THE LINE SHOWN ABOVE IS EXACTLONE INCH LONG ON 30X42 SHEETS ORIGINAL PAGE SIZE

ELECTRICAL NOTES AND SPECIFICATIONS:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND INCLUDED IN THE CONTRACT. DRAWINGS ARE NOT TO BE SCALED . THE DRAWINGS AND DETAILS WILL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT . ANYTHING MENTIONED IN THE SPECIFICATION AND NOT SHOWN ON THE DRAWINGS , OR SHOWN ON THE DRAWINGS BUT NOT IN THE SPECIFICATIONS WILL INTERPRETED AS BEING IN BOTH. CONFLICTS WILL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER BEFORE BEFORE PROCEEDING WITH THE WORK.

2. THE ELECTRICAL CONTRACTOR TO FURNISH ALL EQUIPMENT, MATERIAL, LABOR, ETC. NECESSARY TO PROVIDE A COMPLETE , WORKABLE AND CODE APPROVED ELECTRICAL POWER DISTRIBUTION SYSTEM. ALL WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS,LOCAL, STATE AND NATIONAL CODES.

3. THE ELECTRICAL CONTRACTOR WILL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT FEES, SALES TAXES AND OTHER COSTS IN CONNECTION WITH HIS WORK, FILE ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION,OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER TO THE GENERAL CONTRACTOR THE SAME CERTIFICATES BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

4. THE ELECTRICAL CONTRACTOR (E.C.) WILL GIVE FULL COOPERATION TO OTHER TRADES ANDWILL FURNISH IN WRITING TO THE GENERAL CONTRACTOR, ANY INFORMATION NECESSARY TO PERMIT THE WORK OF ALL TRADES TO BE INSTALLED SATISFACTORILY AND WITH THE LEAST POSSIBLE INTERFERENCE OR DELAY. THE E.C. MUST COORDINATE ALL CONDUIT RUNS AND EQUIPMENT MOUNTING LOCATIONS WITH OTHER TRADES PRIOR TO ROUGH-IN.

5. THE ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL ALL ELECTRICAL DEVICES AS SHOWN,VERIFYING ALL MOUNTING HEIGHTS AND EXACT LOCATIONS OF ALL WALL-MOUNTED ELECTRICAL DEVICES WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN. IN THE EVENT OF A CODE CONFLICT, THE CONTRACTOR WILL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO COMMENCING THE WORK.

6. ALL SPARE CONDUITS TO BE INSTALLED FOR FUTURE USE WILL BE CAPPED WITH PULL WIRE INSTALLED. UNDERGROUND SPARE CONDUITS WILL BE STUBBED UP 12" A.F.F. WHERE INDICATED AND CAPPED WITH PULL WIRE. ALL CAPPED CONDUIT WILL BE LABELED WITH ITS PURPOSE.

7. THE ELECTRICAL CONTRACTOR WILL PROVIDE A COMPLETE GROUNDING SYSTEM PER APPLICABLE SECTIONS OF THE N.E.C. BOND SERVICE ENTRANCE GROUND TO BUILDING STEEL, METAL WATER MAINS, MADE ELECTRODES, ETC. AS NECESSARY.

8. ALL ELECTRICAL DISTRIBUTION EQUIPMENT TO HAVE ONLY COPPER BUSING. ALL EXTERIOR ELECTRICAL EQUIPMENT TO BE RAIN-PROOF TYPE NEMA 3R. ALL DISCONNECTS TO BE GENERAL DUTY TYPE. ALL EXTERIOR DISCONNECTS TO BE RAIN-PROOF TYPE NEMA 3R. ALL CIRCUIT BREAKERS TO BE 20A MINIMUM OR AS SHOWN ON THE PANEL SCHEDULES.

9. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE AND INSTALLED AS REQUIRED FOR CONDENSING AND AIR HANDLING UNITS. EXHAUST FANS, KITCHEN EQUIPMENT, WATER HEATERS, ETC.SUPPLIED BY MECHANICAL, PLUMBING AND FOOD SERVICE CONTRACTOR(S). SUPPLY AND INSTALL ALL REQUIRED CONDUIT AND DEVICE BOXES FOR HVAC TEMPERATURE CONTROLS.

10. ELECTRICAL CONTRACTOR TO SUPPLY ALL REQUIRED DISCONNECTS AND WIRE ALL EXHAUST FANS, AIR HANDLER UNITS, CONDENSING UNITS, SMOKE DAMPERS, ETC. PROVIDED BY THE MECHANICAL E.C. WILL V ERIFY NAMEPLATE RATINGS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN. E.C. TO PROVIDE DISCONNECTS AND CIRCUIT BREAKERS PER NAMEPLATE RATING.THE E.C. SHALL PROVIDE ALL HANDWARE (CONTROL RELAYS, LOW VOLTAGE TRANSFORMER POWER SUPPLIES, & ENCLOSURES) FOR THE PROPER OPERATION OF MECH. UNITS, EXHAUST FANS & SMOKE DAMPERS PER THE "SEQUENCE OF OPERATIONS"AS DETAILED ON THE MECHANICAL PLANS. THE E.C. WILL NOTIFY THE ARCHITECT/ENGINEER OF ANY CHANGES REQUIRED TO CIRCUITING PRIOR TO COMMENCING THE WORK.

11. ALL INTERIOR POWER/LIGHTING CIRCUITS TO BE 2-#12, 1-#12 G. IN MINIMUM 1/2" C W/MAXIMUM 30% FILL, UNLESS SHOWN OTHERWISE ON THE PLANS. INTERIOR HOME RUNS TO BE A MINIMUM OF 3/4" C. W/MAXIMUM 40% FILL. ALL EXTERIOR LIGHTING CIRCUITS TO BE A 1DG TO THE REMAINING FIXTURES OR AS INDICATED ON PLANS. ALL UNDERGROUND CONDUIT TO BE A MINIMUM OF 1". TYPE MC CABLE HAVING STRANDED COPPER CONDUCTORS SHALL BE ACCEPTABLE FOR BRANCH CIRCUITS IN CONDITIONED SPACES ONLY.ALL FEEDER CONDUCTORS SHALL BE COPPER WITH TYPE THWN INSULATION. TYPE XHHW-2 OR THWN-2 SHALL BE USED FOR CONDUCTORS INSTALLED IN WET AND DAMP LOCATIONS. SPECIFIC EQUIPMENT CIRCUITS (HVAC,PUMPS, WATER HEATERS, ETC.) SHALL BE AS REQUIRED PER NAMEPLATE RATING(S).

12. THE ELECTRICAL CONTRACTOR SHALL PROPERLY AND PERMANENTLY IDENTIFY ALL BOXES,ENCLOSURES, ETC. FOR EMERGENCY CIRCUITS IN ACCORDANCE WITH NEC 700.10. LABEL ALL PANEL CIRCUITS TO IDENTIFY UNIT EQUIPMENT CONNECTED IN ACCORDANCE WITH NEC 700.12(F).

13. ELECTRICAL CONTRACTOR WILL CONTACT LOCAL ELECTRICAL UTILITY AND COORDINATE EXACTLOCATION OF ELECTRICAL SERVICE SOURCE. THE CONTRACTOR SHALL COORDINATE SHORT CIRCUIT RATING (A.I.C.) WITH UTILITY PRIOR TO BID AND PROVIDE THE APPROPRIATE SHORT CIRCUIT RATINGS FOR ALL ELECTRICAL EQUIPMENT. COORDINATE USE OF HAND HOLE / UTILITY POLE / PAD MOUNT TRANSFORMER PRIOR TO BID AND/OR ROUGH-IN.

14. MINOR DETAILS, NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER OPERATION AND CONSISTENT WITH GOOD WORKMANSHIP, WILL BE INCLUDED IN THE ESTIMATE, THE SAME AS IF SHOWN ON DRAWINGS.

15. PROVIDE CONDUIT STUBS, BACK BOXES AND PULL STRINGS ETC. FOR ALL LOW VOLTAGE SYSTEMS PROVIDED BY OTHERS TO DEVICES LOCATED IN ALL SPACES. PROVIDE SEPARATE PERMITS FOR ALL LOW VOLTAGE SYSTEMS.

* ALL MATERIALS FURNISHED AND ALL WORK INSTALLED UNDER THIS SECTION SHALL COMPLY WITH THE FOLLOWING:

  * LIFE SAFETY CODE NFPA 101-2018
  * APPLICABLE NFPA FIRE CODES
  * NATIONAL BUREAU OF FIRE UNDERWRITERS
  * ACCESSIBILITY FOR THE HANDICAPPED ANSI A117
  * AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES
  * FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS ACCESSIBILITY REQUIREMENTS MANUAL
  * NATIONAL ELECTRICAL CODE NFPA 70-2017
  * THE SERVING UTILITY COMPANIES
  * FLORIDA BUILDING CODE 2020, SEVENTH EDITION
  * FLORIDA BUILDING CODE - ENERGY CONSERVATION 2020
  * FLORIDA BUILDING CODE - MECHANICAL 2020
  * FLORIDA BUILDING CODE - PLUMBING 2020

16. ALL ELECTRICAL SYSTEM COMPONENTS AND INSTALLATIONS SHALL BE WARRANTED TO BE FREE OF DEFECTS (MATERIALS AND LABOR) FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM RECEIPT OF CERTIFICATE OF OCCUPANCY. THE CONTRACTOR SHALL PROVIDE FOR OWNER'S OPTION A MAINTENANCE CONTRACT AND/OR AN EXTENDED WARRANTY

17. CONTRACTOR TO PROVIDE MANUFACTURER CERTIFICATION, WITH SHOP DRAWING SUBMITTALS, THAT POLE ASSEMBLY WITH SPECIFIED HEADS AND ALL SPECIFIED OPTIONS MEETS WIND LOAD REQUIREMENTS PER 2020 FLORIDA BUILDING CODE FIGURE 1609.3. ELECTRICAL CONTRACTOR TO SUBMIT MANUFACTURER RECOMMENDED CHANGES FOR A CODE COMPLYING INSTALLATION TO OWNER/ENGINEER FOR APPROVAL. ADDITIONALLY, CONTRACTOR SHALL PROVIDE CERTIFICATION THAT POLE MOUNTING METHOD; I.E.,DIRECT BURY/ANCHOR BASE MEETS THE ABOVE REQUIREMENTS. POLE MOUNTING CERTIFICATION SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

18.ELECTRICAL CONTRACTOR TO PROVIDE AS-BUILT DOCUMENTS, OPERATION MANUALS, MAINTENANCE MANUALS TO THE OWNER WITHIN 30 DAYS OF ACCEPTANCE OF SYSTEMS AS PER FBC C405.5.4.

ELECTRICAL COMMISIONING

BUILDING COMMISSIONING
GENERAL REQUIREMENTS:
THE 2020 FLORIDA BUILDING CODE - "ENERGY CONSERVATION" PROVIDES THE REQUIREMENTS FOR COMMERCIAL BUILDING EFFICIENCY. THE CODE DEFINES THE ENERGY EFFICIENCY REQUIREMENTS FOR THE ELECTRICAL POWER AND LIGHTING SYSTEM, TOTAL BUILDING PERFORMANCE, AND COMMISSIONING.THIS CODE CHAPTER REQUIRES A CERTAIN SET OF ACTIVITIES AND PROCESSES TO BE ADMINISTERED AND DOCUMENTED IN ACCORDANCE WITH DEFINED STANDARDS. THIS SPECIFICATION IS THE OWNER'S MEANS OF VERIFYING THAT THE PLANNING, DESIGN,CONSTRUCTION AND OPERATION OF ELECTRICAL SYSTEMS ACHIEVE THEIR GOALS AND DELIVER A HIGH QUALITY BUILDING WITH MAXIMUM ASSET VALUES.

COMMISSIONING OF THE BUILDING ELECTRICAL POWER AND LIGHTING SYSTEMS AS PER SECTION 408 SHALL BE AS DEFINED HEREIN. PRIOR TO PASSING THE FINAL ELECTRICAL INSPECTION, THE CONTRACTOR SHALL PROVIDE EVIDENCE OF SYSTEM COMMISSIONING AND COMPLETION IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405 AND SUBMIT TO THE REGISTERED DESIGN PROFESSIONAL (ENGINEER OF RECORD) FOR APPROVAL, AND TO THE BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATION OF OCCUPANCY.

ELECTRICAL SYSTEMS TO BE COMMISSIONED INCLUDE:
ALL AUTOMATIC CONTROLS FOR INTERIOR AND EXTERIOR LIGHTING/ELECTRICAL SYSTEMS SHALL BE SUBJECT TO THESE REQUIREMENTS.
SCOPE:
FUNCTIONAL TESTING PRIOR TO PASSING FINAL INSPECTION, THE REGISTERED DESIGN PROFESSIONAL SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH SECTIONS C408.3.1.1 THRU C408.3.1.3 FOR THE APPLICABLE CONTROL TYPE.

THE PROJECT GENERAL CONTRACTOR SHALL HIRE A FIRM QUALIFIED IN THE TESTING OF LIGHTING AND ELECTRICAL SYSTEM PERFORMANCE FUNCTIONALITY OF THE SYSTEMS LISTED IN THIS SPECIFICATION. THE TESTING FIRM SHALL DETERMINE THE EXTENT AND SCOPE OF THE SYSTEMS REQUIRING COMMISSIONING NEEDED ON A PROJECT BASIS.

A FUNCTIONAL PERFORMANCE TEST SHALL BE CONDUCTED TO DEMONSTRATE THE INSTALLATION AND OPERATION OF COMPONENTS, SYSTEMS,AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS SUCH THAT OPERATION,FUNCTION, AND MAINTENANCE SERVICEABILITY FOR EACH OF THE COMMISSIONED SYSTEMS IS CONFIRMED. TESTING SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATION, INCLUDING UNDER FULL-LOAD, PART-LOAD AND THE FOLLOWING EMERGENCY CONDITIONS:

  * ALL MODES AS DESCRIBED IN THE SEQUENCE OF OPERATION OR MANUFACTURES OPERATING INSTRUCTIONS
  * REDUNDANT OR AUTOMATIC BACK-UP MODE
  * PERFORMANCE OF LIGHTING OVERRIDE
  * MODE OF OPERATION UPON A LOSS OF POWER AND RESTORATION OF POWER.

THE GENERAL CONTRACTOR SHALL:
  * INCORPORATE COMMISSIONING ACTIVITIES INTO THE CONSTRUCTION SCHEDULE.
  * FACILITATE COOPERATION OF SUB-CONTRACTORS IN COMMISSIONING WORK.
  * PROVIDE SUB-CONTRACTOR ASSISTANCE IN OPERATING EQUIPMENT TO BE COMMISSIONED.
  * INSURE EQUIPMENT START-UP IS COMPLETE PRIOR TO BEGINING THE COMMISSIONING PROCESS.
  * WORK WITH SUB-CONTRACTORS IN DEVELOPING A TRAINING SCHEDULE AND PLAN FOR APPROVAL BY THE OWNER.
  * VERIFY THE PRE-FUNCTIONAL CHECKLISTS ARE COMPLETED PRIOR TO SYSTEM TESTING.
  * VERIFY THE EQUIPMENT START-UP AND CONTROLS VERIFICATIONS ARE COMPLETE.
  * INSURE RESOLUTION OF NON-COMPLIANT AND DEFICIENT CONSTRUCTION RELATED ITE IDENTIFIED BY THE COMMISSIONING TEAM.
  * ASSIST IN WARRANTY REVIEW OF SYSTEM AND EQUIPMENT PERFORMANCE.THE SUB-CONTRACTORS SHALL:

  * PREPARE OWNER TRAINING PLAN FOR INSTALLED EQUIPMENT AND CONTROLS.
  * PROVIDE NECESSARY PERSONNEL TO ASSIST THE ELECTRICAL TESTING AGENT IN HIS RESPONSIBILITIES DESCRIBED LATER IN THIS SPECIFICATION.
  * PREPARE AND SCHEDULE EQUIPMENT START-UP WITH THE GENERAL CONTRACTOR AND ELECTRICAL TESTING AGENT.
  * EXECUTE ALL REQUIRED EQUIPMENT AND SYSTEM TESTING AS MANDATED BY 2020 FLORIDA BUILDING CODE, PROJECT PLANS AND SPECIFICATION.
  * ENSURE INSTALLATION WORK IS COMPLETE AND IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AND READY FOR FUNCTION PERFORMANCE TESTING.
  * PROVIDE CERTIFIED AND CALIBRATED INSTRUMENTATION REQUIRED TO TAKE MEASUREMENTS OF SYSTEM AND EQUIPMENT PERFORMANCE DURING THE FUNCTIONAL PERFORMANCE TESTING.PERFORMANCE DURING THE FUNCTIONAL PERFORMANCE TESTING.
  * PREPARE CLOSEOUT DOCUMENTS INCLUDING BUT NOT LIMITED TO:
  * AS-BUILT DRAWINGS
  * WARRANTIES.
  * OPERATIONAL AND MAINTENANCE MANUALS FOR INSTALLED EQUIPMENT.
  * DELIVERY OF ANY SPARE PARTS REQUIRED BY THE PROJECT SPECIFICATION.

THE CODE OFFICIAL SHALL BE PERMITTED TO REQUIRE THAT A COPY OF THE FINAL COMMISSIONING REPORT BE MADE AVAILABLE FOR HIS/HER REVIEW.

CONSTRUCTION DOCUMENTS SHALL INCLUDE THE LOCATION ON EACH PIECE OF EQUIPMENT.

AN OPERATION AND MAINTENANCE MANUAL SHALL BE PROVIDED AND INCLUDE ALL OF THE FOLLOWING:
  * SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
  * MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
  * EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED &QUTI MAINTENANCE ACTIONS SHALL BE CLEARLY EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT.REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.

A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS "FINAL COMMISSIONING REPORT" SHALL BE DELIVERED TO THE BUILDING OWNER AND SHALL INCLUDE:

  * RESULTS OF FUNCTIONAL PERFORMANCE TESTS.
  * DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIV MEASURES USED OR PROPOSED.
  * FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY AS FOLLOWS:

1. TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2. AN APPROVED THIRD PARTY INDEPENDENT FROM THE DESIGN OR CONSTRUCTION OF THE PROJECT SHALL BE RESPONSIBLE FOR THE FUNCTIONAL TESTING AND SHALL PROVIDE DOCUMENTATION TO THE OWNER, REGISTERED DESIGN PROFESSIONAL AND CODE OFFICIAL CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE PROVISIONS OF SECTION C405. WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:
a. CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE AS PER FBC-C408.3.
b. CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF AS PER THE OWNER SCHEDULE AND FBC-C408.3.1.2.
c. CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED AND PER C408.3.

ELECTRICAL IDENTIFICATION NOTES

PRODUCTS AND MATERIALS
ALL LABELS SHALL BE PERMANENT AND MACHINE-PRODUCED. HANDWRITTEN LABELS SHALL NOT BE ACCEPTABLE, UNLESS OTHERWISE INDICATED.

CONDUCTOR/CABLING LABELS: ALL CONDUCTOR/CABLING LABELS SHALL BE CONSTRUCTED OF TRANSPARENT VINYL OR VINYL CLOTH, SELF-LAMINATING TAPE. FLAG-TYPE LABELS SHALL NOT BE ACCEPTABLE. LABELS SHALL BE SIZED TO ACCOMMODATE THAT CIRCUMFERENCE OF THE CONDUCTOR/ CABLE.

CONDUCTOR/CABLING IDENTIFICATION TAPE: CONDUCTOR/CABLING IDENTIFICATION TAPE SHALL BE SCOTCH #35 VINYL ELECTRICAL TAPE, COLORED IN ACCORDANCE WITH THE SYSTEM VOLTAGE AND TYPE OF CONDUCTOR.

NAMEPLATES: NAMEPLATES SHALL BE PHENOLIC, ENGRAVED TYPE. EMBOSSED TAPE SHALL NOT BE ACCEPTABLE. NORMAL SYSTEMS SHALL UTILIZE WHITE LETTERS ON A BLACK BACKGROUND. EMERGENCY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A RED BACKGROUND. LEGALLY-REQUIRED STANDBY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A BLUE BACKGROUND. OPTIONAL STANDBY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A YELLOW BACKGROUND.

ADHESIVE LABELS: ADHESIVE LABELS SHALL NOT BE ACCEPTABLE, EXCEPT FOR THE IDENTIFICATION OF CONDUCTORS/CABLING, DEVICE FACEPLATES, AND JUNCTION BOXES SIZED 8" SQ. OR SMALLER.

GENERAL
WHERE MULTIPLE SYSTEM VOLTAGES (E.G. 480/277V, 208/120V, ETC.) ARE UTILIZED IN THE SAME BUILDING, ALL DISCONNECT SWITCHES, JUNCTION BOXES, PANELBOARDS, SWITCHBOARDS, TRANSFORMERS, AND MISCELLANEOUS EQUIPMENT SHALL BE LABELED TO INDICATE THE SYSTEM VOLTAGE, IN ADDITION TO THE REQUIREMENTS LISTED BELOW.

CLEAN ALL MOUNTING SURFACES PRIOR TO AFFIXING LABELS. UTILIZE THE LABEL MANUFACTURER'S RECOMMENDED CLEANING AGENT. INSTALL LABELS NEATLY AND FIRMLY AND IN ACCORDANCE WITH THE LABEL MANUFACTURER'S RECOMMENDATIONS.

AFFIX NAMEPLATES TO EQUIPMENT UTILIZING SCREWS, RIVETS, OR OTHER MATERIALS APPROVED BY THE MANUFACTURER.

PROVIDE A PLACARD AT EACH SERVICE DISCONNECT WITH THE WORDS "SERVICE DISCONNECT." LOCATE ABOVE THE MAIN DISCONNECT SWITCH OR CIRCUIT BREAKER.

JUNCTION BOX AND PULL BOX IDENTIFICATION
JUNCTION BOXES AND PULL BOXES SHALL BE IDENTIFIED UTILIZING SPRAY-PAINTED COVERS AS FOLLOWS:

SECONDARY POWER - 480Y/277V	BROWN
SECONDARY POWER - 208Y/120V, 240/120V	WHITE
EMERGENCY SYSTEM - LIFE SAFETY BRANCH (NEC 700) - 480Y/277V	BROWN/RED
EMERGENCY SYSTEM - LIFE SAFETY BRANCH (NEC 700) - 208Y/120V	WHITE/RED
LEGALLY REQUIRED STANDBY SYSTEM (NEC 701) - 480Y/277V	BROWN/BLUE
LEGALLY REQUIRED STANDBY SYSTEM (NEC 701) - 208Y/120V	WHITE/BLUE
OPTIONAL STANDBY SYSTEM (NEC 702) - 480Y/277V	BROWN/YELLOW
OPTIONAL STANDBY SYSTEM (NEC 702) - 208Y/120V	WHITE/YELLOW
FIRE ALARM	RED
TEMPERATURE CONTROL	GREEN
DOOR CONTROL AND DOOR MONITORING SYSTEM	ORANGE
SOUND AND INTERCOM SYSTEMS	GRAY
VIDEO SURVEILLANCE SYSTEM/MATV	YELLOW
DATA	BLUE JUNCTION

BOXES AND PULL BOXES FOR POWER CONDUCTORS SHALL BE LABELED WITH CIRCUIT NUMBERS AND SOURCE PANELBOARD DESIGNATIONS. JUNCTION BOXES AND PULL BOXES FOR OTHER SYSTEMS SHALL BE IDENTIFIED IN ACCORDANCE WITH THE SHOP DRAWINGS FOR THEIR RESPECTIVE SYSTEMS.

EXPOSED JUNCTION BOXES EXCEEDING A SIZE OF 8" SQ. SHALL BE IDENTIFIED WITH PHENOLIC, ENGRAVED PLACARDS. LETTERING HEIGHT SHALL BE A MINIMUM OF 1/2". IDENTIFY THE SYSTEM SOURCE(S) AND LOAD(S) SERVED.

EXPOSED JUNCTION BOXES 8" SQ. AND SMALLER SHALL BE IDENTIFIED WITH ADHESIVE LABELS.

JUNCTION BOXES INSTALLED ABOVE AN ACCESSIBLE CEILING SHALL BE PERMITTED TO BE IDENTIFIED VIA PERMANENT MARKER. LETTERING SHALL BE NEAT AND LEGIBLE.

COMMUNICATIONS CONDUIT LABELING
ALL CONDUITS INSTALLED BETWEEN ELECTRICAL AND/OR INFORMATION TECHNOLOGY (I.T.) ROOMS SHALL BE LABELED IN ACCORDANCE WITH ANSI/TIA/EIA-606. BOTH TERMINATION POINTS OF THE CONDUITS SHALL BE IDENTIFIED.

ALL LABELS SHALL BE MACHINE-PRODUCED. HANDWRITTEN LABELS SHALL NOT BE ACCEPTABLE.

THE LABEL SHALL INDICATE THE LOCATION OF THE TERMINATION POINT OF THE CONDUIT AND A UNIQUE IDENTIFICATION NUMBER.

POWER AND LOW-VOLTAGE CONDUCTOR/CABLE IDENTIFICATION
PROVIDE CONDUCTOR/CABLE LABELS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, JUNCTION BOXES, PULL BOXES, AND OUTLET BOXES AT LOAD CONNECTIONS. IDENTIFY THE BRANCH CIRCUIT OR FEEDER NUMBER FOR ALL POWER AND LIGHTING BRANCH CIRCUITS. FOR LOW-VOLTAGE SYSTEMS, INDICATE THE WIRE NUMBER IN ACCORDANCE WITH SHOP DRAWINGS.

ALL CONDUCTORS/CABLING SHALL BE LABELED WITHIN 2 TO 4 INCHES OF TERMINATION. EACH END OF A CONDUCTOR/CABLE SHALL BE LABELED IMMEDIATELY UPON TERMINATION.

WIRING DEVICE IDENTIFICATION
WALL SWITCHES, RECEPTACLES, OCCUPANCY SENSORS, DEVICE PLATES, BOX COVERS, POKE-THROUGH FITTINGS, ACCESS FLOOR BOXES, PHOTOCELLS, AND TIME CLOCKS SHALL BE IDENTIFIED WITH CIRCUIT NUMBERS AND SOURCE. IN EXPOSED SPACES, IDENTIFICATION SHALL BE MADE INSIDE OF DEVICE COVERS. USE MACHINE-PRODUCED ADHESIVE LABELS OR PERMANENT MARKER. HANDWRITTEN LABELS SHALL BE NEAT AND LEGIBLE.

NAMEPLATES FOR ELECTRICAL EQUIPMENT
PROVIDE NAMEPLATES OF THE MINIMUM LETTER HEIGHT AS LISTED BELOW.

DISTRIBUTION PANELBOARDS, SUBPANELS, AND SWITCHBOARDS: 1 INCH NAME PLATE MIN. IDENTIFY THE SYSTEM VOLTAGE,SOURCE, AND LOCATION OF THE SOURCE. FOR 240V/3PH SYSTEMS: PROVIDE PANELBOARD IDENTIFICATION AS REQUIRED BY 2017 NEC SECTION 408.3; PANELS SHALL BE MARKED "CAUTION B PHASE HAS 208 VOLTS TO GROUND" WITH PHENOLIC ENGRAVED LABEL.

ENCLOSED CIRCUIT BREAKERS AND DISCONNECT SWITCHES: 1/2 INCH NAME PLATE MIN. IDENTIFY THE SOURCE CIRCUIT, LOAD SERVED, AND LOCATION.

TRANSFORMERS: 1 INCH NAME PLATE MIN. IDENTIFY PRIMARY AND SECONDARY VOLTAGES, PRIMARY SOURCE AND LOCATION, SECONDARY LOAD AND LOCATION.

PANELBOARD/SWITCHBOARD DIRECTORIES
SHALL BE TYPEWRITTEN AND COVERED WITH CLEAR PLASTIC WITH METAL FRAMING.

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

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NOT FOR CONSTRUCTION

Jon Shepard
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△	DATE	SUBMISSION

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TO THE BEST OF THE ARCHITECT'S OR ENGINEER'S KNOWLEDGE AND ABILITY, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.

MILHAUS

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL NOTES

SHEET NUMBER:
RE0.00

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ANSI D SHEETS ORIGINAL PAGE SIZE

LIGHTING CONTROL LEGEND

SYMBOL	DESCRIPTION
$	SINGLE POLE SWITCH, MOUNT 48" AFF U.O.N.
$3	THREE-WAY/FOUR-WAY SWITCH RESPECTIVELY, MOUNT 48" AFF U.O.N.
$M	MOTOR-RATED SWITCH, SINGLE/DOUBLE POLE AS INDICATED ON PLANS
$D	SLIDE DIMMER W/PRESET ON/OFF SWITCH, MATCH DIMMER RATING WITH ASSOCIATED LOAD, MOUNT 48" AFF U.O.N.
$T	SPRINGWOUND TIMER SWITCH, INTERMATIC "P"-SERIES, MOUNT 48" AFF U.O.N.
$OC	WALL SWITCH OCCUPANCY SENSOR (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$OC3	WALL SWITCH OCCUPANCY SENSOR 3-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$OC4	WALL SWITCH OCCUPANCY SENSOR 4-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC	WALL SWITCH VACANCY SENSOR (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC3	WALL SWITCH VACANCY SENSOR 3-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC4	WALL SWITCH VACANCY SENSOR 4-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$DV	WALL SWITCH DIMMING VACANCY SENSOR (DUAL), LEGRAND "DW-311", MOUNT 48" AFF U.O.N.
OC1	CEILING MOUNT OCCUPANCY SENSOR (120-277V), LEGRAND "DT-355" (360 DEG 25'W), MOUNT 8' AFF U.O.N.
$K	KEY SWITCH, MOUNT 48" AFF U.O.N.
$C	COMBINATION FAN SPEED CONTROL & FAN LIGHT SWITCH, MOUNT 48" U.O.N.

LIGHTING SYMBOL LEGEND

SYMBOL	DESCRIPTION
	EXIT SIGN - FACES AS REQUIRED - WITH BATTERY BACKUP
	EXIT SIGN W/DIRECTION ARROW - FACES AS REQUIRED - WITH BATTERY BACKUP
EM	EMERGENCY LIGHT FIXTURE WITH BATTERY BACKUP (CONNECT TO LINE SIDE OF NEAREST SWITCH SERVING THAT AREA OR ON THE LINE SIDE OF LIGHTING CONTROL PANEL THAT CONTROLS THE LIGHTING CIRCUIT IN THAT AREA).
	EMERGENCY LIGHT REMOTE HEAD.
	EMERGENCY LIGHT FIXTURE WITH INTEGRAL BATTERY BACKUP.

LOW VOLTAGE LEGEND

SYMBOL	DESCRIPTION
	CCTV CAMERA, CEILING-MOUNTED "C" OR WALL-MOUNTED "W" AS INDICATED
SC	SECURITY CONTACT DOOR/WINDOW ECT.
ML	MAGNETIC LOCK
DSL	DOOR STRIKE LOCK
PR	PROX READER
PDR	PROX READER LIGHTED EXIT PUSH BUTTON FOR DOOR RELEASE.
PB	PANIC BUTTON
R	SECURITY SYSTEM RELAY
KP	SECURITY SYSTEM KEYPAD
DR	EXIT PUSH BUTTON FOR DOOR RELEASE.
	HANDICAP EXIT PUSH PLATE DOOR OPENER.
S	SIREN
M	SECURITY SYSTEM MOTION DETECTOR
D	MOTION DETECTOR FOR DOOR RELEASE
SEC	SECURITY CONTROL PANEL.
H	HDMI CABLE OUTLET, PROVIDE 4" SQ. J-BOX w/1-GANG PLASTER RING AND COVER PLATE.

POWER SYMBOL LEGEND

SYMBOL	DESCRIPTION
	SIMPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	DUPLEX RECEPTACLE, MOUNT 42" AFF (48" AFF IN TOILETS/UTILITY CLOSETS) U.O.N.
	SWITCHED SPLIT-WIRE DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	FLOOR MOUNTED DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	FLOOR MOUNTED SWITCHED SPLIT-WIRE DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	CEILING MOUNTED DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	QUADRAPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	QUADRAPLEX RECEPTACLE, MOUNT 42" AFF U.O.N.
	SWITCHED SPLIT-WIRE QUADRAPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	FLOOR MOUNTED QUADRAPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	FLOOR MOUNTED SWITCHED SPLIT-WIRE QUADRAPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	10, 208/240-VOLT SPECIAL PURPOSE RECEPTACLE, MOUNT 18" AFF U.O.N.
	BUILDING EXTERIOR/ROOF-MOUNTED WEATHER-RESISTANT DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N. DEVICE SHALL INCLUDE WEATHERPROOF BACK-BOX WITH DIE-CAST, WEATHERPROOF IN-USE LOCKING COVER - INTERMATIC WP3110MXD. RECEPTACLE SHALL BE G.F.I. PROTECTED EITHER AT THE RECEPTACLE OR FROM THE CIRCUIT BREAKER IN THE PANELBOARD SERVING CKT. IF TOTAL BRANCH CIRCUIT ONE-WAY LENGTH IS GREATER THAN 200', UTILIZE GFCI RECEPTACLES IN PLACE OF GFCI BREAKER (PER MANUFACTURER RECOMMENDATIONS).
RCR	RECEPTACLE CONTROL RELAY
	TELECOM OUTLET (DATA/TELEPHONE) - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	DATA OUTLET - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	TELECOM OUTLET(DATA/TELEPHONE) - MOUNT 84" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	FLOOR/CEILING-MOUNTED TELECOM OUTLET. REFER TO PLANS FOR BOX TYPE, CONDUIT SIZE/QUANTITY & CONFIGURATION.
TV	CABLE TELEVISION OUTLET - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESS. CLG. PROVIDE PULLSTRING.
TTB	TTB (TELEPHONE TERMINAL BOARD) MARINE PLYWOOD BACKBOARD 3/4"x4'x4' PAINTED W/FIRE RETARDANT GRAY PAINT. PROVIDE (2)4" CONDUITS TO PROPERTY LINE. COORDINATE FINAL CONDUIT SIZES AND LOCATIONS W/UTILITY. PROVIDE SOLID COPPER GROUND BAR WITH INSULATED STAND-OFFS.
J	JUNCTION BOX(4"X4"X2"), MOUNT 18" AFF U.O.N.
MS	MOTORIZED SHADES
LC	LIGHTING CONTROLLER
TC	TIMECLOCK WITH INTEGRAL MANUAL OVERRIDE USE INTERMATIC ET SERIES OR EQUAL.
PTD	POWER TRANSFER DEVICE/RELAY.
PC	STEM AND SWIVEL MOUNT PHOTOCELL USE INTERMATIC SERIES K4221C FOR 120V AND K4223C FOR 277V OR EQUAL.
	ELECTRICAL PANELBOARD (SURFACE OR FLUSH-MOUNTED AS SHOWN). REFER TO SCHEDULES/RISER FOR INFO.
M	MOTORIZED DAMPER
	ENCLOSED CIRCUIT BREAKER. PROVIDE WEATHERPROOF ENCLOSURE FOR EXTERIOR APPLICATIONS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED SWITCH AS DISC. PROVIDE WEATHERPROOF ENCLOSURE FOR EXTERIOR APPLICATIONS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED COMBINATION MOTOR STARTER DISC. PROVIDE WP ENCLOSURE FOR EXT. APPS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED MOTOR STARTER. PROVIDE WP ENCLOSURE FOR EXT. APPS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
T	TRANSFORMER
	HOMERUN TO PANEL NOTED (DASHED LINE INDICATES CIRCUIT)
	SWITCHLEG (SOLID LINE) INDICATING A GROUP OF LIGHTS OPERATED BY A COMMON SWITCH
	LOW-VOLTAGE (DOUBLE-DASHED LINE)
HD	HAND DRYER
TV	TELEVISION/RECEPTACLE MOUNTED AT 84" AFF

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
F	FIRE ALARM PULL STATION, MOUNT 48" AFF U.O.N.
	HEAT DETECTOR (THERMAL DETECTOR)
	SYSTEM TYPE, ADDRESSABLE SMOKE DETECTOR FOR FIRE ALARM &/OR SMOKE CONTROL. MAINTAIN A MINIMUM DISTANCE OF 3'-0" FROM ALL CEILING-MOUNTED HVAC SUPPLY/RETURN REGISTERS.
SS	SINGLE/MULTI-STATION, NON-SYSTEM TYPE, RESIDENTIAL STYLE, LINE-POWERED, COMBINATION CARBON MONOXIDE/SMOKE DETECTOR WITH BATTERY BACKUP. ACTIVATION SHALL SOUND ALL DEVICES WITHIN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT WITHIN UNIT. MAINTAIN A MINIMUM DISTANCE OF 3'-0" FROM ALL CEILING-MOUNTED HVAC SUPPLY/RETURN REGISTERS, 3'-0" FROM THE OUTER EDGE OF PADDLE FAN BLADES, AND 10'-0" FROM ALL WALL-MOUNTED HVAC SUPPLY/RETURN REGISTERS.
	PHOTOELECTRIC TYPE SMOKE DETECTOR MOUNTED IN HVAC DUCT FOR MECHANICAL UNIT SHUT DOWN AND/OR SMOKE DAMPER OPERATION, COORDINATE FINAL LOCATION AND QUANTITY WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
RTS	DUCT DETECTOR REMOTE TEST SWITCH.
	ELECTRIC HORN, MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER.
L	LOW FREQUENCY ALARM APPLIANCE, 520 HZ MOUNT BETWEEN 80" AND 96" AFF.
	COMBINATION LOW FREQUENCY/STROBE ALARM APPLIANCE, 520 HZ MOUNT AS PER ADA REQUIREMENTS.
	STROBE LIGHT, MOUNT BETWEEN 80" AND 96" AFF. FINAL MOUNTING HEIGHT W/ARCH.
	COMBINATION FIRE ALARM HORN/STROBE, MOUNT BETWEEN 80" AND 96" AFF. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECT.
	STROBE LIGHT, CEILING MOUNT.
	COMBINATION FIRE ALARM HORN/STROBE, CEILING MOUNT.
V	VOICE EVACUATION SPEAKER, MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER/STROBE MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. CONTRACTOR SHALL ADJUST TAPS IN THE FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER, CEILING MOUNT, CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER/STROBE CEILING MOUNT, CONTRACTOR SHALL ADJUST TAPS IN THE FIELD FOR AUDIBILITY/INTELLIGIBILITY.
	DOOR HOLDER
	FLOW SWITCH
	TAMPER SWITCH
	FIRE ALARM MONITORING MODULE.
FR	FIRE ALARM CONTROL RELAY. LOCATE WITHIN 3'-0" OF CONTROLLED EQUIPMENT.
LIM	FIRE ALARM LINE ISOLATION MODULE, USED IN CLASS A CIRCUITS ONLY.
SPD	SURGE PROTECTION DEVICE, INCLUDE GROUNDING AS PER MANUFACTURERS INSTRUCTIONS.
TS	FIRE ALARM TELEPHONE STATION.
FACP	FIRE ALARM CONTROL PANEL.
BPS	FIRE ALARM BOOSTER POWER SUPPLY.
FACS	FIRE ALARM COMMAND SYSTEM.
AMP	VOICE EVAC AMPLIFIER PANEL.
ANN	FIRE ALARM ANNUNCIATOR. PROVIDE FLUSH MOUNTING TRIM FOR DEVICE RECESS MOUNTING.
DACT	DIGITAL ALARM COMMUNICATION TRANSMITTER
FATC	FIRE ALARM TERMINAL CABINET.
KNOX	KNOX BOX
E.O.L.	END-OF-LINE RESISTOR.
ARP	AREA OF RESCUE POWER SUPPLY.
ARB	AREA OF RESCUE PHONE BASE.
RCB	AREA OF RESCUE CALL BOX.
AOR	AREA OF RESCUE DIRECTIONAL SIGNAGE.

NOTES:
1. LOW VOLTAGE/ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS & MOUNTING HEIGHTS OF ALL LOW VOLTAGE DEVICES WITH OWNER/ARCHITECT BEFORE ROUGH-IN.
2. ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THIS PROJECT.

LOW VOLTAGE LIGHTING CONTROL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
$LV	LOW VOLTAGE WALL ON/OFF SWITCH, MOUNT 48" AFF	MS1	DUAL TECHNOLOGY CEILING MOUNTED 360° MOTION SENSOR.
$LV2	LOW VOLTAGE WALL SWITCH 2 BUTTON, MOUNT 48" AFF	MS2	WALL/CEILING MOUNTED MOTION SENSOR. NORMAL RANGE WIDE BEAM, DIRECTIONAL
$LV3	LOW VOLTAGE WALL SWITCH 3 BUTTON, MOUNT 48" AFF	MS3	WALL/CEILING MOUNTED MOTION SENSOR. LONG-RANGE NARROW BEAM, DIRECTIONAL
$LV4	LOW VOLTAGE WALL SWITCH 4 BUTTON, MOUNT 48" AFF	DS	CEILING MOUNTED DAYLIGHT SENSOR.
$LV8	LOW VOLTAGE WALL SWITCH 8 BUTTON, MOUNT 48" AFF	RC1	0-10V ROOM DIMMING CONTROLLER (1 SWITCHLEG).
$DM	LOW VOLTAGE DIMMER SWITCH, MOUNT 48" AFF	RC2	0-10V ROOM DIMMING CONTROLLER (2 SWITCHLEGS).
$P	LOW VOLTAGE WALL SWITCH PIR OCCUPANCY SENSOR, MOUNT 48" AFF	RC3	ON/OFF ROOM CONTROLLER (1 SWITCHLEG).
$LD	LOW VOLTAGE WALL SWITCH DUAL TECH. OCCUPANCY SENSOR, MOUNT 48" AFF	RC4	ON/OFF ROOM CONTROLLER (2 SWITCHLEGS).
		RC5	FORWARD PHASE DIMMING CONTROLLER (1 SWITCHLEG).
		RC6	FORWARD PHASE DIMMING CONTROLLER (2 SWITCHLEGS).
		LC1	ON/OFF LOAD CONTROLLER (1 SWITCHED) .

NOTES:
1. CONTROLS ARE INDICATED SCHEMATICALLY AND DIAGRAMMATICALLY, ELECTRICAL CONTRACTOR SHALL VERIFY REQUIRED LOCATIONS & MOUNTING HEIGHTS OF ALL LIGHTING CONTROLS PRIOR TO ROUGH-IN WITH MANUFACTURERS WRITTEN INSTALLATION MANUALS AND INSTRUCTIONS.
2. COORDINATE AND PROVIDE MOTION SENSOR MINIMUM DISTANCE FROM HVAC REGISTERS WITH MANUFACTURERS LITERATURE.
3. ALL ROOM CONTROLLERS SHALL BE MOUNTED IN AN ACCESSIBLE CEILING SPACE AS REQUIRED, UNLESS OTHERWISE NOTED.
4. MANUFACTURERS SHOWN IN THIS LEGEND ARE "BASIS OF DESIGN" AND "OR EQUAL" DEVICES MAY BE SUBMITTED FOR APPROVAL.

CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ALL PROPER ADJUSTMENTS TO ASSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.

ABBREVIATIONS LEGEND

SYMBOL	DESCRIPTION
AFF/AFG	ABOVE FINISHED FLOOR / ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
CU	CONDENSING UNIT
EF	EXHAUST FAN
GFI	GROUND FAULT INTERRUPTER
ETR	EXISTING TO REMAIN.
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
LC	LOCKING COVER
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
TR	TAMPER RESISTANT
UON	UNLESS OTHERWISE NOTED
WP	WEATHER PROOF
	EMERGENCY GENERATOR SHUTOFF PUSH-BUTTON
NAC	NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT CLASS B (ADDRESSABLE LOOP)
SLC (A)	SIGNALING LINE CIRCUIT CLASS A (ADDRESSABLE LOOP)
IDC	INITIATING DEVICE CIRCUIT (CONVENTIONAL LOOP)
CD	CANDELA RATING
W	WALL MOUNTED DEVICE
C	CEILING MOUNTED DEVICE
X Y	"X"= HP" Y"= PHASE

NOTES:
1. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS & MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES WITH OWNER/ARCHITECT BEFORE ROUGH-IN. MOUNTING HEIGHTS ARE MEASURED TO CENTER OF BOX.
2. ALL RECEPTACLES & SWITCHES SHALL BE ARCH/DECORA TYPE WITH MATCHING FACE PLATES. COOR. FINAL COLOR WITH ARCH. PRIOR TO ORDERING
3. ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THIS PROJECT.
4. MANUFACTURERS SHOWN IN THIS LEGEND ARE "BASIS OF DESIGN" AND "OR EQUAL" DEVICES MAY BE SUBMITTED FOR APPROVAL.

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL LEGENDS

SHEET NUMBER:
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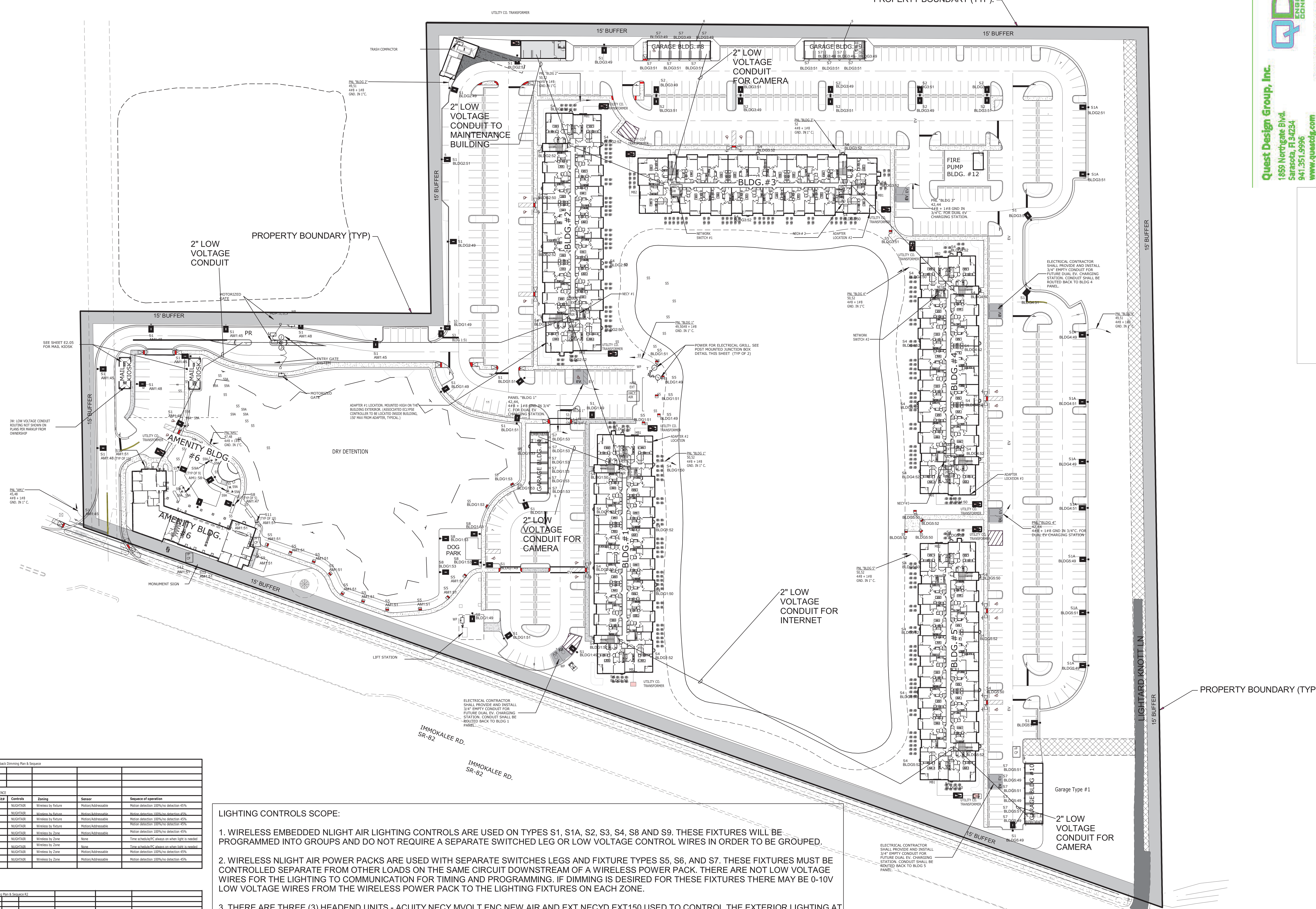

nAIR EXT.	PRODUCT LEGEND nAir EXT NECYD EXT 150 ADAPTER, 150-FOOT, USB TO CAT6 INCLUDES 120VAC POWER ADAPTER AND CAT6 TO USB CONVERTERS.
nECY AIR	nECY AIR NECY MVOLT EN C NW AIR nLIGHT ECLPSE, 120-277V, ENCLOSURE FOR nLIGHT ECLYPSE, NO WIFI,AIR
ra$ 2PD	ra$ 2PD RPODBA 2P DX XX G2 nLIGHT PRESET WALL CONTROL, 2-POLE, RAISE/LOWER DIMMING GENERATION TWO
rP CP	rP CP RPP20 24V EFP CP G2 nLIGHT AIR POWER/RELAY PACK. NETWORKED VERSION, 24 VOLT OUTPUT. EXTERNAL FAULT PROTECTION, CHICAGO PLENUM, GENERATION TWO
NETH SW	NETH SWITCH NETHSWETHERNET SWITCH

Milhaus SR82 Site Lighting -Setback Dimming Plan & Sequece

NOTES FOR WIRING AND SEQUENCE

Fixture Type	Circuit#	Controls	Zoning	Sensor	Sequece of operation
S1		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S2		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S3		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S4		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S5		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%
S6		NUGHTAIR	Wireless by Zone	None	Time schedule/PC always on when light is needed
S7		NUGHTAIR	Wireless by Zone	None	Time schedule/PC always on when light is needed
S8		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%
S9		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%

Milhaus SR82 Site Lighting -Setback Dimming Plan & Sequece R2

DATE 11.07.2022

LOAD CALCULATION

Fixture Type	Load (W)	Controls	Qty	Total Type Load	Watts when dimmed 55%(45% on)	Sensor	Sequence
S1	102	NUGHTAIR	27	2754	1514.7	Motion/Addressable	Motion detection 100%/no detection 45%
S2	102	NUGHTAIR	9	918	504.9	Motion/Addressable	Motion detection 100%/no detection 45%
S3	204	NUGHTAIR	6	1224	673.2	Motion/Addressable	Motion detection 100%/no detection 45%
S4	204	NUGHTAIR	1	204	112.2	Motion/Addressable	Motion detection 100%/no detection 45%
S5	138	NUGHTAIR	48	6624	3643.2	Motion/Addressable	Motion detection 100%/no detection 45%
S6	17.4	NUGHTAIR	13	226.2		None	Time schedule/PC always on when light is needed
S7	10.6	NUGHTAIR	24	254.4		None	Time schedule/PC always on when light is needed
S8	115	NUGHTAIR	10	1160	638	Motion/Addressable	Motion detection 100%/no detection 45%
S9	54	NUGHTAIR	8	432	237.6	Motion/Addressable	Motion detection 100%/no detection 45%
					7323.3		
				13796.6	**6898.3**		Dim by 55%for all NUGHTAIRto comply
				100% OF SITE LOAD FOR REFERENCE	GOAL 50%OF SITE LOAD REQUIRED FOR SETBACK		

LIGHTING CONTROLS SCOPE:

1. WIRELESS EMBEDDED NLIGHT AIR LIGHTING CONTROLS ARE USED ON TYPES S1, S1A, S2, S3, S4, S8 AND S9. THESE FIXTURES WILL BE PROGRAMMED INTO GROUPS AND DO NOT REQUIRE A SEPARATE SWITCHED LEG OR LOW VOLTAGE CONTROL WIRES IN ORDER TO BE GROUPED.

2. WIRELESS NLIGHT AIR POWER PACKS ARE USED WITH SEPARATE SWITCHES LEGS AND FIXTURE TYPES S5, S6, AND S7. THESE FIXTURES MUST BE CONTROLLED SEPARATE FROM OTHER LOADS ON THE SAME CIRCUIT DOWNSTREAM OF A WIRELESS POWER PACK. THERE ARE NOT LOW VOLTAGE WIRES FOR THE LIGHTING TO COMMUNICATION FOR TIMING AND PROGRAMMING. IF DIMMING IS DESIRED FOR THESE FIXTURES THERE MAY BE 0-10V LOW VOLTAGE WIRES FROM THE WIRELESS POWER PACK TO THE LIGHTING FIXTURES ON EACH ZONE.

3. THERE ARE THREE (3) HEADEND UNITS - ACUITY NECY MVOLT ENC NEW AIR AND EXT NECYD EXT150 USED TO CONTROL THE EXTERIOR LIGHTING AT THIS SITE. THE NECY UNITS PROVIDE A TIME SCHEDULE, MAIN OVERRIDE AND OVERALL COORDINATION OF LIGHTING CONTROLS FOR ALL AREAS OF THE SITE. REFER TO THE PLANS TO INDENTIFY THE HEAD END UNITS. THEY SHALL BE PLACED IN A LOCKED AND SUPERVISED LOCATION (I.E. AN MDF, IDF, OR ELECTRICAL CLOSET). EACH OF THE HEAD END UNITS HAS A WIRELESS ANTENNA THAT SHALL BE WITHIN 125FT OF CABLE LENGTH FROM THE HEAD END UNIT TO THE EXTERIOR OF THE BUILDING. THIS ALLOWS THE WIRELESS SIGNAL TO SPAN THE ENTIRE PROJECT SITE.

4. THE THREE HEAD END UNITS SHALL BE TIED TOGETHER WITH NETWORK CABLE AND UNDERGROUND RACEWAYS PROVIDED TO CONNECT EACH LOCATION TOGETHER. AT TWO LOCATIONS AN ACUITY NETWORK SWITCH WILL BE USED TO LINK THE SYSTEM TOGETHER ACUITY SW NETHSW.

5. FOR QUESTIONS ON THE SPECIFICATION OF THESE LIGHTING CONTROLS CONTACT LINDSEY FIMEK AT KSA LIGHTING & CONTROLS 630-338-7308.

1 SITE PLAN Copy 2 Copy 1
1" = 50'-0"

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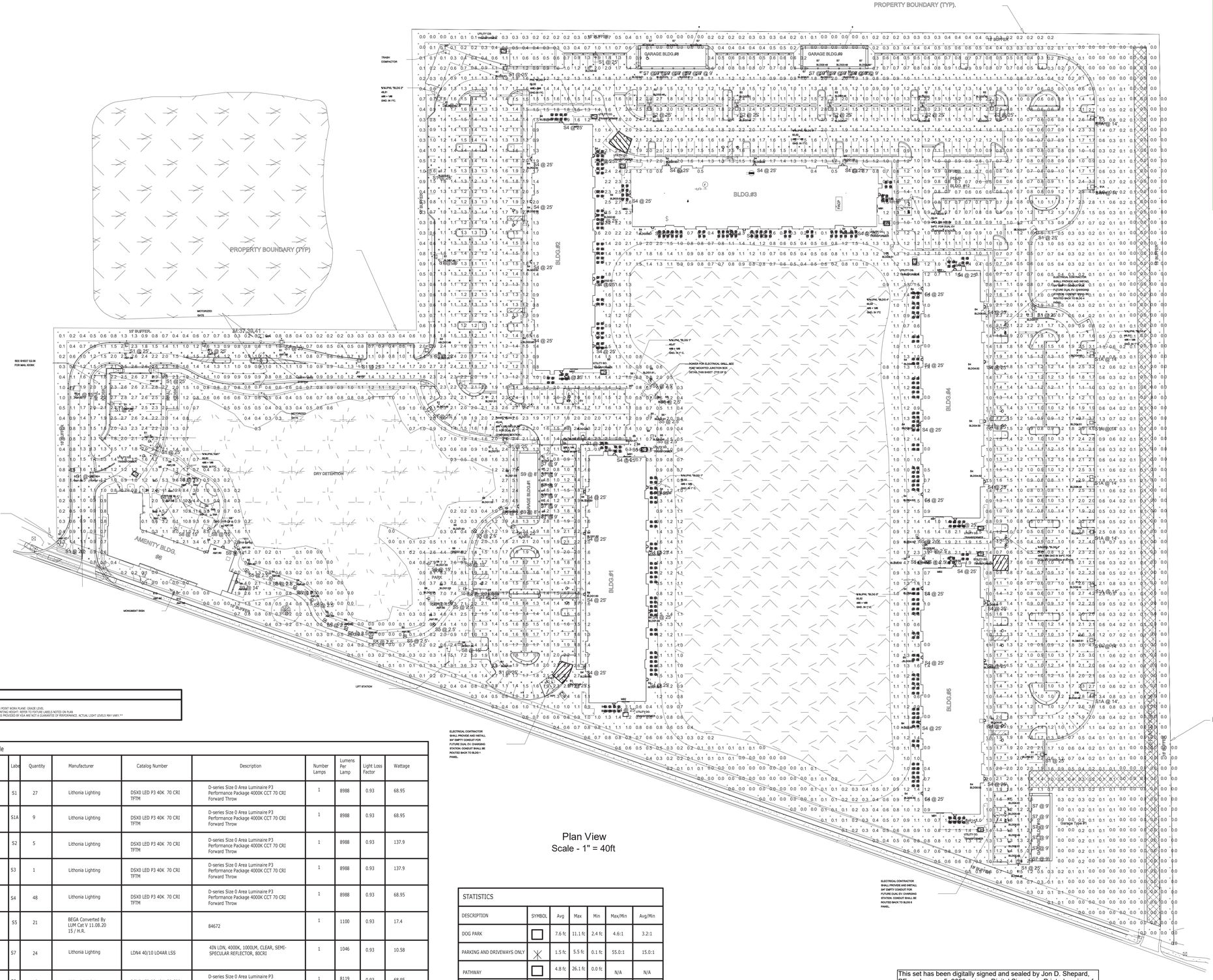
ELECTRICAL SITE PLAN

SHEET NUMBER:
RE1.00



Plan View
Scale - 1" = 40ft

NOTES

1. CALCULATION POINT WORK PLANE: GRADE LEVEL
2. FUTURE MOUNTING HEIGHT: REFER TO FIXTURE LABELS NOTED ON PLAN
3. CALCULATIONS PROVIDED BY KSA MAY NOT A GUARANTEE OF PERFORMANCE. ACTUAL LIGHT LEVELS MAY VARY. **

Schedule

SYMBOL	Label	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	27	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S1A	9	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S2	5	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S3	1	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S4	48	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S5	21	BEGA Converted By LUM Cat V 11.08.20 15 / H.R.		84672	1	1100	0.93	17.4
	S7	24	Lithonia Lighting	LDN4 40/10 LO4AR LSS	4IN LDN, 4000K, 1000LM, CLEAR, SEMI-SPECULAR REFLECTOR, 80CRI	1	1046	0.93	10.58
	S8	10	Lithonia Lighting	DSX0 LED P3 40K 70 CRI T4LG	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Type 4 Low G Rating	1	8119	0.93	68.95
	S9	4	Lithonia Lighting	DSX0 LED P2 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Forward Throw	1	6316	0.93	45.14

STATISTICS

DESCRIPTION	SYMBOL	Avg	Max	Min	Max/Min	Avg/Min
DOG PARK		7.6 fc	11.1 fc	2.4 fc	4.6:1	3.2:1
PARKING AND DRIVEWAYS ONLY		1.5 fc	5.5 fc	0.1 fc	55.0:1	15.0:1
PATHWAY		4.8 fc	26.1 fc	0.0 fc	N/A	N/A
POOL AREA		7.2 fc	13.1 fc	0.0 fc	N/A	N/A
ALL CALC POINTS		1.1 fc	36.7 fc	0.0 fc	N/A	N/A

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PROFESSIONAL ENGINEER
01-05-2023
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PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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I HEREBY CERTIFY THAT TO THE BEST OF THE ARCHITECT'S OR ENGINEER'S KNOWLEDGE AND ABILITY, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE FLORIDA BUILDING CODES.

MILHAUS SR82

MILHAUS

SR-82

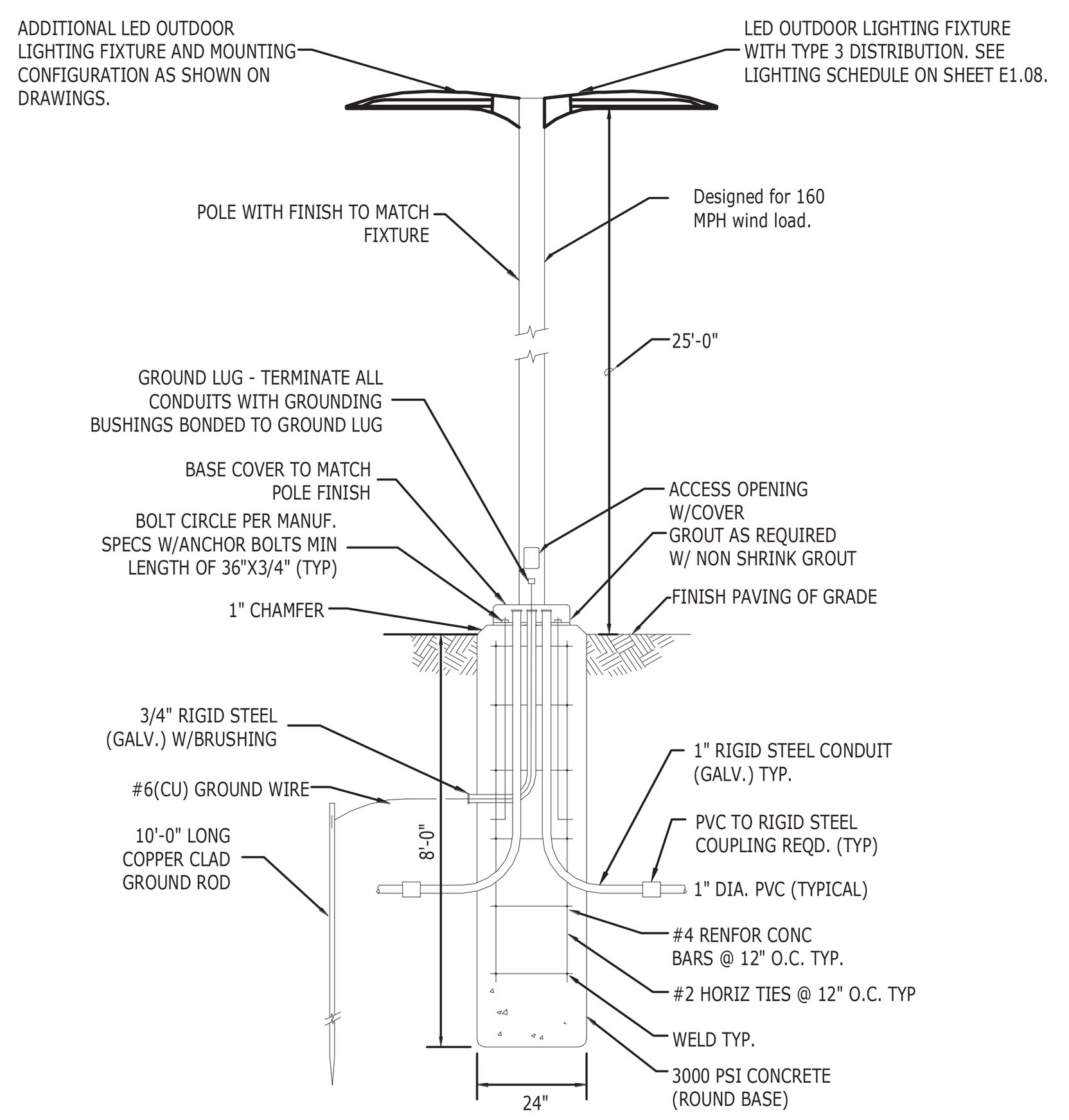
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

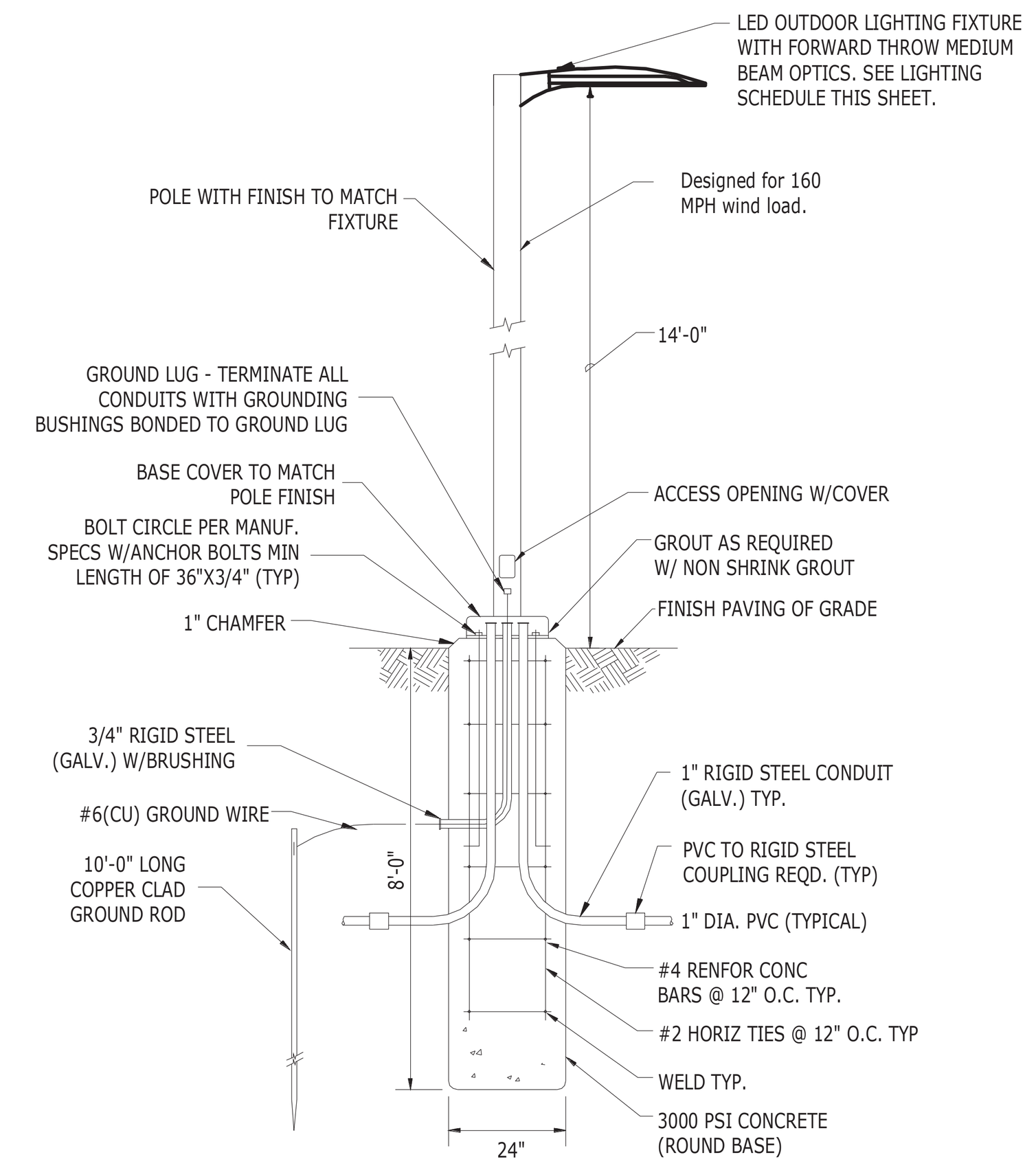
SITE PHOTOMETRIC PLAN

SHEET NUMBER:
RE1.01

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG AT THIS SHEETS ORIGINAL PAGE SIZE



2 FIXTURE "S1",&,"S3" POLE BASE DETAIL
NO SCALE:



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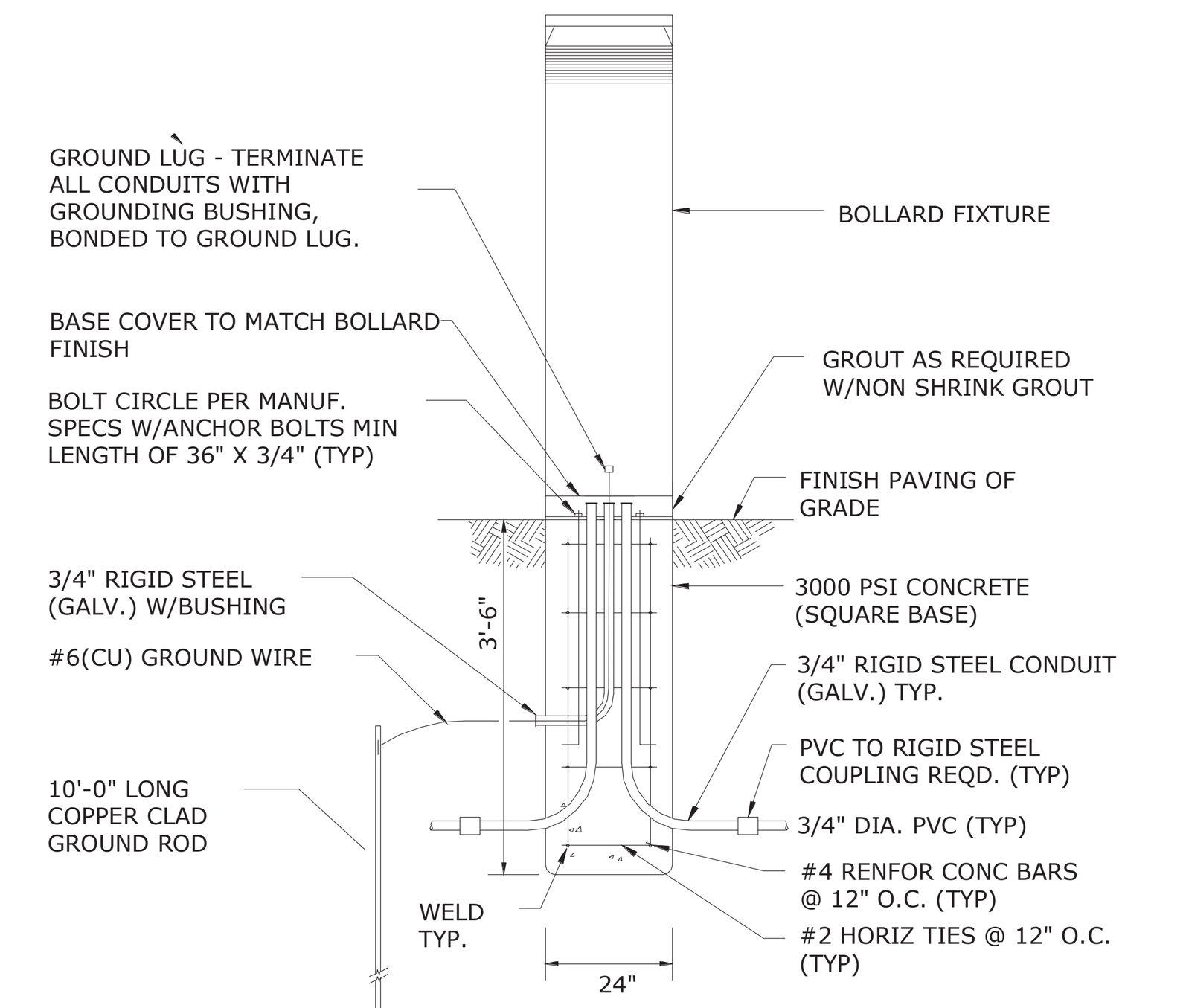

5 FIXTURE "S5" BOLLARD BASE DETAIL
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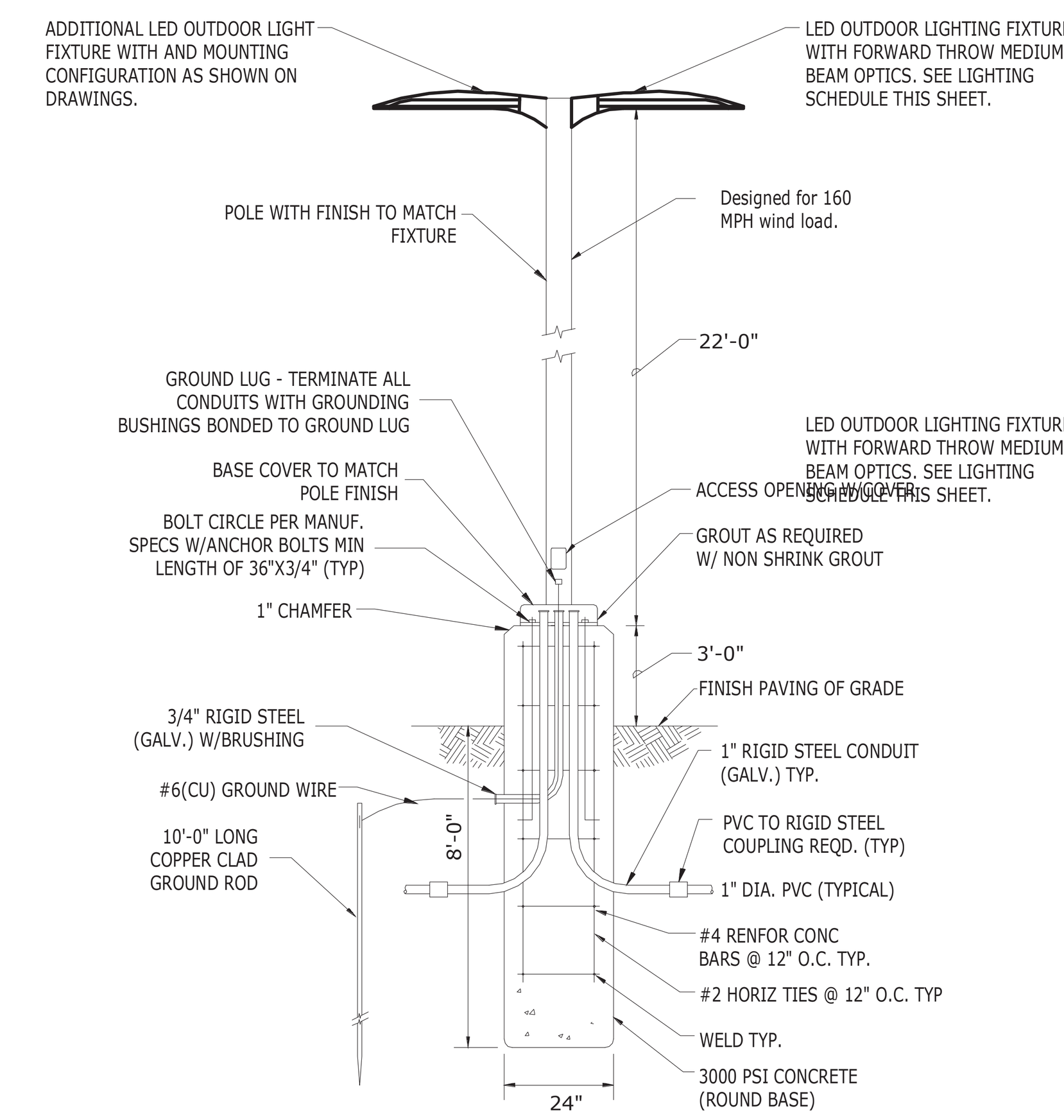

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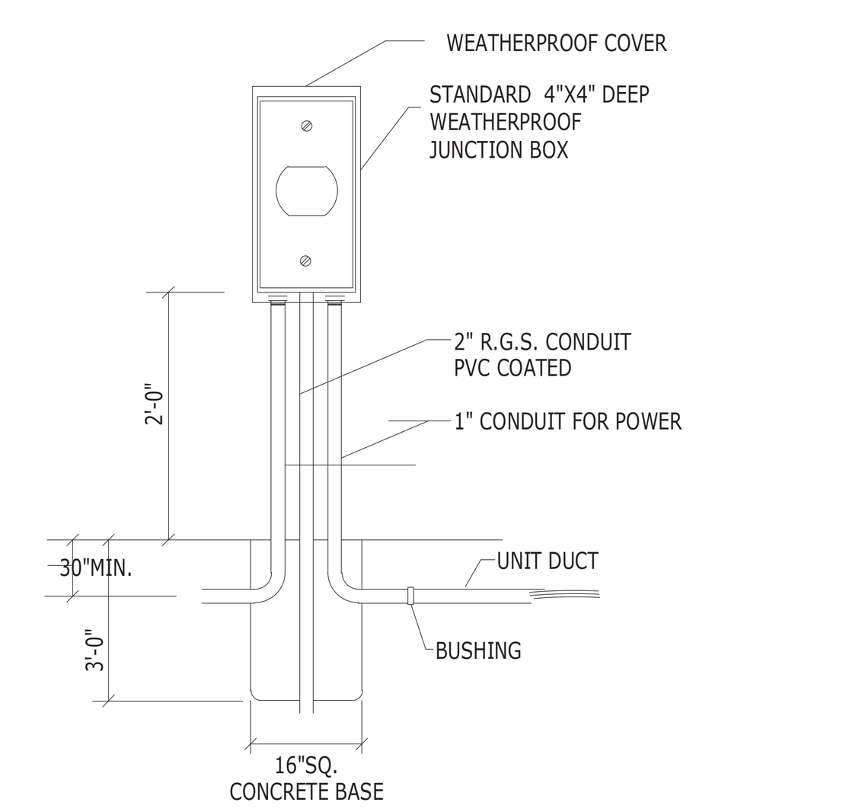

7 POST MOUNTED JUNCTION DETAIL
N.T.S.

QUEST DESIGN GROUP INC — HIGHWAY SR82 : EXTERIOR LIGHT FIXTURE SCHEDULE

FIXTURE IMAGE	TYPE	DESCRIPTION	MANUFACTURER / MODEL #	APPROVED EQUAL MANUFACTURE	LAMP	WATTS	VOLTAGE	NOTES
	S1	LOW PROFILE LED LIGHT FIXTURE WITH 12,575 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 25'-0" A.F.G ON AN 25'-0" SSS 5" POLE	Lithonia DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS25 5G DM19 DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	102	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S1A	LOW PROFILE LED LIGHT FIXTURE WITH 12,575 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 14'-0" A.F.G ON AN 14'-0" SSS 5" POLE	Lithonia DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS14 5G DM19 DDBXD	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	102	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S2	SAME AS ABOVE WITH TWIN HEADS AT 180 DEGREE	Lithonia (2) DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS25 5G DM28 DDBXD	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	204	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S3	SAME AS ABOVE WITH TWIN HEADS AT 90 DEGREE	Lithonia (2) DSX1 LEDP3 40K TFTM MVOLT SCO.KSA -SSS25 5G DM29 DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	204	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S4	LOW PROFILE WALL MOUNTED LED LIGHT FIXTURE WITH 15,830 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 24'-0" A.F.G	Lithonia DSX1LEDP5 40K TFTM MVOLT SCO.KSA WBA DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	73	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S5	13 X 31 X 4 LED ONE PIECE EXTRUDED ALUMINUM WITH A ONE-PIECE DIE-CAST ALUMINUM TOP HOUSING BOLLARD WITH ASYMMETRICAL SHIELD LIGHT DISTRIBUTION	BEGA 84-672 SCO.KSA		30K LED	12.3	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S6	LOW PROFILE 12" ROUND LED PEDNDENT MOUNTED LUMINAIRE WITH SYMMETRIC WIDE BEAM DISTRIBUTION. MOUNTED ON 6" PENDENT.	LUMARK LIGHTING- RPGC25-MS/DIM-L20 SCO.KSA		LED	63.0	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S7	4" ROUND LED WET LOCATION LISTED WITH POLYCARBONATE LENS WITH MATTE WHITE FINISH.	Lithonia LDN4-40/10- LO4AR- SCO.KSA-LSS		LED	10.5	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S8	LOW PROFILE LED LIGHT FIXTURE WITH 11630 LUMENS AND SYMMETRIC TYPE V DISTRIBUTION MOUNTED14'-0" A.F.G ON AN 14'-0" SSS 5" POLE	Lithonia DSX0 LED P3 40K T5W MVOLT SCO.KSA -SSS14 5G DM19 DDBXD NL TAIR	KIM -ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	71	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S9	LOW PROFILE, WALL MOUNTED LED LIGHT FIXTURE WITH 6780 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 14'-0" A.F.G	LITHONIA DSX1 LEDP3 40K TFTM MVOLT SCO.KSA WBA DDBXD NL TAIR	KIM -ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	56	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S10							PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S11	SEE LANDSCAPING DRAWINGS SHEET H-08 DETAIL #1 FOR FIXTURE CUT AND DESCRIPTION.	LITHONIA KBR8 LED-16C-700-40K-SYM- MVOLT-DDBXD		40K LED	39	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S12	SEE LANDSCAPING DRAWINGS SHEET H-08 DETAIL #1 FOR FIXTURE CUT AND DESCRIPTION.	VISTA -1045-DZ-NS-35-B- MV-ND		35K LED	23	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505

Schedule

Fixture Type	Circuit#	Controls	Zoining	Sensor	Sequence of Operation
S1	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S1A	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S2	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S3	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S4	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S5	NONE	NONE		None	Time schedule/PC always on when light is needed
S7	NONE	NONE		None	Time schedule/PC always on when light is needed
S8	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S9	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%

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01-05-2023
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PE 0071536

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MILHAUS.

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

SITE PLAN DETAILS

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SHEET NUMBER:
RE1.02

D-Series Size 1
LED Area Luminaire

Specifications
EPA: 1.01 ft²
Length: 33"
Width: 13"
Height H1: 7-1/2"
Height H2: 3-1/2"
Weight (max): 27 lbs

Introduction
The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

1 FIXTURE TYPE "S1","S2" & "S3

D-Series Size 1
LED Wall Luminaire

Specifications
Luminaire
Width: 13-3/4" Weight: 12 lbs
Depth: 10"
Height: 6-3/8"

Back Box (BBW, E20WC)
Width: 13-3/4" BBW Weight: 5 lbs
Depth: 4" E20WC Weight: 10 lbs
Height: 6-3/8"

Introduction
The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

2 FIXTURE TYPE "S4"

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LED bollards with asymmetrical shielded light distribution

Post construction: One-piece extruded aluminum with a one-piece die-cast aluminum top housing and base internally welded into an assembly. Die-castings are marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy.

Enclosure: Two piece die-cast aluminum optical enclosure secured to bollard post by two (2) mechanically captive stainless steel screws threaded into stainless steel inserts. White safety glass. Reflector made of puure anodized aluminum. Fully gasketed for weather tight operation using molded silicone gasket.

Electrical: 14.5 total luminaire system watts, 12.3W LED, -30°C start temperature, Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with a >80 CRI. Available in 4000K (>80 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Anchor base: Heavy galvanized steel mounting base, slotted for precise alignment. Mounts to BEGA 79 825 anchorage kit. Bollard secures to base with two (2) stainless steel set screws.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 26.7 lbs

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

3 FIXTURE TYPE "S5"

Project		Catalog #		Type	
Prepared by		Notes		Date	

Lumark
RPGC
Parking Garage / Canopy Luminaire

Product Features

Interactive Menu
- Ordering Information page 2
- Product Specifications page 2
- Energy and Performance Data page 3
- Control Options page 3

Product Certifications

Quick Facts
- Low profile, die cast aluminum housing
- Round drop lens provides uplight to eliminate dark ceilings
- Selectable lumen switch provides 30W to 60W (3,700-7,800 lumens) selectability
- Maximize energy savings with efficacies up to 125 lumens per watt
- Replaces 150W up to 250W HID equivalents
- Easy installation with quick-mount bracket for hands-free wiring

Connected Systems
- WaveLinx Lite

Dimensional Details

4 FIXTURE TYPE "S6"

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS

Wafer LED Recessed Downlight
WF4
4" LED Switchable White Color Temperature
IC/Non-IC
New Construction/Remodel

5 FIXTURE TYPE "S7"

D-Series Size 0
LED Area Luminaire

Specifications
EPA: 0.95 ft²
Length: 26"
Width: 13"
Weight (max): 16 lbs

Introduction
The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Ordering Information EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

6 FIXTURE TYPE "S8"

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QDG ENGINEERING CONNECTIONS
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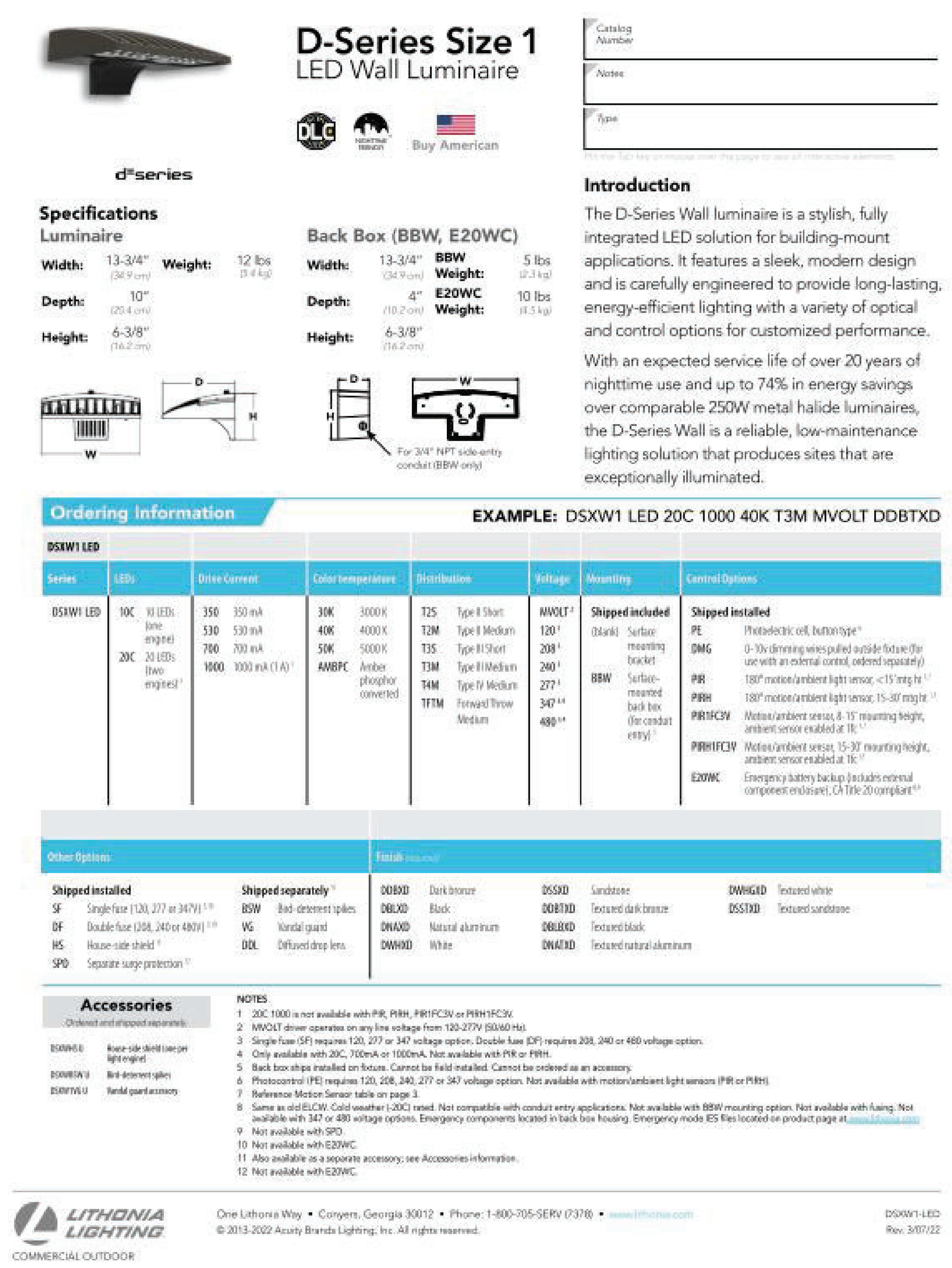
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

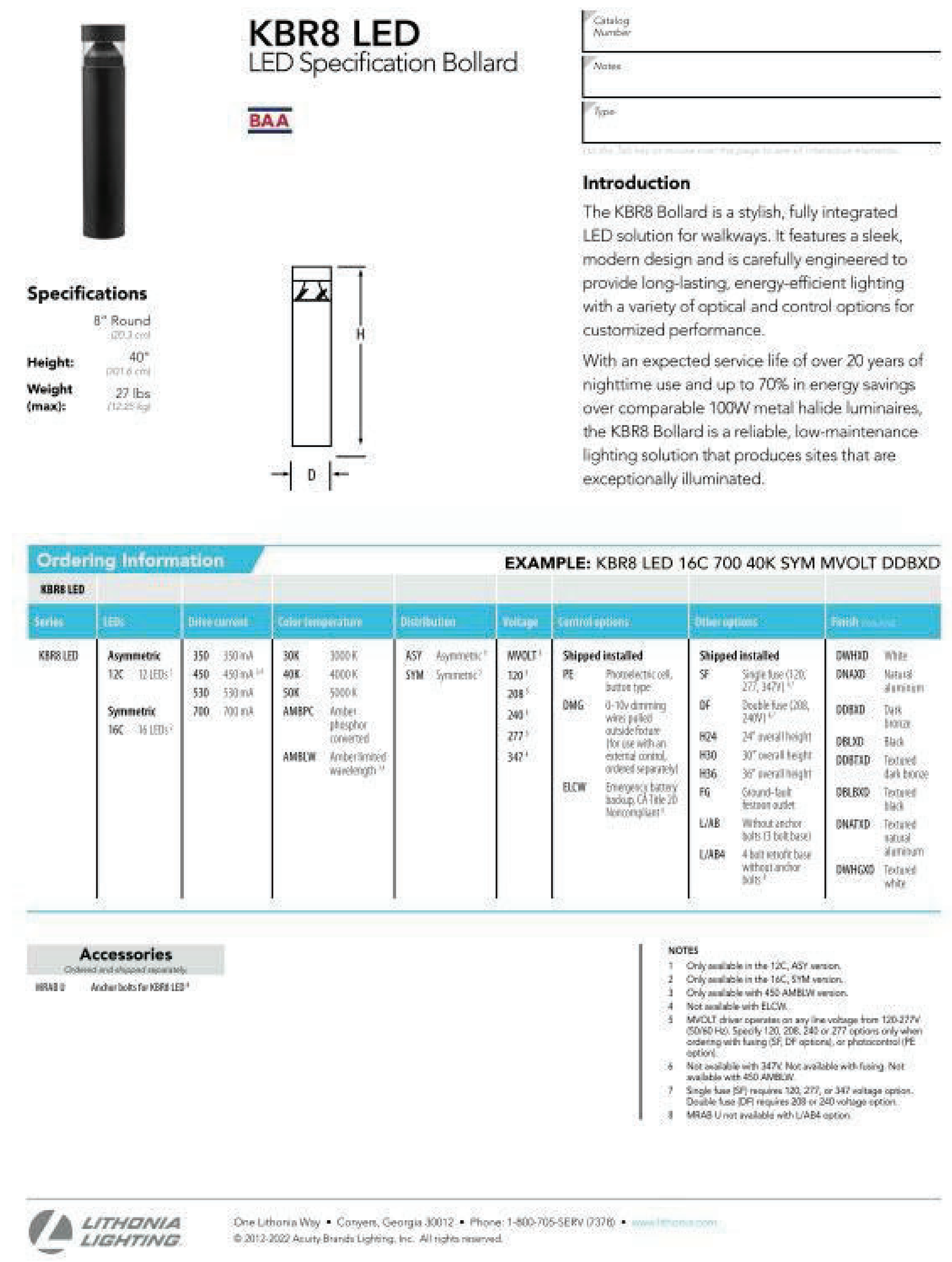
PROJECT NO:
220035.00

SITE LIGHTING CUT-SHEETS PLAN

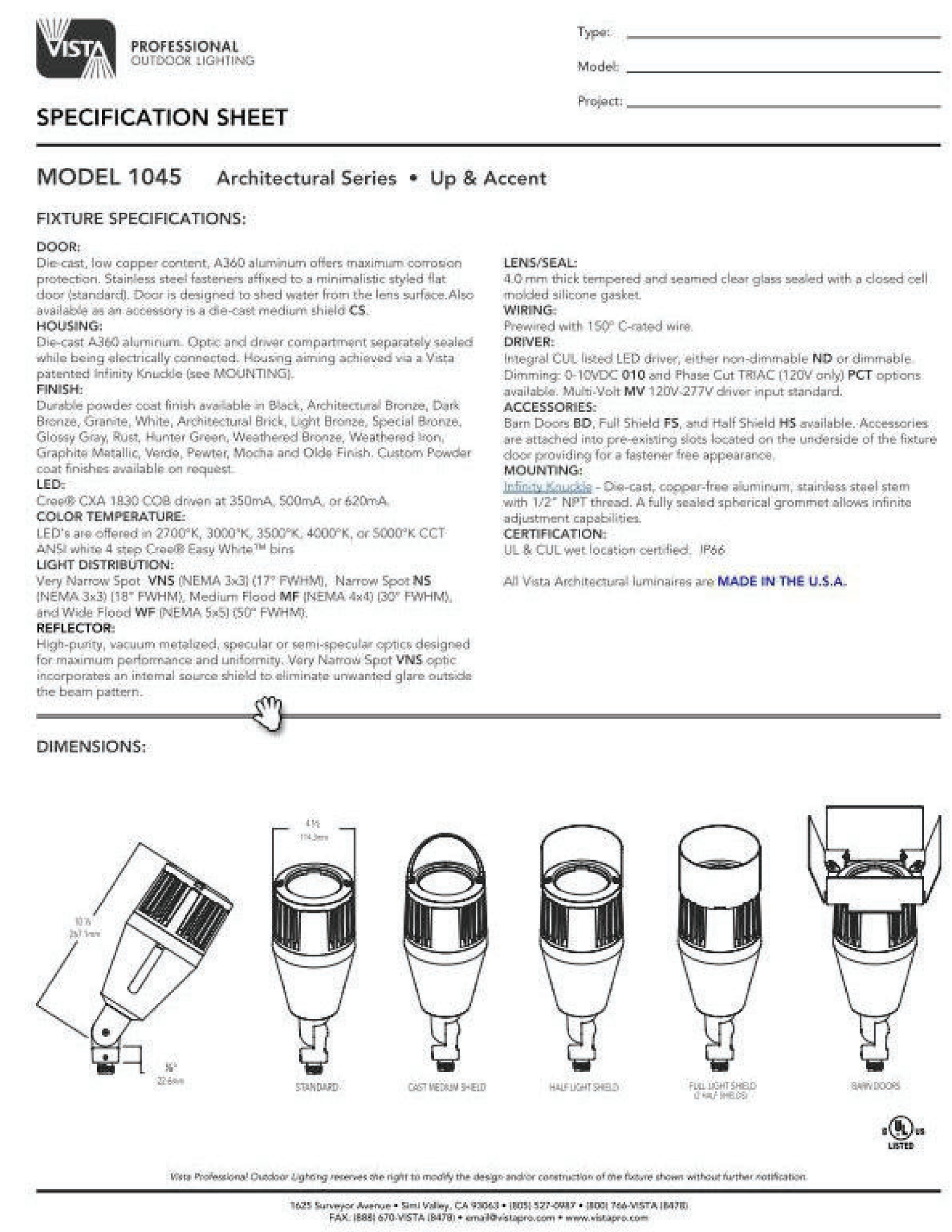
SHEET NUMBER:
RE1.03



(1) FIXTURE TYPE "S9"



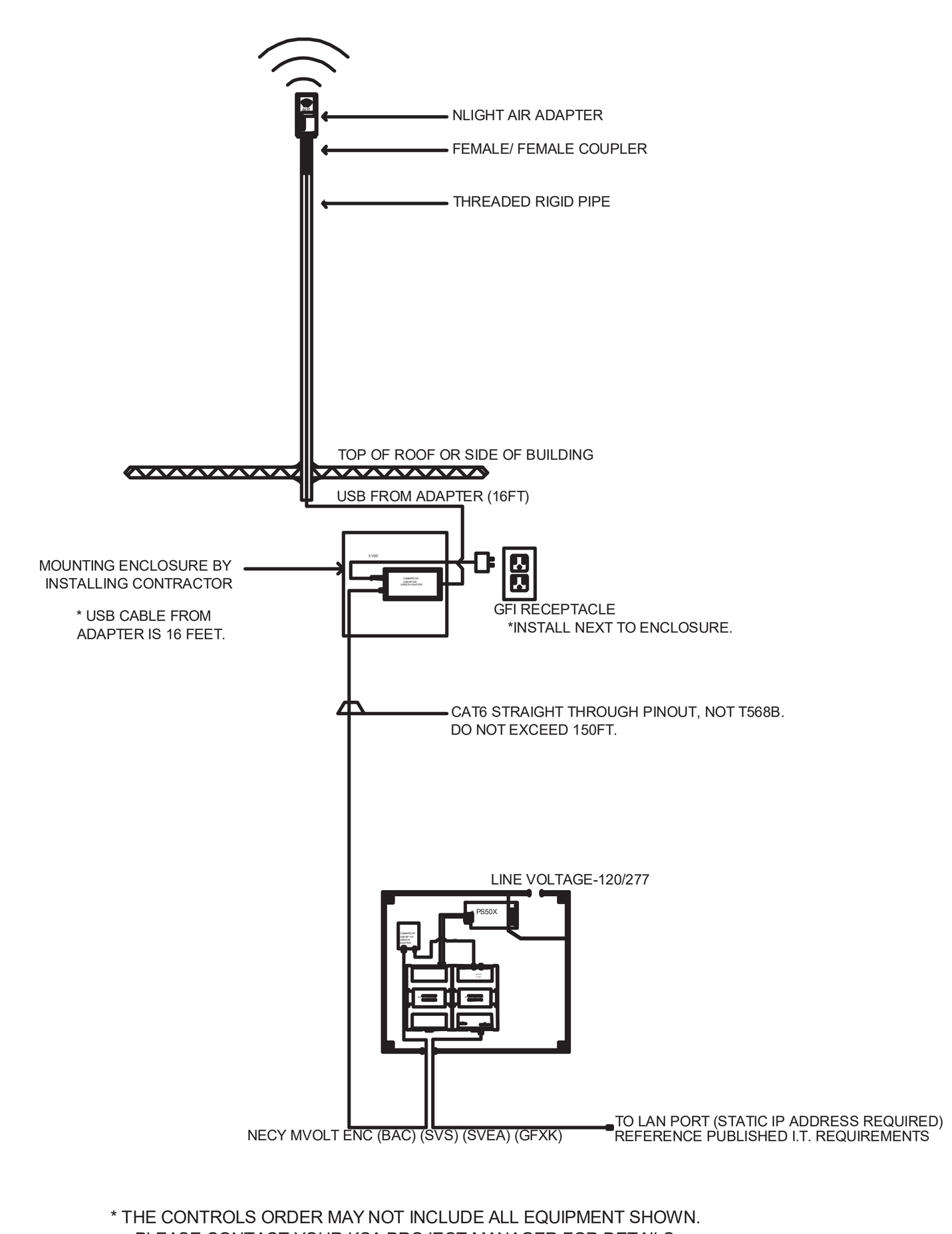
(2) FIXTURE TYPE "S11"



(3) FIXTURE TYPE "S12"

nLight Air System Notes
ALL NETWORKED NLIGHT AIR DEVICES MUST BE LOCATED WITHIN 400 FEET OF AN NECLYPSE WIRELESS ADAPTER FOR INDOOR APPLICATIONS, AND 1000 FEET FOR OUTDOOR APPLICATIONS. AN NECLYPSE WIRELESS ADAPTER CAN SUPPORT 750 DEVICES TOTAL. STANDALONE NLIGHT AIR GROUPS CAN CONTAIN 128 NLIGHT AIR DEVICES, AND ALL DEVICES MUST BE LOCATED WITHIN 400 FEET OF THE GROUP MONITOR. ADAPTER LOCATIONS ARE SUBJECT TO CHANGE PENDING RELATIVE BUILDING HEIGHTS. ALL NLIGHT AIR WALL SWITCHES INCLUDE AN INTERNAL BATTERY, RATED FOR A 10 YEAR LIFE EXPECTANCY. NLIGHT AIR DEVICES MUST BE COMMISSIONED THROUGH THE CLARITY MOBILE APP BEFORE THEY CAN BE CONTROLLED. STARTUP FOR THIS SYSTEM REQUIRES AN ACUITY TRAINED TECHNICIAN. PROGRAMMING MAY BE PHASED, REQUIRING MULTIPLE VISITS, AND FINAL NETWORK MIGRATION WILL TAKE PLACE WHEN INSTALLATION IS COMPLETE FOR ALL ECLYPSE CONTROLLERS AND ADAPTERS. ADAPTER LOCATIONS ARE SUBJECT TO CHANGE PENDING RELATIVE BUILDING HEIGHTS.

nLight Air System Notes
EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT EANABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM SHEET, OR THE LIGHTING CONTROL LAYOUT SHEET, PROVIDED AS PART OF AN NLIGHT SUBMITTAL. THIS SHALL BE DONE DURING INSTALLATION AND PRIOR TO FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID STICKERS ON FLOOR PLAN UNLESS REQUIRED TO EXECUTE NFLOORPLAN SERVICES, REFERENCE NFLOORPLAN SERVICE NOTES ON THIS SHEET FOR SPECIFIC REQUIREMENTS. ONE RELAY PACK OR NLIGHT ENABLED FIXTURE IS NEEDED PER CIRCUIT/ZONE TO BE CONTROLLED AND CAN RESIDE WITHIN SENSORS, WALLPODS, OR RELAY PACKS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY; FINAL PLACEMENT IS UP TO DISCRETION OF CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF RELAYS NEEDED TO SWITCH ALL DESIRED LOADS. BRIDGES, RELAYS, POWER PACKS, WALLPODS, AND SENSORS ON DRAWINGS WERE PLACED WITH INFORMATION PROVIDED AT TIME OF DESIGN. ADDITIONAL BRIDGES AND/OR SENSORS MAY BE REQUIRED DEPENDING ON BUILDING CHANGES, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT. THE LAYOUT OF THE NETWORK BACKBONE (BRIDGES AND GATEWAYS) HAS BEEN PLACED IN A SEPARATE TREE DIAGRAM AND NOT ON THE ACTUAL LAYOUT. FINAL PLACEMENT OF THE BRIDGE(S) AND GATEWAY(S) DEVICES SHALL BE AT THE CONTRACTOR/ENGINEER DISCRETION. ALL DEVICES HAVE RJ-45 FEMALE PORTS. MAKING NETWORK CONTROL CABLES IS REQUIRED, T568B TERMINATIONS ARE RECOMMENDED. IT IS IMPERATIVE THAT ALL NETWORK CONTROL CABLES BE TESTED WITH A LAN CABLE TESTER TO VERIFY PROPER TERMINATIONS. DAISY-CHAINED DEVICES SHOULD BE POWERED UP AND WORKING ON DEFAULT PROGRAMMING PRIOR TO CONNECTION TO BRIDGE OR GATEWAYS. LOW VOLTAGE NETWORK CONTROL CABLE (CAT5/5E/6) RUNS FOR LOCAL ZONES, HOMERUNS AND BACKBONE SHOULD BE WHITE WITH CABLES LABELED. CONTRACTOR TO VERIFY BLINK/DIAGNOSTIC CODES (VISIT HTTP://NLIGHTCONTROLS.COM/WP-CONTENT/UPLOADS/NLIGHT_POCKET_GUIDE.PDF) WHEN CONNECTING GATEWAYS/BRIDGES TO ZONES. MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1500' INCLUDING HOMERUN TO BRIDGE DEVICE, IF PRESENT. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.



NECY AIR WITH NLIGHT AIR ANTENNA WIRING DIAGRAM

N.T.S.

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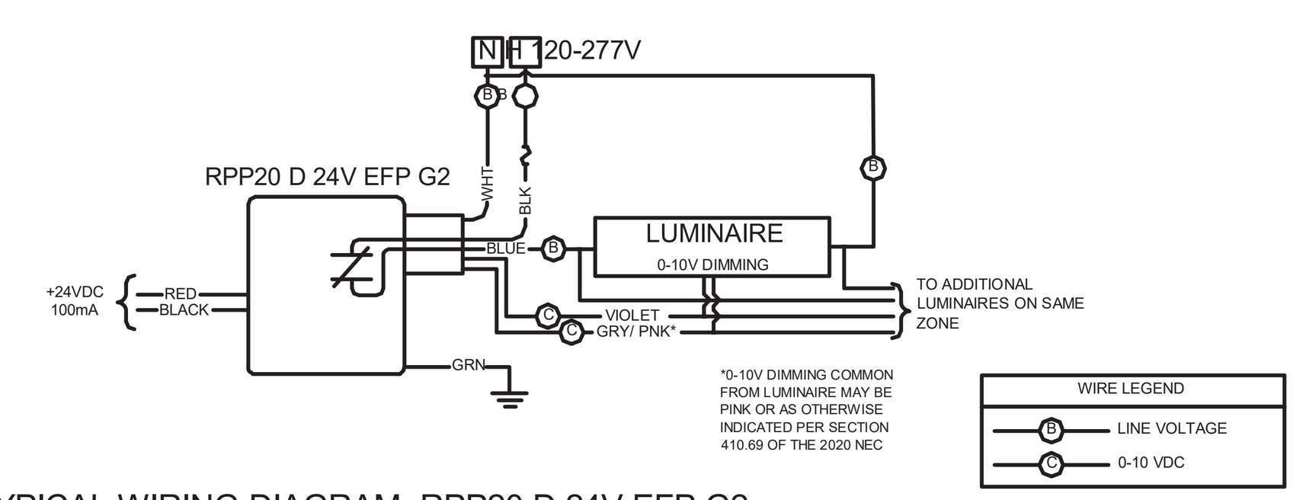

TYPICAL WIRING DIAGRAM: RPP20 D 24V EFP G2

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01-05-2023
Jon D. Shepard
PE 0071536

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△	DATE	SUBMISSION

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MILHAUS.

MILHAUS

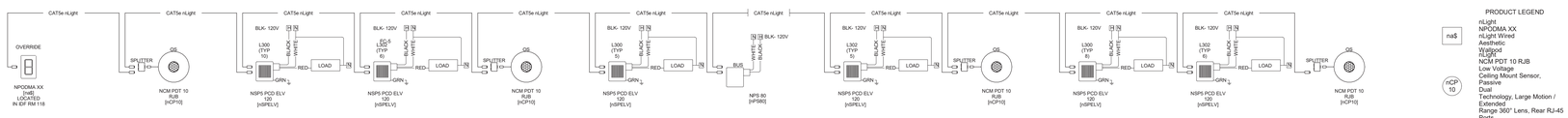
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

SITE LIGHTING CUT SHEETS

SHEET NUMBER:
RE1.04



PRODUCT LEGEND

naS	nLight NPODMA XX nLight Wired Aesthetic Wallpod nLight NOM POT 10 RJB Low Voltage Ceiling Mount Sensor, Passive Dual Technology, Large Motion / Extended Range 360° Lens, Rear RJ-45 Ports
nOP 10	
nDP ER	nLight NPP16 D ER EFP Power/Relay Pack, Dimming, UL924 Emergency Operation, External Fault Protection
nPS 80	nLight NPS 80 Power Supply, 80 mA
nSP ELV	nLight NSPS PCD ELV 120 Secondary Relay Pack, Phase Control Dimming, Electronic Low Voltage, 120V

LIGHTING NOTES

1. EMERGENCY EXIT AND EGRESS LIGHTS SHALL BE CONNECTED TO THE LOCAL LIFE SAFETY LIGHTING CIRCUIT SERVING THE SPACE AND LOCATED AHEAD OF ANY LIGHTING CONTROL PANEL SWITCHING AND LOCAL WALL SWITCHES. BRANCH CIRCUITS FEEDING EMERGENCY LIGHTS SHALL BE CLEARLY MARKED AT THE DISTRIBUTION PANEL.

2. CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ADDITIONAL COST TO THE OWNER IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM, THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.

3. SEE SITE PLAN E1.00 FOR EXTERIOR LIGHTS.

4. PROVIDE UN-SWITCHED HOT FROM SAME AREA NORMAL POWER SERVING LIGHTS TO EXIT AND EGRESS LIGHT FIXTURES BATTERY CHARGING CIRCUIT(S).

5. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN OUTLETS.

6. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L TO MAINTAIN THE WALL AND FLOOR ORIGINAL RATING.

7. FINAL LIGHTING LOCATIONS AND SELECTIONS TO BE DETERMINED BY ARCHITECT /INTERIOR DESIGNER.

8.FOR 120V BRANCH CIRCUITS , PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.

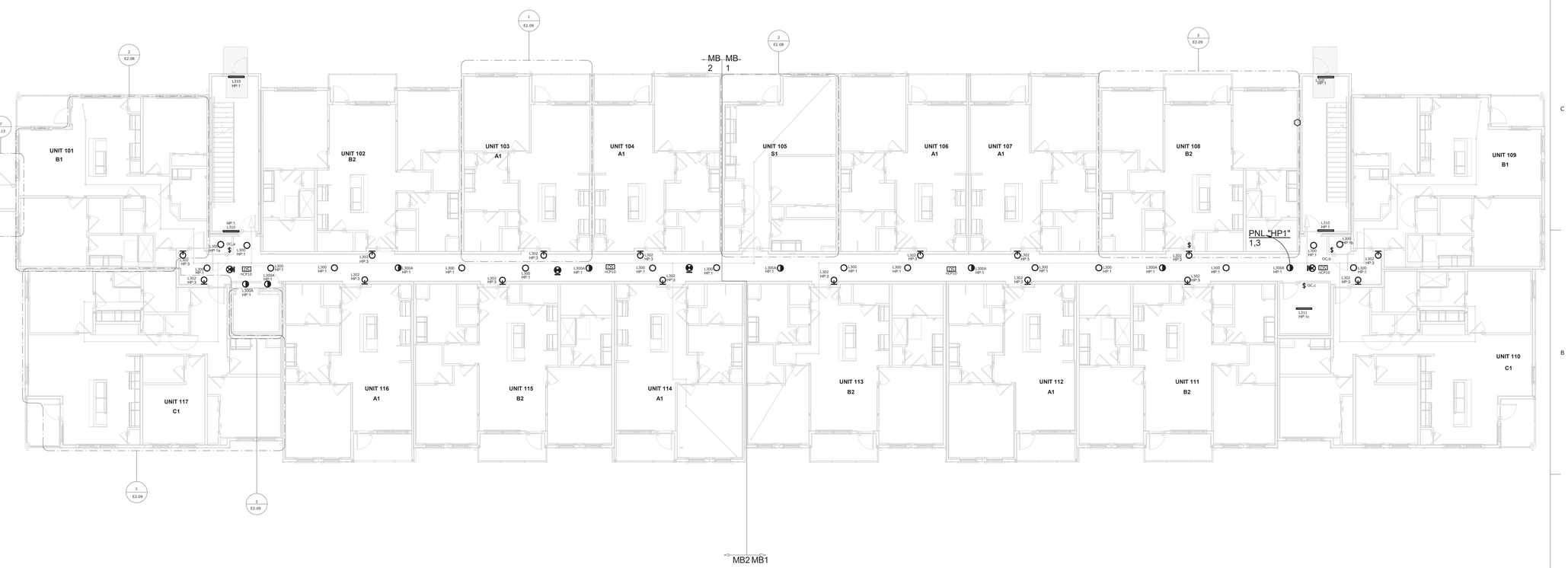
9. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPE ELEV AND V CONSTRUCTION IF JURISDICTION. PROVIDE M.C. CABLE OR IRI/EMT CONDUIT FOR PLENUM ROOMS OR SPACES. ACCEPTABLE TO LOCAL AUTHORITY HAVING.

10. SEE SHEETS E3.00 THROUGH E3.01 FOR TYPICAL UNIT PLANS.

11. THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLE ONLY. ALL BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKER IN PANELBOARD UNLESS OTHERWISE NOTED.

12. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" C. UNLESS OTHERWISE INDICATED.

LIGHTING SINGLE LINE DIAGRAM
NOT TO SCALE



1 BUILDING PLAN - BUILDING B3 - LEVEL 1 - LIGHTING
1/8" = 1'-0"

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MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

OVERALL LIGHTING FLOOR PLAN – LEVEL 1

SHEET NUMBER:
RE2.00

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ANSI D SHEETS ORIGINAL PAGE SIZE

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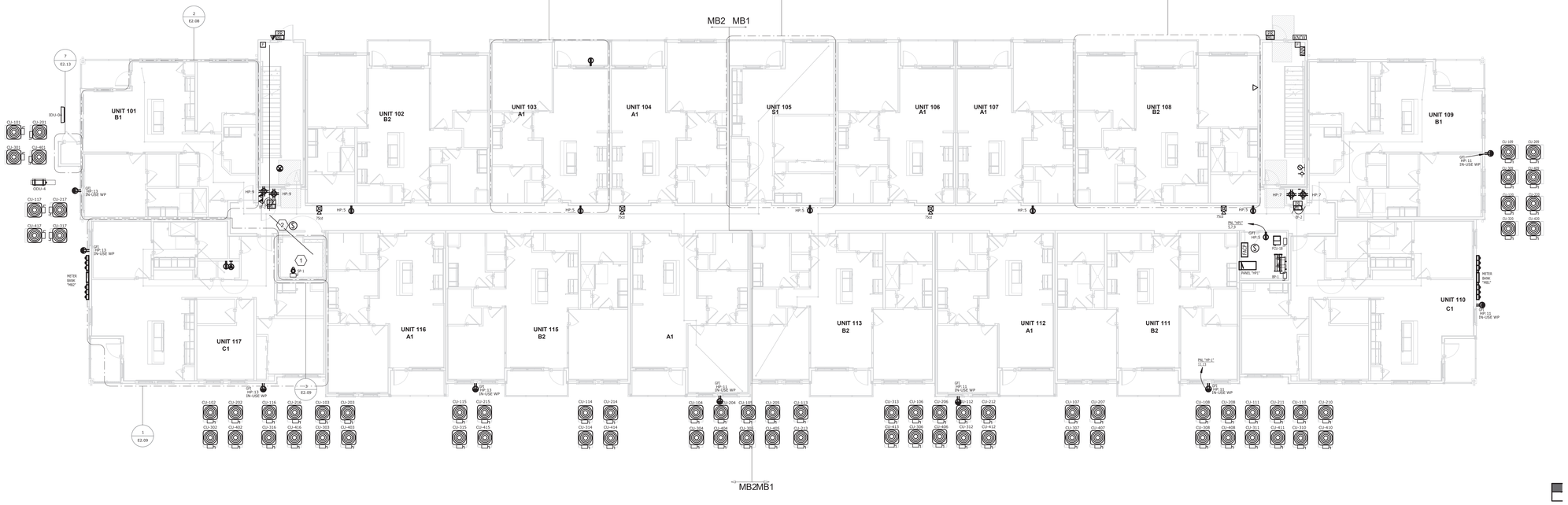
POWER NOTES

1. CONTRACTOR SHALL PROVIDE ALL RESIDENTIAL UNITS WITH 120V POWERED/BATTERY BACKUP SINGLE STATION, NON-SYSTEM, INTERCONNECTED SMOKE DETECTORS TO SOUND ALL DEVICES IN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT. (TYPICAL).
2. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT.
3. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS AND QUANTITY OF ALL SMOKE AND SMOKE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO THE DAMPER, REFER TO THE MECHANICAL CONTRACTOR EQUIPMENT SHOP DRAWINGS FOR ADDITIONAL INFORMATION.
4. ALL 120-VOLT, SINGLE PHASE, 15 AND 20-AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS BEDROOMS,SUNROOMS, RECREATION ROOMS CLOSETS HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LIST 1 ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH IN ACCORDANCE W110-12(A).
5. PER NEC 2017,406.12(A), TAMPER- 'STANCE RECEPTACLES IN DWELLING UNITS SHALL BE INSTALLED IN ALL AREAS SPECIFIED IN NEC 210.52, ALL NONLOCKING- TYPE 125-VOLT, 15 AND 20 AMP. RECEPTACLES S LL BE USED TAMPER-RESISTANT RECEPTACLES.
6. THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLES ONLY. ALL POWER BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKERS IN PANELBOARD UNLESS OTHERWISE NOTED.
7. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER.
8. COORDINATE WITH MECHANICAL CONTRACTOR FOR EQUIPMENT SUPPLIED DISCONNECTS NOT SHOWN ON THIS DRAWINGS MECHANICAL EQUIPMENT SCHEDULE FOR DETAILS.
9. ACCESS CONTROL HARDWARE, CCTV MONITORS, PAGING SYSTEM, SECURITY SYSTEM, AND MISCELLANEOUS LOW- VOLTAGE COMPONENTS, AS INDICATED ON THESE DRAWINGS, ARE DIAGRAMMATIC. COORDINATE ALL DEVICE LOCATIONS AND ROUGH-IN. THE LOW VOLTAGE SYSTEM CONTRACTOR(S) SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR THESE ENGINEER 'S AND/OR OWNER 'S REVIEW. WHERE A CONFLICTS EXIST BETWEEN THE CONTRACTOR 'S SHOP DRAWINGS AND THE ELECTRICAL CONTRACT DOCUMENTS, THE SHOP DRAWINGS SHALL SUPERCEDE.
10. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN SUCH OUTLETS.
11. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L. TO MAINTAIN THE ALL AND FLOOR ORIGINAL RATING.
12. FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND CONDENSORS FOR ANY C I R150'.
13. TYPE N.M. WIRING FOR BRAN ;H CIRCUIT WIRING FOR TYPE III, IV AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL AUTHORITY HAVING ; INDICATION. PROVIDE M.C. CABLE OR WIRE/EMT CONDUIT FOR BRANCH CIRCUITS IN ALL OTHER CONSTRUCTION TYPES AND IN RETURN AIR PLENUM ROOMS OR SPACES.
14. SEE SHEETS E3.00 THROUGH FOR TYPICAL UNIT PLANS.
15. INDICATES ITEM NUMBER FOR HVAC UNIT. SEE E-400 FOR MECHANICAL CONNECTION SCHEDULE.
16. ALL 120-VOLT, SINGLE PHASE 15A AND 20A AMPERE KITCHEN RECEPTACLE SHALL BE GROUND FAULT CIRCUIT INTERRUPTER TYPE IN ACCORDANCE WITH NEC 210.8(B) (2).
17. GFCI PROTECTION MAY BE PROVIDED VIA GFCI RECEPTACLE OR GFCI CIRCUIT BREAKERS WHERE RECEPTACLES ARE NOT ACCESSIBLE.

KEY NOTES

1. COORDINATE LOCATION OF LIGHT FIXTURES, RECEPTACLE AND SWITCH WITH ELEVATOR VENDOR PRIOR TO ROUGH IN. MOUNT HEAT DETECTOR WITHIN 2' OF SPRINKLER HEAD IF REQUIRED.
2. SMOKE DETECTOR FOR ELEVATOR RECALL.



1 BUILDING PLAN - BUILDING B3 - LEVEL 1 - POWER
1/8"=1'-0"

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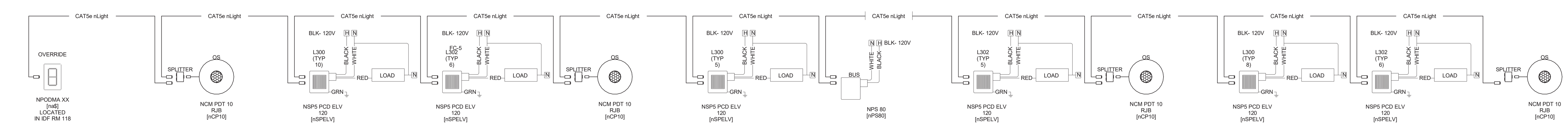
FORT MYERS, FL 33905

PROJECT NO:
220035.00

OVERALL POWER FLOOR PLAN - LEVEL 1

SHEET NUMBER:
RE2.01



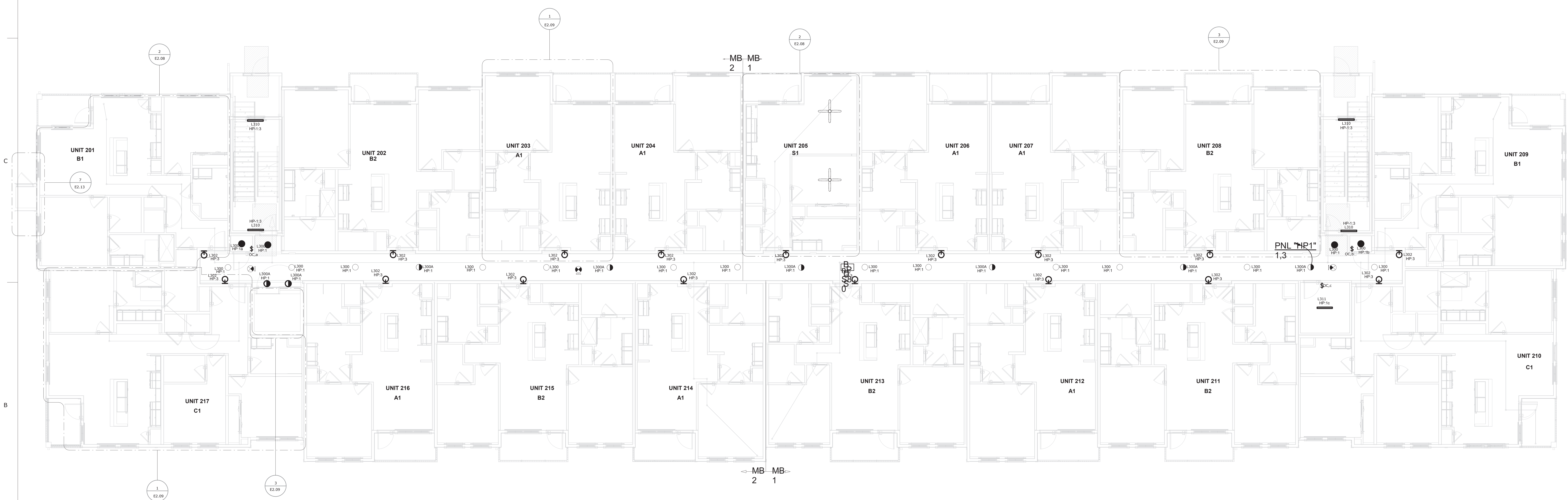
LIGHTING SINGLE LINE DIAGRAM
NOT TO SCALE

PRODUCT LEGEND

na$	nLight NPODMA XX nLight Wired Aesthetic Wallpod
nCP 10	nLight NCM PDT 10 RJB Low Voltage Ceiling Mount Sensor, Passive Dual Technology, Large Motion / Extended Range 360° Lens, Rear RJ-45 Ports
nDP ER	nLight NPP16 D ER EFP Power/Relay Pack, Dimming, UL924 Emergency Operation, External Fault Protection
nPS 80	nLight NPS 80 Power Supply, 80 mA
nSP ELV	nLight NSP5 PCD ELV 120 Secondary Relay Pack, Phase Control Dimming, Electronic Low Voltage, 120V

LIGHTING NOTES

1. EMERGENCY EXIT AND EGRESS LIGHTS SHALL BE CONNECTED TO THE LOCAL LIFE SAFETY LIGHTING CIRCUIT SERVING THE SPACE AND LOCATED AHEAD OF ANY LIGHTING CONTROL PANEL SWITCHING AND LOCAL WALL SWITCHES. BRANCH CIRCUITS FEEDING EMERGENCY LIGHTS SHALL BE CLEARLY MARKED AT THE DISTRIBUTION PANEL.
2. CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ADDITIONAL COST TO THE OWNER IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.
3. SEE SITE PLAN E1.00 FOR EXTERIOR LIGHTS.
4. PROVIDE UN-SWITCHED HOT FROM SAME AREA NORMAL POWER SERVING LIGHTS TO EXIT AND EGRESS LIGHT FIXTURES BATTERY CHARGING CIRCUIT(S).
5. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN OUTLETS.
6. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L TO MAINTAIN THE WALL AND FLOOR ORIGINAL RATING.
7. FINAL LGHTING LOCATIONS AND SELECTIONS TO BE DETERMINED BY ARCHITECT /INTERIOR DESIGNER.
8. FOR 120V BRANCH CIRCUITS , PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.
9. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPE III,IV AND V CONSTRUCTION IF JURISDICTION. PROVIDE M.C. CABLE OR IRE/EMT CONDUIT FOR PLENUM ROOMS OR SPACES. ACCEPTABLE TO LOCAL AUTHORITY HAVING.
10. SEE SHEETS E3.00 THROUGH E3.01 FOR TYPICAL UNTT PLANS.
11. THE MINIMUM CONDUIT SIZE POR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLE ONLY. ALL BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUTT BREAKER IN PANELBOARD UNLESS OTHERWISE NOTED.
12. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE *3/4"* C. UNLESS OTHERWISE INDICATED.



BUILDING PLAN - BUILDING B3 - LEVEL 2 - LIGHTING
1/8" = 1'-0"

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MILHAUS

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PROJECT NO:
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OVERALL LIGHTING FLOOR PLAN – LEVEL 2

SHEET NUMBER:
RE2.02

KEY NOTES

1. COORDINATE LOCATION OF LIGHT FIXTURES, RECEPTACLE AND SWITCH WITH ELEVATOR VENDOR PRIOR TO ROUGH IN. MOUNT HEAT DETECTOR WITHIN 2' OF SPRINKLER HEAD IF REQUIRED.
2. SMOKE DETECTOR FOR ELEVATOR RECALL.

POWER NOTES

1. CONTRACTOR SHALL PROVIDE ALL RESIDENTIAL UNITS WITH 120V POWERED/BATTERY BACKUP SINGLE STATION, NON-SYSTEM, INTERCONNECTED SMOKE DETECTORS TO SOUND ALL DEVICES IN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT. (TYPICAL).
2. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT.
3. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS AND QUANTITY OF ALL SMOKE AND SMOKE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO THE DAMPER, REFER TO THE MECHANICAL CONTRACTOR EQUIPMENT SHOP DRAWINGS FOR ADDITIONAL INFORMATION.
4. ALL 120-VOLT, SINGLE PHASE, 15 AND 20-AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS BEDROOMS,SUNROOMS, RECREATION ROOMS CLOSETS HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LIST [ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH IN ACCORDANCE WI10.12(A).
5. PER NEC 2017,406.12(A), TAMPER- ’STANCE RECEPTACLES IN DWELLING UNITS SHALL BE INSTALLED IN ALL AREAS SPECIFIED IN NEC 210.52, ALL NONLOCKING- TYPE 125-VOLT, 15 AND 20 AMP. RECEPTACLES S LL BE USED TAMPER-RESISTANT RECEPTACLES.
6. THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLES ONLY. ALL POWER BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKERS IN PANELBOARD UNLESS OTHERWISE NOTED.
7. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER.
8. COORDINATE WITH MECHANICAL CONTRACTOR FOR EQUIPMENT SUPPLIED DISCONNECTS NOT SHOWN ON THIS DRAWINGS MECHANICAL EQUIPMENT SCHEDULE FOR DETAILS.
9. ACCESS CONTROL HARDWARE, CCTV MONITORS, PAGING SYSTEM, SECURITY SYSTEM, AND MISCELLANEOUS LOW- VOLTAGE COMPONENTS, AS INDICATED ON THESE DRAWINGS, ARE DIAGRAMMATIC. COORDINATE ALL DEVICE LOCATIONS AND ROUGH-IN. THE LOW VOLTAGE SYSTEM CONTRACTORS(S) SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR THESE ENGINEER 'S AND/OR OWNER 'S REVIEW. WHERE A CONFLICTS EXIST BETWEEN THE CONTRACTOR ’S SHOP DRAWINGS AND THE ELECTRICAL CONTRACT DOCUMENTS, THE SHOP DRAWINGS SHALL SUPERCEDE.
10. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24” HORIZONTAL SPACE BETWEEN SUCH OUTLETS.
11. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L. TO MAINTAIN THE ALL AND FLOOR ORIGINAL RATING.
12. FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70’ AND CONDENSORS FOR ANY C I R150’.
13. TYPE N.M. WIRING FOR BRAN ;H CIRCUIT WIRING FOR TYPE III, IV AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL AUTHORITY HAVING ; INDICATION. PROVIDE M.C. CABLE OR WIRE/EMT CONDUIT FOR BRANCH CIRCUITS IN ALL OTHER CONSTRUCTION TYPES AND IN RETURN AIR PLENUM ROOMS OR SPACES.
14. SEE SHEETS E3.00 THROUGH FOR TYPICAL UNIT PLANS.
15. INDICATES ITEM NUMBER FOR HVAC UNIT. SEE E-400 FOR MECHANICAL CONNECTION SCHEDULE.
16. ALL 120-VOLT, SINGLE PHASE 15A AND 20A AMPERE KITCHEN RECEPTACLE SHALL BE GROUND FAULT CIRCUIT INTERRUPTER TYPE IN ACCORDANCE WITH NEC 210.8(B) (2).
17. GFCI PROTECTION MAY BE PROVIDED VIA GFCI RECEPTACLE OR GFCI CIRCUIT BREAKERS WHERE RECEPTACLES ARE NOT ACCESSIBLE.

1 BUILDING PLAN - BUILDING B3 - LEVEL 2 - POWER
1/8" = 1'-0"

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PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

OVERALL POWER FLOOR PLAN – LEVEL 2

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SHEET NUMBER:
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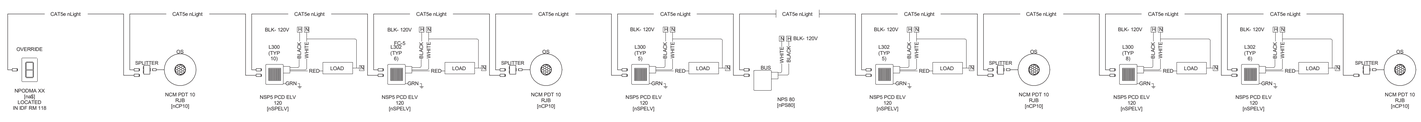


THE LINE SHOWN ABOVE IS FOR REFERENCE ONLY. SEE SHEETS ORIGINAL PAGE SIZE

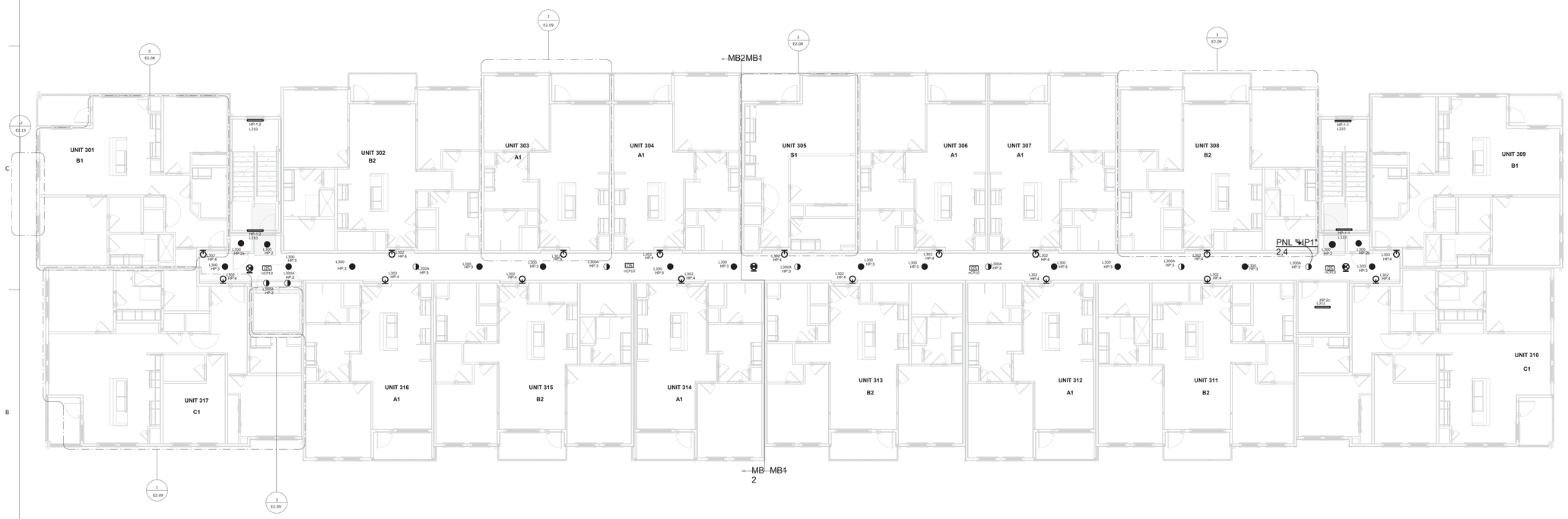
LIGHTING SINGLE LINE DIAGRAM
NOT TO SCALE

PRODUCT LEGEND

na$	nLight NPODMA XX nLight Wired Aesthetic Wallbox Override
nCP 10	NCM PDT 10 RJ8 Low Voltage Ceiling Mount Sensor, Passive Dual Technology, Large Motion / Extended Range 360° Lens, Rear RJ-45 Ports
nDP ER	nLight NPP16 D ER EFP Power/Relay Pack, Dimming, UL924 Emergency Operation, External Fault Protection
nPS 80	nLight NPS 80 Power Supply, 80 mA
nSP ELV	nLight NSPS PCD ELV 120 Secondary Relay Pack, Phase Control Dimming, Electronic Low Voltage, 120V

LIGHTING NOTES

1. EMERGENCY EXIT AND EGRESS LIGHTS SHALL BE CONNECTED TO THE LOCAL LIFE SAFETY LIGHTING CIRCUIT SERVING THE SPACE AND LOCATED AHEAD OF ANY LIGHTING CONTROL PANEL SWITCHING AND LOCAL WALL SWITCHES. BRANCH CIRCUITS FEEDING EMERGENCY LIGHTS SHALL BE CLEARLY MARKED AT THE DISTRIBUTION PANEL.
2. CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ADDITIONAL COST TO THE OWNER IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.
3. SEE SITE PLAN E1.00 FOR EXTERIOR LIGHTS.
4. PROVIDE UN-SWITCHED HOT FROM SAME AREA NORMAL POWER SERVING LIGHTS TO EXIT AND EGRESS LIGHT FIXTURES BATTERY CHARGING CIRCUIT(S).
5. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN OUTLETS.
6. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L TO MAINTAIN THE WALL AND FLOOR ORIGINAL RATING.
7. FINAL LIGHTING LOCATIONS AND SELECTIONS TO BE DETERMINED BY ARCHITECT /INTERIOR DESIGNER.
8. FOR 120V BRANCH CIRCUITS , PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.
9. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPE III,IV AND V CONSTRUCTION IF JURISDICTION. PROVIDE M.C. CABLE OR IMC/EMT CONDUIT FOR PLENUM ROOMS OR SPACES. ACCEPTABLE TO LOCAL AUTHORITY HAVING.
10. SEE SHEETS E3.00 THROUGH E3.01 FOR TYPICAL UNIT PLANS.
11. THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLE ONLY. ALL BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKER IN PANELBOARD UNLESS OTHERWISE NOTED.
12. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" C. UNLESS OTHERWISE INDICATED.



1 BUILDING PLAN - BUILDING B3 - LEVEL 3 - LIGHTING
1/8" = 1'-0"

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MILHAUS

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

OVERALL LIGHTING FLOOR PLAN – LEVEL 3

SHEET NUMBER:
RE2.04

KEY NOTES

1. COORDINATE LOCATION OF LIGHT FIXTURES, RECEPTACLE AND SWITCH WITH ELEVATOR VENDOR PRIOR TO ROUGH IN. MOUNT HEAT DETECTOR WITHIN 2' OF SPRINKLER HEAD IF REQUIRED.
2. SMOKE DETECTOR FOR ELEVATOR RECALL.

POWER NOTES

1. CONTRACTOR SHALL PROVIDE ALL RESIDENTIAL UNITS WITH 120V POWERED/BATTERY BACKUP SINGLE STATION, NON-SYSTEM, INTERCONNECTED SMOKE DETECTORS TO SOUND ALL DEVICES IN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT. (TYPICAL).
2. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT.
3. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS AND QUANTITY OF ALL SMOKE AND SMOKE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO THE DAMPER, REFER TO THE MECHANICAL CONTRACTOR EQUIPMENT SHOP DRAWINGS FOR ADDITIONAL INFORMATION.
4. ALL 120-VOLT, SINGLE PHASE, 15 AND 20-AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS BEDROOMS,SUNROOMS, RECREATION ROOMS CLOSETS HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LIST [ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH IN ACCORDANCE WI10.12(A).
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6. THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLES ONLY. ALL POWER BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKERS IN PANELBOARD UNLESS OTHERWISE NOTED.
7. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER.
8. COORDINATE WITH MECHANICAL CONTRACTOR FOR EQUIPMENT SUPPLIED DISCONNECTS NOT SHOWN ON THIS DRAWINGS MECHANICAL EQUIPMENT SCHEDULE FOR DETAILS.
9. ACCESS CONTROL HARDWARE, CCTV MONITORS, PAGING SYSTEM, SECURITY SYSTEM, AND MISCELLANEOUS LOW- VOLTAGE COMPONENTS, AS INDICATED ON THESE DRAWINGS, ARE DIAGRAMMATIC. COORDINATE ALL DEVICE LOCATIONS AND ROUGH-IN. THE LOW VOLTAGE SYSTEM CONTRACTORS(S) SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR THESE ENGINEER 'S AND/OR OWNER 'S REVIEW. WHERE A CONFLICTS EXIST BETWEEN THE CONTRACTOR 'S SHOP DRAWINGS AND THE ELECTRICAL CONTRACT DOCUMENTS, THE SHOP DRAWINGS SHALL SUPERCEDE.
10. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN SUCH OUTLETS.
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12. FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND CONDENSORS FOR ANY C I R150'.
13. TYPE N.M. WIRING FOR BRAN ;H CIRCUIT WIRING FOR TYPE III, IV AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL AUTHORITY HAVING ; INDICATION. PROVIDE M.C. CABLE OR WIRE/EMT CONDUIT FOR BRANCH CIRCUITS IN ALL OTHER CONSTRUCTION TYPES AND IN RETURN AIR PLENUM ROOMS OR SPACES.
14. SEE SHEETS E3.00 THROUGH FOR TYPICAL UNIT PLANS.
15. INDICATES ITEM NUMBER FOR HVAC UNIT. SEE E-400 FOR MECHANICAL CONNECTION SCHEDULE.
16. ALL 120-VOLT, SINGLE PHASE 15A AND 20A AMPERE KITCHEN RECEPTACLE SHALL BE GROUND FAULT CIRCUIT INTERRUPTER TYPE IN ACCORDANCE WITH NEC 210.8(B) (2).
17. GFCI PROTECTION MAY BE PROVIDED VIA GFCI RECEPTACLE OR GFCI CIRCUIT BREAKERS WHERE RECEPTACLES ARE NOT ACCESSIBLE.

1 BUILDING PLAN - BUILDING B3 - LEVEL 3 - POWER
1/8" = 1'-0"

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01-05-2023
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7780 LIGHTARD KNOTT LN
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PROJECT NO:
220035.00

OVERALL POWER FLOOR PLAN – LEVEL 3

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SHEET NUMBER:
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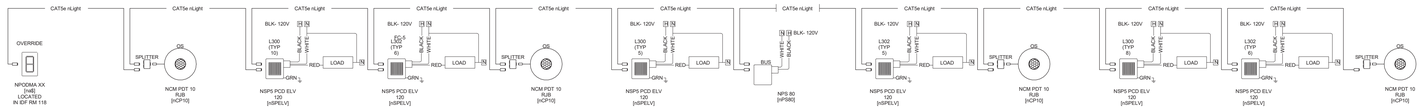


LIGHTING SINGLE LINE DIAGRAM
NOT TO SCALE

PRODUCT LEGEND

na$	nLight NPODMA XX nLight Wired Aesthetic Wallpod
nCP 10	nLight NCM PDT 10 RJB Low Voltage Ceiling Mount Sensor, Passive Dual Technology, Large Motion / Extended Range 360° Lens, Rear RJ-45 Ports
nDP ER	nLight NPP16 D ER EFP Power/Relay Pack, Dimming, UL924 Emergency Operation, External Fault Protection
nPS 80	nLight NPS 80 Power Supply, 80 mA
nSP ELV	nLight NSPS PCD ELV 120 Secondary Relay Pack, Phase Control Dimming, Electronic Low Voltage, 120V

LIGHTING NOTES

1. EMERGENCY EXIT AND EGRESS LIGHTS SHALL BE CONNECTED TO THE LOCAL LIFE SAFETY LIGHTING CIRCUIT SERVING THE SPACE AND LOCATED AHEAD OF ANY LIGHTING CONTROL PANEL SWITCHING AND LOCAL WALL SWITCHES. BRANCH CIRCUITS FEEDING EMERGENCY LIGHTS SHALL BE CLEARLY MARKED AT THE DISTRIBUTION PANEL.

2. CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ADDITIONAL COST TO THE OWNER IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.

3. SEE SITE PLAN E1.00 FOR EXTERIOR LIGHTS.

4. PROVIDE UN-SWITCHED HOT FROM SAME AREA NORMAL POWER SERVING LIGHTS TO EXIT AND EGRESS LIGHT FIXTURES BATTERY CHARGING CIRCUIT(S).

5. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN OUTLETS.

6. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L TO MAINTAIN THE WALL AND FLOOR ORIGINAL RATING.

7. FINAL LIGHTING LOCATIONS AND SELECTIONS TO BE DETERMINED BY ARCHITECT /INTERIOR DESIGNER.

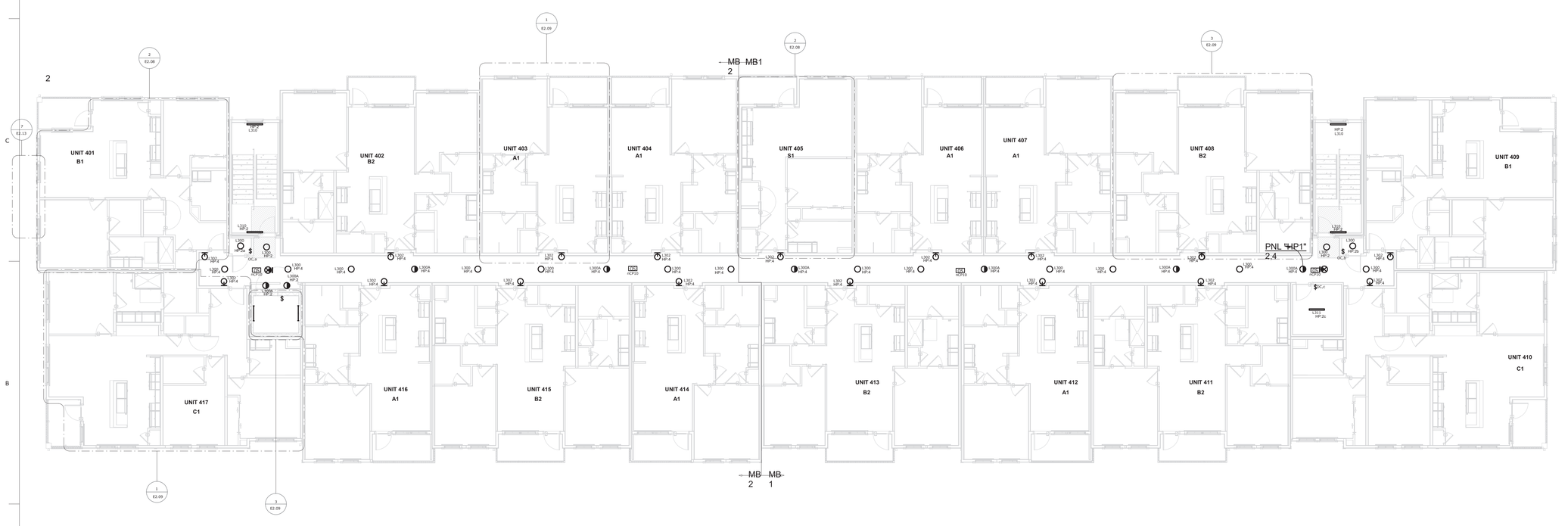
8. FOR 120V BRANCH CIRCUITS , PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.

9. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPE III.EV AND V CONSTRUCTION IF JURISDICTION. PROVIDE M.C. CABLE OR IRE/EMT CONDUIT FOR PLENUM ROOMS OR SPACES. ACCEPTABLE TO LOCAL AUTHORITY HAVING.

10. SEE SHEETS E3.00 THROUGH E3.01 FOR TYPICAL UNIT PLANS.

11. THE MINIMUM CONDUIT SIZE POR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLE ONLY. ALL BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKER IN PANELBOARD UNLESS OTHERWISE NOTED.

12. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" C. UNLESS OTHERWISE INDICATED.



1 BUILDING PLAN - BUILDING B3 - LEVEL 4 - LIGHTING
1/8" = 1'-0"

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MILHAUS

MILHAUS

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PROJECT NO:
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OVERALL LIGHTING FLOOR PLAN – LEVEL 4

SHEET NUMBER:
RE2.06

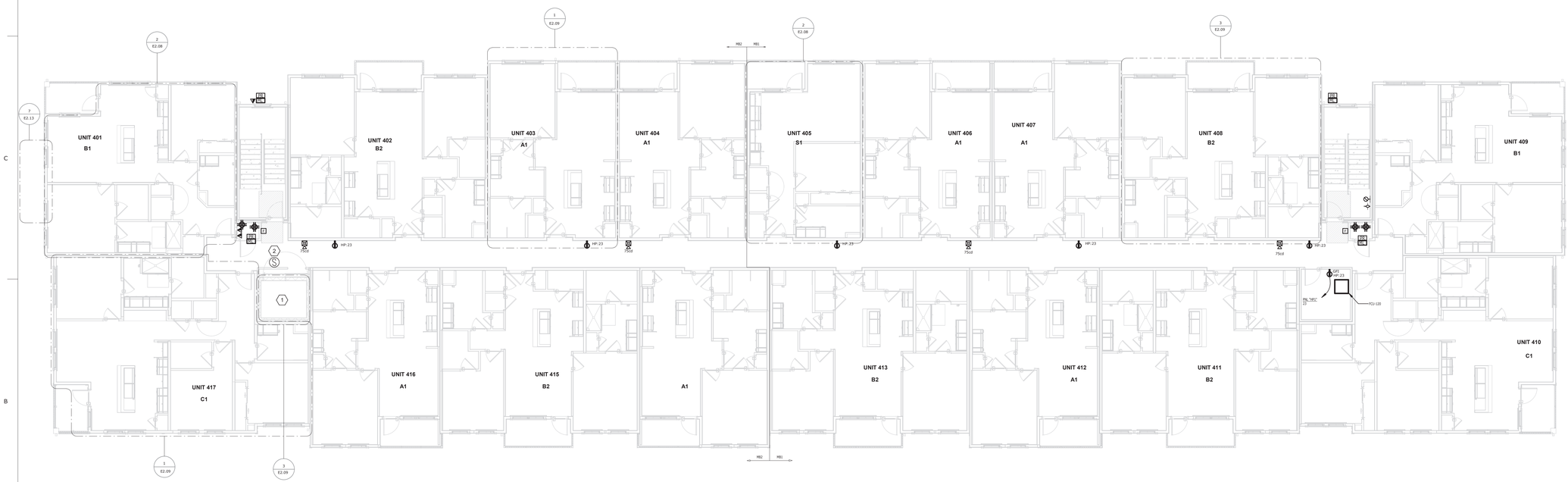
THE LINE SHOWN ABOVE IS 4 INCHES LONG ON FULL SIZE SHEETS ORIGINAL PAGE SIZE

KEY NOTES

1. COORDINATE LOCATION OF LIGHT FIXTURES, RECEPTACLE AND SWITCH WITH ELEVATOR VENDOR PRIOR TO ROUGH IN. MOUNT HEAT DETECTOR WITHIN 2' OF SPRINKLER HEAD IF REQUIRED.
2. SMOKE DETECTOR FOR ELEVATOR RECALL.

POWER NOTES

1. CONTRACTOR SHALL PROVIDE ALL RESIDENTIAL UNITS WITH 120V POWERED/BATTERY BACKUP SINGLE STATION, NON-SYSTEM, INTERCONNECTED SMOKE DETECTORS TO SOUND ALL DEVICES IN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT. (TYPICAL).
2. ALL FIRE ALARM WIRING SHALL BE IN CONDUIT.
3. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS AND QUANTITY OF ALL SMOKE AND SMOKE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO THE DAMPER, REFER TO THE MECHANICAL CONTRACTOR EQUIPMENT SHOP DRAWINGS FOR ADDITIONAL INFORMATION.
4. ALL 120-VOLT, SINGLE PHASE, 15 AND 20-AMPERE BRANCH CIRCUITS SUPPLYING OUTLETS OR DEVICES INSTALLED IN DWELLING UNIT KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DENS BEDROOMS, SUNROOMS, RECREATION ROOMS CLOSETS HALLWAYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LIST (ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH IN ACCORDANCE WI1.0.12(A).
5. PER NEC 2017,406.12(A). TAMPER- STANCE RECEPTACLES IN DWELLING UNITS SHALL BE INSTALLED IN ALL AREAS SPECIFIED IN NEC 210.52, ALL NONLOCKING- TYPE 125-VOLT, 15 AND 20 AMP- RECEPTACLES S LL BE USED TAMPER-RESISTANT RECEPTACLES.
6. THE MINIMUN CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLES ONLY. ALL POWER BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKERS IN PANELBOARD UNLESS OTHERWISE NOTED.
7. MINIMUN CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER.
8. COORDINATE WITH MECHANICAL CONTRACTOR FOR EQUIPMENT SUPPLIED DISCONNECTS NOT SHOWN ON THIS DRAWINGS MECHANICAL EQUIPMENT SCHEDULE FOR DETAILS.
9. ACCESS CONTROL HARDWARE, CCTV MONITORS, PAGING SYSTEM, SECURITY SYSTEM, AND MISCELLANEOUS LOW- VOLTAGE COMPONENTS, AS INDICATED ON THESE DRAWINGS, ARE DIAGRAMMATIC. COORDINATE ALL DEVICE LOCATIONS AND ROUGH-IN. THE LOW VOLTAGE SYSTEM CONTRACTOR(S(S) SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR THESE ENGINEER 'S AND/OR OWNER 'S REVIEW. WHERE A CONFLICTS EXIST BETWEEN THE CONTRACTOR 'S SHOP DRAWINGS AND THE ELECTRICAL CONTRACT DOCUMENTS, THE SHOP DRAWINGS SHALL SUPERCEDE.
10. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN SUCH OUTLETS.
11. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L. TO MAINTAIN THE ALL AND FLOOR ORIGINAL RATING.
12. FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND CONDENSORS FOR ANY C1 R150'.
13. TYPE N.M. WIRING FOR BRAN ;H CIRCUIT WIRING FOR TYPE II), IV AND V CONSTRUCTION 3' ACCEPTABLE TO LOCAL AUTHORITY HAVING ; INDICATION. PROVIDE M.C. CABLE OR WIREIMT CONDUIT FOR BRANCH CIRCUITS IN ALL OTHER CONSTRUCTION TYPES AND IN RETURN AIR PLENUM ROOMS OR SPACES.
14. SEE SHEETS E1.00 THROUGH FOR TYPICAL UNIT PLANS.
15. INDICATES ITEM NUMBER FOR HVAC UNIT. SEE E-400 FOR MECHANICAL CONNECTION SCHEDULE.
16. ALL 120-VOLT, SINGLE PHASE 15A AND 20A AMPERE KITCHEN RECEPTACLE SHALL BE GROUND FAULT CIRCUIT INTERRUPTER TYPE IN ACCORDANCE WITH NEC 210.8(B)(2).
17. GFCI PROTECTION MAY BE PROVIDED VIA GFCI RECEPTACLE OR GFCI CIRCUIT BREAKERS WHERE RECEPTACLES ARE NOT ACCESSIBLE.



1 BUILDING PLAN - BUILDING B3 - LEVEL 4 - POWER
1/8" = 1'-0"

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01-05-2023
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PE 0071536

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△	DATE	SUBMISSION

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MILHAUS

MILHAUS

SR-82

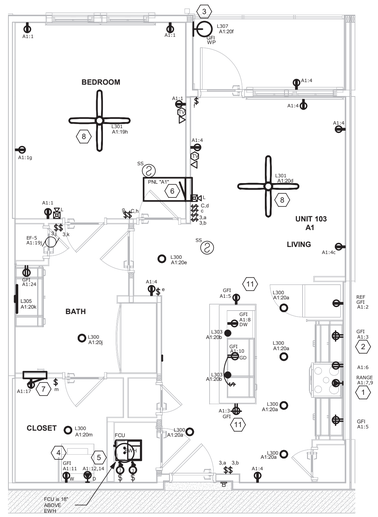
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

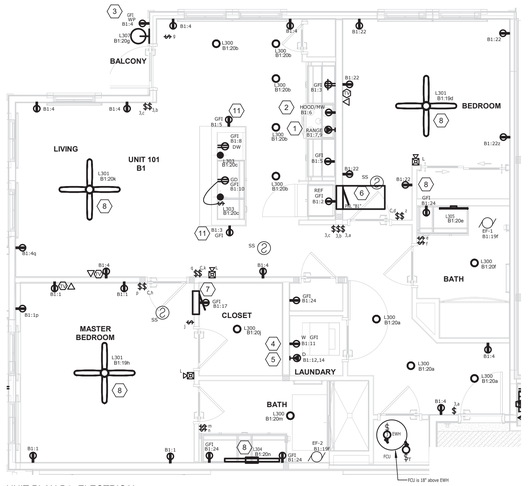
OVERALL POWER FLOOR PLAN – LEVEL 4

SHEET NUMBER:
RE2.07

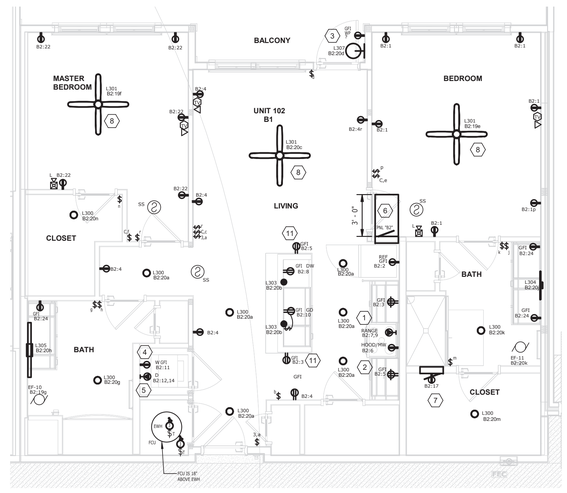
THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ALL SHEETS ORIGINAL PAGE SIZE



1 UNIT PLAN A1- ELECTRICAL
1/4" = 1'-0"



2 UNIT PLAN B1- ELECTRICAL
1/4" = 1'-0"



3 UNIT PLAN B2- ELECTRICAL
1/4" = 1'-0"

Panelboard: A1

Location: UNIT A1 | **Volts:** 120/208 | **A.I.C. Rating:**
Supply From: MDP | **Phases:** 1 | **Mains Type:** 125A MLO
Mounting: FLUSH | **Wires:** 3 | **Mains Rating:** 125 A
Enclosure: NEMA 1 | **MCB Rating:** N/A

Notes:

CKT	Load Name	Trip	Pole	A			B		Pole	Trip	Load Name	CKT
1	BEDROOM 1 RECEP	20 A	1						1	20 A	REFRIGERATOR	2
3	SMALL APPLIANCE	20 A	1						1	20 A	LIVING ROOM RECEP	4
5	SMALL APPLIANCE	20 A	1						1	20 A	HOOD	6
7	RANGE	50 A	2						1	20 A	DISHWASHER	8
9	--	--	--						1	20 A	DISPOSAL	10
11	WASHER	20 A	1						2	30 A	DRYER	12
13	FCU	50 A	2						--	--	--	14
15	--	--	--						2	30 A	EWH *	16
17	SME RECEP	20 A	1						--	--	--	18
19	LIGHTING 1 & EXHAUST FAN	20 A	1						1	20 A	LIGHTING 2	20
21	CU	25 A	2									22
23	--	--	--						1	20 A	RECEPTACLE LOAD	24
25												26
27												28
29												30
31												32
33												34
35												36
37												38
39												40
41												42
43												44
45												46
47												48
49												50
51									2	30 A	SURGE PROTECTIVE DEVICE	52
53									--	--	--	54
		Total Load:				kVA						
		Total Amps:				AMPS						

LOAD CODES:

		Panel Totals	
L	LIGHTING		
R	RECEPTACLE	Total Conn. Load:	
M	MECHANICAL	Total Est. Demand:	
C	COMPUTER	Total Conn.:	
K	KITCHEN	Total Est. Demand:	
P	PANEL		

Panelboard: B1

Location: UNIT B1 1720 | **Volts:** 120/208 | **A.I.C. Rating:**
Supply From: MDP | **Phases:** 1 | **Mains Type:** 125A MLO
Mounting: FLUSH | **Wires:** 3 | **Mains Rating:** 125 A
Enclosure: NEMA 1 | **MCB Rating:** N/A

Notes:

CKT	Load Name	Trip	Pole	A			B		Pole	Trip	Load Name	CKT
1	BEDROOM 1 RECEP	20 A	1	***	***				1	20 A	REFRIGERATOR	2
3	SMALL APPLIANCE	20 A	1				***	***	1	20 A	LIVING ROOM RECEP	4
5	SMALL APPLIANCE	20 A	1	***	***				1	20 A	HOOD	6
7	RANGE	50 A	2				***	***	1	20 A	DISHWASHER	8
9	--	--	--	***	***				1	20 A	DISPOSAL	10
11	WASHER	20 A	1				***	***	2	30 A	DRYER	12
13	FCU	50 A	2	***	***				--	--	--	14
15	--	--	--				***	***	2	30 A	EWH *	16
17	SME RECEP	20 A	1	***	***				--	--	--	18
19	LIGHTING 1 & EXHAUST FAN	20 A	1				***	***	1	20 A	LIGHTING 2	20
21	CU	25 A	2	***	***				1	20 A	BEDROOM 2 RECEP	22
23	--	--	--				***	***	1	20 A	RECEPTACLE LOAD	24
25												26
27												28
29												30
31												32
33												34
35												36
37												38
39												40
41												42
43												44
45												46
47												48
49												50
51									2	30 A	SURGE PROTECTIVE DEVICE	52
53									--	--	--	54
		Total Load:		***		kVA	***					
		Total Amps:		***		AMPS	***					

LOAD CODES:

		Panel Totals	
L	LIGHTING		
R	RECEPTACLE	Total Conn. Load:	***
M	MECHANICAL	Total Est. Demand:	***
C	COMPUTER	Total Conn.:	***
K	KITCHEN	Total Est. Demand:	***
P	PANEL		

* CIRCUIT NUMBER 12,14 SHALL BE A LOCKABLE CIRCUIT BREAKER.
** CIRCUIT NUMBER 13,15 SHALL BE A LOCKABLE CIRCUIT BREAKER.
*** SEE RESIDENTIAL CALCULATIONS BELOW PANEL SCHEDULE.

Panelboard: B2

Location: UNIT B2 | **Volts:** 120/208 | **A.I.C. Rating:**
Supply From: MDP | **Phases:** 1 | **Mains Type:** 125A MLO
Mounting: FLUSH | **Wires:** 3 | **Mains Rating:** 125 A
Enclosure: NEMA 1 | **MCB Rating:** N/A

Notes:

CKT	Load Name	Trip	Pole	A			B		Pole	Trip	Load Name	CKT
1	BEDROOM 1 RECEP	20 A	1						1	20 A	REFRIGERATOR	2
3	SMALL APPLIANCE	20 A	1						1	20 A	LIVING ROOM RECEP	4
5	SMALL APPLIANCE	20 A	1						1	20 A	HOOD	6
7	RANGE	50 A	2						1	20 A	DISHWASHER	8
9	--	--	--						1	20 A	DISPOSAL	10
11	WASHER	20 A	1						2	30 A	DRYER	12
13	FCU	50 A	2						--	--	--	14
15	--	--	--						2	30 A	EWH *	16
17	SME RECEP	20 A	1						--	--	--	18
19	LIGHTING 1 & EXHAUST FAN	20 A	1						1	20 A	LIGHTING 2	20
21	CU	25 A	2						1	20 A	BEDROOM 2 RECEP	22
23	--	--	--						1	20 A	RECEPTACLE LOAD	24
25	LIGHTING 3	20 A	1									26
27												28
29												30
31												32
33												34
35												36
37												38
39												40
41												42
43												44
45												46
47												48
49												50
51									2	30 A	SURGE PROTECTIVE DEVICE	52
53									--	--	--	54
		Total Load:				kVA						
		Total Amps:				AMPS						

LOAD CODES:

		Panel Totals	
L	LIGHTING		
R	RECEPTACLE	Total Conn. Load:	
M	MECHANICAL	Total Est. Demand:	
C	COMPUTER	Total Conn.:	
K	KITCHEN	Total Est. Demand:	
P	PANEL		

LOADCENTER "A1" CALCULATION
(PER 2017 NEC 220.82)

LIGHTING AND RECEPTACLE LOAD	777 SF x 3VA/SF	2331 VA
TWO 20A APPLIANCE CIRCUITS		3000 VA
LAUNDRY CIRCUIT		1500 VA
RANGE		8000 VA
WATER HEATER		4500 VA
DISHWASHER		744 VA
CLOTHES DRYER		5000 VA
DISPOSAL		480 VA
MICROWAVE/HOOD		950 VA
FURNACE FAN		0 VA
SUBTOTAL:		26505 VA
FIRST 10KVA @ 100%		10000 VA
40% OF REMAINDER	16505 MVA x 0.4	6602 VA
SUBTOTAL PER NEC 220.82(B):		16602 VA
HVAC	COMPRESSOR	2371.2 VA
	HEAT @65%	2470 VA
	TOTAL HVAC	2470 VA
	HEAT@65% OR COMP@100% PER 220.82© *HEAT AND COMPRESSOR WILL NOT RUN SIMUTANIOUSLY	2470 VA
	SUBTOTAL PER NEC 220.82(B):	16602 VA
	HVAC PER NEC 220.82(C):	2470 VA
	TOTAL DEMAND LOAD	19072 VA
18952 VA/208V=	91.692 AMPS	125 AMP SERVICE
TOTAL CONNECTED LOAD:	28975 VA	

LOADCENTER "B1" CALCULATION
(PER 2017 NEC 220.82)

LIGHTING AND RECEPTACLE LOAD	1121 SF x 3VA/SF	3363 VA
TWO 20A APPLIANCE CIRCUITS		3000 VA
LAUNDRY CIRCUIT		1500 VA
RANGE		8000 VA
WATER HEATER		4500 VA
DISHWASHER		744 VA
CLOTHES DRYER		5000 VA
DISPOSAL		480 VA
MICROWAVE/HOOD		950 VA
FURNACE FAN		0 VA
SUBTOTAL:		27537 VA
FIRST 10KVA @ 100%		10000 VA
40% OF REMAINDER	17537 VA x 0.4	7015 VA
SUBTOTAL PER NEC 220.82(B):		17015 VA
HVAC	COMPRESSOR	2538 VA
	HEAT @65%	3250 VA
	TOTAL HVAC	3250 VA
	HEAT@65% OR COMP@100% PER 220.82© *HEAT AND COMPRESSOR WILL NOT RUN SIMUTANIOUSLY	3250 VA
	SUBTOTAL PER NEC 220.82(B):	17015 VA
	HVAC PER NEC 220.82(C):	3250 VA
	TOTAL DEMAND LOAD	20265 VA
20265 VA/208V=	97.43 AMPS	125 AMP SERVICE
TOTAL CONNECTED LOAD:	30787 VA	

LOADCENTER "B2" CALCULATION
(PER 2017 NEC 220.82)

LIGHTING AND RECEPTACLE LOAD	1144 SF x 3VA/SF	3432 VA
TWO 20A APPLIANCE CIRCUITS		3000 VA
LAUNDRY CIRCUIT		1500 VA
RANGE		8000 VA
WATER HEATER		4500 VA
DISHWASHER		744 VA
CLOTHES DRYER		5000 VA
DISPOSAL		480 VA
MICROWAVE/HOOD		950 VA
FURNACE FAN		0 VA
SUBTOTAL:		27606 VA
FIRST 10KVA @ 100%		10000 VA
40% OF REMAINDER	17606 VA x 0.4	7043 VA
SUBTOTAL PER NEC 220.82(B):		17043 VA
HVAC	COMPRESSOR	2538 VA
	HEAT @65%	3250 VA
	TOTAL HVAC	3250 VA
	HEAT@65% OR COMP@100% PER 220.82© *HEAT AND COMPRESSOR WILL NOT RUN SIMUTANIOUSLY	3250 VA
	SUBTOTAL PER NEC 220.82(B):	17043 VA
	HVAC PER NEC 220.82(C):	3250 VA
	TOTAL DEMAND LOAD	20293 VA
20293 VA/208V=	97.5625 AMPS	125 AMP SERVICE
TOTAL CONNECTED LOAD:	30856 VA	

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GENERAL NOTES

1. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPES III, IV, AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL JURISDICTION HAVING AUTHORITY.PROVIDE M.C. CABLE OR WIRE/CONDUIT FOR ALL OTHER CONSTRUCTION TYPES.
2. SEAL ALL OUTLET BOXES PER LOCAL ENERGY CODE.
3. INTERCONNECT SMOKE DETECTORS IN INDIVIDUAL UNITS SO THAT INITIATION OF ONE WILL CAUSE INITIATION OF ALL.
4. INDICATED MECHANICAL EQUIPMENT. SEE E6-01 FOR MECHANICAL CONNECTION SCHEDULE.
5. OUTLET BOXES SHALL NOT BE INSTALLED WITHIN ANY WALL BACK TO BACK.
6. ELECTRICAL OUTLET BOXES IN THE PARTY WALL(S), AS WELL AS INTERIOR WALLS,SHALLBE STAGGERED SO THAT THEY ARE NOT BACK-TO-BACK. PUTTY PACKS SHALL BE INSTALLED AROUND ALL BOXES. IF A SITUATION ARISES WHERE THE OUTLET BOXES MUST BE INSTALLED BACK-TO-BACK, USE A SOLID PANEL TO BLOCK NOISE TRANSMISSION BETWEEN THE BACK OF THE BOXES. IN ADDITION,USE ACOUSTICAL INSULATION BETWEEN THE SOLIDBLOCKING PANEL AND THE WALL SURFACES, COMPLETELY SURROUNDING THE OUTLET BOXES.
7. GFCI OUTLETS SHALL NOT BE INSTALLED IN MIRRORS. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
8. SINGLE STATION SMOKE DETECTORS SHALL BE PHOTOELECTRIC TYPE. PROVIDE GENTEX TYPE 5003R OR EQUAL. SMOKE ALARMS SHALL BE POWERED FROM 120V A/C POWER SOURCE AND HAVE A BACKUP BATTERY SOURCE. SMOKE ALARMS A/C POWER SHALL BE SUPPLIED BY UNSWITCHED PORTION OF THE BEDROOM CIRCUIT.SMOKE ALARMS SHALL BE INTERCONNECTED IN INDIVIDUAL UNITS SO THAT INITIATION OF ONE WILL CAUSE INITIATION OF ALL. REFER TO NFPA 72 FOR SMOKE DETECTOR INFORMATION.
   A. INSTALLATION - REGARDLESS OF LOCATIONS SHOWN ON DRAWINGS, INSTALL BASED ON I-IV BELOW:
      I. INSTALLED INSIDE AND OUTSIDE OF EVERY SLEEPING AREA AND ON ALLLEVELS OF DWELLING UNITS. DETECTOR SHALL BE INSTALLED WITHIN 21 FEET OF ANY DOOR TO A SLEEPING ROOM.
      II. SMOKE ALARMS SHALL NOT BE LOCATED WITHIN 36" HORIZONTAL PATH FROM DOOR TO A BATHROOM CONTAINING A SHOWER OR TUB.
      III. SMOKE ALARMS SHALL NOT BE LOCATED WITHIN 36" HORIZONTAL PATH FROM SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS. COORDINATE EXACT LOCATION OF SMOKE ALARMS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
      IV. SMOKE ALARMS SHALL NOT BE LOCATED WITHIN 36" HORIZONTAL PATH FROM THE TIP OF THE BLADE OF A CEILING-SUSPENDED PADDLE FAN.
9. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF LIGHTING FIXTURES.
10. FINAL SELECTION, QUANTITY, AND LOCATION OF LIGHTS IN APARTMENTS TO BE COORDINATED WITH ARCHITECT AND INTERIOR PRIOR TO BID.
11. TYPE NM CABLE IS NOT ALLOWED EXPOSED IN HVAC CLOSETS. PROVIDE TYPE MC CABLE OR ROUTE TYPE NM CABLE IN FLEXIBLE METALLIC CONDUIT SO THAT NM CABLE IS NOT EXPOSED IN CLOSET.
12. PROVIDE TAMPER RESISTANT RECEPTACLES IN ALL ROOMS REQUIRED BY NEC 406.12.
13. ALL 15 AND 20 AMP SINGLE PHASE BRANCH CIRCUITS SUPPLYING LIGHTS, RECEPTACLES, AND SMOKE DETECTORS WITHIN LIVING UNITS SHALL BE PROTECTED BY A LISTED "ARC FAULT CIRCUIT INTERRUPTER" BREAKER, EXEMPT CIRCUITS INCLUDE BATHROOMS, GARAGES, AND OUTDOOR RECEPTACLES.
14. RECEPTACLES INSTALLED IN WET LOCATIONS SHALL BE WEATHER RESISTANT,WEATHERPROOF, AND GFCI.
15. PROVIDE CONDUIT SLEEVE EXTENDING 18" ON EITHER SIDE OF FIRE WALLS FOR WIRING THAT PASSES THRU FIRE WALLS.
16. VERIFY MOUNTING AND OPERATION HEIGHTS OF ALL ELECTRICAL DEVICES FOR ACCESSIBILITY WITH ARCHITECT PRIOR TO BID/ROUGH-IN.
17. ANY CEILING MOUNTED DEVICE WITHIN 4' OF ANOTHER CEILING MOUNTED DEVICE, PROVIDE A METAL BOX.

UNIT PLAN KEY NOTES

1. PROVIDE (NEMA 14-50R) RECEPTACLE W/3#8, #10G CIRCUIT FOR RANGE. PROVIDE RANGE CORD.
2. PROVIDE (NEMA 5-20R) RECEPTACLE W/2#12, #12G CIRCUIT FOR RANGE HOOD/MICROWAVE.
3. CONNECT TO CORRIDOR LIGHTING BRANCH CIRCUITRY.
4. PROVIDE A (NEMA 5-20R) RECEPTACLE W/2#12, #12G. FOR WASHER.
5. PROVIDE A (NEMA 14-30R) RECEPTACLE W/3#10, #10G CIRCUIT FOR CLOTHES DRYER. PROVIDE DRYER CORD.
6. FLUSH MOUNTED LOAD CENTER (W/FLUSH MOUNT COVER, 1/2" OVERLAP);CONTRACTOR SHALL VERIFY THAT THERE IS NO PIPING AND/OR DUCTWORK INSTALLED ABOVE LOADCENTER. MOUNT TOP CIRCUIT BREAKER HANDLE AT 66" AFF. COORDINATE EXACT LOCATION AND REQUIREMENTSWITH ARCHITECT/INTERIOR DESIGNER /OWNER PRIOR TO BID/ROUGH-IN.
7. PROVIDE FLUSH MOUNTED COMPOSITE STRUCTURED MEDIA ENCLOSURE (SME PANEL) WITH LOCKING DOOR WITH 6 WAY 1GHZ PASSIVE VIDEO SPLITTER. PROVIDE (1) CAT 6 CABLE FROM PUNCH DOWN BLOCK TO EACH DATA/TELEPHONE/TV OUTLET (NO DAISY CHAINING) AND (1)CAT 6 CABLE FROM PUNCH DOWN BLOCK TO TELECOM ROOM WITH 8' FOOT OF SLACK CABLE.PROVIDE (1) RG6 COAXIAL CABLE FROM SPLITTER TO EACH TELEVISION OUTLET (NO DAISY CHAINING) AND PROVIDE (1) RG6 COAXIAL CABLE FROM SPLITTER TO TELECOM ROOM WITH 8' OF SLACK CABLE. TERMINATE ALL CABLES ON APPROPRIATE TERMINATION POINTS. CLEARLY LABEL EACH PORT IDENTIFYING THE DESTINATION ADDRESS OF EACH CABLE. PROVIDE A MINIMUM OF 12" SLACK CABLE AT EACH OUTLET. PROVIDE (1) 20A DUPLEX RECEPTACLE MOUNTED WITHIN ENCLOSURE. MOUNT TOP OF MEDIA ENCLOSURE AT 60" AFF, COORDINATINGWITH SHELVING, DEVICES OR BLOCKING IN WALLS. FIELD VERIFY. SEE TELE/CATV RISER DIAGRAM.
8. PROVIDE A FAN-RATED RECESSED JUNCTION BOX MOUNTED 84" A.F.F. ON WALL
9. NOT USED.
10. MOUNT RECEPTACLE WITHIN 12" OF FRONT EDGE OF COUNTER. COORDINATE WITH THE MILL WORK CONTRACTOR FOR OUTLET LOCATION WHEN NO SIDE WALL IS AVAILABLE.
11. MOUNT HORIZONTALLY 4" BELOW COUNTERTOP WHERE COUNTER OVERHANG DOES NOT EXTEND MORE THAN 6". COORDINATE WITH ARCHITECT.

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TO THE BEST OF THE ARCHITECT'S OR ENGINEER'S KNOWLEDGE AND ABILITY, THE PLANS AND SPECIFICATIONS COMPLY WITH THE APPLICABLE MINIMUM BUILDING CODES.

MILHAUS

MILHAUS

SR-82

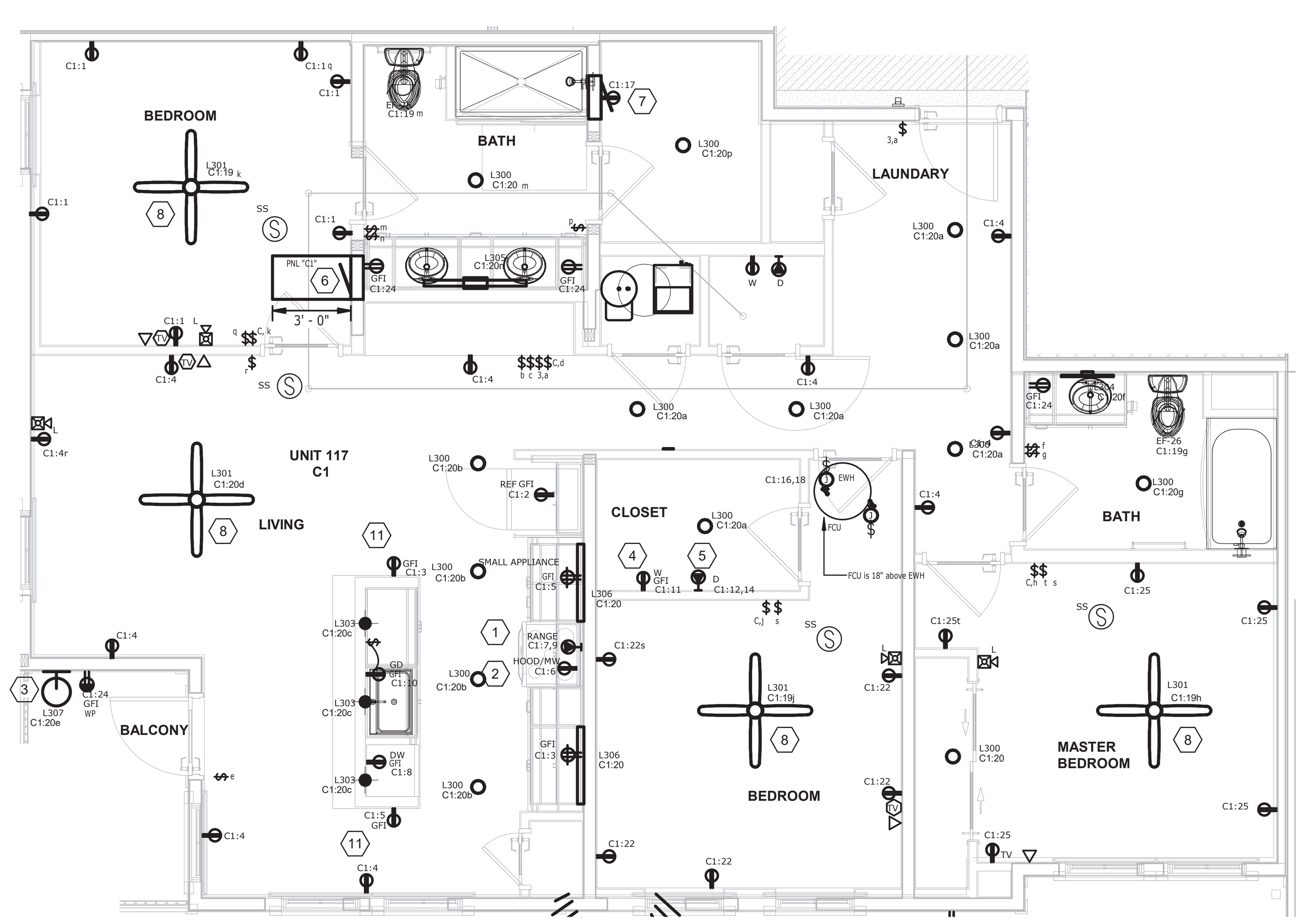
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

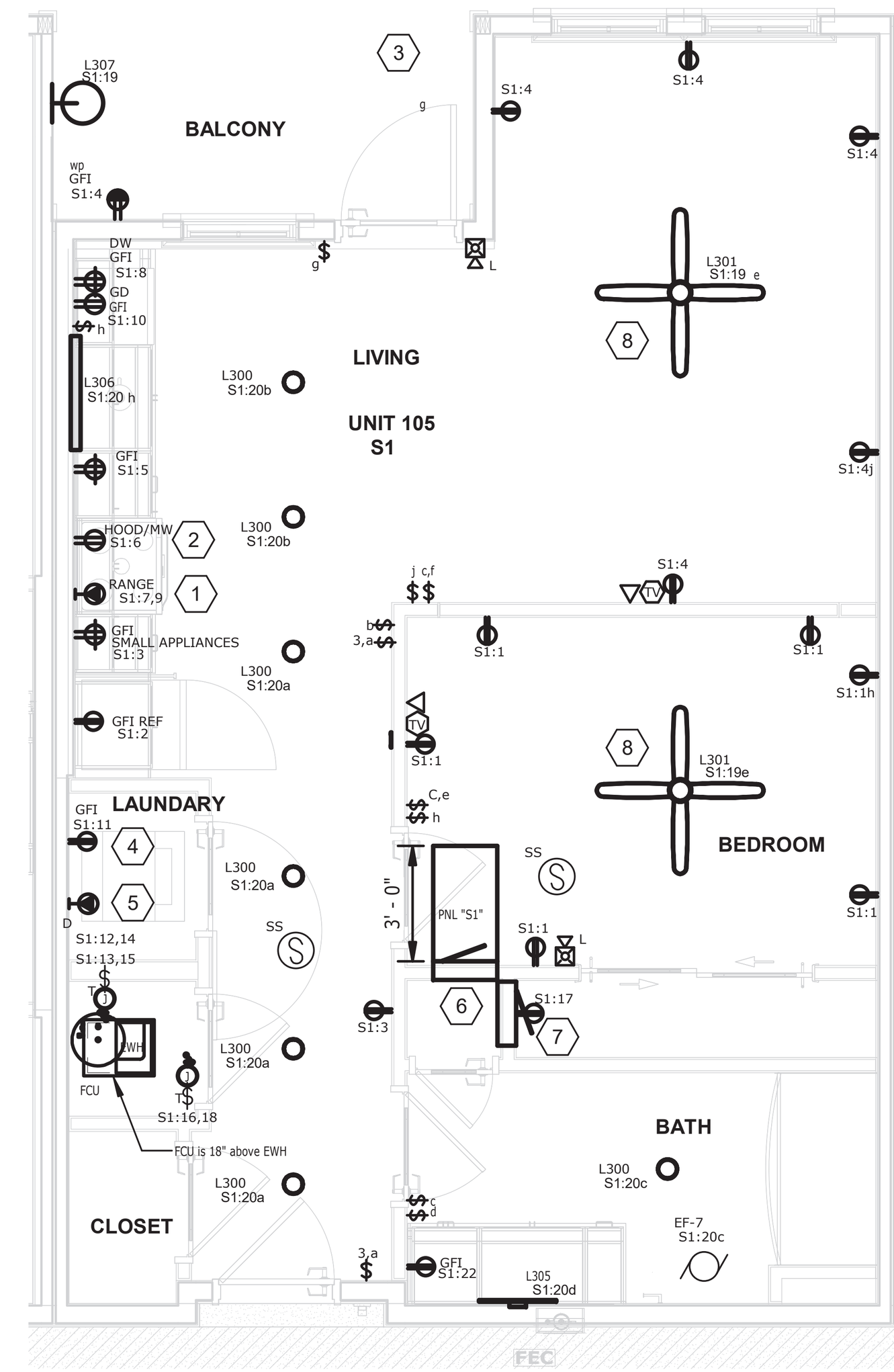
ELECTRICAL UNITS ENLARGE PLANS

SHEET NUMBER:
RE2.08

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.



1 UNIT PLAN C1- ELECTRICAL
1/4" = 1'-0"



2 UNIT PLAN S1 - ELECTRICAL
1/4" = 1'-0"

Panelboard: C1

Location: UNIT C1 | Supply From: MDP | Mounting: FLUSH | Enclosure: NEMA 1

Volts: 120/208 | Phases: 1 | Wires: 3

A.I.C. Rating: | Mains Type: 125 A MLO | Mains Rating: 125 A | MCB Rating: N/A

Notes:

CKT	Load Name	Trip	Pole	A	B	Pole	Trip	Load Name	CKT
1	BEDROOM 1 RECEP	20 A	1			1	20 A	REFRIGERATOR	2
3	SMALL APPLIANCES	20 A	1			1	20 A	LIVING ROOM RECEP	4
5	SMALL APPLIANCES	20 A	1			1	20 A	HOOD	6
7	RANGE	50 A	2			1	20 A	DISHWASHER	8
9	--	--	--			1	20 A	DISPOSAL	10
11	WASHER	20 A	1			2	30 A	DRYER	12
13	FCU	50 A	2			--	--	--	14
15	--	--	--			2	30 A	EWH *	16
17	SME RECEP	20 A	1			--	--	--	18
19	LIGHTING 1 & EXHAUST FAN	20 A	1			1	20 A	LIGHTING 2	20
21	CU	25 A	2			1	20 A	BEDROOM 2 RECEP	22
23	--	--	--			1	20 A	RECEPTACLE LOAD	24
25	BEDROOM 3 RECEP	20 A	1			1	20 A	WASHER	26
27	DRYER	20 A	2						28
29	--	--	--						30
31									32
33									34
35									36
37									38
39									40
41									42
43									44
45									46
47									48
49									50
51						2	30 A	SURGE PROTECTIVE DEVICE	52
53						--	--	--	54
			Total Load:			kVA			
			Total Amps:			AMPS			

LOAD CODES:		Panel Totals	
L LIGHTING			
R RECEPTACLE		Total Conn. Load:	
M MECHANICAL		Total Est. Demand:	
C COMPUTER		Total Conn.:	
K KITCHEN		Total Est. Demand:	
P PANEL			

LOADCENTER "C1" CALCULATION
(PER 2017 NEC 220.82)

LIGHTING AND RECEPTACLE LOAD	1403 SF x 3VA/SF	4209 VA
TWO 20A APPLIANCE CIRCUITS		3000 VA
LAUNDRY CIRCUIT		1500 VA
RANGE		8000 VA
WATER HEATER		4500 VA
DISHWASHER		744 VA
CLOTHES DRYER		5000 VA
DISPOSAL		480 VA
MICROWAVE/HOOD		950 VA
FURNACE FAN		0 VA
SUBTOTAL:		28383 VA
FIRST 10KVA @ 100%		10000 VA
40% OF REMAINDER	18383 VA x 0.4	7354 VA
SUBTOTAL PER NEC 220.82(B):		17354 VA
HVAC	COMPRESSOR	3162 VA
	HEAT @65%	4095 VA
	TOTAL HVAC	4095 VA
	HEAT@65% OR COMP@100% PER 220.82© *HEAT AND COMPRESSOR WILL NOT RUN SIMUTANIOUSLY	4095 VA
	SUBTOTAL PER NEC 220.82(B):	17354 VA
	HVAC PER NEC 220.82(C):	4095 VA
	TOTAL DEMAND LOAD	21449 VA
21449 VA/208V=	103.12 AMPS	125 AMP SERVICE
TOTAL CONNECTED LOAD:	32478 VA	

Panelboard: S1

Location: UNIT S1 | Supply From: MDP | Mounting: FLUSH | Enclosure: NEMA 1

Volts: 120/208 | Phases: 1 | Wires: 3

A.I.C. Rating: | Mains Type: 125 A MLO | Mains Rating: 125 A | MCB Rating: N/A

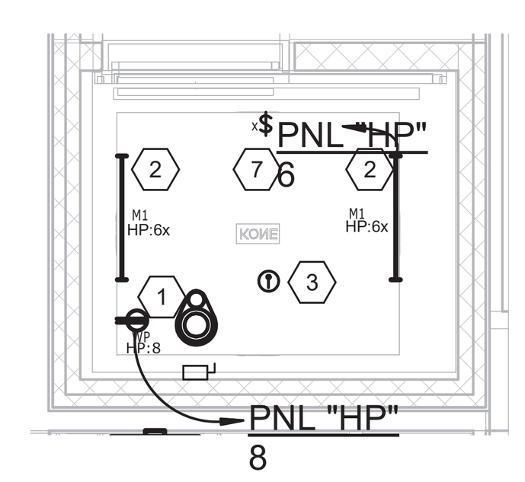
Notes:

CKT	Load Name	Trip	Pole	A	B	Pole	Trip	Load Name	CKT
1	BEDROOM 1 RECEP	20 A	1			1	20 A	REFRIGERAOTR	2
3	SMALL APPLIANCES	20 A	1			1	20 A	LIVING ROOM RECEP	4
5	SMALL APPLIANCES	20 A	1			1	20 A	HOOD	6
7	RANGE	50 A	2			1	20 A	DISHWASHER	8
9	--	--	--			1	20 A	DISPOSAL	10
11	WASHER	20 A	1			2	30 A	DRYER	12
13	FCU	50 A	2			--	--	--	14
15	--	--	--			2	30 A	EWH *	16
17	SME RECEP	20 A	1			--	--	--	18
19	LIGHTING 1 & EXHAUST FAN	20 A	1			1	20 A	LIGHTING 2	20
21	CU	25 A	2			1	20 A	RECEPTACLE LOAD	22
23	--	--	--						24
25									26
27									28
29									30
31									32
33									34
35									36
37									38
39									40
41									42
43									44
45									46
47									48
49									50
51						2	30 A	SURGE PROTECTIVE DEVICE	52
53						--	--	--	54
			Total Load:			kVA			
			Total Amps:			AMPS			

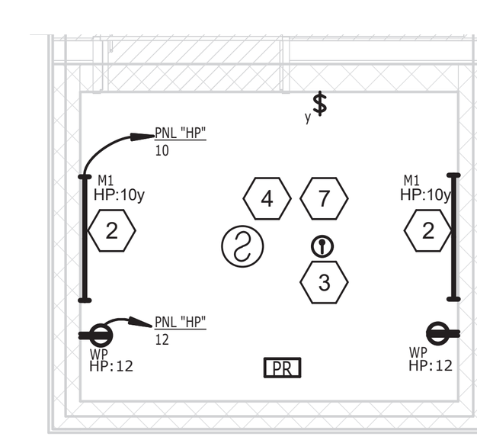
LOAD CODES:		Panel Totals	
L LIGHTING			
R RECEPTACLE		Total Conn. Load:	
M MECHANICAL		Total Est. Demand:	
C COMPUTER		Total Conn.:	
K KITCHEN		Total Est. Demand:	
P PANEL			

LOADCENTER "S1" CALCULATION
(PER 2017 NEC 220.82)

LIGHTING AND RECEPTACLE LOAD	594 SF x 3VA/SF	1782 VA
TWO 20A APPLIANCE CIRCUITS		3000 VA
LAUNDRY CIRCUIT		1500 VA
RANGE		8000 VA
WATER HEATER		4500 VA
DISHWASHER		744 VA
CLOTHES DRYER		5000 VA
DISPOSAL		480 VA
MICROWAVE/HOOD		950 VA
FURNACE FAN		0 VA
SUBTOTAL:		25956 VA
FIRST 10KVA @ 100%		10000 VA
40% OF REMAINDER	15956 VA x 0.4	6383 VA
SUBTOTAL PER NEC 220.82(B):		16383 VA
HVAC	COMPRESSOR	2371 VA
	HEAT @65%	2500 VA
	TOTAL HVAC	2500 VA
	HEAT@65% OR COMP@100% PER 220.82© *HEAT AND COMPRESSOR WILL NOT RUN SIMUTANIOUSLY	2500 VA
	SUBTOTAL PER NEC 220.82(B):	16383 VA
	HVAC PER NEC 220.82(C):	2500 VA
	TOTAL DEMAND LOAD	18883 VA
18883 VA/208V=	90.78 AMPS	125 AMP SERVICE
TOTAL CONNECTED LOAD:	28456 VA	



5 ELEVATOR PIT
1/4" = 1'-0"



6 ELEVATOR SHAFT
1/4" = 1'-0"

ELEVATOR EQUIPMENT KEY NOTES

1
2
3
4
5
DEDICATED RECEPTACLE FOR SUMP PUMP.
6
ELEVATOR PIT/SHAFT LUMINAIRE PROVIDED BY DIVISION 26 CONTRACTOR.
HEAT DETECTOR TO BE LOCATED WITHIN 24" OF THE SPRINKLER HEAD.
7
TOP OF SHAFT.
DISCONNECT SWITCH FOR ELEVATOR MOTOR.
8
DISCONNECT SWITCH FOR ELEVATOR CAB LIGHTS. CAB LIGHTS SHALL BE CONNECTED TO PANEL LS WITH 2#12 + 1 #12G IN 3/4" C.
9
ELEVATOR PIT & SHAFT LAYOUTS ARE SCHEMATIC. COORDINATE FULLY WITH ELEVATOR SHOP DRAWINGS AND ELEVATOR CONTRACTOR REQUIREMENTS AND ADJUST SIZES AND LOCATIONS AS REQUIRED.
10
FIRE ALARM CONTROL REALY FOR PRIMARY LEVEL ELEVATOR RECALL.
11
FIRE ALARM CONTROL REALY FOR ALTERNATE LEVEL ELEVATOR RECALL.
FIRE ALARM CONTROL REALY FOR ELEVATOR SHUTDOWN.
12
FIRE ALARM CONTROL REALY FOR ELEVATOR WARNING LIGHT ILLUMINATION .
FIRE ALARM MONITORING MODULE FOR ELEVATOR SHUTDOWN CONTROL CIRCUIT VOLTAGE LOSS MONITORING.
13
J-BOX FOR ELEVATOR PHONE. ROUTE (1) 1" C. W/PULL WIRES TO TTB.

GENERAL NOTES

1. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPES III, IV, AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL JURISDICTION HAVING AUTHORITY.PROVIDE M.C. CABLE OR WIRE/CONDUIT FOR ALL OTHER CONSTRUCTION TYPES.
2. SEAL ALL OUTLET BOXES PER LOCAL ENERGY CODE.
3. INTERCONNECT SMOKE DETECTORS IN INDIVIDUAL UNITS SO THAT INITIATION OF ONE WILL CAUSE INITIATION OF ALL.
4. INDICATED MECHANICAL EQUIPMENT. SEE E6-01 FOR MECHANICAL CONNECTION SCHEDULE.
5. OUTLET BOXES SHALL NOT BE INSTALLED WITHIN ANY WALL BACK TO BACK.
6. ELECTRICAL OUTLET BOXES IN THE PARTY WALL(S), AS WELL AS INTERIOR WALLS,SHALLBE STAGGERED SO THAT THEY ARE NOT BACK-TO-BACK. PUTTY PACKS SHALL BE INSTALLED AROUND ALL BOXES. IF A SITUATION ARISES WHERE THE OUTLET BOXES MUST BE INSTALLED BACK-TO-BACK, USE A SOLID PANEL TO BLOCK NOISE TRANSMISSION BETWEEN THE BACK OF THE BOXES. IN ADDITION,USE ACOUSTICAL INSULATION BETWEEN THE SOLIDBLOCKING PANEL AND THE WALL SURFACES, COMPLETELY SURROUNDING THE OUTLET BOXES.
7. GFCI OUTLETS SHALL NOT BE INSTALLED IN MIRRORS. COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
8. SINGLE STATION SMOKE DETECTORS SHALL BE PHOTOELECTRIC TYPE. PROVIDE GENTEX TYPE 5003F OR EQUAL. SMOKE ALARMS SHALL BE POWERED FROM 120V A/C POWER SOURCE AND HAVE A BACKUP BATTERY SOURCE. SMOKE ALARMS A/C POWER SHALL BE SUPPLIED BY UNSWITCHED PORTION OF THE BEDROOM CIRCUIT.SMOKE ALARMS SHALL BE INTERCONNECTED IN INDIVIDUAL UNITS SO THAT INITIATION OF ONE WILL CAUSE INITIATION OF ALL. REFER TO NFPA 72 FOR SMOKE DETECTOR INFORMATION.
   A. INSTALLATION - REGARDLESS OF LOCATIONS SHOWN ON DRAWINGS, INSTALL BASED ON I-IV BELOW:
      I. INSTALLED INSIDE AND OUTSIDE OF EVERY SLEEPING AREA AND ON ALLLEVELS OF DWELLING UNITS. DETECTOR SHALL BE INSTALLED WITHIN 21 FEET OF ANY DOOR TO A SLEEPING ROOM.
      II. SMOKE ALARMS SHALL NOT BE LOCATED WITHIN 36" HORIZONTAL PATH FROM DOOR TO A BATHROOM CONTAINING A SHOWER OR TUB.
      III. SMOKE ALARMS SHALL NOT BE LOCATED WITHIN 36" HORIZONTAL PATH FROM SUPPLY REGISTERS OF A FORCED AIR HEATING OR COOLING SYSTEM AND SHALL BE INSTALLED OUTSIDE OF THE DIRECT AIRFLOW FROM THOSE REGISTERS. COORDINATE EXACT LOCATION OF SMOKE ALARMS WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
      IV. SMOKE ALARMS SHALL NOT BE LOCATED WITHIN 36" HORIZONTAL PATH FROM THE TIP OF THE BLADE OF A CEILING-SUSPENDED PADDLE FAN.
9. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATIONS OF LIGHTING FIXTURES.
10. FINAL SELECTION, QUANTITY, AND LOCATION OF LIGHTS IN APARTMENTS TO BE COORDINATED WITH ARCHITECT AND INTERIOR PRIOR TO BID.
11. TYPE NM CABLE IS NOT ALLOWED EXPOSED IN HVAC CLOSETS. PROVIDE TYPE MC CABLE OR ROUTE TYPE NM CABLE IN FLEXIBLE METALLIC CONDUIT SO THAT NM CABLE IS NOT EXPOSED IN CLOSET.
12. PROVIDE TAMPER RESISTANT RECEPTACLES IN ALL ROOMS REQUIRED BY NEC 406.12.
13. ALL 15 AND 20 AMP SINGLE PHASE BRANCH CIRCUITS SUPPLYING LIGHTS, RECEPTACLES, AND SMOKE DETECTORS WITHIN LIVING UNITS SHALL BE PROTECTED BY A LISTED "ARC FAULT CIRCUIT INTERRUPTER" BREAKER, EXEMPT CIRCUITS INCLUDE BATHROOMS, GARAGES, AND OUTDOOR RECEPTACLES.
14. RECEPTACLES INSTALLED IN WET LOCATIONS SHALL BE WEATHER RESISTANT,WEATHERPROOF, AND GFCI.
15. PROVIDE CONDUIT SLEEVE EXTENDING 18" ON EITHER SIDE OF FIRE WALLS FOR WIRING THAT PASSES THRU FIRE WALLS.
16. VERIFY MOUNTING AND OPERATION HEIGHTS OF ALL ELECTRICAL DEVICES FOR ACCESSIBILITY WITH ARCHITECT PRIOR TO BID/ROUGH-IN.
17. ANY CEILING MOUNTED DEVICE WITHIN 4' OF ANOTHER CEILING MOUNTED DEVICE, PROVIDE A METAL BOX.

UNIT PLAN KEY NOTES

1. PROVIDE (NEMA 14-50R) RECEPTACLE W/3#8, #10G CIRCUIT FOR RANGE. PROVIDE RANGE CORD.
2. PROVIDE (NEMA 5-20R) RECEPTACLE W/2#12, #12G CIRCUIT FOR RANGE HOOD/MICROWAVE.
3. CONNECT TO CORRIDOR LIGHTING BRANCH CIRCUITRY.
4. PROVIDE A (NEMA 5-20R) RECEPTACLE W/2#12, #12G. FOR WASHER.
5. PROVIDE A (NEMA 14-30R) RECEPTACLE W/3#10, #10G CIRCUIT FOR CLOTHES DRYER. PROVIDE DRYER CORD.
6. FLUSH MOUNTED LOAD CENTER (W/FLUSH MOUNT COVER, 1/2" OVERLAP);CONTRACTOR SHALL VERIFY THAT THERE IS NO PIPING AND/OR DUCTWORK INSTALLED ABOVE LOADCENTER. MOUNT TOP CIRCUIT BREAKER HANDLE AT 48" AFF. COORDINATE EXACT LOCATION AND REQUIREMENTSWITH ARCHITECT/INTERIOR DESIGNER /OWNER PRIOR TO BID/ROUGH-IN.
7. PROVIDE FLUSH MOUNTED COMPOSITE STRUCTURED MEDIA ENCLOSURE (SME PANEL) WITH LOCKING DOOR WITH 6 WAY 1GHZ PASSIVE VIDEO SPLITTER. PROVIDE (1) CAT 6 CABLE FROM PUNCH DOWN BLOCK TO EACH DATA/TELEPHONE/TV OUTLET (NO DAISY CHAINING) AND (1)CAT 6 CABLE FROM PUNCH DOWN BLOCK TO TELECOM ROOM WITH 8' FOOT OF SLACK CABLE.PROVIDE (1) RG6 COAXIAL CABLE FROM SPLITTER TO EACH TELEVISION OUTLET (NO DAISY CHAINING) AND PROVIDE (1) RG6 COAXIAL CABLE FROM SPLITTER TO TELECOM ROOM WITH 8' OF SLACK CABLE. TERMINATE ALL CABLES ON APPROPRIATE TERMINATION POINTS. CLEARLY LABEL EACH PORT IDENTIFYING THE DESTINATION ADDRESS OF EACH CABLE. PROVIDE A MINIMUM OF 12" SLACK CABLE AT EACH OUTLET. PROVIDE (1) 20A DUPLEX RECEPTACLE MOUNTED WITHIN ENCLOSURE. MOUNT TOP OF MEDIA ENCLOSURE AT 60" AFF, COORDINATINGWITH SHELVING, DEVICES OR BLOCKING IN WALLS. FIELD VERIFY. SEE TELE/CATV RISER DIAGRAM.
8. PROVIDE A FAN-RATED RECESSED JUNCTION BOX MOUNTED 84" A.F.F. ON WALL
9. NOT USED.
10. MOUNT RECEPTACLE WITHIN 12" OF FRONT EDGE OF COUNTER. COORDINATE WITH THE MILL WORK CONTRACTOR FOR OUTLET LOCATION WHEN NO SIDE WALL IS AVAILABLE.
11. MOUNT HORIZONTALLY 4" BELOW COUNTERTOP WHERE COUNTER OVERHANG DOES NOT EXTEND MORE THAN 6". COORDINATE WITH ARCHITECT.

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QDG ENGINEERING CONNECTIONS
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Mechanical Electrical Plumbing Fire Protection

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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

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MILHAUS.

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL UNIT ENLARGE PLANS

SHEET NUMBER:
RE2.09

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH ON ORIGINAL SHEETS ORIGINAL PAGE SIZE

MECHANICAL MOTOR AND EQUIPMENT SCHEDULE

EQUIP. TAG	DESIGNATED TAG	LOCATIONS	LOAD				SOURCE OF POWER		PROTECT (AMPERES)	REMARKS
			VOLTS	PHASE	H.P.	AMP	CONDUIT AND WIRE SIZE	PANEL	CKT. NO.	
CU-#	CONDENSING UNIT# FOR RESIDENTIAL	MECHANICAL PLAN	208	1		12.2	2#8 + 1#10 GND IN 3/4" C.		21,23	20	2 TONN. TOTAL (TV4) UNITS. DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
CU-#	CONDENSING UNIT# FOR RESIDENTIAL	MECHANICAL PLAN	208	1		11.4	2#8 + 1#10 GND IN 3/4" C.		21,23	20	1.5 TONN. TOTAL (Sh4) UNITS. DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
CU-#	CONDENSING UNIT# FOR RESIDENTIAL	MECHANICAL PLAN	208	1		15.2	2#8 + 1#10 GND IN 3/4" C.		21,23	25	2.5 TONN. TOTAL (3v4) UNITS. DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EWH-1	ELECTRIC WATER HEATER 1	ELECTRICAL UNIT	240	1		4.4	2#10 + 1#10 GND IN 3/4" C.		16,18	15	48 GALLONS. TOTAL (9a4+1) UNITS. DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EWH-2	ELECTRIC WATER HEATER 2	ELECTRICAL UNIT	240	1		4.4	2#10 + 1#10 GND IN 3/4" C.		16,18	15	38 GALLONS. TOTAL (Sh4+1) UNITS. DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-1	TOILET EXHAUST FAN FOR RESIDENTIAL	SEE PLAN	120	1	1/10	0.3	2#12 + 1#12 GND IN 3/4" C.		19	20	TEF-1 EXHAUST FAN SHALL BE CONNECTED TO THE LIGHTING CIRCUIT SERVING THE AREA. TEF-1 SHALL BE INTERLOCKED WITH LIGHT SWITCH.
EF-4	TOILET EXHAUST FAN	MEN'S RR	120	1	1/10	0.3	2#12 + 1#12 GND IN 3/4" C.		19	20	TEF-4 EXHAUST FAN SHALL BE CONNECTED TO THE LIGHTING CIRCUIT SERVING THE AREA. TEF-4 SHALL BE INTERLOCKED WITH LIGHT SWITCH.
BP-1	BOOSTER PUMP#1	MECH ROOM	208	3	3	35	3#8 + 1#8 GND IN 3/4" C.	M	25,25,27	35	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
FCU-#	FAN COIL UNIT# FOR RESIDENTIAL	MECH	208	1	1/3	2.4	2#8 + 1#10 GND IN 3/4" C.		13,15	15	TOTAL (TV4) UNITS
FCU-#	FAN COIL UNIT# FOR RESIDENTIAL	MECH	208	1	1/3	2.4	2#8 + 1#10 GND IN 3/4" C.		13,15	15	TOTAL (Sh4) UNITS
FCU-#	FAN COIL UNIT# FOR RESIDENTIAL	MECH	208	1	1/2	3.4	2#8 + 1#10 GND IN 3/4" C.		13,15	15	TOTAL (3v4) UNITS
SP-#	SUMP PUMP	SEE PLAN	120	1	1/2	3.5	2#8 + 1#10 GND IN 3/4" C.	H	20,22		DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

GENERAL LIGHTING FIXTURE SCHEDULE

FIXTURE IMAGE	TYPE	DESCRIPTION	MANUFACTURER CATALOG NO.	VOLTAGE	LED	WATTS	LINK
	L300	ROUND SURFACE MOUNT FIXTURE	SPOT20R _ BL-RPS-60N-30K	120V	3000K	8	
	L301	CEILING FAN	OXYGEN LIGHTING	120V		28	
1730	L302	UNITY ENTRY SCONCE	NUMERA LIGHTING, NL1022.01	120V	3000K	6.5	
	L303	KITCHEN PENDENT LIGHT	KUZCO LIGHTING, JAR435, 41411-BN	120V	3000K	50	
	L304	LED BATH BAR	KUZCO LIGHTING, VEGA MINOR VL18236-BN	120V	3000K	33	
	L305	LED BATH BAR	KUZCO LIGHTING, VEGA MINOR VL18224-BN	120V	3000K	18	
	L306	UNDERCABINET STRIP	COOPER HALO, TRAC ,HLI05CT09P	120V	3000K	11	
	L307	BALCONY SCONCE	KUZCO LIGHTING, EW19414-BK	120V	3000K	28	
	L310	STAIRWELL LIGHT	STARTEK LIGHTING AMERICA, SLIM24-40-500-500-WD-CL-DIM-U-DM	120V	3500K	10	
	L311	MECHANICAL ROOM LIGHT	COOPER LIGHTING SOLUTIONS, 4INRLED-LDS-46SL-CR-UNV-LED5-CD1-U	120V	3500K	35	

Panelboard: HP

Location: POOL EQUIPMENT ROOM
Supply From:
Mounting: FLUSH
Enclosure: NEMA 1

Volts: 120/208
Phases: 1
Wires: 3

A.I.C. Rating:
Mains Type: 200A MLO
Mains Rating: 200 A
MCB Rating: N/A

Notes:

CKT	Load Name	Trip	Pole	A		B		Pole	Trip	Load Name	CKT
1	CORRIDOR FLOOR 1 LIGHING	20 A	1	0.47	0.29			1	20 A	CORRIDOR FLOOR 2 LIGHING	2
3	CORRIDOR FLOOR 3 LIGHING	20 A	1			0.42	0.42	1	20 A	CORRIDOR FLOOR 4 LIGHING	4
5	CORRIDOR FLOOR 1 POWER	20 A	1	1.08	0.11			1	20 A	ELEVATOR PIT LIGHTING	6
7	STORAGE ROOM FLOOR 1 POWER	20 A	1			0.36	0.18	1	20 A	Receptacle	8
9	IDF ROOM FLOOR 1 POWER	20 A	1	0.36	0.11			1	20 A	Lighting	10
11	MAINTAINANCE RECEPTACLE 1	20 A	1			0.90	0.36	1	20 A	Receptacle	12
13	MAINTAINANCE RECEPTACLE 2	20 A	1	0.72	0.00			2	20 A	SP-1	14
15	CORRIDOR FLOOR 2 POWER	20 A	1			1.08	0.00	--	--	--	16
17	CORRIDOR FLOOR 3 POWER	20 A	1	1.08							18
19	STORAGE ROOM FLOOR 3 POWER	20 A	1			0.36					20
21	IDF ROOM FLOOR 3 POWER	20 A	1	0.36							22
23	CORRIDOR FLOOR 4 POWER	20 A	1			1.08					24
25											26
27											28
29											30
31											32
33											34
35											36
37											38
39											40
41											42
43											44
45											46
47											48
49											50
51							0.00	2	30 A	SURGE PROTECTION DEVICE	52
53								--	--	--	54
		Total Load:		4.57		5.16		kVA			
		Total Amps:		43.92		48.83		AMPS			

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	214 VA	125.00%	267 VA		
Other	1591 VA	100.00%	1591 VA	**Total Conn. Load:**	9.72 kVA
Power	0 VA	0.00%	0 VA	**Total Est. Demand:**	9.78 kVA
Receptacle	7920 VA	100.00%	7920 VA	**Total Conn.:**	46.75 A
				Total Est. Demand:	47.01 A

Notes:

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Plumbing
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Mechanical

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△	DATE	SUBMISSION

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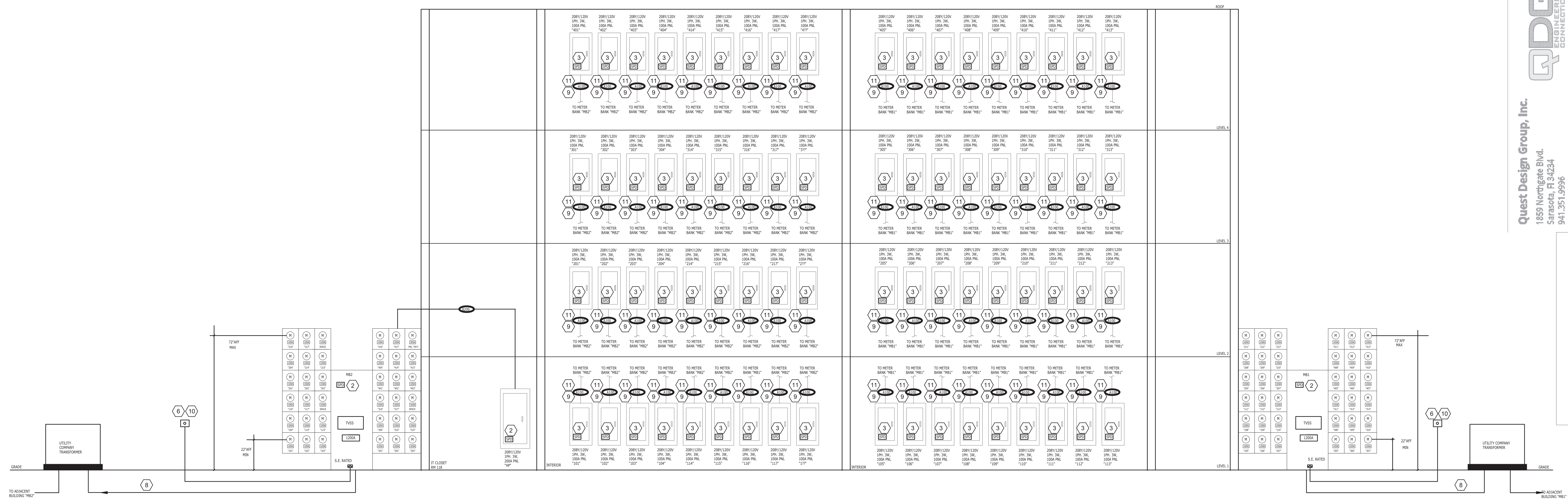
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

EQUIPMENT SCHEDULE

SHEET NUMBER:
RE3.00



METER CENTER		
BUILDING CALCULATIONS PER N.E.C. 220.80, OPTIONAL CALCULATIONS		
TOTAL UNITS THIS SERVICE: 68		
TYPICAL DWELLING UNIT - UNIT TYPE "A1 "	28,975 W	
TOTAL UNITS THIS BUILDING	28	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		811,300 W
TYPICAL DWELLING UNIT - UNIT TYPE "B1"	30,787 W	
TOTAL UNITS THIS BUILDING	8	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		246,296 W
TYPICAL DWELLING UNIT - UNIT TYPE "B2"	30,856 W	
TOTAL UNITS THIS BUILDING	20	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		617,120 W
TYPICAL DWELLING UNIT - UNIT TYPE "C1"	32,478 W	
TOTAL UNITS THIS BUILDING	8	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		259,824 W
TYPICAL DWELLING UNIT - UNIT TYPE "S1"	28,456 W	
TOTAL UNITS THIS BUILDING	4	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		113,824 W
TOTAL CONNECTED DWELLING UNIT LOAD THIS BUILDING		2,048,364 W
DEMAND FACTOR FOR TOTAL # UNITS (TBL 220.84)		23%
TOTAL DEMAND FROM DWELLING UNITS THIS BUILDING		471,124 W
TOTAL DEMAND FROM HOUSE PANEL		0 W
TOTAL DEMAND FROM FUTURE RETAIL		0 W
TOTAL DEMAND THIS BUILDING -		471,124 W
TOTAL AMPERES THIS BUILDING -		1,308 A
MINIMUM ELECTRICAL SERVICE ENTRANCE RATING (208 V, 3 PH)		1,600 A

METER BANK MB-1		
BUILDING CALCULATIONS PER N.E.C. 220.80, OPTIONAL CALCULATIONS		
TOTAL UNITS THIS SERVICE: 36		
TYPICAL DWELLING UNIT - UNIT TYPE "A1 "	28,975 W	
TOTAL UNITS THIS BUILDING	12	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		347,700 W
TYPICAL DWELLING UNIT - UNIT TYPE "B1"	30,787 W	
TOTAL UNITS THIS BUILDING	4	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		123,148 W
TYPICAL DWELLING UNIT - UNIT TYPE "B2"	30,856 W	
TOTAL UNITS THIS BUILDING	12	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		370,272 W
TYPICAL DWELLING UNIT - UNIT TYPE "C1"	32,478 W	
TOTAL UNITS THIS BUILDING	4	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		129,912 W
TYPICAL DWELLING UNIT - UNIT TYPE "S1"	28,456 W	
TOTAL UNITS THIS BUILDING	4	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		113,824 W
TOTAL CONNECTED DWELLING UNIT LOAD THIS BUILDING		1,084,856 W
DEMAND FACTOR FOR TOTAL # UNITS (TBL 220.84)		30%
TOTAL DEMAND FROM DWELLING UNITS THIS BUILDING		325,457 W
TOTAL DEMAND FROM HOUSE PANEL		0 W
TOTAL DEMAND FROM FUTURE RETAIL		0 W
TOTAL DEMAND THIS BUILDING -		325,457 W
TOTAL AMPERES THIS BUILDING -		904 A
MINIMUM ELECTRICAL SERVICE ENTRANCE RATING (208 V, 3 PH)		1200 A

METER BANK MB-2		
BUILDING CALCULATIONS PER N.E.C. 220.80, OPTIONAL CALCULATIONS		
TOTAL UNITS THIS SERVICE: 32		
TYPICAL DWELLING UNIT - UNIT TYPE "A1 "	28,975 W	
TOTAL UNITS THIS BUILDING	16	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		463,600 W
TYPICAL DWELLING UNIT - UNIT TYPE "B1"	30,787 W	
TOTAL UNITS THIS BUILDING	4	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		123,148 W
TYPICAL DWELLING UNIT - UNIT TYPE "B2"	30,856 W	
TOTAL UNITS THIS BUILDING	8	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		246,848 W
TYPICAL DWELLING UNIT - UNIT TYPE "C1"	32,478 W	
TOTAL UNITS THIS BUILDING	4	
TOTAL LOAD TYPICAL DWELLING UNITS THIS BUILDING		129,912 W
TOTAL CONNECTED DWELLING UNIT LOAD THIS BUILDING		963,508 W
DEMAND FACTOR FOR TOTAL # UNITS (TBL 220.84)		31%
TOTAL DEMAND FROM DWELLING UNITS THIS BUILDING		298,688 W
TOTAL DEMAND FROM HOUSE PANEL		0 W
TOTAL DEMAND FROM FUTURE RETAIL		0 W
TOTAL DEMAND THIS BUILDING -		298,688 W
TOTAL AMPERES THIS BUILDING -		829 A
MINIMUM ELECTRICAL SERVICE ENTRANCE RATING (208 V, 3 PH)		1200 A

COPPER CONDUCTOR AND CONDUIT SCHEDULE

O.C.P.D.** AMPERE RATING	SYMBOL*	3 WIRE WITH GROUND (2P W/ NEUTRAL)	O.C.P.D.** AMPERE RATING	SYMBOL*	3 WIRE WITH GROUND (2P W/ NEUTRAL)
20A	A20	3-#12, #12G. IN 3/4"C.	225A	A225	3-#4/0, #4G. IN 2 1/2"C.
25A	A25	3-#10, #10G. IN 3/4"C.	250A	A250	3-250MCM, #4G. IN 3"C.
30A	A30	3-#10, #10G. IN 3/4"C.	300A	A300	3-350MCM, #4G. IN 3"C.
35A	A35	3-#8, #10G. IN 1"C.	350A	A350	3-400MCM, #3G. IN 3"C.
40A	A40	3-#8, #10G. IN 1"C.	400A	A400	3-500MCM, #3 G IN 3 1/2"C.
45A	A45	3-#8, #10G. IN 1"C.	450A	A450	2 SETS: 3-#4/0, #2G. EACH IN 2 1/2"C.
50A	A50	3-#8, #10G. IN 1"C.	500A	A500	2 SETS: 3-#250MCM, #2G. EACH IN 3"C.
60A	A60	3-#6, #10G. IN 1 1/4"C.	600A	A600	2 SETS: 3-#350MCM, #1G. EACH IN 3"C.
70A	A70	3-#4, #8G. IN 1 1/4"C.	700A	A700	2 SETS: 3-#400MCM, #1/0G. EACH IN 3"C.
80A	A80	3-#4, #8G. IN 1 1/4"C.	800A	A800	2 SETS: 3-#500MCM, #1/0G. EACH IN 3 1/2"C.
90A	A90	3-#3, #8G. IN 1 1/4"C.	1000A	A1000	3 SETS: 3-#400MCM, #2/0G. EACH IN 3"C.
100A	A100	3-#3, #8G. IN 1 1/4"C.	1200A	A1200	4 SETS: 3-#350MCM, #3/0G. EACH IN 3"C.
110A	A110	3-#2, #6G. IN 1 1/2"C.	1600A	A1600	5 SETS: 3-#400MCM, #4/0G. EACH IN 3"C.
125A	A125	3-#1, #6G. IN 2"C.	2000A	A2000	6 SETS: 4-#400MCM, #250MCM G. EACH IN 3 1/2"C.
150A	A150	3-#1/0, #6G. IN 2"C.	2200A	A2200	6 SETS: 3-#500MCM, #350MCM G. EACH IN 3 1/2"C.
175A	A175	3-#2/0, #6G. IN 2"C.	2500A	A2500	7 SETS: 3-#500MCM, #350MCM G. EACH IN 3 1/2"C.
200A	A200	3-#3/0, #6G. IN 2 1/2"C.	3000A	A3000	8 SETS: 3-#500MCM, #400MCM G. EACH IN 4"C.
G6	1-#6 G IN 1/2"C.	G2/0	1-#2/0 G IN 1"C.	G3/0	1-#3/0 G IN 1"C.

* UNDERLINED TEXT WITHIN A SYMBOL INDICATES NO GROUND WIRE FOR SVC. FEEDER OR NO NEUTRAL FOR MOTOR LOAD

** OVER CURRENT PROTECTIVE DEVICE

NOTES:

1. FOR SINGLE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 100' OF CIRCUIT LENGTH. FOR THREE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 200' OF CIRCUIT LENGTH. (ADJUST CONDUIT AS REQ'D).
2. VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL,IN ACCORDANCE WITH THE FLORIDA BUILDING CODE - ENERGY CONSERVATION, SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTOR BASES ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.
3. ALL UNDERGROUND AND ROOFTOP CONDUCTORS TO BE 90° C CONDUCTORS, TYPE XHHW-2. ALLOWABLE AMPACITY PER 75°C COLUMN, NEC 70 TABLE 310.15(B)(16).
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHN INSULATION UNLESS OTHERWISE NOTED.

BRANCH CIRCUIT WIRING SCHEDULE

SINGLE POLE (1P)				THREE POLE (3P)			
C/B SIZE	WIRE	CONDUIT	REMARKS	C/B SIZE	WIRE	CONDUIT	REMARKS
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	20a.	3-#12, 1-#12G.	3/4"	3Ø, 3W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	25a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
35a.	2-#8, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10N, 1-#10G.	3/4"	3Ø, 4W
40a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#8, 1-#10G.	1"	3Ø, 4W
50a.	2-#8, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#10G.	1"	3Ø, 3W
60a.	2-#6, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#8N, 1-#10G.	1"	3Ø, 4W
TWO POLE (2P)				45a.	3-#8, 1-#10G.	1"	3Ø, 3W
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	45a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#10G.	1"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
40a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#6N, 1-#10G.	1 1/4"	3Ø, 4W
50a.	2-#8, 1-#10G.	1"	1Ø,2W	100a.	3-#3, 1-#3N, 1-#8G.	1 1/2"	3Ø, 4W
60a.	2-#6, 1-#10G.	1"	1Ø,2W	125a.	3-#1, 1-#1N, 1-#6G.	2"	3Ø, 4W
70a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	150a.	3-#1/0, 1-#1/0N, 1-#6G.	2"	3Ø, 4W
80a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	175a.	3-#2/0, 1-#2/0N, 1-#6G.	2'	3Ø, 4W
90a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W	200a.	3-#3/0, 1-#3/0N, 1-#6G.	2 1/2"	3Ø, 4W
100a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W				

NOTE: VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL, IN ACCORDANCE WITH THE FBC,SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTORBASED ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.

SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY AND NOTIFY THE ENGINEER OF RECORD IF THE RESULTING AFC IS GREATER THAN INDICATED ON RISER DIAGRAM.

KEYED NOTES - ELECTRICAL RISER DIAGRAM

1. NEW UTILITY CT CABINET/METER COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY PRIOR TO ROUGH-IN.
2. NEW SURGE PROTECTIVE DEVICE WITH INTEGRAL DISCONNECT: PQ PROTECTION MODEL #PQM200" SERIES (OR APPROVED EQUAL).
3. NEW SURGE PROTECTIVE DEVICE: PQ PROTECTION MODEL #PQM100" SERIES(OR APPROVED EQUAL).
4. NEW SURGE PROTECTIVE DEVICE: PQ PROTECTION MODEL #PQM200" SERIES(OR APPROVED EQUAL).
5. (1) 1 1/4" CONDUIT.
6. SERVICE 1 OF 2 MAIN SHUNT TRIP. PROVIDE PERMANENT LABELING INDICATING "MAIN SHUNT TRIP 1 OF 2" AND LOCATION OF OTHER SERVICE DISCONNECTS.
7. SERVICE 2 OF 2 MAIN SHUNT TRIP. PROVIDE PERMANENT LABELING INDICATING "MAIN SHUNT TRIP 2 OF 2" AND LOCATION OF OTHER SERVICE DISCONNECTS.
8. TO BE ENCASED WITH A MINIMUM OF 2" OF CONCRETE.
9. PROVIDE CONDUCTOR SUPPORTING MEANS FOR VERTICAL RISERS PER NEC-309.19. INSTALL NEC-309.19. INSTALL PULLBOX WITH SCREW COVER ACCESS PANEL AN OZ TYPE "S" CABLE SUPPORT.
10. SHUNT TRIP WEATHERPROOF PUSH BUTTON AND ENCLOSURE , GLASS BREAK TYPE OPERATOR. PUSH BUTTON SHALL BE ACCESSIBLE TO THE FIRE DEPARTMENT, COORDINATE LOCATION WITH AHJ.PROVIDE PERMANENT LABEL SUITABLE FOR EXTERIOR USE.BASIS OF DESIGN:SQUARE D 9001-KYK117 W/K15 OPERATOR.
11. PROVIDE 1 1/2"CONDUIT IN LIEU OF 3" CONDUIT FOR TENANT PANEL ONLY.

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO: 220035.00

SINGLE LINE DIAGRAM

SHEET NUMBER: RE4.00

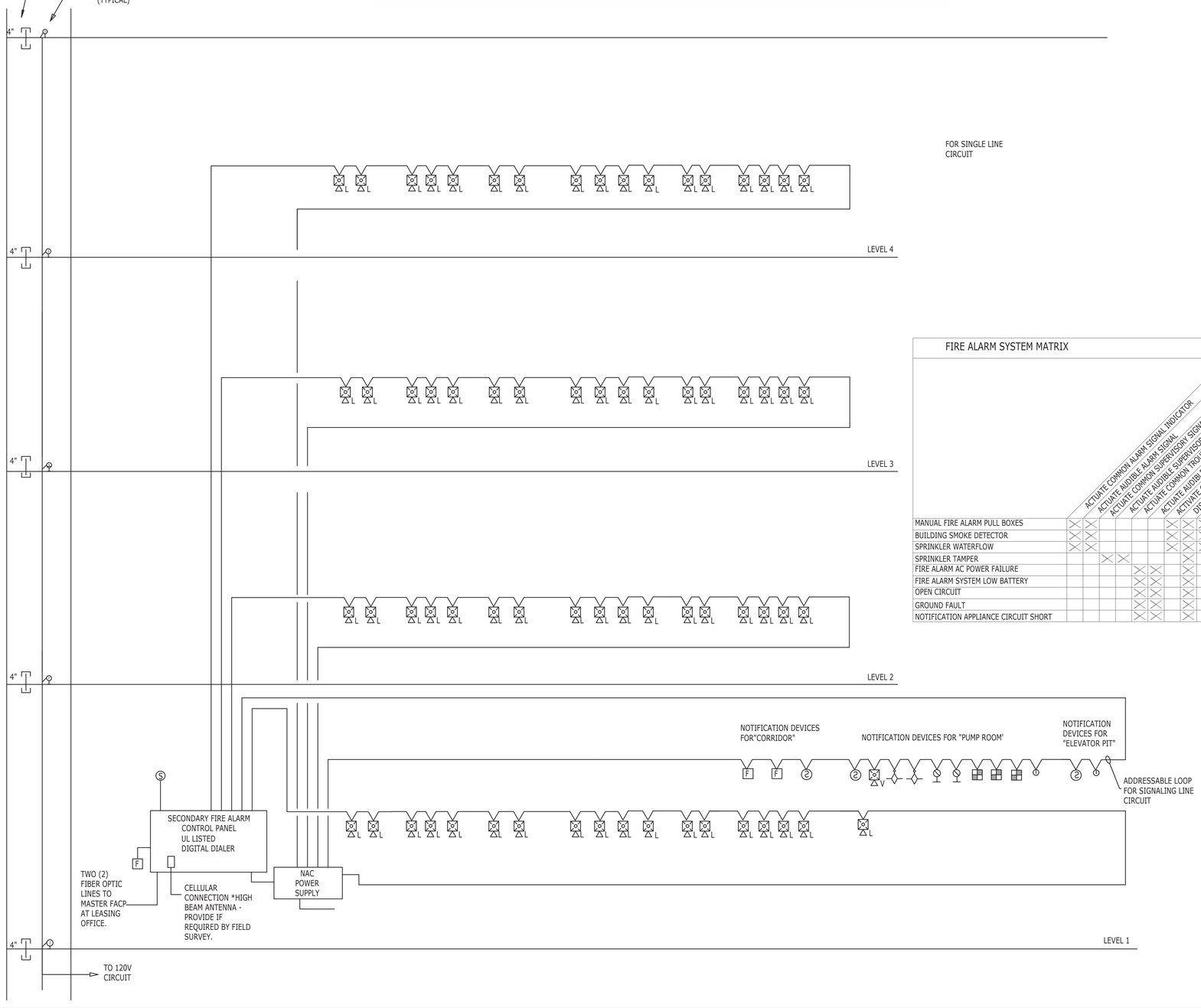
THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ALL SHEETS ORIGINAL PAGE SIZE

GENERAL NOTES

1. THE FIRE ALARM SYSTEM SHALL BE INSTALLED AND TESTED IN ACCORDANCE WITH NFPA 72, APPLICABLE SECTIONS OF THE MARYLAND BUILDING AND FIRE PREVENTION CODES AND ADA.
2. THE REMOTE ANNUNCIATOR SHALL BE FLUSH MOUNTED AND SHALL BE LOCATED IN THE FIELD WITH THE CODE OFFICIAL.
3. COORDINATE THE QUANTITY AND LOCATION OF ALL FLOW AND TAMPER SWITCHES WITH THE SPRINKLER CONTRACTOR. THIS SHALL INCLUDE THE DOUBLE CHECK VALVE LOCATED AT THE BACK FLOW PREVENTER.
4. FIRE ALARM TERMINAL CABINET NUMBER CORRESPONDS TO RESIDENTIAL BUILDING NUMBER AND IS LOCATED IN FIRE ALARM PANEL ROOM.
5. THE FIRE ALARM CONTROL PANEL SHALL BE PROVIDED WITH 24 VOLT DC BATTERIES AS A SECONDARY POWER SOURCE.
6. THE NFPA 72 REQUIRED DISTINCTIVE EVACUATION SIGNAL SHALL BE A THREE-PULSE TEMPORAL SOUND IN ACCORDANCE WITH ANSI S3.41.

PROVIDE 4" SLEEVE FOR EMERGENCY RESPONDER RADIO COVERAGE. (6" ABOVE AND BELOW FLOOR/CEILING ASSEMBLY). (TYPICAL)

PROVIDE J-BOX FOR EMERGENCY RESPONDER RADIO COVERAGE. (TYPICAL)



FOR SINGLE LINE CIRCUIT

FIRE ALARM SYSTEM MATRIX	BUILDING SYSTEM OUTPUTS												CENTRAL COMM					
	ACTUATE COMMON ALARM SIGNAL INDICATOR	ACTUATE AUDIBLE ALARM SIGNAL	ACTUATE COMMON SUPERVISORY SIGNAL INDICATOR	ACTUATE AUDIBLE SUPERVISORY SIGNAL	ACTUATE COMMON TROUBLE SIGNAL INDICATOR	ACTUATE AUDIBLE TROUBLE SIGNAL	ACTUATE GENERAL EVACUATION SIGNAL	DISPLAY CHANGE OF STATUS	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL COMM	TRANSMIT TROUBLE SIGNAL TO CENTRAL COMM	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL COMM	SHOW CHANGE OF STATUS ON ANNUNCIATOR	SHOW CHANGE OF STATUS ON CENTRAL SYSTEM	TRANSMIT FIRE ALARM SIGNAL TO CENTRAL PANEL	TRANSMIT SUPERVISORY SIGNAL TO CENTRAL STATION	TRANSMIT TROUBLE SIGNAL TO CENTRAL STATION
MANUAL FIRE ALARM PULL BOXES	X	X				X	X	X		X	X	X		X	X		
BUILDING SMOKE DETECTOR	X	X				X	X	X		X	X	X		X	X		
SPRINKLER WATERFLOW	X	X				X	X	X		X	X	X		X	X		
SPRINKLER TAMPER			X	X			X		X		X			X	X	X	
FIRE ALARM AC POWER FAILURE					X	X	X			X	X			X	X		X
FIRE ALARM SYSTEM LOW BATTERY					X	X	X			X	X			X	X		X
OPEN CIRCUIT					X	X	X			X	X			X	X		X
GROUND FAULT					X	X	X			X	X			X	X		X
NOTIFICATION APPLIANCE CIRCUIT SHORT					X	X	X			X	X			X	X		X

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MILHAUS

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SR-82

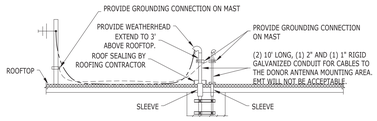
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

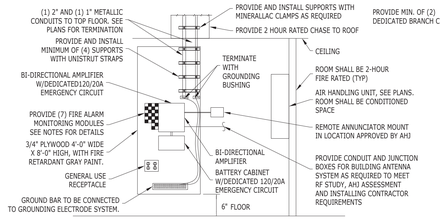
FIRE ALARM RISER DIAGRAM AND DETAILS

SHEET NUMBER:
RE4.01

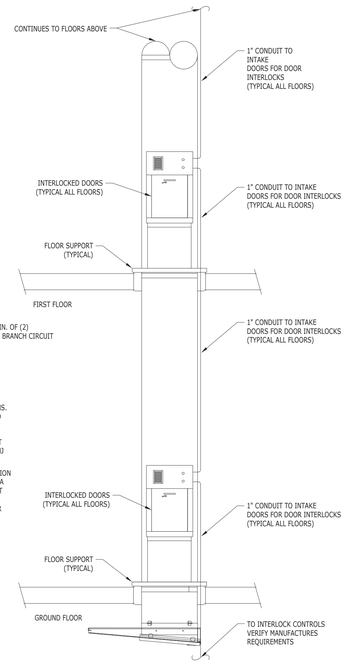
THE LINE SHOWN ABOVE IS EXACTLY ONE INCH ON ANSI SHEETS ORIGINAL PAGE SIZE



TYPICAL ROOF DETAIL
SCALE: NONE



TYPICAL TWO-WAY RADIO COMMUNICATION IN 2-HOUR RATED ROOM, LOCATIONS AS PER AHJ AND EQUIPMENT MANUFACTURES RECOMENDATIONS
SCALE: NONE



TYPICAL TRASH CHUTE INTERLOCK DETAIL
SCALE: NONE

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GENERAL TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM NOTES

1. ALL SYSTEM COMPONENTS SHALL BE DESIGNED, INSTALLED, TESTED, INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURES PUBLISHED INSTRUCTIONS AND THE REQUIREMENTS OF NFPA 1221
2. SYSTEMS SHALL HAVE LIGHTING PROTECTION THAT COMPLIES WITH NFPA 780.
3. RADIO COVERAGE SHALL BE DETERMINED BY THE AHJ.
4. CRITICAL AREAS, INCLUDING FIRE COMMAND CENTERS, FIRE PUMP ROOMS, EXIT STAIRS, EXIT PASSAGEWAYS, ELEVATOR LOBBIES, STANDPIPE CABINETS, SPRINKLER SECTIONAL VALVE LOCATION, AND OTHER AREAS DEEMED CRITICAL BY THE AHJ, SHALL BE PROVIDED WITH 99% FLOOR AREA RADIO COVERAGE.
5. GENERAL BUILDING AREAS SHALL BE PROVIDED WITH 90% FLOOR AREA RADIO COVERAGE.
6. ALL REPEATER, TRANSMITTER, RECEIVER, SIGNAL BOOSTER COMPONENTS, EXTERNAL FILTERS AND BATTERY SYSTEM COMPONENTS SHALL BE CONTAINED IN A NEMA 4 OR NEMA 4X TYPE ENCLOSURE.
7. THE SYSTEM SHALL INCLUDED AUTOMATIC SUPERVISORY SIGNALS FOR MALFUNCTIONS OF THE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEMS THAT ARE ANNUNCIATED BY THE FIRE ALARM SYSTEM IN ACCORDANCE WITH NFPA 72, AND SHALL COMPLY WITH THE FOLLOWING: SYSTEM SUPERVISORY SIGNALS SHALL INCLUDE THE FOLLOWING:

   (A) DONOR ANTENNA MALFUNCTION.
   (B) ACTIVE RF EMITTING DEVICE FAILURE.
   (C) LOW BATTERY CAPACITY INDICATION WHEN 70% OF THE 12 HOUR OPERATING CAPACITY HAS BEEN DEPLETED.
   (D) SYSTEM COMPONENT FAILURE.

   POWER SUPPLY SUPERVISORY SIGNALS SHALL INCLUDE THE FOLLOWING FOR EACH RF EMITTING DEVICE AND SYSTEM COMPONENT.
   (A) LOSS OF NORMAL AC POWER.
   (B) FAILURE OF BATTERY CHARGER.
   THE COMMUNICATIONS LINK BETWEEN THE FIRE ALARM SYSTEM AND THE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM MUST BE MONITORED FOR INTEGRITY.
8. A DEDICATED MONITORING PANEL OR MONITORING BY A FIRE ALARM SYSTEM SHALL BE PROVIDED WITHIN THE FIRE COMMAND CENTER TO ANNUNCIATE THE STATUS OF ALL RF EMITTING DEVICES AND AND SYSTEM COMPONENT LOCATIONS . THE MONITORING PANEL SHALL PROVIDE VISUAL AND LABELED INDICATIONS OF THE FOLLOWING FOR EACH SYSTEM COMPONENT AND RF EMITTING DEVICE:

   (A) NORMAL AC POWER.
   (B) LOSS OF NORMAL AC POWER.
   (C) BATTERY CHARGER FAILURE.
   (D) LOW BATTERY CAPACITY (TO 70% DEPLETION).
   (E) DONOR ANTENNA MALFUNCTION.
   (F) ACTIVE RF EMITTING DEVICE MALFUNCTION.
   (G) SYSTEM COMPONENT MALFUNCTION.

   THE COMMUNICATIONS LINK BETWEEN THE DEDICATED MONITORING PANEL AND THE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM MUST BE MONITORED FOR INTEGRITY.
9. WHERE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM ARE INSTALLED, A SYSTEM TEST SHALL BE CONDUCTED, DOCUMENTED, AND SIGNED BY A PERSON APPROVED BY AHJ UPON SYSTEM ACCEPTANCE AND ONCE EVERY 12 MONTHS.

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941.351.9996
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Cert. of Authorization# CA31201
Mechanical | Electrical | Plumbing | Fire Protection

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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

FIRE DETAILS AND RISER

SHEET NUMBER:
RE4.02

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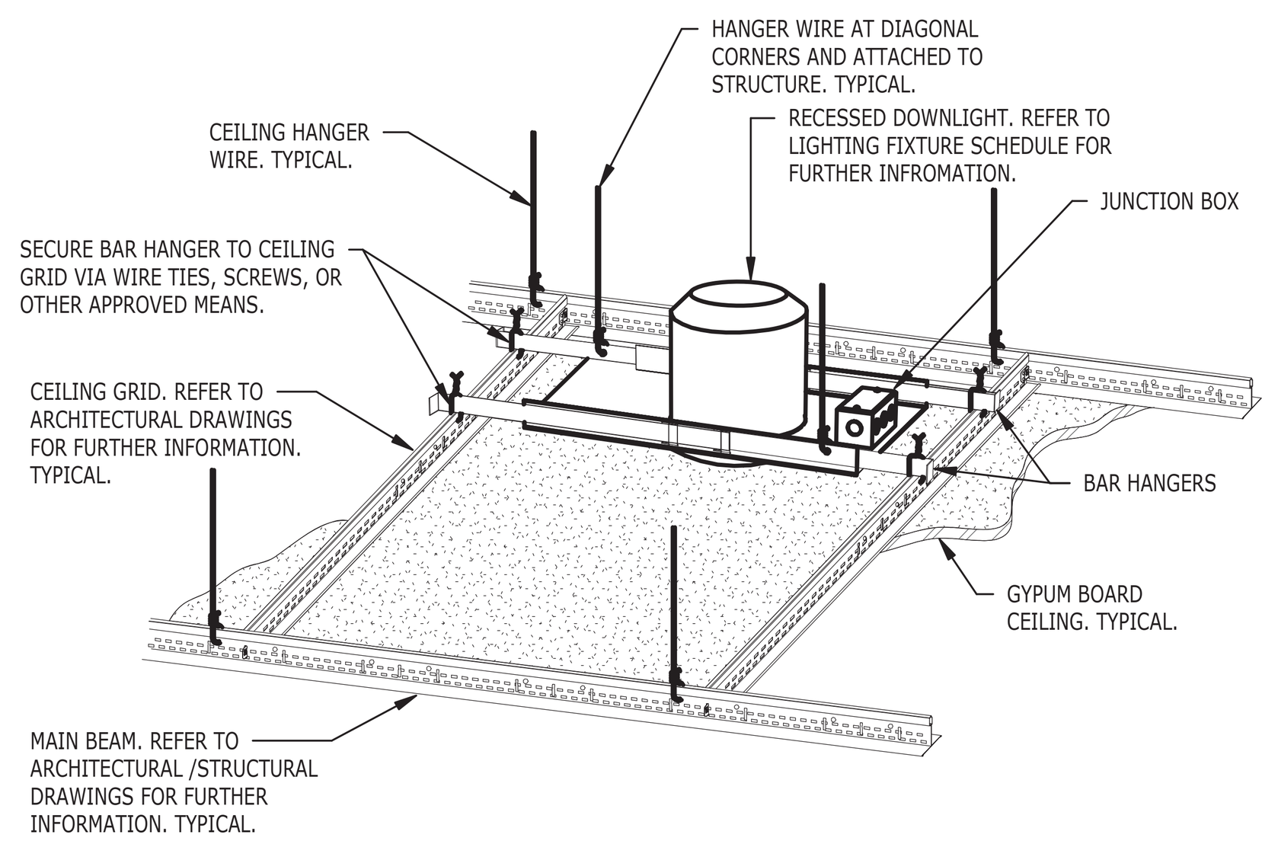
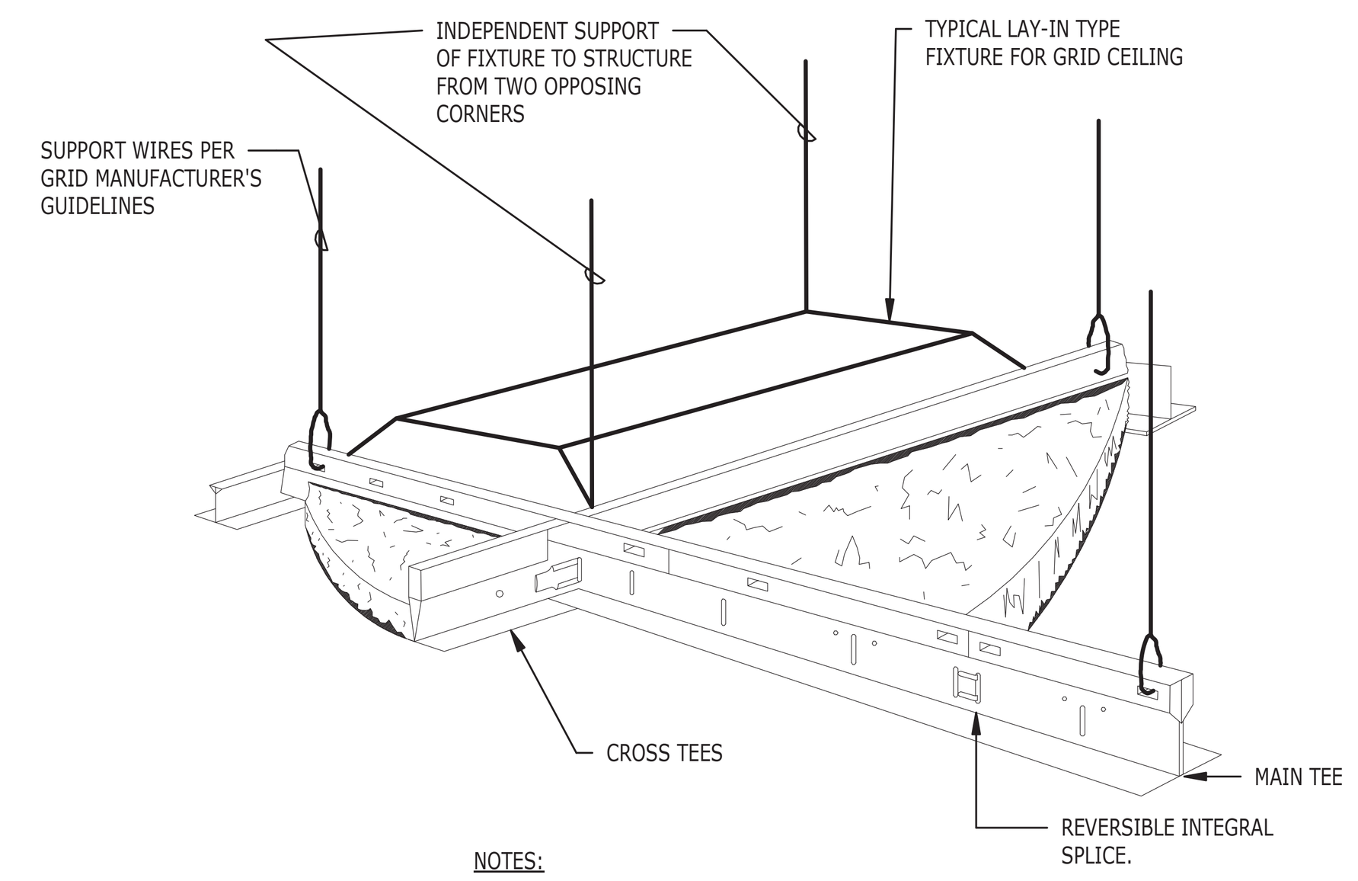


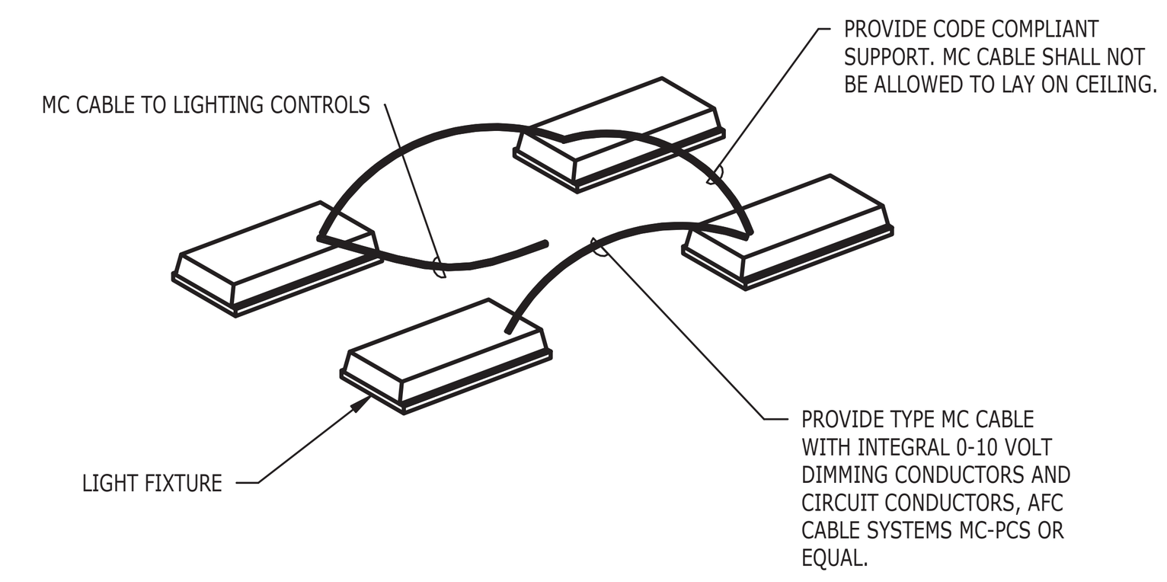
NOTES:
1. FIXTURE SUPPORTS SHALL BE IN ACCORDANCE WITH N.E.C.
2. PROVIDE INDEPENDENT SUPPORTS TO THE STRUCTURE AS REQUIRED BY LOCAL ORDINANCES.
3. FIXTURES RECESSED IN FIRE-RATED ASSESMBLIES SHALL BE PROVIDED WITH LISTED, PREFABRICATED, FIRE-RATED ENCLOSURES. SITE-FABRICATED ENCLOSURES SHALL NOT BE AN ACCEPTABLE METHOD OF MAINTAINING THE RATING OF THE CEILING ASSEMBLY.

DOWNLIGHT IN GYPSUM BOARD CEILING
SCALE: NONE

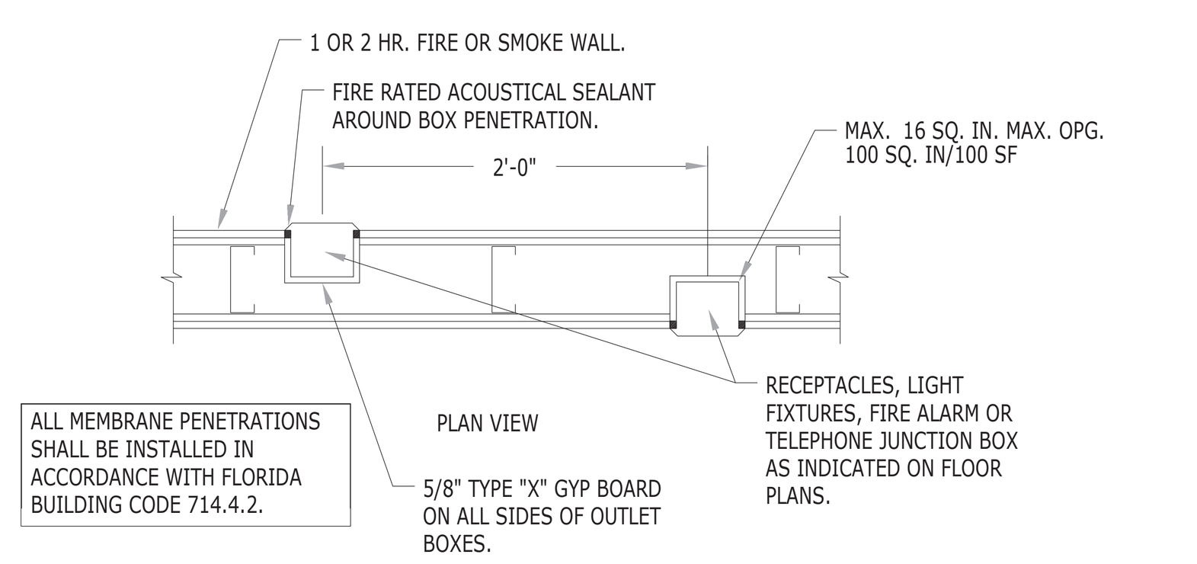


NOTES:
1. FIXTURE SUPPORTS SHALL BE IN ACCORDANCE WITH N.E.C.
2. INDEPENDENT SUPPORT TO THE STRUCTURE

LUMINAIRE MOUNTING - ACOUSTICAL TILE CEILING
SCALE: NONE

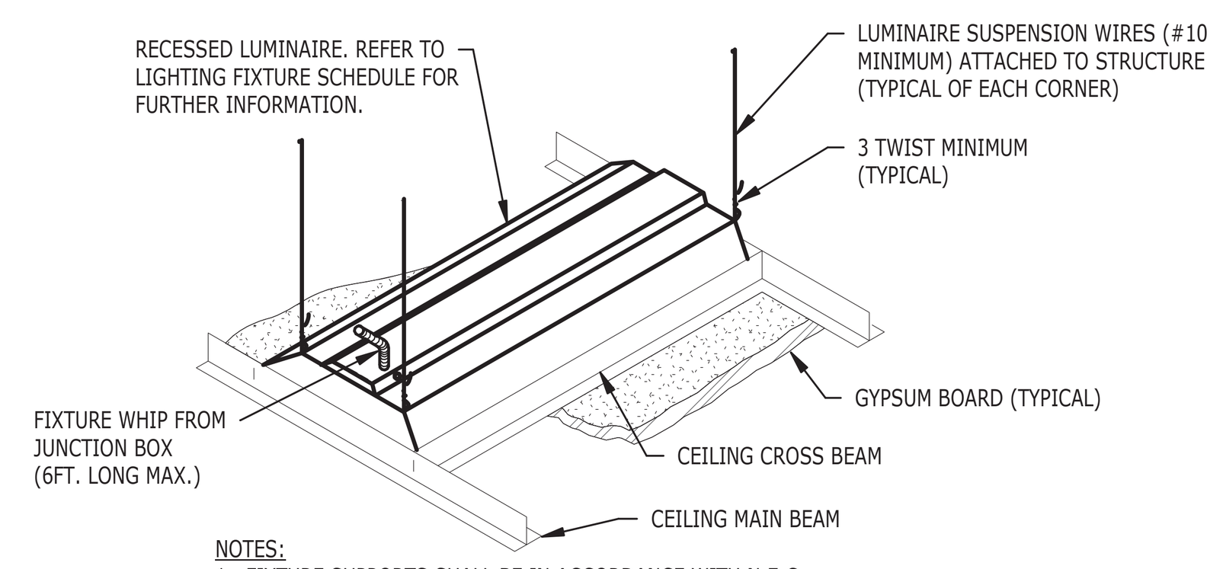


TYPICAL RECESSED LIGHTING FIXTURE WIRING TAP DETAIL
SCALE: NONE



ALL MEMBRANE PENETRATIONS SHALL BE INSTALLED IN ACCORDANCE WITH FLORIDA BUILDING CODE 714.4.2.

TYPICAL ADJACENT ELECTRICAL JUNCTION BOXES DETAIL
SCALE: NONE (FOR 1 OR 2-HOUR RATED PARTITIONS)



NOTES:
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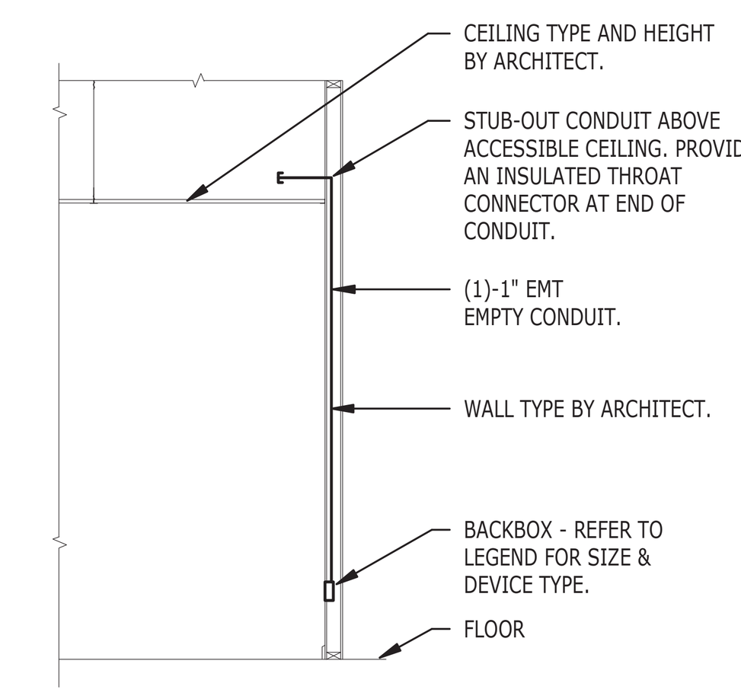
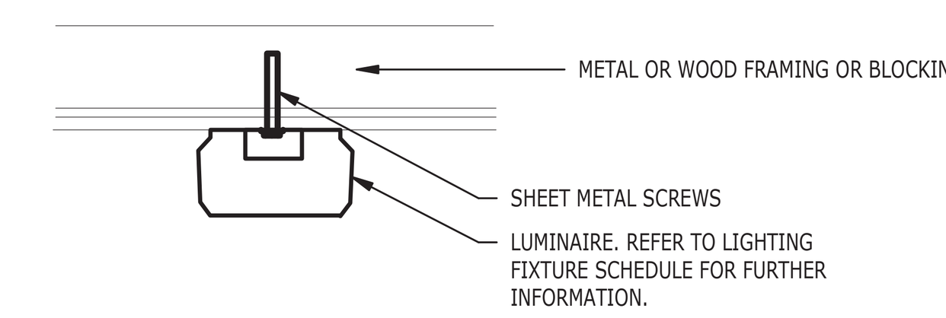
2. PROVIDE INDEPENDENT SUPPORTS TO THE STRUCTURE AS REQUIRED BY LOCAL ORDINANCES.
3. FIXTURES RECESSED IN FIRE-RATED ASSEMBLIES SHALL BE PROVIDED WITH LISTED, PREFABRICATED, FIRE-RATED ENCLOSURES. SITE-FABRICATED ENCLOSURES SHALL NOT BE AN ACCEPTABLE METHOD OF MAINTAINING THE RATING OF THE CEILING ASSEMBLY.

LUMINAIRE MOUNTING - GYPSUM BOARD CEILING
SCALE: NONE

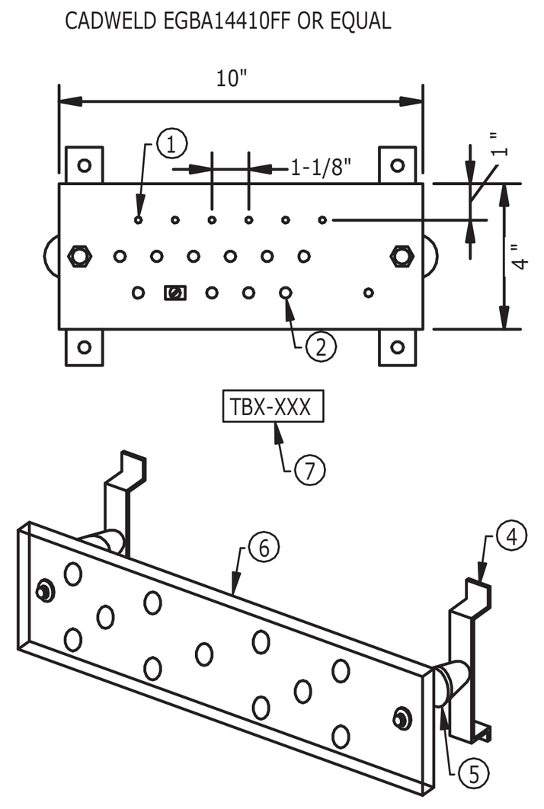


TYPICAL TELEPHONE/DATA OUTLET DETAIL
SCALE: NONE



SURFACE-MOUNTED STRIP DETAIL
SCALE: NONE

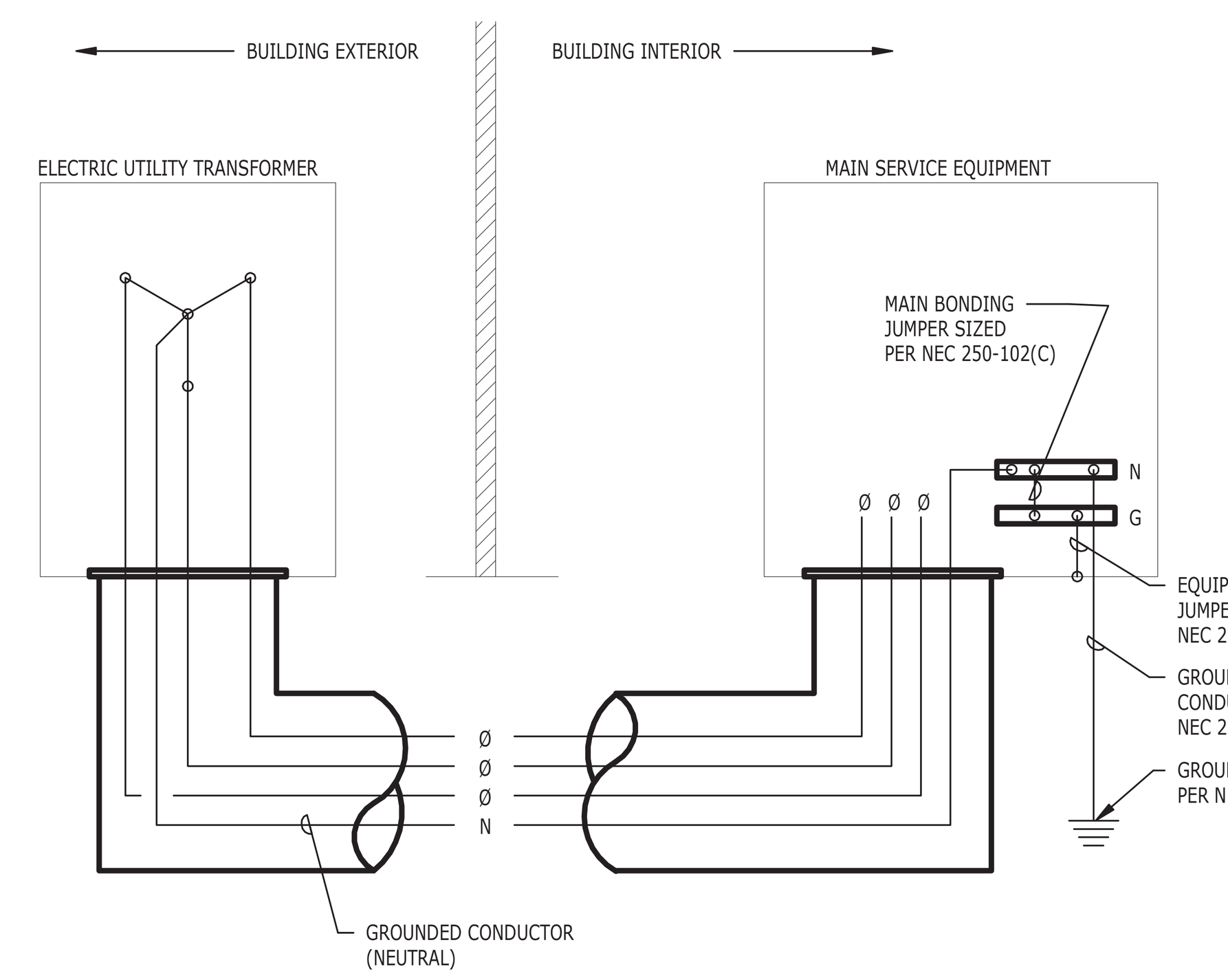
CADWELD EGBA14410FF OR EQUAL



GENERAL
1. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) SHALL BE SOLID COPPER OR BRONZE OR STAINLESS STEEL. COPPER PLATING SHALL NOT BE ACCEPTABLE.
2. BUSBAR SHALL BE 1/4" THICK (MINIMUM).
3. INCREASE LENGTH OF BUSBAR, FOR NUMBER OF CONNECTIONS, AS REQUIRED TO MAINTAIN CORRECT SPACING BETWEEN LUGS.

NOTE
1. #6/32 (TYPICAL)
2. #9/32 (TYPICAL)
3. PROVIDE COPPER CABLE CLAMPS FOR CABLE CONNECTIONS (BY DIV.16)
4. STANDOFF BRACKET
5. INSULATOR
6. COPPER BUSBAR
7. PROVIDE WHITE CORE BAKELITE NAMEPLATE FASTENED TO A WALL/SURFACE BELOW BUSBAR AT EACH FLOOR, WITH DESIGNATION ENGRAVED THEREON IN 1/2" HIGH LETTERS.

TYPICAL GROUND BUS BAR DETAIL
SCALE: NONE



SERVICE ENTRANCE (MAIN SWITCHBOARD) GROUNDING DETAIL
SCALE: NONE

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL DETAILS

SHEET NUMBER:
RE5.00

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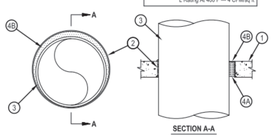
Notes:

1. Refer to architectural specifications for Quality Control requirements, refer to the Quality Control portion of the specification.
2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
   *Minimum and maximum Width of Joints
   *Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
4. References:
   *Underwriter's Laboratories Fire Resistance Directory, Volume 2 ' NFPA 101 Life Safety Code
   *All governing local and regional building codes
5. Firestop System installation must meet requirements of ASTM E-814 (UL 1479) tested assemblies that provide a fire rating equal to that of construction being penetrated.
6. All rated through-penetrations shall be prominently labeled with the following information:
   *ATTENTION: Fire Rated Assembly
   *UL System #
   *Product(s) used
   *Hourly Rating (F-Rating)
   *Installation Date

System No. C-AJ-1226

CAJ 1226

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — Less Than 1 CFM/sq ft	FH Rating — 3 Hr
L Rating At 400 F — 4 CFM/sq ft	FTH Rating — 0 Hr
	L Rating At Ambient — Less Than 1 CFM/sq ft
	L Rating At 400 F — 4 CFM/sq ft



1. Floor or Wall Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m³) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 32 in. (813 mm).
2. Metallic Sleeve — (Optional) Nom 32 in. (813 mm) diam (or smaller) Schedule 40 (or heavier) steel sleeve cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max of 3 in. (76 mm) above floor or beyond both surfaces of wall.
2A. Sheet Metal Sleeve — (Optional) Max 6 in. (152 mm) diam, min 26 ga. galv steel provided with a 26 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.
2B. Sheet Metal Sleeve — (Optional) - Max 12 in. (305 mm) diam, min 24 ga galv steel square flange spot welded to the sleeve at approx mid-height, or flush with bottom of sleeve in floors, and sized to be a min of 2 in. (51 mm) larger than the sleeve diam. The sleeve is to be cast in place and may extend a max of 4 in. (102 mm) below the bottom of the deck and a max of 1 in. (25 mm) above the top surface of the concrete floor.
3. Through-Penetrant — One metallic pipe, tube or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between penetrant and perphery of opening shall be min 0 in. (point contact) to max 1-7/8 in. (48 mm). Penetrant may be installed with continuous point contact. Penetrant to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic penetrants may be used:
   A. Steel Pipe — Nom 30 in. (762 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.
   B. Iron Pipe — Nom 30 in. (762 mm) diam (or smaller) cast or ductile iron pipe.
   C. Copper Pipe — Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.
   D. Copper Tubing — Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing.
   E. Conduit — Nom 6 in. (152 mm) diam (or smaller) steel conduit.
   F. Conduit — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT).

Hilti Firestop Systems

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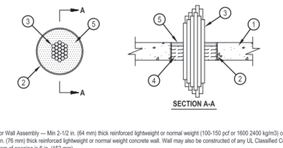
System No. C-AJ-3095

CAJ 3095

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Ratings — 0, 1/2 and 3/4 Hr (See Item 3)	FT Ratings — 0, 1/2 and 3/4 Hr (See Item 3)
	FH Rating — 3 Hr
	FTH Ratings — 0, 1/2 and 3/4 Hr (See Item 3)



1. Floor or Wall Assembly — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600 2400 kg/m3) concrete floor or min 3 in. (76 mm) thick reinforced lightweight or normal weight concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 6 in. (152 mm).
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Sleeve — (Optional) — Nom 6 in. (152 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe cast or grouted into floor or wall assembly, flush with floor or wall surfaces or extending a max 3 in. (76 mm) above the floor or both surfaces of the wall. If the steel sleeve extends above the floor or both surfaces of the wall, the T Rating of the firestop system is 0 Hr.
3. Cables — Aggregate cross-sectional area of cables in opening to be min 25 percent to max 45 percent of the aggregate cross-sectional area of the opening. Cables to be rigidly supported on both sides of floor or wall assembly. Any combination of the following types and sizes of metallic conductor or fiber optic cable may be used:
   A. Max 500 kcmil single copper connector power cable with thermoplastic insulation and polyvinyl chloride (PVC) jacket. When single copper conductor power cable is used, T, FT and FTH Rating is 0 hr.
   B. Max 350 kcmil single conductor power cables with either aluminum or copper conductors and cross-linked polyethylene (XPLE) insulation. When single aluminum conductor power cable is used, T Rating is 0 hr. When single copper conductor power cable is used, T, FT and FTH Rating is 1/2 hr.
   C. Max 300 pair No. 24 AWG copper conductor telecommunication cables with polyvinyl chloride (PVC) insulation and jacket material. When telecommunication cable is used, T, FT and FTH Rating is 0 hr.
   D. Max three copper connector No. 6 AWG cable with polyvinyl chloride (PVC) insulation and jacket material. When multi-connector power cable is used, T Rating is 0 hr.
   E. Max 7/C copper conductor No. 12 AWG multiconductor power and control cables with PVC or cross-linked polyethylene (XLPE) insulation and PVC jacket. When multiconductor power and control cable is used, T, FT and FTH Rating is 3/4 hr.
   F. Multiple fiber optical communication cables jacketed with PVC and having a max outside diam of 1/2 in. When fiber optic cable is used, T, FT and FTH Rating is 3/4 hr.
   G. Max 3/C copper conductor No. 12 AWG with Bare aluminum ground, polyvinyl chloride (PVC) insulated steel, Metal-clad cable*. When MC cable is used, T, FT and FTH Rating is 0 hr.
   AFC CABLE SYSTEMS INC

Hilti Firestop Systems

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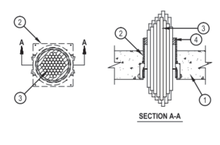
System No. F-A-3007

FA 3007

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 3 Hr	F Rating — 3 Hr
T Rating — 0, 1/4, 1/2 Hr (See Items 3 and 4)	FT Rating — 0, 1/4, 1/2 Hr (See Items 3 and 4)
	FH Rating — 3 Hr
	FTH Rating — 0, 1/4, 1/2 Hr (See Items 3 and 4)



1. Floor Assembly — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
1A. Floor Assembly - (Optional - Not Shown) — The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 4-1/2 in. (114 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design.
2. Firestop Device* — Cast in place firestop device permanently embedded during concrete placement in accordance with accompanying installation instructions.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 680-75/2.5*, CP 680-110/4*N, CP 680-160/6*N, CP682-72/2.5*, CP682-110/4*, CP 680-84.3*, CP 680-M 3*, CP 680-M 4*, CP 680-P 2*, CP 680-P 3*, CP 680-P 4*, CP 680-P 6*, CP 680-PX 2*, CP 680-PX 3*, CP 680-PX 4*, CP 680-PX 5*, CP 680-PX 7*, CP 680-PX 3*
3. Cables — Cables to be rigidly supported on both sides of the assembly. Any combination of the following types and sizes of copper conductor cables may be used:
   A. Max 1/C 750 kcmil (or smaller) copper conductor cable with polyvinyl chloride (PVC) insulation and jacket.
   B. Max 7/C No. 12 AWG with polyvinyl chloride (PVC) insulation and jacket.
   C. Max 300 pair No. 24 AWG telephone cable with PVC insulation and jacket.
   D. Multiple fiber optical communication cable jacketed with PVC and having a max outside diam of 1/2 in. When fiber optic cable is used, T, FT and FTH Rating is 3/4 hr.
   E. Max 3/C No. 12 AWG with ground with polyvinyl chloride jacketed steel clad Type MC cable.

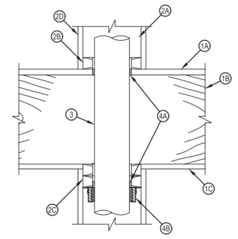
Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. June 29, 2015

System No. F-C-2030

F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0, 3/4, 1, 1-1/2 and 2 Hr (See Item 3)

FC 2030



System tested with a pressure differential of 2.5 Pa between the exposed and the unexposed surfaces with the higher pressure on the exposed side.

1. Floor-Ceiling Assembly — The 1 or 2 hr fire-rated solid or trussed lumber joist floor-ceiling assembly shall be constructed of the materials and in the manner specified in the individual L500 Series Floor-Ceiling Designs in the UL Fire Resistance Directory. The F Rating of the firestop system is equal to the rating of the floor-ceiling and wall assemblies. The general construction features of the floor-ceiling assembly are summarized below:
   A. Flooring System — Lumber or plywood subfloor with finish floor of lumber, plywood or Floor Topping Mixture* as specified in the individual Floor-Ceiling Design. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (item 3).
   B. Joists — Nom 10 in. (254 mm) deep (or deeper) lumber, steel or combination lumber and steel joists, trusses or Structural Wood Members* with bridging as required and with end firestopped.
   C. Gypsum Board* — Thickness, type, number of layers and fasteners shall be as specified in the individual Floor-Ceiling Design. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (item 3).
   D. Furring Channels — (Not Shown) (As required) - Resilient galvanized steel furring installed in accordance with the manner specified in the individual L500 Series Designs in the Fire Resistance Directory.

Hilti Firestop Systems

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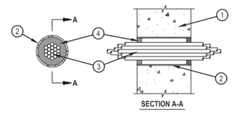
System No. W-J-3060

WJ 3060

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 0 Hr	FT Rating — 0 Hr
L Rating At Ambient — 15 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F — 8 CFM/sq ft	FTH Rating — 0 Hr
	L Rating At Ambient — 15 CFM/sq ft
	L Rating At 400 F — 8 CFM/sq ft



1. Wall Assembly — Min 4-3/4 in. and 6 in. (121 and 152 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete for 1 and 2 hr ratings , respectively. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 4 in (102 mm). Max diam of opening is 5-1/2 in. (139 mm) when sleeve (Item 2) is employed.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Steel Sleeve — (Optional) — Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) of Schedule 5 (or heavier) steel pipe or min 0.016 thick (28 MSG or 0.4 mm) galv steel sleeve friction fit or cast into wall flush with all surfaces. When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. (457 mm) beyond the wall surfaces. As an option when Schedule 5 steel pipe or EMT is used, sleeve may extend continuously beyond one wall surface.

Hilti Firestop Systems

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System No. C-AJ-1226

CAJ 1226

4. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 4 in. (102 mm) thickness of min 4 pcf (64 kg/m³) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or sleeve or from both surfaces of wall or sleeve as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* — Sealant — Min 1/4 in. (6 mm) thickness of fill material applied within the annulus, flush with top surface of floor or sleeve or with both surfaces of wall or sleeve. At the point or continuous contact locations between penetrant and concrete or sleeve, a min 1/4 in. (6 mm) diam bead of fill material shall be applied at the concrete or sleeve/ pipe penetrant interface on the top surface of floor and on both surfaces of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

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System No. C-AJ-3095

CAJ 3095

H. Max 3/C with ground 2/0 AWG copper conductor SER cable with cross-linked polyethylene (XLPE) insulation and polyvinyl chloride (PVC) jacket. When SER cable is used, T, FT and FTH Rating is 0 hr.
I. Max RG/U coaxial cable with polyethylene (PE) insulation and polyvinyl chloride (PVC) jacket having a max outside diameter of ½ in. When coaxial cable is used, T Rating is 0 hr.
J. Fire Resistive Cables* - Max 1-1/4 in. (32 mm) diam single conductor or multi conductor Type MI cable. A min 1/8 in. (3 mm) separation shall be maintained between MI cables and any other type of cable. When Fire Resistive Cables *are used, T, FT and FTH Rating is 0 hr.
K. Through Penetrating Product* — Any Cables, Metal-Clad Cable+ or Armored Cable+ currently Classified under the Through Penetrating Products category.
See Through Penetrating Product (XHJY) category in the Fire Resistance Directory for names of manufacturers.
4. Packing Material — Min 2 in. (51 mm) thickness of min 4 pcf (64 kg/m3) mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed 1/2 in. (13 mm) from top surface of floor or from both surfaces of wall to accommodate the fill material. If the steel sleeve (Item 2) extends above the top of the floor, the packing material shall be flush with the bottom surface of the floor.
5. Fill, Void or Cavity Material* — Sealant — Min 1/2 in. (13 mm) thickness of fill material applied within the annulus, flush with top surface of floor or with both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-One Sealant or FS-ONE MAX Intumescent Sealant
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 14, 2015

System No. F-A-3007

FA 3007

The firestop device and max cable bundle diameter shall be sized as follows:

Max Bundle Diameter	Firestop Device	T Rating-Hr
2 in. (51 mm)	CP 680-75/2.5*, CP 682-75/2.5* CP 680-M 2*, CP 680-P 2*, CP 680-PX 2*	1/4
4-1/2 in. (114 mm)	CP 680-75/2.5*, CP 682-75/2.5* CP 680-M 3*, CP 680-P 3*, CP 680-PX 3*	1/2
6-1/2 in. (165 mm)	CP 680-110/4*N CP 680-P 4*	0

4. Fill, Void or Cavity Material* - Putty — Min 1 in.(25 mm) thickness of fill material applied within annulus flush with top surface of device. Fill material is optional for 2-1/2 (64 mm) diam (or larger) cable bundle installed in 3 in. device and 3 in. (76 mm) diam (or larger) cable bundle installed in 4 in. device and 2 in. (51 mm) diam (or larger) cable bundle installed in 2 in. or 2.5 in. device. The T Rating for the firestop system is 1/4 hr when fill material or packing material (Item 4 or 4A) is not used.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 618 Firestop Putty Stick
4A. Packing Material (Not Shown) — As an alternate to Item 4, min 2 in. thickness of min 4 pcf (64 kg/m3) mineral wool insulation firmly packed to the fullest extent possible within annulus flush with top surface of device.
* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Hilti Firestop Systems

Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. June 29, 2015

System No. F-C-2030

FC 2030

2. Chase Wall — (Optional) - The through penetrant (Item 3) may be routed through a fire-rated or non-rated single, double or staggered wood stud gypsum wallboard chase wall. The chase wall shall be constructed to include the following construction features:
   A. Studs — Nom 2 by 6 in. (51 by 152 mm) or double nom 2 by 4 in. (51 by 102 mm) lumber studs.
   B. Sole Plate — Nom 2 by 6 in. (51 by 152 mm) (or larger) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (item 3).
   C. Top Plate — The double top plate shall consist of two nom 2 by 6 in. (51 by 152 mm) (or larger) or parallel 2 by 4 in. (51 by 102 mm) lumber plates, tightly butted. Diam of opening shall be 1 in. (25 mm) larger than the nom diam of through-penetrant (item 3).
   D. Gypsum Board* — One or two layers of min 1/2 in. (13 mm) gypsum board.
3. Through-Penetrants — One nom 1-1/2 in. (38 mm), 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm) diam nonmetallic pipe to be installed within the firestop system. Diam of opening through flooring system and through sole and top plates of chase wall to be max 2-1/8 in. (54 mm), 2-5/8 in. (67 mm), 4 in. (102 mm) or 5 in. (127 mm) for nom 1-1/2 in. (38 mm), 2 in. (51 mm), 3 in. (76 mm) or 4 in. (102 mm) diam nonmetallic pipe sizes, respectively. Pipe to be rigidly supported on both sides of the floor-ceiling assembly. The T Rating is dependent on the size of the through-penetrant. For 2 hr rated assemblies, the T Rating is 2 hr for 1-1/2 in. (38 mm) diam (and smaller) pipes and 1-1/2 hr for pipes greater than 1-1/2 in. (38 mm) diam. For 1 hr rated assemblies, the T rating is 1 hr for 1-1/2 in. (38 mm) diam (and smaller) pipes, 3/4 hr for 2 in. (51 mm) diam pipes and 0 hr for pipes greater than 2 in. (51 mm) diam. The following types of nonmetallic pipes may be used:
   A. Polyvinyl Chloride (PVC) Pipe — Schedule 40 solid-core or cellular core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   B. Chlorinated Polyvinyl Chloride (CPVC) Pipe — SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. Acrylonitrile Butadiene Styrene (ABS) pipe — Schedule 40 solid-core or cellular core ABS pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   D. Flame Retardant Polypropylene(FRPP) Pipe — Schedule 40 FRPP pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
4. Firestop System — The details of the firestop system shall be as follows:
   A. Fill, Void or Cavity Material* — Sealant — Min 3/4 in. (19 mm) thickness of fill material to be installed within the annular space between the pipe and the flooring (Item 1A) or sole plate. Min 5/8 in. (16 mm) thickness applied within the annular space, flush with the bottom surface of ceiling or lower top plate.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant FS-ONE MAX Intumescent Sealant .
   B. Firestop Device* — Firestop Collar — Firestop collar shall be installed in accordance with the accompanying installation instructions. Collar to be installed and latched around the pipe and secured to underside of ceiling or chase wall top plate (Item 2C) using the anchor hooks provided with the collar. (Minimum 2 anchor hooks for 1-1/2 (38 mm) and 2 in. (51 mm) diam pipes and 3 anchor hooks for 3 in. (76 mm) diam pipes). The anchor hooks are to be secured to the ceiling with min 3/16 in. (5 mm) diam steel toggler bolts or to the chase wall top plate with min No. 12 by min 1 in. (25 mm) long steel wood screws in conjunction with steel washers.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643 50/1.5*N, CP643 63/2*N, CP 643 90/3*N or CP643 110/4*N Firestop Collar

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

Hilti Firestop Systems

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System No. W-J-3060

WJ 3060

3. Cables — Aggregate cross sectional area of cables to be max 45 percent of the cross sectional area of the opening. Cables installed either concentrically or eccentrically within the firestop system. The annular space between cables and the perphery of the opening or sleeve shall be min 0 in. (point contact) to max 1 in. (25 mm). When sleeve is continuous on one side of wall (see Item 2), the cable fill may be 0 to 45% and the max annular space within sleeve is not limited. Cables to be rigidly supported on both sides of wall assembly. The following types of cables may be used:
   A. 7C, No. 12 AWG cable with PVC insulation and outer jacket.
   B. Max 25 pair No. 24 AWG telephone cable with PVC insulation and outer jacket.
   C. Max RG 59 (or smaller) coaxial cable with polyethylene insulation and PVC jacket.
   D. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   E. Multiple 24 fiber optic communication cable with PVC jacket, have a max outside diam of 5/8 in. (16 mm).
   F. Max four pair No. 22 AWG Cat 5 or Cat 6 computer cables.
   G. Through Penetrating Product* —Max three copper connector No. 8 AWG Metal-clad Cable+.
   AFC CABLE SYSTEMS INC
   H. Through Penetrating Product* — Any cables, Metal-Clad Cable+ or Armored Cable+ currently Classified under the Through Penetrating Products category.
   See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.
4. Fill, Void or Cavity Material* — Sealant — Min 5/8 in. (16 mm) thickness of fill material applied within annulus, flush with both surfaces of wall assembly. An additional 1/2 in. (13 mm) bead of fill material shall be applied around the perimeter of sleeve on both sides of the wall when sleeve extends beyond surface of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP601S Sealant, CP606 Sealant, CFS-S SIL GG Sealant, FS-ONE Sealant, FS-ONE MAX Intumescent Sealant, or CP616 Putty
5. Packing Material — (Optional, Not Shown) — Mineral wool forming material may be used as a backer for the fill material (Item 4). When used, it shall be firmly packed into annular space within the sleeve as a permanent form and recessed from end of sleeve to accommodate the required thickness of fill material.

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

+Bearing the UL Listing Mark

Hilti Firestop Systems

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1 METAL CONDUIT THRU RATED CONCRETE FLOOR/WALL ASSEMBLY

2 CABLE THRU RATED CONCRETE FLOOR/WALL ASSEMBLY

3 CABLE THRU RATED CONCRETE FLOOR ASSEMBLY

4 NON-METALLIC CONDUIT THRU RATED WOODEN FLOOR-CEILING ASSEMBLY

5 CABLE THRU RATED CONCRETE WALL ASSEMBLY
1/8" = 1'-0"

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

HILTI FIRE STOP DETAILS

SHEET NUMBER:
RE6.00

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

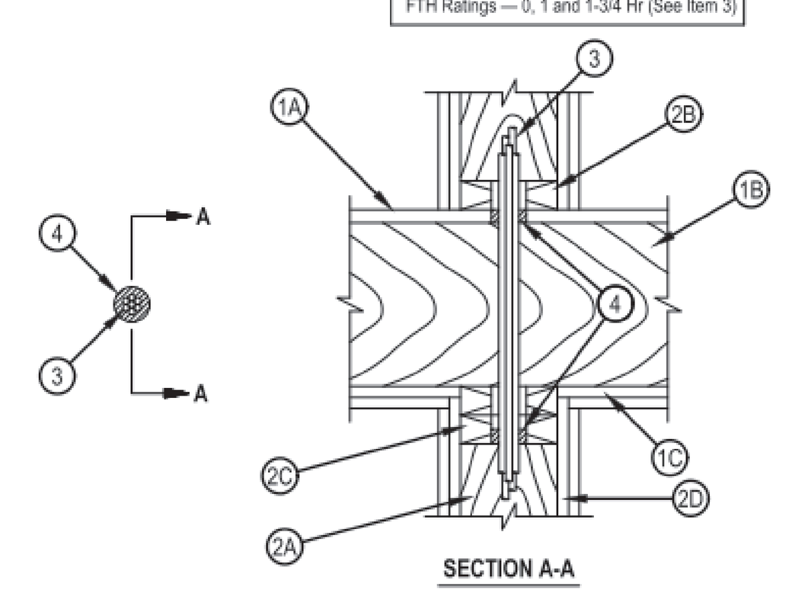
Notes:

1. Refer to architectural specifications for Quality Control requirements, refer to the Quality Control portion of the specification.
2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
   *Minimum and maximum Width of Joints
   *Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
4. References:
   *Underwriter's Laboratories Fire Resistance Directory, Volume 2 ' NFPA 101 Life Safety Code
   *All governing local and regional building codes
5. Firestop System installation must meet requirements of ASTM E-814 {UL 1479) tested assemblies that provide a fire rating equal to that of construction being penetrated.
6. All rated through-penetrations shall be prominently labeled with the following information:
   *ATTENTION: Fire Rated Assembly
   *UL System #
   *Product(s) used
   *Hourly Rating (F-Rating)
   *Installation Date

System No. F-C-3012 (FC 3012)

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0, 1 and 1-3/4 Hr (See Item 3)	FT Ratings — 0, 1 and 1-3/4 Hr (See Item 3)
	FH Ratings — 1 and 2 Hr (See Item 1)
	FTH Ratings — 0, 1 and 1-3/4 Hr (See Item 3)



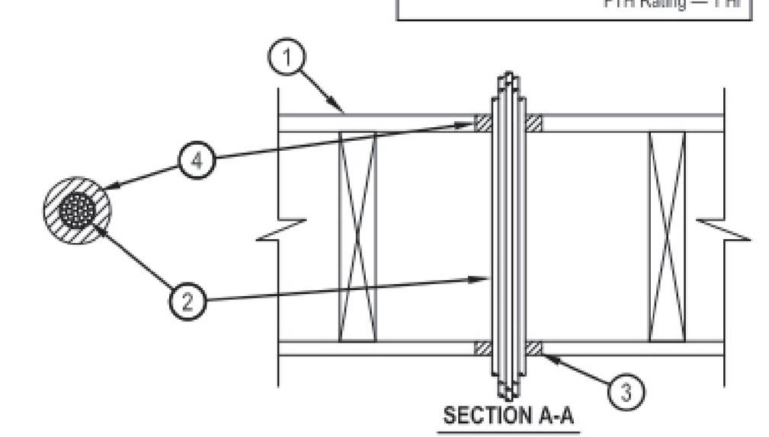
SECTION A-A

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. April 06, 2018 — Page: 1 of 2

System No. F-C-3044 (FC 3044)

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 Hr	F Rating — 1 Hr
T Rating — 1 Hr	FT Rating — 1 Hr
	FH Rating — 1 Hr
	FTH Rating — 1 Hr



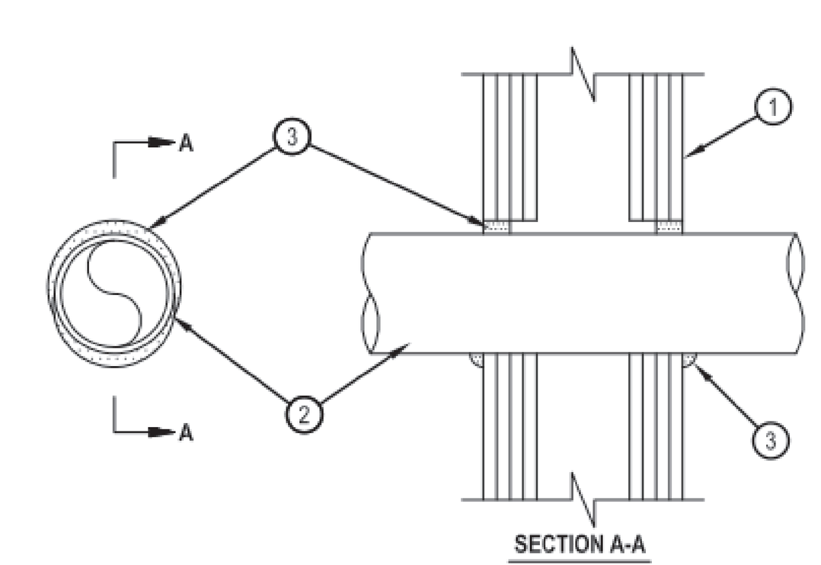
SECTION A-A

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 20, 2015 — Page: 1 of 2

System No. W-L-1252 (WL 1252)

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1, 2, 3 and 4 Hr (See Items 1 and 3)	F Ratings — 1, 2, 3 and 4 Hr (See Items 1 and 3)
T Rating — 0 Hr	FT Rating — 0 HR.
L Rating At Ambient — Less Than 1 CFM/Sq Ft	FH Ratings — 1, 2, 3 and 4 Hr (See Items 1 and 3)
L Rating At 400 F — Less Than 1 CFM/Sq Ft	FTH Rating — 0 HR.
	L Rating At Ambient — Less Than 1 CFM/Sq Ft
	L Rating At 400 F — Less Than 1 CFM/Sq Ft



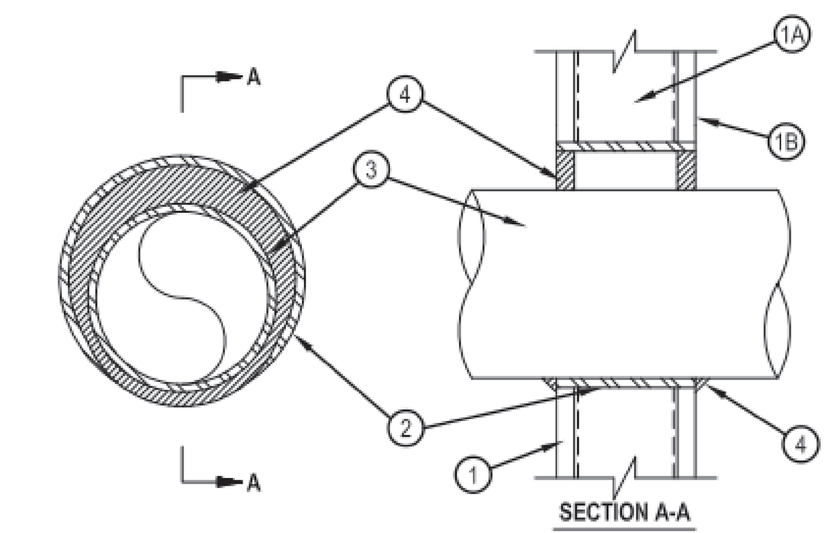
SECTION A-A

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 22, 2015 — Page: 1 of 2

System No. W-L-1164 (WL 1164)

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Items 1 and 4)	F Ratings — 1 and 2 Hr (See Items 1 and 4)
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Ratings — 1 and 2 Hr (See Items 1 and 4)
	FTH Rating — 0 Hr



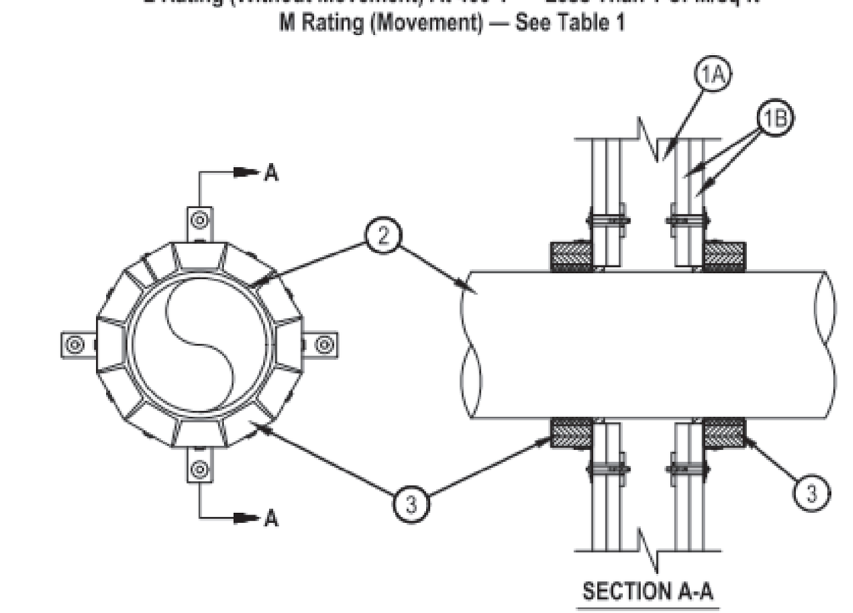
SECTION A-A

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 22, 2015 — Page: 1 of 2

System No. W-L-2078 (WL 2078)

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

F Ratings — 1 and 2 Hr (See Item 1)
T Ratings — 0, 1 and 2 Hr (See Items 2 and 3)
L Rating (Without Movement) At Ambient — 3 CFM/sq ft
L Rating (Without Movement) At 400°F — Less Than 1 CFM/sq ft
M Rating (Movement) — See Table 1



SECTION A-A

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 21, 2020 — Page: 1 of 2

System No. F-C-3012 (FC 3012)

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. April 06, 2018 — Page: 2 of 2

System No. F-C-3044 (FC 3044)

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 20, 2015 — Page: 2 of 2

WL 1252

3. Fill, Void or Cavity Material — Sealant* — Fill material applied within annulus , flush with both surfaces of wall. Type and thickness of sealant is dependent on F and FH Ratings as indicated in Table below. An additional 1/2 in. (13 mm) diameter bead of sealant applied at penetrant/gypsum board interface at point contact location on both surfaces of wall.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant, FS-ONE MAX Intumescent Sealant or CP 606 Sealant

F, FH Ratings hr	Sealant Type	Sealant Thickness, In. (mm)
1, 2	FS-ONE, FS-ONE MAX or CP 606	5/8 (16)
3	FS-ONE, FS-ONE MAX or CP 606	1 (25)
4	FS-ONE, FS-ONE MAX	1 (25)

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

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System No. W-L-1164 (WL 1164)

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 22, 2015 — Page: 2 of 2

System No. W-L-2078 (WL 2078)

(152 mm) diam pipes, ten anchor hooks for 8 in. (203 mm) diam pipes and twelve anchor hooks for 10 in. (254 mm) diam pipes. The anchor hooks are to be secured to the surface of wall with 3/16 in. (4.8 mm) diam by 2-1/2 in. (64 mm) long steel toggle bolts along with washers. As an alternate for pipe sizes of nom 4 in. diam or less, min No. 10 by 1-1/2 in. (254 by 38 mm) long drywall or laminate screws with min 3/4 in. (19 mm) steel washers may be used. When the drywall or laminate screw is used, T Rating shall not exceed 1 hr.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 643 50/1.5"N, CP 643 63/2"N, CP 643 90/3"N, CP 643 110/4"N, CP 643 160/6"N, CP 644-200/8" US and CP 644-250/10" US Firestop Collars

4. Fill, Void or Cavity Material* — Sealant - (Not Shown) — Min 1/2 in. (13 mm) thickness of sealant applied within the annular space for nom 8 in. and 10 in. (203 and 254 mm) diam pipes, flush with each side of wall. Sealant in annular space is optional for max 6 in. (152 mm) diam pipes except that for penetrant type 2F, sealant is required. A min 1/4 in. (6 mm) thickness of sealant is required within the annular space, flush with each side of wall, to attain the L Ratings for max 6 in. (152 mm) diam pipes. For systems with M Rating, the sealant should not be installed.
HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE MAX Intumescent Sealant

The M Rating for the firestop system is dependent on the variables as noted in the Table 1 below.

Table 1

Movement Direction	Penetrant Item	Nominal Penetrant Diameter	Annular Space	Movement	Sealant Depth	F Rating	L Rating
Y	2A	2 in.	Max 1/4 in.	100%	5/8 in.	1 hr.	N/A
Z	2A	2 in.	Min. 1/4 in.	3.21 in.	5/8 in.	1 hr.	N/A

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

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 21, 2020 — Page: 2 of 2

1 CABLE THRU RATED WOODEN FLOOR-CEILING ASSEMBLY

2 CABLE THRU RATED WOODEN FLOOR-CEILING ASSEMBLY_

3 METALLIC CONDUIT THRU RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY.

4 METALLIC CONDUIT THRU RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY_ 1/8" = 1'-0"

5 NM CONDUIT THRU RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY 1/8" = 1'-0"

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO: 220035.00

HILTI FIRE STOP DETAILS

SHEET NUMBER: RE6.01

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01-05-2023
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FORT MYERS, FL 33905

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HILTI FIRE STOP DETAILS

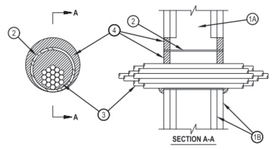
SHEET NUMBER:
RE6.02

WL 3065

System No. W-L-3065

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 1 and 2 Hr (See Item 1)	F Rating — 1 and 2 Hr (See Item 1)
T Rating — 0 and 3/4 Hr (See Item 3)	FT Rating — 0 and 3/4 Hr (See Item 3)
L Rating At Ambient — 15 CFM/sq ft	FH Rating — 1 and 2 Hr (See Item 1)
L Rating At 400 F — 8 CFM/sq ft	FTH Rating — 0 and 3/4 Hr (See Item 3)
	L Rating At Ambient — 15 CFM/sq ft
	L Rating At 400 F — 8 CFM/sq ft



1. Wall Assembly — The 1 or 2 fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be nom 2-1/2 in. (64 mm) wide, fabricated from nom 25 MSG galvanized steel, spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — Nom 5/8 in. (16 mm) thick gypsum board, with square or tapered edges. The gypsum board type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual Wall and Partition Designs in the UL Fire Resistance Directory. Max diam of opening is 5-1/2 in. (138 mm) when sleeve (item 2) is employed. Max diam of opening is 4 in. (102 mm) when sleeve (item 2) is not employed.

   The F, FH Ratings of the firestop system are equal to the fire rating of the wall assembly.
2. Metallic Sleeve — (Optional) - Nom 4 in. (102 mm) diam (or smaller) steel electrical metallic tubing (EMT) or Schedule 5 (or heavier) steel pipe or min 0.016 in. thick (0.41 mm, No. 28 gal) galv steel sleeve installed flush with wall surfaces. The annular space between steel sleeve and periphery of opening shall be min 0 in. (0 mm, point contact) to max 1 in. (25mm). When Schedule 5 steel pipe or EMT is used, sleeve may extend up to 18 in. (457 mm) beyond the wall surfaces. As an option when Schedule 5 steel pipe or EMT is used, sleeve may extend continuously beyond one wall surface. When cable bundle penetrates wall assembly at an angle of 45 degrees, no metallic sleeve is used.

Hilti Firestop Systems

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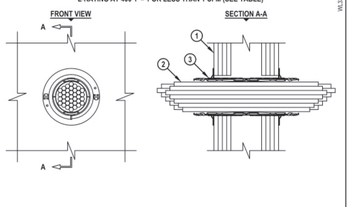
UL/cUL SYSTEM NO. W-L-3334

CABLE BUNDLE THROUGH GYPSUM WALL ASSEMBLY

F-RATING = 1-HR., 2-HR., 3-HR., OR 4-HR.
T-RATING = 0-HR., 1/2-HR., 1 1/2-HR., OR 2-HR.
L-RATING AT AMBIENT = LESS THAN 1 CFM (SEE TABLE)
L-RATING AT 400°F = 1 OR LESS THAN 1 CFM (SEE TABLE)

WL3334c072518



1. GYPSUM WALL ASSEMBLY (UL/cUL CLASSIFIED U300, U400, OR V400 SERIES) (1-HR., 2-HR., 3-HR., OR 4-HR. FIRE-RATING) (4-HR. SHOWN) TO INCLUDE THE FOLLOWING CONSTRUCTION FEATURES :
A. [NOT SHOWN] WOOD STUDS TO CONSIST OF NOMINAL 2" x 4" LUMBER (SPACED MAXIMUM 16" OC). STEEL STUDS TO BE MINIMUM 2-1/2" WIDE [FOR 1-HR. OR 2-HR. FIRE-RATING], MINIMUM 3-5/8" WIDE [FOR 3-HR. OR 4-HR. RATING], AND MINIMUM 3-1/2" WIDE [WHEN 3/4" THICK GYPSUM WALLBOARD IS USED] (SPACED MAXIMUM 24" OC).
B. NOMINAL 5/8" THICK GYPSUM WALLBOARD. TYPE, NUMBER OF LAYERS, AND SHEET ORIENTATION AS SPECIFIED IN THE INDIVIDUAL UL DESIGN (FOR 1-HR. OR 2-HR. FIRE-RATING, MINIMUM ONE LAYER 3/4" THICK GYPSUM WALLBOARD MAY BE USED).
2. CABLE BUNDLE TO BE A COMBINATION OF ANY OF THE FOLLOWING :
A. MAXIMUM 100 PAIR NO. 24 AWG TELEPHONE CABLE WITH PVC JACKET.
B. MAXIMUM 7/C NO. 12 AWG COPPER CONDUCTOR CONTROL CABLE WITH PVC OR XLPE JACKET AND INSULATION.
C. MAXIMUM 4/0 AWG TYPE RHH GROUND CABLE.
D. MAXIMUM 4 PAIR NO. 22 AWG CAT 5 OR CAT 6 COMPUTER CABLE.
E. MAXIMUM RG 6/U COAXIAL CABLE.
F. MAXIMUM 1/2" DIAMETER FIBER-OPTIC CABLE (24 FIBER) WITH PVC OR PE JACKET AND INSULATION.
G. MAXIMUM 20/C NO. 22 AWG SHIELDED PAIRS CABLE WITH PVC JACKET.
H. MAXIMUM 2/C NO. 18 AWG POWER OR NON-POWER LIMITED FIRE ALARM CABLE WITH OR WITHOUT METAL JACKET (MANUFACTURED BY AFC CABLE SYSTEMS, INC.).
I. MAXIMUM 1/4" DIAMETER S-VIDEO CABLE CONSISTING OF TWO MAXIMUM 24 AWG 75 OHM COAX OR TWISTED PAIR CABLE WITH PE INSULATION AND PVC JACKET.
J. ANY CABLES, ARMORED CABLES, OR METAL CLAD CABLES CURRENTLY CLASSIFIED UNDER THE THROUGH PENETRATION PRODUCT CATEGORY.
K. MAXIMUM 3/C NO. 12 AWG METAL CLAD CABLE.
3. HILTI CP 653 (BA) SPEED SLEEVE [2" OR 4"] OR HILTI CFS-SL GA L SPEED SLEEVE [4"] SLID INTO AND CENTERED WITHIN WALL. DEVICE FLANGES SPUN CLOCKWISE ONTO DEVICE THREADS OVER SMOKE GASKET, BUTTING TIGHTLY TO BOTH SIDES OF WALL.

MAX CABLE FILL	CABLE TYPE	L-RATING, CFM/SQ FT				L-RATING, CFM			
		AMBIENT		400°F		AMBIENT		400°F	
		SEALANT	GASKET	SEALANT	GASKET	SEALANT	GASKET	SEALANT	GASKET
0% FILL	-	LESS THAN 1	1	LESS THAN 1	2.7	LESS THAN 1	LESS THAN 1	LESS THAN 1	LESS THAN 1
100%	ITEM 2D ONLY	4.9	4.9	1.3	3.5	LESS THAN 1	LESS THAN 1	LESS THAN 1	LESS THAN 1
100%	ANY CABLES (ITEM 2) IN ANY COMBINATION	9.2	9.2	9.6	11.8	1.2	1.2	1.3	1.6

NOTES : 1. MAXIMUM DIAMETER OF OPENING = 2-1/2" (FOR 2" DEVICE) OR 4-1/2" (FOR 4" DEVICE).
2. HILTI CFS-SL GA L SPEED SLEEVE SHALL ONLY BE USED IN WALLS 8" THICK OR GREATER.
3. CABLES MAY REPRESENT 0% TO 100% VISUAL FILL OF DEVICE.
4. ANNULAR SPACE BETWEEN DEVICE AND PERIPHERY OF OPENING = MINIMUM 0".
5. L-RATING APPLIES ONLY WHEN FLANGES ARE USED AND INNER FABRIC SEAL IS TWISTED CLOSED.
6. [OPTIONAL] INNER FABRIC MAY REMAIN OPEN WHEN L-RATING IS NOT REQUIRED.
7. [OPTIONAL] AS AN ALTERNATE TO SMOKE GASKET, MINIMUM 1/2" DEPTH HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT OR HILTI CP 606 FLEXIBLE FIRESTOP SEALANT FLUSH WITH BOTH SURFACES OF WALL WITH AN ADDITIONAL 1/4" BEAD APPLIED AROUND PERIPHERY OF DEVICE PRIOR TO SECURING DEVICE FLANGES.
8. DEVICE FLANGES ARE OPTIONAL WHEN SEALANT IS USED EXCEPT WHEN 3/4" GYPSUM BOARD IS USED. DEVICES ARE REQUIRED WHEN L-RATING IS REQUIRED.
9. AS AN ALTERNATE TO HILTI FS-ONE MAX OR CP 606 FIRESTOP SEALANT, WHEN DEVICE FLANGES ARE USED, GYPSUM DRYWALL COMPOUND MAY BE USED.

Hilti Firestop Systems

HILTI, Inc.
Plano, Texas USA (800) 879-8000

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Scale	-
Date	July 25, 2018

Drawing No. WL 3334g

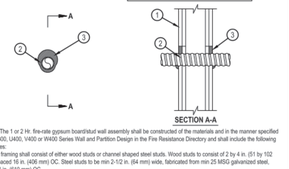
Saving Lives through Innovation and Education

WL 1243

System No. W-L-1243

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Ratings — 1 and 2 Hr (See Item 1)	F Ratings — 1 and 2 Hr (See Item 1)
T Rating — 0	FT Rating — 0
L Rating At Ambient - 5 CFM/sq ft	FH Ratings — 1 and 2 Hr (See Item 1)
L Rating At 400 F - Less Than 1 CFM/sq ft	FTH Rating — 0 Hr
	L Rating At Ambient - 5 CFM/sq ft
	L Rating At 400 F - Less Than 1 CFM/sq ft



1. Wall Assembly — The 1 or 2 Hr. fire-rate gypsum board/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300, U400, V400 or W400 Series Wall and Partition Design in the Fire Resistance Directory and shall include the following construction features:
   A. Studs — Wall framing shall consist of either wood studs or channel shaped steel studs. Wood studs to consist of 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC. Steel studs to be min 2-1/2 in. (64 mm) wide, fabricated from min 25 MSG galvanized steel, spaced max 24 in. (610 mm) OC.
   B. Gypsum Board* — 5/8 in. (16 mm) thick, 4 ft. (1.2 m) wide with square or tapered edges. The gypsum board type, number of layers and sheet orientation shall be as specified in the individual Wall and Partition Designs. Max diam of opening is 3-1/2 in. (89 mm).

   The hourly F, FH Ratings of the firestop system are equal to the hourly fire rating of the wall assembly in which it is installed.
2. Through-Penetrant — Max one flexible metal pipe or conduit installed concentrically or eccentrically within opening. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Penetrant to be rigidly supported on both sides of wall assembly. The following types and sizes of penetrants may be used:
   A. Flexible Metal Conduit* — Nom 2 in. (51 mm) diam (or smaller) aluminum or steel flexible conduit installed either concentrically or eccentrically within the firestop system. The annular space between conduit and periphery of opening shall be min 0 in. (point contact) to max 1 in. (25 mm). Conduit to be rigidly supported on both sides of wall assembly.
      See Flexible Metal Conduit (DXUZ) category in the Electrical Construction Materials Directory for names of manufacturers.
   B. Through Penetrating Product* — Flexible Metal Piping — The following types of steel flexible metal gas piping may be used:
      1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping.
         OMEGA FLEX INC
      2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping.
         GASTITE, DIV OF TITEFLEX
      3. Min 5/8 in. (16 mm) thickness of fill material applied with annulus, flush with both surfaces of the wall. At point contact location between penetrant and gypsum board, a min 1/2 in. (13 mm) diam bead of fill material shall be applied at the penetrant /gypsum board interface on both sides of wall.
         WARD MFG L.L.C.

Hilti Firestop Systems

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WL 1243

System No. W-L-1243

3. Fill, Void or Cavity Material* - Sealant — Min 5/8 in. thickness of fill material applied with annulus, flush with both surfaces of the wall. At point contact location between penetrant and gypsum board, a min 1/2 in. bead of fill material shall be applied at the penetrant /gypsum board interface on both sides of wall.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant
   •Bearing the UL Listing Mark
   * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

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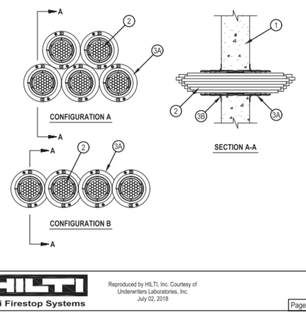
WJ-3189

System No. W-J-3189

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating - 2 Hr	F Rating - 2 Hr
T Ratings - 1/2 and 1-1/2 Hr (See Item 2)	FT Ratings - 1/2 and 1-1/2 Hr (See Item 2)
L Rating At Ambient - 1.2 and Less Than 1 CFM per Device (See Items 2, 3A and 3A1)	FH Rating - 2 Hr
L Ratings At 400 F - 1.3, 1.6 and Less Than 1 CFM per Device (See Items 2, 3A and 3A1)	FTH Ratings - 1/2 and 1-1/2 Hr (See Item 2)
	L Rating At Ambient - 0.6 and Less Than 0.5 L/s per Device (See Items 2, 3A and 3A1)
	L Ratings At 204°C - 0.6, 0.8 and Less Than 0.5 L/s per Device (See Items 2, 3A and 3A1)



1. Wall Assembly — Minimum 5 in. (127 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete wall. Wall may also be constructed of any UL Classified Concrete Blocks*. Maximum five individual openings may be provided (see Item 3A). Diam of opening for each firestop device shall not exceed 4-1/2 in. (114 mm) and shall be sized to the OD of the firestop device.
   See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.
2. Cables — The aggregate cross-sectional area of cables in firestop devices to be min 0 percent (blank) to max 100 percent visual fill. Cables to be tightly bundled within the device and rigidly supported on both sides of wall assembly. Any combination of the following types and sizes of cables may be used:
   A. Max 100 pair No. 24 AWG (or smaller) copper conductor telecommunication cable with polyvinyl chloride (PVC) jacketing and insulation.
   B. Max 7/C No. 12 AWG copper conductor control cable with PVC or XLPE jacket and insulation.
   C. Max 4/0 AWG Type RHH ground cable.
   D. Max 4 pr No. 22 AWG Cat 5 or Cat 6 computer cables.
   E. Max RG 6/U coaxial cable with fluorinated ethylene insulation and jacketing.
   F. Fiber optic cable with polyvinyl chloride (PVC) or polyethylene (PE) jacket and insulation having a max diam of 1/2 in. (13 mm).
   G. Max 20/C No. 22 AWG shielded printer cable with PVC jacket.
   H. Through-Penetrating Product* - Two copper conductors No. 18 AWG (or smaller) Power or Non Power Limited Fire Alarm Cable with or without a jacket under a metal armor.
      AFC CABLE SYSTEMS INC
   I. Max. 1/4 in. (6 mm) diameter S-Video Cable consisting of 2 max 24 AWG 75 ohm coax or twisted pair cable with PE insulation and PVC jacket.
   J. Max 3/C No 12 AWG MC Cable.
   K. Through-Penetrating Product* — Any cables, Armored Cable+ or Metal Clad Cable+ currently Classified under the Through Penetrating Product category. See Through Penetrating Product (XHLY) category in the Fire Resistance Directory for names of manufacturers.

   For opening with cables, the T, FT and FTH Ratings are 1/2 hr. For blank opening (no cables), the T, FT and FTH Ratings are 1-1/2 hr.

   L Ratings vary depending on whether the gasketing material (see Item 3) or the sealant (Item 4) is used. See Table below for L Ratings.

Max Cable Fill	Cable Type	Type L Rating, CFM (L/s) Per Device			
		Ambient		400°F (204°C)	
		Sealant	Gasket	Sealant	Gasket
0%	---	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)
100%	Item 2D only	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)	Less than 1 (Less than 0.5)
100%	Any cables (Item 2) in any combination	1.2 (0.6)	1.2 (0.6)	1.3 (0.6)	1.6 (0.8)

Hilti Firestop Systems

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WJ-3189

System No. W-J-3189

3. Firestop System — The firestop system shall consist of the following:
   A. Firestop Device* — Maximum five firestop devices grouped in two row configuration as depicted. The individual openings in the wall for each device are spaced min 2-7/16 in. (62 mm) apart such that the device flanges of adjacent devices are no closer than point contact. Firestop device consists of a corrugated steel tube with an inner plastic housing, intumescent material rings, twisted inner fabric smoke seal, flanges and gasketing material (not shown). Firestop device to be installed in accordance with the accompanying installation instructions. As an option, the inner fabric seal within each device may remain open except that, for all blank devices (no cables), the inner fabric seal shall be twisted to completely close the device. In addition, to attain the L Rating, the inner fabric seal must also be twisted to completely close the opening within each device. Device slid into wall such that ends project an equal distance from the approximate centerline of the wall assembly. Device provided with flanges that are spun clockwise onto device threads, over gasketing material butting tightly to both sides of wall. The annular space between each device and the periphery of the opening shall be nom 0 in. (point contact). Device flanges are to be secured to wall with min two 1-1/4 in. (32 mm) long masonry screws or anchors.
      As an alternate to gasket material, sealant (Item 3B) may be used.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 and CP 653 BA 2" Speed Sleeve, CP 653 and CP 653 BA 4" Speed Sleeve, CFS-SL GA L Speed Sleeves, CP 653 4" BA ILS and CFS-SL GA L ILS Speed Sleeve.
      The CFS-SL GA L and CFS-SL GA L ILS Speed Sleeves shall only be used in wall thickness of 8 in. (203 mm) or greater.
   A1. Firestop Device* — Same as Item A above except maximum four firestop devices grouped in one row as depicted. The individual openings in the wall for each device are spaced min 1-7/16 in. (36.5 mm) apart. Device flanges may overlap one another. As an option, the inner fabric seal may remain open except that, to attain the L Rating, the inner fabric seal shall be twisted to completely close off the opening within each device.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 653 and CP 653 BA 2" Speed Sleeve, CP 653 and CP 653 BA 4" Speed Sleeve, CFS-SL GA L Speed Sleeves, CP 653 4" BA ILS and CFS-SL GA L ILS Speed Sleeve.
      The CFS-SL GA L and CFS-SL GA L ILS Speed Sleeves shall only be used in wall thickness of 8 in. (203 mm) or greater.
   B. Fill, Void or Cavity Material* — As an alternate to gasket material (see Item 3A), min 1/4 in. (6 mm) bead of fill material applied around periphery of each device to wall interface on both sides of wall prior to installing device flanges.
      HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — CP 606 or FS-ONE MAX Intumescent Sealant.

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

Hilti Firestop Systems

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1 CABLES THRU RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY
1/8" = 1'-0"

2 CABLES THRU RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY.
1/8" = 1'-0"

3 MC CABLE THRU GYPSUM BOARD/STUD WALL ASSEMBLY
1/8" = 1'-0"

4 CABLE THRU RATED CONCRETE WALL ASSEMBLY

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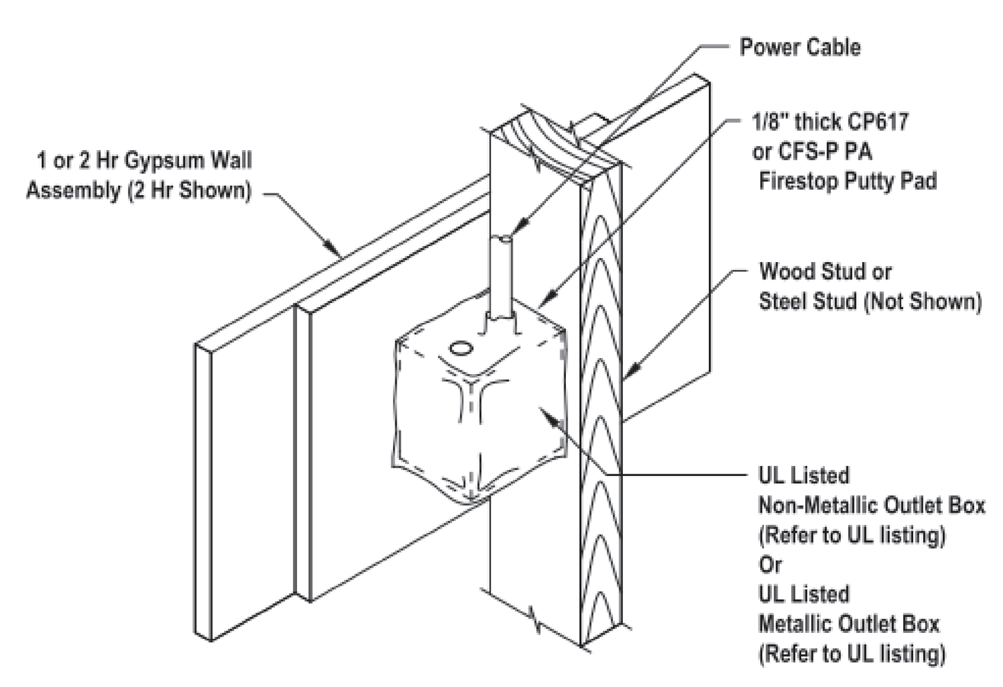
Wall Opening Protective Materials (CLIV, CLIV7)

CP617 / CFS-P PA / FIRESTOP BOX INSERT

Classified by Underwriters Laboratories, Inc.



Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 30, 2019 — Page: 1 of 7

Wall Opening Protective Materials (CLIV, CLIV7)

CP617 / CFS-P PA / FIRESTOP BOX INSERT

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Wall Opening Protective Materials (CLIV, CLIV7)

CP617 / CFS-P PA / FIRESTOP BOX INSERT

Box Size	Type of Box and Cover Plate	Hourly Rating	Wall Type
4 x 4 x 2-1/8 in deep	Metallic w/ steel cover plates	2-hour	U300, U400 or V400 - wood or steel studs
4 x 4 x 2-1/8 in deep	Metallic w/ plastic cover plates	1-hour	U300, U400 or V400 - wood or steel studs
4 x 4 x 1-1/2 in deep	Metallic w/ plastic cover plates	1-hour	U300 - wood studs

HILTI Firestop Box Insert, for use with max 2 1/8 x 4 x 2 1/8 in. deep UL Listed Metallic Outlet Boxes without internal clamps in 2 hr fire rated gypsum wallboard wall assemblies framed with min 3 1/2 in. deep wood or steel studs and constructed of materials and in the manner specified in the individual U300, U400 or V400 Series Wall and Partition Designs in the Fire Resistance Directory. Outlet boxes may be installed with steel cover plates. One 1-7/8 x 2-13/16 insert adhered to the interior back wall of the outlet box in accordance with the instructions supplied with the product.

HILTI Firestop Box Insert, for use with max 4-1/2 x 8-1/2 in. by 1-5/8 in. deep or max 3-3/4 x 5-1/2 in. by 2-1/2 in deep UL Listed Metallic Outlet Boxes without internal clamps in 1 hr or 2 hr fire rated gypsum wallboard wall assemblies framed with min 3 1/2 in. deep steel or wood studs and constructed of materials and in the manner specified in the individual U400, V400 or U300 Series Wall and Partition Designs in the Fire Resistance Directory, as summarized in the Table below. Outlet boxes installed with steel cover plates. Box inserts evenly spaced and adhered to the interior back wall of the outlet box in accordance with the instructions supplied with the product.

Box Size	Inserts Used	Fire Rating	Wall Type
4-1/2 x 8-1/2 x 1-5/8 in deep	Two 3-11/16 x 3-3/4 in. inserts **	2 hour	U300, U400 or V400 - wood or steel studs
3-3/4 x 5-1/2 x 2-1/2 in deep	One 3-11/16 x 3-3/4 in. insert and one 1-7/8 x 2-13/16 in. insert	1 hour	U300, U400, or V400 - wood or steel studs

** - Min 3/4 in. deep plaster rings installed over outlet box. After installation of gypsum board, nom 1/4 in. thickness of Hilti FS-ONE Sealant or FS-ONE MAX Intumescent Sealant, bearing the UL Classification Marking for Fill, Void or Cavity Materials, applied between the base layer of wallboard and the plaster ring.

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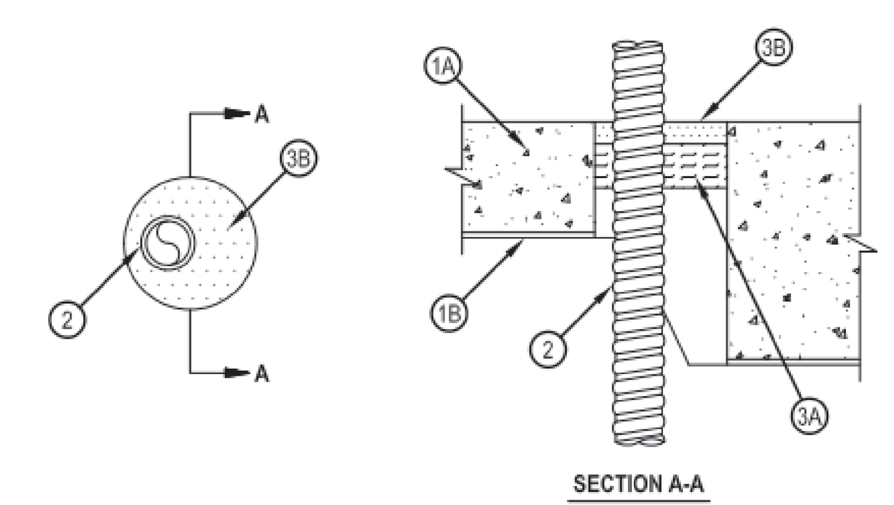
System No. F-A-1018

FA 1018

Classified by Underwriters Laboratories, Inc. to UL 1479 and CAN/ULC-S115

ANSI/UL1479 (ASTM E814)	CAN/ULC S115
F Rating — 2 Hr	F Rating — 2 Hr
T Rating — 0 Hr	FT Rating — 0 Hr
	FH Rating — 2 Hr
	FTH Rating — 0 H



1. Floor Assembly — The fire rated unprotected concrete and steel floor assembly shall be constructed of the materials and in the manner specified in the individual D900 Series designs in the UL Fire Resistance Directory and as summarized below:
   A. Concrete — Min 2-1/2 in. (64 mm) thick reinforced lightweight or normal weight (100-150 pcf or 1600-2400 kg/m3) concrete.
   B. Steel Floor and Form Units* — Composite or non-composite max 3 in. (76 mm) deep galv steel fluted units as specified in the individual Floor-Ceiling Design. Max diam of opening is 3 in. (76 mm).
2. Flexible Steel Conduit+ — Nom 1 in. (25 mm) diam (or smaller) flexible steel conduit. Max one conduit installed within the firestop system. The annular space between conduit and periphery of opening shall be min 1/2 in. to max 1-1/4 in. (13 to 32 mm). Conduit to be rigidly supported on both sides of floor assembly.
   See Flexible Metal Conduit (DXUZ) category in the Electrical Construction Material Directory for names of manufacturers.
3. Firestop System — The firestop system shall consist of the following:
   A. Packing Material — Min 1 in. (25 mm) thickness of min 4.0 pcf (64 kg/m3) mineral wool batt insulation firmly packed into the opening as a permanent form. Packing material to be recessed from top surface of floor as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Materials* — Sealant — Min 1/2 in. (13 mm) thickness of sealant applied within annular space, flush with top surface of floor.
   HILTI CONSTRUCTION CHEMICALS, DIV OF HILTI INC — FS-ONE Sealant or FS-ONE MAX Intumescent Sealant

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

+Bearing the UL Listing Mark

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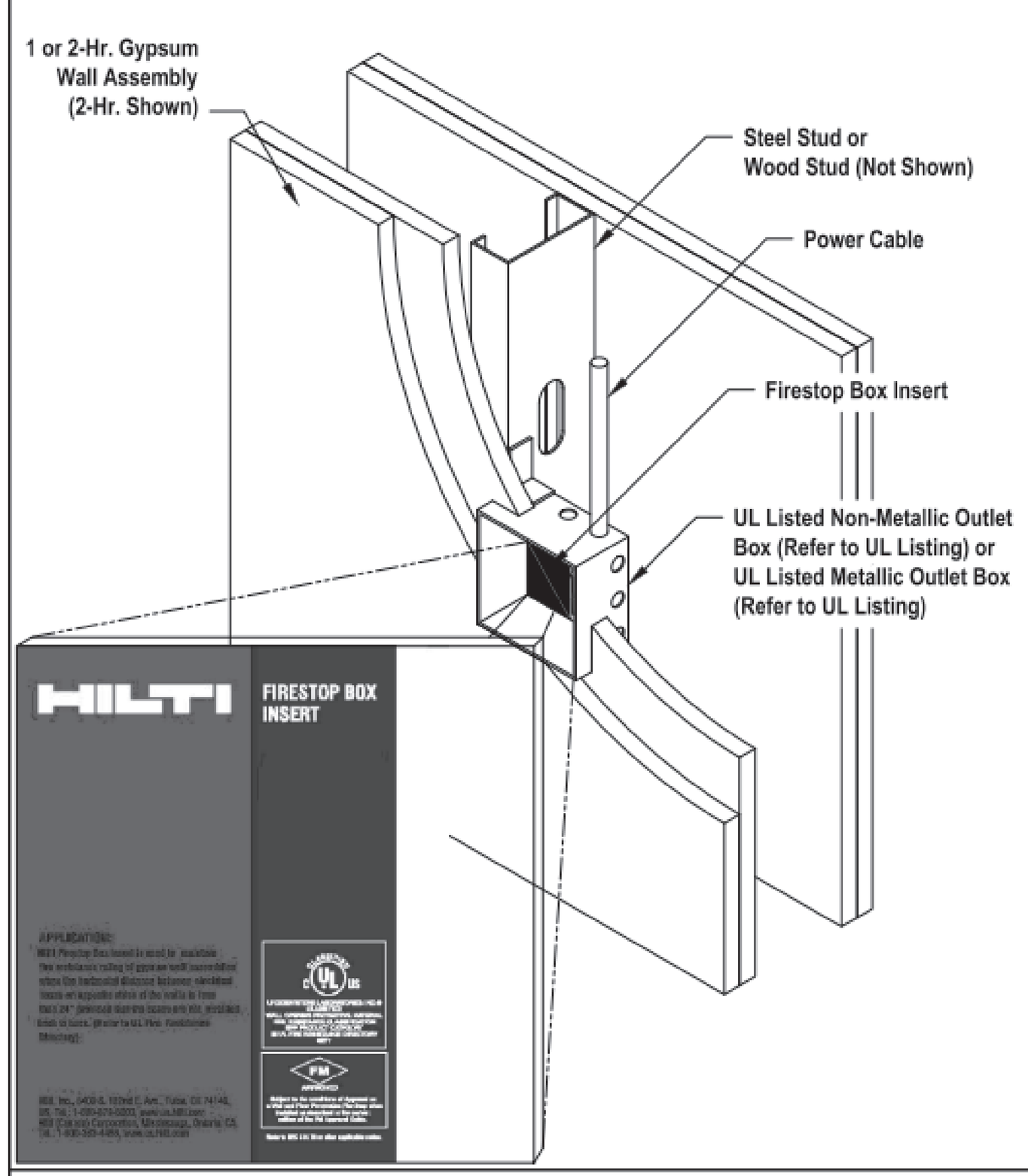
2 MC CABLE THRU CONCRETE/STEEL FLOOR ASSEMBLY
1/8" = 1'-0"

Wall Opening Protective Materials (CLIV, CLIV7)

CP617 / CFS-P PA / FIRESTOP BOX INSERT



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Wall Opening Protective Materials (CLIV, CLIV7)

CP617 / CFS-P PA / FIRESTOP BOX INSERT

Hilti Firestop Systems — Reproduced by HILTI, Inc. Courtesy of Underwriters Laboratories, Inc. January 30, 2019 — Page: 4 of 7

1 FIRE STOP BOX INSERT
1/8" = 1'-0"

Notes:

1. Refer to architectural specifications for Quality Control requirements, refer to the Quality Control portion of the specification.
2. Details shown are typical details. If field conditions do not match requirements of typical details, approved alternate details shall be utilized. Field conditions and dimensions need to be verified for compliance with the details, including but not limited to the following:
   *Minimum and maximum Width of Joints
   *Type and thickness of fire-rated construction. The minimum assembly rating of the firestop assembly shall meet or exceed the highest rating of the adjacent construction.
3. If alternate details matching the field conditions are not available, manufacturer's engineering judgment drawings are acceptable. Drawings shall follow the International Firestop Council (IFC) Guidelines for Evaluating Firestop Systems Engineering Judgments.
4. References:
   *Underwriter's Laboratories Fire Resistance Directory, Volume 2 ' NFPA 101 Life Safety Code
   *All governing local and regional building codes
5. Firestop System installation must meet requirements of ASTM E-814 {UL 1479) tested assemblies that provide a fire rating equal to that of construction being penetrated.
6. All rated through-penetrations shall be prominently labeled with the following information:
   *ATTENTION: Fire Rated Assembly
   *UL System #
   *Product(s) used
   *Hourly Rating (F-Rating)
   *Installation Date

Quest Design Group, Inc.
1859 Northgate Blvd.
Sarasota, Fl 34234
941.351.9996
www.questdg.com
Cert. of Authorization# CA31201
Mechanical Electrical Plumbing Fire Protection

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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO: 220035.00

HILTI FIRE STOP DETAILS

SHEET NUMBER: RE6.03

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ELECTRICAL NOTES AND SPECIFICATIONS:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND INCLUDED IN THE CONTRACT. DRAWINGS ARE NOT TO BE SCALED . THE DRAWINGS AND DETAILS WILL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT . ANYTHING MENTIONED IN THE SPECIFICATION AND NOT SHOWN ON THE DRAWINGS , OR SHOWN ON THE DRAWINGS BUT NOT IN THE SPECIFICATIONS WILL INTERPRETED AS BEING IN BOTH. CONFLICTS WILL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER BEFORE BEFORE PROCEEDING WITH THE WORK.

2. THE ELECTRICAL CONTRACTOR TO FURNISH ALL EQUIPMENT, MATERIAL, LABOR, ETC. NECESSARY TO PROVIDE A COMPLETE , WORKABLE AND CODE APPROVED ELECTRICAL POWER DISTRIBUTION SYSTEM. ALL WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS,LOCAL, STATE AND NATIONAL CODES.

3. THE ELECTRICAL CONTRACTOR WILL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT FEES, SALES TAXES AND OTHER COSTS IN CONNECTION WITH HIS WORK, FILE ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION,OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER TO THE GENERAL CONTRACTOR THE SAME CERTIFICATES BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

4. THE ELECTRICAL CONTRACTOR (E.C.) WILL GIVE FULL COOPERATION TO OTHER TRADES ANDWILL FURNISH IN WRITING TO THE GENERAL CONTRACTOR, ANY INFORMATION NECESSARY TO PERMIT THE WORK OF ALL TRADES TO BE INSTALLED SATISFACTORILY AND WITH THE LEAST POSSIBLE INTERFERENCE OR DELAY. THE E.C. MUST COORDINATE ALL CONDUIT RUNS AND EQUIPMENT MOUNTING LOCATIONS WITH OTHER TRADES PRIOR TO ROUGH-IN.

5. THE ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL ALL ELECTRICAL DEVICES AS SHOWN,VERIFYING ALL MOUNTING HEIGHTS AND EXACT LOCATIONS OF ALL WALL-MOUNTED ELECTRICAL DEVICES WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN. IN THE EVENT OF A CODE CONFLICT, THE CONTRACTOR WILL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO COMMENCING THE WORK.

6. ALL SPARE CONDUITS TO BE INSTALLED FOR FUTURE USE WILL BE CAPPED WITH PULL WIRE INSTALLED. UNDERGROUND SPARE CONDUITS WILL BE STUBBED UP 12" A.F.F. WHERE INDICATED AND CAPPED WITH PULL WIRE. ALL CAPPED CONDUIT WILL BE LABELED WITH ITS PURPOSE.

7. THE ELECTRICAL CONTRACTOR WILL PROVIDE A COMPLETE GROUNDING SYSTEM PER APPLICABLE SECTIONS OF THE N.E.C. BOND SERVICE ENTRANCE GROUND TO BUILDING STEEL, METAL WATER MAINS, MADE ELECTRODES, ETC. AS NECESSARY.

8. ALL ELECTRICAL DISTRIBUTION EQUIPMENT TO HAVE ONLY COPPER BUSING. ALL EXTERIOR ELECTRICAL EQUIPMENT TO BE RAIN-PROOF TYPE NEMA 3R. ALL DISCONNECTS TO BE GENERAL DUTY TYPE. ALL EXTERIOR DISCONNECTS TO BE RAIN-PROOF TYPE NEMA 3R. ALL CIRCUIT BREAKERS TO BE 20A MINIMUM OR AS SHOWN ON THE PANEL SCHEDULES.

9. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE AND INSTALLED AS REQUIRED FOR CONDENSING AND AIR HANDLING UNITS, EXHAUST FANS, KITCHEN EQUIPMENT, WATER HEATERS, ETC.SUPPLIED BY MECHANICAL, PLUMBING AND FOOD SERVICE CONTRACTOR(S). SUPPLY AND INSTALL ALL REQUIRED CONDUIT AND DEVICE BOXES FOR HVAC TEMPERATURE CONTROLS.

10. ELECTRICAL CONTRACTOR TO SUPPLY ALL REQUIRED DISCONNECTS AND WIRE ALL EXHAUST FANS, AIR HANDLER UNITS, CONDENSING UNITS, SMOKE DAMPERS, ETC. PROVIDED BY THE MECHANICAL E.C. WILL V ERIFY NAMEPLATE RATINGS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN. E.C. TO PROVIDE DISCONNECTS AND CIRCUIT BREAKERS PER NAMEPLATE RATING.THE E.C. SHALL PROVIDE ALL HANDWARE (CONTROL RELAYS, LOW VOLTAGE TRANSFORMER POWER SUPPLIES, & ENCLOSURES) FOR THE PROPER OPERATION OF MECH. UNITS, EXHAUST FANS & SMOKE DAMPERS PER THE "SEQUENCE OF OPERATIONS"AS DETAILED ON THE MECHANICAL PLANS. THE E.C. WILL NOTIFY THE ARCHITECT/ENGINEER OF ANY CHANGES REQUIRED TO CIRCUITING PRIOR TO COMMENCING THE WORK.

11. ALL INTERIOR POWER/LIGHTING CIRCUITS TO BE 2-#12, 1-#12 G. IN MINIMUM 1/2" C.W/MAXIMUM 30% FILL, UNLESS SHOWN OTHERWISE ON THE PLANS. INTERIOR HOME RUNS TO BE A MINIMUM OF 3/4" C. W/MAXIMUM 40% FILL. ALL EXTERIOR LIGHTING CIRCUITS TO BE A 10G TO THE REMAINING FIXTURES OR AS INDICATED ON PLANS. ALL UNDERGROUND CONDUIT TO BE A MINIMUM OF 1". TYPE MC CABLE HAVING STRANDED COPPER CONDUCTORS SHALL BE ACCEPTABLE FOR BRANCH CIRCUITS IN CONDITIONED SPACES ONLY.ALL FEEDER CONDUCTORS SHALL BE COPPER WITH TYPE THHN INSULATION. TYPE XHHW-2 OR THWN-2 SHALL BE USED FOR CONDUCTORS INSTALLED IN WET AND DAMP LOCATIONS. SPECIFIC EQUIPMENT CIRCUITS (HVAC,PUMPS, WATER HEATERS, ETC.) SHALL BE AS REQUIRED PER NAMEPLATE RATING(S).

12. THE ELECTRICAL CONTRACTOR SHALL PROPERLY AND PERMANENTLY IDENTIFY ALL BOXES,ENCLOSURES, ETC. FOR EMERGENCY CIRCUITS IN ACCORDANCE WITH NEC 700.10. LABEL ALL PANEL CIRCUITS TO IDENTIFY UNIT EQUIPMENT CONNECTED IN ACCORDANCE WITH NEC 700.12(F).

13. ELECTRICAL CONTRACTOR WILL CONTACT LOCAL ELECTRICAL UTILITY AND COORDINATE EXACTLOCATION OF ELECTRICAL SERVICE SOURCE. THE CONTRACTOR SHALL COORDINATE SHORT CIRCUIT RATING (A.I.C.) WITH UTILITY PRIOR TO BID AND PROVIDE THE APPROPRIATE SHORT CIRCUIT RATINGS FOR ALL ELECTRICAL EQUIPMENT. COORDINATE USE OF HAND HOLE / UTILITY POLE / PAD MOUNT TRANSFORMER PRIOR TO BID AND/OR ROUGH-IN.

14. MINOR DETAILS, NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER OPERATION AND CONSISTENT WITH GOOD WORKMANSHIP, WILL BE INCLUDED IN THE ESTIMATE, THE SAME AS IF SHOWN ON DRAWINGS.

15. PROVIDE CONDUIT STUBS, BACK BOXES AND PULL STRINGS ETC. FOR ALL LOW VOLTAGE SYSTEMS PROVIDED BY OTHERS TO DEVICES LOCATED IN ALL SPACES. PROVIDE SEPARATE PERMITS FOR ALL LOW VOLTAGE SYSTEMS.

* ALL MATERIALS FURNISHED AND ALL WORK INSTALLED UNDER THIS SECTION SHALL COMPLY WITH THE FOLLOWING:

  * LIFE SAFETY CODE NFPA 101-2018
  * APPLICABLE NFPA FIRE CODES
  * NATIONAL BUREAU OF FIRE UNDERWRITERS
  * ACCESSIBILITY FOR THE HANDICAPPED ANSI A117
  * AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES
  * FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS ACCESSIBILITY REQUIREMENTS MANUAL
  * NATIONAL ELECTRICAL CODE NFPA 70-2017
  * THE SERVING UTILITY COMPANIES
  * FLORIDA BUILDING CODE 2020, SEVENTH EDITION
  * FLORIDA BUILDING CODE - ENERGY CONSERVATION 2020
  * FLORIDA BUILDING CODE - MECHANICAL 2020
  * FLORIDA BUILDING CODE - PLUMBING 2020

16. ALL ELECTRICAL SYSTEM COMPONENTS AND INSTALLATIONS SHALL BE WARRANTED TO BE FREE OF DEFECTS (MATERIALS AND LABOR) FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM RECEIPT OF CERTIFICATE OF OCCUPANCY. THE CONTRACTOR SHALL PROVIDE FOR OWNER'S OPTION A MAINTENANCE CONTRACT AND/OR AN EXTENDED WARRANTY

17. CONTRACTOR TO PROVIDE MANUFACTURER CERTIFICATION, WITH SHOP DRAWING SUBMITTALS, THAT POLE ASSEMBLY WITH SPECIFIED HEADS AND ALL SPECIFIED OPTIONS MEETS WIND LOAD REQUIREMENTS PER 2020 FLORIDA BUILDING CODE FIGURE 1609.3. ELECTRICAL CONTRACTOR TO SUBMIT MANUFACTURER RECOMMENDED CHANGES FOR A CODE COMPLYING INSTALLATION TO OWNER/ENGINEER FOR APPROVAL. ADDITIONALLY, CONTRACTOR SHALL PROVIDE CERTIFICATION THAT POLE MOUNTING METHOD; I.E.,DIRECT BURY/ANCHOR BASE MEETS THE ABOVE REQUIREMENTS. POLE MOUNTING CERTIFICATION SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

18.ELECTRICAL CONTRACTOR TO PROVIDE AS-BUILT DOCUMENTS, OPERATION MANUALS, MAINTENANCE MANUALS TO THE OWNER WITHIN 30 DAYS OF ACCEPTANCE OF SYSTEMS AS PER FBC C405.5.4.

ELECTRICAL COMMISIONING

BUILDING COMMISSIONING
GENERAL REQUIREMENTS:
THE 2020 FLORIDA BUILDING CODE - "ENERGY CONSERVATION" PROVIDES THE REQUIREMENTS FOR COMMERCIAL BUILDING EFFICIENCY. THE CODE DEFINES THE ENERGY EFFICIENCY REQUIREMENTS FOR THE ELECTRICAL POWER AND LIGHTING SYSTEM, TOTAL BUILDING PERFORMANCE, AND COMMISSIONING.THIS CODE CHAPTER REQUIRES A CERTAIN SET OF ACTIVITIES AND PROCESSES TO BE ADMINISTERED AND DOCUMENTED IN ACCORDANCE WITH DEFINED STANDARDS. THIS SPECIFICATION IS THE OWNER'S MEANS OF VERIFYING THAT THE PLANNING, DESIGN,CONSTRUCTION AND OPERATION OF ELECTRICAL SYSTEMS ACHIEVE THEIR GOALS AND DELIVER A HIGH QUALITY BUILDING WITH MAXIMUM ASSET VALUES.

COMMISSIONING OF THE BUILDING ELECTRICAL POWER AND LIGHTING SYSTEMS AS PER SECTION 408 SHALL BE AS DEFINED HEREIN. PRIOR TO PASSING THE FINAL ELECTRICAL INSPECTION, THE CONTRACTOR SHALL PROVIDE EVIDENCE OF SYSTEM COMMISSIONING AND COMPLETION IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405 AND SUBMIT TO THE REGISTERED DESIGN PROFESSIONAL (ENGINEER OF RECORD) FOR APPROVAL, AND TO THE BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATION OF OCCUPANCY.

ELECTRICAL SYSTEMS TO BE COMMISSIONED INCLUDE:
ALL AUTOMATIC CONTROLS FOR INTERIOR AND EXTERIOR LIGHTING/ELECTRICAL SYSTEMS SHALL BE SUBJECT TO THESE REQUIREMENTS.
SCOPE:
FUNCTIONAL TESTING PRIOR TO PASSING FINAL INSPECTION, THE REGISTERED DESIGN PROFESSIONAL SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURE'S INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH SECTIONS C408.3.1.1 THRU C408.3.1.3 FOR THE APPLICABLE CONTROL TYPE.

THE PROJECT GENERAL CONTRACTOR SHALL HIRE A FIRM QUALIFIED IN THE TESTING OF LIGHTING AND ELECTRICAL SYSTEM PERFORMANCE FUNCTIONALITY OF THE SYSTEMS LISTED IN THIS SPECIFICATION. THE TESTING FIRM SHALL DETERMINE THE EXTENT AND SCOPE OF THE SYSTEMS REQUIRING COMMISSIONING NEEDED ON A PROJECT BASIS.

A FUNCTIONAL PERFORMANCE TEST SHALL BE CONDUCTED TO DEMONSTRATE THE INSTALLATION AND OPERATION OF COMPONENTS, SYSTEMS,AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS SUCH THAT OPERATION,FUNCTION, AND MAINTENANCE SERVICEABILITY FOR EACH OF THE COMMISSIONED SYSTEMS IS CONFIRMED. TESTING SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATION, INCLUDING UNDER FULL-LOAD, PART-LOAD AND THE FOLLOWING EMERGENCY CONDITIONS:

* ALL MODES AS DESCRIBED IN THE SEQUENCE OF OPERATION OR MANUFACTURES OPERATING INSTRUCTIONS
* REDUNDANT OR AUTOMATIC BACK-UP MODE
* PERFORMANCE OF LIGHTING OVERRIDE
* MODE OF OPERATION UPON A LOSS OF POWER AND RESTORATION OF POWER.

THE GENERAL CONTRACTOR SHALL:

* INCORPORATE COMMISSIONING ACTIVITIES INTO THE CONSTRUCTION SCHEDULE.
* FACILITATE COOPERATION OF SUB-CONTRACTORS IN COMMISSIONING WORK.
* PROVIDE SUB-CONTRACTOR ASSISTANCE IN OPERATING EQUIPMENT TO BE COMMISSIONED.
* INSURE EQUIPMENT START-UP IS COMPLETE PRIOR TO BEGINNING THE COMMISSIONING PROCESS.
* WORK WITH SUB-CONTRACTORS IN DEVELOPING A TRAINING SCHEDULE AND PLAN FOR APPROVAL BY THE OWNER.
* VERIFY THE PRE-FUNCTIONAL CHECKLISTS ARE COMPLETED PRIOR TO SYSTEM TESTING.
* VERIFY THE EQUIPMENT START-UP AND CONTROLS VERIFICATIONS ARE COMPLETE.
* INSURE RESOLUTION OF NON-COMPLIANT AND DEFICIENT CONSTRUCTION RELATED ITE IDENTIFIED BY THE COMMISSIONING TEAM.
* ASSIST IN WARRANTY REVIEW OF SYSTEM AND EQUIPMENT PERFORMANCE.THE SUB-CONTRACTORS SHALL:

* PREPARE OWNER TRAINING PLAN FOR INSTALLED EQUIPMENT AND CONTROLS.
* PROVIDE NECESSARY PERSONNEL TO ASSIST THE ELECTRICAL TESTING AGENT IN HIS RESPONSIBILITIES DESCRIBED LATER IN THIS SPECIFICATION.
* PREPARE AND SCHEDULE EQUIPMENT START-UP WITH THE GENERAL CONTRACTOR AND ELECTRICAL TESTING AGENT.
* EXECUTE ALL REQUIRED EQUIPMENT AND SYSTEM TESTING AS MANDATED BY 2020 FLORIDA BUILDING CODE, PROJECT PLANS AND SPECIFICATION.
* ENSURE INSTALLATION WORK IS COMPLETE AND IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AND READY FOR FUNCTION PERFORMANCE TESTING.
* PROVIDE CERTIFIED AND CALIBRATED INSTRUMENTATION REQUIRED TO TAKE MEASUREMENTS OF SYSTEM AND EQUIPMENT PERFORMANCE DURING THE FUNCTIONAL PERFORMANCE TESTING.PERFORMANCE DURING THE FUNCTIONAL PERFORMANCE TESTING.
* PREPARE CLOSEOUT DOCUMENTS INCLUDING BUT NOT LIMITED TO:
* AS-BUILT DRAWINGS
* WARRANTIES.
* OPERATIONAL AND MAINTENANCE MANUALS FOR INSTALLED EQUIPMENT.
* DELIVERY OF ANY SPARE PARTS REQUIRED BY THE PROJECT SPECIFICATION.

THE CODE OFFICIAL SHALL BE PERMITTED TO REQUIRE THAT A COPY OF THE FINAL COMMISSIONING REPORT BE MADE AVAILABLE FOR HIS/HER REVIEW.

CONSTRUCTION DOCUMENTS SHALL INCLUDE THE LOCATION ON EACH PIECE OF EQUIPMENT.

AN OPERATION AND MAINTENANCE MANUAL SHALL BE PROVIDED AND INCLUDE ALL OF THE FOLLOWING:

* SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
* MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE,
* EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTI MAINTENANCE ACTIONS SHALL BE CLEARLY EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT.REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.

A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS “FINAL COMMISSIONING REPORT” SHALL BE DELIVERED TO THE BUILDING OWNER AND SHALL INCLUDE:

* RESULTS OF FUNCTIONAL PERFORMANCE TESTS.
* DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIV MEASURES USED OR PROPOSED.
* FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY AS FOLLOWS:

1. TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2. AN APPROVED THIRD PARTY INDEPENDENT FROM THE DESIGN OR CONSTRUCTION OF THE PROJECT SHALL BE RESPONSIBLE FOR THE FUNCTIONAL TESTING AND SHALL PROVIDE DOCUMENTATION TO THE OWNER, REGISTERED DESIGN PROFESSIONAL AND CODE OFFICIAL CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE PROVISIONS OF SECTION C405. WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:
a. CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE AS PER FBC-C408.3.
b. CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF AS PER THE OWNER SCHEDULE AND FBC-C408.3.1.2.
c. CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED AND PER C408.3.

ELECTRICAL IDENTIFICATION NOTES

PRODUCTS AND MATERIALS
ALL LABELS SHALL BE PERMANENT AND MACHINE-PRODUCED. HANDWRITTEN LABELS SHALL NOT BE ACCEPTABLE, UNLESS OTHERWISE INDICATED.

CONDUCTOR/CABLING LABELS: ALL CONDUCTOR/CABLING LABELS SHALL BE CONSTRUCTED OF TRANSPARENT VINYL OR VINYL CLOTH, SELF-LAMINATING TAPE. FLAG-TYPE LABELS SHALL NOT BE ACCEPTABLE. LABELS SHALL BE SIZED TO ACCOMMODATE THAT CIRCUMFERENCE OF THE CONDUCTOR/ CABLE.

CONDUCTOR/CABLING IDENTIFICATION TAPE: CONDUCTOR/CABLING IDENTIFICATION TAPE SHALL BE SCOTCH #35 VINYL ELECTRICAL TAPE, COLORED IN ACCORDANCE WITH THE SYSTEM VOLTAGE AND TYPE OF CONDUCTOR.

NAMEPLATES: NAMEPLATES SHALL BE PHENOLIC, ENGRAVED TYPE. EMBOSSED TAPE SHALL NOT BE ACCEPTABLE. NORMAL SYSTEMS SHALL UTILIZE WHITE LETTERS ON A BLACK BACKGROUND. EMERGENCY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A RED BACKGROUND. LEGALLY-REQUIRED STANDBY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A BLUE BACKGROUND. OPTIONAL STANDBY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A YELLOW BACKGROUND.

ADHESIVE LABELS: ADHESIVE LABELS SHALL NOT BE ACCEPTABLE, EXCEPT FOR THE IDENTIFICATION OF CONDUCTORS/CABLING, DEVICE FACEPLATES, AND JUNCTION BOXES SIZED 8" SQ. OR SMALLER.

GENERAL
WHERE MULTIPLE SYSTEM VOLTAGES (E.G. 480/277V, 208/120V, ETC.) ARE UTILIZED IN THE SAME BUILDING, ALL DISCONNECT SWITCHES, JUNCTION BOXES, PANELBOARDS, SWITCHBOARDS, TRANSFORMERS, AND MISCELLANEOUS EQUIPMENT SHALL BE LABELED TO INDICATE THE SYSTEM VOLTAGE, IN ADDITION TO THE REQUIREMENTS LISTED BELOW.

CLEAN ALL MOUNTING SURFACES PRIOR TO AFFIXING LABELS. UTILIZE THE LABEL MANUFACTURER'S RECOMMENDED CLEANING AGENT. INSTALL LABELS NEATLY AND FIRMLY AND IN ACCORDANCE WITH THE LABEL MANUFACTURER'S RECOMMENDATIONS.

AFFIX NAMEPLATES TO EQUIPMENT UTILIZING SCREWS, RIVETS, OR OTHER MATERIALS APPROVED BY THE MANUFACTURER.

PROVIDE A PLACARD AT EACH SERVICE DISCONNECT WITH THE WORDS "SERVICE DISCONNECT." LOCATE ABOVE THE MAIN DISCONNECT SWITCH OR CIRCUIT BREAKER.

JUNCTION BOX AND PULL BOX IDENTIFICATION
JUNCTION BOXES AND PULL BOXES SHALL BE IDENTIFIED UTILIZING SPRAY-PAINTED COVERS AS FOLLOWS:

SECONDARY POWER - 480Y/277V	BROWN
SECONDARY POWER - 208Y/120V, 240/120V	WHITE
EMERGENCY SYSTEM - LIFE SAFETY BRANCH (NEC 700) - 480Y/277V	BROWN/RED
EMERGENCY SYSTEM - LIFE SAFETY BRANCH (NEC 700) - 208Y/120V	WHITE/RED
LEGALLY REQUIRED STANDBY SYSTEM (NEC 701) - 480Y/277V	BROWN/BLUE
LEGALLY REQUIRED STANDBY SYSTEM (NEC 701) - 208Y/120V	WHITE/BLUE
OPTIONAL STANDBY SYSTEM (NEC 702) - 480Y/277V	BROWN/YELLOW
OPTIONAL STANDBY SYSTEM (NEC 702) - 208Y/120V	WHITE/YELLOW
FIRE ALARM	RED
TEMPERATURE CONTROL	GREEN
DOOR CONTROL AND DOOR MONITORING SYSTEM	ORANGE
SOUND AND INTERCOM SYSTEMS	GRAY
VIDEO SURVEILLANCE SYSTEM/MATV	YELLOW
DATA	BLUE JUNCTION

BOXES AND PULL BOXES FOR POWER CONDUCTORS SHALL BE LABELED WITH CIRCUIT NUMBERS AND SOURCE PANELBOARD DESIGNATIONS. JUNCTION BOXES AND PULL BOXES FOR OTHER SYSTEMS SHALL BE IDENTIFIED IN ACCORDANCE WITH THE SHOP DRAWINGS FOR THEIR RESPECTIVE SYSTEMS.

EXPOSED JUNCTION BOXES EXCEEDING A SIZE OF 8" SQ. SHALL BE IDENTIFIED WITH PHENOLIC, ENGRAVED PLACARDS. LETTERING HEIGHT SHALL BE A MINIMUM OF 1/2". IDENTIFY THE SYSTEM SOURCE(S) AND LOAD(S) SERVED.

EXPOSED JUNCTION BOXES 8" SQ. AND SMALLER SHALL BE IDENTIFIED WITH ADHESIVE LABELS.

JUNCTION BOXES INSTALLED ABOVE AN ACCESSIBLE CEILING SHALL BE PERMITTED TO BE IDENTIFIED VIA PERMANENT MARKER. LETTERING SHALL BE NEAT AND LEGIBLE.

COMMUNICATIONS CONDUIT LABELING
ALL CONDUITS INSTALLED BETWEEN ELECTRICAL AND/OR INFORMATION TECHNOLOGY (I.T.) ROOMS SHALL BE LABELED IN ACCORDANCE WITH ANSI/TIA/EIA-606. BOTH TERMINATION POINTS OF THE CONDUITS SHALL BE IDENTIFIED.

ALL LABELS SHALL BE MACHINE-PRODUCED. HANDWRITTEN LABELS SHALL NOT BE ACCEPTABLE.

THE LABEL SHALL INDICATE THE LOCATION OF THE TERMINATION POINT OF THE CONDUIT AND A UNIQUE IDENTIFICATION NUMBER.

POWER AND LOW-VOLTAGE CONDUCTOR/CABLE IDENTIFICATION
PROVIDE CONDUCTOR/CABLE LABELS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, JUNCTION BOXES, PULL BOXES, AND OUTLET BOXES AT LOAD CONNECTIONS. IDENTIFY THE BRANCH CIRCUIT OR FEEDER NUMBER FOR ALL POWER AND LIGHTING BRANCH CIRCUITS. FOR LOW-VOLTAGE SYSTEMS, INDICATE THE WIRE NUMBER IN ACCORDANCE WITH SHOP DRAWINGS.

ALL CONDUCTORS/CABLING SHALL BE LABELED WITHIN 2 TO 4 INCHES OF TERMINATION. EACH END OF A CONDUCTOR/CABLE SHALL BE LABELED IMMEDIATELY UPON TERMINATION.

WIRING DEVICE IDENTIFICATION
WALL SWITCHES, RECEPTACLES, OCCUPANCY SENSORS, DEVICE PLATES, BOX COVERS, POKE-THROUGH FITTINGS, ACCESS FLOOR BOXES, PHOTOCELLS, AND TIME CLOCKS SHALL BE IDENTIFIED WITH CIRCUIT NUMBERS AND SOURCE. IN EXPOSED SPACES, IDENTIFICATION SHALL BE MADE INSIDE OF DEVICE COVERS. USE MACHINE-PRODUCED ADHESIVE LABELS OR PERMANENT MARKER. HANDWRITTEN LABELS SHALL BE NEAT AND LEGIBLE.

NAMEPLATES FOR ELECTRICAL EQUIPMENT
PROVIDE NAMEPLATES OF THE MINIMUM LETTER HEIGHT AS LISTED BELOW.

DISTRIBUTION PANELBOARDS, SUBPANELS, AND SWITCHBOARDS: 1 INCH NAME PLATE MIN. IDENTIFY THE SYSTEM VOLTAGE,SOURCE, AND LOCATION OF THE SOURCE. FOR 240V/3PH SYSTEMS: PROVIDE PANELBOARD IDENTIFICATION AS REQUIRED BY 2017 NEC SECTION 408.3; PANELS SHALL BE MARKED "CAUTION B PHASE HAS 208 VOLTS TO GROUND" WITH PHENOLIC ENGRAVED LABEL.

ENCLOSED CIRCUIT BREAKERS AND DISCONNECT SWITCHES: 1/2 INCH NAME PLATE MIN. IDENTIFY THE SOURCE CIRCUIT, LOAD SERVED, AND LOCATION.

TRANSFORMERS: 1 INCH NAME PLATE MIN. IDENTIFY PRIMARY AND SECONDARY VOLTAGES, PRIMARY SOURCE AND LOCATION, SECONDARY LOAD AND LOCATION.

PANELBOARD/SWITCHBOARD DIRECTORIES
SHALL BE TYPEWRITTEN AND COVERED WITH CLEAR PLASTIC WITH METAL FRAMING.

Jon Shepard
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NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS.

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL NOTES

SHEET NUMBER:
AE0.00

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ANSI D SIZED SHEETS ORIGINAL PAGE SIZE

LIGHTING CONTROL LEGEND

SYMBOL	DESCRIPTION
$	SINGLE POLE SWITCH, MOUNT 48" AFF U.O.N.
$3 $4	THREE-WAY/FOUR-WAY SWITCH RESPECTIVELY, MOUNT 48" AFF U.O.N.
$M	MOTOR-RATED SWITCH, SINGLE/DOUBLE POLE AS INDICATED ON PLANS
$D	SLIDE DIMMER W/PRESET ON/OFF SWITCH, MATCH DIMMER RATING WITH ASSOCIATED LOAD, MOUNT 48" AFF U.O.N.
$T	SPRINGWOUND TIMER SWITCH, INTERMATIC "P"-SERIES, MOUNT 48" AFF U.O.N.
$OC	WALL SWITCH OCCUPANCY SENSOR (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$OC3	WALL SWITCH OCCUPANCY SENSOR 3-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$OC4	WALL SWITCH OCCUPANCY SENSOR 4-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC	WALL SWITCH VACANCY SENSOR (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC3	WALL SWITCH VACANCY SENSOR 3-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC4	WALL SWITCH VACANCY SENSOR 4-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$DV	WALL SWITCH DIMMING VACANCY SENSOR (DUAL), LEGRAND "DW-311", MOUNT 48" AFF U.O.N.
OC1	CEILING MOUNT OCCUPANCY SENSOR (120-277V), LEGRAND "DT-355" (360 DEG 25'W), MOUNT 8' AFF U.O.N.
$K	KEY SWITCH, MOUNT 48" AFF U.O.N.
$C	COMBINATION FAN SPEED CONTROL & FAN LIGHT SWITCH, MOUNT 48" U.O.N.

LIGHTING SYMBOL LEGEND

SYMBOL	DESCRIPTION
	EXIT SIGN - FACES AS REQUIRED - WITH BATTERY BACKUP
	EXIT SIGN W/DIRECTION ARROW - FACES AS REQUIRED - WITH BATTERY BACKUP
EM	EMERGENCY LIGHT FIXTURE WITH BATTERY BACKUP (CONNECT TO LINE SIDE OF NEAREST SWITCH SERVING THAT AREA OR ON THE LINE SIDE OF LIGHTING CONTROL PANEL THAT CONTROLS THE LIGHTING CIRCUIT IN THAT AREA).
	EMERGENCY LIGHT REMOTE HEAD.
	EMERGENCY LIGHT FIXTURE WITH INTEGRAL BATTERY BACKUP.

LOW VOLTAGE LEGEND

SYMBOL	DESCRIPTION
	CCTV CAMERA, CEILING-MOUNTED "C" OR WALL-MOUNTED "W" AS INDICATED
SC	SECURITY CONTACT DOOR/WINDOW ECT.
ML	MAGNETIC LOCK
DSL	DOOR STRIKE LOCK
PR	PROX READER
PDR	PROX READER LIGHTED EXIT PUSH BUTTON FOR DOOR RELEASE.
PB	PANIC BUTTON
R	SECURITY SYSTEM RELAY
KP	SECURITY SYSTEM KEYPAD
DR	EXIT PUSH BUTTON FOR DOOR RELEASE.
	HANDICAP EXIT PUSH PLATE DOOR OPENER.
S	SIREN
M	SECURITY SYSTEM MOTION DETECTOR
D	MOTION DETECTOR FOR DOOR RELEASE
SEC	SECURITY CONTROL PANEL.
H	HDMI CABLE OUTLET, PROVIDE 4" SQ. J-BOX w/1-GANG PLASTER RING AND COVER PLATE.

POWER SYMBOL LEGEND

SYMBOL	DESCRIPTION
	SIMPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	DUPLEX RECEPTACLE, MOUNT 42" AFF (48" AFF IN TOILETS/UTILITY CLOSETS) U.O.N.
	SWITCHED SPLIT-WIRE DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	FLOOR MOUNTED DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	FLOOR MOUNTED SWITCHED SPLIT-WIRE DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	CEILING MOUNTED DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	QUADRAPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	QUADRAPLEX RECEPTACLE, MOUNT 42" AFF U.O.N.
	SWITCHED SPLIT-WIRE QUADRAPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	FLOOR MOUNTED QUADRAPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	FLOOR MOUNTED SWITCHED SPLIT-WIRE QUADRAPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	10, 208/240-VOLT SPECIAL PURPOSE RECEPTACLE, MOUNT 18" AFF U.O.N.
	BUILDING EXTERIOR/ROOF-MOUNTED WEATHER-RESISTANT DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N. DEVICE SHALL INCLUDE WEATHERPROOF BACK-BOX WITH DIE-CAST, WEATHERPROOF IN-USE LOCKING COVER - INTERMATIC WP3110MXD. RECEPTACLE SHALL BE G.F.I. PROTECTED EITHER AT THE RECEPTACLE OR FROM THE CIRCUIT BREAKER IN THE PANELBOARD SERVING CKT. IF TOTAL BRANCH CIRCUIT ONE-WAY LENGTH IS GREATER THAN 200', UTILIZE GFCI RECEPTACLES IN PLACE OF GFCI BREAKER (PER MANUFACTURER RECOMMENDATIONS).
RCR	RECEPTACLE CONTROL RELAY
	TELECOM OUTLET (DATA/TELEPHONE) - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	DATA OUTLET - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	TELECOM OUTLET(DATA/TELEPHONE) - MOUNT 84" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	FLOOR/CEILING-MOUNTED TELECOM OUTLET. REFER TO PLANS FOR BOX TYPE, CONDUIT SIZE/QUANTITY & CONFIGURATION.
TV	CABLE TELEVISION OUTLET - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESS. CLG. PROVIDE PULLSTRING.
TTB	TTB (TELEPHONE TERMINAL BOARD) MARINE PLYWOOD BACKBOARD 3/4"x4'x4' PAINTED W/FIRE RETARDANT GRAY PAINT. PROVIDE (2)4" CONDUITS TO PROPERTY LINE. COORDINATE FINAL CONDUIT SIZES AND LOCATIONS W/UTILITY. PROVIDE SOLID COPPER GROUND BAR WITH INSULATED STAND-OFFS.
J	JUNCTION BOX(4"X4"X2"), MOUNT 18" AFF U.O.N.
MS	MOTORIZED SHADES
LC	LIGHTING CONTROLLER
TC	TIMECLOCK WITH INTEGRAL MANUAL OVERRIDE USE INTERMATIC ET SERIES OR EQUAL.
PTD	POWER TRANSFER DEVICE/RELAY.
PC	STEM AND SWIVEL MOUNT PHOTOCELL USE INTERMATIC SERIES K4221C FOR 120V AND K4223C FOR 277V OR EQUAL.
	ELECTRICAL PANELBOARD (SURFACE OR FLUSH-MOUNTED AS SHOWN). REFER TO SCHEDULES/RISER FOR INFO.
M	MOTORIZED DAMPER
	ENCLOSED CIRCUIT BREAKER. PROVIDE WEATHERPROOF ENCLOSURE FOR EXTERIOR APPLICATIONS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED SWITCH AS DISC. PROVIDE WEATHERPROOF ENCLOSURE FOR EXTERIOR APPLICATIONS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED COMBINATION MOTOR STARTER DISC. PROVIDE WP ENCLOSURE FOR EXT. APPS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED MOTOR STARTER. PROVIDE WP ENCLOSURE FOR EXT. APPS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
T	TRANSFORMER
	HOMERUN TO PANEL NOTED (DASHED LINE INDICATES CIRCUIT)
	SWITCHLEG (SOLID LINE) INDICATING A GROUP OF LIGHTS OPERATED BY A COMMON SWITCH
	LOW-VOLTAGE (DOUBLE-DASHED LINE)
HD	HAND DRYER
TV	TELEVISION/RECEPTACLE MOUNTED AT 84" AFF

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
F	FIRE ALARM PULL STATION, MOUNT 48" AFF U.O.N.
H	HEAT DETECTOR (THERMAL DETECTOR)
S	SYSTEM TYPE, ADDRESSABLE SMOKE DETECTOR FOR FIRE ALARM &/OR SMOKE CONTROL. MAINTAIN A MINIMUM DISTANCE OF 3'-0" FROM ALL CEILING-MOUNTED HVAC SUPPLY/RETURN REGISTERS.
SS 2	SINGLE/MULTI-STATION, NON-SYSTEM TYPE, RESIDENTIAL STYLE, LINE-POWERED, COMBINATION CARBON MONOXIDE/SMOKE DETECTOR WITH BATTERY BACKUP. ACTIVATION SHALL SOUND ALL DEVICES WITHIN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT WITHIN UNIT. MAINTAIN A MINIMUM DISTANCE OF 3'-0" FROM ALL CEILING-MOUNTED HVAC SUPPLY/RETURN REGISTERS, 3'-0" FROM THE OUTER EDGE OF PADDLE FAN BLADES, AND 10'-0" FROM ALL WALL-MOUNTED HVAC SUPPLY/RETURN REGISTERS.
D	PHOTOELECTRIC TYPE SMOKE DETECTOR MOUNTED IN HVAC DUCT FOR MECHANICAL UNIT SHUT DOWN AND/OR SMOKE DAMPER OPERATION, COORDINATE FINAL LOCATION AND QUANTITY WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
RTS	DUCT DETECTOR REMOTE TEST SWITCH.
	ELECTRIC HORN, MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER.
L	LOW FREQUENCY ALARM APPLIANCE, 520 HZ MOUNT BETWEEN 80" AND 96" AFF.
	COMBINATION LOW FREQUENCY/STROBE ALARM APPLIANCE, 520 HZ MOUNT AS PER ADA REQUIREMENTS.
	STROBE LIGHT, MOUNT BETWEEN 80" AND 96" AFF. FINAL MOUNTING HEIGHT W/ARCH.
	COMBINATION FIRE ALARM HORN/STROBE, MOUNT BETWEEN 80" AND 96" AFF. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECT.
	STROBE LIGHT, CEILING MOUNT.
	COMBINATION FIRE ALARM HORN/STROBE, CEILING MOUNT.
V	VOICE EVACUATION SPEAKER, MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER/STROBE MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER, CEILING MOUNT, CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER/STROBE CEILING MOUNT, CONTRACTOR SHALL ADJUST TAPS IN THE FIELD FOR AUDIBILITY/INTELLIGIBILITY.
	DOOR HOLDER
	FLOW SWITCH
	TAMPER SWITCH
	FIRE ALARM MONITORING MODULE.
FR	FIRE ALARM CONTROL RELAY. LOCATE WITHIN 3'-0" OF CONTROLLED EQUIPMENT.
LIM	FIRE ALARM LINE ISOLATION MODULE, USED IN CLASS A CIRCUITS ONLY.
SPD	SURGE PROTECTION DEVICE, INCLUDE GROUNDING AS PER MANUFACTURERS INSTRUCTIONS.
TS	FIRE ALARM TELEPHONE STATION.
FACP	FIRE ALARM CONTROL PANEL.
BPS	FIRE ALARM BOOSTER POWER SUPPLY.
FACS	FIRE ALARM COMMAND SYSTEM.
AMP	VOICE EVAC AMPLIFIER PANEL.
ANN	FIRE ALARM ANNUNCIATOR. PROVIDE FLUSH MOUNTING TRIM FOR DEVICE RECESS MOUNTING.
DACT	DIGITAL ALARM COMMUNICATION TRANSMITTER
FATC	FIRE ALARM TERMINAL CABINET.
KNOX	KNOX BOX
E.O.L.	END-OF-LINE RESISTOR.
ARP	AREA OF RESCUE POWER SUPPLY.
ARB	AREA OF RESCUE PHONE BASE.
RCB	AREA OF RESCUE CALL BOX.
AOR	AREA OF RESCUE DIRECTIONAL SIGNAGE.

NOTES:
1. LOW VOLTAGE/ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS & MOUNTING HEIGHTS OF ALL LOW VOLTAGE DEVICES WITH OWNER/ARCHITECT BEFORE ROUGH-IN.
2. ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THIS PROJECT.

LOW VOLTAGE LIGHTING CONTROL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
$LV	LOW VOLTAGE WALL ON/OFF SWITCH, MOUNT 48" AFF	MS1	DUAL TECHNOLOGY CEILING MOUNTED 360° MOTION SENSOR.
$LV2	LOW VOLTAGE WALL SWITCH 2 BUTTON, MOUNT 48" AFF	MS2	WALL/CEILING MOUNTED MOTION SENSOR. NORMAL RANGE WIDE BEAM, DIRECTIONAL
$LV3	LOW VOLTAGE WALL SWITCH 3 BUTTON, MOUNT 48" AFF	MS3	WALL/CEILING MOUNTED MOTION SENSOR. LONG-RANGE NARROW BEAM, DIRECTIONAL
$LV4	LOW VOLTAGE WALL SWITCH 4 BUTTON, MOUNT 48" AFF	DS	CEILING MOUNTED DAYLIGHT SENSOR.
$LV8	LOW VOLTAGE WALL SWITCH 8 BUTTON, MOUNT 48" AFF	RC1	0-10V ROOM DIMMING CONTROLLER (1 SWITCHLEG).
$DM	LOW VOLTAGE DIMMER SWITCH, MOUNT 48" AFF	RC2	0-10V ROOM DIMMING CONTROLLER (2 SWITCHLEGS).
$P	LOW VOLTAGE WALL SWITCH PIR OCCUPANCY SENSOR, MOUNT 48" AFF	RC3	ON/OFF ROOM CONTROLLER (1 SWITCHLEG).
$LD	LOW VOLTAGE WALL SWITCH DUAL TECH. OCCUPANCY SENSOR, MOUNT 48" AFF	RC4	ON/OFF ROOM CONTROLLER (2 SWITCHLEGS).
		RC5	FORWARD PHASE DIMMING CONTROLLER (1 SWITCHLEG).
		RC6	FORWARD PHASE DIMMING CONTROLLER (2 SWITCHLEGS).
		LC1	ON/OFF LOAD CONTROLLER (1 SWITCHED) .

NOTES:
1. CONTROLS ARE INDICATED SCHEMATICALLY AND DIAGRAMMATICALLY, ELECTRICAL CONTRACTOR SHALL VERIFY REQUIRED LOCATIONS & MOUNTING HEIGHTS OF ALL LIGHTING CONTROLS PRIOR TO ROUGH-IN WITH MANUFACTURERS WRITTEN INSTALLATION MANUALS AND INSTRUCTIONS.
2. COORDINATE AND PROVIDE MOTION SENSOR MINIMUM DISTANCE FROM HVAC REGISTERS WITH MANUFACTURERS LITERATURE.
3. ALL ROOM CONTROLLERS SHALL BE MOUNTED IN AN ACCESSIBLE CEILING SPACE AS REQUIRED, UNLESS OTHERWISE NOTED.
4. MANUFACTURERS SHOWN IN THIS LEGEND ARE "BASIS OF DESIGN" AND "OR EQUAL" DEVICES MAY BE SUBMITTED FOR APPROVAL.

CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ALL PROPER ADJUSTMENTS TO ASSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.

ABBREVIATIONS LEGEND

SYMBOL	DESCRIPTION
AFF/AFG	ABOVE FINISHED FLOOR / ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
CU	CONDENSING UNIT
EF	EXHAUST FAN
GFI	GROUND FAULT INTERRUPTER
ETR	EXISTING TO REMAIN.
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
LC	LOCKING COVER
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
TR	TAMPER RESISTANT
UON	UNLESS OTHERWISE NOTED
WP	WEATHER PROOF
	EMERGENCY GENERATOR SHUTOFF PUSH-BUTTON
NAC	NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT CLASS B (ADDRESSABLE LOOP)
SLC (A)	SIGNALING LINE CIRCUIT CLASS A (ADDRESSABLE LOOP)
IDC	INITIATING DEVICE CIRCUIT (CONVENTIONAL LOOP)
CD	CANDELA RATING
W	WALL MOUNTED DEVICE
C	CEILING MOUNTED DEVICE
X Y	"X"= HP" Y"= PHASE

NOTES:
1. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS & MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES WITH OWNER/ARCHITECT BEFORE ROUGH-IN. MOUNTING HEIGHTS ARE MEASURED TO CENTER OF BOX.
2. ALL RECEPTACLES & SWITCHES SHALL BE ARCH/DECORA TYPE WITH MATCHING FACE PLATES. COOR. FINAL COLOR WITH ARCH. PRIOR TO ORDERING
3. ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THIS PROJECT.
4. MANUFACTURERS SHOWN IN THIS LEGEND ARE "BASIS OF DESIGN" AND "OR EQUAL" DEVICES MAY BE SUBMITTED FOR APPROVAL.

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

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DANIEL SHEPARD JON LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

MILHAUS

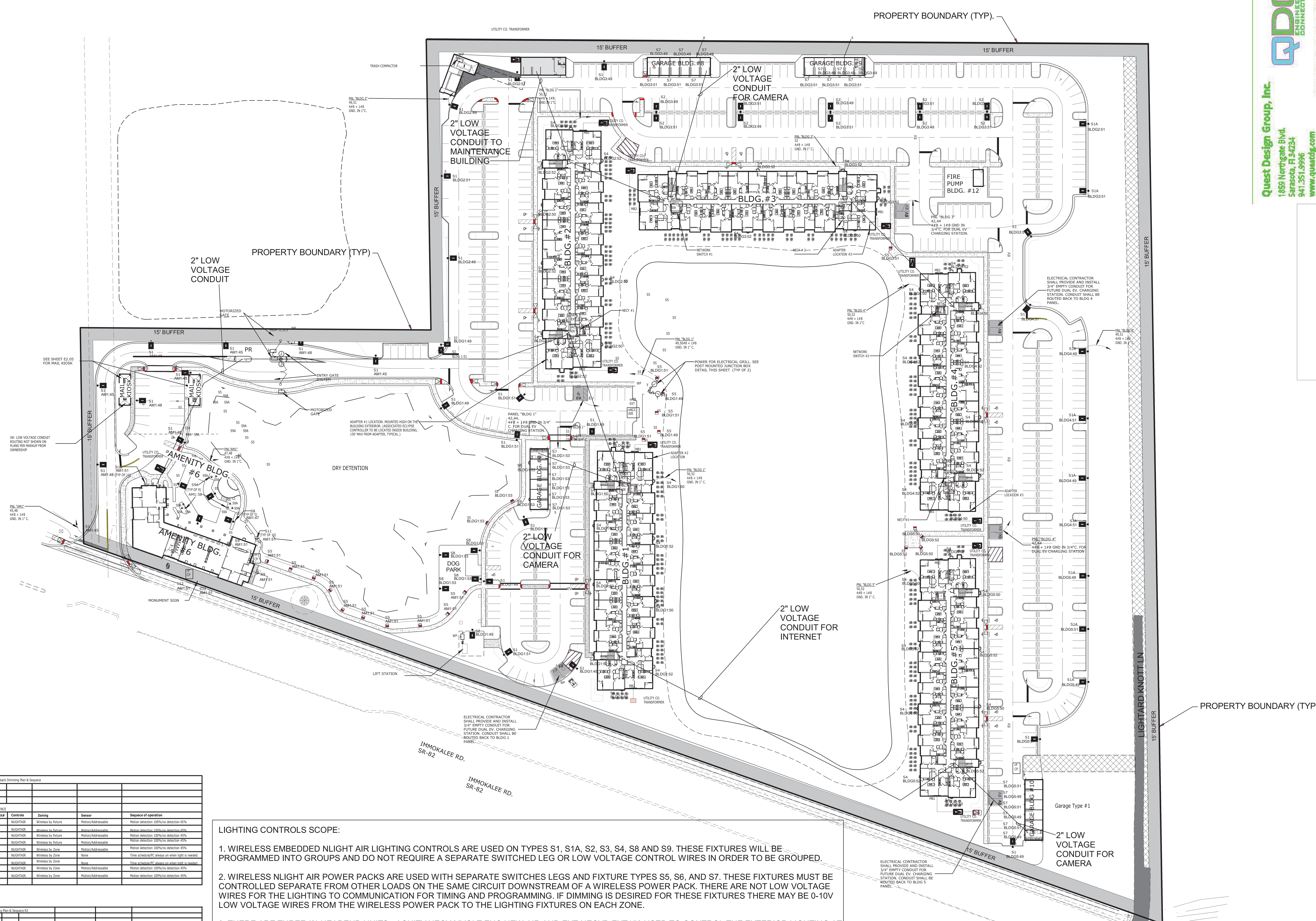
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL LEGENDS

SHEET NUMBER:
AE0.01



nAIR EXT.	PRODUCT LEGEND nAir EXT NECYD EXT 150 ADAPTER, 150-FOOT, USB TO CAT6 INCLUDES 120VAC POWER ADAPTER AND CAT6 TO USB CONVERTERS.				
nECY AIR	nECY AIR NECY MVOLT EN C NW AIR nLIGHT ECLPSE, 120-277V, ENCLOSURE FOR nLIGHT ECLYPSE, NO WIFI,AIR				
ra$ 2PD	ra$ 2PD RPODBA 2P DX XX G2 nLIGHT PRESET WALL CONTROL, 2-POLE, RAISE/LOWER DIMMING GENERATION TWO				
rP CP	rP CP RPP20 24V EFP CP G2 nLIGHT AIR POWER/RELAY PACK. NETWORKED VERSION, 24 VOLT OUTPUT. EXTERNAL FAULT PROTECTION, CHICAGO PLENUM, GENERATION TWO				
NETH SW	NETH SWITCH NETHSWETHERNET SWITCH				

Milhaus SR82 Site Lighting -Setback Dimming Plan & Sequece

NOTES FOR WIRING AND SEQUENCE

Fixture Type	Circuit#	Controls	Zoning	Sensor	Sequece of operation
S1		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S2		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S3		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S4		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S5		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%
S6		NUGHTAIR	Wireless by Zone	None	Time schedule/PC always on when light is needed
S7		NUGHTAIR	Wireless by Zone	None	Time schedule/PC always on when light is needed
S8		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%
S9		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%

Milhaus SR82 Site Lighting -Setback Dimming Plan & Sequece R2
DATE 11.07.2022

LOAD CALCULATION

Fixture Type	Load (W)	Controls	Qty	Total Type Load	Watts when dimmed 55%(45% on)	Sensor	Sequence
S1	102	NUGHTAIR	27	2754	1514.7	Motion/Addressable	Motion detection 100%/no detection 45%
S2	102	NUGHTAIR	9	918	504.9	Motion/Addressable	Motion detection 100%/no detection 45%
S3	204	NUGHTAIR	6	1224	673.2	Motion/Addressable	Motion detection 100%/no detection 45%
S4	204	NUGHTAIR	1	204	112.2	Motion/Addressable	Motion detection 100%/no detection 45%
S5	138	NUGHTAIR	48	6624	3643.2	Motion/Addressable	Motion detection 100%/no detection 45%
S6	17.4	NUGHTAIR	13	226.2		None	Time schedule/PC always on when light is needed
S7	10.6	NUGHTAIR	24	254.4		None	Time schedule/PC always on when light is needed
S8	115	NUGHTAIR	10	1160	638	Motion/Addressable	Motion detection 100%/no detection 45%
S9	54	NUGHTAIR	8	432	237.6	Motion/Addressable	Motion detection 100%/no detection 45%
					7323.3		
				13796.6	**6898.3**		Dim by 55%for all NUGHTAIRto comply
				100% OF SITE LOAD FOR REFERENCE	GOAL 50%OF SITE LOAD REQUIRED FOR SETBACK		

LIGHTING CONTROLS SCOPE:

1. WIRELESS EMBEDDED NLIGHT AIR LIGHTING CONTROLS ARE USED ON TYPES S1, S1A, S2, S3, S4, S8 AND S9. THESE FIXTURES WILL BE PROGRAMMED INTO GROUPS AND DO NOT REQUIRE A SEPARATE SWITCHED LEG OR LOW VOLTAGE CONTROL WIRES IN ORDER TO BE GROUPED.

2. WIRELESS NLIGHT AIR POWER PACKS ARE USED WITH SEPARATE SWITCHES LEGS AND FIXTURE TYPES S5, S6 AND S7. THESE FIXTURES MUST BE CONTROLLED SEPARATE FROM OTHER LOADS ON THE SAME CIRCUIT DOWNSTREAM OF A WIRELESS POWER PACK. THERE ARE NOT LOW VOLTAGE WIRES FOR THE LIGHTING TO COMMUNICATION FOR TIMING AND PROGRAMMING. IF DIMMING IS DESIRED FOR THESE FIXTURES THERE MAY BE 0-10V LOW VOLTAGE WIRES FROM THE WIRELESS POWER PACK TO THE LIGHTING FIXTURES ON EACH ZONE.

3. THERE ARE THREE (3) HEADEND UNITS - ACUITY NECY MVOLT ENC NEW AIR AND EXT NECYD EXT150 USED TO CONTROL THE EXTERIOR LIGHTING AT THIS SITE. THE NECY UNITS PROVIDE A TIME SCHEDULE, MAIN OVERRIDE AND OVERALL COORDINATION OF LIGHTING CONTROLS FOR ALL AREAS OF THE SITE. REFER TO THE PLANS TO INDENTIFY THE HEAD END UNITS. THEY SHALL BE PLACED IN A LOCKED AND SUPERVISED LOCATION (I.E. AN MDF, IDF, OR ELECTRICAL CLOSET). EACH OF THE HEAD END UNITS HAS A WIRELESS ANTENNA THAT SHALL BE WITHIN 125FT OF CABLE LENGTH FROM THE HEAD END UNIT TO THE EXTERIOR OF THE BUILDING. THIS ALLOWS THE WIRELESS SIGNAL TO SPAN THE ENTIRE PROJECT SITE.

4. THE THREE HEAD END UNITS SHALL BE TIED TOGETHER WITH NETWORK CABLE AND UNDERGROUND RACEWAYS PROVIDED TO CONNECT EACH LOCATION TOGETHER. AT TWO LOCATIONS AN ACUITY NETWORK SWITCH WILL BE USED TO LINK THE SYSTEM TOGETHER ACUITY SW NETHSW.

5. FOR QUESTIONS ON THE SPECIFICATION OF THESE LIGHTING CONTROLS CONTACT LINDSEY FIMEK AT KSA LIGHTING & CONTROLS 630-338-7308.

1 SITE PLAN Copy 2 Copy 1
1" = 50'-0"

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MILHAUS

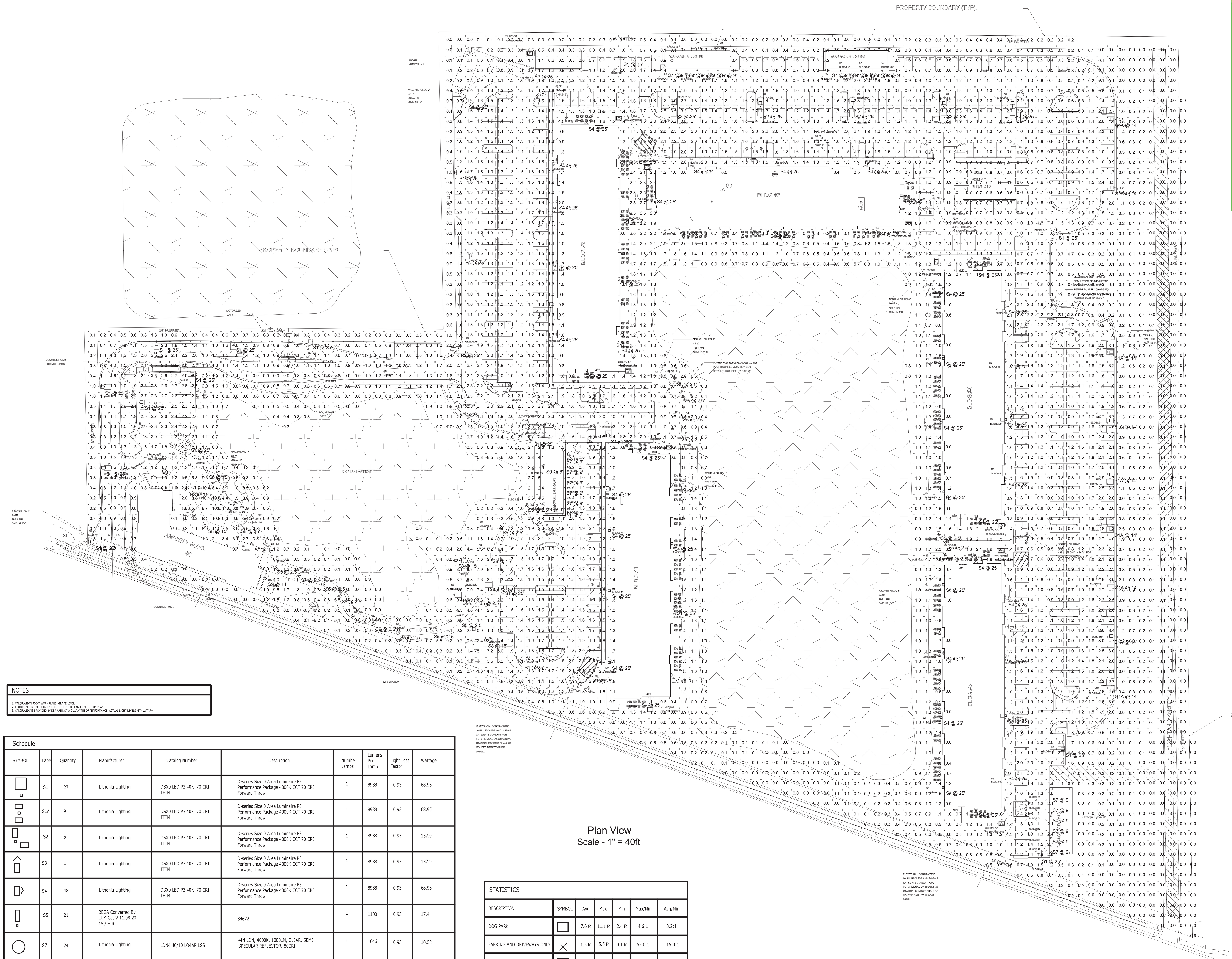
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL SITE PLAN

SHEET NUMBER:
AE1.00



NOTES

1. CALCULATION POINT WORK PLANE: GRADE LEVEL
2. FIXTURE MOUNTING HEIGHT: REFER TO FIXTURE LABELS NOTED ON PLAN
3. CALCULATIONS PROVIDED BY KSA ARE NOT A GUARANTEE OF PERFORMANCE. ACTUAL LIGHT LEVELS MAY VARY.**

Schedule

SYMBOL	Labe	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	27	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S1A	9	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S2	5	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S3	1	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S4	48	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S5	21	BEGA Converted By LUM Cat V 11.08.20 15 / H.R.		84672	1	1100	0.93	17.4
	S7	24	Lithonia Lighting	LDN4 40/10 LO4AR LSS	4IN LDN, 4000K, 1000LM, CLEAR, SEMI-SPECULAR REFLECTOR, 80CRI	1	1046	0.93	10.58
	S8	10	Lithonia Lighting	DSX0 LED P3 40K 70 CRI T4LG	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Type 4 Low G Rating	1	8119	0.93	68.95
	S9	4	Lithonia Lighting	DSX0 LED P2 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Forward Throw	1	6316	0.93	45.14

Plan View
Scale - 1" = 40ft

STATISTICS

DESCRIPTION	SYMBOL	Avg	Max	Min	Max/Min	Avg/Min
DOG PARK		7.6 fc	11.1 fc	2.4 fc	4.6:1	3.2:1
PARKING AND DRIVEWAYS ONLY		1.5 fc	5.5 fc	0.1 fc	55.0:1	15.0:1
PATHWAY		4.8 fc	26.1 fc	0.0 fc	N/A	N/A
POOL AREA		7.2 fc	13.1 fc	0.0 fc	N/A	N/A
ALL CALC POINTS		1.1 fc	36.7 fc	0.0 fc	N/A	N/A

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MILHAUS SR82

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7780 LIGHTARD KNOTT LN
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PROJECT NO:
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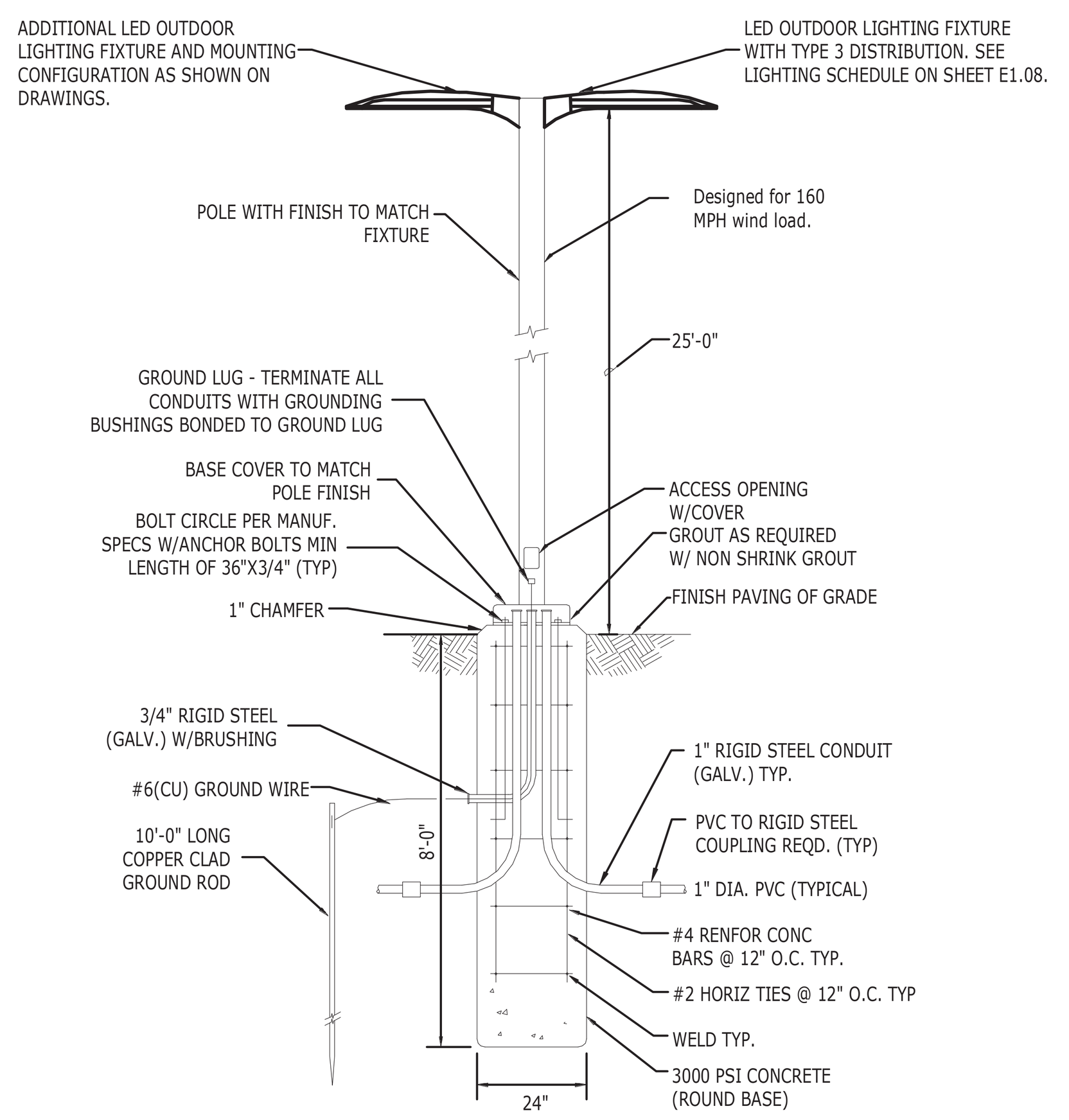
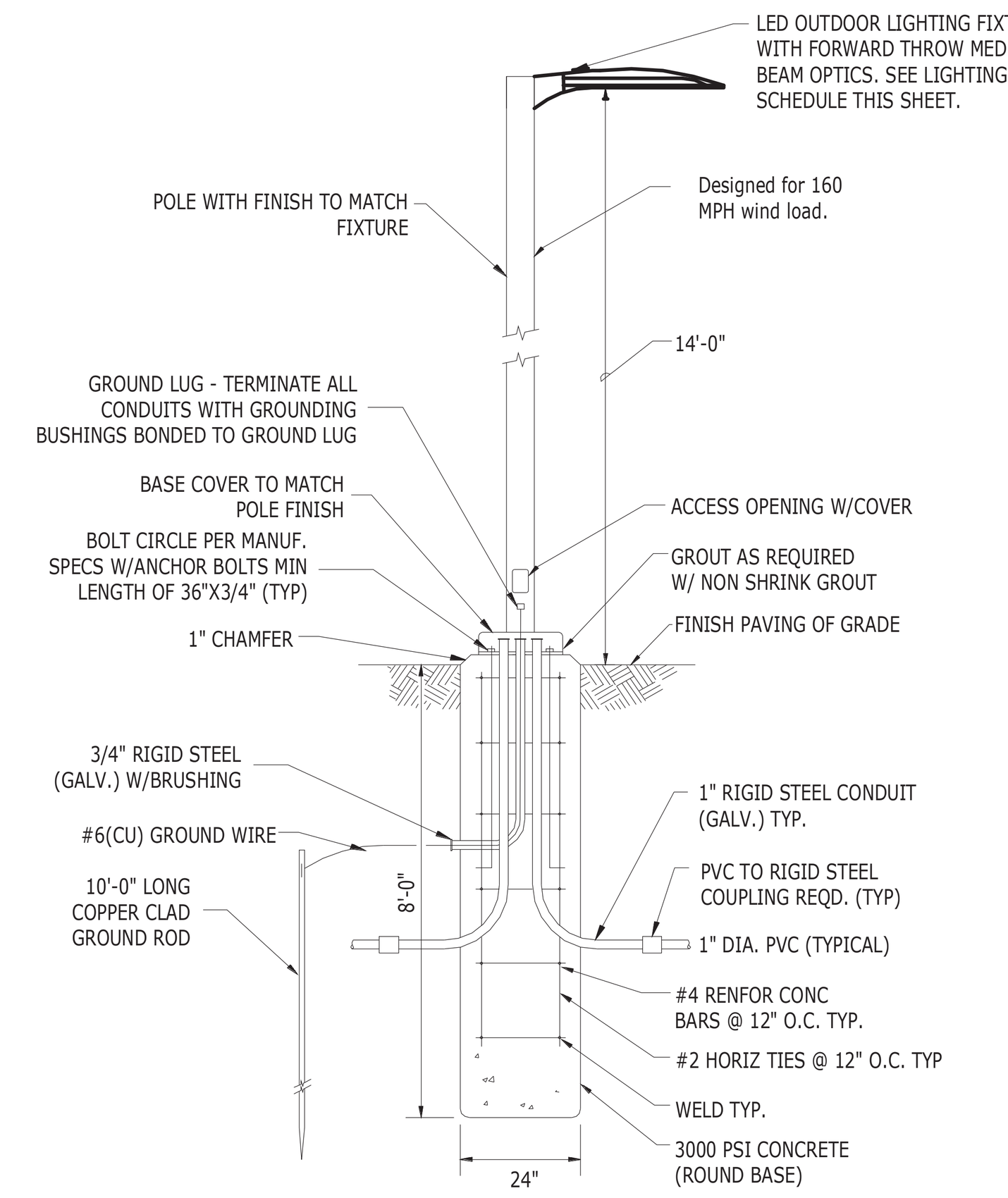
SITE PHOTOMETRIC PLAN

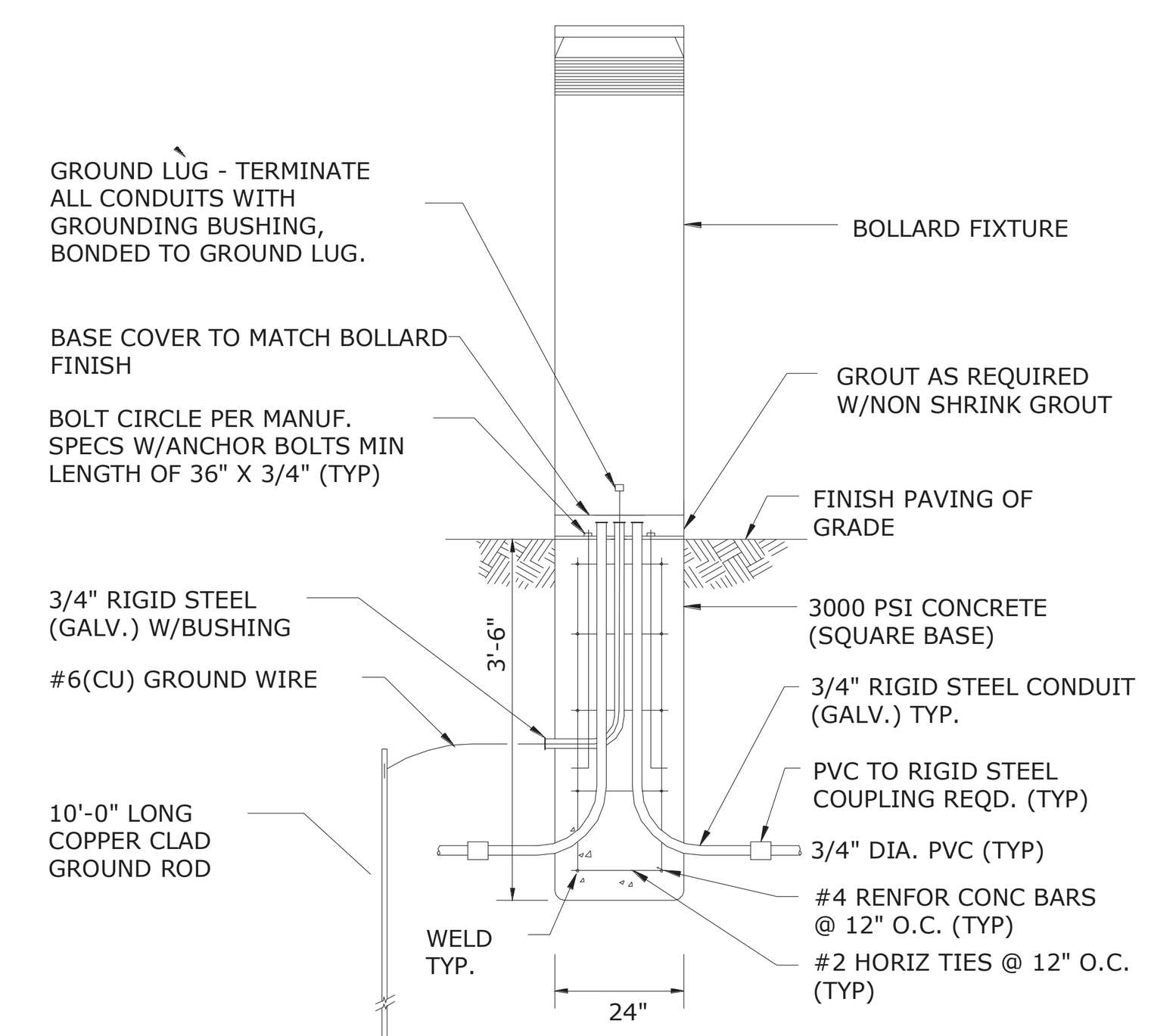
SHEET NUMBER:
AE1.01



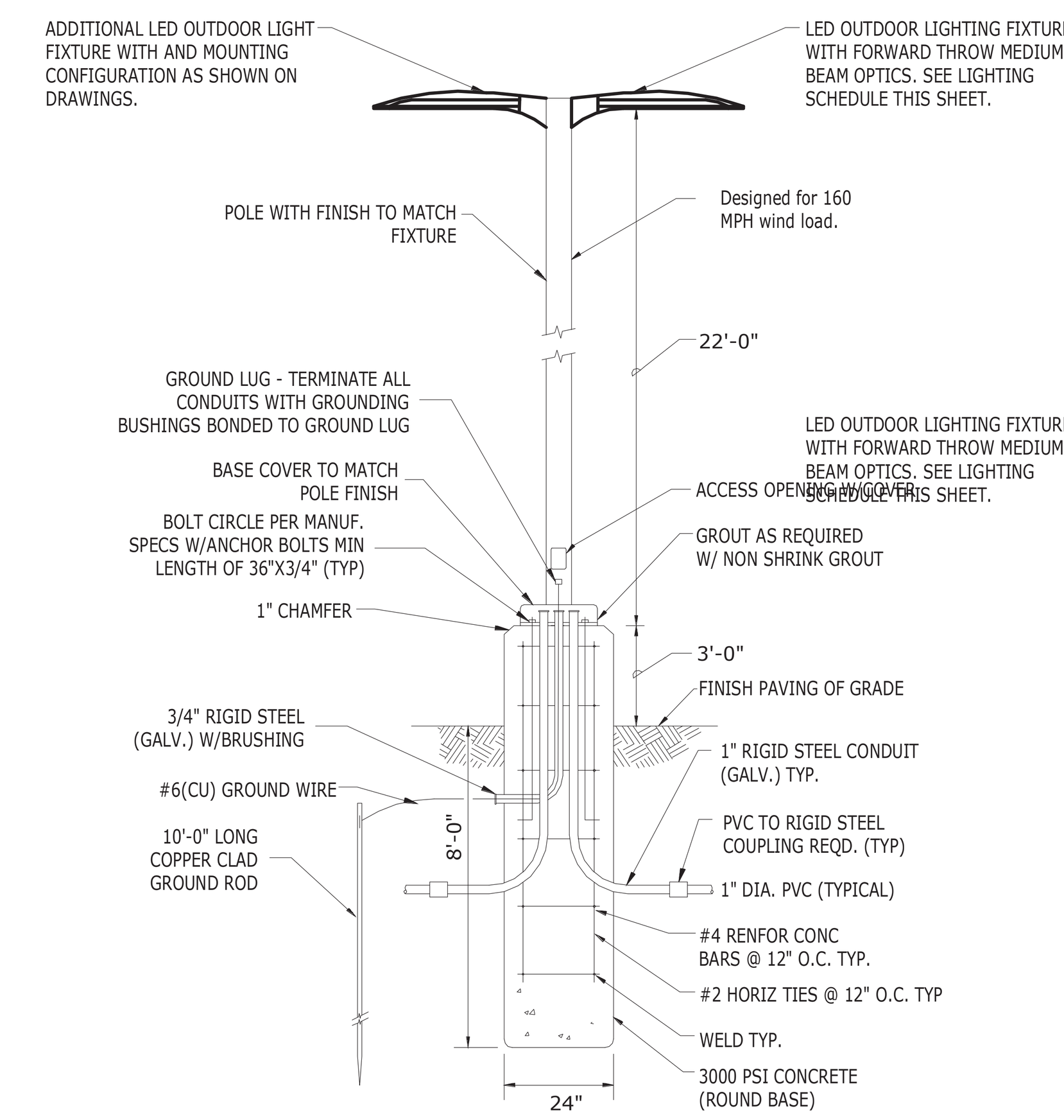
2 FIXTURE "S1",&,"S3" POLE BASE DETAIL
NO SCALE:



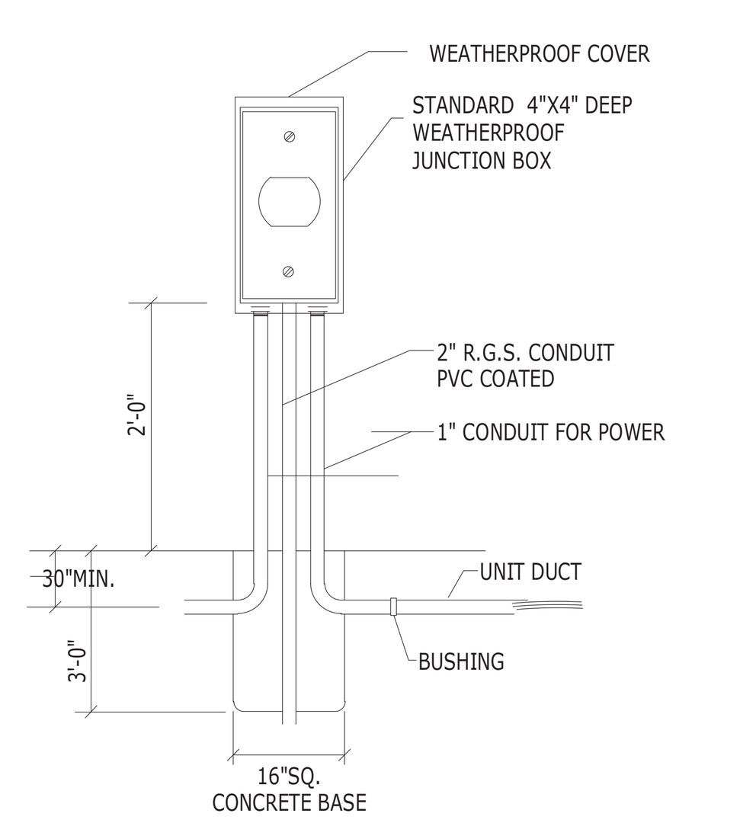
3 FIXTURE "S1A" POLE BASE DETAIL
N.T.S:



5 FIXTURE "S5" BOLLARD BASE DETAIL
N.T.S:



4 FIXTURE "S2" POLE BASE DETAIL
NO SCALE:



7 POST MOUNTED JUNCTION DETAIL
N.T.S.

QUEST DESIGN GROUP INC			HIGHWAY SR82 : EXTERIOR LIGHT FIXTURE SCHEDULE					
FIXTURE IMAGE	TYPE	DESCRIPTION	MANUFACTURER / MODEL #	APPROVED EQUAL MANUFACTURE	LAMP	WATTS	VOLTAGE	NOTES
	S1	LOW PROFILE LED LIGHT FIXTURE WITH 12,575 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 25'-0" A.F.G ON AN 25'-0" SSS 5" POLE	Lithonia DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS25 5G DM19 DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	102	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S1A	LOW PROFILE LED LIGHT FIXTURE WITH 12,575 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 14'-0" A.F.G ON AN 14'-0" SSS 5" POLE	Lithonia DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS14 5G DM19 DDBXD	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	102	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S2	SAME AS ABOVE WITH TWIN HEADS AT 180 DEGREE	Lithonia (2) DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS25 5G DM28 DDBXD	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	204	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S3	SAME AS ABOVE WITH TWIN HEADS AT 90 DEGREE	Lithonia (2) DSX1 LEDP3 40K TFTM MVOLT SCO.KSA -SSS25 5G DM29 DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	204	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S4	LOW PROFILE WALL MOUNTED LED LIGHT FIXTURE WITH 15,830 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 24'-0" A.F.G	Lithonia DSX1LEDP5 40K TFTM MVOLT SCO.KSA WBA DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	73	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S5	13 X 31 X 4 LED ONE PIECE EXTRUDED ALUMINUM WITH A ONE-PIECE DIE-CAST ALUMINUM TOP HOUSING BOLLARD WITH ASYMMETRICAL SHIELD LIGHT DISTRIBUTION	BEGA 84-672 SCO.KSA		30K LED	12.3	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S6	LOW PROFILE 12" ROUND LED PEDNDENT MOUNTED LUMINAIRE WITH SYMMETRIC WIDE BEAM DISTRIBUTION. MOUNTED ON 6" PENDENT.	LUMARK LIGHTING- RPGC25-MS/DIM-L20 SCO.KSA		LED	63.0	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S7	4" ROUND LED WET LOCATION LISTED WITH POLYCARBONATE LENS WITH MATTE WHITE FINISH.	Lithonia LDN4-40/10- LO4AR- SCO.KSA-LSS		LED	10.5	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S8	LOW PROFILE LED LIGHT FIXTURE WITH 11630 LUMENS AND SYMMETRIC TYPE V DISTRIBUTION MOUNTED14'-0" A.F.G ON AN 14'-0" SSS 5" POLE	Lithonia DSX0 LED P3 40K T5W MVOLT SCO.KSA -SSS14 5G DM19 DDBXD NL TAIR	KIM -ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	71	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S9	LOW PROFILE, WALL MOUNTED LED LIGHT FIXTURE WITH 6780 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 14'-0" A.F.G	LITHONIA DSX1 LEDP3 40K TFTM MVOLT SCO.KSA WBA DDBXD NL TAIR	KIM -ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	56	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S10							PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S11	SEE LANDSCAPING DRAWINGS SHEET H-08 DETAIL #1 FOR FIXTURE CUT AND DESCRIPTION.	LITHONIA KBR8 LED-16C-700-40K-SYM- MVOLT-DDBXD		40K LED	39	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S12	SEE LANDSCAPING DRAWINGS SHEET H-08 DETAIL #1 FOR FIXTURE CUT AND DESCRIPTION.	VISTA -1045-DZ-NS-35-B- MV-ND		35K LED	23	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505

Schedule

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S1	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
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S3	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S4	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S5	NONE	NONE		None	Time schedule/PC always on when light is needed
S7	NONE	NONE		None	Time schedule/PC always on when light is needed
S8	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S9	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%

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PROJECT NO:
220035.00

SITE PLAN DETAILS

SHEET NUMBER:
AE1.02

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH ON ANSI D SIZED SHEETS ORIGINAL PAGE SIZE

D-Series Size 1
LED Area Luminaire

Buy American

Catalog Number
Notes
Type

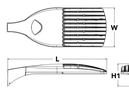
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Specifications

EPA: 1.01 ft² (0.09 m²)
Length: 33" (83 cm)
Width: 13" (33 cm)
Height H1: 7-1/2" (19 cm)
Height H2: 3-1/2"
Weight (max): 27 lbs (12 kg)



Ordering Information EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX1 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	**Forward optics** P1 P2 P3 P4[1] P5[1] P6[1] P7[1] P8 P9[1] **Rotated optics** P10[1] P11[1] P12[1] P13[1,2]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[1] T5S Type V short[1] T5M Type V medium[1] T5W Type V wide[1] BLC Backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]	MVOLT[1] XVOLT (277V-480V)[1,3,4] 120[1] 208[1] 240[1] 277[1] 347[1] 480[1]	**Shipped included** SPA Square pole mounting RPA Round pole mounting[5] WBA Wall bracket[1] SPUMBA Square pole universal mounting adaptor[1] RPUMBA Round pole universal mounting adaptor[1] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[1,6]

Control options		Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled[1,7] PIRHN Network, high/low motion/ambient sensor[8] PER NEMA twist-lock receptacle only (controls ordered separate)[1,9] PERS Five-pin receptacle only (controls ordered separate)[1,9] PERT Seven-pin receptacle only (controls ordered separate)[1,9,10] DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)[1] DS Dual switching[10,11,12] PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 2fc[8,13] PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 2fc[8,13] PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[8,13] PIRH1FC3V Bi-level, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[8,13] FAO Field adjustable output[8,13]	**Shipped installed** HS House-side shield[14] SF Single fuse (120, 277, 347V)[15] DF Double fuse (208, 240, 480V)[15] L90 Left rotated optics[1] R90 Right rotated optics[1] HA 50°C ambient operation[1] BAA Buy American Act Compliant **Shipped separately** BS Bird spikes[16] EGS External glare shield	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

Accessories
Ordered and shipped separately.
DSHM U House-side shield (one per light engine)
DSHM18W U Bird-deterrent spikes
DSHM74 U Vandal guard accessory

NOTES
1 SDC 1000 is not available with PIR, PIRH, PIR1FC3V or PIRH1FC3V.
2 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
4 Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
5 Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
6 Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
7 Reference Motion Sensor table on page 3.
8 Same as old ELCW. Cold weather (-30°C) rated. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with SPD.
9 Not available with SPD.
10 Not available with EZHVC.
11 Also available as a separate accessory; see Accessories information.
12 Not available with EZHVC.

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1 FIXTURE TYPE "S1","S2" & "S3"

D-Series Size 1
LED Wall Luminaire

Buy American

Catalog Number
Notes
Type

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Specifications

Luminaire
Width: 13-3/4" (34.9 cm) Weight: 12 lbs (5.4 kg)
Depth: 10" (25.4 cm)
Height: 6-3/8" (16.2 cm)

Back Box (BBW, E20WC)
Width: 13-3/4" (34.9 cm) BBW Weight: 5 lbs (2.3 kg)
Depth: 4" (10.2 cm) E20WC Weight: 10 lbs (4.5 kg)
Height: 6-3/8" (16.2 cm)

Ordering Information EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

DSXW1 LED

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options
DSXW1 LED	10C 10 LEDs (one engine) 20C 20 LEDs (two engines)[1]	350 350 mA 530 530 mA 700 700 mA 1000 1000 mA (1 A)[1]	30K 3000 K 40K 4000 K 50K 5000 K AMBPC Amber phosphor converted	T2S Type II Short T2M Type II Medium T3S Type III Short T3M Type III Medium T4M Type IV Medium TFTM Forward Throw Medium	MVOLT[2] 120[3] 208[3] 240[3] 277[3] 347[3,4] 480[3,4]	**Shipped included** (blank) Surface mounting bracket BBW Surface-mounted back box (for conduit entry)[5]	**Shipped included** PE Photoelectric cell, button type[6] DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately) PIR 180° motion/ambient light sensor, +15' mtg ht.[7,8] PIRH 180° motion/ambient light sensor, 15-30' mtg ht.[7,8] PIR1FC3V Motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[7,8] PIRH1FC3V Motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[7,8] E20WC Emergency battery backup (includes external component enclosure), CA Title 20 compliant[9,10]

Other Options	Finish (required)			
Shipped installed SF Single fuse (120, 277 or 347V)[11,12] DF Double fuse (208, 240, 480V)[11] HS House-side shield[13] SPD Separate surge protection[14]	**Shipped separately**[15] BSW Bird-deterrent spikes VG Vandal guard DDL Diffused drop lens	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White	DSXD Sandstone DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum	DWHGXD Textured white DSTXD Textured sandstone

Accessories
Ordered and shipped separately.
DSXWH U House-side shield (one per light engine)
DSXWBSW U Bird-deterrent spikes
DSXW1VG U Vandal guard accessory

NOTES
1 SDC 1000 is not available with PIR, PIRH, PIR1FC3V or PIRH1FC3V.
2 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
3 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
4 Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
5 Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
6 Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
7 Reference Motion Sensor table on page 3.
8 Same as old ELCW. Cold weather (-30°C) rated. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with SPD.
9 Not available with SPD.
10 Not available with EZHVC.
11 Also available as a separate accessory; see Accessories information.
12 Not available with EZHVC.

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2 FIXTURE TYPE "S4"

LED bollards with asymmetrical shielded light distribution

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Post construction: One-piece extruded aluminum with a one-piece die-cast aluminum top housing and base internally welded into an assembly. Die-castings are marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy.

Enclosure: Two piece die-cast aluminum optical enclosure secured to bollard post by two (2) mechanically captive stainless steel screws threaded into stainless steel inserts. White safety glass. Reflector made of pure anodized aluminum. Fully gasketed for weather tight operation using molded silicone gasket.

Electrical: 14.5 total luminaire system watts; 12.3W LED. -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with a >80 CRI. Available in 4000K (>60 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Anchor base: Heavy galvanized steel mounting base, slotted for precise alignment. Mounts to BEGA 79-825 anchorage kit. Bollard secures to base with two (2) stainless steel set screws.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK), White (WHT), Bronze (BRZ), Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 26.7 lbs

Asymmetrical shielded

	Lamp	A	B	C	Wiring box
84472	12.3W LED	19¾"	31½"	4"	79825

BEGA 1000 BEGA Way, Carpinteria, CA 93013 (805) 684-0533 FAX (805) 566-9474 www.bega-us.com
©copyright BEGA 2017 Updated 10/17

3 FIXTURE TYPE "S5"

Project		Catalog #		Type	
Prepared by		Notes		Date	

Lumark
RPGC

Parking Garage / Canopy Luminaire

Product Features

Selectable lumens

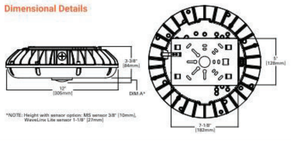
Interactive Menu

Product Certifications

Quick Facts
- Low profile, die cast aluminum housing
- Round drop lens provides uplight to eliminate dark ceilings
- Selectable lumen switch provides 30W to 60W (3,700-7,800 lumens) selectability
- Maximize energy savings with efficacies up to 125 lumens per watt
- Replaces 150W up to 250W HID equivalents
- Easy installation with quick-mount bracket for hands-free wiring

Connected Systems
- WaveLinx Lite

Dimensional Details



*NOTE: Height with sensor option: MS sensor 3/8" (10mm), WaveLinx Lite sensor 1-1/8" (29mm)

4 FIXTURE TYPE "S6"

LITHONIA LIGHTING®

FEATURES & SPECIFICATIONS

INTENDED USE — The 4" Wafer™ LED Downlight with Switchable White provides high-quality light output and efficiency featuring a switch for easy color temperature adjustment – while eliminating the need for recessed housings. The innovative, slim design allows for easy retrofit, remodel or new construction installation from below the ceiling. The Wafer LED downlight is wet location listed – making it ideal for use in a breadth of outdoor residential, hospitality, commercial and multifamily applications.

CONSTRUCTION — Aluminum die-cast exterior frame. Durable, powder-coat paint to prevent rust. FS4 plenum rated cable connector to connect from module to remote driver box. IC rated driver with convenience and value of two remote-selectable color temperature options, each with a settling choice to chose either 2700K, 3000K, and 3500K or 3000K, 4000K, and 5000K using the switch. The isolated driver integrated inside steel remote box with four 3/8" knockouts with slots for prepost. Suitable for pulling wires with the 12 cubic-inch wiring compartment to accommodate up to (6) 14 gauge insulated conductors; making the Wafer LED Downlights much easier to wire in 2no Daisy chain applications and contractor friendly.

INSTALLATION — Ideal for shallow ceiling plenum; no housing required. Steel spring clip for easy installation. 4" cut out template is provided to ensure a correct sized hole is cut into ceiling for proper installation of the trim. Size of hole should not exceed 4-1/4 inches for this product. Suitable for installation in t-grid and drop ceiling applications. 3" plenum space required for installation of the remote driver box.

OPTICS — Edge-lit LED technology uses light guided plate to distribute light. Polycarbonate lens provides even illumination throughout the space.

ELECTRICAL — Connect directly to 120V power supply via provided UL recognized driver. High efficient driver with power factor > 0.9. Ambient operating temperature: -40°F (-40°C) to +104°F (+40°C). Dimming down to 10% with most standard incandescent dimmers (see list of approved dimmers). Replaces 65W incandescent.

LISTINGS — CSA certified to US and Canadian safety standards. ENERGY STAR® certified. Wet location. Air Tight certified in accordance with ASTM E283-2004. NOM Certified. Can be used to comply with California Title 24 Part 6 High Efficacy LED light Source Requirements.

WARRANTY — 5-year limited warranty.

Note: Actual performance may differ as a result of end-user environment and application.
All values are design or typical values, measured under laboratory conditions at 25 °C.
Specifications subject to change without notice.

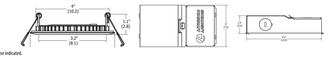
Wafer LED Recessed Downlight

WF4
4" LED Switchable White Color Temperature

IC/Non-IC
New Construction/Remodel

Matte Black | Brushed nickel | Oil-rubbed bronze

Specifications
Aperture: 3.2 (8.1)
Ceiling opening: 4.2 (10.7)
Overlap trim: 4.7 (12.0)
Height: 1.1 (2.8)



All dimensions are inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION For shortest lead times, configure product using **standard options (shown in bold).** **Example:** WF4 LED 30K40K50K 90CRI MW

WF4	LED			CRI	Finish
Series	Lamp	CCT/Kelvin/Lumens[1]			
WF4 4" wafer-thin LED downlight	**LED** LED	**27K30K35K**	2700K/3000K/3500K, 3000K/3500K/4000K, 3500K/4000K/5000K, adjustable	**90CRI** 90CRI	**MW** Matte White **MB** Matte Black **BN** Brush Nickel **ORB** Oil-Rubbed Bronze
		30K40K50K	3000K/4000K/5000K, adjustable		

Notes
1 Total system delivered lumens.

Accessories: Order as separate catalog number.
WF4641 Pan U Universal new construction pan
WF4B U Remodel joist bar

5 FIXTURE TYPE "S7"

D-Series Size 0
LED Area Luminaire

Buy American

Catalog Number
Notes
Type

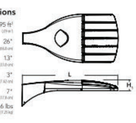
Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Specifications

EPA: 0.95 ft² (0.09 m²)
Length: 26" (66.0 cm)
Width: 13" (33.0 cm)
Height L: 3" (7.6 cm)
Height H: 7" (17.8 cm)
Weight (max): 16 lbs (7.3 kg)



Ordering Information EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	**Forward optics** P1 P2 P3 P4[1] P5[1] P6[1] P7[1] **Rotated optics** P10[1] P11[1] P12[1] P13[1,2]	30K 3000 K 40K 4000 K 50K 5000 K	T1S Type I short (Automotive) T2S Type II short T2M Type II medium T3S Type III short T3M Type III medium T4M Type IV medium TFTM Forward throw medium T5VS Type V very short[1] T5S Type V short[1] T5M Type V medium[1] T5W Type V wide[1] BLC Backlight control[1] LCCO Left corner cutoff[1] RCCO Right corner cutoff[1]	MVOLT (120V-277V)[1,3] XVOLT (277V-480V)[1,3,4] 120[1] 208[1] 240[1] 277[1] 347[1] 480[1]	**Shipped included** SPA Square pole mounting RPA Round pole mounting[5] WBA Wall bracket[1] SPUMBA Square pole universal mounting adaptor[1] RPUMBA Round pole universal mounting adaptor[1] **Shipped separately** KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[1,6]

Control options		Other options	Finish (required)
Shipped installed NLTAIR2 nLight AIR generation 2 enabled[1,7] PIRHN Network, high/low motion/ambient sensor[8] PER NEMA twist-lock receptacle only (controls ordered separate)[1,9] PERS Five-pin receptacle only (controls ordered separate)[1,9] PERT Seven-pin receptacle only (controls ordered separate)[1,9,10] DMG 0-10V dimming wires pulled outside fixture (for use with an external control, ordered separately)[1] PIR High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 2fc[8,11] PIRH High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 2fc[8,11] PIR1FC3V High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[8,11] PIRH1FC3V High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[8,11] FAO Field adjustable output[8,11]	**Shipped installed** HS House-side shield[12] SF Single fuse (120, 277, 347V)[13] DF Double fuse (208, 240, 480V)[13] L90 Left rotated optics[1] R90 Right rotated optics[1] DDL Diffused drop lens[1] HA 50°C ambient operation[1] BAA Buy American Act Compliant **Shipped separately** BS Bird spikes[14] EGS External glare shield	DDBXD Dark bronze DBLXD Black DNAXD Natural aluminum DWHXD White DDBTXD Textured dark bronze DBLBXD Textured black DNATXD Textured natural aluminum DWHGXD Textured white

NOTES
1 SDC 1000 is not available with PIR, PIRH, PIR1FC3V or PIRH1FC3V.
2 Not available with 5000K.
3 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
4 Single fuse (SF) requires 120, 277 or 347 voltage option. Double fuse (DF) requires 208, 240 or 480 voltage option.
5 Only available with 20C, 700mA or 1000mA. Not available with PIR or PIRH.
6 Back box ships installed on fixture. Cannot be field installed. Cannot be ordered as an accessory.
7 Photocontrol (PE) requires 120, 208, 240, 277 or 347 voltage option. Not available with motion/ambient light sensors (PIR or PIRH).
8 Reference Motion Sensor table on page 3.
9 Same as old ELCW. Cold weather (-30°C) rated. Not compatible with conduit entry applications. Not available with BBW mounting option. Not available with fusing. Not available with SPD.
10 Not available with SPD.
11 Also available as a separate accessory; see Accessories information.
12 Not available with EZHVC.

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6 FIXTURE TYPE "S8"

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

QDG Quest Design Group, Inc.
1859 Northgate Blvd.
Sarasota, Fl 34234
941.351.9996
www.questdg.com
Cert. of Authorization# CA31201
Mechanical Electrical Plumbing Fire Protection

Baker Barrios
ORLANDO
189 S. ORANGE AVE., SUITE 1700
ORLANDO, FLORIDA 32801
407 926 3000
INFO@BAKERBARRIOS.COM
BAKERBARRIOS.COM
AA0002981 | LC26000427

JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

MILHAUS

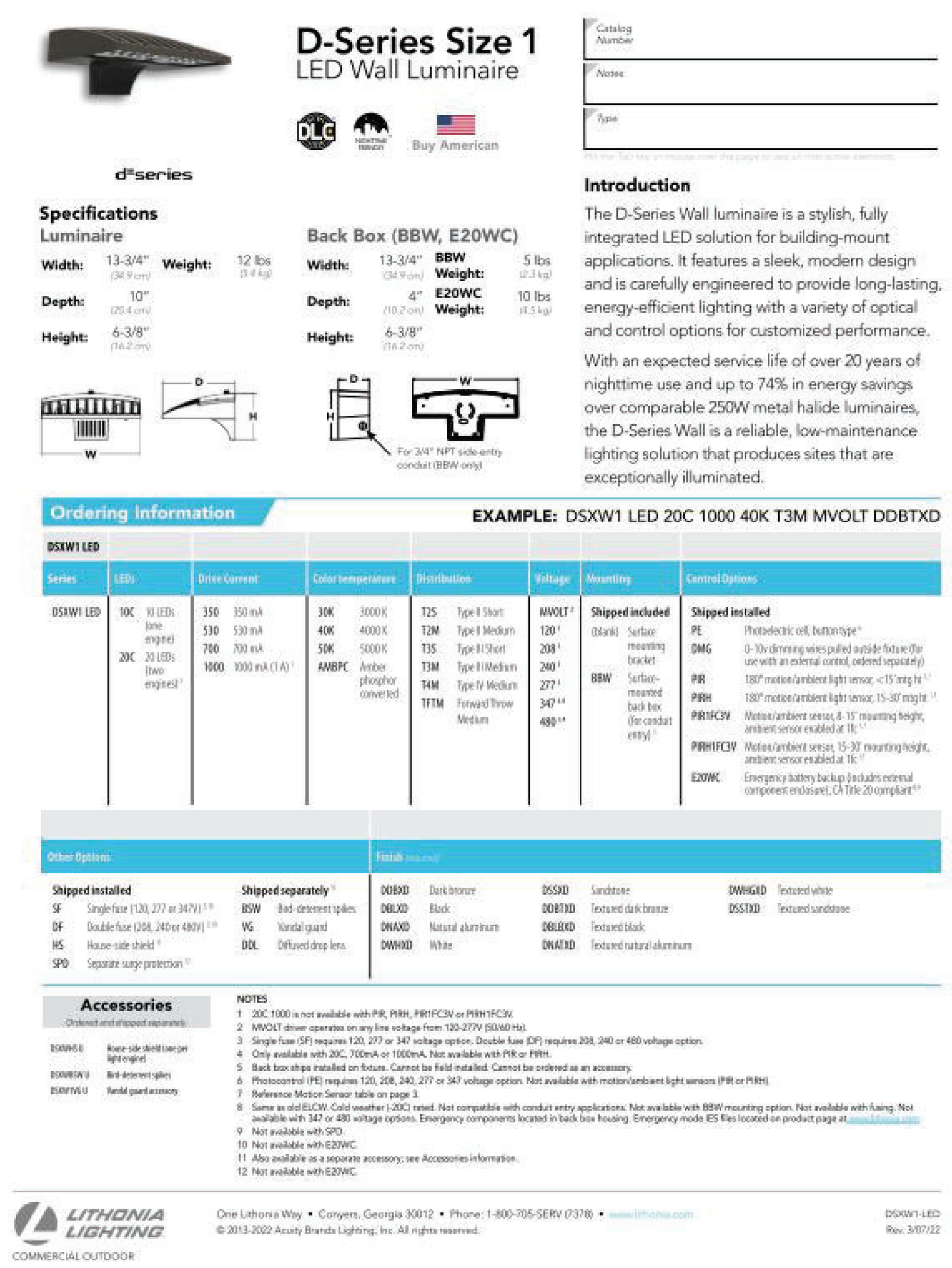
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

SITE LIGHTING CUT-SHEETS PLAN

SHEET NUMBER:
AE1.03



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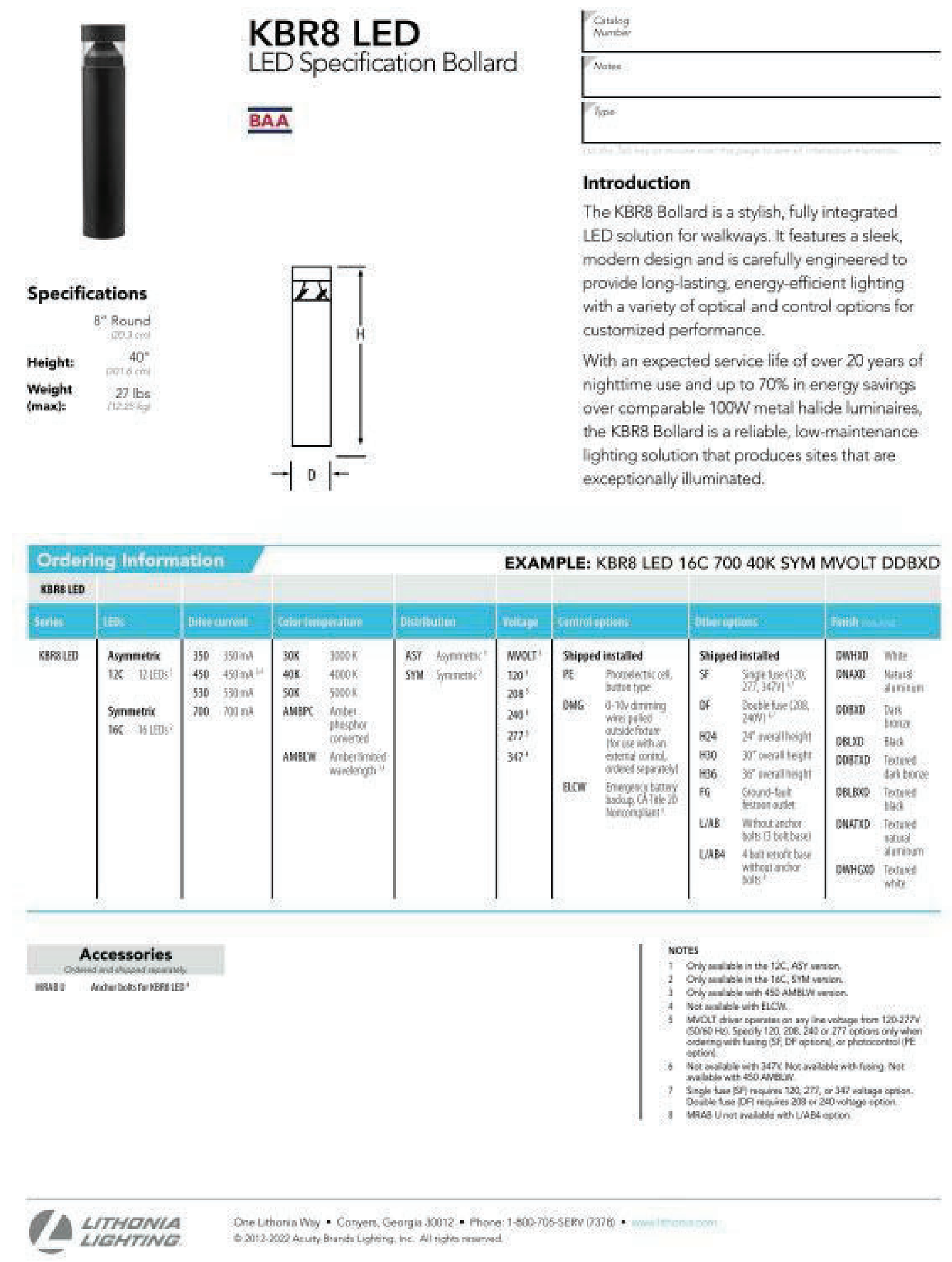

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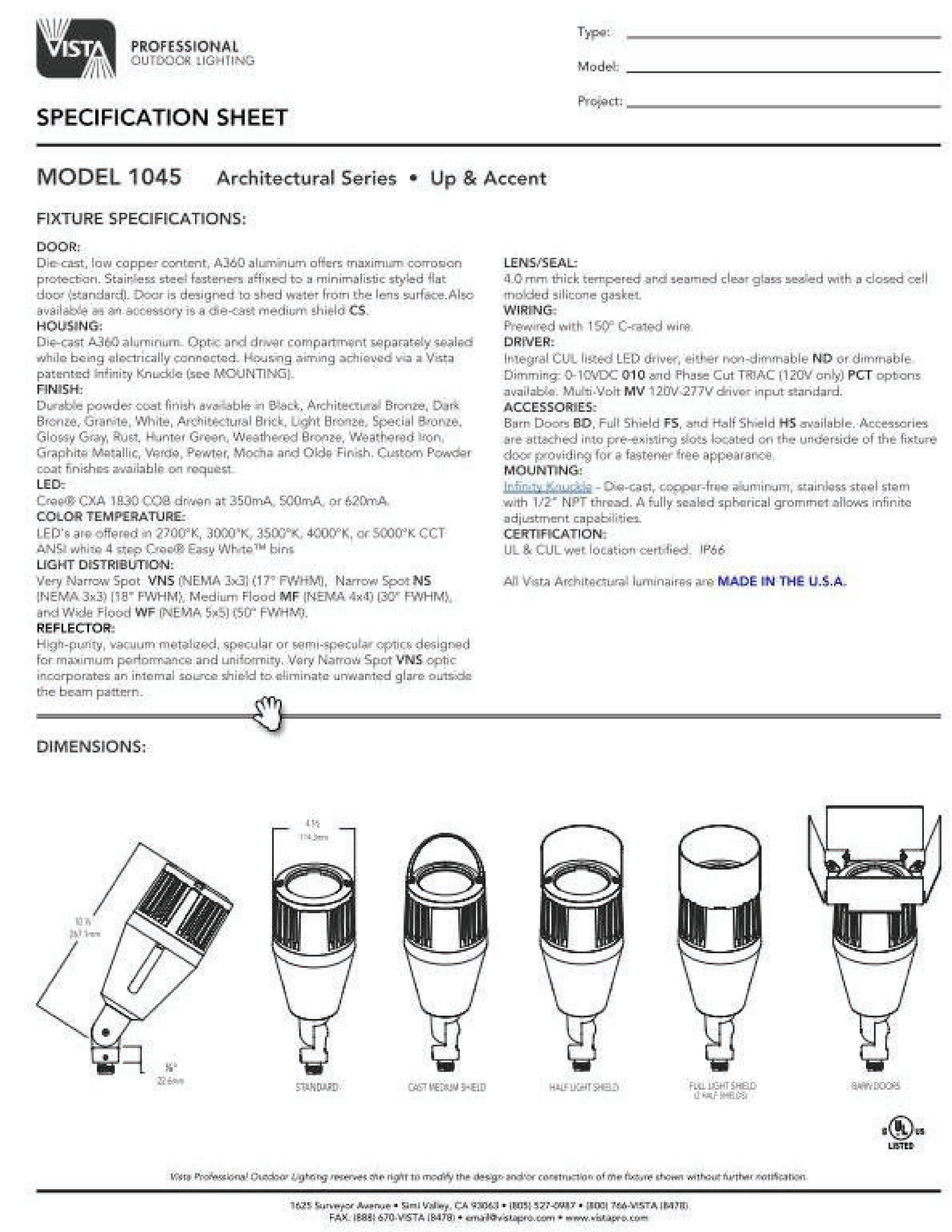


FIXTURE TYPE "S12"

nLight Air System Notes

ALL NETWORKED NLIGHT AIR DEVICES MUST BE LOCATED WITHIN 400 FEET OF AN NECLYPSE WIRELESS ADAPTER FOR INDOOR APPLICATIONS, AND 1000 FEET FOR OUTDOOR APPLICATIONS. AN NECLYPSE WIRELESS ADAPTER CAN SUPPORT 750 DEVICES TOTAL.

STANDALONE NLIGHT AIR GROUPS CAN CONTAIN 128 NLIGHT AIR DEVICES, AND ALL DEVICES MUST BE LOCATED WITHIN 400 FEET OF THE GROUP MONITOR.

ADAPTER LOCATIONS ARE SUBJECT TO CHANGE PENDING RELATIVE BUILDING HEIGHTS.

ALL NLIGHT AIR WALL SWITCHES INCLUDE AN INTERNAL BATTERY, RATED FOR A 10 YEAR LIFE EXPECTANCY.

NLIGHT AIR DEVICES MUST BE COMMISSIONED THROUGH THE CLARITY MOBILE APP BEFORE THEY CAN BE CONTROLLED.

STARTUP FOR THIS SYSTEM REQUIRES AN ACUITY TRAINED TECHNICIAN. PROGRAMMING MAY BE PHASED, REQUIRING MULTIPLE VISITS, AND FINAL NETWORK MIGRATION WILL TAKE PLACE WHEN INSTALLATION IS COMPLETE FOR ALL ECLYPSE CONTROLLERS AND ADAPTERS.

ADAPTER LOCATIONS ARE SUBJECT TO CHANGE PENDING RELATIVE BUILDING HEIGHTS.

nLight Air System Notes

EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT EANABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM SHEET, OR THE LIGHTING CONTROL LAYOUT SHEET, PROVIDED AS PART OF AN NLIGHT SUBMITTAL. THIS SHALL BE DONE DURING INSTALLATION AND PRIOR TO FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID STICKERS ON FLOOR PLAN UNLESS REQUIRED TO EXECUTE NFLOORPLAN SERVICES, REFERENCE NFLOORPLAN SERVICE NOTES ON THIS SHEET FOR SPECIFIC REQUIREMENTS.

ONE RELAY PACK OR NLIGHT ENABLED FIXTURE IS NEEDED PER CIRCUIT/ZONE TO BE CONTROLLED AND CAN RESIDE WITHIN SENSORS, WALLPODS, OR RELAY PACKS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY; FINAL PLACEMENT IS UP TO DISCRETION OF CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF RELAYS NEEDED TO SWITCH ALL DESIRED LOADS.

BRIDGES, RELAYS, POWER PACKS, WALLPODS, AND SENSORS ON DRAWINGS WERE PLACED WITH INFORMATION PROVIDED AT TIME OF DESIGN. ADDITIONAL BRIDGES AND/OR SENSORS MAY BE REQUIRED DEPENDING ON BUILDING CHANGES, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

THE LAYOUT OF THE NETWORK BACKBONE (BRIDGES AND GATEWAYS) HAS BEEN PLACED IN A SEPARATE TREE DIAGRAM AND NOT ON THE ACTUAL LAYOUT. FINAL PLACEMENT OF THE BRIDGE(S) AND GATEWAY(S) DEVICES SHALL BE AT THE CONTRACTOR/ENGINEER DISCRETION.

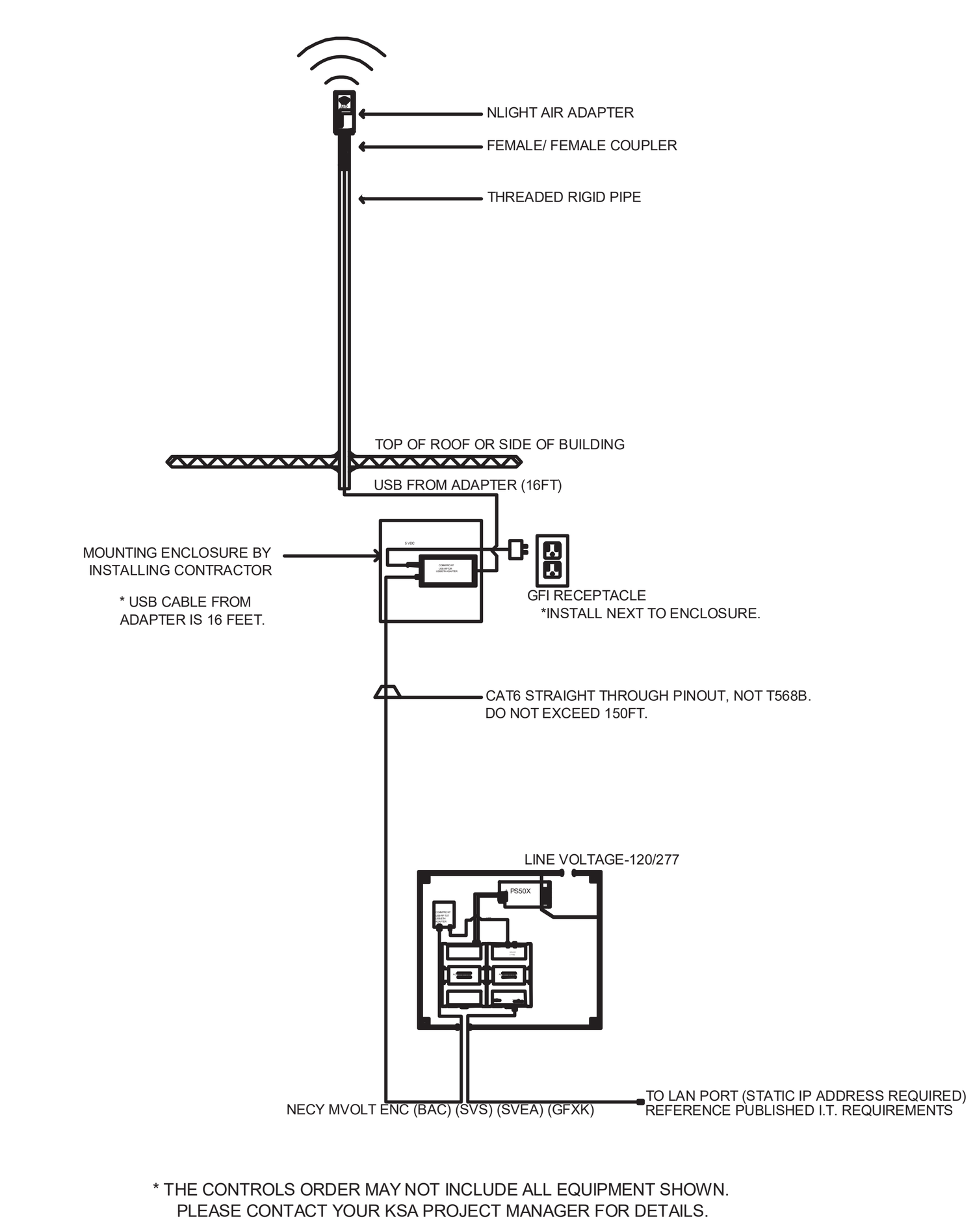
ALL DEVICES HAVE RJ-45 FEMALE PORTS. MAKING NETWORK CONTROL CABLES IS REQUIRED, T568B TERMINATIONS ARE RECOMMENDED. IT IS IMPERATIVE THAT ALL NETWORK CONTROL CABLES BE TESTED WITH A LAN CABLE TESTER TO VERIFY PROPER TERMINATIONS.

DAISY-CHAINED DEVICES SHOULD BE POWERED UP AND WORKING ON DEFAULT PROGRAMMING PRIOR TO CONNECTION TO BRIDGE OR GATEWAYS.

LOW VOLTAGE NETWORK CONTROL CABLE (CAT5/5E/6) RUNS FOR LOCAL ZONES, HOMERUNS AND BACKBONE SHOULD BE WHITE WITH CABLES LABELED.

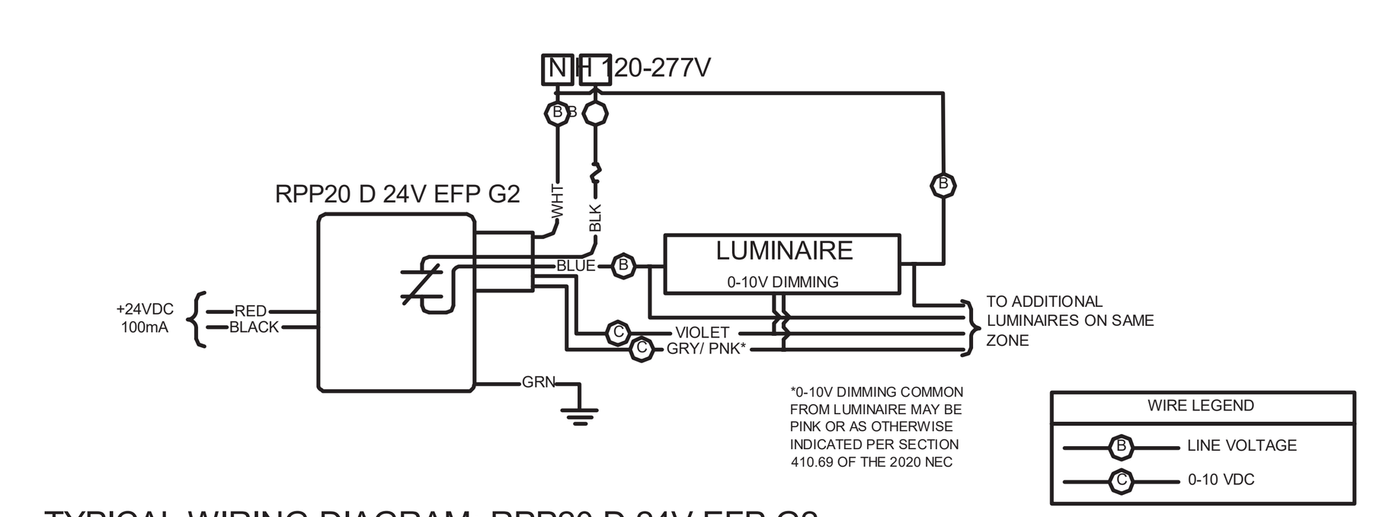
CONTRACTOR TO VERIFY BLINK/DIAGNOSTIC CODES (VISIT HTTP://NLIGHTCONTROLS.COM/WP-CONTENT/UPLOADS/NLIGHT_POCKET_GUIDE.PDF) WHEN CONNECTING GATEWAYS/BRIDGES TO ZONES.

MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1500' INCLUDING HOMERUN TO BRIDGE DEVICE, IF PRESENT. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.



NECY AIR WITH NLIGHT AIR ANTENNA WIRING DIAGRAM

N.T.S.



TYPICAL WIRING DIAGRAM: RPP20 D 24V EFP G2

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Jon D. Shepard
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△	DATE	SUBMISSION

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MILHAUS

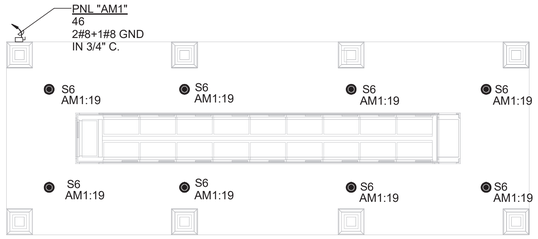
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

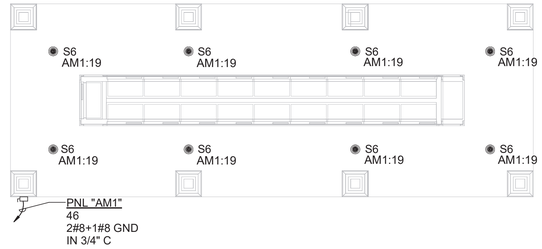
PROJECT NO:
220035.00

SITE LIGHTING CUT SHEETS

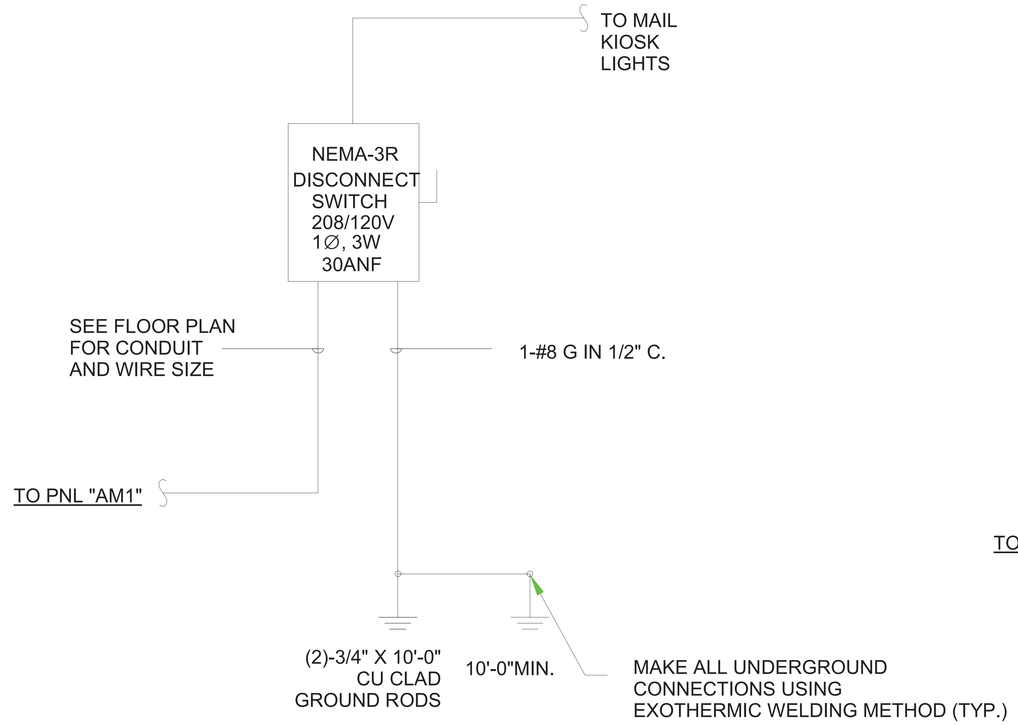
SHEET NUMBER:
AE1.04



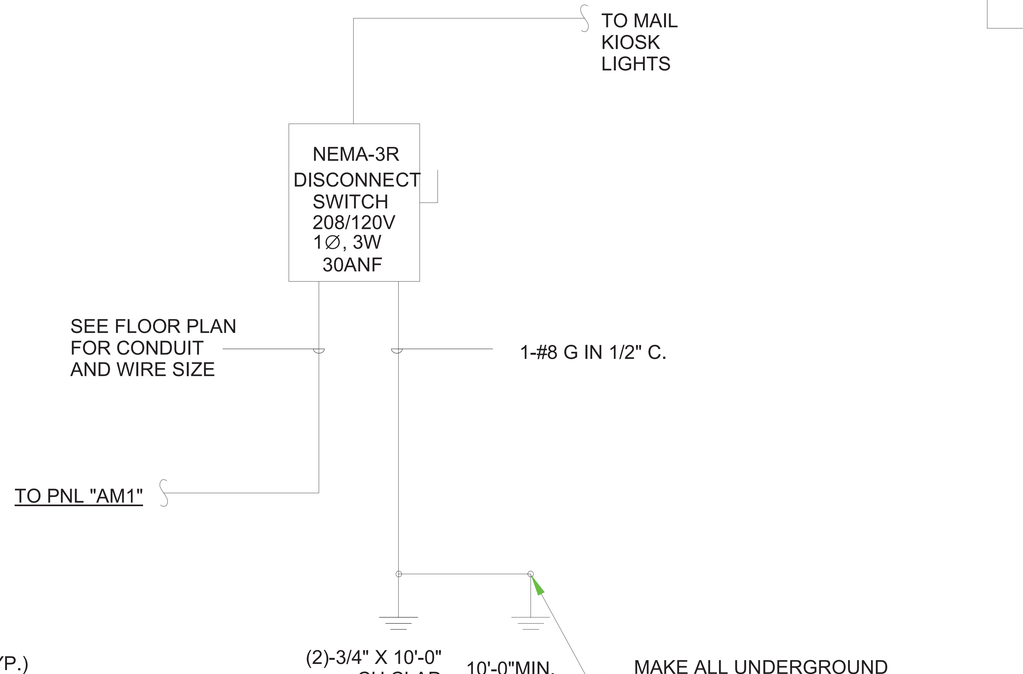
1 MAIL KIOSK
1/4" = 1'-0"



2 MAIL KIOSK
1/4" = 1'-0"



3 MAIL KIOSK ONE LINE DIAGRAM



4 MAIL KIOSK ONE LINE DIAGRAM.

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MILHAUS

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7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

MAIL KIOSK ENLARGE

SHEET NUMBER:
AE2.00

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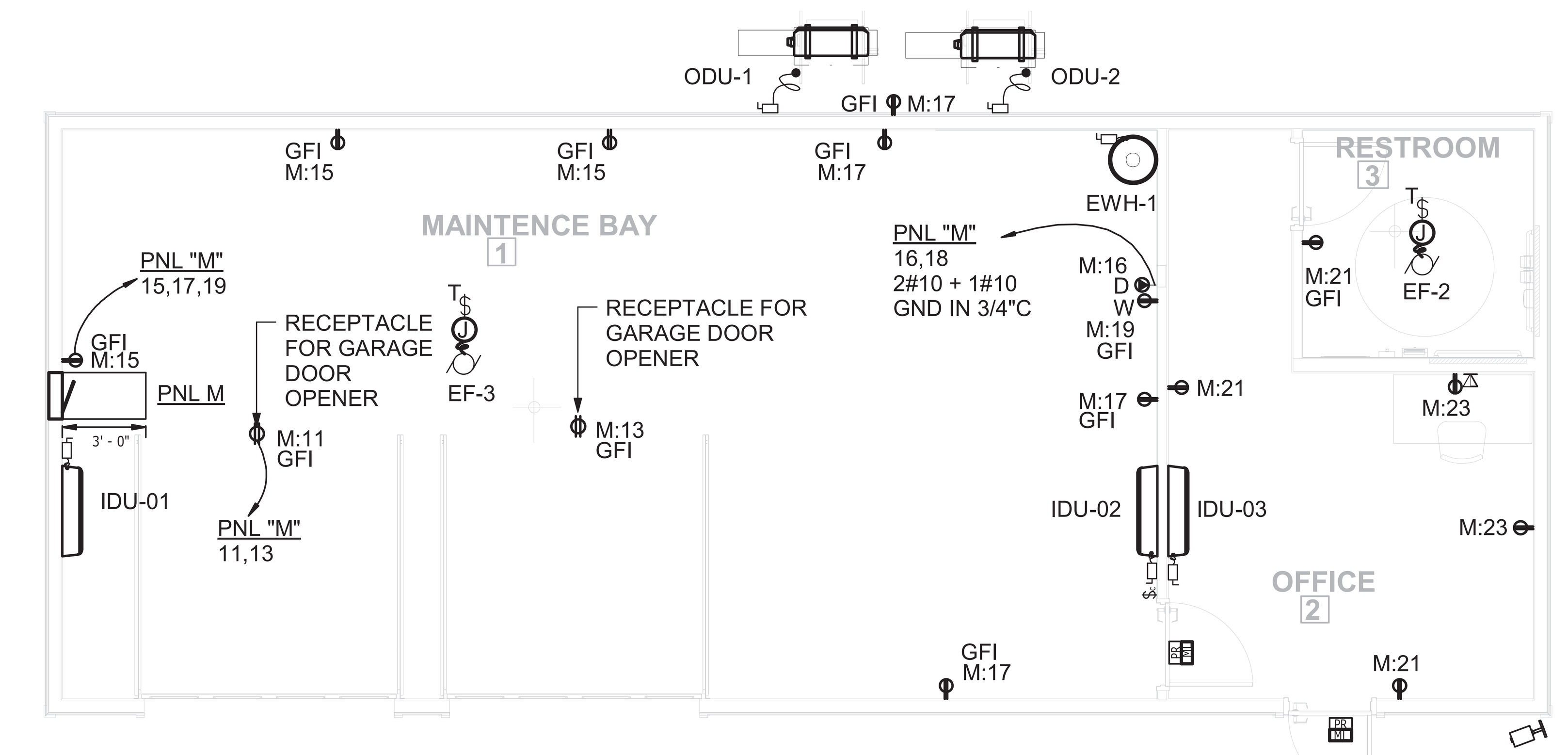
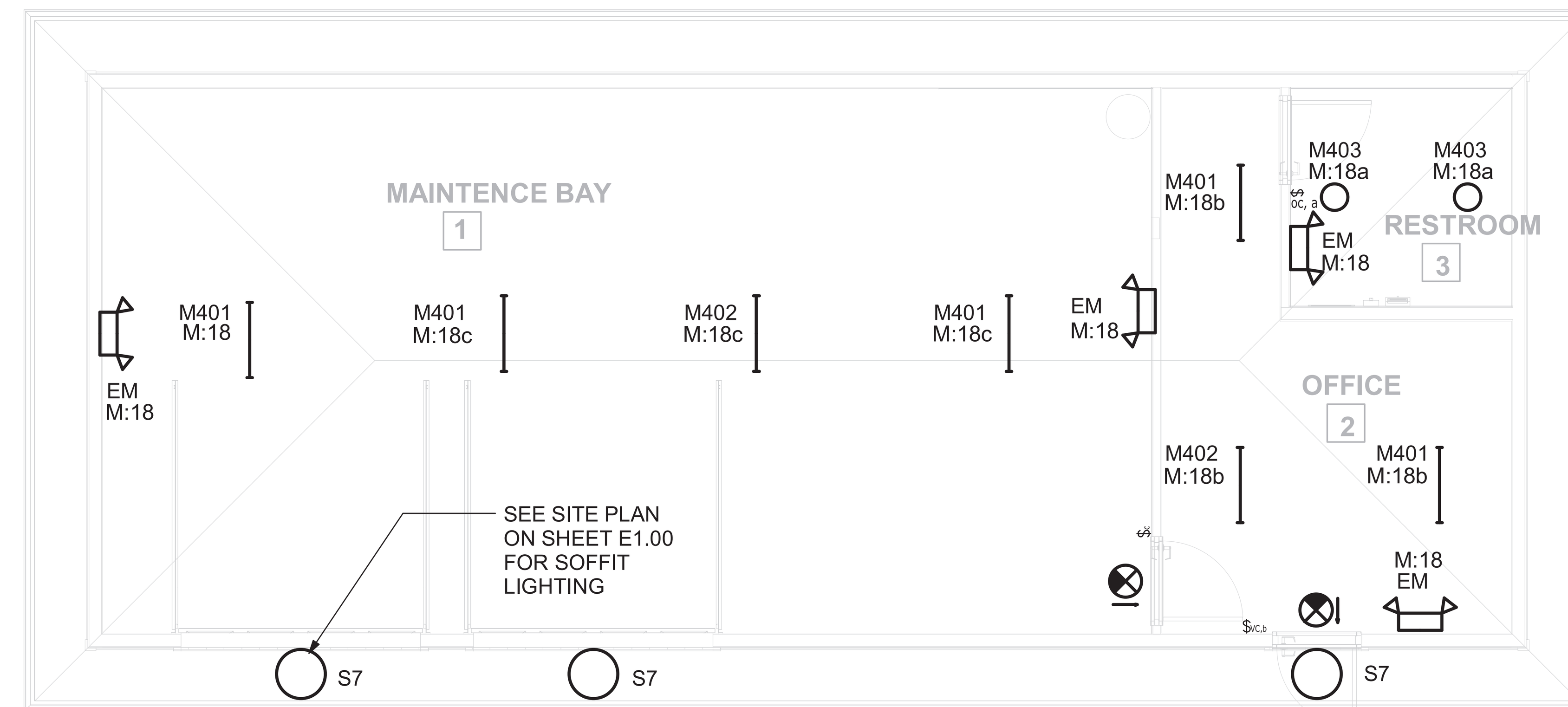
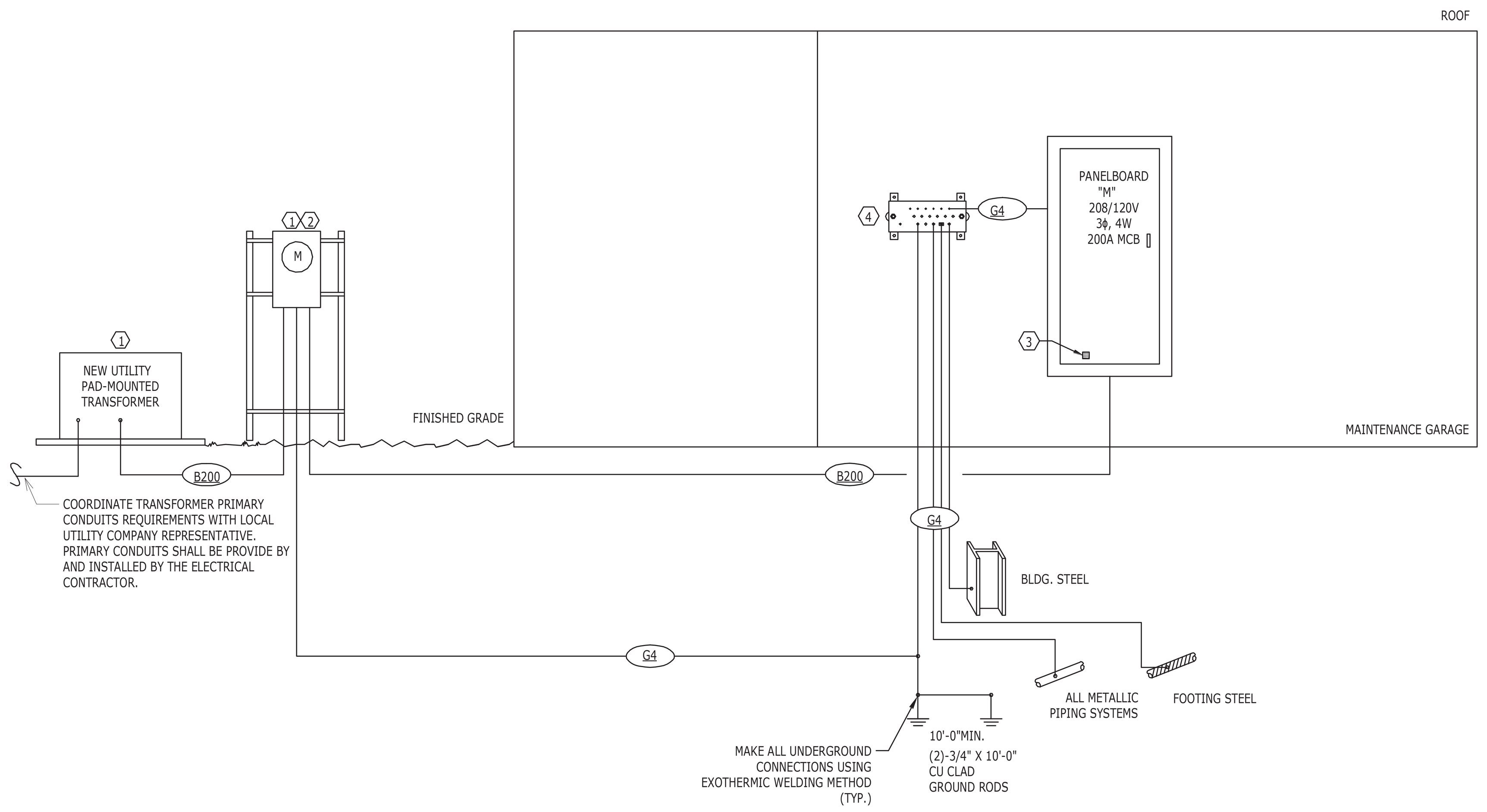


1 POWER PLAN - MAINTENANCE
1/4" = 1'-0"



2 LIGHTING - MAINTENANCE
1/4" = 1'-0"



3 MAINTENANCE ONE LINE DIAGRAM

Panelboard: M

Location: MAINTENCE BAY **Volts:** 120/208 Wye **A.I.C. Rating:** 65000 AIC
Supplied From: UTILITY CO. TRANSFORMER **Phases:** 3 **Mains Type:** MCB
Mounting: FLUSH **Wires:** 4 **Mains Rating:** 225 A
Enclosure: NEMA 1 **MCB Rating:** 200 A

Notes:

CKT	Load Name	Trip	Pole	A		B		C		Pole	Trip	Load Name	CKT
1	ODU-1	40 A	2	2.50	2.04					2	30 A	ODU-2	2
3	--	--	--			2.50	2.04			--	--	--	4
5	OFFICE RECEPTACLE	20 A	1					0.36	1.20	1	20 A	WASHER RECEPTACLE	6
7	OFFICE RECEPTACLE	20 A	1	0.54	0.72					1	20 A	GARAGE RECEPTACLE	8
9	EF-2 & EF-3	20 A	1			0.00	3.61			3	50 A	TC-1	10
11	GARAGE DOOR RECEPTACLE	20 A	1					1.80	3.61	--	--	--	12
13	GARAGE DOOR RECEPTACLE	20 A	1	1.80	3.61					--	--	--	14
15	GARAGE RECEPTACLE	20 A	1			0.54	2.29			1	40 A	ELECTRIC DRYER	16
17	EWH-1	20 A	1					1.80	0.38	1	20 A	MAINTENANCE LIGHTING	18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37					0.00					3	30 A	SURGE PROTECTIVE DEVICE	38
39							0.00			--	--	--	40
41									0.00	--	--	--	42
			Total Load:	11.21		10.98		9.15		kVA			
			Total Amps:	95.77		93.85		76.23		AMPS			

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	374 VA	125.00%	467 VA		
Other	4 VA	100.00%	4 VA	Total Conn. Load:	31.34 kVA
Power	21710 VA	100.00%	21710 VA	Total Est. Demand:	31.43 kVA
Receptacle	6960 VA	100.00%	6960 VA	Total Conn.:	86.99 A
RECEPTACLE LOAD	2290 VA	100.00%	2290 VA	Total Est. Demand:	87.25 A

Notes:

COPPER CONDUCTOR AND CONDUIT SCHEDULE

O.C.P.D.** AMPERE RATING	SYMBOL*	4 WIRE WITH GROUND (3P W/ NEUTRAL)	O.C.P.D.** AMPERE RATING	SYMBOL*	4 WIRE WITH GROUND (3P W/ NEUTRAL)
20A	B20	4-#12, #12G. IN 3/4"C.	225A	B225	4-#4/0, #4G. IN 3"C.
25A	B25	4-#10, #10G. IN 3/4"C.	250A	B250	4-250MCM, #4G. IN 3"C.
30A	B30	4-#10, #10G. IN 3/4"C.	300A	B300	4-350MCM, #4G. IN 3 1/2"C.
35A	B35	4-#8, #10G. IN 1"C.	350A	B350	4-400MCM, #3G. IN 3 1/2"C.
40A	B40	4-#8, #10G. IN 1"C.	400A	B400	4-500MCM, #3 G IN 4"C.
45A	B45	4-#8, #10G. IN 1"C.	450A	B450	2 SETS: 4-#4/0, #2G. EACH IN 2 1/2"C.
50A	B50	4-#8, #10G. IN 1"C.	500A	B500	2 SETS: 4-#250MCM, #2G. EACH IN 3"C.
60A	B60	4-#6, #10G. IN 1 1/4"C.	600A	B600	2 SETS: 4-#350MCM, #1G. EACH IN 3"C.
70A	B70	4-#4, #8G. IN 1 1/4"C.	700A	B700	2 SETS: 4-#400MCM, #1/0G. EACH IN 3 1/2"C.
80A	B80	4-#4, #8G. IN 1 1/4"C..	800A	B800	2 SETS: 4-#500MCM, #1/0G. EACH IN 4"C.
90A	B90	4-#3, #8G. IN 1 1/2"C.	1000A	B1000	3 SETS: 4-#400MCM, #2/0G. EACH IN 3 1/2"C.
100A	B100	4-#3, #8G. IN 1 1/2"C.	1200A	B1200	4 SETS: 4-#350MCM, #3/0G. EACH IN 3 1/2"C.
110A	B110	4-#2, #6G. IN 1 1/2"C.	1600A	B1600	5 SETS: 4-#400MCM, #4/0G. EACH IN 3 1/2"C.
125A	B125	4-#1, #6G. IN 2"C.	2000A	B2000	6 SETS: 4-#400MCM, #250MCM G. EACH IN 3 1/2"C.
150A	B150	4-#1/0, #6G. IN 2"C.	2200A	B2200	6 SETS: 4-#500MCM, #350MCM G. EACH IN 4"C.
175A	B175	4-#2/0, #6G. IN 2 1/2"C.	2500A	B2500	7 SETS: 4-#500MCM, #350MCM G. EACH IN 4"C.
200A	B200	4-#3/0, #6G. IN 2 1/2"C.	3000A	B3000	8 SETS: 4-#500MCM, #400MCM G. EACH IN 4"C.
G4	1-#4 G IN 1/2"C.	G2/0	1-#2/0 G IN 1"C.	G3/0	1-#3/0 G IN 1"C.

* UNDERLINED TEXT WITHIN A SYMBOL INDICATES NO GROUND WIRE FOR SVC. FEEDER OR NO NEUTRAL FOR MOTOR LOAD.
** OVER CURRENT PROTECTIVE DEVICE

NOTES:

1. FOR SINGLE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 100' OF CIRCUIT LENGTH. FOR THREE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 200' OF CIRCUIT LENGTH. (ADJUST CONDUIT AS REQ'D).
2. VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL,IN ACCORDANCE WITH THE FLORIDA BUILDING CODE - ENERGY CONSERVATION, SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTOR BASES ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.
3. ALL UNDERGROUND AND ROOFTOP CONDUCTORS TO BE 90° C CONDUCTORS, TYPE XHHW-2. ALLOWABLE AMPACITY PER 75°C COLUMN, NEC 70 TABLE 310.15(B)(16).
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHNINSULATION UNLESS OTHERWISE NOTED.

KEYED NOTES - ELECTRICAL RISER DIAGRAM

1. COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.
2. UTILITY METER MOUNTED ON CONCRETE PEDESTAL, COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.
3. SURGE PROTECTIVE DEVICE: PQ PROTECTION "PQC200" SERIES, ASCO "XAS/200" SERIES (OR APPROVED EQUAL).
4. PROVIDE SOLID COPPER GROUND BUS BAR SIZED AS REQUIRED FOR THE SERVICE AND TTB LOCATIONS.

SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY.

BRANCH CIRCUIT WIRING SCHEDULE

SINGLE POLE (1P)				THREE POLE (3P)			
C/B SIZE	WIRE	CONDUIT	REMARKS	C/B SIZE	WIRE	CONDUIT	REMARKS
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	20a.	3-#12, 1-#12G.	3/4"	3Ø, 3W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	25a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
35a.	2-#8, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10N, 1-#10G.	3/4"	3Ø, 4W
40a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#8, 1-#10G.	1"	3Ø, 4W
50a.	2-#8, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#10G.	1"	3Ø, 3W
60a.	2-#6, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#8N, 1-#10G.	1"	3Ø, 4W
TWO POLE (2P)				45a.	3-#8, 1-#10G.	1"	3Ø, 3W
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	45a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#10G.	1"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
40a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#6N, 1-#10G.	1 1/4"	3Ø, 4W
50a.	2-#8, 1-#10G.	1"	1Ø,2W	100a.	3-#3, 1-#3N, 1-#8G.	1 1/2"	3Ø, 4W
60a.	2-#6, 1-#10G.	1"	1Ø,2W	125a.	3-#1, 1-#1N, 1-#6G.	2"	3Ø, 4W
70a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	150a.	3-#1/0, 1-#1/0N, 1-#6G.	2"	3Ø, 4W
80a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	175a.	3-#2/0, 1-#2/0N, 1-#6G.	2'	3Ø, 4W
90a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W	200a.	3-#3/0, 1-#3/0N, 1-#6G.	2 1/2"	3Ø, 4W
100a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W				

NOTE: VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL, IN ACCORDANCE WITH THE FBC,SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTORBASED ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.

MECHANICAL MOTOR AND EQUIPMENT SCHEDULE

EQUIP. TAG	DESIGNATED TAG	LOCATIONS	LOAD VOLTS	LOAD PHASE	LOAD H.P.	LOAD AMP	CONDUIT AND WIRE SIZE	SOURCE OF POWER PANEL	SOURCE OF POWER CCT. NO.	PROTECT (AMPERES)	REMARKS
IDU-1,2	INDOOR UNIT# FOR MAINTENANCE	IT ROOM	208~230	1		0.52	2#8 + 1#10 GND IN 3/4" C.			20	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
IDU-3	INDOOR UNIT-3 FOR MAINTENANCE	IT ROOM	208~230	1		0.52	2#8 + 1#10 GND IN 3/4" C.			20	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
ODU-1	OUTDOOR UNIT-1 FOR MAINTENANCE	GROUND	208~230	1		24.0	2#6 + 1#10 GND IN 3/4" C.	M	1,3	40	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
ODU-2	OUTDOOR UNIT-2 FOR MAINTENANCE	GROUND	208~230	1		19.6	2#6 + 1#10 GND IN 3/4" C.	M	2,4	30	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EWH-1	ELECTRIC WATER HEATER 1	SEE PLAN	240	1		4.4	2#8 + 1#10 GND IN 3/4" C.	M	17	15	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EWH-2	ELECTRIC WATER HEATER 2	SEE PLAN	240	1		4.4	2#8 + 1#10 GND IN 3/4" C.			15	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-2	TOILET EXHAUST FAN FOR ACCESSORIES	SEE PLAN	120	1	1/10	0.7	2#12 + 1#12 GND IN 3/4" C.	M	9	20	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-3	TOILET EXHAUST FAN FOR ACCESSORIES	SEE PLAN	120	1	1/10	0.36	2#12 + 1#12 GND IN 3/4" C.	M	9	20	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
TC-1	TRASH COMPACTOR	SEE PLAN	208	3		24	3#10 + 1#8 GND IN 3/4" C	M	10,12,14	24	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
SP-#	SUMP PUMP	SEE PLAN	120	1	1/2	3.2	2#8 + 1#10 GND IN 3/4" C.	M	20,21	20	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
JPC	JOCKEY PUMP CONTROLLER	SEE PLAN	208	3		7.8	2#12 + 1#12 GND IN 3/4" C.	M	19,21	7.8	DISCONNECT SWITCH IS PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR.

GENERAL LIGHTING FIXTURE SCHEDULE

FIXTURE IMAGE	TYPE	DESCRIPTION	MANUFACTURER CATALOG NO.	VOLTAGE	LED	WATTS	LINK
	M401	SURFACE MOUNT LED FIXTURE	TECH LIGHTING , 700GRC48"BW-LED930	120V	3000K	110	
	M402	SURFACE MOUNT LED FIXTURE	TECH LIGHTING , 700GRC36"BW-LED930	120V	3000K	81.3	
	M403	SURFACE MOUNT LED FIXTURE	TECH LIGHTING , 700GRC24"BW-LED930	120V	3000K	45	
	L1	SURFACE MOUNT LED FIXTURE	Lightology, CM405-S	120V	3000K	12	
	S7	SURFACE MOUNT LED FIXTURE	SURFACE MOUNT LED FIXTURE	120V	2700K	10.5	

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MILHAUS

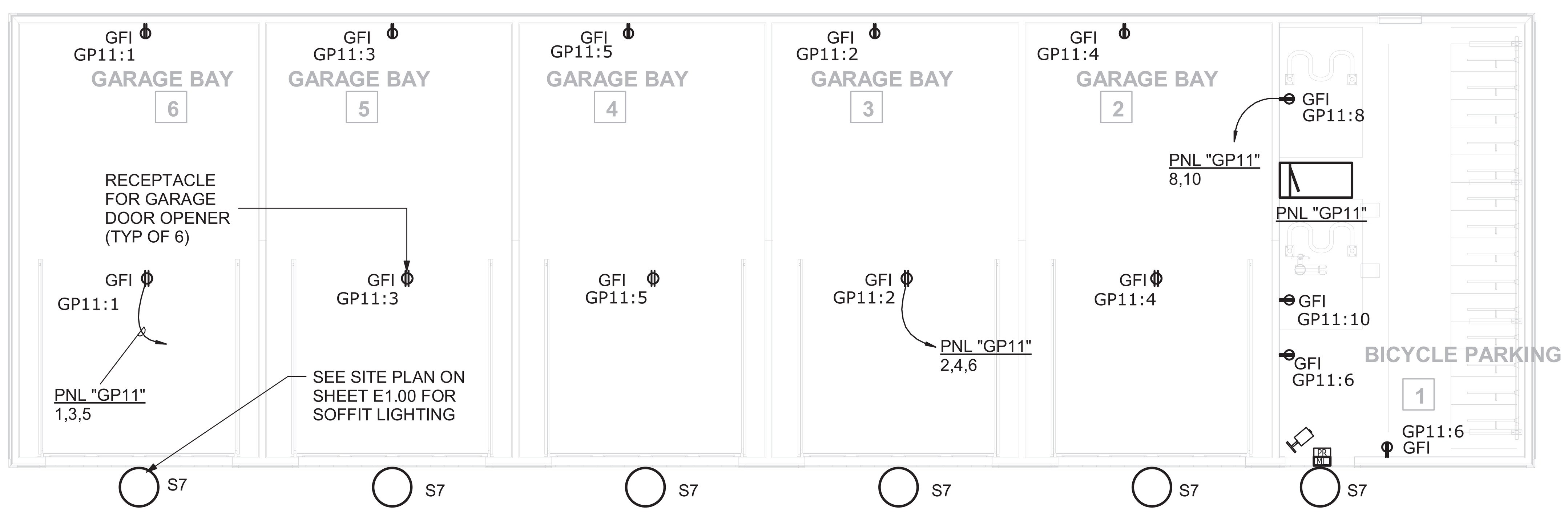
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

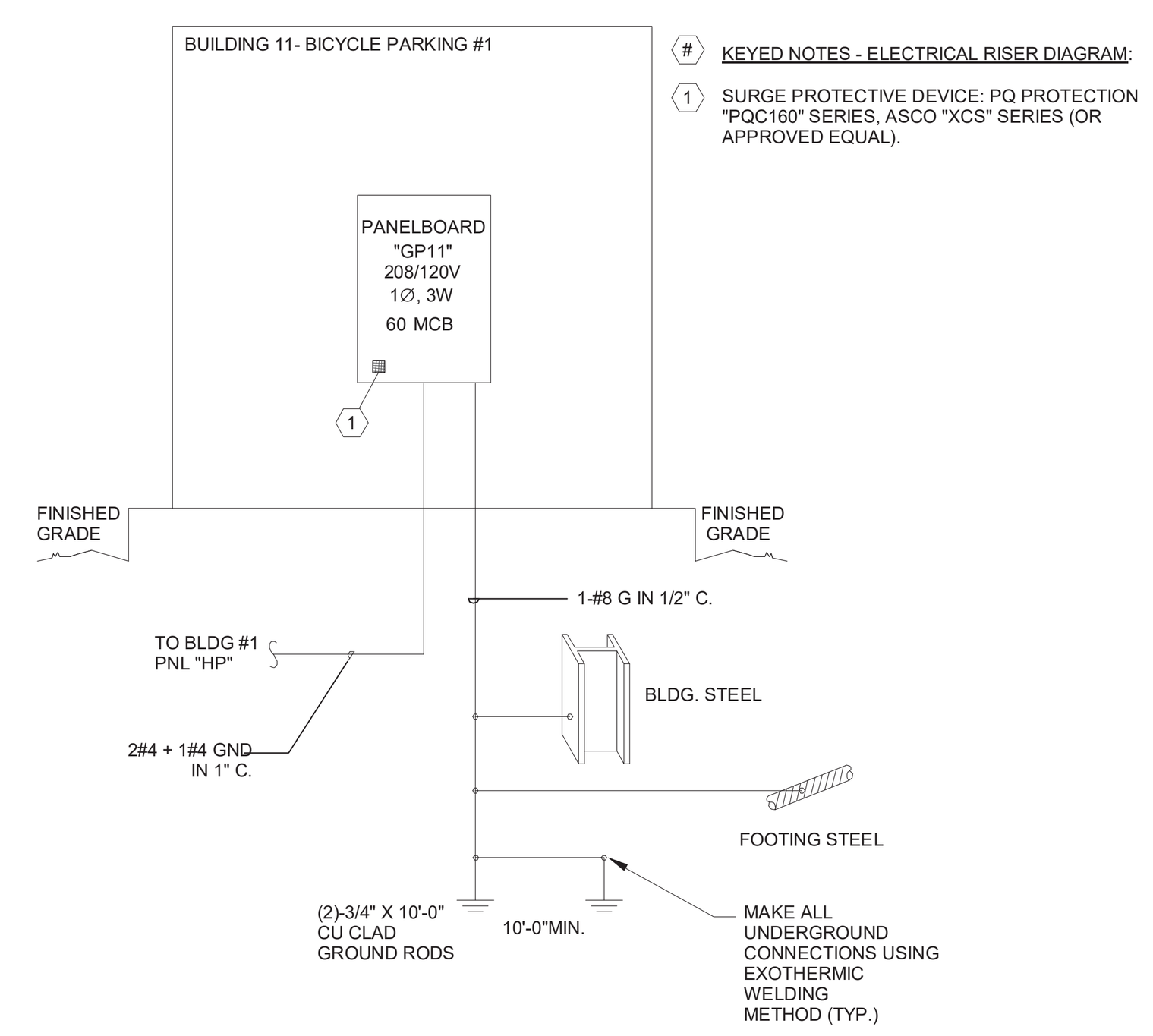
PROJECT NO:
220035.00

MAINTENANCE BLDG ENLARGE AND DETAILS

SHEET NUMBER:
AE2.01



1 GARAGE BLDG #11
1/4" = 1'-0"



KEYED NOTES - ELECTRICAL RISER DIAGRAM:

1 SURGE PROTECTIVE DEVICE: PQ PROTECTION "PQC160" SERIES, ASCO "XCS" SERIES (OR APPROVED EQUAL).

POWER GENERAL NOTES

1 DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN SUCH OUTLETS.

2 SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L. TO MAINTAIN THE ALL AND FLOOR ORIGINAL RATING.

3 FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.

4 TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPE III, IV AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL AUTHORITY HAVING JURISDICTION. PROVIDE M.C. CABLE OR IRE/EMT CONDUIT FOR BRANCH CIRCUITS IN ALL OTHER CONSTRUCTION TYPES.

5 THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLES ONLY. ALL POWER BRANCH CIRCUIT SHAL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKERS IN PANELBOARD UNLESS OTHERWISE NOTED.

3 GARAGE BLDG. #11 ONE LINE DIAGRAM

Panelboard: GP11

Location: POOL EQUIPMENT ROOM
Supply From:
Mounting: FLUSH
Enclosure: NEMA 1

Volts: 120/208
Phases: 1
Wires: 3

A.I.C. Rating: 22000 AIC
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: N/A

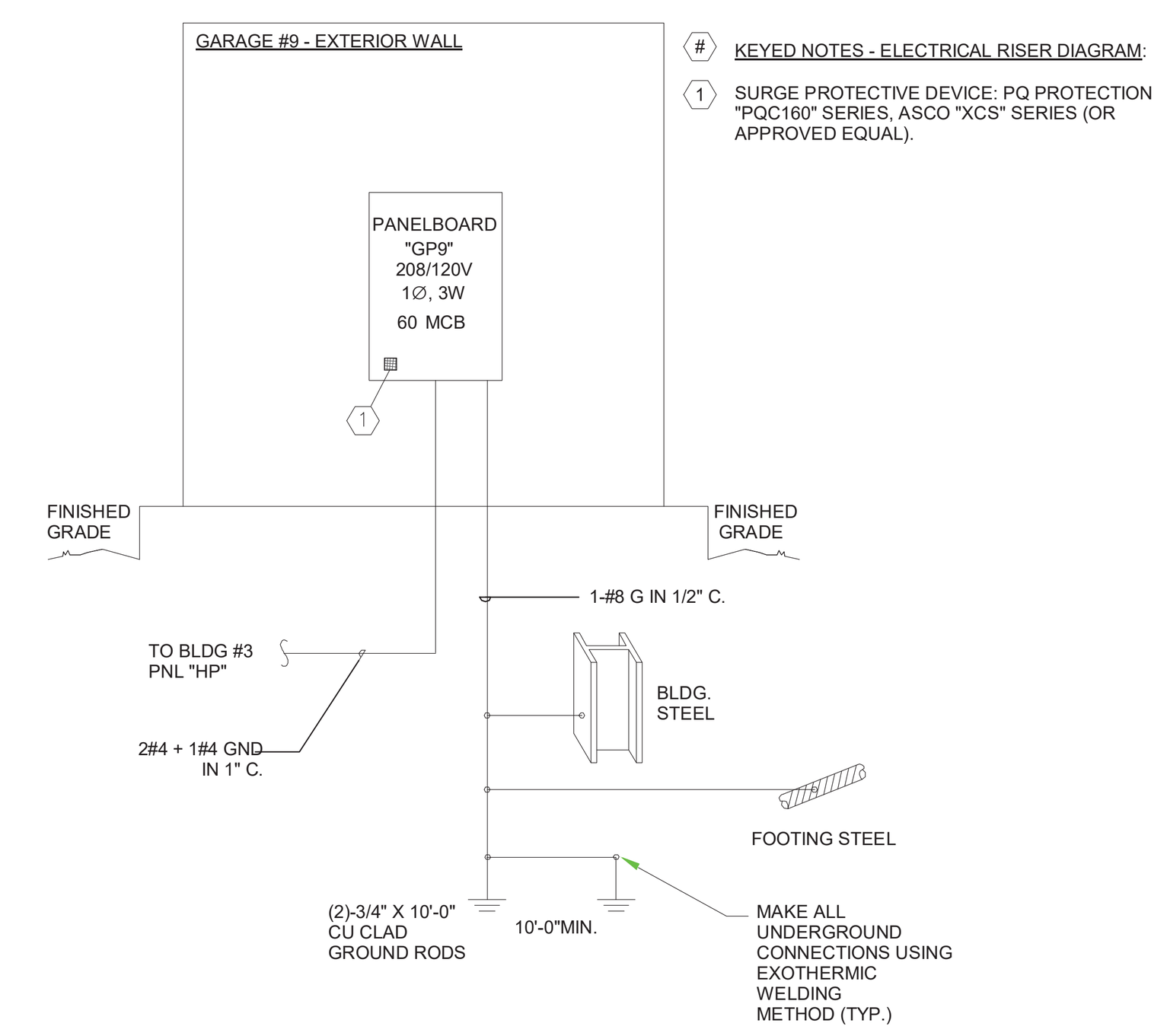
Notes:

CKT	Load Name	Trip	Pole	A		B		Pole	Trip	Load Name	CKT
1	GARAGE BAY #6 RECEPTACLE	20 A	1	1.80	1.80			1	20 A	GARAGE BAY #3 RECEPTACLE	2
3	GARAGE BAY #5 RECEPTACLE	20 A	1			1.80	1.80	1	20 A	GARAGE BAY #2 RECEPTACLE	4
5	GARAGE BAY #4 RECEPTACLE	20 A	1	1.80	1.80			1	20 A	BICYCLE PARKING REC.	6
7							1.80	1	20 A	BICYCLE PARKING REC.	8
9					1.80			1	20 A	BICYCLE PARKING REC.	10
11											12
13											14
15											16
17											18
19											20
21					0.00			2	30 A	SURGE PROTECTION DEVICE	22
23							0.00	--	--	--	24
			Total Load:	***		***		kVA			
			Total Amps:	***		***		AMPS			

Legend:

Load Classification		Panel Totals	
L LIGHTING			
R RECEPTACAL		Total Conn. Load:	***
M MECHANICAL		Total Est. Demand:	***
C COMPUTER		Total Conn.:	***
K KITCHEN		Total Est. Demand:	***
P PANEL			

Notes:



KEYED NOTES - ELECTRICAL RISER DIAGRAM:

1 SURGE PROTECTIVE DEVICE: PQ PROTECTION "PQC160" SERIES, ASCO "XCS" SERIES (OR APPROVED EQUAL).

4 GARAGE BLDG. #9
1/8" = 1'-0"

POWER GENERAL NOTES

1 DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN SUCH OUTLETS.

2 SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L. TO MAINTAIN THE ALL AND FLOOR ORIGINAL RATING.

3 FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.

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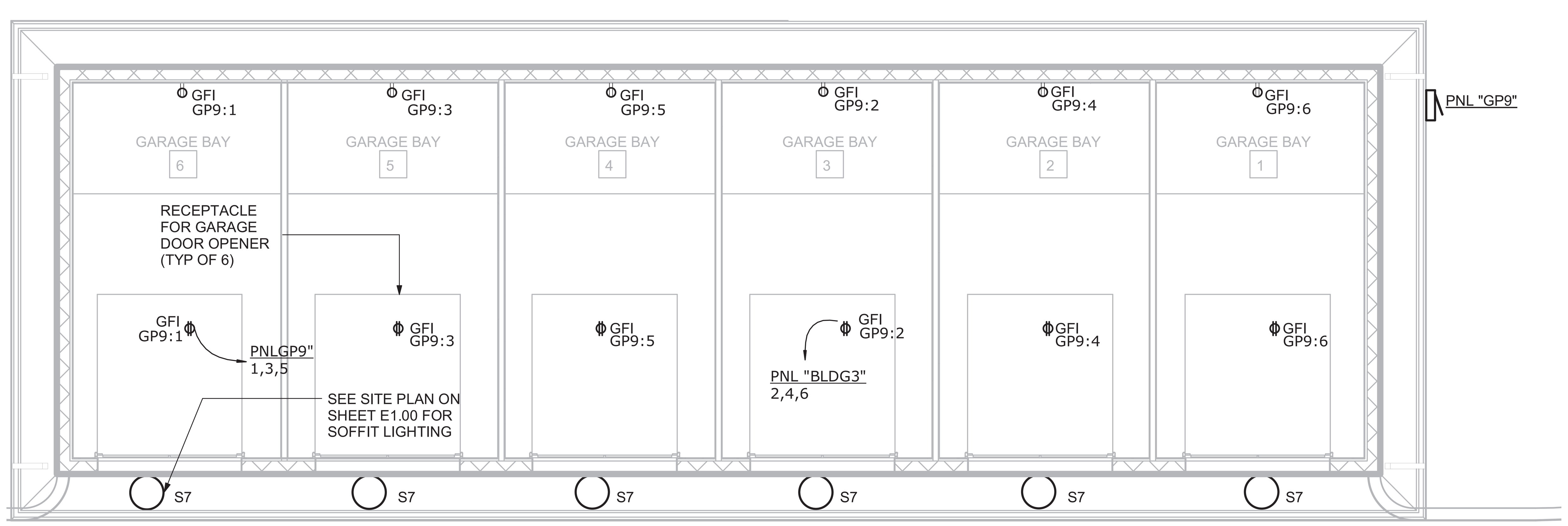

2 GARAGE BLDG. # 9
1/4" = 1'-0"

Panelboard: GP9

Location: POOL EQUIPMENT ROOM
Supply From:
Mounting: FLUSH
Enclosure: NEMA 1

Volts: 120/208
Phases: 1
Wires: 3

A.I.C. Rating: 22000A/C
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: N/A

Notes:

CKT	Load Name	Trip	Pole	A		B		Pole	Trip	Load Name	CKT
1	GARAGE BAY #6 RECEPTACLE...	20 A	1	1.80	1.80			1	20 A	GARAGE BAY #3 RECEPTACLE	2
3	GARAGE BAY #5 RECEPTACLE...	20 A	1			1.80	1.80	1	20 A	GARAGE BAY #2 RECEPTACLE	4
5	GARAGE BAY #4 RECEPTACLE...	20 A	1	1.80	1.80			1	20 A	GARAGE BAY #1 RECEPTACLE	6
7											8
9											10
11											12
13											14
15											16
17											18
19											20
21					0.00			2	30 A	SURGE PROTECTIVE DEVICE	22
23							0.00	--	--	--	24
			Total Load:	***		***		kVA			
			Total Amps:	***		***		AMPS			

Legend:

Load Classification		Panel Totals	
L LIGHTING			
R RECEPTACAL		Total Conn. Load:	***
M MECHANICAL		Total Est. Demand:	***
C COMPUTER		Total Conn.:	***
K KITCHEN		Total Est. Demand:	***
P PANEL			

Notes:

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JON DANIEL SHEPARD
LICENSE No. 71536
STATE OF FLORIDA
PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

SR-82

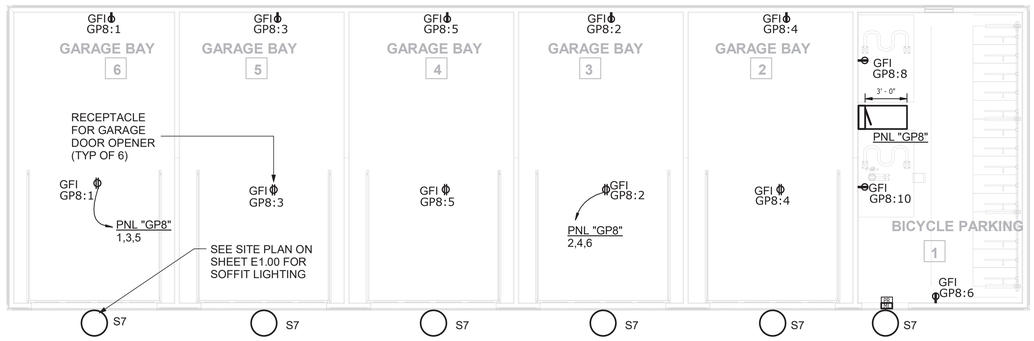
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

GARAGE BUILDING # 11 AND #9

SHEET NUMBER:
AE2.02

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH ON ANSI D SIZED SHEETS ORIGINAL PAGE SIZE

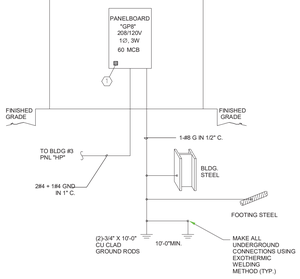


3 GARAGE BLDG #8
1/4" = 1'-0"

GARAGE #8 - BICYCLE PARKING #1

(#) KEYED NOTES - ELECTRICAL RISER DIAGRAM:

(1) SURGE PROTECTIVE DEVICE: PQ PROTECTION "PQC160" SERIES, ASCO "XCS" SERIES (OR APPROVED EQUAL).



2 GARAGE BLDG. #8

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Panelboard: GP8

Location: POOL EQUIPMENT ROOM
Supply From:
Mounting: FLUSH
Enclosure: NEMA 1

Volts: 120/208
Phases: 1
Wires: 3

A.I.C. Rating: 22000 AIC
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: N/A

Notes:

CKT	Load Name	Trip	Pole	A		B		Pole	Trip	Load Name	CKT
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7							1.80	1	20 A	BICYCLE PARKING RECEPTACLE	8
9					1.80			1	20 A	BICYCLE PARKING RECEPTACLE	10
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15											16
17											18
19											20
21					0.00			2	30 A	SURGE PROTECTIVE DEVICE	22
23							0.00	--	--	--	24
		Total Load:		***		***		kVA			
		Total Amps:		***		***		AMPS			

Legend:

Load Classification	Panel Totals	
L LIGHTING		
R RECEPTACAL	Total Conn. Load:	***
M MECHANICAL	Total Est. Demand:	***
C COMPUTER	Total Conn.:	***
K KITCHEN	Total Est. Demand:	***
P PANEL		

Notes:

Panelboard: GP10

Location: POOL EQUIPMENT ROOM
Supply From:
Mounting: FLUSH
Enclosure: NEMA 1

Volts: 120/208
Phases: 1
Wires: 3

A.I.C. Rating: 22000 AIC
Mains Type: MCB
Mains Rating: 100 A
MCB Rating: N/A

Notes:

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7							1.80	1	20 A	BICYCLE PARKING RECEPTACLE	8
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11											12
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15											16
17											18
19											20
21					0.00			2	30 A	SURGE PROTECTIVE DEVICE	22
23							0.00	--	--	--	24
		Total Load:		***		***		kVA			
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Legend:

Load Classification	Panel Totals	
L LIGHTING		
R RECEPTACAL	Total Conn. Load:	***
M MECHANICAL	Total Est. Demand:	***
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K KITCHEN	Total Est. Demand:	***
P PANEL		

Notes:

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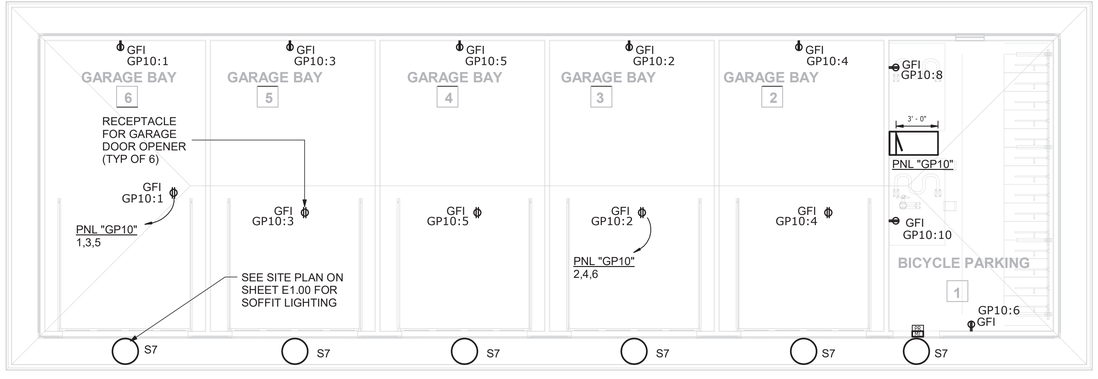

4 GARAGE BLDG. #10
1/4" = 1'-0"

GARAGE #10 - BICYCLE PARKING #1

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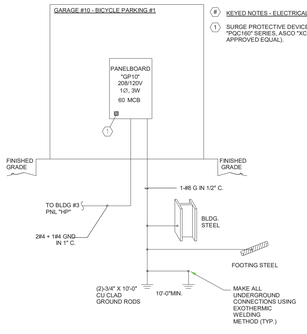

1 GARAGE BLDG. #10
1/8" = 1'-0"

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AA0002981 | LC26000427

JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

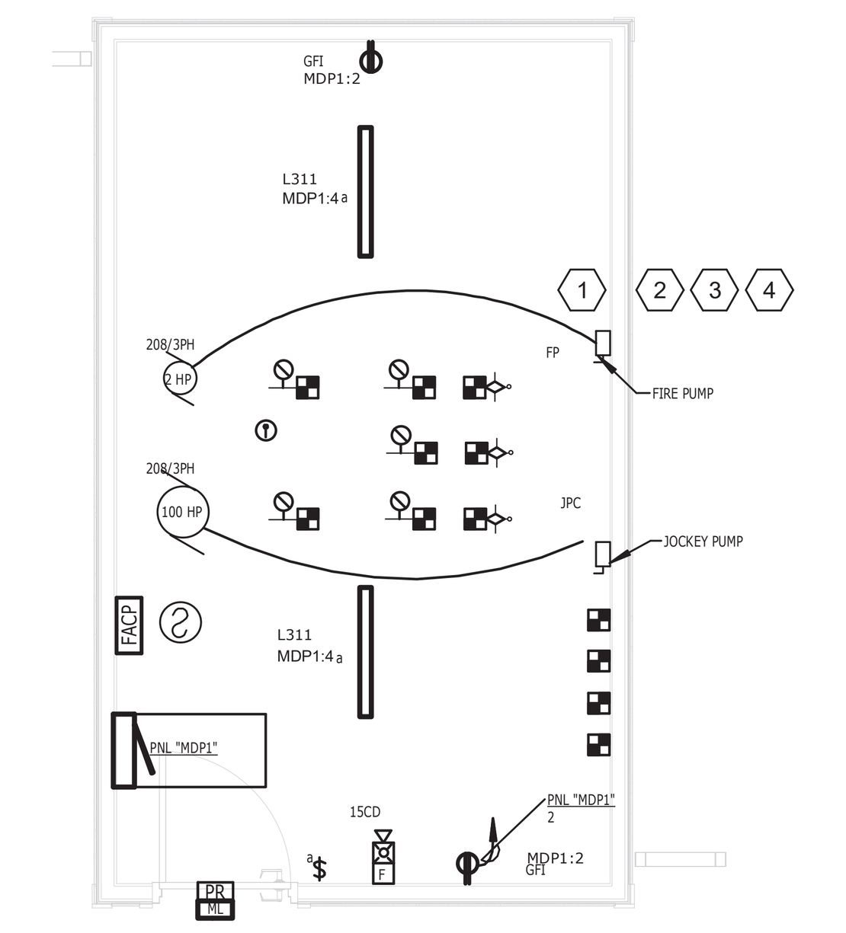
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

GARAGE BLDG. #8 AND #10

SHEET NUMBER:
AE2.03



1 FIRE PUMP BLDG.#12

FIRE PUMP CONTROLLER NOTES

1. PROVIDE (1) FIRE ALARM MONITORING MODULE FOR MONITORING OF PUMP RUNNING.
2. PROVIDE (1) FIRE ALARM MONITORING MODULE FOR MONITORING OF LOSS OF POWER.
3. PROVIDE (1) FIRE ALARM MONITORING MODULE FOR MONITORING OF PHASE REVERSAL.
4. PROVIDE (1) FIRE ALARM MONITORING MODULE FOR MONITORING OF CONNECTION TO EM POWER.

FIRE ALARM SYSTEM TYPE/WIRE SIZES PER CIRCUIT

		CLASS TYPE	MINIMUM WIRE SIZE	WIRE TYPE
A	PANEL SLC LOOP	CLASS B	#16-2 AWG	AS REQUIRED
B	REMOTE ANNUNCIATOR	CLASS B	#16-4 AWG	AS REQUIRED
C	PANEL NAC CIR. #1	CLASS B	#14-2 AWG	AS REQUIRED
D	PANEL NAC CIR. #2	CLASS B	#14-2 AWG	AS REQUIRED
E	PANEL NAC CIR. #3	CLASS B	#14-2 AWG	AS REQUIRED
F	PANEL NAC CIR. #4	CLASS B	#14-2 AWG	AS REQUIRED

FIRE ALARM AND DETECTION SYSTEM NOTES:

1. PROVIDE AN ADDRESSBLE FIRE ALARM SYSTEM IN ACCORDANCE WITH THE FIRE ALARM RISER DIAGRAM.
2. UNDERGROUND FIRE ALARM CONDUCTORS SHALL BE TYPE FPL AND LISTED FOR DIRECT BURIAL AND WET LOCATIONS. FIRE ALARM CONDUCTORS IN SPACES UTILIZED AS RETURN AIR PLENUMS SHALL BE TYPE FPLP. FIRE ALARM RISER CONDUCTORS SHALL BE TYPE FPLR. ALL OTHER FIRE ALARM CONDUCTORS SHALL BE TYPE FPL.
3. ALL CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS BUT IN NO CASE SMALLER THAN 14 AWG FOR NOTIFICATION APPLIANCE CIRCUITS AND 18 AWG FOR SIGNALING LINE CIRCUITS.
4. ALL UNDERGROUND FIRE ALARM CONDUCTORS SHALL BE INSTALLED IN MINIMUM 3/4" CONDUIT. ALL FIRE CONDUCTORS CONCEALED IN WALLS SHALL BE IN MINIMUM 1/2" CONDUIT STUBBED 6" ABOVE CEILING W/90° BEND. (CONDUITS SHALL NOT EXCEED 30% FILL) TIE WRAP ALL EXPOSED FIRE ALARM WIRES TIGHT TO CEILING.
5. ALL VISUAL ALARMS SHALL BE RATED PER NFPA 72, 101, AND ANSI A117.1.4.26 AND ADA REQUIREMENTS. AUDIBLE AND VISUAL DEVICES FOR FIRE ALARM SHALL COMPLY WITH THE FLORIDA ACCESSIBILITY CODE. FIRE ALARM SYSTEM SHALL BE AS REQUIRED PER FLORIDA BUILDING CODE 2020, NFPA 101-2018, NFPA 72-2016, AND LOCAL CODES.
6. ALL NOTIFICATION APPLIANCE CIRCUITS SHALL B E CLASS B AND ALL SIGNALING LINE CIRCUITS SHALL BE CLASS B STYLE 4, UNLESS OTHERWISE INDICATED.
7. ALL FIRE ALARM WIRING TO BE SOLID COPPER CONDUCTOR OF THE MINIMUM SIZE RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER AND INSTALLED IN CONDUIT WHERE CONCEALED OR ABOVE STORAGE SPACES. ALL WIRING TO BE COLOR COORDINATED AND PROPERLY IDENTIFIED. INSTALLATION WILL BE BY A STATE LICENSED AND APPROVED INSTALLER AND COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.
8. ALL FIRE ALARM COMPONENTS SHALL BE COMPATIBLE AND SHALL BE UL LISTED FOR FIRE ALARM SERVICE.
9. VERIFY ALL REQUIREMENTS WITH LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
10. FIRE ALARM AND FIRE SPRINKLER CONTRACTORS SHALL OBTAIN SEPARATE PERMITS.
11. BATTERY CALCULATIONS SHALL BE PROVIDED WITH EQUIPMENT SUBMITTALS AND PERMIT DOCUMENTS AS REQUIRED.
12. FIRE ALARM PLANS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF THE FIRE ALARM SYSTEM AND MEETS REQUIREMENTS IN ACCORDANCE WITH FLORIDA ADMINISTRATIVE CODE 61G15-32.008 AND 33.006. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS IN ACCORDANCE WITH ALL APPLICABLE CODES THAT SHALL INCLUDE, BUT NOT BE LIMITED TO, POINT TO POINT WIRING DIAGRAM, WIRE SIZES, BATTERY CALCULATIONS, EQUIPMENT SUBMITTALS AND INSTALLATION DETAILS. IT SHALL ALSO BE THE RESPONSIBILITY OF SAID CONTRACTOR TO PROVIDE DOCUMENTS AS REQUIRED FOR THE FIRE ALARM PERMIT. CONTRACTOR SHALL PROVIDE ADDITIONAL ITEMS AS REQUIRED FOR A COMPLETE AND CODE COMPLYING INSTALLATION BASED ON THE LOCAL REQUIREMENTS AND THE AHJ.
13. FIRE ALARM CONTRATOR SHALL SUPPLY TO THE OWNER AND OWNERS OPERATING PERSONNEL TRAINING AS REQUIRED FOR THE PROPER OPERATION AND MAINTENANCE OF THEIR FIRE ALARM SYSTEM. PROVIDE MANUALS, SYSTEM DOCUMENTATION AND A COPY OF THE PROGRAMMING WITHIN 30 DAYS OF ACCEPTANCE OF THE FIRE ALARM SYSTEM TO THE OWNER.
14. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS & QUANTITY OF ALL SMOKE & SMOKE/FIRE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO BID & ROUGH-IN. PROVIDE A CONTROL RELAY & CONTROL WIRE FROM THE FACP. ELECTRICAL CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO DAMPERS & 120V/24V STEP-DOWN TRANSFORMER FOR DAMPER OPERATION AS REQUIRED PER THE MECHANICAL CONTRACTOR'S SUBMITTALS AND INSTALLATION DETAILS. IT SHALL ALSO BE THE EQUIPMENT SHOP DRAWINGS.
15. PROVIDE FIRE ALARM PANEL WITH ADEQUATE SPARE CAPACITY FOR FUTURE DEVICE CONNECTIONS IN FINAL BUILD-OUT BASED UPON LISTED OCCUPANCY AND SQUARE FOOTAGE.
16. A VOICE EVAC. SYSTEM WITH THE APPROVAL OF THE AHJ MAYBE USED AS A MASS NOTIFICATION SYTEM AS PER NFPA 72 2016.
17. COORDINATE THE EXACT LOCATIONS AND QUANTITY OF THE FIRE ALARM DEVICES WITH THE FLOOR PLANS.
18. VERIFY THE EXACT LOCATIONS AND QUANTITIES OF FLOW AND TAMPER SWITCHES WITH THE FIRE SPRINKLER RISER PRIOR TO BID.
19. FIRE ALARM SYSTEM TESTING SHALL BE AS PER NFPA 72 CHAPTER 14 REQUIREMENTS.
20. FIRE ALARM SYSTEM TO PROVIDE A GENERAL EVACUATION SIGNAL.
21. FIRE ALARM SYSTEM IS TO BE REMOTE MONITORED.
22. BUILDING OCCUPANCY TYPE IS "BUSINESS".

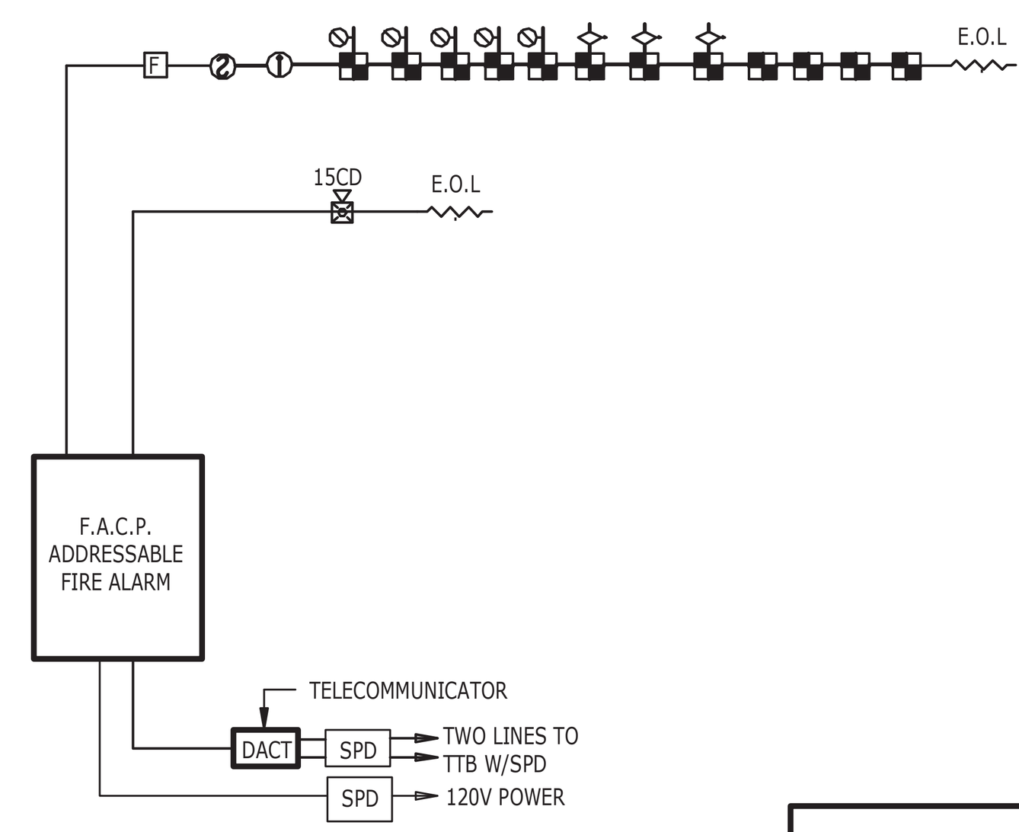
FIRE ALARM NOTES:

1. COORDINATE EXACT LOCATIONS AND QUANTITY OF FIRE ALARM DEVICES WITH FLOOR PLANS.
2. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS & QUANTITY OF ALL SMOKE DETECTORS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO BID & ROUGH-IN.
3. PROVIDE SURGE PROTECTION DEVICES ON ALL FIRE ALARM WIRING ENTERING OR LEAVING A BUILDING. PROVIDE GROUNDING AS PER THE MANUFACTURES INSTRUCTIONS.
4. PROVIDE BOOSTER POWER SUPPLIES AS NEEDED FOR AUDIBLE/VISUAL DEVICES.

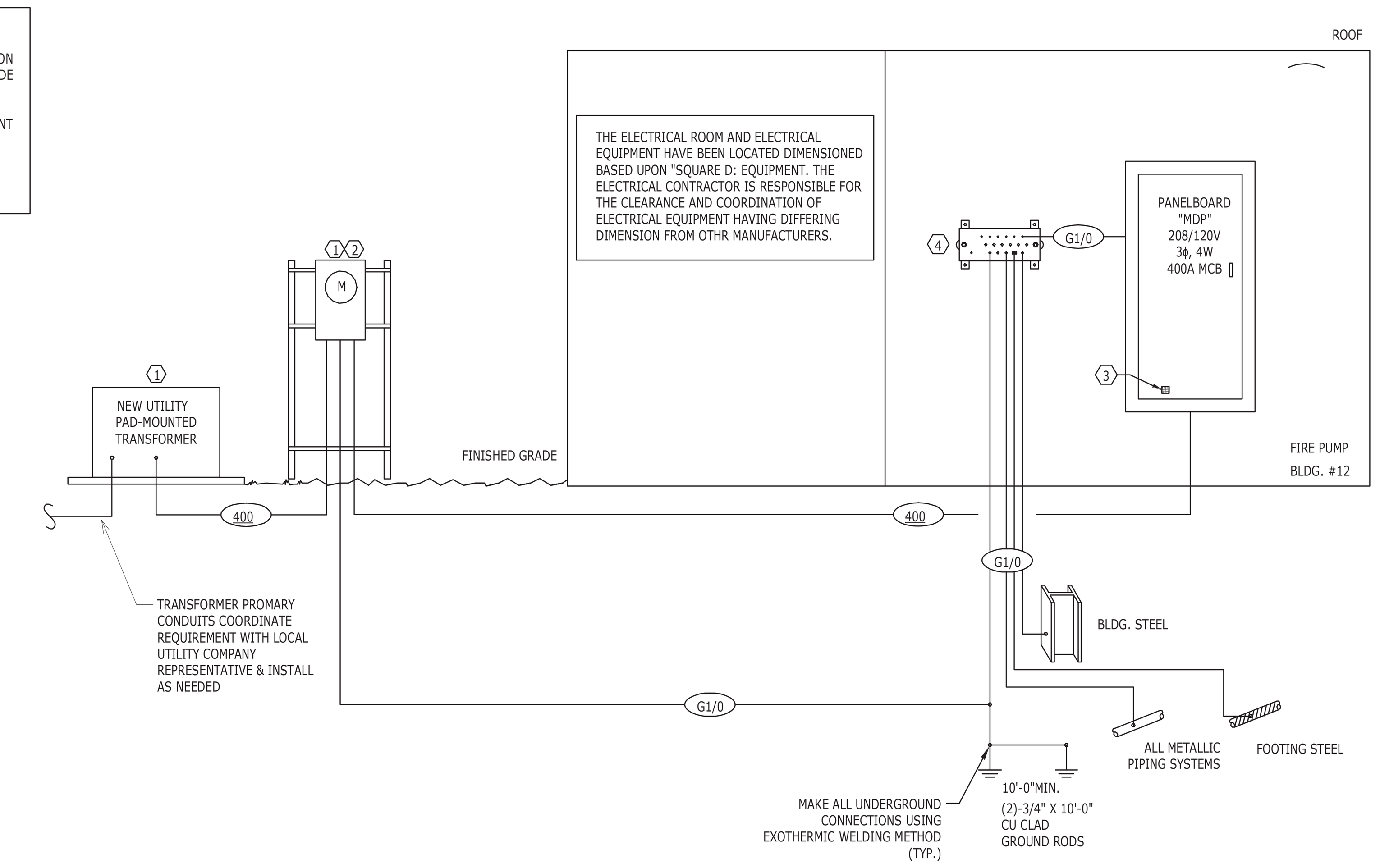
TWO-WAY RADIO COMMUNICATION ENHANCEMENT REQUIREMENTS

FIELD VERIFY WITH LOCAL MARSHAL/AHJ THAT MINIMUM RADIO SIGNAL STRENGTH REQUIREMENTS WILL BE PROVIDED ON PROJECT SITE TO DETERMINE IF CONTRACTOR PROVIDED ENHANCEMENTS WILL BE REQUIRED TO DETERMINE IF CONTRACTOR PROVIDED ENHANCEMENTS WILL BE REQUIRED TO COMPLY WITH NFPA 1:11.10.1. PROVIDE ADDITIONAL ROOM AS REQUIRED BASED ON RF STUDY.

SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FEILD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY.



FIRE PUMP BLDG. #12



SEQUENCE OF OPERATION MATRIX:

SYSTEM OPERATION NARRATIVE:
1. SEQUBIŒ OF OPERATION:

A. ACTIVATION OF BUILDING MANUAL OR AUTOMATIC ALARM INITIATING DEVICES SHALL PERFORM THE FOLLOWING OPERATION;
   1. GENBIAL ALARM STATUS SIGNALS SHALL BE TRANSMITTED TO AN U.L LISTED 24HR/7 DAY REMOTE STATION.
   2. THE CORRESPONDING ALARM DEVICE SHALL SHOW THE EXACT DESCRIPTION, POINT, TIME AND DATE OF ALARM AND D5INED MESSAGES ON THE FIRE ALARM CONTROL PANE. DISPLAY (FACP). THE LOBBY ANNUNCIATOR PANEL IF INSTALiED SHALL ALSO SHOW THE EXACT DESCRIPTION, POINT, TIME AND DATE OF THE ALARM AND DEFINED MESSAGES ON THE DISPLAY.
   3. SOUND AN AUDIBLE ALARM SIGNAL AT THE FACP.
   4. ALL HORNS SHALL SOUND AND ALL STROBE SHALL FLASH.

B. FIRE ALARM SYSTEM FUNCTIONS WHEN A SUPERVISORY CONDITIONS) DEVELOPS:
   1. SUPERVISORY CONDITION'S SHALL BE TRANSMITTED TO AN U.L LISTED 24HR/7 DAY REMOTE STATION.
   2. AN ALARM CONDITION SHALL QVKRIDE THE SUPERVISORY CONDITION BY EXTINGUISHING ALL SUPERVISORY CONDITIONS. WHEN THE ALARM CONDITION HAS BEEN BJDED BY RESETTING THE CONTROL PANEL, SUPERVISORY INDICATIONS SHALL REAPPEAR.
   3. IF THE SUPERVISORY CONDITION HAS BEEN SILENCED AND NOT CORRECTED WÏÏH IN 24 HRS AN AUDIBLE NOTIFICATION AT THE FIRE ALARM PANEL AND REMOTE ANNUNCIATOR SHALL BE REACTIVATED.

C. FIRE ALARM SYSTEM FUNCTIONS WHEN A TROUBLE CONDmON($) DEVELOPS:
   1. TROUBLE STATUS SIGNALS ARE TRANSMITTED TO AN U.L LISTED 24HR/7 DAY REMOTE STATION.
   2. AN ALARM CONDITION SHALL OVERRIDE THE TROUBLE CONDITION BY EXTINGUISHING ALL TROUBLE CONDITIONS. WHEN THE ALARM CONDITION HAS BEEN ENDED BY RESETTING THE CONTROL PANEL, TROUBLE INDICATIONS SHALL REAPPEAR.
   3. IF A GROUND FAULT DEVELOPS ON EITHER THE POSITIVE {+} OR NEGATIVE {-) OF ANY ADDRESSABLE OR NOTIFICATION APPLIANCE CIRCUir, AN AUDIBLE AND VISUAL, TROUBLE SIGNAL WILL BE INDICATED AT THE FIRE ALARM CONTROL PANEL AND REMOTE ANNUNCIATOR PANEL
   4. IF THE TROUBLE CONDITION HAS BEEN SILENCH) AND NOT CORRECTED WITH IN 24 HRS AN AUDIBLE NOTIFICATION AT THE FIRE ALARM PANEL AND REMOTE ANNUNCIATOR SHALL BE REACTIVATED.

FIRE ALARM DEVICE	GENERAL NOTES	ANNUNCIATE & AT FACP	ANNUNCIATE @ 24 HR U.L. REMOTE STATION
SMOKE DETECTORS	YES	YES	YES
PULL STATIONS	YES	YES	YES
POWER FAILURES	NO	YES	YES
WATERFLOW SW	N/A	N/A	N/A
TAMPER SW	N/A	N/A	N/A

Panelboard: MDP1

Location:
Destination: UTILITY CO.TRANSFORMER
Mounting: FLUSH
Enclosure: NEMA 1
Volts: 120/208 Wye
Phases: 3
Wires: 4
A.I.C. Rating: 65000A/C
Mains Type: MCB
Mains Rating: 400 A
MCB Rating: 400 A

Notes:

CKT	Load Name	Trip	Pole	A		B		C		Pole	Trip	Load Name	CKT
1	FIRE PUMP	1600 A	3	32.85	0.36					1	20 A	RECEPTACLES	2
3	--	--	--			32.85	0.08			1	20 A	LIGHTS	4
5	--	--	--					32.85					6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37					0.00					3	30 A	SURGE PROTECTION DEVICE	38
39							0.00			--	--	--	40
41									0.00	--	--	--	42
			Total Load:	33.21		32.93		32.85		kVA			
			Total Amps:	276.86		274.53		273.76		AMPS			

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Motor	98553 VA	125.00%	123191 VA		
Other	80 VA	100.00%	80 VA	Total Conn. Load:	98.99 kVA
Receptacle	360 VA	100.00%	360 VA	Total Est. Demand:	123.63 kVA
				Total Conn.:	274.78 A
				Total Est. Demand:	343.17 A

Notes:

COPPER CONDUCTOR AND CONDUIT SCHEDULE

O.C.P.D.** AMPERE RATING	SYMBOL*	4 WIRE WITH GROUND (3P W/ NEUTRAL)	O.C.P.D.** AMPERE RATING	SYMBOL*	4 WIRE WITH GROUND (3P W/ NEUTRAL)
20A	B20	4-#12, #12G. IN 3/4"C.	225A	B225	4-#4/0, #4G. IN 3"C.
25A	B25	4-#10, #10G. IN 3/4"C.	250A	B250	4-250MCM, #4G. IN 3"C.
30A	B30	4-#10, #10G. IN 3/4"C.	300A	B300	4-350MCM, #4G. IN 3 1/2"C.
35A	B35	4-#8, #10G. IN 1"C.	350A	B350	4-400MCM, #3G. IN 3 1/2"C.
40A	B40	4-#8, #10G. IN 1"C.	400A	B400	4-500MCM, #3 G IN 4"C.
45A	B45	4-#8, #10G. IN 1"C.	450A	B450	2 SETS: 4-#4/0, #2G. EACH IN 2 1/2"C.
50A	B50	4-#8, #10G. IN 1"C.	500A	B500	2 SETS: 4-#250MCM, #2G. EACH IN 3"C.
60A	B60	4-#6, #10G. IN 1 1/4"C.	600A	B600	2 SETS: 4-#350MCM, #1G. EACH IN 3"C.
70A	B70	4-#4, #8G. IN 1 1/4"C.	700A	B700	2 SETS: 4-#400MCM, #1/0G. EACH IN 3 1/2"C.
80A	B80	4-#4, #8G. IN 1 1/4"C..	800A	B800	2 SETS: 4-#500MCM, #1/0G. EACH IN 4"C.
90A	B90	4-#3, #8G. IN 1 1/2"C.	1000A	B1000	3 SETS: 4-#400MCM, #2/0G. EACH IN 3 1/2"C.
100A	B100	4-#3, #8G. IN 1 1/2"C.	1200A	B1200	4 SETS: 4-#350MCM, #3/0G. EACH IN 3 1/2"C.
110A	B110	4-#2, #6G. IN 1 1/2"C.	1600A	B1600	5 SETS: 4-#400MCM, #4/0G. EACH IN 3 1/2"C.
125A	B125	4-#1, #6G. IN 2"C.	2000A	B2000	6 SETS: 4-#400MCM, #250MCM G. EACH IN 3 1/2"C.
150A	B150	4-#1/0, #6G. IN 2"C.	2200A	B2200	6 SETS: 4-#500MCM, #350MCM G. EACH IN 4"C.
175A	B175	4-#2/0, #6G. IN 2 1/2"C.	2500A	B2500	7 SETS: 4-#500MCM, #350MCM G. EACH IN 4"C.
200A	B200	4-#3/0, #6G. IN 2 1/2"C.	3000A	B3000	8 SETS: 4-#500MCM, #400MCM G. EACH IN 4"C.
G4	1-#4 G IN 1/2"C.	G1/0	1-#1/0 G IN 1"C.	G3/0	1-#3/0 G IN 1"C.

* UNDERLINED TEXT WITHIN A SYMBOL INDICATES NO GROUND WIRE FOR SVC. FEEDER OR NO NEUTRAL FOR MOTOR LOAD.
** OVER CURRENT PROTECTIVE DEVICE

NOTES:

1. FOR SINGLE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 100' OF CIRCUIT LENGTH. FOR THREE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 200' OF CIRCUIT LENGTH. (ADJUST CONDUIT AS REQ'D).
2. VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL,IN ACCORDANCE WITH THE FLORIDA BUILDING CODE - ENERGY CONSERVATION, SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTOR BASES ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.
3. ALL UNDERGROUND AND ROOFTOP CONDUCTORS TO BE 90° C CONDUCTORS, TYPE XHHW-2. ALLOWABLE AMPACITY PER 75°C COLUMN, NEC 70 TABLE 310.15(B)(16).
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHNINSULATION UNLESS OTHERWISE NOTED.

BRANCH CIRCUIT WIRING SCHEDULE

SINGLE POLE (1P)				THREE POLE (3P)			
C/B SIZE	WIRE	CONDUIT	REMARKS	C/B SIZE	WIRE	CONDUIT	REMARKS
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	20a.	3-#12, 1-#12G.	3/4"	3Ø, 3W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	25a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
35a.	2-#8, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10N, 1-#10G.	3/4"	3Ø, 4W
40a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#8, 1-#10G.	1"	3Ø, 4W
50a.	2-#8, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#10G.	1"	3Ø, 3W
60a.	2-#6, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#8N, 1-#10G.	1"	3Ø, 4W
TWO POLE (2P)				45a.	3-#8, 1-#10G.	1"	3Ø, 3W
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	45a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#10G.	1"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
40a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#6N, 1-#10G.	1 1/4"	3Ø, 4W
50a.	2-#8, 1-#10G.	1"	1Ø,2W	100a.	3-#3, 1-#3N, 1-#8G.	1 1/2"	3Ø, 4W
60a.	2-#6, 1-#10G.	1"	1Ø,2W	125a.	3-#1, 1-#1N, 1-#6G.	2"	3Ø, 4W
70a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	150a.	3-#1/0, 1-#1/0N, 1-#6G.	2"	3Ø, 4W
80a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	175a.	3-#2/0, 1-#2/0N, 1-#6G.	2'	3Ø, 4W
90a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W	200a.	3-#3/0, 1-#3/0N, 1-#6G.	2 1/2"	3Ø, 4W
100a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W				

NOTE: VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL, IN ACCORDANCE WITH THE FBC,SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTORBASED ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.

SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY.

KEYED NOTES - ELECTRICAL RISER DIAGRAM

1. COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.
2. UTILITY METER MOUNTED ON CONCRETE PEDESTAL, COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.
3. SURGE PROTECTIVE DEVICE: PQ PROTECTION "PQC200" SERIES, ASCO "XAS/200" SERIES (OR APPROVED EQUAL).
4. PROVIDE SOLID COPPER GROUND BUS BAR SIZED AS REQUIRED FOR THE SERVICE AND TTB LOCATIONS.

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

Quest Design Group, Inc.
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Sarasota, Fl 34234
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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

FIRE PUMP BLDG #12 AND EQUIPMENT SCHEDULE ACCESSORIES

SHEET NUMBER:
AE2.04

COPPER CONDUCTOR AND CONDUIT SCHEDULE

O.C.P.D.** AMPERE RATING	SYMBOL*	4 WIRE WITH GROUND (3P W/ NEUTRAL)	O.C.P.D.** AMPERE RATING	SYMBOL*	4 WIRE WITH GROUND (3P W/ NEUTRAL)
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125A	B125	4-#1, #6G. IN 2"C.	2000A	B2000	6 SETS: 4-#400MCM, #250MCM G. EACH IN 3 1/2"C.
150A	B150	4-#1/0, #6G. IN 2"C.	2200A	B2200	6 SETS: 4-#500MCM, #350MCM G. EACH IN 4"C.
175A	B175	4-#2/0, #6G. IN 2 1/2"C.	2500A	B2500	7 SETS: 4-#500MCM, #350MCM G. EACH IN 4"C.
200A	B200	4-#3/0, #6G. IN 2 1/2"C.	3000A	B3000	8 SETS: 4-#500MCM, #400MCM G. EACH IN 4"C.
G6	1-#6 G IN 1/2"C.	G1/0	1-#1/0 G IN 1"C.	G3/0	1-#3/0 G IN 1"C.

* UNDERLINED TEXT WITHIN A SYMBOL INDICATES NO GROUND WIRE FOR SVC. FEEDER OR NO NEUTRAL FOR MOTOR LOAD.
** OVER CURRENT PROTECTIVE DEVICE

NOTES:

1. FOR SINGLE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 100' OF CIRCUIT LENGTH. FOR THREE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 200' OF CIRCUIT LENGTH. (ADJUST CONDUIT AS REQ'D).
2. VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL,IN ACCORDANCE WITH THE FLORIDA BUILDING CODE - ENERGY CONSERVATION, SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTOR BASES ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.
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BRANCH CIRCUIT WIRING SCHEDULE

SINGLE POLE (1P)				THREE POLE (3P)			
C/B SIZE	WIRE	CONDUIT	REMARKS	C/B SIZE	WIRE	CONDUIT	REMARKS
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25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	25a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10G.	3/4"	3Ø, 3W
35a.	2-#8, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10N, 1-#10G.	3/4"	3Ø, 4W
40a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#8, 1-#10G.	1"	3Ø, 4W
50a.	2-#8, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#10G.	1"	3Ø, 3W
60a.	2-#6, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#8N, 1-#10G.	1"	3Ø, 4W
TWO POLE (2P)				45a.	3-#8, 1-#10G.	1"	3Ø, 3W
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	45a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#10G.	1"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
40a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#6N, 1-#10G.	1 1/4"	3Ø, 4W
50a.	2-#8, 1-#10G.	1"	1Ø,2W	100a.	3-#3, 1-#3N, 1-#8G.	1 1/2"	3Ø, 4W
60a.	2-#6, 1-#10G.	1"	1Ø,2W	125a.	3-#1, 1-#1N, 1-#6G.	2"	3Ø, 4W
70a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	150a.	3-#1/0, 1-#1/0N, 1-#6G.	2"	3Ø, 4W
80a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	175a.	3-#2/0, 1-#2/0N, 1-#6G.	2'	3Ø, 4W
90a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W	200a.	3-#3/0, 1-#3/0N, 1-#6G.	2 1/2"	3Ø, 4W
100a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W				

NOTE: VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL, IN ACCORDANCE WITH THE FBC,SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTORBASED ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.

SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY.

⟨#⟩ KEYED NOTES - ELECTRICAL RISER DIAGRAM

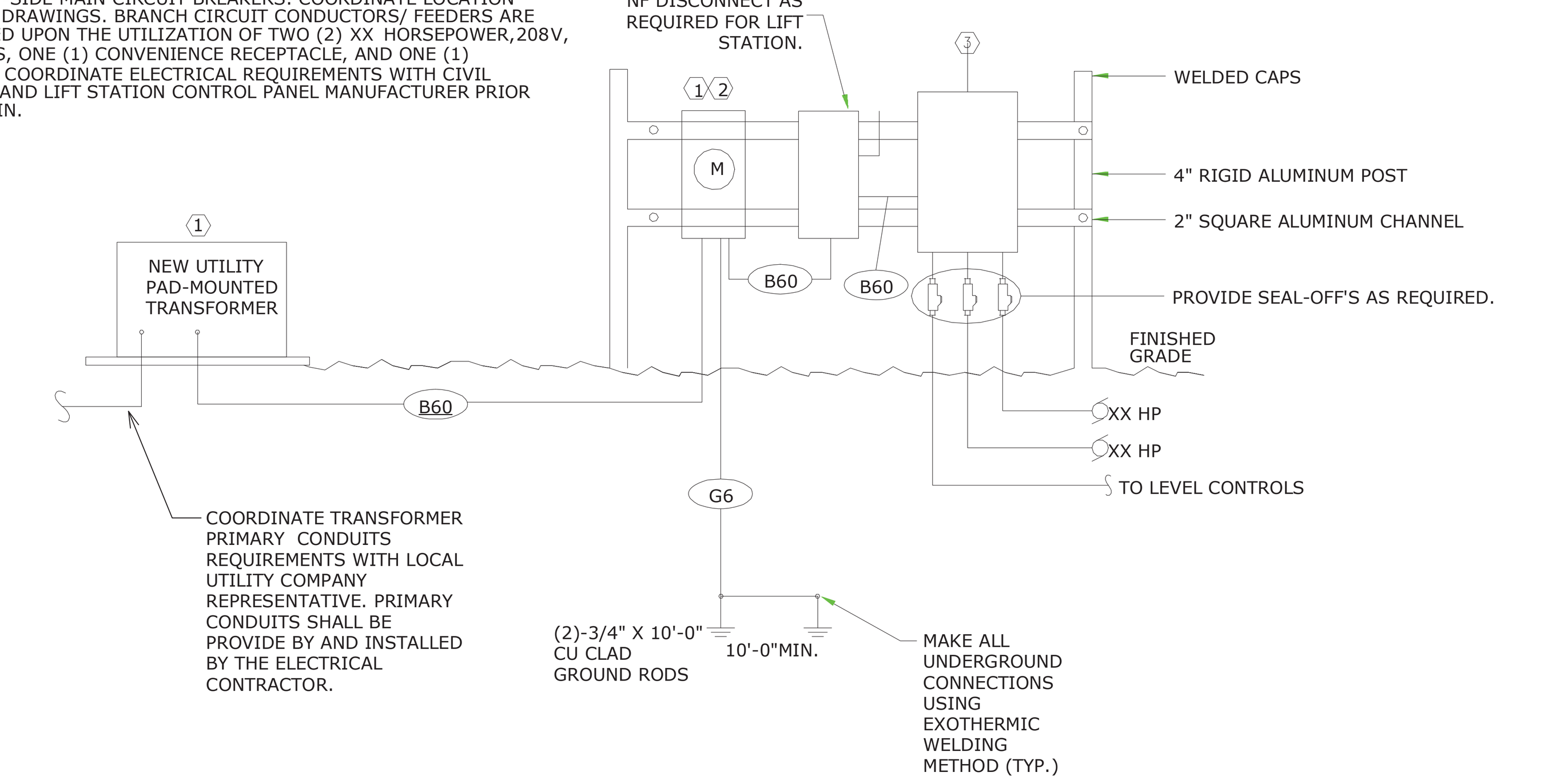
⟨1⟩ COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.

⟨2⟩ UTILITY METER MOUNTED ON CONCRETE PEDESTAL, COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.

KEYED NOTES - ELECTRICAL RISER DIAGRAM:

⟨3⟩ LIFT STATION CONTROL PANEL (BY OTHERS). CONTROL PANEL SHALL BE EQUIPPED WITH INTEGRAL, FACTORY-INSTALLED, NORMAL-SIDE AND EMERGENCY-SIDE MAIN CIRCUIT BREAKERS. COORDINATE LOCATION WITH CIVIL DRAWINGS. BRANCH CIRCUIT CONDUCTORS/ FEEDERS ARE SIZED BASED UPON THE UTILIZATION OF TWO (2) XX HORSEPOWER,208V, 3Ø MOTORS, ONE (1) CONVENIENCE RECEPTACLE, AND ONE (1) LUMINAIRE. COORDINATE ELECTRICAL REQUIREMENTS WITH CIVIL DRAWINGS AND LIFT STATION CONTROL PANEL MANUFACTURER PRIOR TO ROUGH-IN.

Ø MOTORS, ONE (1) CONVENIENCE RECEPTACLE, AND ONE (1)



2 ELECTRICAL RISER DIAGRAM - LIFT STATION
1/8" = 1'-0"

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01-05-2023
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PE 0071536

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△	DATE	SUBMISSION

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MILHAUS.

MILHAUS

SR-82

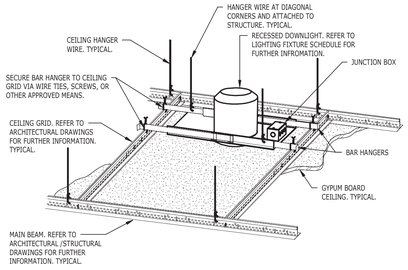
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL RISER DIAGRAM OF LIFT STATION AND DETAILS

SHEET NUMBER:
AE2.05

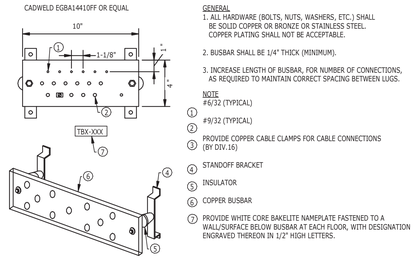
THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ANSI SHEETS ORIGINAL PAGE SIZE



NOTES:
1. FIXTURE SUPPORTS SHALL BE IN ACCORDANCE WITH N.E.C.
2. PROVIDE INDEPENDENT SUPPORTS TO THE STRUCTURE AS REQUIRED BY LOCAL ORDINANCES.
3. FIXTURES RECESSED IN FIRE-RATED ASSESMBLIES SHALL BE PROVIDED WITH LISTED, PREFABRICATED, FIRE-RATED ENCLOSURES. SITE-FABRICATED ENCLOSURES SHALL NOT BE AN ACCEPTABLE METHOD OF MAINTAINING THE RATING OF THE CEILING ASSEMBLY.

DOWNLIGHT IN GYPSUM BOARD CEILING
SCALE: NONE

1 DOWNLIGHT IN GYPBOARD CEILING DETAIL Copy 1

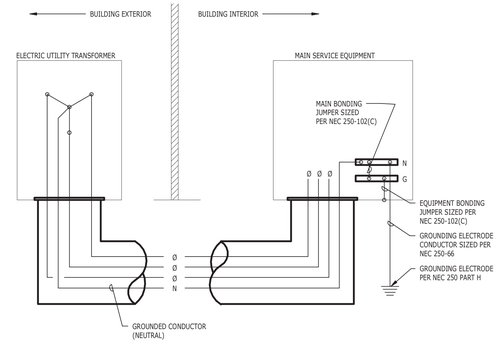


GENERAL
1. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) SHALL BE SOLID COPPER OR BRONZE OR STAINLESS STEEL. COPPER PLATING SHALL NOT BE ACCEPTABLE.
2. BUSBAR SHALL BE 1/4" THICK (MINIMUM).
3. INCREASE LENGTH OF BUSBAR, FOR NUMBER OF CONNECTIONS, AS REQUIRED TO MAINTAIN CORRECT SPACING BETWEEN LUGS.

NOTE
1. #6/32 (TYPICAL)
2. #9/32 (TYPICAL)
3. PROVIDE COPPER CABLE CLAMPS FOR CABLE CONNECTIONS (BY DIV.16)
4. STANDOFF BRACKET
5. INSULATOR
6. COPPER BUSBAR
7. PROVIDE WHITE CORE BAKELITE NAMEPLATE FASTENED TO A WALL/SURFACE BELOW BUSBAR AT EACH FLOOR, WITH DESIGNATION ENGRAVED THEREON IN 1/2" HIGH LETTERS.

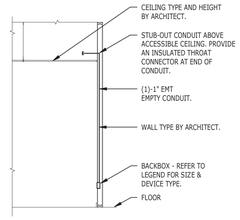
TYPICAL GROUND BUS BAR DETAIL
SCALE: NONE

4 TYPICAL GROUND BUS BAR DETAIL Copy 1



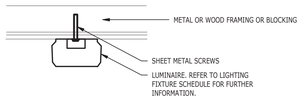
SERVICE ENTRANCE (MAIN SWITCHBOARD) GROUNDING DETAIL
SCALE: NONE

5 SWITCH BOARD GROUNDING DETAIL Copy 1



TYPICAL TELEPHONE/DATA OUTLET DETAIL
SCALE: NONE

2 TEL-DATA Copy 1



SURFACE-MOUNTED STRIP DETAIL
SCALE: NONE

3 SURFACE-MOUNTED STRIP Copy 1

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MILHAUS

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7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL DETAILS ACCESSORIES

SHEET NUMBER:
AE3.01

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ELECTRICAL NOTES AND SPECIFICATIONS:

1. DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF SYSTEMS AND INCLUDED IN THE CONTRACT. DRAWINGS ARE NOT TO BE SCALED . THE DRAWINGS AND DETAILS WILL BE EXAMINED FOR EXACT LOCATION OF FIXTURES AND EQUIPMENT . ANYTHING MENTIONED IN THE SPECIFICATION AND NOT SHOWN ON THE DRAWINGS , OR SHOWN ON THE DRAWINGS BUT NOT IN THE SPECIFICATIONS WILL INTERPRETED AS BEING IN BOTH. CONFLICTS WILL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE OWNER OR ENGINEER BEFORE BEFORE PROCEEDING WITH THE WORK.

2. THE ELECTRICAL CONTRACTOR TO FURNISH ALL EQUIPMENT, MATERIAL, LABOR, ETC. NECESSARY TO PROVIDE A COMPLETE , WORKABLE AND CODE APPROVED ELECTRICAL POWER DISTRIBUTION SYSTEM. ALL WORK TO BE DONE IN ACCORDANCE WITH THESE PLANS AND SPECIFICATIONS,LOCAL, STATE AND NATIONAL CODES.

3. THE ELECTRICAL CONTRACTOR WILL GIVE ALL NECESSARY NOTICES, OBTAIN ALL PERMITS AND PAY ALL GOVERNMENT FEES, SALES TAXES AND OTHER COSTS IN CONNECTION WITH HIS WORK, FILE ALL NECESSARY APPROVALS OF ALL GOVERNMENTAL DEPARTMENTS HAVING JURISDICTION,OBTAIN ALL REQUIRED CERTIFICATES OF INSPECTION FOR HIS WORK, AND DELIVER TO THE GENERAL CONTRACTOR THE SAME CERTIFICATES BEFORE REQUEST FOR ACCEPTANCE AND FINAL PAYMENT FOR THE WORK.

4. THE ELECTRICAL CONTRACTOR (E.C.) WILL GIVE FULL COOPERATION TO OTHER TRADES ANDWILL FURNISH IN WRITING TO THE GENERAL CONTRACTOR, ANY INFORMATION NECESSARY TO PERMIT THE WORK OF ALL TRADES TO BE INSTALLED SATISFACTORILY AND WITH THE LEAST POSSIBLE INTERFERENCE OR DELAY. THE E.C. MUST COORDINATE ALL CONDUIT RUNS AND EQUIPMENT MOUNTING LOCATIONS WITH OTHER TRADES PRIOR TO ROUGH-IN.

5. THE ELECTRICAL CONTRACTOR TO PROVIDE AND INSTALL ALL ELECTRICAL DEVICES AS SHOWN,VERIFYING ALL MOUNTING HEIGHTS AND EXACT LOCATIONS OF ALL WALL-MOUNTED ELECTRICAL DEVICES WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN. IN THE EVENT OF A CODE CONFLICT, THE CONTRACTOR WILL NOTIFY THE ARCHITECT/ENGINEER PRIOR TO COMMENCING THE WORK.

6. ALL SPARE CONDUITS TO BE INSTALLED FOR FUTURE USE WILL BE CAPPED WITH PULL WIRE INSTALLED. UNDERGROUND SPARE CONDUITS WILL BE STUBBED UP 12" A.F.F. WHERE INDICATED AND CAPPED WITH PULL WIRE. ALL CAPPED CONDUIT WILL BE LABELED WITH ITS PURPOSE.

7. THE ELECTRICAL CONTRACTOR WILL PROVIDE A COMPLETE GROUNDING SYSTEM PER APPLICABLE SECTIONS OF THE N.E.C. BOND SERVICE ENTRANCE GROUND TO BUILDING STEEL, METAL WATER MAINS, MADE ELECTRODES, ETC. AS NECESSARY.

8. ALL ELECTRICAL DISTRIBUTION EQUIPMENT TO HAVE ONLY COPPER BUSING. ALL EXTERIOR ELECTRICAL EQUIPMENT TO BE RAIN-PROOF TYPE NEMA 3R. ALL DISCONNECTS TO BE GENERAL DUTY TYPE. ALL EXTERIOR DISCONNECTS TO BE RAIN-PROOF TYPE NEMA 3R. ALL CIRCUIT BREAKERS TO BE 20A MINIMUM OR AS SHOWN ON THE PANEL SCHEDULES.

9. ALL DISCONNECTS SHALL BE HEAVY DUTY TYPE AND INSTALLED AS REQUIRED FOR CONDENSING AND AIR HANDLING UNITS, EXHAUST FANS, KITCHEN EQUIPMENT, WATER HEATERS, ETC.SUPPLIED BY MECHANICAL, PLUMBING AND FOOD SERVICE CONTRACTOR(S). SUPPLY AND INSTALL ALL REQUIRED CONDUIT AND DEVICE BOXES FOR HVAC TEMPERATURE CONTROLS.

10. ELECTRICAL CONTRACTOR TO SUPPLY ALL REQUIRED DISCONNECTS AND WIRE ALL EXHAUST FANS, AIR HANDLER UNITS, CONDENSING UNITS, SMOKE DAMPERS, ETC. PROVIDED BY THE MECHANICAL E.C. WILL V ERIFY NAMEPLATE RATINGS OF ALL MECHANICAL EQUIPMENT PRIOR TO ROUGH-IN. E.C. TO PROVIDE DISCONNECTS AND CIRCUIT BREAKERS PER NAMEPLATE RATING.THE E.C. SHALL PROVIDE ALL HANDWARE (CONTROL RELAYS, LOW VOLTAGE TRANSFORMER POWER SUPPLIES, & ENCLOSURES) FOR THE PROPER OPERATION OF MECH. UNITS, EXHAUST FANS & SMOKE DAMPERS PER THE "SEQUENCE OF OPERATIONS"AS DETAILED ON THE MECHANICAL PLANS. THE E.C. WILL NOTIFY THE ARCHITECT/ENGINEER OF ANY CHANGES REQUIRED TO CIRCUITING PRIOR TO COMMENCING THE WORK.

11. ALL INTERIOR POWER/LIGHTING CIRCUITS TO BE 2-#12, 1-#12 G. IN MINIMUM 1/2" C.W/MAXIMUM 30% FILL, UNLESS SHOWN OTHERWISE ON THE PLANS. INTERIOR HOME RUNS TO BE A MINIMUM OF 3/4" C. W/MAXIMUM 40% FILL. ALL EXTERIOR LIGHTING CIRCUITS TO BE A 10G TO THE REMAINING FIXTURES OR AS INDICATED ON PLANS. ALL UNDERGROUND CONDUIT TO BE A MINIMUM OF 1". TYPE MC CABLE HAVING STRANDED COPPER CONDUCTORS SHALL BE ACCEPTABLE FOR BRANCH CIRCUITS IN CONDITIONED SPACES ONLY.ALL FEEDER CONDUCTORS SHALL BE COPPER WITH TYPE THHN INSULATION. TYPE XHHW-2 OR THWN-2 SHALL BE USED FOR CONDUCTORS INSTALLED IN WET AND DAMP LOCATIONS. SPECIFIC EQUIPMENT CIRCUITS (HVAC,PUMPS, WATER HEATERS, ETC.) SHALL BE AS REQUIRED PER NAMEPLATE RATING(S).

12. THE ELECTRICAL CONTRACTOR SHALL PROPERLY AND PERMANENTLY IDENTIFY ALL BOXES,ENCLOSURES, ETC. FOR EMERGENCY CIRCUITS IN ACCORDANCE WITH NEC 700.10. LABEL ALL PANEL CIRCUITS TO IDENTIFY UNIT EQUIPMENT CONNECTED IN ACCORDANCE WITH NEC 700.12(F).

13. ELECTRICAL CONTRACTOR WILL CONTACT LOCAL ELECTRICAL UTILITY AND COORDINATE EXACTLOCATION OF ELECTRICAL SERVICE SOURCE. THE CONTRACTOR SHALL COORDINATE SHORT CIRCUIT RATING (A.I.C.) WITH UTILITY PRIOR TO BID AND PROVIDE THE APPROPRIATE SHORT CIRCUIT RATINGS FOR ALL ELECTRICAL EQUIPMENT. COORDINATE USE OF HAND HOLE / UTILITY POLE / PAD MOUNT TRANSFORMER PRIOR TO BID AND/OR ROUGH-IN.

14. MINOR DETAILS, NOT USUALLY SHOWN OR SPECIFIED, BUT NECESSARY FOR PROPER OPERATION AND CONSISTENT WITH GOOD WORKMANSHIP, WILL BE INCLUDED IN THE ESTIMATE, THE SAME AS IF SHOWN ON DRAWINGS.

15. PROVIDE CONDUIT STUBS, BACK BOXES AND PULL STRINGS ETC. FOR ALL LOW VOLTAGE SYSTEMS PROVIDED BY OTHERS TO DEVICES LOCATED IN ALL SPACES. PROVIDE SEPARATE PERMITS FOR ALL LOW VOLTAGE SYSTEMS.

* ALL MATERIALS FURNISHED AND ALL WORK INSTALLED UNDER THIS SECTION SHALL COMPLY WITH THE FOLLOWING:

  * LIFE SAFETY CODE NFPA 101-2018
  * APPLICABLE NFPA FIRE CODES
  * NATIONAL BUREAU OF FIRE UNDERWRITERS
  * ACCESSIBILITY FOR THE HANDICAPPED ANSI A117
  * AMERICANS WITH DISABILITIES ACT ACCESSIBILITY GUIDELINES
  * FLORIDA DEPARTMENT OF COMMUNITY AFFAIRS ACCESSIBILITY REQUIREMENTS MANUAL
  * NATIONAL ELECTRICAL CODE NFPA 70-2017
  * THE SERVING UTILITY COMPANIES
  * FLORIDA BUILDING CODE 2020, SEVENTH EDITION
  * FLORIDA BUILDING CODE - ENERGY CONSERVATION 2020
  * FLORIDA BUILDING CODE - MECHANICAL 2020
  * FLORIDA BUILDING CODE - PLUMBING 2020

16. ALL ELECTRICAL SYSTEM COMPONENTS AND INSTALLATIONS SHALL BE WARRANTED TO BE FREE OF DEFECTS (MATERIALS AND LABOR) FOR A PERIOD OF NOT LESS THAN ONE (1) YEAR FROM RECEIPT OF CERTIFICATE OF OCCUPANCY. THE CONTRACTOR SHALL PROVIDE FOR OWNER'S OPTION A MAINTENANCE CONTRACT AND/OR AN EXTENDED WARRANTY

17. CONTRACTOR TO PROVIDE MANUFACTURER CERTIFICATION, WITH SHOP DRAWING SUBMITTALS, THAT POLE ASSEMBLY WITH SPECIFIED HEADS AND ALL SPECIFIED OPTIONS MEETS WIND LOAD REQUIREMENTS PER 2020 FLORIDA BUILDING CODE FIGURE 1609.3. ELECTRICAL CONTRACTOR TO SUBMIT MANUFACTURER RECOMMENDED CHANGES FOR A CODE COMPLYING INSTALLATION TO OWNER/ENGINEER FOR APPROVAL. ADDITIONALLY, CONTRACTOR SHALL PROVIDE CERTIFICATION THAT POLE MOUNTING METHOD; I.E.,DIRECT BURY/ANCHOR BASE MEETS THE ABOVE REQUIREMENTS. POLE MOUNTING CERTIFICATION SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.

18.ELECTRICAL CONTRACTOR TO PROVIDE AS-BUILT DOCUMENTS, OPERATION MANUALS, MAINTENANCE MANUALS TO THE OWNER WITHIN 30 DAYS OF ACCEPTANCE OF SYSTEMS AS PER FBC C405.5.4.

ELECTRICAL COMMISIONING

BUILDING COMMISSIONING
GENERAL REQUIREMENTS:
THE 2020 FLORIDA BUILDING CODE - "ENERGY CONSERVATION" PROVIDES THE REQUIREMENTS FOR COMMERCIAL BUILDING EFFICIENCY. THE CODE DEFINES THE ENERGY EFFICIENCY REQUIREMENTS FOR THE ELECTRICAL POWER AND LIGHTING SYSTEM, TOTAL BUILDING PERFORMANCE, AND COMMISSIONING.THIS CODE CHAPTER REQUIRES A CERTAIN SET OF ACTIVITIES AND PROCESSES TO BE ADMINISTERED AND DOCUMENTED IN ACCORDANCE WITH DEFINED STANDARDS. THIS SPECIFICATION IS THE OWNER'S MEANS OF VERIFYING THAT THE PLANNING, DESIGN,CONSTRUCTION AND OPERATION OF ELECTRICAL SYSTEMS ACHIEVE THEIR GOALS AND DELIVER A HIGH QUALITY BUILDING WITH MAXIMUM ASSET VALUES.

COMMISSIONING OF THE BUILDING ELECTRICAL POWER AND LIGHTING SYSTEMS AS PER SECTION 408 SHALL BE AS DEFINED HEREIN. PRIOR TO PASSING THE FINAL ELECTRICAL INSPECTION, THE CONTRACTOR SHALL PROVIDE EVIDENCE OF SYSTEM COMMISSIONING AND COMPLETION IN ACCORDANCE WITH THE PROVISIONS OF THIS SECTION CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE DOCUMENTED PERFORMANCE CRITERIA OF SECTION C405 AND SUBMIT TO THE REGISTERED DESIGN PROFESSIONAL (ENGINEER OF RECORD) FOR APPROVAL, AND TO THE BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATION OF OCCUPANCY.

ELECTRICAL SYSTEMS TO BE COMMISSIONED INCLUDE:
ALL AUTOMATIC CONTROLS FOR INTERIOR AND EXTERIOR LIGHTING/ELECTRICAL SYSTEMS SHALL BE SUBJECT TO THESE REQUIREMENTS.
SCOPE:
FUNCTIONAL TESTING PRIOR TO PASSING FINAL INSPECTION, THE REGISTERED DESIGN PROFESSIONAL SHALL PROVIDE EVIDENCE THAT THE LIGHTING CONTROL SYSTEMS HAVE BEEN TESTED TO ENSURE THAT CONTROL AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURE'S INSTRUCTIONS. FUNCTIONAL TESTING SHALL BE IN ACCORDANCE WITH SECTIONS C408.3.1.1 THRU C408.3.1.3 FOR THE APPLICABLE CONTROL TYPE.

THE PROJECT GENERAL CONTRACTOR SHALL HIRE A FIRM QUALIFIED IN THE TESTING OF LIGHTING AND ELECTRICAL SYSTEM PERFORMANCE FUNCTIONALITY OF THE SYSTEMS LISTED IN THIS SPECIFICATION. THE TESTING FIRM SHALL DETERMINE THE EXTENT AND SCOPE OF THE SYSTEMS REQUIRING COMMISSIONING NEEDED ON A PROJECT BASIS.

A FUNCTIONAL PERFORMANCE TEST SHALL BE CONDUCTED TO DEMONSTRATE THE INSTALLATION AND OPERATION OF COMPONENTS, SYSTEMS,AND SYSTEM-TO-SYSTEM INTERFACING RELATIONSHIPS IN ACCORDANCE WITH APPROVED PLANS AND SPECIFICATIONS SUCH THAT OPERATION,FUNCTION, AND MAINTENANCE SERVICEABILITY FOR EACH OF THE COMMISSIONED SYSTEMS IS CONFIRMED. TESTING SHALL INCLUDE ALL MODES AND SEQUENCE OF OPERATION, INCLUDING UNDER FULL-LOAD, PART-LOAD AND THE FOLLOWING EMERGENCY CONDITIONS:

* ALL MODES AS DESCRIBED IN THE SEQUENCE OF OPERATION OR MANUFACTURES OPERATING INSTRUCTIONS
* REDUNDANT OR AUTOMATIC BACK-UP MODE
* PERFORMANCE OF LIGHTING OVERRIDE
* MODE OF OPERATION UPON A LOSS OF POWER AND RESTORATION OF POWER.

THE GENERAL CONTRACTOR SHALL:
* INCORPORATE COMMISSIONING ACTIVITIES INTO THE CONSTRUCTION SCHEDULE.
* FACILITATE COOPERATION OF SUB-CONTRACTORS IN COMMISSIONING WORK.
* PROVIDE SUB-CONTRACTOR ASSISTANCE IN OPERATING EQUIPMENT TO BE COMMISSIONED.
* INSURE EQUIPMENT START-UP IS COMPLETE PRIOR TO BEGINNING THE COMMISSIONING PROCESS.
* WORK WITH SUB-CONTRACTORS IN DEVELOPING A TRAINING SCHEDULE AND PLAN FOR APPROVAL BY THE OWNER.
* VERIFY THE PRE-FUNCTIONAL CHECKLISTS ARE COMPLETED PRIOR TO SYSTEM TESTING.
* VERIFY THE EQUIPMENT START-UP AND CONTROLS VERIFICATIONS ARE COMPLETE.
* INSURE RESOLUTION OF NON-COMPLIANT AND DEFICIENT CONSTRUCTION RELATED ITE IDENTIFIED BY THE COMMISSIONING TEAM.
* ASSIST IN WARRANTY REVIEW OF SYSTEM AND EQUIPMENT PERFORMANCE.THE SUB-CONTRACTORS SHALL:

* PREPARE OWNER TRAINING PLAN FOR INSTALLED EQUIPMENT AND CONTROLS.
* PROVIDE NECESSARY PERSONNEL TO ASSIST THE ELECTRICAL TESTING AGENT IN HIS RESPONSIBILITIES DESCRIBED LATER IN THIS SPECIFICATION.
* PREPARE AND SCHEDULE EQUIPMENT START-UP WITH THE GENERAL CONTRACTOR AND ELECTRICAL TESTING AGENT.
* EXECUTE ALL REQUIRED EQUIPMENT AND SYSTEM TESTING AS MANDATED BY 2020 FLORIDA BUILDING CODE, PROJECT PLANS AND SPECIFICATION.
* ENSURE INSTALLATION WORK IS COMPLETE AND IN COMPLIANCE WITH THE CONTRACT DOCUMENTS AND READY FOR FUNCTION PERFORMANCE TESTING.
* PROVIDE CERTIFIED AND CALIBRATED INSTRUMENTATION REQUIRED TO TAKE MEASUREMENTS OF SYSTEM AND EQUIPMENT PERFORMANCE DURING THE FUNCTIONAL PERFORMANCE TESTING.PERFORMANCE DURING THE FUNCTIONAL PERFORMANCE TESTING.
* PREPARE CLOSEOUT DOCUMENTS INCLUDING BUT NOT LIMITED TO:
* AS-BUILT DRAWINGS
* WARRANTIES.
* OPERATIONAL AND MAINTENANCE MANUALS FOR INSTALLED EQUIPMENT.
* DELIVERY OF ANY SPARE PARTS REQUIRED BY THE PROJECT SPECIFICATION.

THE CODE OFFICIAL SHALL BE PERMITTED TO REQUIRE THAT A COPY OF THE FINAL COMMISSIONING REPORT BE MADE AVAILABLE FOR HIS/HER REVIEW.

CONSTRUCTION DOCUMENTS SHALL INCLUDE THE LOCATION ON EACH PIECE OF EQUIPMENT.

AN OPERATION AND MAINTENANCE MANUAL SHALL BE PROVIDED AND INCLUDE ALL OF THE FOLLOWING:
* SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE.
* MANUFACTURER'S OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE,
* EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTI MAINTENANCE ACTIONS SHALL BE CLEARLY EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT.REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED.

A REPORT OF TEST PROCEDURES AND RESULTS IDENTIFIED AS “FINAL COMMISSIONING REPORT” SHALL BE DELIVERED TO THE BUILDING OWNER AND SHALL INCLUDE:

* RESULTS OF FUNCTIONAL PERFORMANCE TESTS.
* DISPOSITION OF DEFICIENCIES FOUND DURING TESTING, INCLUDING DETAILS OF CORRECTIV MEASURES USED OR PROPOSED.
* FUNCTIONAL PERFORMANCE TEST PROCEDURES USED DURING THE COMMISSIONING PROCESS INCLUDING MEASURABLE CRITERIA FOR TEST ACCEPTANCE, PROVIDED HEREIN FOR REPEATABILITY.CONTROLS FOR AUTOMATIC LIGHTING SYSTEMS SHALL COMPLY AS FOLLOWS:

1. TESTING SHALL ENSURE THAT CONTROL HARDWARE AND SOFTWARE ARE CALIBRATED, ADJUSTED, PROGRAMMED AND IN PROPER WORKING CONDITION IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND MANUFACTURER'S INSTALLATION INSTRUCTIONS.

2. AN APPROVED THIRD PARTY INDEPENDENT FROM THE DESIGN OR CONSTRUCTION OF THE PROJECT SHALL BE RESPONSIBLE FOR THE FUNCTIONAL TESTING AND SHALL PROVIDE DOCUMENTATION TO THE OWNER, REGISTERED DESIGN PROFESSIONAL AND CODE OFFICIAL CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET THE PROVISIONS OF SECTION C405. WHERE OCCUPANT SENSORS, TIME SWITCHES, PROGRAMMABLE SCHEDULE CONTROLS, PHOTOSENSORS OR DAYLIGHTING CONTROLS ARE INSTALLED, THE FOLLOWING PROCEDURES SHALL BE PERFORMED:
a. CONFIRM THAT THE PLACEMENT, SENSITIVITY AND TIME-OUT ADJUSTMENTS FOR OCCUPANT SENSORS YIELD ACCEPTABLE PERFORMANCE AS PER FBC-C408.3.
b. CONFIRM THAT THE TIME SWITCHES AND PROGRAMMABLE SCHEDULE CONTROLS ARE PROGRAMMED TO TURN THE LIGHTS OFF AS PER THE OWNER SCHEDULE AND FBC-C408.3.1.2.
c. CONFIRM THAT THE PLACEMENT AND SENSITIVITY ADJUSTMENTS FOR PHOTOSENSOR CONTROLS REDUCE ELECTRIC LIGHT BASED ON THE AMOUNT OF USABLE DAYLIGHT IN THE SPACE AS SPECIFIED AND PER C408.3.

ELECTRICAL IDENTIFICATION NOTES

PRODUCTS AND MATERIALS
ALL LABELS SHALL BE PERMANENT AND MACHINE-PRODUCED. HANDWRITTEN LABELS SHALL NOT BE ACCEPTABLE, UNLESS OTHERWISE INDICATED.

CONDUCTOR/CABLING LABELS: ALL CONDUCTOR/CABLING LABELS SHALL BE CONSTRUCTED OF TRANSPARENT VINYL OR VINYL CLOTH, SELF-LAMINATING TAPE. FLAG-TYPE LABELS SHALL NOT BE ACCEPTABLE. LABELS SHALL BE SIZED TO ACCOMMODATE THAT CIRCUMFERENCE OF THE CONDUCTOR/ CABLE.

CONDUCTOR/CABLING IDENTIFICATION TAPE: CONDUCTOR/CABLING IDENTIFICATION TAPE SHALL BE SCOTCH #35 VINYL ELECTRICAL TAPE, COLORED IN ACCORDANCE WITH THE SYSTEM VOLTAGE AND TYPE OF CONDUCTOR.

NAMEPLATES: NAMEPLATES SHALL BE PHENOLIC, ENGRAVED TYPE. EMBOSSED TAPE SHALL NOT BE ACCEPTABLE. NORMAL SYSTEMS SHALL UTILIZE WHITE LETTERS ON A BLACK BACKGROUND. EMERGENCY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A RED BACKGROUND. LEGALLY-REQUIRED STANDBY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A BLUE BACKGROUND. OPTIONAL STANDBY SYSTEMS SHALL UTILIZE WHITE LETTERS ON A YELLOW BACKGROUND.

ADHESIVE LABELS: ADHESIVE LABELS SHALL NOT BE ACCEPTABLE, EXCEPT FOR THE IDENTIFICATION OF CONDUCTORS/CABLING, DEVICE FACEPLATES, AND JUNCTION BOXES SIZED 8" SQ. OR SMALLER.

GENERAL
WHERE MULTIPLE SYSTEM VOLTAGES (E.G. 480/277V, 208/120V, ETC.) ARE UTILIZED IN THE SAME BUILDING, ALL DISCONNECT SWITCHES, JUNCTION BOXES, PANELBOARDS, SWITCHBOARDS, TRANSFORMERS, AND MISCELLANEOUS EQUIPMENT SHALL BE LABELED TO INDICATE THE SYSTEM VOLTAGE, IN ADDITION TO THE REQUIREMENTS LISTED BELOW.

CLEAN ALL MOUNTING SURFACES PRIOR TO AFFIXING LABELS. UTILIZE THE LABEL MANUFACTURER'S RECOMMENDED CLEANING AGENT. INSTALL LABELS NEATLY AND FIRMLY AND IN ACCORDANCE WITH THE LABEL MANUFACTURER'S RECOMMENDATIONS.

AFFIX NAMEPLATES TO EQUIPMENT UTILIZING SCREWS, RIVETS, OR OTHER MATERIALS APPROVED BY THE MANUFACTURER.

PROVIDE A PLACARD AT EACH SERVICE DISCONNECT WITH THE WORDS "SERVICE DISCONNECT." LOCATE ABOVE THE MAIN DISCONNECT SWITCH OR CIRCUIT BREAKER.

JUNCTION BOX AND PULL BOX IDENTIFICATION
JUNCTION BOXES AND PULL BOXES SHALL BE IDENTIFIED UTILIZING SPRAY-PAINTED COVERS AS FOLLOWS:

SECONDARY POWER - 480Y/277V	BROWN
SECONDARY POWER - 208Y/120V, 240/120V	WHITE
EMERGENCY SYSTEM - LIFE SAFETY BRANCH (NEC 700) - 480Y/277V	BROWN/RED
EMERGENCY SYSTEM - LIFE SAFETY BRANCH (NEC 700) - 208Y/120V	WHITE/RED
LEGALLY REQUIRED STANDBY SYSTEM (NEC 701) - 480Y/277V	BROWN/BLUE
LEGALLY REQUIRED STANDBY SYSTEM (NEC 701) - 208Y/120V	WHITE/BLUE
OPTIONAL STANDBY SYSTEM (NEC 702) - 480Y/277V	BROWN/YELLOW
OPTIONAL STANDBY SYSTEM (NEC 702) - 208Y/120V	WHITE/YELLOW
FIRE ALARM	RED
TEMPERATURE CONTROL	GREEN
DOOR CONTROL AND DOOR MONITORING SYSTEM	ORANGE
SOUND AND INTERCOM SYSTEMS	GRAY
VIDEO SURVEILLANCE SYSTEM/MATV	YELLOW
DATA	BLUE JUNCTION

BOXES AND PULL BOXES FOR POWER CONDUCTORS SHALL BE LABELED WITH CIRCUIT NUMBERS AND SOURCE PANELBOARD DESIGNATIONS. JUNCTION BOXES AND PULL BOXES FOR OTHER SYSTEMS SHALL BE IDENTIFIED IN ACCORDANCE WITH THE SHOP DRAWINGS FOR THEIR RESPECTIVE SYSTEMS.

EXPOSED JUNCTION BOXES EXCEEDING A SIZE OF 8" SQ. SHALL BE IDENTIFIED WITH PHENOLIC, ENGRAVED PLACARDS. LETTERING HEIGHT SHALL BE A MINIMUM OF 1/2". IDENTIFY THE SYSTEM SOURCE(S) AND LOAD(S) SERVED.

EXPOSED JUNCTION BOXES 8" SQ. AND SMALLER SHALL BE IDENTIFIED WITH ADHESIVE LABELS.

JUNCTION BOXES INSTALLED ABOVE AN ACCESSIBLE CEILING SHALL BE PERMITTED TO BE IDENTIFIED VIA PERMANENT MARKER. LETTERING SHALL BE NEAT AND LEGIBLE.

COMMUNICATIONS CONDUIT LABELING
ALL CONDUITS INSTALLED BETWEEN ELECTRICAL AND/OR INFORMATION TECHNOLOGY (I.T.) ROOMS SHALL BE LABELED IN ACCORDANCE WITH ANSI/TIA/EIA-606. BOTH TERMINATION POINTS OF THE CONDUITS SHALL BE IDENTIFIED.

ALL LABELS SHALL BE MACHINE-PRODUCED. HANDWRITTEN LABELS SHALL NOT BE ACCEPTABLE.

THE LABEL SHALL INDICATE THE LOCATION OF THE TERMINATION POINT OF THE CONDUIT AND A UNIQUE IDENTIFICATION NUMBER.

POWER AND LOW-VOLTAGE CONDUCTOR/CABLE IDENTIFICATION
PROVIDE CONDUCTOR/CABLE LABELS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, JUNCTION BOXES, PULL BOXES, AND OUTLET BOXES AT LOAD CONNECTIONS. IDENTIFY THE BRANCH CIRCUIT OR FEEDER NUMBER FOR ALL POWER AND LIGHTING BRANCH CIRCUITS. FOR LOW-VOLTAGE SYSTEMS, INDICATE THE WIRE NUMBER IN ACCORDANCE WITH SHOP DRAWINGS.

ALL CONDUCTORS/CABLING SHALL BE LABELED WITHIN 2 TO 4 INCHES OF TERMINATION. EACH END OF A CONDUCTOR/CABLE SHALL BE LABELED IMMEDIATELY UPON TERMINATION.

WIRING DEVICE IDENTIFICATION
WALL SWITCHES, RECEPTACLES, OCCUPANCY SENSORS, DEVICE PLATES, BOX COVERS, POKE-THROUGH FITTINGS, ACCESS FLOOR BOXES, PHOTOCELLS, AND TIME CLOCKS SHALL BE IDENTIFIED WITH CIRCUIT NUMBERS AND SOURCE. IN EXPOSED SPACES, IDENTIFICATION SHALL BE MADE INSIDE OF DEVICE COVERS. USE MACHINE-PRODUCED ADHESIVE LABELS OR PERMANENT MARKER. HANDWRITTEN LABELS SHALL BE NEAT AND LEGIBLE.

NAMEPLATES FOR ELECTRICAL EQUIPMENT
PROVIDE NAMEPLATES OF THE MINIMUM LETTER HEIGHT AS LISTED BELOW.

DISTRIBUTION PANELBOARDS, SUBPANELS, AND SWITCHBOARDS: 1 INCH NAME PLATE MIN. IDENTIFY THE SYSTEM VOLTAGE,SOURCE, AND LOCATION OF THE SOURCE. FOR 240V/3PH SYSTEMS: PROVIDE PANELBOARD IDENTIFICATION AS REQUIRED BY 2017 NEC SECTION 408.3; PANELS SHALL BE MARKED "CAUTION B PHASE HAS 208 VOLTS TO GROUND" WITH PHENOLIC ENGRAVED LABEL.

ENCLOSED CIRCUIT BREAKERS AND DISCONNECT SWITCHES: 1/2 INCH NAME PLATE MIN. IDENTIFY THE SOURCE CIRCUIT, LOAD SERVED, AND LOCATION.

TRANSFORMERS: 1 INCH NAME PLATE MIN. IDENTIFY PRIMARY AND SECONDARY VOLTAGES, PRIMARY SOURCE AND LOCATION, SECONDARY LOAD AND LOCATION.

PANELBOARD/SWITCHBOARD DIRECTORIES
SHALL BE TYPEWRITTEN AND COVERED WITH CLEAR PLASTIC WITH METAL FRAMING.

Jon Shepard
Digitally signed by Jon Shepard
Location: Florida
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NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL NOTES

SHEET NUMBER:
CE0.00

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON ANSI D SHEETS ORIGINAL PAGE SIZE

LIGHTING CONTROL LEGEND

SYMBOL	DESCRIPTION
$	SINGLE POLE SWITCH, MOUNT 48" AFF U.O.N.
$3	THREE-WAY/FOUR-WAY SWITCH RESPECTIVELY, MOUNT 48" AFF U.O.N.
$M	MOTOR-RATED SWITCH, SINGLE/DOUBLE POLE AS INDICATED ON PLANS
$D	SLIDE DIMMER W/PRESET ON/OFF SWITCH, MATCH DIMMER RATING WITH ASSOCIATED LOAD, MOUNT 48" AFF U.O.N.
$T	SPRINGWOUND TIMER SWITCH, INTERMATIC "P"-SERIES, MOUNT 48" AFF U.O.N.
$OC	WALL SWITCH OCCUPANCY SENSOR (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$OC3	WALL SWITCH OCCUPANCY SENSOR 3-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$OC4	WALL SWITCH OCCUPANCY SENSOR 4-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC	WALL SWITCH VACANCY SENSOR (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC3	WALL SWITCH VACANCY SENSOR 3-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$VC4	WALL SWITCH VACANCY SENSOR 4-WAY (DUAL), LEGRAND "RW3U600" (24'W X 25'L), MOUNT 48" AFF U.O.N.
$DV	WALL SWITCH DIMMING VACANCY SENSOR (DUAL), LEGRAND "DW-311", MOUNT 48" AFF U.O.N.
OC1	CEILING MOUNT OCCUPANCY SENSOR (120-277V), LEGRAND "DT-355" (360 DEG 25'W), MOUNT 8' AFF U.O.N.
$K	KEY SWITCH, MOUNT 48" AFF U.O.N.
$C	COMBINATION FAN SPEED CONTROL & FAN LIGHT SWITCH, MOUNT 48" U.O.N.

LIGHTING SYMBOL LEGEND

SYMBOL	DESCRIPTION
	EXIT SIGN - FACES AS REQUIRED - WITH BATTERY BACKUP
	EXIT SIGN W/DIRECTION ARROW - FACES AS REQUIRED - WITH BATTERY BACKUP
EM	EMERGENCY LIGHT FIXTURE WITH BATTERY BACKUP (CONNECT TO LINE SIDE OF NEAREST SWITCH SERVING THAT AREA OR ON THE LINE SIDE OF LIGHTING CONTROL PANEL THAT CONTROLS THE LIGHTING CIRCUIT IN THAT AREA).
	EMERGENCY LIGHT REMOTE HEAD.
	EMERGENCY LIGHT FIXTURE WITH INTEGRAL BATTERY BACKUP.

LOW VOLTAGE LEGEND

SYMBOL	DESCRIPTION
	CCTV CAMERA, CEILING-MOUNTED "C" OR WALL-MOUNTED "W" AS INDICATED
SC	SECURITY CONTACT DOOR/WINDOW ECT.
ML	MAGNETIC LOCK
DSL	DOOR STRIKE LOCK
PR	PROX READER
PDR	PROX READER LIGHTED EXIT PUSH BUTTON FOR DOOR RELEASE.
PB	PANIC BUTTON
R	SECURITY SYSTEM RELAY
KP	SECURITY SYSTEM KEYPAD
DR	EXIT PUSH BUTTON FOR DOOR RELEASE.
	HANDICAP EXIT PUSH PLATE DOOR OPENER.
S	SIREN
M	SECURITY SYSTEM MOTION DETECTOR
D	MOTION DETECTOR FOR DOOR RELEASE
SEC	SECURITY CONTROL PANEL.
H	HDMI CABLE OUTLET, PROVIDE 4" SQ. J-BOX w/1-GANG PLASTER RING AND COVER PLATE.

POWER SYMBOL LEGEND

SYMBOL	DESCRIPTION
	SIMPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	DUPLEX RECEPTACLE, MOUNT 42" AFF (48" AFF IN TOILETS/UTILITY CLOSETS) U.O.N.
	SWITCHED SPLIT-WIRE DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	FLOOR MOUNTED DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	FLOOR MOUNTED SWITCHED SPLIT-WIRE DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	CEILING MOUNTED DUPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	QUADRAPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	QUADRAPLEX RECEPTACLE, MOUNT 42" AFF U.O.N.
	SWITCHED SPLIT-WIRE QUADRAPLEX RECEPTACLE, MOUNT 18" AFF U.O.N.
	FLOOR MOUNTED QUADRAPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	FLOOR MOUNTED SWITCHED SPLIT-WIRE QUADRAPLEX RECEPTACLE. REFER TO PLANS FOR SIZE & CONFIGURATION.
	10, 208/240-VOLT SPECIAL PURPOSE RECEPTACLE, MOUNT 18" AFF U.O.N.
	BUILDING EXTERIOR/ROOF-MOUNTED WEATHER-RESISTANT DUPLEX RECEPTACLE, MOUNT 18" AFF U.O.N. DEVICE SHALL INCLUDE WEATHERPROOF BACK-BOX WITH DIE-CAST, WEATHERPROOF IN-USE LOCKING COVER - INTERMATIC WP3110MXD. RECEPTACLE SHALL BE G.F.I. PROTECTED EITHER AT THE RECEPTACLE OR FROM THE CIRCUIT BREAKER IN THE PANELBOARD SERVING CKT. IF TOTAL BRANCH CIRCUIT ONE-WAY LENGTH IS GREATER THAN 200', UTILIZE GFCI RECEPTACLES IN PLACE OF GFCI BREAKER (PER MANUFACTURER RECOMMENDATIONS).
RCR	RECEPTACLE CONTROL RELAY
	TELECOM OUTLET (DATA/TELEPHONE) - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	DATA OUTLET - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	TELECOM OUTLET(DATA/TELEPHONE) - MOUNT 84" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESSIBLE CEILING. PROVIDE PULLSTRING.
	FLOOR/CEILING-MOUNTED TELECOM OUTLET. REFER TO PLANS FOR BOX TYPE, CONDUIT SIZE/QUANTITY & CONFIGURATION.
TV	CABLE TELEVISION OUTLET - MOUNT 18" AFF U.O.N., 4" SQ. J-BOX w/1-GANG PLASTER RING, 1"C TO ACCESS. CLG. PROVIDE PULLSTRING.
TTB	TTB (TELEPHONE TERMINAL BOARD) MARINE PLYWOOD BACKBOARD 3/4"x4'x4' PAINTED W/FIRE RETARDANT GRAY PAINT. PROVIDE (2)4" CONDUITS TO PROPERTY LINE. COORDINATE FINAL CONDUIT SIZES AND LOCATIONS W/UTILITY. PROVIDE SOLID COPPER GROUND BAR WITH INSULATED STAND-OFFS.
J	JUNCTION BOX(4"X4"X2"), MOUNT 18" AFF U.O.N.
MS	MOTORIZED SHADES
LC	LIGHTING CONTROLLER
TC	TIMECLOCK WITH INTEGRAL MANUAL OVERRIDE USE INTERMATIC ET SERIES OR EQUAL.
PTD	POWER TRANSFER DEVICE/RELAY.
PC	STEM AND SWIVEL MOUNT PHOTOCELL USE INTERMATIC SERIES K4221C FOR 120V AND K4223C FOR 277V OR EQUAL.
	ELECTRICAL PANELBOARD (SURFACE OR FLUSH-MOUNTED AS SHOWN). REFER TO SCHEDULES/RISER FOR INFO.
M	MOTORIZED DAMPER
	ENCLOSED CIRCUIT BREAKER. PROVIDE WEATHERPROOF ENCLOSURE FOR EXTERIOR APPLICATIONS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED SWITCH AS DISC. PROVIDE WEATHERPROOF ENCLOSURE FOR EXTERIOR APPLICATIONS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED COMBINATION MOTOR STARTER DISC. PROVIDE WP ENCLOSURE FOR EXT. APPS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
	HP RATED MOTOR STARTER. PROVIDE WP ENCLOSURE FOR EXT. APPS. VERIFY SIZE W/EQUIP. NAMEPLATE RATING.
T	TRANSFORMER
	HOMERUN TO PANEL NOTED (DASHED LINE INDICATES CIRCUIT)
	SWITCHLEG (SOLID LINE) INDICATING A GROUP OF LIGHTS OPERATED BY A COMMON SWITCH
	LOW-VOLTAGE (DOUBLE-DASHED LINE)
HD	HAND DRYER
TV	TELEVISION/RECEPTACLE MOUNTED AT 84" AFF

FIRE ALARM LEGEND

SYMBOL	DESCRIPTION
F	FIRE ALARM PULL STATION, MOUNT 48" AFF U.O.N.
H	HEAT DETECTOR (THERMAL DETECTOR)
S	SYSTEM TYPE, ADDRESSABLE SMOKE DETECTOR FOR FIRE ALARM &/OR SMOKE CONTROL. MAINTAIN A MINIMUM DISTANCE OF 3'-0" FROM ALL CEILING-MOUNTED HVAC SUPPLY/RETURN REGISTERS.
SS S	SINGLE/MULTI-STATION, NON-SYSTEM TYPE, RESIDENTIAL STYLE, LINE-POWERED, COMBINATION CARBON MONOXIDE/SMOKE DETECTOR WITH BATTERY BACKUP. ACTIVATION SHALL SOUND ALL DEVICES WITHIN EACH UNIT. CONNECT TO NEAREST ARC-FAULT PROTECTED CIRCUIT WITHIN UNIT. MAINTAIN A MINIMUM DISTANCE OF 3'-0" FROM ALL CEILING-MOUNTED HVAC SUPPLY/RETURN REGISTERS, 3'-0" FROM THE OUTER EDGE OF PADDLE FAN BLADES, AND 10'-0" FROM ALL WALL-MOUNTED HVAC SUPPLY/RETURN REGISTERS.
	PHOTOELECTRIC TYPE SMOKE DETECTOR MOUNTED IN HVAC DUCT FOR MECHANICAL UNIT SHUT DOWN AND/OR SMOKE DAMPER OPERATION, COORDINATE FINAL LOCATION AND QUANTITY WITH MECHANICAL PLANS AND MECHANICAL CONTRACTOR.
RTS	DUCT DETECTOR REMOTE TEST SWITCH.
	ELECTRIC HORN, MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER.
L	LOW FREQUENCY ALARM APPLIANCE, 520 HZ MOUNT BETWEEN 80" AND 96" AFF.
	COMBINATION LOW FREQUENCY/STROBE ALARM APPLIANCE, 520 HZ MOUNT AS PER ADA REQUIREMENTS.
	STROBE LIGHT, MOUNT BETWEEN 80" AND 96" AFF. FINAL MOUNTING HEIGHT W/ARCH.
	COMBINATION FIRE ALARM HORN/STROBE, MOUNT BETWEEN 80" AND 96" AFF. COORDINATE FINAL MOUNTING HEIGHT WITH ARCHITECT.
	STROBE LIGHT, CEILING MOUNT.
	COMBINATION FIRE ALARM HORN/STROBE, CEILING MOUNT.
V	VOICE EVACUATION SPEAKER, MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER/STROBE MOUNT 90" A.F.F. OR 6" BELOW THE CEILING, WHICHEVER IS LOWER. CONTRACTOR SHALL ADJUST TAPS IN THE FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER, CEILING MOUNT, CONTRACTOR SHALL ADJUST TAPS IN FIELD FOR AUDIBILITY/INTELLIGIBILITY.
V	VOICE EVACUATION SPEAKER/STROBE CEILING MOUNT, CONTRACTOR SHALL ADJUST TAPS IN THE FIELD FOR AUDIBILITY/INTELLIGIBILITY.
	DOOR HOLDER
	FLOW SWITCH
	TAMPER SWITCH
	FIRE ALARM MONITORING MODULE.
FR	FIRE ALARM CONTROL RELAY. LOCATE WITHIN 3'-0" OF CONTROLLED EQUIPMENT.
LIM	FIRE ALARM LINE ISOLATION MODULE, USED IN CLASS A CIRCUITS ONLY.
SPD	SURGE PROTECTION DEVICE, INCLUDE GROUNDING AS PER MANUFACTURERS INSTRUCTIONS.
TS	FIRE ALARM TELEPHONE STATION.
FACP	FIRE ALARM CONTROL PANEL.
BPS	FIRE ALARM BOOSTER POWER SUPPLY.
FACS	FIRE ALARM COMMAND SYSTEM.
AMP	VOICE EVAC AMPLIFIER PANEL.
ANN	FIRE ALARM ANNUNCIATOR. PROVIDE FLUSH MOUNTING TRIM FOR DEVICE RECESS MOUNTING.
DACT	DIGITAL ALARM COMMUNICATION TRANSMITTER
FATC	FIRE ALARM TERMINAL CABINET.
KNOX	KNOX BOX
E.O.L.	END-OF-LINE RESISTOR.
ARP	AREA OF RESCUE POWER SUPPLY.
ARB	AREA OF RESCUE PHONE BASE.
RCB	AREA OF RESCUE CALL BOX.
AOR	AREA OF RESCUE DIRECTIONAL SIGNAGE.

NOTES:
1. LOW VOLTAGE/ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS & MOUNTING HEIGHTS OF ALL LOW VOLTAGE DEVICES WITH OWNER/ARCHITECT BEFORE ROUGH-IN.
2. ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THIS PROJECT.

LOW VOLTAGE LIGHTING CONTROL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
$LV	LOW VOLTAGE WALL ON/OFF SWITCH, MOUNT 48" AFF	MS1	DUAL TECHNOLOGY CEILING MOUNTED 360° MOTION SENSOR.
$LV2	LOW VOLTAGE WALL SWITCH 2 BUTTON, MOUNT 48" AFF	MS2	WALL/CEILING MOUNTED MOTION SENSOR. NORMAL RANGE WIDE BEAM, DIRECTIONAL
$LV3	LOW VOLTAGE WALL SWITCH 3 BUTTON, MOUNT 48" AFF	MS3	WALL/CEILING MOUNTED MOTION SENSOR. LONG-RANGE NARROW BEAM, DIRECTIONAL
$LV4	LOW VOLTAGE WALL SWITCH 4 BUTTON, MOUNT 48" AFF	DS	CEILING MOUNTED DAYLIGHT SENSOR.
$LV8	LOW VOLTAGE WALL SWITCH 8 BUTTON, MOUNT 48" AFF	RC1	0-10V ROOM DIMMING CONTROLLER (1 SWITCHLEG).
$DM	LOW VOLTAGE DIMMER SWITCH, MOUNT 48" AFF	RC2	0-10V ROOM DIMMING CONTROLLER (2 SWITCHLEGS).
$LP	LOW VOLTAGE WALL SWITCH PIR OCCUPANCY SENSOR, MOUNT 48" AFF	RC3	ON/OFF ROOM CONTROLLER (1 SWITCHLEG).
$LD	LOW VOLTAGE WALL SWITCH DUAL TECH. OCCUPANCY SENSOR, MOUNT 48" AFF	RC4	ON/OFF ROOM CONTROLLER (2 SWITCHLEGS).
		RC5	FORWARD PHASE DIMMING CONTROLLER (1 SWITCHLEG).
		RC6	FORWARD PHASE DIMMING CONTROLLER (2 SWITCHLEGS).
		LC1	ON/OFF LOAD CONTROLLER (1 SWITCHED) .

NOTES:
1. CONTROLS ARE INDICATED SCHEMATICALLY AND DIAGRAMMATICALLY, ELECTRICAL CONTRACTOR SHALL VERIFY REQUIRED LOCATIONS & MOUNTING HEIGHTS OF ALL LIGHTING CONTROLS PRIOR TO ROUGH-IN WITH MANUFACTURERS WRITTEN INSTALLATION MANUALS AND INSTRUCTIONS.
2. COORDINATE AND PROVIDE MOTION SENSOR MINIMUM DISTANCE FROM HVAC REGISTERS WITH MANUFACTURERS LITERATURE.
3. ALL ROOM CONTROLLERS SHALL BE MOUNTED IN AN ACCESSIBLE CEILING SPACE AS REQUIRED, UNLESS OTHERWISE NOTED.
4. MANUFACTURERS SHOWN IN THIS LEGEND ARE "BASIS OF DESIGN" AND "OR EQUAL" DEVICES MAY BE SUBMITTED FOR APPROVAL.

CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER, AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ALL PROPER ADJUSTMENTS TO ASSURE OWNER'S SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.

ABBREVIATIONS LEGEND

SYMBOL	DESCRIPTION
AFF/AFG	ABOVE FINISHED FLOOR / ABOVE FINISHED GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
CU	CONDENSING UNIT
EF	EXHAUST FAN
GFI	GROUND FAULT INTERRUPTER
ETR	EXISTING TO REMAIN.
EWC	ELECTRIC WATER COOLER
EWH	ELECTRIC WATER HEATER
LC	LOCKING COVER
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
TR	TAMPER RESISTANT
UON	UNLESS OTHERWISE NOTED
WP	WEATHER PROOF
	EMERGENCY GENERATOR SHUTOFF PUSH-BUTTON
NAC	NOTIFICATION APPLIANCE CIRCUIT
SLC	SIGNALING LINE CIRCUIT CLASS B (ADDRESSABLE LOOP)
SLC (A)	SIGNALING LINE CIRCUIT CLASS A (ADDRESSABLE LOOP)
IDC	INITIATING DEVICE CIRCUIT (CONVENTIONAL LOOP)
CD	CANDELA RATING
W	WALL MOUNTED DEVICE
C	CEILING MOUNTED DEVICE
X Y	"X"= HP" Y"= PHASE

NOTES:
1. ELECTRICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS & MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES WITH OWNER/ARCHITECT BEFORE ROUGH-IN. MOUNTING HEIGHTS ARE MEASURED TO CENTER OF BOX.
2. ALL RECEPTACLES & SWITCHES SHALL BE ARCH/DECORA TYPE WITH MATCHING FACE PLATES. COOR. FINAL COLOR WITH ARCH. PRIOR TO ORDERING
3. ALL SYMBOLS AND ABBREVIATIONS DO NOT NECESSARILY APPEAR ON THIS PROJECT.
4. MANUFACTURERS SHOWN IN THIS LEGEND ARE "BASIS OF DESIGN" AND "OR EQUAL" DEVICES MAY BE SUBMITTED FOR APPROVAL.

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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL LEGENDS

SHEET NUMBER:
CE0.01

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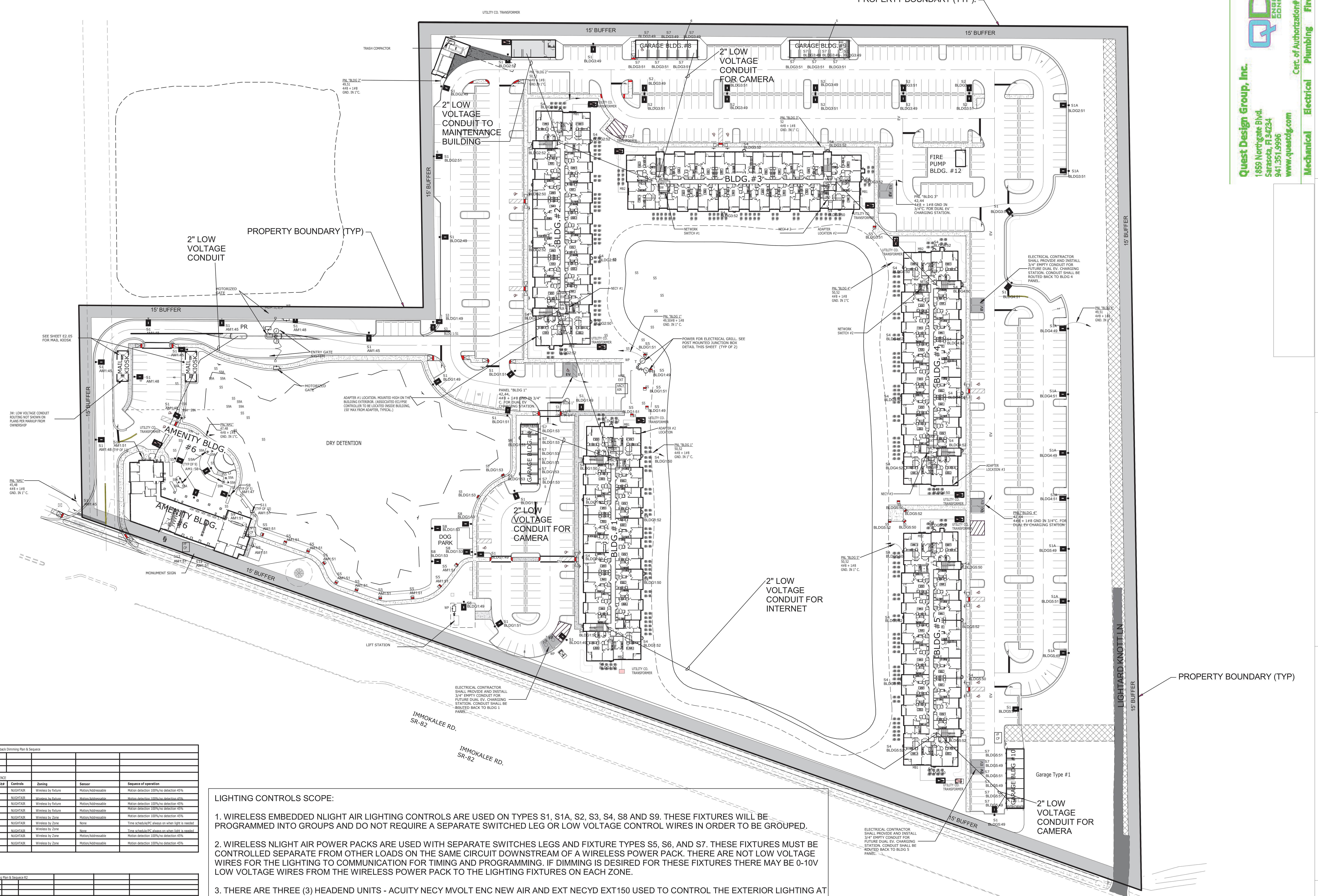

PRODUCT LEGEND

Symbol	Description
nAIR EXT.	nAir EXT NECYD EXT 150 ADAPTER, 150-FOOT, USB TO CAT6 INCLUDES 120VAC POWER ADAPTER AND CAT6 TO USB CONVERTERS.
nECY AIR	nECY AIR NECY MVOLT EN C NW AIR nLIGHT ECLPSE, 120-277V, ENCLOSURE FOR nLIGHT ECLYPSE, NO WIFI,AIR
ra$ 2PD	ra$ 2PD RPODBA 2P DX XX G2 nLIGHT PRESET WALL CONTROL, 2-POLE, RAISE/LOWER DIMMING GENERATION TWO
rP CP	rP CP RPP20 24V EFP CP G2 nLIGHT AIR POWER/RELAY PACK. NETWORKED VERSION, 24 VOLT OUTPUT. EXTERNAL FAULT PROTECTION, CHICAGO PLENUM, GENERATION TWO
NETH SW	NETH SWITCH NETHSWETHERNET SWITCH

Milhaus SR82 Site Lighting -Setback Dimming Plan & Sequece

NOTES FOR WIRING AND SEQUENCE

Fixture Type	Circuit#	Controls	Zoning	Sensor	Sequece of operation
S1		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S2		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S3		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S4		NUGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S5		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%
S6		NUGHTAIR	Wireless by Zone	None	Time schedule/PC always on when light is needed
S7		NUGHTAIR	Wireless by Zone	None	Time schedule/PC always on when light is needed
S8		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%
S9		NUGHTAIR	Wireless by Zone	Motion/Addressable	Motion detection 100%/no detection 45%

Milhaus SR82 Site Lighting -Setback Dimming Plan & Sequece R2

DATE 11.07.2022

LOAD CALCULATION

Fixture Type	Load (W)	Controls	Qty	Total Type Load	Watts when dimmed 55%(45% on)	Sensor	Sequence
S1	102	NUGHTAIR	27	2754	1514.7	Motion/Addressable	Motion detection 100%/no detection 45%
S2	102	NUGHTAIR	9	918	504.9	Motion/Addressable	Motion detection 100%/no detection 45%
S3	204	NUGHTAIR	6	1224	673.2	Motion/Addressable	Motion detection 100%/no detection 45%
S4	204	NUGHTAIR	1	204	112.2	Motion/Addressable	Motion detection 100%/no detection 45%
S5	138	NUGHTAIR	48	6624	3643.2	Motion/Addressable	Motion detection 100%/no detection 45%
S6	17.4	NUGHTAIR	13	226.2		None	Time schedule/PC always on when light is needed
S7	10.6	NUGHTAIR	24	254.4		None	Time schedule/PC always on when light is needed
S8	115	NUGHTAIR	10	1160	638	Motion/Addressable	Motion detection 100%/no detection 45%
S9	54	NUGHTAIR	8	432	237.6	Motion/Addressable	Motion detection 100%/no detection 45%
					7323.3		
				13796.6	6898.3		Dim by 55%for all NUGHTAIRto comply
				100% OF SITE LOAD FOR REFERENCE	GOAL 50%OF SITE LOAD REQUIRED FOR SETBACK		

LIGHTING CONTROLS SCOPE:

1. WIRELESS EMBEDDED NLIGHT AIR LIGHTING CONTROLS ARE USED ON TYPES S1, S1A, S2, S3, S4, S8 AND S9. THESE FIXTURES WILL BE PROGRAMMED INTO GROUPS AND DO NOT REQUIRE A SEPARATE SWITCHED LEG OR LOW VOLTAGE CONTROL WIRES IN ORDER TO BE GROUPED.

2. WIRELESS NLIGHT AIR POWER PACKS ARE USED WITH SEPARATE SWITCHES LEGS AND FIXTURE TYPES S5, S6, AND S7. THESE FIXTURES MUST BE CONTROLLED SEPARATE FROM OTHER LOADS ON THE SAME CIRCUIT DOWNSTREAM OF A WIRELESS POWER PACK. THERE ARE NOT LOW VOLTAGE WIRES FOR THE LIGHTING TO COMMUNICATION FOR TIMING AND PROGRAMMING. IF DIMMING IS DESIRED FOR THESE FIXTURES THERE MAY BE 0-10V LOW VOLTAGE WIRES FROM THE WIRELESS POWER PACK TO THE LIGHTING FIXTURES ON EACH ZONE.

3. THERE ARE THREE (3) HEADEND UNITS - ACUITY NECY MVOLT ENC NEW AIR AND EXT NECYD EXT150 USED TO CONTROL THE EXTERIOR LIGHTING AT THIS SITE. THE NECY UNITS PROVIDE A TIME SCHEDULE, MAIN OVERRIDE AND OVERALL COORDINATION OF LIGHTING CONTROLS FOR ALL AREAS OF THE SITE. REFER TO THE PLANS TO INDENTIFY THE HEAD END UNITS. THEY SHALL BE PLACED IN A LOCKED AND SUPERVISED LOCATION (I.E. AN MDF, IDF, OR ELECTRICAL CLOSET). EACH OF THE HEAD END UNITS HAS A WIRELESS ANTENNA THAT SHALL BE WITHIN 125FT OF CABLE LENGTH FROM THE HEAD END UNIT TO THE EXTERIOR OF THE BUILDING. THIS ALLOWS THE WIRELESS SIGNAL TO SPAN THE ENTIRE PROJECT SITE.

4. THE THREE HEAD END UNITS SHALL BE TIED TOGETHER WITH NETWORK CABLE AND UNDERGROUND RACEWAYS PROVIDED TO CONNECT EACH LOCATION TOGETHER. AT TWO LOCATIONS AN ACUITY NETWORK SWITCH WILL BE USED TO LINK THE SYSTEM TOGETHER ACUITY SW NETHSW.

5. FOR QUESTIONS ON THE SPECIFICATION OF THESE LIGHTING CONTROLS CONTACT LINDSEY FIMEK AT KSA LIGHTING & CONTROLS 630-338-7308.

1 SITE PLAN Copy 2 Copy 1
1" = 50'-0"

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MILHAUS

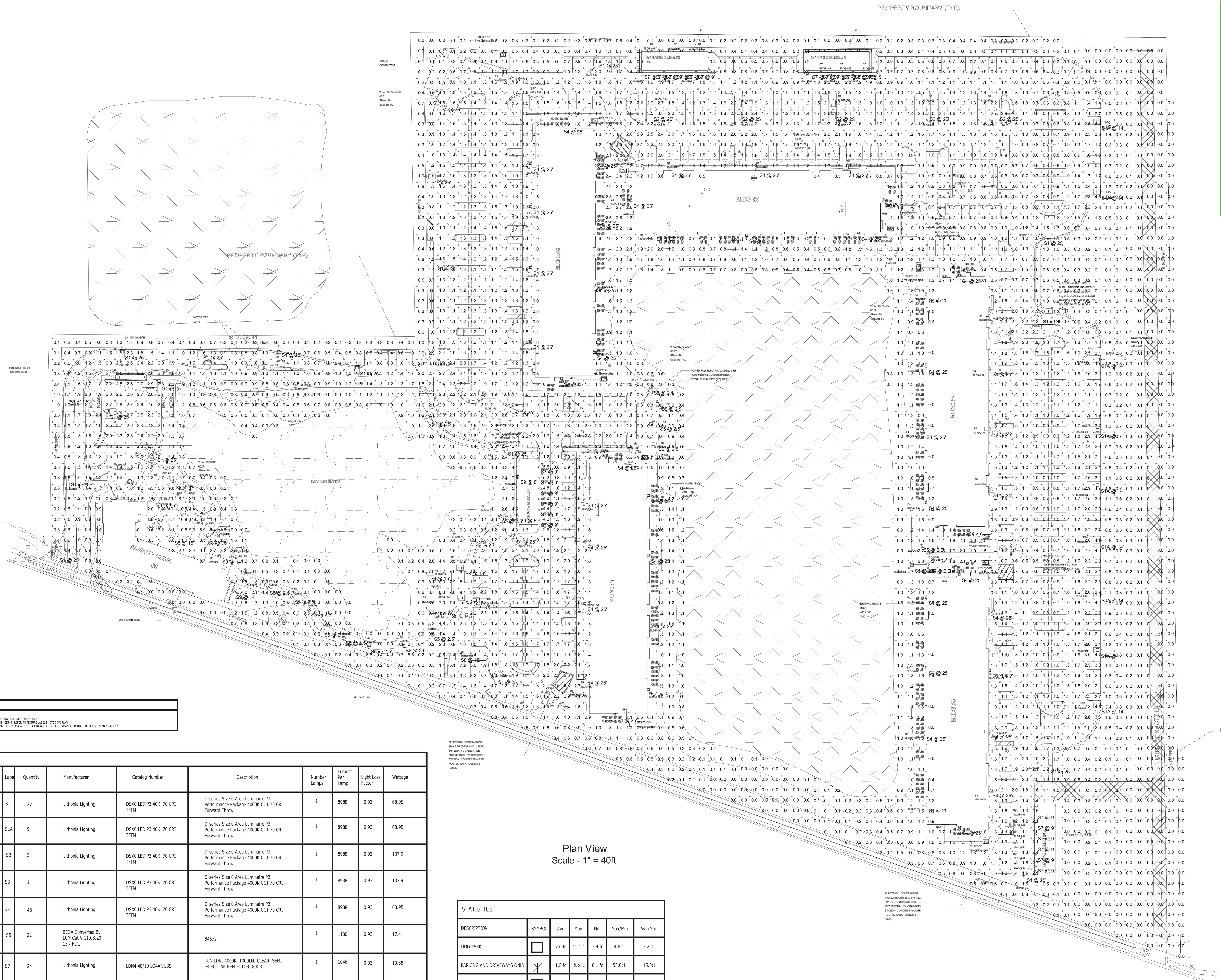
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

ELECTRICAL SITE PLAN

SHEET NUMBER:
CE1.00



Plan View
Scale - 1" = 40ft

NOTES

1. CALCULATION POINT WORK PLANE: GRADE LEVEL
2. FIXTURE MOUNTING HEIGHT: REFER TO FIXTURE LABELS NOTED ON PLAN
3. CALCULATIONS PROVIDED BY KSA ARE NOT A GUARANTEE OF PERFORMANCE. ACTUAL LIGHT LEVELS MAY VARY.**

Schedule

SYMBOL	Labe	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	27	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S1A	9	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S2	5	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S3	1	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S4	48	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S5	21	BEGA Converted By LUM Cat V 11.08.20 15 / H.R.		84672	1	1100	0.93	17.4
	S7	24	Lithonia Lighting	LDN4 40/10 LO4AR LSS	4IN LDN, 4000K, 1000LM, CLEAR, SEMI-SPECULAR REFLECTOR, 80CRI	1	1046	0.93	10.58
	S8	10	Lithonia Lighting	DSX0 LED P3 40K 70 CRI T4LG	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Type 4 Low G Rating	1	8119	0.93	68.95
	S9	4	Lithonia Lighting	DSX0 LED P2 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Forward Throw	1	6316	0.93	45.14

STATISTICS

DESCRIPTION	SYMBOL	Avg	Max	Min	Max/Min	Avg/Min
DOG PARK		7.6 fc	11.1 fc	2.4 fc	4.6:1	3.2:1
PARKING AND DRIVEWAYS ONLY		1.5 fc	5.5 fc	0.1 fc	55.0:1	15.0:1
PATHWAY		4.8 fc	26.1 fc	0.0 fc	N/A	N/A
POOL AREA		7.2 fc	13.1 fc	0.0 fc	N/A	N/A
ALL CALC POINTS		1.1 fc	36.7 fc	0.0 fc	N/A	N/A

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MILHAUS SR82

MILHAUS

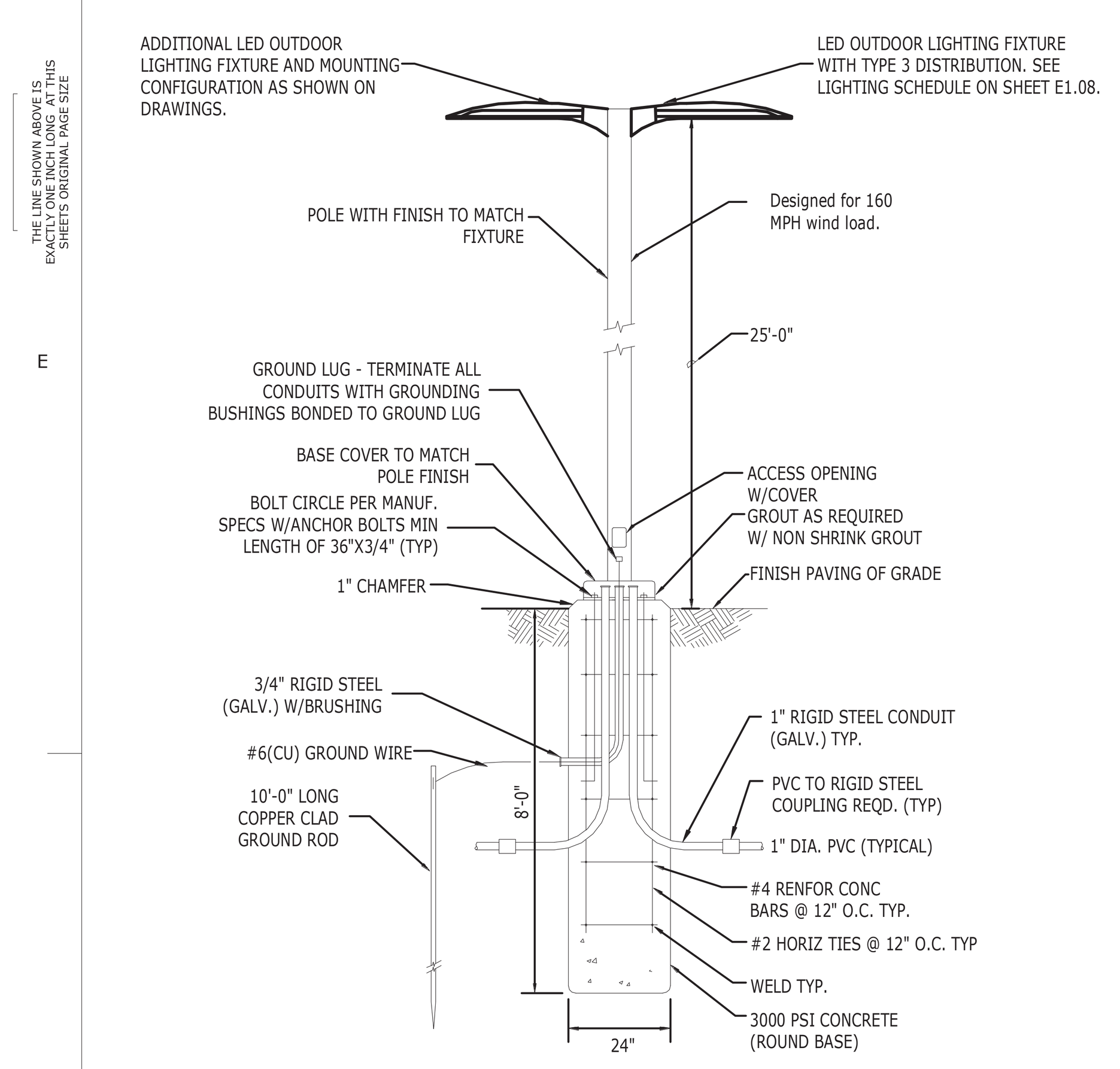
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

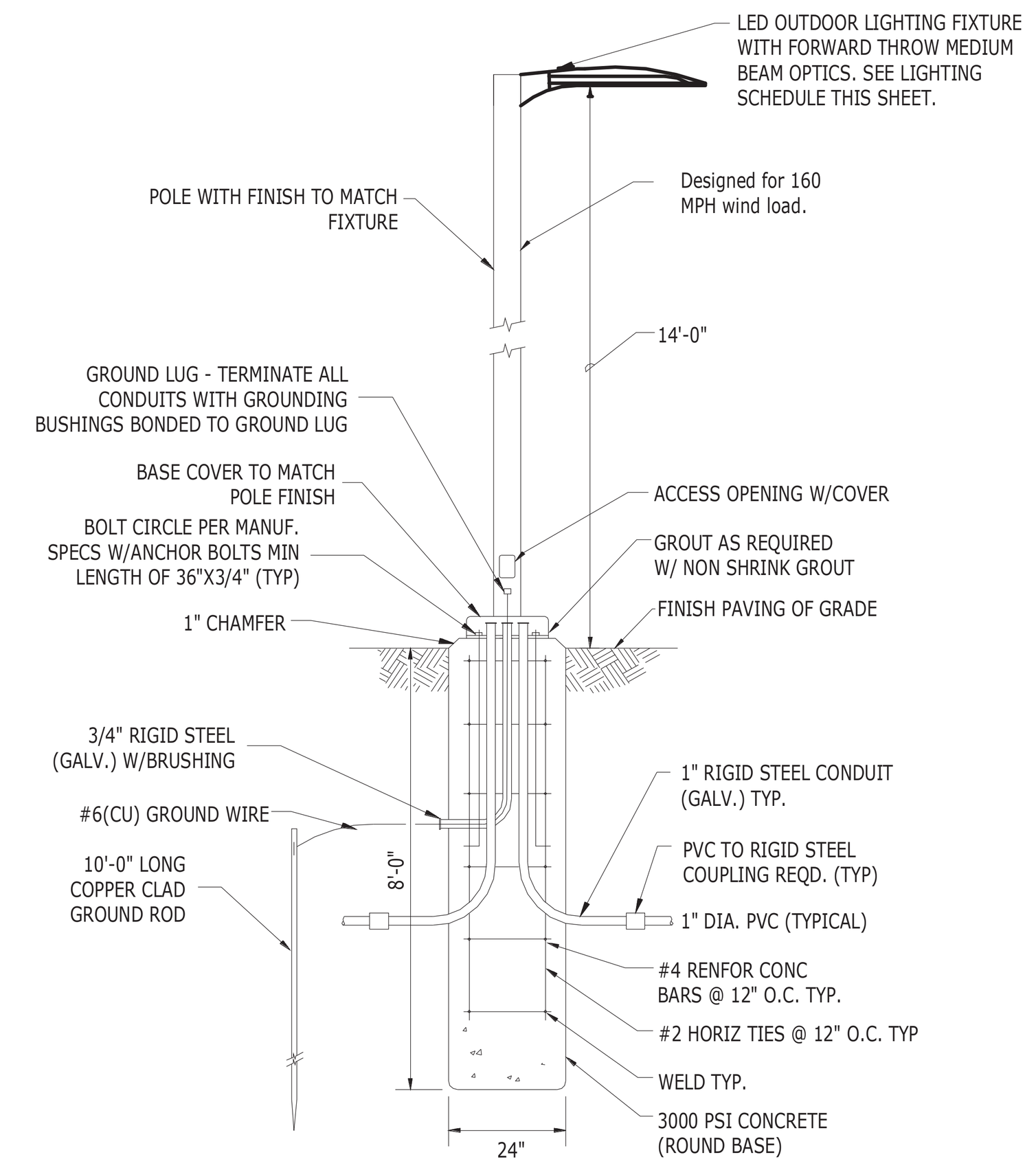
PROJECT NO:
220035.00

SITE PHOTOMETRIC PLAN

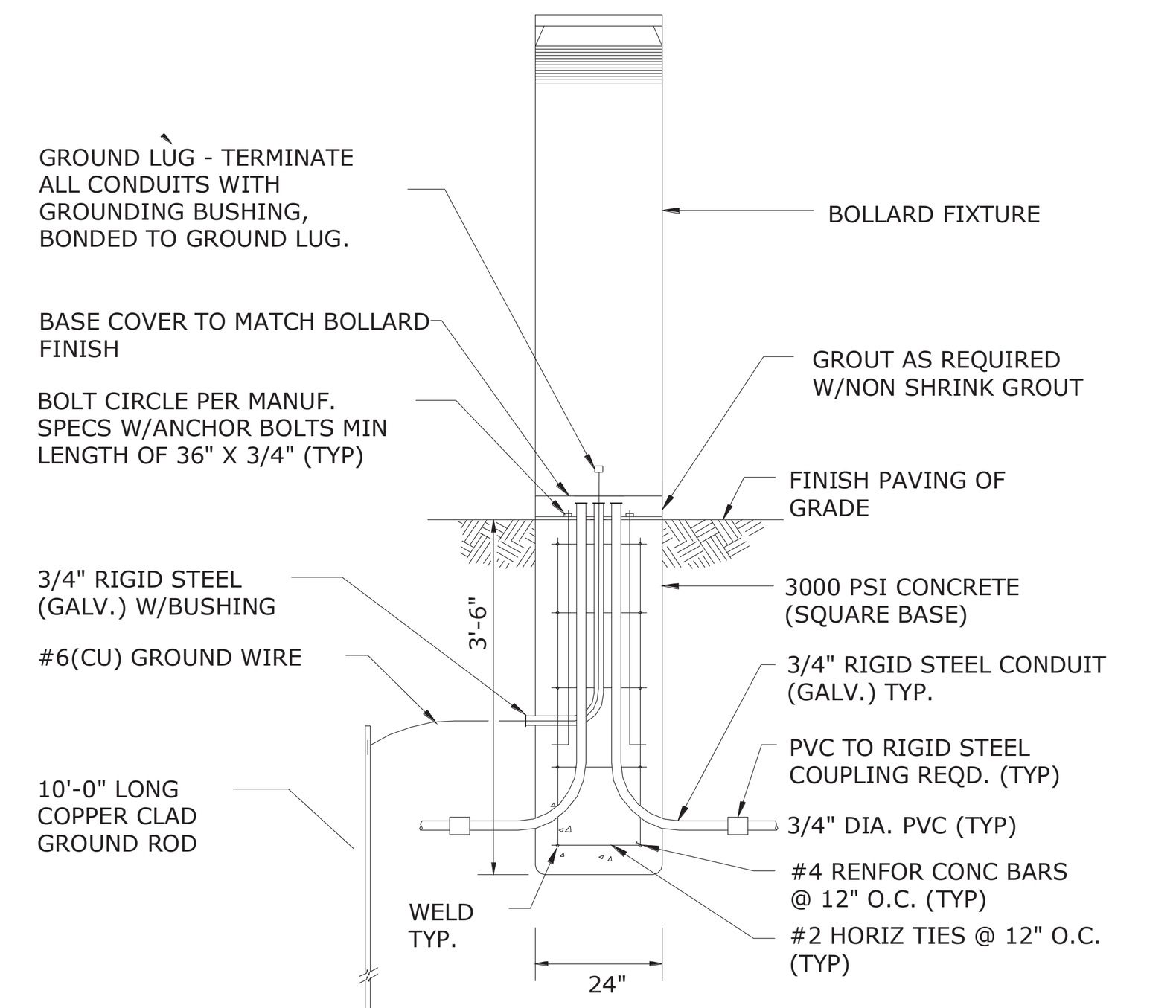
SHEET NUMBER:
CE1.01



2 FIXTURE "S1",&,"S3" POLE BASE DETAIL
NO SCALE:



3 FIXTURE "S1A" POLE BASE DETAIL
N.T.S:



5 FIXTURE "S5" BOLLARD BASE DETAIL
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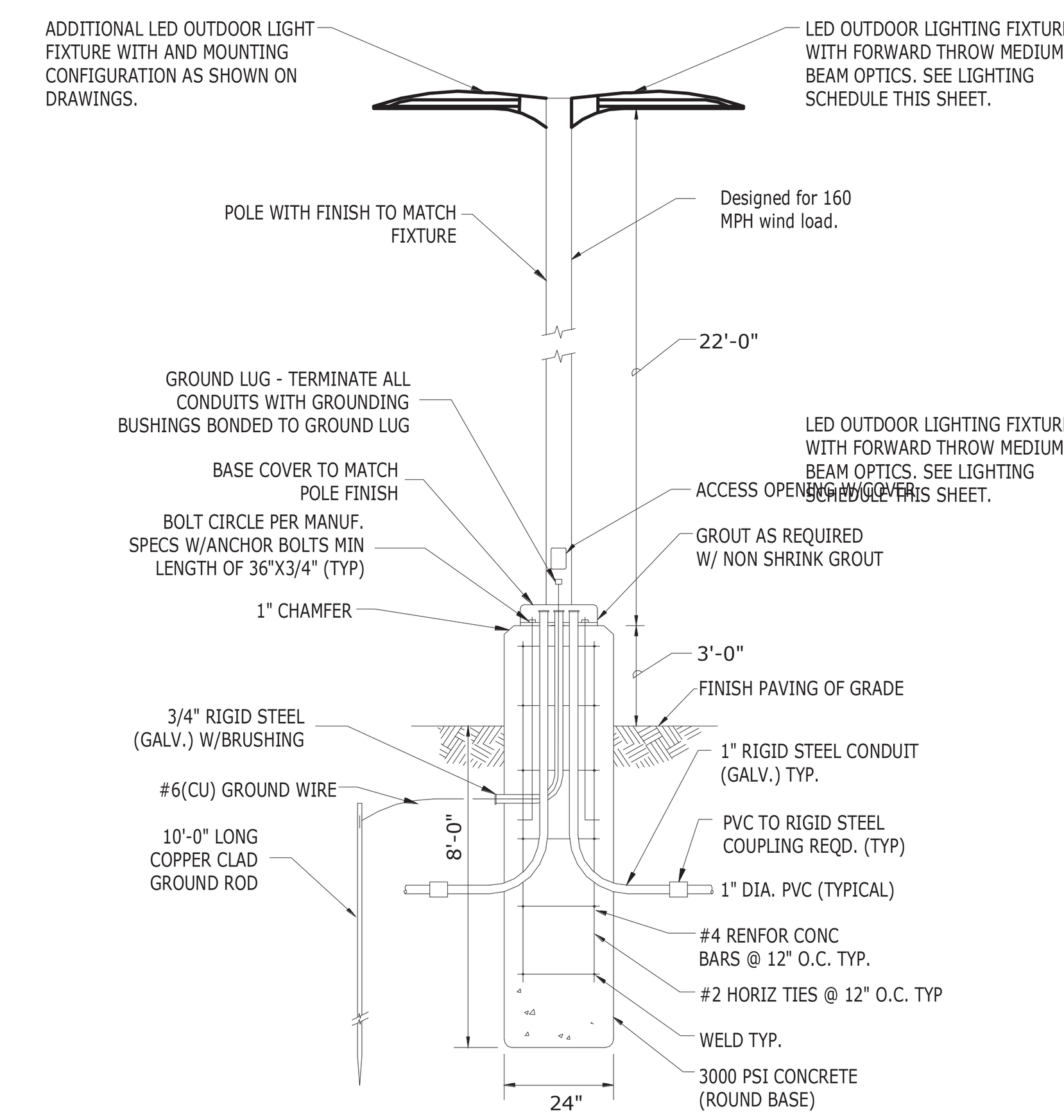
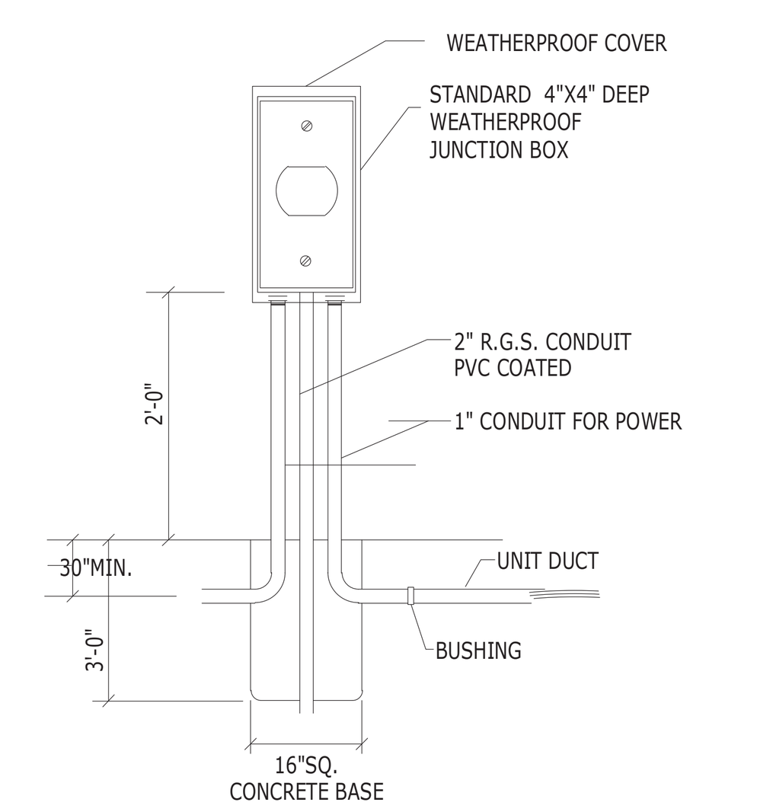


4 FIXTURE "S2" POLE BASE DETAIL
NO SCALE:



7 POST MOUNTED JUNCTION DETAIL
N.T.S.

QUEST DESIGN GROUP INC — HIGHWAY SR82 : EXTERIOR LIGHT FIXTURE SCHEDULE

FIXTURE IMAGE	TYPE	DESCRIPTION	MANUFACTURER / MODEL #	APPROVED EQUAL MANUFACTURE	LAMP	WATTS	VOLTAGE	NOTES
	S1	LOW PROFILE LED LIGHT FIXTURE WITH 12,575 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 25'-0" A.F.G ON AN 25'-0" SSS 5" POLE	Lithonia DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS25 5G DM19 DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	102	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S1A	LOW PROFILE LED LIGHT FIXTURE WITH 12,575 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 14'-0" A.F.G ON AN 14'-0" SSS 5" POLE	Lithonia DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS14 5G DM19 DDBXD	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	102	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
2 @ 180 DM28 2.025	S2	SAME AS ABOVE WITH TWIN HEADS AT 180 DEGREE	Lithonia (2) DSX1 LEDP3 40K TFTM MVOLT SCO.KSA - SSS25 5G DM28 DDBXD	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	204	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
2 @ 90 DM29 1.945	S3	SAME AS ABOVE WITH TWIN HEADS AT 90 DEGREE	Lithonia (2) DSX1 LEDP3 40K TFTM MVOLT SCO.KSA -SSS25 5G DM29 DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - ECOFORM SERIES	40K LED	204	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S4	LOW PROFILE WALL MOUNTED LED LIGHT FIXTURE WITH 15,830 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 24'-0" A.F.G	Lithonia DSX1LEDP5 40K TFTM MVOLT SCO.KSA WBA DDBXD NL TAIR	Kim - ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	73	MULTI VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S5	13 X 31 X 4 LED ONE PIECE EXTRUDED ALUMINUM WITH A ONE-PIECE DIE-CAST ALUMINUM TOP HOUSING BOLLARD WITH ASYMMETRICAL SHIELD LIGHT DISTRIBUTION	BEGA 84-672 SCO.KSA		30K LED	12.3	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S6	LOW PROFILE 12" ROUND LED PEDNDENT MOUNTED LUMINAIRE WITH SYMMETRIC WIDE BEAM DISTRIBUTION. MOUNTED ON 6" PENDENT.	LUMARK LIGHTING-RPGC25-MS/DIM-L20 SCO.KSA		LED	63.0	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S7	4" ROUND LED WET LOCATION LISTED WITH POLYCARBONATE LENS WITH MATTE WHITE FINISH.	Lithonia LDN4-40/10-LO4AR-SCO.KSA-LSS		LED	10.5	120 VOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S8	LOW PROFILE LED LIGHT FIXTURE WITH 11630 LUMENS AND SYMMETRIC TYPE V DISTRIBUTION MOUNTED14'-0" A.F.G ON AN 14'-0" SSS 5" POLE	Lithonia DSX0 LED P3 40K T5W MVOLT SCO.KSA -SSS14 5G DM19 DDBXD NL TAIR	KIM -ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	71	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S9	LOW PROFILE, WALL MOUNTED LED LIGHT FIXTURE WITH 6780 LUMENS AND FORWARD THROW MEDIUM BEAM OPTICS MOUNTED 14'-0" A.F.G	LITHONIA DSX1 LEDP3 40K TFTM MVOLT SCO.KSA WBA DDBXD NL TAIR	KIM -ALTITUDE 1 SERIES GARDCO - 101L SERIES	40K LED	56	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S10							PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S11	SEE LANDSCAPING DRAWINGS SHEET H-08 DETAIL #1 FOR FIXTURE CUT AND DESCRIPTION.	LITHONIA KBR8 LED-16C-700-40K-SYM-MVOLT-DDBXD		40K LED	39	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505
	S12	SEE LANDSCAPING DRAWINGS SHEET H-08 DETAIL #1 FOR FIXTURE CUT AND DESCRIPTION.	VISTA -1045-DZ-NS-35-B-MV-ND		35K LED	23	MULTIVOLT	PRICING TO BE OBTAINED TROUGH THE NATIONAL ACCOUNT DISTRIBUTER CONNEXIONESN. PLEASE CONTACT KYLE HANSON: Kyle.Hanson@cxconnect.com OFFICE (847) 499-8330 OR (773) 4479505

Schedule

Fixture Type	Circuit#	Controls	Zoining	Sensor	Sequence of Operation
S1	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S1A	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S2	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S3	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S4	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S5	NONE	NONE		None	Time schedule/PC always on when light is needed
S7	NONE	NONE		None	Time schedule/PC always on when light is needed
S8	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%
S9	NLIGHTAIR	NLIGHTAIR	Wireless by fixture	Motion/Addressable	Motion detection 100%/no detection 45%

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01-05-2023
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MILHAUS.
MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

SITE PLAN DETAILS

SHEET NUMBER:
CE1.02

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D-Series Size 1
LED Area Luminaire

Buy American

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

EPA:	1.01 ft² (0.09 m²)
Length:	33" (83.8 cm)
Width:	13" (33.0 cm)
Height H1:	7-1/2" (19.0 cm)
Height H2:	3-1/2"
Weight (max):	27 lbs (12.2 kg)

Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 750W metal halide in pedestrian and area lighting applications with typical energy savings of 65% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX1 LED P7 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX1 LED	Forward optics P1 P4 P7 P2 P5 P8 ...	30K 3000 K, 40K 4000 K, 50K 5000 K	T1S Type I short (Automotive), T2S Type II short ... T5VS Type V very short, T5S Type V short, T5M Type V medium ...	MVOLT, XVOLT (277V-480V) ...	Shipped included: SPA Square pole mounting, RPA Round pole mounting ...

FIXTURE TYPE "S1","S2" & "S3

D-Series Size 1
LED Wall Luminaire

Buy American

Catalog Number
Notes
Type

Hit the Tab key or mouse over the page to see all interactive elements.

Specifications

Luminaire

Width:	13-3/4" (34.9 cm)	Weight:	12 lbs (5.4 kg)
Depth:	10" (25.4 cm)		
Height:	6-3/8" (16.2 cm)		

Back Box (BBW, E20WC)

Width:	13-3/4" (34.9 cm)	BBW Weight:	5 lbs (2.3 kg)
Depth:	4" (10.2 cm)	E20WC Weight:	10 lbs (4.5 kg)
Height:	6-3/8" (16.2 cm)		

For 3/4" NPT side-entry conduit (BBW only)

Introduction

The D-Series Wall luminaire is a stylish, fully integrated LED solution for building-mount applications. It features a sleek, modern design and is carefully engineered to provide long-lasting, energy-efficient lighting with a variety of optical and control options for customized performance.

With an expected service life of over 20 years of nighttime use and up to 74% in energy savings over comparable 250W metal halide luminaires, the D-Series Wall is a reliable, low-maintenance lighting solution that produces sites that are exceptionally illuminated.

Ordering Information

EXAMPLE: DSXW1 LED 20C 1000 40K T3M MVOLT DDBTXD

Series	LEDs	Drive Current	Color temperature	Distribution	Voltage	Mounting	Control Options
DSXW1 LED	10C 10 LEDs (one engine); 20C 20 LEDs (two engines)	350 350 mA; 530 530 mA; 700 700 mA; 1000 1000 mA (1 A)	30K 3000 K; 40K 4000 K; 50K 5000 K; AMBPC Amber phosphor converted	T2S Type II Short; T2M Type II Medium; T3S Type III Short; T3M Type III Medium; T4M Type IV Medium ...	MVOLT; 120; 208; 240; 277 ...	Shipped included: (blank) Surface mounting bracket; BBW Surface-mounted back box ...	Shipped installed: PE Photoelectric cell, button type; DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately); PIR 180° motion/ambient light sensor, <15' mtg ht ...

FIXTURE TYPE "S4"

LED bollards with asymmetrical shielded light distribution

Post construction: One-piece extruded aluminum with a one-piece die-cast aluminum top housing and base internally welded into an assembly. Die-castings are marine grade, copper free (≤0.3% copper content) A360.0 aluminum alloy.

Enclosure: Two piece die-cast aluminum optical enclosure secured to bollard post by two (2) mechanically captive stainless steel screws threaded into stainless steel inserts. White safety glass. Reflector made of puure anodized aluminum. Fully gasketed for weather tight operation using molded silicone gasket.

Electrical: 14.5 total luminaire system watts, 12.3W LED. -30°C start temperature. Integral 120V through 277V electronic LED driver, 0-10V dimming. LED module(s) are available from factory for easy replacement. Standard LED color temperature is 3000K with a >80 CRI. Available in 4000K (>80 CRI); add suffix K4 to order.

Note: LEDs supplied with luminaire. Due to the dynamic nature of LED technology, LED luminaire data on this sheet is subject to change at the discretion of BEGA-US. For the most current technical data, please refer to www.bega-us.com.

Anchor base: Heavy galvanized steel mounting base, slotted for precise alignment. Mounts to BEGA 79 825 anchorage kit. Bollard secures to base with two (2) stainless steel set screws.

Finish: All BEGA standard finishes are polyester powder coat with minimum 3 mil thickness. Available in four standard BEGA colors: Black (BLK); White (WHT); Bronze (BRZ); Silver (SLV). To specify, add appropriate suffix to catalog number. Custom colors supplied on special order.

CSA certified to U.S. and Canadian standards, suitable for wet locations. Protection class IP65

Weight: 26.7 lbs

Type:
BEGA Product:
Project:
Voltage:
Color:
Options:
Modified:

Asymmetrical shielded

	Lamp	A	B	C	Mtg box
84 672	12.3W LED	10⅛	31½	4"	79 825

FIXTURE TYPE "S5"

Project		Catalog #		Type	
Prepared by		Notes		Date	

Lumark
RPGC

Parking Garage / Canopy Luminaire

Product Features

Selectable lumens

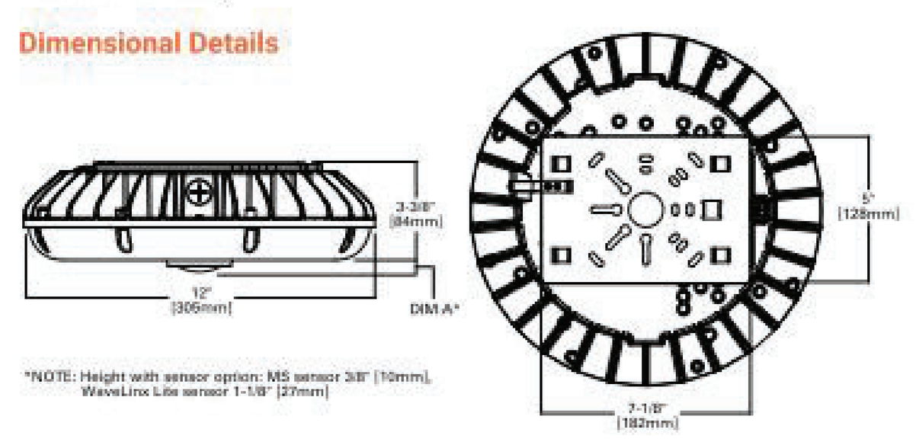
Interactive Menu
- Ordering Information page 2
- Product Specifications page 2
- Energy and Performance Data page 3
- Control Options page 3

Product Certifications

Quick Facts
- Low profile, die cast aluminum housing
- Round drop lens provides uplight to eliminate dark ceilings
- Selectable lumen switch provides 30W to 60W (3,700-7,800 lumens) selectability
- Maximize energy savings with efficacies up to 125 lumens per watt
- Replaces 150W up to 250W HID equivalents
- Easy installation with quick-mount bracket for hands-free wiring

Connected Systems
- WaveLinx Lite

Dimensional Details



FIXTURE TYPE "S6"

LITHONIA LIGHTING

FEATURES & SPECIFICATIONS

INTENDED USE — The 4" Wafer™ LED Downlight with Switchable White provides high-quality light output and efficiency featuring a switch for easy color temperature adjustment - while eliminating the need for recessed housings. The innovative, slim design allows for easy retrofit, remodel or new construction installation from below the ceiling. The Wafer LED downlight is wet location listed – making it ideal for use in a breadth of outdoor residential, hospitality, commercial and multifamily applications.

CONSTRUCTION — Aluminum die cast outer frame. Durable, powder coat paint to prevent rust. FT4 plenum rated cable connector to connect from module to remote driver box. IC rated driver with convenience and value of two remote selectable color temperature options, each with a setting choice to chose either 2700K, 3000K, and 3500K or 3000K, 4000K, and 5000K using the switch. The isolated driver integrated inside steel remote box with four 7/8" knockouts with slots for pryout. Suitable for pulling wires with the 12 cubic-inch wiring compartment to accommodate up to (6) 14 gauge insulated conductors; making the Wafer LED Downlights much easier to wire in 2in/2out (plus ground) daisy-chain applications and contractor friendly.

INSTALLATION — Ideal for shallow ceiling plenum; no housing required. Steel spring clip for easy installation. 4" cut out template is provided to ensure a correct sized hole is cut into ceiling for proper installation of the trim. Size of hole should not exceed 4 1/4 inches for this product. Suitable for installation in t-grid and drop ceiling applications. 3" plenum space required for installation of the remote driver box.

OPTICS — Edge-lit LED technology uses light guided plate to distribute light. Polycarbonate lens provides even illumination throughout the space.

ELECTRICAL — Connect directly to 120V power supply via provided UL recognized driver. High efficient driver with power factor > 0.9. Ambient operating temperature: -40°F (-40°C) to +104°F (+40°C). Dimming down to 10% with most standard incandescent dimers (see list of approved dimmers). Replaces 65W incandescent.

LISTINGS — CSA certified to US and Canadian safety standards. ENERGY STAR® certified. Wet location. Air Tight certified in accordance with ASTM E283-2004. NOM Certified. Can be used to comply with California Title 24 Part 6 High Efficacy LED light Source Requirements.

WARRANTY — 5-year limited warranty.

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Wafer LED Recessed Downlight

WF4
4" LED Switchable White Color Temperature

IC/Non-IC
New Construction/Remodel

Matte black | Brushed nickel | Oil-rubbed bronze

Specifications

Aperture:	3.2 (8.1)
Ceiling opening:	4.2 (10.7)
Overlap trim:	4.7 (12.0)
Height:	1.1 (2.8)

All dimensions are inches (centimeters) unless otherwise indicated.

ORDERING INFORMATION — For shortest lead times, configure product using standard options (shown in bold).

Example: WF4 LED 30K40K50K 90CRI MW

Series	Lamp	CCT/W/Lumens	CRI	Finish
WF4 4" wafer-thin LED downlight	LED	27K30K35K; 30K40K50K	90CRI	MW Matte White; MB Matte Black; BN Brush Nickel; ORB Oil-Rubbed Bronze

Accessories: Order as separate catalog number.

WF4643 New Construction Pan
Remodel Joist Bar

FIXTURE TYPE "S7"

D-Series Size 0
LED Area Luminaire

Buy American

Catalog Number
Notes
Type

Specifications

EPA:	0.95 ft²
Length:	26"
Width:	13"
Height₁:	3"
Height₂:	7"
Weight (max):	16 lbs

Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire.

The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

Series	LEDs	Color temperature	Distribution	Voltage	Mounting
DSX0 LED	Forward optics P1 P5 ...	30K 3000 K; 40K 4000 K ...	T1S Type I short (Automotive); T2S Type II short ... T5S Type V short; T5M Type V medium ...	MVOLT (120V-277V); XVOLT (277V-480V) ...	Shipped included: SPA Square pole mounting ...

FIXTURE TYPE "S8"

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www.questdg.com
Cert. of Authorization# CA31201
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MILHAUS

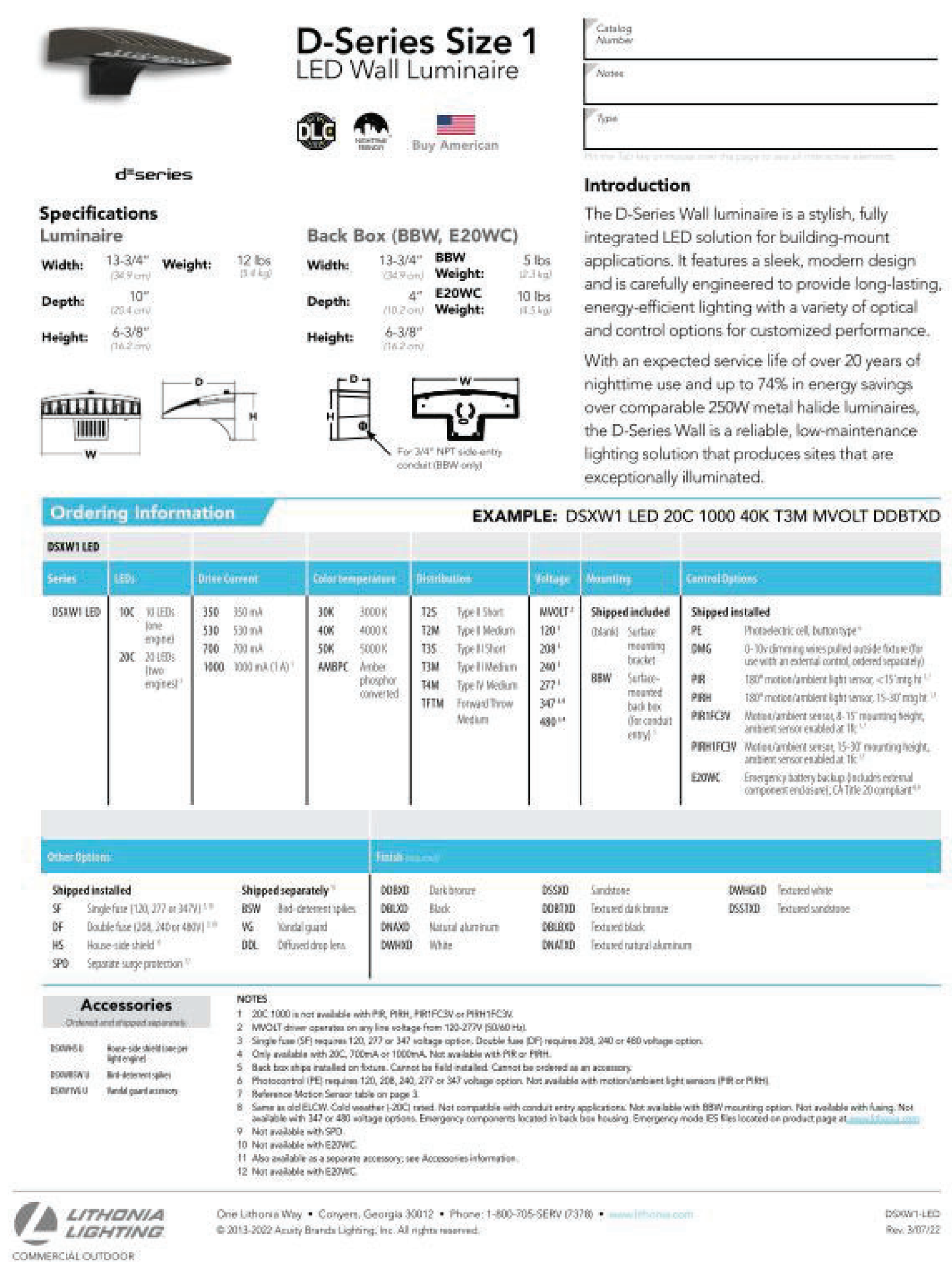
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

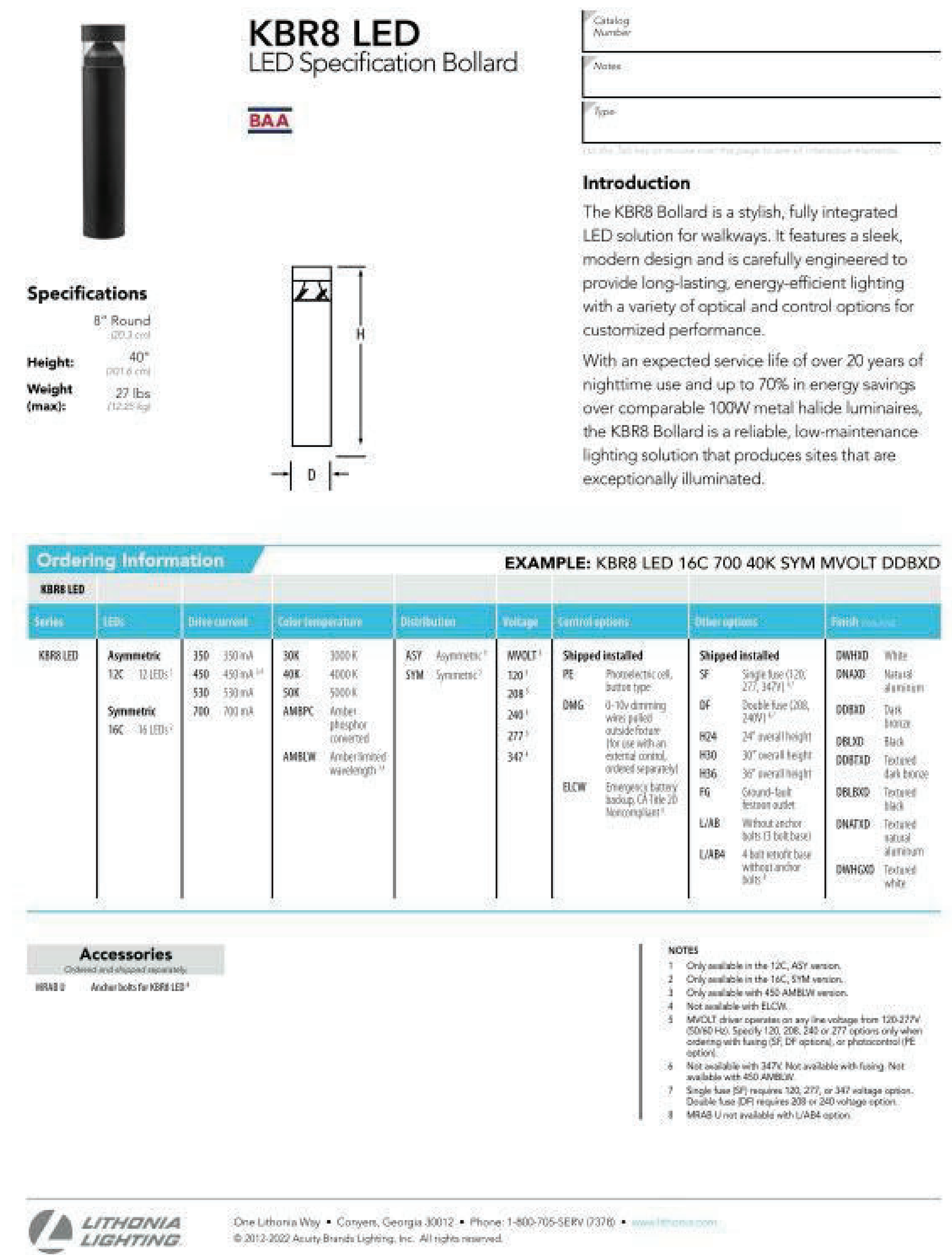
PROJECT NO: 220035.00

SITE LIGHTING CUT-SHEETS PLAN

SHEET NUMBER: CE1.03



1 FIXTURE TYPE "S9"



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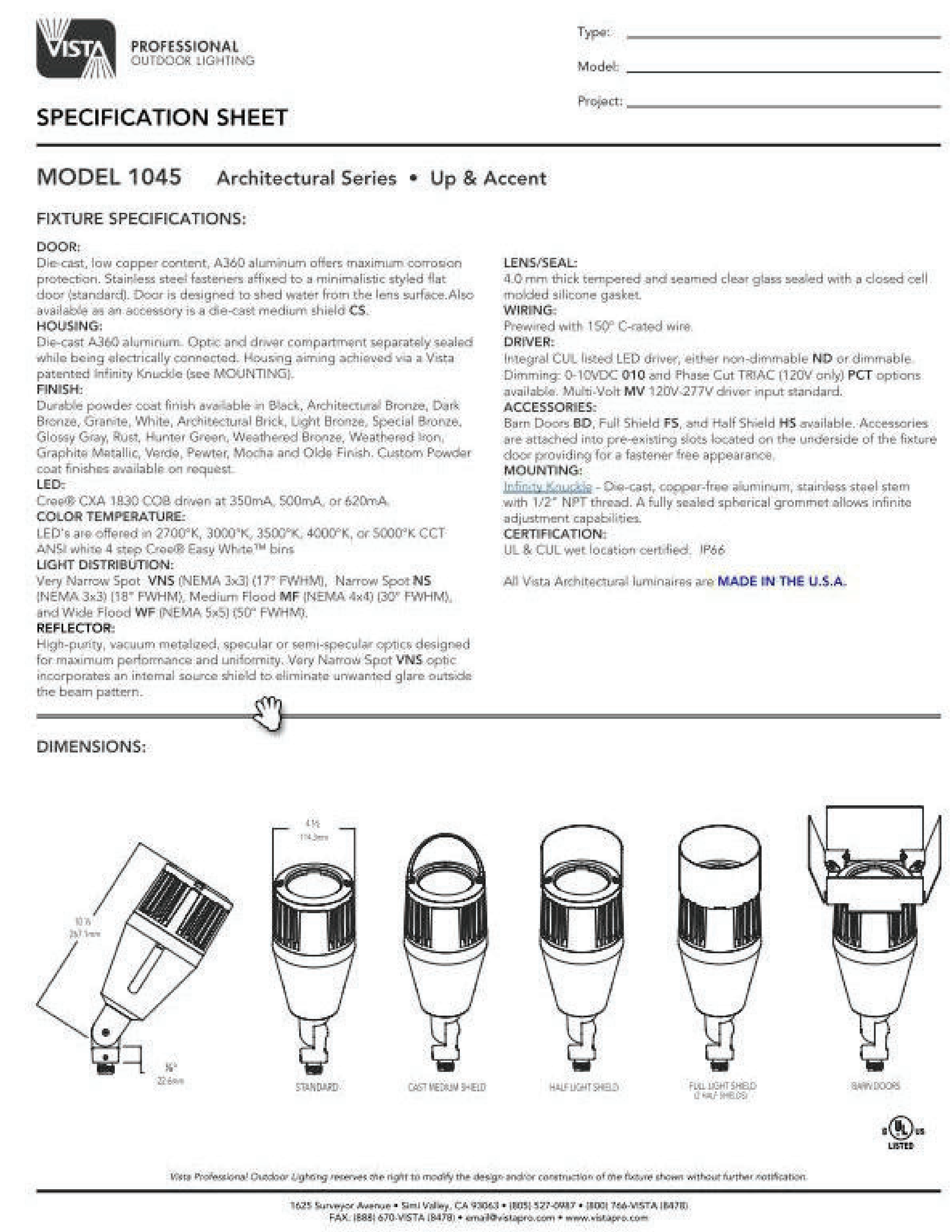


3 FIXTURE TYPE "S12"

nLight Air System Notes

ALL NETWORKED NLIGHT AIR DEVICES MUST BE LOCATED WITHIN 400 FEET OF AN NECLYPSE WIRELESS ADAPTER FOR INDOOR APPLICATIONS, AND 1000 FEET FOR OUTDOOR APPLICATIONS. AN NECLYPSE WIRELESS ADAPTER CAN SUPPORT 750 DEVICES TOTAL.

STANDALONE NLIGHT AIR GROUPS CAN CONTAIN 128 NLIGHT AIR DEVICES, AND ALL DEVICES MUST BE LOCATED WITHIN 400 FEET OF THE GROUP MONITOR.

ADAPTER LOCATIONS ARE SUBJECT TO CHANGE PENDING RELATIVE BUILDING HEIGHTS.

ALL NLIGHT AIR WALL SWITCHES INCLUDE AN INTERNAL BATTERY, RATED FOR A 10 YEAR LIFE EXPECTANCY.

NLIGHT AIR DEVICES MUST BE COMMISSIONED THROUGH THE CLARITY MOBILE APP BEFORE THEY CAN BE CONTROLLED.

STARTUP FOR THIS SYSTEM REQUIRES AN ACUITY TRAINED TECHNICIAN. PROGRAMMING MAY BE PHASED, REQUIRING MULTIPLE VISITS, AND FINAL NETWORK MIGRATION WILL TAKE PLACE WHEN INSTALLATION IS COMPLETE FOR ALL ECLYPSE CONTROLLERS AND ADAPTERS.

ADAPTER LOCATIONS ARE SUBJECT TO CHANGE PENDING RELATIVE BUILDING HEIGHTS.

nLight Air System Notes

EVERY NLIGHT ENABLED DEVICE (INCLUDING NLIGHT EANABLED FIXTURES) IS FURNISHED WITH (1) PERMANENTLY ADHERED ID TAG AND (1) MATCHING, PARTIALLY ADHERED ID TAG TO BE PLACED ON THE RISER DIAGRAM SHEET, OR THE LIGHTING CONTROL LAYOUT SHEET, PROVIDED AS PART OF AN NLIGHT SUBMITTAL. THIS SHALL BE DONE DURING INSTALLATION AND PRIOR TO FACTORY STARTUP. FAILURE TO COMPLY MAY RESULT IN STARTUP DELAYS AND ADDITIONAL COSTS AT THE CONTRACTOR'S EXPENSE. DO NOT PLACE DEVICE ID STICKERS ON FLOOR PLAN UNLESS REQUIRED TO EXECUTE NFLOORPLAN SERVICES, REFERENCE NFLOORPLAN SERVICE NOTES ON THIS SHEET FOR SPECIFIC REQUIREMENTS.

ONE RELAY PACK OR NLIGHT ENABLED FIXTURE IS NEEDED PER CIRCUIT/ZONE TO BE CONTROLLED AND CAN RESIDE WITHIN SENSORS, WALLPODS, OR RELAY PACKS. POWER PACK PLACEMENT ON DRAWINGS IS FOR COUNTING ONLY; FINAL PLACEMENT IS UP TO DISCRETION OF CONTRACTOR/ENGINEER. PLEASE RECHECK COUNTS TO VERIFY THE NUMBER OF RELAYS NEEDED TO SWITCH ALL DESIRED LOADS.

BRIDGES, RELAYS, POWER PACKS, WALLPODS, AND SENSORS ON DRAWINGS WERE PLACED WITH INFORMATION PROVIDED AT TIME OF DESIGN. ADDITIONAL BRIDGES AND/OR SENSORS MAY BE REQUIRED DEPENDING ON BUILDING CHANGES, FINAL PARTITION HEIGHT/PLACEMENT, FURNITURE PLACEMENT, EQUIPMENT HEIGHT/PLACEMENT AND SHELVING HEIGHT/PLACEMENT.

THE LAYOUT OF THE NETWORK BACKBONE (BRIDGES AND GATEWAYS) HAS BEEN PLACED IN A SEPARATE TREE DIAGRAM AND NOT ON THE ACTUAL LAYOUT. FINAL PLACEMENT OF THE BRIDGE(S) AND GATEWAY(S) DEVICES SHALL BE AT THE CONTRACTOR/ENGINEER DISCRETION.

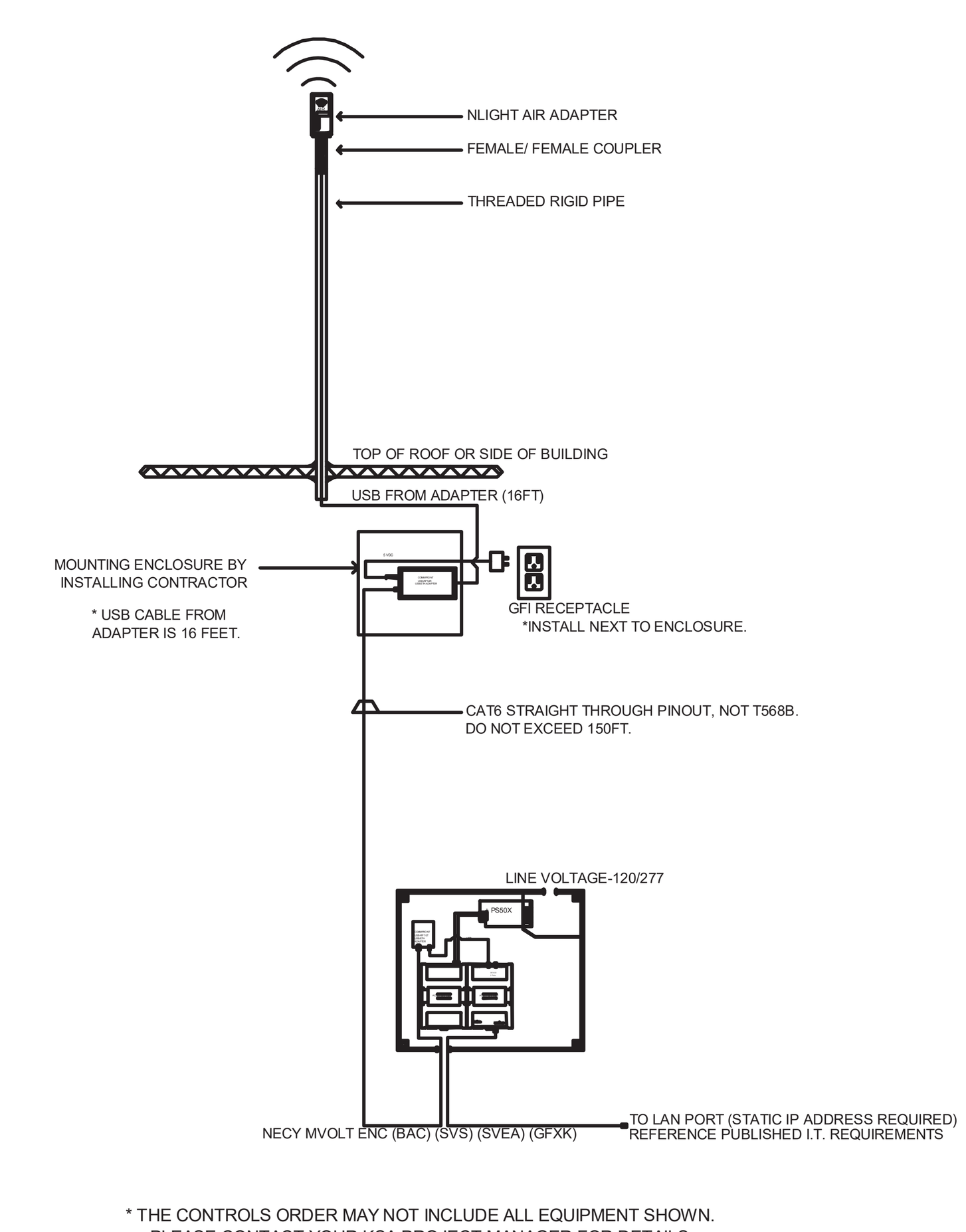
ALL DEVICES HAVE RJ-45 FEMALE PORTS. MAKING NETWORK CONTROL CABLES IS REQUIRED, T568B TERMINATIONS ARE RECOMMENDED. IT IS IMPERATIVE THAT ALL NETWORK CONTROL CABLES BE TESTED WITH A LAN CABLE TESTER TO VERIFY PROPER TERMINATIONS.

DAISY-CHAINED DEVICES SHOULD BE POWERED UP AND WORKING ON DEFAULT PROGRAMMING PRIOR TO CONNECTION TO BRIDGE OR GATEWAYS.

LOW VOLTAGE NETWORK CONTROL CABLE (CAT5/5E/6) RUNS FOR LOCAL ZONES, HOMERUNS AND BACKBONE SHOULD BE WHITE WITH CABLES LABELED.

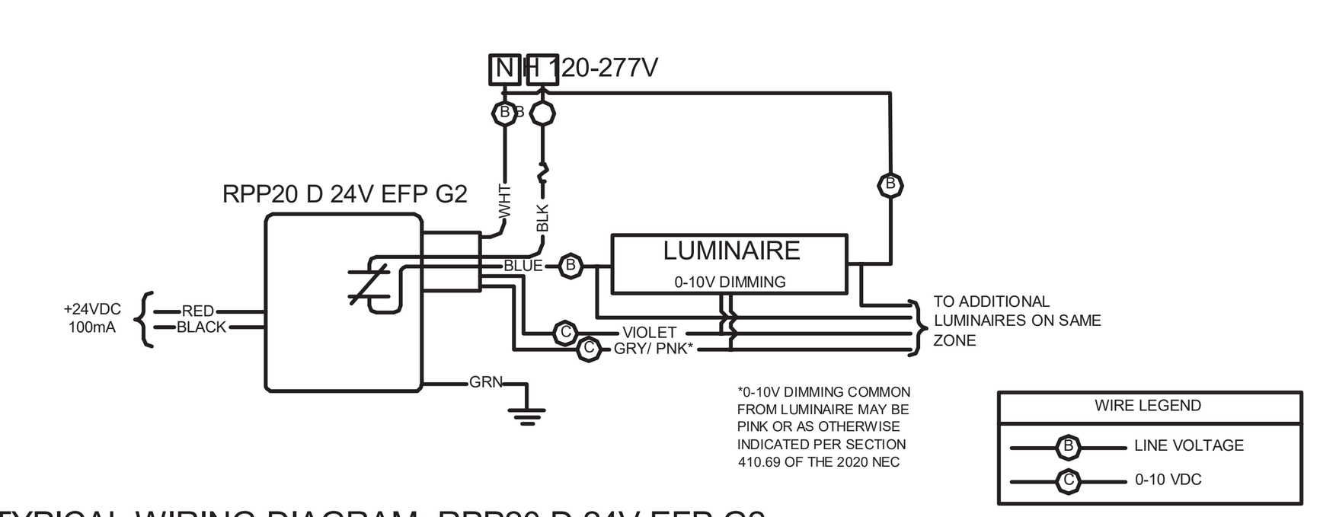
CONTRACTOR TO VERIFY BLINK/DIAGNOSTIC CODES (VISIT HTTP://NLIGHTCONTROLS.COM/WP-CONTENT/UPLOADS/NLIGHT_POCKET_GUIDE.PDF) WHEN CONNECTING GATEWAYS/BRIDGES TO ZONES.

MAXIMUM CABLE LENGTH FROM START DEVICE TO END DEVICE IS 1500' INCLUDING HOMERUN TO BRIDGE DEVICE, IF PRESENT. MANUFACTURER IS NOT RESPONSIBLE FOR SYSTEMS EXCEEDING CABLING PARAMETERS.



NECY AIR WITH NLIGHT AIR ANTENNA WIRING DIAGRAM

N.T.S.



TYPICAL WIRING DIAGRAM: RPP20 D 24V EFP G2

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01-05-2023
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△	DATE	SUBMISSION

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MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

SITE LIGHTING CUT SHEETS

SHEET NUMBER:
CE1.04

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Plan View
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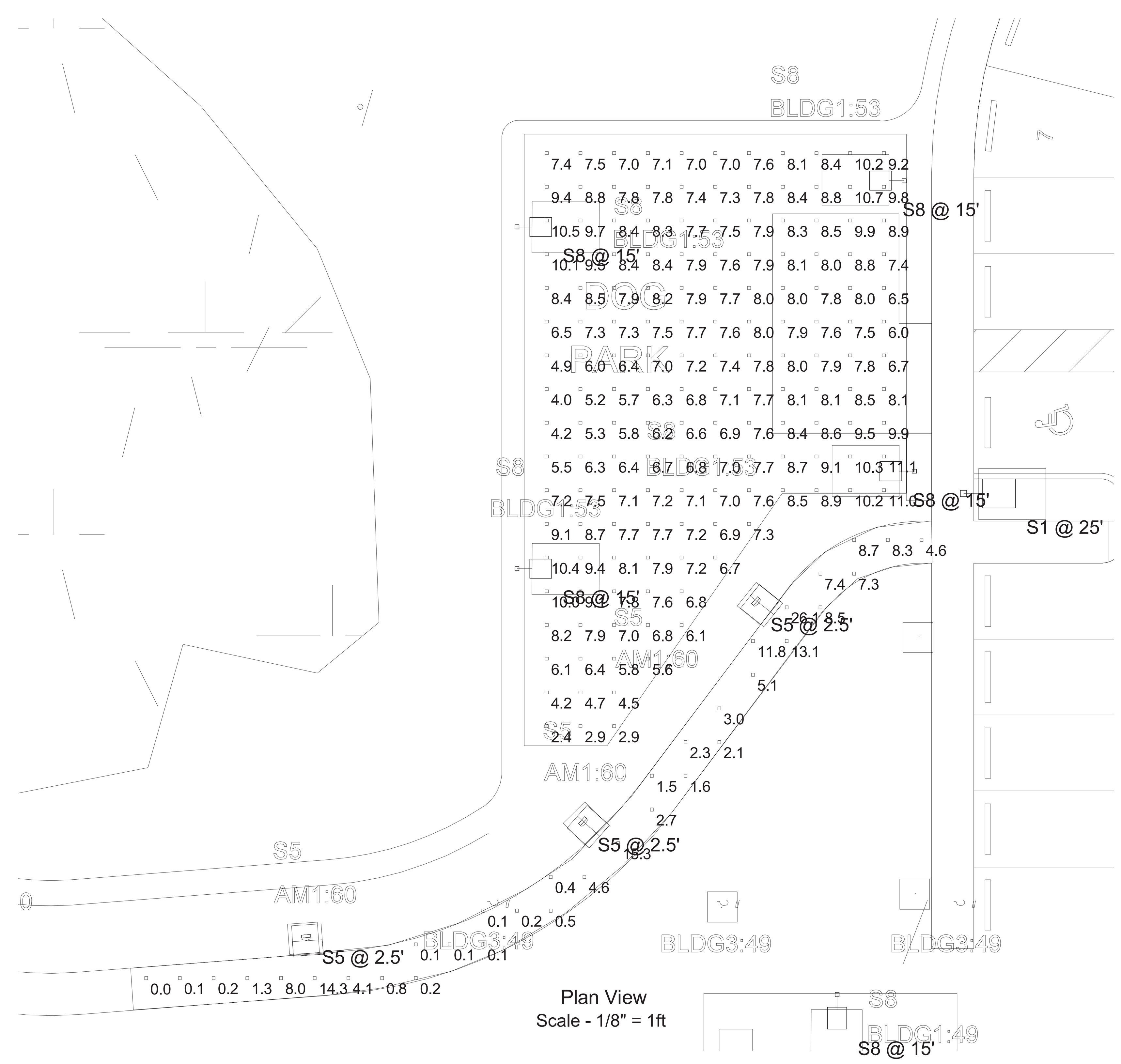
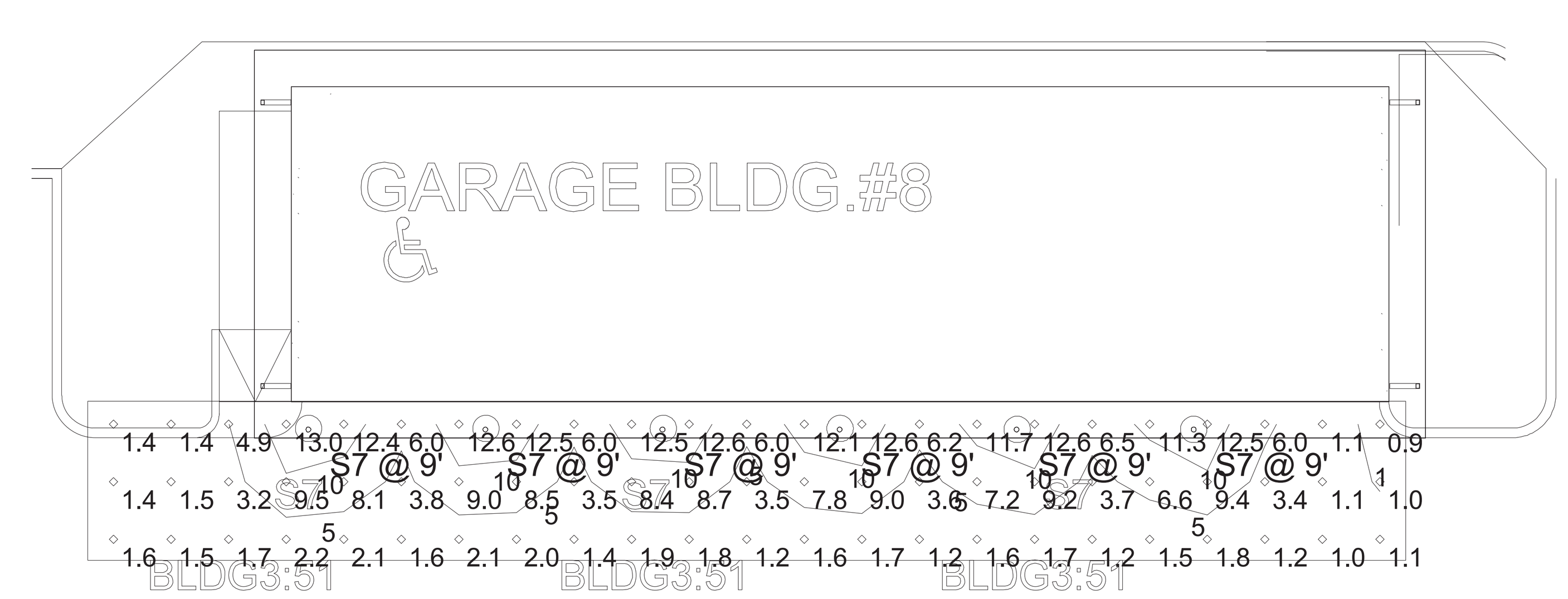


Plan View
Scale - 1/8" = 1ft



Plan View
Scale - 1/8" = 1ft

Schedule

SYMBOL	Label	Quantity	Manufacturer	Catalog Number	Description	Number Lamps	Lumens Per Lamp	Light Loss Factor	Wattage
	S1	27	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S1A	9	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S2	5	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S3	1	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	137.9
	S4	48	Lithonia Lighting	DSX0 LED P3 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Forward Throw	1	8988	0.93	68.95
	S5	21	BEGA Converted By LUM Cat V 11.08.20 15 / H.R.		84672	1	1100	0.93	17.4
	S7	24	Lithonia Lighting	LDN4 40/10 LO4AR LSS	4IN LDN, 4000K, 1000LM, CLEAR, SEMI-SPECULAR REFLECTOR, 80CRI	1	1046	0.93	10.58
	S8	10	Lithonia Lighting	DSX0 LED P3 40K 70 CRI T4LG	D-series Size 0 Area Luminaire P3 Performance Package 4000K CCT 70 CRI Type 4 Low G Rating	1	8119	0.93	68.95
	S9	4	Lithonia Lighting	DSX0 LED P2 40K 70 CRI TFTM	D-series Size 0 Area Luminaire P2 Performance Package 4000K CCT 70 CRI Forward Throw	1	6316	0.93	45.14

NOTES

1. CALCULATION POINT WORK PLANE: GRADE LEVEL
2. FIXTURE MOUNTING HEIGHT: REFER TO FIXTURE LABELS NOTED ON PLAN
3. CALCULATIONS PROVIDED BY KSA ARE NOT A GUARANTEE OF PERFORMANCE. ACTUAL LIGHT LEVELS MAY VARY.**

STATISTICS

DESCRIPTION	SYMBOL	Avg	Max	Min	Max/Min	Avg/Min
DOG PARK		7.6 fc	11.1 fc	2.4 fc	4.6:1	3.2:1
PARKING AND DRIVEWAYS ONLY		1.5 fc	5.5 fc	0.1 fc	55.0:1	15.0:1
PATHWAY		4.8 fc	26.1 fc	0.0 fc	N/A	N/A
POOL AREA		7.2 fc	13.1 fc	0.0 fc	N/A	N/A
ALL CALC POINTS		1.1 fc	36.7 fc	0.0 fc	N/A	N/A

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JON DANIEL SHEPARD LICENSE No. 71536 STATE OF FLORIDA PROFESSIONAL ENGINEER
01-05-2023
Jon D. Shepard
PE 0071536

NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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MILHAUS

SR-82

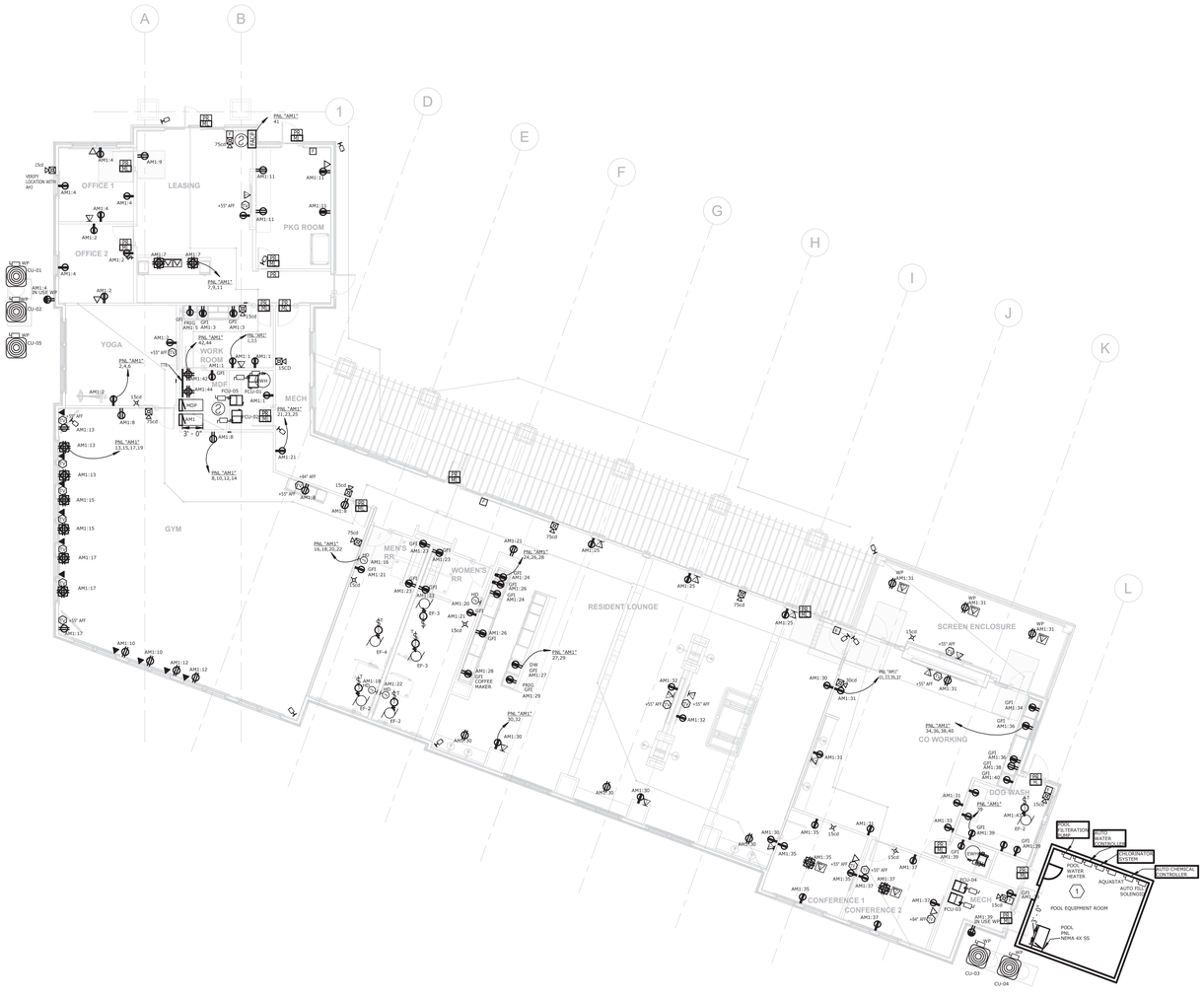
7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

SITE PHOTOMETRIC
POOL

SHEET NUMBER:
CE1.05

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH LONG ON 30X42 SHEETS ORIGINAL PAGE SIZE



1 POWER PLAN - GROUND LEVEL - AMENITY
1/8" = 1'-0"

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

POWER GENERAL NOTES

1. DO NOT INSTALL DEVICES BACK TO BACK IN ANY FIRE RATED WALL. PROVIDE MINIMUM 24" HORIZONTAL SPACE BETWEEN SUCH OUTLETS.
2. SEAL PENETRATIONS IN EVERY FIRE RATED WALL AND FLOOR PER U.L. TO MAINTAIN THE ALL AND FLOOR ORIGINAL RATING.
3. FOR 120V BRANCH CIRCUITS, PROVIDE #10 CONDUCTORS FOR ANY CIRCUIT OVER 70' AND #8 CONDUCTORS FOR ANY CIRCUIT OVER 150'.
4. PROVIDE CONNECTION TO FIRE ALARM CONTROL PANEL FROM ALL FIRE ALARM DEVICES.
5. TYPE N.M. WIRING FOR BRANCH CIRCUIT WIRING FOR TYPE III, IV AND V CONSTRUCTION IF ACCEPTABLE TO LOCAL AUTHORITY HAVING JURISDICTION. PROVIDE M.C. CABLE OR 282/EMT CONDUIT FOR BRANCH CIRCUITS IN ALL OTHER CONSTRUCTION TYPES AND IN RETURN AIR PLENUM ROOMS OR SPACES.
6. INDICATES ITEM NUMBER FOR HVAC UNIT. SEE E3.00 FOR MECHANICAL CONNECTION SCHEDULE.
7. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS AND QUANTITY OF ALL SMOKE AND SMOKE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO THE DAMPER. REFER TO THE MECHANICAL CONTRACTOR EQUIPMENT SHOP DRAWINGS FOR ADDITIONAL INFORMATION.
8. THE MINIMUM CONDUIT SIZE FOR HOME RUNS AND BRANCH FEEDS TO POWER/DATA OUTLETS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER. 1/2" CONDUIT SHALL BE ACCEPTABLE FOR BRANCH WIRING TO END OF THE LINE RECEPTACLES ONLY. ALL POWER BRANCH CIRCUIT SHALL TERMINATE AT 20 AMP ONE POLE CIRCUIT BREAKERS IN PANELBOARD UNLESS OTHERWISE NOTED.
9. MINIMUM CONDUIT SIZE FOR EQUIPMENT LOADS SHALL BE 3/4" UNLESS OTHERWISE INDICATED LARGER.
10. COORDINATE WITH MECHANICAL CONTRACTOR FOR EQUIPMENT SUPPLIED DISCONNECTS NOT SHOWN ON THIS DRAWING. SEE MECHANICAL EQUIPMENT SCHEDULE FOR DETAILS.
11. GFIC PROTECTION MAY BE PROVIDED VIA GFCI RECEPTACLE OR GFIC CIRCUIT BREAKERS WHERE RECEPTACLES ARE NOT ACCESSIBLE.
12. ACCESS CONTROL HARDWARE, CCTV MONITERS, PAGING SYSTEM, SECURITY SYSTEM, AND MISCELLANEOUS LOW- VOLTAGE COMPONENTS, AS INDICATED ON THESE DRAWINGS, ARE DIAGRAMMATIC. COORDINATE ALL DEVICE LOCATIONS AND ROUGH- IN. THE LOW VOLTAGE SYSTEM CONTRACTORS(S) SHALL PROVIDE COMPLETE SHOP DRAWINGS FOR THESE ENGINEER 'S AND/OR OWNER 'S REVIEW. WHERE A CONFLICTS EXIST BETWEEN THE CONTRACTOR 'S SHOP DRAWINGS AND THE ELECTRICAL CONTRACT DOCUMENTS, THE SHOP DRAWINGS SHALL SUPERCEDE.

1 POOL EQUIPMENT ENCLOSURES AND INSTALLATION TO MEET THE REQUIREMENTS OF NEC 110.28 AND NEC 680. ELECTRICAL CONTRACTOR SHALL PROVIDE ALL GROUNDING, BOUNDING, EQUIPMENT, ETC. PER NEC AND POOL EQUIPMENT PLAN REQUIREMENTS.

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MILHAUS

MILHAUS

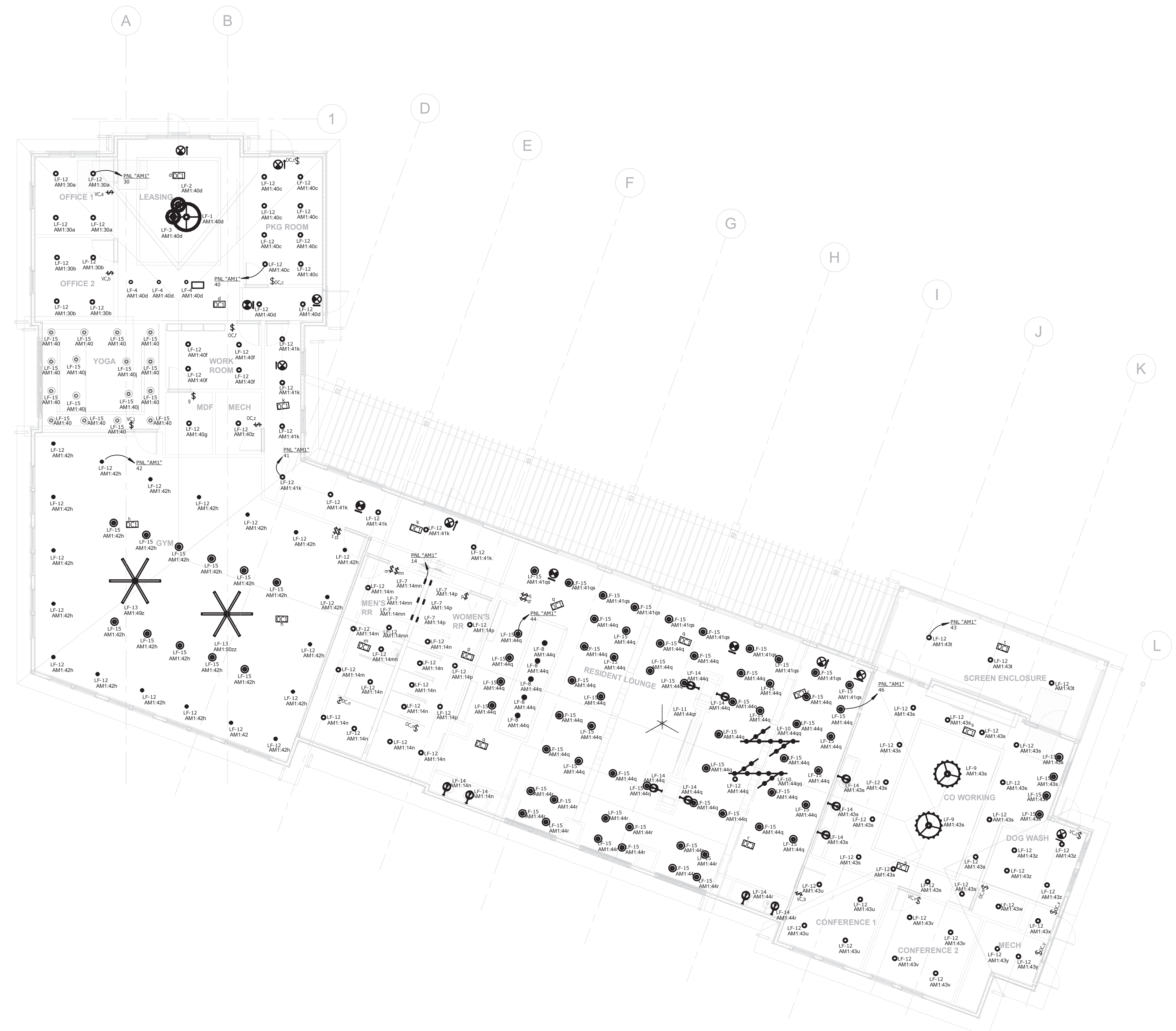
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

AMENITY CENTER POWER PLAN

SHEET NUMBER:
CE2.00



1 LIGHTING PLAN - GROUND LEVEL - AMENITY
1/8" = 1'-0"

LIGHTING NOTES

1. EMERGENCY EXIT AND EGRESS LIGHTS SHALL BE CONNECTED TO THE LOCAL LIGHTING CIRCUIT SERVING THE SPACE AND LOCATED AHEAD OF ANY LIGHTING CONTROL PANEL SWITCHING AND LOCAL WALL SWITCHES. BRANCH CIRCUITS FEEDING EMERGENCY LIGHTS SHALL BE CLEARLY MARKED AT THE DISTRIBUTION PANEL.

2. CONTRACTOR SHALL COORDINATE WITH THE LIGHTING CONTROLS VENDOR THE TYPE, NUMBER,AND PLACEMENT OF SENSORS TO PROVIDE A SATISFACTORY OPERATIONAL SYSTEM AT NO ADDITIONAL COST TO THE OWNER. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE ADDITIONAL COST TO THE OWNER IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO MAKE S SATISFACTION WITH THE OCCUPANCY SENSOR SYSTEM. THE CONTRACTOR SHALL PROVIDE ADDITIONAL SENSORS AS REQUIRED TO PROPERLY AND COMPLETELY COVER THE RESPECTIVE AREA.

3. SEE SITE PLAN E1.00 FOR EXTERIOR LIGHTS.

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MILHAUS.

MILHAUS

SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

AMENITY CENTER
LIGHTING PLAN

SHEET NUMBER:
CE2.01

Panelboard: MDP

Location: STORAGE ROOM 19 **Volts:** 120/208 **A.I.C. Rating:** 22000 AIC
Supply From: UTILITY CO. TRANSFORMER **Phases:** 1 **Mains Type:** 600A MLO
Mounting: FLUSH **Wires:** 3 **Mains Rating:** 600 A
Enclosure: NEMA 1 **MCB Rating:** N/A

Notes:
FTRC

CKT	Load Name	Trip	Pole	A	A	B	B	Pole	Trip	Load Name	CKT
1	CU-01	50 A	2	3.48	3.48			2	50 A	CU-02	2
3	--	--	--			3.48	3.48	--	--	--	4
5	CU-03	50 A	2	3.48	3.48			2	50 A	CU-04	6
7	--	--	--			3.48	3.48	--	--	--	8
9	CU-05	20 A	2	3.48	5.98			2	15 A	FCU-01	10
11	--	--	--			3.48	5.98	--	--	--	12
13	FCU-02	15 A	2	5.98	5.98			2	15 A	FCU-03	14
15	--	--	--			5.98	5.98	--	--	--	16
17	FCU-04	15 A	2	5.98	5.98			2	20 A	FCU-05	18
19	--	--	--			5.98	5.98	--	--	--	20
21	EWH-1	15 A	2	0.50	0.50			2	15 A	EWH-2	22
23	--	--	--			0.50	0.50	--	--	--	24
25	AM1	200 A	2	14.53	3.90			2	60 A	POOL PNL	26
27	--	--	--			25.18	3.29	--	--	--	28
29	EF-2 & EF-3 MEN'S ROOM #4	20 A	1	0.38	0.38			1	20 A	EF-2 & EF-3 WOMEN'S ROOM #3	30
31	ENTRY GATE TELEPHONE SYSTEM	20 A	1			1.20	1.80	1	20 A	ENTRY GATE MOTOR	32
33											34
35											36
37											38
39							0.00	2	30 A	SURGE PROTECTIVE DEVICE	40
41					0.00			--	--	--	42
			Total Load:	67.46		79.74		kVA			
			Total Amps:	648.68		751.02		AMPS			

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	835 VA	125.00%	1044 VA		
Other	17858 VA	100.00%	17858 VA	Total Conn. Load:	147.21 kVA
Power	106744 VA	100.00%	106744 VA	Total Est. Demand:	142.16 kVA
Receptacle	20520 VA	74.37%	15260 VA	Total Conn.:	707.73 A
Computer	500 VA	100.00%	500 VA	Total Est. Demand:	683.44 A
HVAC LOAD	0 VA	0.00%	0 VA		

Notes:

Panelboard: AM1

Location: STORAGE RM 19 **Volts:** 120/208 **A.I.C. Rating:** 22000 AIC
Supply From: MDP **Phases:** 1 **Mains Type:** 200A MLO
Mounting: SURFACE **Wires:** 3 **Mains Rating:** 200 A
Enclosure: NEMA 1 **MCB Rating:** N/A

Notes:
FTRC

CKT	Load Name	Trip	Pole	A	A	B	B	Pole	Trip	Load Name	CKT
1	RECEPT RM 18 ,19, 20	20 A	1	0.72	0.90			1	20 A	RECEPT RM 15 & 16	2
3	ABOVE COUNTER RECEPT RM 18	20 A	1			0.36	1.08	1	20 A	RECEPT RM 15 & 16	4
5	FRIG RECEPT RM 18	20 A	1	0.18	0.18			1	20 A	ABOVE COUNTER RECEPT RM 15	6
7	RECEPT LEASING LOUNGE RM 22	20 A	1			0.72	0.72	1	20 A	RECEPT FITNESS RM 2	8
9	TV RECEPT RM 22	20 A	1	0.18	0.36			1	20 A	RECEPT TREADMILL 4 RM 2	10
11	RECEPT PACKAGE RM 17	20 A	1			0.72	0.36	1	20 A	RECEPT FITNESS RM 2	12
13	RECEPT TREADMILL 1 RM 2	20 A	1	0.90	0.70			1	20 A	FITNESS CENTER RR LTG.	14
15	RECEPT TREADMILL 2 RM 2	20 A	1			0.72	0.00	1	20 A	MEN'S HAND DRYER	16
17	RECEPT TREADMILL 3 RM 2	20 A	1	0.90	0.00			1	20 A	MEN'S HAND DRYER	18
19	MAIL KIOSK LIGHTING	20 A	1			0.29	0.00	1	20 A	WOMEN'S HAND DRYER	20
21	GENERAL RECEPT RM 3, 4, & 23	20 A	1	0.72	0.00			1	20 A	WOMEN'S HAND DRYER	22
23	EWC RM 23	20 A	1			0.72	0.36	1	20 A	COMMUNAL KITCHEN RECEPT	24
25	GENERAL RECEPT RM 5 & 6	20 A	1	0.54	0.36			1	20 A	COMMUNAL KITCHEN RECEPT	26
27	RECEPT DW RESIDENT LOUNGE	20 A	1			0.18	0.18	1	20 A	COMMUNAL KITCH COFFEE MAKER	28
29	RECEPT FRIG RESIDENT LOUNGE	20 A	1	0.18	1.36			1	20 A	GENERAL RECEPT RM 5 & 6	30
31	RECEPT COWOKER RM 7 & 8	20 A	1			2.16	0.36	1	20 A	GENERAL TV RECEPT RM 5 & 6	32
33	GENERAL TV RECEPT RM 7 & 8	20 A	1	0.18	0.18			1	20 A	COWOKER COFFEE MAKER RM 8	34
35	CONFERENCE RM 9	20 A	1			1.08	0.36	1	20 A	RECEPT COWOKER RM 8	36
37	CONFERENCE RM 10	20 A	1	1.08	0.18			1	20 A	COWOKER WARMER RM 8	38
39	GENERAL RECEPT RM 11, 12, 13, 14	20 A	1			0.90	0.99	1	20 A	COWOKER FRIG RM 8	40
41	FIRE ALARM CONTROL PANEL	20 A	1	0.68	0.27			1	20 A	TTB RECEPTACLE	42
43	CONF CO-WORK POOL EQ. LTG.	20 A	1			3.94	2.15	1	20 A	TTB RECEPTACLE	44
45	SITE LTG.	20 A	1	0.19	0.00			1	20 A	MAIL KIOSK POWER	46
47	SITE LTG.	20 A	1			2.44	0.19	1	20 A	SITE LTG.	48
49	GYM LIGHTING	20 A	1	1.80	1.80			1	20 A	GYM LIGHTING	50
51	EMERGENCY LIGHTING	20 A	1			4.19					52
53											54
55											56
57					0.00			2	30 A	SURGE PROTECTION	58
59							0.00	--	--	--	60
			Total Load:	14.53		25.18		kVA			
			Total Amps:	139.75		228.46		AMPS			

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting	835 VA	125.00%	1044 VA		
Other	17858 VA	100.00%	17858 VA	Total Conn. Load:	39.71 kVA
Power	0 VA	0.00%	0 VA	Total Est. Demand:	34.66 kVA
Receptacle	20520 VA	74.37%	15260 VA	Total Conn.:	190.93 A
Computer	500 VA	100.00%	500 VA	Total Est. Demand:	166.64 A
HVAC LOAD	0 VA	0.00%	0 VA		

Notes:

Panelboard: POOL PNL

Location: POOL EQUIPMENT ROOM **Volts:** 120/208 **A.I.C. Rating:**
Supply From: MDP **Phases:** 1 **Mains Type:** 60 A MLO
Mounting: FLUSH **Wires:** 3 **Mains Rating:** 60 A
Enclosure: NEMA 1 **MCB Rating:** N/A

Notes:

CKT	Load Name	Trip	Pole	A	A	B	B	Pole	Trip	Load Name	CKT
1	POOL FILTERATION PUMP	25 A	2	1.73	1.73			1	20 A	POOL WATER HEATER	2
3	--	--	--			1.73	1.20	1	20 A	AUTO WATER CONTROLLER	4
5	CHLORINATOR SYSTEM	20 A	1	0.24	0.20			1	20 A	AQUASTAT	6
7	AUTO CHEMICAL CONTROLLER	20 A	1			0.24	0.12	1	20 A	AUTO FILL SOLENOID	8
9											10
11											12
13											14
15											16
17											18
19											20
21											22
23											24
25											26
27							0.00	2	30 A	SURGE PROTECTION DEVICE	28
29								--	--	--	30
			Total Load:	3.90		3.29		kVA			
			Total Amps:	36.75		31.63		AMPS			

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Power	7194 VA	100.00%	7194 VA		
				Total Conn. Load:	7.19 kVA
				Total Est. Demand:	7.19 kVA
				Total Conn.:	34.59 A
				Total Est. Demand:	34.59 A

Notes:
*ALL EQUIPMENT HAVE GFI BREAKERS.

GENERAL LIGHTING FIXTURE SCHEDULE

SYMBOLS	TYPE	DESCRIPTION	MANUFACTURER CATALOG NO.	VOLTAGE	LED	WATTS	FIXTURE IMAGE
	LF-1	NAME: GRACE 36 CHANDELIER COLOR: BW LED930	TECH LIGHTING , 700GRC48"BW-LED930	120V	3000K	80.3	
	LF-2	NAME: GRACE 30 CHANDELIER COLOR: BW LED930	TECH LIGHTING , 700GRC36"BW-LED930	120V	3000K	50.7	
	LF-3	NAME: GRACE 24 CHANDELIER COLOR: BW LED930	TECH LIGHTING , 700GRC24"BW-LED930	120V	3000K	45	
	LF-4	NAME: ALLEA PENDANT COLOR: BLACK / GOLD	TECH LIGHTING ,700TDSBG-LED930	120V	2700K	75	
	LF-5	NAME: es6 Ceiling Fan - 60" COLOR:BLACK FINISH	BIG ASS FANS	120V		22	
	LF-6	NAME: SCOUT 4049-EUREKA COLOR: BLKE 4049-10	TECH LIGHTING ,70072BR-LED927	120V	2700K	60	
	LF-7	NAME: STIX BATH LED 18" COLOR: SATIN BLACK	SONNEMAN LIGHTING	120V	2700K	16	
	LF-8	NAME: SYRMA PENDANT COLOR: TD B LED930	TECH LIGHTING ,700FJBS-LED930	120V	3000K	17.4	
	LF-9	NAME: ALBANY ROUND CHANDELIER COLOR: DEEP BLACK/BRASS	LIGHTOLOGY, EUF907969	120V	2700K	14.58	
	LF-10	NAME: SEDONA PENDANT COLOR: G12	TECH LIGHTING ,700SDN9CR-LED930R	120V	3000K	6	
	LF-11	NAME: SUSPENDERS 4-TIER TRI-BAR COLOR: BLACK	SONNEMAN LIGHTING , SON665936	120V	2700K	54	
	LF-12	NAME: SURFACE MOUNTED ROUND 6" COLOR: STATIC WHITE	SPITZER, BL-RP5-6IN	120V	2700K	12	
	LF-13	NAME: i6 CEILING FAN-84" COLOR: BLACK FINISH	BIG ASS FANS, ISM-MKTG-161-ENG-01	120V	3000K	41	
	LF-14	NAME: Q-A812-E6-51 WALL SCONCE COLOR: E651	ANP LIGHTING, Q-A812-E6-51	120V	2700K	200	
	LF-15	NAME: SURFACE MOUNTED 4" COLOR: WHITE	SPITZER, BL-RP5-4IN	120V	3000K	6	
	LF-16	NAME: EXTERIOR CEILING FAN COLOR: CARAMEL WOOD GRAIN W/BLACK HARDWARE	BIG ASS FANS, MK-HK4-04	120V		19.4	

MECHANICAL MOTOR AND EQUIPMENT SCHEDULE

EQUIP. TAG	DESIGNATED TAG	LOCATIONS	LOAD				CONDUIT AND WIRE SIZE	SOURCE OF POWER		PROTECT (AMPERES)	REMARKS
			VOLTS	PHASE	H.P.	AMP		PANEL	CCT. NO.		
CU-01	CONDENSING UNIT-01	GRADE	208	1		33.4	2#8 + 1#10 GND IN 3/4" C.	MDP	1,3	50	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
CU-02	CONDENSING UNIT-02	GRADE	208	1		33.4	2#8 + 1#10 GND IN 3/4" C.	MDP	5,7	50	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
CU-03	CONDENSING UNIT-03	GRADE	208	1		33.4	2#8 + 1#10 GND IN 3/4" C.	MDP	2,4	50	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
CU-04	CONDENSING UNIT-04	GRADE	208	1		32.8	2#8 + 1#10 GND IN 3/4" C.	MDP	6,8	50	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
CU-05	CONDENSING UNIT-05	GRADE	208	1		32.8	2#8 + 1#10 GND IN 3/4" C.	MDP	9,11	50	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
FCU-01	FAN COIL UNIT-01	STORAGE RM 20	208	1		52.8/57.5	2#10 + 1#12 GND IN 3/4" C.	MDP	9,11	60/60	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
FCU-02	FAN COIL UNIT-02	STORAGE RM 20	208	1		52.8/57.5	2#10 + 1#12 GND IN 3/4" C.	MDP	13,15	60/60	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
FCU-03	FAN COIL UNIT-03	STORAGE RM 20	208	1		52.8/57.5	2#10 + 1#12 GND IN 3/4" C.	MDP	10,12	60/60	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
FCU-04	FAN COIL UNIT-04	STORAGE RM 20	208	1		52.8/57.5	2#10 + 1#12 GND IN 3/4" C.	MDP	14,15	60/60	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
FCU-05	FAN COIL UNIT-05	STORAGE RM 20	208	1		52.8/57.5	2#10 + 1#12 GND IN 3/4" C.	MDP	18,20	60/60	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-2	TOILET EXHAUST FAN #2	MEN'S REST RM #4	120	1		0.7	2#10 + 1#12 GND IN 3/4" C.	AM1	43	20	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-2	TOILET EXHAUST FAN #2	WOMEN'S REST RM #3	120	1		0.7	2#10 + 1#12 GND IN 3/4" C.	AM1	43	20	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-2	TOILET EXHAUST FAN #2	PETS SPA RM #11	120	1		0.7	2#10 + 1#12 GND IN 3/4" C.	AM1	45	20	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-3	TOILET EXHAUST FAN #3	WOMEN'S REST RM #3	120	1		2.25	2#10 + 1#12 GND IN 3/4" C.	AM1	43	20	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-3	TOILET EXHAUST FAN #3	WOMEN'S REST RM #3	120	1		2.25	2#10 + 1#12 GND IN 3/4" C.	AM1	43	20	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EF-4	TOILET EXHAUST FAN #4	MEN'S REST RM #4	120	1		0.3	2#12 + 1#12 GND IN 3/4" C.	AM1	43	20	DISCONNECT SWITCH IS PROVIDE BY AND INSTALLED BY THE ELECTRICAL CONTRACTOR.
EWH-1	ELECTRIC WATER HEATER 1	STORAGE RM 20	240	1		4.4	2#12 + 1#12 GND IN 3/4" C.	MDP	17,19	15	48 GALLONS. TOTAL (9x4+1) UNITS
EWH-2	ELECTRIC WATER HEATER 2	JANITORS RM #13	240	1		4.4	2#12 + 1#12 GND IN 3/4" C.	MDP	18,20	15	38 GALLONS. TOTAL (8x4+1) UNITS

This set has been digitally signed and sealed by Jon D. Shepard, PE on January 5, 2023 using a Digital Signature. Printed copies of this document are not considered signed and sealed and the SHA authentication code must be verified on any electronic copies.

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NOT FOR CONSTRUCTION

△	DATE	SUBMISSION

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SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

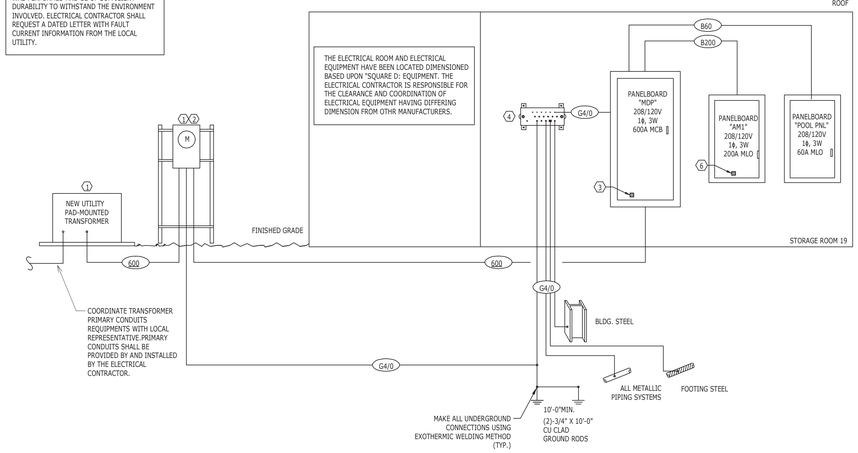
PROJECT NO:
220035.00

EQUIPMENT SCHEDULE AMENITY

SHEET NUMBER:
CE3.00

THE LINE SHOWN ABOVE IS EXACTLY ONE INCH ON ALL ODD SHEETS ORIGINAL PAGE SIZE

SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FEILD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY.



1 ELECTRICAL RISER DIAGRAM-CLUBHOUSE BUILDING

COPPER CONDUCTOR AND CONDUIT SCHEDULE

O.C.P.D.** AMPERE RATING	SYMBOL*	3 WIRE WITH GROUND (2P W/ NEUTRAL)	O.C.P.D.** AMPERE RATING	SYMBOL*	3 WIRE WITH GROUND (2P W/ NEUTRAL)
20A	A20	3-#12, #12G. IN 3/4"C.	225A	A225	3-#4/0, #4G. IN 2 1/2"C.
25A	A25	3-#10, #10G. IN 3/4"C.	250A	A250	3-250MCM, #4G. IN 3"C.
30A	A30	3-#10, #10G. IN 3/4"C.	300A	A300	3-350MCM, #4G. IN 3"C.
35A	A35	3-#8, #10G. IN 1"C.	350A	A350	3-400MCM, #3G. IN 3 1/2"C.
40A	A40	3-#8, #10G. IN 1"C.	400A	A400	3-500MCM, #3G IN 3 1/2"C.
45A	A45	3-#8, #10G. IN 1"C.	450A	A450	2 SETS: 3-#4/0, #2G. EACH IN 2 1/2"C.
50A	A50	3-#8, #10G. IN 1"C.	500A	A500	2 SETS: 3-#250MCM, #2G. EACH IN 3"C.
60A	A60	3-#6, #10G. IN 1 1/4"C.	600A	A600	2 SETS: 3-#350MCM, #1G. EACH IN 3"C.
70A	A70	3-#4, #8G. IN 1 1/4"C.	700A	A700	2 SETS: 3-#400MCM, #1/0G. EACH IN 3"C.
80A	A80	3-#4, #8G. IN 1 1/4"C..	800A	A800	2 SETS: 3-#500MCM, #1/0G. EACH IN 3 1/2"C.
90A	A90	3-#3, #8G. IN 1 1/4"C.	1000A	A1000	3 SETS: 3-#400MCM, #2/0G. EACH IN 3"C.
100A	A100	3-#3, #8G. IN 1 1/4"C.	1200A	A1200	4 SETS: 3-#350MCM, #3/0G. EACH IN 3"C.
110A	A110	3-#2, #6G. IN 1 1/2"C.	1600A	A1600	5 SETS: 3-#400MCM, #4/0G. EACH IN 3 1/2"C.
125A	A125	3-#1, #6G. IN 2"C.	2000A	A2000	6 SETS: 3-#400MCM, #250MCM G. EACH IN 3"C.
150A	A150	3-#1/0, #6G. IN 2"C.	2200A	A2200	6 SETS: 3-#500MCM, #350MCM G. EACH IN 3 1/2"C.
175A	A175	3-#2/0, #6G. IN 2"C.	2500A	A2500	7 SETS: 3-#500MCM, #350MCM G. EACH IN 3 1/2"C.
200A	A200	3-#3/0, #6G. IN 2 1/2"C.	3000A	A3000	8 SETS: 3-#500MCM, #400MCM G. EACH IN 3 1/2"C.

G1/0	1-#1/0 G IN 1"C.	G2/0	1-#2/0 G IN 1"C.	G3/0	1-#3/0 G IN 1"C.

* UNDERLINED TEXT WITHIN A SYMBOL INDICATES NO GROUND WIRE FOR SVC. FEEDER OR NO NEUTRAL FOR MOTOR LOAD
** OVER CURRENT PROTECTIVE DEVICE

NOTES:

1. FOR SINGLE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 100' OF CIRCUIT LENGTH. FOR THREE PHASE CIRCUITS, INCREASE WIRE ONE SIZE FOR EACH 200' OF CIRCUIT LENGTH. (ADJUST CONDUIT AS REQ'D).
2. VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL,IN ACCORDANCE WITH THE FLORIDA BUILDING CODE - ENERGY CONSERVATION, SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTOR BASES ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.
3. ALL UNDERGROUND AND ROOFTOP CONDUCTORS TO BE 90° C CONDUCTORS, TYPE XHHW-2. ALLOWABLE AMPACITY PER 75°C COLUMN, NEC 70 TABLE 310.15(B)(16).
4. ALL CONDUCTORS SHALL BE COPPER WITH TYPE THHNINSULATION UNLESS OTHERWISE NOTED.

BRANCH CIRCUIT WIRING SCHEDULE

SINGLE POLE (1P)				THREE POLE (3P)			
C/B SIZE	WIRE	CONDUIT	REMARKS	C/B SIZE	WIRE	CONDUIT	REMARKS
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	20b.	3-#12, 1-#12G.	3/4"	3Ø, 3W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	25b.	3-#10, 1-#10G.	3/4"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	30b.	3-#10, 1-#10G.	3/4"	3Ø, 3W
35a.	2-#8, 1-#10G.	3/4"	1Ø,2W	30a.	3-#10, 1-#10N, 1-#10G.	3/4"	3Ø, 4W
40a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	3/4"	1Ø,2W	35a.	3-#8, 1-#8, 1-#10G.	1"	3Ø, 4W
50a.	2-#8, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#10G.	1"	3Ø, 3W
60a.	2-#6, 1-#10G.	3/4"	1Ø,2W	40a.	3-#8, 1-#8N, 1-#10G.	1"	3Ø, 4W
TWO POLE (2P)				45a.	3-#8, 1-#10G.	1"	3Ø, 3W
20a.	2-#12, 1-#12G.	3/4"	1Ø,2W	45a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
25a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#10G.	1"	3Ø, 3W
30a.	2-#10, 1-#10G.	3/4"	1Ø,2W	50a.	3-#8, 1-#8N, 1-10G.	1"	3Ø, 4W
40a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#10G.	1"	3Ø, 3W
45a.	2-#8, 1-#10G.	1"	1Ø,2W	60a.	3-#6, 1-#6N, 1-#10G.	1 1/4"	3Ø, 4W
50a.	2-#8, 1-#10G.	1"	1Ø,2W	100a.	3-#3, 1-#3N, 1-#8G.	1 1/2"	3Ø, 4W
60a.	2-#6, 1-#10G.	1"	1Ø,2W	125a.	3-#1, 1-#1N, 1-#6G.	2"	3Ø, 4W
70a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	150a.	3-#1/0, 1-#1/0N, 1-#6G.	2"	3Ø, 4W
80a.	2-#4, 1-#8G.	1 1/4"	1Ø,2W	175a.	3-#2/0, 1-#2/0N, 1-#6G.	2"	3Ø, 4W
90a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W	200a.	3-#3/0, 1-#3/0N, 1-#6G.	2 1/2"	3Ø, 4W
100a.	2-#3, 1-#8G.	1 1/4"	1Ø,2W				

NOTE: VOLTAGE DROP: THE CONDUCTORS FOR FEEDERS AND BRANCH CIRCUITS COMBINED SHALL BE SIZED FOR A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL, IN ACCORDANCE WITH THE FBC,SECTION C405.5.3. CALCULATIONS SHALL BE COMPLETED BY THE ELECTRICAL CONTRACTORBASED ON ACTUAL FIELD INSTALLATIONS AND DISTANCES PRIOR TO ROUGH-IN.

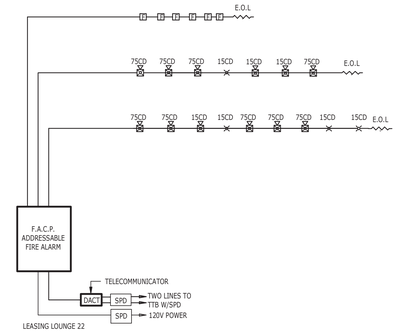
SERVICE EQUIPMENT SHALL BE MARKED TO INDICATED THE MAXIMUM AVAILABLE FAULT CURRENT AS REQUIRED BY 2017 NEC SECTION 110.24. THE FIELD MARKING(S) SHALL INCLUDE THE DATE THE FAULT CURRENT CALCULATION WAS PERFORMED AND BE OF SUFFICIENT DURABILITY TO WITHSTAND THE ENVIRONMENT INVOLVED. ELECTRICAL CONTRACTOR SHALL REQUEST A DATED LETTER WITH FAULT CURRENT INFORMATION FROM THE LOCAL UTILITY AND NOTIFY THE ENGINEER OF RECORD IF THE RESULTING AFC IS GREATER THAN INDICATED ON RISER DIAGRAM.

(1) KEYED NOTES - ELECTRICAL RISER DIAGRAM

1. COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.
2. UTILITY METER MOUNTED ON CONCRETE PEDESTAL. COORDINATE LOCATION AND REQUIREMENTS WITH LOCAL UTILITY COMPANY PRIOR TO ROUGH-IN.
3. SURGE PROTECTVE DEVICE: PQ PROTECTION "PQC200" SERIES, ASCO "XAS/200" SERIES (OR APPROVED EQUAL).
4. PROVIDE SOLID COOPER GROUND BUS BAR SIZED AS REQUIRED FOR THE SERVICE AND TTB LOCATIONS.
5. SURGE PROTECTIVE DEVICE: PQ PROTECTION "PQC100" SERIES, ASCO "XCS" SERIES (OR APPROVED EQUAL).

FIRE ALARM AND DETECTION SYSTEM NOTES:

1. PROVIDE AN ADDRESSBLE FIRE ALARM SYSTEM IN ACCORDANCE WITH THE FIRE ALARM RISER DIAGRAM.
2. UNDERGROUND FIRE ALARM CONDUCTORS SHALL BE TYPE FPL AND LISTED FOR DIRECT BURIAL AND WET LOCATIONS. FIRE ALARM CONDUCTORS IN SPACES UTILIZED AS RETURN AIR PLENUMS SHALL BE TYPE FPLP. FIRE ALARM RISER CONDUCTORS SHALL BE TYPE FPLR. ALL OTHER FIRE ALARM CONDUCTORS SHALL BE TYPE FPL.
3. ALL CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS BUT IN NO CASE SMALLER THAN 14 AWG FOR NOTIFICATION APPLIANCE CIRCUITS AND 18 AWG FOR SIGNALING LINE CIRCUITS.
4. ALL UNDERGROUND FIRE ALARM CONDUCTORS SHALL BE INSTALLED IN MINIMUM 3/4" CONDUIT. ALL FIRE CONDUCTORS CONCEALED IN WALLS SHALL BE IN MINIMUM 1/2" CONDUIT STUBBED 6" ABOVE CEILING W/90° BEND. (CONDUITS SHALL NOT EXCEED 30% FILL) TIE WRAP ALL EXPOSED FIRE ALARM WIRES TIGHT TO CEILING.
5. ALL VISUAL ALARMS SHALL BE RATED PER NFPA 72, 101, AND ANSI A117.1.4.26 AND ADA REQUIREMENTS. AUDIBLE AND VISUAL DEVICES FOR FIRE ALARM SHALL COMPLY WITH THE FLORIDA ACCESSIBILITY CODE. FIRE ALARM SYSTEM SHALL BE AS REQUIRED PER FLORIDA BUILDING CODE 2020, NFPA 101-2018, NFPA 72-2016, AND LOCAL CODES.
6. ALL NOTIFICATION APPLIANCE CIRCUITS SHALL B E CLASS B AND ALL SIGNALING LINE CIRCUITS SHALL BE CLASS B STYLE 4, UNLESS OTHERWISE INDICATED.
7. ALL FIRE ALARM WIRING TO BE SOLID COPPER CONDUCTOR OF THE MINIMUM SIZE RECOMMENDED BY THE FIRE ALARM SYSTEM MANUFACTURER AND INSTALLED IN CONDUIT WHERE CONCEALED OR ABOVE STORAGE SPACES. ALL WIRING TO BE COLOR COORDINATED AND PROPERLY IDENTIFIED. INSTALLATION WILL BE BY A STATE LICENSED AND APPROVED INSTALLER AND COMPLY WITH ALL APPLICABLE CODES AND ORDINANCES.
8. ALL FIRE ALARM COMPONENTS SHALL BE COMPATIBLE AND SHALL BE UL LISTED FOR FIRE ALARM SERVICE.
9. VERIFY ALL REQUIREMENTS WITH LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
10. FIRE ALARM AND FIRE SPRINKLER CONTRACTORS SHALL OBTAIN SEPARATE PERMITS.
11. BATTERY CALCULATIONS SHALL BE PROVIDED WITH EQUIPMENT SUBMITTALS AND PERMIT DOCUMENTS AS REQUIRED.
12. FIRE ALARM PLANS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF THE FIRE ALARM SYSTEM AND MEETS REQUIREMENTS IN ACCORDANCE WITH FLORIDA ADMINISTRATIVE CODE 61G15-32.008 AND 33.006. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS IN ACCORDANCE WITH ALL APPLICABLE CODES THAT SHALL INCLUDE, BUT NOT BE LIMITED TO, POINT TO POINT WIRING DIAGRAM, WIRE SIZES, BATTERY CALCULATIONS, EQUIPMENT SUBMITTALS AND INSTALLATION DETAILS. IT SHALL ALSO BE THE RESPONSIBILITY OF SAID CONTRACTOR TO PROVIDE DOCUMENTS AS REQUIRED FOR THE FIRE ALARM PERMIT. CONTRACTOR SHALL PROVIDE ADDITIONAL ITEMS AS REQUIRED FOR A COMPLETE AND CODE COMPLYING INSTALLATION BASED ON THE LOCAL REQUIREMENTS AND THE AHJ.
13. FIRE ALARM CONTRATOR SHALL SUPPLY TO THE OWNER AND OWNERS OPERATING PERSONNEL TRAINING AS REQUIRED FOR THE PROPER OPERATION AND MAINTENANCE OF THEIR FIRE ALARM SYSTEM. PROVIDE MANUALS, SYSTEM DOCUMENTATION AND A COPY OF THE PROGRAMMING WITHIN 30 DAYS OF ACCEPTANCE OF THE FIRE ALARM SYSTEM TO THE OWNER.
14. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS & QUANTITY OF ALL SMOKE & SMOKE/FIRE DAMPERS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO BID & ROUGH-IN. PROVIDE A CONTROL RELAY & CONTROL WIRE FROM THE FACP. ELECTRICAL CONTRACTOR SHALL PROVIDE 120V CIRCUIT TO DAMPERS & 120V/24V STEP-DOWN TRANSFORMER FOR DAMPER OPERATION AS REQUIRED PER THE MECHANICAL CONTRACTOR'S SUBMITTALS AND INSTALLATION DETAILS. IT SHALL ALSO BE THE EQUIPMENT SHOP DRAWINGS.
15. PROVIDE FIRE ALARM PANEL WITH ADEQUATE SPARE CAPACITY FOR FUTURE DEVICE CONNECTIONS IN FINAL BUILD-OUT BASED UPON LISTED OCCUPANCY AND SQUARE FOOTAGE.
16. A VOICE EVAC. SYSTEM WITH THE APPROVAL OF THE AHJ MAYBE USED AS A MASS NOTIFICATION SYTEM AS PER NFPA 72 2016.
17. COORDINATE THE EXACT LOCATIONS AND QUANTITY OF THE FIRE ALARM DEVICES WITH THE FLOOR PLANS.
18. VERIFY THE EXACT LOCATIONS AND QUANTITIES OF FLOW AND TAMPER SWITCHES WITH THE FIRE SPRINKLER RISER PRIOR TO BID.
19. FIRE ALARM SYSTEM TESTING SHALL BE AS PER NFPA 72 CHAPTER 14 REQUIREMENTS.
20. FIRE ALARM SYSTEM TO PROVIDE A GENERAL EVACUATION SIGNAL.
21. FIRE ALARM SYSTEM IS TO BE REMOTE MONITORED.
22. BUILDING OCCUPANCY TYPE IS "BUSINESS".



2 FIRE ALARM RISER DIAGRAM-CLUBHOUSE BUILDING

FIRE ALARM NOTES:

1. COORDINATE EXACT LOCATIONS AND QUANTITY OF FIRE ALARM DEVICES WITH FLOOR PLANS.
2. FIRE ALARM CONTRACTOR SHALL COORDINATE THE FINAL LOCATIONS & QUANTITY OF ALL SMOKE DETECTORS WITH THE MECHANICAL PLANS AND THE MECHANICAL CONTRACTOR PRIOR TO BID & ROUGH-IN.
3. PROVIDE SURGE PROTECTION DEVICES ON ALL FIRE ALARM WIRING ENTERING OR LEAVING A BUILDING. PROVIDE GROUNDING AS PER THE MANUFACTURES INSTRUCTIONS.
4. PROVIDE BOOSTER POWER SUPPLIES AS NEEDED FOR AUDIBLE/VISUAL DEVICES.

TWO-WAY RADIO COMMUNICATION ENHANCEMENT REQUIREMENTS

FIELD VERIFY WITH LOCAL MARSHAL/AHJ THAT MINIMUM RADIO SIGNAL STRENGTH REQUIREMENTS WILL BE PROVIDED ON PROJECT SITE TO DETERMINE IF CONTRACTOR PROVIDED ENHANCEMENTS WWILL BE REQUIRED TO DETERMINE IF CONTRACTOR PROVIDED ENHANCEMENTS WILL BE REQUIRED TO COMPLY WITH NFPA 1:11.10.1. PROVIDE ADDITIONAL ROOM AS REQUIRED BASED ON RF STUDY.

FIRE ALARM SYSTEM TYPE/WIRE SIZES PER CIRCUIT

		CLASS TYPE	MINIMUM WIRE SIZE	WIRE TYPE
A	PANEL SLC LOOP	CLASS B	#16-2 AWG	AS REQUIRED
B	REMOTE ANNUNCIATOR	CLASS B	#16-4 AWG	AS REQUIRED
C	PANEL NAC CIR. #1	CLASS B	#14-2 AWG	AS REQUIRED
D	PANEL NAC CIR. #2	CLASS B	#14-2 AWG	AS REQUIRED
E	PANEL NAC CIR. #3	CLASS B	#14-2 AWG	AS REQUIRED
F	PANEL NAC CIR. #4	CLASS B	#14-2 AWG	AS REQUIRED

SEQUENCE OF OPERATION MATRIX:

SYSTEM OPERATION NARRATIVE:
1. SEQUBICE OF OPERATION:
A. ACTIVATION OF BUILDING MANUAL OR AUTOMATIC ALARM INITIATING DEVICES SHALL PERFORM THE FOLLOWING OPERATION;
   1. GENBIAL ALARM STATUS SIGNALS SHALL BE TRANSMITTED TO AN U.L LISTED 24HR/7 DAY REMOTE STATION.
   2. THE CORRESPONDING ALARM DEVICE SHALL SHOW THE EXACT DESCRIPTION, POINT, TIME AND DATE OF ALARM AND DSINED MESSAGES ON THE FIRE ALARM CONTROL PANE. DISPLAY (FACP). THE LOBBY ANNUNCIATOR PANEL IF INSTALLED SHALL ALSO SHOW THE EXACT DESCRIPTION, POINT, TIME AND DATE OF THE ALARM AND DEFINED MESSAGES ON THE DISPLAY.
   3. SOUND AN AUDIBLE ALARM SIGNAL AT THE FACP.
   4. ALL HORNS SHALL SOUND AND ALL STROBE SHALL FLASH.
B. FIRE ALARM SYSTEM FUNCTIONS WHEN A SUPERVISORY CONDITIONS) DEVELOPS:
   1. SUPERVISORY CONDITION'S SHALL BE TRANSMITTED TO AN U.L LISTED 24HR/7 DAY REMOTE STATION.
   2. AN ALARM CONDITION SHALL OVARIDE THE SUPERVISORY CONDITION BY EXTINGUISHING ALL SUPERVISORY CONDITIONS. WHEN THE ALARM CONDITION HAS BEEN BJDED BY RESETTING THE CONTROL PANEL, SUPERVISORY INDICATIONS SHALL REAPPEAR.
   3. IF THE SUPERVISORY CONDITION HAS BEEN SILENCED AND NOT CORRECTED WÍTH IN 24 HRS AN AUDIBLE NOTIFICATION AT THE FIRE ALARM PANEL AND REMOTE ANNUNCIATOR SHALL BE REACTIVATED.
C. FIRE ALARM SYSTEM FUNCTIONS WHEN A TROUBLE CONDYNDN(S) DEVELOPS:
   1. TROUBLE STATUS SIGNALS ARE TRANSMITTED TO AN U.L LISTED 24HR/7 DAY REMOTE STATION.
   2. AN ALARM CONDITION SHALL OVERRIDE THE TROUBLE CONDITION BY EXTINGUISHING ALL TROUBLE CONDITIONS. WHEN THE ALARM CONDITION HAS BEEN ENDED BY RESETTING THE CONTROL PANEL, TROUBLE INDICATIONS SHALL REAPPEAR.
   3. IF A GROUND FAULT DEVELOPS ON EITHER THE POSITIVE (+) OR NEGATIVE (-) OF ANY ADDRESSABLE OR NOTIFICATION APPLIANCE CIRCUir, AN AUDIBLE AND VISUAL, TROUBLE SIGNAL WILL BE INDICATED AT THE FIRE ALARM CONTROL PANEL AND REMOTE ANNUNCIATOR PANEL
   4. IF THE TROUBLE CONDITION HAS BEEN SILENCH) AND NOT CORRECTED WITH IN 24 HRS AN AUDIBLE NOTIFICATION AT THE FIRE ALARM PANEL AND REMOTE ANNUNCIATOR SHALL BE REACTIVATED.

FIRE ALARM DEVICE	GENERAL NOTES	ANNUNCIATE & AT FACP	ANNUNCIATE @ 24 HR U.L. REMOTE STATION
SMOKE DETECTORS	YES	YES	YES
PULL STATIONS	YES	YES	YES
POWER FAILURES	NO	YES	YES
WATERFLOW SW	N/A	N/A	N/A
TAMPER SW	N/A	N/A	N/A

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01-05-2023
Jon D. Shepard
PE 0071536

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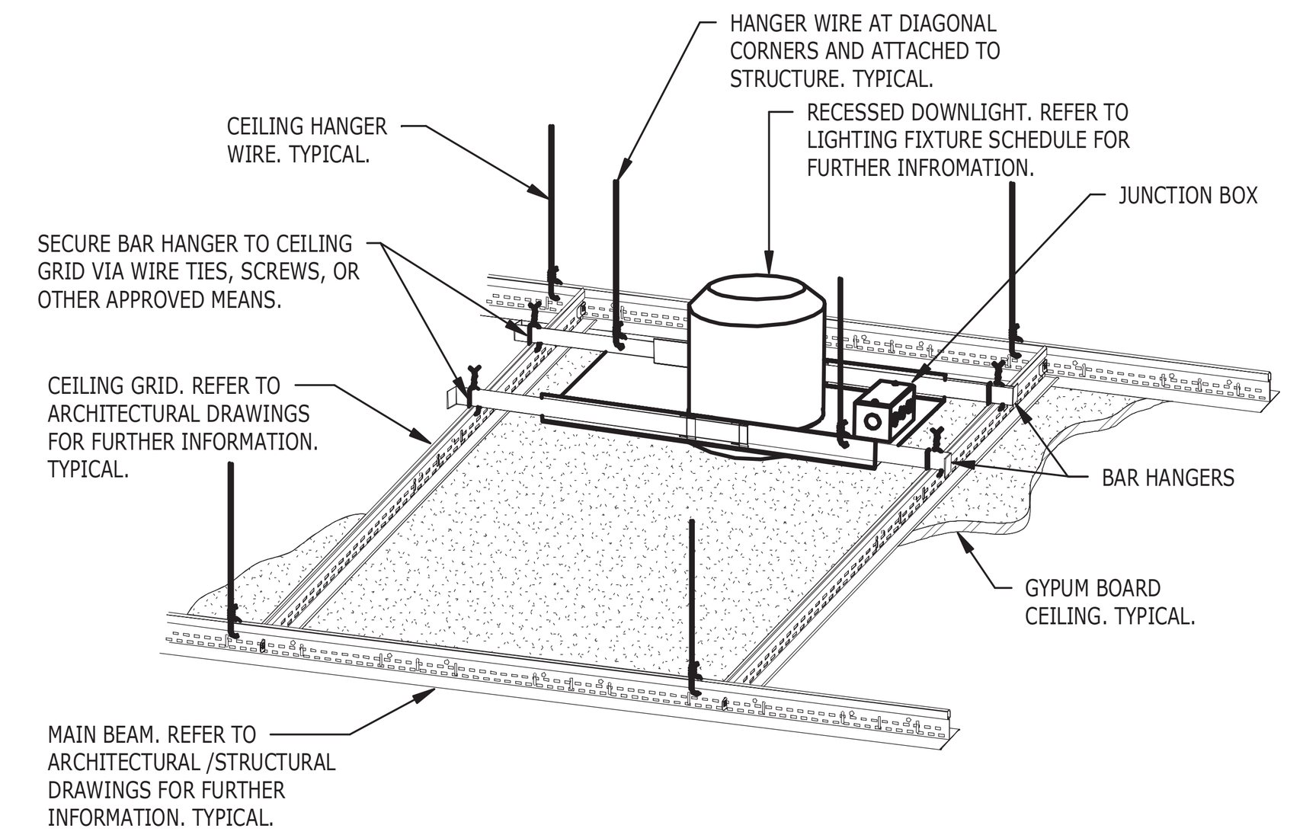
SR-82

7780 LIGHTARD KNOTT LN
FORT MYERS, FL 33905

PROJECT NO:
220035.00

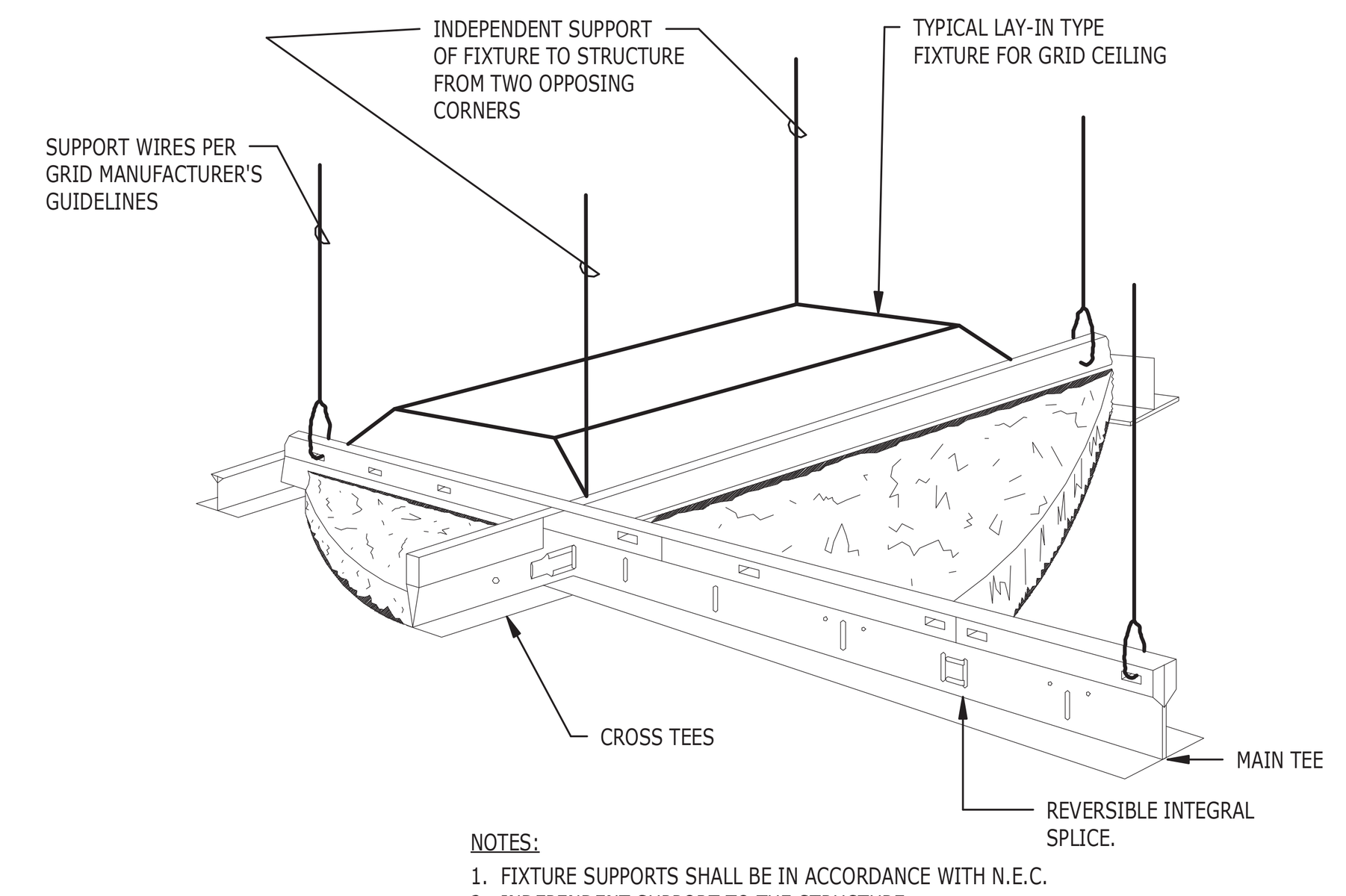
ONE LINE DIAGRAM AND RISER DIAGRAM AMENITY

SHEET NUMBER:
CE4.00



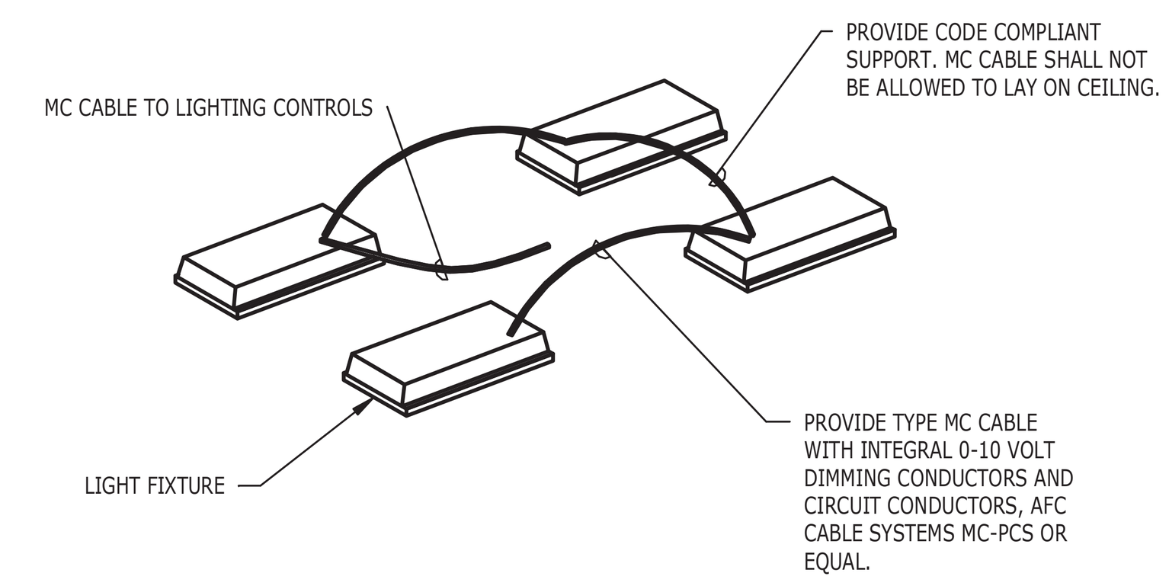
NOTES:
1. FIXTURE SUPPORTS SHALL BE IN ACCORDANCE WITH N.E.C.
2. PROVIDE INDEPENDENT SUPPORTS TO THE STRUCTURE AS REQUIRED BY LOCAL ORDINANCES.
3. FIXTURES RECESSED IN FIRE-RATED ASSEMBLIES SHALL BE PROVIDED WITH LISTED, PREFABRICATED, FIRE-RATED ENCLOSURES. SITE-FABRICATED ENCLOSURES SHALL NOT BE AN ACCEPTABLE METHOD OF MAINTAINING THE RATING OF THE CEILING ASSEMBLY.

DOWNLIGHT IN GYPSUM BOARD CEILING
SCALE: NONE

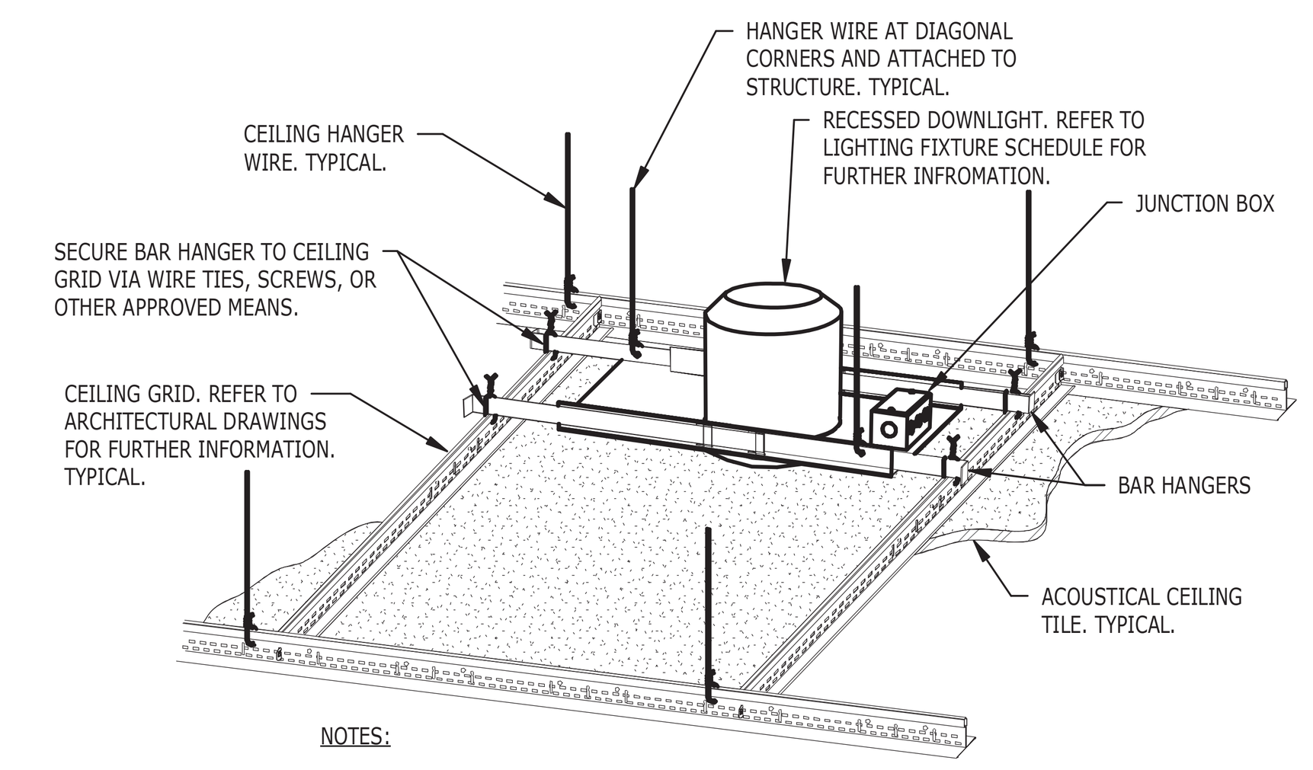


NOTES:
1. FIXTURE SUPPORTS SHALL BE IN ACCORDANCE WITH N.E.C.
2. INDEPENDENT SUPPORT TO THE STRUCTURE

LUMINAIRE MOUNTING - ACOUSTICAL TILE CEILING
SCALE: NONE



TYPICAL RECESSED LIGHTING FIXTURE WIRING TAP DETAIL
SCALE: NONE



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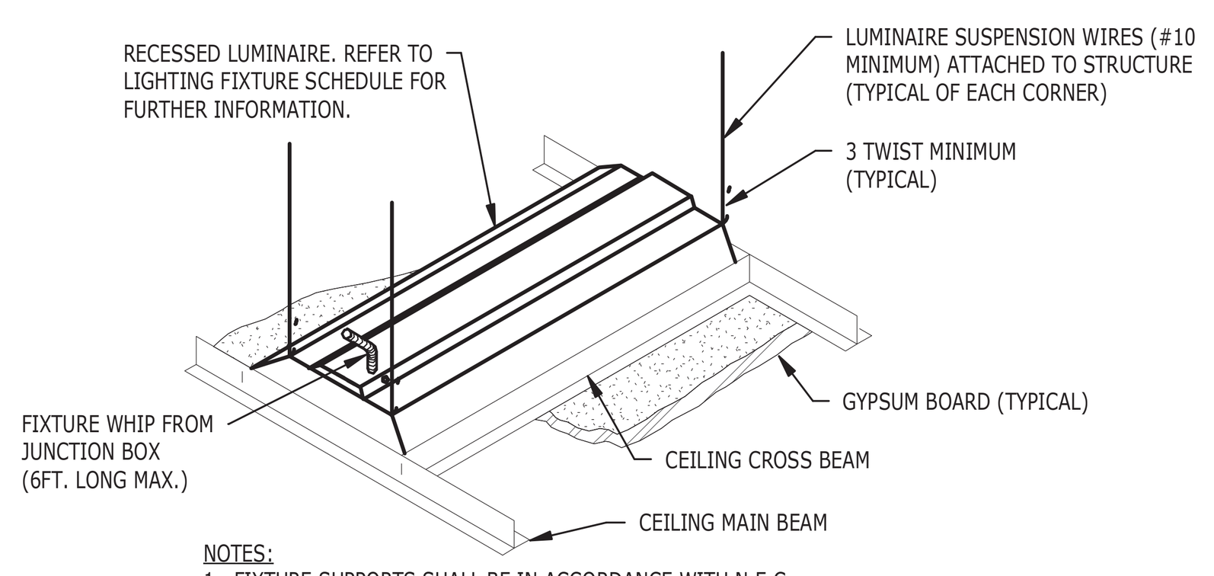
DOWNLIGHT IN ACOUSTICAL TILE CEILING
SCALE: NONE



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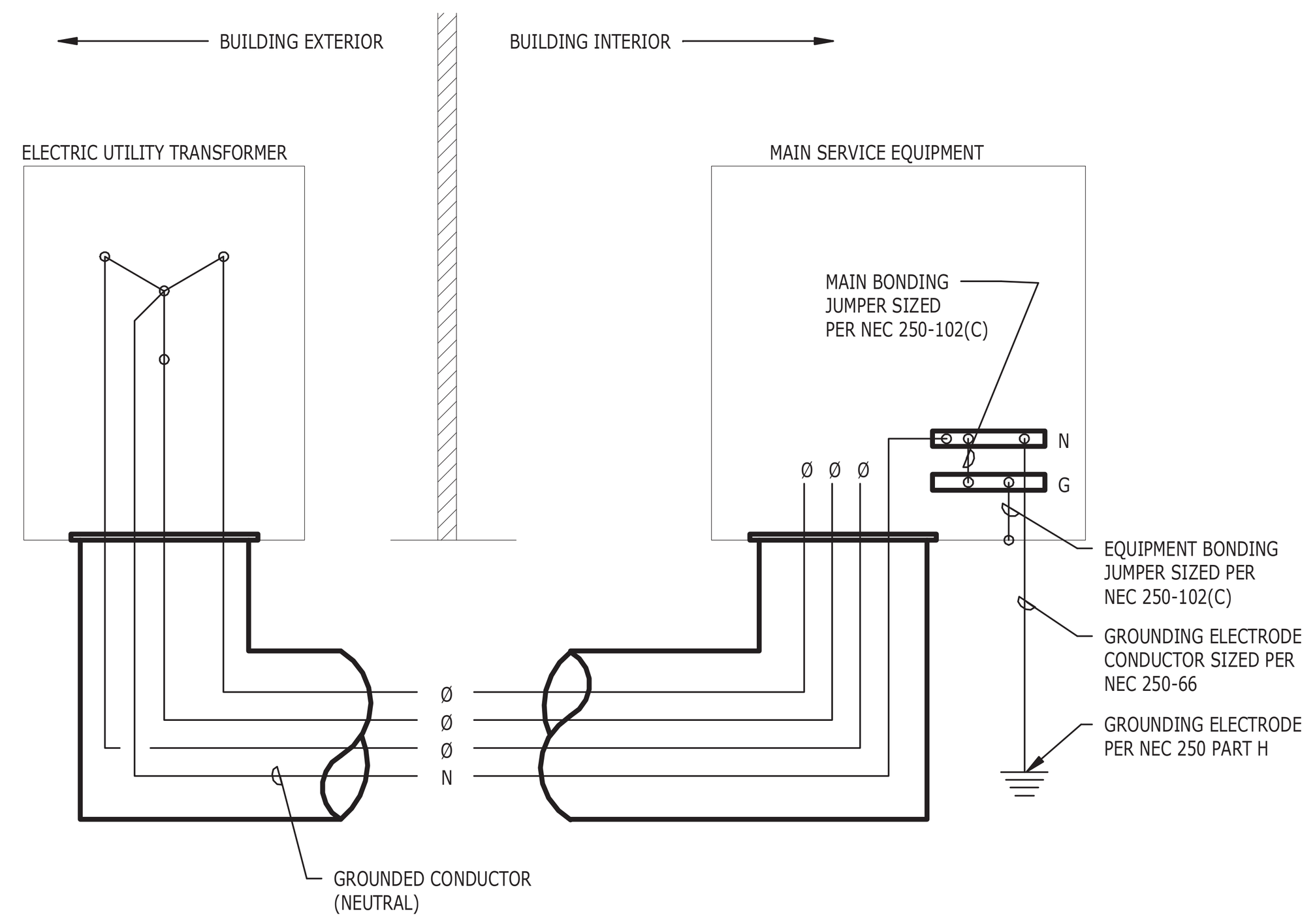
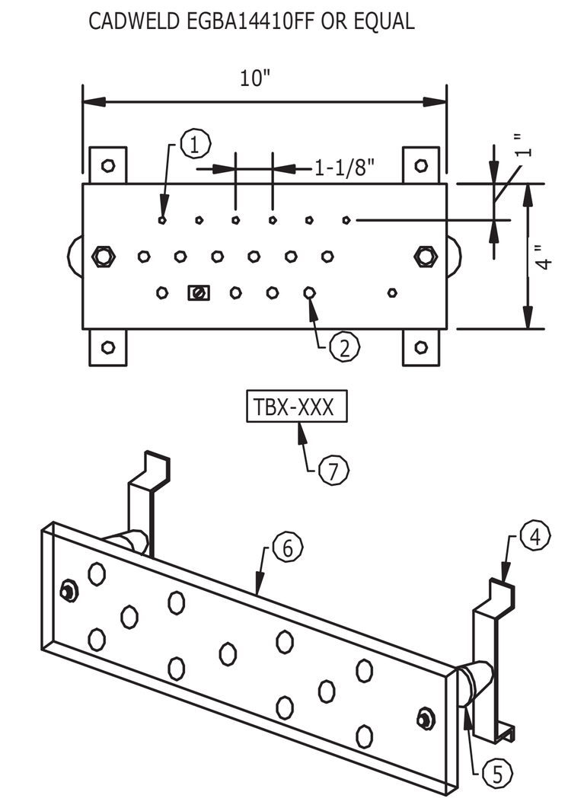
LUMINAIRE MOUNTING - GYPSUM BOARD CEILING
SCALE: NONE



SERVICE ENTRANCE (MAIN SWITCHBOARD) GROUNDING DETAIL
SCALE: NONE

CADWELD EGBA14410FF OR EQUAL



GENERAL
1. ALL HARDWARE (BOLTS, NUTS, WASHERS, ETC.) SHALL BE SOLID COPPER OR BRONZE OR STAINLESS STEEL. COPPER PLATING SHALL NOT BE ACCEPTABLE.
2. BUSBAR SHALL BE 1/4" THICK (MINIMUM).
3. INCREASE LENGTH OF BUSBAR, FOR NUMBER OF CONNECTIONS, AS REQUIRED TO MAINTAIN CORRECT SPACING BETWEEN LUGS.

NOTE
1. #6/32 (TYPICAL)
2. #9/32 (TYPICAL)
3. PROVIDE COPPER CABLE CLAMPS FOR CABLE CONNECTIONS (BY DIV.16)
4. STANDOFF BRACKET
5. INSULATOR
6. COPPER BUSBAR
7. PROVIDE WHITE CORE BAKELITE NAMEPLATE FASTENED TO A WALL/SURFACE BELOW BUSBAR AT EACH FLOOR, WITH DESIGNATION ENGRAVED THEREON IN 1/2" HIGH LETTERS.

TYPICAL GROUND BUS BAR DETAIL
SCALE: NONE

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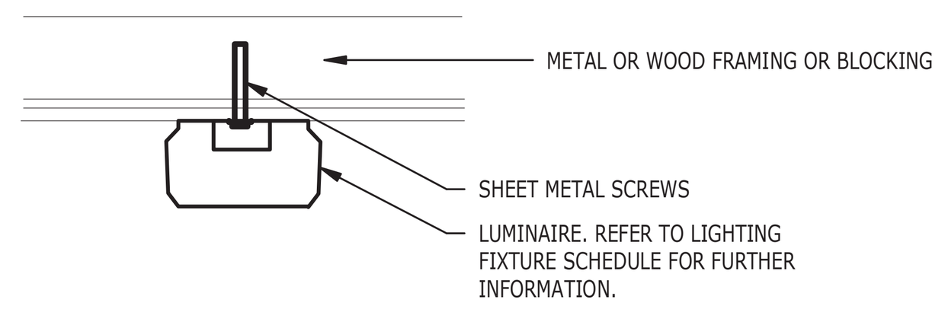
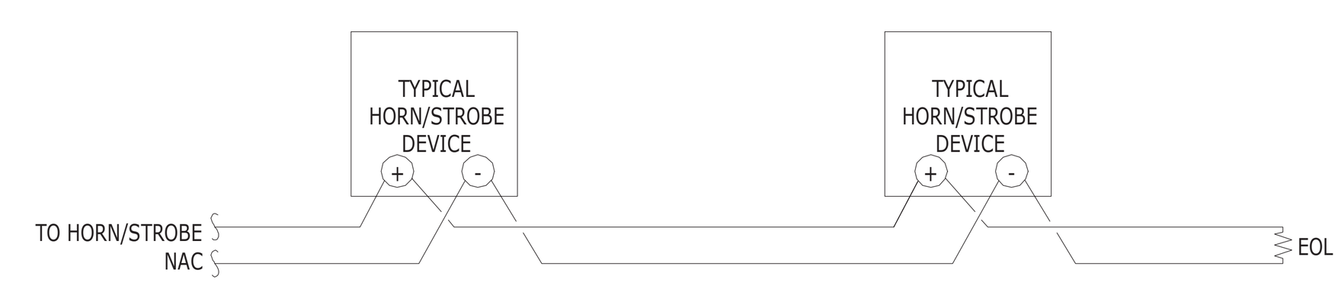
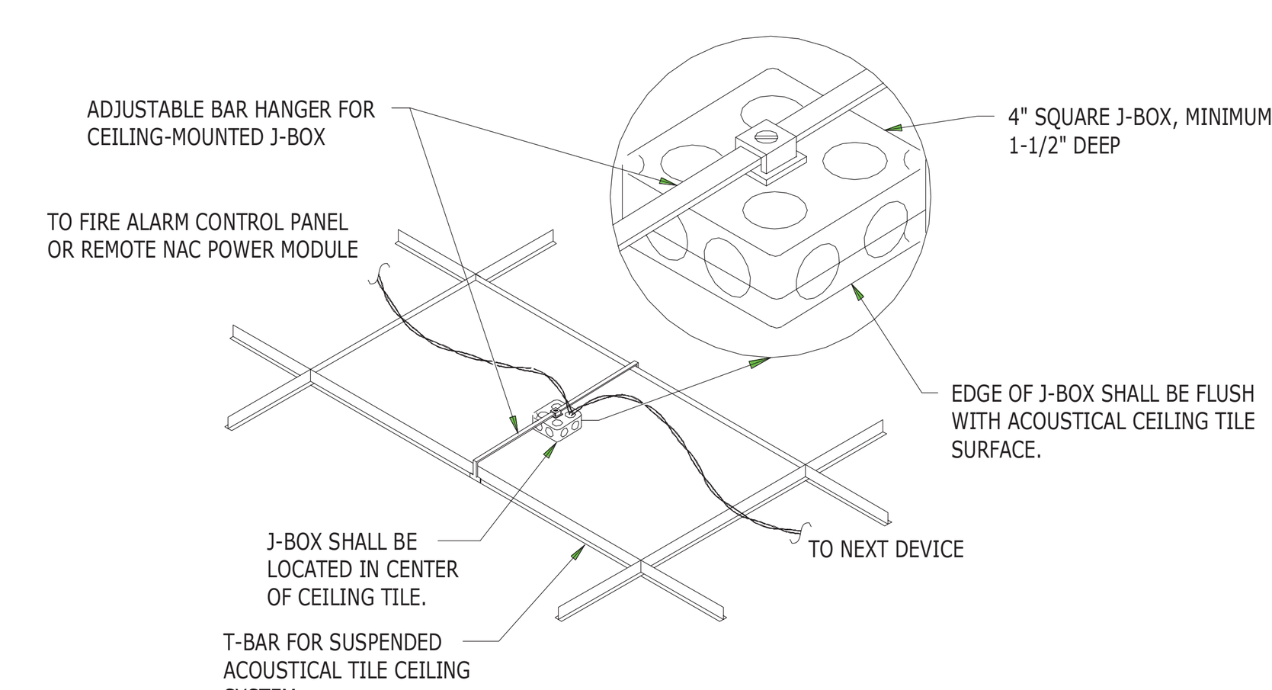


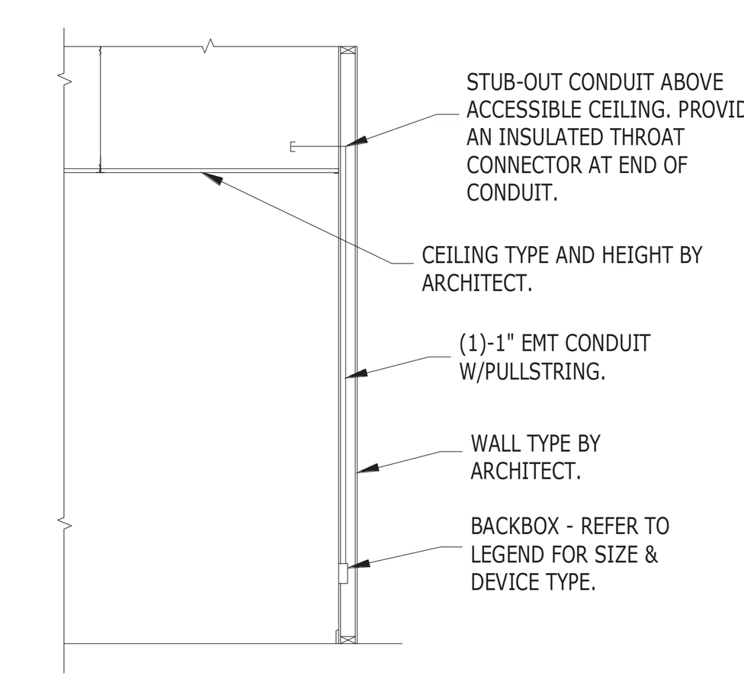
SURFACE-MOUNTED STRIP DETAIL
SCALE: NONE



HORN/STROBE WIRING DIAGRAM (CLASS B)
SCALE: NONE

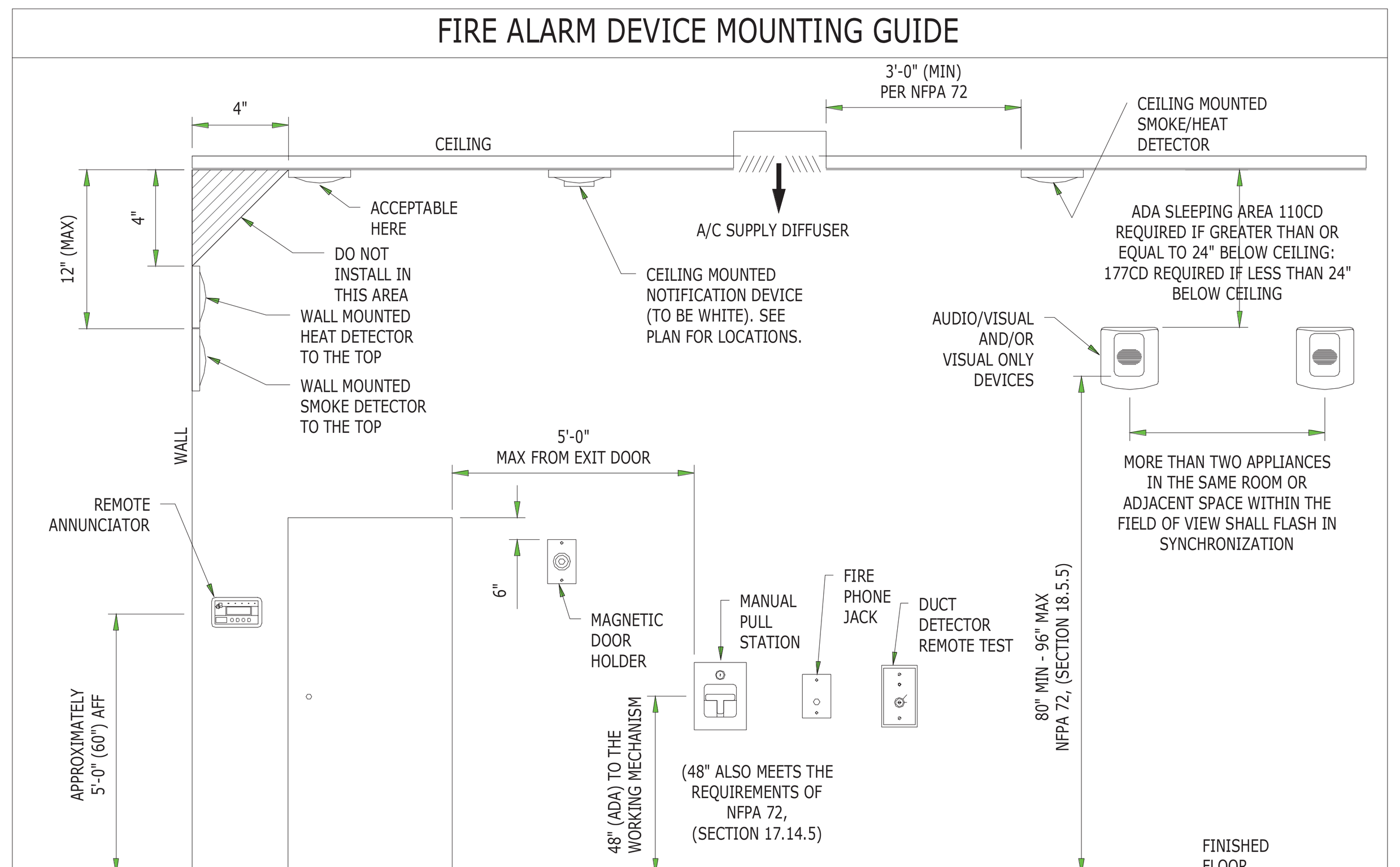


CEILING-MOUNTED NOTIFICATION APPLIANCE BACKBOX DETAIL
SCALE: NONE

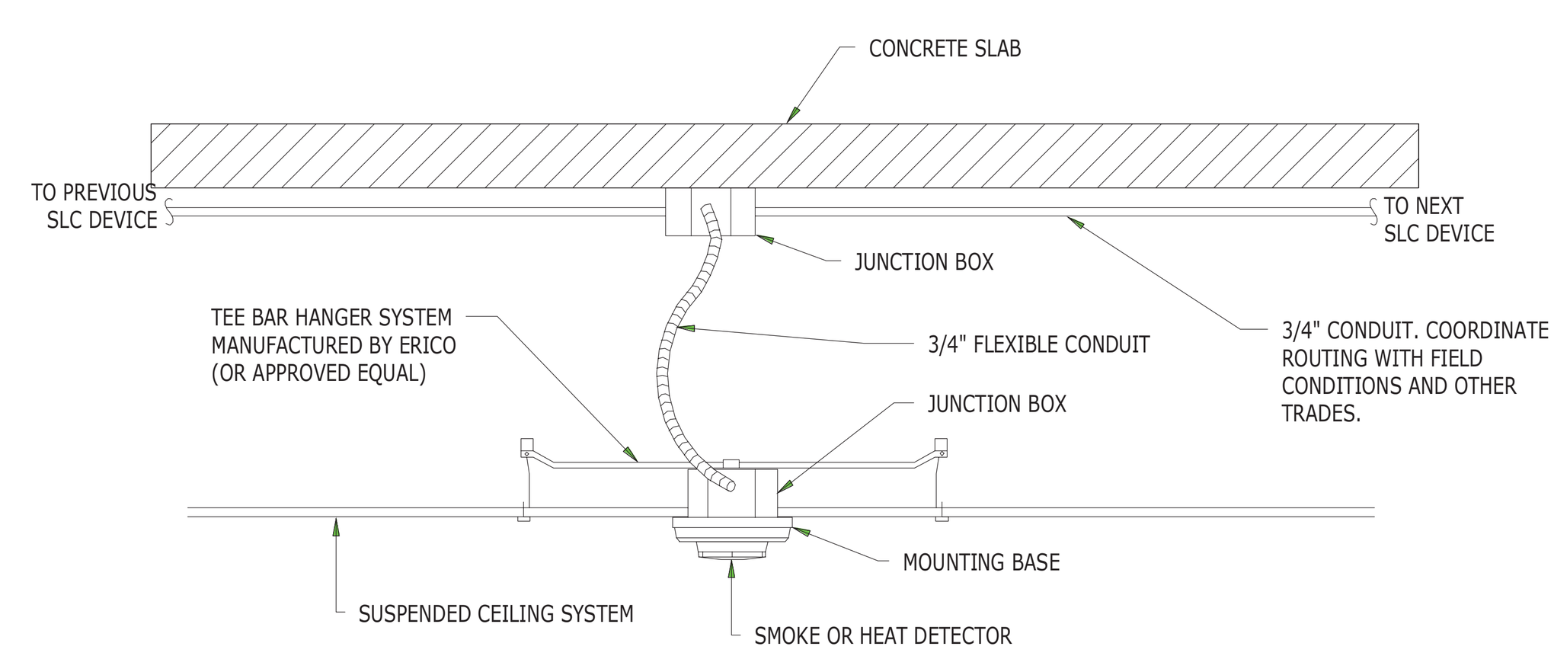


TYPICAL TELEPHONE/DATA OUTLET DETAIL
SCALE: NONE

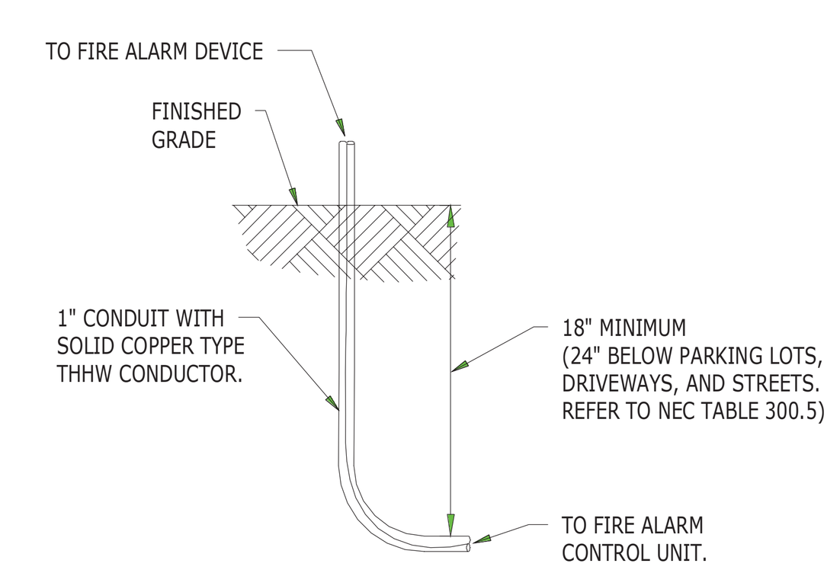
FIRE ALARM DEVICE MOUNTING GUIDE



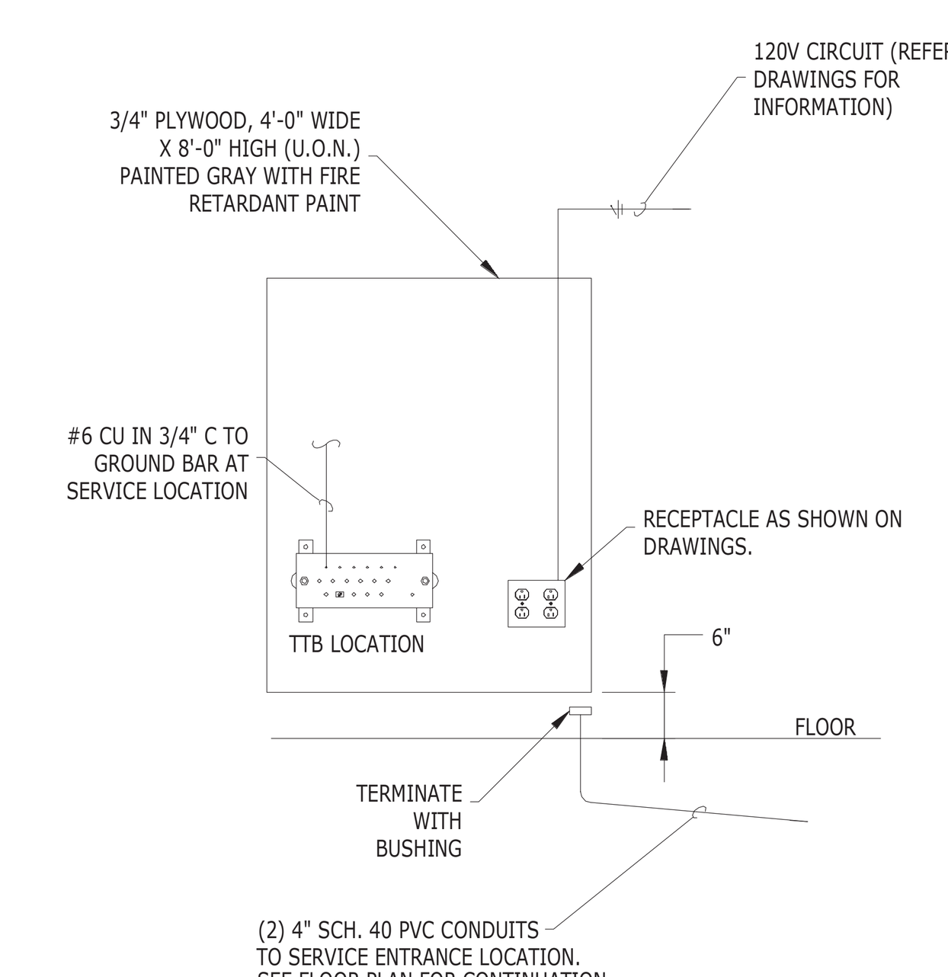
NOTE	IMPORTANT NOTE
CHECK WITH MANUFACTURER'S INSTALLATION SHEET FOR THE EXACT ROUGH-IN HEIGHTS, LOCATION OF BACK BOXES, AND WIRING REQUIREMENTS.	NOT ALL DEVICES SHOWN ON THIS DETAIL APPLY TO THIS PROJECT. SEE THE PLAN VIEW LAYOUT OF THE FIRE ALARM SYSTEM TO VERIFY WHICH DEVICES APPLY, AND WHICH DO NOT.



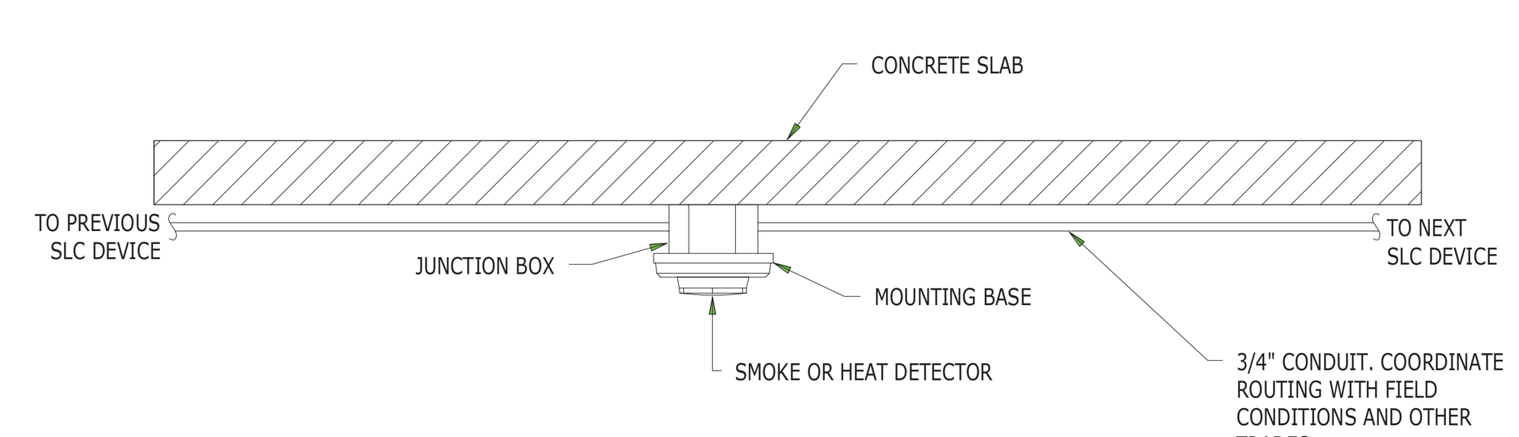
SMOKE/HEAT DETECTOR MOUNTED ON SUSPENDED CEILING SYSTEM
SCALE: NONE



FIRE ALARM CONDUCTOR DETAIL
SCALE: NONE



TELEPHONE EQUIPMENT BACKBOARD DETAIL
SCALE: NONE



SMOKE/HEAT DETECTOR MOUNTED ON CONCRETE SLAB OR HARD CEILING
SCALE: NONE

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PROJECT NO:
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ELECTRICAL DETAILS AMENITY

SHEET NUMBER:
CE5.01

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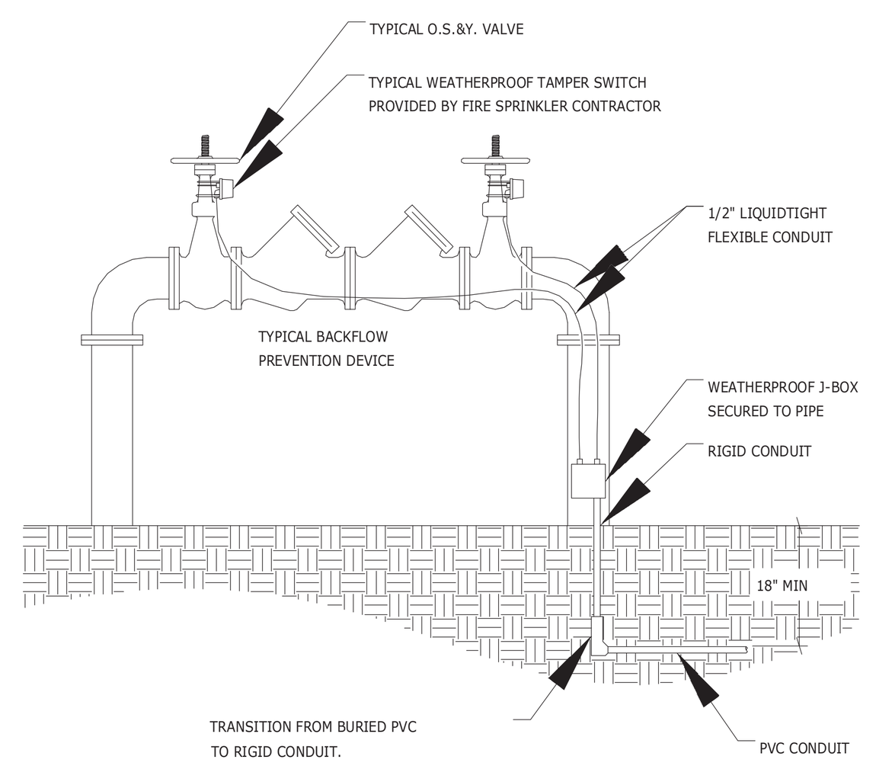
GENERAL TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM NOTES

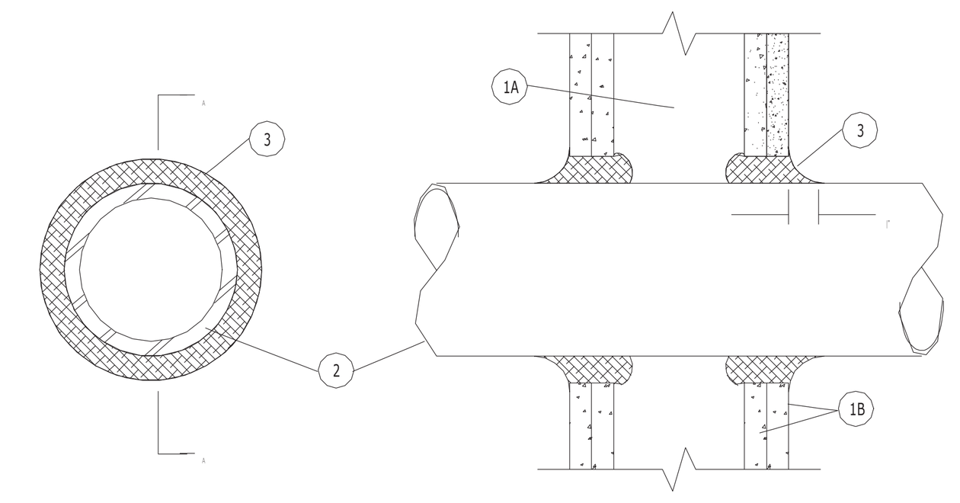
1. ALL SYSTEM COMPONENTS SHALL BE DESIGNED, INSTALLED, TESTED, INSPECTED AND MAINTAINED IN ACCORDANCE WITH THE MANUFACTURES PUBLISHED INSTRUCTIONS AND THE REQUIREMENTS OF NFPA 1221
2. SYSTEMS SHALL HAVE LIGHTING PROTECTION THAT COMPLIES WITH NFPA 780.
3. RADIO COVERAGE SHALL BE DETERMINED BY THE AHJ.
4. CRITICAL AREAS, INCLUDING FIRE COMMAND CENTERS, FIRE PUMP ROOMS, EXIT STAIRS, EXIT PASSAGEWAYS, ELEVATOR LOBBIES, STANDPIPE CABINETS, SPRINKLER SECTIONAL VALVE LOCATION, AND OTHER AREAS DEEMED CRITICAL BY THE AHJ, SHALL BE PROVIDED WITH 99% FLOOAREA RADIO COVERAGE.
5. GENERAL BUILDING AREAS SHALL BE PROVIDED WITH 90% FLOOR AREA RADIO COVERAGE.
6. ALL REPEATER, TRANSMITTER, RECEIVER, SIGNAL BOOSTER COMPONENTS, EXTERNAL FILTERS AND BATTERY SYSTEM COMPONENTS SHALL BE CONTAINED IN A NEMA 4 OR NEMA 4X TYPE ENCLOSURE.
7. THE SYSTEM SHALL INCLUDED AUTOMATIC SUPERVISORY SIGNALS FOR MALFUNCTIONS OF THE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEMS THAT ARE ANNUNCIATED BY THE FIRE ALARM SYSTEM IN ACCORDANCE WITH NFPA 72, AND SHALL COMPLY WITH THE FOLLOWING: SYSTEM SUPERVISORY SIGNALS SHALL INCLUDE THE FOLLOWING:
   (A) DONOR ANTENNA MALFUNCTION.
   (B) ACTIVE RF EMITTING DEVICE FAILURE.
   (C) LOW BATTERY CAPACITY INDICATION WHEN 70% OF THE 12 HOUR OPERATING CAPACITY HAS BEEN DEPLETED.
   (D) SYSTEM COMPONENT FAILURE.
   POWER SUPPLY SUPERVISORY SIGNALS SHALL INCLUDE THE FOLLOWING FOR EACH RF EMITTING DEVICE AND SYSTEM COMPONENT.
   (A) LOSS OF NORMAL AC POWER.
   (B) FAILURE OF BATTERY CHARGER.
   THE COMMUNICATIONS LINK BETWEEN THE FIRE ALARM SYSTEM AND THE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM MUST BE MONITORED FOR INTEGRITY.
8. A DEDICATED MONITORING PANEL OR MONITORING BY A FIRE ALARM SYSTEM SHALL BE PROVIDED WITHIN THE FIRE COMMAND CENTER TO ANNUNCIATE THE STATUS OF ALL RF EMITTING DEVICES AND AND SYSTEM COMPONENT LOCATIONS . THE MONITORING PANEL SHALL PROVIDE VISUAL AND LABELED INDICATIONS OF THE FOLLOWING FOR EACH SYSTEM COMPONENT AND RF EMITTING DEVICE:
   (A) NORMAL AC POWER.
   (B) LOSS OF NORMAL AC POWER.
   (C) BATTERY CHARGER FAILURE
   (D) LOW BATTERY CAPACITY (TO 70% DEPLETION).
   (E) DONOR ANTENNA MALFUNCTION.
   (F) ACTIVE RF EMITTING DEVICE MALFUNCTION.
   (G) SYSTEM COMPONENT MALFUNCTION.
   THE COMMUNICATIONS LINK BETWEEN THE DEDICATED MONITORING PANEL AND THE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM MUST BE MONITORED FOR INTEGRITY.
9. WHERE TWO-WAY RADIO COMMUNICATIONS ENHANCEMENT SYSTEM ARE INSTALLED, A SYSTEM TEST SHALL BE CONDUCTED, DOCUMENTED, AND SIGNED BY A PERSON APPROVED BY AHJ UPON SYSTEM ACCEPTANCE AND ONCE EVERY 12 MONTHS.



BACKFLOW PREVENTION DEVICE SUPERVISION DETAIL

SCALE: NONE

SYSTEM NO. WL1001
F RATINGS-1, 2, 3, AND 4 HR (SEE ITEMS 2 AND 3)
T RATINGS-0, 1, 2, 3, AND 4 HR (SEE ITEM 3)
L RATING AT AMBIENT-LESS THAN 1 CFM/SQ FT (SEE ITEM 3)
L RATING AT 400 F-LESS THAN 1 CFM/SQ FT (SEE ITEM 3)



SECTION A-A

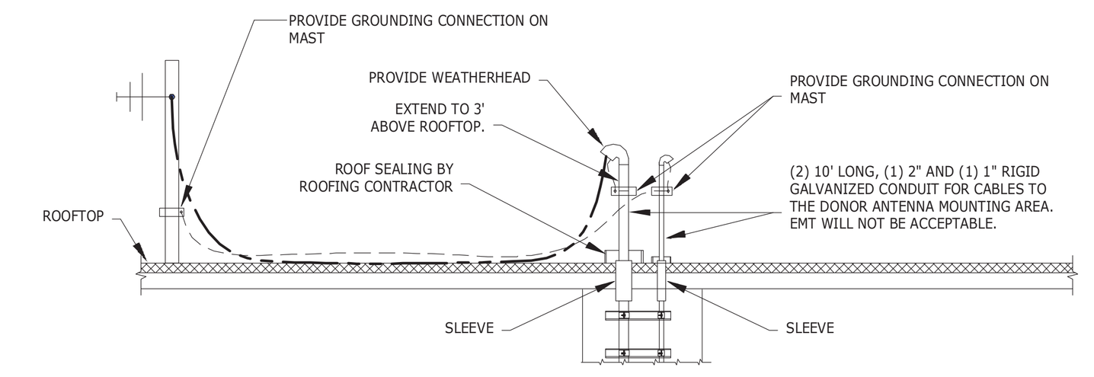
STEEL PIPE THRU GYPSUM BOARD

1. WALL ASSEMBLY - - THE 1, 2, 3 OR 4 HR FIRE-RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGNS IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:

A. STUDS - - WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS (MAX 2 H FIRE RATED ASSEMBLIES) OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2 X 4 IN. LUMBER SPACED 16 IN. OC WITH NOM 2 BY 4 IN. LUMBER AND PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN 3-5/8 IN. WIDE BY 1-3/8 IN. DEEP CHANNELS SPACED MAX 24 IN OC.

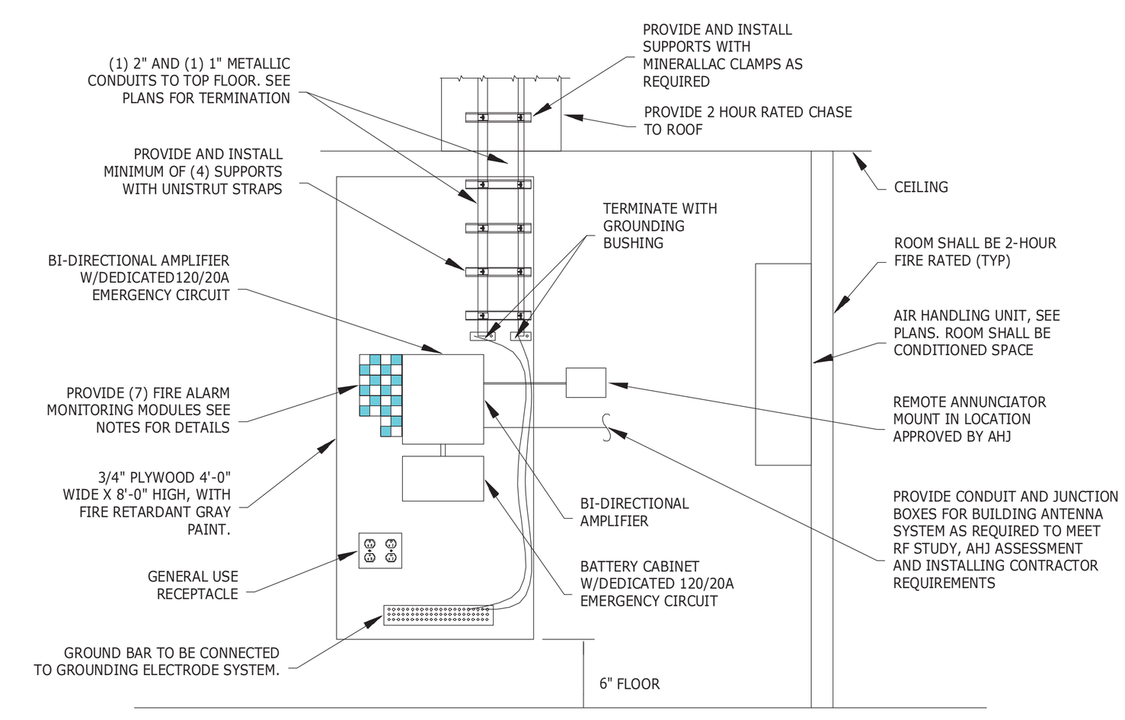
B. WALLBOARD, GYPSUM* - - NOM 1/2 OR 5/8 IN. THICK, 4 FT WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 FOR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. MAX DIAM OF OPENING IS 13-1/2 IN.

2. PIPE OR CONDUIT - - NOM 12 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE, NOM 12 IN. DIAM (OR SMALLER) SERVICE WEIGHT (OR HEAVIER) CAST IRON SOIL PIPE, NOM 12 IN. DIAM (OR SMALLER) CLASS 50 (OR HEAVIER) DUCTILE IRON PRESSURE PIPE, NOM 6 IN. DIAM (OR SMALLER) STEEL CONDUIT, NOM 4 IN. DIAM (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR TYPE L OR (OR HEAVIER) COPPER TUBING OR NOM 1 IN. DIAM (OR SMALLER) FLEXIBLE STEEL CONDUIT. WHEN COPPER PIPE OR FLEXIBLE STEEL CONDUIT IS USED, MAX F RATING OF FIRE STOP SYSTEM (ITEM 3) IS 2 H. STEEL PIPES OR CONDUITS LARGER THAN NOM 4 IN. DIAM MAY ONLY BE USED IN WALLS CONSTRUCTED USING STEEL CHANNEL STUDS. A MAX OF ONE PIPE OR CONDUIT IS PERMITTED IN THE FIRE STOP SYSTEM. PIPE OR CONDUIT TO BE INSTALLED NEAR CENTER OF STUD CAVITY WIDTH AND TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY.



TYPICAL ROOF DETAIL

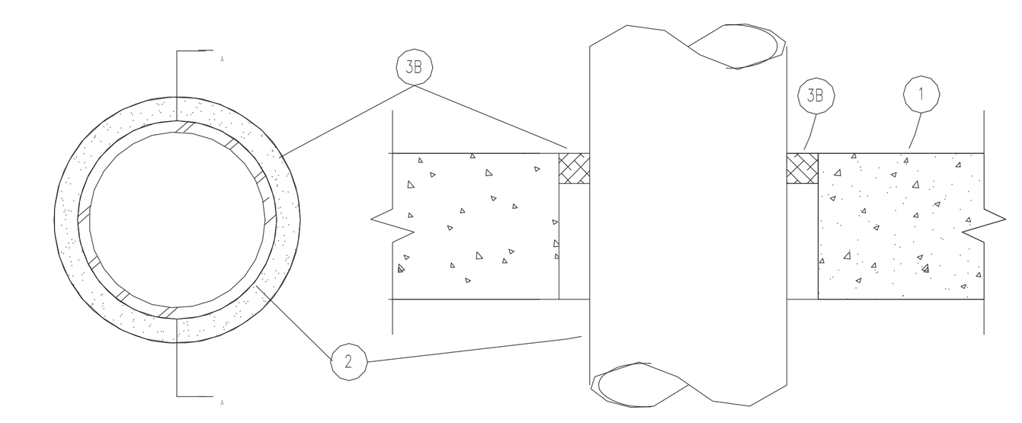
SCALE: NONE



TYPICAL TWO-WAY RADIO COMMUNICATION IN 2-HOUR RATED ROOM, LOCATIONS AS PER AHJ AND EQUIPMENT MANUFACTURES RECOMENDATIONS

SCALE: NONE

SYSTEM NO. CAJ1016
F RATING-3
T RATINGS-0 AND 1 HR (SEE ITEM 4)



SECTION A-A

METAL PIPE THRU CONCRETE

1. FLOOR OR WALL ASSEMBLY - - MIN 4 IN. THICK REINFORCED LIGHTWEIGHT OR NORMAL WEIGHT (100-150 PCF) CONCRETE, WALL AMY ALSO BE CONSTRUCTED OF ANY UL CLASSIFIED CONCRETE BLOCKS. MAX DLAM OF OPENING IS 8IN. SEE CONCRETE BLOCKS (CAZT) CATEGORY IN THE FIRE RESISTANCE DIRECTORY FOR NAMES OF MANUFACTURERS.

2. METALLIC PIPE - - NOM 8 IN. DIAM (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE OR RIGID GALV STEEL CONDUIT, OR MAX 1/2 IN. DIAM (OR SMALLER) STEEL EMT CONDUIT CENTERED IN THE OPENING. THE ANNULAR SPACE SHALL BE AS TABULATED IN ITEM 4.2 IN. PIPE TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF FLOOR OR WALL ASSEMBLY.

3. FORMING MATERIAL - - (NOT SHOWN, OPTIONAL)- NOM 1 IN. THICK POLYURETHANE BAKER ROD FRICTION FITTED INTO THE OPENING TO PREVENT THE LEAKAGE OF FILL MATERIAL WHILE IN ITS LIQUID STATE. FORMING MATERIAL TO BE RECESSED FROM TOP SURFACE OF FLOOR OR FROM BOTH SURFACES OF WELL AS REQUIRED TO ACCOMMODATE THE REQUIRED THICKNESS OF FILL MATERIAL.

4. FILL, VOID OR CAVITY MATERIAL* - CAULK - - MIN 1/2 IN. THICKNESS OF FILL THE MATERIAL APPLIED WITHIN THE ANNULUS, FLUSH WITH TOP SURFACE OF FLOOR OR WITH BOTH SURFACES OF WALL. THE T RATING OF THE SYSTEM IS DEPENDENT ON THE PENETRATING ITEM AND ANNULAR SPACES AS SHOWN IN THE TABLE BELOW:

MAX SIZE OF PENETRATING ITEM	NOMINAL ANNULAR ANNULAR SPACE, IN	T RATING, HR
6 IN DIAM STEAL PIPE OR CONDUIT	3/4	0
1/2IN. DIAM STEEL EMT	11/16	1

THE CARBORUNDUM COMPANY--FRYRE PUTTY
* BEARING THE UL CLASSIFICATION MARKING

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