

ELECTRICAL NOTES

- THE CONTRACTOR SHALL BE FULLY COGNIZANT OF THE LATEST EDITION OF THE 2018 NORTH CAROLINA STATE BUILDING CODE, 2017 NEC, 2015 NFPA101, 2013 NFPA72, AND ALL LOCAL CODES, ORDINANCES OF THE AUTHORITIES HAVING JURISDICTION AND PERFORM ALL WORK IN ACCORDANCE WITH THE INTENT AND REQUIREMENTS OF THESE CODES, ORDINANCES AND AUTHORITIES.
- DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF ALL WORK. THE DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL LAYOUT OF ELECTRICAL SYSTEMS.
- WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "FURNISH AND INSTALL".
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURERS APPROVED WIRING DIAGRAMS, DETAILS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- PROVIDE WITH SHOP DRAWING SUBMITTAL, 1/4" SCALE LAYOUT DRAWINGS OF AREAS WITH ELECTRICAL SWITCHGEAR AND TRANSFORMERS. LAYOUT SHALL SHOW LOCATIONS OF AND SHALL BE COORDINATED WITH MECHANICAL EQUIPMENT AND MECHANICAL EQUIPMENT SHALL BE DRAIN TO SCALE.
- IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO APPROVE METHODS AND MATERIALS NOT REFLECTED HEREIN.
- THE CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SHALL PROVIDE LIGHTS, SWITCHES, RECEPTACLES, TELEPHONE OUTLETS, EQUIPMENT CONNECTIONS, ETC. AND ASSOCIATED CIRCUITING IN NEW AND REMODELED AREAS. EVEN IF SUCH AREAS ARE NOT SHOWN ON THE ELECTRICAL DRAWINGS, LAYOUTS, FIXTURE TYPES, QUANTITIES AND SPACING SHALL BE IN ACCORDANCE WITH SIMILAR AREAS ON THIS PROJECT. THE CONTRACTOR SHALL INCLUDE COSTS FOR THE ABOVE IN HIS BID. IN ADDITION, THE CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS FOR WORK IN SUCH AREAS AND SUBMIT FOR APPROVAL PRIOR TO ROUGH-IN.
- THE CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL AND OTHER DRAWINGS PRIOR TO BID AND SHALL COORDINATE ALL TRADES TO PROVIDE A COMPLETE PRODUCT TO AVOID CONFLICTS BETWEEN TRADES, AND TO DETERMINE WHICH TRADE IS TO PERFORM THE NECESSARY WORK. COORDINATION BETWEEN TRADES SHALL INCLUDE LOW VOLTAGE WIRING.
- PROVIDE SUBSTITUTIONS OF ELECTRICAL EQUIPMENT OR REQUEST FOR "OR EQUIVALENT" OR "APPROVED EQUIVALENT" LISTING SHALL BE SUBMITTED TO THE ARCHITECT NOT LESS THAN TEN (10) WORKING DAYS PRIOR TO BID. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
- WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER, CONSISTENT WITH THE HIGHEST LEVEL OF STANDARDS AND TO THE SATISFACTION OF THE ARCHITECT.
- ALL EQUIPMENT AND MATERIALS PROVIDED SHALL BE NEW AND IN CONFORMANCE WITH APPLICABLE PROVISIONS OF NEMA, ANSI U.L., ETC. AND SHALL BEAR AN APPROVED TESTING AGENCY LABEL WHERE APPLICABLE.
- PROVIDE PERMITS AND INSPECTIONS AS REQUIRED.
- GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
- VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN. MODIFICATIONS REQUIRED DUE TO LACK OF COORDINATION BY CONTRACTORS, WILL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
- SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, THE CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO THE OWNER.
- THE CONTRACTOR SHALL PROVIDE OPERATING MANUALS TO THE OWNER.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ELECTRICAL UTILITY COMPANY FURNISHED CONDUIT FOR THE PRIMARY CONDUCTORS FROM THE PRIMARY POINT OF CONNECTION TO THE PAD MOUNT TRANSFORMER, PROVIDING A CONCRETE PAD PER ELECTRICAL UTILITY CO. REQUIREMENTS, AND TO COORDINATE WITH ALL REQUIREMENTS FOR CONDUIT ENTRY AND CABLE TERMINATIONS IN THE UTILITY TRANSFORMER. ANY CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT/ ENGINEER PRIOR TO COMMENCEMENT OF WORK.
- PROVIDE EXPANSION FITTINGS IN CONDUIT RUNS CROSSING STRUCTURAL EXPANSION JOINTS.
- WIRE SHALL BE COPPER, 75 DEGREES C RATED FOR GENERAL USE. FOR HID FIXTURES AND WIRING WITHIN 3 INCHES OF FLUORESCENT BALLAST WIRE SHALL BE COPPER, MINIMUM 90 DEGREES C RATED. SIZES INDICATED ARE FOR INSTALLATION IN A MAXIMUM 30 DEGREES C AMBIENT. CONDUCTOR AMPACITY SHALL BE DERATED FOR HIGHER AMBIENT INSTALLATIONS. THE CONTRACTOR SHALL INCREASE THE SIZE OF THE CONDUCTOR TO MEET VOLTAGE DROP REQUIREMENTS WHERE FIELD CONDITIONS INCREASE THE CONDUIT RUN LENGTH SUCH THAT THE VOLTAGE DROP IS EFFECTED.
- ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A #12 PULL WIRE OR EQUIVALENT AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT, ORIGIN AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.
- PRESENT SHOP DRAWING SUBMITTAL DATA AT ONE TIME. SUBMITTAL SHALL BE SUBMITTED IN PDF FORM WITH CONTRACTOR APPROVAL PRIOR TO SUBMITTAL. PARTIAL SUBMITTALS WILL NOT BE ACCEPTED. SUBMITTALS SHALL INCLUDE, BUT NOT BE LIMITED TO: LIGHTING FIXTURES, SWITCHGEAR, PANELBOARDS, WIRING DEVICES, SAFETY SWITCHES, FUSES, MOTOR STARTERS, LAMPS, CONDUIT, CONDUIT FITTINGS AND TRANSFORMERS.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
- CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIAL, EQUIPMENT OR INSTALLATION METHODS.
- SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION. LIGHTS, SWITCHES, RECEPTACLES, MOTORS, ETC., SHALL BE CONNECTED AND OPERABLE.
- RECEPTACLES WHICH ARE SHOWN WALL MOUNTED ON THE ELECTRICAL DRAWINGS ON WALLS WHICH, ON THE ARCHITECTURAL DRAWINGS AND ELEVATIONS ARE SHOWN AS GLASS OR PARTITIONS, SHALL BE FLUSH FLOOR DUPLEX RECEPTACLES MOUNTED ADJACENT TO BASE OR WALLS.
- BOXES FOR TELEPHONE, T.V., COMPUTER, WIRING DEVICES, ETC., SHALL BE MINIMUM 4" SQUARE. THE CONTRACTOR SHALL COORDINATE WITH THE ARCHITECTURAL AND INTERIOR DRAWINGS FOR ALL ROUGH-IN LOCATIONS FOR APPLIANCES. IF NO LOCATION IS INDICATED, THE CONTRACTOR SHALL NOTIFY THE ARCHITECT IN WRITING FOR CLARIFICATION.
- GROUNDING OF RECEPTACLES AND FIXED ELECTRICAL EQUIPMENT IN PATIENT CARE AREAS TO COMPLY WITH NEC 517.13 (A) & (B) AND NEC 517.31
- ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITIES
- THE LIGHTING HAS BEEN DESIGNED IN ACCORDANCE OF THE STATE OF NORTH CAROLINA STATE BUILDING CODE, ENERGY EFFICIENCY CODE, CHAPTER 13 (2018 EDITION).
- VOLTAGE DROP CALCULATIONS ON ALL FEEDERS AND BRANCH CIRCUITS HAVE BEEN PERFORMED WITH A MAXIMUM OF 5 PERCENT VOLTAGE DROP TOTAL. THE CONTRACTOR IS RESPONSIBLE TO BE FAMILIAR WITH CHAPTER 13 AND SHALL UPSIZE THE CONDUCTORS FOR FEEDER AND BRANCH CIRCUITS BASED ON THE ACTUAL ROUTING IN THE FIELD.
- THE CONTRACTOR SHALL HAVE A QUALIFIED PERSON COMMISSION ALL LIGHTING CONTROL SYSTEMS PRIOR TO OBTAINING THE C.O. THE PERSON SHALL TRAIN THE OWNER ON THE OPERATION OF THE LIGHTING CONTROLS.
- ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC RACEWAYS. RACEWAYS IN SLAB-ON-GRADE OR BELOW GRADE SHALL BE SCHEDULED 40 PVC. TRANSITIONS FROM BELOW TO ABOVE GRADE SHALL BE WITH RIGID STEEL ELBOWS WITH P.V.C. JACKET OR APPROVED EQUIVALENT PROTECTION. MET FITTINGS SHALL BE MALLEABLE IRON OR STEEL. CONDUCTORS SHALL BE INSULATED. THIS SHALL HAVE A CODE SIZED COPPER GROUNDING CONDUCTOR. INCREASE CONDUIT SIZE AS REQUIRED.
- FIRE ALARM, SOUND, TELEPHONE, COMPUTER, AND SIMILAR SYSTEMS CONDUITS LARGER THAN 1" SHALL HAVE LONG RADIUS SWEEPS (12 TIMES THE DIAMETER).
- THE CONTRACTOR SHALL PROVIDE OFCI PROTECTION FOR PERSONNEL AS PER 2017 NEC 210.8(B).
- FINAL CONNECTIONS TO MOTORS, TRANSFORMERS AND OTHER VIBRATING EQUIPMENT SHALL BE WITH SEAL TITE FLEX AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.
- WHERE PANELS ARE INSTALLED FLUSH WITH WALLS, EMPTY CONDUITS SHALL BE EXTENDED FROM THE PANEL TO AN ACCESSIBLE SPACE ABOVE OR BELOW. A MINIMUM OF ONE 3/4" SHALL BE INSTALLED FOR EVERY THREE SINGLE POLE SPARE CIRCUIT BREAKERS OR SPACES, OR FRACTION THEREOF, BUT NOT LESS THAN TWO CONDUITS. FLUSH MOUNTED PANEL SHALL BE INSTALLED IN 6" WALLS. COORDINATE WITH GENERAL CONTRACTOR.
- WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C.
- ELECTRICAL CONTRACTOR SHALL PROVIDE CONTROLS, INTERLOCKS, ACCESSORIES, ETC., IN MOTOR CONTROL STARTERS AS REQUIRED BY THE TEMPERATURE CONTROL CONTRACTOR. STARTERS SHALL CONTAIN 120V CONTROL TRANSFORMER, PILOT LIGHT, AND PUSH BUTTONS OR SELECTOR SWITCH AS REQUIRED. IN ADDITION TO OTHER ITEMS (AUXILIARY CIRCUITS, DOOR SWITCHES, RELAYS, ETC.) REQUIRED. SUBMIT ELEMENTARY CONTROL DIAGRAMS FOR APPROVAL. SUBMITTALS SHALL INCLUDE INDICATION OF PRIOR REVIEW AND ACCEPTANCE BY TEMPERATURE CONTROL CONTRACTOR. REFER TO DIV. 15 DRAWINGS AND TEMPERATURE CONTROL DIAGRAMS FOR ADDITIONAL WIRE, RELAYS, TRANSFORMERS, CONNECTIONS, ETC. REQUIRED FOR A COMPLETE AND OPERABLE SYSTEM.
- RECEPTACLE AND TELEPHONE OUTLETS AT COUNTER SHALL BE MOUNTED WITH THEIR LONG AXIS HORIZONTAL AT +42" UNLESS NOTED.
- PANEL DIRECTORIES SHALL BE REMOVABLE. SUBMIT PROPOSED SCHEDULE OF DIRECTORIES TO OWNER FOR APPROVAL. ROOM NAMES AND NUMBERS SHALL BE AS DIRECTED BY OWNER. DIRECTORIES SHALL BE TYPED AND INSTALLED UNDER CLEAR PLASTIC COVERS.
- DISCONNECT SWITCHES SHALL BE GENERAL DUTY TYPE. FUSIBLE SWITCHES SHALL ACCEPT CLASS "T" FUSES ONLY AND REJECT ALL OTHERS.
- PROVIDE DYMO-TAPE TAG INSIDE COVER OF EACH FUSIBLE SWITCH, INDICATING SIZE AND TYPE OF FUSES PROVIDED.
- DEVICES SHALL BE AS FOLLOWS: (OR OTHERWISE AS NOTED)
A. RECEPTACLES - HUBBELL #5362 SERIES
B. SWITCHES - HUBBELL #1221 SERIES
C. DIMMERS - LUTRON "NOVA" SERIES.
D. THE COLOR OF THE DEVICES AND COVER PLATES SHALL BE AS DIRECTED BY ARCHITECT. IN DAMP OR WET LOCATIONS COVER PLATES SHALL BE STAINLESS STEEL. IN DRY LOCATIONS COVER PLATES SHALL BE SMOOTH HIGH ABUSE NYLON OR EQUIVALENT. PROVIDE COVER PLATES FOR SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, COMPUTER, AND J-BOX OUTLETS AS REQUIRED.
- THE CONTRACTOR SHALL COORDINATE WITH THE TELEPHONE UTILITY FOR PROVIDING THE REQUIRED CONDUIT SIZE AND NUMBER TO THE TENANT SPACE. THE CONTRACTOR SHALL PROVIDE ALL CONDUITS WITH PULL CORDS AND SHALL INSTALL FROM THE LOCAL TELEPHONE BOARD TO THE MAIN POINT OF SERVICE
- FIRE ALARM SYSTEM. CONTRACTOR SHALL PROVIDE DEVICES, CONDUIT, WIRES AND CABLE AS DIRECTED BY EQUIPMENT AND WORKMANSHIP SHALL MEET PREVAILING CODES. THE SYSTEM SHALL BE COMPLETE AND OPERABLE IN EVERY RESPECT. SUBMIT SINGLE LINE OF SYSTEM WITH SHOP DRAWINGS. THIS SINGLE LINE DIAGRAM SHALL SHOW DEVICES, CONDUIT, WIRE AND CABLE SIZES. EQUIPMENT TO BE USED AND SHALL BE STAMPED AND SIGNED BY LOCAL FIRE DEPARTMENT. SYSTEM CALIBRATION AND TESTING SHALL BE BY FACTORY CERTIFIED TECHNICIAN.
- SEE DIVISION 22 & 23 DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED.
- SPLICES IN EXTERIOR PULL BOXES AN MANHOLES SHALL BE MADE WATER PROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUIVALENT. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCT SEAL" OR APPROVED EQUIVALENT
- CIRCUIT BREAKERS SHALL BE BOLT-ON TYPE AND FUSES SHALL BE BUSSMANN OR LITTLEFUSE.
- PROVIDE APPROVED FIRE STOPPING MATERIALS AT ALL PENETRATIONS THROUGH FIRE RATED FLOORS AND WALLS TO PREVENT THE PASSAGE OF SMOKE, FIRE TOXIC GAS OR WATER THROUGH THE PENETRATION EITHER BEFORE, DURING OR AFTER A FIRE, AS REQUIRED BY ARTICLE 300, OF THE NEC.
- PROVIDE TWO (2) SETS OF THREE (3) SPARE FUSES FOR EACH SIZE AND TYPE PROVIDED ON THIS PROJECT. INSTALL FUSES IN A HINGED DOOR, SHEET METAL STORAGE CABINET EQUIPPED WITH CLIPS OR CUBICLES, EACH MARKED WITH THE SIZE AND TYPE FUSE STORED THEREIN. PROVIDE NAMEPLATE "SPARE FUSES". INSTALL IN LOCATIONS AS DIRECTED BY OWNER.
- PULL BOXES, CABINETS, ETC. MOUNTED ON THE EXTERIOR AT GRADE LEVEL, SHALL BE WEATHER PROOF TYPE WITH HINGED LOCKABLE COVERS SECURED WITH TAMPER-PROOF SCREWS.
- FLUSH FLOOR RECEPTACLE OUTLETS SHALL BE HUBBELL #8-2529 WITH BRASS COVER #5-3725. PROVIDE CARPET OR TILE FLANGE TO MATCH FLOOR FINISH.
- FLUSH FLOOR TELEPHONE OUTLETS SHALL BE HUBBELL #8-2529 WITH BRASS COVER #5-2725. PROVIDE CARPET OR TILE FLANGE TO MATCH FLOOR FINISH.
- RECESSED LIGHT FIXTURES INSTALLED IN GYP. BOARD OR PLASTER CEILINGS SHALL HAVE PLASTER FRAMES INSTALLED PRIOR TO CEILING MATERIAL.
- RECESSED FIXTURES INSTALLED INDOORS SHALL BE THERMALLY PROTECTED.
- FIXTURES RECESSED IN "T-BAR" U.L. FIRE RATED CEILING ASSEMBLIES SHALL BE SUPPORTED INDEPENDENTLY OF THE CEILING SYSTEM, WITH TWO #12 HANGER WIRES UP TO STRUCTURE. SECURE HANGER WIRES TO CORNERS OF FIXTURE. CLIP FIXTURE TO GRID ON TWO SIDES WITH FACTORY-FURNISHED CLIPS. FINAL CONNECTION TO FIXTURE SHALL BE MADE WITH FLEXIBLE U.L. APPROVED ASSEMBLY.
- CONDUITS PENETRATING THRU ROOF SHALL HAVE FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATER TIGHT.
- PROVIDE A GREEN GROUND CONDUCTOR AND METAL RACEWAY IN ALL BRANCH CIRCUITS FEEDING OUTLETS IN MEDICAL EXAM ROOMS & PATIENT CARE ROOMS AS PER 2017 NEC 517.13. PROVIDE EMT METAL RACEWAY OR HEALTH CARE RATED MC CABLE AS PER 2017 NEC 517.13.
- AN ISOLATED GROUND RECEPTACLE SHALL NOT BE INSTALLED WITHIN A PATIENT CARE WING AS PER 2017 NEC 517.16
- AUTOMATIC LIGHTING CONTROL DEVICES SHALL COMPLY WITH NFPA 101: 7.8.1.2.2 (1) THROUGH (7).
- THE CONTRACTOR SHALL LABEL ALL ELECTRICAL CONTROL DEVICES (OCCUPANCY/VACANCY SENSORS) WITH THE CORRECT CIRCUIT, ACCORDING TO CIRCUIT PANEL DESIGN FOR MAINTENANCE AS REQUIRED BY NEC 408.4.
- ADDITIONAL NOTES FOR NEW PANELBOARDS:
A. PROVIDE LIGHTING AND RECEPTACLE PANELS AS INDICATED ON THE PLANS AND AS SPECIFIED HEREIN. ALL PANELS SHALL BE DEAD FRONT, CIRCUIT BREAKER TYPE, AND SHALL BEAR THE U.L. LABEL AS WELL AS MEET ALL APPLICABLE NEMA REQUIREMENTS.
B. UNLESS OTHERWISE NOTED, TOP OF PANELS SHALL BE MOUNTED 6"-0" A.F.F.
C. ALL PANELS SHALL HAVE TYPEWRITTEN CIRCUIT DIRECTORIES MOUNTED INSIDE OF DOOR.
D. PANELS SHALL BE SUITABLE FOR THE SERVICE RATING AND THE A.I.C. RATING INDICATED ON THE PANEL SCHEDULES.
E. ALL BREAKERS SHALL BE FULL SPACE, INDIVIDUAL FRAME TYPE, BOLT-ON E. TYPE. NO "PIGGY-BACK" OR TANDEM BREAKERS WILL BE PERMITTED.
F. CONTRACTOR SHALL PROVIDE ON ALL FLUSH (RECESSED) MOUNTED PANELS TWO (2), SPARE 2" CONDUITS STUBBED INTO THE CEILING SPACE.
G. ALL CURRENT CARRYING BUS BARS SHALL BE COPPER.

ELECTRICAL SYMBOL LIST

S	WALL SWITCH - 1 POLE - 125V - 20 AMP, MOUNT 46" A.F.F. 42" A.F.F. @ COUNTERTOPS OR AS NOTED. QUIET TYPE.	W.P.	WEATHERPROOF
S ₃	WALL SWITCH - 3 WAY - 125V - 20 AMP, MOUNT 46" A.F.F. OR AS NOTED	I.G.	ISOLATED GROUND
S _D	DIMMER SWITCH - 125V - 1000W - 20 AMP, MOUNT 46" A.F.F. OR AS NOTED	N.L.	NIGHT LIGHT
S _M	MOTOR RATED "SNAP" SWITCH - 125V - 20 AMP, MOUNT AS NOTED	EM.	EMERGENCY
⊞	LINE VOLTAGE OCCUPANCY SENSOR SWITCH - 120V-800W-6.7 AMP, MOUNT 46" A.F.F. OR AS NOTED. DUAL TECHNOLOGY	E OR EX	EXISTING
⊞	LINE VOLTAGE OCCUPANCY SENSOR SWITCH - 125V-800W-6 AMP, CEILING MOUNT OR AS NOTED. DUAL TECHNOLOGY	N.	NEW
⊞	LINE VOLTAGE OCCUPANCY SENSOR SWITCH - 125V-800W-6 AMP, CEILING MOUNT FOR CORRIDOR OR AS NOTED. DUAL TECHNOLOGY	⊞	EMERGENCY POWER OFF (EPO) BUTTON
⊞	HOSPITAL GRADE DUPLEX RECEPTACLE - 125V - 20 AMP - NEMA 5-20R, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. @ COUNTERTOPS OR AS NOTED	⊞	X-RAY "IN USE" LIGHT
⊞	HOSPITAL GRADE QUAD RECEPTACLE - 125V - 20 AMP - NEMA 5-20R, MOUNT 15" A.F.F. (STANDARD), 42" A.F.F. @ COUNTERTOPS OR AS NOTED	⊞	X-RAY "IN USE" LIGHTING CONTROL PANEL
GFI	DUPLEX RECEPTACLE ON GROUND FAULT INTERRUPTER CIRCUIT. 125V - 20 AMP - NEMA 5-20R	⊞	DOOR SAFETY SWITCH
⊞	JUNCTION BOX MOUNTED ABOVE CEILING.	⊞	RECESSED LED DOWNLIGHT, SEE LUMINAIRE LIST.
⊞	JUNCTION BOX RECESS OR MOUNTED IN WALL.	⊞	2' x 4' LED LAY-IN TROFFER, SEE LUMINAIRE LIST.
TV	TELEVISION OUTLET MOUNT 15" A.F.F. OR AS NOTED, PROVIDE CONDUIT IN WALL STUBBED UP 6" INTO CEILING CAVITY. COORDINATE EXACT SIZE OF J-BOX AND CONDUIT WITH CABLING CONTRACTOR.	⊞	EMERGENCY BATTERY PACK WITH LAMPS, SEE LUMINAIRE LIST.
▶	ETHERNET OUTLET, MOUNT 15" A.F.F. OR AS NOTED. PROVIDE CONDUIT IN WALL STUBBED UP 6" INTO CEILING CAVITY. COORDINATE EXACT SIZE OF J-BOX AND CONDUIT WITH CABLING CONTRACTOR.	⊞	EXISTING 2' x 4' LAY-IN TROFFER.
⊞	EXHAUST FAN - FRACTIONAL HORSEPOWER.	⊞	ELECTRICAL CONDUIT CONCEALED IN WALLS OR IN CONCRETE
⊞	MOTOR - NUMBER DENOTES HORSEPOWER.	⊞	ELECTRICAL CONDUIT UNDERGROUND
▨	PANELBOARD	⊞	ELECTRICAL CONTROL WIRING
3P NE 30	NON-FUSED DISCONNECT SWITCH.	⊞	ELECTRICAL WIRE HOME-RUN, 1ST HASH MARK REPRESENTS THE HOT, SECOND HASH MARK WITH A DOT REPRESENTS THE NEUTRAL, ARC WIRE MARK REPRESENTS THE GROUND.
3P 20 30	FUSED DISCONNECT SWITCH OR CIRCUIT BREAKER ENCLOSURE.	⊞	ELECTRICAL MULTI-WIRE HOME-RUN, HASH MARKS WITHOUT DOT REPRESENTS THE NUMBER OF HOT'S, HASH MARK WITH A DOT REPRESENTS THE NEUTRAL, ARC WIRE MARK REPRESENTS THE GROUND, NUMBER OF ARROWS INDICATE NUMBER OF CIRCUITS
⊞	PUSH BUTTON	⊞	ELECTRICAL WIRE HOME-RUN, HASH MARKS WITHOUT DOT REPRESENTS THE NUMBER OF HOT'S, ARC WIRE MARK REPRESENTS THE GROUND

LIGHTING FIXTURE SCHEDULE

TYPE	NOTE	MANUF	PART #	WATTAGE	LUMENS	VOLTAGE
A	6" ROUND LED DOWNLIGHT	LITHONIA	LDN6 35/25 LOGAR LD MVOLT E210 TRV	27	2500	120/277
E	LED EMERGENCY LIGHT W/90 MIN EM BATTERY	LITHONIA	ELM2L	5		120/277

ELECTRICAL DRAWING LIST

DRAWING NUMBER	DRAWING NAME
E01	ELECTRICAL NOTES, LEGEND AND SCHEDULES
E11	FIRST FLOOR ELECTRICAL PLAN
E21	FIRST FLOOR LIGHTING PLAN
E31	SIEMENS REFERENCE DESIGN PLANS
E32	SIEMENS REFERENCE DESIGN PLANS

NOTE

THESE DRAWINGS ARE PREPARED PER ESTABLISHED INDUSTRY STANDARDS AND REPRESENT THE 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.

ANDREW J YOUNGROSS, P.E.
2522 S.E. COLUSA AVE.
PORT ST. LUCIE, FLORIDA

HVAC
PLUMBING
ELECTRICAL

TEL: 561-900-2447
FAX: 561-274-0222
E-MAIL: andrew@ecfla.com

C.D. HAIR ARCHITECT
8661 Lake Worth Road
Lake Worth, FL
AR96135

revision:

NORTH CAROLINA
PROFESSIONAL
SEAL
048609
ENGINEER
ANDREW J. YOUNGROSS

An Interior Renovation for:
Harnett Health
RAD Room 1318 Renovation
215 Brightwater Drive
Lillington, North Carolina

job no. 23-016/23077
principal: AJY/AA
designer: RR
file name:

date: 08.10.23
title: ELECTRICAL NOTES, LEGEND, AND SCHEDULES

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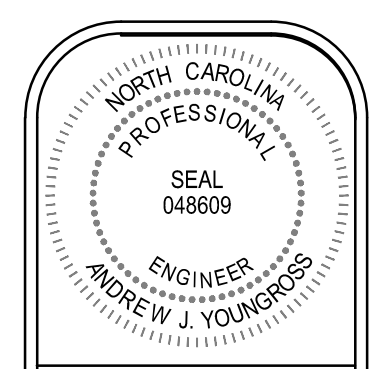
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FINAL SUBMITTAL for construction

DRAWINGS FROM SIEMENS INCLUDED ON SHEETS E3.1 AND E3.2 ARE INCLUDED IN THE SCOPE OF WORK. CONTRACTOR SHALL PROVIDE ALL CONDUIT AND WIRING AS NECESSARY.

C.D. HAIR ARCHITECT
 8661 Lake Worth Road
 Lake Worth, FL
 AR96135

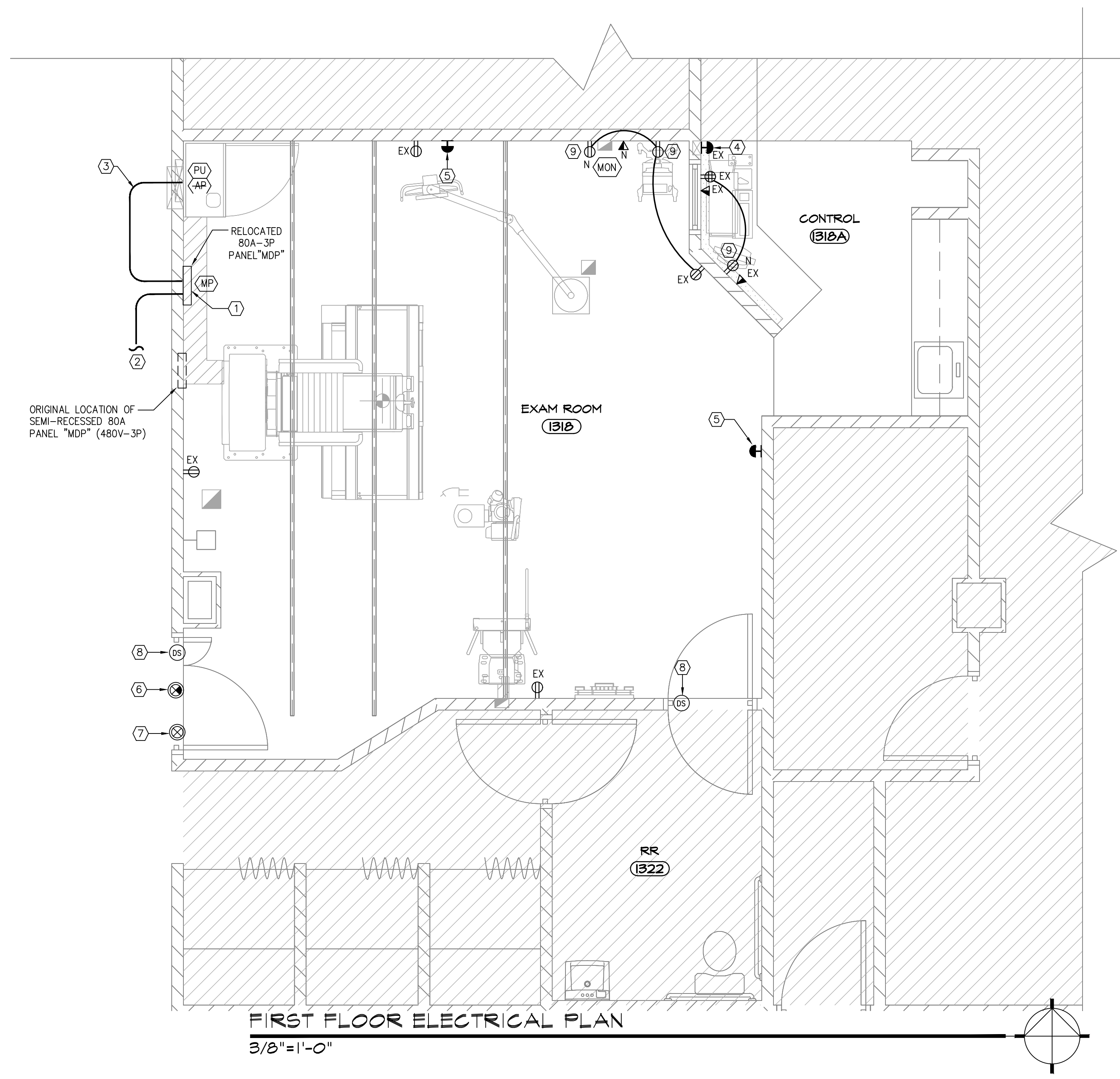
revision:



An Interior Renovation for:
**Harnett Health
 RAD Room 1318 Renovation**
 215 Brightwater Drive
 Lillington, North Carolina

job no. 23-016/23077
 principal: AJY/AA
 designer: RR
 file name:
 date: 08.10.23
 title: **FIRST FLOOR ELECTRICAL PLAN**

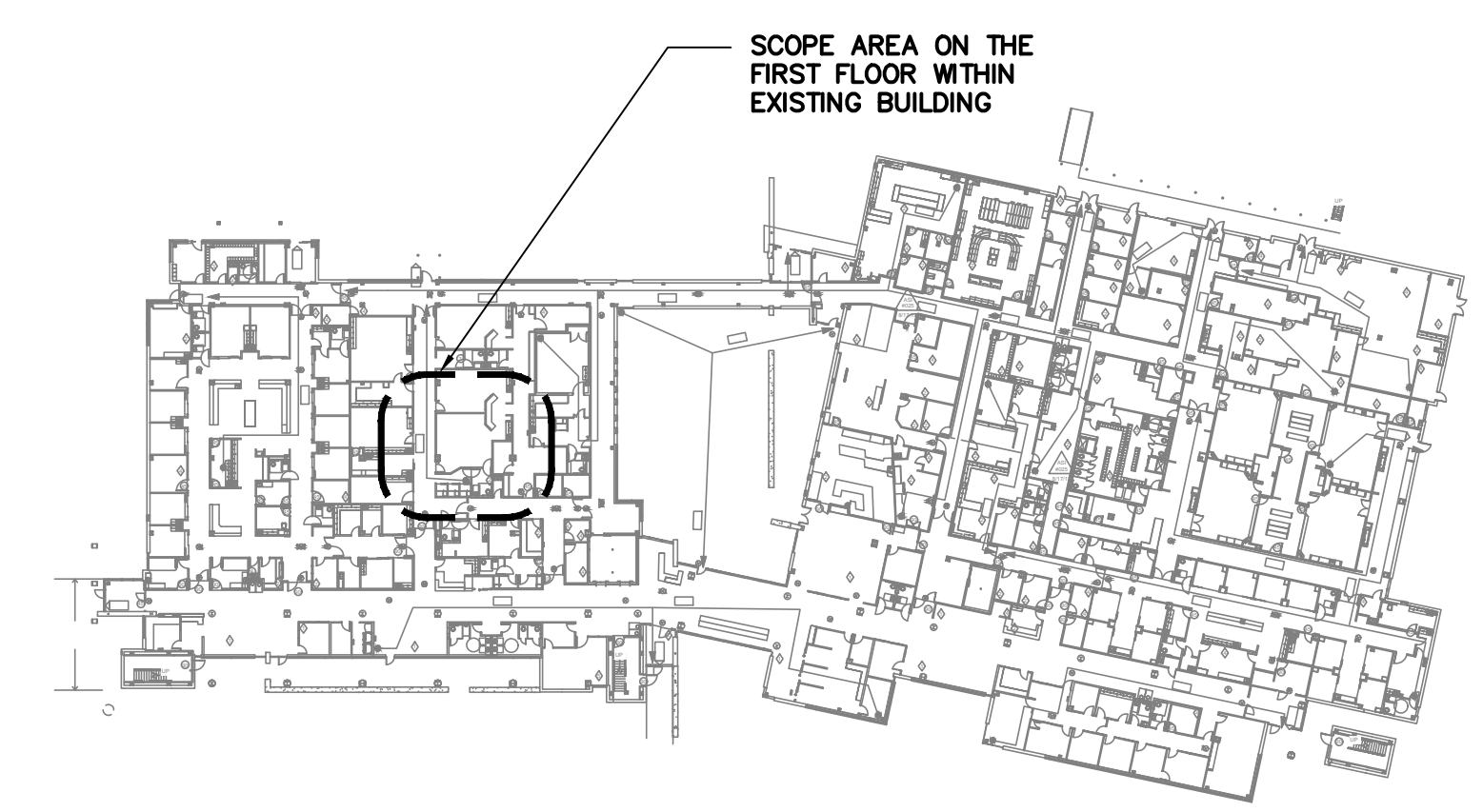
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FIRST FLOOR ELECTRICAL PLAN
 3/8"=1'-0"

- NOTES**
- SEE SIEMENS ELECTRICAL DRAWINGS ON SHEETS E3.1, AND E3.2 FOR WORK SCOPE REQUIRED.
 - PROVIDE LABOR AND MATERIALS TO INSTALL NEW OVERHEAD AND IN FLOOR RACEWAY TO ACCOMMODATE NEW RAD EQUIPMENT TOO ADAPT TO EXISTING RACEWAY.
 - PROVIDE POST TESTING OF ROOM FOR GROUND IMPEDANCE.

- PLAN KEY NOTES**
- RELOCATED SEMI-RECESSED MAIN DISTRIBUTION PANEL "MDP". PANEL "MDP" HAS 100A CIRCUIT BREAKER (WITH 80A PLUG) AND 150A LOW PEAK FUSES IN SERIES (480V-3P). SEE SHEETS E3.1 (SIEMENS), E3.2 (SIEMENS) AND E4.1 (ELECTRICAL RISER) FOR ADDITIONAL INFORMATION. NOTE: PANEL "MDP" REQUIRES 48" DEEP X 30" WIDE CLEARANCE IN FRONT OF THE PANEL. VERIFY WITH SIEMENS REPRESENTATIVE IF THE LOCATION SHOWN IS ACCEPTABLE PRIOR TO COMMENCEMENT OF WORK - AN ALTERNATE LOCATION MAY BE REQUIRED.
 - PROVIDE 20" X 20" SPLICE BOX ABOVE THE CEILING IN THE AREA OF ORIGINAL PANEL "MDP". INTERCEPT THE EXISTING CONDUIT/ CONDUCTORS FEEDING PANEL "MDP" & EXTEND TO RELOCATED PANEL "MDP" (3#2 CU & 1#2 CU GRD IN 1-1/4" CONDUIT) USE POLARIS TAPS. NOTE: SIEMENS DESIGN DRAWINGS REQUIRE THE GROUND CONDUCTOR TO BE THE SAME SIZE AS THE PHASE CONDUCTORS. FIELD VERIFY ALL CONDUCTORS ARE #2 CU - IF THE GROUND IS NOT #2 CU A NEW GROUND CONDUCTOR WILL NEED TO BE INSTALLED.
 - FURNISH AND INSTALL NEW 3#2 CU & 1#2 CU GRD CONDUCTORS IN 1-1/4" CONDUIT FROM RELOCATED 80A PANEL "MDP" TO SIEMENS GENERATOR CABINET.
 - EXISTING EMERGENCY POWER OFF (EPO) SWITCH TO REMAIN.
 - FURNISH AND INSTALL NEW EMERGENCY POWER OFF (EPO) SWITCH - TIE INTO EXISTING EPO SWITCH. SEE SIEMENS DESIGN DRAWINGS ON SHEETS E3.1, E3.2 FOR ADDITIONAL INFORMATION. PROVIDE CONDUIT/CONDUCTORS AS NECESSARY.
 - EXISTING X-RAY ROOM "IN USE" LIGHT TO REMAIN.
 - REWORK EXISTING X-RAY LIGHT CONTROL PANEL AND CONNECT TO EXISTING X-RAY ROOM "IN-USE" LIGHT AND NEW SIEMENS SYSTEM. SEE SIEMENS DESIGN DRAWINGS ON SHEETS E3.1, E3.2 FOR ADDITIONAL INFORMATION. PROVIDE CONDUIT/CONDUCTORS & RELAYS AS NECESSARY.
 - FURNISH AND INSTALL DOOR INTERLOCK SWITCH, IF NOT EXISTING AT PRESENT. SEE SIEMENS DESIGN DRAWINGS ON SHEETS E3.1, E3.2 FOR ADDITIONAL INFORMATION. PROVIDE CONDUIT/ CONDUCTORS AS NECESSARY AND TIE INTO SIEMENS SYSTEM.
 - FURNISH AND INSTALL 20A,120V, HOSPITAL GRADE DUPLEX WITH RED FACEPLATE. PROVIDE CONDUIT/CONDUCTORS AND CONNECT TO RECEPTACLE SHOWN.



OVERALL FIRST FLOOR PLAN
 NTS

NOTE

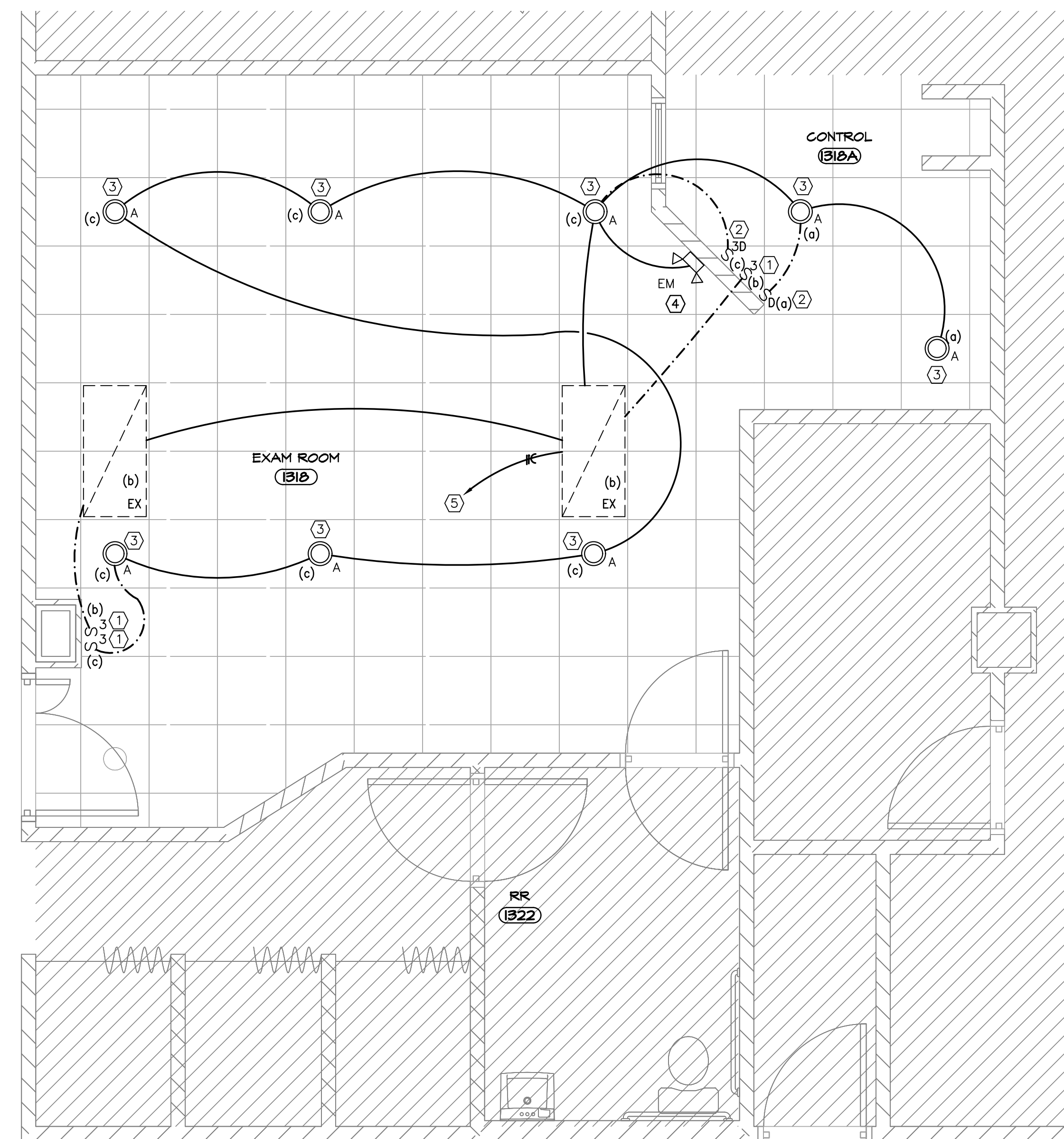
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ANDREW J. YOUNGROSS, P.E.
 2522 S.E. COLUSA AVE.
 PORT ST. LUCIE, FLORIDA

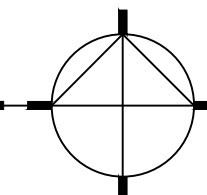
HVAC
 PLUMBING
 ELECTRICAL

TEL: 561-900-2447
 FAX: 561-274-0222
 E-MAIL: andrew@tecfia.com

FINAL SUBMITTAL for construction

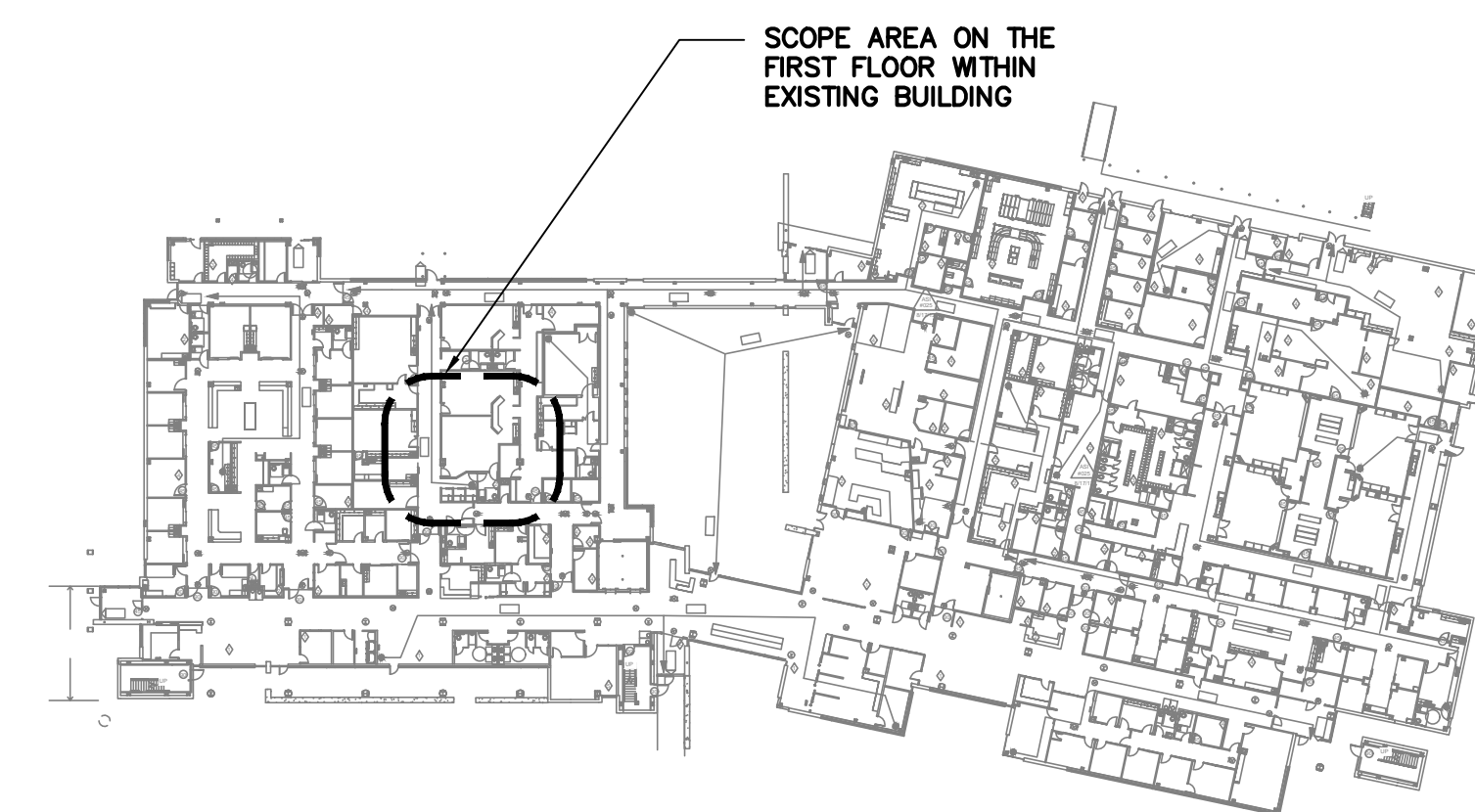


FIRST FLOOR LIGHTING PLAN
3/8"=1'-0"

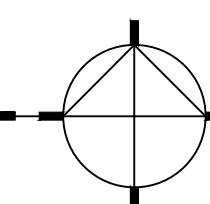


PLAN KEY NOTES	
①	FURNISH AND INSTALL NEW LIGHT SWITCH (ON/OFF). 1-WAY OR 3-WAY AS NOTED.
②	FURNISH AND INSTALL NEW 0-10V LED DIMMABLE LIGHT SWITCH. 1-WAY OR 3-WAY AS NOTED.
③	PROVIDE NEW LED DOWN LIGHT. CONNECT TO SWITCHES AS SHOWN. PROVIDE CONDUIT/ CONDUCTORS AS NECESSARY.
④	PROVIDE NEW EMERGENCY LIGHT. CONNECT TO THE EXISTING LIGHTING CIRCUIT SERVING THIS ROOM - CONNECT ON THE SUPPLY SIDE OF ANY LOCAL SWITCH CONTROLS. PROVIDE CONDUIT/ CONDUCTORS AS REQUIRED.
⑤	CONNECT LIGHTS IN THE EXAM ROOM TO THE EXISTING LIGHTING CIRCUIT SERVING THIS ROOM. PROVIDE CONDUIT/ CONDUCTORS AS NECESSARY.

GENERAL NOTES	
REMOVE ANY UNUSED LIGHT SWITCHES.	
LIGHTING LEGEND	
	A - LIGHT TYPE "A" b - LIGHT SWITCHING ZONE "b"
	S _D - DIMMER SWITCH c - LIGHT SWITCHING ZONE "c"



OVERALL FIRST FLOOR PLAN
NTS



NOTE
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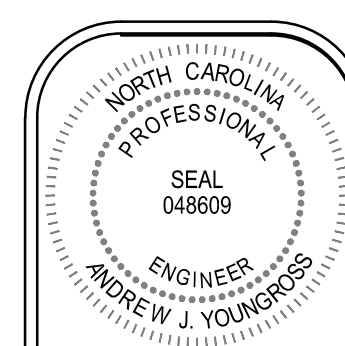
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TEL: 561-900-2447
FAX: 561-274-0222
E-MAIL: andrew@tecfia.com

HVAC
PLUMBING
ELECTRICAL

12.1
5 E

C.D. HAIR ARCHITECT
8661 Lake Worth Road
Lake Worth, FL
AR96135

revision:



An Interior Renovation for:
**Harnett Health
RAD Room 1318 Renovation**
215 Brightwater Drive
Lillington, North Carolina

job no. 23-016/23077
principal: AJY/AA
designer: RR
file name:
date: 08.10.23
title: FIRST FLOOR LIGHTING PLAN

FINAL SUBMITTAL for construction

REFERENCE DOCUMENT - NOT FOR CONSTRUCTION

ELECTRICAL NOTES

1) COMPLIANCE: ELECTRICAL WORK SHALL BE IN COMPLIANCE WITH THE NATIONAL ELECTRICAL CODE (NFPA-70), O.S.H.A. REGULATIONS, AS WELL AS APPLICABLE REGULATIONS OF CITY, COUNTY, STATE AND FEDERAL AGENCIES. PROVIDE MATERIALS AND EQUIPMENT THAT COMPLY WITH ANSI, IEEE AND NEMA STANDARDS AND ARE U.L. LISTED AND LABELED. THE CUSTOMER'S/CONTRACTOR'S WORK AND ALL EQUIPMENT INSTALLED SHALL COMPLY WITH THE CURRENT EDITION OF THE NATIONAL ELECTRICAL CODE ADOPTED/ENFORCED BY THE AUTHORITY HAVING JURISDICTION.

2) QUALITY ASSURANCE: THE CONTRACTOR SHALL VERIFY EXISTING CONDITIONS IN THE FIELD TO INSURE THAT THE NEW WORK WILL FIT INTO THE EXISTING STRUCTURE AS SHOWN ON THE DRAWINGS. SHOULD ANY CONDITIONS EXIST OR BE DISCOVERED THAT PREVENT THE INSTALLATION OF WORK AS SHOWN, THE CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE PRIOR TO FABRICATION OF EQUIPMENT, OR THE PERFORMANCE OF ANY WORK THAT MAY BE AFFECTED. DO NOT ALTER DRAWINGS, DIMENSIONS, OR SPECIFICATIONS IN ANY WAY WITHOUT CONTACTING AND RECEIVING WRITTEN CONFIRMATION FROM SIEMENS PROJECT MANAGER. ALL DIMENSIONS ARE FROM FINISHED SURFACES. CONDUIT AND PULL BOXES TO BE INSTALLED BY THE CUSTOMER/CONTRACTOR WITH LOCATIONS BEING FIELD VERIFIED BY THE SIEMENS PROJECT MANAGER.

3) POWER SUPPLY SOURCE: POWER SUPPLIES FOR SIEMENS HEALTHCARE EQUIPMENT SHALL BE FROM A MEDICAL IMAGING PANEL OR BUILDING SERVICE EQUIPMENT THAT IS A GROUNDED 3 OR 4-WIRE WYE SOURCE PER THE SPECIFIC EQUIPMENT OPERATION REQUIREMENTS. A DEDICATED CIRCUIT SHALL BE PROVIDED THAT IS KEPT ENTIRELY FREE AND INDEPENDENT OF ALL OTHER BUILDING WIRING, NO ELEVATORS, GENERATORS, PUMPS, HVAC OR SIMILAR EQUIPMENT SHALL BE CONNECTED TO THE SAME CIRCUIT OR MEDICAL IMAGING PANEL THAT SERVES THE SIEMENS HEALTHCARE EQUIPMENT. IF THE POWER SUPPLY SOURCE DOES NOT MEET THE SPECIFIC SIEMENS EQUIPMENT OPERATION REQUIREMENTS, THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT REQUIRED TO ESTABLISH THE POWER SUPPLY IN ACCORDANCE WITH THE REQUIRED POWER SUPPLY PARAMETERS OF THE SIEMENS EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER AND/OR UTILITY COMPANY FIELD REPRESENTATIVE.

4) WORK FURNISHED BY CUSTOMER/CONTRACTOR: THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT REQUIRED TO ESTABLISH THE POWER SUPPLY IN ACCORDANCE WITH THE REQUIRED POWER SUPPLY PARAMETERS OF THE SIEMENS EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER AND/OR UTILITY COMPANY FIELD REPRESENTATIVE.

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6) WORK FURNISHED BY CUSTOMER/CONTRACTOR: THE CONTRACTOR SHALL PROVIDE THE NECESSARY EQUIPMENT REQUIRED TO ESTABLISH THE POWER SUPPLY IN ACCORDANCE WITH THE REQUIRED POWER SUPPLY PARAMETERS OF THE SIEMENS EQUIPMENT. THE CONTRACTOR SHALL COORDINATE THIS WORK WITH THE CUSTOMER AND/OR UTILITY COMPANY FIELD REPRESENTATIVE.

7) SHORT CIRCUIT REQUIREMENTS: ALL CIRCUIT BREAKERS SUPPLIED FOR SIEMENS EQUIPMENT REQUIREMENTS SHALL BE RATED HIGHER THAN THE SHORT CIRCUIT AVAILABLE AT THE TERMINALS OF THE ELECTRICAL EQUIPMENT AS DETERMINED BY THE ENGINEER OF RECORD, BUT NOT LESS THAN 35,000 RMS SYMMETRICAL AT 480V, 3-PHASE, 60 HERTZ. THE CONTRACTOR SHALL OBTAIN THE CORRECT SHORT CIRCUIT CURRENT RATING OF ALL THE NEW EQUIPMENT FOR INSTALLATION FROM THE ENGINEER OF RECORD.

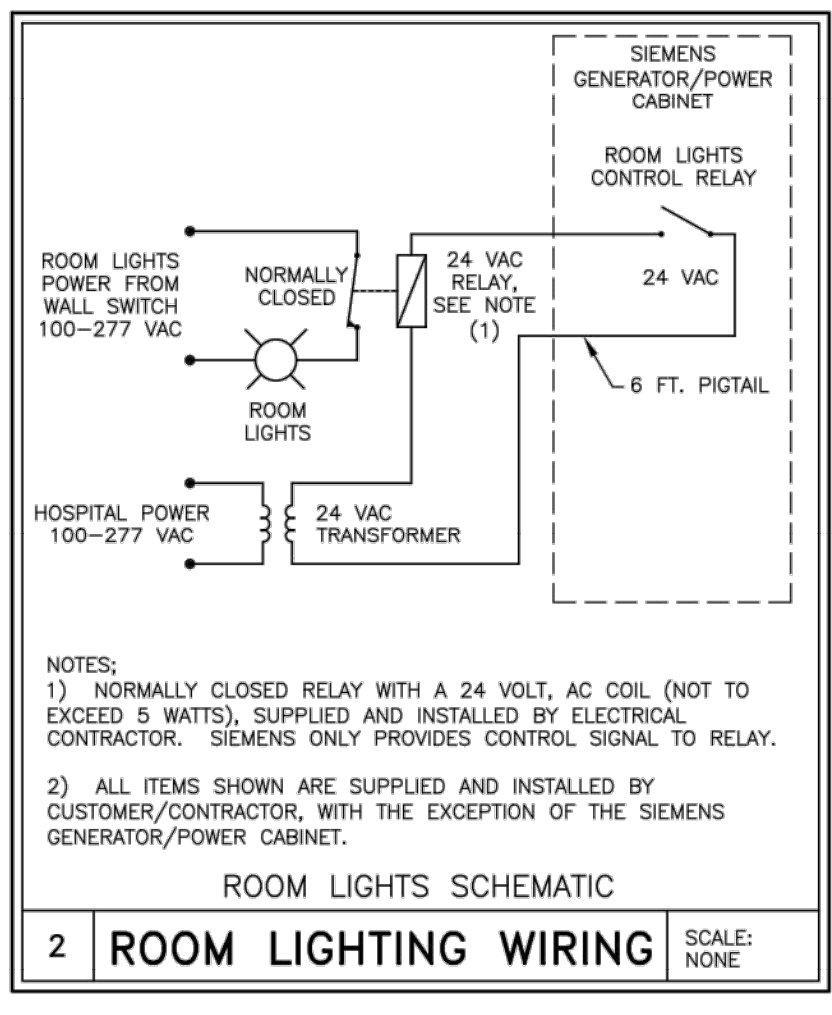
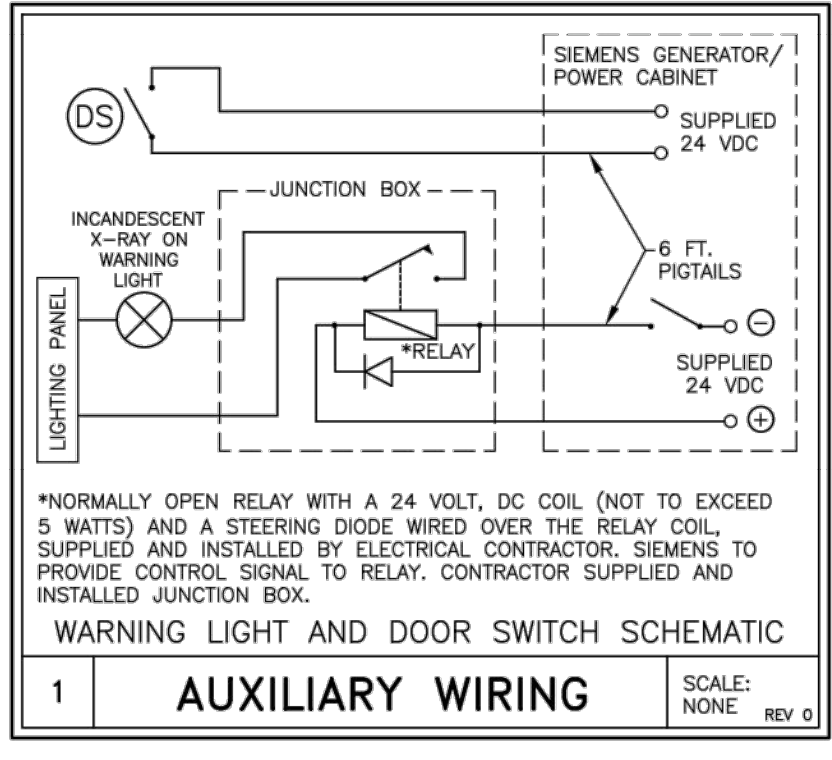
ELECTRICAL LEGEND

SYM	SIZE	DESCRIPTION	REMARKS
○	---	SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	
○	---	OPENING IN FACE OF "VD1". EXACT LOCATION MUST BE DETERMINED AT TIME OF EQUIPMENT INSTALLATION.	FOR CONTROL EQUIPMENT
○	6"x6"x6"	PULL BOX MOUNTED FLUSH WITH FINISHED CEILING, WITH REMOVABLE COVER.	FOR DCS CEILING MONITOR
○	---	EMERGENCY POWER OFF BUTTON WITH PROTECTIVE COVER, MOUNTED 5'-0" ABOVE THE FINISHED FLOOR.	SEE POWER SCHEDULE
○	---	MAIN PANEL WITH MAIN BREAKER, EXACT LOCATION DETERMINED BY CUSTOMER/CONTRACTOR.	SEE POWER SCHEDULE
○	4 1 1/16" SQUARE x 3 1/4" DEEP	PULL BOX MOUNTED FLUSH WITH FINISHED WALL, CENTERLINE 18" ABOVE THE FINISHED FLOOR, WITH TMS WALL BOX AND COVER PLATE SURFACE MOUNTED FOR DVI, TRIGGER AND NETWORK CONNECTIONS. (MAX. DISTANCE FROM CART - 25 FT.)	FOR TMS MOBILE CART
○	---	OPENING IN END OF "FD2" ALONG TABLE BASE	FOR TABLE
○	18"x4"	OPENING IN FACE OF "VD1" AT THE FLOOR LINE TO ACCOMMODATE CONDUIT TRANSITIONS, ADD A 12" x 12" JUNCTION BOX ATTACHED TO VERTICAL DUCT IN THE CEILING.	FOR GENERATOR W/ ACCESS POINT
○	---	OPENING IN SIDE OF "FD2" ALONG LEFT SIDE OF GENERATOR BASE.	FOR GENERATOR
○	8"x8"x8"	PULL BOX MOUNTED FLUSH WITH FINISHED CEILING, WITH REMOVABLE COVER.	FOR CEILING TUBE STAND
○	6"x6"x4"	PULL BOX MOUNTED FLUSH WITH FINISHED WALL AT THE FLOOR LINE AND FITTED WITH REMOVABLE COVER.	FOR WALL STAND
○	4 3/4"x1 3/4"	FLOOR DUCT (6" LONG WIREMOLD 4000 OR EQUIVALENT) SURFACE MOUNTED ON FLOOR FROM PULL BOX "WS" TO REAR OF WALL STAND BASE, TO PROVIDE COVER FOR CABLES.	FOR WALL STAND
○	10"x3 1/2"	FLOOR DUCT SURFACE MOUNTED ON THE FLOOR FROM "PU1" TO ALONG REAR OF TABLE BASE, AS SHOWN. THIS DUCT MUST BE DIVIDED INTO THREE SECTIONS: ONE 4" AND TWO 3" SECTIONS TO PROVIDE FOR SEPARATION OF CABLES.	FOR TABLE
○	6"x3 1/2"	HORIZONTAL DUCT SURFACE MOUNTED ON WALL JUST BELOW THE CONTROL COUNTER AND CONNECTED TO "VD2".	FOR CONTROL EQUIPMENT
○	18"x3 1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL FROM ABOVE FINISHED CEILING TO END AT THE FLOOR LINE. THIS DUCT MUST BE DIVIDED INTO THREE EQUAL SECTIONS, TO PROVIDE FOR SEPARATION OF POWER CABLES.	FOR GENERATOR
○	6"x3 1/2"	VERTICAL DUCT MOUNTED FLUSH WITH FINISHED WALL FROM ABOVE FINISHED CEILING TO END AT THE FLOOR LINE.	FOR CONTROL EQUIPMENT
○	---	NOTES: 1. WARNING LIGHTS AND DOOR SWITCHES ARE THE RESPONSIBILITY OF THE CUSTOMER/CONTRACTOR. SEE "AUXILIARY WIRING" DETAIL. 2. TO TURN ROOM LIGHTS OFF FROM THE SIEMENS EQUIPMENT, SEE "ROOM LIGHTING WIRING" DETAIL.	
○	AS REQUIRED	CONDUIT FROM POWER SOURCE TO MAIN PANEL (MP).	SIZED BY ELEC. CONTRACTOR
○	---	CONDUIT FROM "MP" TO "VD1" (PU). (POWER TO "PU")	SIZED BY ELEC. CONTRACTOR
○	---	CONDUIT FROM "MP" TO "EPO".	SIZED BY ELEC. CONTRACTOR
○	AS REQUIRED	CONDUIT FROM "EPO" TO "EPO".	SIZED BY ELEC. CONTRACTOR
○	AS REQUIRED	CONDUIT FROM "VD1" (PU) VIA RELAY CIRCUITRY TO WARNING LIGHT.	SIZED BY ELEC. CONTRACTOR
○	AS REQUIRED	CONDUIT FROM "VD1" (PU) TO DOOR SWITCH.	SIZED BY ELEC. CONTRACTOR
○	2 1/2" DIA.	CONDUIT FROM "VD2" (CR1) TO "VD1" (PU).	MAX. CONDUIT LENGTH 32 FT.
○	2 1/2" DIA.	CONDUIT FROM "VD2" (S) TO "D1".	MAX. CONDUIT LENGTH 42 FT.
○	3" DIA.	CONDUIT FROM "VD1" (PU) TO "WS". (EXTENDED CABLE SET)	MAX. CONDUIT LENGTH 39.5 FT.
○	(2) 2 1/2" DIA.	CONDUITS FROM "VD1" (PU) TO "TS". [USE CONDUIT BENDS PER NEC E346.10]	MAX. CONDUIT LENGTH 19 FT.
○	2" DIA.	CONDUITS FROM "VD1" (PU) TO "TS". [USE CONDUIT BENDS PER NEC E346.10]	MAX. CONDUIT LENGTH 19 FT.
○	(2) 2 1/2" DIA.	CONDUITS FROM "VD2" (IS) TO "VD1" (PU).	MAX. CONDUIT LENGTH 32 FT.
○	2" DIA.	CONDUIT FROM "VD2" (S) TO "MON".	MAX. CONDUIT LENGTH 105 FT.
○	1" DIA.	CONDUIT FROM "TM" TO "VD1" (PU).	MAX. CONDUIT LENGTH 87 FT.

SYMBOLS

ALL MAY NOT APPLY

□	MAIN PANEL OR ENCLOSURE BY CUSTOMER/CONTRACTOR
▭	OPENING IN RACEWAY OR TRENCHDUCT
▭	PULLBOX IN (FLOOR/WALL/CEILING)
▭	OPENING IN ACCESS FLOORING
⊗	WARNING LIGHT (X-RAY ON)
⊗	DOOR SAFETY SWITCH
⊗	(EPO) EMERGENCY POWER OFF BUTTON
▭	TRENCHDUCT
▭	CEILING DUCT
▭	UNDER FLOOR DUCT
▭	SURFACE DUCT
▭	VERTICAL DUCT
▭	ETHERNET CONNECTION TO CUSTOMER'S INFORMATION SYSTEMS NETWORK (VERIFY WITH SMS PROJECT MANAGER).
○	110 VOLT, 20 AMP, HOSPITAL GRADE DUPLEX OUTLET UNLESS OTHERWISE STATED.
○	110 VOLT, 20 AMP, HOSPITAL GRADE QUAD OUTLET
○	SPECIAL PURPOSE RECEPTACLE



CABLE LENGTH LIMITATIONS

THE CONDUITS ARE SHOWN SCHEMATICALLY IN THIS PLAN AND MUST BE RUN IN THE SHORTEST POSSIBLE DISTANCE BETWEEN TERMINATION POINTS. ANY VARIATION IN THE ROUTING OF DUCTS COULD RESULT IN CABLE LENGTH LIMITATIONS BEING EXCEEDED. THEREFORE, ANY CHANGES MUST BE APPROVED BY THE SIEMENS PROJECT MANAGER.

SIEMENS SUPPLIED CABLES

FROM	VIA	TO	DESCRIPTION	REMARKS
P1	FD2	PU1	W100 UNIT/GENERATOR, X-RAY TUBE (INCLUDES 30V, 300V, 600V AND FIBER OPTIC CABLES)	MAXIMUM LENGTH 22.5 FT.
P1	FD2	PU1	W400, W140 UNIT/GENERATOR, POWER SUPPLY AND XCS (INCLUDES 30V, 300V, 600V AND FIBER OPTIC CABLES)	MAXIMUM LENGTH 22.5 FT.
CR1	HD1,VD2,7,VD1	PU	W310, CONTROL ROOM MODULE (300 V CABLE)	MAXIMUM LENGTH 59 FT.
IS	LOOSE	CR1	IMAGING SYSTEM FLAT DISPLAY AND KEYBOARD	MAXIMUM LENGTH 11 FT.
IS	HD1,VD2,8	D1	W200 FOR 1-DISPLAY, W300 FOR 2-DISPLAYS, (INCLUDES 30V, 300V AND 600V CABLES)	MAXIMUM LENGTH 59 FT.
PU	VD1,9	WS	W150F, W150P, W150X BUNDLES - (INCLUDES 300V, 125V AND DATA CABLES) - EXTENDED CABLE SET	MAXIMUM LENGTH 52.5 FT.
PU	VD1,10,11	TS	W110, HIGH TENSION CABLES (INCLUDES 30V, 300V, 600V AND ETHERNET CABLES) [USE CONDUIT BENDS PER NEC E346.10]	MAXIMUM LENGTH 32 FT.
IS	HD1,VD2,12,VD1	PU	W500 FL-C/GENERATOR, RADIATION DISPLAY (INCLUDES 30V, 300V AND FIBER OPTIC CABLES)	MAXIMUM LENGTH 59 FT.
IS	HD1,VD2,12,VD1	PU	W600 (INCLUDES 300V AND FIBER OPTIC CABLES)	MAXIMUM LENGTH 59 FT.
IS	HD1,VD2,13	MON	DVI VIDEO CABLE	MAXIMUM LENGTH 118 FT.
TM	14,VD1	PU	TMS ENC COAX TRIGGER CABLE (INSTALLED BY MW)	MAXIMUM LENGTH 100 FT.

MINIMUM CEILING HEIGHT	CEILING HEIGHT WITHOUT RESTRICTION	RECOMMENDED CEILING HEIGHT
SEE RM HT REQMTS	SEE RM HT REQMTS	9'-6"

SYM	DATE	DESCRIPTION
△	06/22/23	2311952RA DATED 05/17/23 APPROVED BY CUSTOMER FOR FINALS
-ISSUE BLOCK-		

PROJECT MANAGER: JASON BOSWELL
TEL: (919) 368-2780
FAX: (800) 727-7156 EXT:
EMAIL: JASON.BOSWELL@SIEMENS-HEALTHINEERS.COM

SIEMENS

CENTRAL HARNETT HEALTH HOSPITAL
215 BRIGHTWATER DRIVE, LILLINGTON, NC 27546
RF ROOM - LUMINOS AGILE MAX

PROJECT #: **2311952** SHEET: **E-101**

DATE: 06/22/23

SCALE: AS NOTED REF. #: 30277332

THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.

ALL RIGHTS ARE RESERVED.

SHEET 5 OF 6 DRAWN BY: T. SALVANI

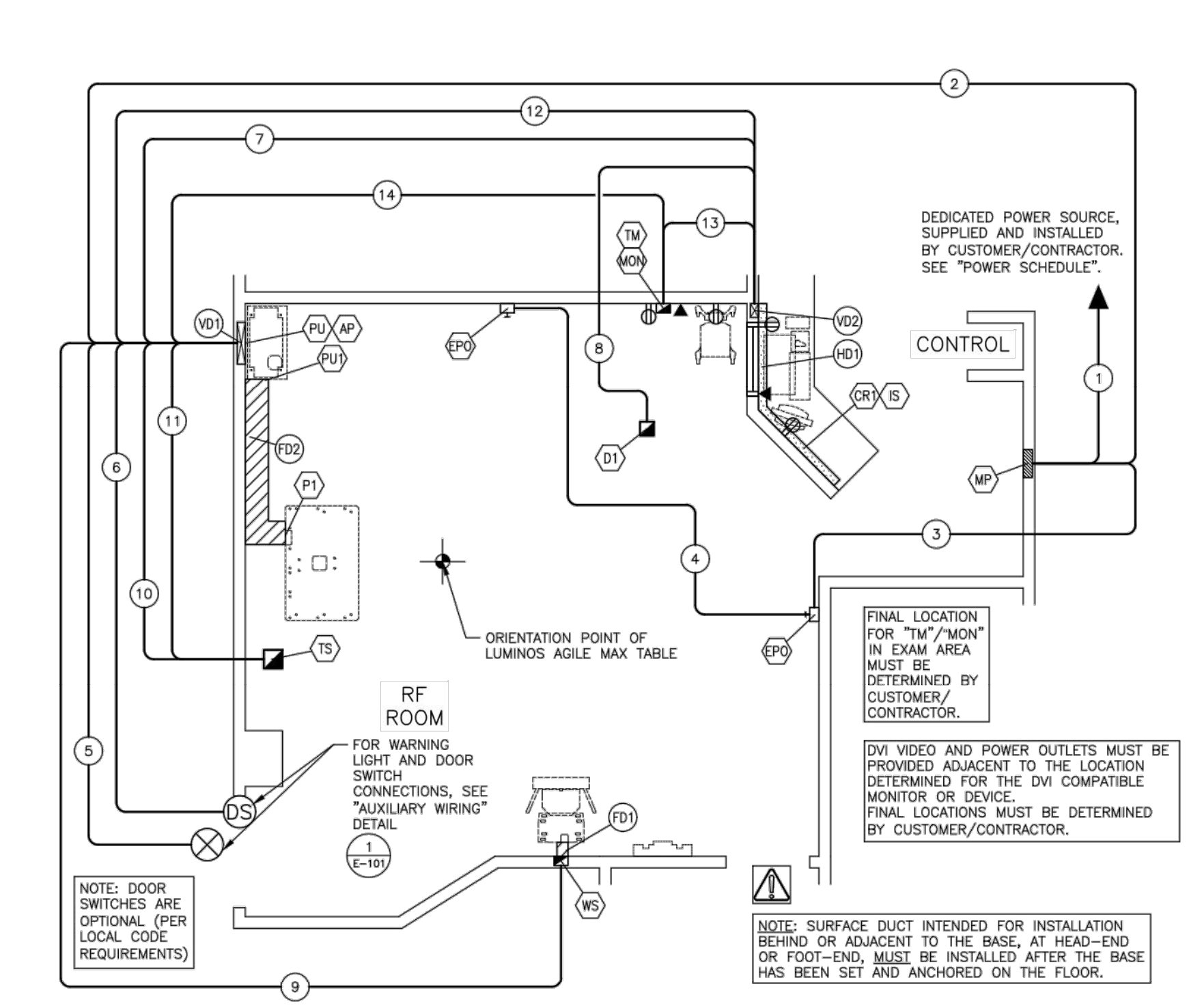
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2522 S.E. COLUSA AVE.
PORT ST. LUCE, FLORIDA

HYAC PLUMBING ELECTRICAL

TEL: 561-900-2447
FAX: 561-274-0222
E-MAIL: andrew@etefla.com



CONTRACTOR SUPPLIED CABLES

FROM	VIA	TO	DESCRIPTION	REMARKS
PANEL	1	MP	DETERMINED BY ELECTRICAL CONTRACTOR.	SEE POWER SCHEDULE.
MP	2,VD1	PU	DETERMINED BY ELECTRICAL CONTRACTOR.	SEE POWER SCHEDULE.
MP	3	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.	SEE POWER SCHEDULE.
EPO	4	EPO	DETERMINED BY ELECTRICAL CONTRACTOR.	SEE POWER SCHEDULE.
PU	VD1,5	WL	DETERMINED BY ELECTRICAL CONTRACTOR.	SEE AUXILIARY WIRING DTL.
PU	VD1,6	DS	DETERMINED BY ELECTRICAL CONTRACTOR.	SEE AUXILIARY WIRING DTL.

CABLE SEPARATION

THIS ELECTRICAL RACEWAY PLAN DEPICTED IN THIS DRAWING IS PLANNED ACCORDING TO SIEMENS SYSTEM REQUIREMENTS AND UL CERTIFICATION OF THIS SYSTEM. ADDITIONAL SEPARATION OF THE SYSTEM CABLE SETS INTO SEPARATE OR PARTITIONED RACEWAYS UNLESS OTHERWISE NOTED IS NOT NECESSARY TO ENSURE SEPARATION OF CIRCUITS. INTERCONNECTING CABLE SETS ARE TESTED AS PART OF THE SYSTEM, AND ARE NOT CONSIDERED PREMISE WIRING.

THE CUSTOMER ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR ANY ADDITIONAL SEPARATION REQUIREMENTS INCLUDING, BUT NOT LIMITED TO: DETERMINING THE NEED FOR ADDITIONAL SEPARATION AND DETERMINING ANY ADDITIONAL ITEMS NEEDED OTHER THAN THOSE IDENTIFIED ON THIS PLAN.

CABLE PROTECTION

CABLES ARE NOT PLENUM RATED. ALL CABLES MUST BE ROUTED IN CABLE DUCTS OR CABLE CONDUITS.

CONDUIT LENGTH CALCULATIONS

FOR SITE SPECIFIC INSTANCES WHERE CABLES ARE BEING ROUTED IN A COMBINATION OF CONDUIT AND DUCTS, THE MAXIMUM LENGTH FOR THOSE CONDUITS, AS LISTED ON THE ELECTRICAL LEGEND, HAS BEEN CALCULATED BASED UPON THE DUCT LAYOUT SHOWN AND THE FOLLOWING ASSUMED VALUES:

1) VERTICAL DUCTS - 10'-0"
2) FLOOR PENETRATIONS THROUGH CONCRETE SLAB - 3'-0"

IF THE ACTUAL SITE SPECIFIC CONDITIONS EXCEED THESE ASSUMED VALUES AND/OR THE DUCT LOCATIONS ARE ALTERED, IT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR TO RECALCULATE THE MAXIMUM LENGTH OF THE CONDUITS EFFECTED.

REV 0

CONTRACTOR SUPPLIED ITEMS

ALL ITEMS, INCLUDING BUT NOT LIMITED TO CONDUITS, DUCTS, CIRCUIT BREAKERS, EMERGENCY OFF BUTTON, DOOR SWITCHES, AND WARNING LIGHTS, SHOWN IN THESE PLANS ARE TO BE SUPPLIED AND INSTALLED BY THE CUSTOMER/ELECTRICAL CONTRACTOR, UNLESS OTHERWISE SPECIFIED.

ATTENTION:

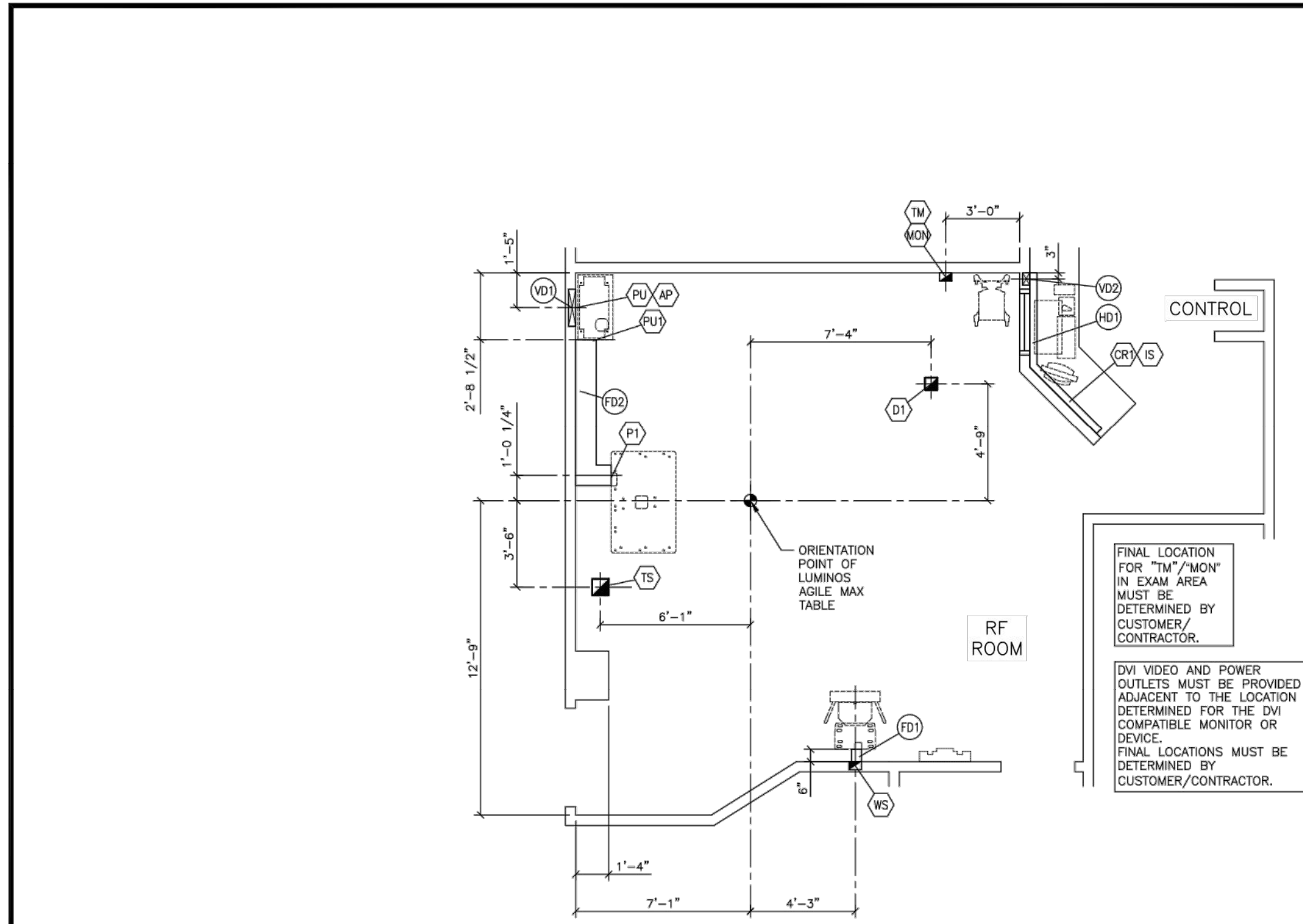
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- THIS SET OF PLANS REPRESENTS A COMPLETE SET OF DETAILS AND SHOULD NOT BE SEPARATED.

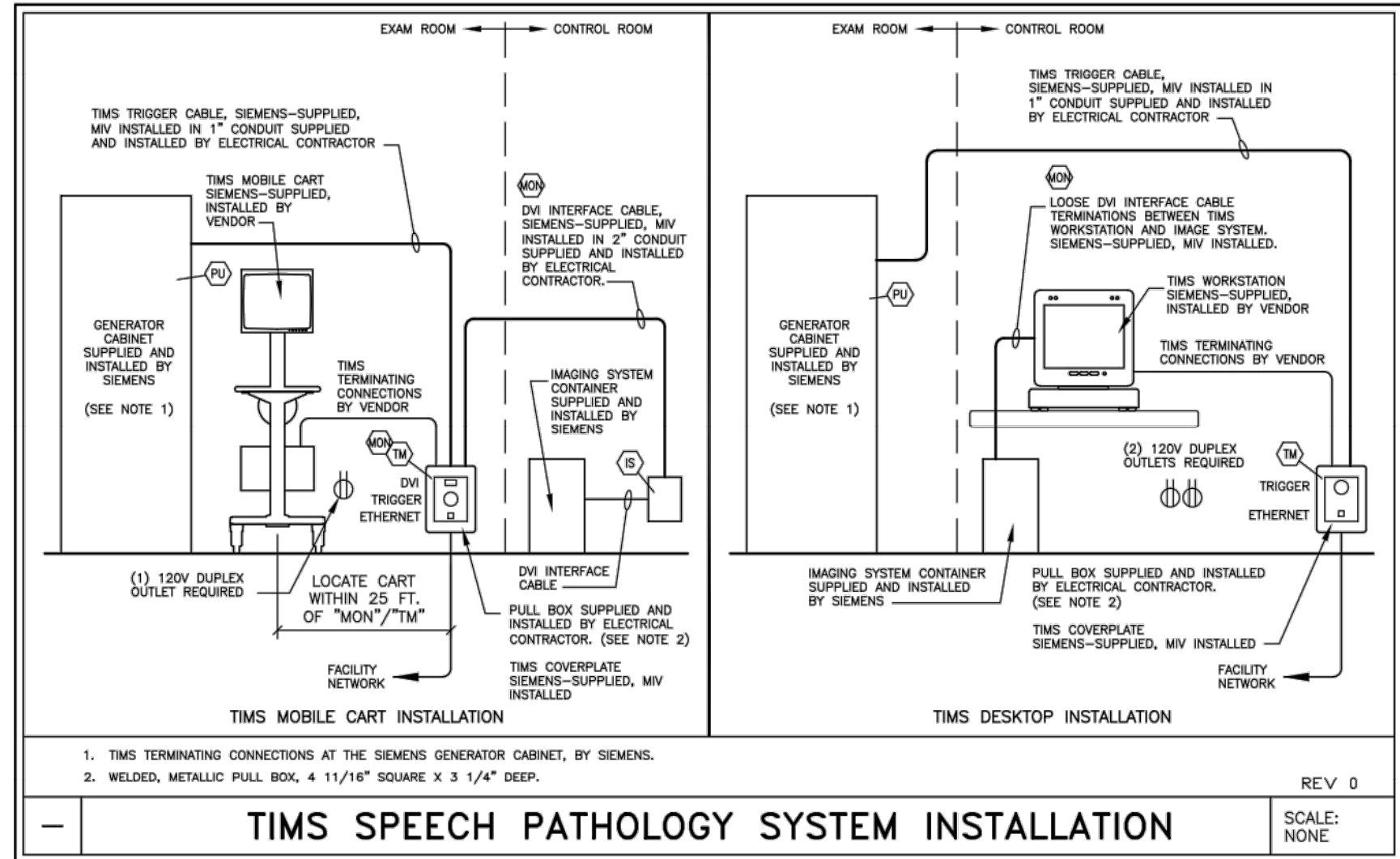
- IT IS RECOMMENDED THAT THE SIEMENS DRAWINGS BE INCORPORATED WITH THE CONSTRUCTION DOCUMENTS FOR REFERENCE.

- ALL DIMENSIONS SHOWN ON THIS DRAWING ARE FROM FINISHED SURFACES.

- THIS DRAWING DOES NOT PROVIDE RADIATION SHIELDING REQUIREMENTS FOR X-RAY AND ASSOCIATED EQUIPMENT. THE CUSTOMER IS RESPONSIBLE FOR CONSULTING WITH A REGISTERED RADIATION PHYSICIST TO SPECIFY RADIATION PROTECTION.



ELECTRICAL DIMENSION PLAN



ATTENTION:

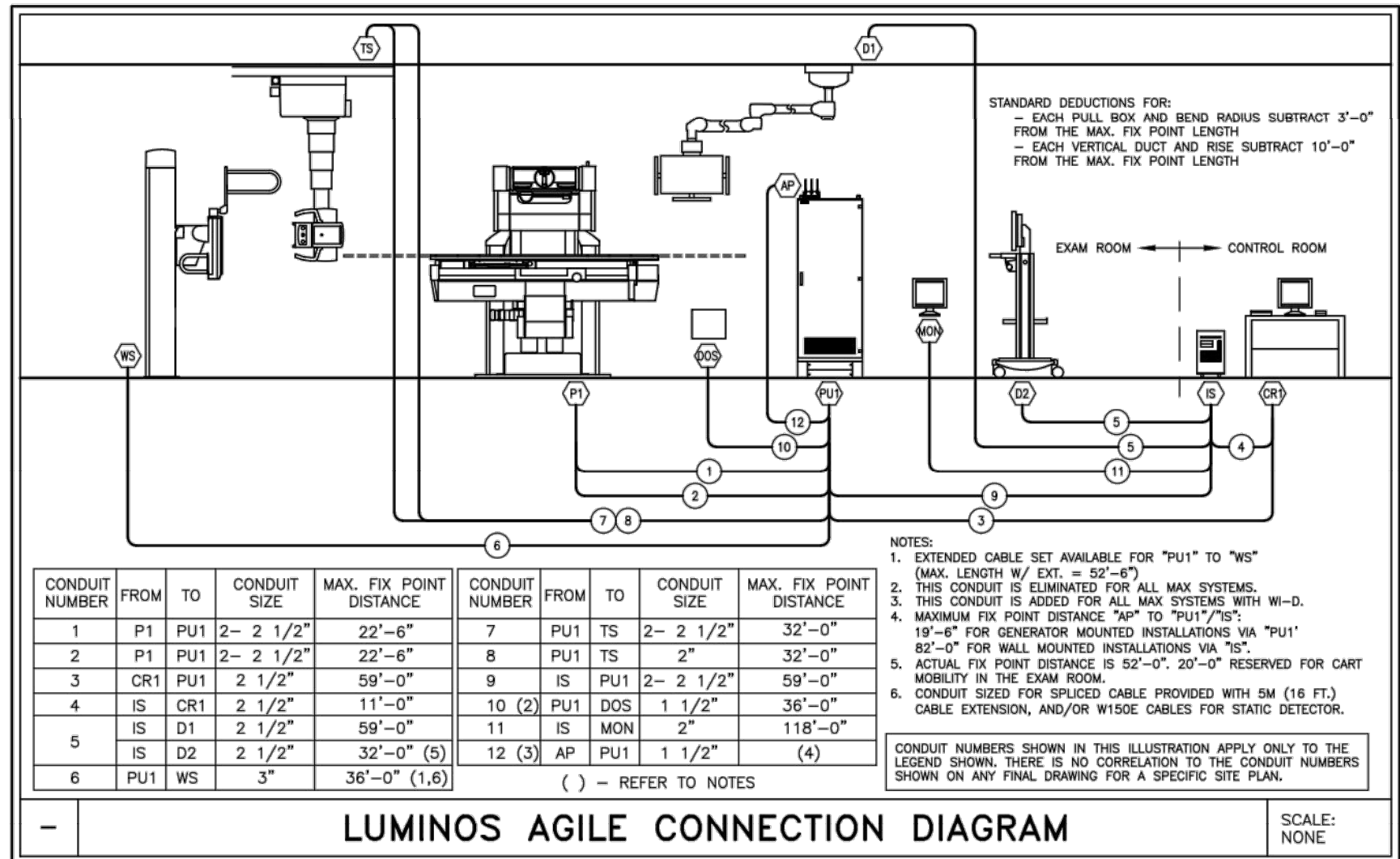
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GROUNDING NOTES

EQUIPMENT GROUNDING CONDUCTOR TO COMPLY WITH THE FOLLOWING:

- 1) SIZE GROUNDING WIRE TO SIEMENS EQUIPMENT PER POWER SCHEDULE REQUIREMENTS.
- 2) DERIVED FROM THE ELECTRICAL SERVICE, TRANSFORMER OR MAIN DISTRIBUTION PANEL FEEDING THE SIEMENS EQUIPMENT.
- 3) RUN IN THE SAME CONDUIT, TROUGH OR RACEWAY AS THE PHASE CONDUCTORS.
- 4) CONTINUOUS, WITH NO BREAKS OR USE OF CONDUIT, CHASSIS OR EARTH AS THE SOLE GROUNDING PATH.
- 5) BONDED TO CHASSIS AND/OR CONDUIT IN ACCORDANCE WITH THE NEC REQUIREMENTS.
- 6) MINIMIZE CONNECTIONS OR TERMINALS TO ENSURE CONTINUITY OVER THE LIFE OF THE INSTALLATION.
- 7) AS A NORM, THERE SHOULD NOT BE ANY CURRENT PRESENCE ON THE GROUND CONDUCTOR, BUT IT IS ACCEPTABLE TO HAVE $\leq 500\text{mA}$ DURING OPERATION OF THE IMAGING EQUIPMENT.

POWER QUALITY

POOR POWER WILL ALTER EQUIPMENT PERFORMANCE

IT IS IN THE CUSTOMER'S INTEREST THAT THE ELECTRICAL CONTRACTOR BE RESPONSIBLE FOR TESTING AND VERIFYING THAT THE EQUIPMENT POWER SUPPLY COMPLIES WITH THE SIEMENS SPECIFICATIONS.

POLYDOROS F80 80kW

X-RAY GENERATOR POWER REQUIREMENTS

INCOMING POWER: 480 VOLTS, 3 PHASE, 60HZ

CIRCUIT BREAKER: 80 AMPS

GENERATOR OUTPUT: 80 KW

ALLOWABLE IMPEDANCE: $\leq 0.16 \Omega$

MAXIMUM MOMENTARY LOAD: 126 KVA

LINE VOLTAGE VARIATION: $\pm 10\%$ MAX.

PHASE IMBALANCE: $\pm 2\%$

FREQUENCY VARIATION: ± 1 Hz

NOTE:
 ALL INCOMING POWER SUPPLIES, FOR THE SIEMENS EQUIPMENT, ARE TO BE DEDICATED (BACK TO SOURCE) ISOLATED AND INSULATED FROM ANY OTHER EQUIPMENT, SUCH AS, ELEVATORS, GENERATORS, HVAC SYSTEMS, ETC.

A NEUTRAL CONDUCTOR, IF PRESENT, IS NOT USED FOR THE LINE VOLTAGE CONNECTION TO THE SIEMENS EQUIPMENT. IF THE NEUTRAL CONDUCTOR IS PROVIDED, IT SHOULD NOT BE ELECTRICALLY CONNECTED AT ANY POINT IN THE POWER DISTRIBUTION TO THE SIEMENS EQUIPMENT UNLESS SPECIFICALLY REQUIRED. UNINTENTIONAL NEUTRAL TO GROUND BONDS MAY VIOLATE LOCAL AND NATIONAL ELECTRICAL CODES, AS WELL AS CREATE GROUNDING PROBLEMS.

IF AN ON-SITE TRANSFORMER IS REQUIRED TO OBTAIN XP MODALITY OPERATING VOLTAGE, IT MUST BE OF SUFFICIENT CAPACITY AND CHARACTERISTICS TO MAINTAIN SUPPLY VOLTAGE AND IMPEDANCE REQUIREMENTS (TRANSFORMER & CONDUCTORS).

ATTENTION:
 SIEMENS MEDICAL SYSTEMS, INC. RECOMMENDS THAT THE INCOMING POWER LINES BE ANALYZED WITH RESPECT TO TRANSIENT SURGES AND IMPULSES, SAGS, AND OVERVOLTAGES.

REV 2

POWER SCHEDULE

ALL CONDUITS AND WIRES SIZES MUST BE DETERMINED BY THE ELECTRICAL ENGINEER OF RECORD PER N.E.C. AND TO MAINTAIN SIEMENS IMPEDANCE REQUIREMENTS.

ITEM	QTY	DESCRIPTION
MP	1	MAIN PANEL WITH CIRCUIT BREAKER FLUSH OR SURFACE MOUNTED.
A	1	BREAKER MUST HAVE TRIPPING DEVICE SO WHEN ANY EPD IS PRESSED THE BREAKER TRIPS.

BREAKER AMPS: SEE POWER REQUIREMENTS

VOLTS	PHASES	NEUTRAL	GROUND	TOTAL WIRES
480Y	3	0	1	4 (NOTE 1)

1) ALL WIRES MUST BE SAME SIZE.
 NOTE: UNLESS OTHERWISE NOTED, ALL BREAKERS WILL BE 80% RATED

EPD VARIES

NOTE 1 - EPD CIRCUIT #1
 MAIN CIRCUIT BREAKER EMERGENCY POWER OFF BUTTON WITH PROTECTIVE COVER THAT PREVENTS ACCIDENTAL ACTIVATION. THE EPD MUST BE OF FAIL-SAFE DESIGN. ALL EPD'S TO HAVE MECHANICAL LATCHING MECHANISM. EPD MUST BE RESET BEFORE MAIN BREAKER CAN RESUME OPERATION. CONTACTS AND WIRING CONFIGURATION TO BE DESIGNED BY ELECTRICAL ENGINEER OF RECORD.

THE EPD'S MUST BE INSTALLED BY A QUALIFIED ELECTRICAL CONTRACTOR ACCORDING TO NATIONAL ELECTRICAL CODE, STATE AND LOCAL REGULATIONS. MEASURES SHOULD BE TAKEN TO DESIGN THE CIRCUIT IN SUCH A WAY THAT IT WILL ALWAYS WORK WHEN THE MEDICAL EQUIPMENT IS POWERED. THE CUSTOMER IS SOLELY RESPONSIBLE FOR THE IMPLEMENTATION OF THE EPD'S AND THEIR ASSOCIATED CIRCUITS AND MUST MAKE THE FINAL DETERMINATION CONSIDERING ALL SITE CONDITIONS AND REGULATORY FACTORS.

ALL ITEMS LISTED IN THIS SCHEDULE SHALL BE SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR.

REV 1

MINIMUM CEILING HEIGHT W/RESTRICTION	CEILING HEIGHT WITHOUT RESTRICTION	RECOMMENDED CEILING HEIGHT
SEE RM HT REQMTS	SEE RM HT REQMTS	9'-6"

SYM	DATE	DESCRIPTION
Δ	06/22/23	2311952A DATED 06/17/23 APPROVED BY CUSTOMER FOR FINALS
-ISSUE BLOCK-		

PROJECT MANAGER: JASON BOSWELL
 TEL: (919) 368-5780
 FAX: (919) 368-5780
 EMAIL: JASON.BOSWELL@SIEMENS-HEALTHINEERS.COM

SIEMENS

CENTRAL HARNETT HEALTH HOSPITAL
 215 BRIGHTWATER DRIVE, LILLINGTON, NC 27546
 RF ROOM - LUMINOS AGILE MAX

THE USE OR REPRODUCTION OF THIS TITLE BLOCK WITHOUT SIEMENS AUTHORIZATION WILL RESULT IN PROSECUTION UNDER FULL EXTENT OF THE LAW.

ALL RIGHTS ARE RESERVED.

PROJECT #: **2311952**

SHEET: **E-102**

DATE: 06/22/23

DRAWN BY: T. SALVINI

SCALE: AS NOTED

REF. #: 30277332

NOTE

THESE DRAWINGS ARE PREPARED PER ESTABLISHED INDUSTRY STANDARDS AND REPRESENT THE 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.

ANDREW J YOUNGROSS, P.E.
 2522 S.E. COLUSA AVE.
 PORT ST. LUCE, FLORIDA

TEL: 561-900-2447
 FAX: 561-274-0222
 E-MAIL: andrew@ecfla.com

HVAC PLUMBING ELECTRICAL

C.D. HAIR ARCHITECT
 8661 Lake Worth Road
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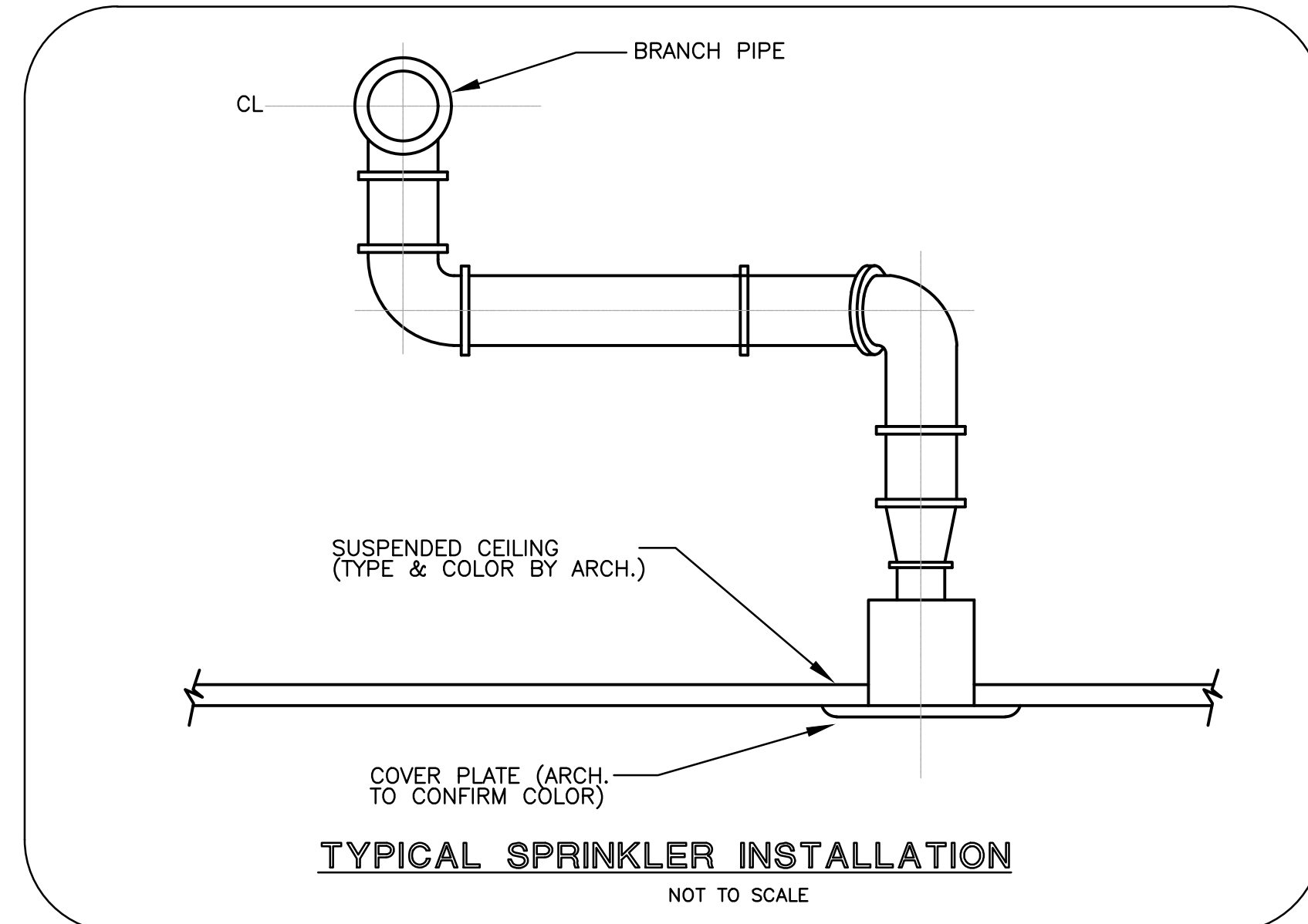
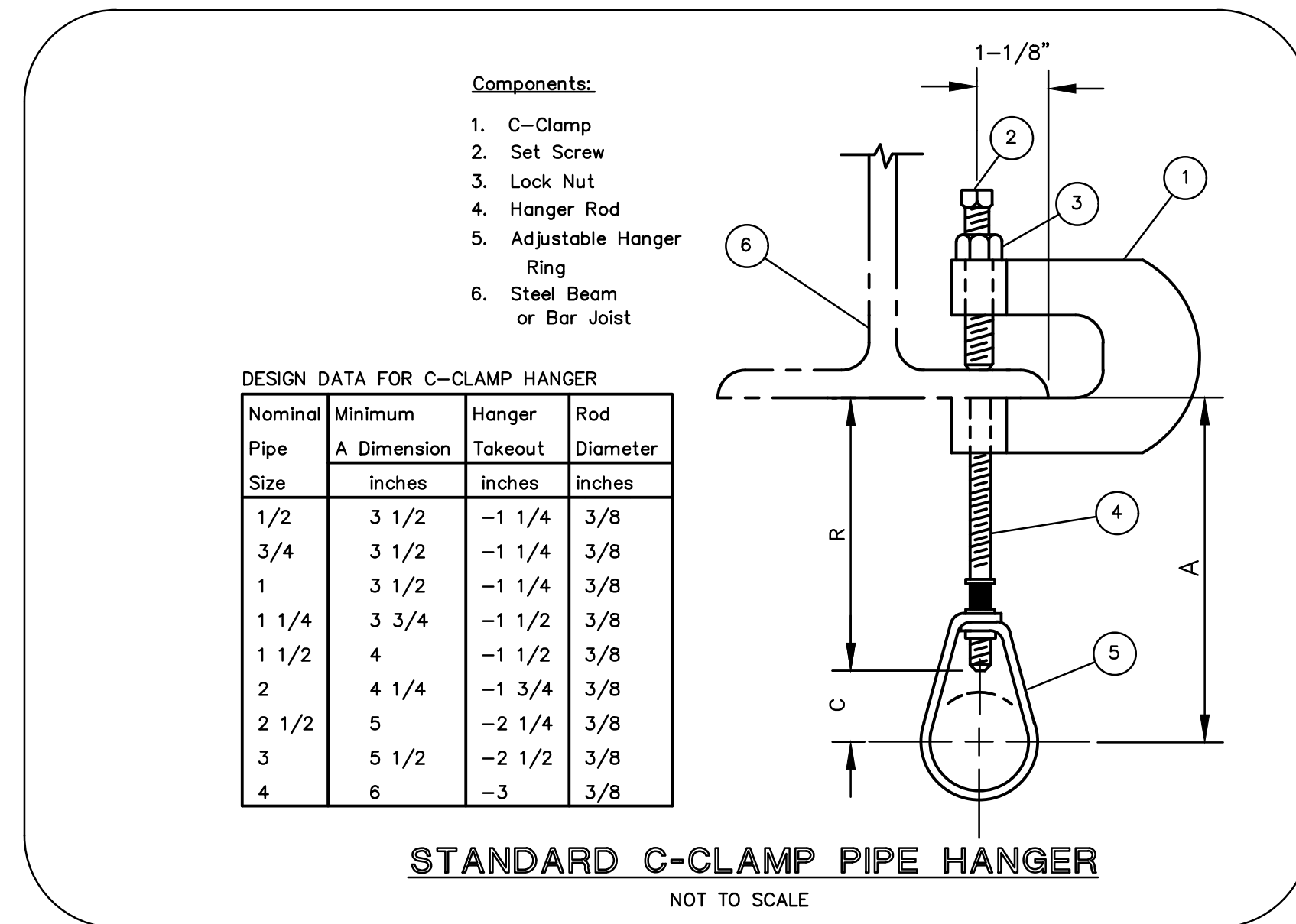
revision:

SEAL 048609
 ENGINEER
 ANDREW J. YOUNGROSS

An Interior Renovation for:
**Harnett Health
 RAD Room 1318 Renovation**
 215 Brightwater Drive
 Lillington, North Carolina

job no. 23-016/23077
 principal: AJY/AA
 designer: RR
 file name:
 date: 08.10.23
 title: SIEMENS REFERENCE DESIGN PLANS

REFERENCE DOCUMENT - NOT FOR CONSTRUCTION

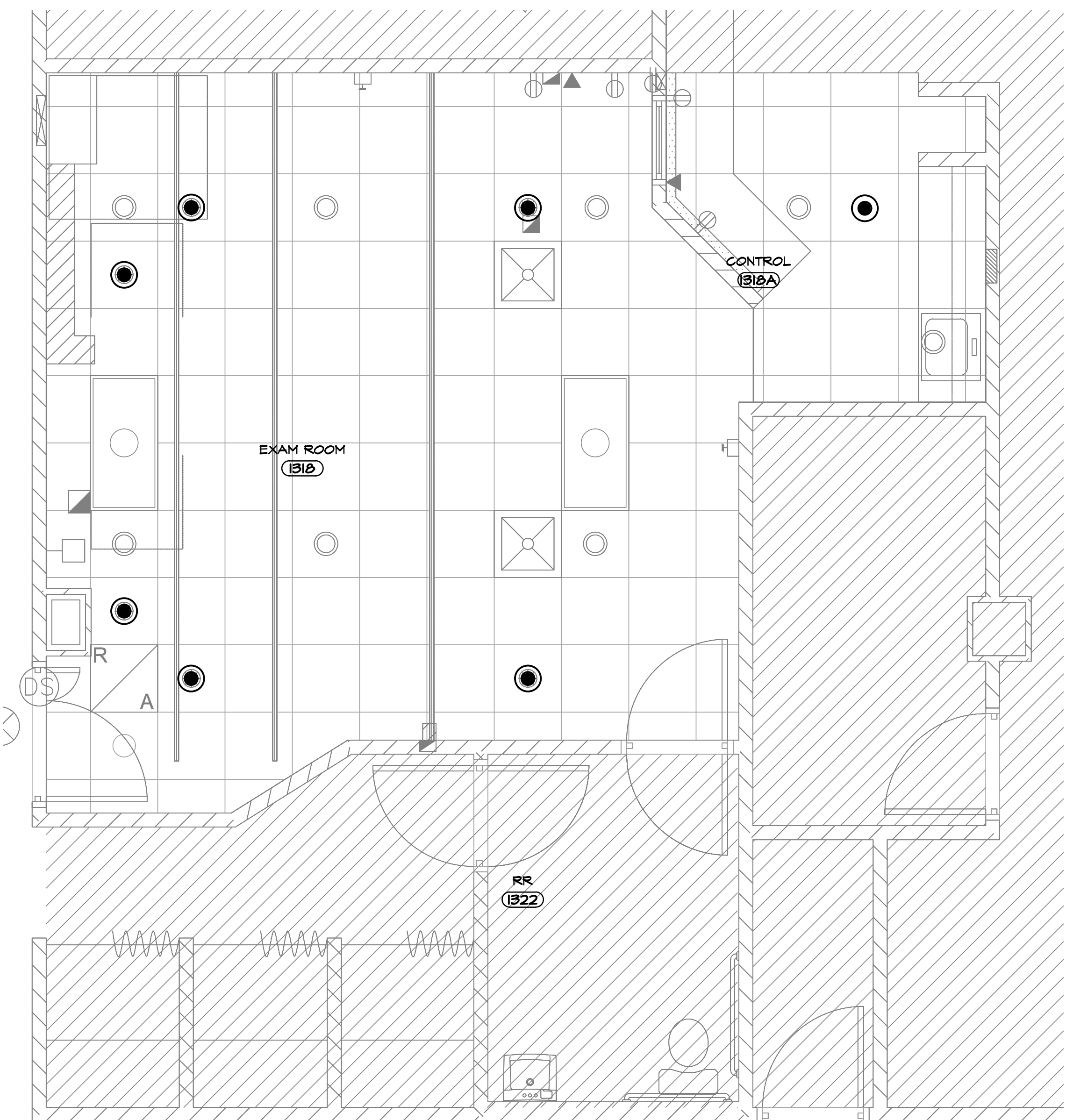


NOTE

THESE DRAWINGS ARE INTENDED TO PROVIDE THE GENERAL REQUIREMENTS AND DESIGN CRITERIA FOR THE PROJECT. FIRE SPRINKLER CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR OBTAINING CURRENT FIRE FLOWS FROM LOCAL AUTHORITIES AND PREPARE COMPLETE DESIGN AND INSTALLATION DRAWINGS AND CALCULATIONS AS NECESSARY FOR FULL COMPLIANCE WITH ALL LAWS AND REGULATIONS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION. NO ADDITIONAL COMPENSATION WILL BE PROVIDED FOR ANYTHING DEEMED TO BE REQUIRED BY THE AUTHORITY HAVING JURISDICTION AFTER AWARD OF BID.

- FIRE PROTECTION NOTES**
- SUBMISSION OF PROPOSAL DIRECTLY OR INDIRECTLY IN CONNECTION WITH THIS WORK SHALL IMPLY THAT THE BIDDER HAS EXAMINED THE JOB SITE UNDER WHICH HE WILL BE OBLIGATED TO OPERATE SHOULD HE BE AWARDED THE WORK UNDER THIS CONTRACT. NO EXTRA CHARGE WILL BE ALLOWED FOR FAILURE OF ANY BIDDER TO EXAMINE THE SITE PRIOR TO BID.
 - CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL DIMENSIONS IN THE FIELD, AND SHALL ADVISE THE ARCHITECT/ENGINEER AND THE OWNER OF ANY DISCREPANCIES BEFORE PERFORMING THE WORK.
 - ALL WORK SHALL CONFORM TO ALL STATE AND LOCAL CODES, RULES AND REGULATIONS AND ORDINANCES INCLUDING BUT NOT LIMITED TO NORTH CAROLINA STATE FIRE PREVENTION CODE 2018, NFPA 1 (2018), NFPA 101 (2018), NFPA 13 (2016), NFPA 20 (2016), NFPA 24 (2016), NFPA 25 (2017).
 - CONTRACTOR SHALL SECURE AND PAY ALL FEES AND PERMITS PERTAINING TO THE CONTRACT.
 - ALL EQUIPMENT SHALL BE INSTALLED IN STRICT COMPLIANCE WITH THE MANUFACTURER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE ALL HANGERS AND SUPPORTS REQUIRED FOR A COMPLETE INSTALLATION.
 - RESTORATION OF EXISTING SYSTEMS, DEVICES, FINISHES, ETC. DAMAGED OR ALTERED BY NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY THE OWNER, ARCHITECT AND/OR ENGINEER.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR WORKMEN'S IDENTIFICATION AND BADGING, SAFETY AND FIRE PROTECTION, CONTRACTOR'S LIABILITY INSURANCE, BARRICADES, WARNING SIGNS, TRASH REMOVAL, CUTTING AND PATCHING.
 - CONTRACTOR SHALL SCHEDULE ALL SHUTDOWNS THAT AFFECT UTILITIES AND PORTIONS OF THE BUILDING THAT MUST REMAIN IN OPERATION WITH THE OWNER.
 - CONTRACTOR SHALL COORDINATE ALL WORK WITH THE OWNER AND ALL OTHER CONTRACTORS.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL RIGGING, HANDLING AND PROTECTION OF MATERIALS.
 - CONTRACTOR SHALL PROVIDE LABOR TO RECEIVE, UNLOAD, STORE, PROTECT AND TRANSFER TO POINT OF INSTALLATION, OWNER FURNISHED ITEMS.
 - WHERE CONDUIT, CABLES, DUCTWORK OR PIPING PASSES THROUGH FIRE RATED FLOORS OR WALLS, THE SLEEVES SHALL BE COMPLETELY SEALED WITH A FIRE STOP MATERIAL THAT IS UL LISTED AND ACCEPTED BY THE BUILDING DEPARTMENT AND FIRE DEPARTMENT AS BEING SUITABLE FOR THIS SERVICE. SUCH AS DOW CORNING CORP., SILICONE ELASTOMER, DOW CORNING 3-6548 SILICONE RTV FOAM, OR APPROVED EQUAL. THIS MATERIAL SHALL BE INSTALLED IN ACCORDANCE WITH THE REQUIREMENTS OF THE MANUFACTURER TO MAINTAIN THE FIRE RATING OF THE PENETRATED WALL OR FLOOR.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CORING AS IT RELATES TO HIS WORK.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BEAM PENETRATIONS AS IT RELATES TO HIS WORK. CONTRACTOR SHALL SUBMIT SIZE AND LOCATION TO THE STRUCTURAL ENGINEER FOR REVIEW AND DETAIL.
 - CONTRACTOR TO PROVIDE HYDRAULIC CALCULATIONS, SYSTEM LINE SIZING, PUMP SIZING, AND SHOP DRAWINGS TO ENGINEER OF RECORD FOR APPROVAL PRIOR TO COMMENCEMENT OF WORK.
 - CONTRACTOR SHALL SUBMIT (1) SET OF INSTALLATION SHOP DRAWINGS AND EQUIPMENT CUT SHEETS IN ELECTRONIC FORMAT TO THE ENGINEER FOR APPROVAL PRIOR TO STARTING ANY WORK.
 - UPON COMPLETION OF CONSTRUCTION CONTRACTOR SHALL SUPPLY THE ENGINEER WITH (1) COMPLETE SET OF MYLAR AS-BUILT DOCUMENTS AND (3) COMPLETE COPIES OF OPERATIONS AND MAINTENANCE MANUALS. MYLARS SHALL BE OBTAINED AT CONTRACTOR'S EXPENSE.
 - ALL EXPOSED FIRE SPRINKLER PIPING TO BE PAINTED RED.
 - ALL FIRE SPRINKLERS TO BE INSTALLED CENTERED IN TILE.
 - ACCEPTANCE AND HYDROSTATIC TESTS SHALL BE PERFORMED IN ACCORDANCE WITH CHAPTER 25 OF NFPA 13.
 - DO NOT SCALE DRAWINGS FOR EXACT DIMENSIONS. VERIFY ALL CONDITIONS AT THE JOB SITE AND COORDINATE WITH ALL TRADES PRIOR TO COMMENCEMENT. THE SPRINKLER DRAWINGS ARE INTENDED TO BE DIAGRAMMATIC.
 - MATERIALS, EQUIPMENT AND INSTALLATION SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR FROM THE DATE OF ACCEPTANCE. DEFECTS WHICH APPEAR DURING THAT PERIOD SHALL BE CORRECTED AT THE SPRINKLER CONTRACTOR'S EXPENSE.

- GENERAL NOTES - OFFICES**
- FIRE SPRINKLER SPACING TO BE:
LIGHT HAZARD: OFFICE AREA
DENSITY: 0.1GPM/SF @ 15'X15' MAX
 - ALL FIRE SPRINKLER DEVICES TO BE UL AND/OR FM APPROVED.
 - SPRINKLER PIPING SHALL BE STEEL PIPE (ASTM 53, 120, OR 135) WITH 150 PSI MALLEABLE IRON FITTINGS WITH THREADED CONNECTIONS OR TYPE "L" HARD DRAWN COPPER TUBING WITH COPPER OR BRASS FITTINGS AND 125 PSI SOLDER JOINTS ("NO-LEAD SOLDER").
A. SCH. 40, ALLIED XL OR AMERICAN BLT FOR 1" THRU 2"
B. SCH. 10 FOR 2-1/2" AND LARGER
C. SCH. 80 IF 1/2" OR 3/4" NIPPLE IS USED.
NOTE: NIPPLE CANNOT EXCEED 4" IN LENGTH AND SUPPLY ONLY ONE HEAD PER NFPA 13.
 - FITTINGS
A. BLACK CIS CLASS 125 FOR 1" THRU 2".
B. GROOVED TYPE FOR 2-1/2" AND LARGER.
 - HANGERS TO BE IN ACCORDANCE WITH NFPA 13 AND LOCAL AUTHORITIES. SPRINKLER PIPING IS NOT TO BE SUPPORTED FROM ANY MECHANICAL OR ELECTRICAL DEVICES.
MAXIMUM DISTANCE BETWEEN PIPE SUPPORTS:
• 12'-0" FOR 1 1/4" DIAMETER PIPE AND SMALLER
• 15'-0" FOR 1 1/2" DIAMETER PIPE AND LARGER

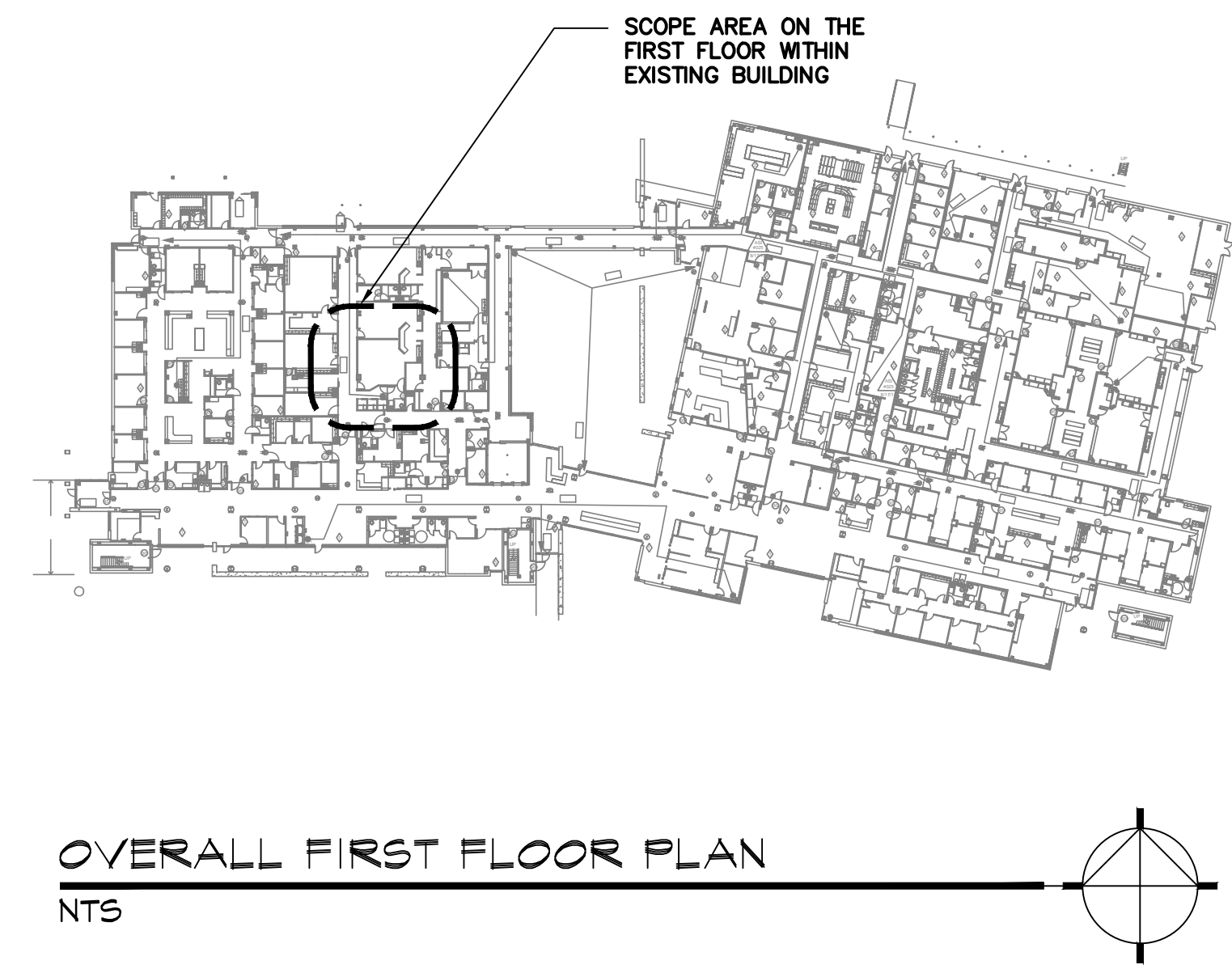


SCOPE OF WORK

REMOVE AND REPLACE SEMI-RECESSED PENDANT SPRINKLER HEAD WITH CONCEALED PENDANT HEAD TO ACCOMMODATE NEW CEILING GRID LAYOUT.

SPRINKLER TYPE	SYMBOL	TEMPERATURE RATING (°F.)	NOMINAL ORIFICE SIZE	MANUFACTURER & MODEL	MAXIMUM SPACING	FLOW/PRESS GPM / PSI
CONCEALED QR-PEN	☉	165	1/2" K=5.6	RELIABLE G5-56 LIGHT HAZARD, COMMERCIAL AREAS	15'X15'	5.6 / 7.0

NOTE: THE FIRE PROTECTION CONTRACTOR SHALL CONFIRM SPACING, LOCATION AND COVERAGE FOR ALL FIRE SPRINKLERS. COORDINATE WITH ALL TRADES.



NOTE

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revision:

NORTH CAROLINA
PROFESSIONAL
SEAL
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FINAL SUBMITTAL for construction

GENERAL HVAC NOTES

1. ALL WORK SHALL COMPLY WITH THE 2018 EDITION OF THE INTERNATIONAL BUILDING CODE, MECHANICAL, ENERGY CONSERVATION, ACCESSIBILITY CODES, AND ALL LOCAL CODE AMENDMENTS.
2. CONTRACTOR SHALL VERIFY EXISTING CONDITIONS PRIOR TO BIDDING, ORDERING, FABRICATION OR INSTALLATION OF MATERIALS OR EQUIPMENT, IN ORDER TO PROVIDE A FULLY INTEGRATED MECHANICAL AND CONTROLS SYSTEMS WITH THE EXISTING ONES. ANY DISCREPANCY BETWEEN EXISTING CONDITIONS AND PLANS, OR ADDITIONAL CLARIFICATION REQUIRED SHALL BE BROUGHT TO THE ATTENTION OF ENGINEER PRIOR TO FINAL BIDDING AND WORK. SUBMISSION OF THE CONTRACTORS PROPOSAL SHALL BE CONSTRUED AS INDICATING SUCH KNOWLEDGE. ANY CHANGES RESULTING FROM CONFLICTS IN THE FIELD, WHICH WERE NOT BROUGHT TO THE ENGINEERS ATTENTION, ARE TO BE MADE BY THIS CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
3. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK. MECHANICAL PLANS ARE GENERAL, DIAGRAMMATIC IN NATURE, AND ARE TO BE READ IN CONJUNCTION WITH ARCHITECTURAL, PLUMBING, ELECTRICAL, FIRE SPRINKLER, STRUCTURAL AND INTERIOR DESIGNER PLANS AND SHALL BE CONSIDERED AS ONE SET OF DOCUMENTS. PROVIDE OFFSETS AND DEVIATIONS FROM WORK SHOWN ON THE DRAWINGS AS MAY BE NECESSARY TO FIT ACTUAL SPACE CONDITIONS AT NO ADDITIONAL COST TO THE OWNER. DUCTWORK CHANGES MAY BE MADE BY CONTRACTOR USING EQUIVALENT SIZED DUCT. CONTACT ENGINEER IF DUCT AREA WILL NOT FIT.
4. CONTRACTOR SHALL PROVIDE A COMPLETE MECHANICAL SYSTEM(S) AS DETAILED ON THE DRAWINGS AND SPECIFICATIONS. WORK CONSISTS OF PROVIDING ALL MATERIALS, EQUIPMENT, APPURTENANCES, ETC. REQUIRED FOR A COMPLETE SYSTEM(S). INCLUDE ANY INCIDENTAL APPARATUS, APPLIANCES, MATERIALS, LABOR, PERMITS, SERVICES, ETC. NECESSARY TO MAKE WORK COMPLETE AND READY FOR OPERATION. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS TO CALL FOR COMPLETE, FINISHED WORK, TESTED, AND READY FOR OPERATION.
5. CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING CONFLICTS IN THE DRAWINGS AND SPECIFICATIONS PRIOR TO BIDDING AND REPORTING CONFLICTS TO THE ENGINEER BEFORE BIDDING. ANY CHANGES RESULTING FROM CONFLICTS IN THE FIELD, WHICH WERE NOT BROUGHT TO THE ENGINEERS ATTENTION, ARE TO BE MADE BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE OWNER.
6. CONTRACTOR SHALL GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
7. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS, FEES, INSPECTION AND TESTS. CONTRACTOR SHALL OBTAIN PERMIT AND APPROVED SUBMITTALS PRIOR TO COMMENCEMENT OF WORK OR ORDERING EQUIPMENT. CONTRACTOR SHALL BE PRESENT FOR ALL INSPECTIONS OF HIS WORK BY REGULATORY AUTHORITIES.
8. CONTRACTOR SHALL PROVIDE RECORD DRAWINGS TO THE BUILDING OWNER AND ARCHITECT. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTING, ETC.
9. CONTRACTOR SHALL PROVIDE INSURANCE FOR PROTECTION AGAINST PUBLIC LIABILITY AND PROPERTY DAMAGE FOR THE DURATION OF THE WORK.
10. ALL MATERIAL SHALL BE NEW OF U.S. MANUFACTURER OF GOOD QUALITY. ALL WORK SHALL BE PERFORMED AT INDUSTRY STANDARD QUALITY LEVEL BY CERTIFIED PROFESSIONALS. ALL EQUIPMENT SHALL BE UL OR ETL LISTED. ALL INSTALLATIONS SHALL COMPLY WITH ICC 2018, CH 3. GENERAL REGULATIONS. BUILDINGS LOCATED WITHIN 3,000 FT FROM THE OCEAN SHALL UTILIZE NON-FERROUS MATERIALS FOR ALL OUTDOOR EXPOSED SUPPORTS, STANDS, FASTENERS, ETC.
11. COORDINATE EXACT LOCATION OF ALL DIFFUSERS AND RETURNS WITH ARCHITECTURAL REFLECTED CEILING PLAN.
11. CONTRACTOR SHALL PROVIDE A WRITTEN REPORT OF THE EXISTING SUPPLY AND RETURN STATIC PRESSURES, TEMPERATURES, AND AIR FLOWS, AND BALANCE THE CFMS OF THE NEW DIFFUSERS TO THE EXISTING AIR FLOW.
12. CONTRACTOR SHALL INCLUDE COSTS NECESSARY (PART OF BID) TO MAKE ONE CHANGE IN EACH UNITS SHEAVE, BUSHINGS AND BELTS, BALANCING DAMPERS REQUIRED AND ANY OTHER DEVICES REQUIRED FOR THE CORRECT BALANCE OF THE SYSTEM AS REQUIRED BY THE TAB FIRM.
13. GENERAL CONTRACTOR SHALL VERIFY THAT THE AIR CONDITIONED SPACE IS SEALED WITH AN APPROVED AIR BARRIER ACCORDANCE WITH ICC-2018, SEC 402.5.1. MECHANICAL CONTRACTOR SHALL NOTIFY GENERAL CONTRACTOR, ARCHITECT AND ENGINEER IN WRITING OF ANY DISCREPANCIES PRIOR TO INSTALLATION OF ANY EQUIPMENT.
14. FURNISH AND INSTALL PIPE IDENTIFICATION MARKERS ON ALL PIPES AND EQUIPMENT INSTALLED UNDER THIS CONTRACT. MARKERS SHALL BE A MINIMUM OF 1-1/2" X 8" AND IDENTIFIED IN ACCORDANCE WITH THE BACKGROUND AND LETTER COLORS ISSUED BY THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI). PIPING SHALL BE IDENTIFIED AS FOLLOWS: CHILLED WATER RETURN, CHILLED WATER SUPPLY, CONDENSATE, HOT WATER RETURN, HOT WATER SUPPLY, CONDENSER WATER RETURN, CONDENSER WATER SUPPLY, REFRIGERANT LIQUID, REFRIGERANT SUCTION, AND DIRECTIONAL ARROWS. ALL IDENTIFICATIONS MUST BE VISIBLE AT EQUIPMENT.

GENERAL INSTALLATION NOTE

1. IT SHALL BE UNDER THE GENERAL CONTRACTOR'S RESPONSABILITY TO INVESTIGATE EXISTING CONDITIONS AND MODIFY EXISTING PIPE ROUTING OF PLUMBING, FIRE PROTECTION AND ELECTRICAL IN ORDER TO PROPERLY ALLOW SPACE FOR DUCTWORK ROUTING.

A/C OPERATION DURING CONSTRUCTION

THE USE OF NEW OR EXISTING AIR HANDLING UNITS DURING CONSTRUCTION IS PROHIBITED UNLESS APPROVED BY THE OWNER AND THE PROCEDURE SHOWN BELOW ARE FOLLOWED:

1. THE CONTRACTOR SHALL PROTECT THE INTERIOR OF ALL DUCTWORK AND AIR HANDLING UNITS FROM THE ACCUMULATION OF DIRT AND DUST USUALLY ASSOCIATED WITH THE FINISHING STAGES OF THE CONSTRUCTION WORK.
2. DUCTWORK STORED ON SITE AWAITING INSTALLATION SHALL BE CAREFULLY EXAMINED AND THOROUGHLY CLEANED BEFORE PLACEMENT IN ITS FINAL LOCATION. THE ENDS OF DUCTWORK SHALL BE CLOSED DURING CONSTRUCTION.
3. THE AIR HANDLING UNITS MAY BE ALLOWED TO OPERATE DURING FINISHING STAGES OF THE GENERAL WORK PROVIDED THAT THE PRE-FILTERS ARE IN PLACE AND THE ENDS OF ALL RETURN AIR INLETS ARE COVERED WITH ROLL-UP FILTER MATERIAL.
4. WHEN THE SPACE IS TURNED OVER TO THE OWNER, THE CONTRACTOR SHALL REMOVE ALL FILTERS USED DURING CONSTRUCTION AND REPLACE THEM WITH NEW FILTERS.
5. USE OF NEW AHU'S DURING CONSTRUCTION IS NOT ALLOWED.

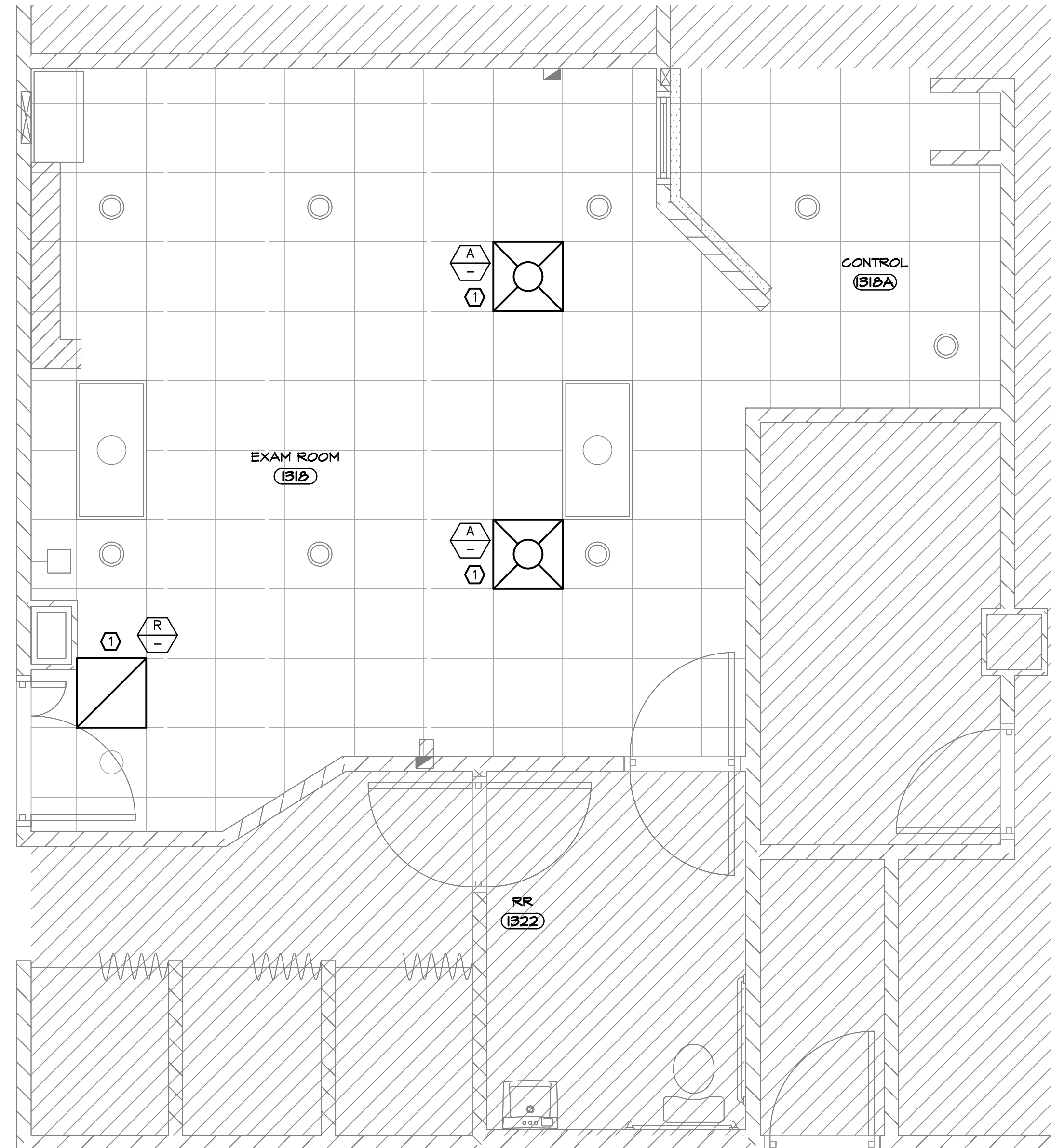
MECHANICAL LEGEND

SYMBOL	DESCRIPTION
C.F.M.	CUBIC FEET PER MINUTE
	A = DIFFUSER TYPE, CFM = DIFFUSER AIR FLOW
	CEILING DIFFUSER - SUPPLY AIR
	CEILING DIFFUSER - RETURN AIR

AIR DISTRIBUTION SCHEDULE

TYPE	MFG	MODEL	PATTERN	DAMPER	MOUNTING	NECK	MODULE	MAX N.C.	MAX CFM	NOTES
A	TITUS	TMS-AA	4-WAY	O.B.D.	LAY-IN	SEE NOTE 2	24x24	30	-	1,2
R	TITUS	350 FL	RETURN	O.B.D.	LAY-IN	SEE NOTE 2	24x24	30	-	1,2

- NOTES
- 1) COORDINATE EXACT LOCATION IN THE FIELD.
 - 2) MATCH NECK SIZE WITH EXISTING FLEXIBLE DUCT SIZE. VERIFY IN THE FIELD.



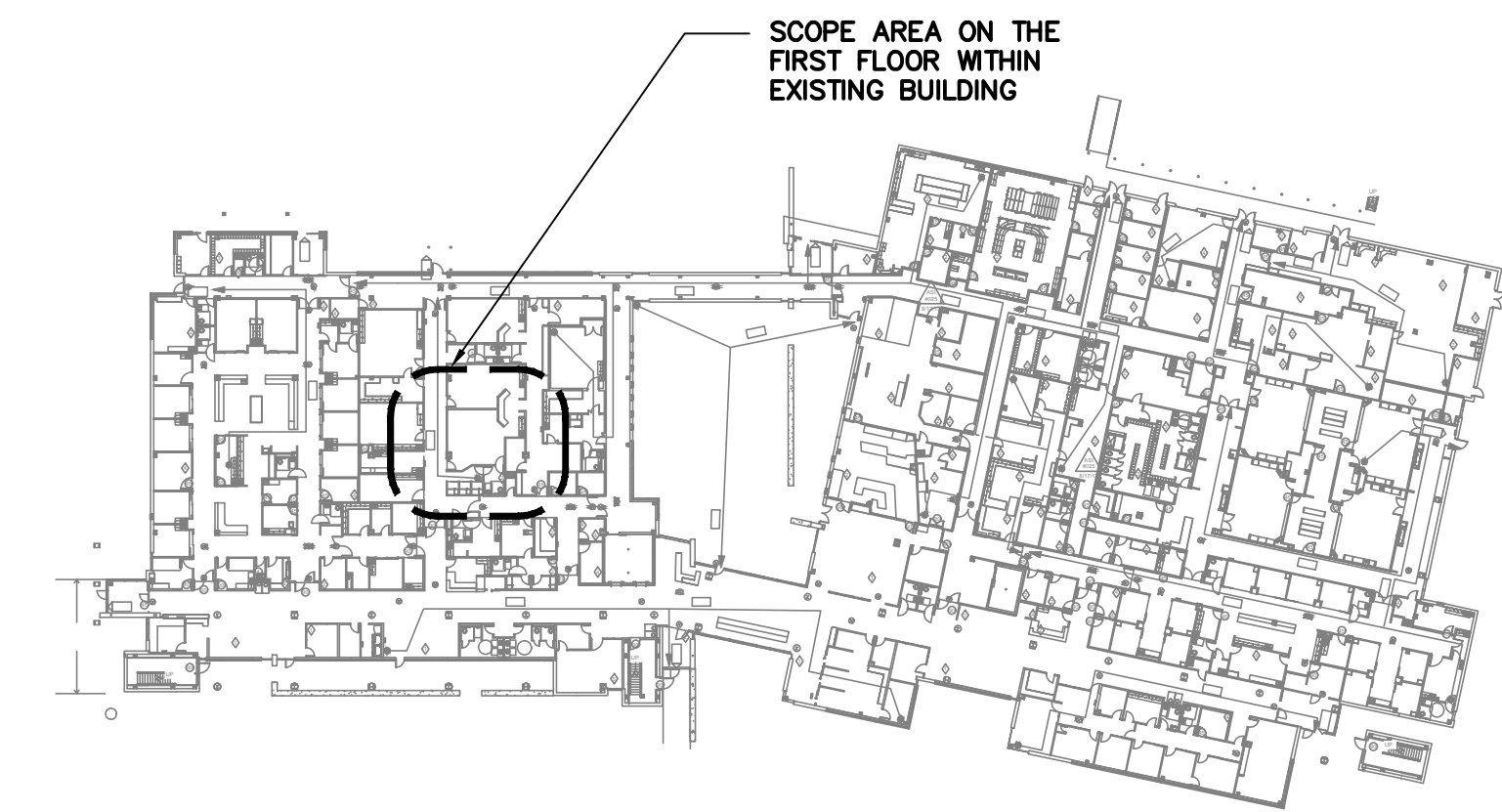
FIRST FLOOR MECHANICAL PLAN

3/8"=1'-0"

PLAN KEY NOTES

- 1) CONTRACTOR TO REMOVE EXISTING SUPPLY AND RETURN DIFFUSERS IN SCOPE OF WORK SPACE. CONTRACTOR TO INSTALL NEW SUPPLY AND RETURN DIFFUSERS IN EXISTING LOCATIONS AS PER SCHEDULE ON M1.1. CONNECT EXISTING FLEX DUCTWORK TO NEW DIFFUSERS. VERIFY EXISTING LOCATION IN THE FIELD.

SCOPE AREA ON THE FIRST FLOOR WITHIN EXISTING BUILDING



OVERALL FIRST FLOOR PLAN

NTS

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HVAC
PLUMBING
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M1.1

1 M

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