- ALL WORK SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE REQUIREMENTS OF THE FOLLOWING CODES AND STANDARDS:
- A. NATIONAL ELECTRICAL CODE 2008 (WITH NYC 2011 AMENDMENTS)
- B. 2022 NYC BUILDING CODE
 C. BUILDING BUILES AND REGULATIONS
- C. BUILDING RULES AND REGULATIONS.

 D. LOCAL FIRE CODE AND FIRE DEPARTMENT REQUIREMENTS.
- E. 2020 NYC ENERGY CONSERVATION CODE
- F. UTILITY COMPANY STANDARDS AND REQUIREMENTS.
 G. OCCUPATIONAL SAFETY AND HEALTH ACT (OSHA)
- H. AMERICAN DISABILITIES ACT (ADA)
- I. UNDERWRITERS LABORATORIES, INC. (UL)
- J. NATIONAL FIRE PROTECTION ASSOCIATION
 K. FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HEALTH
- CARE FACILITIES 2018 EDITION.
 L. ALL LOCAL JURISDICTION DIRECTIVES AND REQUIREMENTS.
- PROVIDE A COMPLETE OPERABLE SYSTEM IN A WORKMANLIKE MANNER. OUTLINE DESCRIPTION AND EQUIPMENT DO NOT LIMIT CONTRACTOR'S LIABILITY FOR THE INSTALLATION OF A COMPLETE OPERABLE SYSTEM.
- 3. ALL ELECTRICAL EQUIPMENT SHALL BE THE LATEST OF THE CURRENT YEAR IN DESIGN, MATERIAL AND WORKMANSHIP, AND SHALL BE THE TYPE OR MODEL CALLED FOR IN THESE DRAWINGS AND SPECIFICATIONS
- 4. CONTRACTOR4.TO BE RESPONSIBLE FOR REVIEWING THE FULL SET OF BID DOCUMENTS TO BE AWARE OF THE TOTAL SCOPE PRIOR TO SUBMITTING BID. ALL WORK SHOWN ON THE DRAWINGS NOT SPECIFICALLY CALLED OUT AS EXISTING SHALL BE CONSIDERED WORK TO BE PERFORMED UNDER THIS CONTRACT.
- BIDDERS, BEFORE SUBMITTING A PROPOSAL, SHALL VISIT AND CAREFULLY EXAMINE THE SITE TO BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND WITH THE DIFFICULTIES THAT WILL ATTEND THE EXECUTION OF THIS WORK. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH EXAMINATION HAS BEEN MADE. LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED. NO ALLOWANCE WILL SUBSEQUENTLY BE MADE TO THE CONTRACTOR BY REASON OF ANY ERROR DUE TO THE CONTRACTOR'S NEGLECT TO COMPLY WITH THIS REQUIREMENT. REPORT ANY DISCREPANCIES BETWEEN DRAWINGS AND FIELD CONDITIONS TO THE ENGINEER.
- 6. BEFORE COMMENCING WORK, THE CONTRACTOR SHALL FILE ALL REQUIRED CERTIFICATES OF INSURANCE WITH THE BUILDING DEPARTMENT, FIRE DEPARTMENT AND ALL OTHER GOVERNMENTAL AGENCIES. OBTAIN ALL REQUIRED PERMITS, TEST REPORTS, CERTIFICATIONS FOR T.C.O. AND C.O. AND PAY ALL FEES REQUIRED..
- 7. ALL NOTATIONS OF "SCALE" ARE INTENDED AS APPROXIMATIONS. THE CONTRACTOR 27. SHALL BE RESPONSIBLE TO ASCERTAIN THE EXACT DIMENSIONS IN FIELD.
- 8. ELECTRICAL DRAWINGS ARE DIAGRAMMATIC, SIZES AND LOCATION OF EQUIPMENT AND WIRING ARE SHOWN TO SCALE WHERE POSSIBLE, BUT MAY BE DISTORTED FOR CLARITY ON THE DRAWINGS.
- 9. ELECTRICAL CONTRACTOR SHALL TAKE DELIVERY AND RESPONSIBILITY FOR ALL EQUIPMENT PRE—PURCHASED BY THE OWNER FOR THIS PROJECT. WORK SHALL INCLUDE RECEIVING EQUIPMENT AT STREET—SIDE MOVING IT TO INTERIM ONSITE SECURE STORAGE LOCATION, PROTECTING EQUIPMENT FROM DAMAGE, MOVING THE EQUIPMENT FROM STORAGE TO ITS FINAL POSITION, SETTING IN PLACE, AND COMPLETION OF ALL INSTALLATION, TESTING AND COMMISSIONING PROCEDURES REQUIRED FOR APPLICABLE EQUIPMENT.
- 10. UPON COMPLETION OF ALL ELECTRICAL WORK, ELECTRICAL CONTRACTOR SHALL ADJUST AND TEST ALL CIRCUITS, WIRING DEVICES, LIGHTING FIXTURES, MOTORS AND ANY OTHER ELECTRICAL ITEMS INSTALLED. ANY DEFECTIVE ITEMS SHALL BE IMMEDIATELY REPAIRED OR REPLACED WITH NEW EQUIPMENT OR MATERIALS AND THAT PORTION OF THE SYSTEM SHALL BE RE—TESTED. ALL SUCH REMEDIAL WORK SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- 11. UPON COMPLETION OF WORK, ELECTRICAL CONTRACTOR SHALL BALANCE ALL PANELBOARDS AFFECTED TO WITHIN 10% DEVIATION BETWEEN PHASES.
- 12. REMOVE ALL DEBRIS RESULTING FROM REMOVAL AND/OR INSTALLATION OF ELECTRICAL WORK FROM THE PREMISES. REMOVAL OF DEBRIS SHALL BE COORDINATED WITH BUILDING MANAGEMENT. DISPOSAL WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE BUILDING CODE AND WITH ALL STATE AND FEDERAL REGULATIONS
- 13. UNLESS OTHERWISE NOTED, ELECTRICAL EQUIPMENT INCLUDING BUT NOT LIMITED TO PULL BOXES, JUNCTION BOXES, WIRING DEVICES, PANELBOARDS, LOW VOLTAGE SYSTEMS DEVICES, ETC WHERE INDICATED ON DRAWINGS, SHALL BE CONSIDERED SHOWN AT THEIR APPROXIMATE LOCATION. THE CONTRACTOR SHALL LOCATE THESE ITEMS AS FIELD CONDITIONS DICTATE AND AS APPROVED BY THE ARCHITECT AND/OR ENGINEER.
- 14. ALL CONDUIT RUNS, WHEN SHOWN ON THE DRAWINGS, ARE SHOWN DIAGRAMMATIC ALLY TO OUTLINE THE GENERAL ROUTING OF MAJOR FEEDERS AND BRANCH WIRING. IT IS NOT WITHIN THE SCOPE OF THESE DRAWINGS TO SHOW ALL NECESSARY BENDS, OFFSETS, PULL BOXES, JUNCTION BOXES AND OBSTRUCTIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO INSTALL HIS WORK TO CONFORM TO THE REQUIREMENTS OF THE ELECTRICAL CODE AND TO PRESERVE HEADROOM
- 15. ADDITIONAL PULL BOXES, JUNCTION BOXES AND WIRE TROUGHS NOT SHOWN ON DRAWINGS SHALL BE PROVIDED WHERE REQUIRED BY APPLICABLE CODE REQUIREMENTS OR WHERE CALLED FOR BY FIELD CONDITIONS. PULL AND JUNCTION BOXES SHALL BE SURFACE TYPE IN UNFINISHED SPACES AND FLUSH TYPE IN FINISHED SPACES. PROVIDE COVERS FOR ALL JUNCTION BOXES, PULL BOXES AND WIRE TROUGHS. COVERS SHALL BE ACCESSIBLE.
- 16. CONDUIT RUNS SHALL CLEAR ALL ARCHITECTURAL FEATURES (DOORS, WINDOWS, ETC.) AND STRUCTURAL MEMBERS. CONDUIT INSTALLATION SHALL ALSO BE MADE TO AVOID INTERFERENCE WITH PIPES, DUCTS, OR OTHER EQUIPMENT CORRESPONDING TO OTHER TRADES, INCLUDING BUT NOT LIMITED TO MECHANICAL, PLUMBING AND FIRE PROTECTION. SHALL ANY OF THIS ELEMENTS PREVENT THE INSTALLATION OF RACEWAY AS DELINEATED ON THE CONTRACT DOCUMENTS, DEVIATION MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION. ANY VARIATION DUE TO FIELD CONDITIONS SHALL NOT REPRESENT AN ADDITIONAL COST TO OWNER.
- 17. ALL CONDUIT RUNS SHALL BE CONCEALED WITHIN WALLS OR CEILING. EXPOSED CONDUITS AND BOXES, WHEN REQUIRED, SHALL BE PAINTED. PAINTING SHALL CONSIST OF A PRIME COAT AND A FINISHED COAT, COLOR AS SELECTED BY ARCHITECT OR TO MATCH SURROUNDING SURFACES. FACTORY PAINTING WILL BE ACCEPTED AS A PRIME COAT.
- 18. MINIMUM SIZE OF CONDUITS SHALL BE 3/4", UNLESS OTHERWISE NOTED.
- 19. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB (90-KG) TENSILE STRENGTH. LEAVE AT LEAST 12 INCHES (300 MM) OF SLACK AT EACH END OF PULL WIRE
- 20. PROVIDE PIPE SLEEVES WHERE CONDUITS ARE ROUTED THROUGH FOUNDATION WALLS, SLABS AND FIRE RATED PARTITIONS. PIPE SLEEVES SHALL BE GROUTED. SEALANT SHALL BE APPLIED AROUND THE CONDUIT IN THE SLEEVE IN ORDER TO PREVENT INGRESS OF MOISTURE. WALL AND SLAB PENETRATIONS SHALL BE COMPLETELY WATERPROOFED AND/OR FIRE PROOFED.

- 21. ALL OPENINGS BETWEEN FLOORS, THROUGH RATED FIRE AND SMOKE WALLS, CREATED BY THE CONTRACTOR FOR CABLE OR CONDUIT PASS THROUGH SHALL BE SEALED WITH A FIRE STOPPING MATERIAL. FIRE STOPPING MATERIAL AND ITS APPLICATION SHALL BE ACCOMPLISHED IN SUCH A MANNER THAT IS ACCEPTABLE TO THE LOCAL FIRE AND BUILDING AUTHORITIES HAVING JURISDICTION OVER THIS WORK. ANY OPENINGS CREATED BY OR FOR THE CONTRACTOR AND LEFT UNUSED SHALL ALSO BE SEALED AS PART OF THIS WORK. REFER TO ARCHITECTURAL DRAWINGS FOR FIRE RATING OF WALLS AND SLABS.
- 22. IN UNFINISHED SPACES OF THE BUILDING SUCH AS FAN ROOMS, PIPE SPACES, ETC., LOCATIONS OF CONDUIT AND OUTLETS ARE APPROXIMATE AND SHALL CLEAR PIPING AND ALL OTHER CONSTRUCTION. ALL OUTLETS MUST BE UNOBSTRUCTED AND EXTENDED AS DIRECTED TO CLEAR ANY INTERFERENCE WITH FIXTURES, PIPING EQUIPMENT, ETC.
- 23. SUPPORT ALL ELECTRICAL EQUIPMENT AND CONDUIT FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING. ALL ELECTRICAL EQUIPMENT AND RACEWAY SHALL BE SUSPENDED FROM SUPPLEMENTAL SLOTTED CHANNEL FRAME. ALL SUCH MOUNTS, DEVICES, FASTENERS SHALL BE OF SUFFICIENT THICKNESS TO CARRY THE LOAD SUSPENDED. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ANY ADDITIONAL SUPPLEMENTAL STEEL REQUIRED TO SUPPORT THE EQUIPMENT OR DEVICES.
- 24. PROVIDE OUTLET BOXES AND ENCLOSURES APPROPRIATE FOR THE PURPOSE AT ALL LOCATIONS WHERE THE DRAWINGS REQUIRE THE INSTALLATION OF ELECTRICAL DEVICES OR ELECTRICAL EQUIPMENT.
- 25. ALL EXPOSED NONCURRENT—CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT AND RACEWAYS SHALL BE GROUNDED. FOR FEEDERS AND/OR BRANCH CIRCUITS WHERE GROUNDING CONDUCTOR IS NOT PROVIDED, METAL RACEWAYS AND METAL ENCLOSURES FOR CONDUCTORS SHALL BE TIGHTLY JOINED TO CREATE A CONTINUOUS ELECTRIC CIRCUIT AND SO ASSURE A PROPERLY GROUNDED SYSTEM. FITTINGS FOR JOINTS AND TERMINATIONS SHALL BE LISTED FOR GROUNDING INSTALLATION. PROVIDE BONDING JUMPERS WITH APPROVED FITTINGS OF SIZE REQUIRED FOR EQUIPMENT GROUNDING. THE CONTRACTOR SHALL ENSURE CONTINUITY OF THE GROUNDING CIRCUIT FROM THE SUPPLYING PANELBOARD GROUNDING BUS TO THE LOAD GROUND TERMINAL.
- 26. UNLESS OTHERWISE NOTED, CONDUCTORS FOR POWER AND LIGHTING CIRCUITS SHALL BE OF TYPE THHN/THWN AND MINIMUM SIZE SHALL BE #12 AWG. CONDUCTORS #10 AWG AND SMALLER SHALL BE COPPER, SOLID OR STRANDED; #8 AWG AND LARGER SHALL BE COPPER, STRANDED, TYPE.
- BRANCH CIRCUIT CONDUCTORS SHALL BE INCREASED IN SIZE TO COMPENSATE FOR VOLTAGE DROP AS FOLLOWS:
- A. FOR CIRCUITS RATED AT 120V, 20A THAT RUNS OVER 100'-0", USE No. 10 AWG WIRE SIZE
 B. FOR CIRCUITS RATED AT 277V, 20A THAT RUNS OVER 200'-0", USE No. 10 AWG WIRE SIZE
- ALL CIRCUITS FEEDING COMPUTERS, DIMMING BALLAST, DIMMING SYSTEMS AND OTHER NONLINEAR LOADS SHALL HAVE A DEDICATED NEUTRAL AND GROUNDING CONDUCTOR
- ELECTRICAL DRAWINGS INDICATE CIRCUIT NUMBERS (#) FOR RECEPTACLES, LIGHTING FIXTURES AND OTHER EQUIPMENT FEEDS. UNLESS OTHERWISE NOTED PROVIDE 2#12, 1#12G IN 3/4" CONDUIT TO 15A OR 20A CIRCUIT BREAKERS IN PANELS INDICATED. CIRCUIT NUMBERS (#) NOTED ON PLANS ARE INTENDED AS A GUIDE. FINAL NUMBERING SYSTEM TO BE NOTED ON AS-BUILT DRAWINGS AND ON TYPED PANELBOARD DIRECTORY CARDS.
- . LOW VOLTAGE WIRING SHALL NOT BE PERMITTED IN THE SAME RACEWAY AS POWER WIRING.
- 31. ALL GROUND WIRES SHALL BE INSTALLED IN CONDUIT.
- 32. FURNISH AND INSTALL WIRING FOR EQUIPMENT FURNISHED BY OTHERS, AS SHOWN ON ARCHITECTURAL, HVAC, PLUMBING AND/OR ELECTRICAL DRAWINGS. COORDINATE WITH OTHER TRADES FOR DETAILS OF INSTALLATION AND WIRING REQUIREMENTS. THE TERM "WIRING" AS USED HEREIN SHALL INCLUDE FURNISHING AND INSTALLING CONDUIT, WIRES, JUNCTION/OUTLET BOXES, DISCONNECTS, OVERCURRENT PROTECTION DEVICES AND FINAL CONNECTIONS. COORDINATE FINAL CONDUCTOR SIZES, QUANTITIES, VOLTAGE REQUIREMENTS, AND OVERCURRENT DEVICE AND OUTLET RATINGS WITH ACTUAL EQUIPMENT TO BE FURNISHED TO THE SITE PRIOR TO FINALIZING WIRING INSTALLATION. MINOR ADJUSTMENTS TO WIRING REQUIREMENTS NECESSARY TO ACCOMMODATE ACTUAL FURNISHED EQUIPMENT SHALL BE PROVIDED AT NO ADDITIONAL COST TO OWNER.
- FURNISH AND INSTALL ALL COPPER MATERIALS INCLUDING BUT NOT LIMITED TO LUGS, COPPER BUS DETAILS/LUGS KITS, BUS BAR EXTENSIONS, ETC REQUIRED FOR OVER SIZED FEEDERS AND/OR REQUIRED TO ACCEPT INCOMING AND OUTGOING CABLES TO COMPLETE CONTRACT WORK. ALSO PROVIDE LABOR AND MATERIAL REQUIRED TO MODIFY EXISTING OR NEW EQUIPMENT INCLUDING ENCLOSURE MODIFICATIONS. CONTRACTOR TO PROVIDE ALL REQUIRED ELECTRICAL
- VERIFY LOCATIONS OF ALL ELECTRICAL EQUIPMENT WITH ARCHITECTURAL DRAWINGS OR INTERIOR DETAILS. IN CENTERING OUTLETS AND LOCATING BOXES OR OUTLETS, ALLOW FOR OVERHEAD PIPES, DUCTS, MECHANICAL EQUIPMENT, VARIATIONS IN FIREPROOFING AND PLASTERING, WINDOW AND DOOR TRIM, PANELING, HUNG CEILING, ETC., AND CORRECT ANY INACCURACY RESULTING FROM FAILURE TO DO SO WITHOUT EXPENSE TO OWNER.
- 35. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS OF WIRING DEVICES SUCH AS RECEPTACLES, LIGHTING SWITCHES, DIMMERS, DATA/TELEPHONE OUTLETS, ETC.
- VERIFY SWITCHES, DIMMERS, RECEPTACLES AND COVER PLATES FINISHES WITH THE ARCHITECT AND/OR OWNER REPRESENTATIVE BEFORE PURCHASING AND INSTALLATION OF SUCH DEVICES.
- WHERE MULTIPLE SWITCHES AND RECEPTACLES ARE INDICATED AT THE SAME LOCATION, THEY SHALL BE GANGED TOGETHER AND MOUNTED BEHIND A COMMON FACE PLATE UNLESS POWERED FROM AN EMERGENCY POWER SOURCE. PROVIDE SEPARATE OUTLET BOXES FOR NORMAL AND EMERGENCY CIRCUITS
- PROVIDE GROUND FAULT CIRCUIT INTERRUPTER FOR EACH RECEPTACLE LOCATED WITHIN 6'-0" OF WATER OR LIQUIDS AND FOR OUTDOORS RECEPTACLES WHETHER INDICATED ON DRAWINGS OR NOT.
- MOUNTING HEIGHTS OF EQUIPMENT AND DEVICES SHALL BE COORDINATED WITH ARCHITECT. UTILIZE THE FOLLOWING MOUNTING HEIGHTS UNLESS OTHERWISE NOTED OR DIRECTED BY ARCHITECT (ALL DIMENSIONS TO CENTERLINE OF BOX U.O.N.):
- A. RECEPTACLES (WALL MOUNTED) 18" AFF
 B. RECEPTACLES (COUNTERTOPS) NO MORE THAN 20" ABOVE THE
- COUNTERTOP

 C. VOICE/DATA OUTLETS 18" AFF
- . WALL MOUNTED TELEPHONES 48" AFF LIGHTING SWITCHES AND CONTROLS — 48" AFF

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 D. WALL MOUNTED TELEPHONES 48" AFF
- E. LIGHTING SWITCHES AND CONTROLS 48" AFF
 40. ALL ELECTRICAL EQUIPMENT AND ACCESSORIES INSTALLED OUTSIDE OR EXPOSED
- . ALL ELECTRICAL EQUIPMENT AND ACCESSORIES INSTALLED OUTSIDE OR EXPOSED TO WEATHER SHALL HAVE NEMA 3R ENCLOSURES AND SHALL BE TIGHTLY GASKETED FOR A COMPLETE RAIN TIGHT INSTALLATION. ALL BUILDING EXTERIOR MOUNTED RECEPTACLES SHALL BE GFI RATED AND MOUNTED IN WEATHERPROOF ENCLOSURE.
- 41. THE AREA ABOVE THE ELECTRICAL EQUIPMENT SUCH AS DISTRIBUTION BOARDS, PANELBOARDS, TRANSFORMERS, ETC., SHALL BE DEDICATED FOR ELECTRICAL INSTALLATION AND SHALL BE CLEAR FROM WORK OF OTHER TRADES (PIPING, DUCTS, ETC.).
- 42. FOR ALL RECESSED PANELS A TROUGH SHALL BE PROVIDED IN THE NEAREST ACCESSIBLE CEILING WITH TWO (2) SPARE 2" CONDUITS AND TWO (2) SPARE 1" CONDUITS UNLESS OTHERWISE NOTED TO BE INTERCONNECTED BETWEEN THE TROUGH AND THE RECESSED PANEL FOR FUTURE USE.
- 43. PROVIDE AND/OR REVISE THE PANEL DIRECTORY OF EACH AND EVERY NEW AND/OR EXISTING PANELBOARD AFFECTED BY THIS ELECTRICAL WORK.
- 44. PROVIDE BLANK COVERS PLATES OVER ALL UNUSED OPENINGS IN NEW AND/OR EXISTING PANELBOARDS.
- 45. SHORT CIRCUIT RATING OF ELECTRICAL EQUIPMENT (CIRCUIT BREAKERS, FUSES, DISCONNECT SWITCHES, PANELBOARDS, ETC.) SHALL MEET OR EXCEED THE AVAILABLE FAULT CURRENT AT THEIR POINT OF CONNECTION AS REQUIRED FOR A FULLY RATED SYSTEM.
- 16. PROVIDE UNFUSED DISCONNECT SWITCHES FOR ALL MECHANICAL EQUIPMENT UNLESS OTHERWISE NOTED ON CONSTRUCTION DOCUMENTS.
- 47. THE MINIMUM RATING OF DISCONNECT SWITCHES SHALL BE EQUAL TO OR GREATER THAN THE RATING OF THE PROTECTIVE DEVICES ON THE SUPPLY SIDE OF THE DISCONNECT SWITCH. MINIMUM DISCONNECT SWITCH SIZE IS 30
- 48. ALL EQUIPMENT SHALL HAVE COPPER CURRENT CARRYING PARTS INCLUDING GROUND BUS AND TERMINALS. ALUMINUM SHALL NOT BE PERMITTED.
- 49. ARCHITECTURAL FEATURES AS WELL AS OTHER TRADES EQUIPMENT SHOWN ON ELECTRICAL DRAWINGS ARE FOR BACKGROUND INFORMATION ONLY. COORDINATE WITH OTHER TRADES TO DETERMINE THE EXACT LOCATION OF FANS, A/C UNITS, MOTORS, PUMPS, EQUIPMENT TERMINAL BOXES, AND OTHER EQUIPMENT TO BE INSTALLED BY OTHER TRADES BEFORE CONDUIT WORK IS STARTED.
- 50. FOR EXACT LOCATION OF LIGHT FIXTURES, LIGHTING FIXTURE SCHEDULE AND LIGHTING SYMBOLS REFER TO ARCHITECTURAL AND/OR LIGHTING CONSULTANT DRAWINGS. INFORMATION SHOWN IN ELECTRICAL DRAWINGS IS FOR REFERENCE ONLY. FINAL LIGHTING APPROVAL BY ARCHITECT.
- 51. MOUNTING ACCESSORIES FOR RECESSED LIGHTING FIXTURES SHALL BE APPROPRIATE TO MEET THE REQUIREMENTS OF THE CEILING CONSTRUCTION. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPE SCHEDULE.
- 52. PENDANT MOUNTED FIXTURES IN AREAS WITH NO HUNG CEILING SHOULD BE INSTALLED AFTER DUCTWORK AND PIPING HAVE BEEN INSTALLED. COORDINATE MOUNTING HEIGHT AND LOCATION OF LIGHTING FIXTURES TO CLEAR MECHANICAL, ELECTRICAL, FIRE PROTECTION AND PLUMBING EQUIPMENT AND PIPING.
- 53. CONTRACTOR TO BE RESPONSIBLE FOR ALL PENETRATIONS, CORE DRILLING, SEALING, WATERPROOFING, CUTTING, PATCHING, PAINTING AND RESTORATION FOR THE COMPLETE CONTRACT WORK INDICATED. ALL RESTORATION WORK PERFORMED BY THIS CONTRACTOR SHALL RESTORE DISTURBED SURFACES TO ACCURATELY MATCH ALL SURROUNDING CONSTRUCTION USING THE SAME MATERIAL, WORKMANSHIP AND FINISH AS EXISTING SURFACES.
- 54. PROVIDE 4-INCH HIGH CONCRETE HOUSING PADS FOR ALL FLOOR MOUNTED ELECTRICAL EQUIPMENT.
- 55. CONTRACTOR TO PROVIDE LABOR AND MATERIALS REQUIRED FOR THE INSTALLATION AND MAINTENANCE OF TEMPORARY LIGHTING AND REQUIRED POWER SOURCES.
- 56. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM THE HOSPITAL AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH THE AREAS.
- 57. MAINTAIN CONTINUOUS SERVICE ON FEEDERS SERVING THE AREAS AFFECTED DURING ALL THE PERIOD THE AREA IS UNDER CONSTRUCTION. NO OUTAGES WILL BE PERMITTED IN THESE AREAS DUE TO THE CONSTRUCTION PHASE. ALL WORK REQUIRING TEMPORARY SHUTDOWN SHALL BE PERFORMED AT NO ADDITIONAL COST TO THE OWNER. ANY REQUEST FOR SHUTDOWNS SHOULD BE BROUGHT TO THE ATTENTION OF OWNER'S REPRESENTATIVE AND BUILDING OPERATING PERSONNEL AND IT MUST BE NOTIFIED 72 (SEVENTY—TWO) HOURS IN ADVANCE. WORK SHALL NOT BE PERFORMED WITHOUT WRITTEN APPROVAL.
- 8. ALL WORK REQUIRING ELECTRICAL SHUTDOWN WHICH WILL AFFECT OTHER FLOORS OF THE BUILDING OR EVEN AFFECT THE NORMAL CONTINUATION OF CONSTRUCTION WORK ON THESE & OTHER FLOORS, CONTRACTOR TO PROVIDE A TEMPORARY PROTABLE EMERGENCY GENERATOR, AND SHALL NOT DISTURB CONTINUITY OF ELECTRICAL SERVICE TO THE AFFECTED FLOORS AND SHALL BE COORDINATED WITH THE FACILITY MANAGER.
- 59. ALL ELECTRICAL WORK IN ADJOINING AREAS WHICH IS REQUIRED TO FUNCTION BUT IS AFFECTED BY THIS WORK SHALL BE RECONNECTED AND RESTORED TO ITS PRESENT FUNCTION AS PART OF THE ELECTRICAL SYSTEM OF THE BUILDING.
- ALL PENETRATIONS THROUGH OR CHOPPING OF FLOOR SLAB FOR ELECTRICAL INSTALLATION SHALL BE COORDINATED WITH FACILITY MANAGER. ALL WORK SHALL BE PERFORMED AFTER NORMAL BUSINESS HOURS. LOCATIONS SHALL BE LAID OUT AND CONFIRMED BY ARCHITECT PRIOR TO START OF PHYSICAL WORK.
- 61. ELECTRICAL CONTRACTOR SHALL OBTAIN AN "INFECTION CONTROL RISK ASSESSMENT (ICRA) FROM THE OWNER FOR INFECTION CONTROL CONSTRUCTION STANDARD PROCEDURES.
- 62. REFER TO PROJECT MANUAL/BOOK SPECIFICATION DOCUMENTS FOR ADDITIONAL INFORMATION, DETAILS & REQUIREMENTS PERTAINING TO THE SCOPE OF WORK.
- RACEWAY SYSTEM FOR THE LIFE SAFETY BRANCH AND CRITICAL BRANCH OF THE EMERGENCY SYSTEM SHALL BE KEPT ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND EQUIPMENT AND SHALL NOT ENTER THE SAME RACEWAY, BOXES, OR CABINETS WITH EACH OTHER OR OTHER WIRING.

GENERAL DEMOLITION NOTES

- 1. PROVIDE ALL LABOR, EQUIPMENT AND MATERIALS AS REQUIRED FOR THE SELECTED DEMOLITION AND REMOVAL OF THE ELECTRICAL EQUIPMENT SHOWN IN DRAWINGS
- 2. FIELD CHECK THE EXISTING CONDITIONS WHERE WORK IS TO BE DONE TO DETERMINE THE EXTENT OF THE DEMOLITION WORK. ALL DEMOLITION WORK IN THE EXISTING BUILDING SHALL BE DONE WHEN AND AS DIRECTED BY THE OWNER/ARCHITECT. ALL NECESSARY OVERTIME TO ACCOMPLISH THE DEMOLITION WORK IN THE EXISTING BUILDING SHALL BE INCLUDED HEREIN.
- 3. THE CONTRACTOR SHALL CIRCUIT TRACE THE EXISTING WIRING INSTALLATION AS REQUIRED TO ACCOMMODATE THE NEW WORK AND DEMOLITION WORK OF THIS CONTRACT.
- 4. FURNISH AND INSTALL ALL TEMPORARY CONDUIT, WIRE, BOXES, PANELS, ETC. AS REQUIRED TO MAINTAIN ELECTRIC LIGHT AND POWER SERVICE FOR THE EXISTING SPACE OR BUILDING WITH A MINIMUM OF INTERRUPTION AS HEREIN SPECIFIED.
- 5. AT ALL LOCATIONS, WHERE THE PRESENT ELECTRICAL WORK WILL HAVE TO BE MODIFIED OR CHANGED DUE TO THE ALTERATIONS OR ADDITIONS, THIS CONTRACTOR SHALL PROVIDE ALL THE NECESSARY TEMPORARY WIRING TO MAINTAIN CONTINUOUS ELECTRICAL SERVICE TO ROOMS WITHIN OR BEYOND THE DISTURBED AREAS.
- 6. CONTRACTOR SHALL FURNISH AND INSTALL ALL NEW CONDUITS, WIRE, BOXES, CIRCUIT BREAKERS, FUSED DISCONNECTS, ETC., AS REQUIRED AND SHALL RECONNECT ALL EXISTING OUTLETS TO REMAIN. ALL DISTURBED ELECTRICAL WORK TO REMAIN, AFTER REMOVAL OF PARTITIONS, CEILINGS, ETC., SHALL BE REROUTED AND RECONNECTED WITH ALL NEW CONDUITS, WIRE, BOXES, OUTLETS, ETC., AS REQUIRED. ALL EXISTING WORK TO REMAIN SHALL BE LEFT IN COMPLETE OPERATING CONDITION.
- 7. DISCONNECT, REMOVE, RELOCATE AND RECONNECT ANY ELECTRICAL EQUIPMENT NOT SHOWN ON THESE DRAWINGS AS PART OF THIS CONTRACT BUT INTERFERING WITH THE WORK UNDER THIS CONTRACT. THIS WORK SHALL NOT BE CONSIDERED EXTRA AND SHALL BE DONE AT NO ADDITIONAL COST TO THE OWNER.
- 8. REMOVE ALL ABANDONED OUTLETS COMPLETE WITH WIRING AND CONDUIT.
- 9. REMOVE ALL ABANDONED WIRING AND CONDUIT. WHEN CONDUIT REMOVAL IS IMPRACTICAL (CONCEALED CONDUIT), CUT BACK AND ABANDON CONDUIT.
- 10. ALL DEMOLITION, REMOVAL, AND DISPOSAL WORK SHALL BE IN COMPLIANCE WITH THE REQUIREMENTS OF THE BUILDING CODE AND WITH ALL STATE AND FEDERAL REGULATIONS.
- 11. REMOVE ALL DEBRIS AND REMOVED ELECTRICAL EQUIPMENT AND/OR FIXTURES NOT EXPLICITLY DESIGNATED TO BE SALVAGED (TO REMAIN) FROM THE PREMISES AND LEGALLY DISPOSE OF AWAY FROM PREMISES OR AS DIRECTED BY THE BUILDING OWNER.
- 12. ITEMS INDICATED TO BE SALVAGED SHALL BE REMOVED EITHER BEFORE DEMOLITION OR DURING THE PROCESS OF THE WORK, STORED, PROTECTED AND CLEANED PRIOR TO REINSTALLATION OR PRIOR TO BE RETURNED TO THE OWNER REPRESENTATIVE.
- 13. PROTECT MATERIALS, SURFACES AND STRUCTURE WHICH ARE TO REMAIN, FROM DAMAGE; IF DAMAGE OCCURS, REPAIR OR REPLACEMENT SHALL BE MADE BY THE CONTRACTOR TO THE SATISFACTION OF THE OWNER REPRESENTATIVE AND AT THE EXPENSE OF THE CONTRACTOR. ALL RESTORATION WORK SHALL RESTORE DISTURBED SURFACES TO ACCURATELY MATCH ALL SURROUNDING CONSTRUCTION USING THE SAME MATERIAL, WORKMANSHIP AND FINISH AS EXISTING SURFACES.

MEDICAL EQUIPMENT/SYSTEM COMPONENT REQUIREMENTS

NOT ALL ELECTRICAL EQUIPMENT TO BE PROVIDED ARE INDICATED ON THE ELECTRICAL DRAWINGS. THE ELECTRICAL CONTRACTOR SHALL REFER TO THE SIEMENS SITE SPECIFIC DRAWINGS FOR FURTHER DETAILS AND REQUIREMENTS TO BE PROVIDED BY THIS CONTRACTOR. WHEREVER THE SIEMENS—HEALTHCARE SITE SPECIFIC DRAWINGS INDICATE "BY CONTRACTOR OR BY OWNER" IT IS UNDERSTOOD THAT THE ELECTRICAL CONTRACTOR SHALL PROVIDE SUCH EQUIPMENT, DEVICES OR CABLES. INFORMATION ON THE SIEMENS—HEALTHCARE SITE SPECIFIC DRAWINGS SHALL SUPERSEDE INFORMATION ON THESE DRAWINGS. FINAL LOCATION FOR ALL DEVICES, EQUIPMENT RATING, TROUGH AND CONDUIT SIZES SHALL BE COORDINATED WITH SIEMENS—HEALTHCARE REPRESENTATIVE. SHOULD INFORMATION ON THE SITE SPECIFIC MANUFACTURER DRAWINGS CONFLICT WITH INFORMATION ON TRADE DRAWINGS, CONTRACTOR SHALL REQUEST CLARIFICATION FROM ARCHITECT BEFORE PROCEEDING WITH CONSTRUCTION WORK RELATED TO SAID CONFLICT.

DRAWING LIST

E-001.00 ELECTRICAL GENERAL NOTES AND DRAWING LIST E-002.00 ELECTRICAL ABBREVIATIONS AND SYMBOL LIST E-102.00 ELECTRICAL DEMOLITION 1ST FLOOR PLAN E-200.00 ELECTRICAL SUB-BASEMENT FLOOR PLAN ELECTRICAL BASEMENT FLOOR PLAN ELECTRICAL 1ST FLOOR POWER PLAN E-202A.00 ELECTRICAL 1ST FLOOR MECHANICAL POWER PLAN E-202B.00 ELECTRICAL 1ST FLOOR CONDUIT ROUTING PLAN E-202C.00 ELECTRICAL 1ST FLOOR NURSE CALL PLAN E-203.00ELECTRICAL 2ND FLOOR POWER PLAN E-204.00ELECTRICAL 3RD FLOOR POWER PLAN E-205.00ELECTRICAL ROOF POWER PLAN E - 301.00ELECTRICAL LIGHTING 1ST FLOOR PLAN E-401.00 ELECTRICAL PART PLANS (SHEET 1 OF 3) E-402.00ELECTRICAL PART PLANS (SHEET 2 OF 3) ELECTRICAL PART PLANS (SHEET 3 OF 3) E-501.00 ELECTRICAL PANEL SCHEDULES (SHEET 1 OF 2) E-502.00 ELECTRICAL PANEL SCHEDULES (SHEET 2 OF 2) ELECTRICAL SINGLE LINE DIAGRAM E-503.00 E-601.00 ELECTRICAL DETAILS ELECTRICAL SPECIFICATIONS (SHEET 1 OF 3) E-701.00

REFER TO FIRE ALARM DRAWINGS FOR ADDITIONAL SCOPE AND DETAILS ASSOCIATED WITH THE FIRE ALARM SYSTEM

ELECTRICAL SPECIFICATIONS (SHEET 2 OF 3)

ELECTRICAL SPECIFICATIONS (SHEET 3 OF 3)

E - 702.00

SCHUNKEWITZ

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Seal & Signature

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05/23/2023 Issued for 100% CD's 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set

description

Client Name:

date

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

Issued To, For:

Drawing No.:

E-001.00

ELECTRICAL GENERAL
NOTES AND DRAWING LIST

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

 MJR
 AS NOTED

CONSTRUCTION DOCUMENTS

File No.: R2000

01 OF 23

ELECTRICAL SYMBOL LIST

LINE TYPES		WIRING DEVICE
	LIGHT CONTINUOUS LINE INDICATES EXISTING TO REMAIN DARK CONTINUOUS LINE INDICATES NEW WORK IN CONTRACT	Ф ₱
	DARK DASHED LINE INDICATES DEMOLITION WORK	
— x – x – x — WIRING AND CONE	DARK DASHED "X" LINE INDICATES DEMOLITION WORK DUIT	GFI GFI
PP#(1,3,5) PP#(1,3)	CONCEALED HOME RUN TO PANELBOARD OR SWITCHBOARD. NOTATION INDICATES PANEL DESIGNATION AND CIRCUIT(S) NUMBER.	H Ħ
PP#1,3	No. OF ARROWS DENOTES No. OF CIRCUITS: 2#12, 1#12G, 3/4"C. (U.O.N.). EX: PP#1: PANEL PP, CIRCUIT #1 (SINGLE POLE OCPD) PP#1,3: PANEL PP, CIRCUITS #1 & #3 (SINGLE POLE OCPD)	##
PP#1,3,5	PP#(1,3): PANEL PP, CIRCUITS #1 & #3 (TWO POLE OCPD) PP#1,3,5: PANEL PP, CIRCUITS #1, #3 & #5 (SINGLE POLE OCPD) PP#(1,3,5): PANEL PP, CIRCUITS #1, #3 & #5 (THREE POLE OCPD)	GFI GFI
	CONCEALED WIRING AND CONDUIT RUN. 2#12, 1#12G, 3/4°C. (U.O.N.)	
Y	CONTINUATION OF WIRING AND CONDUIT RUN. 2#12, 1#12G, 3/4°C. (U.O.N.)	Ф
	EMPTY CONDUIT WITH DRAG LINE. PROVIDE RUBBER GROMMETS AT BOTH ENDS WHEN USED FOR LOW VOLTAGE WIRING (COMMUNICATION, SECURITY, ETC)	Φ_{30}
	CONDUIT RUNNING UP	
	CONDUIT RUNNING DOWN	,—,
()	JUNCTION BOX AND FINAL CONNECTION TO EQUIPMENT. WHEN SHOWN WITH A SUFFIX, DESCRIPTION AS FOLLOWS: "FSD" INDICATES FOR FIRE SMOKE DAMPER "MD" INDICATES FOR MOTORIZED DAMPER	
	"HT" INDICATES FOR HEAT TRACING "WP" INDICATES WEATHERPROOF (NEMA 3R) "CP" INDICATES FOR CONDENSATE PUMP "BMS" INDICATES FOR BMS "LD" INDICATES FOR LEAK DETECTION AND CONTROLS "SD" INDICATES FOR SMOKE DAMPER	
J	"DOOR" INDICATES FOR AUTOMATIC DOORS WALL MOUNTED JUNCTION BOX AND FINAL CONNECTION TO EQUIPMENT. WHEN SHOWN WITH A SUFFIX, DESCRIPTION ABOVE:	\$ _a
DIOTRIBUT	ION FOLUDATAT	
DISTRIBUTI 60/3	ION EQUIPMENT CIRCUIT BREAKER, RATED AS INDICATED IN DRAWINGS	\$ _a \$ _b \$ _c
60/3	(EG. 60/3 INDICATES 60-AMP TRIP, 3-POLE). DISCONNECT SWITCH. RATED AS INDICATED IN DRAWINGS	Φ.
60/3 60	(EG. 60/3 INDICATES 60-AMP TRIP, 3-POLE). FUSIBLE DISCONNECT SWITCH, 30A U.O.N., RATING	$ ot\hspace{1cm}\mathbb{D}_{\hspace{1cm}\scriptscriptstyle{\mathrm{a}}}$
70	AS INDICATED IN DRAWINGS (EG. 60/3, 60 INDICATES 60-AMP SWITCH, 3-POLE W/ 60-AMP FUSES).	\$ ³
30	FUSE RATED AS INDICATED IN DRAWINGS (EG. 30 INDICATES 30-AMP).	100
	KILOWATT HOUR METER.	\$as
$\stackrel{(M)}{\longrightarrow}$	KILOWATT HOUR METER AND CURRENT TRANSFORMER.	\$ ^{LV}
≟	GROUND ELECTRODE	\$ ^{vs}
LP LP	ELECTRICAL PANELBOARD. FLUSH MOUNTED. RATING AS INDICATED ON DRAWINGS. NOTATION INDICATES PANEL DESIGNATION.	
LP LP	ELECTRICAL PANELBOARD. SURFACE MOUNTED. RATING AS INDICATED ON DRAWINGS. NOTATION INDICATES PANEL DESIGNATION.	\$ ^k ₁
SPD	SURGE PROTECTION DEVICE. RATED AS INDICATED IN DRAWINGS (EG. 30/3 INDICATES 30-AMP TRIP, 3-POLE).	${\displaystyle \mathop{\not}\!$
CB 30/3	CIRCUIT BREAKER. RATED AS INDICATED IN DRAWINGS (EG. 30/3 INDICATES 30-AMP TRIP, 3-POLE).	\$ ^{TS}
60/3	NON-FUSIBLE DISCONNECT SWITCH, 30A U.O.N., RATING AS FOLLOWS; (EG. 60/3 INDICATES 60-AMP SWITCH, 3-POLE).	. •
60/60/3	FUSIBLE DISCONNECT SWITCH, 30A U.O.N., RATING AS FOLLOWS; (EG. 60/60/3 INDICATES 60-AMP SWITCH, 3-POLE, FUSED AT 60-AMP)	(S)
60/3	COMBINATION FUSIBLE DISCONNECT SWITCH/MOTOR STARTER W/ OVERLOAD PROTECTION AND AUTO/OFF/HAND SELECTOR SWITCH OR START/STOP CONTROL STATION AS SPECIFIED. RATED AS INDICATED IN DRAWINGS (EG. 60/3 INDICATES 60-AMP SWITCH, 3-POLE). STARTER SIZE SHALL BE SELECTED ACCORDING TO MOTOR HORSEPOWER RATING. TO BE FURNISHED BY THE MECHANICAL, PLUMBING AND FIRE	⟨ √\$⟩,
VED	PROTECTION TRADES AND INSTALLED BY THE ELECTRICAL CONTRACTOR VARIABLE FREQUENCY DRIVE	₽°s
VFD	TO BE FURNISHED BY THE MECHANICAL, PLUMBING AND FIRE PROTECTION TRADES AND INSTALLED BY THE ELECTRICAL CONTRACTOR	4
\$ _T	THERMAL OVERLOAD SWITCH FOR CONTROL OF FRACTIONAL HORSEPOWER SINGLE PHASE MOTORS.	
\$ _M	SINGLE PHASE MOTOR STARTER W/ OVERLOAD PROTECTION AND AUTO/OFF/HAND SELECTOR SWITCH FOR CONTROL OF FRACTIONAL HORSEPOWER SINGLE PHASE MOTORS.	•
HP	MOTOR, NUMBER INDICATES HORSE POWER RATING.	
СР	CONTROL PANEL	
H1	HEADWALL REFER TO DETAIL ON DRAWING E-202.00	
PS	MED GAS PRESSURE SENSOR	
	DISTRIBUTION TRANSFORMER (RATING AS INDICATED IN DRAWINGS)	

TELECOMMUNICATION DEVICES

HOSPITAL-GRADE DUPLEX RECEPTACLE

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

HOSPITAL-GRADE GFCI DUPLEX RECEPTACLE

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20.

WALL MOUNTED IN A COMMON TWO GANG OUTLET BOX.

WALL MOUNTED IN A COMMON TWO GANG OUTLET BOX.

HOSPITAL-GRADE SINGLE RECEPTACLE

HOSPITAL-GRADE SINGLE RECEPTACLE

HOSPITAL-GRADE DUPLEX RECEPTACLE

TAMPER-RESISTANT.

AC TOGGLE SWITCH

20-AMP, 125/277-VOLT AC.

MULTIPLE AC TOGGLE SWITCHES

DIMMER WITH SLIDE CONTROL

AC 3-WAY TOGGLE SWITCH

20-AMP, 125/277-VOLT AC.

IN A SINGLE GANG OUTLET BOX.

A SINGLE GANG OUTLET BOX.

OUTLET BOX.

OUTLET BOX.

CONTROLLED.

CONTROLLED.

125/277-VOLT AC

120/277V, LED.

BY ARCHITECT.

CEILING MOUNTED EXIT SIGN FIXTURE

GANG OUTLET BOX.

SUBSCRIPT INDICATES NUMBER OF ZONES.

SUBSCRIPT INDICATES NUMBER OF ZONES.

SUBSCRIPT INDICATES NUMBER OF ZONES.

NUMERAL SUBSCRIPT INDICATES NUMBER OF ZONES.

SUBSCRIPT 'K' INDICATES KEY SWITCH.

20-AMP, 125/277-VOLT AC (EACH).

WALL MOUNTED IN A COMMON OUTLET BOX.

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

FLUSH MOUNTED IN SLAB FLOOR BOX SYSTEM

FLUSH MOUNTED IN SLAB FLOOR BOX SYSTEM

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

"EM" DENOTES EMERGENCY POWER CONNECTION.

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

PROVIDE RED COLOR DEVICE FOR EMERGENCY.

SPECIAL PURPOSE SINGLE RECEPTACLE

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20.

30-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-30.

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20.

RED COLOR DEVICE FOR EMERGENCY. 'TR' DENOTES

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20 (EACH)

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20 (EACH)

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20

CENTER-SHADE DENOTES EMERGENCY POWER CONNECTION. PROVIDE RED

CENTER-SHADE DENOTES EMERGENCY POWER CONNECTION. PROVIDE RED

CENTER-SHADE DENOTES EMERGENCY POWER CONNECTION. PROVIDE RED COLOR DEVICE FOR EMERGENCY. 'TR' DENOTES TAMPER-RESISTANT.

HOSPITAL-GRADE GFCI QUAD RECEPTACLE. (TWO DUPLEX RECEPTACLES)

CENTER-SHADE DENOTES EMERGENCY POWER CONNECTION. PROVIDE RED

COLOR DEVICE FOR EMERGENCY. 'TR' DENOTES TAMPER-RESISTANT.

CENTER-SHADE DENOTES EMERGENCY POWER CONNECTION. PROVIDE

HOSPITAL-GRADE QUAD RECEPTACLE. (TWO DUPLEX RECEPTACLES)

COLOR DEVICE FOR EMERGENCY. 'TR' DENOTES TAMPER-RESISTANT.

CENTER-SHADE DENOTES EMERGENCY POWER CONNECTION. PROVIDE RED

20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20 (EACH)

REFER TO PANEL SCHEDULES FOR NEMA CONFIGUARTION

SUBSCRIPT INDICATES LIGHTING FIXTURES TO BE CONTROLLED.

WALL SWITCH/OCCUPANCY SENSOR, 125/277-VOLT AC. WALL MOUNTED

LOW VOLTAGE WALL SWITCH. WALL MOUNTED IN A SINGLE GANG OUTLET

WALL SWITCH/VACANCY SENSOR, 125/277-VOLT AC. WALL MOUNTED IN

LINE VOLTAGE KEY WALL SWITCH. WALL MOUNTED IN A SINGLE GANG

LOW VOLTAGE WALL SWITCH AND DIMMER. WALL MOUNTED IN A SINGLE

CEILING MOUNTED OCCUPANCY SENSOR. PROVIDE POWER SUPPLY AND

ISOLATION RELAY. SUBSCRIPT INDICATES LIGHTING FIXTURES TO BE

CEILING MOUNTED VACANCY SENSOR. PROVIDE POWER SUPPLY AND

ISOLATION RELAY, SUBSCRIPT INDICATES LIGHTING FIXTURES TO BE

DIMMING SWITCH. WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

SUBSCRIPT INDICATES LIGHTING FIXTURES TO BE CONTROLLED.

COMBINATION DUAL-TECH (ULTRASONIC AND PIR) VACANCY SENSOR AND 0-10V

NORMALLY-OFF CONCEALITE SELF-CONTAINED EMERGENCY LIGHTING FIXTURE

REFER TO ARCHITECTURAL DRAWINGS FOR SPECS. MOUNTING AND CHEVRONS

PROVIDE WITH 90-MINUTE BACKUP BATTERY AND INTEGRAL TEST SWITCH

LOW VOLTAGE TOUCH SCREEN. WALL MOUNTED IN A SINGLE GANG

COLOR DEVICE FOR EMERGENCY. 'TR' DENOTES TAMPER-RESISTANT.

COLOR DEVICE FOR EMERGENCY. 'TR' DENOTES TAMPER-RESISTANT.

HOSPITAL-GRADE QUAD RECEPTACLE. (TWO DUPLEX RECEPTACLES)

ELECTRICAL CONTRACTOR RESPONSIBLE FOR BACKBOXES, CONDUIT/STUB-UPS, DRAG LINES, ETC. DEVICES, FACEPLATES, AND FINAL CONNECTIONS SHALL BE INSTALLED BY OTHER/RUMC TELECOM AND SECURITY. COORDINATE LOCATIONS AND HEIGHTS WITH ARCHITECTURAL DRAWINGS.

TELEPHONE OUTLET

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

PROVIDE DRAG WIRE.

DATA OUTLET

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING. PROVIDE DRAG WIRE.

DATA/VOICE OUTLET WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING. PROVIDE DRAG WIRE.

DATA OUTLET

FLUSH MOUNTED IN SLAB FLOOR BOX SYSTEM
WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.
PROVIDE DRAG WIRE.

FLUSH MOUNTED IN SLAB FLOOR BOX SYSTEM WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING. PROVIDE DRAG WIRE.

TV OUTLET

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

PROVIDE DRAG WIRE.

DATA/VOICE OUTLET

SECURITY DEVICES

CARD READER

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

PROVIDE DRAG WIRE.

PUSH PAD FOR AUTOMATIC DOORS

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

PROVIDE DRAG WIRE.

ELECTRIC LOCK

WALL MOUNTED IN A SINGLE GANG OUTLET BOX.

WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

PROVIDE DRAG WIRE.

MOTION SENSOR
WALL MOUNTED IN A SINGLE GANG OUTLET BOX.
WITH 1"C. STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.
PROVIDE DRAG WIRE.

NURSE CALL SYSTEM DEVICES

ALL NURSE CALL INSTALLATIONS ARE TO BE COORDINATED WITH RUMC AND RUMC LOW VOLTAGE CONTRACTOR. ELECTRICAL CONTRACTOR RESPONSIBLE FOR BACK-BOX, CONDUIT, WIRING AND DEVICE INSTALLATIONS. GENERAL CONTRACTOR TO OVERSEE INSTALLATION, SCHEDULING, WARRANTY, ETC. CONTACT NURSE CALL VENDOR, EAST-COM SOLUTIONS (STEVE FILIPPONE) /WEST-COM NURSE CALL SYSTEM FOR INFORMATION AT 973-850-6444, STEVEF@EAST-COMSOLUTIONS.COM

NURSE CALL STAFF CONSOLE.

WALL MOUNTED MASTER STATION WITH TOUCH SCREEN.

PROVIDE 4-GANG BACKBOX WITH 3-GANG MUD RING RACO 822/952 WITH

1"C STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

MODEL #NV-DPM

NURSE CALL POWER SUPPLY, 120VAC.
TO BE LOCATED IN IT ROOM OR ELECTRICAL CLOSET.
PROVIDE 18/2 WIRING FROM POWER SUPPLY TO NURSE CALL STAFF
CONSOLE VIA 3/4"C.
MODEL #NV-PSM/1

NURSE CALL SINGLE PATIENT STATION. PROVIDE 4" SQUARE
BACKBOX WITH 1-GANG PLASTER RING. RACO 190 WITH 768
1-GANG ADAPTER OR EQUAL. PROVIDE WITH 1"C STUB-UP UP
TO 4" ABOVE ACCESSIBLE CEILING. PROVIDE CLASSIC CALL
CORDS PER DEVICE AT PATIENT BEDS. EXACT LENGTH OF CALL
CORDS TO BE DETERMINED BY RUMC.
MODEL #NV-VPS2

-N CB NURSE CALL CODE BLUE CALL (CB)
PROVIDE 1-GANG BOX WITH 1"C STUB-UP UP TO 4" ABOVE
ACCESSIBLE CEILING.
MODEL #NV-PBE2

-N SA NURSE CALL STAFF ASSIST DEVICE
PROVIDE 1-GANG BOX WITH 1"C STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

MODEL #NV-PBE2

NURSE CALL DOME LIGHT. 'C' DENOTES CEILING MOUNTED.

4.7" SQUARE BACK-BOX WITH TWO-GAUGE PLASTER RING. RACO
257 WITH 818 OR EQUIVALENT.

MODEL #NV-DOME2/V

MODEL #NV-EDUTY

-N SD NURSE CALL DUTY STATION
PROVIDE 1-GANG BOX WITH 1"C STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

NURSE CALL PULL FOR AID

DEVICE FOR TOILETS/SHOWER. PROVIDE PULL CORD.

PROVIDE 1-GANG BOX WITH 1"C STUB-UP UP TO 4" ABOVE ACCESSIBLE CEILING.

MODEL #NV-EPC2/AP, NVWPC2/AP

MISCELLANEOUS SYSTEM DEVICES

EMERGENCY PUSH OFF BUTTON
PROVIDE EACH DEVICE WITH CLEAR PLASTIC COVER.
SAFETY TECHNOLOGY INTERNATIONAL OR EQUAL.
MFR. MODEL # SS2231PO-EN
MUST BE APPROVED BY ARCHITECT AND RUMC

DS INTERLOCKING DOOR SWITCH/CONTACT.

SEE MODALITY VENDOR SITE SPECIFICS FOR WIRING REQUIREMENTS.

PROVIDE MCMASTER—CARR ROLLER LIMIT SWITCH MODEL# 7076k14

OR EQUIVALENT MOUNTED IN DOOR. COORDINATE WITH ARCHITECT.

IN-USE X-RAY IN USE LIGHT, WALL MOUNTED
120VAC POWERED THRU DOOR CONTACT AND BI-PLANE CONTROLLER
NOVA WARNING LIGHT, MODEL NEACT-ON, LED

X-RAY WARNING LIGHT CONTROLLER - SEE PART PLANS FOR GE SPECS. BEVCO/GE MODEL # E4502RL. TYPICAL FOR ALL

ECTURE

SCHUNKEWITZ

ARCHITECTURE

INTERIORS

PROJECT MANAGEMENT

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Seal & Signature

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05/23/2023 Issued for 100% CD's
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description

Client Name:

date

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

ELECTRICAL
ABBREVIATIONS AND
SYMBOL LIST

 SYMBOL LIST

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

MJR AS NOTED
Issued To, For:

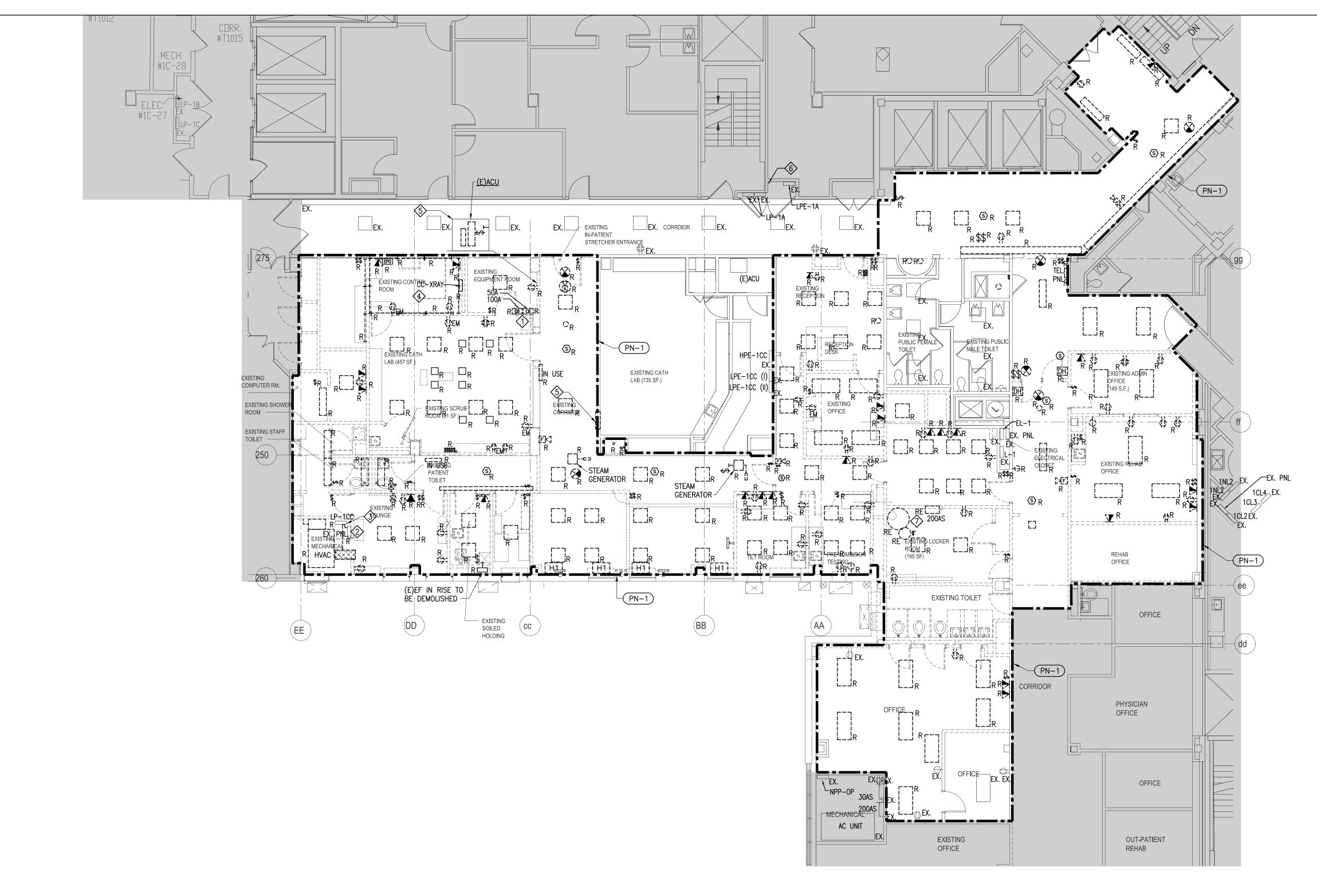
CONSTRUCTION DOCUMENTS

File No.: R2000
Drawing No.:

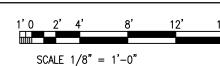
wing No.:

E-002.00

02 OF 23



2 FIRST FLOOR DEMOLITION PLAN
SCALE: 1/8" = 1'-0"



GENERAL NOTES

- 1. REFER TO DRAWING E-001.00 AND E-002.00 FOR FOR GENERAL NOTES, ABBREVIATIONS AND ELECTRICAL SYMBOLS.
- 2. ANY EXISTING CIRCUIT DISTURBED DURING DEMOLITION MUST BE TRACED AND PROPERLY IDENTIFIED ON THE PANELBOARD DIRECTORY. ANY PANELBOARD WHICH HAS MORE THAN 50% OF ACTIVE CIRCUITS DISTURBED MUST HAVE ALL ITS CIRCUITS FULLY TRACED AND EACH CIRCUIT IDENTIFIED ON THE PANELBOARD DIRECTORY. CONTRACTOR TO PROVIDE ALL CIRCUIT TRACING AND COORDINATE WITH RUMC FACILITIES.
- 3. ALL WORK SHALL BE AS PER BUILDING STANDARDS AND PHASED IN ACCORDANCE WITH ARCHITECTURAL AND CLIENT REQUIREMENTS.
- 4. COORDINATE WITH MECHANICAL AND PLUMBING CONTRACTOR/DRAWINGS FOR EXACT LOCATIONS, MOUNTING HEIGHTS, CLEARANCES, ETC. OF MECHANICAL AND PLUMBING EQUIPMENT.
- 5. EACH SUB-TRADE WILL BE RESPONSIBLE FOR REVIEWING ENTIRE SET OF DRAWINGS AND NOTING HIS WORK AS APPLICABLE. WORK INDICATED OR INFERRED ON DRAWINGS WILL BE DEEMED UNDERSTOOD AND SHOULD BE INCLUDED IN SUBCONTRACTOR'S COSTS. SAME SHALL APPLY TO G.C.
- 6. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS BETWEEN INSTALLATION OF DEVICES AND SUPPORTS WITH THE INSTALLATION OF MECHANICAL EQUIPMENT, CEILING STRUCTURES, ETC.

PLAN NOTES

PN-1 PERFORM A COMPLETE DEMOLITION AND REMOVAL OF THE ELECTRICAL SYSTEMS WITHIN THE LIMITS OF THE GUTTED SPACE AS FOLLOWS (UNLESS OTHERWISE NOTED):

- A. POWER SYSTEM:
- REMOVE FINAL CONNECTION TO ALL ELECTRICAL EQUIPMENT INCLUDING BUT NOT.
- LIMITED TO A/C UNITS, FANS, MOTORS, ETC.

 REMOVE ALL POWER EQUIPMENT INCLUDING BUT NOT LIMITED TO SAFETY SWITCHES,
- MOTOR STARTERS, CONTROL STATIONS, ETC.

 SURVEY, TRACE, IDENTIFY AND REMOVE FEEDERS INCLUDING BUT NOT LIMITED TO CONDUCTORS, CONDUIT, OUTLET BOXES, JUNCTION AND PULL BOXES, SUPPORTS,
- PROVIDE TEMPORARY POWER AND RE-FEED EXISTING POWER BRANCH CIRCUITS TO REMAIN.
- B. LIGHTING SYSTEM:
- REMOVE ALL LIGHTING FIXTURES AND EXIT SIGNS INCLUDING BUT NOT LIMITED TO FIXTURE HOUSINGS, PLASTER FRAMES, DIFFUSERS, LENSES, LAMPS, FIXTURE SUPPORTS, ETC.
- REMOVE ALL OUTLET BOXES.
 SURVEY, TRACE, IDENTIFY AND REMOVE ALL BRANCH WIRING INCLUDING BUT NOT LIMITED TO CONDUCTORS, CONDUIT, OUTLET BOXES, JUNCTION AND PULL BOXES,
- SUPPORTS, ETC.

 PROVIDE TEMPORARY POWER AND RE-FEED EXISTING LIGHTING BRANCH CIRCUITS TO REMAIN.
- C. WIRING DEVICES:
- REMOVE ALL WIRING DEVICES INCLUDING BUT NOT LIMITED TO RECEPTACLES, POWER STRIPS, DATA, PHONE AND A/V DEVICES AND
- CABLING, ETC.

 REMOVE ALL OUTLET BOXES AND COVER PLATES.

 SURVEY, TRACE, IDENTIFY AND REMOVE ALL BRANCH
- SURVEY, TRACE, IDENTIFY AND REMOVE ALL BRANC WIRING INCLUDING BUT NOT LIMITED TO CONDUCTORS, CONDUIT, OUTLET BOXES, JUNCTION
- AND PULL BOXES, SUPPORTS, ETC.

 PROVIDE TEMPORARY POWER AND RE-FEED EXISTING DEVICES AND EQUIPMENT
- OUTSIDE AREA OF WORK.

 REMOVE ALL WIRING DEVICES INCLUDING BUT NOT LIMITED TO LIGHTING SWITCHES,
- DIMMERS, ETC.
 REMOVE ALL OUTLET BOXES AND COVER PLATES.
- SURVEY, TRACE, IDENTIFY AND REMOVE ALL BRANCH WIRING INCLUDING BUT NOT LIMITED TO CONDUCTORS, CONDUIT, OUTLET BOXES, JUNCTION AND PULL BOXES, SUPPORTS, ETC.
- D. FIRE ALARM SYSTEM:
- REMOVE ALL EXISTING DEVICES ASSOCIATED WITH THE FIRE ALARM SYSTEM INCLUDING BUT NOT LIMITED TO MANUAL PULL STATIONS, SMOKE DETECTORS, HEAT DETECTORS, AUDIOVISUAL NOTIFICATION DEVICES, CONTROL MODULES, LOAD RELAYS,
- REMOVE ALL WIRING AND EXPOSED CONDUIT ASSOCIATED WITH THE FIRE ALARM

 SYSTEM
- REMOVAL OF THE EXISTING FIRE ALARM SYSTEM SHALL BE DONE AFTER THE NEW FIRE ALARM SYSTEM DEVICES UNDER THIS CONTRACT HAVE BEEN INSTALLED AND APPROVED BY THE FIRE DEPARTMENT.
- EXISTING FIRE ALARM SYSTEM SHALL REMAIN IN OPERATION AT ALL TIMES. ALL FIRE ALARM SYSTEM SHUTDOWNS, IF REQUIRED, SHALL BE COORDINATED WITH THE BUILDING MANAGEMENT IN ADVANCE TO ALLOW FOR ADEQUATE TIME FOR ANY TEMPORARY FIRE WATCHES TO BE SCHEDULED.
- EXISTING FIRE ALARM DEVICES SHALL BE MODIFIED TO ALLOW OPERATION DURING DEMOLITION AND CONSTRUCTION. REMOVE EXISTING CONDUITS AND SUPPORTS AND RE—INSTALL EXISTING DEVICES LOOSELY TO ALLOW NEW CONSTRUCTION TO TAKE PLACE. DEVICES SHALL BE REMOVED AT COMPLETION OF PROJECT.
- PROVIDE TEMPORARY HEAT DETECTOR COVERAGE WHILE SPRINKLER SYSTEM IS OUT OF COMMISSION AS PER NYCBC. PROVIDE HEAT DETECTORS AT CONSTRUCTION ENTRANCES. CONNECT TO EXISTING ADDRESSABLE LOOP ON THE FLOOR. EXTEND WIRING TO NEW DEVICE LOCATIONS AS NEEDED.

KEY NOTES

- DISCONNECT AND REMOVE EXISTING CIRCUIT BREAKERS AND MAINTAIN EXISTING FEEDER FOR REUSE.
- DISCONNECT AND REMOVE EXISTING PANEL WITH ASSOCIATED WIRING AND CONDUIT BACK TO SOURCE. EXISTING PANEL BRANCH CIRCUIT WIRING SHALL BE COMBINED WITH EXISTING PANEL LP-1CC IN NEW PANEL, IN NEW LOCATION. EXTEND BRANCH WIRING AND CONDUIT TO NEW LOCATION AS SHOWN ON POWER DRAWINGS. NEW BRANCH CIRCUIT BREAKERS SHALL MATCH EXISTING. REFER TO PANEL SCHEDULE FOR MORE INFORMATION.
- DISCONNECT AND REMOVE EXISTING PANEL LP-1CC. EXISTING FEEDER WIRING SHALL NEW EXTENDED TO NEW LOCATION. FURNISH AND INSTALL NEW PANEL LP-1CC AND COMBINE THE TWO EXISTING PANEL IN THE EXISTING MECHANICAL ROOM TO ONE NEW PANEL. EXTEND BRANCH WIRING TO NEW LOCATION. NEW BRANCH CIRCUIT BREAKERS SHALL MATCH EXISTING. COORDINATE POWER SHUT DOWN WITH HOSPITAL.
- DISCONNECT AND REMOVE EXISTING PANEL, BRANCH CIRCUITS AND FEEDER BACK TO SOURCE.
- DISCONNECT AND REMOVE EXISTING ALARM PANEL AND ALL ASSOCIATED CONDUIT, WIRING, SENSORS, ETC.
- 6 INTERCEPT EXISTING FEEDER PREVIOUSLY FED 3RD FLOOR PANEL LP-E3A-2. COORDINATED EXACT CONDUIT LOCATION WITH HOSPITAL ELECTRICIAN.
- CONTRACTOR SHALL PROVIDE CIRCUIT TRACING TO IDENTIFY SOURCE OF POWER FOR 200A/208V/3Ø ELECTRIC HOT WATER AND 20A/120V,1Ø RECIRC PUMP AND LEAK DETECTION SYSTEM. SUBMIT FINDINGS TO DESIGN TO TEAM. DISCONNECT AND REMOVE POWER FOR HEATER, DISCONNECT SWITCH, PUMP AND LEAK DETECTION AND REMOVE TO ABOVE CEILING. PROVIDE JUNCTION BOX AND EXTEND EXISTING CIRCUITS FOR EQUIPMENT TO NEW WATER HEATER ROOM. PROVIDE ALL NEW WIRING/CONDUIT TO NEW LOCATION. MATCH EXISTING. COORDINATE SHUTDOWNS/PHASING WITH THE FUTURE OR RELOCATION PROJECT AND PLUMBING AND RUMC FACILITIES.

SCHUNKEWITZ

ARCHITECTURE

NOTIFICION

INTERIORS

PROJECT MANAGEMENT

DANIEL SCHUNKEWITZ, ARCHITECT 1015 BENDERMERE AVENUE WANAMASSA NJ, 07712 917-848-2350 DS@DSAHEALTHCARE.COM

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1 03/31/2023 DD Review Set
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Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

Drawing No.:

E-102.00

ELECTRICAL DEMOLITION
1ST FLOOR PART PLAN

 Drawn By:
 Date:

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 05/23/2023

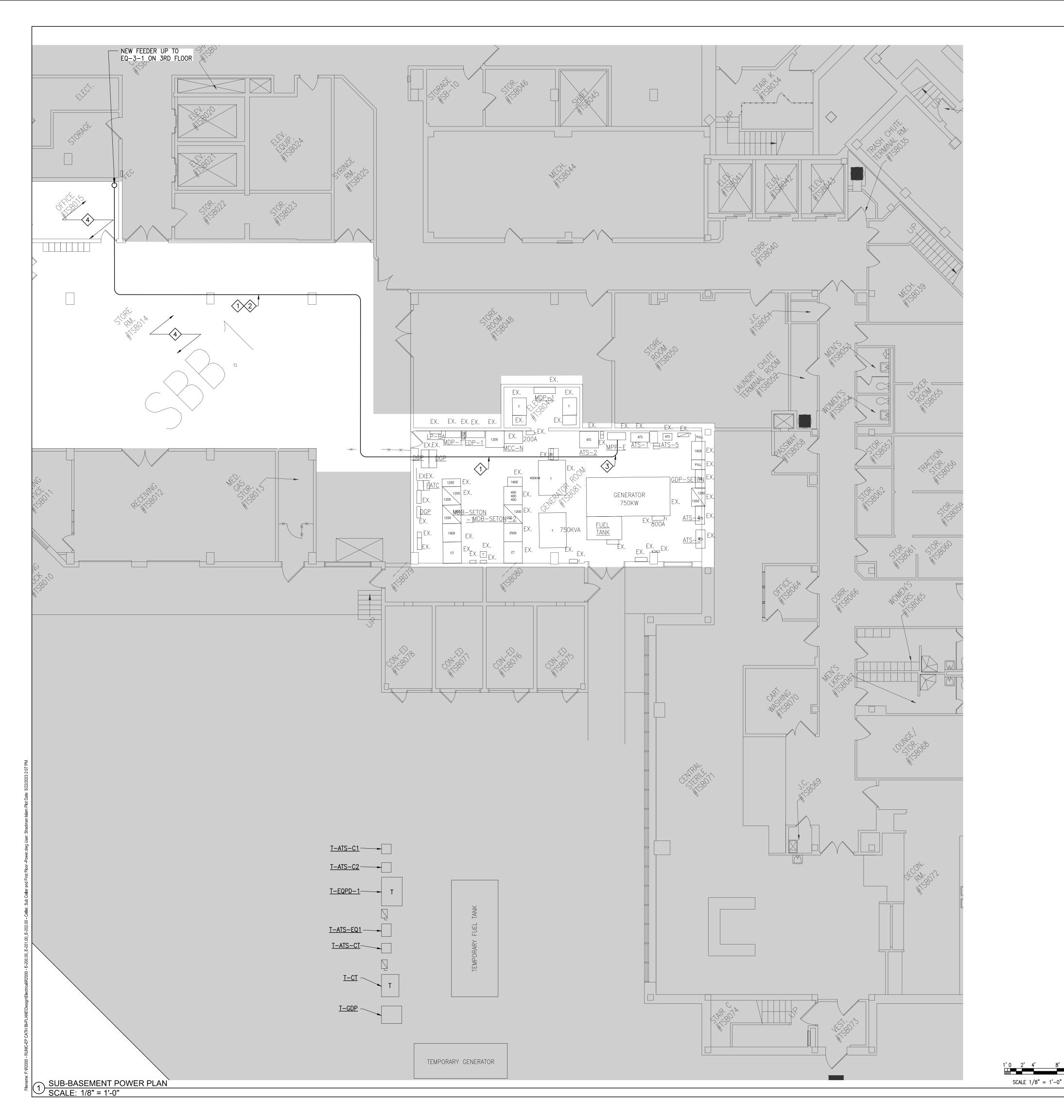
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CONSTRUCTION DOCUMENTS
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03 OF 23



- 1. REFER TO DRAWING E-001.00 AND E-002.00 FOR FOR GENERAL NOTES, ABBREVIATIONS AND ELECTRICAL SYMBOLS.
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POWER KEY NOTES

- RUN CONDUIT AS CLOSE AS POSSIBLE TO CEILING SLAB. EXACT CONDUIT ROUTING SHALL BE COORDINATED IN FIELD.
- NEW 200A FEEDER FROM MPP-E SHALL BE INSTALLED ABOVE STORAGE ROOM ADJACENT TO EXISTING 3-1/2"C CONDUIT SERVING EDP-2FL.
- NEW 200A FEED FROM EXISTING 150A FUSED 'BOILER' SWITCH FROM MPP-E UP TO 3RD FLOOR FOR EQ-3-1.
- CONTRACTOR SHALL REMOVE AND REPLACE EXISTING LIGHTING AND CEILING AS REQUIRED FOR NEW WORK IN THIS AREA. PROVIDE ALLOWANCE OF \$10,000.

SCHUNKEWITZ

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date

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL SUB-BASEMENT

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 Date:

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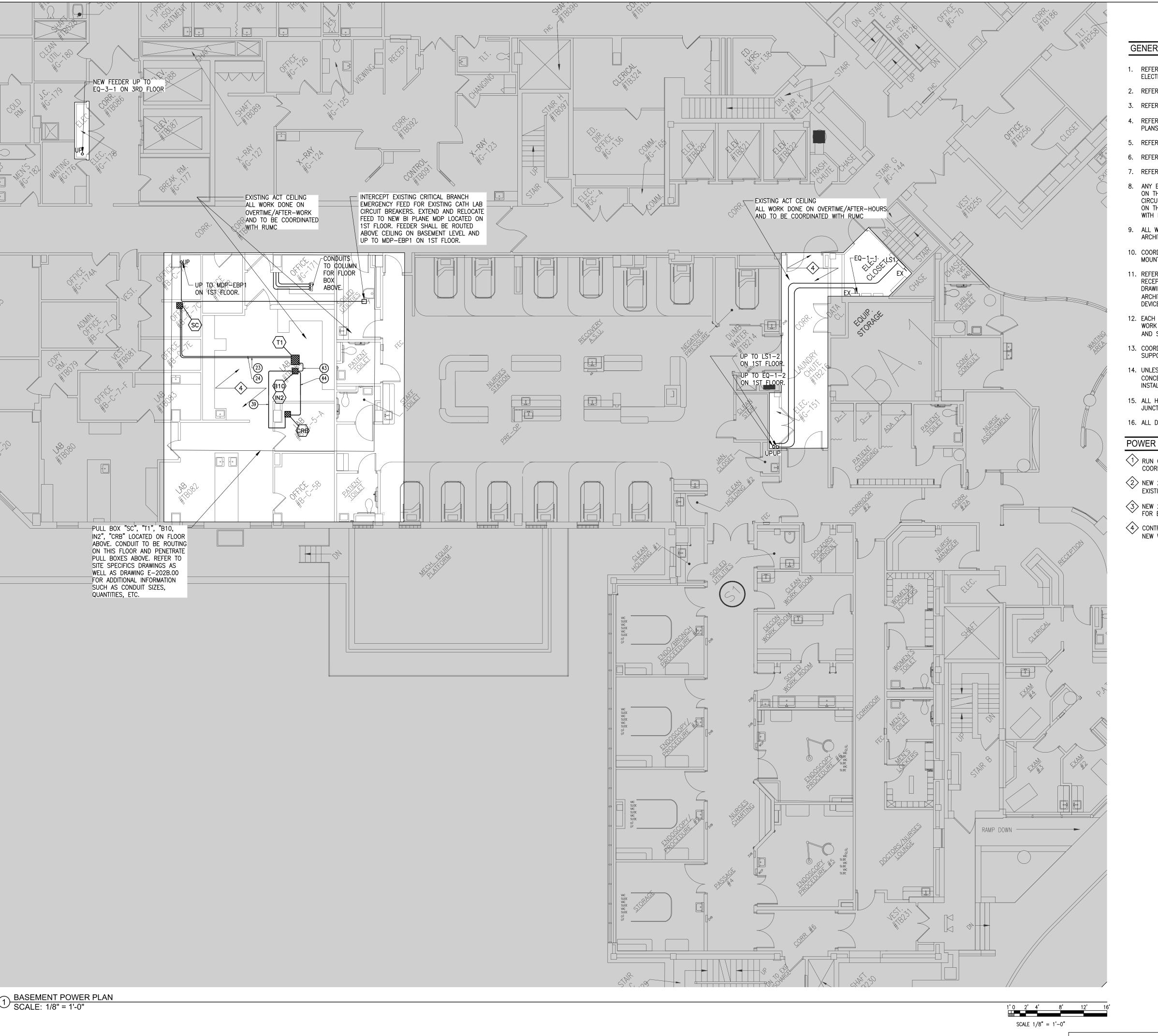
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RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL BASEMENT FLOOR PLAN

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 Date:

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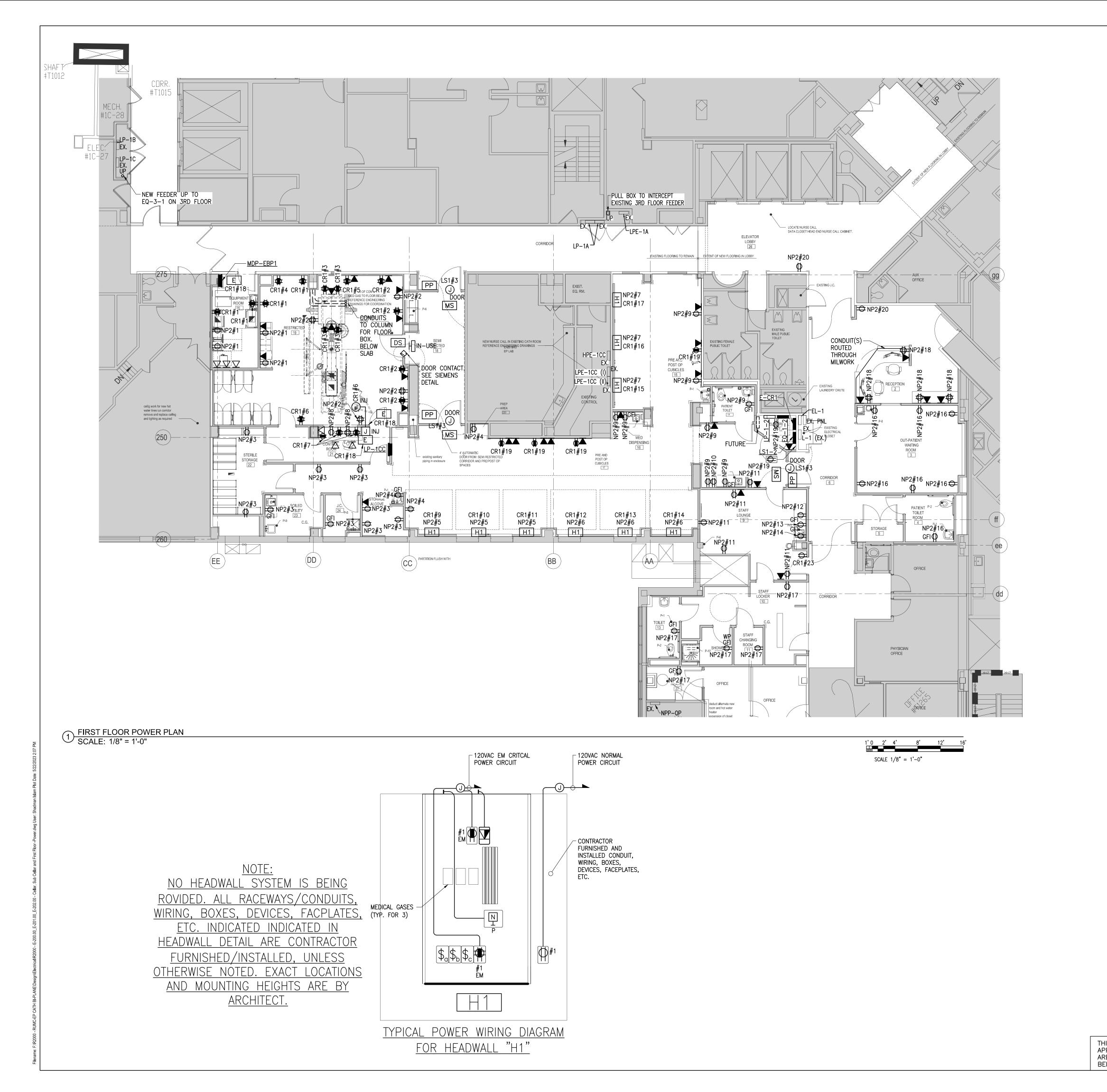
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CR1#1 - PANEL E-CR1, BRANCH CIRCUIT #1NP1#1 - PANEL <u>LP-1CC</u>, BRANCH CIRCUIT #1
NP2#1 - PANEL <u>LP-1-2</u> BRANCH CIRCUIT #1
EQ1#1 - PANEL <u>EQ-1-2</u>, BRANCH CIRCUIT #1

LS1#1 - PANEL LS1-2, BRANCH CIRCUIT #1

POWER NOTES

- NEW DUPLEX RECEPTACLES SHALL BE PROVIDED AS NECESSARY TO MEET THE POWER REQUIREMENTS OF EACH SPACE AS FOLLOW:
- a. DUPLEX RECEPTACLES WILL BE HOSPITAL GRADE, 20-120V, NEMA 5-20R RECEPTACLES UNLESS OTHERWISE INDICATED HEREIN.
- b. AT A MINIMUM (2) DUPLEX RECEPTACLE RECEPTACLE (ONE FOR COMPUTER AND ONE FOR CONVENIENCE) AND (1) TEL/DATA OUTLET SHALL BE PROVIDED AT THE EACH WORKSTATION IN NURSE STATIONS, TOUCH DOWN, RECEPTIONS AND OFFICES.
- c. RECEPTACLES LOCATED WITHIN 6'-0" OF A SINK SHALL HAVE GFCI PROTECTION. WHERE MULTIPLE GFI RECEPTACLES ARE CONNECTED TO THE SAME BRANCH CIRCUIT, CONTRACTOR SHALL PROVIDE (1) GFI RECEPTACLE AND CONNECT ADDITIONAL DEVICES TO THE LOAD-SIDE OF DEVICE IN LIEU OF PROVIDING ADDITIONAL GFI DEVICES.
- d. ALL RECEPTACLES IN PUBLIC SPACES SUCH AS CORRIDORS, EXAM ROOMS, RESTROOMS, ETC. SHALL BE TAMPER RESISTANT TYPE.

SCHUNKEWITZ

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INTERIORS

PROJECT MANAGEMENT

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Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

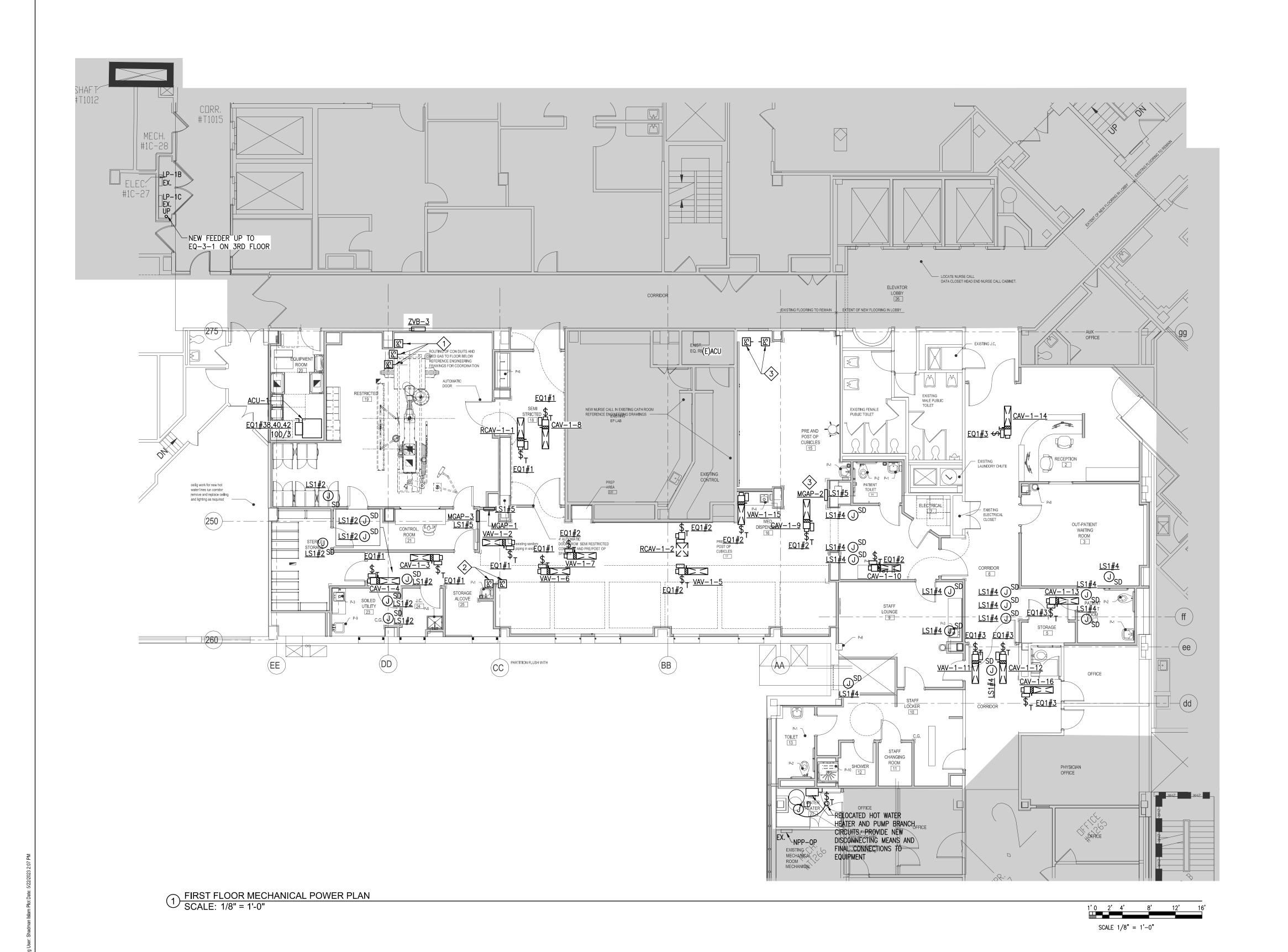
Drawing Title:

ELECTRICAL 1ST FLOOR POWER PLAN

05/23/2023 Checked By: MJR AS NOTED Issued To, For:

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File No.: R2000 06 OF 23 E-202.00



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EQ1#1 - PANEL EQ-1-2, BRANCH CIRCUIT #1 LS1#1 - PANEL LS1-2, BRANCH CIRCUIT #1

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- c. ALL RECEPTACLES IN PUBLIC SPACES SUCH AS CORRIDORS, EXAM ROOMS, RESTROOMS, ETC. SHALL BE TAMPER RESISTANT TYPE.
- d. RECEPTACLES LOCATED IN MECHANICAL ROOMS AND ROOF SHALL BE INSTALLED IN A WEATHER-RESISTANT ENCLOSURE.

CIRCUITING NOTES

- 1. MAXIMUM OF 6 CONVENIENCE RECEPTACLE OUTLETS ON A SINGLE 1P-120V-20A CIRCUIT BREAKER.
- 2. CIRCUITING CRITERIA FOR EQUIPMENT WILL BE AS FOLLOWS:
- BRANCH CIRCUITS SERVING VAVS, RATED FOR 20-AMP, 120-VOLT, 1-PHASE, WILL BE
 PROVIDED FOR EVERY (6) VAVS WITH LOCAL DISCONNECTING MEANS. REFER TO MECHANICAL
 DRAWINGS FOR EXACT LOCATIONS AND QUANTITIES.
- BRANCH CIRCUITS SERVING FSDs AND MOTORIZED DAMPERS, RATED FOR 20-AMP, 120-VOLT, 1-PHASE, WILL BE PROVIDED FOR EVERY (8) DAMPERS. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND QUANTITIES
- BRANCH CIRCUITS SERVING LRCPs, RATED FOR 20-AMP, 120-VOLT, 1-PHASE, WILL BE PROVIDED FOR EVERY (6) LRCP WITH LOCAL DISCONNECTING MEANS. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION AND QUANTITIES.
- LARGE HVAC/PLUBMING EQUIPMENT WILL HAVE DEDICATED BRANCH CIRCUITS, RATING AS INDICATED ON PLANS WITH MATCHING OVER—CURRENT PROTECTION DEVICES FOR EACH

KEY NOTES

EQUIPMENT.

- PROVIDE 6#18-3/4"C OR (3) PAIRS OF TWISTED SHIELD #18AWG IN 3/4"C FROM MGAP-3 TO (3) PRESSURE SENSORS/TRANSDUCERS.
- PROVIDE 4#18-3/4"C OR (2) PAIRS OF TWISTED SHIELD #18AWG IN 3/4"C FROM MGAP-1 TO (2) PRESSURE SENSORS/TRANSDUCERS.
- PROVIDE 4#18-3/4"C OR (2) PAIRS OF TWISTED SHIELD #18AWG IN 3/4"C FROM MGAP-2 TO (2) PRESSURE SENSORS/TRANSDUCERS.

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Drawing No.:

ELECTRICAL 1ST FLOOR MECHANICAL POWER PLAN

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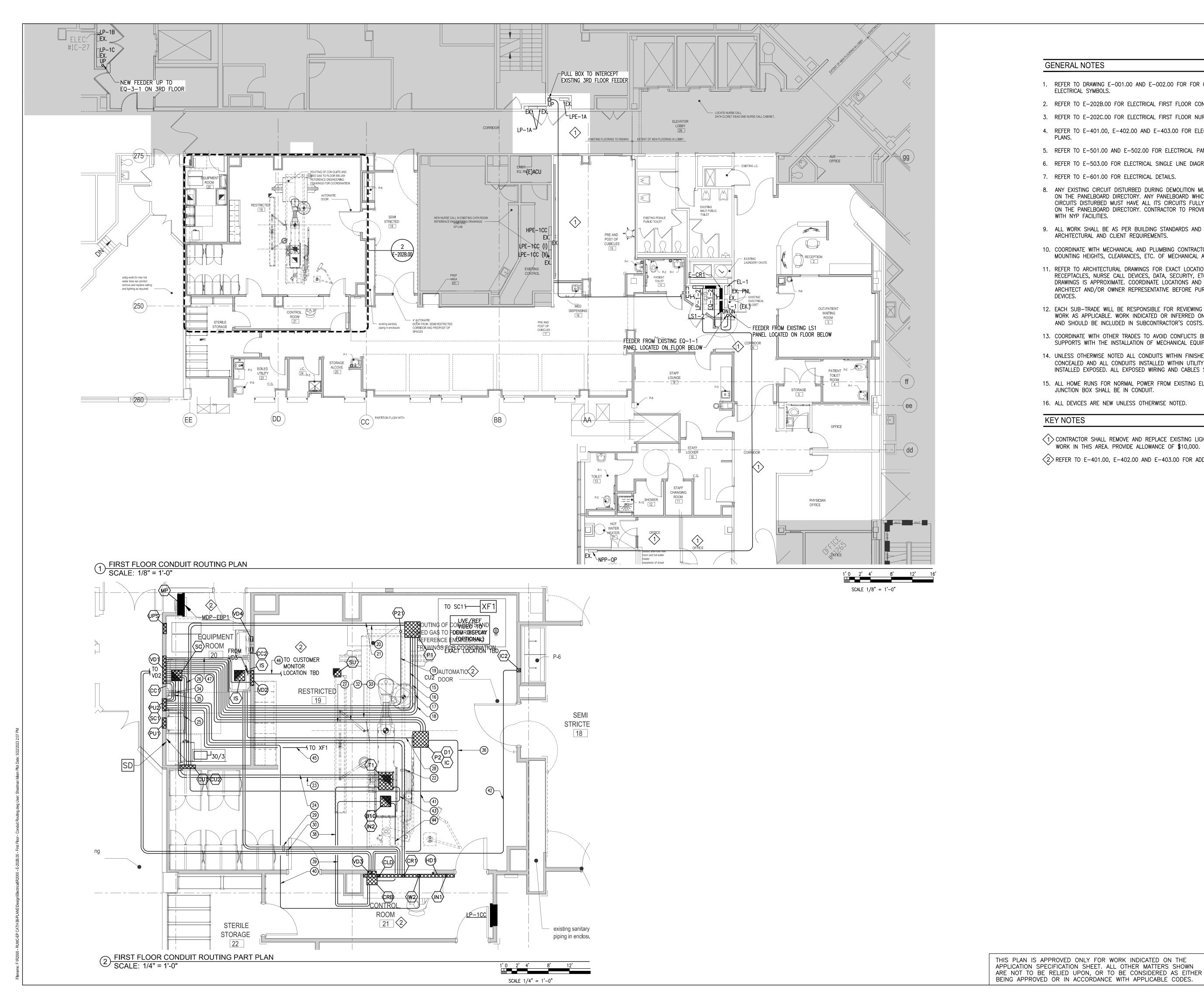
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07 OF 23

THE SHOWN S EITHER



- 1. REFER TO DRAWING E-001.00 AND E-002.00 FOR FOR GENERAL NOTES, ABBREVIATIONS AND ELECTRICAL SYMBOLS.
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- 3. REFER TO E-202C.00 FOR ELECTRICAL FIRST FLOOR NURSE CALL PLAN.
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- 5. REFER TO E-501.00 AND E-502.00 FOR ELECTRICAL PANEL SCHEDULES.
- 6. REFER TO E-503.00 FOR ELECTRICAL SINGLE LINE DIAGRAM.
- 7. REFER TO E-601.00 FOR ELECTRICAL DETAILS.
- 8. ANY EXISTING CIRCUIT DISTURBED DURING DEMOLITION MUST BE TRACED AND PROPERLY IDENTIFIED ON THE PANELBOARD DIRECTORY. ANY PANELBOARD WHICH HAS MORE THAN 50% OF ACTIVE CIRCUITS DISTURBED MUST HAVE ALL ITS CIRCUITS FULLY TRACED AND EACH CIRCUIT IDENTIFIED ON THE PANELBOARD DIRECTORY. CONTRACTOR TO PROVIDE ALL CIRCUIT TRACING AND COORDINATE WITH NYP FACILITIES.
- 9. ALL WORK SHALL BE AS PER BUILDING STANDARDS AND PHASED IN ACCORDANCE WITH ARCHITECTURAL AND CLIENT REQUIREMENTS.
- 10. COORDINATE WITH MECHANICAL AND PLUMBING CONTRACTOR/DRAWINGS FOR EXACT LOCATIONS, MOUNTING HEIGHTS, CLEARANCES, ETC. OF MECHANICAL AND PLUMBING EQUIPMENT.
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- 15. ALL HOME RUNS FOR NORMAL POWER FROM EXISTING ELECTRIC CLOSET(S) TO THE FIRST JUNCTION BOX SHALL BE IN CONDUIT.
- 16. ALL DEVICES ARE NEW UNLESS OTHERWISE NOTED.

KEY NOTES

- (1) CONTRACTOR SHALL REMOVE AND REPLACE EXISTING LIGHTING AND CEILING AS REQUIRED FOR NEW WORK IN THIS AREA. PROVIDE ALLOWANCE OF \$10,000.
- 2 REFER TO E-401.00, E-402.00 AND E-403.00 FOR ADDITIONAL INFORMATION IN THIS AREA.

SCHUNKEWITZ

ARCHITECTURE

INTERIORS

PROJECT MANAGEMENT

DANIEL SCHUNKEWITZ, ARCHITECT 1015 BENDERMERE AVENUE WANAMASSA NJ, 07712 917-848-2350 DS@DSAHEALTHCARE.COM

Seal & Signature

Lilker Associates Mechanical and Electrical Engineers

1001 Avenue of the Americas New York, NY 10018 tel 212.695.1000

fax 212.695.1299

Issued for 100% CD's 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL 1ST FLOOR CONDUIT ROUTING PLAN

05/23/2023 Checked By: AS NOTED

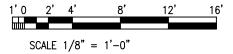
Issued To, For: CONSTRUCTION DOCUMENTS

File No.: R2000

08 OF 23 E-202B.00



1 FIRST FLOOR NURSE CALL PLAN SCALE: 1/8" = 1'-0"



NURSE CALL SYSTEM BASIS OF DESIGN FOR THIS PROJECT IS WEST-COM TONE/VISUAL. RUMC TO PURCHASE SYSTEM, CONTRACTOR TO FURNISH AND INSTALL.

GENERAL NOTES

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Lilker Lilker

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1 03/31/2023 DD Review Set
no. date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL NURSE CALL
1ST FLOOR PLAN

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

 MJR
 AS NOTED

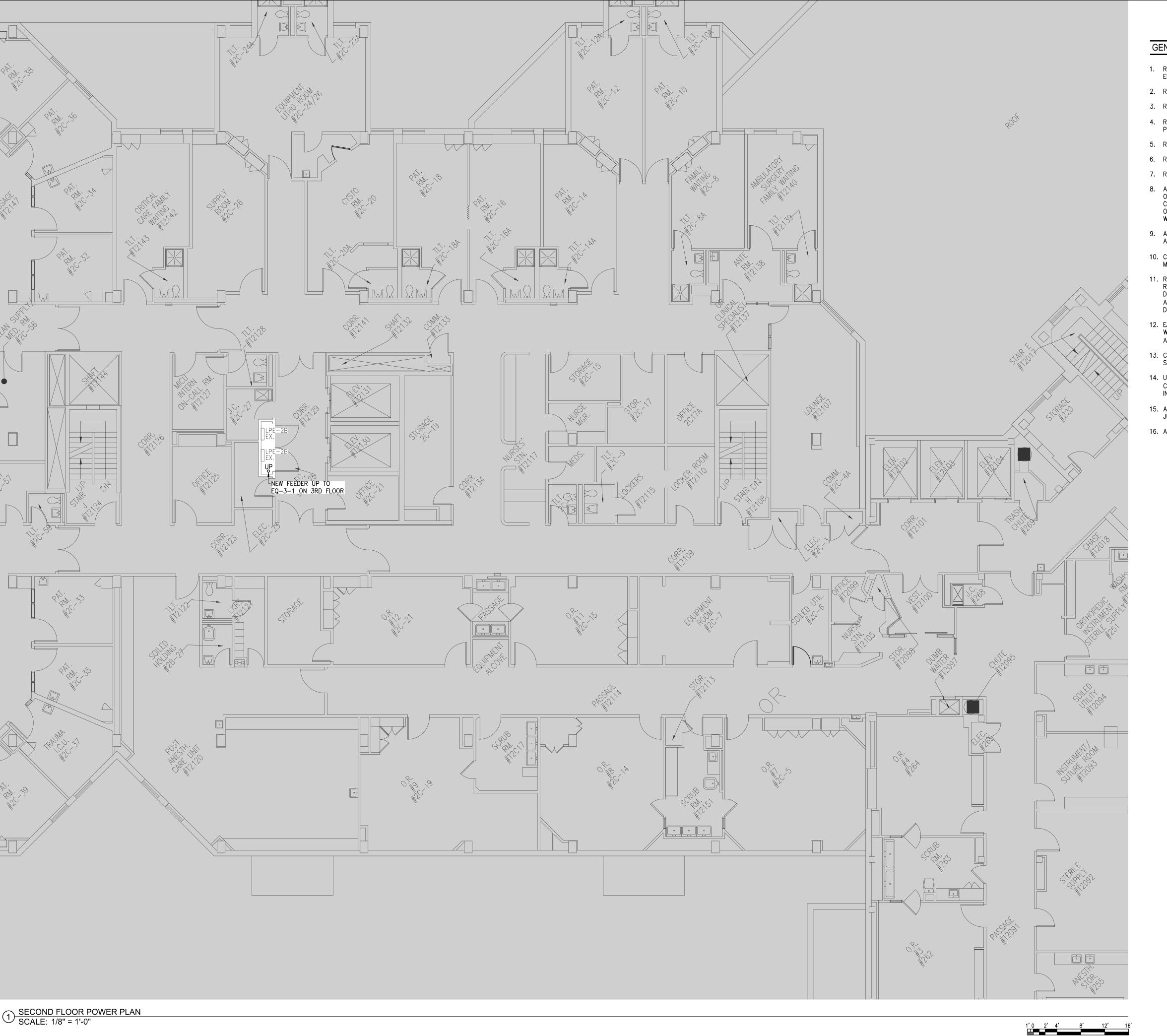
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09 OF 23

File No.: R2000
Drawing No.:

E-202C.00



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no. date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL 2ND FLOOR POWER PLAN

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

 MJR
 AS NOTED

sued To, For:

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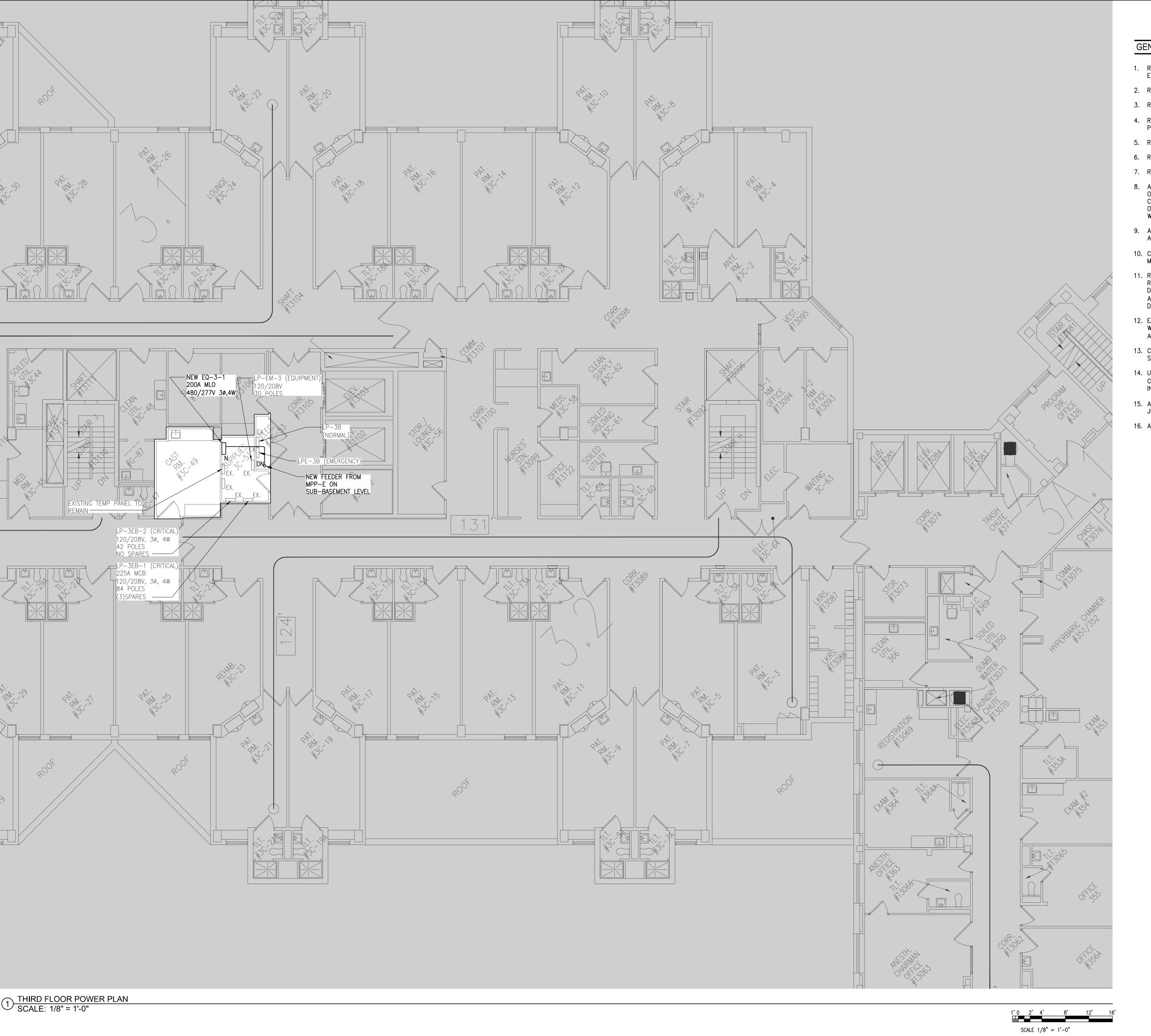
10 OF 23

File No.: R2000

E-203.00

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

SCALE 1/8" = 1'-0"



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Lilker

05/23/2023 Issued for 100% CD's 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL 3RD FLOOR POWER PLAN

 Drawn By:
 Date:

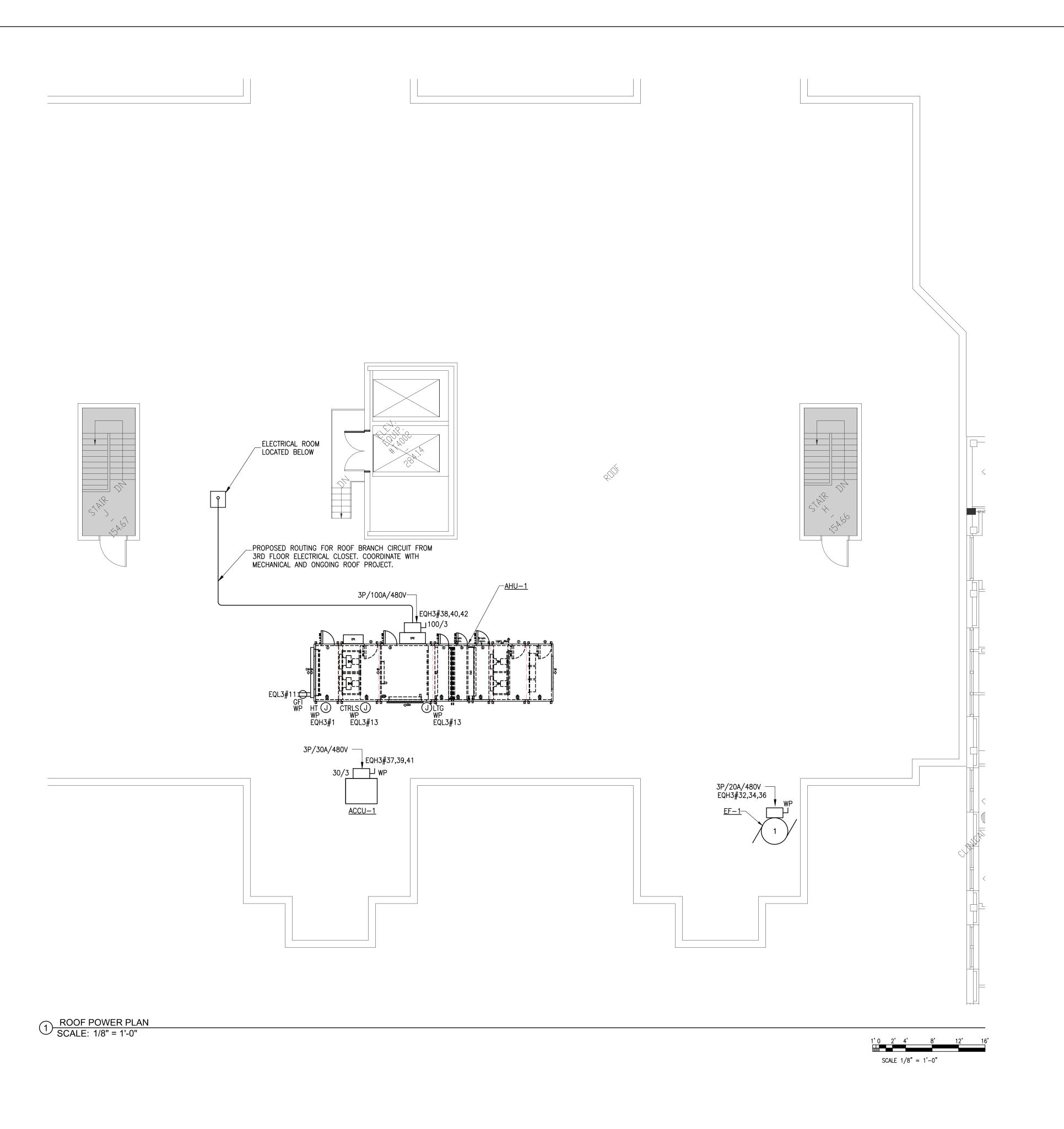
 SSI
 05/23/2023

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MJR AS NOTED led To, For:

CONSTRUCTION DOCUMENTS

e No.: R2000 awing No.: E-204.00



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- 17. CIRCUITING NUMBERS ARE DIAGRAMMATIC AND INDICATE CIRCUIT INTENT ONLY. RUN CIRCUITS TO SPARE CIRCUIT BREAKERS IN PANELS INDICATED. FIELD CONDITIONS PREVAIL. UPDATE PANEL SCHEDULE DIRECTORY AFTER COMPPLETION OF WORK. ALL CIRCUITS SHALL BE ENERGIZED FROM THE PANELS ACCORDING TO THE FOLLOWING PANEL LEGEND:

EQH3#1- PANEL <u>EQ-3-1</u>, BRANCH CIRCUIT #1 EQL3#1- PANEL <u>LP-EM-3</u>, BRANCH CIRCUIT #1

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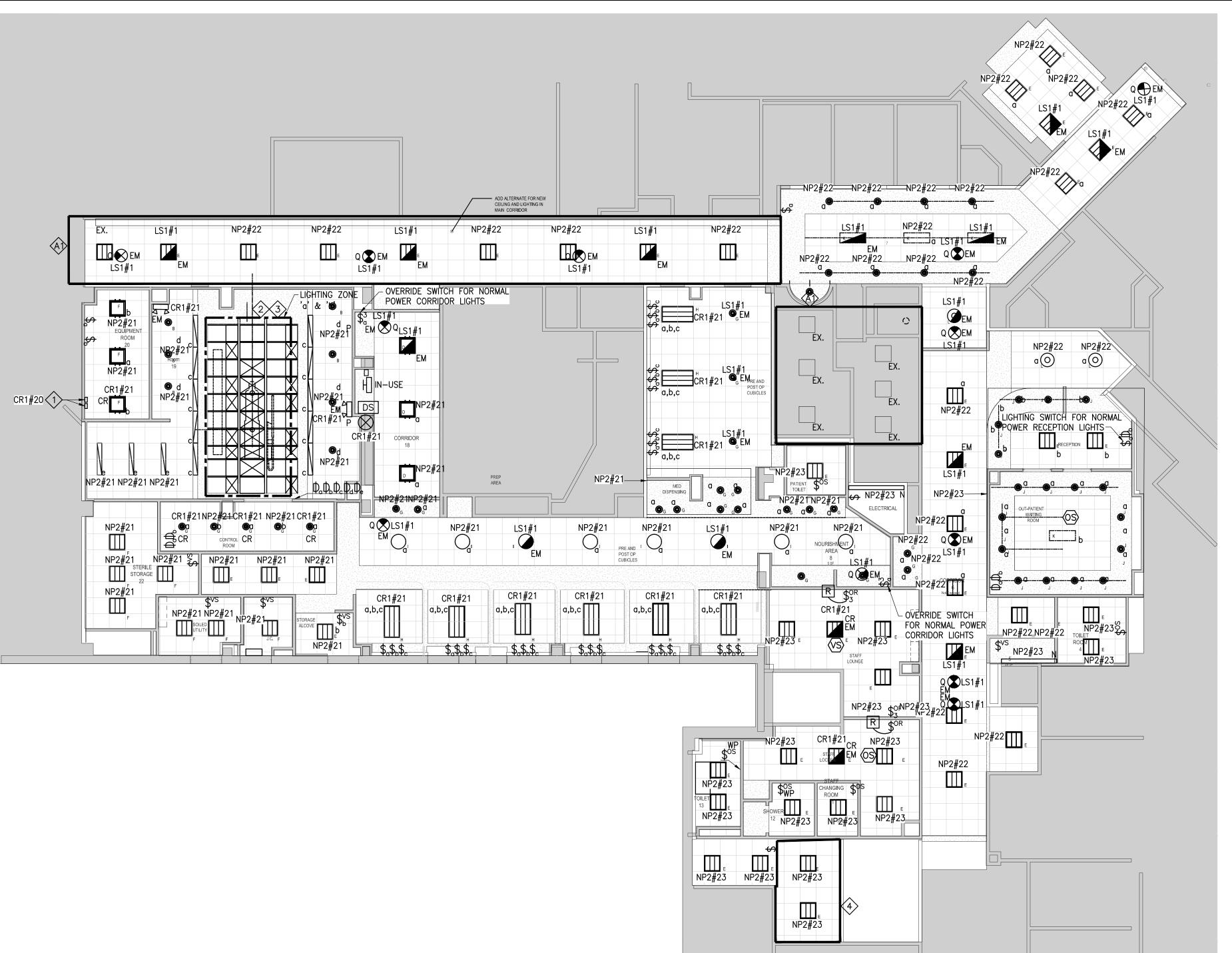
ROOF POWER PLAN

Drawn By:	Date:
SSI	05/23/2023
Checked By:	Scale:
MJR	AS NOTED

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le No.: R2000 rawing No.: 12 OF 23



2 LIGHTING 1ST FLOOR PLAN SCALE: 1/8" = 1'-0"

rte:	03/14/23					page 1
	Manufacturer	Voltage	Wattage	Dimmin	gSpecification	Description
Α	KENALL	120V	100W		M4SEDI- SIZE-100-35K8-DCC-VOLT-2F-4H	2' x 4' NON -IC RECESSED CELLING MOUNTING INTO GRD AND FLANGE APPLICATION TYOES
В	KENALL	120-277V	21W	0-10V	MYDL6-NF-DCFW-22L-35K8-M-FW-T-RIS6-DV-DIM1	6" SEALED, RECESSED DOWNLIGHT WITH REGRESSED OR FLUSH LENS TRIM
Ь	KLNALL	120-2110	2100	0-100	WITDLO-NI -DCI W-ZZL-33KO-WI-I W-1-KI30-DV-DIWIT	0 SEALED, RECESSED DOWNEIGHT WITH REGRESSED OR 1 EOSH EEINS TRIM
С	KENALL	120V	38W	0-10V	M4SEDI- SIZE-38-35K8-DCC-VOLT-2F-4H	1' x 4' NON -IC RECESSED CELLING MOUNTING INTO GRD AND FLANGE APPLICATION TYOES
D	KENALL	120V	75W	0-10V	M4SEDI- SIZE-75-35K8-DCC-VOLT-2F-4H	2' x 2' NON -IC RECESSED CELLING MOUNTING INTO GRD AND FLANGE APPLICATION TYOES
E	PHILIPS	120-277V	38W	0-10V	2EVG-3800LH-855-4-D-UNV-DIM-AG	DAYBRIGHT CFI-CESSED-EVOGRID 2' X 2' FOR CORRIDORS AND PATIENT CARE AREAS
F	HONYA LIGHTING	120-277V	3W	0-10V	HY-PB-24P-3W3CCT	2' x 4' FLAT LED BACK-LIT LIGHT FOR SUPPORT AREAS
G	COOPER LIGHTING SOLUTIONS	120-277V	15W	0-10V	LD24B-15-DIM-EU4B-1020-3500-4LBPS	PORTFOLIO RECESSED DOWN LIGHTS IN SOFFIT AREAS AND LAY CEILINGS
Н	KENALL	120-277V	45/90W	0-10V	LD24B-15-DIM EU4B-1020-3500-4LBPS	CEILING MOUNT-RECESSED. RECESSED GRID, RECESSED FLANGE OR SURFACE PATIENT ROOM LIGHT.
1	CONTECH LIGHTING	120-277V	20W	0-10V	ASMR930KCMVD1-W	9-INCH ARCHTHING SURFCE MOUNTED
J	GOTHAM LIGHTING	120-277V	24W	0-10V	TBD	6" EVO SERIES ROUND DOWNLIGHT
K	LIGHTOLOGY	120-277V	57W	0-10V	WAC615613	INTERLACE OVAL PENDANT IS ETERNALLY WAVING BANDS OF LIGHT. DAMP LOCATION RATED. JA8-2016
		120 277 7	0111	0 101	Wheeleele	INTEREST OF THE PROPERTY OF TH
L	LIGHTOLOGY	120V	33W	0-10V	AFX1084701	ORION LED FLUSH MOUNT CEILING LIGHT
M	JUNO	120V	50W	0-10V	MR16 IC44N	JUNO SPOT PIN LIGHT CEILING RECESSED
N	LITHONIA	120V	42W	0-10V	ZL2N-L48-3000LM-MDD-MVOLT-35K-80CRI-WH-HC36	4' LED INDUSTRIAL STRIP LIGHT
0	LITHONIA	120V	2W	N/A	SIGNATURE LE SERIES	IN USE LIGHT
Р	LITHONIA	120V	2W	N/A	EU2 SERIES, TELESIS CML SERIES, LED 90 SERIES	SELF CONTAINED LED EMERGENCY LIGHTING BATTERY UNIT
		10				
Q	LITHONIA	120V	2W	N/A	EDGNY/EDGRNY-XX-R-ACCESSORIES	NYC CODE-ILLUMINATED EXIT SIGN - EDGE LIT AC/DC TYPE

SEED TO DOM!!!

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- 7. REFER TO E-601.00 FOR ELECTRICAL DETAILS.
- 8. REFER TO ARCHITECTURAL DRAWINGS FOR SPECIFICATION OF LIGHT FIXTURES. COORDINATE WITH ARCHITECT FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES, AND LIGHTING CONTROLS. INFORMATION SHOWN IN ELECTRICAL DRAWINGS IS APPROXIMATE.
- 9. COORDINATE SWITCHES LOCATIONS AND COVER PLATES FINISHES WITH THE ARCHITECT AND/OR OWNER REPRESENTATIVE BEFORE PURCHASING AND INSTALLATION OF SUCH DEVICES.
- 10. WHERE MULTIPLE SWITCHES ARE INDICATED AT THE SAME LOCATION, THEY SHALL BE GANGED TOGETHER AND MOUNTED BEHIND A COMMON FACE PLATE.
- 11. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS BETWEEN INSTALLATION OF LIGHTING FIXTURES AND SUPPORTS WITH THE INSTALLATION OF MECHANICAL EQUIPMENT, CEILING STRUCTURES, ETC.
- 12. PROVIDE ALL NECESSARY FIXTURE ACCESSORIES REQUIRED TO CONFORM TO CEILING CONSTRUCTION FOR INSTALLATION OF RECESSED AND SEMI RECESSED FIXTURES INCLUDING BUT NOT LIMITED TO PLASTER FRAMES, FLANGES, TRIM RINGS, ETC. CONTRACTOR TO VERIFY THAT THE LIGHT FIXTURE ACCESSORY SPECIFIED IS COMPATIBLE WITH CEILING GRID, CEILING TILE AND CEILING CONSTRUCTION SPECIFIED.
- 13. CONTRACTOR TO BE RESPONSIBLE FOR THE PROPER AND SAFE MOUNTING AND SUPPORT OF ALL LIGHTING FIXTURES. PROVIDE ALL ITEMS (STEMS, HANGERS, RODS, INSERTS, BOXES, BRACKETS, YOKES, CHANNELS, FRAMES, ETC.) REQUIRED TO ADEQUATELY AND SAFELY SUPPORT EACH LIGHTING FIXTURE IN AND APPROVED MANNER.
- 14. ALL NEW LIGHTING FIXTURES SHALL BE IN COMPLIANCE WITH THE 2022 NYC ENERGY CONSERVATION CODE AND LATEST IES STANDARDS. FIXTURE SELECTIONS BY ARCHITECT.
- 15. ALL WORK IN THE CORRIDOR SHALL BE DONE AFTER HOUR BASIS.
- 16. ALL DEVICES ARE NEW UNLESS OTHERWISE NOTED.
- 17. LIGHTING FIXTURES LABELED AS "EM" SHALL BE ON EMERGENCY LIFE SAFETY BRANCH POWER.
- 18. LIGHTING FIXTURES LABELED AS "CR" SHALL BE ON CRITICAL BRANCH POWER.
- 19. LIGHTING FIXTURES LABELED AS "EM-B" SHALL BE PROVIDED WITH BACK-UP BATTERY PACK AND TEST SWITCH. PROVIDE UN-SWITCHED HOT CONDUCTOR TO EACH FIXTURE.
- 20. CIRCUITING NUMBERS ARE DIAGRAMMATIC AND INDICATE CIRCUIT INTENT ONLY. RUN CIRCUITS TO SPARE CIRCUIT BREAKERS IN PANELS INDICATED. FIELD CONDITIONS PREVAIL. UPDATE PANEL SCHEDULE DIRECTORY AFTER COMPPLETION OF WORK. ALL CIRCUITS SHALL BE ENERGIZED FROM THE PANELS ACCORDING TO THE FOLLOWING PANEL LEGEND:
 - CR1#1 PANEL <u>E-CR1</u>, BRANCH CIRCUIT #1 NP2#1 PANEL <u>LP-1-2</u> BRANCH CIRCUIT #1
 - EQ1#1 PANEL $\underline{EQ-1-2}$, BRANCH CIRCUIT #1 LS1#1 PANEL $\underline{LS1-2}$, BRANCH CIRCUIT #1
- 21. THE NEW CLEAN CEILING SYSTEM SHALL BE PROVIDED BY CM AND INSTALLED BY MECHANICAL CONTRACTOR. THE SYSTEMS SHALL BE EQUIPPED WITH LAMINAR FLOW DIFFUSERS, HEPA FILTERS, LIGHTING, ETC. REFER TO THE ARCHITECTURAL DRAWINGS FOR DETAILS

LIGHTING CONTROL NOTES

- 1. EXIT LIGHTS AND EM EGRESS LIGHTS SHALL REMAIN UN-SWITCHED AND ON 24 HOURS A DAY, 7 DAYS A WEEK.
- 2. OFFICE, CONFERENCE ROOMS AND STORAGE ROOMS SHALL BE CONTROLLED BY CEILING MOUNTED DUAL TECHNOLOGY VACANCY SENSOR(S) WITH POWER PACK AND OVERRIDE DECORA—STYLE DIMMER SWITCH. SMALLER ROOMS SHALL BE CONTROLLED BY WALL MOUNTED LINE VOLTAGE COMBINATION DIMMER SWITCH WITH INTEGRATED DUAL TECHNOLOGY VACANCY SENSORS.
- 3. CORRIDOR SPACES, AREAS OPEN TO CORRIDORS AND WAITING AREAS SHALL BE CONTROLLED BY CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSORS WITH POWER PACKS AND OVERRIDE DECORA-STYLE SWITCH.
- 4. TOILET ROOMS, RESTROOMS AND LOCKER/CHANGING ROOMS SHALL BE CONTROLLED BY CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSORS WITH POWER PACKS AND OVERRIDE DECORA—STYLE TOGGLE SWITCH. SMALLER ROOMS SHALL BE CONTROLLED BY WALL MOUNTED LINE VOLTAGE COMBINATION DIMMER SWITCH WITH INTEGRATED DUAL TECHNOLOGY OCCUPANCY SENSORS.
- 5. EXAM ROOMS, LABORATORIES, IMAGING ROOMS, CONTROL ROOM, PATIENT BED AREAS AND RECEPTION AREAS SHALL BE CONTROLLED BY LINE VOLTAGE DECORA—STYLE DIMMER SWITCH.
- 6. ARCHITECTURAL ACCENT LIGHTING SHALL BE CONTROLLED BY LINE VOLTAGE DECORA-STYLE DIMMER
- 7. TASK LIGHTING SHALL BE CONTROLLED BY DECORA-STYLE LINE VOLTAGE TOGGLE SWITCH.

LIGHTING CIRCUITING NOTES

SCALE 1/8" = 1'-0"

- 1. LIGHTING FIXTURES SHALL NOT EXCEED A MAXIMUM OF 1,800VA PER SINGLE 1P-120V-20A
- 2. ALL CORRIDOR AND WAITING ROOM LIGHTING BRANCH CIRCUITS AND CONTROLS SHALL BE CONNECTED THRU THE NEW LIGHTING CONTROL PANEL. PROVIDE (16) CIRCUIT RELAY PANEL WITH VOLTAGE OVERRIDE SWITCHES AND SENSORS AS PER DEPARTMENT AS SHOWN ON THE PART PLANS. PANEL SHALL HAVE TIME CLOCK FUNCTIONALITY WITH DIMMING RELAYS FOR EACH ZONE.

LIGHTING KEY NOTES

- (1)(2) REMOTE DRIVER LOCATIONS FOR ULTRASUITE LIGHTING SYSTEM.
- 2 CONTRACTOR SHALL PROVIDE 2#12AWG FOR POWER FROM REMOTE DRIVER TO ULTRASUITE LIGHTING SYSTEM FIXTURE (TYP. FOR EACH ULTRASUITE LIGHTING SYSTEM FIXTURE). (9) IN TOTAL.
- CONTRACTOR SHALL PROVIDE (2) 0-10V WIRES AS PER MANUFACTURERS RECOMMENDATION FROM ULTRASUITE LIGHTING SYSTEM REMOTE DRIVER TO ULTRASUITE LIGHTING SYSTEM FIXTURE (TYP. FOR EACH ULTRASUITE LIGHTING SYSTEM FIXTURE). (9) IN TOTAL.
- 4 CONNECT NEW LIGHTING FIXTURES TO EXISTING LIGHTING CONTROLS.

ADD ALTERNATE NOTES

CONTRACTOR SHALL PROVIDE ALLOWANCE TO REPLACE LIGHTING FIXTURES IN THIS AREA WITH NEW. FIXTURES SHALL BE REPLACED IN-KIND. CONNECT TO EXISTING LIGHTING CIRCUITS AND CONTROLS.

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Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL LIGHTING 1ST FLOOR PLAN

Drawn By: Date: 05/23/2023

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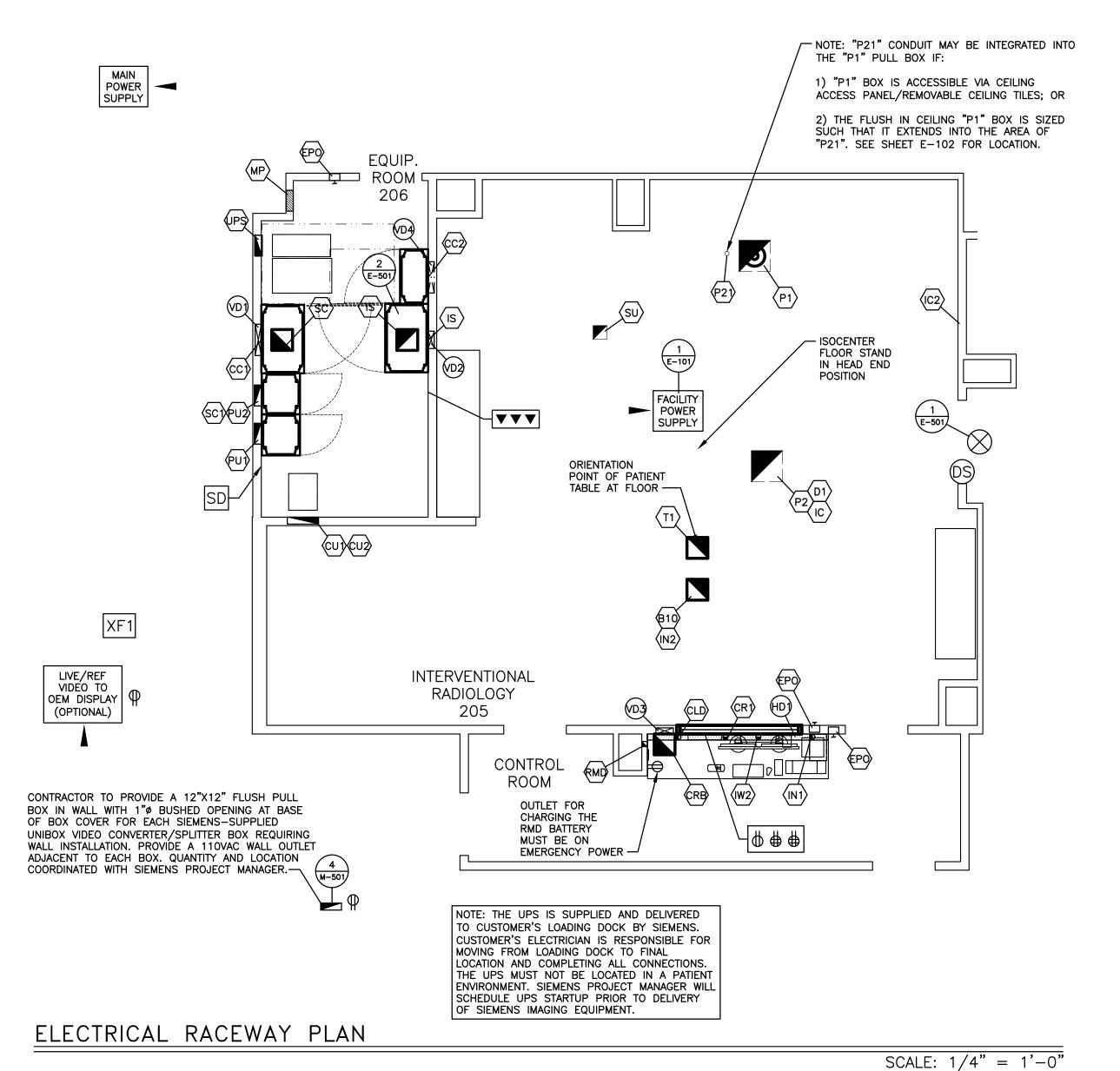
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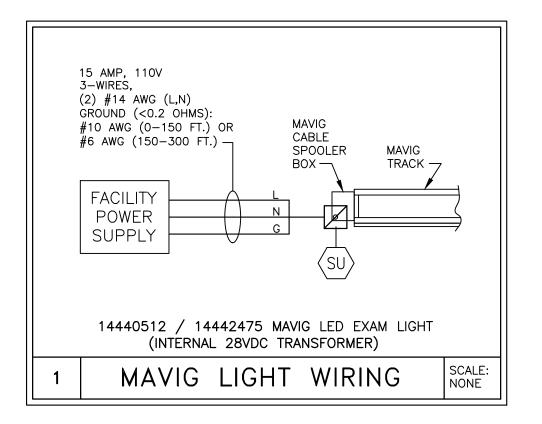
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E-301.00

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<u> </u>		CONDUIT LEGEND	т
SYM	SIZE	DESCRIPTION SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	REMARKS
(1)	EC TO SIZE	CONDUIT FROM PANEL TO "MP"	SEE "POWER SCHEDULE"
(2)	EC TO SIZE	CONDUIT FROM "MP" TO "PU1"	SEE "POWER SCHEDULE"
(3)	EC TO SIZE	CONDUIT FROM "MP" TO "PU2"	SEE "POWER SCHEDULE"
4	EC TO SIZE	CONDUIT FROM "MP" TO "UPS" WITH FLEX CONDUIT FROM UPS BOX TO UPS CABINET.	SEE "POWER SCHEDULE"
5	EC TO SIZE	CONDUIT FROM "UPS" TO "SD" WITH FLEX CONDUIT FROM UPS BOX TO OUTPUT XFMR CABINET.	SEE "POWER SCHEDULE"
6)	EC TO SIZE	CONDUIT FROM "SD" TO "SC1"	SEE "POWER SCHEDULE"
0	3/4"ø	CONDUIT FROM "UPS" TO "EPO" WITH FLEX CONDUIT FROM UPS BOX TO UPS CABINET.	SEE "POWER SCHEDULE"
8	3/4"ø	CONDUIT FROM "RMD" TO "UPS"	SEE "POWER SCHEDULE"
9	3/4"ø	CONDUIT FROM "MP" TO "EPO"	SEE "POWER SCHEDULE"
(10)	EC TO SIZE	CONDUIT FROM "EPO" TO "EPO"	
(11)	EC TO SIZE	CONDUIT FROM "SC1" TO "WL"	
(12)	EC TO SIZE	CONDUIT FROM "SC1" TO "DS"	
13)	EC TO SIZE	CONDUIT FROM "MP" TO "XF1" (OPTIONAL)	TABLE POWER OUTLET
14)	EC TO SIZE	CONDUIT FROM 110V, 15A FACILITY POWER SOURCE TO "SU"	MAVIG LED EXAM LIGHT
(15)	2 " ø	CONDUIT FROM "P1" TO "VD1" (PU1)	MAX. CONDUIT LENGTH 34
(16)	3"ø	CONDUIT FROM "P1" TO "VD1" (PU1)	MAX. CONDUIT LENGTH 39
	4"ø		
17		CONDUIT FROM "P1" TO "VD1" (SC1)	MAX. CONDUIT LENGTH 3
18	2"ø	CONDUIT FROM "P1" TO "VD1" (SC1)	MAX. CONDUIT LENGTH 3
19	2 1/2"ø	CONDUIT FROM "P21" TO "VD1" (SC1)	MAX. CONDUIT LENGTH 50
20)	2 1/2"ø	CONDUIT FROM "P1" TO "CU1" FOR LIQUID COOLING HOSES	MAX. CONDUIT LENGTH 9
21)	2"ø	CONDUIT FROM "P1" TO "CU1" FOR LIQUID COOLING HOSES	MAX. CONDUIT LENGTH 70
22	(2) 3 " ø	CONDUITS FROM "SC1" TO "CR1"	MAX. CONDUIT LENGTH 3-
23	3 " ø	CONDUIT FROM "SC" (SC1) TO "T1" UNDER FLOOR	MAX. CONDUIT LENGTH 30
24	4"ø	CONDUIT FROM "SC" (SC1) TO "T1" UNDER FLOOR	MAX. CONDUIT LENGTH 30
25)	2 " ø	CONDUIT FROM "VD1" (SC1) TO "CU1"	MAX. CONDUIT LENGTH 83
26	2"ø	CONDUIT FROM "VD1" (SC1) TO "CU2"	MAX. CONDUIT LENGTH 83
27)	3"ø	CONDUIT FROM "VD1" (SC1) TO "D1"	MAX. CONDUIT LENGTH 47
28)	2 1/2"ø	CONDUIT FROM "VD2" (IS) TO "D1"	MAX. CONDUIT LENGTH 63
29	(2) 2"ø	CONDUITS FROM "IS" TO "CR1"	MAX. CONDUIT LENGTH 3
30	(2) 3"ø	CONDUITS FROM "VD2" (IS) TO "VD3" (CLD) (C-ROOM CUSTOMER LD INPUTS)	MAX. CONDUIT LENGTH 10
31)	VARIES	CONDUIT(S) FROM "VD2" (IS) TO CUSTOMER SOURCES	MAX. CONDUIT LENGTH 10
	2"ø		
32)		CONDUIT FROM "P2" TO "VD1" (PU2)	MAX. CONDUIT LENGTH 3
33		CONDUITS FROM "P2" TO "VD1" (PU2)	MAX. CONDUIT LENGTH 3
34)	4"ø	CONDUIT FROM "P2" TO "VD1" (SC1)	MAX. CONDUIT LENGTH 3
35)	(2) 2"ø	CONDUITS FROM "P2" TO "VD1" (SC1)	MAX. CONDUIT LENGTH 3
36)	2 1/2 " ø	CONDUIT FROM "P2" TO "CU2" FOR LIQUID COOLING HOSES	MAX. CONDUIT LENGTH 9
37)	2"ø	CONDUIT FROM "P2" TO "CU2" FOR LIQUID COOLING HOSES	MAX. CONDUIT LENGTH 52
38	3"ø	CONDUIT FROM "CRB" TO "T1" (VOLCANO S5i CABLE SET FOR PHILIPS INTRASIGHT)	MAX. CONDUIT LENGTH 9:
39	3 " ø	CONDUIT FROM "CRB" (IN1) TO "IN2" UNDER FLOOR (INJECTOR POWER/CONTROL UNITS TO INJECTOR HEAD)	MAX. CONDUIT LENGTH 5:
40	3"ø	CONDUIT FROM "SC1" TO "IW2"	MAX. CONDUIT LENGTH 30
41)	3/4"ø	CONDUIT FROM "VD3" TO "IC" (INTERCOM)	MAX. CONDUIT LENGTH 6
42)	3/4"ø	CONDUIT FROM "VD3" TO "IC2" (INTERCOM)	MAX. CONDUIT LENGTH 6
(43)	3"ø	CONDUIT FROM "T1" TO "B10" UNDER FLOOR	
(44)	3 " ø	CONDUIT FROM "CRB" TO "B10" UNDER FLOOR	
45	1/2"ø	CONDUIT FROM "XF1" TO "SC1" ("T1") (OPTIONAL TABLE POWER OUTLET)	MAX. CONDUIT LENGTH 7
46		CONDUIT FROM "VD2" (IS) TO "CUSTOMER MONITOR" (LIVE+REF TO OEM OPTION)	MAX. CONDUIT LENGTH 94



	SYMBOLS
	ALL MAY NOT APPLY
	CIRCUIT BREAKER BY CUSTOMER/CONTRACTOR
•	OPENING IN RACEWAY OR TRENCHDUCT
	PULLBOX IN (FLOOR/WALL/CEILING)
	OPENING IN ACCESS FLOORING
\otimes	WARNING LIGHT (X-RAY ON)
(DS)	DOOR SAFETY SWITCH
Н	(EPO) EMERGENCY POWER OFF BUTTON
	TRENCH DUCT
EHERRIS	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
	110 VOLT, 20 AMP, HOSPITAL GRADE QUAD OUTLET

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 POWER 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: WORK NOT PROVIDED BY SÍEMENS HEALTHCARE BUT SHOWN ON DRAWINGS TO BE FURNISHED AND INSTALLED BY CUSTOMER/CONTRACTOR INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING, UNLESS NOTED OTHERWISE: ELECTRICAL RACEWAYS AND DUCTS, WIRING TROUGHS, PULL BOXES, CONDUITS, CIRCUIT BREAKERS, ACCESS PANELS, EMERGENCY OFF BUTTONS, DOOR SWITCHES, WARNING LIGHTS, WIRING, WIRING DEVICES, CONNECTORS, LIGHTING EQUIPMENT AND 5) RACEWAY AND CONDUIT NOTES: ALL CONDUITS SHALL BE INSTALLED IN COMPLIANCE WITH THE CURRENT ENFORCED EDITION OF THE NATIONAL

COMPLIANCE WITH THE CURRENT ENFORCED EDITION OF THE NATIONAL ELECTRICAL CODE.

CONDUIT BODIES SHALL NOT BE USED. WHERE A CONDUIT ENTERS A BOX, FITTING, OR OTHER ENCLOSURE, AN INSULATED THROAT CONNECTOR SHALL BE PROVIDED TO PROTECT THE WIRE FROM ABRASION. ALL CONNECTORS FOR EMT SHALL BE COMPRESSION OR DOUBLE SET SCREW TYPE

KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES OR STEAM AND HOT WATER PIPES. INSTALL RACEWAY RUNS ABOVE WATER AND STEAM PIPES PROVIDED THAT CABLE RUN DISTANCES ARE MAINTAINED. USE TEMPORARY CLOSURES TO PREVENT FOREIGN MATTER FROM ENTERING RACEWAY.

CONDUIT RUNS ARE SHOWN SCHEMATICALLY. INSTALL CONDUIT WITH A MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING

MINIMUM OF BENDS IN THE SHORTEST PRACTICAL DISTANCE CONSIDERING
THE BUILDING CONSTRUCTION AND OBSTRUCTIONS, EXCEPT AS OTHERWISE
INDICATED. THE CONTRACTOR SHALL MAKE CERTAIN THAT ANY
CONDUIT/RACEWAY RUNS CONTAINING SIEMENS HEALTHCARE CABLES DO NOT
EXCEED THE SPECIFIED MAXIMUM DISTANCES AS SHOWN ON THE ELECTRICAL
DETAILS. LISTED CONDUIT SIZES FOR SIEMENS—SUPPLIED CABLES MUST BE
MAINTAINED IN ORDER TO ENABLE THE TOTAL CABLE BUNDLE INCLUDING
CONNECTORS TO BE PULLED THROUGH WITHOUT DAMAGE.
PROVIDE ENCLOSED METAL WIRE DUCT RACEWAY SYSTEM WHERE SHOWN

PROVIDE ENCLOSED METAL WIRE DUCT RACEWAY SYSTEM WHERE SHOWN ON DRAWINGS WITH DIVIDERS TO SEPARATE THE DUCT INTO TWO OR THREE SEPARATE COMPARTMENTS AS SHOWN ON THE SIEMENS PLANS (FOR POWER AND SIEMENS HEALTHCARE CABLING). DIVIDERS AND CROSSOVER PIECES TO BE PROVIDED AS NECESSARY. THE CABLE TO CABLE AS WELL AS THE CIRCUIT TO CIRCUIT SEPARATION REQUIREMENT WAS EVALUATED DURING THE UL SYSTEM CERTIFICATION OF THE EQUIPMENT. ADDITIONAL SEPARATION OF THE SYSTEM CABLE ASSEMBLIES INTO SEPARATE OR PARTITIONED RACEWAYS, UNLESS OTHERWISE NOTED, IS NOT NECESSARY TO INSURE SEPARATION OF CIRCUITS.

PROVIDE WIRE DUCT/RACEWAY WITH ACCESSIBLE REMOVABLE COVERS.

LOCATIONS OF BUILDING MATERIAL OPENINGS (I.E. ACCESS PANELS) TO BE CUT IN FIELD ARE TO BE COORDINATED WITH THE DRAWING REQUIRMENTS AND BUILDING STRCTURE. THOSE THAT ARE NOT INDICATED OR INTERFER WITH BUILDING ELEMENTS SHALL BE COORDINATED WITH SIEMENS PROJECT MANAGER. ELECTRICAL PULL BOXES AND RACEWAY COVERS SHALL BE INSTALLED IN A MANNER TO ALLOW ACCESSIBILITY FOR INSTALLATION AND MAINTENANCE. CONTRACTORS MUST PROVIDE PULL STRINGS FOR ALL CONDUIT AND WIRE DUCT/RACEWAY. IN-FLOOR TRENCH DUCT AND FLUSH FLOOR BOXES SHALL BE PROVIDED WITH FULLY GASKETED REMOVABLE COVERS. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED HIGHER THAN 14 FEET ABOVE FINISHED FLOOR, THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP THE SIEMENS INSTALLERS PULL SIEMENS SUPPLIED CABLES AT CUSTOMER'S EXPENSE. WHEN JUNCTION BOXES AND WIRE DUCT/RACEWAY ARE MOUNTED ABOVE A HARD CEILING (I.E. SHEET ROCK), A 24" x 24" ACCESS PANEL IS REQUIRED AT EACH JUNCTION BOX AND WITHIN 2 FEET OF EACH RACEWAY TRANSITION (SUCH AS A 90 DEGREE ELBOW OR TEE) IN DUCT/RACEWAY. THERE MUST BE FREE AND CLEAR ACCESS TO JUNCTION BOXES AND WIRE DUCT/RACEWAY. WHEN ACCESS PANELS ARE LOCATED MORE THAN 3 FEET FROM JUNCTION BOXES AND WIRE DUCT/RACEWAY THE ELECTRICAL CONTRACTOR SHALL PROVIDE TWO ELECTRICIANS TO HELP SIEMENS INSTALLERS PULL SIEMENS SUPPLIED CABLES AT CUSTOMER'S EXPENSE.

6) WIRING: ALL WIRING INSTALLED SHALL BE 600 VOLT CLASS, STRANDED TYPE THHN/THWN-2, SINGLE CONDUCTOR ANNEALED COPPER FOR A MAXIMUM OPERATING TEMPERATURE OF 90° C (194° F), SIZED AS INDICATED, INSTALLED IN METAL RACEWAYS. THE CUSTOMER/CONTRACTOR SHALL LEAVE A MINIMUM 10 FEET OF WIRE TAILS AT ALL OUTLET POINTS WITH WIRE IDENTIFICATION TAGGED AT BOTH ENDS FOR FINAL CONNECTION BY THE CUSTOMER/ELECTRICAL CONTRACTOR.

7) SHORT CIRCUIT REQUIREMENTS: ALL CIRCUIT BREAKERS SUPPLIED FOR THE 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 35,000A 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.

CONDUIT LENGTH CALCULATIONS

IF SITE—SPECIFIC CONDITIONS EXCEED THE FOLLOWING ASSUMED VALUES, THEN ADDITIONAL LENGTH MUST BE SUBTRACTED BY THE ELECTRICAL CONTRACTOR FROM THE MAXIMUM CONDUIT LENGTHS LISTED.

IF DUCT LOCATIONS ARE ALTERED FROM THE SHOWN LAYOUT, IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO RECALCULATE THE MAXIMUM CONDUIT LENGTHS.

ASSUMED VALUES USED IN CALCULATING STATED MAXIMUM CONDUIT LENGTHS:

VERTICAL DUCTS - 12'-0"
FLOOR PENETRATIONS - 3'-0"

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no. date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL PART PLANS SHEET (1 OF 3)

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

 MJR
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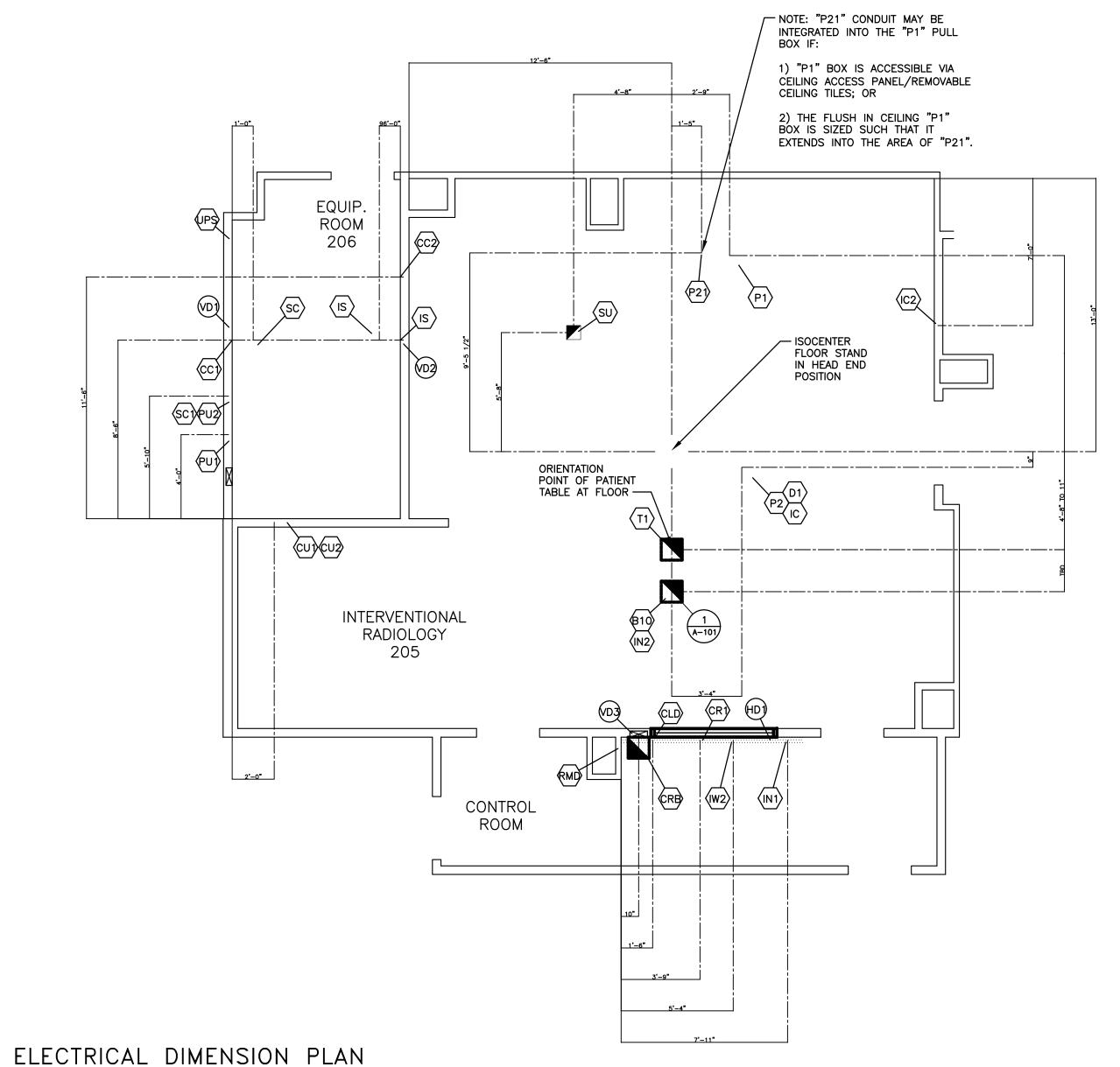
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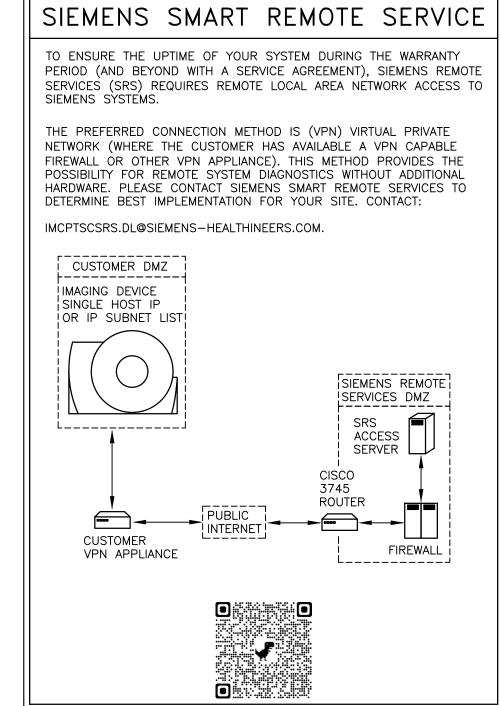
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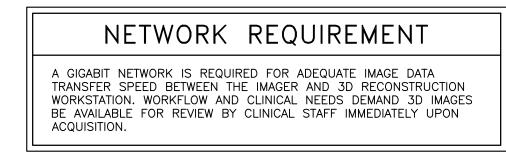
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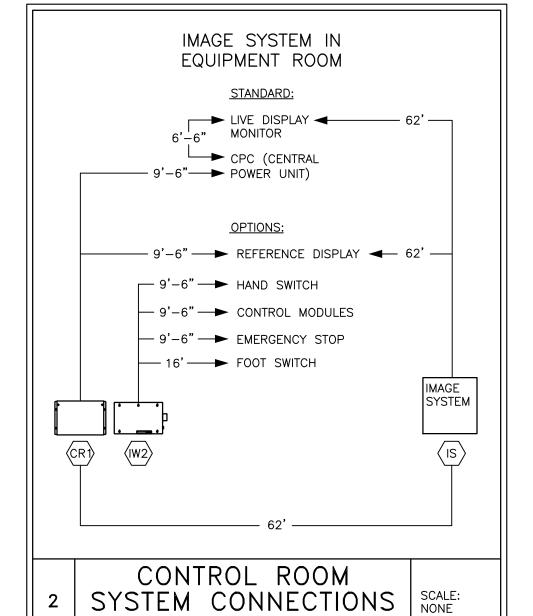


SCALE: 1/4" = 1'-0"

		ELECTRICAL LEGEND	
SYM	SIZE	DESCRIPTION	REMARKS
		SUPPLIED AND INSTALLED BY CUSTOMER/CONTRACTOR	
(11)	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. PROVIDE 3"0 CONDUIT FROM BOX TO FLUSH WITH FINISHED FLOOR. PROVIDE STAINLESS STEEL WATERPROOF PLATE ON TOP OF CORED OPENING IN FLOOR.	TABLE ACCESSORIES
<u>(CC)</u>	18" X 8"	BUSHED OPENING IN VERTICAL DUCT "VD1" COVER AT FLOOR LINE.	CABLE CABINET
(II)	3"ø	BUSHED OPENING IN TOP OF HORIZONTAL DUCT "HD1".	C-ROOM LD INPUTS
(R)	3"ø	BUSHED OPENING IN TOP OF HORIZONTAL DUCT "HD1".	CONTROL ROOM DISTRIBUTOR
(RB)	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. FOR A SINGLE CONDUIT CONNECTION TO THIS BOX, PROVIDE A 3" CONDUIT THRU FLOOR. FOR MULTIPLE CONDUIT CONNECTIONS, PROVIDE (2) 4" CONDUITS THRU FLOOR. E.C. TO DESIGN TRANSITION TO SURFACE FLOOR DUCT AS REQUIRED.	CONTROL ROOM BOX
(U)(U)	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER AND (1) 4"ø BUSHING IN CENTER OF REMOVABLE COVER FOR CABLE EXIT. SEE PLAN FOR LOCATION.	TUBE COOLING UNITS
(D1)		FIXPOINT DESIGNATION, SAME PULL BOX / OPENING AS "P2".	DCS
(P)		EMERGENCY OFF BUTTONS FOR CIRCUIT BREAKERS. EPO'S MUST PREVENT RESETTING OF CIRCUIT BREAKERS WHEN IN OFF POSITION. EPO'S MUST BE RECESSED OR SHIELDED. FINAL LOCATION DETERMINED BY CUSTOMER.	EMERGENCY POWER OFF
(C)		FIXPOINT DESIGNATION, SAME PULL BOX / OPENING AS "D1".	INTERCOM COMFORT MIC
<u>(C2)</u>	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT A RECOMMENDED HEIGHT OF 6' AFF.	INTERCOM COMFORT SPEAKER
(NI)	3"ø	BUSHED OPENING IN TOP OF HORIZONTAL DUCT "HD1".	INJECTOR ELECTRONICS
(N2)		FIXED POINT DESIGNATION, SAME PULL BOX AS "B10".	TABLE INJECTOR
(W2)	3"ø	BUSHED OPENING IN TOP OF HORIZONTAL DUCT "HD1".	OPERATION IN CONTROL RM
		MAIN PANEL WITH MAIN BREAKER. LOCATION DETERMINED BY CUSTOMER/CONTRACTOR. SEE "POWER SCHEDULE"	BREAKER PANEL
P)P2	AS REQUIRED	PULL BOX MOUNTED ABOVE FINISHED CEILING. PROVIDE REMOVABLE BOTTOM COVER WITH 8"Ø BUSHED OPENING. PROVIDE CORRESPONDING OPENING AT CEILING LINE.	FLOOR AND CEILING MOUNTED
(22)	2 1/2 " ø	CONDUIT STUB LOCATION FLUSH WITH FINISHED CEILING	CEILING STAND MOTOR
@\@\	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER WITH 4"Ø BUSHED OPENING AT BOTTOM OF COVER.	GENERATORS
€MD>	AS REQUIRED	SINGLE-GANG RJ45 JACK	UPS REMOTE DISPLAY
(13)	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER WITH 4"Ø BUSHED OPENING AT BOTTOM OF COVER.	SYSTEM CABINET
<u>\$C</u>	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. PROVIDE 6"Ø CONDUIT FROM BOX TO FLUSH WITH FINISHED FLOOR WITH BUSHING AT FLOOR LINE.	SYSTEM CABINET
(SD)	30A	3-PHASE (PLUS N,G) 30A, 600V HD FUSIBLE SERVICE DISCONNECT LOCATED AT EYE-LEVEL, WITHIN 10' OF SIEMENS SYSTEM CABINET (SC1) AND 30A RK5 FUSES. SEE POWER SCHEDULE.	UPS SERVICE DISCONNECT
⑤	AS REQUIRED	PULL BOX MOUNTED ABOVE FINISHED CEILING. CONNECT 6 FOOT LONG FIXTURE WHIP, (EITHER 1/2" OR 3/8" GREENFIELD) TO BOX FOR TERMINATION TO SIEMENS EQUIPMENT AT CEILING LINE.	MAVIG LAMP
11)	AS REQUIRED	PULL BOX MOUNTED BELOW FINISHED FLOOR WITH REMOVABLE BOTTOM COVER. PROVIDE 6"Ø CONDUIT FROM BOX TO FLUSH WITH FINISHED FLOOR WITH BUSHING AT FLOOR LINE.	TABLE
(PS)	AS REQUIRED	PULL BOX MOUNTED FLUSH IN FINISHED WALL AT FLOOR LINE. PROVIDE BOX WITH REMOVABLE FRONT COVER WITH 4"Ø BUSHED OPENING.	15KVA UPS
(F)	1.5KVA	STEP-DOWN TRANSFORMER. SEE POWER SCHEDULE.	XFMR FOR TABLE OUTLET
(HD)	3 1/2" X 10"	HORIZONTAL DUCT MOUNTED ON FINISHED WALL AT FLOOR LINE. PROVIDE DUCT WITH REMOVABLE FRONT COVER. CONNECT TO VERTICAL DUCT "VD3" AS SHOWN.	HORIZONTAL WALL DUCT
(HD2)	3 1/2" X 10"	HORIZONTAL DUCT MOUNTED ON FINISHED WALL AT FLOOR LINE. PROVIDE DUCT WITH REMOVABLE FRONT COVER. CONNECT TO SIDE PANELS OF "SC1" AND "IS" CABINETS AS SHOWN.	HORIZONTAL WALL DUCT
(101)	3 1/2" X 18"	VERTICAL DUCT MOUNTED FLUSH IN FINISHED WALL, BEGIN DUCT AT FLOOR LINE AND EXTEND UP WALL ABOVE FINISHED CEILING. PROVIDE JUNCTION BOX (SIZED BY E.C.) AT TOP OF DUCT FOR CONDUIT TRANSITIONS.	VERTICAL DUCT
(102)	3 1/2" X 10"	VERTICAL DUCT MOUNTED FLUSH IN FINISHED WALL. BEGIN DUCT AT FLOOR LINE AND EXTEND UP WALL ABOVE FINISHED CEILING. PROVIDE JUNCTION BOX (SIZED BY E.C.) AT TOP OF DUCT FOR CONDUIT TRANSITIONS.	VERTICAL DUCT
(N3)	3 1/2" X 10"	VERTICAL DUCT MOUNTED FLUSH IN FINISHED WALL. BEGIN DUCT AT FLOOR LINE AND EXTEND UP WALL ABOVE FINISHED CEILING. PROVIDE JUNCTION BOX (SIZED BY E.C.) AT TOP OF DUCT FOR CONDUIT TRANSITIONS.	VERTICAL DUCT







CABLE PROTECTION

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

WARRANTY
MENS REMOTE

K ACCESS TO

PRIVATE
CAPABLE
VIDES THE
ADDITIONAL
RVICES TO

CT:

REMOTE

DMZ

Lilker Associates

Mechanical and Electrical Engineers

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1 03/31/2023 DD Review Set
no. date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL PART PLANS SHEET (2 OF 3)

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

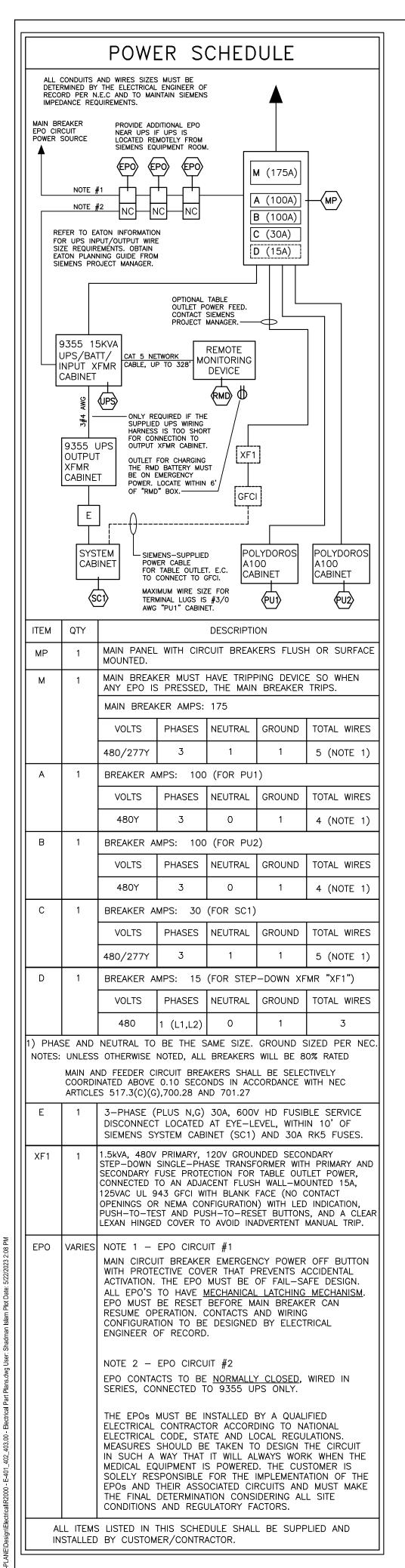
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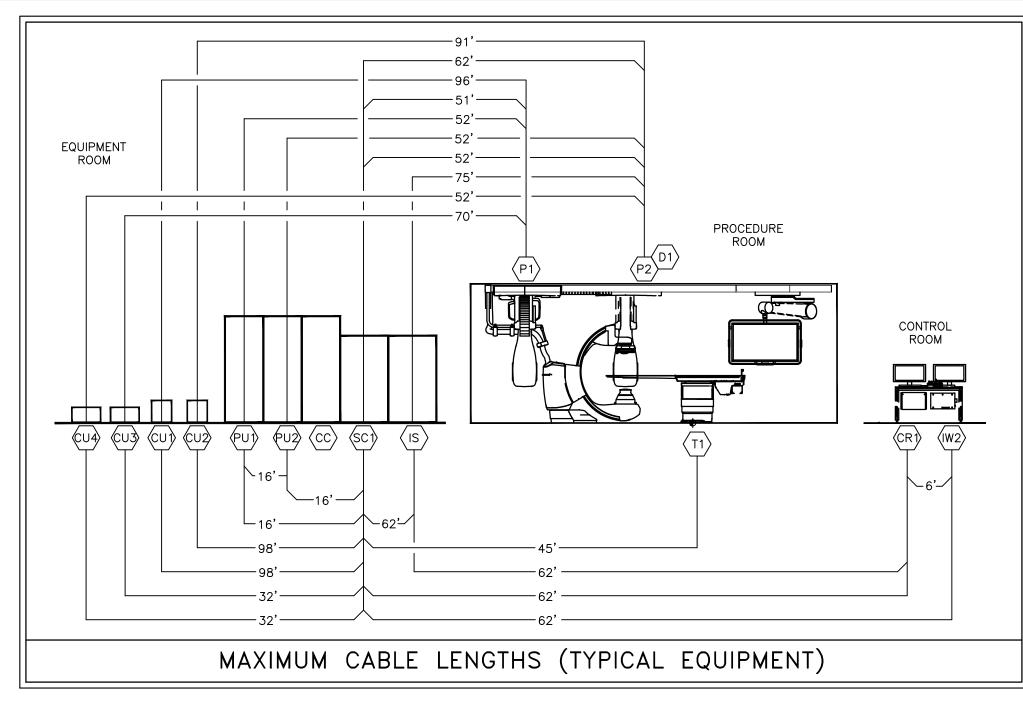
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File No.: R2000
Drawing No.:
E-402.00





POWER REQUIREMENTS

 \leq 400 m Ω (ACX GENERATOR)

WIRING SYSTEM: 480Y/277V, 3 PHASE, 5-WIRE, 60 HZ.

MINIMUM POWER SUPPLY:

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

X-RAY GENERATORS (PU1 & PU2) MOMENTARY 162 KVA EACH & MAXIMUM (NOTE 3)

X-RAY GENERATORS (PU1 & PU2) LONG-TIME 14 KVA

RATING: (FLUOROSCOPY)		
 SYSTEM CABINET (SC1) LONG-TIME RATING:		16.5 KVA
LINE IMPEDANCE	≤ 125 r	mΩ (A100 GENERATOR)

POWER QUALITY PARAMETERS

MAXIMUM LINE VOLTAGE VARIATION ±10% OF SYSTEM VOLTAGE

PHASE IMBALANCE: 2%

FREQUENCY VARIATION:
POWER SUPPLY NOTES:

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

1 ± 1 HZ

- 2. SIEMENS HEALTHCARE REQUIRES THAT THE INCOMING POWER MEETS THE POWER QUALITY REQUIREMENTS.
- 3. TOTAL POWER CONSUMPTION OF THE TWO GENERATORS IS MAXIMUM 162KVA. GENERATORS ALTERNATE DURING EXPOSURE INITIATION.

GROUNDING NOTES

EQUIPMENT GROUNDING CONDUCTOR TO COMPLY WITH THE FOLLOWING:

 SIZE GROUNDING WIRE TO SIEMENS EQUIPMENT PER POWER SCHEDULE REQUIREMENTS.
 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.

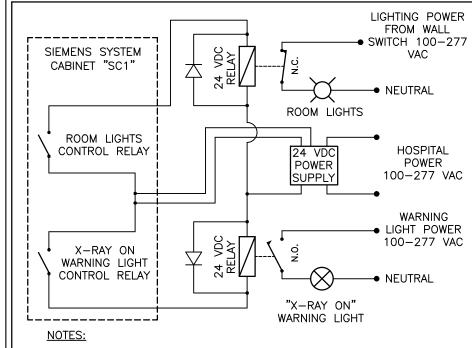
7) AS A NORM, THERE SHOULD NOT BE ANY CURRENT PRESENCE ON THE GROUND CONDUCTOR, BUT IT IS ACCEPTABLE TO HAVE <500mA DURING OPERATION OF THE IMAGING EQUIPMENT.

UPS BACKUP REQUIREMENT

IF A SIEMENS TILTING/O.R. TABLE IS PURCHASED, A UPS PROVIDING TABLE MOVEMENT IS REQUIRED. IF NOT PURCHASED FROM SIEMENS, IT IS THE CUSTOMER'S RESPONSIBILITY TO PROVIDE A UPS THAT ALLOWS A TILTING/O.R. TABLE TO BE MOVED TO A ZERO DEGREE TILT POSITION DESIGNATED FOR CPR WITHIN 15 SECONDS. IF THE CUSTOMER OR SIEMENS—SUPPLIED UPS SOLUTION IS NOT INSTALLED AND OPERATIONAL AT THE TIME OF THE SIEMENS IMAGING SYSTEM INSTALLATION, SIEMENS CANNOT AND WILL NOT TURNOVER THE AFFECTED SIEMENS SYSTEM!

TABLE POWER OUTLET SAFETY

NOTE: LIFE—SUSTAINING EQUIPMENT MUST NOT BE CONNECTED TO THE TABLE POWER OUTLET (IF INSTALLED) IN THE SIEMENS PATIENT TABLE. POWER WILL BE DISCONNECTED IF EPO BUTTON IS PRESSED.



- 1. 24 VDC RELAYS MUST INCLUDE A FREE-WHEELING DIODE (P/N 1N4002 OR EQUIVALENT).
- ALL ITEMS PROVIDED BY CUSTOMER ELECTRICAL CONTRACTOR EXCEPT CONTACTS INSIDE SIEMENS "SC1" CABINET (ITEMS INSIDE DOTTED LINES).
- 3. ALL WIRING THAT CONNECTS TO SIEMENS "SC1" CABINET MUST BE 14-18 AWG STRANDED WIRE.
- 4. ONLY 3 WIRES LABELED "24 VDC", "ROOM LIGHTS" AND "X-RAY ON" SHOULD BE SENT TO SIEMENS "SC1" CABINET.
- 5. 24 VDC RELAYS ARE TO BE SELECTED BY ELECTRICAL CONTRACTOR TO HANDLE THE VOLTAGE AND AMPERAGE OF LIGHTING CURCUIT.
- 6. IF NEEDED, A SWITCH TO BLOCK RADIATION CAN BE INSTALLED IN SERIES WITH THE DOOR CONTACT.
- * THE SWITCH (24 VDC / 20 MA) MUST BE PROVIDED ON SITE.

 * CONTROL USING +24 V FROM THE SYSTEM CONTROL CABINET

 * PLAN THE SWITCH SO THAT UNINTENTIONAL OPERATION IS NOT POSSIBLE.
- * THE SWITCH MUST BE PROVIDED WITH AN APPROPRIATE SYMBOL (OR DESIGNATION) FROM WHICH THE FUNCTION CAN BE RECOGNIZED.

 WARNING LIGHT/ROOM LIGHT SCHEMATIC
 - LIGHTING DETAIL |

SCALE: NONE

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.

		CON	NTRACTOR SUPPLIED CABLES			
FROM	VIA	ТО	DESCRIPTION	REMARKS		
PANEL	1	MP	ELECTRICAL CONTRACTOR TO SIZE PLUS GROUND	SEE "POWER SCHEDULE"		
MP	2	PU1	3#2, 1#2 GROUND AND CONNECT	SEE "POWER SCHEDULE"		
MP	3	PU2	3#2, 1#2 GROUND AND CONNECT	SEE "POWER SCHEDULE"		
MP	4	UPS	ELECTRICAL CONTRACTOR TO SIZE	SEE "POWER SCHEDULE"		
UPS	5	SD	ELECTRICAL CONTRACTOR TO SIZE PLUS GROUND	SEE "POWER SCHEDULE"		
SD	6	SC1	ELECTRICAL CONTRACTOR TO SIZE PLUS GROUND (MAX #6 AWG)	SEE "POWER SCHEDULE"		
UPS	7	EPO	2#12	SEE "POWER SCHEDULE"		
RMD	8	UPS	CAT 5 NETWORK CABLE, UP TO 328'	SEE "POWER SCHEDULE"		
MP	9	EP0	2#12	SEE "POWER SCHEDULE"		
EPO	10	EP0	4#12, PLUS GROUND	SEE "POWER SCHEDULE"		
SC1	11	WL	14-18 AWG	SEE "LIGHTING DETAIL" SHEET E-501		
SC1	12	DS	24V SIGNAL, 2#14-18 AWG			
MP	13	XF1	EC TO SIZE (OPTIONAL TABLE POWER OUTLET)	SEE "POWER SCHEDULE"		
PANEL	14	SU	110V / 15A, 3-WIRES, 2#14 (L,N), PLUS GROUND #10 AWG (0-150') OR #6 AWG (150-300' MAX LENGTH). SEE DETAIL 1, SHEET E-101	MAVIG LED EXAM LIGHT		

ROM	VIA	ТО	DESCRIPTION	REMARKS
P1	15,VD1	PU1		MAXIMUM LENGTH 52'
P1	16,VD1	PU1	(2) HIGH VOLTAGE CABLES	MAXIMUM LENGTH 57'
P1	17,VD1	SC1		MAXIMUM LENGTH 52'
P1	18,VD1	SC1		MAXIMUM LENGTH 51'
P21	19,VD1	SC1		MAXIMUM LENGTH 65'
P1	20	CU1	LIQUID COOLING HOSES (TUBE COOLER)	MAXIMUM LENGTH 96'
P1	21	CU1	LIQUID COOLING HOSES (FD COOLER)	MAXIMUM LENGTH 70'
SC1	VD1,22,VD3,HD1	CR1	FOR CONTROL ROOM OPTIONS, MODULES, FOOT SWITCH	MAXIMUM LENGTH 62'
SC1	SC,23	T1		MAXIMUM LENGTH 45'
SC1	SC,24	T1		MAXIMUM LENGTH 45'
SC1	VD1,25	CU1		MAXIMUM LENGTH 98'
SC1	VD1,26	CU2		MAXIMUM LENGTH 98'
SC1	ROUTE UNDER CABINETS	PU1		MAXIMUM LENGTH 16'
SC1	HD2	IS	62' CABLES SELECTABLE ON FACTORY CHECKLIST	MAXIMUM LENGTH 32'
SC1	VD1,27	D1		MAXIMUM LENGTH 62'
IS	VD2,28	D1		MAXIMUM LENGTH 75'
IS	VD2,29,VD3,HD1	CR1		MAXIMUM LENGTH 62'
IS	VD2,30,VD3,HD1	CLD	CUSTOMER LD INPUTS IN CONTROL ROOM	MAXIMUM LENGTH 118'
IS	VD2,31	CUSTOMER SOURCES	CUSTOMER LD INPUTS IN PROCEDURE ROOM	MAXIMUM LENGTH 118'
P2	32,VD1	PU2		MAXIMUM LENGTH 52'
P2	33,VD1	PU2	HIGH VOLTAGE CABLES	MAXIMUM LENGTH 52'
P2	34,VD1	SC1		MAXIMUM LENGTH 52'
P2	35,VD1	SC1		MAXIMUM LENGTH 52'
P2	36	CU2	LIQUID COOLING HOSES (TUBE COOLER 2)	MAXIMUM LENGTH 91'
P2	37	CU4	LIQUID COOLING HOSES (FD COOLER 2)	MAXIMUM LENGTH 52'
PU2	ROUTE UNDER CABINETS	PU1		MAXIMUM LENGTH 16'
PU2	ROUTE UNDER CABINETS	SC1		MAXIMUM LENGTH 16'
CRB	38	T1	VOLCANO S5i CABLE SET FOR PHILIPS INTRASIGHT IVUS SYSTEM	MAXIMUM LENGTH 98'
IN1	HD1,CRB,39	IN2	INJECTOR POWER/CONTROL UNITS TO INJECTOR HEAD	MAXIMUM LENGTH 65'
SC1	VD1,40,VD3,HD1	IW2	2ND OPERATION IN CONTROL RM (HANDSWITCH, INJECTOR, ETC.)	MAXIMUM LENGTH 62'
IN1	HD1	CR1	INJECTOR POWER UNIT CABLE PLUGGED INTO CR1 BOX	MAXIMUM LENGTH 16'
CR1	HD1,VD3,41	IC	INTERCOM PROCEDURE ROOM MICROPHONE	MAXIMUM LENGTH 82'
CR1	HD1,VD3,42	IC2	INTERCOM PROCEDURE ROOM LOUDSPEAKER	MAXIMUM LENGTH 82'
T1	43	B10		
CRB	44	B10	CORINDUS UPGRADES, CUSTOMER PATIENT MONITORING, ETC.	
XF1	45	T1	OPTIONAL TABLE POWER OUTLET	MAXIMUM LENGTH 91'
IS	VD2,46	CUSTOMER MONITOR	LIVE+REF VIDEO INTERFACE TO OEM OPTION	MAXIMUM LENGTH 106'

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE

APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER

BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

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Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL PART PLANS SHEET (3 OF 3)

Drawn By: Date:

SSI 05/23/2023

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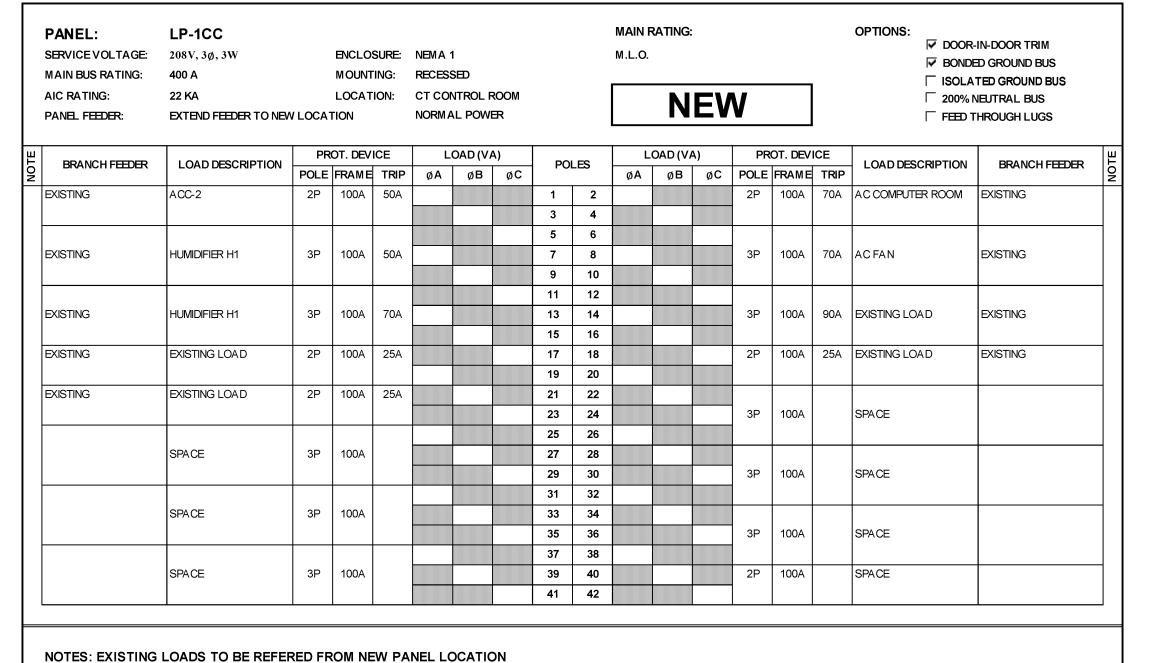
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File No.: R2000
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MAIN RATING: PANEL: LS1-2 ▼ DOOR-IN-DOOR TRIM SERVICE VOLTAGE: 208/120V, 3ø, 4W ENCLOSURE: NEM A 1 M.L.O. ▼ BONDED GROUND BUS MAIN BUS RATING: 100A MOUNTING: RECESSED ☐ ISOLATED GROUND BUS **NEW** AIC RATING: 22 KA LOCATION: CT CONTROL ROOM ☐ 200% NEUTRAL BUS PANEL FEEDER: REFER TO SINGLE LINE DIAGRAM LIFE SAFETY ☐ FEED THROUGH LUGS PROT. DEVICE LOAD (VA) LOAD (VA) PROT. DEVICE BRANCH FEEDER LOAD DESCRIPTION POLES LOAD DESCRIPTION BRANCH FEEDER POLE FRAME TRIP ØA ØB ØC ØA ØB ØC POLE FRAME TRIP 1P 100A 20A 560 1P 100A 20A SMOKE DAMPERS 2#12+1#12G-3/4"C. LTG EGRESS/EXITS 2#12+1#12G-3/4"C. 1 2 400 2#12+1#12G-3/4"C. AUTO DOORS CORR 1P | 100A | 20A | 1P | 100A | 20A | SMOKE DAMPERS 2#12+1#12G-3/4"C. 2#12+1#12G-3/4"C. | MED GAS A LA RM PNLS | 1P | 100A | 20A | 1P | 100A | 20A | SPARE 500 **5 6** 1P | 100A | 20A | 7 | 8 | 1P | 100A | 20A | SPARE 1P 100A 20A

TOTAL CONNECTED LOAD:

TOTAL CONNECTED LOAD:

TOTAL DEM AND LOAD:

TOTAL AMPS:

20,275 VA

17,485 VA

21.0 A

1P | 100A | 20A | SPARE

1P | 100A | 20A | SPARE

TOTAL DEM AND LOAD:

TOTAL AMPS:

EXISTING

EXISTING

EXISTING

(A) - PROVIDE GFPE (30m A) CIRCUIT BREAKER

NOTES: TOTAL CONNECTED LOAD: 1,760 VA TOTAL DEM AND LOAD: 1,760 VA TOTAL AMPS: 4.9 A

9 | 10 |

11 | 12 |

SPARE

(A) - PROVIDE GFPE (30m A) CIRCUIT BREAKER

1P 100A 20A

	PANEL: SERVICE VOLTAGE: MAIN BUS RATING:	LP-1-2 208/120V, 3ø, 4W 100 A		ENCLO:	ING:	NEM A	CE				MAIN F M.L.O.	RATING:					₩ BONDE	N-DOOR TRIM D GROUND BUS "ED GROUND BUS	
	AIC RATING: PANEL FEEDER:	22 KA REFER TO SINGLE LINE I	DIAGRA	LOCAT M	ION:	BOILE	ROOM					N	EV	<u>V</u>				EUTRAL BUS HROUGH LUGS	
NOIE	BRANCH FEEDER	LOAD DESCRIPTION		OT. DEV		øA	OAD (V	A) ØC	РО	LES	øA	OAD (VA	A) øC		OT. DEVI		- LOAD DESCRIPTION	BRANCH FEEDER	NOTE
_	2#12,#12G-3/4"C	RECEPT. 20	1P	100A	20A	720	-		1	2	1,260		-	1P	100A	20A	RECEPT. 20	2#12,#12G-3/4"C	
Ì	2#12,#12G-3/4"C	RECEPT. SOIL, JC, STOR	1P	100A	20A		1,620		3	4		800		1P	100A	20A	RECEPT WATER FOUN.	2#12,#12G-3/4"C	
ŀ	2#12,#12G-3/4"C	RECEPT. HEADWALL	1P	100A	20A			540	5	6			540	1P	100A	20A	RECEPT. HEADWALL	2#12,#12G-3/4"C	
Ì	2#12,#12G-3/4"C	RECEPT. HEADWALL	1P	100A	20A	540			7	8	540			1P	100A	20A	RECEPT. CTRL RM.	2#12,#12G-3/4"C	
ı	2#12,#12G-3/4"C	RECEPT CORRIDOR	1P	100A	20A		1,440		9	10		500		1P	100A	20A	RECEPT NOURISHMENT	2#12,#12G-3/4"C	
l	2#12,#12G-3/4"C	RECEPT CORR/LOUNGE	1P	100A	20A			1,260	11	12			800	1P	100A	20A	RECEPT LOUNGE	2#12,#12G-3/4"C	
İ	2#12,#12G-3/4"C	RECEPT LOUNGE	1P	100A	20A	800			13	14	800			1P	100A	20A	RECEPT LOUNGE	2#12,#12G-3/4"C	
		SPARE	1P	100A	20A				15	16		1,260		1P	100A	20A	RECEPT LOUNGE	2#12,#12G-3/4"C	
ı	2#12,#12G-3/4"C	RECEPT RMS. 11,12,13	1P	100A	20A			720	17	18			1,440	1P	100A	20A	RECEPT RECEPTION	2#12,#12G-3/4"C	
ı	2#12,#12G-3/4"C	RECEPT. ELEC RM.	1P	100A	20A	360			19	20	360			1P	100A	20A	RECEPT RECEP/CORR.	2#12,#12G-3/4"C	
ı	2#12,#12G-3/4"C	LIGHTING	1P	100A	20A		1,210		21	22		1,015		1P	100A	20A	LIGHTING	2#12,#12G-3/4"C	
ı	2#12,#12G-3/4"C	LIGHTING	1P	100A	20A			1,750	23	24				1P	100A	20A	SPARE		
Ī		SPARE	1P	100A	20A				25	26				1P	100A	20A	SPARE		
ı		SPARE	1P	100A	20A				27	28				1P	100A	20A	SPARE		
İ		SPARE	1P	100A	20A				29	30				1P	100A	20A	SPARE		
		SPARE	1P	100A	20A				31	32				1P	100A	20A	SPARE		
		SPARE	1P	100A	20A				33	34				1P	100A	20A	SPARE		
İ		SPACE	1P	100A	20A				35	36				1P	100A	20A	SPACE		
j		SPACE	1P	100A	20A				37	38				1P	100A	20A	SPACE		
		SPACE	1P	100A	20A				39	40				1P	100A	20A	SPACE		
ľ		SPACE	1P	100A	20A				41	42				1P	100A	20A	SPACE		\neg

SERVICE VOLTAGE: MAIN BUS RATING:		208/120V, 3ø, 4W ENCLOSURE: NEM A 1 M.L.O. 100 A MOUNTING: SURFACE												■ BONDED GROUND BUS ■ ISOLATED GROUND BUS						
	AIC RATING: PANEL FEEDER:	22 KA REFER TO SINGLE LINE I	DIAGRA	LOCAT M	ION:	BOILER						N	EV	<u>V</u>				EUTRAL BUS HROUGH LUGS		
2	BRANCH FEEDER	LOAD DESCRIPTION	PR	OT. DEVI	CE	L	OAD (VA	4)	POI	LES	L	OAD (V	Α)	PR	OT. DEV	ICE	LOAD DESCRIPTION	BRANCH FEEDER		
2			POLE	FRAME	TRIP	ØΑ	øΒ	øС			ØΑ	øВ	øС		FRAME			Branton Ebb		
	2#12,#12G-3/4"C	CAV/VAV	1P	100A	20A	600			1	2	600			1P	100A	20A	RCAV/VAV/CAV	2#12,#12G-3/4"C		
L	2#12,#12G-3/4"C	CAV/VAV	1P	100A	20A		500		3	4				1P	100A	20A	SPARE			
		SPARE	1P	100A	20A				5	6				1P	100A	20A	SPARE			
		SPARE	1P	100A	20A				7	8				1P	100A	20A	SPARE			
		SPARE	1P	100A	20A				9	10				1P	100A	20A	SPARE			
L		SPA RE	1P	100A	20A				11	12				1P	100A		SPARE			
		SPARE	1P	100A	20A				13	14				1P	100A	20A	SPARE			
		SPARE	1P	100A	20A				15	16				1P	100A	20A	SPARE			
L		SPARE	1P	100A	20A				17	18				1P	100A	20A	SPARE			
L		SPARE	1P	100A	20A				19	20				1P	100A	20A	SPARE			
L		SPA RE	1P	100A	20A				21	22				1P	100A	20A	SPA RE			
F		SPARE	1P	100A	20A				23	24				1P	100A	20A	SPA RE			
L		SPARE	1P	100A	20A				25	26				1P	100A		SPA RE			
L		SPARE	1P 1P	100A	20A				27	28				1P 1P	100A	20A	SPA RE			
-		SPARE		100A	20A				29	30					100A	20A	SPA RE			
		SPARE SPARE	1P 1P	100A 100A	20A 20A				31 33	32 34				1P 1P	100A 100A	20A 20A	SPARE SPARE			
-		SPACE	1P						35	36				1P		20A 20A	SPACE			
F		SPACE	1P	100A 100A	20A 20A				35	38	6,120			IP.	100A	ZUA	OFACE			
		SPACE	1P	100A	20A 20A				39	40	0, 120	6.120		3P	100A	80A	ACU-1	3#3,#8G-1 1/4"C		
F		SPACE	1P	100A	20A 20A				41	40		0, 120	6.120	J1	100/	00/	1 7.00-1	0#0,#00-1 1/ 4 0		
L		JOINOL		1004	ZUA				41	44			J 0, 120							

TOTAL DEM AND LOAD:

TOTAL CONNECTED LOAD:

TOTAL DEM AND LOAD:

TOTAL AMPS:

TOTAL AMPS:

15,606 VA

16,720 VA

15,043 VA

41.8 A

43.3 A

	SERVICE VOLTAGE: MAIN BUS RATING:	208/120V, 3ø, 4W 100 A		ENCLO:		NEM A 1					M.L.O.						₩ BONDE	N-DOOR TRIM D GROUND BUS 'ED GROUND BUS	
	AIC RATING: PANEL FEEDER:	22 KA REFER TO SINGLE LINE I	DIAGRA	LOCAT M	ION:	BOILER CRITICA		NCH				N	EV	V				EUTRAL BUS HROUGH LUGS	
<u> </u>	BRANCH FEEDER	LOAD DESCRIPTION		OT. DEV		D ØA	OAD (VA	A) ØC	POI	LES	Ø A	OAD (VA	A) ØC		OT. DEVI		LOAD DESCRIPTION	BRANCH FEEDER	T L
	2#12+1#12G-3/4"C.	RECEPT. RM. 20, 19	1P	100A	20A	1,080			1	2	1,440			1P	100A	20A	RECEPT. RM. 19	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT. RM. 19	1P	100A	20A		1,440		3	4		500		1P	100A	20A	RECEPT. RM. 19	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT. RM. 19	1P	100A	20A			500	5	6			500	1P	100A	20A	RECEPT. RM. 19	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT. CTRL RM.	1P	100A	20A	900			7	8	300			1P	100A	20A	INJECTOR RM 19	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT HEADWALL	1P	100A	20A		720		9	10		720		1P	100A	20A	RECEPT HEADWALL	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT HEADWALL	1P	100A	20A			720	11	12			720	1P	100A	20A	RECEPT HEADWALL	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT HEADWALL	1P	100A	20A	720			13	14	720			1P	100A	20A	RECEPT HEADWALL	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT HEADWALL	1P	100A	20A		720		15	16		720		1P	100A	20A	RECEPT HEADWALL	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT HEADWALL	1P	100A	20A			720	17	18			150	1P	100A	20A	EPO RM 19/CTRL RM.	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	RECEPT NURSE CARTS	1P	100A	20A	720			19	20	500			1P	100A	20A	LTG PNLS FOR LAB	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	LTG PAT BED, CTRL RM	1P	100A	20A		910		21	22		500		1P	100A	20A	NURSE CALL PS	2#12+1#12G-3/4"C.	
Ī	2#12+1#12G-3/4"C.	REF LOUNGE	1P	100A	20A			800	23	24				1P	100A	20A	SPARE		
Ī		SPARE	1P	100A	20A				25	26				1P	100A	20A	SPARE		
ſ		SPARE	1P	100A	20A				27	28				1P	100A	20A	SPARE		
		SPARE	1P	100A	20A				29	30				1P	100A	20A	SPARE		
Ī		SPARE	1P	100A	20A				31	32				1P	100A	20A	SPARE		
ľ		SPARE	1P	100A	20A				33	34				1P	100A	20A	SPARE		
ľ		SPACE	1P	100A	20A				35	36				1P	100A	20A	SPACE		
ľ		SPACE	1P	100A	20A				37	38				1P	100A	20A	SPACE		
Ī		SPACE	1P	100A	20A				39	40				1P	100A	20A	SPACE		
Ī		SPACE	1P	100A	20A				41	42				1P	100A	20A	SPACE		

SCHUNKEWITZ

ARCHITECTURE

INTERIORS PROJECT MANAGEMENT

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www.lilker.com

Issued for 100% CD's 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title: **ELECTRICAL PANEL** SCHEDULE

(SHEET 1 OF 2) 05/23/2023

Checked By: MJR AS NOTED Issued To, For:

CONSTRUCTION DOCUMENTS

17 OF 23 E-501.00

	PANEL: SERVICE VOLTAGE: MAIN BUS RATING: AIC RATING: PANEL FEEDER:	MDP-EBP1 480/277V, 3ø, 4W 225 A 22 KA REFER TO SINGLE LINE		ENCLO: MOUNT LOCAT	ING:	NEMA 1 RECESS CT CON EQUP	SED NTROL F	ROOM			MAIN F		EV	V			F BONDE □ ISOLAT □ 200% N	N-DOOR TRIM D GROUND BUS FED GROUND BUS EUTRAL BUS HROUGH LUGS	
NOTE	BRANCH FEEDER	LOAD DESCRIPTION	PROT. DEVICE		ICE	LOAD (VA)			POLES	JI ES	L	OAD (V	۹)	PR	OT. DEV	ICE	- LOAD DESCRIPTION	BRANCH FEEDER	ļ.
9	DIVANCE FEEDER	LOAD DESCRIPTION	POLE	FRAME	TRIP	IP ØA ØB ØC	TOLLS	øΑ	øΒ	øС	POLE	FRAME	TRIP	NOTE					
									1	2				1P	100A	20A	SPARE		
	3#2,#2G-1-1/4"C	PU-1	3P	100A	100A				3	4				1P	100A	20A	SPARE		
									5	6				1P	100A	20A	SPARE		
			3P	100A	100A				7	8				1P	100A	20A	SPARE		
	3#2,#2G-1-1/4"C PU-2	PU-2							9	10				1P	100A	20A	SPARE		
									11	12				1P	100A	20A	SPARE		
		#10,#10G-3/4"C SC-1	3P	100A	100A				13	14				1P	100A	20A	SPARE		
	4#10,#10G-3/4"C								15	16				1P	-		SPACE		
									17	18				1P	-		SPACE		
	2#12+#12G-3/4"C	XF-1	2P	100A	15A				19	20				1P	-		SPACE		
	2#121#120 0/4 0	74 1	21	100/(10/1				21	22				1P	-		SPACE		
		SPACE	1P	1					23	24				1P	-		SPACE		
		SPACE	1P	ı					25	26				1P	-		SPACE		
		SPACE	1P	ı					27	28				1P	-		SPACE		
		SPACE	1P	-					29	30				1P	-		SPACE		
		SPACE	1P	-					31	32				1P	-		SPACE		
		SPACE	1P	-					33	34				1P	-		SPACE		
		SPACE	1P	-					35	36				1P	-		SPACE		
		SPACE	1P	-					37	38				1P	-		SPACE		
		SPACE	1P	-					39	40				1P	-		SPACE		
		SPACE	1P	-					41	42				1P	-		SPACE		

NOTES: PROVIDE SHUNT TRIP MAIN CIRCUIT BREAKER. POWER FROM 120VAC CRITICAL BRANCH EPO CIRCUIT.

3#12,#12G-3/4"C

ACCU-1

3P 100A 20A

TOTAL CONNECTED LOAD:
TOTAL DEMAND LOAD:
TOTAL AMPS:

3#1,#8G-1 1/2"C

MAIN RATING: PANEL: EQ-3-1 ✓ DOOR-IN-DOOR TRIM SERVICE VOLTAGE: 480/277V, 3ø, 4W M.L.O. ENCLOSURE: NEM A 1 ▼ BONDED GROUND BUS MAIN BUS RATING: MOUNTING: SURFACE ☐ ISOLATED GROUND BUS AIC RATING: LOCATION: ELECTRIC ROOM 200% NEUTRAL BUS **EQUIPMENT** PANEL FEEDER: REFER TO RISER LINE DIAGRAM FEED THROUGH LUGS PROT. DEVICE PROT. DEVICE BRANCH FEEDER LOAD DESCRIPTION POLES LOAD DESCRIPTION BRANCH FEEDER POLE FRAME TRIP ØA ØB ØC ØA ØB ØC POLE FRAME TRIP 2#10,#10G-3/4"C HEAT TRACE RF 1P 100A 20A SPARE 1P 100A 30A 500 2#12+1#12G-3/4"C. 1P 100A 20A 1P 100A 20A SPARE SPA RE 1P 100A 20A SPA RE 1P | 100A | 20A | SPARE 1P 100A 20A SPA RE 7 8 1P | 100A | 20A | SPARE SPA RE 1P | 100A | 20A 9 10 1P | 100A | 20A | SPARE SPA RE 1P | 100A | 20A 11 12 1P | 100A | 20A | SPARE 13 14 SPA RE 1P 100A 20A 1P | 100A | 20A | SPARE 1P 100A 20A 1P 100A 20A 15 | 16 | 1P | 100A | 20A | SPARE SPA RE 17 18 SPA RE 1P | 100A | 20A | SPARE 1P 100A 20A 19 20 SPA RE 1P 100A 20A SPARE 1P 100A 20A 21 22 1P 100A 20A SPARE SPA RE 1P 100A 20A 23 24 SPA RE 1P 100A 20A SPARE 1P 100A 20A 25 26 1P 100A 20A SPARE SPA RE 27 28 1P 100A 20A 1P 100A 20A SPARE SPA RE SPA RE 1P 100A 20A 1P 100A 20A SPARE 1P | 100A | 20A | SPA RE **31 32** 487 1P 100A 20A 487 3P | 100A | 20A | EF-1 3#12,#12G-3/4"C SPA RE 1P 100A 20A SPACE

NOTES:

TOTAL CONNECTED LOAD: 60,959 VA

TOTAL DEMAND LOAD: 51,815 VA

TOTAL AMPS: 62.3 A

39 40

19,279

19,279

3P | 100A | 100A |

AHU-1 ROOF

MAIN RATING: PANEL: LP-EM-3 ✓ DOOR-IN-DOOR TRIM SERVICE VOLTAGE: 208/120V, 3ø, 4W ENCLOSURE: NEM A 1 M.L.O. ▼ BONDED GROUND BUS MOUNTING: SURFACE MAIN BUS RATING: ☐ ISOLATED GROUND BUS LOCATION: ELECTRIC ROOM AIC RATING: **EXISTING** ☐ 200% NEUTRAL BUS REFER TO RISER LINE DIAGRAM EM ERGENCY PANEL FEEDER: FEED THROUGH LUGS PROT. DEVICE LOAD (VA) PROT. DEVICE LOAD (VA) BRANCH FEEDER LOAD DESCRIPTION LOAD DESCRIPTION BRANCH FEEDER POLE FRAME TRIP ØA ØB ØC øA ØB ØC POLE FRAME TRIP ___1P | 100A | 20A | E-C38 EM RECEP 1P | 100A | 20A | MICU DOOR SETON **EXISTING EXISTING** 1P 100A 20A EXISTING LOAD **EXISTING EXISTING** EXISITING LOAD 1P | 100A | 20A | 1P | 100A | 20A | **EXISTING** 1P | 100A | 20A | EXISTING LOAD **EXISTING** EXISITNG LOAD 1P | 100A | 20A | 1P 100A 20A EXISTING LOAD **EXISTING EXISTING** EXISITNG LOAD 1P 100A 20A SPARE 1P 100A 20A 9 10 **EXISTING** EXISITNG LOAD 1P 100A 20A SPARE 1P 100A 20A 2#12,#12G-3/4"C AHU-1 RECEP. 500 11 12 1P 100A 20A SPARE 1P 100A 20A 500 2#12,#12G-3/4"C AHU-1 LTG,CTRLS 13 14 1P 100A 20A NURSE CALL PANELS 15 16 **EXISITNG** 1P 100A 20A EXISTING LOAD SPA RE 1P | 100A | 60A 1P 100A 20A EXISTING LOAD 19 20 1P 100A 20A EXISTING LOAD SPA CE 1P | 100A | 21 22 1P 100A - SPACE SPA CE 1P 100A 23 24 SPACE 1P | 100A | **25 26** 487 1P | 100A | - | SPACE SPA CE 1P | 100A | 1P | 100A | - | SPACE 27 28 487 SPA CE 1P | 100A | -29 30 487 | 1P | 100A | - | SPACE NOTES: BOLD INDICATES NEW CIRCUIT BREAKER AND WIRE TOTAL CONNECTED LOAD: 2,461 VA 2,461 VA TOTAL DEMAND LOAD: TOTAL AMPS: 6.8 A SCHUNKEWITZ

ARCHITECTURE

INTERIORS
PROJECT MANAGEMENT

DANIEL SCHUNKEWITZ, ARCHITECT 1015 BENDERMERE AVENUE WANAMASSA NJ, 07712 917-848-2350 DS@DSAHEALTHCARE.COM

Seal & Signature

Consultants:

Lilker Associates
Mechanical and Electrical Engineers

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Lilke

3 05/23/2023 Issued for 100% CD's
2 04/28/2023 Issued for 50% CD's
1 03/31/2023 DD Review Set
no. date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

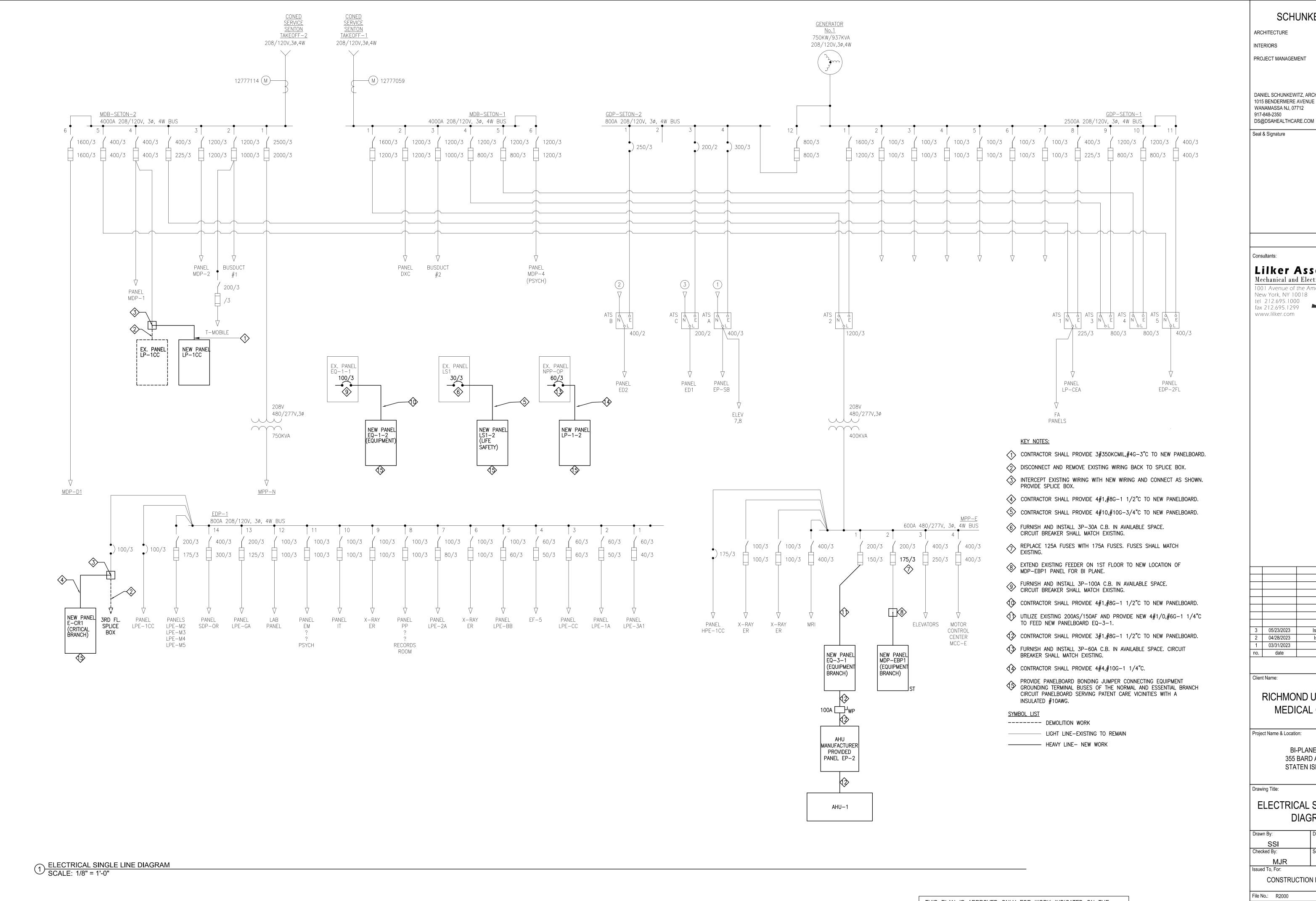
Drawing Title:

ELECTRICAL PANEL SCHEDULE (SHEET 2 OF 2)

led To, For:

CONSTRUCTION DOCUMENTS

e No.: R2000 awing No.: E-502.00



APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

SCHUNKEWITZ

ARCHITECTURE

DANIEL SCHUNKEWITZ, ARCHITECT 1015 BENDERMERE AVENUE WANAMASSA NJ, 07712 917-848-2350

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Lilker

Issued for 100% CD's 05/23/2023 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set date description

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL SINGLE LINE DIAGRAM

Drawn By: 05/23/2023 SSI Checked By: MJR AS NOTED

CONSTRUCTION DOCUMENTS

19 OF 23

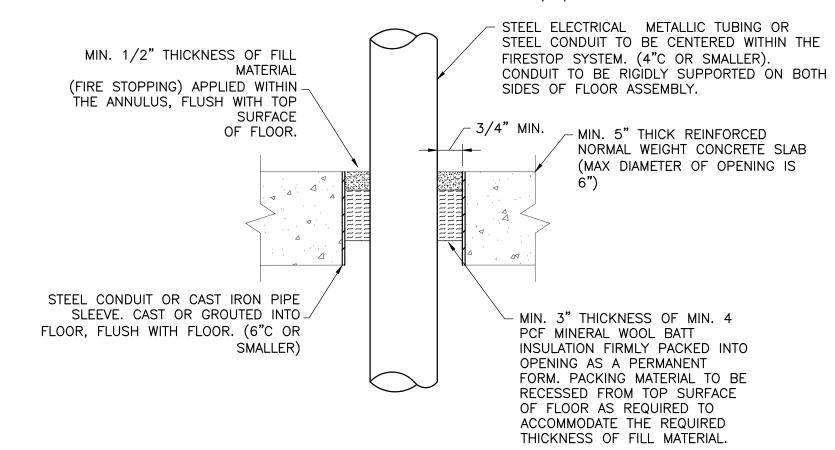
File No.: R2000 Drawing No.:

E-503.00

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE

HILTI SYSTEM NO. C-AJ-1009

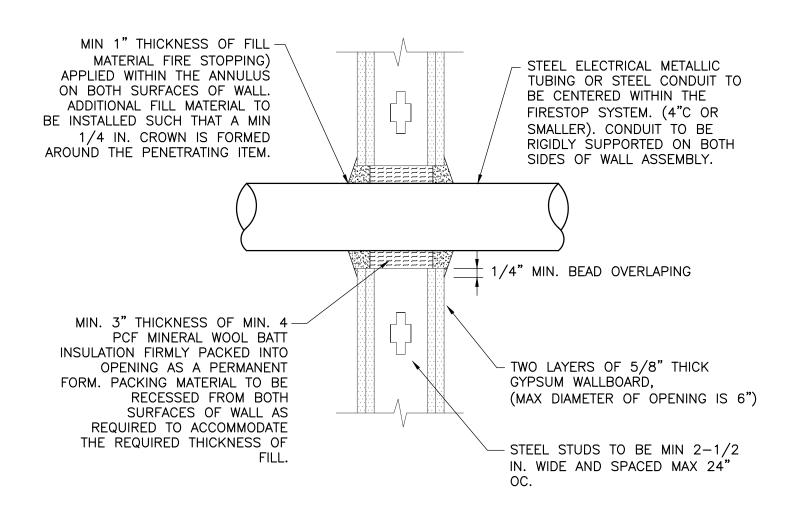
(FORMERLY SYSTEM NO. 122) F RATING -- 2 HR T RATING -- 0 HR L RATING AT AMBIENT -- LESS THAN 1 CFM/sq ft L RATING AT 400° F -- LESS THAN 1 CFM/sq ft



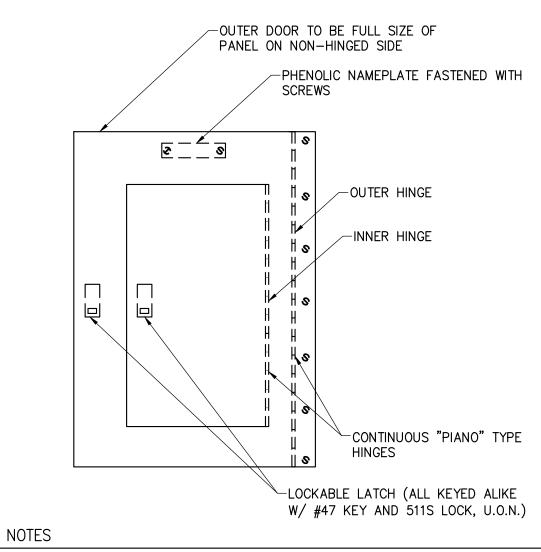
CONDUIT PENETRATION THRU FIRE RATED CONCRETE SLAB

HILTI SYSTEM NO. W-L-1009

(FORMERLY SYSTEM NO. 242) F RATING-- 2 HR T RATING--0 HR L RATING AT AMBIENT—LESS THAN 1 CFM/sq ft (SEE ITEM 3B) L RATING AT 400° F--LESS THAN 1 CFM/sq ft (SEE ITEM 3B)



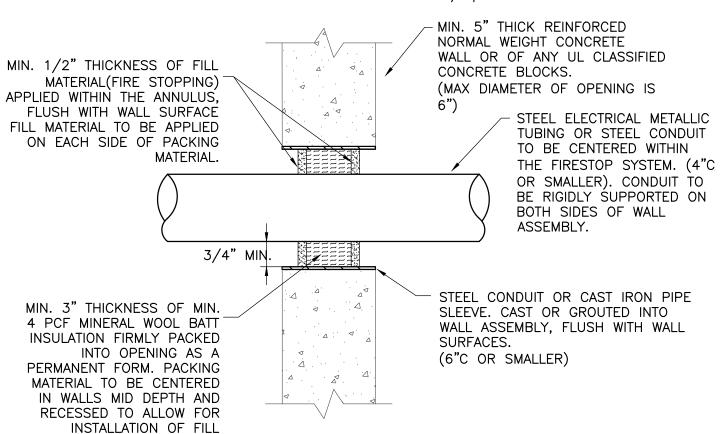
CONDUIT PENETRATION THRU FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY



1. ALL PANELS SIZED 400A AND LESS SHALL BE PROVIDED WITH DOOR-IN-DOOR COVERS. DOOR-IN DOOR DETAIL

HILTI SYSTEM NO. C-AJ-1009

(FORMERLY SYSTEM NO. 122) F RATING -- 2 HR T RATING -- 0 HR L RATING AT AMBIENT -- LESS THAN 1 CFM/sq ft L RATING AT 400° F -- LESS THAN 1 CFM/sq ft



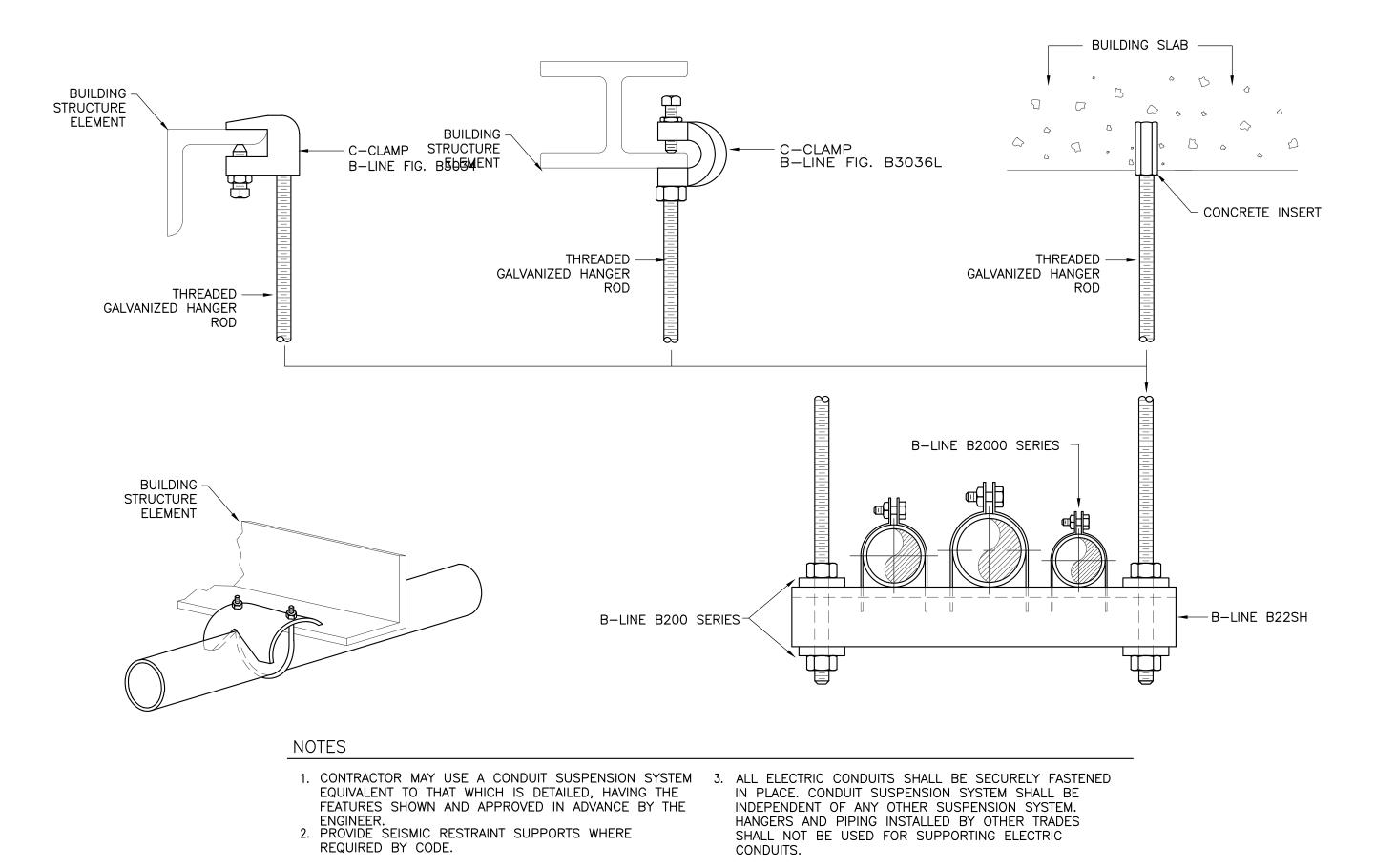
CONDUIT PENETRATION THRU FIRE RATED CONCRETE OR BLOCK WALL

MATERIAL.

(FORMERLY SYSTEM NO. 590) `F RATINGS — 1 AND 2 HR´ T RATING - 0 AND 1/4 HR L RATING AT AMBIENT - 76 CFM/SQ FT L RATING AT 400 F - 7 CFM/SQ FT CYLINDRICAL SLEEVE, LENGTH OF STEEL SLEEVE TO BE EQUAL TO THICKNESS OF WALL PLUS APPROX. 7/8" TO 1" SUCH THAT, WHEN INSTALLED, THE ENDS OF MIN. 1" THICKNESS OF MINERAL THE SLEEVE WILL PROJECT APPROX. WOOL BATT INSULATION FIRMLY 7/16" TO 1/2" BEYOND THE SURFACE OF PACKED INTO STEEL SLEEVE ON THE WALL ON EACH SIDE OF THE WALL BOTH SIDES OF THE WALL ASSEMBLY. ASSEMBLY AS PERMANENT FORMS. PACKING MATERIAL TO BE RECESSED MIN. 1" THICKNESS OF FILL MIN. 1" FROM END OF STEEL MATERIAL (FIRE STOPPING) APPLIED SLEEVE (MIN 1/2" FROM WITHIN THE ANNULUS ON BOTH ENDS OF THE STEEL SLEEVE. WALLBOARD) ON BOTH SIDES OF SURFACE OF GYPSUM - CABLES A NOM 1/4" DIAMETER CONTINUOUS BEAD OF CAULK SHALL BE APPLIED AROUND THE CIRCUMFERENCE OF THE STEEL SLEEVE AT ITS EGRESS TWO LAYERS OF 5/8" THICK FROM THE GYPSUM WALLBOARD GYPSUM WALLBOARD, LAYERS ON BOTH SIDES OF THE (MAX DIAMETER OF OPENING IS 6") WALL ASSEMBLY. STEEL STUDS TO BE MIN 2-1/2 IN. WIDE AND SPACED MAX 24"

HILTI SYSTEM NO.W-L-3032

CABLE PENETRATION THRU FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY



TYPICAL CONDUIT SUPPORT SYSTEM

SCHUNKEWITZ

ARCHITECTURE

INTERIORS

PROJECT MANAGEMENT

DANIEL SCHUNKEWITZ, ARCHITECT 1015 BENDERMERE AVENUE WANAMASSA NJ, 07712 917-848-2350 DS@DSAHEALTHCARE.COM

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Consultants:

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Lilker

05/23/2023 Issued for 100% CD's 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL DETAILS

05/23/2023 SSI Checked By: MJR AS NOTED Issued To, For:

CONSTRUCTION DOCUMENTS

File No.: R2000 Drawing No.:

20 OF 23 E-601.00

ELECTRICAL SPECIFICATIONS

1. GENERAL

- A. THE WORK UNDER THIS DIVISION INCLUDES PROVIDING ALL LABOR, MATERIALS, SUPERVISION, SUPPLIES, TOOLS, SCAFFOLDING, MACHINERY, EQUIPMENT, APPLIANCES, AND SERVICES (INCLUDING TRANSPORTATION, RIGGING, STORAGE UTILITIES, ETC.) PLUS ALL REQUIRED PERMITS AND LICENSES NECESSARY TO COMPLETE THE WORK UNDER THIS CONTRACT. ALL SYSTEMS AND EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT AND ALL ITEMS OF MATERIAL, EQUIPMENT AND LABOR SHALL BE FURNISHED, INSTALLED, TESTED AND COMMISSIONED FOR A FULLY OPERATIONAL SYSTEM.
- B. ALL LABOR, MATERIALS, APPARATUS AND APPLIANCES REQUIRED FOR THE COMPLETE AND PROPER FUNCTIONING OF THE SYSTEMS DESCRIBED AND/OR INDICATED HEREIN, OR WHICH MAY BE REASONABLY IMPLIED AS ESSENTIAL, WHETHER MENTIONED/INDICATED IN THE CONTRACT DOCUMENTS OR NOT, SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR. THE ENTIRE INSTALLATION SHALL BE READY IN EVERY RESPECT FOR SATISFACTORY AND EFFICIENT OPERATION WHEN COMPLETED.
- C. BIDDERS, BEFORE SUBMITTING PROPOSALS, SHALL EXAMINE ALL DRAWINGS, SPECIFICATIONS, ADDENDA, ALTERNATES, SPECIAL CONDITIONS, AND ALL OTHER CONTRACT DOCUMENTS OF ALL DIVISION AND SECTIONS OF THIS PROJECT, SHALL VISIT THE SITE AND CAREFULLY EXAMINE THE AREAS AFFECTED BY THE WORK IN THIS CONTRACT AND SHALL FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS, BUILDING RULES AND ANY DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THIS WORK. SUBMITTAL OF A BID IS AN AGREEMENT TO ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS, AND NO CONSIDERATION WILL BE GRANTED FOR ANY CLAIMED MISUNDERSTANDING THEREOF.
- D. THIS CONTRACTOR SHALL PROVIDE TEMPORARY LIGHT AND POWER FOR ALL TRADES FROM THE EXISTING OR TEMPORARY ELECTRIC SERVICE AS REQUIRED BY FIELD CONDITIONS. TEMPORARY POWER PROVISIONS SHALL COMPLY WITH ALL LOCAL AUTHORITY HAVING JURISDICTION REQUIREMENTS AS WELL AS OSHA REQUIREMENTS FOR GFCI PROTECTION FOR RECEPTACLE CIRCUITS. PROVIDE TEMPORARY POWER FOR ALL WELDER HOOKUPS, TEMPORARY HEATING, ETC. AS REQUIRED.

2. CODES, STANDARDS ORDINANCES, PERMITS, FEES, ETC.

A. THE ENTIRE INSTALLATION AND ALL EQUIPMENT, MATERIALS AND METHODS SHALL COMPLY WITH THE CURRENTLY STATE ENFORCED VERSIONS OF THE FOLLOWING CODES AND ORDINANCES:

UNDERWRITERS LABORATORIES, INC. (UL)

ELECTRICAL CODE

NFPA 70E

BUILDING CODE

ENERGY CONSTRUCTION CODE

HOSPITAL RULES AND REGULATIONS

HOSPITAL INFECTION CONTROL STANDARDS

NFPA 99

FGI DESING GUIDELINES FOR HOSPITALS AND OUTPATIENT FACILITIES.

- ALL LOCAL JURISDICTION DIRECTIVES AND REQUIREMENTS
- B. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE REQUIREMENTS OF ALL LOCAL AUTHORITIES HAVING JURISDICTION AND NOTIFY THE ENGINEER IF, IN HIS OPINION, ANY WORK OR MATERIAL SPECIFIED IS NOT PERMITTED.
- C. WHERE CONTRACT DOCUMENT REQUIREMENTS ARE IN EXCESS OF RULES, REGULATIONS AND CODE REQUIREMENTS, AND ARE PERMITTED UNDER THE CODE, THE CONTRACT DOCUMENTS SHALL GOVERN. IN THE EVENT OF A CONFLICT BETWEEN THE CONTRACT DOCUMENTS AND THE APPLICABLE LAWS, RULES, REGULATIONS, CODES, AND ORDINANCES OF FEDERAL, STATE, AND LOCAL AUTHORITIES HAVING JURISDICTION, THE LATTER SHALL GOVERN.
- D. WHERE ALTERATIONS TO AND/OR DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE REQUIRED BY THE AUTHORITIES HAVING JURISDICTION, REPORT THE REQUIREMENTS TO THE ARCHITECT AND ENGINEER AND SECURE THEIR WRITTEN APPROVAL BEFORE STARTING THE REQUIRED MODIFICATIONS.
- E. THE CONTRACTOR SHALL SECURE WRITTEN APPROVAL OF ALL WORK FROM ALL AUTHORITIES HAVING JURISDICTION BEFORE REQUESTING FINAL PAYMENT.
- F. THE CONTRACTOR SHALL PAY ALL FEES REQUIRED TO PERFORM THE WORK AND OBTAIN ELECTRICAL AND FIRE DEPARTMENT INSPECTIONS.

3. SHOP DRAWINGS AND CATALOG CUTS

A. THE CONTRACTOR SHALL PREPARE AND SUBMIT TO THE ARCHITECT AND ENGINEER FOR APPROVAL, DETAILED SHOP DRAWINGS, CATALOG CUTS AND WIRING DIAGRAMS FOR THE FOLLOWING:

PANELBOARDS
SWITCHBOARD MODIFICATIONS — ADVISORY BOARD DRAWINGS
SHORT CIRCUIT, COORDINATION AND ARC FLASH STUDY
DISCONNECT SWITCHES
LIGHTING FIXTURES
BALLASTS
LIGHTING CONTROLS
WIRING DEVICES AND DEVICE PLATES
WIRING
FIRE ALARM
NURSE CALL

ANY OTHER SYSTEM OR EQUIPMENT INSTALLED

- B. SUBMIT FOUR SETS AS A MINIMUM, UNLESS OTHERWISE REQUIRED BY THE OWNER, ARCHITECT, GENERAL CONTRACTOR OR CONSTRUCTION MANAGER.
- C. ENGINEER'S SHOP DRAWING REVIEW IS FOR GENERAL COMPLIANCE WITH THE DESIGN CONCEPT AND CONTRACT DOCUMENTS AND DOES NOT RELIEVE THE CONTRACTOR OF HIS RESPONSIBILITY FOR DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS OR FROM THE NECESSITY OF FURNISHING ANY WORK REQUIRED BY THE CONTRACT DOCUMENTS WHICH MAY HAVE BEEN OMITTED FROM THE SHOP DRAWING SUBMITTALS.
- D. ENGINEER'S SHOP DRAWING MARKINGS OR COMMENTS OR THE LACK THEREOF SHALL NOT BE CONSTRUED AS RELIEVING THE CONTRACTOR FROM COMPLIANCE WITH THE PROJECT CONTRACT DOCUMENTS. THE CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR DETAILS AND ACCURACY, FOR CONFIRMING AND CORRELATING ALL QUANTITIES AND DIMENSIONS, FOR SELECTING FABRICATION PROCESSES, FOR TECHNIQUES OF CONSTRUCTION, IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- E. NO PART OF THE WORK SHALL BE STARTED IN THE SHOP OR IN THE FIELD AND NO MATERIAL SHALL BE DELIVERED OR INSTALL UNTIL THE ENGINEER HAVE REVIEWED AND APPROVED THE ASSOCIATED SHOP DRAWINGS AND SAMPLES.
- F. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS IN A MANNER AS TO ALLOW ADEQUATE TIME FOR REVIEW AND ALL NECESSARY RESUBMISSIONS. DELAYS DUE TO SHOP DRAWING REJECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. SUBSTITUTIONS

- A. ANY SUBSTITUTIONS FOR ELECTRICAL ITEMS DESCRIBED IN THIS SPECIFICATION WILL ONLY BE PERMITTED UPON WRITTEN PRIOR APPROVAL BY THE ENGINEER.
- B. PROPOSED EQUIPMENT SUBSTITUTIONS SHALL BE SUBMITTED FOR PRIOR APPROVAL AND SHALL INCLUDE A COMPLETE DETAILED LIST INDICATING ALL DEVIATIONS ITEM BY ITEM. SUBMISSIONS SHALL INCLUDE A LIST OF LOCAL INSTALLATIONS NOT LESS THAN FIVE YEARS OLD.

- C. REQUESTS FOR APPROVAL OF SUBSTITUTIONS FOR ITEMS OF LESSER MATERIAL AND/OR LABOR COSTS THAN THOSE SPECIFIED MUST BE ACCOMPANIED BY AN ITEMIZED COST SAVINGS BREAKDOWN TO BE CONSIDERED.
- D. ALL MATERIALS FOR USE ON THIS PROJECT SHALL BE THE SAME PRODUCT LINE OF THE SAME MANUFACTURER FOR EACH PHASE OF THE WORK. WHERE PREVIOUS PHASES OF WORK HAVE ALREADY BEEN COMPLETED, CONTRACTOR SHALL MATCH EQUIPMENT PROVIDED UNDER THESE PREVIOUS PHASES. SUBSTITUTIONS SHALL NOT BE ACCEPTABLE DURING LATER PHASES OF WORK EXCEPT UNDER EXTENUATING CIRCUMSTANCES AND ONLY WITH THE PRIOR APPROVAL OF THE OWNER AND ENGINEER.
- E. EQUIPMENT SHOWN ON THE DRAWINGS WITH PARTICULAR MANUFACTURERS IDENTIFIED HAS BEEN COORDINATED FOR STRUCTURAL PENETRATIONS, UTILITY CONNECTIONS, OPERATING AND SERVICE (MAINTENANCE) REQUIREMENTS, AND PHYSICAL SIZE WITH REGARD TO THE SPACE WHERE THE EQUIPMENT IS SHOWN. SUBSTITUTIONS WILL BE ACCEPTABLE CONTINGENT ON THE CONTRACTOR PROVIDING A COMPLETE INSTALLATION AND MAINTAINING FULL RESPONSIBILITY TO PROVIDE, AT NO ADDITIONAL COST, ANY MODIFICATIONS TO THE STRUCTURE, MECHANICAL CONNECTIONS OR ELECTRICAL SERVICE THAT ARE REQUIRED TO PROPERLY INSTALL, OPERATE, AND SERVICE THE EQUIPMENT BEING USED. THESE MODIFICATIONS SHALL NOT INCLUDE ADDITIONAL AREA FOR EQUIPMENT UNLESS APPROVED BY THE ARCHITECT.

5. QUALITY ASSURANCE

- A. MANUFACTURERS SHALL BE FIRMS REGULARLY ENGAGED IN MANUFACTURE OF ELECTRICAL CONSTRUCTION PRODUCTS OF TYPES REQUIRED FOR THIS PROJECT, WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR NOT LESS THAN FIVE (5) YEARS.
- B. THE CONTRACTOR SHALL HAVE HAD EXPERIENCE ON AT LEAST FIVE PROJECTS INVOLVING QUANTITIES AND COMPLEXITIES AT LEAST EQUAL TO THOSE REQUIRED FOR THIS PROJECT.
- C. ALL WORKMEN PERFORMING WORK UNDER THIS DIVISION SHALL BE SKILLED WORKMEN OF THE TRADE INVOLVED UNDER THE SUPERVISION OF A LICENSED ELECTRICIAN.

6. INSPECTION

- A. ALL STAGES OF THE INSTALLATION MAY BE INSPECTED FOR COMPLIANCE WITH THE REQUIREMENTS OF THE CONTRACT DRAWINGS AND SPECIFICATIONS. REPLACE ANY PORTION OF THE CONSTRUCTION THAT DOES NOT MEET SUCH REQUIREMENTS TO THE SATISFACTION OF THE ENGINEER.
- B. PROVIDE PROPER FACILITIES AS THE ENGINEER AND INSPECTORS MAY REQUIRE FOR ACCESS AND FOR INSPECTION AT THE CONSTRUCTION SITE.

7. CUTTING AND PATCHING AND PAINTING

- A. ALL CUTTING, PATCHING AND PAINTING REQUIRED FOR THE INSTALLATION OF EQUIPMENT SHALL BE DONE BY THIS CONTRACTOR. IF CUTTING IS DONE DUE TO FAILURE TO PERFORM PRELIMINARY ROUGHING WORK, THIS CONTRACTOR WILL BE RESPONSIBLE FOR THE COST OF THE ADDITIONAL PATCHING AND
- B. CONTRACTOR SHALL COORDINATE TIME OF WORK WITH OWNER FOR CUTTING HOLES AND INSTALLING CONDUITS, BOXES, ETC. WHERE HUNG CEILINGS ARE INSTALLED, CONTRACTOR SHALL REMOVE AND REINSTALL ALL CEILING TILES AS REQUIRED. TILES DAMAGED DUE TO INSTALLATION OF ELECTRICAL WORK SHALL BE REPLACED TO MATCH EXISTING AT NO ADDITIONAL COST TO OWNER.
- C. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED SLEEVES IN NEW AND EXISTING FLOORS, WALLS OR PARTITIONS. SLEEVES SHALL BE MINIMUM ONE TRADE SIZE LARGER THAN THE CONDUIT AND SHALL BE OF THE RIGID GALVANIZED CONDUIT TYPE WITH UL LISTED FIRE STOPPING MATERIAL. WHERE SLEEVES AND INSERTS WERE NOT INSTALLED, OR WHERE SLEEVES AND INSERTS WHERE INCORRECTLY LOCATED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COST OF ANY REQUIRED RELOCATION, CUTTING AND PATCHING.
- D. THIS CONTRACTOR SHALL NOT DO ANY CUTTING THAT MAY IMPAIR THE STRENGTH OF BUILDING CONSTRUCTION. NO HOLES ARE TO BE DRILLED INTO THE TENSION SIDE OF STRUCTURAL MEMBERS. CLAMPS AND OTHER APPROVED HOLDING DEVICES ARE TO BE USED. ALL WORK SHALL BE DONE IN A NEAT MANNER BY WORKERS SKILLED IN THEIR TRADE AND AS APPROVED BY BUILDING MANAGEMENT AND/OR BUILDING RULES AND REGULATIONS.
- E. AT THE END OF THE WORKING DAY, THE CONTRACTOR SHALL MAINTAIN TEMPORARY FIRE BARRIERS TO PROTECT THE BUILDING.
- F. MAINTAIN ALL CONSTRUCTION FIRE RATINGS USING FIRE STOPPING AND OTHER NECESSARY MATERIALS AS REQUIRED AND/OR LISTED BY LOCAL AUTHORITY HAVING JURISDICTION.
- G. RESTORE EXPOSED FINISHES OF PATCHED AREAS AND EXTEND FINISH
 RESTORATION INTO RETAINED ADJOINING CONSTRUCTION IN A MANNER THAT WILL
 ELIMINATE EVIDENCE OF PATCHING AND REFINISHING WHENEVER EXISTING
 BUILDING SURFACES ARE DISTURBED. NEW PAINTING AND FINISHES SHALL MATCH
 EXISTING.
- H. WHENEVER EXCAVATION OR CUTTING OF SLABS ARE PERFORMED, THE CONTRACTOR SHALL HIRE A SPECIALIST TO PERFORM SUBSURFACE SCANS TO IDENTIFY AND FLAG UTILITIES, SO THEY ARE NOT DAMAGED.

8. EQUIPMENT MOUNTING

- A. FURNISH AND INSTALL A COMPLETE SUPPORT SYSTEM AS REQUIRED FOR PROPER DISTRIBUTION, PROTECTION AND SUPPORT OF ALL ELECTRICAL EQUIPMENT THROUGHOUT THE PROJECT AS INDICATED ON AND IN ACCORDANCE WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS AND APPLICABLE CONSTRUCTION CODES.
- B. WHEN REQUIRED BY CODE OR SPECIFIED IN THE CONTRACT DOCUMENTS, INCLUDE SEISMIC CONSTRAINTS. SEISMIC BRACING CALCULATIONS MUST BE PROVIDED FOR ALL CONNECTIONS OF EQUIPMENT TO THE STRUCTURE. CALCULATIONS MUST BE STAMPED BY THE CONTRACTOR'S REGISTERED PROFESSIONAL ENGINEER WITH AT LEAST FIVE YEARS OF SEISMIC DESIGN EXPERIENCE, LICENSED AND INSURED N THE STATE
- C. PROVIDE INSERTS, EXPANSION SHIELD LUGS, ANCHORS, BOLTS WITH NUTS AND WASHERS SHIMS OR ANY OTHER TYPE OF FASTENING DEVICES REQUIRED TO FASTEN PANELS OR OTHER EQUIPMENT, TO FOUNDATIONS, FLOORS, WALLS OR CEILINGS. UNLESS OTHERWISE SPECIFIED HEREIN OR SHOWN ON THE CONTRACT DRAWINGS,
- D. FASTENERS FOR DRY LOCATIONS SHALL BE ZINC PLATED. HANGERS FOR DAMP AND WET LOCATIONS SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.

E. HANGER RODS SHALL BE THREADED EITHER ENDS, OR CONTINUOUS THREADED

- RODS OF CIRCULAR CROSS SECTION. USE ADJUSTING LOCKNUTS AT UPPER ATTACHMENTS AND HANGERS. NO WIRE, CHAIN, OR PERFORATED STRAPS ARE ALLOWED.
- F. MANUFACTURERS SHALL BE THOMAS & BETTS-KINDORF, THOMAS & BETTS-SUPERSTRUT, UNISTRUT OR APPROVED EQUAL.
- G. ALL ANCHORS MUST BE ICC-ES APPROVED.
- H. ALL CEILING HUNG EQUIPMENT ANCHORS SHALL BE IN COMPLIANCE WITH THE LOCAL AUTHORITY HAVING JURISDICTION AND CONFORM TO APPLICABLE CONSTRUCTION CODES.
- I. FASTEN JUNCTION, PULL AND DEVICES BOXES SECURELY TO THE BUILDING CONSTRUCTION, INDEPENDENT OF RACEWAY SYSTEM.
- J. INSTALL THROUGH—STUD CABLE AND RACEWAY SUPPORT CLIPS WHERE CABLES OR RACEWAYS RUN HORIZONTALLY THROUGH METAL STUDS.
- K. INSTALL TEE BAR GRID BOX HANGER SUPPORTED BETWEEN TWO CEILING GRID TEE BARS WHERE DEVICES BOXES ARE LOCATED FLUSH IN RECESSED SUSPENDED CEILINGS. INSTALL AT LEAST ONE INDEPENDENT SUPPORT ROD FROM BOX HANGER TO STRUCTURE.

- L. INSTALL ROOF-MOUNTED RACEWAY SUPPORT BLOCKING WHERE RACEWAYS RUN ON ACROSS ROOFING. COORDINATE INSTALLATION OF ROOF SUPPORTS WITH "ROOF ACCESSORIES." PROVIDE PRODUCTS COMPATIBLE WITH ROOFTOP MATERIALS INCLUDED IN THE WORK.
- M. PROVIDE MINIMUM OF TWO LOCK NUTS PER THREADED SUPPORT ROD EXCEPT WHERE LOCK NUT TIGHTENS AGAINST A THREADED SOCKET, ONE LOCKNUT MAY BE LISED.
- N. WHERE NOT INDICATED, SELECT SIZES OF COMPONENTS SO STRENGTH WILL BE ADEQUATE TO CARRY PRESENT AND FUTURE STATIC LOADS WITHIN SPECIFIED LOADING LIMITS. MINIMUM STATIC DESIGN LOAD USED FOR STRENGTH DETERMINATION SHALL BE WEIGHT OF SUPPORTED COMPONENTS PLUS 200 LB.

9. GROUNDING AND BONDING

FINISHED FLOOR.

ACCEPTABLE.

- A. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AND BONDED TO PROVIDE AN ELECTRICAL GROUNDING PATH TO EARTH IN A CODE—APPROVED MANNER.
- B. ALL HARDWARE REQUIRED FOR A COMPLETE GROUNDING SYSTEM SHALL BE FURNISHED AND INSTALLED BY THIS CONTRACTOR IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND INDUSTRY STANDARDS.
- C. ALL GROUNDING AND BONDING MATERIALS SHALL COMPLY WITH UL 467 AND SHALL BE LISTED AND LABELED ACCORDINGLY.
- D. MANUFACTURERS SHALL BE ABB/ THOMAS & BETTS-BLACKBURN, BURNDY A DIVISION OF HUBBELL INC. OR APPROVED EQUAL.
- E. EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED, 600V, THHN-THWN COPPER CONDUCTORS, WITH GREEN-COLORED INSULATION SIZED IN ACCORDANCE WITH THE REQUIREMENTS OF THE ELECTRICAL CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- F. UNDERGROUND GROUNDING CONDUCTORS SHALL BE BARE TINNED-COPPER CONDUCTOR, #2/O AWG MINIMUM. BURY AT LEAST 24 INCHES BELOW GRADE.
- G. BONDING CONDUCTORS SHALL BE BARE COPPER CONDUCTORS. BONDING CONDUCTORS SHALL BE STRANDED FOR FINAL CONNECTION TO MOTORS, TRANSFORMERS, AND VIBRATING EQUIPMENT.
- H. MAIN BUILDING GROUNDING BUS BARS SHALL BE PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 4 INCHES IN CROSS SECTION MOUNTED ON INSULATED SPACERS MINIMUM 2 INCHES FROM THE WALL AND 6 INCHES ABOVE FINISHED FLOOR.
- I. TELCOM GROUNDING BUS BARS SHALL BE PREDRILLED RECTANGULAR BARS OF ANNEALED COPPER, 1/4 BY 2 INCHES IN CROSS SECTION MOUNTED ON INSULATED SPACERS MINIMUM 2 INCHES FROM THE WALL AND 6 INCHES ABOVE
- J. GROUNDING BUSBAR CONNECTORS SHALL BE MECHANICAL TYPE, CAST SILICON BRONZE, SOLDERLESS COMPRESSION—TYPE WIRE TERMINALS, AND LONG—BARREL, TWO—BOLT CONNECTION TO GROUND BUS BAR.
- K. USE MECHANICAL CONNECTORS FOR PIPE AND EQUIPMENT GROUNDING CONDUCTOR TERMINATIONS. MECHANICAL CONNECTORS SHALL BE COPPER OR COPPER ALLOY CONNECTORS, BOLTED-PRESSURE TYPE WITH AT LEAST TWO BOLTS. WASHERS AND STOP NUTS SHALL BE OF HIGH COPPER ALLOY EVERDUR, DURIUM, DURONZE OR SILICON BRONZE. FERROUS HARDWARE WILL NOT BE
- L. USE COMPRESSION CONNECTORS FOR ALL GROUNDING TERMINALS.
 COMPRESSION CONNECTORS SHALL BE COPPER CONNECTORS, FACTORY FILLED
 WITH AN OXIDE INHIBITOR AND INSTALLED WITH MANUFACTURERS COMPRESSION
- M. USE WELDED CONNECTORS FOR UNDERGROUND CONNECTIONS, INACCESSIBLE LOCATIONS AND CONNECTIONS TO STRUCTURAL STEEL. USE EXOTHERMIC—WELDING KITS OF TYPES RECOMMENDED BY KIT MANUFACTURER FOR MATERIALS BEING JOINED AND INSTALLATION CONDITIONS.
- N. APPROVED GROUNDING ELECTRODES ARE UNDERGROUND METAL WATER PIPING, BUILDING STEEL AND GROUND RODS. GROUND RODS SHALL BE COPPER-CLAD STEEL, SECTIONAL TYPE; 3/4 INCH BY 10 FEET AND SHALL BE DRIVEN UNTIL TOPS ARE 2 INCHES BELOW FINISHED FLOOR OR FINAL GRADE.
- O. ROUTE GROUNDING CONDUCTORS ALONG SHORTEST AND STRAIGHTEST PATHS POSSIBLE, UNLESS OTHERWISE INDICATED. AVOID OBSTRUCTING ACCESS OR PLACING CONDUCTORS WHERE THEY MAY BE SUBJECTED TO STRAIN, IMPACT, OR DAMAGE.
- P. FURNISH AND INSTALL A TELCOM GROUNDING BUS BAR AT EACH TELCOM/MDF ROOM. ALL METALLIC RACEWAY, EQUIPMENT RACKS AND EQUIPMENT CABINETS SHALL BE BONDED TO THE GROUNDING BUS BAR USING A MIN #6 AWG CONDUCTOR.
- Q. FURNISH AND INSTALL AN INSULATED EQUIPMENT GROUNDING CONDUCTOR WITH ALL FEEDERS AND BRANCH CIRCUITS.
- R. METALLIC CONDUIT THAT ONLY CONTAINS A GROUNDING CONDUCTOR, AND IS

 PROVIDED FOR ITS MECHANICAL PROTECTION, SHALL BE BONDED TO THAT

CONDUCTOR AT THE ENTRANCE AND EXIT FROM THE CONDUIT.

- T. METALLIC CONDUITS WHICH TERMINATE WITHOUT MECHANICAL CONNECTION TO ELECTRICAL EQUIPMENT HOUSING BY MEANS OF LOCKNUT AND BUSHINGS OR ADAPTERS, SHALL BE PROVIDED WITH GROUNDING BUSHINGS. CONNECT BUSHINGS WITH AN EQUIPMENT GROUNDING CONDUCTOR TO THE EQUIPMENT GROUND BUS.
- U. BOND THE EQUIPMENT GROUNDING CONDUCTOR TO EACH PULLBOX, JUNCTION BOX, OUTLET BOX, DEVICE BOX, CABINETS, AND OTHER ENCLOSURES THROUGH WHICH THE CONDUCTOR PASSES. PROVIDE LUGS IN EACH BOX AND ENCLOSURE FOR EQUIPMENT GROUNDING CONDUCTOR TERMINATION.
- V. FURNISH AND INSTALL AN INSULATED EQUIPMENT GROUNDING CONDUCTOR TO DUCT-MOUNTED ELECTRICAL DEVICES OPERATING AT 120V OR GREATER, INCLUDING AIR CLEANERS, HEATERS, DAMPERS, HUMIDIFIERS, AND OTHER DUCT-MOUNTED ELECTRICAL EQUIPMENT. BOND CONDUCTOR TO EACH UNIT AND TO AIR DUCT AND CONNECTED METALLIC PIPING.
- W. FURNISH AND INSTALL AN INSULATED EQUIPMENT GROUNDING CONDUCTOR TO EACH ELECTRIC WATER HEATER AND HEAT—TRACING CABLE. BOND CONDUCTOR TO HEATER UNITS, PIPING, CONNECTED EQUIPMENT, AND COMPONENTS.
- X. GROUND RECEPTACLES WITH A JUMPER FROM THE RECEPTACLE GREEN GROUND TERMINAL TO THE DEVICE BOX GROUND SCREW AND A JUMPER TO THE BRANCH CIRCUIT EQUIPMENT GROUNDING CONDUCTOR. RECEPTACLES SHALL NOT BE GROUNDED THROUGH THEIR MOUNTING SCREWS.
- Y. GROUND LIGHTING FIXTURES TO THE EQUIPMENT GROUNDING CONDUCTOR OF THE WIRING SYSTEM. FIXTURES CONNECTED WITH FLEXIBLE CONDUIT SHALL HAVE A GREEN GROUND WIRE INCLUDED WITH THE POWER WIRES FROM THE FIXTURE THROUGH THE FLEXIBLE CONDUIT TO THE FIRST OUTLET BOX.
- CC. GROUND BUSSES IN NORMAL AND EMERGENCY PANELS SERVING COMMON AREAS SHALL BE BONDED TOGETHER WITH A MINIMUM 1#6 AWG CONTINUOUS BONDING JUMPER AS PER NEC 517 CODE REQUIREMENTS.
- DD. ALL BRANCH CIRCUITS (NEW AND EXISTING) SHALL BE PROVIDED WITH A #12 AWG SOLID GREEN GROUND CONDUCTOR UNLESS CODE REQUIRES A LARGER SIZE.

EE. TEST COMPLETED GROUNDING SYSTEM AT EACH LOCATION WHERE A MAXIMUM GROUND-RESISTANCE LEVEL IS SPECIFIED BELOW. IF RESISTANCE TO GROUND EXCEEDS SPECIFIED VALUES, NOTIFY ENGINEER PROMPTLY AND INCLUDE RECOMMENDATIONS TO REDUCE GROUND RESISTANCE:

POWER AND LIGHTING EQUIPMENT OR SYSTEM WITH CAPACITY OF 500 KVA AND LESS: 10 OHMS.

POWER AND LIGHTING EQUIPMENT OR SYSTEM WITH CAPACITY OF 500 TO 1000 KVA: 5 OHMS.

POWER AND LIGHTING EQUIPMENT OR SYSTEM WITH CAPACITY MORE THAN 1000 KVA: 3 OHMS.

POWER DISTRIBUTION UNITS OR PANELBOARDS SERVING ELECTRONIC EQUIPMENT: 1 OHM.

PAD-MOUNTED EQUIPMENT: 5 OHMS.

10. WIRING

- A. UNLESS OTHERWISE SPECIFIED OR SPECIFICALLY INDICATED ON THE DRAWINGS, SINGLE CONDUCTORS SHALL BE SOFT—DRAWN, ANNEALED, UNCOATED, COPPER BUILDING WIRES OF MINIMUM 98% CONDUCTIVITY, TYPE THHN/THWN, RATED FOR 600 VOLT, COMPLYING WITH UL STANDARD 83, WITH DISTINCTIVE COLOR MARKING AS SPECIFIED HEREINAFTER. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID COMPLYING WITH ASTM B 3, CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED COMPLYING WITH ASTM B 8. MINIMUM WIRE SIZE SHALL BE #12 AWG UNLESS OTHERWISE NOTED. MANUFACTURERS SHALL BE AMERICAN INSULATED WIRE, COLONIAL WIRE & CABLE CO, REPUBLIC WIRE INC, SOUTHWIRE OR APPROVED EQUAL.
- B. TYPE USE/RHW CONDUCTORS SHALL HAVE 75°C, ABRASION, MOISTURE, HEAT, AND SUNLIGHT RESISTANT BLACK CROSS—LINKED POLYETHYLENE INSULATION. IN COMPLIANCE WITH UL STANDARD 854 AND 44
- C. HOSPITAL GRADE ARMORED CABLE (TYPE HCF) SHALL BE A FACTORY ASSEMBLY OF MULTIPLE SOFT—DRAWN COPPER, CURRENT—CARRYING CONDUCTORS, TYPE THHN/THWN RATED FOR 600V, COMPLYING WITH UL STANDARD 83, NEC 517.13, WITH A GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR IN A OVERALL GALVANIZED STEEL INTERLOCKED ARMOR. MINIMUM WIRE SIZE SHALL BE #12 AWG. THE WHOLE ASSEMBLY SHALL COMPLY WITH UL STANDARD 4. MANUFACTURERS SHALL BE AFC, SOUTHWIRE OR APPROVED EQUAL.
- D. MINERAL INSULATED CABLE (TYPE MI) SHALL CONSIST OF ONE OR MORE SOLID COPPER CONDUCTORS INSULATED WITH HIGHLY COMPRESSED MAGNESIUM OXIDE AND ENCLOSED IN A CONTINUOUS COPPER SHEATH. THE MI CABLE SHALL BE RATED AT 600V. THE MI CABLE SHEATH SHALL BE GROUNDED. MI CABLE SHALL BE 2 HOURS FIRE RATED AND SHALL MEET UL 2196
- E. USE TYPE SE OR USE CABLE IN RACEWAY FOR SERVICE ENTRANCE FEEDERS.
- F. USE TYPE THHN/THWN SINGLE CONDUCTORS IN RACEWAY FOR ALL FEEDERS AND BRANCH WIRING UNLESS OTHERWISE NOTED.
- G. UNLESS OTHERWISE NOTED, USE MINERAL—INSULATED, METAL—SHEATHED CABLE, TYPE MI FOR FIRE PUMP FEEDERS.
- H. HOSPITAL GRADE HCF-90 TYPE AC-CABLE WILL BE PERMITTED FOR NORMAL BRANCH CIRCUITS IN DRYWALLS AND CEILINGS IN DRY LOCATIONS AS PERMITTED
- I. USE WIRE WITH FOLLOWING TYPES OF INSULATION AT THE SPECIFIED LOCATIONS:
- DRY LOCATIONS: TYPE THHN/THWN OR XHHW
- J. BRANCH WIRING FOR LIGHTING, CONTROLS AND POWER SHALL BE #12AWG MINIMUM, UNLESS OTHERWISE INDICATED OR REQUIRED PER CODE.

WET LOCATIONS: TYPE XHHW-2

K. ALL WIRES AND CABLES SHALL BE PHASED OUT AND CONNECTED IN SUCH MANNER THAT CABLES HAVING INSULATION OF THE SAME COLOR WILL BE CONNECTED TO THE SAME PHASE THROUGHOUT. THE CONTRACTOR SHALL MATCH THE COLOR—CODING THAT IS BEING USED IN THE BUILDING, IF APPLICABLE, OR AS FOLLOWS:

	SYSTEM VOLTAGE							
PHASE	277/480V	120/208V						
Α	BROWN	BLACK						
В	ORANGE	RED						
С	YELLOW	BLUE						
NEUTRAL	GRAY	WHITE						
GROUND	GREEN	GREEN						
ISOLATED GROUND	GREEN/	GREEN/						
	YELLOW STRIPE	YELLOW STRIPE						
	N RIDE	VINIDE.						

- L. CONDUCTORS FROM LIFE SAFETY, CRITICAL EMERGENCY, FIRE ALARM POWER OR OTHER EM LOADS IDENTIFIED BY CODE SHALL NOT BE MIXED IN THE SAME RACEWAY. PULL BOX OR CABINET WITH OTHER BUILDING WIRING.
- M. BRANCH CIRCUIT CONDUCTORS FOR LIGHTING AND RECEPTACLES SHALL BE INCREASED IN SIZE TO COMPENSATE FOR VOLTAGE DROPS AS FOLLOWS:

THE CIRCUIT.

FOR 120V, 20A BRANCH CIRCUITS WITH A LENGTH OF 100' OR MORE PROVIDE MINIMUM NO. 10 AWG CONDUCTORS FOR THE ENTIRE LENGTH OF THE CIRCUIT

FOR 277V, 20A BRANCH CIRCUITS WITH A LENGTH OF 200' OR MORE PROVIDE MINIMUM NO. 10 AWG CONDUCTORS FOR THE ENTIRE LENGTH OF

N. PROVIDE DEDICATED NEUTRALS (ONE NEUTRAL CONDUCTOR FOR EACH PHASE CONDUCTOR) FOR CIRCUITS FED FROM SINGLE—POLE OVERCURRENT PROTECTIVE DEVICES, GROUND FAULT—PROTECTED CIRCUITS WHERE A GFCI OR GFPE BREAKER IS USED IN A PANELBOARD, CIRCUITS FEEDING DIMMER CONTROLLED LOADS, AND CIRCUITS FEEDING ELECTRONIC EQUIPMENT WHICH PRODUCES A HIGH LEVEL OF HARMONIC DISTORTION INCLUDING, BUT NOT LIMITED TO,

COMPUTERS, PRINTERS, PLOTTERS, COPY MACHINES, AND FAX MACHINES.

- O. WHERE MULTI-WIRE BRANCH CIRCUITS (TWO OR THREE CIRCUITS THAT SHARE A NEUTRAL) ARE USED, ALL CONDUCTORS SHALL ORIGINATE FROM THE SAME PANELBOARD. CONTINUITY OF THE NEUTRAL CONDUCTOR MUST NOT BE INTERRUPTED BY THE REMOVAL OF A WIRING DEVICE. IN THESE APPLICATIONS, THE NEUTRAL CONDUCTORS MUST BE SPLICED TOGETHER AT EVERY DEVICE PROVIDING A PIGTAIL TO TERMINATE TO THE WIRING DEVICE. MULTI-WIRE BRANCH CIRCUIT BREAKERS SHALL BE TWO OR THREE POLE WITH COMMON TRIP AND ONE HANDLE.
- P. CONDUCTORS SMALLER THAN #1/O AWG, COPPER SHALL NOT BE INSTALLED AS PARALLEL SETS.
- Q. CONDUCTORS IN VERTICAL RACEWAY SHALL BE SUPPORTED IF THE VERTICAL

 RISE EXCEEDS THE VALUES IN TABLE 300.19 (A) OF THE ADOPTED NEC BY
 THE AUTHORITY HAVING JURISDICTION.
- R. ALLOW FOR A MINIMUM OF 6 INCHES OF FREE CONDUCTOR, MEASURED FROM THE POINT IN THE BOX WHERE IT EMERGES FROM ITS RACEWAY OR CABLE SHEATH AT EACH OUTLET, JUNCTION AND SWITCH POINT FOR SPLICES OR THE CONNECTION OF LUMINAIRES OR DEVICES. WHERE THE OPENING OF AN OUTLET, JUNCTION OR SWITCH POINT IS LESS THAN 8 INCHES IN ANY DIMENSION, EACH CONDUCTOR SHALL BE LONG ENOUGH TO EXTEND AT LEAST 3 INCHES OUTSIDE THE OPENING.
- S. CLEAN RACEWAY SYSTEMS OF ALL FOREIGN MATTER PRIOR TO PULLING WIRES AND CABLE. USE APPROVED LUBRICATION WHEN INSTALLING CABLES IN CONDUITS AND RACEWAYS. ANY PULLING COMPOUNDS SHALL BE COMPATIBLE WITH THE FINISH OF THE WIRES AND CABLES FURNISHED.

11. CABLE SPLICING

- EE. ALL MATERIALS FOR MAKING SPLICES AND TERMINATIONS SHALL BE FACTORY—FABRICATED OF SIZE, AMPACITY RATING, MATERIAL, TYPE, AND CLASS FOR APPLICATION AND SERVICE INDICATED; LISTED AND LABELED AS DEFINED IN NFPA 70, BY A QUALIFIED TESTING AGENCY, AND MARKED FOR INTENDED LOCATION AND USE.
- EF. ALL MATERIALS REQUIRED FOR MAKING SPLICES AND OR TERMINATIONS SHALL BE SUPPLIED IN COMPLETE KITS. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT ALL MATERIALS FURNISHED WILL NOT ADVERSELY EFFECT THE PHYSICAL OR ELECTRICAL PROPERTIES OF ANY EXISTING OR NEW WIRES OR
- EG. LUGS FOR EQUIPMENT REQUIRING HARD—WIRED CONNECTIONS SHALL BE LONG BARREL, DOUBLE INDENT, COMPRESSION TYPE LUGS WITH 2 BOLT HOLES, FOR CABLE SIZES 250 MCM AND ABOVE, AND SINGLE HOLE BARREL FOR CABLE SIZES BELOW 250 MCM. ALL COMPRESSION TOOLS AND DIES USED FOR THE INSTALLATION SHALL BE AS MANUFACTURED BY THE LUG MANUFACTURER.
- EH. SPLICES FOR WIRE SIZES #8 AWG AND SMALLER SHALL BE MADE WITH PRE-INSULATED SPRING TYPE WIRE CONNECTORS APPLIED TO TWISTED CONDUCTORS. TWO HALF-LAPPED LAYERS OF APPROPRIATE TAPE OF AN INSULATION EQUAL TO THAT OF THE CONDUCTORS EXTENDING A DISTANCE OF NOT LESS THAN ONE INCH FROM THE CONNECTOR SHALL BE APPLIED TO ALL SPLICES.
- EI. SPLICES FOR WIRE SIZES LARGER THAN #8 AWG SHALL BE MADE WITH COMPRESSION TYPE LONG BARREL CONNECTORS AND HEAT—SHRINKABLE JOINT SLEEVES APPROVED FOR THE PURPOSE.
- EJ. NO SPLICES OR JOINTS WILL BE PERMITTED IN EITHER FEEDER OR BRANCH WIRING EXCEPT AT OUTLET BOXES, JUNCTION BOXES, PULL BOXES, MANHOLES, OR HANDHOLES.
- EK. WHERE CONNECTIONS TO EXISTING WIRES ARE REQUIRED TO BE MADE, OPEN AND DISCONNECT THE EXISTING SPLICES FROM SUCH WIRES AND INSTALL NEW SPLICES TO INCLUDE THE EXISTING AS INDICATED.

EL. ELECTRICAL CONNECTORS AND TERMINALS SHALL BE TIGHTENED ACCORDING TO MANUFACTURER'S PUBLISHED TORQUE—TIGHTENING VALUES. IF MANUFACTURER'S TORQUE VALUES ARE NOT INDICATED, USE THOSE SPECIFIED IN UL 486A—486B.

12. IDENTIFICATION

- A. ALL MAJOR COMPONENTS OF THE DISTRIBUTION SYSTEM SUCH AS SWITCHBOARDS, PANELBOARDS, DISCONNECT SWITCHES, TRANSFORMERS, STARTERS, VFD'S, ATS'S, ETC, MUST HAVE NAMEPLATES WITH EQUIPMENT IDENTIFICATION, VOLTAGE AND PHASE RATINGS AND SOURCE OF FEED OR CIRCUIT UTILIZATION. NAMEPLATES SHALL BE CUSTOM ENGRAVED LAMINATED PHENOLIC, WITH WHITE LETTERS ON A BLACK FIELD SECURED WITH FLUSHED FASTENINGS FOR INDOOR APPLICATIONS OR STENCILED LEGENDS IN NONFADING, WATERPROOF, BLACK INK OR PAINT.
- B. EACH WIRE AND CABLE SHALL BE IDENTIFIED BY ITS CIRCUIT IN ALL CABINETS, BOXES, MANHOLES, HANDHOLES, WIREWAYS AND OTHER ENCLOSURES AND ACCESS LOCATIONS, AND AT ALL TERMINAL POINTS. IDENTIFY EACH SPARE CONDUCTOR AT EACH END WITH ID NUMBER AND LOCATION OF OTHER END OF CONDUCTOR, AND IDENTIFY AS SPARE CONDUCTOR. USE BRADY-B500 VINYL CLOTH WIRE AND TERMINAL MARKERS FOR ALL WIRE IDENTIFICATION.
- C. EACH JUNCTION OR OUTLET BOX SHALL HAVE THE CIRCUIT NUMBERS TO WHICH THE CONTAINED CONDUCTORS ARE CONNECTED INDICATED ON THE COVER. BOXES IN EXPOSED AREAS SHALL UTILIZE 1/2" HIGH BRADY LABELS OR OTHER APPROVED MEANS. BOXES CONCEALED WITHIN HUNG CEILINGS MAY UTILIZE PERMANENT MARKING PEN.
- D. PANELBOARDS SHALL HAVE TYPED DIRECTORIES.

ITEMS AS REQUIRED FOR THE INSTALLATION.

WHEATLAND TUBE COMPANY OR APPROVED EQUAL.

SOUTHWIRE, OR APPROVED EQUAL.

COMPOUND.

- E. SWITCHBOARDS, PANELBOARDS AND OTHER EQUIPMENT SHALL HAVE ARC-FLASH RATING LABELS INSTALLED BASED UPON THE ARC FLASH STUDY PROVIDED BY THIS CONTRACTOR.
- F. WIRING DEVICES INCLUDING RECEPTACLES, LIGHTING SWITCHES, ETC. SUPPLIED BY THE EMERGENCY POWER SYSTEM SHALL BE RED IN COLOR WITH RED COVER
- G. COVER PLATES FOR RECEPTACLES AND LIGHTING SWITCHES SHALL BE LABELED WITH THE PANEL AND CIRCUIT NUMBER DESIGNATION TO WITCH THEY ARE BEING

13. RACEWAYS

FED FROM.

- A. CONDUITS, TUBING, AND FITTINGS SHALL BE UL LISTED AND LABELED. MINIMUM TRADE SIZE SHALL BE 3/4" UNLESS OTHERWISE NOTED. WHERE SIZES OF RACEWAY OR BOXES ARE NOT INDICATED, THE CONTRACTOR SHALL SIZE THESE
- B. USE RIGID METAL CONDUIT (RMC) IN UNDERGROUND LOCATIONS, UNDER SLAB ON GRADE, IN POURED CONCRETE FLOORS, CONCEALED OR EXPOSED ABOVE GROUND EXTERIOR LOCATIONS, EXPOSED INTERIOR WET LOCATIONS, EXPOSED INTERIOR DRY LOCATIONS WHEN RACEWAY IS SUBJECT TO PHYSICAL DAMAGE AND WHERE REQUIRED BY CODE. RMC SHALL BE HOT—DIPPED GALVANIZED, SCHEDULE 40, STEEL CONDUIT. IN COMPLIANCE WITH ANSI C80.1 AND UL 6. MANUFACTURERS SHALL BE ALLIED TUBE AND CONDUIT, REPUBLIC CONDUIT,
- C. USE ELECTRICAL METALLIC TUBING (EMT) IN CONCEALED INTERIOR LOCATIONS AND EXPOSED INTERIOR DRY LOCATIONS NOT SUBJECT TO PHYSICAL DAMAGE UNLESS OTHERWISE REQUIRED BY CODE. EMT SHALL BE HOT-DIPPED GALVANIZED, MILD STRIP STEEL CONDUIT COMPLYING WITH ANSI C80.3 AND UL 797. MANUFACTURERS SHALL BE ALLIED TUBE AND CONDUIT, REPUBLIC
- CONDUIT, WHEATLAND TUBE COMPANY OR APPROVED EQUAL.

 D. USE FLEXIBLE METAL CONDUIT (FMC) FOR FINAL CONNECTIONS TO VIBRATING EQUIPMENT (NOT EXCEEDING 36 INCHES IN LENGTH) INCLUDING TRANSFORMERS, MOTORS, COMPRESSORS, VALVES, ETC; AND FINAL CONNECTION TO LIGHTING FIXTURES (NOT EXCEEDING 72 INCHES IN LENGTH) OR WHERE A FLEXIBLE CONNECTION IS REQUIRED BY CODE IN DRY LOCATIONS ONLY. FMC SHALL BE CONSTRUCTED OF CONTINUOUSLY INTERLOCKED, ZINC—COATED STEEL STRIP COMPLYING WITH UL 1. MANUFACTURERS SHALL BE AFC, ANAMET ELECTRICAL,
- E. USE LIQUID FLEXIBLE METAL CONDUIT (LFMC) FOR FINAL CONNECTIONS TO VIBRATING EQUIPMENT (NOT EXCEEDING 36 INCHES IN LENGTH) INCLUDING TRANSFORMERS, MOTORS, COMPRESSORS, VALVES, ETC; OR WHERE A FLEXIBLE CONNECTION IS REQUIRED BY CODE IN WET LOCATIONS. LFMC SHALL BE FLEXIBLE STEEL CONDUIT WITH PVC JACKET COMPLYING WITH UL 360.

 MANUFACTURERS SHALL BE AFC, ANAMET ELECTRICAL, STEEL CITY/THOMAS & BETTS, OR APPROVED EQUAL.
- F. PULL AND SPLICE BOXES SHALL BE CODE GAUGE GALVANIZED STEEL OF SIZE INDICATED OR REQUIRED TO MEET CODE SUFFICIENT TO PULL, RACK AND SPLICE CABLES CONTAINED THEREIN.

G. WHEN APPROVED BY ENGINEER OR ARCHITECT, EXPOSED SURFACE METAL

RACEWAYS. SINGLE OR DUAL CHANNEL. MAY BE USED. SURFACE METAL

RACEWAYS SHALL BE WIREMOLD/LEGRAND 2400 SERIES (SINGLE-CHANNEL) OR 4000 SERIES (DUAL-CHANNEL). COLOR SHALL BE AS APPROVED BY ARCHITECT.

H. ALL RACEWAY FITTINGS AND ACCESSORIES MUST BE UL LISTED AND COMPATIBLE WITH SELECTED RACEWAYS AND SUITABLE FOR USE LOCATION. IN COMPLIANCE

WITH NEMA FB 1 AND UL 514B AS FOLLOWS:

RMC FITTINGS SHALL BE THREADED RIGID STEEL CONDUIT FITTINGS. PAINT MALE THREADS OF FIELD THREADED RACEWAYS WITH GRAPHITE BASE PIPE

EMT FITTINGS SHALL BE SET-SCREW FITTINGS FOR CONDUITS 2" TRADE SIZE OR LARGER AND COMPRESSION FITTINGS FOR CONDUIT SIZES SMALLER THAN 2" TRADE SIZE.

SCHUNKEWITZ

ARCHITECTURE

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Seal & Signature

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3 05/23/2023 Issued for 100% CD's 2 04/28/2023 Issued for 50% CD's 1 03/31/2023 DD Review Set

RICHMOND UNIVERSITY
MEDICAL CENTER

description

Project Name & Location:

date

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

ELECTRICAL

CDECLEICATION

SPECIFICATIONS
(1 OF 3)

Drawn By: Date: 05/23/2023

Checked By:

MJR AS NOTED

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CONSTRUCTION DOCUMENTS

- FMC FITTINGS SHALL BE CLAMP-TYPE, WITH INSULATED THROAT.
- LFMC FITTINGS MUST INCORPORATE A THREADED GROUNDING CONE. A STEEL OR PLASTIC COMPRESSION RING, AND A GLAND FOR TIGHTENING.
- I. PROVIDE INSULATED THROAT METAL BUSHINGS IN CONDUITS 1-1/2" TRADE SIZE AND LARGER AND IN ALL CONDUIT SIZES WHEN TERMINATED AT LOCATIONS SUBJECT TO MOISTURE OR VIBRATION AND WHEN USED FOR LOW VOLTAGE CABLING. USE METALLIC INSULATING TYPE BUSHINGS CONSISTING OF AN INSULATING INSERT, MOLDED OR LOCKED INTO THE METALLIC BODY OF THE FITTING. BUSHINGS MADE ENTIRELY OF METAL OR NONMETALLIC MATERIAL ARE NOT PERMITTED.
- J. INSTALL PULL WIRES IN EMPTY RACEWAYS. USE POLYPROPYLENE OR MONOFILAMENT PLASTIC LINE WITH NOT LESS THAN 200-LB TENSILE STRENGTH. LEAVE AT LEAST 24 INCHES OF SLACK AT EACH END OF PULL WIRE.
- K. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE BENDS IN ANY CONDUIT RUN. WITH THE EXCEPTION OF CONTROL WIRING CONDUITS. SUPPORT RACEWAY WITHIN 12 INCHES OF CHANGES IN DIRECTION, WHERE MORE BENDS ARE NECESSARY, PROVIDE SUITABLE CODE SIZE PULL BOXES OR FITTINGS.
- L. ALL CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONTINUOUS. RACEWAY ENCLOSURES AND BOXES SHALL BE MECHANICALLY JOINED AND BONDED TO FORM A CONTINUOUS ELECTRICAL CONDUCTOR.
- M. UNLESS OTHERWISE SPECIFIED, ALL CONDUIT AND TUBING IN FINISHED AREAS SHALL BE INSTALLED CONCEALED. IN GENERAL, ALL CONDUIT AND TUBING SHALL BE RUN IN HUNG CEILINGS AND FURRED SPACES, WHERE THEY EXIST.
- N. CAP UNDERGROUND RACEWAYS DESIGNATED AS SPARE ABOVE GRADE ALONGSIDE RACEWAYS IN USE.
- O. INSTALL CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES.
- P. INSTALL HORIZONTAL RUNS AS CLOSE TO THE CEILING OR BEAMS TO ALLOW FOR THE MAXIMUM PERMISSIBLE HEADROOM. ASSURE CONDUIT INSTALLATION DOES NOT ENCROACH INTO THE CEILING HEIGHT HEAD ROOM, WALKWAYS, OR
- Q. KEEP RACEWAYS AT LEAST 6 INCHES AWAY FROM PARALLEL RUNS OF FLUES AND STEAM OR HOT-WATER PIPES. INSTALL HORIZONTAL RACEWAY RUNS ABOVE WATER AND STEAM PIPING.
- R. CONDUIT INSTALLED ON EQUIPMENT OR TO SERVE EQUIPMENT SHALL NOT OBSTRUCT ANY REMOVABLE PANEL, ACCESS DOOR, CONTROL PANEL OR EQUIPMENT MAINTENANCE CLEARANCES.
- S. PROVIDE CONDUIT EXPANSION FITTINGS TOGETHER WITH BONDING JUMPER AND SUITABLE SLEEVES ON ALL CONDUITS PASSING THROUGH STRUCTURAL EXPANSION JOINTS AND WHERE ELSE REQUIRED BY CODE. LENGTH OF BONDING JUMPER TO BE AT LEAST TREE TIMES THE WITH OF THE JOINT.
- T. COMPLETE RACEWAY INSTALLATION BEFORE STARTING CONDUCTOR INSTALLATION. FLATTENED, DENTED, OR DEFORMED CONDUIT IS NOT PERMITTED. REMOVE AND REPLACE THE DAMAGED CONDUITS WITH NEW UNDAMAGED MATERIAL. WIRE PULLING LUBRICANTS. WHEN UTILIZED. SHALL BE IN ACCORDANCE WITH UL REQUIREMENTS REGARDING THE SPECIFIC CONDUCTOR OR CABLE INSULATION AND RACEWAY MATERIAL
- U. SEAL THE INTERIOR OF ALL RACEWAYS WHERE CONDUITS PASS FROM WARM TO COLD LOCATIONS, SUCH AS BOUNDARIES OF REFRIGERATED SPACES AND WHERE AN UNDERGROUND SERVICE RACEWAY ENTERS A BUILDING OR STRUCTURE.
- V. INSTALL RACEWAY SEALING FITTINGS AT ACCESSIBLE LOCATIONS ACCORDING TO NFPA 70 AND FILL THEM WITH LISTED SEALING COMPOUND. FOR CONCEALED RACEWAYS, INSTALL EACH FITTING IN A FLUSH STEEL BOX WITH A BLANK COVER PLATE HAVING A FINISH SIMILAR TO THAT OF ADJACENT PLATES OR SURFACES. INSTALL RACEWAY SEALING FITTINGS ACCORDING TO NFPA 70.
- W. ALL CONDUIT AND TUBING SHALL BE CUT SQUARE AND REAMED AT THE ENDS. CUT CONDUIT PERPENDICULAR TO THE LENGTH. FOR CONDUITS 2-INCH TRADE SIZE AND LARGER, USE ROLL CUTTER OR A GUIDE TO MAKE CUT STRAIGHT AND PERPENDICULAR TO THE LENGTH.
- X. MAKE CONDUIT BENDS WITH STANDARD CONDUIT BENDING MACHINES. BENDING CONDUITS WITH A PIPE TEE OR VISE IS NOT ACCEPTABLE.
- Y. SECURE CONDUITS TO CABINETS, JUNCTION BOXES, PULL BOXES AND OUTLET BOXES WITH BONDING TYPE LOCKNLITS FOR RIGID CONDUIT INSTALLATIONS PROVIDE A LOCKNUT ON THE INSIDE OF THE ENCLOSURE, MADE UP WRENCH TIGHT. DO NOT MAKE CONDUIT CONNECTIONS TO JUNCTION BOX COVERS. DO NOT RELY ON LOCKNUTS TO PENETRATE NONCONDUCTIVE COATINGS ON ENCLOSURES. REMOVE COATINGS IN THE LOCKNUT AREA PRIOR TO ASSEMBLING CONDUIT TO ENCLOSURE TO ASSURE A CONTINUOUS GROUND PATH.
- Z. INSTALL RACEWAYS SQUARE TO THE ENCLOSURE AND TERMINATE AT ENCLOSURES WITH LOCKNUTS. INSTALL LOCKNUTS HAND TIGHT PLUS 1/4 TURN
- AA. ALL VERTICAL RUNS OF CONDUIT OR TUBING TERMINATING IN THE BOTTOMS OF WALL BOXES OR CABINETS, OR SIMILAR LOCATIONS, SHALL BE PROTECTED FROM THE ENTRANCE OF FOREIGN MATERIAL PRIOR TO THE INSTALLATION OF CONDUCTORS.
- BB. CONDUIT FITTINGS FOR HAZARDOUS (CLASSIFIED) LOCATIONS SHALL COMPLY WITH UL 886 AND NFPA 70. EXPANSION FITTINGS SHALL BE STEEL TO MATCH CONDUIT TYPE, COMPLYING WITH UL 651, RATED FOR ENVIRONMENTAL CONDITIONS WHERE INSTALLED, AND INCLUDING FLEXIBLE EXTERNAL BONDING JUMPER, FURNISH EXPANSION FITTINGS ON ALL CONDUITS PASSING THROUGH STRUCTURAL EXPANSION JOINTS. WHERE REQUIRED TO COMPENSATE FOR ENVIRONMENTAL TEMPERATURE CHANGE, AND WHERE ELSE REQUIRED BY CODE.
- CC. ALL SWITCHBOARD FEEDERS, DISTRIBUTION BOARD FEEDERS, PANELBOARD FEEDERS, MOTOR CIRCUIT FEEDERS AND ALL MULTIPLE CIRCUIT WIRING HOMERUNS SHALL BE INSTALLED IN CONDUIT.
- DD. ALL LOW-VOLTAGE SYSTEMS WIRING STUB-UPS TO ABOVE THE ACCESSIBLE CEILINGS SHALL USE EMT.
- EE. ALL EMERGENCY LIFE SAFETY AND CRITICAL BRANCH CIRCUITS SHALL BE INSTALLED IN CONDUIT. NORMAL BRANCH CIRCUITS ARE PERMITTED TO BE RUN IN HOSPITAL GRADE TYPE HCF-90 CABLE WHEN PERMITTED BY CODE AND HOSPITAL STANDARDS. ONLY.

14. OUTLET BOXES

- A. BOXES SHALL CONFORM TO THE UL STANDARDS AND BE FURNISHED WITH COVERS OR EXTENSION RINGS AS REQUIRED TO COMPLY WITH ALL APPLICABLE
- B. MANUFACTURERS SHALL BE APPLETON, COOPER CROUSE-HINDS, 0-Z/GEDNEY, RACO/HUBBELL, STEEL CITY/THOMAS & BETTS OR APPROVED EQUAL.
- C. USE GALVANIZED SHEET METAL BOXES FOR INTERIOR DRY APPLICATIONS. SHEET METAL BOXES SHALL COMPLY WITH NEMA OS 1 AND UL 514A.
- D. USE CAST METAL BOXES WITH WEATHERPROOF COVERS FOR INTERIOR WFT LOCATIONS AND OUTDOOR APPLICATIONS. CAST TYPE OUTLET BOXES SHALL BE MADE OF ANODIZED CAST ALUMINUM WHERE NOT IN CONTACT WITH CONCRETE OR GALVANIZED CAST IRON WITH THREADED HUBS. IN COMPLIANCE WITH NEMA
- E. BOX EXTENSIONS USED TO ACCOMMODATE NEW BUILDING FINISHES SHALL BE OF SAME MATERIAL AS RECESSED BOX.
- F. CONCRETE BOXES (FOR INSTALLATION IN SLAB) SHALL HAVE REMOVABLE BACK PLATES WITH DEPTHS ALLOWED FOR A MINIMUM OF ONE INCH OF CONCRETE TO BE POURED ABOVE BACK PLATE.

- G. THERE SHALL BE NO MORE HOLES IN ANY OUTLET BOX THAN REQUIRED FOR THE RACEWAYS ENTERING. ALL CAST TYPE BOXES SHALL BE EQUIPPED WITH THREADED HUBS. CLOSE UP ALL UNUSED OPENINGS IN BOXES WITH APPROVED
- H. BOXES SHALL BE OF SIZES AND TYPES TO ACCOMMODATE STRUCTURAL CONDITIONS, SIZE AND NUMBER OF RACEWAYS AND CONDUCTORS ENTERING AND DEVICE OR FIXTURE FOR WHICH REQUIRED.
- I. EACH WIRING DEVICE OR GROUP OF WIRING DEVICES AND EACH LIGHTING FIXTURE OR CONTINUOUS GROUPING OF FIXTURES SHALL HAVE AT LEAST ONE
- J. ALL OUTLET BOXES SHALL BE SET FLUSH WITH THE SURFACE OF THE WALL. FLOOR OR CEILING IN CONCEALED INSTALLATION, PLASTER, DRYWALL, OR PLASTERBOARD SURFACES THAT ARE BROKEN OR INCOMPLETE SHALL BE REPAIRED SO THERE WILL BE NO GAPS OR OPEN SPACES GREATER THAN 1/8 IN. AT THE EDGE OF THE BOX OR FITTING.
- K. ALL BOXES SHALL BE INSTALLED IN ACCESSIBLE AREAS WITH REMOVABLE COVERS. CEILING OUTLET BOXES MUST BE ACCESSIBLE FROM FIXTURE SERVED.
- L. ALL BOXES SHALL BE FIRMLY SUPPORTED FROM THE BUILDING STRUCTURE.
- M. KEEP OUTLET BOXES FREE OF PLASTER, DRYWALL JOINT COMPOUND, MORTAR, CEMENT, CONCRETE, DUST, PAINT, AND OTHER MATERIAL THAT MAY CONTAMINATE THE RACEWAY SYSTEM, CONDUCTORS, AND CABLES.
- N. THE MOUNTING HEIGHTS OF THE VARIOUS OUTLETS SHALL BE AS SHOWN ON ARCHITECTURAL DRAWINGS AND TO CONFORM TO CODE REQUIREMENTS. IN CERTAIN LOCATIONS. THE REQUIRED HEIGHTS WILL VARY TO ACCOMMODATE EQUIPMENT TO BE LOCATED PROPERLY IN THE ARCHITECTURAL DRAWINGS, OR SHALL BE DETERMINED AT THE CONSTRUCTION SITE BY THE ARCHITECT'S REPRESENTATIVE.

1. WIRING DEVICES

- A. ALL WIRING DEVICES SHALL BE UL LISTED, COMPLIANT WITH LOCAL ELECTRICAL AND BUILDING CODES, NEMA WD-1, NEC, AND ANSI STANDARDS WHERE
- B. WIRING DEVICES SHALL BE OF THE MOLDED COMPOSITION TYPE, CONSTRUCTED FROM 100% IMPACT-RESISTANT THERMOPLASTIC.
- C. WIRING DEVICES SHALL BE WHITE IN GENERAL UNLESS OTHERWISE SELECTED BY ARCHITECT OR OTHERWISE INDICATED IN CONTRACT DOCUMENTS FOR SPECIFIC FUNCTIONS, WIRING DEVICES SUPPLIED BY THE EMERGENCY POWER SYSTEM SHALL BE RED IN COLOR WITH RED COVER PLATES.
- D. WIRING DEVICES MUST BE DESIGNED FOR SIDE WIRING WITH CONDUCTORS TERMINATED AT SCREW TERMINALS OR UNDER PRESSURE PLATES. AND MUST ACCEPT #12 AND #10 AWG SOLID OR STRANDED WIRE. PUSH IN WIRING WILL
- E. INSTALL WIRING DEVICES AFTER ALL WALL PREPARATION, INCLUDING PAINTING, IS
- F. DO NOT STRIP INSULATION FROM CONDUCTORS UNTIL JUST BEFORE THEY ARE SPLICED OR TERMINATED ON DEVICES. STRIP INSULATION EVENLY AROUND THE CONDUCTOR USING TOOLS DESIGNED FOR THE PURPOSE. AVOID SCORING OR NICKING OF SOLID WIRE OR CUTTING STRANDS FROM STRANDED WIRE.
- G. DO NOT REMOVE SURFACE PROTECTION, SUCH AS PLASTIC FILM AND SMUDGE COVERS, UNTIL THE LAST POSSIBLE MOMENT.
- H. CONNECT DEVICES TO BRANCH CIRCUITS USING PIGTAILS IN LENGTH THAT ARE NOT LESS THAN 6 INCHES.
- I. WHERE TIGHTENING TORQUE VALUES ARE INDICATED ON EQUIPMENT OR INSTALLATION INSTRUCTIONS, A CALIBRATED TORQUE TOOL MUST BE USED TO ACHIEVE THE INDICATED TORQUE VALUE, UNLESS THE EQUIPMENT MANUFACTURER PROVIDES AN ALTERNATIVE METHOD OF ACHIEVING THE REQUIRED TORQUE.
- J. DO NOT USE OVERSIZED OR EXTRA-DEEP PLATES. REPAIR WALL FINISHES AND REMOUNT OUTLET BOXES WHEN STANDARD DEVICE PLATES DO NOT FIT FLUSH
- K. UNLESS OTHERWISE INDICATED, MOUNT DEVICES FLUSH, WITH LONG DIMENSION VERTICAL AND WITH GROUNDING TERMINAL OF RECEPTACLES ON TOP. GROUP ADJACENT DEVICES UNDER SINGLE, MULTIGANG WALL PLATES.
- L. GANG ALL DEVICES SHOWN ADJACENT TO EACH OTHER ON THE PLANS IN MULTI-GANG OUTLET BOXES. PROVIDE MULTI-GANG FACE PLATES.
- M. STRAIGHT BLADE RECEPTACLES

OR DO NOT COVER ROUGH WALL OPENING.

RECEPTACLES SHALL BE HOSPITAL GRADE, DECORATOR STYLE AS

MANUFACTURED BY LEGRAND, HUBBELL OR LEVITON. IN COMPLIANCE WITH UL 498. NEMA WD 1. NEMA WD 6 (NEMA STANDARD CONFIGURATION FOR EACH RECEPTACLE SHALL MATCH APPLICATION).

DEVICE PLATES FOR WALL DEVICES SHALL BE DECORATOR STYLE OPENING, SNAP-ON TYPE WITH SEPARATE SUBPLATE, AS MANUFACTURED BY LEGRAND, HUBBELL OR LEVITON. FINISH AS DIRECTED BY ARCHITECT.

CONVENIENCE HOSPITAL GRADE RECEPTACLES:

- · DUPLEX RECEPTACLE, GROUNDING TYPE, 20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20: LEGRAND #26352 HUBBELL #DR20WHI
- SINGLE RECEPTACLE, HOSPITAL GRADE GROUNDING TYPE, 20-AMP,125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20: LEGRAND #26361W HUBBELL #HBL5361W
- LEVITON #16341-W GFCI HOSPITAL GRADE RECEPTACLES:

LEVITON #GFNT2-W.

LEVITON #TDR20-W

LEVITON #T5832-W

LEVITON #16342-W.

 DUPLEX RECEPTACLE, GROUNDING TYPE, 20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20 WITH CLASS 'A' GROUND FAULT CIRCUIT INTERRUPTER, IN COMPLIANCE WITH UL 943 LEGRAND #2097W HUBBELL #GFRST20W

TAMPER-RESISTANT HOSPITAL GRADE RECEPTACLES:

TAMPER DUPLEX RECEPTACLE, GROUNDING TYPE, 20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20: LEGRAND #TR26362W HUBBELL #DR20WHITR

USB CHARGER HOSPITAL GRADE RECEPTACLES:

 DUPLEX RECEPTACLE, GROUNDING TYPE, 20—AMP, 125—VOLT, 2—POLE, 3-WIRE, NEMA 5-20 W/ TWO TYPE-O PORT CONFIGURATION, HIGH POWER 5A, 5V USB OUTPUT. USB PORT RATED FOR 10,000 CYCLES: LEGRAND #TR5362USBW HUBBELL #USB20C5W

CONTROLLED HOSPITAL GRADE RECEPTACLES:

DUPLEX RECEPTACLE, GROUNDING TYPE, 20-AMP. 125-VOLT. 2-POLE. 3-WIRE NEMA 5-20 PERMANENTLY MARKED WITH THE LINIVERSALLY RECOGNIZED POWER SYMBOL AND THE WORD "CONTROLLED": LEGRAND #26352CDW HUBBELL #DR20C2WHI LEVITON #16352-2PW

ISOLATED GROUND HOSPITAL GRADE RECEPTACLES:

- DUPLEX RECEPTACLE, GROUNDING TYPE, 20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20 W/ POWER INDICATING LED: LEGRAND #IG5362WSP HUBBELL #IG5362 LEVITON #16362-WIG
- SURGE-PROTECTION GROUND HOSPITAL GRADE RECEPTACLES:
- DUPLEX RECEPTACLE, GROUNDING TYPE, 20-AMP, 125-VOLT, 2-POLE, 3-WIRE, NEMA 5-20 WITH INTEGRAL TVSS UNIT. IN COMPLIANCE WITH UL 1449: LEGRAND #5362WSP HUBBELL #HBL5360WSA

N. WALL SWITCHES

LIGHTING SWITCHES SHALL BE COMMERCIAL GRADE, DECORATOR STYLE AS MANUFACTURED BY LEGRAND, HUBBELL OR LEVITON. IN COMPLIANCE WITH UL 20. NEMA WD 1

WALL SWITCHES SHALL HAVE FULL-RATED CURRENT CAPACITY WITH LED. TUNGSTEN, FLUORESCENT OR RESISTIVE LOADS. MOTOR CAPACITY IS 80% OF SWITCH RATING.

SWITCHES SHALL BE AVAILABLE IN SINGLE-POLE, DOUBLE-POLE, 3-WAY, AND 4-WAY CONFIGURATIONS. SHALL BE RATED 20A, 120/277VAC AND ACCOMMODATE UP TO 1500W LED, FLUORESCENT, TUNGSTEN AND RESISTIVE

DEVICE PLATES FOR WALL DEVICES SHALL BE DECORATOR STYLE OPENING, SNAP-ON TYPE WITH SEPARATE SUBPLATE. AS MANUFACTURED BY LEGRAND. HUBBELL OR LEVITON. FINISH AS DIRECTED BY ARCHITECT

SINGLE POLE SWITCHES:

LEVITON #5380-W

 AC TOGGLE SWITCH. 20-AMP, 125-VOLT AC. LEGRAND #2621W HUBBELL #DS120W

THREE WAY SWITCHES:

LEVITON #5621-2-W.

LEVITON #5623-2-W.

 AC TOGGLE SWITCH. 20—AMP, 125—VOLT AC. LEGRAND #2623W HUBBELL#DS320W

O. WALL BOX DIMMERS

DIMMER SWITCHES SHALL BE MODULAR, FULL-WAVE, SOLID-STATE UNITS WITH INTEGRAL, QUIET ON-OFF SWITCHES, WITH AUDIBLE FREQUENCY AND EMI/RFI SUPPRESSION FILTERS.

DIMMER CONTROL SHALL BE CONTINUOUSLY ADJUSTABLE WITH SINGLE-POLE OR THREE-WAY SWITCHING. IN COMPLIANCE WITH UL 1472.

INCANDESCENT LAMP DIMMERS SHALL FOLLOW SQUARE-LAW DIMMING CURVE AND ON-OFF SWITCH POSITIONS SHALL BYPASS DIMMER MODULE. INCANDESCENT WALL BOX DIMMERS SHALL BE LUTRON, NOVA-T SERIES WITH WATTAGE AS REQUIRED FOR THE PARTICULAR LOADING OF EACH

FLUORESCENT LAMP DIMMER SWITCHES SHALL BE COMPATIBLE WITH DIMMING BALLASTS AND HAVE TRIM POTENTIOMETER TO ADJUST LOW-END DIMMING. DIMMER-BALLAST COMBINATION CAPABLE OF CONSISTENT DIMMING WITH LOW END NOT GREATER THAN 20 PERCENT OF FULL BRIGHTNESS. FLUORESCENT WALL BOX DIMMERS SHALL BE LUTRON, NOVA-T SERIES. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WIRING CONNECTIONS FOR DIMMING BALLAST AND PROVIDE CORRECT CONDUCTOR QUANTITY.

LED LAMP DIMMER SWITCHES SHALL BE COMPATIBLE WITH LED LAMPS: TRIM POTENTIOMETER TO ADJUST LOW-END DIMMING: CAPABLE OF CONSISTENT DIMMING WITH LOW END NOT GREATER THAN 20 PERCENT OF FULL BRIGHTNESS. LED WALL BOX DIMMERS SHALL BE LUTRON, NOVA-T SERIES. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WIRING CONNECTIONS FOR LED DRIVER AND PROVIDE CORRECT CONDUCTOR

DIMMERS SHALL BE INSTALLED UTILIZING MANUFACTURER'S RECOMMENDED APPLICATION, WIRING AND INSTALLATION INSTRUCTIONS. PROVIDE ANY INTERFACE MODULES REQUIRED FOR PROPER OPERATION OF DIMMERS. SWITCHES AND LOADS.

FURNISH ALL DEVICES, ACCESSORIES, & WALLPLATE KITS, LABOR AND OTHER SERVICES NECESSARY FOR THE PROPER INSTALLATION OF THE

PROVIDE NEUTRAL CONNECTION AT ALL DEVICES REQUIRING ONE, PROVIDE SEPARATE DEDICATED NEUTRAL BACK TO PANELBOARD FOR EACH CIRCUIT WITH DIMMED LOADS.

HEAT SINK DEVICES SHALL BE MOUNTED WITH FINS VERTICAL. DEVICES SHALL NOT BE LOADED ABOVE 80% OF ITS RATING.

GANG ALL DEVICES SHOWN ADJACENT TO EACH OTHER ON THE PLANS IN MULTI-GANG OUTLET BOXES. PROVIDE SEAMLESS WALLPLATE COVERS PER MANUFACTURER RECOMMENDATIONS FOR ALL DEVICES GANGED IN THE

ALL DIMMERS GANGED TOGETHER IN A COMMON OUTLET BOX SHALL BE INSTALLED WITH HEAT SINKS INTACT (NO BROKEN HEAT SINKS), DERATE DIMMER CAPACITY IF ANY OF THE SIDE SECTIONS OF THE HEAT SINK IS REMOVED TO ALLOW FOR GANGED INSTALLATIONS. FOLLOW MANUFACTURER RECOMMENDATIONS.

INSTALL APPROPRIATE WRING BETWEEN DEVICES TO PROVIDE CONTROL INTENT. DIFFERENT MANUFACTURERS PROVIDE SIMILAR PERFORMANCE UTILIZING DIFFERENT WIRING METHODS.

PROVIDE POWER BOOSTERS AS REQUIRED TO ACCOMMODATE LOADS IN EXCESS OF INDIVIDUAL WALLBOX DIMMER CAPACITY. COORDINATE WITH LOAD SCHEDULES ON DRAWINGS. TOTAL LOAD ON SYSTEM CANNOT EXCEED BRANCH CIRCUIT FEED CAPACITY UNLESS POWER BOOSTERS ARE USED.

LOCATE ALL POWER BOOSTERS IN ELECTRIC CLOSETS IF OVER 2 KW RATED. ALL 2 KW BOOSTERS MAY BE LOCATED IN ACCESSIBLE HUNG CEILINGS. ONLY IF EQUIPMENT IS PLENUM RATED. IF POWER BOOSTER HAS FINNED HEAT SINK, FOR HEAT DISSIPATION, FINS MUST BE MOUNTED VERTICALLY.

P. STANDALONE OCCUPANCY & VACANCY SENSORS

ALL SENSORS SHALL USE SELF-ADJUST TECHNOLOGY FOR SENSITIVITY AND TIME-DELAY ADJUSTMENT BASED ON ENVIRONMENTAL HISTORY.

WALL TYPE VACANCY SENSORS

• DUAL TECHNOLOGY PIR/ULTRASONIC SENSOR, LINE-VOLTAGE 120/277V, MANUAL/ON, AUTOMATIC/OFF WALL SWITCH, WITH ADJUSTABLE TIME-OFF DELAY (5 TO 30MIN), 180° RANGE AND COVERAGE AREA OF 1000 SQUARE-FEET (U.O.N). EATON/GREENGATE NEOSWITCH VNW-D-1001 SERIES. SENSORSWITCH WSX-PDT-VA SERIES.

CEILING MOUNTED VACANCY SENSORS

HUBBELL H-MOSS AD2001 SERIES.

· DUAL TECHNOLOGY PIR/ULTRASONIC SENSOR, LOW-VOLTAGE, MANUAL/ON, AUTOMATIC/OFF WITH ADJUSTABLE TIME-OFF DELAY (1-30MIN), 360° RANGE AND MINIMUM COVERAGE AREA OF 2000 SQUARE-FEET (U.O.N). EATON/GREENGATE VAC-DT-2000 SERIES. nLIGHT nCM-PDT-RJB SERIES. HUBBELL H-MOSS ATD2000C

WALL TYPE OCCUPANCY SENSORS

 DUAL TECHNOLOGY PIR/ULTRASONIC SNSPR, LINE-VOLTAGE 120/277V, AUTOMATIC/ON/OFF WALL SWITCH WITH ADJUSTABLE TIME-OFF DELAY (5 TO 30MIN), 180° RANGE AND COVERAGE AREA OF 1000 SQUARE-FEET EATON/GREENGATE NEOSWITCH ONW-D-1001 SENSORSWITCH WSX-PDT

HUBBELL H-MOSS AD2000 SERIES. WALL TYPE OCCUPANCY SENSORS (RESTROOMS ONLY)

 ULTRASONIC SENSOR, LINE-VOLTAGE 120/277V, AUTOMATIC/ON/OFF WALL SWITCH WITH ADJUSTABLE TIME-OFF DELAY (5 TO 30MIN), 180° RANGE AND COVERAGE AREA OF 1000 SQUARE-FEET (U.O.N. EATON/GREENGATE NEOSWITCH OSW-U-0721 SERIES, HUBBELL H-MOSS AU2000 SERIES.

CEILING MOUNTED OCCUPANCY SENSORS

HUBBELL H-MOSS ATD2000C SERIES.

• DUAL TECHNOLOGY PIR/ULTRASONIC SENSOR, LOW-VOLTAGE, AUTOMATIC/ON/OFF WITH ADJUSTABLE TIME-OFF DELAY (1-30MIN), 360° RANGE AND MINIMUM COVERAGE AREA OF 2000 SQUARE-FEET (U.O.N). EATON/GREENGATE OAC-DT SERIES nLIGHT nCM-PDT-RJB

ALL CEILING MOUNTED SENSORS SHALL BE PROVIDED WITH WALL MOUNTED LOW-VOLTAGE, MOMENTARY SWITCHES FOR MANUAL/ON OR MANUAL/OFF INPUT AND POWER SWITCH PACKS FOR LINE-VOLTAGE (120/277V) LOAD CONNECTION. QUANTITY OF LOW-VOLTAGE SWITCHES AND POWER SWITCH PACKS SHALL BE DETERMINED BASED ON NUMBER OF CONTROL ZONES. UNLESS OTHERWISE INDICATED ON DRAWINGS.

LOW-VOLTAGE, MOMENTARY SWITCHES

 EATON/GREENGATE GMDS SERIES, nLIGHT nPODMA SERIES HUBBELL DSM30 SERIES (VACANCY SENSORS) OR DSL30 SERIES (OCCUPANCY SENSORS).

POWER SWITCH PACKS

EATON/GREENGATE SP20

nLIGHT nPP16 SERIES HUBBELL CU300M (VACANCY SENSORS) OR CU300A (OCCUPANCY

SELECTED MANUFACTURER SPECIFICATIONS. CONTROL WRING SHALL BE KEPT SEPARATED FROM LINE-VOLTAGE WIRING.

FOR CEILING SENSORS, CONTRACTOR SHALL PROVIDE CONTROL WIRING PER

ALL SENSORS SHALL BE PROGRAMMED TO AUTOMATICALLY TURN-OFF THE LIGHTING WITHIN 15-MIN OF ALL OCCUPANTS LEAVING THE SPACE

ALL SENSOR FINISHES TO BE DETERMINED BY THE ARCHITECT AND APPROVED BY THE ENGINEERS.

CONTRACTOR SHALL COORDINATE LAYOUT AND INSTALLATION OF CEILING-MOUNTED DEVICES WITH OTHER CONSTRUCTION THAT PENETRATES CEILINGS OR IS SUPPORTED BY THEM, INCLUDING LIGHT FIXTURES, HVAC EQUIPMENT, SMOKE DETECTORS, FIRE-SUPPRESSION SYSTEMS, AND PARTITION ASSEMBLIES.

CONTRACTOR SHALL VERIFY ADEQUATE COVERAGE OF AREA WHEN SELECTING CEILING MOTION SENSORS AND PROVIDE ADDITIONAL SENSORS AS REQUIRED. (ALLOW 10% BEYOND QUANTITY INDICATED ON PLANS.)

16. ARCHITECTURAL DIMMING SYSTEMS

INCLUDE THE FOLLOWING:

- A. DIMMERS WITH PRESETS AND ADJACENT SWITCHES SHALL BE LUTRON "NOVA-T"
- B. STAND ALONE WALL BOX PRESET DIMMING SYSTEMS SHALL BE LUTRON "GRAPHIC EYE 3000" SERIES UNLESS OTHERWISE NOTED.
- C. SUBMISSIONS: CONTRACTOR MUST SUBMIT ALL DEVICES, PANELS, WIRING DIAGRAMS, ETC. FOR APPROVAL TO ENABLE THE LIGHTING DESIGNER AND ENGINEER TO ASSESS CONTRACT COMPLIANCE. THE SUBMISSIONS SHOULD
 - STAND-ALONE PRESET DIMMING SYSTEMS FACTORY PREPARED SHOP DRAWINGS INDICATING PROPOSED EQUIPMENT, LOAD SCHEDULES, CONTROL INTENT AND COMPLIANCE WITH DRAWINGS. SUBMISSION SHOULD CLEARLY BE MARKED TO REPRESENT WHICH COMPONENTS ARE BEING SUBMITTED TO

SATISFY THE PARTICULAR SYMBOLS AS SHOWN ON THE DRAWINGS.

- DIMMERS WITH PRESET CATALOG CUTS INDICATING ALL DEVICES, FACE PLATES, VOLTAGE, GANGING INFORMATION, ETC. TO INDICATE COMPLIANCE. SUBMISSION SHOULD CLEARLY BE MARKED TO REPRESENT WHICH COMPONENTS ARE BEING SUBMITTED TO SATISFY THE PARTICULAR SYMBOLS AS SHOWN ON THE DRAWINGS.
- SYSTEM STARTUP/COMMISSIONING PROVIDE MANUFACTURER'S REPRESENTATIVE TO STARTUP, INITIALLY COMMISSION AND SET UP EQUIPMENT. THE CONTRACTOR SHALL PROVIDE TRAINING OF OWNER'S REPRESENTATIVES.
- D. A/V INTERFACE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING AND INSTALLING A/V INTERFACE WIRING TO A POINT OF CONNECTION TO A/V EQUIPMENT.
- E. ALL CONTROLS SHALL BE COMPATIBLE WITH "LUMINAIRES". SPECIFICALLY. LED DIMMING DRIVER, FLUORESCENT DIMMING BALLASTS AND ELECTRONIC TRANSFORMERS. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING WIRING REQUIREMENTS FOR DIMMING DRIVERS AND BALLASTS AND PROVIDE CORRECT CONDUCTOR QUANTITY, INCLUDING SEPARATE NEUTRAL FOR EACH PHASE CONDUCTOR.

17. SAFETY SWITCHES

- SAFETY TYPE DISCONNECTING SWITCHES SHALL BE RATED AT 250 OR 600 VOLTS AS REQUIRED FOR THE UTILIZATION VOLTAGE AND SHALL BE QUICK-MAKE, QUICK-BREAK TYPE, HORSEPOWER RATED.
- B. MANUFACTURERS SHALL BE SCHNEIDER ELECTRIC, SIEMENS, EATON OR APPROVED EQUAL.
- C. FUSIBLE SWITCHES SHALL BE HEAVY DUTY TYPE, NEMA KS 1, WITH CLIPS OR BOLT PADS TO ACCOMMODATE SPECIFIED FUSES, LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
- D. NONFUSIBLE SWITCHES SHALL BE HEAVY DUTY TYPE, NEMA KS 1, WITH LOCKABLE HANDLE WITH CAPABILITY TO ACCEPT TWO PADLOCKS, AND INTERLOCKED WITH COVER IN CLOSED POSITION.
- E. SWITCHES SHALL BE PROVIDED WITH EQUIPMENT GROUND KIT INTERNALLY MOUNTED AND LABELED FOR COPPER GROUND CONDUCTORS.
- F. ALL PARTS OF THE SWITCH SHALL BE MOUNTED ON INSULATED BASES TO PERMIT REPLACEMENT OF ANY PARTS FROM THE FRONT OF THE SWITCH. ALL CURRENT CARRYING PARTS SHALL BE OF HIGH CONDUCTIVITY COPPER, DESIGNED TO CARRY RATED LOAD WITHOUT EXCESSIVE HEATING. SWITCH CONTACTS SHALL BE SILVER TUNGSTEN TYPE OR PLATED TO PREVENT CORROSION, PITTING AND OXIDATION AND TO ASSURE SUITABLE CONDUCTIVITY. FUSE CLIPS, WHERE REQUIRED, SHALL BE OF THE POSITIVE PRESSURE
- G. SWITCHES SHALL BE CAPABLE OF WITHSTANDING THE AVAILABLE FAULT CURRENT OR LET-THROUGH CURRENT BEFORE THE FUSE OPERATES WITHOUT DAMAGE OR
- H. LUGS SHALL BE RATED FOR THE USE OF CABLES WITH EITHER 75 DEG. C OR 90 DEG. C INSULATION WITHOUT DERATING. MULTI-BARREL LUGS SHALL BE PROVIDED TO ACCOMMODATE PARALLEL FEEDER CABLES AND/OR TAPS AS REQUIRED. "DOUBLE LUGGING" WILL NOT BE PERMITTED.
- SWITCH ENCLOSURES FOR OUTDOOR OR WET APPLICATIONS SHALL BE NEMA 3R TYPE. INDOOR ENCLOSURES SHALL BE NEMA 1 TYPE. ENCLOSURES FOR COMMERCIAL KITCHENS OR CORROSIVE AREAS SHALL BE NEMA 4X TYPE.
- J. INSTALL SWITCHES SO THAT THE MAXIMUM HEIGHT ABOVE THE FLOOR TO THE CENTER OF THE OPERATING HANDLE DOES NOT EXCEED 6'-6". WHEN SHOWN AS WALL MOUNTED, SWITCHES SHALL BE MOUNTED TO HORIZONTAL STRUT SUPPORTS. FREE STANDING UNITS SHALL BE MOUNTED ON A FREE-STANDING STRUT SYSTEM ANCHORED TO THE FLOOR, CEILING, AND WALLS.

18. FUSES

- A. FUSES SHALL BE OF THE RATINGS SHOWN ON THE DRAWINGS AND THEY SHALL BE UL LISTED. WHERE SIZES ARE NOT SHOWN, THEY SHALL BE OF REQUIRED SIZE FOR PROPER OPERATION OF EQUIPMENT PROTECTED.
- B. MANUFACTURERS SHALL BE THE EQUAL OF COOPER/BUSSMANN OR GOULD
- C. ALL FUSES SHALL HAVE A MINIMUM INTERRUPTING RATING OF 200,000 AMPS RMS. CURRENT LIMITING FUSES SHALL BE PROVIDED WITH BLOWN FUSE

- A. PANELBOARDS SHALL BE DESIGNED FOR THE SPECIFIED VOLTAGES AND NUMBER
- B. MANUFACTURERS SHALL BE SQUARE D, SIEMENS, EATON CUTLER HAMMER OR APPROVED EQUAL.

OF CIRCUIT BREAKERS AS SHOWN IN THE SCHEDULES.

- C. PANELBOARD CABINETS SHALL BE OF THE GENERAL PURPOSE DEAD FRONT TYPE FOR FILISH OR SURFACE MOUNTING AS INDICATED ON THE DRAWINGS TRIM OF PANELBOARD FRONT SHALL BE MADE OF COLD ROLLED SHEET STEEL OF NOT LESS THAN 12 GAUGE PROVIDED WITH A COAT OF ZINC CHROMATE PRIMER AND ONE FINISH COAT OF ANSI-61 LIGHT GRAY ENAMEL. TRIMS SHALL HAVE FLUSH CLOSING DOORS OF SHEET STEEL HAVING CONCEALED CONTINUOUS HINGES COMPLETE WITH CHROME PLATED FLUSH TYPE COMBINATION LOCK AND CATCH. ALL PANELS SHALL BE KEYED ALIKE. GUTTER SPACE SHALL CONFORM TO CODE REQUIREMENTS. ALL PANELBOARD TRIMS SHALL BE "DOOR-IN-DOOR" STYLE ONLY.
- D. BUS BARS SHALL BE OF HARD DRAWN COPPER AND SHALL EXTEND FULL HEIGHT OF PANEL. PROVIDE A SEPARATE GROUND BUS IN ADDITION TO THE
- E. CIRCUIT BREAKERS SHALL BE BOLT-DOWN TYPE. MINIMUM AIC RATING SHALL BE 10,000 A FOR 250 VOLT CLASS AND 22,000 A FOR 600 VOLT CLASS OR AS INDICATED IN THE SCHEDULE.
- F. PROVIDE HACR TYPE CIRCUIT BREAKERS FOR HVAC EQUIPMENT CIRCUITS.
- G. PROVIDE UNDERVOLTAGE TRIP, SHUNT TRIP, GFI OR ARC FAULT TYPE CIRCUIT BREAKERS AS INDICATED ON SCHEDULES OR REQUIRED PER CODE. ALLOW ADDITIONAL POLE SPACE FOR ACCESSORY DEVICE AS REQUIRED. PROVIDE FUSED TAP FROM ONE PHASE LEG FOR POWER SUPPLY TO TRIP COIL(S) AS REQUIRED.
- H. ALL PANELBOARDS SHALL BE BALANCED TO WITHIN 10% DEVIATION BETWEEN
- I. FURNISH AND INSTALL TYPEWRITTEN DIRECTORY FOR NEW AND EXISTING PANELBOARDS WHICH WERE MODIFIED.
- A. MAGNETIC MOTOR CONTROLLERS SHALL COMPLY WITH UL 508 AND

PHASES PRIOR TO FINAL COMPLETION.

19. MOTOR STARTERS

- UL 60947-4-1. B. MANUAL STARTERS SHALL BE NEMA ICS 2, GENERAL PURPOSE, CLASS A, WITH TOGGLE ACTION AND OVERLOAD ELEMENT.
- C. MAGNETIC MOTOR STARTERS SHALL BE NEMA ICS 2, CLASS A, FULL VOLTAGE, NONREVERSING, ACROSS-THE-LINE, UNLESS OTHERWISE INDICATED. PROVIDE 120 VOLT CONTROL CIRCUIT OBTAINED FROM INTEGRAL CONTROL POWER TRANSFORMER, SOLID STATE OVERLOAD RELAY, SWITCH OR DIAL SELECTABLE FOR MOTOR RUNNING OVERLOAD PROTECTION WITH SENSORS IN EACH PHASE, CLASS 10 TRIPPING CHARACTERISTIC SELECTED TO PROTECT MOTOR AGAINST VOLTAGE AND CURRENT IMBALANCE AND SINGLE PHASING, CLASS II GROUND-FAULT PROTECTION, WITH START AND RUN DELAYS TO PREVENT NUISANCE TRIP ON STARTING. PROVIDE DIGITAL COMMUNICATION MODULE

CAPABLE TO COMMUNICATE WITH BUILDING BMS SYSTEM

- D. FACTORY-ASSEMBLED COMBINATION STARTER AND DISCONNECT SWITCH SHALL CONSIST OF A NONFUSIBLE DISCONNECT SWITCH, NEMA KS 1, AND A MAGNETIC MOTOR STARTER.
- E. ENCLOSURES FOR OUTDOOR OR WET APPLICATIONS SHALL BE NEMA 3R TYPE. INDOOR ENCLOSURES SHALL BE NEMA 1 TYPE. ENCLOSURES FOR COMMERCIAL KITCHENS OR CORROSIVE AREAS SHALL BE NEMA 4X TYPE.
- F. INSTALL STARTERS SO THAT THE MAXIMUM HEIGHT ABOVE THE FLOOR TO THE CENTER OF THE OPERATING HANDLE DOES NOT EXCEED 6'-6". WHEN SHOWN AS WALL MOUNTED, STARTERS SHALL BE MOUNTED TO HORIZONTAL STRUT SUPPORTS. FREE STANDING UNITS SHALL BE MOUNTED ON A FREE-STANDING STRUT SYSTEM ANCHORED TO THE FLOOR, CEILING, AND WALLS. FLOOR MOUNTED CONTROLLERS SHALL BE INSTALLED ON 4-INCH NOMINAL THICKNESS
- G. CONDUCT ALL ACCEPTANCE TEST AS SPECIFIED IN ANSI/NETA ATS-2017.

CONCRETE BASES.

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RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

Client Name:

355 BARD AVENUE STATEN ISLAND NY Drawing Title:

BI-PLANE EP LAB

05/23/2023

ELECTRICAL **SPECIFICATIONS** (2 OF 3)

AS NOTED MJR Issued To, For:

Checked By:

File No.: R2000 Drawing No.: 22 OF 23 E-702.00

CONSTRUCTION DOCUMENTS

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THE APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

Seal & Signature

19. MOTOR STARTERS

20. LIGHTING FIXTURES (LUMINAIRES)

- A. THIS SECTION OF THE SPECIFICATIONS COVERS THE FURNISHING OF LABOR, MATERIALS, EQUIPMENT AND THE INSTALLATION OF ALL LIGHTING FIXTURES, LIGHTING, EQUIPMENT AND LAMPS, INCLUDING THE CONNECTION OF FIXTURES AND EQUIPMENT TO THE ELECTRICAL WIRING SYSTEM AS SHOWN ON PLANS
- B. THE CONTRACTOR IS DIRECTED TO REVIEW THE APPLICABLE FACILITY STANDARDS, ARCHITECTURAL AND ELECTRICAL DRAWINGS FOR DETAILS ON FIXTURE CONSTRUCTION AND INSTALLATION MEDIA FOR FIXTURES TO BE PURCHASED BY ELECTRICAL CONTRACTOR.
- C. ALL FIXTURES AND COMPONENTS SHALL BE MADE IN ACCORDANCE WITH THE NEC AND NYCEC AND SHALL CONFORM TO ALL APPLICABLE UL REQUIREMENTS.
- D. ALL LUMINAIRES AND LIGHTING EQUIPMENT SHALL BE DELIVERED TO THE PREMISES COMPLETE, INCLUDING ALL MOUNTING ACCESSORIES AND COMPONENTS NECESSARY FOR THE PROPER OPERATION OF THE EQUIPMENT EXCLUSIVE OF
- E. LAMPS SHALL BE OF THE SPECIFIED WATTAGE, VOLTAGE AND LUMEN OUTPUT AS IDENTIFIED IN THE FIXTURE SCHEDULE AND AS MANUFACTURED BY GENERAL ELECTRIC, OSRAM/SYLVANIA, PHILIPS, CREE OR APPROVED EQUAL.
- F. ALL LAMPS ARE TO BE GUARANTEED FOR A MINIMUM 3 MONTH PERIOD. DURING THIS THREE MONTH PERIOD THE CONTRACTOR IS TO REPLACE, AT NO COST TO THE OWNER, ANY "BURNED-OUT" LAMPS. THE THREE MONTH PERIOD IS TO COMMENCE AT THE COMPLETION OF THE PAINTING PHASE OF THE PROJECT.
- G. INCANDESCENT LAMPS SHALL BE 2700K, SUITABLE FOR OPERATION AT 120 VOLTS/60 HZ AND SHALL HAVE A RATED AVERAGE LIFE OF NOT LESS THAN 2000 HOURS FOR "PAR" LAMPS AND 4000 HOURS FOR "PAR" Q AND QUARTZ LINE LAMPS.
- H. TUNGSTEN HALOGEN LAMPS SHALL BE 3000K, SUITABLE FOR OPERATION AT 120 VOLTS/60 HZ AND SHALL HAVE A RATED AVERAGE LIFE OF NOT LESS THAN 2000 HOURS FOR "PAR" LAMPS AND 4000 HOURS FOR "PAR" Q AND QUARTZ LINE LAMPS.
- I. FLUORESCENT LAMPS SHALL BE 3500 K, TRIPHOSPHOR TYPE, SUITABLE FOR OPERATION AT 277 OR 120 VOLTS/60 HZ WITH A CRI OF 85 OR GREATER. RATED AVERAGE LIFE SHALL BE NOT LESS THAN 20,000 HOURS (LINEAR FLUORESCENT) AND 10,000 HOURS (COMPACT FLUORESCENT).
- J. METAL HALIDE LAMPS SHALL BE CERAMIC ARC TUBE, PHOSPHOR—COATED OR CLEAR, BURNING POSITION AS SCHEDULED, CORRELATED COLOR TEMPERATURE (CCT) AS INDICATED IN SCHEDULE, SUITABLE FOR OPERATION AT 277 OR 120 VOLTS/60 HZ WITH A MINIMUM CRI OF 65. RATED AVERAGE LIFE OF NOT LESS THAN 10.000 HOURS.
- K. HIGH PRESSURE SODIUM LAMPS SHALL BE PHOSPHOR COATED, 2000 K, SUITABLE FOR OPERATION AT 277 OR 120 VOLTS/60 HZ WITH A MINIMUM CRI OF 22. RATED AVERAGE LIFE OF NOT LESS THAN 10,000 HOURS.
- L. LED LAMPS SHALL HAVE CORRELATED COLOR TEMPERATURE (CCT) AS INDICATED IN SCHEDULE WITH A MINIMUM COLOR RENDERING INDEX (CRI) OF 85. LED LAMPS BATCH—SORTED/BINNED FOR COLOR AND BRIGHTNESS CONSISTENCY. LED LUMEN OUTPUT SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AND SHALL NOT DEPRECIATE MORE THAN 20% AFTER 10,000 HOURS OF OPERATION.
- M. BALLASTS FOR FLUORESCENT FIXTURES SHALL BE ENERGY-EFFICIENT SOLID-STATE ELECTRONIC BALLASTS, LABELED AND CERTIFIED BY ELECTRICAL TESTING LABORATORIES (ETL), DESIGNED TO OPERATE AT AN INPUT FREQUENCY OF 60 HZ. BALLASTS SHALL BE TYPE A SOUND RATED, HIGH FREQUENCY
- ELECTRONIC TYPE WITH 0.88 BF (BALLAST FACTOR) NORMAL LIGHT OUTPUT, HIGH POWER FACTOR OF 0.95 OR GREATER AND LESS THAN 10% TOTAL HARMONIC DISTORTION. DIMMING BALLASTS SHALL BE SUITABLE FOR OPERATION WITH SPECIFIED DIMMING EQUIPMENT.
- N. BALLASTS FOR HID FIXTURES SHALL BE AUTO—STABILIZED TYPE WITH LEAD PEAK CIRCUITING AND A POWER FACTOR NOT LESS OF 90%. REGULATION: 10% VARIATION IN LINE VOLTAGE SHALL VARY LAMP WATTS NOT GREATER THAN +-3% FOR HPS AND 10% FOR METAL HALIDE. BALLAST SHALL PROVIDE SUFFICIENT VOLTAGE AT LAMP TO KEEP THE LAMP FROM BEING EXTINGUISHED. BALLAST SHALL BE COMPLETE WITH 180°C INSULATION AND 85°C RATED CAPACITORS. BALLAST SHALL BE CAPABLE OF STARTING AND OPERATING LAMP DOWN TO MINUS 29°C AND UP TO 35' AWAY FROM BALLAST.
- O. FABRICATE FIXTURE ENCLOSURES WITH A MINIMUM NO. 20 GAUGE (0.0359 INCH) THICK COLD ROLLED SHEET STEEL. ENCLOSURES MAY BE CONSTRUCTED OF OTHER METALS, PROVIDED THEY ARE EQUIVALENT IN MECHANICAL STRENGTH, DURABILITY, COMPLIANCE WITH LOCAL CODES AND ACCEPTABLE FOR THE PURPOSE
- P. IF CEILING SYSTEM REQUIRES, EACH RECESSED AND SEMI-RECESSED FIXTURE SHALL BE FURNISHED WITH A MOUNTING FRAME OR RING COMPATIBLE WITH THE CEILING IN WHICH THEY ARE TO BE INSTALLED. THE FRAMES AND RINGS SHALL BE ONE PIECE OR CONSTRUCTED WITH ELECTRICALLY WELDED BUTT JOINTS AND OF SUFFICIENT SIZE AND STRENGTH TO SUSTAIN THE WEIGHT OF THE FIXTURE.
- Q. FIXTURE LOCATION AS INDICATED ON THE ELECTRICAL DRAWINGS IS GENERALIZED AND APPROXIMATE. DO NOT SCALE ELECTRICAL DRAWINGS FOR EXACT LOCATION OF THE LIGHTING FIXTURES. THE ARCHITECTURAL REFLECTED CEILING PLANS INDICATE THE PROPER LOCATIONS OF LIGHTING FIXTURES.
- R. LIGHTING FIXTURE LOCATIONS IN MECHANICAL AND ELECTRICAL EQUIPMENT ROOMS ARE APPROXIMATE. COORDINATE MOUNTING HEIGHT AND LOCATION OF LIGHTING FIXTURES TO CLEAR MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT AND TO ILLUMINATE ADEQUATELY METERS, GAUGES AND EQUIPMENT.
- S. SET LIGHTING FIXTURES PLUMB, SQUARE, AND LEVEL WITH CEILING AND WALLS, IN ALIGNMENT WITH ADJACENT LIGHTING FIXTURES, AND SECURE IN ACCORDANCE WITH MANUFACTURERS' DIRECTIONS AND APPROVED SHOP DRAWINGS. PROVIDE HANGERS, RODS, MOUNTING BRACKETS, SUPPORTS, FRAMES, EARTHQUAKE CLIPS AND OTHER EQUIPMENT NORMALLY REQUIRED FOR THE PROPER, SAFE AND DISTORTION—FREE INSTALLATION OF LIGHTING FIXTURES IN THE VARIOUS SURFACES IN WHICH THEY APPEAR. DETERMINE SURFACE TYPES FROM THE ARCHITECTURAL DRAWINGS.

EMERGENCY LIGHTING

A. EXIT SIGNS

PROVIDE EDGELIT SELF—POWERED EXIT SIGNS WITH SEALED NICKEL CADMIUM BATTERY, 8" RED LETTERS ON CLEAR FACE PANEL AND COMBINATION TEST SWITCH/CHARGE MONITOR LED. ARROW DIRECTIONS, NUMBER OF FACES, MOUNTING METHOD AND TRIM PLATE FINISH SHALL BE AS REQUIRED FOR FACH LOCATION

UNIT SHALL BE NYC APPROVED AND MANUFACTURED IN ACCORDANCE WITH UL 924 REQUIREMENTS.

MANUFACTURERS ARE ATLITE EDGELIT SERIES OR APPROVED EQUAL.

EXIT SIGNS SHALL BE CONNECTED TO A SEPARATE, DEDICATED BRANCH CIRCUIT.

B. SELF CONTAINED EMERGENCY LIGHT FIXTURES

SELF CONTAINED EMERGENCY LIGHT FIXTURES SHALL BE CONCEALITE #F5-LED6.5-90-SD OR EVENLITE APERION LED EMERGENCY LIGHTS #APL-NC-UI.

FIXTURES SHALL BE PROVIDED WITH LED LAMPS AND SHALL PROVIDE

ILLUMINATION DURING EMERGENCY OPERATION FOR A MINIMUM OF AT LEAST 90 MINUTES.

PROVIDE PLASTER TRIMS OR OTHER ACCESSORIES AS NOTED ELSEWHERE OR AS REQUIRED FOR A COMPLETE INSTALLATION.

C. EMERGENCY BATTERY BALLAST

UNLESS OTHERWISE INDICATED, ALL FLUORESCENT FIXTURES NOTED AND INDICATED ON THE ELECTRICAL DRAWINGS WITH THE DESIGNATION "EM" OR "EM/NL" SHALL BE EQUIPPED WITH A NYC APPROVED, UL 924 LISTED EMERGENCY BATTERY BALLAST TO PROVIDE ILLUMINATION DURING EMERGENCY OPERATION FOR A MINIMUM OF AT LEAST 90 MINUTES.

BATTERY BALLAST SHALL USE A SEALED NICKEL—CADMIUM BATTERY AND SHALL INCLUDE A TEST SWITCH AND CHARGING INDICATOR LIGHT. UNIT SHALL BE WIRED FOR 2—LAMPS.

UNIT SHALL BE LIGHTALARMS SERIES AM10, OR APPROVED EQUAL. PROVIDE LIGHTALARMS SERIES AM11 OR APPROVED EQUAL EMERGENCY POWER PACK FOR COMPACT FLUORESCENT LAMPS WHERE INDICATED.

PROVIDE ADDITIONAL WIRING AS REQUIRED TO ENERGIZE CHARGER FROM UN-SWITCHED POWER SUPPLY.

D. EMERGENCY LIGHTING INVERTERS

UNLESS OTHERWISE INDICATED, ALL LED FIXTURES NOTED AND INDICATED ON THE ELECTRICAL DRAWINGS WITH THE DESIGNATION "EM" OR "EM/NL" SHALL BE ENERGIZED FROM A NYC APPROVED, UL 924 LISTED EMERGENCY LIGHTING INVERTER TO PROVIDE ILLUMINATION DURING EMERGENCY OPERATION FOR A MINIMUM OF AT LEAST 90 MINUTES.

INVERTER SHALL USE A VRLA SEALED LEAD CALCIUM BATTERY AND SHALL INCLUDE SELF-TESTING AND DIAGNOSTIC FEATURE OR PUSH-TO-TEST

INVERTER SHALL BE MYERS, ILLUMINATOR LV OR DUAL—LITE, DLS SERIES RATED AS REQUIRED TO MEET THE CONNECTED LIGHTING LOAD.

22. TELEPHONE AND COMMUNICATIONS SYSTEMS

- A. CONTRACTOR SHALL INSTALL ALL EMPTY CONDUITS, BACK BOXES AND PULL BOXES AS REQUIRED BY THE TELEPHONE COMPANY, OWNER'S COMMUNICATIONS/COMPUTER SYSTEM VENDORS, OTHER SPECIAL SYSTEM VENDORS AND/OR AS SHOWN ON THE ELECTRICAL DRAWINGS. PROVIDE A STEEL CORE NYLON ROPE DRAG LINE IN ALL EMPTY CONDUITS OVER 10' LONG.
- B. PROVIDE BRANCH CIRCUIT WIRING AND OUTLETS AS MAY BE REQUIRED FOR THESE SYSTEMS REGARDLESS OF WHETHER INDICATED ON DRAWINGS OR NOT. COORDINATE TERMINATION POINTS AND SPECIFIC WIRING REQUIREMENTS WITH THE OTHER CONTRACTORS AND VENDORS.

23. INTERLOCKS

A. UNLESS OTHERWISE NOTED ALL INTERLOCK WIRING SHALL BE PROVIDED UNDER THE MECHANICAL CONTRACT, INCLUDING ALL LOW VOLTAGE (24V) POWER TO AUTOMATIC DAMPERS, VALVES, AND ANY OTHER CONTROL EQUIPMENT SUPPORTING THE MECHANICAL SYSTEM. THIS CONTRACTOR SHALL PROVIDE ALL 120V OR 277V 20A BRANCH CIRCUIT WIRING AND DISCONNECT DEVICES TO SUPPORT THE CONTROL POWER TRANSFORMERS OR CONTROL PANELS. COORDINATE TERMINATION POINTS AND SPECIFIC WIRING REQUIREMENTS WITH THE OTHER CONTRACTORS.

24. FIELD QUALITY CONTROL

A. CONDUCT EACH VISUAL/MECHANICAL INSPECTION AND ELECTRICAL ACCEPTANCE TESTS AS SPECIFIED IN ANSI/NETA ATS-2017 FOR ALL ELECTRICAL EQUIPMENT INSTALLED OR MODIFIED UNDER THIS CONTRACT, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:

SWITCHBOARD ASSEMBLIES
PANELBOARDS
CABLES
SWITCHES
CIRCUIT BREAKERS
GROUNDING SYSTEMS
MOTORS
MOTOR STARTERS

VARIABLE FREQUENCY DRIVES

B. ENGAGE A FACTORY—AUTHORIZED SERVICE REPRESENTATIVE TO ASSIST ON THE TESTING AND INSPECTION OF THE FOLLOWING EQUIPMENT:

SWITCHBOARD ASSEMBLIES
METAL ENCLOSED BUSWAYS
METERING DEVICES
GROUND-FAULT PROTECTION DEVICES
MOTOR CONTROL CENTERS
VARIABLE FREQUENCY DRIVES
ENGINE GENERATORS
AUTOMATIC TRANSFER SWITCHES

- C. PERFORM THERMOGRAPHIC SURVEY AS SPECIFIED IN ANSI/NETA ATS-2017 FOR ALL ELECTRICAL EQUIPMENT INSTALLED OR MODIFIED UNDER THIS CONTRACT.
- D. CERTIFY AND DOCUMENT COMPLIANCE WITH THE INSPECTION AND TESTING REQUIREMENTS OF ANSI/NETA ATS-2017 INCLUDING THERMOGRAPHIC SURVEY AND PREPARE TEST AND INSPECTION REPORTS, INCLUDING A CERTIFIED REPORT THAT IDENTIFIES EQUIPMENT INCLUDED AND THAT DESCRIBES SCANNING RESULTS. INCLUDE NOTATION OF DEFICIENCIES DETECTED, IR SCAN PICTURES OF HOT SPOTS, REMEDIAL ACTION TAKEN, AND OBSERVATIONS/ADDITIONAL SCANS AFTER REMEDIAL ACTION.
- E. PERFORM NFPA 110 ACCEPTANCE TEST FOR ALL ELEMENTS OF THE EMERGENCY POWER SYSTEM AND CERTIFY COMPLIANCE.

F. PERFORM THE FOLLOWING TEST FOR ALL RECEPTACLES

SECURELY MOUNTED

LINE VOLTAGE: ACCEPTABLE RANGE IS 105 TO 132 V.

PERCENT VOLTAGE DROP UNDER 15A LOAD: A VALUE OF 6 PERCENT OR HIGHER IS UNACCEPTABLE.

GROUND IMPEDANCE: VALUES OF UP TO 2 OHMS ARE ACCEPTABLE.

GFCI TRIP: TEST FOR TRIPPING VALUES SPECIFIED IN UL 1436 AND UL 943.

USING THE TEST PLUG, VERIFY THAT THE DEVICE AND ITS OUTLET BOX ARE

G. VERIFY OPERATION OF EACH LIGHTING CONTROL DEVICE INCLUDING BUT NOT LIMITED TO LIGHTING SWITCHES, DIMMERS, VACANCY/OCCUPANCY SENSORS, DAYLIGHT SENSORS. ADJUST TIME DELAYS FOR OCCUPANCY/VACANCY SENSORS AND RELOCATE DEVICES WHEN OBSTRUCTIONS DO NOT ALLOW FOR PROPER

- H. ANY EQUIPMENT, COMPONENT OR ASSEMBLY WILL BE CONSIDERED DEFECTIVE IF IT DOES NOT PASS TESTS AND INSPECTIONS.
- I. CORRECT MALFUNCTIONING UNITS ON SITE WHERE POSSIBLE AND RETEST TO DEMONSTRATE COMPLIANCE; OTHERWISE REPLACE WITH NEW UNITS AND RETEST.

25. SHORT CIRCUIT, COORDINATION STUDY AND ARC FLASH ANALYSIS

A. CONTRACTOR SHALL ENGAGE THE SWITCHBOARD MANUFACTURER TO PREPARE A COMPUTER—BASED SHORT—CIRCUIT STUDY, OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY AND ARC FLASH HAZZARD ANALYSIS USING ETAP, SMK OR EASY—POWER SOFTWARE AND FOLLOWING THE SUBSEQUENT STANDARDS:

SHORT CIRCUIT STUDY: IN COMPLIANCE WITH IEEE 399 AND IEEE 551

COORDINATION STUDY: IN COMPLIANCE WITH IEEE 242 AND IEEE 399.

ARC FLASH STUDY: IN COMPLIANCE WITH IEEE 1584, NFPA 70E.

- B. THE STUDIES SHALL BE GENERATED BASED ON INFORMATION OBTAINED FROM ELECTRICAL EQUIPMENT SUBMITTALS, ACTUAL CONDUCTOR SIZES AND LENGTHS FOR ALL FEEDERS, UTILITY SHORT CIRCUIT CURRENT VALUE AT THE MAIN SERVICE SWITCHBOARD, ACTUAL MOTOR CONTRIBUTION, AND INFORMATION OBTAINED FROM FIELD INVESTIGATION OF EXISTING EQUIPMENT/MATERIAL (IF APPLICABLE).
- C. UNLESS SPECIFIED OTHERWISE, THE SCOPE OF THE STUDIES SHALL INCLUDE ALL PROPOSED DISTRIBUTION EQUIPMENT SUPPLIED UNDER THIS CONTRACT, AS WELL AS ALL DIRECTLY AFFECTED EXISTING DISTRIBUTION EQUIPMENT. THE STUDY SHALL INCLUDE ALL PORTIONS OF THE EXISTING AND PROPOSED ELECTRICAL DISTRIBUTION SYSTEM AS FOLLOWS:

CURRENT IS 10 KA OR LESS.

THE SYSTEM.

SHORT CIRCUIT STUDY: FROM THE ELECTRIC UTILITY POWER SOURCE(S) AND EMERGENCY POWER SOURCE(S) DOWN TO LOAD BUSES WHERE FAULT

COORDINATION STUDY: FROM THE ELECTRIC UTILITY POWER SOURCE(S) AND EMERGENCY POWER SOURCE(S) DOWN TO AND INCLUDING THE SMALLEST ADJUSTABLE TRIP CIRCUIT BREAKER AND FUSED DISCONNECT SWITCH IN

ARC FLASH STUDY: FROM THE ELECTRIC UTILITY POWER SOURCE(S) AND EMERGENCY POWER SOURCE(S) DOWN TO AND INCLUDING THE LAST PIECE OF DISTRIBUTION EQUIPMENT.

C. THE STUDIES SHALL BE COMPLETED AND APPROVED BY THE ENGINEER PRIOR TO SHOP DRAWING SUBMITTALS OF THE ELECTRICAL DISTRIBUTION AND BRANCH CIRCUIT EQUIPMENT.

D. SUBMITTALS

SUBMIT LITERATURE/BROCHURE FOR COMPUTER SOFTWARE TO BE UTILIZED FOR THE STUDIES. SUBMIT COMPUTER SOFTWARE STATEMENT OF COMPLIANCE WITH IEEE, ANSI, AND NFPA 70E STANDARDS AND REQUIREMENTS

SUBMIT ANY CORRESPONDENCE FROM UTILITY COMPANY INDICATING SERVICE INFORMATION AND AVAILABLE SHORT CIRCUIT CURRENT VALUE AT THE MAIN SERVICE SWITCHBOARD.

SUBMIT CALCULATION METHODS AND ASSUMPTIONS INCLUDING BUT NOT LIMITED TO FEEDER INPUT DATA, TRANSFORMER INPUT DATA, GENERATION CONTRIBUTION DATA, MOTOR CONTRIBUTION DATA, ETC.

SUMMARIZE ALL RESULTS IN REPORT INCLUDING BUT NOT LIMITED TO TABULATIONS OF PROTECTIVE DEVICES VERSUS SHORT CIRCUIT DATA, PROTECTIVE DEVICE TIME VERSUS COORDINATION CURVES, FAULT CURRENT CALCULATIONS, ARC FLASH PROTECTION BOUNDARY CALCULATIONS, RESULTS EVALUATIONS, CORRECTIVE ACTIONS, ETC.

F. RESULTS

NOTIFY ENGINEER OF CIRCUIT PROTECTIVE DEVICES NOT PROPERLY RATED FOR FAULT CONDITIONS.

NOTIFY THE ENGINEER OF CIRCUIT PROTECTIVE DEVICES NOT ACHIEVING PROPER SELECTIVE COORDINATION.

NOTIFY THE ENGINEER OF AREAS WHERE THE POTENTIAL ARC FLASH INCIDENT ENERGY IS ABOVE 8 CAL/SQ CM OR LESS (PPE CATEGORY 2). WHENEVER POSSIBLE, THE PROPOSED ELECTRICAL EQUIPMENT SHALL BE DESIGNED, MANUFACTURED, AND SUPPLIED TO LIMIT THE POTENTIAL ARC—FLASH INCIDENT ENERGY TO 8 CAL/SQ CM OR LESS (PPE CATEGORY 2). THE ELECTRICAL EQUIPMENT MANUFACTURER PERFORMING THE STUDIES SHALL COORDINATE WITH THE ENGINEER OF RECORD AND CONTRACTOR TO ASSIST IN ACHIEVING THIS REQUIREMENT.

MODIFY EQUIPMENT AS REQUIRED.

FIELD ADJUST ALL PROTECTIVE DEVICES AS REQUIRED.

PROVIDE LABELS FOR FIELD MARKINGS OF ALL ELECTRICAL EQUIPMENT IDENTIFYING ARC FLASH HAZARD CLASSIFICATIONS.

26. RECORD DRAWINGS

- A. AS PART OF THESE REQUIREMENTS A COMPLETE SET OF "AS-BUILT" OR RECORD DRAWINGS SHALL BE PRODUCED AND DELIVERED TO THE ARCHITECT.
- B. THE DRAWINGS SHALL SHOW:
- ALL ELECTRICAL WORK INSTALLED.
- ALL MODIFICATIONS AND/OR ADDITIONS TO THE ORIGINAL DESIGN.
- ALL DIMENSIONAL INFORMATION NECESSARY TO LOCATE BURIED OR CONCEALED CONDUIT WORK WHICH CANNOT BE TRACED THROUGH REGULAR MEANS OF ACCESS.
- C. THE DRAWINGS SHALL BE PRODUCED ON AUTOCAD 2015 OR LATER AND SHALL UTILIZE THE BACKGROUNDS FROM THE ARCHITECT OR ENGINEER AS BASIS FOR THE COMPLETED DRAWINGS.
- D. PROVIDE FIRE ALARM AS-BUILT SUBMISSION TO THE FIRE DEPARTMENT AS PER CODE REQUIREMENT

27. CERTIFICATE OF INSPECTION

A. PROVIDE CERTIFICATE OF INSPECTION FOR ALL ELECTRICAL WORK INSTALLED UNDER THIS CONTRACT. PROVIDE NEW YORK CITY BUREAU OF ELECTRICAL CONTROL ELECTRICAL INSPECTION CERTIFICATE OR AUTHORITY HAVING JURISDICTION AS PART OF THIS PROJECT. INCLUDE ALL FILING FEES IN CONTRACT.

28. GUARANTEE

A. THE CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE OF THE PROJECT AGAINST DEFECTIVE MATERIALS OR WORKMANSHIP.

29. FINAL CLEANUP

A. THE CONTRACTOR, BEFORE FINAL ACCEPTANCE WILL BE GRANTED, SHALL CLEAN ALL LIGHTING FIXTURES, DEVICE PLATES, SERVICE FITTINGS AND OTHER ITEMS FURNISHED UNDER THIS CONTRACT AND SHALL ENSURE THAT ALL DIRECTORIES ARE IN PLACE WITH COMPLETED OR REVISED SCHEDULES AND ALL IDENTIFICATIONS AND MARKINGS OF EQUIPMENT, CABLES AND OTHER ITEMS, ARE COMPLETED.

30. SEISMIC RESTRAINTS INSTALLATION

TABLE 13.6-1.

BASED ON BUILDING TYPE IV (ESSENTIAL FACILITIES WITH OCCUPANCIES HAVING SURGERY OR EMERGENCY TREATMENT FACILITIES) THE SEISMIC DESIGN CATEGORY IS 'C'. SEISMIC DESIGN SHALL BE BASED ON THE METHODS PRESENTED IN ASCE/SEI 7—16

- A. HORIZONTAL SEISMIC DESIGN FORCE: ELECTRICAL COMPONENTS SHALL BE DESIGNED TO RESIST HORIZONTAL EARTHQUAKE FORCE (FP), AS DEFINED IN ASCE/SEI 7, APPLIED AT THE CENTER OF GRAVITY OF THE COMPONENT AND SHALL CONSIDER BOTH LIPWARD AND DOWNWARD VERTICAL FORCES.
- SHALL CONSIDER BOTH UPWARD AND DOWNWARD VERTICAL FORCES.

 B. VERTICAL SEISMIC DESIGN FORCE: ELECTRICAL COMPONENTS SHALL BE DESIGNED TO RESIST BOTH UPWARD AND DOWNWARD VERTICAL FORCES RESULTING FROM THE APPLICATION OF THE HORIZONTAL SEISMIC DESIGN

FORCE PLUS A CONCURRENT VERTICAL FORCE EQUAL TO 0.2 SpsD, AS

- C. SELECT APPROPRIATE SEISMIC COEFFICIENTS FROM ASCE/SEI 7,
- D. EXCEPTIONS TO THE SEISMIC PROTECTION REQUIREMENTS OF THIS SECTION FOR ELECTRICAL COMPONENTS BASED ON COMPONENT IMPORTANCE FACTOR (IP) AND SEISMIC DESIGN CATEGORY: THE FOLLOWING ELECTRICAL COMPONENTS ARE EXEMPT FROM SEISMIC DESIGN REQUIREMENTS OF ASCE/SEI 7–16.
 - 1. ELECTRICAL COMPONENTS IN SEISMIC DESIGN CATEGORY C PROVIDED THAT ONE OF THE FOLLOWING:
 - a. THE COMPONENT IMPORTANCE FACTOR (IP) EQUALS 1.0 AND THE COMPONENT IS POSITIVELY ATTACHED TO THE STRUCTURE.
 - b. COMPONENT WEIGHS 20 LB (89 N) OR LESS, OR WHERE THE COMPONENT IS A DISTRIBUTION SYSTEM (PIPE, DUCT, ETC.) WEIGHING 5 LB/FT. (73 N/M) OR LESS.
- 1. EXCEPTIONS BASED ON COMPONENT SIZE OR METHOD OF ATTACHMENT: THE FOLLOWING ELECTRICAL COMPONENTS ARE EXEMPT FROM SEISMIC DESIGN REQUIREMENTS OF THIS SECTION:
- a. LIGHT FIXTURES, LIGHTED SIGNS, AND CEILING FANS NOT CONNECTED TO DUCTS OR PIPING, WHICH ARE SUPPORTED BY CHAINS OR OTHERWISE SUSPENDED FROM THE STRUCTURE PROVIDED THEY MEET ALL OF THE FOLLOWING CRITERIA:
- 1) COMPONENTS SUPPORTED BY CHAINS OR OTHERWISE SUSPENDED FROM THE STRUCTURE.
- 2) THE DESIGN LOAD IS BE EQUAL TO 1.4 TIMES THE OPERATING WEIGHT ACTING DOWN WITH A SIMULTANEOUS HORIZONTAL LOAD EQUAL TO 1.4 TIMES THE OPERATING WEIGHT AND APPLIED IN THE DIRECTION THAT RESULTS IN THE MOST CRITICAL LOADING.
- 3) CONSEQUENTIAL DAMAGE PER SECTION 1.7 PARAGRAPH J WILL
- 4) CONNECTION TO THE STRUCTURE ALLOWS A 360 DEGREE RANGE OF MOTION IN THE HORIZONTAL PLANE.
 2. CONDUIT, CABLE TRAY, AND OTHER ELECTRICAL DISTRIBUTION SYSTEMS (RACEWAYS) WITH IP, = 1.0 WHERE POSITIVELY ATTACHED TO THE
- STRUCTURE AND HAVE FLEXIBLE CONNECTIONS TO ASSOCIATED EQUIPMENT AND ONE OF THE FOLLOWING APPLY:

 a. TRAPEZE SUPPORTS USING 3/8-INCH- (13 MM-) DIAMETER ROD HANGERS NOT EXCEEDING 12 INCHES (305 MM) IN LENGTH FROM THE TRAPEZE SUPPORT TO THE POINT OF CONNECTION TO THE
- STRUCTURE AND THE TOTAL WEIGHT ON ANY SINGLE TRAPEZE IS LESS THAN 100 LB (445 N).

 b. TRAPEZE SUPPORTS USING 1/2-INCH- (10 MM-) DIAMETER ROD HANGERS NOT EXCEEDING 12 INCHES (305 MM) IN LENGTH FROM THE TRAPEZE SUPPORT TO THE POINT OF CONNECTION TO THE STRUCTURE AND THE TOTAL WEIGHT ON ANY SINGLE TRAPEZE IS
- LESS THAN 200 LB (890 N), OR

 c. TRAPEZE SUPPORTS USING 1/2-INCH- (13 MM-) DIAMETER ROD HANGERS NOT EXCEEDING 24 INCHES (610 MM) IN LENGTH FROM THE TRAPEZE SUPPORT TO THE POINT OF CONNECTION TO THE STRUCTURE AND THE TOTAL WEIGHT ON ANY SINGLE TRAPEZE IS
- d. CABLE TRAY, OR RACEWAY SUPPORTED BY INDIVIDUAL ROD HANGERS 3/8 OR 1/2 INCH— (10 OR 13 MM—) DIAMETER, AND EACH HANGER IN THE RACEWAY RUN IS 12 INCHES (305 MM) OR LESS IN LENGTH FROM THE CONDUIT, CABLE TRAY, OR RACEWAY SUPPORT POINT CONNECTION TO THE SUPPORTING STRUCTURE, AND THE TOTAL WEIGHT SUPPORTED BY ANY SINGLE ROD IS 50 LB (220 N) OR

3. CONDUIT IS LESS THAN 2.5 INCH (64 MM) TRADE SIZE.

LESS THAN 100 LB (445 N).

SCHUNKEWITZ

ARCHITECTURE

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Seal & Signature

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Lilk

05/23/2023 Issued for 100% CD's
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03/31/2023 DD Review Set
0. date description

RICHMOND UNIVERSITY
MEDICAL CENTER

Project Name & Location:

Client Name:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

Issued To, For:

ELECTRICAL SPECIFICATION

(3 OF 3)

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

 MJR
 AS NOTED

CONSTRUCTION DOCUMENTS

File No.: R2000

Drawing No.:

E-703.00

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REFER TO GENERAL NOTES, SYMBOLS, ABBREVIATIONS AND SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

. THE ENTIRE SYSTEM SHALL BE INSTALLED IN A WORKMANLIKE MANNER. II COMPLIANCE WITH THE 2022 NYC BUILDING CODE, THE 2022 NYC MECHANICAL CODE, THE 2022 NYC FIRE CODE, THE 2011 NYC ELECTRICAL CODE, THE NYC RULES AND REGULATIONS, THE 2010 NFPA 72 AS AMENDED BY APPENDIX Q, THE 2000 ASME A17.1 AS AMENDED BY APPENDIX K, THE AMERICANS WITH DISABILITY ACT (ADA). AND IN ACCORDANCE WITH THE APPROVED MANUFACTURER'S SPECIFICATIONS AND WIRING DIAGRAM.

. ALL EQUIPMENT AND COMPONENTS SHALL BE UL LISTED FOR ITS INTENDED USE AND CONFORM TO THE LATEST UL STANDARDS. ALL FIRE ALARM CONTROL PANELS SHALL BE NYC APPROVED (FDNY OTC&R COA)

4. ALL WORK PERFORMED AND ALL MATERIAL AND EQUIPMENT FURNISHED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS AND SHALL REMAIN SO FOR A PERIOD OF AT LEAST ONE (1) YEAR FROM THE DATE OF ACCEPTANCE OR APPROVAL BY AHJ. THE FULL COST OF MAINTENANCE, LABOR AND MATERIALS REQUIRED TO CORRECT ANY DEFECT DURING THIS ONE YEAR PERIOD SHALL BE INCLUDED IN THE SUBMITTAL BID.

INCLUDE THE COST FOR 1 YEAR OF CENTRAL STATION MONITORING, WHICH SHALL START FROM THE DATE OF ACCEPTANCE AND FIRE DEPARTMENT APPROVAL.

5.INCLUDE THE SERVICES OF AN AUTHORIZED FACTORY TRAINED TECHNICIAN OR FIRE ALARM SYSTEM VENDOR AS REQUIRED TO PROVIDE TECHNICAL ADVICE, REVIEW PANEL AND SYSTEM WIRING, PROGRAM CONTROLS, ASSIST WITH THE SYSTEM TESTING, INSPECTIONS AND TO PROVIDE TRAINING SESSIONS FOR OWNER'S REPRESENTATIVES.

FURNISH AND INSTALL ALL CONDUIT, WIRING, OUTLET BOXES, JUNCTION BOXES, PULL BOXES, CABINETS, ENCLOSURES, TERMINAL CABINETS/STRIPS AND SIMILAR DEVICES NECESSARY FOR THE COMPLETE INSTALLATION. ALL WIRING SHALL BE OF THE TYPE RECOMMENDED BY THE MANUFACTURER, APPROVED BY THE LOCAL FIRE DEPARTMENT AND SHALL COMPLY WITH THE FOLLOWING REQUIREMENTS:

A. POWER CONDUCTORS (NPLFA CONDUCTORS):

 POWER CONDUCTORS SHALL BE SOLID COPPER #10 AWG AND STRANDED COPPER FOR SIZES #8 AWG AND LARGER: THWN/THHN MINIMUM 600 VOLTS; 90°C. MINIMUM WIRE SIZE SHALL BE #10 AWG.

B. LOW VOLTAGE CONDUCTORS (PLFA CONDUCTORS):

 SINGLE CONDUCTOR CABLES SHALL BE COPPER, THWN/THHN, MINIMUM 600 VOLTS; 90°C, MINIMUM WIRE SIZE SHALL BE #14 AWG.

 MULTI-CONDUCTOR CABLES SHALL BE TYPE FPLP ONLY; MINIMUM INSULATION THICKNESS 15 MILS; MINIMUM TEMPERATURE 150°C; RED COLORED JACKET OVERALL WITH MINIMUM THICKNESS OF 25 MILS. CABLE MARKED AS PER UL 1424; MUST BEAR ADDITIONAL DESCRIPTION "ALSO CLASSIFIED NYC CERT. FIRE ALARM CABLE" LEGIBLE WITHOUT REMOVING JACKET, MINIMUM WIRE SIZE SHALL BE #16 AWG.

• SINGLE CONDUCTOR CABLES SHALL BE INSTALLED IN ELECTRIC METALLIC TUBING (EMT), EXCEPT THAT IN MECHANICAL ROOMS, ELEVATOR MACHINE ROOMS, LOADING DOCKS, GARAGES, HEAVY TRAFFIC AREAS, OR OTHER SPACES WHERE SUBJECT TO PHYSICAL DAMAGE SHALL BE INSTALLED IN RIGID METALLIC CONDUIT (RMC) UP TO 8-FEET ABOVE THE FINISHED FLOOR.

 MULTI-CONDUCTOR CABLES MAY BE INSTALLED WITHOUT RACEWAY PROTECTION WHEN INSTALLED AS FOLLOWS:

WHERE CABLES ARE PROTECTED BY BUILDING CONSTRUCTION SUCH AS SPACE ABOVE CEILINGS, SPACE BELOW RAISED FLOORS, INSIDE WALLS OR DEDICATED SHAFT. WHEN INSTALLED IN TELEPHONE AND COMMUNICATION ROOMS

AND INSIDE ROOMS USED EXCLUSIVELY FOR FIRE ALARM

IN UNFINISHED SPACES IF LOCATED 8-FEET VERTICAL OR MORE ABOVE THE FINISH FLOOR AND NOT SUBJECT TO PHYSICAL TAMPERING OR HAZARD, UNLESS OTHERWISE NOTED.

 MULTI-CONDUCTOR CABLES SHALL BE RUN IN RACEWAY WHEN INSTALLED AS FOLLOWS:

WHEN INSTALLED EXPOSED INSIDE FINISHED SPACES: ELECTRICAL METALLIC TUBING (EMT) SHALL BE USED.

WHEN INSTALLED EXPOSED INSIDE MECHANICAL ROOMS, GENERATOR ROOMS, ELEVATOR MACHINE ROOMS, GARAGES, LOADING DOCKS, HEAVY TRAFFIC AREAS OR OTHER SPACES WHERE SUBJECT TO MECHANICAL DAMAGE: CABLE RUNS ABOVE 8-FEET A.F.F. SHALL USE ELECTRICAL

METALLIC TUBING (EMT). CABLE RUNS BELOW 8-FEET A.F.F SHALL USE RIGID METALLIC CONDUIT (RMC).

 WHEN REQUIRED TO BE INSTALLED IN RACEWAY, THE RACEWAY SHALL BE PAINTED TO MATCH ROOM SURROUNDINGS, EXCEPT THAT COVERS OF PULL BOXES, JUNCTION BOXES AND CONDUIT OUTLET BODIES SHALL BE PAINTED RED.

• WHERE ALLOWED TO BE RUN WITHOUT RACEWAY PROTECTION, MULTI-CONDUCTOR CABLES SHALL NOT DEPEND ON CEILING MEDIA. PIPES, DUCTS, CONDUITS, OR EQUIPMENT FOR SUPPORT. SUPPORT INDEPENDENTLY FROM THE BUILDING STRUCTURE. SECURE BY CABLE TIES, STRAPS OR SIMILAR FITTINGS, SO DESIGNED AND INSTALLED AS NOT TO DAMAGE THE CABLE. SECURE IN PLACE AT INTERVALS NOT EXCEEDING 60-INCHES ON CENTERS AND WITHIN 12-INCHES OF EVERY ASSOCIATED CABINET, BOX OR FITTING.

 FOR SYSTEMS USING A VOICE/ALARM COMUNICATION SYSTEM VERTICAL AND HORIZONTAL NETWORK RISER CABLE BEWTEEN CONTROL UNITS (FCC, DGP's, BPS's, ETC.) SHALL BE INSTALLED USING AN UL LISTED ELECTRICAL CIRCUIT INTEGRITY SYSTEM THAT ENSURES A 2HR FIRE RATING OR SHALL BE INSTALLED INSIDE A 2HR FIRE RATED ENCLOSURE OR PROTECTED AREA. OR SHALL BE DESIGNED AS CLASS X WITH REDUNDANT PATHWAYS SEPARATED BY A 30. ALL FAN SHUTDOWN, DOOR RELEASE, DAMPER CONTROL, OR ANY OTHER MINIMUM OF 15-FEET.

8. FIRE ALARM CIRCUITS GUIDELINES SHALL BE AS FOLLOWS:

A. SIGNALING LINE CIRCUITS (SLC) SHALL HAVE NFPA CLASS B OPERATION. 31. FOR ALL HEAT, SMOKE AND DUCT SMOKE DETECTORS LOCATED ABOVE

B. NOTIFICATION APPLIANCE CIRCUITS (NAC) SHALL HAVE NFPA CLASS E OPERATION, EXCEPT FOR SPEAKER CIRCUITS FOR ONE-WAY VOICE COMMUNICATION IN HIGH-RISE R2 BUILDINGS WHICH SHALL HAVE NFPA

32. FIRE SMOKE DAMPERS (FSD) SHALL BE CIRCUITED IN GROUPS OF (10) CLASS A OPERATION.

9. EACH FIRE ALARM CIRCUIT SHALL CONTAIN AT LEAST 20% SPARE CAPACITY AFTER MEETING BASE BUILDING AND FUTURE TENANT REQUIREMENTS.

10. PROVIDE MINIMUM OF TWO DEDICATED AUDIBLE AND STROBE CIRCUITS PER FLOOR (A & B CIRCUITS. WIRING FOR AUDIBLE AND VISUAL ALARM NOTIFICATION DEVICES SHALL BE ARRANGED SO THAT A LOSS OF A PORTION OF THE WIRING WITHIN AN AREA WILL NOT RENDER MORE THAN 60% OF THE DEVICES INOPERATIVE.

11. ALL FIRE ALARM WIRING SHALL BE CONTINUOUS AND UNSPLICED. TERMINATIONS SHALL ONLY OCCUR AT FIRE ALARM DEVICES OR CONTROL PANEL ENCLOSURES UNDER TERMINAL SCREWS.

12. ALL WIRING SHALL BE COLOR-CODED THROUGHOUT, TO NATIONAL ELECTRICAL CODE STANDARDS AND PERMANENTLY IDENTIFIED AND LABELED AT EACH CONTROL PANEL, CABINETS, ENCLOSURES, PULL BOXES, ETC.

13. ALL FIRE ALARM WIRING SHALL BE SLEEVED WHEN PASSING THROUGH ANY WALL, USING CONDUIT SLEEVES (1-INCH MIN.) WITH BUSHINGS. ALL PENETRATION OF FLOOR SLABS AND FIREWALLS SHALL ALSO BE SLEEVED (1-INCH CONDUIT MIN.) AND FIRE STOPPED IN ACCORDANCE WITH ALL LOCAL FIRE CODES.

14. FIRE ALARM SYSTEM WIRING SHALL NOT BE PERMITTED TO OCCUPY THE SAME ENCLOSURE OR RACEWAY WITH CIRCUITS OF OTHER SYSTEMS IN THE FACILITY. CONDUITS SHALL NOT BE SHARED UNDER ANY CIRCUMSTANCE. ONLY WHEN FIRE ALARM WIRING ENTERS THE ENCLOSURE OF A MONITORED OR CONTROLLED SYSTEM WILL CO-HABITATION BE PERMITTED (I.E. AT FAN STARTERS OR ELEVATOR CONTROLLERS). THIS WILL BE FIELD INSPECTED BY THE PROJECT ENGINEER.

15. RACEWAYS OR CABLES SHALL NOT PENETRATE TOP OF ANY EQUIPMENT

16. PULL AND TERMINATE ALL CONDUCTORS. ALL CONDUCTORS MUST TEST FREE OF GROUNDS. CHECK SYSTEM WIRING FOR SHORTS, OPEN, AND GROUND FAULTS AND CORRECT DEFICIENCIES FOUND PRIOR TO THE ARRIVAL OF THE FIRE DEPARTMENT. DO NOT CONNECT POWER UNTIL THE SYSTEM HAS BEEN CHECKED.

17. FIRE ALARM CONTROL PANEL ENCLOSURES SHALL HAVE ENGRAVED LABELS INDICATING "INTERIOR FIRE ALARM SYSTEM" AND THE AREAS OF THE BUILDING SERVED BY THAT PANEL. LABELS SHALL HAVE MINIMUM 1/4" HIGH

18. COVERS OF CABINETS SHALL BE PAINTED RED AND PERMANENTLY IDENTIFIED AS TO THEIR USE. LABELS SHALL USE MINIMUM 1/4" HIGH

19. ALL REMOTE FIRE ALARM CONTROL CABINETS (DATA GATHERING PANELS, TTBS ETC) SHALL INCLUDE AN INTERNAL TAMPER SWITCH. PROVIDE A SEPARATE 120V POWER FEED FOR EACH REMOTE FIRE ALARM CONTROL CABINET AS WELL AS AN SMOKE DETECTOR MOUNTED DIRECTLY ABOVE EACH CABINET. REMOTE FIRE ALARM CONTROL CABINETS LOCATED IN STAILRWELLS SHALL NOT REQUIRE AN SMOKE DETECTOR ABOVE THE PANEL.

20. WHERE SEPARATION OF THE IN-BUILDING FIRE ALARM EQUIPMENT OCCURS, THE REMOTE EQUIPMENT SHALL BE LOCATED IN A 2 HOUR RATED ROOM OR ENCLOSURE

21. PROVIDE BATTERY BACKUP AS FOLLOWS:

A. SYSTEMS WITH VOICE COMMUNICATION CAPABILITY: SUPERVISORY OPERATION FOR 24-HOURS FOLLOWED BY FULL LOAD OPERATION FOR 5-HOURS OR 45-MINUTES OF VOICE/ALARM OPERATION AT MAXIMUM CONNECTED LOAD.

B. SYSTEMS WITHOUT VOICE COMMUNICATION CAPABILITY: SUPERVISORY OPERATION FOR 24-HOURS FOLLOWED BY FULL LOAD OPERATION FOR 15-MINUTES.

C. SUB-SYSTEMS OR OTHER LIMITED INTERIOR FIRE ALARM SYSTEMS OPERATION FOR 24-HOURS FOLLOWED BY FULL LOAD OPERATION FOR 5-MINUTES.

23. PROVIDE DEDICATED PHONE LINES IN 3/4"RGS CONDUIT FOR CENTRAL STATION MONITORING.

24. UNLESS OTHERWISE NOTED INTERCONNECT SPRINKLER/SUPPRESSION ALARM SYSTEMS FOR ALARM, TROUBLE AND SUPERVISORY STATUS. PROVIDE WIRE, CONDUIT AND MONITOR MODULES AS REQUIRED.

25. ALL INITIATING DEVICES AND NOTIFICATION APPLIANCES MUST BE INSTALLED WITH BACK BOXES. THE EQUIPMENT SHALL NOT BE SUPPORTED BY THEIR WIRING. ALL FIRE ALARM BACK BOXES, CONDUIT COVERS, TRANSFORMERS, FUSED DISCONNECTS AND EQUIPMENT ENCLOSURES SHALL BE PAINTED FIRE DEPARTMENT RED.

26. END OF LINE RESISTORS SHALL BE FURNISHED AS REQUIRED FOR MOUNTING AS DIRECTED BY THE MANUFACTURER. DEVICES CONTAINING END-OF-LINE RESISTORS SHALL BE APPROPRIATELY LABELED. DEVICES SHOULD BE LABELED SO REMOVAL OF THE DEVICE IS NOT REQUIRED TO IDENTIFY THE EOL DEVICE.

27. DOOR HOLDERS SHALL DERIVE THEIR 24VAC/VDC POWER FROM A SEPARATE POWER SUPPLY HOUSED IN A DEDICATED. METAL ENCLOSURE. THE POWER SUPPLY SHALL HAVE A 120VAC FEED, AND IS TO BE CENTRALLY LOCATED TO SERVE DOOR HOLDERS ON A PER FLOOR OR AREA BASIS. QUANTITIES OF DOOR HOLDER POWER SUPPLIES SHALL BE REFERENCED AND SUBMITTED IN THE SUBMISSION PACKAGE FOR APPROVAL BY THE CONSULTING ENGINEER.

28. AUXILIARY RELAYS SHALL BE APPROPRIATELY LABELED TO INDICATE SYSTEM 53. FIRE ALARM SYSTEM WIRING AND EQUIPMENT SHOWN IN THE RISER AND THEIR SPECIFIC FUNCTION (I.E. FAN S-1 SHUTDOWN).

29. PROVIDE ALL LOAD RELAYS AND ADDRESSABLE CONTROL MODULES AS REQUIRED FOR ELEVATOR RECALL, ALTERNATE FLOOR RECALL, SMOKE CONTROL/PURGE AND FAN SHUTDOWN. THE AUXILIARY RELAY CONTACTS SHALL BE RATED FOR THE VOLTAGE AND CURRENT OF THE CONTROL

AUXILIARY RELAYS CONNECTED TO THE FIRE ALARM SYSTEM SHALL BE LOCATED WITHIN 3-FEET OF THE CONTROLLED CIRCUIT OR DEVICE. THE AUXILIARY RELAY CONTACTS SHALL BE RATED FOR THE VOLTAGE AND CURRENT OF THE CONTROL DEVICE.

CONCEALED CEILINGS OR OTHER LOCATIONS OUT OF VIEW, PROVIDE A REMOTE INDICATING MODULE.

TEN AND CONTROLLED BY THE FIRE ALARM SYSTEM IN GROUPS OF (10) REFER TO MECHANICAL DRAWINGS FOR EXACT QUANTITIES AND LOCATIONS OF FIRE SMOKE DAMPERS.

33. DO NOT REMOVE THE RED DUST COVERS FROM THE SMOKE DETECTORS BEFORE ALL CONSTRUCTION HAS BEEN COMPLETED.

34. SPOT-TYPE SMOKE DETECTORS SHALL BE LOCATED ON THE CEILING NOT LESS THAN 4-INCH FROM A SIDEWALL TO THE NEAR EDGE OF THE DETECTOR. DETECTORS SHALL NOT BE LOCATED IN A DIRECT AIRFLOW OR CLOSER THAN 3-FEET FROM AN AIR SUPPLY DIFFUSER OR RETURN AIR OPENING.

35. CARBON MONOXIDE (CO) AND COMBINATION SMOKE/CO DETECTORS SHALL BE FULLY ADDRESSABLE AND INCLUDE A SOUNDER BASE. MANUFACTURERS THAT DO NOT OFFER ADDRESSABLE CO DETECTORS SHALL INCLUDE SEPARATE CO AND SMOKE DETECTORS. NON ADDRESABLES CO DETECTORS SHALL INCLUDE ALL NECESSARY MONITORING DEVICES AS REQUIRED THE FIRE ALARM SYSTEM SUPERVISION. IF POWERED SEPARATELY (24VDC), POWER TO THE DEVICE SHALL ALSO BE SUPERVISED.

36. DUCT SMOKE DETECTORS IN THE RETURN AIR DUCT SYSTEMS OR PLENUM SHALL BE INSTALLED UPSTREAM OF ANY FILTERS. EXHAUST AIR CONNECTIONS, OUTDOOR AIR CONNECTIONS, OR DECONTAMINATION EQUIPMENT AND APPLIANCES. DUCT SMOKE DETECTORS IN SUPPLY AIR DUCT SYSTEMS SHALL BE INSTALLED DOWNSTREAM OF THE AIR FILTERS AND LOCATED IN THE ZONE BETWEEN 6 AND 10 DUCT-EQUIVALENT DIAMETERS OF STRAIGHT, UNINTERRUPTED RUN.

37. DUCT SMOKE DETECTORS CONTROLLING FIRE SMOKE DAMPERS SHALL BE INSTALLED IN THE DUCT WITHIN 5- FEET OF THE DAMPER WITH NO AIR OUTLETS OR INLETS BETWEEN THE DETECTOR AND THE DAMPER.

38. ADDRESSABLE MODULES SHALL BE MOUNTED WITHIN 36 INCHES OF THE MONITORED OR CONTROLLED POINT OF TERMINATION. THIS SHALL INCLUDE. BUT IS NOT NECESSARILY LIMITED TO, FAN SHUTDOWN, ELEVATOR RECALL, SHUNT TRIP, SPRINKLER STATUS POINTS, OR DOOR RELEASE. LABEL ALL ADDRESSABLE MODULES AS TO THEIR FUNCTION.

39. DEVICE LOCATIONS MUST BE READILY ACCESSIBLE TO ALLOW FOR MAINTENANCE AND REPAIR.

40. ALL CEILING MOUNTED DEVICES SHALL BE SECURELY FASTENED TO THE BUILDING STRUCTURE AND NOT TO THE CEILING GRID. ALL WALL MOUNTED DEVICES SHALL BE SECURELY MOUNTED IN PLACE.

41. ANY DUCT MOUNTED DETECTOR MOUNTED ABOVE THE FINISHED CEILINGS OR IN REMOTE LOCATIONS SHALL BE FURNISHED WITH A REMOTE INDICATOR

42. FIRE ALARM PULL STATIONS SHALL BE LOCATED NOT MORE THAN 5-FEET FROM THE ENTRANCE TO EACH EXIT. THE HEIGHT OF THE FIRE ALARM PULL STATIONS SHALL BE A MINIMUM OF 42 INCHES AND A MAXIMUM OF 48 INCHES, MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE ACTIVATING HANDLE OR LEVER OF THE BOX. FIRE ALARM PULL STATIONS SHALL BE RED IN COLOR

43. THE HEIGHT OF THE FIRE ALARM WARDEN STATIONS SHALL BE A MINIMUM OF 42 INCHES AND A MAXIMUM OF 48 INCHES, MEASURED VERTICALLY, FROM THE FLOOR LEVEL TO THE ACTIVATING HANDLE OR LEVER OF THE BOX. FIRE ALARM WARDEN STATIONS SHALL BE RED IN COLOR.

44. AUDIO NOTIFICATION DEVICES SHALL BE MOUNTED 90-INCHES ABOVE THE FINISHED FLOOR, AS MEASURED TO THE TOP OF THE DEVICE. WHERE LOW CEILING HEIGHTS DO NOT PERMIT MOUNTING AT A MINIMUM OF 90-INCHES, MOUNT APPLIANCES WITHIN 6" OF THE CEILING.

45. AUDIO NOTIFICATION DEVICES SHALL BE TAPPED AT WATTAGE SETTINGS WHICH ALLOW FOR SOUND PRESSURE LEVELS (SPL) OF 15DBA ABOVE THE AVERAGE AMBIENT SOUND LEVEL IN THE ROOM OR 5DBA ABOVE THE MAXIMUM SOUND LEVEL HAVING A DURATION OF 60 SECOND, WHICHEVER IS HIGHER. SPL SHALL NOT TO EXCEED 120DBA.

REPORTING TO AN OVERALL FACILITY FIRE ALARM SYSTEM: SUPERVISORY 46. ALL STROBE UNITS AND COMBINATION UNITS WITH STROBES SHALL BE MOUNTED IN SUCH A MANNER THAT THE ENTIRE LENS SHALL BE LOCATED NO LESS THAN 80-INCH AND NO GREATER THAN 96-INCH ABOVE THE HIGHEST FLOOR LEVEL. WHERE LOW CEILING HEIGHTS DO NOT PERMIT MOUNTING AT A MINIMUM OF 80-INCH, MOUNT APPLIANCES WITHIN 6" OF

> 47. ALL STROBES SHALL BE SYNCHRONIZED. PROVIDE ALL NECESSARY SYNC MODELS AND/OR REPLACE EXISTING STROBE PANELS AND STROBES AS

50. PERFORM A COMPLETE FIRE ALARM SYSTEM TEST PRIOR TO FIRE DEPARTMENT INSPECTION AND OBTAIN AND FILE "APPLICATION FOR ELECTRICAL/FIRE ALARM INSPECTION" WITH THE FIRE DEPARTMENT.

51. ACCOMPANY THE FIRE DEPARTMENT INSPECTOR DURING THEIR INSPECTION OF THE SYSTEM, MAKE ALL ADJUSTMENTS REQUIRED BY THE INSPECTOR AND RE-FILE FOR ADDITIONAL INSPECTIONS UNTIL A NON-CONDITIONAL APPROVAL IS RECEIVED FROM THE FIRE DEPARTMENT. ONCE THE APPROVAL IS OBTAINED, FORWARD A COPY TO THE OWNER AND THE ENGINEER OR RECORD.

52. PROVIDE A COMPLETE AS-BUILT RISER DIAGRAM WITH ACTUAL FIELD WIRING. POST AS-BUILT RISER IN A FRAMED GLASS AT THE MAIN FIRE ALARM PANEL LOCATION. UPON COMPLETION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT AS-BUILT DRAWINGS TO THE OWNER, ENGINEER AND FIRE DEPARTMENT FOR APPROVAL. AS-BUILT FLOOR PLANS AND RISER DIAGRAMS SHALL CONTAIN ALL DEVICES INDICATING ROOM NAME/ROOM NUMBER, WIRE SIZES, PROGRAMMED ADDRESS NUMBER, SYMBOL LIST, DESCRIPTION, LOCATION OF END-OF-LINE RESISTORS, ETC.

DIAGRAM IS AN ESTIMATE ONLY TO INDICATE THE DESIGN INTENT. CONTRACTOR SHALL HAVE THE SELECTED FIRE ALARM VENDOR CALCULATE AND PROVIDE WIRING AND EQUIPMENT AS REQUIRED TO MEET THE DESIGN INTENT SHOWN ON THE CONTRACT DOCUMENTS INCLUDING BUT NOT LIMITED TO APPROPRIATE AMOUNT, LENGTH AND CLASS OF INITIATION AND NOTIFICATION CIRCUITS, APPROPRIATE NUMBER OF POWER SUPPLIES, REQUIRED NUMBER OF DGP'S, ETC.

54. THE OWNER'S FIRE ALARM SYSTEM CONTRACTOR. ACTING AS SUB-CONTRACTOR TO THIS CONTRACTOR, SHALL SUPPLY, INSTALL, PROGRAM, CONNECT, MODIFY, TEST, FILE WITH AND OBTAIN APPROVAL FROM LOCAL AUTHORITIES FOR ALL FIRE ALARM SYSTEM WORK.

THE FIRE ALARM MAINTENANCE VENDOR:

RUMC FIRE ALARM MAINTENANCE VENDOR COMPANY: NORCON COMMUNICATIONS INC. CONTACT PERSON: GERRY SCHEER PHONE NUMBER: (516) 239-0300

TEN. PROVIDE (1) ONE CONTROL MODULE FOR EACH GROUP OF (10) TEN. 55. ALL FIRE ALARM DEVICES TO BE INSTALLED UNDER THIS CONTRACT SHALL BE COMPATIBLE AND CONSISTENT WITH THE EXISTING FIRE ALARM PANEL. VERIFY AND COORDINATE WITH SYSTEM MANUFACTURER AND/OR SYSTEM VENDOR FOR TYPE OF FIRE ALARM DEVICES TO BE USED.

> 56. PROVIDE ALL REQUIRED FIRE ALARM CONTROL PANEL AND REMOTE FIRE ALARM CONTROL CABINETS UPGRADES, FIRMWARE, COMPONENTS. PROGRAMMING, ZONE EXTENDERS, MODULES, WIRING, CONDUIT OVERCURRENT PROTECTION, RELAYS, BACKBOXES, LOOP CARDS, POWER SUPPLIES, AND OTHER REQUIRED DEVICES TO ACCOMMODATE THE NEW INITIATING AND NOTIFICATION DEVICES IN THIS CONTRACT. VERIFY AND COORDINATE WITH BUILDING FIRE ALARM MAINTENANCE VENDOR.

57. PROVIDE BOOSTER POWER SUPPLIES (STROBE PANELS) AS REQUIRED FOR STROBES CIRCUITS DRAW AND LENGHTY STROBE CIRCUITS RUNS. PROVIDE A SEPARATE 120V POWER FEED FOR EACH BOOSTER POWER SUPPLY AS WELL AS AN SMOKE DETECTOR MOUNTED DIRECTLY ABOVE EACH BOOSTER POWER SUPPLY. VERIFY AND COORDINATE WITH BUILDING FIRE ALARM MAINTENANCE VENDOR.

58. EXISTING FIRE ALARM SYSTEM SHALL REMAIN IN OPERATION AT ALL TIMES. ALL FIRE ALARM SYSTEM SHUTDOWNS SHALL BE COORDINATED WITH THE BUILDING MANAGEMENT IN ADVANCE TO ALLOW FOR ADEQUATE TIME FOR ANY TEMPORARY FIRE WATCHES TO BE SCHEDULED. PROVIDE A FIRE WATCH WHEN THE EXISTING FIRE ALARM IS DISABLED.

AHEAD OF ANY BRANCH CONNECTIONS. DUCT SMOKE DETECTORS SHALL BE 59. REMOVE ALL FIRE ALARM SYSTEM WORK (DEVICES ETC.) SUPERSEDED BY NEW WORK. THE OWNER RESERVES THE RIGHT TO RETAIN ANY EXISTING FIRE ALARM SYSTEM COMPONENTS, UPON HIS REQUEST, EXISTING FIRE ALARM SYSTEM CIRCUIT CONTINUITY SHALL BE MAINTAINED AT ALL TIMES. AS REQUIRED, PROVIDE ALL NECESSARY WORK TO MAINTAIN FIRE ALARM SYSTEM CIRCUIT CONTINUITY IN ACCORDANCE WITH CODE REQUIREMENTS.

> 60. WHEN ADDING OR REMOVING PULL STATIONS TO AN EXISTING INDIVIDUALLY CODED FIRE ALARM SYSTEM, PROVIDE LABOR AND MATERIAL AS REQUIRED TO REVISE ALL CODE CARDS IN THE BUILDING TO INDICATE THE ADDED OR REMOVED DISTINCTIVE ALARM CODE(S) CORRESPONDING TO THE REMOVED OR ADDED PULL STATIONS.

61. WHENEVER EXCAVATION, CORE DRILLING OR CUTTING OF EXISTING SLABS, CONCRETE OR PAVEMENT ARE PERFORMED. THE CONTRACTOR SHALL HIRE A SPECIALIST TO PERFORM SUBSURFACE SCANS TO IDENTIFY AND FLAG UTILITIES, REBAR, ETC. SO THEY ARE NOT DAMAGED. ANY DEVIATIONS FROM THE PENETRATIONS INDICATED ON THE CONTRACT DOCUMENTS MUST BE APPROVED BY THE ENGINEER OF RECORD AND/OR OWNER.

Input/Output Matrix

Activate audible & visible

FACP & remote annunciator

Activate audible & visible

Activate audible & visible

ROUBLE signal indicator

FACP & remote annunciator

Activate all of the audible &

visible SIGNALS on all floors

connected to the Fire Alarm

connected to the Fire Alarm

all Cross Corridor & Security

RECALL Elevators to the 2nd

Signal in the elevator cabs

relay to remove operating

Activate relay to open top of

Transmit ALARM signal to the

Transmit TROUBLE signal to the

power to the ELEVATORS

Stair SMOKE HATCH

| Existing Central Station

Existing Central Station

Activate RELAY to RELEASE

RECALL Elevators to the

ACTIVATE the FIRE HAT

ACTIVATE a SHUNT TRIP

Basement Level

SHUT all FANS that are

CLOSE all FSD that are

indicators at FACP & remote

A | ALARM signal indicator at

SUPERVISORY signal

annunciator

of the facility

System

DESCRIPTION ID ID PRIMARY RS-485 DATA (FPLR) M SPARE (FLOOR) REDUNDANT RS-485 DATA 24 VDC POWER #14 PR (FPLR) (RISER SYSTEM GROUND (2HR) -C PRIMARY LOW-LEVEL AUDIO (RISER) #16 TSP REDUNDANT LOW LEVEL SYSTEM GROUND (2HR) -(RISER) AUDIO RISER CIRCUIT TELEPHONE RISER (FPLR) 120VAC POWER (2HR) - RHW 120VAC POWER (2HR) - RHW ADDRESSABLE CIRCUIT #14 TSP U 120VAC POWER (2HR) - RHW G SPEAKER CIRCUIT #12 TP W 120VAC POWER (2HR) - RHW H STROBE CIRCUIT X 120VAC POWER (2HR) - RHW WARDEN TELEPHONE CKT. #16 TSP POWER TO REM. ANN. K RELAY/MONITOR #14 PR #14 SP & #14 SPARE (RISER)

FIRE ALARM CABLE TYPE LEGEND

THE CABLE TYPES LISTED REPRESENT BASIC FUNCTIONAL REQUIREMENTS OF A STANDARD FIRE ALARM SYSTEM. MANUFACTURERS REQUIRING VARIATIONS OF THE CABLE TYPES LISTED SHALL MAKE SUBSTITUTIONS ACCORDINGLY.

1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |10|11|12|13|14|15|16|17|18

 $ullet \ |ullet
STAFF CTRL

CORR WAIT. RM.

TOILET LOCKER LOCKER CORR CORR LOUNGE RM

LAB CORR CORR CORR EQUIP. EQUIP. RESTR.

• | • | • | • | • | •

STAFF SHOWER

STRGE UTILITY UTILITY

RM. RM.

SOILED SOILED CORR CORR CORR

CLST

RM

-Inputs-

#16 SP & #16 75cd 2 #12 COND. AS REQ. RS-232 SERIAL

> FIRE ALARM DRAWING LIST FA-001.00 FIRE ALARM NOTES AND PARTIAL RISER DIAGRAM FIRE ALARM DEMOLITION FIRST FLOOR PART PLAN

BUILDING NAME:

BIN #:

LOT #:

BLOCK #:

FA-202.00

FIRE ALARM DEVICES

(S) SMOKE DETECTOR

REQUIRED

SBP STROBE BOOSTER PANEL

DH DOOR HOLDER WITH RELAY.

FIRE ALARM PULL STATION

CM CONTROL MODULE AND LOAD RELAY

F WALL MOUNTED COMBINATION STROBE/SPEAKER, COLOR WHITE

 75cd XXcd = CANDELA RATING; A/B DENOTES SPLIT CIRCUITING.

WALL MOUNTED STROBE, COLOR WHITE U.O.N.

CEILING MOUNTED STROBE, COLOR WHITE U.O.N.

CEILING MOUNTED COMBINATION STROBE/SPEAKER, COLOR WHITE

XXcd = CANDELA RATING; A/B DENOTES SPLIT CIRCUITING.

XXcd = CANDELA RATING; A/B DENOTES SPLIT CIRCUITING.

XXcd = CANDELA RATING; A/B DENOTES SPLIT CIRCUITING.

DUCT SMOKE DECTECTOR WITH REMOTE STATUS INDICATOR AS

RICHMOND UNIVERSITY MEDICAL CENTER

FIRST FLOOR AND ROOF

STATEN ISLAND, NY 10065

355 BARD AVENUE

5106523

FSD FIRE SMOKE DAMPER WITH CONTROL MODULE AND LOAD RELAY

SD SMOKE DAMPER WITH CONTROL MODULE AND LOAD RELAY

FDS FIRE ALARM FDNY APPROVED FUSED DISCONNECT SWITCH

TS TAMPER SWITCH DEVICE WITH MONITOR MODULE

BUILDING DEPARTMENT INFORMATION

FA-201.00 FIRE ALARM FIRST FLOOR PLAN

FIRE ALARM WIRING SCHEDULE

CLASS AND STYLE OF WIRE: ALL FIRE ALARM CIRCUITS SHALL BE WIRED NFPA CLASS A PROVIDE ALL DOOR HOLDER POWER SUPPLY WIRING IN CONDUIT FROM NEW BOOSTER PANEL. PROVIDE ALL 24VDC WIRING REQUIRED FOR FAN SHUTDOWN RELAYS, DAMPER CONTROLS, ETC.

FIRE ALARM ROOF PLAN

LINE TYPE LEGEND:

----- EXISTING TO REMAIN

ABBREVIATIONS:

D - TO BE DEMOLISHED E — EXISTING TO REMAIN

N - NEW TO BE INSTALLED RE - RELOCATED EXISTING EQUIPMENT

MULTI-CONDUCTOR CABLING RUN IN RACEWAY OR FREE AIR SHALL MEET THE FOLLOWING REQUIREMENTS:

1. A MINIMUM TEMPERATURE RATING OF 150°C.

2. A MINIMUM AVERAGE INSULATION THICKNESS OF 15 MILS.

3. A MINIMUM AVERAGE JACKET THICKNESS OF 25 MILS.

4. THE COLOR OF THE CABLE SHALL BE RED.

7. TO ACCOUNT FOR VOLTAGE DROP OR SPECIFIC

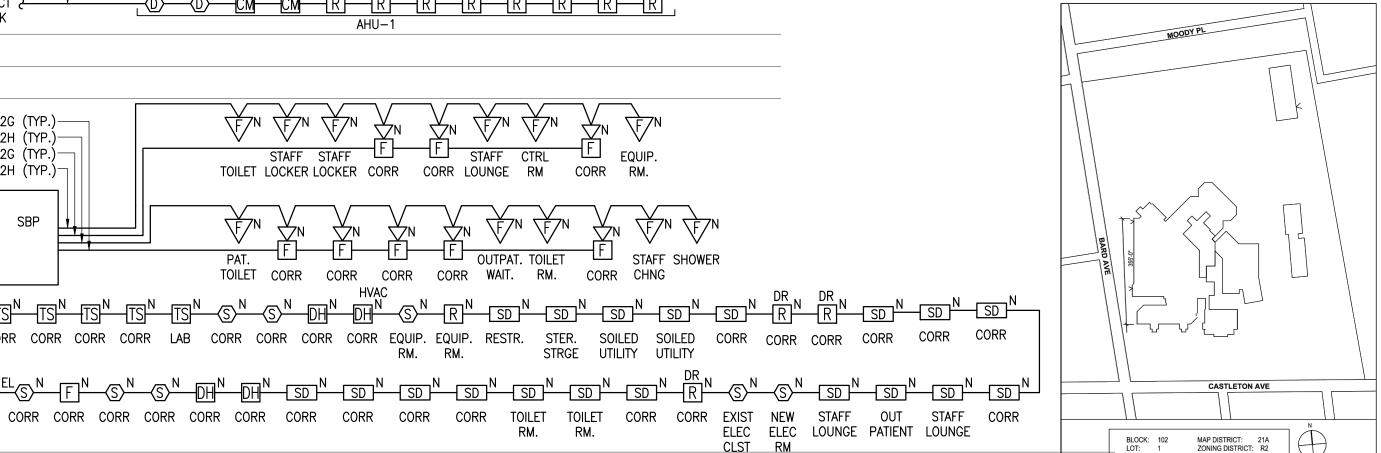
5. THE CABLE SHALL BE A TYPE FPLP (PLENUM TYPE).

CABLE PRINTING AS PER UL1424 AND MARKED "NYC CERT. FIRE ALARM CABLE" LEGIBLE WITHOUT REMOVING JACKET.

MANUFACTURER REQUIREMENTS INCREASE INDICATED WIRE

SIZES OR CHANGE CABLE TYPE IF REQUIRED. FIRE ALARM CABLING SHALL BE INSTALLED IN 3/4" EMT CONDUIT. UNLESS OTHERWISE NOTED.

RACEWAY RUN WITHIN 8 FEET OF THE FINISHED FLOORS IN MECHANICAL ROOMS, LOADING DOCKS AND ELSEWHERE WHERE SUBJECT TO MECHANICAL DAMAGE, SHALL BE RGS CONDUIT ONLY.



PLOT PLAN

SCHUNKEWITZ

ARCHITECTURE

INTERIORS

PROJECT MANAGEMENT

DANIEL SCHUNKEWITZ, ARCHITECT 1015 BENDERMERE AVENUE WANAMASSA NJ, 07712 917-848-2350 DS@DSAHEALTHCARE.COM

Seal & Signature

R FIRE ALARM DOOR RELAY. "DR" DENOTES FOR DOOR RELEASE.

Lilker Associates Mechanical and Electrical Engineers

1001 Avenue of the Americas New York, NY 10018 tel 212 695 1000 fax 212.695.1299

Issued for 100% CD's 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

FIRE ALARM NOTES AND PARTIAL RISER DIAGRAM

Drawn By: 05/23/2023 SSI Checked By: AS NOTED MJR

File No.: R2000 rawing No.:

APPLICATION SPECIFICATION SHEET. ALL OTHER MATTERS SHOWN ARE NOT TO BE RELIED UPON, OR TO BE CONSIDERED AS EITHER

ELEC ELEC LOUNGE PATIENT LOUNGE

PARTIAL FIRE ALARM RISER DIAGRAM SCALE: NONE

TO EXISTING DEVICES

2G (TYP.)-

2H (TYP.)—

2G (TYP.)—

2H (TYP.)-

SBP

OUTSIDE PROJECT 2-

ROOF SCOPE OF WORK

3RD FLOOR

2ND FLOOR

SOURCE `

1ST FLOOR

TO EXISTING DEVICES

OUTSIDE PROJECT

SCOPE OF WORK ? TES

THIS PLAN IS APPROVED ONLY FOR WORK INDICATED ON THI BEING APPROVED OR IN ACCORDANCE WITH APPLICABLE CODES.

CONSTRUCTION DOCUMENTS

01 OF 04 FA-001.00



1 FIRE ALARM DEMOLITION 1ST FLOOR PART PLAN SCALE: 1/8" = 1'-0"

SCALE 1/8" = 1'-0"

SCHUNKEWITZ

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Seal & Signature

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Lilker

05/23/2023 04/28/2023 Issued for 50% CD's 03/31/2023 DD Review Set date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

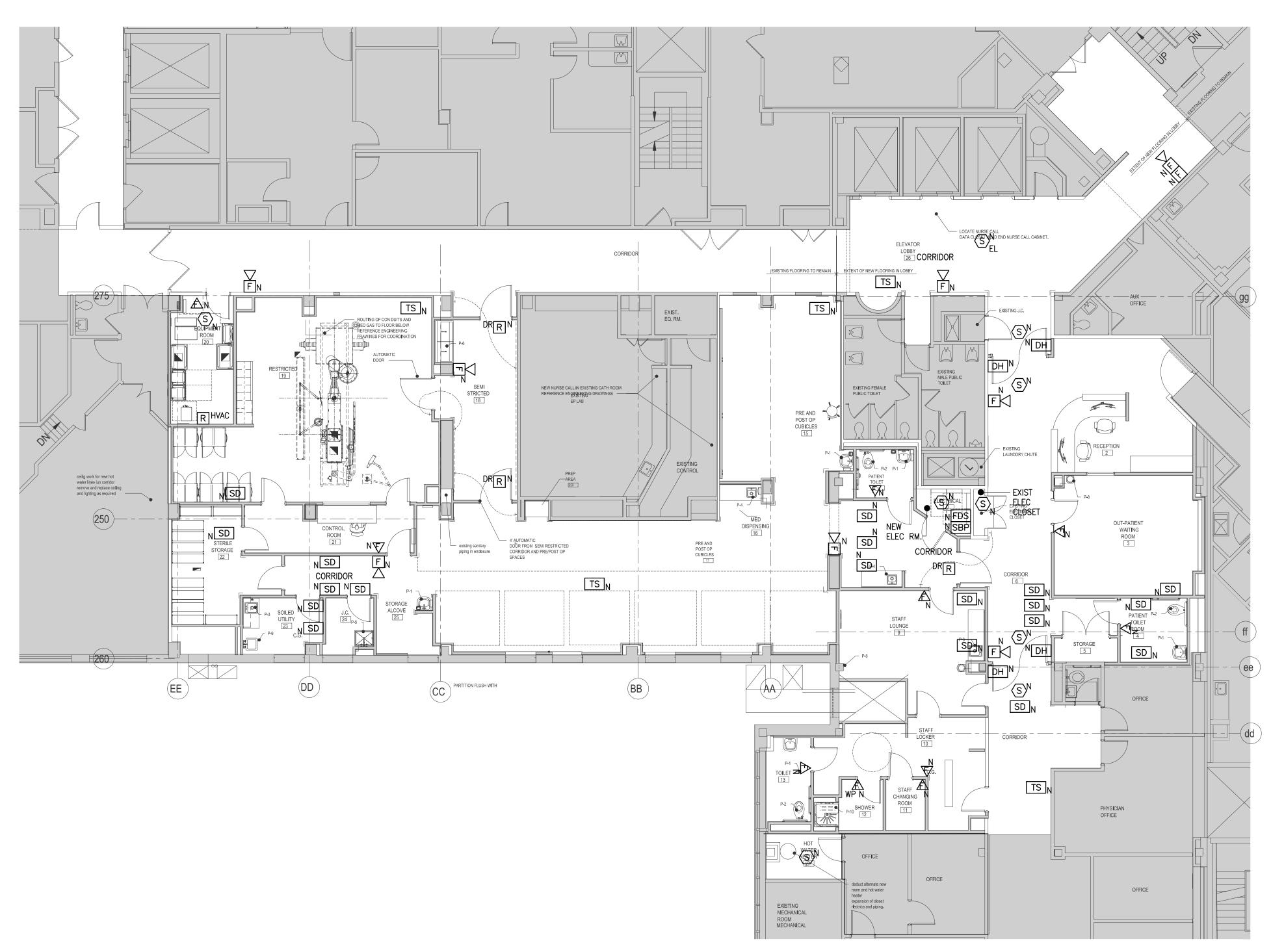
Drawing Title:

FIRE ALARM DEMOLITION 1ST FLOOR PART PLAN

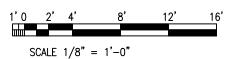
05/23/2023 Checked By: AS NOTED

CONSTRUCTION DOCUMENTS

02 OF 04 FA-101.00



1 FIRST FLOOR FIRE ALARM PLAN SCALE: 1/8" = 1'-0"



FIRE ALARM SUBMITTAL NOTES

- PROVIDE LIST OF ALL TYPES OF EQUIPMENT AND COMPONENTS PROVIDED. THIS SHALL BE INCORPORATED AS PART OF A TABLE OF CONTENTS, WHICH WILL ALSO INDICATE THE MANUFACTURER'S PART NUMBER, THE DESCRIPTION OF THE PART, AND THE PART NUMBER OF THE MANUFACTURER'S PRODUCT DATASHEET ON WHICH THE INFORMATION CAN BE FOUND.
- 2. PROVIDE DESCRIPTION OF OPERATION OF THE SYSTEM (SEQUENCE OF OPERATION), SIMILAR TO THAT PROVIDED ON DRAWINGS OF THE SPECIFICATIONS, TO INCLUDE ANY AND ALL EXCEPTIONS, VARIANCES OR SUBSTITUTIONS LISTED AT THE TIME OF BID. ANY SUCH EXCEPTIONS, VARIANCES OR SUBSTITUTIONS WHICH WERE NOT LISTED AT THE TIME OF BID AND ARE IDENTIFIED IN THE SUBMITTAL, SHALL BE GROUNDS FOR IMMEDIATE DISAPPROVAL WITHOUT COMMENT. THE SEQUENCE OF OPERATION SHALL BE PROJECT SPECIFIC, AND SHALL PROVIDE INDIVIDUAL SEQUENCES FOR EVERY TYPE OF ALARM, SUPERVISORY, OR TROUBLE CONDITION WHICH MAY OCCUR AS PART OF NORMAL OR OFF—NORMAL SYSTEM LISE
- 3. PROVIDE MANUFACTURER'S ORIGINAL PRINTED PRODUCT DATA, CATALOG CUTS AND DESCRIPTION OF ANY SPECIAL INSTALLATION PROCEDURES. PHOTOCOPIED AND/OR ILLEGIBLE PRODUCT DATA SHEETS SHALL NOT BE ACCEPTABLE. ALL PRODUCT DATASHEETS SHALL BE HIGHLIGHTED OR STAMPED WITH ARROWS TO INDICATE THE SPECIFIC COMPONENTS BEING SUBMITTED FOR APPROVAL.
- 4. PROVIDE MANUFACTURER'S INSTALLATION INSTRUCTION MANUAL FOR SPECIFIED SYSTEM.
- 5. PROVIDE SAMPLES OF VARIOUS ITEMS WHEN REQUESTED.
- 6. PROVIDE COPY OF NYS LICENSE TO PERFORM SUCH WORK.
- 7. PROVIDE COPIES OF NICET LEVEL II FIRE ALARM CERTIFICATIONS FOR THE TWO (2) TECHNICIANS ASSIGNED TO THIS PROJECT.
- 8. PROVIDE SHOP DRAWINGS AS FOLLOWS:
- A. COVERSHEET WITH PROJECT NAME, ADDRESS AND DRAWING INDEX.
- B. GENERAL NOTES DRAWING WITH PERIPHERAL DEVICE BACKBOX SIZE INFORMATION, PART NUMBERS, DEVICE MOUNTING HEIGHT INFORMATION, AND THE NAMES, ADDRESSES, POINT OF CONTACT, AND TELEPHONE NUMBERS OF ALL CONTRACT PROJECT TEAM MEMBERS.
- C. DEVICE RISER DIAGRAM WHICH INDIVIDUALLY DEPICTS ALL CONTROL PANELS, ANNUNCIATORS, ADDRESSABLE DEVICES, AND NOTIFICATION APPLIANCES. SHALL INCLUDE A SPECIFIC, PROPOSED POINT DESCRIPTOR ABOVE EACH ADDRESSABLE DEVICE. SHALL INCLUDE A SPECIFIC, DISCRETE POINT ADDRESS WHICH SHALL CORRESPOND TO ADDRESSES DEPICTED ON THE DEVICE LAYOUT FLOOR PLANS. DRAWING SHALL PROVIDE WIRE SPECIFICATIONS, AND WIRE TAGS SHOWN ON ALL CONDUCTORS DEPICTED ON THE RISER DIAGRAM. ALL CIRCUITS SHALL HAVE DESIGNATIONS THAT SHALL CORRESPOND WITH THOSE REQUIRE ON THE CONTROL PANEL AND FLOOR PLAN DRAWINGS. END—OF—LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
- D. CONTROL PANEL TERMINATION DRAWING(S). SHALL DEPICT INTERNAL COMPONENT PLACEMENT AND ALL INTERNAL AND FIELD TERMINATION POINTS. DRAWING SHALL PROVIDE A DETAIL INDICATING WHERE CONDUIT PENETRATIONS SHALL BE MADE, SO AS TO AVOID CONFLICTS WITH INTERNALLY MOUNTED BATTERIES. FOR EACH ADDITIONAL DATA GATHERING PANEL, A SEPARATE CONTROL PANEL DRAWING SHALL BE PROVIDED, WHICH CLEARLY INDICATED THE DESIGNATION, SERVICE AND LOCATION OF THE CONTROL ENCLOSURE. END-OF-LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
- E. PROVIDE DOCUMENTATION AND TRAINING FOR BUILDING PERSONNEL.
- F. DEVICE TYPICAL WIRING DIAGRAM DRAWING(S) SHALL BE PROVIDED WHICH DEPICT ALL SYSTEM COMPONENTS, AND THEIR RESPECTIVE FIELD WIRING TERMINATION POINTS. WIRE TYPE, GAUGE, AND JACKET SHALL ALSO BE INDICATED. WHEN AN ADDRESSABLE MODULE IS USED IN MULTIPLE CONFIGURATIONS FOR MONITORING OR CONTROLLING VARIOUS TYPES OF EQUIPMENT, DIFFERENT DEVICE TYPICAL DIAGRAMS SHALL BE PROVIDED. END-0F-LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
- G. DEVICE LAYOUT FLOOR PLANS SHALL BE CREATED FOR EVERY AREA SERVED BY THE FIRE ALARM SYSTEM. FLOOR PLANS SHALL INDICATE ACCURATE LOCATIONS FOR ALL CONTROL AND PERIPHERAL DEVICES. DRAWINGS SHALL BE NO LESS THAN 1/8 INCH SCALE. ALL ADDRESSABLE DEVICES SHALL BE DEPICTED WITH A DISCRETE ADDRESS WHICH CORRESPONDS WITH THAT INDICATED ON THE RISER DIAGRAM. ALL NOTIFICATION APPLIANCES SHALL ALSO BE PROVIDED WITH A CIRCUIT ADDRESS WHICH CORRESPONDS TO THAT DEPICTED ON THE RISER DIAGRAM. IF INDIVIDUAL FLOORS NEED TO BE SEGMENTED TO ACCOMMODATE THE 1/8" SCALE REQUIREMENTS, KEY PLANS AND BREAK—LINES SHALL BE PROVIDED ON THE PLANS IN AN ORDERLY AND PROFESSIONAL MANNER. END—OF—LINE RESISTORS (AND VALUES) SHALL BE DEPICTED.
- H. CONTAINED IN THE TITLE BLOCK OF EACH DRAWING SHALL BE SYMBOL LEGENDS WITH DEVICE COUNTS, WIRE TAG LEGENDS, CIRCUIT SCHEDULES FOR ALL ADDRESSABLE AND NOTIFICATION APPLIANCE CIRCUITS, THE PROJECT NAME/ADDRESS, AND A DRAWING DESCRIPTION WHICH CORRESPONDS TO THAT INDICATED IN THE DRAWING INDEX ON THE COVERSHEET DRAWING. A SECTION OF EACH DRAWING TITLE BLOCK SHALL BE RESERVED FOR REVISION NUMBERS AND NOTES. THE INITIAL SUBMISSION SHALL BE REVISION 0, WITH REVISION A, B, OR C AS PROJECT MODIFICATIONS REQUIRE.
- 9. BATTERY CALCULATIONS SHALL BE PROVIDED ON A PER POWER SUPPLY/CHARGER BASIS BASED ON CODE REQUIREMENTS. THESE CALCULATIONS SHALL CLEARLY INDICATE THE QUANTITY OF DEVICES, THE DEVICE PART NUMBERS, THE SUPERVISORY CURRENT DRAW, THE ALARM CURRENT DRAW, TOTALS FOR ALL CATEGORIES, AND THE CALCULATED BATTERY REQUIREMENTS. BATTERY CALCULATIONS SHALL ALSO REFLECT ALL CONTROL PANEL COMPONENT, REMOTE ANNUNCIATOR, AND AUXILIARY RELAY CURRENT DRAWS. FAILURE TO PROVIDE THESE CALCULATIONS SHALL BE GROUNDS FOR THE COMPLETE REJECTION OF THE SUBMITTAL PACKAGE.
- 10. TABLE OF CONTENTS, PRODUCT DATA SHEETS, SEQUENCES OF OPERATION, BATTERY CALCULATIONS, INSTALLATION INSTRUCTIONS, LICENSES, NICET CERTIFICATIONS AND B-SIZE (BLACKLINE) REDUCED SHOP DRAWINGS SHALL BE PROVIDED BY THE FIRE ALARM VENDOR AS PART OF A SINGLE, SPIRAL BOUND SUBMITTAL BOOK. THE SUBMITTAL BOOK SHALL HAVE LAMINATED COVERS INDICATING THE PROJECT ADDRESS, SED NUMBER, SYSTEM TYPE, AND CONTRACTOR. THE BOOK SHALL CONSIST OF LABELED DIVIDERS, AND SHALL NOT EXCEED 9½" IN WIDTH, AND 11½" IN HEIGHT. NO LESS THAN THREE (3) SETS OF SUBMITTAL BOOKLETS SHALL BE PROVIDED TO THE CONSULTING ENGINEER FOR REVIEW AND COMMENT. ADDITIONAL COPIES MAY BE REQUIRED AT NO ADDITIONAL COST TO THE PROJECT.
- 11. SCALE DRAWING SETS SHALL BE SUBMITTED ALONG WITH THE SUBMITTAL BOOKLETS. THESE DRAWINGS MAY BE EITHER D-SIZE OR E-SIZE BLUELINE DRAWINGS AND OF A SUFFICIENT RESOLUTION TO BE COMPLETELY READ. SETS SHALL BE BOUND AND FOLDED SO AS TO NOT TAKE UP MORE THAN 100 SQUARE INCHES OF SPACE. NO LESS THAN THREE (3) SETS OF SCALE DRAWING SETS SHALL BE PROVIDED TO THE CONSULTING ENGINEER FOR REVIEW AND COMMENT. ADDITIONAL COPIES MAY BE REQUIRED AT NO ADDITIONAL COST TO THE PROJECT.
- 12. UPON COMPLETION OF THE PROJECT CONTRACTOR TO PROVIDE AS-BUILT FLOOR PLANS AND RISER DIAGRAM DRAWINGS. SUBMIT COPIES TO THE OWNER, ENGINEER AND FIRE DEPARTMENT. CONTRACTOR SHALL ALSO SUBMIT TO THE OWNER, TWO COPIES OF THE AS-BUILT FIRE ALARM PROGRAM ON CD'S.

SCHUNKEWITZ

ARCHITECTURE

INTERIORS

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3 05/23/2023 Issued for 100% CD's
2 04/28/2023 Issued for 50% CD's
1 03/31/2023 DD Review Set
no. date description

Client Name:

RICHMOND UNIVERSITY MEDICAL CENTER

Project Name & Location:

BI-PLANE EP LAB 355 BARD AVENUE STATEN ISLAND NY

Drawing Title:

FIRE ALARM 1ST FLOOR PLAN

 Drawn By:
 Date:

 SSI
 05/23/2023

 Checked By:
 Scale:

MJR AS NOTED
d To, For:

CONSTRUCTION DOCUMENTS

File No.: R2000
Drawing No.:

FA-201.00

201.00 03 OF 04

