



**DESIGN AND CONSTRUCTION GROUP  
THE GOVERNOR NELSON A. ROCKEFELLER  
EMPIRE STATE PLAZA  
ALBANY, NY 12242**

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**ADDENDUM NO. 1 TO PROJECT NO. 44780**

**CONSTRUCTION, ELECTRICAL, MECHANICAL, PLUMBING AND ELEVATOR WORK  
REHABILITATE ELEVATORS  
SHIRLEY CHISHOLM STATE OFFICE BUILDING  
55 HANSON PLACE  
BROOKLYN, NY 11217**

April 5, 2017

**NOTE:** This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

**SPECIFICATION GROUP**

**CONSTRUCTION WORK SPECIFICATION**

1. Construction Contract Project Manual: Sections 000105, 000110, 055000, 070153, 078100, 079200, 089100 (noted "REVISED 3/24/17") and Schedule of Submittals (SOS) accompany this Addendum and supersede the same numbered originally issued sections and SOS.

**ELECTRICAL WORK SPECIFICATIONS**

2. Electrical Contract Project Manual: Sections 000110, 078400, 079200, 260519, 260529, 260532, 260534, 260549, 262212, 262416, 262726, 262812, 262813, 262815, 263623, 265110, 283105 (noted "REVISED 3/24/17") and SOS accompany this Addendum and supersede the same numbered originally issued sections and SOS. Add the accompanying section 260531 to the Project Manual.

**MECHANICAL WORK SPECIFICATIONS**

3. Mechanical Contract Project Manual: Section 230725 (noted "REVISED 3/24/17") and SOS accompany this Addendum and supersede the same numbered originally issued section and SOS.

**ELEVATOR WORK SPECIFICATIONS**

4. Elevator Contract Project Manual: Sections 140120 and 141000 (noted "REVISED 3/24/17") accompany this Addendum and supersede the same numbered originally issued section and SOS.

## **CONSTRUCTION, ELECTRICAL, MECHANICAL, PLUMBING, and ELEVATOR WORK DRAWING**

5. Revised Drawing:
  - a. Drawing No.G-001, noted “REVISED DRAWING 3/24/2017” accompanies this Addendum and supersedes the same numbered originally issued drawings.

### **CONSTRUCTION WORK DRAWINGS**

6. Revised Drawing:
  - a. Drawing Nos.A-105 and A-601, noted “REVISED DRAWING 3/24/2017” accompany this Addendum and supersede the same numbered originally issued drawings.
7. Addendum Drawings:
  - a. Drawings Nos. S-101, S-601, S-701 and S-702 noted “ADDENDUM DRAWING 3/24/2017” accompany this Addendum and form part of the Contract Documents.

### **MECHANICAL WORK DRAWINGS**

8. Revised Drawings:
  - a. Drawing Nos. M-001 and M-101, noted “REVISED DRAWING 3/24/2017” accompany this Addendum and supersede the same numbered originally issued drawings.

### **PLUMBING WORK DRAWINGS**

9. Revised Drawings:
  - a. Drawing Nos. P-001 and P-101, noted “REVISED DRAWING 3/24/2017” accompany this Addendum and supersede the same numbered originally issued drawings.

### **ELECTRICAL WORK DRAWINGS**

10. Revised Drawings:
  - a. Drawing Nos. E-001, E-101, E-102, E-103 and E-601, noted “REVISED DRAWING 3/24/2017” accompany this Addendum and supersede the same numbered originally issued drawings.

### **ELEVATOR WORK DRAWINGS**

11. Revised Drawing:
  - a. Drawing Nos.U-102 and U-105, noted “REVISED DRAWING 3/24/2017” accompany this Addendum and supersede the same numbered originally issued drawings.
12. Addendum Drawings:
  - a. Drawings Nos. U-106, U-107 and U-504 noted “ADDENDUM DRAWING 3/24/2017” accompany this Addendum and form part of the Contract Documents.

**END OF ADDENDUM**

Margaret F. Larkin  
Executive Director  
Design and Construction

**PROJECT NO.44780-C**

**REHABILITATE ELEVATORS  
SHIRLEY CHISHOLM STATE OFFICE BUILDING  
55 HANSON PLACE  
BROOKLYN, NY 11217**

**CONSTRUCTION WORK**

**PREPARED BY**

Ricardo Zurita Architecture &  
Planning, P.C.

Van Deusen & Associates

FPM Engineering Group, P.C.

Ysrael A. Seinuk, P.C.

Environmental Planning &  
Management, P.C.

**DECEMBER 16, 2016**

**CLIENT: OFFICE OF GENERAL SERVICES**

**PROJECT TEAM LEADER: NATHANIEL WALKER**

**PREPARED FOR**

State of New York  
Office of General Services  
35<sup>th</sup> Floor, Corning Tower  
The Governor Nelson A. Rockefeller  
Empire State Plaza  
Albany, NY 12242  
Phone (518) 474-0203  
FAX (518) 473-7862



**NOTE:....THE OFFICE OF GENERAL SERVICES REQUIRES GOOD FAITH EFFORTS ON THE PART OF ITS CONTRACTORS TO SOLICIT AND OBTAIN THE PARTICIPATION OF MINORITIES AND WOMEN AS SUBCONTRACTORS, AND EMPLOYEES IN ITS PROGRAMS.**

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### PROCUREMENT AND CONTRACTING REQUIREMENTS GROUP

#### DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS

##### INTRODUCTORY INFORMATION

###### Document Number and Title

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000105	Certification Page
000110	Table Of Contents
000115	List Of Drawings

##### BIDDING REQUIREMENTS

###### Document Number and Title

001114	Advertisement For Bids
002113	Instructions To Bidders
002213	Supplementary Instructions To Bidders – MWBE-EEO
002214	Supplementary Instructions To Bidders – Total Bid
002218	Supplementary Instructions To Bidders – Pre-Bid Site Visit
002219	Supplementary Instructions To Bidders – Qualifications Of Bidders
003126	Existing Hazardous Material Information
004166	Bid Form
004313	Form Of Bid Bond – Bid Security
004314	New York State Surety Bond
006517	DCA-3 Offerer Disclosure Of Prior Non-Responsibility Determinations

##### CONTRACTING REQUIREMENTS

###### Document Number and Title

007213	General Conditions
007305	Supplementary Conditions – Liquidated Damages
007307	Supplementary Conditions – MWBE-EEO
007309	Supplementary Conditions – License Requirements
007322	Supplementary Conditions – Worker’s Compensation
007323	Supplementary Conditions – Vendor Responsibility
007324	Supplementary Conditions - Encouraging Use of New York State Businesses in Contract Performance
007326	Supplementary Conditions - Orders on Contract (Change Orders)
007327	Supplementary Conditions – Encouraging Use of Service-Disabled Veterans-Owned Business Enterprises in Contract Performance



# **SPECIFICATIONS GROUP**

## **GENERAL REQUIREMENTS SUBGROUP**

### **DIVISION 01 – GENERAL REQUIREMENTS**

#### **Section Number and Title**

011000 Summary Of The Work  
011100 Safety  
012100 Allowances  
012200 Cost Computations  
013000 Administrative Requirements  
013113 Project Schedule  
013119 Project Meetings  
013300 Submittals  
014100 Regulatory Requirements  
015000 Construction Facilities & Temporary Controls  
016500 Materials And Equipment  
017329 Removals Cutting And Patching  
017716 Contract Closeout

## **FACILITY CONSTRUCTION SUBGROUP**

### **DIVISION 02 – EXISTING CONDITIONS**

#### **Section Number and Title**

028304 Handling Of Lead Containing Materials

### **DIVISION 03 – CONCRETE**

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## **APPENDIX**

2<sup>nd</sup> Addendum to the Asbestos, Lead and Universal Wastes/Miscellaneous Hazardous Material Report

Addendum to the Asbestos, Lead and Universal Wastes/Miscellaneous Hazardous Material Report

Asbestos Lead and Universal Wastes/Miscellaneous Hazardous Materials Report

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BDC-406.1 Statement of Special Inspections  
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Sample Fire Stop Schedule  
Schedule of Submittals (SOS)

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### **DIVISION 02 – EXISTING CONDITIONS**

#### **Section Number and Title**

028304 Handling Of Lead Containing Materials

### **DIVISION 07 – THERMAL AND MOISTURE PROTECTION**

#### **Section Number and Title**

078400 Firestopping  
079200 Joint Sealers

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## **APPENDIX**

2<sup>nd</sup> Addendum to the Asbestos, Lead and Universal Wastes/Miscellaneous Hazardous Material Report

Addendum to the Asbestos, Lead and Universal Wastes/Miscellaneous Hazardous Material Report

Asbestos Lead and Universal Wastes/Miscellaneous Hazardous Materials Report

BDC-328 Utilization Plan

BDC-329 Contractor's List of Subcontractors-Suppliers

Prevailing Rate Case

Sample Firestop Schedule

Schedule of Submittals (SOS)

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# REHABILITATE ELEVATORS

SHIRLEY A. CHISHOLM STATE OFFICE BUILDING  
55 HANSON PLACE  
BROOKLYN, NY 11217

OWNER:  
NEW YORK STATE OFFICE OF  
GENERAL SERVICES (OGS)



CONSULTANT  
**ARCHITECT:**  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
**MEP ENGINEERS:**  
FPM ENGINEERING GROUP, P.C.  
**ELEVATOR CONSULTANT:**  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**P M**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
**STRUCTURAL ENGINEER:**  
**YAS**  
YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEER

**WARNING:**  
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

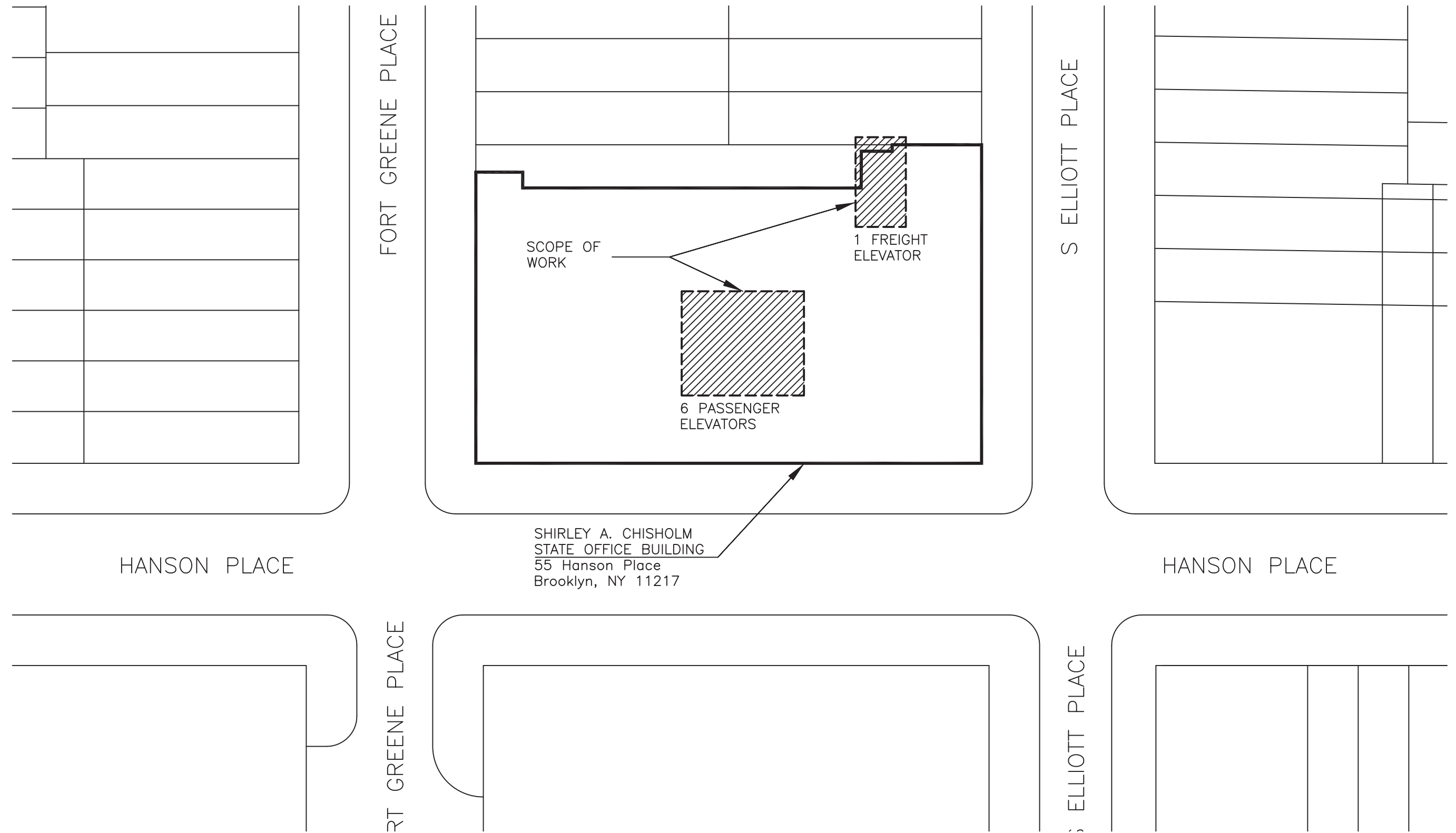


**CONTRACT:** CONSTRUCTION, ELECTRICAL, HVAC PLUMBING, ELEVATOR  
**TITLE:** REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING  
**LOCATION:** 55 HANSON PLACE BROOKLYN, NY 11217  
**CLIENT:** OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
△	12/16/2016	BID DOCUMENT
<b>PROJECT NUMBER:</b>	<b>44780-C,E,H,P,U</b>	
<b>DESIGNED BY:</b>		
<b>DRAWN BY:</b>		
<b>FIELD CHECK:</b>		
<b>APPROVED:</b>		
<b>SHEET TITLE:</b> COVER SHEET		
<b>DRAWING NUMBER:</b>	<b>G-001</b>	
SHEET	OF	



**1 LOCATION PLAN**  
N.T.S.



**2 SITE PLAN**  
1"=40'-0"

**GRAPHIC SYMBOLS**

**WALL SECTION KEY**  
X XX.XX  
DETAIL NUMBER  
SHEET NUMBER

**MATERIAL TYPE**  
ST-3

**PARTITION TYPE REFER TO PARTITION SCHEDULE**

**MULTIPLE ELEVATION KEY**  
X X X X X X  
SHEET NUMBER  
DETAIL NUMBERS

**SINGLE ELEVATION KEY**  
X XX.XX  
DETAIL NUMBER  
SHEET NUMBER

**VERTICAL/HORIZONTAL DETAIL KEY**  
X XX.XX

**DATUM/FLOOR ELEVATION**  
TOP OF SLAB  
0'-0"

**SPOT ELEVATION**  
000.00'

**CENTER POINT**  
CP

**ROOM NAME/NUMBER**  
ROOM NAME  
000

**PROJECT NORTH ARROW**  
NORTH

**REVISION CLOUD & KEY**

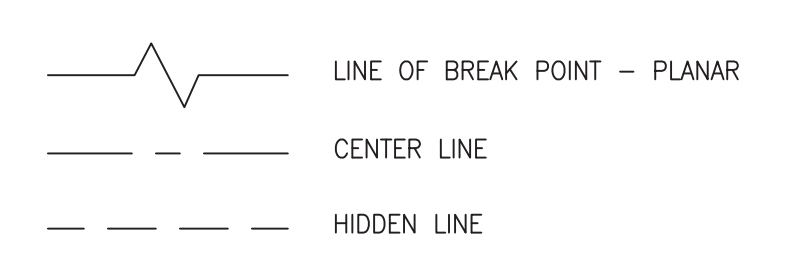
**NEW DOOR**  
1021

**EXISTING DOOR TO REMAIN**

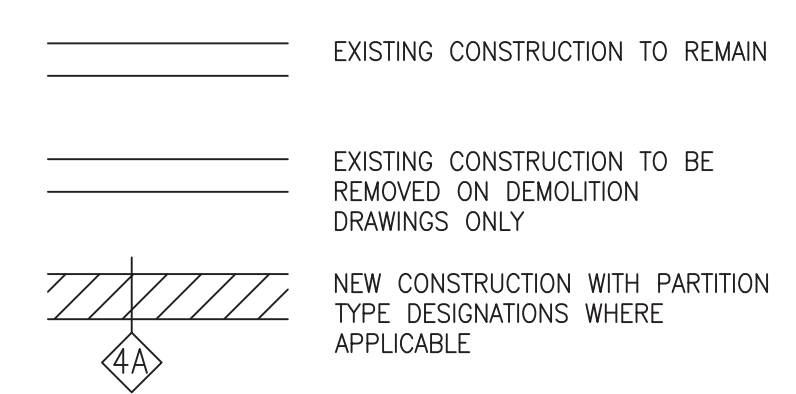
**ABBREVIATIONS**

BLK	BLACK	O.C	ON CENTER
EQ	EQUAL	OPG	OPENING
FRT	FIRE RETARDANT	OPP	OPPOSITE
GA	GAUGE	PTD	PAINTED
GWB	GYPSUM WALL BOARD	PNT	PAINT
		PWD	PLYWOOD
DTL	DETAIL	SECT	SECTION
DR	DOOR	SHT	SHEET
DWG	DRAWING	SIM	SIMILAR
		S	SOUTH
HM	HOLLOW METAL	SPEC	SPECIFICATION (S)
HVAC	HEATING, VENTILATING AND AIR CONDITIONING	SQ	SQUARE
		SS	STAINLESS STEEL
		STD	STANDARD
MAT	MATERIAL	THK	THICK (NESS)
MIN	MINIMUM	TYP	TYPICAL
MTL	METAL	W	WEST OR WIDTH
N	NORTH		
NOM	NOMINAL		
N.T.S	NOT TO SCALE		

**LINE TYPES**



**PARTITION KEY**



**GENERAL NOTES**

- ALL WORK PERFORMED BY THE CONTRACTOR/SUBCONTRACTOR SHALL CONFORM TO THE REQUIREMENTS OF THE 2015 IBC AND 2016 NYS SUPPLEMENTS, FIRE DEPARTMENT REGULATIONS, UTILITY COMPANY REQUIREMENTS, MUNICIPAL, LOCAL OR FEDERAL AND STATE LAWS, AS WELL AS ANY OTHER GOVERNING REQUIREMENTS AND BEST TRADE PRACTICES WHETHER OR NOT SPECIFIED ON THE DRAWINGS.
- ALL MATERIALS, ASSEMBLIES, FORMS AND METHODS OF CONSTRUCTION AND SERVICE EQUIPMENT SHALL COMPLY WITH THE REQUIREMENTS OF ALL SECTIONS OF THE NEW YORK BUILDING CODE.
- AT LEAST 48 HR. WRITTEN NOTICE SHALL BE GIVEN TO THE DIRECTOR'S REPRESENTATIVE BEFORE COMMENCEMENT OF WORK.
- WHERE THE CONTRACT, NOTES OR DRAWINGS CALL FOR ANY WORK OF A MORE STRINGENT NATURE THAN THAT REQUIRED BY THE BUILDING CODE OR ANY OTHER AUTHORITY HAVING JURISDICTION OVER THE WORK, THE WORK OF THE MORE STRINGENT NATURE CALLED FOR BY THE CONTRACT, CONSTRUCTION NOTES OR DRAWINGS SHALL BE FURNISHED IN ALL CASES.
- THE CONTRACTOR SHALL BE FULLY AND SOLELY RESPONSIBLE FOR THE REMOVAL, REPLACEMENT, AND RECTIFICATION OF ALL DAMAGED AND DEFECTIVE MATERIAL AND WORKMANSHIP IN CONNECTION WITH THE CONTRACT WORK. HE SHALL REPLACE OR REPAIR AS DIRECTED BY OGS ALL SUCH DAMAGED OR DEFECTIVE MATERIALS WHICH SHALL APPEAR WITHIN A PERIOD OF ONE YEAR FOLLOWING THE DATE OF ACCEPTED COMPLETION OF THE PROJECT.
- BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH OGS, OBTAIN ALL REQUIRED PERMITS, AND PAY ALL FEES REQUIRED. FORWARD COPIES TO OGS.
- THE CONTRACTOR IS TO CARRY WORKMEN'S COMPENSATION AND LIABILITY INSURANCE FOR ANY CLAIMS WHICH MAY ARISE DUE TO CONSTRUCTION WORK. PROOF OF THIS COVERAGE SHALL BE SUBMITTED AT THE SIGNING OF THE CONTRACT.
- PRIOR TO ANY WORK, THE CONTRACTOR SHALL FURNISH A CONSTRUCTION SCHEDULE SHOWING THE CHRONOLOGICAL PHASES OF HIS WORK, AND ALL RELATED WORK FOR THE COMPLETION OF THE PROJECT. THE SCHEDULE SHALL INDICATE ALL ORDERING LEAD TIME, LENGTH OF TIME FOR EACH PHASE, ITS START AND COMPLETION, WITH PROJECTED COMPLETION DATE.
- ALL DRAWINGS AND ALL CONSTRUCTION NOTES ARE COMPLEMENTARY, AND WHAT IS CALLED FOR BY EITHER WILL BE BINDING AS IF CALLED FOR BY ALL. ANY WORK SHOWN OR REFERRED TO ON ANY SET OF DRAWINGS SHALL BE PROVIDED AS THOUGH SHOWN ON ALL RELATED DRAWINGS.
- THE CONTRACTOR SHALL CLOSELY COORDINATE HIS WORK WITH THAT OF THE SUBCONTRACTORS TO ASSURE THAT ALL SCHEDULES ARE MET.
- THE CONTRACTOR SHALL NOTIFY DIRECTOR'S REPRESENTATIVE IMMEDIATELY IF HE CANNOT COMPLY WITH ALL WORK CALLED FOR ON THESE DRAWINGS.
- THE CONTRACTOR SHALL NOTIFY DIRECTOR'S REPRESENTATIVE OF ANY DISCREPANCIES BETWEEN THE DRAWINGS, THESE NOTES, AND FIELD CONDITIONS BEFORE COMMENCING ANY WORK AND REQUEST CLARIFICATION.
- ALL DIMENSIONS TO FINISHED FACE UNLESS OTHERWISE NOTED.
- MINOR DETAILS NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER CONSTRUCTION OF ANY PART OF THE WORK SHALL BE INCLUDED AS IF THEY WERE INDICATED IN THE DRAWINGS.
- WHERE THE TERMS "APPROVED EQUAL", "OTHER APPROVED", "ACCEPTABLE" OR

- OTHER GENERAL QUALIFYING TERMS ARE USED IN THESE NOTES, IT SHALL BE UNDERSTOOD THAT REFERENCE IS MADE TO THE RULING AND JUDGMENT OF DIRECTOR'S REPRESENTATIVE.
- THE CONTRACTOR SHALL REMOVE ALL RUBBISH AND WASTE MATERIAL, BOTH FROM HIS OWN AND OTHER SUBCONTRACTORS EMPLOYEES AND DISPOSE OF IT PROPERLY.
  - THE CONTRACTOR SHALL EXERCISE STRICT CONTROL OVER JOB CLEANING TO PREVENT ANY DIRT OR DUST FROM LEAVING THE JOB SITE.
  - THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL CONDITIONS AND MATERIALS WITHIN AND ADJACENT TO THE PROPOSED CONSTRUCTION AREA. ANY DAMAGE AS A RESULT OF CONSTRUCTION RELATED ACTIVITIES BY THE CONTRACTOR OR WORKMEN MUST BE CORRECTED WITHOUT DELAY. PATCHING AND REPLACING OF DAMAGED WORK SHALL BE DONE BY THE CONTRACTOR WHO IS RESPONSIBLE FOR THE DAMAGE. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY PROTECTION FOR HIS WORK UNTIL TURNED OVER TO THE CLIENT.
  - THE CONTRACTOR SHALL DESIGN AND INSTALL ADEQUATE SHORING AND BRACING FOR ALL STRUCTURAL OR REMOVAL TASKS. THE CONTRACTOR SHALL HAVE SOLE RESPONSIBILITY FOR ANY DAMAGE OR INJURIES CAUSED BY OR DURING THE EXECUTION OF THE WORK.
  - THE CONTRACTOR SHALL MAINTAIN A CURRENT AND COMPLETE SET OF CONSTRUCTION DOCUMENTS AT THE PROJECT SITE DURING ALL PHASES OF CONSTRUCTION FOR USE OF ALL TRADES.
  - THE CONTRACTOR, UPON ACCEPTANCE AND APPROVAL OF THE DRAWINGS, ASSUMES FULL RESPONSIBILITY FOR THE CONSTRUCTION, MATERIALS AND WORKMANSHIP OF THE WORK DESCRIBED IN THESE NOTES AND DRAWINGS, AND HE WILL BE EXPECTED TO COMPLY WITH THE SPIRIT AS WELL AS THE LETTER IN WHICH THEY ARE WRITTEN.
  - ALL EXISTING APPURTENANCES NOT BEING REMOVED SHALL BE REFURBISHED WHERE REQUIRED, ANY LOOSE ITEMS TIGHTENED (CEILING EXIT SIGNS, ETC.) AND ANY MISSING PARTS REPLACED BY THE CONTRACTOR TO ACHIEVE A FINISHED FIRST CLASS INSTALLATION AND APPEARANCE.
  - ALL REQUIRED EXITS, WAY OF APPROACH THERETO, AND WAY OF TRAVEL FROM THE EXIT INTO THE STREET SHALL CONTINUOUSLY BE MAINTAINED FREE FROM ALL OBSTRUCTIONS AND IMPEDIMENTS FOR UNOBSTRUCTED EGRESS IN THE CASE OF FIRE OR OTHER EMERGENCY. DURING THE ENTIRE PERIOD OF DEMOLITION AND CONSTRUCTION, ALL EXITS, EXIT LIGHTING, FIRE PROTECTIVE DEVICES AND ALARMS SHALL BE CONTINUOUSLY MAINTAINED.
  - WHERE OPENINGS OCCUR IN NEW AND EXISTING FIRE RATED AREAS OR PARTITIONS DUE TO EXISTING OR NEW CONDUIT RUNS, DUCTWORK, CABLES, PIPING, ETC., AND/OR WHERE EXISTING FIREPROOFING HAS BEEN REMOVED AS A RESULT OF NEW OR EXISTING CONSTRUCTION WORK, THE CONTRACTOR SHALL CLOSE AND/OR PATCH AS REQUIRED ALL OPENINGS TO MATCH IMMEDIATE ADJACENT AREAS IN MATERIAL, FINISH, AND FIRE-RATING.
  - THE WORD "PROVIDE" AS USED IN THESE DWGS IS SYNONYMOUS W/ "FURNISH AND INSTALL."
  - CONTRACTOR WILL PROVIDE LEAD-CONTAINING MATERIAL REMOVAL WORK PLAN AS PER SPECIFICATIONS, CONFIRMED AND ASSUMED LEAD PAINTS WILL INCLUDE THOSE INDICATED IN HAZARDOUS MATERIALS REPORT AND THE FOLLOWING: ANY EXISTING PAINTING IN THE FREIGHT ELEVATOR PIT, RAILING IN FREIGHT ELEVATOR MACHINE ROOM, ANY EXISTING BRICK WALL PAINTED IN WHITE AT THE SUB-BASEMENT, ANY EXISTING DOOR THAT MAY BE DISTURBED, IF GRINDING, WELDING, TORCHING OR FLAME CUTTING OF LEAD BASED PAINTS (LBP) OCCURS, ABATEMENT OF LBP INSTEAD OF HANDLING OF LBP WOULD BE REQUIRED.

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REVISED DRAWING 3/24/2017



CONSULTANT

ARCHITECT:

**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

**vda**

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

**PEM**  
ENVIRONMENTAL  
PLANNING &  
MANAGEMENT, INC.

STRUCTURAL ENGINEER:

**YAS**  
YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEER

WARNING:

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CONTRACT:

**CONSTRUCTION**

TITLE:  
REHABILITATE ELEVATORS - SHIRLEY  
CHISHOLM STATE OFFICE BUILDING

LOCATION:  
55 HANSON PLACE  
BROOKLYN, NY 11217

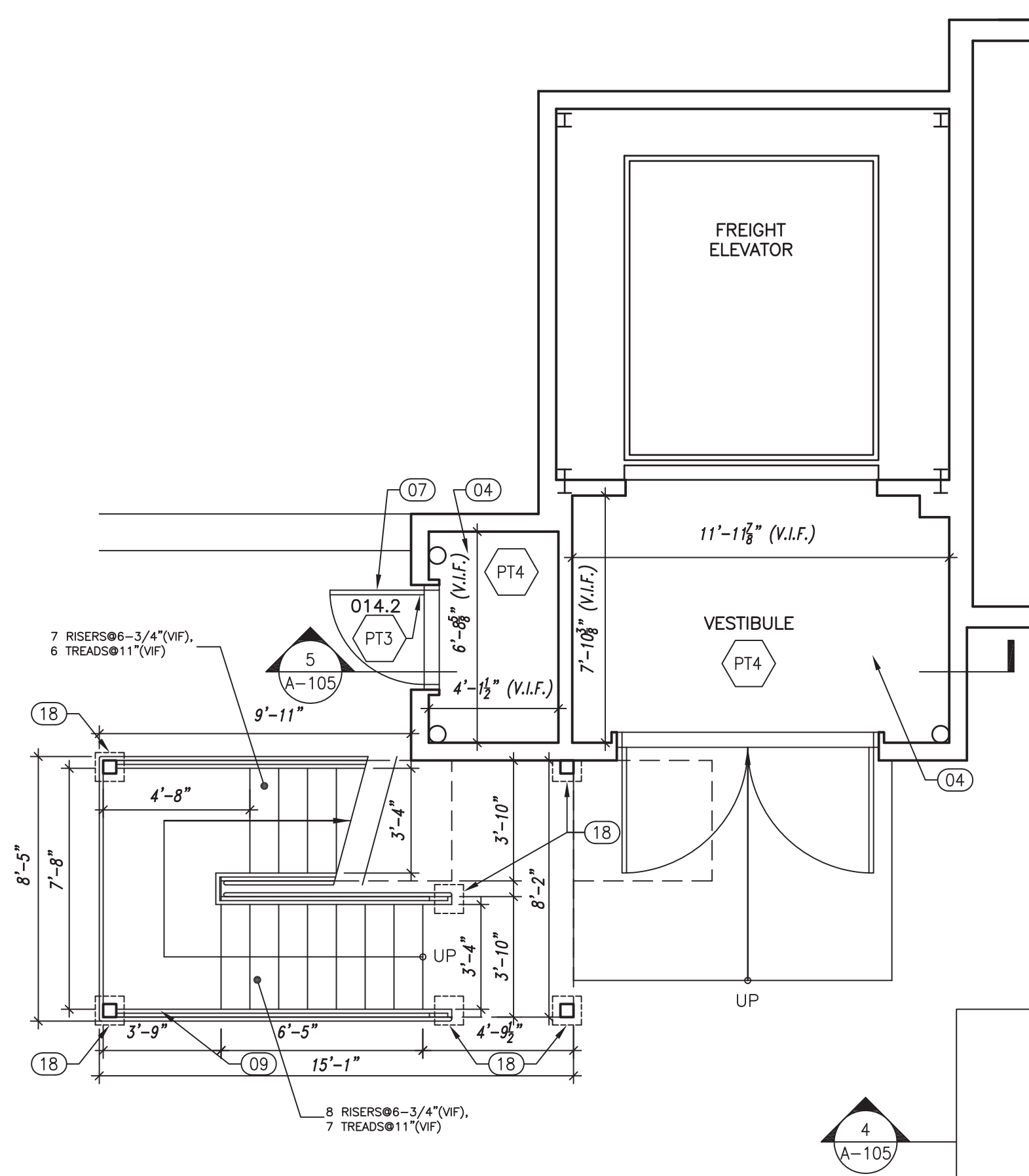
CLIENT:  
OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
△	12/16/2016	BID DOCUMENT
PROJECT NUMBER:	44780 - C	
DESIGNED BY:		
DRAWN BY:		
FIELD CHECK:		
APPROVED:		

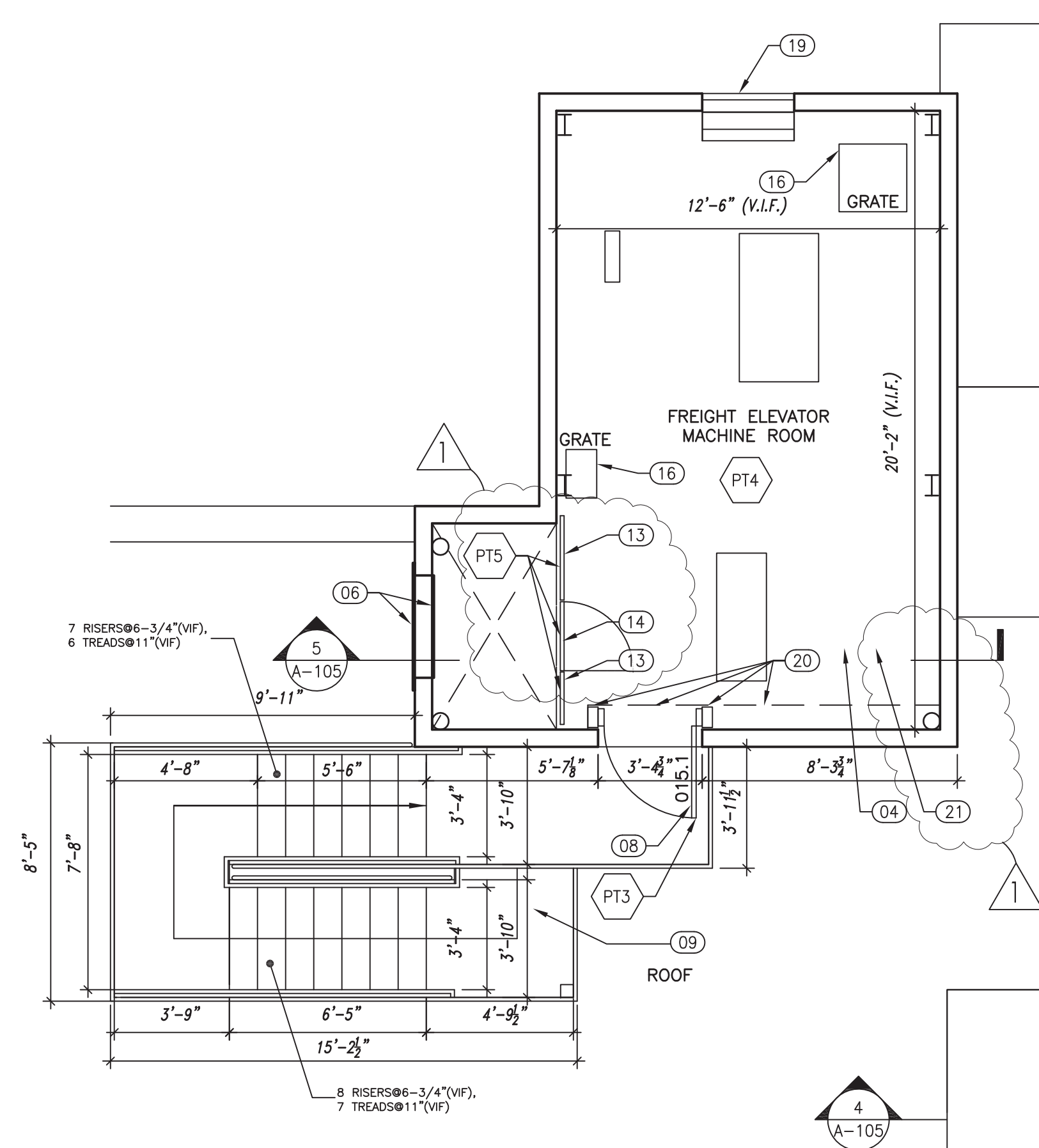
SHEET TITLE:  
**ROOF & PENTHOUSE  
FLOOR PLANS,  
ELEVATION AND SECTION**

DRAWING NUMBER:  
A-105

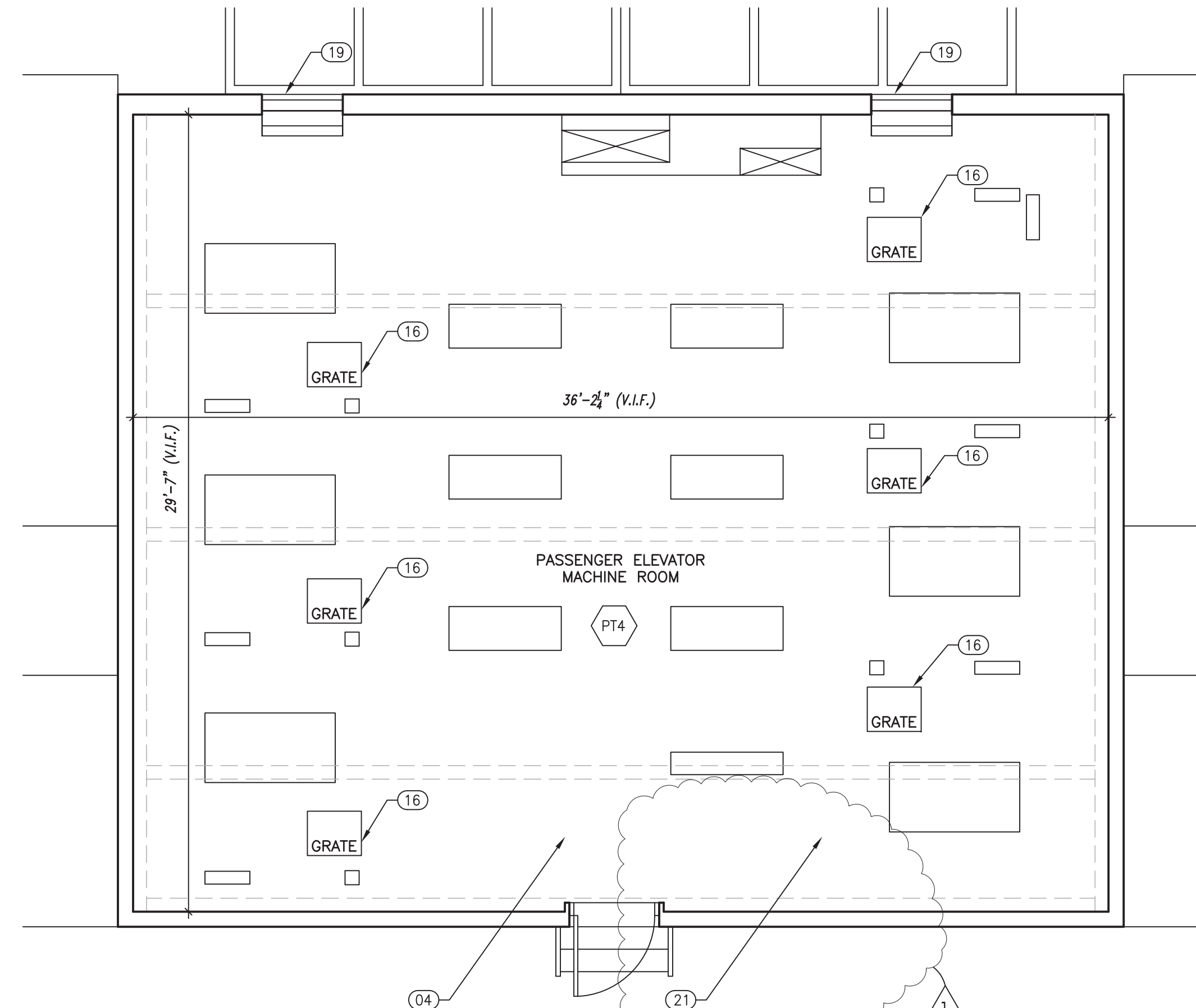
SHEET OF



**1** FREIGHT ELEVATOR. ROOF FLOOR PLAN  
1/4"=1'-0"



**2** FREIGHT EMR. PENTHOUSE PLAN  
1/4"=1'-0"

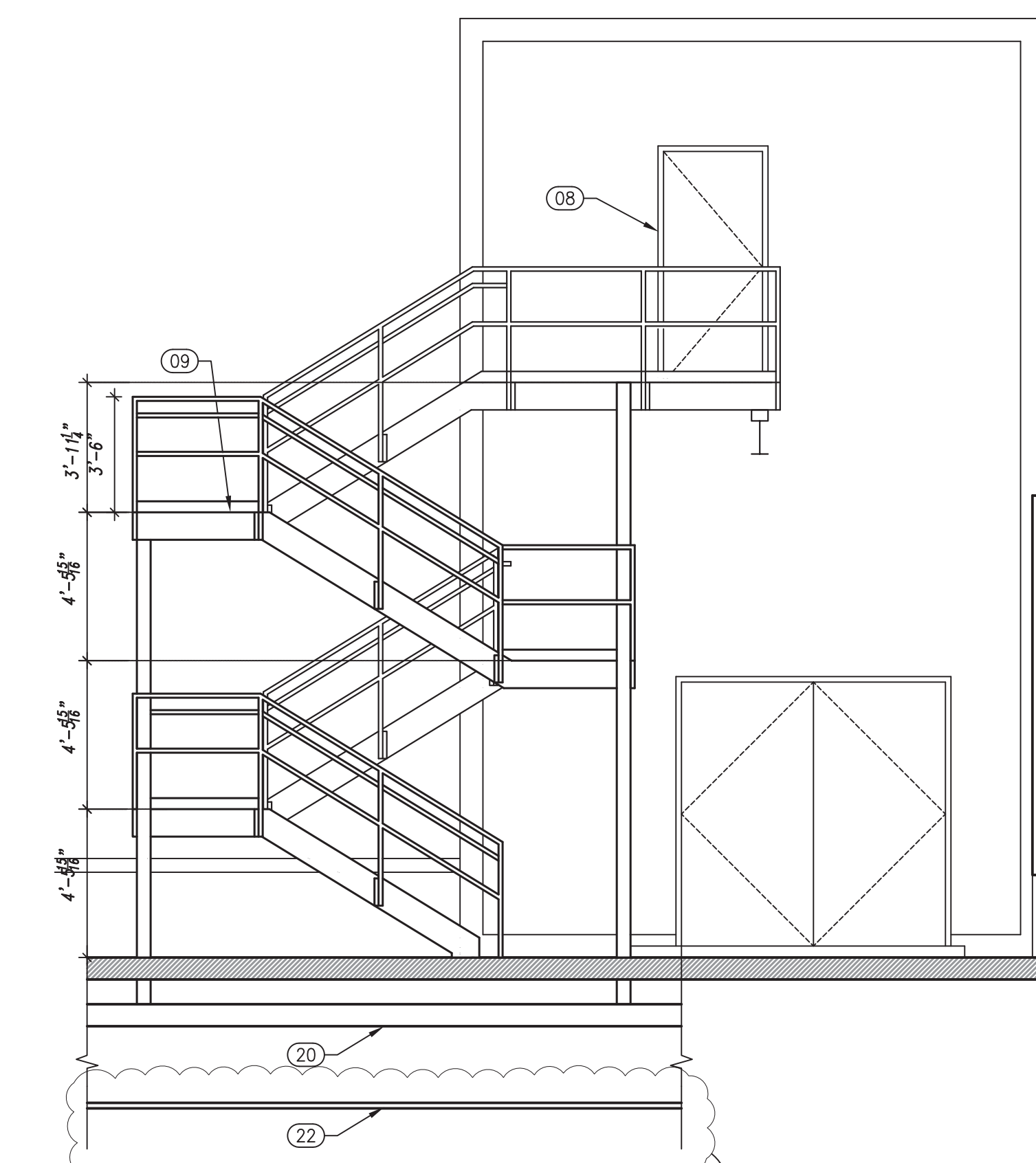


**3** PASSENGER ELEVATORS MACHINE ROOM. ROOF PLAN  
1/4"=1'-0"

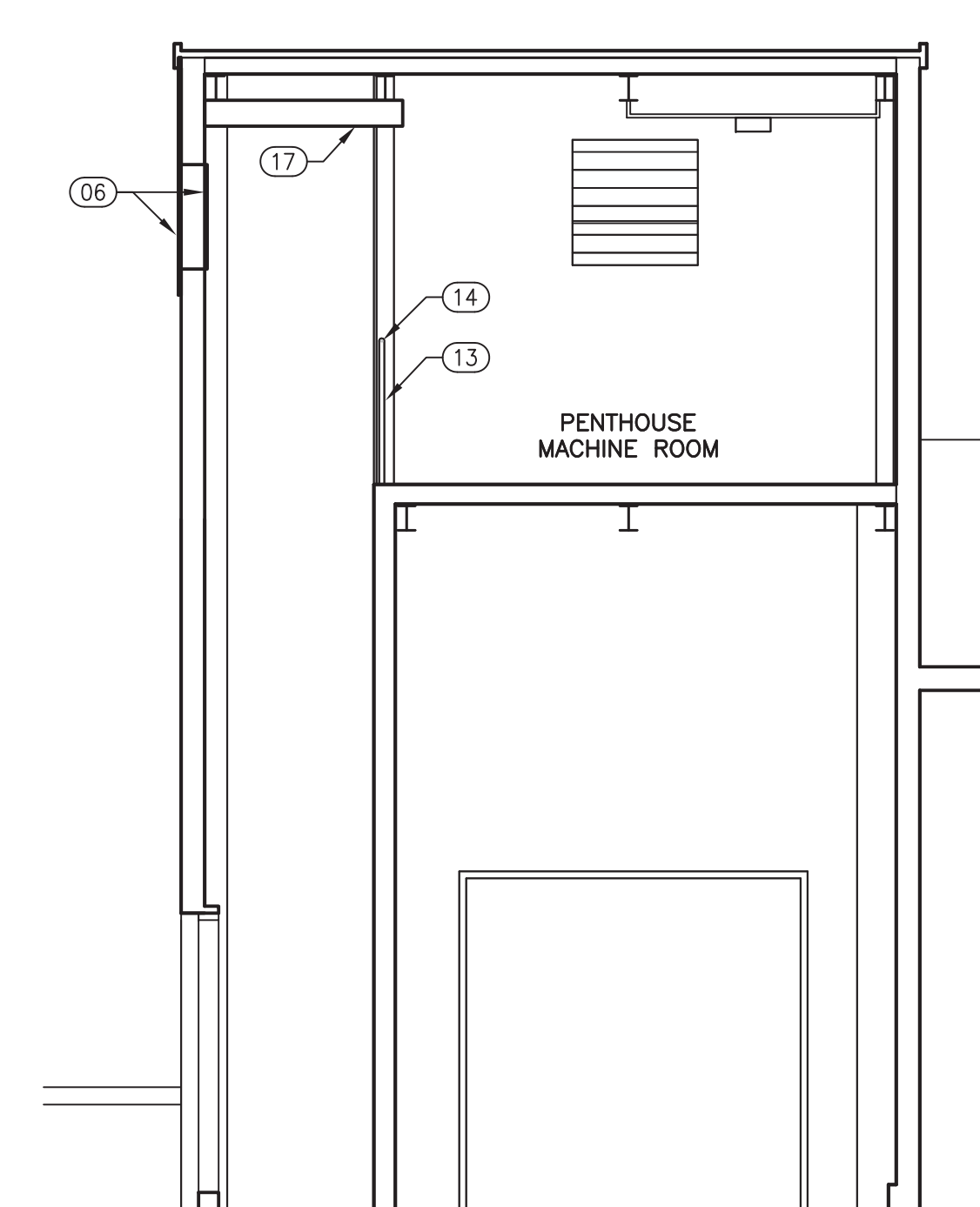
**KEYNOTES**

- 01 NOT IN USE
- 02 NOT IN USE
- 03 NOT IN USE
- 04 PAINT FLOOR
- 05 NOT IN USE
- 06 CLOSE EXISTING OPENING BY PROVIDING METAL INSULATED WALL SYSTEM TO MATCH EXISTING. 2HR RATED.
- 07 SCRABE & CLEAN EXISTING DOOR & FRAME IN PREPARATION FOR PAINTING. PAINT EXISTING DOOR AND FRAME. PAINT TYPE 3.
- 08 PROVIDE 7'-0"x3'-0" PAINTED HOLLOW METAL DOOR, FRAME & HARDWARE. PAINT TYPE 3.
- 09 PROVIDE METAL GRATE ACCESS STAIR WITH GALVANIZED 1 1/2" DIAM. PIPE GUARDRAIL AND HANDRAIL. PROVIDE VERTICAL SOLID RISER. SEE STRUCTURAL DWGS.
- 10 NOT IN USE
- 11 NOT IN USE
- 12 NOT IN USE
- 13 SCRABE & CLEAN EXISTING GUARDRAIL. ENSURE THAT EXISTING GUARDRAIL IS FREE FROM RUST. PAINT GUARDRAIL. PT5
- 14 PROVIDE "PS SAFETY ACCESS" FULL HEIGHT SAFETY SWING GATE. GALVANIZED STEEL, L5-GF-27 TO FIT 28" OPENING. PAINT PT5. OSHA AND ANSI COMPLIANT. CONTRACTOR TO VERIFY DIMENSION IN FIELD.
- 15 NOT IN USE
- 16 SECURE EXISTING SMOKE EXHAUST GRATES TO SUPPORTING FRAMES. SEE 6/A105.
- 17 PROVIDE HOISTING BEAM. SEE STRUCTURAL DRAWINGS.
- 18 PATCH ROOFING AFTER STAIR INSTALLATION.
- 19 PROVIDE 3"x3" LOUVER ASSEMBLY. MECHANICAL CONTRACTOR WILL PROVIDE DAMPER, COORDINATE.
- 20 PROVIDE SPRAY-ON FIRE PROOFING (2HR) ON ALL PROPOSED STRUCTURAL MEMBERS IN FREIGHT ELEVATOR MACHINE ROOM AND BELOW ROOF. SEE STRUCTURAL DWGS.
- 21 PROVIDE MANUAL PUSHBUTTON HANDSET TYPE TELEPHONE MOUNTED IN MACHINE ROOM WITH PHENOLIC ENGRAVED SIGN PERMANENTLY INSTALLED ADJACENT TO TELEPHONE INDICATING IN-CAR TELEPHONE NUMBER. WIRE TELEPHONE TO MODULAR TYPE TELEPHONE JACK IN MACHINE ROOM. EXACT LOCATION TO BE COORDINATED WITH ELEVATOR CONTRACTOR.
- 22 DISMANTLE AND REINSTALL CEILING AS REQUIRED FOR STRUCTURAL WORK.

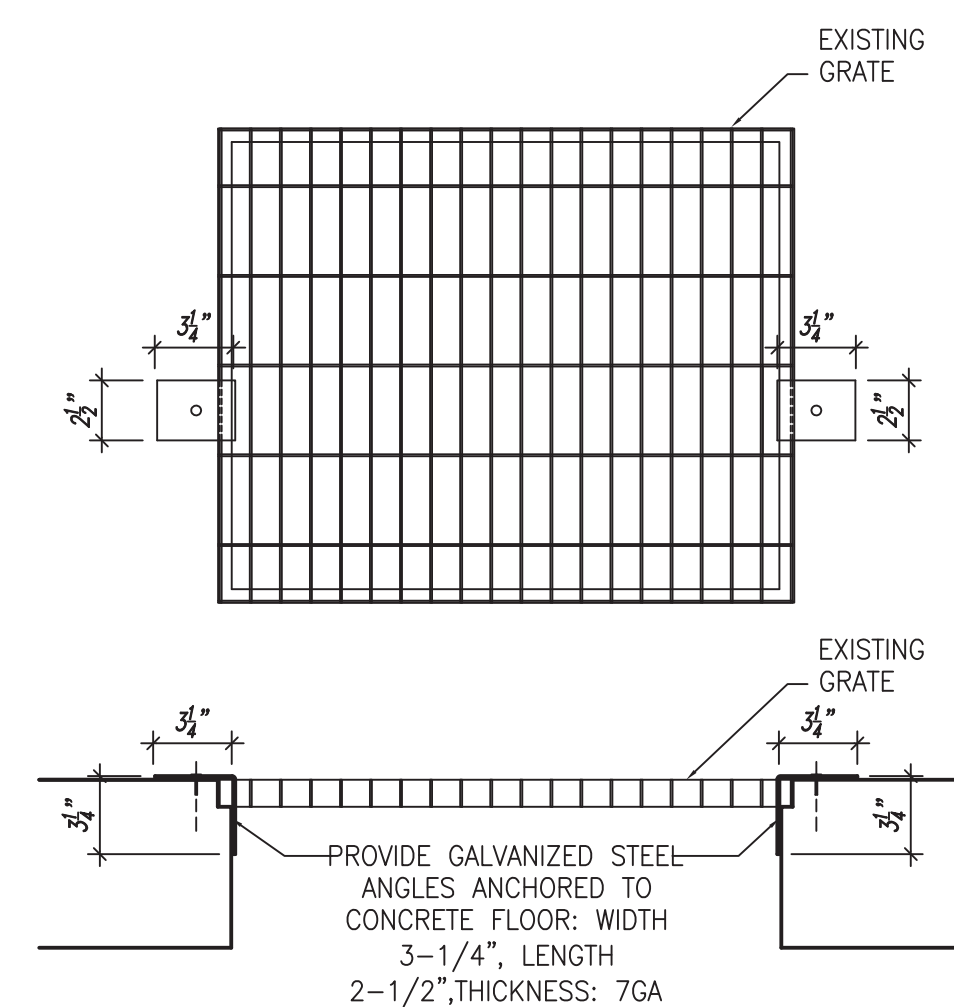
NOTE: VERIFY DIMENSIONS IN FIELD



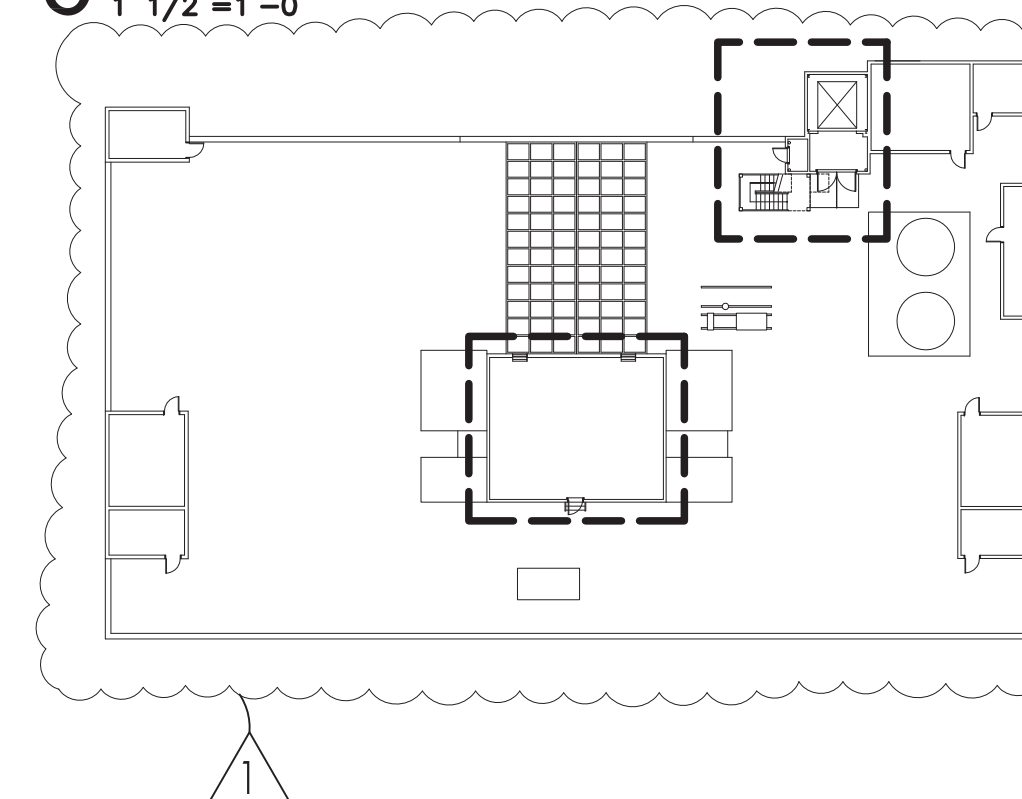
**4** FREIGHT EMR. ELEVATION  
1/4"=1'-0"



**5** FREIGHT EMR. SECTION  
1/4"=1'-0"



**6** SECURE GRATE DETAIL  
1 1/2"=1'-0"



**7** ROOF FLOOR KEY PLAN  
1 1/2"=1'-0"

**8 RAILING DETAIL**

STAIR REQUIREMENTS

SECTION 1011 STAIRWAYS

1011.2 WIDTH AND CAPACITY  
EXCEPTION 1: STAIRWAYS SERVING AN OCCUPANT LOAD OF LESS THAN 50 SHALL HAVE A WIDTH OF NOT LESS THAN 36 INCHES.

1011.5.2 RISER AND TREAD  
RISER HEIGHTS SHALL BE 7 INCHES MAXIMUM AND 4 INCHES MINIMUM. THE RISER HEIGHT SHALL BE MEASURED VERTICALLY BETWEEN THE NOSINGS OF ADJACENT TREADS. RECTANGULAR TREAD DEPTHS SHALL BE 11 INCHES (279 MM) MINIMUM MEASURED HORIZONTALLY BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AND AT RIGHT ANGLE TO THE TREAD'S NOSING. TREADS SHALL HAVE A MINIMUM TREAD DEPTH OF 11 INCHES BETWEEN THE VERTICAL PLANES OF THE FOREMOST PROJECTION OF ADJACENT TREADS AT THE INTERSECTIONS WITH THE WALKLINE AND A MINIMUM TREAD DEPTH OF 10 INCHES WITHIN THE CLEAR WIDTH OF THE STAIR.

1011.5.5 NOSINGS AND RISERS PROFILE  
NOSINGS SHALL HAVE A BEVEL OF NOTE LESS 1/16" BUT NOT MORE THAN 9/16".

1011.5.5.3 SOLID RISERS  
RISERS SHALL BE SOLID.

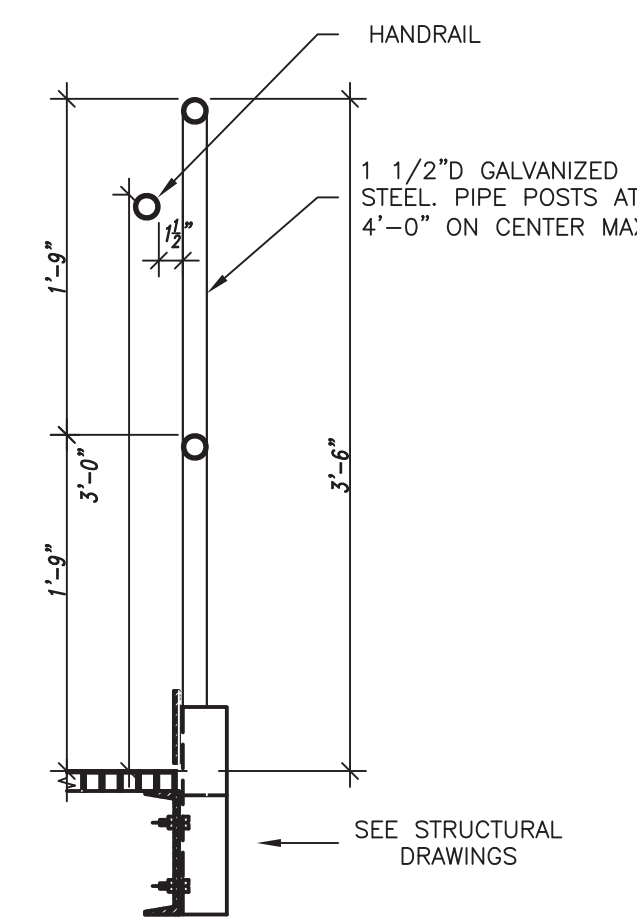
1011.11 HANDRAILS  
STAIRWAYS SHALL HAVE HANDRAILS ON EACH SIDE AND SHALL COMPLY WITH SECTION 1014.

SECTION 1014 HANDRAILS

1014.2 HEIGHT  
HANDRAIL HEIGHT MEASURED ABOVE STAIR TREAD NOSINGS, OR FINISH SURFACE OF RAMP SLOPE, SHALL BE UNIFORM, NOT LESS THAN 34 INCHES AND NOT MORE THAN 38 INCHES.

1014.3.1 TYPE I  
HANDRAILS WITH A CIRCULAR CROSS SECTION SHALL HAVE AN OUTSIDE DIAMETER OF NOT LESS THAN 1 1/4" AND NOT GREATER THAN 2".

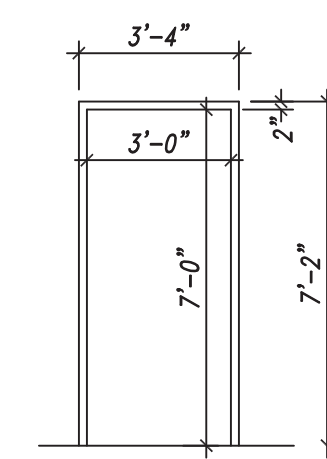
1014.7 CLEARANCE  
CLEAR SPACE BETWEEN A HANDRAIL AND A WALL OR OTHER SURFACE SHALL BE NOT LESS THAN 1 1/2".



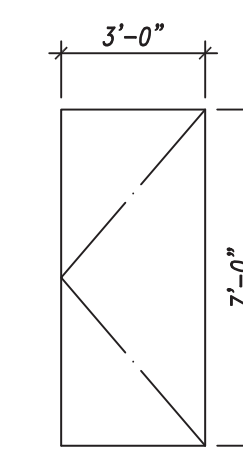


FINISH SCHEDULE			
DESIGNATION	MATERIAL	DESCRIPTION	REMARKS
PT3	PAINT	MANUFACTURER: BENJAMIN MOORE TYPE: EAL-3 (SEE SPECS) COLOR: BENJAMIN MOORE RED PARROT 1308	DOORS TO EMR
PT4	PAINT	MANUFACTURER: COROTECH TYPE: PEC (SEE SPECS) COLOR: BATTLESHIP GRAY	EMR FLOORS
PT5	PAINT	MANUFACTURER: BENJAMIN MOORE TYPE: IAL-4 (SEE SPECS) COLOR: BENJAMIN MOORE RED PARROT 1308	DOOR TO FREIGHT PIT AND EMR GATE AND EXISTING GUARDRAIL
PT6	PAINT	MANUFACTURER: BENJAMIN MOORE TYPE: IAL-3 (SEE SPECS) COLOR: MATCH EXISTING COLOR	LOBBY WALLS

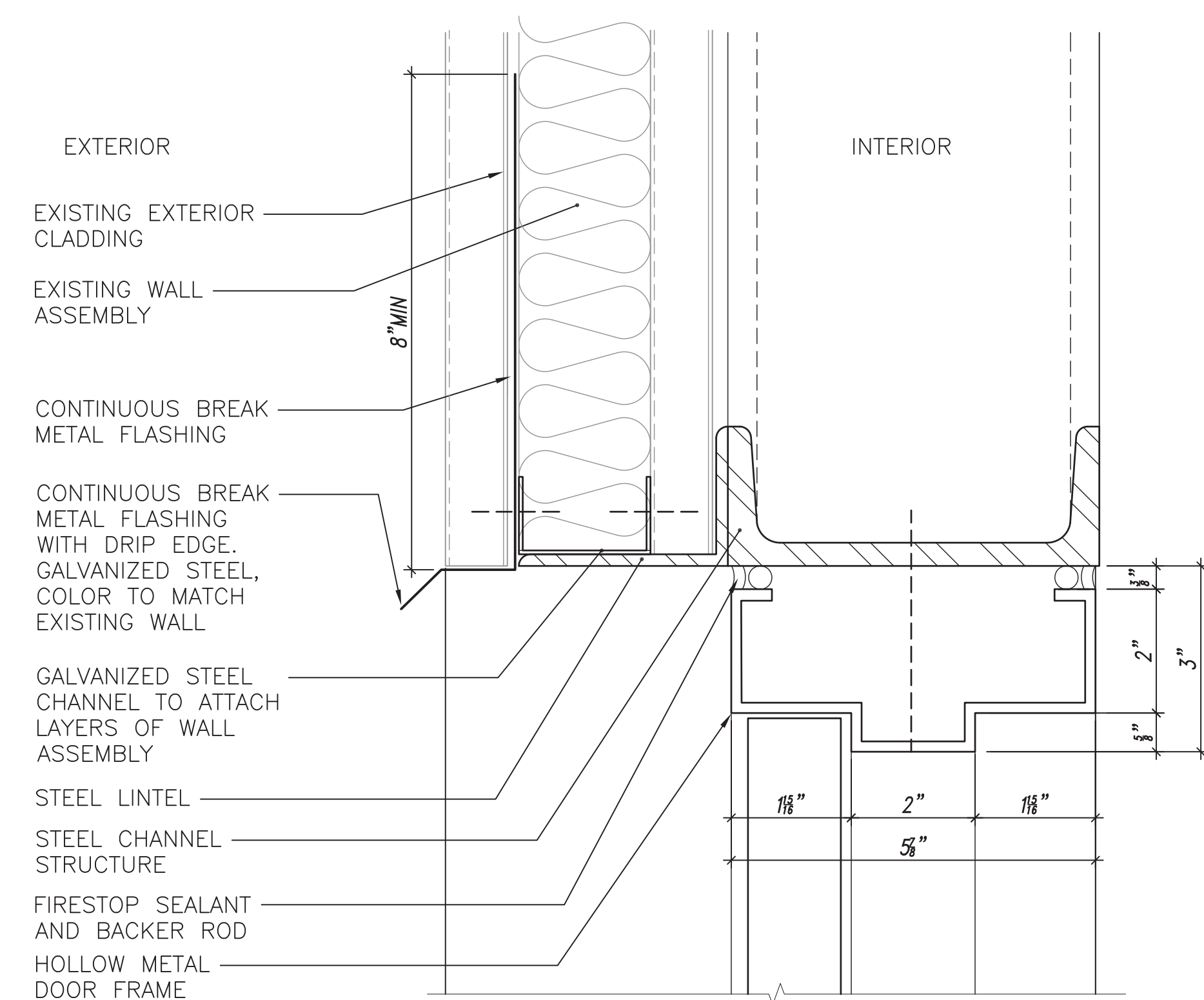
DOOR SCHEDULE																						
OPN'G NO	NEW/ EXISTING	OPENING LOCATION (FROM/TO)	FRAME							DOOR						FIRE RATING	HDMR SET (SEE SPECS)	KICKPLATE (SIDES)	REMARKS			
			OPN'G SIZE		MAT	TYPE	DETAILS			FIN	DOOR SIZE		THK	MAT	TYPE					GLASS		FIN
			W	H			HEAD	JAMB	SILL		W	H								W	H	
000.1	EXISTING	BASEMENT CORRIDOR TO PE PIT																		GROUP 2		PROVIDE CLOSER & SELF LATCHING HARDWARE
000.2	EXISTING	BASEMENT CORRIDOR TO FE PIT																	PTD (PT5)	GROUP 2		PROVIDE CLOSER & SELF LATCHING HARDWARE/PAINT
014.2	EXISTING	ROOF TO FE MACHINE ROOM																	PTD (PT3)			PAINT
015.1	NEW	ROOF TO FE MACHINE ROOM	3'-0"	7'-0"	HM	1 (A-601)	3 (A-601)	4 (A-601)	5 (A-601)	PTD (PT3)	3'-0"	7'-0"	1 3/4"	HM	2 (A-601)	-	-	PTD (PT3)	1 1/2	GROUP 1	NO	PROVIDE CLOSER, SELF LATCHING HARDWARE AND THRESHOLD



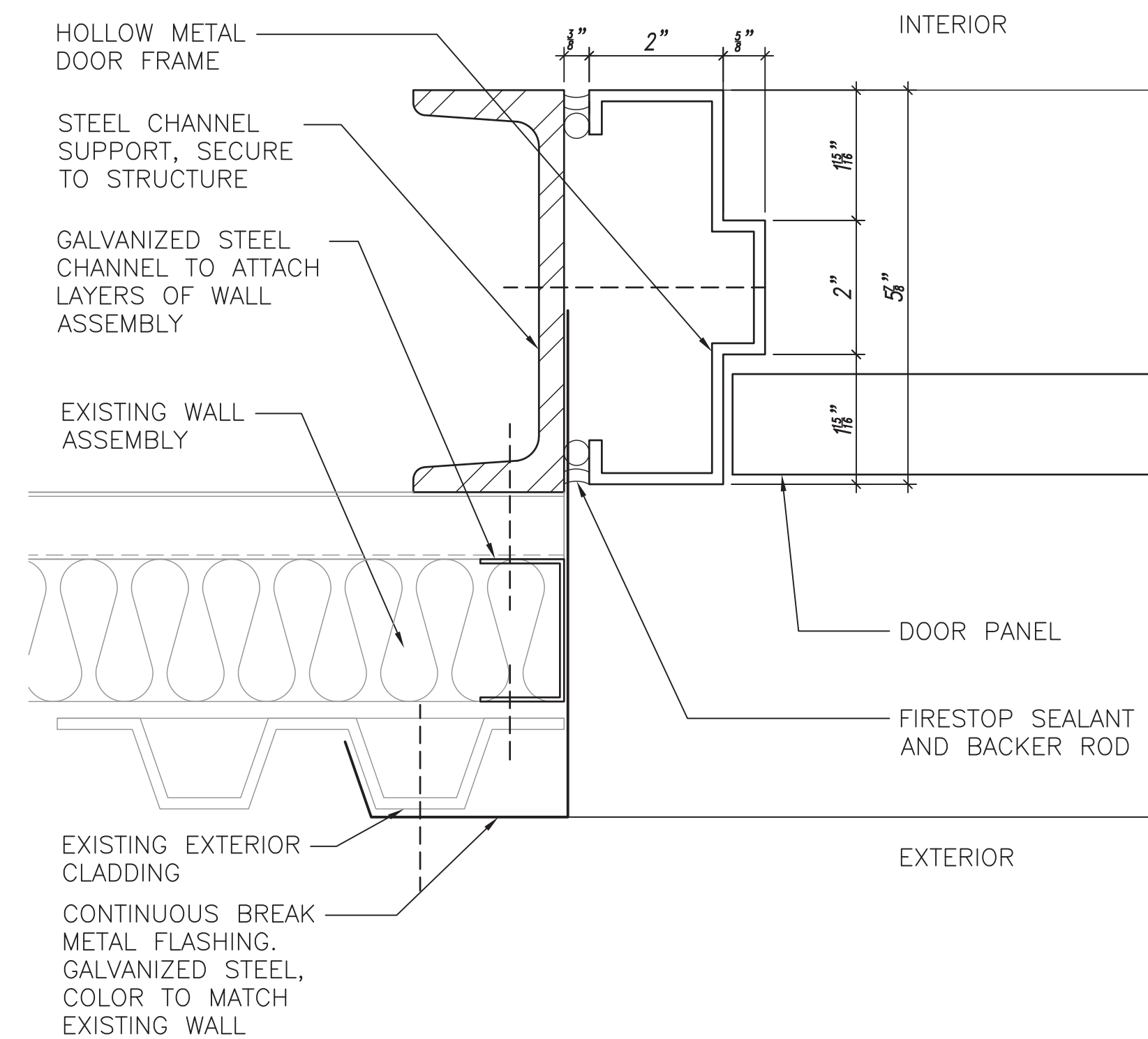
**1 FRAME**  
1/4"=1'-0"



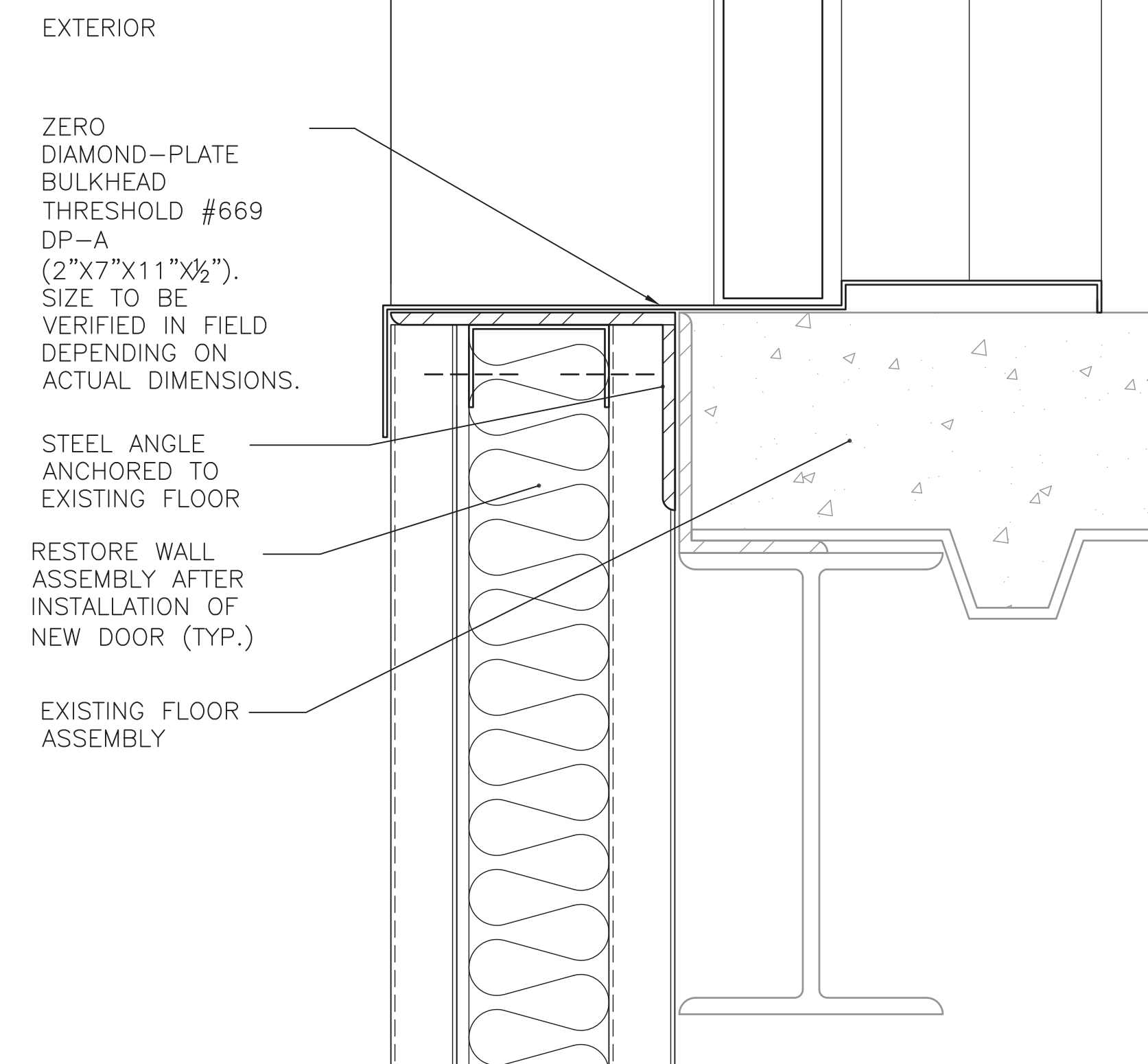
**2 DOOR**  
1/4"=1'-0"



**3 FREIGHT ELEVATOR MACHINE ROOM DOOR. HEADER**  
6"=1'-0"



**4 FREIGHT ELEVATOR MACHINE ROOM DOOR. JAMB**  
6"=1'-0"



**5 FREIGHT ELEVATOR MACHINE ROOM DOOR. SILL**  
6"=1'-0"

REVISED DRAWING 3/24/2017

CONSULTANT  
ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
MEP ENGINEERS:  
FPM ENGINEERING GROUP, P.C.  
ELEVATOR CONSULTANT:  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**PEM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
STRUCTURAL ENGINEER:  
**YAS**  
YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

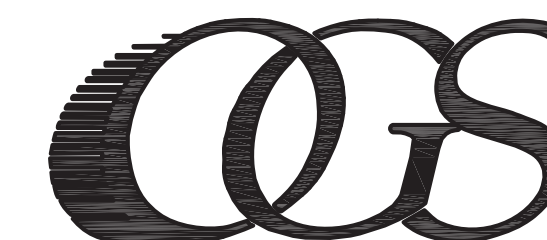
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CONTRACT:  
**CONSTRUCTION**  
TITLE:  
REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING  
LOCATION:  
55 HANSON PLACE  
BROOKLYN, NY 11217  
CLIENT:  
OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT
PROJECT NUMBER:	44780 - C	
DESIGNED BY:		
DRAWN BY:		
FIELD CHECK:		
APPROVED:		
SHEET TITLE:	SCHEDULES AND DOOR DETAILS	
DRAWING NUMBER:	A-601	
SHEET	OF	





NYS OFFICE OF GENERAL SERVICES

Serving New York

ANDREW M. CUOMO  
Governor  
ROANN M. DESTITO  
Commissioner

CONSULTANT

ARCHITECT:

**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

**vda**

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

**P EM**  
ENVIRONMENTAL  
PLANNING &  
MANAGEMENT, INC.

STRUCTURAL ENGINEER:

**YAS** YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

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CONTRACT:

CONSTRUCTION

TITLE:

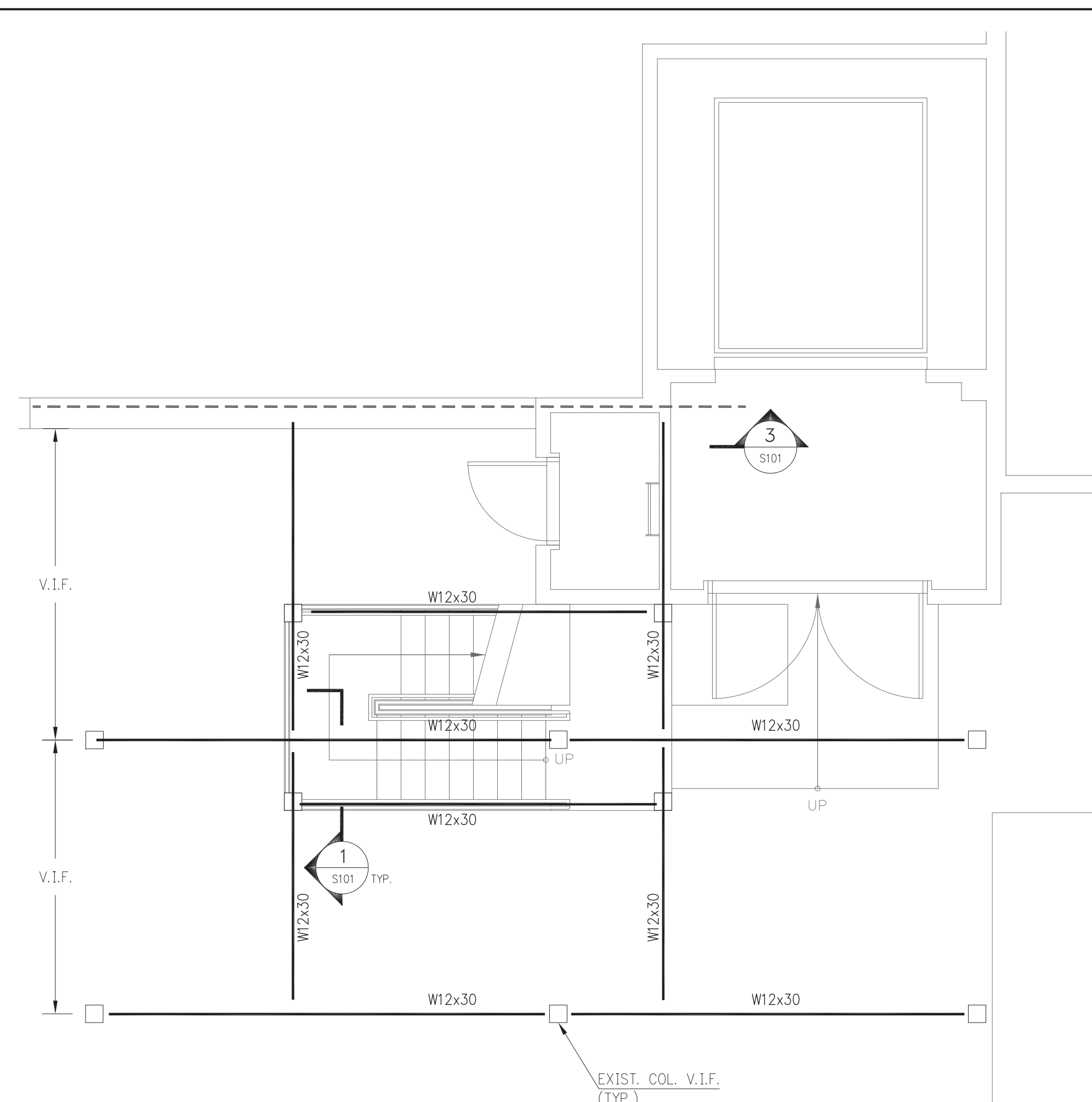
REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING

LOCATION:

55 HANSON PLACE  
BROOKLYN, NY 11217

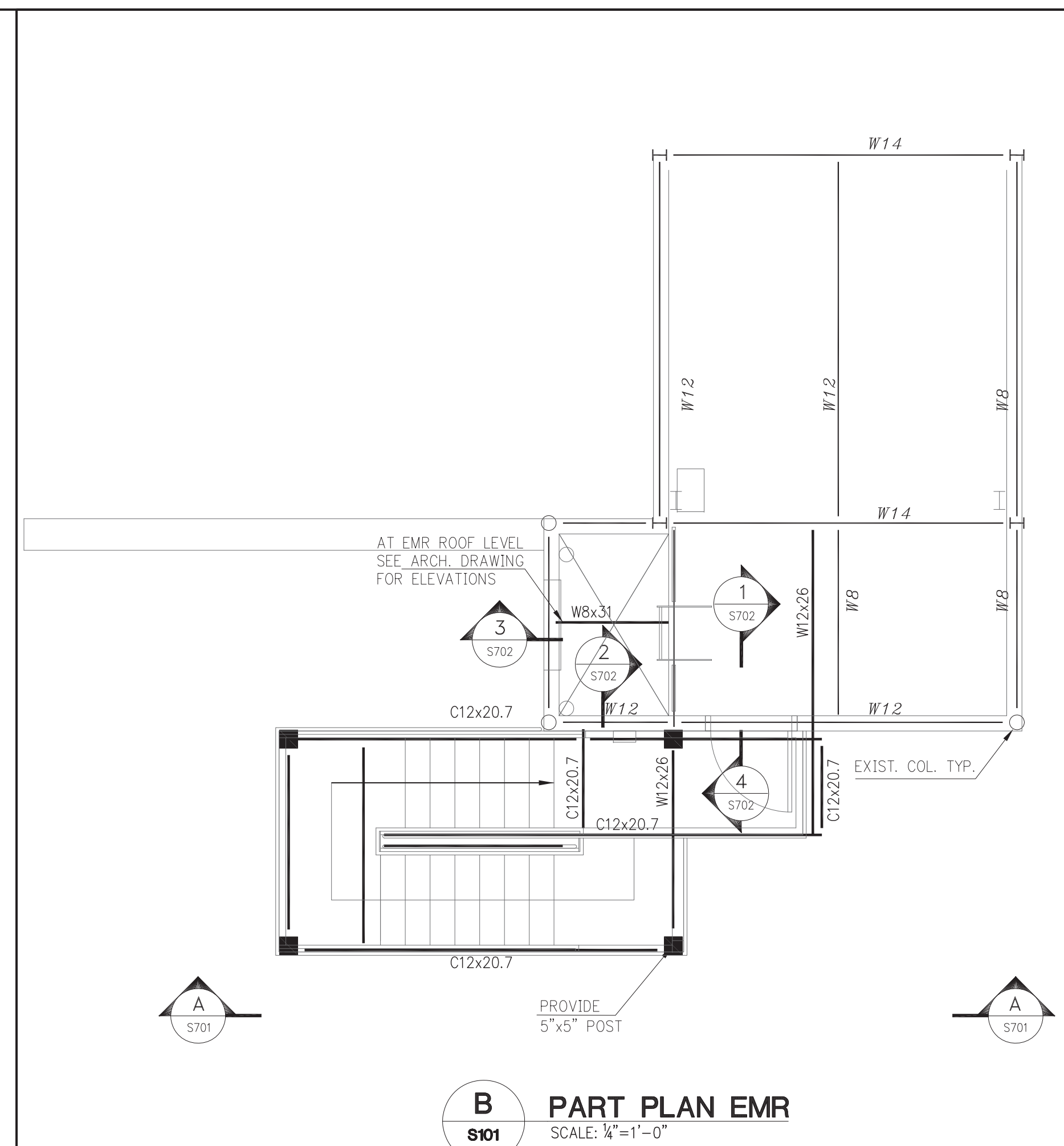
CLIENT:

OFFICE OF GENERAL SERVICES



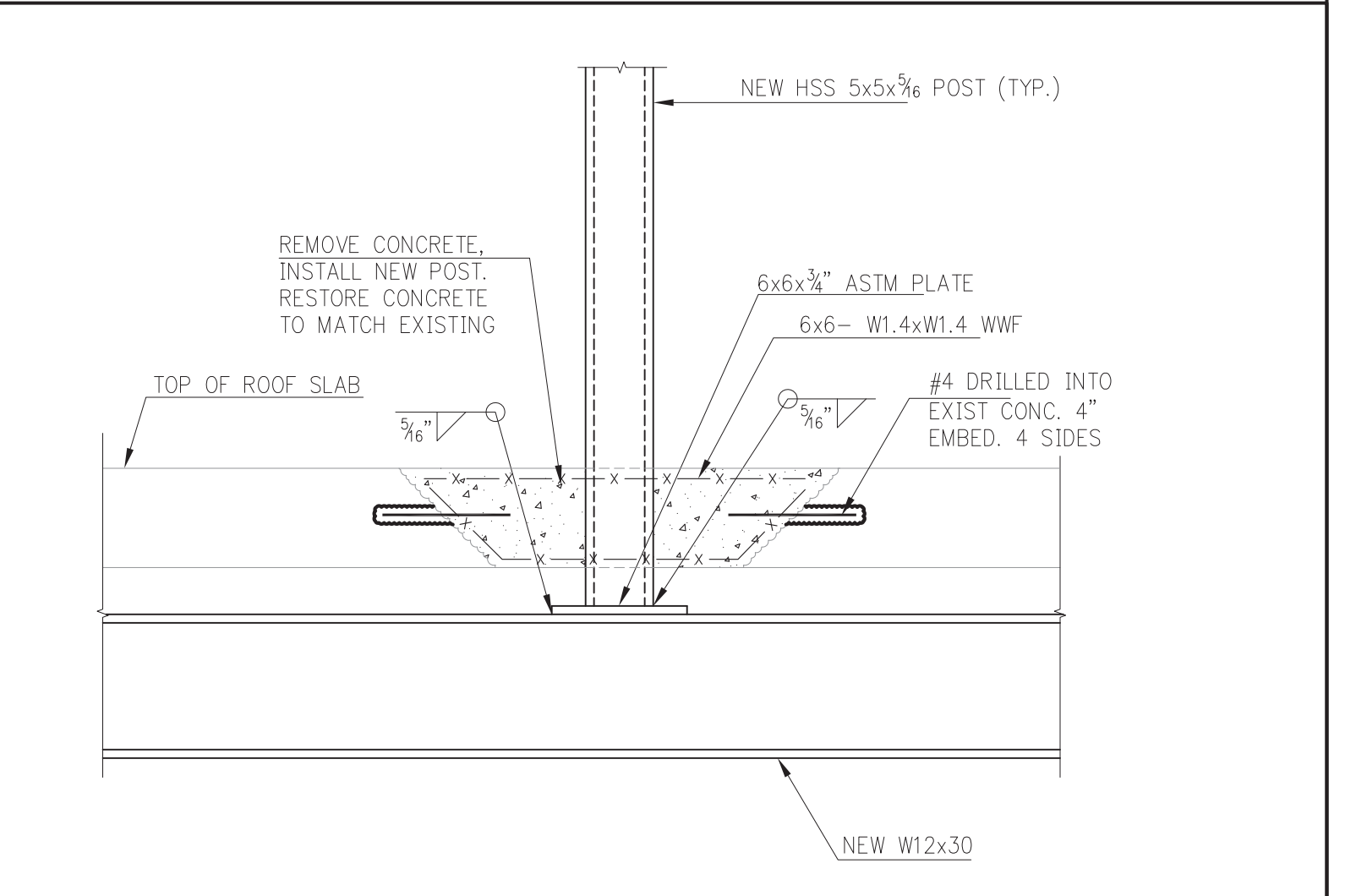
**A PART PLAN STEEL FRAMING BELOW ROOF**  
SCALE: 1/4"=1'-0"

NOTE:  
1. ALL STRUCTURAL STEEL TO BE PROVIDED WITH APPROPRIATE FIREPROOFING. SEE ARCHITECTURAL DRAWING.  
2. ELEVATION 18" BELOW BOTTOM OF EXISTING ROOF BEAMS.

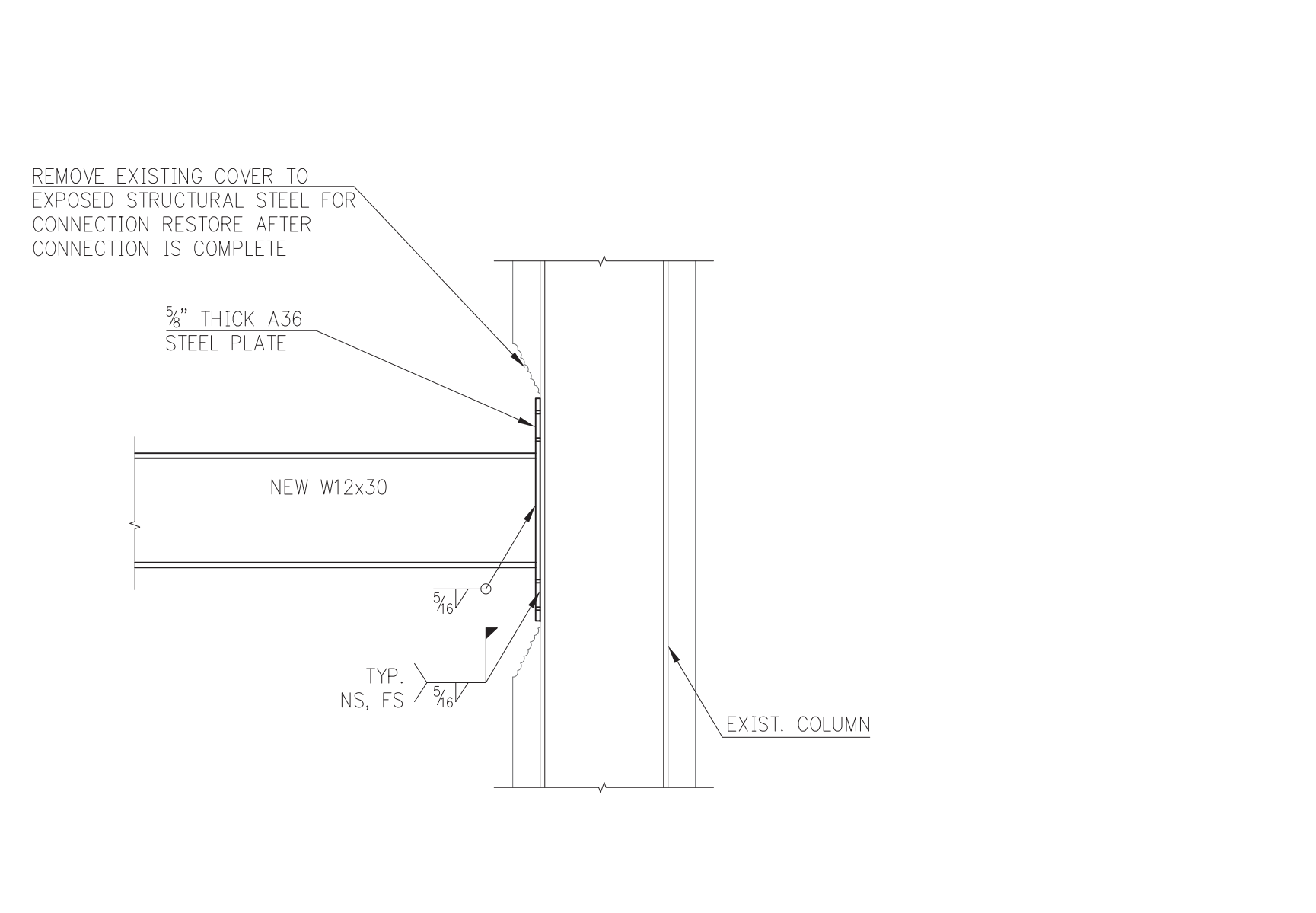


**B PART PLAN EMR**  
SCALE: 1/4"=1'-0"

NOTE:  
1. ALL NEW STEEL TO BE HOT DIPPED GALVANIZED G90

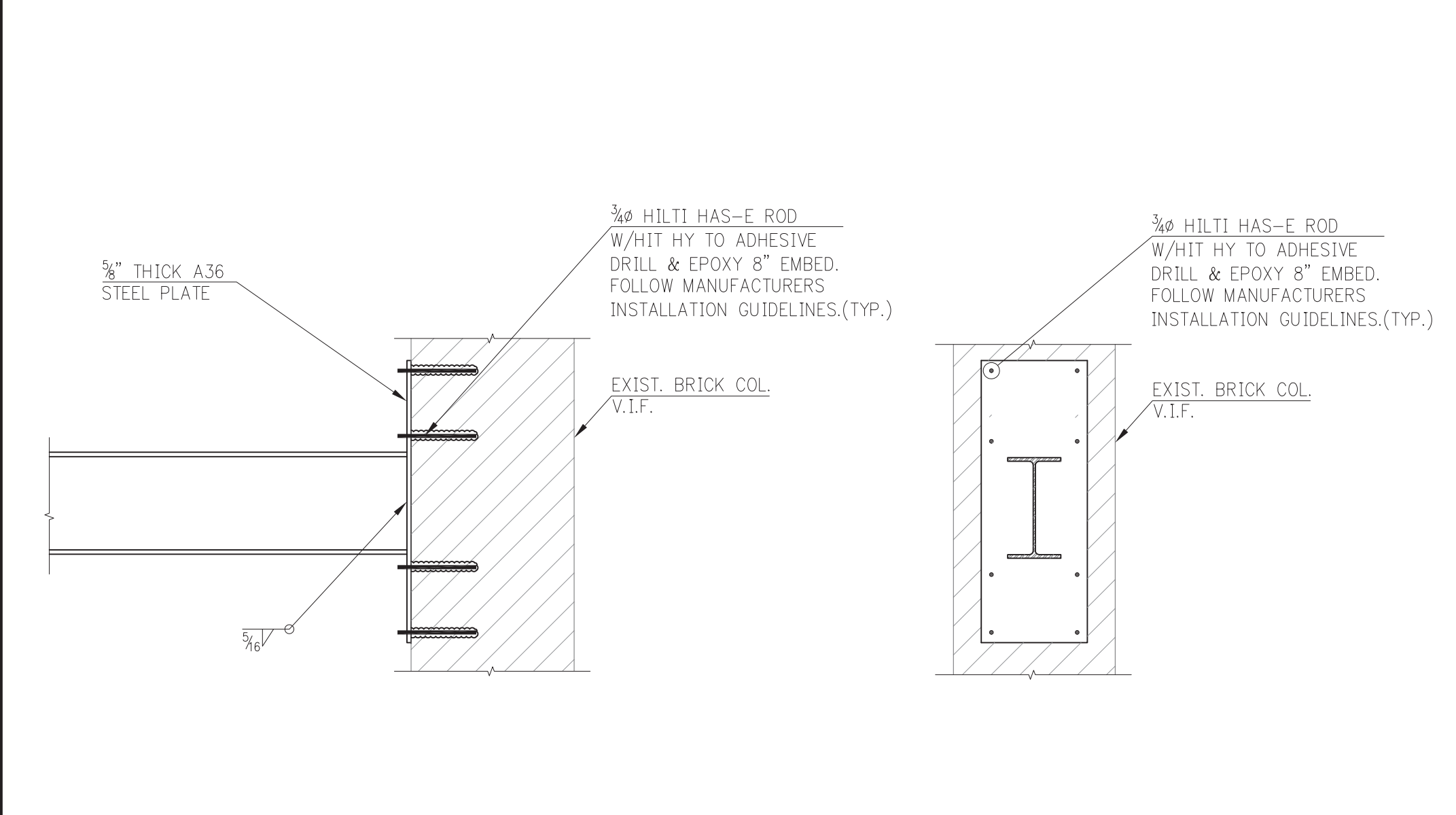


**1 POST TO BEAM CONNECTION**  
SCALE: N.T.S.



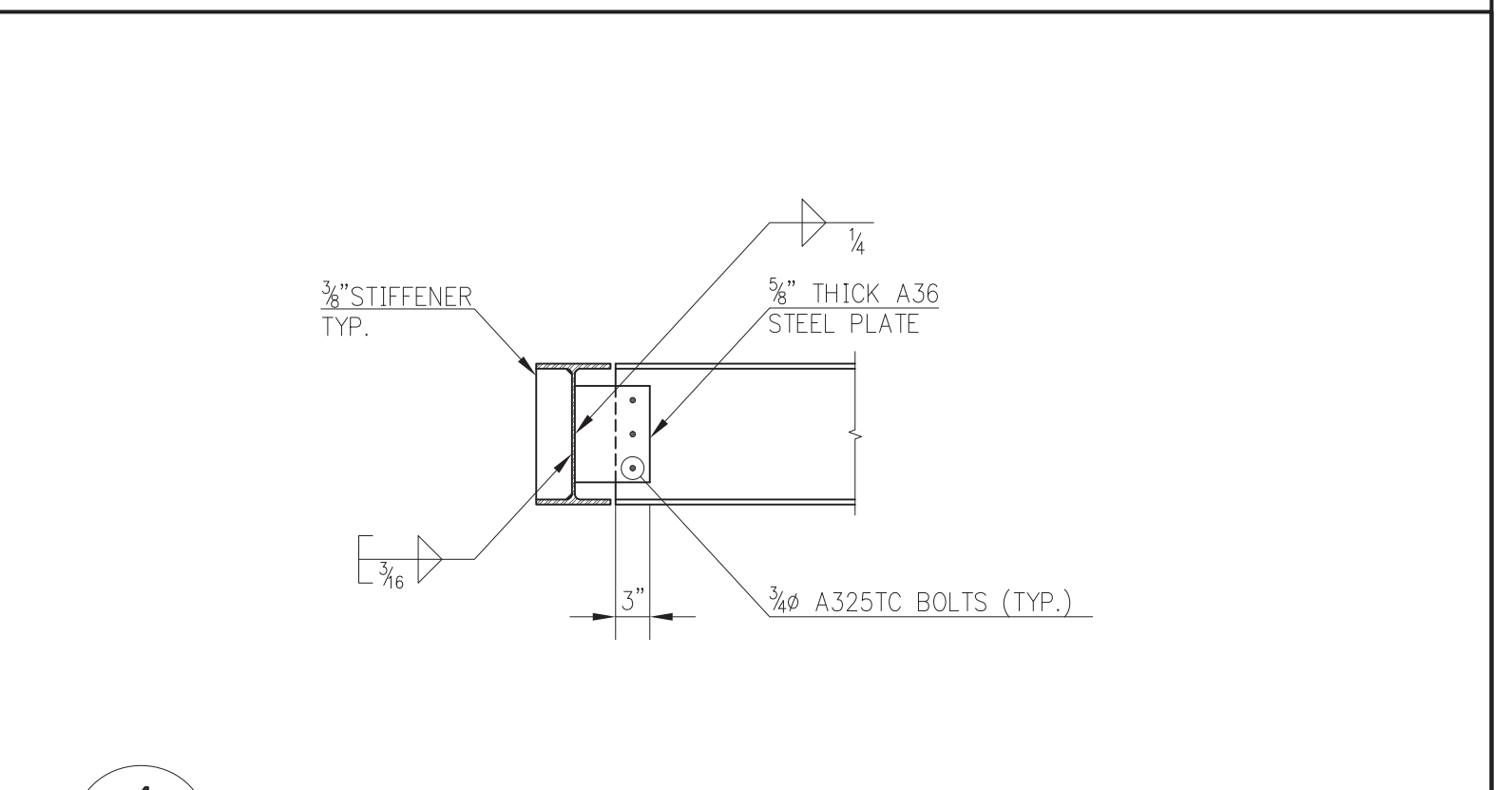
**2 TYPICAL NEW BEAM TO EXISTING COLUMN CONNECTION**  
SCALE: N.T.S.

NOTES:  
1. CONTRACTOR TO V.I.F. ALL EXISTING CONDITIONS



**3 TYPICAL NEW BEAM TO EXISTING COLUMN CONNECTION**  
SCALE: N.T.S.

NOTES:  
1. CONTRACTOR TO V.I.F. ALL EXISTING CONDITIONS



**4 TYPICAL BEAM TO BEAM CONNECTION**  
SCALE: N.T.S.

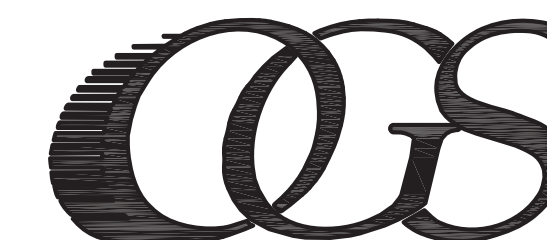
ADDENDUM DRAWING 3/24/2017

MARK	DATE	DESCRIPTION
△	03/24/2017	ADDENDUM DRAWING
	03/08/2017	BID DOCUMENT
PROJECT NUMBER:	44780 - C	
DESIGNED BY:		
DRAWN BY:		
FIELD CHECK:		
APPROVED:		
SHEET TITLE:	ROOF AND PENTHOUSE PART PLANS AND CONNECTION DETAILS	
DRAWING NUMBER:	S101	









NYS OFFICE OF GENERAL SERVICES

Serving New York

ANDREW M. CUOMO  
Governor  
ROANN M. DESTITO  
Commissioner

CONSULTANT

ARCHITECT:

**RZAPS**

RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

M.E.P. ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

**vda**

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

**P EM**  
ENVIRONMENTAL  
PLANNING &  
MANAGEMENT, INC.

STRUCTURAL ENGINEER:

**YAS** YISRAEL A. SEJLIK, P.C.  
CONSULTING ENGINEERS

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CONTRACT:

CONSTRUCTION

TITLE:

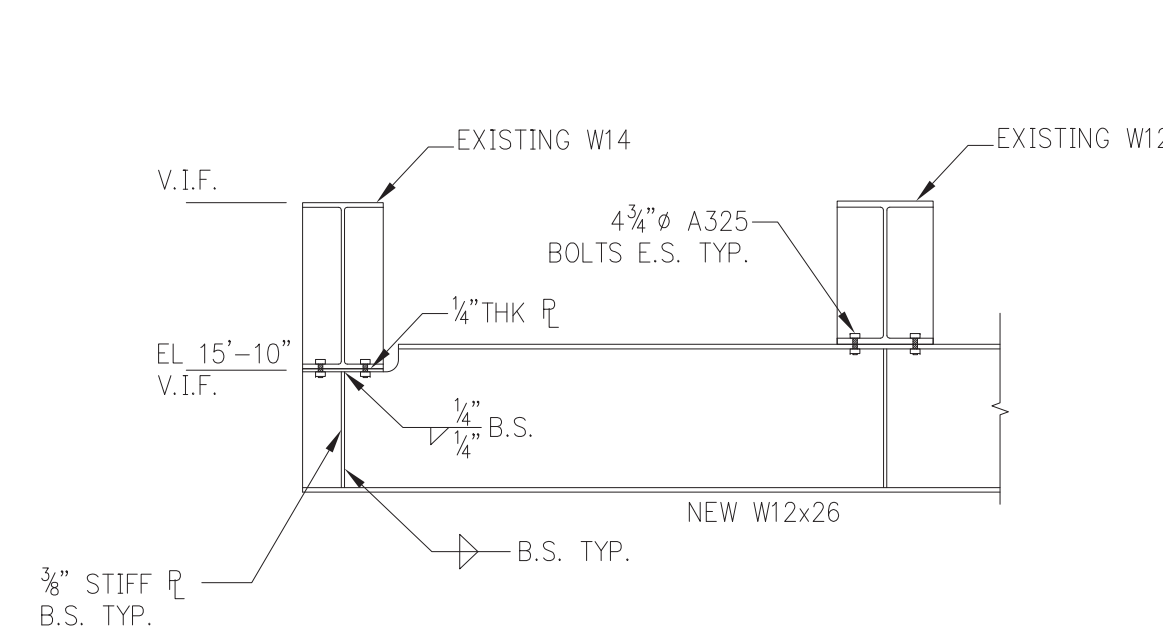
REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING

LOCATION:

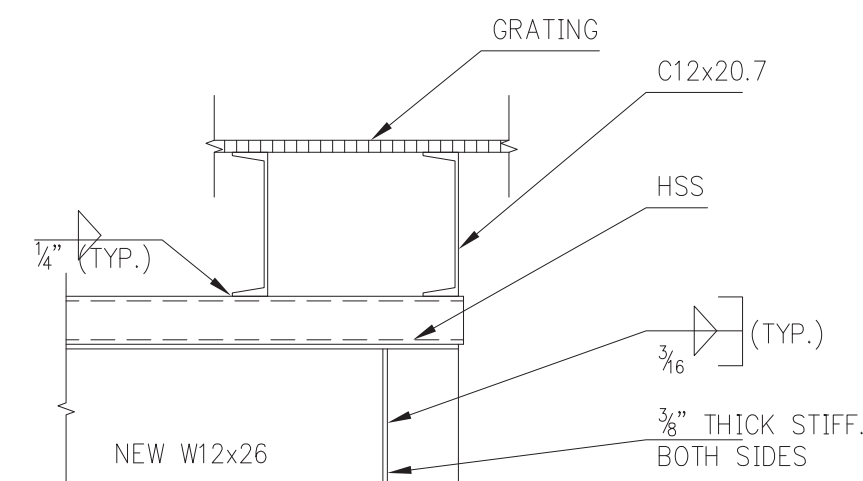
55 HANSON PLACE  
BROOKLYN, NY 11217

CLIENT:

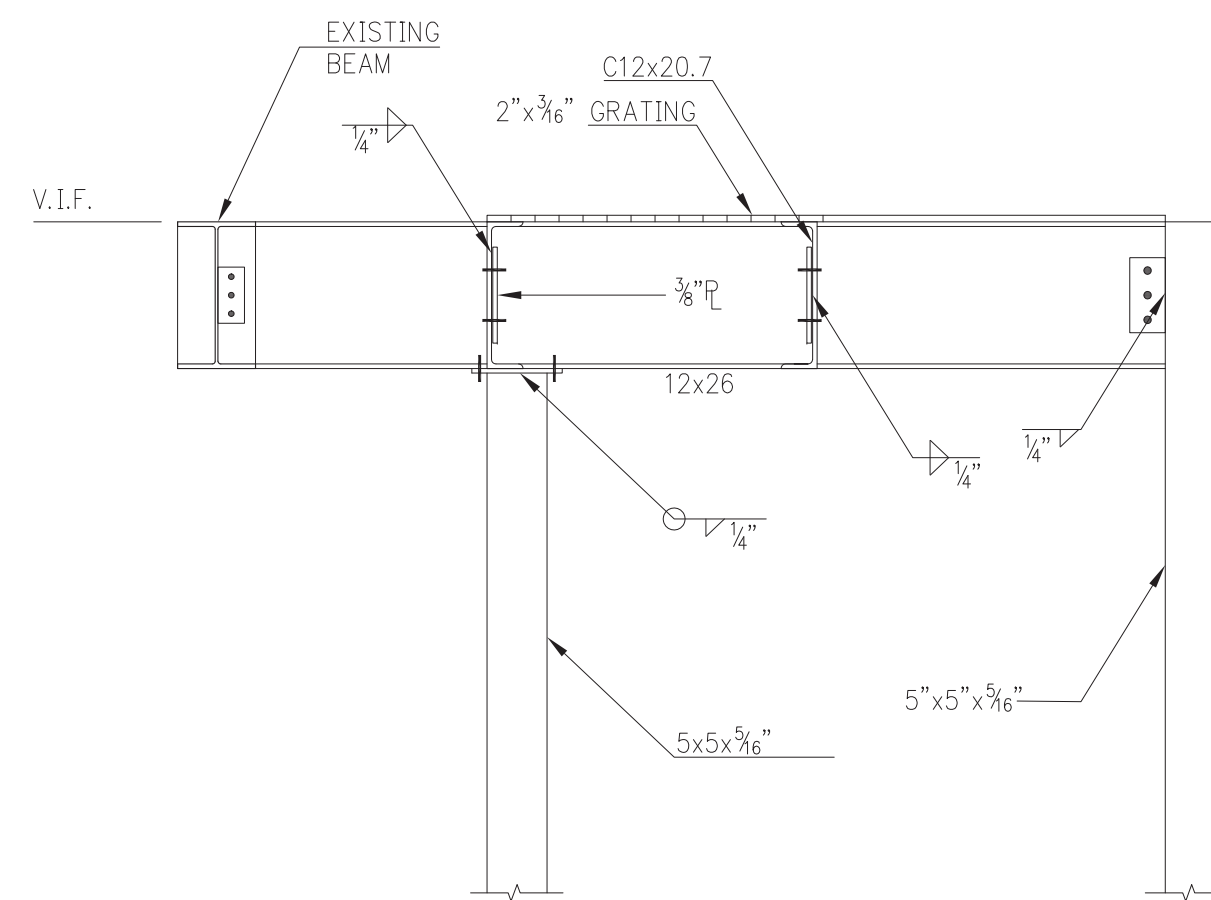
OFFICE OF GENERAL SERVICES



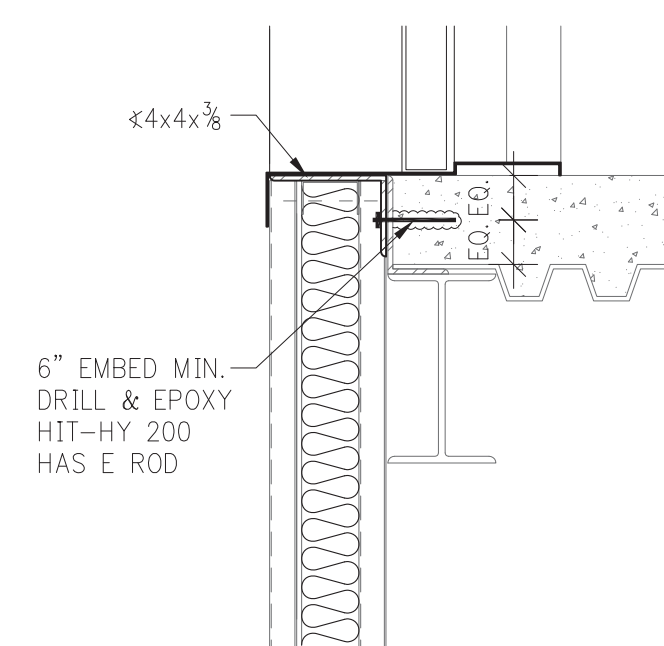
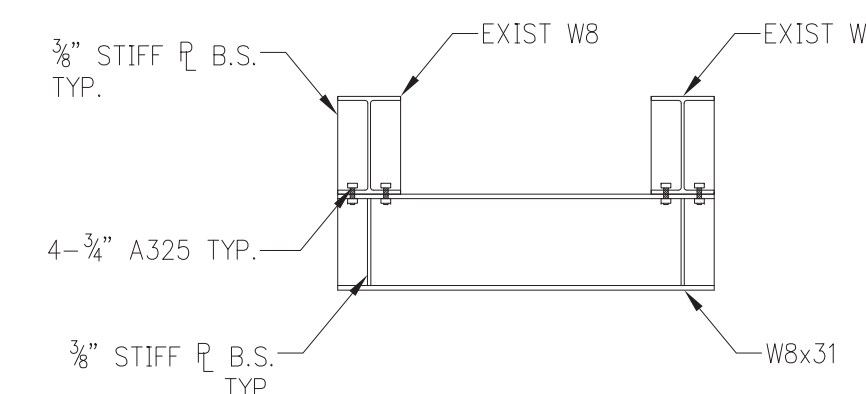
**1 SECTION**  
S702 SCALE: 3/4"=1'-0"



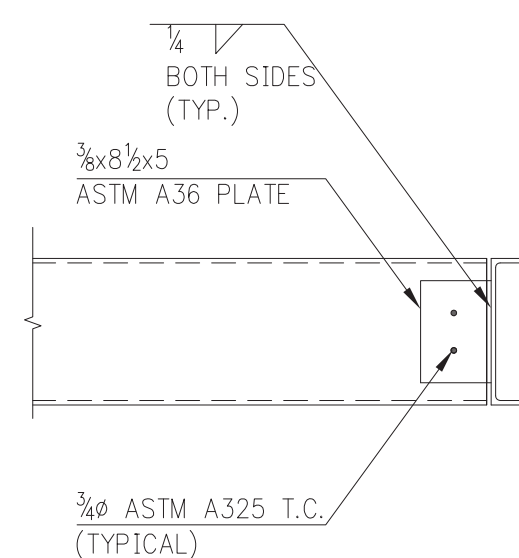
**2 SECTION**  
S702 SCALE: 3/4"=1'-0"



**3 SECTION @ ROOF OF EMR**  
S702 SCALE: 3/4"=1'-0"



**4 DOOR SILL**  
S702 SCALE: 3/4"=1'-0"



**5 TYP. CHANNEL TO CHANNEL CONNECTION**  
S702 SCALE: 3/4"=1'-0"

ADDENDUM DRAWING 3/24/2017

03/24/2017 ADDENDUM DRAWING

03/08/2017 BID DOCUMENT

MARK DATE DESCRIPTION

PROJECT NUMBER: 44780 - C

DESIGNED BY:

DRAWN BY:

FIELD CHECK:

APPROVED:

SHEET TITLE:

SECTIONS AND DETAILS  
SHEET 2

DRAWING NUMBER:

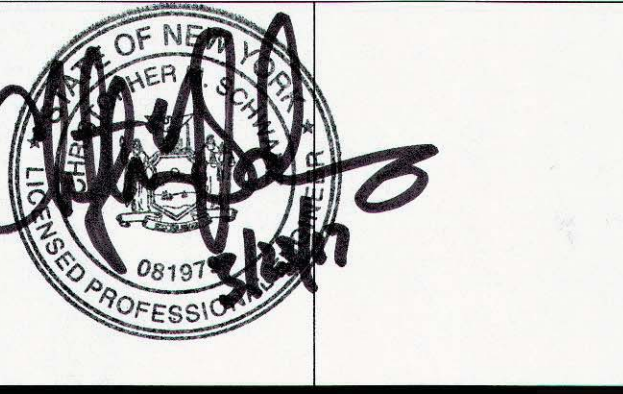
S702

SHEET OF



CONSULTANT  
 ARCHITECT:  
**RZAPS**  
 RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
 MEP ENGINEERS:  
**FPM ENGINEERING GROUP, P.C.**  
 ELEVATOR CONSULTANT:  
**vda**  
 HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**EM**  
 STRUCTURAL ENGINEER:  
**YA** YSRAEL A. SEINUK, P.C.  
 CONSULTING ENGINEERS

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CONTRACT: HVAC  
 TITLE: REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING  
 LOCATION: 55 HANSON PLACE BROOKLYN, NY 11217  
 CLIENT: OFFICE OF GENERAL SERVICES

PROJECT NUMBER:	44780 - H	
DESIGNED BY:	FPM	
DRAWN BY:	JN	
FIELD CHECK:		
APPROVED:	CMS	
SHEET TITLE:	MECHANICAL NOTES, SCHEDULES AND DETAILS	
DRAWING NUMBER:	M-001	

REVISION	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT

**GENERAL PROJECT NOTES:**

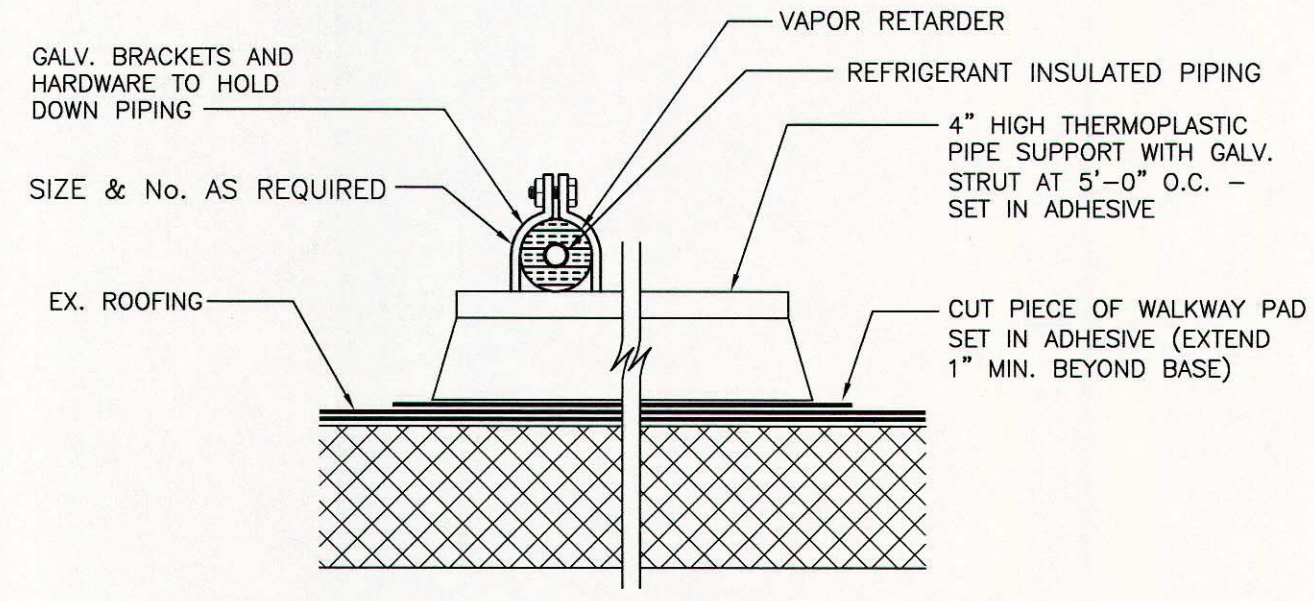
- THROUGHOUT ALL PHASES OF THE WORK OTHER AREAS OF THE FACILITY SHALL REMAIN IN FULL AND CONTINUOUS OPERATION. TAKE ALL MEASURES NECESSARY TO ENSURE THAT NO WORK EFFECTS ANY FACILITY OPERATIONS.
- COORDINATE SERVICE SHUT-DOWN WITH THE DR AT LEAST 5 WORKING DAYS IN ADVANCE.
- COORDINATE ACCESS TO THE FACILITY AND THE PROJECT WORK AREAS WITH THE DR. SCHEDULE ALL DELIVERIES WITH THE DR.
- PROVIDE DUMPSTERS/CARTING SERVICE AS REQUIRED FOR CONTRACT RUBBISH REMOVAL. REMOVE ALL ITEMS MADE SPARE OR GENERATED AS RUBBISH FROM THE SITE AND DISPOSE OF LEGALLY. COORDINATE DUMPSTER LOCATION WITH THE DR.
- BE SOLELY RESPONSIBLE FOR THE SAFETY OF YOUR AND ANY SUB-CONTRACTOR'S CREW AND FOR PREVENTING ANY CONDITION WHICH MAY ADVERSELY AFFECT THE FACILITY OR ITS OCCUPANTS. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT INJURY OR DAMAGE TO ANY PERSON OR PROPERTY.
- AREAS WITHIN THE FACILITY, AS APPROVED BY THE DR, MAY BE USED FOR TEMPORARY STORAGE, MOBILITY, ACCESS, AND EMERGENCY EGRESS ROUTES FROM THE SITE MUST NOT BE AFFECTED. THE SECURITY OF ANY SUCH AREA IS YOUR RESPONSIBILITY, NOT THE FACILITY'S.
- MAKE ALL EFFORTS TO LIMIT ANY DAMAGE TO EXISTING SURFACES OR SERVICES DURING THE COURSE OF THIS PROJECT. REPLACE ANY ITEM OR SERVICE AFFECTED BY THE WORK TO MATCH THE EXISTING ADJACENT SURFACES OR INTEGRATE INTO THE EXISTING SYSTEMS IN A TIMELY MANNER.
- FLOOR PLANS AND ELEVATIONS ARE SHOWN TO ILLUSTRATE REQUIRED EQUIPMENT INTERCONNECTIONS AND EQUIPMENT SPACE LAYOUTS. DO NOT USE SCALED MEASUREMENTS FOR FABRICATION OF THE WORK. POSITION ALL EQUIPMENT TO MAINTAIN ALL REQUIRED ACCESSES AND SERVICES CLEARANCES.
- PROVIDE ALL SUPPLEMENTARY STEEL AND FASTENINGS AS REQUIRED FOR EQUIPMENT AND PIPING SUPPORT, INCLUDING TEMPORARY SUPPORTS.
- SEAL AND INSULATE ALL PIPING PER THE PROJECT MANUAL.
- PIPING IS SHOWN DIAGRAMMATICALLY ONLY AND REPRESENTS THE MINIMUM PIPING REQUIREMENTS.
- COORDINATE PRECISE EQUIPMENT AND PIPING LOCATIONS WITH ALL NEW AND EX. EQUIPMENT.

**HVAC ABBREVIATIONS:**

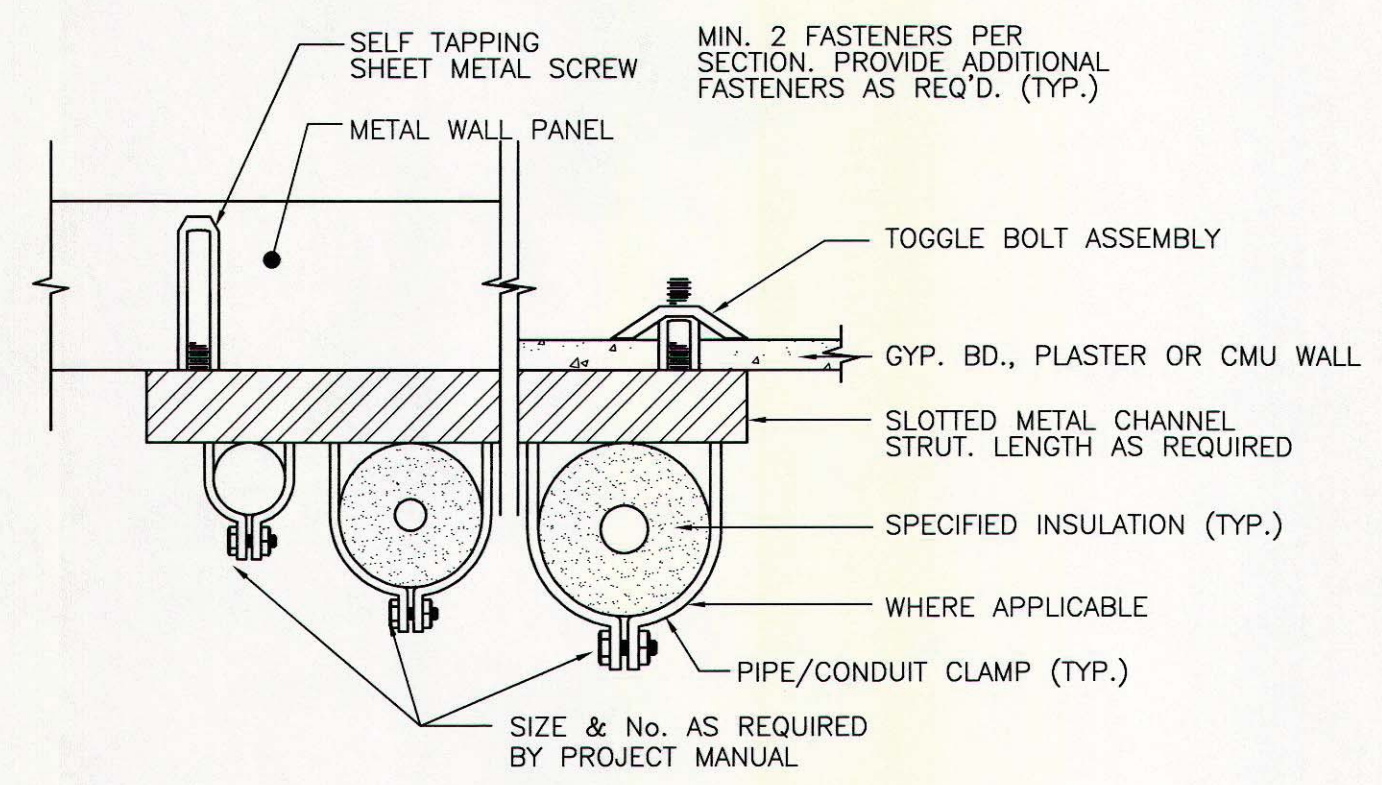
- AC AIR CONDITIONER EVAPORATOR
- ACCU AIR COOLED CONDENSING UNIT
- AFF ABOVE FINISHED FLOOR
- (C) GENERAL CONTRACTOR
- CD CONDENSATE DRAIN
- CFM CUBIC FEET PER MINUTE
- DN DOWN
- DR DIRECTOR'S REPRESENTATIVE
- (E) ELECTRIC CONTRACTOR
- ETR EXISTING TO REMAIN
- EUH ELECTRIC UNIT HEATER
- EX EXISTING
- FD FIRE DAMPER
- FSD FIRE SMOKE DAMPER
- (H) HVAC CONTRACTOR
- MAX MAXIMUM
- MIN MINIMUM
- NTS NOT TO SCALE
- O.C. ON CENTER
- TYP. TYPICAL
- U.O.N. UNLESS OTHERWISE NOTED
- UP UP

**HVAC SYMBOLS:**

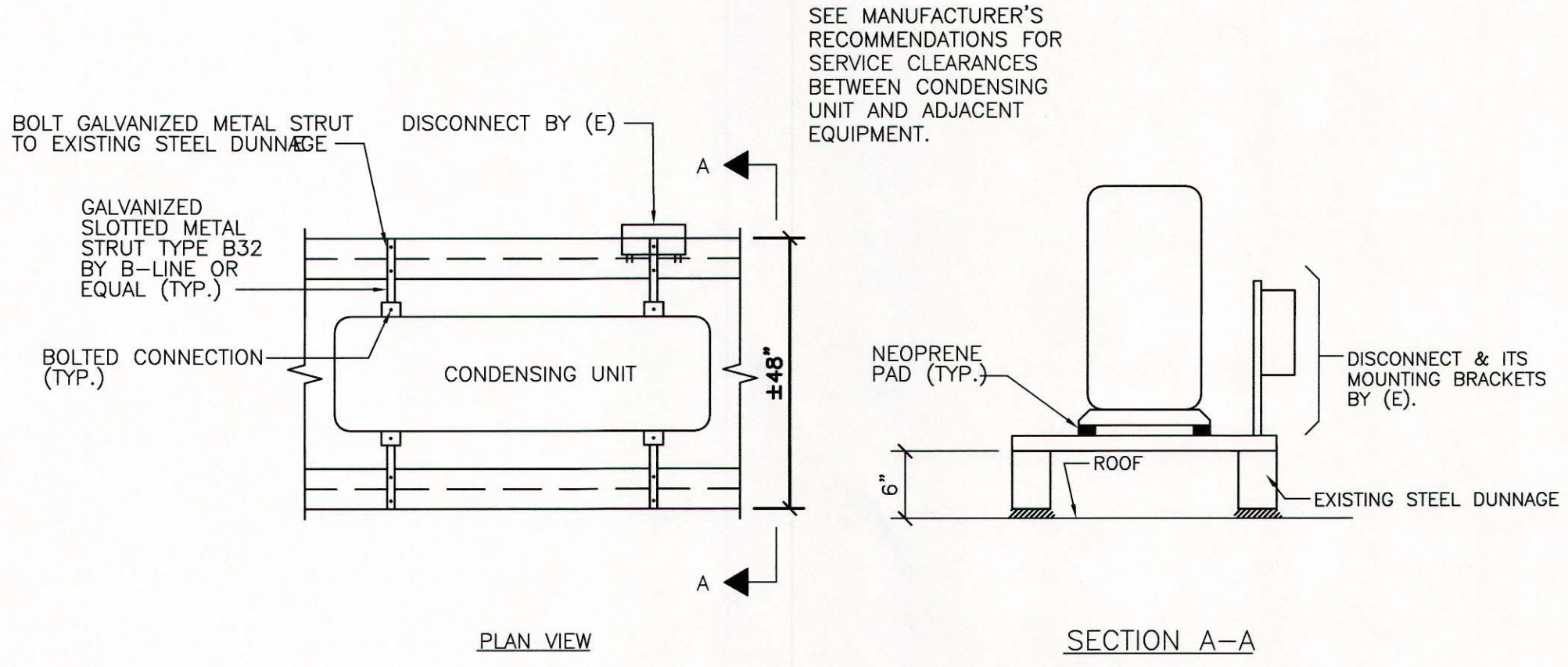
- AC-X EQUIPMENT SYMBOL
- [Symbol] AC REMOTE CONTROL
- [Symbol] AIRFLOW DIRECTION
- CD CONDENSATE DRAIN
- RLS REFRIGERANT LINE SET



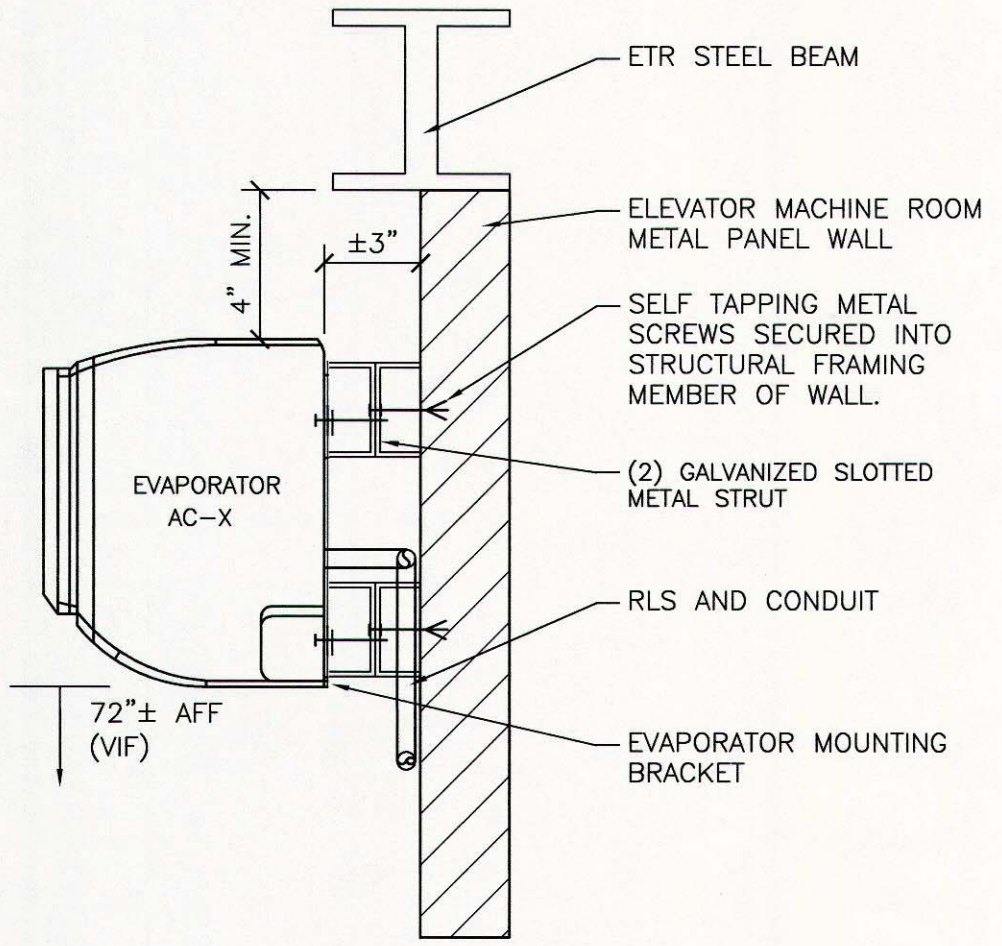
**1 ROOF MOUNTED REFRIGERANT PIPING DETAIL**  
 NO SCALE



**2 PIPING SUPPORT DETAIL**  
 NO SCALE



**3 ACCU MOUNTING**  
 N.T.S.

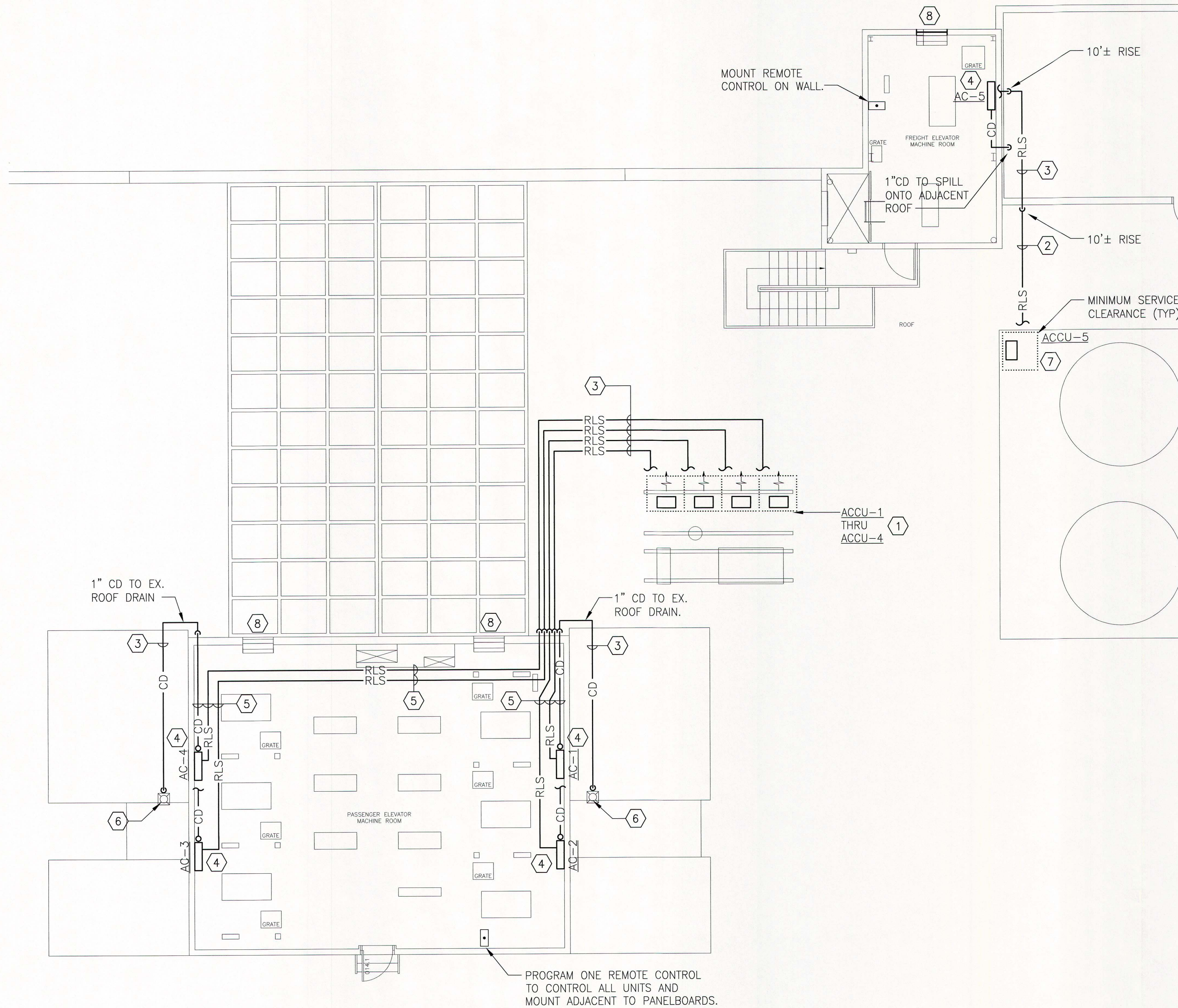


**4 EVAPORATOR MOUNTING DETAIL**  
 SCALE: NO SCALE

MARK	SERVICE	CFM	COOLING COIL DATA		DIMENSIONS LxWxH	OP. WEIGHT (lbs)	REMARKS
			TOTAL CAPACITY (MBH)	REFRIGERANT TYPE			
AC-1	ELEVATOR MACHINE ROOM	647	24,000	R-410A	13x40x9	31	- WIRELESS REMOTE CONTROL
AC-2	ELEVATOR MACHINE ROOM	647	24,000	R-410A	13x40x9	31	- MOUNT ±3" OFF WALL PER 4/M-001
AC-3	ELEVATOR MACHINE ROOM	647	24,000	R-410A	13x40x9	31	
AC-4	ELEVATOR MACHINE ROOM	647	24,000	R-410A	13x40x9	31	
AC-5	FREIGHT ELEV. MACHINE ROOM	647	24,000	R-410A	13x40x9	31	

MARK	EAT (°F)	CONDENSER UNIT ACCU-1				ELECTRICAL DATA				REMARKS		
		COMPRESSOR DATA		FAN DATA (CONDENSER)		REFRIGERANT LINE		APPROX. SIZE (LxWxH)				
		NO.	TYPE	NO.	NOMINAL CFM	VAPOR	LIQUID	V/ø/HZ	MOC		OP. WHT. (LBS.)	
ACCU-1	95	1	ROTARY	1	1942	3/8"	1/4"	36x13x28	230/1/60	25	124	SERVICE DISCONNECT AND ALL WIRING BY (E). COORDINATE ACCORDINGLY.
ACCU-2	95	1	ROTARY	1	1942	3/8"	1/4"	36x13x28	230/1/60	25	124	
ACCU-3	95	1	ROTARY	1	1942	3/8"	1/4"	36x13x28	230/1/60	25	124	
ACCU-4	95	1	ROTARY	1	1942	3/8"	1/4"	36x13x28	230/1/60	25	124	
ACCU-5	95	1	ROTARY	1	1942	3/8"	1/4"	36x13x28	230/1/60	25	124	

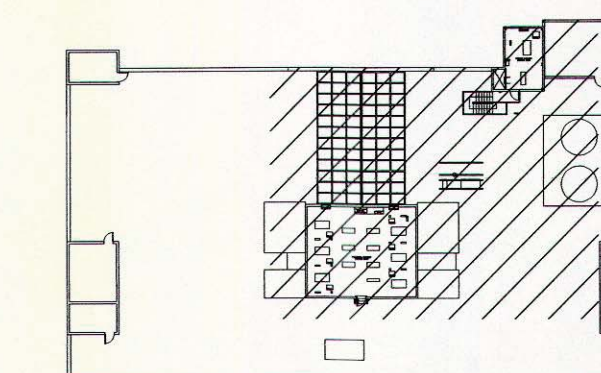




**1** ROOF MECHANICAL PLAN  
SCALE: 3/16" = 1'-0"

**KEYED NOTES:**

- 1 PROVIDE ACCUS AND MOUNT TO EXISTING STEEL DUNNAGE PER 3/M-001. MAINTAIN MINIMUM SERVICE CLEARANCE BETWEEN ADJACENT UNITS.
- 2 PROVIDE RLS ADJACENT TO EXISTING PIPING AND CONDUITS. COORDINATE ROUTING WITH RACEWAY BEING PROVIDED BY (E).
- 3 PROVIDE RLS AND CONDENSATE DRAIN ON ROOF PER 1/M-001. COORDINATE ROUTING WITH RACEWAY BEING PROVIDED BY (E)
- 4 MOUNT AC-X TO WALL PER 4/M-001. DO NOT AFFECT EXISTING FIRE PROOFING ON STEEL FRAMING.
- 5 MOUNT RLS AND CONDENSATE DRAIN TO ELEVATOR MACHINE ROOM WALL PER 2/M-001. SEAL ALL PENETRATIONS WATERTIGHT.
- 6 EXISTING ROOF DRAIN TO REMAIN.
- 7 MOUNT ACCU-5 TO TOP OF EXISTING STEEL COOLING TOWER DUNNAGE PER MANUFACTURER REQUIREMENTS.
- 8 36"x36" LOUVER TO BE PROVIDED BY (C). PROVIDE FULL PERIMETER BY 18"± DEEP SLEEVE WITH MOTORIZED, GALVANIZED STEEL, LOW-LEAKAGE DAMPER HAVING A 120V ACTUATOR AND ALL LINKAGES REQUIRED FOR OPERATION. WIRING BY (E).

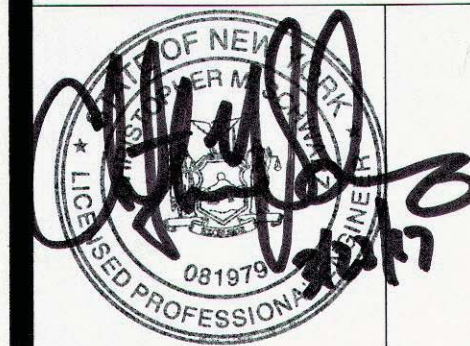


KEYED PLAN

REVISED DRAWING 3/24/2017

CONSULTANT  
ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
MEP ENGINEERS:  
**FPM ENGINEERING GROUP, P.C.**  
ELEVATOR CONSULTANT:  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**EM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
STRUCTURAL ENGINEER:  
**YAS** YISRAEL A. SEINUK, P.C.  
CONSULTING ENGINEER

WARNING:  
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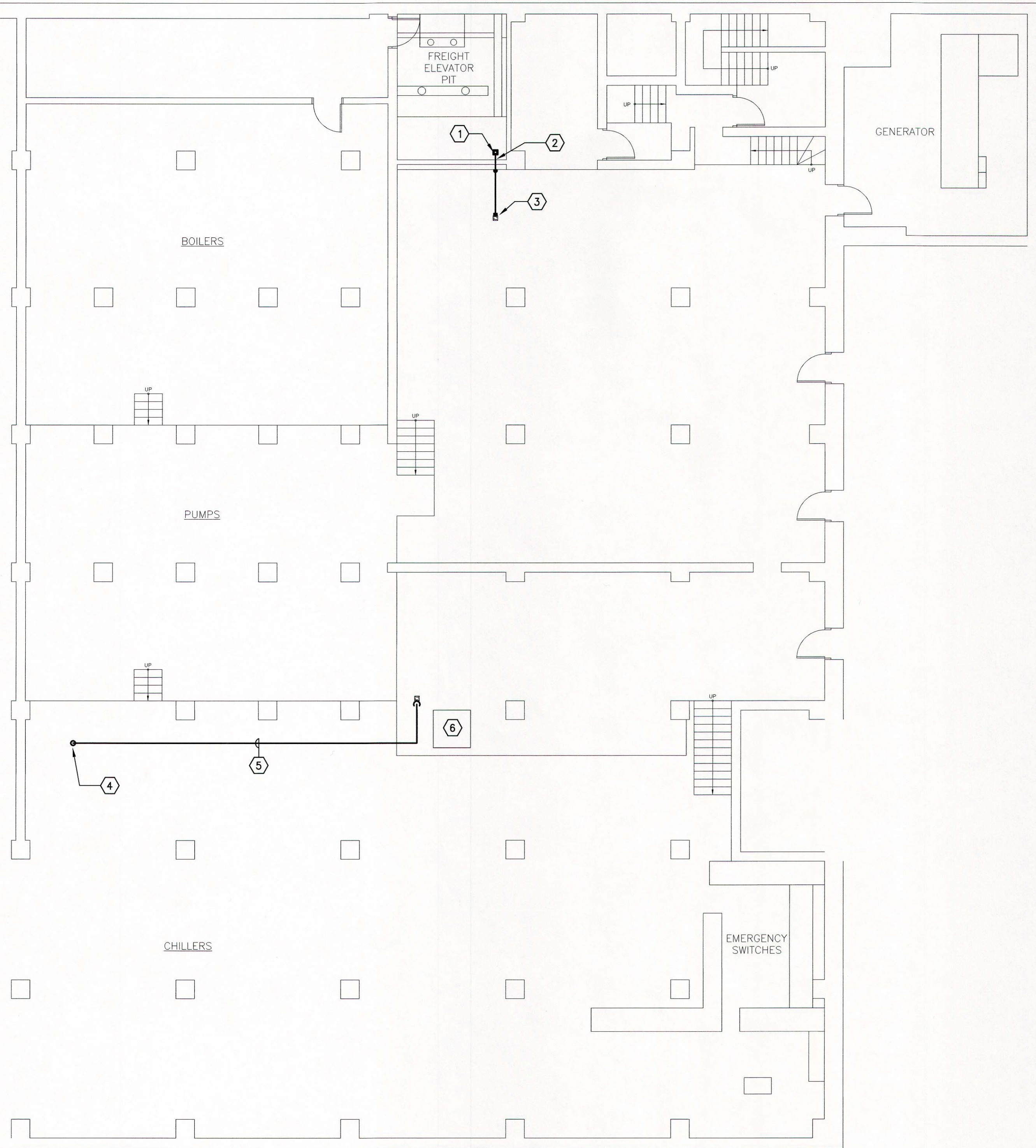
CONTRACT: HVAC  
TITLE: REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING  
LOCATION: 55 HANSON PLACE BROOKLYN, NY 11217  
CLIENT: OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT
PROJECT NUMBER:	44-780 - H	
DESIGNED BY:	FPM	
DRAWN BY:	JN	
FIELD CHECK:		
APPROVED:	CMS	
SHEET TITLE:	ROOF MECHANICAL PLAN	
DRAWING NUMBER:	M-101	
SHEET	2 OF 2	





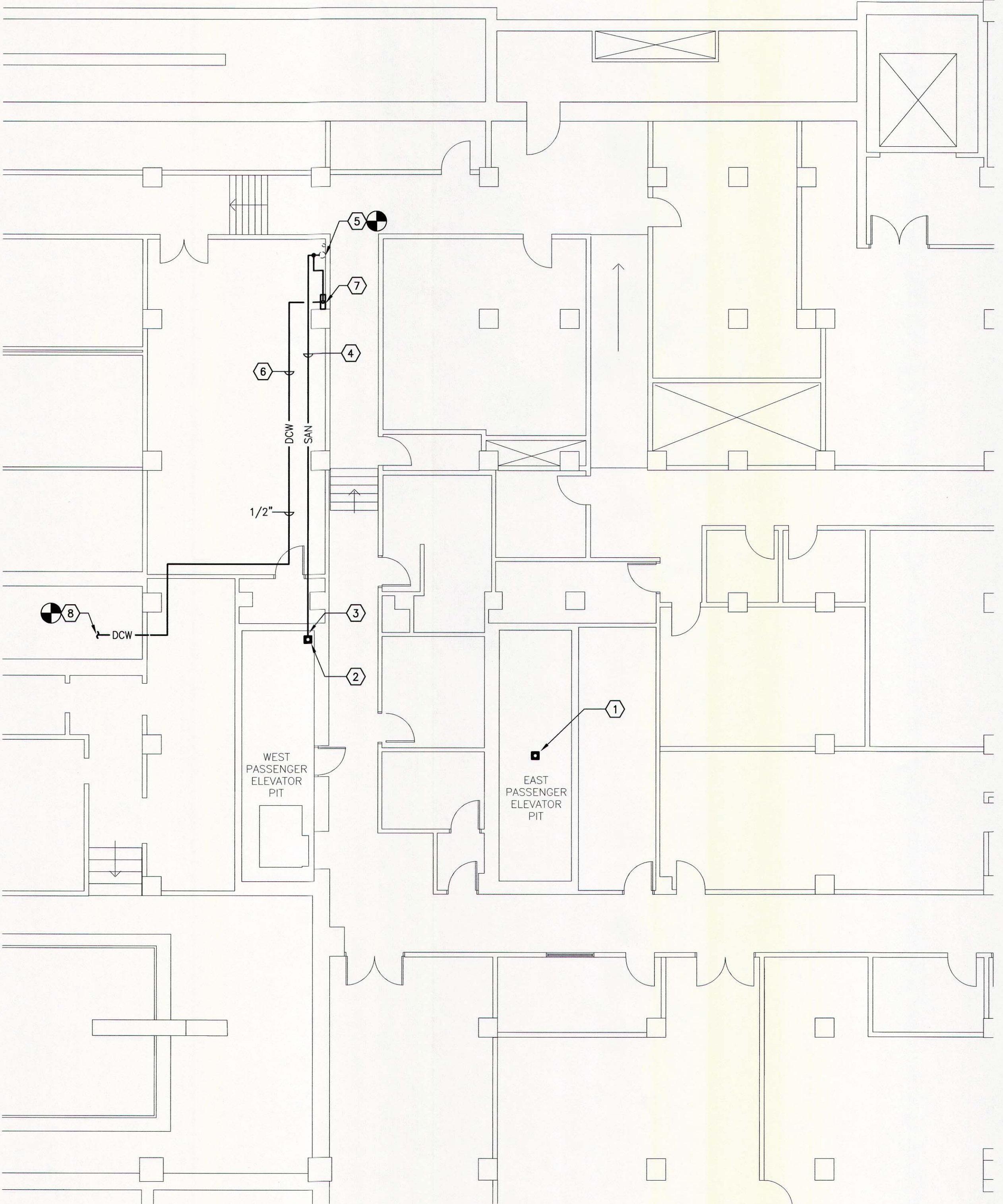




**1 SUB-BASEMENT PLUMBING PLAN**  
SCALE: 1/8" = 1'-0"

**KEYED NOTES:**

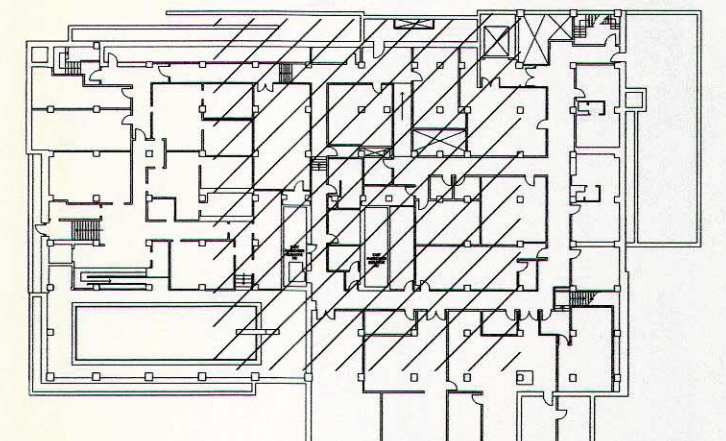
- ① PROVIDE FLOOR DRAIN IN FREIGHT ELEVATOR PIT FLOOR. SEE 5/P-001.
- ② PROVIDE 4" DRAIN PIPING AS SHOWN. ALL PIPING TO PITCH TOWARD DISCHARGE.
- ③ DISCHARGE PIPING INTO EXISTING FLOOR DRAIN.
- ④ 4" DRAIN PIPING DOWN FROM FLOOR DRAIN ABOVE. SEE 2/P-101 FOR CONTINUATION.
- ⑤ PROVIDE 4" DRAIN PIPING. PITCH TOWARD DISCHARGE AT FLOOR DRAIN ADJACENT TO EXISTING SUMP PUMP.
- ⑥ EXISTING TO REMAIN DUPLEX SUMP PUMP.



**2 BASEMENT PLUMBING PART PLAN**  
SCALE: 1/8" = 1'-0"

**KEYED NOTES:**

- ① PROVIDE FLOOR DRAIN IN ELEVATOR PIT FLOOR WITH 4" DRAIN DOWN THROUGH INTERSTITIAL SPACE AND ADDITIONAL FLOOR SLAB TO SUB-CELLAR BELOW. SEE 1/P-101 FOR CONTINUATION. SEE A-301 FOR BUILDING SECTION. (C) TO PROVIDE ACCESS TO INTERSTITIAL SPACE.
- ② PROVIDE FLOOR DRAIN IN ELEVATOR PIT FLOOR PER 5/P-001.
- ③ PROVIDE 4" DRAIN PIPING AS SHOWN. ALL PIPING TO PITCH TOWARD DISCHARGE.
- ④ PROVIDE PIPING ALONG, AND SUPPORTED FROM, EXISTING WALL. PITCH PIPING TOWARD DISCHARGE AT A MINIMUM OF 1/8" PER FOOT.
- ⑤ EXISTING 8" STORM RISER. MODIFY PER 1/P-001.
- ⑥ PROVIDE 1/2" DOMESTIC COLD WATER PIPING.
- ⑦ PROVIDE POWERED TRAP PRIMER MOUNTED TO WALL AT 9' A.F.F. AND EXTEND DISCHARGE PIPING TO FUNNEL DRAIN PER 1/P-001. POWER WIRING BY (E).
- ⑧ PROVIDE VALVED CONNECTION (125 PSIG RATED QUARTER TURN BALL VALVE WITH SOLDER JOINT ENDS) TO EXISTING DOMESTIC COLD WATER PIPING LOCATED ABOVE CEILING IN THE ADJACENT TOILET ROOM.



**BASEMENT KEY PLAN**

REVISED DRAWING 3/24/2017

CONSULTANT  
ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
MEP ENGINEERS:  
**FPM ENGINEERING GROUP, P.C.**  
ELEVATOR CONSULTANT:  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**EM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
STRUCTURAL ENGINEER:  
**YAS** YISRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

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CONTRACT: **PLUMBING**  
TITLE: **REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING**  
LOCATION: **55 HANSON PLACE BROOKLYN, NY 11217**  
CLIENT: **OFFICE OF GENERAL SERVICES**

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT

PROJECT NUMBER: **44780 - P**

DESIGNED BY: **FPM**  
DRAWN BY: **JN**  
FIELD CHECK: **JN**  
APPROVED: **CMS**

SHEET TITLE: **PLUMBING PLANS**

DRAWING NUMBER: **P-101**

SHEET **2** OF **2**



## ELECTRICAL ABBREVIATIONS

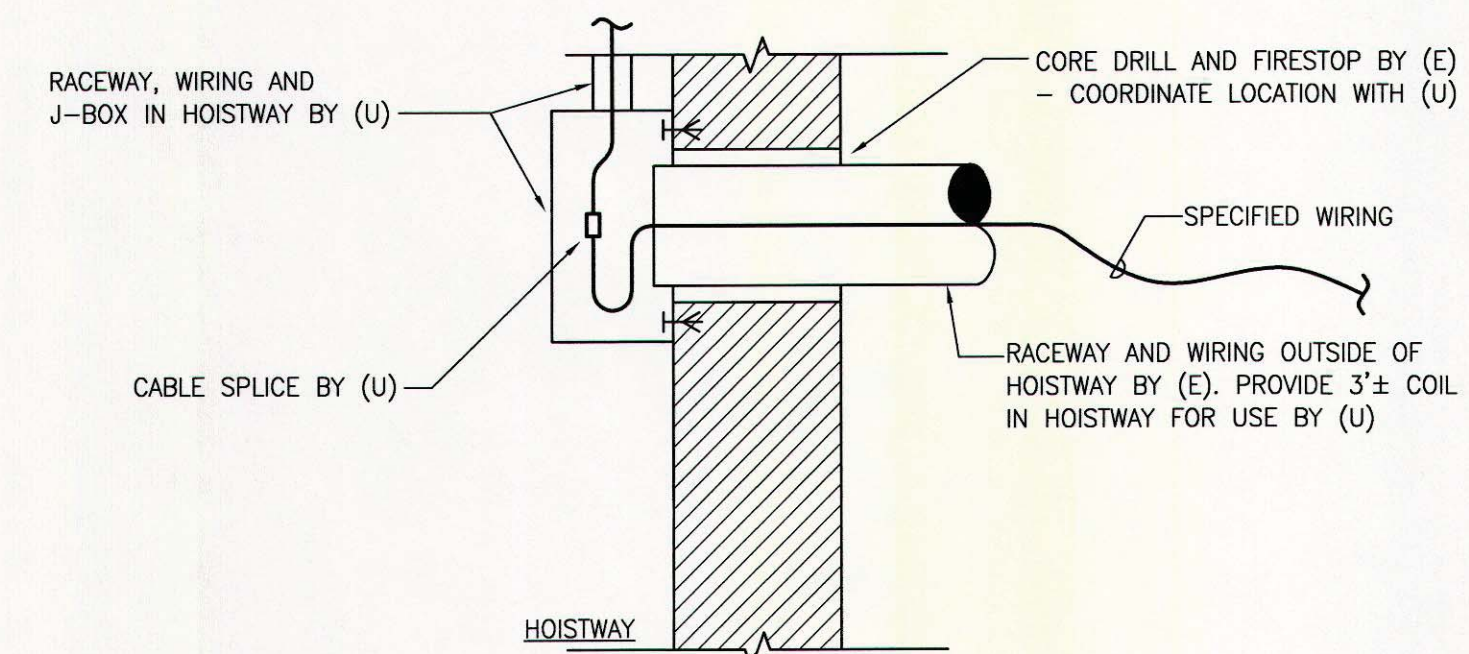
A/AMP	AMPERE	MC	MOTOR CONTROLLER
AFF	ABOVE FINISHED FLOOR	MCM	THOUSAND CIRCULAR MILS
ATS	AUTOMATIC TRANSFER SWITCH	MER	MECHANICAL EQUIPMENT ROOM
AUTO	AUTOMATIC	MAX	MAXIMUM
AWG	AMERICAN WIRE GAUGE	MIN	MINIMUM
(C)	GENERAL CONTRACTOR	MTD	MOUNTED
C	CONDUIT	N	NEUTRAL
CB	CIRCUIT BREAKER	NIC	NOT IN CONTRACT
CKT	CIRCUIT	NTS	NOT TO SCALE
CLG	CEILING	OC	ON CENTER
CTE	CONNECT TO EXISTING	(P)	PLUMBING CONTRACTOR
CU	COPPER	P	POLE
DIA	DIAMETER	PB	PULLBOX
DISC	DISCONNECT	φ	PHASE
DN	DOWN	PNL	PANEL
DP	DISTRIBUTION PANEL BOARD	SP	SINGLE POLE
DR	DIRECTOR'S REPRESENTATIVE	ST	THERMAL OVERLOAD SWITCH
DWG	DRAWING	SW	SWITCH
(E)	ELECTRICAL CONTRACTOR	SWBD	SWITCHBOARD
ETR	EXISTING TO REMAIN	TXMR	TRANSFORMER
EA	EACH	TYP	TYPICAL
ELEC	ELECTRICAL	(U)	ELEVATOR CONTRACTOR
EM	EMERGENCY	UON	UNLESS OTHERWISE NOTED
ETR	EXISTING TO REMAIN	V	VOLT OR VOLTAGE
EQUIP	EQUIPMENT	VP	VAPORPROOF
EX	EXISTING	W	WATT
FA	FIRE ALARM	WP	WEATHERPROOF
FDR	FEEDER		
FIXT	FIXTURE		
FL	FLOOR		
FSD	FIRE SMOKE DAMPER		
FT	FEET OR FOOT		
G	GROUND		
GFI	GROUND FAULT INTERRUPTER		
(H)	HVAC CONTRACTOR		
HP	HORSEPOWER		
HZ	HERTZ		
J-BOX	JUNCTION BOX		
KVA	KILO VOLT AMPERE		
KW	KILOWATT		
LTG	LIGHTING		
MAX	MAXIMUM		
MCB	MAIN CIRCUIT BREAKER		

## ELECTRICAL GENERAL NOTES

- THROUGHOUT ALL PHASES OF THE WORK OTHER AREAS OF THE FACILITY SHALL REMAIN IN FULL AND CONTINUOUS OPERATION. TAKE ALL MEASURES NECESSARY TO ENSURE THAT NO WORK EFFECTS ANY FACILITY OPERATIONS. MAINTAIN LEGAL EXITS AND PASSAGeways.
- COORDINATE ACCESS TO THE FACILITY AND THE PROJECT WORK AREAS WITH THE DIRECTOR'S REPRESENTATIVE. ALL DELIVERIES MUST BE SCHEDULED WITH THE D.R.
- BE SOLELY RESPONSIBLE FOR THE SAFETY OF YOUR AND ANY SUB-CONTRACTOR'S CREW AND FOR PREVENTING ANY CONDITION WHICH MAY ADVERSELY AFFECT THE FACILITY OR ITS OCCUPANTS. TAKE ALL PRECAUTIONS NECESSARY TO PREVENT INJURY OR DAMAGE TO ANY PERSON OR PROPERTY. FOLLOW OSHA STANDARD RULES AND REGULATIONS.
- AREAS WITHIN THE FACILITY, AS APPROVED BY THE DIRECTOR'S REPRESENTATIVE, MAY BE USED AS A TEMPORARY FIELD OFFICE AND STORAGE AREAS. HOWEVER, MOBILITY, ACCESS AND EMERGENCY EGRESS ROUTES MUST NOT BE AFFECTED. THE SECURITY OF ANY TEMPORARY STORAGE AREA IS THE RESPONSIBILITY OF THE CONTRACTORS, NOT THE FACILITY.
- MAKE ALL EFFORTS TO LIMIT ANY DAMAGE TO EXISTING SURFACES OR SERVICES DURING THE COURSE OF THIS PROJECT. REPLACE ANY ITEM OR SERVICE AFFECTED BY THE WORK TO MATCH THE EXISTING ADJACENT SURFACES OR INTEGRATE INTO THE EXISTING SYSTEMS IN A TIMELY MANNER.
- PROVIDE DUMPSTERS/CARTING SERVICES FOR CONTRACT RUBBISH REMOVAL. REMOVE ALL MATERIALS MADE SPARE BY THIS WORK, AND DISPOSE OF LEGALLY. LOCATE DUMPSTERS WITHIN SECURED FENCED STAGING AREA.
- THE DIRECTOR'S REPRESENTATIVE WILL PROVIDE RULES & REGULATIONS FOR DISTRIBUTION AT THE INITIAL JOB MEETING. THE D.R. WILL ADVISE ON THE FACILITY'S RULES FOR REGULAR ACCESS TO WORK AREAS AND CONSTRUCTION WORKER ID CARDS.
- REMOVE EQUIPMENT AND FIXTURES SHOWN DASHED, AND OTHER NOTED ITEMS, IN THEIR ENTIRETY.
- PROVIDE ITEMS TO COMPLETE THE WORK AS DESCRIBED IN THE PROJECT MANUAL AND SHOWN ON THE PLANS.
- FULLY COORDINATE ANY NECESSARY SERVICE SHUT-DOWN PERFORMED AS PART OF THIS PROJECT WITH THE D.R. AT LEAST 72 HOURS IN ADVANCE.
- FLOOR PLANS AND ELEVATIONS ARE SHOWN TO ILLUSTRATE REQUIRED EQUIPMENT INTERCONNECTIONS AND EQUIPMENT SPACE LAYOUTS. DO NOT USE SCALED MEASUREMENTS FOR FABRICATION OF THE WORK. POSITION ALL EQUIPMENT TO MAINTAIN ALL REQUIRED ACCESSSES AND SERVICES CLEARANCES.
- DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. FOLLOW DRAWINGS IN LAYING OUT WORK AND CHECK DRAWINGS OF OTHER TRADES TO VERIFY SPACE CONDITIONS.
- PASS RACEWAYS OVER WATER, STEAM OR OTHER PIPING WHEN PULL BOXES ARE NOT REQUIRED. NO RACEWAY WITHIN 3 INCHES OF STEAM OR HOT WATER PIPES OR APPLIANCES (EXCEPT PIPE CROSSING WHERE RACEWAY SHALL BE AT LEAST 1 INCH FROM PIPE COVERS).
- LEAVE WIRES WITH SUFFICIENT SLACK TO PERMIT MAKING FINAL CONNECTIONS. RACEWAYS OVER 10 FT LONG IN WHICH WIRING IS NOT INSTALLED; FURNISH FISH WIRE.
- COVERS OF JUNCTION AND PULLBOXES SHALL BE READILY ACCESSIBLE.
- PROVIDE PULLBOXES WHERE INDICATED, WHERE REQUIRED BY CODE AND WHEREVER NECESSARY TO FACILITATE PULLING OF WIRE. COORDINATE PULLBOX LOCATIONS WITH OTHER TRADES.
- SUPPORT PANEL, JUNCTION AND PULLBOXES INDEPENDENTLY TO BUILDING STRUCTURE WITH NO WEIGHT BEARING ON RACEWAYS.
- PULL NO THERMOPLASTIC WIRES AT TEMPERATURES LOWER THAN 32°F (0°C). PROVIDE CABLE SUPPORTS FOR WIRE IN RISER CONDUITS AS REQUIRED BY CODE.

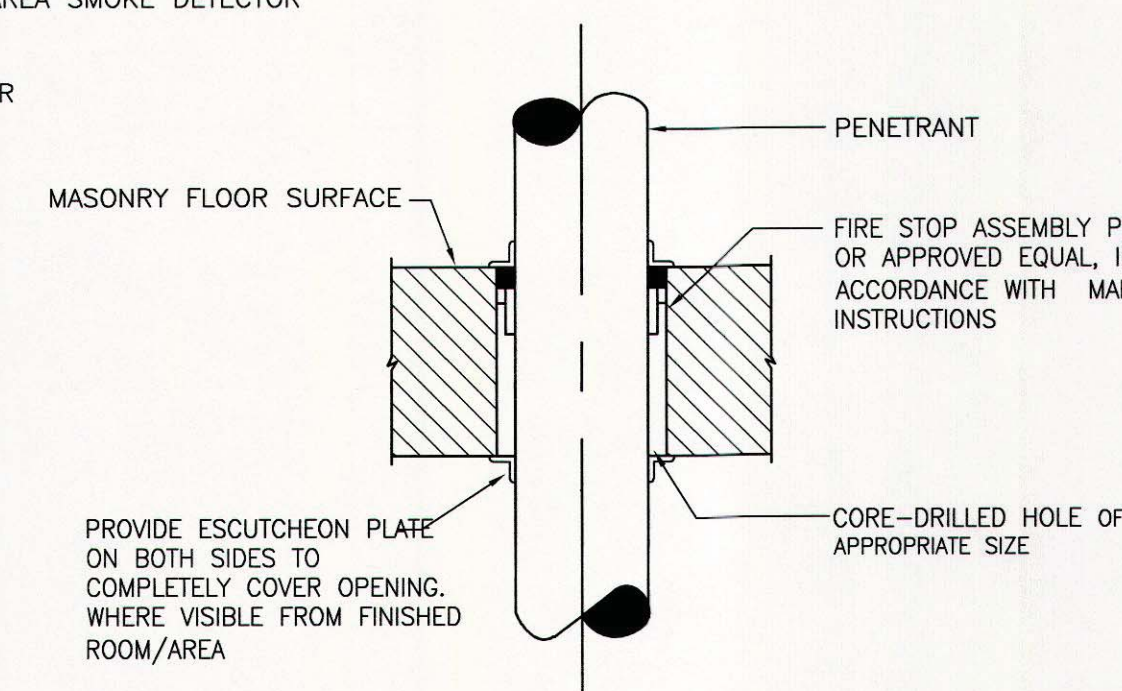
## ELECTRICAL SYMBOLS LIST

- 20A, 120V/277V SINGLE POLE TOGGLE TYPE LIGHT SWITCH. "a" DENOTES FIXTURES CONTROLLED. COORDINATE WITH ARCHITECT FOR FACE PLATE FINISH.
- THERMAL OVERLOAD SWITCH
- POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION. NUMERAL WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 φ, 1#12 N. & 1#12 G. IN 3/4" C, UNLESS OTHERWISE NOTED.
- POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION. NUMERAL WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 φ, 2#12 N. & 2#12 G. IN 3/4" C, UNLESS OTHERWISE NOTED.
- POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION. NUMERAL WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 φ, 3#12 N. & 3#12 G. IN 3/4" C, UNLESS OTHERWISE NOTED.
- EQUIPMENT POWER CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION. REFER TO PANELBOARD FOR EXACT WIRE AND CONDUIT SIZES.
- SURFACE MOUNTED PANELBOARD
- ALTERNATING CURRENT MOTOR, "xx" DENOTES MOTOR HORSEPOWER.
- POWER DISCONNECT SWITCH.
- CABLE SPLICE BOX OR PULL BOX
- JUNCTION BOX
- TRANSFORMER
- FINAL ELECTRICAL CONNECTION
- CONDUIT TURNING UP
- CONDUIT TURNING DOWN
- 20A, 125V, 2-POLE GROUNDING TYPE WALL MOUNTED DUPLEX POWER RECEPTACLE (NEMA 5-20R)
- 20A, 125V, 2-POLE GROUNDING WALL MOUNTED DUPLEX POWER RECEPTACLE WITH GROUND FAULT INTERRUPTION (NEMA 5-20R)
- 20A, 125V, 2-POLE GROUNDING TYPE WALL MOUNTED QUADRUPLEX POWER RECEPTACLE (NEMA 5-20R)
- EXISTING TO REMAIN
- REMOVE EXISTING
- PROVIDE
- CEILING MOUNTED AREA SMOKE DETECTOR
- FIRE SMOKE DAMPER

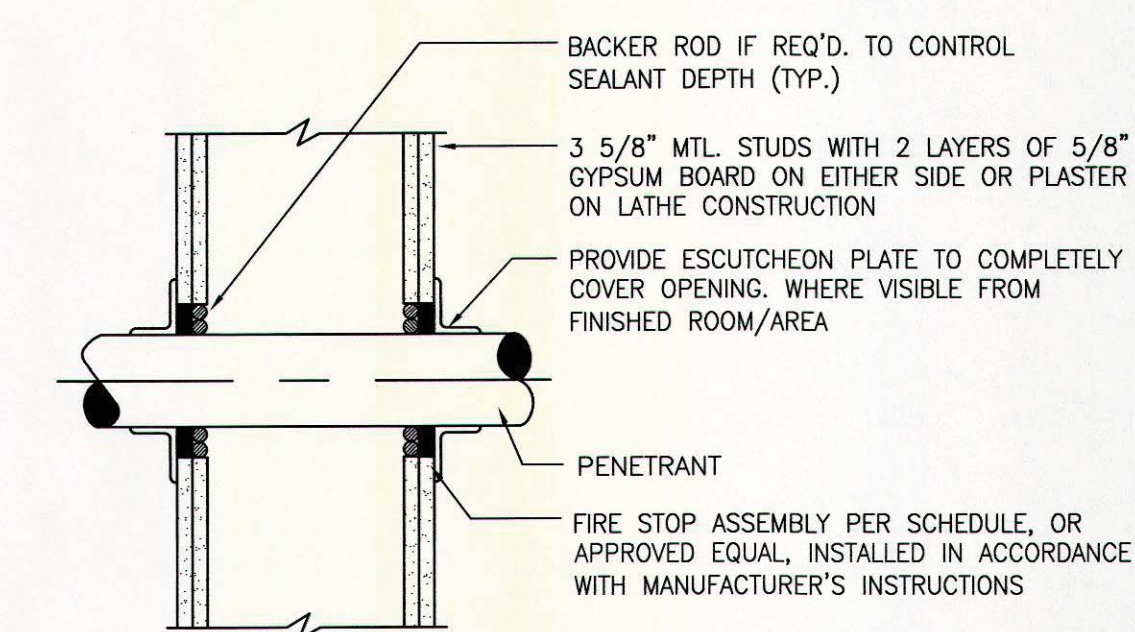


## 2 WIRING AT HOISTWAY WALL PENETRATION

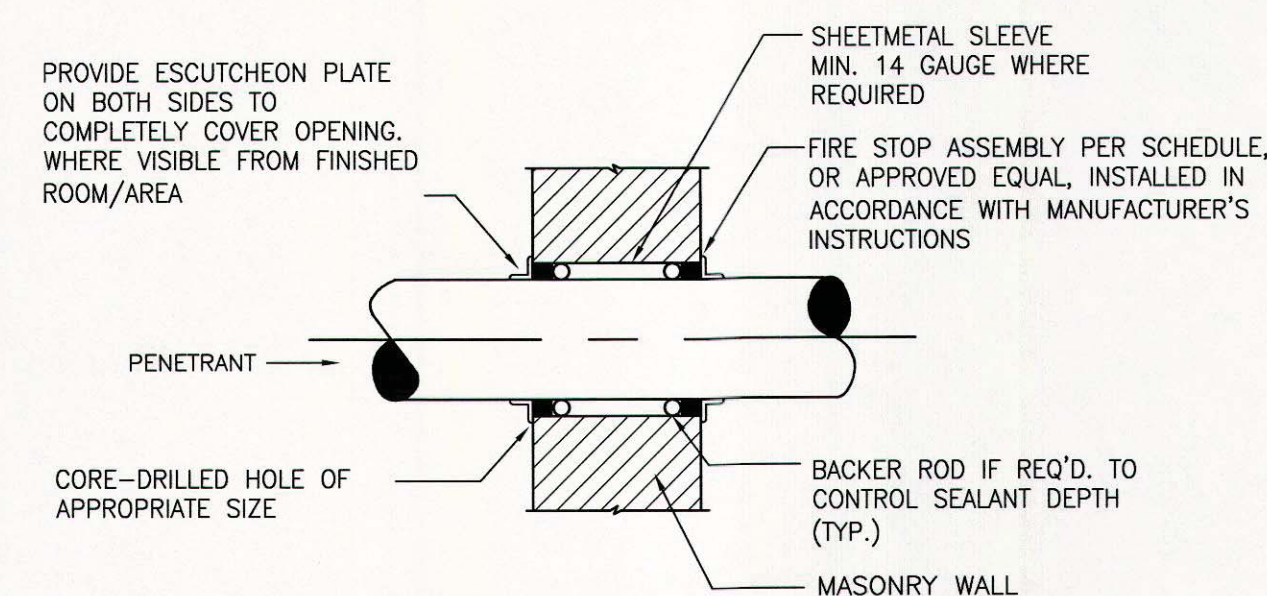
N.T.S.



A FLOOR FIRESTOP



B GYPSUM BOARD OR PLASTER WALL FIRESTOP



C MASONRY WALL FIRESTOP

### NOTES:

- THE FOLLOWING WALLS SHALL BE TREATED AS 2-HR RATED PARTITIONS:
  - ALL CORRIDOR WALLS;
  - ALL STAIRWELL ENCLOSURES;
  - ALL MECHANICAL AND EQUIPMENT ROOMS (BOILER, FAN, ELEVATOR, ELECTRICAL, METER)
  - ALL VERTICAL SHAFT ENCLOSURES (HOISTWAYS, TRASH CHUTES, DUCT/PIPE CHASES, ETC.);
  - ALL UTILITY CLOSET WALLS;
- PATCH PENETRATIONS NOT REQUIRING FIRESTOPPING TO MATCH ADJACENT CONSTRUCTION OR SEAL WITH TYPE 1C SEALANT. PROVIDE A ESCUTCHEON PLATE AT ALL PENETRATIONS VISIBLE FROM A FINISHED ROOM/AREA.

THROUGH PENETRATION FIRESTOP ASSEMBLY SCHEDULE				
PARTITION TYPE	REFERENCE DETAIL	U.L. ASSEMBLY NUMBER BY PENETRANT		REMARKS
		RIGID CONDUIT	FMC	
FLOOR/CEILING	A	C-AJ-1140	C-AJ-3133	2 HR. RATING MIN.
GYPSUM BOARD OR PLASTER	B	W-L-1054	W-L-3076	2 HR. RATING MIN.
MASONRY WALL	C	C-AJ-1149	C-AJ-3133	2 HR. RATING MIN.

## 1 FIRESTOP DETAILS

N.T.S.

LIGHTING FIXTURE SCHEDULE							
DESIGNATION	MANUFACTURER	DESCRIPTION	MODEL	FINISH	LAMP	SIZE	REMARKS
L3	PHILIPS STONCO	WALL MOUNTED COMPACT FLUORESCENT FIXTURE	VWL32HFL-1	WHITE	32W CFL	-	-
L4	PHILIPS STONCO	WALL MOUNTED COMPACT FLUORESCENT FIXTURE	VWL42HFL-1	WHITE	42W CFL	-	-
L5	ETR						RE-LAMP EXISTING FIXTURE WITH 32W CFL
L6	PHILIPS STONCO	WALL MOUNTED LED FIXTURE	WPM-LED-36D-530-NW		33W LED	-	PROVIDE PHOTO CONTROL

NOTE: PROVIDE FIXTURES FROM THE INDICATED MANUFACTURER OR EQUAL.

REVISED DRAWING 3/24/2017

CONSULTANT

ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

**vda**

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

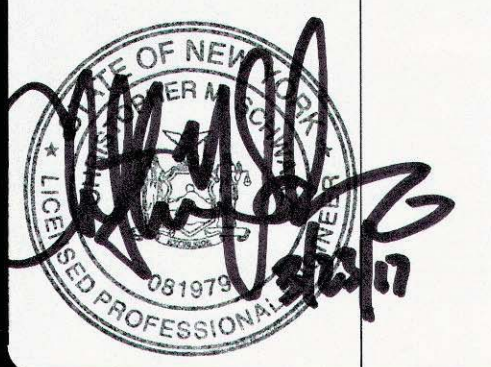
**EM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

STRUCTURAL ENGINEER:

**YAS** YISRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

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CONTRACT:

ELECTRICAL

TITLE:  
REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING

LOCATION:  
55 HANSON PLACE  
BROOKLYN, NY 11217

CLIENT:  
OFFICE OF GENERAL SERVICES

DATE	DESCRIPTION
03/24/2017	REVISED DRAWING
12/16/2016	BID DOCUMENT

PROJECT NUMBER:	44780 - E
DESIGNED BY:	FPM
DRAWN BY:	JN
FIELD CHECK:	
APPROVED:	CMS

SHEET TITLE:  
ELECTRICAL NOTES, SYMBOLS, AND ABBREVIATIONS

DRAWING NUMBER:  
E-001





NYS OFFICE OF GENERAL SERVICES

Serving New York

ANDREW M. CUOMO  
Governor  
ROANN M. DESTITO  
Commissioner

CONSULTANT

ARCHITECT:

RZAPS  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

vda

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

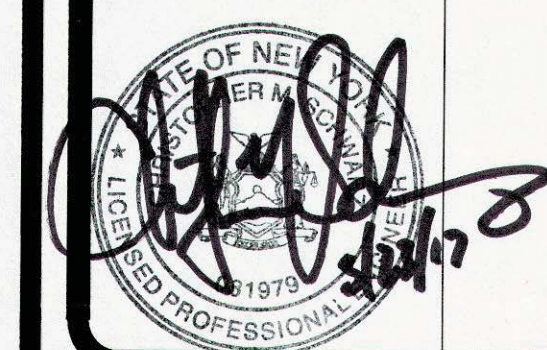
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ENVIRONMENTAL PLANNING & MANAGEMENT, INC.

STRUCTURAL ENGINEER:

YAS  
YSRAEL A. SEINUK, P.C.  
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CONTRACT:

ELECTRICAL

TITLE:  
REHABILITATE ELEVATORS - SHIRLEY  
CHISHOLM STATE OFFICE BUILDING

LOCATION:  
55 HANSON PLACE  
BROOKLYN, NY 11217

CLIENT:  
OFFICE OF GENERAL SERVICES

03/24/2017 REVISED DRAWING

12/16/2016 BID DOCUMENT

MARK DATE DESCRIPTION

PROJECT NUMBER: 44780 - E

DESIGNED BY: FPM

DRAWN BY: JN

FIELD CHECK:

APPROVED: CMS

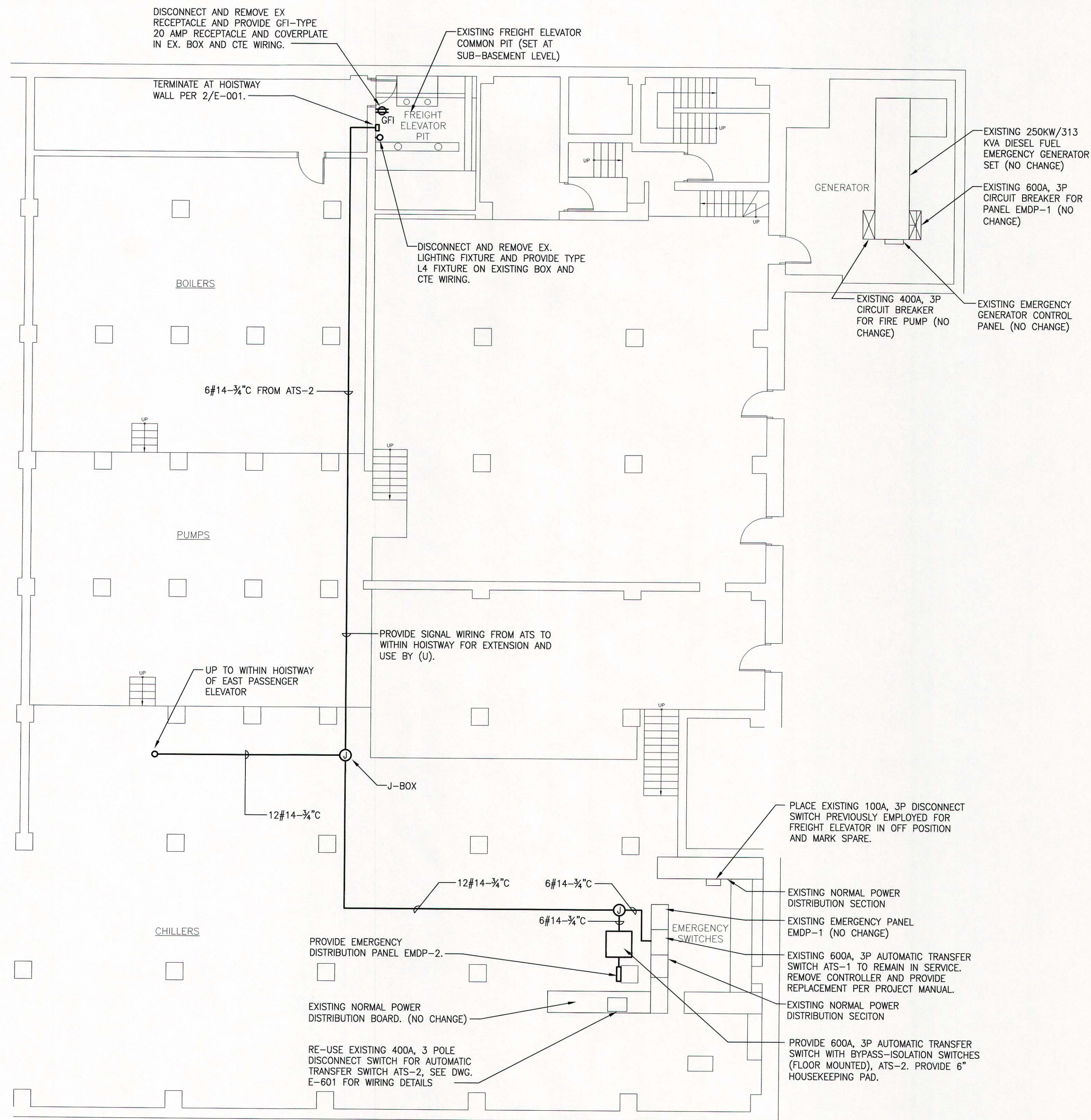
SHEET TITLE:

SUB-BASEMENT  
ELECTRICAL PLAN

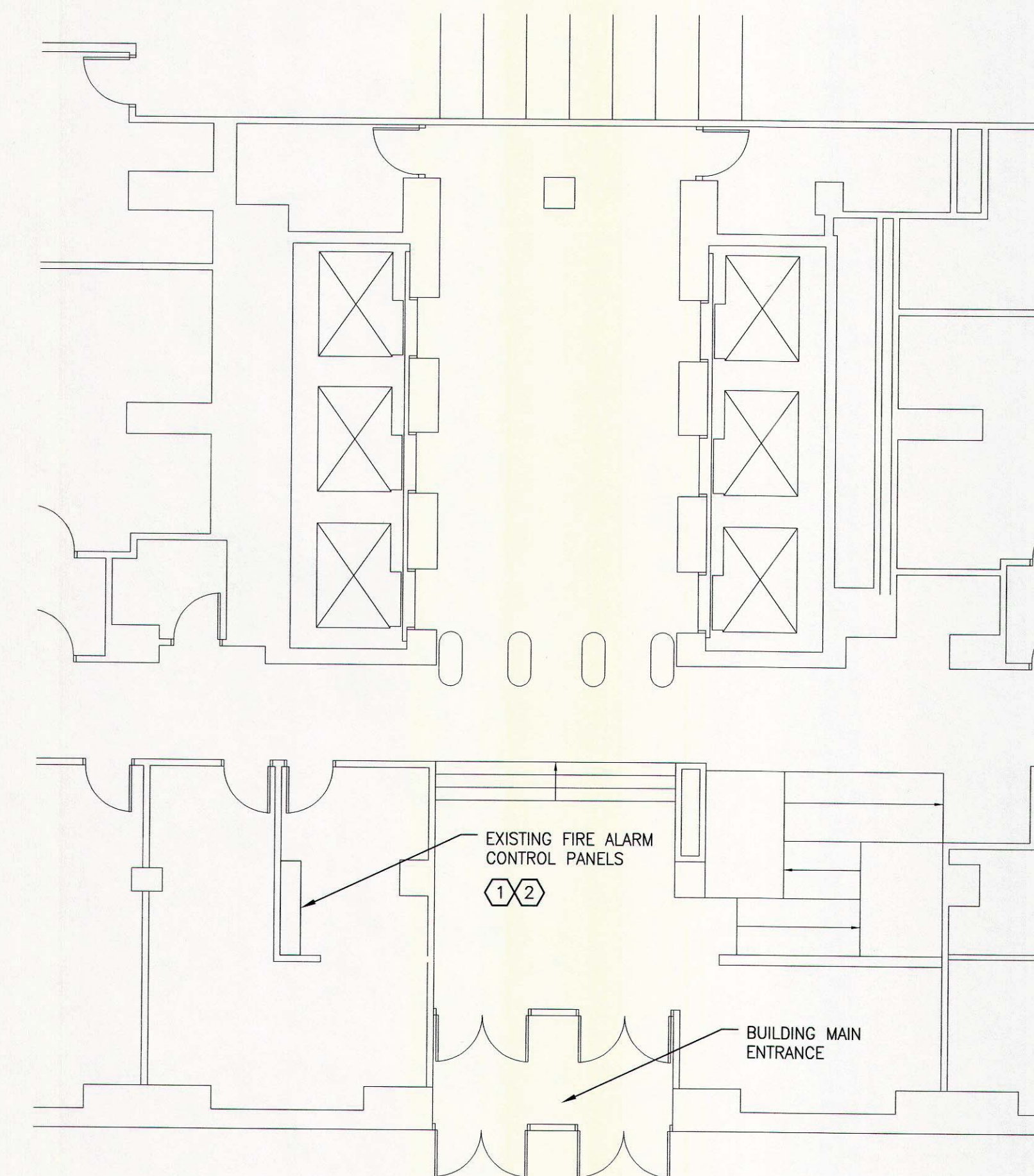
DRAWING NUMBER:

E-101

SHEET 2 OF 5



1 SUB-BASEMENT POWER PLAN SCALE: 1/8" = 1'-0"



KEY NOTES

- 1 USING EX. SPARE CONDUCTORS, CTE SPARE AUDIO CHANNEL WITHIN FACP TO PERMIT AN INDEPENDENT VOICE ANNUNCIATION CHANNEL FOR THE PASSENGER AND FREIGHT ELEVATORS.
2 CTE SPARE AUDIO CHANNEL CONDUCTORS IN EX. J-BOX WITHIN 13TH FLOOR MER ADJACENT TO ELEVATOR #3 AND PROVIDE EXTENSION (2#14-3/4") TO PASSENGER ELEVATOR HOISTWAY (20'± LF RUN) AND FREIGHT ELEVATOR HOISTWAY (150'± LF RUN). COORDINATE ROUTING ABOVE HUNG CEILINGS IN FIELD (13TH FLOOR IS UNOCCUPIED OFFICE SPACE). TERMINATE AT HOISTWAY WALL PER 2/E-001.

2 FIRST FLOOR FIRE ALARM PANEL PART PLAN SCALE: 1/8" = 1'-0"

REVISED DRAWING 3/24/2017







CONSULTANT

ARCHITECT:  
**RZAPS**  
 RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

**FPM ENGINEERING GROUP, P.C.**

ELEVATOR CONSULTANT:

**vda**

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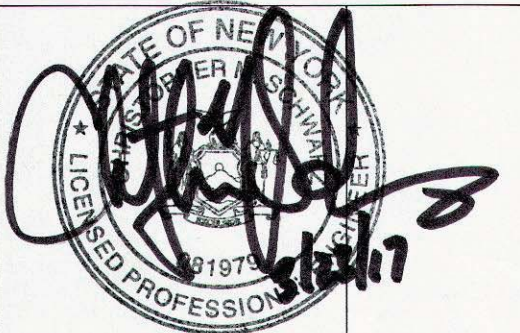
**PEM**  
 ENVIRONMENTAL  
 PLANNING &  
 MANAGEMENT, INC.

STRUCTURAL ENGINEER:

**YAS** YISRAEL A. SEINUK, P.C.  
 CONSULTING ENGINEER

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CONTRACT:

**ELECTRICAL**

TITLE:  
**REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING**

LOCATION:  
 55 HANSON PLACE  
 BROOKLYN, NY 11217

CLIENT:  
 OFFICE OF GENERAL SERVICES

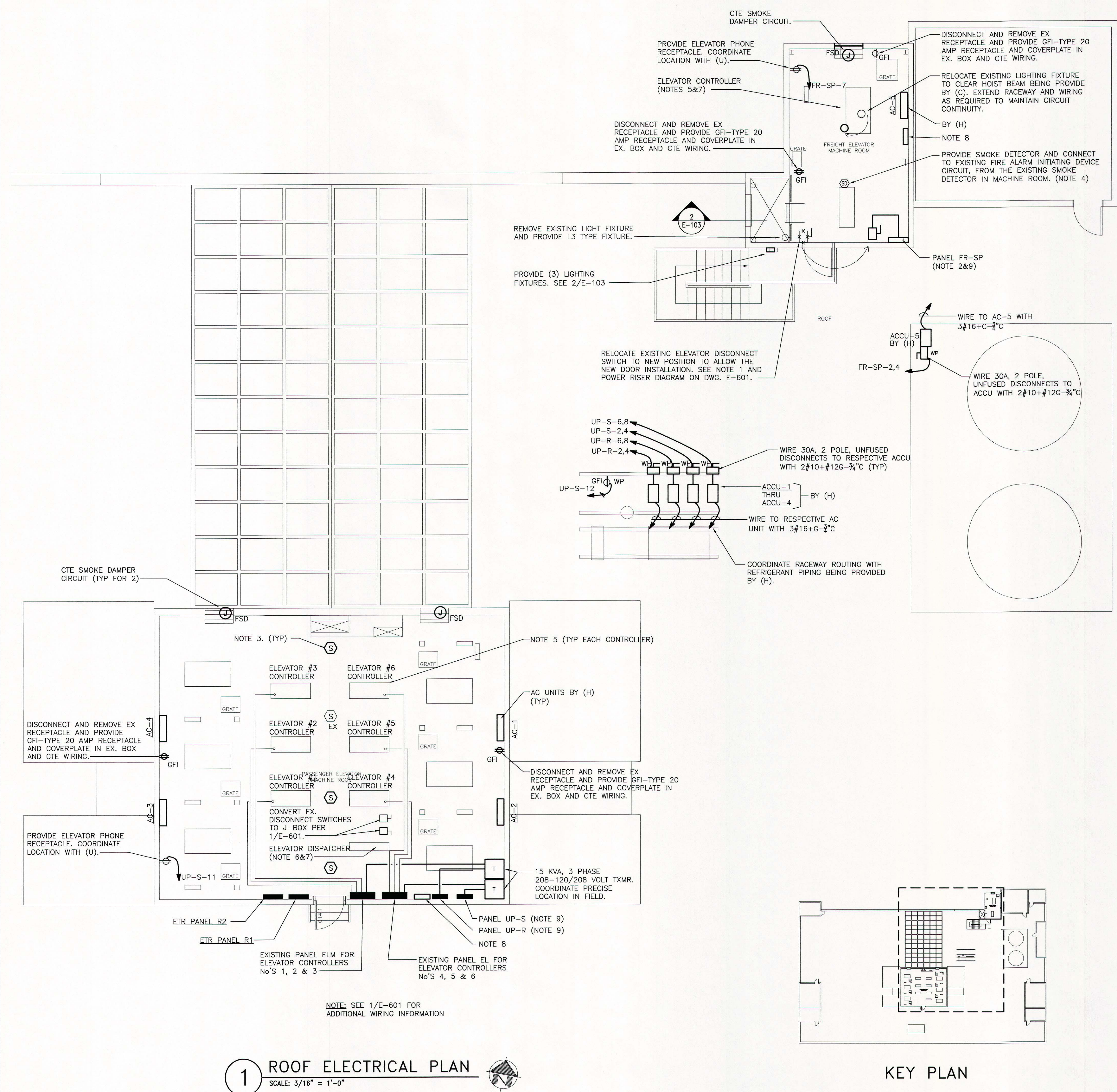
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△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT

PROJECT NUMBER: **44780 - E**  
 DESIGNED BY: FPM  
 DRAWN BY: JN  
 FIELD CHECK:  
 APPROVED: CMS  
 SHEET TITLE:

**ROOF AND PENTHOUSE ELECTRICAL PLAN**

DRAWING NUMBER:  
**E-103**

- NOTES:
- DISCONNECT AND REMOVE CONDUIT AND WIRE FROM EX. DISCONNECT SWITCH TO EX. FREIGHT ELEVATOR CONTROLLER. RELOCATE DISCONNECT SWITCH PER 1/E-601 AND PROVIDE CONDUIT AND WIRE TO ELEVATOR CONTROLLER.
  - PROVIDE PANEL FR-SP AND WIRE AS SHOWN ON 1/E-601
  - PROVIDE (3) SMOKE DETECTORS TO MATCH EXISTING AND WIRE TO EXISTING INITIATING DEVICE CIRCUIT IN PASSENGER ELEVATOR MACHINE ROOM.
  - PROGRAM EX. FIRE ALARM SYSTEM TO RECOGNIZE NEW SMOKE DETECTORS PROVIDED BY THE WORK.
  - DISCONNECT/RECONNECT EXISTING ELEVATOR CONTROLLER FEEDERS AS REQUIRED FOR CONTROLLER REPLACEMENT/RENOVATION BY (U).
  - DISCONNECT AND REMOVE ELEVATOR DISPATCHER FEEDER IN COORDINATION WITH (U). PROVIDE FEEDER TO NEW DISPATCHER FROM PANEL UP-R.
  - REMOVE (2) EXISTING FIRE ALARM RECALL RELAYS ON CONTROLLER.
  - PROVIDE TERMINAL STRIP CABINET AND 3 ADDRESSABLE RELAYS. REPROGRAM FIRE ALARM SYSTEM TO USE 1 RELAY EACH FOR PHASE I RECALL, PHASE II RECALL, AND FIREFIGHTER SERVICE OPERATION. WIRING FROM TERMINAL STRIP CABINET TO ELEVATOR CONTROLS BY (U).
  - PROVIDE LOCKABLE DISCONNECT SWITCH AT EACH ELEVATOR CONTROLLER FOR CAB LIGHTING, WITH WIRING TO UP-R, UP-S, OR FR-SP PER SCHEDULES.



NOTE: SEE 1/E-601 FOR ADDITIONAL WIRING INFORMATION

REVISED DRAWING 3/24/2017



CONSULTANT

ARCHITECT:

**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

**FPM ENGINEERING GROUP, P.C.**

ELEVATOR CONSULTANT:

**vda**

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

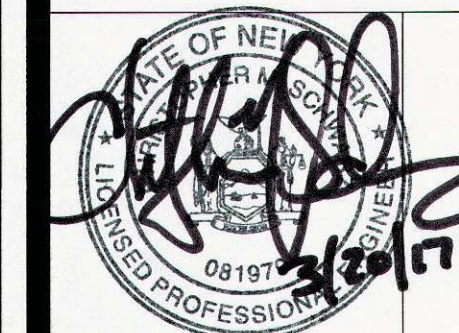
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STRUCTURAL ENGINEER:

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CONTRACT:

**ELECTRICAL**

TITLE:  
**REHABILITATE ELEVATORS - SHIRLEY  
CHISHOLM STATE OFFICE BUILDING**

LOCATION:  
**55 HANSON PLACE  
BROOKLYN, NY 11217**

CLIENT:  
**OFFICE OF GENERAL SERVICES**

PANEL: FR-SP  
120/208 VOLTS, 3 PHASE, 4 WIRE  
MAIN CB 50A BUS 100A MIN. INTERRUPTING RATING: 22KVA

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	PER PHASE (KVA)			LOAD (KVA)	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.
			A	B	C				
1								2	
3	30/3	DOOR OPERATOR						4	
5								6	
7	20	PHONE RECEPTACLE						8	
9	20	SPARE						10	
11								12	
13								14	
15								16	
17								18	
19								20	
21								22	
23								24	

TOTAL HVAC/LTC \_\_\_\_\_ X 1.0 DEM= \_\_\_\_\_ TOTAL DEMAND \_\_\_\_\_ X 1.25 SPARE= \_\_\_\_\_  
TOTAL RECEPTACLES \_\_\_\_\_ X DEM \_\_\_\_\_ TOTAL LOAD \_\_\_\_\_ KVA \_\_\_\_\_ AMPS

PANEL: UP-R  
120/208 VOLTS, 3 PHASE, 4 WIRE  
MAIN CB 50A BUS 100A MIN. INTERRUPTING RATING: 22 KVA

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	PER PHASE (KVA)			LOAD (KVA)	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.
			A	B	C				
1								2	
3	20	ELEV. #1 CAB LIGHTING & POWER						4	
5	20	ELEV. #2 CAB LIGHTING & POWER						6	
7								8	
9	20	ELEV. #3 CAB LIGHTING & POWER						10	
11	20	SPARE						12	
13	20	SPARE						14	
15								16	
17								18	
19								20	
21								22	
23								24	

TOTAL HVAC/LTC \_\_\_\_\_ X 1.0 DEM= \_\_\_\_\_ TOTAL DEMAND \_\_\_\_\_ X 1.25 SPARE= \_\_\_\_\_  
TOTAL RECEPTACLES \_\_\_\_\_ X DEM \_\_\_\_\_ TOTAL LOAD \_\_\_\_\_ KVA \_\_\_\_\_ AMPS

PANEL: UP-S  
120/208 VOLTS, 3 PHASE, 4 WIRE  
MAIN CB 50A BUS 100A MIN. INTERRUPTING RATING: 22 KVA

CKT. NO.	TRIP AMPS	DESCRIPTION OF LOAD	PER PHASE (KVA)			LOAD (KVA)	DESCRIPTION OF LOAD	TRIP AMPS	CKT. NO.
			A	B	C				
1								2	
3	20	ELEV. #4 CAB LIGHTING & POWER						4	
5	20	ELEV. #5 CAB LIGHTING & POWER						6	
7								8	
9	20	ELEV. #6 CAB LIGHTING & POWER						10	
11	20	PHONE RECEPTACLE						12	
13	20	SPARE						14	
15								16	
17								18	
19								20	
21								22	
23								24	

TOTAL HVAC/LTC \_\_\_\_\_ X 1.0 DEM= \_\_\_\_\_ TOTAL DEMAND \_\_\_\_\_ X 1.25 SPARE= \_\_\_\_\_  
TOTAL RECEPTACLES \_\_\_\_\_ X DEM \_\_\_\_\_ TOTAL LOAD \_\_\_\_\_ KVA \_\_\_\_\_ AMPS

POWER AND DISTRIBUTION PANEL SCHEDULE (ETR)  
VOLTAGE 120/208 3 PHASE 4 WIRES + G. U.O.N

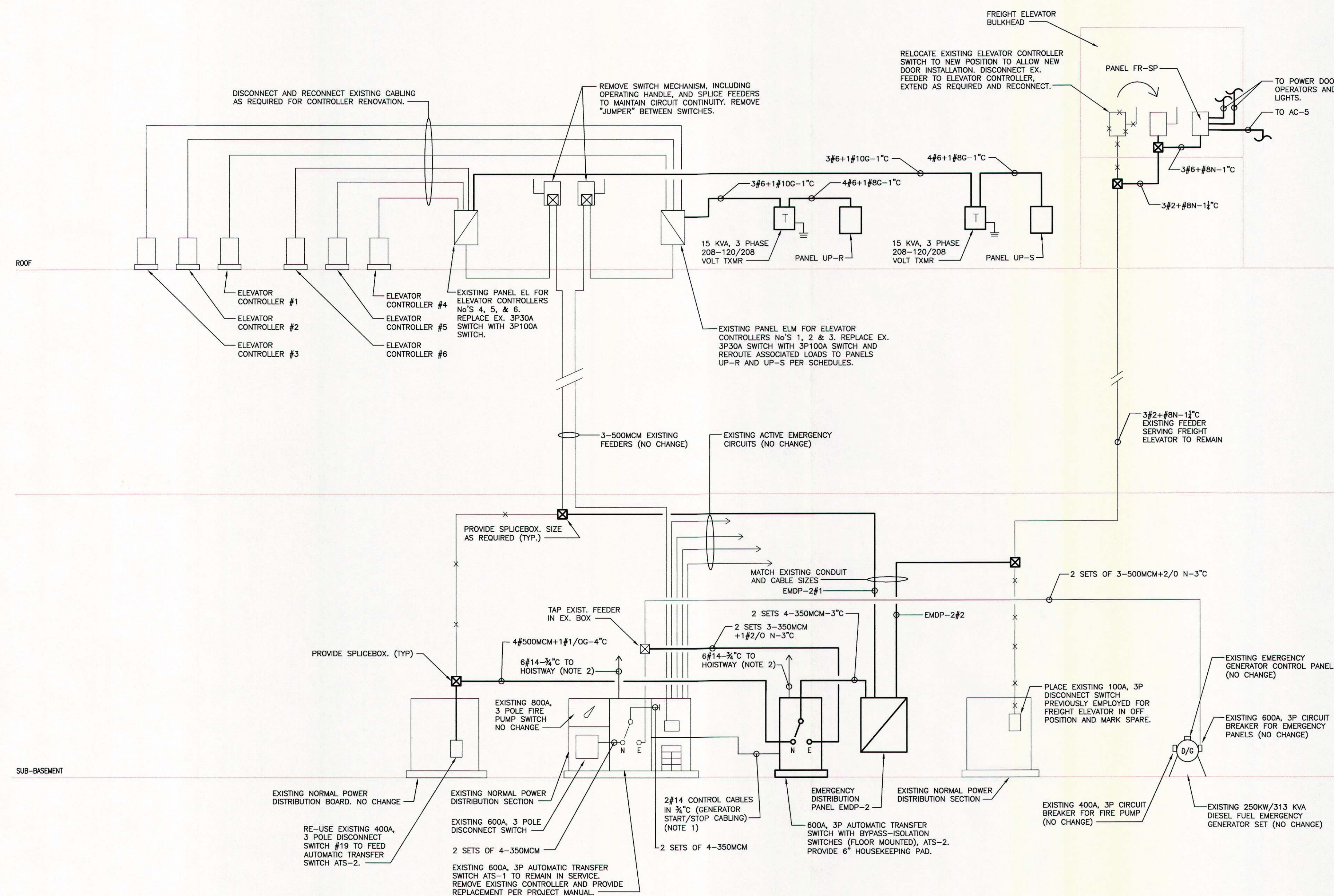
PANEL	BUS (AMPS)	MAIN DEVICE	CKT. NO.	EQUIPMENT	BRANCH DEVICE			REMARKS N=NEUTRAL, G= GROUND
					SWITCH (AMPS)	FUSE (AMPS)	POLES	
ELM (EXIST)	400A	MLO	1	ELEV. CONTROLLER #1	100	100	3	3#1+1#66-1 1/4" (ETR)
			2	ELEV. CONTROLLER #2	100	100	3	3#1+1#66-1 1/4" (ETR)
			3	ELEV. CONTROLLER #3	100	100	3	3#1+1#66-1 1/4" (ETR)
			4	PANEL UP-R (VA 15 KVA TXMR)	100	70	3	3#6+1#100-1" C

POWER AND DISTRIBUTION PANEL SCHEDULE (ETR)  
VOLTAGE 120/208 3 PHASE 4 WIRES + G. U.O.N

PANEL	BUS (AMPS)	MAIN DEVICE	CKT. NO.	EQUIPMENT	BRANCH DEVICE			REMARKS N=NEUTRAL, G= GROUND
					SWITCH (AMPS)	FUSE (AMPS)	POLES	
EL (EXIST)	400A	MLO	1	ELEV. CONTROLLER #4	100	100	3	3#1+1#66-1 1/4" (ETR)
			2	ELEV. CONTROLLER #5	100	100	3	3#1+1#66-1 1/4" (ETR)
			3	ELEV. CONTROLLER #6	100	100	3	3#1+1#66-1 1/4" (ETR)
			4	PANEL UP-S (VA 15 KVA TXMR)	100	70	3	3#6+1#100-1" C

POWER AND DISTRIBUTION PANEL SCHEDULE  
VOLTAGE 120/208 3 PHASE 4 WIRES + G. U.O.N

PANEL	BUS (AMPS)	MAIN DEVICE	CKT. NO.	EQUIPMENT	BRANCH DEVICE			REMARKS N=NEUTRAL, G= GROUND
					FRAME (AMPS)	TRIP (AMPS)	POLES	
EMDP-2	600A	MLO	1	EXISTING PANEL EL	400	400	3	3-500 MCM-3" C
			2	EXISTING FREIGHT ELEVATOR	200	125	3	3#2+1#8N-1 1/4" C
			3	SPACE	200	-	3	-
			4	SPACE	100	-	3	-
			5	SPACE	100	-	3	-
			6	SPACE	100	-	3	-
			7	SPACE	100	-	3	-



NOTES:

- INTERCONNECT "ENGINE START" CONTACTS OF ATS-1 & ATS-2 CONTROLLERS.
- PROVIDE CONTROL WIRING FROM ATS-1 & ATS-2 "ON EMERGENCY", "PRE-TRANSFER", AND "PRE-TEST" CONTACTS TO PASSENGER ELEVATOR HOISTWAY AND FREIGHT ELEVATOR HOISTWAY. WIRING WITHIN HOISTWAYS TO ELEVATOR CONTROLLERS BY (U).
- ELECTRICAL WORK AFFECTING OPERATION OF IN-SERVICE PASSENGER ELEVATORS SHALL OCCUR ON SATURDAYS BETWEEN 6AM AND 6PM.

**1 POWER RISER DIAGRAM**  
SCALE: 1/8" = 1'-0"

REVISED DRAWING 3/24/2017

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT

PROJECT NUMBER: 44780 - E  
DESIGNED BY: FPM  
DRAWN BY: JN  
FIELD CHECK:  
APPROVED: CMS  
SHEET TITLE:  
**ELECTRICAL  
SCHEDULES AND  
POWER RISER DIAGRAM**  
DRAWING NUMBER:  
E-601





NYS OFFICE OF GENERAL SERVICES

Serving New York

ANDREW M. CUOMO  
Governor  
ROANN M. DESTITO  
Commissioner

CONSULTANT

ARCHITECT:

**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

**vda**

HAZARDOUS MATERIALS INVESTIGATION/DESIGN:

**P  
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STRUCTURAL ENGINEER:

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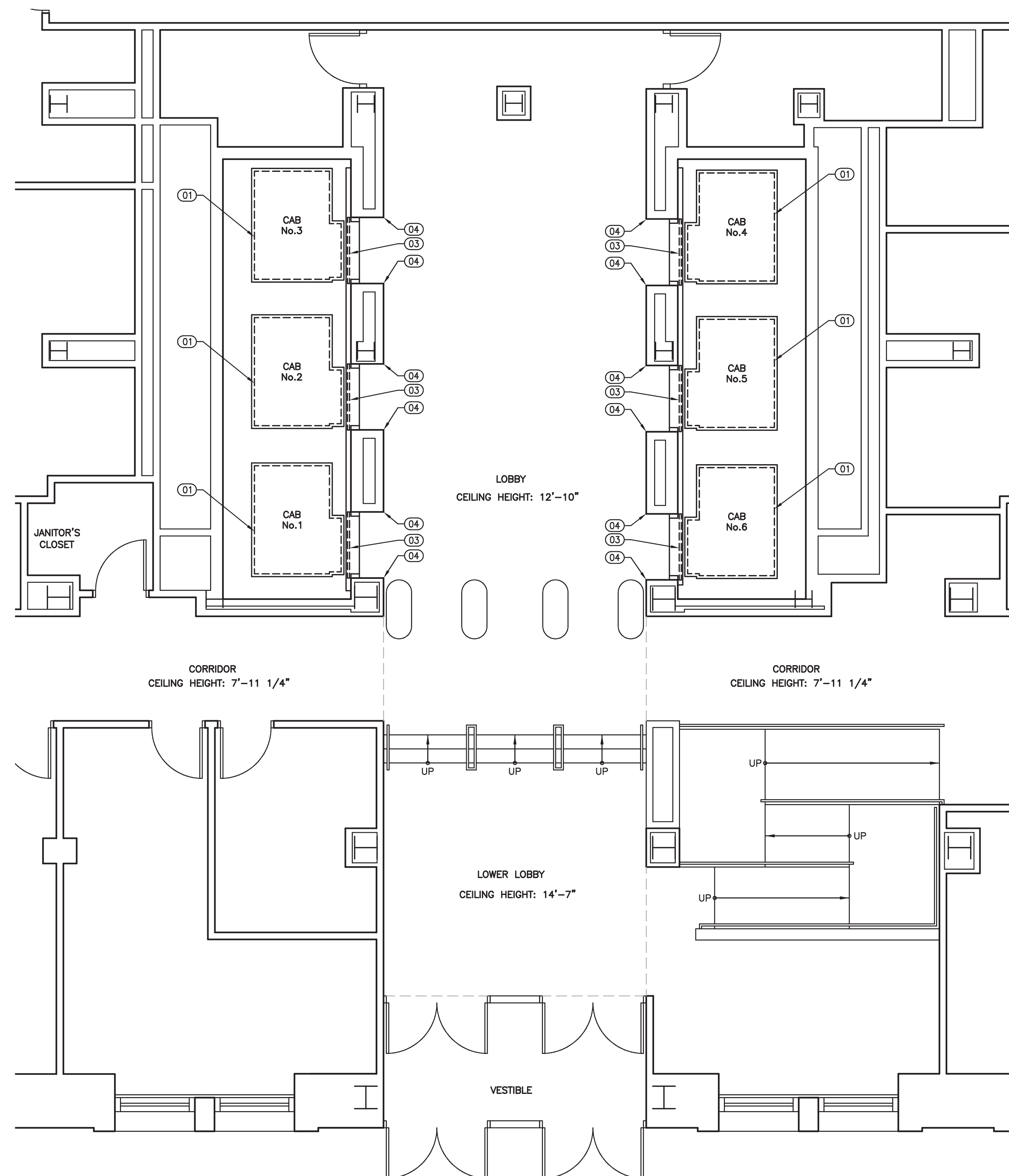
CONTRACT:

ELEVATOR

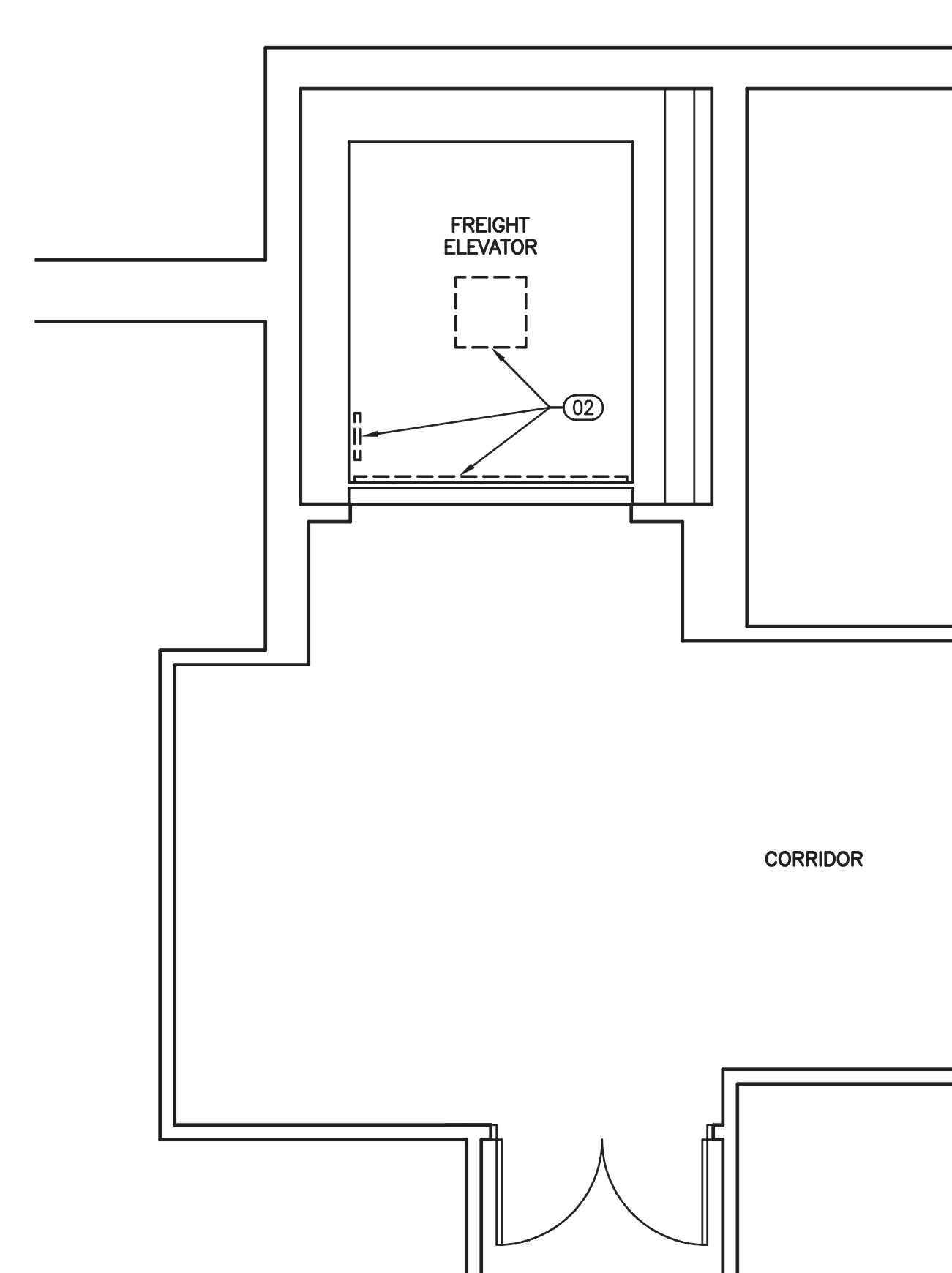
TITLE:  
REHABILITATE ELEVATORS - SHIRLEY  
CHISHOLM STATE OFFICE BUILDING

LOCATION:  
55 HANSON PLACE  
BROOKLYN, NY 11217

CLIENT:  
OFFICE OF GENERAL SERVICES



1 PASSENGER ELEVATORS & LOBBY FIRST FLOOR DISMANTLING PLAN  
1/4"=1'-0"



2 FREIGHT ELEVATOR FIRST FLOOR DISMANTLING PLAN  
1/4"=1'-0"

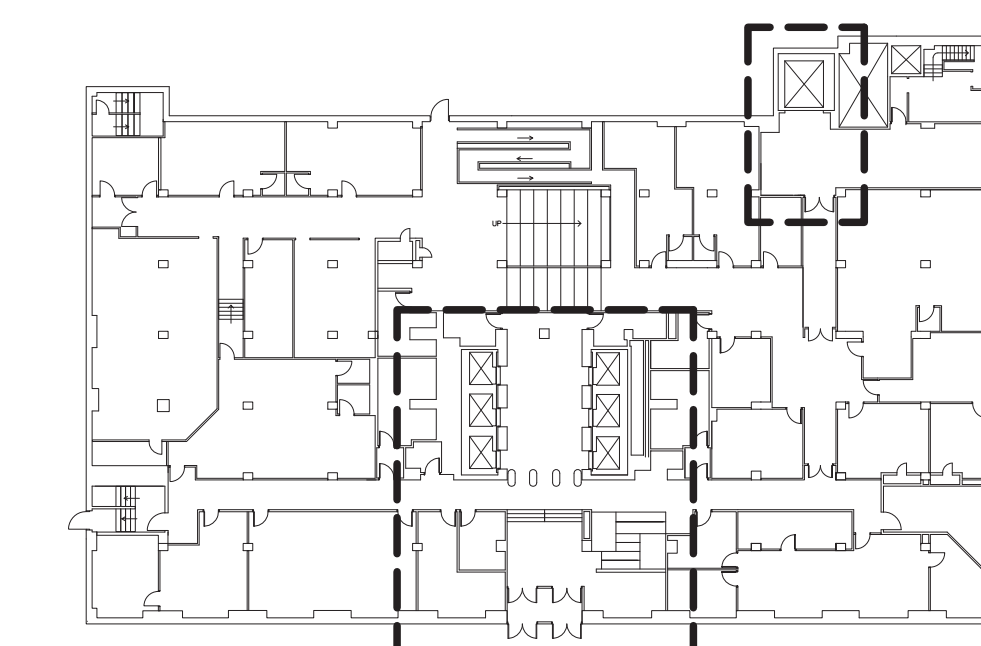
KEYNOTES

- 01 DISMANTLE & DISCARD ALL EXISTING INTERIOR PASSENGER CAB FINISHES DOWN TO CAB LINER INCLUDING CEILING SYSTEM, LIGHT FIXTURES, COP & SIGNALING DEVICES, WALL PANELS, METAL PANEL FROM DOOR AND FLOORING
- 02 DISMANTLE & DISCARD LIGHTING FIXTURE, COP & SIGNALING DEVICES AND MANUALLY OPERATED VERTICAL GATE OF FREIGHT ELEVATOR CAB
- 03 DISMANTLE & DISCARD EXISTING HOISTWAY ACCESS DOORS ON FIRST FLOOR ONLY
- 04 REMOVE WALL BASE ON JAMB AND CUT JAMB EDGE & HEADER AS REQUIRED IN PREPARATION FOR CLADDING ON FIRST FLOOR. SEE SHEET U-503

----- OBJECTS TO BE REMOVED

PROJECT PHASING.

1. ELEVATORS SHALL BE MODERNIZED IN THE FOLLOWING SEQUENCE:
  - a. ELEVATOR 4. DURATION TIME: 16 WEEKS
  - b. ELEVATOR 5. DURATION TIME: 16 WEEKS
  - c. ELEVATOR 6. DURATION TIME: 16 WEEKS
  - d. ELEVATORS 3, 7 (BOTH AT SAME TIME). DURATION TIME FOR ELEVATOR 3 IS 16 WEEKS, DURATION TIME FOR ELEVATOR 7 (FREIGHT) IS 20 WEEKS. WORK ON ELEVATOR 7 MUST BEGIN BEFORE ELEVATOR 6 IS COMPLETED SO ELEVATORS 3 AND 7 ARE COMPLETED AT THE SAME TIME, BEFORE WORK ON ELEVATOR 1 BEGINS.
  - e. ELEVATORS 1, 2 (BOTH AT SAME TIME). DURATION TIME: 16 WEEKS
2. ELEVATORS SHALL BE REMOVED FROM SERVICE SUCH THAT OTHER ELEVATORS IN THE BANK SHALL BE CAPABLE OF OPERATING. TRANSFER OF HALL PUSH BUTTONS SHALL BE DONE OUTSIDE OF REGULAR BUILDING OPERATION HOURS.



3 FIRST FLOOR KEY PLAN

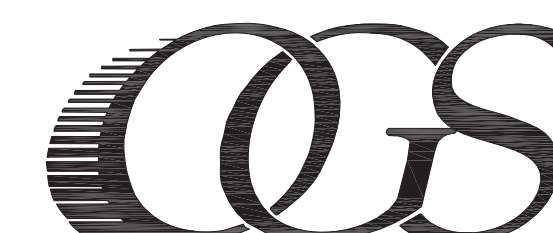
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	12/16/2016	BID DOCUMENT
PROJECT NUMBER:	44780 - U	
DESIGNED BY:		
DRAWN BY:		
FIELD CHECK:		
APPROVED:		

SHEET TITLE:  
PASSENGER & FREIGHT  
ELEVATORS, FIRST FLOOR  
DISMANTLING PLAN

DRAWING NUMBER:

U-102

SHEET OF



NYS OFFICE OF GENERAL SERVICES

Serving New York

ANDREW M. CUOMO  
Governor  
ROANN M. DESTITO  
Commissioner

CONSULTANT

ARCHITECT:

**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.

MEP ENGINEERS:

FPM ENGINEERING GROUP, P.C.

ELEVATOR CONSULTANT:

**vda**

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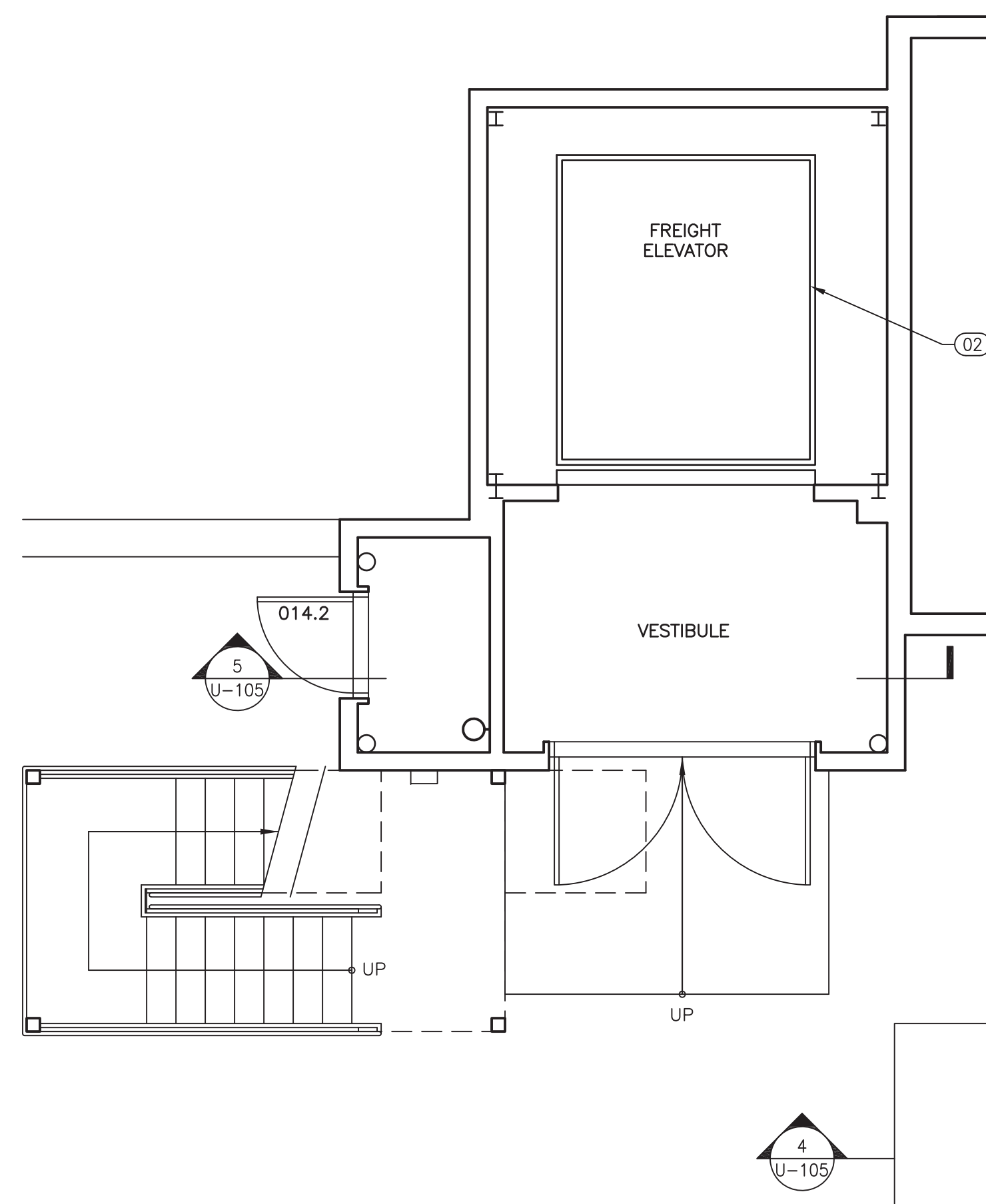
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STRUCTURAL ENGINEER:

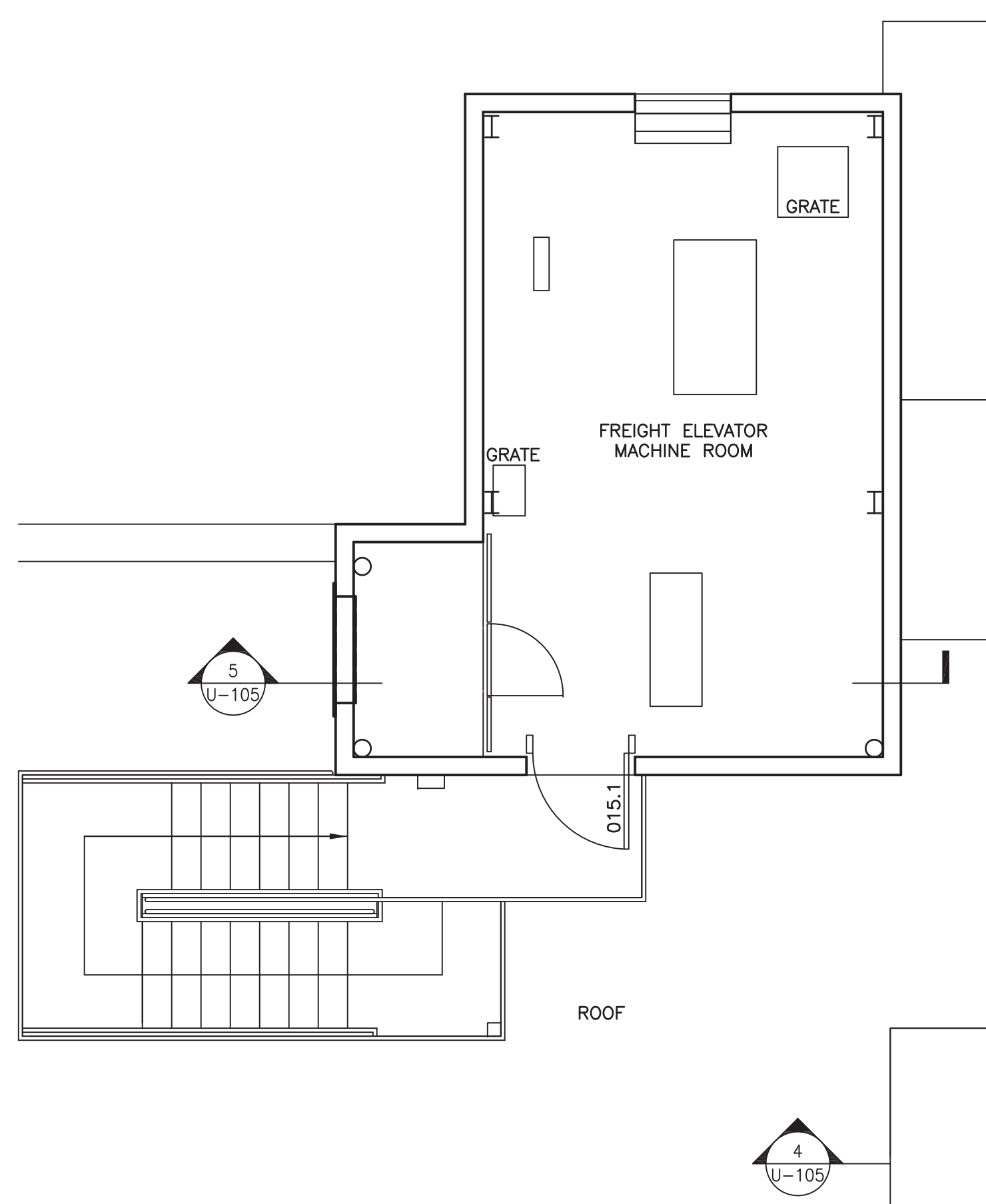
**YAS**  
YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

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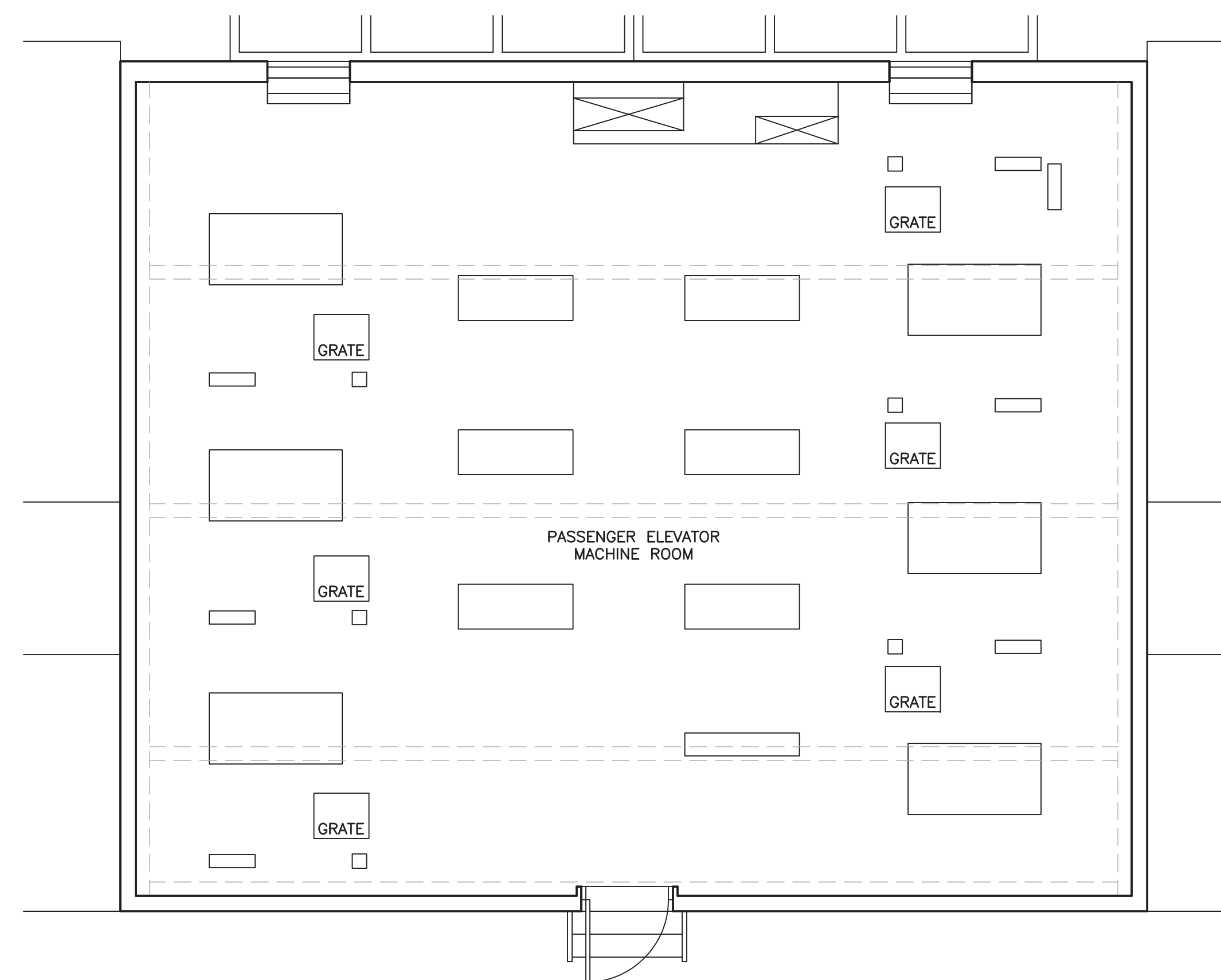
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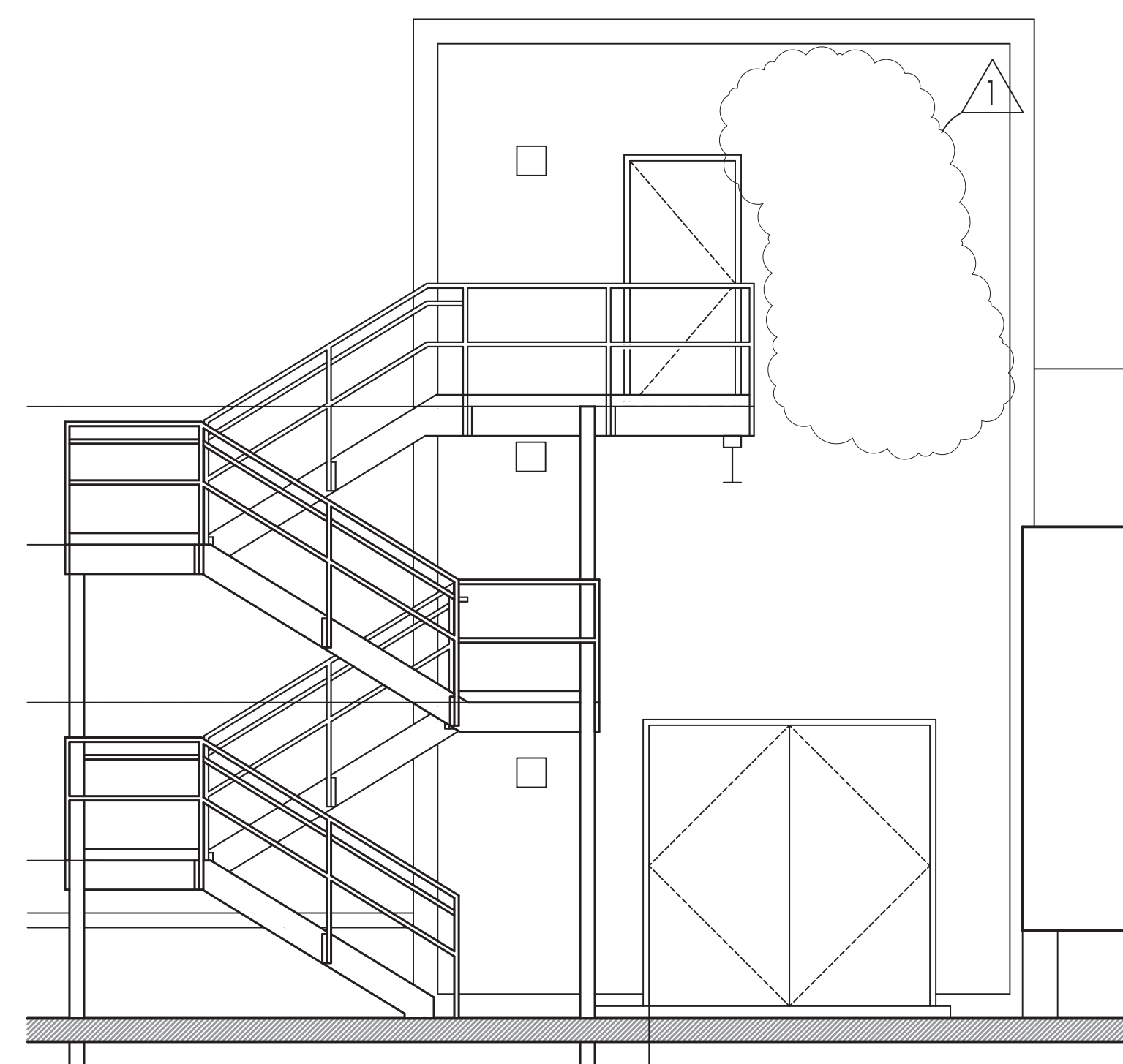
1 FREIGHT ELEVATOR. ROOF FLOOR PLAN  
1/4"=1'-0"



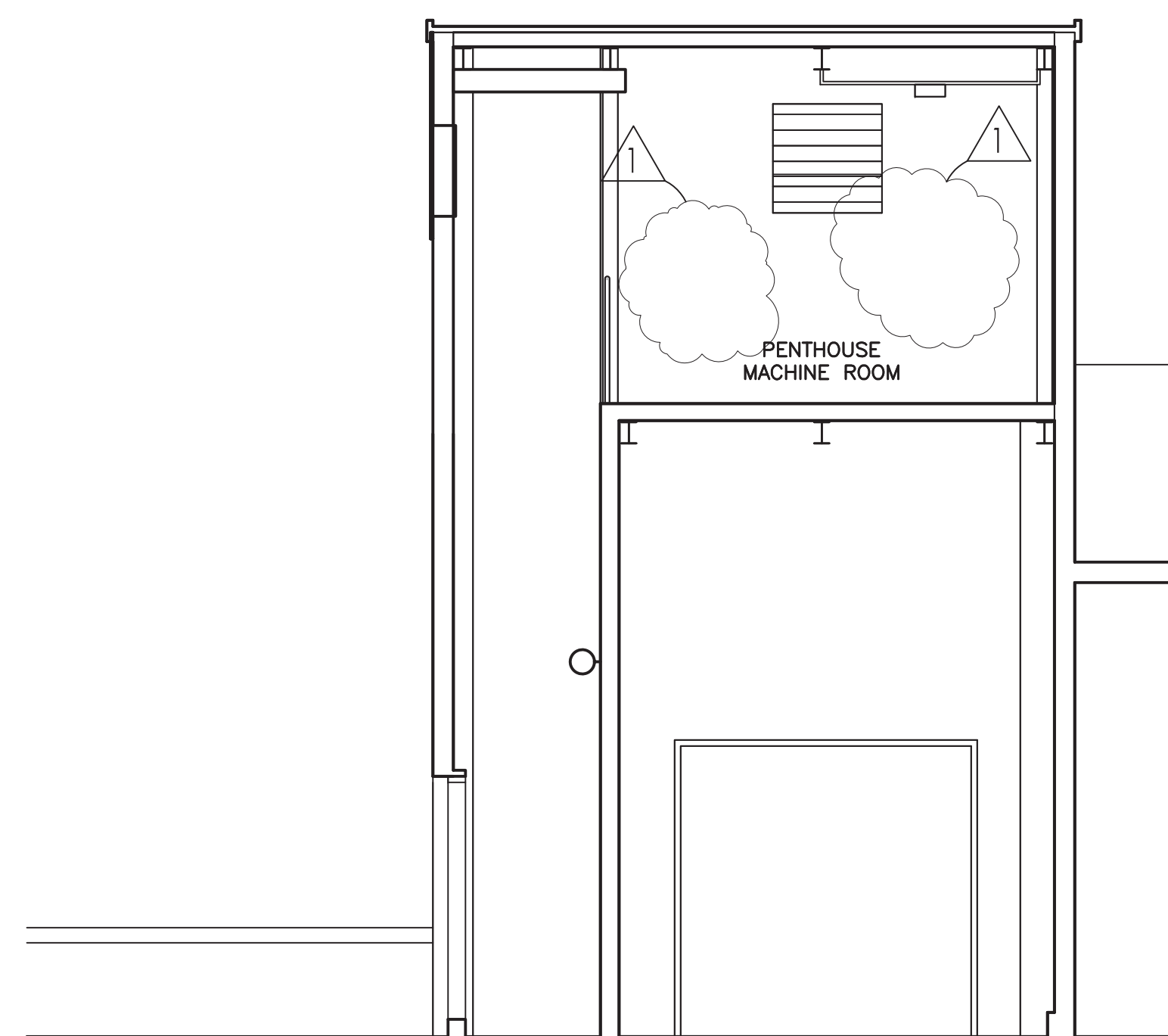
2 FREIGHT EMR. PENTHOUSE PLAN  
1/4"=1'-0"



3 PASSENGER ELEVATORS MACHINE ROOM. ROOF PLAN  
1/4"=1'-0"



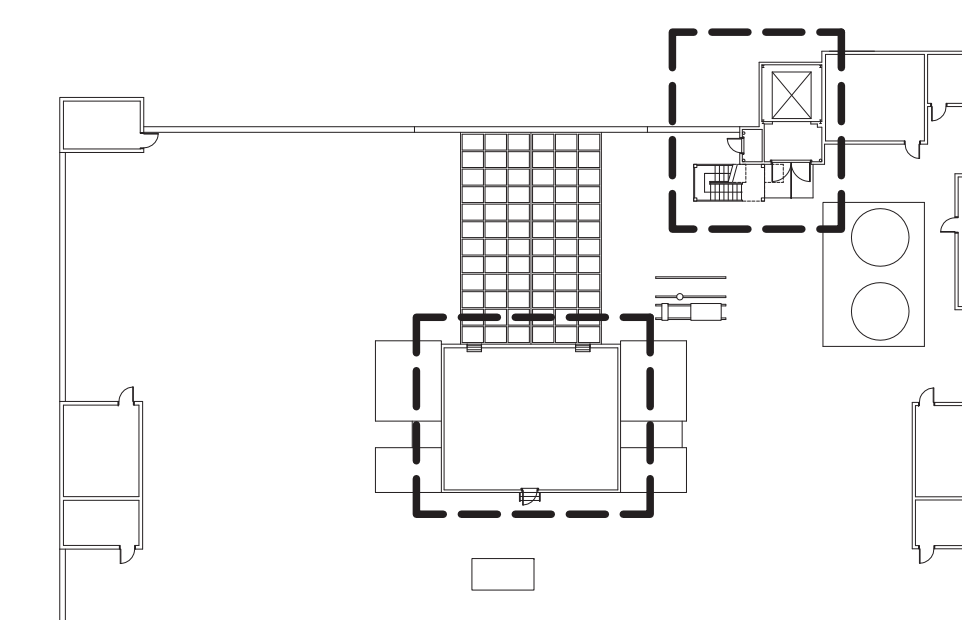
4 FREIGHT EMR. ELEVATION  
1/4"=1'-0"



5 FREIGHT EMR. SECTION  
1/4"=1'-0"

KEYNOTES

- 01 NOT IN USE
- 02 PROVIDE FREIGHT ELEVATOR CAB ENCLOSURE. SEE SHEET U-403



6 ROOF FLOOR KEY PLAN

CONTRACT:

ELEVATOR

TITLE:  
REHABILITATE ELEVATORS - SHIRLEY  
CHISHOLM STATE OFFICE BUILDING

LOCATION:  
55 HANSON PLACE  
BROOKLYN, NY 11217

CLIENT:  
OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
△	03/24/2017	REVISED DRAWING
	12/16/2016	BID DOCUMENT

PROJECT NUMBER: 44780 - U

DESIGNED BY:

DRAWN BY:

FIELD CHECK:

APPROVED:

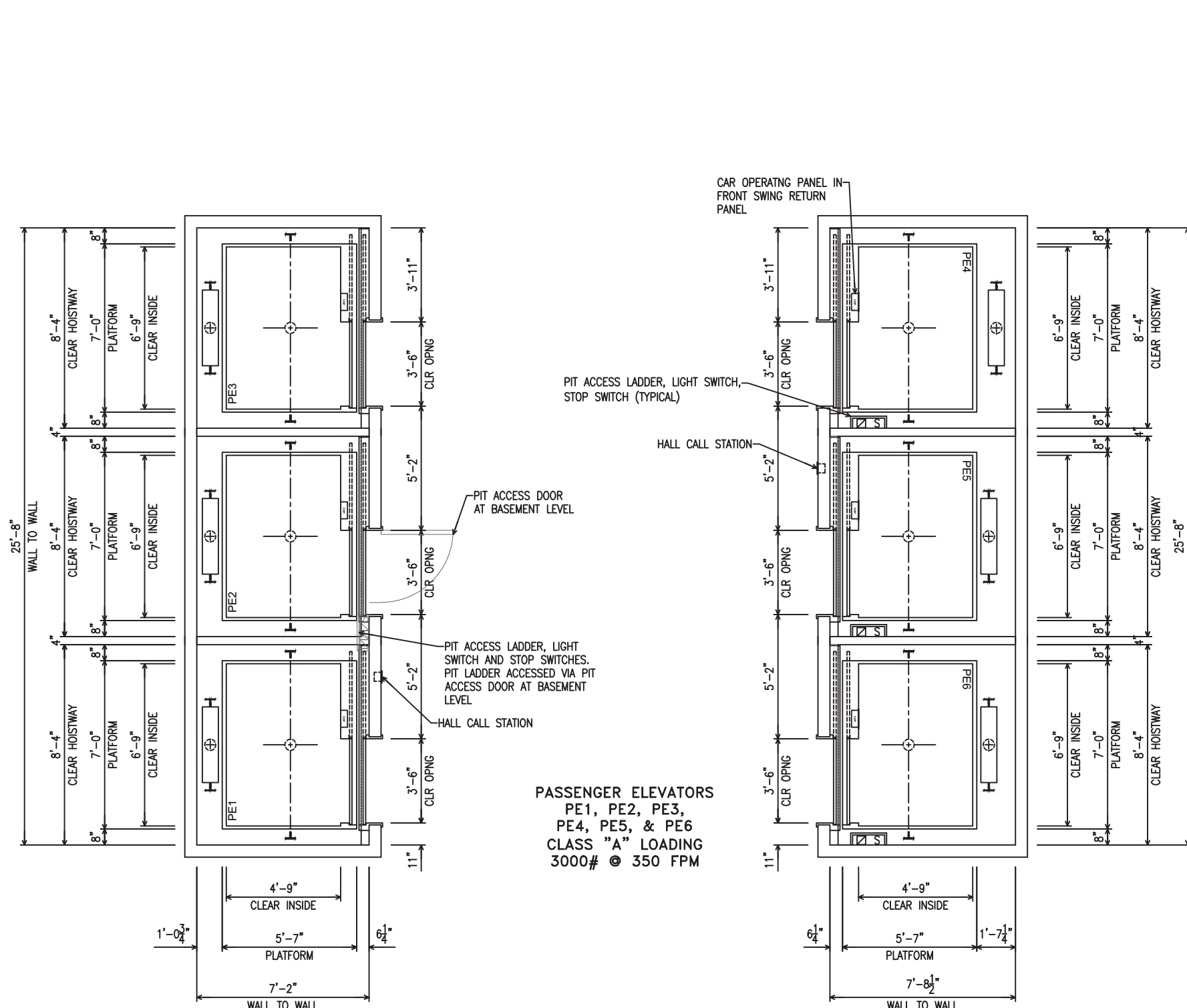
SHEET TITLE:

ELEVATORS ROOF &  
PENTHOUSE FLOOR PLANS,  
ELEVATION AND SECTION

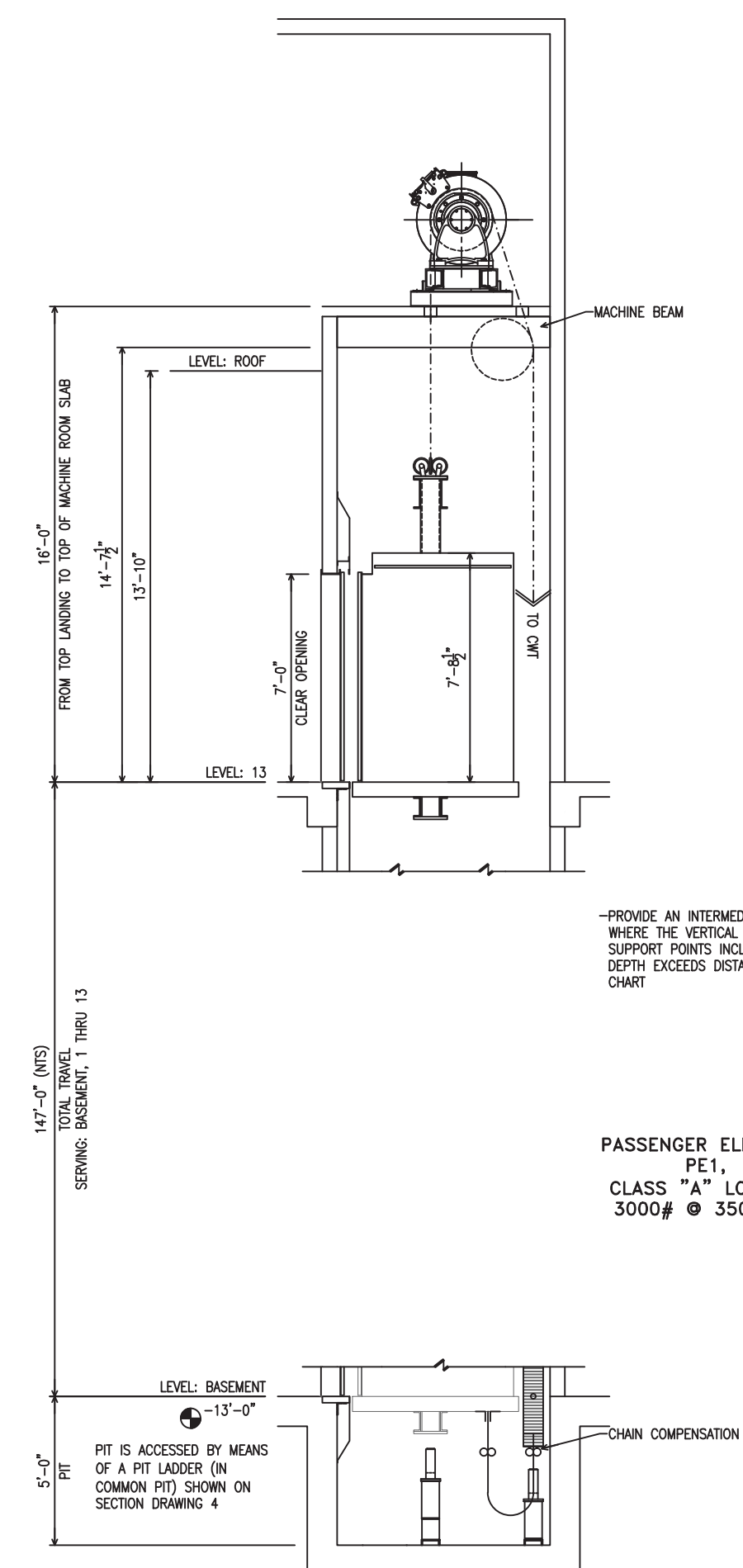
DRAWING NUMBER:  
U-105

SHEET OF





1 PASSENGER ELEVATORS PE1-6 HOISTWAY PLAN  
3/16"=1'-0"

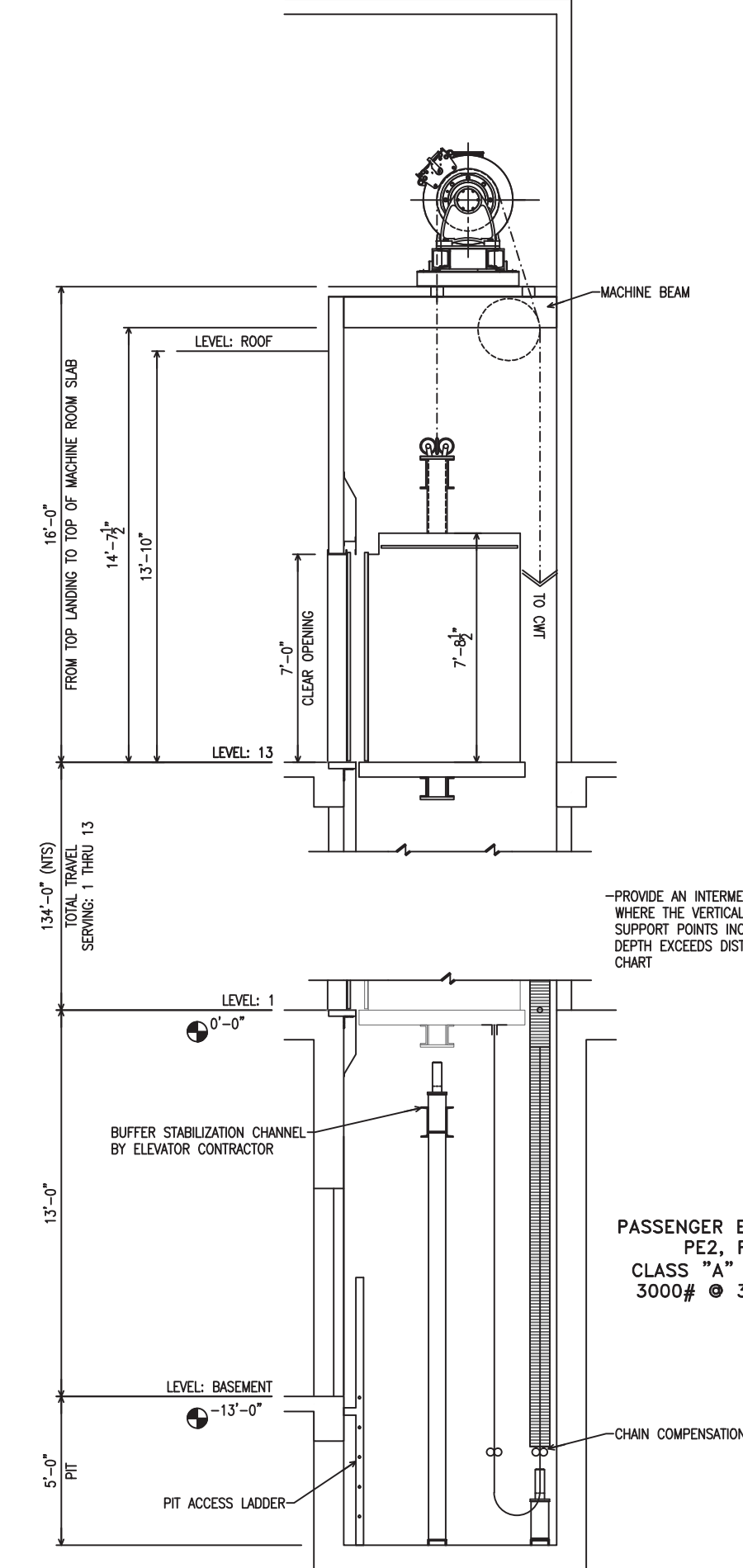


PASSENGER ELEVATOR PE1  
CLASS "A" LOADING  
3000# @ 350 FPM

FLOOR	FTF	F
13	13'-10"	X
12	10'-0"	X
11	10'-0"	X
10	10'-0"	X
9	10'-0"	X
8	12'-6"	X
7	10'-6"	X
6	10'-0"	X
5	10'-0"	X
4	11'-0"	X
3	10'-0"	X
2	13'-0"	X
1	17'-0"	X
BASEMENT	13'-0"	X

INTERMEDIATE SUPPORT REQUIRED AT FLOORS MARKED WITH AN ASTERISK. SEE PIT AND RAIL LOADS CHART FOR MAXIMUM VERTICAL SPAN GUIDE RAIL SUPPORT.

3 PASSENGER ELEVATOR PE1 SECTION  
3/16"=1'-0"

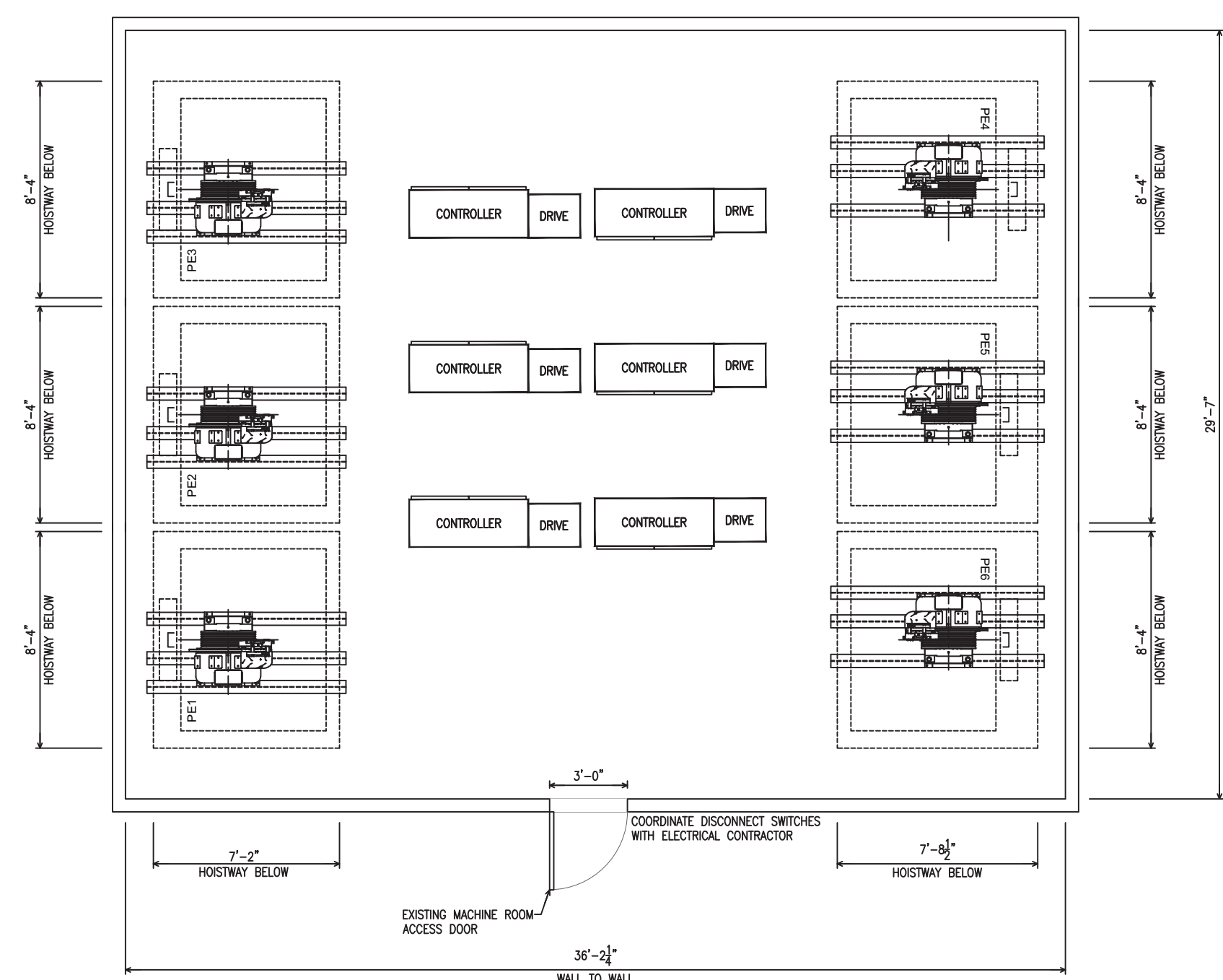


PASSENGER ELEVATORS PE2, PE3  
CLASS "A" LOADING  
3000# @ 350 FPM

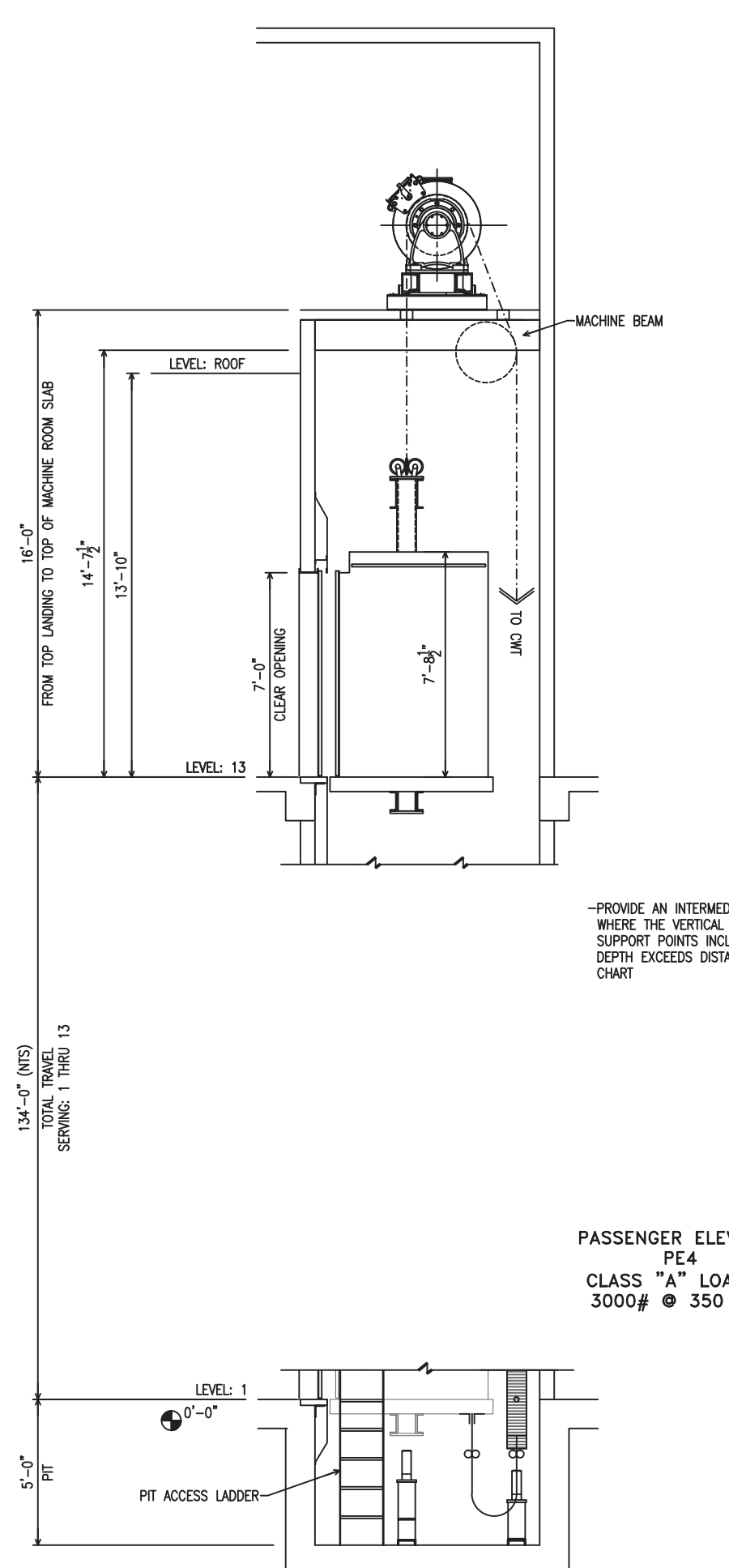
FLOOR	FTF	F
13	13'-10"	X
12	10'-0"	X
11	10'-0"	X
10	10'-0"	X
9	10'-0"	X
8	12'-6"	X
7	10'-6"	X
6	10'-0"	X
5	10'-0"	X
4	11'-0"	X
3	10'-0"	X
2	13'-0"	X
1	17'-0"	X
BASEMENT	13'-0"	X

INTERMEDIATE SUPPORT REQUIRED AT FLOORS MARKED WITH AN ASTERISK. SEE PIT AND RAIL LOADS CHART FOR MAXIMUM VERTICAL SPAN GUIDE RAIL SUPPORT.

4 PASSENGER ELEVATORS PE2 AND PE3 SECTION  
3/16"=1'-0"



2 PASSENGER ELEVATORS PE1-6 MACHINE ROOM PLAN  
3/16"=1'-0"

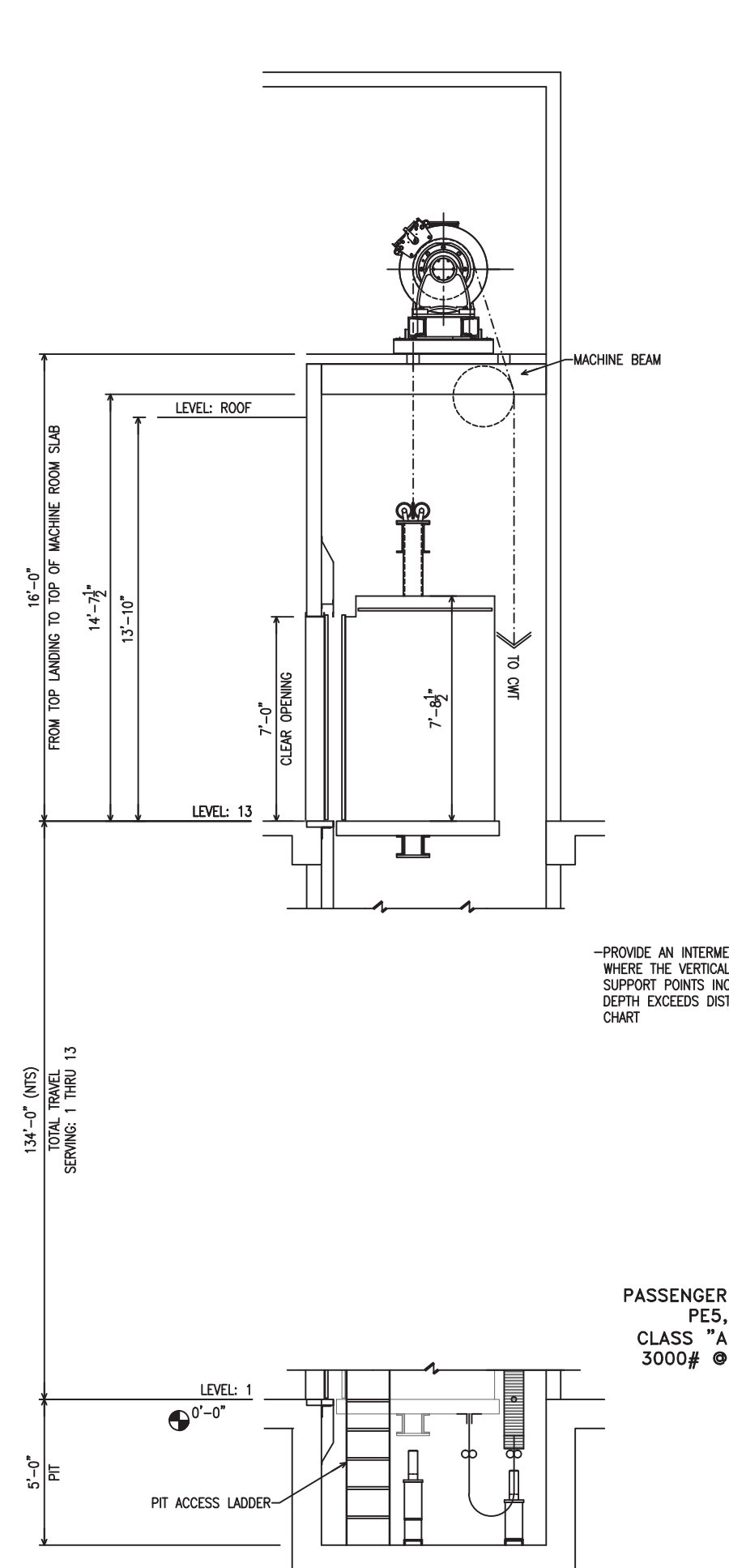


PASSENGER ELEVATOR PE4  
CLASS "A" LOADING  
3000# @ 350 FPM

FLOOR	FTF	F
13	13'-10"	X
12	10'-0"	X
11	10'-0"	X
10	10'-0"	X
9	10'-0"	X
8	12'-6"	X
7	10'-6"	X
6	10'-0"	X
5	10'-0"	X
4	11'-0"	X
3	10'-0"	X
2	13'-0"	X
1	17'-0"	X
BASEMENT	13'-0"	X

INTERMEDIATE SUPPORT REQUIRED AT FLOORS MARKED WITH AN ASTERISK. SEE PIT AND RAIL LOADS CHART FOR MAXIMUM VERTICAL SPAN GUIDE RAIL SUPPORT.

5 PASSENGER ELEVATOR PE4 SECTION  
3/16"=1'-0"



PASSENGER ELEVATORS PE5, PE6  
CLASS "A" LOADING  
3000# @ 350 FPM

FLOOR	FTF	F
13	13'-10"	X
12	10'-0"	X
11	10'-0"	X
10	10'-0"	X
9	10'-0"	X
8	12'-6"	X
7	10'-6"	X
6	10'-0"	X
5	10'-0"	X
4	11'-0"	X
3	10'-0"	X
2	13'-0"	X
1	17'-0"	X
BASEMENT	13'-0"	X

INTERMEDIATE SUPPORT REQUIRED AT FLOORS MARKED WITH AN ASTERISK. SEE PIT AND RAIL LOADS CHART FOR MAXIMUM VERTICAL SPAN GUIDE RAIL SUPPORT.

6 PASSENGER ELEVATORS PE5 AND PE6 SECTION  
3/16"=1'-0"

- GENERAL NOTES:**
- CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD
- MODERNIZATION NOTES:**
- PROJECT MANUAL DIV. 14

ADDENDUM DRAWING 3/24/2017

CONSULTANT  
ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
MEP ENGINEERS:  
FPM ENGINEERING GROUP, P.C.  
ELEVATOR CONSULTANT:  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**P EM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
STRUCTURAL ENGINEER:  
**YAS** YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

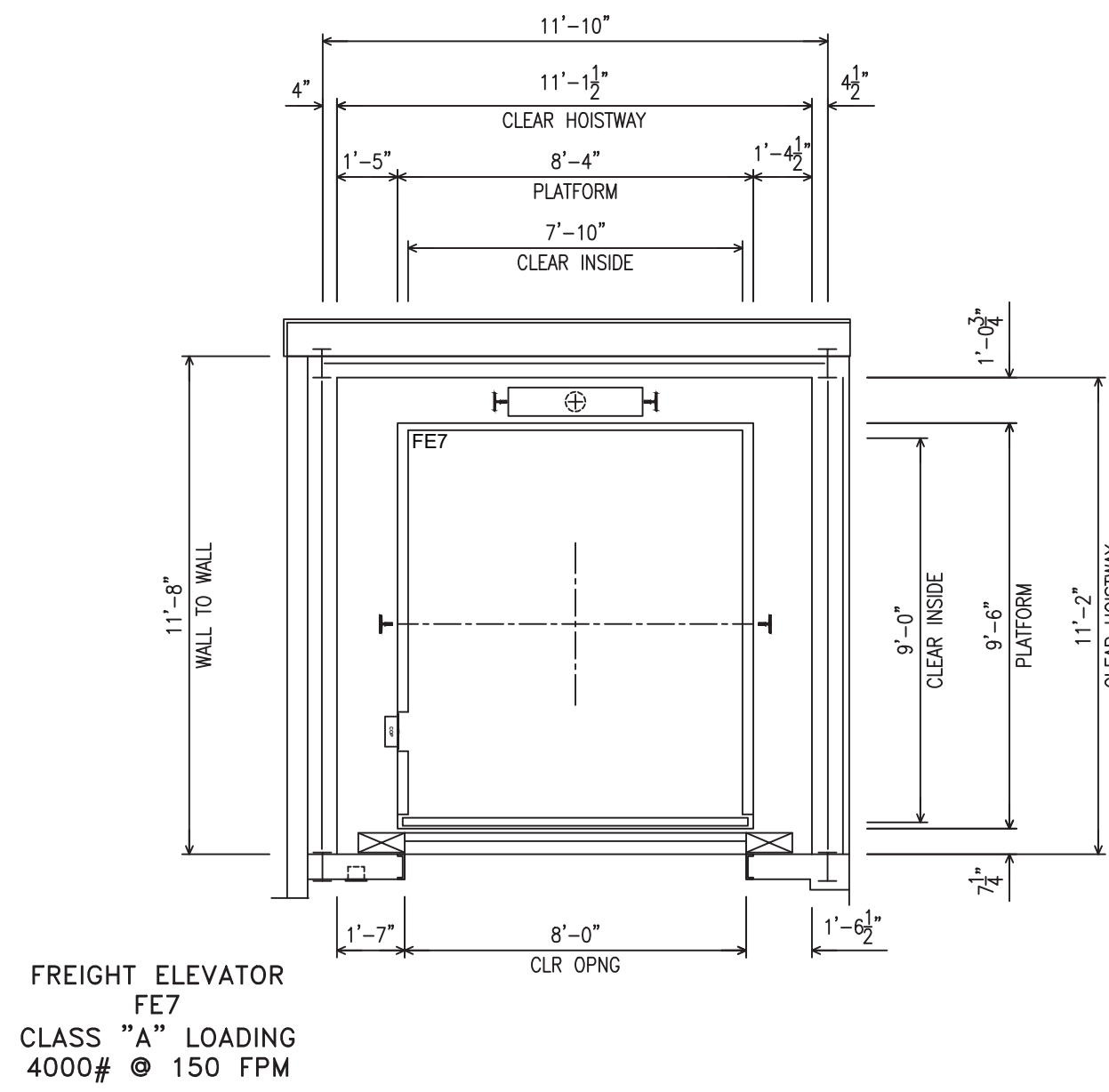
**WARNING:**  
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CONTRACT: **ELEVATOR**  
TITLE: **REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING**  
LOCATION: **55 HANSON PLACE BROOKLYN, NY 11217**  
CLIENT: **OFFICE OF GENERAL SERVICES**

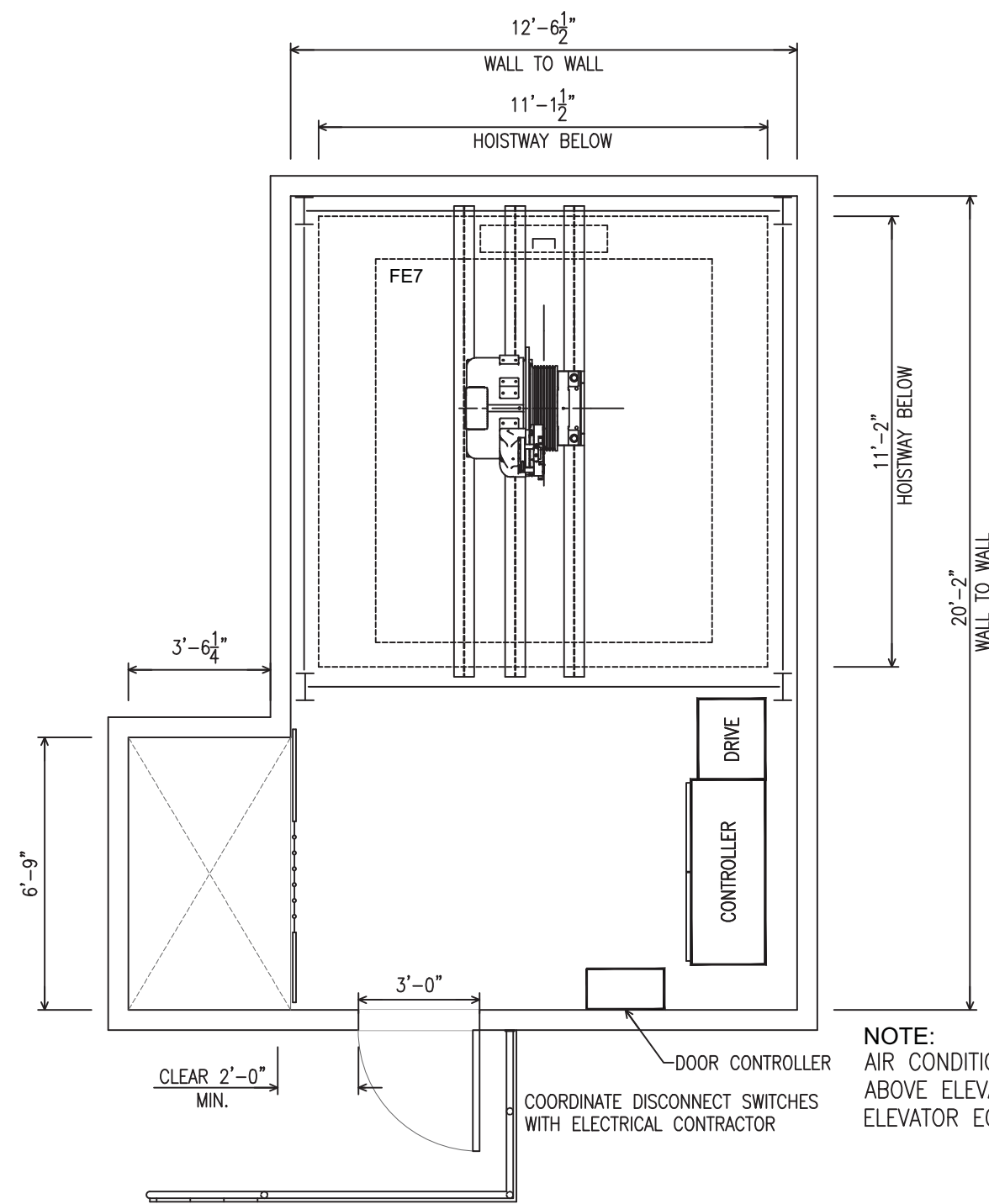
MARK	DATE	DESCRIPTION
△	03/24/2017	ADDENDUM DRAWING
	12/16/2016	BID DOCUMENT
PROJECT NUMBER:	44780 -U	
DESIGNED BY:		
DRAWN BY:		
FIELD CHECK:		
APPROVED:		
SHEET TITLE:	PASSENGER ELEVATORS PE1, PE2, PE3, PE4, PE5, & PE6 PLAN AND SECTIONS	
DRAWING NUMBER:	U-106	
SHEET	OF	



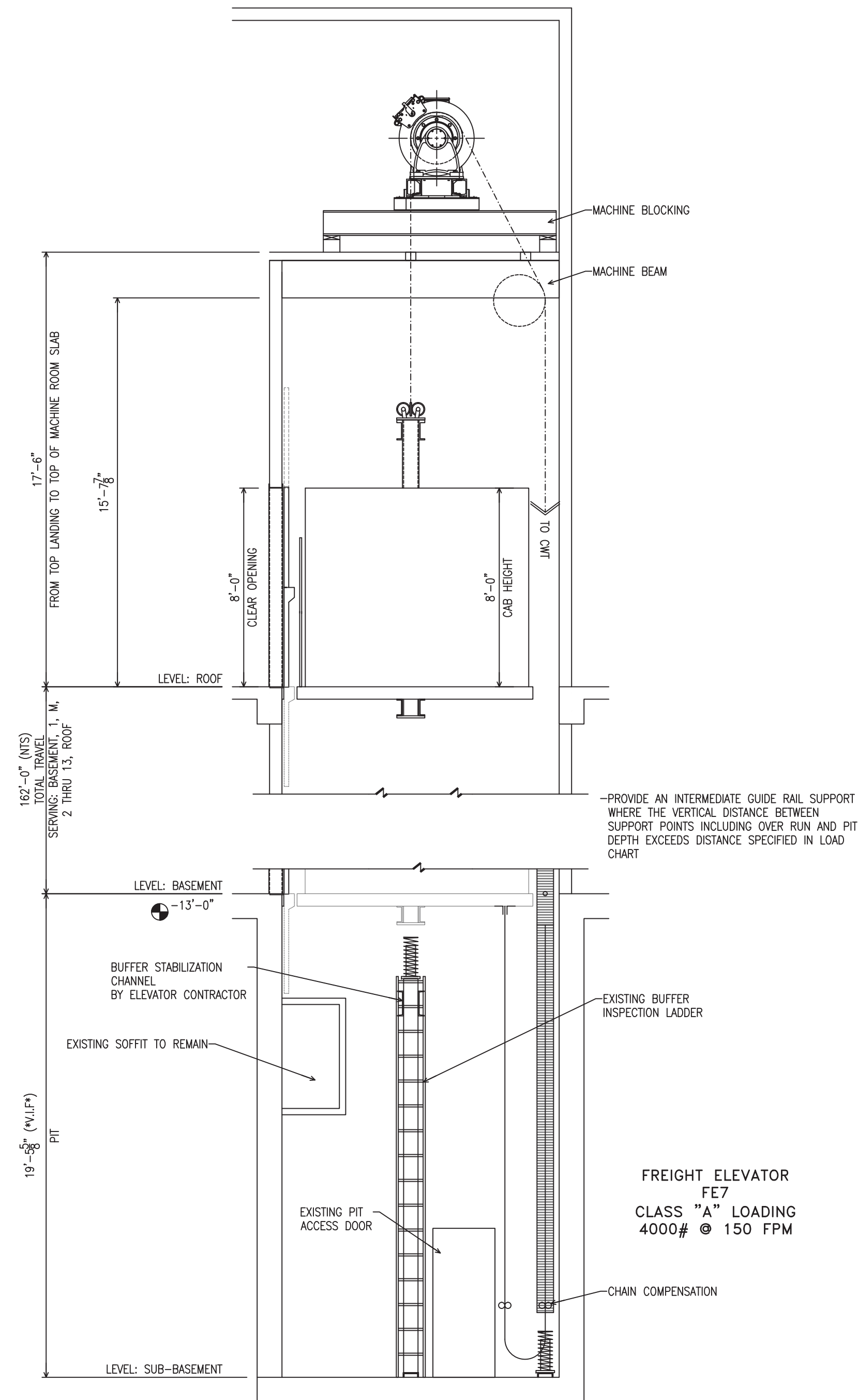


FREIGHT ELEVATOR  
FE7  
CLASS "A" LOADING  
4000# @ 150 FPM

1 FREIGHT ELEVATOR FE7 HOISTWAY PLAN  
1/4"=1'-0"



2 FREIGHT ELEVATOR FE7 MACHINE ROOM PLAN  
1/4"=1'-0"



3 FREIGHT ELEVATOR FE7 SECTION  
1/4"=1'-0"

FLOOR	FTF	F
ROOF	17'-6"	X
13	15'-0"	X*
12	10'-0"	X
11	10'-0"	X
10	10'-0"	X
9	10'-0"	X
8	12'-6"	X
7	10'-6"	X
6	10'-0"	X
5	10'-0"	X
4	11'-0"	X
3	10'-0"	X
2	13'-0"	X
MEZZANINE	7'-10"	X
1	9'-2"	X
BASEMENT	13'-0"	X

INTERMEDIATE SUPPORT REQUIRED AT FLOORS MARKED WITH AN ASTERISK. SEE PIT AND RAIL LOADS CHART FOR MAXIMUM VERTICAL SPAN GUIDE RAIL SUPPORT.

**GENERAL NOTES:**

1. CONTRACTOR TO VERIFY ALL DIMENSIONS IN FIELD

**MODERNIZATION NOTES:**

1. PROJECT MANUAL DIV. 14

CONSULTANT  
ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
MEP ENGINEERS:  
FPM ENGINEERING GROUP, P.C.  
ELEVATOR CONSULTANT:  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**PEM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
STRUCTURAL ENGINEER:  
**YAS** YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

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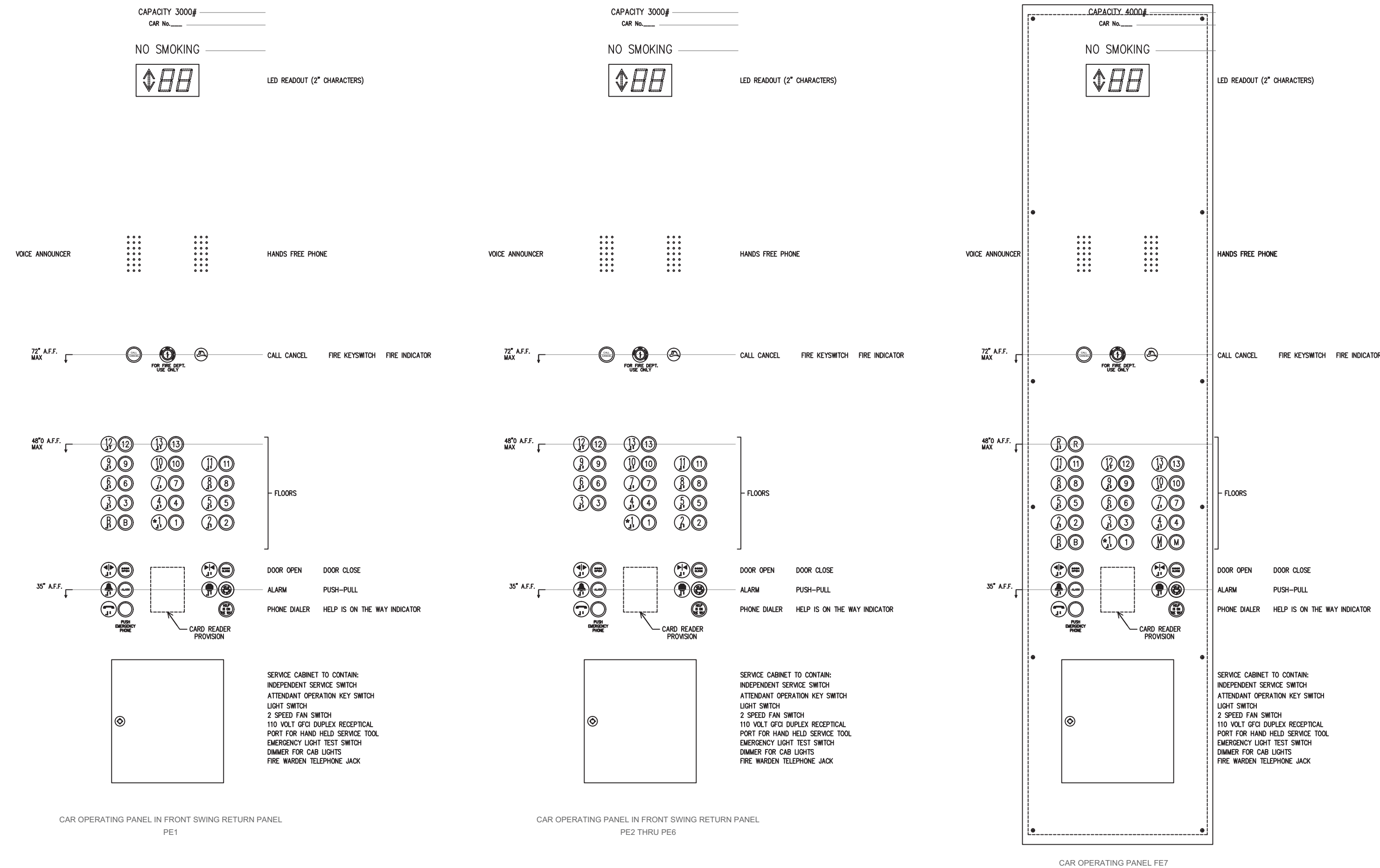
CONTRACT: **ELEVATOR**  
TITLE: **REHABILITATE ELEVATORS -- SHIRLEY CHISHOLM STATE OFFICE BUILDING**  
LOCATION: **55 HANSON PLACE BROOKLYN, NY 11217**  
CLIENT: **OFFICE OF GENERAL SERVICES**

MARK	DATE	DESCRIPTION
△	03/24/2017	ADDENDUM DRAWING
	12/16/2016	BID DOCUMENT

PROJECT NUMBER: **44780 -U**  
DESIGNED BY:  
DRAWN BY:  
FIELD CHECK:  
APPROVED:

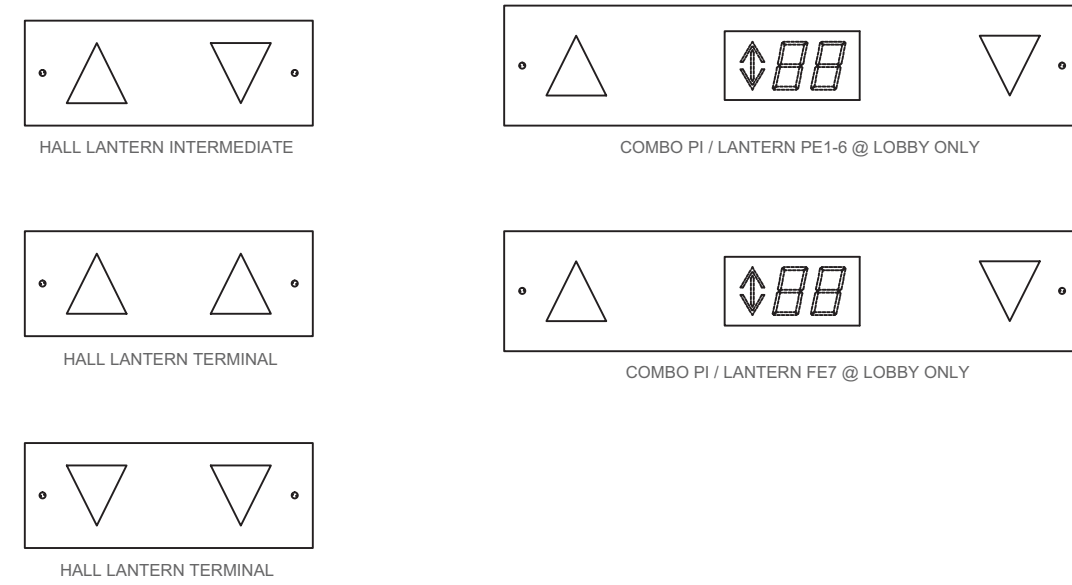
SHEET TITLE:  
**FREIGHT ELEVATOR FE7 PLAN AND SECTION**  
DRAWING NUMBER:  
**U-107**  
SHEET OF

FIXTURE DRAWINGS FOR REFERENCE ONLY  
ALL FIXTURES TO BE APPROVED BY ARCHITECT/OWNER

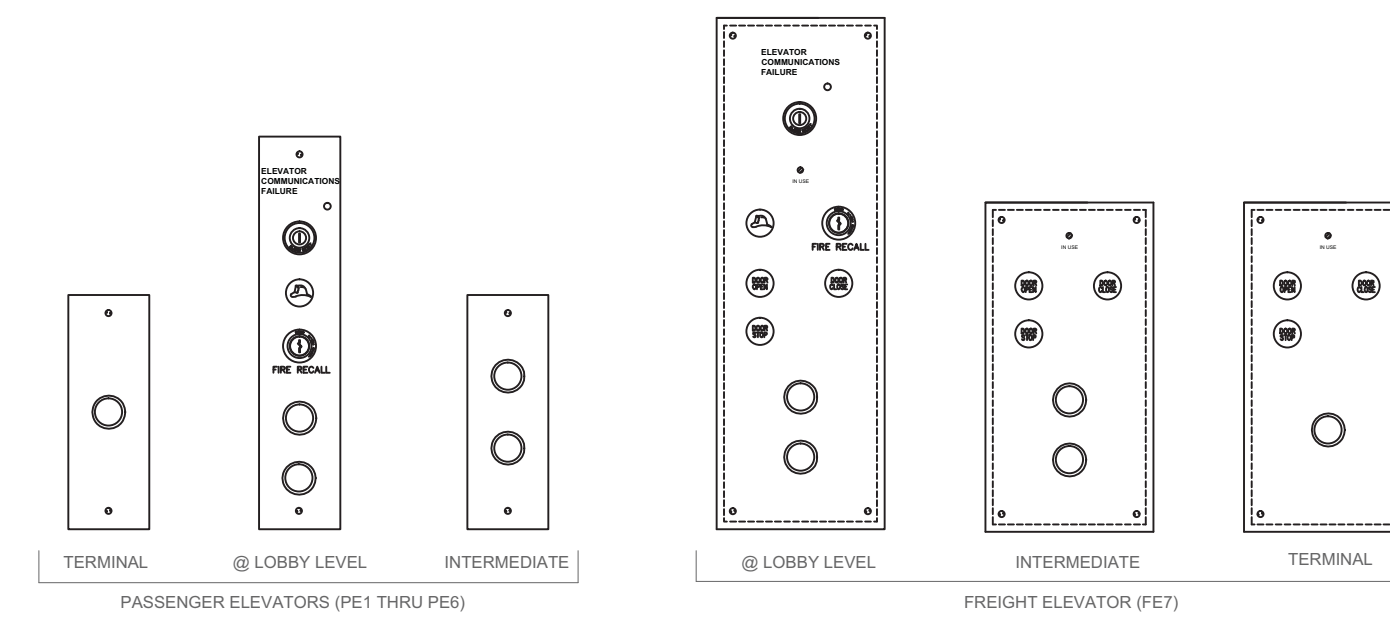


**1** CAR OPERATING PANELS  
1-1/2"=1'-0"

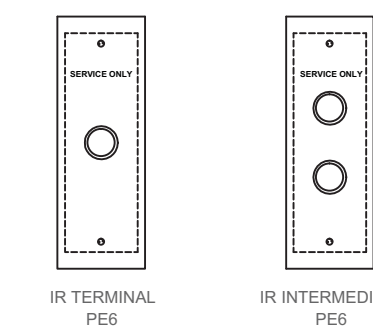
**GENERAL NOTES:**  
1. OWNER TO CONFIRM FLOOR DESIGNATIONS  
2. CONTRACTOR TO VERIFY THAT FIREMAN SERVICE COMPLIES WITH LOCAL CODE REQUIREMENTS



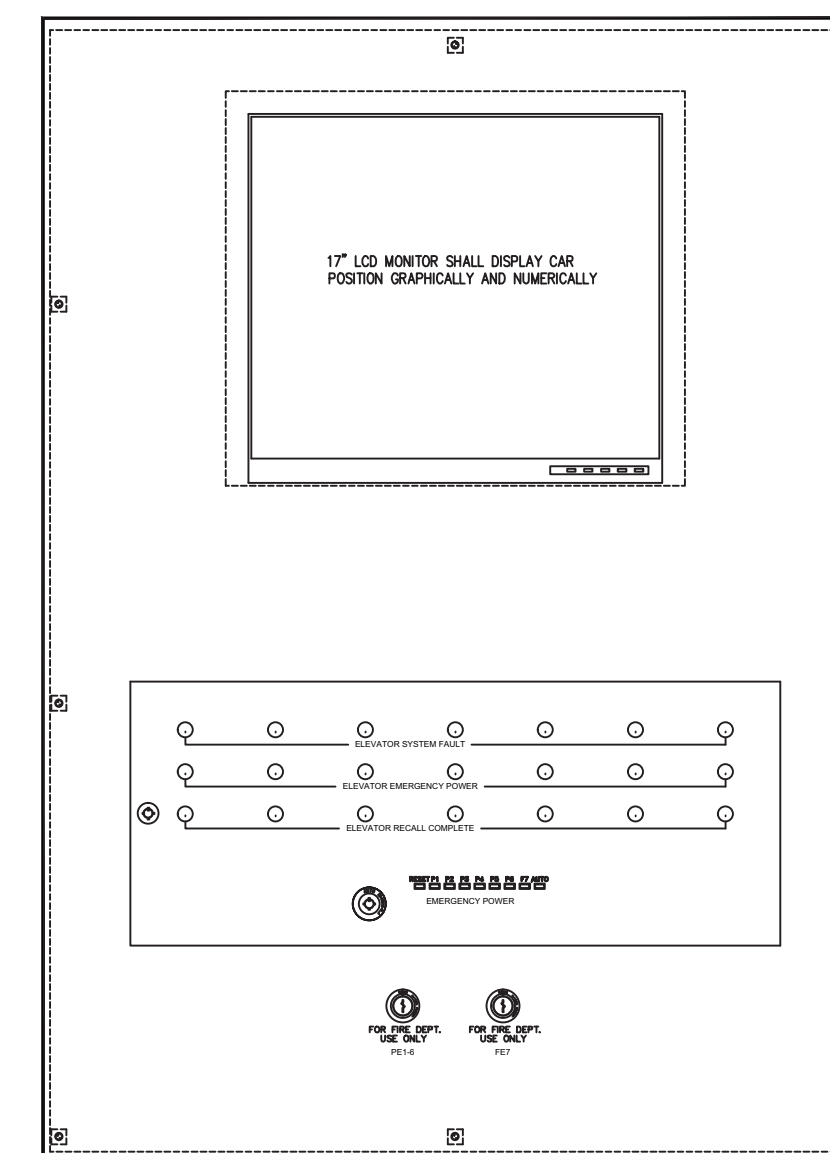
**2** HALL LANTERNS  
1-1/2"=1'-0"



**3** HALL STATIONS  
1-1/2"=1'-0"



**4** INCONSPICUOUS RISER FIXTURE  
1-1/2"=1'-0"



**5** LOBBY PANEL  
1-1/2"=1'-0"

ADDENDUM DRAWING 3/24/2017

CONSULTANT  
ARCHITECT:  
**RZAPS**  
RICARDO ZURITA ARCHITECTURE & PLANNING, P.C.  
MEP ENGINEERS:  
FPM ENGINEERING GROUP, P.C.  
ELEVATOR CONSULTANT:  
**vda**  
HAZARDOUS MATERIALS INVESTIGATION/DESIGN:  
**EM**  
ENVIRONMENTAL PLANNING & MANAGEMENT, INC.  
STRUCTURAL ENGINEER:  
**YAS** YSRAEL A. SEINUK, P.C.  
CONSULTING ENGINEERS

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CONTRACT: **ELEVATOR**  
TITLE: REHABILITATE ELEVATORS - SHIRLEY CHISHOLM STATE OFFICE BUILDING  
LOCATION: 55 HANSON PLACE BROOKLYN, NY 11217  
CLIENT: OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
△	03/24/2017	ADDENDUM DRAWING
	12/16/2016	BID DOCUMENT

PROJECT NUMBER: 44780 -U  
DESIGNED BY:  
DRAWN BY:  
FIELD CHECK:  
APPROVED:  
SHEET TITLE: **ELEVATOR FIXTURES**  
DRAWING NUMBER: U-504  
SHEET OF

## **SECTION 055000**

### **METAL FABRICATIONS**

#### **PART 1 GENERAL**

##### **1.01 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION**

- A. Anchor Bolts: Installed under Section 033001.

##### **1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. Structural Steel: Section 051200
- B. Metal Stairs: Section 055100.
- C. Field Painting: Section 099101.

##### **1.03 REFERENCES**

- A. Except as shown or specified otherwise, the Work of this Section shall meet the requirements of the following:
  - 1. Design, Fabrication, and Erection: “Specification for Structural Steel Buildings, Allowable Stress Design and Plastic Design” adopted by the American Institute of Steel Construction, June 1, 1989 (AISC Specification).
    - a. Design and Fabrication of Cold-Formed Shapes: “Specification for the Design of Cold-Formed Steel Structural Members”, by the American Iron and Steel Institute (AISI Specification).
  - 2. Welding: “Structural Welding Code - Steel, AWS D1.1”, or “Structural Welding Code - Sheet Steel, AWS D1.3”, by the American Welding Society (AWS Codes).
- B. Organizations:
  - 1. AISC: American Institute of Steel Construction, One East Wacker Dr., Suite 700, Chicago, IL 60601-1802, 866-275-2472, [www.aisc.org](http://www.aisc.org).
  - 2. AISI: American Iron and Steel Institute, 1140 Connecticut Ave., NW, Suite 705, Washington, D.C. 20036, (202) 452-7100, [www.steel.org](http://www.steel.org).
  - 3. AWS: American Welding Society, 550 N.W. LeJeune Rd., Miami, FL 33126, (800) 443-9353, [www.aws.org](http://www.aws.org).
  - 4. ANSI: American National Standards Institute, 1819 L Street, NW, 6th Floor, Washington, DC 20036, (202) 293-8020, [www.ansi.org](http://www.ansi.org).
  - 5. ASME: ASME International, 3 Park Ave., New York, NY 10016-5990, (800) 843-2763, [www.asme.org](http://www.asme.org).

6. ASTM: ASTM International, 100 Barr Harbor Dr., PO Box C700, West Conshohocken, PA, 19428-2959, (610) 832-9500, [www.astm.org](http://www.astm.org).

7. MPI: The Master Painters Institute Inc., 2808 Ingleton Ave., Burnaby, BC, V5C 6G7, (888) 674-8937, [www.specifypaint.com](http://www.specifypaint.com).

8. SSPC: The Society for Protective Coatings, 40 24th Street, 6th Floor, Pittsburgh PA 15222-4656, (877) 281-7772, [www.sspc.org](http://www.sspc.org).

#### **1.04 SUBMITTALS**

A. Shop Drawings: Show application to project. Furnish setting drawings and templates for installation of bolts and anchors in other Work. Indicate shop and field welds by standard AWS welding symbols in accordance with AWS A2.4.

B. Product Data: Catalog sheets, specifications, and installation instructions for each fabricated item specified, except submit data for fasteners only when directed.

#### **1.05 QUALITY ASSURANCE**

A. Galvanizing: Stamp galvanized items with galvanizer's name, weight of coating, and applicable ASTM number.

#### **1.06 DELIVERY AND STORAGE**

A. Coordinate delivery of items to be built into other construction to avoid delay.

B. Promptly cover and protect steel items delivered to the Site.

### **PART 2 PRODUCTS**

#### **2.01 MATERIALS**

A. Steel Shapes, Plates, and Bars: ASTM A 36.

B. Steel Plates to be Bent or Cold-Formed: ASTM A 283, Grade C.

C. Steel Bars and Bar-Size Shapes: ASTM A 675, Grade 70; or ASTM A 36.

D. Merchant Quality Steel Bars: ASTM A 575, grade as selected by fabricator.

E. Cold-Finished Steel Bars: ASTM A 108, grade as selected by fabricator.

F. Hot-Rolled Carbon Steel Sheet and Strip: ASTM A 569, pickled and oiled.

- G. Cold-Rolled Carbon Steel Sheet: ASTM A 366, oiled.
- H. Galvanized Steel Sheet: ASTM A 526, with G90 hot-dip process zinc coating complying with ASTM A653.
- I. Steel Tubing: Hot-formed, welded or seamless, structural tubing; ASTM A 501.
- J. Cold-Drawn Steel Tubing: ASTM A 512, buttwelded, cold-finished carbon steel tubing, sink drawn and stress relieved.
- K. Cast Iron Castings: ASTM A 48, gray iron castings, Class 30.
- L. Malleable Iron Castings: ASTM A 47, grade as selected by fabricator.
- M. Steel Castings: ASTM A 27, grade and class as required by use of item.
- N. Steel Pipe: ASTM A 53, type as selected, Grade A; black finish unless galvanizing is required; standard weight (Schedule 40), unless otherwise shown or specified.
- O. Rolled Steel Floor Plate, Raised Pattern: ASTM A 786; raised herringbone pattern unless otherwise indicated.
- P. Stainless Steel: Type 302/304; ASTM A 666 for plate, sheet and strip; ASTM A 276 for bars and shapes; ASTM A 269 for tubing.
- Q. Anchors: Except where shown or specified, select anchors of type, size, style, grade, and class required for secure installation of metal fabrications. For exterior use and where built into exterior walls, anchors shall be galvanized or of corrosive-resistant materials.
  - 1. Threaded-Type Concrete Inserts: Galvanized ferrous casting, internally threaded to receive 3/4 inch diameter machine bolt; either malleable iron or cast steel.
  - 2. Wedge-Type Concrete Inserts: Galvanized box-type ferrous casting, designed to accept 3/4 inch diameter bolt having special wedge-shaped head; either malleable iron or cast steel.
    - a. Bolts: Carbon steel bolts having special wedge-shaped heads, nuts, washers and shims.
  - 3. Slotted-Type Concrete Inserts: Galvanized 1/8 inch thick pressed steel plate complying with ASTM A 283; box-type welded construction with slot designed to receive 3/4 inch diameter square head bolt and with knockout cover.
  - 4. Expansion Anchors: Anchor bolt and sleeve assembly of material indicated below with capability to sustain, without failure, a load equal to six times the load imposed when installed in unit masonry and equal to four times the load imposed when installed in concrete, as determined by testing per ASTM E 488, conducted by a qualified independent test agency.



- a. Carbon Steel: Zinc-Plated; ASTM B 633, Class Fe/Zn 5.
- b. Stainless Steel: Bolts, Alloy Group 1 or 2; ASTM F593, Nuts; ASTM F 594.

R. Fasteners: Except where shown or specified, select fasteners of type, size, style, grade, and class required for secure installation of metal fabrications. For exterior use and where built into exterior walls, fasteners shall be galvanized.

- 1. Standard Bolts and Nuts: ASTM A 307, Grade A, regular hexagon head.
- 2. Stainless Steel Fasteners: ASTM A 666; Type 302/304 for interior Work; Type 316 for exterior Work; Phillips flathead (countersunk) screws and bolts for exposed Work unless otherwise specified.
- 3. Eyebolts: ASTM A 489.
- 4. Machine Bolts: ASME B18.5 or ASME B18.9, Type, Class, and Form as required.
- 5. Machine Screws: ASME B18.6.3.
- 6. Lag Screws: ASME B18.2.1.
- 7. Wood Screws: Flat head, ASME B18.6.1.
- 8. Plain Washers: Round, ASME B18.22.1.
- 9. Lock Washers: Helical, spring type, ASME B18.21.1.
- 10. Toggle Bolts: Spring Wing Type; Wing AISI 1010, Trunion Nut AISI1010 or Zamac Alloy, Bolt Carbon Steel ANSI B18.6.3.

S. Shop Paint (General): Universal shop primer; fast-curing, lead- and chromate-free, universal modified-alkyd primer complying with MPI#79 and compatible with topcoat.

- 1. Use primer containing pigments that make it easily distinguishable from zinc-rich primer.

T. Shop Paint for Galvanized Steel: Epoxy zinc-rich primer; complying with MPI#20 and compatible with topcoat.

U. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

V. Bituminous Paint: Cold-applied asphalt emulsion complying with ASTM D 1187.

## 2.02 MISCELLANEOUS FRAMING AND SUPPORTS

A. Fabricate metal framing and supports to support related items required by the Work. Fabricate of welded construction unless otherwise indicated. Preassemble to largest extent possible.

B. When required to be built into other Work, equip units with integral anchors spaced not more than 24 inches on center.

- C. Galvanize exterior steel framing and supports.

### **2.03 MISCELLANEOUS STEEL TRIM**

- A. Fabricate trim of shapes, sizes, and profiles shown, with continuously welded joints and smooth exposed edges, unless otherwise indicated or approved. Use concealed field splices wherever possible. Furnish necessary cutouts, fittings, and anchorages.
- B. Galvanize exterior steel trim.

### **2.04 LOOSE BEARING PLATES**

- A. Steel plates fabricated flat, free from warp or twist, and of required thickness and bearing area. Drill plates as required for anchor bolts and for grouting access. Furnish bearing plates where shown and where required for steel items bearing on masonry or concrete construction.

### **2.05 LOOSE LINTELS**

- A. Structural steel shape lintels, fabricated for openings and recesses in masonry walls and partitions as indicated. Loose lintels bearing on masonry or concrete shall have a minimum end bearing length of 6 inches at each end, unless otherwise shown.
- B. Galvanize lintels to be installed in exterior walls.

### **2.06 SAFETY GATE**

- A. Provide "PS Safety Access" full height safety swing gate, galvanized steel, LSGF model to fit existing opening, OSHA and ANSI compliant. Gate to be finished paint under 099101.

### **2.07 FABRICATION**

- A. Use materials of size and thickness indicated. If not indicated, use material of required size and thickness to produce adequate strength and durability for the intended use of the finished product. Furnish suitable, compatible anchors and fasteners to support assembly.
- B. Fabricate items to be exposed to view of material entirely free of surface blemish, including pitting, seam marks, roller marks, rolled trade names, and roughness. Remove surface blemishes by grinding or by welding and grinding prior to cleaning, treating, and finishing. Ease exposed edges to a radius of approximately 1/32 inch unless otherwise shown.
- C. Joints: Fabricate accurately for close fit. Weld exposed joints continuously unless otherwise indicated or approved. Dress exposed welds flush and smooth.

D. Connections: Form exposed connections with flush, smooth, hairline joints. Use concealed fasteners wherever possible. Use Phillips flathead (countersunk) bolts or screws for exposed fasteners, unless otherwise shown or specified.

1. Furnish flat washer under connections requiring raised bolt heads.
2. Furnish lock washer under nuts when through-bolting occurs.

E. Punch, reinforce, drill, and tap metal Work as required to receive hardware and other appurtenant items.

F. Galvanizing:

1. In addition to specific items specified or noted to be galvanized, galvanize items attached to, embedded in, or supporting exterior masonry (including interior wythe of exterior masonry walls) and concrete Work.
2. Unless otherwise specified or noted, items indicated to be galvanized shall receive a zinc coating by the hot-dip process, after fabrication, complying with the following:
  - a. ASTM A 123 for plain and fabricated material, and assembled products.
  - b. ASTM A 153 for iron and steel hardware.

G. Shop Painting:

1. Cleaning Steel: Thoroughly clean all steel surfaces. Remove oil, grease, and similar contaminants in accordance with SSPC SP-1 "Solvent Cleaning". Remove loose mill scale, loose rust, weld slag and spatter, and other detrimental material in accordance with SSPC SP-2 "Hand Tool Cleaning", SSPC SP-3 "Power Tool Cleaning", or SSPC SP-7 "Brush-Off Blast Cleaning".
2. Galvanized Items:
  - a. Galvanized items which are to be finish painted under Section 099101 shall be rinsed in hot alkali or in an acid solution and then in clear water.
  - b. Welded and abraded areas of galvanized surfaces shall be wire brushed and repaired with a coating of cold galvanizing compound.
3. Apply one coat of shop paint to all steel surfaces except as follows:
  - a. Do not shop paint steel surfaces to be field welded and steel to be encased in cast-in-place concrete.
  - b. Apply 2 coats of shop paint, before assembly, to steel surfaces inaccessible after assembly or erection, except surfaces in contact.
  - c. Do not paint galvanized items which are not to be finished painted under Section 099101.
4. Apply paint and compound on dry surfaces in accordance with the manufacturer's printed instructions, and to the following minimum thickness per coat:



- a. Shop Paint (General): 4.0 mils wet film.
- b. Shop Paint for Galvanized Steel: 3.0 mils wet film.
- c. Cold Galvanizing Compound: 2.0 mils dry film.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Temporarily brace and secure items which are to be built into concrete, masonry, or similar construction.
- B. Isolate non-ferrous metal surfaces to be permanently fastened in contact with ferrous metal surfaces, concrete, or masonry by coating non-ferrous metal surface with bituminous mastic, prior to installation.

### **3.02 INSTALLATION**

- A. Fit and set fabricated metal Work accurately in location, alignment, and elevation. Securely fasten in place. Cut off exposed threaded portion of bolts flush with nut.
- B. Set loose items on cleaned bearing surfaces, using wedges or other adjustments as required. Solidly pack open spaces with bedding mortar or grout.
- C. Attached Work: Fasten to concrete and solid masonry with expansion anchors and to hollow masonry with toggle bolts in cells, unless otherwise indicated. Drill holes for fasteners to exact required size using power tools.
- D. Railings: Adjust railings prior to securing in place to insure alignment and proper matching at joints. Plumb posts in each direction. Secure posts and rail ends to construction as follows:
  - 1. Anchor posts in concrete with post sleeves preset into the concrete. After the posts have been inserted into the sleeves, fill the annular space between post and sleeve solid with molten lead or an exterior quick-setting hydraulic cement. Cover anchorage joint with a cover flange.
  - 2. Anchor posts to steel with steel flanges, angle type or floor type as required. Weld flanges to posts, and bolt to the steel supporting members.
  - 3. Anchor rail ends to concrete and masonry with round steel flanges. Weld flanges to rail ends, and anchor into the wall construction with expansion anchors.
  - 4. Anchor rail ends to steel with steel oval or round flanges. Weld flanges to rail ends, and weld or bolt to the steel supporting members.
- E. Install safety gate as per manufacturer's instructions.

**END OF SECTION**

## SECTION 070153

### SINGLE PLY MEMBRANE ROOFING REPAIR

#### PART 1 GENERAL

##### 1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Restricted Work Period: Section 011100.

##### 1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, installation instructions for each material specified.
- B. Quality Control Submittals:
  - 1. Membrane Manufacturer's Certification: Written certification that the manufacturer has been actively marketing the submitted system for the past 5 years.
  - 2. Installer's Certification: Written certification from the membrane manufacturer certifying that the installer is licensed or approved to install the roof system.
- C. Product Data: Catalog sheets, specifications, installation instructions for each material specified.
- D. Material Safety Data Sheets (MSDS): Do not include the MSDS in the Submittals Package. Submit the MSDS to the Director's Representative if requested.
- E. Samples:
  - 1. Sheet Membrane: One 6 inch square piece.
  - 2. Sheet Flashing: One 6 inch square piece.
  - 3. Cover Tape: One 12 inch square piece.
  - 4. Inseam Tape: One piece 3 inches wide by 12 inches long.
  - 5. Fasteners: Two each type.
  - 6. Insulation: One 3 inch square piece.
  - 7. Coverboard: One 3 inch square piece.
  - 8. Underlayment Board: One 3 inch square piece.
- F. Submit all items, except contract closeout submittals and MSDS, at one time as a complete package. Partial submittals will not be considered.

##### 1.03 QUALITY ASSURANCE

- A. Fire Hazard Classification: The sheet membrane roof system shall have an Underwriters Laboratories Class A or B External Fire Resistance rating, as

determined by tests conducted in conformity with UL-790 “Tests for Fire Resistance of Roof Covering Materials”.

B. Material Classification Identification: Materials delivered to the site that are a component of the roofing system shall bear the UL Classification mark.

C. Membrane Manufacturer’s Qualifications:

1. The manufacturer shall have been actively marketing an single ply membrane roof system in the United States for a minimum of 5 years.

2. The manufacturer shall have the technical expertise and qualified technical representatives to resolve questions or problems that may arise both during and after the Work is completed.

3. The manufacturer shall require that the roof system be installed by a licensed or approved applicator.

D. Installer’s Qualifications: The installation of the roofing system shall be performed by an installer licensed or approved by the membrane manufacturer. The installer shall have previously installed at least 3 single ply membrane systems for which the manufacturer’s warranty was issued.

1. Workers: The supervisor or crew chief and at least one other member of the roofing crew shall have installed at least 3 single ply membrane roof systems and shall be thoroughly familiar with all aspects of the installation.

#### **1.04 DELIVERY, STORAGE, AND HANDLING**

A. Delivery: Deliver materials to the site in the manufacturer’s labeled, unbroken containers.

B. Storage and Handling: Store materials in a dry, well-ventilated place protected from the weather.

1. Do not store materials so as to overload the deck or structural assembly.

2. Store all materials on raised platforms covered with properly secured breathable water resistant covers. Slit shrink wrapping to not permit condensation and cover with breathable tarp.

3. Store volatile liquids in a separate storage building or trailer, or removed from the site at the end of each workday.

a. Store volatile liquids at temperatures recommended by the manufacturer.

4. Do not remove materials from factory packaging until ready for use.

5. Store adhesives, and sealants at temperatures between 60 degrees F and 80 degrees F.

#### **1.05 PROJECT CONDITIONS**

A. Unless otherwise directed, do not execute the work of this Section if the Director’s Representative is not present.



- B. Do not execute the work of this Section unless the repair area substrate is dry and free of dirt and debris.
- C. Moisture Protection:
  - 1. Cover, seal or otherwise protect the roof and flashings so that water cannot accumulate or flow under completed portions. When and where necessary to accomplish this, provide temporary water cut-offs in accordance with the membrane manufacturer's written specifications.
  - 2. Limit the removal of existing materials to areas that can be completely repaired or temporarily protected within the same day. At the discretion of the Director's Representative, a watertight built-up vapor barrier may be acceptable temporary protection for a maximum of 48 hours.
- D. Do not smoke or use open flames near volatile materials.

## **PART 2 PRODUCTS**

### **2.01 SINGLE PLY SHEET MEMBRANE, SHEET FLASHING, AND RELATED PRODUCTS**

- A. The single ply sheet membrane shall be visually free of streaks, particles of foreign matter, undispersed raw material, pinholes, cracks, tears, and shall be uniform in thickness. When unrolled in a relaxed position, the membrane shall be free of wrinkles, distortions, and blisters.
- B. Single ply membrane:
  - 1. One of the following types as required to achieve a UL Class A or B external fire rating:
    - a. 60 mil, fire retardant, unreinforced
    - b. 60 mil, unreinforced
    - c. 60 mil, fire retardant, reinforced
    - d. 60 mil, reinforced
- C. Sheet Flashing: Membrane manufacturer's cured and uncured
- D. Inseam Tape: Membrane manufacturer's minimum 3 inch wide self adhering tape consisting of cured butyl double sided adhesive tape, for inseam splicing of rubber to rubber.
- E. Cured Cover Tape: Membrane manufacturer's minimum 5 inch wide self adhering tape consisting of cured butyl adhesive
- F. Uncured Cover Tape: Membrane manufacturer's minimum 5 inch wide self adhesive tape, consisting of, cured butyl adhesive
- G. Related Products: Membrane manufacturer's bonding adhesive, splicing cement, lap sealant, water cut-off mastic, nite seal, pourable sealer, splice joint

cleaning agent and primer, insulation adhesive, and all other products related to the sheet membrane system.

## **2.02 INSULATION**

A. Uniform Thickness isocyanurate insulation and Tapered isocyanurate insulation: Approved closed cell isocyanurate foam core insulation skinned on both sides with factory applied fiberglass facers suitable for installation with hot asphalt and cold adhesive. ASTM C1289-02, Type II, Class 1, Grade 2. UL Classified and Factory Mutual Approved for direct application over steel deck. Minimum LTTR: 6.0 per inch thickness. Match existing thickness.

1. Adhesively Secured Insulation: Maximum board size 4 feet x 4 feet.
2. Mechanically Fastened Insulation: Minimum board size 4 feet x 8 feet.

B. Coverboard Insulation: Match existing thickness with gypsum roof board composed of a silicone treated gypsum core with fiberglass facers.

1. Acceptable Product: "DensDeck" by Georgia-Pacific Corporation, Gypsum Division, Atlanta, GA 30303, (800) 225-6119, [www.gp.com](http://www.gp.com).
2. Adhesively Attached Board: Maximum board size 4 feet x 4 feet.
3. Mechanically Attached Board: Minimum board size 4 feet x 8 feet.

C. Coverboard Insulation: Membrane manufacturer's approved asphalt impregnated cellulosic wood fiber insulation conforming to ASTM C 208.

1. Thickness: Match Existing Thickness.
2. Minimum R value: 2.05 per inch.

## **2.03 UNDERLAYMENT BOARD**

A. Underlayment Board: Gypsum roof board composed of a silicone treated gypsum core with fiberglass facers. Match existing thickness.

1. Acceptable Product: "DensDeck" by Georgia-Pacific Corporation, Gypsum Division, Atlanta, GA 30303, (800) 225-6119, [www.gp.com](http://www.gp.com).
2. Adhesively Attached Board: Maximum board size 4 feet x 4 feet.
3. Mechanically Attached Board: Minimum board size 4 feet x 8 feet.

## **2.04 FASTENERS**

A. Insulation and Membrane Fasteners: Provide fasteners that are approved for use with the existing roof system.

1. Steel and Wood Decks: Membrane manufacturer and Factory Mutual approved, hardened, self-tapping, anti-backout, Phillips pan head screws with round, square or hexagonal steel stress plates. Plate size as recommended by the manufacturer.

a. Steel Decks: Minimum penetration 1/2 inch, minimum pull out resistance from deck 400 pounds unless specified otherwise by the membrane manufacturer.

b. Wood Decks: Minimum penetration one inch, minimum pull out resistance from deck 360 pounds unless specified otherwise by the membrane manufacturer.

2. Concrete Decks: Membrane manufacturer and Factory Mutual approved; hardened, self-tapping, anti-backout, Phillips pan head screws with round, square or hexagonal steel stress plates; or hammer driven spikes with deformed shanks and round, square, or hexagonal steel stress plates. Plate size as recommended by the membrane manufacturer.

a. Minimum penetration 1-1/4 inch, minimum pull out resistance from deck 400 pounds unless specified otherwise by the membrane manufacturer.

3. Structural Wood Fiber Decks/Gypsum Decks/Lightweight Concrete Decks: Membrane manufacturer and Factory Mutual approved, non-metallic, anti-backout, reinforced polymer auger fastener with round, square or hexagonal steel stress plates.

a. Penetration Into Deck: Minimum 1-1/2 inches.

b. Structural Wood Fiber Decks: Minimum pullout resistance 300 pounds.

c. Lightweight Concrete Decks and Gypsum Decks: Minimum pullout resistance 350 pounds.

B. Base Flashing Fasteners (use along top edge of base, beneath in-wall cap flashings):

1. Concrete and/or Masonry Surfaces: Hardened masonry nails or zinc alloy hammer driven expansion anchors with stainless steel drive pins through 1 inch minimum sheet metal discs.

2. Sheet Metal Surfaces: Hardened, self tapping, #10 sheet metal screws through 1 inch minimum sheet metal discs.

3. Wood Surfaces: Hot dipped galvanized roofing nails with minimum 3/8 inch diameter head.

C. Termination Bar and Fasteners:

1. Termination Bar: Factory fabricated one inch wide x .100 inches thick, mill finish aluminum bar, with 1/4 inch x 3/8 inch slotted holes 8 inches on center and with a 1/4-inch wide 35 degree caulking and stiffener flange.

a. Acceptable Product: "TB100-8 Termination Bar" by Tru-Fast Corporation, Bryan, OH 43506, (800) 443-9602, [www.tru-fast.com](http://www.tru-fast.com).

2. Fasteners:

a. Concrete Or Masonry Surfaces: Slotted hex washer head masonry screws or zinc alloy hammer driven expansion anchors. Length as required to securely hold the compression bar tight against the wall surface.

b. Wood and Sheet Metal Surfaces: Hardened, self-tapping, slotted hex washer head screws.

- D. Anchor Strips: 6 inch wide reinforced single ply.

## **2.05 BITUMEN**

- A. Bitumen: Steep asphalt; ASTM D 312, Type III.

## **2.06 INSULATION ADHESIVE**

- A. Insulation Adhesive: Two-Part, Lowrise polyurethane foam adhesive, or the manufacturer's recommended insulation adhesive.

- 1. Acceptable Products:

- a. OlyBond Adhesive Fastener, by OMG Roofing Products, Agawam, MA 01001, (800) 633-3800, www.olyfast.com.

- b. Weather-Tite Adhesive, by Millenium Adhesive Products Inc., Chagrin Falls, OH 44023, (888) 564-9733, www.millenniumadhesives.com.

## **2.07 MISCELLANEOUS MATERIALS**

- A. Sealant: One-part, low modulus, silicone sealant: Dow Corning's 790, General Electric's Silpruf, Pecora's 864, or Tremco's TremPro 646.

## **2.08 UNDERLAYMENTS**

- A. Ballast Underlayment:

- 1. Polyester or polypropylene non woven water pervious fabric, 12 ft wide, weighing a minimum of 5 oz/sq yd.

- a. Acceptable Product: "Sure-Seal HP Protective Mat" by Carlisle SynTec, Carlisle, PA 17013, (800) 479-6832.

## **2.09 MATERIALS FOR VAPOR BARRIER REPAIR**

- A. Materials For Repair Of Existing Vapor Barrier:

- 1. Primer: Quick drying asphalt primer; ASTM D 41.

- 2. Asphalt Fiberglass Base Sheet: Non porous asphalt coated glass fiber base sheet: ASTM 4601-98, Type II.

- 3. Plastic Roof Cement: Non-asbestos bearing, fibrated, flashing grade; ASTM D 4586.

- 4. Bitumen: Steep asphalt; ASTM D 312, Type III.

- 5. Interply Adhesive: Membrane manufacturers cold process solvent based modified adhesive.

- a. Asphalt content: 42 percent ASTM D 4479-93

- b. Density: 8 lbs/gal ASTM D 1475-90

- c. Asbestos content: None.

## **PART 3 EXECUTION**



### **3.01 SURFACE PREPARATION**

- A. Cleaning: Before the roofing repair commences, sweep and/or vacuum all surfaces as required to remove all ballast, dirt, dust, loose aggregate, foreign matter, and debris from repair area, a minimum 6 inches beyond where the perimeter of the patch will extend. Scrub area of membrane with a solution of detergent and water such as Spic 'n Span or other detergent containing trisodium phosphate. Use warm water and a stiff bristle brush to scrub the membrane. Rinse thoroughly with clean water and allow membrane to dry. A rubber bladed squeegee and clean, absorbent, lint-free cloths may be used to facilitate drying. Dirt must be removed from area to be patched.
- B. Ensure roof drain strainers are in place and secured during removal of insulation and other debris. Provide cast iron strainers where existing strainers are missing. Do not allow debris to enter drains.

### **3.02 INSTALLING INFILL INSULATION**

- A. Keep insulation absolutely dry at all times. Discard insulation that contains moisture.
1. Install only as much insulation as can be covered with roofing membrane the same day.
  2. Discard all units with broken corners or similar defects.
  3. At roof drains, terminate the insulation with tapered edge strips so that all flashing and coverstrip joint laps can be made within the tapered portion.
- B. Cut back the membrane at affected area to expose the insulation. Remove fasteners holding the insulation, if present. Cut the insulation and discard properly, taking care not to damage vapor barrier, if present.
- C. Installing Mechanically Attached Insulation: Mechanically attach insulation in accordance with FM Loss prevention Data 1-28 including enhanced perimeter and corner fastener spacing. Set the fasteners with sufficient force to hold the insulation firmly against the deck surface. Do not allow the fastener to crush the insulation. Check each fastener to insure that it is securely anchored to the deck. Remove loose or defective fasteners.
1. Before installing the fasteners, predrill the correct size hole as recommended by the fastener manufacturer through the insulation and into the deck. Drill the hole 1/2 inch deeper than the fastener penetration.
- C. Installing Insulation with Asphalt: Set insulation boards, in a full hot mopping of Type III steep asphalt applied at the rate of 30 pounds per square. Press insulation into the bitumen to a firm and uniform bearing.
- D. Installing Adhesively Secured Insulation: Set each board in insulation adhesive applied in accordance with manufacturer's printed instructions. Press insulation into the adhesive immediately and as necessary thereafter to assure proper bonding. Maintain pressure on the adhesive until the adhesive has completely set (20 to 45 minutes).

- E. Installing Insulation Board: Install each layer of insulation with joints staggered. Butt edges and ends snugly so there are no gaps between the insulation boards. Discard boards with broken corners and boards that are warped.
- F. Installing Tapered Insulation System: Install the tapered insulation to match the existing tapered insulation system. Install each layer of insulation with joints staggered. Butt edges and ends snugly so that there are no gaps between the insulation boards.
- G. Install coverboard insulation over the polyisocyanurate insulation.

### **3.03 MEMBRANE PREPARATION**

- A. Preparing Existing Roof Membrane:
  - 1. Cut the membrane a short distance from and parallel with the perimeter, base of the wall, curb or termination point to relieve the tension. Allow the membrane to relax for a minimum of 30 minutes.
    - 1. Cut the membrane a short distance from and parallel with the perimeter, base of the wall, curb or termination point to relieve the tension. Allow the membrane to relax for a minimum of 30 minutes.
    - 2. Secure the existing membrane to the deck or base of the wall by mechanically fastening with metal batten bars or plates and fasteners, or as directed by the membrane manufacturer.
    - 3. Thoroughly clean the surface of the membrane area to be repaired and backside of the patch material of the patch material with a clean, absorbent, lint-free cloth and an acceptable solvent cleaner as prescribed by the membrane manufacturer. If the membrane manufacturer can not be identified, other solvents such as Heptane, unleaded gasoline or Xylene may be used. Turn the cloth frequently and replace when dirty to prevent dirt and contaminants from being scrubbed into the membrane. Allow the solvent-wash to thoroughly flash-off and dry.

### **3.04 INSTALLING REPAIR MEMBRANE**

- A. Cut a piece of like membrane large enough to extend 4 inches beyond any part of the cut and to provide an expansion fold of 4 to 6 inches. Round the corners of the patch to prevent peeling of square corners.
  - 1. Apply primer to both surfaces to be mated and allow to dry.
  - 2. If the existing membrane surface is excessively degraded, insert the new patch material under the existing membrane so that adhering of the patch may be accomplished to the underside of the existing membrane.
- B. Adhering Roofing Membrane To The Substrate:

1. Adhere the roofing membrane to the substrate bonding adhesive. Mating surfaces must be clean and dry before adhering the membrane.
2. Apply a uniform coating of bonding adhesive to both mating surfaces at the rate recommended by the manufacturer. Do not leave “skips” or “holidays”. Do not allow the bonding adhesive to puddle.
3. Do not allow bonding adhesive to come in contact with areas to be spliced.
4. Allow the adhesive to dry until it does not stick to the dry finger touch. Do not attempt to adhere the membrane if the bonding adhesive is wet to the touch.
5. Adhere the membrane to the substrate so it is free of wrinkles, fishmouths, or voids.
6. Broom the membrane to achieve maximum adhesion. Do not try to reposition the sheet once it has been adhered to the substrate.
7. Apply lap sealant along edges of repair.

### **3.05 PHASING OF MEMBRANE INSTALLATION**

- A. Limit the removal of existing materials and repairs to areas that can be completely repaired within the same day.

### **3.06 FIELD QUALITY CONTROL**

- A. As the repairs are completed or at the end of each workday, in the presence of the Director’s Representative closely examine joints in the membrane and repairs. Cut out and repair areas of the joints that are not fully bonded or that contain “fishmouths” or “wrinkles”. Repair the membrane so it is restored to its full waterproof integrity. Lap patches a minimum of 6 inches beyond cuts.

**END OF SECTION**

## SECTION 078100

### APPLIED FIREPROOFING

#### PART 1 GENERAL

##### 1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Statement of Special Inspections: BDC 406.

##### 1.02 DEFINITIONS

- A. Fireproofing Manufacturer: Manufacturer of primary fire resistive materials.
- B. Fire Resistance Rating: Time rating (in hours) in accordance with Underwriters Laboratories Fire Resistance Directory listings.

##### 1.03 PERFORMANCE REQUIREMENTS

- A. Fire Resistance Rating: Fireproofing shall meet the indicated hourly rating when applied to the construction assembly shown on the Drawings.
- B. Fire Hazard Classification: Fireproofing shall be listed in the Underwriters Laboratories Building Materials Directory with the following performance properties:
  - 1. Flame Spread: 10 or less.
  - 2. Smoke Developed: 5 or less.

##### 1.04 SUBMITTALS

- A. Product Data: Manufacturer's product descriptions for each required material.
  - 1. Fireproofing: Include fireproofing manufacturer's application instructions, including primer/adhesive requirements and recommended minimum thickness and density for each required hourly rating.
- B. Quality Control Submittals:
  - 1. Certificates:
    - a. UL fire resistance rating certificate.
    - b. UL fire hazard classification certificate.
    - c. Fireproofing manufacturer's certification (or confirming independent test reports) that fireproofing meets the performance requirements and physical properties.
    - d. Affidavit by fireproofing manufacturer (or confirming independent test reports) certifying the fireproofing is free of all forms of asbestos.



2. Applicators Qualifications Data: Information confirming that the firm, supervisor, and workers have the specified qualifications.

## **1.05 QUALITY ASSURANCE**

- A. Applicators Qualifications:
  - 1. Firm: Approved by fireproofing manufacturer.
  - 2. Supervisor: Not less than 5 years of experience in the application of sprayed fire resistive material.
  - 3. Workers: Not less than one year of experience in the application of sprayed fire resistive material.
  
- B. Fireproofing: Fire resistive materials free of all forms of asbestos, formulated for sprayed-on application, factory packaged, and complying with specified performance requirements and physical properties.
  - 1. Source Limitations: Obtain fireproofing materials through one source from a single manufacturer.
  
- C. Equipment: Use mixing and application equipment recommended by the fireproofing manufacturer.
  
- D. Fireproofing Certifications:
  - 1. UL fire resistance rating certificate.
  - 2. UL fire hazard classification certificate.
  - 3. Affidavit by fireproofing manufacturer (or confirming independent test reports) certifying that fireproofing meets the performance requirements and physical properties.
  - 4. Affidavit by fireproofing manufacturer (or confirming independent test reports) certifying the fireproofing is free of all forms of asbestos.

## **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver fireproofing materials in factory packaged and sealed containers, clearly labeled, bearing manufacturer's name, product name, product type, batch number, date, and UL labels for classifications.
  
- B. Store materials in an enclosed area protected from the elements, and maintain within the manufacturer's recommended temperature limits.
  
- C. Handle materials in accordance with manufacturer's printed instructions.

## **1.07 PROJECT CONDITIONS**

- A. Environmental Requirements: Make arrangements thru the Director's Representative for having the temperature in the spaces to receive flooring maintained at 68 degrees F for 48 hours prior to flooring installation, during the

installation, and for 48 hours after installation. Make provision for and maintain adequate ventilation for proper curing of fireproofing as required by conditions.

## **PART 2 PRODUCTS**

### **2.01 TYPE 1 FIREPROOFING**

- A. CAFCO 400 or approved equal
- B. Use: Interior
- C. Physical Properties:
  - 1. Dry Field Density (ASTM E 605): 22 lb/cu ft minimum average.
  - 2. Cohesion/Adhesion (Bond Strength) (ASTM E 736): Minimum average 400 lb/sq ft.
  - 3. Compressive Strength (ASTM E 761): Minimum 7000 lb/sq ft.
  - 4. Impact (Bond Impact) Resistance (ASTM E 760): Shall not crack or delaminate.
  - 5. Effect of Deflection (ASTM E 759): Shall not crack or delaminate.
  - 6. Corrosion Resistance (ASTM E 937): No evidence of corrosion.
  - 7. Air Erosion (ASTM E 859): Maximum 0.025 g/sq ft weight loss.

### **2.02 ACCESSORIES**

- A. Primer/Adhesive: Primer or adhesive recommended by the fireproofing manufacturer to obtain required bond strength for the specific fireproofing and substrate.
- B. Water: Potable, cool, fresh, and free from such amounts of organic and mineral substances which would be harmful to the fireproofing.
- C. Reinforcement: Lathing recommended by the fireproofing manufacturer for the specific fireproofing use/application and substrate, unless otherwise shown or specified.
  - 1. Lath: 3.4 lb per sq yd expanded metal lath with finish recommended by fireproofing manufacturer.
  - 2. Auxiliary Reinforcing Members, Clips, and Other Anchorage Devices: As recommended by the fireproofing manufacturer for the specific fireproofing use/application and substrate.

D. Furring and Corner Beads: Accessories recommended by the fireproofing manufacturer for the specific fireproofing use/application and substrate.

F. Sealant: Sealant recommended by the fireproofing manufacturer for the specific fireproofing use/application and substrate.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

A. Verification of Conditions: Examine the substrate and conditions under which fireproofing is to be applied. Do not proceed with the fireproofing Work until unsatisfactory conditions have been corrected.

1. Verify that hangers, clips, sleeves, and other items that will penetrate the fireproofing are in place.
2. Check paint on substrate for compatibility with primer/fireproofing and adequacy of bond strength in accordance with fireproofing manufacturer's instructions.
3. For fireproofing on underside of steel decks, verify that concrete Work on the decks is completed.
4. For fireproofing on underside of roof deck assembly, verify that deck roofing Work is completed.

### **3.02 PREPARATION**

A. Protection:

1. Protect surfaces that are not to receive fireproofing with suitable covers.
2. Cover openings in the work areas with suitable temporary closures.

B. Surface Preparation:

1. Remove dirt, dust, oil, grease, loose paint and rust, mill scale, and other foreign matter that may impair the bonding of the fireproofing to the substrate. Clean substrate free of contamination from chemicals and solvents.
2. Apply primer/adhesive where necessary to obtain bond strength of fireproofing to steel shop paint and where recommended by the fireproofing manufacturer. Follow manufacturer's instructions.
3. Install reinforcement and other metal items where shown on the Drawings, where recommended by the fireproofing manufacturer, and when required by the fire rated design. Install reinforcement and accessories in accordance with fireproofing manufacturer's instructions, unless otherwise indicated.

### **3.03 APPLICATION**

A. Apply the fireproofing in accordance with UL fire test report and the manufacturer's application instructions.

1. Application Method: Apply the fireproofing material by spraying, except use trowel application where spraying is impractical.
- B. Thickness and density of fireproofing shall be in accordance with the approved product data and as required to produce the hourly fire resistance rating shown on the Drawings.
- C. Apply the fireproofing in a monolithic covering of uniform density and texture, free of seams, staging breaks, holes, voids, and other defects that might impair the fire resistance. Install the fireproofing to the full required thickness over entire area of each surface to be covered.
1. Stop-off application operation at natural stopping points, such as inside corners, wherever possible.
  2. Edge of fireproofing adjoining other materials shall be sharp and clean, without overlapping.
- D. Finish of Fireproofing: Unless otherwise indicated, finish shall be a uniform surface texture as applied, without noticeable icicles or sagging.

### **3.04 FIELD QUALITY CONTROL**

- A. Special Inspections and Testing Agency: The State will engage a qualified special inspections and testing agency to perform special inspections, tests, and prepare reports. The special inspections and testing agency will interpret the tests and indicate in each report whether the tested work complies with or deviates from project requirements. The special inspections and testing agency will perform tests in accordance with the New York State Uniform Fire Prevention and Building Code (BCNYS).

### **3.05 ADJUSTING**

- A. Correct fireproofing in damaged areas, and areas with less than the required thickness or standard of quality.

### **3.06 CLEANING**

- A. After completion of the fireproofing in each containable area of the project, remove protective covers and temporary closures, and clean surfaces that have been soiled performing the Work.

**END OF SECTION**

## SECTION 078400

### FIRESTOPPING

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. UL 1479 Fire Tests of Through-Penetration Firestops.
- B. ASTM E 814 Method of Fire Tests of Through-Penetration Fire Stops.

##### 1.02 DEFINITIONS

- A. UL Fire Resistance Directory: Product directory published yearly, with supplements, by Underwriters Laboratories Inc., containing listings and classifications in effect as of the published date for product categories covered by UL.
- B. Inchcape Directory of Listed Products: Product directory published yearly by Inchcape Testing Services containing listings which reflect certifications granted for materials, products, systems and equipment which have been tested by Inchcape Testing Services to recognized governing standards.
- C. Omega Point Laboratories Listings Directory: Product Directory published yearly by Omega Point Laboratories, Inc. containing listed building products, materials, and assemblies which have been tested by Omega Point Laboratories to recognized governing standards.
- D. Factory Mutual Approval Guide: Product directory published yearly, with supplements, by Factory Mutual Research Corp., containing listed building products, materials, and assemblies which have been tested by Factory Mutual Research Corp., to recognized governing standards.
- E. F Rating: Prohibits flame passage through the system and requires acceptable hose stream test performance.
- F. T Rating: Prohibits flame passage through the system and requires the maximum temperature rise on the unexposed surface of the wall or floor assembly, on the penetrating item and on the fill material not to exceed 325 degrees F above ambient, and requires acceptable hose stream test performance.
- G. Company Field Advisor: An employee of the Company which lists and markets the primary components of the system under their name who is certified in writing by the Company to be technically qualified in design, installation, and servicing of the required products or an employee of an organization certified by the foregoing Company to be technically qualified in design, installation and servicing of the required products. Personnel involved solely in sales do not qualify.



### **1.03 DESIGN REQUIREMENTS**

- A. Devices and materials shall meet the hourly fire resistance ratings required by the Project as determined by UL 1479, or ASTM E 814 and be listed and detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
  - 1. Exception: Where no listed designs exist that meet the requirements of a specific project condition, submit details and manufacturer's written recommendations for a design meeting the requirements. Include evidence of engineering judgement and extrapolation from listed designs.

### **1.04 SUBMITTALS**

- A. Submittals Package: Submit the following items specified below the same time as a package:
  - 1. Product Data.
  - 2. Quality Control Submittals.
  - 3. Firestop Schedule.
- B. Product Data: Catalog sheets, specifications and installation instructions for each firestop device and material.
  - 1. Indicate design number for each firestop proposed to be used which is detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
  - 2. State the specific locations where each firestop system is proposed to be installed.
- C. Quality Control Submittals:
  - 1. Design Data: Show details and include engineering information and manufacturer's written recommendations required under Design Requirements Article for each proposed firestop if other than a design detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
    - a. State the specific locations where each firestop is proposed to be installed.
  - 2. Installer's Qualifications Data:
    - a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
    - b. Names and addresses of 3 similar projects that each person has worked on during the past 5 years.
  - 3. Company Field Advisor Data:
    - a. Name, business address and telephone number of Company Field Advisor secured for the required services.
    - b. Certified statement from the Company listing the qualifications of the Company Field Advisor, and listing of services and each

product specifically listed for this Project for which Company Field Advisor is given authorization by the Company to render advice.

- D. Firestop Schedule: Submit schedule itemizing the following:
1. Manufacturer's product reference numbers and/or drawing numbers.
  2. UL, Inchcape Testing Services, Factory Mutual Research Corp., or Omega Point Lab design number.
  3. Location of firestop material.
  4. Penetrating Item Description/Limits: Material, size, insulated or uninsulated, and combustibility.
  5. Maximum allowable annular space or maximum size opening.
  6. Wall type construction.
  7. Floor type construction.
  8. Hourly Fire resistance rating of wall or floor.
  9. F rating.
  10. T rating, if available.

**NOTE:** Firestop Schedule is for information only, and will not be acted on for approval. Refer to Sample Firestop Schedule bound in Appendix.

#### **1.05 QUALITY ASSURANCE**

- A. Installer Qualifications: The persons installing the firestopping and their supervisor shall be personally experienced in firestop work and shall have been regularly employed by a company installing firestopping for a minimum of 3 years.
- B. Container/Package Labels: Include manufacturer's name and identifying product number, date of manufacturer, lot number, shelf life (if applicable), qualified testing and inspecting agency classification marking, curing time, and mixing instructions for multi-component materials.
- C. Company Field Advisor: Secure the services of a Company Field Advisor for the following:
1. Render advice regarding suitability of firestopping materials and methods.
  2. Assist in completing firestop schedule.

#### **1.06 DELIVERY, STORAGE, AND HANDLING**

- A. Deliver firestopping materials to the Site in original, new unopened containers or packages bearing manufacturer's printed labels.
- B. Store and handle firestopping materials to prevent deterioration or damage due to moisture, temperature changes, contaminants, etc.

## **1.07 PROJECT CONDITIONS**

- A. Environmental Requirements:
  - 1. Temperature: Do not install firestopping materials when ambient or substrate temperatures are outside limits permitted by manufacturer of firestopping materials.
  - 2. Humidity and Moisture: Do not install the Work of this Section under conditions that are detrimental to the application, curing, and performance of the materials.
  - 3. Ventilation: Provide sufficient ventilation wherever firestopping materials are installed in enclosed spaces. Follow manufacturer's recommendations.

## **1.08 SEQUENCING AND SCHEDULING**

- A. Leave exposed those firestopping installations that are to be concealed behind other construction until the Director's Representative has examined each installation.

## **PART 2 PRODUCTS**

### **2.01 FIRESTOPPING-GENERAL**

- A. Through-Penetration Firestop Devices, Forming Materials, And Fill, Void or Cavity Materials: As listed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
  - 1. For firestopping exposed to moisture, furnish products that do not deteriorate when exposed to this condition.
  - 2. For firestopping systems exposed to view, furnish products with flame-spread values of less than 25 and smoke developed values less than 50, as determined per ASTM E 84.
- B. Accessories: Components required to install fill materials as recommended by the firestopping manufacturer for particular approved fire rated system.
- C. Identification Labels:
  - 1. Furnished by fire stopping manufacturer of suitable material for permanent field identification of through-penetration firestops.
  - 2. Identify the following:
    - a. "WARNING - FIRESTOP MATERIAL".
    - b. Company Name.
    - c. Product Catalog number.
    - d. F rating.
    - e. T rating, if available.
  - 3. Field fabricated labels are not acceptable.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine existing through-penetrations of floors, walls, partitions, ceilings and roofs in the Work areas.
- B. Where firestopping is missing or not intact, submit a written report to the Director's Representative describing the existing conditions.

### **3.02 PREPARATION**

- A. Clean out openings immediately before installation of through-penetration firestopping. Comply with recommendations of firestopping manufacturer and the following requirements:
  - 1. Remove foreign materials from surfaces of openings, and from penetrating items that could interfere with adhesion of firestopping.
  - 2. Clean opening and penetrating items to produce clean, sound surfaces capable of developing optimum bond with firestopping. Remove loose particles remaining from cleaning operation.
  - 3. Remove laitance and form release agents from concrete.
- B. Protection:
  - 1. Protect surfaces adjacent to through-penetration firestops with non-staining removable masking tape or other suitable covering to prevent firestopping from contacting adjoining surfaces that will remain exposed upon completion of Work and that would otherwise be permanently stained or damaged by such contact or that would be caused by cleaning methods used to remove smears from firestopping materials.
- C. Substrate Priming:
  - 1. Prime substrates in accordance with the firestopping manufacturer's printed installation instructions using recommended products and methods.
  - 2. Do not allow primer to spill or migrate onto adjoining exposed surfaces.

### **3.03 INSTALLATION OF THROUGH PENETRATION FIRESTOPS**

- A. Use through-penetration firestop devices, forming materials, and fill, void or cavity materials to form through-penetration firestops to prevent the passage of flame, and limit temperature rise of the unexposed surface as detailed in the UL Fire Resistance Directory, Inchcape Directory of Listed Products, Factory Mutual Approval Guide, or the Omega Point Laboratories Listings Directory.
  - 1. Where applicable design is not detailed in the Directories, use forming materials and fill, void or cavity material to form through-penetration firestop in accordance with approved printed details and installation instructions from the company producing the forming materials and fill, void or cavity material.

2. If the construction type(s) of the building cannot be determined, provide firestopping with fire resistance ratings as specified in the Building Code of New York State, Tables 720.1(1), 720.1(2), 720.1(3), and 302.3.2.
- B. Provide through-penetration firestop systems with F ratings which shall equal or exceed the fire resistance rating of the penetrated building construction.
  - C. Provide through-penetration firestop systems with T ratings, in addition to F ratings, at floors where the following conditions exist:
    1. Where firestop systems protect penetrations located outside the wall cavities.
    2. Where firestop systems protect penetrations located outside fire resistive shaft enclosures.
  - D. Firestop through-penetrations of floors, walls, partitions, ceilings, and roofs associated with the new Work.
  - E. Permanently affix label at each firestop. Use adhesive compatible with surface construction at firestop location.

#### **3.04 CLEANING**

- A. Clean off excess fill materials and sealants adjacent to penetrations by methods and cleaning materials recommended by manufacturers of firestopping products and of products in which penetrations occur.
- B. Remove masking tape as soon as practical so as not to disturb the firestopping's bond with substrate.
- C. Protect firestopping during and after curing period from contact with contaminating substances, or damage resulting from adjacent Work.
- D. Cut out and remove damaged or deteriorated firestopping immediately, and install new materials as specified in firestop schedule.

**END OF SECTION**



## SECTION 079200

### JOINT SEALERS

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, and installation instructions for each product specified except miscellaneous materials.

##### 1.02 QUALITY ASSURANCE

- A. Container Labels: Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable), and packaging date or batch number.

##### 1.03 PROJECT CONDITIONS

- A. Environmental Requirements:
  - 1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40 degrees F or above 85 degrees F for non silicone sealants and below minus 20 degrees F or above 125 degrees F for silicone sealants.
  - 2. Humidity and Moisture: Do not install the Work of this section under conditions that are detrimental to the application, curing, and performance of the materials.
  - 3. Ventilation: Provide sufficient ventilation wherever sealants, primers, and other similar materials are installed in enclosed spaces. Follow manufacturer's recommendations.
- B. Protection:
  - 1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.
  - 2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved coverings to prevent defacement from droppings.

#### PART 2 PRODUCTS

##### 2.01 SEALANTS

- A. Type 1C Sealant:
  - 1. One-part, non-sag polysulfide base sealant: Pecora's Synthacalk GC-9, Products Research and Chemical's PRC Rubber Calk 7000, or Sonneborn's Sonolastic One Part Polysulfide Sealant.
- B. Type 1D Sealant: One-part, mildew resistant silicone sealant; Dow Corning 786, Dow Corning Tub and Ceramic, Pecora 898 Sanitary Silicone, General Electric Sanitary SCS1700, or Bostik Silicone Rubber Bathroom Caulk.

- C. Sealant Colors: For exposed materials provide color as indicated or, if not indicated, as selected by the Director from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

## **2.02 MISCELLANEOUS MATERIALS**

- A. Joint Primer/Sealer/Conditioner: As recommended by the sealant manufacturer for the particular joint surface materials and conditions.
- B. Backer Rod: Compressible rod stock of expanded, extruded polyethylene.
- C. Cleaning Solvents: Oil free solvents as recommended by the sealant manufacturer. Do not use re-claimed solvents.
- D. Masking Tape: Removable paper or fiber tape, self-adhesive, non-staining.

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
  - 1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section.
  - 2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
  - 3. Do not limit cleaning of joint surfaces to solvent wiping. Use methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.
- B. Set joint fillers at proper depth and position as required for installation of backer rods and sealants. Do not leave voids or gaps between the ends of joint filler units.
- C. Priming Joint Surfaces:
  - 1. Prime joints if so recommended by the manufacturer's printed instructions.
  - 2. Do not allow the primer/sealer to spill or migrate onto adjoining surfaces.

### **3.02 JOINT BACKING INSTALLATION**

- A. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

### **3.03 SEALANT INSTALLATION**

- A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.
- B. Install sealants with ratchet hand gun or other approved mechanical gun. Where gun application is impractical, install sealant by knife or by pouring as applicable.
- C. Finishing: Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.
  - 1. Use tool wetting agents as recommended by the sealant manufacturer.

### **3.04 CLEANING**

- A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.
- B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

**END OF SECTION**

## SECTION 079200

### JOINT SEALERS

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Product Data: Catalog sheets, specifications, and installation instructions for each product specified except miscellaneous materials.
- B. Samples:
  - 1. Sealants: One pint or standard tube.
  - 2. Joint Fillers: 24 inch long full section.
  - 3. Gaskets: 24 inch long full section.
  - 4. Joint Primer/Sealer/Conditioners: One pint.
  - 5. Backer Rods: 24 inch long full section.
  - 6. Bond Breaker Tape: 24 inch long full section.
- C. Quality Control Submittals:
  - 1. Installer's Qualifications Data: Affidavit required under Quality Assurance Article.
  - 2. Company Field Advisor Data: Name, business address, and telephone number of Company Field Advisor.

##### 1.03 QUALITY ASSURANCE

- A. Container Labels: Include manufacturer's name, trade name of product, kind of material, federal specification number (if applicable), expiration date (if applicable), and packaging date or batch number.
- B. Test and validate sealants used for exterior weathersealing per the Sealant Waterproofing Restoration Institute (SWRI).
- C. Warranties:
  - 1. Silicone sealants: 20 years Weatherseal Warranty.
  - 2. Polyurethane or Silicone: 5 year Weatherseal Warranty.
  - 3. Sealants for Granite, Marble and Limestone: 20 year Non-Stain Warranty.

##### 1.04 PROJECT CONDITIONS

- A. Environmental Requirements:
  - 1. Temperature: Unless otherwise approved or recommended in writing by the sealant manufacturer, do not install sealants at temperatures below 40 degrees F or above 85 degrees F for non silicone sealants and below minus 20 degrees F or above 125 degrees F for silicone sealants.
  - 2. Humidity and Moisture: Do not install the Work of this section under conditions that are detrimental to the application, curing, and performance of the materials.

3. Ventilation: Provide sufficient ventilation wherever sealants, primers, and other similar materials are installed in enclosed spaces. Follow manufacturer's recommendations.
- B. Protection:
1. Protect all surfaces adjacent to sealants with non-staining removable tape or other approved covering to prevent soiling or staining.
  2. Protect all other surfaces in the Work area with tarps, plastic sheets, or other approved coverings to prevent defacement from droppings.

## **PART 2 PRODUCTS**

### **2.01 SEALANTS**

- A. Type 1 Sealant, any of the following generic types:
1. One-part, low-modulus silicone sealant: Dow Corning 790, Dow Corning 791, Dow Corning 795, General Electric Silpruf, Pecora 864, Pecora 890, Pecora 890FTS.
  2. One-part, non-sag silicone or polyurethane sealant: Bostik Chem-Calk 900, Bostik Chem-Calk 915, Bostik Chem-Calk 916 Textured, Bostik Chem-Calk 2020, Pecora Dynatrol I, Sika Sikaflex 1a, Sonneborn Sonolastic NP I, or Tremco DyMonic (not SWRI), Dow Corning Contractors Weatherproofing Sealant (CWS), Dow Corning Concrete Sealant (CCS), Pecora 895.
  3. Two-part, non-sag silicone or polyurethane sealant: Bostik Chem-Calk 500 (not SRWI), Pecora Dynatrol II, Dow Corning CWS or CCS.
- B. Type 2 Sealant: One-part acrylic polymer sealant; Pecora AVW-920, PTI 738, or Tremco Mono
- C. Sealant Colors: For exposed materials provide color as indicated or, if not indicated, as selected by the Director from manufacturer's standard colors. For concealed materials, provide the natural color which has the best overall performance characteristics.

### **2.03 GASKETS**

- A. Adhesive Closed-Cell PVC Gasket: Closed-cell, flexible, self adhesive, non-extruding, polyvinylchloride foam gaskets; ASTM D 1667.

### **2.04 MISCELLANEOUS MATERIALS**

- A. Joint Primer/Sealer/Conditioner: As recommended by the sealant manufacturer for the particular joint surface materials and conditions.

- B. Backer Rod: Compressible rod stock of expanded, extruded polyethylene.
- C. Bond Breaker Tape: Polyethylene or other plastic tape as recommended by the sealant manufacturer; non-bonding to sealant; self adhesive where applicable.
- D. Cleaning Solvents: Oil free solvents as recommended by the sealant manufacturer. Do not use re-claimed solvents.
- E. Masking Tape: Removable paper or fiber tape, self-adhesive, non-staining.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Examine all joint surfaces for conditions that may be detrimental to the performance of the completed Work. Do not proceed until satisfactory corrections have been made.

### **3.02 PREPARATION**

- A. Clean joint surfaces immediately before installation of sealant and other materials specified in this Section.
  - 1. Remove all loose materials, dirt, dust, rust, oils and other foreign matter that will impair the performance of materials installed under this Section.
  - 2. Remove lacquers, protective coatings and similar materials from joint faces with manufacturer's recommended solvents.
  - 3. Do not limit cleaning of joint surfaces to solvent wiping. Use methods such as grinding, acid etching or other approved and manufacturer's recommended means, if required, to clean the joint surfaces, assuring that the sealant materials will obtain positive and permanent adhesion.
- B. Set joint fillers at proper depth and position as required for installation of bond breakers, backer rods, and sealants. Do not leave voids or gaps between the ends of joint filler units.
- C. Priming Joint Surfaces:
  - 1. Prime joints if so recommended by the manufacturer's printed instructions.
  - 2. Do not allow the primer/sealer to spill or migrate onto adjoining surfaces.

### **3.03 JOINT BACKING INSTALLATION**

- A. Install bond breaker tape in relaxed condition as it comes off the roll. Do not stretch the tape. Lap individual lengths.



B. Install backer rod of sufficient size to fill the joint width at all points in a compressed state. Compress backer rod at the widest part of the joint by a minimum of 25 percent. Do not cut or puncture the surface skin of the rod.

### **3.04 SEALANT INSTALLATION**

A. Except as shown or specified otherwise, install sealants in accordance with the manufacturer's printed instructions.

B. Install sealants with ratchet hand gun or other approved mechanical gun. Where gun application is impractical, install sealant by knife or by pouring as applicable.

C. Type 2: If low temperature makes application difficult, preheat sealants using manufacturer's recommended heating equipment.

D. Type 4 Sealant: Allow sealant to cure for a minimum of 3 days before backfilling.

E. Finishing: Tool all vertical, non-sag sealants so as to compress the sealant, eliminating all air voids and providing a neat smoothly finished joint. Provide slightly concave joint surface, unless otherwise indicated or recommended by the manufacturer.

1. Use tool wetting agents as recommended by the sealant manufacturer.

### **3.05 FIELD QUALITY CONTROL**

A. Test Samples:

1. Where directed, for each 1000 linear feet of joint installed, cut out and carefully remove a 6 inch long sample of the undisturbed sealant and joint backer material from the newly installed Work. Remove the samples in the presence of the Director's Representative who will retain them for evaluating and testing.

2. Reseal cut out areas with the same materials.

### **3.06 CLEANING**

A. Immediately remove misapplied sealant and droppings from metal surfaces with solvents and wiping cloths. On other materials, remove misapplied sealant and droppings by methods and materials recommended in writing by the manufacturer of the sealant material.

B. After sealants are applied and before skin begins to form on sealant, remove all masking and other protection and clean up remaining defacement caused by the Work.

**END OF SECTION**

## **SECTION 089100**

### **STATIONARY METAL WALL LOUVERS**

#### **PART 1 GENERAL**

##### **1.01 RELATED WORK SPECIFIED ELSEWHERE**

- A. Metal Framing and Supports: Section 055000.
- B. Sealants: Section 079200.

##### **1.02 SUBMITTALS**

- A. Shop Drawings: Show fabrication details and connections to adjacent Work.
- B. Product Data: Catalog cuts, specifications, and installation instructions for louver type specified.

##### **1.03 QUALITY ASSURANCE**

- A. Louvers shall be rated by AMCA (Air Movement and Control Assoc.).

#### **PART 2 PRODUCTS**

##### **2.01 STEEL LOUVERS**

- A. Type: Stationary formed galvanized sheet metal louvers, formed of not less than 20 gage steel.
- B. Fabrication: Form frame with mitered or coped galvanized steel members and with continuously welded or riveted and soldered joints. Set blades at 45 degrees unless otherwise indicated. Form ends of blades flat against frame jamb and weld or rivet and solder joints to ensure that joints will be watertight. Reinforce units with concealed plates, angles, tees or other shapes to form a rigid unit.
- C. Finishes:
  - 1. Baked enamel, minimum 1 mil thickness, color as selected.
- D. Sills: Same material and finish as the louvers.

##### **2.03 LOUVER SCREENS**

- A. Fabricate removable screen frames of the same metal and finish as the louvers. Locate screens on the inside face of the louvers, unless otherwise

indicated. Secure screens to louver frames with machine screws at each corner and spaced 12 inches oc.

- B. Bird Screens:
  - 1. Galvanized 0.625 steel wire, 1/2 inch mesh.
- C. Insect Screens:
  - 1. Anodized aluminum wire, 18 x 14 mesh.

## **2.04 FASTENERS AND ANCHORS**

- A. Bolts, Nuts, Lags, Washers, Screws and Anchors: Same material as items being installed unless otherwise indicated; types, gages and lengths to suit unit installation conditions; galvanized steel, aluminum or stainless steel for exterior locations or for items anchored to exterior walls.

## **2.05 MISCELLANEOUS**

- A. Bituminous Paint: SSPC-PAINT 12 (Cold applied asphalt mastic).

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install the Work of this Section in accordance with the manufacturer's printed instructions, except as shown otherwise on the Drawings.
- B. Frame opening as required.
- C. Install units plumb, level and in proper alignment with adjacent construction.
- D. Form tight joints with exposed connections accurately fit together.
- E. Use concealed anchorages wherever possible. Provide brass or lead washers fitted to screws where required to protect metal surfaces and to form a weathertight connection.
- F. Where louvers are in contact with concrete, masonry or a dissimilar metal, coat the contacting surface with a heavy coat of bituminous paint.
- G. Clean louvers after installation. Remove dirt, dust, and grime.

**END OF SECTION**

## SECTION 140120

### ELEVATOR REHABILITATION / MODERNIZATION OF PASSENGER ELEVATORS PE1 TO PE6 AND FREIGHT ELEVATOR FE7

#### PART 1 GENERAL

- A. The modernization of six (6) existing traction passenger elevators to include the following: provide; PMAC gearless traction hoisting machines, microprocessor based controls with power regenerative VVVF-AC motor speed drives, car and hoistway door operating equipment, energy efficient ADA compliant car and hallway signaling devices, hoistway and car wiring, and cab enclosures.
- B. The modernization of one (1) existing traction freight elevator to include the following: provide PMAC gearless machine, microprocessor based controller with power regenerative VVVF-AC motor speed drive, car and hoistway freight door operating equipment with powered operations, energy efficient ADA compliant car and hallway signaling devices, hoistway and car wiring, and a freight cab enclosure.
- C. Referenced codes and standards applicable to this modernization:
  - The 2015 International Building Code, supplemented by the 2016 New York State Building Code
  - The 2015 International Mechanical Code
  - The 2015 International Fire Code
  - The 2014 National Electrical Code
  - ASME A17.1 - 2016

#### 1.01 RELATED ITEMS PROVIDED BY OTHERS

- A. Power feeder to machine room, terminating at line terminals of elevator controller. Power feeder for powered freight door operations terminating at line terminals at freight door controller.
- B. Lockable fused disconnect switches or enclosed circuit breakers with auxiliary contact.
- C. Single phase circuit for elevator cab lighting, and cab enclosure exhaust fans terminating in a fused disconnect switch or circuit breaker in elevator machine room.
- D. Modifications to smoke detection system for Phase I - Emergency Recall Operation, terminating at a terminal strip cabinet in elevator machine room.
- E. Lighting in machine room and elevator pit.

- F. Emergency power signaling conductors from automatic transfer switches to the hoistways. Elevator contractor to run wires from point within the hoistways to the elevator controller(s).
- G. Thermostatically controlled mechanical ventilation of the elevator machine room.
- H. Upgrades to the emergency power distribution/signaling equipment.

**1.02 RELATED WORK SPECIFIED ELSEWHERE**

- A. Firestopping: Section 078400.
- B. Painting: Section 099101.
- C. Elevator Hoisting Equipment - Gearless Electric: Section 142111.
- D. Elevator Cars: Section 142711.
- E. Elevator Controller and Operation: Section 142816.
- F. Elevator Hoistway Equipment: Section 142820.
- G. Elevator Hoistway Entrances: Section 142821.
- H. Elevator Door Operators: Section 142813.
- I. Elevator Safety Equipment: Section 142851.
- J. Elevator Landing Signal Equipment: Section 142861.
- K. Emergency Operation and Emergency Signal Devices: Section 142871.
- L. Elevator Wiring: Section 142881.

**1.03 RELATED ITEMS FURNISHED BY OTHERS AND INSTALLED UNDER THIS CONTRACT**

- A. Public address speaker and backbox for each elevator cab.
- B. Fire warden telephone jack for each elevator cab.

**1.04.1 DESCRIPTION OF EXISTING ELEVATOR(S): PASSENGER ELEVATORS PE1 TO PE6.**

NOTE: Elevator characteristics apply to all elevators unless specifically noted otherwise.

- A. Company: Dover Elevator Company
- B. Date Installed: Early 1980's

C.	Machine Number:	PE1 to PE6
D.	Location in Building:	Main Lobby
E.	Type of Elevator:	Passenger
F.	Rated Load:	3,000
G.	Rated Speed:	350
H.	Type of Operation:	Six Car Group
I.	Elevator Controller:	Dover – existing DMC with MG’s
J.	Leveling unit:	Cable Driven
K.	Travel:	Existing
L.	Stops:	PE1: (14) at B, 1, and 2 to 13 PE2 to PE6: (13) at 1 and 2 to 13
M.	Openings:	All Front
N.	Type of Machine:	Worm Geared Traction with (DC) motor
	a. Roping: 1:1 – Qty. 5 (5/8)	
O.	Machine Location:	Overhead
P.	Machine Room Floor:	Concrete
Q.	Car Platform Size:	To be field verified
R.	Net Car Size (Inside):	81” Wide X 52-1/2” Deep
S.	Hoistway Entrances:	42” Wide X 84” High / SSSO
T.	Car Doors:	42” Wide X 84” High / SSSO
U.	Door Operation:	Powered
V.	Signals in Car:	
	1. Car position indicator.	Dot Matrix in COP and 1 <sup>st</sup> Floor Lantern
	2. Car operating panel.	Full Swing return
	3. Call registration lights.	Square illuminating plastic
	4. Direction indicators.	N/A
	5. Alarm button and gong.	Provided
W.	Signals at Landings:	



- |    |  |                             |
|----|--|-----------------------------|
| 1. | Hall buttons.                                    | Two (2) risers              |
| 2. | Call registration light                          | Square illuminating plastic |
| 3. | “In Use” signals.                                | N/A                         |
| 4. | Hall lanterns.                                   | At all typical floors       |
| 5. | Hall position indicators.                        | N/A                         |
| 6. | Combination hall lantern and position indicator. | At first floor only         |

#### 1.04.2 DESCRIPTION OF EXISTING ELEVATOR: FRIEGHT ELEVATOR FE-7

NOTE: Elevator characteristics apply to all elevators unless specifically noted otherwise.

- |    |                               |   |
|----|-------------------------------|---|
| A. | Company:                      | Dover and Peelle Elevator Company       |
| B. | Date Installed:               | Early 1980's                            |
| C. | Machine Number:               | FE7                                     |
| D. | Location in Building:         | Service Corridor                        |
| E. | Type of Elevator:             | Semi-Automatic Freight                  |
| F. | Rated Load:                   | 4,000                                   |
| G. | Rated Speed:                  | 150                                     |
| H. | Type of Operation:            | Semi-Automatic Simplex                  |
| I. | Elevator Controller:          | Dover: existing DMC with MG             |
| J. | Leveling unit:                | Dover – cable driven                    |
| K. | Travel:                       | Existing                                |
| L. | Stops:                        | (16) at B, 1, 2, M, 3 to 13 and R       |
| M. | Openings:                     | All Front                               |
| N. | Type of Machine:              | Worm Geared Traction with DC motor      |
|    | a. Roping: 1:1 – Qty. 5 (5/8) |   |
| O. | Machine Location:             | Overhead.                               |
| P. | Machine Room Floor:           | Concrete                                |
| Q. | Car Platform Size:            | V.I.F.                                  |
| R. | Net Car Size (Inside):        | 96" Wide X 110" Deep                    |
| S. | Hoistway Entrances:           | 96" Wide X 96" High / Manual Bi-parting |

T. Car Doors: 96" Wide X 96" High / Manual Vertical Gate

U. Door Operation: Manual

V. Signals in Car:

- |    |                          |                                  |
|----|--------------------------|----------------------------------|
| 1. | Car position indicator.  | Dot Matrix                       |
| 2. | Car operating panel.     | Applied box and cover (recessed) |
| 3. | Call registration lights | Square illuminating plastic      |
| 4. | Direction indicators     | N/A                              |
| 5. | Alarm button and gong.   | Provided                         |

W. Signals at Landings:

- |    |  |  |
|----|--|--|
| 1. | Hall buttons.                                    | Square illuminating plastic              |
| 2. | Call registration light.                         | Square illuminating plastic              |
| 3. | "In Use" signals.                                | N/A                                      |
| 4. | Hall lanterns.                                   | N/A                                      |
| 5. | Hall position indicators.                        | N/A                                      |
| 6. | Combination hall lantern and position indicator. | Dot matrix at 1 <sup>st</sup> Floor only |

**1.05 SUBMITTALS**

A. Waiver of Submittals: the "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to the Work of Division 14.

B. Submittals Package: submit the shop drawings product data, samples, and quality control submittals specified below at the same time as a package except for the following:

1. Control System As-Built Wiring Diagrams (Shop Drawings).
2. Acceptance Test Reports - (Quality Control Submittal).
3. Contract Closeout Submittals.

C. Shop Drawings:

1. Machine room (layout, size, etc.).
2. Control system wiring diagrams and sequence of operation including parts listing and troubleshooting manual.
3. Entrance and car details. (As applicable)
4. Details of doors, frames, and sills. (As applicable)
5. Control system wiring diagrams.
6. Emergency brake installation drawing sealed by a licensed professional engineer.
7. Details of machine(s).
8. Car operating panels and hallway signaling devices

D. Product Data:

1. Manufacturer's catalog sheets, specifications and installation, for each component specified.
  2. Motor data shall be certified by the manufacturer, with calculations utilized to determine horsepower rating provided.
- E. Samples:
1. Hoist ropes (two 2-foot lengths).
  2. Governor cables (two 2-foot lengths).
  3. Traveling cable (two 2-foot lengths).
  4. Stainless steel. (as applicable)
  5. Cab Finishes. (as applicable)
  6. Access signage.
  7. Phase I and II procedure signage.
  8. Color Selections.
- F. Quality Control Submittals:
1. Installers Qualifications Data
    - a. Name of each person who will be performing the Work.
    - b. Employer's name, business address and telephone number.
    - c. Names and addresses of the required number of similar projects that each person has worked on which meet the experience criteria.
  2. Test Reports:
    - a. Existing elevator lift and balance test.
    - b. Acceptance test report.
- G. Contract Closeout Submittals:
1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products to the Director's Representative. Include as-built wiring diagrams showing the control system installed under this project. Mount and hang one copy of diagrams in the elevator machine room. Each sheet of the wiring diagrams shall be laminated in plastic.
  2. Deliver all portable diagnostic keyboards and or programming tools required for service or maintenance to the Director's Representative. Include manuals containing all passwords, set up parameters, fault coding and all other operational and maintenance requirements.

## **1.07 QUALITY ASSURANCE**

- A. Company Qualification: The Company, installers and supervisors employed to perform the Work of Division 14, shall be experienced in elevator Work, and shall have been engaged in the rehabilitation of elevators and have installed the products specified in Division 14 for use on this project for a minimum of 3 years.

1. Furnish to the Director the names and addresses of 5 similar projects, which the products specified in Division 14 for use on this project, have been installed during the past 3 years.
- B. Product Manufacturer Qualification: If products by Companies other than those specified in Division 14 are proposed for use, furnish the name, address and telephone number of at least 5 comparable installations located within a 100 mile radius of the project site, which can prove the proposed products have operated satisfactorily for 3 years.
  1. Elevator control systems shall be supported by a manufacturer's technical support office staffed with technical field advisors located within a 300 mile radius of the project site.

## **1.08 DELIVERY, STORAGE, AND HANDLING**

- A. Packing and Shipping: Protect equipment and exposed finishes during transportation and erection against damage.

## **PART 2 PRODUCTS**

### **2.01 ELEVATOR EQUIPMENT**

- A. Companies: Adams Elevator Equip. Co., Computerized Elevator Controls C.E.C., Cemco, ThyssenKrupp Elevator Co., Elevator Equipment Co., Elevator Products Co., Elevator Safety Co., G.A.L. Mfg Corp., Hollister-Whitney Elevator Corp., Imperial Electric Co., Innovation Industries Inc., Motion Control Engineering M.C.E., Kone Elevator Co., Maxton, Nylube Products Co., Otis Elevator Co., Peele Door, Courion, PTL Equip. Mfg. Co. Inc., Schindler Elevator Co., Titan Machine Corp., or approved equal.

### **2.02 PAINT**

- A. Finish ferrous surfaces of the elevator Work with Company's standard multiple coat paint finish, (unless a more stringent finish is specified) including rust-inhibitive primer and enamel finish totaling not less than 2 coats thickness. Exceptions: Do not paint sliding and rubbing surfaces.

### **2.03 HANDICAP ACCESS SIGNS**

- A. Size: Minimum 6 x 6 inches.
- B. Material: Plastic laminate.
- C. Message: International Symbol of Access, with:
- D. Colors:
  1. Background: Black or dark blue.

2. Figures or Graphic Symbols: White.

### **PART 3 EXECUTION**

#### **3.01 VERIFICATION OF CONDITIONS**

- A. Field Measurements:
  1. Contractor shall be responsible for all field measurements.
- B. Existing Control System Wiring Diagrams:
  1. The Contractor shall be responsible for obtaining the necessary wiring diagrams to proceed with the installation of the provided control system.
- C. Removals:
  1. Remove all items superseded by the Work including; hoisting machines, controllers, motor-generator sets, selectors, governors, tracks, hangers, interlocks, hall pushbuttons, hoisting ropes, car enclosures, car and hoist way door panels and hardware, governor ropes and all related shaft and machine room wiring including raceways, and junction boxes. Patch and finish all voids resulting from removals.
- C. Preliminary Testing:
  1. Balance Relationship Between Car and Counterweight: Prior to start of Work, perform a balance test. Add or remove filler weights from counterweight to reestablish original manufactures recommended balance relationship.

#### **3.02 PREPARATION**

- A. Protection: Protect exposed equipment, door operators, car safeties, guide shoes, interlocks and limit switches from foreign material during course of the modernization.

#### **3.03 HANDICAP ACCESS SIGNS**

- A. Mark elevators which are accessible for those with mobility disabilities.
  1. Signs: Install 5 signs in locations deemed to be the most strategic and conspicuous. Mount signs 5 feet above floor (centerline of characters) at all interior and most exterior locations. Mount signs with manufacturer's adhesive strips.

#### **3.04 FIELD QUALITY CONTROL**

- A. Acceptance Tests: In addition to the tests outlined below, perform all tests required per Part 8.10 of the A.S.M.E. A17.1 Safety Code for Elevators and Escalators. All test must be witnessed by a qualified elevator inspector (QEI).
1. Buffer Test: Test is not required for solid or spring type buffers. Test oil buffers in accordance with ASME code.
  2. Normal Operation Test: Run car, in both up and down direction, by normal operation devices, with full load, stopping at each floor served, in both directions of travel.
  3. Speed Test:
    - a. Determine actual speed of elevator car in both directions of travel with full load and no load in car.
    - b. Determine speed of car by use of tachometer.
    - c. Perform speed tests before and after normal operation tests.
  4. Limit Switches: Test limit switches. (Car should not move).
  5. Safety Tests:
    - a. Perform tests on all safety equipment to determine that they function properly. Tests are to be in accordance with the best practices of the trade.
    - b. Test car safety and governor in accordance with ASME Code.
    - c. File off any safety marks on guide rails after tests have been completed.
  6. Balance Relationship Between Car and Counterweight: Prior to load safety test, perform a balance test. Add or remove filler weights from counterweight to reestablish original manufactures recommended balance relationship.
  7. Static Balance Test (Car): Perform a balance test to determine that car is properly balanced on frame. Add or remove weights to underside of platform to reestablish correct balance relationship.
  8. Test all items of elevator to assure entire elevator system is operating properly.
- B. Before safeties are reset check if:
1. Any part of the equipment has broken or is out of order.
  2. Ropes are in respective sheave grooves.
  3. The machine brake is applied.
  4. The governor jaws, and car releasing carrier, if any, have been reset to their normal running position.
  5. The car platform is out of level more than 3/8 inches per foot in any direction.

C. Perform tests in presence of Director’s Representative and QEI.

1. Sign completed ASME Elevator Test Report.

**3.05 TECHNICAL SEMINAR/MAINTENANCE TRAINING**

A. Upon completion of the project, arrange with the Owner to provide on the job training and seminar; a complete review of the documentation, operation and maintenance of the equipment and demonstration of any special features.

B. A minimum of one 4 hour seminar.

**3.06 TEMPORARY SIGNAGE**

A. Hang signs reading; “Elevator Under Modernization, signed \_\_\_\_\_”.

**3.07 CLEANING**

A. Clean elevator Work of dust, dirt, grease and foreign materials.

B. Remove articles of tools and material from shafts and machine rooms not necessary for maintenance and operation of elevator.

**3.08 SCHEDULE OF ELEVATOR WORK – ELEVATOR(S) NO. PE1 to PE6 and FE7**

NOTE: Included in the Scope of Work for this Project is the removal from the site and proper disposal of all equipment superseded by the Work of this Project. Items of Work apply to all elevators unless otherwise noted.

A. Modifications to:

- |    |                    |           |
|----|--------------------|-----------|
| 1. | Rated Load:        | No change |
| 2. | Rated Speed:       | No change |
| 3. | Car Platform Size: | No change |
| 4. | Net Car Size:      | No change |

B. Firestopping: Section 078400.

- |    |                                   |         |
|----|-----------------------------------|---------|
| 1. | Through Penetration Firestopping: | Provide |
|----|-----------------------------------|---------|

C. Painting: Section 099101.

1. Painting of Machine Room Floor – By the Construction Contractor:

D. Elevator Hoisting Equipment: Gearless Traction (PE1 to PE6) - Section 142111

- |    |                  |                       |
|----|------------------|-----------------------|
| 1. | Motor:           | Provide AC            |
| 2. | Brake:           | Provide               |
| 3. | Traction Sheave: | Provide               |
| 4. | Machine          | Provide Gearless PMAC |
| 5. | Bedplate:        | Provide               |



- |    |   |         |
|----|---|---------|
| 6. | Rope Guards:  | Provide |
| 7. | Painting:   | Provide |
| 8. | Ascending Car Overspeed /<br>Unintended Motion Device | Provide |
| 9. | Deflector Sheave                                      | Provide |
- E. Elevator Hoisting Equipment: Gearless Traction (FE7) - Section 142111
- |    |   |                       |
|----|---|-----------------------|
| 1. | Motor:                                    | Provide AC            |
| 2. | Brake:                                    | Provide               |
| 3. | Traction Sheave:                          | Provide               |
| 4. | Machine:                                  | Provide Gearless PMAC |
| 5. | Bedplate:                                 | Provide               |
| 6. | Rope Guards:                              | Provide               |
| 7. | Painting:                                 | Provide               |
| 8. | Ascending Car Overspeed<br>/ Rope Gripper | Provide               |
| 9. | Deflector Sheave                          | Provide               |
- F. Elevator Cars: Section 142711.
- |     |                             |                                   |
|-----|-----------------------------|-----------------------------------|
| 1.  | Car Frame:                  | Retain and Reuse                  |
|     | a. Guiding Members:         | Provide                           |
| 2.  | Car Platform:               | Retain, Reuse and Rebuild         |
| 3.  | Car Panels:                 | Per architectural drawings / spec |
| 4.  | Removable Panels:           | Per architectural drawings / spec |
| 5.  | Entrance Columns:           | Per architectural drawings / spec |
| 6.  | Base:                       | Per architectural drawings / spec |
| 7.  | Bumper Strips:              | Per architectural drawings / spec |
| 8.  | Handrails:                  | Per architectural drawings / spec |
| 9.  | Top Emergency Exits:        | Per architectural drawings / spec |
| 10. | Ventilation:                | Per architectural drawings / spec |
| 11. | Canopy:                     | Per architectural drawings / spec |
| 12. | Lighting:                   | Per architectural drawings / spec |
| 13. | Car Operating Panel:        | Provide                           |
| 14. | Car Position Indicator:     | Provide                           |
| 15. | Car Doors:                  | Provide                           |
| 16. | Car Gate:                   | Provide (FE7)                     |
| 17. | Fire Warden Telephone Jack: | Install. (Furnished by others)    |
- G. Elevator Controller and Operation: Section 142816
- |    |  |            |
|----|--|------------|
| 1. | Variable Voltage Variable Frequency Motor Control: | Provide    |
| 2. | Machine Room Video Monitor, Keyboard and Printer:  | Provide    |
| 3. | Simplex Selective Collective:                      | FE7        |
| 4. | Group Supervisory Operation:                       | PE1 to PE6 |
| 5. | Drive Isolation Transformer:                       | Provide    |
| 6. | Microprocessor Group Control:                      | Provide    |
| 7. | Top of Car Operating Device:                       | Provide    |
| 8. | Stop Switch in Elevator Pit:                       | Provide    |

- |     |  |         |
|-----|--|---------|
| 9.  | Automatic Leveling.  | Provide |
| 10. | Independent Service.   | Provide |
| 11. | Attendant Operation:   | Provide |
| 12. | Position Selection:  | Provide |
| 13. | Ethernet Based Elevator<br>Management Information System (EMIS)<br>Installed within the building management<br>office located on the first floor | Provide |

H. Elevator Hoistway Equipment: Section 142820.

- |     |                                      |                       |
|-----|--------------------------------------|-----------------------|
| 1.  | Normal Terminal Stopping Devices:    | Provide               |
| 2.  | Final Terminal Stopping Devices:     | Provide               |
| 3.  | Emergency Terminal Stopping Devices: | Provide               |
| 4.  | Car Guide Rails:                     | Retain and Reuse      |
| 5.  | Counterweight Guide Rails:           | Retain and Reuse      |
| 6.  | Beams:                               | Retain and Reuse      |
| 7.  | Grating:                             | Retain and Reuse      |
| 8.  | Metal Partition:                     | Retain and Reuse      |
| 9.  | Overhead Sheaves:                    | N/A                   |
| 10. | Deflector Sheaves:                   | Provide               |
| 11. | Suspension Ropes or Cables:          | Provide               |
| 12. | Compensating Chains:                 | Provide               |
| 13. | Governor Rope and Tension Sheave:    | Provide               |
| 14. | Counterweights:                      | Retain / Overhaul     |
|     | a. Guiding Members:                  | Provide               |
|     | b. Counterweight Sheave:             | N/A                   |
| 15. | Buffers:                             | Retain and Reuse      |
| 16. | Lubricating Devices:                 | Provide               |
| 17. | Pit Ladder:                          | Provide               |
| 18. | Hoistway Cleaning:                   | Provide               |
| 19. | Hoistway Bevel Guards:               | Provide (as required) |

I. Elevator Hoistway Entrances: Section 142821.

- |     |   |                        |
|-----|---|------------------------|
| 1.  | Frames: PE1 to PE6 (1 <sup>st</sup> floor)      | Re-clad in SS #4       |
| 2.  | Frames: PE1 to PE6 (all other floors)           | Retain and Reuse       |
| 3.  | Frames: FE7 (all floors)                        | Retain and Reuse       |
| 4.  | Sill Support:                                   | Retain and Reuse       |
| 6.  | Struts:   | Retain and Reuse       |
| 7.  | Header or Hanger Support:                       | Retain and Reuse       |
| 8.  | Toe Guards, Fascias and Dust Covers:            | Provide as required    |
| 9.  | Hanger Cover:                                   | Provide as required    |
| 10. | Doors: PE1 to PE6 (1 <sup>st</sup> floor)<br>#4 | Provide finished in SS |
| 11. | Doors: PE1 to PE6 (all other floors)            | Retain and Reuse       |
| 12. | Doors: FE7 (all floors)                         | Retain and Reuse       |
| 13. | Hangers:  | Provide                |
| 14. | Tracks:   | Provide                |
| 15. | Interlocks:                                     | Provide                |

- |     |   |   |
|-----|---|---|
| 16. | Door Re-opening Devices:  | Provide   |
| 17. | Truckable Sills:  | Retain and Reuse (FE7)                                  |
| 18. | Saddles:  | Retain and Reuse  |
| 19. | Guide Shoes:  | Provide (FE7)   |
| 20. | Guide Rails - (Door):   | Provide (FE7)   |
| 21. | Sheaves, Chains and Rods - (Door):                                | Provide (FE7)   |
| 22. | Pull Strap:   | Provide (FE7)   |
| 23. | Locks:  | Provide (FE7)   |
| 24. | Access Switch:  | Provide   |
|     |   |   |
| J.  | Elevator Door Operators: Section 142813.                          |   |
| 1.  | Power Car/ Hoistway Door Operations:                              | Provide   |
| 2.  | Car Door Operator:  | Provide (PE1 to PE6)                                    |
| 3.  | Powered Car Gate  | Provide (FE7)   |
| 4.  | Counterbalanced Hoistway Doors                                    | Retain and Reuse (FE7)<br>Modify for powered operations |
| 5.  | Selective Door Operation:   | N/A   |
| 6.  | Door Protective Device:   | Provide   |
|     |   |   |
| K.  | Elevator Safety Equipment: Section 142851.                        |   |
| 1.  | Safety Device: (Car)  | Retain and Reuse  |
| 2.  | Counterweight Safety Devices:                                     | N/A   |
| 3.  | Speed Governor:   | Provide   |
| 4.  | Emergency Brake:  | Provide   |
| 5.  | Ascending Car Overspeed / Unintended Motion Devices               | Provide   |
|     |   |   |
| L.  | Elevator Landing Signal Equipment: Section 142861.                |   |
| 1.  | Hall Buttons:   | Provide   |
| 2.  | Call Register Lights:   | Provide   |
| 3.  | “In Use” Signals.   | Provide (FE7)   |
| 4.  | Hall Lanterns:  | Provide (PE1 - PE6)                                     |
| 5.  | In Car Lanterns:  | N/A   |
| 6.  | Hall Position Indicators:   | Provide   |
| 7.  | Combination Hall Lantern / Position Indicator                     | Provide at 1 <sup>st</sup> Floor<br>(PE1 – PE6)         |
| 8.  | Automatic Dispatching System:                                     | Provide   |
| 9.  | Lobby Dispatch Panel:   | Provide   |
| 10. | Lobby Video Monitor:  | Provide – location to be verified by Owner              |
|     |   |   |
| M.  | Emergency Operation and Emergency Signal Devices: Section 142871. |   |
| 1.  | Phase I Emergency Recall Operation:                               | Provide Per NYC /<br>FDNY                               |
| 2.  | Phase II Emergency In-Car Operation:                              | Provide Per NYC /<br>FDNY                               |

- 3. Two-Way Voice Communication: Provide
- 4. Emergency Light and Alarm System: Provide
- 5. Telephone in EMR: Provide
- 6. Emergency Electric Service: Provide
- 7. Public Address Speaker and Backbox: Provide

N. Elevator Wiring: Section 142881

- 1. Raceways: Provide
- 2. Hoistway and Machine Room Control Wiring: Provide
- 3. Traveling Cable: Provide

**END OF SECTION**

## **SECTION 141000**

### **ELEVATOR FULL MAINTENANCE SPECIFICATION**

#### **PART 1 - GENERAL**

##### **1.01 MAINTENANCE DURATION**

- A. Upon contract award, Contractor shall assume Full Maintenance responsibilities for 6 Passenger Elevators and 1 Freight Elevator located at Shirley Chisholm State Office Building, 55 Hanson Place, Brooklyn, NY 11217.
- B. As each elevator is taken out of service as part of the phased modernization, it shall no longer require maintenance. Once the modernization is completed and the elevator accepted for public use, maintenance will resume under Warranty Maintenance and continue until substantial project completion. Upon substantial project completion of the entire project, all elevators shall remain on Warranty Maintenance for an additional 12 months.
  - 1. Refer to Division 01 specifications for the construction schedule phasing plan.
- C. Upon completion of the 12-month Warranty Maintenance period, this maintenance agreement will be terminated, and maintenance of the elevators shall revert back to the facilities Elevator Maintenance Contract in effect at the time of termination.
- D. Elevators other than those listed above shall not be associated with this maintenance agreement.

##### **1.02 CONTRACTOR GENERAL RESPONSIBILITIES**

- A. The Contract provides for full maintenance service for all equipment specified in the "Equipment to Be Maintained List" (Exhibit A) and any component or accessory not specifically mentioned, which is essential for the proper operation and functioning of the elevators. The full maintenance service includes the furnishing of all material, labor, supervision, diagnostic tools, laptops, tools, supplies, weights, and other expenses necessary to provide full maintenance service, and repairs of every description, including inspections, tests, adjustments, and replacement parts. Full maintenance service includes all maintenance tasks as described herein, including emergency call back service on an as-needed basis. All maintenance, adjustments, tests, and repairs shall be in compliance with the latest adopted editions of ASME A17.1 Safety Code for Elevators and Escalators, A17.2 Inspector's Guide for Elevators and Escalators. The terms and requirements of this contract are specified in the singular with the understanding that all provisions shall be applicable to all units unless otherwise specified. The safety practice and procedures in the "Elevator Industry Field Employees Safety Handbook" shall also be followed when performing maintenance and repairs.

- B. All work shall be performed during the regular working hours of the regular working days of the elevator trade, 7:00am to 6:00pm, Monday through Friday, except the following union designated holidays: New Year's Day, Memorial Day, Independence Day, Labor Day, Veterans Day, Thanksgiving Day, the Friday after Thanksgiving Day, and Christmas Day.
- C. The maintenance tasks associated with the full maintenance service are provided herein. All systems, components, and equipment covered under this Contract shall be maintained at the highest level of efficiency and at an acceptable level throughout the Contract period. An acceptable level of maintenance is defined as that level of maintenance that will preserve the equipment in unimpaired operating condition (i.e., above the point where deterioration will begin, thereby diminishing the normal life expectancy of the equipment).
- D. The only circumstance where the CONTRACTOR shall not be obligated under this agreement to repair damage at no additional cost is where such damage was caused by vandalism, fire, acts of God, negligence by the OGS (OWNER), or other unusual circumstances (except that which is caused by the CONTRACTOR). For repair or replacement of materials that are not covered under the terms of this contract the CONTRACTOR shall present an itemized quote "Chargeable Billing Per Contract Terms" (Exhibit B), for material and labor, to the OWNER. The OWNER will decide how to proceed with all repairs. OWNER'S review and approval is required for all out-of-contract work. The OWNER reserves the right to require that the CONTRACTOR submit a completed T&M proposal within 48 hours upon request.
- E. The CONTRACTOR shall provide 24-hour-a-day, 7 days-a-week, callback service, as part of the monthly maintenance fee and at no added cost to the OWNER. In the event of callback service, a journeyman elevator mechanic will report to the site of the call, when requested by the OWNER, in accordance with the following schedule:
  - 1. Within one (1) hour after the receipt of request for service for any stalled elevator(s) containing a trapped passenger.
  - 2. Within two (2) hours after the receipt of request for service for any non-entrapment calls. The OWNER reserves the right to schedule the callback service for the next regular working day.
- F. CONTRACTOR shall provide a written Maintenance Control Program (MCP) that meets or exceeds any and all requirements of the latest adopted edition of A17.1 Code, Section 8.6. The MCP shall include, but not be limited to, records of inspection, maintenance, lubrication, repair, replacements, testing and callback services. These records shall be available to the OWNER and elevator personnel at all times. Maintenance tasks and intervals are outlined herein.
- G. All preventive maintenance tasks identified herein shall be completed within the specified frequency as defined in the schedule matrix.
- H. Should it be identified that the quality of the maintenance services being performed is not satisfactory and that the requirements of this Agreement are not being met, the CONTRACTOR will be notified of these deficiencies in writing,

and it shall be the CONTRACTOR'S responsibility to make the necessary corrections within ten (10) working days after receipt of such notice.

- I. All parts, materials, components and equipment provided by the CONTRACTOR shall be new and of the same brand name and manufacturer as the item being replaced or with an OWNER pre-approved equal. These parts, materials, components and equipment shall be fully warranted [material] by the CONTRACTOR to be free of defects (manufacturing and workmanship) for one year from date of installation.
- J. The OWNER will have a maintenance audit performed on the elevators annually. All deficiencies noted during the maintenance audit, that are the responsibility of the CONTRACTOR under the Full Maintenance Agreement, shall be corrected within thirty (30) working days of being notified by the OWNER. Within three (3) working days of said notification, CONTRACTOR shall provide the OWNER a schedule which includes, but is not limited to: outlining the required scope of work and start and completion dates for the work. If the deficiencies are not corrected after thirty (30) working days, the OWNER reserves the right to solicit offers from, and have deficiencies corrected by, other sources. The cost of the deficiency corrections shall be deducted from the money owed to the CONTRACTOR as part of the maintenance agreement.
  - 1. Deficiencies involving riding public safety shall be corrected immediately upon notification by the OWNER.
- K. The CONTRACTOR shall be responsible for maintaining the lighting fixtures installed in car, hoistway, pit, car top, and car emergency lighting. This will include all lighting fixture bulbs, lamps, and tubes. The CONTRACTOR shall be responsible for maintaining the car telephone and associated traveling cable telephone wires. The following items of work are specifically not included as work that the CONTRACTOR is responsible to perform:
  - 1. Refinishing of the elevator car interior walls, elevator car interior ceiling, car door panels, and elevator car floor covering
  - 2. Elevator equipment room lighting ballasts and light fixtures (except bulb replacement)
  - 3. Hoistway enclosure walls, hoistway door panels and frames and hoistway sills.
  - 4. Telephone lines from the interface with the elevator
  - 5. Main line power and cab lighting disconnect switches or circuit breakers
  - 6. Emergency power plants and associated transfer switches
  - 7. Replacement of broken cab handrails.
  - 8. Machine room cooling and heating equipment
  - 9. Replacement of sump pump
  - 10. Replacement of smoke/heat detectors and fire alarm system
- L. If an elevator is continuously out-of-service for more than seventy-two (72) hours, then the OWNER reserves the right to deduct 10% from the total amount of the next monthly maintenance invoice. If the downtime exceeds thirty (30) continuous days, then the
  - 1. OWNER reserves the right to deduct the entire monthly maintenance fee for the elevator or 20% from the total amount of the next monthly maintenance invoice, whichever is greater. The length of time that an



elevator is out-of-service shall be measured by the OWNER; beginning at such time the OWNER notifies the CONTRACTOR that the elevator is out-of-service or that an unsafe condition exists and ending at such time the elevator is safely placed back into service. The OWNER may interrupt the total “downtime” duration.

- M. All elevators shall be appropriately inspected every six (6) months, annually, and every five (5) years by a certified elevator inspection service contracted by the OWNER. The CONTRACTOR shall provide any needed equipment to perform the pretest examinations and tests at no additional cost to the OWNER. The CONTRACTOR shall provide all necessary weights and testing equipment, an adequate quantity of qualified journeyman elevator mechanics familiar with the equipment to perform tests and assist the inspector at no additional cost to the OWNER. The CONTRACTOR shall periodically examine and test all safety devices, governors, oil buffers, etc. The CONTRACTOR shall make formal safety tests and inspections as required and outlined in the current adopted edition of ASME A17.1. These tests shall be conducted in the presence of a certified QEI Elevator Inspector. Tests performed on 1 and 5-year intervals will be scheduled to comply with the 1 and 5-year intervals specified in the current adopted edition of ASME A17.1 Appendix N. The CONTRACTOR shall furnish test and condition reports to the OWNER after each test. After tests have been performed, all load weighing devices, etc. shall be checked and adjusted as required to meet manufacturer’s recommendations. Cars shall not be placed in service until all tests, checks and adjustments are completed, and the elevators are in proper working condition. The CONTRACTOR will not be held responsible for any damage to the building and equipment (excluding elevator and related elevator equipment) caused by these tests, unless such damage is a result of negligence by the CONTRACTOR. Failure to follow correct procedures to prevent damages and failure to perform a pretest examination shall be considered negligence by the CONTRACTOR. If, during the inspection/testing of a particular elevator, such elevator fails; CONTRACTOR shall continue the inspection/testing procedure with other elevators so as not to delay the overall inspection/testing process. CONTRACTOR shall provide a separate crew to repair deficiencies.
1. In addition, the CONTRACTOR is responsible for completion of the Monthly Testing of Fireman’s Service as required in the current adopted edition of ASME A17.1.

- N. Sixty (60) days prior to the expiration of the agreement, the CONTRACTOR and OWNER will make a complete examination of the elevators covered under the agreement. The CONTRACTOR shall coordinate and schedule the examination with the OWNER. The OWNER shall determine if such an examination is warranted. The OWNER, at its expense, reserves the right to contact an independent Elevator Inspector if such an examination is warranted. The OWNER, with the assistance of the independent Elevator Inspector, will prepare a Deficiency Report listing all deficiencies noted during the examination. The CONTRACTOR shall correct all deficiencies as required by this contract, prior to the expiration of the agreement or risk being deemed a Non-Responsible vendor for any future contracts.

- O. The CONTRACTOR shall be completely responsible for their work, including any damages or breakdowns caused by their failure to take appropriate action.
- P. The CONTRACTOR shall not make changes or alterations to the existing mechanical equipment, circuits, circuit wiring, or sequencing, and may not alter the original circuit or wiring design of the elevators unless authorized in writing by the OWNER. The CONTRACTOR shall submit any such proposed change to the OWNER for approval and shall include complete legible drawings and wiring diagrams, as well as a complete description of the proposed change. Prior to submitting the proposed change, the CONTRACTOR shall, at its own expense, obtain comments from the original equipment manufacturer concerning the overall effect of such changes on the system. If changes are made, the CONTRACTOR shall provide the OWNER with three (3) copies of as-built drawings of the modifications including a complete description of the changes.
- Q. The CONTRACTOR shall maintain a complete set of current, legible schematic wiring diagrams in the elevator machine room. At the end of the contract term, all schematic diagrams shall be left in the machine room..
- R. The Contractor shall maintain all elevator equipment in the machine room, hoistways, and pits in a clean orderly condition, free of dirt, rust, dust and debris.
- S. The Contractor shall not be responsible for upgrading equipment to meet changes in Code requirements as may be recommended or directed by insurance companies, Federal, State, Municipal, or other Governmental authorities. The Contractor shall notify the OWNER of any Code changes that affect the site specific equipment and/or conditions.

### **1.03 GENERAL REQUIREMENTS FOR ALL SERVICE VISITS**

- A. Perform all work in a safe, organized manner.
- B. Repairs and maintenance are to be performed with equipment properly tagged and locked out. The equipment is to be disabled, and all switch or switchgear surveyed and positioned to prevent shock hazards and the release of stored energy. Ensure that site personnel are aware of equipment status and potential hazard.
- C. CONTRACTOR'S servicing technicians will be required to sign in and out in accordance with OWNER established procedure.
- D. All work under this contract shall be performed by skilled, competent elevator mechanics directly employed and/or supervised by the CONTRACTOR. Elevator mechanic helpers and/or elevator mechanic apprentices may be used, provided they are under the direct supervision of a journeyman elevator mechanic on site at all times. Direct supervision means working under constant guidance or simultaneously with an elevator mechanic. All elevator mechanics shall have a minimum of three (3) years of experience maintaining elevators. Technicians shall have training and experience with facility-specific elevator controls. Sufficient personnel shall be assigned to complete maintenance in a timely manner. The mechanic will perform tests, checks, inspections, calibrations,

adjustments, component replacements, repairs, and diagnostic assessment of the systems. The CONTRACTOR shall provide documentation to the OWNER of the competency of the personnel assigned to provide this service. OWNER reserves the right to review the CONTRACTOR'S technician qualifications and approve or reject all service providers based on their training and experience. OWNER reserves the right to conduct a security background check or otherwise approve any employee, Subcontractor or agent furnished by CONTRACTOR and to refuse access to or require replacement of any personnel for cause based on, including but not limited to, professional, technical or training qualifications, quality of work or change in security status or non-compliance with the OWNER'S security or other requirements. Such approval shall not relieve the CONTRACTOR of the obligation to perform all work in compliance with the Contract terms.

- E. Report to the OWNER any situations or observations, which could adversely affect the safety of OWNER'S staff, riding public or the operation of the elevators.
- F. As documented in the Maintenance Control Program submit a completed Preventive Maintenance Checklist (all items initialed, including all recommendations) "in layman's terms" for each piece of equipment serviced at the end of each visit to the OWNER or his assigned designee, for review prior to leaving the site. Should both the OWNER and designee be unavailable, the CONTRACTOR shall submit the Preventive Maintenance Checklists via fax/e-mail to the OWNER or his assigned designee within 24 hours of leaving the site.
  - 1. The mechanic must initial the Preventive Maintenance Checklist when each maintenance task is successfully completed. If a specific task is not applicable to a specific piece of equipment, note, "N/A" on the Checklist along with a written notation explaining the reason for the "N/A" entry. OWNER assumes that all tasks not initialed, were not performed. The CONTRACTOR is required to provide written documentation describing why any task was not successfully performed. Successful completion/written documentation justifying non-performance for all tasks is required before invoices will be paid.
- G. CONTRACTOR shall submit to the OWNER monthly reports listing all inspections, repairs, testing and callbacks, no later than five (5) business days after the end of each calendar month. OWNER reserves the right to change the format as needed. No contract payment will be approved without completion of this requirement. As part of the monthly report, the CONTRACTOR shall submit a line graph that shows the trend in callbacks and juxtaposes it against industry standards.
- H. Repair any and all damage caused by CONTRACTOR to the building or property, to the satisfaction of the OWNER.
- I. Upon request of the OWNER, CONTRACTOR shall be available to review issues such as recent work performed, quality of work, performance, and outstanding deficiencies. The CONTRACTOR will not receive additional compensation to attend these meetings.

- J. The proper off-site disposal of all waste oil, empty containers and other waste material shall be the responsibility of the CONTRACTOR. CONTRACTOR is to provide to the OWNER all Federal, State and Local documentation required (waste manifests, bills of lading, etc.) for disposal of any hazardous and/or regulated waste.
- K. Only one (1) elevator per bank shall be taken out of service at any one (1) time for regular maintenance, lubrication and servicing. The time of day that each elevator can be shut down for routine maintenance shall be scheduled with the OWNER to minimize the disruption caused by the elevator down-time. The CONTRACTOR shall inform the OWNER the reason(s) the elevator will be out of service and what time the elevator is expected to be put back in service for proper and safe operation. When an elevator is taken out of service for maintenance, a sign shall be placed at each opening stating, "This elevator is out of service, please use another elevator."
- L. The CONTRACTOR shall maintain on-site spare parts in order to minimize downtime for spare parts procurement. CONTRACTOR shall provide a metal storage cabinet in each machine room to store spare parts.
  - 1. At a minimum, the CONTRACTOR shall maintain, for each elevator, the following replacement parts:
    - a. Five (5) fuses of each size, type and current rating
    - b. Adequate supply of replacement LED lamps
    - c. Four (4) each type car and hoistway door hanger rollers
    - d. One (1) each type hoistway door interlock assembly, complete
    - e. One (1) infrared door detector, receiver and transmitter along with associated cables
    - f. One (1) set of rollers for car and counterweight roller guide assemblies
    - g. One (1) plug-in relay for each type used
    - h. Door operator drive belts (matched set)
  - 2. The CONTRACTOR shall have and maintain on hand locally, a supply of spare parts sufficient for the full maintenance and expedient emergency repair of the elevators.
  - 3. The CONTRACTOR shall not remove operating components from an active elevator, for the installation in a non-functioning elevator for the purpose of troubleshooting, unless pre-approved by the OWNER.

## **PART 2 - MAINTENANCE REQUIREMENTS**

### **2.01 FULL SERVICE MAINTENANCE**

- A. The contractor shall bi-weekly examine, adjust, lubricate, clean, and when conditions warrant, repair or replace the following items and components thereof  
  
and all other mechanical or electrical equipment, including, but not limited to the following:
  - 1. Entire machine, including housing, permanent magnet AC motor, sheave shaft and bearings, solid state VVVF drive, deflector sheave, sheave

- shaft and bearings, machine brake and brake assembly, emergency brake/rope brake and component parts.
  - 2. Controller: All components including all relays, printed circuit boards, solid state starter, solid state components, resistors, condensers, transformers, leads, electrical timing devices, computer devices.
  - 3. Car Positioning System: Encoder, tape, reader, and ancillary equipment.
  - 4. Hoistway door interlocks, hoistway door hangers, hanger rollers, up-thrust rollers, tracks, bottom door gibs, and closers.
  - 5. Hoistway limit switches, slowdown switches, leveling switches and associated cams and vanes.
  - 6. Car and counterweight roller guide assemblies complete.
  - 7. Door operators including motors, operator linkage, door infrared protective devices, car door hangers, hanger rollers, tracks, car door contact, and clutch.
  - 8. Traveling cables, and elevator control wiring in hoistway and machine room.
  - 9. Governor including governor sheave and shaft assembly bearings, contact jaw, over-speed switch, and governor tension assemblies.
  - 10. Car safety mechanism and load weighing equipment.
  - 11. Hoist cables, belts, compensation cables, governor cables. Including adjustment and shortening of same as required by code.
  - 12. Car and counterweight buffers.
  - 13. Fixture contacts, push buttons, key switches and locks, lamps and sockets of button stations (car and hall), hall lanterns, position indicators (car and hall), direction indicators, solid state components and LEDs.
- B. CONTRACTOR shall keep the guide rails free of rust. Renew guide shoe rollers as required to insure smooth and satisfactory operation. Contractor shall also examine and make necessary adjustment or repair to the following accessory equipment including re-lamping of signal equipment: hall stations, car stations, and direction indicators.
- C. CONTRACTOR shall be responsible for keeping the exterior of the elevator machinery and any other parts of the equipment subject to rust painted with heat resistant enamel and presentable at all times. The machine windings shall be treated as needed, with proper insulating compound as recommended by the machine manufacturer.
- 1. Cleaning and refinishing interior of cars and exterior of hoistway doors and frames is excluded from this contract.
- D. Monthly Firefighters' Recall Service: The following current adopted edition of the A17.1 Code test shall be performed monthly:
- 1. Phase 1- EMERGENCY RECALL OPERATION: Initiate by inserting Firefighters' key in Fire Recall switch at the designated level. Turn key to "ON" position. Wait for the four elevators to return to the designated level and their doors to fully open. If test is for Phase I only, turn key to "RESET" and then to "OFF" position and remove.
  - 2. Phase 2 - EMERGENCY IN CAR OPERATION: Remove key from designated level Fire Recall switch while still in the "ON" position. In the elevator place Fire Operation key switch to "ON" position. Register at least one floor car. Doors should remain open. Press "Door Close"

button and hold until doors are fully closed. When car stops at next floor doors shall remain closed. Press "Door Open" button and hold until doors are fully open. Place key switch to "HOLD" position. Try registering a car call. Car shall not respond. Return key to "OFF" position. Elevator will proceed to the designated level. Remove key, repeat for next elevator.

3. CLEAR: To clear fireman's recall test, insert key into designated level key switch. Turn to "RESET" and then to "OFF" position and remove key.
4. Correct any deficiencies found. Record findings in Monthly Firefighters' Emergency Operation Test Log. Log shall be available to elevator personnel and to the AHJ.

## **2.02 ITEMS OF PREVENTATIVE MAINTENANCE WORK**

- A. The preventive maintenance specified herein is considered the minimum for all equipment. If specific equipment covered by this Contract requires additional preventive maintenance for safe, reliable operation, as specified by the manufacturer, the CONTRACTOR shall perform the required additional preventive maintenance without added cost to the OWNER.
- B. Bi-Weekly
  1. Perform general inspection of machine, sheaves, and brake. Lubricate as required.
  2. Inspect interior of cab. Test telephone or intercommunication system, normal and emergency lights, fan, and emergency alarm. Make needed repairs.
  3. Visually inspect controller. Verify cooling fan operation. Repair as necessary.
  4. Ride car and observe operation of doors, leveling, reopening devices, pushbuttons, lights, etc.
  5. Replace all burned out lamps in elevator cars, machine room, and pit.
  6. Replace any defective LED indicators in car operating panel and hall fixtures.
  7. Remove litter, dust, oil, etc. from the machine room.
  8. Clean car sills.
  9. Clean hoistway sills.
- C. Monthly
  1. Perform Bi-weekly Checks.
  2. Check door operation and adjust as necessary.
  3. Clean trash from pit.
  4. Observe operation of signal and dispatching system.
  5. Observe brake operation and adjust or repair if required.
  6. Check oil level in car and counterweight oil buffers and add oil as required.
- D. Quarterly
  1. Perform Monthly Checks.
  2. Check tension sheave fastenings and adjust as necessary.

E. Semi-Annually

1. Perform Quarterly Checks.
2. Check Controller. Clean with blower. Check all resistance tubes and grids. Check operation of overloads. Clean and inspect fuses and holders and all controller connections. Check terminal connections for tightness.
3. In hoistway examine guide rails, cams and fastenings. Inspect and test limit and terminal switches.
4. Clean all dirt, dust, and debris from sheaves, bottom of platform, car tops, counterweights and hoistway walls.
5. Inspect sheaves to ensure they are tight on shafts. Sound spokes and rim with hammer for cracks.
6. Examine all hoist ropes for wear, lubrication, and tension. Replace, lubricate and adjust as required to meet code requirements.
7. Check hoistway tape hitches and broken tape switch.
8. Check car stile channels for bends or cracks; also car frame, cams, supports and car steadying plates.
9. Clean all parts of safeties and lubricate moving parts to assure their proper operation. Check and adjust clearance between safety jaws and guide rails. Visually inspect all safety parts.
10. Inspect machine, machine brake pads and disc, and drive sheave. Check for bearing wear. Inspect brake surface of emergency brake and clean deposits of brake pad powder. Ensure that faces of brake pads are parallel to hoist ropes.

F. Annually

1. Perform Semi-Annual Checks.
2. Thoroughly clean car and counterweight guide rails using a nonflammable or high flash point solvent to remove lint and dust. Vacuum down elevator hoistway.
3. Remove, clean and lubricate brake cores on machine brakes, clean brake pads. if necessary and inspect for wear. Adjust brake for proper operation.
4. Four car group supervisory control system operations shall be checked. The systems, dispatching scheduling and emergency servicing shall be tested and adjusted in accordance with manufacturer's literature. The CONTRACTOR shall prove to the satisfaction of the OWNER that the system functions properly. Checking out of the group supervisory system shall be performed during other than normal working hours with no inconvenience to the building occupants.
5. Additionally, car speeds shall be checked, and adjusted, to maintain contract speed. A report covering time intervals, dispatch times on various programs, door standing time and door opening and closing speeds, and car speeds shall be furnished to the OWNER. CONTRACTOR shall be responsible to correct any and all deviations from specified operations.
6. Follow machine manufacturer's recommendation regarding type of grease to be used for the machine bearings. (If applicable).

## **PART 3 - EXHIBITS**

### **3.01 GENERAL**

- A. The exhibits below shall be considered part of this elevator maintenance agreement.
  - 1. EXHIBIT A - EQUIPMENT TO BE MAINTAINED.
  - 2. EXHIBIT B - CHARGEABLE BILLING PER CONTRACT TERMS.



**EXHIBIT A  
EQUIPMENT TO BE MAINTAINED**

Building	Elevator(s)	Description	Elevator Type	Capacity	Speed	No. of Floors	Controller
Shirley Chisholm State Office Building, 55 Hanson Place, Brooklyn, NY 11217	#1, #2, #3, #4, #5, #6	Passenger	Gearless PMAC	3000	350	PE1: (14) at B, 1, and 2 to 13  PE2 to PE6: (13) at 1 and 2 to 13	Group Supervisory Operation
Shirley Chisholm State Office Building, 55 Hanson Place, Brooklyn, NY 11217	#7	Freight	Gearless PMAC	4000	150	(16) at B, 1, 2, M, 3 to 13 and R	Simplex Collective

**EXHIBIT B  
CHARGEABLE BILLING PER CONTRACT TERMS**

Contractor: \_\_\_\_\_ Building: \_\_\_\_\_  
 Contract No.: \_\_\_\_\_ Elevator No: \_\_\_\_\_  
 Proposal No.: \_\_\_\_\_ Date of Service: \_\_\_\_\_  
 Invoice No.: \_\_\_\_\_ Day of Service: \_\_\_\_\_

Description of Work: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Explanation why work is not covered under contract: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

**LABOR COST**

Worker Description	Time Arrived	Time Job Completed	Hours	Cost
Mechanic				
Helper				
OT Mechanic				
OT Helper				

**MATERIALS COST**

Item	Quantity	Cost Per Unit	% Mark-Up	Total Cost

**END OF SECTION**

## **SECTION 230725**

### **AIR CONDITIONERS – DUCTLESS SPLIT SYSTEM**

#### **PART 1 GENERAL**

##### **1.01 RELATED WORK SPECIFIED ELSEWHERE**

- A. Cleaning and Testing: Section 230593.

##### **1.02 SUBMITTALS**

- A. Product Data: Manufacturer's catalog sheets, brochures, performance charts, test data, standard schematic drawings, specifications and installation instructions for each type unit.
- B. Contract Closeout Submittals:
  - 1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative.

##### **1.03 REFERENCES**

- A. ARI 270 – Sound Rating of Outdoor Unitary Equipment.
- B. ARI 365 – Commercial and Industrial Unitary Air-Conditioning Condensing Units.
- C. ASHRAE 14 – Methods of Testing for Rating Positive Displacement Condensing Units.
- D. ASHRAE 15 – Safety Code for Mechanical Refrigeration.
- E. ASHRAE 90A – Energy Conservation in new Building Design.
- F. NEMA 250 – Enclosures for Electrical Equipment (1000 Volts Maximum).
- G. NEMA MG 1 – Motors and Generators.
- H. UL 207 – Refrigerant-Containing Components and Accessories, Non-Electrical.
- I. UL 303 – Refrigeration and Air-Conditioning Condensing, and Air-Source Heat Pump Equipment.

##### **1.04 QUALITY ASSURANCE**

- A. Regulatory Requirements:
  - 1. Units shall be factory tested and the design, construction and installation shall be in accordance with the following: ASHRAE, ARI, UL and NFPA and all State and Local codes or regulations having jurisdiction.
  - 2. Rate cooling capacities in accordance with the ARI.

3. Electrical components shall be UL listed and factory wiring shall conform to the UL Specifications.

## **PART 2 PRODUCTS**

### **2.01 REFRIGERANT COMPONENTS**

- A. The equipment specified in this section shall operate with refrigerant R410A.
- B. All units and refrigerant pipes shall be charged with dehydrated air prior to shipment from the factory.
- C. All refrigerant lines shall be insulated from the outdoor unit to the indoor units served.
- D. The system shall be capable of operating with refrigerant piping up to 377 feet with 98 feet maximum vertical difference, without any oil traps or additional equipment.

### **2.02 OUTDOOR CONDENSING UNIT**

- A. General: The outdoor unit is designed specifically for use with the manufacturer's indoor units.
  1. Refrigerant: R410A.
  2. The outdoor unit shall be factory assembled and pre-wired with all necessary electronic and refrigerant controls.
  3. Both liquid and suction lines shall be individually insulated between the outdoor and indoor units.
  4. The outdoor unit shall be wired and piped with outdoor unit access from left, right, rear or bottom.
  5. The sound pressure dB(A) at rated conditions shall be a value of 56 decibels at 3 feet from the front of the single condensing unit.
  6. The system shall automatically restart operation after a power failure and shall not cause any settings to be lost, thus eliminating the need for re-programming.
  7. The outdoor unit shall be modular in design and should allow for side-by-side installation with minimal spacing.
  8. The following safety devices shall be included on the condensing unit: high pressure switch, control circuit fuses, crankcase heaters, fusible plug, high pressure switch, overload relay, inverter overload protector, thermal protectors for compressor and fan motors, over current protection for the inverter and anti-recycling timers.
- B. Unit Cabinet: The outdoor unit model shall be completely weather proof and corrosion resistant. The outdoor unit will be constructed from steel plate and treated with acrylic paint silky.
- C. Fan:

1. The condensing unit shall consist of propeller type, direct-drive fan motors that have multiple speed operation via a DC inverter.
  2. The fans shall be a vertical or horizontal discharge configuration.
  3. The fan motors shall have inherent protection and permanently lubricated bearings and be mounted.
  4. The fan motors shall be provided with a fan guard to prevent contact with moving parts.
- D. Condenser Coil: The condenser coil shall be manufactured from copper tubes expanded into aluminum fins to form a mechanical bond.
- E. Compressor:
1. The rotary compressor shall be variable speed control capable of changing the speed to follow the variations in total cooling load as determined by the suction gas pressure as measured in the condensing unit.
  2. The inverter driven compressor in each condensing unit shall be of highly efficiency DC, hermetically sealed, rotary type compressor.
  3. The capacity control range shall be a minimum of 20% to 100% of total capacity.
  4. Each compressor shall be equipped with a crankcase heater, high pressure safety switch, and internal thermal overload protector.
  5. Oil separators shall be standard with the equipment together with an oil balancing circuit.
  6. The compressor shall be mounted to avoid the transmission of vibration.
- K. Electrical:
1. The power supply to the outdoor unit shall be 208/230 volts, 1 phase, 60 hertz with a voltage range of 187 volts to 253 volts.
  2. The system controls shall communicate over power wiring from outdoor to indoor units, thus simplifying the wiring operation.

### **2.03 INDOOR AIR HANDLING UNITS**

- A. High-wall Fan Coil Unit: To be factory matched with the condensing unit and listed in the ARI directory as a matched system.
1. General: Indoor, direct-expansion, wall-mounted fan coil. Unit shall be complete with cooling coil, fan, fan motor, piping connectors, electrical controls, microprocessor control system, and integral temperature sensing. Unit shall be furnished with integral wall-mounting bracket and mounting hardware.
  2. Refrigerant Lines: Flare connections and a 90-degree suction elbow shall be provided for rear connection.
- B. Controls:
1. The unit shall have controls provided with the unit by the manufacturer to perform input functions necessary to operate the system.
  2. Computerized PID control shall be used to maintain room temperature within 1 F of setpoint.

3. The unit shall be equipped with a programmed drying mechanism that dehumidifies while inhibiting changes in room temperature.
- C. Controllers:
1. Physical Characteristics: The control system shall be a neutral color plastic material with a Liquid Crystal Display (LCD).
  2. Electrical Characteristics:
    - a. General: From each circuit board to the controls, the electrical voltage shall be 16 volts DC.
    - b. Wiring: Controller shall be wireless and capable of managing setpoints of multiple units.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Unless otherwise shown or specified, install the Work of this Section in accordance with the manufacturer's printed installation instructions.
1. Install all piping, fittings, and insulation to meet manufacturer's requirements. Install units level and plumb. Evaporator-fan components shall be installed using manufacturer's standard mounting devices securely fastened to building structure. Install and connect refrigerant tubing and fittings.
- B. Start up: Engage manufacturer or factory-authorized service representative to perform startup supervision. Manufacturer shall provide on-site startup and commissioning assistance through job completion. Complete installation and startup checks according to manufacturer's written instructions.
- C. Demonstration: Engage manufacturer or factory-authorized service representative to train owner's maintenance personnel to adjust, operate and maintain individual units and complete system.

**END OF SECTION**

## SECTION 260519

### WIRING, GENERAL - 600 VOLTS AND UNDER

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions.

##### 1.02 PRODUCT DELIVERY

- A. Mark and tag insulated conductors and cables for delivery to the site. Include:
  - 1. Contractor's name.
  - 2. Project title and number.
  - 3. Date of manufacture (month & year).
  - 4. Manufacturer's name.
  - 5. Data which explains the meaning of coded identification (UL assigned electrical reference numbers, UL assigned combination of color marker threads, etc.).
  - 6. Environmental suitability information (listed or marked "sunlight resistant" where exposed to direct rays of sun; wet locations listed/marked for use in wet locations; other applications listed/marked suitable for the applications).

#### PART 2 PRODUCTS

##### 2.01 INSULATED CONDUCTORS AND CABLES

- A. Date of Manufacture: No insulated conductor more than one year old when delivered to the site will be acceptable.
- B. Acceptable Companies: General Cable Corporation., Cerro Wire & Cable Co. Inc., Prysmian Cables & Systems, or Southwire Co.
- C. Conductors: Annealed uncoated copper or annealed coated copper in conformance with the applicable standards for the type of insulation to be applied on the conductor. Conductor sizes No. 8 and larger shall be stranded.
- D. Types:
  - 1. Electric Light and Power Wiring:
    - a. General: Rated 600V, NFPA 70 Type THHN/THWN-2 or XHHW-2.
  - 2. Class 1 Wiring:
    - a. No. 18 and No. 16 AWG: Insulated copper conductors suitable

- for 600 volts, NFPA 70 types KF-2, KFF-2, PAFF, PF, PFF, PGF, PGFF, PTF, SF-2, SFF-2, TF, TFF, TFN, TFFN, ZF, or ZFF.
  - b. Larger than No. 16 AWG: Insulated copper conductors suitable for 600 volts, in compliance with NFPA 70 Article 310.
  - c. Conductor with other types and thickness of insulation may be used if listed for Class 1 circuit use.
3. Class 2 Wiring:
- a. Multiconductor Cables: NFPA 70 Article 725, Types CL2P, CL2R, CL2.
  - b. Other types of cables may be used in accordance with NFPA 70 Table 725.154(G) "Cable Substitutions", as approved.
4. Class 3 Wiring:
- a. Single Conductors No. 18 and No. 16 AWG: Same as Class 1 No. 18 and No. 16 AWG conductors except that:
    - 1) Conductors are also listed as CL3.
    - 2) Voltage rating not marked on cable except where cable has multiple listings and voltage marking is required for one or more of the listings.
  - b. Multiconductor Cables: NFPA 70 Article 725, Types CL3P, CL3R, CL3.
  - c. Other types of cables may be used in accordance with NFPA 70, Table 725.154(G) "Cable Substitutions", as approved.

## 2.02 CONNECTORS

- A. General:
- 1. Connectors specified are part of a system. Furnish connectors and components, and use specific tools and methods as recommended by connector manufacturer to form complete connector system.
  - 2. Connectors shall be UL 486 A listed, or UL 486 B listed for combination dual rated copper/aluminum connectors (marked AL7CU for 75 degrees C rated circuits and AL9CU for 90 degrees C rated circuits).
- B. Splices:
- 1. Spring Type:
    - a. Rated 105° C, 600V; Buchanan/Ideal Industries Inc.'s B-Cap, Electrical Products Div./3M's Scotchlok Type Y, R, G, B, O/B+, R/Y+, or B/G+, or Ideal Industries Inc.'s Wing Nuts or Wire Nuts.
    - b. Rated 150° C, 600V; Ideal Industries Inc.'s High Temperature Wire-Nut Model 73B, 59B.
  - 2. Indent Type with Insulating Jacket:
    - a. Rated 105° C, 600V; Buchanan/Ideal Industries Inc.'s Crimp Connectors, Ideal Industries Inc.'s Crimp Connectors, Penn-Union Corp.'s Penn-Crimps, or Thomas & Betts Corp.'s STA-KON.
  - 3. Indent Type (Uninsulated): Anderson/Hubbell's Versa-Crimp, VERSAtile, Blackburn/T&B Corp.'s Color-Coded Compression Connectors, Electrical Products Div./3M's Scotchlok 10000, 11000 Series,



- Burndy's Hydent, Penn-Union Corp.'s BCU, BBCU Series, or Thomas & Betts Corp.'s Compression Connectors.
  - 4. Connector Blocks: NIS Industries Inc.'s Polaris System, or Thomas & Betts Corp.'s Blackburn AMT Series.
  - 5. Resin Splice Kits: Electrical Products Div./3M's Scotchcast Brand Kit Nos. 82A Series, 82-B1 or 90-B1, or Scotchcast Brand Resin Pressure Splicing Method.
  - 6. Heat Shrinkable Splices: Electrical Products Div./3M's ITCSN, Raychem Corp.'s Thermofit Type WCS, or Thomas & Betts Corp.'s SHRINK-KON Insulators.
  - 7. Cold Shrink Splices: Electrical Products Div./3M's 8420 Series.
- C. Gutter Taps: Anderson/Hubbell's GP/GT with GTC Series Covers, Blackburn/T&B Corp.'s H-Tap Type CF with Type C Covers, Burndy's Polytap KPU-AC, H-Crimpit Type YH with CF-FR Series Covers, ILSCO's GTA Series with GTC Series Covers, Ideal Industries Inc.'s Power-Connect GP, GT Series with GIC covers, NSI Industries Inc.'s Polaris System, OZ/Gedney Co.'s PMX or PT with PMXC, PTC Covers, Penn-Union Corp.'s CDT Series, or Thomas & Betts Corp.'s Color-Keyed H Tap CHT with HTC Covers.
- D. Terminals: Nylon insulated pressure terminal connectors by Amp-Tyco/Electronics, Electrical Products Div./3M, Burndy, Ideal Industries Inc., Panduit Corp., Penn-Union Corp., Thomas & Betts Corp., or Wiremold Co.
- E. Lugs:
- 1. Single Cable (Compression Type Lugs): Copper, one or 2 hole style (to suit conditions), long barrel; Anderson/Hubbell's VERSAtile VHCL, Blackburn/T&B Corp.'s Color-Coded CTL, LCN, Burndy's Hylug YA, Electrical Products Div./3M Scotchlok 31036 or 31145 Series, Ideal Industries Inc.'s CCB or CCBL, NSI Industries Inc.'s L, LN Series, Penn-Union Corp.'s BBLU Series, or Thomas & Betts Corp.'s 54930BE or 54850BE Series.
  - 2. Single Cable (Mechanical Type Lugs): Copper, one or 2 hole style (to suit conditions); Blackburn/T&B Corp.'s Color-Keyed Locktite Series, Burndy's Qiklug Series, NSI Industries Inc.'s Type TL, Penn-Union Corp.'s VI-TITE Terminal Lug Series, or Thomas & Betts Corp.'s Locktite Series.
  - 3. Multiple Cable (Mechanical Type Lugs): Copper, configuration to suit conditions; Burndy's Qiklug Series, NSI Industries Inc.'s Type TL, Penn-Union Corp.'s VI-TITE Terminal Lug Series, or Thomas & Betts Corp.'s Color-Keyed Locktite Series.

## 2.03 TAPES

- A. Insulation Tapes:
- 1. Plastic Tape: Electrical Products Div./3M's Scotch Super 33+ or Scotch 88, Plymouth Rubber Co.'s Plymouth/ Bishop Premium 85CW.
  - 2. Rubber Tape: Electrical Products Div./3M's Scotch 130C, or Plymouth

Rubber Co.'s Plymouth/Bishop W963 Plysafe.

- B. Moisture Sealing Tape: Electrical Products Div./3M's Scotch 2200 or 2210, or Plymouth Rubber Co.'s Plymouth/Bishop 4000 Plyseal-V.
- C. Electrical Filler Tape: Electrical Products Div./3M's Scotchfil, or Plymouth Rubber Co.'s Plymouth/Bishop 125 Electrical Filler Tape.
- D. Color Coding Tape: Electrical Products Div./3M's Scotch 35, or Plymouth Rubber Co.'s Plymouth/Bishop Premium 37 Color Coding.

#### **2.04 WIRE-PULLING COMPOUNDS**

- A. To suit type of insulation; American Polywater Corp.'s Polywater Series, Electric Products Div./3M's WL, WLX, or WLW, Greenlee Textron Inc.'s, Cable Cream, Cable Gel, Winter Gel, Ideal Industries Inc.'s Yellow 77, Aqua-Gel II, Agua-Gel CW, or Thomas & Betts Corp.'s Series 15-230 Cable Pulling Lubricants, or Series 15-631 Wire Slick.

#### **2.05 TAGS**

- A. Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inches high.
  - 1. Phenolic: Two color laminated engraver's stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).
  - 2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled or background enameled with natural aluminum engraved characters.

#### **2.06 WIRE MANAGEMENT PRODUCTS**

- A. Cable Clamps and Clips, Cable Ties, Spiral Wraps, etc.: Catamount/T&B Corp., or Ideal Industries Inc.

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Common neutral conductors are not permitted except as described herein.

#### **3.02 CIRCUITING**

- A. Do not change, group or combine circuits other than as indicated on the drawings.

#### **3.03 COMMON NEUTRAL CONDUCTOR**

- A. A common neutral may be used for 2 or 3 branch circuits where the circuits are indicated on the drawings to be enclosed within the same raceway, provided each

branch circuit is connected to different phase busses in the panelboard.

- B. Exceptions - The following circuits shall have a separate neutral:
  - 1. Circuits containing ground fault circuit interrupter devices.
  - 2. Circuits containing solid state dimmers.
  - 3. Circuits recommended by equipment manufacturers to have separate neutrals.

### 3.04 CONDUCTOR SIZE

- A. Conductor Size:
  - 1. For Electric Light and Power Branch Circuits: Install conductors of size shown on drawings. Where size is not indicated, the minimum size allowed is No. 12 AWG.
  - 2. For Class 1 Circuits:
    - a. Power Limited: No. 18 and No. 16 AWG may be used provided they supply loads that do not exceed 6 amps (No. 18 AWG), or 8 amps (No. 16 AWG).
    - b. Non-Power Limited: No. 14 AWG or larger used to supply loads not greater than the ampacities given in NFPA 70 Section 310.15.
  - 3. For Class 2 Circuits: Any size to suit application.
  - 4. For Class 3 Circuits: Minimum No. 18 AWG.

### 3.05 COLOR CODING

- A. Color Coding for 120/208 Volt Electric Light and Power Wiring:
  - 1. Color Code:
    - a. 2 wire circuit - black, white.
    - b. 3 wire circuit - black, red, white.
    - c. 4 wire circuit - black, red, blue, white.
  - 2. White to be used only for an insulated grounded conductor (neutral). If neutral is not required use black and red, or black, red and blue for phase to phase circuits.
    - a. "White" for Sizes No. 6 AWG or Smaller:
      - 1) Continuous white outer finish, or:
      - 2) Three continuous white stripes on other than green insulation along its continuous length.
    - b. "White" for Sizes Larger Than No. 6 AWG:
      - 1) Continuous white outer finish, or:
      - 2) Three continuous white stripes on other than green insulation along its continuous length, or:
      - 3) Distinctive white markings (color coding tape) encircling the conductor, installed on the conductor at time of its installation. Install white color coding tape at terminations, and at 1' 0" intervals in gutters, pull boxes, and manholes.
  - 3. Colors (Black, Red, Blue):
    - a. For Branch Circuits: Continuous color outer finish.

- b. For Feeders:
      - 1) Continuous color outer finish, or:
      - 2) Color coding tapes encircling the conductors, installed on the conductors at time of their installation. Install color coding tapes at terminations, and at 1' 0" intervals in gutter, pull boxes, and manholes.
  - B. Existing Color Coding Scheme: Where an existing color coding scheme is in use, match the existing color coding if it is in accordance with the requirements of NFPA 70.
  - C. Color Code For Wiring Other Than Electric Light and Power: In accordance with ICEA standard S-73-532 (NEMA WC57-2004). Other coding methods may be used, as approved.

### **3.06 IDENTIFICATION**

- A. Identification Tags: Use tags to identify feeders and designated circuits. Install tags so that they are easily read without moving adjacent feeders or requiring removal of arc proofing tapes. Attach tags with non-ferrous wire or brass chain.
  - 1. Interior Feeders: Identify each feeder in pull boxes and gutters. Identify by feeder number and size.

### **3.07 WIRE MANAGEMENT**

- A. Use wire management products to bundle, route, and support wiring in junction boxes, pull boxes, wireways, gutters, channels, and other locations where wiring is accessible.

### **3.08 EQUIPMENT GROUNDING CONDUCTOR**

- A. Install equipment grounding conductor:
  - 1. Where specified in other Sections or indicated on the drawings.
  - 2. In conjunction with circuits recommended by equipment manufacturers to have equipment grounding conductor.
- B. Equipment grounding conductor is not intended as a current carrying conductor under normal operating circumstances.
- C. Color Coding For Equipment Grounding Conductor:
  - 1. Color Code: Green.
  - 2. "Green" For sizes No. 6 AWG or Smaller:
    - a. Continuous green outer finish, or:
    - b. Continuous green outer finish with one or more yellow stripes, or:
    - c. Bare copper (see exception below).
  - 3. "Green" For Sizes Larger Than No. 6:
    - a. Stripping the insulation or covering from the entire exposed length (see exception below).

- b. Marking the exposed insulation or covering with green color coding tapes.
- c. Identify at each end and at every point where the equipment grounding conductor is accessible.

### **3.09 INSULATED CONDUCTOR AND CABLE SCHEDULE - TYPES AND USE**

- A. Electric Light and Power Circuits:
  - 1. Type THHN/THWN-2 or XHHW-2. : Wiring in dry or damp locations (except where special type insulation is required).
  - 2. THHN/THWN-2, XHHW-2, or USE-2: Wiring in wet locations (except where type USE-2 insulated conductors are specifically required, or special type insulation is required).
  - 3. THHN/THWN-2: Wiring installed in existing raceway systems (except where special type insulation is required).
- B. Class 1 Circuits: Use Class 1 wiring specified in Part 2 (except where special type insulation is required).
- C. Class 2 Circuits: Use Class 2 wiring specified in Part 2 (except where special type insulation is required).
- D. Class 3 Circuits: Use Class 3 wiring specified in Part 2 (except where special type insulation is required).

### **3.11 CONNECTOR SCHEDULE - TYPES AND USE**

- A. Temperature Rating: Use connectors that have a temperature rating, equal to, or greater than the temperature rating of the conductors to which they are connected.
- B. Splices:
  - 1. Dry Locations:
    - a. For Conductors No. 8 AWG or Smaller: Use spring type pressure connectors, indent type pressure connectors with insulating jackets, or connector blocks (except where special type splices are required).
    - b. For Conductors No. 6 AWG or Larger: Use connector blocks or uninsulated indent type pressure connectors. Fill indentions in uninsulated connectors with electrical filler tape and apply insulation tape to insulation equivalent of the conductor, or insulate with heat shrinkable splices or cold shrink splices.
    - c. Gutter Taps in Panelboards: For uninsulated type gutter taps fill indentions with electrical filler tape and apply insulation tape to insulation equivalent of the conductor, or insulate with gutter tap cover.
  - 2. Damp Locations: As specified for dry locations, except apply moisture sealing tape over the entire insulated connection (moisture sealing tape not required if heat shrinkable splices or cold shrink splices are used).

3. Wet Locations: Use uninsulated indent type pressure connectors and insulate with resin splice kits, cold shrink splices or heat shrinkable splices. Exception: Splices above ground which are totally enclosed and protected in NEMA 3R, 4, 4X enclosures may be spliced as specified for damp locations.
- C. Terminations:
1. For Conductors No. 10 AWG or Smaller: Use terminals for:
    - a. Connecting wiring to equipment designed for use with terminals.
  2. For Conductors No. 8 AWG or Larger: Use compression or mechanical type lugs for:
    - a. Connecting cables to flat bus bars.
    - b. Connecting cables to equipment designed for use with lugs.
  3. For Conductor Sizes Larger Than Terminal Capacity On Equipment: Reduce the larger conductor to the maximum conductor size that terminal can accommodate (reduced section not longer than one foot). Use compression or mechanical type connectors suitable for reducing connection.

**END OF SECTION**

## SECTION 260529

### FASTENERS, ATTACHMENTS, AND SUPPORTING DEVICES

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Shop Drawings: Show support details if different from methods specified or shown on the drawings.
- B. Product Data: Catalog sheets, specifications and installation instructions.

#### PART 2 PRODUCTS

##### 2.01 ANCHORING DEVICES

- A. Sleeve Anchors: Molly/Emhart's Parasleeve Series, Phillips' Red Head AN, HN, FS Series, or Ramset's Dynabolt Series.
- B. Wedge Anchors: Hilti's Kwik Bolt Series, Molly/Emhart's Parabolt Series, Phillips' Red Head WS, or Ramset's Trubolt Series.
- C. Self-Drilling Anchors: Phillips' Red Head Series S or Ramset's Ram Drill Series.
- D. Non-Drilling Anchors: Hilti's Drop-In Anchor Series, Phillips' Red Head J Series, or Ramset's Dynaset Series.
- E. Stud Anchors: Phillips' Red Head JS Series.

##### 2.02 MISCELLANEOUS FASTENERS

- A. Except where shown otherwise on the Drawings, furnish type, size, and grade required for proper installation of the Work, selected from the following: Furnish galvanized fasteners for exterior use, or for items anchored to exterior walls, except where stainless steel is indicated.
  - 1. Standard Bolts and Nuts: ASTM A 307, Grade A, regular hexagon head.
  - 2. Lag Screws: ASME B18.2.1.
  - 3. Machine Bolts: ASME B18.5 or ASME B18.9, Type, Class, and Form as required.
  - 4. Wood Screws: Flat head, ASME B18.6.1.
  - 5. Plain Washers: Round, ASME B18.22.1.
  - 6. Lock Washers: Helical, spring type, ASME B18.21.1.
  - 7. Toggle Bolts: Spring Wing Type; Wing AISI 1010, Trunnions Nut AISI1010 or Zamac Alloy, Bolt Carbon Steel ANSI B18.6.3.

- B. Stainless Steel Fasteners: Type 302 for interior Work; Type 316 for exterior Work; Phillips head screws and bolts for exposed Work unless otherwise specified.

### **2.03 TPR (THE PEEL RIVET) FASTENERS**

- A. 1/4 inch diameter, threadless fasteners distributed by Subcon Products, 315 Fairfield Road, Fairfield, NJ 07004 (800) 634-5979.

### **2.04 POWDER DRIVEN FASTENER SYSTEMS**

- A. Olin Corp.'s Ramset Fastening Systems, or Phillips Drill Company Inc.'s Red Head Powder Actuated Systems.

### **2.05 HANGER RODS**

- A. Mild low carbon steel, unless otherwise specified; fully threaded or threaded each end, with nuts as required to position and lock rod in place. Unless galvanized or cadmium plated, provide a shop coat of red lead or zinc chromate primer paint.

### **2.06 "C" BEAM CLAMPS**

- A. With Conduit Hangers:
  - 1. For 1 Inch Conduit Maximum: B-Line Systems Inc.'s BG-8, BP-8 Series, Caddy/Erico Products Inc.'s BC-8P and BC-8PSM Series, or GB Electrical Inc.'s HIT 110-412 Series.
  - 2. For 3 Inch Conduit Maximum: Appleton Electric Co.'s BH-500 Series beam clamp with H50W/B Series hangers, Kindorf's 500 Series beam clamp with 6HO-B Series hanger, or OZ/Gedney Co.'s IS-500 Series beam clamp with H-OWB Series hanger.
  - 3. For 4 Inch Conduit Maximum: Kindorf's E-231 beam clamp and E-234 anchor clip and C-149 series lay-in hanger; Unistrut Corp.'s P2676 beam clamp and P-1659A Series anchor clip with J1205 Series lay in hanger.
- B. For Hanger Rods:
  - 1. For 1/4 Inch Hanger Rods: B-Line Systems Inc.'s BC, Caddy/Erico Products Inc.'s BC, GB Electrical Inc.'s HIT 110, Kindorf's 500, 510, or Unistrut Corp.'s P1648S, P2398S, P2675, P2676.
  - 2. For 3/8 Inch Hanger Rods: Caddy/Erico Products Inc.'s BC, Kindorf's 231-3/8, 502, or Unistrut Corp.'s P1649AS, P2401S, P2675, P2676.
  - 3. For 1/2 Inch Rods: Appleton Electric Co. BH-500 Series, Kindorf's 500 Series, 231-1/2, OZ/Gedney Co.'s IS-500 Series, or Unistrut Corp.'s P1650AS, P2403S, P2676.
  - 4. For 5/8 Inch Rods: Unistrut Corp.'s P1651AS beam clamp and P1656A Series anchor clip.
  - 5. For 3/4 Inch Rods: Unistrut Corp.'s P1653S beam clamp and P1656A Series anchor clip.

### **2.07 CHANNEL SUPPORT SYSTEM**

- A. Channel Material: 12 gage steel.



- B. Finish:
  1. Electro-galvanized or Hot dipped galvanized.
- C. Fittings: Same material and finish as channel.
- D. UL Listed Systems:
  1. B-Line Systems Inc.'s B-22 (1-5/8 x 1-5/8 inches), B-12 (1-5/8 x 2-7/16 inches), B-11 (1-5/8 x 3-1/4 inches).
  2. Grinnell Corp.'s Allied Power-Strut PS 200 (1-5/8 x 1-5/8 inches), PS 150 (1-5/8 x 2-7/16 inches), PS 100 (1-5/8 x 3-1/4 inches).
  3. Kindorf's B-900 (1-1/2 x 1-1/2 inches), B-901 (1-1/2 x 1-7/8 inches), B-902 (1-1/2 x 3 inches).
  4. Unistrut Corp.'s P-3000 (1-3/8 x 1-5/8 inches), P-5500 (1-5/8 x 2-7/16 inches), P-5000 (1-5/8 x 3-1/4 inches).
  5. Versabar Corp.'s VA-1 (1-5/8 x 1-5/8 inches), VA-3 (1-5/8 x 2-1/2 inches).

## **2.08 MISCELLANEOUS FITTINGS**

- A. Side Beam Brackets: B-Line Systems Inc.'s B102, B103, B371-2, Kindorf's B-915, or Versabar Corp.'s VF-2305, VF-2507.
- B. Pipe Straps:
  1. Two Hole Steel Conduit Straps: B-Line Systems Inc.'s B-2100 Series, Kindorf's C-144 Series, or Unistrut Corp.'s P-2558 Series.
  2. One Hole Malleable Iron Clamps: Kindorf's HS-400 Series, or OZ/Gedney Co.'s 14-G Series, 15-G Series (EMT).
- C. Deck Clamps: Caddy/Erico Products Inc.'s DH-4-T1 Series.
- D. Fixture Stud and Strap: OZ/Gedney Co.'s SL-134, or Steel City's FE-431.
- E. Supporting Fasteners (Metal Stud Construction): Metal stud supports, clips and accessories as produced by Caddy/Erico Products Inc.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Where specific fasteners are not specified or indicated for securing items to in-place construction, provide appropriate type, size, and number of fasteners for a secure, rigid installation.
- B. Install anchoring devices and other fasteners in accordance with manufacturer's printed instructions.
- C. Make attachments to structural steel wherever possible.

### **3.02 FASTENER SCHEDULE**

- A. Material:
  - 1. Use cadmium or zinc coated anchors and fasteners in dry locations.
  - 2. Use hot dipped galvanized or stainless steel anchors and fasteners in damp and wet locations.
  
- B. Types and Use: Unless otherwise specified or indicated use:
  - 1. Anchoring devices to fasten items to solid masonry and concrete when the anchor is not subjected to pull out loads, or vibration in shear loads.
  - 2. Toggle bolts to fasten items to hollow masonry and stud partitions.
  - 3. TPR fasteners to fasten items to plywood backed gypsum board ceilings.
  - 4. Metallic fasteners installed with electrically operated or powder driven tools for approved applications, except:
    - a. Do not use powder driven drive pins or expansion nails.
    - b. Do not attach powder driven or welded studs to structural steel less than 3/16 inch thick.
    - c. Do not support a load, in excess of 250 lbs. from any single welded or powder driven stud.
    - d. Do not use powder driven fasteners in precast concrete.

### 3.03 ATTACHMENT SCHEDULE

- A. General: Make attachments to structural steel or steel bar joists wherever possible. Provide intermediate structural steel members where required by support spacing. Select steel members for use as intermediate supports based on a minimum safety factor of 5.
  - 1. Make attachments to steel bar joists at panel points of joists.
  - 2. Do not drill holes in main structural steel members.
  - 3. Use "C" beam clamps for attachment to steel beams.
  
- B. Where it is not possible to make attachments to structural steel or steel bar joists, use the following methods of attachment to suit type of construction unless otherwise specified or indicated on the drawings:
  - 1. Attachment to Steel Roof Decking (No Concrete Fill):
    - a. Decking With Hanger Tabs: Use deck clamps.
    - b. Decking Without Hanger Tabs:
      - 1) Before Roofing Has Been Applied: Use 3/8 inch threaded steel rod welded to a 4 x 4 x 1/4 inch steel plate and installed through 1/2 inch hole in roof deck.
      - 2) After Roofing Has Been Applied: Use welding studs, or self-drilling/tapping fasteners. Exercise extreme care when installing fasteners to avoid damage to roofing.
  - 2. Attachment to Concrete Filled Steel Decks (Total thickness, 2-1/2 inches or more):
    - a. Before Fill Has Been Placed:
      - 1) Use thru-bolts and fish plates.
      - 2) Use welded studs. Do not support a load in excess of 250 pounds from a single welded stud.
    - b. After Fill Has Been Placed: Use welded studs. Do not support a load in excess of 250 lbs. from a single welded stud.
  - 3. Attachment to Cast-In-Place Concrete:
    - a. Fresh Concrete: Use cast-in-place concrete inserts.

- b. Existing Concrete: Use anchoring devices.

### **3.04 CONDUIT SUPPORT SCHEDULE**

- A. Provide number of supports as required by National Electrical Code. Exception: Maximum support spacing allowed is 4'-0" for conduit sizes 3 inches and larger supported from wood trusses.
- B. Use pipe straps and specified method of attachment where conduit is installed proximate to surface of wood or masonry construction.
  - 1. Use hangers secured to surface with specified method of attachment where conduit is suspended from the surface.
- C. Use "C" beam clamps and hangers where conduit is supported from steel beams.
- D. Use deck clamps and hangers where conduit is supported from steel decking having hanger tabs.
  - 1. Where conduit is supported from steel decking that does not have hanger tabs, use clamps and hangers secured to decking, utilizing specified method of attachment.
- E. Use channel support system supported from structural steel for multiple parallel conduit runs.
- F. Where conduits are installed above ceiling, do not rest conduit directly on runner bars, T-Bars, etc.
  - 1. Conduit Sizes 2-1/2 Inches and Smaller: Support conduit from ceiling supports or from construction above ceiling.
  - 2. Conduit Sizes Over 2-1/2 Inches: Support conduit from beams, joists, or trusses above ceiling.

### **3.05 LIGHTING FIXTURE SUPPORT SCHEDULE**

- A. General: Do not support fixtures from ceilings or ceiling supports unless it is specified or indicated on the drawings to do so.
  - 1. Support fixtures with hanger rods attached to beams, joists, or trusses. Hanger rod diameter, largest standard size that will fit in mounting holes of fixture.
    - a. Where approved, channel supports may span and rest upon the lower chord of trusses and be utilized for the support of lighting fixtures.
    - b. Where approved, channel supports may span and be attached to the underside of beams, joists, or trusses and be utilized for the support of lighting fixtures.
  - 2. Use 2 nuts and 2 washers on lower end of each hanger rod to hold and adjust fixture (one nut and washer above top of fixture housing, one nut and washer below top of fixture housing).
    - a. Where specified that an adequately supported outlet box is to support a fixture or be utilized as one point of support, support the box so that it may be adjusted to bring the face of the outlet box even with surface of ceiling.

- B. Number of Supports For Ceiling Mounted Lighting Fixtures: Provide at least the following number of supports. Provide additional supports when recommended by fixture manufacturer, or shown on the drawings.
1. Commercial and Industrial Fluorescent Fixtures:
    - a. Support individual fluorescent fixtures less than 2 feet wide at 2 points.
    - b. Support continuous row fluorescent fixtures less than 2 feet wide at points equal to the number of fixtures plus one. Uniformly distribute the points of support over the row of fixtures.
    - c. Support individual fluorescent fixtures 2 feet or wider at 4 corners.
    - d. Support continuous row fluorescent fixtures 2 feet or wider at points equal to twice the number of fixtures plus 2. Uniformly distribute the points of support over the row of fixtures.
    - e. An adequately supported outlet box may be utilized as one point of support for fixtures weighing less than 50 pounds.
- C. Number of Supports For Wall Mounted Lighting Fixtures: Provide at least the following number of supports. Provide additional supports when recommended by fixture manufacturer, or shown on the drawings.
1. Commercial and Industrial Fluorescent Fixtures:
    - a. Support individual fluorescent fixtures 2 feet long or less at 2 points.
    - b. Support individual fluorescent fixtures over 2 feet long at 3 points.
    - c. Support continuous row fluorescent fixtures at points equal to twice the number of fixtures. Uniformly distribute the points of support.
    - d. An adequately supported outlet box may be utilized as one point of support for fixtures weighing less than 50 pounds.

**END OF SECTION**

## SECTION 260531

### EXPOSED CONDUIT - WET LOCATIONS

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. NEMA, ANSI, and UL.

##### 1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions.

#### PART 2 PRODUCTS

##### 2.01 RACEWAYS

- A. Rigid Ferrous Metal Conduit: Steel, hot dipped galvanized on the outside and inside UL categorized as Rigid Ferrous Metal Conduit (identified on UL Listing Mark as Rigid Metal Conduit - Steel, or Rigid Steel Conduit), by Allied Tube & Conduit Corp., LTV Copperweld, or Wheatland Tube Co.
- B. Liquid-tight Flexible Metal Conduit: UL categorized as liquid-tight flexible metal conduit (identified on UL Listing Mark as Liquid-Tight Flexible Metal Conduit, also specifically marked with temperature and environment application data), by AFC Cable Systems Inc., Anamet Electrical Inc., Electri-Flex Co., or Universal Metal Hose Co.

##### 2.02 FITTINGS AND ACCESSORIES

- A. Connectors and Couplings:
  - 1. Couplings (For Rigid Metal Conduit): Standard threaded couplings as furnished by conduit manufacturer.
  - 2. Watertight Conduit Hubs: Cooper/Crouse Hinds' Myers Hubs (stainless steel), OZ/Gedney Co.'s Type CH-T (hot dipped galvanized finish).
  - 3. Liquid-tight Flexible Metal Conduit Connectors: OZ/Gedney Co.'s 4Q-TG Series (hot-dip/mechanically galvanized), or Thomas & Betts Corp.'s 3322 Series (PVC coated).
- B. Conduit Bodies (Threaded): Malleable iron or cast iron alloy bodies and covers with hot dipped galvanized or other specified corrosion resistant finish; Cooper/Crouse-Hinds' Condulets (Corro-free epoxy powder coat), Thomas & Betts Corp.'s Conduit Bodies (hot dipped galvanized), or OZ/Gedney Co.'s Conduit Bodies (hot dipped galvanized). Stainless steel cover screws, covers gasketed to suit application.

- C. Expansion Fittings: Cooper/Crouse-Hinds XJG (Corro-free epoxy powder coat), OZ Gedney Co.'s AX, EXE (end type, hot dipped galvanized), or Thomas & Betts Corp.'s XJG (hot dipped galvanized).
- D. Deflection Fittings: Ductile iron couplings with hot dipped galvanized finish, neoprene sleeve, and stainless steel bands, Appleton Electric Co.'s CF; or bronze couplings, neoprene sleeve, and stainless steel bands, OZ/Gedney Co.'s Type DX.
- E. Drains and Breathers: Stainless steel; Appleton Electric Co.'s ECBD, Cooper/Crouse-Hinds' ECD, OZ/Gedney Co.'s Type DB, or Thomas & Betts Corp.'s Type ECD.

### **PART 3 EXECUTION**

#### **3.01 RACEWAY INSTALLATION - GENERAL**

- A. Number of Raceways: Do not change number of raceways to less than the number indicated on the drawings.
  - 1. Each raceway shall enclose one circuit unless otherwise indicated on the drawings.
- B. Conduit Size: Not smaller than 1/2 inch electrical trade size. Where type THWN, THWN-2, XHHW, or XHHW-2 conductors are specified for use under Section 260519, the minimum allowable conduit size for new Work shall be based on Type THW conductors.
- C. Conduit Bends: For 1/2 and 3/4 inch conduits, bends may be made with manual benders. For all conduit sizes larger than 3/4 inch, manufactured or field fabricated offsets or bends may be used. Make field fabricated offsets or bends with an approved hydraulic bender.

#### **3.02 RACEWAY SCHEDULE - TYPES & USE**

- A. Rigid Ferrous Metal Conduit: Install in all wet locations unless otherwise specified or indicated on the drawings.
- B. Liquid-tight Flexible Metal Conduit: Install equipment grounding conductor in liquid-tight flexible metal conduit and bond at each box or equipment to which conduit is connected:
  - 1. Use 1 to 3 feet of liquid-tight flexible metal conduit (UL listed and marked for the installation's temperature and environmental conditions) for final conduit connection to:
    - a. Motors with weather-protected or totally enclosed housings.
    - b. Equipment subject to vibration.
    - c. Equipment requiring flexible connection for adjustment or alignment.

### **3.03 FITTINGS AND ACCESSORIES SCHEDULE**

- A. General:
1. Use malleable iron or cast iron alloy fittings and accessories having hot dipped/mechanically galvanized finish or other specified corrosion resistant finish in conjunction with ferrous raceways unless otherwise specified or indicated on the drawings.
  2. Use caps or plugs to seal ends of conduits until wiring is installed (to exclude foreign material).
  3. Use expansion fittings:
    - a. Where raceways cross expansion joints.
    - b. At intervals not exceeding 75 feet in straight runs (outside installations).
    - c. Between fixed equipment (outside installations).
  4. Use deflection fittings where raceways cross expansion joints that move in more than one plane.
  5. Use watertight hub on end of each conduit entering cabinets or boxes that are not constructed with integral threaded hubs.
  6. Use back spacers behind each conduit clamp to keep raceway off surface to which it is attached and arranged to allow raceway to move due to expansion and contraction (outside installations).
  7. Use drains in low points of the system to drain condensation, keeping interior of raceway system free of moisture. Also use breather at high point of the system for outside installations.
- B. For Rigid Metal Conduit: Use threaded fittings.
- C. For Liquid-tight Flexible Metal Conduit: Use liquid-tight connectors.

**END OF SECTION**





## SECTION 260532

### INTERIOR RACEWAYS, FITTINGS, AND ACCESSORIES

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. NFPA, NEMA, ANSI, and UL.

##### 1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions.

#### PART 2 PRODUCTS

##### 2.01 RACEWAYS

- A. Rigid Ferrous Metal Conduit: Steel, hot dipped galvanized on the outside and inside, UL categorized as Rigid Ferrous Metal Conduit (identified on UL Listing Mark as Rigid Metal Conduit - Steel or Rigid Steel Conduit), by Allied Tube & Conduit Corp., Republic Conduit, or Wheatland Tube Co.
- B. Intermediate Ferrous Metal Conduit: Steel, galvanized on the outside and enameled on the inside, UL categorized as Intermediate Ferrous Metal Conduit (identified on UL Listing Mark as Intermediate Metal Conduit or IMC), by Allied Tube & Conduit Corp., Republic Conduit, or Wheatland Tube Co.
- C. Flexible Metal Conduit: Galvanized steel strip shaped into interlocking convolutions, UL categorized as Flexible Metal Conduit (identified on UL Listing Mark as Flexible Steel Conduit or Flexible Steel Conduit Type RW), by AFC Cable Systems Inc., Anamet Electrical Inc., Electri-Flex Co., or International Metal Hose Co.
- D. Liquid-tight Flexible Metal Conduit: UL categorized as liquid-tight flexible metal conduit (identified on UL Listing Mark as Liquid-Tight Flexible Metal Conduit, also specifically marked with temperature and environment application data), by AFC Cable Systems Inc., Anamet Electrical Inc., Electri-Flex Co., or Universal Metal Hose Co.
- E. Wireways, Fittings and Accessories:
  - 1. NEMA 1 (Without Knockouts): Square D Co.'s Class 5100, Cooper B-Line, Hubbell/Wiegmann's HS Series or equivalent as manufactured by Pentair/Hoffman

##### 2.02 FITTINGS AND ACCESSORIES

- A. Insulated Bushings:

1. Threaded, malleable iron/zinc electroplate with 105 degrees C minimum plastic insulated throat; Appleton Electric Co.'s BU50I Series, Cooper/Crouse-Hinds' 1031 Series, OZ/Gedney Co.'s IBC-50 Series, Raco Inc.'s 1132 Series, Steel City/T & B Corp.'s BI-901 Series, or Thomas & Betts Corp.'s 1222 Series.
  2. Threaded malleable iron with 150 degrees C plastic throat; Appleton Electric Co.'s BU50I Series, Cooper/Crouse-Hinds' H1031 Series, or OZ/Gedney Co.'s IBC-50 Series.
- B. Plastic Bushings for 1/2 and 3/4 Inch Conduit:
1. 105 degrees C minimum temperature rating; Appleton Electric Co.'s BBU50, BBU75, Blackburn (T & B Corp.'s) 50 BB, 75 BB, Cooper/Crouse-Hinds' 931,932, or OZ/Gedney Co.'s IB-50, IB-75, Raco Inc.'s 1402, 1403, Steel City/T & B Corp.'s BU-501, BU-502, or Thomas & Betts Corp.'s 222, 223.
  2. 150 degrees C temperature rating; Appleton Electric Co.'s BBU50H, BBU75H, Cooper/Crouse-Hinds' H-931, H-932, or OZ/Gedney Co.'s A-50, A-75.
- C. Insulated Grounding Bushings:
1. Threaded, malleable iron/zinc electroplate with 105 degrees C minimum plastic insulated liner, and ground lug; Appleton Electric Co.'s GIB-50 Series, Cooper/Crouse-Hinds' GLL Series, OZ/Gedney Co.'s IBC-50L Series, Raco Inc.'s 1212 Series, Steel City/T & B Corp.'s BG-801 (1/2 to 2") Series, or Thomas & Betts Corp.'s 3870.
  2. Threaded malleable iron/zinc electroplate with 150 degrees C plastic insulated liner, and ground lug; Appleton Electric Co.'s GIB Series, Cooper/Crouse-Hinds' HGLL Series, or OZ/Gedney Co.'s IBC-50L Series, or Thomas & Betts Corp.'s 3870.
- D. Connectors and Couplings:
1. Locknuts: UL, steel/zinc electroplate; Appleton Electric Co.'s BL-50 Series, Cooper/Crouse-Hinds' 11 Series, OZ/Gedney Co.'s 1-50S Series, Raco Inc.'s 1002 Series, Steel City/T&B Corp.'s LN-101 Series, or Thomas & Betts Corp.'s 141 Series.
  2. Grounding Wedge: Thomas & Betts Corp.'s 3650 Series.
  3. Couplings For Rigid Metal and IMC Conduit: Standard galvanized threaded couplings as furnished by conduit manufacturer, Allied Tube & Conduit Corp.'s Kwik-Couple, or Thomas & Betts Corp.'s Shamrock.
  4. Three Piece Conduit Coupling For Rigid Metal and IMC Conduit: Steel, malleable iron, zinc electroplate; Allied Tube & Conduit Corp.'s Kwik-Couple, Appleton Electric Co.'s EC-50 Series, Cooper/Crouse-Hinds' 190M Series, OZ/Gedney Co.'s 4-50 Series, Raco Inc.'s 1502 Series, Steel City/T & B Corps EK-401 Series, or Thomas & Betts Corp.'s 675 Series.
  5. Flexible Metal Conduit Connectors: Arlington Industries Inc.'s Saddle-Grip, OZ/Gedney Co.'s C-8T, 24-34T, ACV-50T Series, or Thomas & Betts Corp.'s Nylon Insulated Tite-Bite Series.
  6. Liquid-tight Flexible Metal Conduit Connectors: Steel, malleable iron, zinc electroplate, insulated throat; Appleton Electric Co.'s STB Series,

Cooper/Crouse-Hinds' LTB Series, OZ/Gedney Co.'s 4Q-50T Series, Raco Inc.'s 3512 Series, Steel City/T & B Corp.'s LT-701 Series, or Thomas & Betts Corp.'s 5332 Series.

- E. Conduit Bodies (Threaded):
  - 1. Malleable Iron/Zinc Electroplate: Zinc electroplate malleable iron or cast iron alloy bodies with zinc electroplate steel covers; Appleton Electric Co.'s Unilets, Cooper/Crouse-Hinds' Condulets, OZ/Gedney Co.'s Conduit Bodies, or Thomas & Betts Corp.'s Conduit Bodies.
- F. Expansion Fittings:
  - 1. Malleable Iron, Zinc Electroplate Finish: Appleton Electric Co.'s XJ or OZ/Gedney Co.'s AX (TX for EMT), with external bonding jumper.
  - 2. Electrogalvanized Steel: Cooper/Crouse-Hinds' XJG (XJG-EMT for EMT), or Thomas & Betts Corp.'s XJG, with internal grounding.
- G. Deflection Fittings: Appleton Electric Co.'s DF, Cooper/Crouse-Hinds' XD, or OZ/Gedney Co.'s Type DX.
- H. Sealant for Raceways Exposed to Different Temperatures: Sealing compounds and accessories to suit installation; Appleton Electric Co.'s DUC, or Kwiko Sealing Compound with fiber filler, Cooper/Crouse-Hinds' Chico A Sealing Compound with Chico X fiber, Electrical Products Division 3M Scotch products, OZ Gedney Co.'s DUX or EYC sealing compound with EYF damming fiber, or Thomas & Betts Corp.'s Blackburn DX.
- I. Vertical Conductor Supports: Kellems/Hubbell Inc.'s Conduit Riser Grips, or OZ/Gedney Co.'s Type M, Type R.
- J. Pulling-In-Line For Installation in Spare and Empty Raceways: Polypropylene monofilament utility line; Greenlee Textron Inc.'s Poly Line 430, 431, or Ideal Industries Powr-Fish Pull-Line 31-340 Series.

## **PART 3 EXECUTION**

### **3.01 RACEWAY INSTALLATION - GENERAL**

- A. Number of Raceways: Do not change number of raceways to less than the number indicated on the drawings except when appropriate for advantageous reuse of existing exposed and concealed raceways (the contract documents do not indicate location, number, size or condition of existing raceways). Existing raceways may be reused if the following conditions are met:
  - 1. The existing raceway must be of adequate size for the new conductors to be installed as per NFPA 70 Chapter 9, Tables 1, 4, & 5; Annex C, Tables C1-C12a. More circuits may be enclosed by existing raceways than the circuiting shown on the drawings provided conductor sizes are increased to compensate for derating (adjustment factors) and other considerations required by NFPA 70 Article 310-15.
  - 2. Remove existing conductors.

3. Demonstrate to the Director's Representative that the existing raceway is clear of obstructions and in good condition.
  4. Check ground continuity. When ground continuity of existing raceway is inadequate install insulated grounding bushings, grounding wedges, bonding straps, grounding jumpers or equipment grounding conductors to establish effective path to ground.
  5. Install insulated bushings to replace damaged or missing bushings. Replace non-insulated bushings with insulated bushings on raceway sizes 1 inch and larger.
  6. Install vertical conductor supports to replace existing or missing vertical conductor supports.
  7. Install extension rings on existing boxes when the number of new conductors installed therein exceeds NFPA 70 requirements.
  8. Furnish the Director's Representative with marked up drawings showing size and routing of existing raceways with number and size of new conductors installed therein. The drawings will be forwarded to the design engineer for verification of NFPA 70 compliance.
- B. Raceways for Future Use (Spare Raceways and Empty Raceways): Draw fish tape through raceways in the presence of the Director's Representative to show that the raceway is clear of obstructions.
1. Leave a pulling-in line in each spare and empty raceway.
- C. Conduit Installed Concealed:
1. Install conduit concealed unless otherwise indicated on the drawings.
  2. Existing Construction:
    - a. Run conduit in existing chases and hung ceilings.
    - b. If conduit cannot be installed concealed due to conditions encountered in the building, report such conditions and await approval in writing before proceeding.
  3. New Construction:
    - a. Run conduit in the ceilings, walls, and partitions.
    - b. Conduit may not be installed in concrete floor slab (concrete slabs that are both ceilings and floors shall be treated as floor slabs).
- D. Conduits Penetrating Concrete Floor Slabs (Concrete slabs that are both ceilings and floors shall be treated as floor slabs):
1. Provide a minimum of 2 inches between conduits that vertically penetrate elevated concrete slabs.
  2. Provide fire stopping and spray on fireproofing at locations where conduits penetrate surface of floor slab and slab is part of fire rating required for construction.
- E. Conduit Installed Exposed:
1. Install conduit exposed where indicated on the drawings.
  2. Install conduit tight to the surface of the building construction unless otherwise indicated or directed.
  3. Install vertical runs perpendicular to the floor.
  4. Install runs on the ceiling perpendicular or parallel to the walls.

5. Install horizontal runs parallel to the floor.
  6. Do not run conduits near heating pipes.
  7. Installation of conduit directly on the floor will not be permitted.
- F. Conduit Size: Not smaller than 3/4 inch electrical trade size. Where type FEP, THHN, THWN, THWN-2, XHH, XHHW, or XHHW-2 conductors are specified for use under Section 260519, the minimum allowable conduit size for new Work shall be based on Type THW conductors.
- G. Conduit Bends: For 3/4 inch conduits, bends may be made with manual benders. For all conduit sizes larger than 3/4 inch, manufactured or field fabricated offsets or bends may be used. Make field fabricated offsets or bends with an approved hydraulic bender.

### **3.02 RACEWAY INSTALLATION - SPECIAL AREAS**

- A. Raceways Exposed to Different Temperatures: Where portions of an interior raceway system are exposed to widely different temperatures, seal interior and exterior of raceway to prevent circulation of air from a warmer to a colder section through the raceway installation.
1. Refrigerated Rooms: Install conduit body or junction box in the raceway system on warm side of refrigerated room. After conductors are installed, seal interior of the raceway at the conduit body or junction box.
  2. Heated Areas to Unheated Areas: After conductors are installed, seal interior of the raceway at the nearest conduit body, outlet or junction box in the heated area adjoining the unheated area.

### **3.03 RACEWAY SCHEDULE**

- A. Rigid Ferrous Metal Conduit: Install in all locations unless otherwise specified or indicated on the drawings.
- B. Intermediate Ferrous Metal Conduit: May be installed in all dry and damp locations except:
1. Where other type raceways are specified or indicated on the drawings.
- C. Flexible Metal Conduit: Install equipment grounding conductor in the flexible metal conduit and bond at each box or equipment to which conduit is connected:
1. Use for final conduit connection to recessed lighting fixtures in suspended ceilings. Use 4 to 6 feet of flexible metal conduit, minimum size 1/2 inch, between junction box and fixture. Locate junction box at least 1 foot from fixture and accessible if the fixture is removed.
  2. Use 1 to 3 feet of flexible metal conduit for final conduit connection to:
    - a. Emergency lighting units.
    - b. Dry type transformers.
    - c. Motors with open, drip-proof or splash-proof housings.
    - d. Equipment subject to vibration (dry locations).
    - e. Equipment requiring flexible connection for adjustment or alignment (dry locations).

- E. Liquid-tight Flexible Metal Conduit: Install equipment grounding conductor in liquid-tight flexible metal conduit and bond at each box or equipment to which conduit is connected:
  - 1. Use 1 to 3 feet of liquid-tight flexible metal conduit (UL listed and marked suitable for the installation's temperature and environmental conditions) for final conduit connection to:
    - a. Motors with weather-protected or totally enclosed housings.
    - b. Equipment subject to vibration (damp and wet locations).
    - c. Equipment requiring flexible connection for adjustment or alignment (damp and wet locations).
- I. Wireways: May be used indoors in dry locations for exposed raceway between grouped, wall mounted equipment.

### **3.04 FITTINGS AND ACCESSORIES SCHEDULE**

- A. General:
  - 1. Use fittings and accessories that have a temperature rating equal to, or higher than the temperature rating of the conductors to be installed within the raceway.
  - 2. Use zinc electroplate or hot dipped galvanized steel/malleable iron or cast iron alloy fittings and accessories in conjunction with ferrous raceways in dry and damp locations unless otherwise specified or indicated on the drawings.
  - 3. Use insulated grounding bushings or grounding wedges on ends of conduit for terminating and bonding equipment grounding conductors, when required, if cabinet or boxes are not equipped with grounding/bonding screws or lugs.
  - 4. Use caps or plugs to seal ends of conduits until wiring is installed to exclude foreign material.
  - 5. Use insulated grounding bushings on the ends of conduits that are not directly connected to the enclosure, such as stub-ups under equipment, etc., and bond between bushings and enclosure with equipment grounding conductor.
  - 6. Use expansion fittings where raceways cross expansion joints (exposed, concealed, buried, etc.).
  - 7. Use deflection fittings where raceways cross expansion joints that move in more than one plane.
  - 8. Use 2 locknuts and an insulated bushing on end of each conduit entering sheet metal cabinet or box in dry or damp locations.
    - a. Plastic bushing may be used on 3/4 inch conduit in lieu of insulated bushing.
    - b. Terminate conduit ends within cabinet/box at the same level.
- B. For Rigid and Intermediate Metal Conduit: Use threaded fittings and accessories. Use 3 piece conduit coupling where neither piece of conduit can be rotated.
- C. For Flexible Metal Conduit: Use flexible metal conduit connectors.
- D. For Liquid-tight Flexible Metal Conduit: Use liquid-tight connectors.

E. For Wireways: Use wireway manufacturer's standard fittings and accessories.

**END OF SECTION**

## SECTION 260534

### OUTLET, JUNCTION, AND PULL BOXES

#### PART 1 GENERAL

##### 1.01 REFERENCES

##### 1.02 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions.
  - 1. For fire rated construction, prove that materials and installation methods proposed for use are in accordance with the listing requirements of the classified construction.

#### PART 2 PRODUCTS

##### 2.01 GALVANIZED STEEL OUTLET BOXES

- A. Standard galvanized steel boxes and device covers by Appleton Electric Co., Beck Mfg./Picoma Industries, Cooper/Crouse-Hinds, Raco/Div. of Hubbell, or Steel City/T & B Corp.

##### 2.02 GALVANIZED STEEL JUNCTION AND PULL BOXES

- A. Code gage, galvanized steel screw cover boxes by Delta Metal Products Inc., Hoffman Enclosures Inc., Hubbell Wiegmann, Lee Products Co., or Rittal/Electromate.

##### 2.03 THREADED TYPE BOXES:

- A. Outlet Boxes:
  - 1. For Dry, Damp Locations: Zinc electroplate malleable iron or cast iron alloy boxes by Appleton Electric Co., Cooper/Crouse-Hinds Co., or OZ/Gedney Co., with zinc electroplate steel covers to suit application.
  - 2. For Wet Locations: Malleable iron or cast iron alloy boxes with hot dipped galvanized or other specified corrosion resistant finish as produced by Cooper/Crouse-Hinds (hot dipped galvanized or Corro-free epoxy powder coat), or OZ/Gedney Co. (hot dipped galvanized), with stainless steel cover screws, and malleable iron covers gasketed to suit application.
- B. Junction and Pull Boxes:
  - 1. For Dry, Damp Locations: Zinc electroplate cast iron boxes by Appleton Electric Co., Cooper/Crouse-Hinds, or OZ/Gedney Co., with zinc electroplate steel or cast iron cover.
  - 2. For Wet Locations: Cast iron boxes by Cooper/Crouse-Hinds' (hot dipped galvanized or Corro-free epoxy powder coat), or OZ/Gedney Co.



(hot dipped galvanized), with stainless steel cover screws and cast iron cover gasketed to suit application.

- C. Conduit Bodies, Threaded (Provided with a Volume Marking):
  - 1. For Dry, Damp Location: Zinc electroplate malleable iron or cast iron alloy bodies with zinc electroplate steel covers; Appleton Electric Co.'s Unilets, Cooper/Crouse-Hinds' Condulets, or OZ/Gedney Co.'s Conduit Bodies.
  - 2. For Wet Locations: Malleable iron or cast iron alloy bodies with hot dipped galvanized or other specified corrosion resistant finish; Cooper/Crouse-Hinds' Condulets (hot dipped galvanized or Corro-free epoxy power coat), or OZ/Gedney Co.'s Conduit Bodies (hot dipped galvanized) with stainless steel cover screws and malleable iron covers gasketed to suit application.

#### **2.04 CORROSION RESISTANT BOXES**

- A. Plastic Coated Outlet and Junction Boxes: Threaded type malleable iron boxes coated with 40 mils thick polyvinylchloride coating; Ocal/T&B Corp.'s Ocal-Blue System, PCD Inc.'s KorKap, KorKap XL, or Robroy Industries' Plastibond or Perma-Cote System.

#### **2.05 SPECIFIC PURPOSE OUTLET BOXES**

- A. As fabricated by manufacturers for mounting their equipment.

#### **2.06 FINISHING COLLAR OR COMBINATION FINISHING COLLAR/OUTLET BOX (SURFACE MOUNTED EQUIPMENT USED WITH EXPOSED RACEWAY):**

- A. Finishing Collar: Same finish and peripheral dimensions as the equipment base, including provisions for mounting, slots to fit over raceway and of depth to cover outlet box and extend back to ceiling or wall.
- B. Combination Finishing Collar/Outlet Box: Same finish and peripheral dimensions as the equipment base, gage or thickness of metal as required by National Electrical Code, including provisions for mounting, and knockouts or threaded bosses for entrance of raceway.

#### **2.07 OUTLET BOXES AND RELATED PRODUCTS FOR FIRE RATED CONSTRUCTION**

- A. Parameters for Use of Listed Metallic Outlet or Switch Boxes: UL Electrical Construction Equipment Directory - Metallic Outlet Boxes (QCIT).
- B. Wall Opening Protective Materials: As listed in UL Fire Resistance Directory - Wall Opening Protective Materials (CLIV), or UL Electrical Construction Equipment Directory - Wall Opening Protective Materials (QCSN).

## **PART 3 EXECUTION**

### **3.01 PREPARATION**

- A. Before proceeding with the installation of junction and pull boxes, check the locations with the Director's Representative and have same approved.

### **3.02 INSTALLATION**

- A. Mounting Position of Wall Outlets for Wiring Devices: Unless otherwise indicated, install boxes so that the long axis of each wiring device will be vertical.
- B. Height of Wall Outlets: Unless otherwise indicated, locate outlet boxes with their center lines at the following elevations above finished floor:

Lighting Fixtures	6'-0"
Lighting Fixtures in Stairway	7'-6"
Exit Lights	8'-0" where ceiling height allows a minimum of 6 inch clearance between ceiling and top of exit light. Otherwise mount exit light so that its top is 6 inches below finished ceiling. Adjust height and clearances as required to suit installation over doors.
Switches	4'-0"
Single & Duplex Receptacles	1'-6"

- C. Supplementary Junction and Pull Boxes: In addition to junction and pull boxes indicated on the drawings and required by NFPA 70, provide supplementary junction and pull boxes as follows:
1. When required to facilitate installation of wiring.
  2. At every third 90 degree turn in conjunction with raceway sizes over 1 inch.
  3. At intervals not exceeding 100 feet in conjunction with raceway sizes over 1 inch.

### **3.03 OUTLET, JUNCTION, AND PULL BOX SCHEDULE**

- A. Boxes for Concealed Conduit System:
1. Non-Fire Rated Construction:
    - a. Depth: To suit job conditions and comply with NFPA 70 Article 370.
    - b. For Lighting Fixtures: Use galvanized steel outlet boxes designed for the purpose.
      - 1) For Fixtures Weighing 50 lbs. or Less: Box marked "FOR FIXTURE SUPPORT".
      - 2) For Fixtures More Than 50 lbs.: Box listed and marked with the weight of the fixture to be supported (or support fixture independent of the box).
    - c. For Junction and Pull Boxes: Use galvanized steel boxes with flush covers.

- d. For Switches, Receptacles, etc.:
    - 1) Plaster or Cast-In-Place Concrete Walls: Use 4 inch or 4-1/16 inch galvanized steel boxes with device covers.
    - 2) Walls Other Than Plaster or Cast-In-Place Concrete: Use type of galvanized steel box which will allow wall plate to cover the opening made for the installation of the box.
  - 2. Recessed Boxes in Fire Rated (2 hour maximum) Bearing and Nonbearing Wood or Steel Stud Walls (Gypsum Wallboard Facings):
    - a. Use listed single and double gang metallic outlet and switch boxes. The surface area of individual outlet or switch boxes shall not exceed 16 square inches.
    - b. The aggregate surface area of the boxes shall not exceed 100 square inches per 100 square feet of wall surface.
    - c. Securely fasten boxes to the studs. Verify that the opening in the wallboard facing is cut so that the clearance between the box and the wallboard does not exceed 1/8 inch.
    - d. Separate boxes located on opposite sides of walls or partitions by a minimum horizontal distance of 24 inches. This minimum separation distance may be reduced when wall opening protective materials are installed according to the requirements of their classification.
    - e. Use wall opening protective material in conjunction with boxes installed on opposite sides of walls or partitions of staggered stud construction in accordance with the classification requirements for the protective material.
  - 3. Other Fire Rated Construction: Use materials and methods to comply with the listing requirements for the classified construction.
- B. Boxes For Exposed Conduit System:
- 1. Dry and Damp Locations: Use zinc electroplate or hot dipped galvanized threaded type malleable iron or cast iron alloy outlet, junction, and pull boxes or conduit bodies provided with a volume marking in conjunction with ferrous raceways unless otherwise specified or indicated on the drawings.
    - a. Galvanized steel boxes may be used in conjunction with conduit sizes over 1 inch in non-hazardous dry and damp locations.
    - b. Galvanized steel boxes may be used in conjunction with electrical metallic tubing where it is allowed (specified) to be installed exposed as branch circuit conduits at elevations over 10'-0" above finished floor.
  - 2. Wet Locations: Use threaded type malleable iron or cast iron alloy outlet junction, and pull boxes or conduit bodies (provided with a volume marking) with hot dipped galvanized or other specified corrosion resistant coating in conjunction with ferrous raceways unless otherwise specified or indicated on the drawings.
    - a. Use corrosion resistant boxes in conjunction with plastic coated rigid ferrous metal conduit.
  - 3. Finishing Collar or Combination Finishing Collar/Outlet Box (Surface Mounted Equipment Used With Exposed Raceway):

- a. Use finishing collar where surface mounted equipment is installed on an exposed raceway outlet box and the equipment base is larger than the outlet box.
  - b. Use combination finishing collar/outlet box where surface mounted equipment is not indicated to be installed on an exposed raceway outlet box, but raceway cannot be run directly into equipment body due to equipment design.
- C. **Specific Purpose Outlet Boxes:** Use to mount equipment when available and suitable for job conditions. Unless otherwise specified, use threaded type boxes with finish as specified for exposed conduit system, steel (painted) for surface metal raceway system and galvanized steel for recessed installations.

**END OF SECTION**



## SECTION 260549

### CONCRETE PADS FOR EQUIPMENT

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. Except as shown or specified otherwise, the Work of this Section shall conform to the requirements of Specifications for Structural Concrete for Buildings ACI 301-99 of the American Concrete Institute.

##### 1.02 SUBMITTALS

- A. Submittals Package: Submit product data for design mix and materials for concrete specified below at the same time as a package.
- B. Shop Drawings: Placing drawings for bar reinforcement.
- C. Product Data:
  - 1. Concrete design mix with name and location of batching plant.
  - 2. Portland Cement: Brand and manufacturer's name.
  - 3. Fly Ash: Name and location of source, and DOT test numbers.
  - 4. Air-Entraining Admixture: Brand and manufacturer's name.
  - 5. Aggregates: Name and location of source, and NYS test numbers.
  - 6. Bonding Agent (Adhesive): Brand and manufacturer's name, and preparation and application instructions.

##### 1.03 STORAGE

- A. Store materials as required to insure the preservation of their quality and fitness for the Work.

#### PART 2 PRODUCTS

##### 2.01 MATERIALS

- A. Anchor Bolts: Standard bolts, ASTM A 307, with lock washers and nuts.
- B. Steel Plates: ASTM A 36.
- C. Sleeves: Steel Pipe, Schedule 40, black, ASTM A 53.
- D. Steel Shims and Fillers: ASTM A 569.
- E. Reinforcement: Furnish the following unless otherwise indicated on the Drawings:
  - 1. Fabric Reinforcement: ASTM A 185 welded wire fabric, 6 x 6 - W2.9 x W2.9 fabricated into flat sheets unless otherwise indicated.

2. Bar Reinforcement: ASTM A 615, Grade 60, deformed.
  3. Metal Bar Supports: Galvanized or AISI Type 430 stainless steel, and without plastic tips.
  4. Tie Wire: Black annealed wire, 16 gage minimum.
- F. Fly Ash: ASTM C 618, including Table 1A (except for footnote A), Class F except that loss on ignition shall not exceed 4.0 percent.
- G. Bonding Agent (Adhesive): Epoxy-resin-base bonding system, Type II, complying with ASTM C 881. Grade and class as required by conditions of use.
- H. Cement Grout: Portland cement and clean natural sand mixed at a ratio of 1.0 part cement to 3.0 parts sand, with only the minimum amount of water required for placement and hydration.
- I. Dowels: ASTM A 36 steel bars 1/2 inch in diameter by 5 inches long, unless otherwise indicated on the Drawings.

## **2.02 PROPORTIONING OF CONCRETE MIXES**

- A. Compressive Strength: Minimum 4000 psi.
- B. Weight: Normal.
- C. Durability: Concrete shall be air-entrained. Design air content shall be 6 percent by volume, with an allowable tolerance of plus or minus 1.5 percent for total air content. Entrained air shall be provided by use of an approved air-entraining admixture. Air-entrained cement shall not be used.
- D. Slump: Between 2 inches and 4 inches.
- E. Admixtures: Do not use admixtures in concrete unless specified or approved in writing by the Director.
- F. Selection of Proportions: Concrete proportions shall be established on the basis of previous field experience or laboratory trial batches, unless otherwise approved in writing by the Director. Proportion mix with a minimum cement content of 611 pounds per cubic yard for 4000 psi concrete.
1. Optional Material: Fly ash may be substituted for (Portland) cement in normal weight concrete up to a maximum of 15 percent by weight of the required minimum (Portland) cement. If fly ash is incorporated in a concrete design mix, make necessary adjustments to the design mix to compensate for the use of fly ash as a partial replacement for (Portland) cement.
    - a. Adjustments shall include the required increase in air-entraining admixture to provide the specified air content.

## **2.03 FABRICATION OF ANCHOR BOLT ASSEMBLIES**

- A. Bolts: Diameter 1/8 inch less than the bolt holes in the equipment supports and length equal to the depth of the pad minus 1 inch plus the additional length required to provide full thread through nuts after shims, equipment, and washers are in place.
- B. Sleeves: Diameter 1/2 inch larger than the bolt diameter and length as required to extend from the head of the bolt to the top of the pad.
- C. Plates: 3 x 3 x 1/4 inch steel plate.
- D. Weld a plate to the head end of a bolt. Center the bolt in a sleeve and tack-weld the sleeve to the plate.

### **PART 3 EXECUTION**

#### **3.01 BONDING TO EXISTING CONCRETE SLABS**

- A. Prior to placing concrete, thoroughly roughen and clean existing concrete slab. Saturate existing concrete surface with clean water. Immediately prior to depositing concrete for pad, apply a coat of cement grout over the existing damp concrete or allow existing concrete to dry and apply bonding agent (adhesive) over the existing concrete in accordance with manufacturer's printed instructions.

#### **3.02 INSTALLING ANCHOR BOLTS AND SLEEVES**

- A. Install anchor bolts (with sleeves) for all bolt holes in equipment supports.
- B. Accurately position and securely support anchor bolts and sleeves prior to placing concrete. Support head of bolt 1 inch above bottom of pad. Temporarily close open end of sleeves to prevent entry of concrete.
- C. Grout anchor bolts in sleeves with cement grout or approved shrink-resistant grout after final positioning.

#### **3.03 REINFORCING**

- A. Except where other reinforcement is shown on the Drawings, install welded wire fabric at mid-depth of each pad, extending to 1 inch from perimeter of pad.

#### **3.04 FINISHES**

- A. Formed Surfaces: Provide a smooth rubbed finish, with rounded or chamfered external corners, on all concrete surfaces exposed to view.
- B. Unformed Surfaces: Provide a troweled finish on top surface of pads.

**END OF SECTION**





## SECTION 262212

### TRANSFORMERS - DRY TYPE, UNDER 600V

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. NEMA, ANSI, IEEE, and UL.

##### 1.02 SUBMITTALS

- A. Waiver of Submittals: The “Waiver of Certain Submittal Requirements” in Section 013300 does not apply to this Section.
- B. Submittals Package:
  - 1. For Transformers rated 75KVA and Below: Submit the product data, and quality control submittals specified below all at the same time as a package.
- C. Product Data: Catalog sheets, specifications and installation instructions.
- D. Quality Control Submittals:
  - 1. Transformers rated 75KVA and below: Submit certified report of the Company’s routine commercial NEMA tests for each type transformer.
- E. Contract Closeout Submittals:
  - 1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director’s Representative.
  - 2. Energy Efficiency Rebate Documentation:
    - a. Deliver 2 copies of documentation to the Director’s Representative showing the costs associated with purchase of any Energy Star labeled transformers.
      - 1) Submittal of confidential or proprietary documentation may be accommodated thru the rebate organization’s legal declarations.
    - b. The documentation will be forwarded to Facility supervisory personnel for their use in pursuing energy efficiency rebate incentive funds that may be, or may become, available during the course of this Contract thru organizations such as:
      - 1) New York State Energy Research and Development Authority (NYSERDA): New York Energy Smart program (518) 862-1090, [www.nysesda.org](http://www.nysesda.org).

##### 1.03 DELIVERY, STORAGE AND HANDLING

- A. Storage of Transformers: Provide supplemental heating devices, such as incandescent lamps or low wattage heaters within the enclosure or under a



protective covering to control dampness. Maintain this protection from the time equipment is delivered to the site until it is energized.

## **PART 2 PRODUCTS**

### **2.01 DRY TYPE TRANSFORMERS**

- A. By Acme Electric Corp. Power Products Div., Cutler-Hammer Inc., General Electric Co., Jefferson Electric Inc., Niagara Transformer Corp., Sola/Hevi-Duty Unit of General Signal, or Square D Co.:
  - 1. Two winding insulating type construction.
  - 2. Labeled for EPA Energy Star Program (based on NEMA TP1 Guide for Determining Energy Efficiency for Distribution Transformers), except where a specific type of dry type transformer is indicated on the drawings.
  - 3. Enclosures For Transformers Installed In Dry Protected Locations (unless otherwise indicated):
    - a. Ventilated enclosure for transformers rated over 10KVA.
    - b. Enclosures for transformers rated 10KVA and under may be ventilated or non-ventilated.
  - 4. Enclosure For Transformers In Damp Locations (unless otherwise indicated):
    - a. Outdoor/ventilated enclosure equipped with weathershields for transformers rated over 10KVA.
    - b. Enclosures for transformers rated 10KVA and under may be ventilated enclosure equipped with weathershields or non-ventilated.
  - 5. Primary Taps (minimum of): 3-15KVA two-5 percent FCBN, over 15 KVA four 2-1/2 percent FCBN and two 2-1/2 percent FCAN.
  - 6. Mounting accessories.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install dry type transformers where indicated on the drawings.

**END OF SECTION**

## SECTION 262416

### PANELBOARDS

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. The latest edition of: NEMA PB-1, UL-50, UL-67, ANSI C37.81.

##### 1.02 SUBMITTALS

- A. Waiver of Submittals: The “Waiver of Certain Submittal Requirements” in Section 013300 does not apply to this Section.
- B. Submittal Packages: Submit the shop drawings, and the product data specified below at the same time as a package.
- C. Shop Drawings; include the following for each panelboard:
  - 1. Cabinet and gutter size.
  - 2. Voltage and current rating.
  - 3. Panelboard short circuit rating: Fully rated equipment is required
  - 4. Circuit breaker enumeration (frame, ATE, poles, I.C.).
    - a. Indicate circuit breakers are suitable for the panelboards’ fully rated equipment rating. Series rated combinations will not be considered.
  - 5. Cable terminal sizes
  - 6. Power and Energy Meter.
  - 7. Locks.
  - 8. Accessories.
- D. Product Data:
  - 1. Catalog sheets, specifications and installation instructions.
  - 2. Bill of materials.
- E. Contract Closeout Submittals:
  - 1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director’s Representative.

#### PART 2 PRODUCTS

##### 2.01 PANELBOARDS

- A. The listing of specific manufacturers does not imply acceptance of their products that do not meet the specified ratings, features and functions. Manufacturers listed are not relieved from meeting these specifications in their entirety.



- B. As produced by Cutler-Hammer/Eaton Corp. with LT Trim (Eaton EZ Trim shall not be considered), General Electric Co., Siemens or Square D Co., having:
1. Flush or surface type cabinets as indicated on the drawings.
  2. Increased gutter space for gutter taps, sub-feed wiring, through-feed wiring, oversize lugs.
  3. UL label "SUITABLE FOR USE AS SERVICE EQUIPMENT" where used as service equipment.
  4. Door and one piece trim. Door fastened to trim with butt or piano hinges. Trim fastened to cabinet with devices having provision for trim adjustment.
  5. Yale No. 511S locks with brass cylinder rosette, blind fastened from inside of door. 2 No. 47 keys with each lock (Exception: Not more than 7 keys, total).
  6. Solid copper bus bars. Ampere rating of bus bars not less than frame size of main circuit breaker.
  7. Ratings as indicated on the drawings.
  8. Full capacity copper neutral bus in panelboards where neutrals are required.
  9. Copper equipment grounding bus.
  10. Sections designated "space" or "provision for future breaker" equipped to accept future circuit breakers.
  11. Provisions for padlocking circuit breaker handle in OFF position where indicated.
  12. Directory.
  13. Short circuit rating not less than indicated on panelboard schedule. Furnish fully rated equipment (the short circuit rating of the panelboard is equal to the lowest interrupting rating of any device installed in the panelboard).
  14. Thermal magnetic, molded case, bolt-on circuit breakers:
    - a. Mounting: Individually mounted main circuit breaker (when MCB is required), and group mounted branch/feeder circuit breakers to accommodate the circuit breaker style and panelboard construction.

## **2.02 NAMEPLATES**

- A. General: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
1. Phenolic: Two color laminated engravers stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install panelboards in accordance with NEMA Publication No. PB1.1 "General Instructions for Proper Installation, Operation and Maintenance of Panelboards Rated 600 Volts or Less".

- B. Flush Cabinets: Set flush cabinets so that edges will be flush with the finished wall line. Where space will not permit flush type cabinets to be set entirely in the wall, set cabinet as nearly flush as possible, and cover the protruding sides with the trim extending over the exposed sides of the cabinet and back to the finished wall line.
- C. Directory: Indicate on typewritten directory the equipment controlled by each circuit breaker, and size of feeder servicing panelboard. For power panelboards also include ATE rating and feeder size for each breaker.
- D. Remove the neutral to ground main/system bonding jumper unless the panelboard is used for a service entrance or if the panel is fed by a separately derived system. Turn the bonding jumper over to the Director's Representative.
- E. Identification:
  - 1. Use nameplates, or stencil on front of each panelboard with white paint, "LP-1, PP-1, etc." in 1/2 inch lettering corresponding to panelboard designations on the drawings, and electrical parameters (phase, wire, voltage).
  - 2. Install a nameplate on each panelboard which explains the means of identifying each ungrounded system conductor by phase and system. Examples of nameplate statements:
    - a. Identification of 120/240 Volt Circuit Conductors:
      - 1) 2 wire circuit - white\*, black.
      - 2) 3 wire circuit - white\*, black, red.
      - 3) 4 wire circuit - white\*, black, red, blue.

\*White is used only as neutral. Where neutral is not required, black, red, or black, red, blue is used for phase to phase circuits.

**END OF SECTION**





## SECTION 262726

### WIRING DEVICES

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions.

#### PART 2 PRODUCTS

##### 2.01 SWITCHES

- A. Local Switches, Single Pole:
  - 2. 20A, 120/277 V ac; Bryant's 4901, Crouse-Hinds/AH's 1991, Hubbell's 1121/1221, Leviton's 1121/1221, Pass & Seymour's 20AC1, or Woodhead's 1991.

##### 2.02 RECEPTACLES

- A. Federal Spec./NEMA Grade Receptacles:
  - 4. Duplex receptacle, NEMA 5-20R (20A, 125 V, 2P, 3W); Bryant's 5362, Crouse-Hinds/AH's 5739-S, Hubbell's 5362, Leviton's 5362, Pass & Seymour's 5362, or Daniel Woodhead's 5362 DW.
- B. Ground Fault Interrupter Receptacles:
  - 2. Duplex receptacle rated 20A (NEMA 5-20R), circuit ampacity 20A; Bryant's GFR53FT, Crouse-Hind/AH's GF5342, Hubbell's GF 5352, Leviton's 6899, Pass & Seymour's 2091S, or Daniel Woodheads 5352GF.
- C. Weather Resistant Ground Fault Interrupter Receptacles:
  - 2. Duplex receptacle rated 20A (NEMA 5-20R), circuit ampacity 20A; Cooper's WRVGF20W or Leviton's 002-W7899-00W.

##### 2.03 WALL PLATES

- A. Stainless Steel Wall Plates: Type 302 stainless steel with satin finish; Bryant's 93 Series, Crouse-Hinds/AH's 93 Series, Hubbell's 93 Series, Leviton's 910-40 Series, or Pass & Seymour's 93 Series.
- B. Weatherproof While In Use Covers:
  - 1. Polycarbonate: Cooper Crouse-Hinds TP7488W or Pass & Seymour's (Legrand) WIUC10C.
  - 2. Metallic: Hubbell's WP826 or WP826H, Thomas and Betts' (Red Dot) CKMUV or CKMU, or Leviton's M5979-0GY or M5999-0GY



- C. Covers for Threaded Type Boxes: Stamped sheet steel, gasketed device covers as produced by Crouse-Hinds Co., or OZ/Gedney Co.

## **2.05 NAMEPLATES**

- A. Phenolic Type: Standard phenolic nameplates with 3/16 inch minimum size lettering engraved thereon.
- B. Embossed Aluminum: Standard stamped or embossed aluminum tags, 3/16 inch minimum size lettering, as produced by Seton Name Plate Corp. or Tech Products Inc.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install wiring devices in outlet boxes.
- B. Local Switches:
  - 1. Install local switches rated 20A, 120/277 V ac for switches unless otherwise shown on the drawings or specified.
  - 2. Install switches indicated Sa, Sb, Sc, etc., for control of outlets, with corresponding letters on the same circuit.
  - 3. Where more than one switch occurs at same location in a 120 volt system, arrange switches in gangs and cover with one face plate.
  - 5. Install single and double pole switches so that switch handle is up when switch is in the "On" position.
- C. Receptacles:
  - 1. Install Federal Spec./NEMA Grade receptacles, NEMA 5-20R, 20A, 125 V, 2P, 3W, for duplex receptacles and single receptacles unless otherwise shown on the drawings or specified.
  - 2. Install receptacles with ground pole in the down position.
  - 3. Install Weather Resistant Ground Fault Interrupter Receptacles in wet and damp locations.
- D. Wall Plates:
  - 1. Install wall plates on all wiring devices in dry locations, with finish to match hardware in each area.
  - 3. Install blank wall plates on outlet boxes which are for future equipment except telephone outlets.
- E. Weatherproof While In Use Covers: Install weatherproof while in use covers on wiring devices in wet locations.
- F. Nameplates: Provide phenolic or embossed aluminum nameplate for each special purpose receptacle indicating phase, ampere and voltage rating of the circuit. Attach nameplate with rivets or tamperproof fasteners to wall plate or to wall above receptacle. Wall plates may be engraved with required data in lieu of separate nameplates.

- G. Mats: Where flush plates are required over outlet boxes that cannot be set deep enough for the plates to fit closely over the finished wall surfaces, provide oak mats to fill the space between the finished wall surface and the plate.
- H. Receptacles On Emergency Circuits: Install red colored receptacles. Engrave faceplates "EMERGENCY" in 3/16 inch high lettering and fill engraving with contrasting color filler material.

**END OF SECTION**





## SECTION 262812

### SAFETY SWITCHES

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.
- B. Product Data: Catalog sheets, specifications and installation instructions.

#### PART 2 PRODUCTS

##### 2.01 SAFETY SWITCHES (SINGLE THROW)

- A. NEMA 1, 3R, 4 (Stainless Steel), 12: Eaton/ Cutler-Hammer Inc.'s Heavy Duty Series, General Electric Co.'s Heavy Duty Series, Siemens Inc.'s Heavy Duty Series, or Square D Co.'s Heavy Duty Series; having:
  - 1. Fuses, or unfused as indicated on drawings.
  - 2. Fused switches equipped with fuseholders to accept only the fuses specified in Section 262813 (UL Class RK-1, RK-5, L).
  - 3. NEMA 1 enclosure unless otherwise indicated on drawing.
  - 4. 240V rating for 120V, 208V, or 240V, circuits.
  - 5. 600V rating for 277V, or 480V circuits.
  - 6. Solid neutral bus when neutral conductor is included with circuit.
  - 7. Ground bus when equipment grounding conductor is included with circuit.
  - 8. Current rating and number of poles as indicated on drawings.

##### 2.02 NAMEPLATES

- A. General: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
  - 1. Phenolic: Two color laminated engravers stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).
  - 2. Materials for Outdoor Applications: As recommended by nameplate manufacturer to suit environmental conditions.

#### PART 3 EXECUTION

##### 3.01 INSTALLATION

- A. Install switches so that the maximum height above the floor to the center of the operating handle does not exceed 6'-6".
- B. Identify each safety switch, indicating purpose or load served:
  - 1. NEMA 1 Enclosures: Rivet or bolt nameplate to the cover.
  - 2. NEMA 12 Enclosures: Rivet or bolt and gasket nameplate to the cover.



3. NEMA 3R, 4, Enclosures: Attach nameplate to the cover using adhesive specifically designed for the purpose, or mount nameplate on wall or other conspicuous location adjacent to switch. Do not penetrate enclosure with fasteners.
- C. Provide fuses, size as noted on plans, for all poles of fused switches.

**END OF SECTION**

## **SECTION 262813**

### **FUSES**

#### **PART 1 GENERAL**

##### **1.01 SUBMITTALS**

- A. Product Data: Catalog sheets, specifications and installation instructions.

##### **1.02 MAINTENANCE**

- A. Spare Parts:
  - 1. Six spare fuses of each size and category, including any accessories required for a complete installation.
  - 2. Special tools if required for installation or removal of fuses.

#### **PART 2 PRODUCTS**

##### **2.01 FUSEHOLDERS**

- A. Equipment provided shall be furnished with fuseholders to accommodate the fuses specified.

##### **2.02 FUSES RATED 600V OR LESS**

- A. Fuses for Safety Switches (Motor, Lighting and Heating Circuits) and Service Disconnects:
  - 1. Cartridge Type (250 Volts, 600 Amperes or Less): Dual element time-delay, UL Class RK-1, 200,000 amperes R.M.S. symmetrical interrupting capacity:
    - a. Mersen Inc.'s Type A2D-R.
    - b. Cooper Industries Inc.'s/Bussman Div. Type LPN-RK-SP.
    - c. Littlefuse Inc.'s Type LLNRK.

#### **PART 3 EXECUTION**

##### **3.01 INSTALLATION**

- A. Install fuses in respective equipment.

**END OF SECTION**





## **SECTION 262815**

### **CIRCUIT BREAKERS FOR EXISTING PANELBOARDS**

#### **PART 1 GENERAL**

##### **1.01 SUBMITTALS**

- A. Not required.

#### **PART 2 PRODUCTS**

##### **2.01 CIRCUIT BREAKERS**

- A. Similar to existing circuit breakers.
- B. Compatible with existing panelboard.
- C. Number of poles, ampere trip rating and interrupting capacity as indicated on drawings.
- D. Complete with accessories required for installation.

#### **PART 3 EXECUTION**

##### **3.01 INSTALLATION**

- A. Install new circuit breakers in existing panelboards where indicated.
- B. Add new circuits equally across phases to prevent overloading any phase in the panelboard. After new and existing circuits are energized, take current reading on panelboard feeder during a heavy usage time period. If phases are substantially unbalanced, rearrange both new and existing circuits in panelboard to equally distribute load between all phases, and provide new typewritten directory indicating equipment controlled by each circuit breaker.

**END OF SECTION**





## SECTION 263623

### AUTOMATIC TRANSFER SWITCH

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. UL 1008 listed, CSA certified.
- B. NFPA 110.
- C. NEMA Standard ICS2-447-AC Transfer Switches.
- D. IEEE Standard 446.
- E. ISO 9001.

##### 1.02 TRANSFER SWITCH OPERATING DESCRIPTION

- A. Design Criteria: The transfer switch is required to:
  - 1. Transmit signals to the diesel-alternator indicating when the unit should start and stop.
- B. Description of Operation:
  - 1. The transfer switch monitors electrical parameters of normal and emergency feeders.
  - 2. In normal operating condition, the mechanism of the transfer switch is in the normal position and the diesel-alternator unit shut down. Sequence of transfer operation occurs as follows:
    - a. The voltage on any phase of the normal feeder drops below 85 percent of normal, initiating in the transfer switch an adjustable time delay (set at 2 seconds) to over-ride voltage fluctuations and momentary outages.
    - b. At the end of the adjustable time delay, the diesel-alternator unit is signaled to automatically start.
    - c. A voltage-frequency device in the transfer switch prevents transfer until the emergency feeder voltage rises to 90 percent of normal and the frequency reaches 95% nominal.
    - d. The transfer switch transfers load to the emergency feeder.
    - e. Contacts in the transfer switch signal the elevator dispatcher and controllers that they are operating on emergency power.
    - f. Complete transition from onset of normal feeder failure to emergency feeder transfer shall not exceed 10 seconds.
    - g. When voltage on all phases of the normal feeder is restored to 90 percent voltage, transfer from emergency to normal feeder is initiated with an adjustable time delay (5-25 minutes) in the transfer switch, and:
      - 1) Presignal adjustable transfer time delay contacts in the transfer switch provides a 15 second pre-transfer signal

to the elevator dispatcher and controllers prior to transfer to allow elevator(s) to stop at the nearest floor and shut down.

- h. The transfer switch transfers load to the normal feeder at the end of the time delay. Exception: If the emergency power source should fail and the normal power source has been restored, retransfer to the normal source of power shall be immediate, by passing the retransfer delay timer.
  - i. The presignal transfer time delay contacts reset immediately after the transfer has been completed.
  - j. The unit continues to run unloaded 5 minutes, after which the control equipment shuts down the engine and resets the system.
  - k. Permanently attached manual operating handle(s) allow for safe manual transfer under load. The switch operating speed is the same operated electrically or manually.
3. In test operating condition, the mechanism of the transfer switch is in the normal position and the diesel-alternator unit shut down. Upon activation of test switch, sequence of transfer operation occurs as follows:
- a. At the end of an adjustable time delay (set at 2 seconds), the diesel-alternator unit is signaled to automatically start.
  - b. A voltage-frequency device in the transfer switch prevents transfer until the emergency feeder voltage rises to 90 percent of normal and the proper electrical parameters are obtained.
  - c. Pretest adjustable transfer time delay contacts in the transfer switch provide a 15 second pre-transfer signal to the elevator dispatcher and controllers prior to transfer to allow elevator(s) to stop at the nearest floor and shut down.
  - d. The transfer switch transfers load to the emergency feeder.
  - e. Contacts in the transfer switch signal the elevator dispatcher and controllers that they are operating on emergency power.
  - f. The pretest transfer time delay contacts reset immediately after the transfer has been completed.
  - g. The transfer switch has provisions to test the diesel-alternator unit under load and unloaded.
  - h. Complete transition from onset of normal feeder failure to emergency feeder transfer shall not exceed 10 seconds. Exception: Elevator feeders (15 seconds).
  - i. When voltage on all phases of the normal feeder is restored to 90 percent voltage, transfer from emergency to normal feeder is initiated with an adjustable time delay (5-25 minutes) in the transfer switch, and:
    - 1) Pretest adjustable transfer time delay contacts in the transfer switch provide a 15 second pre-transfer signal to the elevator dispatcher and controllers prior to transfer to allow elevator(s) to stop at the nearest floor and shut down.
  - j. The transfer switch transfers load to the normal feeder at the end of the time delay. Exception: If the emergency power source should fail and the normal power source has been restored,

retransfer to the normal source of power shall be immediate, by passing the retransfer delay timer.

- k. The pretest transfer time delay contacts reset back to normal immediately after the transfer has been completed.
- l. The unit continues to run unloaded 5 minutes, after which the control equipment shuts down the engine and resets the system.

### **1.03 TRANSFER SWITCH RENOVATION**

- A. Where indicated on drawings existing transfer switches shall be provided with a replacement control system. Remove all existing control components and install replacement control components, fully wired and integrated into the transfer switch operating mechanisms.
  - 1. All submittal requirements apply.
  - 2. New control system shall be fully compatible with existing operating mechanisms.
- B. Description of Operation:
  - 1. Control system function shall be identical to 1.02 B "Description of Operation".
  - 2. Control system construction, including (but not limited to) auxiliary contacts, shall comply with control components described in 2.01 A, "Automatic Transfer Switch".

### **1.04 SUBMITTALS**

- A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.
- B. Submittals Package: Submit the product data, shop drawings, and quality control submittals specified below at the same time as a package.
- C. Shop Drawings:
  - 1. Installation details (coordination with connected equipment).
- D. Product Data:
  - 1. Catalog sheets, specifications and installation instructions.
  - 2. Bill of materials.
  - 3. Detailed sequence of operations (format similar to TRANSFER SWITCH OPERATING DESCRIPTION).
  - 4. Company's data indicating maintenance schedule.
  - 5. Name, address and telephone number of nearest fully equipped service organization.
- E. Quality Control Submittals:
  - 1. Design Data:
    - a. Company's data indicating the switch will meet the requirements of 1.03 B.
    - b. Certified data from the Company proving that the switch will meet the requirements of 1.03 A. Design Criteria.
  - 2. Company Field Advisor Data: Include:



- a. Name, business address and telephone number of Company Field Advisor secured for the required services.
    - b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
    - c. Services and each product for which authorization is given by the Company, listed specifically for this project.
  - 3. Completed Installation List.
- F. Contract Closeout Submittals:
- 1. Operation and Maintenance Data: Deliver 2 copies, covering the installed product, to the Director's Representative. Include name, address and telephone number of nearest fully equipped service organization.
  - 2. Test Report: Switch/System acceptance test report.
  - 3. Certificate: Affidavit, signed by the Company Field Advisor and notarized, certifying that the switch operation with the related equipment meets the contract requirements and is operating properly.

## **1.05 QUALITY ASSURANCE**

- A. List of Completed Installations: If brand names other than those specified are proposed for use, furnish the name, address and telephone number of at least 5 comparable installations which can prove the proposed products have operated satisfactorily for 3 years.
- B. Company Field Advisor: Secure the services of a Company Field Advisor for a minimum of 8 working hours for the following:
  - 1. Render advice regarding installation and final adjustment of the switch.
  - 2. Witness final switch/system test and then certify with an affidavit that the switch is installed in accordance with the contract documents and is operating properly.
  - 3. Train facility personnel on the operation and maintenance of the switch (minimum of one 2 hour session).
  - 4. Explain available service programs to facility supervisory personnel for their consideration.
- C. Service Availability: A fully equipped service organization capable of guaranteeing response time within 8 hours to service calls shall be available 24 hours a day, 7 days a week to service the completed Work.

## **1.06 MAINTENANCE**

- A. Spare Parts:
  - 1. Special tools if required for the regular maintenance and minor repairs of the switch.

## **PART 2 PRODUCTS**

### **2.01 AUTOMATIC TRANSFER SWITCH**

- A. Automatic Switch Co.'s ASCO 940, Onan OT Series, Russelectric Inc.'s, Model RMT, or Zenith Controls Inc.'s ZTS, with:
1. Double throw construction.
  2. Ratings as indicated on drawings.
  3. Accessories to perform the functions specified in TRANSFER SWITCH OPERATING DESCRIPTION.
  4. NEMA 1 enclosure.
  5. Electrically operated and mechanically held.
  6. Adjustable time delay, 0-6 seconds, to override momentary outages before initiating engine starting. Once engine is signaled to start it must run for at least the duration of the time delay before engine shut down.
  7. Adjustable time delay, 0-30 minutes, on retransfer to normal feeder with bypass of time delay in event of emergency feeder failure.
  8. Adjustable time delay, 0-10 minutes, on engine cool down.
  9. Adjustable time delay, 0-5 seconds, on transfer to emergency feeder.
  10. Test switch, permanent, rotary selector-switch type accompanied by flashing red lights at the transfer switch to indicate switch is not in automatic mode, to simulate normal feeder failure (unit to start and transfer to emergency feeder).
  11. Presignal transfer time delay DPDT contact closure (time adjustable, factory set at 15 seconds).
  12. Pre-test transfer time delay DPDT contact closure (time adjustable, factory set at 15 seconds).
  13. Two identified pilot lights to indicate switch position (green normal, red emergency).
  14. Start contacts, silver plating.
  15. Two auxiliary contacts on main shaft (closed on normal).
  16. Two auxiliary contacts on main shaft (closed on emergency).
  17. Programmable automatic exerciser for exercising the referenced diesel-alternator engine (no transfer to emergency feeder), minimum 30 minutes every 168 hours (7 days).
  18. Equipment ground lug.
  19. Live parts shielded from personnel when door is open.
  20. Two-way by-pass isolation switch with same contact ratings as automatic transfer switch.
  21. Indicating Lights: To indicate NORMAL SOURCE AVAILABLE, ALTERNATE SOURCE AVAILABLE and SWITCH POSITION.
  22. Separate handles for bypass and isolation operation shall be permanently attached and externally operated.
  23. Bypass contacts shall be of the make-before-break design so the load is not interrupted.
  24. The bypass contacts shall be out of the power circuit except when in the bypass mode so that they will not be required to carry fault currents to which the system might be subjected.
  25. All test functions shall be activated by physical, rotary selector switches. Activation of test functions by stepping through controller menus will not be acceptable.

## 2.02 NAMEPLATES

- A. General: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
  - 1. Phenolic: Two color laminated engravers stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).

### **PART 3 EXECUTION**

#### **3.01 INSTALLATION**

- A. Install all required engine starting signal circuitry from switches to engine start conductor junction box. Engine start signal shall be transmitted automatically upon loss of normal source voltage. The start signal shall prevent dry cranking of the generator by requiring the generator to reach proper output and run for at least the duration of the cooldown timer.
- B. Install all required “on-emergency power”, “pre-signal” and “pre-test” circuitry from switches to elevator dispatcher and controllers.
- C. Install switch so that the maximum height above the floor to the center of the operating handle does not exceed 6'-0".
- D. Identify switch, indicating designation, load served and normal feeder designation, by riveting or bolting nameplate to cover.

#### **3.02 FIELD QUALITY CONTROL**

- A. Preliminary Switch/System Test:
  - 1. Preparation: Have the Company Field Advisor adjust the switch for the completed system (including the related equipment) and then operate it long enough to assure that it is performing properly.
  - 2. Run a preliminary test for the purpose of:
    - a. Determining whether the switch is in a suitable condition to conduct an acceptance test.
    - b. Checking and adjusting equipment.
    - c. Training facility personnel.
- B. Switch/System Acceptance Test:
  - 1. Preparation: Coordinate test with related equipment manufacturer and notify the Director's Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
  - 2. Make the following tests:
    - a. Test each switch function step by step as summarized under TRANSFER SWITCH OPERATING DESCRIPTION.
  - 3. Submit written report of test results signed by Company Field Advisor and the Director's Representative. Give a copy of the final report to the Director's Representative.

**END OF SECTION**



## SECTION 265111

### LIGHTING FIXTURES

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Product Data: Catalog sheets, specifications and installation instructions, including:
  - 1. Technical information for each fixture that proves it meets specified requirements.
  - 2. Candlepower distribution curves for each type fixture if different from Company or catalog number specified.

##### 1.02 MAINTENANCE

- A. Special Tools:
  - 1. Two tools to remove and install each type and size of fasteners on fixtures equipped with vandal resistant fasteners.

#### PART 2 PRODUCTS

##### 2.01 LIGHTING FIXTURES

- A. Provide lighting fixtures as scheduled on the Contract Drawings, or approved equal.
- B. Labels: Equip each fixture with a label, located conspicuously inside of fixture, which states the type of lamps required for the fixture.
- C. Additional Components: Equip fixtures with the following additional components, as applicable:
  - 1. End caps for individually mounted fixtures and end of continuous row fixtures.
  - 2. Finishing collar or combination finishing collar/outlet box for surface mounted fixture used with exposed raceway:
    - a. Finishing Collar: Same finish and peripheral dimensions as the fixture base, including provisions for mounting, slots to fit over raceway and of depth to cover outlet box and extend back to ceiling or wall.
    - b. Combination Finishing Collar/Outlet Box: Same finish and peripheral dimensions as the fixture base, gage or thickness of metal as required by National Electrical Code, including provisions for mounting and knockouts or threaded bosses for entrance of raceway.

#### PART 3 EXECUTION

### **3.01 INSTALLATION**

- A. General: Install fixtures at locations indicated on the drawings.
- B. Finishing Collar or Combination Finishing Collar/Outlet Box (Surface Mounted Fixture Used With Exposed Raceway):
  - 1. Provide finishing collar where surface mounted fixture is installed on an exposed raceway outlet box and the fixture base is larger than the outlet box.
  - 2. Provide combination finishing collar/outlet box where surface mounted fixture is not indicated to be installed on an exposed raceway outlet box, but raceway cannot be run directly into fixture body due to fixture design.

**END OF SECTION**

## SECTION 283105

### MODIFICATIONS TO FIRE ALARM SYSTEM

#### PART 1 GENERAL

##### 1.01 REFERENCES

- A. Underwriters Laboratories Inc.
- B. National Fire Protection Association Standard 72.

##### 1.02 DEFINITIONS

- A. Initiating Device Circuit: A circuit to which automatic or manual initiating devices are connected where the signal received does not identify the individual device operated. Example:
  - 1. Circuits from PPSSs and ICUs to non-addressable signal initiating devices.
- B. Notification Appliance Circuit: A circuit or path directly connected to a notification appliance. Example:
  - 1. Circuits from PPSSs and ICUs to notification appliances.
- C. Signaling Line Circuit: A circuit or path between any combination of circuit interfaces, control units, or transmitters over which multiple system input signals or output signals, or both are carried. Examples:
  - 1. Circuits from PSS to building PPSSs and ICUs.
  - 2. Circuits from PPSSs and ICUs to addressable devices.
- D. Operating Mode:
  - 1. Private Mode:
    - a. Audible and visible signaling only to those persons directly concerned with the implementation and direction of emergency action initiation and procedure in the area protected by the fire alarm system, and:
    - b. Audible and visible signaling only to those persons within special designated areas where private mode operation is specified to be applicable.
  - 2. Public Mode: Audible and visible signaling to occupants or inhabitants of the area protected by the fire alarm system.

##### 1.03 PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION

- A. Fire Warden Phone Jacks: quantity 46, deliver to (U)
- B. Fire Alarm Speakers: quantity 7, deliver to (U)



#### **1.04 DESCRIPTION OF EXISTING SYSTEM**

- A. The existing Siemens Model “MXL” Fire Alarm System operates as an integrated multiplexed protected premises and proprietary fire alarm, monitoring and control system. Changes in the status of monitored points are detected by the micro-processor based proprietary supervising station (PSS).

#### **1.05 MODIFICATIONS TO EXISTING SYSTEM**

- A. Provide three ZAM’s at each elevator controller as replacements for existing, and reprogram the fire system to provide compliant elevator recall to primary and secondary floors and to indicate fireman’s service.
- B. Provide additional smoke detectors in locations shown on plans, wired to nearest existing addressable initiating device circuit. Program Fire Alarm System to perform appropriate elevator recall functions in response to associated smoke detection.
- C. Provide wiring for and enable an independent audio channel for in the elevators.

#### **1.06 DESCRIPTION OF COMPLETED SYSTEM**

- A. The completed system shall operate as outlined in DESCRIPTION OF EXISTING SYSTEM, including all currently programmed functions, with the addition of the above modifications:

#### **1.07 SUBMITTALS**

- A. Waiver of Submittals: The “Waiver of Certain Submittal Requirements” in Section 013300 does not apply to this Section.
- B. Preliminary Submittal: Existing system test report.
- C. Submittals Package: Submit the shop drawings, product data, and quality control submittals specified below at the same time as a package.
  - 1. Company Field Advisor Letter: With the submittals package include a letter from the Company Field Advisor stating that he/she has reviewed the Submittals Package for accuracy and completeness, and approves all materials and installation methods included in the Submittals Package.
- D. Shop Drawings:
  - 1. Composite wiring and/or schematic diagrams of the modifications as proposed to be installed (standard diagrams will not be acceptable).
    - a. Indicate circuits which are power-limited if power-limited wiring is proposed for use.
    - b. Include transient surge and lightning protection grounding details for signaling line circuits, initiating device circuits, and ac power conductors entering and leaving each fire alarm control panel.

- E. Product Data:
1. Catalog sheets, specifications and installation instructions.
  2. Bill of materials.
  3. Detailed description of completed system operation.
  4. Statement from the Company producing the system, for each size and type of single conductor and multiconductor cable proposed for use, indicating that the electrical characteristics meet the requirements of the Company.
  5. Data from the Company furnishing the products, proving that detection devices that receive their power from the initiating device circuit or a signaling line circuit of a fire alarm control unit are UL listed for use with the control unit.
    - a. Submit data proving that the initiating devices are listed for the intended application.
- F. Quality Control Submittals:
1. Copy of license required by New York State General Business Law Article 6-D for installing Fire Alarm Systems.
    - a. Also include copy of identification card issued by the Licensee for each person who will be performing the Work.
  2. Company Field Advisor Data: Include:
    - a. Name, business address and telephone number of Company Field Advisor secured for the required services.
    - b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
    - c. Copy of NICET Letter of Approval indicating Level III or higher Fire Alarm Systems certification.
    - d. Services and each product for which authorization is given by the Company, listed specifically for this project.
- G. Contract Closeout Submittals:
1. System acceptance test report.
  2. Certificates:
    - a. Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly.
    - b. NFPA Record of Completion (NFPA 72 Figure 1-6.2.1) for the modifications.
  3. Operation and Maintenance Data:
    - a. Deliver 2 copies, covering the installed products, to the Director's Representative. Include:
      - 1) Operation and maintenance data for each product.
      - 2) Complete point to point wiring diagrams of the modifications as installed. Identify all conductors and show all terminations and splices. (Identification shall correspond to markers installed on each conductor.)

## 1.08 QUALITY ASSURANCE

- A. UL Listing: The system products for the modifications shall be listed in the UL Fire Protection Equipment Directory under product category “Control Units System (UOJZ)”.
- B. Company Field Advisor: Company Field Advisor shall be National Institute for Certification in Engineering Technologies (NICET) certified as Level III or higher Fire Alarm Protection/Fire Alarm Systems Engineering Technician.
  - 1. Secure the services of a Company Field Advisor from the Company of the existing system for a minimum of 24 working hours at the contract site for the following:
    - a. Render advice and witness test of existing system.
    - b. Render advice regarding modifications to the system.
    - c. Assist in reprogramming the system.
    - d. Witness final system test and then certify with an affidavit that the modifications were installed in accordance with the contract documents and are operating properly.

## **1.09 MAINTENANCE**

- A. Spare Parts:
  - 1. 10 percent spare of each type initiating device provided.
  - 2. 10 percent spare of each type notification appliance provided.

## **PART 2 PRODUCTS**

### **2.01 PEER-TO-PEER NETWORK**

- A. Remote Addressable Network Modules(RANM):
  - 1. Addressable Zone Adapter Module Control and Monitor Relays (ZAM): Edwards’ SIGA-CC1, SIGA-CC2, SIGA-UM, SIGA-CR, Notifier’s MMX-1, MMX-2, CMX-2, or Simplex’s 2190-9163, 2190-9164, 2190-9155, 2190-9156, 2190-973.
  - 2. Include 24V dc auxiliary circuit(s) as required by RANM type to suit relay operations for control, monitoring, or supervisory functions; or interconnection of fire safety control functions.

### **2.02 REMOTE FIRE SERVICE DEVICES**

- A. Fire Service Jacks:
  - 1. Remote Telephone Jack Stations: Edwards’ 6833-1, or Simplex’s 2084-9001, or equal.

### **2.03 INITIATING DEVICES**

- A. General:
  - 1. Fire detection devices that receive their power from the initiating device circuit or a signaling line circuit of a fire alarm control unit shall be listed for use with the control unit.



2. Where individually identifiable (addressable) devices are required, but not available from the Company producing the system, either:
    - a. Use non-addressable devices and individually wire each device to the FACP's as separate monitor points, making each non-addressable device individually identifiable, or:
    - b. Employ remote addressable network modules to make each non-addressable device individually addressable.
- B. Ceiling Mounted Sensors (Intelligent, Addressable, Analog):
1. General:
    - a. Heat sensors, ionization smoke sensors, and photoelectric smoke sensors shall have common mounting base which accommodates interchanging of the different type sensors.
  2. Smoke Sensors:
    - a. Ionization Type: Edwards' SIGA-IS, Notifier's CPX-551, or Simplex's 4098-9716/9798.
    - b. Photoelectric Type: Edwards' SIGA-PS, Notifier's SDX-551, or Simplex's 4098-9714/9798.

## **2.04 NOTIFICATION APPLIANCES**

- A. General:
1. Audible signal appliances shall be UL 464 listed:
    - a. Classified "Public" or "Private Mode Only" to suit application.
    - b. Marked "F.A. Service" or "F.A. Service - Private Mode Only" to suit application.
- B. Model: Concealite FA100-W-24-SPK with retrofit backbox for flush mounting and having a custom finish.

## **2.05 TERMINAL STRIP CABINETS**

- A. Lockable, vandal resistant, surface mounted cabinets constructed of 14 gage steel, size as recommended by the Company producing the system. Equip cabinets with barrier type double screw terminals rated 300 V minimum, meeting UL 94 requirements for materials classed 94 V-0. Use identification strips, tags or labels to identify each conductor. Paint cabinets fire department red and stencil on front in 1/2 inch high white letters, the purpose of each terminal strip cabinet.

## **2.06 POWER-LIMITED INSULATED CONDUCTORS**

- A. All electrical characteristics shall meet the requirements of the Company producing the system (conductor to conductor capacitance, dc resistance, velocity of propagation etc.).
- B. Multiconductor Cables N.E.C. Type FPLP, FPLR, FPL:
1. Insulated copper conductors.
  2. Conductors twisted, shielded and jacketed as recommended by the Company producing the system.

3. Voltage rating of not less than 300 volts (Voltage rating not marked on cable except where cable has multiple listings and voltage marking is required for one or more of the listings).
- C. Other types of cables may be used in accordance with N.E.C. Table 760-61 "Cable Uses and Permitted Substitutions", as approved, if listed as being suitable for the purpose.

## **2.07 NONPOWER-LIMITED INSULATED CONDUCTORS**

- A. All electrical characteristics shall meet the requirements of the Company producing the system (conductor to conductor capacitance, dc resistance, velocity of propagation, etc.).
- B. Conductors twisted, shielded and jacketed as recommended by the Company producing the system.
- C. Single Conductors:
1. No. 18 and No. 16 AWG: Insulated copper conductors suitable for 600 volts, N.E.C. types KF-2, KFF-2, PAFF, PTF, PF, PFF, PGF, PGFF, RFH-2, RFHH-2, RFHH-3, SF-2, SFF-2, TF, TFF, TFN, TFFN, ZF, ZFF.
  2. Larger Than No. 16 AWG: Insulated copper conductors suitable for 600 volts, in compliance with N.E.C. Article 310.
  3. Conductors with other types and thickness of insulation may be used if listed for nonpower-limited fire alarm circuit use.
- D. Multiconductor Cables N.E.C. Types NPLFP, NPLFR, NPLF:
1. No. 18 and No. 16 AWG: Insulated copper conductors rated 600 volts, N.E.C. types KF-2, KFF-2, PAFF, PTF, PF, PFF, PGF, PGFF, RFH-2, RFHH-2, RFHH-3, SF-2, SFF-2, TF, TFF, TFN, TFFN, ZF, ZFF.
  2. No. 14 AWG and Larger: Insulated copper conductors suitable for 600 volts, one of the types listed in N.E.C. Table 310-13 or one that is identified for nonpower-limited fire alarm circuit use.
  3. Marking: NPLFP, NPLFR, and NPLF marked to suit listings and marked with a maximum usage voltage rating of 150 volts.

## **2.08 MC CABLE**

- A. Metal-Clad Cable, N.E.C. Type MC:
1. All electrical characteristics shall meet the requirements of the Company producing the system (conductor to conductor capacitance, dc resistance, velocity of propagation, etc.).
  2. Conductors twisted, shielded and jacketed as recommended by the Company producing the system.
  3. Interlocked flexible galvanized steel armor sheath conforming to UL requirements for type MC metal clad cable.
  4. Insulated copper conductors suitable for 600 volts.
    - a. No. 18 and No. 16 AWG: A type listed in N.E.C. Table 402-3 with a maximum operating temperature not less than 90°C, or

types KF-2, KFF-2, PAF, PAFF, PTF, PF, PFF, PGF, PGFF, PTF, PTF, SF-2, SFF-2, ZF, ZFF.

- b. No. 14 AWG and Larger: One of the types listed in N.E.C. Table 310-13 or of a type identified for use in Type MC cable.
- 5. Acceptable Companies: AFC Cable Systems Inc., Coleman Cable Co.
- 6. Connectors for MC cable: AFC Fitting Inc.'s AFC Series, Arlington Industries Inc.'s Saddle Grip, or Thomas & Betts Co.'s Tite-Bite with anti-short Bushings.

## **2.09 SYSTEM KEYING**

- A. All system locks, key switches, etc., shall match existing keying.

## **2.10 ACCESSORIES**

- A. Include accessories required to perform the functions summarized in DESCRIPTION OF COMPLETED SYSTEM and indicated on the drawings.

## **PART 3 EXECUTION**

### **3.01 VERIFICATION OF CONDITIONS**

- A. Testing Existing System:
  - 1. Prior to modifying the system, make the following tests to ascertain the operating condition of the existing system:
    - a. Test spare zones that will be utilized for the work.
    - b. Test active zones which will be modified.
    - c. Test PSS, PPSS and ICU functions associated with the modifications.
  - 2. Test shall be witnessed by the Company Field Advisor and the Director's Representative.
  - 3. Conduct tests that are disruptive to facility personnel after normal working hours as directed.
  - 4. Prepare a written report for the Director's Representative indicating the repairs required, if any, to make the existing sub-systems function properly.
  - 5. Repairs to the existing sub-systems are not included in the Work unless requested by Order on Contract.

### **3.02 INTERRUPTIONS TO EXISTING SUB-SYSTEMS**

- A. Maintain the existing system in its present condition to the extent possible while installing new Work.
- B. Prior to making changes or removals relative to the existing system, notify the Director's Representative and have procedures approved.
- C. Provide signs, instructions and alternate methods for reporting a fire.



### 3.03 INSTALLATION

- A. Install the Work in accordance with the Company's printed instructions unless otherwise indicated.
- B. Reprogram the system to include new monitor and control points and update existing system program to include changes and additions requested by facility.
  - 1. Obtain from the facility personnel through the Director's Representative, a list of desired system program changes, additions, etc.
- C. Wiring for Elevator Recall for Fire Fighter's Service and Other Elevator Emergency Functions:
  - 1. Provide wiring to terminal strip cabinet in elevator machine rooms.
  - 2. Contractor responsible for elevator installation will provide elevator control equipment for elevator operation and final electrical connections between terminal strip cabinet and the elevator controllers.
- D. Wiring For Survivability:
  - 1. Signals from manual fire alarm boxes and other fire alarm initiating devices within a building transmitted over the same signaling line circuit shall not interfere with the manual fire alarm box signals when both types of initiating devices are operated at the same time.
  - 2. Failure of equipment or a fault on one or more installation wiring conductors of one notification appliance circuit shall not result in functional loss of any other notification appliance circuit.
  - 3. Connect PPSSs, ICUs and other system components requiring a primary power supply to dedicated branch circuits.
    - a. Do not connect PPSS's and ICUs to a 2 pole device which can trip both poles at once, such as a 2 pole circuit breaker with handle tie (omit the tie).
  - 4. Splices in wiring in vertical risers is prohibited, except when the length of conductors approximate 150 feet in vertical risers, terminal strip cabinet may be used. Exception: For 2-hour fire rated cable assembly, use UL listed methods to maintain 2-hour rating.
  - 5. Avoid splices in horizontal runs. When splices are necessary, use junction boxes. Exception: For 2-hour fire rated cable assembly, use UL listed methods to maintain 2-hour rating.
    - a. Make splices with mechanical or hydraulic type pressure connectors. The use of wire nuts is prohibited.
    - b. Paint cover of terminal strip cabinets and junction boxes fire department red.

### 3.04 FIELD QUALITY CONTROL

- A. Preliminary System Test:
  - 1. Preparation: Have the Company Field Advisor adjust the portion of the system applicable to the Work, and then operate it long enough to assure that it is performing properly.
  - 2. Run a preliminary test for the purpose of:

- a. Determining whether the system is in a suitable condition to conduct an acceptance test.
  - b. Checking and adjusting equipment.
  - c. Training facility personnel.
- B. System Acceptance Test:
- 1. Preparation: Notify the Director's Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
  - 2. Supply all equipment necessary for system adjustment and testing.
  - 3. Make the following tests:
    - a. Test the portion of the system applicable to the Work in accordance with NFPA 72, Chapter 7.
      - 1) Follow test methods stated in Table 7-2.2.
      - 2) Record results on NFPA 72 Figure 1-6.2.1 Record of Completion.
    - b. Test system operation step by step as summarized in DESCRIPTION OF COMPLETED SYSTEM.
  - 4. Submit written report of test results signed by Company Field Advisor and the Director's Representative. Also complete an NFPA Record of Completion.
    - a. Mount a copy of the written report of test results, and the NFPA 72 Record of Completion in plexiglass enclosed frame assemblies adjacent to the PSS (one framed assembly for each report).
- C. Conduct tests that are disruptive to facility personnel after normal working hours as directed.

### **3.05 INSULATED CONDUCTOR SCHEDULE - TYPES AND USE**

- A. Signaling Line Circuits, Initiating Device Circuits and Notification Appliance Circuits:
- 1. Power-Limited Circuits: For interior wiring (in raceways) use power-limited insulated multiconductor cable types specified in PART 2.
    - a. Number of conductors and conductor size as recommended by the Company producing the system, except that conductor size shall not be less than No. 18 AWG for signaling line circuits and not less than No. 16 AWG for initiating device circuits and notification appliance circuits.
    - b. Using Non-power-Limited Wiring On Power-Limited Circuits: Wiring size and types specified for NONPOWER-limited circuits may be used for power-limited circuits if power-limited circuits are reclassified and the power-limited markings are eliminated. Refer to NEC Article 760-52(a) Exception No. 3.
  - 2. Nonpower-Limited Circuits: For interior wiring (in raceways) use nonpower-limited insulated single conductors or multiconductor cable types specified in PART 2.
    - a. Number of conductors and conductor size as recommended by the Company producing the system, except that conductor size

shall not be less than No. 18 AWG for signaling line circuits, not less than No. 16 AWG for initiating device circuits, and not less than No. 14 AWG for notification appliance circuits.

3. Where wiring is specifically indicated on drawings not to be run in raceway, use metal-clad cable type MC (concealed, unless otherwise indicated).

- B. Control Circuits Associated with the Fire Alarm System: use Class 1, 2, and 3 wiring specified in Section 260519.

**END OF SECTION**





**STATEMENT OF SPECIAL INSPECTIONS**

Project No.: **44780**

Instructions: BCNYS Section 1704.1.1 requires the project Design Professional to complete the Statement of Special Inspections as a condition for issuance of the Construction Permit. Complete each section of this form as applicable, and submit it to the Code Compliance Manager with the Summary of Special Inspections (BDC 406) and Construction Permit Application (BDC 399).

PROJECT INFORMATION:	DESIGNER INFORMATION:	CONSTRUCTION INFORMATION:		
Project Description: <i>(Project Title, Facility Name and Address)</i> <b>Rehabilitate Elevators Shirley Chisholm State Office Building 55 Hanson Place Brooklyn, NY 11217</b>	Architect/Engineer/Consultant: <b>RZAPS/YAS/FPM</b>	Engineer In Charge:	Region:	
	Name of Person Completing Form: <i>(if different from above)</i> <b>Rafael Montes</b>		Name of Person Completing Form: <i>(if different from above)</i>	
	Phone: <b>212-685-2910</b>	Date: <b>03/24/17</b>	Phone:	Date:
Business Unit:  Team Leader: <b>Nathaniel Walker</b>	Comments:		Comments:	

Check if Required	INSPECTION AND TESTING Continuous and Periodic as defined by the BCNYS	Continuous	Periodic	REFERENCE STANDARD	BCNYS REFERENCE	SPEC SECTION	COMMENTS	REGIONAL INSPECTION ASSIGNMENTS
	<b>A. Steel Construction</b>							
<input checked="" type="checkbox"/>	1. Material verification of high-strength bolts, nuts, and washers.		<input checked="" type="checkbox"/>	Applicable ASTM material specifications. AISC ASD, Section A3.4; AISC LRFD, Section A3.3	1704.3	<b>051200-2.01 &amp; 055100</b>		
<input checked="" type="checkbox"/>	2. Inspection of high-strength bolting.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	AISC LRFD, Section M2.5	1704.3, 1704.3.3	<b>051200-1.04</b>		
<input checked="" type="checkbox"/>	3. Material verification of structural steel.			ASTM A 6 or A 568	1704.3, 1708.4	<b>051200-2.01</b>		
<input checked="" type="checkbox"/>	4. Material verification of weld filler materials.			AISC, ASD, Section A3.6; AISC LRFD, Section A3.5	1704.3	<b>051200-2.01</b>		

Check if Required	INSPECTION AND TESTING Continuous and Periodic as defined by the BCNYS	Continuous	Periodic	REFERENCE STANDARD	BCNYS REFERENCE	SPEC SECTION	COMMENTS	REGIONAL INSPECTION ASSIGNMENTS
<input checked="" type="checkbox"/>	5. Inspection of welding:			AWS D1.1, D1.3, D1.4; ACI 318: 3.5.2	1704.3, 1704.3.1, 1903.5.2	<b>051200-1.02 &amp; 1.08</b>		
<input checked="" type="checkbox"/>	a. Structural steel	<input type="checkbox"/>	<input checked="" type="checkbox"/>			<b>051200-1.02</b>		
<input type="checkbox"/>	b. Reinforcing steel	<input type="checkbox"/>	<input type="checkbox"/>					
	6. Inspection of steel frame joint details		<input type="checkbox"/>		1704.3, 1704.3.2			
	<b>B. Concrete Construction</b>							
<input type="checkbox"/>	1. Inspection of reinforcing steel, including prestressing tendons, and placement		<input type="checkbox"/>	ACI 318: 3.5, 7.1-7.7	1704.4, 1903.5, 1907.1, 1907.7, 1914.4			
<input type="checkbox"/>	2. Inspection of reinforcing steel welding.			AWS D1.4; ACI 318: 3.5.2	1704.4, 1903.5.2			
<input type="checkbox"/>	3. Inspection of bolts to be installed in concrete prior to and during placement.	<input type="checkbox"/>			1704.4, 1912.5			
<input type="checkbox"/>	4. Verify use of required design mix.		<input type="checkbox"/>	ACI 318: Ch. 4, 5.2-5.4	1704.4, 1904, 1905.2-1905.4, 1914.2, 1914.3			
<input type="checkbox"/>	5. Sampling fresh concrete: slump, air content, temperature, strength test specimens.	<input type="checkbox"/>		ASTM C 172, C 31; ACI 318: 5.6, 5.8	1704.4, 1905.6, 1914.10			
<input type="checkbox"/>	6. Inspection of placement for proper application techniques.	<input type="checkbox"/>		ACI 318: 5.9, 5.10	1704.4, 1905.9, 1905.10, 1914.6, 1914.7, 1914.8			
<input type="checkbox"/>	7. Inspection for maintenance of specified curing temperature and techniques.		<input type="checkbox"/>	ACI 318: 5.11, 5.13	1704.4, 1905.11, 1905.13, 1914.9			
<input type="checkbox"/>	8. Inspection of prestressed concrete.	<input type="checkbox"/>		ACI 318: 18.20, 18.18.4	1704.4			
<input type="checkbox"/>	9. Erection of precast concrete members.		<input type="checkbox"/>	ACI 318: Ch. 16	1704.4			
<input type="checkbox"/>	10. Verification of in-situ concrete strength prior to stressing of tendons and prior to removal of shores and forms from beams and slabs.		<input type="checkbox"/>	ACI 318: 6.2	1704.4, 1906.2			

Check if Required	INSPECTION AND TESTING Continuous and Periodic as defined by the BCNYS	Continuous	Periodic	REFERENCE STANDARD		BCNYS REFERENCE	SPEC SECTION	COMMENTS	REGIONAL INSPECTION ASSIGNMENTS
				ACI 530/ ASCE 5/TMS 402, Ch. 35	ACI 530.1/ ASCE 6/TMS 602, Ch. 35				
	<b>C. Masonry Construction</b> L1 = Level 1 Inspection required for nonessential facilities. L2 = Level 2 Inspection required for essential facilities. See 1704.5 for clarification.								
	1. Verify to ensure compliance:								
<input type="checkbox"/>	a. Proportions of site prepared mortar and grout.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		2.6A	1704.5			
<input type="checkbox"/>	b. Placement of masonry units and construction of mortar joints.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		3.3B	1704.5			
<input type="checkbox"/>	c. Location and placement of reinforcement, connectors, tendons, anchorages.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		3.4, 3.6A	1704.5			
<input type="checkbox"/>	d. Prestressing technique and installation.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		3.6A, 3.6B	1704.5			
<input type="checkbox"/>	e. Grade and size of tendons and anchorages.		<input type="checkbox"/> L1		2.4B, 2.4H	1704.5			
<input type="checkbox"/>	f. Grout space prior to grouting.	<input type="checkbox"/> L2			3.2D	1704.5			
<input type="checkbox"/>	g. Placement of grout.	<input type="checkbox"/> L2			3.5	1704.5			
<input type="checkbox"/>	h. Grouting of tendons.	<input type="checkbox"/> L2			3.6C	1704.5			
	2. Inspection shall verify:								
<input type="checkbox"/>	a. Size and location of structural elements.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		3.3G	1704.5			
<input type="checkbox"/>	b. Type, size, and location of anchors.	<input type="checkbox"/> L2	<input type="checkbox"/> L1	1.15.4, 2.1.1		1704.5			
<input type="checkbox"/>	c. Specified size, grade, and types of reinforcement.		<input type="checkbox"/> L1 <input type="checkbox"/> L2	1.12	2.4, 3.4	1704.5			
<input type="checkbox"/>	d. Welding of reinforcement bars.	<input type="checkbox"/> L1 <input type="checkbox"/> L2		2.1.10.6, 2.1.10.6.2		1704.5			
<input type="checkbox"/>	e. Cold/hot weather protection of masonry construction.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		1.8	1704.5, 2104.3, 2104.4			
<input type="checkbox"/>	f. Prestressing force measurement and application.	<input type="checkbox"/> L2	<input type="checkbox"/> L1		3.6B	1704.5			



Check if Required	INSPECTION AND TESTING Continuous and Periodic as defined by the BCNYS	Continuous	Periodic	REFERENCE STANDARD		BCNYS REFERENCE	SPEC SECTION	COMMENTS	REGIONAL INSPECTION ASSIGNMENTS
<input type="checkbox"/>	3. Inspection prior to grouting.		<input type="checkbox"/> L1 <input type="checkbox"/> L2	1.12	3.2D, 3.4, 2.6B, 3.3B	1704.5			
<input type="checkbox"/>	4. Grout placement.	<input type="checkbox"/> L1 <input type="checkbox"/> L2			3.5, 3.6C	1704.5			
<input type="checkbox"/>	5. Preparation of grout specimens, mortar specimens, and/or prisms.	<input type="checkbox"/> L1 <input type="checkbox"/> L2			1.4	1704.5, 2105.2.2, 2105.3			
<input type="checkbox"/>	6. Compliance with documents and submittals.		<input type="checkbox"/> L1 <input type="checkbox"/> L2		1.5	1704.5			
<input type="checkbox"/>	<b>D. Wood Construction</b> Fabrication of wood structural elements and assemblies.					1704.6, 1704.2			
	<b>E. Soils</b>								
<input type="checkbox"/>	1. Site preparation.					1704.7.1			
<input type="checkbox"/>	2. During fill placement.					1704.7.2			
<input type="checkbox"/>	3. Evaluation of in-place density.					1704.7.3			
<input type="checkbox"/>	<b>F. Pile Foundations</b> Installation and load tests.					1704.8			
<input type="checkbox"/>	<b>G. Pier Foundations</b> Seismic Design Category (SDC) C, D, E, F.					1704.9, 1616.3			
<input checked="" type="checkbox"/>	<b>H. Sprayed Fire-Resistant Materials</b>						<b>078100</b>		
<input type="checkbox"/>	<b>I. Mastic and Intumescent Fire-Resistant Coatings</b>				AWCI 12-B	1704.11			
<input type="checkbox"/>	1. Structural member surface conditions.					1704.10.1			
<input type="checkbox"/>	2. Application.					1704.10.2			
<input type="checkbox"/>	3. Thickness.				ASTM E 605	1704.10.3			
<input type="checkbox"/>	4. Density.				ASTM E 605	1704.10.4			
<input type="checkbox"/>	5. Bond strength.				ASTM E 736	1704.10.5			
<input type="checkbox"/>	<b>J. Exterior Insulation and Finish Systems (EIFS)</b>					1704.12			
<input type="checkbox"/>	<b>K. Special Cases</b>					1704.13			
<input type="checkbox"/>	<b>L. Smoke Control</b>					1704.14			

Check if Required	INSPECTION AND TESTING Continuous and Periodic as defined by the BCNYS	Continuous	Periodic	REFERENCE STANDARD	BCNYS REFERENCE	SPEC SECTION	COMMENTS	REGIONAL INSPECTION ASSIGNMENTS
	<b>M. Special Inspections for Seismic Resistance</b> Applicable to specific structures, systems, and components.							
<input type="checkbox"/>	1. Structural steel.	<input type="checkbox"/>		AISC Seismic	1707.2			
<input type="checkbox"/>	2. Structural wood.	<input type="checkbox"/>	<input type="checkbox"/>		1707.3			
<input type="checkbox"/>	3. Cold-formed steel framing.		<input type="checkbox"/>		1707.4			
<input type="checkbox"/>	4. Storage racks and access floors.		<input type="checkbox"/>		1707.5			
<input type="checkbox"/>	5. Architectural components.		<input type="checkbox"/>		1707.6			
<input type="checkbox"/>	6. Mechanical and electrical components.		<input type="checkbox"/>		1707.7			
<input type="checkbox"/>	7. Seismic isolation system.		<input type="checkbox"/>		1707.8			
	<b>N. Structural Testing for Seismic Resistance</b> Applicable to specific structures, systems, and components.							
<input type="checkbox"/>	1. Testing and verification of masonry materials and assemblies.				1708.1			
<input type="checkbox"/>	2. Testing for seismic resistance.				1708.2			
<input type="checkbox"/>	3. Reinforcing and prestressing steel.			ACI 318	1708.3, 1903.5.2			
<input type="checkbox"/>	4. Structural steel.			AISC Seismic	1708.4			
<input type="checkbox"/>	5. Mechanical and electrical equipment.				1708.5			
<input type="checkbox"/>	6. Seismically isolated structures.				1708.6, 1623.1			
<input type="checkbox"/>	<b>O. Structural Observations</b> Applicable to specific structures.				1709.1			

Check if Required	INSPECTION AND TESTING Continuous and Periodic as defined by the BCNYS	Continuous	Periodic	REFERENCE STANDARD	BCNYS REFERENCE	SPEC SECTION	COMMENTS	REGIONAL INSPECTION ASSIGNMENTS
	<b>P. Wind Resistance</b> Applicable in Exposure Category B with a basic wind speed of 120 mph and Exposure Categories C or D with basic wind speed of 110 mph or greater.							
<input type="checkbox"/>	1. Verification of roof cladding and roof framing connections.				1705.4.2			
<input type="checkbox"/>	2. Verification of wall connections to roof and floor diaphragms and framing.				1705.4.2			
<input type="checkbox"/>	3. Verification of roof and floor diaphragm systems, including collectors, drag struts and boundary elements.				1705.4.2			
<input type="checkbox"/>	4. Verification of vertical windforce-resisting systems, including braced frames, moment frames and shear walls.				1705.4.2			
<input type="checkbox"/>	5. Verification of windforce- resisting system connections to the foundation.				1705.4.2			
<input type="checkbox"/>	6. Verification of fabrication and installation of systems or components required to meet the impact-resistance requirements of 1609.1.2.				1705.4.2			



**SAMPLE FIRESTOP SCHEDULE**

Project No:	Contractor Name and Address:	Date Submitted:
Project Title:	Supplier/Installer Name and Address:	Company Field Advisor Name and Address:
	Manufacturer Name and Address:	

Method of Protection for through-penetration in fire-resistance rated construction.

Manufacturer's Product Reference Numbers and/or Drawing Numbers	U.L., FM, Wamock Hersey or Omega Point Lab Penetration Design Nos.	Penetrating Item Description: Material, Size, Insulated, Combustible	Maximum Allowable Annular Space or Maximum Size Opening	Wall type Construction		Floor Type Construction	Fire Resistance Rating of Wall or Floor (Hourly)	F Rating	T Rating (floors Only)
				DES.	CONST.				
Example No. 1 DCFSS-130	UL #130	Maximum 4" Steel Pipe Non-Insulated		P4	6" CMU	N.A.	1 Hour	1 Hour	N.A.
Example No. 2 5300-ICF88.01	UL #591	Maximum 4" PVC Pipe		N.A.	N.A.	UL # D916	3 Hour	1 Hour	2 Hour



<b>SCHEDULE OF SUBMITTALS</b>	
<b>PROJECT NO.: 44780-E</b>	
<b>FACILITY: SHIRLEY CHISHOLM STATE OFFICE BUILDING</b>	
<b>CONTRACTOR:</b>	
<b>PROJECT MANAGER:</b>	
<b>DESIGN CONSULTANT: FPM</b>	
<b>ENGINEER-IN-CHARGE:</b>	
<p style="text-align: center;"><b>LEGEND</b></p> <p><b>PACK:</b> SUBMITTAL PACKAGE</p> <p><b>SD:</b> SHOP DRAWINGS</p> <p><b>PD:</b> PRODUCT DATA</p> <p><b>SAM:</b> SAMPLES</p> <p><b>QCS:</b> QUALITY CONTROL SUBMITTALS</p> <p><b>LEED:</b> LEED SUBMITTALS</p> <p><b>CCS:</b> CONTRACT CLOSEOUT SUBMITTALS</p> <p><b><u>SUBMITTAL REVIEW RESPONSIBILITY:</u></b>  <b>F:</b> OGS FIELD OFFICE  <b>F/O:</b> OGS FIELD OFFICE / OFFICE (ALBANY)  <b>D:</b> CONSULTANT / DESIGNER  <b>S:</b> OGS SCHEDULING DEPARTMENT</p>	<p style="text-align: center;"><b><u>INSTRUCTIONS TO THE CONTRACTOR</u></b></p> <ol style="list-style-type: none"> <li>Refer to <b>Section 013300 Submittals</b> of the Project Manual for general requirements regarding submittals and to <b>Section 017716 - CONTRACT CLOSEOUT</b> for project closeout submittals.</li> <li>Refer to Sections of the specifications indicated herein for details of the requirements for each submittal listed.</li> <li>Indicate in the rows (spaces) following each item:             <ol style="list-style-type: none"> <li>Critical submittals and long lead items (mark with an 'X'). Some critical submittals may already be identified by the design team. Confirm that these are critical submittals.</li> <li>The date the item will be submitted, and date approval is required (allow at least 3 weeks), and the date delivery of the material or equipment is necessary for completion of the work in accordance with the Progress Schedule. The date entered for the submittal is the last date a substitution will be considered. Proposed substitutions must be made prior to the date entered if more than one substitution is to be submitted for approval. Spaces which contain N/A do not require dates.</li> </ol> </li> <li>An example of a Submittal Transmittal (BDC-42) can be located at: <a href="http://www.ogs.ny.gov/BU/DC/forms/ContractorConstForms.asp">http://www.ogs.ny.gov/BU/DC/forms/ContractorConstForms.asp</a></li> <li>Submit Contract Closeout Submittals (CCS) prior to final inspection.</li> </ol> <p style="text-align: center;"><b><u>INSTRUCTIONS TO THE CONSULTANT / DESIGNER</u></b></p> <ol style="list-style-type: none"> <li>Cut and paste required information from each Division (Div.X) tab and place in the S.O.S. tab.</li> <li>Delete Division (Div.X) tabs after the S.O.S. tab has been in-filled.</li> <li>Indicate F, F/O or D in column E. Items in Div.1 have defaults that can be modified as necessary.</li> <li>Indicate items that are critical submittals in column F.</li> </ol> <p><b><u>Note:</u></b>            The following list of submittals is furnished for your convenience in scheduling submittals. The list is not warranted to be complete and does not take precedence over the contract documents. Enter additional submittals, as required and modify this schedule to the specific project. This S.O.S. will be used to populate the submittals website log.</p>



<b>SCHEDULE OF SUBMITTALS</b>								
<b>PROJECT NO.: 44780-E</b>								
<b>SUBMITTALS FOR APPROVAL</b>				<b>Send to:</b>	<b>Critical Submittals</b>	<b>Contractor's Projected Dates</b> Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
<b>078400</b>			<b>FIRESTOPPING</b>					
<b>078400</b>		<b>PACK</b>	Submit the following items specified below the same time as a package: Product Data, Samples, Quality Control Submittals and Firestop Schedule	D				
<b>078400</b>		<b>PD</b>	Firestopping Device and Material	D				
<b>078400</b>		<b>PD</b>	Firestopping Schedule	D				
<b>078400</b>		<b>PD</b>	Through-Penetration Firestop Devices, Forming Materials, And Fill, Void or Cavity Materials	D				
<b>078400</b>		<b>PD</b>	Accessories	D				
<b>078400</b>		<b>PD</b>	Identification Labels	D				
<b>078400</b>		<b>SAM</b>	Each Product requested	F				
<b>078400</b>		<b>QCS</b>	Design Data	F				
<b>078400</b>		<b>QCS</b>	Installer's Qualifications Data	F				
<b>078400</b>		<b>QCS</b>	Company Field Advisor Data	F				
<b>079200</b>			<b>JOINT SEALERS</b>					
<b>079200</b>		<b>PD</b>	Type 1C Sealant	D				
<b>079200</b>		<b>PD</b>	Type 1D Sealant	D				
<b>079200</b>		<b>PD</b>	Sealant Colors	D				
<b>079200</b>		<b>PD</b>	Joint Primer/Sealer/Conditioner	D				
<b>079200</b>		<b>PD</b>	Backer Rod	D				
<b>079200</b>		<b>PD</b>	Cleaning Solvents	D				
<b>260519</b>			<b>WIRING, GENERAL - 600 VOLTS AND UNDER</b>					
<b>260519</b>		<b>SD</b>	For Electrical Circuit Protective Systems: Show proposed routes and installation details (include UL classification data, listing, and system number)	D				
<b>260519</b>		<b>PD</b>	Insulated Conductors and Cables	D				
<b>260519</b>		<b>PD</b>	Connectors	D				
<b>260519</b>		<b>PD</b>	Tapes	D				
<b>260519</b>		<b>PD</b>	Wire Pulling Compounds	D				
<b>260519</b>		<b>PD</b>	Tags	D				
<b>260519</b>		<b>PD</b>	Wire Management Products	D				
<b>260529</b>			<b>FASTENERS, ATTACHMENTS, AND SUPPORTING DEVICES</b>					
<b>260529</b>		<b>SD</b>	Show support details if different from methods specified or shown on the drawings.	D				
<b>260529</b>		<b>PD</b>	Sleeve Anchors	D				
<b>260529</b>		<b>PD</b>	Wedge Anchors	D				
<b>260529</b>		<b>PD</b>	Self-Drilling Anchors	D				
<b>260529</b>		<b>PD</b>	Non-Drilling Anchors	D				



# SCHEDULE OF SUBMITTALS

**PROJECT NO.: 44780-E**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
260529		PD	Stud Anchors	D				
260529		PD	Standard Nuts and Bolts	D				
260529		PD	Lag Screws	D				
260529		PD	Machine Bolts	D				
260529		PD	Wood Screws	D				
260529		PD	Plain Washers	D				
260529		PD	Lock Washers	D				
260529		PD	Toggle Bolts	D				
260529		PD	Stainless Steel Fasteners	D				
260529		PD	TPR Fasteners	D				
260529		PD	Powder Driven Fastener Systems	D				
260529		PD	Hanger Rods	D				
260529		PD	"C" Beam Clamps with Conduit Hangers	D				
260529		PD	"C" Beam Clamps for Hanger Rods	D				
260529		PD	Channel Support System	D				
260529		PD	Pipe Straps	D				
260529		PD	Deck Clamps	D				
260529		PD	Fixture Stud and Strap	D				
260529		PD	Supporting Fittings for Pendent Mounted Industrial Type Fluorescent Fixtures on Exposed Conduit System	D				
260529		PD	Supporting Fasteners (Metal Stud Construction)	D				
260531			<b>EXPOSED CONDUIT - WET LOCATIONS</b>					
260531		PD	Rigid Ferrous Metal Conduit					
260531		PD	Liquid-tight Flexible Metal Conduit					
260531		PD	Connectors and Couplings - Couplings (For Rigid Metal Conduit)					
260531		PD	Connectors and Couplings - Watertight Conduit Hubs					
260531		PD	Connectors and Couplings - Liquid-tight Flexible Metal Conduit Connectors					
260531		PD	Conduit Bodies (Threaded)					
260531		PD	Expansion Fittings					
260531		PD	Deflection Fittings					
260531		PD	Drains and Breathers					
260531		CCS	Spare Parts: Touch up coating compound for plastic coated rigid metal conduit (one spray type can and one non-spray can with brush top)	F				
260532			<b>INTERIOR RACEWAYS, FITTINGS, AND ACCESSORIES</b>					
260532		PD	Rigid Ferrous Metal Conduit	D				
260532		PD	Intermediate Ferrous Metal Conduit	D				
260532		PD	Flexible Metal Conduit	D				
260532		PD	Liquid-tight Flexible Metal Conduit	D				
260532		PD	Wireways, Fittings and Accessories	D				
260532		PD	Insulated Bushings	D				
260532		PD	Plastic Bushings for 1/2 and 3/4 Inch Conduit	D				
260532		PD	Insulated Grounding Bushings	D				

# SCHEDULE OF SUBMITTALS

**PROJECT NO.: 44780-E**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
260532		PD	Connectors and Couplings	D				
260532		PD	Conduit Bodies (Threaded)	D				
260532		PD	Expansion Fittings	D				
260532		PD	Deflection Fittings	D				
260532		PD	Sealant for Raceways Exposed to Different Temperatures	D				
260532		PD	Vertical Conductor Supports	D				
260532		PD	Pulling-In-Line For Installation in Spare and Empty Raceways	D				
260532		CCS	Spare Parts: Touch up coating compound for plastic coated rigid metal conduit (one spray type can and one non-spray can with brush top)	F				
260534			<b>OUTLET, JUNCTION, AND PULL BOXES</b>					
260534		PD	Galvanized Steel Outlet Boxes	D				
260534		PD	Galvanized Steel Junctions and Pull Boxes	D				
260534		PD	Threaded Type Boxes	D				
260534		PD	Corrosion Resistant Boxes	D				
260534		PD	Specific Purpose Boxes	D				
260534		PD	Combination Finishing Collar/Outlet Box	D				
260534		PD	Outlet Boxes and Related Products for Fire Rated Construction	D				
260549			<b>CONCRETE PADS FOR EQUIPMENT</b>					
260549		PACK	Submit product data for design mix and materials for concrete specified below at the same time as a package	D				
260549		SD	Placing drawings for bar reinforcement	D				
260549		PD	Concrete design mix with name and location of batching plant	D				
260549		PD	Portland Cement: Brand and manufacturer's name	D				
260549		PD	Fly Ash: Name and location of source, and DOT test numbers	D				
260549		PD	Air-Entraining Admixture: Brand and manufacturer's name	D				
260549		PD	Aggregates: Name and location of source, and NYS test numbers	D				
260549		PD	Bonding Agent (Adhesive): Brand and manufacturer's name, and preparation and application instructions	D				
260549		QCS	Certificates: Bar reinforcement manufacturer's certification that bar material conforms with ASTM A 615 and specified grade	F				
262212			<b>TRANSFORMERS - DRY TYPE, UNDER 600V</b>					
262212		PACK	For Transformers Rated 75KVA and Below: Submit the product data, and quality control submittals specified below all at the same time as a package.	D				

# SCHEDULE OF SUBMITTALS

**PROJECT NO.: 44780-E**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
262212		PD	Dry Type Transformers	D				
262212		QCS	Transformers Rated 75KVA and Below: Submit certified report of the Company's routine commercial NEMA tests for each type transformer.	F				
262212		CCS	Operation and Maintenance Data: Deliver 2 copies	F				
262212		CCS	Energy Efficiency Rebate Documentation: Deliver 2 copies	F				
262416			<b>PANELBOARDS</b>					
262416		PACK	Submit the shop drawings, product data, and the quality control submittals specified below at the same time as a package.	D				
262416		SD	Cabinet and gutter size.	D				
262416		SD	Voltage and current rating	D				
262416		SD	Panelboard short circuit rating. Indicate if rating is Fully Rated Equipment Rating, or where acceptable, UL listed Integrated Equipment Short Circuit Rating	D				
262416		SD	Circuit breaker enumeration (frame, ATE, poles, I.C.)	D				
262416		SD	When indicated on the panelboard schedule, a coordinated selective scheme between the main circuit breaker and branch/feeder circuit breakers so that under fault conditions the branch/feeder circuit breaker clears the fault while the main circuit breaker remains closed.	D				
262416		SD	Accessories.	D				
262416		PD	Panelboards	D				
262416		PD	Nameplates	D				
262416		CCS	Operation and Maintenance Data: Deliver 2 copies	F				
262726			<b>WIRING DEVICES</b>					
262726		PD	Local Switches, Single Pole	D				
262726		PD	Specification Grade Receptacles	D				
262726		PD	Ground Fault Interrupter Receptacles	D				
262726		PD	Weather Resistant Ground Fault Interrupter Receptacles	D				
262726		PD	Stainless Steel Wall Plates	D				
262726		PD	Weatherproof Covers	D				
262726		PD	Covers for Threaded Type Boxes	D				
262726		PD	Nameplates	D				
262812			<b>SAFETY SWITCHES</b>					
262812		PD	SAFETY SWITCHES (SINGLE THROW) - NEMA 1, 3R, 4 (Stainless Steel), 12	D				
262812		PD	Nameplates	D				
262813			<b>FUSES</b>					
262813		PD	Fuseholders	D				



# SCHEDULE OF SUBMITTALS

**PROJECT NO.: 44780-E**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
262813		PD	Fuses Rated 600V or Less	D				
262813		CCS	Spare Parts: Six spare fuses of each size and category, including any accessories required for a complete installation.	F				
262813		CCS	Spare Parts: Special tools if required for installation or removal of fuses	F				
263623			<b>AUTOMATIC TRANSFER SWITCH</b>					
263623		PACK	Submit the product data, shop drawings, and quality control submittals specified below at the same time as a package	D	X			
263623		SD	Installation details (coordination with connected equipment).	D				
263623		PD	Bill of materials	D				
263623		PD	Detailed sequence of operations (format similar to TRANSFER SWITCH OPERATING DESCRIPTION).	D				
263623		PD	Company's data indicating maintenance schedule	D				
263623		PD	Name, address and telephone number of nearest fully equipped service organization	D				
263623		PD	Automatic Transfer Switch	D				
263623		PD	Automatic Transfer Switch with By-Pass Isolation Switch	D				
263623		PD	Nameplates	D				
263623		QCS	Design Data:	F				
263623		QCS	Company Field Advisor Data	F				
263623		QCS	Completed Installation List	F				
263623		CCS	Operation and Maintenance Data: Deliver 2 copies	F				
263623		CCS	Test Report: Switch/System acceptance test report	F				
263623		CCS	Certificate: Affidavit, signed by the Company Field Advisor and notarized, certifying that the switch operation with the related equipment meets the contract requirements and is operating properly	F				
263623		CCS	Spare Parts: Special tools if required for the regular maintenance and minor repairs of the switch	F				
265111			<b>LIGHTING FIXTURES</b>					
265111		PD	Technical information for each fixture that proves that its ballast meets specified requirements. Include candlepower distribution curves for each type fixture if different from company or catalog number specified.	D				
265111		PD	Ballast	D				
265111		PD	Lamp	D				
265111		PD	Wall mounted compact flourescent	D				
265110		PD	wall mounted LED fixture	D				
265110		SAM	One of each product if requested	F				
265110		QCS	List of Installations for Electronic Ballasts	F				

# SCHEDULE OF SUBMITTALS

**PROJECT NO.: 44780-E**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
<b>MODIFICATIONS TO FIRE ALARM SYSTEM</b>								
283105		Prelim	Existing system test report	D				
283105		PACK	Submit the shop drawings, product data, and quality control submittals specified below at the same time as a package with Company field Advisor Letter	D				
283105		SD	Composite wiring and/or schematic diagrams of the modifications as proposed to be installed (standard diagrams will not be acceptable).	D				
283105		PD	Bill of materials	D				
283105		PD	Detailed description of completed system operation. Format similar to DESCRIPTION OF COMPLETED SYSTEM.	D				
283105		PD	Include for each system component which utilizes batteries the battery ampere-hour capacity recommended for each component by the Company producing the system, for the specified duration.	D				
283105		PD	Statement from the Company producing the system, for each size and type of single conductor and multiconductor cable proposed for use, indicating that the electrical characteristics meet the requirements of the Company	D				
283105		PD	Data from the Company furnishing the products, proving that detection devices that receive their power from the initiating device circuit or a signaling line circuit of a fire alarm control unit are UL listed for use with the control unit	D				
283105		PD	Detailed description of procedure proposed to test individual initiating devices	D				
283105		PD	Response time index comparison between the elevator hoistway and machine room heat detecting devices and sprinkler heads proving that the heat detecting devices will respond and will cause elevator power shutdown prior to sprinkler operation.	D				
283105		PD	Remote Addressable Network Modules	D				
283105		PD	Fire Warden Remote Floor Communication Station Telephones	D				
283105		PD	Fire Service Jacks and Telephones	D				
283105		PD	Ceiling Mounted Sensors (Intelligent, Addressable, Analog) - Smoke Sensors	D				
283105		PD	Terminal Strip Cabinets	D				
283105		PD	Power-Limited Insulated Conductors	D				
283105		PD	Non-Power-Limited Insulated Conductors	D				
283105		PD	Other 2-Hour Fire Resistive Cables	D				
283105		PD	System Keying	D				
283105		PD	Nameplates	D				
283105		PD	Fire Alarm Signs	D				
283105		PD	Manual Fire Alarm Box Signs	D				
283105		PD	Markers	D				
283105		PD	Accessories	D				

# SCHEDULE OF SUBMITTALS

**PROJECT NO.: 44780-E**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
283105		QCS	Copy of license required by New York State General Business Law Article 6-D for installing Fire Alarm Systems	F				
283105		QCS	Company Field Advisor Data	F				
283105		CCS	System acceptance test report	F				
283105		CCS	Certificates: Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly	F				
283105		CCS	Certificates: NFPA Record of Completion (NFPA 72 Figure 1-6.2.1) for the modifications	F				
283105		CCS	Operation and Maintenance Data: Deliver 2 copies	F				





SCHEDULE OF SUBMITTALS								
PROJECT NO.:								
SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
<b>007213 GENERAL CONDITIONS</b>								
007213		PD	ARTICLE 6: Designate in writing competent supervision and/or management representatives as required - <b>include contact number in case of an emergency after work hours, including weekends and holidays (see 011000 Summary of Work)</b>	F				
007213		PD	ARTICLE 8: Permits and licenses	F				
<b>011100 SAFETY</b>								
011100		QCS	Site Specific Safety Plan					
011100		QCS	Employee Safety Orientation Training and Certificates					
011100		QCS	Emergency Action and Evacuation Plan					
<b>013113 PROJECT SCHEDULE</b>								
013113		QCS	CMU-01 Agreement Form	S	X			
<b>013200 CONSTRUCTION PROGRESS DOCUMENTATION</b>								
013200		QCS	Scheduler Preparer Qualifications	S	X			
013200		QCS	Preliminary Project Schedule	S	X			
013200		QCS	Baseline Project Schedule	S	X			
013200		QCS	CMU-01 Agreement Form	S	X			
<b>013300 SUBMITTALS</b>								
013300		PD	Schedule of Submittals (This form completed and edited)	F	X			
013300		QCS	Proof of Payment	F	X			
<b>017716 CONTRACT CLOSEOUT</b>								
017716		CCS	Project Record Documents	F				
017716		CCS	Operation and maintenance, 2 copies	F				
017716		CCS	Warranties	F				
017716		CCS	Spare Parts and Maintenance Materials	F				
<b>028304 HANDLING OF LEAD CONTAINING MATERIALS</b>								
028304		PD	Respirators					
028304		PD	HEPA Filters (Respirators)					
028304		PD	HEPA Filters (Vacuum Cleaners)					
028304		PD	Vacuum Cleaners					
028304		PD	Disposal Bags					
028304		QCS	Work Plan					
028304		QCS	Lead Handling Contractor's Qualifications Data					
028304		QCS	Lad Handling Worker's Qualifications Data					
028304		QCS	Testing Lab Qualifications Data					
028304		QCS	Waste Transporter Permit					

# SCHEDULE OF SUBMITTALS

**PROJECT NO.:**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)						
Spec Section	Sub Section	Type	Description			F	F/O	D	S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:
028304		QCS	Landfill Permit									
028304		QCS	Disposal Site Receipts									
028304		QCS	Test Data									
028304		QCS	Certificates									
033001			<b>CAST-IN-PLACE CONCRETE BROADSCOPE SHORT VERSION</b>									
033001		PACK	Submit product data for design mix(es) and materials for concrete specified below at the same time as a package									
033001		SD	Placing drawings for bar reinforcement									
033001		PD	Concrete design mix(es)									
033001		PD	Portland Cement									
033001		PD	Fly Ash									
033001		PD	Air-entraining Admixture									
033001		PD	Water-reducing Admixture									
033001		PD	Aggregates									
033001		PD	Lightweight Coarse Aggregates									
033001		PD	Chemical Hardener (Dustproofing)									
033001		PD	Chemical Curing and Anti-Spalling Compound									
033001		PD	Bonding Agent (Adhesive)									
033001		PD	Expansion Joint Fillers									
033001		PD	Emery Aggregate									
033001		SAM	Fabric Reinforcement									
033001		SAM	Bar Supports									
033001		QCS	Certificates: Affidavit required under Quality Assurance Article									
051200			<b>STRUCTURAL STEEL (Allowable Stress Design)</b>									
051200		SD	Initial Submission: Drawings of proposed job standards for shop and field connections, including standard and special connections, complying with the requirements									
051200		SD	Initial Submission: Erection drawings indicating sizes, weights, and locations of all structural members.									
051200		SD	Initial Submission: Anchor bolt and base plate plans									
051200		SD	Subsequent Submission: Index sheets and revised erection drawings to which erection marks have been added									
051200		SD	Subsequent Submission: Detail drawings of all structural members									
051200		PD	Shop paint									
051200		QCS	Test Reports: Steel manufacturer's mill test reports									
051200		QCS	Test Reports: Bolt manufacturer's test reports									
051200		QCS	Certificates: Submit evidence, in triplicate, of steel material compliance with this Specification.									
051200		QCS	Fabricator's and Erector's Qualifications Data									
051200		QCS	Welding Procedure Specifications									
051200		QCS	Welder's Certification									
055000			<b>METAL FABRICATIONS (Broadscope)</b>									

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055000		SD	Application to Project: Locate anchor bolts required for installation in other Work					
055000		SD	Application to Project: Indicate shop and field welds by standard AWS welding symbols in accordance with AWS A2.4.					
055000		SD	Application to Project: Floor Grating					
055000		PD	Loose Bearing Plates					
055000		PD	Loose Lintels					
055000		PD	Shelf Angles					
055000		PD	Structural Steel Door Frames					
055000		PD	Steel Pipe Railings and Handrails					
055000		PD	Trench Covers					
055000		PD	Floor Grating					
055100			<b>METAL STAIRS</b>					
055100		SD	Application to Project: Include anchor bolt location plan (if any), erection drawings, and detail drawings of all components					
055100		SD	Application to Project: Indicate shop and field welds by standard AWS welding symbols in accordance with AWS A2.4.					
055100		PD	Paint					
055100		PD	Grating Treads and Platforms					
055100		QCS	Fabricator's Qualifications Data					
070153			<b>ROOFING REPAIR</b>					
070153		PACK	Submit all items, except contract closeout submittals and MSDS, at one time as a complete package.					
070153		PD	Sheet Membrane					
070153		PD	Sheet Flashing					
070153		PD	Inseam Tape					
070153		PD	Cured Cover Tape					
070153		PD	Uncured Cover Tape					
070153		PD	Related Products					
070153		PD	Insulation					
070153		PD	Underlayment Board					
070153		PD	Insulation and Membrane Fasteners					
070153		PD	Base Flashing Fasteners (use along top edge of base, beneath in-wall cap flashings)					
070153		PD	Termination Bar and Fasteners					
070153		PD	Anchor Strips					
070153		PD	Bitumen					
070153		PD	Insulation Adhesive					
070153		PD	Sealant					
070153		PD	Materials for Vapor Barrier Repair					
070153		PD	MSDS					
070153		QCS	Membrane Manufacturer's Certification					
070153		QCS	Installer's Certification					
078100			<b>APPLIED FIREPROOFING</b>					
078100		PD	Fireproofing					
078100		PD	Primer/Adhesive					



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Spec Section	Sub Section	Type	Description			F	F/O	D	S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:
078100		PD	Reinforcement									
078100		PD	Furring and Corner Beads									
078100		PD	Sealant									
078100		QCS	UL fire resistance rating certificate									
078100		QCS	UL fire hazard classification certificate									
078100		QCS	Fireproofing Manufacturer's Certification (or confirming test reports)									
078100		QCS	Applicators Qualifications Data									
078400			<b>FIRESTOPPING</b>									
078400		PACK	Submit the following items specified below the same time as a package: Product Data, Samples, Quality Control Submittals and Firestop Schedule									
078400		PD	Firestopping Device and Material									
078400		PD	Firestopping Schedule									
078400		PD	Through-Penetration Firestop Devices, Forming Materials, And Fill, Void or Cavity Materials									
078400		PD	Accessories									
078400		PD	Identification Labels									
078400		QCS	Design Data									
078400		QCS	Installer's Qualifications Data									
078400		QCS	Company Field Advisor Data									
079200			<b>JOINT SEALERS</b>									
079200		PD	Type 1 Sealant									
079200		PD	Type 2 Sealant									
079200		PD	Sealant Colors									
079200		PD	Backer Rod									
079200		PD	Bond Breaker Tape									
079200		PD	Cleaning Solvents									
079200		QCS	Installer's Qualifications Data									
079200		QCS	Company Field Advisor Data									
081102			<b>STEEL DOORS AND FRAMES</b>									
081102		SD	Quality Assurance Package									
081102		SD	Door and Frame Schedule with Product Data Package									
081102		SAM	Door and Frame Samples									
081102		CCS	Closeout Submittal Package	F								
087100			<b>FINISH HARDWARE</b>									
087100		SD	Quality Control Package									
087100		SD	Finish Hardware Package									
087100		CCS	Closeout Submittals Package	F								
089100			<b>STATIONARY METAL WALL LOUVERS</b>									
089100		SD	Show fabrication details and connections to adjacent Work.									
089100		PD	Steel Louvers									
089100		PD	Louver Screens									
099101			<b>CONSTRUCTION PAINTING</b>									
099101		PD	Painting Schedule - Exterior Substrates									
099101		PD	Painting Schedule - Interior Substrates									

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SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
099101		PD	Paint Type EAL-3: Exterior Acrylic Latex, Gloss Enamel					
099101		PD	Paint Type IAL-3: Interior Acrylic Latex, Semigloss Enamel					
099101		PD	Paint Type IAL-4: Interior Acrylic Latex, Gloss Enamel					
099101		PD	Paint Type PEC					
099101		PD	Certificates					
099101		PD	Colors					
099101		SAM	Finish Paint Samples: Two finish paint samples applied over recommended primers for each substrate to be painted.					
099101		QCS	Test Reports					
099101		QCS	Certificates of Quality Assurance Article					
099101		PD	Existing Exterior Paint Film Stripping and Removal Submittals					
099101		CCS	Extra Materials: One gallon, each paint type.	F				



<b>SCHEDULE OF SUBMITTALS</b>	
<b>PROJECT NO.: 44780-H</b>	
<b>FACILITY: SHIRLEY CHISHOLM STATE OFFICE BUILDING</b>	
<b>CONTRACTOR:</b>	
<b>PROJECT MANAGER:</b>	
<b>DESIGN CONSULTANT: FPM</b>	
<b>ENGINEER-IN-CHARGE:</b>	
<p style="text-align: center;"><b>LEGEND</b></p> <p><b>PACK:</b> SUBMITTAL PACKAGE</p> <p><b>SD:</b> SHOP DRAWINGS</p> <p><b>PD:</b> PRODUCT DATA</p> <p><b>SAM:</b> SAMPLES</p> <p><b>QCS:</b> QUALITY CONTROL SUBMITTALS</p> <p><b>LEED:</b> LEED SUBMITTALS</p> <p><b>CCS:</b> CONTRACT CLOSEOUT SUBMITTALS</p> <p><b><u>SUBMITTAL REVIEW RESPONSIBILITY:</u></b>  <b>F:</b> OGS FIELD OFFICE  <b>F/O:</b> OGS FIELD OFFICE / OFFICE (ALBANY)  <b>D:</b> CONSULTANT / DESIGNER  <b>S:</b> OGS SCHEDULING DEPARTMENT</p>	<p style="text-align: center;"><b><u>INSTRUCTIONS TO THE CONTRACTOR</u></b></p> <ol style="list-style-type: none"> <li>Refer to <b>Section 013300 Submittals</b> of the Project Manual for general requirements regarding submittals and to <b>Section 017716 - CONTRACT CLOSEOUT</b> for project closeout submittals.</li> <li>Refer to Sections of the specifications indicated herein for details of the requirements for each submittal listed.</li> <li>Indicate in the rows (spaces) following each item:             <ol style="list-style-type: none"> <li>Critical submittals and long lead items (mark with an 'X'). Some critical submittals may already be identified by the design team. Confirm that these are critical submittals.</li> <li>The date the item will be submitted, and date approval is required (allow at least 3 weeks), and the date delivery of the material or equipment is necessary for completion of the work in accordance with the Progress Schedule. The date entered for the submittal is the last date a substitution will be considered. Proposed substitutions must be made prior to the date entered if more than one substitution is to be submitted for approval. Spaces which contain N/A do not require dates.</li> </ol> </li> <li>An example of a Submittal Transmittal (BDC-42) can be located at: <a href="http://www.ogs.ny.gov/BU/DC/forms/ContractorConstForms.asp">http://www.ogs.ny.gov/BU/DC/forms/ContractorConstForms.asp</a></li> <li>Submit Contract Closeout Submittals (CCS) prior to final inspection.</li> </ol> <p style="text-align: center;"><b><u>INSTRUCTIONS TO THE CONSULTANT / DESIGNER</u></b></p> <ol style="list-style-type: none"> <li>Cut and paste required information from each Division (Div.X) tab and place in the S.O.S. tab.</li> <li>Delete Division (Div.X) tabs after the S.O.S. tab has been in-filled.</li> <li>Indicate F, F/O or D in column E. Items in Div.1 have defaults that can be modified as necessary.</li> <li>Indicate items that are critical submittals in column F.</li> </ol> <p><b><u>Note:</u></b>            The following list of submittals is furnished for your convenience in scheduling submittals. The list is not warranted to be complete and does not take precedence over the contract documents. Enter additional submittals, as required and modify this schedule to the specific project. This S.O.S. will be used to populate the submittals website log.</p>





**SCHEDULE OF SUBMITTALS**

**PROJECT NO.: 44780-H**

SUBMITTALS FOR APPROVAL				Send to:	Critical Submittals	Contractor's Projected Dates Allow at least 4 weeks for Approval (allows time for any resubmission)		
Spec Section	Sub Section	Type	Description	F F/O D S	Mark "X" for all that apply	Projected Transmittal Date:	Projected Approval Date:	Projected Delivery Date:
<b>055000 METAL FABRICATION</b>								
055000		SD	Application to Project: Locate anchor bolts required for installation in other Work	D				
055000		SD	Motorized Damper	D				
<b>230529 PIPE HANGERS AND SUPPORTS</b>								
230529		SD	Details of pipe anchors.	D				
230529		PD	Combination clevis hanger, pipe insulation shield and vapor barrier	D				
230529		PD	Pipe Hangers	D				
230529		PD	Adjustable Floor Rests and Base Flanges	D				
230529		PD	Hanger Rods	D				
230529		PD	Sleeve Anchors	D				
230529		PD	Wedge Anchors	D				
230529		PD	Beam Clamps	D				
230529		PD	Shop painting and plating	D				
<b>230552 FLEXIBLE VIBRATION ELIMINATORS</b>								
230552		PD	Metal Flexible Vibration Eliminators - Bronze Units	D				
230552		PD	Teflon Flexible Vibration Eliminators	D				
<b>230553 PIPE AND VALVE IDENTIFICATION</b>								
230553		PD	Snap-on Marker	D				
230553		PD	Stick-On Marker	D				
230553		PD	Pipe Marker Legend and Color Field Sizes	D				
230553		PD	Banding Tapes	D				
230553		PD	Pipe Size Labels	D				
<b>230593 CLEANING AND TESTING</b>								
230593		QCS	Test Reports - Refrigeration Systems	F				
230593		QCS	Test Reports - Submit data for each system tested, and/or disinfected	F				
<b>230700 PIPING INSULATION</b>								
230700		PD	Flexible Elastomeric Foam Insulation	D				
230700		QCS	Installer's Qualification Data	F				
<b>230725 AIR CONDITIONERS</b>								
230725		PD	Split System AC	D				
230725		CCS	Operation and Maintenance Data - 2 copies	F				
230725		CCS	Maintenance Service-	F				
		CCS	Extra Materials: one spare set of air filters	F				

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<b>232000</b>			<b>HVAC PIPING</b>					
<b>232000</b>		<b>PD</b>	Material Schedule	D				
<b>232000</b>		<b>PD</b>	Copper and Brass Pipe, Tubing and Fittings	D				
<b>232000</b>		<b>PD</b>	Joining and Sealant Materials	D				
<b>232000</b>		<b>PD</b>	Pipe Sleeves - Type A	D				
<b>232000</b>		<b>QCS</b>	Brazer Qualification Data for Refrigerant Piping	F				
<b>232000</b>		<b>CCS</b>	Copy of Final Hydrostatic Testing Record Log	F				