Raleigh Finkelstein Hall
MODULAR AUDIOMETRIC ROOM SUITE

PART 1 – GENERAL

1.1 SUMMARY:

A. Modular sound conditioned Audiometric Room Suite consisting of a Double Wall Exam Room and a Single Wall Control Room, field assembled from 4" thick pre-manufactured components. Enclosure is designed to meet performance criteria specified herein as a complete assembly. The following components/systems are included and specified herein:

1. Acoustical Modular Audiometric Room Suite.
2. Sound Control Door and Frame Assemblies.
3. Sound Control Window Systems.
4. Acoustic HVAC Silencers.
5. Flexible Stainless Steel Sprinkler System.

B. Two room sound suite to include double-walled Exam Room (ER) and single-walled Control Room (CR).

C. The proposed location is located in the basement of Raleigh Finkelstein Hall located on the GVSU Health Campus in Grand Rapids, Michigan

D. The existing room is: 15'-0" wide (narrowest point) x 20'-0" long x 9'-0" high (existing ceiling) (333sf). The ADA clear floor areas at the door and sink must remain unobstructed. The existing acoustical ceiling is to remain.

E. The booth configuration is to fit within the available space provide circulation access and meet the ADA clearances noted above. An approximate minimal booth size is similar to Acoustic Systems RS-252 and RS-257 booths

F. The booth is to sit directly on the existing concrete floor slab (sheet vinyl floor finish)

G. Provide labor, material, tools, equipment, scaffolding, transportation, inspection, certificates, and temporary protection necessary to:

1. Provide Modular Audiometric Room Suite as specified in these Specifications. Provide accessories and appurtenances required for complete working installation.

2. Connectors and flashing shall make holes in walls acoustically tight in accordance with Audiometric Room manufacturer's instructions.

1.3 QUALITY ASSURANCE:

A. Regulatory Requirements:
   1. Acoustical performance: Minimum NRC (Noise Reduction Coefficient) rating of 0.95 and minimum STC (Sound Transmission Class) of 44 after panel fabrication.

   2. Reference Standards:
      a. ASTM E90-99 or ASTM E90-02 and E413-87 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions.
      b. ASTM C423-90A and ASTM E795-00, Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.

1.4 SUBMITTALS:

A. Product Data: Manufacturer's product specifications, data sheets, approval/installation drawings and manual, maintenance procedures.

B. Shop Drawings: Complete drawings showing plans and elevations, construction details, and interface with host building including mechanical and electrical requirements. Include seismic bracing and fastening requirements if required by local codes.

C. Certificate of Compliance: Certify completed assembly meets requirements specified herein. Include test reports on components from an independent NVLAP accredited test facility.

D. Color samples for each Audiometric Room.

1.5 DELIVERY, STORAGE AND HANDLING:

A. Providing for the manufacturer’s given lead times deliver products in sufficient quantity and time to maintain approved construction schedule.

B. Materials shall be in original containers with seals unbroken and labels intact until time of use. Wrapped or bundled materials shall bear name of manufacturer and product. Damaged or otherwise unsuitable material, when so ascertained, shall be removed from Project site.

C. Unload materials upon arrival, inspect for freight damage. Notify manufacturer immediately of freight damage or missing materials.

D. Store products in secure, dry location, out of way of construction operations. Store products off ground and protect from elements. Wetting of elements not permitted.

E. Prevent damage to materials, to other stored products, to existing construction, and project work.

1.6 WARRANTY:

Finish warranty: Furnish panel manufacturer's written warranty covering failure of the factory-applied finish on metal panels within the warranty period. This warranty shall be in addition to and not a limitation of other rights the Owner may have against the Contractor under the Contract Documents.

Warranty Period: 5 years

PART 2 – PRODUCTS

2.1 MATERIALS:

A. Provide the following:
- Conceptual layout for approval prior to shop drawings
- Field Verify Existing Conditions prior to fabrication

B. Modular Audiometric Room Suite shall be installed where shown on the attached plan and specified herein. Basis of design shall be constructed of type **QuietMod™** Wall and Ceiling Panels, **Quiet Swing™** Door Panels, and **QuietLite™** Window Panels manufactured by **Noise Barriers, LLC.,** Libertyville, IL. Or equal.

Manufacturer:

Noise Barriers, LLC
2001 Kelley Ct.
Libertyville, IL 60048

Phone: (847) 843-0500
Fax: (847) 843-0501
www.noisebarriers.com

2.2 PANEL CONSTRUCTION

A. Except as shown on Drawings or at locations described below, use 4” thick acoustical panels. Exterior surfaces are solid sheet 16-gauge A-60 Galvanealled steel. Interior surfaces are 16-gauge A-60 Galvanealled perforated steel.

B. Sound-retarding and absorbing fill material shall be noncombustible, inert mildew-resistant and vermin proof.

C. Internal lateral panel reinforcement stiffeners shall not be allowed on wall panels.

D. Spot welds shall be no more than 2 in. apart.

E. Prior to attaching face sheet, panel shall be dampened and filled with sound-retarding and absorbing elements. Fill shall be slightly larger and thicker than inside dimensions of panel. No voids will be tolerated.

F. Weld and rivet face sheet to panel assembly to acoustically compress and hold fill materials in place. Panel assembly shall hold fill materials in place under severe conditions of vibration encountered in shipping, installation, and in operation of completed structure.

G. Perforated metal surfaces to receive field finish paint to have metal mesh spacer between acoustic fill and perforated face.

H. Audiometric room supplier to provide all necessary 16 gauge minimum solid flashing between side walls and host building and top of rooms and existing ceiling. Fascia shall be painted to match wall panels.

I. Combustion Ratings

The panel modules shall meet the requirements of Class A materials established by ASTM E-84-06. The panels shall not exceed the following limits:

a. Flame spread Classification: Less than 5
b. Smoke Developed: Less than 50

2.3 DOOR PANELS:

A. Door leaf shall be 2.5 in. thick fabricated from 14-gauge steel and filled with sound absorbing and damping elements with a clear opening of 35” x 74” high, STC 45 minimum with a 22” x 60” double glazed window using one layer of ½” and one layer of 3/8” thick safety glass.

B. Frame shall be fabricated from 14-gauge steel.

C. Assembly and adjustment of single and double leaf doors, frames, acoustic seals and hinges shall take place at the factory and the entire unit shall ship to the jobsite ready for installation and operation. All doors shall be tested for proper operation in the factory prior to shipment. All hardware should be supplied by and factory installed by the sound door manufacturer.

D. Acoustic Seals: Sides and head of door and frame shall receive two (2) sets of self-aligning magnetic-compression seals. Door to be held in place by the magnetic force of perimeter seals. Acoustic labyrinth shall be created when

door is in closed position. Bottom of door leaf shall contain continuous gravity activated seal, which shall compress against floor as door is closed. Raised sills and threshold drop seals will not be permitted.

E. Glazed doors shall be factory glazed by the sound door manufacturer with two layers of laminated safety glass, one layer shall be ½" the other layer shall be 3/8" thick safety glass.

F. Hardware:

i) Hinges – two (2) Cam-Lift hinges finished in US 26-D satin chrome shall be supplied with each door leaf.

ii) Latches shall not be required to hold the door closed or to achieve acoustic seal.

iii) Pull handles, inside and outside, shall be supplied and installed at the factory.

iv) Refer to the door schedule for additional hardware.

2.4 WINDOW PANELS:

A. Windows shall be factory glazed in panels of the type and construction specified as shown on the drawings and window schedule.

B. Windows shall consist of one layer of ½" and one layer of 3/8" thick safety glass separated by an air space and sealed in acoustic gaskets and match acoustic performance of the walls and/or door.

C. Window shall be tinted to function as one-way glass

D. Air space shall contain a desiccant material to prevent fogging.

E. The window size shall be a maximum size of not be less than 72" wide x 36" high. Window length to be verified with booth layout

2.5 PANEL JOINERS AND CONNECTORS:

A. Construct connecting panel joiners of A-60 galvannealed steel. Joiner design and fit shall prevent noise leakage while acoustically and structurally joining panels together. Joiners shall be roll formed sections independent of basic panel so there is no possibility of direct passage of noise.

B. Joiners and connectors shall be detailed to support loads shown on Drawings.

2.6 FINISH PAINT:

A. Metal surfaces to receive paint shall be degreased and cleaned with welds ground smooth and filled as needed.

B. Finish paint to be factory applied TGIC polyester powder coating, minimum 3 mils thick. Color for walls to be any single color per room selected by purchaser from standard RAL color chart.

C. Color for the ceiling panels shall be RAL 9003 White, no exceptions.

D. Provide sufficient paint to touch-up panels after installation of wall.

2.7 INTERIOR ENHANCEMENT PACKAGE:

A: The interior walls of both the Exam Room and the Control Room shall be treated with floor to ceiling, magnetically mounted, 1" thick fabric wrapped panels using with chemically hardened square edges, and LA fabric type G polyester fabric.

B: All electrical boxes shall include 1" thick extension rings to bring the electric box flush with the face surface of the fabric panel.

2.8 INTERCHANGEBILITY AND REUSE:

A. Acoustic structural components having same part numbers shall be completely interchangeable.

B. Acoustic structure shall be such that no components will be damaged upon disassembly. Design shall allow structure to be assembled, disassembled and reassembled minimum of 3 times without detraction from acoustic performance.

2.9 PANEL COMPONENT ACOUSTIC CHARACTERISTICS:

A. Submit certified laboratory test including absorption and transmission loss values for specified panel type and construction of not less than following:

B. Rooms used for audiometric testing shall not have background sound pressure levels exceeding those in Table 1 listed below

TABLE 1. Maximum permissible ambient noise levels in octave band intervals centered at 125-8,000 Hz for ears-covered and ears-not-covered test conditions and test frequency ranges 125-8,000 Hz, 250-8,000 Hz, and 500-8,000 Hz as specified in ANSI S3.1-1991. Tabled values in dB (re: 20 μPa) rounded to the nearest 0.5 dB.

Octave Band Inter-vals	Ears Covered			Ears Not Covered		
	125-8000 Hz	250-8000 Hz	500-8000 Hz	125-8000 Hz	250-8000 Hz	500-8000 Hz
125	34.0	36.5	47.5	28.0	32.5	42.5
250	22.5	22.5	33.5	18.5	18.5	28.5
500	19.5	19.5	19.5	14.5	14.5	14.5
750	21.5	21.5	21.5	12.5	12.5	12.5
1000	26.5	26.5	26.5	14.0	14.0	14.0
1500	26.5	26.5	26.5	10.5	10.5	10.5
2000	28.0	28.0	28.0	8.5	8.5	8.5
3000	33.5	33.5	33.5	8.5	8.5	8.5
4000	34.5	34.5	34.5	9.0	9.0	9.0
6000	38.0	38.0	38.0	14.0	14.0	14.0
8000	43.5	43.5	43.5	20.5	20.5	20.5

2.10 PERFORMANCE CHARACTERISTICS:

A: Airborne Noise Reduction shall meet: NIC 50 from exterior to interior of module per ASTM E-596 and NIC 69 from interior of one module to interior of adjacent module with a 4" airspace between modules per ASTM E336. Bid must include In-Situ testing showing these values.

B: Completed suite, both the Exam Room and the Control Room, shall meet or exceed the ANSI S3.1 standard for Permissible Noise Levels.

2.11 ELECTRICAL:

A. The wall and ceiling panels shall be supplied with thin-wall conduit and outlet boxes "buried" in the wall in locations shown on the plans.

B. All "buried" conduit to be minimum 1" diameter.

C. Each room shall include two (2) open outlet box and conduit in each wall for data feed by others.

D. Each room shall include a minimum of eight (8) LED flush mounted light fixtures with dimmers. The main dimmer to control both rooms shall be located in the Control Room and a separate dimmer in the Patient room.

E. "Plug and play" electrical: Pre-wired, UL Listed electrical system consists of duplex outlets…two (2) per wall, two (2) per ceiling and light switch with dimmer in each room.

F. Each room shall include a buried outlet with buried conduit it to house a thermostat supplied by other.

G. Each room will include two connections for video monitors and two connections for cameras.

H. There shall be a jack panel in each booth between the control side and the test side of the booth. Jack panel shall include ten (10) ¼" stereo ports and two (2) USB ports.

I. There shall be visual strobe included in the control room and exam side of the booth and tied into the fire alarm system for the building. The booth installation is in the Audiology contract and needs to be coordinated with that contractor. The specification for the strobe is:

    a. Strobes: shall match existing building system.

    b. Xenon flash tube type 75 candela in all other areas with a flash rate of 1 HZ.

    c. Strobes shall be synchronized where required by the National Fire Alarm Code (NFPA72).

    d. Back plate shall be red with 13mm (1/2 inch) permanent red letters. Lettering to read "Fire", be oriented on the wall or ceiling properly, and be visible from all viewing directions.

    e. Each strobe circuit shall have a minimum of twenty (20) percent spare capacity.

    f. Strobes may be combined with the audible notification appliances specified herein.

2.12 SILENCED HVAC SYSTEM:

A: Provide Modular Audiometric Room Suite with silenced ventilation system designed to be connected to building HVAC system. Each room shall have a separate system for supply and return air.

B: Equip each room with roof top silencers with minimum 6" diameter x 1" duct ring connection points to be used for connection to building HVAC system by others.

C: Ventilation silencers shall be ceiling mounted and designed with minimum airflow rate that will allow for one complete air change every 10 minutes and a pressure drops that do not exceed .025 inches of water at an airflow rate corresponding to one complete air change every 10 minutes.

D: Provide empty conduit and box in each room adjacent to door to accept thermostat by others.

E: Provide rooms with diffusers and registers as required for supply and return air. Provide each room with a thermostat

2.13 FIRE SPRINKLERS:

A: The ceiling of each room shall be equipped with a factory installed Flexible Stainless Steel Sprinkler Drop System consisting of braided type 304 stainless steel flexible tube, a zinc plated steel 1" NPT Male threaded nipple for connection to branch line piping and a zinc plated steel reducer with a ½" or ¾" NPT female thread for connection to the sprinkler.

B: The braided drop system shall be UL listed and FM approved for sprinkler services to 175psi.

C: The Stainless-Steel hose length shall be a minimum of 72".

D: The drop shall include a UL-2443 approved and FM-1637 listed Series AH2 braided hose with a bend radius to 2" to allow for proper installation in confined spaces.

E: The final connection from the Suite to the host building shall be by others.

III. PART 3 - EXECUTION

3.1 INSTALLATION:

A. Install Modular Audiometric Room Suite according to manufacturer's instructions and recommendations, as applicable to project conditions and supporting substrates. Anchor panels and other components of the work securely in place, with provisions for thermal and structural movement.

Field cutting of panels is not permitted.

B. Accessories: Install components required for a complete acoustical enclosure panel system, including trim, coping, supports and attachments, connections between panels, seam covers, sealants, fillers, closures strips and similar items.

3.2 CLEANING AND ADJUSTMENT:

A. Damaged units: Replace panels and other components of the work that have been damaged or have deteriorated beyond successful repair by means of finish touch up or similar minor repair procedures.

B. Cleaning: Remove temporary protective coverings and strippable films (if any) as soon as each panel is installed. Upon completion of panel installation, clean finished surfaces as recommended by panel manufacturer, and maintain in a clean condition during construction.

END OF SECTION

RALEIGH FINKELSTEIN HALL

PROPOSED NEW SOUND BOOTH

SCALE: 1/2" = 1'-0"

10.07.21 GVSU FAC PLANNING

NOTES

1. CONSTRUCT COLUMN AND PIPE ENCLOSURES AS CLOSE TO COLUMN AS ALLOWED BY FIREPROOFING UNLESS NOTED OR DIMENSIONED OTHERWISE.

KEY NOTES

1. MECHANICAL EQUIPMENT, SEE MECHANICAL DRAWINGS
2. RECYCLE STATION, SEE INTERIOR ELEVATIONS
3. ELECTRICAL WATER COOLER (EWC), SEE PLUMBING
4. BUILT-IN BENCHES, SEE INTERIOR ELEVATIONS
5. GALVANIZED STEEL BAR GRATING, SEE STRUCTURAL
6. AUTOMATIC DOOR ACTUATOR IN FRAME
7. TACK BOARD, SEE INTERIOR ELEVATIONS AND TACK BOARD SCHEDULE
8. ROLLING WIRE SHELVING, 21" X 60"
9. WRAP COLUMN TO 8'-0" AFF W/ 5/8" FTR PLYWOOD ON METAL FURRING. WRAP COLUMN OUTBOARD OF FIREPROOFING.
10. FREE STANDING METAL SHELVES, 84" HIGH, SEE PLAN FOR WIDTH AND DEPTH. FIELD VERIFY OVERALL SHELVING UNIT LENGTH PRIOR TO ORDERING
11. WALL MOUNTED METAL SHELVING ON HEAVY DUTY STANDARDS AND BRACKETS. 84" HIGH STANDARDS, BOTTOM OF STANDARD AT 6" AFF. PROVIDE (3) ROWS OF SHELVES, 20" WIDE
12. CONTRACTOR SHALL RELOCATE EXISTING PANELIZED SOUND SUITE UNIT FROM THE COOK-DEVOS CENTER FOR HEALTH SCIENCES BUILDING (CHS) ON THE CORNER OF MICHIGAN AND LAFAYETTE. CONTRACTOR SHALL MODIFY THE FLOOR AND DOOR OF THE CONTROL ROOM SIDE TO ACCOMMODATE A FLUSH FLOOR CONDITION BETWEEN THE CONTROL ROOM AND PASSAGE WAY. SEE STRUCTURAL FOR RECESSED FLOOR UNDER EXAM ROOM.
13. WHITE BOARD, SEE INTERIOR ELEVATIONS AND WHITE BOARD SCHEDULE
14. AUTOMATIC DOOR OPERATOR
15. LOCATION OF (1) HOUR FIRE CURTAIN
16. DOUBLE TIER LOCKERS, SEE INTERIOR ELEVATIONS
17. VENDING MACHINE. OFOI
18. FIRE EXTINGUISHER IN RECESSED CABINET
19. FIRE EXTINGUISHER AND WALL BRACKET
20. COAT RACK, EMCO H1 48" LONG. BRONZE SLATS WITH BLACK HOOKS. MOUNT AT 48" TO TOP OF SLAT
21. COAT RACK, EMCO H1 69" LONG. BRONZE SLATS WITH BLACK HOOKS. MOUNT AT 48" TO TOP OF SLAT
22. LINE OF STRUCTURE ABOVE
23. SINGLE TIER LOCKERS, SEE INTERIOR ELEVATIONS
24. COAT RACK, EMCO H1 96" LONG. BRONZE SLATS WITH BLACK HOOKS. MOUNT AT 48" TO TOP OF SLAT
25. PROJECTOR SCREEN; MOUNT TIGHT TO CEILING
26. (20) WALL MOUNTED COAT HOOKS EQUALLY SPACED STAGGERED AT 48" AFF AND 36" AFF
27. SPACE RESERVED FOR ACCESS CONTROL POWER SUPPLIES
28. VOLLEYBALL SYSTEM, DRAPER 500010 CVS-01, LESS ANTENNA AND BOUNDRY MARKER. FABRICATE NET TO WIDTH SHOWN ON PLAN. PROVIDE DRAPER FLOOR INSERTS FOR POLES.
29. NEW PANELIZED SOUND SUITE. SEE STRUCTURAL FOR RECESSED SLAB UNDER EXAM ROOM. VERIFY DEPTH OF RECESS WITH SOUND SUITE MANUFACTURER.
31. LOCATION OF DATE STONE AND TIME CAPSULE. SEE ELEVATIONS
32. TACK STRIP FULL LENGTH OF WALL; ALIGN WITH TOP OF ADJACENT WHITEBOARD
33. LOCATION OF MONITOR, OFOI. PROVIDE SOLID FRT BLOCKING IN WALL. VERIFY LOCATION WITH OWNER.
34. WALL MOUNTED FOLDING MAT TABLE, CFCI. TABLE TO BE MODEL 458 FROM BAILEY MANUFACTURING. PROVIDE BLOCKING IN WALL; VERIFY BLOCKING LOCATION WITH EQUIPMENT.
35. ACCESSORY 'T'. SEE SHEET A110
36. ACCESSORY 'S'. SEE SHEET A110
37. PREFABRICATED METAL COLUMN ENCLOSURE
38. ATTIC CATWALK (UPPER ROOF)
39. ATTIC CATWALK (LOWER ROOF)
40. GATE TO MECHANICAL ROOF
41. WIRE MESH PARTITION AND DOOR.
42. ACCESSORY "U" SEE TOILET ACCESSORY SCHEDULE
43. MOBILE TEACHING STATION FURNISHED AND INSTALLED BY OWNER
44. RECESSED SLAB FOR WALK OFF MAT, SEE STRUCTURAL. VERIFY RECESS DEPTH WITH MAT SUPPLIER PRIOR TO POURING SLAB
45. COPIER, OFOI
46. FILL CAVITY WITH ACCOUSTIC INSULATION
47. WALL MOUNTED UPWARD FOLDING BASKETBALL BACKSTOP.
48. ROPES COURSE PLATFORM; PROVIDED BY ROPES COURSE VENDOR COORDINATE WITH CONSTRUCTION MANAGER.
49. WALL MOUNTED TELEPHONE; SEE ELECTRICAL
50. KEYBOX; OFOI
51. FREE STANDING WIRE SHELVING; SEE PLAN FOR WIDTH AND DEPTH.
52. WALL MOUNTED WIRE SHELVING 12" WIDE SEE ELEVATION FOR HEIGHT.
53. REMOVABLE STEEL RAIL, PAINTED
54. FLAMMABLE SAFETY CABINET, SEE ELEVATIONS.
55. OPERABLE WINDOW, SEE ELEVATIONS
56. BOLLARD; SEE CIVIL FOR DETAIL
57. TRENCH DRAIN; SEE PLUMBING
58. 24" X 36" ACCESS PANEL\ 60 MIN RATING. PROVIDE SUB-FRAMING AND INSULATED CURB AS REQUIRED TO SUPPORT HATCH FROM ADJACENT TRUSSES.
59. PROVIDE RECESS IN WALL SPACE TO ACCEPT OWNERS RECESSED A/V CABINET. COORDINATE SIZE W/ OWNER
60. SLOPE SLAB TO DOOR
61. COMPRESSED AIR TANKS OFOI, SEE DETAIL 5A511 FOR RESTRAINT; SEE PLUMBING
62. SHADOW BOX WINDOW, PROVIDE GYPSUM BOARD ENCLOSURE PAINTED AS NOTED IN SECTION 2/A406
63. PROVIDE BOX OUT TO ENCLOSE FIRE PROTECTION RISER. MAINTAIN WALL RATINGS AS REQUIRED.
64. 5/8" PLYWOOD ON 3-5/8" MTL. STUDS @ 16" O.C. TOP OF WALL TO BE @ 7'-4" AFF.
65. 5/8" CEMENT BOARD ON 5/8" PLYWOOD ON 6" MTL. STUDS @ 16" O.C. THIS WALL ONLY.
66. HOSPITAL CURTAIN, SEE REFLECTED CEILING PLAN
67. 21" WIDE WALL MOUTED WIRE SHELF AT 5'-0" AFF
68. ACCORDIAN PARTITION
69. ROLLING WIRE SHELVING, 21" X 54"
70. ACCESSORY 'CC'. SEE SHEET A110
71. BULKHEAD ABOVE.
72. INFILL DOOR OPENING W/ INSULATED MASONRY CAVITY WALL TO MATCH ADJACENT EXISTING. PROVIDE SEALANT JOINT BETWEEN NEW AND EXISTING MASONRY.
73. REMOVE EXISTING MASONRY WALL AND DOOR.
74. SAW CUT AND REMOVE EXISTING SLAB AS REQD. TO PROVIDE NEW THICKENED SLAB UNDER NEW MASONRY WALL. DOWEL NEW SLAB INTO EXISTING SLAB W/ #4'S AT 32" O.C. MIN. 4" EMBEDMENT. EXTEND #5'S OF THICKENED SLAB INTO EXISTING THICKENED SLAB, MIN 4" EMBEDMENT.

PROPOSED NEW SOUND BOOTH LOCATION

NORTH

LOWER LEVEL FLOOR PLAN

SCALE: 1/8" = 1'-0"

FOR REFERENCE ONLY

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scientists
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fishbeck, thompson, carr & huber, inc.
www.ftch.com

Grand Valley State University

Grand Rapids, Michigan

500 Lafayette Avenue, NE

10/24/2018 RECORD DRAWINGS

Drawn By	DSS/REC
Designer	WLR
Reviewer	WTB/SB4
Manager	DJV

Hard copy is intended to be 30"x42" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
G160197

LOWER LEVEL PLAN

A100

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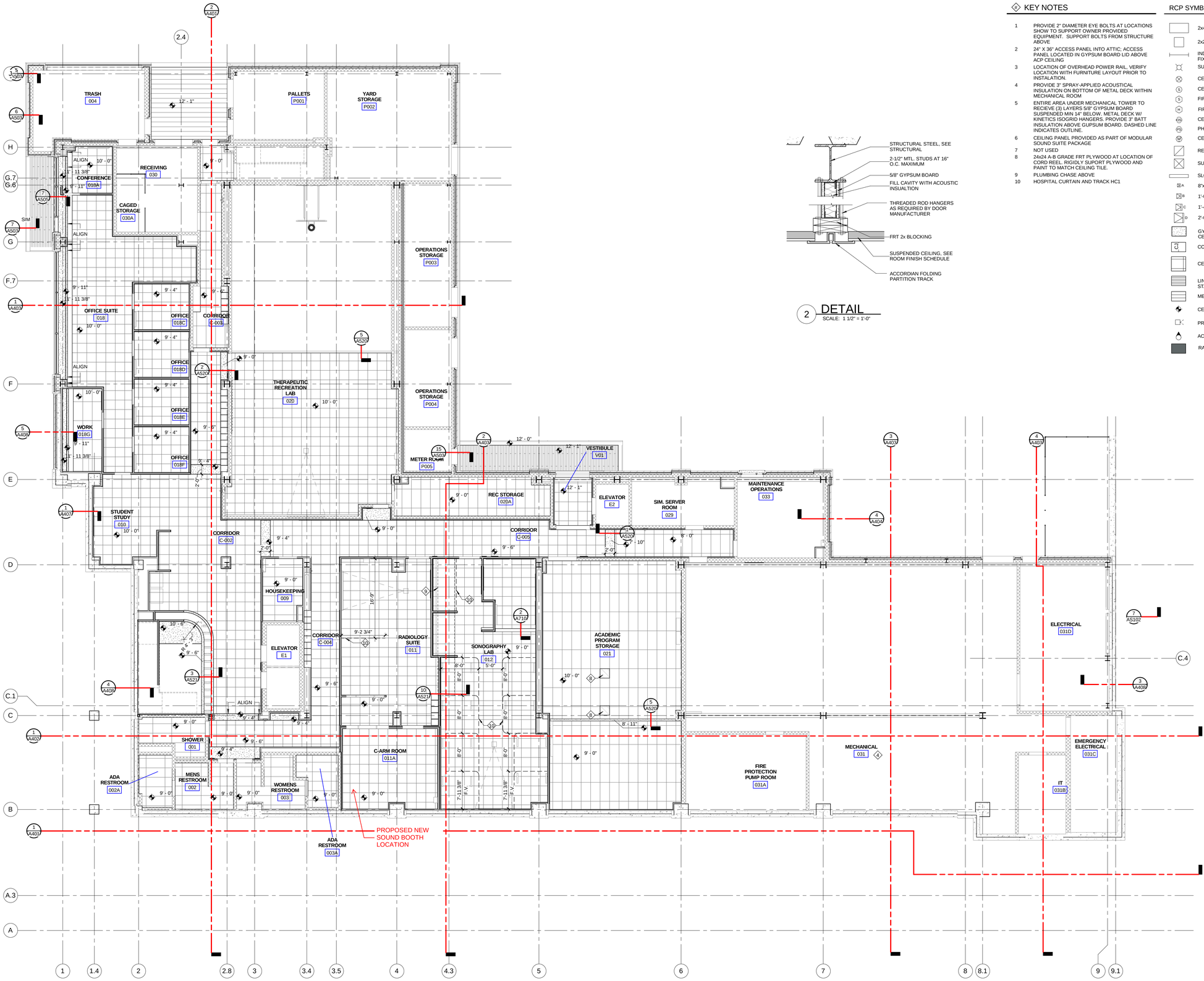

2 DETAIL
SCALE: 1 1/2" = 1'-0"

KEY NOTES

1. PROVIDE 2" DIAMETER EYE BOLTS AT LOCATIONS SHOW TO SUPPORT OWNER PROVIDED EQUIPMENT. SUPPORT BOLTS FROM STRUCTURE ABOVE
2. 24" X 36" ACCESS PANEL INTO ATTIC, ACCESS PANEL LOCATED IN GYPSUM BOARD LID ABOVE ACP CEILING
3. LOCATION OF OVERHEAD POWER RAIL, VERIFY LOCATION WITH FURNITURE LAYOUT PRIOR TO INSTALATION.
4. PROVIDE 3" SPRAY-APPLIED ACOUSTICAL INSULATION ON BOTTOM OF METAL DECK WITHIN MECHANICAL ROOM
5. ENTIRE AREA UNDER MECHANICAL TOWER TO RECIEVE (3) LAYERS 5/8" GYPSUM BOARD SUSPENDED MIN 14" BELOW. METAL DECK W/ KINETICS ISOGRID HANGERS. PROVIDE 3" BATT INSULATION ABOVE GUPSUM BOARD. DASHED LINE INDICATES OUTLINE.
6. CEILING PANEL PROVIDED AS PART OF MODULAR SOUND SUITE PACKAGE
7. NOT USED
8. 24x24 A-B GRADE FRT PLYWOOD AT LOCATION OF CORD REEL. RIGIDLY SUPORT PLYWOOD AND PAINT TO MATCH CEILING TILE.
9. PLUMBING CHASE ABOVE
10. HOSPITAL CURTAIN AND TRACK HC1

RCP SYMBOL LEGEND

- 2x4 LIGHT FIXTURE
- 2x2 LIGHT FIXTURE
- INDUSTRIAL OR STRIP LIGHT FIXTURE
- SURFACE OR RECESSED LIGHT FIXTURE
- CEILING MOUNTED EXIT SIGN
- CEILING MOUNTED SPEAKER
- FIRE ALARM SMOKE DETECTOR
- FIRE ALARM HEAT DETECTOR
- CEILING MOUNTED OCCUPANCY SENSOR
- PHOTO SENSOR
- CEILING MOUNTED WIRELESS ACCESS POINT
- RETURN OR EXHAUST AIR GRILLE
- SUPPLY AIR DIFFUSER
- SLOT DIFFUSER
- 8'x8" ACCESS HATCH
- 1'-0"x1'-0" ACCESS HATCH
- 1'-4"x1'-4" ACCESS HATCH
- 2'-0"x3'-0" ACCESS HATCH
- GYP. BOARD BULKHEAD, SOFFIT OR CEILING- PAINT (P4) UNO
- CONTROL JOINT
- CEILING TILE AND GRID
- LINEAR METAL CEILING, RANDOM STAGGER END JOINTS
- METAL SOFFIT SYSTEM
- CEILING HEIGHT ELEVATION
- PROJECTOR MOUNTING PLATE
- ACCENT LIGHT
- RADIANT CEILING PANEL

LOWER LEVEL REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

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10/24/2018 RECORD DRAWINGS

Drawn By	DSS/REC
Designer	WLR
Reviewer	WTB/SB4
Manager	DJV

Hard copy is intended to be 30"x42" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

PROJECT NO.
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LOWER LEVEL REFLECTED CEILING PLAN

A710

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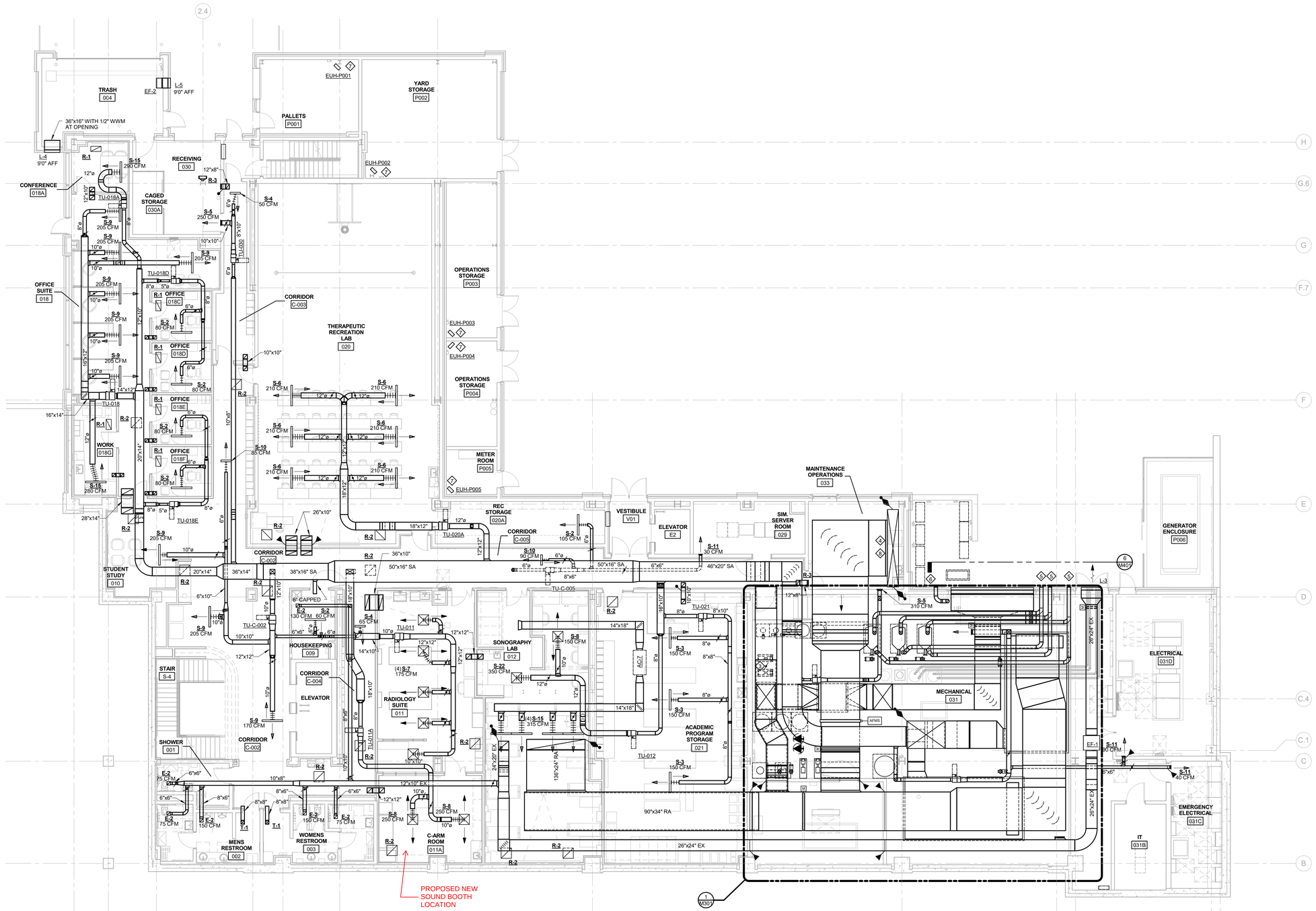

NOTES

1. TRANSFER DUCTS THROUGHOUT TO BE 8"x8" UNLESS NOTED OTHERWISE.

◇ KEY NOTES

1. NOT USED
2. NOT USED
3. RETURN AIR BALANCING DAMPER. AT FULL DESIGN AIRFLOW, PROPORTIONALLY BALANCE RETURN MAINS ON EACH FLOOR AS A PERCENTAGE OF THE SUM TOTAL OF RETURN AIR AS FOLLOWS (LEAVING AT LEAST ONE RETURN AIR DAMPER IN THE FULLY OPEN POSITION):
   - LOWER LEVEL - 40%
   - SECOND FLOOR - 29%
   - THIRD FLOOR - 18%
   - FOURTH FLOOR - 13%

   DUE TO BUILDING PRESSURE CONTROL VIA DIRECT MEASUREMENT OF BUILDING PRESSURE, THE AMOUNT OF AIR EXFILTRATION FROM THE BUILDING CANNOT BE DETERMINED EXACTLY. AS A RESULT, THE AMOUNT OF RETURN AIRFLOW BACK TO THE AHU CANNOT BE DETERMINED EXACTLY. THE LISTED PERCENTAGES ARE IN PROPORTION TO THE TOTAL SUPPLY AIRFLOW, LESS EXHAUST AIR TO EACH FLOOR (AT DESIGN AIRFLOW CONDITIONS).
4. PROVIDE 3/4-INCH DRAIN CONNECTION AT BOTTOM OF OUTDOOR AIR DUCT RISER. SLOPE BOTTOM OF DUCT RISER TO DRAIN CONNECTION. ROUTE 3/4-INCH DRAIN PIPE TO NEAREST FLOOR DRAIN IN MECH ROOM 031.
5. 8-INCH BOILER EXHAUST AND COMBUSTION AIR INTAKES. PROVIDE 23-DEGREE STAINLESS STEEL SIDEWALL TERMINATION WITH BIRDSCREEN. TYPICAL FOR BOILER VENT AND COMBUSTION AIR INLET.
6. 8-INCH EXHAUST, FROM EF-3. PROVIDE 23-DEGREE STAINLESS STEEL SIDEWALL TERMINATION WITH BIRDSCREEN.
7. MOUNT ELECTRIC UNIT HEATERS 9-FEET AFF.
8. SPLIT 180"x26" OUTDOOR AIR DUCT RISER INTO TWO 88"x26" DUCTS IN PARALLEL AS THEY PENETRATE THE FIRST FLOOR. DUCTS TO COMBINE TO 180"x26" AFTER PENETRATION OF FIRST FLOOR. MAINTAIN BETWEEN 4-INCHES AND 6-INCHES OF SEPARATION BETWEEN THE TWO 88"x26" DUCTS. PROVIDE FIRESTOPPING IN ACCORDANCE WITH HILTI ENGINEERED JUDGMENT (DRAWING # 269549A) ON M803. PROVIDE COMBINATION FIRE SMOKE DAMPERS FOR EACH DUCT PENETRATION. DAMPER ACTUATORS TO BE ACCESSIBLE FROM CUSTODIAL STORAGE 118D. PROVIDE ACCESS DOORS AS SPECIFIED.

NORTH

LOWER LEVEL SHEET METAL PLAN

SCALE: 1/8" = 1'-0"

FOR REFERENCE ONLY

REFER TO FRANKLIN HOLWERDA CO. SHEETS M100A, M100B, AND M100C FOR CONTRACTOR'S ACTUAL INSTALLATION DRAWING PRINTED FROM THEIR 3D COORDINATION MODEL

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10/24/2018 RECORD DRAWINGS

Drawn By	CEB
Designer	JDY
Reviewer	PMO
Manager	DJV

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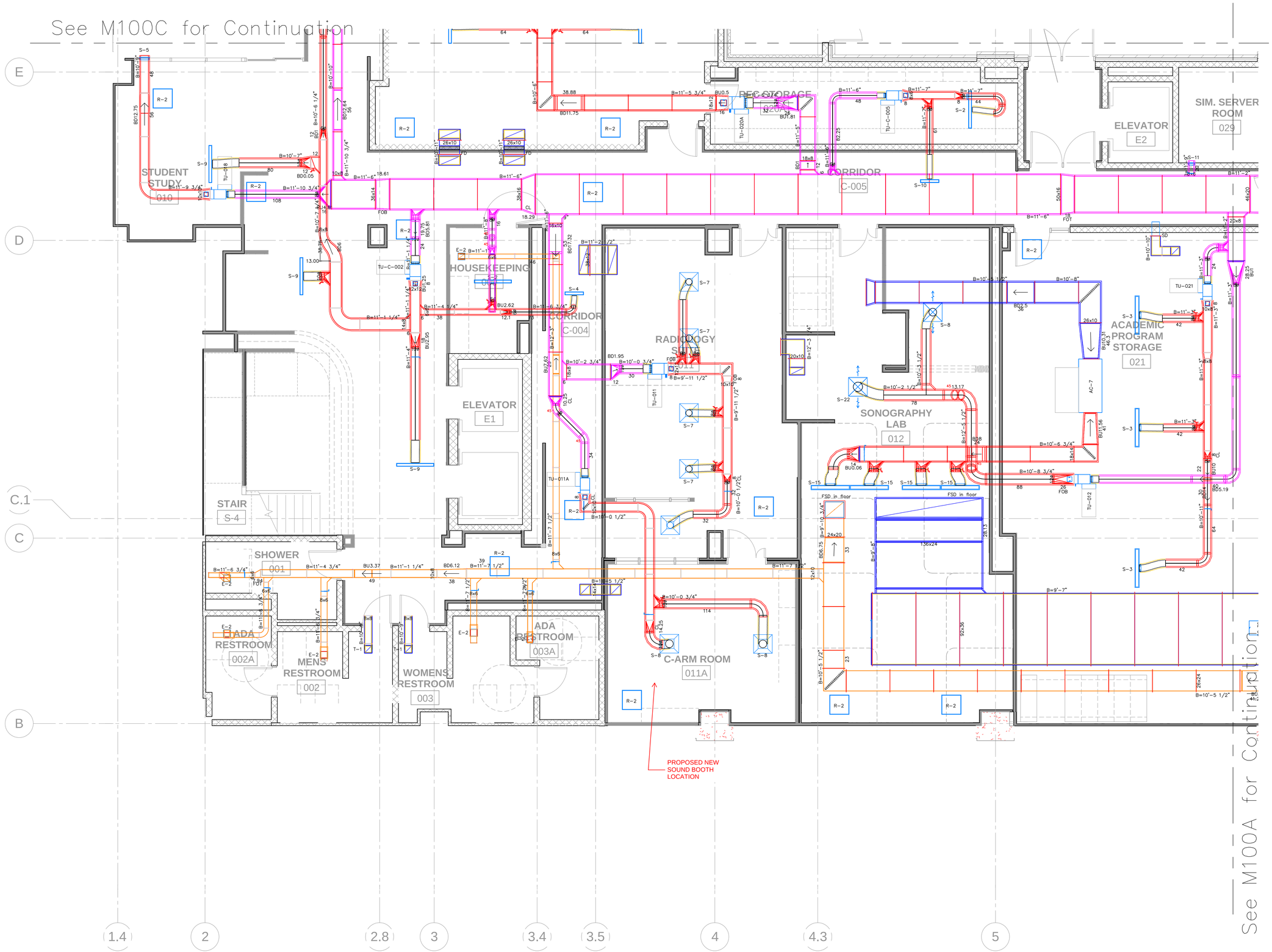
PROJECT NO.
G160197

LOWER LEVEL SHEET METAL PLAN

M100

PLOT INFO: 10/24/2018 11:21:55 AM C:\Work\Revit\2016_M_160197 no deck_cebaker.rvt



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REFERENCES:
1. Contract Drawing M100
2.
3.

Project:
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FHC Job No.
17-0003-31

Engineer Job No.

Revision:
#1:
#2:

Drawing By:
S. Linton

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

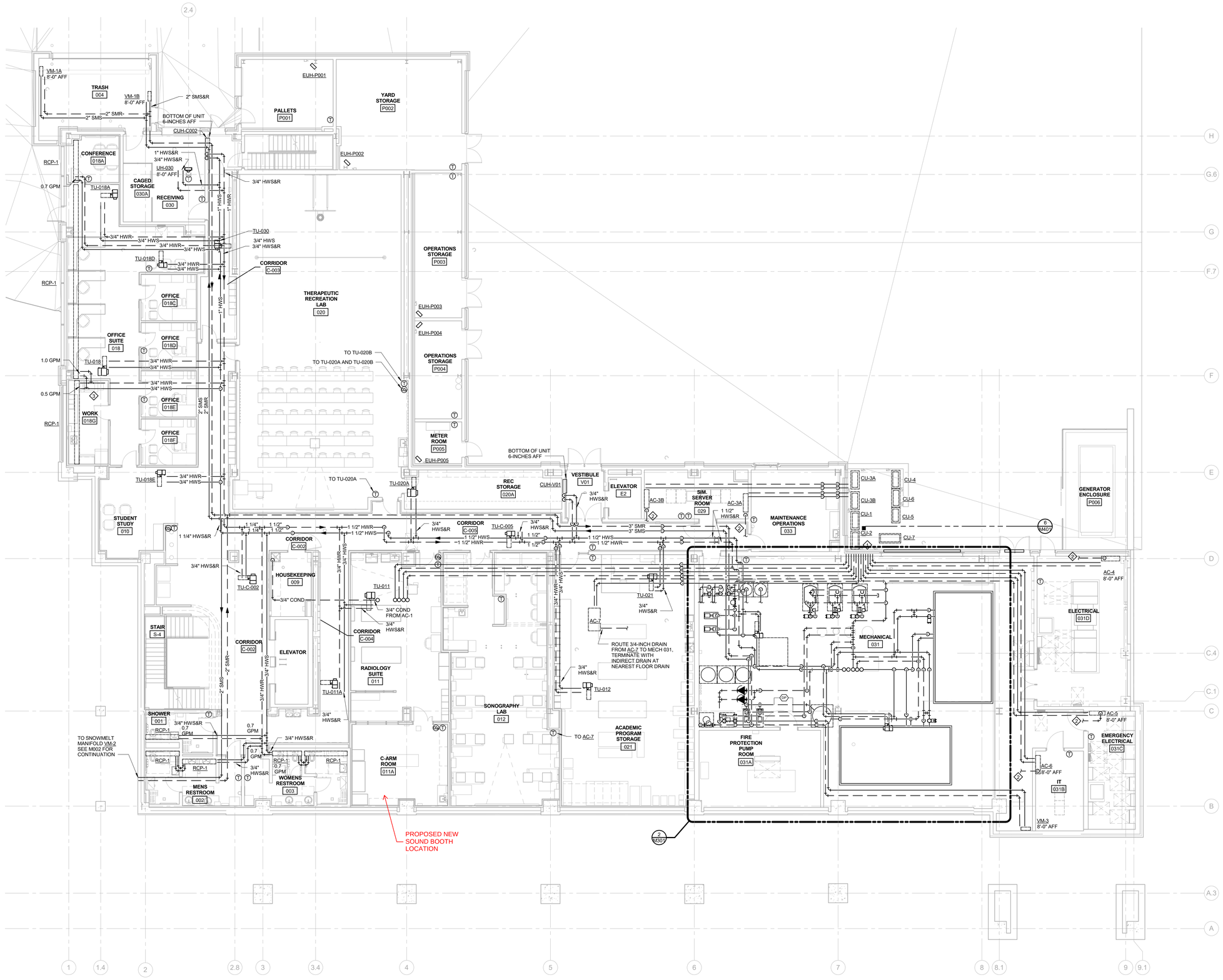
Date:
3/30/18

Plot File:
GVSU_DUCT_00

CAD File:
GVSU_DUCT_00

Title:
Basement
HVAC Plan
AS BUILT

Sheet:
M100B



NOTES

1. PROVIDE 2-INCHES OF INSULATION ON TOP OF RADIANT CEILING PANELS. INSULATION SHALL BE GLASS FIBER PAD, MINIMUM 3/4 POUND/CUBIC FOOT DENSITY WITH FOIL-SCRIM-KRAFT FACING.
2. FOR ALL RADIANT PANELS INSTALLED IN SERIES, PROVIDE 360-DEGREE PIPING LOOP CONNECTORS SUPPLIED BY PANEL MANUFACTURER OR ALTERNATE PIPING CONNECTORS AS RECOMMENDED AND SUPPLIED BY PANEL MANUFACTURER.
3. MAKE PIPING CONNECTIONS TO RADIANT CEILING PANEL TUBING IN A MANNER APPROVED BY PANEL MANUFACTURER. USE MANUFACTURER PROVIDED COPPER TUBE BENDING TOOL AS REQUIRED TO MEET MANUFACTUERS INSTALLATION REQUIREMENTS. COPPER TUBING WITHIN EACH RADIANT PANEL MUST REMAIN FULLY EMBEDDED WITH THE PANEL NO LESS THAN 9-INCHES FROM EITHER END OF THE PANEL.

◇ KEY NOTES

1. CONTINUE REFRIGERANT PIPING TO ASSOCIATED CONDENSING UNITS. MAKE REFRIGERANT PIPING PENETRATIONS LOW ON WALL. ROUTE REFRIGERANT PIPING BEHIND CONDENSING UNITS AT AN ELEVATION BELOW TOP OF ENCLOSURE WALL AND SECURE PIPING TO WALL.
2. 3/4-INCH PUMPED CONDENSATE DRAIN. ROUTE TO MECH 031 WITH INDIRECT DRAIN TO NEAREST FLOOR DRAIN.
3. ONE CONTROL VALVE SHALL MODULATE COMBINED FLOW TO ALL RADIANT CEILING PANELS IN THE ZONE. INDIVIDUAL BALANCING VALVES SHALL BE PROVIDED TO BALANCE INDIVIDUAL FLOW TO EACH RADIANT CEILING PANEL WITHIN ZONE.

NORTH

LOWER LEVEL MECHANICAL PIPING PLAN

SCALE: 1/8" = 1'-0"

FOR REFERENCE ONLY

REFER TO RITEWAY PLUMBING & HEATING SHEET M200 FOR CONTRACTOR'S ACTUAL INSTALLATION DRAWING PRINTED FROM THEIR 3D COORDINATION MODEL

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PROJECT NO.
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LOWER LEVEL MECHANICAL PIPING

M200

PLOT INFO: 10/24/2018 11:22:25 AM C:\Work\Revit\2016_M_160197 no deck_cebaker.rvt

LIGHTING CONTROL PANEL SCHEDULE

RELAY NUMBER	LOAD
LCP0A-1	LOWER LEVEL EXTERIOR LIGHTING
LCP0A-2	FIRST LEVEL CORRIDOR LIGHTING
LCP0A-3	LOWER LEVEL CORRIDOR LIGHTING
LCP0A-4	LOWER LEVEL TENANT SPACE
LCP0B-1	FIRST LEVEL EXTERIOR LIGHTING
LCP0B-2	FIRST LEVEL STUDENT STUDY
LCP2A-1	SECOND LEVEL CORRIDOR LIGHTING
LCP4A-1	FOURTH LEVEL CORRIDOR LIGHTING
LCP4A-2	THIRD LEVEL CORRIDOR LIGHTING
LCP4A-3	BUILDING MOUNTED SIGNAGE
LCP4A-4	S-1 LIGHTING

LTG CONTROL FUNCTIONAL INTENT

1 - MANUAL ON/OFF, AUTOMATIC OFF
- DIGITAL TIMER SWITCH(ES)
- AUDIBLE OR VISUAL INDICATION BEFORE TURNING LOADS "OFF" AUTOMATICALLY, SET TO VISUAL
- DEFAULT "ON" TIME SHALL BE SET TO 1 HOUR, ADJUSTABLE "ON" TIME RANGE OF UP TO 12 HOURS MINIMUM
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED

2 - MANUAL ON/OFF, AUTOMATIC OFF
- DUAL TECHNOLOGY, LINE VOLTAGE, WALL SWITCH VACANCY SENSOR(S)
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED

3 - AUTOMATIC ON/OFF
- DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED OCCUPANCY SENSOR(S)
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM

4 - MANUAL ON/OFF, AUTOMATIC OFF
- DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED VACANCY SENSOR(S)
- 1 BUTTON WALL SWITCH(ES)
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM

5 - MANUAL ON/OFF, AUTOMATIC OFF
- PIR TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED VACANCY SENSOR(S)
- 1 BUTTON WALL SWITCH(ES)
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM

6 - AUTOMATIC ON/OFF
- CONTROL OF LIGHTING SHALL BE ACCOMPLISHED THROUGH A LIGHTING CONTROL PANEL, LIGHTING CONTROL PANEL SHALL ACCEPT INPUTS FROM THE BUILDING MANAGEMENT SYSTEM AND LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSORS
- DURING OWNER SPECIFIED BUILDING OCCUPIED TIMES AS SIGNALED BY THE BMS SYSTEM; LIGHTING SHALL TURN "ON" AND IGNORE OCCUPANCY SENSOR INPUT
- DURING OWNER SPECIFIED BUILDING UNOCCUPIED TIMES AS SIGNALED BY THE BMS SYSTEM; THE LIGHTING SHALL BE CONTROLLED BY OCCUPANCY SENSORS
- LIGHTING CONTROL PANEL SHALL HAVE A TIME BASED MAINTENANCE OVERRIDE OPTION
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED

7 - MANUAL ON/OFF, AUTOMATIC OFF, DAYLIGHTING
- DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED VACANCY SENSOR(S)
- 3 BUTTON WALL SWITCH(ES) (ON/OFF, RAISE LIGHTING, LOWER LIGHTING)
- OPEN LOOP PHOTOSENSOR(S) SHALL DIM ALL LIGHTING IN THE ROOM WHEN ENOUGH DAYLIGHT IS AVAILABLE
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM

8 - MANUAL ON/OFF, AUTOMATIC OFF, DAYLIGHTING
- DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED VACANCY SENSOR(S)
- 2 LIGHTING ZONES (Z1, Z2)
- 6 BUTTON WALL SWITCH(ES) (ON/OFF Z1, RAISE LIGHTING Z1, LOWER LIGHTING Z1, ON/OFF Z2, RAISE LIGHTING Z2, LOWER LIGHTING Z2)
- VACANCY SENSOR(S) SHALL INTERFACE WITH AV EQUIPMENT TO SHUTDOWN PROJECTOR
- OPEN LOOP PHOTOSENSOR(S) SHALL DIM ALL LIGHTING IN THE ROOM WHEN ENOUGH DAYLIGHT IS AVAILABLE
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM
- IN ROOMS WITH A DOWN LIGHT LOCATED OVER A TEACHING STATION, PROVIDE A 1 BUTTON WALL SWITCH FOR ON/OFF CONTROL OF THE DOWNLIGHT, THE DOWN LIGHT SHALL BE ON ITS OWN ZONE

9 - MANUAL ON/OFF, AUTOMATIC OFF
- DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED VACANCY SENSOR(S)
- 2 SEPARATE LIGHTING ZONES (Z1, Z2)
- 6 BUTTON WALL SWITCH(ES) (ON/OFF Z1, RAISE LIGHTING Z1, LOWER LIGHTING Z1, ON/OFF Z2, RAISE LIGHTING Z2, LOWER LIGHTING Z2)
- VACANCY SENSOR SHALL INTERFACE WITH AV EQUIPMENT TO SHUTDOWN PROJECTOR
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM
- IN ROOMS WITH A DOWN LIGHT LOCATED OVER A TEACHING STATION, PROVIDE A 1 BUTTON WALL SWITCH FOR ON/OFF CONTROL OF THE DOWNLIGHT, THE DOWN LIGHT SHALL BE ON ITS OWN ZONE

10 -MANUAL ON/OFF, AUTOMATIC OFF
-DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED VACANCY SENSOR
- LOW VOLTAGE MOMENTARY ROCKER SWITCH FOR MANUAL ON/OFF
- VACANCY SENSOR SET TO 20 MINUTES "OFF" TIME DELAY
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM

11 - MANUAL ON/OFF, AUTOMATIC OFF
- DUAL TECHNOLOGY, LOW VOLTAGE, CEILING MOUNTED (WALL WHERE INDICATED) VACANCY SENSOR(S)
- 3 BUTTON WALL SWITCH(ES) (ON/OFF, RAISE LIGHTING, LOWER LIGHTING)
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- ISOLATED FORM C RELAY IN THE OCCUPANCY SENSOR(S) SHALL INDICATE OCCUPANCY/VACANCY IN THE ROOM

12 - AUTOMATIC ON/OFF, DAYLIGHTING CONTROLS
- CONTROL OF LIGHTING SHALL BE ACCOMPLISHED THROUGH A LIGHTING CONTROL PANEL, LIGHTING CONTROL PANEL SHALL ACCEPT INPUTS FROM THE BUILDING MANAGEMENT SYSTEM, LOW VOLTAGE PHOTO SENSORS, AND LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSORS
- DURING OWNER SPECIFIED BUILDING OCCUPIED TIMES AS SIGNALED BY THE BMS SYSTEM; LIGHTING SHALL TURN "ON" AND IGNORE OCCUPANCY SENSOR INPUT
- DURING OWNER SPECIFIED BUILDING UNOCCUPIED TIMES AS SIGNALED BY THE BMS SYSTEM; THE LIGHTING SHALL BE CONTROLLED BY OCCUPANCY SENSORS
- LIGHTING CONTROLLED BY A PHOTO SENSOR SHALL TURN "OFF" WHEN ENOUGH DAYLIGHT IS PRESENT AT ALL TIMES
- LIGHTING CONTROL PANEL SHALL HAVE A TIME BASED MAINTENANCE OVERRIDE OPTION
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED

13 - AUTOMATIC ON/OFF
- CONTROL OF LIGHTING SHALL BE ACCOMPLISHED THROUGH A LIGHTING CONTROL PANEL, LIGHTING CONTROL PANEL SHALL ACCEPT INPUTS FROM THE BUILDING MANAGEMENT SYSTEM AND LOW VOLTAGE DUAL TECHNOLOGY OCCUPANCY SENSORS
- DURING OWNER SPECIFIED BUILDING OCCUPIED TIMES AS SIGNALED BY THE BMS SYSTEM; LIGHTING SHALL TURN "ON" AND IGNORE OCCUPANCY SENSOR INPUT
- DURING OWNER SPECIFIED BUILDING UNOCCUPIED TIMES AS SIGNALED BY THE BMS SYSTEM; THE LIGHTING SHALL BE CONTROLLED BY OCCUPANCY SENSORS
- LIGHTING CONTROL PANEL SHALL HAVE A TIME BASED MAINTENANCE OVERRIDE OPTION
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED
- AN OCCUPANCY SENSOR SHALL BE LOCATED AT EACH LEVEL THE STAIR EXITS AT, DURING UNOCCUPIED TIMES, IF ANY OCCUPANCY SENSOR CONTROLLING STAIR LIGHTING SENSES OCCUPANCY ALL LIGHTING IN THE STAIR SHALL TURN "ON"

14 - AUTOMATIC ON/OFF THROUGH BUILT IN OCCUPANCY SENSORS SUPPLIED WITH LUMINAIRES

15 - AUTOMATIC ON/OFF
- CONTROL OF LIGHTING SHALL BE ACCOMPLISHED THROUGH A LIGHTING CONTROL PANEL, LIGHTING CONTROL PANEL SHALL ACCEPT INPUTS FROM THE BUILDING MANAGEMENT SYSTEM
- DURING OWNER SPECIFIED DAYLIGHT TIMES AS SIGNALED BY THE BMS SYSTEM; LIGHTING SHALL TURN "OFF"
- DURING OWNER SPECIFIED BUILDING NIGHT TIMES AS SIGNALED BY THE BMS SYSTEM; THE LIGHTING SHALL TURN "ON"
- LIGHTING CONTROL PANEL SHALL HAVE A TIME BASED MAINTENANCE OVERRIDE OPTION
- EMERGENCY LIGHTING SHALL TURN "ON" AUTOMATICALLY WHEN NORMAL POWER IS INTERRUPTED

LOWER LEVEL LIGHTING PLAN

SCALE: 1/8" = 1'-0"

NORTH

NOTES

1. TYPE 'D' FIXTURES IN MECHANICAL 031 AND 033 MAY BE MOUNTED TO UNISTRUT SUSPENDED FROM THE CEILING ON THREADED ROD AS REQUIRED TO COORDINATE FIXTURE MOUNTING WITH DUCT WORK AND PIPING. ALL OTHER TYPE 'D' FIXTURES TO BE CHAIN MOUNTED AT 9'-0" AFF UNLESS NOTED OTHERWISE.
2. WALL MOUNTED OCCUPANCY SENSORS TO BE MOUNTED A MINIMUM OF 9'-0" AFF. COORDINATE EXACT MOUNTING HEIGHT WITH MANUFACTURER'S SHOP DRAWINGS AND INSTALLATION INSTRUCTIONS.
3. THE LIGHTING CONTROL SYSTEM SHALL BE NETWORKED TOGETHER AND SHALL BE CAPABLE OF BACNET COMMUNICATION WITH THE BMS SYSTEM TO COMMUNICATE ANY OCCUPANCY SENSOR STATUS. SEE SPECIFICATIONS FOR SYSTEM REQUIREMENTS.

KEY NOTES

1 COORDINATE EXACT PLACEMENT OF EXIT SIGNS AND LUMINAIRES WITH PLACEMENT OF MECHANICAL DUCTS, PIPING, STRUCTURE, AND EQUIPMENT.
2 PROVIDE UL924 DEVICES AS REQUIRED FOR CONTROL OF EMERGENCY FIXTURES CONTROLED BY LCP0-A OR B. CIRCUIT UL924 DEVICE NORMAL POWER TO LP0A-1. SEE PLANS FOR EMERGENCY CIRCUIT AND SWITCHED CIRCUITS TO EMERGENCY LIGHTING.
3 (NOT USED)
4 LIGHTING CONTACTOR, LC-1, FOR EXTERIOR LIGHTING. SEE E003 AND 3/E501,

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Drawn By	STK/MJS
Designer	STK
Reviewer	RMM
Manager	DJV

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LOWER LEVEL LIGHTING PLAN

E100

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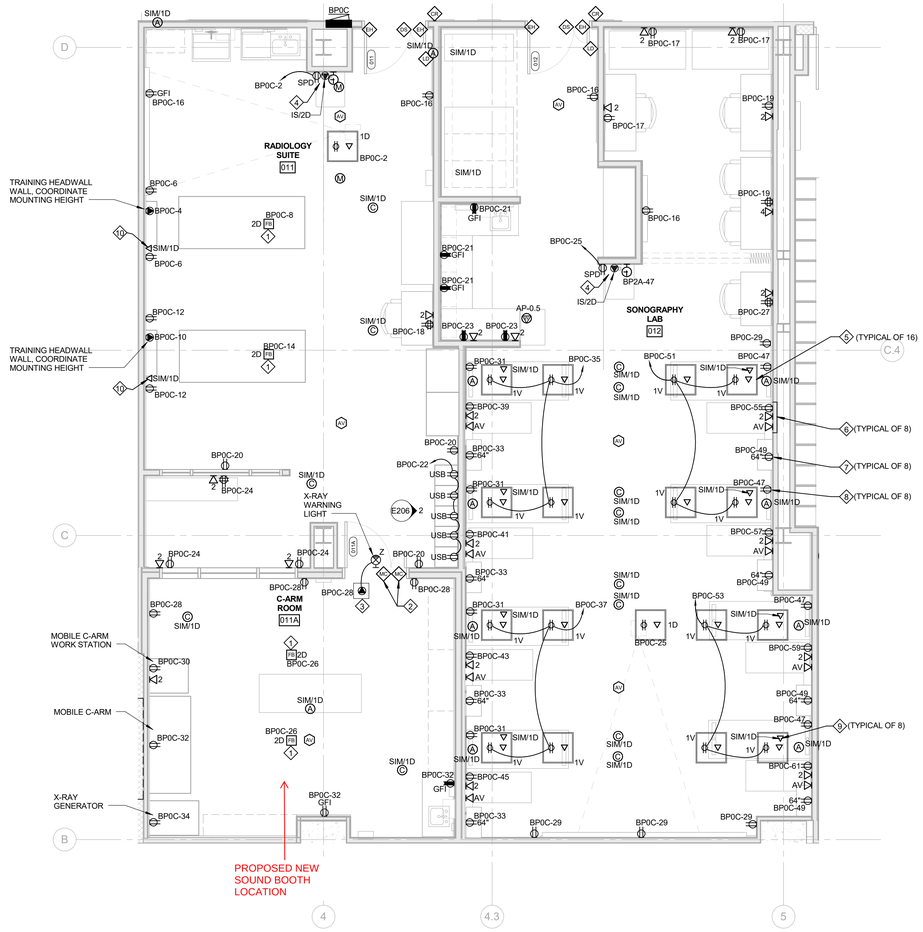
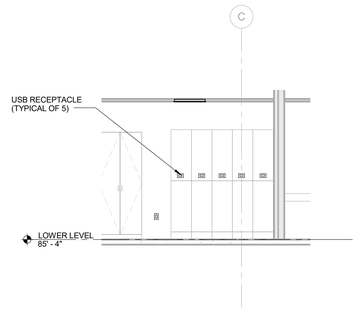
WARNING LIGHT CONTROLLER WIRING DIAGRAM
NO SCALE



1 ENLARGED RADIOLOGY POWER AND SYSTEMS PLAN
SCALE: 1/4" = 1'-0"



2 WALL ELEVATION
SCALE: 1/4" = 1'-0"

NOTES

1. PROVIDE SINGLE GANG, 2 1/2" DEEP JUNCTION BOX FOR X-RAY WARNING LIGHTS MOUNTED 0'-6" ABOVE ASSOCIATED DOOR TO CENTERLINE OF BOX.
2. ALL DOOR MAGNETIC CONTACTS SHALL BE RECESSED IN DOOR FRAMES. COORDINATE EXACT REQUIREMENT WITH DIVISION 8.

KEY NOTES

1 FIELD VERIFY AND COORDINATE EXACT PLACEMENT OF FLOOR BOX WITH OWNER AND FURNITURE LAYOUT PRIOR TO INSTALLATION.
2 DOOR CONTACT TO BE WIRED TO X-RAY GENERATOR/POWER DISTRIBUTION UNIT. PROVIDE 2#14 IN 3/4" CONDUIT. WHEN DOOR IS OPEN EQUIPMENT SHALL TURN OFF. COORDINATE EXACT WIRING REQUIREMENTS WITH SELECTED EQUIPMENT.
3 WARNING LIGHT CONTROLLER. MOUNT ABOVE ACCESSIBLE CEILING SPACE. SEE WARNING LIGHT CONTROLLER WIRING DIAGRAM ON THIS SHEET FOR REQUIRED WIRING AND CONTROLLER MODEL NUMBER. CIRCUIT TO ONE OF THE 120V CIRCUIT DEDICATED TO X-RAY ROOM, SEE KEYNOTE 5.
4 OUTLETS FOR MOBILE CART INSTRUCTOR STATION. SEE 4/E701, "CLASSROOM INSTRUCTOR STATION WALL DETAIL".
5 CEILING RECEPTACLE FOR VIDEO MONITOR. FIELD VERIFY AND COORDINATE EXACT PLACEMENT OF RECEPTACLE WITH OWNER.
6 POWER, DATA AND VIDEO OUTLETS FOR MOBILE ULTRASOUND MACHINE.
7 DUPLEX RECEPTACLE FOR GEL WARMER.
8 DUPLEX RECEPTACLE FOR MOTORIZED BED.
9 DATA OULET MOUNTED IN VIDEO MONITOR PLATE.
10 DATA OUTLET MOUNTED IN DATA OUTLET BOX. PROVIDE 2" DEEP, 4" SQUARE BOX WITH SINGLE GANG MUD RING AND COVER. PROVIDE (1) 1" CONDUIT FROM BOX TO ACCESSIBLE CEILING SPACE.

FOR REFERENCE ONLY

REFER TO WESTERN TELECOM DRAWING E206 FOR CONTRACTOR'S ACTUAL INSTALLATION DRAWING PRINTED FROM THEIR 3D COORDINATION MODEL.

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ENLARGED POWER AND SYSTEMS PLANS

E206

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