

Rev#	Date	Description

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Job # J00000
Owner Owner
Date 02/09/2017
Drawn Author
Checked Checker

ELECTRICAL GENERAL NOTES

E000

ELECTRICAL SYMBOL SCHEDULE

POWER DEVICES	
	DUPLEX RECEPTACLE
	DOUBLE DUPLEX RECEPTACLE
	GFCI RECEPTACLE
	BOTTOM SWITCHED DUPLEX RECEPTACLE
	COUNTER TOP DUPLEX RECEPTACLE
	WEATHER PROOF GFCI RECEPTACLE
	SPECIAL PURPOSE OUTLET
	DROP CORD
	JUNCTION BOX
	DUPLEX RECEPTACLE LOCATED IN A FLOOR BOX
	DUPLEX RECEPTACLE LOCATED IN THE CEILING
	WIRE MOLD
	PLUG MOLD
	ELECTRICAL FURNITURE CONNECTION

COMMUNICATION DEVICES	
	VOICE OUTLET
	DATA OUTLET
	VOICE/DATA OUTLET
	VOICE/DATA OUTLET LOCATED IN FLOOR BOX
	VOICE/DATA OUTLET LOCATED IN CEILING
	TELEPHONE TERMINAL BOARD (1/2"x4"x4", PLYWOOD)
	DATA CONNECTION

EQUIPMENT HOOKUP/DISTRIBUTION	
	EQUIPMENT TAG
	NON-FUSED DISCONNECT
	FUSED DISCONNECT
	COMBINATION STARTER
	MAGNETIC STARTER
	MANUAL STARTER
	MOTOR ELECTRICAL CONNECTION
	ELECTRICAL EQUIPMENT HOOKUP
	ELECTRICAL PANEL
	TRANSFORMER
	PLUG-IN BUSWAY
	FEEDER BUSWAY

WORKING SPACE REQUIREMENTS
600 VOLTS, NOMINAL, OR LESS (SEE CURRENT AND LOCALLY ADOPTED NEC - ARTICLE 110.26)

DEPTH OF WORKING SPACE			
NOMINAL VOLTAGE TO GROUND	CONDITION 1	CONDITION 2	CONDITION 3
0-150	3 FT	3 FT	3 FT
151-600	3 FT	3.5 FT	4 FT

CONDITION 1 EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND NO LIVE OR GROUNDING PARTS ON THE OTHER SIDE OF WORKING SPACE OR EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE THAT ARE EFFECTIVELY GUARDED BY INSULATING MATERIALS.

CONDITION 2 EXPOSED LIVE PARTS ON ONE SIDE OF THE WORKING SPACE AND GROUNDING PARTS ON THE OTHER SIDE OF THE WORKING SPACE. CONCRETE, BRICK, TILE WALLS SHALL BE CONSIDERED AS GROUNDING.

CONDITION 3 EXPOSED LIVE PARTS ON BOTH SIDES OF THE WORKING SPACE.

WIDTH OF WORKING SPACE
THE WIDTH OF THE WORKING SPACE SHALL BE THE WIDTH OF THE EQUIPMENT OR 30 IN, WHICHEVER IS GREATER. IN ALL CASES, THE WORK SPACE SHALL PERMIT A 90 DEGREE OPENING OF EQUIPMENT DOORS OR HINGED PANELS.

HEIGHT OF WORKING SPACE
THE WORK SPACE SHALL BE CLEAR AND EXTEND FROM THE GRADE, FLOOR, OR PLATFORM TO THE HEIGHT OF THE EQUIPMENT OR 6.5 FT WHICHEVER IS GREATER. DOORS OR HINGED PANELS.

EQUIPMENT RATED 1200 AMPS OR MORE
EQUIPMENT RATED 1200 AMPS OR MORE THAT CONTAINS OVERCURRENT DEVICES, SWITCHING DEVICES, OR CONTROL DEVICES, SHALL HAVE THE DEPTH OF THE WORK SPACE SHALL BE AS NOTED ABOVE. WHEN TWO HANDS FOR GROUND OR A DIRECT UNOBTSTRUCTED GROUND IS PROVIDED ELSE TWO TIMES THE DEPTH OF WORKING SPACE SHALL BE PROVIDED.

LIGHTING	
	HALF SHADED LIGHTS REPRESENT AN EMERGENCY LIGHT OR A LIGHT FIXTURE WITH AN EMERGENCY BATTERY PACK
	2x4' LIGHT FIXTURE
	2x2' LIGHT FIXTURE
	4' WRAP LIGHT FIXTURE
	4' WALL MOUNT VANITY LIGHT FIXTURE
	UNDER COUNTER LIGHT FIXTURE
	4' STRIP LIGHT FIXTURE
	8' STRIP LIGHT FIXTURE
	DECORATIVE PENDENT HUNG LIGHT FIXTURE
	RECESSED CAN LIGHT FIXTURE
	RECESSED CAN WALL WASHER LIGHT FIXTURE
	SURFACE MOUNTED DOWN LIGHT
	WALL SCONCE
	TRACK LIGHT FIXTURE
	LED ROPE LIGHT
	EGRESS LIGHT FIXTURE
	WALL PACK LIGHT FIXTURE
	1,2,3 OR 4 HEAD POLE LIGHT FIXTURE
	BUG EYE LIGHT FIXTURE
	CEILING HUNG EXIT LIGHT
	WALL MOUNTED EXIT LIGHT
	BUG EYE LIGHT EXIT LIGHT
	FIXTURE CALL OUT (# = QUANTITY OF FIXTURES IN AN AREA)

LIGHTING DEVICES	
	SINGLE POLE LIGHT SWITCH
	3/4-WAY LIGHT SWITCH
	DIMMER LIGHT SWITCH
	MASTER OVERRIDE SWITCH
	MANUAL STARTER
	WALL OCCUPANCY SENSOR LIGHT SWITCH
	LINE VOLTAGE CEILING OCC. SENSOR
	NLIGHT CEILING OCC. SENSOR (NCM PDT 9 RUB)
	NLIGHT DAYLIGHT SENSOR (NCM PDT 9 RUB)
	NLIGHT POWER PACK (NPP16)
	NLIGHT EM. POWER PACK (NPP16 ER)
	NLIGHT DIMMING POWER PACK (NPP16 D)
	CEILING OCCUPANCY SENSOR LIGHT SWITCH
	NLIGHT NETWORK BRIDGE (NBRG 8 KIT)
	NLIGHT GATEWAY
	NLIGHT DIMMING SWITCH (NPODM WH)
	CAT6 CABLE
	0-10V CABLE

FIRE ALARM DEVICES	
	FIRE ALARM CONTROL PANEL
	REMOTE ANNUCIATOR PANEL
	FIRE ALARM REMOTE SIGNAL ANNUCIATOR PANEL
	PULL STATION
	WALL STROBE
	HORN STROBE
	SPEAKER STROBE
	CEILING HORN STROBE
	SMOKE DETECTOR
	DUCT DETECTOR
	HEAT DETECTOR
	FIRE SMOKE DAMPER
	TAMPER SWITCH
	FLOW SWITCH
	POST INDICATOR VALVE
	MONITOR MODULE
	RELAY MODULE

HEARING IMPAIRED DEVICES	
	HEARING IMPAIRED DOORBELL
	HEARING IMPAIRED MASTER SWITCH
	HEARING IMPAIRED VISUAL STROBE
	HEARING IMPAIRED TRANSFORMER

BRANCH CIRCUIT VOLTAGE DROP TABLE

CONDUCTOR SIZE	MAX CONDUCTOR LENGTH AT LOAD INDICATED			
	15A	12A	9A	6A
#12 AWG CU	60 FT	75 FT	100 FT	150 FT
#10 AWG CU	100 FT	125 FT	166 FT	249 FT
#8 AWG CU	153 FT	192 FT	256 FT	384 FT
#6 AWG CU	245 FT	306 FT	408 FT	612 FT
#4 AWG CU	287 FT	363 FT	484 FT	727 FT
277V CIRCUITS				
#12 AWG CU	130 FT	173 FT	230 FT	350 FT
#10 AWG CU	230 FT	285 FT	380 FT	570 FT
#8 AWG CU	355 FT	442 FT	580 FT	870 FT
#6 AWG CU	550 FT	700 FT	940 FT	1420 FT
#4 AWG CU	800 FT	1116 FT	1450 FT	2200 FT

NOTES:
REQUIRED WIRE SIZE IS FOR THE TOTAL DISTANCE OF THE RUN WITHIN THE CONDUIT AND SHALL BE CALCULATED FOR THE TOTAL DISTANCE OF THE PULL AND NOT THE PLAN DISTANCE. CALCULATIONS ARE BASED ON DEDICATED NEUTRAL CONDUCTORS AND A 3% MAXIMUM ALLOWED VOLTAGE DROP, AS PER 210.19(A) IN NEC 4

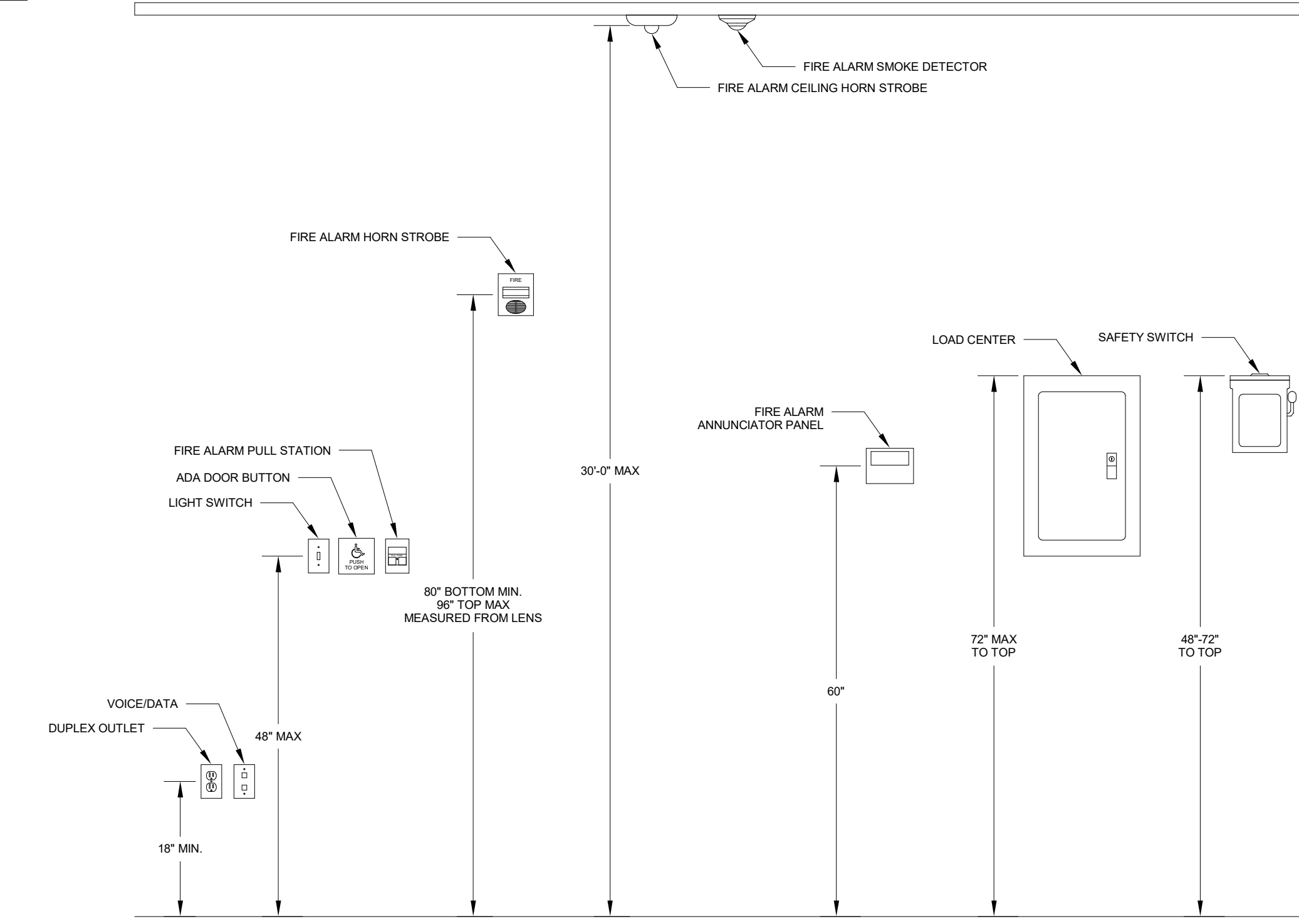
GENERAL ELECTRICAL NOTES

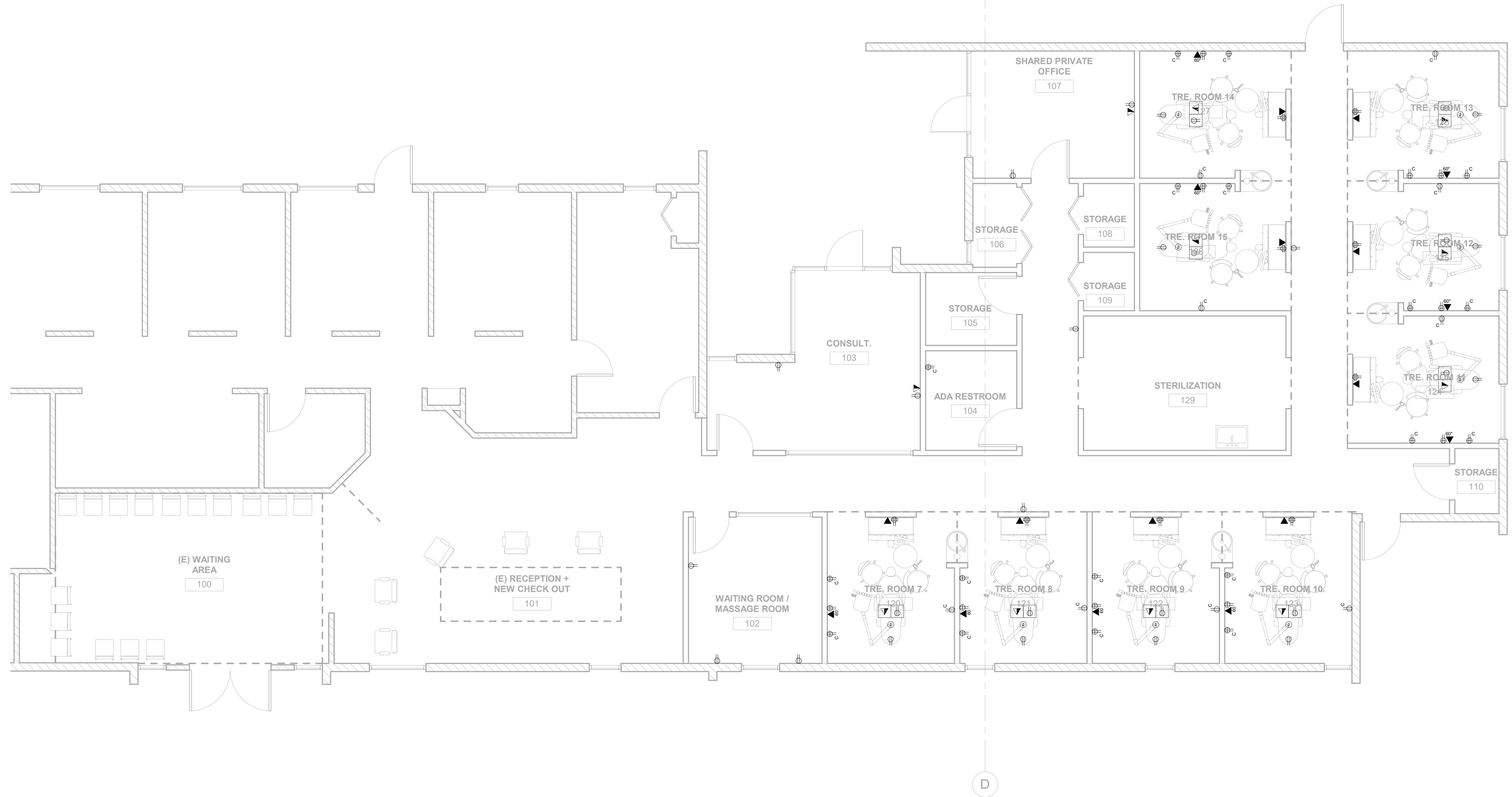
- ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT LOCALLY ADOPTED NATIONAL ELECTRICAL CODE.
- EQUIPMENT DIMENSIONS AND LOCATIONS SHALL BE VERIFIED BEFORE ROUGH-IN. CONSULT WITH ALL TRADES DRAWINGS. CLEARANCES AROUND ALL ELECTRICAL EQUIPMENT SHALL BE MAINTAINED PER N.E.C. BEFORE ELECTRICAL ROUGH-IN. NOTIFY ARCHITECT, ENGINEER AND GENERAL CONTRACTOR IF ANY DISCREPANCIES ARE FOUND.
- ELECTRICAL CONTRACTOR SHALL VERIFY ALL ELECTRICAL EQUIPMENT CONNECTIONS VOLTAGE, PHASE, LOADS, ETC. OF THE EQUIPMENT REQUIRED FOR THIS PROJECT. USE ALL APPROVED TRADES DRAWINGS BEFORE BEGINNING ELECTRICAL ROUGH-IN. NOTIFY ARCHITECT, ENGINEER AND GENERAL CONTRACTOR IF ANY DISCREPANCIES ARE FOUND.
- THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE MECHANICAL CONTRACTOR SO THAT NO MECHANICAL EQUIPMENT INTERFERES WITH ANY ELECTRICAL EQUIPMENT IN A WAY THAT WOULD VIOLATE THE CLEARANCES REQUIRED BY THE N.E.C. FOR THE ELECTRICAL EQUIPMENT.
- ALL ELECTRICAL LIGHTING DRAWINGS SHALL BE CROSS REFERENCED WITH THE ARCHITECTURAL REFLECTED CEILING PLANS. NOTIFY ARCHITECT, ENGINEER AND GENERAL CONTRACTOR IF ANY DISCREPANCIES ARE FOUND.
- FINISHES OF ALL LIGHT FIXTURES SHALL BE SUBMITTED TO THE ARCHITECT/OWNER FOR THEIR APPROVAL.
- SEE ALL TRADES DRAWINGS FOR ROUGH-IN LOCATIONS OF ALL EQUIPMENT, DEVICES AND LIGHTING.
- ALL CONDUITS PENETRATING ROOF SHALL BE COORDINATED WITH GENERAL CONTRACTOR PRIOR TO ROUGH-IN.
- ALL ELECTRICAL BOXES SHALL BE LOCATED IN MASONRY SHALL BE COORDINATED WITH MASONRY CONTRACTOR PRIOR TO ROUGH-IN.
- ALL PENETRATIONS THROUGH FIRE RATED FLOORS, WALLS, AND CEILINGS BY ELECTRICAL MATERIAL SHALL BE SEALED TO MAINTAIN THE APPROVED FIRE RATING OF SURFACES THAT WERE PENETRATED. COORDINATE WITH GENERAL CONTRACTOR TO INSURE THE PROPER FIRE RATING WAS INSTALLED.
- COLOR CODING FOR CONDUCTORS SHALL BE PROVIDED AS PER THE N.E.C. REQUIRES.
- CONDUITS SHALL BE SUPPORTED WITH IN LENGTHS OF 8' AND WITHIN 3' OF ANY CONNECTION. PROVIDE FLEXIBLE RACEWAY TO ALL MOTOR CONNECTIONS.
- SUPPORT ALL LIGHT FIXTURES WITH A MINIMUM OF (2) 12 GAUGE STEEL SEISMIC WIRES RUN TO THE STRUCTURE. CONNECT ENDS OF SEISMIC WIRES TO OPPOSITE CORNERS OF THE LIGHT FIXTURE.
- DIMENSIONS NOTED ON DEVICES ARE TO THE CENTER OF DEVICE.
- SEISMIC BRACING FOR ALL ELECTRICAL EQUIPMENT, CONDUITS, CABLES, LIGHT FIXTURES, CABLE TRAY, ETC. SHALL BE AS PER IBC REQUIREMENTS.

SHEET LIST

Sheet No.	Description
E000	ELECTRICAL GENERAL NOTES
E001	DEMO PLAN
E002	POWER PLAN
E301	LIGHTING PLAN
E701	ELECTRICAL RISER
E801	ELECTRICAL SCHEDULES
E802	ELECTRICAL SCHEDULES
E901	ELECTRICAL SPECIFICATIONS

TYPICAL DEVICE ELEVATION DETAIL





1 POWER PLAN
SCALE: 1/4" = 1'-0"

PROJECT NAME
PROJECT ADDRESS
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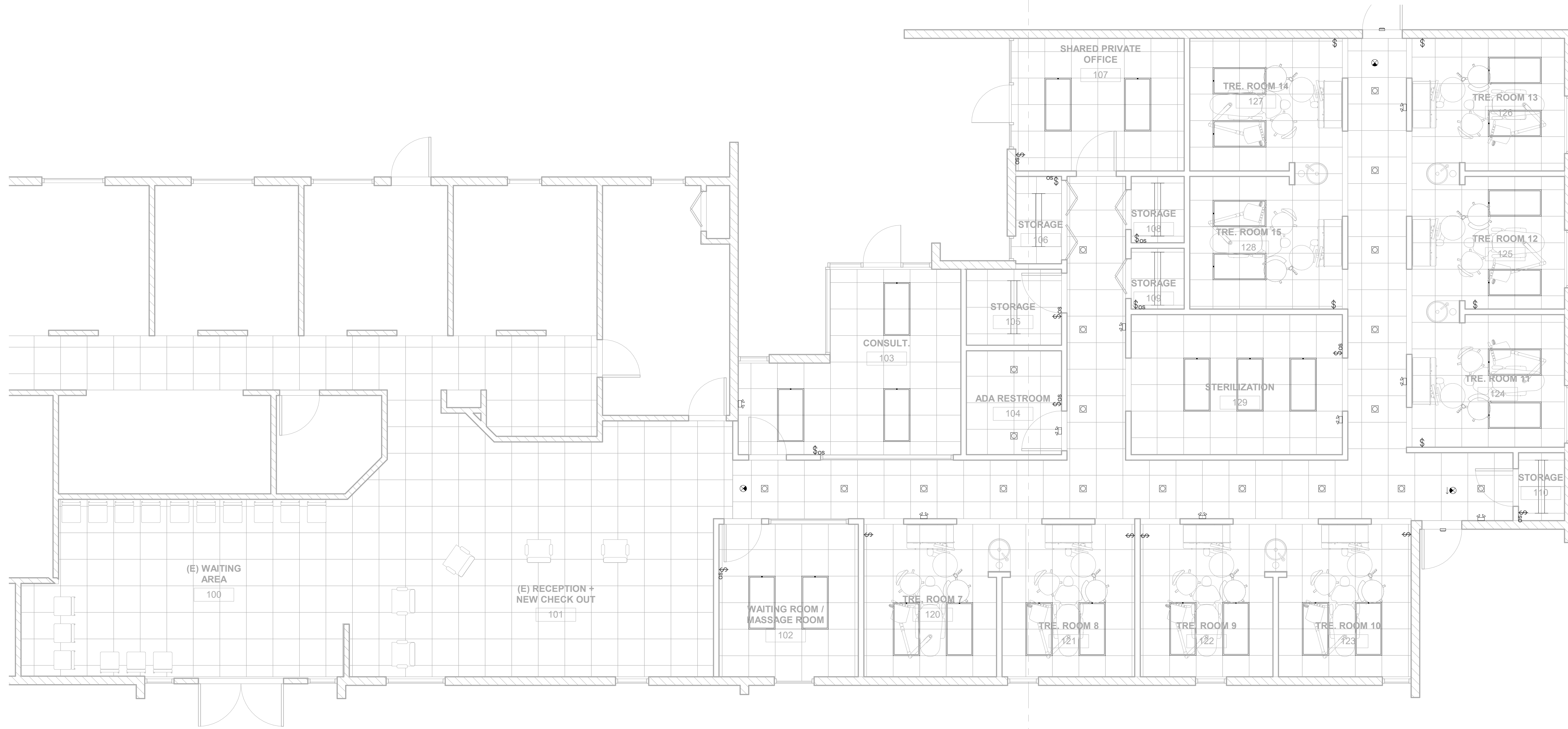
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POWER PLAN

E201

3/15/2021 3:36:20 PM



1 LIGHTING PLAN
SCALE: 1/4" = 1'-0"

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LIGHTING PLAN

E301

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ELECTRICAL SCHEDULES

E801

LIGHT FIXTURE SCHEDULE

COUNT	TYPE MARK	DESCRIPTION	MANUFACTURER	MODEL	LAMP	VOLTAGE	FIXTURE WATTS	REMARKS
9	BE-1	BUGEYE LIGHT	LITHONIA	ELM2L	LED	120 V	3 VA	
2	EM-1	EGRESS MAN DOOR LIGHT	LITHONIA	AFB PEL DDBTXD UVOLT N WT CW	LED	120 V	7 VA	
20	RL-1	CAN LIGHT	LITHONIA	LDN6 AL02 SWW 1 L06 AR LSS MVOLT	LED	120 V	12 VA	
5	S4-1	STRIP LIGHT	LITHONIA	CSS L48 AL03 MVOLT 40K 80CRI	LED	120 V	28 VA	
28	T4-1	2X4 TROFFER	LITHONIA	BLT 2X4 AL012 SWW7	LED	120 V	38 VA	
3	X-1	UNIVERSAL EXIT SIGN	LITHONIA	EXG LED EL M6	LED	120 V	3 VA	

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ELECTRICAL SPECIFICATIONS

E901

ELECTRICAL SPECIFICATIONS

1. SCOPE

A. THE DESCRIPTIONS OF WORK UNDER THIS SECTION SHALL INCLUDE ALL LABOR, MATERIALS AND EQUIPMENT TO COMPLETE THE ELECTRICAL INSTALLATION AS SHOWN ON THE ACCOMPANYING DRAWINGS.

1. THE ELECTRICAL CONTRACTOR SHALL INCLUDE ANY CONDITIONS REQUESTED DURING THE BIDDING REQUIREMENTS

B. THE CONTRACTOR SHALL FAMILIARIZE THEMSELVES WITH THE ACCOMPANYING DRAWINGS AND SPECIFICATIONS

C. ALL LABOR, MATERIAL OR EQUIPMENT NEEDED FOR THE INSTALLATION AND COMPLETION OF THE ELECTRICAL WORK DESCRIBED IN THE ACCOMPANYING DRAWINGS AND SPECIFICATIONS SHALL BE PROVIDED EVEN IF NOT SHOWN ON THE ACCOMPANYING DRAWINGS.

1. ELECTRICAL SERVICE AND FEEDERS

2. BRANCH WIRING AND GROUNDING

3. WIRING DEVICES

4. ELECTRICALLY OPERATED MOTORS AND EQUIPMENT HOOK-UP

5. HVAC EQUIPMENT HOOK-UP

6. ELECTRICAL DISTRIBUTION EQUIPMENT

7. LIGHTING FIXTURES WITH LAMPS

8. COMMUNICATION RACEWAYS AND LOW VOLTAGE SYSTEMS AS SHOWN

9. GENERATOR, EMERGENCY DISTRIBUTION AND EMERGENCY BRACH WIRING

10. FIRE ALARM SYSTEM

2. MATERIALS AND EQUIPMENT

A. ALL MATERIALS AND EQUIPMENT FURNISHED AND INSTALLED SHALL BE UL LISTED

B. ELECTRICAL CONTRACTOR SHALL SUBMIT A SET OF SHOP DRAWINGS AND CATALOG OUT SHEETS ON THE FOLLOWING ITEMS TO THE ARCHITECT AND GENERAL CONTRACTOR FOR APPROVAL.

1. DISTRIBUTION EQUIPMENT

2. LIGHTING FIXTURES

3. DEVICES

4. SYSTEMS

C. IF A SUBSTITUTION OF ANY MATERIALS IS PROPOSED BY THE ARCHITECT OR GENERAL CONTRACTOR, IT MUST BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO ANY CHANGES BEING MADE.

3. STANDARDS OF INSTALLATION

A. THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE, THE CITY, STATE, OR ANY LOCAL ORDINANCES AND UTILITY REGULATIONS ARE A PART OF THIS SPECIFICATION

4. PERMITS AND UTILITY COSTS

A. ANY CITY, STATE, OR LOCAL ORDINANCE ELECTRICAL PERMITS AND INSPECTIONS SHALL BE OBTAINED AND PAID FOR BY THE ELECTRICAL CONTRACTOR UNLESS THE ELECTRICAL PERMIT IS OBTAINED THROUGH THE GENERAL CONTRACTOR. UTILITY CONNECTION FEES ARE NOT INCLUDED IN ELECTRICAL CONTRACT UNLESS SPECIFICALLY NOTED ON THE DRAWINGS.

5. DRAWINGS

A. THE ELECTRICAL DRAWINGS ARE INTENDED TO SHOW THE APPROXIMATE LOCATIONS AND SCOPE OF WORK TO BE PERFORMED AND ARE NOT CONSIDERED AS COMPLETE. THE ELECTRICAL CONTRACTOR SHALL INSTALL ALL WORK INDICATED ON DRAWINGS AND SPECIFICATIONS WITHOUT ADDITIONAL COST.

B. BEFORE STARTING WORK THE ELECTRICAL CONTRACTOR SHALL EXAMINE THE PLANS AND INFORM THE ENGINEER OF ANY DISCREPANCIES BETWEEN THEM AND THE SPECIFICATIONS. IF DISCREPANCIES ARE FOUND HE SHALL REPORT THEM TO THE ENGINEER IN WRITING SO THE ENGINEER CAN PROVIDE INSTRUCTIONS FOR CHANGES IN WORK. DISCREPANCIES SHOULD BE SUBMITTED PRIOR TO BID AS TO RESOLVE ISSUES PRIOR TO CONSTRUCTION.

6. TESTS

A. THE ELECTRICAL CONTRACTOR SHALL COMPLETE ALL TESTS REQUIRED BY THE AUTHORITIES HAVING JURISDICTION.

B. THE COSTS OF ALL TESTS, THE REPLACING AND REPAIRING OF ANY DAMAGE RESULTING FROM TESTS AND ANY WORK NEEDED TO ADDRESS TEST RESULTS, ETC. NOT IN ACCORDANCE WITH ELECTRICAL CODE, SPECIFICATIONS, AND THE ACCOMPANYING DRAWINGS, SHALL BE THE ELECTRICAL CONTRACTOR RESPONSIBILITY.

C. SHOULD THE ELECTRICAL CONTRACTOR REFUSE OR NEGLECT TO MAKE ANY TESTS NECESSARY TO SATISFY THE ENGINEER OR HIS REPRESENTATIVE, THE ENGINEER MAY RUN THE TESTS AND ALL COSTS WILL BE THE ELECTRICAL CONTRACTORS RESPONSIBILITY.

7. GUARANTEE

A. THE ELECTRICAL CONTRACTOR SHALL GUARANTEE ALL WORK EXCEPT FOR LIGHT FIXTURE LAMPS UNDER THIS CONTRACT, TO BE FREE FROM DEFECTS FOR A PERIOD OF ONE (1) YEAR FROM THE PROJECT COMPLETION DATE. ALL DEFECTS OF ELECTRICAL SCOPE WITHIN THAT (1) YEAR PERIOD WILL BE HANDLED BY THE ELECTRICAL CONTRACTOR AT HIS OWN EXPENSE.

B. LIGHT FIXTURE LAMPS SHALL CARRY THE STANDARD FACTORY GUARANTEE.

8. IDENTIFICATION

A. ALL PANELBOARDS, STARTERS, DISCONNECT SWITCHES, MAIN CIRCUIT BREAKERS, MAJOR JUNCTION BOXES AND OTHER SPECIALTY EQUIPMENT ITEMS INSTALLED BY THE ELECTRICAL CONTRACTOR SHALL BE IDENTIFIED WITH PERMANENTLY ATTACHED ENGRAVED PLASTIC NAMEPLATE.

B. THE LABEL SHALL IDENTIFY THE EQUIPMENT NAME ON THE FIRST LINE AND THE PANEL IT IS FED FROM ON THE SECOND.

9. ELECTRICAL SERVICE

A. COORDINATE AND ASSIST THE UTILITY COMPANY IN THE INSTALLATION OF THE ELECTRICAL SERVICE BASED OFF THE ACCOMPANYING DRAWINGS, VERIFY LOCATION, REQUIREMENTS AND ELECTRICAL SERVICE SIZE AS INDICATED BY THE DRAWINGS.

B. PROVIDE METERING CONDUIT AND EQUIPMENT AS REQUIRED BY LOCAL UTILITY COMPANY.

10. GROUNDING

A. PROVIDE GROUNDING FOR ENTIRE ELECTRIC INSTALLATION AS INDICATED BY DRAWINGS AND SPECIFICATIONS.

B. PROVIDE GROUNDING FOR ELECTRICAL SERVICE, EQUIPMENT, ENCLOSURES, CONDUITS, SWITCHBOARDS, MCCS, PANELBOARDS, TRANSFORMERS, LOW VOLTAGE CABINETS, ETC.

C. GROUNDING SIZE AND TYPE OF GROUND CONDUCTOR AS PER NATIONAL ELECTRICAL CODE, ARTICLE 250. CONNECTIONS SHALL BE MADE WITH APPROVED CLAMPS AT MAIN WATERLINE SERVICE ENTRANCE.

D. MEET ALL GROUNDING REQUIREMENTS AS PER THE CURRENT N.E.C.

11. ELECTRIC WIRING

A. GENERAL

1. ROUTING OF CONDUIT SHALL BE SUITED TO THE JOB CONDITIONS AND UP TO THE ELECTRICAL CONTRACTOR UNLESS OTHERWISE NOTED. ALL TRADES DRAWINGS SHOULD BE CLOSELY REVIEWED FOR TYPE OF CONSTRUCTION AND RUNNING OF CONDUITS. NO STRUCTURAL MEMBERS WILL BE CUT WITHOUT APPROVAL FROM STRUCTURAL ENGINEER. ALL CONDUIT WILL BE INSTALLED AT RIGHT ANGLES TO THE BUILDING.

2. ROUGH-IN OF ELECTRICALLY OPERATED UNITS SHALL BE COORDINATED WITH THE SUPPLIERS OF EQUIPMENT.

3. HEIGHTS AND LOCATIONS OF SWITCHES, PLUGS WALL FIXTURES, ETC. SHALL BE COORDINATED WITH ARCHITECTURAL DRAWINGS, GENERAL CONTRACTOR, AND ALL SUBCONTRACTORS AS REQUIRED.

B. RACEWAYS OR CONDUITS

1. ALL CONDUIT EXPOSED TO MECHANICAL DAMAGE SHALL BE RIGID GALVANIZED STEEL, IMC, OR AS NOTED ON THE DRAWINGS. ALL OTHER CONDUITS MAY BE ELECTRICAL METALLIC TUBING, PVC CONDUIT SHALL BE SCHEDULE 40 OR AS NOTED ON DRAWINGS. EXPANSION COUPLINGS SHALL BE USED AT ALL EXPANSION JOINTS.

2. ALL CONDUIT SHALL BE INSTALLED IN A NEAT WORKMANLIKE MANNER AND SHALL BE ANCHORED EVERY (8') BY MEANS OF AN APPROVED METHOD OF CONDUIT SUPPORTING.

3. ALL CONDUIT SIZES SHALL BE IN STRICT ADHERENCE WITH THE CURRENT NATIONAL ELECTRICAL CODE, UNLESS WHERE THE DRAWINGS HAVE OVER SIZED THE MINIMUM REQUIREMENTS, THEN THE LARGER SIZE SHALL APPLY.

C. WIRE

1. ALL CONDUCTORS RATED UNDER 100A SHALL BE COPPER UNLESS NOTED OTHERWISE ON THE DRAWINGS. ALL ALUMINUM WIRE TERMINATORS WILL HAVE MOLDS OR EQUAL ANTI-OXIDANT JOINT COMPOUND APPLIED TO THE TERMINATION.

2. ALL WIRE SIZES #14 TO #10 SHALL BE TYPE THINWALL THINWALLED WIRE SHALL NOT BE USED IN AREAS SUBJECT TO WATER SUCH AS IN CONDUITS BELOW GRADE.

3. ALL WIRE SIZES #8 OR LARGER SHALL BE TYPE THIN OR THW STRANDED UNLESS NOTED OTHERWISE.

4. WIRE INSTALLED IN FIXTURE PANS SHALL BE TYPE #100 OR THIN.

5. FURNISH AND INSTALL GROUND CONDUCTOR PER THE CURRENT NEC WHEN NON-METALLIC CONDUIT IS USED OR AS NOTED ON THE DRAWINGS.

6. PROVIDE METALLIC SHEATH CABLE, MC OR AC AS PER THE CURRENT N.E.C. ARTICLE 330 AND 334. MC OR AC CABLE SHALL ONLY BE USED INSIDE FRAMED WALLS OR ABOVE HARD LIFT-GRID CEILING.

7. BRANCH CIRCUITS FOR WHICH THE DISTANCE FROM PANELBOARD TO THE NEAREST DEVICE ARE MORE THAN 100' THE ELECTRICAL CONTRACTOR MUST UPSIZE HIS BRANCH WIRING ACCORDING TO THE VOLTAGE DROP TABLE ON THE ACCOMPANYING DRAWINGS.

D. BOXES AND FITTINGS

1. ALL CONDUIT BOXES AND ASSOCIATED MATERIAL SHALL BE GALVANIZED AND UL LISTED.

2. ALL CONDUIT CONNECTORS OR CONDUIT CONNECTION POINTS MUST BE INSULATED TO PROVIDE PROTECTION TO THE WIRING.

3. ALL FITTINGS FOR CONDUIT SHALL BE WATER TIGHT OR STEEL SET SCREW.

4. OUTLETS IN PLASTERED PANELS AND FURRED FINISH SHALL BE EQUIPPED WITH PLASTERED RINGS AND EXTENSION OF SUCH DEPTH TO BRING OUTLET FLUSH WITH SURFACE FINISH.

5. SURFACE MOUNTED BOXES IN DAMP OR WET LOCATIONS, AND BOXES MOUNTED ON A CONDUIT STUB-UP SHALL BE TYPE "3F" OR "3F" BOXES WITH THREADED NUTS, MOUNTING SABS AND WEATHERPROOF COVERS.

E. WIRING PROCEDURE

1. ALL WIRING IN CONDUIT SHALL HAVE NO MORE THAN THREE (3) CIRCUITS PER HOME RUN, UNLESS DERATED AS PER NEC 310.15-NOTE 8.

2. THE ARCHITECT / ENGINEER RESERVES RIGHT TO MAKE ANY REASONABLE CHANGES IN THE LOCATION OF OUTLETS BEFORE ROUGHING-IN WITHOUT ADDITIONAL EXPENSES TO THE OWNER.

3. THE LAYOUT OF THE WIRING SYSTEM AS INDICATED IS GENERALLY SCHEMATIC AND LOCATION OF OUTLETS SHALL BE CHECKED WITH MILL WORK, EQUIPMENT SUPPLIERS, AND GENERAL CONTRACTOR.

12. MOTORS AND ELECTRICALLY OPERATED EQUIPMENT

A. IT IS THE INTENT OF THESE SPECIFICATIONS THAT ALL EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS SHALL BE WIRED UNDER DIVISION 16 ELECTRICAL AND AS NOTED ON THE ELECTRICAL DRAWINGS.

B. CHECK SUPPLIERS EQUIPMENT FOR COMPLETE WIRING DETAILS.

C. CONNECT ALL MOTORS WITH FLEXIBLE CONDUIT AS PER THE CURRENT NEC.

D. CHECK MOTOR STARTER FOR HEATER SIZES AND FUSED DISCONNECTS FOR FUSE SIZES.

13. HEATING AND VENTILATING EQUIPMENT

A. THE ELECTRICAL CONTRACTOR SHALL PERFORM ALL LINE VOLTAGE CONNECTIONS FOR ALL HVAC AND BUILDING EQUIPMENT AS PER THE ELECTRICAL EQUIPMENT HOOK-UP SCHEDULE.

B. ALL HVAC CONTROL WIRING AND RELATED EQUIPMENT FOR HEATING AND VENTILATING SHALL BE PROVIDED BY THE MECHANICAL CONTRACTOR UNLESS OTHERWISE NOTED.

C. THE HEATING AND VENTILATING SPECIFICATIONS SHALL BE A PART OF THESE SPECIFICATIONS AND THE MECHANICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL STARTERS FOR MECHANICAL EQUIPMENT WHICH ARE NOT SPECIFICALLY DESIGNATED AS BEING FURNISHED BY THE ELECTRICAL CONTRACTOR. SEE ELECTRICAL EQUIPMENT SCHEDULE.

D. THE ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL DISCONNECT SWITCHES THAT ARE REQUIRED BY THE NATIONAL ELECTRICAL CODE FOR ALL MECHANICAL EQUIPMENT AS PER ELECTRICAL EQUIPMENT SCHEDULE UNLESS FACTORY FURNISHED WITH MECHANICAL EQUIPMENT.

14. LIGHTING FIXTURES

A. ALL LIGHTING FIXTURES SHALL BE FURNISHED WITH THE PROPER MOUNTING ACCESSORIES TO SUIT INTENDED APPLICATION.

1. ALL OUTDOOR FIXTURES SHALL RATED FOR THE APPROPRIATE CONDITIONS.

2. ALL LIGHTING FIXTURES SHALL UL LISTED.

3. BEFORE ORDERING LIGHT FIXTURES THE ELECTRICAL CONTRACTOR WILL VERIFY EACH FIXTURES MOUNTING EQUIPMENT AND AND INFORM THE ENGINEER IF THERE ARE DISCREPANCIES WITH THE MOUNTING HARDWARE AND THE MOUNTING SURFACE OF THE LIGHT FIXTURE. IF THIS IS NOT DONE THE COSTS TO CHANGE THE MOUNTING EQUIPMENT AND LABOR WILL BE THE ELECTRICAL CONTRACTOR RESPONSIBILITY.

4. RECESSED FIXTURES SHALL BE SECURED TO THE BUILDING STRUCTURE. DROP IN FIXTURES SHALL BE SUPPORTED WITH WIRE SUPPORTS WITH A MINIMUM OF TWO (2) PER FIXTURE WITH ONE AT OPPOSITE ENDS OF EACH OTHER. WIRES TO BE SECURED TO THE BUILDING STRUCTURE AND PROVIDE FOUR (4) EARTHQUAKE CLIPS PER FIXTURE.

5. ELECTRICAL CONTRACTOR TO VERIFY WITH GENERAL CONTRACTOR IF FIRE RATED BOOTHS ARE REQUIRED FOR RECESSED LIGHT FIXTURES PRIOR TO BID. NO EXTRAS WILL BE ALLOWED FOR THIS WORK.

B. LAMPS SHALL BE SUPPLIED WITH FIXTURES AND SHALL BE THE TYPE AS SHOWN ON LIGHT FIXTURE SCHEDULE AND AS MANUFACTURED BY GENERAL ELECTRIC, PHILIPS, SYLVANIA.

15. PANELBOARDS

A. PANEL BOARDS AND SWITCHBOARDS SHALL BE SQUARE D, SIEMENS, G.E. OR CUTLER HAMMER. THE PANELS SHALL BE HOUSED IN A GALVANIZED STEEL CAB WITH HINGED COVER DOOR. THE DOOR SHALL BE KEYS LOCK WITH ALL KEYS ALIKE. ALL PAINTED SURFACES SHALL BE BONDERIZED AND PAINTED WITH THREE (3) COATS OF PRIMER AND FINISH PAINT. THE PANELS SHALL BE TOP OR BOTTOM FEED AS REQUIRED. THE PANEL SHALL HAVE A SOLID BUSING AND NEUTRAL TERMINAL PLATE, AND SHALL BE BRANDED TO WITHSTAND THE MAXIMUM SHORT CIRCUIT INTERRUPTING CAPACITY OF ANY DEVICE MOUNTED THEREIN.

B. A WRITTEN CIRCUIT DATA SHALL BE PROVIDED IDENTIFYING OUTLET AND EQUIPMENT CONTROLLED PER CIRCUIT NUMBER ON CARDS PROVIDED WITH PANEL. DIRECTORY HOLDERS SHALL BE FURNISHED ON INNER FACE OF HINGED DOOR. CONTRACTOR SHALL PROVIDE TYPED CIRCUIT DIRECTORY CARD AT COMPLETION OF PROJECT.

C. ALL PANEL BOARDS SHALL HAVE A GROUND BUS WITH LUGS AS REQUIRED. FURNISH ALL FUSES, SPARE FUSES AND FUSE CABINET AS NOTED ON DRAWINGS.

16. WIRING DEVICES

A. RELATED DOCUMENTS: THE GENERAL PROVISIONS OF THE CONTRACT AND THE GENERAL CONDITIONS APPLY TO THE WORK SPECIFIED IN THIS SECTION.

B. DUPLEX RECEPTACLES

1. ALL DUPLEX RECEPTACLES SHALL BE 3-POLE GROUNDING TYPE WITH THE THIRD POLE "J" SHAPED AND GROUNDED TO THE CONDUIT SYSTEM AND SHALL BE FRIG, HUBBELL, LEVITON OR AN APPROVED EQUAL TO.

C. TOGGLE SWITCHES

1. ALL TOGGLE SWITCHES SHALL BE COMMERCIAL/INDUSTRIAL TYPE 15 & 20 AMP, 120/277 VAC AND SHALL BE FRIG, HUBBELL, LEVITON OR APPROVED EQUAL TO.

D. WIRING DEVICE COVERS

1. COVERS SHALL BE PAS TYPE TP SERIES COLOR AS SELECTED BY ARCHITECT TO MATCH DEVICES COVERED. EXCEPT THAT OUTLETS MOUNTED IN TOE SPACE OR NEXT TO FLOOR SHALL HAVE STAINLESS STEEL COVERS. SURFACE OUTLETS SHALL HAVE GALVANIZED COVER.

2. WIRING DEVICE COVERPLATES LOCATED ON EXTERIOR WALLS OR IN AREAS OF EXCESSIVE MOISTURE SHALL WEATHER PROOF.

3. ALL FLOOR RECEPTACLES SHALL INCLUDE CARPET OR TILE FLANGE COMPLETE.

17. DRY-TYPE TRANSFORMERS

A. RELATED DOCUMENTS: RELATED DOCUMENTS: THE GENERAL PROVISIONS OF THE CONTRACT AND THE GENERAL CONDITIONS APPLY TO THE WORK SPECIFIED IN THIS SECTION.

B. GENERAL

1. FURNISH AND INSTALL DRY-TYPE TRANSFORMERS AS INDICATED ON THE PLANS AND AS SPECIFICATIONS.

C. DESCRIPTION

1. TRANSFORMERS SHALL HAVE A MINIMUM 4-10% FULL CAPACITY PRIMARY TAPS.

2. TRANSFORMERS SHALL BE 50°C TEMPERATURE RISE ABOVE 40 °C AMBIENT.

3. PROVIDE TRANSFORMERS 300 KVA AND LARGER WITH A VIBRATION ISOLATING SYSTEM DESIGNED TO PROVIDE A PERMANENT PERMANENT FASTENING AT THE CORE AND COIL OF THE ENCLOSURE. SOUND LEVEL SHALL BE GUARANTEED BY THE MANUFACTURER NOT TO EXCEED NEMA AND ANSI STANDARDS.

18. MOTOR STARTERS

1. STARTERS SHALL BE LINE VOLTAGE, NON-REVERSING, 3-POLE WITH THERMAL OVERLOAD, SINGLE-PHASE, AND LOW VOLTAGE PROTECTION WITH A NORMALLY OPEN AND CLOSED AUXILIARY CONTACT AND RESET BUTTON ON THE FACE. THE COIL VOLTAGE SHALL BE RATED FOR 120 VAC. PROVIDE FUSED CONTROL TRANSFORMER WHEN 120 VAC IS NOT AVAILABLE. SEE ELECTRICAL EQUIPMENT SCHEDULE AND DRAWINGS FOR H.O.S.'S, PILOT LIGHTS, ETC.

19. SAFETY SWITCHES

A. ALL SAFETY SWITCHES 30 AMPS AND LARGER SHALL BE HORSE POWER RATED, EXTERNALLY OPERATED WITH PROVISION FOR PADLOCK, QUICK MAKE-BREAK AND SHALL BE FUSIBLE / NON-FUSIBLE / NEMA 1 / NEMA 3R AS NOTED ON DRAWINGS. EACH SAFETY SWITCH SHALL BE CLEARLY MARKED FOR MAXIMUM VOLTAGE / CURRENT / HORSEPOWER RATING.