EXISTING BUILDING SCOPE OF WORK AREA T150 SOUTH PINE ST DOYLESTOWN, PA DOYLESTOWN BOROUGH BUILDING CODES PA UCC — ADOPTED 2009 INTERNATIONAL EXISTING BUILDING CODE (IEBC) LEVEL 2 2015 INTERNATIONAL BUILDING CODE (IBC) LEVEL 2 ALTERATION (LIMITED TO \$406.3 & ALL ACCESSSIBILITY PROVISIONS AS ADOPTED BY THE PA 2015 INTERNATIONAL BUILDING CODE (IBC), CHAPTER 11 - ACCESSIBILITY REFERENCE STANDARD: 2009 ICC/ANSI 117.1 PROJECT DESCRIPTION: LEVEL 2 - TENANT IMPROVEMENT OF WORK AREA: ±786 S.F. OCCUPANT LOAD: 8 PERSONS (1 PER 200 GROSS S.F.) 'B' - BUSINESS USE: EXISTING
CONSTRUCTION TYPE: 2B NONCOMBUSTIBLE UNPROTECTED HEIGHT: EXISTING 2—STORY BUILDING EXISTING AUTOMATIC SPRINKLER SYSTEM TO REMAIN. RELOCATE SPRINKLER HEADS TO ACCOMMODATE THE NEW LAYOUT. FIRE PROTECTION: KEY PLAN LOCATION MAP AERIAL VIEW CODE SUMMARY

#### DRAWING ENUMERATION

MECHANICAL, PLUMBING, ELECTRICAL

MARTARANO ENGINEERING INC.

CONTACT: ANGELO MARTARANO 484.706.9779

MPFP.1 - MECHANICAL DEMOLITION PLAN, MECHANICAL NEW WORK PLAN,

NOTES, LEGEND

MPFP.2 - MECHANICAL SPECIFICATIONS, SCHEDULES

E.1 - ELECTRICAL DEMOLITION PLAN, SPECIFICATION, LEGEND
E.2 - ELECTRICAL LIGHTING PLAN, POWER PLAN, LIGHTING FIXTURE

SCHEDULE

E.3 - ELECTRICAL SPECIFICATIONS, NOTES

ISSUE INFORMATION 2019-04-19 BID SET ISSUED FOR PERMIT

OCIATES, P.C.
PLANNERS · DESIGNERS

860 1ST AVE, 8 KING OF PRUS 610 337 4555 www.rhjassoc

DATE: APRIL 19, 2019
REVISIONS

**CS**2019-0134

':\BCFL\_Doylestown\_Elevator Renovation\_2019-xxxx\DTN-ELEVATDR

FIRE PROTECTION — NEW WORK PLAN — SECOND FLOOR SCALE: 1/4" = 1'-0"

MODEL NO

INDOOR UNIT/

**OUTDOOR UNIT** 

PKA-A36KA6/

PUY-A36NHA6

\*Cooling loads are "NET" based on combination ratings at 80°F DB/67°F WB entering temperature and 95°F at the condenser.

AIR

FLOW

(CFM)

800

MIN

OA

(CFM)

#### MECHANICAL WORK NOTES:

- INSTALL SSAC-1 ON 2 8" HIGH EQUIPMENT CURBS RUN THE LONG DIRECTION OF THE UNIT AND INSTALLED IN ACCORDANCE WITH THE ROOF MANUFACTURER'S REQUIREMENTS TO MAINTAIN ROOF WARRANTY (IF APPLICABLE). EQUIPMENT CURBS AND INSULATED REFRIGERANT PIPING PIPE PORTAL SHALL BE MANUFACTURED BY PATE OR APPROVED EQUAL.
- PIPE 3/4" CONDENSATE ABV CEILING IN INSULATED TYPE "L" COPPER PIPING AND TERMINATE WITH ELBOW TURNING DOWN APPROXIMATELY 6" ABOVE MOP SINK. COORDINATE FINAL ROUTING LOCATION IN THE FIELD.
- (M3) EXISTING EXHAUST FAN TO REMAIN.

#### **PLUMBING WORK NOTES:**

DISCONNECT AND REMOVE EXISTING ELEVATOR SUMP PUMP AND ACCESSORIES WITHIN THE PIT. FIELD VERIFY DISCHARGE PIPING SIZE, CONDITION, SLOPE, AND ROUTING. IF EXISTING SIZE MEETS THE MINIMUM SIZE SHOWN ON THE DRAWING AND DISCHARGES TO A LOCATION APPROVED BY THE LOCAL AUTHORITY, EXISTING DISCHARGE PIPING MAY BE REUSED. IF NOT, ROUTE PIPING IN MANNER SHOWN ON THE PLANS, DROP AND CONNECT TO EXISTING SANITARY PIPING IN PLUMBING CHASE. COORDINATE ELECTRICAL REQUIREMENTS AND WIRING BACK TO EXISTING CIRCUIT WITH THE ELECTRICAL CONTRACTOR.

#### FIRE PROTECTION WORK NOTES:

FP1) FIELD VERIFY EXISTING SPRINKLER HEAD AT THE TOP OF THE ELEVATOR SHAFT AND THE SIDE WALL SPRINKLER HEAD IN THE ELEVATOR SHAFT ON THE FIRST FLOOR. IF THESE SPRINKLERS DO NOT EXIST, PROVIDE NEW SPRINKLER HEADS PIPING. PROVIDE SPRINKLER PIPING MODIFICATIONS TO ACCOMMODATE NEW SPRINKLER HEADS AND ARRANGE LOCATIONS TO COORDINATE WITH EXISTING CONDITIONS.

NON-DUCTED SPLIT SYSTEM AIR CONDITIONING SCHEDULE

COMPRESSO

NO

**OUTDOOR SECTION** 

208

**ELEC CHARACTERISTICS** 

VOLTS PHASE HERTZ MCA MOCP

60

# 3/4" CONDENSATE SUMP PUMP MEN'S T.R. 108 ELEVATOR MACHINE ROOM ີ EXG SSAC-1 3/4" CONDENSATE M1 3/4" CONDENSATE MECHANICAL, PLUMBING, & FIRE PROTECTION — NEW WORK PLAN — FIRST FLOOR

COOLING

MIN

SEER

**FANS** 

FLA

.75

NO

TOT

CAP

34.2

INDOOR

FAN

MOTOR

#### MECHANICAL GENERAL NOTES:

- 1. ALL MECHANICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL STATE AND LOCAL LAWS AND ORDINANCES AND IN A MANNER SATISFACTORY TO THE OWNER AND AUTHORITY HAVING JURISDICTION. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO OBTAIN ALL REQUIRED PERMITS, INSPECTIONS AND PAY ALL APPLICABLE FEES. COMPLY WITH LATEST EDITIONS OF THE EXISTING BUILDING CODE, INTERNATIONAL MECHANICAL CODE, AND IECC-2015 ENERGY CODE.
- 2. FIELD VERIFY EXISTING CONDITIONS AND COORDINATE ALL WORK, THE SITE SURVEY WAS PERFORMED BY VISUAL EVALUATION OF EXISTING EQUIPMENT, SOME MANUFACTURE SPECIFICATION PLATES WERE NOT ACCESSIBLE.
- 3. CONTRACTOR SHALL LOCATE ALL NEW PIPING AS HIGH AS POSSIBLE. COORDINATE ALL WORK WITH EXISTING CONDITIONS, OTHER TRADES, AND CONFORM WITH ALL LOCAL CODES.
- 4. ALL HVAC EQUIPMENT SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURERS WRITTEN INSTALLATION

# PLUMBING GENERAL NOTES:

- 1. ALL PLUMBING WORK SHALL CONFORM TO THE LATEST PENNSYLVANIA UNIFORM CONSTRUCTION CODE AND 2015 INTERNATIONAL PLUMBING CODE AND SUBSEQUENT CODE ORDINANCE AMENDMENTS THERETO.
- 2. DRAWINGS ARE DIAGRAMMATIC. COORDINATE ALL EQUIPMENT LOCATIONS AND PIPE ROUTING WITH OTHER TRADES AND ARCHITECTURAL DETAILS PRIOR TO INSTALLATION.
- 3. ALL MATERIALS NOT REUSED OR CLAIMED BY THE OWNER SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND BE REMOVED PROMPTLY FROM THE PREMISES BY THE CONTRACTOR.
- 4. CONCEAL ALL PIPING IN WALLS/CHASE SPACE, BELOW FLOORS, AND ABOVE CEILINGS UNLESS OTHERWISE NOTED.

#### FIRE PROTECTION GENERAL NOTES:

- 1. ALL FIRE PROTECTION SYSTEM WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF NFPA PAMPHLET #13, THE 2015 INTERNATIONAL BUILDING CODES, THE OWNER'S INSURANCE CARRIER AND THE PHILADELPHIA FIRE DEPARTMENT.
- 2. THE INTENT OF FIRE PROTECTION DRAWINGS IS FOR APPROVAL PURPOSES ONLY AND TO AID THE FIRE PROTECTION CONTRACTOR IN SYSTEM LAYOUT AND MODIFICATIONS REQUIRED FOR BIDDING PURPOSES. THE DRAWINGS IDENTIFY BASIC ELEMENTS OF THE FIRE PROTECTION SYSTEM, AREAS OF COVERAGE AND DEVICE TYPES AND AREAS WHICH REQUIRE SPECIAL ATTENTION AND/OR DEVICES. THE SUCCESSFUL FIRE PROTECTION CONTRACTOR IS RESPONSIBLE FOR PROVIDING APPROVED AND COMPLETE PIPING LAYOUT DRAWINGS AND HYDRAULIC CALCULATIONS.
- 3. COORDINATE ALL SPRINKLER LOCATIONS WITH LIGHTS AND CONDUITS. FINAL SPRINKLER LOCATIONS SHALL BE IN ACCORDANCE WITH NFPA 13 SPACING REQUIREMENTS.

REMARKS

PROVIDE WITH HARD WIRED THERMOSTAT, ADVANCED WIND BAFFLE FOR LOW AMBIENT COOLING DOWN

TO -20°F; PROVIDE WITH CONDENSATE PUMP

4. ENSURE ALL CODE REQUIREMENTS ARE MET. ANY MODIFICATIONS TO THE SYSTEM IN AN EFFORT TO BRING THE SYSTEM TO CODE REQUIREMENTS AS A RESULT OF THESE RENOVATIONS ARE THE RESPONSIBILITY OF THIS CONTRACTOR. THIS SHALL INCLUDE, BUT IS NOT LIMITED TO ADDITION OF SPRINKLER HEADS, AND HYDRAULIC CALCULATIONS.



Two Meridian Blvd., 2nd Floor Wyomissing, PA 19610 : (484)-706-9779 www.martaranoengineering.com Project: 19-051

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PROPOSEI

YLESTON SOUTH BUCKS

#### DEVICES AND ACCESSORIES

WORK BY THIS CONTRACTOR EXISTING WORK OR WORK DONE BY OTHERS

SANITARY PIPING (SAN)

PIPE TURNING UP

PIPE TURNING DOWN

SPRINKLER HEAD SIDE WALL NEW  $\vdash$ SPRINKLER HEAD UPRIGHT NEW

SPRINKLER HEAD CONCEALED NEW

THERMOSTAT

REFER TO INDICATED NEW WORK NOTE

CONNECT NEW TO EXISTING

#### **ABBREVIATIONS**

ABOVE FINISHED FLOOR ABOVE FINISHED ROOF **APPROX APPROXIMATELY** BRAKE HORSEPOWER BRITISH THERMAL UNIT CUBIC FEET PER MINUTE CEILING ELECTRICAL CONTRACTOR ENERGY EFFICIENCY RATIO EXHAUST FAN **EFFICIENCY** EXISTING FULL LOAD AMPS HORSEPOWER

MAXIMUM THOUSAND BRITISH THERMAL UNITS MECHANICAL CONTRACTOR

OUTDOOR AIR REFRIGERANT LIQUID PIPING RPM REVOLUTIONS PER MINUTE REFRIGERANT SUCTION PIPING SPLIT SYSTEM AIR CONDITIONER

> SPLIT SYSTEM AIR HANDLER TYPICAL WITH

SSAH

ISSUED FOR PERMIT

DATE: APRIL 19, 2019 REVISIONS

MPFP.1

2019-0134

PRELIMINARY - NOT FOR CONSTRUCTION

APRIL 15, 2019

REF

SSAH-1/

SSAC-1

**MANUFACTURER** 

MITSUBISHI

- 2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT AND TOOLS NECESSARY FOR COMPLETE AND WORKABLE SYSTEMS AS INDICATED ON THE DRAWINGS. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, LATEST EDITION OF THE NATIONAL ELECTRIC CODE, OSHA, 2015 INTERNATIONAL MECHANICAL CODE, 2015 INTERNATIONAL EXISTING BUILDING CODE (IBC), 2015 INTERNATIONAL ENERGY CONSERVATION CODE AND ALL OTHER STATE AND LOCAL AUTHORITIES HAVING JURISDICTION AND APPLICABLE MANUFACTURER'S RECOMMENDATIONS.
- 3. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT PRIOR TO SUBMITTING A PROPOSAL.
- 4. THE CONTRACTOR AND ALL SUB-CONTRACTORS SHALL HAVE A MINIMUM OF FIVE YEARS OF PROVEN EXPERIENCE ON PROJECTS WITH SIMILAR LEVELS OF COMPLEXITY AND MAGNITUDE. EXPERIENCE SHALL BASED ON THE EXPERIENCE AS A COMPANY AND NOT ON THE EXPERIENCE AS INDIVIDUALS.
- THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH HIS WORK.
- THE CONTRACTOR SHALL VERIFY ALL UTILITY SERVICE INFORMATION SHOWN ON THE DRAWINGS WITH THE LOCAL UTILITY COMPANY PRIOR TO SUBMITTING A BID. ANY CHANGES OR SERVICE CHARGES IMPOSED BY THE UTILITY COMPANY SHALL BE QUALIFIED AND INCLUDED IN THE BID.
- 7. ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (UL, ETL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS
- ALL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR (FIVE YEARS FOR ALL COMPRESSORS) FROM THE DATE OF ACCEPTANCE BY THE OWNER.

9. WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE. NOTE: THE TERM 'APPROVED EQUAL' SHALL MEAN A PRODUCT/ITEM THAT HAS BEEN SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SUBMITTING A BID AND THE CONTRACTOR HAS RECEIVED WRITTEN NOTIFICATION THAT THE SUBSTITUTED PRODUCT WILL BE CONSIDERED AN EQUIVALENT ALTERNATE TO THE SPECIFIED PRODUCT/ITEM.

- THE CONTRACTOR RESPONSIBLE FOR WORK COVERED BY THESE SPECIFICATIONS SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES.
- 11. SHOP DRAWINGS SHALL BE SUBMITTED AND REVIEWED BY THE OWNER'S REPRESENTATIVE BEFORE ORDERING EQUIPMENT.
- 12. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL NECESSARY HANGERS, INSERTS, SUPPORTS SUPPLEMENTARY STEEL, ETC., TO PROPERLY SUPPORT ALL EQUIPMENT, DUCTWORK AND PIPING IN AN APPROVED MANNER AND IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- 13. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES.
- 14. SPLIT SYSTEM AIR CONDITIONING SYSTEM SHALL BE COOLING ONLY COMPLETE WITH EXTERIOR CONDENSING UNIT WITH INVERTOR TYPE COMPRESSOR, WALL MOUNTED AIR HANDLER, REFRIGERANT PIPING, WALL MOUNTED HARD WIRED THERMOSTAT, LOW AMBIENT CONTROL DOWN TO -20F, CONDENSATE PUMP, ADVANCED WIND BAFFLE AND DRAIN PAN LEVEL SENSOR. REFRIGERANT SHALL BE R-410A. THE INDOOR AND OUTDOOR UNITS SHALL BE AS MANUFACTURED BY MITSUBISHI WITH MODEL NUMBERS AND CACTITY AS INDICATED ON THE DRAWING.

15.1 REFRIGERANT PIPING SHALL BE SEAMLESS TYPE "ACR" COPPER ASTM B-88 AND SHALL BE INSULATED WITH 1" (2015 IECC) INCH THICK ARMACELL AP ARMAFLEX OR EQUAL. TWO (2) COATS OF ARMAFLEX WB UV RESISTANT FINISH SHALL BE APPLIED TO ALL INSULATION EXPOSED OUTDOORS. REFRIGERANT LINE SIZES BETWEEN INDOOR COIL AND OUTDOOR COMPRESSOR UNIT SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR CAPACITIES REQUIRED AND ACTUAL PIPE LENGTHS AND FITTINGS TO BE INSTALLED.

- 15.2 CONDENSATE PIPING SHALL BE TYPE "L" COPPER INSULATED WITH 1/2" THICK ARMACELL AP ARMAFLEX OR EQUAL.
- 15.3 REFRIGERANT CIRCUIT ACCESS PORTS LOCATED OUTDOORS SHALL BE FITTED WITH LOCKING-TYPE TAMPER RESISTANT CAPS.

15.4 THE CONTRACTOR SHALL PROVIDE A TRAPPED TYPE "L" COPPER CONDENSATE DRAIN LINE ON ALL INDOOR COOLING COIL DRAIN PANS. ALL DRAIN LINES SHALL HAVE ADEQUATE CLEANOUT CONNECTIONS AND SHALL TERMINATE WHERE SHOWN ON THE DRAWINGS.

15.5 UNLESS OTHERWISE SPECIFIED HEREIN. PIPE AND FITTINGS SHALL CONFORM TO THE REQUIREMENTS OF ANSI STANDARD B31.1. INSTALL PIPING TO AVOID INTERFERENCE WITH MOVING PARTS AND TO BE CLEAR OF EQUIPMENT THAT COULD CAUSE DAMAGE OR BE DAMAGED. RUN PIPING STRAIGHT AND, WHERE PRACTICABLE AND EXPOSED. PARALLEL OR PERPENDICULAR TO BUILDING LINES. RUN RISERS PLUMB AND WITH MINIMUM OFFSETS. RUN LINES TO SLOPE AS NECESSARY TO DRAIN PROPERLY. MAINTAIN INDICATED OR REQUIRED GRADES WITHOUT SAGGING OF LINES. OPEN PIPES SHALL BE CAPPED OR PLUGGED AT THE END OF EACH WORKDAY TO PROTECT THE PIPE AGAINST THE ENTRANCE OF DIRT, WATER OR ANY EXTRANEOUS MATERIAL. PROVIDE A DRAIN AT EACH LOW POINT IN THE WATER PIPING SYSTEMS AND A MANUAL AIR VENT AT ALL HIGH POINTS.

15.6 DO NOT RUN PIPING OVER ELECTRICAL EQUIPMENT.

15.7 INSTALL SLEEVES FOR ALL PIPES PASSING THROUGH WALLS AND FLOORS. USE SIZE TO PERMIT PASSING OF PIPE AND FULL THICKNESS OF INSULATION. EXTEND SLEEVES TWO INCHES ABOVE FINISHED FLOOR. FOR SLEEVES THROUGH WALLS, USE LENGTH SAME AS WALL THICKNESS.

15.8 REAM PIPE AFTER CUTTING. REMOVE OBSTRUCTIONS THAT COULD INTERFERE WITH NORMAL INTENDED FLOW.

15.9 INSTALL PIPING TO PREVENT UNDUE STRESSES DUE TO EXPANSION, CONTRACTION OR IMPOSED LOADS. PROVIDE EXPANSION LOOPS AND OFFSETS AS INDICATED OR AS NECESSARY TO PREVENT DAMAGE.

15.10 REDUCING FITTINGS SHALL BE USED IN LIEU OF BUSHINGS.

15.11 VALVES INSTALLED IN HORIZONTAL PIPES SHALL HAVE STEMS INSTALLED NO LOWER THAN THE CENTER OF THE PIPE.

15.12 PIPING SUPPORT

15.12.1 HANG AND SUPPORT PIPING TO PREVENT PIPE LOAD FROM BEARING ON EQUIPMENT, FLANGES, CONNECTIONS AND INSULATION.

15.12.2 HANGERS SUPPORTING COPPER PIPE SHALL BE COPPER PLATED STEEL.

18.1.1 THE TESTING AND BALANCING CONTRACTOR SHALL BE NEBB OR AABC CERTIFIED.

15.12.3 PIPE HANGERS SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE WITH EITHER "PARABOLT" CONCRETE ANCHORS AS MANUFACTURED BY USM CORPORATION, MOLLY FASTENER DIVISION OR "C" CLAMPS OR BEAM CLAMPS SIZED AND PLACED TO ACCOMMODATE THE LOADS IMPOSED BY THE PIPING SYSTEM. "C" CLAMPS SHALL BE USED ONLY TO SUPPORT PIPES THREE INCHES AND SMALLER.

15.12.4 HANGERS, SUPPORTS AND APPURTENANCES SHALL BE AS MANUFACTURED BY F&S CENTRAL, CARPENTER AND PATTERSON, GRINNELL OR APPROVED EQUAL.

16. CONTROLS

16.1 THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL NECESSARY CONTROL COMPONENTS INCLUDING. BUT NOT LIMITED TO. RELAYS. THERMOSTATS. CONTROLLERS, ETC. AND WIRING AS REQUIRED TO PROVIDE AUTOMATIC TEMPERATURE CONTROL. ALL WIRING SHALL BE DONE IN ACCORDANCE WITH THE LOCAL AND STATE CODES AND THE NATIONAL ELECTRIC CODE.

- 17. THE REFRIGERATION SYSTEM SHALL BE TESTED AND PROVEN TIGHT PRIOR TO PLACING IN OPERATION. UNITS SHALL BE CHECKED FOR PROPER REFRIGERANT CHARGE AND OPERATION AND ADJUSTED AS PER THE MANUFACTURER'S RECOMMENDATIONS.
- 18. THE EQUIPMENT AND MATERIALS SHALL BE COMPLETELY CLEANED PRIOR TO TESTING, INSULATING AND PLACING THE SYSTEM IN OPERATION.
- 19. EQUIPMENT STARTUP:
- 19.1 PROVIDE EQUIPMENT STARTUP REPORT, INCLUDING CHECKLIST CONFIRMING MANUFACTURERS STARTUP PROCEDURE HAS BEEN FOLLOWED IN ITS ENTIRETY.

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20.1 UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL REMOVE ALL HIS EXCESS MATERIALS, MACHINERY AND EQUIPMENT FROM THE PREMISES AND REPLACE ALL FILTERS.

20.2 THE CONTRACTOR SHALL FURNISH THREE SETS OF INSTRUCTION MANUALS TO THE OWNER AT THE COMPLETION OF CONSTRUCTION.

PLUMBING SPECIFICATIONS

THE ARCHITECTURAL GENERAL CONDITIONS SHALL APPLY TO AND FORM A PART OF THIS SPECIFICATION.

2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, TOOLS AND SUPERVISION AND PERFORM ALL OPERATIONS NECESSARY FOR THE PROPER AND COMPLETE EXECUTION OF ALL PLUMBING WORK IN STRICT ACCORDANCE WITH THE SPECIFICATIONS AND DRAWINGS.

THE INSTALLATION OF ALL PLUMBING WORK SHALL BE UNDER THE SUPERVISION OF AND BY A LICENSED AND QUALIFIED PLUMBING CONTRACTOR. ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE NATIONAL FIRE PROTECTION ASSOCIATION, THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE, OSHA, THE 2015 PA UNIFORM CONSTRUCTION CODE (PA-UCC), THE 2015 INTERNATIONAL BUILDING CODE (IBC), THE 2015 INTERNATIONAL PLUMBING CODE (IPC) AND ALL OTHER STATE AND LOCAL AUTHORITIES HAVING JURISDICTION IN THE LOCATION OF THIS PROJECT. ALL APPLICABLE EQUIPMENT MANUFACTURER INSTALLATION REQUIREMENTS AND RECOMMENDATIONS SHALL APPLY TO THIS PROJECT AND SHALL BE ENFORCED AS A PART OF THE CODE REQUIREMENTS.

- 4. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT.
- THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH THEIR WORK.
- SUBMISSION OF A BID OR PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT THE CONTRACTORS HAVE FAMILIARIZED THEMSELVES WITH THE PLANS, SPECIFICATIONS AND BUILDING SITE. CLAIMS MADE SUBSEQUENT TO BIDS FOR MATERIAL AND/OR LABOR DUE TO DIFFICULTIES ENCOUNTERED WILL NOT BE RECOGNIZED, UNLESS IT IS DETERMINED BY THE OWNER'S REPRESENTATIVE THAT SUCH DIFFICULTIES COULD NOT HAVE BEEN FORESEEN EVEN THOUGH PROPER EXAMINATION HAD BEEN MADE.
- 7. ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (UL, ETL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS
- 8. ALL EQUIPMENT, MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE, AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE. NOTE: THE TERM APPROVED EQUAL SHALL MEAN A PRODUCT/ITEM THAT HAS BEEN SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW PRIOR TO SUBMITTING A BID AND THE CONTRACTOR HAS RECEIVED WRITTEN NOTIFICATION THAT THE SUBSTITUTED PRODUCT WILL BE CONSIDERED AN EQUIVALENT ALTERNATE TO THE SPECIFIED PRODUCT/ITEM.

10. THE CONTRACTOR RESPONSIBLE FOR WORK COVERED BY THESE SPECIFICATIONS SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES. TRADES THAT HAVE WORK CONNECTED WITH THE PLUMBING WORK SHALL BE NOTIFIED FOR INSTALLATION REQUIREMENTS AND SCHEDULING. THE CONTRACTOR SHALL SCHEDULE THEIR WORK TO AVOID INTERRUPTION OF ANY UTILITY SERVICES TO THE OPERATION AREAS OF THE BUILDING DURING NORMAL WORKING HOURS. INTERRUPTION OF SERVICES SHALL BE DONE DURING OFF HOURS AT NO ADDITIONAL COST TO THE OWNER.

11. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES. ALL WORK SHALL BE COORDINATED TO AVOID CUTTING OF WORK IN PLACE AND INTERFERING WITH OTHER OPERATIONS

12. THE CONTRACTOR SHALL PERFORM ALL DEMOLITION AS INDICATED ON THE DRAWINGS AND AS REQUIRED FOR THE INSTALLATION OF ALL NEW WORK. THE CONTRACTOR SHALL CUT AND PATCH AS REQUIRED TO PERFORM THE DEMOLITION WORK. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THIS CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES. ALL WORK SHALL BE COORDINATED TO AVOID CUTTING OF WORK IN PLACE AND INTERFERING WITH OTHER OPERATIONS.

12.1 ALL UNUSED OPENINGS (NEW OR EXISTING) MUST BE REPAIRED TO MATCH ADJACENT FINISHES. THE OWNER SHALL BE GIVEN THE OPPORTUNITY TO RETAIN OWNERSHIP OF ALL REMOVED MATERIALS AND EQUIPMENT.

13. FURNISH AND INSTALL ALL NECESSARY HANGERS, INSERTS, SUPPORTS SUPPLEMENTARY STEEL, ETC., TO PROPERLY SUPPORT ALL EQUIPMENT AND PIPING IN AN APPROVED MANNER AND IN FULL ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. HANGERS FOR SUPPORTING COPPER TUBING SHALL BE

14. SANITARY PIPING (BASE DESIGN) - ALL SANITARY AND VENT PIPING UNLESS NOTED OTHERWISE SHALL BE NO—HUB SERVICE WEIGHT CAST IRON IN ACCORDANCE WITH ASTM A74; JOINT SYSTEM SHALL CONFORM TO THE CAST IRON SOIL PIPE INSTITUTE STANDARDS 301-78. ASTM A888-98 COUPLINGS SHALL BE 24 GAUGE, TYPE 304 STAINLESS STEEL HIGH TORQUE CLAMPS WITH DUAL CLAMPING SYSTEM AND NEOPRENE SEALING SLEEVES/GASKETS. INSTALL IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. SANITARY AND VENT PIPING LOCATED BELOW THE FLOOR SHALL BE SERVICE WEIGHT CAST IRON WITH HUB AND SPIGOT ENDS. JOINTS SHALL BE CONNECTED WITH NEOPRENE PUSH—ON COMPRESSION GASKETS, INSTALL IN ACCORDANCE WITH THE MANUFACTURERS

14.1 WHERE SANITARY PIPING PENETRATES FIRE-RATED ASSEMBLIES PROPER UL LISTED FIRE-STOPPING MATERIALS AND METHODS SHALL BE USED.

15. WHERE PIPING PASSES THROUGH FIRE RESISTING PORTIONS OF THE STRUCTURE, AN APPROVED FIRE—STOPPING DEVICE SHALL BE INSTALLED TO MAINTAIN THE FIRE RATING OF THAT PORTION OF THE STRUCTURE, ALL FIRE STOPPING DEVICES USED SHALL BE LISTED INTUMESCENT MATERIALS SUCH AS A CAULK. SEALANT, PUTTY, WRAP STRIPS, ETC. AS REQUIRED TO PROPERLY FIRE STOP ALL VOIDS. FIRE STOP TRAINING AND PRODUCTS SHALL BE 3M, HILTI, PRO—SET SYSTEMS OR EQUAL.

16. ELEVATOR SUMP PUMP - SUBMERSIBLE ELEVATOR SUMP PUMP SHALL BE CONSTRUCTED OF CAST IRON WITH PLASTIC VORTEX IMPELLER AND ALL NON-CORROSIVE PARTS. PUMP SHALL BE CAPABLE OF PASSING 3/4 INCH SOLIDS AND SHALL BE AUTOMATICALLY CONTROLLED BY A VARIABLE LEVEL FLOAT SWITCH ('ON' AT 8-1/2 INCHES OF WATER, 'OFF' AT THREE INCHES OF WATER) AND SHALL BE COMPLETE WITH A CORD AND PLUG ASSEMBLY. SUMP PUMP SHALL BE 1/2 HP, 115 VOLT, SINGLE PHASE; MODEL 57, AS MANUFACTURED BY ZOELLER PUMP COMPANY. PUMP SHALL FLOW A MINIMUM OF 50 GPM AT 15 FFFT OF HEAD. PROVIDE A CAST IRON CHECK VALVE AT THE PUMP OUTLET. PROVIDE A "HIGH—LEVEL" ALARM TO SOUND WHEN WATER LEVEL IN PIT EXCEEDS 12 INCHES IN DEPTH. THE ALARM SHALL BE MOUNTED OUTSIDE THE ELEVATOR SHAFT AT AN ACCESSIBLE LOCATION. THE ALARM SHALL HAVE A WARNING LIGHT AND AN ALARM BELL (WITH SILENCE FEATURE) AND SHALL BE CONTROLLED BY AN ADJUSTABLE FLOAT SWITCH. ALARM SYSTEM SHALL BE MODEL 10-0682, AS MANUFACTURED BY ZOELLER PUMP COMPANY. PUMP TO BE CONTROLLED WITH ZOELLER OIL MINDER CONTROL PANEL. ALARM SHALL BE POWERED BY A CIRCUIT SEPARATE FROM THE SUMP PUMP.

17. GENERAL PIPE INSTALLATION - IN GENERAL, INSTALL PIPING SO AS TO PRESERVE ACCESS TO ALL VALVES, TRAPS, EQUIPMENT, ETC. ALL PIPING, VALVES AND FITTINGS ETC. SHALL BE KEPT A SUFFICIENT DISTANCE FROM OTHER WORK TO PERMIT A CLEARANCE OF NOT LESS THAN 1 INCH BETWEEN THE FINISHED COVERING ON SUCH PIPING AND THE ADJACENT WORK, WHETHER INSTALLED UNDER THIS OR OTHER TRADES. ALL PIPING SHALL BE INSTALLED AS CLOSE AS POSSIBLE TO WALLS, CEILINGS COLUMNS (CONSISTENT WITH PROPER SPACE FOR COVERING, REMOVAL PIPE, ETC. SO AS TO OCCUPY THE MINIMUM OF SPACE). HORIZONTAL RUNS A PIPING SHALL BE SUBSTANTIALLY SUPPORTED FROM THE BUILDING STRUCTURE TO MAINTAIN THE REQUIRED PITCH AND GRADE OF THE PIPELINES. HANGER RODS SHALL BE CONNECTED TO THE BEAM CLAMPS. INSERTS OR HANGER CLIPS WELDED TO THE STRUCTURAL STEEL. THE HANGING OF ONE PIPE FROM ANOTHER SHALL NOT BE PERMITTED. PROPER CARE SHALL BE EXERCISED IN THE ERECTION OF ALL PIPING TO ENSURE PROPER DRAINAGE AND CIRCULATION, INCLUDING PROPER PROVISIONS FOR EXPANSION AND CONTRACTION OF PIPING. POCKETS OR TRAPS WHERE IN AIR CAN COLLECT SHALL NOT BE PERMITTED. ALL PIPING SHALL BE REAMED TO REMOVE CUTTING BURS AND SHARP EDGES. ALL COPPER TUBING SHALL BE CUT WITH SQUARE ENDS AND ALL BURS AND FINS REMOVED. TUBING SHALL BE CAREFULLY HANDLED AND PROTECTED TO AVOID DAMAGE. REDUCING FITTING SHALL BE USED WHEREVER POSSIBLE. THE USE OF BUSHINGS SHALL BE PROHIBITED. ECCENTRIC REDUCERS SHALL BE USED. THREADS FOR SCREW FITTINGS SHALL BE AMERICAN STANDARD TAPER PIPE THREADS. ALL OPEN ENDS OF PIPING SHALL BE TEMPORARILY COVERED DURING INSTALLATION TO KEEP THE SYSTEM CLEAN. LOCATE ALL WATER PIPING WITHIN HEATED SPACES WITH PROVISIONS FOR DRAINING ALL LINES. ALL PIPING THAT IS INSTALLED WITHIN A FIRE-RATED ASSEMBLY (WALLS, CEILINGS, ETC) SHALL BE CAST IRON (SANITARY AND VENT); PLASTIC PIPING SHALL NOT BE PERMITTED. ALL PIPING THAT PENETRATES FIRE—RATED ASSEMBLIES SHALL BE PROPERLY FIRE—STOPPED WITH A UL LISTED METHOD AN MATERIAL(S).

18. DURING CONSTRUCTION, THE CONTRACTOR SHALL MAINTAIN A RECORD SET OF INSTALLATION PRINTS. RECORD ON THESE PRINTS, ALL DEVIATIONS FROM THE CONTRACT DRAWINGS. INCLUDING BUT NOT LIMITED TO, PIPE ROUTING, SYSTEM CONNECTION POINTS, PIPE SIZES AND EQUIPMENT LOCATION CHANGES. AT THE COMPLETION OF THE WORK, THE CONTRACTOR SHALL TRANSFER THIS INFORMATION NEATLY ONTO 3 SETS OF PRINTS AND FORWARD THESE PRINTS AND THE "AS BUILT PRINTS" TO THE OWNER AND TENANT.

- 19. THE CONTRACTOR SHALL FURNISH THREE SETS OF INSTRUCTION MANUALS TO THE OWNER AT COMPLETION OF CONSTRUCTION.
- 20. TEST OF DRAINAGE SYSTEM

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20.1 ALL PLUMBING AND DRAINAGE PIPING SHALL BE TESTED BY PLUGGING ALL OPENINGS AND FILL SYSTEM WITH WATER TO THE TOP OF ALL VENT PIPES. THE WATER SHALL STAND FOR 30 MINUTES FOR INSPECTION. ALL TESTS MUST COMPLY WITH LOCAL AUTHORITY REQUIREMENTS.

FIRE PROTECTION SPECIFICATIONS

1.1 IT IS THE INTENT OF THE SPECIFICATIONS AND ACCOMPANYING DRAWINGS TO GENERALLY DESCRIBE THE WORK NECESSARY.

1.2 THIS SECTION INCLUDES THE FIRE PROTECTION SYSTEM DESCRIPTIONS AND RELATED ITEMS NECESSARY TO COMPLETE THE PROJECT AS INDICATED BY THE DRAWINGS AND SPECIFICATIONS. THE EXISTING SPRINKLER SYSTEM SHALL BE MODIFIED TO PROVIDE PROPER SPRINKLER COVERAGE FOR ALL RENOVATED AREAS (INDICATED ON DRAWING). THE CONTRACTOR IS RESPONSIBLE TO PROVIDE APPROVED AND COMPLETE DESIGN DRAWINGS OF THE FIRE PROTECTION SYSTEM IN ACCORDANCE WITH THE CODES INDICATED, ALL LOCAL REQUIREMENTS AND THE REQUIREMENTS OF THE OWNER'S INSURANCE COMPANY.

1.3 THE SPRINKLER SYSTEM SHALL BE DESIGNED AND INSTALLED BY A RECOGNIZED SPRINKLER CONTRACTOR WHO IS AN EXPERIENCED SPECIALIST IN DESIGN AND CONSTRUCTION OF AUTOMATIC SPRINKLER SYSTEMS. THE SPRINKLER SYSTEM SHALL BE HYDRAULICALLY DESIGNED. THE CONTRACTOR SHALL SUBMIT TO THE OWNER OR THE OWNER'S REPRESENTATIVE, IN WRITING, EVIDENCE OF COMPARABLE EXPERIENCE PRIOR TO BEGINNING THE PROJECT.

1.4 CONTRACTOR SHALL OBTAIN MOST CURRENT PRESSURE AND FLOW READINGS FROM LOCAL WATER AUTHORITY OR THE LOCAL FIRE MARSHALL. PRESSURE AND FLOW READING SHALL BE OBTAINED FROM A LOCATION AT OR NEAR THE PROJECT SITE. IF PRESSURE AND FLOW READINGS ARE OUT-DATED OR NOT AVAILABLE, THE CONTRACTOR SHALL PERFORM A FLOW TEST OR MAKE APPROPRIATE ARRANGEMENTS WITH THE LOCAL AUTHORITY TO HAVE ONE PERFORMED AT OR NEAR THE PROJECT SITE. ALL SPRINKLER SYSTEM PIPING SHALL BE HYDRAULICALLY SIZED ACCORDINGLY.

1.5 THE CONTRACTOR SHALL VISIT THE SITE AND SURVEY THE EXISTING SYSTEM TO DETERMINE THE EXTENT OF MODIFICATION AND DEMOLITION OF THE EXISTING SYSTEM AND DESIGN THE NEW SYSTEM ACCORDINGLY. THE CONTRACTOR SHALL MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS WORK.

1.6 THE SPRINKLER SYSTEM SHALL BE BY HYDRAULIC DESIGN FOR LIGHT HAZARD PROTECTION IN OFFICE AND SIMILAR AREAS. VERIFY EXISTING FIRE PROTECTION SPRINKLER SYSTEM DESIGN CRITERIA AT FIRE SERVICE AND COMPLY WITH THE SAME DESIGN CRITERIA.

1.7 PROVIDE MODIFICATIONS TO THE EXISTING SPRINKLER SYSTEM IN AREAS OF WORK AS INDICATED OR NOTED. PROVIDE AN INSPECTION AND FUNCTIONAL TEST OF SYSTEM AS DESCRIBED. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE APPROVED AND COMPLETE DESIGN DRAWINGS OF THE FIRE PROTECTION SYSTEM IN ACCORDANCE WITH THE CODES INDICATED, ALL LOCAL REQUIREMENTS AND THE REQUIREMENTS OF THE OWNER'S INSURANCE COMPANY.

1.8 THE SPRINKLER SYSTEM SHALL MEET ALL REQUIREMENTS AND RECOMMENDATIONS OF APPLICABLE PORTIONS OF THE LATEST EDITION OF THE FOLLOWING STANDARDS:

AMERICAN SOCIETY OF MECHANICAL ENGINEERS (ASME) AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM) NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) UNDERWRITER'S LABORATORIES (UL) FACTORY MUTUAL (FM) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

1.9 ALL MATERIALS AND EQUIPMENT SHALL CONFORM TO NFPA 13. ALL MATERIALS SHALL BE NEW, CLEAN AND WITHOUT DEFECTS. ANY DEFECTIVE MATERIALS SHALL BE REMOVED FROM THE JOB SITE. ALL MATERIALS AND EQUIPMENT SHALL CONFORM TO NFPA 13. ALL EQUIPMENT SHALL BE TESTED, LISTED AND LABELED BY AN APPROVED AUTHORITY (ANSI, ASME, ASTM, FM, UL) AND SHALL BE INSTALLED IN ACCORDANCE WITH ITS LISTING.

1.10 ALL PIPE ABOVE GROUND AND WITHIN THE BUILDING SHALL BE BLACK STEEL WITH SCREWED OR MECHANICAL COUPLING JOINTS AS PERMITTED BY NFPA (CPVC IS NOT PERMITTED). ALL PIPING AND FITTINGS SHALL BE RATED FOR THE MAXIMUM PRESSURE, ALL VALVES SHALL BE RATED FOR THE MAXIMUM WORKING PRESSURE TO WHICH THEY ARE EXPOSED (175 PSI MINIMUM).

1.11 ALL CONTROL, DRAIN AND TEST CONNECTION VALVES SHALL BE PERMANENTLY MARKED (TAGGED) IN ACCORDANCE WITH NFPA 13. ALL NEW TAGS SHALL COINCIDE WITH EXISTING.

1.12 METAL PIPE SUPPORTS, SWAY BRACES, HANGERS, CLAMPS, ETC. AND ALL OTHER ACCESSORIES SHALL BE OF AN APPROVED PATTERN AND PLACED TO CONFORM TO THE REQUIREMENTS OF NFPA 13 AND ALL MANUFACTURER'S INSTRUCTIONS.

1.13 ALL SPRINKLER HEADS SHALL BE UL LISTED AS REQUIRED BY NFPA AND SHALL BE RATED FOR THE MAXIMUM SYSTEM PRESSURE (175 PSI MINIMUM).

1.14 SIDEWALL TYPE HEADS SHALL BE USED ONLY WHERE NECESSARY. ALL SPRINKLER HEADS SHALL HAVE AN ORDINARY TEMPERATURE RATING (165 DEGREES F), EXCEPT WHERE NOTED.

1.15 NOTIFY TRADES THAT MAY HAVE WORK ASSOCIATED WITH THE SPRINKLERS OF INSTALLATION REQUIREMENTS AND SCHEDULE. COORDINATE WORK TO AVOID CUTTING WORK IN PLACE AND TO AVOID INTERFERENCE WITH OTHER WORK. COORDINATE THE LOCATION OF ALL FIRE PROTECTION EQUIPMENT WITH THE OWNER'S REPRESENTATIVE AND ALL CONTRACTORS WORKING IN THESE AREAS.

1.16 SHOP DRAWINGS SHALL BE SUBMITTED TO THE OWNER'S REPRESENTATIVE FOR APPROVAL. SHOW MANUFACTURER'S NAMES, TRADE NAMES, CATALOG NUMBERS, ACCESSORIES, SPECIAL FEATURES AND RATING DATA FOR ALL EQUIPMENT USED. INDICATE REQUIRED CLEARANCES FOR OPERATING PARTS, FOR REMOVAL AND REINSTALLING AND FOR SERVICING. INCLUDE COPIES OF HYDRAULIC CALCULATIONS FOR REVIEW AND PROOF OF THE REVIEW AND APPROVAL OF THE OWNER'S INSURANCE COMPANY AND THE LOCAL FIRE MARSHALL.

1.17 THE INSTALLATION OF THE SPRINKLER SYSTEM SHALL CONFORM TO NFPA 13 AND ALL LOCAL REQUIREMENTS.

1.18 THE INSTALLATION OF ALL SPRINKLER HEADS SHALL BE COORDINATED WITH HVAC AND ELECTRICAL EQUIPMENT IN EACH SPACE.

1.19 UPON COMPLETION OF THE INSTALLATION THE SYSTEMS SHALL BE HYDROSTATICALLY TESTED AND FLUSHED AS SPECIFIED IN NFPA 13.

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Project: 19-051

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2019-0134



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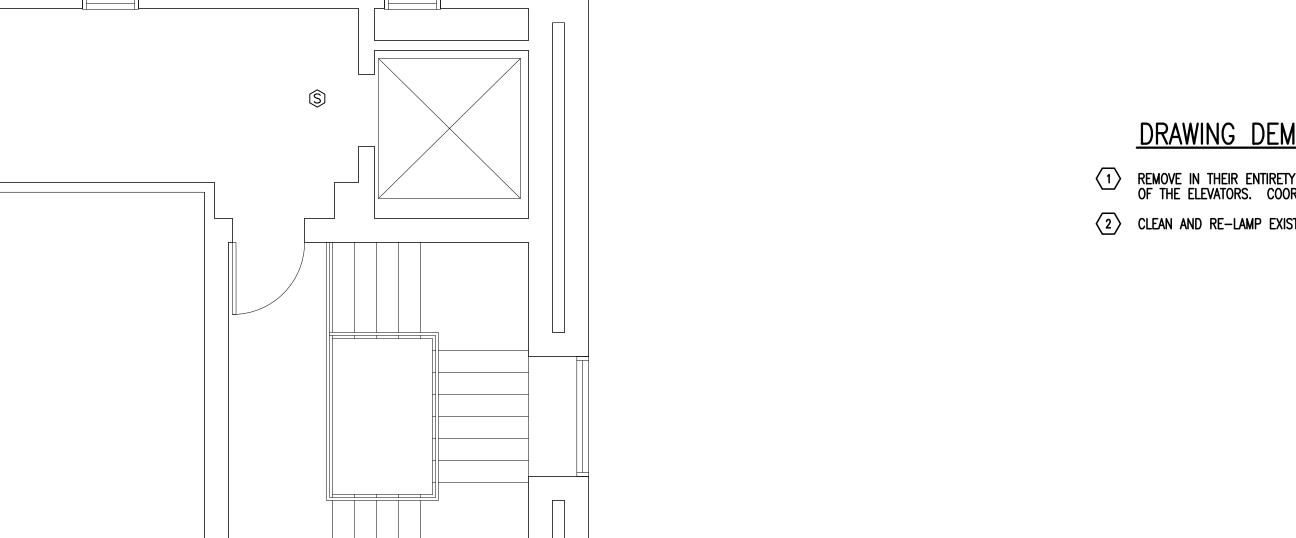
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DATE: APRIL 19, 2019 REVISIONS

**E.1** 

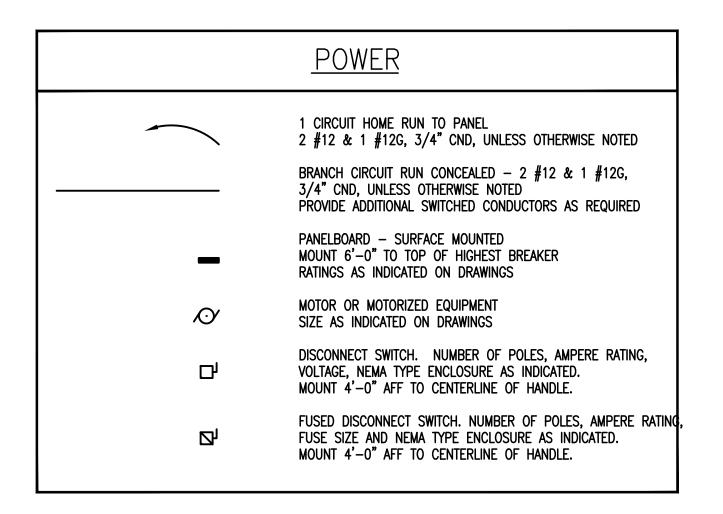
2019-0134

## PRELIMINARY - NOT FOR CONSTRUCTION



#### **DRAWING DEMOLITION NOTES:**

- REMOVE IN THEIR ENTIRETY ALL CIRCUITS AND CONTROLS FOR ELEVATORS TO ALLOW REMOVAL OF THE ELEVATORS. COORDINATE WITH ELEVATOR VENDOR.
- 2 CLEAN AND RE-LAMP EXISTING LIGHT FIXTURE.



	<u>DEVICES</u>
φ	SINGLE RECEPTACLE — 2 POLE, 3 WIRE GROUNDING, 20 AMP, 125 VOLT, NEMA 5—20R MOUNT @ 1'-8" AFF UNLESS OTHERWISE NOTED
GF P	GROUND FAULT CIRCUIT INTERRUPTING DUPLEX RECEPTACLE 2 POLE, 3 WIRE GROUNDING, 20 AMP, 125 VOLT, NEMA 5-20R MOUNT @ 1'-8" AFF UNLESS OTHERWISE NOTED
w <sub>P</sub> ⊕	UL LISTED WEATHERPROOF ENCLOSURE WITH GROUND FAULT CIRCUIT INTERRUPTING WEATHER RESISTANT TYPE DUPLEX RECEPTACLE MOUNT 2'-0" AFF/AFG, UNLESS OTHERWISE NOTED
$Q \circ \begin{bmatrix} B \\ \vdots \\ a \end{bmatrix} \begin{bmatrix} A \\ \vdots \\ a \end{bmatrix}$	LIGHTING FIXTURE, LETTER SUBSCRIPT INDICATES SCHEDULED FIXTURE TYPE. LOWERCASE LETTER INDICATES SWITCH CIRCUIT.
\$	SINGLE POLE TOGGLE TYPE A/C SWITCH 20 AMP, 120/277 VOLT MOUNT @ 3'-10" AFF, UNLESS OTHERWISE NOTED

	FIRE ALARM
θ	COMBINATION FIXED TEMPERATURE RATE-OF-RISE THERMAL DETECTOR - CEILING MOUNT
\$	PHOTOELECTRIC SMOKE DETECTOR - CEILING MOUNT
©	FIRE ALARM CONTROL MODULE
M	FIRE ALARM MONITORING MODULE
# <b>&gt;</b> E	FIRE ALARM HORN WITH VISUAL INDICATING LIGHT MOUNT @ 7-6" AFF # = CANDELA RATING WHEN HIGHER THAN 15

	<u>GENERAL</u>
#	REFER TO INDICATED DEMOLITION NOTE REFER TO INDICATED NEW WORK NOTE

<u>ELECTRICAL</u> – <u>DEMOLITION PLAN</u> – <u>SECOND FLOOR</u>
SCALE: 1/4" = 1'-0" / | | | SECTION EXG LTG FIXTURE — 

<u>ELECTRICAL</u> — <u>DEMOLITION PLAN</u> — <u>FIRST FLOOR</u>

APRIL 15, 2019



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EXG PNL PP4 <sup>Ċ</sup>∖ 100A - 3#2 & 1#8G 1 1/4" CND 208/120B

PARTIAL SINGLE LINE DIAGRAM SCALE: NONE

EXG MDP SECTION

SHUNT TRIP 4

, 100A

ELEVATOR

20 HP

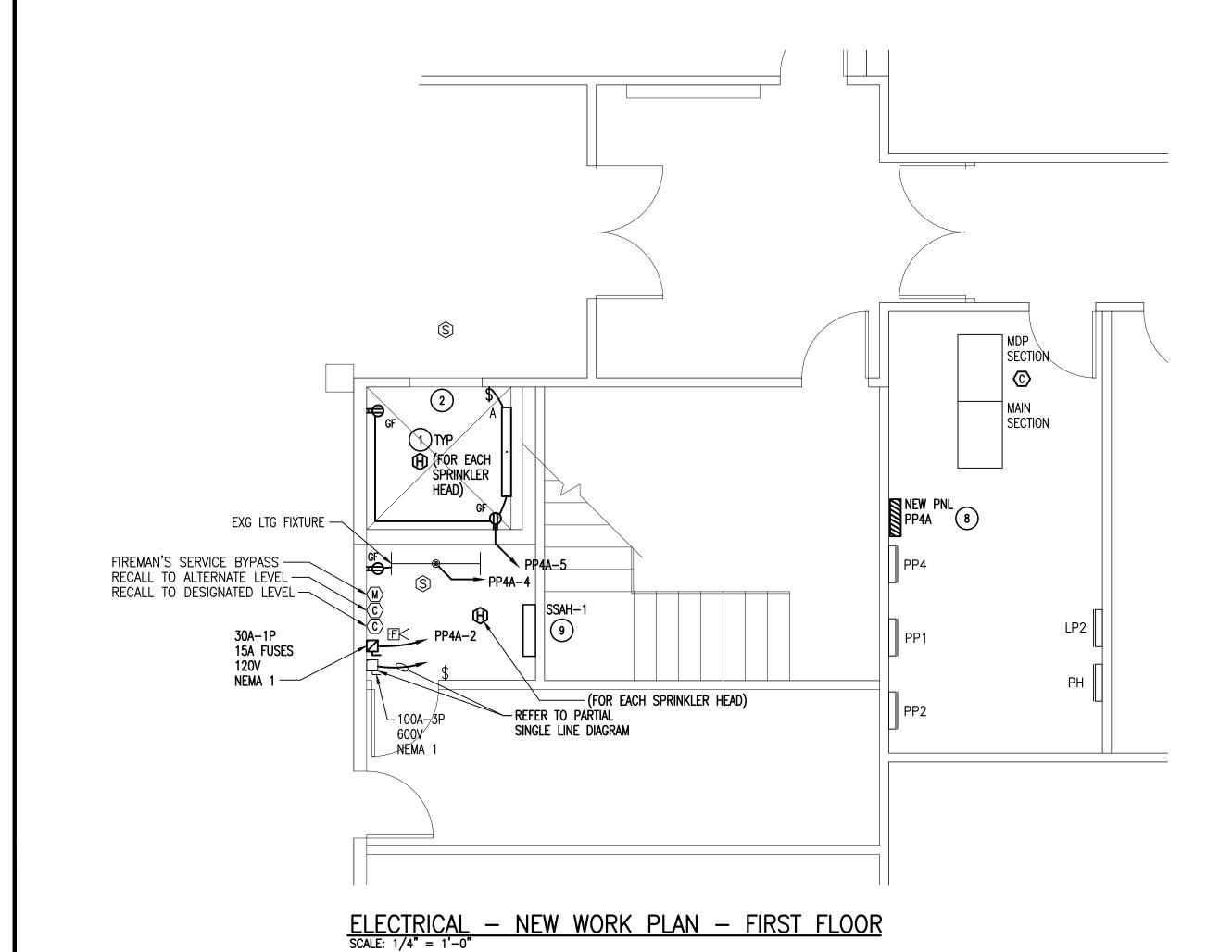
9.72 KVA

-3#6 & 1#8G 1" CND

-3#6 & 1#8G 1" CND

### **NEW WORK NOTES:**

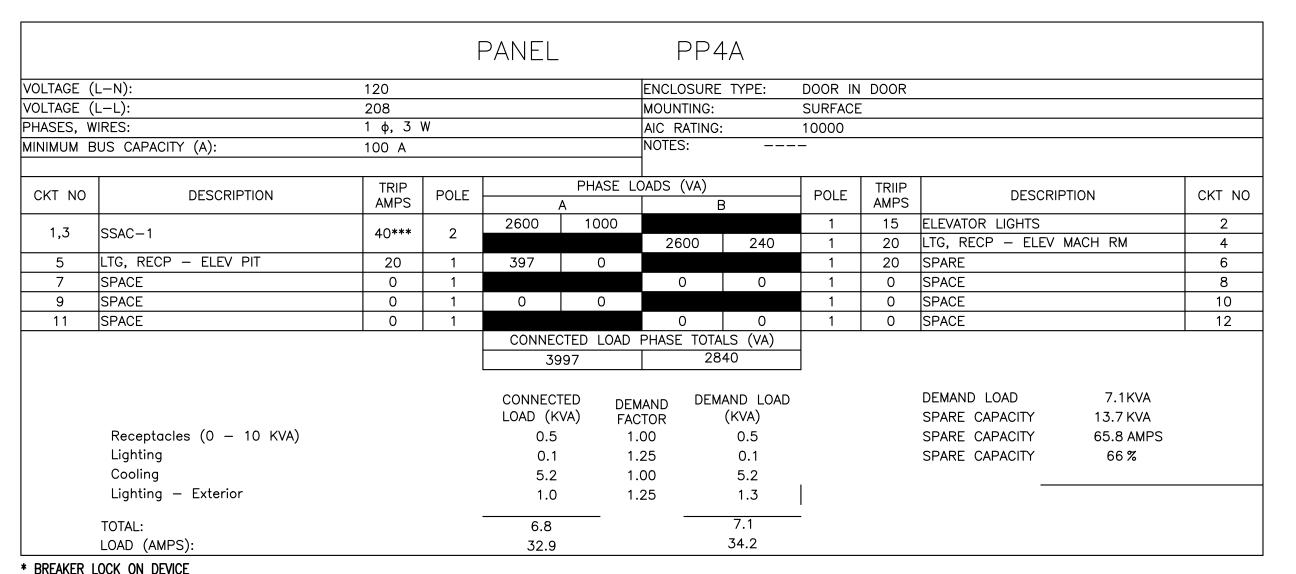
- PROVIDE FIRE ALARM DEVICES TO MATCH BASE BUILDING MANUFACTURER. CONNECT TO EXISTING SYSTEM MATCHING BASE BUILDING WIRING METHODS. PROVIDE ADDITIONAL BATTERIES, TERMINAL CABINETS, ETC FOR A FULLY FUNCTIONAL FIRE ALARM SYSTEM. CONTRACTOR SHALL PROVIDE UPDATED BUILDING RISER DIAGRAM, PLANS, BATTERY CALCULATIONS, VOLTAGE DROP CALCULATIONS, ETC. AS REQUIRED BY LOCAL AND STATE CODES.
- EXISTING PIT WAS NOT ACCESSIBLE DURING ENGINEER'S SITE VISIT. CONTRACTOR SHALL CARRY IN THE BID THE COST TO PROVIDE NEW DEVICES AS SHOWN. EXISTING DEVICES MAY BE REUSED IF IN GOOD CONDITION AND APPROVED BY THE OWNER.
- 3 CONNECT TO SPARE CIRCUIT BREAKER IN PANEL.
- PROVIDE A NEW SHUNT TRIP CIRCUIT BREAKER IN EXISTING MDP SECTION MATCHING EXISTING MANUFACTURER, TYPE AND SHORT CIRCUIT RATING.
- CONTRACTOR SHALL COORDINATE DISCONNECT REQUIREMENTS WITH ELEVATOR VENDOR. CONTRACTOR SHALL CARRY IN THE BID THE COST TO PROVIDE A NEW DISCONNECT PER THE ELEVATOR VENDOR'S REQUIREMENTS. EXISTING DISCONNECT MAY BE REUSED IF IT CONTAINS THE REQUIRED AUXILIARY CONTACTS AND ACCESSORIES.
- 6 MOUNT DISCONNECT SWITCH ON NON-REMOVABLE PANEL OF UNIT OR ON NEARBY WALL. DO NOT COVER ANY LABELING.
- PROVIDE A NEW WEATHER RESISTANT RECEPTACLE IN WEATHERPROOF ENCLOSURE WITHIN 25 FEET OF NEW UNIT. CONNECT TO EXISTING ROOF RECEPTACLE CIRCUIT.
- 8 COORDINATE EXACT LOCATION OF NEW PANEL IN THE FIELD.
- 9 PROVIDE AND INSTALL POWER AND CONTROL WIRING BETWEEN INTERIOR AND EXTERIOR UNIT PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.



<u>ELECTRICAL</u> — NEW WORK PLAN — SECOND FLOOR SCALE: 1/4" = 1'-0"

SSAC-1 (ON ROOF)

240V 6 NEMA 3R



\* BREAKER LOCK ON DEVICE \*\* SHUNT TRIP BREAKER \*\*\* HACR RATED BREAKER

			LIGHT FIX	TURE SCHE	DULE						
		FLOOR - FLR; GROUND - GND; POLE - PL; SUSPE									
UNTING T	YPE: FLUSH — FLS; PENDAI	NT – PEN; PEDESTAL – PED; SURFACE – SUR; TRA	CK – TRK; CH–CHAIN HUNG; CEILING	HEIGHT — CL	G-HT			_			
					LOAD		LAMPS		MOUNTING		
TYPE	MANUFACTURER	CAT NO	DESCRIPTION	VOLTS	WATTS	NO	TYPE	LOCATION	TYPE	HEIGHT	REMARKS
Α	COLUMBIA LIGHTING	LXENF-35LW-RFA-EU	PIT LIGHT	120	37	_	LED	-	-	-	
e REMAR	KS section.										
TES:											

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2. PROVIDE ALL MATERIALS, LABOR, EQUIPMENT, AND TOOLS NECESSARY FOR A COMPLETE AND WORKABLE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC), LOCAL AND STATE CODES HAVING JURISDICTION, AND APPLICABLE MANUFACTURER'S RECOMMENDATIONS.

3. UNLESS NOTED OTHERWISE, THIS CONTRACTOR SHALL FURNISH AND INSTALL ALL CONTROL DEVICES TOGETHER WITH CONTROL WIRING, CONDUIT, AND ALL APPURTENANCES AND ACCESSORIES NECESSARY TO PERFORM THE OPERATING FUNCTIONS AS SPECIFIED. CONTROL DEVICES SHALL INCLUDE, BUT NOT BE LIMITED TO, MOTOR STARTERS, THERMOSTATS, SWITCHING RELAYS, CONTROL RELAYS, AND TRANSFORMERS. WIRING MATERIALS AND INSTALLATION SHALL CONFORM TO THE NATIONAL ELECTRIC CODE. ALL CONTROL SYSTEM WIRING SHALL BE 14 AWG MINIMUM INSTALLED IN 1/2-INCH DIAMETER MINIMUM CONDUIT. FLEXIBLE METAL CONDUIT SHALL BE PERMITTED TO MAKE RUNS OF THREE FEET OR LESS FOR FINAL EQUIPMENT CONNECTIONS.

4. THE CONTRACTOR SHALL VISIT THE SITE, EXAMINE ALL CONDITIONS. AND MAKE ALLOWANCES FOR DIFFICULTIES AND CONTINGENCIES AFFECTING THE PROPER EXECUTION OF THIS CONTRACT.

5. THE CONTRACTOR SHALL OBTAIN AND PAY ALL FEES NECESSARY FOR PERMITS AND INSPECTIONS REQUIRED WITH HIS WORK. ALL ELECTRICAL WORK SHALL BE INSPECTED AND CERTIFIED BY AN INDEPENDENT INSPECTION AGENCY SUCH AS THE MIDDLE DEPARTMENT INSPECTION AGENCY (MDIA).

6. VERIFY ALL ELECTRICAL SERVICE INFORMATION SHOWN ON THE DRAWINGS WITH THE LOCAL POWER COMPANY PRIOR TO SUBMITTING A BID. ANY CHANGES OR SERVICE CHARGES IMPOSED BY THE POWER COMPANY SHALL BE QUALIFIED AND INCLUDED IN THE BID.

7. ALL MATERIALS SHALL BE MANUFACTURED WITHIN THE SCOPE OF THE UNDERWRITER'S LABORATORIES, SHALL CONFORM TO UL STANDARDS, CARRY UL APPROVAL, AND SHALL BE USED FOR THE PURPOSE FOR WHICH THEY ARE APPROVED.

8. ALL EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL BE GUARANTEED FOR A MINIMUM OF ONE YEAR FROM THE DATE OF ACCEPTANCE BY THE OWNER.

9. WHERE PRODUCTS ARE SPECIFIED BY BRAND NAME, CATALOG NUMBERS, OR BY NAMES OF MANUFACTURERS, THE REFERENCE IS INTENDED TO BE DESCRIPTIVE AND NOT RESTRICTIVE AND IS SOLELY FOR THE PURPOSE OF INDICATING THE TYPE OF QUALITY OF ITEM THAT WILL BE ACCEPTABLE. AN APPROVED EQUAL WILL BE ACCEPTED UNLESS INDICATED OTHERWISE.

10. THE CONTRACTOR SHALL COORDINATE AND COOPERATE WITH ALL OTHER TRADES.

11. ALL CONTRACTORS/BIDDERS SHALL HAVE RECEIVED A COMPLETE SET OF CONSTRUCTION DOCUMENTS FOR REVIEW AND REFERENCE TO WORK INDICATED. CONDUIT LOCATE SERVICES SHALL BE REQUESTED AND COMPLETED BEFORE DISTURBANCE OF ANY EXISTING GRADE OR ON-GRADE CONSTRUCTION, SLAB DEMOLITION, OR OTHER ACTIVITIES THAT MAY IMPACT BURIED UTILITIES OR COMMUNICATION CONDUITS. THE CONTRACTOR SHALL CONFIRM THAT CONDUIT LOCATE SERVICES HAVE BEEN COMPLETED AND THAT NO POTENTIAL CONFLICTS EXIST BEFORE EXISTING GRADE IS EXCAVATED OR EXISTING FLOORING DEMOLISHED, REGARDLESS OF THE LOCATION ON THE PROPERTY. THIS SHALL BE REVIEWED WITH THE OWNER'S PROJECT REPRESENTATIVE.

12. ALL CUTTING AND PATCHING OF EVERY NATURE REQUIRED IN CONNECTION WITH THIS CONTRACT SHALL BE DONE BY THE CONTRACTOR WITH MECHANICS EXPERIENCED IN THEIR RESPECTIVE TRADES. ALL PATCHING SHALL MATCH ADJACENT FINISHES.

13. WHERE CONDUITS PASS THROUGH FIRE RESISTING PORTIONS OF THE STRUCTURE, AN APPROVED FIRE-STOPPING DEVICE SHALL BE INSTALLED TO MAINTAIN THE FIRE RATING OF THAT PORTION OF THE STRUCTURE. ALL FIRE STOPPING DEVICES USED SHALL BE LISTED INTUMESCENT MATERIALS SUCH AS A CAULK, SEALANT, PUTTY, WRAP STRIPS, ETC. AS REQUIRED TO PROPERLY FIRE STOP ALL VOIDS. FIRE STOPPING MATERIAL SHALL BE AS MANUFACTURED BY 3M, HILTI, PRO-SET SYSTEMS OR EQUAL.

14. CONDUIT SHALL BE 3/4-INCH MINIMUM, UNLESS NOTED OTHERWISE, AND SHALL BE IN ACCORDANCE WITH THE FOLLOWING TYPES OF USAGE:

14.1. EMT - USE FOR INTERIOR EXPOSED AND CONCEALED WORK NOT SUBJECT TO DAMPNESS OR SEVERE PHYSICAL DAMAGE. USE FOR EXTERIOR WORK NOT SUBJECT TO PHYSICAL DAMAGE. DO NOT USE WHEN IN CONTACT WITH CINDER FILL UNLESS PROTECTED BY AT LEAST TWO INCHES OF CONCRETE OR UNLESS TUBING IS AT LEAST 18 INCHES UNDER THE FILL. DO NOT USE EMT IN HAZARDOUS LOCATIONS. USE WITH COMPRESSION FITTINGS FOR EXTERIOR WORK. USE WITH SET SCREW FITTINGS FOR INTERIOR WORK.

14.2. RIGID METAL CONDUIT - USE FOR INTERIOR WORK SUBJECT TO CORROSIVE INFLUENCES, DAMPNESS AND/OR SEVERE PHYSICAL DAMAGE. USE FOR EXTERIOR WORK SUBJECT TO PHYSICAL DAMAGE.

14.3. ALL CONCEALED BRANCH CIRCUIT WIRING ABOVE GRADE IN NON-HAZARDOUS LOCATIONS MAY BE METAL CLAD CABLE, TYPE MC, MINIMUM SIZE #12 AWG, MAXIMUM SIZE #8 AWG, UNLESS NOTED OTHERWISE. UNIVERSAL TYPE FASTENING DEVICES SHALL BE USED TO PROPERLY SECURE THE MC CABLES PARALLEL TO THE WOOD OR METAL FRAMING MEMBER. DEVICE SHALL BE INSTALLED IN CENTER OF MEMBER ON INTERVALS NO GREATER THAN FOUR FEET SIX INCHES.

15. INSTALL FLEXIBLE METALLIC CONDUIT AT ALL MOTOR CONNECTIONS INSIDE THE BUILDING AND LIQUID—TIGHT FLEXIBLE METAL CONDUIT AT MOTOR CONNECTIONS OUTSIDE THE BUILDING. CONDUIT SHALL NOT EXCEED 18 INCHES IN LENGTH.

16. UNLESS OTHERWISE NOTED, ALL WIRE SHALL BE OF SOFT DRAWN COPPER, SOLID OR STRANDED OF 98 PERCENT CONDUCTIVITY WITH INSULATION RATED 600 VOLTS. ALL SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER. ALUMINUM CONDUCTORS SHALL NOT BE PERMITTED. CONDUCTORS SHALL BE AS

16.1. #8 AND LARGER SHALL BE STRANDED WITH TYPE THHN/THWN INSULATION.

16.2. #10 AND SMALLER SHALL BE SOLID WITH TYPE THHN/THWN INSULATION.

16.3. #12 SHALL BE MINIMUM SIZE CONDUCTOR EXCEPT #14 MAY BE USED FOR CONTROL CIRCUIT WIRING AND #10 SHALL BE THE MINIMUM SIZE FOR CIRCUITS OVER 100 FEET LONG.

17. ANY EMPTY CONDUIT INSTALLED FOR FUTURE USE SHALL HAVE A 200 POUND TEST NYLON PULL LINE.

18. WIRE CONNECTIONS FOR SPLICING #8 AWG AND SMALLER SHALL BE MADE WITH PRESSURE CONNECTORS CONSISTING OF CONE-SHAPED COIL SPRINGS WITH INSULATED COVERS. SPLICING OF CONDUCTORS LARGER THAN #8 SHALL BE MADE USING MECHANICAL SPLICING OR COMPRESSION TYPE DEVICES.

19. OUTLET BOXES OF PROPER TYPE AND NOT LESS THAN FOUR INCHES SQUARE SHALL BE USED AT ALL LIGHTING, RECEPTACLE AND SWITCH LOCATIONS. PLASTER RINGS SHALL BE USED AT EACH BOX LOCATION WHERE NECESSARY. SURFACE MOUNTED WIRING DEVICES SHALL BE INSTALLED IN "HANDY BOX" TYPE OUTLET BOXES WITH CORRESPONDING COVER PLATES. OUTLET BOXES SHALL BE AS MANUFACTURED BY AMERICAN ELECTRIC, RACO, CARLON, OR APPROVED EQUAL.

20. JUNCTION BOXES OF AMPLE SIZE SHALL BE PROVIDED AS REQUIRED BY CONSTRUCTION IN ACCORDANCE WITH THE NEC. BOXES SHALL BE CONSTRUCTED OF CAST RUST—RESISTING METAL OR OF 14 GAUGE GALVANIZED STEEL WITH RIVETED OR WELDED JOINTS AND PROVIDED WITH COVERS OF THE SAME MATERIAL WHICH SHALL BE SCREWED OR HINGED TO THE BOX. BOXES SHALL BE FLANGED AND TAPPED TO RECEIVE MACHINE SCREWS. HOLES IN COVERS SHALL BE IN ALIGNMENT WITH TAPPED HOLES IN BOX. WHERE NO SIZES ARE GIVEN ON THE DRAWINGS. BOXES SHALL BE NO SMALLER THAN THE MINIMUM SIZE ALLOWED BY NEC. WHERE FEEDERS OF DIFFERENT SYSTEMS OR VOLTAGES PASS THROUGH THE SAME BOX, BARRIERS SHALL BE PROVIDED FOR PROPER SEPARATION.

21. SWITCHES SHALL BE SPECIFICATION GRADE, 120/277 VOLTS AC, TOGGLE TYPE RATED 20 AMPERES. SWITCH TYPE AND NUMBER OF POLES SHALL BE AS INDICATED ON THE DRAWINGS. SWITCHES SHALL BE AS MANUFACTURED BY LEVITON, HUBBELL, EATON, OR APPROVED EQUAL.

22. DUPLEX RECEPTACLES SHALL BE SPECIFICATION GRADE, POLARIZED, GROUNDED, NEMA 5-20R, 20 AMPERE, 125 VOLTS AC. RECEPTACLES SHALL BE AS MANUFACTURED BY LEVITON, HUBBELL, EATON, OR APPROVED EQUAL. RECEPTACLES WITH INTEGRAL GROUND FAULT CIRCUIT INTERRUPTING CAPACITY SHALL BE PROVIDED AS INDICATED ON THE DRAWINGS. WEATHERPROOF DUPLEX RECEPTACLES SHALL BE WEATHER AND TAMPER RESISTANT GROUND FAULT CIRCUIT INTERRUPTING TYPE MOUNTED IN A WEATHERPROOF ENCLOSURE.

23. WIRING DEVICES AND COVER PLATES ARE TO BE COLOR COORDINATED WITH THE OWNER'S REPRESENTATIVE. ONE—PIECE DEVICE COVER PLATES SHALL BE PROVIDED FOR ALL OUTLETS. PLATES SHALL BE SMOOTH THERMOPLASTIC TYPE AS MANUFACTURED BY LEVITON, HUBBELL, GENERAL ELECTRIC, OR APPROVED

24. SAFETY SWITCHES SHALL BE THE SIZE AND TYPE AS SHOWN ON THE DRAWINGS. FUSE SIZE, IF REQUIRED, SHALL BE AS SHOWN ON THE DRAWINGS. SWITCHES SHALL BE HEAVY DUTY WITH QUICK-MAKE, QUICK-BREAK OPERATING MECHANISM. THE HANDLE AND MECHANISM SHALL BE AN INTEGRAL PART OF THE BOX AND NOT THE COVER WITH POSITIVE PAD LOCKING PROVISIONS IN THE "OFF" POSITION. SWITCHES SHALL BE NEMA 1 (INTERIOR) AND NEMA 3R (EXTERIOR) AND SHALL BE AS MANUFACTURED BY SQUARE D, SIEMENS, GENERAL ELECTRIC, OR APPROVED EQUAL.

25. PROVIDE FOR EVERY FUSE CLIP TO WHICH A CIRCUIT HAS BEEN CONNECTED, A NONRENEWABLE CARTRIDGE FUSE OF THE SIZE INDICATED ON THE DRAWINGS OR AS REQUIRED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS. ALL FUSES SHALL BE DUAL ELEMENT TIME DELAY UNLESS NOTED OTHERWISE.

26. PANELBOARDS SHALL BE DEAD FRONT, SURFACE OR FLUSH MOUNT, AS INDICATED ON THE DRAWINGS, WITH CAPACITY AND VOLTAGE CHARACTERISTICS AS SHOWN ON THE PANEL SCHEDULES. PANELBOARDS SHALL BE COMPLETE WITH COVERS, KEY LOCKED DOORS, COPPER BUS, COPPER GROUNDING BAR, AND SOLID NEUTRAL BAR, WITH NEUTRAL BAR INSULATED FROM THE CABINET. PANELBOARDS SHALL BE AS MANUFACTURED BY SQUARE D, GENERAL ELECTRIC, SIEMENS, OR APPROVED EQUAL.

27. CIRCUIT BREAKERS SHALL BE ENCLOSED MOLDED CASE, BOLT-ON, WITH QUICK-MAKE, QUICK-BREAK TOGGLE MECHANISM, NON-FUSIBLE CONTACTS, AND INVERSE TIME SHORT CIRCUIT CHARACTERISTICS. BREAKERS SHALL BE TRIP-FREE ON OVERLOAD AND SHALL INDICATE CLEARLY WHETHER THEY ARE OPENED, CLOSED, OR TRIPPED. MULTI-POLE UNITS SHALL HAVE THERMAL ELEMENT IN EACH POLE AND SHALL HAVE A SINGLE HANDLE. CIRCUIT BREAKER SHORT CIRCUIT RATINGS SHALL BE 120 PERCENT OF THE AVAILABLE SHORT CIRCUIT CURRENT ON THE EXISTING ELECTRICAL SYSTEM; 10,000 AMPERES SYMMETRICAL MINIMUM FOR 208/120 VOLT SYSTEM. CIRCUIT BREAKER SHALL BE FULLY RATED. CONTRACTOR SHALL OBTAIN SYSTEM SHORT CIRCUIT CURRENTS FROM THE POWER COMPANY AND SHALL INCLUDE THIS INFORMATION IN HIS SHOP DRAWING SUBMITTAL TO THE OWNER'S REPRESENTATIVE. BREAKERS SHALL BE COMPATIBLE WITH PANELBOARDS PROVIDED. ALL 20 AMPERE. SINGLE POLE CIRCUIT BREAKERS FOR LIGHTING CIRCUITS SHALL BE "SWD" RATED. CIRCUIT BREAKERS FOR DWELLING UNIT BEDROOMS SHALL BE AFCI RATED AND CIRCUIT BREAKERS FOR AIR CONDITIONING AND REFRIDGERATION UNITS SHALL BE HACR RATED.

28. SURFACE MOUNTED PANELBOARDS SHALL BE MOUNTED ON 3/4-INCH PLYWOOD BACKBOARD.

29. ALL PANELBOARDS IN WHICH WORK OCCURS PER THESE DOCUMENTS, SHALL BE PROVIDED WITH UPDATED-TYPEWRITTEN DIRECTORIES. GIVEN ONLY FOR CLARITY AND QUANTITY, CIRCUIT NUMBERS SHOWN IN THE PLANS MAY NOT NECESSARILY REPRESENT ACTUAL CIRCUIT NUMBERS IN PANELBOARD. FROM FLUSH-MOUNTED PANELBOARDS, STUB-OUT ONE 3/4" CONDUIT INTO THE CEILING CAVITY FOR EACH SET OF 3 SPARES AND/OR SPACES OR FRACTION THEREOF.

30. LIGHTING FIXTURES AND LAMPS SHALL BE AS SCHEDULED ON THE DRAWINGS OR APPROVED EQUAL.

31. THE ELECTRICAL CONTRACTOR SHALL CONSULT THE ROOM FINISH SCHEDULE AS TO THE TYPE OF CEILING CONSTRUCTION. HE SHALL BE RESPONSIBLE FOR ORDERING THE PROPER FIXTURES WITH HARDWARE FOR INSTALLATION IN OR ON THE TYPE OF CEILING SPECIFIED.

32. FIRE ALARM SYSTEM

32.1. THIS SECTION OF THE SPECIFICATIONS COVERS THE FURNISHING OF ALL LABOR, MATERIALS, AND ACCESSORIES NECESSARY FOR, BUT NOT NECESSARILY LIMITED TO, THE INSTALLATION OF A FIRE ALARM SYSTEM AS AN EXTENSION OF THE EXISTING FIRE ALARM SYSTEM, AS LISTED HEREIN AND AS SHOWN ON THE DRAWINGS. ALL DEVICES SHALL HAVE A SIMILAR PHYSICAL APPEARANCE OF EXISTING SYSTEM EQUIPMENT AND HAVE ELECTRICAL CHARACTERISTICS COMPATIBLE WITH THE EXISTING SYSTEM.

32.2. THE FIRE ALARM SYSTEM SHALL BE A SUPERVISED, ADDRESSABLE AND ANNUNCIATED, NON-CODED LOCAL ALARM SYSTEM AS DESCRIBED HEREIN AND AS SHOWN ON THE PLANS. THE SYSTEM SHALL BE UL APPROVED AND MEET ALL STATE AND LOCAL FIRE ALARM CODES.

32.3. THE SYSTEM SHALL CONFORM TO THE APPLICABLE REQUIREMENTS OF NFPA 70, 72, 99, AND 101.

32.4. THE SYSTEM SHALL BE OF ONE MANUFACTURER MATCHING EXISTING BUILDING MANUFACTURER.

32.5. THE ACTUATION OF ANY MANUAL OR AUTOMATIC DEVICE SHALL CAUSE ALL ALARM BELLS/HORNS/SPEAKERS TO SOUND THROUGHOUT THE BUILDING, ELECTRO-MAGNETIC DOOR HOLDERS TO DE-ENERGIZE, LIGHT THE APPROPRIATE ZONE IN ALARM ON THE CONTROL PANEL AND CAUSE THE CONTROL PANEL TO TRANSMIT A SIGNAL TO AN OFF-SITE MONITORING SERVICE. TIE-IN TO OFF-SITE MONITORING SERVICE SHALL BE BY OTHERS.

32.6. THE SYSTEM SHALL OPERATE FROM 120 VOLTS, 60 HZ POWER AND SHALL INCLUDE ALL FIRE ALARM BELLS/HORNS, PANELS, BATTERIES, ANNUNCIATORS, CONDUIT, WIRE, OUTLET BOXES, AND ANY OTHER APPURTENANCES NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM INCLUDING PROVISSION OF 20 AMPERE, 120 VOLTS CIRCUITS FROM THE NEAREST PANELBOARDS WITH SPARE CAPACITY AS REQUIRED.

32.7. AUXILIARY POWER FOR SYSTEM SHALL BE WET CELL LEAD CALCIUM BATTERIES SIZED TO OPERATE SYSTEM UNDER SUPERVISORY CONDITIONS FOR 24 HOURS AND THEN SUBSEQUENTLY OPERATE ALL ALARM SIGNAL DEVICES UNDER ALARM CONDITIONS FOR FIVE MINUTES. FOR EXTENSION OF EXISTING SYSTEMS PROVIDE ADDITIONAL BATTERIES AND CHARGERS AS REQUIRED TO MAINTAIN THE ABOVE OPERATION FOR ADDITIONAL INITIATION AND INDICATING DEVICES.

32.8. PROVIDE ADDITIONAL CONTROL EQUIPMENT AND/OR POWER SUPPLIES HOUSED IN A SURFACE MOUNTED CABINET AS REQUIRED WITH A 20 AMPERE, 120 VOLTS CIRCUIT TO THE NEAREST PANELBOARDS WITH SPARE CAPACITY.

32.9. SYSTEM SHALL BE PROVIDED WITH A MINIMUM OF ONE SPARE ZONE IN CONTROL PANEL.

32.10. HEAT DETECTORS SHALL BE 135 DEGREES F RATE-OF-RISE/FIXED TEMPERATURE TYPE SUITABLE FOR MOUNTING ON STANDARD OUTLET BOX.

32.11. SMOKE DETECTORS SHALL BE PHOTOELECTRIC TYPE. DETECTOR CIRCUITS SHALL BE OF THE TWO-WIRE TYPE WHEREBY THE DETECTOR OPERATING POWER IS TRANSMITTED OVER THE SAME CONDUCTORS AS THE INITIATING CIRCUIT. DETECTORS SHALL BE COMPATIBLE WITH THE CONTROL PANEL AND SHALL BE SUITABLE FOR USE IN A SUPERVISED CIRCUIT.

32.12. ADDRESSABLE DEVICE MONITORING MODULES CONNECTED TO THE SYSTEM VIA SUPERVISED WIRING SHALL BE PROVIDED AT ELEVATOR CONTROL PANELS, FIRE SUPPRESSION SYSTEM CONTROL PANELS, FLOW AND TAMPER SWITCHES, FIRE PUMP CONTROLLERS, AND ANY NON-ADDRESSABLE DEVICES BEING CONNECTED TO

32.13. ADDRESSABLE DEVICE CONTROL MODULES CONNECTED TO THE SYSTEM VIA SUPERVISED WIRING SHALL BE PROVIDED AT ELEVATOR CONTROL PANELS, SHUNT TRIP CIRCUIT BREAKERS, SMOKE DOOR OPERATORS, MECHANICAL UNIT VENTILATORS, DAMPER OPERATORS, AND ANY OTHER DEVICES TO BE CONTROLLED BY THE

32.14. THE CONTRACTOR AND EQUIPMENT MANUFACTURER SHALL JOINTLY GUARANTEE ALL WIRING AND EQUIPMENT FOR THIS SYSTEM TO BE FREE OF DEFECT IN WORKMANSHIP AND MATERIAL FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE.

32.15. THE CONTRACTOR AND EQUIPMENT MANUFACTURER SHALL PROVIDE ALL SHOP DRAWING INFORMATION INCLUDING BUT NOT LIMITED TO VOLTAGE DROP CALCULATIONS, BATTERY CALCULATIONS, COMPLETE RISE DIAGRAM, ETC. AS REQUIRED BY APPLICABLE CODES. CAD DRAWINGS SHOWING DEVICE LOCATIONS WILL BE AVAILABLE AT THE REQUEST OF THE CONTRACTOR.

32.16. THE ENTIRE FIRE ALARM SYSTEM INCLUDING ANY PREVIOUSLY EXISTING PORTIONS SHALL BE TESTED IN THE PRESENCE OF THE OWNER AND LOCAL AUTHORITIES. THE CONTRACTOR SHALL PROVIDE ALL LABOR, EQUIPMENT, AND MATERIAL NEEDED FOR THE TEST WITHOUT ADDITIONAL CHARGE.

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PRELIMINARY - NOT FOR CONSTRUCTION

APRIL 15, 2019