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SYMBOL SCHEDULE

2018 NORTH CAROLINA ENERGY CONSERVATION CODE

COMMERCIAL ENERGY EFFICIENCY – ELECTRICAL SUMMARY

C401 METHOD OF COMPLIANCE

- ☐ 2018 NCECC CHAPTER 4
- ☐ NC SPECIFIC COMCHECK PROVIDED
- ■ N/A BASED ON PROJECT SCOPE
- ☐ ASHRAE 90.1–2013

C406 ADDITIONAL EFFICIENCY PACKAGE OPTIONS

- ☐ C406.2 EFFICIENT MECH EQUIPMENT
- ☐ C406.5 ON–SITE RENEWABLE ENERGY
- ☐ C406.3 REDUCED LTG DENSITY
- ☐ C406.6 DEDICATED OA SYSTEM
- ☐ C406.4 ENHANCED DIGITAL LTG CNTLS
- ☐ C406.7 HI–EFF SERVICE WTR HTG
- ■ NOT APPLICABLE BASED ON PROJECT SCOPE
- ☐ C406.7.1 WTR HTG LOAD FRACTION

C408 – SYSTEM COMMISSIONING:

- ☐ BUILDING IS LESS THAN 10,000 SQUARE FEET AND IS EXEMPT FROM THE SYSTEM COMMISSIONING REQUIREMENTS OF SECTION C408.
- ☐ BUILDING IS GREATER THAN 10,000 SQUARE FEET AND REQUIRES SYSTEM COMMISSIONING PER SECTION C408.
- ■ NOT APPLICABLE

C405.2 – LIGHTING CONTROLS (MANDATORY REQUIREMENTS):

- ☐ LIGHTING SYSTEMS ARE PROVIDED WITH CONTROLS AS REQUIRED PER SECTION C405.2, EXCEPT WHERE EXEMPT.
- ■ NOT APPLICABLE

C405.3 – EXIT SIGNS (MANDATORY REQUIREMENTS):

- ☐ INTERNALLY ILLUMINATED EXIT SIGNS DO NOT EXCEED 5 WATTS PER SIDE.
- ■ NOT APPLICABLE

C405.4 – INTERIOR LIGHTING POWER REQUIREMENTS (PRESCRIPTIVE) (NON–EXEMPT):

- ■ NOT APPLICABLE PER 2018 NCECC C503.1, EXCEPTION 2.G.

C405.4.1 – TOTAL CONNECTED INTERIOR LIGHTING POWER:

________ WATTS SPECIFIED

__ % REDUCTION OF SPECIFIED VS. ALLOWED (APPLICABLE IF C406.1.2 IS SELECTED)

C405.4.2 – TOTAL ALLOWABLE INTERIOR LIGHTING POWER:

METHOD OF COMPLIANCE:

- ☐ BUILDING AREA METHOD
- ☐ SPACE–BY–SPACE METHOD

________ WATTS ALLOWED

C405.5.1 – EXTERIOR BUILDING LIGHTING POWER (NON–EXEMPT):

- ■ NOT APPLICABLE

TOTAL CONNECTED EXTERIOR LIGHTING POWER:

________ WATTS SPECIFIED

TOTAL ALLOWABLE EXTERIOR LIGHTING POWER:

________ WATTS ALLOWED

C405.6 – ELECTRICAL ENERGY CONSUMPTION (DWELLING UNITS):

- ☐ SEPARATE ELECTRICAL METERING HAS BEEN PROVIDED FOR EACH DWELLING UNIT IN GROUP R–2 BUILDINGS.
- ■ NOT APPLICABLE

C405.7 – ELECTRICAL TRANSFORMERS (MANDATORY REQUIREMENTS):

- ☐ ELECTRICAL TRANSFORMERS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.7, EXCEPT WHERE EXEMPT.
- ■ NOT APPLICABLE

C405.8 – ELECTRICAL MOTORS (MANDATORY REQUIREMENTS):

- ■ ELECTRICAL MOTORS HAVE BEEN SPECIFIED TO MEET MINIMUM EFFICIENCY REQUIREMENTS PER C405.8, EXCEPT WHERE EXEMPT.
- ☐ NOT APPLICABLE

C405.9 – VERTICAL AND HORIZONTAL TRANSPORTATION SYSTEMS AND EQUIPMENT:

- ☐ VERTICAL AND HORIZONTAL TRANSPORTATION SYSTEMS AND EQUIPMENT HAVE BEEN SPECIFIED TO COMPLY WITH REQUIREMENTS PER C405.9, EXCEPT WHERE EXEMPT.
- ■ NOT APPLICABLE

DEVICES AND PATHWAYS

- BRANCH CIRCUIT HOMERUN TO PANEL.
- GFI — GROUND FAULT RECEPTACLE. NEMA 5–20R DUPLEX.
- WP — WEATHERPROOF RECEPTACLE.

PANELS, DISCONNECTS

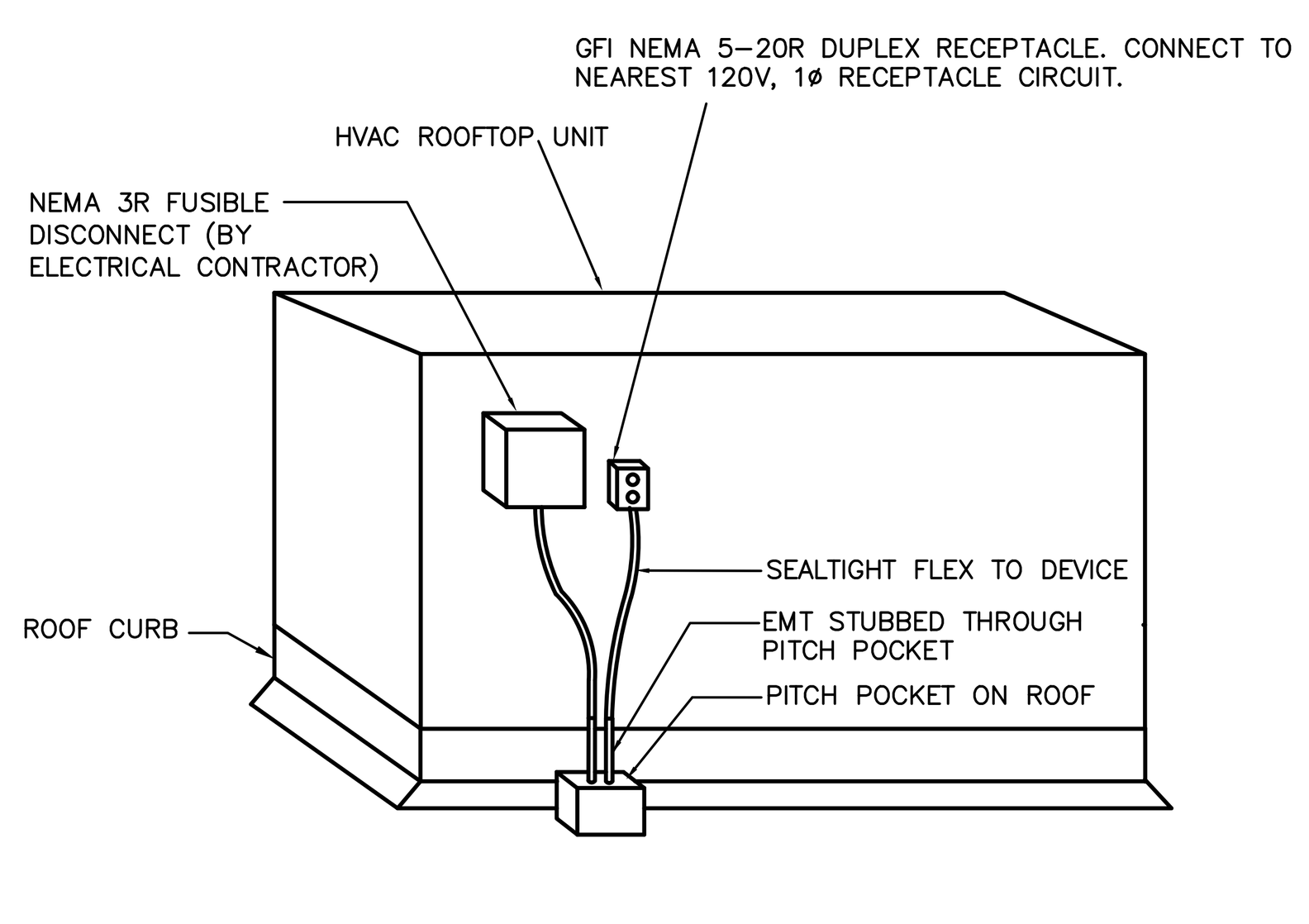
- FUSED HEAVY DUTY DISCONNECT SWITCH. NUMERALS INDICATE SWITCH RATING/FUSE SIZE. NEMA 1 ENCLOSURE, UNLESS OTHERWISE NOTED.
- PANELBOARD. SEE SCHEDULE FOR MOUNTING.

ELECTRICAL SHEET INDEX

PLAN NUMBER	PLAN NAME
E001	ELECTRICAL NOTES, LEGENDS & SPECIFICATIONS
E201	ELECTRICAL ROOM PANEL LOCATIONS
E202	ELECTRICAL ROOM PANEL LOCATIONS – LOWER LEVEL
E203	ELECTRICAL ROOF PLAN
E204	ELECTRICAL MODULAR BUILDING
E701	POWER RISER DIAGRAM & SCHEDULES
E702	PANEL SCHEDULES
E703	PANEL SCHEDULES

PROJECT SUMMARY

11 RTU REPLACEMENTS. ALL SAME SIZE OR REDUCTION. AND 9 PTAC UNITS OF SAME OR REDUCED SIZE.



NOTE: TYPICAL FOR ALL ROOF MOUNTED HVAC EQUIPMENT.

2 ROOFTOP RECEPTACLE DETAIL
NO SCALE

GENERAL PROJECT NOTES

A. ELECTRICAL CODE COMPLIANCE SHALL BE IN ACCORDANCE WITH NEC 2020.
B. ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT SHALL BE LABEL LISTED BY AN NC APPROVED THIRD PARTY TESTING AGENCY.

1. GENERAL:

A. THE WORK COVERED BY THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, MATERIAL,S AND SUPPLIES AS NECESSARY FOR THE COMPLETE AND SATISFACTORY OPERATING ELECTRICAL SYSTEMS AS SHOWN ON THE PLANS.
B. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2020 NATIONAL ELECTRICAL CODE, NFPA, STATE BUILDING CODE, AND ANY OTHER LOCAL REQUIREMENTS THAT MAY APPLY.
C. CONTRACTOR SHALL OBTAIN AND PAY FOR ALL ELECTRICAL PERMITS AND INSPECTION FEES.
D. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY THE UNDERWRITER'S LABORATORIES, INC. OR BY A STATE APPROVED THIRD PARTY TESTING AGENCY FOR THE USE INTENDED WHERE A STANDARD FOR SUCH MATERIALS AND USE EXISTS. ALL ITEMS OF THE SAME TYPE AND RATING SHALL BE IDENTICAL AND OF THE SAME MANUFACTURER.
E. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS AND CATALOG DATA IN ELECTRONIC FORMAT (PDF) FOR ALL ELECTRICAL ITEMS IN THE SCOPE OF WORK, INCLUDING, BUT NOT LIMITED TO, RACEWAYS, BOXES, FITTINGS, CONDUCTORS, LUMINAIRES, LAMPS, BALLASTS, WIRING DEVICES, SAFETY SWITCHES, DISCONNECTS, TRANSFORMERS, PANELBOARDS, FIRE ALARM, TELECOMMUNICATIONS, ETC. FOR APPROVAL AS APPLICABLE FOR THE PROJECT. ONE COMPLETE SET OF APPROVED SUBMITTALS SHALL BE MAINTAINED AT THE JOB SITE.
F. ALL COST ASSOCIATED WITH SUBSTITUTED EQUIPMENT TO COMPLY WITH THE BASIS OF DESIGN, INCLUDING PROVIDING MAINTENANCE ACCESS, CLEARANCE, CONDUIT, WIRING, REPLACEMENT OF OTHER SYSTEM COMPONENTS, BUILDING ALTERATIONS, METHODS, ETC., SHALL BE INCLUDED IN THE ORIGINAL BASE BID. NO ADDITIONAL COSTS ASSOCIATED WITH SUBSTITUTED EQUIPMENT WILL BE APPROVED AFTER BIDS HAVE BEEN ACCEPTED AND ALL COSTS WILL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. CREDITS SHALL BE GIVEN TO THE OWNER WHERE SUCH EQUIPMENT AND METHODS RESULT IN LESS EXPENSE TO THE CONTRACTOR.
G. ONE COMPLETE SET OF THE LATEST CONSTRUCTION PLANS OF ALL TRADES SHALL BE MAINTAINED AT THE JOB SITE. IN ADDITION, ALL ADDENDUMS, BULLETINS, AND/OR SKETCHES SHALL BE INCORPORATED INTO THE ON–SITE CONSTRUCTION PLANS AS THE JOB PROGRESSES.
H. COMPLETELY ADEQUATE HOUSING SHALL BE PROVIDED FOR ALL MATERIALS STORED ON JOB SITE. ONLY CONDUIT MAY BE STORED OUTSIDE, BUT NOT IN CONTACT WITH THE GROUND.
I. THE CONDUIT AND NEUTRAL SYSTEM SHALL BE GROUNDED AT THE MAIN SERVICE EQUIPMENT. GROUNDING ELECTRODE SYSTEM SHALL BE INSTALLED PER NEC 250.
J. PROVIDE AN INTERSYSTEM BONDING TERMINATION DEVICE AT THE MAIN ELECTRICAL SERVICE PER NEC 250.94.
K. WIRING SHALL BE TESTED FOR CONTINUITY AND GROUNDS BEFORE BEING ENERGIZED. FAULTY WIRING SHALL BE REPLACED AT NO ADDITIONAL EXPENSE TO THE OWNER.
L. PROVIDE ALL CUTTING AND PATCHING FOR INSTALLATION OF WORK AND REPAIR ANY DAMAGE DONE.
M. THE ELECTRICAL CONTRACTOR SHALL CONNECT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS (UNLESS OTHERWISE NOTED), EXCEPT FOR CONTROL WIRING FOR EQUIPMENT NOT PROVIDED BY THE ELECTRICAL CONTRACTOR. CONTROL WIRING FOR SUCH EQUIPMENT SHALL BE PROVIDED BY THE RESPECTIVE DISCIPLINE.
N. ALL ELECTRICAL JUNCTION BOXES, SWITCHGEAR, CABLING, VOICE/DATA OUTLETS, LOW VOLTAGE CABINETS, EMERGENCY RECEPTACLES, ETC. SHALL BE LABELED ACCORDING TO PANEL/RACK AND CIRCUIT NUMBER.
O. UPON COMPLETION OF WORK, CONTRACTOR SHALL PRESENT ENGINEER WITH CERTIFICATE OF APPROVAL FROM LOCAL INSPECTOR AND/OR AUTHORITY HAVING JURISDICTION BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.
P. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR EFFECTIVE THE DATE THE PROJECT IS ACCEPTED BY THE OWNER. ANY IMPERFECT MATERIALS OR WORKMANSHIP SHALL BE REPLACED WITHOUT ADDED COST TO THE PROJECT.
Q. IT SHALL NOT BE THE INTENT OF ISSUED PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE ELECTRICAL CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL NECESSARY ITEMS FOR A COMPLETE AND OPERATING SYSTEM.
R. THE WORD "PROVIDE" MEANS THAT THIS CONTRACTOR SHALL FURNISH, FABRICATE, ERECT, CONNECT, AND COMPLETELY INSTALL SYSTEMS IN PROPER OPERATING CONDITION. ALL LABOR, PRODUCT OPTIONS, ACCESSORIES AND INCIDENTAL MATERIALS REQUIRED SHALL BE INCLUDED AS PART OF THIS WORK TO COMPLETE THE INSTALLATION.
S. THE WORD "CONNECT" MEANS THAT THIS CONTRACTOR SHALL PROVIDE (SEE DEFINITION ABOVE) ALL DISCONNECTING MEANS, OVERCURRENT PROTECTION AND WIRING REQUIRED TO PLACE THE EQUIPMENT AND SYSTEMS IN PROPER OPERATING CONDITION AND TO COMPLY WITH CODE REQUIREMENTS.
T. CONTRACTOR SHALL COORDINATE THE ROUGH–IN OF ALL OUTLET LOCATIONS WITH ARCHITECTURAL FLOOR PLANS, ELEVATIONS, AND MILLWORK SHOP DRAWINGS PRIOR TO ROUGH–IN.
U. ELECTRICAL CONTRACTOR SHALL NOT SCALE PLANS. CONTRACTOR SHALL REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATIONS OF ALL EQUIPMENT, UNLESS OTHERWISE NOTED.
V. IF DURING THE COURSE OF WORK, THE CONTRACTOR DISCOVERS A PROBLEM WITH THE PERFORMANCE OF THE INSTALLATION RELATIVE TO THE PLANS AND SPECIFICATIONS, THE NEC, OR OTHER CODES OR REQUIREMENTS, THE CONTRACTOR SHALL IMMEDIATELY BRING THE PROBLEM TO THE ATTENTION OF THE ARCHITECT AND/OR ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK.
W. WHERE THERE ARE CONFLICTS BETWEEN THE PLANS AND SPECIFICATIONS, THE CONTRACTOR SHALL BRING THE ISSUE TO THE ATTENTION OF THE ENGINEER FOR RESOLUTION PRIOR TO THE EXECUTION OF THE WORK OR ORDERING ANY MATERIALS. NO ADDITIONAL COSTS SHALL BE WARRANTED WITHOUT A CHANGE TO THE PROJECT SCOPE.

2. RACEWAY:

A. CONDUIT SHALL BE MANUFACTURED BY ALLIED, WHEATLAND, REPUBLIC CONDUIT, WESTERN TUBE, OR APPROVED EQUIVALENT.
B. FOR INTERIOR WORK, CONDUIT SHALL BE ZINC COATED EMT EXCEPT WHERE NOT PERMITTED BY CODE. USE SCHEDULE 40 PVC BELOW CONCRETE SLAB, IN DUCTBANKS, AND FOR EXTERIOR WORK WHERE NOT SUBJECT TO DAMAGE. USE IMC WHERE SUBJECT TO PHYSICAL DAMAGE.
C. EMT FITTINGS SHALL BE COMPRESSION GLAND TYPE, OF MALLEABLE STEEL. CONNECTORS SHALL HAVE INSULATED THROATS. CAST, SET SCREW, OR INDENTER TYPE FITTINGS ARE NOT ACCEPTABLE. ALL FITTINGS FOR EMT SHALL BE MADE OF STEEL.
D. ALL RACEWAY SHALL BE RUN CONCEALED, UNLESS OTHERWISE NOTED. FISH ALL NEW OUTLETS IN EXISTING WALLS, WHERE POSSIBLE. ALL RUNS SHALL BE NEAT AND SQUARE.
E. LOW VOLTAGE CABLING NOT SPECIFIED TO BE INSTALLED IN CONDUIT, SHALL BE INSTALLED IN A CABLE TRAY SYSTEM OR J–HOOK SYSTEM CONSISTING OF MINIMUM 2" DIAMETER HOOKS LOCATED ON 3'–0" CENTERS IN ALL ACCESSIBLE CEILINGS. WHERE THERE ARE INACCESSIBLE CEILINGS, PROVIDE CONDUIT FOR ENTIRE LENGTH OF INACCESSIBILITY.
F. RACEWAYS USED FOR LOW VOLTAGE SYSTEMS SUCH AS TELECOMMUNICATIONS, FIRE ALARM, SECURITY, CCTV, CONTROLS, AND SIMILAR CONDUITS ABOVE THE CEILING AND BACKBOARD(S) SHALL BE PROVIDED WITH INSULATED THROAT BUSHINGS AT EACH CONDUIT TERMINATION. THESE BUSHINGS SHALL BE BE INSTALLED PRIOR TO PULLING LOW–VOLTAGE CABLES.
G. RACEWAY PENETRATIONS THROUGH FLOOR SLABS AND FIRE–RATED WALLS SHALL BE FILLED WITH IMPERVIOUS, NON–SHRINK GROUT SUFFICIENTLY TIGHT TO PREVENT THE TRANSFER OF SMOKE, WATER, AND DUST. ROOF PENETRATIONS SHALL BE WITHIN THE EQUIPMENT ROOF CURB.
H. SUPPORT ALL CONDUIT WITH STRAPS AND CLAMPS.
I. ALL CONDUIT SHALL BE RUN PARALLEL OR PERPENDICULAR TO BUILDING LINES, WHETHER EXPOSED OR NOT AND SUPPORTED FROM STRUCTURE AND PROPERLY SECURED.
J. WHERE CONDUITS PASS THROUGH A BUILDING EXPANSION JOINT, PROVIDE GALVANIZED EXPANSION FITTINGS WITH BONDING JUMPERS.
K. MINIMUM CONDUIT SIZE SHALL BE 3/4" FOR INTERIOR WORK, 1" FOR EXTERIOR WORK.
L. PROVIDE MINIMUM 210# TEST NYLON PULL CORD AND NYLON BUSHINGS IN ALL EMPTY RACEWAYS.
M. LIQUID–TIGHT METAL CONDUIT SHALL ONLY BE USED FOR FINAL CONNECTIONS TO EQUIPMENT AND ALL OTHER ROTATING AND VIBRATING EQUIPMENT, MAXIMUM LENGTH OF 3'–0".
N. PROVIDE PULL BOXES, SUCH THAT NO SINGLE CONDUIT RUN HAS BENDS IN EXCESS OF 360°. PULL BOXES SHALL BE SUITABLE AND APPROVED FOR THE INTENDED USE. WHERE CONDUITS PASS UNDER PAVED AREAS, THEY SHALL BE RGS.
O. ALL CONDUIT BENDS/ELBOWS EMERGING FROM UNDERGROUND SHALL BE IMC AND SHALL EXTEND A MINIMUM OF 18" BELOW GRADE.
P. THE USE OF AC OR NM CABLE IS NOT PERMITTED.

3. OUTLET BOXES:

A. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE GALVANIZED STEEL. ACCEPTED MANUFACTURERS SHALL BE STEEL CITY (THOMAS & BETTS), RACO, CROUSE–HINDS, APPLETON (EMERSON), OR APPROVED EQUIVALENT.
B. OUTLET BOXES SHALL NOT BE MOUNTED BACK TO BACK IN COMMON WALLS.
C. ATTACH EMT WITH CONNECTORS HAVING INSULATED THROAT.
D. ATTACH BOXES TO STUD WORK USING CADDY BAR STRAPS THAT CONNECT TO TWO ADJACENT METAL STUDS TO PREVENT TWISTING OF BOX IN WALL.
E. ALL OUTLET BOXES (INCLUDING TELEPHONE, CABLE TV, AND COMPUTER) SHALL HAVE COVER PLATES, BLANK IF NOT USED.
F. ALL EXTERIOR BOXES SHALL BE WATER–TIGHT.

4. CONDUCTORS:

A. CONDUCTORS SHALL BE MANUFACTURED BY SOUTHWIRE (SIMPULL), ENCORE (SUPERSLICK), UNITED COPPER (SLK), CERRO (SLP), OR APPROVED EQUAL, "PRE–LUBRICATED" BY THE MANUFACTURER.
B. ALL CONDUCTORS SHALL BE COPPER, RATED 75° C WET/DRY EXCEPT WHERE OTHERWISE NOTED OR REQUIRED BY U.L. OR OTHER CODES.
C. ALL CONDUCTORS SHALL BE SINGLE INSULATED CONDUCTOR, THHN/THWN–2. SIZES #10 AWG AND SMALLER SHALL BE SOLID, SIZES #8 AWG AND LARGER SHALL BE STRANDED.
D. BRANCH CIRCUITS SHALL NOT BE SMALLER THAN #12 AWG. CONTROL WIRING MAY BE #14 AWG.
E. CONDUCTORS SHALL BE COLOR CODED BLACK/RED/BLUE FOR 120/208 VOLT SYSTEMS AND BROWN/ORANGE/YELLOW FOR 277/480 VOLT SYSTEMS FOR A, B, AND C PHASES, RESPECTIVELY. NEUTRAL SHALL BE WHITE FOR 120/208 VOLT SYSTEMS AND NATURAL GRAY FOR 277/480 VOLT SYSTEMS. GROUND CONDUCTOR SHALL BE GREEN ON ALL SYSTEMS. ALL CONDUCTOR SIZES SHALL HAVE COLOR–CODED INSULATION. THE USE OF COLORED TAPE ON LARGER WIRE SIZES SHALL NOT BE ALLOWED.
F. INSULATION SHALL BE DUAL RATED TYPE THHN/THWN–2 FOR FEEDERS AND BRANCH CIRCUITS. FIXTURE TAPS SHALL BE #12 THHN/THWN–2 IN FLEX WITH GREEN #12 AWG GROUNDING CONDUCTOR.
G. ALL CONDUCTORS SHALL BE IN CONDUIT.
H. WIRING TO LIGHTING FIXTURES SHALL BE AS REQUIRED BY UL LABEL.
I. MULTI–WIRE BRANCH CIRCUITS SHALL NOT BE ALLOWED,
J. JOINTS IN #10 AWG AND SMALLER SHALL BE MADE UP WITH CRIMPED CONNECTORS WITH INSULATING CAPS (NO TAPE) OR WIRENUTS (MAXIMUM OF 3 CONDUCTORS UNDER ANY CONNECTOR OR WIRENUT). LARGER WIRE SHALL USE SPLIT BOLTS OR BOLTED CLAMPS.
K. ALL WIRING LUGS THROUGHOUT THE PROJECT, INCLUDING, BUT NOT LIMITED TO, BREAKERS, PANELBOARD/SWITCHBOARD LUGS, SAFETY SWITCH LUGS, MOTOR STARTER LUGS, TRANSFORMERS LUGS, WIRING DEVICE TERMINALS, AND ALL EQUIPMENT LUGS/TERMINALS SHALL BE RATED FOR USE WITH 75 DEGREE INSULATED CONDUCTORS AT THEIR 75 DEGREE AMPACITY AND SHALL BE SIZED AND SELECTED TO MATCH THE CONDUCTOR SIZE AND MATERIAL.
L. CIRCUIT JOINTS SHALL NOT BE MADE ON DEVICE TERMINALS.
M. WIRE WITHIN PANELBOARDS SHALL BE NEATLY TRAINED, SQUARED, BUNCHED, AND TAGGED.
N. ALL SYSTEM FURNITURE CONNECTIONS SHALL COMPLY WITH NEC 605.
O. GROUND ALL EQUIPMENT PER NEC ARTICLE 250. BOND WHERE CONDUITS ENTER ENCLOSURES THROUGH CONCENTRIC KNOCKOUTS. ALL FLEX, INCLUDING FIXTURE TAPS, SHALL INCLUDE GREEN GROUNDING CONDUCTOR, #12 AWG MINIMUM. PROVIDE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN EACH CONDUIT AND FOR EACH CIRCUIT, SIZED PER NEC 250–122.
P. ALL CONDUCTORS INSTALLED IN VERTICAL RACEWAYS SHALL BE SUPPORTED AT INTERVALS AS REQUIRED PER NEC 300–19.
Q. THE ELECTRICAL CONTRACTOR SHALL FOLLOW AND APPLY THE TABLE BELOW, REGARDLESS WHAT THE PANEL SCHEDULE INDICATES, FOR SIZING ALL 120V & 277V, 20 AMP BRANCH CIRCUITS (COPPER CONDUCTORS) TO ALLOW A MAXIMUM OF 3% VOLTAGE DROP FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE ON THE BRANCH CIRCUIT AND ACHIEVE A MAXIMUM OF 5% VOLTAGE DROP ACROSS THE ENTIRE BRANCH CIRCUIT:

VOLTAGE	CONDUCTOR LENGTH *	BRANCH CIRCUIT
120	0' – 50'	#12
120	51' – 90'	#10
120	91' – 140'	#8
120	141' – 225'	#6
277	0' – 125'	#12
277	126' – 200'	#10
277	201' – 330'	#8
277	331' – 525'	#6

* – THE LENGTH IS MEASURED FROM THE CIRCUIT BREAKER TO THE FIRST DEVICE WHICH THE BRANCH CIRCUIT SERVES. WHERE THE DISTANCE EXCEEDS ABOVE, CONSULT WITH THE ENGINEER.

5. SUPPORTS:

A. ALL EQUIPMENT SHALL BE ADEQUATELY SUPPORTED FROM STRUCTURE.
B. INSERTS IN MASONRY SHALL BE LEAD OR FIBER IN DRILLED HOLES, OR CAST IN PLACE.
C. NAILS OR POWDER ACTUATED FASTENERS SHALL NOT BE USED.
D. EMT/IMC/RGS SUPPORTS SHALL BE A MAXIMUM OF 8'–0" APART AND A MAXIMUM OF 3'–0" FROM BOXES.

6. SEISMIC:

A. THE ELECTRICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR PROVIDING SEISMIC SUPPORT AND BRACING OF ELECTRICAL COMPONENTS TO RESIST THE EFFECTS OF EARTHQUAKES ON THE ELECTRICAL SYSTEM AS WELL AS ANY REQUIRED SPECIAL INSPECTIONS BASED ON THE SPECIFIC GEOGRAPHIC LOCATION AS REQUIRED. THE SEISMIC RESTRAINTS AND SPECIAL INSPECTIONS SHALL MEET ALL APPLICABLE STATE AND LOCAL BUILDING CODE REQUIREMENTS AS WELL AS ASCE–7 REQUIREMENTS.

7. ELECTRICAL COORDINATION WITH OTHER TRADES:

A. THE ELECTRICAL CONTRACTOR SHALL CONNECT AND/OR PROVIDE FINAL CONNECTIONS TO ALL EQUIPMENT SUPPLIED BY OTHERS APPLICABLE TO THE PROJECT, INCLUDING BUT NOT LIMITED TO, MECHANICAL, PLUMBING, FIRE PROTECTION AND SUPPRESSION, OWNER FURNISHED, KITCHEN, LABORATORY, ETC. UNLESS OTHERWISE NOTED.
B. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONNECTIONS PRIOR TO ROUGH–IN USING APPROVED CATALOG SHEETS AND SHOP DRAWINGS.
C. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL MANUAL MOTOR STARTER SWITCHES, DISCONNECT SWITCHES, RECEPTACLES, ETC. TO MECHANICAL AND PLUMBING EQUIPMENT. ALL STARTERS, OTHER THAN MANUAL STARTER SWITCHES, SHALL BE PROVIDED BY OTHERS, BUT INSTALLED BY THE ELECTRICAL CONTRACTOR.
D. ALL DISCONNECT SWITCHES AND FUSE SIZES SHALL BE COORDINATED WITH SHOP DRAWINGS PRIOR TO ORDERING OR INSTALLING. ANY EQUIPMENT INSTALLED INCORRECTLY BECAUSE OF LACK OF COORDINATION WILL BE REMOVED AND INSTALLED CORRECTLY AT THE EXPENSE OF THE ELECTRICAL CONTRACTOR.
E. THE ELECTRICAL CONTRACTOR SHALL COORDINATE ALL CONDUIT RUNS AND LIGHT FIXTURE LOCATIONS ABOVE THE CEILING WITH OTHER TRADES PRIOR TO INSTALLATION.
F. ALL DUCT SMOKE DETECTORS SHALL BE PROVIDED AND CONNECTED BY THE ELECTRICAL CONTRACTOR, BUT INSTALLED BY THE MECHANICAL CONTRACTOR.
G. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL NECESSARY OUTLETS FOR HEAT TAPE CONNECTIONS FOR MECHANICAL SYSTEMS. PROVIDE CLASS B (30mA) GFCI PROTECTION ON THE BREAKER SUPPLYING THE HEAT TAPE.
H. THE ELECTRICAL CONTRACTOR SHALL PROVIDE 120V POWER AT EACH HVAC UNIT HAVING A CONTROLS POWER SUPPLY. CIRCUIT(S) SHALL BE DEDICATED 20A SERVING A MAXIMUM OF 10 HVAC UNITS PER CIRCUIT. COORDINATE ALL LOCATIONS WITH THE MECHANICAL CONTRACTOR.

8. DEMOLITION NOTES:

A. PARTIAL AND TOTAL DEMOLITION OF PORTIONS SHALL BE PERFORMED ALONG WITH ALL NECESSARY MODIFICATIONS TO THAT PORTION OF THE EXISTING BUILDING WHICH SHALL REMAIN SO THAT IT CONTINUES TO FUNCTION UNAFFECTED BY THE DEMOLITION AND ASSOCIATED NEW CONSTRUCTION.
B. WHERE INCLUDED AS PART OF THE CONTRACT DOCUMENTS, THE DRAWINGS INDICATE THE GENERAL AREAS OF WORK INVOLVED. HOWEVER, THE ELECTRICAL CONTRACTOR SHALL PERFORM WORK OUTSIDE THOSE AREAS SHOWN AS IS NECESSARY TO COMPLY WITH THE INTENT OF THIS SECTION.
C. THE ELECTRICAL CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE EXISTING BUILDING AND WITH THE WORK OF ALL OTHER TRADES AND INCLUDE ALL WORK NECESSARY TO COMPLY WITH THE INTENT OF THE DEMOLITION.
D. IT SHALL BE UNDERSTOOD THAT FIELD CONDITIONS MAY BE ENCOUNTERED DURING THE EXECUTION OF THIS CONTRACT WHICH WILL REQUIRE EXTENSION OR RELOCATION OF EXISTING SYSTEMS OR EQUIPMENT WHICH ARE NOT SPECIFICALLY SHOWN ON THE DRAWINGS, BUT WHICH ARE REQUIRED TO MEET THE STATED INTENT THAT THE BUILDING CONTINUE TO FUNCTION UNAFFECTED BY THE DEMOLITION AND ASSOCIATED NEW CONSTRUCTION. THE ELECTRICAL CONTRACTOR SHALL INCLUDE SUCH WORK AS WOULD NORMALLY BE EXPECTED IN AN EXISTING BUILDING OF THIS AGE AND TYPE.
E. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL TOOLS, EQUIPMENT, LABOR, ETC. IN ORDER TO ACCOMPLISH THE DEMOLITION PORTION OF THE PROJECT.
F. THE DEMOLITION OF CERTAIN AREAS OF THE EXISTING BUILDING SHALL BE PERFORMED BY THE GENERAL CONTRACTOR. IT SHALL BE THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE WITH THE GENERAL CONTRACTOR TO DIFFERENTIATE THE SCOPE OF WORK BETWEEN SEPARATE TRADES.
G. THE ELECTRICAL CONTRACTOR SHALL INCLUDE COORDINATION WITH THE GENERAL CONTRACTOR AND SUCH DEMOLITION OF THE EXISTING ELECTRICAL SYSTEMS AS IS NECESSARY SO THAT THE DEMOLITION WORK OF THE GENERAL CONTRACTOR SHALL NOT DAMAGE THOSE PORTIONS OF THE ELECTRICAL SYSTEMS WHICH ARE TO REMAIN IN SERVICE, ARE TO BE REUSED, OR ARE TO BECOME THE PROPERTY OF THE OWNER.
H. TURN OVER TO OWNER, UPON REQUEST OR AS NOTED, ITEMS SHOWN AS BEING REMOVED AND NOT REINSTALLED. ITEMS NOT DIRECTED OR REQUESTED TO BE TURNED OVER TO THE OWNER SHALL BE DISPOSED OF BY THE ELECTRICAL CONTRACTOR.
I. EQUIPMENT OR MATERIALS WHICH ARE TO BE REUSED OR TURNED OVER TO THE OWNER SHALL BE CAREFULLY REMOVED, CLEANED, AND STORED IN A CLEAN AND DRY AREA. SHOULD THE ELECTRICAL CONTRACTOR ENCOUNTER SUCH EQUIPMENT WHICH IS NOT IN SATISFACTORY CONDITION FOR REUSE AND NOT IN WORKING ORDER, THE ELECTRICAL CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER IMMEDIATELY.
J. DISCONNECT ELECTRICAL SERVICES TO ALL EQUIPMENT REQUIRING REMOVAL. CONDUIT SHALL BE REMOVED BACK TO THE POINT WHERE IT WILL BE CONCEALED AT THE COMPLETION OF THIS CONTRACT. WIRE AND CABLE SHALL BE REMOVED BACK TO THE FIRST OUTLET BOX, CABINET, OR TERMINATION POINT WHICH IS TO REMAIN. CIRCUITS WHICH ARE NOT REUSED SHALL BE REMOVED BACK TO THE SOURCE IN THEIR ENTIRETY.
K. REMOVE AND REINSTALL CEILINGS IN THE EXISTING BUILDING AS REQUIRED FOR THE WORK. COORDINATE WITH THE GENERAL CONTRACTOR. IN SUCH AREAS, REMOVE AND REINSTALL ALL ELECTRICAL DEVICES WHICH ARE TO REMAIN IN OR ON THE CEILING.
L. WHERE NEW CEILINGS CONFLICT WITH EXISTING ELECTRICAL WORK WHICH IS TO REMAIN, RELOCATE THE ELECTRICAL WORK INVOLVED TO CLEAR THE NEW CONSTRUCTION.
M. WHERE NEW WALL OR FLOOR FINISHES CONFLICT WITH EXISTING ELECTRICAL WORK WHICH IS TO REMAIN, RELOCATE THE ELECTRICAL WORK INVOLVED OR PROVIDE BOX EXTENSIONS OR SIMILAR DEVICES AND REINSTALL ON THE NEW FINISH.
N. WHERE EXISTING BRANCH CIRCUITS AND SYSTEMS ARE INTERRUPTED BY NEW WORK OR SYSTEMS (ELECTRICAL, MECHANICAL, PLUMBING, FIRE PROTECTION, ETC.), EXTEND AND RECONNECT THOSE CIRCUITS AND SYSTEMS. WHERE THOSE CIRCUITS OR SYSTEMS MUST REMAIN IN SERVICE DURING THE EXECUTION OF THIS CONTRACT, PROVIDE TEMPORARY CONNECTIONS UNTIL FINAL CONNECTIONS ARE COMPLETE.

1 ELECTRICAL SPECIFICATIONS
NO SCALE

Mechanical • Electrical • Plumbing
Fire Protection • Techology Design

optima engineering

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North Carolina License Number C-0914

SEAL:



10/23/2026

randolf middle school
rooftop unit replacement
4400 WATER OAK RD, CHARLOTTE, NC 28211

REV #	DATE	DESCRIPTION

DATE:	10-23-26
PROJECT #:	22-0254
DRAWN BY:	SMT
DESIGNED BY:	SMT
CHECKED BY:	MAM

SHEET TITLE:
ELECTRICAL NOTES, LEGENDS & SPECIFICATIONS

DWG #: E001

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EXISTING ELECTRICAL EQUIPMENT TO REMAIN
PP308C
PP801B
EXISTING ELECTRICAL EQUIPMENT TO REMAIN
T713
DP801A
EXISTING ELECTRICAL EQUIPMENT TO REMAIN
DP713
T713
PP713B
PP804D
EXISTING ELECTRICAL EQUIPMENT TO REMAIN
T804
DP804
EXISTING ELECTRICAL EQUIPMENT TO REMAIN
DP815
T815
PP815B

1 ELECTRICAL ROOM PANEL LOCATIONS
1/16" = 1'-0"

KEYPLAN

Mechanical • Electrical • Plumbing
Fire Protection • Techology Design
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randolf middle school
rooftop unit replacement
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REV #	DATE	DESCRIPTION

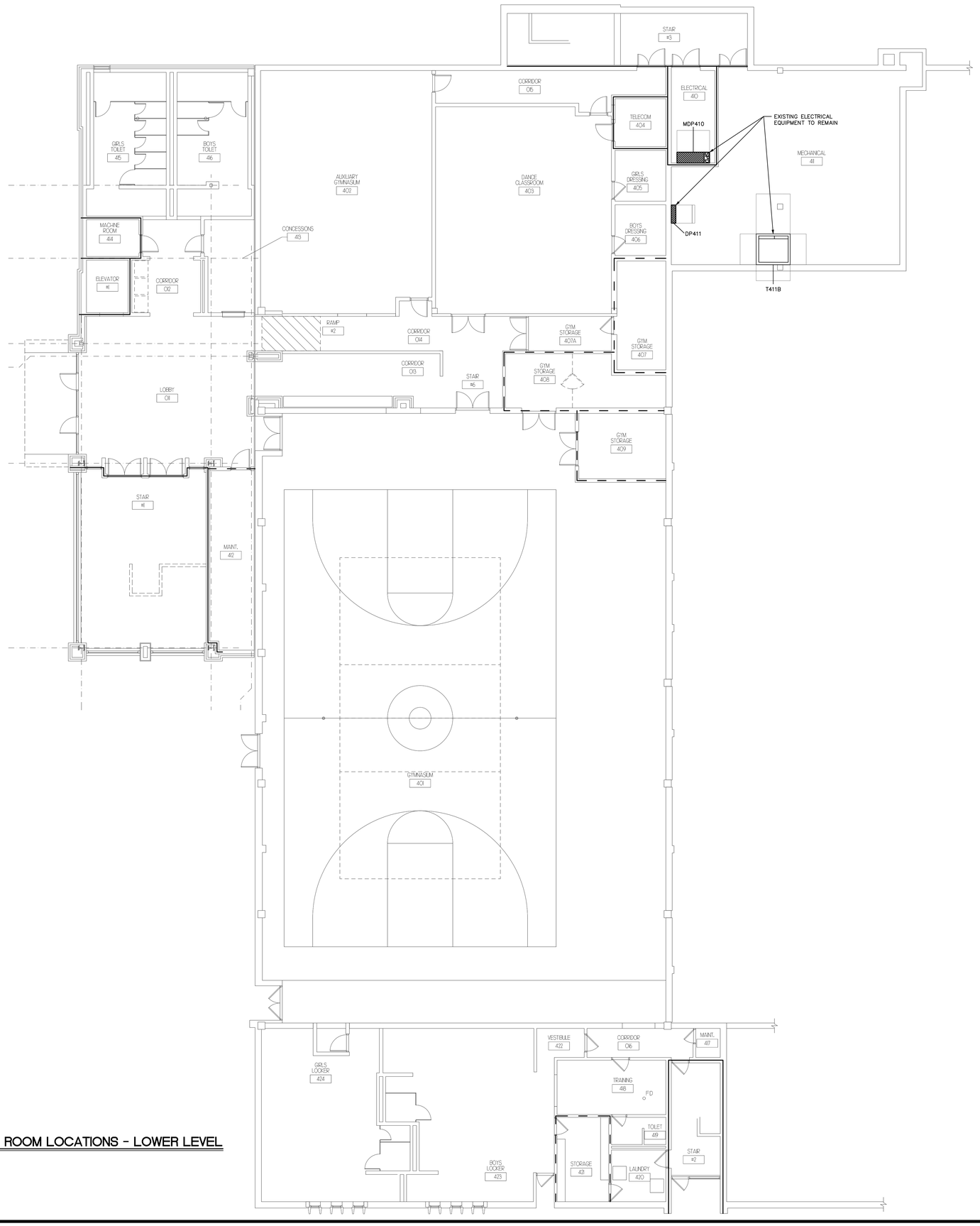
DATE:	10-23-26
PROJECT #:	22-0254
DRAWN BY:	SMT
DESIGNED BY:	SMT
CHECKED BY:	MAM

SHEET TITLE:
ELECTRICAL ROOM PANEL LOCATIONS

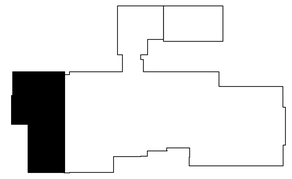
DWG #:
E201

SHEET NO: 2 of 8

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1 ELECTRICAL ROOM LOCATIONS - LOWER LEVEL
1/8" = 1'-0"



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randolf middle school
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REV #	DATE	DESCRIPTION

DATE:	10-23-26
PROJECT #:	22-0254
DRAWN BY:	SMT
DESIGNED BY:	SMT
CHECKED BY:	MAM

SHEET TITLE:
ELECTRICAL ROOM PANEL LOCATIONS - LOWER LEVEL

DWG #:
E202

SHEET NO: 3 of 8

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GENERAL NOTES:
1. DISCONNECT SHOWN IS NEW FOR EACH RTU. EXTEND BRANCH CIRCUIT FROM INTERCEPT POINT OF DISCONNECT TO NEW UNIT.

KEY NOTE:
1. REINSTALL WP GFI TO EXISTING 120V, 20A CIRCUIT.
2. REMOVE EXISTING ROOFTOP UNITS AS SHOWN ON MECHANICAL PLANS. REUSE EXISTING CONDUCTORS, EXTEND BRANCH CIRCUIT TO NEW EQUIPMENT CONNECTION.
3. INSTALL NEW WP GFI TO EXISTING 120V, 20A CIRCUIT.
4. CONNECT ION FILTER TO LOCAL RECEPTACLE CIRCUIT.

DEMO NOTES:
1. EXTEND EXISTING CONDUIT & CONDUCTORS FOR NEW CONNECTION POINTS.

ROOFTOP UNIT SCHEDULE - (DX COOLING ONLY - R454B)

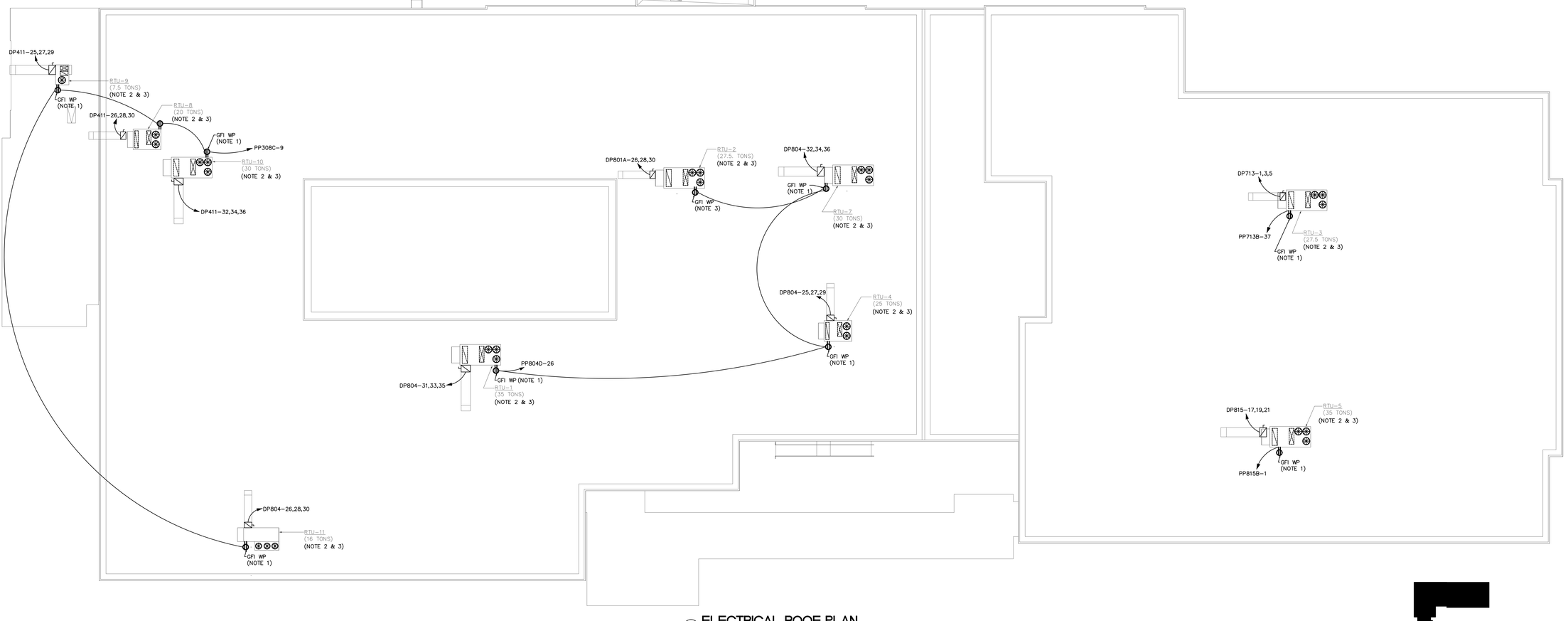
SYMBOL	CFM	NOMINAL TONNAGE	COMPRESSOR (EA) NO.	COMPRESSOR (EA) BELOW	OFM QTY.	OFM FLA	IFM QTY	IFM MHP	EXHAUST FAN (EA) QTY.	EXHAUST FAN (EA) HP	EXHAUST FAN (EA) FLA	POWER SUPPLY MCA	POWER SUPPLY MOCP	POWER SUPPLY VOLTAGE	DISCONNECT	CIRCUIT (CU) DISCONNECT LOAD SIDE
RTU-1	14,000	35	3	SEE NOTE "B"	3	2.2	1	20	2	–	2.2	101	125	460V-3ø	200/F125-3P-3R	3#1,1#6G,1-1/2"C
RTU-2	9,000	27.5	3	SEE NOTE "A"	3	2.2	1	15	2	–	2.2	88	100	460V-3ø	100/F100-3P-3R	3#3,1#8G,1-1/4"C
RTU-3	11,000	27.5	3	SEE NOTE "A"	3	2.2	1	15	2	–	2.2	88	100	460V-3ø	100/F100-3P-3R	3#3,1#8G,1-1/4"C
RTU-4	8,000	25	2	SEE NOTE "C"	2	2.5	1	4.6	1	–	5.5	64	80	460V-3ø	100/F80-3P-3R	3#3,1#8G,1-1/4"C
RTU-5	14,000	35	3	SEE NOTE "B"	3	2.2	1	20	2	–	2.2	101	125	460V-3ø	200/F125-3P-3R	3#1,1#6G,1-1/2"C
RTU-6	9,000	27.5	3	SEE NOTE "A"	3	2.2	1	15	2	–	2.2	88	100	460V-3ø	100/F100-3P-3R	3#3,1#8G,1-1/4"C
RTU-7	12,000	30	3	SEE NOTE "D"	3	2.2	2	15	2	–	2.2	90	100	460V-3ø	200/F100-3P-3R	3#3,1#6G,1-1/2"C
RTU-8	7,000	20	2	SEE NOTE "E"	2	2.5	1	4.3	1	–	5.5	58	80	460V-3ø	100/F80-3P-3R	3#3,1#8G,1-1/4"C
RTU-9	3,500	7.5	2	SEE NOTE "F"	1	1.5	1	3	N/A	N/A	N/A	22	25	460V-3ø	30/F25-3P-3R	3#10,1#10G,3/4"C
RTU-10	12,000	30	3	SEE NOTE "D"	3	2.2	2	10	2	–	2.2	84	100	460V-3ø	200/F100-3P-3R	3#3,1#6G,1-1/2"C

COMPRESSOR NOTES:
- A. COMPRESSOR #1: 14.5 RLA: COMPRESSOR #2: 19.1 RLA: COMPRESSOR #3: 19.1 RLA
- B. COMPRESSOR #1: 14.5 RLA: COMPRESSOR #2: 21.8 RLA: COMPRESSOR #3: 21.8 RLA
- C. COMPRESSOR #1: 23.8 RLA; COMPRESSOR #2: 14.4 RLA
- D. COMPRESSOR #1: 14.5 RLA: COMPRESSOR #2: 19.8 RLA: COMPRESSOR #3: 19.8 RLA
- E. COMPRESSOR #1: 22.4 RLA: COMPRESSOR #2: 12.2 RLA
- F. COMPRESSOR #1: 8.1 RLA: COMPRESSOR #2: 5.2 RLA

NOTES:
1. REPLACE EXISTING DUCT SMOKE DETECTOR WITH A NEW PHOTOELECTRIC TYPE SMOKE DETECTOR, INSTALLED IN THE RETURN DUCT WIRED TO SHUT DOWN THE UNIT UPON ACTIVATION. SMOKE DETECTOR SHALL BE SUPPLIED, WIRED FOR INTERFACE WITH FIRE ALARM SYSTEM AND UNIT SHUTDOWN BY THE ELECTRICAL CONTRACTOR. SMOKE DETECTOR SHALL BE INSTALLED IN THE RETURN DUCT BY THE MECHANICAL CONTRACTOR.

100% DIRECT OUTDOOR ROOFTOP UNIT SCHEDULE (DX COOLING, ENERGY RECOVERY WHEEL)

SYMBOL	SUPPLY FAN HP	SUPPLY FAN FLA	ENERGY WHEEL HP	ENERGY WHEEL FLA	EXHAUST FAN HP	EXHAUST FAN FLA	COMPRESSORS #1 RLA	COMPRESSORS #2 RLA	CONDENSER FANS QTY.	CONDENSER FANS HP	CONDENSER FANS FLA	NORMAL POWER SUPPLY MCA	NORMAL POWER SUPPLY MOCP	NORMAL POWER SUPPLY VOLTAGE	DISCONNECT	CIRCUIT (CU) DISCONNECT LOAD SIDE
RTU-11	5	7.6	.017	0.60	2	3.4	12	12	2	1	3.6	46	50	460V-3ø	60/F50-3P-3R	3#8,1#10G,3/4"C



1 ELECTRICAL ROOF PLAN
1/16" = 1'-0"

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randolf middle school
rooftop unit replacement
4400 WATER OAK RD, CHARLOTTE, NC 28211

REV #	DATE	DESCRIPTION

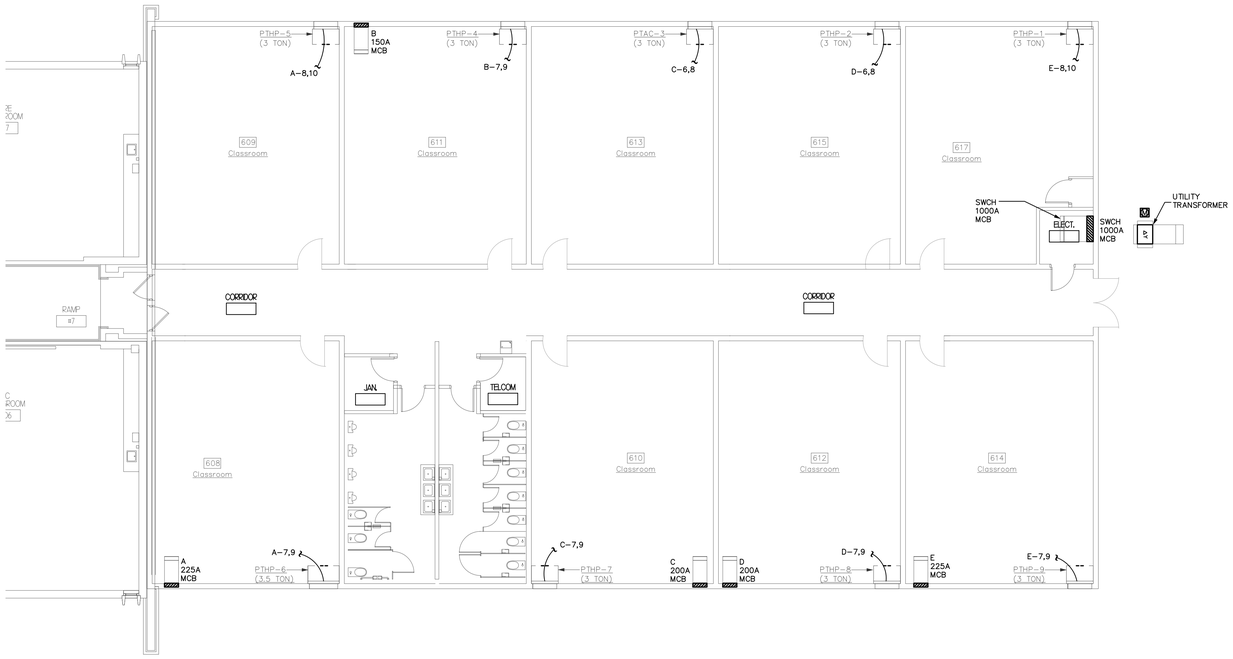
DATE: 10-23-26
PROJECT #: 22-0254
DRAWN BY: SMT
DESIGNED BY: SMT
CHECKED BY: MAM

SHEET TITLE:
ELECTRICAL ROOF PLAN

DWG #:
E203

SHEET NO: 4 of 8

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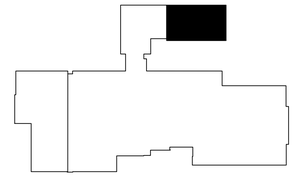
1 ELECTRICAL MODULAR PLAN
1/8" = 1'-0"

PACKAGED TERMINAL AIR CONDITIONER (ELEC HEAT)

SYMBOL	NOMINAL TONNAGE	CFM	AUXILARY ELEC HEATING CAPACITY		FAN	ELECTRICAL DATA				
			KW	VOLTAGE/PH	HP	MCA	FUSE	VOLTAGE	WIRE SIZE	DISCONNECT
PTAC-1	3.0	1,200	10	280V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-2	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-3	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-4	3.5	1,300	10	208V/1ø	1/2	83	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-5	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-6	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-7	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-8	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER
PTAC-9	3.0	1,200	10	208V/1ø	1/2	81	90	208V-1ø	EXISTING TO REMAIN	UNIT PROVIDED WITH INTERNAL CIRCUIT BREAKER

NOTES:

1. UNITS REPLACED 1 FOR 1. RETAIN AND REUSE EXISTING CIRCUITS.



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randolf middle school
rooftop unit replacement
4400 WATER OAK RD, CHARLOTTE, NC 28211

REV #	DATE	DESCRIPTION

DATE: 10-23-26
PROJECT #: 22-0254
DRAWN BY: SMT
DESIGNED BY: SMT
CHECKED BY: MAM

SHEET TITLE:
ELECTRICAL MODULAR ADDITION PLAN

DWG #:
E204

SHEET NO: 5 of 8

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EXISTING SWBD: MDP410

EXTG MFGR

VOLTAGE: 277 / 480 — 3 PHASE — 4 WIRE — EXTG TYPE

MOUNTING: FLOOR — 2000 AMP — MAIN CIRCUIT BREAKER — 65,000 AIC

MAIN CB NOTES:

CKT / ID	LOAD SERVED	BREAKER FRAME	BREAKER TRIP	BREAKER POLE	FEEDER	NOTES	LOAD KVA
1	ELEVATOR	100	100	3			28.2
2	DP804	800	800	3			384.2
3	TVSS	100	60	3			0.0
4	DP815	800	800	3			165.3
5	DP713	400	400	3			95.3
6	T4118	225	175	3			88.6
7	DP411	800	800	3			281.4
8	TS411	100	70	3			17.2
9	EMSB	1000	1000	3			325.0
10	DP801A	400	400	3			262.8
11	SPARE	225	225	3			0.0
12	SPARE	225	225	3			0.0
13	SPACE ONLY	400		3			0.0
14	SPACE ONLY	400		3			0.0
15	SPACE ONLY	225		3			0.0
16	SPACE ONLY	225		3			0.0
17	SPACE ONLY						0.0
18	SPACE ONLY						0.0
19	SPACE ONLY						0.0
20	SPACE ONLY						0.0
21	SPACE ONLY						0.0
						TOTAL (CONNECTED):	1648

LOAD (KVA)	Conn	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	93.8	1.25	117.3	CONNECTED		
HEATING	1.0	1.00	1.0	A =	555.0 KVA	2002.8 A
COOLING	558.7	1.00	558.7	B =	552.2 KVA	1992.4 A
VENTILATION	22.3	1.00	22.3	C =	540.8 KVA	1951.4 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	56.9	0.65	37.0	A =	519.8 KVA	1875.8 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	512.6 KVA	1849.8 A
REC. (>10kVA)	225.6	0.50	112.8	C =	506.2 KVA	1826.7 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	597.0	1.00	597.0	A =	649.8 KVA	2344.8 A
SPARE	82.7	1.00	82.7	B =	640.8 KVA	2312.3 A
TOTAL (KVA)	1648.0		1538.7	C =	632.8 KVA	2283.4 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.
3. PER DUKE ENERGY PEAK LOAD IS 403 KW. CONFIRMED: 08/28/2023.

EXISTING PANEL: DP411

EXTG MFGR

VOLTAGE: 277 / 480 — 3 PHASE — 4 WIRE — EXTG TYPE

MOUNTING: SURFACE — 800 AMP — MAIN LUGS ONLY — 25,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	A B C	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
2.10		EX			1		2			EX		0.94
2.10	MUAU-1 (EXISTING)	EX	200		3		4		20	EX	HOT WATER PUMP - 1 (EXISTING)	0.94
2.10		EX			5		6			EX		0.94
3.04		EX			7		8			EX		0.83
3.04	EXHAUST FAN - 25 (EXISTING)	EX	20		9		10		20	EX	HOT WATER PUMP - 2 (EXISTING)	0.83
3.04		EX			11		12			EX		0.83
0.44		EX			13		14			EX		2.10
0.44	EXHAUST FAN - 24 (EXISTING)	EX	20		15		16		20	EX	BOILER HW PUMP 1 (EXISTING)	2.10
0.44		EX			17		18			EX		2.10
2.10		EX			19		20					0.00
2.10	BOILER HW PUMP 2 (EXISTING)	EX	20		21		22				SPACE ONLY (EXISTING)	0.00
2.10		EX			23		24					0.00
6.09		EX			25		26			EX		**12.85**
6.09	**RTU-9**	EX	25		27		28		100	EX	**RTU-8**	**12.85**
6.09		EX			29		30			EX		**12.85**
17.90		EX			31		32			EX		**18.61**
19.89	T411A (EXISTING)	EX	125		33		34		125	EX	**RTU-10**	**18.61**
16.21		EX			35		36			EX		**18.61**
16.83		EX			37		38			EX		10.16
16.83	DP411B (EXISTING)	EX	400		39		40		150	EX	LP411 (EXISTING)	11.66
16.83		EX			41		42			EX		7.80
145.8						SUB-TOTALS						135.6

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	29.6	1.25	37.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	94.0 KVA	339.2 A
COOLING	112.7	1.00	112.7	B =	97.5 KVA	351.8 A
VENTILATION	16.7	1.00	16.7	C =	89.9 KVA	324.5 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	96.5 KVA	348.3 A
REC. (1st 10kVA)	0.0	1.00	0.0	B =	100.4 KVA	362.3 A
REC. (>10kVA)	0.0	0.50	0.0	C =	91.9 KVA	331.6 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	122.4	1.00	122.4	A =	120.7 KVA	435.4 A
SPARE	0.0	1.00	0.0	B =	125.5 KVA	452.8 A
TOTAL (KVA)	281.4		288.8	C =	114.9 KVA	414.5 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: PP308C

EXTG MFGR

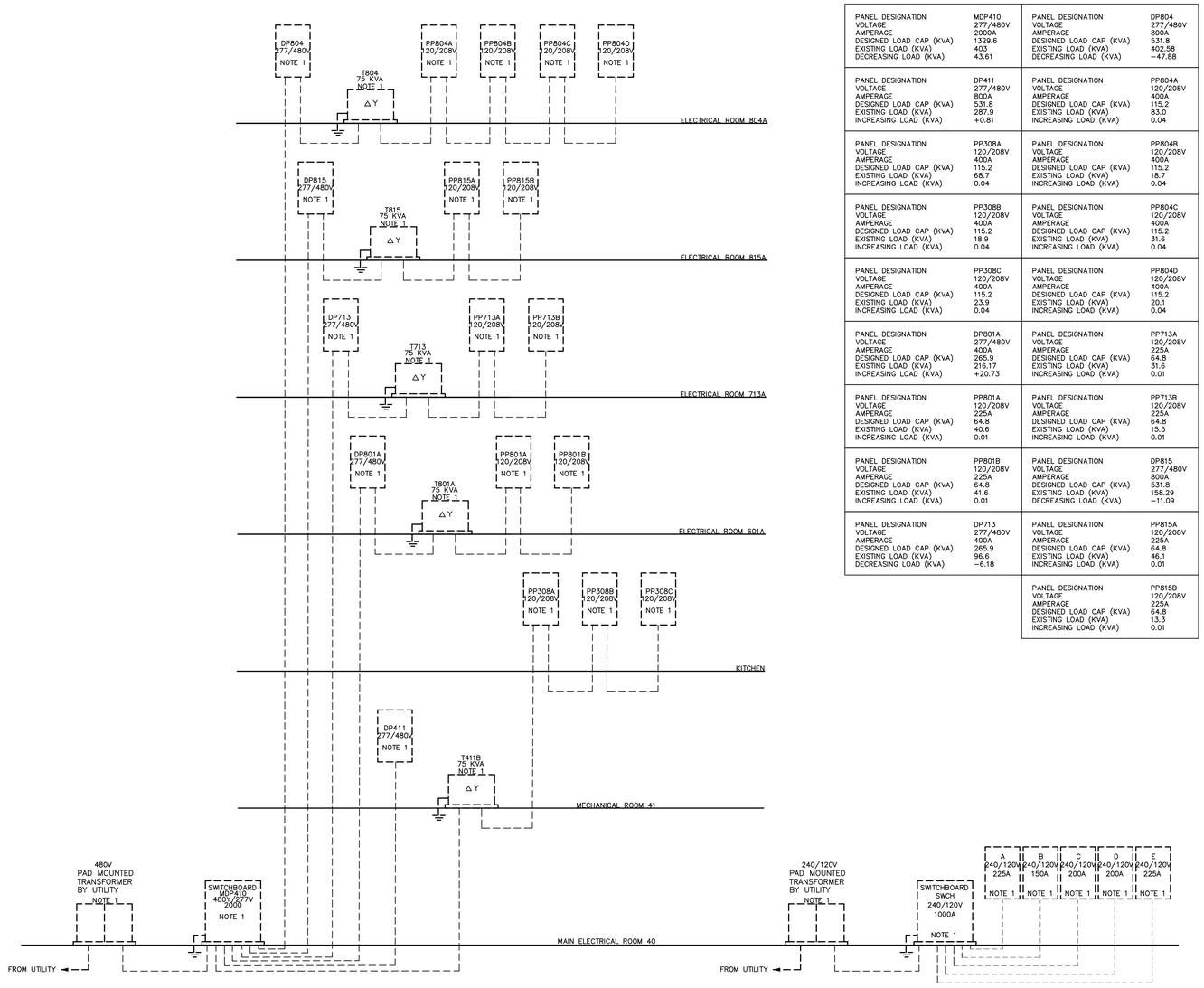
VOLTAGE: 120 / 208 — 3 PHASE — 4 WIRE — EXTG TYPE

MOUNTING: SURFACE — 400 AMP — MAIN LUGS ONLY — 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	A B C	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
1.75	EXISTING LOAD	EX	20		1		2			EX	EXISTING LOAD	2.11
1.75	EXISTING LOAD	EX	20		3		4			EX	EXISTING LOAD	1.17
2.11	EXISTING LOAD	EX	25		5		6			EX	EXISTING LOAD	1.17
0.00	SPARE		20		7		8			EX		0.43
0.54	ROOF REC (EXISTING)	EX	20		9		10			EX	EXISTING LOAD	0.43
0.36	EXISTING LOAD	EX	20		11		12			EX		0.43
0.43		EX			13		14			EX		0.43
0.43	EXISTING LOAD	EX	20		15		16			EX	EXISTING LOAD	0.43
0.43		EX			17		18			EX		0.43
1.40	EXISTING LOAD	EX	20		19		20			EX	EXISTING LOAD	1.08
0.00	SPACE ONLY				21		22				SPACE ONLY	0.00
1.08	EXISTING LOAD	EX	20		23		24			EX	EXISTING LOAD	1.08
0.00	SPACE ONLY				25		26				SPACE ONLY	0.00
1.08	EXISTING LOAD	EX	20		27		28			EX	EXISTING LOAD	1.08
0.00	SPARE		20		29		30				SPACE ONLY	0.00
0.00	SPARE		20		31		32			EX	EXISTING LOAD	1.22
0.00	SPARE		20		33		34			EX		1.22
0.54	EXISTING LOAD	EX	20		35		36			EX	EXISTING LOAD	1.08
0.72	EXISTING LOAD	EX	20		37		38			EX	EXISTING LOAD	0.72
0.54	EXISTING LOAD	EX	20		39		40			EX	EXISTING LOAD	0.72
0.72	EXISTING LOAD	EX	20		41		42			EX	EXISTING LOAD	1.10
13.9						SUB-TOTALS						16.3

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	10.3 KVA	85.7 A
COOLING	2.4	1.00	2.4	B =	9.4 KVA	78.2 A
VENTILATION	0.0	1.00	0.0	C =	10.5 KVA	87.7 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	18.4	0.65	12.0	A =	7.6 KVA	63.4 A
REC. (1st 10kVA)	5.9	1.00	5.9	B =	7.6 KVA	63.0 A
REC. (>10kVA)	0.0	0.50	0.0	C =	8.6 KVA	71.5 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	3.4	1.00	3.4	A =	9.5 KVA	79.3 A
SPARE	0.0	1.00	0.0	B =	9.5 KVA	78.8 A
TOTAL (KVA)	30.2		23.8	C =	10.7 KVA	89.4 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.



NOTES:
1. ALL EQUIPMENT SHOWN IS EXISTING AND TO REMAIN IN PLACE

1 POWER RISER DIAGRAM

NO SCALE

PANEL DESIGNATION	MDP410
VOLTAGE	277/480V
AMPERAGE	2000A
DESIGNED LOAD CAP (KVA)	1,329.6
*12 MONTH PEAK DEMAND (KVA)	403.00
REMOVED LOAD (KVA)	−43.61
NEW TOTAL LOAD (KVA)	359.39

* 12 MONTH PEAK DEMAND PROVIDED BY DUKE ENERGY ON 8/20/26. THE EXISTING LOAD FOR PANEL MDP410 IS ALSO CALCULATED PER NEC 220.87.

PANEL DESIGNATION	SWCH
VOLTAGE	240/120V
AMPERAGE	1000A
DESIGNED LOAD CAP (KVA)	192
EXISTING LOAD (KVA)	182.7
DECREASING LOAD (KVA)	1.20

EXISTING BARD UNITS ARE 82AMPS MCA AND 90 MOCP. NEW UNITS HAVE A 81AMP MCA AND 90 MOCP. LOAD WILL BE REDUCED WHEN REPLACING BARD UNITS.

PANEL DESIGNATION	MDP410
VOLTAGE	277/480V
AMPERAGE	2000A
DESIGNED LOAD CAP (KVA)	1329.6
EXISTING LOAD (KVA)	403
DECREASING LOAD (KVA)	43.61

PANEL DESIGNATION	DP411
VOLTAGE	277/480V
AMPERAGE	800A
DESIGNED LOAD CAP (KVA)	531.8
EXISTING LOAD (KVA)	287.9
INCREASING LOAD (KVA)	+0.81

PANEL DESIGNATION	PP308A
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	68.7
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	PP308B
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	18.9
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	PP308C
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	23.9
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	DP801A
VOLTAGE	277/480V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	265.9
EXISTING LOAD (KVA)	216.17
INCREASING LOAD (KVA)	+20.73

PANEL DESIGNATION	PP801A
VOLTAGE	120/208V
AMPERAGE	225A
DESIGNED LOAD CAP (KVA)	64.8
EXISTING LOAD (KVA)	40.6
INCREASING LOAD (KVA)	0.01

PANEL DESIGNATION	PP801B
VOLTAGE	120/208V
AMPERAGE	225A
DESIGNED LOAD CAP (KVA)	64.8
EXISTING LOAD (KVA)	41.6
INCREASING LOAD (KVA)	0.01

PANEL DESIGNATION	DP713
VOLTAGE	277/480V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	265.9
EXISTING LOAD (KVA)	96.6
DECREASING LOAD (KVA)	−6.18

PANEL DESIGNATION	DP804
VOLTAGE	277/480V
AMPERAGE	800A
DESIGNED LOAD CAP (KVA)	531.8
EXISTING LOAD (KVA)	402.58
DECREASING LOAD (KVA)	−47.88

PANEL DESIGNATION	PP804A
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	83.0
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	PP804B
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	18.7
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	PP804C
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	31.6
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	PP804D
VOLTAGE	120/208V
AMPERAGE	400A
DESIGNED LOAD CAP (KVA)	115.2
EXISTING LOAD (KVA)	20.1
INCREASING LOAD (KVA)	0.04

PANEL DESIGNATION	PP713A
VOLTAGE	120/208V
AMPERAGE	225A
DESIGNED LOAD CAP (KVA)	64.8
EXISTING LOAD (KVA)	31.6
INCREASING LOAD (KVA)	0.01

PANEL DESIGNATION	PP713B
VOLTAGE	120/208V
AMPERAGE	225A
DESIGNED LOAD CAP (KVA)	64.8
EXISTING LOAD (KVA)	15.5
INCREASING LOAD (KVA)	0.01

PANEL DESIGNATION	DP815
VOLTAGE	277/480V
AMPERAGE	800A
DESIGNED LOAD CAP (KVA)	531.8
EXISTING LOAD (KVA)	158.29
DECREASING LOAD (KVA)	−11.09

PANEL DESIGNATION	PP815A
VOLTAGE	120/208V
AMPERAGE	225A
DESIGNED LOAD CAP (KVA)	64.8
EXISTING LOAD (KVA)	46.1
INCREASING LOAD (KVA)	0.01

PANEL DESIGNATION	PP815B
VOLTAGE	120/208V
AMPERAGE	225A
DESIGNED LOAD CAP (KVA)	64.8
EXISTING LOAD (KVA)	13.3
INCREASING LOAD (KVA)	0.01

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NORTH CAROLINA PROFESSIONAL SEAL C-0914 ENGINEER MARK T. MONTGOMERY

10/23/2026

randolf middle school
rooftop unit replacement

4400 WATER OAK RD, CHARLOTTE, NC 28211

REV #	DATE	DESCRIPTION

DATE: 10-23-26
PROJECT #: 22-0254
DRAWN BY: SMT
DESIGNED BY: SMT
CHECKED BY: MAM

SHEET TITLE:
POWER RISER DIAGRAM & SCHEDULES

DWG #:
E701

SHEET NO: 6 of 8

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EXISTING PANEL: DP801A

EXTG MFGR
VOLTAGE: 277 / 480 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 400 AMP | MAIN LUGS ONLY | 25,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.00	SPACE ONLY (EXISTING)				1	2				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				3	4				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				5	6				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				7	8				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				9	10				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				11	12					0.00
0.00	SPACE ONLY (EXISTING)				13	14		125		SPARE (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				15	16					0.00
0.00	SPARE (EXISTING)		20		17	18		20		SPARE (EXISTING)	0.00
21.61		EX			19	20		20		SPARE (EXISTING)	0.00
24.67	T801A (EXISTING)	EX	125		21	22		20		SPARE (EXISTING)	0.00
20.24		EX			23	24		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		25	26			EX		**19.50**
0.00	SPARE (EXISTING)		20		27	28		100	EX	**RTU - 2**	**19.50**
0.00	SPARE (EXISTING)		20		29	30			EX		**19.50**
0.00	SPARE (EXISTING)		20		31	32			EX		**21.45**
0.00	SPARE (EXISTING)		20		33	34		110	EX	**RTU - 6**	**21.45**
0.00	SPARE (EXISTING)		20		35	36			EX		**21.45**
13.60		EX			37	38			EX		10.00
15.00	LP801A (EXISTING)	EX	100		39	40		70	EX	T801B (EXISTING)	10.00
14.81		EX			41	42			EX		10.00
109.9					SUB-TOTALS						152.9

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	86.2 KVA	310.9 A
COOLING	122.9	1.00	122.9	B =	90.6 KVA	327.0 A
VENTILATION	1.9	1.00	1.9	C =	86.0 KVA	310.3 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	78.0 KVA	281.5 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	80.9 KVA	291.9 A
REC. (>10kVA)	51.8	0.50	25.9	C =	77.9 KVA	281.3 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	76.2	1.00	76.2	A =	97.5 KVA	351.9 A
SPARE	0.0	1.00	0.0	B =	101.1 KVA	364.9 A
TOTAL (KVA)	262.8		236.9	C =	97.4 KVA	351.6 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: DP713

EXTG MFGR
VOLTAGE: 277 / 480 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 400 AMP | MAIN LUGS ONLY | 25,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
19.50		EX			1	2		20		SPARE (EXISTING)	0.00
19.50	**RTU-3**	EX	110		3	4		20		SPARE (EXISTING)	0.00
19.50		EX			5	6		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		7	8			EX		13.79
0.00	SPARE (EXISTING)		20		9	10		125	EX	T713 (EXISTING)	12.94
0.00	SPARE (EXISTING)		20		11	12			EX		10.06
0.00	SPARE (EXISTING)		20		13	14		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		15	16		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		17	18		20		SPARE (EXISTING)	0.00
0.00	SPACE ONLY				19	20				SPACE ONLY	0.00
0.00	SPACE ONLY				21	22				SPACE ONLY	0.00
0.00	SPACE ONLY				23	24				SPACE ONLY	0.00
0.00	SPACE ONLY				25	26				SPACE ONLY	0.00
0.00	SPACE ONLY				27	28				SPACE ONLY	0.00
0.00	SPACE ONLY				29	30				SPACE ONLY	0.00
0.00	SPACE ONLY				31	32				SPACE ONLY	0.00
0.00	SPACE ONLY				33	34				SPACE ONLY	0.00
0.00	SPACE ONLY				35	36				SPACE ONLY	0.00
0.00	SPACE ONLY				37	38				SPACE ONLY	0.00
0.00	SPACE ONLY				39	40				SPACE ONLY	0.00
0.00	SPACE ONLY				41	42				SPACE ONLY	0.00
58.5					SUB-TOTALS						36.8

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	33.3 KVA	120.1 A
COOLING	58.5	1.00	58.5	B =	32.4 KVA	117.1 A
VENTILATION	0.1	1.00	0.1	C =	29.6 KVA	106.7 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	31.5 KVA	113.7 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	30.2 KVA	109.0 A
REC. (>10kVA)	10.3	0.50	5.2	C =	28.4 KVA	102.5 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	2.0	1.00	2.0	A =	39.4 KVA	142.1 A
SPARE	14.3	1.00	14.3	B =	37.7 KVA	136.2 A
TOTAL (KVA)	95.3		90.1	C =	35.5 KVA	128.2 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: DP815

EXTG MFGR
VOLTAGE: 277 / 480 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 800 AMP | MAIN LUGS ONLY | 25,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.00	SPARE (EXISTING)		20		1	2		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		3	4		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		5	6		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		7	8		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		9	10		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		11	12		20		SPARE (EXISTING)	0.00
1.00	SPARE (EXISTING)		20		13	14		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		15	16		20		SPARE (EXISTING)	0.00
22.38		EX			17	18		20		SPARE (EXISTING)	0.00
22.38	**RTU-5**	EX	125		19	20		20		SPARE (EXISTING)	0.00
22.38		EX			21	22		20		SPARE (EXISTING)	0.00
13.40		EX			23	24			EX		19.96
8.33	LP815 (EXISTING)	EX	150		25	26		125	EX	T815 (EXISTING)	26.81
11.18		EX			27	28			EX		17.46
0.00	SPACE ONLY				29	30				SPACE ONLY	0.00
0.00	SPACE ONLY				31	32				SPACE ONLY	0.00
0.00	SPACE ONLY				33	34				SPACE ONLY	0.00
0.00	SPACE ONLY				35	36				SPACE ONLY	0.00
0.00	SPACE ONLY				37	38				SPACE ONLY	0.00
0.00	SPACE ONLY				39	40				SPACE ONLY	0.00
0.00	SPACE ONLY				41	42				SPACE ONLY	0.00
101.1					SUB-TOTALS						64.2

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	1.0	1.00	1.0	A =	58.5 KVA	211.2 A
COOLING	67.1	1.00	67.1	B =	51.0 KVA	184.1 A
VENTILATION	0.3	1.00	0.3	C =	55.7 KVA	201.1 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	46.0 KVA	165.8 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	53.5 KVA	192.9 A
REC. (>10kVA)	36.3	0.50	18.1	C =	47.7 KVA	172.3 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	1.5	1.00	1.5	A =	57.4 KVA	207.3 A
SPARE	49.1	1.00	49.1	B =	66.8 KVA	241.1 A
TOTAL (KVA)	165.3		147.2	C =	59.7 KVA	215.3 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: PP801B

EXTG MFGR
VOLTAGE: 120 / 208 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 225 AMP | MAIN LUGS ONLY | 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.36	EXISTING LOAD	EX	20		1	2		20	EX	EXISTING LOAD	0.69
0.36	EXISTING LOAD	EX	20		3	4		20	EX	EXISTING LOAD	0.69
0.36	EXISTING LOAD	EX	20		5	6		20	EX	EXISTING LOAD	0.52
0.36	EXISTING LOAD	EX	20		7	8		20	EX	ROOF REC (EXISTING)	0.18
0.36	EXISTING LOAD	EX	20		9	10		20	EX	EXISTING LOAD	0.50
0.36	EXISTING LOAD	EX	20		11	12		20	EX	EXISTING LOAD	0.50
0.36	EXISTING LOAD	EX	20		13	14		20	EX	EXISTING LOAD	1.08
0.36	EXISTING LOAD	EX	20		15	16		20	EX	EXISTING LOAD	0.36
0.36	EXISTING LOAD	EX	20		17	18		20	EX	EXISTING LOAD	0.72
0.36	EXISTING LOAD	EX	20		19	20		20	EX	EXISTING LOAD	0.36
0.36	EXISTING LOAD	EX	20		21	22		20	EX	EXISTING LOAD	0.90
0.36	EXISTING LOAD	EX	20		23	24		20	EX	EXISTING LOAD	0.36
0.36	EXISTING LOAD	EX	20		25	26		20	EX	EXISTING LOAD	0.54
0.36	EXISTING LOAD	EX	20		27	28		20	EX	EXISTING LOAD	1.08
0.36	EXISTING LOAD	EX	20		29	30				SPACE ONLY	0.00
0.50	EXISTING LOAD	EX	20		31	32		20	EX	EXISTING LOAD	0.36
0.54	EXISTING LOAD	EX	20		33	34		20	EX	EXISTING LOAD	0.36
1.08	EXISTING LOAD	EX	20		35	36		20	EX	EXISTING LOAD	0.36
0.36	EXISTING LOAD	EX	20		37	38			EX		0.00
0.54	EXISTING LOAD	EX	20		39	40		30	EX	TVSS (EXISTING)	0.00
0.00	SPARE				41	42			EX		0.00
8.4					SUB-TOTALS						9.6

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	5.9 KVA	48.9 A
COOLING	0.0	1.00	0.0	B =	6.8 KVA	56.4 A
VENTILATION	1.9	1.00	1.9	C =	5.3 KVA	44.5 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	5.1 KVA	42.8 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	5.9 KVA	49.1 A
REC. (>10kVA)	4.6	0.50	2.3	C =	4.7 KVA	38.8 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	1.5	1.00	1.5	A =	6.4 KVA	53.4 A
SPARE	0.0	1.00	0.0	B =	7.4 KVA	61.3 A
TOTAL (KVA)	18.0		15.7	C =	5.8 KVA	48.5 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: PP713B

EXTG MFGR
VOLTAGE: 120 / 208 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 225 AMP | MAIN LUGS ONLY | 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.00	SPACE ONLY				1	2				SPACE ONLY	0.00
0.00	SPACE ONLY				3	4		20	EX	EXISTING LOAD	0.72
0.00	SPACE ONLY				5	6		20	EX	EXISTING LOAD	0.90
0.00	SPACE ONLY				7	8		20	EX	EXISTING LOAD	0.36
0.00	SPACE ONLY				9	10		20	EX	EXISTING LOAD	0.36
0.00	SPACE ONLY				11	12		20	EX	EXISTING LOAD	1.08
0.00	SPACE ONLY				13	14		20	EX	EXISTING LOAD	1.08
0.00	SPACE ONLY				15	16		20	EX	EXISTING LOAD	0.72
0.00	SPACE ONLY				17	18		20	EX	EXISTING LOAD	0.72
0.36	EXISTING LOAD	EX	20		19	20		20	EX	EXISTING LOAD	0.90
0.36	EXISTING LOAD	EX	20		21	22		20	EX	EXISTING LOAD	0.70
0.72	EXISTING LOAD	EX	20		23	24		20	EX	EXISTING LOAD	0.70
1.08	EXISTING LOAD	EX	20		25	26		20	EX	EXISTING LOAD	0.70
0.18	EXISTING LOAD	EX	20		27	28		20	EX	EXISTING LOAD	1.08
0.36	EXISTING LOAD	EX	20		29	30		20	EX	EXISTING LOAD	1.08
0.00	SPARE		20		31	32		20		SPARE	0.00
0.00	SPARE		20		33	34		20		SPARE	0.00
0.00	SPARE		20		35	36		20		SPARE	0.00
0.18	ROOF REC (EXISTING)	EX	20		37	38			EX		0.00
0.00	SPARE		20		39	40		30	EX	TVSS (EXISTING)	0.00
0.00	SPARE		20		41	42			EX		0.00
3.2					SUB-TOTALS						11.1

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	4.7 KVA	38.8 A
COOLING	0.0	1.00	0.0	B =	4.1 KVA	34.3 A
VENTILATION	0.0	1.00	0.0	C =	5.6 KVA	46.3 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	4.7 KVA	38.8 A
REC. (1st 10kVA)	0.0	1.00	0.0	B =	4.1 KVA	34.3 A
REC. (>10kVA)	0.0	0.50	0.0	C =	5.6 KVA	46.3 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	0.0	1.00	0.0	A =	5.8 KVA	48.5 A
SPARE	14.3	1.00	14.3	B =	5.2 KVA	42.9 A
TOTAL (KVA)	14.3		14.3	C =	7.0 KVA	57.9 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: PP815B

EXTG MFGR
VOLTAGE: 120 / 208 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 225 AMP | MAIN LUGS ONLY | 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.18	ROOF REC (EXISTING)	EX	20		1	2		20	EX	EXISTING LOAD	1.08
0.18	EXISTING LOAD	EX	20		3	4		20	EX	EXISTING LOAD	1.08
0.18	EXISTING LOAD	EX	20		5	6		20	EX	EXISTING LOAD	1.08
0.18	EXISTING LOAD	EX	20		7	8		20	EX	EXISTING LOAD	0.72
0.36	EXISTING LOAD	EX	20		9	10		20	EX	EXISTING LOAD	1.08
0.72	EXISTING LOAD	EX	20		11	12		20		SPARE	0.00
0.00	SPARE		20		13	14		20	EX	EXISTING LOAD	0.72
1.08	EXISTING LOAD	EX	20		15	16		20	EX	EXISTING LOAD	0.11
1.08	EXISTING LOAD	EX	20		17	18		20		SPARE	0.00
1.08	EXISTING LOAD	EX	20		19	20		20	EX	EXISTING LOAD	0.16
1.08	EXISTING LOAD	EX	20		21	22		20	EX	EXISTING LOAD	0.50
0.00	SPARE		20		23	24		20		SPARE	0.00
1.08	EXISTING LOAD	EX	20		25	26		20		SPARE	0.00
1.08	EXISTING LOAD	EX	20		27	28			EX		0.00
1.08	EXISTING LOAD	EX	20		29	30		30	EX	TVSS (EXISTING)	0.00
0.00	SPARE		20		31	32			EX		0.00
0.00	SPARE		20		33	34		20		SPARE	0.00
0.00	SPARE		20		35	36		20		SPARE	0.00
0.00	SPARE		20		37	38		20		SPARE	0.00
0.00	SPARE		20		39	40		20		SPARE	0.00
0.00	SPARE		20		41	42		20		SPARE	0.00
9.4					SUB-TOTALS						6.5

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	5.2 KVA	43.3 A
COOLING	0.0	1.00	0.0	B =	6.6 KVA	54.5 A
VENTILATION	0.3	1.00	0.3	C =	4.1 KVA	34.5 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	4.3 KVA	36.2 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	5.5 KVA	46.2 A
REC. (>10kVA)	5.1	0.50	2.6	C =	3.4 KVA	28.6 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	0.5	1.00	0.5	A =	5.4 KVA	45.2 A
SPARE	0.0	1.00	0.0	B =	6.9 KVA	57.7 A
TOTAL (KVA)	15.9		13.3	C =	4.3 KVA	35.8 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: DP804

EXTG MFGR
VOLTAGE: 277 / 480 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 800 AMP | MAIN LUGS ONLY | 25,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.00	SPACE ONLY (EXISTING)				1	2				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				3	4				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				5	6				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				7	8				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				9	10				SPACE ONLY (EXISTING)	0.00
0.00	SPACE ONLY (EXISTING)				11	12				SPACE ONLY (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		13	14		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		15	16		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		17	18		20		SPARE (EXISTING)	0.00
0.00					19	20		20		SPARE (EXISTING)	0.00
0.00	SPARE (EXISTING)		20		21	22		20		SPARE (EXISTING)	0.00
0.00					23	24		20		SPARE (EXISTING)	0.00
14.18		EX			25	26			**EX**		**10.19**
14.18	**RTU-4**	EX	100		27	28		50	**EX**	**RTU-11**	**10.19**
14.18		EX			29	30			**EX**		**10.19**
19.50		EX			31	32			**EX**		**19.94**
19.50	**RTU-1**	EX	125		33	34		125	**EX**	**RTU-7**	**19.94**
19.50		EX			35	36			**EX**		**19.91**
27.63		EX			37	38			EX		44.60
15.54	LP804 (EXISTING)	EX	200		39	40		175	EX	T804 (EXISTING)	39.96
21.04		EX			41	42			EX		44.07
165.3					SUB-TOTALS						219.0

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	64.2	1.25	80.3	CONNECTED		
HEATING	0.0	1.00	0.0	A =	136.0 KVA	490.9 A
COOLING	194.4	1.00	194.4	B =	119.3 KVA	430.5 A
VENTILATION	3.2	1.00	3.2	C =	128.9 KVA	465.1 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	127.3 KVA	459.3 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	108.7 KVA	392.1 A
REC. (>10kVA)	91.3	0.50	45.6	C =	118.7 KVA	428.3 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	21.1	1.00	21.1	A =	159.1 KVA	574.2 A
SPARE	0.0	1.00	0.0	B =	135.8 KVA	490.2 A
TOTAL (KVA)	384.2		354.7	C =	148.4 KVA	535.3 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

EXISTING PANEL: PP804D

EXTG MFGR
VOLTAGE: 120 / 208 | 3 PHASE | 4 WIRE | EXTG TYPE
MOUNTING: SURFACE | 400 AMP | MAIN LUGS ONLY | 10,000 AIC

LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA
0.54	EXISTING LOAD	EX	20		1	2		20	EX	EXISTING LOAD	0.36
0.54	EXISTING LOAD	EX	20		3	4		20	EX	EXISTING LOAD	0.36
0.72	EXISTING LOAD	EX	20		5	6		20	EX	EXISTING LOAD	1.08
0.54	EXISTING LOAD	EX	20		7	8		20	EX	EXISTING LOAD	0.72
0.72	EXISTING LOAD	EX	20		9	10		20	EX	EXISTING LOAD	0.54
0.72	EXISTING LOAD	EX	20		11	12		20	EX	EXISTING LOAD	0.54
0.54	EXISTING LOAD	EX	20		13	14		20	EX	EXISTING LOAD	0.72
0.36	EXISTING LOAD	EX	20		15	16		20	EX	EXISTING LOAD	0.36
0.36	EXISTING LOAD	EX	20		17	18		20	EX	EXISTING LOAD	0.69
0.36	EXISTING LOAD	EX	20		19	20		20	EX	EXISTING LOAD	1.17
0.36	EXISTING LOAD	EX	20		21	22		20	EX	EXISTING LOAD	0.69
1.44	EXISTING LOAD	EX	20		23	24		20	EX	EXISTING LOAD	0.69
1.08	EXISTING LOAD	EX	20		25	26		20	EX	ROOF REC (EXISTING)	0.54
1.08	EXISTING LOAD	EX	20		27	28		20	EX	EXISTING LOAD	0.36
0.36	EXISTING LOAD	EX	20		29	30		20	EX	EXISTING LOAD	0.50
0.36	EXISTING LOAD	EX	20		31	32		20	EX	EXISTING LOAD	1.00
0.72	EXISTING LOAD	EX	20		33	34		20		SPARE	0.00
0.00	SPARE		20		35	36		20		SPARE	0.00
0.00	SPARE		20		37	38		20		SPARE	0.00
1.20	EXISTING LOAD	EX	20		39	40		20	EX	EXISTING LOAD	1.00
0.00	SPARE		20		41	42		20		SPARE	0.00
12.0					SUB-TOTALS						11.3

LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:		
LIGHTS	0.0	1.25	0.0	CONNECTED		
HEATING	0.0	1.00	0.0	A =	7.9 KVA	66.0 A
COOLING	0.0	1.00	0.0	B =	8.3 KVA	69.0 A
VENTILATION	3.2	1.00	3.2	C =	7.1 KVA	59.1 A
MOTORS	0.0	1.00	0.0	DEMAND		
KITCHEN	0.0	0.65	0.0	A =	6.8 KVA	56.7 A
REC. (1st 10kVA)	10.0	1.00	10.0	B =	7.2 KVA	60.3 A
REC. (>10kVA)	6.4	0.50	3.2	C =	6.1 KVA	50.7 A
WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%		
MISC.	3.7	1.00	3.7	A =	8.5 KVA	70.9 A
SPARE	0.0	1.00	0.0	B =	9.0 KVA	75.3 A
TOTAL (KVA)	23.3		20.1	C =	7.6 KVA	63.3 A

NOTES:
1. PANEL & BREAKERS ARE EXISTING TO REMAIN. NO NEW WORK.
2. TURN OFF ALL UNUSED/SPARE CIRCUIT BREAKERS.

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SEAL:
NORTH CAROLINA PROFESSIONAL ENGINEER SEAL 23494 BRIAN E. THOMPSON
10/23/2026

randolf middle school
rooftop unit replacement
4400 WATER OAK RD, CHARLOTTE, NC 28211

REV #	DATE	DESCRIPTION

DATE: 10-23-26
PROJECT #: 22-0254
DRAWN BY: SMT
DESIGNED BY: SMT
CHECKED BY: MAM

SHEET TITLE:
PANEL SCHEDULES

DWG #:
E702

SHEET NO: 7 of 8

EXISTING PANEL: SWCT

SQD MFGR

VOLTAGE: 120 / 240 — 1 PHASE — 3 WIRE — TYPE

MOUNTING: SURFACE — 1000 AMP — MAIN CIRCUIT BREAKER — 65,000 AIC

LOAD TYPE	LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	L1	L2	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA	LOAD TYPE
S	0.00	MAIN BREAKER		1000		1			2				SPACE ONLY	0.00	S
S	0.00					3			4				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				5			6				SPACE ONLY	0.00	S
F	21.30	PANEL A	EX	225		1			8	150	EX		PANEL B	13.18	F
F	20.60					3			10		EX			12.46	F
F	18.56	PANEL D	EX	200		1			12	200	EX		PANEL C	18.92	F
F	18.24					3			14		EX			18.60	F
F	19.60	PANEL E	EX	225		1			16				SPACE ONLY	0.00	S
F	18.60					3			18				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				5			20				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				7			22				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				9			24				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				11			26				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				13			28				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				15			30				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				17			32				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				19			34				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				21			36				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				23			38				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				25			40				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				27			42				SPACE ONLY	0.00	S
	116.9						SUB-TOTALS							63.2	

	LOAD (KVA)	Conn.	D.F.	Dmd	TOTAL LOAD PER PHASE:	
L	LIGHTS	4.4	1.25	5.5	CONNECTED	
H	HEATING	0.0	1.00	0.0	L1 = 88.5 KVA	737.5 A
C	COOLING	151.2	1.00	151.2	L2 = 91.6 KVA	763.0 A
V	VENTILATION	0.0	1.00	0.0		
M	MOTORS	0.0	1.00	0.0	DEMAND	
K	KITCHEN	0.0	0.65	0.0	L1 = 91.3 KVA	760.8 A
R	REC. (1st 10kVA)	10.0	1.00	10.0	L2 = 87.3 KVA	727.6 A
R	REC. (>10kVA)	5.1	0.50	2.6		
WH	WATER HEATER	3.0	1.00	3.0	DEMAND @ 125%	
MS	MISC.	6.3	1.00	6.3	L1 = 114.1 KVA	950.9 A
S	SPARE	0.0	1.00	0.0	L2 = 109.1 KVA	909.5 A
	TOTAL (KVA)	180.1		178.6		

NOTES:
1. PANEL SHOWN FOR REFERENCE. BREAKERS AND WIRE EXISTING TO REMAIN.

EXISTING PANEL: A

SQD MFGR

VOLTAGE: 120 / 240 — 1 PHASE — 3 WIRE — NQOD TYPE

MOUNTING: SURFACE — 225 AMP — MAIN CIRCUIT BREAKER — 10,000 AIC

LOAD TYPE	LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	L1	L2	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA	LOAD TYPE
L	0.50	LIGHTING	EX	20		1			2		20	EX	LIGHTING	0.20	L
R	0.90	REC CLASSROOM	EX	20		3			4		20	EX	REC CLASSROOM	0.90	R
R	0.90	REC CLASSROOM	EX	20		5			6		20	EX	REC CLASSROOM	0.90	R
C	**8.40**	**PTHP-6 (NOTE 2)**	EX	90		7			8		90	EX	**PTHP-2 (NOTE 2)**	**8.40**	C
C	**8.40**					9			10					**8.40**	C
MS	1.00	BOYS HAND DRYER	EX	20		11			12		20	EX	GIRLS HAND DRYER	1.00	MS
MS	1.00	BOYS HAND DRYER	EX	20		13			14		20	EX	GIRLS HAND DRYER	1.00	MS
S	0.00	SPACE ONLY				15			16				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				17			18				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				19			20				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				21			22				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				23			24				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				25			26				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				27			28				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				29			30				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				31			32				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				33			34				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				35			36				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				37			38				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				39			40				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				41			42				SPACE ONLY	0.00	S
	21.1						SUB-TOTALS							20.8	

	LOAD (KVA)	Conn	D.F.	Dmd	TOTAL LOAD PER PHASE:	
L	LIGHTS	0.7	1.25	0.9	CONNECTED	
H	HEATING	0.0	1.00	0.0	L1 = 21.3 KVA	177.5 A
C	COOLING	33.6	1.00	33.6	L2 = 20.6 KVA	171.7 A
V	VENTILATION	0.0	1.00	0.0		
M	MOTORS	0.0	1.00	0.0	DEMAND	
K	KITCHEN	0.0	0.65	0.0	L1 = 21.5 KVA	179.0 A
R	REC. (1st 10kVA)	3.6	1.00	3.6	L2 = 20.6 KVA	171.7 A
R	REC. (>10kVA)	0.0	0.50	0.0		
WH	WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%	
MS	MISC.	4.0	1.00	4.0	L1 = 26.8 KVA	223.7 A
S	SPARE	0.0	1.00	0.0	L2 = 25.8 KVA	214.6 A
	TOTAL (KVA)	41.9		42.1		

NOTES:
1. PANEL SHOWN FOR REFERENCE. BREAKERS AND WIRE EXISTING TO REMAIN.
2. EXISTING BREAKER WITH NEW LOAD.

EXISTING PANEL: B

SQD MFGR

VOLTAGE: 120 / 240 — 1 PHASE — 3 WIRE — NQOD TYPE

MOUNTING: SURFACE — 150 AMP — MAIN CIRCUIT BREAKER — 10,000 AIC

LOAD TYPE	LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	B	L1	L2	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA	LOAD TYPE
L	0.72	LIGHTING	EX	20					2		20	EX	MENS RESTROOM LIGHT	0.50	L
L	0.50	RESTROOM LIGHTING	EX	20					4		20	EX	WATER COOLER	0.80	MS
MS	0.80	WATER COOLER	EX	20					6		20	EX	REC CLASSROOM	0.90	R
C	**8.40**	**PTHP-4 (NOTE 2)**	EX	90					8		20	EX	REC CLASSROOM	0.90	R
C	**8.40**								10		20	EX	REC COMMUNICATION	0.36	MS
WH	1.50	WATER HEATER	EX	30					12		20	EX	REC COMMUNICATION	0.36	MS
WH	1.50								14				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							16				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							18				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							20				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							22				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							24				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							26				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							28				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							30				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							32				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							34				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							36				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							38				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							40				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							42				SPACE ONLY	0.00	S
	21.8						SUB-TOTALS							3.8	

	LOAD (KVA)	Conn	D.F.	Dmd	TOTAL LOAD PER PHASE:	
L	LIGHTS	1.7	1.25	2.2	CONNECTED	
H	HEATING	0.0	1.00	0.0	L1 = 13.2 KVA	109.8 A
C	COOLING	16.8	1.00	16.8	L2 = 12.5 KVA	103.8 A
V	VENTILATION	0.0	1.00	0.0		
M	MOTORS	0.0	1.00	0.0	DEMAND	
K	KITCHEN	0.0	0.65	0.0	L1 = 13.5 KVA	112.4 A
R	REC. (1st 10kVA)	1.8	1.00	1.8	L2 = 12.6 KVA	104.9 A
R	REC. (>10kVA)	0.0	0.50	0.0		
WH	WATER HEATER	3.0	1.00	3.0	DEMAND @ 125%	
MS	MISC.	2.3	1.00	2.3	L1 = 16.9 KVA	140.5 A
S	SPARE	0.0	1.00	0.0	L2 = 15.7 KVA	131.1 A
	TOTAL (KVA)	25.6		26.1		

NOTES:
1. PANEL SHOWN FOR REFERENCE. BREAKERS AND WIRE EXISTING TO REMAIN.
2. EXISTING BREAKER WITH NEW LOAD.

EXISTING PANEL: C

SQD MFGR

VOLTAGE: 120 / 240 — 1 PHASE — 3 WIRE — NQOD TYPE

MOUNTING: SURFACE — 200 AMP — MAIN CIRCUIT BREAKER — 10,000 AIC

LOAD TYPE	LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	CKT NO	L1	L2	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA	LOAD TYPE
L	0.50	LIGHTING	EX	20		1			2		20	EX	REC CLASSROOM	0.90	R
R	0.90	REC CLASSROOM	EX	20		3			4		20	EX	REC CLASSROOM	0.90	R
R	0.72	REC CLASSROOM	EX	20		5			6		90	EX	**PTAC -3 (NOTE 2)**	**8.40**	C
C	**8.40**	**PTHP-7 (NOTE 2)**	EX	90		7			8					**8.40**	C
C	**8.40**					9			10				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				11			12				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				13			14				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				15			16				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				17			18				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				19			20				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				21			22				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				23			24				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				25			26				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				27			28				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				29			30				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				31			32				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				33			34				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				35			36				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				37			38				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				39			40				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY				41			42				SPACE ONLY	0.00	S
	18.9						SUB-TOTALS							18.6	

	LOAD (KVA)	Conn	D.F.	Dmd	TOTAL LOAD PER PHASE:	
L	LIGHTS	0.5	1.25	0.6	CONNECTED	
H	HEATING	0.0	1.00	0.0	L1 = 18.9 KVA	157.7 A
C	COOLING	33.6	1.00	33.6	L2 = 18.6 KVA	155.0 A
V	VENTILATION	0.0	1.00	0.0		
M	MOTORS	0.0	1.00	0.0	DEMAND	
K	KITCHEN	0.0	0.65	0.0	L1 = 19.0 KVA	158.7 A
R	REC. (1st 10kVA)	3.4	1.00	3.4	L2 = 18.6 KVA	155.0 A
R	REC. (>10kVA)	0.0	0.50	0.0		
WH	WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%	
MS	MISC.	0.0	1.00	0.0	L1 = 23.8 KVA	198.4 A
S	SPARE	0.0	1.00	0.0	L2 = 23.3 KVA	193.8 A
	TOTAL (KVA)	37.5		37.6		

NOTES:
1. PANEL SHOWN FOR REFERENCE. BREAKERS AND WIRE EXISTING TO REMAIN.
2. EXISTING BREAKER WITH NEW LOAD.

EXISTING PANEL: D

SQD MFGR

VOLTAGE: 120 / 240 — 1 PHASE — 3 WIRE — NQOD TYPE

MOUNTING: SURFACE — 200 AMP — MAIN CIRCUIT BREAKER — 10,000 AIC

LOAD TYPE	LOAD KVA	LOAD SERVED	WIRE	TRIP	FRAME (Note 1)	B	L1	L2	CKT NO	FRAME (Note 1)	TRIP	WIRE	LOAD SERVED	LOAD KVA	LOAD TYPE
L	0.50	LIGHTING	EX	20					2		20	EX	REC CLASSROOM	0.90	R
R	0.72	REC CLASSROOM	EX	20					4		20	EX	REC CLASSROOM	0.72	R
R	0.36	REC CLASSROOM	EX	20					6		90	EX	**PTHP-2 (NOTE 2)**	**8.40**	C
C	**8.40**	**PTHP-8 (NOTE 2)**	EX	90					8					**8.40**	C
C	**8.40**								10				SPACE ONLY	0.00	S
WH	0.00	SPACE ONLY							12				SPACE ONLY	0.00	S
WH	0.00	SPACE ONLY							14				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							16				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							18				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							20				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							22				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							24				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							26				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							28				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							30				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							32				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							34				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							36				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							38				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							40				SPACE ONLY	0.00	S
S	0.00	SPACE ONLY							42				SPACE ONLY	0.00	S
	18.4						SUB-TOTALS							18.4	

	LOAD (KVA)	Conn	D.F.	Dmd	TOTAL LOAD PER PHASE:	
L	LIGHTS	0.5	1.25	0.6	CONNECTED	
H	HEATING	0.0	1.00	0.0	L1 = 18.6 KVA	154.7 A
C	COOLING	33.6	1.00	33.6	L2 = 18.2 KVA	152.0 A
V	VENTILATION	0.0	1.00	0.0		
M	MOTORS	0.0	1.00	0.0	DEMAND	
K	KITCHEN	0.0	0.65	0.0	L1 = 18.7 KVA	155.7 A
R	REC. (1st 10kVA)	2.7	1.00	2.7	L2 = 18.2 KVA	152.0 A
R	REC. (>10kVA)	0.0	0.50	0.0		
WH	WATER HEATER	0.0	1.00	0.0	DEMAND @ 125%	
MS	MISC	0.0	1.00	0.0	L1 = 23.4 KVA	194.6 A
S	SPARE	0.0	1.00	0.0	L2 = 22.8 KVA	190.0 A
	TOTAL (KVA)	36.8		36.9		

NOTES:
1. PANEL SHOWN FOR REFERENCE. BREAKERS AND WIRE EXISTING TO REMAIN.
2. EXISTING BREAKER WITH NEW LOAD.

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SEAL:

10/23/2026

randolf middle school
rooftop unit replacement
4400 WATER OAK RD, CHARLOTTE, NC 28211

REV #	DATE	DESCRIPTION

DATE: 10-23-26
PROJECT #: 22-0254
DRAWN BY: SMT
DESIGNED BY: SMT
CHECKED BY: MAM

SHEET TITLE:
PANEL SCHEDULES

DWG #:
E703

SHEET NO: 8 of 8