

**ELECTRICAL NOTES**

- ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION.
- PERMITS FOR ELECTRICAL WORK SHALL BE OBTAINED BY AND PAID BY THE ELECTRICAL CONTRACTOR. THE ELECTRICAL CONTRACTOR SHALL PAY FOR ANY ADDITIONAL FEES FOR INSPECTIONS, TESTS, AND OTHER SERVICES AS REQUIRED FOR THE COMPLETION OF THE WORK.
- THE ELECTRICAL CONTRACTOR AND ANY OF HIS SUBCONTRACTORS SHALL VISIT THE PROJECT SITE TO WITNESS EXISTING CONDITIONS AND BECOME FAMILIAR WITH THE SCOPE OF THE WORK REQUIRED PRIOR TO SUBMITTING PROPOSALS. WORK REQUIRED BY EXISTING JOB CONDITIONS NOT INDICATED ON DRAWINGS SHALL BE INCLUDED IN THE BID.
- THE DRAWINGS AND SPECIFICATIONS ARE INTENDED TO RESULT IN THE PRODUCTION OF A COMPLETE AND FUNCTIONAL ELECTRICAL SYSTEM. THE ELECTRICAL CONTRACTOR SHALL PROVIDE ALL MATERIAL, LABOR, EQUIPMENT, AND OTHER SERVICES AS NECESSARY TO COMPLETE THE WORK.
- DISCREPANCIES IN THE DRAWINGS AND SPECIFICATIONS THAT WILL AFFECT THE WORK SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT, ENGINEER, AND/OR OWNER PRIOR TO SUBMITTING PROPOSALS.
- UNLESS NOTED OTHERWISE, ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND INCLUDE A 3RD PARTY LABEL (I.E.: UL, CSA, ETL, ETC.) LISTING APPROVAL FOR ITS INSTALLED APPLICATION.
- REVIEW PLANS OF OTHER TRADES FOR COORDINATION OF WORK AND FOR RELATED AND ADJOINING WORK.
- REVIEW COMPLETE PLAN SET FOR CONSTRUCTION TYPE, FINISHES, HEADROOM, ROOF FINISHES, CEILINGS, ETC. REVIEW COMPLETE PLAN SET FOR PROJECT PHASING AND STAGING. REVIEW COMPLETE PLAN SET FOR WORK COVERED BY ALTERNATE BID ITEMS.
- COORDINATE DEVICE AND EQUIPMENT MOUNTING HEIGHTS WITH OTHER DISCIPLINE DRAWINGS, CASEWORK DETAILS & SUBMITTALS, EQUIPMENT DETAILS & SUBMITTALS, ETC.
- PENETRATIONS OF FIRE-RATED WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE FIRE STOPPED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT FIRE STOPPING IS COMPLETED.
- PENETRATIONS OF SMOKE PARTITIONS SHALL BE SEALED IN ACCORDANCE WITH REQUIREMENTS OF THE STATE BUILDING CODE. COORDINATE WORK TO INSURE THAT SMOKE PARTITION SEALING IS COMPLETED.
- PENETRATIONS OF EXTERIOR BUILDING WALLS, FLOORS, OR ROOFS SHALL BE SEALED WATERTIGHT. INTERIORS OF RACEWAY PENETRATIONS THROUGH EXTERIOR WALLS SHALL BE SEALED WITH NON-HARDENING ELECTRICAL PUTTY.
- CUTTING AND PATCHING TO INSTALL DEVICES AND EQUIPMENT SHALL BE PERFORMED WITH FINISHES RESTORED TO THEIR ORIGINAL CONDITION. SUCH WORK SHALL BE COMPLETED TO A DEGREE THAT IS ACCEPTABLE TO THE ARCHITECT, ENGINEER, AND/OR OWNER.
- SEE SPECIFICATIONS FOR DIVISION OF RESPONSIBILITY FOR PROVIDING DISCONNECTS, STARTERS, DRIVES, ETC. FOR EQUIPMENT SUPPLIED BY OTHER SUBCONTRACTORS.
- COORDINATE PRECISE LOCATION OF HVAC EQUIPMENT WITH THE MECHANICAL CONTRACTOR.
- FOR HVAC EQUIPMENT, VERIFY CIRCUIT BREAKER RATINGS, FUSE RATINGS, AND WIRE SIZES. IF RATINGS DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION. PROVIDE OVERCURRENT PROTECTION IN ACCORDANCE WITH EQUIPMENT MANUFACTURER NAMEPLATE DATA. IF THE EQUIPMENT LISTING LABEL REQUIRES FUSED PROTECTION, ENSURE THAT FUSES IN A FUSED DISCONNECT SWITCH AT THE EQUIPMENT ARE SIZED AS INDICATED ON THE EQUIPMENT LABEL.
- VERIFY PROPER SIZING OF OVERLOAD DEVICES IN STARTERS BASED ON EQUIPMENT NAMEPLATE DATA.
- IF HORSEPOWER OR LOAD RATINGS OF EQUIPMENT DIFFER FROM THOSE INDICATED ON THE DRAWINGS, NOTIFY THE ARCHITECT, ENGINEER, AND OWNER FOR DIRECTION.
- PROVIDE NATIONAL ELECTRICAL CODE REQUIRED CLEARANCES FOR ALL ELECTRICAL EQUIPMENT. COORDINATE RESOLUTION OF CONFLICTS WITH OTHER TRADES.
- RECEPTACLE, SWITCH, DATA/TELEPHONE OUTLETS SHALL BE FLUSH MOUNTED IN FINISHED SPACES UNLESS OTHERWISE NOTED.
- WHERE INSTALLED IN PLENUM SPACES, CABLES SHALL BE PLENUM-RATED OR INSTALLED IN METAL RACEWAY.
- PRIOR TO ORDERING LIGHT FIXTURES, CONTRACTOR SHALL VERIFY TYPE OF CEILING OR WALL BY REVIEW OF ARCHITECTURAL FINISH SCHEDULES AND PROVIDE SUITABLE TRIM AND APPURTENANCES TO MOUNT FIXTURES IN TYPE OF CEILING OR WALL INDICATED.
- RECESSED LIGHT FIXTURES INSTALLED IN CEILINGS HAVING INSULATION INSTALLED OVER CEILING AND FIXTURES (AS INDICATED IN ARCHITECTURAL PLANS, OR FOUND AS EXISTING CONDITIONS) SHALL BE U.L. RATED FOR DIRECT CONTACT WITH INSULATION.
- EXIT AND EMERGENCY LIGHTS SHALL BE CONNECTED TO THE NEAREST UNSWITCHED CIRCUIT THAT SERVES LIGHT FIXTURES WITHIN THE SAME SPACE.
- NO MOUNTING HARDWARE SHALL BE ATTACHED TO ROOF DECKS. ATTACHMENTS SHALL BE MADE TO THE ROOF SUPPORTING STRUCTURE.
- PANEL BUS MATERIAL: COPPER.
- SHARED NEUTRAL CONDUCTORS SHALL NOT BE USED UNLESS SPECIFICALLY INDICATED SO ON HOMERUN CIRCUITRY DESIGNATIONS.
- PANEL BREAKER CONFIGURATIONS SHALL BE INSTALLED AS INDICATED ON THE PANEL SCHEDULES OR AS NOTED. BREAKER POSITION REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.
- LOAD CIRCUITS SHALL BE INSTALLED AS INDICATED ON THE DRAWINGS. CIRCUITRY REVISIONS WILL NOT BE ACCEPTED UNLESS APPROVED IN WRITING BY THE ENGINEER.

**ABBREVIATIONS**

ADA	AMERICAN DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AHU	AIR HANDLER UNIT
AIC	AMPS INTERRUPTING CAPABILITY
BKR	BREAKER
C	CONDUIT
C/B	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CLG	CEILING
CKT	CIRCUIT
COMP	COMPRESSOR
CU	COPPER
DIA	DIAMETER
DWG	DRAWING
EC	ELECTRICAL CONTRACTOR
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSED
EXSTG	EXISTING
FACP	FIRE ALARM CONTROL PANEL
FACU	FIRE ALARM CONTROL UNIT
G	EQUIPMENT GROUND
GEC	GROUNDING ELECTRODE CONDUCTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFI	GROUND FAULT INTERRUPTER
HPF	HIGH POWER FACTOR
HP	HEAT PUMP
HP	HORSEPOWER
IMC	INTERMEDIATE METAL CONDUIT
K	KILO (THOUSAND)
LED	LIGHT EMITTING DIODE
LTG	LIGHTING
LTS	LIGHTS
MC	MECHANICAL CONTRACTOR
MCB	MAIN CIRCUIT BREAKER
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MLO	MAIN LUG ONLY
N/A	NOT APPLICABLE
NEC	NATIONAL ELECTRICAL CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOC.
NTS	NOT TO SCALE
P	PHASE OR POLE
PC	PLUMBING CONTRACTOR
PH	PHASE
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PVC	POLYVINYL CHLORIDE
REC	RECEPTACLE
RECP	RECEPTACLE
REQ.	REQUIRED
RGC	RIGID GALVANIZED CONDUIT
RGS	RIGID GALVANIZED STEEL
S.S.	STAINLESS STEEL
SYS	SYSTEM
S/N	SOLID NEUTRAL
TYP	TYPICAL
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UON	UNLESS OTHERWISE NOTED
V	VOLTS
VA	VOLT-AMPS
VFD	VARIABLE FREQUENCY DRIVE
W	WATTS
W	WIRE
W/	WITH
WP	WEATHERPROOF
XFMR	TRANSFORMER

**MISC. ELECTRICAL SYMBOL LEGEND**

	EQUIPMENT CONNECTION
	SAFETY SWITCH DISCONNECT, HEAVY-DUTY, NON-FUSED, NEMA 1 INSIDE, NEMA 3R OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.
	SAFETY SWITCH DISCONNECT, HEAVY-DUTY, FUSED AT NAMEPLATE RATING OF EQUIPMENT SERVED, NEMA 1 INSIDE, NEMA 3R OUTSIDE (UNO), AMPERAGE AS INDICATED OR BASED ON SUPPLY CIRCUIT BREAKER RATING.
	MOTOR CONTROLLER, STARTER OR VFD, NEMA 1 ENCLOSURE INSIDE, NEMA 3R OUTSIDE ENCLOSURE (UNO). PROVIDE OVERLOAD DEVICES BASED ON NAMEPLATE RATING OF EQUIPMENT SERVED.
	PANELBOARD, SEE PANEL SCHEDULE
	GROUND ROD, 3/4" X 10' COPPER CLAD. WHERE TWO RODS ARE INDICATED, SPACE A MINIMUM OF 20' APART.

HOMERUN DESIGNATION, #12 CONDUCTORS UNLESS NOTED OTHERWISE.

EQUIPMENT GROUND CONDUCTOR

PHASE CONDUCTOR

NEUTRAL CONDUCTOR

BY EC

PROVIDED BY EC, INSTALLED BY EC

CONDUCTOR TERMINATIONS IN EQUIPMENT BY MC & PC

BY EC

LETTER INDICATES ELEVATION OR DETAIL; NUMBER INDICATES PLAN OR SECTION

SHEET NUMBER WHERE PLAN, SECTION, ELEVATION OR DETAIL IS DRAWN

**FIRE ALARM LEGEND**

SYMBOL	DESCRIPTION	MOUNTING
	BEAM DETECTOR, TRANSMITTER WITH ASSOCIATED REFLECTOR	WALL
	HORN/STROBE, 30 CANDELA	CEILING
	CONTROL / RELAY MODULE	
	DUCT DETECTOR - PROVIDED BY FIRE ALARM VENDOR	BY MECH CONTRACTOR
	FIRE ALARM PANEL	WALL
	FLOW SWITCH	
	HEAT DETECTOR	CEILING
	HEAT DETECTOR	WALL; MTD AT 8' AFF.
	HORN/STROBE, 15 CANDELA	WALL
	HORN/STROBE, 75 CANDELA	WALL
	POST INDICATOR VALVE TAMPER SWITCH	
	PRESSURE SWITCH	
	PULL STATION	WALL
	REMOTE ANNUNCIATOR	WALL
	REMOTE INDICATOR WITH TEST SWITCH FOR DUCT DETECTOR	CEILING / WALL
	SMOKE DETECTOR	WALL
	STROBE, 15 CANDELA	WALL
	TAMPER SWITCH	

**LOAD SUMMARY**

	CONN KVA	CALC KVA		CONN KVA	CALC KVA	
LIGHTING	9.46	11.8	(125%)	CONTINUOUS	4.5	5.63 (125%)
LARGEST MOTOR	16	20	(125%)	HEATING	57.3	57.3 (100%)
OTHER MOTORS	30.5	30.5	(100%)	COOLING	38.5	0 (0%)
RECEPTACLES	8.68	8.68	(50%>10)	NONCONTINUOUS	9.8	9.8 (100%)
KITCHEN EQUIP	1	1	(100%)	DIVERSE	0	0 (N/A)
				METERED DEMAND	0	0 (125%)
				TOTAL KVA	137	145
				BALANCED 3-PHASE AMPS		402

**WARNING**

Maximum Available Fault Current:  
18,774 Symmetrical RMS Amperes  
Date: 10/16/2018  
Based on:

- Utility Transformer: 225kVA (Maximum)
- Utility Transformer: 3.0% Impedance (Minimum)
- Service Feeder: #300KCMIL(2 SETS)(Maximum) Copper
- Service Feeder Length: 38' (Minimum)
- Motor Load: 51.5 kVA (Maximum)

NOTE: THE CONTRACTOR SHALL OBTAIN INSTALLED SERVICE TRANSFORMER DATA AND AVAILABLE FAULT CURRENT DATA FROM THE UTILITY COMPANY. FORWARD INFORMATION TO THE ENGINEER FOR ASSESSMENT OF REVISIONS TO THE LABEL DATA.

**FAULT CURRENT LABEL FOR SERVICE EQUIPMENT**  
NO SCALE

**RECEPTACLE LEGEND**

SYMBOL	NEMA	VOLTS	DESCRIPTION
	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 6" ABOVE COUNTER HEIGHT UNO
	5-20R	120V 1P 2W	DISHWASHER OUTLET, DUPLEX, MTD 12" AFF UNO. SUPPLY FROM GFCI BREAKER.
	5-20R	120V 1P 2W	DUPLEX, MTD 18" AFF UNO
	5-20R	120V 1P 2W	DUPLEX, CEILING MOUNTED. COORDINATE LOCATION WITH ARCHITECT.
	5-20R	120V 1P 2W	DUPLEX FOR IRRIGATION CONTROL, MTD 18" AFF
	5-20R	120V 1P 2W	DUPLEX, HORIZONTALLY MTD IN METAL TOE KICK OF STORE FIXTURE SHELVING UNIT. 5" FLEX FROM WALL AT FLOOR LEVEL. BLACK DEVICE AND COVER.
	5-20R	120V 1P 2W	DUPLEX ELECTRIC WATER COOLER OUTLET; SUPPLY FROM GROUND FAULT TYPE C/B; COORDINATE MTG LOCATION TO CONCEAL OUTLET WHEN COOLER IS INSTALLED
		120V 1P 2W	EXHAUST FAN; SEE MECHANICAL SCHEDULE.
	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 18" AFG UNO; LISTED WEATHER-RESISTANT TYPE; PROVIDE CAST ALUMINUM WEATHERPROOF IN-USE COVER WITH CAST ALUMINUM FD WEATHERPROOF BOX
		120V 1P 2W	POWER FOR FIRE DETECTION & ALARM SYSTEM PANEL / CONTROL UNIT
	5-20R	120V 1P 2W	DUPLEX; MTD IN FLUSH FLOOR BOX; SEE AUX SYS PLANS FOR SHARED BOX; PROVIDE DIVIDER FOR POWER SEPARATION FROM VOICE/DATA
	5-20R	120V 1P 2W	DUPLEX FOR GARBAGE DISPOSAL; MTD 12" AFF. WIRE THROUGH TOGGLE SWITCH FOR ON/OFF CONTROL.
	5-20R	120V 1P 2W	DUPLEX FOR HOT BOX HEATER; SUPPLY FROM GFEP C/B (30mA); LISTED WEATHER-RESISTANT TYPE; PROVIDE CAST ALUMINUM FD WEATHERPROOF BOX. COORDINATE MTG HEIGHT WITH ENCLOSURE PROVIDED.
	5-20R	120V 1P 2W	DUPLEX GFCI FOR MICROWAVE; MOUNT 6" ABOVE COUNTER HEIGHT FOR COUNTER TOP MICROWAVE -OR- MOUNT FLUSH IN BACK OF UPPER CABINET FOR SUSPENDED MICROWAVE.
		120V 1P 2W	POWER FOR MOTORIZED DAMPER
	5-20R	120V 1P 2W	QUAD, MTD 18" AFF UNO
	5-20R	120V 1P 2W	DUPLEX FOR REFRIGERATOR; MOUNT 48" AFF UNO. SUPPLY FROM GFCI TYPE C/B.
	5-20R	120V 1P 2W	DUPLEX GFCI, MTD 18" ABOVE ROOF LEVEL (UNO) FOR EQUIPMENT MAINTENANCE USE; LISTED WEATHER-RESISTANT TYPE; PROVIDE CAST ALUMINUM WEATHERPROOF IN-USE COVER WITH CAST ALUMINUM FD WEATHERPROOF BOX
		120V 1P 2W	POWER FOR SECURITY SYSTEM COMPONENT; TYPICALLY INSTALLED 12" ABOVE CLG
		120V 1P 2W	POWER FOR OWNER SIGN

**SWITCH LEGEND**

SYMBOL	DESCRIPTION	NOTES
	DIMMER SWITCH	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
	DIMMER SWITCH FOR 3-WAY CONTROL; RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO	
	OCCUPANCY SENSOR WALL SWITCH, SINGLE CKT, DUAL TECHNOLOGY; MTD 42" AFF UNO	RATED FOR VOLTAGE WHERE APPLIED, 20A
	OCCUPANCY SENSOR, DUAL TECHNOLOGY; CEILING MTD	INCORPORATE POWER PACK FOR CIRCUITRY SWITCHING, SEE WIRING DIAGRAMS
	PHOTOCELL, EXTERIOR; MOUNT ON NORTH FACE OF BLDG, FACING NORTH	
	TOGGLE SWITCH, SINGLE POLE	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO
	3-WAY SWITCH	RATED FOR VOLTAGE WHERE APPLIED, 20A; MTD 42" AFF UNO

**DATA & TELEPHONE OUTLET LEGEND**

SYMBOL	DESCRIPTION	MOUNTING	NOTES
	DATA / TELEPHONE OUTLET	WALL, 18" AFF UNO; 4" SQUARE, DEEP BOX	1" TO UTILITY 109
	COMMUNICATIONS OUTLET FOR FIRE ALARM SYSTEM	3/4" FOR (1) TELEPHONE CABLE 3/4" FOR (1) TELEPHONE CABLE AND (1) DATA CABLE	ROUTE CONDUITS DIRECTLY INTO FIRE ALARM SYSTEM ENCLOSURE.

**SECURITY LEGEND**

SYMBOL	DESCRIPTION	MOUNTING	NOTES
	SECURITY CAMERA	WALL; COORDINATE HEIGHT WITH OWNER VENDOR	4" SQUARE BOX RECESSED; 3/4" TO SECURITY PANEL
	SECURITY CAMERA	CEILING; MTD 10' AFF	4" SQUARE BOX; 3/4" TO SECURITY PANEL
	SECURITY CAMERA	CEILING; MTD 10' AFF	4" SQUARE BOX; 3/4" TO SECURITY PANEL
	SECURITY SYSTEM CONTROLLER / CONTROL PANEL		PROVIDE POWER AND COMMUNICATIONS CABLE FOR OWNER EQUIPMENT.

**ELECTRICAL SYSTEMS AND EQUIPMENT METHOD OF COMPLIANCE**

METHOD OF COMPLIANCE:  
 ENERGY CODE: PRESCRIPTIVE  
 ASHRAE 90.1: PRESCRIPTIVE  
 PERFORMANCE  
 PERFORMANCE

ADDITIONAL METHOD OF COMPLIANCE:  
 506.2.1 More Efficient Mechanical Equipment  
 506.2.2 Reduced Lighting Power Density  
 506.2.3 Energy Recovery Ventilation System  
 506.2.4 Higher Efficiency Service Water Heating  
 506.2.5 On-Site Supply of Renewable Energy  
 506.2.6 Automatic Daylighting Control Systems

LIGHTING SCHEDULE  
 Lamp Type Required in Fixtures  
 Number of Lamps in Fixtures  
 Ballast Types Used in Fixtures  
 Number of Ballasts Used in Fixtures  
 Total Wattage per Fixture

TOTAL WATTAGE SPECIFIED VERSUS ALLOWED  
 Interior Specified: 8410 Watts  
 Interior Allowed: 8944 Watts  
 Exterior Specified: 180 Watts  
 Exterior Allowed: 408 Watts

DESIGNER STATEMENT  
 To the best of my knowledge and belief, the design of this building complies with the electrical systems and equipment requirements of the North Carolina State Building Code, Section 505 of the North Carolina Energy Conservation Code.

SIGNED: Mark A. Chiarocco  
 NAME: Mark A. Chiarocco, P.E.  
 TITLE: Engineer

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ELECTRICAL LEGENDS, SCHEDULES, NOTES, DETAILS

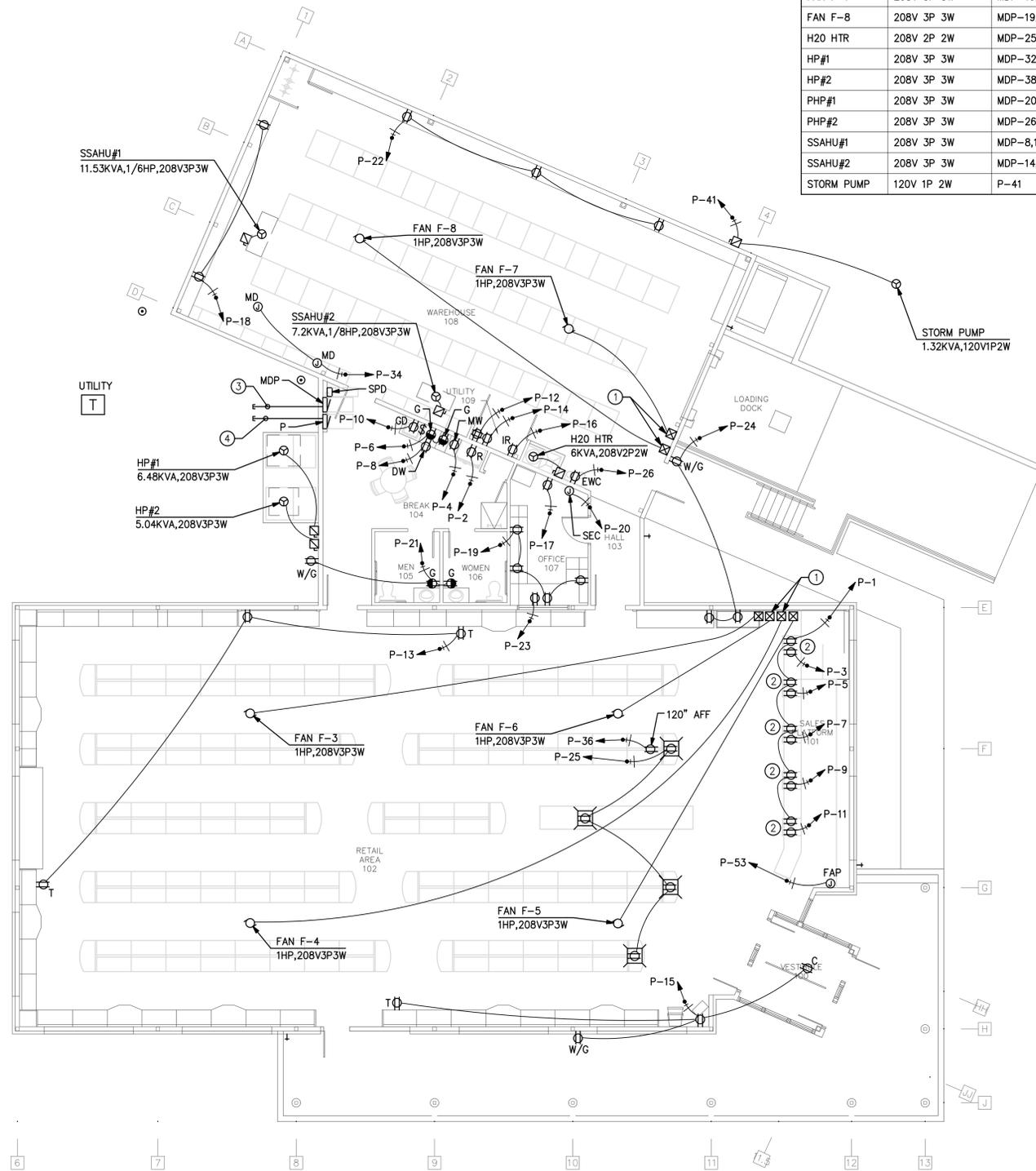
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**EQUIPMENT SCHEDULE**

CALLOUT	VOLTS	CIRCUIT	WIRE CALLOUT
FAN F-3	208V 3P 3W	MDP-7,9,11	3/4"C,3#12,#12G
FAN F-4	208V 3P 3W	MDP-7,9,11	3/4"C,3#12,#12G
FAN F-5	208V 3P 3W	MDP-13,15,17	3/4"C,3#12,#12G
FAN F-6	208V 3P 3W	MDP-13,15,17	3/4"C,3#12,#12G
FAN F-7	208V 3P 3W	MDP-19,21,23	3/4"C,3#12,#12G
FAN F-8	208V 3P 3W	MDP-19,21,23	3/4"C,3#12,#12G
H2O HTR	208V 2P 2W	MDP-25,27	3/4"C,2#10,#10G
HP#1	208V 3P 3W	MDP-32,34,36	3/4"C,3#12,#12G
HP#2	208V 3P 3W	MDP-38,40,42	3/4"C,3#12,#12G
PHP#1	208V 3P 3W	MDP-20,22,24	1-1/4"C,3#3,#8G
PHP#2	208V 3P 3W	MDP-26,28,30	1-1/4"C,3#3,#8G
SSAHU#1	208V 3P 3W	MDP-8,10,12	1"C,3#6,#10G
SSAHU#2	208V 3P 3W	MDP-14,16,18	3/4"C,3#10,#10G
STORM PUMP	120V 1P 2W	P-41	3/4"C,1#12,#12N,#12G

**KEYED NOTES:**

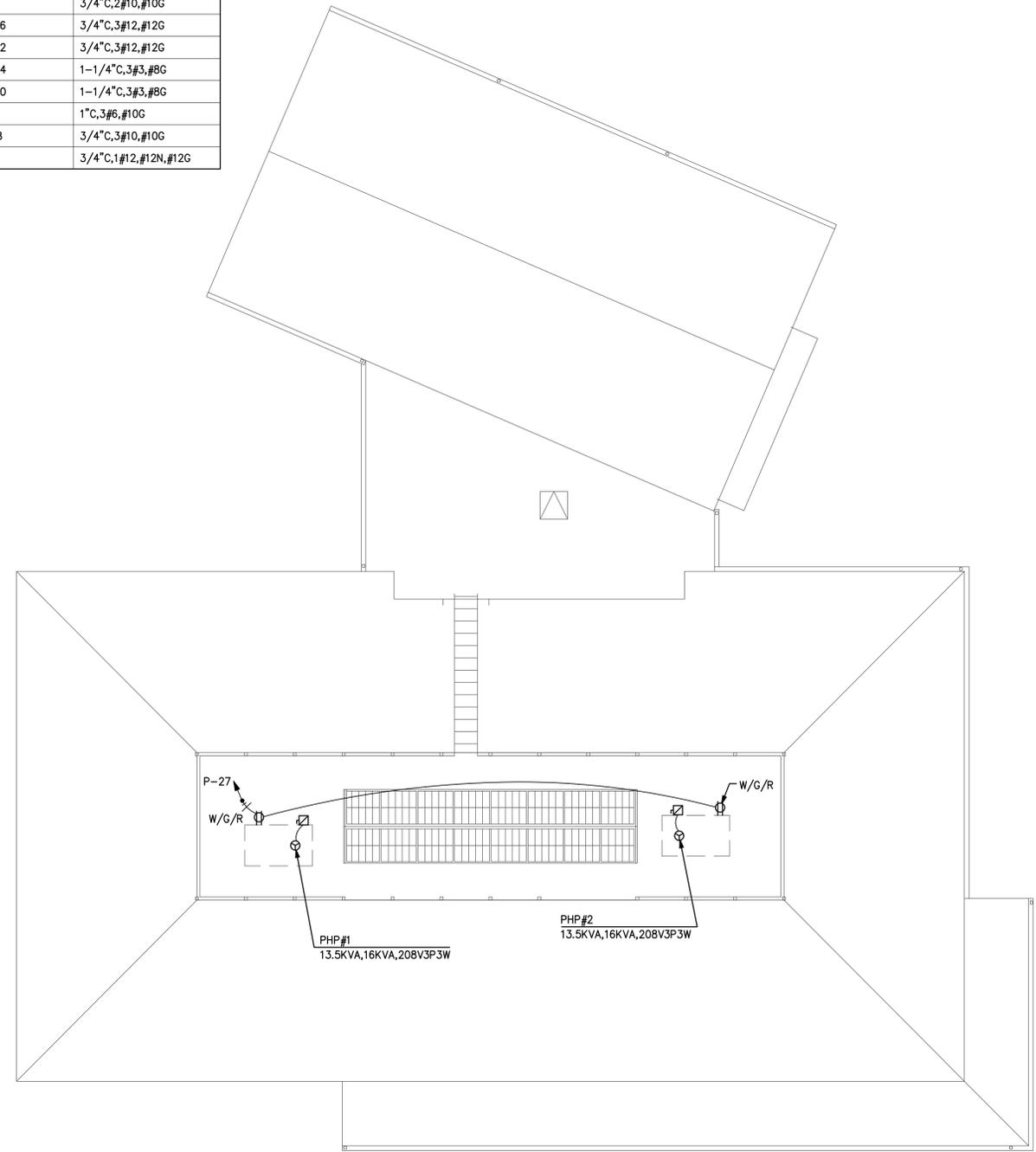
- ① FAN CONTROLLER IS PROVIDED BY THE OWNER'S VENDOR. MOUNT 42" AFF. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO INSTALLATION.
- ② COORDINATE EXACT HEIGHT AND LOCATION OF (2) OUTLETS WITH ARCHITECT PRIOR TO INSTALLATION IN COUNTERS. SEE ARCHITECTURAL SHEET A3.
- ③ (2) 2"C SPARES
- ④ (2) 1"C SPARES



**1** ELECTRICAL POWER PLAN  
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1" = 1'-0"  
0 2 4 8 16

PLAN NORTH  
TRUE NORTH



**2** ELECTRICAL ROOF PLAN  
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE: 1" = 1'-0"  
0 2 4 8 16

PLAN NORTH  
TRUE NORTH

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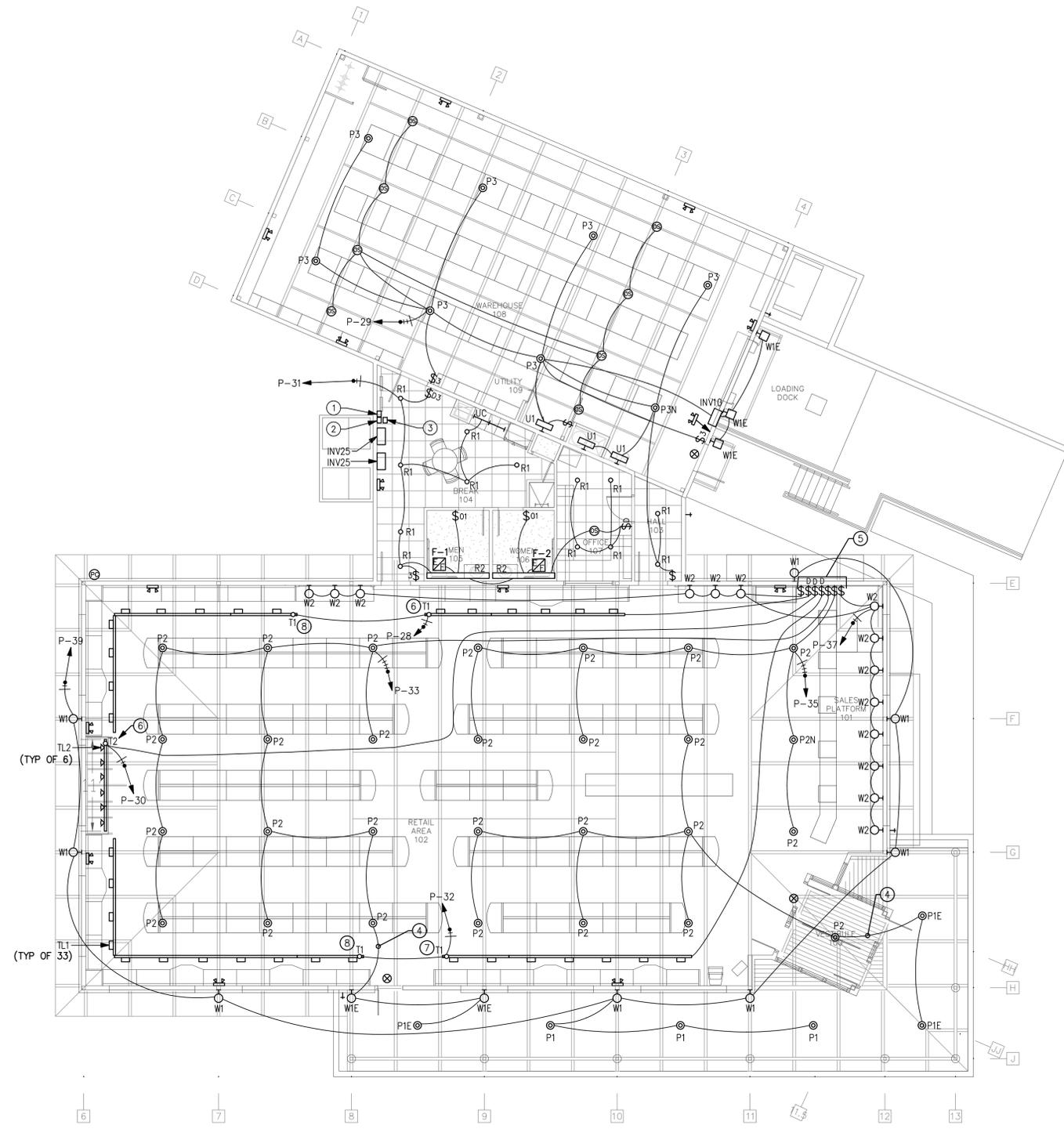
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ELECTRICAL  
POWER PLANS

**E1.1**

- KEYED NOTES:
- ① DIGITAL TIME CLOCK
  - ② INTERIOR LIGHTING CONTACTOR
  - ③ EXTERIOR LIGHTING CONTACTOR
  - ④ BATTERY BACKUP FROM INV25 LOCATED IN BREAK 104.
  - ⑤ COORDINATE EXACT LOCATION OF (7) SWITCHES WITH OWNER.
  - ⑥ PROVIDE 3A CURRENT LIMITER FOR TRACK INDICATED.
  - ⑦ PROVIDE 4A CURRENT LIMITER FOR TRACK INDICATED.
  - ⑧ PROVIDE 5A CURRENT LIMITER FOR TRACK INDICATED.



**1** ELECTRICAL LIGHTING PLAN  
 SCALE: 1/8" = 1'-0"  
 GRAPHIC SCALE: 1/8" = 1'-0"  
 PLAN NORTH TRUE NORTH

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ELECTRICAL  
 LIGHTING PLAN

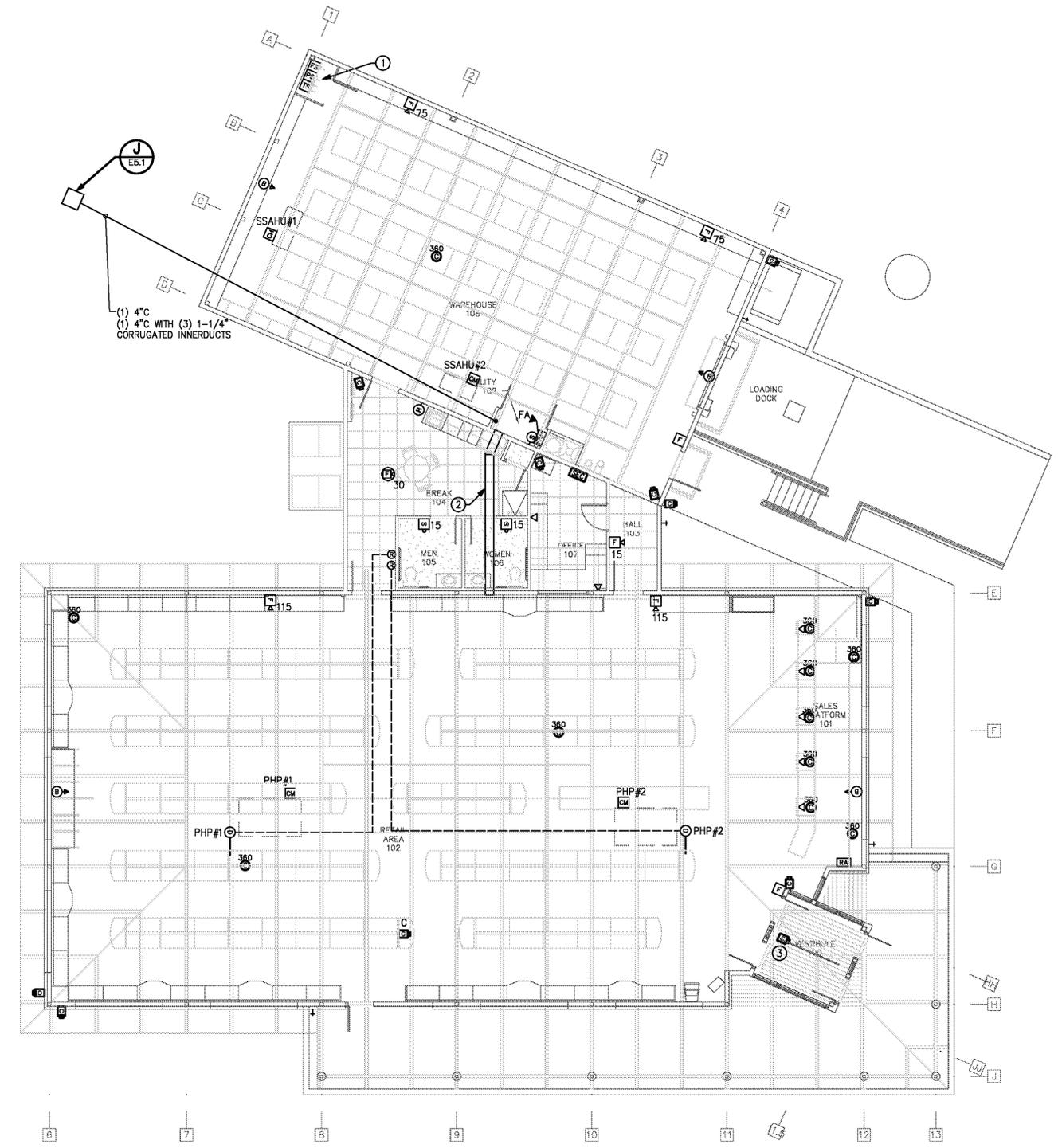
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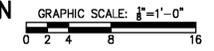
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**KEYED NOTES:**

- ① QUANTITY AND LOCATION TO BE COORDINATED WITH SPRINKLER CONTRACTOR.
- ② 12"x4" WIRE MESH CABLE TYPE CABLE TRAY. BOTTOM OF TRAY TO BE AT 9'-6". PROVIDE DIVIDER TO SEPARATE DATA FROM FIRE ALARM CIRCUITRY.
- ③ SUSPEND CAMERA FROM 3/4"C THROUGH CEILING. COORDINATE WITH ARCHITECT EXACT HEIGHT AND LOCATION.



**1** ELECTRICAL AUXILIARY SYSTEMS PLAN  
 Et.3 SCALE: 1/8" = 1'-0"



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**ABC STORE 104**  
 7000 WRIGHTSVILLE AVENUE  
 WILMINGTON, NORTH CAROLINA 28403

ISSUED FOR PRICING  
 & PERMITTING

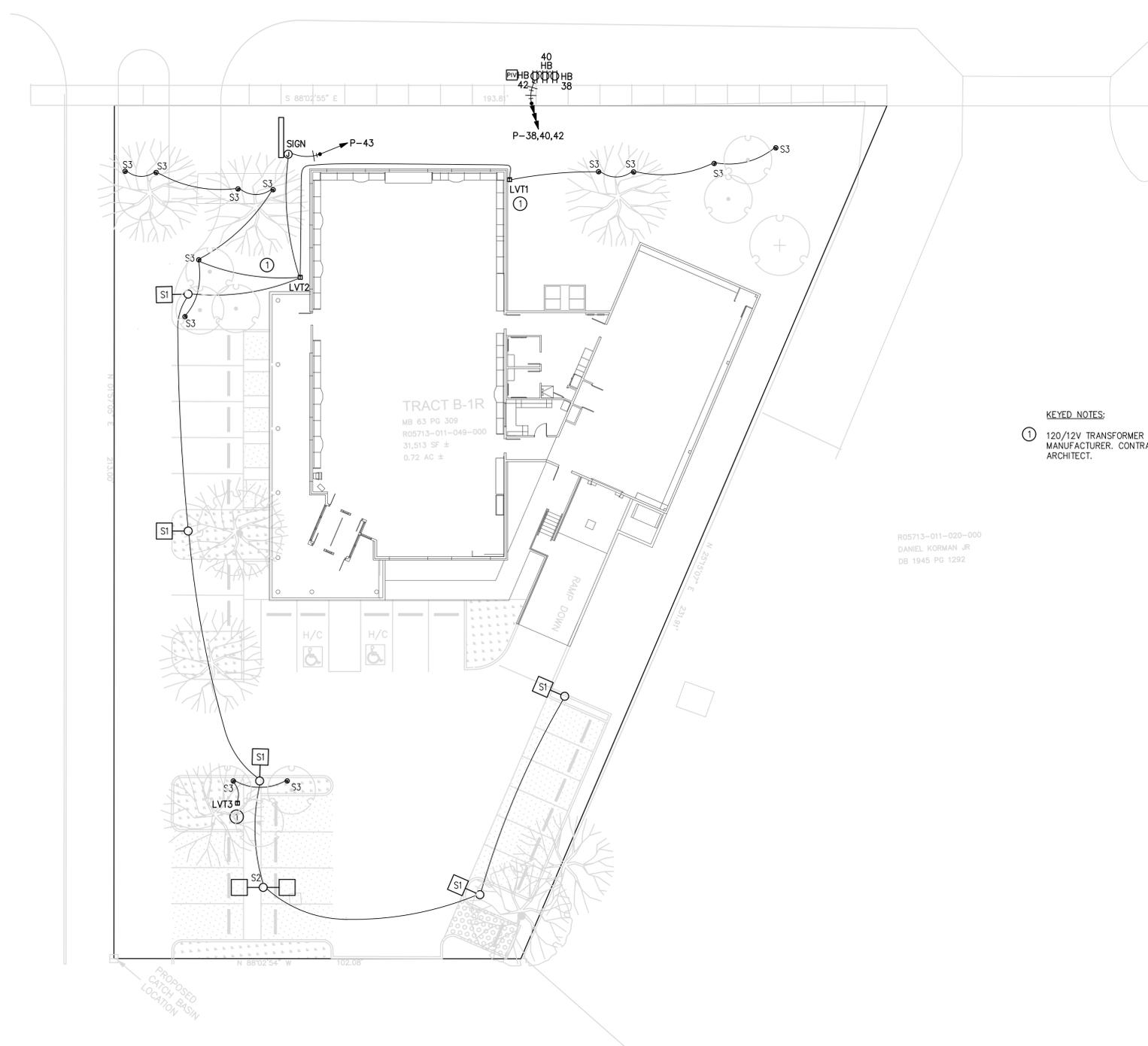
PRINTED  
 DATE 11/1/18 REVISION

ELECTRICAL  
 AUXILIARY  
 SYSTEMS  
 PLANS

**E1.3**

WRIGHTSVILLE AVENUE

100' PUBLIC R/W

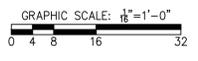


TRACT B-1R  
 MB 63 PG 309  
 R05713-011-049-000  
 31,513 SF ±  
 0.72 AC ±

R05713-011-020-000  
 DANIEL KORMAN JR  
 DB 1945 PG 1292

**KEYED NOTES:**  
 ① 120/12V TRANSFORMER PROVIDED BY THE LANDSCAPE LIGHT FIXTURE MANUFACTURER. CONTRACTOR TO VERIFY EXACT LOCATION WITH LANDSCAPE ARCHITECT.

① ELECTRICAL SITE PLAN  
 SCALE: 1/16" = 1'-0"



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 NC LICENSE # C-10753

JOB # 18041

*(Signature)*  
 07 Nov 2018  
 MARY A. CIARRA  
 ENGINEER

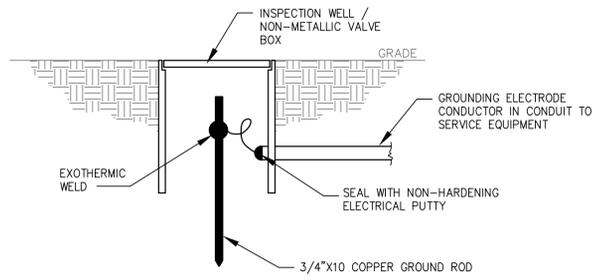
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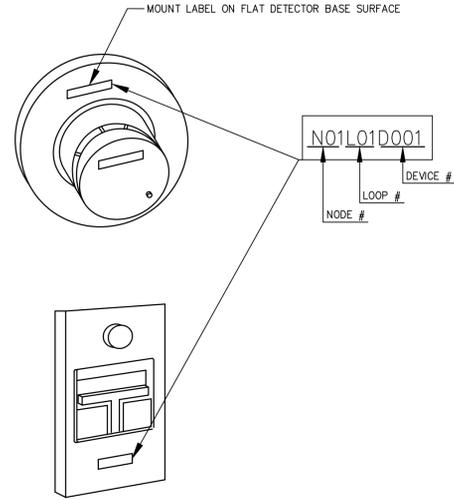
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 11/1/18

ELECTRICAL  
 SITE PLAN

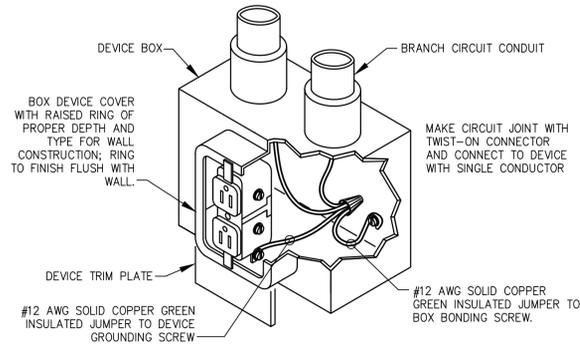
**E1.4**



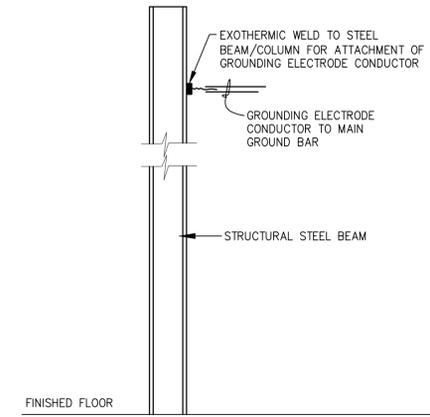
**A** GROUND ROD & INSPECTION WELL  
NO SCALE



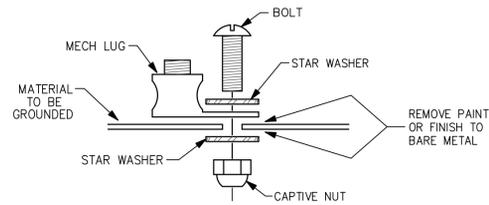
**B** TYPICAL FIRE ALARM DEVICE IDENTIFICATION  
NO SCALE



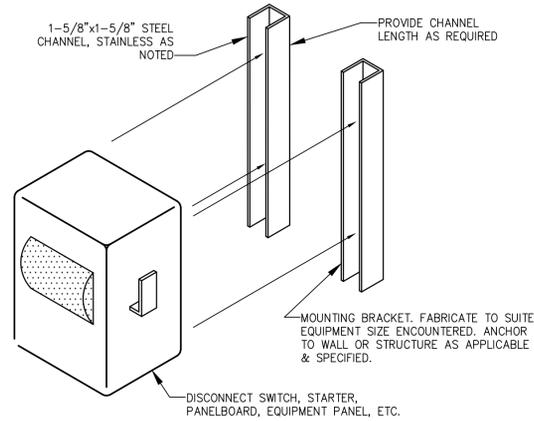
**C** OUTLET GROUNDING DETAIL  
SCALE: N/A



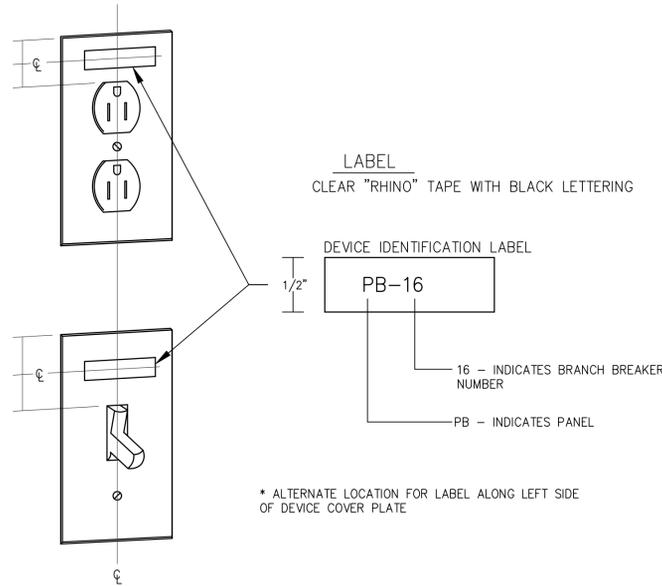
**D** STEEL COLUMN GROUNDING DETAIL  
NO SCALE



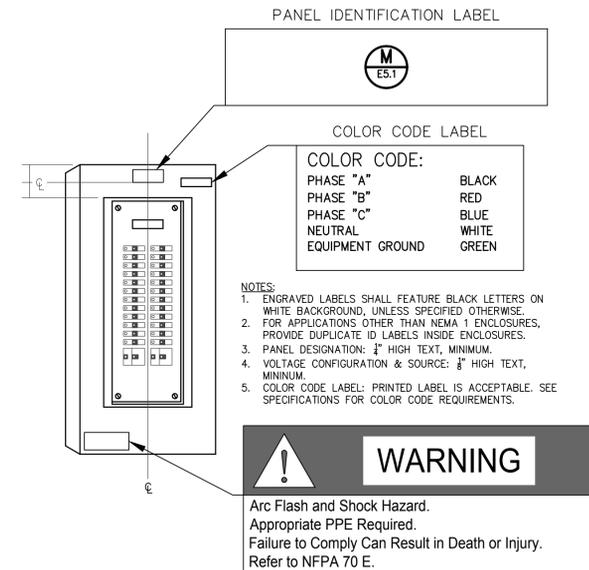
**E** GROUNDING LUG DETAIL  
NO SCALE



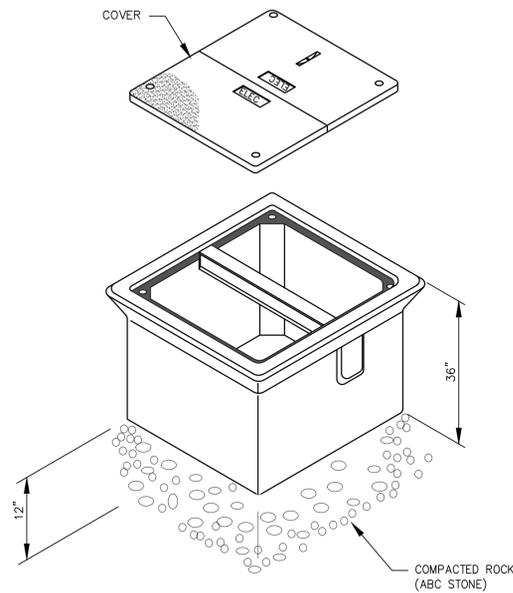
**F** EQUIPMENT MOUNTING DETAIL  
NO SCALE



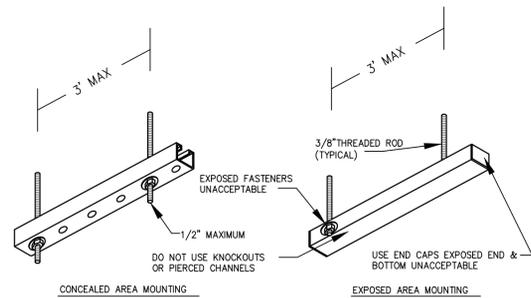
**G** WIRING DEVICE IDENTIFICATION LABEL  
NO SCALE



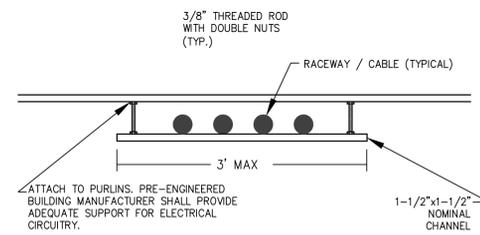
**H** TYPICAL PANELBOARD IDENTIFICATION  
NO SCALE



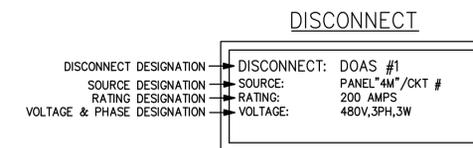
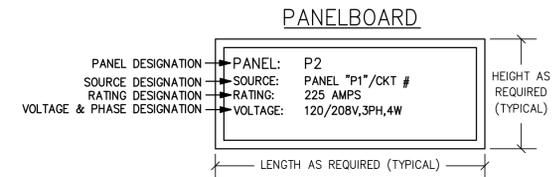
**J** TYPICAL HANDHOLE DETAIL  
NO SCALE  
DESIGN BASIS: QUAZITE #PG2424HH00-PG2424BA24 (24\"/>



**K** CHANNEL MOUNTING DETAILS  
NO SCALE



**L** CHANNEL SUPPORT DETAIL  
NO SCALE



- NOTES:  
1. ENGRAVED PLASTIC FOR NAMEPLATE.  
2. HIGH PERFORMANCE, DOUBLE COATED TAPE WITH ADHESIVE TO ATTACH LABELS. DESIGN BASIS: 3M #06383 OR APPROVED EQUIVALENT.  
3. 3/8\"/>

**M** TYPICAL NAMEPLATE DETAILS  
NO SCALE

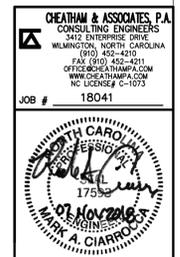
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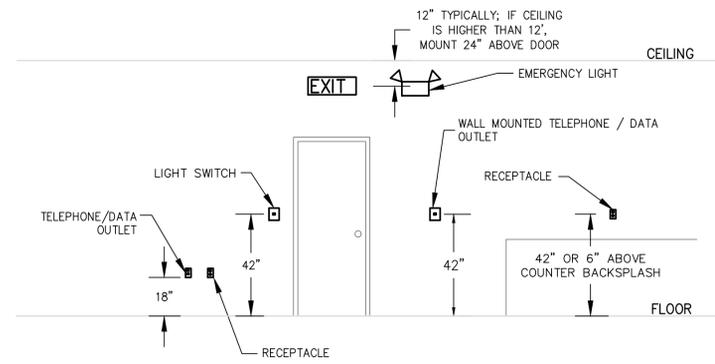
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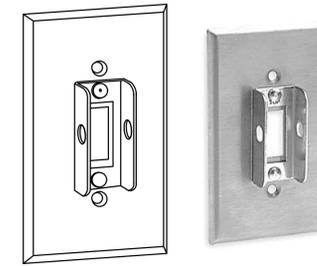
ELECTRICAL DETAILS

E5.1

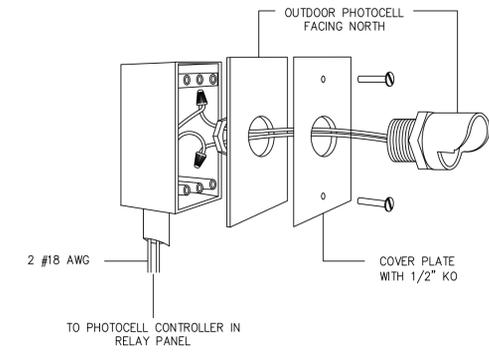




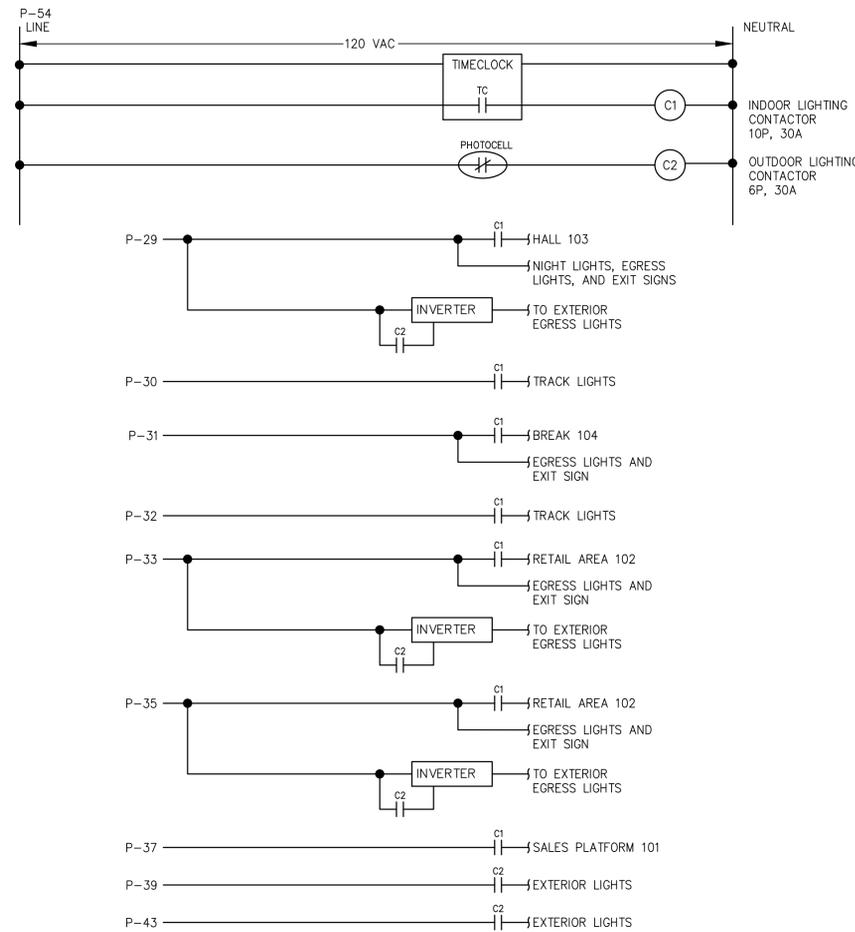
**A** MOUNTING HEIGHTS OF DEVICES  
E5.2 NO SCALE



**B** LOCKABLE TOGGLE SWITCH COVER  
E5.2 NO SCALE

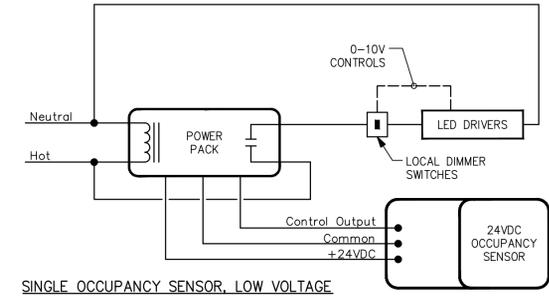


**C** LIGHTING CONTROL SYSTEM -  
OUTDOOR PHOTOCELL  
E5.2 NO SCALE  
NOTE: MOUNT ON NORTHWEST SIDE OF BUILDING.

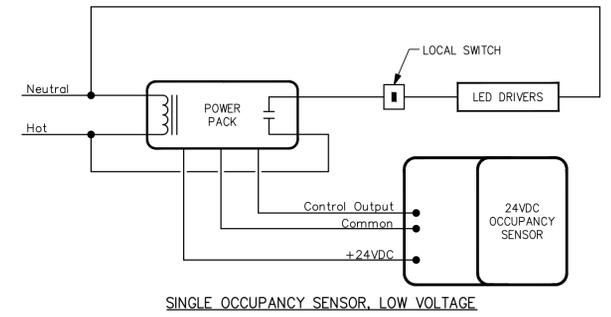


- AUTO MODE CONTROL SCHEME**
- INTERIOR LIGHTS THAT ARE NOT UNDER OCCUPANCY SENSOR CONTROL SHALL TURN ON/OFF VIA TIMECLOCK.
  - EXTERIOR LIGHTS TURN ON/OFF VIA PHOTOCELL.
  - EXTERIOR EGRESS LIGHTS SHALL REMAIN ENERGIZED DURING POWER OUTAGES THROUGH THE INVERTERS AFTER DARK. THE SWITCHED INPUT TO THE INVERTER FROM THE CONTACTORS PREVENTS OPERATION OF THE INVERTER DURING DAYLIGHT.
  - INVERTER DESIGN BASIS: EMERGI-LITE #EMIU SERIES

**D** TIMECLOCK & PHOTOCELL CONTROL SCHEMATIC  
E5.2 NO SCALE



**E** OCCUPANCY SENSOR WIRING FOR  
DIMMING LEVEL LIGHTING CONTROL  
E5.2 NO SCALE



**F** OCCUPANCY SENSOR WIRING LIGHTING CONTROL  
E5.2 NO SCALE

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ELECTRICAL  
DETAILS

**E5.2**

LUMINAIRE SCHEDULE

CALLOUT	SYMBOL	DESCRIPTION	LAMP	BALLAST	VOLTS	MOUNTING	MANUFACTURER / MODEL	NOTES	CALLOUT
EG		EMERGENCY EGRESS, BATTERY	(2) 6W MR16 LED	BATTERY	120V 1P 2W	SURFACE	EMERGLITE #PREMIER COMPACT SERIES CHLORIDE #CM-23200 SERIES LIGHTALARMS #MGR SERIES	CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. THESE FIXTURES ARE NOT TAGGED WITH "EG" ON THE DRAWINGS; ONLY THE SYMBOL IS USED.	EG
INV10		INVERTER, EGRESS LIGHTING	N/A	BATTERY	120V 1P 2W	SURFACE	EMERGI-LITE #EMIU SERIES HIGH-LITES #PCF SERIES IOTA #IS SERIES	INVERTER FOR BATTERY BACKUP OF EGRESS LIGHTING; 100W FOR 90 MINUTES (MINIMUM). INCLUDE SELF-DIAGNOSTIC OPTION. LOCATE ABOVE CEILING - PROVIDE LABEL ON CEILING GRID BELOW INSTALLED LOCATION "LIGHTING INVERTER".	INV10
INV25		INVERTER, EGRESS LIGHTING	N/A	BATTERY	120V 1P 2W	SURFACE	EMERGI-LITE #EMIU SERIES HIGH-LITES #PCF SERIES IOTA #IS SERIES	INVERTER FOR BATTERY BACKUP OF EGRESS LIGHTING; 250W FOR 90 MINUTES (MINIMUM). INCLUDE SELF-DIAGNOSTIC OPTION. LOCATE ABOVE CEILING - PROVIDE LABEL ON CEILING GRID BELOW INSTALLED LOCATION "LIGHTING INVERTER".	INV25
P1		UNDERCANOPY RLM SHADE	(1) 11W LED	LED DRIVER	120V 1P 2W	3/4" STEM; MTD. 9'-0" AFF	ABOLITE #RD200 SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	4000K COLOR TEMPERATURE. FINISH SELECTION BY ARCHITECT. WET LOCATION LISTED.	P1
P1E		UNDERCANOPY RLM SHADE, BACKED UP BY BATTERY INVERTER	(1) 11W LED	LED DRIVER	120V 1P 2W	3/4" STEM; MTD. 9'-0" AFF	ABOLITE #RD200 SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	4000K COLOR TEMPERATURE. FINISH SELECTION BY ARCHITECT. WET LOCATION LISTED.	P1E
P2		HIGHBAY	(1) 92W LED	LED DRIVER	120V 1P 2W	3/4" STEM; MTD. 12'-0" AFF	E-CONOLIGHT #E-HTF12A-HK40UK-A5 PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	12,000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. ALUMINUM REFLECTOR. 100 DEGREE BEAM SPREAD.	P2
P2N		HIGHBAY, NIGHT LIGHT	(1) 92W LED	LED DRIVER	120V 1P 2W	3/4" STEM; MTD. 12'-0" AFF	E-CONOLIGHT #E-HTF12A-HK40UK-A5 PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	12,000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. ALUMINUM REFLECTOR. 100 DEGREE BEAM SPREAD. CONNECT TO UNSWITCHED CIRCUIT.	P2N
P3		HIGHBAY	(1) 155W LED	LED DRIVER	120V 1P 2W	3/4" STEM; MTD. 12'-0" AFF	E-CONOLIGHT #E-HTF20A-HK40UK PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	20,000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. 100 DEGREE BEAM SPREAD.	P3
P3N		HIGHBAY, NIGHT LIGHT	(1) 155W LED	LED DRIVER	120V 1P 2W	3/4" STEM; MTD. 12'-0" AFF	E-CONOLIGHT #E-HTF20A-HK40UK PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	20,000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. 100 DEGREE BEAM SPREAD. CONNECT TO UNSWITCHED CIRCUIT.	P3N
R1		6" RECESSED CAN	(1) 20W LED	LED DIMMABLE DRIVER	120V 1P 2W	RECESSED	PRESCOLITE #LF6LED SERIES LIGHTOLIER #L6R SERIES PORTFOLIO #LD6A SERIES	2000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. SELF-FLANGED LENSED REFLECTOR TRIM; LOW IRIDESCENT CLEAR FINISH.	R1
R2		WALL WASH	(1) 53W LED	LED DRIVER	120V 1P 2W	CEILING	METALUX #23XR SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	500 LUMENS PER FOOT. 4000K COLOR TEMPERATURE.	R2
S1		SITE LIGHTING	(1) 108W LED	LED DRIVER	120V 1P 2W	POLE	REFER TO SHEET L2.1		S1
S2		SITE LIGHTING	(1) 108W LED (1) 108W LED	LED DRIVER LED DRIVER	120V 1P 2W	POLE	REFER TO SHEET L2.1		S2
S3		LOW VOLTAGE SITE LIGHTING	(1) 35W LED	LED DRIVER	12V 1P 2W	GROUND	REFER TO SHEET L2.1	COORDINATE EXACT LOCATION OF LOW VOLTAGE TRANSFORMER WITH LANDSCAPE ARCHITECT.	S3
T1		TRACK		DIMMING	120V 1P 2W	SUSPENDED AT 11'-6" AFF	JUNO COMPATIBLE TRACK PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	LENGTH AS INDICATED ON PLANS. PROVIDE CURRENT LIMITER AS INDICATED ON PLAN.	T1
T2		TRACK		DIMMING	120V 1P 2W	SUSPENDED AT 11'-6" AFF	JUNO #TRAC 12 SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	LENGTH AS INDICATED ON PLAN. PROVIDE 3A CURRENT LIMITER.	T2
TL1		TRACK FIXTURE	40W LED	DIMMING	120V 1P 2W	TRACK	E-CONOLIGHT #E-KLN25A-DW40W PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	3000 NOMINAL LUMENS. 4000K COLOR TEMPERATURE.	TL1
TL2		TRACK FIXTURE	(1) 13W LED	DIMMING	12V 1P 2W	TRACK	JUNO #TL252L-40K-80CRI-FL PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	985 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. FLOOD DISTRIBUTION. WHITE FINISH.	TL2
U1		WALL BRACKET	(1) 29W LED	LED DRIVER	120V 1P 2W	WALL	METALUX #2BCLED-28SL-UNV-L840 PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	2800 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. COORDINATE MOUNTING HEIGHT WITH ARCHITECT.	U1
UC		24", UNDER CABINET STRIP	(1) 12W LED	LED DRIVER	120V 1P 2W	SURFACE	STARFIRE #LUC SERIES FAIL-SAFE #UCL SERIES	SURFACE MOUNT UNDER CABINETS. DAISY CHAIN MULTIPLE FIXTURES TOGETHER. WHITE FINISH.	UC
W1		EXTERIOR WALL LIGHT	(1) 11W LED	LED DRIVER	120V 1P 2W	CEILING	ABOLITE #RD200 SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	870 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. COORDINATE MTG HEIGHT WITH ARCHITECT. WALL BRACKET BY ARCHITECT. FINISH SELECTION BY ARCHITECT.	W1
W1E		EXTERIOR WALL LIGHT, BACKED UP BY BATTERY INVERTER	(1) 26W LED	LED DRIVER	120V 1P 2W	WALL	TECH LIGHTING #700WSPITSB-LED830 PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	870 NOMINAL LUMENS. 3400K COLOR TEMPERATURE. COORDINATE MTG HEIGHT WITH ARCHITECT. FINISH SELECTION BY ARCHITECT.	W1E
W2		GOOSENECK WALL LIGHT	(1) 11W LED	LED DRIVER	120V 1P 2W	WALL	ABOLITE #RD200 SERIES PRE-APPROVED EQUIVALENT PRE-APPROVED EQUIVALENT	870 NOMINAL LUMENS. 4000K COLOR TEMPERATURE. COORDINATE MTG HEIGHT WITH ARCHITECT. COORDINATE GOOSENECK TYPE WITH ARCHITECT.	W2
X		EXIT SIGN, BATTERY BACKUP	(2) 1W LED	BATTERY	120V 1P 2W	UNIVERSAL	DUAL-LITE #LX SERIES LIGHTALARMS #QLXN500R PATHWAY #XR	NICAD BATTERY; CONNECT TO NEAREST UNSWITCHED LIGHT CIRCUIT IN SAME SPACE. THESE FIXTURES ARE NOT TAGGED WITH "X" ON THE DRAWINGS; ONLY THE SYMBOL IS USED.	X

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ELECTRICAL LUMINAIRE SCHEDULE

E6.1

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NC LICENSE# C-10753

JOB # 18041

MDP												
ROOM: BREAK 104			VOLTS: 208Y/120V 3P 4W			AIC: 22,000						
MOUNTING: FLUSH			BUS AMPS: 600			MAIN BKR: 600						
FED FROM: UTILITY			NEUTRAL: 100%			LUGS: STANDARD						
NOTE: ULSE LISTED AND LABELED												
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			
			A	B	C				A	B	C	
1	225/3	PANEL P	11.1	9.33		2	60/3	SPD	0	0		
3						4						
5						6						
7	20/3	FAN F-3, FAN F-4	1.16		10	8	45/3	SSAHU#1	4.02		0	
9				1.16		10				4.02		
11					1.16	12					4.02	
13	20/3	FAN F-5, FAN F-6	1.16			14	30/3	SSAHU#2	2.56			
15				1.16		16			2.56			
17					1.16	18					2.56	
19	20/3	FAN F-7, FAN F-8	1.16			20	90/3	PHP#1	9.83			
21				1.16		22			9.83			
23					1.16	24					9.83	
25	30/2	H2O HTR	3			26	90/3	PHP#2	9.83			
27				3		28			9.83			
29	20/1	SPARE	0		0	30					9.83	
31	20/1	SPARE	0		0	32	30/3	HP#1	2.16			
33	20/1	SPARE	0	0		34			2.16			
35	20/1	SPARE	0		0	36					2.16	
37	20/1	SPARE	0		0	38	25/3	HP#2	1.68			
39	20/1	SPARE	0		0	40			1.68			
41	20/1	SPARE	0		0	42					1.68	
TOTAL CONNECTED KVA BY PHASE									47.7	45.9	43.6	
TOTAL CONNECTED AMPS BY PHASE									398	383	363	
			CONN KVA	CALC KVA					CONN KVA	CALC KVA		
LIGHTING			9.46	11.8	(125%)	CONTINUOUS			4.5	5.63	(125%)	
LARGEST MOTOR			16	20	(125%)	HEATING			57.3	57.3	(100%)	
OTHER MOTORS			30.5	30.5	(100%)	COOLING			38.5	0	(0%)	
RECEPTACLES			8.68	8.68	(50%>10)	NONCONTINUOUS			9.8	9.8	(100%)	
KITCHEN EQUIP			1	1	(100%)	DIVERSE			0	0	(N/A)	
						METERED DEMAND			0	0	(125%)	
						TOTAL KVA			137	145		
						BALANCED 3-PHASE AMPS			402			

P												
ROOM: BREAK 104			VOLTS: 208Y/120V 3P 4W			AIC: 18,000						
MOUNTING: FLUSH			BUS AMPS: 225			MAIN BKR: MLO						
FED FROM: MDP			NEUTRAL: 100%			LUGS: STANDARD						
NOTE:												
CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			CKT #	CKT BKR	CIRCUIT DESCRIPTION	LOAD KVA			
			A	B	C				A	B	C	
1	20/1	REC	0.9			2	20/1	(*) REC-REFRIGERATOR	1			
3	20/1	REC		0.18		4	20/1	(*) REC-MICROWAVE		1		
5	20/1	REC			0.18	6	20/1	REC			0.36	
7	20/1	REC	0.18			8	20/1	(*) REC-DISHWASHER	1			
9	20/1	REC		0.18		10	20/1	REC-REC-GARBAGE DISPOSAL		1		
11	20/1	REC			0.18	12	20/1	REC			0.36	
13	20/1	REC, REC-TOE KICK	0.72			14	20/1	REC	0.18			
15	20/1	REC, REC-EXT GFCI, REC-TOE KICK		0.54		16	20/1	REC-IRRIGATION		0.4		
17	20/1	REC			0.18	18	20/1	REC			0.36	
19	20/1	REC	0.72			20	20/1	SECURITY SYSTEM	0.2			
21	20/1	REC, REC-EXT GFCI		0.54		22	20/1	REC		0.54		
23	20/1	REC			0.18	24	20/1	REC, REC-EXT GFCI			0.54	
25	20/1	REC-FLOOR	0.72			26	20/1	(*) REC-EWC	0.6			
27	20/1	REC-ROOF		0.36		28	20/1	LTG-TRACK, TRACK LTG		1.2		
29	20/1	EGRESS, EXIT, INVERTER, LIGHTING, LTG			1.58	30	20/1	LTG-TRACK			0.33	
31	20/1	EGRESS, FAN F-1, FAN F-2, LIGHTING, LTG, UC LTG	0.725			32	20/1	LTG-TRACK, TRACK LTG	1.2			
33	20/1	EGRESS, EXIT, INVERTER, LTG		1.32		34	20/1	MOTORIZED DAMPER		0.4		
35	20/1	EGRESS, EXIT, INVERTER, LTG			1.65	36	20/1	REC			0.18	
37	20/1	LTG	0.21			38	20/1	REC-HOT BOX	1.5			
39	20/1	LTG		0.165		40	20/1	REC-HOT BOX		1.5		
41	20/1	STORM PUMP			1.32	42	20/1	REC-HOT BOX			1.5	
43	20/1	SIGN, SITE LTG	1.27			44	20/1	SPARE	0			
45	20/1	SPARE		0		46	20/1	SPARE		0		
47	20/1	SPARE			0	48	20/1	SPARE			0	
49	20/1	SPARE	0			50	20/1	SPARE	0			
51	20/1	SPARE		0		52	20/1	SPARE		0		
53	20/1	(#) FIRE ALARM PANEL			1	54	20/1	LTG CONTROL			0.1	
TOTAL CONNECTED KVA BY PHASE									11.1	9.33	10	
TOTAL CONNECTED AMPS BY PHASE									92.7	77.7	83.4	
			CONN KVA	CALC KVA					CONN KVA	CALC KVA		
LIGHTING			9.46	11.8	(125%)	CONTINUOUS			4.5	5.63	(125%)	
LARGEST MOTOR			1.32	1.65	(125%)	HEATING			0	0	(N/A)	
OTHER MOTORS			1.7	1.7	(100%)	COOLING			0	0	(N/A)	
RECEPTACLES			8.68	8.68	(50%>10)	NONCONTINUOUS			3.8	3.8	(100%)	
KITCHEN EQUIP			1	1	(100%)	DIVERSE			0	0	(N/A)	
						METERED DEMAND			0	0	(125%)	
						TOTAL KVA			30.5	34.3		
						BALANCED 3-PHASE AMPS			95.1			

(\*) GFCI C/B; (#) BREAKER LOCK

**ABC STORE 104**  
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WILMINGTON, NORTH CAROLINA 28403

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**E6.2**

