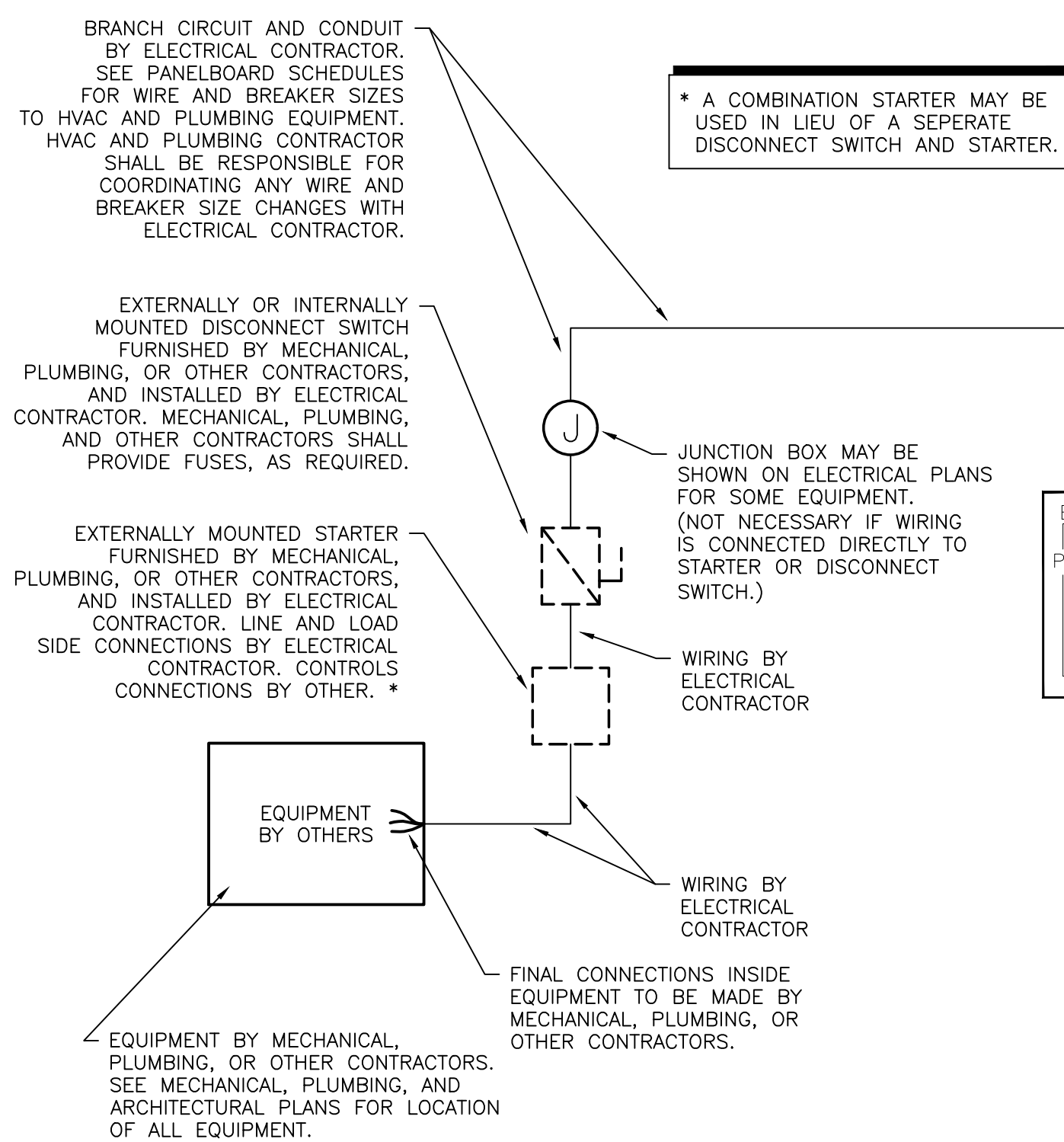
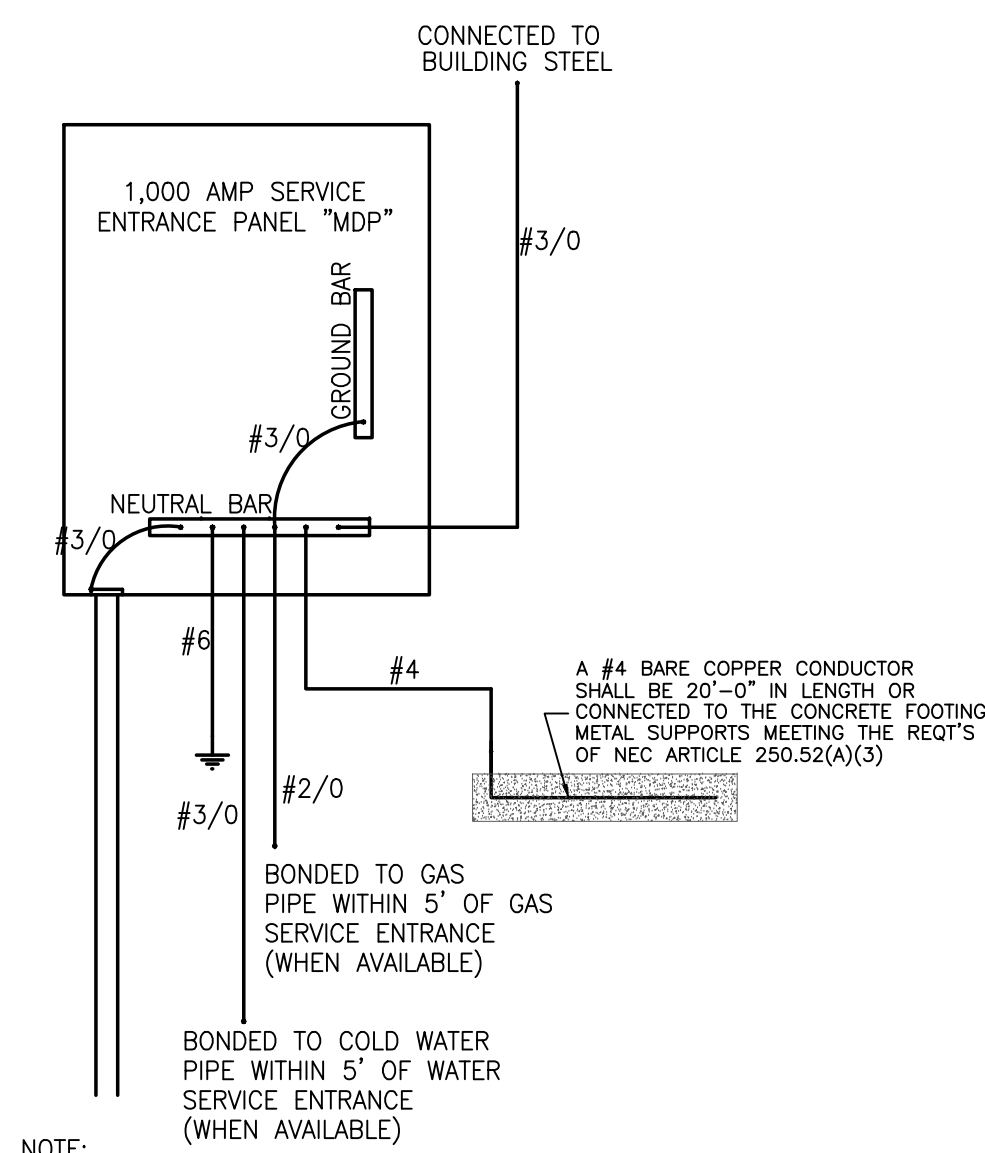
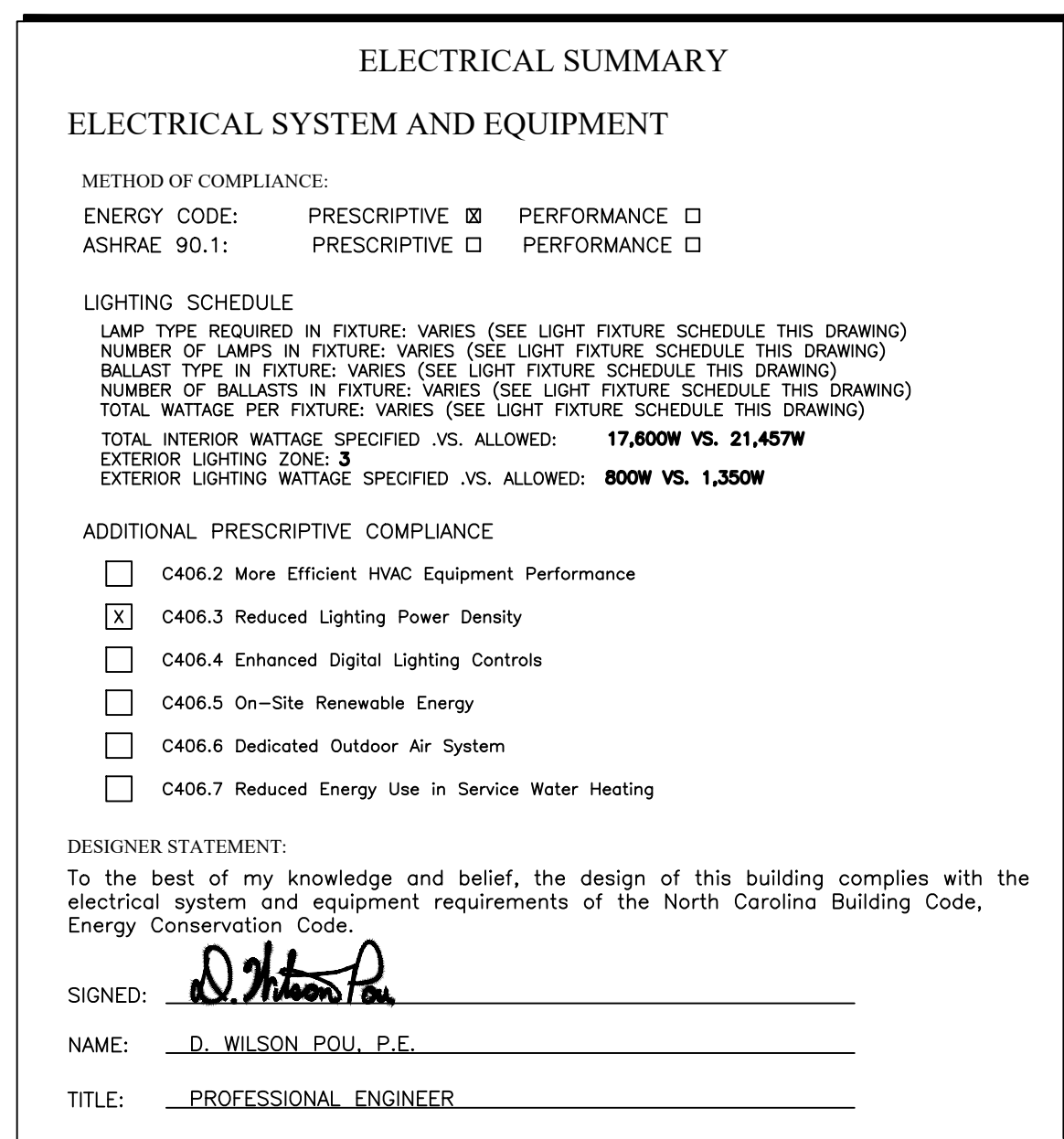




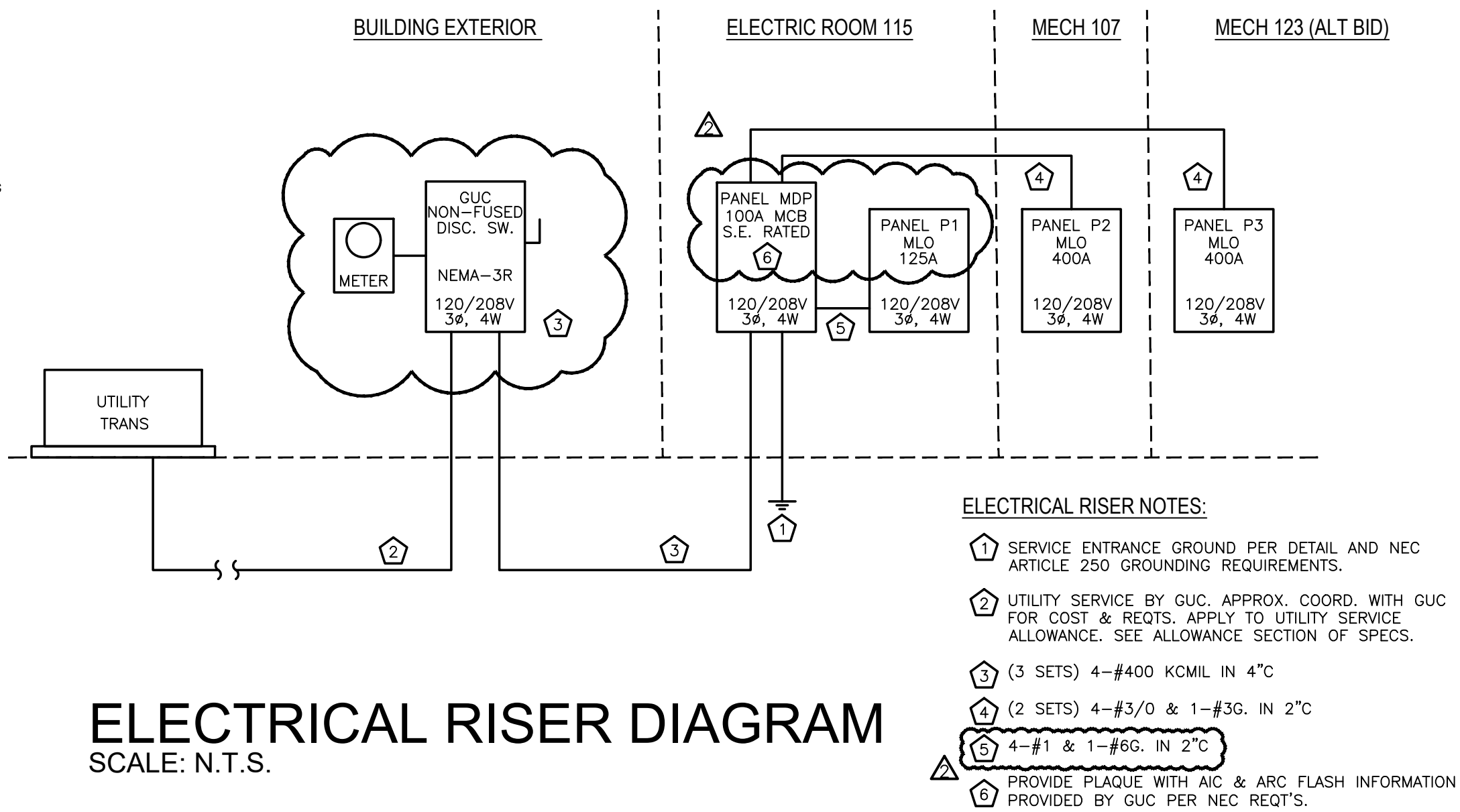
ELECTRICAL CONNECTION DETAIL

SCALE: N.T.S.



1. THIS DRAWING ONLY SHOWS GROUNDING ELECTRODE CONDUCTORS AND BONDING JUMPERS. ALL CONDUITS SHALL ALSO HAVE EQUIPMENT GROUNDING CONDUCTOR SIZED PER NEC AND DRAWINGS.
2. BONDING OF GAS PIPE IS TO EQUALIZE POTENTIAL OF GAS PIPE ONLY. AS REQ'D BY N.E.C. & VOLUME VI OF NCBG.

1,000A SERVICE ENTR
GROUNDING DETAIL
SCALE: N.T.S.



ELECTRICAL RISER DIAGRAM

SEE ARCHITECTURAL SECTIONS FOR MOUNTING
HEIGHTS ON ALL ELECTRICAL DEVICES PRIOR
TO ANY ROUGH-INS AND ELECTRICAL WORK.

PROVIDE PHENOLIC LABELS TO ALL
DISCONNECT SWITCHES, MOTOR RATED
SWITCHES, PANELS, WATER HEATERS,
HVAC EQUIPMENT.

EC SHALL PROVIDE TAMPER PROOF
RECEPTACLES IN ALL CLASSROOMS AND
AREAS ACCESSABLE TO STUDENTS.
RECEPTACLES MUST MEET REQUIREMENTS
OF 2017 NEC. SEE 406.2 AND 406.12.

ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION
	DUPLEX CONVENIENCE OUTLETS FOR GENERAL USE SHALL BE RATED 20 AMPERES, 120 VOLTS, DUPLEX, FOR STANDARD PARALLEL BLADE THREE-WIRE GROUNDED TYPE COPS, HUBBELL NO. 5362 (PUSH) OR 5362-2 (TYPED) OR EQUAL.
	DUPLEX OUTLET AS SPECIFIED
	240V OUTLET - AMPERAGE PER CIRCUIT BREAKER FED FROM
	DUPLEX OUTLET - GFI AS SPECIFIED
	DUPLEX OUTLET - GFI - EXTERIOR WATERPROOF AS SPECIFIED
	DUPLEX OUTLET - INSTALL HORIZONTALLY
	TAMPER PROOF DUPLEX OUTLET EQUAL TO HUBBELL No. 5062
	DUPLEX w/ TRANSIENT VOLTAGE SURGE SUPPRESSION w/ LIGHT (NEMA 5-15), EQUAL TO HUBBELL No. 5260
	NEMA 5-20R ISO-GROUND RECEPTACLE
	WATERTIGHT TWIST-LOCK RECEPTACLE IN KITCHEN UTILITY DISTRIBUTION WALL
	DUAL COMPARTMENT ALUMINUM RACEWAY SYSTEM, WIRING NO. ALA4800 w/ TWIN COVER, COLOR SELECTED BY ARCHITECT (SEE PLANS FOR RECEPTACLE & DATA OUTLET SUMMITTIES & LOCATIONS)
	RECEPTACLES MOUNTED IN STEEL CITY GAS SERIES AFM PRE SET FLOOR BOX. EACH BOX CONTAINS (6) DUPLEX RECEPTS (THREE) ALL SECURE SQUARE OF GARBET TO MATCH IN LD OF BOX. (BY ELECT. CONTR., TYP)
	DATA OUTLETS MOUNTED IN STEEL CITY GAS SERIES AFM PRE SET FLOOR BOX. EACH BOX CONTAINS (4) DUAL DATA OUTLETS (TYPICAL), ROUTES (2) 1" FROM EACH BOX BACK TO HOT ROOM, SECURE SQUARE OF GARPET TO MATCH IN LD OF BOX. (BY ELECT. CONTR., TYP)
	FIRE ALARM INITIATING DEVICES; SEE LEGEND SHEET E-004
	FIRE ALARM NOTIFICATION DEVICES; SEE LEGEND SHEET E-004
	VOICE/DATA DEVICES; SEE ICS LEGEND SHEETS-101. E.C. RESPONSIBLE FOR ROUGH-IN AS INDICATED ON ELECTRICAL DRAWINGS
	SECURITY DEVICES; SEE LEGEND THESE DWGS. E.C. RESPONSIBLE FOR ROUGH-IN AS INDICATED ON ELECTRICAL DRAWINGS
	SINGLE POLE SWITCH - 48" A.F.F., U.O.N., 20 AMP, 120/277 VLT, SPECIFICATION GRADE
	3 OR 4-WAY SWITCH - 48" A.F.F., U.O.N., SPECIFICATION GRADE, SEE SPECIFICATION SECTION 16140
	KEY-OPERATED SWITCH - 48" A.F.F., U.O.N.
	DIMMER SWITCH RATED FOR LOAD - 48" A.F.F., LUTRON No. MAR OR APPROVED EQUAL
	DOUBLE POLE SINGLE THROW SWITCH - 48" A.F.F.
	MASTER / SATELLITE OR SPLIT BALLAST WIRING - SEE DETAILS THESE DRAWINGS
	ELECTRONIC LIGHTING CONTROLLER AS SPECIFIED
	MOTOR STARTER SWITCH w/ PILOT LIGHT, HUBBELL No. HBL303PL OR EQUAL, BY SQUARE D
	VERTICAL - BOX FOR THERMOSTATS & SENSORS - 54" A.F.F. U.O.N. 1" E.C. TO UTILITY PLATFORM. COORDINATE w/ M.C.
	FUSED EQUIPMENT DISCONNECT U.O.N. - SEE SPECIFICATION SECTION 16400
	COMBINATION MOTOR STARTER DISCONNECT
	COMBINATION START/STOP BUTTON MOTOR STARTER- SQUARE D No. MB02 FOR WELDING (EF-60) & SQUARE D No. MC03 FOR CARPENTRY (EF-62)
	EMERGENCY STOP BUTTON - ST. No. Q40 OR APPROVED EQUAL WITH STOPPER & WARNING ALARM COVER, INDICATOR LIGHT, KEY RESET, YELLOW COLOR, & EMERGENCY GRAPHIC MESSAGE
	JUNCTION BOX, FLUSH MOUNTED IN ALL FINISHED SPACES
	ELECTRICAL PANEL AS SPECIFIED - SEE SPECIFICATION SECTION 16400
	GROUNDING ELECTRODE CONDUCTOR INSTALLED IN ACCORDANCE WITH 1999 NEC ARTICLES 250-26 & 250-81
	REFER TO KEY NOTE No. 2
	CEILING MOUNT SPEAKER BY TECHNOLOGY CONTRACTOR UNDER DIVISION 17
	RECESSED WALL MOUNT SPEAKER BY TECHNOLOGY CONTRACTOR, FURNISH & INSTALL BACKBOX & RACEWAY TO UTILITY PLATFORM
EM	RECESSED WEATHER-PROOF WALL MOUNT SPEAKER BY TECHNOLOGY CONTRACTOR UNDER DIVISION 17; E.C. FURNISH & INSTALL BACKBOX & RACEWAY TO UTILITY PLATFORM
	CEILING MOUNTED SPACE OCCUPANCY SENSOR FOR LIGHTING CONTRL. (SEE OC SENSOR LEGEND FOR TYPE DESCRIPTIONS).
	WALL MOUNTED SPACE OCCUPANCY SENSOR FOR LIGHTING CONTROL. (SEE OC SENSOR LEGEND FOR TYPE DESCRIPTIONS).
	EMERGENCY LIGHTS AS SPECIFIED - SEE LIGHT FIXTURE SCHEDULE
	FUTURE CCTV CAMERA BY OWNER UNDER SEPARATE CONTRACT - PROVIDE 7' FROM BELOW UTILITY PLATFORM TO CABLE MANAGEMENT HOOK ABOVE. CABLE UNDER DIVISION 17
	VIDEO STILL CAMERA BY OWNER
	EXIT SIGN w/ DIRECTIONAL ARROWS & BATTERY BACK-UP - SEE LIGHT FIXTURE SCHEDULE
	EXIT SIGN w/ BATTERY BACK-UP & EM LIGHTS - SEE LIGHT FIXTURE SCHEDULE
	DRY-TYPE TRANSFORMER AS SPECIFIED - SEE RISER DIAGRAMS, INSTALLATION DETAILS, & SPECIFICATION SECTION 16460
	SLEEVE ROUGH-INS UNDER PAVING/CONCRETE, 3' FOR FUTURE USE, & 2' FOR SITE LIGHTING BY CP&M.
	UNDERGROUND PRIMARY ELECTRICAL FEEDERS BY ELECTRICAL UTILITY
	UNDERGROUND SECONDARY ELECTRICAL FEEDERS BY ELECTRICAL CONTRACTOR
	TO FUTURE GROUND MOUNTED SATELLITE BY OWNER UNDER T.V. CABLING BY OTHERS
	BLENDED-TONGUE BDU SERIES CATV AMPLIFIER RATED NO. BRN-1924 OR EQUIVALENT NEMA 1 LOCKABLE CABT AUSTIN CO. OR EQUAL
	TELECOMMUNICATIONS CABLING BY OTHERS
	FIBER OPTIC CABLE BY TECHNOLOGY CONTRACTOR, WIRE MANAGEMENT BY E.C.
	RACEWAY AS SPECIFIED CONCEALED ABOVE CEILING
	RACEWAY AS SPECIFIED CONCEALED U.O.G.
	HOME-RUN TO PANEL w/ CONDUCTORS, NEUTRAL, & GROUND
	CABLE TRAY (CENTER SPINE & LADDER TYPES), SEE DETAILS THESE DRAWINGS
ABBREVIATIONS:	
A.C.	ABOVE CEILING
A.F.F.	ABOVE FINISH FLOOR
A.U.J.	AUTHORITY HAVING JURISDICTION
EH	EXHAUST FAN
EW	ELECTRIC WATER COOLER
EW	ELECTRIC WATER HEATER
G	GROUND CONDUCTOR
G.C.	GENERAL CONTRACTOR
P.C.	PLUMBING CONTRACTOR
M.C.	MECHANICAL CONTRACTOR
E.C.	ELECTRICAL CONTRACTOR OR EMPLOY CONDUIT
B-2	TYPICAL CIRCUIT DESIGNATION: PANEL 'B', BREAKER #2
C	CONDUIT AS SPECIFIED
NL	24 HOUR NIGHT LIGHT
NTS	NOT TO SCALE
P.B.	PUSH BUTTON
T.C.	TECHNOLOGY CONTRACTOR
TP	TAMPER-PROOF
U.O.N.	UNLESS OTHERWISE NOTED
U.G.	UNDERGROUND
WP	WEATHERPROOF ENCLOSURE
U.P.	UTILITY PLATFORM
NOTE: LEGEND IS FOR REFERENCE ONLY - SYMBOLS/ABBREVIATIONS SHOWN DO NOT NECESSARILY APPLY TO THIS PROJECT	

GENERAL ELECTRICAL NOTES

- DO NOT SCALE THESE DRAWINGS; REFER TO LARGEST SCALE ARCHITECTURAL PLANS.
2. REFERENCE SPECIFICATIONS AND ARCHITECTURAL, STRUCTURAL, PLUMBING, & HVAC DRAWINGS PRIOR TO CONSTRUCTION.
3. THESE DRAWINGS ARE DIAGRAMMATIC ONLY AND ARE NOT INTENDED TO SHOW MINOR DETAILS AND EXACT LOCATIONS. DESIGN ADJUSTMENTS SHALL BE ANTICIPATED BY THE CONTRACTOR TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
4. ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH CURRENT NEC/NFPA 70. CONTRACTOR SHALL NOTIFY ENGINEER REGARDING ANY CODE DISCREPANCIES SHOWN ON PLAN, ANY PERMIT OR INSPECTION FEES ARE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
5. THE LOCATIONS OF EXISTING UNDERGROUND UTILITIES ARE SHOWN IN AN APPROXIMATE METHOD & HAVE NOT BEEN VERIFIED. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF UNDERGROUND UTILITIES PRIOR TO COMMENCING WORK & IS RESPONSIBLE FOR ANY DAMAGE INCURRED BY FAILURE TO DO SO. EACH PRIME CONTRACTOR PERFORMING EXCAVATIONS OR UNDERGROUND WORK SHALL BE RESPONSIBLE FOR THE LOCATION OF ANY EXISTING UTILITIES IN THE AREA OF THEIR WORK. NOTIFY THE UTILITY LOCATOR SERVICE (1-800-632-4949) AT LEAST 48 HOURS PRIOR TO COMMENCING CONSTRUCTION IN ORDER THAT EXISTING UTILITIES IN THE AREA MAY BE FLAGGED AND CONTRACTOR SHALL USE ALL CARE NECESSARY WHEN WORKING IN AREAS KNOWN OR SUSPECTED TO CONTAIN UNDERGROUND UTILITIES, INCLUDING HAND DIGGING.
6. CONTRACTOR SHALL INSTALL, GROUNDS AND BOND SYSTEM PER THE CURRENT NEC.
7. CONTRACTOR SHALL NOT PUT MORE THAN SIX (6) DUPLEX RECEPTACLES ON ANY GIVEN 1P-20A CIRCUIT UNLESS SHOWN OTHERWISE.
8. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRICAL FIXTURES AND EQUIPMENT WITH OTHER PRIME CONTRACTORS PRIOR TO INSTALLATION TO AVOID CONFLICTS. CONTACT ARCHITECT IF ALTERNATE INSTALLATION METHOD IS REQUIRED.
9. NOT USED.
10. NOT USED.
11. MINIMUM WIRE SIZE SHALL BE #12 AWG, MINIMUM CONDUIT SIZE SHALL BE 3/4".
12. CONTRACTOR SHALL COORDINATE TELEPHONE AND DATA OUTLETS REQUIRED WITH OWNER PRIOR TO GYP. BOARD BEING INSTALLED.
13. HALLWAY AND MAINTENANCE RECEPTACLES SHALL NOT BE CIRCUITED WITH OFFICE OR OTHER GENERAL PURPOSE RECEPTACLES.
14. ELECTRICAL CONTRACTOR SHALL PROVIDE HACR RATED CIRCUIT BREAKERS ON ALL HVAC EQUIPMENT.
15. CONDUCTORS SHALL BE TYPE THHN, THWN, OR THW. BRANCH CIRCUIT CONDUCTOR SHALL NOT BE SMALLER THAN NO. 12 AWG, EXCEPT WHERE SPECIFICALLY NOTED OTHERWISE. HOME RUNS ORIGINATING MORE THAN 80' AT 120V FROM PANEL LOCATION SHALL BE NO. 10 AWG MINIMUM SIZE. WIRES NO. 10 AWG AND SMALLER SHALL BE SOLID; WIRES NO. 8 AWG AND LARGER SHALL BE STRANDED. GROUNDS OF SECTION 210-5 COLOR CODE. NEC SHALL BE STRICTLY COMPLIED WITH AND BE CONSISTENT THROUGHOUT ENTIRE SYSTEM.
16. ALL CIRCUITS SHALL BE PROVIDED WITH AN INSULATED EQUIPMENT GROUND CONDUCTOR SIZED IN ACCORDANCE WITH CURRENT NEC TABLE 250-122. HAZMARF FOR GROUNDING CONDUIT IS NOT INDICATED ON THESE DRAWINGS. RACEWAY SHALL NOT BE USED AS EQUIPMENT GROUND.
17. IN ADDITION TO MECHANICAL FASTENING TO CEILING TRUCK, SUPPORT LIGHT FIXTURES AT EACH END OF CONDUIT. SUSPEND CONDUCTORS FROM TO RATED WITH 12 GAUGE WIRE. CONNECT TO STRUCTURAL SYSTEM OF BUILDING.
18. ALL CONDUIT SHALL BE CONCEALED UNLESS OTHERWISE NOTED. ALL EMPTY CONDUIT SHALL HAVE A PULL WIRE.
19. ALL CONDUIT FITTINGS SHALL BE COMPRESSION TYPE WITH INSULATED THROATS. ALL EXTERIOR CONDUIT FITTINGS SHALL BE LISTED FOR USE IN WET LOCATIONS PER 2017 NEC ARTICLE 314.
20. SERVICE ENTRANCE CONDUCTORS SHALL BE IN CONDUIT (RIGID OR PVC). EXTERIOR CONDUIT EXPOSED ABOVE SLAB SHALL BE RIGID. INTERIOR CONDUIT EXPOSED SHALL BE ELECTRICAL RIGID OR PVC. EXTERIOR CONDUIT SHALL BE GALV.-POLED STEEL TURNING WITH A COATING ON THE OUTSIDE AND PROTECTED ON THE INSIDE BY A ZINC, ENAMEL, OR EQUIVALENT CORROSION RESISTANT COATING AND CONFORMING TO THE REQUIREMENTS OF ANSI C 60.1-1996 OR ETERIOR CONDUIT SHALL BE UNDERGROUND PVC CONDUIT SHALL BE LISTED SCHD 40 PVC CONFORMING TO ARTICLES 352 & 300 OF THE NEC. WHERE SCHD 40 PVC IS INSTALLED BELOW GRADE OR UNDER FLOORS SLABS, THE ELBOWS REQUIRED TO TURN THE RACEWAY UP OR DOWN, BE RIGID. RIGID STEEL SHALL BE OF RIGID STEEL AND SHALL CONTINUE AS RIGID STEEL TO THE CABINET, EQUIPMENT, ETC. FEEDER CIRCUITS SHALL BE IN CONDUIT. BRANCH CIRCUITS CONCEALED IN STUD WALLS OR ABOVE CEILINGS MAY BE MC CABLE.
21. ALL JUNCTION OR DEVICE BOXES SHALL HAVE A COVER.
22. ALL 1P-20A CIRCUITS SHALL BE 2-#12 & 1-#12G IN 3/4" U.N.O.
23. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH ALL VOLUMES OF THE NCSBC, INSPECTORS HAVING JURISDICTION, AND ALL OTHER APPLICABLE CODES AND ORDINANCES.
24. EACH PIECE OF ELECTRICAL GEAR, EQUIPMENT, ETC., SHALL BEAR A "UL" LABEL.
25. METAL ROOF DECKING SHALL NOT BE PENETRATED TO SUPPORT ELECTRICAL ITEMS.
26. ALL EMERGENCY AND EXIT LIGHTS SHALL BE CONNECTED TO THE UNINTERRUPTED SIDE OF THE LOCAL LIGHTING CIRCUIT.
27. INSTALL ENGRAVED PHENOLIC LABELS ON ALL ELECTRICAL GEAR, DISCONNECTS, ETC. FASTEN WITH SCALED STAPLES.
28. WHERE PROVIDED BY E.C., DISCONNECTS SHALL BE HEAVY DUTY NEMA-1 RATED AT ALL LOADS. LOCATIONS INDICATED AND E.C. TYPE DUTY NEMA-3R RATED AT ALL EXTERIOR LOCATIONS INDICATED ON THESE DRAWINGS.
29. VERIFY WITH OWNER LOCATION/TYPE OF ALL FIXTURES, PANEL BOXES, OUTLET PLACEMENT, ETC., BY HOLDING AN ELECTRICAL WALKTHROUGH ON THE BUILDING SITE ONCE FRAMING IS COMPLETED.
30. ELECTRICAL BOXES INSTALLED IN U.L. RATED WALLS SHALL BE INSTALLED A MINIMUM OF 2"-0" FROM ANY OTHER ELECTRICAL BOX IN THAT WALL.
31. LIGHTING SWITCHES, RECEPTACLES AND/OR DATA OUTLETS SHALL NOT BE MOUNTED BACK TO BACK IN ANY WALL.
32. CABLE LOCATED IN PLENUMS SHALL BE PLENUM-RATED, ALL CABLE INSTALLED IN AREAS WITH EXPOSED STRUCTURE SHALL BE IN CONDUIT.
33. E.C. SHALL INSTALL COMPLY WITH ANSI A117.1 FOR OUTLET AND CONTROL SWITCH MOUNTING HEIGHTS FOR DATA ACCESSIBILITY.
34. E.C. SHALL BE RESPONSIBLE FOR ALL LINE SIDE AND LOAD SIDE WIRING ON ALL EQUIPMENT REQUIRING ELECTRICAL POWER EXCEPT EQUIPMENT PROVIDED BY OTHERS REQUIRING A FUSED DISCONNECT SWITCH. E.C. SHALL BE RESPONSIBLE FOR LINE SIDE WIRING AND INSTALLING EQUIPMENT COMPONENTS PROVIDED BY OTHERS. LOAD SIDE WIRING AND FUSING FOR EQUIPMENT PROVIDED BY OTHERS SHALL BE PROVIDED BY THE RESPECTIVE CONTRACTOR. (SEE DETAIL).
35. ALL HOLES CUT IN FLOOR, CEILING AND WALLS SHALL BE CORE-DRILLED OR SAWED.
36. WHERE DISTANCE TO FIRST OUTLET ON A 20 AMP CIRCUIT EXCEEDS 100 FEET, MINIMUM SIZE OF CONDUCTOR TO BE #10 AWG TO FIRST OUTLET
37. CONDUIT SHALL NOT BE RUN EXPOSED IN FINISHED AREAS UNLESS APPROVED BY ARCHITECT / OWNER. CONDUIT SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALL & FLOOR CONSTRUCTION IN FIRST CLASS WORKMANSHIP MANNER. CONDUIT SHALL BE BENT IN ACCORDANCE WITH NEMA-3R BENDING REQUIREMENTS. WHERE SCHD 40 PVC IS INSTALLED UNDER FLOOR SLABS, THE ELBOWS REQUIRED TO TURN THE RACEWAY UP INTO CABINETS, EQUIPMENT, ETC., WHERE SUBJECT TO DAMAGE, SHALL BE OF RIGID STEEL.
38. PROVIDE 3" WIDE RED MAGNETIC WARNING TAPE MARKED "BURIED ELECTRIC LINE BELOW" SIX INCHES BELOW FINISH GRADE FOR ALL U.G. CONDUIT.
39. NOT USED
40. ALL JUNCTION OR DEVICE BOXES SHALL HAVE A COVER; PROVIDE COVER PLATES AS SPECIFIED IN SECTION 16140
41. THE TERM "VERIFY" RELATIVE TO THESE DRAWINGS SHALL BE DEFINED AS OBTAINING EQUIPMENT AND/OR INSTRUCTIONS FROM EQUIPMENT SUPPLIER OR OBTAINED OWNER'S REPRESENTATIVE'S APPROVAL.