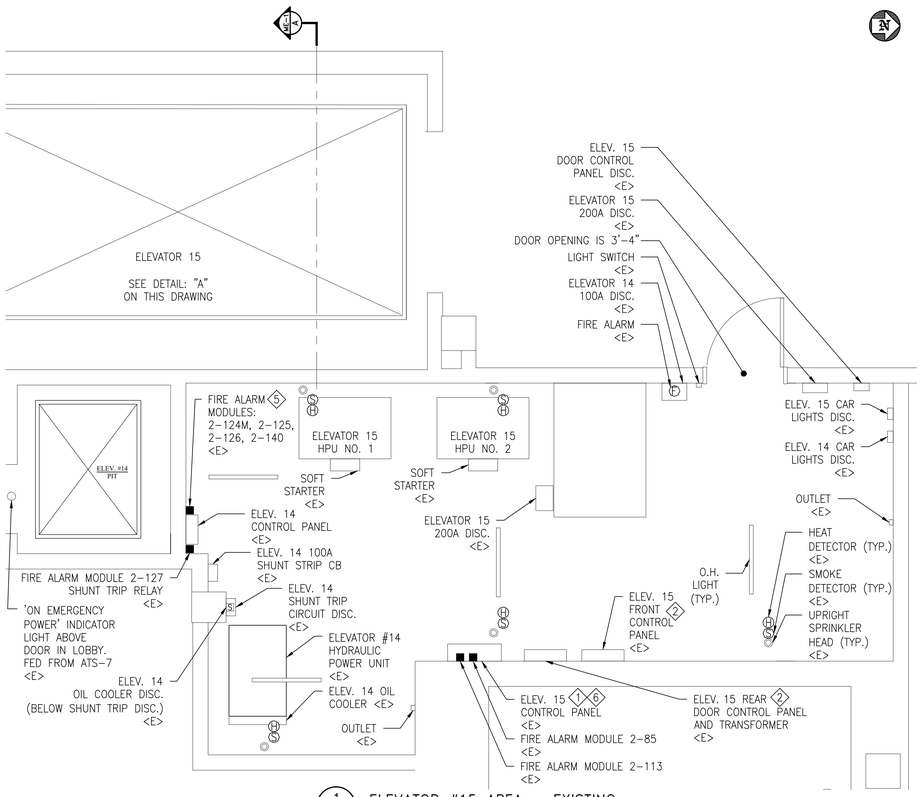
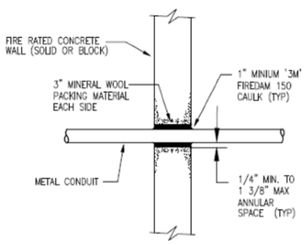
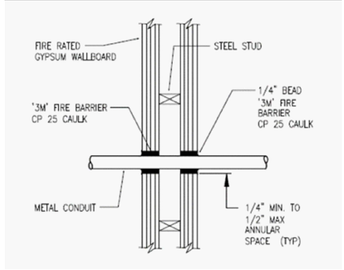


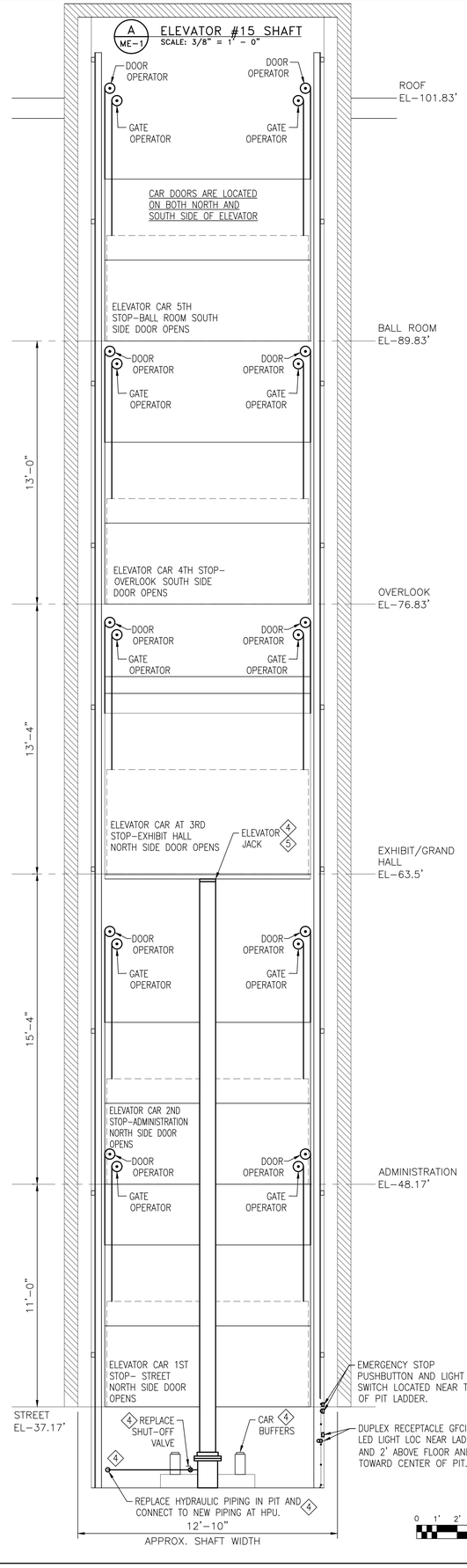
1 ME-1 ELEVATOR #15 AREA – EXISTING
SCALE: 3/8" = 1' – 0"

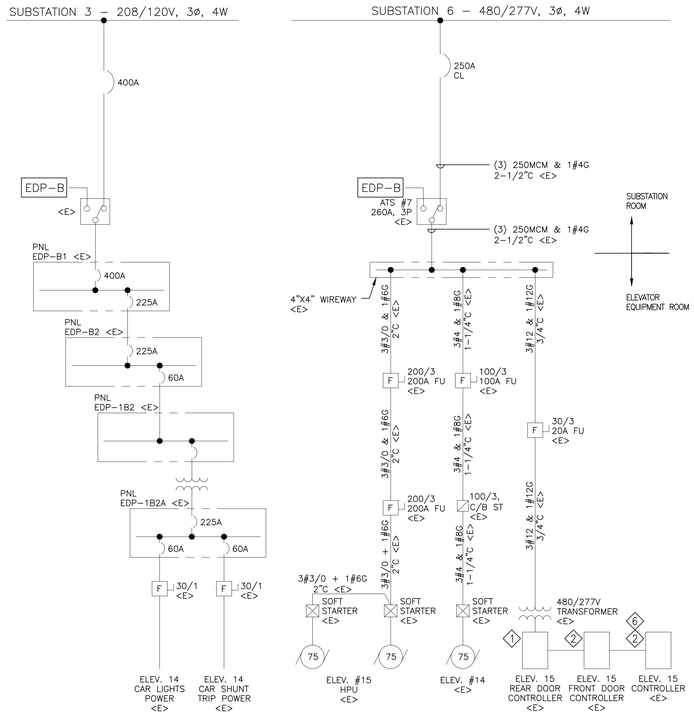


2 ME-1 GYPSUM WALLBOARD FIRE STOP PENETRATION DETAIL

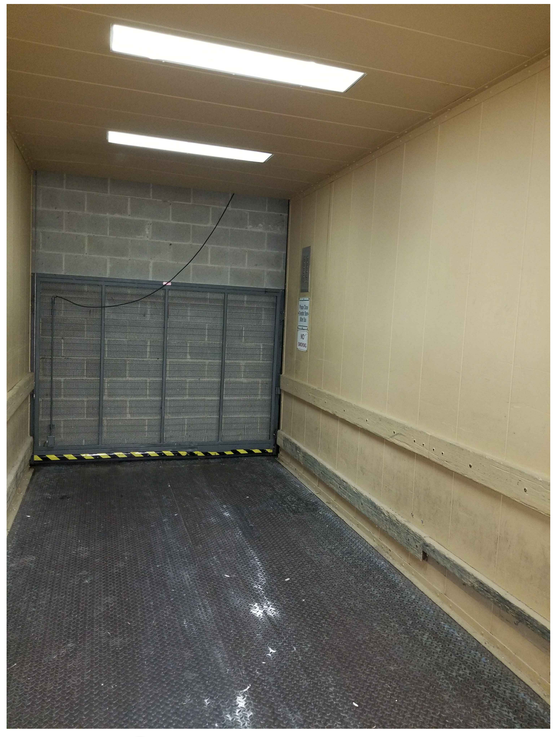


3 ME-1 CONCRETE WALL FIRE STOP PENETRATION DETAIL





4 ME-1 ELEVATOR #15 SINGLE LINE DIAGRAM – EXISTING
SCALE: NTS



5 ME-1 ELEVATOR #15 CAR LIGHTS PHOTO
SCALE: NTS

GENERAL NOTES

1. THE ELEVATOR MODERNIZATION CONTRACTOR SHALL PROVIDE ALL SERVICES AND FURNISH AND INSTALL NEW EQUIPMENT MATERIAL AND LABOR FOR THE MODERNIZATION OF ELEVATOR 15 IN ACCORDANCE WITH THE ELEVATOR SPECIFICATION. THIS DRAWING IS INTENDED TO SUPPLEMENT THE ELEVATOR SPECIFICATION, PROVIDING A PLAN VIEW AND ELEVATION OF ELEVATOR 15.
2. MODERNIZATION INCLUDES "ALL WORK" REQUIRED TO BRING ELEVATOR 15 INTO COMPLIANCE WITH THE CURRENT RELEVANT BUILDING AND FIRE CODES, ADA REQUIREMENTS, AND MUNICIPAL AND STATE REQUIREMENTS, WHICH MAY BE FURTHER DEFINED BY THE AUTHORITY HAVING JURISDICTION.
3. MODERNIZATION INCLUDES INCORPORATING AND MODIFYING, AS NEEDED, THE FOLLOWING:
   a. RECENTLY INSTALLED HYDRAULIC POWER UNIT (HPU).
   b. ELEVATOR CAR FLOOR, WALLS, AND SCREENS (GATES).
   c. ELEVATOR LANDING DOORS
4. THE ELEVATOR MODERNIZATION CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL ENGINEERING AND DESIGN AND THE FURNISHING AND INSTALLATION OF EQUIPMENT AND MATERIAL ON THE LOAD SIDE OF THE FOLLOWING EQUIPMENT. ALL INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED AND LICENSED ELECTRICIAN OR CONTRACTOR, UNDER THE SUPERVISION OF THE ELEVATOR MODERNIZATION CONTRACTOR.
   a. HPU 480 VOLT, 200 AMP, SHUNT TRIP CIRCUIT BREAKER
   b. ELEVATOR CONTROL PANEL DISCONNECT SWITCH
   c. ELEVATOR FRONT DOOR CONTROL PANEL DISCONNECT SWITCH
   d. ELEVATOR REAR DOOR CONTROL PANEL DISCONNECT SWITCH
   e. ELEVATOR 15 CAR LIGHTING, GFCI RECEPTACLE, AND VENTILATION FAN DISCONNECT SWITCH
   f. ELEVATOR 15 TOP OF CAR LIGHTING AND GFCI RECEPTACLE DISCONNECT SWITCH
   g. ELEVATOR 14 CAR LIGHTING, VENTILATION FAN DISCONNECT, TOP OF CAR LIGHTING, AND GFCI RECEPTACLE SWITCH

SHEET NOTES

1. FURNISH AND INSTALL A NEW UL LABELED, STATE OF THE ART, MICROPROCESSOR (PLC) BASED ELEVATOR CONTROL PANEL IN A NEMA 3R ENCLOSURE ALONG WITH A NEW BRANCH CIRCUIT TO MINI POWER–ZONE PANELBOARD ELEV15–1 AND NEW CONTROL CIRCUITS THAT WILL INTERFACE WITH THE EXISTING HPU SOFT STARTERS, THE NEW ELEVATOR FRONT DOOR CONTROL PANEL, AND THE REAR ELEVATOR REAR DOOR CONTROL PANEL. RACEWAYS SHALL CONNECT TO THE BOTTOM OF THE CONTROL PANEL. THE CONTROL PANEL WILL INCLUDE EQUIPMENT TO PROVIDE EMERGENCY POWER FOR THE ELEVATOR CAB LIGHTS FOR 2 OR MORE HOURS.
2. FURNISH AND INSTALL TWO (2) NEW UL LABELED, STATE OF THE ART, MICROPROCESSOR (PLC) BASED ELEVATOR DOOR CONTROL PANELS, FOR THE FRONT AND REAR ELEVATOR DOORS, IN A NEMA 3R ENCLOSURE ALONG WITH A NEW BRANCH CIRCUIT TO MINI POWER–ZONE PANELBOARD ELEV15–1 AND NEW CONTROL CIRCUITS THAT INTERFACE WITH THE NEW ELEVATOR CONTROL PANEL. RACEWAY SHALL CONNECT TO THE BOTTOM OF THE CONTROL PANEL.
3. THE ELEVATOR SPECIFICATIONS LIST THE EQUIPMENT, COMPONENTS, AND INSTRUMENTS THAT CAN BE REUSED AND SOME, BUT NOT ALL, THAT MUST BE REPLACED.
4. THE FOLLOWING HYDRAULIC COMPONENTS SHALL BE REPLACED WITHIN OR ORIGINATING FROM WITHIN THE ELEVATOR PIT:
   a. PIPING: REPLACE HYDRAULIC PIPING AND SHUT–OFF VALVE WITH NEW PIPING OF THE SAME TYPE AND SIZE AS THE EXISTING PIPING FROM THE JACK ASSEMBLY TO THE HPU. PROVIDE FIRE STOPPING IN ALL WALL PENETRATION.
   b. OPTIONAL JACK ASSEMBLY: INCLUDE REPLACEMENT AS AN OPTION IN THE BID. (CYLINDER WITH PVC CASING AND PISTON). SEE THE NEXT NOTE.
   c. JACK ASSEMBLY: IF NOT REPLACING THE JACK, REPLACE EXISTING HYDRAULIC JACK PACKING AND BEARING INCLUDING THE FOLLOWING:
      I. WIPER
      II. GLAND SEAL
      III. LATERNING RING
      IV. BEARING RING
   d. BUFFERS: REUSE EXISTING.
   e. PIT STOP SWITCH: PROVIDE NEW.
5. OPTIONAL JACK ASSEMBLY REQUIREMENTS INCLUDE THE FOLLOWING:
   a. A NEW PVC CASING, NEW CYLINDER, AND NEW PLUNGER.
   b. REMOVAL OF EXISTING JACK AND OIL AND SPOILS
   c. REUSING THE EXISTING JACK HOLE AND IF NEEDED PROVIDING NECESSARY DRILLING TO EXPAND THE HOLE DIAMETER. THE DRILLING RIG AND ATTACHMENTS AND ANY ASSOCIATED DRILLING COSTS SHALL BE INCLUDED. A "ROCK CLAUSE" SHALL NOT BE ACCEPTABLE.
   d. A NEW WATERTIGHT PVC CASING THAT CAN ACCOMMODATE THE NEW JACK UNIT.
   e. THE NEW CYLINDER SHALL BE A SEAMLESS STEEL PIPE WITH A DESIGN HEAD TO RECEIVE UNIT TYPE PACKING.
   f. THE PLUNGER SHALL BE A POLISHED SEAMLESS STEEL PIPE.
   g. SEALING OPENINGS IN THE PIT FLOOR WITH QUICK–ACTING CEMENT.
6. PROVIDE NEW OR REUSE EXISTING IF AVAILABLE, UPDATED FIRE ALARM INTERFACE MODULES AND TELEPHONE CIRCUITS WHICH SHALL BE INTERCONNECTED/INTEGRATED WITH THE NEW ELEVATOR CONTROL PANEL. FIRE ALARM AND TELEPHONE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE ELEVATOR CONTRACTOR.

REVISIONS

ISSUE	DATE	REVISIONS
0	1/26/24	INITIAL REV
1	3/1/24	SIEMENS PAD-3 ADDITION

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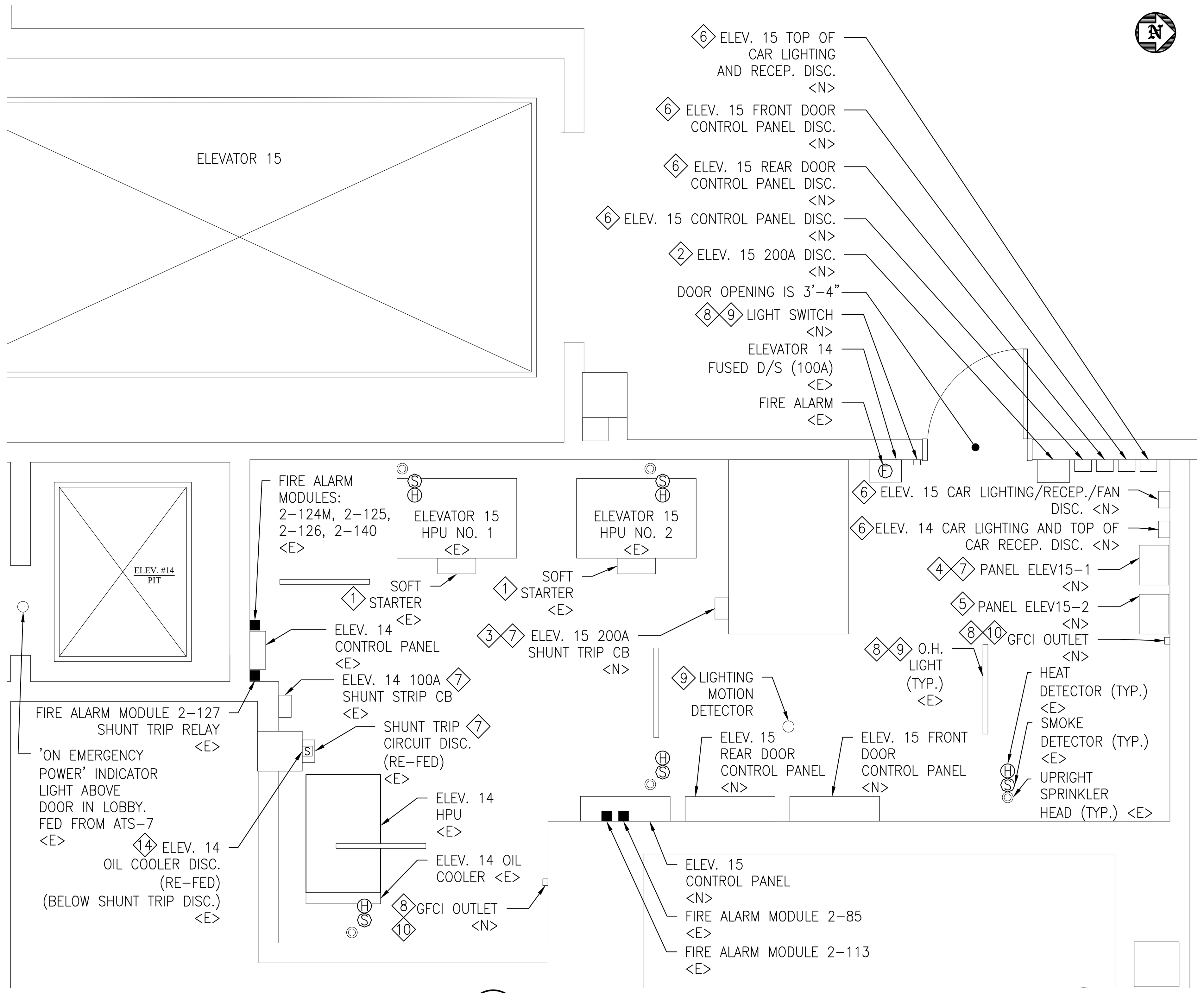
PA ONE-CALL NUMBER (FOR DESIGN ONLY): XXXXXXXXX
DPP PROJECT COORDINATOR: XXXXXXXXX
SEAL:

DPP PROJECT NUMBER: XX-XX-XXXX-XX
PROJECT TITLE: ELEVATOR #15 MODERIZATION
PHASE:
DRAWING TITLE: ELEVATOR #15 EXISTING PLAN, SINGLE, ELEVATION, AND DETAILS
PACC PROJECT NO.: XX-XX-XXXX-XX
DRAWING NO.: ME-1

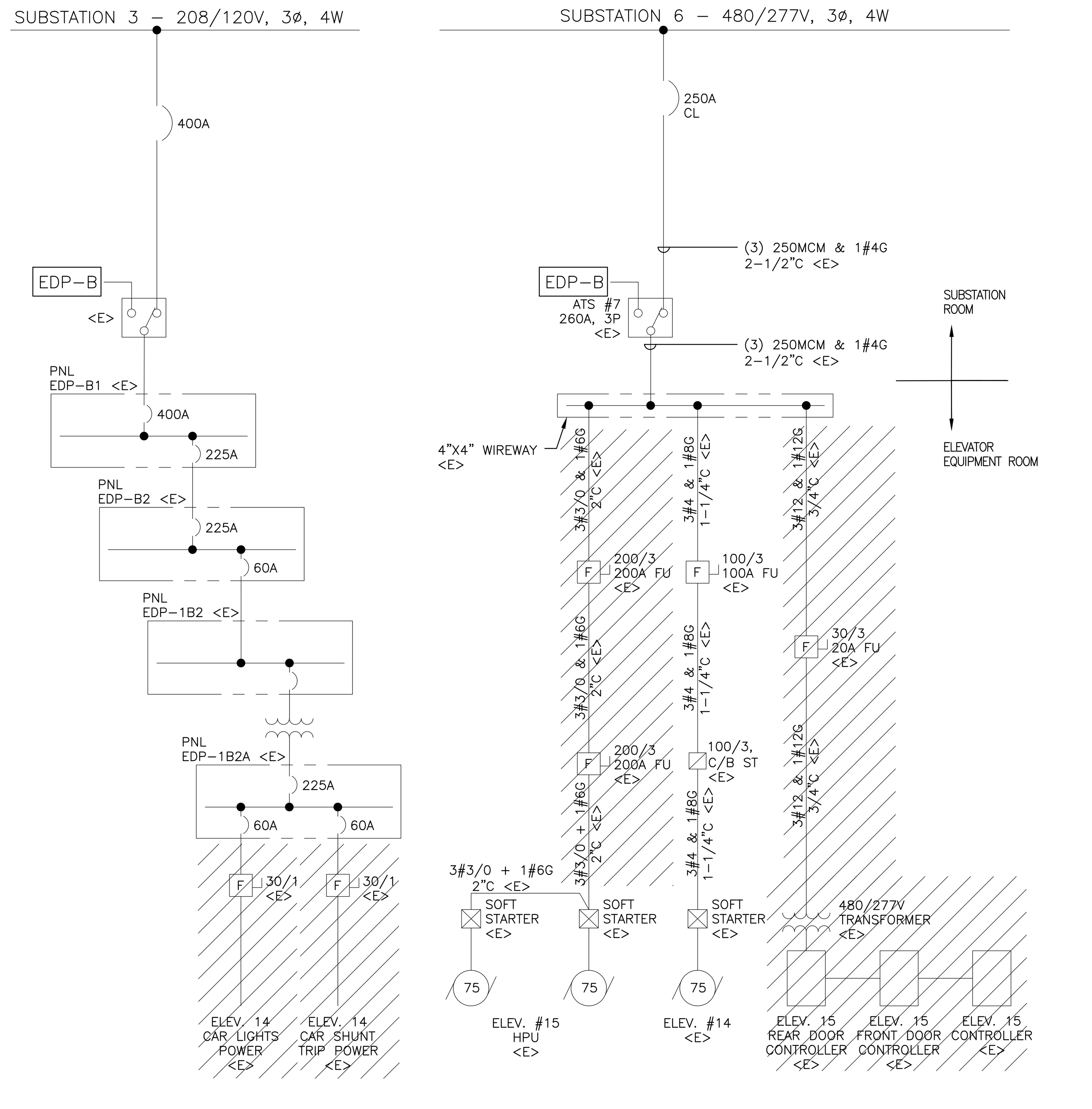
MAIDA ENGINEERING INC.
CONSULTING ENGINEERS
Philadelphia Office
1315 Walnut Street
Suite 716
Philadelphia, PA 19107
(215) 542-8700

CONSULTANT PROJECT NO.:	XXXX-XXXXX	
PROJECT NO.	E45021–1	DATE
DATE:	1-26-2024	
SCALE:	AS NOTED	
DRAWN BY:	SEG/ALA	
PROJECT ENG.	JFM	1/26/24
CHECKED BY:	JFM	
CHECKED	JFM	1/26/24

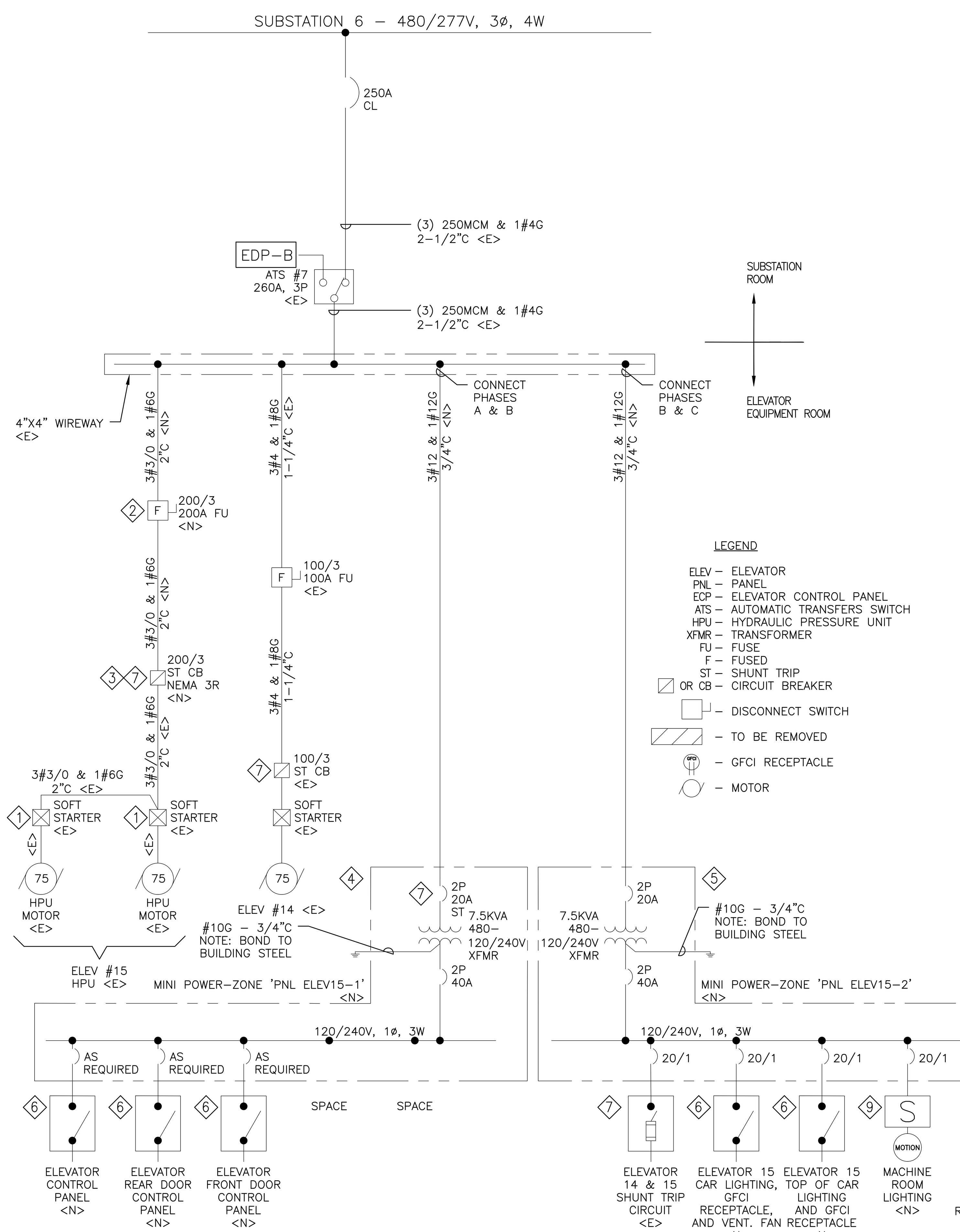
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

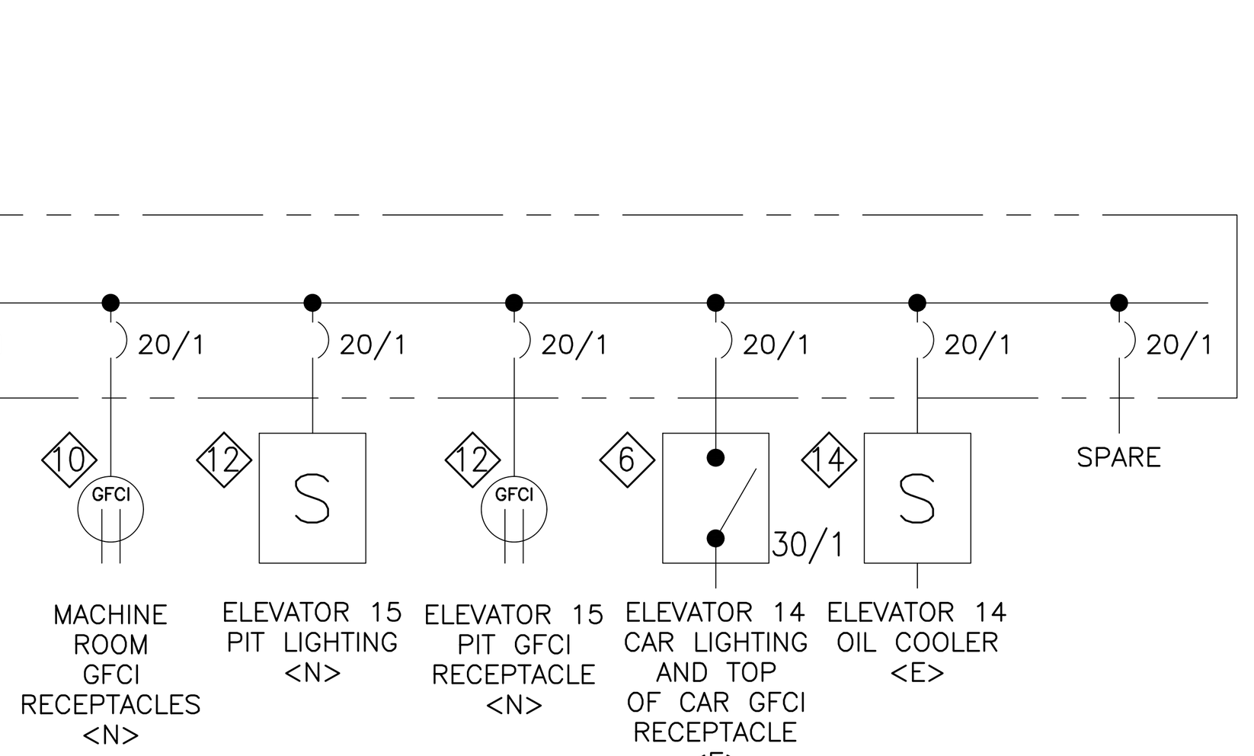


1 ME-2 ELEVATOR #15 AREA – NEW
SCALE: 3/8" = 1' – 0"



2 ME-2 ELEVATOR #14/15 SINGLE LINE DIAGRAM – REMOVALS
SCALE: NTS





2 ME-2 ELEVATOR #15 SINGLE LINE DIAGRAM – NEW
SCALE: NTS

ELECTRICAL REQUIREMENTS

1. INSTALLATION SHALL CONFORM TO THE 2023 EDITION OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AND LOCAL/STATE ADOPTED CODES.
2. WORK SHOWN ON THE DRAWINGS IS DESCRIPTIVE OF THE WORK TO BE PERFORMED. THE CONTRACTOR SHALL PROVIDE ALL SERVICES AND MATERIAL REQUIRED TO COMPLETE THE INSTALLATION AND PROVIDE COMPLETE FUNCTIONING SYSTEMS.
3. PROVIDE DURABLE NAMEPLATES ON ALL RECEPTACLES AND LIGHT SWITCHES. NAMEPLATES SHALL SHOW BRANCH CIRCUIT NUMBER AND THE PANELBOARD WHICH FEEDS THE BRANCH CIRCUIT. UPDATE CIRCUIT DIRECTORY CARDS IN PANELABOARDS.
4. PROVIDE ENGRAVED PLASTIC NAMEPLATES ON DISCONNECT SWITCHES, CIRCUIT BREAKERS, CONTROL PANELS AND SIMILAR EQUIPMENT IDENTIFYING THE EQUIPMENT AND THE SOURCES OF POWER TO THE EQUIPMENT, INCLUDING THE PANELBOARD OR ATS WHICH FEEDS THE CIRCUIT. UPDATE CIRCUIT DIRECTORY CARDS IN PANELBOARDS
5. FEEDERS, BRANCH CIRCUIT AND CONTROL CIRCUIT WIRES SHALL BE 600 VOLT, TYPE THHN/THWN, STRANDED COPPER WIRES IN RACEWAYS HAVING A SEPARATE 600VOLT, TYPE THHN/THWN, STRANDED COPPER GROUNDING WIRE.
6. BRANCH CIRCUIT WIRES SHALL BE A MINIMUM OF #12 AWG. HOT CONDUCTORS SHALL BE BLACK; NEUTRAL CONDUCTORS SHALL BE WHITE; AND GROUNDING CONDUCTORS SHALL BE GREEN.
7. CONTROL WIRES SHALL BE A MINIMUM OF #14 AWG. HOT CONDUCTORS SHALL BE RED; NEUTRAL CONDUCTORS SHALL BE WHITE; AND GROUND CONDUCTORS SHALL BE GREEN. CONTROL WIRES SHALL BE LABELED TO CORRISPOND TO THE IDENTIFYING NUMBER OR NAME ON THIS DRAWING.
8. FEEDERS WIRES SHALL BE SIZED PER THE DRAWINGS AND SHALL BE OF THE FOLLOWING COLORS:

PHASE/VOLTAGE	208/120 VOLTS	480/277 VOLTS
PHASE A	BLACK	BROWN
PHASE B	RED	ORANGE
PHASE C	BLUE	YELLOW

9. EXCEPT FOR FINAL CONNECTIONS, RACEWAYS SHALL BE RIGID STEEL CONDUIT AND SHALL BE SIZED IN ACCORDANCE WITH THE NEC.
10. FINAL CONNECTION TO MOTORS AND INSTRUMENTS SHALL BE MADE USING FLEXIBLE METAL CONDUIT THAT IS NO LONGER THAN 48".
11. FEEDER AND BRANCH CIRCUITS RUN IN COMMON RACEWAYS ARE TO BE SIZED IN ACCORDANCE WITH THE DERATING REQUIREMENTS OF THE NEC.
12. CONTRACTOR SHALL SUBMIT FOUR SETS OF SHOP DRAWINGS AND CATALOG CUT SHEETS FOR ALL CONTRACTOR FURNISHED MATERIAL AND EQUIPMENT FOR APPROVAL PRIOR TO STARTING WORK. INSTALLATION SHALL BE IN ACCORDANCE WITH FINAL APPROVED SHOP DRAWINGS AND CATALOG CUTS.
13. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH ELEVATOR AND FIRE ALARM CONTRACTORS WORKING ON THE PROJECT, EQUIPMENT SUPPLIERS, THE CONSTRUCTION MANAGER, AND OWNER.
14. THE WORD "INSTALL" OR "PROVIDE" MEANS FURNISH AND INSTALL ALL NEW EQUIPMENT. ALL EQUIPMENT SHOWN N THIS DRAWING IS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS EXISTING OR NOTED OTHERWISE.
15. EACH BRANCH CIRCUIT, WHERE APPLICABLE, SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR, COMMON NEUTRALS ARE NOT PERMITTED.
16. ALL RECEPTACLE AND LIGHT SWITCH DEVICE BOXES SHALL BE GALVANIZED STEEL DEVICE BOX WITH STAINLESS STEEL COVER PLATE.
17. ALL OTHER BOXES INCLUDING LIGHTING OUTLET BOXES, ALARM DEVICE BACK BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED STEEL SHEET METAL WITH GALVANIZED STEEL COVER PLATE WHERE APPLICABLE AND SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
18. ALL EXPOSED BOXES AND THEIR COVER PLATES USED ON THE FIRE ALARM SYSTEM SHALL BE PAINTED RED
19. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NEW RACEWWAY AND EQUIPMENT SUPPORT BRACKETS AND STANDOFFS AS REQUIRED FOR THE INSTALLATIONS DESCRIBED ON THIS DRAWING.
20. ELECTRICAL CONTRACTOR SHALL PROVIDE SAFEGUARDS AT THE PANELBOARD AND ATS TO MAKE CERTAIN THAT CIRCUITS BEING WORKED ON CANNOT BE RE-ENERGIZED BY ANYONE OTHER THAN THE ELECTRICAL CONTRACTOR.
21. DURING CONSTRUCTION. MEANS AND METHOD SHOULD BE REVIEWED WITH AND APPROVED BY THE OWNER. ONLY QUALIFIED PERSONS AND PERSONNEL ACCOMPANIED BY QUALIFIED PERSONS WITH PROPER PPE IN ACCORDANCE WITH NFPA 70E – 2021 SHALL BE PERMITTED IN ROOMS WHEN PANELBOARD AND SWITCHBOARD COVERS ARE REMOVED.
22. ELECTRICAL CONTRACTOR SHALL USE ULTRASONIC EQUIPMENT OR OTHER APPROVED METHOD TO ENSURE NO OBSTACLES ARE IN CONCRETE SLABS PRIOR TO CORE DRILLING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS INVOLVED WITH HITTING AN OBSTACLE DURING CORE DRILLING.
23. ALL CONDUIT PENETRATIONS WITHIN FIRE RATED WALLS SHALL BE INSTALLED PER THE DETAILS SHOWN ON THIS DRAWING.
24. SURFACE MOUNTED EQUIPMENT SHALL NOT BE MOUNTED DIRECTLY ON WALLS, PROVIDE 1/4" SPACES TO MOUNT EQUIPMENT OFF OF WALLS.
25. ELECTRICAL CONTRACTOR TO RED LINE THIS DRAWING WITH AS INSTALLED CIRCUIT DATA.

GENERAL NOTES

1. THE ELEVATOR MODERNIZATION CONTRACTOR SHALL FURNISH AND INSTALL THE NEW EQUIPMENT AND MATERIAL IN ACCORDANCE WITH THE ELEVATOR 15 MODERNIZATION SPECIFICATION. WHERE A CONFLICT EXIST BETWEEN THIS DRAWING AND THE SPECIFICATION, THE SPECIFICATION TAKES PRECEDENCE. ADVISE THE PACC OF ANY CONFLICTS.
2. THE DRAWING PROVIDES INFORMATION ON EXISTING ELECTRICAL, LIGHTING AND FIRE ALARM EQUIPMENT THAT MAY BE UTILIZED, MODIFIED OR REPLACED AS A PART OF THE ELEVATOR 15 MODERNIZATION.
3. THE DRAWING ALSO PROVIDES INFORMATION ON THE RECENT ELEVATOR 14 MODERNIZATION AND THE RECENT REPLACEMENT OF THE ELEVATOR 15 HPU, WHICH SHALL BE REUSED AND MODIFIED FOR THE ELEVATOR 15 MODERNIZATION.

SHEET NOTES

1. REUSE AND MODIFY AS NEEDED THE ELEVATOR 15 HPU SOFT STARTERS WHICH SHALL BE INCORPORATED INTO THE ELEVATOR 15 MODERNIZATION AS IF THEY WERE PROVIDED BY THE ELEVATOR MODERNIZATION CONTRACTOR.
2. NEW 480 VOLT, 200 AMP, 3 POLE, FUSED DISCONNECT SWITCH WITH INTEGRAL GROUND WIRE LUG AND 200 AMP, CLASS R FUSES IN A NEMA 3R ENCLOSURE WITH AUXILIARY NO/NC CONTACT THAT REPLACES THE EXISTING 480 VOLT, 200 AMP, 3 POLE DISCONNECT SWITCH.
3. NEW 480 VOLT, 200 AMP, (120 VOLT AC SHUNT TRIP), 3 POLE CIRCUIT BREAKER WITH INTEGRAL GROUND WIRE LUG AND A SHORT CIRCUIT INTERRUPTING RATING OF 65,000 AMPS @ 480 VOLTS IN A NEMA 3R ENCLOSURE WITH AUXILIARY NO/NC CONTACT THAT REPLACES THE EXISTING 480 VOLT, 200 AMP, 3 POLE DISCONNECT SWITCH.
4. NEW SQUARE D MINI POWER-ZONE, HEREIN REFEREED TO AS 'PANEL ELEV15-1', WITH A 7.5 KVA, 1Ø, 480 VOLT TO 240/120 VOLT SEALED TRANSFORMER, A 480 VOLT, 20 AMP (120 VOLT AC SHUNT TRIP), 2 POLE PRIMARY CIRCUIT BREAKER HAVING A SHORT CIRCUIT INTERRUPTING RATING OF 65,000 AMPS @ 480 VOLTS, A 40 AMP. 240 VOLT, 2 POLE SECONDARY CIRCUIT BREAKER AND A INTEGRAL 10 SPACE PANELBOARD WITH THE CIRCUIT BREAKERS REQUIRED FOR THE MODERNIZATION AND TENTATIVELY SHOWN ON THE DRAWING. SQUARE D CATALOG NUMBER MPZB7S40F65K OR EQUAL. THIS WILL REPLACE THE 480 VOLT, 100 AMP, 3 POLE FUSED DISCONNECT SWITCH PRESENTLY USED FOR THE ELEVATOR 15 CAR DOOR CONTROL PANELS AND THE ELEVATOR 15 ELEVATOR CONTROL PANEL.
5. NEW SQUARE D MINI POWER-ZONE, HEREIN REFEREED TO AS 'PANEL ELEV15-2,' WITH A 7.5 KVA, 1Ø, 480 VOLT TO 240/120 VOLT SEALED TRANSFORMER, A 480 VOLT, 20 AMP, 2 POLE PRIMARY CIRCUIT BREAKER HAVING A SHORT CIRCUIT INTERRUPTING RATING OF 65,000 AMPS @ 480 VOLTS, A 40 AMP. 240 VOLT, 2 POLE SECONDARY CIRCUIT BREAKER AND A INTEGRAL 10 SPACE PANELBOARD WITH THE CIRCUIT BREAKERS REQUIRED FOR THE MODERNIZATION AND TENTATIVELY SHOWN ON THE DRAWING. SQUARE D CATALOG NUMBER MPZB7S40F65K OR EQUAL. THIS WILL REPLACE THE 240 VOLT, 30 AMP, 3 POLE FUSED DISCONNECT SWITCHES PRESENTLY USED FOR THE ELEVATOR 14 CAR LIGHTING AND THE ELEVATOR 15 CAR LIGHTING.
6. NEW 240 VOLT, 30 AMP, 2 POLE OR 1 POLE, NON-FUSED, DISCONNECT SWITCH WITH AN INTEGRAL GROUND LUG THAT CAN BE LOCKED IN THE OPEN POSITION ONLY, IN A NEMA 3R ENCLOSURE, SQUARE D CATALOG NUMBERS DU221RB AND LOGK1 OR EQUAL, FOR EACH OF THE FOLLOWING WHICH SHALL BE FURNISHED AND INSTALLED:
   a. NEW ELEVATOR 15 CONTROL PANEL
   b. NEW ELEVATOR 15 FRONT DOOR CONTROL PANEL
   c. NEW ELEVATOR 15 REAR DOOR CONTROL PANEL
   d. NEW ELEVATOR 14 CAR LIGHTING AND TOP OF CAR RECEPTACLE
   e. NEW ELEVATOR 15 CAR LIGHTING, GFCI RECEPTACLE, AND VENTILATION FAN
   f. NEW ELEVATOR 15 TOP OF CAR LIGHTING AND GFCI RECEPTACLE
7. DISCONNECT AND RE-FEED THE EXISTING ELEVATOR 14 SHUNT TRIP FUSED DISCONNECT SWITCH FROM PANEL ELEV15-2. FURNISH AND INSTALL NEW 120 VOLT, SHUNT TRIP CONTROL CIRCUITS FROM THE EXISTING FIRE ALARM RELAY BOX TO THE SHUNT TRIPS FOR THE EXISTING 100A MOLDED CASE CIRCUIT BREAKER FOR ELEVATOR 14, THE NEW 200A SHUNT TRIP CIRCUIT BREAKER FOR ELEVATOR 15, AND THE NEW SHUNT TRIP CIRCUIT BREAKER WITHIN PANEL ELEV15-1.
8. DETERMINE AND DISCONNECT THE EXISTING 120 VOLT SOURCE OF POWER TO THE EXISTING MACHINE ROOM LIGHTING AND TO THE EXISTING MACHINE ROOM 120 VOLT DUPLEX RECEPTACLES.
9. REUSING THE EXISTING LIGHTING FIXTURES THAT WERE REPLACED DURING THE ELEVATOR 14 PROJECT, REPLACE THE EXISTING LIGHT SWITCH WITH A NEW LIGHT SWITCH AND MOTION DETECTOR. CONNECT THE NEW LIGHT SWITCH AND MOTION DETECTOR TO THE NEW MINI POWER-ZONE PANEL ELEV15-2.
10. FURNISH AND INSTALL NEW GFCI DUPLEX RECEPTACLES IN THE MACHINE ROOM AND THE NEW BRANCH CIRCUITS FOR THESE FROM THE NEW MINI POWER-ZONE PANEL ELEV15-2.
11. DETERMINE AND DISCONNECT THE EXISTING 120 VOLT SOURCE OF POWER TO THE EXISTING ELEVATOR 15 PIT LIGHTING AND 120 VOLT DUPLEX RECEPTACLE.
12. REPLACE THE PIT LIGHTING FIXTURE WITH A NEW 120 VOLT LED LIGHT FIXTURE THAT HAS A GUARD. FURNISH AND INSTALL A NEW LIGHT SWITCH FOR THE PIT LIGHTING FIXTURE AND A NEW 120 VOLT GFCI ELEVATOR PIT RECEPTACLE WITH BRANCH CIRCUITS FROM NEW MINI POWER-ZONE PANEL ELEV15-2.
13. THE ELEVATOR MODERNIZATION CONTRACTOR WILL BE RESPONSIBLE FOR ALL ELECTRICAL CONSTRUCTION STARTING ON THE LOAD SIDE TERMINALS OF THE DISCONNECT SWITCHES DESCRIBED ABOVE AND FROM THE BRANCH CIRCUIT BREAKERS IN THE SQUARE D MINI POWER-ZONE PANEL ELEV15-2. THIS INCLUDES BUT IS NOT LIMITED TO THE FURNISHING AND INSTALLATION OF THE NEW ELEVATOR 15 CONTROL PANEL, THE NEW ELEVATOR 15 FRONT DOOR CONTROL PANEL, THE NEW ELEVATOR 15 REAR DOOR CONTROL PANEL, THE NEW ELEVATOR 15 CAR LED LIGHTING FIXTURES, WHICH WILL REPLACE THE EXISTING LIGHTING FIXTURES, AND THE NEW TOP OF CAR LED LIGHTING FIXTURE AND GFCI RECEPTACLE THAT WILL REPLACE THE EXISTING TOP OF CAR LIGHTING FIXTURE AND RECEPTACLE.
14. FURNISH AND INSTALL A NEW BRANCH CIRCUIT FROM PANEL ELEV15-2 TO THE EXISTING ELEVATOR 14 COOLER DISCONNECT SWITCH WHICH SHALL BE DISCONNECTED FROM THE EXISTING BRANCH CIRCUIT AND LABELED ACCORDINGLY.

REVISIONS

ISSUE	DATE	REVISIONS
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1	3/1/24	SIEMENS PAD-3 ADDITION

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SEAL:

DPP PROJECT NUMBER: XX-XX-XXXX-XX
PROJECT TITLE: ELEVATOR #15 MODERNIZATION
PHASE:
DRAWING TITLE: ELEVATOR #15 NEW PLAN, NEW SINGLE LINE, AND REMOVAL SINGLE LINE

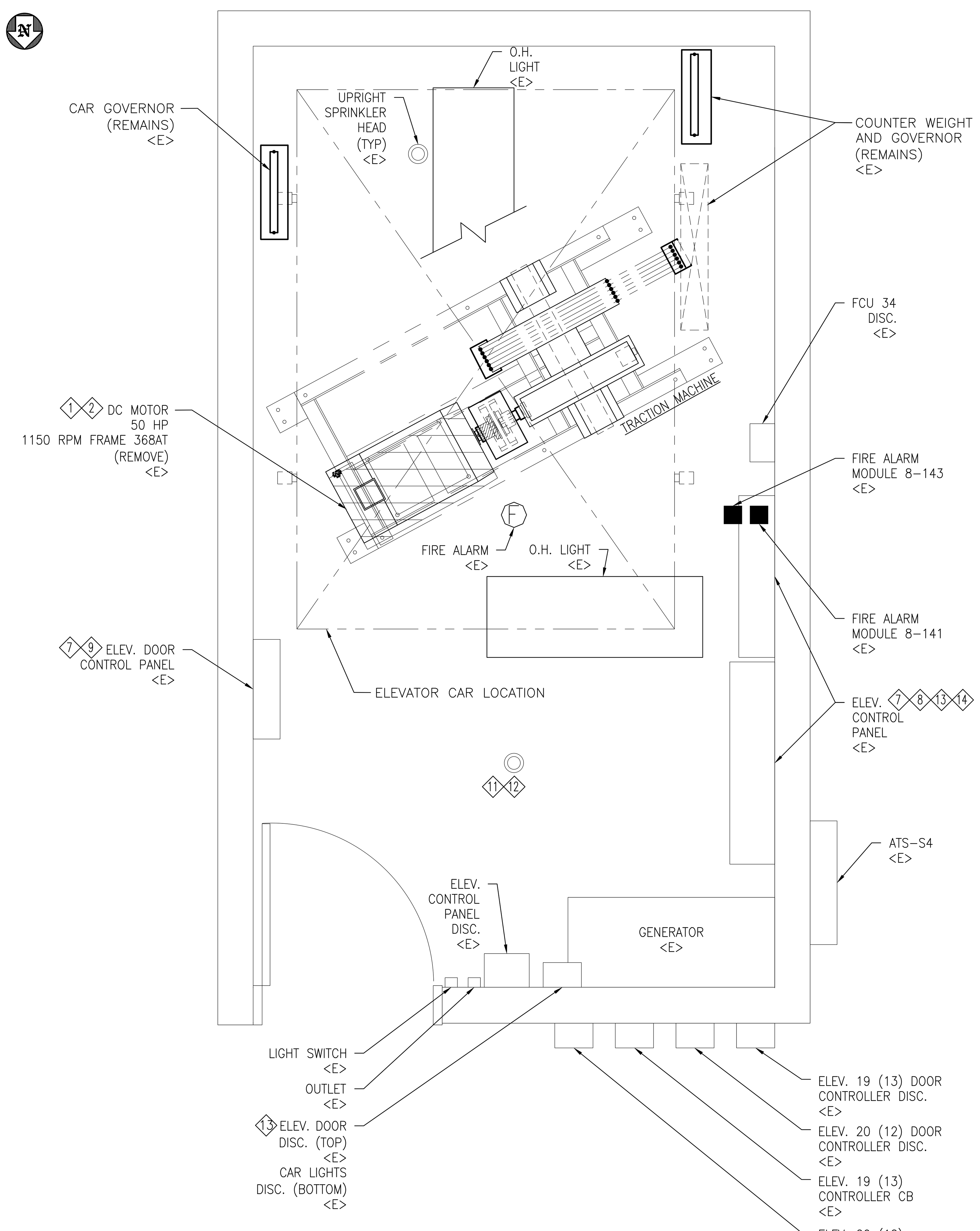
MAIDA ENGINEERING INC.
CONSULTING ENGINEERS
Philadelphia Office
1315 Walnut Street
Suite 716
Philadelphia, PA 19107
(215) 542-8700

PROJECT NO.	E45021	DATE
PROJECT ENG.	JFM	1/26/24
CHECKED	JFM	1/26/24

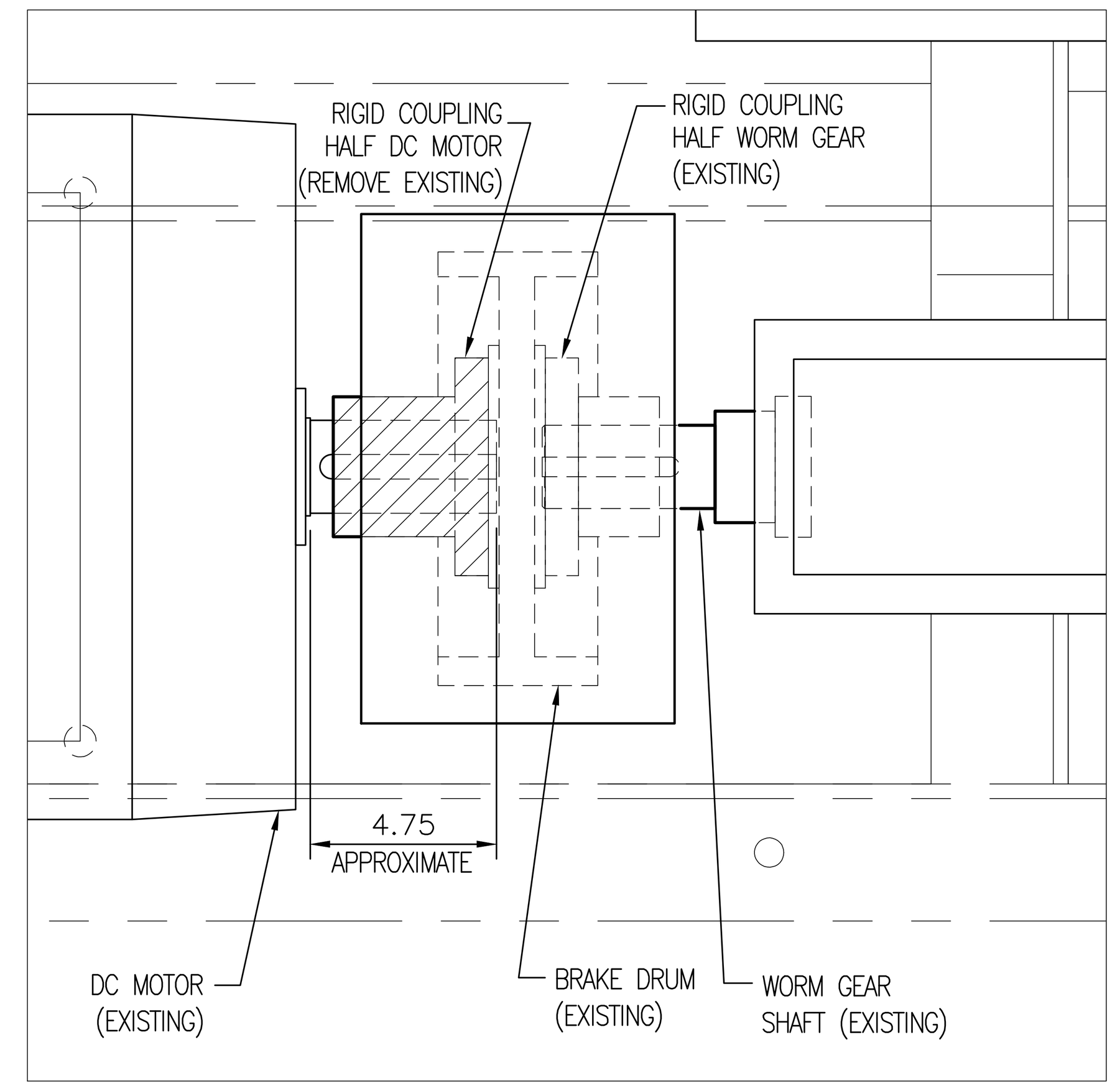
0 1' 2' 4' 6' 8'
3/8"=1'-0"

PACC PROJECT NO.: XX-XX-XXXX-XX
CONSULTANT PROJECT NO.: XXXX-XXXXX
DATE: 1-26-2024
SCALE: AS NOTED
DRAWN BY: SEG
CHECKED BY: JFM
DRAWING NO.: ME-2

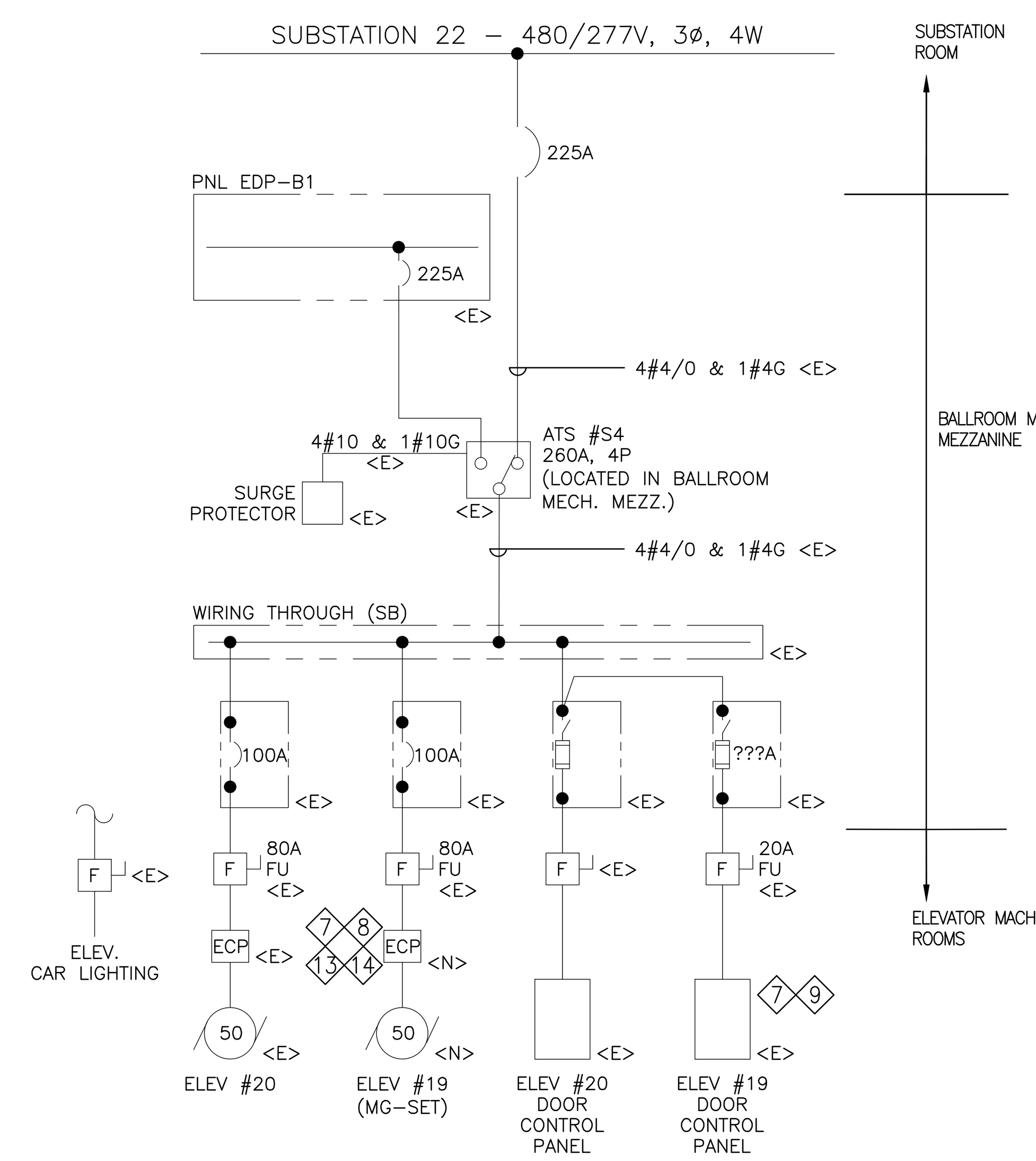
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



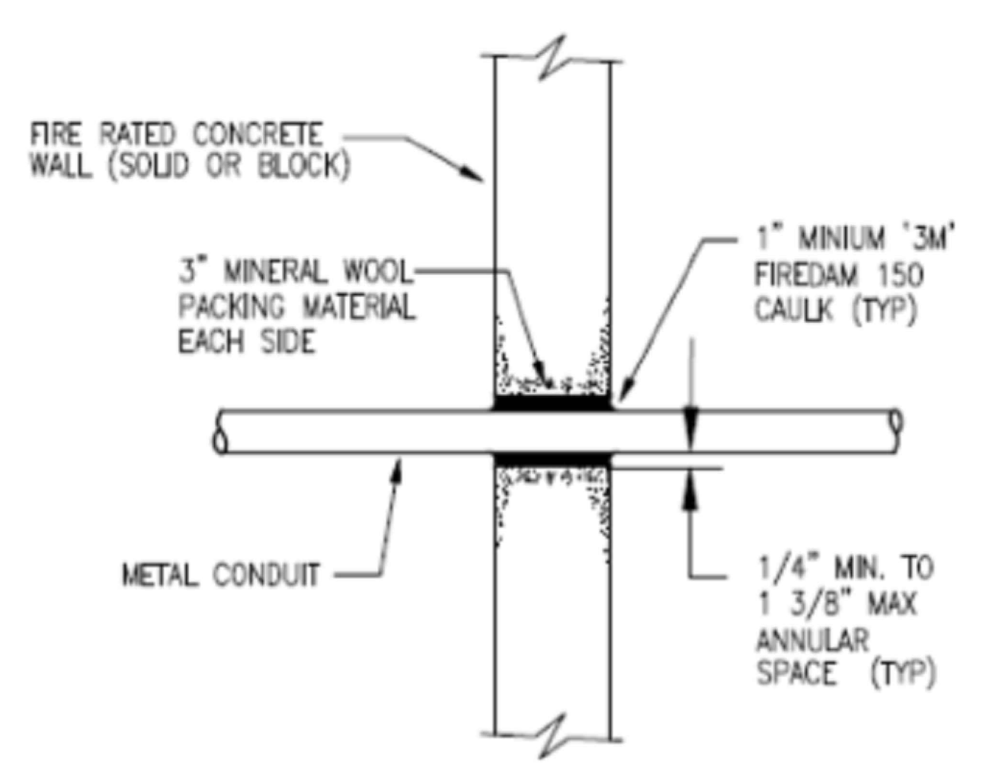
1 ME-1 ELEVATOR #19 AREA – EXISTING
SCALE: 3/4" = 1' – 0"



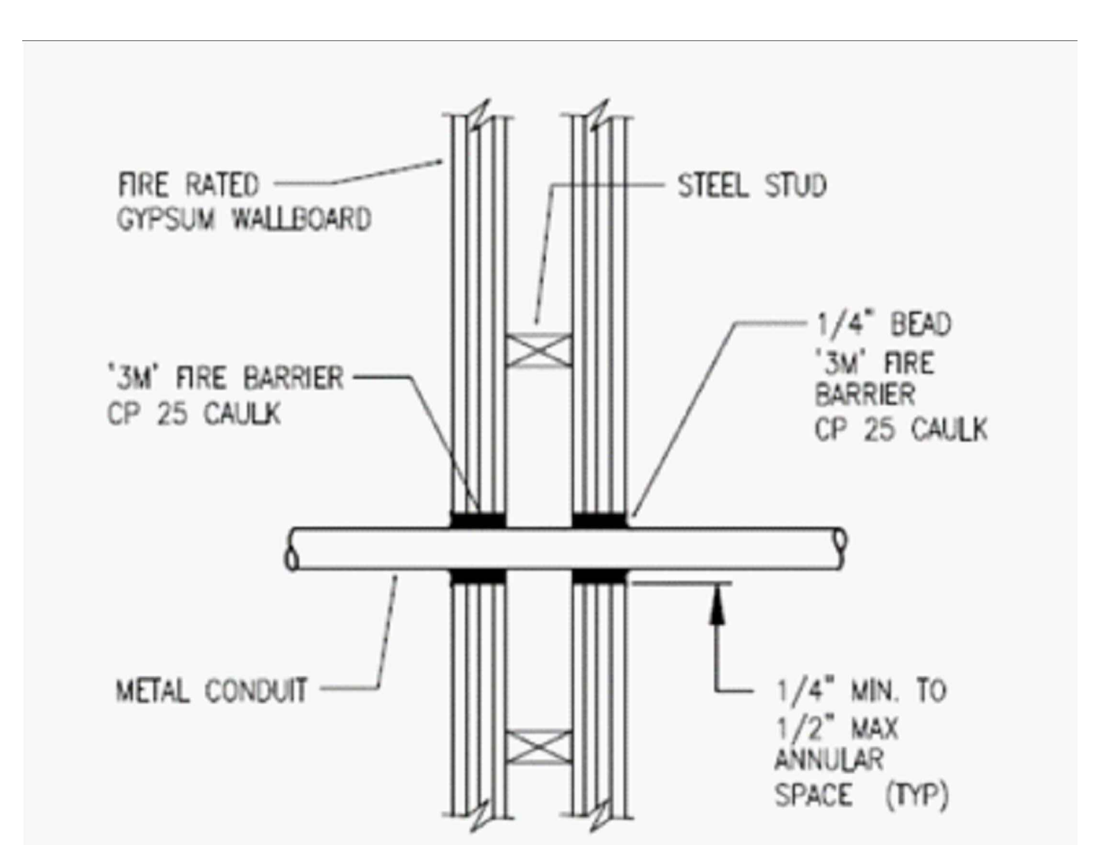
2 ME-2 DC MOTOR / WORM GEAR FIXED COUPLING – EXISTING
SCALE: 3" = 1' – 0"



3 ME-1 ELEVATOR #19 SINGLE LINE DIAGRAM – EXISTING
SCALE: NTS



4 ME-1 GYPSUM WALLBOARD FIRE STOP
PENETRATION DETAIL



5 ME-1 CONCRETE WALL FIRE STOP
PENETRATION DETAIL

6 ME-1 ELEVATOR #19 CAR LIGHTS PHOTO
SCALE: NTS

GENERAL NOTES

1. THE ELEVATOR MODERNIZATION CONTRACTOR SHALL PROVIDE ALL SERVICES AND FURNISH AND INSTALL NEW EQUIPMENT MATERIAL AND LABOR FOR THE MODERNIZATION OF ELEVATOR 19 IN ACCORDANCE WITH THE ELEVATOR SPECIFICATION. THE DRAWINGS ARE INTENDED TO SUPPLEMENT THE ELEVATOR SPECIFICATION, PROVIDING PLAN VIEWS AND AN ELEVATION OF ELEVATOR 19.
2. MODERNIZATION INCLUDES "ALL WORK" REQUIRED TO BRING ELEVATOR 19 INTO COMPLIANCE WITH THE CURRENT RELEVANT BUILDING AND FIRE CODES, ADA REQUIREMENTS, AND MUNICIPAL AND STATE REQUIREMENTS, WHICH MAY BE FURTHER DEFINED BY THE AUTHORITY HAVING JURISDICTION.
3. MODERNIZATION INCLUDES INCORPORATING AND AS NEEDED MODIFYING THE FOLLOWING:
   a. EXISTING TRACTION POWER MACHINE
   b. ELEVATOR CAR FLOOR, WALLS, AND SCREENS (GATES)
   c. ELEVATOR LANDING DOORS
4. THE ELEVATOR MODERNIZATION CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL ENGINEERING AND DESIGN AND THE FURNISHING AND INSTALLATION OF EQUIPMENT AND MATERIAL ON THE LOAD SIDE OF THE FOLLOWING EQUIPMENT. ALL INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED AND LICENSED ELECTRICIAN OR CONTRACTOR, UNDER THE SUPERVISION OF THE ELEVATOR MODERNIZATION CONTRACTOR.
   a. 480 VOLT, 100 AMP, SHUNT TRIP MOTOR CIRCUIT BREAKER
   b. ELEVATOR CONTROL PANEL SWITCH
   c. ELEVATOR DOOR CONTROL PANEL DISCONNECT SWITCH
   d. ELEVATOR 19 CAR LIGHTING, GFCI RECEPTACLE, AND VENTILATION FAN DISCONNECT SWITCH
   e. ELEVATOR 19 TOP OF CAR LIGHTING AND GFCI RECEPTACLE DISCONNECT SWITCH
   f. ELEVATOR 19 SHUNT TRIP POWER SOURCE AND MONITOR DISCONNECT SWITCH

SHEET NOTES

1. HOIST MACHINE INSTALLATION OPTIONS:
   OPTION (1) – MODIFY BASE TO ACCEPT <N> AC MOTOR, <N> ROPE GRIPPER AND <N> MOTOR FLEXIBLE COUPLING. REMOVE DC MOTOR WITH ITS FIXED COUPLING HALF. INSTALL <N> AC MOTOR, <N> FLEXIBLE COUPLING AND ALIGN MOTOR AND COUPLING TO <E> BRAKE. REPLACE BRAKE SHOES AND INSTALL BRAKE ON OFF SWITCHES.
   OPTION (2) – PROVIDE <N> TRACTION MACHINE WITH ALL <N> EQUIPMENT INCLUDING <N> ROPE GRIPPER.
2. <E> TRACTION MACHINE IS A MILLAR ELEVATOR MODEL 63 OH. MILLAR ELEVATOR IS OUT OF BUSINESS AND WAS ONCE A PART OF WESTINGHOUSE CORP. AND IN 2002 SCHINDLER ELEVATOR CORP AND MILLAR ELEVATOR CORP. MERGED.
3. FLEXIBLE COUPLING TYPE – ELECTRICAL MOTOR REPAIR COMPANY MOD CONVERSION KIT MOTOR COUPLING FOR A MILLAR ELEVATOR MODEL 63 MACHINED TO MOUNT ON THE BRAKE DRUM MOTOR SIDE. A PIN AND BUSH FLEXIBLE BRAKE DRUM COUPLING MAY BE USED BUT THIS WILL REQUIRE RE-MACHINING THE BRAKE DRUM.
4. INSTALL NEW WIRE ROPE FROM ELEVATOR CAR VIA OVERHEAD TRACTION DRIVE TO COUNTER WEIGHT. INSTALL ALL NEW ROPE FITTINGS. ALSO INSTALL NEW GOVERNOR ROPES. SEE ELEVATOR SPECIFICATION FOR ROPE REQUIREMENTS.
5. PROVIDE A NEW HOIST ROPE GRIPPER MEETING CURRENT ELEVATOR CODE. THIS SHOULD BE INSTALLED IN THE SPECIFIED LOCATION SHOWN ON DRAWINGS. BASE OF GRIPPER MUST BOLT TO THE BELOW DECK STEEL SUPPORT BEAMS. PROVIDE POWER AND CONTROL CIRCUIT TO THE NEW ELEVATOR CONTROL PANEL.
6. INSPECT, SERVICE, REPAIR OR REPLACE IF NEEDED CAR AND COUNTERWEIGHT SPEED GOVERNORS, BUFFERS, GUIDES, ROLLERS AND OTHER EQUIPMENT SPECIFIES IN ELEVATOR SPECIFICATION.
7. DISCONNECT AND REMOVE THE EXISTING WARD-LEONARD ELEVATOR CONTROL PANEL AND PEELLE DOOR CONTROL PANEL INCLUDING POWER CIRCUITS TO THEM AND THE CONTROL, COMMUNICATION, AND INSTRUMENTATION CIRCUITS THAT CONNECT TO THEM.
8. FURNISH AND INSTALL A NEW UL LABELED, STATE OF THE ART, MICROPROCESSOR (PLC & VFD) BASED ELEVATOR CONTROL PANEL IN A NEMA 3R ENCLOSURE ALONG WITH A NEW MOTOR BRANCH CIRCUIT TO THE NEW "INVERTOR DUTY", NEMA DESIGN B. TOTALLY ENCLOSED FAN COOLED AC MOTOR, NEW BRANCH CIRCUIT TO THE NEW GRIPPER, AND NEW CONTROL CIRCUITS THAT WILL INTERFACE WITH THE NEW ELEVATOR DOOR CONTROL PANEL, THE NEW TRAVELING CABLES, AND NEW CONTROL, COMMUNICATION, AND INSTRUMENT CIRCUITS. RACEWAYS SHALL CONNECT TO THE BOTTOM OF THE CONTROL PANEL. THE CONTROL PANEL WILL INCLUDE EQUIPMENT TO PROVIDE EMERGENCY POWER FOR THE ELEVATOR CAB LIGHTS FOR 2 OR MORE HOURS.
9. FURNISH AND INSTALL A NEW UL LABELED, STATE OF THE ART, MICROPROCESSOR (PLC) BASED ELEVATOR DOOR CONTROL PANEL IN A NEMA 3R ENCLOSURE ALONG WITH A NEW BRANCH CIRCUIT TO MINI POWER-ZONE PANELBOARD ELEV19-1 AND NEW CONTROL CIRCUITS THAT INTERFACE WITH THE NEW ELEVATOR CONTROL PANEL. RACEWAY SHALL CONNECT TO THE BOTTOM OF THE CONTROL PANEL.
10. THE ELEVATOR SPECIFICATIONS LIST THE EQUIPMENT, COMPONENTS, AND INSTRUMENTS THAT CAN BE REUSED AND SOME, BUT NOT ALL, THAT MUST BE REPLACED.
11. PROVIDE NEW OR REUSE IF AVAILABLE, EXISTING SMOKE DETECTOR IN THE ELEVATOR CONTROL ROOM. CONNECT TO FIRE ALARM SYSTEM FOR USE IN ELEVATOR RECALL FUNCTIONALITY.
12. PROVIDE NEW HEAT DETECTOR NEAR THE SPRINKLER HEAD. PROVIDE INTERCONNECTION FOR USE IN SHUNT TRIPPING THE POWER SOURCE TO THE ELEVATOR CONTROL PANEL AFTER ELEVATOR RECALL.
13. PROVIDE NEW OR UPDATED FIRE ALARM INTERFACE MODULES AND TELEPHONE CIRCUITS WHICH SHALL BE INTERCONNECTED/INTEGRATED WITH THE NEW ELEVATOR CONTROL PANEL. FIRE ALARM AND TELEPHONE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE ELEVATOR CONTRACTOR.
14. PROVIDE NEW FIRE ALARM INTERFACE MODULE AND CONNECT TO THE NEW ELEVATOR CONTROL SWITCH'S SHUNT TRIP CIRCUIT.

3/4"=1'–0"
3/8"=1'–0"

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Philadelphia Office
1315 Walnut Street
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(215) 542-8700

PROJECT NO.	E45021-2	DATE	
PROJECT ENG.	JFM	1/26/24	
CHECKED	JFM	1/26/24	

REVISIONS

ISSUE	DATE	REVISIONS
0	1/26/24	INITIAL REV
1	3/1/24	SIEMENS PAD-3 ADDITION

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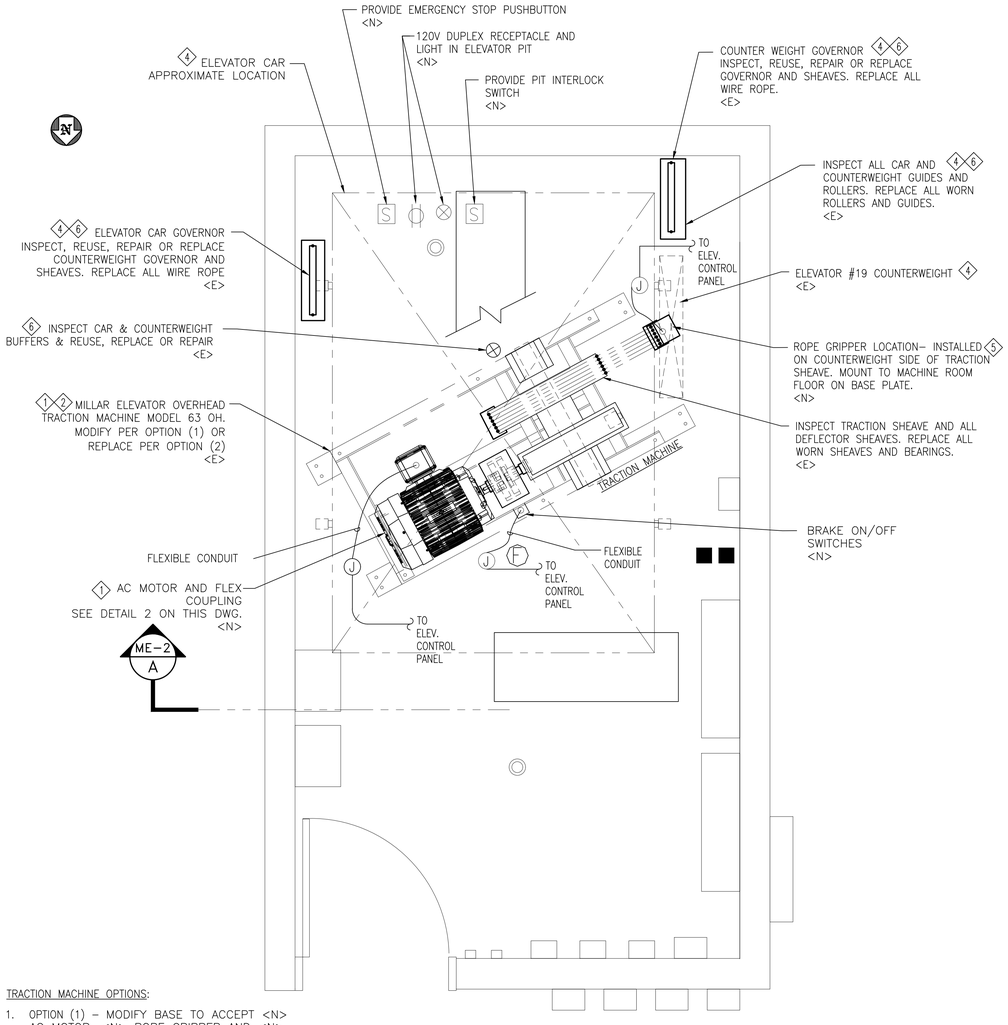
PA ONE-CALL NUMBER (FOR DESIGN ONLY): XXXXXXXXXX
DPP PROJECT COORDINATOR: XXXXXXXXXX
SEAL:
DPP PROJECT NUMBER: XX-XX-XXXX-XX
PROJECT TITLE: ELEVATOR #19 MODERNIZATION
PHASE:
DRAWING TITLE: ELEVATOR #19 EXISTING PLAN, SINGLE LINE, AND DETAILS

PACC PROJECT NO.:	XX-XX-XXXX-XX
CONSULTANT PROJECT NO.:	XXXX-XXXXX
DATE:	1-26-24
SCALE:	AS NOTED
DRAWN BY:	SEG/ALA
CHECKED BY:	JFM

DRAWING NO.: ME-1

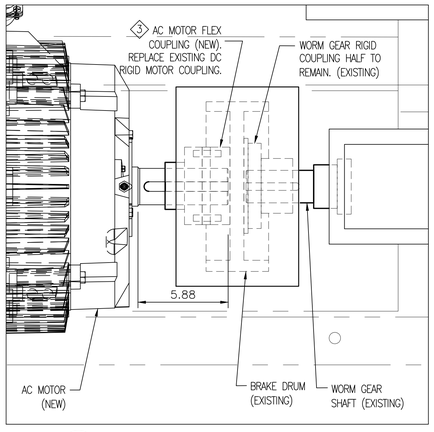
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



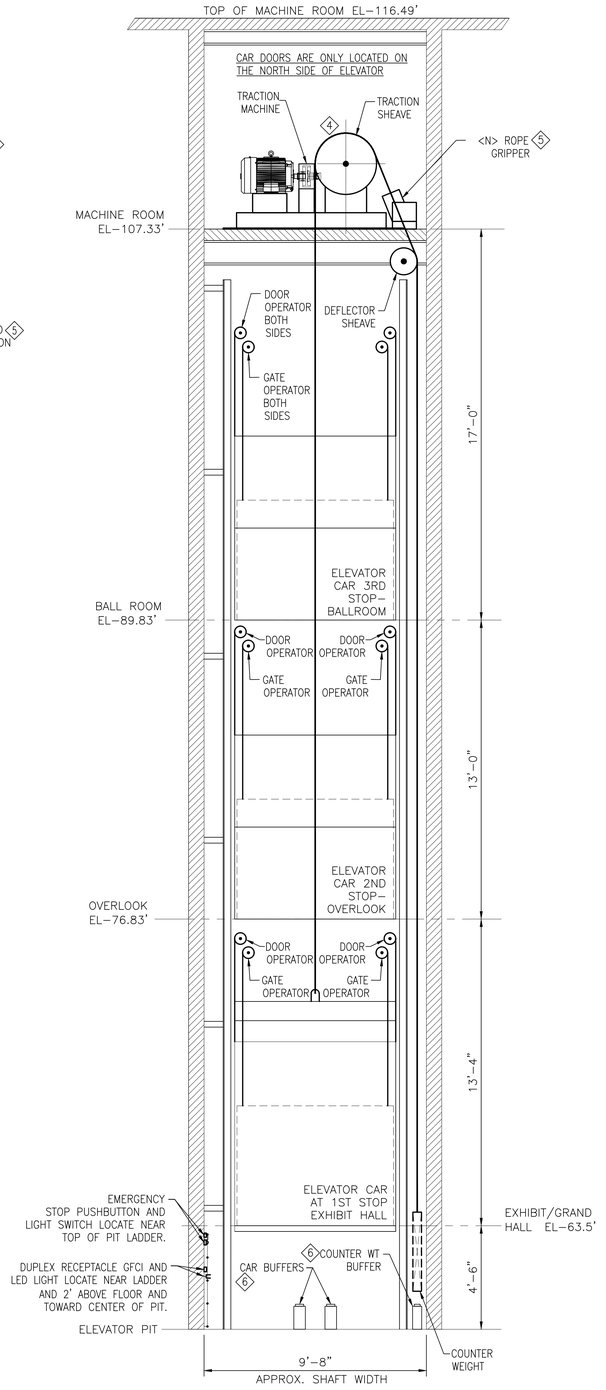
TRACTION MACHINE OPTIONS:

1. OPTION (1) – MODIFY BASE TO ACCEPT <N> AC MOTOR, <N> ROPE GRIPPER AND <N> MOTOR FLEXIBLE COUPLING. REMOVE DC MOTOR WITH ITS FIXED COUPLING HALF. INSTALL <N> AC MOTOR, <N> FLEXIBLE COUPLING AND ALIGN MOTOR AND COUPLING TO <E> BRAKE. REPLACE BRAKE SHOES AND INSTALL BRAKE ON OFF SWITCHES
2. OPTION (2) – PROVIDE <N> TRACTION MACHINE WITH ALL <N> EQUIPMENT INCLUDING <N> ROPE GRIPPER

1 / ME–2 ELEVATOR #19 AREA – NEW MECHANICAL
SCALE: 3/4" = 1' – 0"



2 / ME–2 MOTOR FLEXIBLE COUPLING – NEW
SCALE: 3" = 1' – 0"



A / ME–2 ELEVATOR #19 SHAFT ELEVATION
SCALE: 3/8" = 1' – 0"

SHEET NOTES (SAME AS ME–1)

1. HOIST MACHINE INSTALLATION OPTIONS:
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5. PROVIDE A NEW HOIST ROPE GRIPPER MEETING CURRENT ELEVATOR CODE. THIS SHOULD BE INSTALLED IN THE SPECIFIED LOCATION SHOWN ON DRAWINGS. BASE OF GRIPPER MUST BOLT TO THE BELOW DECK STEEL SUPPORT BEAMS. PROVIDE POWER AND CONTROL CIRCUIT TO THE NEW ELEVATOR CONTROL PANEL.
6. INSPECT, SERVICE, REPAIR OR REPLACE IF NEEDED CAR AND COUNTERWEIGHT SPEED GOVERNORS, BUFFERS, GUIDES, ROLLERS AND OTHER EQUIPMENT SPECIFIES IN ELEVATOR SPECIFICATION.
7. DISCONNECT AND REMOVE THE EXISTING WARD–LEONARD ELEVATOR CONTROL PANEL AND PEELLE DOOR CONTROL PANEL INCLUDING POWER CIRCUITS TO THEM AND THE CONTROL, COMMUNICATION, AND INSTRUMENTATION CIRCUITS THAT CONNECT TO THEM.
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13. PROVIDE NEW OR UPDATED FIRE ALARM INTERFACE MODULES AND TELEPHONE CIRCUITS WHICH SHALL BE INTERCONNECTED/INTEGRATED WITH THE NEW ELEVATOR MOTOR CONTROL PANEL. FIRE ALARM AND TELEPHONE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE ELEVATOR CONTRACTOR.
14. PROVIDE NEW FIRE ALARM INTERFACE MODULE AND CONNECT TO THE NEW ELEVATOR CONTROL SWITCH'S SHUNT TRIP CIRCUIT.

0 1' 2' 4' 6'
3/4"=1'–0"

0 1' 2' 4' 6' 8'
3/8"=1'–0"

REVISIONS

ISSUE	DATE	REVISIONS
0	1/26/24	INITIAL REV
1	3/1/24	SIEMENS PAD-3 ADDITION

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PA ONE-CALL NUMBER (FOR DESIGN ONLY): XXXXXXXXX

DPP PROJECT COORDINATOR: XXXXXXXXX

SEAL:

DPP PROJECT NUMBER: XX-XX-XXXX-XX

PROJECT TITLE: ELEVATOR #19 MODERNIZATION

PHASE:

DRAWING TITLE: ELEVATOR #19 NEW MECHANICAL PLAN, ELEVATION, AND DETAIL

PACC PROJECT NO.: XX-XX-XXXX-XX
CONSULTANT PROJECT NO.: XXXX-XXXXX
DATE: 1-26-24
SCALE: AS NOTED
DRAWN BY: SEG/ALA
CHECKED BY: JFM
DRAWING NO.: ME-2

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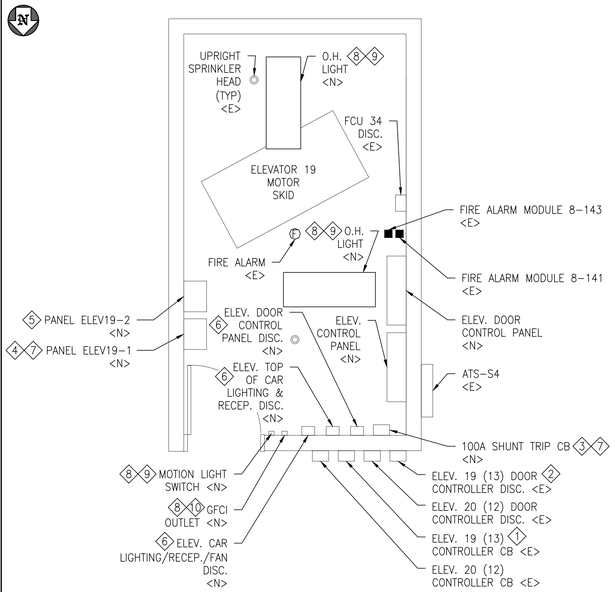
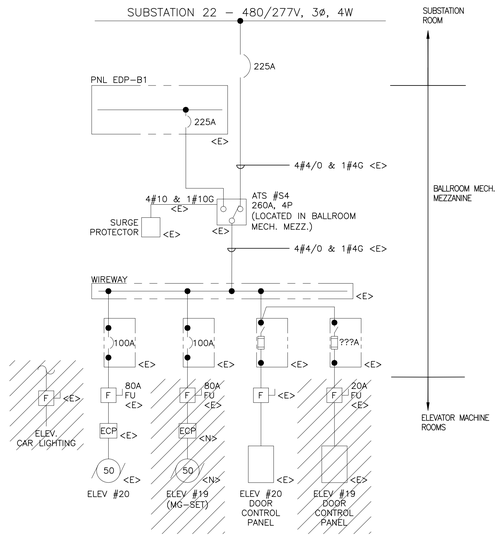
CHECKED	JFM	1/26/24

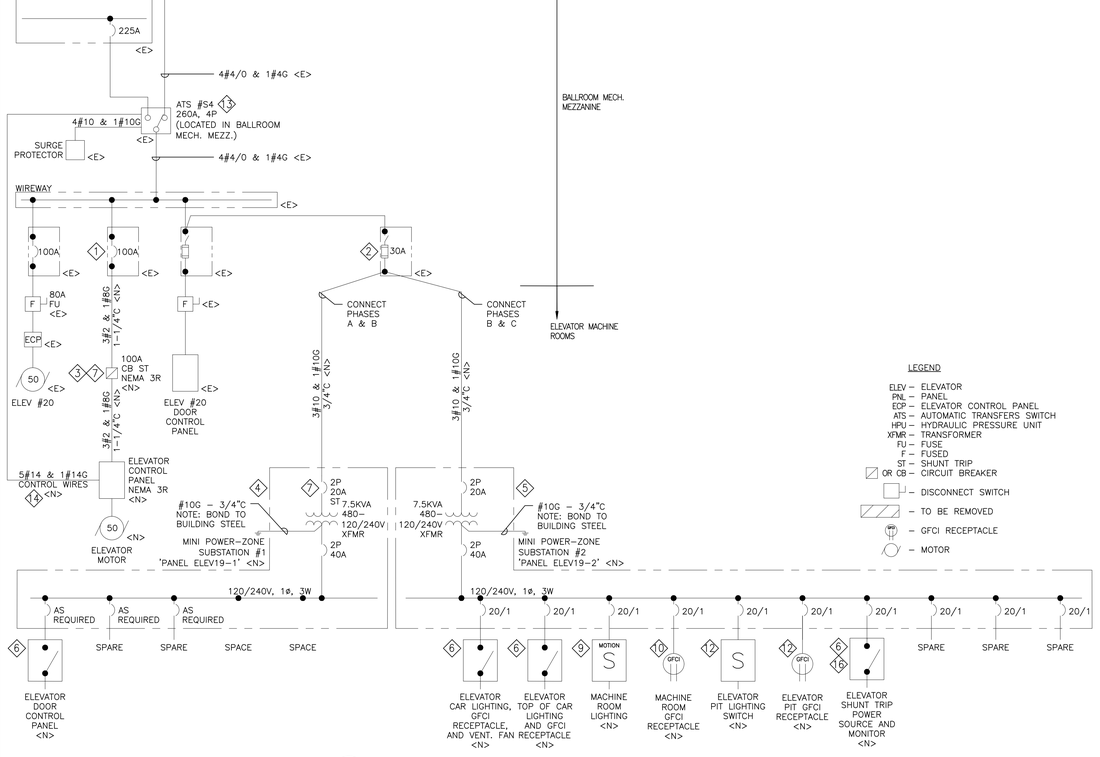
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



1 ME-3 ELEVATOR #19 AREA – NEW ELECTRICAL
SCALE: 3/8" = 1' - 0"



2 ME-3 ELEVATOR #19 SINGLE LINE DIAGRAM – REMOVALS
SCALE: NTS



3 ME-3 ELEVATOR #19 SINGLE LINE DIAGRAM – NEW
SCALE: NTS

GENERAL NOTES

1. THE ELEVATOR MODERNIZATION CONTRACTOR SHALL FURNISH AND INSTALL THE NEW EQUIPMENT AND MATERIAL IN ACCORDANCE WITH THE ELEVATOR 19 MODERNIZATION SPECIFICATION. WHERE A CONFLICT EXISTS BETWEEN THIS DRAWING AND THE SPECIFICATION, THE SPECIFICATION TAKES PRECEDENCE. ADVISE THE PACC OF ANY CONFLICTS.
2. THE DRAWING PROVIDES INFORMATION ON EXISTING ELECTRICAL, LIGHTING AND FIRE ALARM EQUIPMENT THAT MAY BE UTILIZED, MODIFIED OR REPLACED AS A PART OF THE ELEVATOR 19 MODERNIZATION.
3. THIS DRAWING ASSUMES THE PREVIOUS NAME FOR ELEVATOR 19 WAS ELEVATOR 13, AND THE PREVIOUS NAME FOR ELEVATOR 20 WAS ELEVATOR 12. THE ELECTRICAL CONTRACTOR SHALL CONFIRM THIS INFORMATION BEFORE PERFORMING ANY WORK AND WILL USE THE CORRECT DISCONNECT SWITCH AND CIRCUIT BREAKER, LOCATED OUTSIDE THE ELEVATOR 19 MACHINE ROOM, FOR WORK ON THE ELEVATOR 19 ELECTRICAL SYSTEM.

ELECTRICAL REQUIREMENTS

1. INSTALLATION SHALL CONFORM TO THE 2023 EDITION OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AND LOCAL/STATE ADOPTED CODES.
2. WORK SHOWN ON THE DRAWINGS IS DESCRIPTIVE OF THE WORK TO BE PERFORMED. THE CONTRACTOR SHALL PROVIDE ALL SERVICES AND MATERIAL REQUIRED TO COMPLETE THE INSTALLATION AND PROVIDE COMPLETE FUNCTIONING SYSTEMS.
3. PROVIDE DURABLE NAMEPLATES ON ALL RECEPTACLES AND LIGHT SWITCHES. NAMEPLATES SHALL SHOW BRANCH CIRCUIT NUMBER AND THE PANELBOARD WHICH FEEDS THE BRANCH CIRCUIT. UPDATE CIRCUIT DIRECTORY CARDS IN PANELABOARDS.
4. PROVIDE ENGRAVED PLASTIC NAMEPLATES ON DISCONNECT SWITCHES, CIRCUIT BREAKERS, CONTROL PANELS AND SIMILAR EQUIPMENT IDENTIFYING THE EQUIPMENT AND THE SOURCES OF POWER TO THE EQUIPMENT, INCLUDING THE PANELBOARD OR ATS WHICH FEEDS THE CIRCUIT. UPDATE CIRCUIT DIRECTORY CARDS IN PANELBOARDS
5. FEEDERS, BRANCH CIRCUIT AND CONTROL CIRCUIT WIRES SHALL BE 600 VOLT, TYPE THHN/THWN, STRANDED COPPER WIRES IN RACEWAYS HAVING A SEPARATE 600VOLT, TYPE THHN/THWN, STRANDED COPPER GROUNDING WIRE.
6. BRANCH CIRCUIT WIRES SHALL BE A MINIMUM OF #12 AWG. HOT CONDUCTORS SHALL BE BLACK; NEUTRAL CONDUCTORS SHALL BE WHITE; AND GROUNDING CONDUCTORS SHALL BE GREEN.
7. CONTROL WIRES SHALL BE A MINIMUM OF #14 AWG. HOT CONDUCTORS SHALL BE RED; NEUTRAL CONDUCTORS SHALL BE WHITE; AND GROUND CONDUCTORS SHALL BE GREEN. CONTROL WIRES SHALL BE LABELED TO CORRISPOND TO THE IDENTIFYING NUMBER OR NAME ON THIS DRAWING.
8. FEEDERS WIRES SHALL BE SIZED PER THE DRAWINGS AND SHALL BE OF THE FOLLOWING COLORS:

PHASE/VOLTAGE	208/120 VOLTS	480/277 VOLTS
PHASE A	BLACK	BROWN
PHASE B	RED	ORANGE
PHASE C	BLUE	YELLOW

9. EXCEPT FOR FINAL CONNECTIONS, RACEWAYS SHALL BE RIGID STEEL CONDUIT AND SHALL BE SIZED IN ACCORDANCE WITH THE NEC.
10. FINAL CONNECTION TO MOTORS AND INSTRUMENTS SHALL BE MADE USING FLEXIBLE METAL CONDUIT THAT IS NO LONGER THAN 48".
11. FEEDER AND BRANCH CIRCUITS RUN IN COMMON RACEWAYS ARE TO BE SIZED IN ACCORDANCE WITH THE DERATING REQUIREMENTS OF THE NEC.
12. CONTRACTOR SHALL SUBMIT FOUR SETS OF SHOP DRAWINGS AND CATALOG CUT SHEETS FOR ALL CONTRACTOR FURNISHED MATERIAL AND EQUIPMENT FOR APPROVAL PRIOR TO STARTING WORK. INSTALLATION SHALL BE IN ACCORDANCE WITH FINAL APPROVED SHOP DRAWINGS AND CATALOG CUTS.
13. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH ELEVATOR AND FIRE ALARM CONTRACTORS WORKING ON THE PROJECT, EQUIPMENT SUPPLIERS, THE CONSTRUCTION MANAGER, AND OWNER.
14. THE WORD "INSTALL" OR "PROVIDE" MEANS FURNISH AND INSTALL ALL NEW EQUIPMENT. ALL EQUIPMENT SHOWN N THIS DRAWING IS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS EXISTING OR NOTED OTHERWISE.
15. EACH BRANCH CIRCUIT, WHERE APPLICABLE, SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR, COMMON NEUTRALS ARE NOT PERMITTED.
16. ALL RECEPTACLE AND LIGHT SWITCH DEVICE BOXES SHALL BE GALVANIZED STEEL DEVICE BOX WITH STAINLESS STEEL COVER PLATE.
17. ALL OTHER BOXES INCLUDING LIGHTING OUTLET BOXES, ALARM DEVICE BACK BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED STEEL SHEET METAL WITH GALVANIZED STEEL COVER PLATE WHERE APPLICABLE AND SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
18. ALL EXPOSED BOXES AND THEIR COVER PLATES USED ON THE FIRE ALARM SYSTEM SHALL BE PAINTED RED
19. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NEW RACEWWAY AND EQUIPMENT SUPPORT BRACKETS AND STANDOFFS AS REQUIRED FOR THE INSTALLATIONS DESCRIBED ON THIS DRAWING.
20. ELECTRICAL CONTRACTOR SHALL PROVIDE SAFEGUARDS AT THE PANELBOARD AND ATS TO MAKE CERTAIN THAT CIRCUITS BEING WORKED ON CANNOT BE RE-ENERGIZED BY ANYONE OTHER THAN THE ELECTRICAL CONTRACTOR.
21. DURING CONSTRUCTION. MEANS AND METHOD SHOULD BE REVIEWED WITH AND APPROVED BY THE OWNER. ONLY QUALIFIED PERSONS AND PERSONNEL ACCOMPANIED BY QUALIFIED PERSONS WITH PROPER PPE IN ACCORDANCE WITH NFPA 70E – 2021 SHALL BE PERMITTED IN ROOMS WHEN PANELBOARD AND SWITCHBOARD COVERS ARE REMOVED.
22. ELECTRICAL CONTRACTOR SHALL USE ULTRASONIC EQUIPMENT OR OTHER APPROVED METHOD TO ENSURE NO OBSTACLES ARE IN CONCRETE SLABS PRIOR TO CORE DRILLING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS INVOLVED WITH HITTING AN OBSTACLE DURING CORE DRILLING.
23. ALL CONDUIT PENETRATIONS WITHIN FIRE RATED WALLS SHALL BE INSTALLED PER THE DETAILS SHOWN ON THIS DRAWING.
24. SURFACE MOUNTED EQUIPMENT SHALL NOT BE MOUNTED DIRECTLY ON WALLS, PROVIDE 1/4" SPACES TO MOUNT EQUIPMENT OFF OF WALLS.
25. ELECTRICAL CONTRACTOR TO RED LINE THIS DRAWING WITH AS INSTALLED CIRCUIT DATA.

SHEET NOTES

1. EXISTING 480 VOLT, 100 AMP, 3 POLE, CIRCUIT BREAKER, WHICH HAS A SHORT CIRCUIT INTERRUPTING RATING OF 14,000 AMPS @ 480 VOLTS, AND IS LOCATED OUTSIDE THE MACHINE ROOM.
2. EXISTING 480 VOLT, 30 AMP, 3 POLE, FUSED DISCONNECT FOR ELEVATOR 19 DOOR CONTROL PANEL. ELECTRICAL CONTRACTOR SHALL CONFIRM FUSE IS RATED AT 30A; AND IF NOT, SHALL PROVIDE A FUSE THAT IS EQUIVALENT TO THE EXISTING ONE, RATED AT 30A.
3. NEW 480 VOLT, 100 AMP, (24 VDC SHUNT TRIP), 3 POLE CIRCUIT BREAKER WITH INTEGRAL GROUND WIRE LUG AND A SHORT CIRCUIT INTERRUPTING RATING OF 14,000 AMPS @ 480 VOLTS IN A NEMA 3R ENCLOSURE THAT REPLACES THE EXISTING 480 VOLT, 100 AMP, 3 POLE ELEVATOR 19 FUSED DISCONNECT SWITCH IN THE ELEVATOR MACHINE ROOM. THIS WILL BE THE SOURCE OF POWER FOR THE NEW ELEVATOR 19 CONTROL PANEL THAT WILL BE FURNISHED AND INSTALLED BY THE ELEVATOR MODERNIZATION CONTRACTOR.
4. NEW SQUARE D MINI POWER-ZONE, HEREIN REFERRED TO AS 'PANEL ELEV19-1', WITH A 7.5 KVA, 1ø, 480 VOLT TO 240/120 VOLT SEALED TRANSFORMER, A 480 VOLT, 20 AMP (24 VDC SHUNT TRIP), 2 POLE PRIMARY CIRCUIT BREAKER HAVING A SHORT CIRCUIT INTERRUPTING RATING OF 14,000 AMPS @ 480 VOLTS, A 40 AMP. 240 VOLT, 2 POLE SECONDARY CIRCUIT BREAKER AND A INTEGRAL 10 SPACE PANELBOARD WITH THE CIRCUIT BREAKERS REQUIRED FOR THE MODERNIZATION AND TENTATIVELY SHOWN ON THE DRAWING. SQUARE D CATALOG NUMBER MPZB7S40F25K OR EQUAL. THIS WILL REPLACE THE 480 VOLT, 30 AMP, 3 POLE FUSED DISCONNECT SWITCH PRESENTLY USED FOR THE ELEVATOR 19 CAR DOOR CONTROL PANEL.
5. NEW SQUARE D MINI POWER-ZONE, HEREIN REFERRED TO AS 'PANEL ELEV19-2', WITH A 7.5 KVA, 1ø, 480 VOLT TO 240/120 VOLT SEALED TRANSFORMER, A 480 VOLT, 20 AMP, 2 POLE PRIMARY CIRCUIT BREAKER HAVING A SHORT CIRCUIT INTERRUPTING RATING OF 14,000 AMPS @ 480 VOLTS, A 40 AMP. 240 VOLT, 2 POLE SECONDARY CIRCUIT BREAKER AND A INTEGRAL 10 SPACE PANELBOARD WITH THE CIRCUIT BREAKERS REQUIRED FOR THE MODERNIZATION AND TENTATIVELY SHOWN ON THE DRAWING. SQUARE D CATALOG NUMBER MPZB7S40F25K OR EQUAL. THIS WILL REPLACE THE 240 VOLT, 30 AMP, 3 POLE FUSED DISCONNECT SWITCH PRESENTLY USED FOR THE ELEVATOR 19 CAR LIGHTS.
6. NEW 240 VOLT, 30 AMP, 2 POLE, NON-FUSED, DISCONNECT SWITCH WITH AN INTEGRAL GROUND LUG THAT CAN BE LOCKED IN THE OPEN POSITION ONLY IN A NEMA 3R ENCLOSURE. SQUARE D CATALOG NUMBERS DU221RB AND LOGK1 OR EQUAL, FOR EACH OF THE FOLLOWING:
   a. NEW DOOR CONTROL PANEL
   b. NEW ELEVATOR 19 CAR LIGHTING, GFCI RECEPTACLE, AND VENTILATION FAN
   c. NEW ELEVATOR 19 TOP OF CAR LIGHTING AND GFCI RECEPTACLE
   d. NEW ELEVATOR 19 SHUNT TRIP POWER SOURCE AND MONITOR
7. FURNISH AND INSTALL NEW 24 VOLT DC, SHUNT TRIP CONTROL CIRCUIT FROM THE NEW FIRE ALARM RELAY TO THE SHUNT TRIP FOR THE NEW PRIMARY SIDE CIRCUIT BREAKER WITHIN THE SQUARE D MINI POWER-ZONE PANEL ELEV19-1, AND TO NEW 100A SHUNT TRIP CIRCUIT BREAKER FEEDING THE NEW ELEVATOR 19 CONTROL PANEL.
8. DETERMINE, DISCONNECT AND REMOVE THE EXISTING 120 VOLT BRANCH CIRCUITS TO THE EXISTING MACHINE ROOM LIGHTING AND TO THE EXISTING MACHINE ROOM 120 VOLT DUPLEX RECEPTACLE. DETERMINE, DISCONNECT, AND REMOVE THE EXISTING 120 VOLT FEEDER, BRANCH CIRCUIT, AND DISCONNECT SWITCH FOR THE EXISTING CAR LIGHTING.
9. REPLACE THE EXISTING MACHINE ROOM LIGHT FIXTURES AND LIGHT SWITCH WITH NEW LED LIGHT FIXTURES AND NEW MOTION DETECTION LIGHT SWITCH WITH NEW BRANCH CIRCUITS TO THE CIRCUIT BREAKER IN THE NEW MINI POWER-ZONE PANEL ELEV19-2.
10. FURNISH AND INSTALL A NEW GFCI DUPLEX RECEPTACLE IN THE MACHINE ROOM WITH A NEW BRANCH CIRCUIT FROM THE NEW MINI POWER-ZONE PANEL ELEV19-2
11. DETERMINE, DISCONNECT AND REMOVE THE EXISTING 120 VOLT SOURCE OF POWER TO THE EXISTING ELEVATOR 19 PIT LIGHTING AND 120 VOLT DUPLEX RECEPTACLE.
12. REPLACE THE PIT LIGHTING FIXTURE WITH A NEW 120 VOLT LED LIGHT FIXTURE THAT HAS A GUARD. FURNISH AND INSTALL A NEW LIGHT SWITCH FOR THE PIT LIGHTING FIXTURE AND A NEW 120 VOLT GFCI ELEVATOR PIT RECEPTACLE WITH BRANCH CIRCUITS FROM THE NEW MINI POWER-ZONE PANEL ELEV19-2.
13. A SEPARATE PROJECT WILL REPLACE THE EXISTING ATS-S4 WITH A NEW ATS AND INSTALL THE SURGE PROTECTOR THAT IS SHOWN ON THE DRAWING.
14. THE AVAILABLE 3ø SHORT CIRCUIT CURRENT AT ATS-S4 IS 12,000 AMPS. THE ELECTRICAL CONTRACTOR WILL FURNISH AND INSTALL 5#14 & 1#14G WIRE IN CONDUIT FROM ATS-S4 TO THE NEW ELEVATOR CONTROL PANEL. THE ELEVATOR MODERNIZATION CONTRACTOR WILL TERMINATE OR DIRECT THE TERMINATION OF THE CONTROL WIRES.
15. THE ELEVATOR MODERNIZATION CONTRACTOR WILL BE RESPONSIBLE FOR ALL ELECTRICAL CONSTRUCTION STARTING ON THE LOAD SIDE TERMINALS OF THE DISCONNECT SWITCHES DESCRIBED ABOVE AND FROM THE BRANCH CIRCUIT BREAKERS IN THE SQUARE D MINI POWER-ZONE PANEL ELEV19-2. THIS INCLUDES BUT IS NOT LIMITED TO THE FURNISHING AND INSTALLATION OF THE NEW ELEVATOR CONTROL PANEL, THE NEW ELEVATOR DOOR CONTROL PANEL, THE NEW CAR LED LIGHTING FIXTURES, WHICH WILL REPLACE THE EXISTING LIGHTING FIXTURES, AND THE NEW TOP OF CAR LED LIGHTING FIXTURE AND GFCI RECEPTACLE THAT WILL REPLACE THE EXISTING TOP OF CAR LIGHTING FIXTURE AND RECEPTACLE.
16. FIRE ALARM CONTRACTOR TO FURNISH AND INSTALL A SIEMENS PAD-3 DISTRIBUTED POWER MODULE TO PROVIDE AND MONITOR A 24VDC CIRCUIT FOR THE SHUNT TRIP MAIN CIRCUIT BREAKER IN PANEL ELEV19-2.

0 1' 2' 4' 6' 8'
3/8"=1'-0"

REVISIONS		
ISSUE	DATE	REVISIONS
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PA ONE-CALL NUMBER (FOR DESIGN ONLY): XXXXXXXXX
DPP PROJECT COORDINATOR: XXXXXXXXX
SEAL:

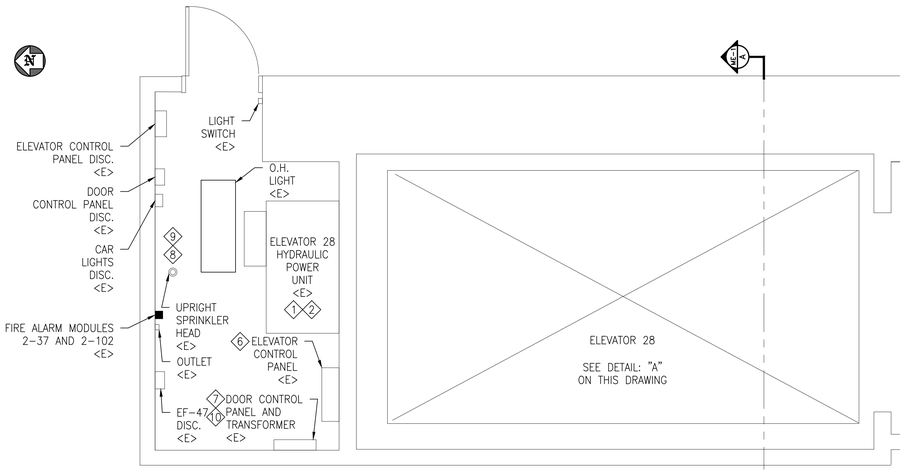
DPP PROJECT NUMBER: XX-XX-XXXX-XX
PROJECT TITLE: ELEVATOR #19 MODERNIZATION
PHASE:
DRAWING TITLE: ELEVATOR #19 NEW ELECTRICAL PLAN, NEW SINGLE LINE, AND REMOVAL SINGLE LINE

PACC PROJECT NO.: XX-XX-XXXX-XX
DRAWING NO.: ME-3

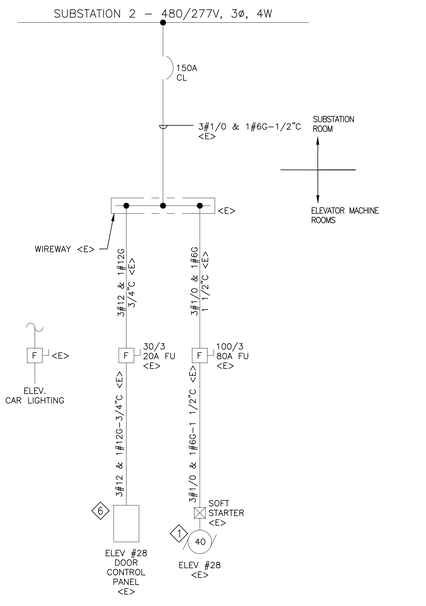
MAIDA ENGINEERING INC.
CONSULTING ENGINEERS
Philadelphia Office
1315 Walnut Street
Suite 716
Philadelphia, PA 19107
(215) 542-8700

CONSULTANT PROJECT NO.: XXXX-XXXXX
DATE: 1-26-24
SCALE: AS NOTED
DRAWN BY: SEG
CHECKED BY: JFM
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

PROJECT NO. E45021	DATE
PROJECT ENG. JFM	1/26/24
CHECKED JFM	1/26/24

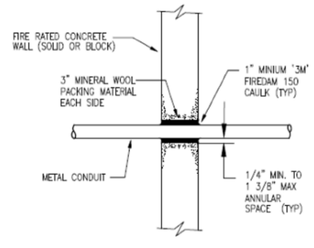


1 ME-1 ELEVATOR #28 AREA – EXISTING
SCALE: 3/8" = 1' – 0"

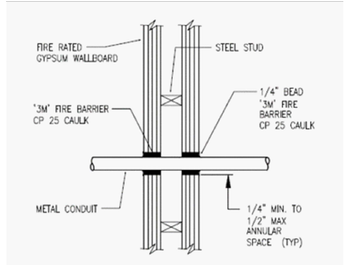


2 ME-1 ELEVATOR #28 SINGLE LINE DIAGRAM – EXISTING
SCALE: NTS

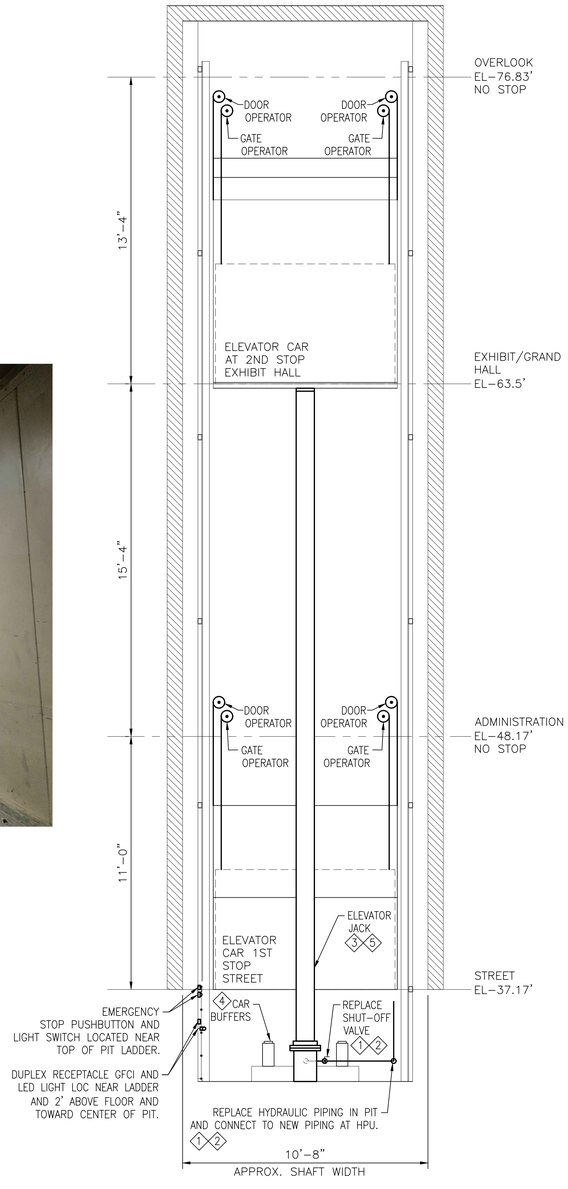
3 ME-1 ELEVATOR #28 CAR LIGHTS PHOTO
SCALE: NTS



4 ME-1 GYPSUM WALLBOARD FIRE STOP PENETRATION DETAIL



5 ME-1 CONCRETE WALL FIRE STOP PENETRATION DETAIL



A ME-1 ELEVATOR #28 SHAFT ELEVATION
SCALE: 3/8" = 1' – 0"

GENERAL NOTES

1. THE ELEVATOR MODERNIZATION CONTRACTOR SHALL PROVIDE ALL SERVICES AND FURNISH AND INSTALL NEW EQUIPMENT MATERIAL AND LABOR FOR THE MODERNIZATION OF ELEVATOR 28 IN ACCORDANCE WITH THE ELEVATOR SPECIFICATION. THIS DRAWING IS INTENDED TO SUPPLEMENT THE ELEVATOR SPECIFICATION, PROVIDING A PLAN VIEW AND ELEVATION OF ELEVATOR 28.

2. MODERNIZATION INCLUDES "ALL WORK" REQUIRED TO BRING ELEVATOR 28 INTO COMPLIANCE WITH THE CURRENT RELEVANT BUILDING AND FIRE CODES, ADA REQUIREMENTS, AND MUNICIPAL AND STATE REQUIREMENTS, WHICH MAY BE FURTHER DEFINED BY THE AUTHORITY HAVING JURISDICTION.

3. MODERNIZATION INCLUDES INCORPORATING AND AS NEEDED MODIFYING THE FOLLOWING:
   a. ELEVATOR CAR FLOOR, WALLS, AND SCREENS (GATES).
   b. ELEVATOR LANDING DOORS

4. THE ELEVATOR MODERNIZATION CONTRACTOR IS RESPONSIBLE FOR ALL ELECTRICAL ENGINEERING AND DESIGN AND THE FURNISHING AND INSTALLATION OF EQUIPMENT AND MATERIAL ON THE LOAD SIDE OF THE FOLLOWING EQUIPMENT. ALL INSTALLATIONS SHALL BE PERFORMED BY QUALIFIED AND LICENSED ELECTRICIAN OR CONTRACTOR, UNDER THE SUPERVISION OF THE ELEVATOR MODERNIZATION CONTRACTOR.
   a. HPU 480 VOLT, 100 AMP, SHUNT TRIP CIRCUIT BREAKER
   b. ELEVATOR CONTROL PANEL DISCONNECT SWITCH
   c. ELEVATOR DOOR CONTROL PANEL DISCONNECT SWITCH
   d. ELEVATOR 28 CAR LIGHTING, GFCI RECEPTACLE, AND VENTILATION FAN DISCONNECT SWITCH
   e. ELEVATOR 28 TOP OF CAR LIGHTING AND GFCI RECEPTACLE DISCONNECT SWITCH
   f. ELEVATOR 28 SHUNT TRIP POWER SOURCE AND MONITOR DISCONNECT SWITCH

SHEET NOTES

1. DISCONNECT AND REMOVE THE EXISTING HYDRAULIC POWER UNIT (HPU) ALONG WITH ITS ELECTRIC POWER CIRCUIT WITHIN THE ROOM, ITS HYDRAULIC PIPING TO THE ELEVATOR PIT, AND THE SHUT–OFF VALVE AT THE JACK ASSEMBLY.

2. FURNISH AND INSTALL NEW HYDRAULIC PIPING AND SHUT–OFF VALVE WITH NEW PIPING OF THE SAME TYPE AND SIZE AS THE EXISTING PIPING FROM THE RECONDITIONED OR OPTIONAL NEW JACK ASSEMBLY TO THE HPU.

3. RECONDITIONED JACK ASSEMBLY: IF THE OPTIONAL NEW JACK ASSEMBLY IS NOT SELECTED BY THE PACC, REPLACE EXISTING HYDRAULIC JACK PACKING AND BEARING INCLUDING THE FOLLOWING:
   a. WIPER
   b. GLAND SEAL
   c. LATERNING RING
   d. BEARING RING

4. REUSE THE EXISTING BUFFERS.

5. OPTIONAL JACK ASSEMBLY REQUIREMENTS INCLUDE THE FOLLOWING:
   a. A NEW PVC CASING, NEW CYLINDER, AND NEW PLUNGER
   b. REMOVAL OF EXISTING JACK AND OIL AND SPOILS
   c. REUSING THE EXISTING JACK HOLE AND IF NEEDED PROVIDING NECESSARY DRILLING TO EXPAND THE HOLE DIAMETER. THE DRILLING RIG AND ATTACHMENTS AND ANY ASSOCIATED DRILLING COSTS SHALL BE INCLUDED. A "ROCK CLAUSE" SHALL NOT BE ACCEPTABLE.
   d. A NEW WATERTIGHT PVC CASING THAT CAN ACCOMMODATE THE NEW JACK UNIT
   e. THE NEW CYLINDER SHALL BE A SEAMLESS STEEL PIPE WITH A DESIGN HEAD TO RECEIVE UNIT TYPE PACKING
   f. THE PLUNGER SHALL BE A POLISHED SEAMLESS STEEL PIPE
   g. SEALING OPENINGS IN THE PIT FLOOR WITH QUICK–ACTING CEMENT.

6. FURNISH AND INSTALL A NEW UL LABELED, STATE OF THE ART, MICROPROCESSOR (PLC) BASED ELEVATOR CONTROL PANEL IN A NEMA 3R ENCLOSURE ALONG WITH A NEW BRANCH CIRCUIT TO MINI POWER–ZONE PANELBOARD ELEV28–1 AND NEW CONTROL CIRCUITS THAT INTERFACE WITH THE HPU. RACEWAY SHALL CONNECT TO THE BOTTOM OF THE CONTROL PANEL. THE CONTROL PANEL WILL INCLUDE EQUIPMENT TO PROVIDE EMERGENCY POWER FOR THE ELEVATOR CAB LIGHTS FOR 2 OR MORE HOURS.

7. FURNISH AND INSTALL A NEW UL LABELED, STATE OF THE ART, MICROPROCESSOR (PLC) BASED ELEVATOR DOOR CONTROL PANEL IN A NEMA 3R ENCLOSURE ALONG WITH A NEW BRANCH CIRCUIT TO MINI POWER–ZONE PANELBOARD ELEV28–1 AND NEW CONTROL CIRCUITS THAT INTERFACE WITH THE NEW ELEVATOR CONTROL PANEL. RACEWAY SHALL CONNECT TO THE BOTTOM OF THE CONTROL PANEL.

8. PROVIDE NEW OR REUSE IF AVAILABLE EXISTING SMOKE DETECTOR IN THE ELEVATOR CONTROL ROOM. CONNECT TO FIRE ALARM SYSTEM FOR USE IN ELEVATOR RECALL FUNCTIONALITY.

9. PROVIDE NEW HEAT DETECTOR NEAR THE SPRINKLER HEAD. PROVIDE INTERCONNECTION FOR USE IN SHUNT TRIPPING THE POWER SOURCE TO THE ELEVATOR CONTROL PANEL AFTER ELEVATOR RECALL.

10. PROVIDE NEW OR UPDATED FIRE ALARM INTERFACE MODULES AND TELEPHONE CIRCUITS WHICH SHALL BE INTERCONNECTED/INTEGRATED WITH THE NEW ELEVATOR CONTROL PANEL. FIRE ALARM AND TELEPHONE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE ELEVATOR CONTRACTOR.

11. THE ELEVATOR SPECIFICATIONS LIST THE EQUIPMENT, COMPONENTS, AND INSTRUMENTS THAT CAN BE REUSED AND SOME BUT NOT ALL THAT MUST BE REPLACED.

0 1' 2' 4' 6' 8'
3/8"=1'–0"

REVISIONS

ISSUE	DATE	REVISIONS
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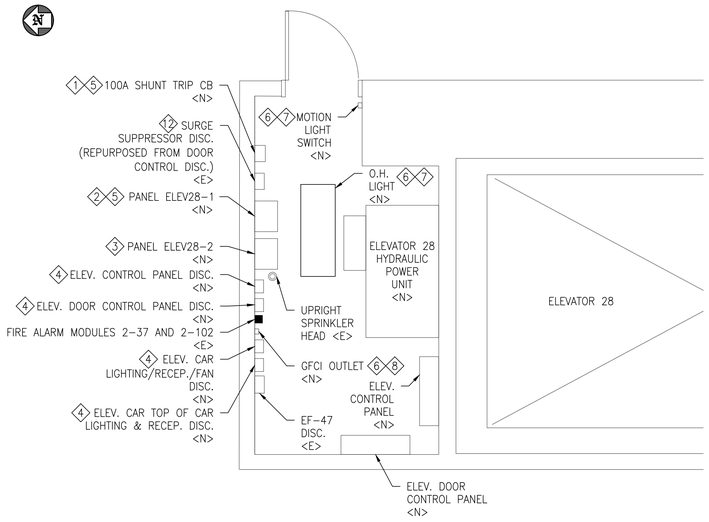
DPP PROJECT COORDINATOR: XXXXXXXXX
SEAL:

DPP PROJECT NUMBER: XX-XX-XXXX-XX
PROJECT TITLE: ELEVATORS #28 MODERNIZATION
PHASE:
DRAWING TITLE: ELEVATOR #28 EXISTING PLAN, SINGLE, ELEVATION, AND DETAILS

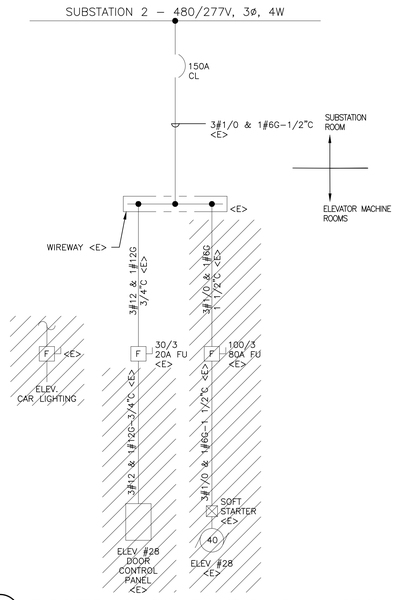
MAIDA ENGINEERING INC.
CONSULTING ENGINEERS
Philadelphia Office
1315 Walnut Street
Suite 716
Philadelphia, PA 19107
(215) 542–8700

PROJECT NO.	E45021–3	DATE
PROJECT ENG.	JFM	1/26/24
CHECKED	JFM	1/26/24

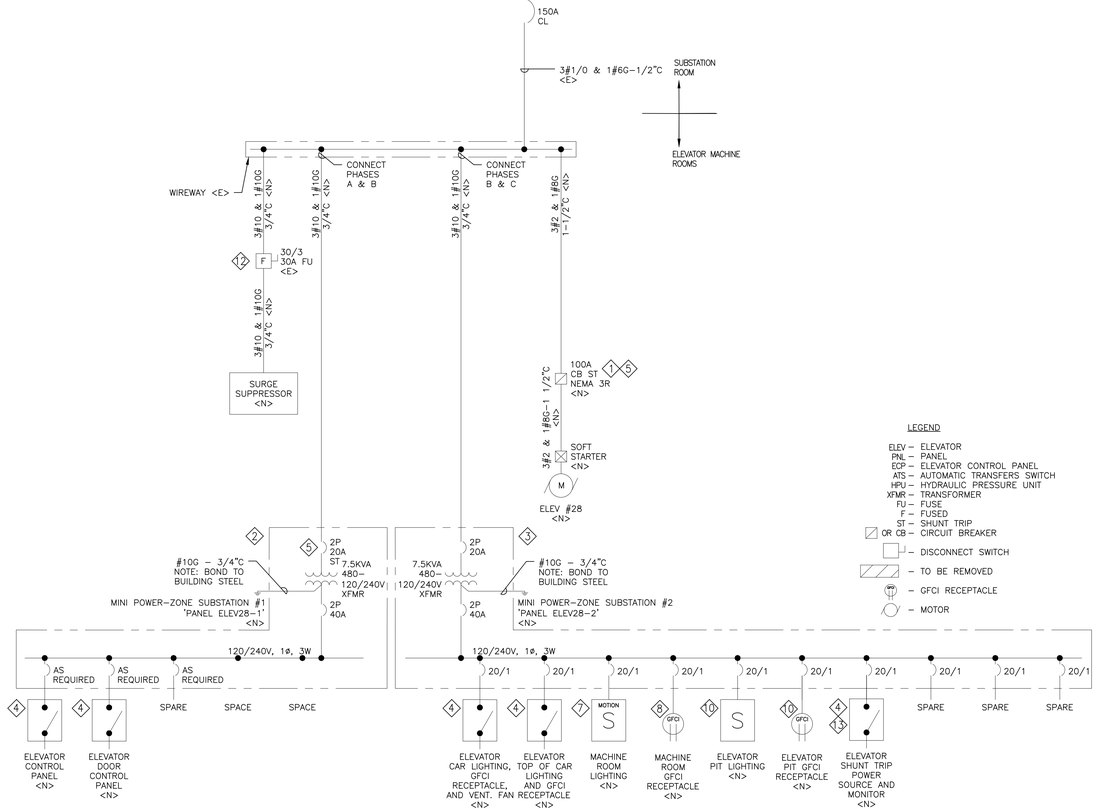
PACC PROJECT NO.: XX-XX-XXXX-XX
CONSULTANT PROJECT NO.: XXXX-XXXXX
DATE: 1-26-2024
SCALE: AS NOTED
DRAWN BY: SEG/ALA
CHECKED BY: JFM
DRAWING NO.: ME-1
NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.



1 ME–2 ELEVATOR #28 AREA – NEW
SCALE: 3/8" = 1' – 0"



2 ME–2 ELEVATOR #28 SINGLE LINE DIAGRAM – REMOVALS
SCALE: NTS



3 ME–2 ELEVATOR #28 SINGLE LINE DIAGRAM – NEW
SCALE: NTS

GENERAL NOTES

1. THE ELEVATOR MODERNIZATION CONTRACTOR SHALL FURNISH AND INSTALL THE NEW EQUIPMENT AND MATERIAL IN ACCORDANCE WITH THE ELEVATOR 28 MODERNIZATION SPECIFICATION. WHERE A CONFLICT EXISTS BETWEEN THIS DRAWING AND THE SPECIFICATION, THE SPECIFICATION TAKES PRECEDENCE. ADVISE THE PACC OF ANY CONFLICTS.

2. THE DRAWING PROVIDES INFORMATION ON EXISTING ELECTRICAL, LIGHTING AND FIRE ALARM EQUIPMENT THAT MAY BE UTILIZED, MODIFIED OR REPLACED AS A PART OF THE ELEVATOR 28 MODERNIZATION.

ELECTRICAL REQUIREMENTS

1. INSTALLATION SHALL CONFORM TO THE 2023 EDITION OF THE NATIONAL ELECTRICAL CODE (ANSI/NFPA 70) AND LOCAL/STATE ADOPTED CODES.
2. WORK SHOWN ON THE DRAWINGS IS DESCRIPTIVE OF THE WORK TO BE PERFORMED. THE CONTRACTOR SHALL PROVIDE ALL SERVICES AND MATERIAL REQUIRED TO COMPLETE THE INSTALLATION AND PROVIDE COMPLETE FUNCTIONING SYSTEMS.
3. PROVIDE DURABLE NAMEPLATES ON ALL RECEPTACLES AND LIGHT SWITCHES. NAMEPLATES SHALL SHOW BRANCH CIRCUIT NUMBER AND THE PANELBOARD WHICH FEEDS THE BRANCH CIRCUIT. UPDATE CIRCUIT DIRECTORY CARDS IN PANELABOARDS.
4. PROVIDE ENGRAVED PLASTIC NAMEPLATES ON DISCONNECT SWITCHES, CIRCUIT BREAKERS, CONTROL PANELS AND SIMILAR EQUIPMENT IDENTIFYING THE EQUIPMENT AND THE SOURCES OF POWER TO THE EQUIPMENT, INCLUDING THE PANELBOARD OR ATS WHICH FEEDS THE CIRCUIT. UPDATE CIRCUIT DIRECTORY CARDS IN PANELBOARDS
5. FEEDERS, BRANCH CIRCUIT AND CONTROL CIRCUIT WIRES SHALL BE 600 VOLT, TYPE THHN/THWN, STRANDED COPPER WIRES IN RACEWAYS HAVING A SEPARATE 600VOLT, TYPE THHN/THWN, STRANDED COPPER GROUNDING WIRE.
6. BRANCH CIRCUIT WIRES SHALL BE A MINIMUM OF #12 AWG. HOT CONDUCTORS SHALL BE BLACK; NEUTRAL CONDUCTORS SHALL BE WHITE; AND GROUNDING CONDUCTORS SHALL BE GREEN.
7. CONTROL WIRES SHALL BE A MINIMUM OF #14 AWG. HOT CONDUCTORS SHALL BE RED; NEUTRAL CONDUCTORS SHALL BE WHITE; AND GROUND CONDUCTORS SHALL BE GREEN. CONTROL WIRES SHALL BE LABELED TO CORRISPOND TO THE IDENTIFYING NUMBER OR NAME ON THIS DRAWING.
8. FEEDERS WIRES SHALL BE SIZED PER THE DRAWINGS AND SHALL BE OF THE FOLLOWING COLORS:

PHASE/VOLTAGE	208/120 VOLTS	480/277 VOLTS
PHASE A	BLACK	BROWN
PHASE B	RED	ORANGE
PHASE C	BLUE	YELLOW

9. EXCEPT FOR FINAL CONNECTIONS, RACEWAYS SHALL BE RIGID STEEL CONDUIT AND SHALL BE SIZED IN ACCORDANCE WITH THE NEC.
10. FINAL CONNECTION TO MOTORS AND INSTRUMENTS SHALL BE MADE USING FLEXIBLE METAL CONDUIT THAT IS NO LONGER THAN 48".
11. FEEDER AND BRANCH CIRCUITS RUN IN COMMON RACEWAYS ARE TO BE SIZED IN ACCORDANCE WITH THE DERATING REQUIREMENTS OF THE NEC.
12. CONTRACTOR SHALL SUBMIT FOUR SETS OF SHOP DRAWINGS AND CATALOG CUT SHEETS FOR ALL CONTRACTOR FURNISHED MATERIAL AND EQUIPMENT FOR APPROVAL PRIOR TO STARTING WORK. INSTALLATION SHALL BE IN ACCORDANCE WITH FINAL APPROVED SHOP DRAWINGS AND CATALOG CUTS.
13. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL WORK WITH ELEVATOR AND FIRE ALARM CONTRACTORS WORKING ON THE PROJECT, EQUIPMENT SUPPLIERS, THE CONSTRUCTION MANAGER, AND OWNER.
14. THE WORD "INSTALL" OR "PROVIDE" MEANS FURNISH AND INSTALL ALL NEW EQUIPMENT. ALL EQUIPMENT SHOWN N THIS DRAWING IS TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR UNLESS EXISTING OR NOTED OTHERWISE.
15. EACH BRANCH CIRCUIT, WHERE APPLICABLE, SHALL HAVE A DEDICATED NEUTRAL CONDUCTOR, COMMON NEUTRALS ARE NOT PERMITTED.
16. ALL RECEPTACLE AND LIGHT SWITCH DEVICE BOXES SHALL BE GALVANIZED STEEL DEVICE BOX WITH STAINLESS STEEL COVER PLATE.
17. ALL OTHER BOXES INCLUDING LIGHTING OUTLET BOXES, ALARM DEVICE BACK BOXES, JUNCTION BOXES, AND PULL BOXES SHALL BE GALVANIZED STEEL SHEET METAL WITH GALVANIZED STEEL COVER PLATE WHERE APPLICABLE AND SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
18. ALL EXPOSED BOXES AND THEIR COVER PLATES USED ON THE FIRE ALARM SYSTEM SHALL BE PAINTED RED
19. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NEW RACEWWAY AND EQUIPMENT SUPPORT BRACKETS AND STANDOFFS AS REQUIRED FOR THE INSTALLATIONS DESCRIBED ON THIS DRAWING.
20. ELECTRICAL CONTRACTOR SHALL PROVIDE SAFEGUARDS AT THE PANELBOARD AND ATS TO MAKE CERTAIN THAT CIRCUITS BEING WORKED ON CANNOT BE RE–ENERGIZED BY ANYONE OTHER THAN THE ELECTRICAL CONTRACTOR.
21. DURING CONSTRUCTION. MEANS AND METHOD SHOULD BE REVIEWED WITH AND APPROVED BY THE OWNER. ONLY QUALIFIED PERSONS AND PERSONNEL ACCOMPANIED BY QUALIFIED PERSONS WITH PROPER PPE IN ACCORDANCE WITH NFPA 70E – 2021 SHALL BE PERMITTED IN ROOMS WHEN PANELBOARD AND SWITCHBOARD COVERS ARE REMOVED.
22. ELECTRICAL CONTRACTOR SHALL USE ULTRASONIC EQUIPMENT OR OTHER APPROVED METHOD TO ENSURE NO OBSTACLES ARE IN CONCRETE SLABS PRIOR TO CORE DRILLING. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REPAIRS INVOLVED WITH HITTING AN OBSTACLE DURING CORE DRILLING.
23. ALL CONDUIT PENETRATIONS WITHIN FIRE RATED WALLS SHALL BE INSTALLED PER THE DETAILS SHOWN ON THIS DRAWING.
24. SURFACE MOUNTED EQUIPMENT SHALL NOT BE MOUNTED DIRECTLY ON WALLS, PROVIDE 1/4" SPACES TO MOUNT EQUIPMENT OFF OF WALLS.
25. ELECTRICAL CONTRACTOR TO RED LINE THIS DRAWING WITH AS INSTALLED CIRCUIT DATA.

SHEET NOTES

1. NEW 480 VOLT, 100 AMP, (24VDC SHUNT TRIP), 3 POLE CIRCUIT BREAKER WITH INTEGRAL GROUND WIRE LUG AND A SHORT CIRCUIT INTERRUPTING RATING OF 65,000 AMPS @ 480 VOLTS IN A NEMA 3R ENCLOSURE THAT REPLACES THE EXISTING ELEVATOR 28 HPU 480 VOLT, 100 AMP, 3 POLE FUSED DISCONNECT SWITCH. (THE NEW HPU STARTER MUST HAVE A SHORT CIRCUIT CURRENT RATING OF 10,000 AMPS OR HIGHER.)

2. NEW SQUARE D MINI POWER–ZONE, HEREIN REFERRED TO AS PANEL ELEV28–1, WITH A 7.5 KVA, 1ø, 480 VOLT TO 240/120 VOLT SEALED TRANSFORMER, A 480 VOLT, 20 AMP (24VDC SHUNT TRIP), 2 POLE PRIMARY CIRCUIT BREAKER HAVING A SHORT CIRCUIT INTERRUPTING RATING OF 65,000 AMPS @ 480 VOLTS, A 40 AMP. 240 VOLT, 2 POLE SECONDARY CIRCUIT BREAKER AND A INTEGRAL 10 SPACE PANELBOARD WITH THE CIRCUIT BREAKERS REQUIRED FOR THE MODERNIZATION AND TENTATIVELY SHOWN ON THE DRAWING. SQUARE D CATALOG NUMBER MPZB7S40F65K OR EQUAL. THIS WILL REPLACE THE 480 VOLT, 30 AMP, 3 POLE FUSED DISCONNECT SWITCH (WHICH WILL BE REUSED: SEE NOTE 12) PRESENTLY USED FOR THE ELEVATOR 28 CAR DOOR CONTROL PANEL AND ELEVATOR CONTROL PANEL.

3. NEW SQUARE D MINI POWER–ZONE, HEREIN REFERRED TO AS PANEL ELEV28–2, WITH A 7.5 KVA, 1ø, 480 VOLT TO 240/120 VOLT SEALED TRANSFORMER, A 480 VOLT, 20 AMP, 2 POLE PRIMARY CIRCUIT BREAKER HAVING A SHORT CIRCUIT INTERRUPTING RATING OF 65,000 AMPS @ 480 VOLTS, A 40 AMP. 240 VOLT, 2 POLE SECONDARY CIRCUIT BREAKER AND A INTEGRAL 10 SPACE PANELBOARD WITH THE CIRCUIT BREAKERS REQUIRED FOR THE MODERNIZATION AND TENTATIVELY SHOWN ON THE DRAWING. SQUARE D CATALOG NUMBER MPZB7S40F65K OR EQUAL. THIS WILL REPLACE THE 240 VOLT, 30 AMP, 3 POLE FUSED DISCONNECT SWITCH PRESENTLY USED FOR THE ELEVATOR 28 LIGHTING.

4. NEW 240 VOLT, 30 AMP, 2 POLE, NON–FUSED, DISCONNECT SWITCH WITH AN INTEGRAL GROUND LUG THAT CAN BE LOCKED IN THE OPEN POSITION ONLY IN A NEMA 3R ENCLOSURE. SQUARE D CATALOG NUMBERS DU221RB AND LOGK1 OR EQUAL, FOR EACH OF THE FOLLOWING, WILL BE FURNISHED AND INSTALLED:
   a. NEW ELEVATOR CONTROL PANEL
   b. NEW DOOR CONTROL PANEL
   c. NEW ELEVATOR 28 CAR LIGHTING, GFCI RECEPTACLE, AND VENTILATION FAN
   d. NEW ELEVATOR 28 TOP OF CAR LIGHTING AND GFCI RECEPTACLE
   e. NEW ELEVATOR 28 SHUNT TRIP POWER SOURCE AND MONITOR

5. FURNISH AND INSTALL NEW 24 VOLT DC, SHUNT TRIP CONTROL CIRCUIT FROM THE NEW FIRE ALARM RELAY TO THE SHUNT TRIP FOR THE NEW PRIMARY SIDE CIRCUIT BREAKER WITHIN THE SQUARE D MINI POWER–ZONE PANEL ELEV28–1 AND TO NEW 100A SHUNT TRIP CIRCUIT BREAKER FEEDING THE NEW ELEVATOR 28 SOFT STARTER.

6. DETERMINE, DISCONNECT AND REMOVE THE EXISTING 120 VOLT BRANCH CIRCUITS TO THE EXISTING MACHINE ROOM LIGHTING, AND TO THE EXISTING MACHINE ROOM 120 VOLT DUPLEX RECEPTACLE. DETERMINE, DISCONNECT, AND REMOVE THE EXISTING 120 VOLT FEEDER, BRANCH CIRCUIT, AND DISCONNECT SWITCH FOR THE EXISTING CAR LIGHTING.

7. REPLACE THE EXISTING MACHINE ROOM LIGHT FIXTURES AND LIGHT SWITCH WITH NEW LED LIGHT FIXTURES AND NEW MOTION DETECTION LIGHT SWITCH WITH NEW BRANCH CIRCUITS TO THE CIRCUIT BREAKER IN THE NEW MINI POWER–ZONE PANEL ELEV28–2.

8. FURNISH AND INSTALL NEW GFCI DUPLEX RECEPTACLE IN THE MACHINE ROOM WITH A NEW BRANCH CIRCUIT FROM THE NEW MINI POWER–ZONE PANEL ELEV28–2.

9. DETERMINE, DISCONNECT AND REMOVE THE EXISTING 120 VOLT SOURCE OF POWER TO THE EXISTING ELEVATOR 28 PIT LIGHTING AND 120 VOLT DUPLEX RECEPTACLE.

10. REPLACE THE PIT LIGHTING FIXTURE WITH A NEW 120 VOLT LED LIGHT FIXTURE THAT HAS A GUARD. FURNISH AND INSTALL A NEW LIGHT SWITCH FOR THE PIT LIGHTING FIXTURE AND A NEW 120 VOLT GFCI ELEVATOR PIT RECEPTACLE WITH BRANCH CIRCUITS FROM THE NEW MINI POWER–ZONE PANEL ELEV28–2.

11. THE ELEVATOR MODERNIZATION CONTRACTOR WILL BE RESPONSIBLE FOR ALL ELECTRICAL CONSTRUCTION STARTING ON THE LOAD SIDE TERMINALS OF THE DISCONNECT SWITCHES DESCRIBED ABOVE AND FROM THE BRANCH CIRCUIT BREAKERS IN THE SQUARE D MINI POWER–ZONE PANEL ELEV28–2. THIS INCLUDES BUT IS NOT LIMITED TO THE FURNISHING AND INSTALLATION OF THE NEW ELEVATOR CONTROL PANEL, THE NEW ELEVATOR DOOR CONTROL PANEL, THE NEW CAR LED LIGHTING FIXTURES, WHICH WILL REPLACE THE EXISTING LIGHTING FIXTURES, AND THE NEW TOP OF CAR LED LIGHTING FIXTURE AND GFCI RECEPTACLE THAT WILL REPLACE THE EXISTING TOP OF CAR LIGHTING FIXTURE AND RECEPTACLE.

12. FURNISH AND INSTALL A NEW SURGE PROTECTOR. ABB CAT. #OVRHTP2773Y5LUET2 AND NEW 3#10 & 1#10G – 3/4"C TO CONNECT TO THE EXISTING 480 VOLT, FUSED DISCONNECT SWITCH.

13. FIRE ALARM CONTRACTOR TO FURNISH AND INSTALL A SIEMENS PAD–3 DISTRIBUTED POWER MODULE TO PROVIDE AND MONITOR A 24VDC CIRCUIT FOR THE SHUNT TRIP MAIN CIRCUIT BREAKER IN PANEL ELEV28–2.

0 1' 2' 4' 6' 8'
3/8"=1'–0"

REVISIONS		
ISSUE	DATE	REVISIONS
0	1/26/24	INITIAL REV
1	3/1/24	SIEMENS PAD-3 ADDITION

Pennsylvania Convention Center
PHILADELPHIA

PA ONE-CALL NUMBER (FOR DESIGN ONLY): XXXXXXXXX
DPP PROJECT COORDINATOR: XXXXXXXXX
SEAL:

DPP PROJECT NUMBER: XX-XX-XXXX-XX
PROJECT TITLE: ELEVATOR #28 MODERNIZATION
PHASE:
DRAWING TITLE: ELEVATOR #28 NEW PLAN, NEW SINGLE LINE, AND REMOVAL SINGLE LINE
PACC PROJECT NO.: XX-XX-XXXX-XX
CONSULTANT PROJECT NO.: XXXX-XXXXX
DATE: 1-26-2024
SCALE: AS NOTED
DRAWN BY: SEG
CHECKED BY: JFM
DRAWING NO.: ME-2

MAIDA ENGINEERING, INC.
CONSULTING ENGINEERS
Philadelphia Office
1315 Walnut Street
Suite 716
Philadelphia, PA 19107
(215) 542–8700

PROJECT NO.	E45021	DATE
PROJECT ENG.	JFM	1/26/24
CHECKED	JFM	1/26/24

NOTE: ALL DIMENSIONS AND CONDITIONS SHALL BE VERIFIED BY THE CONTRACTOR AT THE SITE BEFORE PROCEEDING WITH THE WORK.

PENNSYLVANIA CONVENTION CENTER ELEVATOR 15 MODERNIZATIONS

Project Specifications and Information for Bidders

Maida Engineering, Inc. / E45021-1/ January 26, 2024

PENNSYLVANIA CONVENTION CENTER

ELEVATOR 15- FREIGHT ELEVATOR MODERNIZATIONS

Project Specifications and Information for Bidders

PART 1 – GENERAL

1.01 SUMMARY

A. This Specification provides information and details to the Elevator Modernization Contractor, herein referred to as the "Contractor", for the modernization of the Hydraulic Freight Elevator 15, formerly referred to as Elevator 7, at the Pennsylvania Convention Center located in Philadelphia, PA. The Elevator Modernization Contractor's Work includes engineering, design and coordination, and the labor, materials, tools, rigging, equipment, removals, installations, and commissioning to upgrade and modernize this elevator.

B. The Contractor's Work includes but is not limited to:

1. Modernization upgrades of the existing Hydraulic Freight Elevator 15 complete in every respect. Modernization upgrades, as may or may not be defined herein or shown or implied by the drawings, shall include "work" that is required to bring Elevator 15 into compliance with the current relevant Codes, ADA requirements, and municipal and state requirements, which may be further defined by the Authority Having Jurisdiction.

2. Using and modifying as needed the following:

    a. Recently installed Hydraulic Power Unit (HPU).
    b. Existing Elevator Floor and Walls.
    c. Existing Elevator Doors
    d. Existing Car Screens.

3. Coordinate the modernization work with work that will be performed by others as is generally described herein.

4. Completion of the work per the schedule established by the PACC so that this work does not interfere with the site's operations.

5. Inspecting components or devices that are listed in this Specification as "Retain existing" or "Reuse existing" to confirm their viability and to verify that they comply with the modernization requirements. Any repairs, refurbishments, or replacements of retained devices and components are to be included in the Contractor's base bid.

6. Developing details for required features of or the installation of parts, material or equipment that are needed to provide a complete elevator modernization that complies with all applicable codes and standards. The implementation of such details shall be included in the Contractor's base bid.

C. The following electrical construction work, which includes removals and disposal of equipment and material and the furnishing and installation of new equipment and material, will be completed by an Electrical Contractor retained by of the PACC:

1. Modifications to the 480 Volt, 3 Phase Normal/Emergency ATS-7 Feeder from the feeder tap in the machine room raceway to a new 480 Volt, 200 Amp, 3 Pole Elevator Circuit Breaker in sight of the existing Hydraulic Power Unit (HPU) Soft Starters. This includes replacing two (2) 480 Volt, 3 Pole, 200 Amp Elevator Fused Disconnect Switches and associated feeders within the machine room with new feeders and a new 480 Volt, 3 Pole, 200 Amp Fused Disconnect Switch and Fuses and a new 480 Volt, 200 Amp, (120 Volt AC Shunt trip), 3 Pole Circuit Breaker in sight of the HPU Starters. The Elevator Modernization Contractor is responsible for all electrical installations on the load side of this circuit breaker.

2. Removal of the 480 Volt, 3 Phase normal/emergency feeder from the ATS-7 feeder tap in the machine room raceway to the transformer that serves the Elevator Door Control Panels and Elevator Control Panel. The Elevator Modernization Contractor is responsible for all work to remove the transformer, the Elevator Door Control Panels, the Elevator Control Panels and feeders and circuits originating from them.

3. Determining the source and the removal of the existing 120 Volt feeder to the existing Elevator 15 Lighting Fused Disconnect Switch in the machine room, the removal of the Elevator 15 Lighting Fused Disconnect Switch. The Elevator Modernization Contractor is responsible for all work to remove feeder on the load side of the Elevator 15 Lighting Fused Disconnect Switch.

4. Furnishing and installing two new Square D Mini-Zone Substations diagrammatically shown on the drawings, labeled Panel ELEV15-1 and Panel ELEV15-2 along with New 480 Volt, 1Ø, 30 Amp, ATS-7 Feeder Taps from the existing wireway in machine room. Provide branch circuit breakers, 1 pole or 2 pole, based on the requirements of the equipment.

5. Furnishing and installing the following Non- Fused Disconnect Switches and their branch circuit on conduit as diagrammatically shown on the drawings. The Elevator Modernization Contractor is responsible for all electrical installation on the load side of these switches.

    a. New Elevator Control Panel
    b. New Front Door Control Panel
    c. New Rear Door Control Panel
    d. Existing Elevator 14 Car Lighting and Top of Car GFCI Receptacle.
    e. New Elevator 15 Car New Lighting Fixture and New Ventilation Fan.
    f. New Elevator 15 Top of Car Lighting and GFCI Receptacle

6. Disconnect and remove the existing feeder existing Elevator 14 Shunt Trip Fused Disconnect Switch. Furnish and install a new 120 Volt shunt trip branch circuit from Mini-Zone Substation ELEV15-2 to the existing Elevator 14 Shunt Trip Fused Disconnect Switch. Furnish and install new 120 Volt, shunt trip control circuits from the existing fire alarm relay junction box to the shunt trips for the existing molded case circuit breaker for Elevator 14, the new molded case circuit breaker for Elevator 15 and the new main circuit breaker in the Square D Mini-Zone Substation ELEV15-1.

7. Determine, disconnect, and remove the existing 120 Volt source of power to the existing Machine Room Lighting and the 120 Volt Duplex Receptacle.

8. Reusing the existing lighting fixtures that were replaced during the Elevator 14 project, replace the existing machine room light switch with a new motion detecting light switch and connect the new motion detecting light switch to a new branch circuit originating in Mini-Zone Substation ELEV15-2.

9. Furnish and install new GFCI duplex receptacles in the machine room with new portions of a branch circuit from the new Mini-Zone Substation ELEV15-2.

10. Determine and disconnect the existing 120 Volt source of power to the existing Elevator 15 Pit Lighting and 120 Volt Duplex Receptacle.

11. Replace the pit lighting fixture with a new 120 Volt, LED light fixture that has a guard. Furnish and install a new light switch for the pit lighting fixture and a new branch circuit from the new Mini-Zone Substation ELEV15-2.

12. Replace the pit duplex receptacle with a new 120Volt, duplex, 20 Amp, GFCI receptacle and provide new branch circuit and conduit to connect it to the new Mini-Zone Substation ELEV15-2.

13. Furnish and install a new branch circuit to the existing Elevator 14 Oil Heater Disconnect Switch from a new branch circuit from the new Mini-Zone Substation ELEV15-2. Disconnect and remove the existing branch circuit as needed.

D. The following related fire alarm and sprinkler construction work will be completed by others under the direction of the PACC.

    1. Installation of smoke and heat detectors and modules that will interface with the new Elevator 15 control panel. This includes but is not limited to the detectors associated with the shunt trip circuit breaker and the Phase/Emergency/Recall.
    2. Modifications to the fire alarm relay to provide 120 volt shunt trip control circuits for both Elevator 14 and Elevator 15.

E. Drawings ME-1 and ME-2, which have been provided to the bidders and provide information which is supplemental to the specifications.

F. The Elevator Modernization Contractor ("Contractor") shall coordinate with the fire alarm contractor and electrical contractor, assuring its provision of a complete project that satisfies all requirements of the Authority Having Jurisdiction and all applicable codes and standards.

G. Site Visit and Inspection of Existing Equipment

1. By submitting a bid, the Contractor certifies that he has visited the site and inspected the existing elevator systems so that any existing conditions that could impact the work can be identified and accounted for in his bid.

2. A pre-bid meeting for the project will be scheduled for which participation is mandatory. Access to the site beyond the pre-bid meeting during the bidding process can be coordinated with the PCCA.

H. Additional Requirements:

1. Welding at the project site shall be performed by certified welders who have previously qualified by test as prescribed in the American Welding Society Publications AWS Dl.1 to perform the type of work required. Certificates shall be submitted for all workers employed in this capacity.

2. Electrical work shall be performed by a Licensed Master Electrician and Licensed Journeymen Electricians as required by permits obtained from the Authority Under Jurisdiction.

3. Firestopping: Sealing is required around all penetrations to maintain the integrity of fire-rated construction.

1.02 ABBREVIATIONS:

A. PACC Pennsylvania Convention Center

B. (E) Existing

C. (N) New

D. HPU Hydraulic Pumping Unit

1.03 SUBMITTALS

A. Shop drawings and submittals shall be submitted electronically using PDF format files. The Contractor may, at his option, create or use a web-based platform through which exchanges of shop drawings and submittals can be completed and tracked.

B. Equipment Certification: The Contractor shall provide and install safety devices that have been subjected to tests witnessed and certified by an independent professional testing laboratory that is not a subsidiary of the firm that manufactures supplies or installs the equipment.

C. Submittal List: Shortly after a contract is awarded, the Contractor shall provide a list of all shop drawings, elevator layout, equipment, and submittals that he will provide for the PACC and/or the PACC's engineer to review. This list will be reviewed and amended as needed by the Contractor to include additional shop drawings and submittals that are requested by or required by the PACC and/or the PACC's engineer. The Submittal List shall include but not limited to the following: Manufacturer's Name, Trade Names, Model or Catalog Number, Nameplate Data (size, capacity, and rating).

D. Shop Drawings:

1. Shop drawings and submittals shall be submitted electronically using PDF format files. The Contractor may, at his option, create or use a web-based platform through which exchanges of shop drawings and submittals can be completed and tracked.

    a. Submit plan and elevation drawings showing the location and arrangement of the machine room and elevator's hoistway equipment. Layouts of the existing machine rooms are included on project drawings ME-X. Note that these layouts are close to but not necessarily to scale.

        i. Plan drawing to show controllers and all other components located in machine room.

        ii. Elevation Drawing to show car, supporting beams, guide rails, brackets, buffers, and size of car platform, car frame members, and other components located in the hoistway.

    b. Weight of principal parts.

    c. Top and bottom clearances and over travel of car and counterweight.

    d. Location of main line switch/shunt trip circuit breaker, switchboard panel, light switch, and feeder extension points in the machine room.

E. Plans and elevation drawings shall show the following:

1. Hydraulic Jack
2. HPU unit: Voltage, HP rating and Short Circuit Current Rating (SCCR).
3. Elevator Control Panel.
4. Elevator Door Control Panel.
5. Motor Starters and Overload Current Protection Devices.
6. Car Safety Device; Type "A" safeties and Governor.
7. Hoistway Door Interlocks.

8. Car Buffers: maximum and minimum rated loads, maximum rated striking speed and stroke.
9. Car Ventilation Unit: HP rating and CFM rating.
10. Power Door Operators
11. Cartop Operating Station
12. Cartop Guardrail
13. Digital Corridor Arrival Lantern/Car Position Indicator
14. Hall Buttons

F. Dimensioned drawings shall be provided for:
1. All signal and operating fixtures.
2. Car and counterweight roller guides.
3. Door operators and infrared curtain units.

G. Equipment fabrication and assembly drawings shall be provided for the following:

1. Elevator Control Panel including interior and exterior, to scale, panel layouts with a bill of material that list each component with manufacturers name and catalog number; wiring diagrams that show the requirements of the power source for the control panel, wire numbers, and the interconnections within the control panel and to the field terminal block.

2. Elevator Door Control Panel including interior and exterior, to scale, panel layouts with a bill of material that list each component with manufacturers name and catalog number; wiring diagrams that show the requirements of the power source for the control panel, wire numbers, and the interconnections within the control panel and to the field terminal block.

H. Maintenance Data and Tools

1. Provide the information that is required for proper maintenance and adjustments of the equipment prior to the final acceptance test. This information shall be part of an overall "Operations and Maintenance Manual". Two hard (paper) copies of the manual shall be provided along with in PDF format file of the manual.

2. Provide a complete set of site-specific schematic wiring diagrams of as-built elevator circuits. The location of each item on the diagram shall be noted. The functionality of the system shall be annotated diagrams. A hard copy of the full size set of diagrams shall be placed in each elevator's machine room. An additional hard copy shall be provided to the PCCA along with PDF format files. The Operations and Maintenance Manual shall include half-sized diagrams.

3. Lubricating instructions and recommended lubricant grade shall be provided.

4. Parts catalog cuts and maintenance instructions shall be included.

5. The Contractor shall include in his scope of supply any special tools or passwords that are required for maintenance, troubleshooting, adjustments or for the performance of periodic safety checks. All costs for such items, including rental fees if applicable, shall be included in the Contractor's bid.

6. The Controllers shall not include any devices, sim cards, tools, or other removable devices that, if removed, would inhibit the serviceability of the controllers or elevators.

7. Provide six (6) sets of keys for each elevator for all keyed functions.

1.04 REFERENCES

A. All work shall be completed in accordance with the latest and/or applicable editions of all relevant building codes and elevator codes including but not limited to the following:

1. ASME A17.1 – Safety Code for Elevators and Escalators (edition that applies to the City of Philadelphia).
2. NFPA 70 – National Electrical Code.
3. Americans with Disabilities Act (ADA).
4. ANSI 117.1 – American National Standard for Accessible and Usable Buildings and Facilities.
5. NFPA 13 – Standard for Installation of Sprinkler Systems.
6. NFPA 72 – National Fire Alarm and Signaling Code.
7. International Building Code (IBC).
8. American Society for Testing and Materials (ASTM)- A1008/A1008M-09 - Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High Strength Low-Alloy with Improved Formability
9. Gauges: Sheet and Plate: U.S. Standard (USS); Wire: American Wire Gauge (AWG)
10. American Welding Society (AWS): D1.1 - Structured Welding Code Steel
11. Local (City of Philadelphia) and State (Commonwealth of Pennsylvania) codes.
12. Authority Having Jurisdiction.

B. The Contractor shall make application for, secure and pay for all necessary permits and certificates of inspection for all furnished equipment as required by various departments of local and state authorities. The Contractor shall furnish the PCCA certificates and approval as required by local governing authorities having jurisdiction.

C. In addition, the Contractor shall be responsible for speed and load carrying tests for this elevator as well as heat tests for the elevator machine rooms.

D. Any damage caused by the Contractor to the elevator cars, hoist-ways or the structures and facilities that adjoin the project areas shall be repaired by Contractor at no expense to the PCCA.

1.05 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall store all materials and equipment in a dry protected and secure area. Protect and handle all materials and equipment in accordance with manufacturers' recommendations and directions to prevent damage, soiling or deterioration.

1.06 WARRANTY

A. The Contractor shall provide a warranty to replace, repair or restore parts or components that fail or do not operate properly due to poor factory or field workmanship, engineering, or design for a period of 12 months from the date of signed final acceptance.

1.07 FULL MAINTENANCE

A. The Elevator Contractor shall provide a one year full maintenance contract for the modernized elevator covering all parts and labor that will begin when the modernization is complete and this elevator has been accepted by the PCCA and the AHJ.

1.08 QUALITY ASSURANCE

A. Equipment, materials, and products from the following listed manufacturers will be reviewed to confirm acceptability and compliance with the contract documents and governing codes:

1. ThyssenKrupp Elevator Company.
2. Kone Elevator Company.
3. Schindler Elevator Company.
4. Excel Elevator Company
5. Hollister-Whitney Company
6. Otis Elevator Company.
7. The Peele Company

B. The Contractor shall demonstrate that he has successfully installed and maintained traction elevators like those described in this specification and which have been in operation for ten (10) or more years.

C. The Contractor shall demonstrate that he is currently and regularly engaged in the installation of elevator equipment as one of his principal products.

D. The contractor shall have trained supervisory personnel, equipment, and facilities to install elevator equipment specified herein.

E. The Contractor shall demonstrate that he has a qualified local workforce (within 50 miles of the city of Philadelphia, PA) that is available to work at the PACC.

F. The contractor shall have certified elevator mechanics supersizing and or performing the required work.

G. The Contractor shall demonstrate that he locally maintains an adequate stock of parts for replacement or emergency purposes.

H. The elevator control systems shall not have any software embedded in its program that shuts down the elevator when the elevator and control system are not malfunctioning.

1.09 Parts and Printed Circuit Boards

A. The Contractor shall guarantee the sale of parts and controller boards to the PCCA. Such sale shall not be contingent on there being an exchange component.

1.10 Materials:

A. Where stainless steel is specified, it shall be corrosion resisting steel 302 or 304, Condition A with Number 4 finish on exposed surfaces. Stainless steel shall have the grain of belting in the direction of the longest dimension and surfaces shall be smooth and without waves. During installation stainless-steel surfaces shall be protected with suitable material.

B. Where cold rolled steel is specified it shall be low-carbon steel rolled to stretcher level standard flatness, complying with ASTM A109.

1.11 Manufacturers

A. The following Elevator Companies are acceptable for this project:

1. ThyssenKrupp Elevator Company.
2. Kone Elevator Company.
3. Schindler Elevator Company.
4. Excel Elevator Company.
5. Hollister-Whitney Company
6. Otis Elevator Company
7. The Peelle Company

8. Wyatt Elevator Company.

1.12 Manufacturer Products:

A. Materials, devices, and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items. The elevator equipment including controllers and supervisory system shall be the product of manufacturers of established reputation, provided such items are capably engineered and produced under coordinated specifications to ensure compatibility with the total operating system.

B. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit. Components shall be compatible with each other and with the total assembly for the intended service.

C. The mixing of manufacturers related to a single system or group of components shall be identified in the submittals.

PART 2 – ELEVATOR CHARACTERISTICS:

2.01 TYPE AND GENERAL CHARACTERISTICS OF THE ELEVATOR TO BE MODERNIZED\

A. Elevator #15 (Freight Elevator)

1. Existing Type and General Characteristics

Quantity	One
Operation	Simplex
Installed In	1992
Capacity	12,000 pounds
Speed	150 feet per minute
Floors Served	S, E, O, B (Street, Exhibit Hall, Overlook, Ball)
Stops/Openings	4/Front & Rear

2.02 ELEVATOR MODENIZATION REQUIREMNSTS

A. PERFORMANCE:

1. Speed: The speed of the elevator shall not vary by more than +/- 5% under any loading condition within the load capacity

2. Capacity: The elevator shall safely lower, stop and hold up to 125% rated load.

3. Leveling: Leveling shall be +/- 1/8” under any loading condition.

4. Door Closing Time: Door operation including closing time shall comply with ASME code.

5. Floor-to-Floor Travel: Floor-to-floor performance time shall be 15.0 seconds (from the start of door closing at one floor to arrival at the next floor).

6. Car Call Door Dwell Time: The minimum acceptable time for door to remain fully open after answering a car call shall be adjustable with initial setting at 4 seconds.

7. Hall Call Door Dwell Time: The hall call door dwell time shall be based on code requirements.

8. Nudging: When a door is prevented for closing for 20 seconds due to the failure of the door protection proximity device or due to an obstruction, the door shall remain open and a buzzer alarm shall sound.

B. OPERATION:

1. The elevator operation at the PACC shall remain "as is" with the new elevator control system except for the changes and additions that are described in this specification.

2. The new microprocessor-based control system shall be programmed to maintain the existing normal sequence of operation except as modified herein.

3. An "Independent Operation" keyed switch shall be included in the car operating station which, when closed, shall permit operation from the car's buttons only. In this mode, hall station buttons/calls will be ignored by the control system.

4. A car without registered calls arriving at a floor where both up and down hall calls are registered shall initially respond to the hall call that is in the direction that the car was traveling. If no car call or hall call is then registered for further travel in that direction, the car shall close its doors and immediately re-open them in response to the hall call in the other direction. The direction lanterns at the hall and inside the car shall indicate the change in direction when the doors re-open.

C. FIREMEN'S SERVICE: (NOT REQUIRED)

2.03 WORK TO BE DONE

A. Machine Room

1. Elevator Control Panel: Provide a new Microprocessor Control System that will interface with the existing HPU and the New Door Controllers and will include Emergency Power for the Elevator Cab Lights that is suitable for 2 or more hours.

2. Freight Elevator Door Controllers – Provide new PLC based Freight Elevator Door Control Systems, one for the Front Door and one for the Rear Door. Door Controllers shall "not" use wireless technology.

3. The Elevator Control Panel and Elevator Door Control Panels shall be UL Labeled per UL-508A and have a NEMA 3R or NEMA 4 Enclosure.

4. Hydraulic Power Unit (HPU) – A new HPU with two (2) 75 HP Hydraulic Pumo motors replaced the original HPU that had two 60 HP Hydraulic Motors two years ago.

B. Hoistway

1. Leveling Devices: Provide new.
2. Limit Switches: Provide new.
3. Hoistway Door Interlocks: Provide new.
4. Hoistway Doors & Frames: Reuse existing.
5. Traveling Cables: Provide new.
6. Guide Rails: Reuse existing.

C. Pit

1. Piping: Replace hydraulic piping and shut-off valve in the pit with new piping of the same type and size as the existing piping. Piping will go to the existing HPU. Provide fire stopping in all wall penetration.
2. Jack Assembly: Include replacement as an option in the bid. (Cylinder with PVC casing and Piston).
3. Jack Assembly: If not replacing the Jack, replace existing hydraulic jack packing and bearing including the following:
   a. Wiper
   b. Gland Seal
   c. Laterning Ring
   d. Bearing Ring.
4. Buffers: Reuse existing.
5. Pit Stop Switch: Provide new.
6. Replace hydraulic piping and shut-off valve feeding the existing hydraulic Jack.
7. Pit Lighting: Provide new (LED) with new light switch.
8. Pit Receptacle: Provide new 120 VAC GFCI receptacle.

D. Car

1. Car Door Interlock Contact: Provide new.
2. Car Roller Guides: Provide new rollers.
3. Platform: Reuse existing.
4. Car Enclosure: Reuse existing.
5. Communications: Provide new. Incorporate in Car Operating Panel.
6. Floor Covering: Reuse existing.
7. Car Interior Panels: Reuse existing.

8. Car Ceiling: Reuse existing.
9. Car Ventilation Fan: Provide new.
10. Car GCI Receptacle: Provide new.
11. Car Interior Lighting: Provide new (LED).
12. Emergency Lighting: Provide new.
13. Door Operator: Provide new that has closed-loop operation.
14. Cartop Operating Station: Provide new. Include new LED light with light switch and new 120 VAC GFCI duplex receptacle.
15. Cartop Handrail: Provide new to meeting current code.
16. Door Protection: Provide new infrared full-width protection.
17. Car Operating Panel: Provide new with car position indicator. Include all existing features and functionality. Include communications and camera.
18. Car Lantern: Provide new.
19. Traveling Cables: Provide new.

E. Freight Elevator Doors

1. Power Door Operators – Provide new.
2. Roller Chains and Connection Points – Provide New
3. Position Encoders – Provide new.
4. Car Door Contacts – Provide new.
5. Car Door Locks – Provide new.
6. Retiring Cam – Provide new.
7. Light curtains – Provide new.
8. Unlocking Device – Provide new.
9. Interlocks – Provide new.
10. Safety labels – Provide new.

F. Landings

1. Hoistway Access Switch: Provide at 1st Floor (Street Level) Landing and 4th Floor (Ball Room) Landing.
2. Hall Buttons: Provide new brushed stainless-steel surface mount type at all four landings.
3. Landing Doors: Reuse Existing.

PART 3 – EQUIPMENT CHARACTERISTICS

3.01 HYDRAULIC POWER UNIT

A. Reuse Existing - Replaced in 2022 – Reference comments below)

3.02 ELEVATOR CONTROL PANEL

A. Provide a UL Listed, microprocessor-based Elevator Control Panels that will be installed in a NEMA 3R enclosure that includes a programmable controller. power supplies, relays, timers, switches, and all other required components. The Elevator Controller shall be designed to be powered from a 20 Amp, 120 Volt or 240 Volt, 1 Phase branch circuit originating from a 7.5 KVA transformer.

B. The control system shall perform all functions that are required for safe and efficient elevator motion. The system shall be designed to be reprogrammed with minimal downtime and shall utilize on-board diagnostics for servicing, trouble shooting, and adjusting parameters with the need for an outside service tool.

C. The Elevator Contractor shall review the present HPU installation and certify that the elevators motion control system shall perform all functions of safe elevator motion and elevator door control. The motion control system shall include all new and existing hardware and software that are required to connect, transfer and interrupt power and shall provide overload protection for the equipment.

3.03 ELEVATOR DOOR CONTROL PANEL

A. Provide a UL Listed, microprocessor-based Freight Elevator Door Control Panels that will be installed in a NEMA 3R enclosure that includes a programmable controller. power supplies, relays, timers, switches, and all other required components. The Elevator Controller shall be designed to be powered from a 20 Amp, 120 Volt or 240 Volt, 1 Phase branch circuit originating from a 7.5 KVA transformer.

3.04 ELEVATOR LEVELING

A. The elevator control system shall provide two-way (i.e., up and down) leveling and shall be designed for automatic flush leveling of the car in both directions. Leveling control shall be done using a sensing system that, once in place and operational, requires no periodic adjustment.

2.08 ELEVATOR SYSTEM FAILURE AND TROUBLE PROTECTION

A. The elevator control system shall be designed such that if there is a motor starter failure, low oil level or pressure or the car failing to reach landing in the up direction within a predetermined time, the elevator car will automatically go down to the lowest terminal landing.

2.09 OPERATION

A. The elevator operation at the PaCC shall remain “as is” with the new elevator control system except for the changes and additions that are described in this specification.

B. The new microprocessor-based control system shall be programmed to maintain the existing normal sequence of operation except as modified herein.

C. An “Independent Operation” keyed switch shall be included in the car operating station which, when closed, shall permit operation from the car’s buttons only. In this mode, hall station buttons/calls will be ignored by the control system.

D. Doors shall close/open manual from inside the car or from the hallway. The opening and closing shall be done smoothly and shall be cushioned at both limits of travel.

2.10 TERMINAL LIMIT SWITCHES

A. New mechanical travel limit switches shall be provided to stop the motion of the car at its upper and lower limits.

B. Switches shall be equipped with engaging arms with polyurethane rollers for engagement with cams on the car.

2.11 HYDRAULIC JACK ASSEMBLY (Optional)

A. Replacement of the jack assembly for this elevator shall be included in the bid as an option with separate pricing.

B. Replacement of the jack assembly shall include a PVC casing, new cylinder, and new plunger.

C. Remove existing jack and oil. Removal of all spoils shall be the Contractor’s responsibility.

D. Re-use the existing jack hole and provide all necessary drilling to expand the hole diameter if needed for the new jack unit’s installation.

E. The drilling rig and attachments and any associated drilling costs shall be included. A “rock clause” shall not be acceptable.

F. Contractor shall coordinate access to the building for drilling equipment with the PaCC.

G. Provide a new watertight PVC casing that can accommodate the new jack unit.

H. The new cylinder shall be a seamless steel pipe with a design head to receive unit type packing.

I. The plunger shall be a polished seamless steel pipe.

J. Overspeed valves and a shutoff valve adjacent to the jack unit were replaced during HPU replacement.

K. Seal any opening at the pit floor with hydraulic quick-acting cement.

2.12 DOOR CONTROLLER:

A. Provide a new door controller that controls the operation of all freight hallway doors and car gates.
B. Controller to control the open and close sequence of all doors and gates.
C. Controller to act in slave mode to the elevator controller.
D. Doors shall open automatically when the car arrives at a floor landing to permit freight to be unloaded. Doors shall close/open manual from inside the car or from the hallway. The opening and closing shall be done smoothly and shall be cushioned at both limits of travel.
E. The elevator car shall not be able to move away from a landing until the car door is fully closed. Door closure shall be monitored with a contact switch that will prevent elevator operation if the door is not fully closed.
F. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
    1. The Peelle Company- Existing door manufacture.

2.13 HOISTWAY DOOR OPERATORS:

A. Replace door operators.
B. Replace each door operator, manual sheaves, chain and limit switch system.
C. New equipment per door includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wiring package and safety operation labels.
D. Door operators shall have the “closed loop” feature, capable of opening doors at not less than 1.5 feet per second and accomplishing reversal in 2.5 inches maximum of door movement.
E. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
    2. The Peelle Company- Existing door manufacture.

2.14 HALL DOOR FRAMES: (Reuse Existing)

A. Re-use and clean existing hoistway door frames.

B. Provide new Code-required signage at all halls.

2.15 HOISTWAY DOOR INTERLOCKS

A. Provide new interlocks and door release roller assemblies at each entrance.

2.16 HOISTWAY DOOR UNLOCKING DEVICES

A. Reuse existing.

2.17 HOISTWAY DOOR CLOSERS

A. Reuse existing.

2.18 HOISTWAY DOOR HANGERS AND TRACKS

A. Reuse existing.

2.19 CAR DOOR SILLS

A. Re-use existing.

2.20 HOISTWAY DOOR FRAMES

C. Re-use existing hoistway door frames.

D. Provide new Code-required signage at all landings.

2.21 HOISTWAY DOORS

A. Reuse existing Vertical Bi-Parting doors.

2.22 HOISTWAY ACCESS SWITCH

A. Provide new hoistway access key switches at the top and bottom landings. These switches are to move the car up at the bottom landing to facilitate pit inspection and work and to move the car down at the top landing to provide access to the car top.

B. Exposed portion of each access switch or its faceplate shall have legible, indelible legends to indicate "UP", "DOWN", and "OFF" positions.

C. Each access switch shall be a constant pressure cylinder type lock having not less than five pins or five stainless steel disc combination with key removable only when switch is in the "OFF" position.

D. Lock shall not be operable by any other key which will operate any other lock or device used for any other purpose at the PACC.

E. Arrange the hoistway switch to initiate and maintain movement of the car. When the elevator is operated in the down direction from the top terminal landing, limit the zone of travel to a distance not greater than the top of the car crosshead level with the top floor. Submit design for approval.

F. Provide emergency access for all hoistway entrances, keyways for this elevator.

2.23 TRAVELING CABLES

A. Provide new traveling cables for this elevator.

B. Cables shall be UL-labelled fire and moisture resistant and manufactured for elevator hoistway applications.

C. Cables shall include 10 per cent spare conductors.

2.04 MICROPROCESSOR CONTROL SYSTEM:

A. Elevator Door Controller Enclosure shall be securely attached to the building structure with ½" standoffs to allow for ventilation behind the cabinets.

B. Include complete details of the control system components and printed circuit boards, together with a complete operational description, shall be submitted for approval.

C. Recommended Elevator Control Systems Manufacturers are as follows and others may be added if approved by PACC engineer:

1. Smartrise Universal AC Traction Controller
2. Nidec Motion 4000 for AC Traction Elevators
3. VC Vision 2.0 controller for AC Traction Elevators
4. Kone Elevator Controller

D. Recommended Elevator Door Control Systems Manufacturers are as follows and others may be added if approved by PACC engineer:

1. The Peelle Company

E. Provide Recommended Spare Parts for Elevator Door Controller.

F. Controller manufacturer shall provide factory training, engineering and technical support, including all manuals, wiring diagrams, and tools necessary for adjusting, maintenance, repair, and testing of equipment for the Elevator Maintenance Service Provider.

2.24 GUIDE RAILS AND BUFFERS

A. Guide rails for this elevator are to be re-used. Guides for this elevator shall be thoroughly cleaned and re-lubricated. Connections to the building structure shall be inspected to ensure integrity.

B. All four elevator buffers shall be re-used. Remove all dirt, debris, rust and prime/paint each buffer.

2.25 PIT STOP SWITCHES

A. Provide new pit stop switches. Switches shall be emergency stop switches and shall have a red cap. Switches shall be installed in a NEMA 13 device box.

2.26 PIT LIGHTING AND RECEPTACLE

A. Replace existing pit lighting, receptacle and light switch. The pit light and receptacle shall have a dedicated 120 VAC circuit that will originate in the Mini-Zone Substation ELEV15-2..

B. New light shall be 120 VAC LED and shall provide a minimum of 10 foot-candles of illumination in the pit.

C. New light shall include a guard to prevent accidental damage.

D. New receptacle shall be 120 VAC duplex GFCI type in cast iron device box.

E. Light and receptacle shall be located so that they are out of the way of elevator equipment. Light switch shall be a minimum of 18 inches above the lowest landing door sill and adjacent to (not behind) the pit access ladder.

F. The light switch shall not disconnect power from the receptacle.

2.27 CAR DOOR INTERLOCK CONTACT

A. Provide new car door interlock contact on each new car door.

2.28 CAR INTERIOR PANELS: (Reuse Existing)

B. A new 120 VAC, duplex, GFCI receptacle shall be included.

2.29 CAR GATE OPERATOR:

A. Replace the gate operators.
B. Replace the door operator, manual sheaves, chain and limit switch system.
C. New equipment includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wiring package and safety operation labels.
D. Door operators shall have the “closed loop” feature, capable of opening doors at not less than 1.5 feet per second and accomplishing reversal in 2.5 inches maximum of door movement.
E. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
    1. The Peelle Company- Existing door manufacture.

2.30 CAR GATE INTERLOCK CONTACT:

A. Provide new car gate interlock contact on each car door.

2.31 DOOR PROTECTION/RE-OPENING AND CONTROL DEVICE:

A. Provide new vertical bi-parting door protection with infrared full screen full-height of door control device, differential timing, nudging and interrupted beam time.

B. Recommended infrared door control device manufacturers are as follows and others may be added if approved by PACC engineer:

    1. Janus Elevator E200 Safety Edge
    2. CEDES Corporation Cegard/Max-NT
    3. Mitsubishi Electric Multi-Beam Door Sensor

2.32 DOOR OPERATORS

A. Replace the door operators.
B. Replace each door operator, manual sheaves, chain and limit switch system.
C. New equipment per door includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wireless controller, wiring package and safety operation labels.

2.33 DOOR PROTECTION/RE-OPENING AND CONTROL DEVICE

A. Provide a new door protection system for use for Vertical Bi-Parting doors with infrared full screen full-height of door device, differential timing, nudging and interrupted beam time.

2.34 CAR INTERIOR PANELS

A. Reuse the existing car interior panels.

B. Existing flooring and covering shall be retained.

C. Replace existing ceiling lights with LED lighting. Match existing lights lumens rating.

2.35 CAR OPERATING PANEL

A. Provide three new stainless-steel car operating panel, one low and two high for fork lift operator. Locate new panels in the existing wall openings. Submit operating panel sample to PaCC for approval.

B. The lower panel shall include self-illuminating floor registration round buttons with floor labels below buttons and as described below.

1. First floor, Front/Back Door Buttons labeled- “Street” and “Administration”
2. Second floor, Front/Back Door Buttons labeled - “Exhibit Hall F” and “Exhibit Hall R”
3. Third floor, Front/Back Door Buttons labeled – “Overlook” and “BALLROOM”
4. All buttons to be 1”Ø and labeled below with black engraving a minimum of 0.50” High x 0.03” deep.
5. Note: Each floor button (Front/Back) to be aligned in the same row and all front and rear door buttons to be aligned in the same column and only the quoted text above is engraved in the panel.

C. The lower panel shall include floor indicating lights to be installed first above all floor/door buttons with engraved labeling as follows:

1. First Floor, Front/Back Door Lights labeled- “Street” and “Administration”
2. Second floor, Front/Back Door Lights labeled - “Exhibit Hall F” and “Exhibit Hall R”
3. Third floor, Front/Back Door Lights labeled – “Overlook” and “BALLROOM”
4. All lights to be 0.50”Ø and labeled with black engraving to the side a minimum of 0.50” High x 0.03” deep.
5. Note: Each floor light (Front/Back) to be aligned in the same row and all front and rear door lights to be aligned in the same column and only the quoted text above is engraved in the panel.

D. The lower panels shall also include the following:

1. Door control buttons Open/Closed for front and rear doors- buttons engraved Open / Closed located below their respected door.
2. Alarm button with light and “Alarm” engraved on its face.
3. Emergency Stop Toggle switch engraved “Emergency “above and “Stop” below toggle.
4. Off Line Light (Based on Toggle Switch) engraved O/L on light and lights when elevator is off line.

5. Call cancel button with “Cancel” engraved on its face and located below door open/close buttons
6. Floor passing buzzer.
7. Key-operated switches for car stop, independent service, fan, car light and inspection service to be located below Firmen service switch.
8. All engraved lights and buttons to be 1”Ø, labeled with black engraving a minimum of 0.12” High x 0.03” deep.

E. The upper panel shall only include:
1. Round call buttons per Item (B).
2. Door open/close buttons per D-1.
3. Emergency Stop Toggle switch per D-3.
4. Off Line Light per D-4
5. All lights and buttons to be 1”Ø, labeled with black engraving a minimum of 0.12” High x 0.03” deep.

2.36 HALL OPERATING PANEL:

A. There are Standard Hall Operating Panels that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Hall Operating Panel.

B. Provide a new finished stainless steel Hall Operating Panel for elevator operation and signaling device. Locate the centerline of the hall push buttons at existing opening or 42 in. above the corridor floor.

C. Fasten hall operating panel and signal device faceplates with stainless steel tamperproof screws.

D. All terminology and tactile symbols on the faceplate shall be raised 0.03 inch with contrasting background on square or rectangular plates. Use 0.25 in. letters to identify all other devices in the faceplate.

E. Hall operating panel to include a hall call, door open, door close an in-use light for each floor.

F. Each button shall contain an integral registration LED white light which shall illuminate upon registration of a call and shall extinguish when that call is answered.

G. The direction of each button shall be legibly and indelibly identified by arrows not less than 0.50 in. high in the face of each button.

H. Hall push buttons shall not re-open the doors while the car and hoistway doors are closing at that floor, the call shall be registered for the next available elevator. Calls registered shall be canceled if closing doors are re-opened by means of "DOOR OPEN" button or infrared curtain unit.

I. Submit design of hall pushbutton fixtures for approval by PACC.

2.37 COMMUNICATIONS SYSTEM

A. Each car shall have an emergency communication system. The emergency communication system shall comply with Federal Communications Commission (FCC) regulations and all requirements of the Americans with Disabilities Act (ADA).

B. The emergency communication system shall be designed to provide two-way communications between the elevator and a point outside of the hoistway.

C. The emergency communication system shall include both audio and visual two-way communications.

D. The system shall be programmed to automatically dial a programmable number that is outside of the hoistway and will always be answered (24/7/365) by a receiving agent who can work to resolve the emergency. The emergency communication system shall provide the receiving agent with the building and elevator number from which the emergency call was placed.

E. Visual messages shall be provided to indicate the status of the actions being taken in response to the emergency call.

F. The emergency communication system shall be mounted behind the car operating panel.

G. Raised letters shall be integrated and permanently marked on the operating panel identifying the device as a speech independent emergency telephone.

2.38 ELECTRICAL WIRING

A. Electrical wiring shall comply with the requirements of ASME 17.1 and NFPA 70 (National Electrical Code) and all local codes. Wiring (other than the hoistway cable) shall be 600 Volt insulated wire that includes a flame retardant and moisture-resisting outer cover. All wiring shall be installed in wireways or conduit.

B. Wiring shall be included for all devices that are installed on this project.

1. The existing wireway in the hoistway and between the machine room and the hoistway can be re-used if:

    a. It is in good condition.
    b. It is properly sized for the number of conductors and cables that are to be installed in it.

2. Provide new wireway between the machine room and the hoistway as required.

3. Wireway shall be steel, NEMA 12.
4. New conduit shall be rigid galvanized steel.
5. Provide complete wiring to connect all parts of the equipment. Properly ground all components as required by the National Electrical Code.
6. Provide 10 per cent spare wires between the controller in the machine room and the main junction box in the hoistway.
7. All wires shall be properly tagged and identified with clear markings. Wire numbers that are consistent with the system control diagrams shall be placed on each end of each wire and all termination points and splices.
8. All wiring shall be tested point to point. The entire wiring system shall be tested for insulation to ground.

2.39 TOP OF CAR HANDRAIL

A. Provide new code-compliant top of car handrail.

3.00 EXECUTION

A. Acceptable Installers: The work for the elevator modernization shall be done by the elevator manufacturer trained and approved installer.

B. Examination: Prior to beginning the work, the elevator contractor shall carefully examine the hoistway, hoistway openings, pits and machine rooms. All critical dimensions shall be field-verified. The contractor shall examine all other conditions under which the modernizations are to be completed.

The contactor shall notify the PaCC in writing of any dimension discrepancies or other conditions detrimental to the proper installation for the modernizations or performance of the elevators after the modernizations. Work shall not begin until all unsatisfactory conditions are corrected.

C. Installation: Comply with the manufacturer's instructions and recommendations for all work required during the modernizations.

D. Demonstration: The contractor shall make a final check of the elevator that was modernized to ensure operation is per the specifications. Each elevator shall run in "test mode" for 24 hours prior to being turned over to the PCCA.

4.00 PROJECT SPECIFIC WORK SCHEDULE

A. All work generating a high level of noise (e.g., coring/boring, cutting, etc.) shall be done after hours unless approved otherwise by the PCCA.

B. Any electrical outages shall be approved by the PCCA prior to electrical equipment being de-energized.

5.00 BID

A. The contractor's bid shall include the items listed below.

1. Base Bid Cost for Modernization of Elevators 15.

2. Additional Cost for Replacement of Jack Assembly.

3. Full Maintenance Bid.

PENNSYLVANIA CONVENTION CENTER ELEVATOR 19 MODERNIZATIONS

Project Specifications and Information for Bidders

Maida Engineering, Inc. / E45021-2 / January 26, 2024

PENNSYLVANIA CONVENTION CENTER

ELEVATOR 19- FREIGHT ELEVATOR MODERNIZATIONS

Project Specifications and Information for Bidders

PART 1 – GENERAL

1.01 SUMMARY:

A. This specification provides information and details to the Elevator Modernization Contractor, herein referred to as the "Contractor", for the modernization of one overhead geared traction freight elevator at the Pennsylvania Convention Center located in Philadelphia, PA. The Contractor's work includes provision of engineering, design and coordination and of all labor, materials, tools, rigging, equipment, removals, installations and commissioning that are necessary to upgrade and modernize this elevator.

B. The Contractor's Work includes but is not limited to:

1. Modernization upgrades of the existing Overhead Traction Drive Freight Elevator 19, complete in every respect. Modernization upgrades, as may or may not be defined herein or shown or implied by the drawings, shall include "work" that is required to bring Elevator 19 into compliance with the current relevant Codes, ADA requirements, and municipal and state requirements, which may be further defined by the Authority Having Jurisdiction.
2. Using and modifying as needed, or as defined herein, the following:
    a. Existing Elevator Floor and Walls.
    b. Existing Elevator Doors.
    c. Existing Car Screens.
3. Coordinate the modernization work with work that will be performed by others as is generally described herein.
4. Completion of the work per the schedule established by the PACC so that this work does not interfere with the site's operations.
5. Inspecting components or devices that are listed in this Specification as "Retain existing" or "Reuse existing" to confirm their viability and to verify that they comply with the modernization requirements. Any repairs, refurbishments, or replacements of retained devices and components are to be included in the Contractor's base bid.
6. Developing details for required feature or the installation of parts, material or equipment that are needed to provide a complete elevator modernization that complies with all codes and standards. The implementation of such details shall be included in the Contractor's base bid.

C. The following electrical construction work will be completed by an electrical contractor directly retained by of the PACC:

1. Removal of the 480 Volt, 3 Phase normal/emergency feeder from the 480 Volt, 100 Amp, 3 Pole, Circuit Breaker in the adjacent mechanical room to the Ward Leonard Elevator Panel in the machine room. This includes removal of the 480 Volt, 100 Amp, 3 Pole, Fused Disconnect Switch in the machine room. The Elevator Modernization Contractor is responsible for removing the existing Ward Leonard Electrical Controller and the Elevator Control Panel, will all circuits that are connected to them.

2. Providing the 480 Volt, 3 Phase Normal/Emergency Feeder from the Existing 480 Volt, 100 Amp, 3 Pole Elevator 19 Circuit Breaker fed from ATS-S4 in the adjacent mechanical room to the New 480 Volt, 100 Amp, 24 VDC Shunt Trip, 3 Pole, Elevator 19 Circuit Breaker in a NEMA 3R Enclosure in sight of the New Elevator Control Panel. The Elevator Modernization Contractor is responsible for all electrical installations on the load side of this circuit breaker.

3. Removal of the 480 Volt, 3 Phase normal/emergency feeder from the 480 Volt, 30 Amp, 3 Pole, Fused Disconnect Switch in the adjacent mechanical room to the Elevator Door Control Panel in the machine room. This includes removal of the 480 Volt, 30 Amp, 3 Pole, Fused Disconnect Switch in the machine room.

4. Determining and removing the existing 120 Volt feeder to the existing Elevator 19 Lighting Fused Disconnect Switch in the machine room and the removal of the Elevator 19 Lighting Fused Disconnect Switch.

5. Furnishing and installing two new Square D Mini-Zone Substations diagrammatically shown on the drawings, labeled ELEV19-1 and ELEV19-2 along with New 480 Volt, 1Ø, 30 Amp Feeder from the 480 Volt, 30 Amp, 3 Pole, Fused Disconnect Switch in the adjacent mechanical room. Provide branch circuit breakers, 1 pole or 2 pole, based on the requirements of the equipment provided by the Elevator Modernization Contractor.

6. Furnishing and installing the following Non- Fused Disconnect and their branch circuit on conduit as diagrammatically shown on the drawings. The Elevator Modernization Contractor is responsible for all electrical installation on the load side of these switches.

    a. New Door Control Panel
    b. New Elevator 19 Car Lighting
    c. New Elevator 19 Top of Car Receptacle

7. Furnishing and installing the 24 VDC Shunt Trip Circuit conductors in conduit from the Shunt Trip Module provided by the fire alarm contractor to the New 480 Volt, 100 Amp, 24 VDC Shunt Trip, 3 Pole, Elevator 19 Circuit Breaker and the 480 Volt, 20 Amp, 24VDC Shunt Trip, 2 Pole, Primary Circuit in the Square D Minizone Substation labeled ELEV19-1.

8. Determine and disconnect the existing 120 Volt source of power to the existing Machine Room Lighting and to the 120 Volt Duplex Receptacle. Remove the branch circuit conductors and raceway that cannot be reused.

9. Replace the existing lighting fixture in the machine room with new 120 Volt, LED light fixture that have guards, the existing light switch with a new motion detecting light switch, the lighting branch circuit conductors and conduit and connect the new lighting branch circuit conductors to the new Mini-Zone Substation ELEV19-2.

10. Furnish and install new GFCI duplex receptacles in the machine room and the new branch circuit conductors and conduit. Connect the branch circuit to the new Mini-Zone Substation ELEV19-2.

11. Determine and disconnect the existing 120 Volt source of power to the existing Elevator 19 Pit Lighting and 120 Volt Duplex Receptacle.

12. Replace the pit lighting fixture with a new 120 Volt, LED light fixture that has a guard. Furnish and install a new light switch for the pit lighting fixture and a new branch circuit from the new Mini-Zone Substation ELEV-19-2.

13. Replace the pit duplex receptacle with a new 120Volt, duplex, 20 Amp, GFCI receptacle and provide new branch circuit and conduit to connect it to the new Mini-Zone Substation ELEV19-2.

D. The following related fire alarm and sprinkler construction work will be completed by others under the direction of the PACC.

1. Furnishing and installing new smoke and heat detectors and modules that will interface with the new Elevator Control Panel. This includes but is not limited to the detectors associated with the shunt trip circuit breaker and the Phase/Emergency/Recall.
2. Furnishing and installing of a new 24V DC Circuit Breaker Shunt Trip Module.

E. Drawings ME-1, ME-2 and ME-3 have been provided to the bidders and provide information which is supplemental to the specifications.

F. The elevator modernization contractor (“Contractor”) shall coordinate with the fire alarm contractor and electrical contractor, assuring its provision of a complete project that satisfies all requirements of the Authority Having Jurisdiction and all applicable codes and standards.

G. Site Visit and Inspection of Existing Equipment

1. By submitting a bid, the Contractor certifies that he has visited the site and inspected the existing elevator systems so that any existing conditions that could impact the work can be identified and accounted for in his bid.
2. A pre-bid meeting for the project will be scheduled for which participation is mandatory. Access to the site beyond the pre-bid meeting during the bidding process can be coordinated with the Pennsylvania Convention Center.

H. Additional Requirements:

1. Welding at the project site shall be performed by certified welders who have previously qualified by test as prescribed in the American Welding Society Publications AWS Dl.1 to perform the type of work required. Certificates shall be submitted for all workers employed in this capacity.
2. Electrical work shall be performed by a Licensed Master Electrician and Licensed Journeymen Electricians as required by permits obtained from the Authority Under Jurisdiction.
3. Firestopping: Sealing is required around all penetrations to maintain the integrity of fire-rated construction.

1.02 ABBREVIATIONS:

A. PACC Pennsylvania Convention Center

B. (E) Existing

C. (N) New

1.03 SUBMITTALS

A. Shop drawings and submittals shall be submitted electronically using PDF format files. The Contractor may, at his option, create or use a web-based platform through which exchanges of shop drawings and submittals can be completed and tracked.

B. Equipment: The Contractor shall provide and install safety devices that have been subjected to tests witnessed and certified by an independent professional testing laboratory that is not a subsidiary of the firm that manufactures supplies or installs the equipment.

C. Submittal List: Shortly after a contract is awarded, the Contractor shall provide a list of all shop drawings, elevator layout, equipment, and submittals that he will provide for the PACC and/or the PACC's engineer to review. This list will be reviewed and amended as needed by the Contractor to include additional shop drawings and submittals that are requested by or required by the PACC and/or the PACC's engineer. The Submittal List shall include but not limited to the following: Manufacturer's Name, Trade Names, Model or Catalog Number, Nameplate Data (size, capacity, and rating).

D. Shop Drawings: Shall include the following:

1. Complete scaled and dimensioned layout in plan and section view showing the arrangement of equipment and all details of each elevator unit specified.
2. Submit drawings showing the location and arrangement of the machine room and elevator's hoistway equipment. Layouts of the existing machine room is included on project drawings ME-1 AND ME-2. Note that these layouts are close to but not necessarily to scale.
    a. Plan drawing to show traction machine, controllers, governors, and all other components located in machine room.
    b. Elevation Drawing to show car, counterweight, sheaves, supporting beams, guide rails, brackets, buffers, and size of car platform, car frame members, and other components located in hoistway.
3. Weight of principal parts.
4. Top and bottom clearances and over travel of car and counterweight.
5. Location of main line switch/shunt trip circuit breaker, switchboard panel, light switch, and feeder extension points in the machine room.
6. The following equipment shall be shown on the elevator plans and elevations
    a. Elevator Control Panel
    b. Elevator Door Control Panel
    c. Traction machine, traction sheave, deflector sheaves, wire rope gripper, and brake
    d. Traction machine Motor, HP and RPM ratings, Voltage, Starting and Full Load Ampere, and Number of Phases.
    e. HPU Starters.
    f. Car Safety Device; Type "A" safeties and Governor.
    g. Emergency Hoist Rope Grippers rating and location.
    h. Electric Door Operator: HP, RPM, Voltage, and Ampere rating of motor.
    i. Hoistway Door Interlocks.
    j. Car and Counterweight Buffers: maximum and minimum rated loads, maximum rated striking speed, and stroke.
    k. Car Ventilation Unit:
    l. Hoist and Counterweight Ropes: breaking strength, allowable working load, and actual working load.
2. Detailed dimensioned drawings showing details of:
    a. Traction Machine

b. All signal and operating fixtures.

c. Car and counterweight roller guides.

d. Door operators and infrared curtain units.

e. Emergency Hoist Rope Grippers rating and location.

4. Equipment fabrication and assembly drawings shall be provided for the following:

a. Elevator Control Panel including interior and exterior, to scale, panel layouts with a bill of material that list each component with manufacturers name and catalog number; wiring diagrams that show the requirements of the power source for the control panel, wire numbers, and the interconnections within the control panel and to the field terminal block.

b. Elevator Door Control Panel including interior and exterior, to scale, panel layouts with a bill of material that list each component with manufacturers name and catalog number; wiring diagrams that show the requirements of the power source for the control panel, wire numbers, and the interconnections within the control panel and to the field terminal block.

E. Cut sheets, operational manuals and drawings showing details of all provided mechanical and electrical equipment. This equipment includes but is not limited by the traction machine, rope gripper, controllers, and supervisory panels. Include a system logic description of controller and supervisory panels.

F. Provide complete wiring diagrams needed for field troubleshooting, adjustment, repair, and replacement of components. Diagrams shall be base diagrams, containing all changes and additions made to the equipment during the design and construction period.

G. Maintenance Data and Tools:

1. Provide the information required for proper maintenance and adjustments of the equipment prior to the final acceptance test. This information shall be part of an overall “Operations and Maintenance Manual”. Two copies of the manual shall be provided along with a PDF format file of the manual.

2. Provide a complete set of site-specific schematic wiring diagrams of as-built elevator circuits. The location of each item on the diagram shall be noted. The functionality of the system shall be annotated on the diagrams. A hard-copy full size set of diagrams shall be placed in the elevator’s machine room. An additional hard-copy shall be provided to the PACC along with PDF format files. The Operations and Maintenance Manual shall include half-sized diagrams.

3. Lubricating instructions and recommended lubricant type and grade shall be provided.

4. The Contractor shall include in his scope of supply any special tools or passwords that are required for maintenance, troubleshooting, adjustments or for the performance of periodic safety checks. All costs for such items, including rental fees if applicable, shall be included in the Contractor's bid.
5. The elevator controller shall not include any devices, sim cards, tools, or other removable devices that, if removed, would inhibit the serviceability of the controller or elevator.
6. Provide six (6) sets of keys for all keyed functions in this elevator.

1.04 REFERENCES:

A. All work shall be completed in accordance with the latest and/or applicable editions of all relevant building codes and elevator codes including but not limited to the following:
   1. ASME A17.1 – Safety Code for Elevators and Escalators (edition that applies to the City of Philadelphia).
   2. ASME A17.2 - Inspectors Manual for Electric Elevators and Escalators (edition that applies to the City of Philadelphia).
   3. NFPA 70 – National Electrical Code.
   4. Americans with Disabilities Act (ADA)- (not required for freight elevators).
   5. ANSI 117.1 – American National Standard for Accessible and Usable Buildings and Facilities.
   6. NFPA 13 – Standard for Installation of Sprinkler Systems.
   7. NFPA 72 – National Fire Alarm and Signaling Code.
   8. NFPA 101 - Life Safety Code
   9. NFPA 252 - Fire Test of Door Assemblies
   10. International Building Code (IBC).
   11. American Society for Testing and Materials (ASTM)- A1008/A1008M-09 - Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High Strength Low-Alloy with Improved Formability
   12. Gauges: Sheet and Plate: U.S. Standard (USS); Wire: American Wire Gauge (AWG)
   13. American Welding Society (AWS): D1.1 - Structured Welding Code Steel
   14. Local (City of Philadelphia) and State (Commonwealth of Pennsylvania) codes.
   15. Authority Having Jurisdiction (AHJ).

B. The Contractor shall make application for, secure and pay for all necessary permits and certificates of inspection for all furnished equipment as required by various departments of local and state authorities. The Contractor shall furnish the PACC certificates and approval as required by local governing authorities having jurisdiction.

C. In addition, the Contractor shall be responsible for speed and load carrying tests for this elevator as well as heat test for the elevator machine room.

D. Any damage caused by the Contractor to the elevator car, hoistway or the structures and facilities that adjoin the project area shall be repaired by Contractor at no expense to the PACC.

1.05 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall provide calculations verifying the following:

1. Adequacy of existing 480 VAC feeder to support the power requirements of the new traction elevator drive motor.
2. Heat emissions in BTU for the machine room.
3. AC motor HP size for the Traction Machine.
4. Rope gripper mounting structural calculations.
5. Traction Machine Option (1) only - The elevator contractor will be required to obtain all approvals needed for rope gripper installation and obtain the service of a licensed professional engineer working for an engineering firm that maintains errors and omissions insurance to design and approve the installation of the rope gripper.

B. The Contractor shall store all materials and equipment in a dry protected and secure area. Protect and handle all materials and equipment in accordance with manufacturers' recommendations and directions to prevent damage, soiling, or deterioration.

1.06 WARRANTY:

A. The Contractor shall provide a warranty to replace, repair or restore parts or components that fail or do not operate properly due to poor factory or field workmanship, engineering or design for a period of 12 months from the date of signed final acceptance.

1.07 FULL MAINTENANCE:

A. The Elevator Contractor shall provide a one year full maintenance contract for the modernized elevator covering all parts and labor that will begin when the modernization is complete and this elevator has been accepted by the PCCA and the AHJ.

1.08 QUALITY ASSURANCE.

A. Equipment, materials, and products from the following listed manufacturers will be reviewed to confirm acceptability and compliance with the contract documents and governing codes:

1. ThyssenKrupp Elevator Company.
2. Kone Elevator Company.
3. Schindler Elevator Company.
4. Excel Elevator Company
5. Hollister-Whitney Company
6. Otis Elevator Company.
7. The Peele Company

B. The Contractor shall demonstrate that he has successfully installed and maintained traction elevators like those described in this specification and which have been in operation for ten (10) or more years.

C. The Contractor shall demonstrate that he is currently and regularly engaged in the installation of elevator equipment as one of his principal products.

D. The contractor shall have trained supervisory personnel, equipment, and facilities to install elevator equipment specified herein.

E. The Contractor shall demonstrate that he has a qualified local workforce (within 50 miles of the city of Philadelphia, PA) that is available to work at the PACC.

F. The contractor shall have certified elevator mechanics supersizing and or performing the required work.

G. The Contractor shall demonstrate that he locally maintains an adequate stock of parts for replacement or emergency purposes.

H. The elevator control systems shall not have any software embedded in its program that shuts down the elevator when the elevator and control system are not malfunctioning.

1.09 Parts and Printed Circuit Boards

A. The Contractor shall guarantee the sale of parts and controller boards to the PACC. Such sale shall not be contingent on there being an exchange component.

1.10 Materials:

A. Where stainless steel is specified, it shall be corrosion resisting steel 302 or 304, Condition A with Number 4 finish on exposed surfaces. Stainless steel shall have the grain of belting in the direction of the longest dimension and surfaces shall be smooth and without waves. During installation stainless-steel surfaces shall be protected with suitable material.

B. Where cold rolled steel is specified it shall be low-carbon steel rolled to stretcher level standard flatness, complying with ASTM A109.

1.11 MANUFACTURERS:

A. The following manufacturers equipment, materials and products are acceptable for this project (others may be added if approved by PACC):

1. ThyssenKrupp Elevator Company.
2. Kone Elevator Company.
3. Schindler Elevator Company.
4. Excel Elevator Company.
5. Hollister-Whitney Company
6. Otis Elevator Company
7. The Peelle Company
8. Wyatt Elevator Company.
9. Electrical Motor Repair Company - Flex Motor Coupling

1.12 Manufacturer Products:

A. Materials, devices, and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items. The elevator equipment including traction hoist, motors, controllers and supervisory system shall be the product of manufacturers of established reputation, provided such items are capably engineered and produced under coordinated specifications to ensure compatibility with the total operating system.

B. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit. Components shall be compatible with each other and with the total assembly for the intended service.

C. The mixing of manufacturers related to a single system or group of components shall be identified in the submittals.

PART 2 – ELEVATOR CHARACTERISTICS:

2.01 ELEVATOR MODERNIZATION REQUIREMENTS:

A. PERFORMANCE:

1. Speed: The speed of the elevator shall not vary by more than +/- 5% under any loading condition.

2. Acceleration: The controlled rate of change of acceleration and retardation of the car shall not exceed 0.1G per ft/s/s and the maximum acceleration and retardation shall not exceed 0.2G per ft/s/s.
3. Capacity: The elevator shall safely lower, stop and hold up to 125% rated load.
4. Leveling: Leveling shall be +/- 1/8" under any loading condition.
5. Starting, stopping, and leveling shall be smooth and comfortable without appreciable steps of acceleration and deceleration.
6. Sound Isolation: Noise level relating to elevator equipment operation in the machine room shall not exceed 80 decibels. All db readings shall be taken 90 cm (3 ft) off the floor and 90 cm (3 ft) from equipment.
7. Airborne Noise: Measured noise level of elevator equipment during operation shall not exceed 50 decibels in elevator lobbies and 60 decibels inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.
8. Door Closing Time: Door operation including closing time shall comply with the ASME code.
9. Floor-to-Floor Travel: Floor-to-floor performance time shall be about 15.0 seconds (from the start of door closing at one floor to 3/4 open at the next floor).
10. Car Call Door Dwell Time: The minimum acceptable time for door to remain fully open after answering a car call shall be adjustable with initial setting at 4 seconds.
11. Hall Call Door Dwell Time: The hall call door dwell time shall be based on code requirements.
12. Nudging: When doors are prevented for closing for 20 seconds due to the failure of the door protection proximity device or due to an obstruction, the doors shall remain open and a buzzer alarm shall sound.

B. OPERATION:

1. This elevator operation at the PACC shall remain "as is" with the new elevator and elevator door control systems except for the changes and additions that are described in this specification.
2. The new microprocessor-based control systems shall be programmed to maintain the existing normal sequence of operation except as modified herein.
3. An "Independent Operation" keyed switch shall be included in the car operating station which, when closed, shall permit operation from the car's buttons only. In this mode, hall station buttons/calls will be ignored by the control system.
4. A car without registered calls arriving at a floor where both up and down hall calls are registered shall initially respond to the hall call that is in the direction that the car was traveling. The direction lanterns inside the car shall indicate the change in direction when the doors re-open.

C. FIREMEN'S SERVICE: (Not Required)

2.02 TRACTION MACHINE: Characteristics and Options- Elevator #19 (Overhead Traction Elevator)

A. Type and General Characteristics:

1.	Operation	Simplex (Elevator operate independently)
2.	Installed In	1993
3.	Capacity	7,000 pounds
4.	Speed	200 feet per minute
5.	Floors Served	2nd, 3rd, 4th(Grand Hall, Overlook, Ball Room)
6.	Stops/Openings	3/Front Only

B. Existing Traction Machine (Overhead Traction Machine):

1.	Motor HP	50 DC
2.	Controls	Ward Leonard Control System
3.	Motor RPM	1150
4.	Motor Frame	368AT
5.	Worm Gear	7,000 # capacity, Speed 200 fpm
6.	Existing Worm Gear	Millar Elevator# 63 OH
7.	Traction Sheave	Mounted in base frame
8.	Generator	30 KW, 240 VDC, 125 AMPS
9.	Motor for Generator	50 HP; 230/460 VAC; 1750 RPM; 116/58 AMPS; 3Ø
10.	Enclosure	DP (Drip-proof)
11.	Temp Rise	122°F
12.	Insulation Class	B
13.	Brake	DC, need to add brake open and set switches.
14.	Base Frame	Mounting for Motor, Brake, Worm Gear Reducer and Traction Sheave.

C. New Traction Machine (Overhead Traction Machine):

1.	Motor HP	50 AC (Hp to be confirmed by elevator contractor)
2.	Controls	AC Drive
3.	Motor RPM	1150
4.	Motor Frame	365T

5.	Worm Gear	7000# capacity, Speed 200 fpm
6.	Existing Worm Gear	Millar Elevator# 53 OD
7.	Rope Gripper	Mount on base frame
8.	Traction Sheave	Mounted in base frame
9.	Motor Duty	Inverter Duty
10.	Enclosure	DP (Drip-proof)
11.	Temp Rise	122°F
12.	Insulation Class	F
13.	Brake	DC, with brake open and set switches.
14.	Base Frame	Mounting for Motor, Brake, Worm Gear Reducer, Traction Sheave and Rope Gripper.

2.03 TRACTION MACHINE UPGRADE OPTIONS:

A. Option (1)- Modify exist Traction Machine in place as follows:

1. Replace existing DC motor with new AC motor.
2. Add flexible coupling between motor and brake. See section 3.02 for approved couplings and manufacturers.
3. Reuse Brake- replace brake linings and add brake set/open switches.
4. Reuse existing Worm Gear Reducer. Inspect worm gear reducer, open inspection cover to inspect gear teeth; check gear backlash, change oil, check breather and report findings.
5. Reuse existing Traction Sheave.
6. Base- Modify to accept new AC motor, motor coupling to facilitate alignment and rope gripper.
7. Rope Gripper- Install in machine room below traction sheave on counterweight side of traction sheave with gripper mounted to a floor base and bolted to below floor traction machine support beams.
8. Structural evaluation would be needed to approve the rope gripper mounting to the machine room floor. This location will need to support the rope gripper during the loads of emergency braking.
9. Rope gripper installation requires the elevator contractor to obtain all state and local approvals needed for rope gripper installation and obtain the service of a structural engineering firm to design and approve the installation of the rope gripper as stated herein.

B. Option (2)- New Traction Machine with all new equipment specified in Section (2.02-C). Construction to start after new traction machine is delivered to site.

C. Contractor to provide pricing of Option (1) and Option (2) in their bid price. PACC will select option after awarding contract.

2.04 WORK TO BE DONE:

A. Pre-Bid Inspection:

1. Inspect all sheaves including bearings and shafting.
2. Inspect traction sheave bearings and shafting.
3. Inspect car roller guides and rails.
4. Inspect counter-weight roller guides and rails.
5. Inspect car traveling cable.
6. Inspect governors (car and counterweight), its sheaves and wire rope.
7. Inspect car drum brake and solenoid release.
8. Inspect elevator pit emergency stop buffers for car and counterweight.
9. Inspect worm gear reducer for wear and determine if it needs replacement.

i. Check gear backlash
ii. Open inspection cover and inspect worm gear
iii. Check breather
iv. Check gear oil condition

10. Include replacement of all worn equipment from pre-bid inspection in elevator modernization quotation.
11. Pre-Bid inspection must be done for elevator 19 to determine the price of modernization of this elevator.

B. Machine Room:

- New Elevator Control Panel
- New Freight Elevator Door Controllers
- New AC motor.
- New Hoist Rope Grippers: Add to meet current elevator code.
- Modify Traction Machine per Section (3-01-B-1). Option (1) only.
- Provide new Traction Machine assembly per Section (3-01-B-2). Option (2) only.
- New elevator drum brake- Option (2) only; Reuse Brake Option (1). Both options require brake set/off switches.
- New Elevator Controller Shunt Trip Circuit Breaker.
- Lighting: Provide new (LED) light fixtures with new motion sensing switch.

- Receptacles: Provide new 120 VAC GFCI receptacles.
- Emergency Stop Push Button. Provide new.

C. Hoistway:

- New Car / Counterweight Wire Rope
- New Car Governor Wire Rope
- New Counterweight Governor Wire Rope
- During construction inspect all sheave bearings for wear and replace if needed.
- During construction inspect all sheaves for wear and replace if needed.
- Leveling Devices: Provide new.
- Limit Switches: Provide new.
- Hoistway Door Interlocks: Provide new.
- Hoistway Door Sills: Reuse existing.
- Hoistway Door Frames: Reuse existing.
- Traveling Cables: Provide new. Existing raceways inside the hoistway may be reused if they satisfy NFPA 70 requirements.
- Guide Rails: Reuse existing.
- Hoistway Door Interlocks: Provide new.
- Hoistway Door Closer: Provide new.
- Hoistway Door Tracks: Reuse existing

D. Pit:

- Buffers: Car and Counterweight reuse existing.
- Pit Stop Switch: Provide new.
- Pit Lighting: Provide new (LED) with new light motion sensing light switch.
- Pit Receptacle: Provide new 120 VAC GFCI receptacle.
- Emergency Stop Push Button. Provide new.

E. Car:

- Car Interior Panels: Reuse existing.
- Car Ceiling: Reuse with new LED lighting.
- Car Floor Covering: Reuse existing.
- Car Gate: Reuse existing.
- Car Gate Interlocks: Provide new.
- Car Gate Door Closer: Provide new.
- Car Gate Door Tracks: Reuse existing
- Car Ventilation Fan: Provide new.

- Car GCI Receptacle: Provide new.
- Car Roller Guides: Provide new rollers if needed.
- Communications: Provide new. Incorporate in Car Operating Panel.
- Car Interior Lighting: Provide new (LED).
- Emergency Battery for car ceiling LED lights. Bid as an Option
- Cartop Operating Station: Provide new. Include new LED light with light switch and new 120 VAC GFCI duplex receptacle.
- Cartop Handrail: Provide new to meeting current code.
- Door Protection: Provide new infrared full-length protection.
- Car Operating Panel: Provide new with car position indicator. Include all existing features and functionality. Include communications.
- Car Lantern: Provide new.
- Traveling Cables: Provide new.

F. Counter-Weight:

- Roller Guides: Provide new rollers if needed.
- Buffer: Reuse existing

G. Halls:

- Firemen's Service: Not needed elevator has no street level stop.
- Hoistway Access Switch: Provide new at 2nd Floor (Grand Hall) and 3rd Floor (Ball Room)
- Hall Buttons: Provide new brushed stainless-steel surface mount type at all three landings.

PART 3 – EQUIPMENT CHARACTERISTICS:

3.01 Traction Machine:

A. Existing motor is DC and speed control is a Ward Leonard drive system and will be replaced by an Elevator Controller/AC motor.

B. Existing Traction Machine consist of DC motor, brake, fixed coupling, worm gear reducer and traction sheave mounted on an equipment frame. Upgrade options are as follows.

1. Option (1): Provide new AC Motor, new alignment flexible coupling and reuse the following- Brake, Worm Gear Reducer, traction Sheave and Base Frame as follows:

1. Brake will be updated with the addition of brake set and brake off switches and installation of new brake pads.

2. Base frame will be modified to mount new AC motor and installation of alignment coupling.
3. Flexible Motor Coupling: See section 3.02 for approved manufacturers- Provide a new modification coupling to be installed between the brake and the motor drive shaft. This coupling shall consist of two machined flanges separated by an inner ring to absorb misalignment and vibration. With this coupling the Worm Gear reducer input shaft shall support the brake drum used to lock the car in position when it stops.
4. Provide a new rope gripper- Install below traction sheave on counterweight side of sheave with gripper mounted to a floor base.
5. Worm Gear Reducer shall be inspected for issues by performing the following: Remove gear reducer inspection cover to check worm gear wear and backlash, replace oil and air filter/breather.
6. If worm gear reducer is found unusable or needs repair bid Option (2) only.
7. The DC Motor and Generator will be removed and is being replaced by an AC motor/elevator control system.

2. Option (2): Provide the following new equipment mounted on a new base frame: AC Motor, Brake, Worm Gear Reducer, Rope Gripper and Traction Sheave.
   a. New Traction Machine with all new equipment specified in Section (2.02-C).
   b. Rope Gripper- mount below the traction sheaves on hoist side of sheave and fastened to the base frame.
   c. All equipment shall be mounted on a base frame similar to the existing frame and all equipment shall be aligned at the factory.
   d. The DC Motor and Generator will be removed and is being replaced by an AC motor/elevator control system.

C. For this elevator provide a new Traction Machine per Option (1) or Option (2).

D. The motor shall be AC, high starting torque, single-speed, inverter duty, of a standard manufacturer with duty rating that complies with the speed and loads detailed in this specification.

E. New Traction Machine brake shall be a drum type, solenoid released and shall stop and hold the elevator with 125 percent of rated load. New brake is for Option (2) only.

F. Elevator Control Panel: Provide a new 480 Volt, 3Ø Microprocessor (PLC and VFD) Control System and UL Labeled per UL-508A and have a NEMA 3R or NEMA 4 Enclosure with a Short Circuit Current Rating of 14,000 Amps at 480 Volts or higher and includes.

1. A variable frequency drive that is suitable for the application and provide overload protection or monitors thyristors in the motor. The connection of thses is part of the project.
2. Provide emergency power for two or more lights in the elevator in the case of a power failure for up to two hours.
3. Provide power and control to the brake.
4. Provide power and control to the rope gripper.
5. Is specifically designed and configured for traction elevators.

G. will include Emergency Power for the Elevator Cab Lights that is suitable for 2 or more hours. The Elevator Control Panel shall be UL Labeled per UL-508A and have a NEMA 3R or NEMA 4 Enclosure.

3.02 FLEXIBLE COUPLING:

A. Acceptable flexible couplings types and manufacturers are as follows, others may be use if approved by PACC engineer:

1. Electrical Motor Repair Company (809 E State Street, Trenton, NJ 08629, 609-392-6149, elevatormotor.com) - Mod conversion kit motor coupling for traction machine. Machined for a Millar Elevator Model 63 OH traction machine for direct mounting to existing brake drum motor side.

2. A pin and bush flexible brakedrum coupling may be used but this will require re-machining the brake drum. - Acceptable manufacturers Flender or Renold corporation.

3.03 HOIST ROPES:

A. Replace all hoist ropes in-kind. Provide elevator with the required number, type and size of ropes to ensure adequate traction and required safety factor. Hoisting ropes shall be pre-formed and six (6) 5/8”Ø 8 x 19 or 8 x 25 traction steel.

B. Wire ropes to be made to and meet the latest revisions of standard ASTM A1023.

C. Securely attach a corrosion resistant metal data tag near hoisting ropes connection to car top.

3.04 HOIST ROPE GRIPPER:

A. To be installed to meet current elevator code.

B. Locate Rope Gripper as follows:

3. Option (1)- Install on machine room floor below traction sheave on counterweight side of sheave with gripper mounted to a floor base and bolted to below floor traction machine support beams.

4. Option (2)- Rope Gripper located on base frame below traction sheave on car side of sheave and mounted on traction machine base.

C. Rope Gripper Type:

1. Solenoid release preferred if available
2. Hydraulic release

D. Acceptable manufacturer of Rope Gripper is as follows, others may be use if approved before the bid:

1. Hollister-Whitney Rope Gripper

3.05 GOVERNOR ROPES:

A. Replace all governor ropes in-kind. Provided Governor Rope shall be 8 x 19 wire rope, preformed traction steel, uncoated, fiber core, with a minimum nominal diameter of (.500 in.) having a minimum safety factor of 5.

B. Existing car and counterweight Governor rope is 1/2" Ø with one (1) rope for car and one (1) rope for counterweight.

C. Wire ropes to be made to and meet the latest revisions of standard ASTM A1023.

D. Under normal operation rope shall run free and clear of governor jaws, rope guards, and other stationary parts.

E. Securely attach governor rope tag to governor rope.

3.06 SPEED GOVERNOR:

A. Inspect car and counterweight governor and if serviceable reuse or repair.

B. If after inspection, it's found that they are not serviceable, replace in-kind.

3.07 VENTILATION FAN:

A. Replace existing two (2) speed ventilation fan with similar CFM, HP, Voltage and Phase.

B. Blower unit is arranged to exhaust through an opening in the canopy. If required provide a new stainless or chrome plated fan grill on the interior side of the opening. Provide new screening over intake and exhaust end of blower.

C. Mount fan on top of car with rubber isolation to prevent transmission of vibration to car structure. Provide a 3-position switch to control the unit in the service panel.

3.08 ELEVATOR LEVELING:

A. The elevator control system shall provide two-way (i.e., up and down) leveling and shall be designed for automatic flush leveling of the car in both directions. Leveling control shall be done using a sensing system that, once in place and operational, requires no periodic adjustment.

3.09 TERMINAL LIMIT SWITCHES:

A. New mechanical travel limit switches shall be provided to stop the motion of the car at its upper and lower limits.

B. Switches shall be equipped with engaging arms with polyurethane rollers for engagement with cams on the car.

3.10 HOISTWAY DOOR INTERLOCKS:

A. Provide new interlocks and door release roller assemblies at each entrance.

B. Each hoistway electrical/mechanical interlock will function as hoistway unit system, to prevent operation of car until all doors are locked in the closed position unless car is operating in leveling zone or hoistway access switch is used.

3.11 DOOR CONTROLLER:

C. Provide new Freight PLC based Freight Elevator Door Control Systems. Door Controller shall "not" use wireless technology. The Elevator Door Control Panel shall be UL Labeled per UL-508A and have a NEMA 3R or NEMA 4 Enclosure.

A. Door controller shall control the operation of all freight hallway doors and car gates.

B. Controller to control the open and close sequence of all doors and gates.

C. Controller to act in slave mode to the elevator controller.

D. Doors shall open automatically when the car arrives at a floor landing to permit freight to be unloaded. Doors shall close/open manual from inside the car or from the hallway. The opening and closing shall be done smoothly and shall be cushioned at both limits of travel.

E. The elevator car shall not be able to move away from a landing until the car door is fully closed. Door closure shall be monitored with a contact switch that will prevent elevator operation if the door is not fully closed.

A. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
   1. The Peelle Company- Existing door manufacture.

3.12 HOISTWAY DOOR OPERATORS:

B. Replace a total of three door operators that is one per floor.
C. Replace each door operator, manual sheaves, chain and limit switch system.
D. New equipment per door includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wiring package and safety operation labels.
E. Door operators shall have the “closed loop” feature, capable of opening doors at not less than 1.5 feet per second and accomplishing reversal in 2.5 inches maximum of door movement.
F. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
   2. The Peelle Company- Existing door manufacture.

3.13 HALL DOOR FRAMES: (Reuse Existing)

A. Re-use and clean existing hoistway door frames.

B. Provide new Code-required signage at all halls.

3.14 HOISTWAY ACCESS SWITCH:

A. Provide new hoistway access key switches at the top and bottom landings. These switches are to move the car up at the bottom landing to facilitate pit inspection and work and to move the car down at the top landing to provide access to the car top. These switches shall be in the locations of the existing switches.

B. Exposed portion of each access switch or its faceplate shall have legible, indelible legends to indicate "UP", "DOWN", and "OFF" positions.

C. Each access switch shall be a constant pressure cylinder type lock having not less than five pins or five stainless steel disc combination with key removable only when switch is in the "OFF" position.

D. Lock shall not be operable by any other key which will operate any other lock or device used for any other purpose at the PACC.

E. Arrange the hoistway switch to initiate and maintain movement of the car. When the elevator is operated in the down direction from the top terminal landing, limit the zone of travel to a distance not greater than the top of the car crosshead level with the top floor. Submit design for approval.

F. Provide emergency access for all hoistway entrances, keyways for passenger and service elevators.

3.15 TRAVELING CABLES:

A. Provide new traveling cables for this elevator.

B. All conductors to the car shall be installed in a flexible traveling cable conforming to the requirements of NEC.

C. Traveling cables shall run from the junction box on the car directly to the elevator controller. Junction boxes on the car shall be equipped with terminal blocks.

D. Terminal blocks shall have permanent indelible identifying numbers for each connection.

E. Provide shielded wires for the telephone system within the traveling cable, one (1) RG-6 Ethernet cable for Wi-Fi, two (2) pair 14-gauge wires for 110 Volt power supply, and wire for video display monitor if specified.

F. If traveling cable contacts, the hoistway or elevator due to sway or change in position, provide shields or pads to the elevator and hoistway to prevent damage to the traveling cables.

G. Cables shall be UL-labelled fire and moisture resistant and manufactured for elevator hoistway applications.

H. Cables shall include 10 per cent spare conductors.

3.16 MICROPROCESSOR CONTROL SYSTEM:

A. Elevator and Door Controller Enclosure shall be securely attached to the building structure with ½" standoffs to allow for ventilation behind the cabinets.

B. Microprocessor control system shall have absolute position/speed feedback to control dispatching, signal functions, door operation, and VFD Drive for hoist motor speed control.

C. Include complete details of the control system components and printed circuit boards, together with a complete operational description, shall be submitted for approval. Add Regenerative Drive when economically advantages to the PACC.

D. Elevator failure may result from many reasons some of which can be failure of the motor, control system, elevator overspeed, doors failure to close or open, elevator failure to start moving and failure to stop at the correct landing.

1. The elevator control system shall be designed such that if there is an elevator failure the brake shall be engaged, the car should remain at its current level and the doors open if the car is at the proper landing level.

2. If the car fails to reach its landing in the up or down direction when elevator failure occurs, the motor should stop, the brake should be applied, and the control system should signal an alarm.

E. Manual controls shall be provided to lower the elevator car down to the lowest terminal landing if elevator failure occurs. Power operated doors will automatically open when the car reaches that landing to allow passengers to disembark. The doors will then automatically close and all control buttons except for the “door open” button in the car operating panel shall be made inoperative. The malfunction can then be corrected after which the elevator can be placed back into service.

F. Recommended Elevator Control Systems Manufacturers are as follows and others may be added if approved by PACC engineer:

1. Smartrise Universal AC Traction Controller
2. Nidec Motion 4000 for AC Traction Elevators
3. VC Vision 2.0 controller for AC Traction Elevators
4. Kone Elevator Controller

G. Recommended Elevator Control Systems Manufacturers are as follows and others may be added if approved by PACC engineer:

1. The Peelle Company

H. Provide Recommended Spare Parts for Elevator Controller.

I. Controller manufacturer shall provide factory training, engineering and technical support, including all manuals, wiring diagrams, and tools necessary for adjusting, maintenance, repair, and testing of equipment for the Elevator Maintenance Service Provider.

J. The Elevator Controller shall include a motion control system to perform all functions of safe elevator motion, speed control and elevator door control. The motion control system shall include all hardware and software that is required to connect, transfer and interrupt power and shall provide overload protection for the equipment.

3.17 GUIDE RAILS AND BUFFERS: (Inspect, repair and reuse existing)

A. Guide rails for both elevators are to be re-used. Guides for each elevator shall be thoroughly cleaned and re-lubricated. Connections to the building structure shall be inspected to ensure integrity.

B. Each elevator’s car and counterweight buffers shall be inspected for defects, tested and re-used if passes testing. Remove all dirt, debris, rust and paint with an epoxy coating.

3.18 PIT STOP SWITCHES:

A. Provide new pit emergency stop switches. Switches shall be maintained, red color, emergency stop pushbutton with a yellow back plate in cast metal. Switches shall be NEMA 13 device box. All circuits to the switch shall be Class 1.

B. An annunciator lamp shall illuminate on the Elevator Control Panel when the emergency stop pushbutton is pushed in and shall remain lit until the button is pulled out and the system is at rest at the Elevator Control Panel.

C. When pushed into the stop position, the emergency switch shall engage the safe torque off function of the elevator control system variable frequency drive.

3.19 CAR INTERIOR PANELS: (Reuse existing)

A. A new 120 VAC, duplex, GFCI receptacle shall be included.

3.20 CAR GATE OPERATOR:

A. Replace a total of one gate operators.
B. Replace the door operator, manual sheaves, chain and limit switch system.
C. New equipment includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wiring package and safety operation labels.
D. Door operators shall have the “closed loop” feature, capable of opening doors at not less than 1.5 feet per second and accomplishing reversal in 2.5 inches maximum of door movement.
G. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
   1. The Peelle Company- Existing door manufacture.

3.21 CAR GATE INTERLOCK CONTACT:

A. Provide new car gate interlock contact at existing location.

3.22 DOOR PROTECTION/RE-OPENING AND CONTROL DEVICE:

A. Provide new infrared full screen full-height of door control device with differential timing, nudging and interrupted beam time.

B. Recommended infrared door control device manufacturers are as follows and others may be added if approved by PACC engineer:

   1. Janus Elevator E200 Safety Edge
   2. CEDES Corporation Cegard/Max-NT
   3. Mitsubishi Electric Multi-Beam Door Sensor

3.23 ELEVATOR FIXTURES:

A. Standard fixtures for Car Operating Panels, Hall Stations and Lanterns may be considered or offered if they meet this specification.

B. Recommended Elevator fixture manufacturers are as follows and others may be added if approved by PACC engineer:

1. EPCO Elevator Products Corporation
2. Innovation Industries Inc.
3. Lift Solutions Inc.
4. Schindler Elevator
5. Kone Elevator
6. ThyssenKrupp Elevator Company

3.24 CAR OPERATING PANEL:

A. There are standard car operating panel that can be modified to meet the following requirements and should be considered. Submit samples to PACC for approval of selected Car Operating Panel.

B. Provide a new finished stainless-steel car operating panel for this elevator located in the existing panel opening.

C. Button Type:

1. Call buttons- Round Buttons with a minimum 1“Ø and shall contain an integral LED white light which shall illuminate upon registration of a call and shall extinguish when that call is answered.
2. Car buttons and indicator lights shall be engraved with a black color below the surface by a minimum of 0.03”.
3. Indicator Light - Round with a minimum 1” Diameter and LED illuminated.

D. All terminology and tactile symbols on the faceplate shall be 0.25” high letters to identify all devices in the faceplate. The tactile symbols with contrasting background shall be 0.5 in high, raised .030” on the plate.

E. The upper section shall contain the following items in order listed from top to bottom:

1. Elevator number, 0.50 in high with black paint for contrast.
2. Capacity plate information with black paint for contrast with freight loading class and maximum weight capacity.

3. LED illuminated digital car position indicator with direction arrows.
4. Key operated Independent Service Switch on the face of panel.
5. Provide a Door Hold Button on the faceplate and it shall have “DOOR HOLD” indelibly marked on the button. Button shall light when activated. When activated, the door shall stay open for a maximum of one minute. To override push a car call button or door close button.
6. Complete set of call push buttons round with LED white light illuminated, corresponding to the floors served. These buttons shall be legibly and indelibly identified by a floor name black engraved 0.03” deep with letters not less than 0.50 in. high in the face panel below their corresponding floor button.
7. Call cancel button shall be located below the call buttons and shall have “CALL CANCEL” legibly and indelibly identified by letters in the face of the respective button.
8. Door Open and Door Close buttons shall be located below the car call buttons. They shall have “OPEN” and “CLOSE” legibly and indelibly black engraved by letters in the face of the respective button. The Door Open button shall be located closest to the door jamb.
9. Red Emergency Alarm button that shall be located below the car operating buttons. Mount the emergency alarm button not lower than 35 in. above the finished floor. It shall be connected to audible signaling devices. Provide audible signaling devices including the necessary wiring.
10. Provide “HELP” button with tactile symbol signage adjacent to button mounted integral with car operating panels. Emergency Help push button shall activate two-way communications by Auto Dial telephone system that is compatible with the PACC telephone system. Help button shall be LED white light illuminated and flash when call is acknowledged. Legibly and indelibly label the button “HELP” in the face of the button with 0.50 in. high black engraved letters.
11. Floor passing audible signal shall be included.

F. Key-operated switches shall be provided in the service operation panel in the lower section These key switches shall contain the following items:

1. Light switch labeled “LIGHTS” for controlling interior car lighting with its two positions marked “ON” and “OFF”.
2. Inspection service switch that will disconnect normal operation and activate hoistway access switches at terminal landings. Switch shall be labeled “ACCESS ENABLE” with its two positions marked “ON” and “OFF”.
3. Three-position switch labeled “FAN” with its positions marked “HIGH”, “LOW” and “OFF” for controlling car ventilating blower.
4. Two-position, spring return, toggle switch or push button to test the emergency light and alarm device. It shall be labeled “TEST EMERGENCY LIGHT AND ALARM”.

5. Independent service switch labeled “ON” AND “OFF”.
6. Car Stop switch

G. The panels shall include self-illuminating floor registration buttons with black engraved markings as described below.
   1. For Elevators #19 make the text below the buttons as follows:
      a. First Stop: Mark the text “GRAND HALL LEVEL”.
      b. Second Stop: Mark the text “OVERLOOK LEVEL”.
      c. Third Stop: Mark the text “BALL ROOM LEVEL”.

H. Fasten car operating panel and signal device faceplates with stainless steel tamperproof screws.

I. Submit design of car operating panel for approval by PACC.

3.25 HALL OPERATING PANEL:

A. There are Standard Hall Operating Panels that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Hall Operating Panel.

B. Provide a new finished stainless steel Hall Operating Panel for elevator operation and signaling device. Locate the centerline of the hall push buttons at existing opening or 42 in. above the corridor floor.

C. Fasten hall operating panel faceplates with stainless steel tamperproof screws.

D. All terminology and tactile symbols on the faceplate shall be raised 0.03 inch with contrasting background on square or rectangular plates. Use 0.25 in. letters to identify all other devices in the faceplate.

E. Hall operating panel to include a hall call, door open, door close and in-use light for each floor.

F. Each button shall contain an integral registration LED white light which shall illuminate upon registration of a call and shall extinguish when that call is answered.

G. The direction of each button shall be legibly and indelibly identified by arrows not less than 0.50 in. high in the face of each button.

H. Hall push buttons shall not re-open the doors while the car and hoistway doors are closing at that floor, the call shall be registered for the next available elevator. Calls registered shall

be canceled if closing doors are re-opened by means of "DOOR OPEN" button or infrared curtain unit.

I. Provide emergency power indicator light, medical emergency key switch and indicator light, fire service recall key switch and indicator light, fire recall instruction, communication failure light, audible enunciator, and reset key switch in a separate fixture at the designated main floor.

J. Submit design of the hall pushbutton fixtures for approval by PACC.

3.26 CAR POSITION INDICATOR:

A. There are Standard Car Position Indicators that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Car Position Indicator.

B. Provide an alpha-numeric digital car position indicator in the main car operating panel, consisting of numerals and arrows not less than 2 in. high, to indicate position of car and direction of car travel. Locate position indicator at the top of the main car operating panel, illuminated by light emitting diodes.

C. Submit design of position indicator for approval by PACC.

3.27 DIGITAL CORRIDOR ARRIVAL LANTERN/POSITION INDICATOR: (Not Required)

3.28 CAR TOP MAINTENANCE OPERATING STATION:

A. There are Standard Car Top Operating Stations that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Car Top Operating Stations.

B. Car top maintenance operating station shall include as a minimum the following controls:

a. "Up" button and “Dn” button

b. “Alarm button”

c. "Run"/"Stop" switch and "Enable/Safe" button

d. "Light" On/Off switch

e. Ceramic incandescent light bulb socket

f. “Operate/Inspection” switch

g. 3-Prong electrical outlet, 15A 125VAC, GFCI

h. Battery Type- Maintenance Free LiFePO4 or Nickel-Cadmium and solid-state circuitry.

i. Two-position emergency stop switch, when operated, shall interrupt power supply and stop the elevator independently of regular operating devices. Emergency stop switch shall be marked “PUSH TO STOP” and “PULL TO RUN”.

C. Provide cut sheet of maintenance station to PACC for approval.

3.29 COMMUNICATIONS SYSTEM (Emergency):

A. Each car shall have an emergency communication system. The emergency communication system shall comply with Federal Communications Commission (FCC).

B. Provide a two-way emergency communication device in the car with automatic dialing, tracking and recall features with shielded wiring to car controller in machine room.

C. Provide dialer with automatic rollover capability with two numbers and communications between the elevator car and a point outside of the hoistway. Each elevator shall have individual phone numbers.

D. The auto dial system may be in the main or auxiliary car operating panel. The speaker and dial controller shall be mounted on the backside of the perforated stainless-steel plate cover.

E. The emergency communication system shall include both audio and visual two-way communications.

F. “HELP” button shall illuminate and flash when call is acknowledged. Button shall match floor push button design.

G. Provide “HELP” button tactile symbol signage mounted integral with car operating panels.

H. The system shall be programmed to automatically dial a programmable number that is outside of the hoistway and will be answered during normal operation by a PACC representative who can work to resolve the emergency. The emergency communication system shall provide the receiving representative with the building and elevator number from which the emergency call was placed.

I. If the operator ends the call, the passenger shall be able to redial the telephone immediately.

J. Visual messages shall be provided to indicate the status of the actions being taken in response to the emergency call.

K. The emergency communication system shall be mounted behind the car operating panel.

L. Raised letters shall be integrated and permanently marked on the operating panel identifying the device as a speech independent emergency telephone.

3.30 PIT LIGHTING AND RECEPTACLE:

A. Replace existing pit lighting, receptacle, and light switch. Where possible, maintain existing 120 VAC circuit to this equipment. Provide new conduit and wire as required. Separate branch circuits shall be provided for the pit lighting and new GFCI receptacle.

B. New light shall be 120 VAC LED fixture with guards to prevent accidental damage and shall provide a minimum of 30 foot-candles of illumination in the pit.

C. New receptacle shall be 120 VAC, duplex GFCI type in cast iron device box.

D. Light Switch shall be 20 Amp, 120 Volt, specification grade.

E. Light and receptacle shall be located so that they are out of the way of elevator equipment. Light switch shall be a minimum of 18 inches above the lowest hall door sill and adjacent to (not behind) the pit access ladder.

3.31 MACHINE ROOM LIGHTING AND RECEPTACLE:

A. Replace existing machine room lighting, receptacle, and light switch. Where possible, maintain existing 120 VAC circuit to this equipment. Provide new conduit and wire as required. Separate branch circuits shall be provided for the machine room lighting and new GFCI receptacle.

B. New light shall be 120 VAC LED fixture with guards to prevent accidental damage and shall provide at least the same foot-candles of illumination as the existing lighting.

C. New receptacle shall be 120 VAC, duplex GFCI type in cast iron device box.

D. Light Switch shall be 20 Amp, 120 Volt, specification grade, motion sensing with an on/off switch.

E. Light fixtures and receptacles shall be located at the same locations as the existing.

3.32 ELEVATOR CONTROL SWITCH (Provide new)

3.33 ELECTRICAL WIRING:

A. Electrical wiring shall comply with the requirements of ASME 17.1 and NFPA 70 (National Electrical Code (NEC) and all local codes. Wiring (other than the Car Traveling Cable) shall be 600 Volt insulated wire that includes a flame retardant and moisture-resisting outer cover.

B. All wiring shall be sized per the NEC and installed in wireway or conduit. Connect motor or other items subject to movement, vibration or removal to the conduit systems with flexible, steel conduits.

C. All conduit terminating in steel cabinets, junction boxes, wireways, switch boxes, outlet boxes and similar locations shall have insulation bushings.

D. Joints or splices are not permitted in wiring except at outlets.

E. All wiring must test free from short circuits or ground faults. Insulation resistance between individual external conductors and between conductors and ground shall be a minimum of one megohm.

F. Wiring shall be included for all devices that are installed on this project.

1. The existing wireway in the hoistway and between the machine room and the hoistway can be re-used if:
    a. It is in good condition.
    b. It is properly sized for the number of conductors and cables that are to be installed in it.
2. Provide new wireway between the machine room and the hoistway as required. Wireway shall be steel, NEMA 12.
3. New conduit shall be rigid galvanized steel.
4. Provide complete wiring to connect all parts of the equipment. Properly ground all components as required by the National Electrical Code.
5. Provide 10 per cent spare wires between the controller in the machine room and the main junction box in the hoistway.
6. All wires shall be properly tagged and identified with clear markings. Wire numbers that are consistent with the system control diagrams shall be placed on each end of each wire and all termination points and splices.
7. All wiring shall be tested point to point. The entire wiring system shall be tested for insulation to ground.

3.34 EMERGENCY CAR LIGHTING BATTERY BACK-UP (OPTIONAL):

A. Battery backup for car's LED lighting shall power lighting during the shift over time between power downtime and standby generator startup. Thus, this battery can be small since it only needs to last a few minutes.

B. The specified battery backup inverter requires 120 Volts input and provides 120 Volts output, 25 watts power and automatic charging all within a 3" x 3" x 18" long enclosure.

This battery will be installed within the power feed to one ceiling LED lights until the load reaches about 30 Watts.

C. Each battery unit consists of a battery, charger and electronic circuitry in one steel case. It provides power to the input side of the emergency LED fixture.

D. Upon failure of normal power, the battery instantly begins providing emergency power to the connected lighting load for a minimum of 90 minutes. When normal power is restored, the battery automatically returns to charge mode. The battery capacity is fully restored in about 24 hours.

E. Battery Specifications:

1. Listed to UL924 Field or Factory Installation (Indoor and Damp) Output Class 2 Compliant.
2. Illumination Time 90 Minutes.
3. Maximum Load Power 25 W
4. Full Warranty 5 years
5. AC Input Voltage 120 or 277 VAC, 60 Hz
6. Output Voltage 120 VAC, 60Hz
7. Test Switch Single Pole (Momentary)
8. Battery Type- Maintenance Free LiFePO4 or Nickel-Cadmium
9. Battery Recharge Time about 24 Hours.
10. Charging Indicator Light LED
11. Temperature Rating (Ambient) 32° F to 122° F
12. Weight 5 lbs. (2.3 kg)
13. Approximate size is 3” x 3” x 18” long metal case.

F. The following battery manufacturers equipment products are acceptable for this project (others may be added if approved by PACC):

1. Fulham Model# FHUPS1-UNV-25L-SD
2. Bodine Model# ELI-S-20 battery inverter
3. ECI MerLite 2000 Series

3.35 TOP OF CAR HANDRAIL:

A. Provide new code-compliant top of car handrail.

PART 4 – PROJECT EXECUTION:

4.01 EXECUTION:

A. Acceptable Installers: The work for the elevator modernizations shall be done by the elevator manufacturer or elevator contractor.

B. Examination: Prior to beginning the work, the elevator contractor shall carefully examine the hoistway, hoistway openings, pits and machine rooms. All critical dimensions shall be field-verified. The contractor shall examine all other conditions under which the modernizations are to be completed.

C. The contactor shall notify the PACC in writing of any dimension discrepancies or other conditions detrimental to the proper installation for the modernizations or performance of the elevators after the modernizations. Work shall not begin until all unsatisfactory conditions are corrected.

D. Installation: Comply with the manufacturer's instructions and recommendations for all work required during the modernizations.

E. Demonstration: The contractor shall make a final check of this elevator to ensure operation is per the specifications. Each elevator shall run in "test mode" for 24 hours prior to being turned over to the PACC.

4.02 PROJECT SPECIFIC WORK SCHEDULE:

A. All work generating a high level of noise (e.g., drilling, cutting, etc.) shall be done after hours unless approved otherwise by the PACC.

B. Any electrical outages shall be approved by the PACC prior to electrical equipment being de-energized.

PART 5 – PROJECT BIDDING:

5.01 BID:

A. The contractor's bid shall include the items listed below.

1. Base Bid Cost for Modernization of Elevators #19 per this Specification and including any required repairs. Provide two (2) bids as follows:

a. Provide bid for Elevator #19 Modernization with Elevator #19 Repairs and Traction Machine Option (1) modification.

b. Provide bid for Elevator #19 Modernization with Elevator #19 Repairs and Traction Machine Option (2) modification.

2. Bid Options:

   a. Include as a separate cost for car battery back-up per Section (3-37).

3. Full Maintenance Bid for equipment warranty period per Section (1-06 & 1-07).

PENNSYLVANIA CONVENTION CENTER ELEVATOR 28 MODERNIZATIONS

Project Specifications and Information for Bidders

Maida Engineering, Inc. / E45021-3 / January 26, 2024

PENNSYLVANIA CONVENTION CENTER

ELEVATOR 28 - FREIGHT ELEVATOR MODERNIZATIONS

Project Specifications and Information for Bidders

PART 1 – GENERAL

1.01 SUMMARY:

A. This Specification provides information and details to the Elevator Modernization Contractor, herein referred to as the "Contractor", for the modernization of the Hydraulic Freight Elevator 28, formerly referred to as Elevator 15, at the Pennsylvania Convention Center located in Philadelphia, PA. The Elevator Modernization Contractor's Work includes engineering, design and coordination, and the labor, materials, tools, rigging, equipment, removals, installations, and commissioning to upgrade and modernize this elevator.

B. The Contractor's Work includes but is not limited to:

1. Modernization upgrades of the existing Hydraulic Freight Elevator 28 complete in every respect. Modernization upgrades, as may or may not be defined herein or shown or implied by the drawings, shall include "work" that is required to bring Elevator 28 into compliance with the current relevant Codes, ADA requirements, and municipal and state requirements, which may be further defined by the Authority Having Jurisdiction.

2. Using and modifying as needed, or as defined herein, the following:

    a. Existing Elevator Floor and Walls.
    b. Existing Elevator Doors.
    c. Existing Car Screens.

3. Coordinate the modernization work with work that will be performed by others as is generally described herein.

4. Completion of the work per the schedule established by the PACC so that this work does not interfere with the site's operations.

5. Inspecting components or devices that are listed in this Specification as "Retain existing" or "Reuse existing" to confirm their viability and to verify that they comply with the modernization requirements. Any repairs, refurbishments, or replacements of retained devices and components are to be included in the Contractor's base bid.

6. Developing details for required features or the installation of parts, material or equipment that are needed to provide a complete elevator modernization that complies with all codes and standards. The implementation of such details shall be included in the Contractor's base bid.

C. The following related electrical construction work will be completed by others under the direction of the PACC:

1. A 150 Amp, 480 Volt, 3Ø feeder, which originates in Substation 2, and brought to the Existing Wireway in the machine room shall be reused. The electrical contractor shall disconnect and remove the 480 Volt, 100 Amp, 3 Pole Elevator Fused Disconnect Switch and the 100 Amp, 480 Volt, 3 Phase Feeder Tap to the Existing Wireway.

2. Furnishing and installing a New 480 Volt, 100 Amp, 3 Pole, 24VDC Shunt Trip, Elevator Circuit Breaker in a NEMA 3R enclosure in sight of the new Hydraulic Power Unit (HPU) Soft Starters along with a new 480 Volt, 3Ø, 100 Amp Feeder Tap from the Existing Wireway. The Elevator Modernization Contractor is responsible for all electrical installations on the load side of this Circuit Breaker.

3. Disconnecting and removing the 480 Volt, 3Ø feeder from the load side of the existing 480 Volt, 30 Amp, 3 Pole Elevator Door Fused Disconnect Switch to the Elevator Door Control Panel. The 480 Volt, 30 Amp, 3 Pole, Fused Disconnect will remain and be reused for a new Surge Protector.

4. Determining the power source and the removal of the existing 120 Volt feeder to the existing Elevator 28 Lighting Fused Disconnect Switch in the machine room and the removal of the Elevator 28 Lighting Fused Disconnect Switch.

5. Furnishing and installing two new Square D Mini-Zone Substations diagrammatically shown on the drawings, labeled Panel ELEV28-1 and Panel ELEV28-2, along with New 480 Volt, 1Ø, 30 Amp Feeders from the Existing Wireway in machine room. Provide branch circuit breakers, 1 pole or 2 pole, based on the requirements of the equipment provided by the Elevator Modernization Contractor.

6. Furnishing and installing the following Non- Fused Disconnect Switches and their branch circuit in conduit as diagrammatically shown on the drawings. The Elevator Modernization Contractor is responsible for all electrical installation on the load side of these switches.

    a. New Elevator Control Panel
    b. New Door Control Panel
    c. New Elevator 28 Car Lighting, Ventilation, and GFCU Receptacle
    d. New Elevator 28 Top of Car Lighting and GFCI Receptacle

7. Furnishing and installing the 24 VDC Shunt Trip Circuit conductors in conduit from the Shunt Trip Module provided by the Fire Alarm Contractor to the New 480 Volt, 100 Amp, 24 VDC Shunt Trip, 3 Pole, Elevator 28 Circuit Breaker and the 480 Volt, 20 Amp, 24VDC Shunt Trip, 2 Pole, Primary Circuit in the Square D Minizone Substation ELEV28-1.

8. Determining and disconnecting the existing 120 Volt source of power to the existing Machine Room Lighting and to the 120 Volt Duplex Receptacles. Remove the branch circuit conductors and raceway that cannot be reused.

9. Replace the existing lighting fixtures in the machine room with new 120 Volt, LED light fixture that have guards, the existing light switch with a new motion detecting light switch, the lighting branch circuit conductors and conduit and connect the new lighting branch circuit conductors to the new Mini-Zone Substation ELEV28-2.

10. Furnish and install new GFCI duplex receptacles in the machine room and the new branch circuit conductors and conduit. Connect the branch circuit to the new Mini-Zone Substation ELEV28-2.

11. Determining and disconnecting the existing 120 Volt source of power to the existing Elevator 28 Pit Lighting and 120 Volt Duplex Receptacle.

12. Replace the pit lighting fixture with a new 120 Volt, LED light fixture that has a guard. Furnish and install a new light switch for the pit lighting fixture and a new branch circuit from the new Mini-Zone Substation ELEV-28-2.

13. Replace the pit duplex receptacle with a new 120Volt, duplex, 20 Amp, GFCI receptacle and provide a new branch circuit and conduit to connect it to the new Mini-Zone Substation ELEV28-2.

14. Furnish and install a new surge protector. ABB Cat. #OVRHTP2773Y5LUET2 and new 3#10, 1#10G – ¾" C to connect to the existing 480 Volt, Fused Disconnect Switch, formerly used for the Elevator Door.

D. The following related fire alarm and sprinkler construction work will be completed by others under the direction of the PACC.

1. Furnishing and installing new smoke and heat detectors and modules that will interface with the new Elevator Control Panel. This includes but is not limited to the detectors associated with the shunt trip circuit breaker and the Phase/Emergency/Recall.
2. Furnishing and installing of a new 24V DC Circuit Breaker Shunt Trip Module.

E. Drawings ME-1 and ME-2 have been provided to the bidders and provide information which is supplemental to the specifications.

F. The elevator modernization contractor ("Contractor") shall coordinate with the fire alarm contractor and electrical contractor, assuring its provision of a complete project that satisfies all requirements of the Authority Having Jurisdiction and all applicable codes and standards.

G. Site Visit and Inspection of Existing Equipment

1. By submitting a bid, the Contractor certifies that he has visited the site and inspected the existing elevator systems so that any existing conditions that could impact the work can be identified and accounted for in his bid.
2. A pre-bid meeting for the project will be scheduled for which participation is mandatory. Access to the site beyond the pre-bid meeting during the bidding process can be coordinated with the Pennsylvania Convention Center.

H. Additional Requirements

1. Welding at the project site shall be performed by certified welders who have previously qualified by test as prescribed in the American Welding Society Publications AWS Dl.1 to perform the type of work required. Certificates shall be submitted for all workers employed in this capacity.
2. Electrical work shall be performed by a Licensed Master Electrician and Licensed Journeymen Electricians as required by permits obtained from the Authority Under Jurisdiction.
3. Firestopping: Sealing is required around all penetrations to maintain the integrity of fire-rated construction.

1.02 ABBREVIATIONS:

A. PACC Pennsylvania Convention Center
B. (E) Existing
C. HPU Hydraulic Pumping Unit
D. (N) New

1.03 SUBMITTALS

A. Shop drawings and submittals shall be submitted electronically using PDF format files. The Contractor may, at his option, create or use a web-based platform through which exchanges of shop drawings and submittals can be completed and tracked.

B. Equipment Certification: The Contractor shall provide and install safety devices that have been subjected to tests witnessed and certified by an independent professional testing laboratory that is not a subsidiary of the firm that manufactures supplies or installs the equipment.

C. Submittal List: Shortly after a contract is awarded, the Contractor shall provide a list of all shop drawings, elevator layout, equipment, and submittals that he will provide for the PACC and/or the PACC's engineer to review. This list will be reviewed and amended as needed by the Contractor to include additional shop drawings and submittals that are requested by or required by the PACC and/or the PACC's engineer. The Submittal List shall include but not

limited to the following: Manufacturer's Name, Trade Names, Model or Catalog Number, Nameplate Data (size, capacity, and rating).

D. Shop Drawings: Shall include the following:

1. Complete scaled and dimensioned layout in plan and section view showing the arrangement of equipment and all details of each elevator unit specified.
2. Submit drawings showing the location and arrangement of the machine room and elevator's hoistway equipment. Layouts of the existing machine rooms are included on project drawings ME-X. Note that these layouts are close to but not necessarily to scale.
    a. Plan drawing to show controllers and all other components located in machine room.
    b. Elevation Drawing to show car, supporting beams, guide rails, brackets, buffers, and size of car platform, car frame members, and other components located in the hoistway.
3. Weight of principal parts.
4. Top and bottom clearances and over travel of car and counterweight.
5. Location of main line switch/shunt trip circuit breaker, switchboard panel, light switch, and feeder extension points in the machine room.

E. The following equipment shall be shown on the elevator plan and elevations.

1. Hydraulic Jack
2. HPU unit: Voltage, HP rating and Short Circuit Current Rating (SCCR).
3. Elevator Control Panel.
4. Elevator Door Control Panel.
5. Motor Starters and Overload Current Protection Devices.
6. Car Safety Device; Type "A" safeties and Governor.
7. Hoistway Door Interlocks.
8. Car Buffers: maximum and minimum rated loads, maximum rated striking speed and stroke.
9. Car Ventilation Unit: HP rating and CFM rating.
10. Power Door Operators
11. Cartop Operating Station
12. Cartop Guardrail
13. Digital Corridor Arrival Lantern/Car Position Indicator
14. Hall Buttons

F. Dimensioned drawings showing details of following shall be provided:

1. All signal and operating fixtures.
2. Car guides.
3. Infrared curtain units.

G. Cut sheets, operational manuals and drawings showing details of all provided mechanical and electrical equipment. This equipment includes but is not limited to HPU, Jack, controllers, and supervisory panels. Include a system logic description of controller and supervisory panels.

H. Provide complete wiring diagrams needed for field troubleshooting, adjustment, repair and replacement of components. Diagrams shall be base diagrams, containing all changes and additions made to the equipment during the design and construction period.

I. Maintenance Data and Tools:

1. Provide the information that is required for proper maintenance and adjustments of the equipment prior to the final acceptance test. This information shall be part of an overall "Operations and Maintenance Manual". Two copies of the manual shall be provided along with a PDF format file of the manual.
2. Provide a complete set of site-specific schematic wiring diagrams of as-built elevator circuits. The location of each item on the diagram shall be noted. The functionality of the system shall be annotated diagrams. A hard-copy full size set of diagrams shall be placed in each elevator's machine room. An additional hard copy shall be provided to the PACC along with PDF format files. The Operations and Maintenance Manual shall include half-sized diagrams.
3. Lubricating instructions and recommended lubricant grade shall be provided.
4. The Contractor shall include in his scope of supply any special tools or passwords that are required for maintenance, troubleshooting, adjustments or for the performance of periodic safety checks. All costs for such items, including rental fees if applicable, shall be included in the Contractor's bid.
5. The elevator controllers shall not include any devices, sim cards, tools, or other removable devices that, if removed, would inhibit the serviceability of the controllers or elevators.
6. Provide six (6) sets of keys for each elevator keyed function.

1.04 REFERENCES:

A. All work shall be completed in accordance with the latest and/or applicable editions of all relevant building codes and elevator codes including but not limited to the following:

1. ASME A17.1 – Safety Code for Elevators and Escalators (edition that applies to the City of Philadelphia).

2. ASME A17.2 - Inspectors Manual for Electric Elevators and Escalators (edition that applies to the City of Philadelphia).
3. NFPA 70 – National Electrical Code.
4. Americans with Disabilities Act (ADA).
5. ANSI 117.1 – American National Standard for Accessible and Usable Buildings and Facilities.
6. NFPA 13 – Standard for Installation of Sprinkler Systems.
7. NFPA 72 – National Fire Alarm and Signaling Code.
8. NFPA 101 - Life Safety Code
9. NFPA 252 - Fire Test of Door Assemblies
10. International Building Code (IBC).
11. American Society for Testing and Materials (ASTM)- A1008/A1008M-09 - Steel, Sheet, Cold Rolled, Carbon, Structural, High-Strength Low-Alloy and High Strength Low-Alloy with Improved Formability
12. Gauges: Sheet and Plate: U.S. Standard (USS); Wire: American Wire Gauge (AWG)
13. American Welding Society (AWS): D1.1 - Structured Welding Code Steel
14. Local (City of Philadelphia) and State (Commonwealth of Pennsylvania) codes.
15. Authority Having Jurisdiction.

B. The Contractor shall make application for, secure and pay for all necessary permits and certificates of inspection for all furnished equipment as required by various departments of local and state authorities. The Contractor shall furnish the PACC certificates and approval as required by local governing authorities having jurisdiction.

C. In addition, the Contractor shall be responsible for speed and load carrying tests for both elevators as well as heat tests for the elevator machine rooms.

D. Any damage by the Contractor to the elevator cars, hoistway or the structures and facilities that adjoin the project areas shall be repaired by Contractor at no expense to the PACC.

1.05 CONTRACTOR'S RESPONSIBILITY

A. The Contractor shall provide calculations verifying the following:

1. Sixing of the new HPU based on the performance requirements defined herein.
2. Adequacy of existing 480 VAC feeder to support the power requirements of the new Hydraulic Power Unit.
3. Heat emissions in BTU in the machine rooms.

B. The Contractor shall store all materials and equipment in a dry protected and secure area. Protect and handle all materials and equipment in accordance with manufacturers' recommendations and directions to prevent damage, soiling, or deterioration.

1.06 WARRANTY:

A. The Contractor shall provide a warranty to replace, repair or restore parts or components that fail or do not operate properly due to poor factory or field workmanship, engineering or design for a period of 12 months from the date of signed final acceptance.

1.07 FULL MAINTENANCE:

A. The Elevator Contractor shall provide a one year full maintenance contract for the modernized elevator covering all parts and labor that will begin when the modernization is complete and this elevator has been accepted by the PCCA and the AHJ.

1.08 QUALITY ASSURANCE

A. Equipment, materials, and products from the following listed manufacturers will be reviewed to confirm acceptability and compliance with the contract documents and governing codes:

1. ThyssenKrupp Elevator Company.
2. Kone Elevator Company.
3. Schindler Elevator Company.
4. Excel Elevator Company
5. Hollister-Whitney Company
6. Otis Elevator Company.
7. The Peele Company

B. The Contractor shall demonstrate that he has successfully installed and maintained hydraulic elevators like those described in this specification and which have been in operation for ten (10) or more years.

C. The Contractor shall demonstrate that he is currently and regularly engaged in the installation of elevator equipment as one of his principal products.

D. The contractor shall have trained supervisory personnel, equipment, and facilities to install elevator equipment specified herein.

E. The Contractor shall demonstrate that he has a qualified local workforce (within 50 miles of the city of Philadelphia, PA) that is available to work at the PACC.

F. The contractor shall have certified elevator mechanics supersizing and or performing the required work.

G. The Contractor shall demonstrate that he locally maintains an adequate stock of parts for replacement or emergency purposes.

H. The elevator control systems shall not have any software embedded in its program that shuts down the elevators when the elevators and control system are not malfunctioning.

1.09 Parts and Printed Circuit Boards

A. The Contractor shall guarantee the sale of parts and controller boards to the PACC. Such sale shall not be contingent on there being an exchange component.

1.10 Materials:

A. Where stainless steel is specified, it shall be corrosion resisting steel 302 or 304, Condition A with Number 4 finish on exposed surfaces. Stainless steel shall have the grain of belting in the direction of the longest dimension and surfaces shall be smooth and without waves. During installation stainless-steel surfaces shall be protected with suitable material.

B. Where cold rolled steel is specified it shall be low-carbon steel rolled to stretcher level standard flatness, complying with ASTM A109.

1.11 Manufacturers

A. The following Elevator Companies are acceptable for this project:

1. ThyssenKrupp Elevator Company.
2. Kone Elevator Company.
3. Schindler Elevator Company.
4. Excel Elevator Company.
5. Hollister-Whitney Company
6. Otis Elevator Company
7. The Peelle Company
8. Wyatt Elevator Company.

1.12 Manufacturer Products:

A. Materials, devices, and equipment furnished shall be of current production by manufacturers regularly engaged in the manufacture of such items. The elevator equipment, including controllers, door operators, and supervisory system shall be the product of manufacturers of established reputation, provided such items are capably engineered and produced under coordinated specifications to ensure compatibility with the total operating system.

B. Manufacturers of equipment assemblies which include components made by others shall assume complete responsibility for the final assembled unit. Components shall be compatible with each other and with the total assembly for the intended service.

C. Mixing of manufacturers related to a single system or group of components shall be identified in the submittals.

PART 2 – ELEVATOR CHARACTERISTICS:

2.01 ELEVATOR MODERNIZATION REQUIREMENTS:

A. PERFORMANCE:

1. Speed: The speed of the elevator shall not vary by more than +/- 5% under any loading condition.
2. Acceleration: The controlled rate of change of acceleration and retardation of the car shall not exceed 0.1G per ft/s/s and the maximum acceleration and retardation shall not exceed 0.2G per ft/s/s.
3. Capacity: The elevator shall safely lower, stop and hold up to 125% rated load.
4. Leveling: Leveling shall be +/- 1/8” under any loading condition.
5. Starting, stopping, and leveling shall be smooth and comfortable without appreciable steps of acceleration and deceleration.
6. Sound Isolation: Noise level relating to elevator equipment operation in the machine room shall not exceed 80 decibels (db). All db readings shall be taken 90 cm (3 ft) off the floor and 90 cm (3 ft) from equipment.
7. Airborne Noise: Measured noise level of elevator equipment during operation shall not exceed 50 decibels in elevator lobbies and 60 decibels inside car under any condition including door operation and car ventilation exhaust blower on its highest speed.
8. Door Closing Time: Door operation including closing time shall comply with ASME code.
9. Floor-to-Floor Travel: Floor-to-floor performance time shall be about 15.0 seconds (from the start of door closing at one floor to 3/4 open at the next floor).
10. Car Call Door Dwell Time: The minimum acceptable time for door to remain fully open after answering a car call shall be adjustable with initial setting at 4 seconds.
11. Hall Call Door Dwell Time: The hall call door dwell time shall be based on code requirements.
12. Nudging: When doors are prevented for closing for 20 seconds due to the failure of the door protection proximity device or due to an obstruction, the doors shall remain open and a buzzer alarm shall sound.

B. OPERATION:

1. The elevator operation at the PACC shall remain “as is” with the new elevator control system except for the changes and additions that are described in this specification.
2. The new microprocessor-based control system shall be programmed to maintain the existing normal sequence of operation except as modified herein.
3. An “Independent Operation” keyed switch shall be included in the car operating station which, when closed, shall permit operation from the car’s buttons only. In this mode, hall station buttons/calls will be ignored by the control system.
4. A car without registered calls arriving at a floor where both up and down hall calls are registered shall initially respond to the hall call that is in the direction that the car was traveling. If no car call or hall call is then registered for further travel in that direction, the car shall close its doors and immediately re-open them in response to the hall call in the other direction. The direction lanterns at the hall and inside the car shall indicate the change in direction when the doors re-open.

C. FIREMEN’S SERVICE: (NOT REQUIRED)

2.02 HYDRAULIC ELEVATOR: Characteristics and Options- Elevator #28

A. Type and General Characteristics:

1.	Operation	Simplex (Elevator operate independently)
2.	Installed In	1993
3.	Capacity	12,000 pounds
4.	Speed	150 feet per minute
5.	Floors Served	1st , 2nd (Street, Exhibit Hall)
6.	Stops/Openings	2/Front Only

B. Existing Hydraulic Machine:

1.	Motor HP	40 AC
2.	Controls	Ward Leonard Control System
3.	Motor RPM	1760
4.	Motor Frame	-
5.	Enclosure	DP (Drip-proof)
6.	Temp Rise	122°F
7.	Insulation Class	B

2.03 WORK TO BE DONE:

A. Pre-Bid Inspection:

1. Inspect car roller guides and rails.
2. Inspect car traveling cable
3. Inspect elevator pit emergency stop buffers
4. Include replacement of all worn equipment from pre-bid inspection in elevator modernization quotation.
5. Pre-Bid inspection must be done for this elevator to determine price of modernization.

B. Machine Room:

1. Hydraulic Power Unit (HPU) – Provide a new HPU with Soft Starter and Controller.

2. Elevator Control Panel: Provide a new Microprocessor Control System that will interface with the new HPU and the New Door Controllers and will include Emergency Power for the Elevator Cab Lights that is suitable for 2 or more hours.

3. Freight Elevator Door Controllers – Provide new PLC based Freight Elevator Door Control Systems, one for the Front Door and one for the Rear Door. Door Controllers shall “not” use wireless technology.

C. Hoistway:

1. Leveling Devices: Provide new.
2. Limit Switches: Provide new.
3. Hoistway Door Interlocks: Provide new.
4. Hoistway Door Closer: Provide new.
5. Hoistway Door Tracks: Reuse existing
6. Cab Gate Interlocks: Provide new.
7. Cab Gate Door Closer: Provide new.
8. Cab Gate Door Tracks: Reuse existing
9. Hoistway Door Frames: Reuse existing. Provide tactile star on both jambs at each landing with floor designator.
10. Hoistway Door Panels: Reuse Existing
11. Hoistway Fascia and Toe Guard: Reuse existing.
12. Hoistway Door Unlocking: Provide new
13. Traveling Cables: Provide new. Existing raceways inside the hoistway may be reused if they satisfy NFPA 70 requirements.
14. Guide Rails: Reuse existing.

D. Pit:

1. Piping: Replace hydraulic piping and shut-off valve in the pit with new piping of the same type and size to the new HPU as the existing piping. Provide fire stopping in all wall penetration.
2. Jack Assembly: Include replacement as an option in the bid. (Cylinder with PVC casing and Piston).
3. Jack Assembly: If not replacing the Jack, replace top bearing and seal.
4. Buffers: Reuse existing.
5. Pit Stop Switch: Provide new.
6. Pit Lighting: Provide new (LED) with new light motion sensing light switch.
7. Pit Receptacle: Provide new 120 VAC GFCI receptacle.

E. Car:

1. Car Interior Panels: Reuse existing.
2. Car Ceiling: Reuse with new LED lighting.
3. Car Floor Covering: Reuse existing.
4. Car Gate: Reuse existing.
5. Cab Gate Interlocks: Provide new.
6. Cab Gate Door Closer: Provide new.
7. Cab Gate Door Tracks: Reuse existing.
8. Car Ventilation Fan: Provide new.
9. Car Roller Guides: Provide new rollers if needed.
10. Communications: Provide new. Incorporate in Car Operating Panel.
11. Car gate Interlock Contact: Provide new.
12. Car Interior Lighting: Provide new (LED).
13. Emergency Battery for car ceiling LED lights.
14. Cartop Operating Station: Provide new. Include new LED light with light switch and new 120 VAC GFCI duplex receptacle.
15. Cartop Handrail: Provide new.
16. Door Protection: Provide new infrared full-length protection.
17. Car Operating Panel: Provide new with car position indicator. Include all existing features and functionality. Include communications.
18. Traveling Cable: Provide new.

F. Freight Elevator Doors

1. Power Door Operators – Provide new.
2. Roller Chains and Connection Points – Provide New
3. Position Encoders – Provide new.
4. Car Door Contacts – Provide new.

5. Car Door Locks – Provide new.
6. Retiring Cam – Provide new.
7. Light curtains – Provide new.
8. Unlocking Device – Provide new.
9. Interlocks – Provide new.
10. Safety labels – Provide new.

G. Landings

1. Hoistway Access Switch: Provide new at 2nd Floor (Exhibit Hall)
2. Digital Corridor Arrival Lantern/Car Position Indicator: Provide new at each Floor above or to the side of hall door. Note: existing installation does not have these indicators.
3. Hall Buttons: Provide new brushed stainless-steel surface mount type at all two landings.
4. Landing Doors: Reuse Existing.

PART 3 – EQUIPMENT CHARACTERISTICS:

3.01 HYDRAULIC POWER UNIT

A. Provide a new dry power unit in a self-contained assembly that includes an oil tank, a belt driven pump and pump motor, control valve and silencer.

B. The pumps shall be designed and manufactured for oil hydraulic elevator service. The pumps shall be incorporated in the submersible pump unit.

C. The motors shall be high starting torque, single-speed, of a standard manufacturer with duty rating that complies with the speed and loads detailed in this specification.

D. The control valve shall include an integral check valve and shall control oil flow for the up and down directions of the elevator. A control section including control solenoids shall operate the valve to control up and down starting, acceleration, transition to/from full speed, up and down stops, pressure relief and manual lowering. All functions shall be fully adjustable to ensure optimal ride quality and to meet the requirements of this contract. The system shall be provided with a manual oil shutoff valve and a low-pressure switch. Provisions shall be included to securely lock all adjustments at their desired settings.

E. Provide steel storage tanks that conform with ASME A17.1. Provide a full tank of proper grade biodegradable hydraulic oil.

F. Provide a microprocessor based HPU Starter that will be installed in a NEMA 3R enclosure that includes a main disconnect switch, main circuit breaker, a solid-state soft starter with overload protection, power supplies, relays, timers, switch, terminal blocks, and all other required components. The HPU Starter shall be UL labeled and have a Short Circuit Current Rating (SCCR) greater than 10,000 Amps.

The HPU shall perform all functions that are required for safe and efficient elevator motion. The system shall be designed to be reprogrammed with minimal downtime and shall utilize on-board diagnostics for servicing, trouble-shooting and adjusting parameters with the need for an outside service tool.

G. All necessary pipe and fittings to connect the power unit to the jack assembly. A main line strainer and shutoff assembly of the self-cleaning type with a 60-mesh element and a magnetic drain plug shall be furnished and installed in the oil line. Sound isolating couplings (minimum of two) shall be installed in the oil line between the machine room and the jack assembly. Each coupling shall consist of two machined flanges separated by a neoprene seal to absorb vibration and to prevent metal-to-metal contact in the oil line. Couplings shall be blow-out proof.

H. A silencer (muffler device) shall be installed in the oil line near the hydraulic power unit.

I. Vibration pads shall be mounted under the hydraulic power unit assembly to isolate the unit from the building structure.

J. The elevator number shall be clearly marked on all components, including the hydraulic power unit assembly, the elevator controller, disconnect switch and/or circuit breaker.

3.02 ELEVATOR CONTROL PANEL

A. Provide a UL Listed, microprocessor-based Elevator Control Panels that will be installed in a NEMA 3R enclosure that includes a programmable controller. power supplies, relays, timers, switches, and all other required components. The Elevator Controller shall be designed to be powered from a 20 Amp, 120 Volt or 240 Volt, 1 Phase branch circuit originating from a 7.5 KVA transformer.

B. The control system shall perform all functions that are required for safe and efficient elevator motion. The system shall be designed to be reprogrammed with minimal downtime and shall utilize on-board diagnostics for servicing, trouble shooting, and adjusting parameters with the need for an outside service tool.

C. The Elevator Contractor shall certify that the elevators motion control system shall perform all functions of safe elevator motion and elevator door control. The motion control system

shall include all new and existing hardware and software that are required to connect, transfer and interrupt power and shall provide overload protection for the equipment.

3.03 ELEVATOR DOOR CONTROL PANELS

A. Provide a UL Listed, microprocessor-based Freight Elevator Door Control Panels that will be installed in a NEMA 3R enclosure that includes a programmable controller. power supplies, relays, timers, switches, and all other required components. The Elevator Controller shall be designed to be powered from a 20 Amp, 120 Volt or 240 Volt, 1 Phase branch circuit originating from a 7.5 KVA transformer.

3.04 HYDRAULIC JACK ASSEMBLY (Optional)

A. Replacement of the jack assembly for the elevator shall be included in the bid as an option with separate pricing.

B. Replacement of the jack assembly shall include a PVC casing, new cylinder and new plunger.

C. Remove existing jack and oil. Removal of all spoils shall be the Contractor's responsibility.

D. Re-use the existing jack hole and provide all necessary drilling to expand the hole diameter if needed for the new jack unit's installation.

E. The drilling rig and attachments and any associated drilling costs shall be included. A "The rock clause" shall not be acceptable.

F. Contractor shall coordinate access to the building for drilling equipment with the PaCC.

G. Provide a new watertight PVC casing that can accommodate the new jack unit.

H. The new cylinder shall be a seamless steel pipe with a design head to receive unit type packing.

I. The plunger shall be a polished seamless steel pipe.

J. Provide overspeed valves and a shutoff valve adjacent to the jack unit.

K. Seal the opening at the pit floor with hydraulic quick-acting cement.

3.05 VENTILATION FAN:

A. Replace existing two (2) speed ventilation fan with similar CFM, HP, Voltage and Phase.

B. Blower unit is arranged to exhaust through an opening in the canopy. If required provide a new stainless or chrome plated fan grill on the interior side of the opening. Provide new screening over intake and exhaust end of blower.

C. Mount fan on top of car with rubber isolation to prevent transmission of vibration to car structure. Provide a 3-position switch to control the unit in the service panel.

3.06 ELEVATOR LEVELING:

A. The elevator control system shall provide two-way (i.e., up and down) leveling and shall be designed for automatic flush leveling of the car in both directions. Leveling control shall be done using a sensing system that, once in place and operational, requires no periodic adjustment.

3.07 TERMINAL LIMIT SWITCHES:

A. New mechanical travel limit switches shall be provided to stop the motion of the car at its upper and lower limits.

B. Switches shall be equipped with engaging arms with polyurethane rollers for engagement with cams on the car.

3.08 HOISTWAY DOOR INTERLOCKS:

A. Provide new interlocks and door release roller assemblies at each entrance.

B. Each hoistway electrical/mechanical interlock will function as hoistway unit system, to prevent operation of car until all doors are locked in the closed position unless car is operating in leveling zone or hoistway access switch is used.

3.09 DOOR CONTROLLER:

A. Provide a new door controller that controls the operation of all freight hallway doors and car gates.

B. Controller to control the open and close sequence of all doors and gates.

C. Controller to act in slave mode to the elevator controller.

D. Doors shall open automatically when the car arrives at a floor landing to permit passengers to get on or get off the car. After a timed interval, the doors shall automatically close. The opening and closing shall be done smoothly and shall be cushioned at both limits of travel.

E. The elevator car shall not be able to move away from a landing until the car door is fully closed. Door closure shall be monitored with a contact switch that will prevent elevator operation if the door is not fully closed.

F. Recommended Door Controller Manufacturer is as follows and others may be added if approved by PACC engineer:
   1. The Peelle Company- Existing door manufacture.

3.10 HOISTWAY DOOR OPERATOR:

A. Replace a total of two door operators that is one per floor.
B. Replace each door operator, manual sheaves, chain and limit switch system.
C. New equipment per door includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wiring package and safety operation labels.
D. Door operators shall have the “closed loop” feature, capable of opening doors at not less than 1.5 feet per second and accomplishing reversal in 2.5 inches maximum of door movement.
E. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
   1. The Peelle Company- Existing door manufacture.

3.11 HALL DOOR FRAMES: (Reuse Existing)

A. Re-use and clean existing hoistway door frames.

B. Provide new Code-required signage at all halls.

3.12 HOISTWAY ACCESS SWITCH:

A. Provide new hoistway access key switches at the top and bottom landings. These switches are to move the car up at the bottom landing to facilitate pit inspection and work and to move the car down at the top landing to provide access to the car top. These switches shall be in the locations of the existing switches.

B. Exposed portion of each access switch or its faceplate shall have legible, indelible legends to indicate "UP", "DOWN", and "OFF" positions.

C. Each access switch shall be a constant pressure cylinder type lock having not less than five pins or five stainless steel disc combination with key removable only when switch is in the "OFF" position.

D. Lock shall not be operable by any other key which will operate any other lock or device used for any other purpose at the PACC.

E. Arrange the hoistway switch to initiate and maintain movement of the car. When the elevator is operated in the down direction from the top terminal landing, limit the zone of travel to a distance not greater than the top of the car crosshead level with the top floor. Submit design for approval.

F. Provide emergency access for all hoistway entrances, keyways for this elevator.

3.13 TRAVELING CABLES:

A. Provide new traveling cables for each elevator.

B. All conductors to the car shall be installed in a flexible traveling cable conforming to the requirements of NEC.

C. Traveling cables shall run from the junction box on the car directly to the elevator controller. Junction boxes on the car shall be equipped with terminal blocks.

D. Terminal blocks shall have permanent indelible identifying numbers for each connection.

E. Provide shielded wires for the telephone system within the traveling cable, one (1) RG-6 Ethernet cable for Wi-Fi, two (2) pair 14-gauge wires for 110 Volt power supply, and wire for video display monitor if specified.

F. If traveling cable contacts, the hoistway or elevator due to sway or change in position, provide shields or pads to the elevator and hoistway to prevent damage to the traveling cables.

G. Cables shall be UL-labelled fire and moisture resistant and manufactured for elevator hoistway applications.

H. Cables shall include 10 per cent spare conductors.

3.14 MICROPROCESSOR CONTROL SYSTEM:

A. Provide a microprocessor-based Elevator Controller in a steel frame NEMA Type 1 General Purpose Enclosure that includes a main disconnect switch, power supplies, relays, timers, switches, and all other required components.

B. Elevator Controller Enclosure shall be securely attached to the building structure.

C. Microprocessor control system shall have absolute position/speed feedback to control dispatching, signal functions, door operation, and VFD Drive for hoist motor speed control.

D. Include complete details of the control system components and printed circuit boards, together with a complete operational description, shall be submitted for approval. Add Regenerative Drive when economically advantages to the PACC.

E. Elevator failure may result from many reasons some of which can be failure of the motor, control system, elevator overspeed, doors failure to close or open, elevator failure to start moving and failure to stop at the correct landing.

1. The elevator control system shall be designed such that if there is an elevator failure the brake shall be engaged, the car should remain at its current level and the doors open if the car is at the proper landing level.
2. If the car fails to reach its landing in the up or down direction when elevator failure occurs, the motor should stop, the brake should be applied, and the control system should signal an alarm.

F. Manual controls shall be provided to lower the elevator car down to the lowest terminal landing if elevator failure occurs. Power operated doors will automatically open when the car reaches that landing to allow passengers to disembark. The doors will then automatically close and all control buttons except for the “door open” button in the car operating panel shall be made inoperative. The malfunction can then be corrected after which the elevator can be placed back into service.

G. Recommended Elevator Control Systems Manufacturers are as follows and others may be added if approved by PACC engineer:

1. Smartrise Universal AC Traction Controller
2. Nidec Motion 4000 for AC Traction Elevators
3. VC Vision 2.0 controller for AC Traction Elevators
4. Kone Elevator Controller

H. Provide Recommended Spare Parts for Elevator Controller.

I. Controller manufacturer shall provide factory training, engineering and technical support, including all manuals, wiring diagrams, and tools necessary for adjusting, maintenance, repair, and testing of equipment for the Elevator Maintenance Service Provider.

J. The Elevator Controller shall include a motion control system to perform all functions of safe elevator motion, speed control and elevator door control. The motion control system shall include all hardware and software that is required to connect, transfer and interrupt power and shall provide overload protection for the equipment.

3.15 GUIDE RAILS AND BUFFERS:

A. Guide rails for this elevator are to be re-used. Guides for the elevator shall be thoroughly cleaned and re-lubricated. Connections to the building structure shall be inspected to ensure integrity.

B. Each elevator’s car buffers shall be inspected for defects, tested and re-used if passes testing. Remove all dirt, debris, rust and paint with an epoxy coating.

3.16 PIT STOP SWITCHES:

A. Provide new pit emergency stop switches. Switches shall be maintained, red color, emergency stop pushbutton with a yellow back plate in a cast metal Switches shall be NEMA 13 device box. All circuits to the switch shall be Class 1.

B. An annunciator lamp shall illuminate on the Elevator Control Panel when the emergency stop pushbutton is push in and shall remain lit until the button is pulled out and the system is rest at the Elevator Control Panel.

C. When pushed into the stop position, the emergency switch shall engage the safe torque off function of the elevator control system variable frequency drive.

3.17 CAR INTERIOR PANELS: (Reuse Existing)

A. A new 120 VAC, duplex, GFCI receptacle shall be included.

3.18 CAR GATE OPERATOR:

A. Replace the gate operators.
B. Replace the door operator, manual sheaves, chain and limit switch system.
C. New equipment includes power door operators, roller chain and connection points, positional encoder, unlocking device, interlock, wiring package and safety operation labels.
D. Door operators shall have the “closed loop” feature, capable of opening doors at not less than 1.5 feet per second and accomplishing reversal in 2.5 inches maximum of door movement.
E. Recommended Door Operator Manufacturer is as follows and others may be added if approved by PACC engineer:
   1. The Peelle Company- Existing door manufacture.

3.19 CAR GATE INTERLOCK CONTACT:

A. Provide new car gate interlock contact on each car door.

3.20 DOOR PROTECTION/RE-OPENING AND CONTROL DEVICE:

A. Provide new vertical bi-parting door protection with infrared full screen full-height of door control device, differential timing, nudging and interrupted beam time.

B. Recommended infrared door control device manufacturers are as follows and others may be added if approved by PACC engineer:

   1. Janus Elevator E200 Safety Edge
   2. CEDES Corporation Cegard/Max-NT
   3. Mitsubishi Electric Multi-Beam Door Sensor

3.21 ELEVATOR FIXTURES:

A. Standard fixtures for Car Operating Panels, Hall Stations and Lanterns may be considered or offered if they meet this specification.

B. Recommended Elevator fixture manufacturers are as follows and others may be added if approved by PACC engineer:

1. EPCO Elevator Products Corporation
2. Innovation Industries Inc.
3. Lift Solutions Inc.
4. Schindler Elevator
5. Kone Elevator
6. ThyssenKrupp Elevator Company

3.22 CAR OPERATING PANEL:

A. There are standard car operating panel that can be modified to meet the following requirements and should be considered. Submit samples to PACC for approval of selected Car Operating Panel.

B. Provide a new finished stainless-steel car operating panel for this elevator located near the existing panel opening.

C. Button Type:

1. Call buttons- Push Button with a minimum 1Ø“ and shall contain an integral LED white light which shall illuminate upon pressing, registration of a call and shall extinguish when that call is answered. Panel shall be black engraved below the button with 0.50” high x 0.03” DP lettering to identify the floor.
2. Round buttons and indicator lights shall be engraved with a black color below the surface by a minimum of 0.03”.
3. Indicator Light - Round with a minimum 1” Diameter and LED illuminated

D. All terminology and tactile symbols on the faceplate shall be 0.25“ letters to identify all devices in the faceplate. The tactile symbols with contrasting background shall be 0.5” high raised .030 in on the plate.

E. The upper section shall contain the following items in order listed from top to bottom:

1. Elevator number, 0.50 in high with black paint for contrast.
2. Capacity plate information with black paint for contrast with freight loading class and number of passengers allowed.

3. LED illuminated digital car position indicator with direction arrows.
4. Key operated Independent Service Switch on the face of panel.
5. Provide a Door Hold Button on the faceplate and it shall have “DOOR HOLD” indelibly marked on the button. Button shall light when activated. When activated, the door shall stay open for a maximum of one minute. To override push a car call button or door close button.
6. Complete set of call buttons with LED white light illuminated, corresponding to the floors served. These buttons shall be legibly and indelibly identified by a floor name and letters not less than 0.50” high black engraved below the button in the panel.
7. Call cancel button shall be located below the call buttons and shall have “CALL CANCEL” legibly and indelibly identified by letters in the face of the respective button.
8. Door Open and Door Close buttons shall be located below the car call buttons. They shall have “OPEN” and “CLOSE” legibly and indelibly identified by letters in the face of the respective button. The Door Open button shall be located closest to the door jamb.
9. Red Emergency Alarm button that shall be located below the car operating buttons. Mount the emergency alarm button not lower than 35 in. above the finished floor. It shall be connected to audible signaling devices. Provide audible signaling devices including the necessary wiring.
10. Provide “HELP” button with tactile symbol signage adjacent to button mounted integral with car operating panels. Emergency Help push button shall activate two-way communications by Auto Dial telephone system that is compatible with the PACC telephone system. Help button shall be LED white light illuminated and flash when call is acknowledged. Legibly and indelibly label the button “HELP” in the face of the button with 0.50 in. high letters.
11. Toggle switch with adjacent light to indicate a stopped elevator. Black engraved “RUN” above toggle and “STOP” below toggle with 0.25” high letters.
12. Floor passing audible signal shall be included.

F. Key-operated switches shall be provided in the service operation panel in the lower section These key switches shall contain the following items:

1. Firemen service located at top of panel.
2. Light switch labeled “LIGHTS” for controlling interior car lighting with its two positions marked “ON” and “OFF”.
3. Inspection service switch that will disconnect normal operation and activate hoistway access switches at terminal landings. Switch shall be labeled “ACCESS ENABLE” with its two positions marked “ON” and “OFF”.
4. Three-position switch labeled “FAN” with its positions marked “HIGH”, “LOW” and “OFF” for controlling car ventilating blower.

5. Two-position, spring return, toggle switch or push button to test the emergency light and alarm device. It shall be labeled “TEST EMERGENCY”.
6. Independent service switch labeled “ON” AND “OFF”.
7. Car Stop switch

G. The panels shall include self-illuminating floor registration buttons with markings as described below.

1. For Elevators #28 make the text and buttons as follows:
   a. Floor One: Mark the text “STREET”.
   b. Floor Two: Mark the text “EXHIBIT HALL”.

H. Fasten car operating panel and signal device faceplates with stainless steel tamperproof screws.

I. Submit design of car operating panel for approval by PACC.

3.23 HALL OPERATING PANEL:

A. There are Standard Hall Operating Panels that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Hall Operating Panel.

B. Provide a new finished stainless steel Hall Operating Panel for elevator operation and signaling device. Locate the centerline of the hall push buttons at existing opening or 42 in. above the corridor floor.

C. Fasten hall operating panel and signal device faceplates with stainless steel tamperproof screws.

D. All terminology and tactile symbols on the faceplate shall be raised 0.03 inch with contrasting background on square or rectangular plates. Use 0.25 in. letters to identify all other devices in the faceplate.

E. Provide one hall call button for each floor.

F. Each button shall contain an integral registration LED white light which shall illuminate upon registration of a call and shall extinguish when that call is answered.

G. The direction of each button shall be legibly and indelibly identified by arrows not less than 0.50 in. high in the face of each button.

H. Hall push buttons shall not re-open the doors while the car and hoistway doors are closing at that floor, the call shall be registered for the next available elevator. Calls registered shall

be canceled if closing doors are re-opened by means of "DOOR OPEN" button or infrared curtain unit.

I. Submit design of hall pushbutton fixtures for approval by PACC.

3.24 CAR POSITION INDICATOR:

A. There are Standard Car Position Indicators that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Car Position Indicator.

B. Provide an alpha-numeric digital car position indicator in the main car operating panel, consisting of numerals and arrows not less than 2 in. high, to indicate position of car and direction of car travel. Locate position indicator at the top of the main car operating panel, illuminated by light emitting diodes.

C. Submit design of position indicator for approval by PACC.

3.25 DIGITAL CORRIDOR ARRIVAL LANTERN/POSITION INDICATOR:

A. There are Standard Car Lantern Position Indicators that meet most of the following requirements which should be considered. Submit samples to PACC for approval of selected Car Position Indicator.

B. Provide elevator with a combination corridor lantern/position indicator digital display mounted over or beside the hoistway entrances at each floor.

C. Provide each hall with "UP" and "DOWN" digital arrow lanterns. The lenses in each lantern shall be illuminated green to indicate "UP" travel and red to indicate "DOWN" travel.

D. Each lens shall be LED illuminated of proper intensity and shielded to illuminate individual lens only.

E. Lanterns shall signal in advance of car arrival at the hall indicating the direction of travel. Corridor lanterns shall not be illuminated when a car passes a floor without stopping. Each lantern shall be equipped with an audible electronic chime which shall sound once for "UPWARD" bound car and twice for "DOWNWARD" bound car. Audible signal shall not sound when a car passes the floor without stopping. Provide adjustable sound level on audible signal.

F. Lantern/Position Indicator faceplate shall be finished stainless steel. Numerals shall be not less than 2.5 in. high with direction arrows. Cover plates shall be readily removable for re-lamping. The appropriate direction arrow shall be illuminated during entire travel of car in corresponding direction.

G. Submit design of position indicator for approval by PACC.

3.26 CAR TOP MAINTENANCE OPERATING STATION:

A. Car top maintenance operating station shall include as a minimum the following controls:
   a. "Up" button and “Dn” button
   b. “Alarm” and “Fire service button”
   c. "Run"/"Stop" switch and "Enable/Safe" button
   d. "Light" On/Off switch
   e. Ceramic incandescent light bulb socket
   f. “Operate/Inspection” switch
   g. 3-Prong electrical outlet, 15A 125VAC
   h. Battery Type- Maintenance Free LiFePO4 or Nickel-Cadmium and solid-state circuitry
   i. Two-position emergency stop switch, when operated, shall interrupt power supply and stop the elevator independently of regular operating devices. Emergency stop switch shall be marked “PUSH TO STOP” and “PULL TO RUN”.

B. Provide cut sheet of maintenance station to PACC for approval.

3.27 COMMUNICATIONS SYSTEM (Emergency):

A. Each car shall have an emergency communication system. The emergency communication system shall comply with Federal Communications Commission (FCC) regulations.

B. Provide a two-way emergency communication device in the car with automatic dialing, tracking and recall features with shielded wiring to car controller in machine room.

C. Provide dialer with automatic rollover capability with two numbers and communications between the elevator car and a point outside of the hoistway. Each elevator shall have individual phone numbers.

D. The auto dial system may be in the main or auxiliary car operating panel. The speaker and dial controller shall be mounted on the backside of the perforated stainless-steel plate cover.

E. The emergency communication system shall include both audio and visual two-way communications.

F. “HELP” button shall illuminate and flash when call is acknowledged. Button shall match floor push button design.

G. Provide “HELP” button tactile symbol signage mounted integral with car operating panels.

H. The system shall be programmed to automatically dial a programmable number that is outside of the hoistway and will be answered during normal operation by a PACC representative who can work to resolve the emergency. The emergency communication system shall provide the receiving representative with the building and elevator number from which the emergency call was placed.

I. If the operator ends the call, the passenger shall be able to redial the telephone immediately.

J. Visual messages shall be provided to indicate the status of the actions being taken in response to the emergency call.

K. The emergency communication system shall be mounted behind the car operating panel.

L. Raised letter shall be integrated and permanently marked on the operating panel identifying the device as a speech independent emergency telephone.

3.28 PIT LIGHTING AND RECEPTACLE:

A. Replace existing pit lighting, receptacle, and light switch. Where possible, maintain existing 120 VAC circuit to this equipment. Provide new conduit and wire as required. Separate branch circuits shall be provided for the pit lighting and new GFCI receptacle.

B. New light shall be 120 VAC LED fixture with guards to prevent accidental damage and shall provide a minimum of 30 foot-candles of illumination in the pit.

C. New receptacle shall be 120 VAC, duplex GFCI type in cast iron device box.

D. Light Switch shall be 20 Amp, 120 Volt, specification grade.

E. Light and receptacle shall be located so that they are out of the way of elevator equipment. Light switch shall be a minimum of 18 inches above the lowest hall door sill and adjacent to (not behind) the pit access ladder.

3.29 MACHINE ROOM LIGHTING AND RECEPTACLE:

A. Replace existing machine lighting, receptacle, and light switch. Where possible, maintain existing 120 VAC circuit to this equipment. Provide new conduit and wire as required. Separate branch circuits shall be provided for the machine room lighting and new GFCI receptacle.

B. New light shall be 120 VAC LED fixture with guards to prevent accidental damage and shall provide at least the exiting lighting foot-candles.

C. New receptacle shall be 120 VAC, duplex GFCI type in cast iron device box.

D. Light Switch shall be 20 Amp, 120 Volt, specification grade, motion sensing with an on/off switch.

E. Light fixture and receptacle shall be located at the same locations as the existing.

3.30 ELEVATOR CONTROL SWITCH (Provide new)

3.31 SURGE PROTECTION (Provide New)

3.32 ELECTRICAL WIRING:

A. Electrical wiring shall comply with the requirements of ASME 17.1 and NFPA 70 (National Electrical Code (NEC) and all local codes. Wiring (other than the Car Traveling Cable) shall be 600 Volt insulated wire that includes a flame retardant and moisture-resisting outer cover.

B. All wiring shall be sized per the NEC and installed in wireway or conduit. Connect motor or other items subject to movement, vibration or removal to the conduit systems with flexible, steel conduits.

C. All conduit terminating in steel cabinets, junction boxes, wireways, switch boxes, outlet boxes and similar locations shall have insulation bushings.

D. Joints or splices are not permitted in wiring except at outlets.

E. All wiring must test free from short circuits or ground faults. Insulation resistance between individual external conductors and between conductors and ground shall be a minimum of one megohm.

F. Wiring shall be included for all devices that are installed on this project.

1. The existing wireway in the hoistway and between the machine room and the hoistway can be re-used if:
    a. It is in good condition.
    b. It is properly sized for the number of conductors and cables that are to be installed in it.
2. Provide new wireway between the machine room and the hoistway as required. Wireway shall be steel, NEMA 12.
3. New conduit shall be rigid galvanized steel.
4. Provide complete wiring to connect all parts of the equipment. Properly ground all components as required by the National Electrical Code.

5. Provide 10 per cent spare wires between the controller in the machine room and the main junction box in the hoistway.
6. All wires shall be properly tagged and identified with clear markings. Wire numbers that are consistent with the system control diagrams shall be placed on each end of each wire and all termination points and splices.
7. All wiring shall be tested point to point. The entire wiring system shall be tested for insulation to ground.

3.33 EMERGENCY CAR LIGHTING BATTERY BACK-UP:

A. Provide a new 15 Watt battery backup emergency LED light located near the center of the ceiling and near the control panel. This light will be wired within the existing ceiling lighting circuit.

B. The specified battery backup inverter requires 120 Volts input and provides 120 Volts output, 25 watts power and automatic charging all within a 3” x 3” x 18” long enclosure. This battery will be installed within the power feed to the new LED emergency light.

C. Each battery unit consists of a battery, charger and electronic circuitry in one steel case. It provides power to the input side of the LED fixtures.

D. Upon failure of normal power, the battery instantly begins providing emergency power to the connected lighting load for a minimum of 90 minutes. When normal power is restored, the battery automatically returns to charge mode. The battery capacity is fully restored in about 24 hours.

E. Battery Specifications:

1. Listed to UL924 Field or Factory Installation (Indoor and Damp) Output Class 2 Compliant.
2. Illumination Time 90 Minutes.
3. Maximum Load Power 25 W
4. Full Warranty 5 years
5. AC Input Voltage 120 or 277 VAC, 60 Hz
6. Output Voltage 120 VAC, 60Hz
7. Test Switch Single Pole (Momentary)
8. Battery Type- Maintenance Free LiFePO4 or Nickel-Cadmium
9. Battery Recharge Time about 24 Hours.
10. Charging Indicator Light LED
11. Temperature Rating (Ambient) 32° F to 122° F

12. Weight 5 lbs. (2.3 kg)
13. Approximate size is 3” x 3” x 18” long metal case.
14. Battery shall allow the connected fixture(s) to be on, off, switched or dimmed without affecting emergency operation.

F. The following battery manufacturers equipment products are acceptable for this project (others may be added if approved by PACC):

1. Fulham Model# FHUPS1-UNV-25L-SD
2. Bodine Model# ELI-S-20 battery inverter
3. ECI MerLite 2000 Series

3.34 TOP OF CAR HANDRAIL:

A. Provide new code-compliant top of car handrail.

PART 4 – PROJECT EXECUTION:

4.01 EXECUTION:

A. Acceptable Installers: The work for the elevator modernizations shall be done by the elevator manufacturer or elevator contractor.

B. Examination: Prior to beginning the work, the elevator contractor shall carefully examine the hoistway, hoistway openings, pits and machine rooms. All critical dimensions shall be field-verified. The contractor shall examine all other conditions under which the modernizations are to be completed.

C. The contactor shall notify the PACC in writing of any dimension discrepancies or other conditions detrimental to the proper installation for the modernizations or performance of the elevators after the modernizations. Work shall not begin until all unsatisfactory conditions are corrected.

D. Installation: Comply with the manufacturer’s instructions and recommendations for all work required during the modernizations.

E. Demonstration: The contractor shall make a final check of this elevator to ensure operation is per the specifications. This elevator shall run in “test mode” for 24 hours prior to being turned over to the PACC.

4.02 PROJECT SPECIFIC WORK SCHEDULE:

A. All work generating a high level of noise (e.g., drilling, cutting, etc.) shall be done after hours unless approved otherwise by the PACC.

B. Any electrical outages shall be approved by the PACC prior to electrical equipment being de-energized.

PART 5 – PROJECT BIDDING:

5.01 BID:

A. The contractor's bid shall include the items listed below.

1. Base Bid Cost for Modernization of Elevators #28 & per this Specification and including any required repairs. Provide six (6) bids as follows:
    a. Provide bid for Elevator #28 Modernization with existing Jack.
    b. Provide bid for Elevator #28 Modernization with Jack replacement.
2. Bid Options:
    a. Include as a separate cost for car battery back-up per Section (3-31).
3. Full Maintenance Bid for equipment warranty period per Section (1-07).