

GENERAL ELECTRICAL NOTES

- G1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH 2020 NATIONAL ELECTRICAL CODE WITH N.C. AMENDMENTS AND ALL APPLICABLE LOCAL AND STATE CODES.
- G2. ALL MATERIAL, EQUIPMENT AND APPLIANCES SHALL BE NEW, LABELED AND LISTED FOR ITS INTENDED USE BY A QUALIFIED THIRD-PARTY ELECTRICAL TESTING LABORATORY (I.E. UL, ETL, ETC.) AND THE NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION PER NEC ARTICLES 90.7, 110.2 AND 110.3. WHERE UNDERWRITERS LABORATORIES LABELING IS AVAILABLE FOR THE CLASS OF MATERIAL INVOLVED, MATERIALS SHALL BE FURNISHED WITH A UL LABEL OR LISTING, OR THE ELECTRICAL CONTRACTOR SHALL PROVE IT IS NOT REQUIRED.
- G3. ALL ELECTRICAL PERMITS AND INSPECTION FEES SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL CONTRACTOR.
- G4. ELECTRICAL CONTRACT DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF ELECTRICAL EQUIPMENT. DO NOT SCALE ELECTRICAL PLANS. OBTAIN ALL DIMENSIONS FROM THE ARCHITECT'S DIMENSIONED DRAWINGS AND FIELD MEASUREMENTS. THE CONTRACTOR SHALL REVIEW ARCHITECTURAL PLANS FOR DOOR SWINGS AND BUILT-IN EQUIPMENT, CONDITIONS INDICATED ON THOSE PLANS SHALL GOVERN FOR THIS WORK.
- G5. VERIFY ALL UTILITY REQUIREMENTS FOR ELECTRICAL SERVICE (PRIOR TO STARTING ANY WORK) SUCH AS VOLTAGE, PHASES, FAULT CURRENT, ETC., AND COORDINATE EXACT LOCATION OF INCOMING ELECTRICAL SERVICE WITH LOCAL POWER COMPANY PRIOR TO PROJECT START. NOTIFY ENGINEER OF ANY DIFFERENCES FROM WHAT IS SHOWN ON PLANS.
- G6. ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR ONE YEAR EFFECTIVE FROM THE DATE OF SUBSTANTIAL COMPLETION.
- G7. A COMPLETE GROUNDING SYSTEM SHALL BE PROVIDED AND INSTALLED IN ACCORDANCE WITH ARTICLE 250 OF THE NEC, AND AS SHOWN ON THE DRAWINGS.
- G8. ALL CUTTING AND PATCHING REQUIRED FOR INSTALLATION OF ELECTRICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. DO NOT CUT ANY MATERIAL THAT WILL WEAKEN THE STRUCTURE WITHOUT WRITTEN PERMISSION OF THE ARCHITECT. PATCHING SHALL BE ACCOMPLISHED TO MATCH ADJACENT SURFACES IN EVERY RESPECT. ENGAGE ORIGINAL INSTALLER FOR CUTTING/PATCHING OF ROOFS.
- G9. PROVIDE A TYPED DIRECTORY IN ALL PANELBOARDS CLEARLY DESCRIBING THE LOCATION AND TYPE OF LOAD SERVED FOR ALL CIRCUITS.
- G10. THE ELECTRICAL CONTRACTOR SHALL REQUEST A SELECTIVE BREAKER COORDINATION STUDY FROM THE ELECTRICAL GEAR MANUFACTURER PER NEC 700 REQUIREMENTS.
- G11. PROVIDE ENGRAVED PHENOLIC NAMEPLATES FOR ALL PANELBOARDS AND DISCONNECT SWITCHES, WHITE LETTERS ON BLACK BACKGROUND. NAMEPLATE SHALL CONTAIN EQUIPMENT DESIGNATION, VOLTAGE, FEEDER SOURCE, AIC RATING & DATE INSTALLED.
- G12. PROVIDE "FLASH HAZARD" LABELS FOR ALL PANELBOARDS IN ACCORDANCE WITH NEC REQUIREMENTS.
- G13. ALL TERMINALS/SLOTS SHALL BE 60 DEGREE/75 DEGREE RATED.
- G14. FUSES 0-600 AMPS SHALL BE UL CLASS "RK-5" LOW PEAK DUAL ELEMENT TIME DELAY WITH 200,000 AMPERE INTERRUPTING RATING AS MANUFACTURED BY BUSSMAN UNLESS NOTED OTHERWISE.
- G15. ALL WATER HEATERS SHALL HAVE DISCONNECT SIZED PER 422.11(E)(3).
- G16. ELECTRICAL CONTRACTOR SHALL MAKE ALL FINAL ELECTRICAL CONNECTIONS TO EQUIPMENT REGARDLESS OF WHO SUPPLIES THE EQUIPMENT. THIS INCLUDES ALL HVAC, PLUMBING AND OWNER FURNISHED EQUIPMENT CONNECTIONS OF 120V OR HIGHER.
- G17. RACEWAYS SHALL BE INSTALLED CONCEALED IN NEW WALL CONSTRUCTION, ABOVE CEILINGS, BELOW FLOOR, AND IN OTHER CAVITIES TO THE GREATEST EXTENT POSSIBLE. WHERE EXPOSED RACEWAYS MUST BE USED, LAYOUT RACEWAYS TO MINIMIZE THE NUMBER OF VERTICAL RUNS.
- G18. ALL EXPOSED RACEWAY SHALL BE RUN PARALLEL OR PERPENDICULAR TO THE BUILDING SURFACES AND SHALL BE PAINTED AS DIRECTED BY THE ARCHITECT. NO EXPOSED CONDUIT SHALL BE ALLOWED IN FINISHED SPACES EXCEPT AS PERMITTED BY OWNER OR ARCHITECT. EXPOSED RACEWAY IN FINISHED SPACES SHALL BE WIREMOLD TYPE.
- G19. BEFORE COMMENCING WITH ANY ROUGH-IN, COORDINATE THE EXACT LOCATION AND MOUNTING HEIGHT OF ALL WALL MOUNTED DEVICES WITH THE ARCHITECTURAL INTERIOR ELEVATIONS, CASEWORK SHOP DRAWINGS, AND EXISTING CONDITIONS. IF ANY DISCREPANCIES ARE DISCOVERED, NOTIFY THE ARCHITECT FOR FURTHER DIRECTION. MINOR ADJUSTMENTS IN DEVICE LOCATION, I.E. 5/8" IN ANY DIRECTION SHALL BE DONE AT NO ADDITIONAL COST TO THE CONTRACTOR.
- G20. ALL WIRING SHALL BE INSTALLED IN IMC, RMC, EMT OR TYPES AC AND MC FLEXIBLE CABLES. RNC CONDUIT (PVC), SHALL ONLY BE USED UNDERGROUND AND OUTDOORS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE. MINIMUM SIZE CONDUIT SHALL BE 3/4". AC AND MC FLEXIBLE CABLES SHALL BE USED ONLY IN AREAS PERMITTED BY CODE. INDOOR BRANCH CIRCUIT WIRING MAY BE TYPE NM, NMC, OR NMS FOR DWELLING UNITS OR OTHER BUILDINGS PERMITTED TO BE OF TYPES III, IV OR V CONSTRUCTION. DWELLING UNIT SERVICE FEEDERS MAY BE TYPE SE OR USE CABLES IN AREAS PERMITTED BY CODE. AMPACITY FOR SE AND USE CABLES SHOWN ON THE SER FEEDER SCHEDULE INCLUDED IN THESE DRAWINGS IS BASED ON THE 60°C AMPACITY OF TABLE 310.15(B)(16) FOR INSTALLATION IN INSULATION. SHOULD SER CABLE NOT BE IN CONTACT WITH INSULATION CONTACT ENGINEER FOR REVISED FEEDER SIZES (IN INSULATION SHALL BE AS DEFINED IN ARTICLE 310.15(A)(2) AND AS DETERMINED BY THE LOCAL AHJ). ALL SER FEEDERS LOCATED WITHIN TYPE I AND/OR II BUILDING AREAS (NONCOMBUSTIBLE CONSTRUCTION) SHALL BE RUN IN EMT CONDUIT PER NEC. ONCE THE CONDUIT PENETRATES THE TRANSITION SLAB AND ENTER INTO THE TYPE III, IV OR V CONSTRUCTION THE SER CABLE MAY BE RUN FREELY AS ALLOWED PER NEC. ALL OTHER WIRING IN DWELLING UNITS EXCEEDING 50 AMPERES SHALL BE INSTALLED IN EMT INDOORS OR PVC OUTDOORS, WHERE NOT SUBJECT TO PHYSICAL DAMAGE.
- G21. ALL FLEX SHALL BE LIQUID TIGHT FLEXIBLE METAL.
- G22. PROVIDE A PULL WIRE OR FISH TAPE IN ALL EMPTY CONDUITS. PROVIDE A BLANK COVER PLATE OVER ALL UNUSED BOXES INCLUDING DATA/COMM BOXES.
- G23. WHERE A SINGLE HOMERUN IS SHOWN THE CIRCUIT SHALL BE INSTALLED IN A DEDICATED CONDUIT, DO NOT COMBINE WITH OTHER CIRCUITS. WHERE A CIRCUIT HOMERUN IS NOT SHOWN THE CONTRACTOR SHALL COMBINE CIRCUITS AS FOLLOWS AND IN ACCORDANCE WITH THE NEC.
1. A MAXIMUM OF THREE 20A, 1 POLE BRANCH CIRCUITS MAY BE COMBINED IN COMMON HOMERUN SHARING A COMMON NEUTRAL OR WITH SEPARATE NEUTRALS, FOR A TOTAL OF SIX CURRENT CARRYING CONDUCTORS. ALL BRANCH CIRCUITS LARGER THAN 20A SHALL BE SEPARATELY HOMERUN TO PANEL.
 2. EACH MULTI-WIRE BRANCH CIRCUIT SHARING A COMMON NEUTRAL SHALL BE PROVIDED WITH A MEANS THAT WILL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS AT THE POINT WHERE THE BRANCH CIRCUIT ORIGINATES.
- G24. CONDUCTORS SHALL BE COPPER, RATED AT NOT LESS THAN 600 VOLTS. MINIMUM SIZE SHALL BE NO. 12 AWG UNLESS OTHERWISE NOTED ON THE DRAWINGS. ALL WIRE #8 AWG AND LARGER SHALL BE STRANDED, #10 THRU #12 AWG CONDUCTORS SHALL BE SOLID. ALL INSULATION TYPES SHALL BE THWN/THHN. FEEDER CIRCUIT CONDUCTORS MAY BE COPPER OR ALUMINUM.
- G25. 20A/120V BRANCH CIRCUITS EXTENDING UP TO 56" IN LENGTH, FROM PANEL TO FARTHEST DEVICE, SHALL USE AT MINIMUM NO. 12 (CU) CONDUCTORS AND 3/4". FOR 20A/120V BRANCH CIRCUITS EXTENDING UP TO 93" IN LENGTH, FROM PANEL TO FARTHEST DEVICE, SHALL USE NO. 10 (CU) CONDUCTORS AND 3/4". ANY BRANCH CIRCUIT LENGTHS THAT EXCEED 93", THE ELECTRICAL CONTRACTOR SHALL CONTACT THE ENGINEER IMMEDIATELY FOR UPDATED CONDUCTOR AND CONDUIT SIZES.
- G26. TO PREVENT UNDER-VOLTAGE, THE FEEDERS SHOWN ON THE VOLTAGE DROP TABLE(S) HAVE BEEN SIZED TO COMPENSATE FOR WHEREVER A MAXIMUM TOTAL VOLTAGE DROP ON BOTH FEEDERS AND BRANCH CIRCUITS TO THE FARTHEST DEVICE DOES NOT EXCEED 5%. FOR FEEDER LENGTHS EXCEEDING THE ONE-WAY DISTANCES PROVIDED ON THE VOLTAGE DROP TABLE(S) THE ELECTRICAL CONTRACTOR SHALL IMMEDIATELY CONTACT THE ENGINEER PRIOR TO BIDDING, PURCHASING AND ROUGH-IN FOR UPDATED CONDUCTOR AND CONDUIT SIZES BASED ON UPDATED VOLTAGE DROP CALCULATIONS.
- G27. FOR EVERY WIRING DEVICE MARK THE BRANCH CIRCUIT TO WHICH IT IS CONNECTED ON THE BACK OF EACH DEVICE PLATE, USING AN INDELEBIL MARKER PEN.
- G28. COORDINATE ALL DEVICE AND DEVICE PLATE COLORS WITH OWNER/ARCHITECT. DEVICES AND DEVICE PLATES LOCATED IN CABINERY SHALL BE A DARK COLOR TO MATCH CABINERY FINISH.
- G29. EXACT LOCATION OF ALL FLOOR-MOUNTED OUTLETS SHALL BE COORDINATED WITH THE OWNER/ARCHITECT BEFORE ROUGH-IN.
- G30. TWO OR MORE ADJACENT POWER OR COMMUNICATION RECEPTACLES SHALL BE GANGED WITH A COMMON FACEPLATE - IF THEY CANNOT BE GANGED THEY SHALL BE INSTALLED WITH A MINIMUM DISTANCE BETWEEN UNITS.
- G31. WALL RECEPTACLES SHOWN BACK TO BACK MAY BE OFFSET BUT SHALL BE INSTALLED DIRECTLY ADJACENT TO ONE ANOTHER.
- G32. LIGHT SWITCHES SHALL BE NO MORE THAN 6" FROM EDGE OF DOOR FRAME.
- G33. WHERE PENETRATIONS ARE MADE THROUGH A REQUIRED FIRE-RESISTIVE WALL, FLOOR, OR PARTITION FOR THE PURPOSE OF RUNNING RACEWAY CARRYING ELECTRICAL, TELEPHONE, TELEVISION, OR LOCAL COMMUNICATION AND/OR SIGNALING CIRCUITS, THE OPENING AROUND THE RACEWAY SHALL BE FIRE STOPPED PER THE STATE BUILDING CODE. COORDINATION WITH THE GENERAL CONTRACTOR SHALL BE MAINTAINED TO ENSURE THAT THIS FIRE STOPPING IS ACCOMPLISHED. USE APPROVED ASSEMBLIES SUCH AS THE FOLLOWING:
- * CONDUIT PENETRATIONS OF 1.2, 3 & 4 HOUR GYP BOARD WALLS - U.L.#WL1001
 - * CONDUIT PENETRATIONS OF 2, 3 & 4 HOUR CONCRETE OR BLOCK WALLS - U.L.#CAJ1001
 - * CONDUIT PENETRATIONS OF 2, 3 & 4 HOUR CONCRETE FLOORS - U.L.#CAJ1001
 - * CONDUIT PENETRATIONS OF 1 HOUR GYPBOARD CEILING ASSEMBLY - L526
 - * MULT. CONDUIT PENETRATIONS OF 2, 3 & 4 HOUR CONCRETE OR BLOCK WALL OR FLOOR - CAJ1042
- G34. IN REQUIRED FIRE RATED WALLS AND PARTITIONS, OPENINGS FOR INSTALLATION OF BOXES SHALL BE IN ACCORDANCE WITH THE APPLICABLE BUILDING CODE AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS INCLUDED WITH THE BOX LISTING. COORDINATE CLOSELY WITH THE GENERAL CONTRACTOR TO ENSURE THAT THE INTEGRITY OF THE U.L. RATING IS MAINTAINED.
- G35. OUTLET BOXES FOR DEVICES MOUNTED ON OPPOSITE SIDES OF FIRE RATED PARTITIONS SHALL NOT BE MOUNTED IN THE SAME WALL CAVITY. SEPARATE WALL PENETRATIONS BY MOUNTING ON OPPOSITE SIDES OF WALL STUDS OR OTHER VERTICAL STRUCTURAL MEMBER IN THE WALL.
- G36. PRIOR TO ORDERING ANY EQUIPMENT THE ELECTRICAL CONTRACTOR SHALL PROVIDE SHOP DRAWING SUBMITTALS TO THE OWNER, ARCHITECT AND ELECTRICAL ENGINEER FOR THE LIGHTING FIXTURES, ELECTRICAL GEAR, FIRE ALARM SYSTEM AND OTHER SIMILAR SYSTEMS. SHOP DRAWING SUBMITTALS SHALL BE PROVIDED REGARDLESS IF THE EQUIPMENT BEING SUPPLIED IS THE SAME AS WHAT IS SPECIFIED ON THE PLANS.

- G37. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING RESTRAINTS TO RESIST THE EARTHQUAKE EFFECTS ON THE ELECTRICAL SYSTEM. THE REQUIREMENTS FOR THOSE RESTRAINTS ARE FOUND IN THE IBC, THE ANCHORING OF THE EQUIPMENT SHALL COMPLY WITH IBC SECTION 1613.
- G38. IF DURING THE COURSE OF WORK THE ELECTRICAL CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS OR NEC OR OTHER CODES, THE ELECTRICAL CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.
- G39. SEE PANEL SCHEDULES FOR BRANCH CIRCUIT CONDUCTOR SIZES. THE "WIRE SIZE" COLUMN INDICATES THE SIZE OF THE PHASE (IE HOT) AND NEUTRAL CONDUCTORS. THE EC SHALL SIZE THE EQUIPMENT GROUNDING CONDUCTORS PER NEC TABLE 250.122, THE EC SHALL SIZE THE CONDUIT (IF REQUIRED) PER NEC ANNEX C. THE QUANTITY OF CONDUCTORS IS BASED ON THE "POLE" COLUMN AND FOLLOWS THE PROCESS BELOW, PARALLEL SET QUANTITIES ARE MULTIPLIED BY THE NUMBER OF SETS:
- 120V/277V - 1 POLE
 1 - PHASE (IE HOT) - CONDUCTOR SIZE PER "WIRE SIZE" COLUMN IN PANEL SCHEDULE
 1 - NEUTRAL - CONDUCTOR SIZE PER "WIRE SIZE" COLUMN IN PANEL SCHEDULE
 1 - GROUND - PER NEC TABLE 250.122
 CONDUIT SIZED PER NEC ANNEX C (IF REQUIRED)
- 208V/240V/480V - 2 POLE
 2 - PHASE (IE HOT) - CONDUCTOR SIZE PER "WIRE SIZE" COLUMN IN PANEL SCHEDULE
 1 - NEUTRAL (EC VERIFY IF REQUIRED FOR INSTALLED EQUIPMENT) - CONDUCTOR SIZE PER "WIRE SIZE" COLUMN IN PANEL SCHEDULE
 1 - GROUND - PER NEC TABLE 250.122
 CONDUIT SIZED PER NEC ANNEX C (IF REQUIRED)
- 208V/240V/480V - 3 POLE
 3 - PHASE (IE HOT) - CONDUCTOR SIZE PER "WIRE SIZE" COLUMN IN PANEL SCHEDULE
 1 - NEUTRAL (EC VERIFY IF REQUIRED FOR INSTALLED EQUIPMENT) - CONDUCTOR SIZE PER "WIRE SIZE" COLUMN IN PANEL SCHEDULE
 1 - GROUND - PER NEC TABLE 250.122
 CONDUIT SIZED PER NEC ANNEX C (IF REQUIRED)
- G40. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH GEAR MANUFACTURER WHERE THE HIGHEST CONTINUOUS TRIP SETTING FOR WHICH THE ACTUAL DEVICE INSTALLED IN A CIRCUIT BREAKER IS RATED OR CAN BE ADJUSTED IS 1200A OR HIGHER SHALL HAVE ARC ENERGY REDUCTION IN ACCORDANCE WITH NEC 240.87.
- G41. COLOR CODE CONDUCTORS PER NEC. FEEDERS SHALL BE IDENTIFIED IN ACCORDANCE WITH NEC 215.12. USE BLACK, RED, AND BLUE FOR PHASES A, B, AND C RESPECTIVELY ON 208Y/120 VOLT THREE-PHASE Y SYSTEMS AND WHITE FOR THE NEUTRAL. ISOLATED GROUND WIRES SHALL BE GREEN WITH YELLOW BANDS OR STRIPES. THIS IDENTIFICATION SHALL BE MADE AT EACH POINT WHERE A CONNECTION IS MADE. COLORS SHALL BE FACTORY APPLIED FOR CONDUCTORS #6 AWG AND SMALLER. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE GREEN IN COLOR AND MINIMUM #12 AWG. THE EC SHALL PROVIDE PLENUM RATED CABLE FOR ANY ELECTRICAL, TELEPHONE, COMMUNICATION, OR OTHER CABLE THAT ENTERS CEILING RETURN PLENUMS.
- G42. WHERE CONDUCTORS ARE RUN IN PARALLEL, THE EC SHALL COMPLY WITH NEC 310.4.

ELECTRICAL SYSTEM AND EQUIPMENT METHOD OF COMPLIANCE SUMMARY

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code - Prescriptive

Lighting schedule:

lamp type required in fixture
 number of lamps in fixture
 ballast type used in the fixture
 number of ballasts in fixture
 total wattage per fixture
 total interior wattage specified vs. allowed:
 total exterior wattage specified vs. allowed:

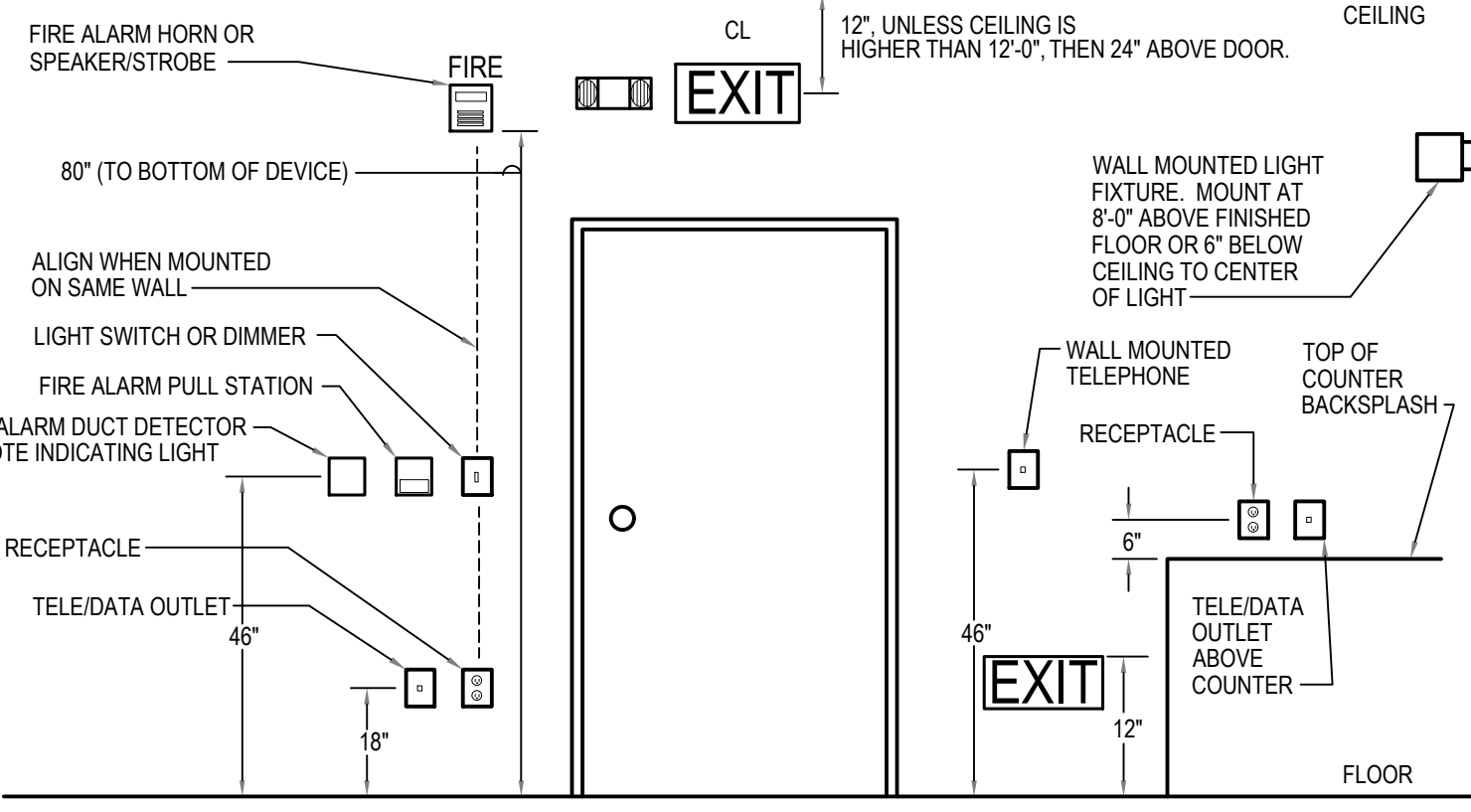
See Light Fixture Schedule on sheet

**Additional Efficiency Package Options
 (When using the 2018 NCECC; not required for ASHRAE 90.1)**

- C406.2 More Efficient HVAC Equipment Performance
- C406.3 Reduced Lighting Power Density
- C406.4 Enhanced Digital Lighting Controls
- C406.5 On-Site Renewable Energy
- C406.6 Dedicated Outdoor Air System
- C406.7 Reduced Energy Use in Service Water Heating

DESIGNER STATEMENT:

To the best of my knowledge and belief, the design of this building/space complies with the electrical system and equipment requirements of the 2018 North Carolina Energy Conservation Code.



1 TYPICAL DEVICE MOUNTING ELEVATION
 NOT TO SCALE

ELECTRICAL SYMBOL LEGEND

	DUPLEX RECEPTACLE, 20A, 120 VOLT, +18" A.F.F. (U.N.O.) *GFCI INDICATES GROUND FAULT PROTECTION *WP INDICATES WEATHERPROOF
	QUADPLEX RECEPTACLE, 20A, 120 VOLT, +18" A.F.F. (U.N.O.)
	SIMPLEX RECEPTACLE, 20A, 120 VOLT, +18" A.F.F. (U.N.O.)
	208/230 VOLT 1ø RECEPTACLE
	208/230 VOLT 3ø RECEPTACLE
	DUPLEX RECEPTACLE RECESSED IN FLOOR WITH BRASS COVER
	QUADPLEX RECEPTACLE RECESSED IN FLOOR WITH BRASS COVER
	DUPLEX RECEPTACLE MOUNTED IN CEILING
	QUADPLEX RECEPTACLE MOUNTED IN CEILING
	JUNCTION BOX
	DISCONNECT SWITCH, FUSED, HEAVY DUTY, NEMA 1 FOR INTERIOR, NEMA 3R FOR EXTERIOR, FUSE ACCORDING TO NAMEPLATE DATA
	NON-FUSED PULL DISCONNECT SWITCH, NEMA 1 FOR INTERIOR, NEMA 3R FOR EXTERIOR.
	TELEPHONE/DATA JACK (JUNCTION BOX WITH 1" CONDUIT STUBBED TO ABOVE CEILING) CONDUCTORS AND TERMINATIONS PROVIDED AND INSTALLED BY COMMUNICATIONS CONTRACTOR.
	SINGLE POLE SWITCH
	3 WAY SWITCH
	WALL MOUNT INFRARED OCCUPANCY SENSOR WITH UP TO 30 MINUTE TIME-ON SETTING AND MANUAL OVERRIDE, MIN. COVERAGE 500+ SQFT. WATTSTOPPER MODEL WS-250 OR EQUAL, 120/277V RATED
	MOTOR RATED SWITCH RATED AT 20 AMPS, VOLTAGE TO MATCH EQUIPMENT
	20 AMP SWITCH IN WEATHERPROOF BOX WITH WEATHERPROOF COVER
	ELECTRICAL PANEL
	DUSK/DAWN PHOTOCCELL
	GENERAL CONTRACTOR
	ELECTRICAL CONTRACTOR
	ABOVE FINISHED FLOOR
	ABOVE FINISHED GRADE
	RECEPTACLE
	LIGHTS
	ISOLATED GROUND
	WEATHER PROOF (DEVICE TO HAVE WEATHERPROOF IN-USE COVER)
	GROUND FAULT CIRCUIT INTERRUPTER
	ARC FAULT CIRCUIT INTERRUPTER

LUMINAIRE SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	CCT	MOUNTING	MAX WATTS	BALLAST/DRIVER	REMARKS
A	EXTERIOR GOOSE NECK	NUVO	65-661	VARIABLE	SURFACE	50	LED	1
B	FLOOD LIGHT	NUVO	65-715	3000K	SURFACE	20	LED	1

1. PROVIDE INTEGRAL MOTION SENSOR.

GENERAL NOTES:

- A. THE CONTRACTOR SHALL VERIFY THE LEAD TIME OF ALL PRODUCTS SPECIFIED IN THIS SCHEDULE AT THE TIME OF PACKAGE QUOTE.
- B. DURING THE BID PROCESS, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER OF ANY DELIVERY/SCHEDULING ISSUES.
- C. NO SUBSTITUTIONS WILL BE ALLOWED DUE TO THE LACK OF COORDINATION OF DELIVERY DATES AND CONSTRUCTION SCHEDULE AFTER BID.
- D. ALL EXPEDITED EXPENSES SHALL BE THE RESPONSIBILITY OF THE CONTRACTORS.
- E. FIXTURES TO BE INSTALLED IN CEILINGS, INDICATE ON THE ARCHITECTURAL PLANS AS HAVING INSULATION IN CONTACT WITH THE CEILING SURFACE, SHALL BE IC RATED BY MANUFACTURER.
- F. LIGHTING FIXTURES SHALL MEET THE AESTHETICS, DESCRIPTION AND SPECIFICATIONS, SUBSTITUTIONS SHALL INCLUDE PT. BY PT. CALCULATIONS.
- G. LIGHTING FIXTURES, AS SPECIFIED, HAVE BEEN SO SELECTED TO ACHIEVE REQUIRED/DESIRED FOOTCANDLE LEVELS IN THEIR RESPECTIVE AREA. HENCE SPECIFIC FIXTURE CHARACTERISTICS WHICH MAY CREATE PARTICULAR ILLUMINATION RESULTS ARE ESSENTIAL. ANY DEVIATIONS FROM SPECIFIED FIXTURES SHALL DEEM THE SUBMITTING AGENT AND CONTRACTORS RESPONSIBLE IN PROVIDING SUCH DEVIATION FOR THE ARCHITECT/ENGINEER AND OWNER TO MAKE AN INFORMED DECISION.
- H. SUBSTITUTIONS APPROVED BY THE ENGINEER PREVIOUS TO BID ARE ACCEPTABLE AS LONG AS THEY ARE EQUAL TO THE FIXTURE SPECIFIED, UNLESS OTHERWISE NOTED. THIS INCLUDES LENS, COLORS, REFLECTORS, PHOTOMETRICS, HOUSING MATERIAL, FINISHES, ETC. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER WITH CUT SHEETS FOR APPROVAL. SUBSTITUTE FIXTURES SHALL BE PRICED WITH THE SPECIFIED FIXTURE AND LISTED SEPARATELY SO THE ARCHITECT, ENGINEER AND OWNER CAN MAKE AN INFORMED DECISION.
- I. ANY FIXTURE WITH THE TEXT "NL" ADJACENT TO IT SHALL INDICATE THAT THAT FIXTURE IS A NIGHT LIGHT (24HR LIGHT). THE FIXTURE SHALL BE CONNECTED TO THE UNSWITCHED HOT LEG OF THE INDICATED CIRCUIT.
- J. ACRYLIC PRISMATIC LENSES SHALL BE 0.156" NOMINAL MINIMUM THICKNESS.
- K. ALL EXIT AND EMERGENCY FIXTURES SHALL COMPLY WITH NCSB STANDARDS AND HAVE AUTOMATIC TESTING DEVICES.
- L. LED EMERGENCY BATTERY SHALL PROVIDE 1400 MINIMUM LUMENS OUTPUT FROM 1 LAMP FOR 90 MINUTES MINIMUM.
- M. ELECTRICAL CONTRACTOR SHALL CONNECT ALL LED EMERGENCY FIXTURES TO CLOSEST AVAILABLE LIGHTING CIRCUIT UNLESS NOTED OTHERWISE.
- N. LED MODULES SHALL BE REPLACEABLE.
- O. ELECTRICAL CONTRACTOR SHALL RECEIVE APPROVAL FOR ALL LIGHTING FIXTURES FROM ARCHITECT/OWNER PRIOR TO PURCHASE AND ROUGH-IN. THE ABOVE FIXTURE TYPES ARE LISTED AS THE DESIGN BASIS.

ELECTRICAL DRAWING INDEX	
E0.1	ELECTRICAL LEGENDS AND NOTES
E1.1	ELECTRICAL PLAN
E2.1	PANEL SCHEDULE AND ONE-LINE DIAGRAM

SHARPE
ENGINEERING & CONSULTING, PLLC

P. 336.425.8815
sharpengineers.com

P.O. Box G
Wilson's Mills, NC 27593
NC License # P-2821

DISCLAIMER

THESE DRAWINGS, THE PROJECT SPECIFICATIONS MANUAL, AND THE DESIGN ARE INSTRUMENTS OF SERVICE ONLY AND REMAIN THE PROPERTY OF SHARPE ENGINEERING & CONSULTING, PLLC. THE REPRODUCTION AND/OR UNAUTHORIZED USE OF THESE DOCUMENTS WITHOUT THE EXPRESS WRITTEN PERMISSION OF SHARPE ENGINEERING & CONSULTING, PLLC IS PROHIBITED.

FOR CAROLINA
PROFESSIONAL SEAL

ENGINEER
DANIEL B. A. SHARPE

8-22-24

DESIGN FOR:

BAUCOM BUSINESS PLAZA - BR2

11132 U.S. 401 N
FUQUAY-VARINA, NC 27526

REV. NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		

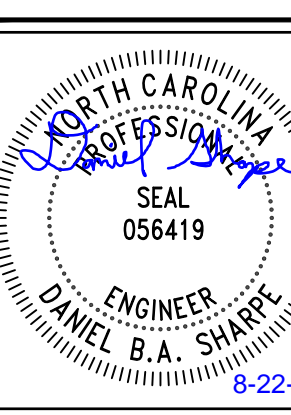
ISS. NO.	DATE	DESCRIPTION
1	8-22-24	FOR PERMITTING
2		
3		
4		
5		
6		
7		

PROJECT NO.:	24-029	DRAWN BY:	DBS
		CHECKED BY:	DBS

E0.1

DISCLAIMER

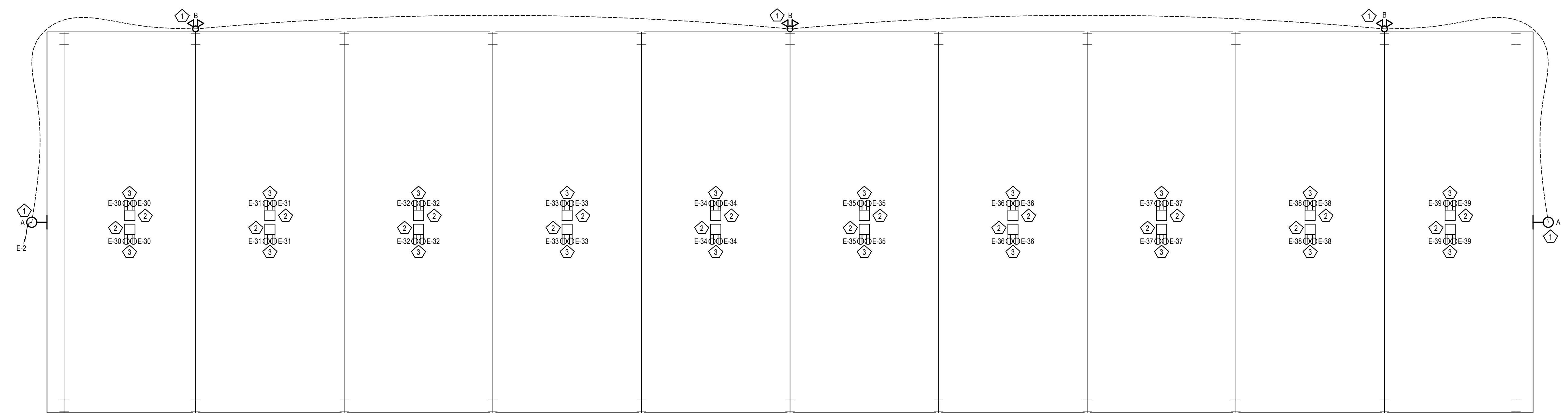
THESE DRAWINGS, THE PROJECT SPECIFICATIONS MANUAL, AND THE DESIGN ARE INSTRUMENTS OF SERVICE ONLY AND REMAIN THE PROPERTY OF SHARPE ENGINEERING & CONSULTING, PLLC. THE REPRODUCTION AND/OR UNAUTHORIZED USE OF THESE DOCUMENTS WITHOUT THE EXPRESS WRITTEN PERMISSION OF SHARPE ENGINEERING & CONSULTING, PLLC IS PROHIBITED.



DESIGN FOR:
BAUCOM BUSINESS PLAZA - BR2
11132 U.S. 401 N
FUQUAY-VARINA, NC 27526

ELECTRICAL KEYNOTE LEGEND

KEY VALUE	KEYNOTE TEXT
1	LIGHTING TO BE CONTROLLED BY INTEGRAL MOTION SENSORS TO FIXTURES.
2	PROVIDE 2 GANG DEVICE PLATE OUTDOOR POWER PEDESTAL (LEGRAND XPP2G30-BK OR OWNER APPROVED EQUIVALENT). PEDESTALS NOT DRAWN TO SCALE, SHOWN FOR REFERENCE ONLY.3
3	RECEPTACLES TO BE GFCI PROTECTED AND PROVIDED WITH WEATHERPROOF ENCLOSURE.



1 ELECTRICAL PLAN
SCALE - 3/32" = 1'0"

REV. NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		

ISS. NO.	DATE	DESCRIPTION
1	8-22-24	FOR PERMITTING
2		
3		
4		
5		
6		
7		

PROJECT NO.: 24-029
DRAWN BY: DBAS
CHECKED BY: DBAS

ELECTRICAL PLAN

E1.1

100 AMP MAIN BREAKER		42 POLES		PANELBOARD E			10 KA SHORT CIRCUIT RATING		LOCATION: BR1	
100 AMP BUS RATING		3 PHASE 4 WIRE		60 HZ			ENCLOSURE RATING: NEMA 3R		MOUNTING: SURFACE	
CIRCUIT NO.	DESCRIPTION	BREAKER AMPS/POLES	LOAD KVA			BREAKER AMPS/POLES	DESCRIPTION	CIRCUIT NO.		
			PHASE A	PHASE B	PHASE C					
1	LIGHTING	20/1	0.13	0.20		20/1	BR2 LIGHTING	2		
3	RV RECEPTACLE	20/1		0.18	0.18	20/1	RV RECEPTACLE	4		
5	RV RECEPTACLE	20/1			0.18	20/1	RV RECEPTACLE	6		
7	RV RECEPTACLE	20/1	0.18	0.18		20/1	RV RECEPTACLE	8		
9	RV RECEPTACLE	20/1		0.18	0.18	20/1	RV RECEPTACLE	10		
11	RV RECEPTACLE	20/1			0.18	20/1	RV RECEPTACLE	12		
13	RV RECEPTACLE	20/1	0.18	0.18		20/1	RV RECEPTACLE	14		
15	RV RECEPTACLE	20/1		0.18	0.18	20/1	RV RECEPTACLE	16		
17	RV RECEPTACLE	20/1			0.18	20/1	RV RECEPTACLE	18		
19	RV RECEPTACLE	20/1	0.18	0.18		20/1	RV RECEPTACLE	20		
21	RV RECEPTACLE	20/1		0.18	0.18	20/1	RV RECEPTACLE	22		
23	RV RECEPTACLE	20/1			0.18	20/1	RV RECEPTACLE	24		
25	RV RECEPTACLE	20/1	0.18	0.18		20/1	RV RECEPTACLE	26		
27	RV RECEPTACLE	20/1		0.18	0.18	20/1	EXTERIOR RECEPTACLE	28		
29	EXTERIOR RECEPTACLE	20/1			0.18	20/1	BR2 RECEPTACLES	30		
31	BR2 RECEPTACLES	20/1	0.72	0.72		20/1	BR2 RECEPTACLES	32		
33	BR2 RECEPTACLES	20/1		0.72	0.72	20/1	BR2 RECEPTACLES	34		
35	BR2 RECEPTACLES	20/1			0.72	20/1	BR2 RECEPTACLES	36		
37	BR2 RECEPTACLES	20/1	0.72	0.72		20/1	BR2 RECEPTACLES	38		
39	BR2 RECEPTACLES	20/1		0.72		20/1	SPACE	40		
41	SPACE						SPACE	42		
TOTAL PHASE KVA PER PHASE			4.65	3.96	3.78	DEMAND KVA: 25.94				
TOTAL CONNECTED KVA			12.39			DEMAND AMPS: 72				
AMPS PER PHASE			39	33	32					

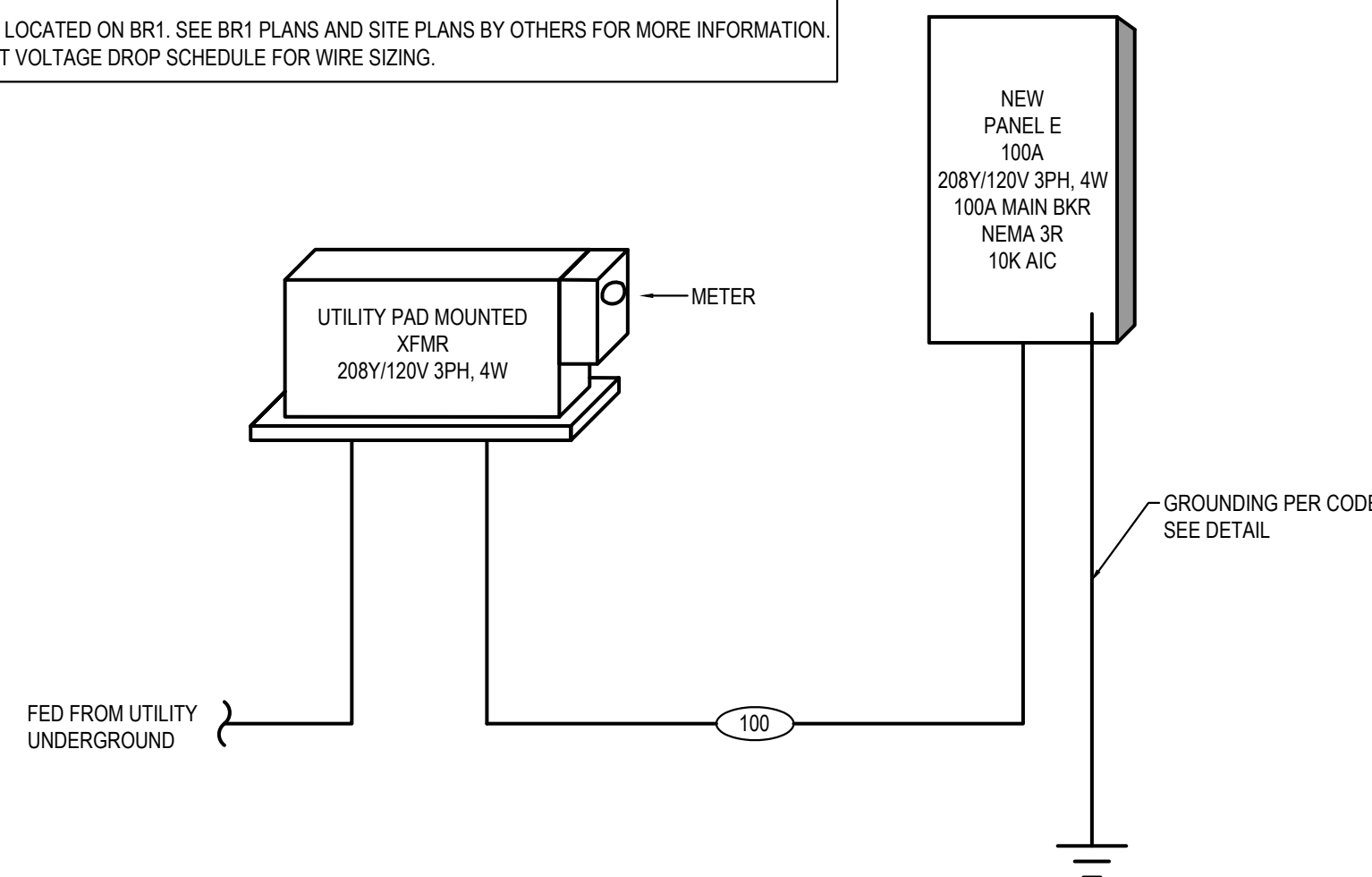
NOTES:
1
2
3
4

SUMMARY OF LOADS			
DESCRIPTION	CONNECTED (kVA)	DEMAND FACTOR	DEMAND (kVA)
LIGHTING	0.13	1.00	15.0
RECEPTACLES (1000 10 kVA)	10.00	1.00	10.00
(REMAINING)	1.88	0.50	0.94
(TOTAL)	11.88	1.00	10.94
TOTAL KVA	12.0		25.9
TOTAL AMPS	33		72

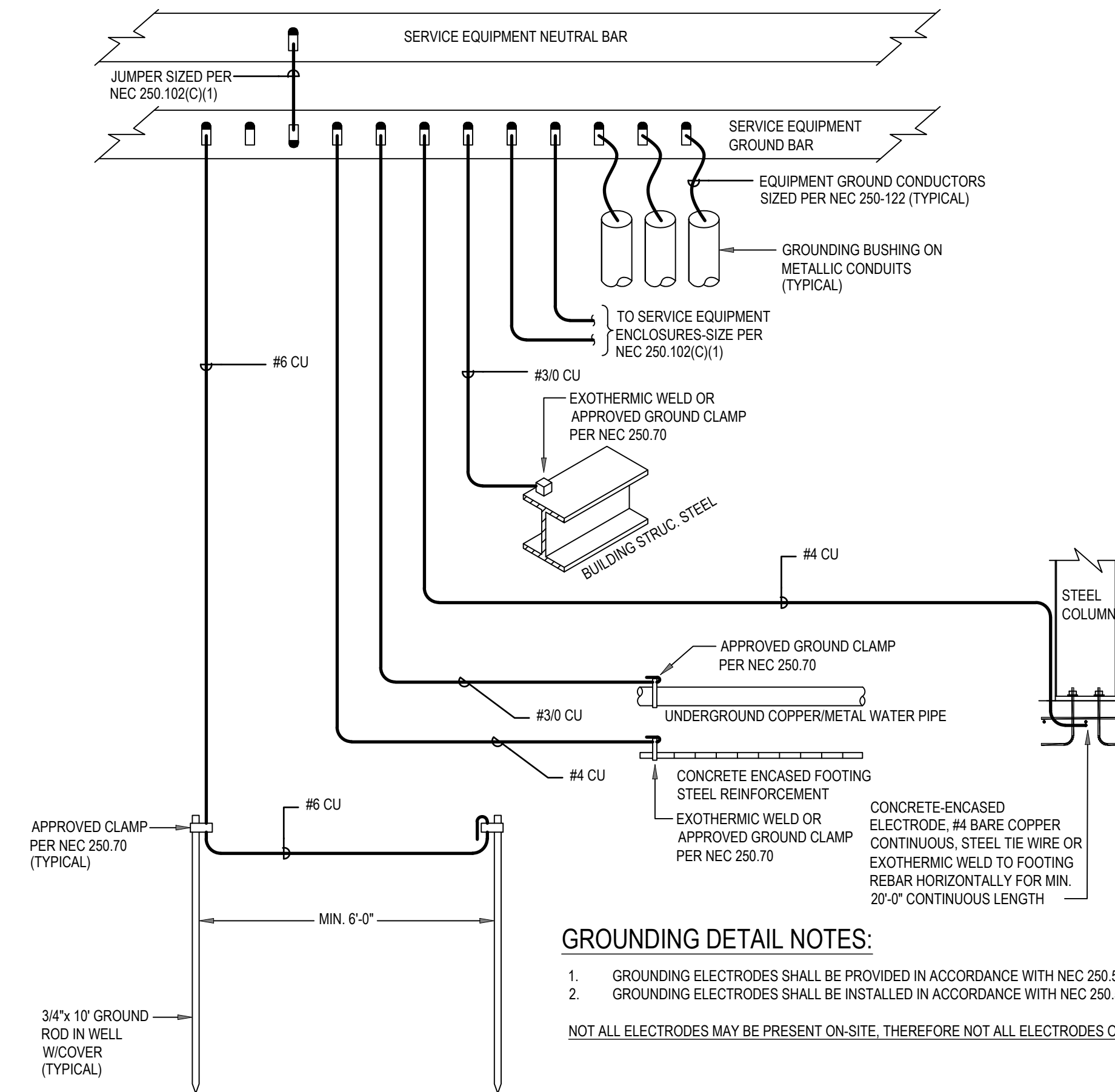
VOLTAGE DROP SCHEDULE		
120V CIRCUITS < 8 AMPS (1.0 kVA)		
DISTANCE TO 1ST LOAD		AWG SIZE
0' - 120'		#12
121' - 190'		#10
191' - 300'		#8
301' - 470'		#6

120V CIRCUITS 9 TO 14 AMPS (1.0-1.7 kVA)		
DISTANCE TO 1ST LOAD		AWG SIZE
0' - 65'		#12
66' - 110'		#10
111' - 170'		#8
171' - 270'		#6

NOTE:
PANEL E LOCATED ON BR1. SEE BR1 PLANS AND SITE PLANS BY OTHERS FOR MORE INFORMATION. CONSULT VOLTAGE DROP SCHEDULE FOR WIRE SIZING.



1 ONE-LINE DIAGRAM
NOT TO SCALE



2 SERVICE GROUNDING DETAIL
NOT TO SCALE

FEEDER SCHEDULE - 3 PHASE				
STANDARD OVERCURRENT PROTECTION SIZE	FEEDER WIRE - # SETS (CONDUCTOR SIZE, EQUIP. GND., CONDUIT SIZE)		CONDUCTOR TYPE: THHN - DRY, THWN - WET	
	COPPER WIRE	GEC	ALUMINUM WIRE	GEC
30	1 [4 #10, #10G, 3/4" C]		1 [4 #8, #8G, 3/4" C]	
35	1 [4 #8, #10G, 3/4" C]		1 [4 #6, #8G, 1" C]	
40	1 [4 #8, #10G, 3/4" C]		1 [4 #6, #8G, 1" C]	
45	1 [4 #6, #10G, 1" C]		1 [4 #4, #8G, 1-1/4" C]	
50	1 [4 #6, #10G, 1" C]		1 [4 #4, #8G, 1-1/4" C]	
60	1 [4 #4, #10G, 1-1/4" C]		1 [4 #3, #8G, 1-1/4" C]	
70	1 [4 #4, #8G, 1-1/4" C]		1 [4 #2, #6G, 1-1/4" C]	
80	1 [4 #3, #8G, 1-1/4" C]		1 [4 #1, #6G, 1-1/2" C]	
90	1 [4 #2, #8G, 1-1/4" C]		1 [4 #1/0, #6G, 2" C]	
100	1 [4 #1, #6G, 1-1/2" C]	#8	1 [4 #1/0, #6G, 2" C]	#6
110	1 [4 #1, #6G, 1-1/2" C]	#8	1 [4 #1/0, #4G, 2" C]	#6
125	1 [4 #1, #6G, 1-1/2" C]	#6	1 [4 #2/0, #4G, 2" C]	#4
150	1 [4 #1/0, #6G, 2" C]	#6	1 [4 #3/0, #4G, 2" C]	#4
175	1 [4 #2/0, #6G, 2" C]	#4	1 [4 #4/0, #4G, 2-1/2" C]	#2
200	1 [4 #3/0, #6G, 2" C]	#4	1 [4 #250KCMIL, #4G, 2-1/2" C]	#2
225	1 [4 #4/0, #4G, 2-1/2" C]	#2	1 [4 #300KCMIL, #2G, 3" C]	#1/0
250	1 [4 #250KCMIL, #4G, 2-1/2" C]	#2	1 [4 #350KCMIL, #2G, 3" C]	#1/0
300	1 [4 #300KCMIL, #4G, 3" C]	#2	1 [4 #500KCMIL, #2G, 3" C]	#1/0
350	2 [4 #2/0, #3G, 2" C]	#2	2 [4 #4/0, #1G, 2-1/2" C]	#1/0
400	2 [4 #3/0, #3G, 2" C]	#2	2 [4 #250KCMIL, #1G, 2-1/2" C]	#1/0
450	2 [4 #4/0, #2G, 2-1/2" C]	#1/0	2 [4 #300KCMIL, #1/0G, 3" C]	#3/0
500	2 [4 #250KCMIL, #2G, 2-1/2" C]	#1/0	2 [4 #350KCMIL, #1/0G, 3" C]	#3/0
600	2 [4 #350KCMIL, #1G, 3" C]	#2/0	2 [4 #500KCMIL, #2/0G, 3" C]	#4/0
700	2 [4 #500KCMIL, #1/0G, 3" C]	#2/0	3 [4 #350KCMIL, #3/0G, 3" C]	#4/0
800	3 [4 #300KCMIL, #1/0G, 3" C]	#3/0	3 [4 #400KCMIL, #3/0G, 3" C]	#4/0
1000	3 [4 #400KCMIL, #2/0G, 3" C]	#3/0	4 [4 #350KCMIL, #4/0G, 3" C]	#4/0
1200	4 [4 #350KCMIL, #3/0G, 3" C]	#3/0	4 [4 #500KCMIL, #250KCMIL G, 3" C]	#250 KCMIL
1600	5 [4 #400KCMIL, #4/0G, 3" C]	#3/0	6 [4 #400KCMIL, #350KCMIL G, 3" C]	#250 KCMIL
2000	6 [4 #400KCMIL, #250KCMIL G, 3" C]	#3/0	7 [4 #500KCMIL, #400KCMIL G, 3" C]	#250 KCMIL
2500	7 [4 #500KCMIL, #350KCMIL G, 3" C]	#3/0	9 [4 #500KCMIL, #600KCMIL G, 3" C]	#250 KCMIL
3000	8 [4 #500KCMIL, #400KCMIL G, 3" C]	#3/0	10 [4 #500KCMIL, #600KCMIL G, 3" C]	#250 KCMIL
4000	11 [4 #500KCMIL, #500KCMIL G, 3" C]	#3/0	13 [4 #500KCMIL, #750KCMIL G, 3" C]	#250 KCMIL

FEEDER SCHEDULE NOTES:
1. ALL FEEDER SIZES MAY NOT BE LISTED IN ONE-LINE DIAGRAM
2. ELECTRICAL CONTRACTOR TO VERIFY CONDUIT SIZE REQUIRED IF WIRE TYPES OTHER THAN THOSE LISTED ABOVE ARE USED. REFER TO APPLICABLE TABLE IN ANNEX C OF NEC.
3. IF CONDUIT OTHER THAN EMT IS REQUIRED, BASE BID ON NEXT TRADE SIZE ABOVE THAT INDICATED.
4. 'GEC' DENOTES GROUNDING ELECTRODE CONDUCTOR PER NEC TABLE 250.66.
* EC SHALL VERIFY WITH AUTHORITY HAVING JURISDICTION AND UTILITY COMPANY THAT ALUMINUM CONDUCTORS ARE ACCEPTABLE FOR USE AS UTILITY TRANSFORMER SECONDARIES AND FEEDER CIRCUITS.

DISCLAIMER
THESE DRAWINGS, THE PROJECT SPECIFICATIONS MANUAL, AND THE DESIGN ARE INSTRUMENTS OF SERVICE ONLY AND REMAIN THE PROPERTY OF SHARPE ENGINEERING & CONSULTING, PLLC. THE REPRODUCTION AND/OR UNAUTHORIZED USE OF THESE DOCUMENTS WITHOUT THE EXPRESS WRITTEN PERMISSION OF SHARPE ENGINEERING & CONSULTING, PLLC IS PROHIBITED.

FOR CAROLINA
PROFESSIONAL SEAL
056419
ENGINEER
DANIEL B. A. SHARPE
8-22-24

DESIGN FOR:
BAUCOM BUSINESS PLAZA - BR2
11132 U.S. 401 N
FUQUAY-VARINA, NC 27526

REV. NO.	DATE	DESCRIPTION
1		
2		
3		
4		
5		
6		
7		

ISS. NO.	DATE	DESCRIPTION
1	8-22-24	FOR PERMITTING
2		
3		
4		
5		
6		
7		

PROJECT NO.: 24-029
DRAWN BY: OMS
CHECKED BY: OMS

PANEL SCHEDULE AND ONE-LINE DIAGRAM

E2.1