Fashion Institute of Technology
Seventh Avenue at 27 Street
New York City 10001-5992
www.fitnyc.edu

Purchasing Department
227 West 27th Street
New York, NY 10001
Purchasing Dept. Tel. 212-217-3630
Purchasing Dept. Fax 212-217-3631
Purchasing@fitnyc.edu

NOTICE TO ALL FIRMS

Date: October 3, 2022

To: All Prospective Bidders

From: Sam Li
Deputy Director of Purchasing

Re: Addendum Number 1
IFB # C1536 – Admissions Office Renovation

Notes:

The bid due date has been changed to October 14, 2022, 12:00 PM. Your bid must be emailed to Purchasingbids@fitnyc.edu by October 14, 2022, on or before 12:00 PM.

Questions:

Q1. Is the elevator cab and equipment by separate contract through FIT?

A1. The elevator cab and equipment are the responsibility of the GC.

Q2. Can you please advise if there are any union or wage (PLA, certified payroll or prevailing wage) requirements?

A2. All contractors and sub-contractors must be paid at least prevailing wage rates (See Section II.Bid Terms and Conditions, Item XI.Prevailing Wage) , FIT collects certified payroll (See Section III: Contract Terms and Conditions, Item VIII. 9), and we also ask that all those who work on our property maintain labor harmony (See Section III. Contract Terms and Conditions, Item I. Labor Harmony).

Q3. Will you be sending out a list of all bidders that attended the walk through on Friday 09/23 @ 10:00 am?

A3. We have attached the site visit sign-in sheet to the bottom of this addendum. **(See below)**

Q4. Please provide base building Fire Alarm Vendor contact information.

A4. **High Rise**
Fire and Security
144 21st Street
Brooklyn, NY 11232

Contact: Debbie Delgado
Phone: 718-369-3434

Q5. Please provide building BMS Vendor Contact information.

A5. **Advantex Solutions**

Refer to spec 23 09 00 – 1 for contact information

Q6. Please clarify all site work per site drawing (Tree & Bollards) are part of this contract?

A6. The contractor is responsible for all new items on the site plan. In the front of the building includes: concrete scored to match pavers, planting of shrubs but no trees, the new sign, there is one Stainless steel actuator for the door but no bollards. In the rear, there is a metal fence as part of the contract as well.

Q7. Elevator finish flooring?

A7. American Olean Montesano Greige MN71 porcelain tile (T3).

Q8. Please provide transition location for flooring change; C-1 in Open Office to LVT-2 of Stair C on Drawing A-800.00 cellar.

A8. See attached drawing A-800.SK1.

Q9. Carpet C-3 for patch to match is a Carpet Tile for this bid scope?

A9. Carpet tile

Q10. Carpet Tile Section 096900-8 para 3.06A.1 refers to CP-1, please point us to locations with CP-1? We see C-1, C-2 and C-3 on Drawing A808.00.

A10. The specification should refer to C-1. There is not CP-1. Refer to drawing A-806 Schedules.

Q11. Resilient Flooring Section 096519-3 para 2.2A.1 refers to American Olean, Drawing A808.00 refers to Interface for LVT, please advise.

A11. Refer to drawing A-806 Schedules for location of American Olean porcelain tile and for Interface LVT. Specification is incorrect.

Q12. Please advise what exactly is the availability of elevator access and if we may use the elevators for bringing materials to the basement/roof?

A12. Passenger elevator access will only be available to bring material and equipment up to the roof on a limited duration of the project. Contractor must give three weeks noticed to FIT prior to using the elevator. These are passenger elevators for student use. No elevator access will be given to the contractor to bring material and equipment to the basement. Contractor to use interior Stair C. Contractor to take this into consideration during sequencing of construction. Opening for front door access to the 1st floor space allows contractor to easily access existing stairs, avoiding interaction with students.
Contractor to provide protection to passage elevator as required when in use for the roof work.

Contractor to verify maximum weight of the existing passenger elevator with FIT and coordinate the weight of the material and equipment.

Q13. Please advise if there are after hour work that is required for demolition? It is a working school.

A13. Demolition can start at 9:00 am and not before and must be completed by 5:00PM

Q14. Per the Bidding Requirements for the Fashion Institute of Technology, the following certs should be submitted upon request:

- 10 Hour OSHA Outreach Training Program
- Asbestos Awareness Training
- FDNY Certificate of Fitness

Are these certifications required to be submitted with the bid or after contract award?

A14. The 10 hr cards, asbestos awareness training cards and the FDNY certificates of fitness are not required to be submitted at the time of bid but the successful bidder's workers are expected to have valid 10 hr OSHA cards on their person during on site work and applicable valid FDNY certificates of fitness as needed.

Q15. Are there any percentages of M/WBE and SDVOB participation on this project?

A15. 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."

Q16. Is FIT tax exempt?

A16. Yes, FIT is tax exempt.

Q17. Is builders risk insurance required?

A17. For insurance requirements, please refer to Section V. General Conditions, Article 15 - Insurance and Contract Security.

Q18. Are there any requirements for overtime work?

A18. It is the contractor's responsibility to complete the project by the completion date. Any overtime required to meet the schedule is the responsibility of the contractor.

Q19. Will the construction materials and debris in the space be removed by FIT before demolition begins?

A19. FIT will remove all items stored in the Cellar, 1st floor, and 2nd floor before the beginning of the project.

Q20. Is there a requirement for an office trailer on-site? Or can we build a shanty in the construction space?

A20. There is no requirement for an office trailer on-site.

Q21. M-801 “notes for new work” identifies the FIT on call BMS contractor (see spec 230900 for contact info) but the spec identifies a standalone system with no vendor info. Please clarify.

A21. See the response, A5 above.

Q22. Is this project being filed with the AHJ (DOB) by the owner? Permits by GC?

A22. The owners will file the project and the GC to pull the permits. GC must provide insurance to the DOB as required by the DOB.

Q23. L-100 New stone pavers to match existing? Is there a spec.?

A23. No. GC to provide samples to architect for approval prior to installation.

Q24. L-100 & L-101 show a bold “D” inside of a square and inside a circle in four locations. What is this referencing?

A24. Exterior area drains.

Q25. Who is the building roofer that holds the warranty?

A25. The warranty information is included in the drawings DM-103 and A-103.

Q26. A-709 identifies a fence. Is there a spec?

A26. See attached Specification section 05 70 00 Ornamental Metal. Also see attached updated Specification Table of Content.

Q27. Is there a spec for the FIT vinyl glass decals?

A27. The vinyl decals will be provided and installed by owner.

Q28. Can we install a “holeless hydraulic elevator” ILO the MRL Traction elevator? See attached

A28. No, due to existing design restrictions. See attached updated Specification section Machine Roomless Elevators 14 21 00.

Q29. Could you provide the details and specifications of the “glass wall panels” for the elevator cab? Or can we provide 5WL rigidized S/S wall panels?

A29. Architect to select details, from standard and/or customized finishes provided by GC.

Revisions & Clarifications:

1. Revised electrical scope of work as follows and as indicated in the attached drawings A-803.SK1, A-804.SK1 and E-200. Electrician must terminate and provide power to the electrical whip from the owner-supplied furniture. Coordinate with FIT and FIT's furniture installers as required.

2. Contractor must comply with all requirements of the NYC DOB including but not limited to:

   a. Submitting a Site Safety Plan to the NYC DOB as per Article 110 of the Administrative Code.

   b. Providing Construction Superintendent registered with the NYC DOB, as per Chapter 33 of the NY Building Code

3. Contractor to install new flooring, vinyl base and paint walls in cellar corridor as indicated in attached A-800.SK1 Cellar Finish Plan.

THIS ADDENDUM IS PART OF THE CONTRACT DOCUMENT AND SHALL BE INCLUDED WITH YOUR REQUEST FOR PROPOSAL SUBMITTAL. YOUR SIGNATURE BELOW WARRANTS THAT YOU UNDERSTAND THIS ADDENDUM AND THAT YOU HAVE MADE THE APPRORIATE ADJUSTMENTS IN YOUR PROPOSAL AND CALCULATIONS.

_____
Signature

_____
Print Name and Title of Authorized Representative

_____
Print Name of Company/Partnership/Individual

_____
Date

SIGN-IN-SHEET
CONFERENCE SITE VISIT
BID TITLE FIT Admissions Office Renovation
BID PROPOSAL NO. C1536
DATE 23-Sep-22
TIME 10:00 AM

*****PLEASE PROVIDE A BUSINESS CARD*****

NAME (PLEASE PRINT)	COMPANY	PRIME	SUB	STATE CERTIFIED			CITY CERTIFIED			TELEPHONE #	EMAIL ADDRESS
				MBE	WBE	SDVOB	MBE	WBE	SDVOB		
NIRAV	[redacted] MITER/ASGC			✓			✓			6468238190	nvadecha@
~~Kevin Shanahan~~	~~The Metro Group~~		✓							~~551-20~~	awolfandsons.com
Kevin Shanahan	The Metro Group		✓							551-204-4304	Kshanahan@metrogroupnyc.com
F. Figueroa	B&B Contracting									914.356.1443	Frankf@bnbcontracting.com
D. Giarratano	TDI Construction	✓								718-424-9700	DG.TDICI@Gmail.com
Joset Abdallah	Project Eye Consultants	✓								718-673-3146	jabdallah@projecteyeinc.com
Pravin Vora	Construtonomics	✓								212-337-2360	Prora@Construtonomics.com
ROBERT TAKAJI	OLYMPIC TORCH	✓								718 205 2826	ROB@OLYMPICTORCH.com
Jay Amin	ACS Systems	✓								516-998-5285	Jayamin@acssystem.com
Joel Soto	JSP PRO LLC	✓								646 339 8227	JSPrenov@gmail.com
Dalricka Singh	JGM Construction	✓								212-356-0000	dsingh@JGM-NY.com
MAHESH RANA	HELLMAN CONSTRUCTION	✓								516-329-9292	AKENNEDY@HELLMANconstruction.com
Ala Mohamed	Forte Construction	✓								201-936-4097	amohamed@fortecc.com
RAWEL VERDUGO	SIENIA CONSTRUCTION	✓								917-703-0010	sienia1@yahoo.com
JON BIRDSELL	SLS/SWEET	✓								2129292100	JBIRDSELL@SWEETCONSTRUCTION.com
Unis Lipori	VANGUARD	✓								516-547-1527	ULI@vanguardcon.com
FRANK BILELLO	HENEGAN	✓								212.947.6441	FBILELLO@HENEGAN.com
SEAN MANGAN	HENEGAN									646 247-2884	SMANGAN@HENEGAN.com
Nirav Nandini	AWS RJV office furniture	✓								nvadecha@awolfandsons.com	857-400 6564 sales@officefurnitureshop.com

SIGN-IN-SHEET
CONFERENCE SITE VISIT
BID TITLE FIT Admissions Office Renovation
BID PROPOSAL NO. C1536
DATE 23-Sep-22
TIME 10:00 AM

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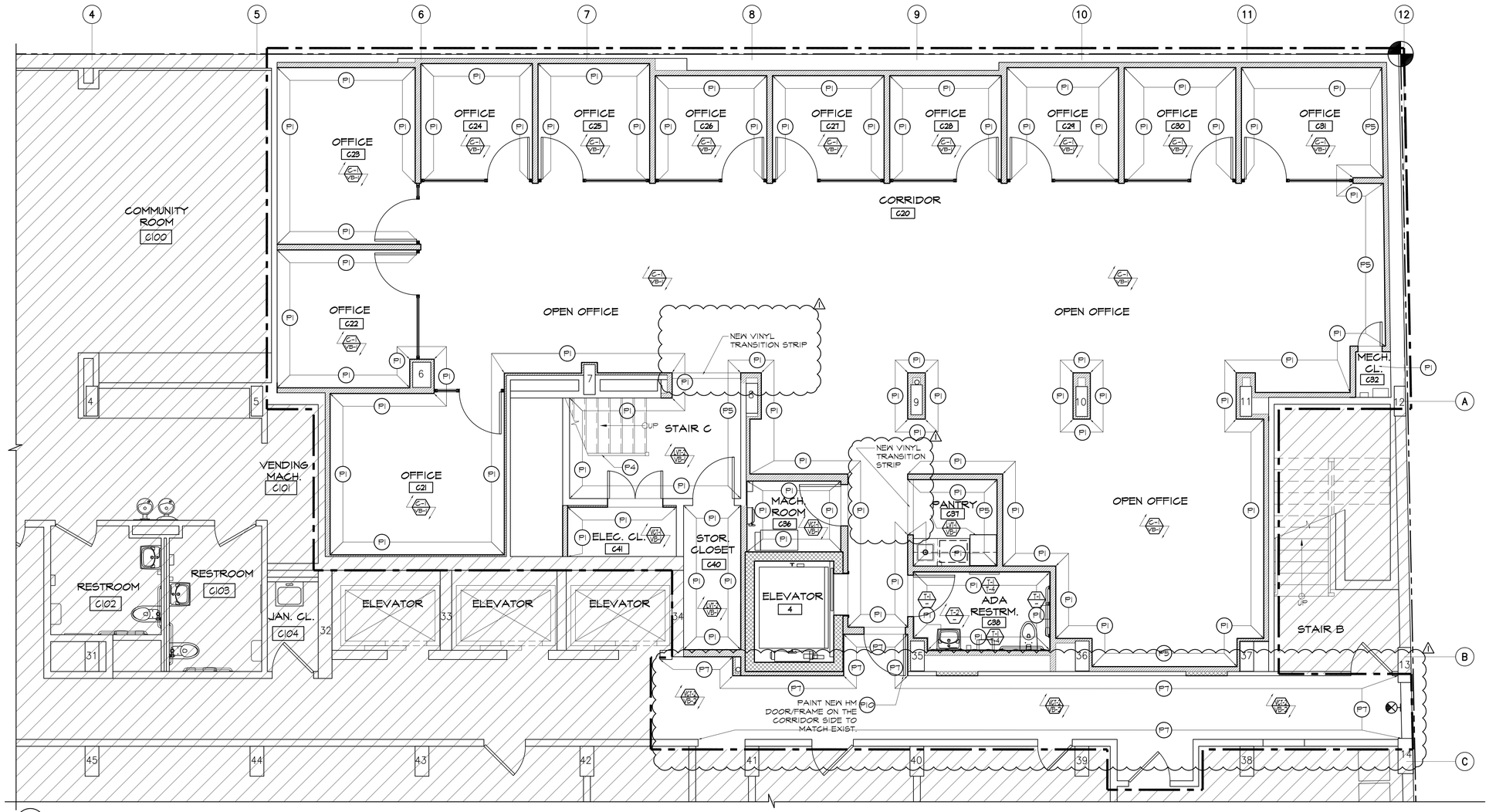
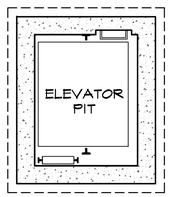
				MBE	WBE	SDVOB	MBE	WBE	SDVOB		
SYLVESTER KACZYNSKI	SIENIA CONS.	✓						✓		(917)-703-0010	SIENIA1@YAHOO.COM
Abdul Zahid	Atlantic Specialty	✓					✓	✓		917-702-0330	abdul@atlantic specialty inc.com
Orease Cohen	Kimco Constr	✓								347-581-3360	



1 A-800 CELLAR FINISH FLOOR PLAN
SCALE : 1/4" = 1'-0"

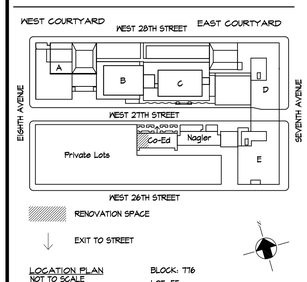


2 A-800 ELEVATOR PIT FINISH FLOOR PLAN
SCALE : 1/4" = 1'-0"

FINISH NOTES:
1. SEE A-806 FOR FINISH SCHEDULE & FINISH LEGEND.
2. GROUT FOR WALLS TO BE LATICRETE, TBD.
3. GROUT FOR FLOORS TO BE LATICRETE, TBD.
4. SPACING BETWEEN WALL TILES TO BE 1/8" TYP.
5. SPACING BETWEEN FLOOR TILES TO BE 3/16" TYP.
6. ALL EXPOSED EDGES OF WALL TILES TO RECEIVE SCHLUTER QUADEC - SATIN ANODIZED FINISH. REFER TO DRAWING A-709 FOR DETAILS.
7. P2 TO BE USED ON ALL HM DOORS & FRAMES. FINISH IS TO BE SEMI-GLOSS.
8. P3 TO BE USED ON ALL GWB SOFFITS AND CEILINGS.
9. P4 TO BE USED ON EXISTING STAIR C. FINISH IS TO BE SEMI-GLOSS.
10. T3B TO BE USED FOR TILE WALL BASE. SEE DRAWING 14/A-709 FOR DETAIL.
11. WHERE FINISHES ARE TO MATCH EXISTING, GC TO SUBMIT SAMPLES TO ARCHITECT FOR APPROVAL.
12. REFER TO ELEVATIONS FOR LOCATION AND DIMENSIONS OF ALL ACCENT TILES.
13. P12 TO BE USED ON ALL SURFACES AND EQUIPEMNT ABOVE ARMSTRONG WOODWORKS GRILLE CEILINGS. FINISH IS TO BE MATTE.
14. T5 TO BE USED FOR TILE WALL BASE AT THE COED LOBBY. INSTALLATION TO MATCH EXISTING.

ISSUED FOR BID 09.01.2022

rev. no.	date	revisions
1	9/29/2022	ADDENDUM #1



LOCATION PLAN
NOT TO SCALE

BLOCK: 776
LOT: 55

Structural Consultants
Allan Margolin & Associates
420 Lexington Avenue, Suite 2738
New York, NY 10170 / (212) 867 6720

Elevator Consultants
VDA
120 Eagle Rock Avenue, Suite 301
East Hanover, NJ 07936 / (973) 994-9220

Cost Consultants
Cost Concepts
104 Bedell Place
Melville, NY 11747 / (631) 423-7963

Environmental Consultants
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983 Marcus Ave. Suite 109
Lake Success, NY 11042 / (516) 328-1194

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NEW YORK, NY 10001

David Smotrich & Partners LLP
Architects/Planners
443 Park Avenue South New York, NY 10016
212 889 4045 Fax 212 889 3672

PROJECT:
CO-ED DORMITORY
ADMISSIONS OFFICE RELOCATION
230 WEST 27TH ST
NEW YORK NY 10001

DRAWING TITLE:
CELLAR FINISH FLOOR PLAN

SEAL & SIGNATURE:

DATE: 09.01.2022
PROJECT No: 13284.154
DRAWING BY: OD & TM
CHK BY: DH & CK
DWG No:
A-800.SK1
SCALE: AS NOTED
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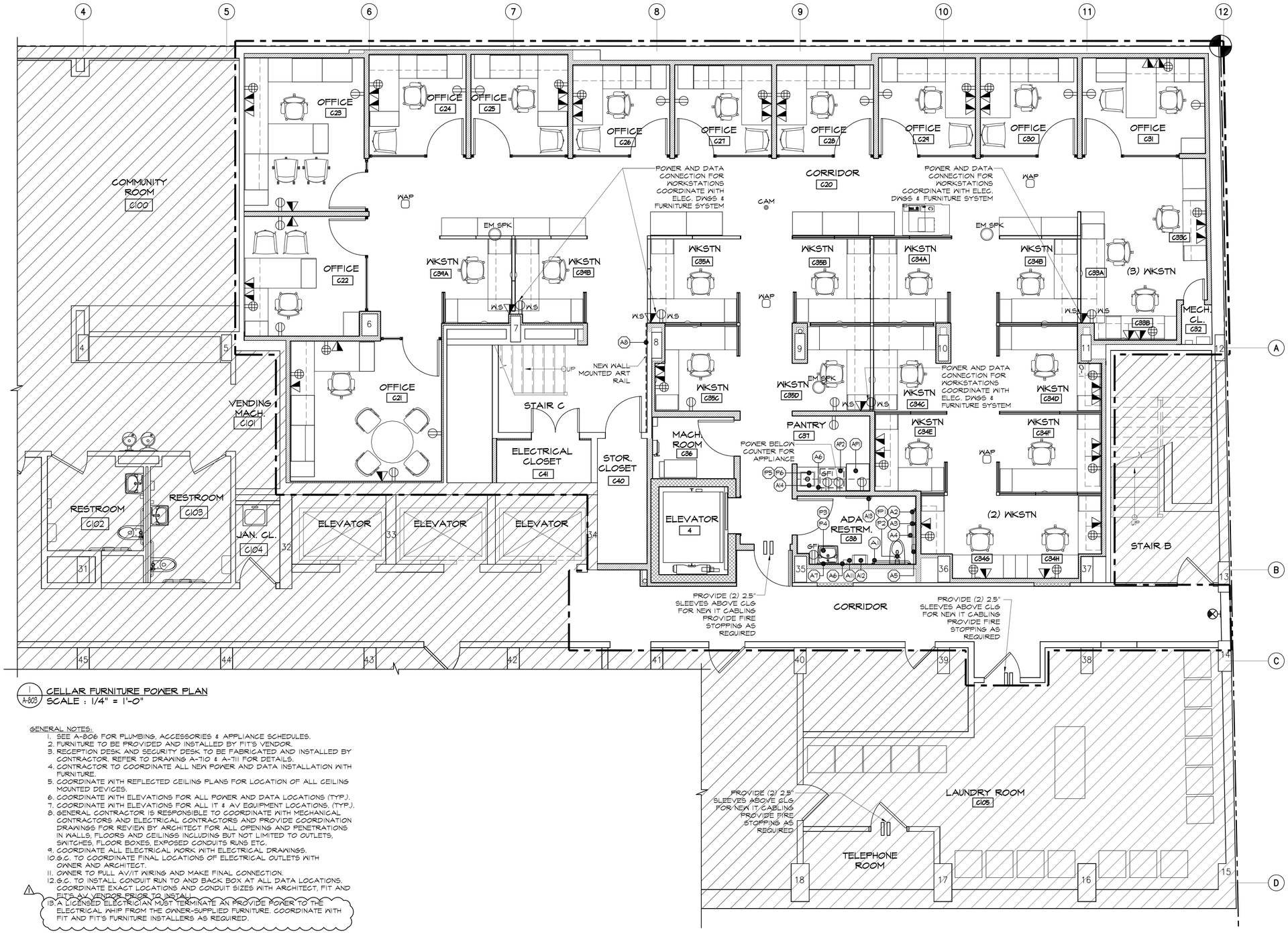

1 / A-803 CELLAR FURNITURE POWER PLAN
SCALE : 1/4" = 1'-0"

GENERAL NOTES:

1. SEE A-806 FOR PLUMBING, ACCESSORIES & APPLIANCE SCHEDULES.
2. FURNITURE TO BE PROVIDED AND INSTALLED BY FIT'S VENDOR.
3. RECEPTION DESK AND SECURITY DESK TO BE FABRICATED AND INSTALLED BY CONTRACTOR. REFER TO DRAWING A-710 & A-711 FOR DETAILS.
4. CONTRACTOR TO COORDINATE ALL NEW POWER AND DATA INSTALLATION WITH FURNITURE.
5. COORDINATE WITH REFLECTED CEILING PLANS FOR LOCATION OF ALL CEILING MOUNTED DEVICES.
6. COORDINATE WITH ELEVATIONS FOR ALL POWER AND DATA LOCATIONS (TYP.).
7. COORDINATE WITH ELEVATIONS FOR ALL IT & AV EQUIPMENT LOCATIONS. (TYP.).
8. GENERAL CONTRACTOR IS RESPONSIBLE TO COORDINATE WITH MECHANICAL CONTRACTORS AND ELECTRICAL CONTRACTORS AND PROVIDE COORDINATION DRAWINGS FOR REVIEW BY ARCHITECT FOR ALL OPENING AND PENETRATIONS IN WALLS, FLOORS AND CEILINGS INCLUDING BUT NOT LIMITED TO OUTLETS, SWITCHES, FLOOR BOXES, EXPOSED CONDUITS RUNS ETC.
9. COORDINATE ALL ELECTRICAL WORK WITH ELECTRICAL DRAWINGS.
10. G.C. TO COORDINATE FINAL LOCATIONS OF ELECTRICAL OUTLETS WITH OWNER AND ARCHITECT.
11. OWNER TO PULL AV/IT WIRING AND MAKE FINAL CONNECTION.
12. G.C. TO INSTALL CONDUIT RUN TO AND BACK BOX AT ALL DATA LOCATIONS. COORDINATE EXACT LOCATIONS AND CONDUIT SIZES WITH ARCHITECT, FIT AND FIT'S AV VENDOR PRIOR TO INSTALL.
13. A LICENSED ELECTRICIAN MUST TERMINATE AN PROVIDE POWER TO THE ELECTRICAL WHIP FROM THE OWNER-SUPPLIED FURNITURE. COORDINATE WITH FIT AND FIT'S FURNITURE INSTALLERS AS REQUIRED.

LEGEND

$	SWITCH		DATA
	OUTLET	EX	EXISTING DATA
EX	EXISTING OUTLET	CLG	CEILING MOUNTED DATA
PWS	POWER CONNECTION FOR WORKSTATIONS	DWS	DATA CONNECTION FOR WORKSTATIONS
	QUAD	WAP	CLG MOUNTED WIRELESS ACCESS POINT
EX	EXISTING QUAD	CAM	CLG MOUNTED WIRELESS CAMERA
		EMSPK	RECESSED EMERGENCY SPEAKER

ISSUED FOR BID 09.01.2022

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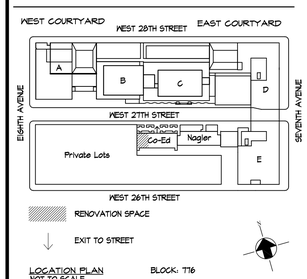

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LOT: 55

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DRAWING TITLE:
CELLAR FURNITURE/POWER PLAN

SEAL & SIGNATURE:

DATE: 09.01.2022
PROJECT No: 13284.154
DRAWING BY: OD & TM
CHK BY: DH & CK
DWG No:
A-803.SK1
SCALE: AS NOTED
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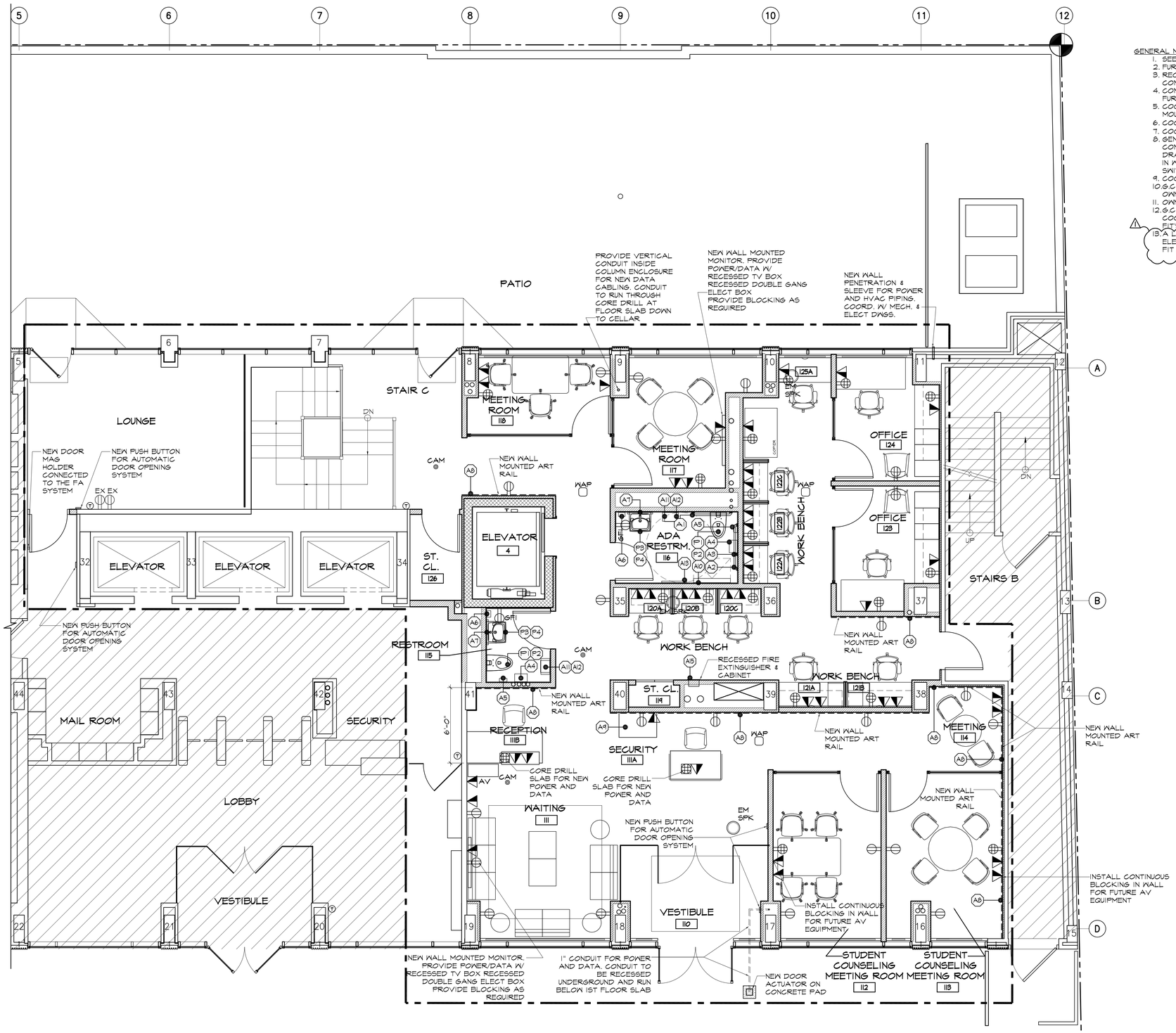

1 / A-804 1ST FLOOR FURNITURE/POWER PLAN
SCALE : 1/4" = 1'-0"

GENERAL NOTES:

1. SEE A-806 FOR PLUMBING, ACCESSORIES & APPLIANCE SCHEDULES.
2. FURNITURE TO BE PROVIDED AND INSTALLED BY FIT'S VENDOR.
3. RECEPTION DESK AND SECURITY DESK TO BE FABRICATED AND INSTALLED BY CONTRACTOR. REFER TO DRAWING A-710 & A-711 FOR DETAILS.
4. CONTRACTOR TO COORDINATE ALL NEW POWER AND DATA INSTALLATION WITH FURNITURE.
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13. A LICENSED ELECTRICIAN MUST TERMINATE AN PROVIDE POWER TO THE ELECTRICAL WHIP FROM THE OWNER-SUPPLIED FURNITURE. COORDINATE WITH FIT AND FIT'S FURNITURE INSTALLERS AS REQUIRED.

LEGEND

$	SWITCH		DATA
	OUTLET	EX	EXISTING DATA
EX	EXISTING OUTLET	CLG	CEILING MOUNTED DATA
WS	POWER CONNECTION FOR WORKSTATIONS	WS	DATA CONNECTION FOR WORKSTATIONS
	QUAD	WAP	CLG MOUNTED WIRELESS ACCESS POINT
EX	EXISTING QUAD	CAM	CLG MOUNTED WIRELESS CAMERA
	FLOOR (DOGHOUSE) QUAD	SPK	RECESSED EMERGENCY SPEAKER

ISSUED FOR BID 09.01.2022

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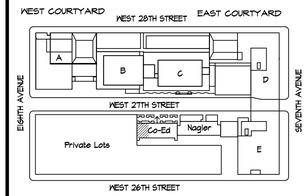

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1ST FLOOR FURNITURE/POWER PLAN

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DWG No:
A-804.SK1
SCALE: AS NOTED
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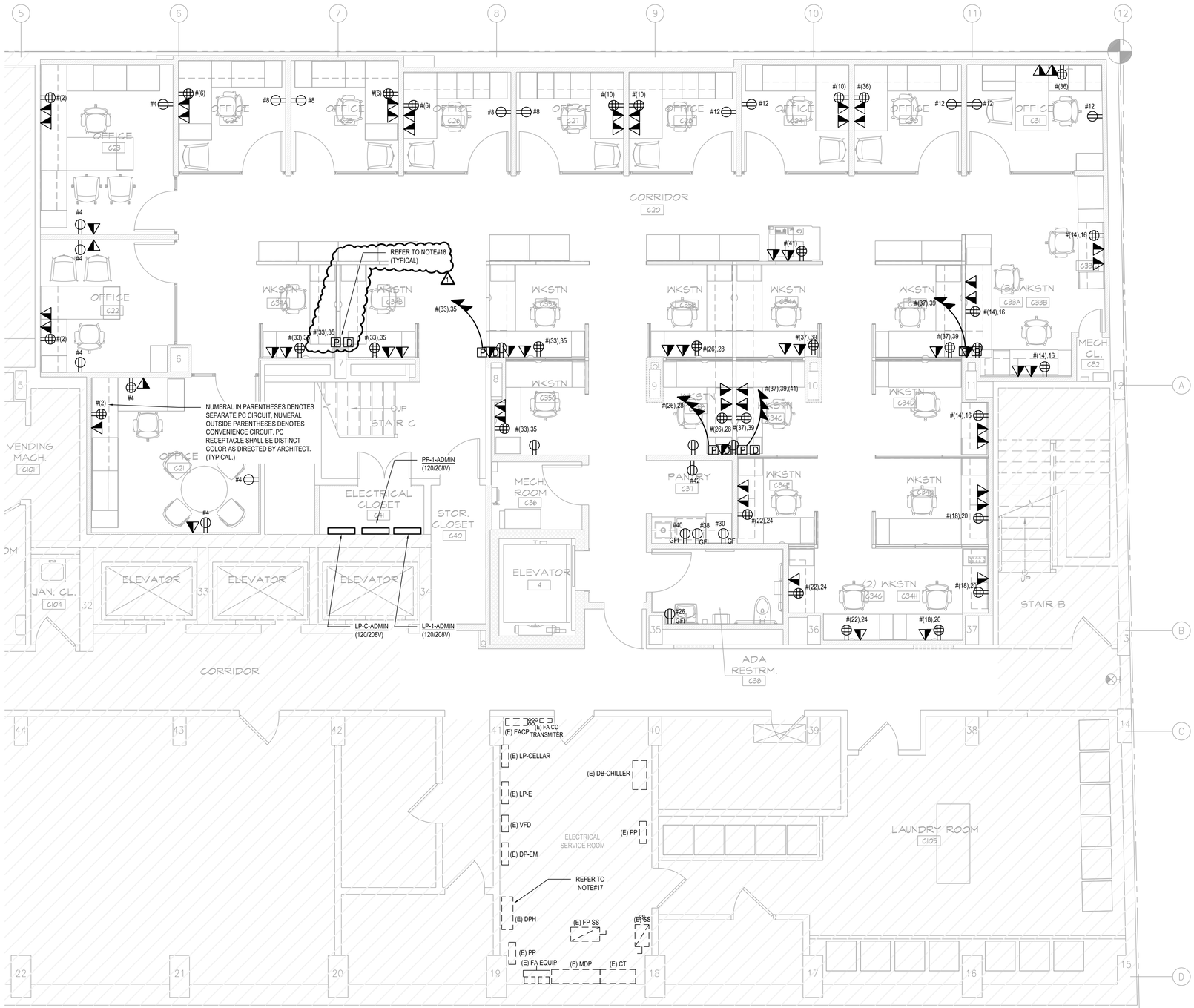

CELLAR FLOOR POWER PART PLAN
1/4" = 1'-0"

ISSUD FOR BID 09/01/2022

POWER NOTES:

1. REFER TO SYMBOLS LIST ON DRAWING E-001. FOR BRANCH CIRCUIT DESIGNATIONS AND PANEL LOCATION(S), REFER TO THIS DRAWING.
2. REFER TO E-500 SERIES FOR ELECTRICAL DETAILS.
3. REFER TO E-701 FOR PANEL SCHEDULES.
4. REFER TO DRAWING E-901 AND ARCHITECTURAL DRAWINGS FOR POWER DEMOLITION SCOPE OF WORK AND MORE INFORMATION.
5.
6. FOR EXACT LOCATION AND MOUNTING HEIGHT OF ALL POWER, TEL/DATA OUTLETS AND MECHANICAL EQUIPMENTS COORDINATE WITH ALL TRADES AND ARCHITECTURAL DRAWINGS.
7. ALL BRANCH CIRCUIT WIRING SHALL BE RUN CONCEALED IN WALLS AND ABOVE HUNG CEILING. UNLESS OTHERWISE NOTED.
8. No. 12 AWG (THHN) SHALL BE THE MINIMUM SIZE AND SHALL BE USED FOR ALL 15A & 20A BRANCH CIRCUIT WIRING, UNLESS OTHERWISE NOTED. CONTRACTOR SHALL ADJUST SIZE FOR VOLTAGE DROP AND OTHER DE-RATING FACTORS AS PER CODE REQUIREMENTS. USE NO. 10 AWG NEUTRAL WIRE FOR CONNECTION OF ALL SEPARATE CIRCUIT OUTLETS.
9. 3/4" CONDUIT SHALL BE THE MINIMUM TRADE SIZE OF CONDUIT.
10. CIRCUITS ARE DESIGNATED BY THE NUMBER SHOWN ADJACENT TO EACH RECEPTACLE, ETC. WIRING IS SHOWN ONLY FOR UNDER SPECIAL CIRCUMSTANCES. PROVIDE CONDUITS, WIRES, ARMORED CABLES AND BOXES REQUIRED TO ENERGIZE THE EQUIPMENT AS SHOWN. CIRCUIT NUMBERS ARE FOR CONTRACTOR'S REFERENCE ONLY AND MAY NOT NECESSARY TO REFLECT THE EXACT ARRANGEMENT IN EXISTING PANELS.
11. ALL COMMUNICATIONS, SECURITY WORKS ARE A SEPARATE CONTRACT, UON. EC TO PROVIDE ALL CONDUIT, RACEWAY, BACK-BOXES.
12. FOR ADDITIONAL NOTES REFER TO ARCHITECTURAL DRAWINGS.
13. CONDUIT RUNS THAT ARE SHOWN ARE DIAGRAMMATICAL AND SHOW POTENTIAL ROUTING OF CONDUITS. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE RUNS WITH ALL TRADES.
14. ALL CIRCUITS TO COMPUTERS, LASER JET PRINTERS, COPIERS, FAX MACHINES AND ANY OTHER LOADS OF NON-LINEAR NATURE SHALL HAVE A SEPARATE GROUND AND SEPARATE NEUTRAL WIRES. STANDARD SHARED NEUTRAL HOMERUNS ARE NOT PERMITTED. ELECTRICAL CONTRACTOR TO COORDINATE WITH CLIENT AND ARCHITECT THE EXACT LOCATION OF ALL 208 VOLT COPIERS, SHREDDERS, ETC. ENGINEERS DRAWING INDICATE THE ADDITIONAL NEUTRAL IN THE EVENT EQUIPMENT LOCATIONS ON DOCUMENTS REQUIRE A 120 VOLT SOURCE. CONFIRM THE PRECEDING PRIOR TO RUNNING CIRCUITS.
15. EXACT LOCATION OF ALL FLOOR MOUNTED BOXES AND OUTLETS TO BE COORDINATED WITH ARCHITECT. COORDINATE WITH BASE BUILDING AND ARCHITECT FOR THE METHOD OF INSTALLATION AND EXACT CONDUITS' ROUTING. PRIOR TO THE COMMENCEMENT OF WORK, ALL TRENCHING, CORE-DRILLS AND OTHER PENETRATIONS EXISTING SLAB MUST BE APPROVED BY THE BUILDING AND STRUCTURAL ENGINEER. PERFORM AN X-RAY SCAN AT EACH LOCATION TO LOCATE REBAR SIZES AND LOCATIONS. ALL FIELD WORK OF CORE DRILLING OR TRENCHING FLOOR SLAB MUST BE DONE ON OVERTIME, WITH THE FLOOR BELOW BEING RESTORED TO IT'S ORIGINAL CONDITION.
16. ALL PENETRATIONS AND OPENINGS THROUGH SLAB OR FIRE RATED PARTITIONS MUST BE FIRE STOPPED USING APPROVED FIRESTOPPING MATERIALS FOR THE OCCUPANCY CLASSIFICATION IN EACH AREA
17. CONTRACTOR SHALL MODIFY DISTRIBUTION BOARD TO PROVIDE REQUIRED DISTRIBUTION. REFER TO PARTIAL POWER SINGLE LINE DIAGRAM ON E-601.00.
18. CONTRACTOR SHALL COORDINATE WITH FIT AND FURNITURE VENDOR FOR REQUIREMENTS FOR ELECTRICTRAL CONNECTIONS (IE FINAL CONNECTIONS WHIPS TO FURNITURE INFEEDS)

CONNECT ALL 120V CIRCUITS TO PANEL "LP-C-ADMIN" U.O.N.

CIRCUIT DESIGNATION LEGEND

#37 — CIRCUIT NUMBER

AV, SECURITY, TELECOM NOTES:
CONTRACTOR MUST REVIEW AV, SECURITY, AND TELECOM DRAWINGS FOR ALL CONDUIT SIZES AND CONDUIT QUANTITY NEEDED FOR SAID SYSTEMS. GENERAL CONTRACTOR MUST FURNISH AND INSTALL ALL CONDUIT REQUIRED FOR SAID SYSTEMS AS INDICATED ON THE AV, SECURITY, AND TELECOM DRAWINGS.

NOTE:
REFER TO E-002.00 FOR POWER NOTES. ALL WORK SHOWN IS NEW UNLESS OTHERWISE NOTED.

ALL PENETRATIONS AND OPENINGS THROUGH SLAB OR FIRE RATED PARTITIONS MUST BE FIRE STOPPED USING APPROVED FIRESTOPPING MATERIALS FOR THE OCCUPANCY CLASSIFICATION IN EACH AREA

GENERAL NOTES:
ALL BRANCH CIRCUIT WIRING IN OPEN CEILING AREAS SHALL BE RUN IN EMT CONDUIT. CONDUITS SHALL BE RUN IN A NEAT MANNER, PARALLEL TO WALLS, BEAMS AND CABLE BASKET TRAY. TIGHT TO BEAMS AS MUCH AS POSSIBLE. COORDINATE ROUTING WITH DUCTWORK AND PIPING. THE ELECTRICAL CONTRACTOR SHALL SUBMIT A DIMENSIONED CONDUIT ROUTING LAYOUT AS A SHOP DRAWING TO ARCHITECT AND ENGINEER FOR APPROVAL PRIOR TO INSTALLING ANY CONDUIT. SHOP DRAWING TO INCLUDE ALL DUCTWORK, PIPING AND EXISTING CONDUITS. PAINTING OF OPEN CEILING CONDUITS SHALL BE COORDINATED WITH ARCHITECT AND GC.

NEW YORK CITY ENERGY CONSERVATION CODE

TO THE BEST OF MY KNOWLEDGE, BELIEF AND PROFESSIONAL JUDGMENT, THESE PLANS AND SPECIFICATIONS ARE IN COMPLIANCE WITH THE 2020 NEW YORK CITY ENERGY CONSERVATION CODE.

MG Engineering D.P.C. / we engineer success
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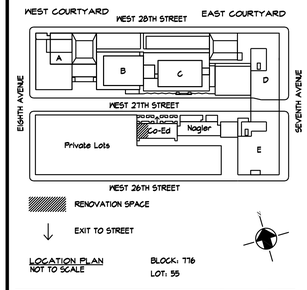
rev. no.	date	revisions
1	9/15/2022	ADDENDUM #1



LOCATION PLAN
NOT TO SCALE

BLOCK: 776
LOT: 55

Structural Consultants
Allan Margolin & Associates
420 Lexington Avenue, Suite 2738
New York, NY 10170 / (212) 867 6720

Elevator Consultants
VDA
120 Eagle Rock Avenue, Suite 301
East Hanover, NJ 07936 / (973) 994-9220

Cost Consultants
Cost Concepts
104 Bedell Place
Melville, NY 11747 / (631) 423-7963

Environmental Consultants
EPM, Inc.
983 Marcus Ave. Suite 109
Lake Success, NY 11042 / (516) 328-1194

MEP Consultant
MGENGINEERING
116 West 32nd Street
New York, NY 10001 / (212) 643-9898
#8969.43

Fashion Institute of Technology
340 8TH AVENUE
NEW YORK, NY 10001

David Smotrich & Partners LLP
Architects/Planners
443 Park Avenue South New York, NY 10016
212 889 4045 Fax 212 889 3672

PROJECT:
CO-ED DORMITORY
ADMISSIONS OFFICE RELOCATION
230 WEST 27TH ST
NEW YORK NY 10001

DRAWING TITLE:
CELLAR
ELECTRICAL
POWER PLAN

DOB NOW JOB#

SEAL & SIGNATURE:

DATE: 2022.09.01
PROJECT No: 12284.154
DRAWING BY: RMT
CHK BY: KB
DWG No: E-200.00
SCALE: 1/4"=1'
05 OF 13

SPECIFICATION TABLE OF CONTENTS

GENERAL CONSTRUCTION

MECHANICAL/ELECTRICAL/PLUMBING/FIRE PROTECTION

DIVISION 21 – FIRE SUPPRESSION

DIVISION 22 – PLUMBING

DIVISION 23 – HEATING, VENTILATING AND AIR CONDITIONING (HVAC)

RA ENGINEERING – GEOTECHNICAL INVESTIGATION REPORT – JULY 22, 2022

DRAWING LIST

GENERAL

ARCHITECTURAL

PLUMBING

FIRE PROTECTION

END OF TABLE OF CONTENTS

SECTION 05 70 00 - ORNAMENTAL METAL

PART 1 GENERAL

1.01 REFERENCES

A. Finishes: National Association of Architectural Metal Manufacturer's (NAAMM) "Metal Finishes Manual".

1.02 SUBMITTALS

A. Shop Drawings: Show fabrication details and connections to adjacent Work.
   1. Include location of anchor bolts required.

B. Product Data: Catalog sheets, specifications, and installation instructions as applicable.

C. Samples:
   1. Metal Finish Samples: 6 inches long; use metal of same alloy and configuration to be used for the Work.
   2. Fittings, Brackets, Flanges, and other Accessories: Full size, each type required.

1.03 DELIVERY

A. Coordinate delivery of items to be built into other Work to avoid delay. Furnish templates as required for accurate location of Work.

PART 2 PRODUCTS

2.01 IRON MATERIALS

A. Materials: Alloy and temper as specified, shown, or required to produce required finishes, or as otherwise recommended by wrought iron producer.
   1. Extruded Shapes and Barstock: ASTM.
   2. Plate and Sheet: ASTM A29. Use alloy A108.
   3. Bars, Rods, and Wire: ASTM 108.

B. Finish:

   1. Shop finished paint, PPG paint, Color, Flagstone No. 518-4 : minimum 0.4 mil coating.

2.02 MISCELLANEOUS MATERIALS

A. Welding Electrodes and Filler Metal: Type and alloy to match metal to be welded for color, strength, and compatibility.

B. Fasteners: Metal, alloy, and finish to match metal to be fastened, unless otherwise indicated.
   1. Use countersunk tamper-resistant flat heads for exposed fasteners, unless otherwise indicated.
   2. Secure in concrete and masonry with approved non-ferrous anchors or expansion shields.

C. Anchors and Inserts: Furnish devices as approved and required for installation in other work.
   1. Use non-ferrous, cadmium-coated or hot-dip galvanized for exterior installations.

D. Bituminous Paint: SSPC-Paint 12 (cold applied asphalt mastic).

E. Zinc Chromate Primer: FS TT-P-645.

F. Lacquer: Clear methacrylate, or as recommended by metal producer for protection of finish.

G. Shrink-Resistant Grout (Non-Staining): Factory-packaged, non-ferrous mortar grouting compound selected from the following:
   1. Masterflow 713 by Master Builders.
   2. Sonogrout by Sonneborn.
   3. Five Star Grout by U.S. Grout Corporation.
   4. Imperial Grout by Setcon Industries.
   5. Non-Corrosive, Non-Shrink Grout by A.C. Horn.

2.03 FABRICATION

A. General:
   1. Fabricate items of material, size, and dimensions indicated. Preassemble items in shop to the greatest extent possible. Design components to allow for expansion and contraction for a minimum ambient temperature range of 100 degrees F.
   2. Form metal work to required shapes and sizes, with true lines, angles and curves. Provide necessary rebates, lugs, brackets, flanges, fasteners, and anchors for assembly and installation. Use concealed fasteners where possible.
   3. Provide welds behind finished surfaces without distortion or discoloration on exposed side. Clean and dress welds on exposed and contact surfaces.
   4. Mill joints to tight, hairline fit. Cope or miter corners. Form joints exposed to weather to exclude water penetration.
   5. Where cutting, welding, and grinding are required for proper shop fitting and jointing, restore finishes to eliminate evidence of such corrective work.

2.04 BARS AND POSTS

A. Ease corners of square and rectangular tube to approximately 1/16 inch radius.

B. Provide brackets, flanges, anchors, and other accessories required for joining and securing rails and posts. Use materials of same type as railing system finished to match when exposed, unless otherwise indicated.

C. Fabrication: Prepare rails and posts for joining together by means of post brackets, secured with concealed fasteners. Join rails with splice connectors designed to draw rails together. Splice rails only at center of post brackets. Provide corner bends where rails change direction. Cap ends of rails not attached to other construction. Cap open ends of posts.

1. Where posts are required to be set in sleeves, furnish galvanized steel tube sleeves with closed steel plate bottom at least l inch wider than sleeve. Sleeves shall be minimum 6 inches long, sized so that inside diameter is not less than 1/2 inch greater than outside dimension of post, unless otherwise indicated or required. Provide cover flange, secured to posts to conceal anchorage joint.
2. Where posts are required to be drilled in, furnish concealed expansion anchors and post inserts, unless otherwise indicated.
3. Where posts are required to be secured to steel surfaces, furnish facia mounting flanges and threaded fasteners.
4. Where posts are required to be secured to vertical concrete surfaces, furnish wedge or slotted type inserts, facia brackets and threaded fasteners.
5. Where posts are required to be secured to vertical concrete surfaces, furnish manufacturer's recommended standard facia mounting system for type railing shown.
6. Where posts and/or rails are terminated with flanges, prepare flanges for securing with three 1/4 inch diameter machine screws secured in non-ferrous expansion shields or with toggle bolts where fastenings occur in cavity of masonry.

2.05 SHOP FINISHING

A. Protection: Protect exposed finishes by covering with adhesive paper or other suitable covering prior to shipment.

B. Corrosion Protection: Coat concealed surfaces to be in contact with concrete, masonry, or dissimilar metals with a heavy coat of bituminous paint or zinc chromate primer. Do not extend coating onto exposed surfaces.

C. Accessories: Finish exposed fittings, brackets, flanges, etc. to match metal work unless otherwise indicated or approved.

PART 3 EXECUTION

3.01 INSTALLATION

A. Install the Work of this Section in accordance with manufacturer's printed instructions, except as shown or specified otherwise.

B. Perform cutting, drilling, and fitting required for installation. Set items accurately in location, alignment, and elevation. Securely fasten in place.

C. Do not cut or abrade finishes which cannot be completely restored in the field. Return such items to the shop for required alterations and complete refinishing.

D. Install concealed gaskets, joint filler, insulation, and flashings as work progresses, as needed.

E. Install anchorage devices and fasteners where necessary for securing items to in-place construction. Cut with rotary power tools of exact required size where possible.

F. Set posts plumb and secure to supporting construction as follows:
   1. Horizontal Concrete Surfaces: Set posts into sleeves, fill annular space solid with shrink-resistant grout. Secure cover flange to post.
   2. Horizontal Concrete Surfaces: Drill holes in concrete and secure posts with concealed expansion anchors and post inserts.
   3. Steel Surfaces: Mount posts to steel supports with facia mounting flanges and threaded fasteners.
   4. Vertical Concrete Surfaces: Secure posts in inserts with facia brackets and threaded fasteners.

G. Secure handrails to supporting construction as follows:
   1. Anchor to concrete and solid masonry with non-ferrous expansion shields and bolts.
   2. Anchor to hollow masonry and partitions with heavy toggle bolts.

3.02 CLEANING

A. Remove protective coverings and clean exposed surfaces.

END OF SECTION

SECTION 14 21 00 - MACHINE ROOMLESS ELEVATORS

PART 1 - GENERAL

1.1 DESCRIPTION

A. Work Included: The extent of the work is indicated on the drawings.

B. Work of this Section includes labor, materials, tools, equipment, appliances and services required to manufacture, deliver and install the units complete as shown on the drawings, as specified herein, and/or as required by job conditions.

C. The work and /or requirements specified in all sections is described in singular with the understanding that identical work shall be performed on all units or associated systems unless otherwise specified herein.

D. The work shall include, but is not limited to the following:
1. One (1) 2000 lbs. capacity machine room-less traction passenger elevator operating at 150 fpm.
2. Governor access panel to be located in the front of the elevator shaft at 1’-0” AFF at level 2.

E. Related Sections

1.	Division 01:	Protecting hoistway during installation of equipment, Construction Waste Management, Indoor Air Quality Management, Volatile Organic Compound Limits.
2.	Division 07:	Elevator pit waterproofing.
3.	Division 23:	Ventilation of hoistway and control room, and fire extinguisher in control room.
4.	Division 26:	Power feeders to starter panels through fused main line switches
5.	Division 26:	Branch circuits through fused disconnects for car lights.
6.	Division 26:	Lights and GFI receptacles in control room, overhead, and pit.
7.	Division 26:	Signal wiring to initiate emergency power operation.
8.	Division 26:	Signal wiring from smoke detectors to a junction box in the machine room.
9.	Division 26:	Empty conduit runs for wiring required to monitor elevators from a central location.
10.	Division 26:	Shunt trip devices to automatically disconnect the main power supply to the elevators prior to the activation of sprinkler system.
11.	Division 27:	Life safety system speakers and telephone communication wiring to a junction box in the control room for each elevator.
12.	Division 27:	Card reader and CCTV Systems, device and their interface with the elevator system.

13. Division 27: Telephone communications wiring terminated in a junction box located next to the controller.
14. Division 27: Ethernet port in each elevator machine room, fire command center and building engineer's office.

F. Abbreviations and Symbols

1. The following abbreviations, Associations, Institutions, and Societies may appear in the Project Manual or Contract Documents:

ADA	Americans with Disabilities Act
AHJ	Authority Having Jurisdiction
AIA	American Institute of Architects
ANSI	American National Standards Institute
ASME	American Society of Mechanical Engineers
ASTM	American Society for Testing and Materials
AWS	American Welding Society
IBC	International Building Code
IEEE	Institute of Electrical and Electronics Engineers
NEC	National Electrical Code
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Agency
OSHA	Occupational Safety and Health Act

G. Codes and Ordinances / Regulatory Agencies

1. Work specified by the Contract Documents shall be performed in compliance with applicable Federal, State, and municipal codes and ordinances in effect at the time of Contract execution. Regulations of the Authority Having Jurisdiction shall be fulfilled by the Contractor and Subcontractors. The entire installation, when completed, shall conform with all applicable regulations set forth in the latest editions of:

a. Local and/or State laws applicable for logistical area of project work.
b. Building Code applicable to the AHJ.
c. Elevator Code applicable to the AHJ.
d. Safety Code for Elevators and Escalators, ASME A17.1 and all supplements as modified and adopted by the AHJ.
e. Safety Code for Elevators and Escalators, A17.1S supplement to A17.1 as modified and adopted by the AHJ for Machine Room Less installations (MRL).
f. Guide for Inspection of Elevators, Escalators, and Moving Walks, ASME A17.2.
g. Safety Code for Existing Elevators and Escalators, ASME A17.3 as modified and adopted by the AHJ.
h. Guide for emergency evacuation of passengers from elevators, ASME A17.4.
i. National Electrical Code (ANSI/NFPA 70).

j. American with Disabilities Act - Accessibility Guidelines for Building and Facilities and/or A117.1 Accessibility as may be applicable to the AHJ.
k. ASME A17.5/CSA-B44.1 - Elevator and escalator electrical equipment.
l. ECC (Energy Conservation Code) as may be applicable to the AHJ.

2. The Contractor shall advise the Owner's Representative of pending code changes that could be applicable to this project and provide quotations for compliance with related costs.

H. Reference Standards

1. AISC - Specification for the Design, Fabrication and Erection of Structural Steel for Buildings.
2. ANSI/AWS D1.1 - Structural Welding Code, Steel.
3. ANSI/NFPA 80 - Fire Doors and Windows.
4. ANSI/UL 10B - Fire Tests of Door Assemblies.
5. ANSI/IEEE - 519-Latest Edition
6. ANSI/IEEE - Guide for Surge Withstand Capability (SWC) Tests
7. ANSI Z97.1 – Laminated/Safety Tempered Glass

I. Definitions

1. Defective Work: Operation or control system failure, including excessive malfunctions; performances below specified ratings; excessive wear; unusual deterioration or aging of materials or finishes; unsafe conditions; need for excessive maintenance; abnormal noise or vibration; and similar unusual, unexpected, and unsatisfactory conditions.
2. Provide: Where used in this document, provide shall mean to install new device, apparatus, system, equipment or feature as specified in this document.
3. Definitions in ASME A17.1 as amended or modified by the AHJ apply to work of this Section.

1.2 PERMITS AND SUBMITTALS

A. Permits

1. Comply with the requirements of Division 01.
2. Prior to commencing work specified by the Contract Documents, the Contractor shall, at its own expense, obtain all permits or variances as may be required by the AHJ and provide satisfactory evidence of having obtained said permits and variances to both the Owner's Representative and Consultant.
3. File necessary drawings for approval of all Authorities Having Jurisdiction.

B. Submittals

1. Comply with the requirements of Division 01.
2. Submit the following

a. Samples

Item No.	Quantity	Size	Description
S1	3	12” x 12”	Exposed finishes as requested by Architect
S2	1	Actual	Each fixture as requested by the Architect
S3	1	Actual	Mitered, corner construction of entrance frame
S4	1	Actual	Entrance Jamb and Car Braille plate

b. The samples shall be:

1) Held on site after inspection and used as a standard for acceptance or rejection of subsequent production units.
2) Labeled to identify their intended use and relation to the documents, e.g., car finishes, control panel, etc.

Subject to approval, where an item of equipment is a standard item, copies of the manufacturer’s catalogue or brochure may be accepted provided that all dimensions and relevant information are shown in the catalogue or brochure.

c. Shop Drawings - Submit computer generated layout drawings for approval. Include the following:

1) A listing of all components, devices and sub-systems including:

a) Manufacturer and location of plant
b) Size and model number

2) Control Room Plan indicating:

a) Location of equipment and code clearances
b) Service connections and disconnect switches
c) Passenger rescue and brake release
d) CCTV provisions

3) Fully dimensioned hoistway plan and section of each unit indicating:

a) Platform (with cab), hoistway and entrance dimensions
b) All running clearances
c) Location of fixtures
d) Buffers, service ladders and pit reactions
e) Location of inserts
f) Rail Reactions

4) Entrance details
5) Sill support detail
6) Fixture details including hall lanterns, hall pushbutton stations, car operating panel, etc.
7) Wiring diagrams
8) Insert diagrams
9) Cab details including wall, ceiling, base, handrail, lighting, fixtures, front return and transom plans and sections
10) MRL criteria including:

a) Location of machine and governor
b) Structural requirements and reactions
c) Clearances
d) Access requirements

3. Calculations

a. Rail loads
b. Pit and machine room reactions
c. Heat emissions in machine room and hoistway.
d. Electrical loads including, accelerating and running currents. Include all auxiliary loads.

C. Keys

1. Upon the initial acceptance of work specified by the Contract Documents on each unit, the Contractor shall deliver to the Owner, six (6) keys for each general key-operated device that is provided under these specifications in accordance with ASME A17.1, Part 8 standards as may be adopted and modified by the AHJ.
2. All other keying of access or operation of equipment shall be provided in accordance with ASME A17.1 Part 8 as may be adopted and modified by the AHJ.

D. Diagnostic Tools

1. Prior to seeking final acceptance of the project, the Contractor shall deliver to the Owner any specialized tools required to perform diagnostic evaluations, adjustments, and/or programming changes on any microprocessor-based control equipment installed by the Contractor. All such tools shall become the property of the Owner.

a. Owner’s diagnostic tools shall be configured to perform all levels of diagnostics, systems adjustment and software program changes which are available to the Contractor.
b. Owner’s diagnostic tools that require periodic re-calibration and/or re-initiation shall be performed by the Contractor at no additional cost to the Owner for a period equal to the term of the maintenance agreement from the date of final acceptance of the project.

c. The Contractor shall provide a temporary replacement, at no additional cost to the Owner, during those intervals in which the Owner might find it necessary to surrender a diagnostic tool for re-calibration, re-initiation or repair.

2. Contractor shall deliver to the Owner, printed instructions, access codes, passwords or other proprietary information necessary to interface with the microprocessor-control equipment.

E. Wiring Diagrams, Operating Manuals and Maintenance Data

1. Comply with the requirements of Division 01.
2. Deliver to the Owner, four (4) identical volumes of printed information organized into neatly bound manuals prior to seeking final acceptance of the project.
3. The manuals shall also be submitted in electronic format on non-volatile media, incorporating raw 'CAD' and/or Acrobat 'PDF' file formats.
4. Manuals, as well as electronic copies, shall contain the following:

a. Step-by-step adjusting, programming and troubleshooting procedures that pertain to the solid-state microprocessor-control and motor drive equipment.
b. Passwords or identification codes required to gain access to each software program in order to perform diagnostics or program changes.
c. A composite listing of the individual settings chosen for variable software parameters stored in the software programs of both the motion and dispatch controllers.
d. Method of control and operation.

5. Provide four (4) sets of "AS INSTALLED" straight-line wiring diagrams in both hard and electronic format in accordance with the following requirements:

a. Displaying name and symbol of each relay, switch or other electrical component utilized including identification of each wiring terminal.
b. Electrical circuits depicted shall include all those which are hard wired in both the machine room and hoistway.
c. Supplemental wiring changes performed in the field shall be incorporated into the diagrams in order to accurately replicate the completed installation.

6. Furnish four (4) bound instructions and recommendations for maintenance, with special reference to lubrication and lubricants.
7. Manuals or photographs showing controller repair parts with part numbers listed.

F. Training

1. Prior to seeking final acceptance of the project, the Contractor shall conduct an eight-hour training program on-site with building personnel selected by the Owner.
2. The focus of the session shall include:

a. Instructions on proper safety procedures and who to contact for the purpose of assisting passengers that may become entrapped inside an elevator car.
b. Explain each control feature and its correct sequence of operation.

3. Control features covered shall include but, not be limited to:

a. Independent Service Operation.
b. Emergency Fire Recall Operation - Phase I
c. Emergency In-car Operation - Phase II.
d. Emergency Power Operation.
e. Emergency Communications Equipment.
f. Emergency Hoistway Access and Rescue Features.

G. Patents

1. Patent licenses which may be required to perform work specified by the Contract Documents shall be obtained by the Contractor at its own expense.
2. The Contractor agrees to defend and save harmless the Owner, Consultant and agents, servants, and employees thereof from any liability resulting from the manufacture or use of any patented invention, process or article of appliance in performing work specified in the Contract Documents.

1.3 QUALITY ASSURANCE

A. Energy Conservation Code

1. The Contractor shall comply with the requirements set forth in the Energy Conservation Code as may be applicable to the AHJ.
2. Except for equipment or systems under the purview of other disciplines, elevator and escalator equipment provided by the Contractor requiring compliance shall include, but not be limited to:

a. Energy efficiencies of gearless motors
b. Absorption of regenerated power for elevators
c. Energy efficiencies of car interior lighting and ventilation
d. Automatic operation of car interior lighting and ventilation through the individual car controller

B. Approved Elevator Manufacturers:

1. Kone MonoSpace 300
2. Schindler 3300
3. TKE Evolution 200
4. Approved Equal

C. Qualifications

1. The work shall be performed by a company specialized in the business of manufacturing, installing and servicing conveying systems of the type and character required by these specifications with a minimum of ten (10) years of experience.
2. Prior written acceptance is required for manufacturers other than those listed, before quoting this project. Requests for acceptance will not be considered unless they are submitted before bid date and are accompanied by the following information:

    a. List of five (5) similar installations having exact equipment being proposed for this project arranged to show name of project, system description and date of completed installation. The list shall include the names, position and resumes of the construction team and field supervisor of the installations.
    b. Complete literature, performance and technical data describing the proposed equipment. Include the names, position and resumes of the proposed construction team and field supervisor.
    c. List of ten (10) service accounts by building name, building manager or owner, including phone numbers.
    d. Location of closest service office from which conveying system will be maintained.
    e. Location of closest parts inventory for this installation.
    f. List of the names, positions and resumes of the construction teams and field supervisor for the installation.

D. Structural, Mechanical and Electrical Design Parameters

1. The mechanical and electrical systems and the building structure have been designed for the following design loads:

    a. Structural Loads:

        1) The pit, machine room and rail loads are shown on the drawings.

2. Power supply: 208V-3PH-60Hz
3. Electrical Loads: (PE1) 10 HP
    37 A. FLR (Full Load Running)
    107 A. FLA (Full Load Acceleration)

4. Heat Release: (PE1) 7,000 BTU/HR/UNIT

5. Submit a written statement with the bid that the above design loads and the clearance requirements shown on the Architectural drawings are acceptable for the proposed equipment. If not, specifically state the design variances.
6. After the award, if the type of equipment provided requires structure, mechanical and electrical system changes and/or revisions, the Elevator Contractor shall be responsible for all additional design and construction costs.

7. Electrical equipment, motors, controllers, etc., installed under this contract shall have necessary CSA/US or UL listing as may be required by the AHJ. Equipment shall be labeled or tagged accordingly.

1.4 DELIVERY / STORAGE / HANDLING / COORDINATION

A. Delivery and Storage of Material and Tools

1. Comply with the requirements of Division 01.
2. Delivery, Storage and Handling:

    a. Deliver materials to the site ready for use in the accepted manufacturer's original and unopened containers and packaging, bearing labels as to type of material, brand name and manufacturer's name. Delivered materials shall be identical to accepted samples.
    b. Store materials under cover in a dry and clean location, off the ground.
    c. Remove delivered materials which are damaged or otherwise not suitable for installation from the job site and replace with acceptable materials.

3. The Owner shall bear no responsibility for the materials, equipment or tools of the Contractor and shall not be liable for any loss thereof or damage thereto.
4. The Contractor shall confine storage of materials on the job site to the limits and locations designated by the Owner and shall not unnecessarily encumber the premises or overload any portion with materials to a greater extent than the structural design load of the Facility.

B. Work with Other Trades / Coordination

1. Coordinate installation of sleeves, block outs, equipment with integral anchors, and other items that are embedded in concrete or masonry for the applicable equipment. Furnish templates, sleeves, equipment with integral anchors, and installation instructions and deliver to Project site in time for installation.
2. Coordinate sequence of installation with other work to avoid delaying the Work.
3. Coordinate locations and dimensions of other work relating to the equipment scheduled for installation including pit ladders, sumps, and floor drains in pits; entrance subsills; machine beams; and electrical service, electrical outlets, lights, and switches in pits and machine rooms, secondary levels, overhead sheave rooms and hoistways as it relates to the specific equipment.

1.5 WARRANTY / MAINTENANCE SERVICES

A. Contract Close-Out, Guarantee and Warranties

1. Comply with the requirements of Division 01.
2. Guarantee and Warranties:

a. Warrant the equipment installed under these specifications against defects in material and quality of installation and correct any defects not due to ordinary wear and tear or improper use of car which may develop within one year from the date each unit is completed and placed in permanent operation and accepted by the Owner.
b. This warrantee shall be written and issued at the completion of each unit prior to final payment.

B. Maintenance

1. Interim Maintenance: Provide full protective maintenance on the units that are completed and accepted by the AHJ and that may be put in service prior to the overall project completion. The maintenance service shall be as hereinafter specified under the Full Protective Maintenance Service in "3" below and include all code mandated safety and local law tests and inspections that may come due while on this service.

    a. The price quoted shall be on a per unit per month basis.

2. Warranty Maintenance: Provide full protective maintenance on the specified equipment for a period of twelve (12) months from the date of final acceptance of the entire installation as specified under the Full Protective Maintenance Service in "3" below.

    a. The price for this service shall be included in the base price or as otherwise specified in the contract documents.

3. Full Protective Maintenance Service: Submit a separate price for a Full Protective Maintenance Service for the specified units based on a five (5) year contract. The price shall be submitted on the company's own form but shall include all requirements as specified hereinafter. Note: All maintenance shall comply with Part 8 of the ASME A17.1 Code and modified or amended by the Authority Having Jurisdiction.

    a. Maintenance work shall be performed by certified/qualified personnel directly employed and supervised by the service contractor.
    b. Perform scheduled maintenance work and repairs during the regular working hours of regular working days of the trade. All work shall be coordinated with the Building Manager.

4. Provide emergency callback service and repair twenty-four (24) hours a day, seven (7) days a week, including holidays, between regular examinations at no extra cost to the Owner. The response time during working hours shall not exceed one (1) hour. Perform emergency repairs within four (4) hours to restore the equipment to operating order. The following conditions will require emergency callback services for elevators:

    a. Passenger entrapment.
    b. Failure or malfunction of control system.

c. Shutdown of any elevator.

5. Maintenance shall include monthly examination, adjustment, lubrication, repair or replacement of electrical and mechanical parts of all equipment and apparatus.
6. The maintenance services shall also cover relamping of machine room and pit lighting fixtures, signal and operating fixtures, communication system, cab ventilation system, monitoring and control panels. The disconnect means, fuses, car enclosures, car doors and hoistway entrances are excluded. Repair equipment whenever required and use only genuine standard parts produced and manufactured for equipment concerned.

   a. Include a minimum of two (2) hours of monthly labor per unit for the specified scheduled preventive maintenance service.
   b. The performance of mandated inspections and tests of the equipment, as required by the AHJ, shall be included in this agreement.

      1) Where required by the AHJ, witnessing shall be performed by a third party licensed agency hired directly by the Owner.
      2) Where testing is required to be performed after normal business hours, Contractor shall invoice the after-hours work at the premium portion of the hourly billing rate only.

   c. Provide firefighter and emergency power tests and inspections as may be required. There will be two emergency power tests per year which shall be conducted after work hours at no extra cost to the Owner.
   d. One (1) month prior to the warranty expiration period, perform a Performance and Maintenance survey of all devices covered under the agreement and submit a report listing the recorded performance data, the emergency call-back services rendered during the year, and recommendations to further improve reliability and performance.

      1) When requested, provide a recording of each car's acceleration, deceleration and jerk rates along with a 3-day history of average corridor call wait times from 7 a.m. to 6 p.m. as recorded on a specified Tuesday, Wednesday and Thursday.
      2) Provide and document all required periodic testing.

   e. During every scheduled maintenance visit, make sure the machine room and pit areas are clean.

      1) Paint the machine room floor and machine room equipment every three (3) years.

   f. Adjust controls and maintain the equipment to meet the performance requirements as hereinafter specified.

g. If overtime repairs and maintenance services are requested and pre-approved by the Owner, the Contractor shall pay for the regular labor portion, and the Owner will cover the premium portion of the labor only.
h. Keep permanent record of inspections, maintenance services including lubrication procedures, emergency call-back services, repairs and replacements.
i. Maintain a complete set of updated wiring diagrams and schematic control diagrams in the machine room and provide the Owner with an additional record set.

7. Supply all necessary lubricants, cleaning materials and repair parts required to keep the system in good working order during maintenance periods.
8. Maintain an adequate stock of spare parts for maintenance or repair work and minor callback service repairs within the confines of the building in areas designated and assigned by the Owner. Maintain a catalog of spare parts available on site.
9. Additional parts of other equipment required for maintenance and repair of the systems may be stored at the Contractor's facilities with the understanding delivery of same for emergency procedures must be made within two (2) hours to the job site.
10. Other materials and equipment normally not stocked by the Trade Contractor locally must be available within twenty-four (24) hours for delivery to the job site from remote facilities and/or Supplier Contractors responsible to the Contractor for stocking the materials or equipment.
11. If the requirements for stockade of parts as defined herein are not met on any item, immediately notify the Owner in writing as to the circumstances and provide a confirmed delivery date for the required materials and equipment.
12. Should it become necessary to work on the equipment, proper safety barricades shall be erected to protect people from all hazards.
13. If for any reason (such as strike), it is mutually agreed to temporarily reduce the level of maintenance, the monthly amount of the maintenance contract shall be reduced to reflect the reduction in maintenance services.
14. Should the Owner request that the maintenance Contractor perform any work on the equipment of this Contract, but not included in the terms of the Contract, then payment for such work shall be based on the rates included in the Contract for time and material.
15. Thirty (30) days before the annual renewal of this agreement, adjust monthly maintenance price as follows:

    a. Eighty percent (80%) of the current maintenance price based on current straight-time hourly rate for a mechanic.
    b. Twenty percent (20%) of the current maintenance price based on the established difference in the “Producer Commodity Prices for Wholesale Metals and Metal Products Index”.
    c. Notwithstanding anything to the contrary, the maximum annual increase shall not be more than three percent (3.0%) of the total contracted payment for the preceding contract year.

16. Cancellation: The Owner has the right to cancel this contract on 30 days' notice.

1.6 ALTERNATES / ALLOWANCES / UNIT PRICES

A. Alternates

1. Value Engineering Alternate

a. It is understood that the base specification reflects minimum standards. The above Value Engineering Alternate allows individual contractors to suggest special performance criteria which may be of interest to the Owner and may reflect a degree of quality above the requirements of the base specification.
b. Voluntary alternate prices may be acceptable as a deviation from, not a substitution for, the basis of bid work of this bid package.
c. In order to submit a voluntary alternate, the following must be provided at the time of the bid.

1) A complete bid reflecting the requirements of the base specification.
2) All alternates must be accompanied with pertinent data, technical documentation and reference/installation for review.
3) Along with the pricing for voluntary alternates submit the maintenance prices for each.

PART 2 - PRODUCTS

2.1 GENERAL DESCRIPTION

A. Elevator – PE1

1.	Quantity	One (1)
2.	Type	Machine-room-less/Passenger – Class "A"
3.	Capacity (lbs.)	2000
4.	Speed (fpm)	150
5.	Travel in Feet	11'-3"
6.	Number of Landings	Two (2)
7.	Number of Openings	Two (2)
8.	Front Opening	All @ C, 1
9.	Rear Opening	None
10.	Operation	Two Stop Collective Operation
11.	Control	Variable voltage variable frequency
12.	Fireman's Control	Phase I and II
13.	Number of Push Button Risers	One
14.	Clear Inside Platform Size	5'-8" wide x 4'-4" deep

15.	Guide Rails	Steel tees, provide rail backing as required
16.	Buffers	Spring
17.	Cab	As further specified.
18.	Entrance Size	3’-0” wide x 7’-0” high
19.	Door Operation	Single speed side opening
20.	Machine Type	Gearless traction
21.	Machine Location	Within overhead space
22.	Counterweight Safety	Not Required
23.	Power Supply	208 – 3 - 60

2.2 MANUFACTURERS

A. Pre-Approved Equipment Manufacturers

1. In addition to Original Equipment Manufacturers, the following manufacturer’s equipment and materials have been pre-approved for use on this project.
2. Other manufacturers/products not specifically mentioned below shall be considered for approval on an individual basis.

    a. Controller - GAL (GALaxy), Motion Control Engineering, Elevator Controls Corporation, Elevator Systems, Inc., Smartrise**,** Schumacher.
    b. Tracks, Hangers, Interlocks and Door Operators - G.A.L., ECI.
    c. Fixtures - G.A.L., Adams, EPCO, Monitor, E-Motive USA, C.E. Electronics, Innovation, MAD, National.
    d. Door Protective Device - Janus, Adams, G.A.L., T.L. Jones, Tri-Tronics.
    e. Cabs and Entrances - CEC Elevator Cab, EDI/ECI, Elite Elevator Cab, Forms + Surfaces, National Cab & Door, Tyler, Velis, Gunderlin, Eklund, EMCO, Columbia Elevator Products, United Cabs, USC Elevator.
    f. Machines - Hollister-Whitney, Titan, Imperial, Torin.
    g. Motors - Imperial Electric, General Electric, Baldor, Reuland Electric.
    h. VVVF Power Drives - Mitsubishi, MagneTek, Yaskawa, TorqMax.
    i. VVVF Emergency Power Systems – MCE, Reynolds & Reynolds Electronics.
    j. Guide Rails - Savera, Monteferro.
    k. Electrical Traveling Cables – Draka, James Monroe.
    l. Guide Shoes/Rollers – ELSCO, G.A.L.
    m. Wire Ropes - Paulsen, Bethlehem, Wayland, Draka.
    n. Intercommunications/Telephones - Webb Electronics, K-Tec, Ring, Wurtec, Janus, approved equal.

3. Original Equipment Manufacturers may substitute their own branded equipment subject to the following:

    a. All requirements of the specifications are met regarding performance, appearance, serviceability and support.

b. A full stock of all regular and critical replacement parts required for this project are maintained at a facility within fifty (50) miles of the project site.

1) Any parts not stocked at the above referenced facility shall be identified with the location of the nearest source and shall be available for next-day delivery upon demand.

c. All parts and software shall be made available for purchase to a qualified elevator maintenance firm within one (1) business day delivery without direct Owner involvement.

1) Provide details of parts supply facility and a list of current parts pricing for all major components required for the installation.

d. All specialized tools, equipment, software, and passwords, required to maintain, repair, adjust the operation, and perform code mandated tests/inspections are provided to the Owner as part of the base installation.

1) Updates to these items shall be available via the parts supply facility referenced above.

e. Technical support of the product(s) shall be available to the Owner's elevator service provider.

2.3 CONTROL FEATURES / OPERATION

A. Motion Control

1. Smooth stepless acceleration and deceleration of the elevator car shall be provided in either direction of travel during both single and multiple floor runs.
2. Use digital logic to calculate optimum acceleration and deceleration patterns during each run.
3. Acceleration, deceleration, jerk, maximum velocity, leveling accuracy and elapsed flight time, for a typical elevator one floor run, shall not exceed values as further specified.

B. Two Stop Collective Operation

1. A car call or hall call registration will allow the car to proceed to the destination after the hoistway door and car door automatically close and the door and gate circuits are made.
2. Upon arrival at the landing, the doors will open automatically.
3. When the car is traveling away from a registered hall call, the call shall remain registered and the car shall respond on the next trip.
4. Car and hall calls shall cancel automatically as the car stops at the respective call.

C. Independent Service Operation

1. The car operating station shall be equipped with a key-operated switch labeled "IND SER".
2. Locate the switch in the locked service compartment.
3. When placed in the "on" position the following shall occur:

    a. Group elevator - the elevator shall bypass corridor calls and travel directly to any floor chosen by registration of a car call. Hall calls shall remain registered for service by another elevator in the group.
    b. Simplex elevator - existing hall call registrations shall extinguish and hall buttons shall remain inoperative as an indication to passengers that there is no elevator service.

4. During Independent Service Operation, the elevator doors shall remain open at any landing until the door close or a car call push button is pressed and maintained until the doors are fully closed.
5. If more than one (1) car call is registered, all registered car calls shall extinguish when the elevator stops in response to the first call.
6. Fire Emergency Recall shall automatically override Independent Service Operation and engage Phase I - Fire Emergency Recall Operation following a period of approximately forty-five (45) seconds.

D. Inspection Service Operation

1. Provide a key operated switch in the main car operating panel locked service panel that, when turned to the 'ON' position, shall cause the elevator to be removed from service and placed in Inspection Service Operation.
2. Limited operation of the car shall be provided through pressing the Attendant Service up and down push buttons (if provided) or the highest or lowest car call push buttons (if up and down buttons are not provided) in the main car operating panel only.
3. The car shall move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with both the hall and car door panels in the closed and locked position.
4. The Inspection Service switch shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. The top of the elevator car shall be equipped with a control for limited operation of the car during repairs, maintenance and inspection conducted in the hoistway. The transfer of control to the top of car operating device shall cause that device to be the sole means of control for the elevator.

    a. Visual and audible indication shall be provided on the top of the car when Firefighters' Emergency Operation is initiated.

6. Power door operating equipment shall be rendered inoperative while the car is being operated in the Inspection Service mode with the exception of power closing

of the door. The control system shall maintain closing power on the door while the elevator is moving under Inspection Service Operation.

7. The in-car Inspection Service switch shall be rendered ineffective when the top of car inspection control is activated.
8. Machine Room Inspection Operation and Inspection Operation with open door circuits shall be provided in accordance with A17.1 Safety Code, as modified and adopted, where required or allowed by the AHJ.

E. Hoistway Access Operation

1. Provisions shall be made to allow access to the hoistway through the use of hoistway access switches.
2. Operating the access switch shall permit the car to move at a speed not to exceed 150 feet per minute (0.75 meters per second) as per code with the hall and car doors in the open position to obtain access to the top of the car or climb-in pit.
3. The car shall automatically stop motion when the car top is level with the hoistway door sill for access to top of car.
4. The access key switch(es) shall be keyed differently than other typical keys used in the operation of the elevator. Keying shall be in accordance with Security Group Classifications as required by applicable code.
5. Access operation shall be disabled when top of car inspection operation is in effect.

F. Overload Detection (NYC)

1. For passenger elevators and freight elevators permitted to carry passengers, a positive means shall be provided to detect if the load in the elevator car exceeds the rated capacity of the elevator.
2. When an overload condition is detected:

    a. The elevator doors shall remain open.
    b. A voice notification and visual signal shall indicate that the elevator is overloaded.

3. Overload detection shall be overridden by Firefighters' Emergency Operation Phase I and Phase II.

G. Load Weighing Operation

1. A positive means shall be provided to continuously monitor the amount of load being transported by the elevator car.
2. The system shall be used to:

    a. Preload static motor drives.
    b. Activate control features that include:

        1) anti-nuisance operation.
        2) load dispatch operation.

3) load dependent non-stop operation where applicable.

3. The anti-nuisance feature shall operate at loads not exceeding 200 lbs., whereas load dispatch and load non-stop shall be set to function at 65% of the rated loading capacity for the initial set up and adjustment procedure.

H. Anti-Nuisance Operation

1. In the event car loading is not commensurate with the number of car calls registered, all car calls shall be canceled.

   a. The system shall monitor the door protection device to determine if passenger transfer has occurred.
   b. If after the third (3^{rd}) stop a passenger transfer has not occurred, the system shall cancel all remaining registered car calls and respond to assigned hall call demand.
   c. The number of calls registered with no passenger transfer that will trigger anti-nuisance shall be adjustable and initially set to three (3) calls.

I. Firefighters' Emergency Operation / NYC

1. Phase I Emergency Recall Operation shall be provided in accordance with ASME A17.1 code as modified under the New York City Building Code, Appendix "K".

   a. The fire emergency operation shall include a smoke detector at the top of each hoistway in buildings classified in occupancy group R-2 for automatic recall.

2. The car operating station shall be provided with an indicator light and audible signal, each of which shall become activated when Phase I Operation is engaged.

   a. The warning buzzer shall cease to function once the car has completed the recall sequence and is positioned at the designated recall landing.
   b. The indicator light shall remain illuminated as long as Phase I Operation is activated.

3. A two-position key-operated switch shall be provided on the designated recall landing per local law to manually activate Phase I operation.

   a. When activated, Phase I operation shall be arranged so that in order to restore normal service, the car must first be returned to the designated recall landing, after which the Phase I key-switch must be turned to the 'OFF' position.
   b. All fire recall switches shall be provided with an illuminated visual signal to indicate when Phase I Emergency Recall Operation is in effect.

4. Phase II Emergency Recall In-Car Operation shall be provided in accordance with applicable ASME A17.1 code as modified under the New York City Building Code, Appendix "K".

5. The car operating panel shall be equipped with a three-position, key-operated switch to engage Phase II Operation subsequent to completing the Phase I recall sequence and parking at the designated recall landing.
6. The car operating panel shall be provided with a 'CALL CANCEL' push button that functions only under Phase II Operating mode.

    a. When operated, the button shall cause any previously registered car calls to cancel.

7. The car operating panel shall be engraved with required fire control identifications per the New York City Building Code, Appendix "K".
8. The "City Wide Standard Key" (Yale #2642) and the "Fire Department Standard Key", shall be used for all Fire Emergency operating devices including car button locked access panels in Destination Dispatch elevators.
9. Firefighters' Emergency Operation, Phase I and Phase II, shall override all car call lockout features as well as special operating features as outlined by the applicable rules defined in Appendix K, Chapter K1 of the NYC Building Code.

J. Firefighters' Emergency Operation

1. Firefighters Service Operation and devices shall meet applicable code requirements of the AHJ.
2. Contractor shall be responsible for compliance in all aspects of Firefighters Service including, but not limited to the mode of operation, initiation of operation, operating control and signaling devices as well as fixture engraving including operating instructions applicable to and where required by the AHJ.

K. Floor Lockout Feature / Keyled Security Control / Car Onlu

1. Provide a car call floor lockout feature for the elevators which will prevent registration of car calls to floors that are "locked out".

    a. Provide a two (2) position "on-off" key switch located in the car station adjacent to each floor call button except the primary egress floor.
    b. Turning the key switch to the "off" (locked out) position shall prevent the registration of a call when the corresponding car call button is pressed.
    c. The key switches shall be individually keyed with a master as directed by the Owner.

2. Activation of a floor lockout key switch shall have no effect on the operation of the hall call station, i.e., the car can be called to a floor from the hall button on the floor that is locked out in the car station.
3. The "floor lockout" key switches shall be in a material and finish to match the car operating panel cover plate.
4. Firefighters' Emergency Operation shall override the car call lockout feature.
5. Provide a label on the door of the individual car controller cabinet identifying that the control system utilizes Floor Lockout Feature.

a. Firefighters' Emergency Operation override of Floor Lockout Feature shall be tested in accordance with applicable requirements.

L. Passenger Rescue Feature

1. Provide a device in the control room to move the elevator car to a floor landing in the event of controller or power failure.

   a. This device must be speed controlled to prevent an overspeed condition.
   b. A line of sight must be provided between the Passenger Rescue Feature device and the elevator car.

      1) Coordinate line of sight requirements with the control room requirements.

2. Provide a manual brake release lever attached to the control cabinet for rescue of passengers.

   a. A visual display shall be provided with the control cabinet, which indicates car position, speed and directions.

M. Door Operation

1. Car and hoistway doors shall be arranged to operate in unison without excessive noise or slamming in either direction of travel.

   a. Door opening speeds of two (2) feet per second shall be provided in conjunction with closing speeds of 1.0 foot per second in accordance with governing code.
   b. Door operation shall commence as the car stops level at the floor and the machine brake is applied. Pre-door opening shall not be permitted.

2. Where the hoistway door and the car door are mechanically coupled, the kinetic energy of the closing door system shall be based upon the sum of the hoistway and the car door weights, as well as all parts rigidly connected thereto, including the rotational inertia effects of the door operator and the connecting transmission to the door panels.
3. The force necessary to prevent closing of the car and hoistway door from rest shall not exceed thirty (30) lbf. This force shall be measured on the leading edge of the door with the door at any point between one-third and two-thirds of its travel.
4. Door open and door close time shall be measured between the moment car door operation in either direction begins and the instant at which that cycle is completed.
5. When responding to either a car or corridor call, the amount of time that the elevator door remains stationary in the open position shall be adjustable up to sixty (60) seconds.

a. Door open dwell time for a corridor call shall be separate of that for a car call, and in both cases, dwell time shall be canceled whenever the car door protection device is momentarily interrupted by passenger transfers, followed by a reduced door open dwell time of approximately one (1) second (adjustable) after the door protection device is cleared of obstructions.

6. The operation of the door protective device by interruption of one or more infrared light beams (dual or multi-beam non-contact) during the close cycle shall cause the immediate reversing of the doors to the full open position.
7. The door closing cycle shall be arranged so that, in the event the door protective devices become continually obstructed after the normal door open dwell time has expired, and following a time interval of approximately thirty (30) seconds (adjustable), a warning tone shall sound and the door closing cycle shall commence at reduced speed and torque per applicable Code requirements.
8. Each car operating station shall be provided with a "door open" and "door close" push button.

   a. Pressure on the "door open" button shall cause doors in the full open position to remain so and doors engaged in the close cycle to reverse direction and assume the full open position so long as pressure remains applied to the button.
   b. The "door open" buttons shall also control the open cycle during Phase II - Emergency In-car Operation.
   c. The "door close" push button shall function on Independent Service, Attendant Service and Phase II - Emergency In-car Operation as well as during normal automatic operations.

9. Repeated attempts by the power door operator to open or close the door at any landing shall be monitored by the control system.

   a. In the event the door fails to cycle properly after a preset (adjustable) number of attempts, the car shall either travel to the next stop or remove itself from service, depending upon whether the malfunction is in the open or close cycle.

10. Each hoistway door shall be provided with an automatic self-closing mechanism arranged so that the door shall close and lock if the car should leave the landing while the hoistway door is unlocked.
11. Car doors shall be arranged to prevent their being manually opened from inside the car unless the elevator is positioned within a floor landing zone.

2.4 CONTROL ROOM / MACHINERY SPACE / SECONDARY EQUIPMENT

A. Controller / Dispatcher

1. The elevators shall have generic microprocessor based controller/dispatchers.

2. Digital logic shall calculate optimum acceleration, deceleration and velocity patterns for the car to follow during each run.
3. Closed-loop distance and velocity feedback shall monitor the actual performance of the elevator car with the desired speed profile.
4. System operating software shall be stored in non-volatile memory.
5. Elevator control relays, contactors, switches, capacitors, resistors, fuses, circuit breakers, overload relays, power supplies, electronic circuit boards, microprocessors, static motor drive units, wiring terminal blocks and related components shall be totally enclosed inside a free-standing metal cabinet with hinged access doors.

    a. Provide natural or mechanical ventilation for the controller cabinets.
    b. Equip the vent openings and exhaust fans with filters.

6. Mount equipment to moisture-resistant, noncombustible panels supported from the steel frame.
7. Provide "noise filter" between hoistway wiring and controller/dispatchers to eliminate interference.
8. Optically isolate communication cables between components.
9. Wiring: Wiring on the units, whether factory or field wiring, shall be done in neat order, and all connections shall be made to studs and/or terminals by means of grommets, solderless lugs or similar connections. All wiring shall be copper.
10. Terminal Blocks: Provide terminal blocks with identifying studs on units for connection of board wiring and external wiring.
11. Marking: Identifying symbols or letters shall be permanently marked on or adjacent to each device on the unit, and the marking shall be identical with marking used on the wiring diagrams. In addition to the identifying marks, the ampere rating shall be marked adjacent to all fuse holders.
12. The manufacturer’s standard on-board “LCD” display shall be incorporated on the main processor board and/or otherwise incorporated in the controller cabinet. The “LCD” shall be capable of providing alpha-numeric characters to view the operational status of the elevator and/or group functions depending on the application. The display shall provide the user with necessary information for troubleshooting and reprogramming of the basic system parameters.

    a. Where the “LCD” is not an integral part of the controller and troubleshooting/reprogramming requires the use of a separate tool, the tool shall be maintained in the machine room and accessible to service personnel. This tool, along with all technical documentation for the correct use of the tool, shall remain the property of the Owner.
    b. Password protection of critical programming features is required to prevent accidental changes to life-safety and other non-typical control settings.
    c. Where a separate dispatch or group control panel is provided, a separate “LCD” display shall be provided to view group functions.

13. In the event diagnostics and monitoring is accomplished via Field Service Tools, provide the required Field Service Tools with related control system appurtenances for diagnostic evaluations, system monitoring and field adjustments.

    a. Provide instructions for proper use of such diagnostic tools and/or equipment with all coding and other operational requirements.
    b. Maintain and calibrate the diagnostic tools, and update the associated instructions and other related documents under the service agreement.

        1) Should the agreement be cancelled for any reason by either party, maintenance and updating of diagnostic tools shall be provided to the Owner at the Contractor's cost without the need to purchase or lease additional diagnostic devices, special tools or instructions from the original equipment provider.
        2) The Owner may request field and technical instructions be provided by the original installation contractor or manufacturer for proper servicing by other qualified elevator company personnel.
        3) The established cost plus profit, as previously specified, shall be applicable for the life of the system.

            a) If the equipment for fault diagnosis is not completely self-contained within the controllers but requires a separate detachable device, that device shall be furnished to the Owner as part of this installation.
            b) Such device shall be in possession of and become property of the Owner.

14. Microprocessor Documentation

    a. Provide and/or obtain complete information on systems' design, component parts, installation and/or modification procedures, adjusting procedures and associated computer conceptual logic circuitry and field connection.
    b. Provide microprocessor upgrading and/or modifications to programs that have been assigned to enhance the operation of the equipment for a period of ten (10) years after project approval.

B. Machine Beams
    1. Provide support beams, angles, plates, rails, bearing plates, blocking steel members to support machines, governors, deflector and overhead sheaves. The machinery and deflector sheaves shall be located within the hoistway as shown on the drawings. Coordinate attachments of the machine beams to the building structure with the structural drawings.
    2. Mounting of the hoist machine and deflector sheaves shall incorporate isolation to minimize the transmission of noise and/or vibration to the building structure.

C. Gearless Elevator Hoisting Machine [MRL]

1. Provide a permanent magnet synchronous motor (PMSM) gearless traction machine, specially designed and manufactured for elevator service. The machine shall have high starting torque and low starting current, rated for 50^0 C (90^0 F) continuous operation, and a minimum of 240 starts per hour.

    a. Securely mount the machine to overhead steel beams or to the guide rail system.
    b. The armature shaft shall be supported in ball or roller type bearings.
    c. The driving sheave shall be cast from the best grade of metal with a Brinell hardness of 215 to 230 and shall be machined with grooves, providing maximum traction with a minimum of rope and sheave wear.
    d. Ensure that adequate ventilation of internal stator windings and rotating element is provided to prevent overheating with thermal overload protection. (Constant velocity fan for constant cooling.)
    e. Equip housing with eyebolt(s) for lifting.
    f. Provide the machine with an electro-mechanical brake.

        1) The brake shall be spring applied and electrically released where drum or disk-type brakes are employed.
        2) Design the brake electro-magnet for quick release and application of the brake.
        3) The brake lining material shall be non-asbestos.

    g. Design the brake for quick release to provide smooth and gradual application of the brake shoes.

        1) An emergency brake shall be an integral part of the machine design.

    h. Provide a sheave guard and rope retainer on the machine sheave to prevent hoisting rope from jumping off the grooves.

        1) Provide service platforms, grating, handrails, ladders and required accessories to service and maintain the hoisting machines, if required by the local AHJ.

    i. Design and construct the hoisting machine based on passenger elevator cab enclosure weight as specified and as shown on the architectural drawings.

D. Machine Brake

1. Provide an electro-mechanical brake.

    a. Drum or disk-type brakes shall be spring applied and electrically released.
    b. Design the brake electro-magnet for quick release and application of brake shoes.
    c. Swivel type brake shoes shall be applied to the braking surface (pulley or disk).

d. The brake lining material shall be non-asbestos and shall be attached to two (2) cast iron shoes.
e. The brake pulley or disk shall act as the coupling between the drive motor shaft and the worm shaft.

2. The brake shall be designed and adjusted to safely hold 125% of rated full load capacity in accordance with applicable code.

E. VVVF AC Drive

1. Provide a solid-state, variable voltage, variable frequency (VVVF), 3-phase AC hoist motor drive system as part of the microprocessor-based equipment.

a. VVVF drive system shall be a low-noise, flux-vector inverter device.
b. Include a digital LED readout and touch-key pad to facilitate software parameter adjustments, monitor system operation and display fault codes.

2. The drive shall utilize a 3-phase, full wave rectifier and capacitor bank to provide direct current power for solid-state inversion.
3. The inverter shall utilize IGBT power semiconductors and duty cycle modulation fundamental frequency of not less than one kilohertz to synthesize 3-phase, variable voltage variable frequency output.
4. The system shall be designed and configured with the following countermeasures for noise generated by the pulse-width modulated (PWM) inverters.

a. Control of radiated noise via inverter and/or motor cables.
b. Conducted noise through power lines.
c. Induction noise and ground noise.

5. Inverter shall be encased in metal and independently grounded.
6. A noise filter for the input power line shall be provided to prevent penetration into radios, wireless equipment and smoke detectors.
7. A 3% three-phase line reactor shall be provided on the power system rated at the utility voltage input to the drive and sized for the rated drive current.
8. The drive shall:

a. Be configured as a complete digital drive system.
b. Be totally software configurable.
c. Interface with external equipment/signals via either discrete local I/O connections or high speed Local Area Network (LAN).
d. Be located within the limits of the control cabinet (where system size allows) or separately mounted in an appropriate chassis with hinged swing-out doors with clearances equal to the cabinet width dimensions.
e. Provide programmable linear or S-curve acceleration.
f. Provide free run or programmable linear or S-curve deceleration.
g. Have controlled reversing.

9. Operating and Environmental Conditions:

    a. Have a service factor of 1.0.
    b. Rated for continuous duty.
    c. Humidity - 90% rated humidity non-condensing.
    d. Cooling - forced air when required.
    e. Digital display for:

        1) Running - output frequency, motor RPM, output current, voltage.
        2) Setting - Parameters values for setup and review.
        3) Trip - separate message for each trip, last thirty (30) trips to be retained in memory.

10. Protective Features:

    a. Motor overspeed.
    b. Adjustable current limit.
    c. Isolated control circuitry.
    d. Digital display for fault conditions.
    e. Selectable automatic restart at momentary power loss.
    f. Manual restart.
    g. Over/Under Voltage.
    h. Line to line and line to ground faults.
    i. Over-temperature.

F. VVVF AC Drive - Dynamic Braking Module

1. Provide a separate dynamic braking module to control overhauling motor speed, reduce hoist motor deceleration time and dissipate regenerated power. The unit shall consist of:

    a. A resistor bank to absorb power regenerated by the hoist motor.
    b. A 3-phase AC contactor rated for proper HP with overload protection to disconnect the inverter from the hoist motor whenever the elevator is stopped.

G. VVVF Emergency Return / Auxiliary Power System

1. Provide a system that will make back-up power available to the elevator when commercial power fails.
2. The unit shall safely move the elevator to a landing and provide power to the door operator to allow passengers to exit.
3. Movement of the car may be load dependent utilizing dynamic braking to control car speed.
4. The unit shall include:

    a. On board controller.
    b. UPS status monitor capable of notifying building management system.

c. Restart input from the car door open button.
d. Test button to simulate power failure.
e. UPS bypass control.
f. Monitoring of the disconnect switch.
g. Lockable shut-off switch.
h. Three phase, 208/460 VAC input.
i. Battery level LED indicator.
j. Necessary fusing for batteries, outputs, logic circuitry and charger.

H. Overspeed Governor

1. Provide a speed governor, located overhead, to operate the car safety.

a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.

1) Springs used to develop the tension are not acceptable.

b. Provide rope grip jaws, designed to clamp the governor rope to actuate the car safety upon a predetermined overspeed downward.

1) The centrifugal type governor shall trip and set rope jaws within 60 degrees of governor sheave rotation after reaching rated tripping speed.

c. Design the governor rope tripping device so that no appreciable damage to or deformation of the governor rope shall result from the stopping action of the device in operating the car safety.
d. Provide an electrical governor overspeed protective device which shall remove power from the driving machine motor and brake before or at the application of the safety.

1) The setting for the overspeed switch shall be as prescribed in the ASME A17.1 Safety Code.
2) Locate and enclose the switch to ensure that excess lubrication will not enter the switch enclosure.
3) Overspeed switch shall operate in both direction of travel on systems employing a static power drive unit.

e. Seal and tag the governor with the running speed, tripping speed and date last tested.
f. Design the governor to prevent false tripping due to conditions caused by rope dynamics.
g. Governor shall be mounted to the guide rail system or machine beam supports in the hoistway overhead.

1) Coordinate access requirements and testing procedures with the AHJ.

2) Where governor access is not required by the AHJ, governor shall be capable of being manually reset from outside the hoistway.

I. Equipment Isolation

1. Provide effective sound isolation between machines, secondary deflector sheaves, solid state motor drive units and filters, from building structure to reduce noise transmission to occupied spaces and elevators and elevator cabs.
2. When operating per plans and specifications, the elevator equipment shall not generate noise levels in excess of NC-40 in occupied tenant spaces and shall be free of pure tones. For the purposes of this specification, a pure tone shall be defined as a sound level in any one-third octave band which is greater than 5 dB above both adjacent one-third octave bands, in the range 45 to 11,200 Hz.
3. Provide the following as a minimum:

    a. Resiliently isolate the entire elevator/secondary deflector integral unitized base from the elevator machine room floor slab by means of effective neoprene-in-shear isolators having a minimum static deflection of 3/8".
    b. Isolate the transformers and reactance units from the building structure by means of approved neoprene-in-shear isolators having a minimum static deflection of 3/8".
    c. Solid state rectification units shall be mounted on 3/4" thick minimum, neoprene-in-shear pad isolators and an effective electrical filter/reactance limiting electrical noise shall be provided.
    d. Use flexible conduit with ground wire for motor, machine, drive, governor and position/velocity transducer connections.
    e. Isolate the hitch plates and deflector sheave support assembly from the car structure (crosshead) by means of an elastomer pad in compression designed to provide 1/8" deflection under dynamic loading.

J. Overhead and Governor Stop Switches

1. Provide a positive action stop switch at the following locations as required by applicable code:

    a. Overhead machine space.
    b. Overhead governor access panel or space as may be mandated by the AHJ.

2. The switch shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the “OFF” position.

    a. Clearly identify the switch with permanent marking on the switch cover that indicates “RUN” and “STOP” positions.

K. Emergency Brake

1. Ascending Car Overspeed Protection Device

a. Provide a device designed to prevent an ascending elevator from striking the hoistway overhead structure.
b. The device shall decelerate the car with any load up to the rated capacity by applying an emergency brake.

1) The device shall detect an ascending car overspeed condition of not greater than 10% higher than the speed that the car governor is set to trip.
2) The device, when activated, shall prevent operation of the car until the device is manually reset.
3) The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the AHJ.

2. Unintended Car Movement Protection Device

a. Provide a device to prevent unintended car movement away from the landing when the car and hoistway doors are not closed and locked.

1) The device shall prevent such movement in the event of failure of:

a) The electric driving machine motor.
b) The brake.
c) The machine shaft or shaft coupling.
d) Machine gearing.
e) Control system.
f) Any component upon which the speed of the car depends.
g) Suspension ropes and the drive sheave of the traction machine are excluded.

2) The device shall prevent operation of the car until the device is manually reset.
3) The device shall meet the requirements of the ASME A17.1 Safety Code as may be modified by the AHJ.

2.5 HOISTWAY EQUIPMENT

A. Guide Rails / Inserts / Brackets

1. Provide machined, standard size steel “T” section guide rails with tongue and grooved joints for the car and counterweight. Use not less than 15.0-pound car rails. Size rails to span maximum vertical distance between supports as noted on the drawings.
2. The car guide rails shall be as follows:

a. Savera Super Line, Monteferro S or approved equal.

3. Use not less than 3/4" thick machined steel fishplates to form rail joints. Connect rails to fishplate with four (4) bolts.
4. For concrete and concrete block hoistways furnish rail brackets and provide inserts and an insert location drawing to Construction Manager or General Contractor.
5. Brackets shall be used to support the rails from the hoistway framing and/or inserts.

    a. The rails shall be attached to the brackets by heavy clamps or clips.
    b. Bolting or welding rails to brackets shall only be allowed in certain instances.
    c. Do not attach brackets to the top flange of hoistway framing steel.

6. Provide rail backing where the vertical distance between support framing is greater than 14'-0" and no intermediate support framing is shown on the drawing.
7. All guide rails shall be erected plumb and parallel to a maximum deviation of 1/8 inch (plus or minus 1/16 inch).
8. Provide oversized steel members and brackets for the rails where the distances exceed the manufacturer's standard dimensions.

B. Counterweight Assembly / Frame

1. Counterweight shall consist of a steel frame welded or bolted together and necessary steel sub-weights.

    a. Sub-weights shall be held within the frame by not less than two (2) tie-rods passing through holes in all weights with rods equipped with locknuts, secured by washers and cotter pins at each end.
    b. The counterweight shall be equal to the weight of the elevator car and approximately 40% of the contract (specified) capacity.
    c. Provide the required pit counterweight guard where no compensation is used.
    d. The bottom of the counterweight shall have a buffer striking plate and means to attach knock-off blocks to compensate for varying rope length.

C. Roller Guides

1. Provide roller guide shoes with adjustable mounting base, rigidly bolted to the top and bottom of each side of the car and counterweight frame.

    a. Roller guides shall consist of a set of sound reducing neoprene wheels in precision bearings held in contact with the three (3) finished rail surfaces by adjustable stabilizing springs.
    b. The bearings shall be sealed or provided with grease fittings for lubrication.
    c. Equip roller guides with adjustable stops to control postwise float.
    d. Fit the top car roller guides with galvanized, painted or powder coated steel guards.

2. Approved applications and manufacturers:

a. ELSCO Model B for car roller guides and ELSCO Model D for counterweight guides, or approved equal.

D. Hoist Ropes

1. Pre-formed traction steel wire rope, specifically constructed for elevator applications, shall be provided for suspension of the elevator car and counterweight assembly.

a. Fastenings shall be accomplished by use of individual tapered rope sockets (wedge clamp) with adjustable shackles.
b. General design requirements for rope shackles and the method of securing wire rope shall conform with ASME A17.1 elevator safety code as modified by, and/or in addition to codes and standards accepted by the AHJ.
c. Provide machine-room-less elevators with hoist ropes having steel core.
d. Properly select rope for the application and compatibility with the machine drive sheave hardness and groove profile. Design shall provide for a minimum service life of ten (10) years or one million cycles, whichever occurs first, and shall be substantiated by calculations during the submittal phase.

2. Coated steel belts with steel cords embedded in polyurethane case may be used in lieu of conventional steel hoist ropes subject to approval of the AHJ.

a. Belts shall be UL listed and non-combustible.

E. Governor Rope

1. Pre-formed wire rope specifically constructed for elevator applications, shall be provided for governor ropes.

a. Rope shall be traction steel or iron in accordance with OEM design requirements.
b. Rope diameter and method of fastening shall be in accordance with ASME A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.

F. Electrical Conduit / Wiring / Traveling Cable

1. Electrical wiring shall be provided.

a. All wiring shall be stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
b. Electrical wiring provided for hoistway interlock shall be of a flame retardant type, capable of withstanding temperatures of at least 392 degrees Fahrenheit. Conductors shall be Type SF or equivalent.

c. Each run of electrical conduit or duct shall contain no less than 10% spare wires and, in any case, no fewer than two (2) spare wires.
d. Crimp-on type wire terminals shall be used where possible.

2. Traveling cable shall be provided.

a. Each traveling cable shall be provided with a flame and water resistant polyvinyl chloride jacket.
b. Electrical wiring shall consist of stranded copper conductors, manufactured in compliance with ANSI/ASTM B174-71 and UL 62 requirements, and polyvinyl chloride insulation complying with ETT requirements of UL 62 and Article 400 of the National Electric Code.
c. Each traveling cable shall contain no less than 10% spare wires.
d. Traveling cable exceeding 100’ in length shall be provided with a steel wire rope support strand from which the cable shall be suspended.
e. Traveling cable must be contained within an approved electrical conduit to within 6’ of the final suspension point in the hoistway.
f. Each traveling cable shall be arranged to provide no fewer than six (6) individually shielded pairs of 20 gauge wire and arranged to contain no less than one (1) coaxial cable for CCTV remote monitoring.
g. Traveling cable conductors that terminate at a hoistway center box shall be connected to stud blocks provided for that purpose.

1) Each wiring terminal shall be clearly identified by its nomenclature as shown on the “as built” wiring diagrams and solderless, crimp-on type wire terminals shall be used where possible.

h. The attachment of a traveling cable to the underside of the elevator car shall be performed so that a minimum loop diameter of 30x the cable diameter is provided.
i. Pre-hang the cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting during operation.

3. Rigidly supported EMT conduit, flexible metal conduit and galvanized steel trough shall be utilized throughout the hoistway.

a. Both EMT and flexible conduit shall be connected on either end by use of compression fittings and secured in place with metal clamps sized in accordance with the diameter of conduit utilized.

1) Wire or plastic wire ty-raps shall not constitute an acceptable means of fastening.

b. The use of flexible metal conduit shall be limited to runs not greater than three feet (3’) in length.

G. Normal and Final Terminal Stopping Devices

1. Provide normal terminal stopping devices to stop the car automatically from any speed obtained under normal operation within the top and bottom overtravel, independent of the operating devices, final terminal stopping device and the buffers.
2. Provide final terminal stopping devices to stop the car and counterweight automatically from the speed specified within the top clearance and bottom overtravel.
3. The terminal stopping devices shall have rollers with rubber or other approved composition tread to provide silent operation when actuated by the cam fixed to the top of the car.

    a. Terminal stopping devices that are not mechanically operated (i.e.: magnetic proximity) shall be provided by the manufacturer of the control equipment, intended for use as a terminal limit, and designed for reliable operation in the hoistway environment.

4. Final terminal limits shall be pinned so as to prevent movement after final adjustment where required by the AHJ.

2.6 PIT EQUIPMENT

A. Car and Counterweight Buffers

1. Provide buffer with necessary blocking and horizontal steel braces under the car and counterweight.
2. Provide spring type buffers for elevators with operating speeds of up to and including 200 fpm.
3. Use oil buffers for elevators with operating speeds over 200 fpm.
4. Oil buffer shall bring the car and counterweight to rest from governor tripping speed at an average rate of retardation not exceeding gravity (32 ft/s^2).
5. Oil buffer shall be of the spring return type and shall have means of checking oil supply level.
6. Use reduced stroke buffer with associated terminal slowdown devices where runby is restrictive.

    a. Buffer and emergency terminal slowdown device shall operate in accordance with applicable codes.

7. The buffer shall be tested and approved by a qualified testing laboratory.
8. Provide a permanent buffer marking plate which indicates the manufacturer's name, identification number, rated impact speed and stroke.
9. Provide a permanent data plate in the vicinity of the counterweight buffer indicating the maximum designed counterweight runby.
10. Support buffers from the pit floor level with all required blocking and bracing steel members.
11. Coordinate the installation of the buffer inspection platform and ladder with the Architect and Construction Manager.

B. Inspection Ladders and Guards

1. Provide the following secondary metal work in the pit, hoistway and in elevator machine room in accordance with bid documents.

    a. Counterweight shall be guarded by means of a fixed screen from the pit floor to a position of at least 2450 mm (96") above pit floor.
    b. Pit access ladders.
    c. Guard around machine and ropes.

2. Submit detailed shop drawings of all miscellaneous metal items for approval.
3. Provide painted sheet steel covers for all dead end hitches.
4. The pit ladder shall have continuous steel flat bar side rails 12 mm (1/2") x 75 mm (3"), with eased edges, spaced a minimum of 400 mm (16") apart. Rungs shall be steel bars 18 mm (3/4") in diameter, spaced 300 mm (12") apart with top to have a non-slip surface. Rungs shall be located along centerline of side rails, located not less than 180 mm (7") from the nearest permanent object or structure. Plug weld and grind smooth on outer rails faces. Support each ladder at top and bottom and at intermediate points spaced not more than 1500 mm (60"). Extend side rails 1200 mm (48") above top rung.
5. Prime paint and apply two (2) coats of rust inhibiting machinery enamel to metal work specified above.

C. Governor Rope Tension Assembly

1. Provide a governor rope tension assembly.

    a. Maintain the proper tension in the governor rope with a weighted tension sheave located in the pit.

        1) Springs used to develop the tension are not acceptable.

    b. The sheave shall be of proper diameter and set directly plumb with the governor rope drop to prevent the rope from pulling off of the sheave at an angle.
    c. Lubrication fittings shall be provided on the assembly.
    d. The assembly shall have necessary rope guards to prevent accidental contact of the rope/sheave by service personnel and to prevent the governor rope from jumping off of the sheave.

D. Pit Stop Switch

1. Where pit depth does not exceed 67", each elevator pit shall be provided with a push/pull or toggle switch that is conspicuously designated "EMERGENCY STOP" and located so as to be readily accessible from the hoistway entrance on the lowest landing served at a height of approximately 18" above the floor.

a. This switch shall be arranged to prevent the application of power to the hoist motor and machine brake when placed in the "OFF" position.

2.7 HOISTWAY ENTRANCES

A. Hoistway Entrance Structure

1. Frames - The frames shall be constructed of 14-gauge sheet steel.
2. Doors - The doors shall be constructed of 16-gauge sheet steel, not less than 1-1/4" thick, reinforced to accept hangers, interlocks or door closers.
3. Equip all hoistway landing doors with one-piece full height non-vision wings of material and finish to match hall side of door panels.
4. Entrances shall bear 1 ½ hour label of Underwriters Laboratories, Inc.
5. Provide each door panel with two removable laminated plastic composition guides, arranged to run in sill grooves with a minimum clearance, replaceable without removing the door from the hangers and incorporating a steel fire stop.
6. Provide rubber bumpers at the top and bottom of the door to stop them at their limit of travel in opening direction.
7. Sills - Provide narrow-type, extruded sills with the nosing approximately one (1) inch deep and running the full length of door travel.

    a. The sills shall be at least 3/8 inch thick.
    b. The wearing surface shall be of a non-slip type.
    c. Rigidly secure the sills to the building construction by means of steel sill support brackets or blocking with necessary metal shimming or adjustments.
    d. Provide and rigidly secure sill support members to the building structure after blocking and leveling them with necessary metal shimming.

        1) Use 4" x 4" x ¼" angle for single speed entrances and 5" x 5" x 3/8" angle for two speed entrances.
        2) If formed sheet steel sill support members are used, the structural properties of these members shall match or exceed the structural properties of 4" x 4" x ¼" angle for single speed entrances, and 5"x 5" x 3/8" angle for two speed entrances.

8. Struts - Provide 3" x 3" x 1/4" hot rolled steel angle struts.

    a. If formed sheet steel struts are used, the structural properties of formed struts shall match or exceed the structural properties of 3" x 3"x 1/4" steel angle.
    b. Extend the struts from top of sill to either the bottom of floor beam or intermediate framing above.
    c. Bolt struts in place with not less than two (2) bolts at each end.
    d. Strut clip angles or brackets shall have a thickness not less than the thickness of the supported strut.

9. Track Support - 3/16-inch-thick steel track support plate shall extend between and be bolted to the vertical steel struts with no less than two (2) bolts at each end.

10. Track Covers – 14 gauge steel cover plates shall extend the full travel of the doors.

    a. Covers shall be made in sections for service access to hangers, sheaves, tracks and interlocks.
    b. The sections above the door opening shall be movable from within the elevator car.
    c. Cover fastening devices shall be non-removable from the cover.

11. Fascias – 14 gauge steel fascia plates shall extend at least the full width of the door and be secured at hanger support and sill with oval head machine screws.

    a. Provide fascia plates where the clearance between the edge of the loading side of the platform and the inside face of the hoistway enclosure exceeds the code allowed clearance.

12. Toe Guards - Provide 14 gauge steel toe guards to extend twelve (12) inches below any sill not protected by fascia.

    a. The toe guards shall extend the full width of the door and shall return to the hoistway wall at a 15-degree angle and be firmly fastened.

13. Dust Covers - Provide 14 gauge steel dust covers to extend six (6) inches above any header not protected by fascia.

    a. The dust covers shall extend to a full width of travel of the doors, return to the hoistway wall at a 15-degree angle and be firmly fastened.

14. The bottom of each horizontally sliding hoistway door panel shall be equipped with guiding members and safety retainers in accordance with A17.1 Safety Code as adopted and/or modified by the AHJ.

    a. The bottom hoistway door panel safety retainers shall be of stainless steel "Z" bar design, or shall be otherwise designed to prevent displacement of the door panel.
    b. Elevator Contractor must submit proof to the Department, in the form of a statement certified by a licensed architect or engineer, that the engineering and design of the safety retainers comply with the performance standard defined in Appendix “K”.

B. Tracks / Hangers / Closers / Related Equipment

1. Formed or extruded steel landing door hanger tracks shall be provided.
2. Each landing door panel shall be suspended from a pair of door hanger assemblies that are compatible with the hanger tracks.

    a. Hanger assemblies shall be directly mounted to the door panel using 3/8” diameter or better hardware.

b. Solid steel blocks shall be used where job-site conditions dictate the use of spacers between hanger assemblies and the landing door panel.
c. Hanger assemblies shall be adjusted or shimmed so that door panels are suspended in a plumb manner with no more than 3/8" vertical clearance to the cab entrance threshold.
d. Upthrust rollers shall be adjusted for minimal operating clearance against the bottom edge of the hanger track.
e. Means shall be provided to prevent hangers from jumping the track.
f. Blocks shall be provided to prevent rollers from overrunning the end of the track.

3. Each set of single speed side slide landing doors shall be provided with a sill-mounted spring closing mechanism.

a. Spirator-type spring closers shall be acceptable should prevailing sill depth or runby clearance conditions require their use.

C. Interlocks / Unlocking Devices

1. Each set of landing doors shall be provided with a complete electromechanical interlock assembly.

a. Each interlock assembly shall consist of:

1) A switch housing with contacts.
2) Lock keeper.
3) Clutch engagement/release subassembly.
4) Associated linkages.

b. Arrange the lock so that individual leading door panels (side slide or center opening) are locked when in the closed position.

2. Non-typical mounting arrangements for interlocks and/or related mechanisms must receive prior approval from the Consultant.
3. Each hoistway door interlock assembly shall be provided with an emergency release mechanism utilizing a drop-leaf type access key at all landings served.

a. Each hoistway door shall accommodate manufacturers standard lock release key with escutcheon.

1) The key hole shall be fitted with a metal ferrule that matches the door finish.
2) Drilling key holes in the field will not be accepted.

2.8 CAR EQUIPMENT / FRAME

A. Car Frame and Platform

1. The car frame shall be made of steel members, with the required factor of safety.
2. The car platform shall consist of a steel frame with necessary steel stringers, all securely welded together.
3. The frame and platform shall be so braced and reinforced that no strain will be transmitted to the elevator car.
4. Passenger Elevators

    a. Provide platform with two (2) layers of 3/4" thick marine grade plywood.
    b. Cover the underside of the car platform with sheet steel.
    c. The support frame shall carry rubber pads on which the platform shall rest without any connection to the steel frame for sound and vibration isolation.
    d. Provide extruded stainless steel thresholds having non-slip surface, guide grooves.
    e. Recess the platform to receive finished flooring as selected by the architect and specified under another section of their specification.
    f. The car frame shall be sized for an 8’-0” overall cab height.
    g. Design the elevator frames and platforms for a Class A freight loading.

B. Car Safety

1. Provide a governor actuated mechanical safety device mounted under the car platform and securely bolted to the car sling.
2. The car safety shall be sized for the capacity and speed noted herein.

    a. When tripped, the safety mechanism shall engage the rails with sufficient force to stop a fully loaded car with an average rate of retardation within the limits given in A17.1 Safety Code as adopted and/or otherwise modified by the AHJ.

3. Install a car safety marking plate of corrosion resistant metal and, in addition to the data required by Code, indicate the manufacturer's name and manufacturer's catalog designation number for safety.
4. Make provisions to release the car safety. In no event shall the safety be released by downward motion of the car. Raising the car to reset the safety shall be allowed.
5. Provide an electrical safety plank switch that will interrupt the power to the hoist machine and apply the machine brakes when the safety is set.

C. Automatic Leveling / Releveling / Positioning Device

1. Equip the elevator with a floor leveling device which shall automatically bring the car to a stop within 1/4” of any floor for which a stop has been initiated regardless of load or direction of travel.
2. This device shall also provide for releveling which shall be arranged to automatically return the elevator to the floor in the event the elevator should move below or above floor level in excess of 1/4”.
3. This device shall be operative at all floors served and whether the hoistway or car door is open or closed provided there is no interruption of power to the elevator.

4. A positioning device shall be part of the controller microprocessor systems.

    a. Position determination in the hoistway may be through fixed tape in the hoistway or by sensors fitted on each driving machine to encode and store car movement.
    b. Design the mechanical features and electrical circuits to permit accurate control and rapid acceleration and retardation without discomfort.

5. Where there are consecutive floors/stops that are short stops, the system shall be capable of distinguishing between the two landing zones without error.
6. All equipment and logic required for leveling system to properly function with short stops shall be included.

D. Top-of-Car Inspection Operating Station

1. An inspection operating station shall be provided on top of the elevator car.
2. This station shall be installed so that the controls are plainly visible and readily accessible from the hoistway entrance without stepping on the car.
3. When the station is operational, all operating devices in the car shall be inoperative.
4. Provide the following control devices and features:

    a. A push/pull or toggle switch designated “EMERGENCY STOP” shall be arranged so as to prevent the application of power to the hoist motor or machine brake when in the “off” position.
    b. A toggle switch designated “INSPECTION” and “NORMAL” to activate the top of car Inspection Service Operation.
    c. Push button designated “Up”, “Down” and “Enable” to operate the elevator on Inspection Service (the “Enable” button shall be arranged to operate in conjunction with either the “Up” or “Down” button).
    d. An indicator light and warning buzzer that are subject to activation under Phase I - Fire Emergency Recall Operation.

E. Load Weighing Device

1. Provide means to measure the load in the car within an accuracy of ± 4% of the elevator capacity.
2. Provide one of the following types of devices:

    a. A device consisting of four (4) strain gauge load cells located at each corner of the car platform and supporting a free floating car platform and cab with summing circuits to calculate the actual load under varying conditions of eccentric loading.
    b. A strain gauge device located on the crosshead, arranged to measure the deflection of the crosshead and thus determine the load in the car.
    c. A device consisting of four (4) strain gauge load cells, supporting the weight of the elevator machine with summing circuits to calculate the actual load under varying conditions of load.

d. A device to measure the tension in the elevator hoist ropes and thus determine the load in the car.

3. Arrange that the output signal from the load weighing device be connected as an input to the signal and motor control systems to pre-torque of the hoisting machine motors where applicable.
4. Provide audible and visual signals in connection with the load weighing device when used as an "overload" device.

F. Car Enclosure Work Light / Receptacle

1. The top and bottom of each car shall be provided with a permanent lighting fixture and 110 volt GFI receptacle.
2. Light control switches shall be located for easy accessibility from the hoistway entrance.
3. Where sufficient overhead clearance exists, the car top lighting fixture shall be extended no less than 24" above the crosshead member of the car frame.
4. Light bulbs shall be guarded so as to prevent breakage or accidental contact.

G. Emergency Exits / Top

1. Ensure they operate as per code and have proper electrical contacts and mechanical locks on the exterior of the cab enclosure.
2. No other key to the building shall unlock the emergency exit lock except access switch keys which may be keyed alike.

   a. Keys shall be assigned in accordance with ASME A17.1 Group 1 Security requirements.

H. Master Door Power Operator System – VVVF/AC

1. Provide a heavy-duty master door operator on top of the elevator car enclosure for power opening and closing of the cab and hoistway entrance door panels.
2. The operator may be of the pivot/lever or belted linear drive type.
3. Operator shall utilize an alternating current motor, controlled by a variable voltage, variable frequency (VVVF) drive and a closed-loop control with programmable operating parameters.

   a. System may incorporate an encoder feedback to monitor positions with a separate speed sensing device or an encoderless closed-loop VVVF-AC control to monitor motor parameters and vary power applied to compensate for load changes.

4. The type of system shall be designated as a high speed operator, designed for door panel opening at an average speed of two (2.0) feet per second and closing at approximately one (1.0) foot per second.

a. Reduce the closing speed as required to limit kinetic energy of closing doors to within values permitted by ASME A17.1 as may be adopted and/or modified by the AHJ.

5. The door shall operate smoothly without a slam or abrupt motion in both the opening and closing cycle directions.

   a. Provide controls to automatically compensate for load changes such as:

      1) Wind conditions (stack effect).
      2) Use of different weight door panels on multiple landings.
      3) Other unique prevailing conditions that could cause variations in operational speeds.

   b. Provide nudging to limit speed and torque in conjunction with door close signaling/closing and timing devices as permitted by ASME A17.1 as may be adopted and/or modified by the AHJ. Nudging shall be initiated by the signal control system and not from the door protective device.

6. In case of interruption or failure of electric power from any cause, the door operating mechanism shall be so designed that it shall permit emergency manual operation of both the car and corridor doors only when the elevator is located in the floor landing unlocking zone.

   a. The hoistway door shall continue to be self-locking and self-closing during emergency operation.
   b. The door operator and/or car door panel shall be equipped with safety switches and electrical controls to prevent operation of the elevator with the door in the open position as per ASME A17.1 Code Standards.
   c. Provide zone-lock devices as required by ASME A17.1 as may be adopted and/or otherwise modified by the AHJ.

7. Construct all door operating levers of heavy steel or reinforced extruded aluminum members.
8. Belts shall be designed for long life and operate noise free.
9. All components shall be designed for stress and forces imposed on the related parts, linkages and fixed components during normal and emergency operation functions.

   a. All pivot points, pulleys and motors shall have either ball or roller-type bearings, oilite bronze bushings or other non-metallic bushings of ample size.

10. Provide operating data / data tag permanently attached to the operator as required by applicable code and standards.

I. Door Reopening Device

1. Provide an infrared curtain door protection system.

2. The door shall be prevented from closing and reopen when closing if a person interrupts any one of the light rays.
3. The door shall start to close when the protection system is free of any obstruction.
4. The infrared curtain protective system shall provide:

    a. Protective field not less than 71" above the sill.
    b. Where a horizontal infrared light beam system is used:

        1) A minimum of forty-seven (47) light beams.
        2) Accurately positioned infrared lights to conform to the requirements of the applicable handicapped code.

    c. Modular design to permit on board test operation and replacement of all circuit boards without removing the complete unit.
    d. Controls to shut down the elevator when the unit fails to operate properly.

2.9 FINISH / MATERIALS / SIGNAGE

A. Material, Finishes and Painting

1. General

    a. Cold-rolled Sheet Steel Sections: ASTM A366, commercial steel, Type B
    b. Rolled Steel Floor Plate: ASTM A786
    c. Steel Supports and Reinforcement: ASTM A36
    d. Aluminum-alloy Rolled Tread Plate: ASTM B632
    e. Aluminum Plate: ASTM B209
    f. Stainless Steel: ASTM A167 Type 302, 304 or 316
    g. Stainless Steel Bars and Shapes: ASTM A276
    h. Stainless Steel Tubes: ASTM A269
    i. Aluminum Extrusions: ASTM B221
    j. Nickel Silver Extrusions: ASTM B155
    k. Bronze Sheet: ASTM B36(36M) alloy UNS No. C2800 (Muntz Metal)
    l. Structural Tubing: ASTM A500
    m. Bolts, Nuts and Washers: ASTM A325 and A490
    n. Laminated / Safety Tempered Glass: ANSI Z97.1

2. Finishes

    a. Stainless Steel

        1) Satin Finish: No. 4 satin, long grain.
        2) Mirror Finish: No. 8 non-directional mirror polished.

    b. Sheet Steel:

        1) Shop Prime: Factory-applied baked on coat of mineral filler and primer.

2) Finish Paint: Two (2) coats of low sheen baked enamel, color as selected by the Architect.
3) Steel Equipment: Two (2) coats of manufacturer's standard rust-inhibiting paint to exposed ferrous metal surfaces in both the hoistway and pit that do not have galvanized, anodized, baked enamel, or special architectural finishes.

3. Painting

a. Apply two (2) coats of clear lacquer to bronze or similar non-ferrous materials to prevent tarnishing during a period of not less than twelve (12) months after initial acceptance by the Owner or Agent.
b. Identify all equipment including buffers, car apron, crosshead, safety plank, machine, controller, drive, governor, disconnect switch, etc., by 4" high numerals which shall contrast with the background to which it is applied. The identification shall be either decalcomania or stencil type.
c. Paint or provide decal-type floor designation not less than four (4) inches high on hoistway doors (hoistway side), fascias and/or walls as required by A17.1 as may be adopted and/or modified by the AHJ. The color of paint used shall contrast with the color of the surface to which it is applied.

B. Hoistway Entrances Finish and Design

1. Hoistway entrances and door panels shall be finished as specified by the Owner.
2. Where no finish is specified, finishes shall be baked enamel primer gray.
3. Refer to specifications for other design requirements.

C. Hoistway Entrances

1. Entrance Frames:

a. Passenger Elevators - Provide stainless steel with No. 4 finish unit frame with welded and mitered corners ground smooth, 2" wide square profile.

2. Door Panels:

a. Stainless steel with No. 4 finish.

3. Entrance Sills:

1) Extruded stainless steel.

D. Designation and Data Plates, Labeling and Signage.

1. Provide an elevator identification plate on or adjacent to each entrance frame where required by the AHJ.

2. Provide an elevator identification plate on or adjacent to each entrance frame at the designated landing only as required by code.
3. Elevators shall be identified by "number" only. Where a "letter" is used to identify the elevator, the letter shall indicate the Bank the elevator is in.

    a. The designation numeral shall be a minimum of 3" in height.
4. For MRL elevators; provide permanent engraved signage indicating the location of the main line disconnect switch(es) for the elevator or bank of elevators.

    a. The sign shall be located on or adjacent to the Firefighters' Emergency Phase I key switch located at the designated landing.
    b. Lettering must be a minimum of 6 mm (0.25 in) high in red or a color contrasting with a red background.

5. Provide floor designation cast plates at each elevator entrance, on both sides of the jamb at a height of sixty (60) inches to the baseline of floor indication.

    a. Floor number designations and Braille shall be 2" high, 0.03" raised and stud mounted.

6. Identify the designated medical emergency services elevator with 3" high international symbol at each elevator entrance on both sides of the jamb.
7. Provide raised designations and Braille markings to the left of the car call and control buttons of the car operating panel(s).

    a. Designations shall be a minimum of 5/8" high, 0.03" raised and stud mounted.

8. Provide elevators with data and marking plates, labels, signages and refuge space markings complying with A17.1 Elevator Safety Code as may be adopted and/or otherwise modified by the AHJ.

    a. In addition to information listed on the crosshead data plate as required by A17.1, the plate shall include the weight required to be placed in the elevator to achieve balanced load.

9. Architect shall select the designation and data plates from manufacturer's premium line of plates.

2.10 FIXTURES / SIGNAL EQUIPMENT

A. General - Design and Finish

1. The design and location of the hall and car operating and signaling fixtures shall comply with the ADAAG and local requirements of the AHJ.
2. The operating fixtures shall be selected from the manufacturer's premium line of fixtures.

3. Custom designed operating and signaling fixtures shall be as shown on the drawings or as approved by the Owner / Architect.
4. The layout of the fixtures including all associated signage and engraving shall be as approved by the Owner / Architect.
5. Where no special design is shown on the drawings, the buttons shall be as follows:

    a. Stainless steel convex type as selected by the Architect from the manufacturer's premium line of push buttons.
    b. The button shall have a collar with LED call registered light.

6. Where no special design is shown on the drawings, the faceplates shall be as follows:

    a. 1/8" thick stainless steel with No. 4 finish and tamperproof screws.

7. Mount passenger elevator fixtures with concealed fasteners. The screw/fastener and key switch cylinder finishes shall match faceplate finish.
8. Where key-operated switch and or key operated cylinder locks are furnished in conjunction with any component of the installation, four (4) keys for each individual switch or lock shall be furnished, stamped or permanently tagged to indicate function.
9. All caution signs, pictographs, code mandated instructions and directives shall be engraved and filled with epoxy in code required colors.

B. Main Car Operating Panel

1. Provide a main car operating push button panel on the inside front return panel of the car
2. Car operating panel shall be incorporated in the swing-front return of the elevator cab.

    a. Coordination with car front manufacturer shall be the responsibility of the Elevator Contractor.

3. The push buttons shall become individually illuminated as they are pressed and shall extinguish as the calls are answered.
4. The operating panel shall include:

    a. A call button for each floor served, located not more than 48” above the cab floor.
    b. “Door open” / “Door close” buttons.
    c. “Alarm” button, interfaced with emergency alarm. The alarm button shall illuminate when pressed.
    d. “Emergency Stop” switch per local law located at 35” above the cab floor.
    e. Self-dialing, hands-free emergency communication system actuation button with call acknowledging feature and ASME A17.1. design provisions.

f. Three (3) position firefighter key operated switch, call cancel button and illuminated visual/audible signal system with mandated signage engraved per ASME A 17.1 Standards as modified by the AHJ.

1) The "City-Wide Standard Key" (#2642) as well as the "Fire Department Standard Key" (#1620), shall be used for all Fire Emergency operating devices.

5. Provide a locked service cabinet flush mounted and containing the key switches required to operate and maintain the elevator, including, but not limited to:

a. Independent service switch.
b. Light switch.
c. Fan switch.
d. G. F. I. duplex receptacle.
e. Emergency light test button and indicator.
f. Inspection Service Operation key switch.
g. Port for hand-held service tool where applicable.
h. Dimmer for cab interior lighting.

6. Car operating panel shall incorporate:

a. An integral (no separate faceplate) digital L.E.D. floor position indicator.
b. Emergency light fixture (without a separate faceplate) and black-filled engraved unit I.D. number or other nomenclature, as approved by Owner.
c. A "No Smoking" advisory.
d. The rated passenger load capacity in pounds.
e. The number of persons on passenger elevators and freight elevators approved for passenger use based on the capacity divided by one hundred sixty (160) pounds per person.

7. Where posting of an advisory is permitted by the Governing Authority in lieu of the inspection certificate, engrave the following advisory on the hinged cover of the service cabinet, or where otherwise directed by the Owner.

a. Inspection Certificate is On File in the Building Management Office Located on the (indicate floor).

C. Car Position Indicator

1. The position of the car in the hoistway shall be indicated by the illumination of the position indicator numeral corresponding to the floor at which the car has stopped or is passing.

a. Provide 2" high, 10-segment LED type position indicator with direction arrows, integral with the car operating panel.

b. Provide Lexan cover lens with hidden support frame behind fixture plate to protect the indicator readout.
c. Provide audible floor passing signal per ADA standards where not provided by the elevator signal control.
d. Flush mount fixture with cover to match selected car front or car operating panel finish as directed by the Owner.

D. Car Direction Lantern

1. Provide a car riding lantern with visual and audible signal in the edge of the strike and/or return post.
2. The lens shall be digital.
3. Use concealed fasteners for flush faceplate with hairline joint.
4. Car lantern shall indicate the direction of travel when doors are 3/4 open.
5. The unit shall sound once for the “up” direction and twice for the “down” direction.

a. Provide an electronic chime with adjustable sound volume.

E. Corridor Push Button Stations / Riser

1. A riser of push button signal fixtures shall be provided on all floors.
2. Each signal fixture shall consist of the following:

a. A flush-mounted faceplate.
b. Illuminating tamper-resistant push buttons measuring 3/4” at their smallest dimension as selected by the Owner.
c. A recessed mounting box, electrical conduit and wiring.

3. Intermediate landings shall be provided with fixtures containing two (2) push buttons while terminal landings shall be provided with fixtures containing a single push button.
4. Include firefighter key switch in the main lobby level station or other designated recall landing fixture.
5. Push button signal fixtures shall be installed within ADA reach range above the floor and shall be installed both plumb and flush to the finished wall.

a. Standardize the final distance on all floors.

6. Fixture faceplates shall be installed adjacent to the entrance frame on front wall.

F. Hoistway Access Switch

1. Install a cylindrical type keyed switch at top terminal in order to permit the car to be moved at slow speed with the doors open to allow authorized persons to obtain access to the top of the car.

2. Where there is no separate pit access door, a similar switch shall be installed at the lowest landing in order to permit the car to be moved away from the landing with the doors open in order to gain access to the pit.
3. Locate the switch in the terminal floor entrance jambs in a separate fixture with a flush cover plate at a height of 78" above the finished floor. Cover plate shall be of a design and style as approved by the Owner, the Owner's representative or Architect.
4. This switch is to be of the continuous pressure spring-return type and shall be operated by a cylinder type lock having not less than a five (5) pin or five (5) disc combination with the key removable only in the "OFF" position.

    a. The lock shall not be operable by any key which operates locks or devices used for other purposes in the building and shall be available to and used only by inspectors, maintenance men and repairmen in accordance with A17.1 applicable Security Group.

2.11 CAR ENCLOSURES

A. Elevator Cab / General Design Requirements

1. The design, materials and finishes of the cab enclosures shall be as shown on the Architectural Drawings.
2. Materials:

    a. Particleboard: Premium grade, AWI, Section 200, fire retardant treated, equal to Duraflake FR
    b. Plastic Laminate: Comply with NEMA LD3, 0.05" thick, color, texture and finish as selected by the architect
    c. Wood Panels: AWI Premium Grade, quarter sliced veneer.
    d. Trims: AWI Premium Grade quarter sawn red oak / cherry / maple / mahogany

3. Steel Shell: 14-gauge furniture steel reinforced and designed to accept finished wall panels. Finish shell panels with one coat of rust inhibitive primer and two (2) coats of enamel paint in accordance with Section 09900. Apply 1/8" thick, rubberized sound deadening material to the hoistway side of the shell.

    a. All panels shall have minimum radii. Apply sealant beads to panel joints before bolting together with lock washers.

4. Canopy: Canopy construction methods shall match the shell walls. Use 12-gauge furniture sheet steel and adequately support canopy to comply with the loading requirements of the Code.

    a. Provide necessary cutouts for the installation of fan and top emergency exit. Arrange exit panel to swing up using a heavy duty piano hinge.
    b. The exit panel shall have dual locks, necessary stops and a handle.

c. When in the locked position, the panel shall be flush with the interior face of the canopy with hairline joints.

5. Base: Where finished base provided under another section of these specifications, recess and prepare the shell to accept the base.

   a. Provide concealed vent slots above side and rear wall base for proper ventilation. Arrange and size vent slots for quiet operation without any whistling. Use 16 gauge baffles to protect the hoistway side of the vent slots.
   b. The elevator cab shop drawings shall include elevator vent calculations and number, location and size of top and bottom vent holes.

6. Flooring: Where finished flooring is provided under another section of these specifications, recess and prepare sub-flooring to accept the finished flooring.
7. Front Return Panels, Entrance Posts and Transom: Use 14-gauge furniture sheet steel with proper reinforcing to prevent oil canning.

   a. Fixed type return panel shall have required cutouts for car operating and signaling fixtures.
   b. Swing front return panels shall have required cutouts for the car call buttons, keyed switches, indicators, emergency light fixture, cabinets and the specified special control and signaling devices.

      1) Provide concealed full height stainless steel piano hinges of sufficient strength to support the panel, without sagging, in the open position.
      2) The concealed locks shall secure the panel at two (2) points with linkage that shall be free of vibration and noise when in the locked position.
      3) When locked in the closed position, the front return panel shall be in true alignment with the transom and base.
      4) Lock release holes shall be not more than 1/4" diameter and be located at the return side jamb of the panel.
      5) Engrave the elevator identification number and capacity, no smoking sign, firefighter instructions, and other code mandated instructions and caution signs directly in the front return panel. Applied panels are unacceptable.

   c. Transom shall be 14 gauge, and be reinforced and constructed the same as the front return panels.
   d. Construct entrance posts for the passenger elevators from 12-gauge sheet steel and reinforce to maintain vertical alignment with the adjacent panels.
   e. Provide channel post entrance jambs for the service elevators. Clad channels with 14-gauge sheet steel and through bolt channels to the floor and to the reinforced header section.

8. Cab Doors: Standard 1" thick, 14-gauge hollow metal flush construction, reinforced for power operation and insulated for sound deadening. Paint hatch side of doors black and face cab side with 16-gauge sheet steel in selected material and finish.

    a. The door panels shall have no binder angles. All welds shall be continuous, ground smooth and invisible.
    b. Drill and reinforce doors for installation of door operator hardware, door protective device, door gibs, etc.

9. Ceiling: Construction techniques for wall panels shall apply to ceiling panel construction. Locate top emergency exit inconspicuously. Construct and mount the exit panel to prevent light leakage around the perimeter of panel.
10. Ventilation: The ventilation system of the exhaust type shall be provided in each elevator.

    a. The system shall include a blower driven by a direct connected motor and mounted on top of car with isolation to effectively prevent transmission of vibration to the car structure. The blower shall have not less than two (2) operating speeds. The ventilation system shall be sized to provide one (1) air change per minute at low speed and one and one-half (1.5) air changes per minute at high speed. The unit design and installation shall be such that the maximum noise level, when operating at high speed, shall not exceed 55 dBA approximately three (3) feet above the car floor. A three (3)-position switch to control the blower shall be provided in the service panel.
    b. The fan or blower shall start upon the pressing of a car or landing call button and shall stop a predetermined time (approximately two [2] minutes) after the car has answered the last registered call.
    c. The cab ventilation fan shall be designed not to consume more than .33 watts per CFM while operating at maximum speed.

11. Lighting: Arrange lighting fixtures and ceiling assembly to provide even illumination without hot spots and shadows. Overlap fluorescent lamps where cove lighting is specified.

    a. Design and configure lighting system to facilitate maintenance of the fixtures.
    b. Cab lighting source shall be designed to provide a minimum of 35 lumens per watt.
    c. When an unoccupied elevator has remained stationary for fifteen (15) minutes, the cab lighting shall become de-energized. The control system shall automatically re-energize the lighting system upon opening of the cab door.

12. Handrails: All attachment hardware shall match the selected handrail and shall permit handrail removal from within the cab.

    a. Provide a minimum of 10-gauge plate at the hatch side of the shell, aligned with the handrail attachment points, to assure secure handrail mounting.

b. Design handrail attachment system to support the weight of a person (two hundred fifty [250] pounds) sitting on it without any deflection and damage to the handrail, cab panel and the shell.

13. Protective Pads and Pad Hooks: Provide pad hooks at locations as directed by the Architect. Protective pads shall cover the front return panels, and the side and rear walls. Provide cutouts in pads for access to the cab operating and signaling devices. Pads shall be fire-resistant canvas with two (2) layers of cotton batting padding.

    a. Identify each pad by elevator number and wall location.

14. Accessories: Construct elevator cab to accommodate the door operator, hangers, interlocks and all accessory equipment provided under other sections of these specifications, including firefighter phones, card readers and CCTV.
15. All cab materials shall conform to the code prescribed flame spread rating and smoke development requirements.

B. Cab Fabrication and Installation

1. Maintain accurate relation of planes and angles with hairline fit of contacting panels and/or surfaces.
2. Any shadow gaps (reveals) between panels shall be consistent and uniform.
3. Unless otherwise specified or shown on the drawings, for work exposed to view use concealed fasteners.
4. Maximum exposed edge radius at corner bends shall be 1/16". There shall be no visible grain difference at the bends.
5. Form the work to the required shapes and sizes with smooth and even curves, lines and angles. Provide necessary brackets, spacers and blocking material for assembly of the cab.
6. Interior cab surfaces shall be flat and free of bow or oil canning. The maximum overall deviation between the low and high points of 24" x 24" panel section shall not exceed 1/32".
7. Make weights of connections and accessories adequate to safely sustain and withstand stresses to which they will be subjected.
8. All steel work except stainless steel and bronze materials shall be painted with an approved coat of primer and one (1) coat of baked enamel paint.
9. Cab Finish Warranty Enhancement

    a. Contractor shall be responsible for engineering and installing interior cab finishes in a manner that will withstand all code mandated inspections and test procedures. Failure of finishes during testing shall be repaired by the contractor without expense to the owner. Any objections or qualifications to material selection or design shall be identified during the engineering of the cab interior drawings for review by the owner.

C. Passenger Elevators

1. Wall Panels:

    a. 9/16" thick, clear, transparent, laminated glass panels in stainless steel mullions. Mullion corners shall be mitered, welded and ground smooth for unit frame appearance. Use 1/8" thick durometer neoprene gasket for installing the glass panels.

        1) Alternate: 3/4" thick fire retardant plywood or particleboard with all surfaces faced with textured stainless steel as directed by the Architect. The panels shall be constructed as the removable type.

2. Canopy: Paint canopy with a coat of primer and one coat of low sheen enamel paint.
3. Front Return Panels: Stainless steel with No. 4 finish.
4. Cab Doors: Stainless steel with No. 4 finish.
5. Ceiling:

    a. Suspended 3/4" thick fire retardant plywood or particleboard with all surfaces finished in brushed stainless steel.

6. Handrails:

    a. Round stainless steel handrail at the rear wall with size selected by the architect.

7. Lighting:

    a. The cab lighting system shall be as shown on the drawings.
    b. Fully recessed rectangular LED down light fixtures with bronze reflector. Unless otherwise shown on the drawings, provide a light fixture in each ceiling panel.

8. Base: Provide a 4" high stainless steel base, flush with wall panels at the sides and rear of the cab enclosure.

D. Elevator Security Mirror (NYC Multiple Dwellings)

1. Provide a mirror within the car enclosure which will enable waiting passengers to view the inside of the cab to determine if any person is in the elevator prior to entering.

E. Inspection Certificate and Frame (NYC Buildings)

1. Provide the mandated inspection card frame for posting the required certificate or an alternate plaque as directed by the Owner designee.
2. The alternate plaque shall indicate the location of the certificate within the building, including floor and/or room designation, where access is available during normal business hours.

2.12 EMERGENCY LIGHTING / COMMUNICATIONS / SIGNALING

A. Battery Back Up Emergency Lighting Fixture and Alarm

1. Provide a self-powered emergency light unit.

    a. The light fixture shall contain a minimum of two (2) LED lamps. Flush mount the light fixture in the main car station. The fixture shall have a milk white lens.

2. Provide a car-mounted battery unit including solid-state charger and testing means enclosed in common metal container.

    a. The battery shall be rechargeable nickel cadmium with a ten (10)-year minimum life expectancy. Mount the power pack on the top of the car.
    b. Provide a 6" diameter alarm bell mounted directly to the battery/charger unit and connected to sound when any alarm push button or stop switch in the car enclosure is operated.
    c. The bell shall be configured to operate from power supplied by the building emergency power generator. The bell shall produce a sound output of between 80-90 dBa (measured from a distance of 10') mounted on top of the elevator car.

        1) Activation of this bell shall be controlled by the stop switch and alarm button in the car operating station.
        2) The alarm button shall illuminate when pressed.

3. Where required by Code for the specific application, the unit shall provide mechanical ventilation for at least one (1) hour.
4. The operation shall be completely automatic upon failure of normal power supply.
5. Unit shall be connected to normal power supply for car lights and arranged to be energized at all times so it automatically recharges battery after use.

B. Central Exchange Communication System / Intercom

1. Provide an ADA compatible, hands-free intercommunication system for all elevators for two-way, multi-path communication between the elevator car stations and master stations using a central exchange design system.
2. The communication system shall include:

    a. A car station in each elevator.
    b. A master station in each machine room to communicate with the central and satellite monitor panels, and with each car within its group.
    c. A master station where selected by the Owner.

3. The car station shall have a loudspeaker and a microphone to provide hands-free communication. The station shall be installed behind the car operating panel.
4. Master stations shall include:

    a. Selector push buttons.
    b. Annunciator lights for each connected station.
    c. Speaker/microphone.
    d. Volume control and function buttons.

5. The master stations shall communicate with other master stations and any elevator in that group.
6. A call shall be placed from the elevator car station by pressing the emergency call or alarm button.

    a. This action shall cause the lamp in the corresponding button of all the designated master stations to flash and an intermittent tone to be heard.
    b. When the incoming call is answered, the flashing light shall go to a steady condition.
    c. Disconnection of a call is simply done by depressing the designated car button once.
    d. If a call request is placed during a conversation, it shall be indicated by a flashing light and short tone of every designated master station.
    e. When the original conversation is completed, the normal intermittent tone shall resume.

7. A master station shall be connected to any of its designated car stations by depressing the corresponding call button.

    a. The lamp in the button shall be illuminated while the button is depressed.
    b. In the car station an audible tone shall be emitted and immediate communication is established.
    c. The call shall be ended by depressing the button a second time, disconnecting the circuit.
    d. The master stations shall call any other master station by depressing the corresponding call button.
    e. The button shall lock in its down position and the lamp shall be lit with a steady light.
    f. At the called master station, a short tone shall be sent out and the lamp in the button corresponding to the “calling” party shall be lit.
    g. After the tone, immediate communication is established.

8. On all non-called master stations, the lamps corresponding to the calling and called stations shall be illuminated as an indication that those stations are busy.
9. Provide all power supplies, wire, conduit, fittings, etc., for both systems.
10. Location of the stations, in the specified rooms or areas, shall be directed by the Owner.
11. The intercom system shall include the following features:

a. Test button and monitoring features to verify audio circuit path.
b. All call buttons to initiate a call to all cars in the systems.
c. Priority button in the remote monitoring panel stations.
d. Visual acknowledgment and engraving for the hearing impaired.

12. Provide a battery backup power supply for the intercom capable of providing sufficient power to operate the complete system for a minimum of four (4) hours.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspection

1. Study the Contract Documents with regard to the work as specified and required so as to ensure its completeness.
2. Examine surface and conditions to which this work is to be attached or applied and notify the Owner in writing if conditions or surfaces are detrimental to the proper and expeditious installation of the work. Starting the work shall imply acceptance of the surfaces and conditions to perform the work as specified.
3. Verify, by measurements at the job site, dimensions affecting the work. Bring field dimensions which are at variance with those on the accepted shop drawings to the attention of the Owner. Obtain the decision regarding corrective measures before the start of fabrication of items affected.
4. Cooperate in the coordination and scheduling of the work of this section with the work of other sections so as not to delay job progress.

3.2 INSTALLATION / PROJECT PHASING

A. Installation

1. Install the elevators, using skilled personnel in strict accordance with the final accepted shop drawings and other submittals.
2. Comply with the code, manufacturer’s instructions and recommendations.
3. Coordinate work with the work of other building functions for proper time and sequence to avoid delays and to ensure right-of-way of system. Use lines and levels to ensure dimensional coordination of the work.
4. Accurately and rigidly secure supporting elements within the shaftways to the encountered construction within the tolerance established.
5. Provide and install motor, switch, control, safety and maintenance and operating devices in strict accordance with the submitted wiring diagrams and applicable codes and regulations having jurisdiction.
6. Ensure sill-to-sill running clearances do not exceed 1 ¼” at all landings served.
7. Erect guide rails plumb and parallel with a tolerance of 1/8” (plus or minus 1/16”).
8. Install rails so joints do not interfere with brackets, attachment points and divider beam.

9. Set entrance plumb in hoistway and in alignment with guide rails prior to erection of the front walls.
10. Arrange door tracks and sheaves so that no metal-to-metal contact exists.
11. Reinforce hoistway fascias to allow not more than 1/2" of deflection.
12. Install elevator cab enclosure on platform plumb and align cab entrance with hoistway entrances.
13. Sound isolate cab enclosure from car structure. Allow no direct rigid connections between enclosure and car structure and between platform and car structure.
14. Isolate cab fan from canopy to minimize vibration and noise.
15. Remove oil, dirt and impurities and give a factory coat of rust inhibitive paint to all exposed surfaces of struts, hanger supports, covers, fascias, toe guards, dust covers and other ferrous metal.
16. Prehang traveling cables for at least twenty-four (24) hours with ends suitably weighted to eliminate twisting after installation.
17. After installation, touch up in the field, surfaces of shop primed elements which have become scratched or damaged.
18. Lubricate operating parts of system as recommended by the manufacturer.

3.3 FIELD QUALITY CONTROL

A. Inspection and Testing

1. Upon completion of each work phase or individual elevator specified herein, the Contractor shall, at its own expense, arrange and assist with inspection and testing as may be required by the A.H.J. in order to secure a permit to operate.

B. Substantial Completion

1. The work shall be deemed "Substantially Complete" for an individual unit or group of units when, in the opinion of the Consultant, the unit is complete, such that there are no material and substantial variations from the Contract Documents, and the unit is fit for its intended purpose.
2. Governing authority testing shall be completed and approved in conjunction with inspection for operation of the unit; a certificate of operation or other required documentation issued; and remaining items mandated for final acceptance completion are limited to minor punch list work not incorporating any life safety deficiencies.
3. The issuance of a substantial completion notification shall not relieve the Contractor from its obligations hereunder to complete the work.
4. Final completion cannot be achieved until all deliverables, including but not limited to training, spare parts, manuals, and other documentation requirements, have been completed.

3.4 PROTECTION / CLEANING

A. Protection and Cleaning

1. Adequately protect surfaces against accumulation of paint, mortar, mastic and disfiguration or discoloration and damage during shipment and installation.
2. Upon completion, remove protection from finished surfaces and thoroughly clean and polish surfaces with due regard to the type of material. Work shall be free from discoloration, scratches, dents and other surface defects.
3. The finished installation shall be free of defects.
4. Before final completion and acceptance, repair and/or replace defective work, to the satisfaction of the Owner, at no additional cost.
5. Remove tools, equipment and surplus materials from the site.

3.5 DEMONSTRATION

A. Performance and Operating Requirements

1. Passenger elevators shall be adjusted to meet the following performance requirements:

   a. Speed: within ±3% in both directions of travel under any loading condition.
   b. Leveling: within ±1/4" as measured between the car entrance threshold and the landing sill on any given floor under any loading condition.
   c. Typical Floor-to-Floor Time: (Recorded from the doors start to close on one floor until they are 3/4 open at the next floor) under various loading conditions.

Group Passenger Elevators	8.5 seconds.

   d. Door Operating Times

Door Type	Opening	Closing
36" single speed side opening	1.0 sec.	2.0 sec.

   e. Door dwell time for hall calls: 4.0 sec with Advance lantern signals.
   f. Door dwell time for hall calls: 5.0 sec without Advance lantern signals.
   g. Door dwell time for car calls: 3.0 seconds.
   h. Reduced non-interference dwell time: 1.0 seconds.

2. Maintain the following ride quality requirements for the passenger elevators:

   a. For speeds up to 1400 fpm, the speed of the car roller guides shall not exceed 500 rpm.
   b. Where pit permits, extend bottom roller guides by not less than one half the distance from the centerline of the upper roller guides to the platform.
   c. Noise levels inside the car shall not exceed the following:

      1) Car at rest with doors closed and fan off - 40 dba.
      2) Car at rest with doors closed, fan running - 55 dba.

3) Car running at high speed, fan off - 50 dba.
4) Door in operation - 60 dba.

d. Vertical and horizontal accelerations shall not exceed 14 milli-g.

1) The accelerometer used for this testing shall be capable of measuring and recording acceleration to nearest 0.01 m/s² (1 milli-g) in the range of 0-2 m/s² over a frequency range from 0-80 Hz with ISO 8041 filter weights applied. Accelerometer should provide contact with the floor similar to foot pressure, 60 kPA (8.7psi).

e. The amplitude of acceleration and deceleration shall not exceed 2.6 - 2.8 ft./sec^2 for geared and MRL traction, and 3.5 - 4 ft./sec^2 for gearless traction elevators.
f. The maximum jerk rate shall be 1.5 to 2.0 times the acceleration and deceleration.
g. The maximum velocity which the elevator achieves in either direction of travel while operating under load conditions that vary between empty car and full rated load shall be within ± 3% of the rated speed.

B. Acceptance Testing

1. Comply with the requirements of Division 01.
2. The Contractor shall provide at least five (5) days prior written notice to the Owner and Consultant regarding the exact date on which work specified in the Contract Documents will reach completion on any single unit of vertical transportation equipment.
3. In addition to conducting whatever testing procedures may be required by local inspecting authorities in order to gain approval of the completed work, and before seeking approval of said work by the Owner, the Contractor shall perform certain other tests in the presence of the Consultant.
4. The Contractor shall provide test instruments, test weights, and qualified field labor as required to safely operate the unit under load conditions that vary from empty to full rated load and, in so doing, to successfully demonstrate compliance with applicable performance standards set forth in the project specifications with regard to:

a. Operation of safety devices.
b. Sustained high-speed velocity of the elevator in either direction of travel.
c. Brake-to-brake running time and floor-to-floor time between adjacent floors.
d. Floor leveling accuracy.
e. Door opening/closing and dwell times.
f. Ride quality inside the elevator car.
g. Communication system.
h. Load settings at which anti-nuisance, load dispatch, and load non-stop features are activated.

5. Upon completion of work specified in the Contract Documents on the last car in any group of elevators, and in conjunction with the aforementioned testing procedures, the Contractor shall carry out additional testing of group dispatch/supervisory control features in the presence of the Consultant.
6. The Contractor shall provide test instruments and qualified field labor as required to successfully demonstrate:

    a. The back-up operating mode for group dispatch failure.
    b. Simulated and actual emergency power operation.
    c. Firefighter, attendant and independent service operations.
    d. Restricted access security features and card reader controls.
    e. Zoning operations and floor parking assignments.
    f. Up/down peak operation.

7. After hour tests of systems such as emergency generators, fire service, and security systems shall be conducted at no extra cost to the Owner.

END OF SPECIFICATION