

GENERAL NOTES (APPLY TO ALL "E" DRAWINGS)											
LIGHTING				POWER AND TELECOMMUNICATION				ELECTRICAL ABBREVIATIONS			
 		LED LIGHTING FIXTURE AND OUTLET BOX. HALF SHADED FIXTURE OR "EM" INDICATES FIXTURES WITH INTEGRAL BATTERY PACK FOR EMERGENCY SERVICE, U.O.N.		 JUNCTION BOX WITH BLANK COVER PLATE.		 DUPLEX CONVENIENCE RECEPTACLE.		A A/C, AC		AMPERES ABOVE COUNTER	
  		LUMINAIRE TYPE (INDICATE BY UPPERCASE LETTER SEE LIGHTING FIXTURE SCHEDULE).  PANEL NAME : CIRCUIT NUMBER (INDICATED BY NUMBER)  SWITCHING INDICATED BY LOWER CASE LETTERS.		 GFI DUPLEX CONVENIENCE RECEPTACLE.		 QUAD RECEPTACLE - 20A-1P, 125V, NEMA 5-20R.		AF AFF		AMPERE FRAME/AMP FUSE ABOVE FINISHED FLOOR	
		DENOTES LUMINAIRE ON EMERGENCY CIRCUIT.		 FLOOR/ CEILING QUAD RECEPTACLE - 20A-1P, 125V, NEMA 5-20R.		 SPECIAL RECEPTACLE 220V		AS AIC		AMP SWITCH AMPS INTERRUPTING CAPACITY	
 		CEILING/WALL MOUNTED SELF POWERED EXIT LIGHT FIXTURE WITH DIRECTIONALARROWS AS INDICATED. SHADED AREA DENOTES FACE(S). ISOLITE ELITE SERIES LED EXIT SIGN		 DATA OUTLET - (1) PORT UNO, +18" AFF, UNO TEL / DATA OUTLET TO BE PROVIDED WITH 1" CONDUIT U.O.N. TO H.C. AND TERMINATED WITH 90 DEGREE ELBOW AND BUSHING. TEL / DATA OUTLET PLATE SHALL BE PROVIDED WOTH 1-1/4" DIAMETER GROMMETED OPENING.		 CABLE TV OUTLET, WALL-MOUNTED.		AT ATS AUTO		AMP TRIP AUTOMATIC TRANSFER SWITCH AUTOMATIC	
SWITCHES AND CONTROLS				MOTORS AND CONTROLS				AWG C C/B,CB			
		20A WALL SWITCH		 30A/240V NON FUSED DISCONNECT SWITCH		 60A/240V NON FUSED DISCONNECT SWITCH		CKT		CIRCUIT	
		WALL MOUNTED OCCUPANCY SWITCH		 MANUAL MOTOR SWITCH		 MOTORIZED DAMPER		CLG		CEILING	
		DIMMER WALL SWITCH U.O."a" DENOTES LIGHTING FIXTURE CONTROLLED.						COMM		COMMUNICATION	
WIRING SYSTEMS				ANNOTATION				CT		CURRENT TRANSFORMER	
		POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 1#12 Ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.		 INDICATES MOUNTING HEIGHT, CENTER LINE TO FINISHED FLOOR.		 KEYED NOTE REFERENCE		CU		COPPER	
		POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 2#12 Ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.		 DETAIL REFERENCE: DETAIL NUMBER INDICATED ON TOP; DRAWING NUMBER INDICATED ON BOTTOM				°C		DEGREE CELSIUS	
		POWER OR LIGHTING CIRCUITRY HOMERUN WITH PANELBOARD DESIGNATION, NUMBER WHERE USED INDICATES CIRCUIT NUMBER. IT SHALL CONSISTS OF 3#12 Ø, 1#12 N. & 1#12 G. IN 3/4"C, UNLESS OTHERWISE NOTED.						°F		DEGREE FAHRENHEIT	
ELECTRICAL DRAWING LIST				POWER DISTRIBUTION				DIA		DIAMETER	
E-001		ELECTRICAL SYMBOL LIST, ABBREVIATIONS		 DISTRIBUTION PANELBOARD, 120/240V-SURFACE OR FLUSH MOUNTED.				DISC		DISCONNECT	
E-002		ELECTRICAL SPECIFICATIONS (SHEET 1 OF 2)						DN		DOWN	
E-003		ELECTRICAL SPECIFICATIONS (SHEET 2 OF 2)						DP		DISTRIBUTION PANEL	
E-101		ELECTRICAL LIGHTING PLAN						DWH		DOMESTIC WATER HEATER	
E102		ELECTRICAL FIRST AND BASEMENT FLOOR POWER PLAN						DWG		DRAWING	
E-103		ELECTRICAL SECOND FLOOR AND ROOF POWER PLAN						JB		JUNCTION BOX	
E-201		ELECTRICAL DETAILS-1						KCMIL		ONE THOUSAND CIRCULAR MILS	
E-202		ELECTRICAL DETAILS-2						KV		KILOVOLT	
E-301		ELECTRICAL RISER DIAGRAM & PANEL SCHEDULE						KVA		KILOVOLT-AMPERES	
E-302		ENERGY COMPLIANCE						KW		KILOWATTS	
								LP		LIGHTING PANEL	
								LTG		LIGHTING	
								MAX		MAXIMUM	
								MC		MOTOR CONTROLLER	
								MCB		MAIN CIRCUIT BREAKER	
								MER		MECHANICAL EQUIPMENT ROOM	
								MIN		MINIMUM	
								MLO		MAIN LUGS ONLY	
								MTD		MOUNTED	
								MTS		MANUAL TRANSFER SWITCH	
								N		NEUTRAL	
								NE		NEW DEVICE TO REPLACE EXISTING	
								NIC		NOT IN CONTRACT	
								NL		NIGHT LIGHT	
								NTS		NOT TO SCALE	
								OC		ON CENTER	
								P		POLES	
								PB		PULLBOX	
								PC		PERSONAL COMPUTER	
								Ø		PHASE	
								PNL		PANEL	
								W		WATT	
								W		WIRE	
								WH		WALL HEATER	
								E		EXISTING	
								TR		TAMPER RESISTANCE	

CODE COMPLIANCE	
ALL WORK AND MATERIAL SHALL BE PERFORMED AND INSTALLED IN COMPLIANCE WITH THE FOLLOWING CODES AS ADOPTED AND AMENDED BY THE INSPECTING AUTHORITY. NOTHING IN THESE DRAWINGS IS TO BE CONSTRUCTED TO PERMIT WORK NOT CONFORMING TO THESE CODES OR OTHERS APPLICABLE TO THESE PROJECT:	
a.	2021 INTERNATIONAL BUILDING CODE
b.	2021 INTERNATIONAL MECHANICAL CODE
c.	2021 NATIONAL STANDARD PLUMBING CODE, NEW JERSEY EDITION
d.	2020 NATIONAL ELECTRICAL CODE
e.	2021 INTERNATIONAL FUEL GAS CODE
f.	ENERGY CODE - ASHRAE 90.1-2019



## ELECTRICAL SPECIFICATIONS

I.

GENERAL:

A.

The "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

B.

DRAWING ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. CONDUIT ROUTING IS SHOWN DIAGRAMMATICALY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF CONDUIT TO AVOID OBSTRUCTIONS. COORDINATION WITH EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES, IS REQUIRED; MAINTAIN HEADROOM AND SPACE CONDITIONS.

C.

BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL VISIT AND CAREFULLY EXAMINE THE AREA AFFECTED BY THIS WORK TO FAMILIARIZE THEMSELVES WITH THE EXISTING CONDITIONS AND THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE, AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS, REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE.

D.

DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW WORK.

E.

THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

F.

SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL OR OTHER NONCOMBUSTIBLE MATERIAL, UNLESS OTHERWISE NOTED.

G.

PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THE BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF CONDUIT AND EQUIPMENT, PROVIDE EQUIPMENT CURBS AS REQUIRED.

H.

ALL EXISTING MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT ND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE. ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

I.

THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK DURING OVERTIME HOURS AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

J.

UNLESS OTHERWISE SPECIFICALLY NOTED OR SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

K.

ALL MATERIAL AND EQUIPMENT SHALL BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS.

L.

INSURANCE: PROVIDE IN ACCORDANCE WITH OWNER/BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

M.

THE FINAL ACCEPTANCE SHALL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED CERTIFICATE OF INSPECTION AND APPROVAL..

2.

GENERAL PROVISIONS FOR ELECTRICAL WORK:

A.

DEFINITIONS:

1)

"PROVIDE": TO FURNISH, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2)

"INSTALL": TO ERCT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3)

"FURNISH" OR "SUPPLY": TO PURCHASE, PROCURE, ACQUIRE, AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4)

"WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5)

"WIRING": RACEWAY, FITTINGS, WIRE, BOXES, AND RELATED ITEMS.

6)"CONCEALED"

EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

7)"EXPOSED"

NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

8)"SIMILAR" OR "EQUAL"

EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

B.

TEMPORARY LIGHT AND POWER: PROVIDE TEMPORARY LIGHT AND POWER SYSTEMS AT EARLIEST POSSIBLE DATE WITHIN THE CONSTRUCTION AREAS FOR THE REQUIREMENTS OF ALL TRADES AS HEREIN DESCRIBED. EXTEND SYSTEMS TO NEW CONSTRUCTIONS AS SOON AS PHYSICALLY POSSIBLE. MAINTAIN SYSTEM DURING WORKING OWNER, PROVIDE ALL REQUIRED MAINTNANCE, INCLUDING LAMPS AND SOCKETS.

C.

QUALITY ASSURANCE

1)

QUALITY OF MATERIALS: ALL EQUIPMENT SHALL BE NEW SPECIFICATION GRADE, FREE FROM DEFECTS AND LISTED BY APPROVED TESTING AGENCY AND BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

2)

GARANTEE: ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED AS DEFINED IN PARAGRAPH 2.C.

3)

CURRENT CHARACTERISTICS:

a.

SERVICE: 120/208 VOLTS, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUND ED NEUTRAL.

b.

DISTRIBUTION: 120/208 VOLT, 3 PHASE, 4 WIRE, 60 HERTZ WITH GROUND ED NEUTRAL.

4.)

HEIGHTS OF OUTLETS:

a.

FROM FINISHED FLOOR TO CENTERLINE OF OUTLETS FOR:  
  
- RECEPTACLES AND TELEPHONES: 1 FT-4 IN.

-

WALL SWITCHES: 4 FT-0 IN.

-

WALL FIXTURES: 7 FT-0 IN.

-

MOTOR CONTROLLERS: 5 FT-0 IN.

-

CLOCKS: 7 FT 6 IN

b.

EXCEPTIONS: AT JUNCTION OF DIFFERENT WALL FINISH MATERIALS, ON MOLDS OR BREAK IN WALL SURFACE, IN VIOLATION OF CODE, OR AS NOTED OR DIRECTED.

D.

PRODUCT DELIVERY, STORAGE AND HANDLING

1)

MOVING OF EQUIPMENT: WHERE NECESSARY, SHIP IN CARTED SECTIONS OF SIZE TO PERMIT PASSING THROUGH AVAILABLE SPACES.

2)

ACCESSIBILITY: FOR OPERATION, MAINTENANCE AND REPAIR, MINOR DEVIATIONS SHALL BE PERMITTED, CHANGES OF MAGNITUDE OR INVOLVING EXTRA COST ARE NOT PERMISSIBLE WITHOUT REVIEW. GROUP CONCEALED ELECTRICAL EQUIPMENT REQUIRING ACCESS WITH EQUIPMENT FREELY ACCESSIBLE THROUGH ACCESS DOORS.

E.

MATERIALS

1)NAMEPLATES:

PROVIDE BLACK LAMICOID SHEET WITH 3/4 IN. LETTERING, FASTENED WITH EPOXY CEMENT FOR EACH DISCONNECT SWITCH, CIRCUIT BREAKER, PANEL, CABINET, TRANSFORMER, ENCLOSURE, MOTOR CONTROLLER AND THE LIKE. NAMEPLATES SHALL DESCRIBE THE NAME AND NUMBER OF EACH COMPONENT.

2)

CABLE TAGS: TAG EACH CONDUCTOR PASSING THROUGH SPLICE OR PULLBOX WITH A WHITE LINEN TAG, INDICATING POINT OF ORIGIN AND TERMINATION OF THE CIRCUIT.

3)

INSERTS AND SUPPORTS:

a.

INSERTS: STEEL, SLOTTED TYPE, FACTORY PAINTED.

-

SINGLE ROD: SIMILAR TO GRINNELL FIG. 281.

-

MULTI-ROD: SIMILAR TO FEE AND MASON SERIES 9000 WITH END CAPS AND CLOSURE STRIPS.

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CLIP FORM NAILS FLUSH WITH INSERTS.

-

MAXIMUM LOADING 75 PERCENT OF RATING.

b.

SUPPORTS FROM BUILDING CONSTRUCTION: INSERTS, BEAM CLAMPS, STEEL FISHPATES (IN CONCRETE FILL ONLY), CANTILEVER BRACKETS OR OTHER MEANS. SUBMIT FOR REVIEW.

c.

GROUPED LINES AND SERVICES: TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS.

d.

WHERE BUILDING CONSTRUCTION IS INADEQUATE: PROVIDE ADDITIONAL FRAMING. SUBMIT FOR REVIEW.

F.

PAIN T SHALL BE THE BEST GRADE FOR ITS PURPOSE. DELIVER IN ORIGINAL SEALED CONTAINERS AND APPLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. COLORS SHALL BE AS SELECTED BY ARCHITECT OR ENGINEER. UTILIZE GALVANIZED IRON PRIMER ON AND PULL BOIES, AFTER FABRICATION. UTILIZER HOT DIPPED GALVANIZED OR DIPPED IN ZINC BASED PRIMER FOR: OUTLET BOXES, JUNCTION BOXES, CONDUIT HANGERS, RODS, INSERTS AND SUPPORTS. ZINC BASED PRIMER WITH FINISH TO MATCH SURROUNDINGS SHALL BE USED FOR MARRED SURFACES OF STEEL EQUIPMENT AND RACEWAYS. A FIELD-APPLIED ZINC BASED PRME COAT SHALL BE UTILIZED FOR STEEL OR IRONWORK.

G.

BRUSH AND CLEAN WORK PRIOR TO CONCEALING, PAINTING AND ACCEPTANCE. PAINTED EXPSED WORK SOILED OR DAMAGED; CLEAN AND REPAIR TO MATCH ADJOINNG WORK BEFORE FINAL ACCEPTANCE. REMOVE DEBRIS FROM INSIDE AND OUTSIDE OF MATERIAL AND EQUIPMENT.

H.

FINAL LOCATIONS AND MOUNTING ORIENTATIONS OF ALL SWITCHES, RECEPTALES AND LIGHT FIXTURES SHALL BE VERIFIED WITH ARCHITECT.

I.

ALL ACCESS DOOR LOCATIONS SHALL BE REVIEWED BY ARCHITECT PRIOR TO INSTALLATION.

3.

SCOPE OF WORK:

A.

SCOPE OF WORK SHALL CONSIST OF PROVIDING LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMING WITH NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B.

ALL DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLIED OR SPECIFIED HEREIN.

C.

THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR AL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER, DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDED THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR

D.

THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH ALL DEPARTMENTS HAVING JURISDICTION, WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

E.

CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.

F.

AREAS WITH NO ELECTRICAL WORK SHALL REMAIN AS IS. CONTRACTOR SHALL MAINTAIN CONTINUITY OF ALL ELECTRICAL SYSTEMS TO ALL AREAS NOT COVERED BY THIS RENOVATION AND SHALL PROVIDE 48 HOUR NOTICE TO LANDLORD OF ANY PLANNED POWER INTERRUPTIONS OR SIGNAL SYSTEM OUTAGES.

4.

SHOP DRAWINGS

A.

PRIOR TO THE INSTALLATION OF ANY WORK AND PROCUREMENT OF EQUIPMENT, CONTRACTOR SHALL PROVIDE COMPLETE SETS OF COORDINATED SHOP DRAWINGS OF ALL NEW AND EXISTING EQUIPMENT, INDICATING CAPACITY, DIMENSIONS AND SEQUENCE OF OPERATION FOR WRITTEN APPROVAL BY THE ARCHITECT AND ENGINEER.

B.

INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1)

PROJECT NAME AND LOCATION

2)

NAME OF ARCHITECT AND ENGINEER

3)

ITEM IDENTIFICATION

4)

APPROVAL STAMP OF PRIME CONTRACTOR

C.

SUBMISSIONS:

1)

SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THEN THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND TWO COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2)

SUBMISSIONS LARGER THAN 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPia TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPia TO THE ENGINEER.

D.

SUBMIT SHOP DRAWINGS FOR THE FOLLOWING:

1)

SAFETY/DISCONNECT SWITCHES

2)

FUSES

3)

CIRCUIT BREAKERS

4)

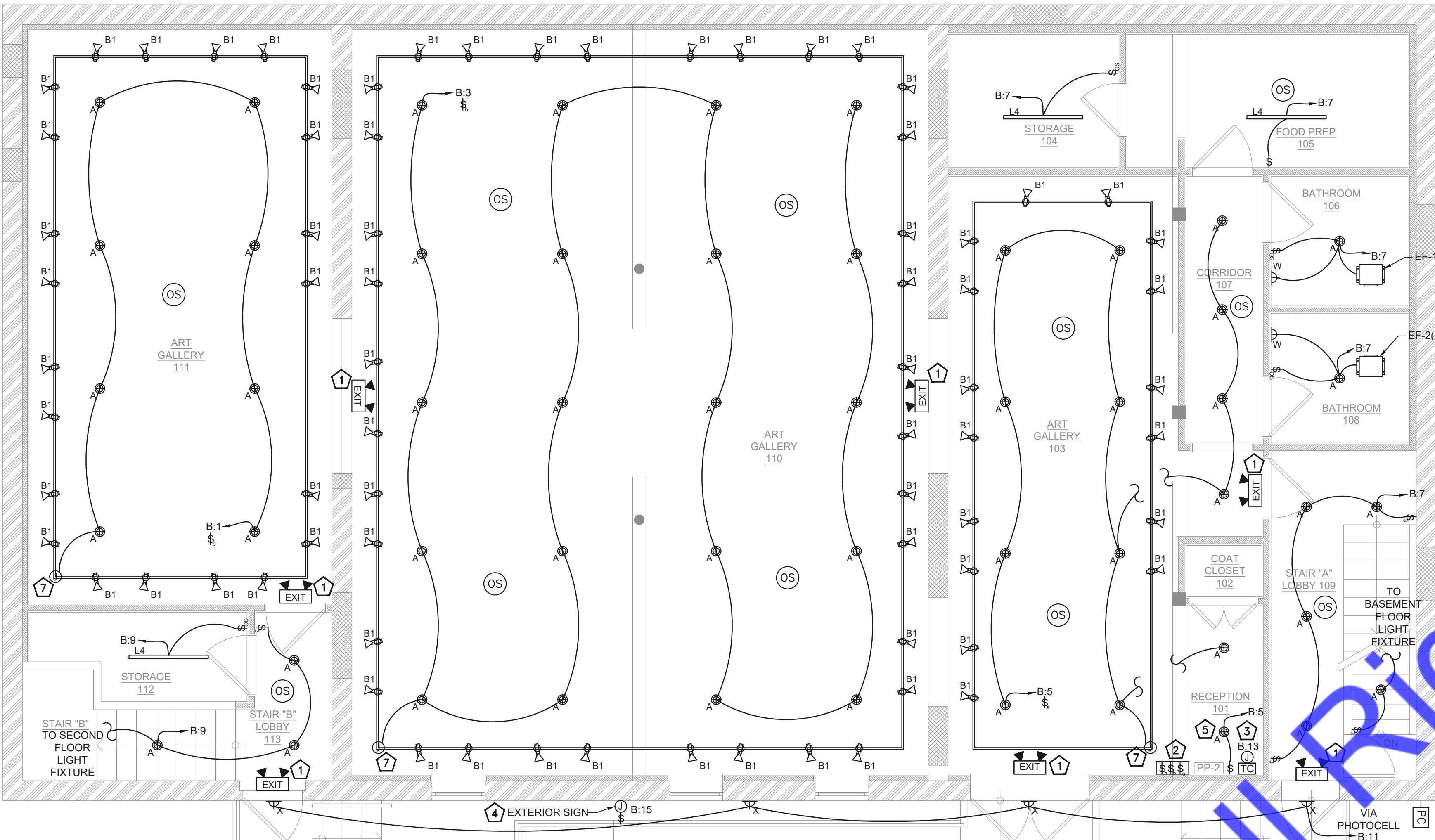
PANELBOARDS/LOAD



ELECTRICAL SPECIFICATIONS (CONT.)

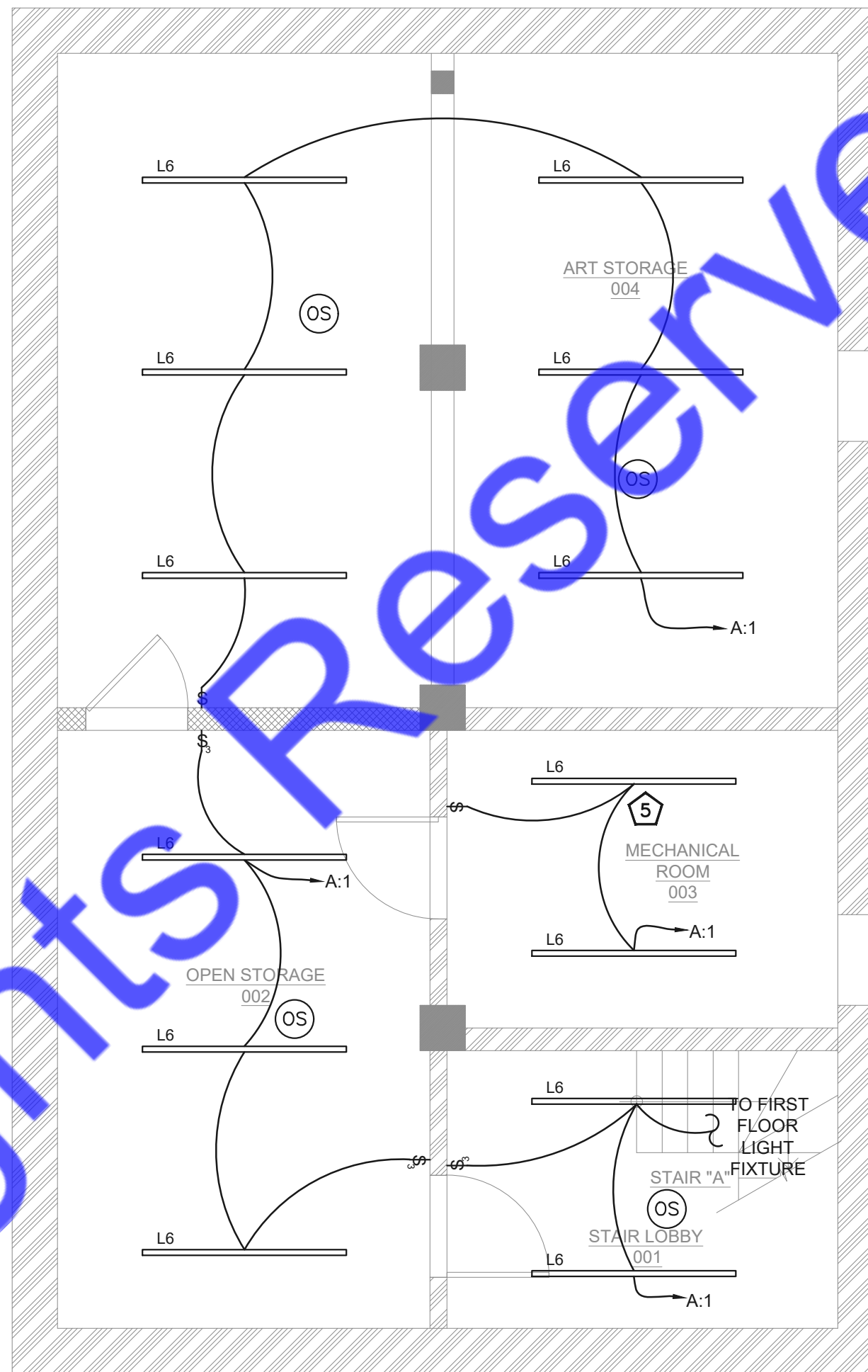
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2 FIRST FLOOR LIGHTING PLAN

1/4"=1'-0"



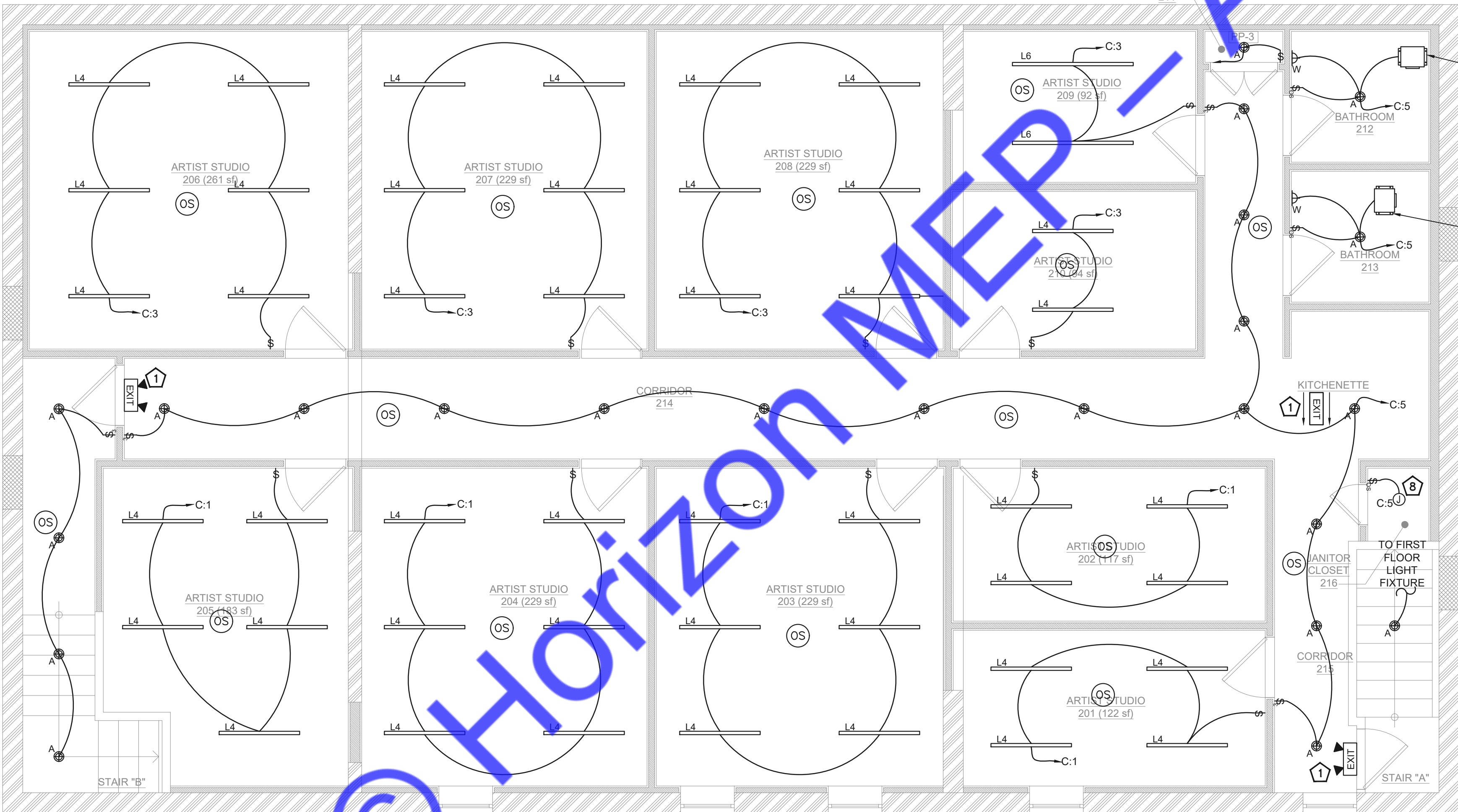
1 BASEMENT FLOOR LIGHTING PLAN

**ELECTRICAL LIGHTING PLAN KEY NOTES:**

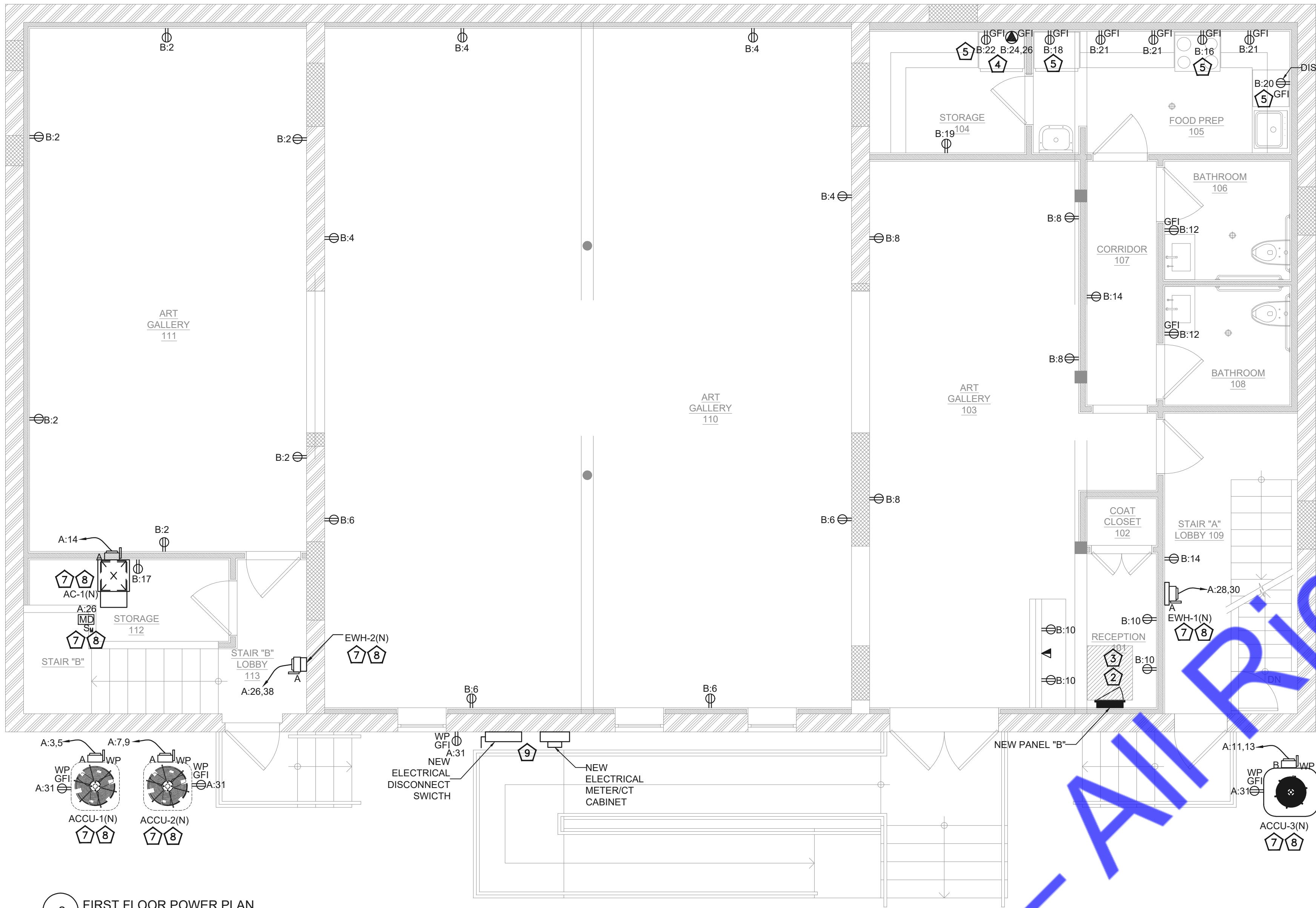
1. CONNECT NEW EMERGENCY AND EGRESS LIGHTING FIXTURES TO THE NEAREST LIGHTING CIRCUIT AHEAD OF ALL SWITCHING AND CONTROLS PER STATE AND LOCAL CODES.
2. COORDINATE EXACT LOCATION OF THE SWITCH BANK WITH OWNER/ ARCHITECT.
3. PROVIDE TIME CLOCK FOR THE BUILDING SIGNAGE. E.C SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR THE EXACT LOCATION. BASE BID ACCORDINGLY.
4. PROVIDE A DISCONNECT SWITCH AT FEEDER OR BRANCH CIRCUIT ENTERS THE SIGN PER NEC. VERIFY EXACT MOUNTING HEIGHT AND LOCATION FOR SIGNAGE POWER WITH ARCHITECTURAL ELEVATIONS, SIGN VENDOR, AND LANDLORD. ROUTE CIRCUIT TO PANEL VIA TIME CLOCK.
5. LIGHTING NEAR ELECTRICAL PANELS SHALL NOT BE CONTROLLED BY ANY AUTOMATIC MEANS AND SHALL BE COMPILED AS PER NEC 110.26(D).
6. PROVIDE WALL MOUNTED PHOTOCELL FOR THE EXTERIOR LIGHT FIXTURES. E.C SHALL COORDINATE WITH THE ARCHITECT/OWNER FOR EXACT LOCATION. BASE BID ACCORDINGLY.
7. E.C SHALL COORDINATE WITH OWNER/MANUFACTURER/VENDOR FOR THE EXACT REQUIREMENT OF THE TRACK LIGHTS. PROVIDE CURRENT LIMITER ONLY IF REQUIRED. REPORT ENGINEER ON RECORD FOR ANY DISCREPANCY. BASE BID ACCORDINGLY.
8. PROVIDE JUNCTION BOX IN THE JANITOR CLOSET FOR THE LIGHT FIXTURE IN THE JANITOR CLOSET. REPORT ENGINEER ON RECORD FOR ANY DISCREPANCY. BASE BID ACCORDINGLY.
9. INTERCONNECT EXHAUST FANS EF-1, 2, 3 & 4(N) WITH ROOM LIGHTS. E.C. TO COORDINATE WITH MECHANICAL DRAWINGS.

**NOTES:(APPLY TO ALL FIXTURES WHERE APPLICABLE)**

- A. EMERGENCY FIXTURES - ALL FIXTURES INDICATED AS EMERGENCY SHALL BE PROVIDED WITH A 90-MINUTE BATTERY PACK AND ALL FLUORESCENT FIXTURES.
- B. VERIFY VOLTAGES - E.C SHALL VERIFY VOLTAGES ON DRAWINGS PRIOR TO ORDERING OR ANY WORK. THE ENGINEER SHALL BE NOTIFIED OF ANY DISCREPANCIES IN THE VOLTAGE OF THE CIRCUITING ON THE DRAWINGS AND THE LUMINAIRE SCHEDULE PRIOR TO ANY PURCHASE OR WORK.
- C. VERIFY LAMPING - E.C SHALL VERIFY LAMPING WITH THE MANUFACTURER PRIOR TO ORDERING AND NOTIFY THE ENGINEER OF ANY LAMPING DISCREPANCIES.
- D. PROVIDE A COMPLETE INSTALLATION - E.C SHALL PROVIDE ALL LABOR AND MATERIAL TO PROVIDE A COMPLETE AND FUNCTIONAL SYSTEM PER THE DESIGN INTENT AS DICTATED BY THE SWITCHING TYPE AND LOCATION (INCLUDING DIMMER SWITCHES AND COMPATIBLE BALLASTS OR TRANSFORMERS), CEILING TYPE AND LOCATION, CIRCUITING, VOLTAGES, AND LAMPING TYPES.

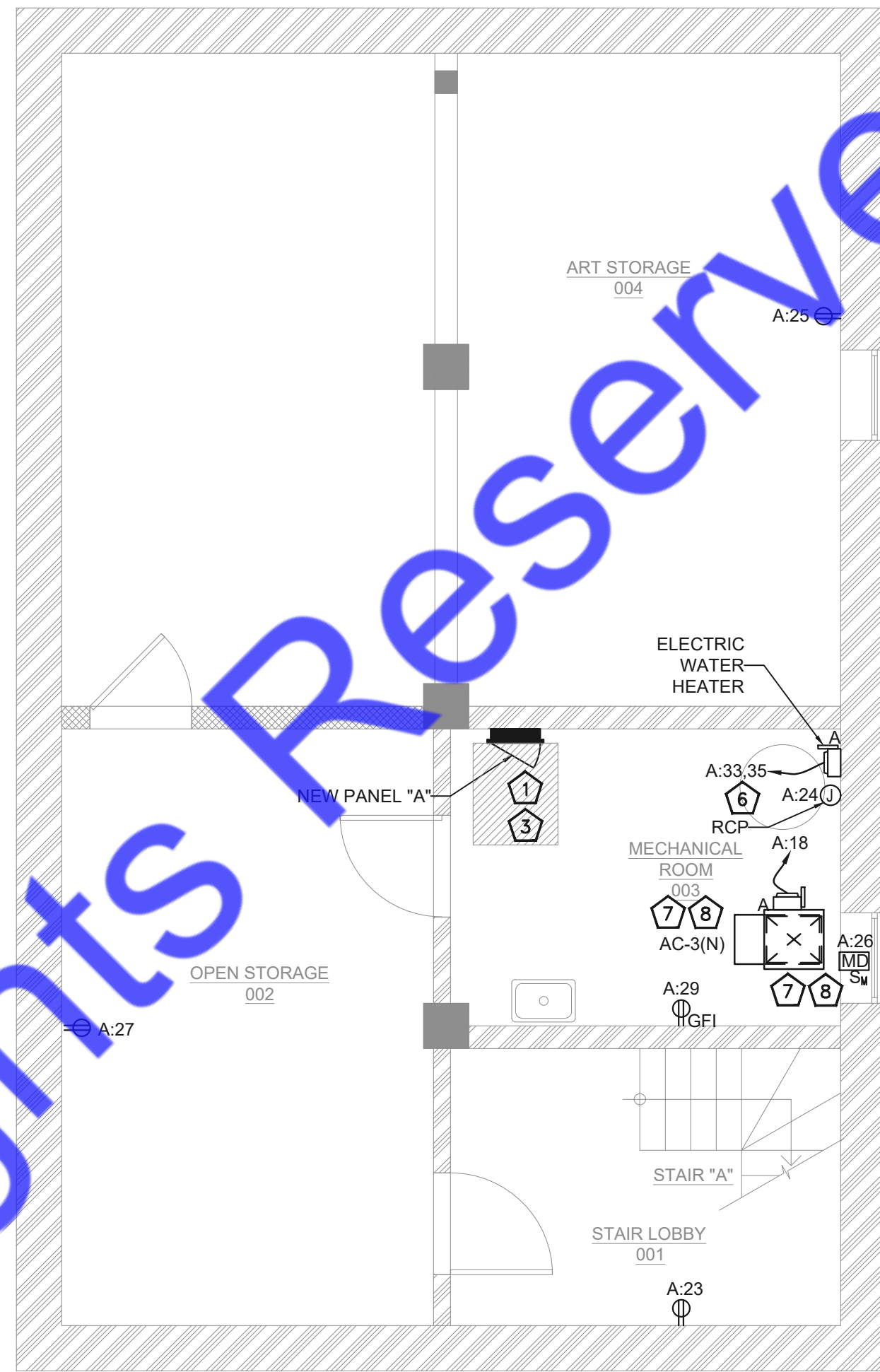






2 FIRST FLOOR POWER PLAN

1/4"=1'-0"



1 BASEMENT FLOOR POWER PLAN

#### ELECTRICAL LIGHTING PLAN KEY NOTES:

- NEW 400A(MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "A". E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- NEW 100A(MCB), 120/208V, 3-PHASE, 4-WIRE ELECTRICAL PANEL "B". E.C. SHALL COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- E.C. SHALL VERIFY/PERFORM THE INSTALLATION OF ELECTRICAL PANELS IN COMPLIANCE WITH NEC ARTICLE 110.26(A) AND (B). E.C. SHALL FIELD VERIFY THAT THE PANELS ARE UNOBSTRUCTED AND THE AREA WHERE THE PANELS ARE PLACED SHALL NOT BE USED AS A STORAGE SPACE.
- ELECTRICAL SUPPLY FOR THE STACKABLE WASHER & DRYER. E.C. SHALL COORDINATE WITH THE OWNER/MANUFACTURER FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- ELECTRICAL CONTRACTOR SHALL COORDINATE ELECTRICAL CONNECTION TYPE AND POWER REQUIREMENT WITH EQUIPMENT MANUFACTURER. BASE BID ACCORDINGLY.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE WATER HEATER & RCP MANUFACTURER FOR THE EXACT POWER REQUIREMENTS PRIOR TO ROUGH-IN. BASE BID ACCORDINGLY.
- ELECTRICAL CONTRACTOR SHALL COORDINATE DISCONNECT AND FUSE REQUIREMENT FOR MECHANICAL UNIT WITH MECHANICAL CONTRACTOR AND EQUIPMENT MANUFACTURER PRIOR TO ROUGH-IN AND PROVIDE AS REQUIRED. LOCATE AS REQUIRED TO MAINTAIN NEC CLEARANCES. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR FOR EXACT LOCATION OF THE MECHANICAL UNITS IN THE FIELD.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH MECHANICAL CONTRACTOR FOR EXACT LOCATION AND POWER REQUIREMENT OF THE MECHANICAL UNIT IS FIELD PROVIDE CIRCUIT AND CONTROL AS REQUIRED.
- NEW 400A, 120/240V, 1-PHASE, 3-WIRE ELECTRICAL METER, THE DISCONNECT & CT CABINET FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH UTILITY FOR CT CABINET EQUIPMENT & PROVIDE ONLY IF REQUIRED. PROVIDE PER UTILITY SPECIFICATIONS. E.C. SHALL ALSO COORDINATE WITH OWNER /LANDLORD/UTILITY COMPANY FOR LOCATION AND EQUIPMENT INSTALLATION. BASE BID ACCORDINGLY.

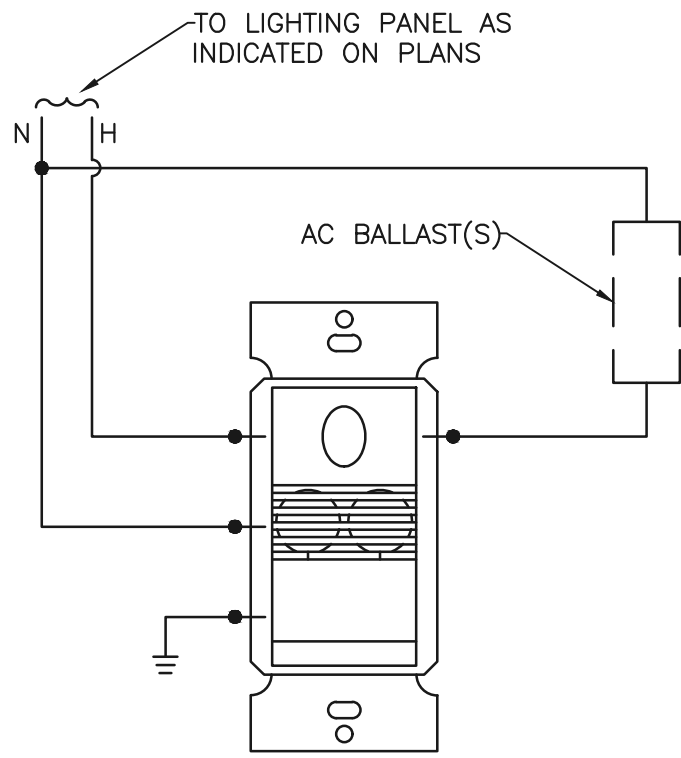
#### ELECTRICAL FLOOR POWER PLAN GENERAL NOTES:

- GENERAL USE CABLING SHALL BE OF #12 AWG MINIMUM AT 120V FOR CABLE UPTO 80 FEET. FOR CABLE ABOVE 80 FEET USE #10 AWG CABLES. ADJUST WIRE SIZE FOR A MAXIMUM VOLTAGE DROP OF 3%.
- CONTRACTOR TO COORDINATE WITH ARCHITECT FOR EXACT HEIGHT OF OUTLETS.
- E.C. SHALL VERIFY ANY THIRD PARTY INSPECTION REQUIRED BY THE LOCAL JURISDICTION PRIOR TO BIDDING THIS PROJECT.
- ALL LOW VOLTAGE WIRING TO BE IN CONDUIT U.N.O BY AHJ.
- E.C. TO COORDINATE WITH MECHANICAL CONTRACTOR FOR MECHANICAL EQUIPMENT SENSOR AND THERMOSTAT LOCATION.









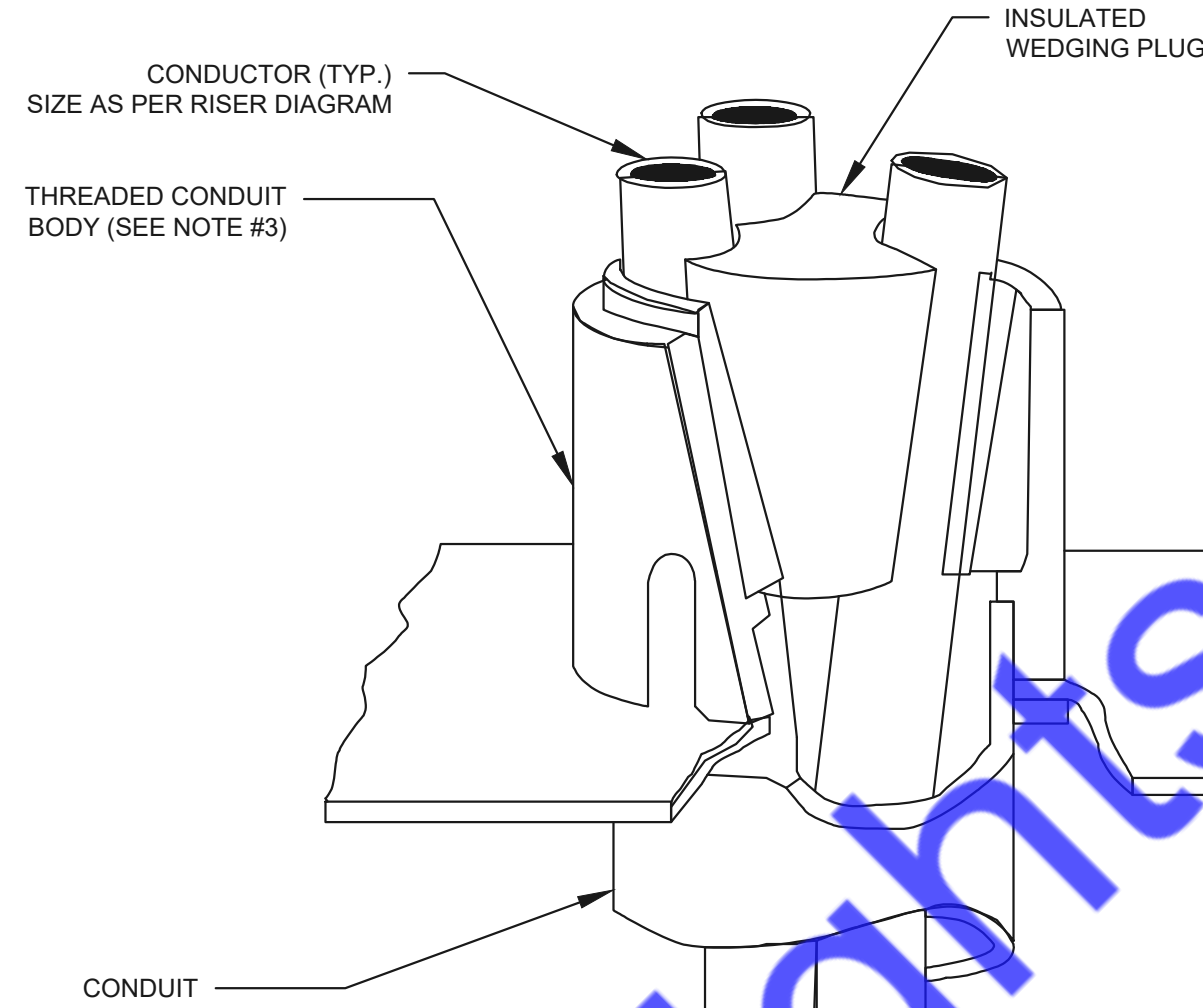
OCCUPANCY SENSOR SWITCH WIRING DIAGRAM  
SCALE: N.T.S.

NOTES:

1. ALL LOW VOLTAGE WIRING AND TERMINATIONS TO BE BY ELECTRICAL CONTRACTOR.
2. OCCUPANCY/VACANCY SENSOR SHALL BE "SENSOR SWITCH" WSX-PDT-SA-WH OR APPROVED EQUAL. ALL EXPOSED CONTROL WIRING SHALL BE IN CONDUIT.

NOTES:

1. ALL CONDUCTORS IN VERTICAL RACEWAYS SHALL BE SUPPORTED IN ACCORDANCE WITH ARTICLE 300.19 OF NEC. CABLE SUPPORTS SHALL BE LOCATED AT THE INTERVALS REQUIRED BY THE NEC.
2. CABLE SUPPORT SYSTEM SHALL BE AS MANUFACTURED BY O-Z GEDNEY WITH POZI-GRIP "S-STYLE" WEDGING PLUG OR APPROVED EQUAL.
3. FOR THREADLESS CONDUIT (RIGID, IMC OR EMT), ATTACH CONDUIT BODY TO MALE THREADS OF A SET SCREW OR COMPRESSION CONNECT, AS PERMITTED BY SPECIFICATIONS.
4. PROVIDE PULL BOX AT EACH LOCATION OF CABLE SUPPORTS. PULL BOX SHALL BE SIZED AS PER CODE TO ACCOMMODATE ALL CONDUITS.



NOTE:  
THIS INFORMATION MAY NOT CONTAIN ALL DETAILS REQUIRED FOR CONSTRUCTION. APPROPRIATE MODIFICATION MAY BE REQUIRED TO ENSURE SUITABILITY OF THESE DRAWINGS FOR THE SPECIFIC APPLICATION. IT IS THE USER'S RESPONSIBILITY TO ENSURE INSTALLATION OF THE EQUIPMENT/SYSTEM IS IN ACCORDANCE WITH BUILDING/PROJECT SPECIFICATIONS, APPLICABLE CODES AND STANDARDS.

NUMBER OF HANGER RODS SHALL BE REQUIRED FOR PROPER SUPPORT (MIN. OF 2).

CONDUIT (TYP.)  
UNISTRUT UNI-CLIP CLAMP,  
USE FOR ELEC. CONDUIT

CHANNEL SUPPORT (TYP.)

NOTES:

1. ALL CONDUIT MAY BE COMBINED ON SAME SUPPORT CHANNEL WHERE PRACTICAL.
2. SUPPORT CHANNEL LENGTH SHALL NOT BE DETERMINED UNTIL ALL PIPING, CONDUIT, ETC. TO BE SUPPORTED IS COORDINATED.
3. SUPPORT CHANNEL SPACING SHALL BE NO MORE THAN 10'-0".
4. UNISTRUT AND CONDUIT INSTALLATION MAY BE REVERSED.

6 OCCUPANCY SENSOR SWITCH DETAIL  
E-201 N.T.S.

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.
2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.
3. SWITCHES CAN BE USED TO TURN LOAD OFF.

RECOMMENDED WIRE:

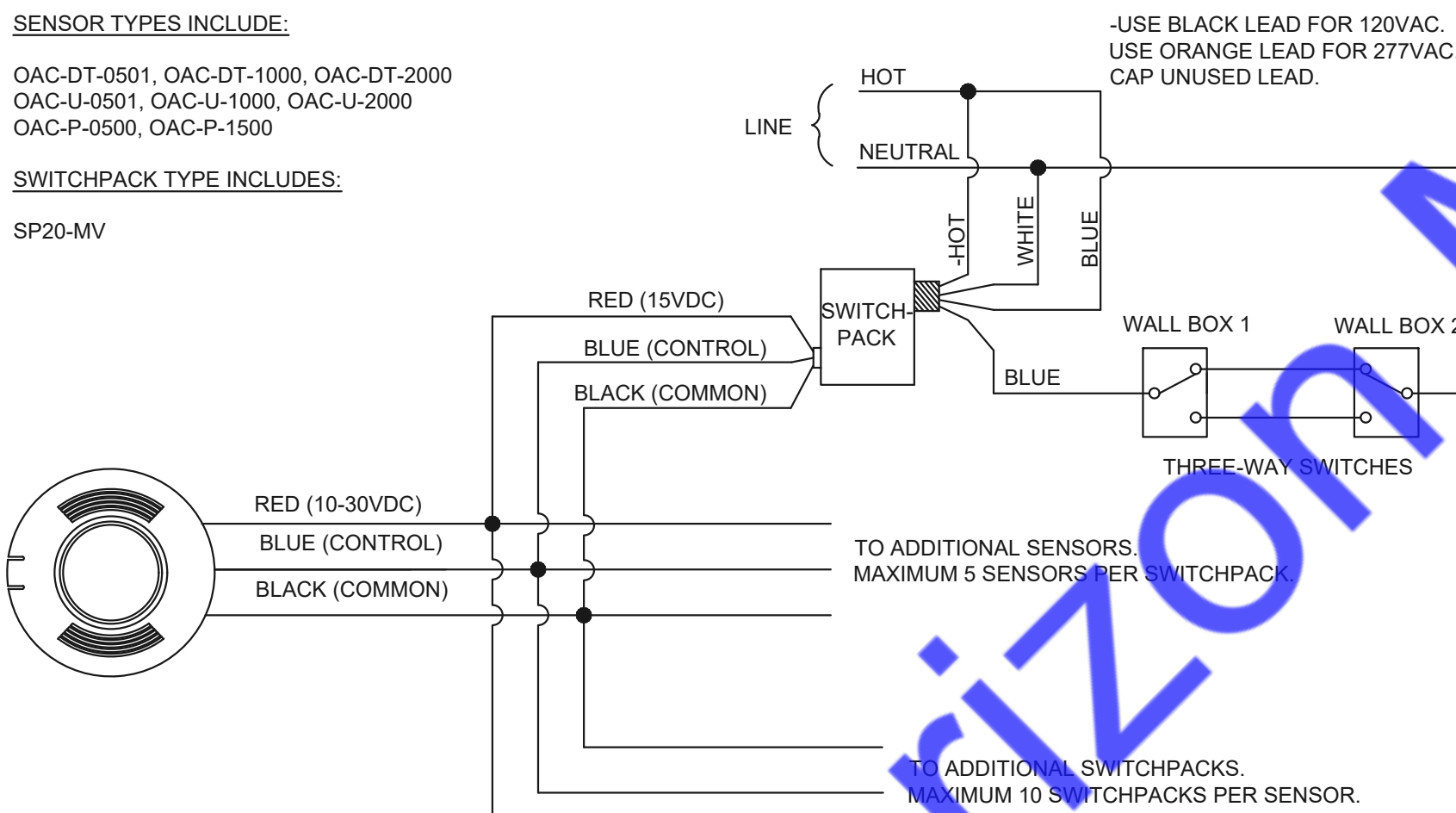
18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED

SENSOR TYPES INCLUDE:

OAC-DT-0501, OAC-DT-1000, OAC-DT-2000  
OAC-U-0501, OAC-U-1000, OAC-U-2000  
OAC-P-0500, OAC-P-1500

SWITCHPACK TYPE INCLUDES:

SP20-MV



Section A-A

1. Wall Assembly - The 1/2" x 1/2" rated gypsum board/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300, U400 and V400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

A. Studs - Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nominal 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide and spaced max 24 in. (610 mm) OC.

B. Gypsum Board - 5/8 in. (16 mm) thick, 4 ft. (1219 mm) wide with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300, U400 or V400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 5 in. (127 mm).

C. Through Penetrants - One nonmetallic pipe or conduit to be centered within the freestop system. The annular space shall be max 1/4 in. (6 mm). Pipe or conduit to be rigidly supported on both sides of the wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used:

A. Polyvinyl Chloride (PVC) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 or 80 solid or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems. When Schedule 80 PVC pipe is used, the F and T Ratings are 1 hr. When Schedule 80 PVC pipe is used in closed (process or supply) piping systems, the F and T Ratings are equal to the assembly rating of the wall in which it is installed.

B. Rigid Nonmetallic Conduit - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 or 80 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NEC, NFPA No. 70). When Schedule 80 PVC conduit is used, the F and T Ratings are 1 hr.

C. Chlorinated Polyvinyl Chloride (CPVC) Pipe - Nom 4 in. (102 mm) diam (or smaller) SDR 13.5 CPVC pipe for use in closed (process or supply) piping systems.

D. Acrylonitrile Butadiene Styrene (ABS) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 solid or foamed core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

E. Fire Retardant Polypropylene (FRPP) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

F. Polyvinylidene Fluoride (PVDF) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 PVDF pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.

G. Fiberglass Reinforced Pipe (FRP) Pipe - Nom 4 in. (102 mm) diam (or smaller) glass fiber reinforced thermosetting resin pipe for use in closed (process or control) or vented (drain, waste or vent) piping systems. When FRP pipe is used, T Rating is 3/4 hr.

H. High Density Polyethylene (HDPE) Pipe - Nom 4 in. (102 mm) diam (or smaller) Schedule 40 HDPE pipe for use in closed (process or supply) piping systems.

3. Freestop System - The freestop system shall consist of the following:

A. Fill, Void or Cavity Material - Sealant - Fill material forced into annular space to max extent possible. Caulk shall be installed flush with both surfaces of wall assembly.

SPECIFIED TECHNOLOGIES INC. - SpecSeal 100, 101, 102, 105, 120 or 129 Sealant, SpecSeal LCI Sealant, Penel 300 Sealant or SpecSeal Series SIL300 Sealant.

B. Fill, Void or Cavity Material - Wrap Strip - Nom 1/8 or 3/16 in. (3.2 or 4.8 mm) thick incombustible material faced on both sides with a plastic film, supplied in 2 in. (51 mm) wide strips or nom 1/4 in. (6 mm) thick incombustible material faced on both sides with a plastic film, supplied in 1-1/2 in. (38 mm) wide strips. The layers of wrap strips are individually wrapped around the through-penetrant with ends butted and held in place with masking tape. Butted ends in successive layers shall be aligned.

Fire Rating of Wall Hr	Max Diam of Through Penetrant in. (mm)	No. of Wrap Strip Layers	F Rating Hr	T Rating Hr
1	1-1/2 (38)	1	1	1
2	1-1/2 (38)	1	2	1-1/2
1	2 (51)	1	1	1
2	2 (51)	1	2	1-1/2
1	3 (76)	2	1	1
2	3 (76)	2	2	2
1	4 (102)	3	1	1
2	4 (102)	3	2	2

Except as noted in Item 2, the F and T Rating of the freestop system is dependent upon the fire rating of wall, diam of through penetrant and the number of wrap strips as tabulated below:

SPECIFIED TECHNOLOGIES INC. - SpecSeal BLU Wrap Strip, SpecSeal BLU2 Wrap Strip or SpecSeal RED Wrap Strip

C. Steel Collar - Collar fabricated from plate (304/316) galv sheet steel available from wrap strip manufacturer. Collar shall be min 1-1/2 in. (38 mm) deep with 1 in. (25 mm) wide by 2 in. (51 mm) long anchor tabs for securement to the concrete floor or wall. Retainer tabs, 3/4 in. (19 mm) wide tapering down to 1/4 in. (6 mm) wide and located opposite the anchor tabs, are solder 90 degree toward pipe surface to maintain the annular space around the pipe and to retain the wrap strips. Steel collar wrapped around wrap strips and pipe with a 1 in. (25 mm) wide overlap along its perimeter joint and secured together by means of a min 1/2 in. (13 mm) wide by 5/16 in. (8 mm) thick stainless steel hose clamp installed at mid-depth of the steel collar. As an alternate to the steel hose clamp, the steel collar may be secured together by means of three No. 8 by 1/4 in. (6 mm) long steel sheet metal screws when more than one layer of wrap strip is used.

Wrap strip/collar assembly is slid along the through-penetrant until about the surface of the wall. Collar secured to wall by 1/8 in. (3.2 mm) diam by 1-3/4 in. (44 mm) long steel molly bolts in conjunction with 1/4 in. (12 mm) diam steel fender washers. The number of molly bolts used is dependent upon the nom diam of the through penetrant. Two molly bolts, symmetrically located, are required for nom 1-1/2 in. (38 mm) and 2 in. (51 mm) diam through penetrants. Three molly bolts, symmetrically located, are required for nom 2-1/2 in. (64 mm) and 3 in. (76 mm) diam through penetrants. Four molly bolts, symmetrically located, are required for nom 3-1/2 in. (89 mm) and 4 in. (102 mm) diam through penetrants. Steel collars are installed on each side of wall.

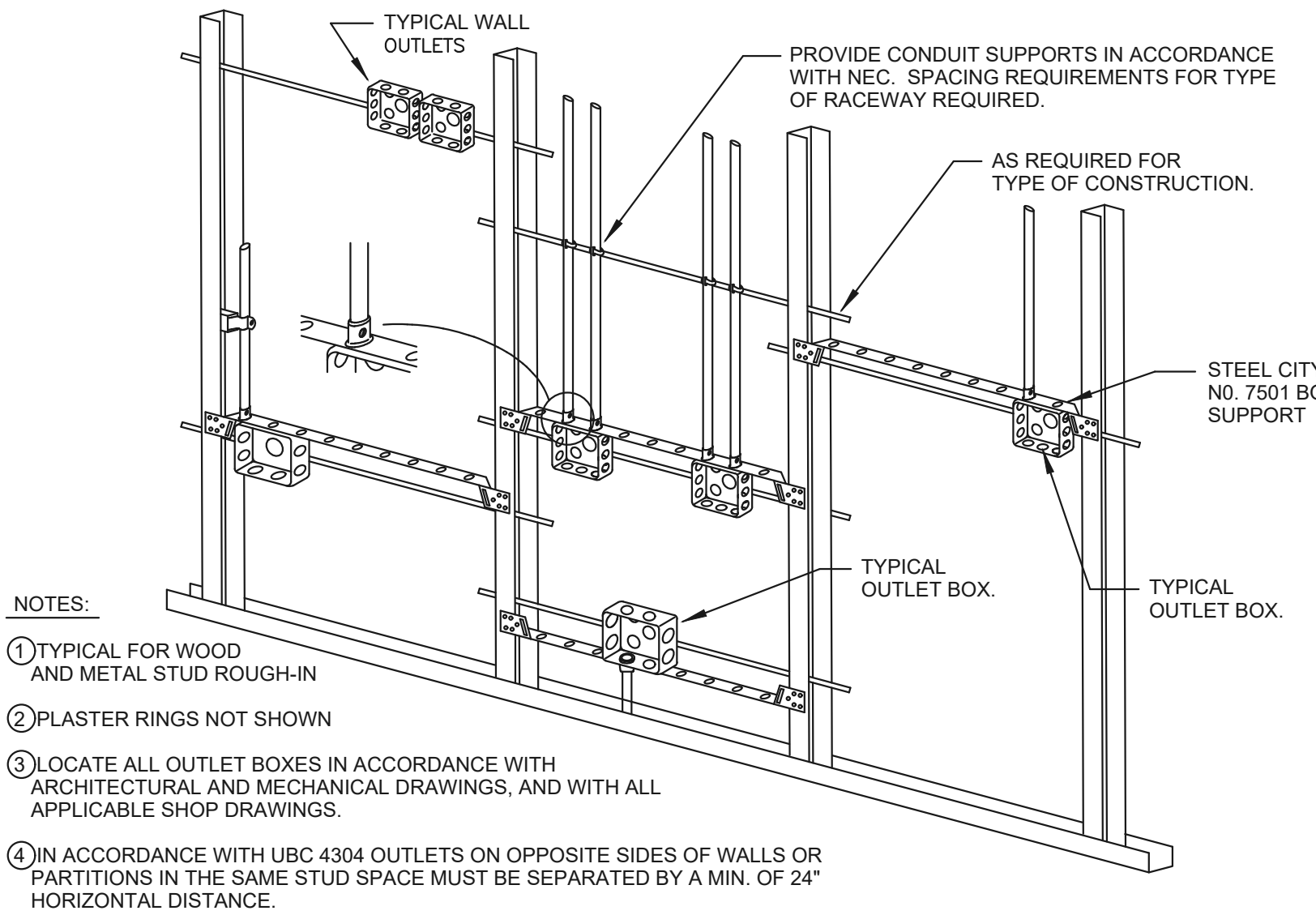
D. Freestop Device\* (Optional, Not Shown) - As an alternate to Item 3B and 3C, galv steel collar lined with an incombustible material sized to fit the specific diam of the through-penetrant. Device shall be installed around through-penetrant in accordance with accompanying installation instructions. Device incorporates anchor tabs for securement to each surface of wall assembly by means of 1/8 in. (3 mm) diam by 1-3/4 in. (44 mm) long steel molly bolts in conjunction with 1/4 in. (6 mm) diam by 1-1/2 in. (38 mm) diam steel fender washers.

SPECIFIED TECHNOLOGIES INC. - SpecSeal Firestop Collar, SpecSeal LCC Collar or SpecSeal SSC Collar. When SpecSeal LCC Collar or SpecSeal SSC Collar are used, the max annular space shall be 1/8 in. (3 mm) for max 2-1/2 in. (64 mm) diam pipe and shall be max 1/4 in. (6 mm) for pipe larger than 2-1/2 in. (64 mm) diam.

\*Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Specified Technologies Inc. 210 Evans Way Somerville, NJ 08878  
Reproduced courtesy of Underwriters Laboratories, Inc.  
Created or Revised: November 27, 2012  
(800)862-1180 • (856)626-6000 • FAX (908)231-8415 • E-Mail: techserv@stfirestop.com • Website: www.stfirestop.com

2 CONDUIT SUPPORT DETAIL  
E-201 N.T.S.



NOTES:

1. TYPICAL FOR WOOD AND METAL STUD ROUGH-IN
2. PLASTER RINGS NOT SHOWN
3. LOCATE ALL OUTLET BOXES IN ACCORDANCE WITH ARCHITECTURAL AND MECHANICAL DRAWINGS, AND WITH ALL APPLICABLE SHOP DRAWINGS.
4. IN ACCORDANCE WITH UBC 4304 OUTLETS ON OPPOSITE SIDES OF WALLS OR PARTITIONS IN THE SAME STUD SPACE MUST BE SEPARATED BY A MIN. OF 24" HORIZONTAL DISTANCE.

5 WIRING DIAGRAM - LOW VOLTAGE CEILING SENSOR OCCUPANCY  
E-201 N.T.S.

-AUTO ON/OFF WITH LINE VOLTAGE OVERRIDE TO OFF  
THREE-WAY SWITCHING.

3 FIRE STOP DETAIL  
E-201 N.T.S.

1 DETAIL TYPICAL ROUGH-IN REQUIREMENTS  
E-201 N.T.S.



MANUAL MODE OPERATION:

1. PUSHBUTTON PRESS IS REQUIRED TO TURN LOAD ON.
2. LOAD TURNS OFF WHEN SENSOR TIMES OUT OR BY PRESSING PUSH BUTTON.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

AUTOMATIC MODE OPERATION:

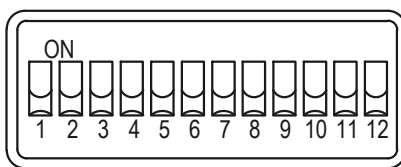
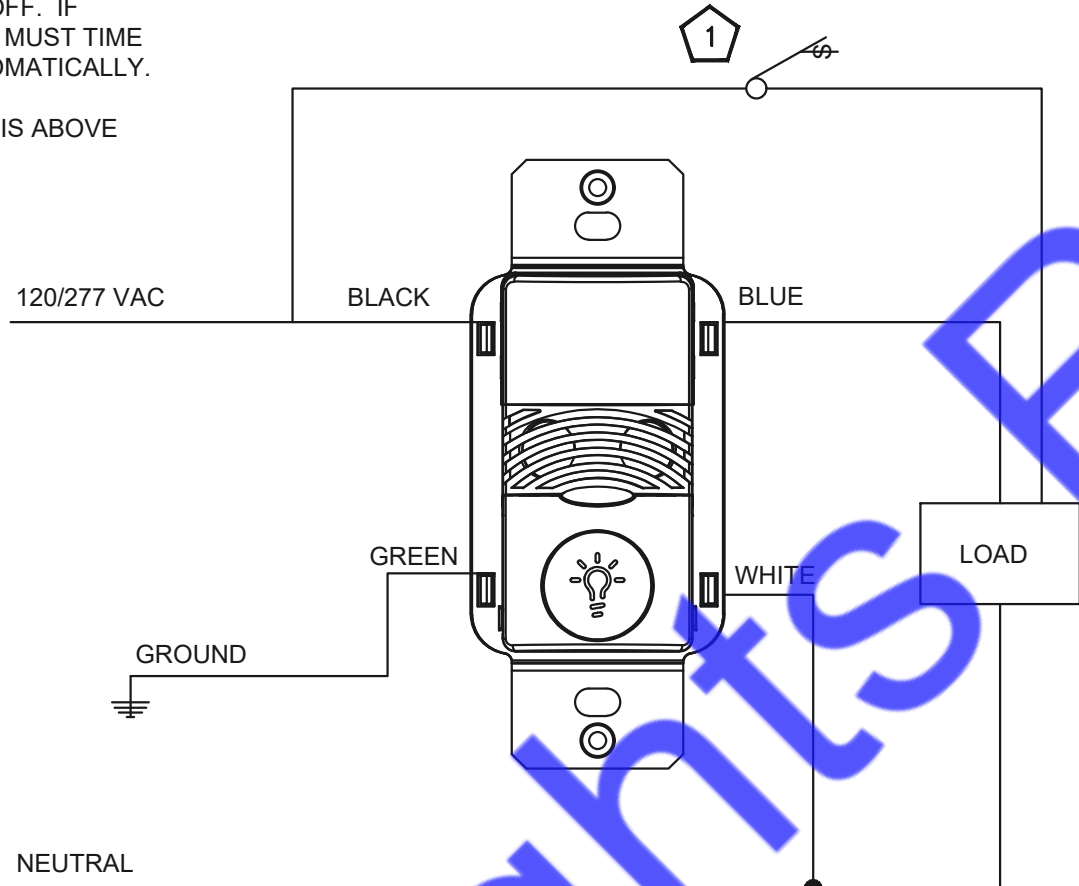
1. WHEN SENSOR ACTIVATES LOAD TURNS ON.
2. PUSHBUTTON CAN BE USED TO TURN LOAD ON OR OFF. IF PUSHBUTTON IS USED TO TURN LOAD OFF, SENSOR MUST TIME OUT FIRST, BEFORE LOAD CAN TURN BACK ON AUTOMATICALLY.
3. IF DAYLIGHT SENSOR IS ENABLED AND LIGHT LEVEL IS ABOVE SETPOINT, LOAD WILL NOT TURN ON.

SENSOR TYPES INCLUDE:

ONW-D-1001-MV-N

1

PROVIDE SENSING CONDUCTOR TAPPED AHEAD OF ANY SWITCHES WHERE SWITCH SERVES EMERGENCY FIXTURES.



(ONW-D-1001-MV-N  
SENSORS)  
ON (UP) =  
MANUAL ON  
OFF (DOWN) =  
AUTO ON

AUTOMATIC MODE OPERATION:

1. WHEN SENSOR ACTIVATES, LOAD TURNS ON.
2. LOAD TURNS OFF, WHEN SENSOR TIMES OUT.

RECOMMENDED WIRE

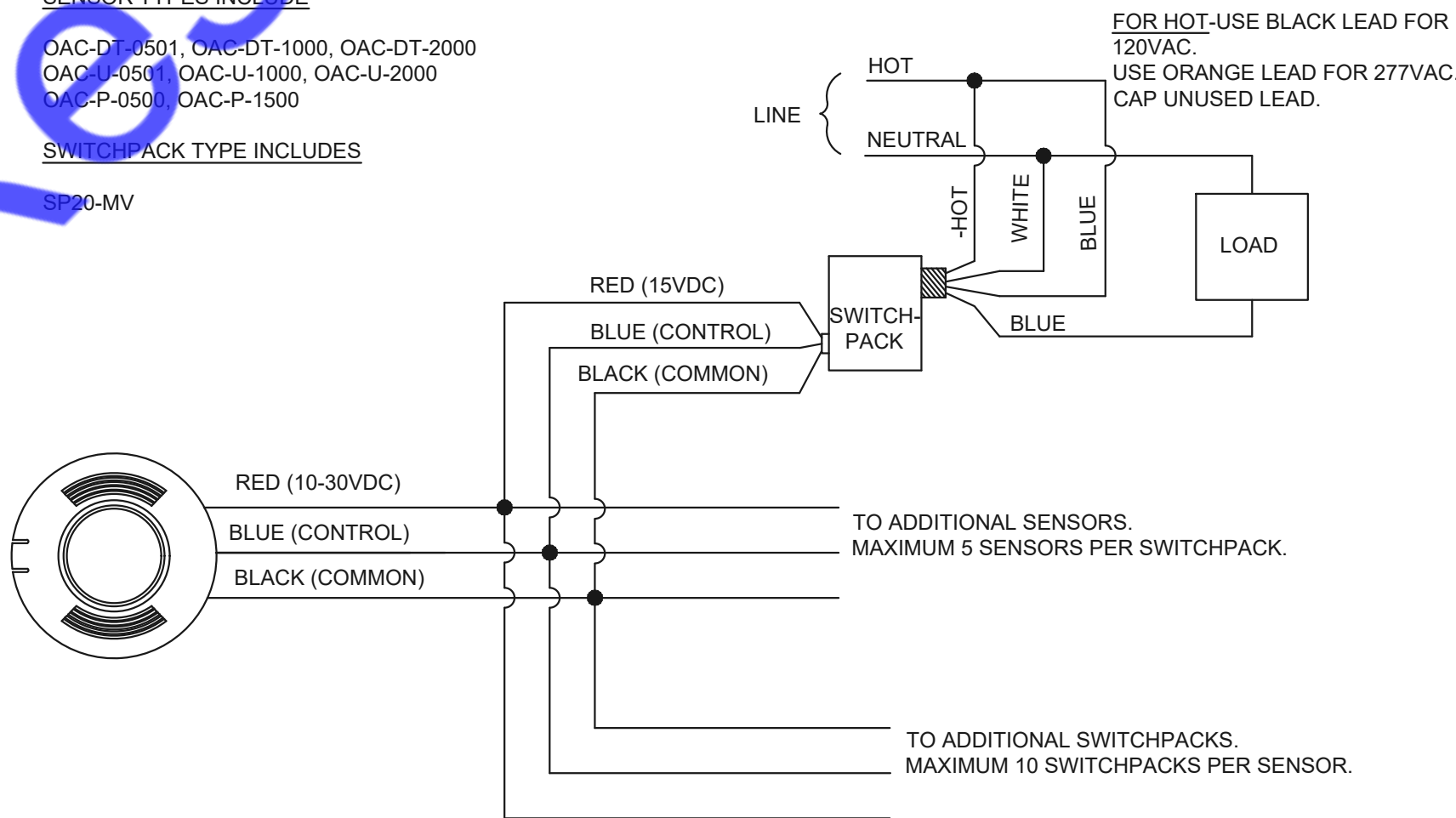
18-3 AWG STRANDED WIRE SHIELDED OR NON-SHIELDED

SENSOR TYPES INCLUDE

OAC-DT-0501, OAC-DT-1000, OAC-DT-2000  
OAC-U-0501, OAC-U-1000, OAC-U-2000  
OAC-P-0501, OAC-P-1500

SWITCHPACK TYPE INCLUDES

SP20-MV



4

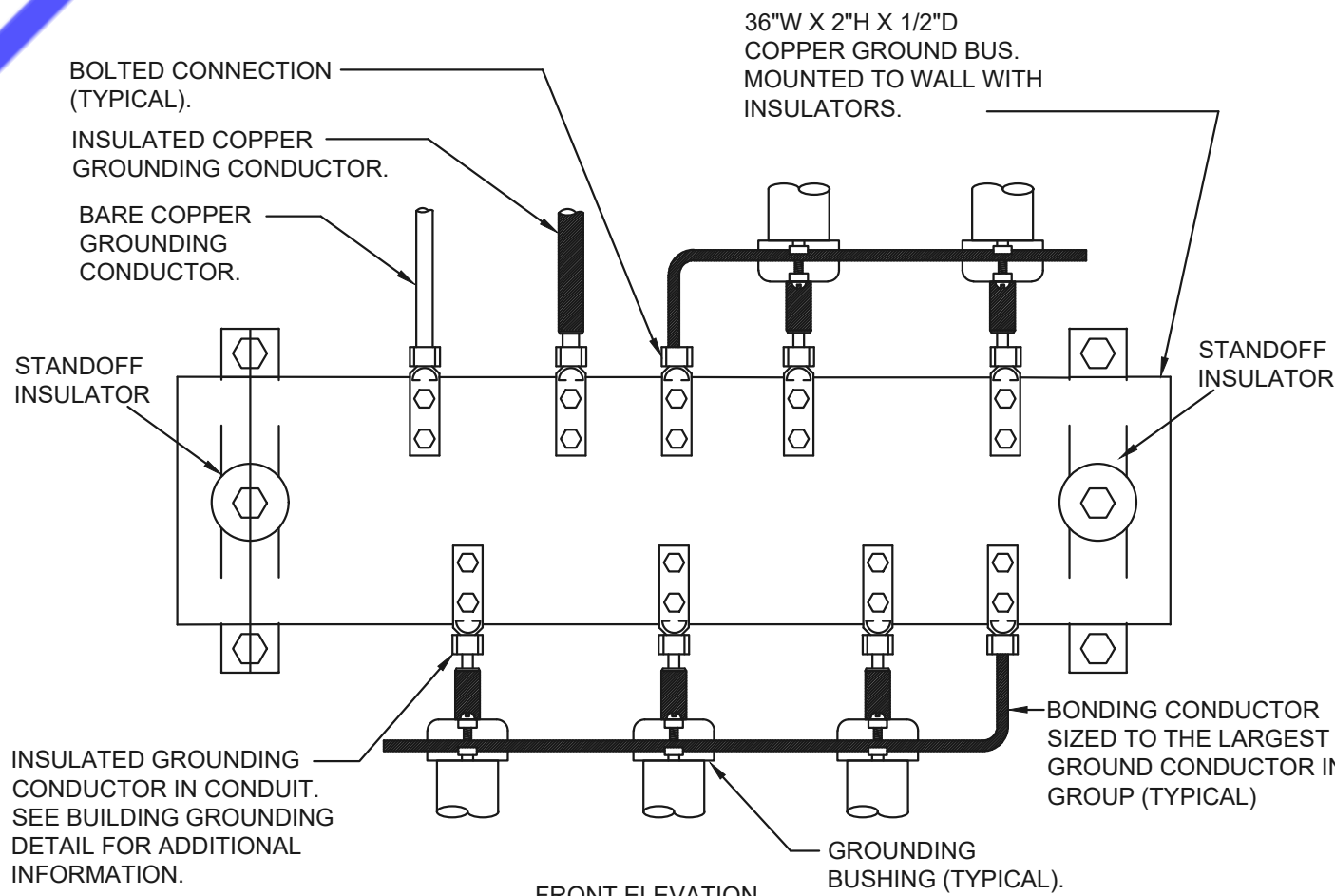
E-202

CONNECTION) OCCUPANCY/VACANCY-SINGLE LEVEL  
WIRING DIAGRAM-LOW VOLTAGE WALL SWITCH SENSOR(NEUTRAL  
N.T.S

2

E-202

OCCUPANCY - AUTO ON/OFF.  
WIRING DIAGRAM - LOW VOLTAGE CEILING SENSOR  
N.T.S



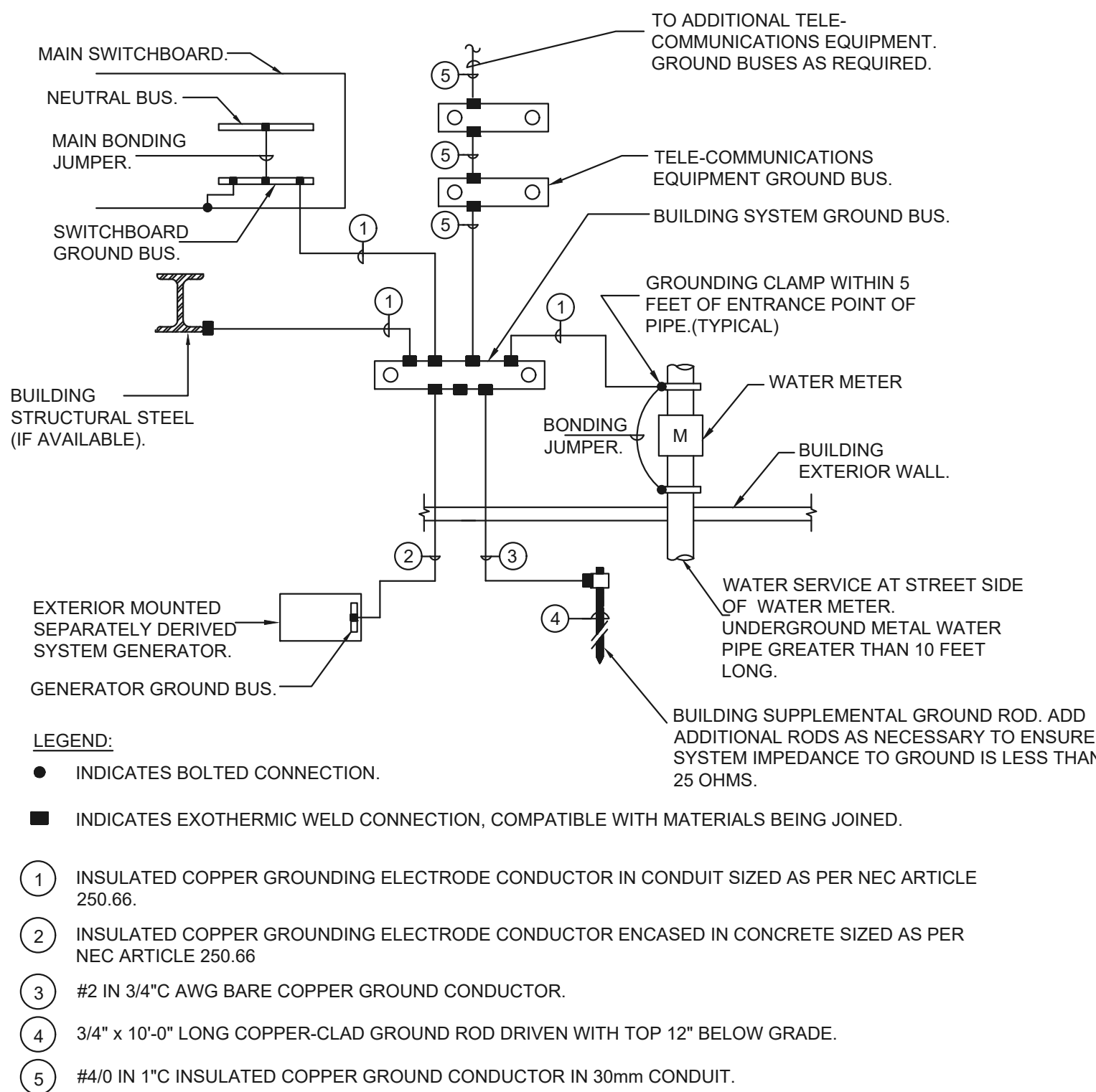
NOTES:

1. REFER TO BUILDING GROUNDING ELECTRODE SYSTEM DETAIL FOR EXACT CONFIGURATION.

3

E-202

BUILDING ELECTRICAL SYSTEMS GROUND BUS  
N.T.S

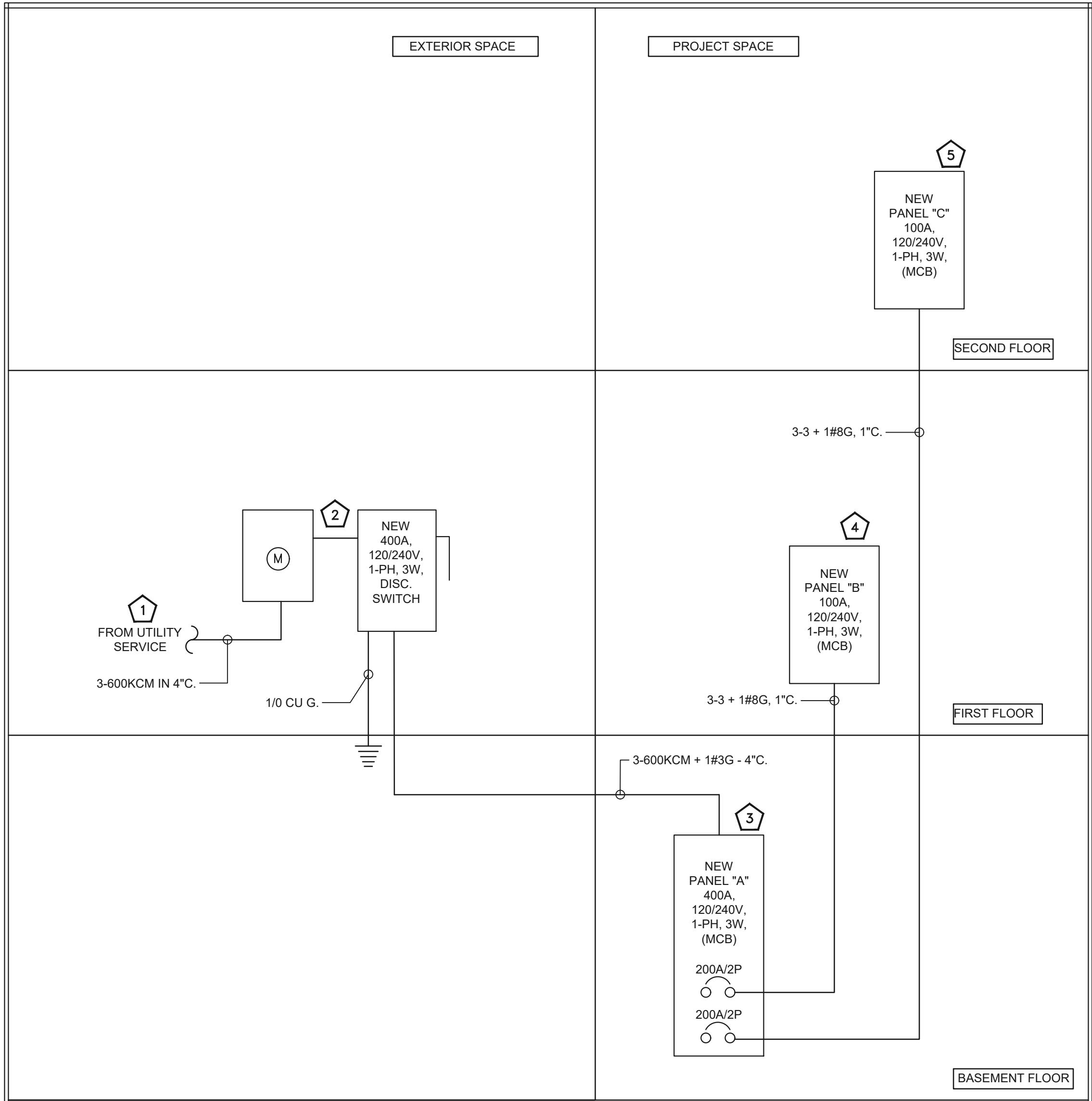


1

E-202

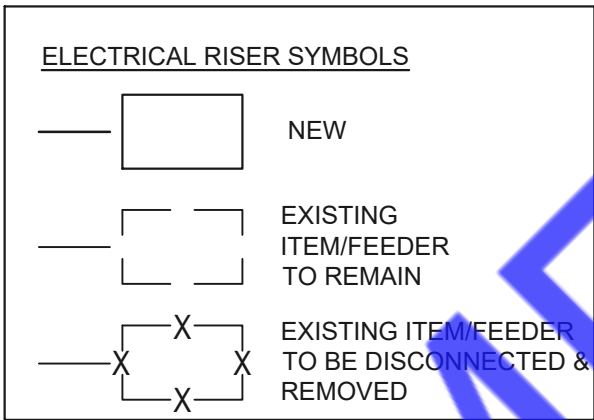
BUILDING GROUNDING ELECTRODE SYSTEM  
N.T.S





ELECTRICAL RISER KEYED NOTES:

- 1
- UPGRADE EXISTING ELECTRICAL SERVICE TO 400A, 120/240V, 1-PHASE, 3-WIRE ELECTRICAL SERVICE FOR THE PROJECT SPACE. E.C. SHALL COORDINATE WITH LANDLORD/OWNER FOR UPGRADING OF THE SERVICE AND EXACT LOCATION IN FIELD. REPORT TO ENGINEER ON RECORD FOR ANY DISCREPANCIES. E.C TO COORDINATE ALL INSTALLATION REQUIREMENT WITH OWNER/LANDLORD/UTILITY PRIOR TO BIDDING. BASE BID ACCORDINGLY.
- 2
- NEW 400A, 120/240V, 1-PHASE, 3-WIRE ELECTRICAL METER, THE DISCONNECT & CT CABINET FOR THE PROJECT SPACE. E.C SHALL COORDINATE WITH UTILITY FOR CT CABINET EQUIPMENT & PROVIDE ONLY IF REQUIRED. PROVIDE PER UTILITY SPECIFICATIONS. E.C SHALL ALSO COORDINATE WITH OWNER /LANDLORD/UTILITY COMPANY FOR LOCATION AND EQUIPMENT INSTALLATION. BASE BID ACCORDINGLY.
- 3
- NEW 400A(MCB), 120/240V, 1-PHASE, 3-WIRE ELECTRICAL PANEL "A". E.C. TO COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- 4
- NEW 100A(MCB), 120/240V, 1-PHASE, 3-WIRE ELECTRICAL PANEL "B". E.C. TO COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.
- 5
- NEW 100A(MCB), 120/240V, 1-PHASE, 3-WIRE ELECTRICAL PANEL "C". E.C. TO COORDINATE EXACT LOCATION WITH ARCHITECT/OWNER.



ELECTRICAL GENERAL NOTES:

- A.
- ELECTRICAL CONTRACTOR TO COORDINATE FAULT CURRENT (ISC) RATING WITH UTILITY COMPANY AND AHJ PRIOR TO COMMENCING ANY WORK.
- B.
- ABOVE RISER DIAGRAM IS FOR REFERENCE PURPOSE ONLY. E.C. SHALL VERIFY EXACT POWER DISTRIBUTION IN FIELD & CONFIRM ENGINEER ON RECORD FOR ANY DISCREPANCY.
- C.
- E.C. SHALL VERIFY INCOMING SERVICE AMPERAGE, WIRE SIZING AND DISTRIBUTION.
- D.
- ELECTRICAL CONTRACTOR SHALL COORDINATE WITH OWNER/LANDLORD/BASE BUILDING FOR THE EXACT SCOPE OF WORK/LIABILITIES.

2 ELECTRICAL RISER DIAGRAM

N.T.S

PANEL: A(N)										MOUNTING:		REFER TO EL. POWER PLAN (EL. SHEET E-9)					
120/240		VOLTS,		1		PHASE,		3		WIRE		PANEL LOCATION:		REFER TO EL. POWER PLAN (EL. SHEET E-9)			
MAIN CB		400A		MLO:		NA		BUS:		400A		MIN,		FED FROM:		REFER TO EL. RISER DIG. (EL. SHEET E-9)	
NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E : EQUIPMENTS, O : OTHER/MISC. (TYPICAL)																	
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)		MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.				
						A	B										
1	20	LIGHTING-BASEMENT	L	0.79	2#12, #12G, 3/4"C	4.39		2#8 #8G, 3/4"C	3.60	H	HP-1(N)	35/2P	2				
3	30/2P	ACCU-1(N)	H	2.18	2#10 #10G, 3/4"C		5.78		3.60	H				4			
5			H	2.18		5.78	3.60		H	6							
7	30/2P	ACCU-2(N)	H	2.18	2#10 #10G, 3/4"C		5.78	3.60	H		HP-2(N)	35/2P	8				
9			H	2.18		5.78	3.60	H	10								
11	50/2P	ACCU-3(N)	H	3.52	2#8, 1#10G, 3/4"C.		7.12	2#8 #8G, 3/4"C		3.60	H	HP-3(N)	35/2P	12			
13			H	3.52		4.57	2#12, #12G, 3/4"C	1.06	H	AC-1(N)	15				14		
15	15/2P	ERV-1(E)	H	1.49	2#12, #12G, 3/4"C		2.54	2#10, #12G, 3/4"C	1.06			H	AC-2(N)	15		16	
17			H	1.49		3.24	2#12, #12G, 3/4"C	1.75	H	AC-3(N)	20	18					
19	100/2P	PANEL B(N)	O	10.03	3#3, 1#8G, 1"C.		18.49	8.46	O				PANEL C(N)	100/2P	20		
21			O	10.03		18.49	8.46	O	22								
23	20	RECEPTACLE- STAIR LOBBY	R	0.18	2#12, #12G, 3/4"C		0.68	2#12, #12G, 3/4"C		0.08	M	RCP	20	24			
25	20	RECEPTACLE- ART STORAGE	R	0.18	2#12, #12G, 3/4"C	0.43		2#12, #12G, 3/4"C	0.25	M	MOTORISED DAMPERS	20	26				
27	20	RECEPTACLE- OPEN STORAGE	R	0.18	2#12, #12G, 3/4"C		0.68	2#12, #12G, 3/4"C	0.50	H	EWH-1(N)	20/2P	28				
29	20	RECEPTACLE- MECHANICAL ROOM	R	0.18	2#12, #12G, 3/4"C	0.68			0.50	H				30			
31	20	RECEPTACLE - EXTERIOR	R	0.72	2#12, #12G, 3/4"C		2.75	2#12, #12G, 3/4"C	2.00	H	EDH-1(N)	20/2P	32				
33	30/2P	WATER HEATER	H	2.25	2#10 #10G, 3/4"C	4.25			2.00	H				34			
35			H	2.25			2.75	2#12, #12G, 3/4"C	0.50	H	EWH-2(N)	20/2P	36				
37	20	SPARE				0.50			0.50	H				SPACE	40		
39		SPACE					0.00			SPACE	42						
41		SPACE				0.00											
TOTAL CONNECTED LOAD (KVA)						48.12	46.13										
LOAD CLASSIFICATION			CONNECTED LOAD (KVA)			DEMAND FACTOR		DEMAND LOAD (KVA)		PANEL TOTAL LOAD							
TOTAL LIGHTING		L	0.79			125%		0.99									
TOTAL RECEPTACLE		R	1.44			100%		1.44		TOTAL CONNECTED LOAD							
TOTAL HVAC		H	54.71			100%		54.71		TOTAL DEMAND LOAD							
TOTAL MOTOR		M	0.33			100%		0.33		TOTAL CONNECTED CURRENT							
TOTAL KITCHEN/EQUIPMENTS		E	0.00			100%		0.00		TOTAL DEMAND CURRENT							
TOTAL OTHER/MISCILLANEOUS		O	36.99			100%		36.99		SYSTEM VOLTAGE							
												120/240V					

PANEL: B(N)										MOUNTING:		REFER TO EL. POWER PLAN (EL. SHEET E-9)													
120/240		VOLTS,		1		PHASE,		3		WIRE		PANEL LOCATION:		REFER TO EL. POWER PLAN (EL. SHEET E-9)											
MAIN CB		100A		MLO:		NA		BUS:		125A		MIN,		FED FROM:		REFER TO EL. RISER DIG. (EL. SHEET E-9)									
NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E : EQUIPMENTS, O : OTHER/MISC. (TYPICAL)																									
CKT NO.		TRIP AMPS		DESCRIPTION OF LOAD		LOAD TYPE		LOAD (KVA)		MINIMUM BRANCH CIRCUIT		PER PHASE (KVA)		MINIMUM BRANCH CIRCUIT		LOAD (KVA)		LOAD TYPE		DESCRIPTION OF LOAD		TRIP AMPS		CKT NO.	
1		20		LIGHTING- ART GALLERY 111		L		0.70		2#12, #12G, 3/4"C		1.78		2#12, #12G, 3/4"C		1.08		R		RECEPTACLE- ART GALLERY 111		20		2	
3		20		LIGHTING- ART GALLERY 110		L		1.44		2#12, #12G, 3/4"C		2.16		2#12, #12G, 3/4"C		0.72		R		RECEPTACLE- ART GALLERY 110		20		4	
5		20		LIGHTING- ART GALLERY 103 & CORRIDOR		L		0.70		2#12, #12G, 3/4"C		1.42		2#12, #12G, 3/4"C		0.72		R		RECEPTACLE- ART GALLERY 110		20		6	
7		20		LIGHTING- STORAGE 104, FOOD PREP 105, RESTROOMS, LOOBY 109, EPH 1 & 2		L		0.65		2#12, #12G, 3/4"C		1.37		2#12, #12G, 3/4"C		0.72		R		RECEPTACLE- ART GALLERY 103		20		8	
9		20		LIGHTING- STORAGE 112, LOBBY 113		L		0.16		2#12, #12G, 3/4"C		0.88		2#12, #12G, 3/4"C		0.72		R		RECEPTACLE- RECEPTION		20		10	
11		20		LIGHTING- EXTERIOR		L		0.26		2#12, #12G, 3/4"C		0.62		2#12, #12G, 3/4"C		0.36		R		RECEPTACLE- RESTROOMS		20		12	
13		20		TIM CLOCK		L		1.00		2#12, #12G, 3/4"C		1.36		2#12, #12G, 3/4"C		0.36		R		RECEPTACLE- STAIR A & CORRIDOR		20		14	
15		20		BUILDING SIGN		L		1.00		2#12, #12G, 3/4"C		1.10		2#12, #12G, 3/4"C		0.10		E		GAS FIRED RANGE		20		16	
17		20		RECEPTACLE - STORAGE 112		R		0.18		2#12, #12G, 3/4"C		1.38		2#12, #12G, 3/4"C		1.20		E		REFRIGERATOR		20		18	
19		20		RECEPTACLE - STORAGE 104		R		0.18		2#12, #12G, 3/4"C		1.38		2#12, #12G, 3/4"C		1.20		E		DISHWASHER		20		20	
21		20		RECEPTACLE - FOOD PREP 105		R		0.36		2#12, #12G, 3/4"C		1.86		2#12, #12G, 3/4"C		1.50		E		WASHER		20		22	
23		20		SPARE								3.60		2#8, #110G, 3/4"C.		3.60		E		DRYER		40/2P		24	
25		20		SPARE								3.60				3.60		E				20		26	
27		20		SPARE								0.00								SPARE		20		28	
29		20		SPARE								0.00								SPARE		20		30	
TOTAL CONNECTED LOAD (KVA)												12.28		10.23											

PANEL: C(N)										MOUNTING:		REFER TO EL. POWER PLAN (EL. SHEET E-9)			
120/240		VOLTS,		1		PHASE,		3		WIRE		PANEL LOCATION:		REFER TO EL. POWER PLAN (EL. SHEET E-9)	
MAIN CB		100A		MLO: NA		BUS:		125A		MIN,		FED FROM:		REFER TO EL. RISER DIG. (EL. SHEET E-9)	
NOTE: L : LIGHTING, R : RECEPTACLES, H : HVAC LOAD, M : MOTOR LOAD, E : EQUIPMENTS, O : OTHER/MISC. (TYPICAL)															
CKT NO.	TRIP AMPS	DESCRIPTION OF LOAD	LOAD TYPE	LOAD (KVA)	MINIMUM BRANCH CIRCUIT	PER PHASE (KVA)		MINIMUM BRANCH CIRCUIT	LOAD (KVA)	LOAD TYPE	DESCRIPTION OF LOAD	TRIP AMPS	CKT NO.		
						A	B								
1	20	LIGHTING- ARTIST STUDIO 201-205	L	1.20	2#12, #12G, 3/4"C	1.92		2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 201	15	2		
3	20	LIGHTING- ARTIST STUDIO 206-210	L	1.20	2#12, #12G, 3/4"C		1.92	2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 202	15	4		
5	20	LIGHTING- CORRIDOR 214 & 215, RESTROOMS, EF-3 & 4	L	0.60	2#12, #12G, 3/4"C	1.32		2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 203	15	6		
7	20	RECEPTACLE- STAIR B	R	0.18	2#12, #12G, 3/4"C		0.90	2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 204	15	8		
9	20	RECEPTACLE- CORRIDOR	R	0.54	2#12, #12G, 3/4"C	1.26		2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 205	15	10		
11	20	RECEPTACLE- RESTROOMS	R	0.36	2#12, #12G, 3/4"C		1.08	2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 206	15	12		
13	20	RECEPTACLE- STAIR A	R	0.18	2#12, #12G, 3/4"C	0.90		2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 207	15	14		
15	20	RECEPTACLE- ROOF	R	0.54	2#12, #12G, 3/4"C		1.26	2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 208	15	16		
17	20	RECEPTACLE- KITCHNETTE	R	0.18	2#12, #12G, 3/4"C	0.90		2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 209	20	18		
19	20	RECEPATCLE - JANITOR CLOSET	R	0.18	2#12, #12G, 3/4"C		0.90	2#12, #12G, 3/4"C	0.72	R	RECEPTACLE- ARTIST STUDIO 210	15	20		
21	20/2P	EWH-3(N)	H	0.50	2#12, #12G, 3/4"C	1.70		2#12, #12G, 3/4"C	1.20	E	REFRIGERATOR	15	22		
H			0.50	1.70		2#12, #12G, 3/4"C	1.20	E	DISHWASHER	20	24				
H			0.50	0.75		2#12, #12G, 3/4"C	0.25	M	MOTORISED DAMPERS	20	26				
27	20/2P	EWH-4(N)	H	0.50	2#12, #12G, 3/4"C		0.50				SPARE	20	28		
29			20	SPARE						SPARE	20	30			
TOTAL CONNECTED LOAD (KVA)						8.75	8.26								

LOAD SUMMARY			
LOAD CLASSIFICATION	CONNECTED LOAD (KVA)	DEMAND FACTOR	DEMAND LOAD (KVA)
TOTAL LIGHTING	9.70	125%	12.13
TOTAL RECEPTACLE	16.20	100%	16.20
TOTAL HVAC	45.03	100%	45.03
LARGEST MOTOR LOAD	6.00	125%	7.50
TOTAL KITCHEN/EQUIPMENTS	13.60	100%	13.60
TOTAL OTHER/MISCILLANEOUS	0.00	100%	0.00
TOTAL CONNECTED LOAD		90.53	KVA
TOTAL DEMAND LOAD		94.46	KVA
TOTAL CONNECTED CURRENT		377.21	AMP
TOTAL DEMAND CURRENT		393.56	AMP





COMcheck Software Version COMcheckWeb  
Interior Lighting Compliance Certificate

Project Information

Energy Code:	90.1 (2019) Standard
Project Title:	STUDIO LOFTS LLC
Project Type:	Alteration
Owner/Agent:	Designer/Contractor:

Allowed Interior Lighting Power

A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts
1-Retail	6156	0.84	5171
Total Allowed Watts =			5171

Proposed Interior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Retail (6156 sq.ft.)				
LED: A: Other:	1	75	19	1432
LED: B1: Other:	1	74	30	Exempt
Exemption:Lighting Sales or Educational Demonstration Systems				
LED: L4: Other:	1	48	41	1958
LED: L6: Other:	1	15	61	918
LED: W: Other:	1	4	15	60
Total Proposed Watts =				4369

Interior Lighting PASSES

Interior Lighting Compliance Statement

Compliance Statement: The proposed interior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date



COMcheck Software Version COMcheckWeb  
Exterior Lighting Compliance Certificate

Project Information

Energy Code:	90.1 (2019) Standard
Project Title:	STUDIO LOFTS LLC
Project Type:	Alteration
Exterior Lighting Zone	3 (Other (LZ3))
Owner/Agent:	Designer/Contractor:

Allowed Exterior Lighting Power

A Area/Surface Category	B Quantity	C Allowed Watts /	D Tradable Wattage	E Allowed Watts (B X C)
Entry canopy	50 ft2	0.4	Yes	20
Total Tradable Watts (a) =				20
Total Allowed Watts =				20
Total Allowed Supplemental Watts (b) =				500

(a) Wattage tradeoffs are only allowed between tradable areas/surfaces.  
(b) A supplemental allowance equal to 500 watts may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Proposed Exterior Lighting Power

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixture	D Fixture Watt.	E (C X D)
Entry canopy (50 ft2): Tradable Wattage				
LED: X: Other:	1	4	30	120
Total Tradable Proposed Watts =				120

Exterior Lighting PASSES

Exterior Lighting Compliance Statement

Compliance Statement: The proposed exterior lighting alteration project represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed exterior lighting systems have been designed to meet the 90.1 (2019) Standard requirements in COMcheck Version COMcheckWeb and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Name - Title Signature Date