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ELECTRICAL SYMBOLS

	PROVIDE JUNCTION FOR FUTURE TELEPHONE/DATA OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS OTHERWISE NOTED.
	PROVIDE JUNCTION FOR FUTURE TELEVISION/DATA OUTLET, RECESSED FLOOR MOUNTED, WITH 3/4" CONDUIT RUN TO THE NEAREST STUD WALL AND STUBBED OUT FROM WALL 6" ABOVE CEILING. PROVIDE BRASS COVER PLATE AND CARPET FLANGE.
	PROVIDE JUNCTION FOR FUTURE TELEVISION OUTLET WITH 3/4" CONDUIT STUBBED OUT FROM WALL 6" ABOVE CEILING. MOUNT AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS OTHERWISE NOTED.
	DUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING) MOUNTED AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
	QUADRUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING) MOUNTED AT 18" A.F.F. TO CENTER LINE OF OUTLET UNLESS NOTED OTHERWISE.
	DUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING) WITH GROUND FAULT CIRCUIT INTERRUPTER, MOUNT AT 18" A.F.F. TO CENTER LINE OF OUTLET. UNLESS NOTED OTHERWISE.
	WEATHER RESISTANT RECEPTACLE PER NEC-406.9(B) WITH IN-USE, DUTY RATED COVER.
	DUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING) MOUNTED ABOVE COUNTER SEE ARCHITECTUAL DRAWINGS FOR SPECIFIC REQUIREMENTS.
	DUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING), RECESSED FLOOR MOUNTED. PROVIDE BRASS COVER PLATE AND CARPET FLANGE.
	QUADRUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING), RECESSED FLOOR MOUNTED. PROVIDE BRASS COVER PLATE AND CARPET FLANGE.
	DUPLEX RECEPTACLE (AMPERAGE RATING TO MATCH BRANCH CIRCUIT RATING), CEILING MOUNTED.
	SPECIAL-PURPOSE RECEPTACLE
	JUNCTION BOX
	EXHAUST FAN. SEE MECHANICAL DRAWINGS FOR SPECIFICATIONS.
	SINGLE POLE, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED.
	3-WAY, 20 AMP, SWITCH. MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED.
	SINGLE POLE, 20 AMP, SWITCH WITH DIMMER, MOUNT 42" A.F.F. TO CENTERLINE OF SWITCH UNLESS OTHERWISE NOTED.
	MOTOR RATED SWITCH
	TWO POLE, 30 AMP SWITCH. MOUNT ADJACENT EQUIPMENT TO BE CONTROLLED.
	FACTORY MOUNTED DISCONNECT/STARTER (SEE MECHANICAL SCHEDULE)
	FUSIBLE DISCONNECT SWITCH A = POLES, B= FRAME SIZE, C= FUSE RATING
	FUSIBLE DISCONNECT SWITCH TYPE COMBINATION MOTOR STARTER A = POLES, B= NEMA SIZE, C= FUSE RATING
	GROUNDING ELECTRODE & CONDUCTOR SYSTEM
	TRANSFORMER
	ELECTRICAL PANELBOARD
	TELEPHONE WOOD BACKBOARD
	WEATHERPROOF
	TIME CLOCK
	RELOCATED
	EXISTING TO REMAIN
	ABOVE FINISH FLOOR
GENERAL NOTE: IT IS ACCEPTABLE TO PROVIDE A BLANK COVER PLATE ON ANY UNUSED JUNCTION BOX IN THE FIELD.	

ELECTRICAL SPECIFICATIONS

PART 1 – GENERAL

THE CONTRACTOR SHALL SUPPLY AND INSTALL ALL NEW ELECTRICAL WORK INDICATED. CONSTRUCTION SHALL BE IN ACCORDANCE WITH DRAWINGS AND APPLICABLE SPECIFICATIONS. IF A PROBLEM IS ENCOUNTERED IN COMPLYING WITH THIS REQUIREMENT, CONTRACTOR SHALL NOTIFY THE ARCHITECT/ENGINEER AS SOON AS POSSIBLE AFTER DISCOVERY OF THE PROBLEM AND SHALL NOT PROCEED WITH THAT PORTION OF THE WORK UNTIL ARCHITECT/ENGINEER HAS DIRECTED CORRECTIVE ACTION TO BE TAKEN.

THE CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BID AND FAMILIARIZE HIMSELF WITH ALL CONDITIONS AFFECTING ELECTRICAL AND COMMUNICATIONS INSTALLATION AND MAKE PROVISIONS AS TO THE COST THEREOF.

ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRIC CODE (AS ADOPTED BY THE AUTHORITY HAVING JURISDICTION) AND ALL CODES AND ORDINANCES OF THE AUTHORITY HAVING JURISDICTION. THE SPECIFICATION, CODES AND STANDARDS LISTED BELOW ARE UTILIZED IN THIS PROJECT.

1. NATIONAL ELECTRICAL CODE (NFPA-70, 2017 EDITION)
2. CODE FOR SAFETY TO LIFE (NFPA-101, 2018 EDITION)
3. STANDARD FOR THE INSTALLATION, MAINTENANCE AND USE OF LOCAL PROTECTIVE SIGNALING SYSTEMS (NFPA-72, 2016 EDITION)
4. UNDERWRITERS' LABORATORIES (UL)
5. NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)
6. AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)
7. FEDERAL SPECIFICATION (FED. SPEC.)
8. INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
9. FLORIDA BUILDING CODE, 2020 EDITION (AS AMENDED)
10. INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)
11. CITY OF BOCA RATON BUILDING CODE, (AMENDMENTS TO FLORIDA BUILDING CODE 2020)
12. ADDITIONALLY, DESIGNS, WORK PRACTICES AND CONDITIONS MUST CONFORM WITH THE OCCUPATIONAL SAFETY AND HEALTH ACT OF 1970 (OSHA)

DO NOT SCALE THE ELECTRICAL DRAWINGS. REFER TO ARCHITECTURAL PLANS AND ELEVATIONS FOR EXACT LOCATION OF ALL EQUIPMENT. CONFIRM WITH OWNER'S REPRESENTATIVE. IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. THE CONTRACTOR IS EXPECTED TO FURNISH AND INSTALL ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM AND PROVIDE ALL REQUIREMENTS NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. CONTRACTOR SHALL GUARANTEE ALL MATERIALS AND WORKMANSHIP FREE FROM DEFECTS FROM A PERIOD OF NOT LESS THAN ONE YEAR FROM DATE OF ACCEPTANCE.

CORRECTION OF ANY DEFECTS SHALL BE COMPLETED WITHOUT ADDITIONAL CHARGE AND SHALL INCLUDE REPLACEMENT OR REPAIR OF ANY OTHER PHASE OF THE INSTALLATION WHICH MAY HAVE BEEN DAMAGED THERE BY.

ALL REQUIRED INSURANCE SHALL BE PROVIDED FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.

CONTRACTOR SHALL PAY FOR ALL PERMITS, FEES, INSPECTIONS AND TESTING. CONTRACTOR TO OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO BEGINNING WORK OR ORDERING EQUIPMENT. THE TERM "PROVIDE" USED IN THE CONSTRUCTION DOCUMENTS AND SPECIFICATIONS SHALL MEAN THAT THE CONTRACTOR IS TO FURNISH, INSTALL AND CONNECT COMPLETE.

PART 2 – PRODUCTS

MINIMUM WIRE SIZE SHALL BE #12 A.W.G. (EXCEPT AS NOTED OTHERWISE FOR CONTROL WIRING). ALL CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER WITH "THHN-THWN" INSULATION UNLESS OTHERWISE NOTED.

ELECTRICAL METALLIC TUBING (EMT) SHALL BE OF BEST QUALITY STEEL, SMOOTH INSIDE AND OUT AND SHALL BE HOT-DIPPED GALVANIZED.

RIGID NONMETALLIC CONDUIT SHALL BE SCHEDULE 40 PVC.

OUTLET BOXES SHALL BE PRESSED STEEL IN DRY LOCATIONS, CAST ALLOY WITH THREADED HUBS IN WET OR DAMP LOCATIONS AND SPECIAL ENCLOSURES FOR OTHER CLASSIFIED AREAS.

ALL MATERIALS SHALL BE NEW AND BEAR UNDERWRITERS' LABELS WHERE APPLICABLE.

PANELBOARDS:

1. CURRENT CARRYING BUSES SHALL BE COPPER. GROUND BUS BARS SHALL BE COPPER.
2. ALL CIRCUIT BREAKERS SHALL BE BOLT ON. PLUG-IN BREAKERS ARE NOT ACCEPTABLE.
3. CIRCUIT BREAKERS USED AS SWITCHES IN FLUORESCENT OR HID LIGHTING CIRCUITS SHALL BE LISTED AND MARKED "SWD" OR "HID" AS REQUIRED.
4. ALL CIRCUIT BREAKERS FEEDING MECHANICAL EQUIPMENT SHALL BE HACR TYPE.
5. A.I.C. RATINGS SHALL BE AS INDICATED ON PANELBOARD SCHEDULES.
6. ALL PANELBOARDS SHALL BE FURNISHED WITH PLASTIC LAMINATE NAMEPLATES WITH 1/4" ENGRAVED LETTERING FOR PANEL IDENTIFICATION.
7. ALL PANELBOARDS SHALL BE PROVIDED WITH TYPE-WRITTEN DIRECTORY OF BRANCH CIRCUIT DESIGNATIONS. PROVIDE ELECTRICAL EQUIPMENT WITH FIELD MARKING TO WARN OF POTENTIAL ELECTRIC ARC FLASH HAZARDS AS REQUIRED BY THE NEC ARTICLE 110.16.

DISCONNECT SWITCHES SHALL BE H.P. RATED, HEAVY DUTY, QUICK-MAKE, QUICK-BREAK. MOTOR STARTERS SHALL BE MANUAL OR MAGNETIC AS INDICATED ON THE ELECTRICAL DRAWINGS, WITH OVERLOAD RELAYS IN EACH PHASE. PROVIDE MAGNETIC STARTERS WITH "H-O-A" SWITCH. ENCLOSURES SHALL BE NEMA-1 FOR INDOOR LOCATIONS, NEMA 3R FOR OUTDOOR LOCATIONS OR AS OTHERWISE NOTED.

WIRING DEVICES (GENERAL PURPOSE RECEPTACLES AND WALL SWITCHES) SHALL BE WHITE COLOR UNLESS OTHERWISE NOTED. FACEPLATES SHALL BE SMOOTH, WHITE NYLON.

ALL TRANSFORMERS AND MOTORS SHALL COMPLY WITH THE EFFICIENCY STANDARDS AS REQUIRED BY THE FLORIDA BUILDING CODE-ENERGY CONSERVATION.

PART 3 – EXECUTION

A. COLOR CODING OF CONDUCTORS SHALL BE AS FOLLOWS:

1. 208/120 VOLTS, 3 PHASE, 4-WIRE SYSTEM: UNGROUNDED CONDUCTORS: 1 BLACK, 1 RED AND 1 BLUE. GROUNDED (NEUTRAL) CONDUCTOR: WHITE. GROUNDING CONDUCTORS SHALL BE GREEN.
2. 480/277 VOLT, 3-PHASE, 4-WIRE SYSTEM: UNGROUNDED CONDUCTORS: 1 BROWN, 1 YELLOW, AND 1 PURPLE. GROUNDED (NEUTRAL) CONDUCTORS: GRAY. GROUNDING CONDUCTORS SHALL BE GREEN.
3. BRANCH CIRCUIT WIRING (#6 AND SMALLER) SHALL BE COLOR CODED BY CONTINUOUS INSULATION COLOR AND FEEDERS AND SERVICES (#4 AND LARGER) SHALL BE CODED AT ALL JUNCTION OR PULL POINTS (EXCEPT LB'S OR LBD'S) USING COLOR MARKERS OR PLASTIC TAPE MANUFACTURED FOR THE PURPOSE.

B. WIRING METHODS

1. ALL CONDUCTORS SHALL BE INSTALLED IN ELECTRICAL METALLIC TUBING (EMT) UNLESS OTHERWISE NOTED, SPECIFIED OR AS SPECIFICALLY PROHIBITED BY THE AUTHORITY HAVING JURISDICTION. ALL FITTINGS AND COUPLINGS FOR EMT CONDUIT SHALL BE ALL STEEL RAIN TIGHT COMPRESSION TYPE OR ALL STEEL CONCRETE TIGHT SET SCREW TYPE.
2. SCHEDULE 40 PVC CONDUIT, WITH FITTINGS AND COUPLINGS APPROPRIATE FOR THE USE, SHALL BE INSTALLED UNDERGROUND OR BELOW SLABS ON GRADE.
3. TYPE MC CABLE WITH ALUMINUM ARMOR AND INTERNAL GROUND IS ACCEPTABLE FOR USE AS GENERAL BRANCH CIRCUIT WIRING FOR CIRCUITS 20 AMPERES OR LESS AND CONCEALED IN WALLS OR ABOVE SUSPENDED CEILING AND AS APPROVED BY THE AUTHORITY HAVING JURISDICTION.

C. ELECTRICAL SYSTEM SHALL BE COMPLETE AND EFFECTIVELY GROUNDED AS REQUIRED BY THE LATEST EDITION OF THE N.E.C. AND LOCAL CODES.

D. ALL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICAL CONTRACTOR IN A FIRST CLASS WORKMANLIKE MANNER. THE COMPLETED SYSTEM SHALL BE FULLY OPERATIVE.

E. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID INTERFERENCE WITH THE PROGRESS OF CONSTRUCTION.

F. THE ELECTRICAL INSTALLATION SHALL MEET ALL STANDARD REQUIREMENTS OF POWER AND TELEPHONE COMPANIES, AND SHALL BE FULLY COORDINATED WITH THEM PRIOR TO COMMENCEMENT OF WORK.

G. PROVIDE AND INSTALL CONDUIT, CONDUCTORS, PULL WIRES, BOXES, COVER PLATES, AND WIRING DEVICES, FOR ALL OUTLETS AS INDICATED.

H. MATERIALS, PRODUCTS, AND EQUIPMENT, INCLUDING ALL COMPONENTS THEREOF, SHALL BE NEW AND SUCH AS APPEAR ON THE UL LIST OF APPROVED ITEMS AND SHALL MEET OR EXCEED THE REQUIREMENTS OF NEC, NEMA, AND IECE.

I. SUBSTITUTIONS:

1. IF ANY PROPOSED EQUIPMENT IS OF LARGER SIZE OR THERE ARE ANY CONTINGENT DIFFERENCES WHICH REQUIRE ADDITIONAL CONTROLS, EQUIPMENT OR APPARATUS ALL ASSOCIATED CHANGES TO THE BUILDING SYSTEMS NECESSARY TO ACCOMMODATE THESE CHANGES ARE THE RESPONSIBILITY OF THE CONTRACTOR.
2. "TO-SCALE" FLOOR PLAN DRAWINGS OR RISER/WIRING DIAGRAMS INDICATING THE PROPOSED CHANGES SHALL BE SUBMITTED ALONG WITH THE OTHER REQUIRED SHOP DRAWINGS.

J. CONTRACTOR SUBMITTALS:

1. SUBMIT AT LEAST FIVE (5) SETS OF SHOP DRAWINGS OR CUT SHEETS OF LIGHTING FIXTURES, SWITCHES, AND OTHER ELECTRICAL ITEMS FOR APPROVAL BY ENGINEER/ARCHITECT.
2. AS-BUILT ELECTRICAL DRAWINGS SHALL BE PROVIDED TO THE OWNER AS REQUIRED BY FLORIDA BUILDING CODE, ARTICLE C405.6.4.1
3. OPERATING AND MAINTENANCE MANUALS SHALL BE PROVIDED TO THE OWNER AS REQUIRED BY FLORIDA BUILDING CODE, ARTICLE C405.6.4.2.

K. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CUTTING AND PATCHING REQUIRED OF HIS WORK.

L. ALL LAY-IN LIGHTING FIXTURES SHALL BE SECURED TO THE SUSPENDED CEILING GRID AT EACH CORNER OR AS REQUIRED BY THE NATIONAL ELECTRIC CODE AND THE FLORIDA BUILDING CODE, SECTION 808. SEE ARCHITECTURAL DRAWINGS FOR DETAIL OF CEILING AND LUMINAIRE SUPPORT.

M. CONTRACTOR SHALL COORDINATE WITH MECHANICAL DRAWINGS AND PROVIDE ALL NECESSARY CONTROL WIRING.

N. ALL ELECTRICAL POWER WIRING FOR THE HVAC SYSTEM INCLUDING WIRING THRU LINE VOLTAGE CONTROL DEVICES SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

O. VOLTAGE DROP

1. CONDUCTORS FOR ALL FEEDERS SHALL BE INCREASED FROM SIZES INDICATED ON DRAWINGS TO PREVENT VOLTAGE DROP EXCEEDING 2%.
2. CONDUCTORS FOR ALL BRANCH CIRCUITS SHALL BE INCREASED FROM SIZES INDICATED ON DRAWINGS TO PREVENT VOLTAGE DROP EXCEEDING 3% FROM THE FURTHEST DEVICE.
3. DETERMINING CONDUCTOR SIZES SHALL BE BASED ON 80% OF THE BREAKER RATING.
4. FOR DETERMINATION OF WIRE SIZE FOR BID PURPOSES:
 - * INCREASE WIRE BY 1 WIRE SIZE FOR RUNS 60 FT. TO 100 FT.
 - * INCREASE WIRE BY 2 WIRE SIZES FOR RUNS 100 FT. TO 150 FT.
 - * INCREASE WIRE BY 3 WIRE SIZES FOR RUNS FROM 150 FT. TO 230 FT.

P. PROVIDE CABLE LUGS SIZED FOR THE LINE AND/OR LOAD SIDE FEEDERS AS SCHEDULED FOR ALL SWITCHBOARDS, PANELBOARDS AND DISCONNECTS. WHERE CABLE LUGS ARE NOT AVAILABLE FOR THE SPECIFIC WIRE SIZE AND NUMBER OF SETS SCHEDULED, PROVIDE A TAP BOX ADJACENT TO THE EQUIPMENT WITH "POLARIS" TAPS TO TRANSITION TO CONDUCTORS TO MATCH THE CABLE LUGS AVAILABLE AND THE AMPERE RATING OF THE OVER-CURRENT DEVICE PROTECTING THE FEEDER.

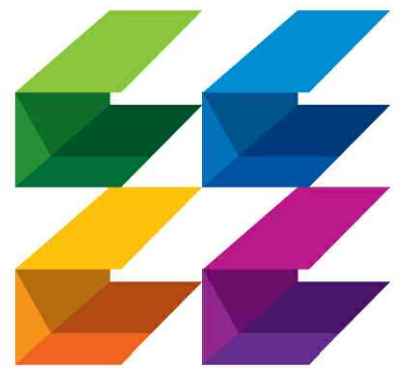
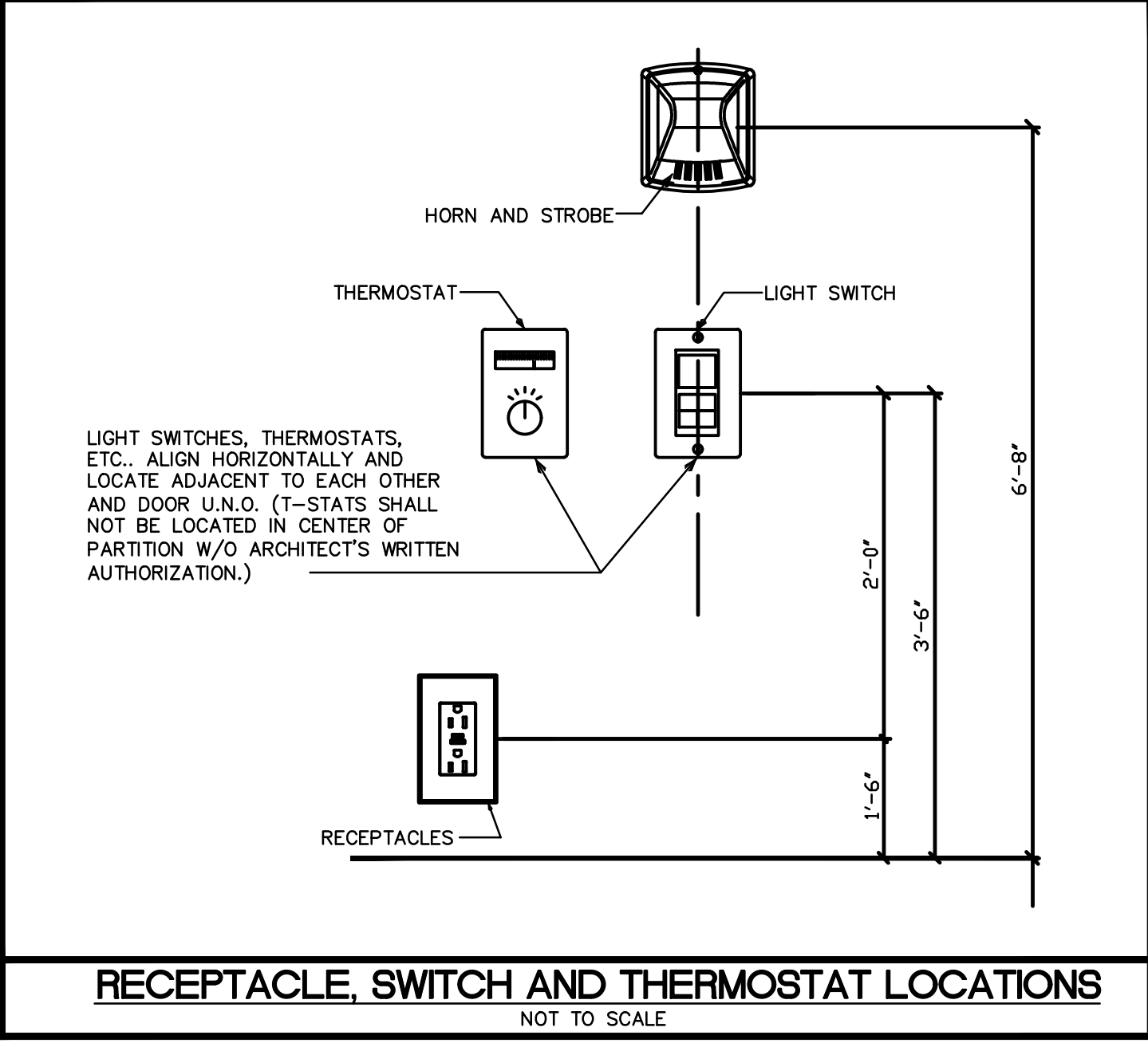
Q. THE CONTRACTOR SHALL CONFIRM WITH THE ELECTRICAL UTILITY COMPANY ANY AND ALL REQUIREMENTS SUCH AS: METERING EQUIPMENT REQUIREMENTS AND METERING EQUIPMENT LOCATION, TRANSFORMER SIZE AND LOCATION OR SERVICE POINT, CONDUIT ENTRY AND LUG SIZE RESTRICTIONS.

R. THE CONTRACTOR SHALL SCHEDULE ALL REQUIRED DOWN TIME FOR THE OWNERS CONFIRMATION.

S. ANY CONFLICTS AND DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER BEFORE PROCEEDING WITH ANY WORK.

ELECTRICAL SHEET INDEX

SHEET#	DESCRIPTION
E0.1	ELECTRICAL NOTES, LEGEND & INDEX
E2.1	LIGHTING PLAN
E3.1	POWER PLAN
E5.1	ELECTRICAL RISER DIAGRAM AND PANEL SCHEDULES



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ISSUED FOR :

BIDS

PERMIT

CONSTRUCTION

SEAL

JESS M. SOWARDS
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PROJECT TITLE

**STONEBRIDGE
COUNTRY CLUB
CHEMICAL
STORAGE
BUILDING**

17501 S. STATE ROAD 7
BOCA RATON, FL 33498

REVISIONS

THESE DRAWINGS ARE PREPARED PER ESTABLISHED INDUSTRY STANDARDS AND REPRESENT THE ARCHITECT AND ENGINEERS DESIGN CONCEPT. THEY ARE NOT INTENDED TO PROVIDE EVERY DETAIL OR CONDITION REQUIRED TO CONSTRUCT THE BUILDING. THE CONTRACTOR THROUGH SUBMITTALS AND OTHER COORDINATION EFFORTS IS FULLY RESPONSIBLE FOR PROVIDING A COMPLETE AND OPERATIONAL BUILDING WHETHER INDICATED ON THE PLANS OR NOT.

DRAWING TITLE

ELECTRICAL NOTES

DATE
10/16/23

DRAWN BY
KAB

JOB NUMBER
220906

DRAWING NUMBER

E0SB.1

ISSUED FOR PERMIT	
ISSUED FOR CONSTRUCTION	
KAMM CONSULTING PROJECT #: 2023-04195B	
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	date
	signed

PERMIT SET - 10/16/23