installation tolerances and other conditions affecting performance of equipment.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install registers and grilles level and plumb.

B. Outlets and Inlets Locations: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practical. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

C. Install registers and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.3 ADJUSTING

A. After installation, adjust registers and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 233713.23

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Electrical equipment coordination and installation.
2. Sleeves for raceways and cables.
3. Fire Rated Sleeves for cables.
4. Grout.
5. Common electrical installation requirements.
6. Utility company coordination requirements.

1.3 DEFINITIONS

A. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

B. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.

C. "Provide": Furnish and install, complete and ready for the intended use.

1.4 ACTION SUBMITTALS

A. Product Data: For Fire Rated Sleeves for cables.

1.5 INFORMATION SUBMITTALS

A. Coordination Drawings
1. Provide coordinated layout drawings (composite drawings), prior to commencing site work. Coordinate with trades on the site such as but not limited to HVAC, Plumbing, Electrical, Technologies, Finishes, Fire Protection, and Fire detection.
2. Coordination drawings shall include information furnished by trades Coordinate installation and location of but not limited to the following elements and trades: HVAC, Plumbing, Fire Protection, Electrical, Technology Systems, Architectural, Structural, and Specialty Systems.
3. Provide and indicate required maintenance access to equipment and maintain the clearances per manufacturer’s and applicable code requirements.

4. Prepare Drawings in Revit Model as follows:
   a. Utilize Revit Model release equal to design documents.
   b. Drawings to be same sheet size and scale as Contract Drawings.
   c. Indicate location, size and elevation above finished floor of equipment and distribution systems.
   d. Incorporate Addenda items and change orders.
5. Advise Architect in the event conflict occurs. Bear costs resulting from failure to properly coordinate installation or failure to advise Architect of conflict.
6. Verify in field exact size, location, and clearances regarding existing material, equipment and apparatus, and advise Architect of discrepancies between that indicated on Drawings and that existing in field prior to installation related thereto.
7. Submit final Coordination Drawings with changes as Record Drawings at completion of project.

1.6 COORDINATION

A. Trade Coordination: Include physical characteristics, electrical characteristics, device layout plans, wiring diagrams, and connections as required per Division 26, Electrical Coordination Documents. For equipment with electrical connections, furnish copy of approved submittal for inclusion in Division 26, Electrical submittal.

B. Location of electrical outlets and equipment:
   1. Location of electrical equipment shown on electrical drawings are diagrammatic. Unless indicated otherwise do not use electrical drawings to locate electrical equipment.
   2. Luminaires and outlets:
      a. Ceiling mounted luminaires and outlets: use architectural reflected ceiling plans and details to determine location unless indicated otherwise.
      b. Wall mounted luminaires and outlets:
         1) Use architectural elevation and section drawings to determine location unless indicated otherwise.
         2) Where architectural elevation and section drawings do not indicate location of wall outlets then locate the outlet within 12 inches of location shown on electrical drawings considering field conditions.
         3) Coordinate location with consideration of owner provided equipment such as wall mounted televisions, furniture, cabinets and the like.
      c. Cabinet mounted luminaires and outlets: use cabinet details and shop drawings to determine location unless indicated otherwise.
   3. Electrical equipment: Utilize approved manufacturer's shop drawing dimensions to determine location of equipment in space. Comply with NEC 110.26 access, working space and dedicated equipment space requirements. Maintain manufacturer requirements for maintenance access.

C. Shop Drawings: Provide coordinated shop drawings which include physical characteristics of all systems, device layout plans, and control wiring diagrams. Reference individual Division 26, Electrical specification sections for additional requirements for shop drawings outside of these requirements.

D. Electrical connections to equipment supplied by owner or other trades:

1. Prior to procurement of electrical equipment and field work coordinate with shop drawings and/or manufacturer's installation instructions the actual electrical characteristics of the equipment to be connected.
2. Notify engineer of significant deviations or conflicts between the shop drawings and/or the manufacturer's installation instructions and information in the contract documents.

E. Coordinate arrangement, mounting, and support of electrical equipment:

1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
3. To allow right of way for piping and conduit installed at required slope so connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.

F. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."

G. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

1.7 PERMITS AND FEES

A. Obtain and pay all fees for permits, licensing, and inspections applicable to work of Division 26

1.8 QUALITY ASSURANCE

A. Regulatory Requirements: Install work and materials to conform with local, State and Federal codes, and other applicable laws and regulations.

B. Drawings are intended to be diagrammatic and reflect the Basis of Design manufacturer's equipment. Drawings are not intended to show every item in its exact location, or details of equipment or proposed systems layout. Verify actual dimensions of systems (i.e. distribution equipment, light fixtures, etc.) and equipment proposed to assure that systems and equipment will ft in available space. Contractor is responsible for design and construction costs incurred for equipment other than Basis of Design, including, but not limited to, architectural, structural, electrical, HVAC, fire sprinkler, and plumbing systems.

C. Manufacturer's Instructions: Follow manufacturer's written instructions. If in conflict with Contract Documents, obtain clarification. Notify Engineer/Architect, in writing, before starting work.

D. Items shown on Drawings are not necessarily included in Specifications or vice versa. Confirm requirements in all Contract Documents. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

E. Provide Qualified Personnel that are thoroughly knowledgeable of applicable codes related to electrical systems to perform the electrical work. Installations shall be performed by skilled electrical tradesmen fully aware of the latest techniques, practices, and standards of the industry. Refer to N.E.C. Article 100-Definitions, Qualified Person.

F. Install electrical equipment and components in a neat and workmanlike manner in accordance with recognized practices and industry standards. Refer to N.E.C.110-12. Haphazard or poor installation practice will be cause for rejection of the work.

PART 2 - PRODUCTS

2.1 SUBSTITUTION LIMITATIONS FOR ELECTRICAL EQUIPMENT

A. Substitution requests for electrical equipment will be entertained under the following conditions:

1. Substitution requests may be submitted for consideration if accompanied by value analysis data indicating that substitution will comply with Project performance requirements while significantly increasing value for Owner throughout life of facility.
2. Substitution requests may be submitted for consideration concurrently with submission of power system study reports when those reports indicate that substitution is necessary for safety of maintenance personnel and facility occupants.
3. Contractor is responsible for sequencing and scheduling power system studies and electrical equipment procurement. Insufficient lead time for electrical equipment delivery will not be considered a valid reason for substitution.

B. Substitution and Variation from Basis of Design:

1. The Basis of Design designated product establishes the qualities and characteristics for the evaluation of any comparable products by other listed acceptable manufacturers if included in this Specification or included in an approved Substitution Request as judged by the Design Professional.

2. Proposed substitutions: If substitutions are proposed, it is the responsibility of parties concerned, involved in, and furnishing the substitute and/or equivalent equipment to verify and compare the characteristics and requirements of that furnished to that specified and/or shown. If greater capacity and/or more materials and/or more labor is required for the rough-in, circuitry or connections than for the item specified and provided for, then provide compensation for additional charges required for the proper rough-in, circuitry and connections for the equipment being furnished. No additional charges above the Base Bid, including resulting charges for work performed under other Divisions, will be allowed for such revisions. Coordinate with the requirements of "Submittals". For any product marked "or approved equivalent", a substitution request must be submitted to Engineer for approval prior to purchase, delivery or installation.

2.2 SLEEVES FOR RACEWAYS AND CABLES

A. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral water stop, unless otherwise indicated.

B. Sleeves for Rectangular Openings: Galvanized sheet steel.

1. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side more than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches (1270 mm) and 1 or more sides equal to, or more than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

C. EMT: Electrical Metallic Tubing.

D. PVC: Schedule 40 or 80.

2.3 FIRE RATED SLEEVES FOR CABLES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. 3M
2. Hilti
3. Specified Technologies, Inc (STI)
4. Wiremold.

B. Factory assembled rectangular steel pathway containing an intumescent insert material that adjusts automatically to cable addition or subtraction.

C. Sleeve shall have an F Rating equal to or greater than the rating of the wall in which the sleeve is installed.

D. Sleeve shall be UL listed and bear the UL Classification marking.

E. Sleeve shall be tested in accordance with ASTM E814 (ANSI/UL1479).

F. Provide square wall plate kits for single sleeve applications. Provide multi-gang wall/floor plate kits for ganged applications.

G. Subject to compatibility with requirements and field conditions, i.e. sleeve size, wall thickness, etc., acceptable products include the following:

1. 3M Fire Barrier Pass-Through Devices
2. Hilti Speed Sleeves
3. Specified Technologies Inc. EZ-Path Fire Rated Pathway (series 33).
4. Wiremold Flamestopper FS4 Series

2.4 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 INSTALLATION OF ELECTRICAL WORK

A. Unless more stringent requirements are specified in the Contract Documents or manufacturers' written instructions, comply with NFPA 70 and NECA NEIS 1 for installation of Work specified in Division 26. Consult Architect for resolution of conflicting requirements.

B. Comply with NECA 1.

C. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

D. Headroom Maintenance: If mounting heights or other location criteria are not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

E. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

F. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete, masonry and gypsum board walls, or fire-rated floor and wall assemblies.

B. Sleeves are required where cables (not in raceway) penetrate walls or floors. Sleeves are not required where raceways penetrate walls, except where raceways penetrate exterior walls/foundations below grade.

C. Concrete Slabs and Walls: Install sleeves during erection of slabs and walls.

D. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

E. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

F. Provide insulated bushings on EMT sleeves for cable not in conduit. Bushings shall be plenum rated where installed in a plenum.

G. Extend sleeves installed in floors 4 inches (100 mm) above finished floor level unless noted otherwise.

H. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable, unless indicated otherwise.

I. Seal space outside of sleeves with grout for penetrations of concrete and masonry.

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

J. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."

K. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."

L. Fire Rated Sleeves for cables: Fabricate openings in wall or floor assemblies per manufacturer’s recommendations.

3.3 SLEEVE APPLICATION

A. Sleeves for cables not in conduit:

1. Through Non-Rated Interior Walls: EMT sleeves.
2. Through Non-Rated Floors: EMT sleeves.
3. Through Fire Rated Interior Walls: Fire Rated Sleeves for cables.
4. Through Fire Rated Floors: Fire Rated Sleeves for cables.

B. Sleeves for conduits:

1. Through Exterior Walls Below Grade: Refer to details on structural Drawings. Absent any such details provide cast iron pipe or PVC, Schedule 40 or 80, sleeve two trade sizes larger than the conduit.

3.4 FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 260500

SECTION 260503 – DEMOLITION OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:

1. Demolition and removal of selected portion of electrical systems, including special systems normally specified in Division 27 and 28.
2. Salvage of existing items to be reused.
3. Salvage of existing items to be delivered to the Owner.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site unless indicated to be removed and salvaged or removed and reinstalled.

B. Remove and Salvage: Carefully detach from existing construction, in a manner to prevent damage, and deliver to Owner.

C. Remove and Reinstall: Detach items from existing construction, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Existing items of construction that are not to be permanently removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

B. Remove and salvage items noted as ‘salvage’, ‘return to Owner’ or similar manner on the Drawings.

C. Remove and salvage items as requested by the Owner. Conduct a meeting with the Owner prior to commencing demolition to determine items that the Owner wishes to retain.

1.5 PRE-TESTING

A. Prior to commencing work, perform testing of devices and systems to verify devices and systems to remain are in good working condition. Devices shall include wiring devices and lighting control devices.

B. Prepare a type written report documenting any items found to be damaged or in a non-working condition. Submit report to the Owner and Architect prior to commencing work. All devices and systems shall be considered in good working conditions if a report is not submitted and acknowledged by the Owner prior to commencing work.

C. Arrange a time to perform testing with the Owner with at least two weeks advanced notice.

D. Provide tests as follows on existing feeders to remain and notify engineer of any abnormalities:

1. Megger testing.

E. Provide tests as follows on existing branch panels, switchboards, switchgear, motor control centers, and other electrical distribution equipment:

1. Infrared scanning.
2. Grounding/bonding continuity.

F. Existing Branch Circuits that Remain: Trace and ring-out existing branch circuits. Update panel schedules and relabel outlets, disconnect switches, boxes, and the like with actual branch circuit designations. Include such information in record drawings.

G. Where infrared scanning results indicate excessive heat, tighten the mechanical lugs and retest after 24 hours.

H. Include testing reports for above in closeout documentation. Record measurements and actions taken.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 ELECTRICAL SYSTEMS DEMOLITION

A. Remove items depicted or denoted for demolition on the Drawings. Unless noted otherwise, removal of the items shall include devices, boxes, cable, supporting elements, raceway, etc. associated with the item back to the panelboard or nearest j-box or device to remain.

B. Drawings are intended to indicate the general scope of demolition work. Visit the Project site to verify existing conditions prior to bidding. Determine means and methods for performing work. Identify existing building finishes, ceiling types, access, and fire walls. Determine locations, routings, and distances as necessary. Coordinate with the Owner to gain access to the facility.

1. Wherever walls, ceilings, structures, or electric-powered equipment are indicated as being removed on the Drawings (including architectural demolition plans and mechanical demolition plans) remove associated electrical system components, equipment, devices, fixtures, raceways, and wiring. Remove, relocate, and extend existing installations, as necessary, to accommodate demolition work, new work, and to maintain the existing electrical installations that shall remain operational. Repair adjacent construction and finishes damaged during demolition and extension work. Patch openings to match existing surrounding finishes.
2. Disconnect and remove electrical devices and equipment serving utilization equipment that has been removed.
3. Disconnect and remove abandoned luminaires. Remove brackets, stems, hangers, and other accessories

C. Verify that abandoned wiring and equipment serve only abandoned equipment or facilities. Extend conduit and wire to loads that remain in operation (i.e., facilities, luminaires, wiring devices, equipment, etc.). Extension of conduit and wire to equipment shall be compatible with the surrounding area.

1. Maintain access to existing electrical installations that remain active. Modify installation or provide access panel and/or junction boxes where appropriate.
2. Remove exposed abandoned raceway, including abandoned raceway above accessible ceiling finishes. Cut raceway flush with walls and floors, and patch surfaces. Remove all associated clamps, hangers, supports, etc. associated with raceway removal.

D. Where existing conduits and/or cables, which remain in service, pass through areas to be renovated and where such conduits and/or cables interfere with new work, reroute these conduits and/or cables to avoid new construction. Provide necessary boxes, cables, splicing and fittings for the rerouting of the circuits. Field-verify to determine complete scope of work prior to bidding.

E. Existing conduit may remain if all the following are true:

1. Conduit will be reused to feed items installed under this contract.
2. Conduit does not interfere with other trades.
3. Conduit was originally installed meeting specifications related to this project.
4. Conduit will not be exposed in a finished area (unless noted otherwise).

F. Provide plugs on boxes to remain where conduits have been removed.

G. Conduits concealed in masonry walls or under concrete slabs may be cut back, sealed and abandoned.

H. Provide blank cover-plates on all abandoned boxes to remain in existing masonry or stud walls. Plate color and material shall match wiring devices plates specified for the project. In the

absence of such specification, match the color and material of existing wiring devices in the area.

I. Maintain power to end-of-line or downstream devices to remain. Provide raceways, boxes, conductors and all other necessary materials as required to re-establish damaged or interrupted feeders and branch circuits. Intercept existing feeders or branch circuits at nearest accessible space or device and reconnect to original feeder or branch circuit source.

J. Repair or replace ceilings, ceiling tiles, and ceiling-grids that are damaged by this contractor.

K. Electrical installations that remain shall be concealed, unless otherwise indicated or unless located within unfinished utility-type spaces. Cut and patch existing walls and ceilings as required. Exposed conduits and raceways will be rejected, unless prior approval has been obtained. Confirm scope of work and specific requirements for all such work directly with the Owner and the Architect.

L. Prior to drilling existing precast concrete walls, detect and locate existing structural members imbedded within the precast panels to ensure they are not damaged.

3.2 SPECIAL SYSTEMS DEMOLITION

A. Remove items depicted or denoted for demolition on the Drawings. Unless noted otherwise, removal of the items shall include devices, boxes, cable, supporting elements, etc. associated with the item back to the control panel, terminal block, punch block, patch panel, or similar type of termination point.

3.3 REMOVED MATERIALS

A. Existing wiring removed shall be regarded as scrap materials to be recycled by this contractor. Scrap value shall be determined by the contractor and accounted for in the contractor’s bid.

1. All other demolished electrical items shall be regarded as the Owner’s property. The Owner reserves the right to identify which items shall be salvaged—and, thus, carefully removed by this contractor and placed in storage on site as directed by the Owner. The contractor shall be responsible for the proper disposal of all demolished materials that the Owner does not want to salvage. Coordinate specific requirements directly with Owner.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

1. Ballasts in luminaires installed prior to 1980 shall be incinerated in EPA approved incinerator or disposed of in EPA certified containers and deposited in an EPA landfill certified for PCB disposal or recycled by permitted ballast recycler. Punctured or leaking ballasts must be disposed of according to Federal Regulations under the Toxic Substance Control Act. Provide to Owner and architect/engineer with a Certificate of Destruction to verify proper disposal.

2. HID and fluorescent lamps, determined by the Toxicity Characteristic Leachate procedure (TCLP), to be hazardous waste shall be disposed of in a permitted hazardous waste disposal facility or by a permitted lamp recycler.

END OF SECTION 260503

SECTION 260519 - LOW-VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Copper building wire rated 600 V or less.
2. **Metal-clad cable, Type MC, rated 600 V or less**
3. Connectors, splices, and terminations rated 600 V and less.

B. Related Requirements:
1. Section 260533 “Raceway and Boxes for Electrical Systems” for allowable applications of raceways and cable assemblies. Cable assemblies, such as Type MC cable, shall not be permitted unless noted otherwise.
2. Section 260553 “Identification for Electrical Systems” for conductor color coding.

1.3 DEFINITIONS

A. RoHS: Restriction of Hazardous Substances.

B. VFC: Variable-frequency controller.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

A. Field quality-control reports.

1.6 QUALITY ASSURANCE

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.

B. Comply with NFPA 70.

PART 2 - PRODUCTS

2.1 BUILDING WIRE

A. Copper Building Wire

1. Description: Flexible, insulated and uninsulated, drawn copper current-carrying conductor with an overall insulation layer or jacket, or both, rated 600 V or less.
2. Conductors: complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.[

B. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. RoHS compliant.
3. Conductor and Cable Marking: Comply with wire and cable marking according to UL's "Wire and Cable Marking and Application Guide."

C. Conductor Insulation:
1. Type THHN and Type THWN-2: Comply with UL 83.
2. Type XHHW-2: Comply with UL 44.

D. Temperature Ratings: All conductors shall be rated 90-degree C minimum.

2.2 METAL-CLAD CABLE, TYPE MC

A. Standards:

1. Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and use.
2. Comply with UL 1569.
3. RoHS compliant.

B. Circuits:

C. Single circuit.

D. Conductors: Copper, complying with ASTM B3 for bare annealed copper and with ASTM B8 for stranded conductors.

E. Ground Conductor: Insulated.

F. Conductor Insulation:

1. Type THHN/THWN-2: Comply with UL 83.

2. Type XHHW-2: Comply with UL 44.

G. Armor: Steel or Aluminum, interlocked.

H. Jacket: PVC applied over armor.

2.3 CONNECTORS AND SPLICES

A. Jacketed Cable Connectors: For steel and aluminum jacketed cables, zinc die-cast with set screws, designed to connect conductors specified in this Section.

B. Lugs: One piece, seamless, designed to terminate conductors specified in this Section.

1. Lugs for attachment to telecommunications systems grounding busbars shall be two-hole with long barrels and irreversible crimp terminations.

PART 3 - EXECUTION

3.1 CONDUCTOR MATERIAL APPLICATIONS

A. Feeders:
1. 100 amps and less: Copper stranded.
2. Over 100 amps: Copper, stranded.

A. Branch Circuits: Copper. Solid or stranded for No. 10 AWG and smaller; stranded for No. 8 AWG and larger.

3.2 CONDUCTOR INSULATION AND MULTICONDUCTOR CABLE APPLICATIONS AND WIRING METHODS

A. Feeders to Distribution Equipment and Panelboards: Type XHHW-2, single conductors in raceway.

B. Other Feeders and Branch Circuits: Type THHN-THWN, single conductors in raceway.

C. Conductors serving circuits downstream of a device with GFCI or GFP protection shall have XHHW-2 insulation.

D. Metal Clad Cable
1. Uses permitted:
   a. Branch circuits rated less than 50amps
   b. In areas that have accessible ceiling space
2. Uses not permitted:
   a. Feeders
   b. Homeruns that are more than 50 feet of cable length from device to panel.
   c. Areas where there is no access to the ceiling space

d. Areas that have no ceiling or exposed structure
e. Exposed
f. Wet or damp areas

3.3 CONDUCTOR SIZES

A. Minimum Wire Size (Interior Work): No. 12 AWG, except No. 14 AWG shall be permitted for signal, pilot control circuits and fixture whips.

B. Minimum Wire Size (Exterior Work): No 10 AWG.

C. Use #10 AWG minimum conductor size in lieu of #12 AWG minimum for 20 ampere, 120 volt branch circuits where homeruns are longer than 75 feet and for 20 ampere, 277 volt branch circuits where homeruns are longer than 175 feet. Increase in size as required for a maximum of 3 percent voltage drop from panel to load.

D. Derate conductors based on quantity of current carrying conductors in each conduit. Refer to the NEC for derating factors.

E. Derate conductors for high ambient temperatures. Refer to the NEC for derating factors.

3.4 INSTALLATION OF CONDUCTORS AND CABLES

A. Conceal cables in finished walls, ceilings, and floors unless otherwise indicated.

B. Complete raceway installation between conductor and cable termination points according to Section 260533 "Raceways and Boxes for Electrical Systems" prior to pulling conductors and cables.

C. Use manufacturer-approved pulling compound or lubricant where necessary; compound used must not deteriorate conductor or insulation. Do not exceed manufacturer's recommended maximum pulling tensions and sidewall pressure values.

D. Use pulling means, including fish tape, cable, rope, and basket-weave wire/cable grips, that will not damage cables or raceway.

E. Install exposed cables parallel and perpendicular to surfaces of exposed structural members, and follow surface contours where possible.

F. Support cables according to Section 260529 "Hangers and Supports for Electrical Systems."

G. Branch circuits serving receptacles and lighting loads shall have dedicated neutral conductors and shall not share a common neutral conductor. The use of handle ties across single pole circuit breakers to allow the use of a common neutral is not acceptable.

H. Multiwire Branch Circuits and Shared Neutrals:
1. Multiwire branch circuits (as defined by the NEC) and shared neutrals (common grounded conductors) are not permitted, except as follows:

a. Wherever a multiwire branch circuit is specifically indicated on the Drawings and a multi-pole breaker is provided in the panel from which it originates as a means to simultaneously disconnect all ungrounded conductors.

2. Derating factors shall be applied, per NEC Article 310, to multiple current-carrying conductors installed within the same conduit. Neutral conductors shall be regarded as current-carrying conductors. Wire sizes shall be increased as needed to maintain the ampacity that corresponds to the overcurrent protection device rating.

I.

3.5 CONNECTIONS

A. Tighten electrical connectors and terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not indicated, use those specified in UL 486A-486B.

B. Make splices, terminations, and taps that are compatible with conductor material and that possess equivalent or better mechanical strength and insulation ratings than unspliced conductors.

C. Wiring at Outlets: Install conductor at each outlet, with at least 6 inches (150 mm) of slack.

3.6 IDENTIFICATION

A. Identify and color-code conductors and cables according to Section 260553 "Identification for Electrical Systems."

B. Identify each spare conductor at each end with identity number and location of other end of conductor, and identify as spare conductor.

3.7 FIELD QUALITY CONTROL

A. Perform tests and inspections and prepared test reports.

1. Perform each of the following visual and electrical tests:

a. Inspect exposed sections of conductor and cable for physical damage and correct connection according to the single-line diagram.
b. Test bolted connections for high resistance using one of the following:

1) A low-resistance ohmmeter.
2) Calibrated torque wrench.
3) Thermographic survey.

c. Inspect compression-applied connectors for correct cable match and indentation.
d. Inspect for correct identification.
e. Inspect cable jacket and condition.
f. Insulation-resistance test on each conductor for ground and adjacent conductors. Apply a potential of 500-V dc for 300-V rated cable and 1000-V dc for 600-V rated cable for a one-minute duration.
g. Continuity test on each conductor and cable.
h. Uniform resistance of parallel conductors.

B. Cables will be considered defective if they do not pass tests and inspections.

C. Prepare test and inspection reports to record the following:

1. Procedures used.
2. Results that comply with requirements.
3. Results that do not comply with requirements, and corrective action taken to achieve compliance with requirements.

END OF SECTION 260519

SECTION 260526 - GROUNDING AND BONDING FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes grounding and bonding systems and equipment.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

B. Comply with UL 467 for grounding and bonding materials and equipment.

2.2 CONDUCTORS

A. Insulated Conductors: tinned-copper wire or cable insulated for 600 V unless otherwise required by applicable Code or authorities having jurisdiction.

B. Bare Copper Conductors:
   1. Solid Conductors: ASTM B3.
   2. Stranded Conductors: ASTM B8.
   3. Tinned Conductors: ASTM B33.
   4. Bonding Cable: 28 kcmil, 14 strands of No. 17 AWG conductor, 1/4 inch (6 mm) in diameter.
   5. Bonding Conductor: No. 4 or No. 6 AWG, stranded conductor.
   6. Bonding Jumper: Copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.
   7. Tinned Bonding Jumper: Tinned-copper tape, braided conductors terminated with copper ferrules; 1-5/8 inches (41 mm) wide and 1/16 inch (1.6 mm) thick.

2.3 CONNECTORS

A. Listed and labeled by an NRTL acceptable to authorities having jurisdiction for applications in which used and for specific types, sizes, and combinations of conductors and other items connected.

B. Welded Connectors: Exothermic-welding kits of types recommended by kit manufacturer for materials being joined and installation conditions.

C. Beam Clamps: Mechanical type, terminal, ground wire access from four directions, with dual, tin-plated or silicon bronze bolts.

D. Cable-to-Cable Connectors: Compression type, copper or copper alloy.

E. Cable Tray Ground Clamp: Mechanical type, zinc-plated malleable iron.

F. Conduit Hubs: Mechanical type, terminal with threaded hub.

G. Water Pipe Clamps:

1. Mechanical type, two pieces with zinc-plated bolts.

a. Material: Tin-plated aluminum.
b. Listed for direct burial.

2. U-bolt type with malleable-iron clamp and copper ground connector rated for direct burial.

PART 3 - EXECUTION

3.1 APPLICATIONS

A. Conductors: Install solid conductor for No. 8 AWG and smaller, and stranded conductors for No. 6 AWG and larger unless otherwise indicated.

B. Grounding Conductors: Green-colored insulation with continuous yellow stripe.

C. Conductor Terminations and Connections:

1. Pipe and Equipment Grounding Conductor Terminations: Bolted connectors.

3.2 EQUIPMENT GROUNDING

A. Install insulated equipment grounding conductors with all feeders and branch circuits.

B. Air-Duct Equipment Circuits: Install insulated equipment grounding conductor to duct-mounted electrical devices operating at 120 V and more, including air cleaners, heaters, dampers, humidifiers, and other duct electrical equipment. Bond conductor to each unit and to air duct and connected metallic piping.

3.3 INSTALLATION

A. Grounding Conductors: Route along shortest and straightest paths possible unless otherwise indicated or required by Code. Avoid obstructing access or placing conductors where they may be subjected to strain, impact, or damage.

B. Bonding Straps and Jumpers: Install in locations accessible for inspection and maintenance except where routed through short lengths of conduit.

1. Bonding to Structure: Bond straps directly to basic structure, taking care not to penetrate any adjacent parts.
2. Bonding to Equipment Mounted on Vibration Isolation Hangers and Supports: Install bonding so vibration is not transmitted to rigidly mounted equipment.

C. Grounding and Bonding for Piping:
1. Water Meter Piping: Use braided-type bonding jumpers to electrically bypass water meters. Connect to pipe with a bolted connector.
2. Bond each aboveground portion of gas piping system downstream from equipment shutoff valve.

D. Bonding Interior Metal Ducts: Bond metal air ducts to equipment grounding conductors of associated fans, blowers, electric heaters, and air cleaners. Install tinned bonding jumper to bond across flexible duct connections to achieve continuity.

E. Connections: Make connections so possibility of galvanic action or electrolysis is minimized. Select connectors, connection hardware, conductors, and connection methods so metals in direct contact are galvanically compatible.

1. Use electroplated or hot-tin-coated materials to ensure high conductivity and to make contact points closer in order of galvanic series.
2. Make connections with clean, bare metal at points of contact.
3. Make aluminum-to-steel connections with stainless-steel separators and mechanical clamps.
4. Make aluminum-to-galvanized-steel connections with tin-plated copper jumpers and mechanical clamps.
5. Coat and seal connections having dissimilar metals with inert material to prevent future penetration of moisture to contact surfaces.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections with the assistance of a factory-authorized service representative.

B. Tests and Inspections:

1. After installing grounding system but before permanent electrical circuits have been energized, test for compliance with requirements.
2. Inspect physical and mechanical condition. Verify tightness of accessible, bolted, electrical connections with a calibrated torque wrench according to manufacturer's written instructions.
    a. Perform tests by fall-of-potential method according to IEEE 81.

C. Grounding system will be considered defective if it does not pass tests and inspections.

D. Prepare test and inspection reports.

E. Report measured ground resistances:

F. Excessive Ground Resistance: If resistance to ground exceeds specified values, notify Architect promptly and include recommendations to reduce ground resistance.

END OF SECTION 260526

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Steel slotted support systems.
2. Conduit and cable support devices.
3. Support for conductors in vertical conduit.
4. Structural steel for fabricated supports and restraints.
5. Mounting, anchoring, and attachment components, including powder-actuated fasteners, mechanical expansion anchors, concrete inserts, clamps, through bolts, toggle bolts, and hanger rods.
6. Fabricated metal equipment support assemblies.

1.3 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plan(s) and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Suspended ceiling components.
2. Ductwork, piping, fittings, and supports.
3. Structural members to which hangers and supports will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Items penetrating finished ceiling, including the following:

    a. Luminaires.
    b. Air outlets and inlets.
    c. Speakers.
    d. Sprinklers.
    e. Access panels.
    f. Projectors.

B. Welding certificates.

1.4 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M – Structural Welding Code - Steel.
2. AWS D1.2/D1.2M – Structural Welding Code - Aluminum.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design hanger and support system.

2.2 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Preformed steel channels and angles with minimum 13/32-inch-(10-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c. in at least one surface.
1. Standard: Comply with MFMA-4 factory-fabricated components for field assembly.
2. Material for Channel, Fittings, and Accessories: Galvanized steel.
3. Channel Width: Selected for applicable load criteria.
4. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.

B. Conduit and Cable Support Devices: Steel hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

C. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for nonarmored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be made of malleable iron.

D. Structural Steel for Fabricated Supports and Restraints: ASTM A36/A36M steel plates, shapes, and bars; black and galvanized.

E. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated steel, for use in hardened portland cement concrete, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

2. Concrete Inserts: Steel or malleable-iron, slotted support system units are similar to MSS Type 18 units and comply with MFMA-4 or MSS SP-58.
3. Clamps for Attachment to Steel Structural Elements: MSS SP-58 units are suitable for attached structural element.

4. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM F3125/F3125M, Grade A325 (Grade A325M).
5. Toggle Bolts: All-steel springhead type.
6. Hanger Rods: Threaded steel.

2.3 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Section 061053 "Misc. Rough Carpentry" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with the following standards for application and installation requirements of hangers and supports, except where requirements on Drawings or in this Section are stricter:

1. NECA 1.
2. NECA 101
3. NECA 105.

B. Comply with requirements in Section 078413 "Penetration Firestopping" for firestopping materials and installation for penetrations through fire-rated walls, ceilings, and assemblies.

C. Comply with requirements for raceways and boxes specified in Section 260533 "Raceways and Boxes for Electrical Systems."

D. Maximum Support Spacing and Minimum Hanger Rod Size for Raceways: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.

E. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slottedsupport system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT IMC and RMC may be supported by openings through structure members, according to NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts.
6. To Light Steel: Sheet metal screws.
7. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that comply with seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid the need for reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Section 061053 "Misc. Rough Carpentry" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated, but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 4500-psi (31.0-MPa), 28-day compressive-strength concrete.

C. Anchor equipment to concrete base as follows:

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturer's written instructions.

3.5 PAINTING

A. Touchup: Comply with requirements in Section 099123 "Interior Painting" for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A780.

END OF SECTION 260529

SECTION 260533 - RACEWAYS AND BOXES FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Metal conduits and fittings.
2. Nonmetallic conduits and fittings.
3. Surface raceways.
4. Boxes, enclosures, and cabinets.

B. Related Requirements:

1. Section 078413 "Penetration Firestopping" for firestopping at conduit and box entrances.
2. Section 260519 “Low-Voltage Power Conductors and Cables” for cable assemblies such as metal clad cable. See part 3 in section 260513 for application for metal clad cable.

1.3 DEFINITIONS

A. GRC: Galvanized rigid steel conduit.

B. IMC: Intermediate metal conduit.

1.4 ACTION SUBMITTALS

A. Product Data: For surface raceways, wireways and fittings, floor boxes, hinged-cover enclosures, and cabinets.
B. Shop Drawings: For custom enclosures and cabinets. Include plans, elevations, sections, and attachment details.

1.5 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Conduit routing plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of items involved:

1. Structural members in paths of conduit groups with common supports.

2. HVAC and plumbing items and architectural features in paths of conduit groups with common supports.

PART 2 - PRODUCTS

2.1 METAL CONDUITS AND FITTINGS

A. Metal Conduit:
1. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. GRC: Comply with ANSI C80.1 and UL 6.
3. IMC: Comply with ANSI C80.6 and UL 1242.
4. EMT: Comply with ANSI C80.3 and UL 797.
5. FMC: Comply with UL 1; zinc-coated steel.

B. Metal Fittings:
1. Comply with NEMA FB 1 and UL 514B.
2. Listing and Labeling: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
3. Fittings, General: Listed and labeled for type of conduit, location, and use.
4. Fittings for EMT:
   a. Material: Steel.
   b. Type: compression.
5. Expansion Fittings: PVC or steel to match conduit type, complying with UL 651, rated for environmental conditions where installed, and including flexible external bonding jumper.

C. Joint Compound for IMC, GRC, or ARC: Approved, as defined in NFPA 70, by authorities having jurisdiction for use in conduit assemblies, and compounded for use to lubricate and protect threaded conduit joints from corrosion and to enhance their conductivity.

2.2 NONMETALLIC CONDUITS AND FITTINGS

A. Nonmetallic Conduit:
1. Listing and Labeling: Nonmetallic conduit shall be listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.
2. RNC: Type EPC-40-PVC, complying with NEMA TC 2 and UL 651 unless otherwise indicated.
3. Rigid HDPE: Comply with UL 651A.
4. Continuous HDPE: Comply with UL 651B.

B. Nonmetallic Fittings:
1. Fittings, General: Listed and labeled for type of conduit, location, and use.
2. Fittings for RNC: Comply with NEMA TC 3; match to conduit or tubing type and material.

3. Solvents and Adhesives: As recommended by conduit manufacturer.

2.3 BOXES, ENCLOSURES, AND CABINETS

A. General Requirements for Boxes, Enclosures, and Cabinets: Boxes, enclosures, and cabinets installed in wet locations shall be listed for use in wet locations.

B. Sheet Metal Outlet and Device Boxes: Comply with NEMA OS 1 and UL 514A.

C. Cast-Metal Outlet and Device Boxes: Comply with NEMA FB 1, ferrous alloy, Type FD, with gasketed cover.

A. Steel Surface-Mount Boxes for Finished Spaces (only where specified): NEMA OS 1, cast bell-box style, no visible knockouts, no holes, no gaps, no sharp edges, smooth, size to match flush faceplate dimensions.

B. Stainless Steel Surface-Mount Boxes (only where specified): NEMA OS 1, cast stainless steel bell-box style for finished spaces, no visible knockouts, no holes, no gaps, no sharp edges, smooth, size to match flush faceplate dimensions.

C. Luminaire Outlet Boxes: Nonadjustable, designed for attachment of luminaire weighing 50 lb (23 kg). Outlet boxes designed for attachment of luminaires weighing more than 50 lb (23 kg) shall be listed and marked for the maximum allowable weight.

D. Small Sheet Metal Pull and Junction Boxes: NEMA OS 1.

E. Cast-Metal Access, Pull, and Junction Boxes: Comply with NEMA FB 1 and UL 1773, galvanized, cast iron with gasketed cover.

F. Box extensions used to accommodate new building finishes shall be of same material as recessed box.

G. Device Box Dimensions: 4 inches by 2-1/8 inches by 2-1/8 inches deep (100 mm by 60 mm by 60 mm deep).

H. Gangable boxes are allowed.

I. Hinged-Cover Enclosures: Comply with UL 50 and NEMA 250, Type 1 for indoor dry locations and Type 4 for wet and outdoor locations with continuous-hinge cover with flush latch unless otherwise indicated.

1. Metal Enclosures: Steel, finished inside and out with manufacturer's standard enamel.
2. Interior Panels: Steel; all sides finished with manufacturer's standard enamel.

2.4 SLEEVE AND SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Advance Products & Systems, Inc.
2. Calpico, Inc.
3. Metraflex Co.
4. Pipeline Seal and Insulator, Inc.

C. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and cable.

1. Sealing Elements: EPDM (Ethylene-propylene-diene terpolymer rubber) or NBR (Acrylonitrile-butadiene rubber) interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
2. Pressure Plates: Plastic or carbon steel or stainless steel. Include two for each sealing element.
3. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating or stainless steel of length required to secure pressure plates to sealing elements. Include one for each sealing element.

D. Grout: Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, non-staining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 RACEWAY APPLICATION

A. Indoors: Apply raceway products as specified below unless otherwise indicated:

1. Exposed, Not Subject to Physical Damage: EMT.
2. Exposed, Not Subject to Severe Physical Damage: EMT.
3. Exposed and Subject to Severe Physical Damage: GRC or IMC.

4. Concealed in Ceilings and Interior Walls and Partitions: EMT.
5. Boxes and Enclosures: NEMA 250, Type 1.

B. Minimum Raceway Size:
1. Indoor areas: 1/2-inch trade size minimum

C. Raceway Fittings: Compatible with raceways and suitable for use and location.

1. Rigid and Intermediate Steel Conduit: Use threaded rigid steel conduit fittings unless otherwise indicated. Comply with NEMA FB 2.10.

2. EMT: Use compression, steel fittings. Comply with NEMA FB 2.10.
3. flexible Conduit: Use only fittings listed for use with flexible conduit. Comply with NEMA FB 2.20.

D. Do not install nonmetallic conduit where ambient temperature exceeds 120 deg F (49 deg C).

3.2 INSTALLATION

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for hangers and supports.

B. Comply with NECA 1 and NECA 101 for installation requirements except where requirements on Drawings or in this article are stricter. Comply with NECA 102 for aluminum conduits. Comply with NFPA 70 limitations for types of raceways allowed in specific occupancies and number of floors.

C. Do not install raceways or electrical items on any rotating equipment.

D. Keep raceways at least 6 inches (150 mm) away from parallel runs of flues and steam or hot-water pipes. Install horizontal raceway runs above water and steam piping.

E. Complete raceway installation before starting conductor installation.

F. Arrange stub-ups so curved portions of bends are not visible above finished slab.

G. Install no more than the equivalent of three 90-degree bends in any conduit run except for control wiring conduits, for which fewer bends are allowed. Support within 12 inches (300 mm) of changes in direction.

H. Make bends in raceway using large-radius preformed ells. Field bending shall be according to NFPA 70 minimum radii requirements. Use only equipment specifically designed for material and size involved.

I. Conceal conduit within finished walls, ceilings, and floors unless otherwise indicated. Install conduits parallel or perpendicular to building lines. The following are exceptions for concealing conduits:
1. Where specifically noted or indicated on the drawings
2. Electrical rooms with surface mounted panels
3. Mechanical rooms
4. In open ceilings with exposed structure
5. Unfinished utility corridors with exposed ceiling structure.

J. Support conduit within 12 inches (300 mm) of enclosures to which attached.

K. Stub-Ups to Above Recessed Ceilings:

1. Use EMT, IMC, or RMC for raceways.
2. Use a conduit bushing or insulated fitting to terminate stub-ups not terminated in hubs or in an enclosure.

L. Threaded Conduit Joints, Exposed to Wet, Damp, Corrosive, or Outdoor Conditions: Apply listed compound to threads of raceway and fittings before making up joints. Follow compound manufacturer's written instructions.

M. Raceway Terminations at Locations Subject to Moisture or Vibration: Use insulating bushings to protect conductors including conductors smaller than No. 4 AWG.

N. Terminate threaded conduits into threaded hubs or with locknuts on inside and outside of boxes or cabinets. Install bushings on conduits up to 1-1/4-inch (35mm) trade size and insulated throat metal bushings on 1-1/2-inch (41-mm) trade size and larger conduits terminated with locknuts. Install insulated throat metal grounding bushings on service conduits.

O. Install raceways square to the enclosure and terminate at enclosures with locknuts. Install locknuts hand tight plus 1/4 turn more.

P. Do not rely on locknuts to penetrate nonconductive coatings on enclosures. Remove coatings in the locknut area prior to assembling conduit to enclosure to assure a continuous ground path.

Q. Cut conduit perpendicular to the length. For conduits 2-inch (53-mm) trade size and larger, use roll cutter or a guide to make cut straight and perpendicular to the length.

R. Install pull wires in empty raceways. Use polypropylene or monofilament plastic line with not less than 200-lb (90-kg) tensile strength. Leave at least 12 inches (300 mm) of slack at each end of pull wire. Cap underground raceways designated as spare above grade alongside raceways in use.

S. Surface Raceways:

1. Install surface raceway with a minimum 2-inch (50-mm) radius control at bend points.
2. Secure surface raceway with screws or other anchor-type devices at intervals not exceeding 48 inches (1200 mm) and with no less than two supports per straight raceway section. Support surface raceway according to manufacturer's written instructions. Tape and glue are not acceptable support methods.

T. Install devices to seal raceway interiors at accessible locations. Locate seals so no fittings or boxes are between the seal and the following changes of environments. Seal the interior of all raceways at the following points:

1. Where conduits pass from warm to cold locations, such as boundaries of refrigerated spaces or from conditioned spaces to non-conditioned spaces or to exterior structures.
2. Where otherwise required by NFPA 70.

U. Comply with manufacturer's written instructions for solvent welding RNC and fittings.

V. flexible Conduit Connections: Comply with NEMA RV 3. Use a maximum of 72 inches (1830 mm) of flexible conduit for recessed and semi-recessed luminaires, equipment subject to vibration, noise transmission, or movement; and for transformers and motors.

W. Mount boxes at heights indicated on Drawings. If mounting heights of boxes are not individually indicated, give priority to ADA requirements. Install boxes with height measured to center of box unless otherwise indicated.

X. Recessed Boxes in Masonry Walls: Saw-cut opening for box in center of cell of masonry block, and install box flush with surface of wall. Prepare block surfaces to provide a flat surface for a raintight connection between box and cover plate or supported equipment and box.

Y. Horizontally separate boxes mounted on opposite sides of walls so they are not in the same vertical channel.

Z. Locate boxes so that cover or plate will not span different building finishes.

AA. Support boxes of three gangs or more from more than one side by spanning two framing members or mounting on brackets specifically designed for the purpose.

BB. Fasten junction and pull boxes to or support from building structure. Do not support boxes by conduits.

CC. Set metal floor boxes level and flush with finished floor surface.

1. Existing Hollow Walls (such as stud walls, hollow masonry walls, or other wall types with internal voids or vertical cavities):

   a. Outlet Boxes: If possible, use existing openings in wall, provided the opening is positioned within 24-inches of the location shown on plan for the new outlet. Otherwise, cut and patch wall as needed to install box flush.
   b. Conduit: If possible, fish FMC (or MC cabling where permitted) down within the existing wall cavity. Otherwise, saw-cut and patch wall as needed to conceal conduit within the wall. Finish wall to match original.
   c. This Contractor shall visit the facility to review existing conditions and determine means and methods of installation prior to bidding.
   d. Where specifically identified on the drawings, use surface-mounted boxes and or surface-mounted conduit painted to match the surrounding finishes.

2. Existing Solid Walls (such as precast panels or filled masonry walls):

   a. Use surface-mounted boxes and or surface-mounted conduit painted to match the surrounding finishes.

3. Existing Floors: Cut and patch existing floors as needed to accommodate new installations. Coordinate all such work with the general contractor prior to bidding.

3.3 FIRESTOPPING

A. Install firestopping at penetrations of fire-rated floor and wall assemblies. Comply with requirements in Section 078413 "Penetration Firestopping."

3.4 PROTECTION

A. Protect coatings, finishes, and cabinets from damage and deterioration.

1. Repair damage to galvanized finishes with zinc-rich paint recommended by manufacturer.
2. Repair damage to PVC coatings or paint finishes with matching touchup coating recommended by manufacturer.

END OF SECTION 260533

SECTION 260553 - IDENTIFICATION FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Color and legend requirements for raceways, conductors, and warning labels and signs.
2. Labels.
3. Bands and tubes.
4. Tapes and stencils.
5. Tags.
6. Signs.
7. Cable ties.
8. Paint for identification.
9. Fasteners for labels and signs.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for electrical identification products.

B. Identification Schedule: For each piece of electrical equipment and electrical system components to be an index of nomenclature for electrical equipment and system components used in identification signs and labels. Use same designations indicated on Drawings.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with NFPA 70.

B. Comply with ANSI Z535.4 for safety signs and labels.

C. Adhesive-attached labeling materials, including label stocks, laminating adhesives, and inks used by label printers, shall comply with UL 969.

D. Thermal Movements: Allow for thermal movements from ambient and surface temperature changes.

1. Temperature Change: 120 deg F (67 deg C), ambient; 180 deg F (100 deg C), material surfaces.

2.2 COLOR AND LEGEND REQUIREMENTS

A. Raceways and Cables Carrying Circuits at 600 V or Less:

1. Black letters on an orange field.
2. Legend: Indicate voltage and system or service type.

B. Color-Coding for Phase- Identification, 600 V or Less: Use colors listed below for ungrounded branch-circuit conductors.

1. Color shall be factory applied or field applied for sizes larger than No. 8 AWG if authorities having jurisdiction permit.
2. Colors for 208/120-V Circuits:

a. Phase A: Black.
b. Phase B: Red.
c. Phase C: Blue.
d. Neutral: White

3. Color for Equipment Grounds: Green.

C. Warning Label Colors:

1. Identify system voltage with black letters on an orange background.

D. Warning labels and signs shall include, but are not limited to, the following legends:

1. Multiple Power Source Warning: "DANGER - ELECTRICAL SHOCK HAZARD - EQUIPMENT HAS MULTIPLE POWER SOURCES."
2. Workspace Clearance Warning: "WARNING - OSHA REGULATION - AREA IN FRONT OF ELECTRICAL EQUIPMENT MUST BE KEPT CLEAR"

E. Equipment Identification Labels:
1. Black letters on a white field.

2.3 LABELS

A. Vinyl Wraparound Labels: Preprinted, flexible labels laminated with a clear, weather- and chemical-resistant coating and matching wraparound clear adhesive tape for securing label ends.

B. Snap-around Labels: Slit, pretensioned, flexible, preprinted, color-coded acrylic sleeves, with diameters sized to suit diameters and that stay in place by gripping action.

C. Self-Adhesive Wraparound Labels: Preprinted, 3-mil- (0.08-mm-) thick, polyester or vinyl flexible label with acrylic pressure-sensitive adhesive.
1. Self-Lamination: Clear; UV-, weather- and chemical-resistant; self-laminating, protective shield over the legend. Labels sized such that the clear shield overlaps the entire printed legend.
2. Marker for Labels: Permanent, waterproof, black ink marker recommended by tag manufacturer.
3. Marker for Labels: Machine-printed, permanent, waterproof, black ink recommended by printer manufacturer.

D. Self-Adhesive Labels: Polyester or Vinyl, thermal, transfer-printed, 3-mil- (0.08-mm-) thick, multicolor, weather- and UV-resistant, pressure-sensitive adhesive labels, configured for intended use and location.
   1. Minimum Nominal Size:

      a. 1-1/2 by 6 inches (37 by 150 mm) for raceway and conductors.
      b. 3-1/2 by 5 inches (76 by 127 mm) for equipment.
      c. As required by authorities having jurisdiction.

2.4 BANDS AND TUBES

A. Snap-around, Color-Coding Bands: Slit, pretensioned, flexible, solid-colored acrylic sleeves, 2 inches (50 mm) long, with diameters sized to suit diameters and that stay in place by gripping action.

2.5 TAPES AND STENCILS

A. Self-Adhesive Vinyl Tape: Colored, heavy duty, waterproof, fade resistant; not less than 3 mils (0.08 mm) thick by 1 to 2 inches (25 to 50 mm) wide; compounded for outdoor use.

B. Floor Marking Tape: 2-inch- (50-mm-) wide, 5-mil (0.125-mm) pressure-sensitive vinyl tape, with yellow and black stripes and clear vinyl overlay.

C. Stenciled Legend: In nonfading, waterproof, [**black**] <**Insert color**> ink or paint. Minimum letter height shall be 1 inch (25 mm).

2.6 TAGS

A. Nonmetallic Preprinted Tags: Polyethylene tags, 0.015 inch (0.38 mm) thick, color-coded for phase and voltage level, with factory printed permanent designations; punched for use with self-locking cable tie fastener.

2.7 SIGNS

A. Laminated Acrylic or Melamine Plastic Signs:
   1. Engraved legend.
   2. Thickness:

      a. For signs up to 20 sq. in. (129 sq. cm), minimum 1/16 inch (1.6 mm) thick.
      b. For signs larger than 20 sq. in. (129 sq. cm), 1/8 inch (3.2 mm) thick.
      c. Engraved legend with black letters on white face.
      d. Self-adhesive.
      e. Framed with mitered acrylic molding and arranged for attachment at applicable equipment.

2.8 CABLE TIES

A. General-Purpose Cable Ties: Fungus inert, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black, except where used for color-coding.

B. UV-Stabilized Cable Ties: Fungus inert, designed for continuous exposure to exterior sunlight, self-extinguishing, one piece, self-locking, and Type 6/6 nylon.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D638: 12,000 psi (82.7 MPa).
3. Temperature Range: Minus 40 to plus 185 deg F (Minus 40 to plus 85 deg C).
4. Color: Black.

C. Plenum-Rated Cable Ties: Self-extinguishing, UV stabilized, one piece, and self-locking.

1. Minimum Width: 3/16 inch (5 mm).
2. Tensile Strength at 73 Deg F (23 Deg C) according to ASTM D638: 7000 psi (48.2 MPa).
3. UL 94 Flame Rating: 94V-0.
4. Temperature Range: Minus 50 to plus 284 deg F (Minus 46 to plus 140 deg C).
5. Color: Black.

2.9 MISCELLANEOUS IDENTIFICATION PRODUCTS

A. Paint: Comply with requirements in painting Sections for paint materials and application requirements. Retain paint system applicable for surface material and location (exterior or interior).

B. Fasteners for Labels and Signs: Self-tapping, stainless-steel screws or stainless-steel machine screws with nuts and flat and lock washers.

PART 3 - EXECUTION

3.1 PREPARATION

A. Self-Adhesive Identification Products: Before applying electrical identification products, clean substrates of substances that could impair bond, using materials and methods recommended by manufacturer of identification product.

3.2 INSTALLATION

A. Verify and coordinate identification names, abbreviations, colors, and other features with requirements in other Sections requiring identification applications, Drawings, Shop Drawings, manufacturer's wiring diagrams, and operation and maintenance manual. Use consistent designations throughout Project.

B. Install identifying devices before installing acoustical ceilings and similar concealment.

C. Verify identity of each item before installing identification products.

D. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and operation and maintenance manual.

E. Apply identification devices to surfaces that require finish after completing finish work.

F. Install signs with approved legend to facilitate proper identification, operation, and maintenance of electrical systems and connected items.

G. System Identification for Raceways and Cables under 600 V: Identification shall completely encircle cable or conduit. Place identification of two-color markings in contact, side by side.

1. Secure tight to surface of conductor, cable, or raceway.

H. Auxiliary Electrical Systems Conductor Identification: Identify field-installed alarm, control, and signal connections.

I. Elevated Components: Increase sizes of labels, signs, and letters to those appropriate for viewing from the floor.

J. Accessible Fittings for Raceways: Identify the covers of each junction and pull box of the following systems with the wiring system legend and system voltage. System legends shall be as follows:

1. "EMERGENCY POWER."
2. "POWER."

K. Vinyl Wraparound Labels:

1. Secure tight to surface of raceway or cable at a location with high visibility and accessibility.
2. Attach labels that are not self-adhesive type with clear vinyl tape, with adhesive appropriate to the location and substrate.

L. Snap-around Labels: Secure tight to surface at a location with high visibility and accessibility.

M. Self-Adhesive Wraparound Labels: Secure tight to surface at a location with high visibility and accessibility.

N. Self-Adhesive Labels:

1. On each item, install unique designation label that is consistent with wiring diagrams, schedules, and operation and maintenance manual.
2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high label; where two lines of text are required, use labels 2 inches (50 mm) high.

O. Snap-around Color-Coding Bands: Secure tight to surface at a location with high visibility and accessibility.

P. Marker Tapes: Secure tight to surface at a location with high visibility and accessibility.

Q. Self-Adhesive Vinyl Tape: Secure tight to surface at a location with high visibility and accessibility.
   1. Field-Applied, Color-Coding Conductor Tape: Apply in half-lapped turns for a minimum distance of 6 inches (150 mm) where splices or taps are made. Apply last two turns of tape with no tension to prevent possible unwinding.

R. Floor Marking Tape: Apply stripes to finished surfaces following manufacturer's written instructions.

S. Nonmetallic Preprinted Tags:

   1. Place in a location with high visibility and accessibility.
   2. Secure using cable ties.

T. Laminated Acrylic or Melamine Plastic Signs:

   1. Attach signs that are not self-adhesive type with mechanical fasteners appropriate to the location and substrate.
   2. Unless otherwise indicated, provide a single line of text with 1/2-inch- (13-mm-) high letters on 1-1/2-inch- (38-mm-) high sign; where two lines of text are required, use labels 2 inches (50 mm) high.

U. Cable Ties: General purpose, for attaching tags, except as listed below:

   1. Outdoors: UV-stabilized nylon.
   2. In Spaces Handling Environmental Air: Plenum rated.

3.3 IDENTIFICATION SCHEDULE

A. Install identification materials and devices at locations for most convenient viewing without interference with operation and maintenance of equipment. Install access doors or panels to provide view of identifying devices.

B. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, pull points, and locations of high visibility. Identify by system and circuit designation.

C. Accessible Raceways and Metal-Clad Cables, 600 V or Less, for Branch Circuits, More Than 30 A: Identify with self-adhesive raceway labels or vinyl tape applied in bands.
   1. Locate identification at changes in direction, at penetrations of walls and floors, at 50-foot (15-m) maximum intervals in straight runs, and at 25-foot (7.6-m) maximum intervals in congested areas.

   2. Apply the following identification colors:

      a. 208Y/120 Volt, Distribution System: White.
      b. Fire Alarm System: Red.
      c. Motor and Other Control Systems: Black.
      d. Emergency 208Y/120 Volt Distribution System: White/Yellow.
      e. Ground: Green.

D. Accessible Fittings for Raceways and Cables within Buildings: Identify the covers of each junction and pull box of the following systems with self-adhesive labels containing the wiring system legend and system voltage. System legends shall be as follows:

1. "EMERGENCY POWER."
2. "POWER."

E. Control-Circuit Conductor Identification: For conductors and cables in pull and junction boxes, manholes, and handholes, use self-adhesive labels with the conductor or cable designation, origin, and destination.

F. Auxiliary Electrical Systems Conductor Identification: Marker tape or Self-adhesive vinyl tape that is uniform and consistent with system used by manufacturer for factory-installed connections.
1. Identify conductors, cables, and terminals in enclosures and at junctions, terminals, and pull points. Identify by system and circuit designation.
2. Use system of marker tape designations that is uniform and consistent with system used by manufacturer for factory-installed connections.
3. Coordinate identification with Project Drawings, manufacturer's wiring diagrams, and the Operation and Maintenance Manual.
4. Identify the following systems with color-coded, self-adhesive vinyl tape applied in bands or snap-around color-coding bands:

a. Fire Alarm System: Red.
b. Mechanical and Electrical Supervisory System: Brown.

G. Workspace Indication: Apply floor marking tape to finished surfaces. Show working clearances in the direction of access to live parts. Workspace shall comply with NFPA 70 and 29 CFR 1926.403 unless otherwise indicated. Do not install at flush-mounted panelboards and similar equipment in finished spaces.

H. Instructional Signs: Self-adhesive labels, including the color code for grounded and ungrounded conductors.

I. Operating Instruction Signs: Self-adhesive labels.

J. Emergency Operating Instruction Signs: Self-adhesive labels with white legend on a red background with minimum 3/8-inch- (10-mm-) high letters for emergency instructions at equipment used for power transfer.

K. Equipment Identification Labels:

1. Indoor Equipment: Self-adhesive label.
2. Equipment to Be Labeled:

a. Panelboards: Typewritten directory of circuits in the location provided by panelboard manufacturer. Panelboard identification shall be in the form of a self-adhesive, engraved, laminated acrylic or melamine label.
b. Enclosures and electrical cabinets.
c. Access doors and panels for concealed electrical items.
d. Emergency system boxes and enclosures.
e. Push-button stations.
f. Power-transfer equipment.
g. Contactors.

h. Remote-controlled switches, dimmer modules, and control devices.
i. Battery-inverter units.

END OF SECTION 260553

SECTION 260800 - COMMISSIONING OF ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Electrical equipment connected to Normal electrical systems, including the following:
   a. branch-circuit panelboards.
   b. Grounding systems.

2. Electrical equipment connected to Essential electrical systems that provide an alternative source of power in the absence of power from the Normal electrical system, including the following:
   a. branch-circuits.
   b. Grounding systems.

3. Controls and instrumentation, including the following:
   a. Lighting control systems.

4. Systems testing and verification, including Normal and Emergency electrical systems, and transitions from Normal to Emergency electrical systems and back.

1.2 DEFINITIONS

A. "Systems," "Assemblies," "Subsystems," "Equipment," and "Components": Where these terms are used together or separately, they mean "as-built" systems, assemblies, subsystems, equipment, and components.

1.3 INFORMATIONAL SUBMITTALS

A. Construction Checklists by CxA: Draft construction checklists will be created by CxA for Contractor review.

B. Construction Checklists by Contractor: Include the following for construction checklists:

1. Instrumentation and control for electrical systems.
2. Instrumentation and control for lighting control systems.
3. Low-voltage power cables.
4. Control voltage power cables.
5. branch circuits.
6. Low-voltage power circuit breakers.
7. Grounding systems.
8. Ground-fault protection systems.
9. Panelboards.

10. Battery systems.
11. VRLA batteries.
12. Lighting.

1.4 QUALITY ASSURANCE

A. Testing Equipment and Instrumentation Quality and Calibration: For test equipment and instrumentation required to perform electrical Cx work, perform the following:

1. Submit test equipment and instrumentation list. For each equipment or instrument, identify the following:

    a. Equipment/instrument identification number.
    b. Planned Cx application or use.
    c. Manufacturer, make, model, and serial number.
    d. Calibration history, including certificates from agencies that calibrate the equipment and instrumentation.

2. Test equipment and instrumentation must meet the following criteria:

    a. Capable of testing and measuring performance within the specified acceptance criteria.
    b. Be calibrated at manufacturer's recommended intervals with current calibration tags permanently affixed to the instrument being used.
    c. Be maintained in good repair and operating condition throughout duration of use on Project.
    d. Be recalibrated/repaired if dropped or damaged in any way since last calibrated.

B. Proprietary Test Instrumentation and Tools:

1. Equipment Manufacturer's Proprietary Instrumentation and Tools: For installed equipment included in the Cx process, test instrumentation and tools manufactured or prescribed by equipment manufacturer to service, calibrate, adjust, repair, or otherwise work on its equipment or required as a condition of equipment warranty, perform the following:

    a. Submit proprietary instrumentation and tools list. For each instrument or tool, identify the following:

        1) Instrument or tool identification number.
        2) Equipment schedule designation of equipment for which the instrument or tool is required.
        3) Manufacturer, make, model, and serial number.
        4) Calibration history, including certificates from agencies that calibrate the instrument or tool, where appropriate.

PART 2 - EXECUTION

2.1 CONSTRUCTION CHECKLISTS

A. Prepare detailed construction checklists for electrical systems, subsystems, equipment, and components. Complete and submit construction checklists.

2.2 CONSTRUCTION CHECKLIST REVIEW

A. Review and provide written comments on draft construction checklists. CxA will create required draft construction checklists and provide them to Contractor.

B. Return draft Construction Checklist review comments within 10 days of receipt.

C. When review comments have been resolved, CxA will provide final construction checklists, marked "Approved for Use, (date)."

D. Use only construction checklists, marked "Approved for Use, (date)."

2.3 GENERAL TESTING REQUIREMENTS

A. Certify that electrical systems, subsystems, and equipment have been installed, calibrated, and started and that they are operating according to the Contract Documents and approved Shop Drawings and submittals.

B. Certify that electrical instrumentation and control systems have been completed and calibrated, that they are operating according to the Contract Documents and approved Shop Drawings and submittals, and that pretest set points have been recorded.

C. Set systems, subsystems, and equipment into operating mode to be tested according to approved test procedures.

D. Measure capacities and effectiveness of systems, assemblies, subsystems, equipment, and components, including operational and control functions to verify compliance with acceptance criteria.

E. Test systems, assemblies, subsystems, equipment, and components operating modes, interlocks, control responses, and responses to abnormal or emergency conditions, and response according to acceptance criteria.

F. Construction Checklists: Prepare and submit detailed construction checklists for electrical systems, subsystems, equipment, and components.

1. Contributors to development of construction checklists must include, but are not limited to, the following:

    a. Electrical systems and equipment installers.
    b. Electrical instrumentation and controls installers.

G. Perform tests using design conditions, whenever possible.

1. Simulated conditions may, with approval of Architect, be imposed using an artificial load when it is impractical to test under design conditions. Before simulating conditions, calibrate testing instruments. Provide equipment to simulate loads. Set simulated conditions as directed by CxA, and document simulated conditions and methods of simulation. After tests, return configurations and settings to normal operating conditions.
2. Cx test procedures may direct that set points be altered when simulating conditions is impractical.

H. If tests cannot be completed because of a deficiency outside the scope of the electrical system, document the deficiency and report it to Owner. After deficiencies are resolved, reschedule tests.

I. Coordinate schedule with, and perform Cx activities at the direction of the CxA.

J. Comply with Construction Checklist requirements, including material verification, installation checks, startup, and performance tests requirements specified in Sections specifying electrical systems and equipment.

K. Provide qualified testing and inspecting agency personnel in accordance with Section 260010 "Supplemental Requirements for Electrical," instrumentation, tools, and equipment to complete and document the following:

1. Performance tests.
2. Demonstration of a sample of performance tests.
3. Cx tests.
4. Cx test demonstrations.

2.4 Cx TESTS FOR ELECTRICAL SYSTEMS

A. Verification of Normal Electrical System Operation:

1. Prerequisites: Acceptance of results for construction checklists for Division 26 electrical components associated with Normal electrical system.
2. Equipment and Systems to Be Tested: Division 26 electrical equipment.
3. Test Purpose: Verify operation of Normal electrical system.
4. Test Conditions: Energize components of Normal electrical system, one at a time.
5. Acceptance Criteria: Proper operation of Normal electrical system over a 24-hour period.

B. Verification of Emergency Electrical System Operation:

1. Prerequisites:

a. Acceptance of results for construction checklists for Division 26 electrical components associated with Essential electrical system.
b. Completion of "Verification of Normal Electrical System Operation" tests.

2. Equipment and Systems to Be Tested: Division 26 electrical equipment.
3. Test Purpose: Verify operation of Emergency electrical system.

4. Test Conditions:

    a. Energize components of Normal electrical system.
    b. Simulate a failure of Normal electrical system.

5. Acceptance Criteria: Transfer of power from Normal to Emergency electrical system within OPR.

C. Verification of Control and Instrumentation:

1. Prerequisites: Acceptance of results for construction checklists.
    a. Section 260923 "Lighting Control Systems and Devices."

D. Test Purpose: Verify operation of control and monitoring systems for Normal and Essential electrical systems.

E. Test Conditions:

1. Energize components of Normal and Emergency electrical system.
2. Test operation of equipment.

F. Acceptance Criteria: Operation of equipment according to OPR.

END OF SECTION 260800

SECTION 260923 - LIGHTING CONTROL SYSTEMS AND DEVICES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Digital lighting management systems.
2. Programmable electronic astronomic time switches.
3. Indoor occupancy and vacancy sensors.
4. Lighting contactors.
5. Emergency lighting shunt relay (UL-924).
6. Conductors and cables.

1.2 SUBMITTALS

A. Product Data and Shop Drawings:

1. Submit manufacturer's technical product data for each type of lighting control system and its components.
2. Manufacturer's warranty documentation specifically for this contract.
3. Include typical mounting details for each sensor type.
4. Detailed point to point wiring diagrams.
5. Wiring schedules.
6. Typical wiring diagrams for each component.
7. Provide sequence of operations for each space type in a format suitable for programming requirements of the specific system and meeting the intent of the sequence of operation provided by the architect/engineer.
8. Room schedule showing devices listed by room, their serial numbers, and the loads they control.

B. Closeout Documentation:

1. Field quality-control test reports.
2. Record drawings reflecting as-built information, including floor plans, wiring diagrams, equipment and wiring schedules, and room schedules.

3. Operation and Maintenance Manuals:

a. Manufacturer's technical product data and maintenance data.
b. Manufacturer's warranty documentation.

4. Software and Firmware Operational Documentation:

a. Software service agreement.
b. Software operating and upgrade manuals.

c. Device address list.
d. Printout of software application and graphic screens.

1.3 WARRANTY

A. Manufacturer and Installer warrant that installed lighting control devices perform in accordance with specified requirements and agree to repair or replace, including labor, materials, and equipment, software, and devices that fail to perform as specified within extended warranty period.

1. Special Extended Warranty Period: Shall exceed four (4) years starting from the date of Substantial Completion.

a. If the manufacturer's warranty commences upon the date materials are delivered, then the manufacturer's warranty period shall be at least five (5) years to meet the requirement stated above.

1.4 SOFTWARE AND FIRMWARE SERVICE AGREEMENT

A. Technical Support: Beginning at Substantial Completion provide a 5-year software service agreement to the Owner.

B. Software and Firmware Upgrades:

1. At Substantial Completion, update software and firmware to latest version. Install and program software upgrades that become available within two years from date of Substantial Completion. Verify upgrading software includes operating system and new or revised licenses for using software.
2. Upgrade Notice: Provide a 30-day notice to Owner to allow scheduling and access to the system and to allow Owner upgrade to computer equipment if necessary.
3. Upgrade Reports: Prepare written report after each update, documenting upgrades installed.

1.5 QUALITY ASSURANCE

A. Codes and Standards:

1. NFPA 70, National Electrical Code (NEC).
2. UL 508, Standard for Industrial Control Panels.
3. UL 916, Standard for Energy Management Equipment.
4. UL 917, Standard for Clock Operated Switches.
5. UL 924, Standard for Emergency Lighting and Power Equipment.
6. 47 CFR, Subparts A and B, for Class A digital devices.

B. Comply with NEC, NEMA, and FCC emission requirements for Class A applications. Comply with applicable city, county, and state codes and ordinances.

C. Certification: Manufacturer shall certify that products will meet product specifications and local energy codes. If any additional equipment is required to meet coverage patterns and local energy codes, provide additional equipment at no additional cost to the Owner.

D. Selection, quantity, and placement of all lighting control sensors as indicated on the drawings shall be regarded as the basis of design. Under this contract, engage a factory-authorized representative to determine optimal selection, quantity, and placement of sensors and other system components using the manufacturer's actual devices, and to guarantee the proper application and correct operation of such devices. Any deviation from the basis of design still must comply with these specifications and must result in function and performance that meets or exceeds that of the basis of design.

E. Manufacturer's Field Service and Commissioning: Engage a factory-authorized service representative to inspect, test, and adjust sensors and associated system components, and to guarantee sensor performance.

F. Ceiling-mount devices and wall-mount devices installed above 6 ft. shall be flat and/or textured to match the architectural surface. Wall-mount devices installed 42-inch above floor shall match device color and wall plate specified in Section 262726 "Wiring Devices".

PART 2 - PRODUCTS

2.1 DIGITAL LIGHTING MANAGEMENT SYSTEMS

A. Source Limitations: Obtain lighting control module and power distribution components through one source from a single manufacturer

B. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Basis of Design: Cooper Lighting Controls, Inc.
2. Intelligent Lighting Controls, Inc.
3. Acuity Brands, Inc. (nLight / Sensor Switch).
4. Crestron Electronics, Inc. (Green Light).
5. Encelium / Osram Sylvania, Inc.
6. Hubbell Building Automation / Lighting Controls (NX Distributed Intelligence).
7. Leviton Manufacturing Co.
8. Watt Stopper/Legrand Vantage Controls/Digital Lighting Management.

C. System Description and Operation

1. Intelligent lighting control devices shall consist of one or more basic lighting control components; occupancy sensors, relays, dimming outputs, and manual touch screen/switch stations. Combining one or more of these components into a single device enclosure should be permissible to minimize overall device count of system.
2. Lighting control zones shall consist of one or more intelligent lighting control components, be capable of stand-alone operation, and be capable of being connected to a higher-level network backbone.

3. Lighting control zone shall be capable of automatically configuring itself for default operation without any startup labor required.
4. Individual lighting zones must continue to provide a user defined default level of lighting control in the event of a system communication failure with the backbone network or the management software becoming unavailable.
5. Power for devices within a lighting control zone shall come from either resident devices already present for switching (relay device) or dimming purposes, or from the network backbone. Standalone “bus power supplies” shall not be required in all cases.
6. All switching and dimming for a specific lighting zone shall take place within the devices located in the zone itself (i.e., not in a remotely located devices such as panels) to facilitate system robustness and minimize wiring requirements. Specific applications that require centralized or remote switching shall be capable of being accommodated.
7. System shall have a primary wall mounted network control “gateway” device capable of accessing and controlling connected system devices and linking into an Ethernet LAN.
8. System shall use “bridge” devices that route communication and distribute power for up to 8 lighting zones together for purposes of decreasing system wiring requirements.
9. System shall have a web-based software management program that enables remote system control, status monitoring, and creation of lighting control profiles.
10. Individual lighting zones shall be capable of being segmented into several channels of occupancy and switch functionality for more advanced configurations and sequences of operation.
11. System shall be capable of operating a lighting control zone according to several sequences of operation. Note operating modes should be utilized only in manners consistent with local energy codes.

    a. Auto-on / auto-off (via occupancy sensors)
    b. Manual-on / auto-off
    c. Auto-to-override on
    d. Manual-to-override on
    e. Auto on /predictive off
    f. Multi-level on (multiple lighting levels per manual button press)

12. System programming shall be done in the following fashion:

    a. For completely networked systems, system programming and control adjustments can be done via software from a single point in the network.
    b. For stand-alone systems, programming shall be done by hand-held remote control or by software app via standard wireless protocol such as Wi-Fi or Bluetooth.

D. System Cabling: Intelligent devices shall be connected to the LRC (lighting room controller). Communications and Class 2 low voltage power shall be provided to each intelligent device via standard low-voltage UTP Category 5 cabling with RJ45 connectors. RJ45 adapters may be used to allow standard analog sensors to be used.

1. All cabling for intra-room connectivity of control devices (example, between power packs and from power packs to sensors and switches) shall be pre-manufactured and provided by controls manufacturer.
2. Intelligent lighting control devices shall communicate digitally and possesses at least two RJ45 connectors.

3. Devices within a lighting control zone shall be connected using low-voltage cabling, in a daisy-chain fashion, and in any order.
4. System shall provide the option of having pre-terminated plenum rated Category 5 cabling supplied with hardware.
5. Field prepared cables may be used in the following situations:

    a. Long cable lengths (ex. Between relay panels) or other cabling where the standard available lengths would provide a significant excess or shortage of cable.
    b. Instances, if any, where cabling will have to be pulled in conduit, and pulling a terminated cable will add excessive difficulty and/or risk damaging the cable.

E. Management Software

1. Every device parameter (e.g., sensor time delay) shall be available and configurable remotely from the software.
2. The following status monitoring information shall be made available from the software for all devices for which it is applicable: current occupancy status, current occupancy sensor status, remaining occupancy time delay(s), current photoelectric sensor reading, current dim level, device temperature, and device relay state(s).
3. The following device identification information shall be made available from the software: model number, model description, serial number, manufacturing date code, custom labels, and parent network device.
4. Software shall require all users to login with a username and password.
5. Software shall provide at least three permission levels for users.
6. All sensitive stored information and privileged communication by the software shall be encrypted.
7. All device firmware and system software updates must be available for automatic download and installation via the internet.
8. Software shall be capable of managing systems interconnected via a WAN (wide area network).

F. Applications:

1. Furnish and install digital lighting management systems in each room, space, or area as indicated on the Drawings, or wherever the following applies:

    a. Wherever lighting is controlled by a low-voltage multi-button control station (as opposed to a line-voltage switch).
    b. Wherever the Energy Code requires the lighting to be turned on via manual operation only and/or a room where the lighting is controlled by one or more vacancy sensors.

G. Intelligent Lighting Room Controller (LRC)

1. The LRC associated with each Digital Lighting Management System is not necessarily shown on the plans.

    a. Each controller shall be mounted above the accessible ceiling, unless otherwise noted. Where there are no suspended ceilings, mount controller above nearest accessible ceiling or near the associated power panelboard. The contractor shall be responsible for determining the optimum locations in the field.

b. Controllers mounted above accessible ceilings shall be furnished with a plenum-rated enclosure. If ceiling is not accessible, provide an access panel in the ceiling or coordinate with the Owner an acceptable location for a surface-mounted enclosure.

2. System shall be true digital control with digital sensors and other components. Hybrid analog systems are not acceptable.
3. The installation of software shall not be required. At a minimum, the user interface shall provide the following functions:

   a. Automatic discovery of system devices.
   b. Commissioning of devices into logical control zones and areas.
   c. Display the entire system in a logical navigation tree view
   d. Allow the user to name zones, groups, presets, schedules, and individual loads.
   e. Setup control functions for system inputs and outputs.
   f. Monitor status and override individual relays and dimmers.

4. Programming shall be stored in non-volatile memory, so that all field-settings and programming are retained in the event of a power outage.
5. Unit power supply shall be dual-rated or rated to match its branch lighting circuit connection of 120-volt or 277-volt AC as indicated on the plans.
6. Each LRC that is required in a space shall be capable of accommodating and controlling at least two (2) line-voltage lighting circuits. Provide additional units as required for application indicated on the Lighting Plans and/or Schedules.
7. Unit must interface with presence sensors that are designated as vacancy sensors to enable lights to be turned on only manually—not automatically unless the lights had timed-out within the previous 30 seconds.
8. Integral surge protection: Meets ANSI/IEEE Standard C62.41-1980, tested to withstand momentary voltage surges up to 6000V and current surges up to 200A without damage.
9. Furnish and install a completely functioning turnkey system. Include all necessary accessories, programming, settings, commissioning, and testing.
10. Communications and Class 2 low-voltage power connection between LRC and input devices (control stations, sensors, etc.) shall be standard low-voltage UTP Category 5 cabling with RJ45 connectors.

H. Presence Sensors (Indoor Occupancy and Vacancy Sensors)

1. Refer to indoor occupancy/vacancy sensors below for types and performance specifications.

   a. Auxiliary Contacts: Provide each zone of lighting control with an additional auxiliary contact/relay, form C, dry contacts, rated for and compatible with the building automation system (BAS). Contact may be provided integral to either the presence sensor or the LRC. Coordinate with the Division 23 contractor.

2. Presence sensors shall function as vacancy sensors by default, which requires the occupant to manually turn-on the lights.

   a. Typical exceptions, unless noted otherwise: Toilet rooms, restrooms, locker rooms, and other special locations as indicated on the drawings.

3. Communications and Class 2 low-voltage power connection between device and LRC shall be standard low-voltage UTP Category 5 cabling with RJ45 connectors.

Retain Astronomic Time Controller below if lighting controls are per a time schedule (such as site, exterior, egress, corridor lighting, etc.) but not integrated with the BAS.

2.2 PROGRAMMABLE ELECTRONIC ASTRONOMIC TIME CONTROLLERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Basis of Design: Eaton / Cooper Lighting Controls
2. Grasslin Controls Corporation; a GE Industrial Systems Company.
3. Intermatic, Inc.
4. Leviton Mfg. Company, Inc.
5. Lightolier Controls; a Genlyte Company.
6. Lithonia Lighting; Acuity Lighting Group, Inc.
7. Paragon Electric Co.; Invensys Climate Controls.
8. Square D; Schneider Electric.
9. TORK.

B. Electronic, solid state, programmable, with alphanumeric display; astronomic time feature, complying with UL 917.

1. Listed and labeled in accordance with NFPA 70, by a qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.
2. Programming Capabilities: Each channel/contact shall be individually programmable with 40 on-off operations per week, plus 4 seasonal schedules that modify the basic program, and an annual holiday schedule that overrides the weekly operation on holidays.
3. Programmable Channels/Contacts: Refer to Drawings for quantities necessary to control zones of lighting that require time control. Provide one additional unused spare channel for future.
4. Astronomic Time: Provide for all channels to enable geographically specific time-of-day adjustments corresponding to dusk and dawn.
5. Contact Configuration: DPDT.
6. Contact Rating: 20A 120/277 V(ac).
7. Programs:

    a. Four (4) on-off set points on a 24-hour schedule and an annual holiday schedule that overrides the weekly operation on holidays.
    b. Two on-off set points on a 24-hour schedule, allowing different set points for each day of the week and an annual holiday schedule that overrides the weekly operation on holidays.
    c. Four (4) channels; each channel is individually programmable with eight on-off set points on a 24-hour schedule.
    d. Two (2) channels; each channel is individually programmable with two on-off set points on a 24-hour schedule with a skip-a-day weekly schedule.
8. Astronomic Time: All channels.
9. Automatic daylight savings time changeover.

10. Battery Backup: Not less than seven days reserve, to maintain schedules and time clock.
11. Unit Operating Voltage: 120 V(ac) or 277 V(ac), whichever voltage is most readily available. Refer to the drawings. Provide power connection to nearest available panel and branch circuit.

2.3 INDOOR OCCUPANCY AND VACANCY SENSORS

A. Manufacturers: Match same manufacturer provided for Digital Lighting Management system above.

B. General Requirements for all Presence Sensors:

1. Wall- or ceiling-mounted, solid-state indoor occupancy and vacancy sensors, as indicated on the drawings, designed to detect the presence of human activity within the desired space and to control the on/off function of the luminaires within that space.
2. Passive-infrared, ultrasonic or dual-technology as indicated on the drawings.
3. Integrated or Separate power pack.

    a. If sensor is associated with a digital lighting management system, in which case the LRC (lighting room controller) shall function as the power pack.

4. Hardwired or Wireless connection to switch or touchscreen control station.
5. Listed and labeled in accordance with NFPA 70, by a qualified electrical testing laboratory recognized by authorities having jurisdiction and marked for intended location and application.
6. Sensors shall be able to function together with other sensors to provide expanded coverage areas by simply daisy-chaining together each device with low-voltage communications cabling.
7. Operation:

    a. Occupancy Sensor: Unless otherwise indicated, turn lights on when coverage area is occupied, and turn them off when unoccupied; with a time-delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
    b. Vacancy Sensor: Unless otherwise indicated, lights are manually turned on and sensor turns lights off when the room is unoccupied; with a time-delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
    c. Combination Sensor: Unless otherwise indicated, sensor must be programmed to turn lights on when coverage area is occupied and turn them off when unoccupied, or to turn off lights that have been manually turned on; with a time-delay for turning lights off, adjustable over a minimum range of 1 to 15 minutes.
    d. Programming shall be stored in non-volatile memory, so that all field-settings and programming are retained in the event of a power outage.

8. Power Pack (if not integral to LRC): Dry contacts rated for 20 A LED load at 120 and 277 V(ac), for 13 A tungsten at 120 V(ac), and for 1 hp at 120 V(ac). Sensor has 24 V(dc), 150 mA, Class 2 power source.
9. Mounting:

    a. Sensor: Suitable for mounting in any position in a standard device box or outlet box.

b. Time-Delay and Sensitivity Adjustments: Recessed and concealed behind hinged door.

10. Indicator: Digital display, to show when motion is detected during testing and normal operation of sensor.
11. Auxiliary Contacts: Provide each zone of lighting control with an additional auxiliary contact/relay, form C, dry contacts, rated for and compatible with the building automation system (BAS). Coordinate requirements with the Division 23 contractor.

C. PIR Type: Wall- or ceiling-mounted as indicated; detect occupants in coverage area by their heat and movement.

1. Detector Sensitivity: Detect occurrences of 6-inch (150 mm) minimum movement of any portion of a human body that presents a target of not less than 36 sq. inch (23 200 sq. mm).
2. Detection Coverage (Room, Ceiling Mounted): Detect occupancy anywhere in a 360-degree circular area of 1000 sq. ft. (93 sq. m) when mounted on a 96-inch high ceiling.
3. Detection Coverage (Corridor, Ceiling Mounted): Detect occupancy within 90 ft. (27.4 m) when mounted on a 10 ft. (3 m) high ceiling.
4. Detection Coverage (Room, Wall Mounted): Detect occupancy anywhere within a 180-degree pattern centered on the sensor over an area of 1000 sq. ft. (110 sq. m) if positioned 84 inch (2100 mm) above finished floor, unless otherwise indicated on the drawings.

D. Ultrasonic Type: Wall- or ceiling-mounted as indicated; detect occupants in coverage area through pattern changes of reflected ultrasonic energy.

1. Detector Sensitivity: Detect a person of average size and weight moving not less than 12-inch (305 mm) in either a horizontal or a vertical manner at an approximate speed of 12 inch/s (305 mm/s).
2. Detection Coverage (Small Room): Detect occupancy anywhere within a 360-degree circular area of 600 sq. ft. (56 sq. m) when mounted on a 96-inch (2440 mm) high ceiling.
3. Detection Coverage (Standard Room): Detect occupancy anywhere within a circular area of 1000 sq. ft. (93 sq. m) when mounted on a 96-inch (2440 mm) high ceiling.
4. Detection Coverage (Large Room): Detect occupancy anywhere within a circular area of 2000 sq. ft. (186 sq. m) when mounted on a 96-inch (2440 mm) high ceiling.
5. Detection Coverage (Corridor): Detect occupancy anywhere within 90 ft. (27.4 m) when mounted on a 10 ft. (3 m) high ceiling in a corridor not wider than 14 ft. (4.3 m).
6. Detection Coverage (Room, Wall Mounted): Detect occupancy anywhere within a 180-degree pattern centered on the sensor over an area of 1000 sq. ft. (110 sq. m) if positioned 84-inch (2100 mm) above finished floor.

E. Dual-Technology Type: Wall- or ceiling-mounted as indicated; detect occupants in coverage area using PIR/microphonics or PIR/ultrasonic detection methods. The type of detection technology or combination of technologies that control on-off functions is selectable in the field by operating controls on unit.

1. Sensitivity Adjustment: Separate for each sensing technology.
2. Detector Sensitivity: Detect occurrences of 6-inch minimum movement of any portion of a human body that presents a target of not less than 36 sq. inch and detect a person of

average size and weight moving not less than 12-inch in either a horizontal or a vertical manner at an approximate speed of 12 inch/s.

3. Detection Coverage (Standard Room): Detect occupancy anywhere within a 360-degree circular area of 1000 sq. ft. when mounted on a 96-inch-high ceiling.
4. Detection Coverage (Room, Wall Mounted): Detect occupancy anywhere within a 180-degree pattern centered on the sensor over an area of 1000 sq. ft. if positioned 84-inch above finished floor.

F. High-Ceiling Application PIR Type: Sensor suitable for mounting heights above 15-ft. and up to 45-ft.; ceiling-mounted; detect occupants in coverage area by their heat and movement.

1. Detector Sensitivity: Detect occurrences of 12-inch minimum movement of any portion of a human body that presents a target of not less than 144 sq. inch.
2. Detection Coverage: Detect occupancy anywhere in a 360-degreee circular area of 1500 sq. ft. when mounted on a 30-ft. high ceiling. Provide adequate coverage to enable sensors to be spaced 30-ft. apart in a square grid pattern, when mounted 30-ft. above the floor.

2.4 LIGHTING CONTACTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Allen-Bradley/Rockwell Automation.
2. Eaton Electrical Inc.; Cutler-Hammer Products.
3. GE Industrial Systems; Total Lighting Control.
4. Square D; Schneider Electric.
5. Siemens Energy and Automation, Inc.

B. Description: Multi-pole, electrically operated, and electrically held, unless indicated otherwise on the drawings, combination-type lighting contactors with non-fused hand-off-auto (HOA) switch, complying with NEMA ICS 2 and UL 508.

1. Multi-Pole Contactor: Provide the quantity of contacts indicated in the schedule shown on the drawings, which may include spares. Minimum quantity shall be two (2) contacts.
2. Current Rating for Switching: Listing or rating consistent with type of load served with 15 percent or less THD of normal load current). Minimum contact rating shall be 20 A 480 V(ac).
3. Fault Current Withstand Rating: Equal to or exceeding the available fault current at the point of installation.
4. Enclosure: Comply with NEMA 250. Refer to drawings for specific applications.
5. Provide with HOA selector switch.

C. Interface with Building Automation System (BAS)

1. Provide hardware interface to enable the DDC system for HVAC to monitor and control lighting contactors.
2. Monitoring and Control Points: Refer to schedule on drawings.

2.5 EMERGENCY LIGHTING SHUNT RELAYS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Entertainment Networks Corp.
2. Electronic Theater Controls, Inc. (ETC)
3. Bodine/Philips
4. Hubbell Building Automation, Inc.
5. Intelligent Lighting Controls, Inc.
6. LVS Controls, Inc.
7. Nine 24, Inc.
8. Watt Stopper
9. Or, where applicable, the same manufacturer as LRC associated with digital lighting management systems (listed above).

B. Description: NC, electrically-held relay in NEMA 1 enclosure, arranged for wiring in parallel with manual or automatic switching contacts; complying with UL 924. Provide with test station integral to relay where ceiling-mounted or in a single-gang box where remote mounting is required.

1. Rated 1000 W at 120 V(ac) and 277 V(ac) for LED lighting.
2. Voltage: Match the circuit voltage.
3. Test Station: LED status indicators (normal/utility power, emergency, test), test button, white faceplate where mounted flush in the ceiling, unless indicated otherwise on the drawings.
4. LED Dimming Applications: Provide 0-10V dimming override feature that forces the control line to “full on” in the emergency bypass mode, unless indicated otherwise on the drawings.

C. Function: The UL-924 device shall control luminaires designated for emergency lighting during both normal and emergency modes by interfacing with associated normal switching means and by monitoring for loss of power to the normal lighting branch circuit. In the event of a power outage, luminaires connected to the emergency branch lighting circuit shall automatically be switched-on regardless of the status or position of associated normal lighting control devices (switches, dimmers, sensors, LRCs, contactors, etc.). Under normal power, the UL-924 device shall mimic the normal switching means, as indicated on the drawings.

2.6 EQUIPMENT ENCLOSURES

A. Enclosed Controllers: NEMA ICS 6, to comply with environmental conditions at installed location.

1. Dry and Clean Indoor Locations: NEMA 250, Type 1.

2.7 CONDUCTORS AND CABLES

A. Power Wiring to Supply Side of Remote-Control Power Sources: Not smaller than No. 12 AWG. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

B. Classes 2 and 3 Control Cable: Multiconductor cable with stranded-copper conductors. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

C. Class 1 Control Cable: Multiconductor cable with stranded-copper conductors. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

PART 3 - EXECUTION

3.1 DELEGATED DESIGN

A. This contract shall include the complete design and application of lighting control systems. Determine all system components, cabling specifications, and programming required for complete and functional operation. If necessary, obtain clarification from Architect/Engineer prior to bidding regarding intent of contract documents.

B. Provide additional quantities and placement of sensors as needed to achieve coverage of area served at actual mounting heights.

C. The wiring methods indicated on the electrical drawings are to indicate design intent only. Approved manufacturer controls products may have different driver and sensor requirements and different wiring methods than what is shown on the electrical drawings. Contractors are required to familiarize themselves with all required wiring, additional part and pieces, required installation labor, etc. to provide for a complete installed system that meets the intent and functionality of the specified system.

D. The Contractor shall provide as part of the shop drawing submittals, complete lighting drawings including all wiring, equipment, equipment locations, etc. for the submitted system.

E. All costs shall be included in the bid for a complete operational system that meets the specified and designed system.

F. Control Intent: Control Intent includes, but is not limited to the following:

1. Defaults and initial calibration settings for such items as time delay, sensitivity, fade rates, etc.
2. Initial sensor and switching zones
3. Initial time switch settings

3.2 EXAMINATION

A. Examine lighting control devices before installation. Reject lighting control devices that are wet, moisture damaged, or mold damaged.

B. Examine walls and ceilings for suitable conditions where lighting control devices will be installed.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.3 INSTALLATION OF SENSORS

A. Coordinate layout and installation of ceiling-mounted devices with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, smoke detectors, fire-suppression systems, and partition assemblies, as applicable.

B. Install and aim sensors in locations to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's instructions.

3.4 INSTALLATION OF CONTACTORS

A. Mount electrically held lighting contactors with elastomeric isolator pads to eliminate structure-borne vibration unless contactors are installed in an enclosure with factory-installed vibration isolators.

3.5 INSTALLATION OF WIRING

A. Wiring Method: Comply with Section 260519 "Low-Voltage Electrical Power Conductors and Cables." Minimum conduit size is 1/2 inch.

B. Wiring within Enclosures: Separate power-limited and nonpower-limited conductors in accordance with conductor manufacturer's instructions.

C. Size conductors in accordance with lighting control device manufacturer's instructions unless otherwise indicated.

D. Splices, Taps, and Terminations: Make connections only on numbered terminal strips in junction, pull, device, and outlet boxes; terminal cabinets; and equipment enclosures.

E. Include a neutral conductor connected to every “switch point”, such as wall-switch occupancy sensors, in accordance with NEC 404.2(C).

F. Ceiling-Mounted Sensors: Provide a minimum 8-ft. slack loop of extra control cabling so the Owner can readily modify the placement of sensors in the future.

G. Open cabling methods may be utilized above accessible ceilings for Class 2 wiring. All cabling in exposed areas, above inaccessible ceilings, and inside walls shall be installed in raceway.

H. IDENTIFICATION

I. Identify components and power and control wiring in accordance with Section 260553 "Identification for Electrical Systems.

1. Identify controlled circuits in lighting contactors.

2. Identify circuits or luminaires controlled by occupancy sensors at each sensor.

J. Label switches and contactors with a unique designations.

3.6 PROGRAMMING AND DEVICE SETTINGS

A. Manufacturer's Field Service and Commissioning: Engage a factory-authorized service representative to program, configure, test, and adjust components associated with each lighting control system and each lighting control device.

B. Initial Programming: Upon energizing luminaires associated with lighting control stations, each control station shall be programmed to provide basic manual on/off functions (so that no luminaire remains on or off 24/7 without manual control). This initial programming shall be provided prior to the manufacturer's factory-authorized technician performing their official system programming, configuration, startup, and system commissioning services.

C. Occupancy and Vacancy Sensor Settings and Adjustments

1. Position, aim, and adjust sensors to achieve not less than 90 percent coverage of areas indicated. Do not exceed coverage limits specified in manufacturer's written instructions.
2. Lights shall turn on immediately after the light-switch, dimmer, or control station is engaged.
3. Lights must stay on while presence is detected.
4. Lights shall turn off after a preset time-delay commencing from the last moment presence was detected (corresponding to vacancy). The initial time-delay off setting shall be 20 minutes. Coordinate final settings directly with the Owner.
5. Provide a walk-though with the Owner's representative to confirm final settings and overall functionality.

3.7 SYSTEM STARTUP AND SYSTEM COMMISSIONING

A. System Startup: Manufacturer's authorized technician shall confirm proper installation and operation of system components.

B. Upon completion of the installation, the system shall be commissioned by the manufacturer's factory authorized representative who will verify a complete fully functional system. Provide notice no-less than three weeks prior to a startup visit. Several business days may be required to confirm dates and times.

C. Provide written or computer-generated documentation on the commissioning of the system including room by room description including:

1. Sensor parameters, time delays, sensitivities, and daylight-harvesting setpoints.
2. System programming (e.g., manual on, auto off, dimming levels, zone switching, etc.).

3.8 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Operational Test: After installing time switches and sensors, and after electrical circuitry has been energized, start units to confirm proper unit operation.
2. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

B. Nonconforming Work:

1. Lighting control devices will be considered defective if they do not pass tests and inspections.
2. Remove and replace defective units and retest.

C. Prepare test and inspection reports.

D. Manufacturer Field Services and Commissioning:

1. Engage factory-authorized service representative to perform field tests/inspections and to make any necessary adjustments to lighting control systems and devices.

3.9 ADJUSTING

A. Occupancy Adjustments: When requested by Owner within 12 months from date of Substantial Completion, provide on-site assistance in adjusting lighting control devices to suit actual occupied conditions. Provide up to two visits to Project during other-than-normal occupancy hours for this purpose, including up to 10 hours of labor plus the necessary travel time.

1. For occupancy and motion sensors, verify operation at outer limits of detector range. Set time delay to suit Owner's operations.

3.10 DEMONSTRATION

A. Coordinate demonstration of products and training of Owner’s maintenance personnel to adjust, operate, and maintain lighting control devices. Refer to Division 01 Section “Demonstration and Training” for requirements, excluding requirements related to video-recordings. Include in this contract training/demonstration time plus any necessary travel time/expenses.

1. Digital Lighting Management Systems: 2 hours
2. Lighting Contactors: 0.5 hour.
3. Occupancy and Vacancy Sensors: 1 hour.
4. Emergency Lighting Shunt Relays: 0.5 hour.

3.11 MAINTENANCE

A. Software and Firmware Service Agreement: Install and program software upgrades that become available as specified above.

END OF SECTION 260923

SECTION 262416 - PANELBOARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Lighting and appliance branch-circuit panelboards.

1.3 DEFINITIONS

A. GFCI: Ground-fault circuit interrupter.

B. GFEP: Ground-fault equipment protection.

C. MCCB: Molded-case circuit breaker.

D. VPR: Voltage protection rating.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of panelboard.
   1. Include materials, switching and overcurrent protective devices, SPDs, accessories, and components indicated.
   2. Include dimensions and manufacturers' technical data on features, performance, electrical characteristics, ratings, and finishes.

B. Shop Drawings: For each panelboard and related equipment.
   1. Include dimensioned plans, elevations, sections, and details.
   2. Show tabulations of installed devices with nameplates, conductor termination sizes, equipment features, and ratings.
   3. Detail enclosure types including mounting and anchorage, environmental protection, knockouts, corner treatments, covers and doors, gaskets, hinges, and locks.
   4. Detail bus configuration, current, and voltage ratings.
   5. Short-circuit current rating of panelboards and overcurrent protective devices.
   6. Detail features, characteristics, ratings, and factory settings of individual overcurrent protective devices and auxiliary components.
   7. Include wiring diagrams for power, signal, and control wiring.
   8. Include time-current coordination curves for each type and rating of overcurrent protective device included in panelboards. Submit on translucent log-log graft paper; include selectable ranges for each type of overcurrent protective device. Include an Internet link for electronic access to downloadable PDF of the coordination curves.

1.5 INFORMATIONAL SUBMITTALS

A. Panelboard Schedules: For installation in panelboards Submit final version to match installed conditions and additional loads

1.6 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For panelboards and components to include in emergency, operation, and maintenance manuals. Include the following:
   1. Manufacturer's written instructions for testing and adjusting overcurrent protective devices.
   2. Time-current curves, including selectable ranges for each type of overcurrent protective device that allows adjustments.

1.7 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.
   1. Keys: Two spares for each type of panelboard cabinet lock.
   2. Circuit Breakers Including GFCI and GFEP Types: Two spares (or as indicated on plans) for each panelboard.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: ISO 9001 or ISO 9002 certified.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Handle and prepare panelboards for installation according to NEMA PB 1.

1.10 FIELD CONDITIONS

A. Environmental Limitations:
   1. Do not deliver or install panelboards until spaces are enclosed and weathertight, wet work in spaces is complete and dry, work above panelboards is complete, and temporary HVAC system is operating and maintaining ambient temperature and humidity conditions at occupancy levels during the remainder of the construction period.
   2. Rate equipment for continuous operation under the following conditions unless otherwise indicated:
      a. Ambient Temperature: Not exceeding 23 deg F (minus 5 deg C) to plus 104 deg F (plus 40 deg C).
      b. Altitude: Not exceeding 6600 feet (2000 m).

B. Service Conditions: NEMA PB 1, usual service conditions, as follows:
   1. Ambient temperatures within limits specified.
   2. Altitude not exceeding 6600 feet (2000 m).

1.11 WARRANTY

A. Manufacturer's Warranty: Manufacturer agrees to repair or replace panelboards that fail in materials or workmanship within specified warranty period.
   1. Panelboard Warranty Period: 18 months from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PANELBOARDS COMMON REQUIREMENTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
   1. Eaton.
   2. GE Energy
   3. Schneider Electric USA (Square D).
   4. Siemens Industry, Inc., Energy Management Division

B. Product Selection for Restricted Space: Drawings indicate maximum dimensions for panelboards including clearances between panelboards and adjacent surfaces and other items. Comply with indicated maximum dimensions.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

D. Comply with NEMA PB 1.

E. Comply with NFPA 70.

F. Enclosures: Flush and Surface-mounted, dead-front cabinets.
   1. Rated for environmental conditions at installed location.
      a. Indoor Dry and Clean Locations: NEMA 250, Type 1.
      b. Indoor Locations Subject to Dust, Falling Dirt, and Dripping Noncorrosive Liquids: NEMA 250, Type 12.
   2. Height: 84 inches (2.13 m) maximum.
   3. Finishes:
      a. Panels and Trim: Steel, factory finished immediately after cleaning and pretreating with manufacturer's standard two-coat, baked-on finish consisting of prime coat and thermosetting topcoat.
      b. Back Boxes: Galvanized steel.

G. Incoming Mains:
   1. Location: Convertible between top and bottom.
   2. Main Breaker: Main lug interiors up to 400 amperes shall be field convertible to main breaker.

H. Phase, Neutral, and Ground Buses:
   1. Material: Hard-drawn copper, 98 percent conductivity.
      a. Plating shall run entire length of bus.
      b. Bus shall be fully rated the entire length.
   2. Interiors shall be factory assembled into a unit. Replacing switching and protective devices shall not disturb adjacent units or require removing the main bus connectors.
   3. Equipment Ground Bus: Adequate for feeder and branch-circuit equipment grounding conductors; bonded to box.

4. Full-Sized Neutral: Equipped with full-capacity bonding strap for service entrance applications. Mount electrically isolated from enclosure. Do not mount neutral bus in gutter.

I. Conductor Connectors: Suitable for use with conductor material and sizes.
1. Material: Hard-drawn copper, 98 percent conductivity.
2. Terminations shall allow use of 75 deg C rated conductors without derating.
3. Size: Lugs suitable for indicated conductor sizes, with additional gutter space, if required, for larger conductors.
4. Main and Neutral Lugs: Mechanical type, with a lug on the neutral bar for each pole in the panelboard.
5. Ground Lugs and Bus-Configured Terminators: Mechanical type, with a lug on the bar for each pole in the panelboard.

J. Future Devices: Panelboards shall have mounting brackets, bus connections, filler plates, and necessary appurtenances required for future installation of devices.
1. Future spaces: number as indicated in panelboard schedules on the drawings.

K. Panelboard Short-Circuit Current Rating: Fully rated to interrupt symmetrical short-circuit current available at terminals. Assembly listed by an NRTL for 100 percent interrupting capacity.
1. Panelboards and overcurrent protective devices rated 240 V or less shall have short-circuit ratings as shown on Drawings, but not less than 10,000 A rms symmetrical.

2.2 LIGHTING AND APPLIANCE BRANCH-CIRCUIT PANELBOARDS

A. Panelboards: NEMA PB 1, lighting and appliance branch-circuit type.

B. Mains: as indicated on plans.

C. Branch Overcurrent Protective Devices: Bolt-on circuit breakers, replaceable without disturbing adjacent units.

2.3 DISCONNECTING AND OVERCURRENT PROTECTIVE DEVICES

A. Provide Arc Energy Reducing Maintenance Switch on any breaker or fusible disconnect switch which can be adjusted 1,200 A or higher per NEC 240.87.

B. MCCB: Comply with UL 489, with interrupting capacity to meet available fault currents. Circuit breaker types, frame sizes, and functionality shall be as required to meet the overcurrent device selectivity requirements, but not less than as noted below:
1. Thermal-Magnetic Circuit Breakers:
a. Inverse time-current element for low-level overloads.
b. Instantaneous magnetic trip element for short circuits.
c. Adjustable magnetic trip setting for circuit-breaker frame sizes 250 A and larger.
2. Electronic Trip Circuit Breakers:
a. RMS sensing.
b. Field-replaceable rating plug or electronic trip.
c. Digital display of settings, trip targets, and indicated metering displays.
d. Multi-button keypad to access programmable functions and monitored data.
e. Ten-event, trip-history log. Each trip event shall be recorded with type, phase, and magnitude of fault that caused the trip.
f. Integral test jack for connection to portable test set or laptop computer.
g. Field-Adjustable Settings:

1) Instantaneous trip.
2) Long- and short-time pickup levels.
3) Long and short time adjustments.
4) Ground-fault pickup level, time delay, and I squared T response.

3. GFCI Circuit Breakers: Single- and double-pole configurations with Class A ground-fault protection (6-mA trip).
4. GFEP Circuit Breakers: Class B ground-fault protection (30-mA trip).
5. Arc-Fault Circuit Interrupter Circuit Breakers: Comply with UL 1699; 120/240-V, single-pole configuration.
6. Subfeed Circuit Breakers: Vertically mounted.
7. MCCB Features and Accessories:
   a. Standard frame sizes, trip ratings, and number of poles.
   b. Breaker handle indicates tripped status.
   c. UL listed for reverse connection without restrictive line or load ratings.
   d. Lugs: Mechanical style, suitable for number, size, trip ratings, and conductor materials.
   e. Application Listing: Appropriate for application; Type SWD for switching fluorescent lighting loads; Type HID for feeding fluorescent and HID lighting circuits.
   f. Ground-Fault Protection: Integrally mounted relay and trip unit with adjustable pickup and time-delay settings, push-to-test feature, and ground-fault indicator.
   g. Multipole units enclosed in a single housing with a single handle or factory assembled to operate as a single unit.

2.4 IDENTIFICATION

A. Panelboard Label: Manufacturer's name and trademark, voltage, amperage, number of phases, and number of poles shall be located on the interior of the panelboard door.

B. Breaker Labels: Faceplate shall list current rating, UL and IEC certification standards, and AIC rating.

C. Circuit Directory: Computer-generated circuit directory mounted inside panelboard door with transparent plastic protective cover.
   1. Circuit directory shall identify specific purpose with detail sufficient to distinguish it from all other circuits.

2.5 ACCESSORY COMPONENTS AND FEATURES

A. Accessory Set: Include tools and miscellaneous items required for overcurrent protective device test, inspection, maintenance, and operation.

B. Portable Test Set: For testing functions of solid-state trip devices without removing from panelboard. Include relay and meter test plugs suitable for testing panelboard meters and switchboard class relays.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify actual conditions with field measurements prior to ordering panelboards to verify that equipment fits in allocated space in, and comply with, minimum required clearances specified in NFPA 70.

B. Receive, inspect, handle, and store panelboards according to NEMA PB 1.1.

C. Examine panelboards before installation. Reject panelboards that are damaged, rusted, or have been subjected to water saturation.

D. Examine elements and surfaces to receive panelboards for compliance with installation tolerances and other conditions affecting performance of the Work.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Coordinate layout and installation of panelboards and components with other construction that penetrates walls or is supported by them, including electrical and other types of equipment, raceways, piping, encumbrances to workspace clearance requirements, and adjacent surfaces. Maintain required workspace clearances and required clearances for equipment access doors and panels.

B. Comply with NECA 1.

C. Install panelboards and accessories according to NEMA PB 1.1.

D. Equipment Mounting:
   1. Attach panelboard to the vertical finished or structural surface behind the panelboard.

E. Mount top of trim 90 inches (2286 mm) above finished floor unless otherwise indicated.

F. Mount panelboard cabinet plumb and rigid without distortion of box.

G. Mount surface-mounted panelboards to steel slotted supports 1-1/4 inch (32 mm) in depth. Orient steel slotted supports vertically.

H. Install overcurrent protective devices and controllers not already factory installed.
   1. Set field-adjustable, circuit-breaker trip ranges.
   2. Tighten bolted connections and circuit breaker connections using calibrated torque wrench or torque screwdriver per manufacturer's written instructions.

I. Make grounding connections and bond neutral for services and separately derived systems to ground. Make connections to grounding electrodes, separate grounds for isolated ground bars, and connections to separate ground bars.

J. Install filler plates in unused spaces.

K. Stub four 1-inch (25 mm) empty conduits from panelboard into accessible ceiling space or space designated to be ceiling space in the future. Stub four 1-inch (25 mm) empty conduits into raised floor space or below slab not on grade.

L. Arrange conductors in gutters into groups and bundle and wrap with wire ties.

M. Mount spare fuse cabinet in accessible location.

3.3 IDENTIFICATION

A. Identify field-installed conductors, interconnecting wiring, and components; install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems."

B. Create a directory to indicate installed circuit loads; incorporate Owner's final room designations. Obtain approval before installing. Handwritten directories are not acceptable. Install directory inside panelboard door.

C. Panelboard Nameplates: Label each panelboard with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

D. Device Nameplates: Label each branch circuit device in power panelboards with a nameplate complying with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

E. Install warning signs complying with requirements in Section 260553 "Identification for Electrical Systems" identifying source of remote circuit.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.
   1. Manufacturer's Field Service: Engage a factory-authorized service representative to inspect components, assemblies, and equipment installations, including connections, and to assist in testing.

B. Acceptance Testing Preparation:
   1. Test insulation resistance for each panelboard bus, component, connecting supply, feeder, and control circuit.
   2. Test continuity of each circuit.

C. Tests and Inspections:
   1. Perform each visual and mechanical inspection and electrical test for low-voltage air circuit breakers and low-voltage surge arrestors stated in NETA ATS, Paragraph 7.6 Circuit Breakers. Perform optional tests. Certify compliance with test parameters.
   2. Correct malfunctioning units on-site, where possible, and retest to demonstrate compliance; otherwise, replace with new units and retest.

D. Panelboards will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports, including a certified report that identifies panelboards included and that describes scanning results, with comparisons of the two scans. Include notation of deficiencies detected, remedial action taken, and observations after remedial action.

3.5 ADJUSTING

A. Adjust moving parts and operable components to function smoothly, and lubricate as recommended by manufacturer.

3.6 PROTECTION

A. Temporary Heating: Prior to energizing panelboards, apply temporary heat to maintain temperature according to manufacturer's written instructions.

END OF SECTION 262416

SECTION 265100 - LIGHTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. LED interior lighting.
2. Exit lighting.
3. Emergency power units—internal or external.
4. Luminaire accessories and support components.

B. Related Requirements:

1. Section 260923 "Lighting Control Systems and Devices" for automatic control of lighting, including controllers/dimmers, photoelectric relays, occupancy sensors, and multipole lighting relays and contactors.

1.3 DEFINITIONS

A. CCT: Correlated color temperature.

B. CRI: Color Rendering Index.

C. Emergency Lighting Unit: A lighting unit with internal or external emergency battery powered supply and the means for controlling and charging the battery and unit operation.

D. EPA: Effective projected area (as it relates to the wind force exerted on an object, in accordance with the standard, AASHTO LTS-5).

E. Fixture: See "Luminaire."

F. IP: International Protection or Ingress Protection Rating.

G. LED: Light-emitting diode.

H. Lumen: Measured delivered output of luminaire.

I. Luminaire: Complete lighting unit, including light source, reflector, integral or remote driver, internal or external emergency power unit, circuitry, lens, diffuser, housing, and accessories.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Arrange in order of luminaire designation.
2. Include data on features, accessories, and finishes.
3. Include physical description, profiles, and dimensions of luminaires.
4. Include data on EPA, cable entrances, materials, dimensions, weight, rated design load, and ultimate strength of individual components.
5. Include emergency lighting units, including batteries and chargers.
6. Include life, output (lumens, CCT, and CRI), and energy-efficiency data.
7. Photometric data and adjustment factors based on laboratory tests, complying with IES LM-79 and IES LM-80.

Retain or "Manufacturers' Certified Data" or "Testing Agency Certified Data" Subparagraph below. Retain first subparagraph if photometric data, based on testing by accredited manufacturers' laboratories, is considered adequate for luminaires in this Project. Retain second subparagraph if photometric data for one or more luminaires are based on independent laboratory tests; coordinate with the Interior Lighting Fixture Schedule on Drawings to indicate which units shall meet this requirement. See the Evaluations.

8. Use same luminaire designations as indicated on Drawings.

B. Shop Drawings: For nonstandard or custom luminaires.

1. Include plans, elevations, sections, unique configurations, and mounting and attachment details.
2. Include details of luminaire assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
3. Include diagrams for power, signal, and control wiring.

C. Finish/Color Samples for Initial Selection or Verification: As specified for specific luminaire types on the Luminaire Schedule for each type of luminaire requiring a custom factory-applied finishes/colors.

1. Include samples of luminaires and accessories involving color and finish selection.

1.5 CLOSEOUT SUBMITTALS

A. Operation and Maintenance Data: For luminaires and lighting systems to include in operation and maintenance manuals.

B. Warranty documents.

1.6 QUALITY ASSURANCE

A. Luminaire Photometric Data Testing Laboratory Qualifications:

Retain one of two subparagraphs below, or both, to specify qualifications for laboratories providing photometric data. Retain first subparagraph for testing laboratories that are associated with a luminaire

manufacturer's production facility. Retain second subparagraph for testing laboratories that are independent of a luminaire manufacturer's production facility.

1. Luminaire manufacturer's laboratory that is accredited under the NVLAP for Energy Efficient Lighting Products.
2. Provided by an independent agency, with the experience and capability to conduct the testing indicated, that is an NRTL as defined by OSHA in 29 CFR 1910.7, accredited under the NVLAP for Energy Efficient Lighting Products, and complying with the applicable IES testing standards.

Retain first paragraph or second paragraph below, or both, for luminaires with integral lamps.

B. IESNA RP-16-05 Addendum “A”: Industry-standard nomenclature and definitions of lighting terms and lighting technologies, including solid-state (LED) luminaires.

C. UL Compliance: Comply with UL 1598 and listed for wet locations, as specified.

D. Source Limitations:

1. Provide luminaires from a single manufacturer for each luminaire type

1.7 DELIVERY, STORAGE, AND HANDLING

A. Protect finishes of exposed surfaces by applying a strippable, temporary protective covering before shipping.

1.8 WARRANTY

When warranties longer than one year are required and would exceed the "one-year period for correction of Work," verify with Owner's counsel that warranties stated in this article are not less than remedies available to Owner under prevailing local laws.

A. Warranty: Manufacturer and Installer agree to repair or replace components of luminaires that fail in materials or workmanship within specified warranty period.

1. Structural failures, including luminaire support components.
2. Faulty operation of luminaires and accessories.
3. Deterioration or corrosion of metals, metal finishes, color retention, and other materials beyond normal weathering.

B. Luminaire Warranty Period: Greater than four (4) years from date of Substantial Completion.

1. If the manufacturer’s warranty commences upon the date materials are delivered, then the manufacturer’s warranty period must be at least five (5) years to meet the requirement stated above.

C. Battery Warranty Period:

1. Full Warranty: One (1) year.
2. Pro Rata: Nine (9) years.

PART 2 - PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications. For definitions of terms and requirements for Contractor's product selection, see Section 016000 "Product Requirements."

Terminology used to describe products complies with NEMA LE 6 product classifications. These classifications were current at the time this Specification was updated but may not be inclusive of products required for the Project. For additional products, add new articles, describe characteristics not already included in the specification, and choose the appropriate manufacturer listing.

2.1 PERFORMANCE REQUIREMENTS

Retain this article if manufacturer is responsible for selecting poles and other luminaire-supporting components and certifying them to suit wind, ice, and other load conditions as expressed in AASHTO LTS-6-M.

A. Structural Characteristics: Comply with AASHTO LTS-6-M.

B. Dead Load: Weight of luminaire and its horizontal and vertical supports, lowering devices, and supporting structure, applied according to AASHTO LTS-6-M.

C. Live Load: Single load of 500 lbf (2200 N) distributed according to AASHTO LTS-6-M.

Retain "Ice Load" Paragraph below if Project is shown inside AASHTO LTS-6-M Figure 3.7.1, Ice Load Map.

See "AASHTO Standards" Article in the Evaluations for discussion of wind load calculations.

Retain "Strength Analysis" Paragraph below to ensure that poles are stiff enough to avoid excessive flexure and vibration. Alternatively, add requirement for minimum pole wall thickness and other parameters.

D. Luminaire Attachment Provisions: Comply with luminaire manufacturers' mounting requirements. Use stainless-steel fasteners and mounting bolts unless otherwise indicated.

E. Ambient Temperature (Indoor Lighting): 5 to 104 deg F (-15 to +40 deg C).

Delete "Relative Humidity" Subparagraph below for outdoor units.

1. Relative Humidity: Zero to 95 percent.

F. Altitude: Sea level to 1000 feet (300 m).

2.2 LUMINAIRE REQUIREMENTS

A. Luminaire Types and Acceptable Manufacturers: As indicated on the Drawings. Refer to the Luminaire Schedule.

1. Model numbers shall not be regarded as complete or entirely accurate. Do not order products based solely on a model number. For each luminaire type, the contractor shall reconcile its description, including options and accessories, with its intended application derived from relevant information conveyed throughout the entirety of contract documents.
2. The manufacturer listed first for each luminaire type shall be regarded as the Basis of Design. Alternative products by other listed manufacturers must be at least equivalent in style, quality, features, and performance to that of the Basis of Design.

B. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

C. Factory-Applied Labels: Comply with UL 1598. Include CCT and CRI ratings. Locate labels where they will be readily visible to service personnel, but not seen from normal viewing angles when lamps are in place.

D. Recessed luminaires shall comply with NEMA LE 4.

Retain "NRTL Compliance" and "FM Global Compliance" paragraphs below for hazardous location lighting.

2.3 LED LUMINAIRES

A. Delivered lumen output as indicated on the Luminaire Schedule.

B. IESNA LM-79 compliant, latest edition.

C. IESNA LM-80 compliant, latest edition; 50,000 hours minimum, unless otherwise noted.

D. CRI and CCT as indicated on Luminaire Schedule in accordance with ANSI C78.377.

E. NEMA.SSL-1 compliant for operational characteristics and electrical safety of LED drivers and power supplies. ANSI/NEMA C82.77 compliant for maximum allowable harmonic distortion produced by power supplies/drivers.

F. Power Factor > 0.9, unless noted otherwise.

G. Total Harmonic Distortion (THD) < 20%, unless noted otherwise.

H. Provide integral Type 4 surge protective device (SPD) rated for 10 kA peak surge per UL 1449 standards.

I. Internal or External Type Emergency Power Unit:

1. Self-contained, modular, battery-inverter unit, factory mounted on luminaire, within luminaire body, or remotely, as indicated on the Drawings.
2. Emergency Connection: Operate luminaire continuously at least 90-percent of rated lumen output of luminaire upon loss of normal power. Connect unswitched circuit to battery-inverter unit and switched circuit to luminaire ballast.
3. Operation: Relay automatically turns lamp on when power-supply circuit voltage drops to 80 percent of nominal voltage or below. Lamp automatically disconnects from battery when voltage approaches deep-discharge level. When normal voltage is restored, relay disconnects lamps from battery, and battery is automatically recharged and floated on charger.
4. Battery: Sealed, maintenance-free, nickel-cadmium type.
5. Charger: Fully automatic, solid-state, constant-current type with sealed power transfer relay.
6. Remote Test Push-Button and Indicator Light: Visible and accessible without opening luminaire or entering ceiling space. Refer to Drawings.

    a. Tester/indicator shall be contained within a single-gang white faceplate with factory labeling. Faceplate shall be unbreakable thermoplastic.
    b. Mount tester/indicator adjacent to its associated lighting fixture. If the lighting fixture is installed in a suspended grid ceiling, tester/indicator shall be mounted flush and centered in an adjacent ceiling tile.
    c. Furnish and install wiring between emergency lighting unit and tester/indicator in accordance with these specifications and the manufacturer's instructions.
    d. Tester/indicator light shall not be mounted integral to the lighting fixture. If tester/indicator is furnished integral to the lighting fixture, the lighting fixture shall be regarded as damaged, and shall be replaced by this contractor.

7. Indicator Light: LED indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.

J. Track Lighting

1. Low Ceiling Gallery
    a. All track and track luminaires within the museum space shall be provided from the same manufacturer for ease of maintenance, control, cost, and operation by the End Users.
    b. Recessed Track
        1) Integral strut channel hanging system with max of 100 lbs. capacity between 10'-0" support points.
        2) Track materials include sustainable extruded aluminum and less than 5% steel components comprising of miscellaneous hardware (nuts, screws, bolts, rivets, etc.).
        3) Track accessories include fixture mount for projectors, wireless access point and data port integral to track.
        4) 12-year blanket manufacturer warranty.
    c. Track Fixtures
        1) 5-year blanket manufacturer warranty.

2) Track fixture material includes sustainable sheet aluminum and less then 5% steep components comprising of miscellaneous hardware (nuts, screws, bolts, rivets, etc.).
3) Wall Wash
   a) Output of up to 1600 Lumens
   b) 98 CRI, 2700K CCT standard
   c) 2-3/8" Diameter by 6-13/16" Length
   d) On-board potentiometer for individual fixture dimming control.
   e) Fixture Power Supply recesses fully into track for a clean aesthetic.
4) Static Optic
   a) Output of up to 1600 lumens
   b) 90+ CRI, 2700K CCT standard
   c) 10-, 25-, and 35-degree interchangeable optics
   d) 2-5/8" Diameter by 6-13/16" Length
   e) Accessories included for optic control – Beam softening lens, Linear spread lens, Universal spread lens, Hexell Louver
   f) On-board potentiometer for individual fixture dimming control.
   g) Fixture Power Supply recesses fully into track for a clean aesthetic.
5) Zoom Optic
   a) Output of up to 1800 lumens
   b) 90+ CRI, 2700K CCT standard
   c) 10–30-degree optic zoom
   d) 3-1/16" Diameter by 6-5/8" Length
   e) On-board potentiometer for individual fixture dimming control.
6) RGBW Static Optic
   a) Casambi control capability
   b) 10-, 25-, and 35-degree interchangeable optics
   c) 2-5/8" Diameter by 6-13/16" Length
   d) Accessories included for optic control – Beam softening lens, Linear spread lens, Universal spread lens, Hexell Louver
   e) On-board potentiometer for individual fixture dimming control.
   f) Fixture Power Supply recesses fully into track for a clean aesthetic.
7) Framing Projector
   a) Output of up to 1800 lumens
   b) 98 CRI, 2700K CCT standard
   c) Beam shaping shutters, Optical focusing, Gobo Pin Spot and Gobo Carrier accessories.
   d) 11, 22, 33, 54 interchangeable focusing tube
   e) On-board potentiometer for individual fixture dimming control.
   f) Fixture Power Supply recesses fully into track for a clean aesthetic.

2. High Ceiling Gallery
   a. All track and track luminaires within the museum space shall be provided from the same manufacturer for ease of maintenance, control, cost, and operation by the End Users.
   b. Recessed Track
      1) Integral strut channel hanging system with max of 100 lbs. capacity between 10'-0" support points.
      2) Track materials include sustainable extruded aluminum and less than 5% steel components comprising of miscellaneous hardware (nuts, screws, bolts, rivets, etc.).

3) Track accessories include fixture mount for projectors, wireless access point and data port integral to track.
4) 12-year blanket manufacturer warranty.

c. Track Fixtures
1) 5-year blanket manufacturer warranty.
2) Track fixture material includes sustainable sheet aluminum and less then 5% steep components comprising of miscellaneous hardware (nuts, screws, bolts, rivets, etc.).
3) Wall Wash
a) Output of up to 1600 Lumens
b) 98 CRI, 2700K CCT standard
c) 2-3/8” Diameter by 6-13/16” Length
d) On-board potentiometer for individual fixture dimming control.
e) Fixture Power Supply recesses fully into track for a clean aesthetic.
4) Static Optic
a) Output of up to 1600 lumens
b) 90+ CRI, 2700K CCT standard
c) 10-, 25-, and 35-degree interchangeable optics
d) 2-5/8” Diameter by 6-13/16” Length
e) Accessories included for optic control – Beam softening lens, Linear spread lens, Universal spread lens, Hexell Louver
f) On-board potentiometer for individual fixture dimming control.
g) Fixture Power Supply recesses fully into track for a clean aesthetic.
5) Zoom Optic
a) Output of up to 1800 lumens
b) 90+ CRI, 2700K CCT standard
c) 10–30-degree optic zoom
d) 3-1/16” Diameter by 6-5/8” Length
e) On-board potentiometer for individual fixture dimming control.
6) RGBW Static Optic
a) Casambi control capability
b) 10-, 25-, and 35-degree interchangeable optics
c) 2-5/8” Diameter by 6-13/16” Length
d) Accessories included for optic control – Beam softening lens, Linear spread lens, Universal spread lens, Hexell Louver
e) On-board potentiometer for individual fixture dimming control.
f) Fixture Power Supply recesses fully into track for a clean aesthetic.
7) Framing Projector
a) Output of up to 1800 lumens
b) 98 CRI, 2700K CCT standard
c) Beam shaping shutters, Optical focusing, Gobo Pin Spot and Gobo Carrier accessories.
d) 11, 22, 33, 54 interchangeable focusing tube
e) On-board potentiometer for individual fixture dimming control.
f) Fixture Power Supply recesses fully into track for a clean aesthetic.

2.4 EXIT SIGNS

1. General Characteristics: Comply with UL 924; for sign colors, visibility, luminance, and lettering size, comply with authorities having jurisdiction.

2. Internally Lighted Sign:

a. LED; 100,000 hours minimum rated lamp life.
b. Provide AC-only non-emergency type (without battery) for exit signs connected to line-voltage emergency power circuit as indicated on the Drawings.
c. Self-Powered Exit Signs (Battery Type): Provide internal emergency power unit. Refer to the Luminaire Schedule for application.

1) Integral automatic charger in a self-contained power pack.
2) Battery: Sealed, maintenance-free, nickel-cadmium type.
3) Charger: Fully automatic, solid-state type with sealed transfer relay.
4) Test Push Button: Push-to-test type, in unit housing, simulates loss of normal power and demonstrates unit operability.
5) LED Indicator Light: Indicates normal power on. Normal glow indicates trickle charge; bright glow indicates charging at end of discharge cycle.
6) Integral Self-Test: Factory-installed electronic device automatically initiates code-required test of unit emergency operation at required intervals. Test failure is annunciated by an integral audible alarm and flashing red LED.

2.5 MATERIALS

A. Metal Parts:

1. Free of burrs and sharp corners and edges.
2. Sheet metal components shall be steel unless otherwise indicated.
3. Form and support to prevent warping and sagging.

B. Steel:

1. ASTM A36/A36M for carbon structural steel.
2. ASTM A568/A568M for sheet steel.
3. Epoxy-coated.

C. Stainless Steel:

1. Manufacturer's standard grade.
2. Manufacturer's standard type, ASTM A240/240M.

D. Galvanized Steel: ASTM A653/A653M.

E. Aluminum: ASTM B209. Corrosion-resistant.

F. Doors, Frames, and Other Internal Access: Smooth operating, free of light leakage under operating conditions, and designed to permit servicing without use of tools. Designed to prevent doors, frames, lenses, diffusers, and other components from falling accidentally during servicing and when secured in operating position. Doors shall be removable for cleaning or replacing lenses.

G. Acrylic Diffusers: 100 percent virgin acrylic plastic, with high resistance to yellowing and other changes due to aging, exposure to heat, and UV radiation (UV-stabilized). Lens Thickness: At least 0.125 inch minimum, unless otherwise indicated.

H. Glass Lenses, Diffusers, or Globes: Annealed crystal glass, tempered Fresnel glass, unless otherwise indicated. Acrylic lenses

2.6 FINISHES

A. Appearance of Finished Work: Noticeable variations in same piece are unacceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

B. Protect mechanical finishes on exposed surfaces from damage by applying a strippable, temporary protective covering before shipping.

C. Finishes and Color Selections: Manufacturer's standard paint applied to factory-assembled and -tested luminaire before shipping.

1. Finishes/colors to be selected by the Architect/Engineer from the manufacturer’s full range of standard finishes/colors during the review of action submittals, unless the color is specifically indicated on the Luminaire Schedule.
2. If noted on the Luminaire Schedule, provide custom color matching Architect’s color sample or RAL designation.

D. Factory-Applied Finish for Aluminum Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
2. Class I, Clear-Anodic Finish: AA-M32C22A41 (Mechanical Finish: Medium satin; Chemical Finish: Etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

E. Factory-Applied Finish for Steel Luminaires: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces to comply with SSPC-SP 1, to remove dirt, oil, grease, and other contaminants that could impair paint bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, complying with SSPC-SP 5/NACE No. 1 or SSPC-SP 8.
2. Exterior Surfaces: Manufacturer's standard finish consisting of one or more coats of primer and two finish coats of high-gloss, high-build polyurethane enamel.

F. Powder-Coat Finish: Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" recommendations for applying and designating finishes.

1. Surface Preparation: Clean surfaces according to SSPC-SP 1 to remove dirt, oil, grease, and other contaminants that could impair powder coat bond. Grind welds and polish surfaces to a smooth, even finish. Remove mill scale and rust, if present, from uncoated steel, according to SSPC-SP 5/NACE No. 1 or SSPC-SP 8.
2. Powder Coat: Comply with AAMA 2604. Electrostatic-applied powder coating; single application and cured to a minimum 2.5- to 3.5-mil dry film thickness. Coat interior and exterior of pole for equal corrosion protection

2.7 LUMINAIRE SUPPORT

A. Comply with requirements in Section 260529 "Hangers and Supports for Electrical Systems" for channel and angle iron supports and nonmetallic channel and angle supports.

B. Single-Stem Hangers: 1/2-inch steel tubing with swivel ball fittings and ceiling canopy. Finish same as luminaire.

C. Wires: ASTM A641/A641M, Class 3, soft temper, zinc-coated steel, 12-gage.

D. Rod Hangers: 1/4-inch minimum diameter, cadmium-plated, threaded steel rod.

E. Hook Hangers: Integrated assembly matched to luminaire, line voltage, and equipment with threaded attachment, cord, and locking-type plug.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Examine roughing-in for luminaire to verify actual locations of luminaire and electrical connections before luminaire installation.

C. Examine walls, roofs, canopy ceilings, and overhang ceilings for suitable conditions where luminaires will be installed.

D. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Comply with NECA 1.

B. Comply with requirements in Section 260519 "Low-Voltage Electrical Power Conductors and Cables" and Section 260553 "Raceways and Boxes for Electrical Systems" for wiring connections and wiring methods.

C. Coordinate layout and installation of luminaires with other construction. Do not modify layout or locations of luminaires without documented approval to do so, unless indicated otherwise on the Drawings.

D. Install luminaires level, plumb, and square with ceilings and walls unless otherwise indicated.

E. Adjust luminaires that require field adjustment or aiming to provide optimum illumination. Coordinate and confirm final adjustments with Owner.

F. Fasten luminaire to structural support.

G. Supports:

1. Sized and rated for luminaire weight.
2. Able to maintain luminaire position after cleaning and servicing.
3. Provide support for luminaire without causing deflection of ceiling or wall.
4. Luminaire-mounting devices shall be capable of supporting a horizontal force of 100 percent of luminaire weight and a vertical force of 400 percent of luminaire weight.

H. Flush-Mounted Luminaires:

1. Secured to outlet box.
2. Attached to ceiling structural members at four points equally spaced around circumference of luminaire.
3. Trim ring flush with finished surface.

I. Wall-Mounted Luminaires:

1. Attached to structural members in walls or a minimum 20-gauge or 1/8-inch thick backing plate attached to wall structural members.
2. Attached using through bolts and backing plates on either side of wall as recommended by luminaire manufacturer.
3. Do not attach luminaires directly to gypsum board.

J. Suspended Luminaires:

1. Pendant mount, where indicated, minimum 5/32-inch-diameter aircraft cable supports, adjustable, and quantity of supports as indicated or as recommended by luminaire manufacturer, whichever is greater.
2. Hook mount, where applicable.
3. Rods: Where longer than 48 inches, brace to limit swinging.
4. Stem-Mounted, Single-Unit Luminaires: Suspend with twin-stem hangers. Support with approved outlet box and accessories that hold stem and provide damping of luminaire oscillations. Support outlet box vertically to building structure using approved devices.
5. Continuous Rows of Luminaires: Use tubing or stem for wiring at one point and tubing or rod or wire support as indicated for suspension for each unit length of luminaire chassis, including one at each end.
6. Do not use ceiling grid as support for pendant luminaires. Connect support wires or rods to building structure.

K. Ceiling-Grid-Mounted Luminaires:

1. Secure to any required outlet box.

Retain first subparagraph below to require ceiling grid to be connected to building structure at four corners of luminaire opening.

2. Secure luminaire to the luminaire opening using approved fasteners in a minimum of four locations, spaced near corners of luminaire.

Retain subparagraph below if ceiling grid is not connected to building structure at four corners of the luminaire opening.

3.3 CORROSION PREVENTION

A. Aluminum: Do not use in contact with earth or concrete. When in direct contact with a dissimilar metal, protect aluminum by insulating fittings or treatment.

B. Steel Conduits: Comply with Section 260553 "Raceways and Boxes for Electrical Systems." In concrete foundations, wrap conduit with 0.010-inch-thick, pipe-wrapping plastic tape applied with a 50 percent overlap.

3.4 IDENTIFICATION

A. Identify system components, wiring, cabling, and terminals. Comply with requirements for identification specified in Section 260553 "Identification for Electrical Systems."

3.5 FIELD QUALITY CONTROL

A. Inspect each installed luminaire for damage. Replace damaged luminaires and components.

B. Perform the following tests and inspections:

1. Operational Test: After installing luminaires, switches, and accessories, and after electrical circuitry has been energized, test units to confirm proper operation.
2. Verify settings, programming, functions, and operation of components integral to the luminaire, whether dimming drivers, or integral presence sensors,—in addition to other control systems specified in Section 260923 “Lighting Control Systems and Devices.”
3. Test for Emergency Lighting: Interrupt power supply to demonstrate proper operation. Verify transfer from normal power to battery power and retransfer to normal.
4. Inspect luminaires for nicks, mars, dents, scratches, and other damage.

C. Luminaire will be considered defective if it does not pass operation tests and inspections.

D. Prepare a written report of tests, inspections, observations, and verifications indicating and interpreting results. If adjustments are made to lighting system, retest to demonstrate compliance with standards.

3.6 STARTUP AND SYSTEMS COMMISSIONING

A. Comply with requirements for startup and system commissioning specified in Section 260923 "Lighting Control Systems and Devices."

B. Emergency Power Units and Exit Signs: Charge batteries and depress switch to conduct short-duration test.

C. CLEANING

1. Thoroughly clean each installed luminaire within one month of substantial completion.

END OF SECTION 265100

EXHIBIT D: DRAWINGS

FIT MUSEUM RENOVATION

LOWER GALLERY

282 SEVENTH AVE
MANHATTAN, NY 10001

ISSUE FOR BID

INDEX OF DRAWINGS

08/02/2023

DRAWING LIST

.GENERAL.	
G0.1	COVER SHEET
.CODE.	
CP1.0	LEVEL 00 - CODE PLAN
.ARCHITECTURAL.	
AD1.0	LEVEL 00 - RCP DEMOLITION PLAN
A1.0	LEVEL 00 - FLOOR PLAN
A3.0	LEVEL 00 - REFLECTED CEILING PLAN
A5.1	CONSTRUCTION DETAILS
.ELECTRICAL.	
E0.1	ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES
ED1.0	LEVEL 00 - ELECTRICAL DEMOLITION PLAN
E1.0	LEVEL 00 - LIGHTING PLAN
E2.0	LEVEL 00 - POWER & SYSTEMS PLAN
E7.1	LIGHTING SCHEDULES & DETAILS
E7.2	ELECTRICAL SCHEDULES
.MECHANICAL.	
M0.1	MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES
MD1.0	LEVEL 00 - HVAC DEMOLITION PLAN
M1.0	LEVEL 00 - HVAC PLAN
.FIRE PROTECTION.	
FP1.0	LEVEL 00 - FIRE PROTECTION PLAN

GENERAL ABBREVIATIONS

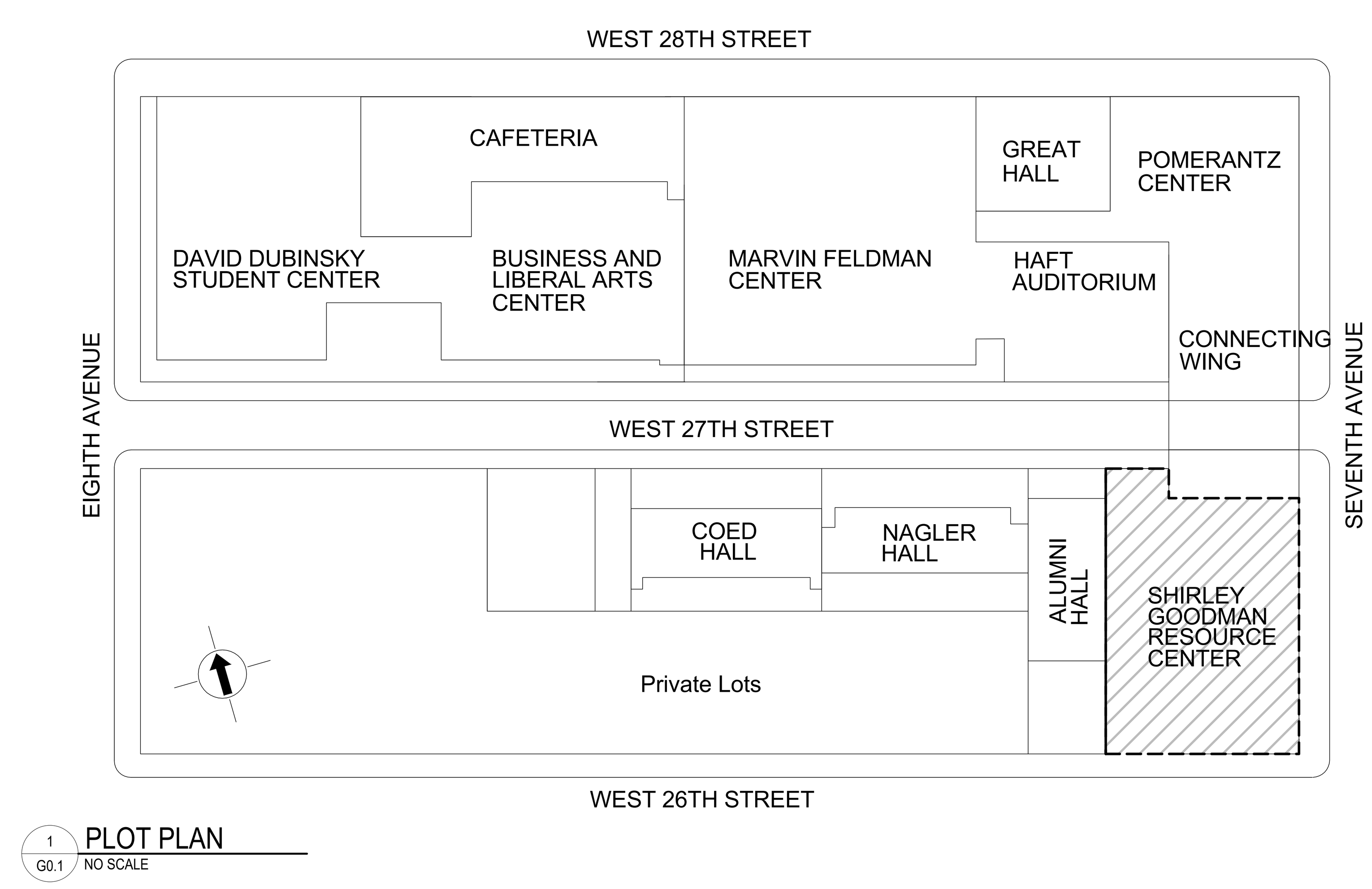
#	NUMBER	IBC	INTERNATIONAL BUILDING CODE
&	AND	IN	INCH
@	AT	INT	INTERIOR
ADA	AMERICANS WITH DISABILITY ACT	LB(S)	POUND(S)
ADDN	ADDITION OR ADDITIONAL		
AFF	ABOVE FINISHED FLOOR	M	METER
AFG	ABOVE FINISHED GRADE	MAX	MAXIMUM
AHJ	AUTHORITY HAVING JURISDICTION	MC	MECHANICAL CONTRACTOR
ALT	ALTERNATE	MECH	MECHANICAL
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MEZZ	MEZZANINE
APPROX	APPROXIMATE	MFR	MANUFACTURER
ARCH	ARCHITECTURAL	MIN	MINIMUM
		MISC	MISCELLANEOUS
BLDG	BUILDING	MM	MILLIMETER
BSMT	BASEMENT		
		N	NORTH
CJ	CONTROL JOINT	N/A	NOT APPLICABLE
CL	CENTER LINE	NIC	NOT IN CONTRACT
CLG	CEILING	NTS	NOT TO SCALE
CONC	CONCRETE		
CONN(S)	CONNECTION(S)	OC	ON CENTER
CONST	CONSTRUCTION	OPP	OPPOSITE
CONT	CONTINUOUS	OVHD	OVERHEAD
CONTR	CONTRACT(OR)		
CTR	CENTER	PAR	PARALLEL
		PENT	PENTHOUSE
D	DEPTH	PLYWD	PLYWOOD
DEG	DEGREE		
DEMO	DEMOLISH OR DEMOLITION	QTY	QUANTITY
DIA	DIAMETER		
DIM	DIMENSION	REQ(D)	REQUIRE(D)
DIV	SPECIFICATION DIVISION	REV	REVISION(S)
DN	DOWN	RM	ROOM
DTL	DETAIL	RND	ROUND
DWG(S)	DRAWING(S)		
		S	SOUTH
E	EAST	SCHED	SCHEDULE
EA	EACH	SECT	SECTION
EC	ELECTRICAL CONTRACTOR	SHT	SHEET
EL	ELEVATION	SIM	SIMILAR
ELEC	ELECTRICAL	SPEC	SPECIFICATION(S)
ENG	ENGINEER	STD	STANDARD
EQ	EQUAL	STL	STEEL
EQUIP	EQUIPMENT	STOR	STORAGE
EQUIV	EQUIVALENT	STRUCT	STRUCTURAL
EXST	EXISTING	SYM	SYMETRICAL
EXT	EXTERIOR		
		TEMP	TEMPORARY
FIN	FINISHED	TYP	TYPICAL
FL	FLOOR		
FT	FEET	UNEX	UNEXCAVATED
FUT	FUTURE	UNFIN	UNFINISHED
		UNO	UNLESS NOTED OTHERWISE
GC	GENERAL CONTRACTOR		
GOVT	GOVERNMENT	VERT	VERTICAL
		VEST	VESTIBULE
H	HEIGHT	VIF	VERIFY IN FIELD
HORIZ	HORIZONTAL		
HT	HEIGHT	W	WEST
		W/	WITH
i.e.	THAT IS	W/O	WITHOUT

ARCHITECTURAL SYMBOLS

Symbol	Description
APC-1 / 9' - 0" (CEILING TYPE / CEILING HEIGHT)	CEILING TYPE
? / ???	DETAIL NUMBER CROSS REFERENCE SHEET NUMBER
? / ??? SIM	SIMILAR OR TYPICAL REFERENCE WALL SECTION
X	SHEET NOTE
?	COLUMN GRID LINE
ROOM NAME / ???	ROOM NUMBER/NAME
XXX-XX	REVISION NUMBER
LEVEL XX / XXX'-XX"	LEVEL ELEVATION
℄	CENTERLINE
AP	2'X2' ACCESS PANEL SEE A5.1 FOR MORE INFO.
	EXIT SIGN. SOLID FILL & ARROW DENOTES DIRECTION SEE E1.0 FOR MORE INFO.
CJ	CONTROL JOINT SEE A5.1 FOR MORE INFO.
R1A	RECESSED LIGHT FIXTURE SEE E1.0 FOR MORE INFO.
	TRACK "BUSRUN". SEE A3.0 FOR LENGTH. SEE E1.0 FOR MORE INFO.
	2'X2' SUPPLY DIFFUSER. SEE M1.0 FOR MORE INFO.
	2'X2' RETURN DIFFUSER. SEE M1.0 FOR MORE INFO.
	1'X3' RETURN DIFFUSER. SEE M1.0 FOR MORE INFO.
SP	SRINKLER HEAD. SEE FP1.0 FOR MORE INFO.
	SECURITY CAMERA. RELOCATED BY OTHERS.
	PEOPLE COUNTER. RELOCATED BY OTHERS.
XX	FIXED POWERED DEVICE ON TRACK. XX DENOTES DEVICE TYPE. SEE A3.0 & E1.0 FOR MORE INFO

HATCH KEY

- NOT IN CONTRACT
- CONCRETE
- STEEL
- WOOD (CONTINUOUS BLOCKING)
- WOOD (NON-CONTINUOUS BLOCKING)
- GYPSUM BOARD



1 / G0.1 PLOT PLAN
NO SCALE

GENERAL ARCHITECTURE NOTES

A. GENERAL NOTES APPLY TO ALL SHEETS.
B. DIMENSIONS ARE ACTUAL AND ARE TO FACE OF STUDS, FACE OF CONCRETE WALLS, FACE OF CMU WALLS, FACE OF FRAMES, OR CENTERLINE OF COLUMNS, UNLESS NOTED OTHERWISE.
C. ALL WALL AND FLOOR PENETRATIONS AT RATED WALL LOCATIONS REQUIRED FOR PIPES, CONDUIT, DUCTING, ETC. SHALL BE SEALED TO STOP PASSAGE OF FIRE AND/ OR SMOKE WITH FIRE SAFETY AND APPROVED FIRESTOPPING SEALANT. CONTRACTOR SHALL VERIFY SEALEANT AND FIRE SAFETY RATING REQUIRED RATED AS PER THE RATING OF THE EXISTING CONSTRUCTION. SEE SPECIFICATION SECTION 078413.
D. THE GENERAL CONTRACTOR SHALL COORDINATE CUT-OUTS FOR EQUIPMENT.
E. COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTORS THE SIZE AND LOCATION OF EQUIPMENT PADS SHOWN ON PLANS.
F. FIRE-RESISTANCE-RATED ENCLOSURES AROUND ALL STEEL COLUMNS SHALL BE CONTINUOUS FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE FOR EACH LEVEL.
G. CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY. SEE DRAWING FOR QUANTITIES AND LOCATION OF WORK. SEE SPECIFICATIONS FOR QUALITIES AND CONDITIONS OF WORK.
H. ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE, PER PARTITION TYPE.
I. FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS; I.E. MILLWORK, WALL-MOUNTED FIXTURES, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
J. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
K. EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
L. SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
M. WORK: ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AND INDICATED IN THE CONTRACTOR'S BID.
N. GENERAL SHEET NOTES ONLY APPLY TO PARTICULAR DRAWING OR SERIES OF DRAWINGS.
O. NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
P. DO NOT SCALE DRAWINGS. DIMENSIONS NOTED PREVAIL. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.
Q. HORIZONTAL AND VERTICAL DIMENSIONS ARE MINIMUM DIMENSIONS. CLEARANCES ARE GIVEN TO FINISH SURFACES. GC TO VERIFY ALL CLEARANCES. NOTIFY ARCHITECT IN CASE OF DISCREPANCY

CONSTRUCTION NOTES:

A. THE GC SHALL SUPPLY AND INSTALL LIGHT TRACKS AND DEMONSRATE PROPER FUNCTION. THE OWNER SHALL SUPPLY AND INSTALL THE FIXUTRES ON THE TRACKS AS NOTED IN THE FIXTURE SCHEDULE.
B. THE CELLAR OF GOODMAN "E" BUILDING ARE ACCESSIBLE BY A PAIR OF PASSENGER ELEVATORS AND A WIDE EGRESS STAIR. REFER TO DIVISION 0 FOR RULES AND REGULATIONS FOR ELEVATORS.
C. SEE A3.0 FOR MORE INFORMATION.

BUILDING DEPARTMENT NOTES

1. THE FOLLOWING NOTES SHALL APPLY THROUGHOUT:
   A. WORK SHALL BE EXECUTED IN FULL OCMPLIANCE WITH THE APPLICABLE PROVISIONS OF ALL LAWS AND BY-LAWS BEARING ON THE PERFORMANCE AND EXECUTION OF THE WORK.
2. THIS APPLICATION IS SUBJECTED TO BUILDING CODE 2014 FOR COMPLAINCE WITH CHAPTERS 1, 17, & 33 REGARDING ADMINISTRATION, INSPECTIONS, AND SAFETY REQUIREMENTS.
   A. THIS BUILDING IS BUILDING OCCUPANCY GROUP CLASSIFICATION J2 (BUSINESS) & CONSTRUCTION CLASSIFICATION 1B (FIREPROOF CONSTRUCTION)
3. ALL MATERIALS OR ASSEMBLIES REQUIRED TO HAVE A FIRE RESISTANCE RATING SHALL COMPLY WITH ONE OF THE FOLLOWING REQUIREMENTS:
   A. THEY SHALL HAVE BEEN ACCEPTABLE PRIOR TO THE EFFECTVIE DATE OF THE CODE BY THE BOARD OF STANDARDS AND APPEALS (OR)
   B. THEY SHALL HAVE BEEN ACCEPTED FOR THE USE UNDER THE PRESCRIBED TEST METHODS BY THE COMISSIONER (OR)
   C. APPROVED BY THE OFFICE OF TECHNICAL CERTIFICATION AND RESEARCH (OTCR)
4. MATERIALS OR ASSEMBLIES REQUIRED TO HAVE A FIRE RESISTANCE RATING SHALL COMPLY WITH ONE OF THE FOLOWING:
   A. THEY SHALL CONFIRM WITH THE AISG FIRE RESISTANCE RATING DATED 1985 (OR)
   B. THEY SHALL HAVE BEEN TESTED WITH ASTM E119, STANDARD METHODS OF FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS AND ACCEPTED BY THE COMISSIONER (OR)
   C. THEY SHALL HAVE BEEN ACCEPTABLE PRIOR THE EFFECTIVE DATE OF THE CODE (OR)
   D. APPROVED BY THE OTCR
5. THESE DRAWINGS HAVE BEEN PREPARED BY OR AT THE DIRECTION OF THE UNDERSIGNED AND TO THE BEST OF THE UNDERSIGNED'S KNOWLEDGE, INFORMATION AND BELIEF MEET THE REQUIREMENTS OF THE BUILDING CODE
6. ALL NEW WORK SHALL COMPLY WITH THE 2020 NYCECC
7. ALL NEW INTERIOR FINISHES SHALL BE CONSTRUCTION OF MATERIALS MEETING SECTION 28-801 FOR FLAME SPREAD RATINGS
8. TR.1 SHALL BE SUBMITTED BY THE CONTRACTOR AND APPROVED BY THE OWNER PRIOR TO APPLYING FOR CONSTRUCTION PERMITS
9. FOLLOWING CHAPTER 33 OF THE 2013 NYCCC, PROTECTIONS OF THE PUBLIC AND THE ADJANCET PROPERTIES. REFERENCES IN THE SPECIFICATIONS AND THE DRAWINGS TOTHE 1968 BUILDING CODE PARAGRAPHS REGARDING PROTECTION SHALL BE CONSIDERED TO BE THAT OF CHAPTER 33 OF THE NYCCC.

CODE REFERENCES

1968	NEW YORK CITY BUILDING CODE
2014	BUILDING CODE OF THE CITY OF NEW YORK (2014 NYC)
2014	PLUMBING CODE OF THE CITY OF NEW YORK
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2014	NEW YORK CITY FIRE CODE WITH AMENDMENTS TO NFPA-72 2010
2009	ICC / ANSI117.1-2009

REQ. CONTROLLED INSPECTIONS

SPECIAL INSPECTION ITEMS:

ENERGY CODE COMPLIANCE INSPECTIONS - LIGHTING - TR8

MECHANICAL SYSTEM	BC1704.15
SPRINKLER SYSTEM	BC1704.21
FIRESTOPPING	BC1704.25
FINAL INSPECTION	BC109.5/110.5 DIRECTIVE 14 / 1975

ENERGY CODE

TO THE BEST OF KNOWLEDGE, BELIEF, AND PROFESSIONAL JUDGEMENT, THIS APPLICATION IS IN COMPLIANCE WITH THE NYCECC 2020 AND THE NEW YORK STATE ENERGY CONSERVATION CODE 2020

FLOOD ZONE

THIS PROJECT IS LOCATED WITHIN FLOOD ZONE X ACCORDING TO FEMA FIRM MAP #3604970201F EFFECTIVE 09/05/07

ZONING NOTES

ADDRESS:	282 SEVENTH AVE, NY, NY 10001
BLOCK:	776
LOT:	40 (AS OF 02/2011)
ZONING MAP:	8D
ZONING DISTRICT:	C6-2A

NO CHANGE TO USE, EGRESS, OR OCCUPANCY

PROJECT DESCRIPTION

RENOVATION TO FIT MUSEUM'S LOWER GALLERY INCLUDING, BUT NOT LIMITED TO UPGRADES TO THE CEILING, LIGHTING, MECHANICAL DIFFUSERS, SPRINKLER HEADS, AND FIRE ALARM SYSTEMS.

DLRGROUP
© DLR Group

08/02/2023

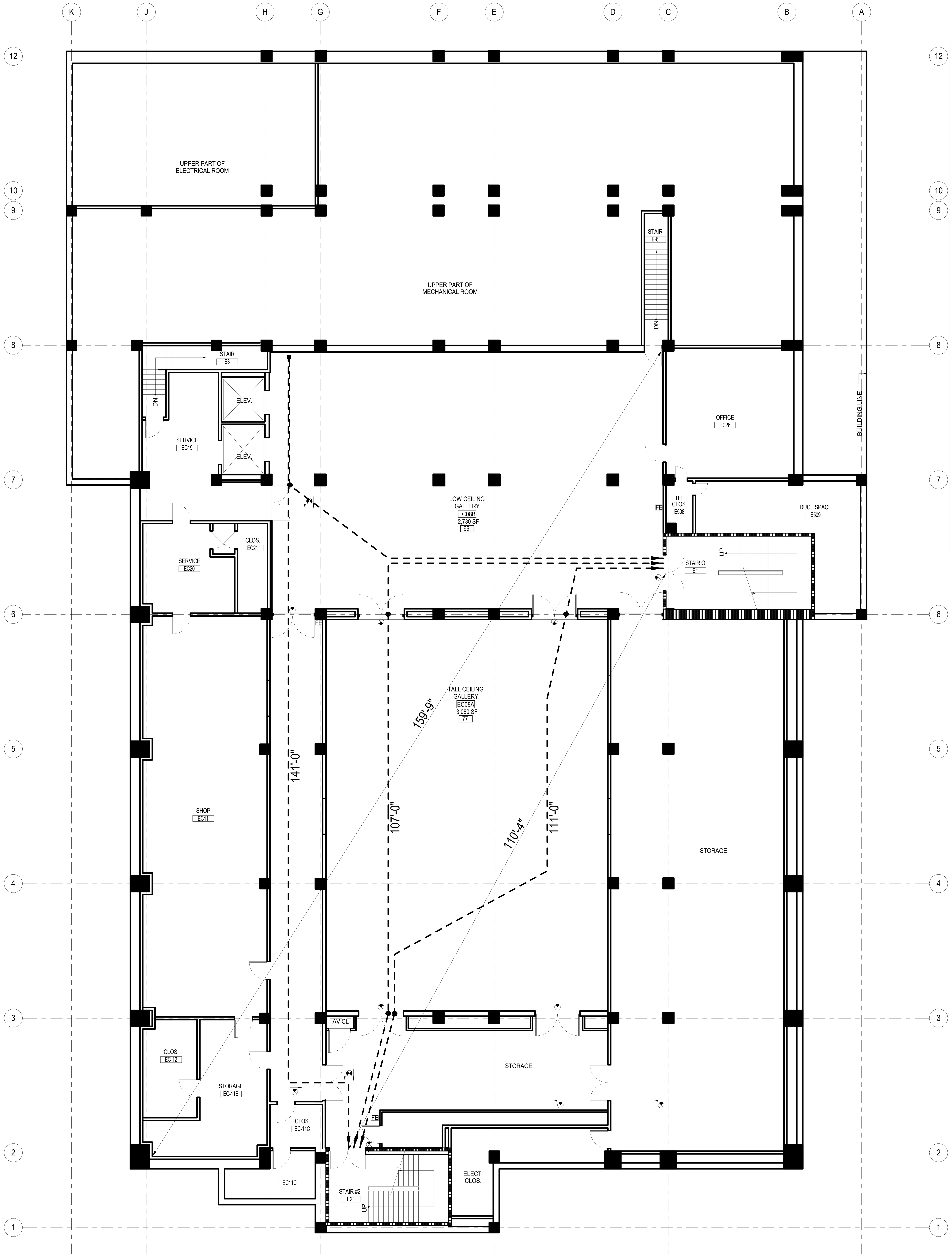
FIT MUSEUM - LOWER GALLERY
FIT Goodman Building
282 Seventh Ave, Manhattan NY 10001

ISSUE FOR BID
08/02/2023
REVISIONS

57-23105-02

COVER SHEET

G0.1



LEVEL 00 - CODE PLAN

SCALE: 1/8" = 1'-0"

LEGEND CODE FLOOR PLANS

FE	FIRE EXTINGUISHER
⊗	EXIT SIGN
MAX TRAVEL = Length	EXIT ACCESS TRAVEL DISTANCE
MAX CP = Length	COMMON PATH OF EGRESS TRAVEL DISTANCE
MAX DIAG DIM = X'-X" 1/3 DIAG = X'-X"	MAX OVERALL DIAGONAL DIM OF AREA SERVED
MIN SEPARATION DISTANCE = X'-X"	MIN EXIT SEPARATION

SEPARATION LEGEND

HOURLY RATING

0 = 0 HOUR
5 = 1/2 HOUR
1 = 1 HOUR
2 = 2 HOUR
3 = 3 HOUR
4 = 4 HOUR
SP = SMOKE PARTITION

Area name	XXXX SF	
Space Function		
XXX OCC	XXX SF/OCC	G

OCCUPANT LOAD TAG (GROSS) - SEE PATTERN FOR APPLIED LOAD FACTOR

ROOM NUMBER (###)
AREA (SF) (XXXX SF)
OCCUPANT LOAD (XXX)

OCCUPANT LOAD TAG (NET) - THIS LOAD DOES NOT EXTEND BEYOND THIS SPACE - SEE PATTERN FOR APPLIED LOAD FACTOR

OCCUPANCY GROUP PATTERNS

A-1 ASSEMBLY
B BUSINESS
E EDUCATIONAL

GROSS AREA SCHEDULE

LEVEL	NAME	OCCUPANCY GROUP	AREA

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PROJECT DESCRIPTION

RENOVATION TO FIT MUSEUM'S LOWER GALLERY INCLUDING, BUT NOT LIMITED TO UPGRADES TO THE CEILING, LIGHTING, MECHANICAL DIFFUSERS, SPRINKLER HEADS, AND FIRE ALARM SYSTEMS.

DLRGROUP

REGISTERED ARCHITECT
08/02/2023

FIT MUSEUM - LOWER GALLERY

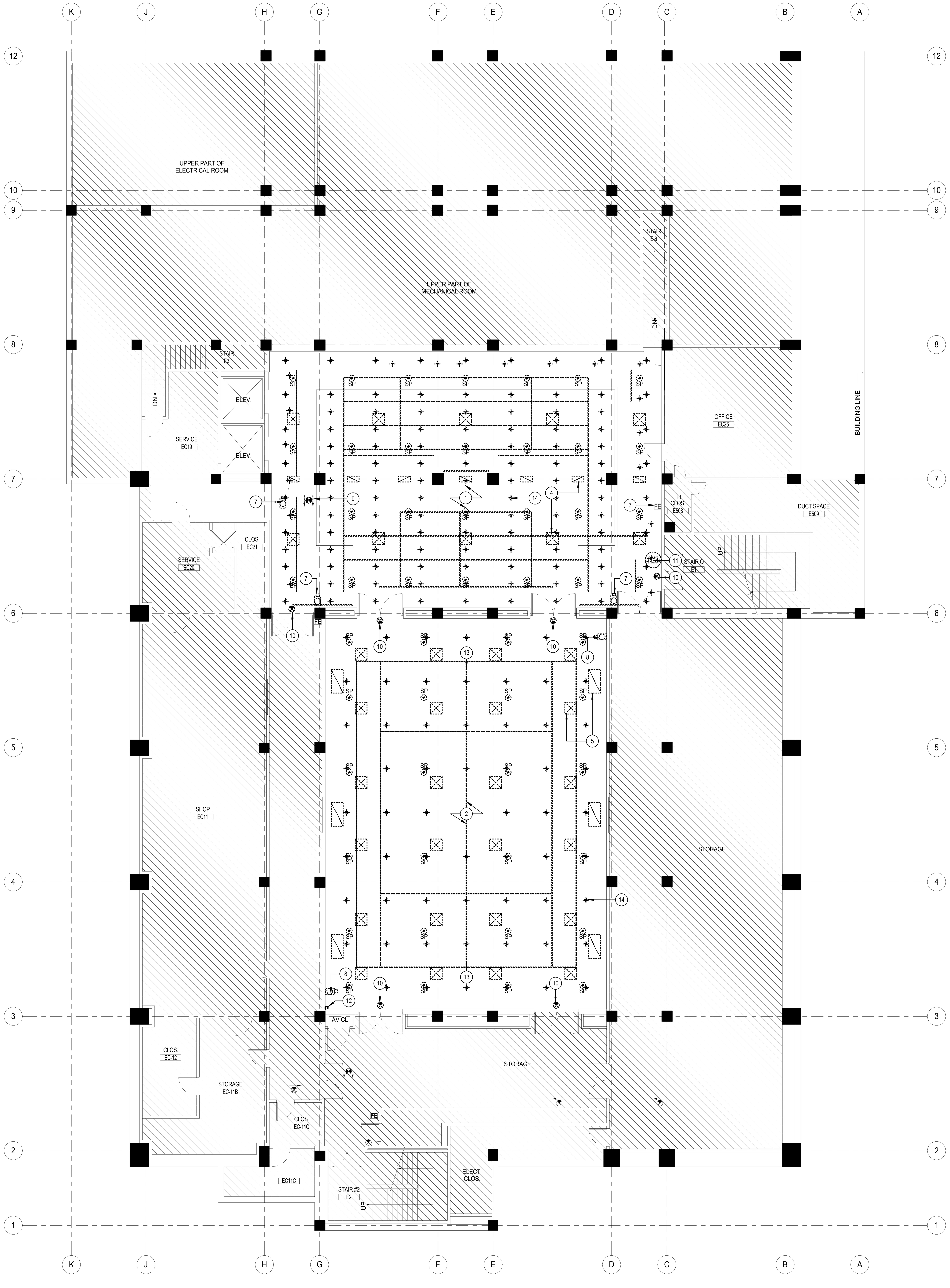
FIT Goodman Building
282 Seventh Ave, Manhattan NY 10001

ISSUE FOR BID
08/02/2023
REVISIONS

57-23105-02

LEVEL 00 - CODE PLAN

CP1.0



LEVEL 00 - RCP DEMOLITION

SCALE: 1/8" = 1'-0"

DEMOLITION GENERAL NOTES

DEMOLITION NOTES APPLY TO ALL DEMOLITION SHEETS.

THE CONTRACTOR SHALL:

A. COORDINATE ALL DEMOLITION AND PHASING EFFORTS WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH THE OWNER'S REPRESENTATIVE. IN ALL CASES, PROVISIONS SHALL BE MADE FOR USER'S SAFETY.
B. COORDINATE ANY DISRUPTION OF UTILITY SERVICES WITH THE OWNER AND AS SPECIFIED.
C. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WITHIN THE EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSURE TO ISOLATE ANY DEMOLITION/CONSTRUCTION WORK FROM THE GENERAL PUBLIC AND AS DEEMED NECESSARY BY THE OWNER AND CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH THE OWNER AND MAINTAIN MEANS OF EGRESS THROUGHOUT THE WORK.
D. MAINTAIN A SECURE, WEATHER-TIGHT ENCLOSURE AT ALL TIMES.
E. VERIFY ALL EXISTING CONDITIONS, DIMENSIONS AND ELEVATIONS AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES.
F. DEMOLITION OF CEILING SHALL NOT INTERUPT THE SPRINKLER AND MECHANICAL DIFFUSERS TO BE RELOCATED AS NOTED.
G. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
H. PROVIDE PROTECTION FOR ALL EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO ANY DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER THIS CONTRACT.
I. REPAIR OR REPLACE ITEMS THAT ARE DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINISH AND/OR CONDITION.
J. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
K. VERIFY AND MAINTAIN THE LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF THEIR SERVICE.
L. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR RE-ROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, AND OTHER ITEMS, AS REQUIRED TO MAINTAIN FIRE-RESISTANCE-RATED SEPARATIONS. FINISH AS REQUIRED FOR NEW OR EXISTING ADJACENT SURFACES.
M. CAP ALL DISCONNECTED MECHANICAL PIPING LINES WITHIN THE WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
N. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.
O. WHERE PORTIONS OF CMU WALLS ARE INDICATED TO BE REMOVED, PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY REMOVING CMU IN TOOTH-IN PATTERN BOTH SIDES OF DEMOLITION FOR CONTRACTOR TO TOOTH-IN NEW CMU PATCHES.
P. PROTECT ALL PLASTER/STUD WALLS TO REMAIN.

DEMOLTION SYMBOLS

NOT IN SCOPE
DEMOLITION
TO REMAIN
DETAIL NUMBER
CROSS REFERENCE
SHEET NUMBER
SHEET NOTE
COLUMN GRID LINE
ROOM NAME ??? — ROOM NUMBER/NAME
XXX-XX — REVISION NUMBER
CENTERLINE

SHEET NOTES

1	DEMOLISH CEILING IN LOWER CEILING GALLERY AND PREPARE FOR NEW CEILING AT 9'-0". DEMOLITION IS INCLUSIVE BUT NOT LIMITED TO CEILING FRAMING, CEILING PLASTER, ACCESS PANELS, DOWNLIGHTS, LIGHT TRACKS, SPRINKLERS HEADS, AND MECHANICAL GRILLES. GC SHALL PROTECT EXISTING WALLS AND COLUMNS. SEE SHEET NOTES ON A3.0 FOR DEVICES TO REMAIN, RELOCATE, AND REPLACE
2	DEMOLISH CEILING IN TALLER CEILING GALLERY AND PREPARE FOR NEW CEILING AT 18'-0". DEMOLITION IS INCLUSIVE BUT NOT LIMITED TO CEILING FRAMING, CEILING PLASTER, ACCESS PANELS, DOWNLIGHTS, LIGHT TRACKS, SPRINKLERS HEADS, AND MECHANICAL GRILLES. GC SHALL PROTECT EXISTING WALLS AND COLUMNS. SEE SHEET NOTES ON A3.0 FOR DEVICES TO REMAIN, RELOCATE, AND REPLACE
3	FIRE EXTINGUISHERS TO REMAIN
4	DEMOLISH EXISTING SUPPLY AND RETURN GRILES IN LOWER CEILING. EXTEND BRANCH TO NEW GRILLE IN LOCATION SHOWN ON A3.0. SEE M1.0 FOR MORE INFORMATION
5	DEMOLISH EXISTING SUPPLY AND RETURN GRILES IN TALLER CEILING. EXTEND BRANCH TO NEW GRILLE IN LOCATION SHOWN ON A3.0. SEE M1.0 FOR MORE INFORMATION
7	CEILING MOUNTED SECURITY CAMERAS IN LOWER CEILING TO BE RELOCATED BY OTHERS. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER
8	WALL MOUNTED SECURITY CAMERAS IN TALL CEILING TO BE RELOCATED BY OTHERS TO 16'-0" AFF. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER
9	REMOVE DIRECTIONAL EXIT SIGN TO BE RELOCATED. SEE A3.0 FOR LOCATION. SEE E1.0 FOR MORE INFORMATION.
10	REMOVE EXIT SIGN FOR NEW EXIT SIGN IN SAME LOCATION. SEE E1.0 FOR MORE INFORMATION.
11	PEOPLE COUNTER TO BE RELOCATED BY OTHERS. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER
12	DEMOLISH NIB WALL. GC TO LOCATE PATHWAY FOR SPEAKER WIRING AND COORDINATE NEW PATHWAY ABOVE CEILING WITH OWNER.
13	DEMOLISH CEILING MOUNTED SPEAKER MOUNT AND SPEAKER WIRING. GC TO PROVIDE NEW WIRES TO SPEAKER. SEE A3.0 FOR MORE INFO.
14	WIRELESS ACCESS POINT (WAP) TO BE RELOCATED BY OTHERS. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER

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LEVEL 00 - DEMOLITION PLAN

AD1.0

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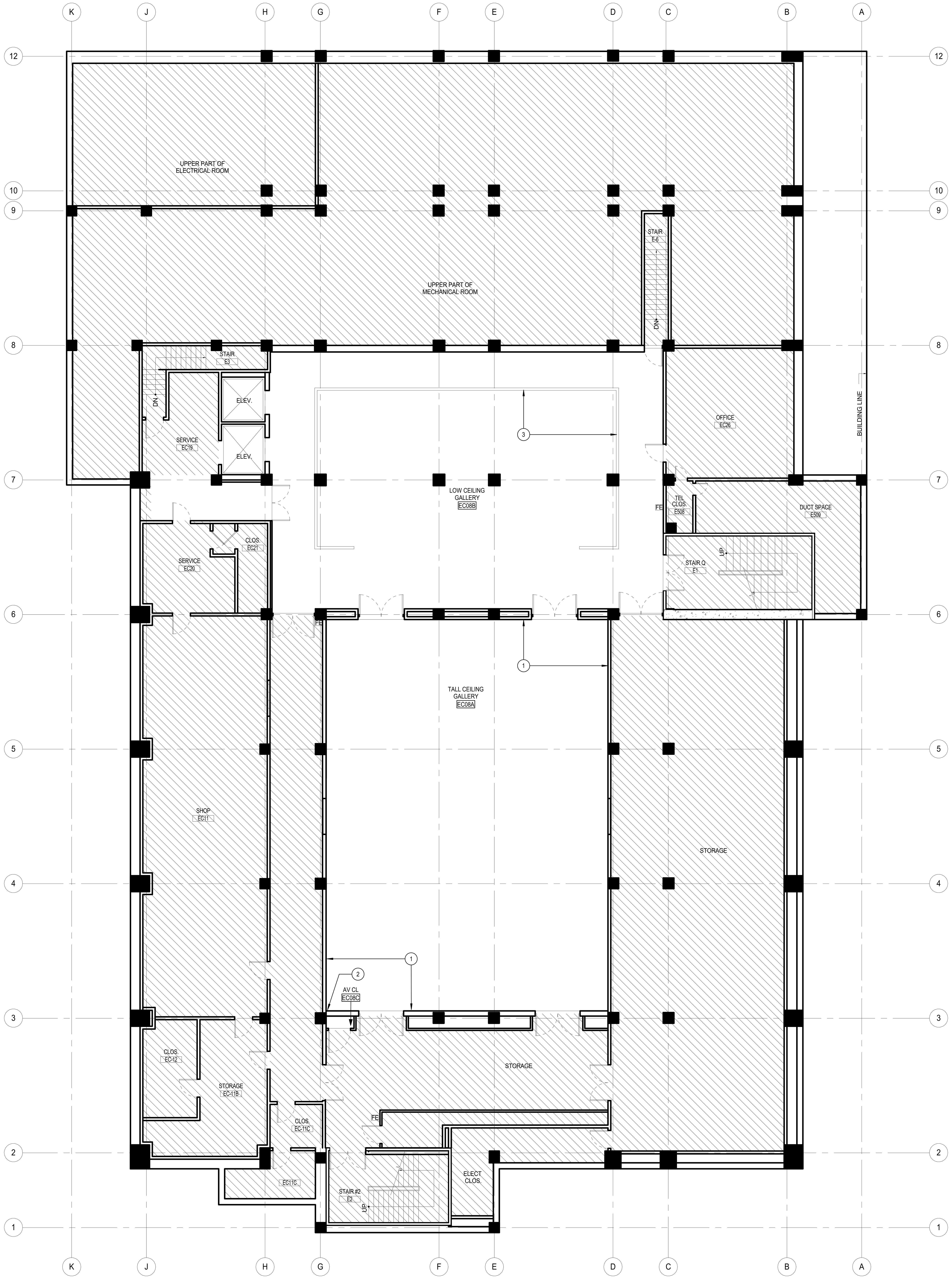

LEVEL 00 - FLOOR PLAN

SCALE: 1/8" = 1'-0"

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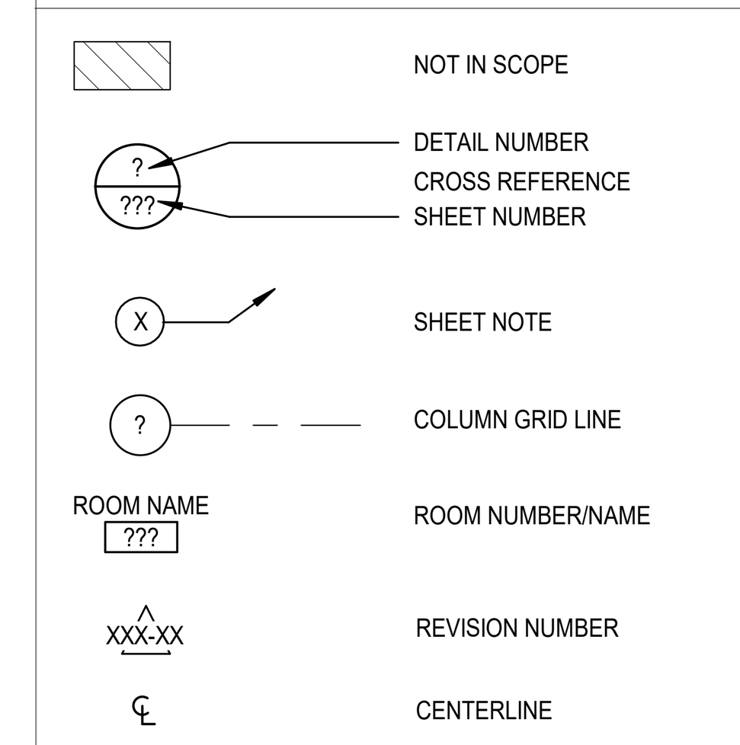
GENERAL ARCHITECTURE NOTES

A. GENERAL NOTES APPLY TO ALL SHEETS.
B. DIMENSIONS ARE ACTUAL AND ARE TO FACE OF STUDS, FACE OF CONCRETE WALLS, FACE OF CMU WALLS, FACE OF FRAMES, OR CENTERLINE OF COLUMNS, UNLESS NOTED OTHERWISE.
C. ALL WALL AND FLOOR PENETRATIONS AT RATED WALL LOCATIONS REQUIRED FOR PIPES, CONDUIT, DUCTING, ETC. SHALL BE SEALED TO STOP PASSAGE OF FIRE AND/ OR SMOKE WITH FIRE SAFETY AND APPROVED FIRESTOPPING SEALANT. CONTRACTOR SHALL VERIFY SEALEANT AND FIRE SAFETY RATING REQUIRED RATED AS PER THE RATING OF THE EXISTING CONSTRUCTION. SEE SPECIFICATION SECTION 078413.
D. THE GENERAL CONTRACTOR SHALL COORDINATE CUT-OUTS FOR EQUIPMENT.
E. COORDINATE WITH MECHANICAL AND ELECTRICAL CONTRACTORS THE SIZE AND LOCATION OF EQUIPMENT PADS SHOWN ON PLANS.
F. FIRE-RESISTANCE-RATED ENCLOSURES AROUND ALL STEEL COLUMNS SHALL BE CONTINUOUS FROM FLOOR TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE FOR EACH LEVEL.
G. CONSTRUCTION DOCUMENTS ARE COMPLEMENTARY. SEE DRAWING FOR QUANTITIES AND LOCATION OF WORK. SEE SPECIFICATIONS FOR QUALITIES AND CONDITIONS OF WORK.
H. ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE, PER PARTITION TYPE.
I. FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS; I.E. MILLWORK, WALL-MOUNTED FIXTURES, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
J. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
K. EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
L. SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
M. WORK: ALL ASPECTS OF THE WORK AND ITEMS NOT SPECIFICALLY MENTIONED, BUT NECESSARY TO MAKE A COMPLETE WORKING INSTALLATION, SHALL BE INCLUDED AND INDICATED IN THE CONTRACTOR'S BID.
N. GENERAL SHEET NOTES ONLY APPLY TO PARTICULAR DRAWING OR SERIES OF DRAWINGS.
O. NO ASBESTOS OR PCB CONTAINING MATERIALS SHALL BE USED ON THIS PROJECT.
P. DO NOT SCALE DRAWINGS. DIMENSIONS NOTED PREVAIL. NOTIFY ARCHITECT IN CASE OF DISCREPANCY.
Q. HORIZONTAL AND VERTICAL DIMENSIONS ARE MINIMUM DIMENSIONS. CLEARANCES ARE GIVEN TO FINISH SURFACES. GC TO VERIFY ALL CLEARANCES. NOTIFY ARCHITECT IN CASE OF DISCREPANCY

CONSTRUCTION NOTES:

A. THE GC SHALL SUPPLY AND INSTALL LIGHT TRACKS AND DEMONSRATE PROPER FUNCTION. THE OWNER SHALL SUPPLY AND INSTALL THE FIXUTRES ON THE TRACKS AS NOTED IN THE FIXTURE SCHEDULE.
B. THE CELLAR OF GOODMAN "E" BUILDING ARE ACCESSIBLE BY A PAIR OF PASSENGER ELEVATORS AND A WIDE EGRESS STAIR. REFER TO DIVISION 0 FOR RULES AND REGULATIONS FOR ELEVATORS.
C. SEE A3.0 FOR MORE INFORMATION.

CONSTRUCTION SYMBOLS



SHEET NOTES

1 EXTEND EXISTING FURRING WALL 6" TO MEET NEW POCKET. SEE DRAWINGS #1-2 / A5.1
2 PATCH CORNER AFTER DEMOLITION OF NIB WALL. GC TO ENSURE NO IMPERFECTIONS ARE TELEGRAPHED AT THIS CORNER.
3 EXISTING TEMPORARY SHORT WALLS BY OWNER. GC SHALL COORDINATE LOCATION WITH OWNER

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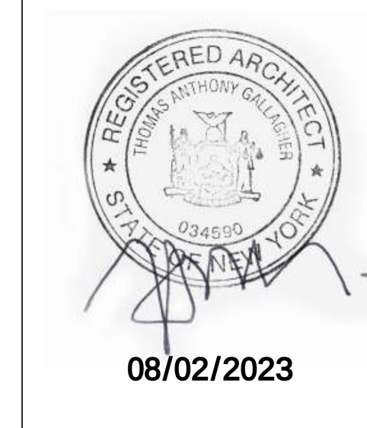

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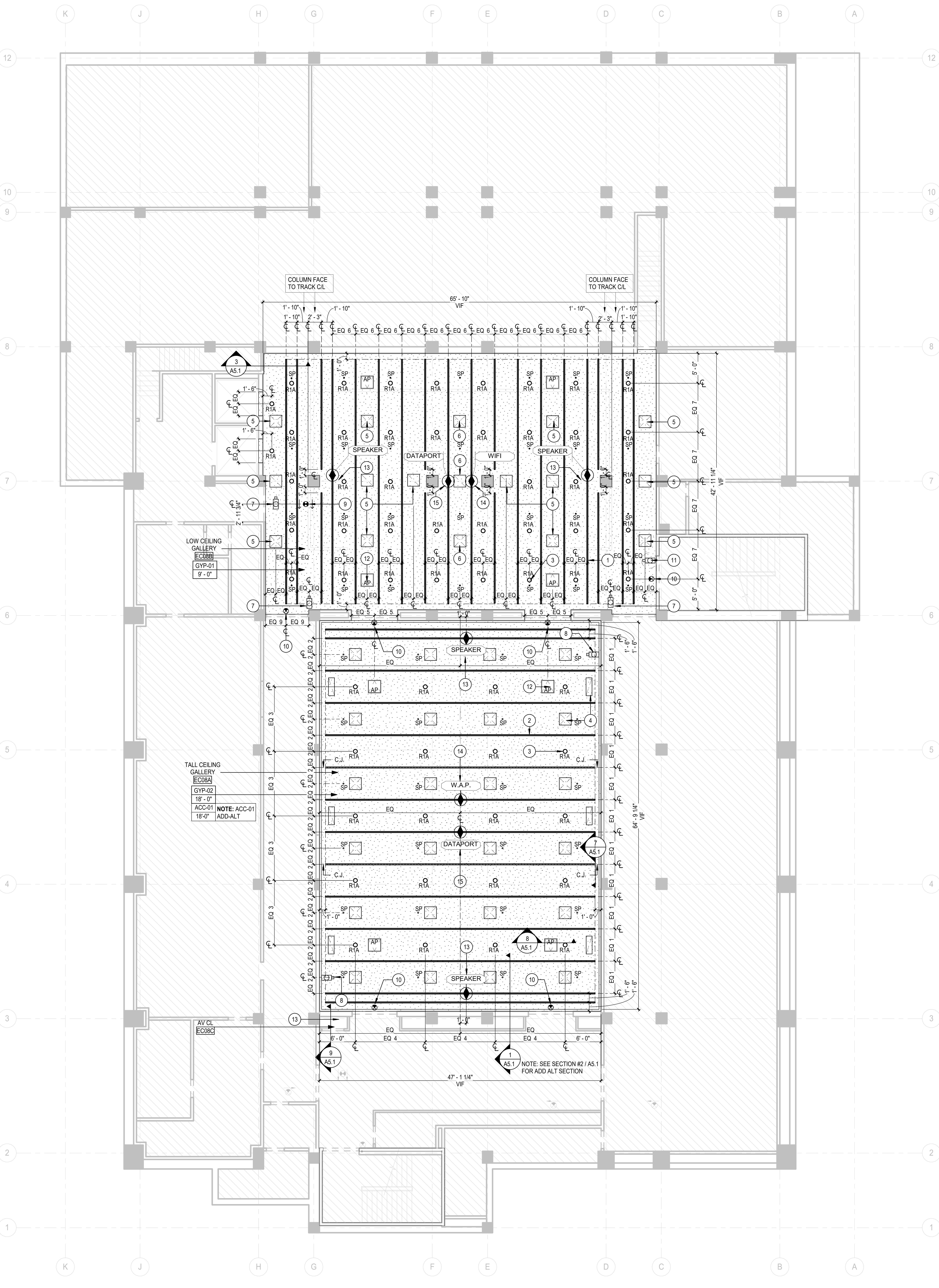
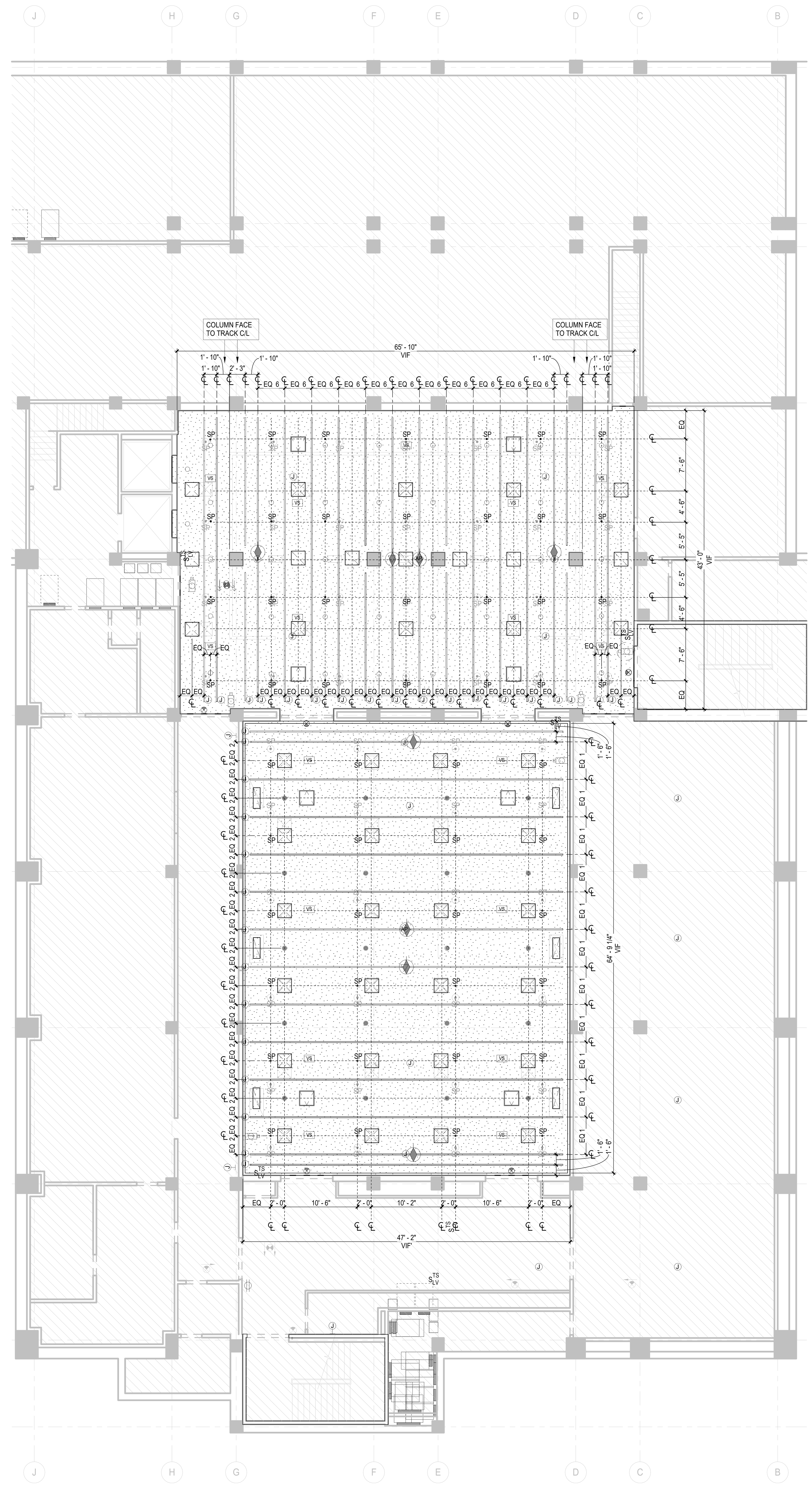
LEVEL 00 - FLOOR PLAN

A1.0



LEVEL 00 - REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"



LEVEL 00 - REFLECTED CEILING PLAN - ALIGNMENT OF DUCTS & SPRINKLERS

SCALE: 1/8" = 1'-0"

NOTE: LIGHT GREY DUCTS/SPRINKLER SYMBOLS REPRESENT EXISTING LOCATION TO BE RELOCATED TO BLACK SYMBOL.

REFLECTED CEILING PLAN GENERAL NOTES

A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
B. GC SHALL QUANTIFY ALL ITEMS LISTED IN SHEET NOTES.
C. ALL DEVICES INCLUDING, BUT NOT LIMITED TO DOWNLIGHTS, LIGHT TRACKS, SPRINKLERS, DIFFUSERS, SECURITY CAMERA, AND EXIT SIGNS SHALL BE CENTERED AS SHOWN, UNLESS NOTED OTHERWISE.
D. ALL SPRINKLERS AND DIFFUSERS CENTERPOINT SHALL BE CENTERED AS SHOWN AND SHALL BE ALIGNED TO EACH ANOTHER IN BOTH DIRECTIONS.
E. NO DEVICES OFF THE CENTERLINE SHALL BE ACCEPTABLE WITHOUT APPROVAL OF SHOP DRAWINGS. ALL FIELD RELATED CONFLICTS SHALL BE NOTED ON SHOP DRAWINGS TO THE ARCHITECT FOR APPROVAL.
F. CEILING HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
G. SUSPENSION CEILING SYSTEM SHALL BE COORDINATED FOR LOCATIONS OF ALL CEILING MOUNTED DEVICES
H. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
   a. FACE OF FINISHED WALL
   b. CENTERLINE OF COLUMNS
   c. CENTERLINE OF LIGHT TRACKS.
I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 4 INCHES ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

REFLECTED CEILING KEY

GYP-01 / 9'-0"	**1/2" GWB, (NO ADD ALT AT 9'-0" CLG.)** PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. LEVEL 5 FINISH.
GYP-02 / 18'-0"	**1/2" GWB, PTD (BASE BID).** BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. LEVEL 5 FINISH.
ACC-01 / 18'-0"	**THE STARSILENT SYSTEM CEILING (ADD ALT)** 25MM STARSILENT PANEL, SEE SPECIFICATION SECTION 098316 FOR MORE INFORMATION. ACOUSTIC BASE COAT & ACOUSTIC SPRAY FINISH. CUSTOM BLACK FINISH TO MATCH CONTROL SAMPLE
	NOT IN SCOPE
SIM	SIMILAR OR TYPICAL REFERENCE
? / ???	WALL SECTION
X	SHEET NOTE
?	COLUMN GRID LINE
ROOM NAME / ???	ROOM NUMBER/NAME
XXX-XX	REVISION NUMBER
℄	CENTERLINE
AP	2'X2' ACCESS PANEL SEE A5.1 FOR MORE INFO.
	EXIT SIGN. SOLID FILL & ARROW DENOTES DIRECTION SEE E1.0 FOR MORE INFO.
CJ	CONTROL JOINT SEE A5.1 FOR MORE INFO.
R1A	RECESSED LIGHT FIXTURE SEE E1.0 FOR MORE INFO.
	TRACK "BUSRUN". SEE DIMS. FOR LENGTH. SEE E1.0 FOR MORE INFO.
	2'X2' SUPPLY DIFFUSER. SEE M1.0 FOR MORE INFO.
	2'X2' RETURN DIFFUSER. SEE M1.0 FOR MORE INFO.
	1'X3' RETURN DIFFUSER. SEE M1.0 FOR MORE INFO.
SP	SRINKLER HEAD. SEE FP1.0 FOR MORE INFO.
	SECURITY CAMERA. RELOCATED BY OTHERS.
	PEOPLE COUNTER. RELOCATED BY OTHERS.
XX	FIXED POWERED DEVICE ON TRACK. XX DENOTES DEVICE TYPE. SEE A3.0 & E1.0 FOR MORE INFO

SHEET NOTES

#	
1	LITELAB BUS40R LIGHT TRACK AT LOWER CEILING. RELOCATE ALL SPRINKLERS AND SUPPLY/RETURN GRILLES FOR ALIGNMENT. SEE E1.0 FOR MORE INFORMATION ON BUS40R TRACK.
2	LITELAB BUS11R LIGHT TRACK AT TALLER CEILING.RELOCATE ALL SPRINKLERS AND SUPPLY/RETURN GRILLES FOR ALIGNMENT. SEE E1.0 FOR MORE INFORMATION ON BUS11R TRACK.
3	NEW RECESSED LIGHT. SEE E1.0 FOR MORE INFORMATION
4	RELOCATE ALL SUPPLY AND RETURN IN TALL CEILING TO NEW CEILING AT 18'-0" AFF. EXTEND BRANCH TO NEW GRILLE AND RECONNECT. SEE M1.0 FOR MORE INFORMATION
5	RELOCATE SUPPLY AND RETURN IN LOW CEILING TO NEW LOCATION AT SAME HEIGHT OF 9'-0". EXTEND BRANCH TO NEW GRILLE AND RECONNECT. SEE M1.0 FOR MORE INFORMATION
6	RELOCATE SUPPLY AND RETURN IN LOW CEILING TO SAME LOCATION AT SAME HEIGHT OF 9'-0". PROVIDE NEW GRILLE AND RECONNECT. SEE M1.0 FOR MORE INFORMATION
7	CEILING MOUNTED SECURITY CAMERAS TO BE RELOCATED BY OTHERS. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER
8	WALL MOUNTED SECURITY CAMERAS TO BE RELOCATED BY OTHERS. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER
9	REPLACE DIRECTIONAL EXIT SIGN WITH NEW EXIT SIGN IN NEW LOCATION. SEE E1.0 FOR MORE INFORMATION.
10	REPLACE EXIT SIGN WITH NEW EXIT SIGN IN SAME LOCATION. SEE E1.0 FOR MORE INFORMATION.
11	CEILING MOUNTED PEOPLE COUNTER TO BE REPLACED BY OTHERS. GC TO PROTECT WIRES TO REMAIN AND COORDINATE FINAL LOCATION WITH OWNER
12	24" X 24" ACCESS PANEL. SEE DRAWING #7 / A5.1 FOR MORE INFORMATION
13	BUS-EXTRU#[R]-AUX-[V]-LENGTH]-MB]-M2 (BUSRUN-ACCY:INLINE DEVICE BY OTHERS PORT). LOCATION 12" OFF CENTERLINE. GC TO PROVIDE AND INSTALL DEDICATED JUNCTION BOX FOR SPEAKER WIRE FROM LITELAB.GC TO RUN SPEAKER WIRE FROM AV CLOSET TO JUNCTION BOX. OWNER TO PROVIDE AND CONNECT HANGING MOUNT AND POWER MOUNT FOR SPEAKERS. OWNER TO PROVIDE AND CONNECT AMPLIFIER IN AV CLOSET. GC TO COORDINATE WITH OWNER
14	BUS-EXTRU#[R]-AUX-[V]-LENGTH]-MB]-M2 (BUSRUN-ACCY:INLINE DEVICE BY OTHERS PORT). LOCATION ON CENTERLINE. GC TO PROVIDE AND INSTALL DEDICATED JUNCTION BOX FOR WIRELESS ACCESS POINT FROM LITELAB. GC TO RUN CAT6 DATA TO LOCATION. OWNER TO INSTALL WIRELESS ACCESS POINT (WIFI) ROUTER. GC TO COORDINATE ORIGINATION LOCATION OF CAT6 FEED WITH OWNER.
15	BUS-EXTRU#[R][VV][A]-DP[TYPE]-[LENGTH]-[MB]-M3 (BUSRUN-DATAPORT: DATAPORT PASS THRU W/ REFEED). LOCATION ON CENTERLINE. GC TO PROVIDE AND INSTALL DEDICATED LOCATION FOR LITELAB DATAPORT FROM LITELAB. GC TO RUN POWER AND CAT6 DATA TO LOCATION. OWNER TO INSTALL FUTURE DEVICES. GC TO COORDINATE ORIGINATION POINT OF CAT6 WITH OWNER.

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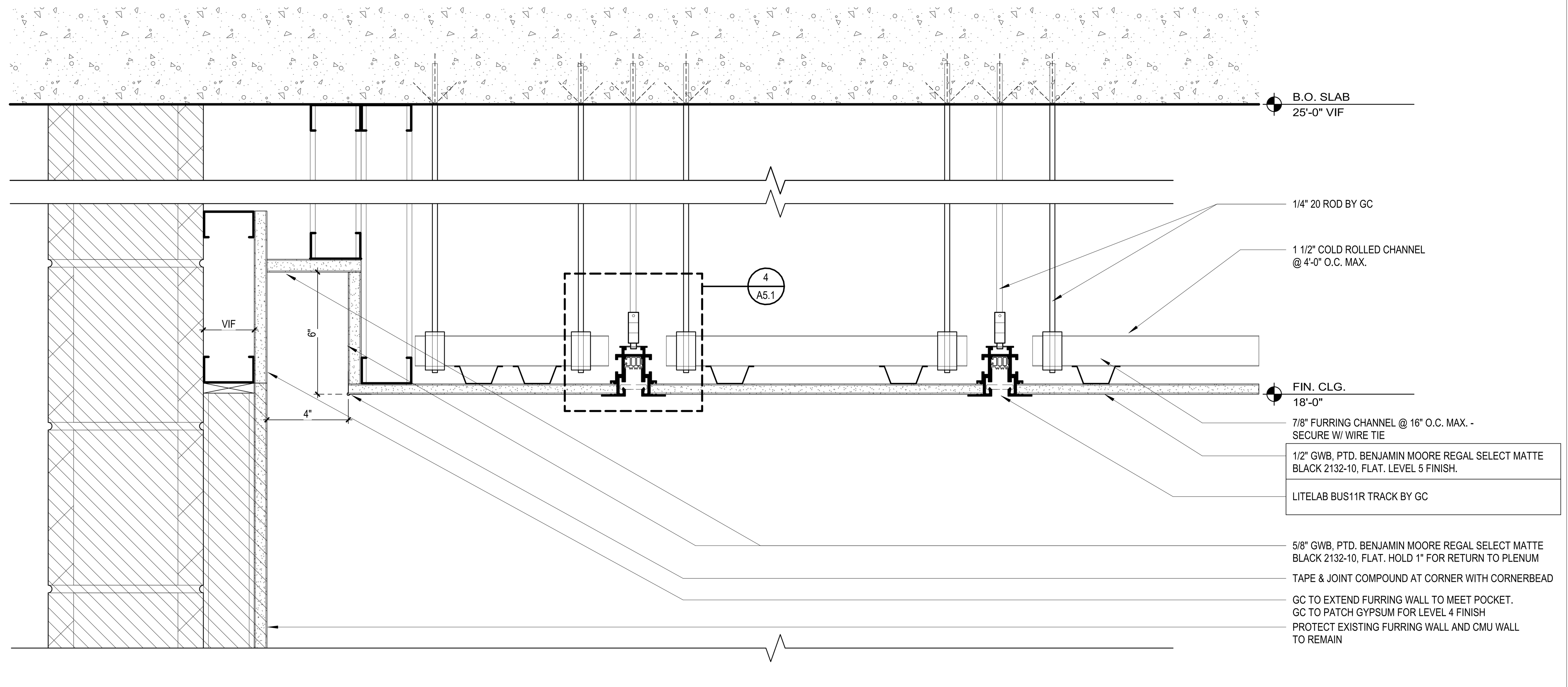
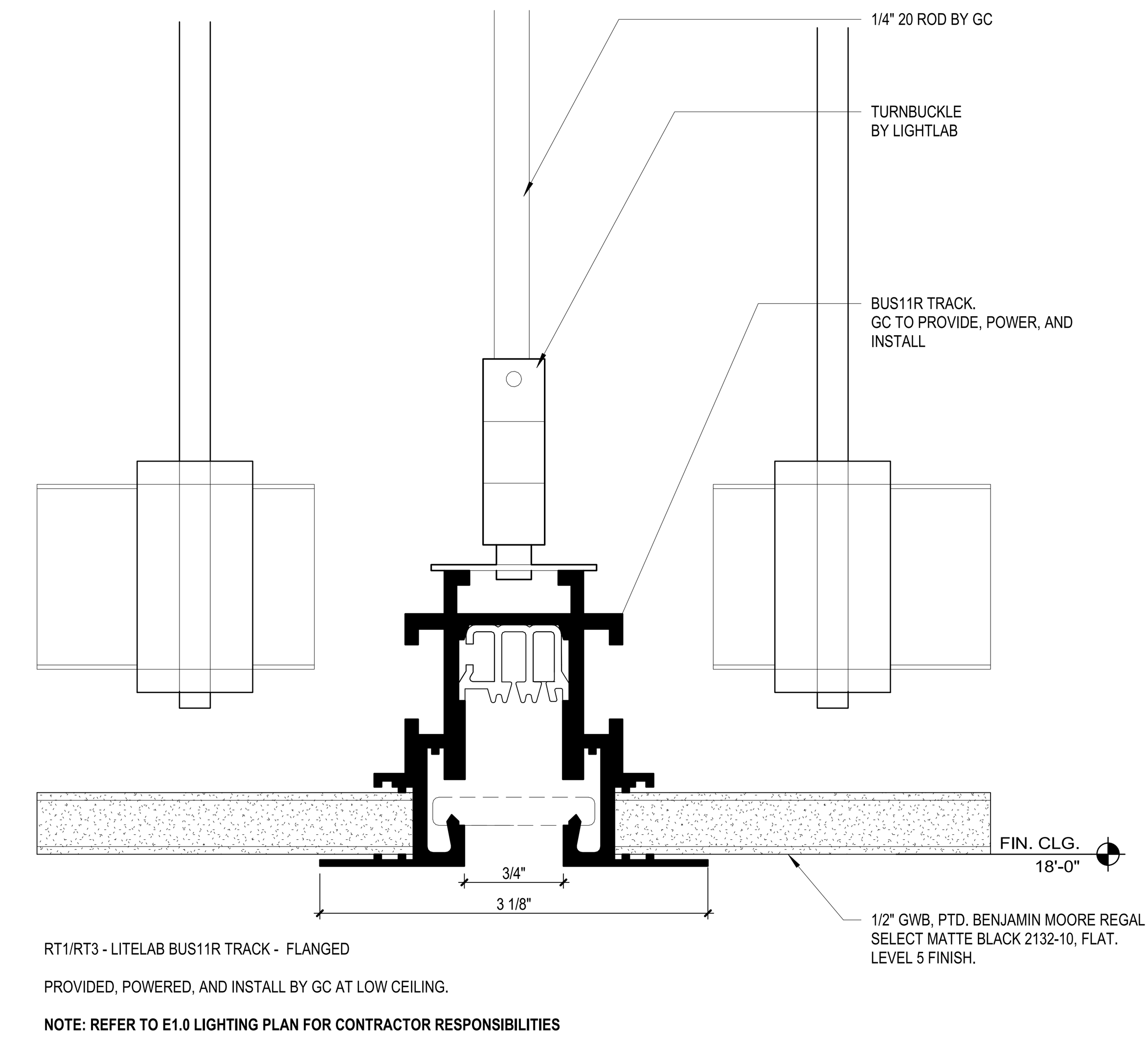
LEVEL 00 - REFLECTED CEILING PLAN

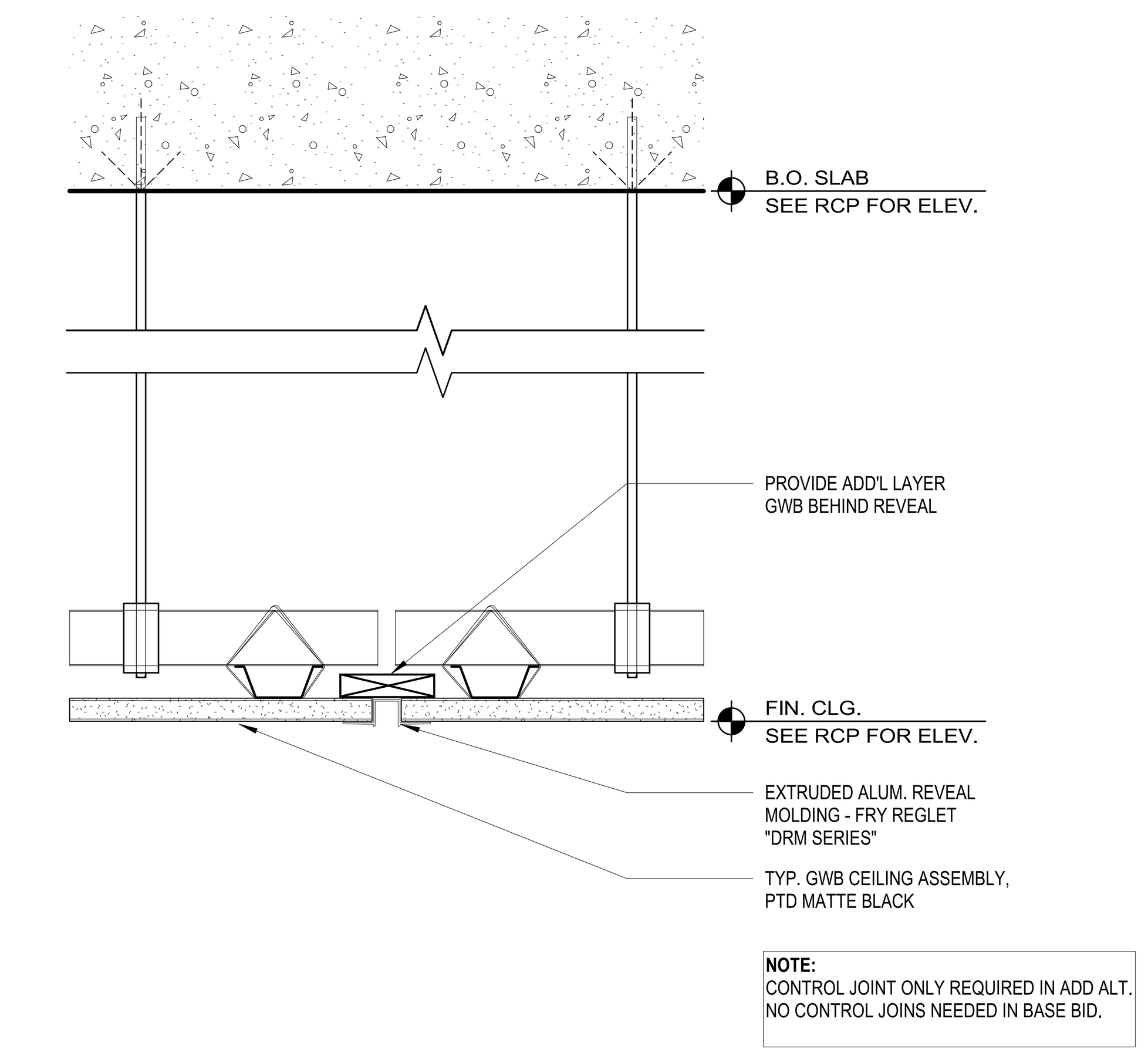
A3.0


B.O. SLAB
25'-0" VIF
1/4" 20 ROD BY GC
1 1/2" COLD ROLLED CHANNEL
@ 4'-0" O.C. MAX.
VIF
4
A5.1
FIN. CLG.
18'-0"
7/8" FURRING CHANNEL @ 16" O.C. MAX. - SECURE W/ WIRE TIE
1/2" GWB, PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. LEVEL 5 FINISH.
LITELAB BUS11R TRACK BY GC
5/8" GWB, PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. HOLD 1" FOR RETURN TO PLENUM
TAPE & JOINT COMPOUND AT CORNER WITH CORNERBEAD
GC TO EXTEND FURRING WALL TO MEET POCKET. GC TO PATCH GYPSUM FOR LEVEL 4 FINISH
PROTECT EXISTING FURRING WALL AND CMU WALL TO REMAIN
4"

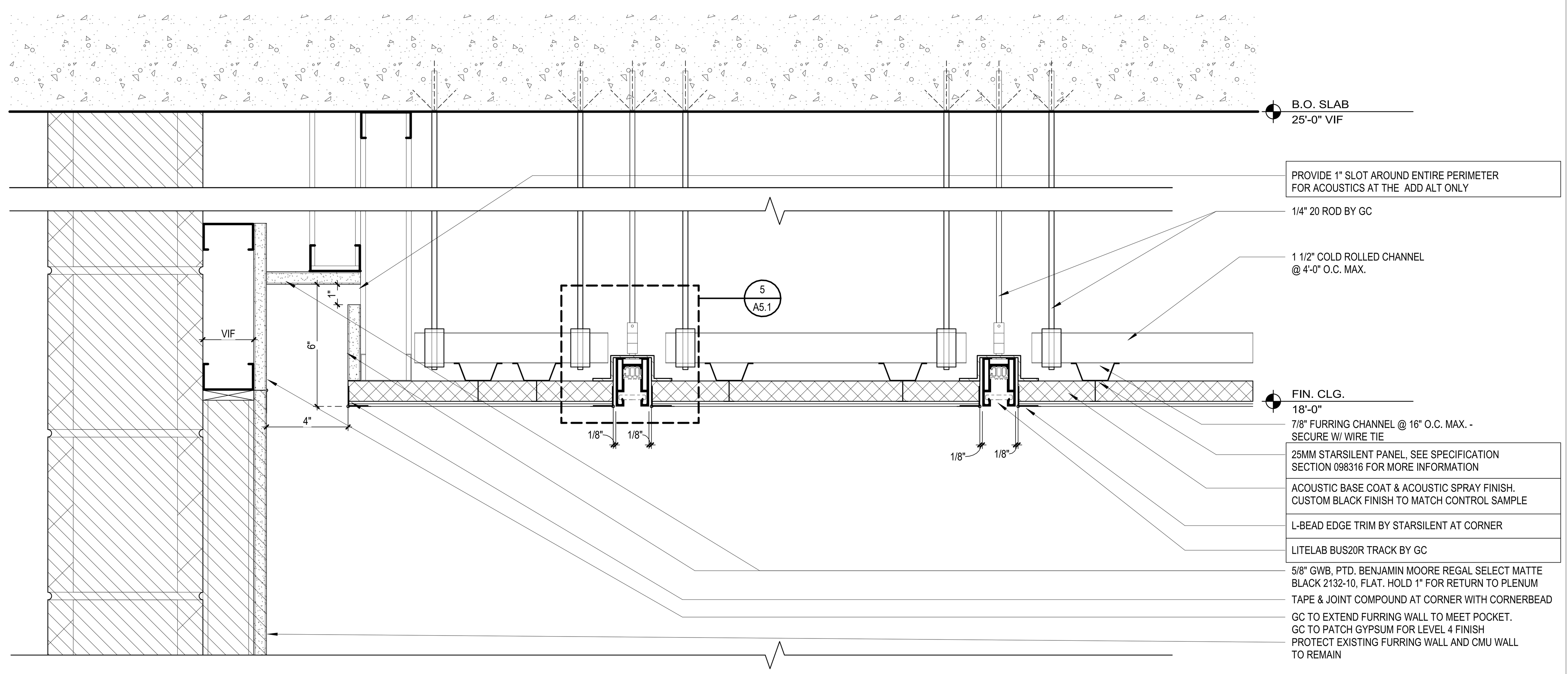
1 A5.1 TALL CEILING TYPICAL DETAIL - BASE BID
SCALE: 3" = 1'-0"


1/4" 20 ROD BY GC
TURNBUCKLE BY LIGHTLAB
BUS11R TRACK, GC TO PROVIDE, POWER, AND INSTALL
FIN. CLG.
18'-0"
3/4"
3 1/8"
1/2" GWB, PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. LEVEL 5 FINISH.
RT1/RT3 - LITELAB BUS11R TRACK - FLANGED
PROVIDED, POWERED, AND INSTALL BY GC AT LOW CEILING.
NOTE: REFER TO E1.0 LIGHTING PLAN FOR CONTRACTOR RESPONSIBILITIES

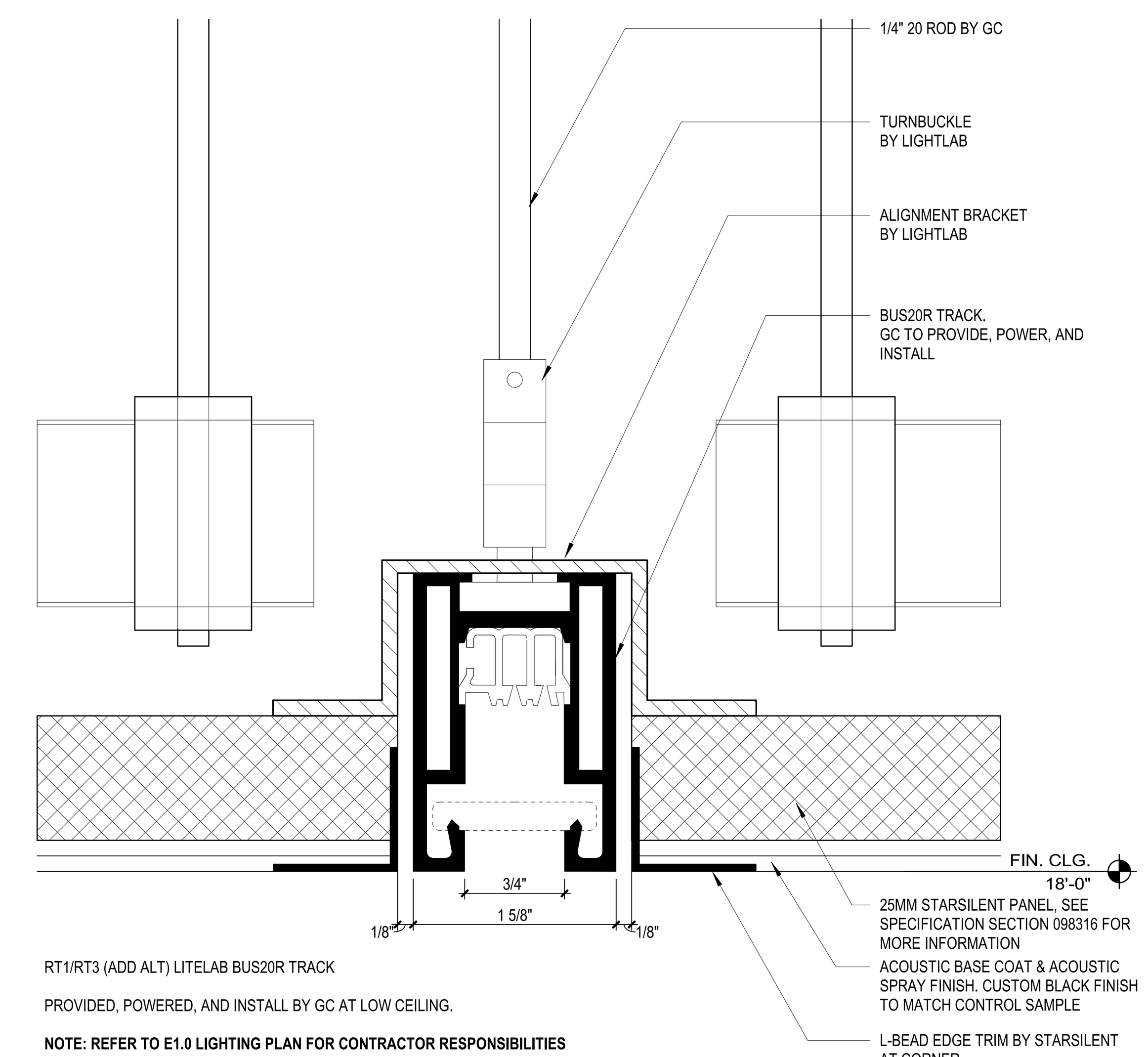
4 A5.1 BUS11R TRACK AT TALL CEILING - BASE BID
SCALE: 12" = 1'-0"


B.O. SLAB
SEE RCP FOR ELEV.
PROVIDE ADD'L LAYER GWB BEHIND REVEAL
FIN. CLG.
SEE RCP FOR ELEV.
EXTRUDED ALUM. REVEAL MOLDING - FRY REGLET "DRM SERIES"
TYP. GWB CEILING ASSEMBLY, PTD MATTE BLACK
NOTE:
CONTROL JOINT ONLY REQUIRED IN ADD ALT. NO CONTROL JOINS NEEDED IN BASE BID.

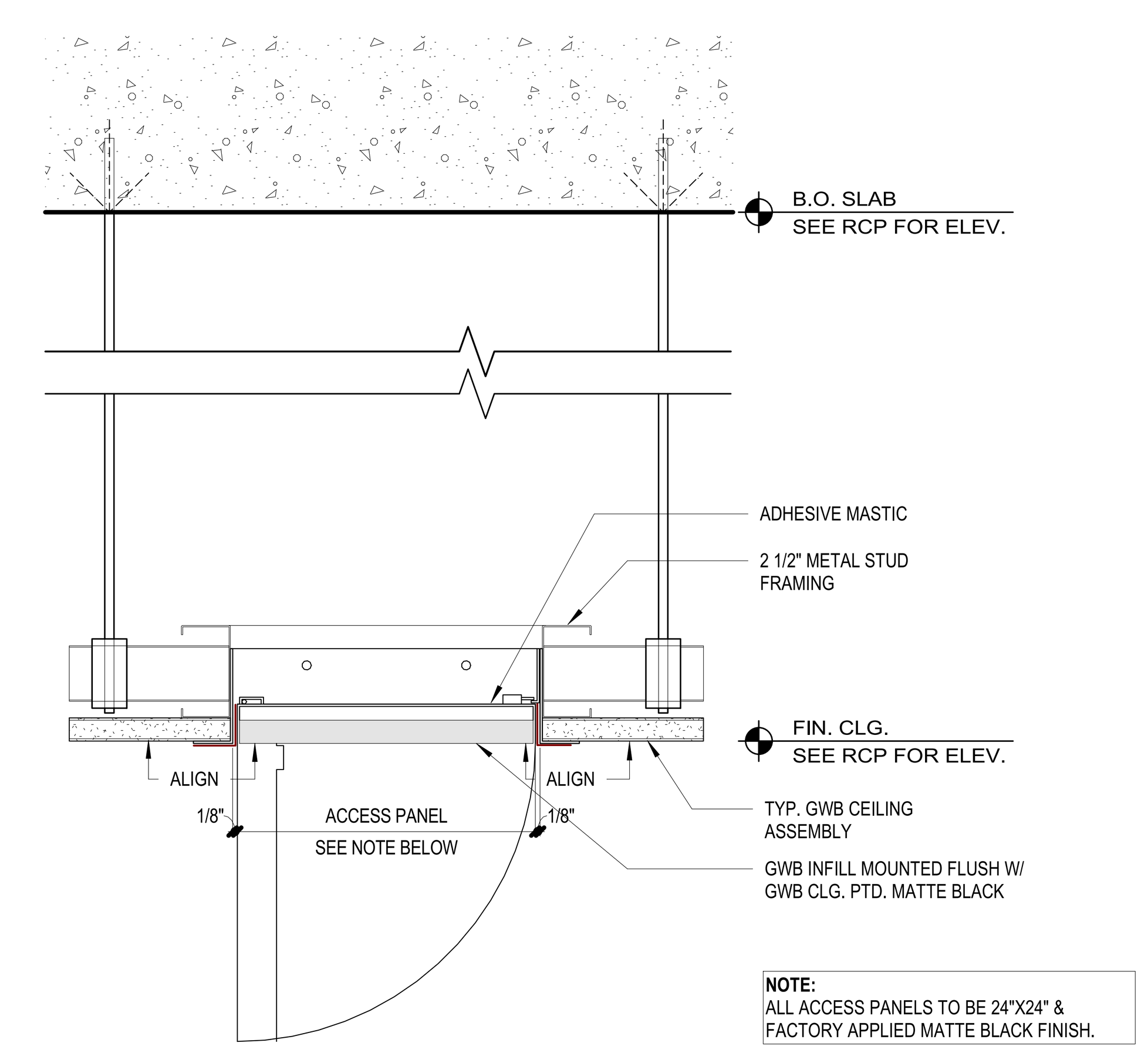
7 A5.1 GYPSUM CEILING - CONTROL JOINT
SCALE: 3" = 1'-0"


B.O. SLAB
25'-0" VIF
PROVIDE 1" SLOT AROUND ENTIRE PERIMETER FOR ACOUSTICS AT THE ADD ALT ONLY
1/4" 20 ROD BY GC
1 1/2" COLD ROLLED CHANNEL
@ 4'-0" O.C. MAX.
VIF
5
A5.1
FIN. CLG.
18'-0"
7/8" FURRING CHANNEL @ 16" O.C. MAX. - SECURE W/ WIRE TIE
25MM STARSILENT PANEL, SEE SPECIFICATION SECTION 098316 FOR MORE INFORMATION
ACOUSTIC BASE COAT & ACOUSTIC SPRAY FINISH. CUSTOM BLACK FINISH TO MATCH CONTROL SAMPLE
L-BEAD EDGE TRIM BY STARSILENT AT CORNER
LITELAB BUS20R TRACK BY GC
5/8" GWB, PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. HOLD 1" FOR RETURN TO PLENUM
TAPE & JOINT COMPOUND AT CORNER WITH CORNERBEAD
GC TO EXTEND FURRING WALL TO MEET POCKET. GC TO PATCH GYPSUM FOR LEVEL 4 FINISH
PROTECT EXISTING FURRING WALL AND CMU WALL TO REMAIN
4"
1/8"

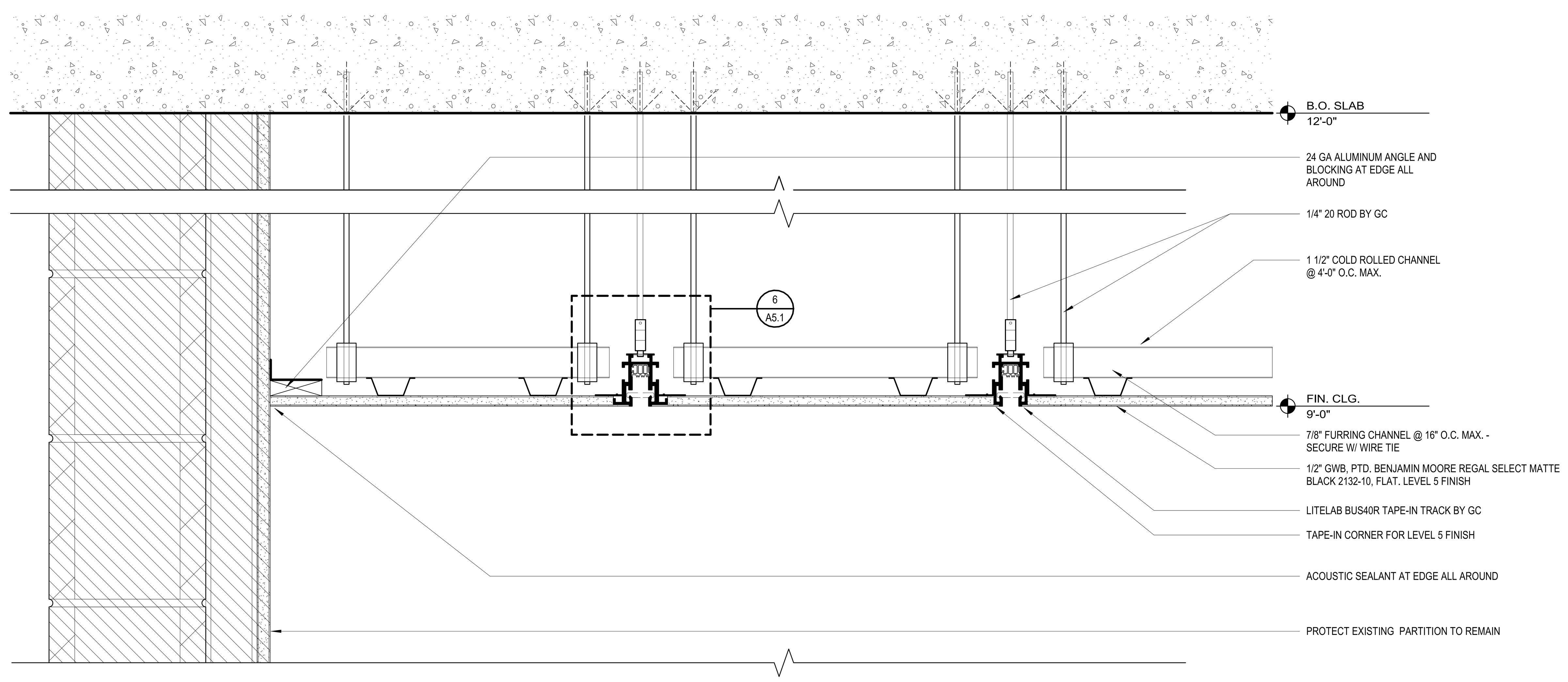
2 A5.1 TALL CEILING TYPICAL DETAIL - ADD ALTERNATE
SCALE: 3" = 1'-0"


1/4" 20 ROD BY GC
TURNBUCKLE BY LIGHTLAB
ALIGNMENT BRACKET BY LIGHTLAB
BUS20R TRACK, GC TO PROVIDE, POWER, AND INSTALL
FIN. CLG.
18'-0"
3/4"
1 5/8"
1/8"
25MM STARSILENT PANEL, SEE SPECIFICATION SECTION 098316 FOR MORE INFORMATION
ACOUSTIC BASE COAT & ACOUSTIC SPRAY FINISH. CUSTOM BLACK FINISH TO MATCH CONTROL SAMPLE
L-BEAD EDGE TRIM BY STARSILENT AT CORNER
RT1/RT3 (ADD ALT) LITELAB BUS20R TRACK
PROVIDED, POWERED, AND INSTALL BY GC AT LOW CEILING.
NOTE: REFER TO E1.0 LIGHTING PLAN FOR CONTRACTOR RESPONSIBILITIES

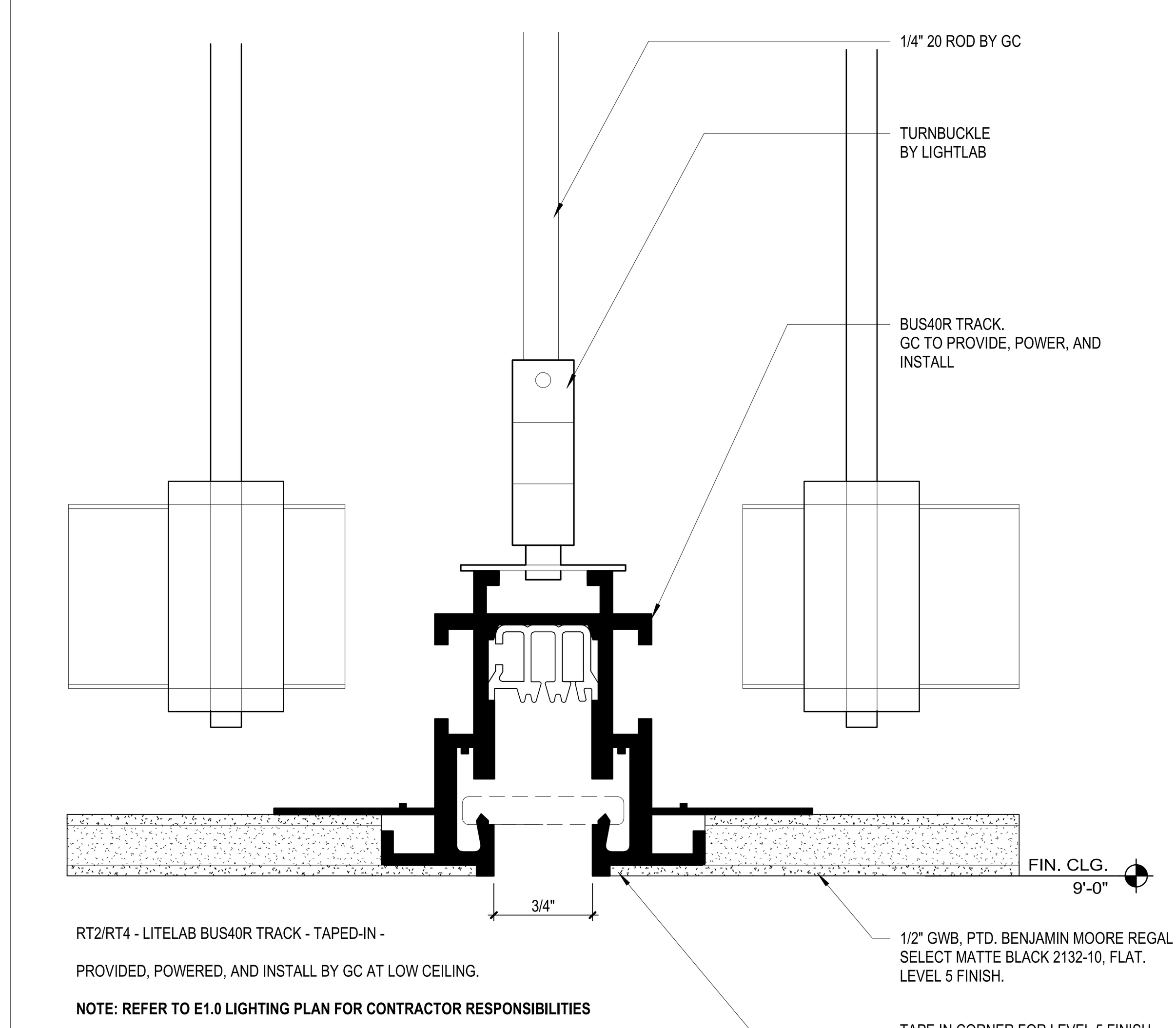
5 A5.1 BUS20R TRACK AT TALL CEILING (ADD ALT)
SCALE: 12" = 1'-0"


B.O. SLAB
SEE RCP FOR ELEV.
ADHESIVE MASTIC
2 1/2" METAL STUD FRAMING
FIN. CLG.
SEE RCP FOR ELEV.
ALIGN
ALIGN
1/8"
ACCESS PANEL
SEE NOTE BELOW
1/8"
TYP. GWB CEILING ASSEMBLY
GWB INFILL MOUNTED FLUSH W/ GWB CLG. PTD. MATTE BLACK
NOTE:
ALL ACCESS PANELS TO BE 24"X24" & FACTORY APPLIED MATTE BLACK FINISH.

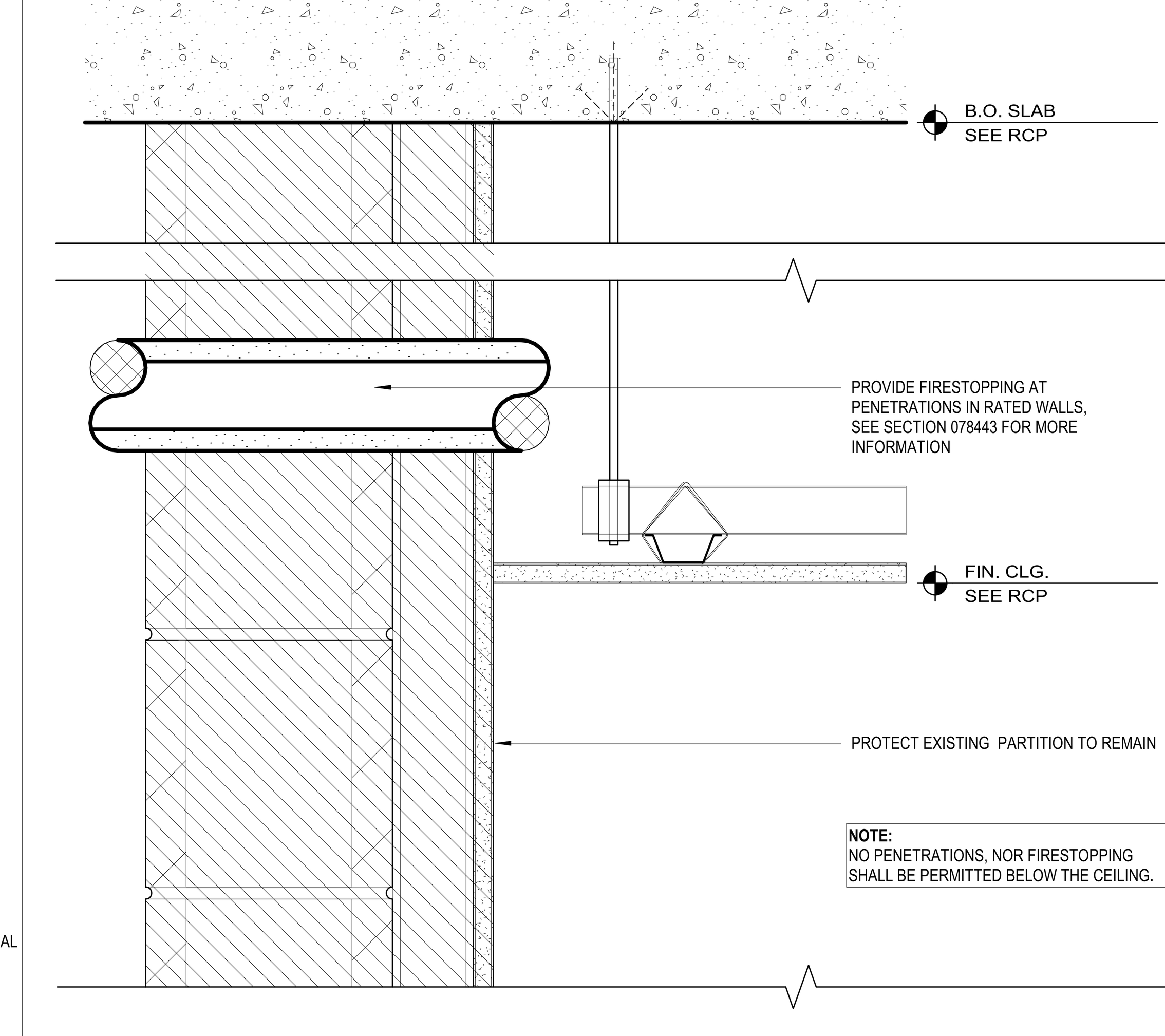
8 A5.1 GYPSUM CEILING - ACCESS PANEL
SCALE: 3" = 1'-0"


B.O. SLAB
12'-0"
24 GA ALUMINUM ANGLE AND BLOCKING AT EDGE ALL AROUND
1/4" 20 ROD BY GC
1 1/2" COLD ROLLED CHANNEL
@ 4'-0" O.C. MAX.
6
A5.1
FIN. CLG.
9'-0"
7/8" FURRING CHANNEL @ 16" O.C. MAX. - SECURE W/ WIRE TIE
1/2" GWB, PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. LEVEL 5 FINISH
LITELAB BUS40R TAPE-IN TRACK BY GC
TAPE-IN CORNER FOR LEVEL 5 FINISH
ACOUSTIC SEALANT AT EDGE ALL AROUND
PROTECT EXISTING PARTITION TO REMAIN

3 A5.1 LOW CEILING TYPICAL DETAIL
SCALE: 3" = 1'-0"


1/4" 20 ROD BY GC
TURNBUCKLE BY LIGHTLAB
BUS40R TRACK, GC TO PROVIDE, POWER, AND INSTALL
FIN. CLG.
9'-0"
3/4"
1/2" GWB, PTD. BENJAMIN MOORE REGAL SELECT MATTE BLACK 2132-10, FLAT. LEVEL 5 FINISH.
TAPE IN CORNER FOR LEVEL 5 FINISH
RT2/RT4 - LITELAB BUS40R TRACK - TAPED-IN -
PROVIDED, POWERED, AND INSTALL BY GC AT LOW CEILING.
NOTE: REFER TO E1.0 LIGHTING PLAN FOR CONTRACTOR RESPONSIBILITIES

6 A5.1 BUS40R TRACK AT LOW CEILING
SCALE: 12" = 1'-0"



9 A5.1 TYPICAL FIRESTOPPING DETAIL
SCALE: 3" = 1'-0"

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CONSTRUCTION DETAILS

A5.1

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ELECTRICAL DRAWING LIST

E0.1	ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES
ED1.0	LEVEL 00 - ELECTRICAL DEMOLITION PLAN
E1.0	LEVEL 00 - LIGHTING PLAN
E2.0	LEVEL 00 - POWER & SYSTEMS PLAN
E7.1	LIGHTING SCHEDULES & DETAILS
E7.2	ELECTRICAL SCHEDULES

(R)	RELOCATED
Ø	PHASE
A	AMPERE
AC	ABOVE COUNTER
AF	AMP FRAME (CIRCUIT BREAKER)
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
AMP	AMPERE
AP	WIRELESS ACCESS POINT
AT	AMP TRIP (CIRCUIT BREAKER OR FUSE)
ATS	AUTOMATIC TRANSFER SWITCH
AV	AUDIO-VIDEO, AUDIO-VISUAL
AWG	AMERICAN WIRE GAUGE
BAS	BUILDING AUTOMATION SYSTEM
BJ	BONDING JUMPER
BKR	BREAKER
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CATV	CABLE TELEVISION
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED
CKT	CIRCUIT
CTL	CONTROL
CU	COPPER
DB	DECIBEL
DC	DIRECT CURRENT
DISC	DISCONNECT
DP	DISTRIBUTION PANELBOARD
DW	DISHWASHER
ECS	EMERGENCY COMMUNICATION SYSTEM
EGB	ELECTRICAL GROUNDING BUSBAR
EMD	ESTIMATED MAXIMUM DEMAND
EMGB	ELECTRICAL MAIN GROUNDING BUSBAR
EP	EXPLOSION PROOF
ERMS	ENERGY REDUCTION MAINTENANCE SWITCH
EWC	ELECTRIC WATER COOLER
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FACP	FIRE ALARM CONTROL PANEL
FC	FOOT CANDLE
FLA	FULL LOAD AMPS
FS	FLOW SWITCH
FSD	FIRE SMOKE DAMPER
G	EQUIPMENT GROUNDING CONDUCTOR
GEN	GENERATOR
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFPE	GROUND FAULT PROTECTION OF EQUIPMENT
GND	EQUIPMENT GROUNDING CONDUCTOR
HH	HANDHOLE
HOA	HAND-OFF-AUTOMATIC
HP	HORSE POWER
IC	INTERCOM
IG	ISOLATED GROUND
JB	JUNCTION BOX
KAIC	THOUSAND AMPERE INTERRUPTING CIRCUIT
KV	KILOVOLT
KVA	KILOVOLT AMPERES
KW	KILOWATT
LT	LIGHT
LTG	LIGHTING
MCA	MINIMUM CIRCUIT AMPACITY
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MOCP	MAXIMUM OVERCURRENT PROTECTION
MRTS	MOTOR RATED TOGGLE SWITCH
MSB	MAIN SWITCHBOARD
MTD	MOUNTED
MTG	MOUNTING
MTS	MAIN TRANSFER SWITCH
N	NEUTRAL
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NF	NON-FUSED
NL	NIGHT LIGHT
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OS&Y	OUTSIDE SCREW AND YOKE
P	POLE(S)
PA	PUBLIC ADDRESS
PB	PULL BOX
PH	PHASE
PIV	POST INDICATOR VALVE
PNL	PANEL
PWR	POWER
RCP	REFLECTED CEILING PLAN
RECPT	RECEPTACLE
REF	REFERENCE
RESP	RESPONSIVE
SCCR	SHORT CIRCUIT CURRENT RATING
SD	SMOKE DAMPER
SEC	SECONDARY
SPD	SURGE PROTECTION DEVICE
SWBD	SWITCHBOARD
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TIME CLOCK
TGB	TELECOMMUNICATIONS GRONDING BUSBAR
TMGB	TELECOMMUNICATIONS MAIN GRONDING BUSBAR
TO	TELECOMMUNICATIONS OUTLET
TR	TELECOMMUNICATIONS ROOM
TS	TAMPER SWITCH
TV	TELEVISION
UG	UNDERGROUND
UNO	UNLESS NOTED OTHERWISE
UPS	UNINTERRUPTABLE POWER SUPPLY
V	VOLT
VA	VOLT-AMPERE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
WA	TELECOMMUNICATIONS WORK AREA
WG	WIRE GUARD
WP	WEATHER-PROOF (NEMA 3R)
XFMR	TRANSFORMER

NOTES

GENERAL NOTES

1 MODIFICATIONS TO EXISTING POWER DISTRIBUTION EQUIPMENT: MATCH EXISTING MANUFACTURER, SWITCH TYPE, FUSE TYPE, BREAKER TYPE AND KAIC RATING FOR ALL INSTALLED DEVICES.

2 EXISTING PANEL DIRECTORIES AT PANELS AFFECTED BY WORK: PROVIDE UPDATED TYPED PANEL DIRECTORY. CONSULT OWNER FOR INPUT ON LABELING OF ALL EXISTING CIRCUITS.

3 DEVICES AND LIGHT FIXTURES DENOTED 'ER' ARE EXISTING TO BE RELOCATED. NOTIFY A/E IF DEVICES OR FIXTURES ARE DAMAGED.

GENERAL LIGHTING NOTES

1 SEE LIGHT FIXTURE SCHEDULE AND SYMBOLS LEGEND FOR MOUNTING HEIGHTS, UNLESS NOTED OTHERWISE.

2 FIXTURES DENOTED WITH LOWER CASE LETTERS SHALL BE CONTROLLED BY TOGETHER BY THE LOCAL WALL CONTROLLER IN EACH ROOM.

GENERAL DEMOLITION NOTES

1 ITEMS INDICATED ON DEMOLITION PLANS ARE BASED ON AS-BUILT DRAWINGS AND FIELD OBSERVATIONS AND ARE INTENDED TO GIVE THE BIDDER A GENERAL REPRESENTATION OF EXISTING CONDITIONS.

2 REMOVE ALL ITEMS SHOWN FULL-TONE OR NOTED ELSEWHERE IN THE DOCUMENTS TO BE REMOVED OR DEMOLISHED. DEMOLISH ADDITIONAL ITEMS NOT SHOWN ON DRAWINGS, BUT WHICH MUST BE REMOVED TO COMPLETE THE PROJECT.

3 ITEMS SHOWN HALF-TONE ARE EXISTING TO REMAIN.

4 RELOCATE ITEMS DENOTED 'ER'. SEE LIGHTING, POWER AND/OR SPECIAL SYSTEM SHEETS FOR NEW LOCATIONS. 'ER' IS DEFINED AS EXISTING (TO BE) RELOCATED.

5 EXISTING CONDUIT MAY REMAIN IF ALL THE FOLLOWING ARE TRUE:
A. IT CAN BE REUSED TO FEED DEVICES INSTALLED UNDER THIS CONTRACT.
B. IT DOES NOT INTERFERE WITH OTHER TRADES.
C. IT WAS ORIGINALLY INSTALLED MEETING SPECIFICATIONS RELATED TO THIS PROJECT.
D. IT WILL NOT BE EXPOSED IN A FINISHED AREA (UNLESS NOTED OTHERWISE).

6 PROVIDE ELECTRICAL DEMOLITION ASSOCIATED WITH MECHANICAL EQUIPMENT TO BE REMOVED. IN ADDITION TO DEVICES SHOWN, REFER TO MECHANICAL AND ARCHITECTURAL DEMOLITION SHEETS TO DETERMINE EQUIPMENT TO BE REMOVED.

7 MAINTAIN FUNCTIONALITY OF ALL EXISTING LOW VOLTAGE SYSTEMS INCLUDING, BUT NOT LIMITED TO, TELECOM CABLING NETWORKS, INTERCOM, CLOCKS, FIRE ALARM, SAFETY AND SECURITY DURING ALL PHASES OF CONSTRUCTION. PROVIDE TEMPORARY INTERCONNECTIONS AS REQUIRED TO ACCOMMODATE CONSTRUCTION SCHEDULE.

GENERAL DEVICE BOX NOTES

1 SEE SYMBOLS LEGEND THIS SHEET FOR MOUNTING HEIGHTS UNLESS NOTED OTHERWISE ON DRAWINGS.

2 ALL MOUNTING HEIGHTS ARE TO CENTERLINE OF BOXES UNLESS NOTES OTHERWISE.

3 CEILING MOUNTED RECEPTACLES: AT SUSPENDED CEILINGS, ROUTE POWER TO RECEPTACLE VIA FLEXIBLE METALLIC CONDUIT WITH 6-FOOT SERVICE LOOP. FEED FMC FROM A J-BOX RIGIDLY SUPPORTED A MAXIMUM OF 24-INCHES ABOVE SUSPENDED CEILING OR AT BOTTOM OF STRUCTURE ABOVE, WHICHEVER IS LOWER. LOCATE J-BOX DIRECTLY ABOVE RECEPTACLE AND SUPPORT VIA STRUCTURE, OR VIA THREAD ROD AND UNISTRUT HUNG FROM STRUCTURE ABOVE IN HIGH STRUCTURE APPLICATIONS.

4 DEVICES RECESSED IN MULLIONS: BACK BOXES TO BE RECESSED FOR FLUSH INSTALLATION OF DEVICE AND WALLPLATE. EXTEND CONCEALED CONDUIT IN MULLION UP TO WALL ABOVE AND STUB OUT ABOVE ACCESSIBLE CEILING. IN AREAS WITH NO CEILING, EXTEND CONDUIT TOWARDS CABLING SOURCE TO ABOVE NEAREST ACCESSIBLE CEILING.

ELECTRICAL SYMBOLS

LIGHTING

LIGHTING FIXTURE TAG

XXX — FIXTURE TYPE
XXX-X — CKT DESIGNATION (PNL - CKT NO.)
XXX-X — RELAY PANEL - RELAY NO. OR LOCAL SWITCH DESIGNATION

LIGHTING FIXTURES

- LIGHTING FIXTURE
- LIGHTING FIXTURE ON EMERGENCY SYSTEM
- CEILING FIXTURE, SURFACE, RECESSED OR PENDANT
- LIGHTING FIXTURE ON EMERGENCY SYSTEM
- LIGHTING TRACK, TRACK MOUNTED LIGHT FIXTURES
- WALL WASHER
- WALL MOUNTED LIGHTING FIXTURE
- SELF CONTAINED EMERGENCY LIGHTING UNIT MOUNT 94-INCHES AFF, UNO
- EXIT SIGN, CEILING MOUNTED, DIRECTIONAL ARROW(S) AS INDICATED
- EXIT SIGN, WALL MOUNTED, DIRECTIONAL ARROW(S) AS INDICATED. MOUNT 94-INCHES AFF, UNO

LIGHTING CONTROL DEVICES

- RPx — LIGHTING CONTROL PANEL
- CVx — CENTRAL INVERTER
- R — LOW VOLTAGE RELAY
- PC — PHOTOELECTRIC CELL
- LC — LIGHTING CONTACTOR
- BAT — REMOTE EMERGENCY BATTERY PACK

SWITCHES AND WALL-BOX CONTROLS

SWITCHES: MOUNT 42-INCHES AFF UNO

- SUPERSCRIPT , SWITCH SHALL CONTROL FIXTURE DENOTED WITH SAME LOWER CASE LETTER
- SWITCH SYMBOL
- SUBSCRIPT, SWITCH TYPE - SEE BELOW
- LINE THRU SWITCH INDICATES A KEY OPERATED SWITCH

- S — SWITCH, SINGLE POLE
- S_{LV} — SWITCH, LOW VOLTAGE
- S_{LV}^{TS} — TOUCH SCREEN LIGHTING CONTROLLER (FINISH TO BE BLACK)
- S_{OS} — SWITCH, WALL-BOX OCCUPANCY SENSOR

CEILING MOUNTED LIGHTING CONTROL DEVICES
MAXIMUM MOUNTING HEIGHT OF 10-FEET AFF

- OS — OCCUPANCY SENSOR (FINISH TO BE BLACK)
- VS — VACANCY SENSOR (FINISH TO BE BLACK)
- VS HB — HIGH BAY VACANCY SENSOR (FINISH TO BE BLACK)

POWER

- CIRCUIT HOME RUN
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- CONDUIT STUB-UP
- CONDUIT SLEEVE
- CONDUIT CONCEALED IN CEILING OR WALLS OR FLOOR, POWER
- T — TRANSFORMER
- XXX — BRANCH CIRCUIT PANELBOARD MOUNT 72-INCHES TO TOP
- XXX — DISTRIBUTION PANELBOARD MOUNT 72-INCHES TO TOP
- XXX — SWITCHBOARD
- MOTOR STARTER OR DRIVE
- DISCONNECT SWITCH
- COMBINATION STARTER / DISCONNECT SWITCH
- CT — CURRENT TRANSFORMER ENCLOSURE
- ATS — AUTOMATIC TRANSFER SWITCH
- SYSTEM GROUND ELECTRODE
- MECHANICAL CONNECTION
- AV — WIRELESS ACCESS POINT
- X,Y,Z — TELECOMMUNCATIONS OUTLET PROVIDE JACKS UNDER A COMMON FACEPLATE: X=QTY OF VOICE JACKS Y=QTY OF DATA JACKS Z=QTY OF VIDEO JACKS

RECEPTACLES: MOUNT 18-INCHES AFF, UNO

DIAGONAL LINE THROUGH SYMBOL OR DENOTED 'AC' INDICATES MOUNT DEVICE ABOVE COUNTER WHERE INDICATED AS 'MOUNT ABOVE COUNTER' MOUNT BOTTOM OF BOX 2-INCHES ABOVE TOP OF BACKSPLASH OR 6-INCHES ABOVE COUNTERTOP IF NO BACKSPLASH EXISTS.

LABELS SHALL BE MACHINE PRINTED, UNO

- SIMPLEX RECEPTACLE
- DUPLEX RECEPTACLE
- DUPLEX RECEPTACLE, GFI TYPE
- DUPLEX RECEPTACLE, MOUNT ABOVE COUNTER
- DUPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
- FOURPLEX RECEPTACLE
- FOURPLEX RECEPTACLE, GFI TYPE
- FOURPLEX RECEPTACLE, MOUNT ABOVE COUNTER
- FOURPLEX RECEPTACLE, GFI TYPE, MOUNT ABOVE COUNTER
- DUPLEX RECEPTACLE, FLUSH IN CEILING
- FOURPLEX RECEPTACLE, FLUSH IN CEILING
- FLUSH JUNCTION BOX, CEILING MOUNTED
- P — JUNCTION BOX FOR FUTURE PROJECTOR POWER MOUNT 24-INCHES ABOVE SUSPENDED CEILING MOUNT TIGHT TO CEILING AT EXPOSED STRUCTURE LABEL BOX COVER 'PROJECTOR POWER'
- JUNCTION BOX ABOVE SUSPENDED CEILING WITH FLEX CONNECTION
- FLUSH JUNCTION BOX, WALL MOUNTED
- J — SURFACE JUNCTION BOX, WALL MOUNTED
- J — SURFACE JUNCTION BOX, CEILING MOUNTED

SECURITY

INTRUSION DETECTION

- ID — INTRUSION DETECTOR, CEILING
- ID — INTRUSION DETECTOR, WALL
- MD LR — MOTION DETECTOR - LONG RANGE
- MD BR — MOTION DETECTOR - BROAD RANGE
- MD 360 — MOTION DETECTOR - 360 DEGREES
- GB — GLASS BREAK DETECTOR
- SECURITY KEYPAD MOUNT 48-INCHES AFF

VIDEO SURVEILLANCE

- VIDEO CAMERA

ACCESS CONTROL

- XXX — DOOR TAG
- ACP — ACCESS CONTROL SYSTEM CONTROL PANEL
- P — DOOR POSITION SWITCH
- PS — POWER SUPPLY, 120V INPUT
- CR — CARD READER MOUNT 36-INCHES AFF
- EL — DOOR WITH ELECTRIFIED DOOR HARDWARE. REFER TO DOOR HARDWARE SPECIFICATIONS.

* NOTE *

ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.

THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

DLR GROUP
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08/02/2023

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BID SET
08/02/2023
REVISIONS

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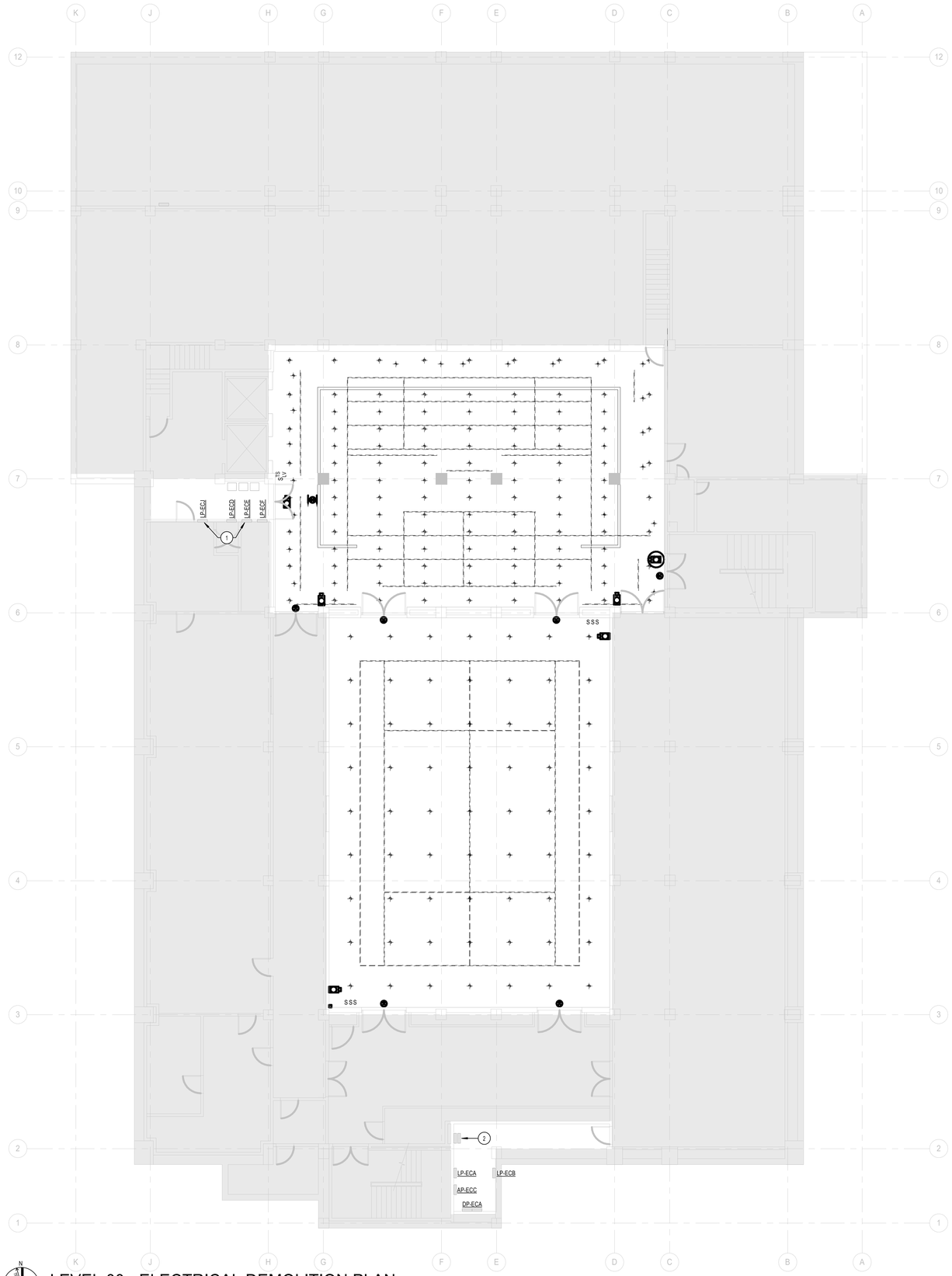
ELECTRICAL SYMBOLS, ABBREVIATIONS & NOTES

E0.1



LEVEL 00 - ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"

GENERAL NOTES

A SHADED AREA DENOTES AREA THAT IS NOT IN SCOPE.

SHEET NOTES

1 PANEL HAS HAD ALL ITS CIRCUITS DISCONNECTED AND CAPPED. PANEL HAS BEEN CONVERTED TO A LARGE ELECTRICAL JUNCTION BOX. CONFIRM WITH OWNER IF THIS PANEL IS DESIRED TO REMAIN OR BE DEMOLISHED.

2 EXISTING INVERTERS

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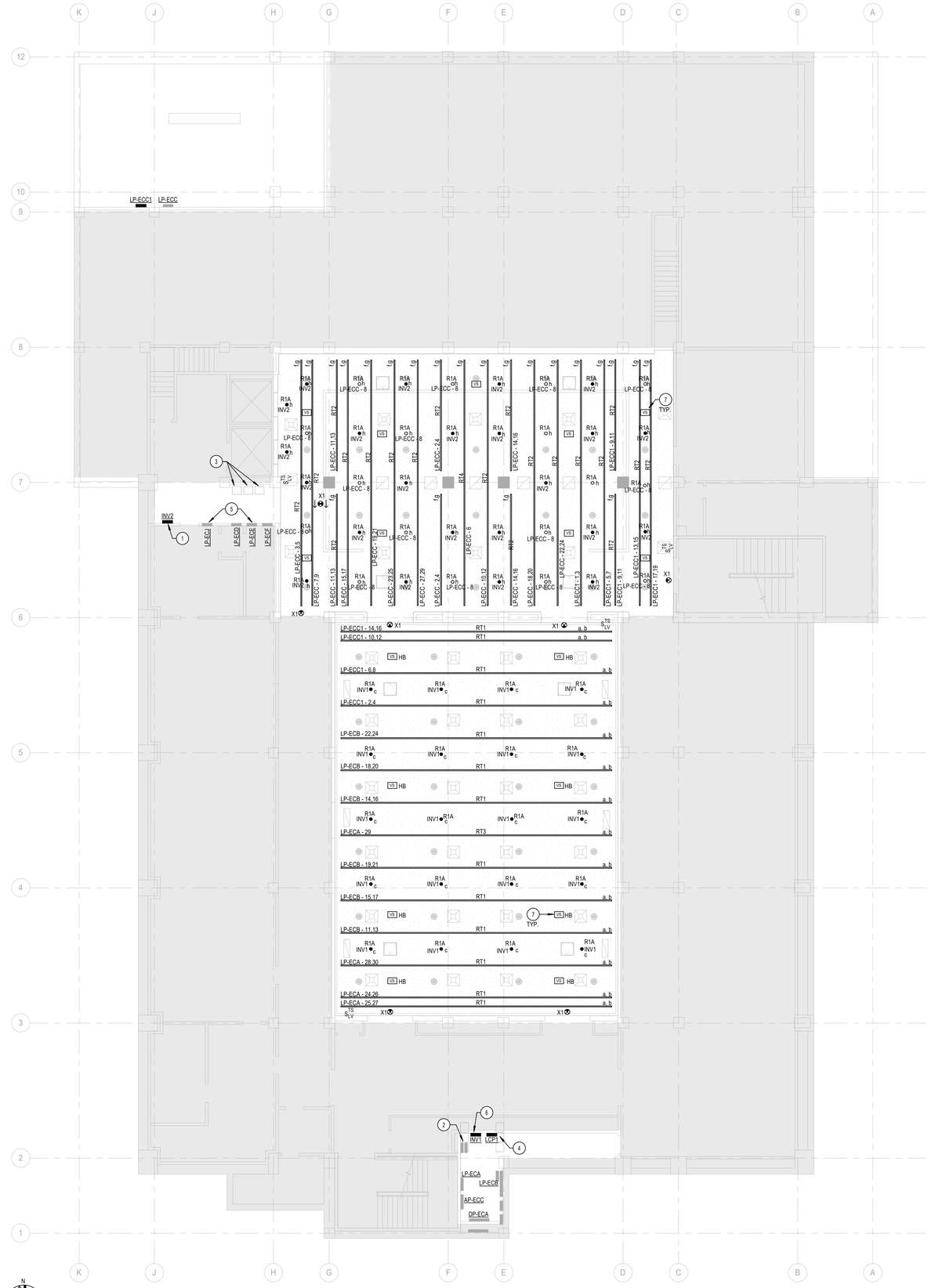
LEVEL 00 - ELECTRICAL DEMOLITION PLAN

ED1.0



LEVEL 00 - LIGHTING PLAN

SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'=0"

GENERAL NOTES

A ALL TRACKS ARE 2 CIRCUIT WITH A SHARED NEUTRAL. IN ALL CASES, THE NEUTRAL CONDUCTOR FOR THESE CIRCUITS SHALL BE ONE GAGE GREATER THAN THE HOT CONDUCTORS. (FOR EXAMPLE, IF THE HOT CONDUCTORS ARE #12AWG, THE NEUTRAL SHALL BE #10 AWG)

B ALL CIRCUITS WITH A TOTAL LENGTH OF 150FT OR LESS SHALL HAVE HOT CONDUCTORS OF #12 AWG. ALL CIRCUITS GREATER THAN 150FT SHALL HAVE HOT CONDUCTORS OF #10 AWG.

C SHADED AREA DENOTES AREA THAT IS NOT IN SCOPE.

SHEET NOTES

1 PROVIDE NEW WALL MOUNTED EMERGENCY LIGHTING INVERTER FOR EMERGENCY LIGHTING IN THE LOWER GALLERY. SEE SHEET E7.2 FOR INVERTER SCHEDULE.

2 EXISTING EMERGI-LITE EMERGENCY LIGHTING INVERTERS.

3 (3) EXISTING LIGHTING CONTROL CABINETS.

4 LIGHTING CONTROL HEAD END EQUIPMENT. BASIS OF DESIGN IS COOPER LIGHTING SOLUTIONS: WAVELINX WIRED AREA CONTROLLER. SEE DETAILS SHEETS FOR TYPICAL ONE LINE DIAGRAM OF A WAVELINX SYSTEM. CONFIRM ALL REQUIRED COMPONENTS WITH MANUFACTURER.

5 PANEL HAS HAD ALL ITS CIRCUITS DISCONNECTED AND CAPPED. PANEL HAS BEEN CONVERTED TO A LARGE ELECTRICAL JUNCTION BOX.

6 PROVIDE NEW WALL MOUNTED EMERGENCY LIGHTING INVERTER FOR EMERGENCY LIGHTING IN THE LARGE GALLERY ROOM. SEE SHEET E7.2 FOR INVERTER SCHEDULE.

7 VACANCY SENSOR FINISH TO BE BLACK.

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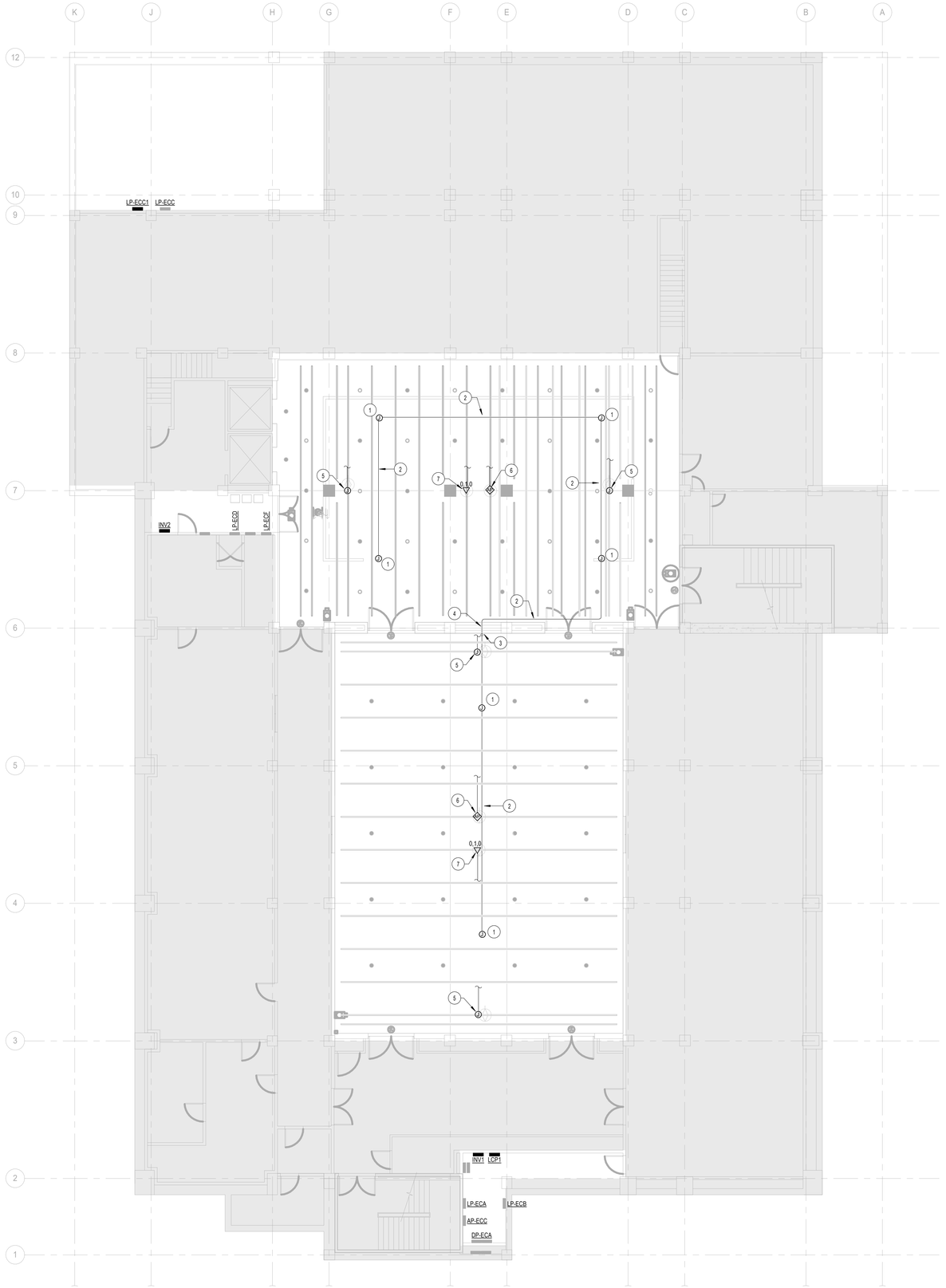
LEVEL 00 - LIGHTING PLAN

E1.0



GENERAL NOTES

A SHADED AREA DENOTES AREA THAT IS NOT IN SCOPE.

SHEET NOTES

1 PROVIDE JUNCTION BOX AT THE CEILING FOR FUTURE FIRE ALARM DEVICE. FIRE ALARM DEVICE WILL NOT BE PURCHASED OR INSTALLED AS PART OF THE SCOPE FOR THIS PROJECT.

2 PROVIDE CONDUIT BETWEEN JUNCTION BOXES FOR FUTURE FIRE ALARM CABLING PATHWAY. FIRE ALARM WIRING IS NOT IN THE SCOPE FOR THIS PROJECT.

3 CONDUIT DOWN ALONG WALL AT THIS LOCATION. CONDUIT TO PENETRATE WALL ABOVE CEILING HEIGHT OF ADJACENT LOWER GALLERY SPACE.

4 SEE SLEEVE DETAIL 4 ON SHEET A5.1.

5 DEDICATED LOCATION FOR SPEAKER. RUN SPEAKER WIRE IN 1/2" CONDUIT ABOVE THE CEILING FROM AV CLOSET TO THIS LOCATION. CONFIRM LOCATION OF AV CLOSET WITH OWNER. OWNER TO PROVIDE AND CONNECT AMP AND SPEAKERS. COORDINATE WITH OWNER.

6 DEDICATED LOCATION FOR WIRELESS ACCESS POINT. PROVIDE TRACK MOUNTED JUNCTION BOX FROM LITELAB. RUN A CAT6 CABLE IN (1) 1/2" CONDUIT ABOVE THE CEILING FOR DATA CONNECTION. COORDINATE TERMINATION POINT WITH OWNER. OWNER TO INSTALL WIRELESS ACCESS POINT. COORDINATE ALL REQUIREMENTS WITH OWNER.

7 DEDICATED LOCATION FOR LITELAB DATAPORT. PROVIDE TRACK MOUNTED DATAPORT FROM LITELAB. RUN CAT6 CABLE THRU TRACK TO THIS LOCATION. OWNER TO INSTALL FUTURE DEVICES. COORDINATE WITH OWNER.

LEVEL 00 - POWER PLAN & SYSTEMS PLAN

SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"

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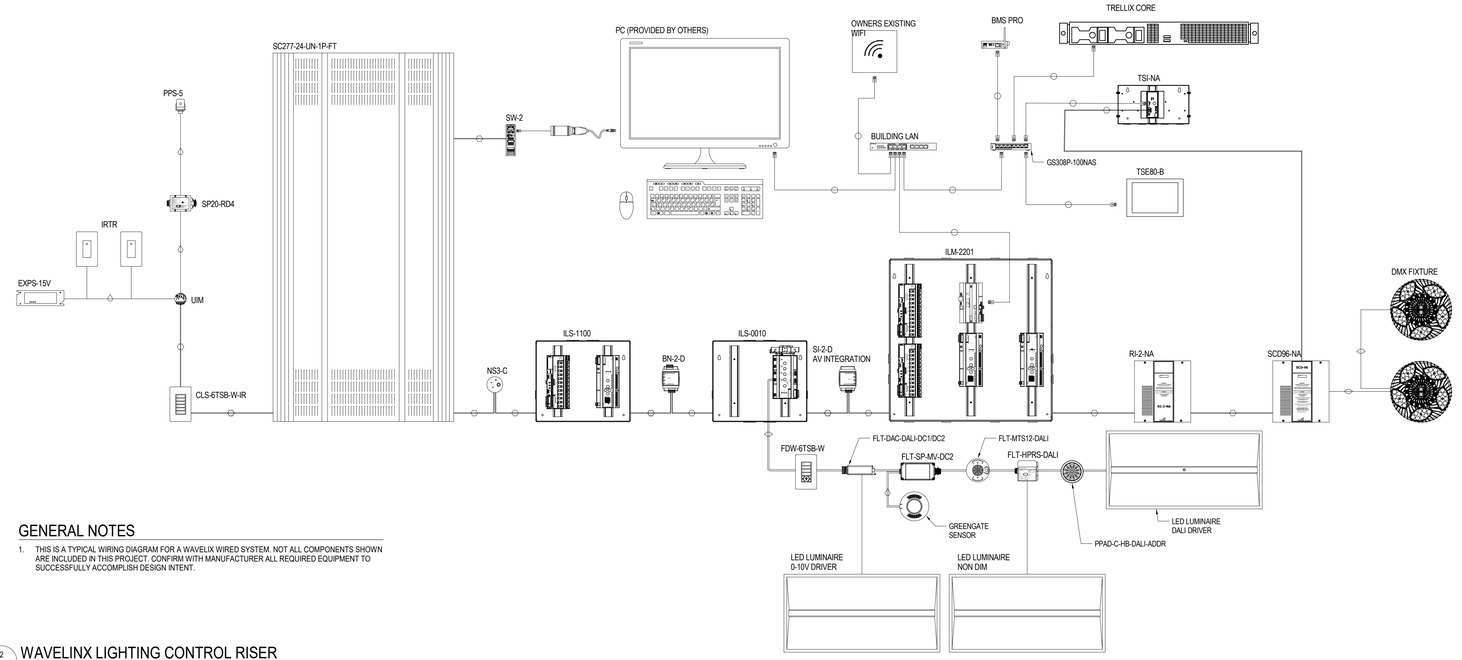
LEVEL 00 - POWER & SYSTEMS PLAN

E2.0

CABLES		
□	RS232	RS-232 Cable (6 feet), provided with product
○	CAN	Communication Cable, LCCNP (Non Plenum), LCCP (Plenum) or Belden 1502
○	LAN	Category 5 cable provided by others
◊	LV3	Low Voltage Input wire - #18 AWG, 3 conductor wire
◇	RS485	RS-485 Network Cable, GG9841(Non Plenum), GG89841(Plenum) or Belden 9841 (Non Plenum), Belden 89841 (Plenum)
⬭	LV2	Low Voltage Input wire - #14 AWG, 2 conductor wire



GENERAL NOTES

1. THIS IS A TYPICAL WIRING DIAGRAM FOR A WAVELIX WIRED SYSTEM. NOT ALL COMPONENTS SHOWN ARE INCLUDED IN THIS PROJECT. CONFIRM WITH MANUFACTURER ALL REQUIRED EQUIPMENT TO SUCCESSFULLY ACCOMPLISH DESIGN INTENT.

2 / E7.1 WAVELINX LIGHTING CONTROL RISER
NO SCALE

LIGHTING SEQUENCE OF OPERATIONS

ENERGY CODE: ASHRAE 90.1 - 2016	CONTROL TYPE						
SPACE TYPE	OCCUPANCY (AUTO ON)	VASANCY (MANUAL ON)	TIME OUT PERIOD (MIN)	TIMECLOCK CONTROL	PHOTOCELL CONTROL	NETWORKED	SCHEDULE NOTES
CELLAR GALLERY - LOW CEILING		X	20 MIN	X		X	1, 2, 3, 4
CELLAR GALLERY - HIGH CEILING		X	20 MIN	X		X	1, 2, 3, 4

GENERAL NOTES:
A. LIGHTING CONTROLS INDICATED ARE FOR REFERENCE ONLY AND MUST BE COORDINATED WITH CONTROLS SHOP DRAWINGS FOR EXACT QUANTITIES OF SENSORS, DEVICES, AND ALL NECESSARY CONNECTIVITY EQUIPMENT.
B. PROVIDE UL924 RELAYS FOR EMERGENCY LIGHTING TO ALLOW FULL CONTROLS UNDER NORMAL CONDITIONS. EMERGENCY LUMINAIRES SHALL TURN FULL "ON" UPON LOSS OF NORMAL POWER.
C. PROVIDE NUMBER OF ZONES AS INDICATED ON PLANS AND LIGHTING CONTROL ZONE SCHEDULES.
D. COORDINATE ALL FIXTURE DIMMING TYPES WITH LUMINAIRE SCHEDULE.
E. COMPLETE COMMISSIONING OF CONTROL SYSTEM AND PROVIDE REPORT TO ENGINEER OF REVIEW
F. VERIFY ALL ON/OFF, OCCUPIED/UNOCCUPIED TIMES WITH OWNER PRIOR TO PROGRAMMING.

SCHEDULE NOTES:
1. TIMECLOCK HOURS OF OPERATION SHALL BE SET BY THE OWNER UPON COMMISSIONING OF THE SYSTEM.
2. AREA ON BOTH TIMECLOCK AND OCCUPANCY/VACANCY: DURING NON-BUSINESS HOURS, WHEN THE TIMECLOCK WOULD HAVE THE LIGHTING OFF, THE OCCUPANCY/VACANCY SENSORS WILL CONTROL THE LIGHTING IN THE AREA ALONG WITH THE LOCAL CONTROLLER.
3. IN OCCUPANCY/VACANY MODE, ALL FIXTURES SHALL TURN OFF AFTER TIMEOUT PERIOD.
4. LUMINAIRES IN THE SPACE ARE CONTROLLED BY LIGHTING CONTROL TOUCHSCREEN(S) WITHIN THE SPACE. SEE PLANS FOR QUANTITY AND LOCATION. TOUCHSCREEN(S) SHALL CONTROL ALL ZONES WITHIN THE SPACE. ZONES ARE DESIGNATED BY LOWER CASE LETTER ADJACENT TO FIXTURE.

LUMINAIRE SCHEDULE

LUMINAIRE CRITERIA				PRODUCT INFORMATION		SOURCE				ELECTRICAL INFORMATION					ADDITIONAL INFORMATION				
TYPE	DESCRIPTION	FINISH	LOCATION	MANUFACTURER	MODEL NUMBER	LAMP	LUMENS	FT	COLOR TEMP	CRI	DIMMING TYPE	POWER SUPPLY	VOLTAGE	WATTAGE	FT	MOUNTING	MOUNTING HEIGHT	QUANTITY	COMMENTS	ACCESSORIES
R1A	RECESSED 4 INCH DOWNLIGHT; BLACK MATTE FINISH; MEDIUM BEAM SPREAD	BLACK/ BLACK REFLECTOR	LOWER/UPPER GALLERY	GOTHAM	EVO4-27/20-BR-LD-MD-MVOLT-GZ10-X-X-TRBL	LED	2000		2700K	90+	0-10V	INTEGRAL ELECTRONIC DIMMING...	120V	19.5W		RECESSED	RECESSED	SEE DRAWINGS		
RT1	RECESSED TRACK 2-CIRCUIT TRACK; NOMINAL 1-1/16 INCH BY 2-3/8 INCH HEIGHT BY LENGTHS AS SHOWN ON DRAWINGS	BLACK	HIGH CEILING GALLERY	LITE LAB	BUS11R-6A	N/A	N/A		N/A	N/A	NON-DIM	INTEGAL ELECTRONIC DRIVER	120V	N/A	FT	RECESSED	RECESSED	FIELD VERIFY	CONTRACTOR TO FIELD VERIFY TRACK LENGTHS BEFORE ORDERNG MANUFACTURER TO PROVIDE TEST FIXTURES TO CONTRACTOR TO TEST TRACK DURING INSTALLATION ADD ALT FOR BUS11R IS BUS20H	
RT2	RECESSED TRACK 2-CIRCUIT TRACK: NOMINAL 1-1/16 INCH BY 2-3/8 INCH HEIGHT BY LENGTHS AS SHOWN ON DRAWINGS	BLACK	LOW CEILING GALLERY	LITE LAB	BUS40R-6A	N/A	N/A		N/A	N/A	NON-DIM	INTEGAL ELECTRONIC DRIVER	120V	N/A	FT	RECESSED	RECESSED	FIELD VERIFY	CONTRACTOR TO FIELD VERIFY TRACK LENGTHS BEFORE ORDERNG MANUFACTURER TO PROVIDE TEST FIXTURES TO CONTRACTOR TO TEST TRACK DURING INSTALLATION	
RT3	SAME AS TYPE RT1 EXCEPT 1-CIRCUIT TRACK WITH DATAPORT	BLACK	HIGH CEILING GALLERY	LITE LAB	BUS11R-1A	N/A	N/A		N/A	N/A	NON-DIM	INTEGAL ELECTRONIC DRIVER	120V	N/A	FT	RECESSED	RECESSED	FIELD VERIFY	CONTRACTOR TO FIELD VERIFY TRACK LENGTHS BEFORE ORDERNG MANUFACTURER TO PROVIDE TEST FIXTURES TO CONTRACTOR TO TEST TRACK DURING INSTALLATION ADD ALT FOR BUS11R IS BUS20H	PROVIDE ACCESSORIES PER ARCHITECTURAL AND ELECTRICAL COORDINATION: BPT-P15F-9AD-A POWERDOWN BOX; DATA PORT BSH-UN1-R LOAD HANGER BSH-UN1-FMB FIXTURE MOUNT
RT4	SAME AS TYPE RT2 EXCEPT 1-CIRCUIT TRACK WITH DATAPORT	BLACK	LOW CEILING GALLERY	LITE LAB	BUS40R-1A	N/A	N/A		N/A	N/A	NON-DIM	INTEGAL ELECTRONIC DRIVER	120V	N/A	FT	RECESSED	RECESSED	FIELD VERIFY	CONTRACTOR TO FIELD VERIFY TRACK LENGTHS BEFORE ORDERNG MANUFACTURER TO PROVIDE TEST FIXTURES TO CONTRACTOR TO TEST TRACK DURING INSTALLATION	PROVIDE ACCESSORIES PER ARCHITECTURAL AND ELECTRICAL COORDINATION: BPT-P15F-9AD-A POWERDOWN BOX; DATA PORT BSH-UN1-R LOAD HANGER BSH-UN1-FMB FIXTURE MOUNT
T1A	TRACK MOUNTED STATIC OPTIC OBJECT LUMINAIRE, 15 DEGREE, 25 DEGREE AND 35 DEGREE OPTIC KITS; ON BOARD POTENTIOMETER DIMMING	BLACK	LOWER GALLERY	LITE LAB	C20-L14-27-9TC-E-1-PR-C-MB-X	LED	1450		2700K	95+	ON-BOARD ELV	INTEGRAL ELECTRONIC DIMMING DRIVER	120V	23W		TRACK	VARIES	1		
T1B	SAME AS TYPE T1B EXCEPT WITH RGBW LED SOURCE; ON BOARD POTENTIOMETER DIMMING	BLACK	LOWER GALLERY	LITE LAB	C20-L14-RGBW-9TC-E-1-PR-C-MB-X	LED	1450		RGBW	90+	ON-BOARD ELV	INTEGRAL ELECTRONIC DIMMING...	120V	23W		TRACK	VARIES	1		
T1C	TRACK MOUNTED ZOOM OPTIC LUMINAIRE; NOMINAL 3 INCH DIAMETER BY 6 INCH HEIGHT; 15 DEG-35 DEG OBJECT LUMINAIRE; ON BOARD POTENTIOMETER DIMMING	BLACK	LOWER GALLERY	LITE LAB	C2Z-L14-27-9TC-E-1-PR-C-MB	LED	1450		2700K	95+	ON-BOARD ELV	INTEGRAL ELECTRONIC DIMMING DRIVER	120V	23W		TRACK	VARIES	1		
T1D	TRACK MOUNTED WALL WASH LUMINAIRE; NOMINAL 3-INCH DIAMETER BY 6 INCH HEIGHT; ON BOARD POTENTIOMETER DIMMING	BLACK	LOWER GALLERY	LITE LAB	C2W-L14-27-9TC-E-1-PR-C-MB	LED	1450		2700K	95+	ON-BOARD ELV	INTEGRAL ELECTRONIC DIMMING...	120V	23W		TRACK	VARIES	1		
T1E	TRACK MOUNTED PROJECTOR; NOMINAL 3 INCH DIAMETER BY 8 INCH HEIGHT; 11 DEGREE, 22 DEGREE, 33 DEGREE AND 54 DEGREE OPTIC OPTION; PROVIDE WITH GOBO CARRIER ACCESSORY; ON BOARD POTENTIOMETER DIMMING	BLACK	LOWER GALLERY	LITE LAB	A3P-L18-27-9TC-E-1-PR-C-MB-X	LED	1800		2700K	95+	ON-BOARD ELV	INTEGRAL ELECTRONIC DIMMING...	120V	25W		TRACK	VARIES	1		
X1	CEILING MOUNT EDGE LIT EXIT SIGN; RED LETTERS; ARROWS AS SHOWN ON DRAWINGS	BRUSHED ALUMINUM	LOWER GALLERY	LITHONIA	LRP-X-X-RMR-X-120/277	LED	N/A		RED	N/A	N/A	INTEGRAL ELECTRONIC DRIVER	UNV	4W		SURFACE	VARIES	SEE DRAWINGS	PROVIDE SINGLE OR DOUBLE FACE AS REQUIRED	

GENERAL NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LUMINAIRES; INFORM LIGHTING DESIGNER OF CONFLICTS AND COORDINATE ALL LOCATIONS WITH DUCTWORK AND PIPING.

B. CONTRACTOR IS RESPONSIBLE TO REVIEW ARCHITECTRUAL DRAWINGS TO CONFIRM CEILING TYPES IN ALL ROOMS (ACCESSIBLE, EXPOSED OR "HARD") AND TO USE THE APPROPRIATE WIRING METHOD FOR EACH TYPE.

ENSURE ALL J-BOXES ARE ACCESSIBLE AFTER ALL OTHER TRADE'S WORK IS COMPLETED. DO NOT LOCATE ANY J-BOXES ON "HARD" CEILINGS; ALL WIRING MUST BE ACCESSIBLE THROUGH LUMINAIRE ONLY IN "DAISY-CHAIN" METHOD OR WITH DEDICATED HOMERUNS TO EACH LUMINAIRE. J-BOXES MAY BE LOCATED ABOVE OTHER...

C. ALL LOW VOLTAGE CABLING TO LIGHTING FIXTURES AND CONTROL DEVICES SHALL BE PLENUM RATED.

D. EXIT SIGNS TO BE CIRCUITED TO NEAREST EMERGENCY CIRCUIT SERVING THE SPACE.

SCHEDULE NOTES

DLR GROUP
© DLR Group

FIT MUSEUM - LOWER GALLERY
FIT Goodman Building
282 Seventh Ave, Manhattan, NY 10001

BID SET
08/02/2023
REVISIONS

57-23105-00

LIGHTING SCHEDULES & DETAILS

E7.1

EXISTING PANEL: LP-ECC

LOCATION: MAIN ELECTRICAL ROOM
BUS RATING: 225 A
MAIN BREAKER: MLO

VOLTS: 208Y/120
PHASES: 3
WIRES: 4
SCCR: EXISTING

MOUNTING: SURFACE
FED FROM: DP-ECB (90A BREAKER)
INTEGRAL SPD: NO
LUG ACCESSORIES: MLO

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	INVERTER INV2 - LOWER GALLEY EM LTG	20	1		L	410	520										
3	LOW CEILING GALLERY TRACKS	20	2		L			520	520			L		2	20	LOW CEILING GALLERY TRACKS	2
5	LOW CEILING GALLERY TRACKS									520	1,920	L		1	20	LOW CEILING GALLERY TRACKS	4
7	LOW CEILING GALLERY TRACKS	20	2		L	520	332					L		1	20	LOWER GALLEY WORK LTG	6
9	LOW CEILING GALLERY TRACKS							520	520								8
11	LOW CEILING GALLERY TRACKS	20	2		L					520	520	L		2	20	LOW CEILING GALLERY TRACKS	10
13	LOW CEILING GALLERY TRACKS					520	520										12
15	LOW CEILING GALLERY TRACKS	20	2		L			520	520			L		2	20	LOW CEILING GALLERY TRACKS	14
17	LOW CEILING GALLERY TRACKS									520	520						16
19	LOW CEILING GALLERY TRACKS	20	2		L	520	520					L		2	20	LOW CEILING GALLERY TRACKS	18
21	LOW CEILING GALLERY TRACKS							520	520								20
23	LOW CEILING GALLERY TRACKS	20	2		L					520	520	L		2	20	LOW CEILING GALLERY TRACKS	22
25	LOW CEILING GALLERY TRACKS					520	3,640										24
27	LOW CEILING GALLERY TRACKS	20	2		L			520	3,120			L		3	60	PANEL LP-ECC1 (SEE NOTES BELOW) (1)	26
29										520	2,600						28
																	30
					TOTAL LOAD:	8021 VA		7800 VA		8680 VA							
					TOTAL AMPS	67.1 A		65.0 A		72.6 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	24501 VA	125.00%	30626 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFCI (30mA)	**CONNECTED LOAD:** 25 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 31 kVA
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 68.0 A
C	COOLING	0 VA	0.00%	0 VA			**EMD CURRENT:** 85.0 A
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

NOTES:
1. CIRCUIT TO UTILIZE #1 AWG CONDUCTORS WITH #8 GROUND.

PANEL: LP-ECC1

LOCATION: MAIN ELECTRICAL ROOM
BUS RATING: 100 A
MAIN BREAKER: MLO

VOLTS: 208Y/120
PHASES: 3
WIRES: 4
SCCR: 10 KAIC

MOUNTING: SURFACE
FED FROM: LP-ECC
INTEGRAL SPD: NO
LUG ACCESSORIES: MLO

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	LOW CEILING GALLERY TRACKS	20	2		L	520	520					L		2	20	HIGH CEILING GALLERY TRACKS	2
3								520	520								4
5	LOW CEILING GALLERY TRACKS	20	2		L	520	520			520	520	L		2	20	HIGH CEILING GALLERY TRACKS	6
7								520	520								8
9	LOW CEILING GALLERY TRACKS	20	2		L					520	520	L		2	20	HIGH CEILING GALLERY TRACKS	10
11						520	520										12
13	LOW CEILING GALLERY TRACKS	20	2		L			520	520			L		2	20	HIGH CEILING GALLERY TRACKS	14
15										520	--						16
17	LOW CEILING GALLERY TRACKS	20	2		L	520	--							1	--	SPACE	18
19								--	--					1	--	SPACE	20
21	SPACE	--	1							--	--			1	--	SPACE	22
23	SPACE	--	1			--	--							1	--	SPACE	24
25	SPACE	--	1					--	--					1	--	SPACE	26
27	SPACE	--	1			--	--							1	--	SPACE	28
29	SPACE	--	1					--	--					1	--	SPACE	30
31	SPACE	--	1			--	--							1	--	SPACE	32
33	SPACE	--	1					--	--					1	--	SPACE	34
35	SPACE	--	1							--	--			1	--	SPACE	36
37	SPACE	--	1			--	--							1	--	SPACE	38
39	SPACE	--	1					--	--					1	--	SPACE	40
41	SPACE	--	1							--	--			1	--	SPACE	42
					TOTAL LOAD:	3640 VA		3120 VA		2600 VA							
					TOTAL AMPS	31.0 A		26.7 A		21.7 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	9360 VA	125.00%	11700 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFP (30mA)	**CONNECTED LOAD:** 9 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 12 kVA
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 26.0 A
C	COOLING	0 VA	0.00%	0 VA			**EMD CURRENT:** 32.5 A
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
Spare	SPARE	0 VA	0.00%	0 VA			

NOTES:

EXISTING PANEL: LP-ECD

LOCATION: LOWER GALLERY WEST CLOSET
BUS RATING: 200 A
MAIN BREAKER: MLO

VOLTS: 208Y/120
PHASES: 3
WIRES: 4
SCCR: EXISTING

MOUNTING: SURFACE
FED FROM: DP-ECB
INTEGRAL SPD: NO
LUG ACCESSORIES: MLO

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	EXISTING EXHIBIT EC25	15	1		Spare	500	500					Spare		1	15	EXISTING EXHIBIT EC25	2
3	EXISTING EXHIBIT EC25	15	1		Spare			500	500			Spare		1	15	EXISTING EXHIBIT EC25	4
5	EXISTING EXHIBIT EC25	15	1		Spare					500	500	Spare		1	15	EXISTING EXHIBIT EC25	6
7	EXISTING EXHIBIT EC25	15	1		Spare	500	500					Spare		1	15	EXISTING EXHIBIT EC25	8
9	EXISTING EXHIBIT EC25	15	1		Spare			500	500			Spare		1	15	EXISTING EXHIBIT EC25	10
11	EXISTING EXHIBIT EC25	15	1		Spare					500	500	Spare		1	15	EXISTING EXHIBIT EC25	12
13	EXISTING EXHIBIT EC25	15	1		Spare	500	500					Spare		1	15	EXISTING EXHIBIT EC25	14
15	EXISTING EXHIBIT EC25	15	1		Spare			500	500			Spare		1	15	EXISTING EXHIBIT EC25	16
17	EXISTING EXHIBIT EC25	15	1		Spare					500	500	Spare		1	15	EXISTING EXHIBIT EC25	18
19	EXISTING EXHIBIT EC25	15	1		Spare	500	500					Spare		1	15	EXISTING EXHIBIT EC25	20
21	EXISTING EXHIBIT EC25	15	1		Spare			500	500			Spare		1	15	EXISTING EXHIBIT EC25	22
23	EXISTING EXHIBIT EC25	15	1		Spare					500	500	Spare		1	15	EXISTING EXHIBIT EC25	24
25	EXISTING EXHIBIT EC25	15	1		Spare	500	500					Spare		1	15	EXISTING EXHIBIT EC25	26
27	EXISTING EXHIBIT EC25	15	1		Spare			500	500			Spare		1	15	EXISTING EXHIBIT EC25	28
29	EXISTING EXHIBIT EC25	15	1		Spare					500	500	Spare		1	15	EXISTING EXHIBIT EC25	30
					TOTAL LOAD:	5000 VA		5000 VA		5000 VA							
					TOTAL AMPS	41.7 A		41.7 A		41.7 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFCI (30mA)	**CONNECTED LOAD:** 15 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 15 kVA
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 41.6 A
C	COOLING	0 VA	0.00%	0 VA			**EMD CURRENT:** 41.6 A
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
	EXISTING (EST.)	15000 VA	100.00%	15000 VA			

NOTES:

EXISTING PANEL: LP-ECA

LOCATION: ELEC CLOSET EC16
BUS RATING: 200 A
MAIN BREAKER: MLO

VOLTS: 208Y/120
PHASES: 3
WIRES: 4
SCCR: EXISTING

MOUNTING: SURFACE
FED FROM: DP-ECA (90A BREAKER)
INTEGRAL SPD: NO
LUG ACCESSORIES: MLO

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	EXISTING CORRIDOR EC25	15	1			350	350							1	20	EXISTING EXHIBIT EC25	2
3	EXISTING CORRIDOR EC25	15	1					350	350					1	20	EXISTING EXHIBIT EC25	4
5	EXISTING CORRIDOR EC25	15	1							350	350			1	20	EXISTING EXHIBIT EC25	6
7	EXISTING DRESS ROOM EC10	15	1			200	200							1	15	EXISTING PREP ROOM EC17	8
9	EXISTING DRESS ROOM EC10	15	1					200	500					1	15	EXISTING PREP ROOM EC17	10
11	EXISTING DRESS ROOM EC10	15	1							200	500			1	15	EXISTING PREP ROOM EC17	12
13	EXISTING LOBBY EC26	15	1			0	500							1	15	EXISTING PREP ROOM EC17	14
15	EXISTING LOBBY EC26	15	1					0	500					1	15	EXISTING PREP ROOM EC17	16
17	EXISTING LOBBY EC26	15	1							0	500			1	15	EXISTING PREP ROOM EC17	18
19	EXISTING DRESS ROOM EC13	20	2			500	500							1	15	EXISTING STORE ROOM EC21/PANTRY ROO...	20
21								500	500					1	15	EXISTING SERVICE ROOM EC19	22
23	INVERTER INV1 - LARGE GALLEY EM LTG	20	1		L					390	520						24
25	HIGH CEILING GALLERY TRACKS	20	2		L	520	520					L		2	20	HIGH CEILING GALLERY TRACKS	26
27								520	520								28
29	HIGH CEILING GALLERY TRACKS	20	1		L					1,920	520	L		2	20	HIGH CEILING GALLERY TRACKS	30
31	EXISTING DRESS ROOM EC10	20	1			500	500							1	15	EXISTING DRESS ROOM EC13	32
33	EXISTING DRESS ROOM EC10	20	1					500	500					1	15	EXISTING DRESS ROOM EC13	34
35	EXISTING CLOSET	15	1							180	180			1	20	EXISTING TEL CLOSET	36
37	EXISTING CLOSET	15	1			180	500										38
39	EXISTING CLOSET	15	1					180	500					3	20	EXISTING TEL CLOSET	40
41	EXISTING EMERGENCY LIGHT PACK	15	1							50	500						42
					TOTAL LOAD:	5320 VA		5620 VA		6160 VA							
					TOTAL AMPS	44.3 A		47.2 A		51.7 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	5430 VA	125.00%	6788 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFCI (30mA)	**CONNECTED LOAD:** 17 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 18 kVA
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 47.5 A
C	COOLING	0 VA	0.00%	0 VA			**EMD CURRENT:** 51.2 A
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
	EXISTING (EST.)	11670 VA	100.00%	11670 VA			

NOTES:

EXISTING PANEL: LP-ECB

LOCATION: ELEC CLOSET EC16
BUS RATING: 200 A
MAIN BREAKER: MLO

VOLTS: 208Y/120
PHASES: 3
WIRES: 4
SCCR: EXISTING

MOUNTING: SURFACE
FED FROM: DP-ECA (90A BREAKER)
INTEGRAL SPD: NO
LUG ACCESSORIES: MLO

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	EXISTING EXHIBIT EC25	15	1			500	500							1	15	EXISTING EXHIBIT EC25	2
3	EXISTING EXHIBIT EC25	15	1					500	500					1	15	EXISTING EXHIBIT EC25	4
5	EXISTING EXHIBIT EC25	15	1							500	500			1	15	EXISTING EXHIBIT EC25	6
7	EXISTING EXHIBIT EC25	15	1			500	500							1	15	EXISTING OFFICE EC27	8
9	EXISTING EXHIBIT EC25	15	1					500	500					1	15	EXISTING OFFICE EC27	10
11										520	500			1	15	EXISTING OFFICE EC27	12
13	HIGH CEILING GALLERY TRACKS	20	2		L	520	520										14
15								520	520			L		2	20	HIGH CEILING GALLERY TRACKS	16
17	HIGH CEILING GALLERY TRACKS	20	2		L					520	520	L		2	20	HIGH CEILING GALLERY TRACKS	18
19	HIGH CEILING GALLERY TRACKS	20	2		L	520	520										20
21								520	520			L		2	20	HIGH CEILING GALLERY TRACKS	22
23	SPARE	15	1							0	520						24
					TOTAL LOAD:	4080 VA		4080 VA		3580 VA							
					TOTAL AMPS	34.6 A		34.6 A		29.8 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	6240 VA	125.00%	7800 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFCI (30mA)	**CONNECTED LOAD:** 12 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 13 kVA
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 32.6 A
C	COOLING	0 VA	0.00%	0 VA			**EMD CURRENT:** 36.9 A
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
	EXISTING (EST.)	5500 VA	100.00%	5500 VA			

NOTES:

EXISTING PANEL: LP-ECF

LOCATION: LOWER GALLERY WEST CLOSET
BUS RATING: 200 A
MAIN BREAKER: MLO

VOLTS: 208Y/120
PHASES: 3
WIRES: 4
SCCR: EXISTING

MOUNTING: SURFACE
FED FROM: DP-ECB
INTEGRAL SPD: NO
LUG ACCESSORIES: MLO

CKT	CIRCUIT DESCRIPTION	BKR TRIP	P	BKR TYPE	LOAD TYPE	PHASE A (VA)		PHASE B (VA)		PHASE C (VA)		LOAD TYPE	BKR TYPE	P	BKR TRIP	CIRCUIT DESCRIPTION	CKT
1	EXISTING EXHIBIT EC25	15	1			500	500							1	15	EXISTING EXHIBIT EC25	2
3	EXISTING EXHIBIT EC25	15	1					500	500					1	15	EXISTING EXHIBIT EC25	4
5	EXISTING EXHIBIT EC25	15	1							500	500			1	15	EXISTING EXHIBIT EC25	6
7	EXISTING EXHIBIT EC25	15	1			500	500							1	15	EXISTING EXHIBIT EC25	8
9	EXISTING EXHIBIT EC25	15	1					500	500					1	15	EXISTING EXHIBIT EC25	10
11	EXISTING EXHIBIT EC25	15	1							500	500			1	15	EXISTING EXHIBIT EC25	12
13	EXISTING EXHIBIT EC25	15	1			500	500							1	15	EXISTING EXHIBIT EC25	14
15	EXISTING EXHIBIT EC25	15	1					500	500					1	15	EXISTING EXHIBIT EC25	16
17	EXISTING EXHIBIT EC25	15	1							500	500			1	15	EXISTING EXHIBIT EC25	18
19	EXISTING EXHIBIT EC25	15	1			500	500							1	15	EXISTING EXHIBIT EC25	20
21	EXISTING EXHIBIT EC25	15	1					500	500					1	15	EXISTING EXHIBIT EC25	22
23	EXISTING EXHIBIT EC25	15	1							500	500			1	15	EXISTING EXHIBIT EC25	24
25	SPARE	15	1			0	0							1	15	SPARE	26
27	SPARE	15	1					0	0					1	15	SPARE	28
29	SPARE	15	1							0	0			1	15	SPARE	30
					TOTAL LOAD:	4000 VA		4000 VA		4000 VA							
					TOTAL AMPS	33.3 A		33.3 A		33.3 A							

LOAD TYPE	LOAD DESCRIPTION	CONNECTED LOAD (VA)	DEMAN D...	ESTIMATED DEMAND (VA)	DEMAND FACTOR NOTES	BKR TYPE	PANEL TOTALS
L	LIGHTING	0 VA	0.00%	0 VA	CONTINUOUS LOAD @ 125%	G = GFCI (5mA)	
R	RECEPTACLES	0 VA	0.00%	0 VA	FIRST 10KVA @ 100%, REMAINDER @ 50%	GP = GFCI (30mA)	**CONNECTED LOAD:** 12 kVA
K	KITCHEN	0 VA	0.00%	0 VA	NON-DWELLING KITCHEN LOADS, NEC ART. 220	ST = SHUNT TRIP	**ESTIMATED DEMAND:** 12 kVA
M	MOTOR	0 VA	0.00%	0 VA	LARGEST MOTOR, NEC ART. 430	LO = LOCK OUT	**CONNECTED CURRENT:** 33.3 A
C	COOLING	0 VA	0.00%	0 VA			**EMD CURRENT:** 33.3 A
H	HEATING	0 VA	0.00%	0 VA			
O	OTHER	0 VA	0.00%	0 VA			
	EXISTING (EST.)	12000 VA	100.00%	12000 VA			

NOTES:

INVERTER SCHEDULE - INV1

LOCATION: ELEC CLOSET EC16

RATING: 550 VA

FED FROM: LP-ECA

BREAKER	DESCRIPTION	LOAD (VA)
1	LARGE GALLERY WORKLIGHTS	390
2	-	-
3	-	-
4	-	-

BASIS OF DESIGN: EVENLITE - LM-55-LC-V1-1S. INVERTER TO BE PROVIDED WITH ELCD DEVICE TO ALLOW FIXTURE DIMMING DURING REGULAR CONDITIONS.

INVERTER SCHEDULE - INV2

LOCATION: SERVICE ROOM EC19

RATING: 550 VA

FED FROM: LP-ECC

BREAKER	DESCRIPTION	LOAD (VA)
1	LOWER GALLERY WORKLIGHTS	410
2	-	-
3	-	-
4	-	-

BASIS OF DESIGN: EVENLITE - LM-55-LC-V1-1S. INVERTER TO BE PROVIDED WITH ELCD DEVICE TO ALLOW FIXTURE DIMMING DURING REGULAR CONDITIONS.

PANEL SYMBOLS LEGEND

✳	IT IS EXPECTED THAT THIS BREAKER BE MADE AVAILABLE AS A RESULT OF DEMOLITION. CONTRACTOR TO FIELD VERIFY.
+	REPLACE EXISTING BREAKER WITH NEW BREAKER AS SHOWN. MATCH EXISTING BREAKER TYPE.
☐	CIRCUIT TO BE EQUIPED WITH A 5 AMP CURRENT LIMITING DEVICE.

LP-ECC	LP-ECC1	LP-ECD
LP-ECA	LP-ECB	LP-ECF

DLR GROUP
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08/02/2023

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BID SET
08/02/2023
REVISIONS

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ELECTRICAL SCHEDULES

E7.2

ABBREVIATIONS

(D)	DEMOLISHED
(E)	EXISTING
(R)	RELOCATED
°C	DEGREES CELSIUS
°F	DEGREES FAHRENHEIT
Ø	DIAMETER
A	AMPERE
A/C	AIR CONDITIONING(ER)
AABC	ASSOCIATED AIR BALANCE COUNCIL
AAV	AUTOMATIC AIR VENT
ACC	ACCESSIBLE
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
ADJ	ADJUSTABLE
AF	AIR FILTER
AHRI	AIR-CONDITIONING HEATING AND REFRIGERATION INSTITUTE
AHU	AIR HANDLING UNIT
AMB	AMBIENT
AMBA	AMERICAN BOILER MANUFACTURERS ASSOCIATION
AMP	AMPERE
AP	ACCESS PANEL
AS	AIR SEPARATOR
ASCE	AMERICAN SOCIETY OF CIVIL ENGINEERS
ASHRAE	AMERICAN SOCIETY OF HEATING REFRIGERATION AND AIR CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
AUTO	AUTOMATIC
AV	ACID VENT
B	BOILER
BAS	BUILDING AUTOMATION SYSTEM
BAT	BATTERY
BBO	BOILER BLOW OFF
BC	BALANCING COCK
BC	BARE COPPER
BDD	BACK DRAFT DAMPER
BF	BOILER FEED
BFF	BELOW FINISH FLOOR
BFV	BUTTERFLY VALVE
BHP	BREAK HORSEPOWER
BLKG	BLOCKING
BLKHD	BULKHEAD
BMS	BUILDING MANAGEMENT SYSTEM
BOD	BOTTOM OF DUCT
BOT	BOTTOM
BPIP	BOILER PLANT INSTRUMENTATION PANEL
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
C	CONDUIT
CA	COMBUSTION AIR
CAP	CAPACITY
CD	CONSTRUCTION DOCUMENTS
CENT	CENTRIFUGAL
CF	CUBIC FEET
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CIRC	CIRCULATING
CLR	CLEAR
CO	CARBON MONOXIDE
CO2	CARBON DIOXIDE
COMB	COMBINATION
CONV	CONVECTOR
CP	CONDENSATE PUMP
CPS	CYCLES PER SECOND
CR	CORROSION RESISTANT
CRAC	COMPUTER ROOM AIR CONDITIONING UNIT
CS	COUNTERSINK
CT	COOLING TOWER
CTL	CONTROL
CU	CONDENSING UNIT
CUH	CABINET UNIT HEATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
CYL	CYLINDER
D	DIFFUSER
DB	DECIBEL
DB	DRY BULB
DBL	DOUBLE
DC	DUST COLLECTOR
DEPT	DEPARTMENT
DH	DUCT HEATER
DI	DISTILLED WATER
DIAG	DIAGONAL
DIC	DISCHARGE
DISCH	DISCHARGE
DISTR	DISTRIBUTION
DSTB	DISTRIBUTED
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EDH	ELECTRIC DUCT HEATER
EER	ENERGY EFFICIENCY RATIO
EF	EXHAUST FAN
EFF	EFFICIENCY
EFF	EFFICIENCY
EH	ELECTRICAL HEATER
ELEV	ELEVATOR
EMER	EMERGENCY
ENCL	ENCLOSURE
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
EST	ESTIMATE
ET	EXPANSION TANK
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
EXP	EXPOSED
F	FAHRENHEIT
F	FURNACE
F.V.	FIELD VERIFY
FA	FACE
FAB	FABRICATE(D)
FCU	FAN COIL UNIT
FD	FIRE DAMPER
FF	FINISH FLOOR
FLEX	FLEXIBLE
FME	FLOW MEASURING EQUIPMENT
FPM	FEET PER MINUTE
FS	FLOW SWITCH
FSD	FIRE SMOKE DAMPER
FT	FIN TUBE
G	GRILLE
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GHR	GLYCOL-WATER HEATING RETURN
GHS	GLYCOL-WATER HEATING SUPPLY
GPD	GALLONS PER DAY
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
GV	GATE VALVE
HCR	HOT/CHILLED WATER RETURN
HCS	HOT/CHILLED WATER SUPPLY
HGR	HANGER
HID	HIGH INTENSITY DISCHARGE
HP	HORSE POWER
HP	HEAT PUMP
HP	HIGH PRESSURE
HPR	HIGH PRESSURE STEAM RETURN
HPS	HIGH PRESSURE STEAM SUPPLY
HR	HOUR
HTG	HEATING
HTR	HEATER
HTWR	HIGH TEMPERATURE HOT WATER RETURN
HTWS	HIGH TEMPERATURE HOT WATER SUPPLY
HUM	HUMIDIFIER
HV	HEATING VENTILATING UNIT
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HWR	HEATING WATER RETURN
HWS	HEATING WATER SUPPLY
HX	HEAT EXCHANGER
HZ	HERTZ (FREQUENCY)
IAQ	INDOOR AIR QUALITY
IAW	IN ACCORDANCE WITH
ID	INSIDE DIAMETER
IH	INTAKE HOOD
INSUL	INSULATION
KH	KITCHEN HOOD
LAT	LEAVING AIR TEMPERATURE
LF	LINEAR FOOT
LG	LENGTH (LONG)
LIN	LINEAR
LOX	LIQUID OXYGEN
LPG	LIQUIFIED PETROLEUM GAS
LPR	LOW PRESSURE STEAM RETURN
LPS	LOW PRESSURE STEAM SUPPLY
LTD	LINED TRANSFER DUCT
LV	LOUVER
LVG	LEAVING
MA	MIXED AIR
MAINT	MAINTENANCE
MAN	MANUAL
MATL	MATERIAL
MAU	MAKEUP AIR UNIT
MAV	MANUAL AIR VENT
MBH	THOUSAND BTU PER HOUR
MFRG	MANUFACTURING
ML	MOTORIZED LOUVER
MPG	MEDIUM PRESSURE GAS
MTD	MOUNTED
MTG	MOUNTING
MTWR	MEDIUM TEMP HOT WATER RETURN
MTWS	MEDIUM TEMP HOT WATER SUPPLY
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSN.
NO	NUMBER
NOM	NOMINAL
O&M	OPERATION AND MAINTENANCE
OA	OUTSIDE AIR
OD	OUTSIDE DIAMETER
P	PUMP
P/T	PRESSURE/TEMPERATURE TEST PORT
PB	PUSH BUTTON
PCF	POUNDS PER CUBIC FOOT
PD	PRESSURE DROP
PERF	PERFORATED
PERP	PERPENDICULAR
PG	PRESSURE GAUGE
PI	POINT OF INTERSECTION
PI	PRESSURE INDICATOR
PL	PLATE
PLBG	PLUMBING
PNEU	PNEUMATIC
PNL	PANEL
POC	POINT OF CONNECTION
PR	PAIR
PSI	POUNDS PER SQUARE INCH
PVC	POLYVINYL CHLORIDE
PWR	POWER
RA	RETURN AIR
RAD	RADIUS
RAD	RADIATOR
RAD	RADIATED
RCP	REFLECTED CEILING PLAN
RCU	RECIPROCATING CHILLER UNIT
RD	REFRIGERANT DISCHARGE
REFR	REFRIGERANT
REG	REGISTER
REM	REMOVABLE
RESP	RESPONSIVE
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RH	REFLIEF HOOD
RHC	REHEAT COIL
RHG	REFRIGERANT HOT GAS
RL	REFRIGERANT LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOF TOP UNIT
S	SMOKE DAMPER
SA	SUPPLY AIR
SC	SECURITY
SD	SMOKE DAMPER
SD	SMOKE DETECTOR
SD	SOAP DISPENSER
SE	STEAM EXHAUST VENT
SGL	SINGLE
SP	STATIC PRESSURE (H2O)
SPD	SURGE PROTECTION DEVICE
SQ	SQUARE
SS	STAINLESS STEEL
STOR	STORAGE
SUSP	SUSPENDED
SV	SOLENOID VALVE
SWP	STEAM WORKING PRESSURE
T	THERMOSTAT
T&B	TOP AND BOTTOM
TA	TRANSFER AIR
TB	TERMINAL BOX
TC	TEMPERATURE CONTROL
TD	TRANSFER DUCT
TEMP	TEMPERATURE
THK	THICKNESS)
TOD	TOP OF DUCT
TS	TEMPERATURE SENSOR
TSP	TOTAL STATIC PRESSURE
TT	TEMPERATURE TRANSMITTER
UC	UNIT COOLER
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORIES
UV	UNIT VENTILATOR
V	VOLT
VA	VOLT-AMPERE
VA	VALVE
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
VEL	VELOCITY
VENT	VENTALATOR(TION)
VFD	VARIABLE FREQUENCY DRIVE
VOL	VOLUME
VP	VACUUM PUMP
VSMP	VARIABLE SPEED MOTOR CONTROLLER
W	WIDE
W	WATT
WB	WET BULB
WC	WATER COLUMN
WCC	WATER COOLED CONDENSER
WFMD	WATER FLOW MEASURING DEVICE
WH	WATER HEATER
WLR	WATER LOOP RETURN
WLS	WATER LOOP SUPPLY
WP	WEATHERPROOF
WT	WEIGHT

SHEET INDEX

M0.1	MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES
MD1.0	LEVEL 00 - HVAC DEMOLITION PLAN
M1.0	LEVEL 00 - HVAC PLAN

GENERAL SYMBOLS

	POINT OF DISCONNECT - DEMOLITION REMOVED FROM EXISTING
	POINT OF CONNECTION - NEW CONNECTS TO EXISTING
	AREA NOT IN CONTRACT

GENERAL NOTES

1. REMOVE ALL UNUSED PIPING, DUCTWORK AND ACCESSORIES.
2. THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD VERIFYING, PRIOR TO FINAL BID, ALL EXISTING CONDITIONS FOR PLUMBING AND MECHANICAL SYSTEMS WITHIN TENANT SPACE AND WITHIN CLOSE PROXIMITY OF TENANT SPACE.
3. COORDINATE INSTALLATION OF PIPING, DUCTWORK, CONDUIT, LIGHTS, CABLE TRAY, STRUCTURE, AND EQUIPMENT TO PREVENT CONFLICTS.
4. THE CONTRACTOR SHALL BE FAMILIAR WITH ALL THE CONDITIONS BOTH EXISTING AND THOSE ILLUSTRATED BY THESE DOCUMENTS AS WELL AS THOSE WHICH CAN BE REASONABLY ANTICIPATED INCLUDING, BUT NOT LIMITED TO ARCHITECTURAL, ELECTRICAL, VENTILATION, PLUMBING, AND OTHER SYSTEMS INVOLVED ON THIS PROJECT.
5. FINAL PRODUCT SHALL BE A COMPLETE AND FUNCTIONING SYSTEM, AND SHALL CONFORM TO ALL REQUIREMENTS OF APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING BUT NOT LIMITED TO THE INTERNATIONAL BUILDING CODE AND INTERNATIONAL MECHANICAL CODE.
6. FOR DETAILS, EQUIPMENT CONNECTIONS, AND PIPE SIZES NOT SHOWN ON THE SEGMENTS, REFER TO DETAILS, SCHEDULES, AND SPECIFICATIONS.
7. LOCATIONS OF PIPING, DUCTWORK AND EQUIPMENT AS INDICATED ON THE DRAWING, ARE APPROXIMATE AND SUBJECT TO MINOR ADJUSTMENTS IN THE FIELD. WORK SHALL BE COORDINATED WITH ALL OTHER TRADES TO AVOID INTERFERENCE IN THE FIELD.

GENERAL HVAC NOTES

6. ALL SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE RATED FOR PRESSURE CLASS OF 2" W.G. UNLESS NOTED OTHERWISE.
7. THIS CONTRACTOR SHALL BE REQUIRED TO REPLACE FILTERS ON HVAC EQUIPMENT AFTER ALL DUST PRODUCING CONSTRUCTION HAS BEEN COMPLETED AND PRIOR TO THE FINAL PUNCH.

HVAC SYMBOLS

SCHEMATIC	3D	DESCRIPTION
FEA	FEA	GAS FLUE EXHAUST AIR
EA	EA	GENERAL EXHAUST AIR
GEA	GEA	GREASE EXHAUST AIR
RELA	RELA	RELIEF AIR
SEA	SEA	SMOKE EXHAUST AIR
ERA	ERA	ENERGY RECOVERY AIR
RA	RA	RETURN AIR
TA	TA	TRANSFER AIR
CA	CA	COMBUSTION AIR
OA	OA	OUTSIDE AIR
SA	SA	SUPPLY AIR
		DIFFUSER (SUPPLY)
		GRILLE (RETURN)
		GRILLE (EXHAUST)
		WALL REGISTER
		LINEAR DIFFUSER (SLOT)
AFMS	AFMS	AIR FLOW MEASURING STATION
BDD	BD	BACKDRAFT DAMPER
RD	RD	BAROMETRIC RELIEF DAMPER
DP	DP	DIFFERENTIAL PRESSURE SENSOR
		DUCT DETECTOR
GD	GD	GRAVITY DAMPER
M	M	MOTORIZED DAMPER
PR	PR	PRESSURE REDUCING DAMPER
SB	SB	SECURITY BARS
SP	SP	STATIC PRESSURE SENSOR
VD	VD	VOLUME DAMPER
RVD	RVD	REMOTE VOLUME DAMPER
F	F	FIRE DAMPER
FS	FS	COMBINATION FIRE / SMOKE DAMPER
S	S	SMOKE DAMPER
		ROUND DUCT UP
		RECTANGULAR DUCT UP
		OVAL DUCT UP
		ROUND DUCT DOWN
		RECTANGULAR DUCT DOWN
		OVAL DUCT DOWN
		MITERED ELBOW WITH VANES
		MITERED ELBOW WITHOUT VANES
		RADIUSED ELBOW
		TEE WITH VANES
		RADIUSED TEE
		DUCT WITH INSULATION
		DUCT WITH LINING
		DUCT IS FABRIC
		FLEXIBLE DUCT
		TRANSFER DUCT
		DUCT SMOKE DETECTOR
		SUPPLY ARROW
		RETURN ARROW
		EXHAUST ARROW
UC / 100		DOOR UNDERCUT ARROW WITH CFM
D-1 / 12"x12" / 200 CFM		DIFFUSER, REGISTER OR GRILLE TAG / NECK SIZE (00"x00" - SQ / RECT) (0"ø ROUND) / AIR FLOW (CUBIC FEET PER MINUTE)
24"x12"		TYPICAL DUCT - SIZE AS INDICATED (WIDTH x DEPTH) SIZE INDICATED FREE AREA
DDC-xx		MECHANICAL EQUIPMENT TAG
		MECHANICAL EQUIPMENT CLEARANCE
CO2		CARBON DIOXIDE SENSOR - WALL MOUNTED
CO2		CARBON DIOXIDE SENSOR - CEILING MOUNTED
CO		CARBON MONOXIDE SENSOR - WALL MOUNTED
CO		CARBON MONOXIDE SENSOR - CEILING MOUNTED
H		HUMIDISTAT - WALL MOUNTED
H		HUMIDISTAT - CEILING MOUNTED
NO2		NITROGEN DIOXIDE SENSOR - WALL MOUNTED
NO2		NITROGEN DIOXIDE SENSOR - CEILING MOUNTED
P		PRESSURE SENSOR - WALL MOUNTED
P		PRESSURE SENSOR - CEILING MOUNTED
T		TEMPERATURE SENSOR - WALL MOUNTED
T		TEMPERATURE SENSOR - CEILING MOUNTED
T		THERMOSTAT - WALL MOUNTED
T		THERMOSTAT - CEILING MOUNTED

PIPING ANNOTATIONS

SCHEMATIC	3D	DESCRIPTION
		EXISTING TO REMAIN - (E) or EXIST
		ITEM TO BE DEMOLISHED - (D) or DEMO
18" CHWS	18" CHWS	PIPE SIZE TAG (DIAMETER WITH SYSTEM NAME)
		ABOVE GROUND PIPING
		BELOW GROUND PIPING
1/8" / 12" SLOPE	1/8" / 12" SLOPE	PIPE SLOPE
INVERT: -93' - 1"	INVERT: -93' - 6"	PIPE INVERT ELEVATION
DDC-xx		MECHANICAL EQUIPMENT TAG
		MECHANICAL EQUIPMENT CLEARANCE

MECHANICAL PIPING SYSTEMS

SCHEMATIC	3D	DESCRIPTION
DFR	DFR	DIESEL FUEL RETURN
DFS	DFS	DIESEL FUEL SUPPLY
DFV	DFV	DIESEL FUEL VENT
FOR	FOR	FUEL OIL RETURN
FOS	FOS	FUEL OIL SUPPLY
FOV	FOV	FUEL OIL VENT
HPR	HPR	HIGH PRESSURE STEAM RETURN
HPS	HPS	HIGH PRESSURE STEAM SUPPLY
LPR	LPR	LOW PRESSURE STEAM RETURN
LPS	LPS	LOW PRESSURE STEAM SUPPLY
MPR	MPR	MEDIUM PRESSURE STEAM RETURN
MPS	MPS	MEDIUM PRESSURE STEAM SUPPLY
SV	SV	STEAM VENT
GWR	GWR	GEOTHERMAL WATER RETURN
GWS	GWS	GEOTHERMAL WATER SUPPLY
HRWR	HRWR	HEAT RECOVERY WATER RETURN
HRWS	HRWS	HEAT RECOVERY WATER SUPPLY
HTWR	HTWR	HIGH TEMPERATURE HOT WATER RETURN
HTWS	HTWS	HIGH TEMPERATURE HOT WATER SUPPLY
HWR	HWR	HOT WATER RETURN
HWS	HWS	HOT WATER SUPPLY
HCR	HCR	HOT / CHILLED WATER RETURN
HCS	HCS	HOT / CHILLED WATER SUPPLY
WLR	WLR	WATER LOOP RETURN
WLS	WLS	WATER LOOP SUPPLY
RD	RD	REFRIGERANT DISCHARGE
RHG	RHG	REFRIGERANT HOT GAS
RL	RL	REFRIGERANT LIQUID
RS	RS	REFRIGERANT SUCTION
RV	RV	REFRIGERANT VENT
CHWR	CHWR	CHILLED WATER RETURN
CHWS	CHWS	CHILLED WATER SUPPLY
CWR	CWR	CONDENSER WATER RETURN
CWS	CWS	CONDENSER WATER SUPPLY
CD	CD	CONDENSATE DRAIN
SCD	SCD	SECONDARY CONDENSATE DRAIN

PIPING VALVES AND FITTINGS

SCHEMATIC	3D	DESCRIPTION
		PIPE DROP
		PIPE RISE
		PIPE TEE DOWN
		PIPE TEE UP
		CONCENTRIC REDUCER
		ECCENTRIC REDUCER
		PIPE CAP
		PIPE ALIGNMENT GUIDE
		PIPE ANCHOR
		FLOW DIRECTION
		EXPANSION JOINT
		FLEXIBLE CONNECTION
		UNION
		DIRECTION OF PIPE PITCH
		AQUASTAT
		EXPANSION LOOP
		BALANCING VALVE
		BALANCING VALVE W/ METERING POINTS
		BALL VALVE
		BUTTERFLY VALVE
		CHECK VALVE
		STEAM TRAP
		GATE VALVE
		CIRCUIT SETTER
		MANUAL AIR VENT
		AUTOMATIC AIR VENT
		PLUG VALVE
		PRESSURE GAUGE
		SOLENOID VALVE
		ANGLE VALVE
		AUTOMATIC CONTROL VALVE 2-WAY
		AUTOMATIC CONTROL VALVE 3-WAY
		AUTOMATIC FLOW CONTROL VALVE
		STRAINER
		PRESSURE AND TEMPERATURE TEST PORT
		THERMOMETER
		PRESSURE REDUCING VALVE (WATER SYSTEMS) / PRESSURE REGULATING VALVE (GAS SYSTEMS)
		RELIEF VALVE
		FLOW MEASURING DEVICE
		BACKFLOW PREVENTER
		UNION

* NOTE *

ALL NOTES ON THIS SHEET ARE APPLICABLE TO ALL OTHER SHEETS IN THIS SET.

THE SYMBOLS AND ABBREVIATIONS SHOWN ON THIS SHEET MAY OR MAY NOT BE APPLICABLE IN THIS SET OF DRAWINGS.

DLR GROUP
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Draft 01
07/21/2023
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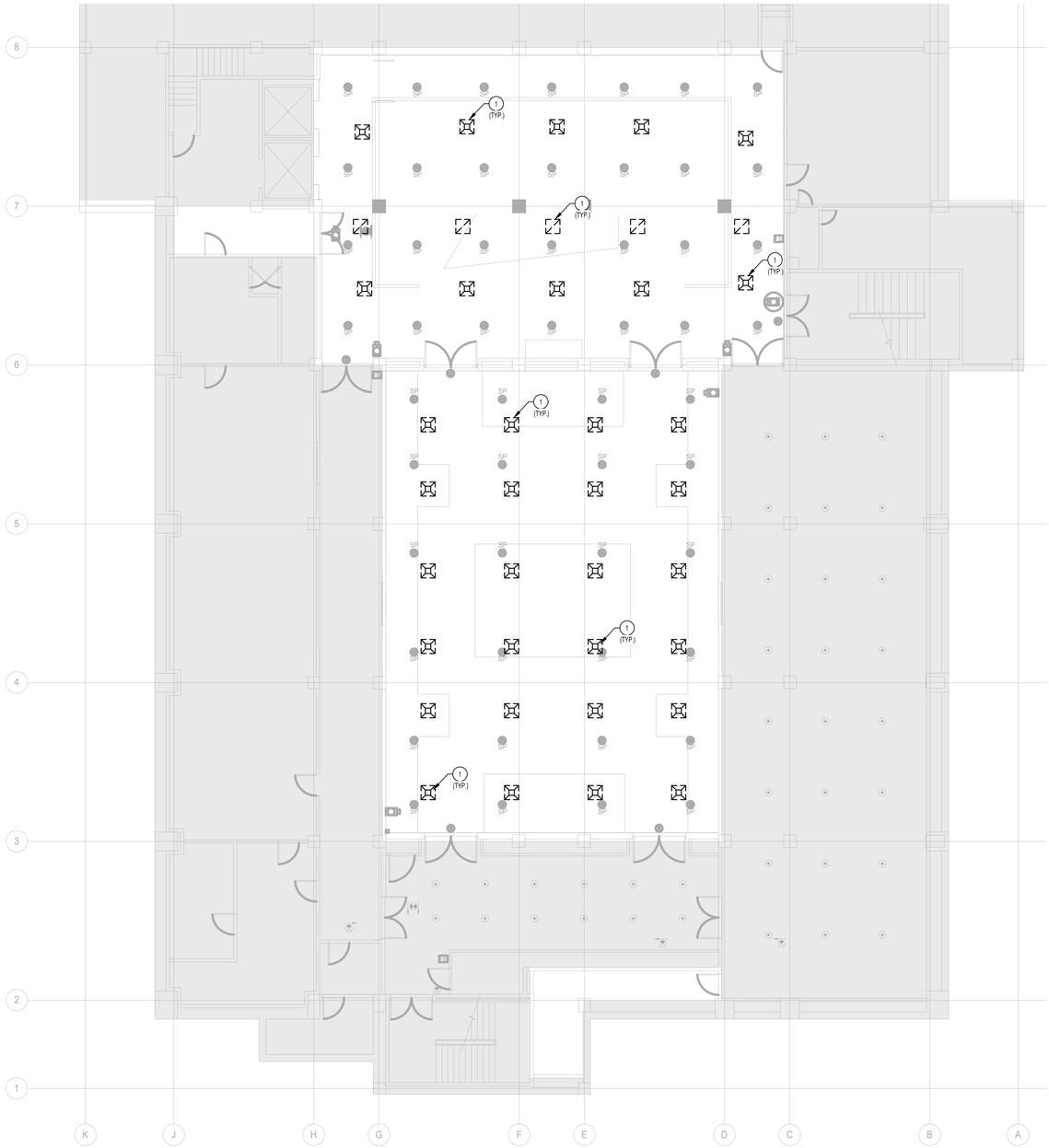
57-23105-00

MECHANICAL SYMBOLS, ABBREVIATIONS & NOTES

M0.1



LEVEL 00 - HVAC DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

PLAN NOTES:

1. DEMOLISH EXISTING DIFFUSER/GRILLE

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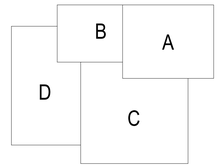

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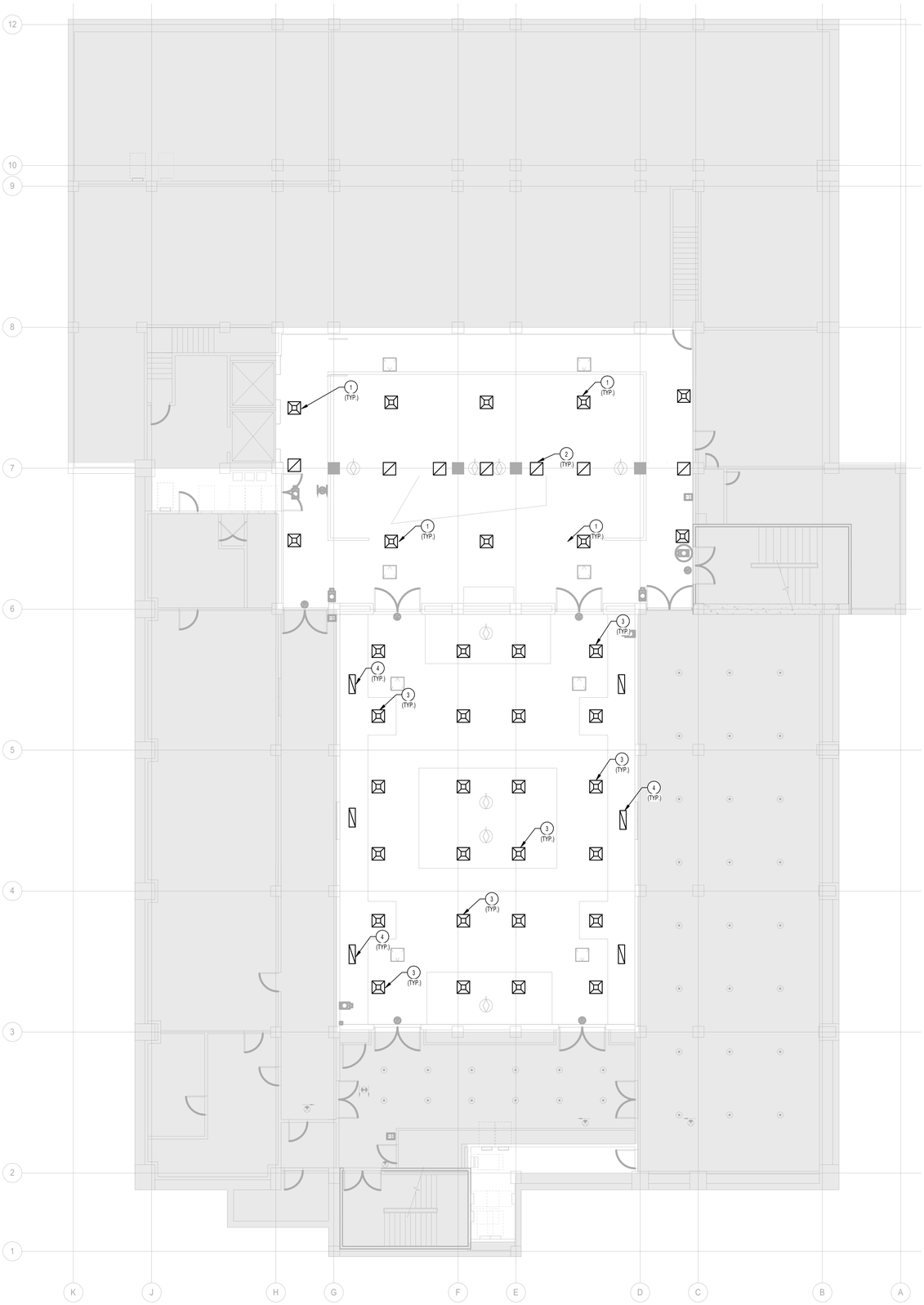
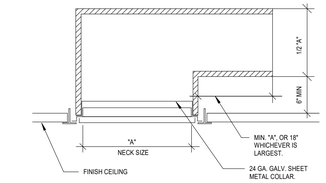
LEVEL 00 - HVAC DEMOLITION PLAN

MD1.0





2 / M1.0 RETURN AIR BOOT DETAIL
NO SCALE

PLAN NOTES:

1. NEW PRICE-SCD (OR APPROVED EQUIVALENT) DIFFUSER IN LOCATION SHOWN. COORDINATE LOCATION WITH ARCH. PROVIDE DIFFUSER WITH SC-B CUSTOM FINISH, AND PAINT FIRST FIVE FEET OF INSIDE BLACK TO MATCH CEILING, COORDINATE EXACT COLOR WITH ARCH. PROVIDE NEW FLEX DUCT FOR FIVE FEET TO RECONNECT DIFFUSER WITH SAME EXISTING LOCATION. SEE ARCH FOR CEILING ELEVATION.
2. NEW PRICE-500 (OR APPROVED EQUIVALENT) 24X24 RETURN GRILLE IN LOCATION SHOWN. COORDINATE LOCATION WITH ARCH. PROVIDE WITH SC-B CUSTOM FINISH, AND PAINT FIRST FIVE FEET OF INSIDE BLACK TO MATCH CEILING, COORDINATE EXACT COLOR WITH ARCH. PROVIDE NEW FLEX DUCT FOR FIVE FEET TO RECONNECT GRILLE TO SAME EXISTING LOCATION. SEE ARCH FOR CEILING ELEVATION
3. NEW PRICE-SCD (OR APPROVED EQUIVALENT) DIFFUSER IN LOCATION SHOWN IN HIGH CEILING. COORDINATE LOCATION WITH ARCH. PROVIDE DIFFUSER WITH SC-B CUSTOM FINISH, AND PAINT FIVE FEET OF INSIDE BLACK TO MATCH CEILING, COORDINATE EXACT COLOR WITH ARCH. PROVIDE NEW HARD DUCT WITH 1" INTERNAL LINING TO RECONNECT DIFFUSER TO DUCTWORK AT EXISTING LOCATION, NEW CEILING HEIGHT IS LOWER THAN EXISTING. SEE ARCH FOR CEILING ELEVATION.
4. NEW 30X12 PRICE-500 (OR APPROVED EQUIVALENT) RETURN GRILLE IN HIGH CEILING IN LOCATION SHOWN. COORDINATE LOCATION WITH ARCH. PROVIDE WITH SC-B CUSTOM FINISH, AND PAINT INSIDE BLACK TO MATCH CEILING, COORDINATE EXACT COLOR WITH ARCH. PROVIDE RETURN BOOT ON TOP OF GRILLE WITH ELBOW AND 1" INTERNAL LINING PER DETAIL. NEW CEILING HEIGHT IS LOWER THAN EXISTING. SEE ARCH FOR CEILING ELEVATION.

LEVEL 00 - HVAC PLAN
SCALE: 1/8" = 1'-0"

DLR GROUP
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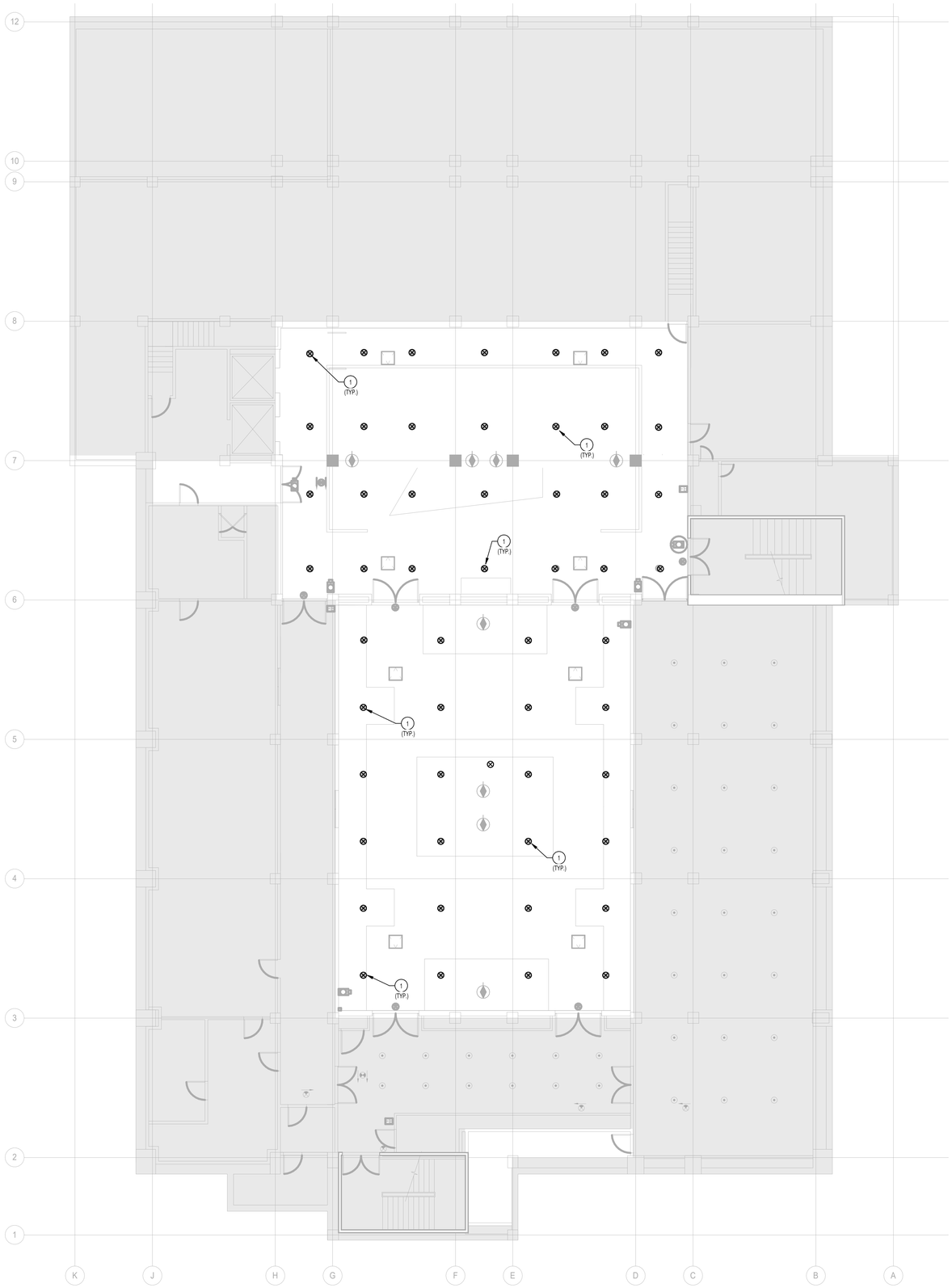
LEVEL 00 - HVAC PLAN

M1.0



PLAN NOTES:

1. PROVIDE NEW CONCEALED SPRINKLER HEAD AT LOCATION SHOWN. PROVIDE NEW FLEX PIPE BACK TO LOCATION HEAD WAS MOVED FROM. SPRINKLER HEAD COVER SHALL BE BLACK. COORDINATE LOCATION WITH ARCH. SEE A3.0 FOR LOCATIONS.

N

LEVEL 00 - FIRE PROTECTION PLAN

SCALE: 1/8" = 1'-0"

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LEVEL 00 - FIRE PROTECTION PLAN

FP1.0