ADDENDUM NO. 3

October 11, 2024

Whiteland High School Ph 2: Café Kitchen Band Choir Auditorium
300 E. Main Street
Whiteland, IN 46184

TO: ALL BIDDERS OF RECORD

This Addendum forms a part of and modifies the Bidding Requirements, Contract Forms, Contract Conditions, the Specifications, and the Drawings dated August 30, 2024, by Lancer Associates Architecture. Acknowledge receipt of the Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification.

This Addendum consists of Pages ADD 1-1 through ADD 1-2, and Lancer Associates Architecture Addendum No. 3, dated October 10, 2024, consisting of 8 Pages, Specification Sections 27 41 16 Integrated Audio Video Systems and Equipment and 32 91 15 Synthetic Turf Field Construction – Soccer, and 20 Revised Drawings.

A. SPECIFICATION SECTION 00 02 00 – INDIANA NOTICE TO BIDDERS

The Bid date and location are revised as follows:

October 24, 2024 @ 2:00 PM
Clark-Pleasant Community Schools Administration Building
50 Center Street
Whiteland, IN 46184

Final Day for RFIs – October 15, 2024
Anticipated Addendum #4 – October 17, 2024

B. SPECIFICATION SECTION 01 12 00 MULTIPLE CONTRACT SUMMARY

Paragraph 3.02 GENERAL REQUIREMENTS

Add the following Project Specific Clarifications:

3. Bid Category No. 5 contractor is responsible for the masonry clips shown in detail 15/S500.
4. Bid Category No. 1 contractor is responsible for note #23 on A101.P4.
5. Bid Category No. 1 contractor is responsible for note #15 on A101.P2.
6. Bid Category No. 1 contractor is responsible for note #46 on A761.
7. Each contractor is responsible for their own concrete cut and patch as required for their work.
8. In regards to the existing kitchen equipment, the MEP contractors will disconnect/connect all utilities. The Bid Category No. 11 Food Service Equipment contractor will be responsible for moving/setting the kitchen equipment.
9. Davis Bacon wage scale is not required.
10. The contractor that removes items will be responsible for patching the substrate (floor, roof, walls, ect) as required.
11. Bid Category No. 1 contractor is responsible for 06 40 00 ARCHITECTURAL WOODWORK.
12. Bid Category No. 1 contractor is responsible for 10 21 16 TOILET COMPARTMENTS.
13. Bid Category No. 1 contractor is responsible for reinstallation of the relocated and reinstalled casework

Paragraph 3.03 BID CATEGORIES

A. BID CATEGORY NO. 1 – GENERAL TRADES

Add the following Specification Section:
07 95 13 EXPANSION JOINT COVER ASSEMBLIES

Delete the following Specification Sections:
09 84 10 FABRIC WALL PANELS
12 66 16 TELESCOPING BLEACHERS

E. BID CATEGORY NO. 5 – METAL STUDS, DRYWALL, & ACOUSTICAL

Add the following Specification Sections:
09 84 00 ACOUSTICAL ABSORBER
09 84 10.1 ACOUSTICAL DIFFUSER PANELS
09 84 10 FABRIC WALL PANELS

LANCER ASSOCIATES ARCHITECTURE

ADDENDUM NO. THREE

**PROJECT: CLARK-PLEASANT COMMUNITY SCHOOL CORP.
WHITELAND COMM. HIGH SCHOOL ADDITION
PHASE 2**

PROJECT NUMBER: 22130

DATE OF ADDENDUM: October 10, 2024

THIS ADDENDUM FORMS A PART OF THE CONTRACT DOCUMENTS AND IS ISSUED IN ACCORDANCE WITH THE INSTRUCTIONS TO BIDDERS. ACKNOWLEDGE RECEIPT OF THIS ADDENDUM BY SIGNING THE ADDENDUM ACKNOWLEDGMENT SECTION OF THE BID FORM.

QUESTIONS

Q: Can we confirm the existing fire alarm manufacturer in the building?
A: Existing Manufacturer is Simplex 4100ES.

Q: Is there glycol in any of the existing hydronic piping systems?
A: Yes, the existing hydronic loops for the makeup air units contain glycol system fluid.

Q: In corridor P1001, does the terrazzo floor continue under the musical instrument storage cabinets? Does the base of the musical instrument storage cabinets get terrazzo base?
A: Provide terrazzo flooring under the cabinets. Provide terrazzo precast base under the cabinets

Q: Can a detail of the 4" integral terrazzo base be provided?
A: Change the integral terrazzo cove base to precast wall base with a 90 degree corner

Q: Spec states a textured surface but the drawings state a smooth surface. We're not really sure what to follow here, please advise.
A: The textured surface referenced in the specs is the form liner for the joint pattern shown on the drawings; majority of the panel is going to be smooth

Q: We have an RFI regarding the architectural precast- it seems from the drawings that it is just a smooth painted panel. However, note 13 on the elevations seems almost dictate something different.
A: Change note 13 to Smooth Precast Panels, Painted to match limestone veneer

Q: What material are the display case interiors?
A: Gypsum board with tackboard along the back wall

Q: Room P108H floor plan calls out the casework to be existing relocated but the elevations show new casework numbers.
A:Relocated units along the south wall, new units along the north wall

Q: Confirm note 52 corresponds with 2/a764 and 28 corresponds with 1/a764
A: That is correct

Q: In the technology drawings, could I get a clarification on what BOC and BOJ represent please. I believe BOC is bottom of conduit but I am not sure, thank you for your time.
A: BOC is representative of 'bottom of conduit' and BOJ is representative of 'bottom of J-hook'.

Q: Per Section 11 61 13 – Portable Orchestra Shell Enclosure:

- Paragraph 2.04 – Integral Lighting
    - The spec approves the use of the ETC D60 LED fixture; however, this fixture will not meet the 14" ceiling storage envelope when integrated in the ceiling clouds. Would a different radius ceiling panel or a 16"-18" storage envelope be acceptable?

A: [Schuler Shook] We will accept a 16-inch storage envelope. If a different ceiling radius is helpful, that may also be acceptable. The successful bidder should clearly identify the panel radius and storage envelope in their submittal drawings for coordination with the Section 11 61 33 rigging system.

Q: In Section 11 61 23 Theatre Portable Platforms
o 2.01 C. specifies labels with model number and serial number.
Wenger StageTek staging does not have model numbers, nor does it come with serial numbers. Can the requirement for model number and serial numbers please be waived?
A: This requirement is waived for products that do not include model or serial numbers.

Q: In Section 11 61 23 Theatre Portable Platforms
o 2.02 B. specifies that no single platform assembly, including legs and bracing if attached, shall weigh more than 150 pounds.
Due to specified performance criteria of 2.02 F. and specified size of platforms on drawing TP101, platforms will exceed 150 lbs.Can the requirement for platforms to not weigh more than 150 lbs please be removed?
A: This requirement is waived, however the weight of the largest platforms must be included in the submittal drawings.

Q: In Section 11 61 23 Theatre Portable Platforms
2.03 H. specifies that aluminum frames and leg assemblies shall be black anodized.
Wenger StageTek staging frames and legs are only available as black powder coat painted.
• Can black powder coat painted frames and legs please be approved?
A: Black powder coat paint is acceptable.

Q: In Section 11 61 23 Theatre Portable Platforms
o 2.03 I. specifies to confirm all doorway and storage area dimensions prior to sizing carts.
The location of the staging storage area is not specified.Can the staging storage area please be provided?
A: Cart dimensions must be included in submittal drawings, we do not anticipate any unusual doorway dimensions.

Q: Section 11 61 23 Theatre Portable Platforms
o 2.04 A. specifies handrails on ramps to be 35" tall.
Wenger's standard ADA ramp handrails are 34" tall.Can 34" tall handrails on the portable ADA ramp please be approved?
A: 34-inch handrails are acceptable.

Q: Section 11 61 23 Theatre Portable Platforms
o 2.04 C. specifies top corner intersections of vertical and horizontal members shall be rounded. 2.04 D. specifies a single intermediate horizontal member at 18" and 4" toe kick.
Wenger's standard guardrails do not have vertical pickets at the ends of the guardrails.
Wenger's standard guardrails have a horizontal bar at 3.75" in lieu of a toe kick and a horizontal bar at 22" in lieu of 18".Can Wenger's standard guardrail construction modified to the specified 35" height and socket attachment please be approved?
A: The standard guardrail design is acceptable.

Q: Question regarding the architectural pre-cast. Are we trying to achieve an ICC500 or other storm shelter requirements?
A: No, the building is not designed to be a storm shelter

Q: On Sheet A.002 all the wall types show sound insulation, but the label says "Refer to wall Naming Convention". The Wall naming convention on Sheet A.002 doesn't address sound insulation. Which walls get sound insulation, or do any walls get sound insulation?
A: All interior metal stud walls to have acoustical batt insulation unless otherwise noted.

Q: On Sheet A.002 all the stud wall types call for acoustical sealant, some notes say "acoustic sealant at insulative walls" but there do not appear to any walls that are insulative. Which walls get sound caulking?
A: Provide sound caulking around practice rooms

Q: The elevation showing the north wall of the cafeteria (1/A754) does not show any terrazzo base on the CMU block wall. Is it correct that the CMU block wall gets no base?
A: Provide terrazzo wall base on the north side of the cafeteria

SPECIFICATIONS

1. Specification Index Volume 2
A. Change Spec section 06 64 00 Architectural Woodwork to 06 40 00 Architectural Woodwork
B. Add Spec Section 07 95 13 Expansion Joint Covers
C. Add Spec Section 09 84 00 Absorber Panels
D. Add Spec Section 09 84 10.1 Diffuser Panels
E. Change Spec Section 10 21 13 Toilet Compartments to 10 21 16 Toilet Compartments
F. Delete Spec Section 12 66 16 Telescoping Bleachers

2. Specification Index Volume 3
A. Change Spec section 26 51 00 LED Interior Lighting to 26 51 19 LED Interior Lighting

3. Specification Section 09 84 10.1 Diffuser Panels
A. Change all references to spec section number from 09 84 10 to 09 84 10.1

4. Specification Section 12 35 83
A. Add TMI Systems as an approved manufacturer provided that the design and configurations of lockers can match the basis of design without changes to the layout

5. Specification Section 11 61 13
A. Maestro ceilings are acceptable
B. 22'-0" Towers are acceptable
C. 1.10 I. "All components shall be flameproofed per NFPA and all pertinent regional and local codes. All components shall bear pertinent flameproofing certificates." Add requirement for Class A

6. Specification Section 12 36 61 Solid Surface Fabrications
A. Change the Title of the Spec Section to "SECTION 12 36 61 - SOLID SURFACE FABRICATIONS"

7. Specification Section 27 41 16 – INTEGRATED AUDIO VIDEO SYSTEMS AND EQUIPMENT
A. Replace Spec Section with attached document. Changed sections are highlighted in yellow.

8. Specification Section 12 61 00 Fixed Seating
A. Add Hussey Seating Co. Quattro Traditional Fixed Seating as an approved manufacturer provided all the specifications for the basis of design can be met including concealed lighting, colors and materials. If the fabric specified cannot be provided price a fabric a grade higher than what is specified to ensure wide selection for the owner

9. Specification Section 233300, "Air Duct Accessories"
A. Add Dynasonics and VAW Systems as approved manufacturers.

10. Specification Section 238323, "Radiant-Heating Electric Panels"
A. Add Ouellet as an approved manufacturer.

11. Specification Section 26 56 69 "Athletic Scoreboards"
A. Change the footer to refer to spec section 26 56 69 (not 26 56 68)

12. Specification Section 266621.11, "Addressable Fire-alarm Systems"
A. Replace part 2.1.A. to read as follows
"Existing fire alarm system is JCI (Simplex) 4100ES system."
B. Delete part 2.1.B. in it's entirety.

13. Specification Section 32 31 13 CHAIN LINK FENCING AND GATES
A. Add Section 1.02.C.5 '8' height Black Vinyl Coated Chain Link Fencing'

14. Specification Section 32 91 15 SYNTHEIC TURF FIELD CONSTRUCTION - SOCCER
A. Section 1.2.A.1 has been revised to clarify the intend use of the field for soccer and lacrosse.
B. References to football goals have been removed from Section 1.2.B.
C. Rootzone 3DM AstroTurf has been added to Section 1.C.1.b as a Pre-approved product.
D. Section 1.2.C.6 has been revised to the following:
1. a. ASTM Test F355e- Average maximum value of GMAX 165 may not be exceeded over the full warranty period.
2. b. ASTM Test F3146- Average maximum value of HIC 1000 at 1 meter upon initial installation

DRAWINGS REVISIONS:

1. **Drawing Sheet L103 SITE MATERIALS PLAN – PHASE 2**
   A. Baseball outfield fencing has been revised to be 8'-0" in height.
   B. Note added regarding required coordination with sports light pole with existing storm line.
2. **Drawing sheet M501.**
   a. Air Handler Schedule (DOAS-3): Revise Remark #11 to delete requirements for noise attenuation. Refer to attached drawing revision.

3. **Drawing sheet E701.**
   a. Exterior Light Fixture Schedule – Phase 2: Update the following remarks.

"2. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF $3,500.00 FOR FIXTURE AND POLE DOES NOT INCLUDE FREIGHT AND SHIPPING COSTS.

3. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF $3,500.00 FOR FIXTURE AND POLE DOES NOT INCLUDE FREIGHT AND SHIPPING COSTS.

4. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF $4,500.00 FOR FIXTURE AND POLE DOES NOT INCLUDE FREIGHT AND SHIPPING COSTS.

5. CONTRACTOR SHALL PROVIDE AN ALLOWANCE OF $6,500.00 FOR FIXTURE AND POLE DOES NOT INCLUDE FREIGHT AND SHIPPING COSTS."

4. **Sheet T201P.1 – FIRST FLOOR TECHNOLOGY PLAN – UNIT P.1**
    a. Added sheet note 6 calling out the green room volume control location. Added additional installation instructions and clarification.
    b. Switched the stage right and stage left P103 intercom connection locations to intercom station locations

5. **Sheet T202P.1 – SECOND FLOOR TECHNOLOGY PLAN – UNIT P.1**
    a. Updated ceiling loudspeaker layout according to reflected ceiling plan

6. **Sheet T305 – AUDIO VISUAL DIAGRAMS**
    a. Added additional loudspeaker installation instructions to Choir 2 Rehearsal Room AV Diagram

7. **Sheet T306 – AUDIO VISUAL DIAGRAMS**
    a. Added output bridging designation to power amplifier type 1 in the Dance/Theater Rehearsal Room AV Diagram

8. **Sheet T307 – AUDIO VISUAL DIAGRAMS**
    a. Added additional loudspeaker installation instructions to Choir 1 Rehearsal Room AV Diagram

9. **Sheet T308 – AUDIO VISUAL DIAGRAMS**
    a. Added additional loudspeaker installation instructions to Band Rehearsal Room AV Diagram
    b. Changed the power amplifier type feeding subwoofer loudspeaker type 5 to power amplifier type 2 in the Band Rehearsal Room AV Diagram

10. **Sheet T310 – AUDIO VISUAL DIAGRAMS**
    a. Updated Network I/O Expander Type 5 to include connectivity to Network I/O Expander Type 1 and references to the Auditorium Power Sequencing AV Diagram in the Auditorium AV System Diagram

11. **Sheet T311 – AUDIO VISUAL DIAGRAMS**
    a. Added new Network I/O Expander Type 3 feeding the program inputs of three intercom stations to the Auditorium Audio System AV Diagram – Part 1
    b. Moved the digital signal processor type 2 to the IDF P102e AV equipment rack and removed all network audio I/O expanders no longer required from the Auditorium Audio System AV Diagram – Part 1
    c. Updated Network I/O Expander Type 2 to include connectivity to Network I/O Expander Type 5 and references to the Auditorium Power Sequencing AV Diagram to the Auditorium Audio System AV Diagram – Part 1

12. **Sheet T312 – AUDIO VISUAL DIAGRAMS**
    a. Updated the Auditorium Power Sequencing AV Diagram. Added clearer connectivity from the power sequencer and UPSs in each AV equipment rack. Added clearer instructions on where to plug in each piece of equipment.
    b. Removed LAN connections from all wireless microphone receiver type 2 in the Auditorium Audio System AV Diagram – Part 2
    c. Added two wireless microphone chargers to the Auditorium Audio System AV Diagram – Part 2
    d. Added two additional intercom stations located on the stage right and stage left side of Stage P103. Put all intercom stations on dedicated set of A and B channel outputs.

13. **Sheet T313 – AUDIO VISUAL DIAGRAMS**
    a. Changed the power amplifier type feeding subwoofer array loudspeakers type 6 to power amplifier type 6 in the Auditorium Loudspeaker AV Diagram – Part 1
    b. Added additional callout and instructions to the volume control connected to the AV network switch located in the stage AV equipment rack to the Auditorium Loudspeaker AV Diagram – Part 1

14. **Sheet T314 – AUDIO VISUAL DIAGRAMS**
    a. Changed the power amplifier type feeding stage monitor loudspeakers type 10 to new power amplifier type 8 in the Auditorium Loudspeaker AV Diagram – Part 2
    b. AV diagrams formerly placed on Sheet 313 are now placed on Sheet 314

15. **Sheet T315 – AUDIO VISUAL ELEVATIONS**
    a. AV elevations formerly placed on Sheet 314 are now placed on Sheet 315

16. **Sheet T316 – AUDIO VISUAL ELEVATIONS**
    a. AV elevations formerly placed on Sheet 315 are now placed on Sheet 316

17. **Sheet T317 – AUDIO VISUAL ELEVATIONS**
    a. AV elevations formerly placed on Sheet 316 are now placed on Sheet 317

18. **Sheet T318 – AUDIO VISUAL ELEVATIONS**
    a. AV elevations formerly placed on Sheet 317 are now placed on Sheet 318
    b. Updated rear loudspeaker annotations and mounting configuration in the Band AV Elevation - Rear to match loudspeaker specifications and dimensions

19. Sheet T319 – AUDIO VISUAL ELEVATIONS

a. AV elevations formerly placed on Sheet 318 are now placed on Sheet 319
b. Updated front loudspeaker annotations and mounting configuration in the Band AV Elevation - Front to match loudspeaker specifications and dimensions
c. Added an additional back box mounting location and additional mounting instructions to include the catwalk mounted video projectors to the Typical Catwalk Device Mounting Detail

20. Sheet T320 – AUDIO VISUAL ELEVATIONS

a. AV elevations formerly placed on Sheet 319 are now placed on Sheet 320
b. Updated the effects loudspeaker annotations and mounting configuration in the Auditorium AV Elevation – Side

21. **Sheet T321 – AUDIO VISUAL ELEVATIONS**

a. AV rack elevations formerly placed on Sheet 320 are now placed on new Sheet 321
b. Removed digital signal processor type 2 from the stage AV equipment rack and added it to the IDF P102e AV equipment rack
c. Updated power amplifier spacing according to manufacturer recommendations
d. Updated the stage monitor power amplifier type to new power amplifier type 8
e. Removed 1 RU of network I/O expanders from the IDF P102e AV equipment rack and added digital signal processor type 2
f. Removed 1 RU rack blanks between the audio recorder and radio tuner and the blu-ray player and media player

Attachments:
Specification: 27 41 16, 32 91 15

Drawings : L103, M501, T201P.1, T202P.1,T305,T306, T307, T308, T310, T311, T312, T313, T314, T315, T316, T317, T318, T319, T320, T321

End of Addendum 3

SECTION 27 41 16 - INTEGRATED AUDIO VIDEO SYSTEMS AND EQUIPMENT

PART 1 - GENERAL

1.1 SCOPE OF WORK

A. This section includes the minimum requirements for the installation, configuration, and training of the audio visual components as depicted on the Drawings and required by these specifications.

B. These Specifications, together with the Drawings accompanying them, are intended to depict the installation requirements necessary to support this Project. Contractor shall furnish materials shown and/or called for on the Drawings but not mentioned in the Specifications, or vice versa, that are necessary for the installation and support of communications cabling, whether or not specifically called for in both. In addition, Contractor shall provide incidental equipment and materials required for the completion of systems included in this contract whether or not specified or shown on the drawings.

C. All required cabling infrastructure including back boxes and conduit to support the AV systems are provided and installed by others. Contractor is required to provide, install, test, and configure all cabling, equipment, and AV systems as described within this specification and as shown on the T-series drawings.

D. This section includes minimum requirements for the following:

1. AV Transmitter Type 1
2. AV Transmitter Type 2
3. AV Receiver Type 1
4. AV Receiver Type 2
5. AV Receiver Type 3
6. AV Receiver Type 4
7. USB Transmitter
8. USB Receiver
9. AV Encoder
10. AV Decoder
11. AV Network Switch
12. Touch Panel
13. Wireless Controller
14. Wireless Presentation Receiver
15. AV Bridge
16. Blu-Ray Player
17. AV Switcher Type 1
18. AV Switcher Type 2
19. AV Matrix Switcher
20. Video Conferencing Bar
21. Video Camera
22. Flat Panel Display
23. Flat Panel Display Mount
24. Auditorium Control Room Display
25. Video Projector Type 1
26. Video Projector Type 2
27. Video Projector Type 3
28. Wall Mounted Electric Projection Screen Type 1
29. Wall Mounted Electric Projection Screen Type 2
30. Ceiling Mounted Electric Projection Screen Type 1
31. Ceiling Mounted Electric Projection Screen Type 2
32. Volume Control
33. Chime Generator

34. Message Repeater
35. Page Station
36. Digital to Analog Audio Converter
37. Bluetooth Receiver
38. Bluetooth Expansion Module
39. Audio Recorder
40. Media Player
41. Radio Tuner
42. Digital Signal Processor Type 1
43. Digital Signal Processor Type 2
44. Network I/O Expander Type 1
45. Network I/O Expander Type 2
46. Network I/O Expander Type 3
47. Network I/O Expander Type 4
48. Network I/O Expander Type 5
49. Wireless Microphone System Type 1
50. Wireless Microphone System Type 2
51. Wireless Microphone Antenna Distribution System
52. Hearing Assistance System
53. Auditorium Intercom System
54. Personal Monitoring System
55. Digital Audio Mixing Console
56. Digital Audio I/O
57. Power Amplifier Type 1
58. Power Amplifier Type 2
59. Power Amplifier Type 3
60. Power Amplifier Type 4
61. Power Amplifier Type 5
62. Power Amplifier Type 6
63. Power Amplifier Type 7
64. Power Amplifier Type 8
65. Loudspeaker Type 1
66. Loudspeaker Type 2
67. Loudspeaker Type 3
68. Loudspeaker Type 4
69. Loudspeaker Type 5
70. Loudspeaker Type 6
71. Loudspeaker Type 7
72. Loudspeaker Type 8
73. Loudspeaker Type 9
74. Loudspeaker Type 10
75. Speaker Rigging Components
76. Power Sequencing System
77. Power Conditioner
78. Uninterruptible Power Supply
79. House Manager Enclosure
80. AV Equipment Rack Type 1
81. AV Equipment Rack Type 2
82. AV Equipment Rack Type 3
83. AV Equipment Rack Blanks
84. AV Equipment Rack Vents
85. AV Equipment Rack Shelves
86. AV Equipment Rack Drawers

1.2 QUALITY ASSURANCE

A. The following industry Standards are the basis for the audio-visual system described herein. The list is incorporated by this reference to them.

1. ANSI - American National Safety Institute
2. ASTM - American Society of Testing and Materials
3. EIA - Electronics Industries Association
4. FCC - Federal Communications Commission
5. NEMA - National Electrical Manufacturer's Association
6. OSHA - Occupational Safety and Health Administration
7. NEC - National Electric Code.
8. NFPA - National Fire Protection Association.
9. IEEE - Institute of Electrical and Electronics Engineers.
10. ISO - International Standards Organization.
11. UL - Underwriters Laboratories
12. Davis and Davis, Sound System Engineering (2nd Edition), Howard W. Sams, 1987
13. Giddings, Audio System Design and Installation (ASDI), Howard W. Sams, 1990

B. All cable and equipment shall be installed in a neat and workmanlike manner. All methods of construction that are not specifically described or indicated in the contract documents shall be subject to the control and approval of the Design 27 Project Manager. Equipment and materials shall be of the quality and manufacturer indicated. The equipment specified is based upon the acceptable manufacturers listed. Where "Or equal" is stated, equipment shall be equivalent in every way to that of the equipment specified and subject to approval.

C. Materials and work specified herein shall comply with the requirements of the local Authority Having Jurisdiction.

D. Contractor should have the following qualifications:

1. Experienced in the installation of systems similar in complexity and scale to those included within the scope of work. If requested, the Contractor shall provide the names, locations, and points of contact for at least three installations of the type and complexity specified herein.
2. Within the last two (2) years, installed an audio-visual system with similar equipment and functionality.
3. Have at least one (1) person on staff with CTS-I certification.

1.3 SUBMITTALS

A. As part of this specification section, Contractor shall be responsible for providing the following submittals.
1. Manufacturer Product Data
2. Pre-Installation Shop Drawings
3. User Interface Submittal
4. As-Built Drawings
5. Configuration files and Source Code

B. Manufacturer Product Data - The Contractor shall provide manufacturers' catalog sheets, specifications, and installation instructions for all products to be installed within the scope of work. This is to verify that the submitted components comply with the Contract Documents. Submittals shall be formatted as follows.

1. Submit only products that appear in this section or that are required for a complete installation relating to the products in this section. Submission of products from multiple sections will be cause for rejection of submittal without review and subject to reformatting and resubmittal by Contractor.
2. Each product intended to be used shall be included one time only. Do not submit similar products multiple times.
3. Submittal shall include an index with page(s) listed in order of specification within corresponding section, with subsection number and generic name correlated to product submitted. Sheet index and/or product data sheets organized alphabetically, randomly or in any manner which does not match the specification order will be cause for rejection of submittal without review and subject to reformatting and resubmittal by Contractor.
4. Following index sheet, include Manufacturer specification sheet stapled in order of properly organized index.
    a. Where multiple products exist on a single sheet, Contractor shall clearly indicate, whether with highlight, arrow, PDF stamp, etc. the product intending to be used.
    b. Failure to indicate specific product to be used will be cause for marking submittal Revise and Resubmit.

C. Pre-Installation Shop Drawings – Prior to the start of field work the Contractor shall provide pre-installation shop drawings noting the intended installation means and methods for this scope of work. This is to ensure the Contractor understands the scope of work and to provide the field installation teams with all information necessary for successful implementation.

1. Drawings shall be created using modeling software, such as Autodesk AutoCAD. In addition, they shall be exported in PDF format for review by the designer and Owner.
2. Drawings shall contain floor plans, RCPs (if applicable), section views, and details illustrating equipment location, including but not limited equipment racks, IR amplifiers, projection screens, connection panels, flat panel displays, and loudspeakers. Drawings shall be at no less than 1/8"=1'-0" scale.
3. Detailed wiring diagrams showing the interconnection between equipment devices. This shall include cable labeling, cable types, connector types and termination details, wiring color codes, and equipment manufacturer and models. Note cabling provided by Others. Diagrams included as part of Construction Documents are included to convey design intent and are not acceptable for use in Pre-Installation Shop Drawings and will be cause for rejection.
4. Loudspeaker, video projector, projector lift, and projection screen mounting details, including hardware type, material, and load capacity. For all equipment mounted overhead, mounting details and design calculations shall be signed and sealed by a professional structural engineer currently licensed to practice in the State of the work to be performed. The details included in the Construction Documents are included to convey design intent and are not acceptable for use in Pre-Installation Shop Drawings and will be cause for rejection.
5. Dimensioned plate and panel details that are custom for the project. Details shall include dimensioned locations of components, component type, engraving information, bill of materials, and plate finish and color. If custom part numbers are generated by a manufacturer, they shall be included on the plate details.

6. Rack elevations showing equipment layout within racks with dimensions. The Contractor shall allocate space in the rack for all equipment that will ultimately be installed within, including any and all Owner Furnished equipment.
7. Wiring schedule showing the source and destination of wiring and indicating whether the wire is in conduit or cable tray.

D. User Interface Submittals – The Contractor shall provide user interface submittals to convey the look and feel of user interfaces along with intended functionality. This is to ensure the Contractor understands the scope of work and to streamline the programming process prior to field installation.
1. Submit within 14 days of Pre-Installation Shop Drawing submittal.
2. Submit individual PDF files with screenshots of touch panels to be configured for the project.
    a. In text below screenshot, describe what pressing each button will accomplish in the program.
    b. Include both what users would experience in the room as well as on the touch panel. Ex. “Pressing Power On will turn on projector, lower projector screen and take users to the [SOURCES] page of touch panel.
    c. Where identical buttons exist on multiple pages, describe their function only once.
3. If button panels with user replaceable or custom buttons are included in project scope, submit PDF screenshot of proposed button configuration.
    a. In text below screenshot, describe what pressing each button will accomplish in the program.

E. As-Built Drawings - The Contractor shall provide Final documentation noting the actual installed conditions for this scope of work. This is to provide the Owner with accurate historical data of the project for future reference. As-Built Drawings shall be submitted during project close-out for inclusion in the O&M manual. Submittals shall be formatted as follows.

1. Submit one (1) PDF set of redlined Contractor generated As-Built Drawings. The Owner reserves the right to request an electronic copy of the shop drawings in both Autodesk CAD (.DWG) format and PDF format.
2. As-Built Drawings that utilize the Contract Documents as a base, shall be inclusive of all Published Addendums, ASIs, Accepted PCOs, PRs, SIs, etc. Changes made via RFI or Field Directive that were not published changes to the Contract Drawings shall be noted as such on the As-Builts with the noted RFI or FD #.
3. All text notes included on As-Builts shall be easily legible on PDF. Handwritten notes that are not legible shall be replaced with PDF text.
4. Include equipment manufacturer/model as installed in the field.
5. Include revised functional diagrams based on those submitted and approved during the Pre-Installation Shop Drawing submittal

F. Configuration Files and Source Code – The Contractor shall provide the final equipment configuration files and Source Code installed on the project. These files shall be submitted concurrently with As-Built Drawings.

1. Include configuration files for all equipment, including but not limited to, digital signal processors, video switchers, control processors, amplifiers, etc. Owner notes that any changes made during the warranty period not completed by the Contractor will void the system warranty.

2. Include any passwords that may have been created that are required to access equipment. Owner notes that any changes made during the warranty period not completed by the Contractor will void the system warranty.
3. Contractor is not required to provide manufacturer software used for configuration.

a. Include any control processor source code in its uncompiled format. Owner notes that any changes made during the warranty period not completed by the Contractor will void the system warranty.

1.4 CLOSE-OUT DOCUMENTS

A. Provide close-out documents in accordance with the General Conditions unless otherwise indicated:

1. Provide the following for products incorporated into the final installation:

a. Manufacturer's data for each type of product. Include manufacturer's serial numbers within the list of product.
b. Each products Owner/Instruction Manual. Provide high quality copies where necessary, with all text legible and illustrations of equal resolution and sharpness as the original manual. Faxed copies or copies with portions of the information missing or smeared not acceptable.

2. Provide as-built drawings depicting what is actually incorporated within the project delivered as electronic files. All text within drawings shall be legible.
3. Provide recorded test reports of Contractor commissioning.
4. Prepare and provide a complete and typical procedure for the operation of the equipment as a system including:

a. Describe the operation of system capabilities.
b. Assume the intended reader of the manual to be technically inexperienced and unfamiliar with this facility.

5. Any other pertinent data generated during the project or required for future service.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Equipment and components shall arrive onsite properly protected and undamaged with containers, packaging and labels intact.

B. Store, handle and protect materials and equipment in accordance with Manufacturer's recommendations.

C. Store materials and equipment in dry, environmentally controlled space. Do not install equipment and materials until spaces are enclosed, watertight, and dry. Protect equipment from dust and other airborne materials.

D. Provide additional protection during handling as necessary to prevent breaking, scraping, marring, or otherwise damaging products or surrounding areas.

E. Protect all equipment and components that are to be installed within this project from theft, vandalism, and exposure to rain, freezing temperatures and direct sunlight.

F. Protect installed equipment and components from damage and prevent use by unauthorized persons.

1.6 WARRANTY

A. The Contractor shall warrantee the completed work for a period of one (1) year, from the date of acceptance of the work, to be free of defect in design, workmanship, or material.

B. Contractor shall repair, adjust, and/or replace, whichever the Owner determines to be in its best interests, any defective equipment, materials, or workmanship, as well as such parts of the work damaged or destroyed by such defect, during the warranty period, at the Contractor's sole cost and expense. If parts or components need to be repaired, then a loaner will be supplied and installed until the part or component can be repaired and reinstalled.

C. All service work shall be performed by manufacturer certified technicians.

D. Contractor to provide Owner a phone number for technical support. All support calls shall be answered within twenty-four (24) hours. All repairs shall be underway within forty-eight (48) hours and completed (or loaner supplied) within seven (7) days.

E. At the end of the warranty period, the Contractor shall complete one (1) site visit to evaluate the status of the audio-visual systems. All equipment within this scope of work found to be defective shall be replaced at no cost to the Owner.

F. Guarantees of material, equipment, and workmanship running in favor of the Contractor shall be transferred and assigned to the Owner on completion of the work and acceptance of said work by the Owner.

PART 2 - PRODUCTS

2.1 AV TRANSMITTER TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall be capable of accepting digital video input.
2. Shall be capable of transmitting audio and video over STP cabling.
3. Shall have a minimum of one (1) HDMI input.
4. Shall have a minimum of one (1) STP output.
5. Shall support resolutions up to and including 4096x2160p.
6. Shall be HDCP compliant.
7. Shall be wall mounted single-gang decora.
8. Coordinate color with architect.
9. Acceptable Manufacturers:

    a. Crestron HD-TXC-4KZ-101-1G
    b. Or Equal

2.2 AV TRANSMITTER TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall be capable of accepting digital video input.
2. Shall be capable of transmitting audio and video over STP cabling.
3. Shall have a minimum of one (1) HDMI input.
4. Shall have a minimum of one (1) STP output.

5. Shall support resolutions up to and including 4096x2160p.
6. Shall be HDCP compliant.
7. Shall be wall mounted single-gang decora.
8. Coordinate color with architect.
9. Acceptable Manufacturers:

    a. Crestron DM-TX-4KZ-100-C-1G
    b. Or Equal

2.3 AV RECEIVER TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall be capable of distributing digital video.
2. Shall have a STP cabling input.
3. Shall have a minimum of one (1) HDMI output with RS-232 control.
4. Shall support resolutions of up to and including 4096x2160p.
5. Shall be HDCP compliant.
6. Acceptable Manufacturers:

    a. Crestron HD-RXC-4KZ-101
    b. Or Equal

2.4 AV RECEIVER TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall be capable of distributing digital video.
2. Shall have a STP cabling input.
3. Shall have a minimum of one (1) HDMI output with RS-232 control.
4. Shall support resolutions of up to and including 4096x2160p.
5. Shall be HDCP compliant.
6. Shall be wall mounted single-gang decora.
7. Coordinate color with architect.
8. Acceptable Manufacturers:

    a. Crestron HD-RXC-4KZ-101-1G
    b. Or Equal

2.5 AV RECEIVER TYPE 3

A. Shall meet or exceed the following specifications:

1. Shall be capable of distributing digital video.
2. Shall have a STP cabling input.
3. Shall have a minimum of one (1) HDMI output with RS-232 control.
4. Shall support resolutions of up to and including 4096x2160p.
5. Shall be HDCP compliant.
6. Acceptable Manufacturers:

    a. Crestron DM-RMC-4KZ-100-C
    b. Or Equal

2.6 AV RECEIVER TYPE 4

A. Shall meet or exceed the following specifications:

1. Shall be capable of distributing digital video.
2. Shall have a STP cabling input.
3. Shall have a minimum of one (1) HDMI output with RS-232 control.
4. Shall support resolutions of up to and including 4096x2160p.
5. Shall be HDCP compliant.
6. Shall be wall mounted single-gang decora.
7. Coordinate color with architect.
8. Acceptable Manufacturers:

    a. Crestron DM-RMC-4KZ-100-C-1G
    b. Or Equal

2.7 USB TRANSMITTER

A. Shall meet or exceed the following specifications:

1. Shall be capable of distributing signal from USB 2.0 devices
2. Shall have a minimum of one (1) USB 2.0 Type B host port.
3. Shall have a STP cabling transmission method.
4. Shall have DC power input.
5. Shall be wall mounted single-gang decora.
6. Coordinate color with architect.
7. Acceptable Manufacturers:

    a. Crestron USB-EXT-2-LOCAL-1G
    b. Or Equal

2.8 USB RECEIVER

A. Shall meet or exceed the following specifications:

1. Shall be capable of distributing signal from USB 2.0 devices
2. Shall have a minimum of one (1) USB 2.0 Type A device port.
3. Shall have a STP cabling transmission method.
4. Shall have DC power input.
5. Acceptable Manufacturers:

    a. Crestron USB-EXT-2-LOCAL-1G
    b. Or Equal

2.9 AV ENCODER

A. Shall meet or exceed the following specifications:

1. Shall be powered over PoE requiring no more than 15.4W of power.
2. Shall be capable of transmitting audio, video, and control signals over a Layer 2 network.
3. Shall have a minimum of one (1) HDMI input with RS-232 control.
4. Shall support resolutions up to and including 4096x2160p.
5. Shall be HDCP compliant.
6. Acceptable Manufacturers:

a. Visionary Solutions E5100
b. Or Equal

2.10 AV DECODER

A. Shall meet or exceed the following specifications:

1. Shall be powered over PoE requiring no more than 15.4W of power.
2. Shall be capable of transmitting audio, video, and control signals over a Layer 2 network.
3. Shall have a minimum of one (1) HDMI output with RS-232 control.
4. Shall support resolutions up to and including 4096x2160p.
5. Shall be HDCP compliant.
6. Acceptable Manufacturers:

a. Visionary Solutions D5100
b. Or Equal

2.11 AV NETWORK SWITCH

A. Shall meet or exceed the following specifications:

1. Shall have quantity of Ethernet ports required to support audio-visual systems shown on T-series drawings.
2. Shall be manageable.
3. Shall be 1RU rack mountable.
4. Acceptable Manufacturers:

a. Q-SYS NS Series Gen 2
b. Or Equal

2.12 TOUCH PANEL

A. Shall meet or exceed the following specifications:

1. Shall have ethernet monitoring and control.
2. Shall have a capacitive touch screen interface.
3. Shall have a resolution of 1920x1200.
4. Shall be 10.1” diagonal.
5. Shall have a contrast ratio of 800:1
6. Provide all necessary hardware and brackets required for installation as shown on the T-series drawings.
7. Coordinate color with architect.
8. Acceptable Manufacturers:

a. Q-SYS TSC-101-G3
b. Or Equal

2.13 WIRELESS CONTROLLER

A. Shall meet the following specifications:

1. Shall have a minimum 10” diagonal screen.
2. Shall have a minimum resolution of 1920 x 1080p.
3. Shall support capacitive touch interface.

4. Shall support Q-SYS control application. Contractor shall be responsible for providing and configuring control applications.
5. Shall communicate wirelessly with AV control system.
6. Acceptable Manufacturers:

    a. Apple
    b. iPort Luxeport Base
    c. iPort Luxeport Sleeve compatible with wireless controller
    d. Or Equal

2.14 WIRELESS PRESENTATION RECEIVER

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of one (1) RJ-45 LAN connection.
2. Shall have a minimum of one (1) HDMI output.
3. Shall have a minimum of one (1) USB 2.0 device type A port.
4. Shall support resolutions of up to and including 1920x1080p.
5. Shall support Miracast.
6. Shall be capable of a minimum of two (2) simultaneous users at once.
7. Provide necessary adapters and accessories as required.
8. Acceptable Manufacturers:

    a. Airtame 2
    b. Airtame 2 AirCord
    c. Airtame 2 Ethernet Adapter

2.15 AV BRIDGE

A. Shall meet or exceed the following specifications:

1. Shall support resolutions up to and including 1920x1080p.
2. Shall be capable of routing signal from USB 2.0 devices.
3. Shall have a minimum of one (1) HDMI input.
4. Shall have a minimum of one (1) USB 2.0 host type B port.
5. Shall have R-232 control.
6. Shall allow the integration of pro audio and video equipment into PC software.
7. Shall provide ability to integrate soft codecs such as Skype, Cisco Jabber, Microsoft Lync, etc.
8. Shall allow video and audio to be captured and be live streamed to an owner approved streaming platform.
9. Acceptable Manufacturers:

    a. Extron MediaPort 200
    b. Or Equal

2.16 BLU-RAY PLAYER

A. Shall meet or exceed the following specifications:

1. Shall support resolutions up to and including 1920x1080p.
2. Shall include HDMI output.
3. Shall be RS-232 controllable.
4. Shall be rack mountable.
5. Acceptable Manufacturers:

a. Denon Pro DN-500BD
b. Or Equal

2.17 AV SWITCHER TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of four (4) HDMI inputs.
2. Shall have a minimum of one (1) STP output.
3. Shall have a minimum of one (1) balanced stereo audio output.
4. Shall support resolutions up to and including 4096x2160p.
5. Shall support ethernet control connectivity.
6. Shall be HDCP compliant.
7. Acceptable Manufacturers:

a. Crestron HD-PS-401
b. Or Equal

2.18 AV SWITCHER TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of six (6) HDMI inputs.
2. Shall have a minimum of two (2) STP inputs
3. Shall have a minimum of one (1) STP output.
4. Shall have a minimum of one (1) balanced stereo audio output.
5. Shall support resolutions up to and including 4096x2160p.
6. Shall support ethernet control connectivity.
7. Shall be HDCP compliant.
8. Acceptable Manufacturers:

a. Crestron HD-PS-621
b. Or Equal

2.19 AV MATRIX SWITCHER

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of four (4) HDMI inputs.
2. Shall have a minimum of four (4) STP inputs.
3. Shall have a minimum of one (1) SDI input.
4. Shall have a minimum of ten (10) STP outputs.
5. Shall have a minimum of one (1) RJ-45 LAN for streaming.
6. Shall have a minimum of two (2) HDMI outputs.
7. Shall have a minimum of two (2) balanced stereo audio outputs.
8. Shall support resolutions up to and including 4096x2160p.
9. Shall have a minimum of one (1) RJ-45 LAN or RS-232 connection for control.
10. Shall be HDCP compliant.
11. Acceptable Manufacturers:

a. Crestron DM-MD16X16-CPU3 with required input and output cards
b. Or Equal

2.20 VIDEO CONFERENCING BAR

A. Shall meet or exceed the following specifications:

1. Shall support a native resolution of 1920x1080.
2. Shall accept a minimum of one (1) HDMI input.
3. Shall have a minimum of one (1) HDMI output.
4. Shall provide a minimum microphone pickup range of 23 feet.
5. Shall be USB plug-and-play interfacing owner preferred video-conferencing application.
6. Provide all mounts and associated mounting accessories required.
7. Acceptable Manufacturers:

    a. Logitech Rally Bar
    b. Or Equal

2.21 VIDEO CAMERA

A. Shall meet or exceed the following specifications:

1. Shall support resolutions up to and including 1920x1080.
2. Shall have a minimum of one (1) HDMI output.
3. Shall have a minimum of one (1) SDI output.
4. Shall be powered over PoE requiring no more than 15.4W of power.
5. Shall support ethernet control connectivity.
6. Shall have a 20x optical zoom with auto focus and auto white balance.
7. Shall have a 60°H field of view
8. Shall have a minimum pan range of ±98° and tilt range of +90/-30°
9. Provide and install necessary hardware to wall-mount the camera per the T-series drawings.
10. Verify color with Architect.
11. Acceptable Manufacturers:

    a. Q-SYS NC-20x60
    b. Or Equal

2.22 FLAT PANEL DISPLAY

A. Shall meet or exceed the following specifications:

1. Shall support resolutions up to and including 4096x2160p, 60 Hz.
2. Shall be LED Backlit.
3. Shall have a minimum static contrast ratio of 5000:1.
4. Shall have a minimum brightness of 350 cd/m^2
5. Shall be RS-232 controllable.
6. Shall be commercial grade. Consumer grade displays are not acceptable.
7. Shall have integrated smart TV app compatibility (i.e. youtube app).
8. “MON” (Monitor locations within the T-series drawings) displays shall be 18/5 rated.
9. “DS” (Digital Signage locations within the T-series drawings) displays shall be 24/7 rated.
10. Reference T-series drawings for display sizes.
11. Reference AV diagrams for locations where panels are to be installed.
12. Acceptable Manufacturers:

    a. Samsung
    b. LG
    c. Sony

d. Panasonic
e. Or equal

2.23 FLAT PANEL DISPLAY MOUNT

A. Shall meet or exceed the following specifications:

1. Shall support weight of associated display.
2. Shall be non-articulating mount.
3. Shall have an adjustable tilt of +5 or -20 degrees.
4. Shall provide access to backbox without removing mount.
5. Mount shall be selected to ensure total depth of flat panel display and mount does not exceed 4” from the wall.
6. Acceptable Manufacturers:

a. Chief
b. Peerless-AV
c. AvTeq
d. Or equal

2.24 AUDITORIUM CONTROL ROOM DISPLAY

A. Shall meet or exceed the following specifications:

1. Shall support resolutions up to and including 3840x2160.
2. Shall have two (2) HDMI inputs.
3. Shall have one (1) DisplayPort input.
4. Shall have one (1) 3.5mm audio output.
5. Shall be LED Backlit.
6. Shall have a minimum contrast ratio of 1000:1.
7. Shall have a minimum brightness of 350 cd/m^2
8. Shall be 32” diagonal.
9. Acceptable Manufacturers:

a. ViewSonic VP3268a-4K
b. Or equal

2.25 VIDEO PROJECTOR TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall support a native resolution of 1920x1200.
2. Shall accept a minimum of one (1) HDMI input.
3. Shall provide a minimum output of 10,000 lumens.
4. Shall be RS-232 controllable.
5. Provide lens as required based on aspect ratio and distance to screen.
6. Provide all mounts and associated mounting accessories required.
7. Confirm final color and finish with Architect.
8. Acceptable Manufacturers:

a. Epson Pro EB-PU2010
b. Or Equal

2.26 VIDEO PROJECTOR TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall support a native resolution of 1920x1200.
2. Shall accept a minimum of one (1) HDMI input.
3. Shall provide a minimum output of 13,000 lumens.
4. Shall be RS-232 controllable.
5. Provide lens as required based on aspect ratio and distance to screen.
6. Provide all mounts and associated mounting accessories required.
7. Confirm final color and finish with Architect.
8. Acceptable Manufacturers:

    a. Epson Pro EB-PU2113
    b. Or Equal

2.27 VIDEO PROJECTOR TYPE 3

A. Shall meet or exceed the following specifications:

1. Shall support a native resolution of 1920x1200.
2. Shall accept a minimum of one (1) HDMI input.
3. Shall provide a minimum output of 16,000 lumens.
4. Shall be RS-232 controllable.
5. Provide lens as required based on aspect ratio and distance to screen.
6. Provide all mounts and associated mounting accessories required.
7. Confirm final color and finish with Architect.
8. Acceptable Manufacturers:

    a. Epson Pro EB-PU2116
    b. Or Equal

2.28 WALL MOUNTED ELECTRIC PROJECTION SCREEN TYPE 1

A. Contractor shall provide wall mounted electric projection screens properly sized as shown on the T-series drawings.

B. Shall meet or exceed the following specifications:

1. Reference T-series drawings for required screen sizes.
2. Screen surface material shall be matte white.
3. Screen material shall have a minimum gain of 1.0.
4. Screen shall have a minimum 2” black border. Reference required black drop on T-series elevations.
5. Shall have built-in low voltage controller.
6. Screen shall be tab-tensioned.
7. Acceptable Manufacturers:

    a. Draper, Inc. Acumen V
    b. Da-Lite
    c. Or Equal

2.29 WALL MOUNTED ELECTRIC PROJECTION SCREEN TYPE 2

A. Contractor shall provide wall mounted electric projection screens properly sized as shown on the T-series drawings.

B. Shall meet or exceed the following specifications:

1. Reference T-series drawings for required screen sizes.
2. Screen surface material shall be matte white.
3. Screen material shall have a minimum gain of 1.0.
4. Screen shall have a minimum 2” black border. Reference required black drop on T-series elevations.
5. Shall have built-in low voltage controller.
6. Screen shall be tab-tensioned.
7. Acceptable Manufacturers:

a. Draper, Inc. Acumen XL V
b. Da-Lite
c. Or Equal

2.30 CEILING MOUNTED ELECTRIC PROJECTION SCREEN TYPE 1

A. Contractor shall provide ceiling-mounted electric projection screens properly sized as shown on the T-series drawings.

B. Shall meet or exceed the following specifications:

1. Reference T-series drawings for required screen sizes.
2. Screen surface material shall be matte white.
3. Screen material shall have a minimum gain of 1.0.
4. Screen shall have a minimum 2” black border. Reference required black drop on T-series elevations.
5. Shall have built-in low voltage controller.
6. Provide all mounts and associated mounting accessories required.
7. Acceptable Manufacturers:

a. Draper, Inc. Access V
b. Da-Lite
c. Or Equal

2.31 CEILING MOUNTED ELECTRIC PROJECTION SCREEN TYPE 2

A. Contractor shall provide ceiling-mounted electric projection screens properly sized as shown on the T-series drawings.

B. Shall meet or exceed the following specifications:

1. Reference T-series drawings for required screen sizes.
2. Screen surface material shall be matte white.
3. Screen material shall have a minimum gain of 1.0.
4. Screen shall have a minimum 2” black border. Reference required black drop on T-series elevations.
5. Shall have built-in low voltage controller.
6. Provide all mounts and associated mounting accessories required.
7. Acceptable Manufacturers:

a. Draper, Inc. Paragon V
b. Da-Lite
c. Or Equal

2.32 VOLUME CONTROL

A. Volume control shall meet or exceed the following specifications:

1. Shall have knob control with scale.
2. Shall support source selection.
3. Shall support gain control over multiple zones.
4. Shall be powered over PoE requiring no more than 15.4W of power.
5. Shall support ethernet control connectivity.
6. Shall be wall mounted single-gang decora.
7. Verify color with Architect.
8. Acceptable Manufacturers:

a. Q-SYS Axon C1
b. Or Equal

2.33 CHIME GENERATOR

A. Chime generator shall meet or exceed the following specifications:

1. Shall support eight (8) individually selectable electronic chimes.
2. Shall support single and repeated chimes.
3. Shall support external chime actuation.
4. Shall have an input for background music or paging audio.
5. Shall have automatic ducking.
6. Acceptable Manufacturers:

a. RDL FP-CH8
b. Or Equal

2.34 MESSAGE REPEATER

A. Message repeater shall meet or exceed the following specifications:

1. Shall be capable of repeating a single message.
2. Shall have a message recording input.
3. Shall support external message actuation.
4. Shall have a minimum of 90 seconds of digital message storage.
5. Shall have an interval timer to repeat message playback.
6. Shall have an input for background music or paging audio.
7. Shall have automatic ducking.
8. Acceptable Manufacturers:

a. RDL FP-MR2
b. Or Equal

2.35 PAGE STATION

A. Message repeater shall meet or exceed the following specifications:

1. Shall have a programmable keypad with up to sixteen (16) assignable buttons.
2. Shall have a handheld push to talk (PTT) microphone with magnetic mount.
3. Shall be capable of receiving and sending AES67 audio.
4. Shall have two (2) analog audio line inputs.
5. Shall have one (1) analog audio line output.
6. Shall support ethernet control connectivity.
7. Provide all necessary hardware and brackets required for installation as shown on the T-series drawings.
8. Acceptable Manufacturers:

    a. Q-SYS PS-1650H
    b. Or Equal

2.36 DIGITAL TO ANALOG AUDIO CONVERTER

A. Chime generator shall meet or exceed the following specifications:

1. Shall convert stereo digital audio to stereo analog audio.
2. Shall have a minimum of one (1) digital optical audio input.
3. Shall have a minimum of one (1) digital coaxial audio input.
4. Shall have a minimum of two (2) stereo analog audio outputs.
5. Shall be capable of being powered via USB or external DC power supply.
6. Acceptable Manufacturers:

    a. DigitaLinx DL-DAC2
    b. Or Equal

2.37 BLUETOOTH RECEIVER

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of one (1) STP output.
2. Shall have a minimum of one (1) 3.5 mm analog input.
3. Shall support playback of WAV, MP3, and AAC files.
4. Shall support Bluetooth connectivity.
5. Shall have push button to sync Bluetooth devices.
6. Shall be wall mounted single-gang decora.
7. Confirm color/finish with architect.
8. Acceptable Manufacturers:

    a. Q-SYS Axiom BT1
    b. Or Equal

2.38 BLUETOOTH EXPANSION MODULE

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of one (1) STP input.
2. Shall have a minimum of one (1) balanced stereo analog audio output.
3. Shall support playback of WAV, MP3, and AAC files.
4. Acceptable Manufacturers:

    a. Q-SYS Axiom AXPio
    b. Or Equal

2.39 AUDIO RECORDER

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of two (2) balanced line level XLR inputs.
2. Shall be DANTE compatible.
3. Shall be capable of recording to SD/USB and/or network drives.
4. Shall support WAV, MP3, and AAC files.
5. Shall support ethernet control connectivity.
6. Shall be 1RU rack mountable.
7. Acceptable Manufacturers:

    a. Denon Pro DN-900R
    b. Or Equal

2.40 MEDIA PLAYER

A. Shall meet or exceed the following specifications:

1. Shall support playback of CD, WAV, MP3, and AAC files.
2. Shall include USB connectivity for phone playback.
3. Shall support Bluetooth connectivity.
4. Shall include tempo control.
5. Shall support playback from AV network connected devices.
6. Shall be RS-232 controllable.
7. Shall be rack mountable.
8. Acceptable Manufacturers:

    a. Denon Pro DN-700CB
    b. Or Equal

2.41 RADIO TUNER

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of two (2) balanced line level XLR outputs.
2. Shall have a minimum FM frequency range from 87.5 MHz to 108MHz.
3. Shall have a minimum AM frequency range from 520 kHz to 1710 kHz.
4. Shall be capable of storing up to forty (40) station memory presets.
5. Shall be capable of auto search.
6. Acceptable Manufacturers:

    a. Denon Pro DN-300DH
    b. Or Equal

2.42 DIGITAL SIGNAL PROCESSOR TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of eight (8) balanced flex channels (input or output) with AEC.
2. Shall provide an open architecture for signal routing.
3. Shall support a minimum of 32x32 channels of Dante audio capability.
4. Shall have VoIP interface.
5. Shall have a maximum input level of +24dBu and maximum output level of +20 dBU
6. Shall have a minimum dynamic range of 108dB, 20Hz – 20000Hz

7. Control software to include, but not limited to: matrix mixers, limiters, gain adjustment, delay, parametric equalizers, crossovers, and compressors.
8. Provide Dante licensing as required.
9. Acceptable Manufacturers:

    a. QSC Core 8 Flex
    b. Or Equal

2.43 DIGITAL SIGNAL PROCESSOR TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of eight (8) channels of balanced inputs, and eight (8) channels of balanced outputs with AEC.
2. Shall provide an open architecture for signal routing.
3. Shall support a minimum of 32x32 channels of Dante audio capability.
4. Shall have VoIP interface.
5. Shall have a maximum input level of +24dBu and maximum output level of +20 dBU
6. Shall have a minimum dynamic range of 108dB
7. Shall have a minimum frequency response range of 20Hz – 20000Hz
8. Control software to include, but not limited to: matrix mixers, limiters, gain adjustment, delay, parametric equalizers, crossovers, and compressors.
9. Provide Dante licensing as required.
10. Acceptable Manufacturers:

    a. QSC Core 110f
    b. Or Equal

2.44 NETWORK I/O EXPANDER TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of eight (8) general purpose inputs.
2. Shall have a minimum of eight (8) general purpose outputs.
3. Shall be capable of daisy chaining network connectivity to up to four (4) modules.
4. Shall be rack mountable.
5. Shall be PoE capable.
6. Acceptable Manufacturers:

    a. Q-SYS QIO-GP8x8 with QIO-PSU as required
    b. Or Equal

2.45 NETWORK I/O EXPANDER TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of four (4) microphone or line level inputs.
2. Shall convert analog audio to networked audio.
3. Shall be capable of daisy chaining network connectivity to up to four (4) modules.
4. Shall be rack mountable.
5. Shall be PoE capable.
6. Acceptable Manufacturers:

    a. Q-SYS QIO-ML4i with QIO-PSU as required
    b. Or Equal

2.46 NETWORK I/O EXPANDER TYPE 3

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of four (4) line level outputs.
2. Shall convert analog audio to networked audio.
3. Shall be capable of daisy chaining network connectivity to up to four (4) modules.
4. Shall be rack mountable.
5. Shall be PoE capable.
6. Acceptable Manufacturers:

a. Q-SYS QIO-L4o with QIO-PSU as required
b. Or Equal

2.47 NETWORK I/O EXPANDER TYPE 4

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of four (4) RS-232 ports.
2. Shall be capable of daisy chaining network connectivity to up to four (4) modules.
3. Shall be rack mountable.
4. Shall be PoE capable.
5. Acceptable Manufacturers:

a. Q-SYS QIO-S4 with QIO-PSU as required
b. Or Equal

2.48 NETWORK I/O EXPANDER TYPE 5

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of four (4) contact closure relays.
2. Shall be capable of daisy chaining network connectivity to up to four (4) modules.
3. Shall be rack mountable.
4. Shall be PoE capable.
5. Acceptable Manufacturers:

a. Q-SYS QIO-LVR4 with QIO-PSU as required
b. Or Equal

2.49 WIRELESS MICROPHONE SYSTEM TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall utilize a 64 MHz bandwidth
2. Shall provide digital predictive switching for true diversity.
3. Shall have up to 60 frequency presets available.
4. Shall provide automatic frequency scanning.
5. Transmitters and receivers shall utilize a metal housing.
6. Coordinate operating frequency with local RF environment.
7. Acceptable Manufacturers:

a. Shure QLXD4
b. Shure QLXD2/SMB58 (Quantity: 1 per receiver)
c. Shure QLXD1 (Quantity: 1 per receiver)

d. Shure MX183 (Quantity: 1 per receiver)
e. Shure WH20 (Quantity: 2 for Dance / Theater only)
f. Shure SB900B Rechargeable Battery (Quantity: 1 per wireless device)
g. Shure SBC2000 Dual Charging Case (Quantity: 1 per every 2 handheld wireless mics)
h. Shure UA8 (Provide quantity shown on AV Diagrams)
i. Or Equal

2.50 WIRELESS MICROPHONE SYSTEM TYPE 2 (AUDITORIUM)

A. Shall meet or exceed the following specifications:

1. Shall utilize a 64 MHz bandwidth
2. Shall provide digital predictive switching for true diversity.
3. Shall have up to 60 frequency presets available.
4. Shall provide automatic frequency scanning.
5. Transmitters and receivers shall utilize a metal housing.
6. Coordinate operating frequency with local RF environment.
7. Acceptable Manufacturers:

a. Shure ULXD4Q
b. Shure ULXD2/SM58 (Quantity: 4 per receiver)
c. Shure ULXD1 (Quantity: 4 per receiver)
d. Countryman e6 (Quantity: 16)
e. Shure MX183 (Quantity: 16)
f. Shure SM57 (Quantity: 8)
g. Shure SM58 (Quantity: 8)
h. Shure MX392 (Quantity: 6)
i. Shure MX202 (Quantity: 8)
j. Atlas MS-10CE Adjustable Height Microphone Stand with Atlas PB21XEB Extendable Boom (Quantity: 16)
k. Shure A25D and 50’ male-to-female XLR Cable (Quantity: 16)
l. 100’ male-to-female XLR Cable (Quantity: 8)
m. Shure SB900B Rechargeable Battery (Quantity: 1 per wireless device)
n. Shure SBRC-US (Quantity: 1 per every 8 wireless microphone channels)
o. Shure SBC-AX Charging Module (Quantity: 1 per every 2 wireless microphone channels)
p. Shure UA874 (Quantity: 2)
q. SKB Cases iSeries 2222-12 with padded dividers interior (Quantity: 2)
r. Or Equal

2.51 WIRELESS MICROPHONE ANTENNA DISTRIBUTION SYSTEM

A. Shall meet or exceed the following specifications:

1. Shall operate in the 470 MHz to 690 MHz radio frequency range
2. Shall have a minimum of one (1) BNC RF input per channel
3. Shall have a minimum of four (4) BNC RF outputs per channel
4. Shall have a minimum of four (4) DC power outputs for compatible wireless audio transmitters or receivers
5. All BNC RF outputs and inputs shall have 50 ohm impedance
6. Shall have a metal housing.
7. Provide necessary adapters and accessories as required. Refer to the T-series drawings.
8. Acceptable Manufacturers:

a. Shure UA844+SWB/LC
b. Shure UA834WB in-line antenna amplifier
c. Shure UA8 omni antenna
d. Shure U874US directional antenna
e. Or equal

2.52 HEARING ASSSITANCE SYSTEM

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of two (2) balanced audio inputs on XLR and/or RCA connectors.
2. Shall have an internal audio compressor.
3. Shall have an operating frequency of 216MHz.
4. Shall have a maximum output power of 100mW.
5. Provide remote antenna as shown on the T-series drawings.
6. Provide quantity and type of receivers to meet ADA requirements.
7. Provide charging carrying case to accommodate all receivers.
8. Acceptable Manufacturers:

a. Listen Tech LT-800-216 (as shown on AV diagrams)
b. Listen Tech LA-122 (as shown on AV diagrams)
c. Listen Tech LT-4200-216 (Quantity: 36 total)
d. Listen Tech LA-164 (Quantity: 16 total)
e. Listen Tech LA-165 (Quantity: 20 total)
f. Listen Tech LA-438 (Quantity: 10 total)
g. Listen Tech LA-311 (Quantity: 2 total)
h. Listen Tech LA-362 (Quantity: 36 total)
i. Or equal

2.53 AUDITORIUM INTERCOM SYSTEM

A. Shall meet or exceed the following specifications:

1. Shall provide a minimum of two (2) intercom channels.
2. Shall have a voice activated microphone.
3. Shall have incoming call indicators.
4. Shall have program inputs for each channel.
5. Provide equipment as shown below.
6. Acceptable Manufacturers:

a. Clearcom MS-702
b. Clearcom RS-703 (Quantity: 16)
c. Clearcom TWC-703 (Quantity: 8)
d. Clearcom CC-300 (Quantity: 16)
e. Clearcom KB-702
f. Or Equal

2.54 PERSONAL MONITORING SYSTEM

A. Shall meet or exceed the following specifications:

1. Assign up to sixty-four (64) channels or up to four (4) sixteen (16) channel streams.
2. Shall be capable of distributing power and audio to eight (8) personal mixers.
3. Shall be DANTE and AES67 compatible.
4. System cabling shall be terminated on RJ-45 connectors.

5. Provide equipment as shown below.
6. Acceptable Manufacturers:

    a. Aviom D800-Dante
    b. Aviom A320 (Quantity: 8)
    c. Aviom M6 Pro (Quantity: 8)
    d. Or Equal

2.55 DIGITAL AUDIO MIXING CONSOLE

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of sixty-four (64) mono and eight (8) stereo input mixing channels.
2. Shall have a minimum of thirty-two (32) analog inputs on XLR connectors
3. Shall have a minimum of sixteen (16) analog outputs on XLR connectors.
4. Shall have a minimum of sixteen (16) mix buses and eight (8) matrices.
5. Shall be DANTE compatible.
6. Shall have integrated processing including high-pass filters, parametric EQs, graphic EQs, compressors, gates, ducking, etc.
7. Shall have a minimum of two (2) expansion slots.
8. Shall support two track and multi-track recording.
9. Shall have up to 300 recallable scenes.
10. Shall incorporate a 10” LED display for control
11. Shall support 44.1 and 48kHz sampling rates.
12. Shall have a minimum of 34 motorized faders.
13. Shall have area for iPad support.
14. Acceptable Manufacturers:

    a. Yamaha QL5
    b. Or Equal

2.56 DIGITAL AUDIO I/O

A. Shall meet or exceed the following specifications:

1. Shall have a minimum of thirty-two (32) analog input on XLR connectors.
2. Shall have a minimum of sixteen (16) analog outputs on XLR connectors.
3. Shall support 44.1 and 48kHz sampling rates.
4. Shall be DANTE compatible.
5. Acceptable Manufacturers:

    a. Yamaha RIO3224-D2
    b. Or Equal

2.57 POWER AMPLIFIER TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 700 watts into an 8 ohm or 70V load per channel.
2. Shall provide four channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 106dB.

6. Shall have a maximum input level of +27dBu.
7. Shall be capable of receiving and sending AES67 audio.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. QSYS CX-Q 2K4
    b. Or equal

2.58 POWER AMPLIFIER TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 1000 watts into an 8 ohm or 70V load per channel.
2. Shall provide four channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 106dB.
6. Shall have a maximum input level of +27dBu.
7. Shall be capable of receiving and sending AES67 audio.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. QSYS CX-Q 4K4
    b. Or equal

2.59 POWER AMPLIFIER TYPE 3

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 1250 watts into an 8 ohm or 70V load per channel.
2. Shall provide four channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 106dB.
6. Shall have a maximum input level of +27dBu.
7. Shall be capable of receiving and sending AES67 audio.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. QSYS CX-Q 8K4
    b. Or equal

2.60 POWER AMPLIFIER TYPE 4

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 400 watts into an 8 ohm load per channel.
2. Shall provide four channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.

4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 104dB.
6. Shall have a maximum input level of +35dBu.
7. Shall be DANTE compatible.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. Community ALC-404D
    b. Or equal

2.61 POWER AMPLIFIER TYPE 5

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 1250 watts into an 8 ohm load per channel.
2. Shall provide four channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 110dB.
6. Shall have a maximum input level of +35dBu.
7. Shall be DANTE compatible.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. Community ALC-1604D
    b. Or equal

2.62 POWER AMPLIFIER TYPE 6

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 2400 watts into a 4 ohm load per channel.
2. Shall provide two channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 111dB.
6. Shall have a maximum input level of +35dBu.
7. Shall be DANTE compatible.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. Community ALC-3202D
    b. Or equal

2.63 POWER AMPLIFIER TYPE 7

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 600 watts into a 8 ohm or 70V load per channel.
2. Shall provide two channels of amplification.

3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 117dB.
6. Shall have a maximum input level of +29dBu.
7. Shall be DANTE and AES 67 compatible.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. Biamp Voltera D 1200.2M
    b. Or equal

2.64 POWER AMPLIFIER TYPE 8

A. Shall meet or exceed the following specifications:

1. Shall have a continuous power rating of a minimum of 600 watts into a 8 ohm or 70V load per channel.
2. Shall provide four channels of amplification.
3. Shall provide protection of circuit components in the event of over-drive, output overload, or short circuits.
4. Shall have a maximum of 0.05% THD from 20Hz – 20000Hz.
5. Shall have a signal to noise ratio of at least 117dB.
6. Shall have a maximum input level of +29dBu.
7. Shall be DANTE and AES 67 compatible.
8. Shall support ethernet control connectivity.
9. Acceptable Manufacturers:

    a. Biamp Voltera D 2400.4M
    b. Or equal

2.65 LOUDSPEAKER TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall be a two-way configuration with an 8” LF driver and 32mm dome tweeter.
2. Shall have a coverage pattern of 115º conical.
3. Shall have a nominal continuous power handling of no less than 175W at 7 ohms.
4. Shall have a nominal sensitivity of no less than 94dB.
5. Shall have a frequency response of 75Hz – 20000Hz ±10dB.
6. Shall have 70V tap. Tap loudspeaker as shown on T-series drawings.
7. Provide all necessary hardware and brackets required for installation.
8. Verify color with Architect.
9. Acceptable Manufacturers:

    a. Biamp DX-IC8
    b. Or equal

2.66 LOUDSPEAKER TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall be a two-way coaxial configuration with a 8” LF driver and a 1” HF driver.
2. Shall have a coverage pattern of 120º H x 60º V.
3. Shall have a power rating of no less than 250W at 8 ohms.

4. Shall have a nominal sensitivity of no less than 94dB.
5. Shall have a frequency response of 52Hz – 19500Hz ±3dB.
6. Provide all necessary hardware and brackets required for installation.
7. Coordinate color and finish with the architect.
8. Acceptable Manufacturers:

    a. Community IC6-1082/26
    b. Or equal

2.67 LOUDSPEAKER TYPE 3

A. Shall meet or exceed the following specifications:

1. Shall be a two-way coaxial configuration with a 12” LF driver and a 1.4” HF driver.
2. Shall have a coverage pattern of 120º H x 60º V.
3. Shall have a power rating of no less than 600W at 8 ohms.
4. Shall have a nominal sensitivity of no less than 94dB.
5. Shall have a frequency response of 37Hz – 17500Hz ±3dB.
6. Provide all necessary hardware and brackets required for installation.
7. Coordinate color and finish with the architect.
8. Acceptable Manufacturers:

    a. Community IP6-1122/26
    b. Or equal

2.68 LOUDSPEAKER TYPE 4

A. Shall meet or exceed the following specifications:

1. Shall be a two-way coaxial configuration with a 15” LF driver and a 1.4” HF driver.
2. Shall have a coverage pattern of 120º H x 60º V.
3. Shall have a power rating of no less than 800W at 8 ohms.
4. Shall have a nominal sensitivity of no less than 94dB.
5. Shall have a frequency response of 30Hz – 18500Hz ±3dB.
6. Provide all necessary hardware and brackets required for installation.
7. Coordinate color and finish with the architect.
8. Acceptable Manufacturers:

    a. Community IP8-1152/26
    b. Or equal

2.69 LOUDSPEAKER TYPE 5

A. Shall meet or exceed the following specifications:

1. Shall be directing radiating configuration with dual 12” LF drivers.
2. Shall have a power rating of no less than 2000W at 4 ohms.
3. Shall have a nominal sensitivity of no less than 98dB at half space measurements.
4. Shall have a frequency response of 38Hz – 140Hz ±3dB.
5. Provide all necessary hardware and brackets required for installation.
6. Confirm final color and finish with Architect.
7. Acceptable Manufacturers:

    a. Biamp IS8-212
    b. Or equal

2.70 LOUDSPEAKER TYPE 6

A. Shall meet or exceed the following specifications:

1. Shall be directing radiating configuration with one 18” LF driver.
2. Shall have a power rating of no less than 800W at 8 ohms.
3. Shall have a nominal sensitivity of no less than 102dB at half space measurements.
4. Shall have a frequency response of 37Hz – 132Hz ±3dB.
5. Provide all necessary hardware and brackets required for installation.
6. Confirm final color and finish with Architect.
7. Acceptable Manufacturers:

    a. Biamp IV6-118S
    b. Or equal

2.71 LOUDSPEAKER TYPE 7

A. Shall meet or exceed the following specifications:

1. Shall be a three-way coaxial configuration with a 12” LF driver and dual 1.7” HF drivers.
2. Shall have a coverage pattern of 120º H x 5º V.
3. Shall have a power rating of no less than 400W at 16 ohms.
4. Shall have a nominal sensitivity of no less than 102dB.
5. Shall have a frequency response of 40Hz – 18500Hz ±3dB.
6. Provide all necessary hardware and brackets required for installation.
7. Coordinate color and finish with the architect.
8. Acceptable Manufacturers:

    a. Community IV6-1122/05
    b. Or equal

2.72 LOUDSPEAKER TYPE 8

A. Shall meet or exceed the following specifications:

1. Shall be a three-way coaxial configuration with a 12” LF driver and dual 1.7” HF drivers.
2. Shall have a coverage pattern of 120º H x 15º V.
3. Shall have a power rating of no less than 400W at 16 ohms.
4. Shall have a nominal sensitivity of no less than 100dB.
5. Shall have a frequency response of 40Hz – 18500Hz ±3dB.
6. Provide all necessary hardware and brackets required for installation.
7. Coordinate color and finish with the architect.
8. Acceptable Manufacturers:

    a. Community IV6-1122/15
    b. Or equal

2.73 LOUDSPEAKER TYPE 9

A. Shall meet or exceed the following specifications:

1. Shall be a two-way coaxial configuration with a 8” LF driver and a 1” HF driver.

2. Shall have a coverage pattern of 180º H x 160º V.
3. Shall have a power rating of no less than 120W at 8 ohms.
4. Shall have a nominal sensitivity of no less than 90dB.
5. Shall have a frequency response of 30Hz – 20000Hz ±10dB.
6. Shall be mounted in-wall.
7. Provide all necessary hardware and brackets required for installation.
8. Speaker grille shall be painted to match stage face. Confirm final color with architect.
9. Acceptable Manufacturers:

    a. JBL Control 128W
    b. Or equal

2.74 LOUDSPEAKER TYPE 10

A. Shall meet or exceed the following specifications:

1. Shall be a two-way coaxial configuration with a 10” LF driver and a 1.25” HF driver.
2. Shall have a coverage pattern of 100º H x 100º V.
3. Shall have a power rating of no less than 500W at 8 ohms.
4. Shall have a nominal sensitivity of no less than 99dB.
5. Shall have a frequency response of 70Hz – 18000Hz ±3dB.
6. Confirm on-stage storage location prior to installation.
7. Coordinate color and finish with the architect.
8. Acceptable Manufacturers:

    a. Community MX10
    b. Or equal

2.75 SPEAKER RIGGING COMPONENTS

A. Contractor shall provide and install speaker rigging components as necessary to mount main loudspeakers as shown on the T-series drawings.

B. Structural support members to have a safety factor of at least 5. Mounting hardware and wire rope to have a safety factor of 8. All fasteners to be graded and certified for use in the intended applications. Overhead suspension hardware shall comply with ASME B30.20 standards and all applicable local building and safety codes.

C. Overhead suspension hardware must be of a type that includes product traceability controls.

D. Rigging, mounting and support systems for loudspeakers shall be designed and sealed by a registered professional engineer licensed to practice in the State of Indiana. Once the systems are installed, the engineer shall physically inspect the methods and means used to verify compliance with the original design.

E. Loudspeaker Rigging Components shall meet or exceed the following specifications:

1. Loudspeaker Rigging Components shall be made of quenched or tempered forged steel.
2. Loudspeaker Rigging Components shall meet or exceed all the requirements of ASME B30.26 including identification, ductility, design factor, proof load and temperature requirements
3. Loudspeaker Rigging Components shall be hot dip galvanized or self-colored.
4. Shackles shall meet the performance requirements of Federal Specification RR-C-271D Type IVA, Grade A, Class1.

5. Turnbuckles shall meet the performance requirements of Federal Specifications FF-T-791b, Type 1 Form 1 - CLASS 4, and ASTM F-1145.
6. Wire rope thimble shall meet the performance requirements of Federal Specification FF-T-276b Type II.
7. Wire rope shall be sized as 7x19 utility cable.
8. Provide all screw pin type shackles with mouse wire.
9. All end fittings shall be moused to the body with mousing cable.
10. Select size of product based working load limits required.
11. Confirm final product selection with architect.
12. Acceptable Manufacturers:

    a. Chicago Hardware Company
    b. Crosby Group
    c. Wire Rope Corporation of America (WRCA)
    d. Or Equal

2.76 POWER SEQUENCING SYSTEM

A. Contractor to provide and install a rack mounted power sequencing system for the stage and IDF P102e AV equipment racks.

B. Contractor to ensure all equipment is powered in the correct order to avoid audible pops and clicks from the audio-video system in response to power sequencing.

C. Rack mounted power sequencing system shall meet or exceed the following specifications:

1. Shall include a sequencer with a minimum of six (6) sequenced isolated ground outlets
2. Shall allow for adjustable start delay times.
3. Acceptable Manufacturers:

    a. Middle Atlantic MPR Series
    b. Middle Atlantic MPR-SEQA
    c. Middle Atlantic RLM-20IGA
    d. Or Equal

2.77 POWER CONDITIONER

A. Shall meet or exceed the following specifications:

1. Shall include nine (9) outlets.
2. Shall be capable of handling 20A circuits.
3. Shall be rack mounted.
4. Reference AV diagrams for the required amount of power conditioners per AV equipment rack.
5. Acceptable Manufacturers:
    a. Middle Atlantic PDX-920R
    b. Furman PL-PRO DMC
    c. Or equal

2.78 UNINTERRUPTABLE POWER SUPPLY

A. Contractor to provide uninterruptable power supply where required as shown on T-series drawings.

B. Uninterruptable power supply shall meet or exceed the following specifications:

1. Shall have 120V input.
2. Shall support a minimum of 2200 VA for a minimum runtime of 15 minutes.
3. Shall be 2RU rack mountable
4. Shall support expansion battery packs for future expansion by Owner.
5. Acceptable Manufacturers:

    a. APC
    b. Middle Atlantic
    c. Tripp Lite
    d. Or Equal

2.79 HOUSE MANAGER ENCLOSURE

A. Shall meet or exceed the following specifications:

1. Shall be 24” H x 24” W x 8” D.
2. Shall be flush mounted.
3. Shall have 16-gauge steel construction with textured powder coat finish.
4. Shall have swinging door radius of minimum 210 degrees.
5. Shall have removeable door.
6. Shall have locking door.
7. Shall have mounting holes for direct mounting or external mounting brackets
8. Provide all necessary hardware and brackets required for installation.
9. Acceptable Manufacturers:

    a. nVent Hoffman CFM24248
    b. Or Equal

2.80 AV EQUIPMENT RACK TYPE 1

A. Shall meet or exceed the following specifications:

1. Shall have 18 units of available rack space.
2. Shall have 16-gauge steel construction with black textured powder coat finish.
3. Shall have locking, vented doors, side panels, and fans.
4. Shall have an overall depth of 22” and useable depth of 20”.
5. Shall be constructed to swing open for cabling access.
6. Shall have a large 12.5” x 12.5” knockout at the rear along with additional knockouts in the sides of the racks.
7. All AV equipment racks within the project shall be keyed the same so that any AV rack key may be used on any rack. Provide a minimum of one (1) key per rack.
8. Acceptable Manufacturers:

    a. Middle Atlantic DWR-18-22
    b. Or Equal

2.81 AV EQUIPMENT RACK TYPE 2

A. Shall meet or exceed the following specifications:

1. Shall have 24 units of available rack space.
2. Shall have 16-gauge steel construction with black textured powder coat finish.
3. Shall have locking, vented doors, side panels, and fans.

4. Shall have an overall depth of 22” and useable depth of 20”.
5. Shall be constructed to swing open for cabling access.
6. Shall have a large 12.5” x 12.5” knockout at the rear along with additional knockouts in the sides of the racks.
7. All AV equipment racks within the project shall be keyed the same so that any AV rack key may be used on any rack. Provide a minimum of one (1) key per rack.
8. Acceptable Manufacturers:

    a. Middle Atlantic DWR-24-22
    b. Or Equal

2.82 AV EQUIPMENT RACK TYPE 3

A. Shall meet or exceed the following specifications:

1. Shall have 44 units of available rack space.
2. Shall have 16-gauge steel construction with black textured powder coat finish.
3. Minimum overall height of 83.125” with a minimum open rack mounting space of 77.125”
4. Shall have an overall depth of 26.4” and useable depth of 24”.
5. Shall have locking, vented doors, side panels, and fans.
6. Shall be mounted to the floor.
7. All AV equipment racks within the project shall be keyed the same so that any AV rack key may be used on any rack. Provide a minimum of one (1) key per rack.
8. Acceptable Manufacturers:

    a. Middle Atlantic MRK 4426
    b. Or Equal

2.83 EQUIPMENT RACK BLANKS

A. Contractor to provide equipment rack blanks where required as shown on T-series drawings.

B. Shall meet or exceed the following specifications:

1. Shall have a flanged construction.
2. Shall be made of 1/16” thick aluminum.
3. Shall have a black brushed and anodized finish.
4. Reference AV diagrams for the required amount and sizes required per AV equipment rack.
5. Acceptable Manufacturers:

    a. Middle Atlantic BL Series
    b. Or Equal

2.84 EQUIPMENT RACK VENTS

A. Contractor to provide equipment rack vents where required as shown on T-series drawings.

B. Equipment rack vents shall meet or exceed the following specifications:

1. Shall have a flanged construction.
2. Shall be made of 1/16” thick aluminum.
3. Shall have a black brushed and anodized finish.
4. Reference AV diagrams for the required amount and sizes required per AV equipment rack.

5. Acceptable Manufacturers:

    a. Middle Atlantic VTP Series
    b. Or Equal

2.85 EQUIPMENT RACK SHELVES

A. Contractor to provide equipment rack shelves where required as shown on T-series drawings.

B. Equipment rack shelves shall meet or exceed the following specifications:

1. Shall have a flanged construction.
2. Shall have 16-gauge steel construction with black textured powder coat finish.
3. Shall have a minimum load capacity of 50 pounds.
4. Reference AV diagrams for the required amount and sizes required per AV equipment rack.
5. Acceptable Manufacturers:

    a. Middle Atlantic U Series
    b. Or Equal

2.86 EQUIPMENT RACK DRAWERS

A. Contractor to provide equipment rack drawers where required as shown on T-series drawings.

B. Equipment rack drawers shall meet or exceed the following specifications:

1. Shall have a flanged construction.
2. Shall have 16-gauge steel construction with black textured powder coat finish.
3. Shall have a minimum load capacity of 50 pounds.
4. Reference AV diagrams for the required amount and sizes required per AV equipment rack.
5. Acceptable Manufacturers:

    a. Middle Atlantic UD Series
    b. Or Equal

PART 3 - EXECUTION

3.1 GENERAL

A. Coordinate incorporation of the Work specified herein with other project work to facilitate a cohesive final product.

B. The installation recommendations contained within ANSI and Telecommunications Distribution Methods Manual are mandatory minimum standards and requirements.

C. Mount equipment and enclosures plumb and level.

D. Permanently installed equipment to be firmly and safely held in place. Design equipment supports to support loads imposed with a safety factor of at least five. Seismic bracing shall be installed on appropriate equipment where local codes require such installation.

E. Verify all locations of equipment in all rooms with Owner’s Representative, Owner, and Consultant.

F. Follow all manufacturer requirements and recommendations for the installation of all AV equipment.

3.2 TESTING

A. Prior to turning on the system, verify all electronic devices are properly grounded and each audio video AC receptacle has the proper hot, neutral, and ground connections.

B. Audio Testing:

1. Verify each amplifier channel is correctly wired by providing a test signal to each channel and verify the correct speakers are operating.
2. Adjust the input and output gain of each device to properly set the system gain.
3. Adjust the output level of each amplifier channel and/or speaker tap settings to achieve 85 dB ± 2 dB in the area covered by the respective speaker zone when the output of the sound reinforcement system is set to 0 dBu.
4. Equalize all loudspeakers to provide an acceptable frequency response based on the specifications of the provided loudspeakers.
5. Verify no hum or buzz is present in the system at all operating levels. If present, propose a resolution and correct the issue at no cost to the Owner.

C. Video Testing:

1. Using a video signal generator, verify performance of all equipment meets manufacturer's specifications.
2. Verify correct operation of all inputs and outputs
3. Flat panel displays shall be set up by the contractor for immediate usage by the Owner once system is commissioned.

3.3 AUDIO VIDEO CONTROL SYSTEM

A. Control system shall be programmed to at a minimum switch between available AV sources, power on/off video displays, raise/lower projection screen, control system volume, and control zone selection of audio where applicable.

B. Contractor to provide a minimum of three iterations of the touchscreen layout and programming for review by the Owner and Consultant. The first phase will involve only the layout and proposed operation. Once reviewed, the Contractor will utilize this information to begin programing the touch panels. The touch panels will be reviewed again after the programming has been implemented in the field. Any changes from this phase shall be incorporated into the work. Final review will occur at the one year walk-through.

C. Control system and room type functionality shall be programmed at a minimum as described below:

1. AUDITORIUM

a. Shall include three (3) catwalk mounted video projectors for video playback. Contractor shall utilize vertical lens shift as required to keep projector pole as short as possible allowing for max clearance beneath the projector.
b. Video sources shall be projected on all or any combination of projection screens for video playback. Lens adjustments may be required to fill each projection screen.
c. Video sources shall be programmed to switch between hardwired HDMI inputs, wireless presentation receivers, blu-ray player, and video camera. All ceiling

mounted projectors shall be capable of receiving any video source routed through the AV switcher.

d. Shall include three (3) custom programmed touch panels and two (2) custom programmed wireless controllers for system control. Programming shall include at minimum triggering events, volume control, source selection, and source routing.
e. Electric projection screen control shall be via any of the three (3) touch panels located within the auditorium or any of the two (2) wireless controllers.
f. Shall be programmed to capture audio and video for live streaming via the Districts preferred streaming platform.
g. Shall include program audio and video camera feed routing to the green room and lobby.
h. Shall include program audio routing to restrooms and changing rooms.
i. Shall include program audio routing to the lobby and lobby restrooms as one discrete audio zone. Shall include program audio routing to the green room and changing rooms as one discrete audio zone.
j. Shall include one (1) PTZ camera to be used for video capture, live streaming, and recording. Contractor shall program PTZ camera controls on the touch panel including pan, tilt, and zoom controls. In addition, contractor shall add preset buttons that can be overridden by a user in the space using a press/hold for a defined length of time. Coordinate press/hold length during programming meetings. Contractor shall provide a video mute button to black the camera if desired by Owner.
k. Shall include mixing console to allow for adjustments and filters of audio channels as required.
l. Shall include custom wireless microphone package for voice lift and amplification of stage performers and staff.
m. Shall include an assisted listening system to meet ADA standards. Contractor shall limit the output of the receivers to prevent additional hearing damage of the user.
n. Shall include a refreshed audio system tuned for the space. Contractor shall ensure loudspeaker coverage of 80 dBA at a minimum and no more than 95 dBA at a maximum based on the volume range configured on the touch panel. All seats shall have consistent coverage no greater than ±2 dB.
o. Confirm all rigging with structural engineer as required.
p. The auditorium digital signal processor shall accept two independent audio routing configurations. First, configure the digital signal processor to route one (1) stereo audio output and eight (8) mono audio outputs from the digital audio mixing console for a total of ten (10) discrete audio output paths. The stereo output from the digital audio mixing console shall be distributed to the stereo line array system and front fills. The first four mono outputs in sequence shall be distributed to the mid audience effects left, mid audience effects right, rear audience effects left, rear audience effects right. The last four mono outputs in sequence shall be distributed to independent stage monitors. Tailor the frequency content and output to each speaker according to manufacturer recommendations and best practices. Second, configure the digital signal processor to route twelve (12) discrete audio output paths from the digital audio mixing console to feed the following speakers: left full range speaker array, right full range speaker array, speaker array subwoofers, front fills, mid audience effects left, mid audience effects right, rear audience effects left, rear audience effects right, and four independent stage monitors. Tailor the frequency content and output to each speaker according to manufacturer recommendations and best practices. Make each configuration selectable via the touch panel.
q. Shall include encoded program audio and video camera feed routing to the band, choir 1, choir 2, percussion, and cafeteria for live viewing and listening as required.
r. Shall include a media player, radio tuner, and audio recording capabilities for usage inside the auditorium.

s. Shall tie into the building network for audio transmission to and from other systems via Dante and AES67.
t. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.
u. Shall include a 2-channel intercom system that ties into other rooms and spaces, including but not limited to catwalks, scene shop, stage, and mix positions as denoted on the floor plans.
v. Shall include a chime generator, recorded message repeater, and paging station to alert patrons congregating in the lobby. Triggering and volume control of the chime generator and message repeater shall be controlled via the touch panel located in the Lobby P1000 house manager location or the tabletop touch panel located in Room P202b.
w. Digital signal processor shall receive paging signal from the building paging system, override the auditorium program audio and allow the page broadcast to be played through the audio system loudspeakers.

2. BAND REHEARSAL ROOM

a. Shall include three (3) custom programmed touch panels for system control. Programming shall include at minimum triggering events, volume control, source selection, and source routing.
b. Shall include wall mounted video projector for video playback. Contractor shall utilize vertical lens shift as required.
c. Electric projection screen control shall be via any of the three (3) touch panels.
d. Shall be programmed to switch between three (3) hardwired HDMI inputs, one (1) wireless presentation receiver, and one (1) decoded auditorium feed. Wall mounted projector shall be capable of receiving any video source routed through the AV switcher.
e. Shall include one (1) analog microphone input and two (2) analog line inputs near the projection screen. Shall include one (1) analog microphone input and two (2) analog line inputs near the teaching wall. Shall include one (1) analog microphone input and two (2) analog line inputs located on the second floor mezzanine.
f. Shall include Bluetooth connectivity and three (3) 3.5 mm analog inputs.
g. Shall include wireless microphone package for voice and audio reinforcement.
h. Shall include upgraded audio system consisting of surface mounted loudspeakers in a stereo configuration with a center subwoofer located on the teaching wall and surface mounted loudspeakers located on the opposite wall for metronome playback.
i. Room digital signal processor shall receive general purpose signal from building paging system, muting the room program audio and allowing for the page broadcast to be heard through the paging system loudspeakers.
j. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.

3. CHOIR 1 REHEARSAL ROOM

a. Shall include one (1) custom programmed touch panel for system control. Programming shall include at minimum triggering events, volume control, source selection, and source routing.
b. Shall include wall mounted video projector for video playback. Contractor shall utilize vertical lens shift as required.
c. Electric projection screen control shall be via the touch panel.

d. Shall be programmed to switch between one (1) hardwired HDMI input, one (1) wireless presentation receiver, and one (1) decoded auditorium feed. Wall mounted projector shall be capable of receiving any video source routed through the AV switcher.
e. Shall include one (1) analog microphone input and two (2) analog line inputs near the teacher's desk. Shall include two (2) analog microphone inputs and two (2) analog line inputs near the teaching wall.
f. Shall include Bluetooth connectivity and one (1) 3.5 mm analog input.
g. Shall include wireless microphone package for voice and audio reinforcement.
h. Shall include upgraded audio system consisting of surface mounted loudspeakers in a stereo configuration located on the teaching wall and surface mounted loudspeakers located on the opposite wall for metronome playback.
i. Room digital signal processor shall receive general purpose signal from building paging system, muting the room program audio and allowing for the page broadcast to be heard through the paging system loudspeakers.
j. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.

4. CHOIR 2 AND PERCUSSION REHEARSAL ROOMS

a. Shall include one (1) custom programmed touch panel for system control. Programming shall include at minimum triggering events, volume control, source selection, and source routing.
b. Shall include wall mounted video projector for video playback. Contractor shall utilize vertical lens shift as required.
c. Electric projection screen control shall be via the touch panel.
d. Shall be programmed to switch between one (1) hardwired HDMI input, one (1) wireless presentation receiver, and one (1) decoded auditorium feed. Wall mounted projector shall be capable of receiving any video source routed through the AV switcher.
e. Shall include one (1) analog microphone input and two (2) analog line inputs.
f. Shall include Bluetooth connectivity and one (1) 3.5 mm analog input.
g. Shall include wireless microphone package for voice and audio reinforcement.
h. Shall include upgraded audio system consisting of surface mounted loudspeakers in a stereo configuration located on the teaching wall and surface mounted loudspeakers located on the opposite wall for metronome playback.
i. Room digital signal processor shall receive general purpose signal from building paging system, muting the room program audio and allowing for the page broadcast to be heard through the paging system loudspeakers.
j. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.

5. DANCE/THEATER REHEARSAL ROOM

a. Shall include one (1) custom programmed touch panel for system control. Programming shall include at minimum triggering events, volume control, source selection, and source routing.
b. Shall include one (1) wall mounted video projector for video playback. Contractor shall utilize vertical lens shift as required.
c. Electric projection screen control shall be via the touch panel.
d. Shall be programmed to switch between one (1) hardwired HDMI input, one (1) wireless presentation receiver, and one (1) decoded auditorium feed. Wall

mounted projector shall be capable of receiving any video source routed through the AV switcher.

e. Shall include one (1) analog microphone input and two (2) analog line inputs.
f. Shall include Bluetooth connectivity and one (1) 3.5 mm analog input.
g. Shall include wireless microphone package for voice and audio reinforcement.
h. Shall include upgraded audio system consisting of surface mounted loudspeakers in a stereo configuration located on the teaching wall.
i. Room digital signal processor shall receive general purpose signal from building paging system, muting the room program audio and allowing for the page broadcast to be heard through the paging system loudspeakers.
j. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.

6. JAZZ REHEARSAL ROOM

a. Shall include one (1) custom programmed touch panel for system control. Programming shall include at minimum volume control, source selection, and source routing.
b. Shall include one (1) O.F.C.I. flat panel display mobile cart for video playback.
c. Shall include one (1) wireless presentation receiver connected to the O.F.C.I. flat panel display mobile cart
d. Shall include the installation of one (1) digital to analog audio converter on the O.F.C.I. mobile cart. Contractor shall provide a fifteen (15) foot audio cable to provide routing of flat panel display mobile cart audio to the audio system.
e. Shall include one (1) analog microphone input and two (2) analog line inputs.
f. Shall include Bluetooth connectivity and one (1) 3.5 mm analog input.
g. Shall include wireless microphone package for voice and audio reinforcement.
h. Shall include upgraded audio system consisting of surface mounted loudspeakers in a stereo configuration located on the teaching wall.
i. Room digital signal processor shall receive general purpose signal from building paging system, muting the room program audio and allowing for the page broadcast to be heard through the paging system loudspeakers.
j. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.

7. CAFETERIA

a. Shall include one (1) custom programmed touch panel for system control. Programming shall include at minimum triggering events, volume control, source selection, and source routing.
b. Shall include one (1) ceiling mounted video projector for video playback. Contractor shall utilize vertical lens shift as required to keep projector pole as short as possible allowing for max clearance beneath the projector.
c. Electric projection screen control shall be via the touch panel.
d. Shall be programmed to switch between one (1) hardwired HDMI input, one (1) wireless presentation receiver, and one (1) decoded auditorium feed. Ceiling mounted projector shall be capable of receiving any video source routed through the AV switcher.
e. Shall include one (1) analog microphone input, one (1) analog line input, and one (1) 3.5 mm analog input.
f. Shall include wireless microphone package for voice and audio reinforcement.

g. Shall include upgraded audio system consisting of ceiling mounted loudspeakers in a summed mono configuration. All ceiling mounted loudspeakers shall be fed from one zone.
h. Digital signal processor shall receive paging signal from the building paging system, override the cafeteria program audio and allow the page broadcast to be played through the audio system loudspeakers.
i. Coordinate AV network switch setup requirements with owner. Coordinate all additional AV traffic and protocols on the high school network with the owner prior to programming and commissioning.

8. CONFERENCE ROOM P114a

a. Flat panel display and video conferencing bar remotes shall be used for AV control. Remotes shall be able to switch inputs, control volume and system power.
b. Shall include a wall mounted flat panel display for video playback.
c. Video sources shall be programmed to switch between HDMI inputs and an O.F.C.I. wireless presentation receiver.
d. Shall have a USB connection to host a virtual meeting from an O.F.O.I. device
e. Shall have a Video Conferencing Bar mounted below flat panel display. Refer to manufacturer recommendations and the T-series drawings for mounting requirements and best practices.

9. CAFETERIA DIGITAL SIGNAGE

a. Shall include one (1) wireless presentation receiver to be connected to the flat panel display.
b. The wireless presentation receiver shall be connected to the building network. Provide a minimum 15’ category 6 patch cord for Owner connection to the building network.
c. It is the responsibility of the owner to route content from the digital signage platform to each display as required.

3.4 TRAINING

A. After final completion, provide instruction to Owner designated personnel.

B. Provide a minimum of sixteen (16) hours of training to the Owner. Training session(s) shall cover the following topics at a minimum:

1. System Equipment Connectivity
2. Device Configurations
3. Operation, maintenance, and upgrade procedures.

C. Training to be arranged with Owner personnel. Training schedule shall be coordinated with Owner personnel and their needs.

D. Training to occur in maximum of 3-hour increments per personnel or groups of personnel.

E. Training plan, timeline, and agenda shall be provided to Owner and signed off by Owner and Contractor.

F. Warranty certificate and agreement shall be provided to Owner at initial training session.

G. Provide a digital video copy of the training sessions.

H. Contractor to be present at first two (2) uses of each facility.

3.5 SYSTEM ACCEPTANCE

A. Contractor shall demonstrate to the Owner and Architect that all systems have been installed per the plans and specifications and that all programming functions, display functions, control functions and all interfaced equipment operate as expected.

B. Contractor shall demonstrate to the Owner and Architect that all the end user staff has a working knowledge of how to operate the installed equipment and that the facilities staff also has a working knowledge of the troubleshooting methods for non-critical service problems.

C. Contractor shall have a Delivery and Acceptance form signed by the Owner representative, agreeing that the installation is complete and its operation is acceptable except as noted on the Delivery and Acceptance form. This will also serve as the start of the warranty period.

D. Contractor shall work with the General Contractor to complete all punch lists and work required to allow the General Contractor to close out the project in a timely manner. This will include but not limited to any work that would impact any final inspection for turnover of the building.

END OF SECTION 27 41 16

SECTION 32 91 15 – SYNTHETIC TURF FIELD CONSTRUCTION - SOCCER

PART 1 – GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract.

1.2 SUMMARY

A. Work Includes:

1. **New synthetic turf expansion of the existing soccer stadium and new turf system for soccer and lacrosse use.**
    a. Concrete Curb and Perimeter Nailer. The Builder shall install a 6” wide x 12" deep perimeter concrete curb and nailer as described within this Specification for areas where synthetic turf abuts any paved condition.
    b. Complete underdrain system. The Builder will be responsible for providing and installing all layers of the complete synthetic system, including synthetic base preparation and drainage. Collect and tie flat-panel underdrain system, on a 25’ o.c. spacing, to the nearest header drain trench and/or and storm structures shown in the C-Series Plans. The Builder shall utilize C-Series Plans for anticipated invert elevations yet calculate his own slopes to verify positive drainage.
    c. Geo-textile fabric installation; Tencate-Mirafi® 140N or equivalent.
    d. Field subgrade confirmation. The Builder shall be present for a proof roll of subgrade as part of reviewing and accepting subgrade conditions prior to beginning work.
    e. Base installation. Builder shall achieve final surface grade on fields as shown in the Civil Drawings. Ensure the Civil Engineer and Landscape Architect are fully aware and approve of any anticipated deviations.
    f. Synthetic turf, ballast, turf installation, and select maintenance.
    h. Soccer Goals. Include within the Base Bid a pair of pre-approved Soccer Goals.
    i. Game lines, sideline zones, midfield logos, etc shall be provided as shown in plans and coordinated during the submittal process. All markings shall fully comply with IHSAA and NFHS standards. Coordinate all marking details during submittals at no additional charge to the Owner. Marking Plans are provided for reference. Minor deviations during submittal coordination may occur as the Landscape Architect and Manufacturer finalize details.
        a. Soccer Field shall be striped for soccer (white) with tic marks for lacrosse (blue).
    j. Field finishing, including infill installation and grooming, as specified within. No additional cost will be borne by the Owner for coordination or adjustments after bidding.

B. Bidding Approach

Include all necessary surveying, staking, drainage infrastructure, geotextiles, curbing, stone aggregate layers, installation of all base-related systems, shop drawings and coordination, synthetic carpet, infill/ballast, nailers, grooming, grooming equipment, inspection/maintenance requirements, deep cleaning, GMAX testing, and associated installation of all turf-related systems listed here. Warranties shall be included within the Base Bid.

C. Submittals

1. Pre-Bid Submittals

a. Submit product information for approval prior to bidding that demonstrates the manufacturer's ability to provide a turf system that meets or exceeds the minimum technical requirements for turf products as listed in this Specification. Pre-Approved systems shall be formally acknowledged via addendum.

b. The following products have been Pre-Approved:
   1. CORE Products as Submitted by FieldTurf USA Inc.
   2. Predator Apex Product as Submitted by SprinTurf.
   4. Matrix Helix Product as Submitted by Hellas Construction.
   5. Performance Blade Turf System as Submitted by Motz.
   6. Rootzone 3DM as Submitted by AstroTurf.

2. Bid Submittals

a. List of similar projects completed by the Builder within the last two (2) years utilizing substantially similar turf product. Provide full Client contact information and details of the turf manufacturer and turf type.
b. Identify any pending litigation involving either the synthetic turf manufacturer or Builder or both. Such documentation shall be provided confidentially to the Owner rather than the Design Team. Similarly, the Owner reserves the right to request insurance documentation and company financial reports from any Bidder or subcontractor performing work on-site as a means to evaluate capacity to perform the work.
c. Identify the Foreman, Supervisor and Crew experience for the team executing this project installation. Include a list of completed projects in the last three (3) years by this specific team.
d. Builder to provide independent laboratory testing data, such as Lisport testing or similar, to substantiate the comparative durability of the proposed synthetic system the other competing systems that may be offered for the Owner's consideration.
e. Provide documentation of sources of infill materials. Local and regional sources are encouraged whenever possible.

3. Post-Bid Analysis

A. Credentials: Qualifications and credentials are a critical component of determining the most responsive Bid for all athletic field construction. Provide a listing of previous field installations, including full Client contact information, within the sealed Bid submitted for this project. The successful Bidder shall demonstrate his or her experience, industry knowledge, specialized construction methods/techniques, and overall project approach.

B. Bidding: Builders are advised that evaluating the most responsive Bid will include a combination of price, product type, credentials, and project approach. The Owner will review all materials, approach, credentials, and pricing within a Bidder's submission to determine which Bid is most responsive to the project goals and offers best value.

C. Samples: Apparent most responsive Bidder shall provide a 2' x 2' sample of complete carpet and infill system. Samples should be constructed in a wood frame and capable of holding one person so they may stand on the finish product. One sample box for each turf type used in overall project, when applicable.

4. Pre-Construction Submittals

a. Cut sheets and product samples for all products listed in Bid Submittals for Owner review and approval.
b. Complete and detailed shop drawings from the Turf Manufacturer including layout of all components, parts and materials required for a complete synthetic system.
c. Verification in writing provided to the Owner indicating no patent infringements have occurred in the Manufacturer's proposed synthetic system. The Owner and all his design, construction, and administrative agents shall be held harmless by the Manufacturer with regard to any legal action relating to patent infringements.
d. Staking of shall be under the full control of the Builder. The Builder shall utilize a registered surveyor to provide all necessary stakes, batter boards, lines, etc., to establish grades required and corresponding benchmarks. The cost of staking shall be included in the Base Bid. A digital record of the actual field as-built measurements shall be made for the Owner’s archives in both AutoCAD and PDF format.

5. Post-Construction Submittals

a. Provide Record Drawings of the completed installation. Submit Record Drawings for review by the Owner ten (10) days prior to Substantial Completion. Include the following:
    1) Underdrain locations and inverts.
    2) Location of primary seam locations on the synthetic turf installation.
    3) Operation & Maintenance Manuals.
    4) All warranty documents related to third-party coverage of base construction and synthetic turf, plus applicable coverage for field grooming equipment.

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C. Quality Control

1. Turf Inspection: The Owner, the Owner's agents, and the Builder shall inspect all turf at the site prior to the start of any installation. Any damaged or defective items shall be rejected and subsequently replaced by the Builder.

2. Installed Turf: Installed turf shall be inspected for, but not limited to the following:
    a. Acceptable seams
    b. Uniformity of product and color
    c. Surface bubbles
    d. Field markings
    e. Field edge installation
    f. Pile height of each roll supplied shall be measured
    g. Pile height in its finished position
    h. Surface tension

    Any products or materials that fail to meet the minimum requirements shall be rejected.

3. Manufacturer shall provide up to three (3) random samplings of the turf product obtained during the specific manufacturing process of this project’s order. Verify that all carpet meets or exceeds the specifications prior to shipment to ensure installation delays are avoided.

4. Weather Conditions: Only install turf according to weather requirements provided by the Manufacturer. Review all installation requirements and product limitations with Owner and Landscape Architect prior to commencing work.

5. Workmanship: All seams and inlaid markings shall be flat, tight, and permanent with no separation or fraying.

6. Cushioning: The dynamic cushioning of the combined turf and infill material supplied shall not exceed the following criteria:
    a. **ASTM Test F355e- Average maximum value of GMAX 165 may not be exceeded over the full warranty period.**
    b. **ASTM Test F3146- Average maximum value of HIC 1000 at 1 meter upon initial installation.**
    c. ASTM Test F3189-
        1. Shock Absorption- Average value between 55-70% upon initial installation.
        2. Energy Restitution- Average value between 20-50% upon initial installation.
        3. Vertical Deformation- Average value between 5.5-11mm upon initial installation.
    d. The Builder shall engage a third-party testing agency acceptable to the Owner to perform both GMAX and HIC testing on an annual basis throughout the warranty period as part of the Base Bid. No fewer than six (6) tests shall be performed by each testing device during each testing visit to compile a diverse, random assessment of the field. Any failures or deficiencies shall be remedied by the Builder as warranty work at no cost to the Owner.

D. Warranties

1. Turf Warranty: Within his or her Base Bid, the Builder shall provide a third-party, fully insured and enforceable Warranty for no less than (8) years from the date of Substantial Completion of the project. Base integrity, drainage function, UV degradation, fiber strength, stability of the backing, tufted yarn and seam integrity, and all other related components of the synthetic turf system.

   An additional two (2) years of extended warranty protection shall be added to the conclusion of the standard 8-year warranty as part of the Base Bid. The Owner shall allow this portion of the warranty to be by-Manufacturer rather than third-party insured. All warranties shall be in writing and remain valid should the Manufacturer be acquired by another company prior to the conclusion of said warranty.

2. Quality Assurance: The Builder shall make inspections of the fields on no less than a quarterly basis during the two (2) year period following Substantial Completion to monitor performance and condition of the system. Bidder shall commit to utilizing a Certified Field Builder (CFB) as credentialed by the American Sports Builders Association, to perform inspections. Each inspection shall be conducted with the Owner present. Document and submit notes, pictures and a formal inspection report each inspection to the Owner. Any proactive measures required of the Builder to keep the field in proper working order shall be remedied within ten (10) days of such inspections by the Builder and Owner.

3. Training: Train the Owner for proper maintenance and upkeep of the synthetic system to ensure the warranty remains in force. Include one (1) deep clean of the infill material of the synthetic field at the conclusion of the first year of service for the turf within the Base Bid. Schedule to suit the Owner’s convenience.

4. Attic Stock: Provide the Owner with a palette of crumb rubber “attic stock” material (2,000 lbs in either 50 lb individually-wrapped bags or a single oversized bag) at the conclusion of the project for their future use. Ensure the material is an exact match to the approved and installed rubber ballast on the field.

5. Repair Response Time: The Builder shall provide response time commitments for the execution of warranty repairs for inside & outside play-critical zones. See Bid Form.

PART 2 – PRODUCTS

2.1 Synthetic Turf Systems.

A. Soccer Field:

1. Monofilament System
   - Pile Weight: 52 oz. Monofilaments system. Provide and demonstrate long-lasting, durable performance in a high school facility anticipating heavy usage. Provide data with micron ratings and validation of yarn types for consideration by the Landscape Architect as part of the proposal response.
2. Pile Height: Consistent 2” height throughout all areas of the playing field and safety zones.
3. Construction Method: Broadloom Tufted.
4. Tufting Gauge: Minimum 3/8” or as approved in submitted samples.
5. Primary/Secondary Backing: 13 Pic Polybac / US80NW or equal Non-woven /18 Pic Polybac or as approved in submitted samples. Achieve no less than 10 lbs tuft bind per ASTM D1335.
6. Secondary Coating: Minimum 26 oz. Urethane or as approved in submitted samples.
7. Total Product Weight: Minimum 80 oz. / sq. yard or as approved in submitted samples.
8. Finished Roll Width: 180“ Untrimmed.
9. Line Markings: In addition to the tufted lines and inlaid lines, the pile surface shall be suitable for both temporary and permanent line markings using paint specifically developed for this use and recommended by the turf manufacturer.
10. Seams: Seams shall be consistently stitched, glued, or both throughout the entirety of the field. Any seaming shall include fabric recommended by synthetic turf manufacturer.
11. Overall Color Intent: Colors inside the playing area are anticipated to be a consistent color blend of Field Green and Rye Green. Area outside of the playing area is anticipated to be Royal Blue. The Vendor shall validate color fields and finalize color blends during submittal process at no additional cost to the Owner.
12. Warranty: Eight (8) Year minimum Base Proposal warranty. See option for 10-year warranty coverage.
13. Fill Requirement: A blend of Crumb Rubber and Silica Sand is preferred. The Owner anticipates a 60/40 blend of rubber/sand. The Vendor shall accommodate minor changes in the blend (up to 10% variation) at no additional expense to the Owner. Rubber materials shall be new media and the supplier disclosed within the response. Sources shall include Liberty Tire, Entech, Genan, or approved equal prior to responding.
14. Fill Weight: Minimum of 5 lbs total weight, including no less than 3 lbs of rubber. Owner shall require 1/2” to 3/4” exposed fiber throughout the duration of the warranty.
15. Alternative Products. Should an alternate product be pursued, said system shall comply with all manufacturer recommendations for a high performance, durable use that meets or exceeds the requirements of this specification.

2.2 Synthetic Turf Underdrainage System

A. Furnish geo-textile covered perforated flat panel drains with all end caps, adapters, transitions and fittings required for a complete system.
B. Approved Manufacturers:
   1. Hydraway, 800-223-7015, 12” Hydraway 2000
   2. Advanced Drainage Systems, 800-821-6710; Model AdvanEdge 12”
   3. Varicore Technologies, Inc., 800-978-8007; Multi-Flow 12”

2.3 Collector Drains: Utilize C-Series Plans. Include all associated fittings, transitions, end caps, adapters, couplers, outlets, and connectors. Lateral flat-panel drains may terminate directly into detention trenches without fitted connections.

2.4 Concrete Curb and Perimeter Nailer:
A. Curb: 3,500 PSI, minimum; Top Edges - 1/4" Radius Tooled.
B. Nailer: 2x4 Composite Wood or Treated Wood nailers appropriate for this application, fastened with tapcon or ramset every 24” on center.

2.5 Soccer Goals: Goals shall be provided with all associated footings, anchors, and hardware. Goals shall be acceptable for synthetic turf fields and include either detachable or flip-up style wheels for ease of movement. Goals shall comply with applicable IHSAA and NFHS standard.
Pre-approved vendors:
a. Sportsfield Specialties
b. Gill
c. Kwikgoal

2.6 Aggregate: A1 Stone Drainage Layer

Sieve Size	Percent Passing
1 1/2”	100%
1”	95-100%
3/4”	80-100%
1/2”	60-80%
3/8”	30-50%
#4	20-40%
#8	10-30%
#16	7-25%
#40	5-17%
#200	0-4%

Submit laboratory test providing a complete breakdown of the material and permeability prior to starting work.

2.7 Aggregate: A2 Washed Stone Choker Layer

Sieve Size	Percent Passing
1/2”	100%
3/8”	95-100%
#4	70-85%
#8	45-60%
#16	25-40%
#40	2-12%
#200	0-3%

Minor adjustments to aggregate blends may be approved by the Owner with prudent testing data to support the deviation. Permeability must be greater than 16” per hour for the finished synthetic system. Submit laboratory test providing a complete breakdown of the material and permeability prior to starting the work.

PART 3 – EXAMINATION

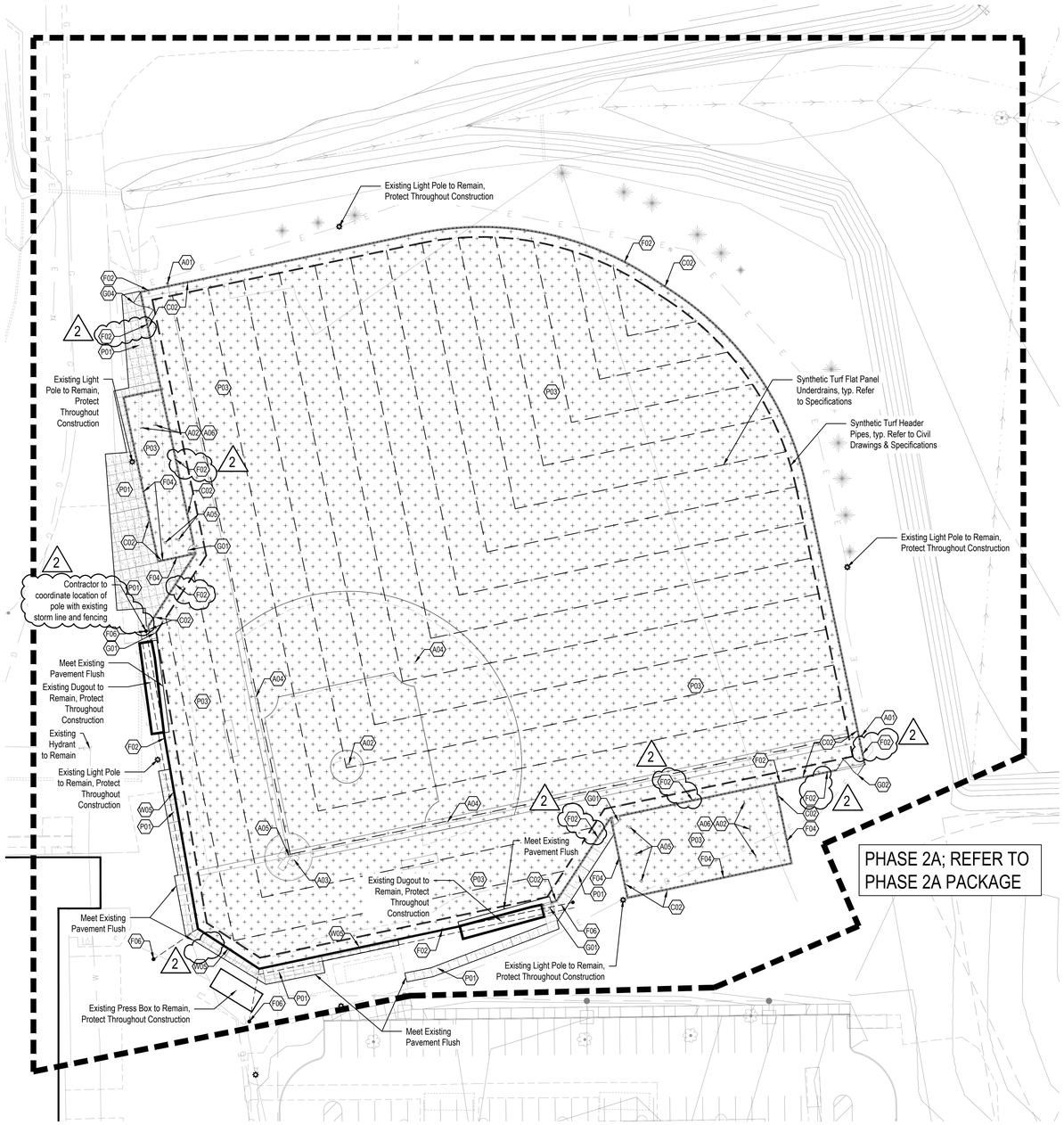
A. The Builder shall validate pre-existing subgrade conditions prior to commencing work. Ensure proof roll requirements are met for a fully functioning, durable system.
B. Verify that all sub-base leveling is complete prior to installation.

C. The completed grade of the base and perimeter nailer shall be verified by means of a laser and plotted on a 10-foot grid. The Bidder shall supply a third-party professional survey documenting the conditions to ensure full compliance with the specifications. Based upon the Builder's inspection of the topographical survey, the Builder shall fine grade the base suitably, including properly rolling and compacting the base to achieve a surface planarity within ¼ " in 10-feet (+0, -1/4 "). OWNER, ENGINEER, OR BUILDER SHALL NOT APPROVE THE BASE FOR TOLERANCE TO GRADE WITHOUT OBTAINING THE TOPGRAPHICAL SURVEY.
D. The compaction of the aggregate base shall be 95% or greater, according to the Modified Proctor procedure (ASTM D1557), and the surface tolerance shall not exceed 0-1/4 inch over 10 feet and 0-½" from design grade.
E. The Builder shall field-test the permeability of the base prior to the installation of the turf. Initial testing may be self-performed by the Builder over no less than five (5) broad areas of the playing surface to ensure that no less than 16" per hour of permeability can be achieved for the finished synthetic system. Verify the means for the test with the Landscape Architect prior to beginning testing. Should such tests validate performance indicative of the third-party drainage testing, no additional reports or documentation will be required to commence with turf replacement. If questions remain regarding performance, the Owner reserves the right to request third-party validation.

PART 4 – INSTALLATION

A. Install in accordance with Manufacturer's instructions. The Builder shall strictly adhere to the installation procedures outlined under this section. Any variance from these requirements must be accepted in writing, by the Manufacturer's onsite representative, and submitted to the Landscape Architect and Owner for approval. The Builder shall verify that any changes or deviations do not adversely affect performance or the warranty. Infill materials shall be approved by the Manufacturer and installed in accordance with the Manufacturer's standard procedures.
B. The carpet rolls are to be installed directly over the properly prepared aggregate base. Extreme care should be taken to avoid disturbing the aggregate base, both in regard to compaction and planarity. It is suggested that a 2-5 ton static roller is on site and available to repair and properly compact any disturbed areas of the aggregate base.
C. The full width rolls shall be laid out across the field. Turf shall be of sufficient length to permit full cross-field installation from edge to edge of play limits whenever practical.
Utilizing state of the art seaming procedures, as approved through the shop drawing and submittal process, each roll shall be attached to the next.
D. Infill materials shall be applied in numerous thin lifts. The turf shall be brushed as the mixture is applied. The infill material shall be installed to a depth determined by the Manufacturer and approved in samples submitted during the bidding process.
E. Infill materials shall be installed to fill the voids between the fibers and allow the fibers to remain vertical and non-directional. Ensure all blended infill materials are fully homogenous.
F. The Bidder shall cooperate with the Owner to sequence work on and around the field. Coordination with adjoining trades is essential to delivering the scope of work.

END OF SECTION



	ATHLETIC COMPONENTS
KEY	DESCRIPTION / REFERENCE
A01	FOUL POLE REFER TO SPEC. 12 93 01
A02	PITCHING RUBBER REFER TO SPEC. 12 93 01
A03	BATTERS BOX REFER TO DETAIL 5/L602 AND SPEC. 12 93 01
A04	BASE REFER TO SPEC. 32 91 16
A05	HOME PLATE REFER TO SPEC. 32 91 16
A06	TURF PITCHERS MOUND REFER TO DETAIL 4/L602 AND SPEC.
A07	POLE VAULT PIT REFER TO DETAIL 6/L602 AND SPEC. 11 68 33
A08	LONG JUMP PIT REFER TO DETAIL 7/L602 AND SPEC. 11 68 33

	MATERIAL KEYNOTES
	CURBS
KEY	DESCRIPTION / REFERENCE
C01	INTEGRAL CURB AND WALK REFER TO SITE DETAIL 4/L601
C02	PERIMETER NAILER CURB WITH FENCING REFER TO SITE DETAIL 8/L601
C03	PERIMETER NAILER CURB REFER TO SITE DETAIL 7/L601

	FENCING
KEY	DESCRIPTION / REFERENCE
Y01	6'-0" HT. CHAIN-LINK FENCE, VINYL COATED, BLACK, REFER TO SPEC. 32 31 13
Y02	8'-0" HT. CHAIN-LINK FENCE WITH YELLOW TOPPER, VINYL COATED, BLACK, REFER TO SPEC. 32 31 13
Y03	4'-0" HT. CHAIN-LINK FENCE, BLACK REFER TO SPEC. 32 31 13
Y04	BATTING CAGE NETTING REFER TO SPEC. 12 93 01

	SITE FURNISHINGS
KEY	DESCRIPTION / REFERENCE
F06	BACKSTOP TIE-BACK POST, REFER TO SITE DETAIL 3/L603 AND SPEC. 12 93 01

	GATES
KEY	DESCRIPTION / REFERENCE
G01	SINGLE LEAF SWING GATE, 4'-0" OPENING, MATCH HEIGHT OF ADJACENT FENCING, REFER TO SPEC. 32 31 13
G02	DOUBLE LEAF SWING GATE, 16'-0" OPENING, MATCH HEIGHT OF ADJACENT FENCING, REFER TO SPEC. 32 31 13
G03	VEHICULAR BARRIER GATE, 17'-0" ARM REFER TO SPEC. 32 31 13

	PAVEMENTS
KEY	DESCRIPTION / REFERENCE
P01	CONCRETE, STANDARD REFER TO SITE DETAILS 1-3/L601
P02	MAINTENANCE EDGE, 1'-0" REFER TO SITE DETAIL 6/L601

	PAVEMENTS, SPECIALTY
KEY	DESCRIPTION / REFERENCE
P03	SYNTHETIC TURF - BASEBALL FIELD, REFER TO SITE DETAIL 7/L601 AND SPEC. 32 91 16
P04	SYNTHETIC TURF - SOCCER FIELD, REFER TO SITE DETAIL 7/L601 AND SPEC. 32 91 15
P05	TRACK PAVEMENT, CONCRETE BASE, REFER TO SITE DETAIL 1/L602 AND SPEC. 32 18 23

	RAMPS
KEY	DESCRIPTION / REFERENCE
R01	STRAIGHT RAMP REFER TO CIVIL DRAWINGS
R02	DOUBLE FLARE RAMP REFER TO CIVIL DRAWINGS
R03	PARALLEL CURB RAMP REFER TO CIVIL DRAWINGS
R04	DEPRESSED CORNER CURB RAMP REFER TO CIVIL DRAWINGS
R05	RAMP & WALL SYSTEM - TYPE 1 REFER TO SITE DETAILS 1, 4, & 6/L604
R06	RAMP & WALL SYSTEM - TYPE 2 REFER TO SITE DETAILS 1, 4, & 6/L604

	STAIRS & HANDRAILS
KEY	DESCRIPTION / REFERENCE
S01	EAST ENTRANCE STAIRS WITH HANDRAILS REFER TO SITE DETAILS 6/L604, 1 & 2/L605
S02	EMBEDDED HANDRAILS IN EXISTING SIDEWALK REFER TO SITE DETAIL 3/L605

	WALLS
KEY	DESCRIPTION / REFERENCE
W01	CONCRETE WALL AT RAMP REFER TO SITE DETAIL 1/L604
W02	CONCRETE CHEEK WALL AT STAIRS REFER TO SITE DETAIL 2/L605
W03	CONCRETE SEAT WALL REFER TO SITE DETAIL 2/L604
W04	CONCRETE RETAINING WALL WITH HANDRAIL REFER TO SITE DETAIL 3/L604
W05	MASONRY BACKSTOP WALL WITH NETTING, REFER TO SITE DETAIL 2-3/L602 & 1-2/L603

LANCER ASSOCIATES ARCHITECTURE
427 S. COLLEGE AVE
INDIANAPOLIS, IN 46203

context DESIGN
5825 Lawton Loop East Drive | Indianapolis, IN 46216
317-485-6900 | www.context-design.com

CLARK-PLEASANT COMMUNITY SCHOOL CORP.
WHITELAND COMM. HIGH SCHOOL ADDITION
300 E MAIN ST, WHITELAND, IN 46184

FREDDIE J. PRAZEAU REGISTERED No. 2020-0052 STATE OF INDIANA LANDSCAPE ARCHITECT
EXPIRES 12-31-2025

REVISIONS:

#	Date	Desc.
1	10.04.2024	Addenda 1
2	10-11-2024	Addenda 2

100% CONSTRUCTION DOCUMENTS

PROJECT: #22130
DATE: 08-30-2024
DRAWN BY: MA/CH

SITE MATERIALS PLAN - PHASE 2

L103

PLOT DATE/TIME

EXHAUST FAN SCHEDULE

TAG	AREA SERVED	MFR.	MODEL	CFM	TSP (IN W.C.)	MOTOR (HP)	MOTOR (BHP)	MOTOR (W)	RPM	DRIVE TYPE	IN/OUT/RAD DBA	SONES	ELEC (V/PH)	CONTROL	REMARKS
EF-P01	AUDITORIUM RESTROOMS	GREENHECK	G-140-VG	2300	1.00	3/4	0.85	-	1603	DIRECT	-	15.5	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
EF-P02	AUDITORIUM GREEN ROOM	GREENHECK	G-140-VG	1700	1.50	3/4	0.8	-	1620	DIRECT	-	15.5	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
EF-P03	SCENE SHOP B102	GREENHECK	G-100-VG	800	0.75	1/4	0.18	-	1494	DIRECT	-	7.4	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
EF-P04	RR P161	GREENHECK	SP-B150	150	0.10	-	-	128	1050	DIRECT	-	2.5	115/1	EC	2, 7
EF-P05	WAREWASH	GREENHECK	CUE-120-VG	1000	1.00	1/2	0.26	-	1439	DIRECT	-	12.8	115/1	EC	1, 3, 5, 7, 8, 9, 10
EF-P06	KITCHEN	GREENHECK	CUE-140-VG	2400	1.00	1.0	0.88	-	1676	DIRECT	-	12.6	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
EF-P07	RR P118B	GREENHECK	SP-B150	150	0.10	-	-	128	1050	DIRECT	-	2.5	115/1	EC	2, 7
EF-P08	RR P118C	GREENHECK	SP-B150	150	0.10	-	-	128	1050	DIRECT	-	2.5	115/1	EC	2, 7
EF-P09	JAN P178	GREENHECK	SP-B150	150	0.10	-	-	128	1050	DIRECT	-	2.5	115/1	TCC	2, 7
EF-P10	DRYER BOOSTER	FANTECH	DEDPV-75	75	1.10	-	-	70	2850	DIRECT	-	-	115/1	EC	11
TF-P01	ELEC P112	GREENHECK	SQ-100-VG	1000	0.5	1/4	0.16	-	1525	DIRECT	58 / - / 54	-	115/1	TCC	2, 5, 7, 12
TF-P02	IDF P114	GREENHECK	SQ-100-VG	1000	0.5	1/4	0.16	-	1525	DIRECT	58 / - / 54	-	115/1	TCC	2, 5, 7, 12
TF-P03	IDF P123	GREENHECK	SQ-100-VG	1000	0.5	1/4	0.16	-	1525	DIRECT	58 / - / 54	-	115/1	TCC	2, 5, 7, 12
TF-P04	IDF P204	GREENHECK	SQ-100-VG	1000	0.5	1/4	0.16	-	1525	DIRECT	58 / - / 54	-	115/1	TCC	2, 5, 7, 12
RF-P01	AUDITORIUM	GREENHECK	QEID-36-300	11000	0.50	3.0	1.29	-	414	DIRECT	63/73/-	-	460/3	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P02	AUDITORIUM	GREENHECK	QEID-36-300	11000	0.50	3.0	1.29	-	414	DIRECT	63/73/-	-	460/3	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P03	AUDITORIUM	GREENHECK	QEID-36-300	11000	0.50	3.0	1.29	-	414	DIRECT	63/73/-	-	460/3	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P04	LOBBY	GREENHECK	G-200-VG	4000	0.5	1.0	0.83	-	892	DIRECT	-	12.7	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P05	LOBBY	GREENHECK	G-200-VG	4000	0.5	1.0	0.83	-	892	DIRECT	-	12.7	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P06	LOBBY	GREENHECK	G-200-VG	4000	0.5	1.0	0.83	-	892	DIRECT	-	12.7	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P07	KITCHEN	GREENHECK	G-200-VG	3500	0.5	1.0	0.65	-	822	DIRECT	-	11.4	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P08	KITCHEN	GREENHECK	G-200-VG	3500	0.5	1.0	0.65	-	822	DIRECT	-	11.4	115/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P09	CAFETERIA	GREENHECK	G-240-VG	5000	0.5	2.0	0.88	-	692	DIRECT	-	12.4	208/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P10	CAFETERIA	GREENHECK	G-240-VG	5000	0.5	2.0	0.88	-	692	DIRECT	-	12.4	208/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P11	CAFETERIA	GREENHECK	G-240-VG	5000	0.5	2.0	0.88	-	692	DIRECT	-	12.4	208/1	TCC	1, 3, 4, 5, 7, 8, 9, 10
RF-P12	CAFETERIA	GREENHECK	G-240-VG	5000	0.5	2.0	0.88	-	692	DIRECT	-	12.4	208/1	TCC	1, 3, 4, 5, 7, 8, 9, 10

REMARKS:
1. PROVIDE AND INSTALL WITH FACTORY WIRED NEMA-3R ELECTRICAL DISCONNECT SWITCH.
2. PROVIDE AND INSTALL WITH FACTORY WIRED NEMA-1 ELECTRICAL DISCONNECT SWITCH.
3. PROVIDE AND INSTALL WITH 24" TALL INSULATED METAL ROOF CURB WITH HINGED BASE KIT, RESTRAINING CABLES, AND SOUND ATTENUATING BAFFLES.
4. CONTROL DAMPER SHALL BE ACCESSIBLE FROM ROOF. DAMPER AND ACTUATOR FURNISHED BY TCC.
5. PROVIDE AND INSTALL WITH ELECTRONICALLY COMMUTATED MOTOR WITH SPEED ADJUSTMENT DIAL ON MOTOR AND WIRING PIGTAIL FOR SPEED CONTROL BY TCC.
6. PROVIDE AND INSTALL WITH ALUMINUM BIRDSCREEN.
7. PROVIDE AND INSTALL WITH NEOPRENE VIBRATION ISOLATION HANGERS.
8. PROVIDE AND INSTALL WITH GRAVITY BACKDRAFT DAMPER ON FAN OUTLET.
9. PROVIDE AND INSTALL WITH HI-PRO POLYESTER COATING.
10. PROVIDE FAN WITH (2) CONDUIT PATHS THRU FAN BASE TO MOTOR HOUSING FOR POWER WIRING AND CONTROL WIRING AS INDEPENDENT PATHWAYS.
11. PROVIDE AND INSTALL WITH SECONDARY LINT TRAP.
12. PROVIDE AND INSTALL WITH INLET GUARD.

NOTES:
TCC = TEMPERATURE CONTROL CONTRACTOR.
EC = ELECTRICAL CONTRACTOR.

EXPANSION TANK SCHEDULE

TAG	MFR.	MODEL	SERVICE	APPROX SYS VOL (GAL)	RELIEF VALVE (PSIG)	MAX SYS PRESS (PSIG)	PRE-CHARGE (PSIG)	CALC. ACCEPT FACTOR	TANK VOL. (GAL)	ACCEPT. VOL (GAL)	DIA. (IN)	HEIGHT (IN)	CONN. SIZE (IN)	TANK FULL WT (LBS)	REMARKS
ET-1	BELL & GOSSETT	B-500	PHASE 2 DUAL TEMP	6000	75	50	15	0.618	132	82	24	78	1	1417	1, 2, 3
ET-2	BELL & GOSSETT	B-400	PHASE 2 REHEAT	3000	75	50	15	0.618	106	66	24	65	1	1184	1, 2, 3

REMARKS:
1. PROVIDE AND INSTALL WITH LINE SIZE T&P RELIEF VALVE ON INLET.
2. ALL TANKS SHALL BE ASME STAMPED.
3. CONTRACTOR MUST VERIFY THE SYSTEM STATIC WATER PRESSURE PRIOR TO INSTALLING TANK AND ADJUST PRE-CHARGE AS REQUIRED.

WATER FLOW/ENERGY METER SCHEDULE

TAG	MFR.	FLOW METER	SENSOR TYPE	DISPLAY	SYSTEM SERVED	FLUID	PIPE SIZE (IN)	DESIGN FLOW (GPM)	ACCURACY (% OF FLOW RATE)	ELEC (V/PH)	REMARKS
FM-1	ONICON	F-3500	ELECTROMAG / INSERTION	SYSTEM 10	DUAL TEMP	WATER	8	1000	1.0 %	24 VDC	1, 2, 3, 4, 5, 6
FM-2	ONICON	F-3500	ELECTROMAG / INSERTION	SYSTEM 10	REHEAT	WATER	6	500	1.0 %	24 VDC	1, 2, 3, 4, 5, 6

REMARKS:
1. 316 STAINLESS STEEL CONSTRUCTION.
2. PROVIDE AND INSTALL WITH DISPLAY UNIT.
3. CONTRACTOR SHALL VERIFY REQUIRED UPSTREAM AND DOWNSTREAM MINIMUM STRAIGHT PIPE REQUIREMENTS DURING INSTALL.
4. PROVIDE FACTORY AUTHORIZED TECHNICIAN TO CALIBRATE AND CONFIGURE METER FOR SPECIFIC PIPE/FLUID PARAMETERS.
5. PROVIDE AND INSTALL WITH HOT TAP ADAPTER.
6. TCC SHALL FURNISH POWER TRANSFORMER DEDICATED TO POWER FLOWMETER. TRANSFORMER INSTALLED BY EC. COORDINATE WITH EC.

BUFFER TANK SCHEDULE

TAG	MFR.	MODEL	SERVICE	TANK VOL (GAL)	DIA. (IN)	HEIGHT (IN)	CONN. SIZE (IN)	SHIP WT (LBS)	TANK FULL WT (LBS)	REMARKS
BT-1	AMTROL	CWBT300-8-125	DUAL TEMP	300	36	80.375	8	801	3309	1, 2, 3
BT-2	AMTROL	CWBT300-8-125	DUAL TEMP	300	36	80.375	8	801	3309	1, 2, 3
BT-3	AMTROL	CWBT300-6-125	REHEAT	300	36	80.375	6	772	3280	1, 2, 3

REMARKS:
1. PROVIDE AND INSTALL WITH AUTOMATIC AIR VENT ON TOP OF TANK AND DRAIN PORT ON BOTTOM.
2. BAFFEL PLATE SHALL BE WELDED IN PLACE.
3. TANK SHALL BE ASME RATED FOR 125 PSI.

AIR HANDLER SCHEDULE

TAG	DOAS-3		
MFR.	INNOVENT		
MODEL	ERU-OU-PL-36000		
SERVICE	PHASE 2		
UNIT DIM LxWxH (IN)	363x220x133		
UNIT WIEGHT (LBS)	31,300		
SUPPLY FAN			
AIRFLOW (CFM)	36000		
TSP (IN W.C.)	6.49		
ESP (IN W.C.)	3.00		
FILTER TYPE	2" MERV 13		
FAN RPM	2041		
MOTOR SYNCH RPM	1800		
FAN TYPE	PL		
WHEEL DIAMETER (MM)	630		
FAN QUANTITY	3		
DRIVE TYPE	DIRECT		
MOTOR (HP, EA)	20.0		
MOTOR (BHP, EA)	16.8		
ELECTRICAL (V / PH)	460/3		
MODULATION	VSD		
EXHAUST FAN			
AIRFLOW (CFM)	36000		
TSP (IN W.C.)	3.78		
ESP (IN W.C.)	2.00		
FILTER TYPE	2" MERV 13		
FAN RPM	1795		
MOTOR SYNCH RPM	1800		
FAN TYPE	PL		
WHEEL DIAMETER (MM)	630		
FAN QUANTITY	3		
DRIVE TYPE	DIRECT		
MOTOR (HP, EA)	15.0		
MOTOR (BHP, EA)	10.6		
ELECTRICAL (V / PH)	460/3		
MODULATION	VSD		
DUAL TEMP COIL (COOLING)			
AIRFLOW (CFM)	36000		
TOTAL CAP (MBH)	2324		
SENS CAP (MBH)	1106		
EAT DB/WB (DEG F)	81.8 / 73.2		
LAT DB/WB (DEG F)	55 / 55		
EWT/LWT (DEG F)	45 / 55		
COIL FLOW (GPM)	493		
FLUID	30% PG		
WPD (FT)	19.4		
APD (IN W.C.)	1.5		
ROWS	10		
FINS/FT	96		
CONTROL VALVE	2-WAY		
REHEAT COIL			
AIRFLOW (CFM)	36000		
TOTAL CAP (MBH)	804		
SENS CAP (MBH)	-		
EAT DB/WB (DEG F)	55 / 55		
LAT DB/WB (DEG F)	75 / 62		
EWT/LWT (DEG F)	110 / 100		
COIL FLOW (GPM)	170		
FLUID	30% PG		
WPD (FT)	3.5		
APD (IN W.C.)	0.2		
ROWS	2		
FINS/FT	96		
CONTROL VALVE	2-WAY		
ELECTRICAL			
ELECTRICAL (V / PH)	460/3		
MCA	127.1		
MOP	150		
REMARKS:	1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13		

REMARKS:
1. ALL SECTIONS SHALL BE DOUBLE WALL CONSTRUCTION WITH MINIMUM R-13 INSULATION, SMACNA LEAKAGE CLASS 5.0, MAXIMUM L/250 PANEL DEFLECTION, AND DESIGNED FOR OUTDOOR INSTALLATION.
2. PROVIDE AND INSTALL WITH ENERGY RECOVERY UNIT. REFER TO ENERGY RECOVERY UNIT SHEDULE FOR MORE INFORMATION.
3. HYDRONIC COILS SHALL BE STAINLESS STEEL CASING WITH COPPER OR RED BRASS HEADER AND WITH STAINLESS STEEL INSULATED IAQ DRAIN PAN.
4. PROVIDE AND INSTALL WITH SINGLE POINT ELECTRICAL POWER CONNECTION.
5. PROVIDE AND INSTALL INDIVIDUAL PACKAGED VARIABLE SPEED DRIVES FOR ALL SUPPLY AND EXHAUST FANS. FANS SHALL BE CONFIGURED TO OPERATE INDEPENDENTLY ON FAILURE OF OTHER FANS.
6. PROVIDE AND INSTALL WITH (2) MANUAL BLANK-OFF PLATES TO ISOLATE FAILED FANS.
7. PROVIDE AND INSTALL WITH EXTERNAL HEATED AND VENTILATED VSD PLENUM CABINET.
8. REFER TO DRAWING PLANS AND DETAILS FOR MODULE CONFIGURATIONS.
9. MOTOR SHALL BE MULTI-TAP 460/240/208 BALDOR SUPER-E WITH INTEGRAL SHAFT GROUNDING RING AND COMPLY WITH NEMA MG1 FOR VARIABLE SPEED OPERATION.
10. ~~MOTOR SHALL HAVE CLASS F INSULATION FOR USE WITH VARIABLE SPEED DRIVE.~~
11. PROVIDE AND INSTALL WITH 12" TALL INSULATED METAL ROOF CURB.
12. PROVIDE AND INSTALL WITH OUTSIDE AIR AND EXHAUST AIR WEATHER HOOD WITH ALUMINUM BIRD SCREEN.
13. PROVIDE AND INSTALL WITH OUTSIDE AIR AND EXHAUST AIR INSULATED LOW LEAKAGE CONTROL DAMPERS. ACTUATORS FURNISHED AND INSTALLED BY TCC.

1

PL=PLENUM, AF=AIRFOIL, FC=FORARD CURVE, BI=BACKWARD INCLINED
TPFT=TOP FRONT, TPBK=TOP BACK, FTTP=FRONT TOP, FTBT=FRONT BOTTOM
BTFT=BOTTOM FRONT, BTBK=BOTTOM BACK, SD=SIDE

AIR HANDLER SCHEDULE

TAG	AHU-P-1	AHU-P-2	AHU-P-3	AHU-P-4	AHU-P-5	
SPACE SERVED	LOBBY	STAGE	AUDITORIUM	KITCHEN	CAFETERIA	
MFR.	PACE	PACE	PACE	PACE	PACE	
MODEL	PAI-60x102	PAI-57x78	PAI-96x102	PAI-75x69	PAI-102x90	
UNIT DIM WxL (IN)	102x160	78x152	102x197	69x151	90x187	
UNIT WEIGHT (LBS)	6,044	4,242	8,043	4,986	7,642	
FILTER TYPE	2" MERV 13	2" MERV 13	2" MERV 13	2" MERV 13	2" MERV 13	
FILTER EFF.	30	30	30	30	30	
SUPPLY FAN						
AIRFLOW (CFM)	15000	10000	25000	12000	22000	
OUTSIDE AIR (CFM)	6000	2500	6250	3000	10000	
TSP (IN W.C.)	5.72	4.99	5.05	5.54	5.11	
ESP (IN W.C.)	3.0	2.5	2.5	3.0	2.5	
RPM	1,756	1,761	1,206	1,730	1,731	
FAN TYPE	AIRFOIL	AIRFOIL	AIRFOIL	AIRFOIL	AIRFOIL	
FAN QUANTITY	1	1	1	1	1	
DRIVE TYPE	DIRECT	DIRECT	DIRECT	DIRECT	DIRECT	
MOTOR (HP)	25	15	30	20	30	
MOTOR (BHP)	20.09	11.39	29.26	14.97	27.75	
ELECTRICAL (V / PH)	460/3	460/3	460/3	460/3	460/3	
MODULATION	VSD	VSD	VSD	VSD	VSD	
DUAL TEMP PRIMARY COIL (HEATING)						
FLUID	30% PG	30% PG	30% PG	30% PG	30% PG	
AIRFLOW (CFM)	15000	10000	25000	12000	22000	
TOTAL CAP (MBH)	599	486	121	388	1378	
EAT/LAT (DEG F)	38 / 75	45 / 90	45 / 90	45 / 75	32 / 90	
EWT/LWT (DEG F)	110 / 100	110 / 100	110 / 100	110 / 100	110 / 100	
COIL FLOW (GPM)	140	75	195	86	214	
FLUID VELOCITY (FPS)	4.1	3.9	4.2	3.2	4.4	
WPD (FT)	-	-	-	-	-	
APD (IN W.C.)	0.83	0.7	0.77	0.93	0.87	
ROWS	10	8	8	8	8	
FINS/FT	96	120	132	144	132	
CONTROL VALVE	-	-	-	-	-	
DUAL TEMP PRIMARY COIL (COOLING)						
FLUID	30% PG	30% PG	30% PG	30% PG	30% PG	
AIRFLOW (CFM)	15000	10000	25000	12000	22000	
TOTAL CAP (MBH)	658	356	918	409	1014	
SENS CAP (MBH)	448	268	685	316	667	
EAT DB/WB (DEG F)	81 / 68	79 / 66	79 / 66	79 / 66	82 / 69	
LAT DB/WB (DEG F)	55 / 55	55 / 55	55 / 55	55 / 55	55 / 55	
EWT/LWT (DEG F)	45 / 55	45 / 55	45 / 55	45 / 55	45 / 55	
COIL FLOW (GPM)	140	75	195	86	214	
FLUID VELOCITY (FPS)	4.1	3.9	4.2	3.2	4.4	
WPD (FT)	15.6	16.8	14.7	8.5	14.7	
APD (IN W.C.)	0.83	0.7	0.77	0.93	0.87	
ROWS	10	8	8	8	8	
FINS/FT	96	120	132	144	132	
CONTROL VALVE	3-WAY	3-WAY	3-WAY	2-WAY	2-WAY	
BLOWTHRU TRAP DEPTH	9.0	8.3	8.3	9.3	8.3	
DUAL TEMP SECONDARY COIL (REHEAT)						
FLUID	30% PG	30% PG	30% PG	30% PG	30% PG	
AIRFLOW (CFM)	15000	5000	12500	12000	11000	
TOTAL CAP (MBH)	453	109	291	154	257	
EAT/LAT (DEG F)	35 / 62.9	55 / 75	55 / 75	45 / 55	55 / 75	
EWT/LWT (DEG F)	110 / 100	110 / 100	110 / 100	110 / 100	110 / 100	
COIL FLOW (GPM)	96	23	61	33	54	
FLUID VELOCITY (FPS)	3.1	2.4	3.5	2.4	2.9	
WPD (FT)	5.8	2.6	4	1.8	2.7	
APD (IN W.C.)	0.16	0.02	0.01	0.03	0.02	
ROWS	3	1	1	1	1	
FINS/FT	96	144	144	96	144	
CONTROL VALVE	3-WAY	3-WAY	3-WAY	2-WAY	2-WAY	
ELECTRICAL (V / PH)						
MCA	37.5	22.5	48.75	30	45	
MOP	60	40	80	50	80	
REMARKS:	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	1, 2, 3, 4, 5, 6, 7, 8, 9	

REMARKS:
1. BASE RAIL SHALL BE 10" TALL AND THE FULL LENGTH OF THE UNIT.
2. CASING SHALL BE 2" THICK DOUBLE WALL INSULATED R-13 MINIMUM.
3. +/- 8" W.C. STATIC PRESSURE CLASS, L/240 DEFLECTION, 1% LEAKAGE.
4. MOTORS SHALL BE MULTI-TAP 460/240/208 BALDOR SUPER-E WITH INTEGRAL SHAFT GROUNDING RING AND COMPLY WITH NEMA MG1 FOR VARIABLE SPEED OPERATION.
5. MOTORS SHALL HAVE CLASS F INSULATION FOR USE WITH VARIABLE SPEED DRIVE.
6. CHILLED WATER COIL CASING SHALL BE STAINLESS STEEL.
7. ALL COIL HEADERS SHALL BE RED BRASS.
8. DRAIN PAN SHALL BE IAQ SLOPE DOUBLE WALL INSULATED STAINLESS STEEL.
9. FURNISH WITH NEEDLEPOINT BIPOLOAR IONIZER. REFER TO NEEDLEPOINT BIPLOAR IONIZER SCHEDULE.

** REFER TO DRAWINGS FOR DETAILS ON MODULE CONFIGURATIONS **

PL=PLENUM, AF=AIRFOIL, FC=FORARD CURVE, BI=BACKWARD INCLINED
TPFT=TOP FRONT, TPBK=TOP BACK, FTTP=FRONT TOP, FTBT=FRONT BOTTOM
BTFT=BOTTOM FRONT, BTBK=BOTTOM BACK, SD=SIDE

AIR AND SEDIMENT SEPARATOR SCHEDULE

TAG	MFR.	MODEL	SERVICE	PIPE CONN. (IN)	MAX FLOW (GPM)	TANK DIA (IN)	TANK HEIGHT (IN)	WATER VOL (GAL)	REMARKS
ADS-1	BELL & GOSSETT	CRS-10F MAG	PHASE 2 DUAL TEMP	10	1530	20	65	88	1, 3
ADS-2	BELL & GOSSETT	CRS-6F MAG	PHASE 2 REHEAT	6	550	12	39	19	1, 3

REMARKS:
1. PROVIDE WITH REMOVABLE BOTTOM FLANGE, SKIMMER VALVE, DRAIN PORT, AND HIGH CAPACITY AUTOMATIC AIR VENT EQUAL TO B&G MODEL...
2. PROVIDE WITH STRAINER, FLANGED BOTTOM, DRAIN PORT, AND HIGH CAPACITY AUTOMATIC AIR VENT EQUAL TO B&G MODEL 107A.
3. PROVIDE WITH INTEGRAL NEODYMIUM MAGNETIC INSERT ROD WITH SLEEVE TO ALLOW REMOVAL OF IRON FLAKES USING BLOW DOWN PORT.

FAN COIL SCHEDULE

TAG	MFR.	MODEL	SERVICE	AIRFLOW (CFM)	MOTOR (HP)	SPEED (L/M/H)	FILTER	ESP (IN WC)	O.A. (CFM)	HEATING TOTAL (MBH)	EAT / LAT (DEG F)	EWT / LWT (DEG F)	FLUID	FLOW (GPM)	WPD (FT)	ROWS	CONTROL VALVE	ELEC (V/PH)	FLA	MCA	MOP	REMARKS
FCU-P1.01	IEC	FXA 06	VEST B104	350	1/6	L	1" MERV 11	-	-	9	70 / 92.7	110 / 100	30% PG	0.9	0.6	4	2-WAY	120/1	2.5	-	-	1, 2, 3
FCU-P1.02	IEC	FXA 12	LOBBY P1000	550	(2) 1/6	L	1" MERV 11	-	-	18	70 / 99.6	110 / 100	30% PG	3.8	2.6	4	2-WAY	120/1	5	5.6	15	1, 2, 3
FCU-P1.03	IEC	FXA 06	STOR P101A	350	1/6	L	1" MERV 11	-	-	9	70 / 92.7	110 / 100	30% PG	0.9	0.6	4	2-WAY	120/1	2.5	-	-	1, 2, 3
FCU-P1.04	IEC	FXA 12	VEST P101	550	(2) 1/6	L	1" MERV 11	-	-	18	70 / 99.6	110 / 100	30% PG	3.8	2.6	4	2-WAY	120/1	5	5.6	15	1, 2, 3
FCU-P1.05	IEC	FXA 06	VEST P117	350	1/6	L	1" MERV 11	-	-	9	70 / 92.7	110 / 100	30% PG	0.9	0.6	4	2-WAY	120/1	2.5	-	-	1, 2, 3

REMARKS:
1. ALL MOTORS SHALL BE SELECTED AT LOW SPEED.
2. PROVIDE AND INSTALL WITH FACTORY WIRED ELECTRICAL DISCONNECT.
3. PROVIDE WITH TAMPER RESISTANT FASTENERS, AND 16 GA CONTSTRUCTION. PROVIDE 1 KEY FOR EACH UNIT.

VARIABLE AIR VOLUME TERMINAL SCHEDULE

TAG	MFR.	MODEL	SERVICE	TYPE	MIN COOLING AIR (CFM)	MAX COOLING AIR (CFM)	MIN HEATING AIR (CFM)	MAX HEATING AIR (CFM)	INLET S.P.	DOWNSTRM S.P.	INLET SIZE (IN)	HEATING (MBH)	FLOW (GPM)	COIL ROWS	FINS/IN	WATER P.D. (FT)	AIR P.D. (IN)	CONTROL VALVE	ELEC (V/PH)	REMARKS
VAV-P1.01	TITUS	DESV	BACKSTAGE P103	SO	150	500	250	500	1"	0.25"	9	21.7	6.50	4	12	1.09	0.19	2-WAY	120/1	1, 2, 3
VAV-P1.02	TITUS	DESV	GREENROOM P104	SO	390	1300	490	975	1"	0.25"	14	42.3	9.00	4	12	1.54	0.29	2-WAY	120/1	1, 2, 3
VAV-P1.03	TITUS	DESV	COSTUME STOR P104	SO	150	500	250	500	1"	0.25"	9	21.7	6.50	4	12	1.09	0.19	2-WAY	120/1	1, 2, 3
VAV-P1.04	TITUS	DESV	PIANO STOR P104	SO	30	100	50	100	1"	0.25"	4	5.1	2.00	3	12	0.6	0.03	2-WAY	120/1	1, 2, 3
VAV-P1.05	TITUS	DESV	CORRIDOR B105	SO	180	600	300	600	1"	0.25"	12	26.0	5.00	4	12	0.77	0.15	2-WAY	120/1	1, 2, 3
VAV-P1.06	TITUS	DESV	CHANGING P104	SO	150	500	250	500	1"	0.25"	9	21.7	6.50	4	12	1.09	0.19	2-WAY	120/1	1, 2, 3
VAV-P1.07	TITUS	DESV	CORRIDOR P1001	SO	600	2000	750	1500	1"	0.25"	24x16	65.8	10.00	4	12	0.97	0.21	2-WAY	120/1	1, 2, 3
VAV-P1.08	TITUS	DESV	CORRIDOR P1001	SO	600	2000	750	1500	1"	0.25"	24x16	65.8	10.00	4	12	0.97	0.21	2-WAY	120/1	1, 2, 3
VAV-P1.09	TITUS	DESV	CORRIDOR P1001	SO	600	2000	750	1500	1"	0.25"	24x16	65.8	10.00	4	12	0.97	0.21	2-WAY	120/1	1, 2, 3
VAV-P1.10	TITUS	DESV	VESTIBULE P101	SO	300	1000	500	1000	1"	0.25"	14	43.4	10.00	4	12	1.82	0.19	2-WAY	120/1	1, 2, 3
VAV-P1.11	TITUS	DESV	LOBBY P1000	SO	600	2000	750	1500	1"	0.25"	24x16	65.8	10.00	4	12	0.97	0.21	2-WAY	120/1	1, 2, 3
VAV-P1.12	TITUS	DESV	LOBBY P1000	SO	450	1500	750	1500	1"	0.25"	24x16	65.8	10.00	4	12	0.97	0.21	2-WAY	120/1	1, 2, 3
VAV-P1.13	TITUS	DESV	RESTROOM P109	SO	330	1100	550	1100	1"	0.25"	14	43.4	10.00	4	12	1.82	0.19	2-WAY	120/1	1, 2, 3
VAV-P4.01	TITUS	DESV	DRY STOR P117	SO	180	600	300	600	1"	0.25"	7	13.3	4.00	4	12	0.57	0.49	2-WAY	120/1	1, 2, 3
VAV-P4.02	TITUS	DESV	KITCHEN	SO	600	2000	750	1500	1"	0.25"	14	34.5	6.50	4	12	0.83	0.6	2-WAY	120/1	1, 2, 3
VAV-P4.03	TITUS	DESV	KITCHEN	SO	600	2000	750	1500	1"	0.25"	14	34.5	6.50	4	12	0.83	0.6	2-WAY	120/1	1, 2, 3
VAV-P4.04	TITUS	DESV	OFFICE P117	SO	60	200	100	200	1"	0.25"	4	5.1	2.00	3	12	0.6	0.09	2-WAY	120/1	1, 2, 3
VAV-P4.05	TITUS	DESV	BREAK ROOM P118	SO	240	800	400	800	1"	0.25"	9	17.4	10.00	3	12	3.81	0.31	2-WAY	120/1	1, 2, 3
VAV-P4.06	TITUS	DESV	SERVING P119	SO	780	2600	750	1500	1"	0.25"	16	33.9	8.00	3	12	0.79	0.52	2-WAY	120/1	1, 2, 3
VAV-P4.07	TITUS	DESV	SERVING P120	SO	540	1800	750	1500	1"	0.25"	14	34.5	6.50	4	12	0.83	0.51	2-WAY	120/1	1, 2, 3
VAV-P4.08	TITUS	DESV	SERVING P120	SO	450	1500	750	1500	1"	0.25"	14	34.5	6.50	4	12	0.83	0.37	2-WAY	120/1	1, 2, 3

REMARKS:
1. PROVIDE AND INSTALL WITH LINED DISCHARGE PLENUM SAME SIZE AS COIL DICHARGE, 3' LONG (MIN).
2. PROVIDE AND INSTALL WITH FACTORY WIRED CONTROL TRANSFORMER (120 VAC TO 24 VDC).
3. COILS RATED WITH 30% PROPYLENE GLYCOL, 110 DEG EWT,100 DEG LWT AND 55 DEG EAT, 95 DEG LAT.

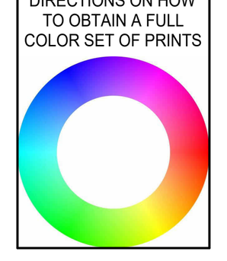
NOTES:
SO = SHUTOFF
SFP = SERIES FAN POWERED
PFP = PARALLEL FAN POWERED

DIFFUSER AND GRILLE SCHEDULE

TAG	MFR.	MODEL	NECK SIZE (IN)	FACE SIZE (IN)	THROW PATTERN	MAX CFM	MAX APD (IN)	THROW (FT)	MAX NC	MATERIAL	REMARKS
D-1	TITUS	TMS	6	12x12	4-WAY	100	0.03	6	20	STEEL	1, 2
D-2	TITUS	TMS	8	24x24	4-WAY	245	0.05	9	15	STEEL	1, 3
D-3	TITUS	TMS	10	24x24	4-WAY	400	0.06	19	13	STEEL	1, 3
D-4	TITUS	TMS	12	24x24	4-WAY	700	0.08	28	19	STEEL	1, 3
D-5	TITUS	TBDI-80	12	48x10	(4) 1-1/2" SLOT	500	0.1	29	29	STEEL	1, 3, 4
D-6	TITUS	TBDI-80	10	48x5	(2) 1-1/2" SLOT	265	0.09	21	28	STEEL	1, 3, 4
D-7	TITUS	CT-PP-3	24x6	26x8	FLOOR GRILLE	400	0.1	31	32	ALUMINUM	2
D-8	TITUS	300RS-HD	18x8	20x10	DBL. DEFL.	700	0.11	16	30	STEEL	1, 3, 4
D-9	TITUS	DL-SV	12x4	14x6	DRUM...	200	0.14	19	15	STEEL	1, 2
D-10	TITUS	FL-20	48x10	50x12	(2) 2" SLOT	520	0.1	23	22	ALUMINUM	1, 2
D-11	TITUS	300RL	10x6	12x8	DBL. DEFL.	270	0.1	10	27	STEEL	1, 2
D-12	TITUS	300RL	14x14	16x16	DBL. DEFL.	855	0.15	17	28	STEEL	1, 2
D-13	TITUS	DL-SV	36x4	38x6	DRUM...	600	0.11	33	23	STEEL	1, 2
D-14	TITUS	300RL-SS	12x8	14x10	DBL. DEFL.	400	0.09	26	25	STAINLESS STEEL	1, 2
D-15	TITUS	TMS-AA	12	24x24	4-WAY	700	0.08	28	19	ALUMINUM	1, 3
RG-1	TITUS	45F	-	12x12	45 DEG EGG	400	0.04	-	15	ALUMINUM	1, 2, 9
RG-2	TITUS	45F	-	24x24	45 DEG EGG	1600	0.04	-	15	ALUMINUM	1, 3, 9
RG-3	TITUS	50FF	20x20	24x24	EGG/FILTER	800	0.2	-	30	ALUMINUM	1, 3, 6
RG-4	TITUS	50FF	20x20	24x24	EGG/FILTER	800	0.2	-	30	ALUMINUM	1, 2, 6
RG-5	-	-	-	-	-	-	-	-	-	-	8
RG-6	TITUS	271FL	46x34	48x36	35 DEG DEFL	5250	0.03	-	20	ALUMINUM	1, 2, 5
RG-7	TITUS	33RL	12x8	14x10	38 DEG. DEFL.	225	0.01	-	12	STEEL	1, 2
RG-8	TITUS	33RL	36x18	38x20	38 DEG. DEFL.	1685	0.01	-	21	STEEL	1, 2
RG-9	TITUS	TBR30	-	48x10	(4) 1-1/2" SLOT	800	0.06	-	19	STEEL	1, 2
RG-10	TITUS	350RL	18x10	20x12	35 DEG DEFL	440	0.01	-	10	STEEL	1, 2
RG-11	TITUS	350RL	30x24	32x26	35 DEG DEFL	1880	0.01	-	10	STEEL	1, 2
RG-12	TITUS	350RL-SS	22x22	24x24	35 DEG DEFL	1570	0.016	-	17	STAINLESS STEEL	2
EG-1	TITUS	45F	-	12x12	45 DEG EGG	400	0.04	-	15	ALUMINUM	1, 2
EG-2	TITUS	45F	-	24x24	45 DEG EGG	1600	0.04	-	15	ALUMINUM	1, 3
EG-3	TITUS	TBR-80			(2) 1-1/2" SLOT	720	0.09	-	22	STEEL	1, 2
EG-4	TITUS	33RL	30x12	32x14	38 DEG. DEFL.	915	0.01	-	18	STEEL	1, 2
EG-5	TITUS	33RL	18x10	20x12	38 DEG. DEFL.	445	0.01		15	STEEL	1, 2
EG-6	TITUS	350RL-SS	20x20	22x22	35 DEG DEFL	1020	0.01	-	10	STAINLESS STEEL	2
TG-1	TITUS	45F	-	12x12	45 DEG EGG	400	0.04	-	15	ALUMINUM	1, 2
TG-2	TITUS	45F	-	24x24	45 DEG EGG	1600	0.04	-	15	ALUMINUM	1, 3
TG-3	TITUS	350FL	24x16	26x18	35 DEG DEFL	985	0.03	-	10	STEEL	1, 2
TG-4	TITUS	350FL	18x12	20x14	35 DEG DEFL	540	0.03	-	10	ALUMINUM	1, 2
TG-5	TITUS	350FL	18x42	20x44	35 DEG DEFL	1980	0.03	-	10	ALUMINUM	1, 2
TG-6	TITUS	350FL	24x16	26x18	35 DEG DEFL	985	0.01	-	10	ALUMINUM	1, 2

REMARKS:
1. COLOR SHALL BE WHITE.
2. PROVIDE AND INSTALLWITH FRAME FOR SURFACE INSTALLATION.
3. PROVIDE AND INSTALL WITH FRAME FOR LAY-IN INSTALLATION.
4. PROVIDE AND INSTALL WITH INSULATED DISTRIBUTION PLENUM.
5. PROVIDE AND INSTALL WITH FACE OPERATED BUTTERFLY VOLUME DAMPER.
6. HINGED FILTER GRILLE, PROVIDE WITH 1" THICK MERV 8 FILTER AND (1) ADDITIONAL SPARE.
7. STANDARD COLOR SELECTION BY ARCHITECT.
8. CUSTOM FABRICATED RETURN GRILLE. REFER TO PLANS AND DETAILS.
9. UNLESS NOTED OTHERWISE, PROVIDE AND INSTALL WITH RETURN AIR CANOPY. REFER TO DRAWINGS.

IF THE WHEEL PRINTED BELOW IS NOT SHOWN IN COLOR, THIS SET OF PRINTS IS NOT REPRESENTING ALL LINE TYPES CORRECTLY. CONTACT PRIMARY ENGINEERING FOR DIRECTIONS ON HOW TO OBTAIN A FULL COLOR SET OF PRINTS



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LANCER ASSOCIATES ARCHITECTURE
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CLARK-PLEASANT COMMUNITY SCHOOL CORP.
WHITELAND COMM. HIGH SCHOOL
300 E MAIN ST, WHITELAND, IN 46184

ANDREW STEPHEN LOUDERBACK
REGISTERED
PE11700017
STATE OF INDIANA
PROFESSIONAL ENGINEER

REVISIONS:

#	Date	Desc.
1	10/10/2024	ADDENDUM #3

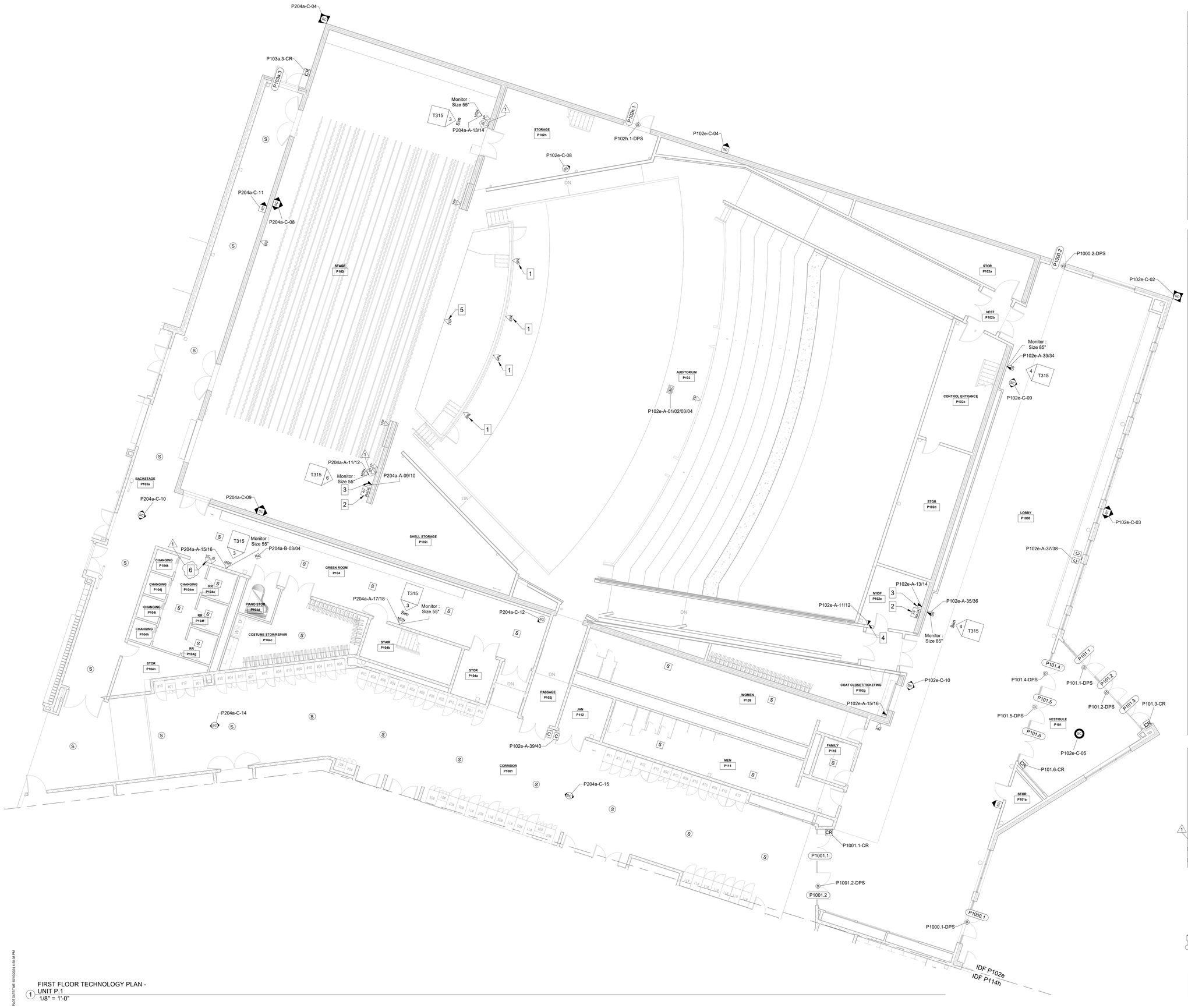
100% CONSTRUCTION DOCUMENTS

PROJECT: #22130
DATE: 08-30-2024
DRAWN BY: ASL

MECHANICAL SCHEDULES

M501

PRIMARY JOB # 23536



1 FIRST FLOOR TECHNOLOGY PLAN - UNIT P.1
1/8" = 1'-0"

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GENERAL HORIZONTAL CABLING NOTES

A	MINIMUM CATEGORY 6 (6A FOR WAPS) COMPLIANT 4-PAIR UNSHIELDED TWISTED PAIR (UTP). ALL HORIZONTAL CABLING MUST BE PLENUM RATED.
B	CONTRACTOR SHALL PROVIDE A DOCUMENTED MANUFACTURER CERTIFIED SOLUTION INCLUDING THE MINIMUM PERFORMANCE AND APPLICATIONS WARRANTY.
C	PAINTING OF THE STRUCTURED CABLING WILL VOID THE WARRANTY. ENSURE PROPER COORDINATION WITH PAINTING CONTRACTOR SO THAT ALL STRUCTURED CABLING IS PROTECTED PRIOR TO ANY PAINTING.
D	PROVIDE A MINIMUM 10 FOOT MAINTENANCE LOOP ON EACH HORIZONTAL CABLING RUN. MAINTENANCE LOOPS SHALL BE STORED ABOVE ACCESIBLE CEILINGS, IN SEPARATE J-HOOKS, AND IN TELECOMMUNICATION ROOM CABLE TRAY. CABLING ABOVE CEILING SHALL BE SUSPENDED FROM APPROPRIATE SUPPORTS AND SHALL NOT TOUCH THE CEILING.
E	ALL PIN/PAIR ASSIGNMENTS SHALL BE T568B.
F	REFER TO SPECIFICATION SECTION 27 15 13 FOR CABLE JACKET COLOR REQUIREMENTS
G	LABELING SHALL BE COMPLETED AS DEFINED IN THE CONTRACT DOCUMENTS AND SHALL BE COORDINATED WITH THE OWNER.
H	PROVIDE ALL TELECOMMUNICATION OUTLETS AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO PROVIDE CONNECTIONS FOR EACH DEVICE SHOWN ON THE DRAWINGS.
I	ALL TESTING OF HORIZONTAL CABLING SHALL BE COMPLETED AS DIRECTED BY THE PROJECT SPECIFICATIONS. ALL CABLING MUST BE TESTED AND CERTIFIED TO THE APPLICABLE STANDARDS.

TECHNOLOGY LEGEND

- DATA LOCATION
- AP — WIRELESS ACCESS POINT - WALL MOUNTED
- APC — WIRELESS ACCESS POINT - CEILING MOUNTED
- MON — MONITOR LOCATION
- MC — MOBILE CART LOCATION
- DS — DIGITAL SIGNAGE LOCATION
- P — PROJECTOR LOCATION
- PRJ — WALL MOUNTED PROJECTOR LOCATION
- CAM — VIDEO CAMERA LOCATION
- BR — BLUETOOTH RECEIVER
- MIC — MICROPHONE INPUT LOCATION
- C — CLOCK LOCATION
- C C — CLOCK LOCATION - DUAL SIDED
- AUD — AUDIO CONNECTION LOCATION - TYPE 1
- AUD — AUDIO CONNECTION LOCATION - TYPE 2
- AUD — AUDIO CONNECTION LOCATION - TYPE 3
- MIX — AUDIO MIXING LOCATION
- AV — AV INPUT LOCATION - TYPE 1
- AV — AV INPUT LOCATION - TYPE 2
- MC — MOBILE CART CONNECTION LOCATION
- AV — AV FLOOR BOX LOCATION
- AV RACK — AV EQUIPMENT RACK LOCATION
- VID — VIDEO ROUGH-IN LOCATION
- WA — WIRELESS MICROPHONE ANTENNA LOCATION
- HA — HEARING ASSISTANCE ANTENNA LOCATION
- VC — VOLUME CONTROL LOCATION
- TP — TOUCH PANEL LOCATION
- TP — TOUCH PANEL LOCATION - DESK MOUNTED
- HM — HOUSE MANAGER LOCATION
- S — PROGRAM SPEAKER - CEILING MOUNTED
- SPK — PAGING SPEAKER - WALL MOUNTED
- SPK — PROGRAM SPEAKER LOCATION - WALL MOUNTED
- S — PAGING SPEAKER - CEILING MOUNTED
- LC — LOUDSPEAKER CONNECTION LOCATION
- MH — MAGNETIC HOLD OPEN
- SC — SECURITY CAMERA - CEILING MOUNTED
- SC — SECURITY CAMERA - WALL MOUNTED
- VI — VIDEO INTERCOM DOOR STATION
- IC — INTERCOM CONNECTION LOCATION
- IS — INTERCOM SPEAKER STATION LOCATION
- TFP — TECHNICAL FACILITIES PANEL LOCATION
- CR — CARD READER LOCATION
- D — DOOR POSITION SENSOR LOCATION
- TC — TIME CLOCK LOATION
- SL — PAGING STROBE LIGHT LOCATION

SHEET NOTES

1. FRONT FILL LOUDSPEAKER SHALL BE RECESSED WITHIN FRONT WALL OF STAGE. SPEAKER SHALL BE PAINTED TO MATCH FRONT FACE COLOR. CONFIRM FINAL COLOR AND LOCATION WITH ARCHITECT PRIOR TO INSTALLATION.
2. AV EQUIPMENT RACK LOCATION SERVING AUDITORIUM.
3. DATA LOCATION TO SERVE AV EQUIPMENT RACK. LOCATE DATA BEHIND RACK KNOCKOUT AT 46" A.F.F.
4. DATA LOCATION TO BE INSTALLED ADJACENT TO ELECTRONIC ACCESS CONTROL ENCLOSURE. CONTRACTOR SHALL PROVIDE AND INSTALL PATCH CORD(S) FROM DATA LOCATION TO ENCLOSURE.
5. TECHNICAL FACILITIES PANEL LOCATION SHALL BE INSTALLED WITHIN ORCHESTRA PIT.
6. CONTRACTOR SHALL INSTALL NETWORKED AUDIO CONTROLLER AT VOLUME CONTROL LOCATION. REFER TO SPECIFICATION 27 41 16 FOR PRODUCT REQUIREMENTS AND ACCEPTABLE MANUFACTURERS.

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1	10/11/24	ADDENDUM 3

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100% CONSTRUCTION DOCUMENTS

PROJECT: #22130
DATE: 08/30/2024
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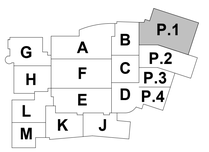
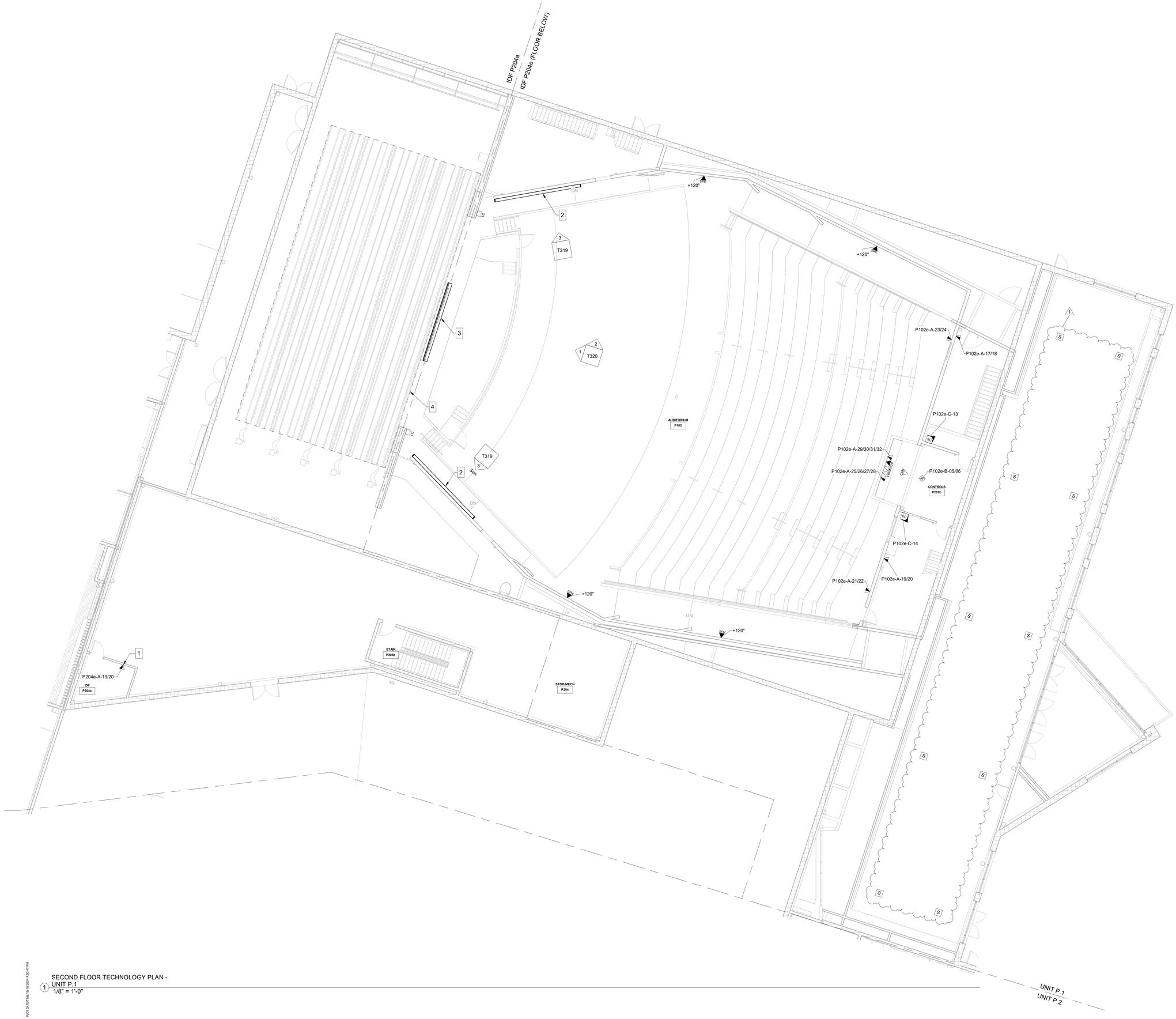
FIRST FLOOR TECHNOLOGY PLAN - UNIT P.1



T201P.1



1 SECOND FLOOR TECHNOLOGY PLAN - UNIT P.1
1/8" = 1'-0"

PLOT DATE/TIME: 10/10/2024 4:56:47 PM

GENERAL HORIZONTAL CABLING NOTES

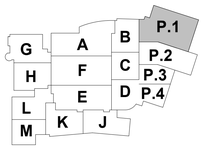
A	MINIMUM CATEGORY 6 (6A FOR WAPS) COMPLIANT 4-PAIR UNSHIELDED TWISTED PAIR (UTP). ALL HORIZONTAL CABLING MUST BE PLENUM RATED.
B	CONTRACTOR SHALL PROVIDE A DOCUMENTED MANUFACTURER CERTIFIED SOLUTION INCLUDING THE MINIMUM PERFORMANCE AND APPLICATIONS WARRANTY.
C	PAINTING OF THE STRUCTURED CABLING WILL VOID THE WARRANTY. ENSURE PROPER COORDINATION WITH PAINTING CONTRACTOR SO THAT ALL STRUCTURED CABLING IS PROTECTED PRIOR TO ANY PAINTING.
D	PROVIDE A MINIMUM 10 FOOT MAINTENANCE LOOP ON EACH HORIZONTAL CABLING RUN. MAINTENANCE LOOPS SHALL BE STORED ABOVE ACCESIBLE CEILINGS, IN SEPARATE J-HOOKS, AND IN TELECOMMUNICATION ROOM CABLE TRAY. CABLING ABOVE CEILING SHALL BE SUSPENDED FROM APPROPRIATE SUPPORTS AND SHALL NOT TOUCH THE CEILING.
E	ALL PIN/PAIR ASSIGNMENTS SHALL BE T568B.
F	REFER TO SPECIFICATION SECTION 27 15 13 FOR CABLE JACKET COLOR REQUIREMENTS
G	LABELING SHALL BE COMPLETED AS DEFINED IN THE CONTRACT DOCUMENTS AND SHALL BE COORDINATED WITH THE OWNER.
H	PROVIDE ALL TELECOMMUNICATION OUTLETS AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO PROVIDE CONNECTIONS FOR EACH DEVICE SHOWN ON THE DRAWINGS.
I	ALL TESTING OF HORIZONTAL CABLING SHALL BE COMPLETED AS DIRECTED BY THE PROJECT SPECIFICATIONS. ALL CABLING MUST BE TESTED AND CERTIFIED TO THE APPLICABLE STANDARDS.

TECHNOLOGY LEGEND

- DATA LOCATION
- WIRELESS ACCESS POINT - WALL MOUNTED
- WIRELESS ACCESS POINT - CEILING MOUNTED
- MONITOR LOCATION
- MOBILE CART LOCATION
- DIGITAL SIGNAGE LOCATION
- PROJECTOR LOCATION
- WALL MOUNTED PROJECTOR LOCATION
- VIDEO CAMERA LOCATION
- BLUETOOTH RECEIVER
- MICROPHONE INPUT LOCATION
- CLOCK LOCATION
- CLOCK LOCATION - DUAL SIDED
- AUDIO CONNECTION LOCATION - TYPE 1
- AUDIO CONNECTION LOCATION - TYPE 2
- AUDIO CONNECTION LOCATION - TYPE 3
- AUDIO MIXING LOCATION
- AV INPUT LOCATION - TYPE 1
- AV INPUT LOCATION - TYPE 2
- MOBILE CART CONNECTION LOCATION
- AV FLOOR BOX LOCATION
- AV EQUIPMENT RACK LOCATION
- VIDEO ROUGH-IN LOCATION
- WIRELESS MICROPHONE ANTENNA LOCATION
- HEARING ASSISTANCE ANTENNA LOCATION
- VOLUME CONTROL LOCATION
- TOUCH PANEL LOCATION
- TOUCH PANEL LOCATION - DESK MOUNTED
- HOUSE MANAGER LOCATION
- PROGRAM SPEAKER - CEILING MOUNTED
- PAGING SPEAKER - WALL MOUNTED
- PROGRAM SPEAKER LOCATION - WALL MOUNTED
- PAGING SPEAKER - CEILING MOUNTED
- LOUDSPEAKER CONNECTION LOCATION
- MAGNETIC HOLD OPEN
- SECURITY CAMERA - CEILING MOUNTED
- SECURITY CAMERA - WALL MOUNTED
- VIDEO INTERCOM DOOR STATION
- INTERCOM CONNECTION LOCATION
- INTERCOM SPEAKER STATION LOCATION
- TECHNICAL FACILITIES PANEL LOCATION
- CARD READER LOCATION
- DOOR POSITION SENSOR LOCATION
- TIME CLOCK LOATION
- PAGING STROBE LIGHT LOCATION

T202P.1 SHEET NOTES

1. DATA LOCATION TO BE INSTALLED ADJACENT TO ELECTRONIC ACCESS CONTROL ENCLOSURE. CONTRACTOR SHALL PROVIDE AND INSTALL PATCH CORD(S) FROM DATA LOCATION TO PANEL.
2. 216" W x 135" H 16:10 ASPECT RATIO WALL MOUNTED ELECTRIC PROJECTION SCREEN.
3. 284" W x 177" H 16:10 ASPECT RATIO CEILING MOUNTED ELECTRIC PROJECTION SCREEN.
4. AS PART OF AN ALTERNATE BID, CONTRACTOR SHALL PROVIDE PRICE FOR STRUCTURALLY FLOWN LED VIDEO BOARD SIZED ROUGHLY 35.5'W x 15.74'H WITH A MAXIMUM PIXEL PITCH OF 6.25MM. REFERENCE ALTERNATE LIST DESCRIPTION IN FRONT-END DOCUMENTATION FOR ADDITIONAL INFORMATION.



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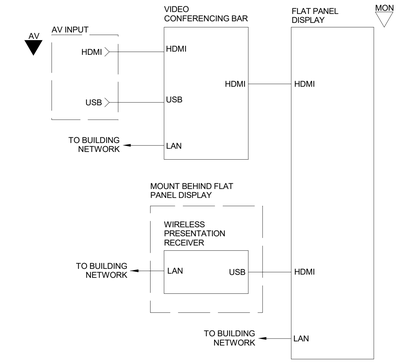
SECOND FLOOR TECHNOLOGY PLAN - UNIT P.1

T202P.1



1 CONFERENCE ROOM P114a AV DIAGRAM
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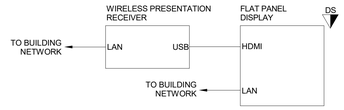

2 TYPICAL DIGITAL SIGNAGE AV DIAGRAM
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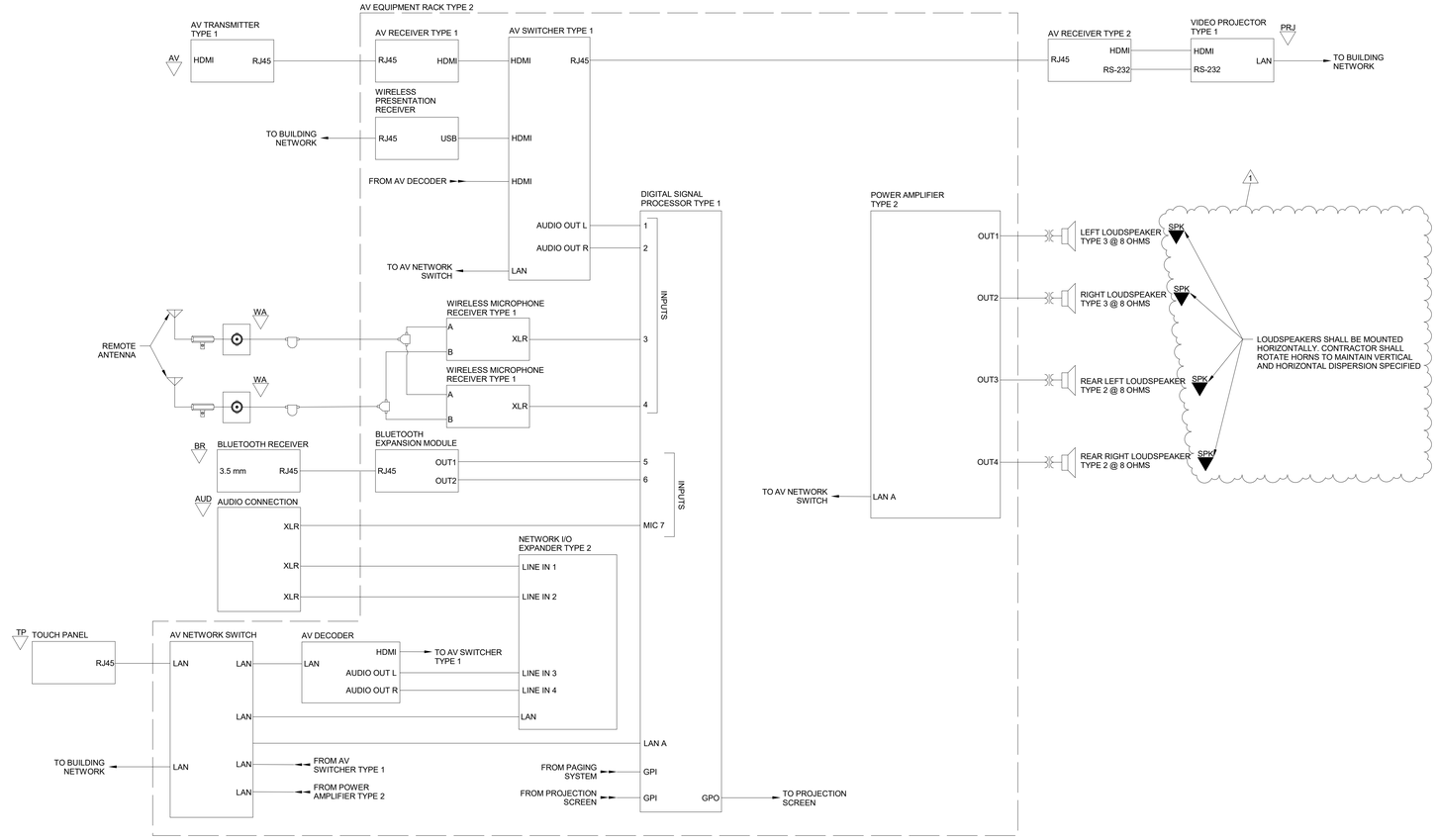

3 CHOIR 2 REHERSAL ROOM AV DIAGRAM
N.T.S.

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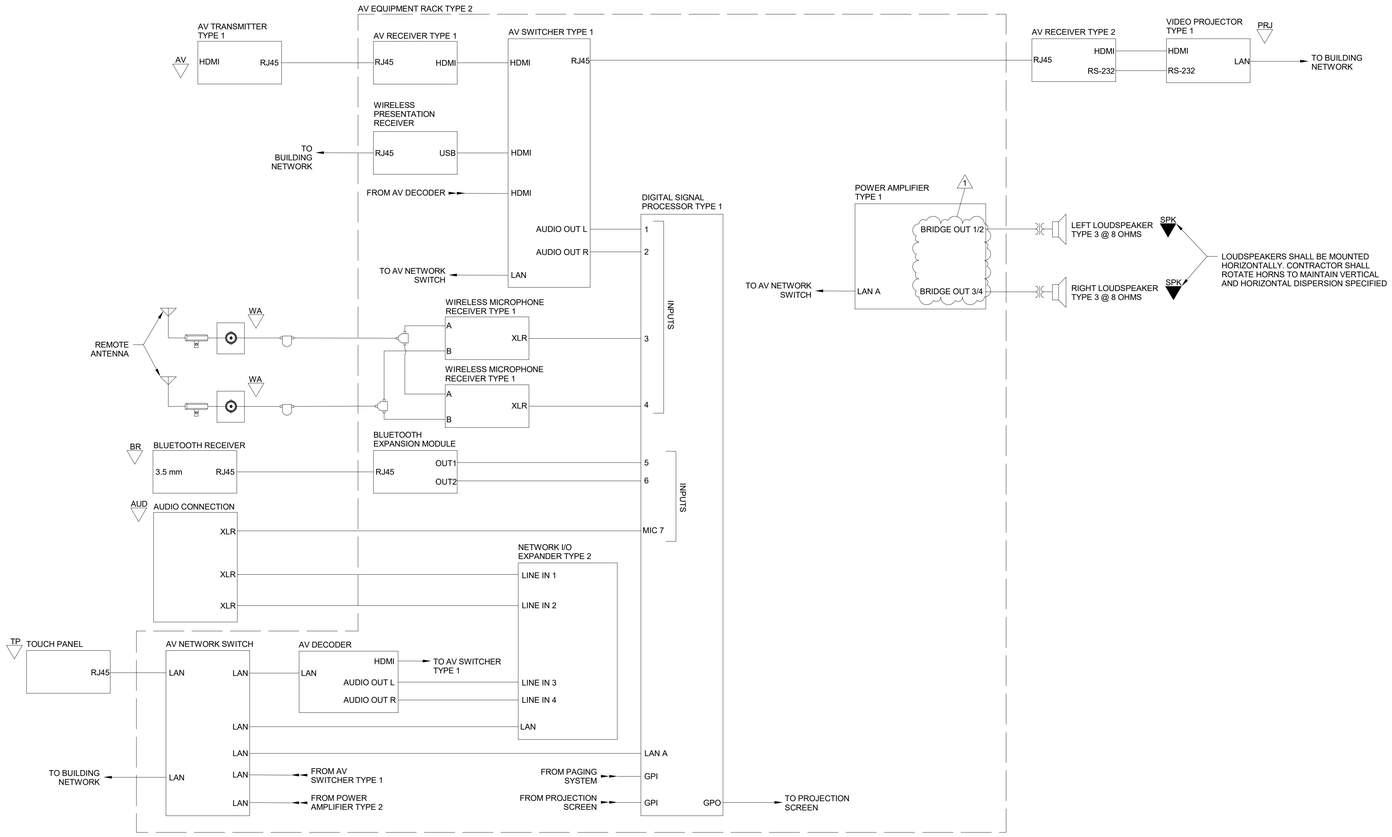
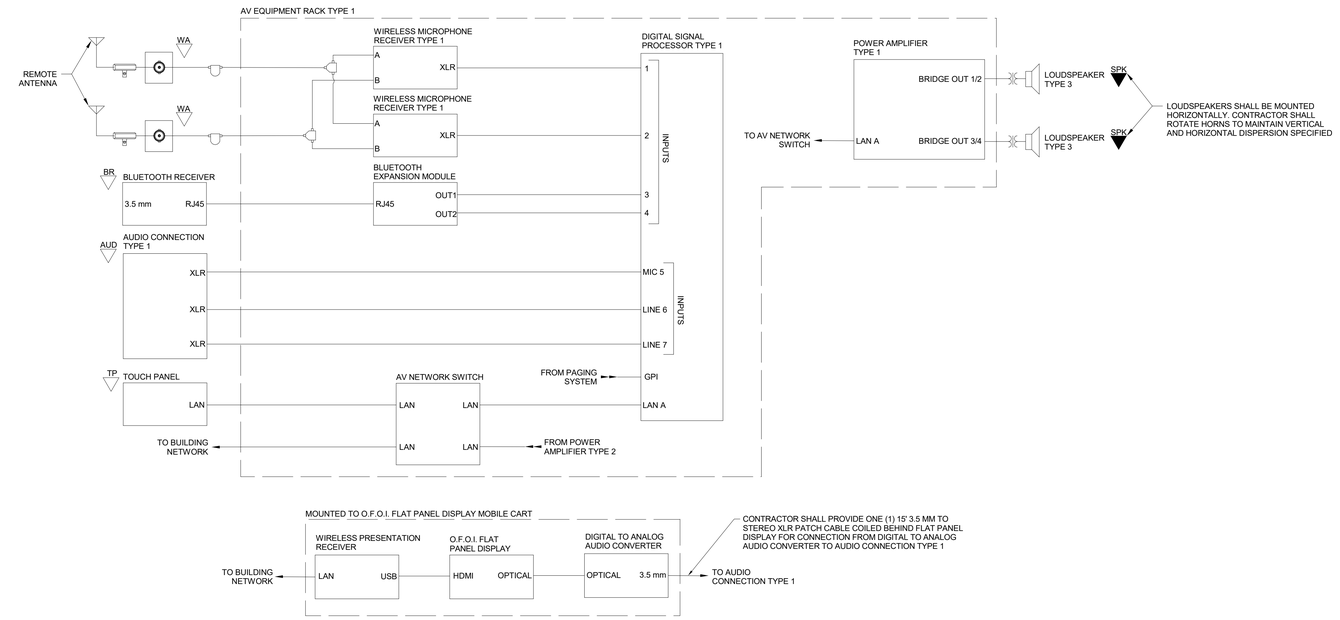
AUDIO VISUAL DIAGRAMS

T305



1 DANCE / THEATER REHERSAL ROOM AV DIAGRAM
N.T.S.



2 JAZZ REHERSAL ROOM AV DIAGRAM
N.T.S.

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AUDIO VISUAL DIAGRAMS

T306

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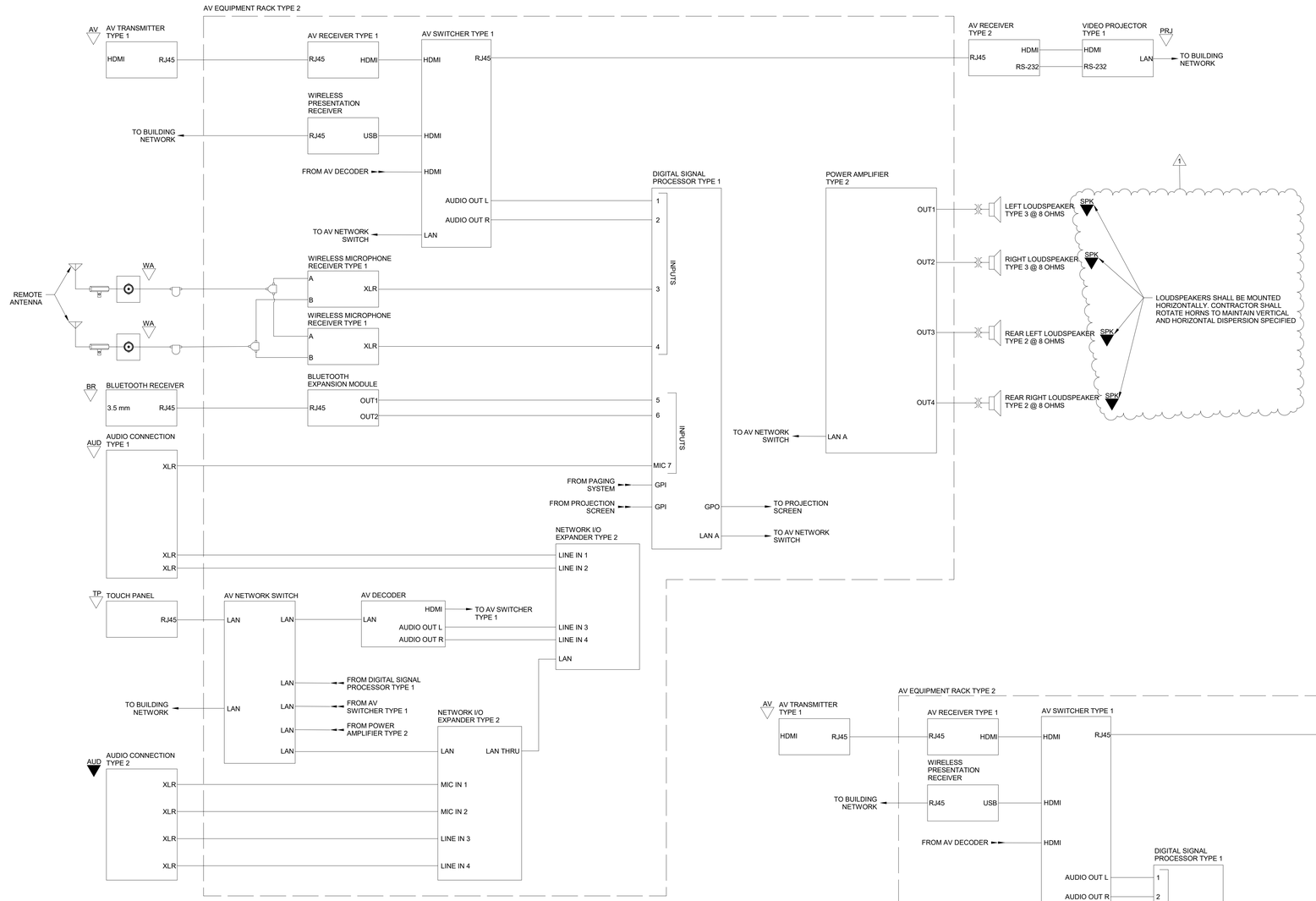
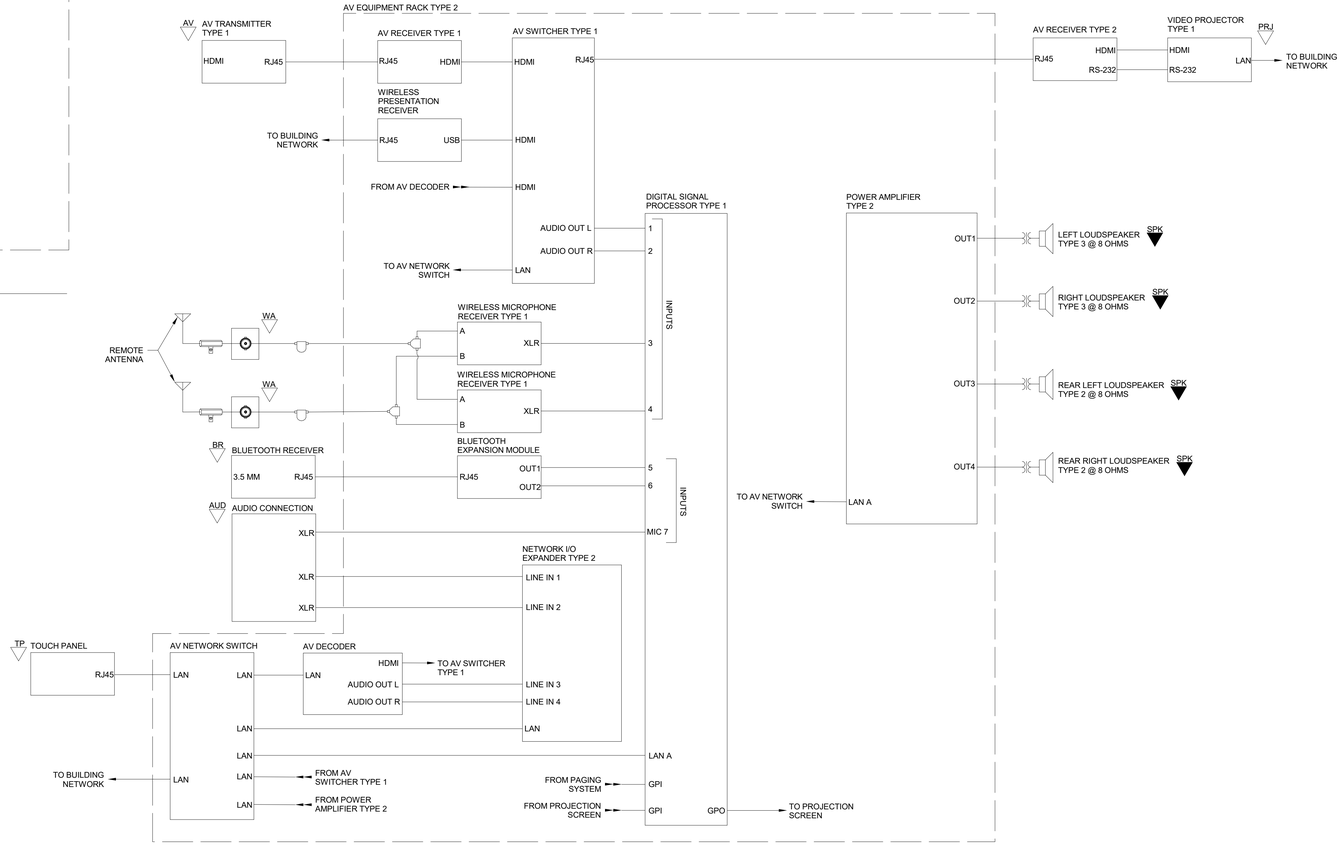


CHOIR 1 REHEARSAL ROOM AV DIAGRAM
N.T.S.



PERCUSSION REHERSAL ROOM AV DIAGRAM
N.T.S.

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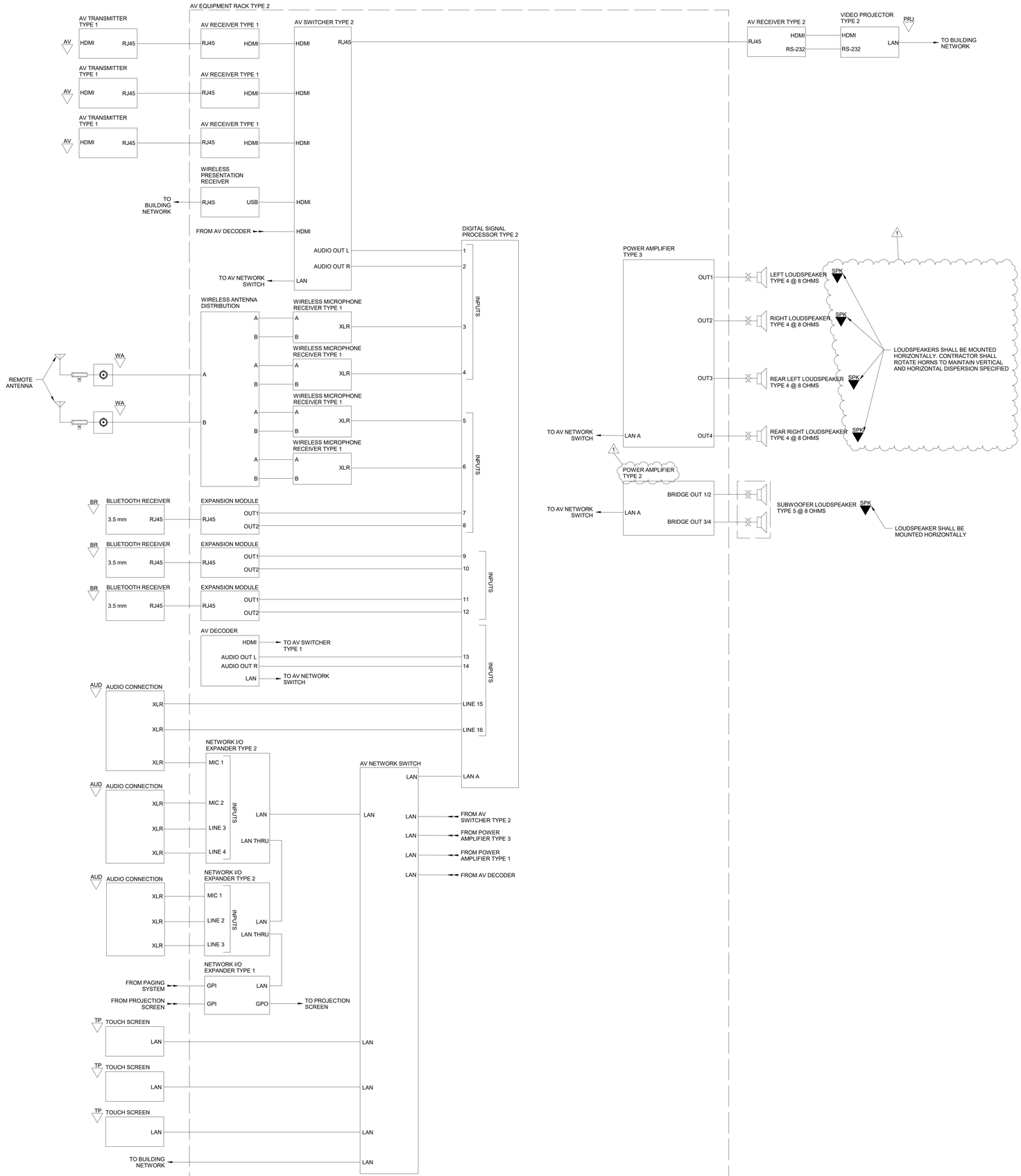
T307



1 BAND REHERSAL ROOM AV DIAGRAM
N.T.S.

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T308

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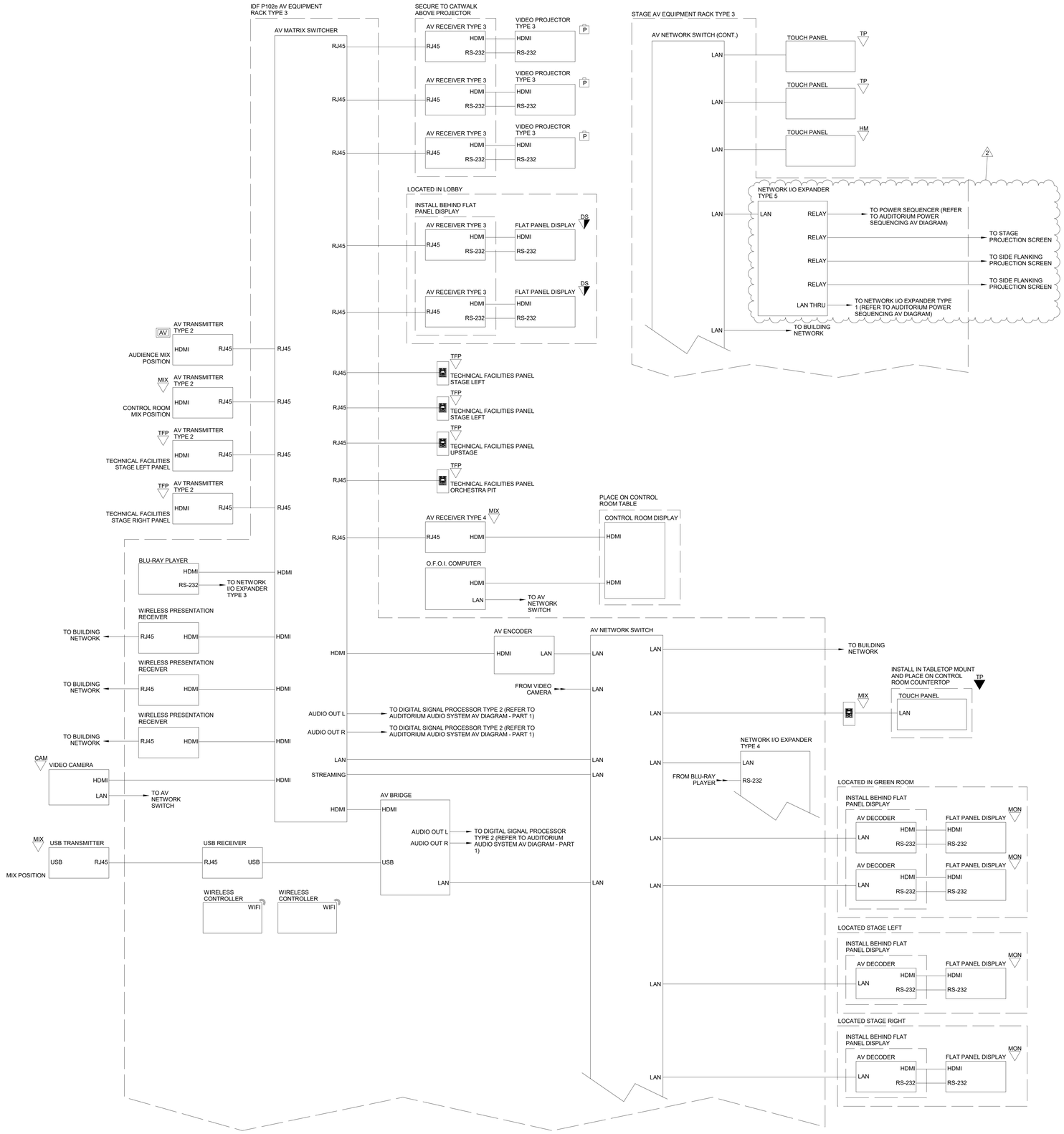

1 AUDITORIUM AV SYSTEM DIAGRAM
N.T.S.

PLOT DATE/TIME: 10/10/2024 4:51:27 PM

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2	10/11/24	ADDENDUM 3

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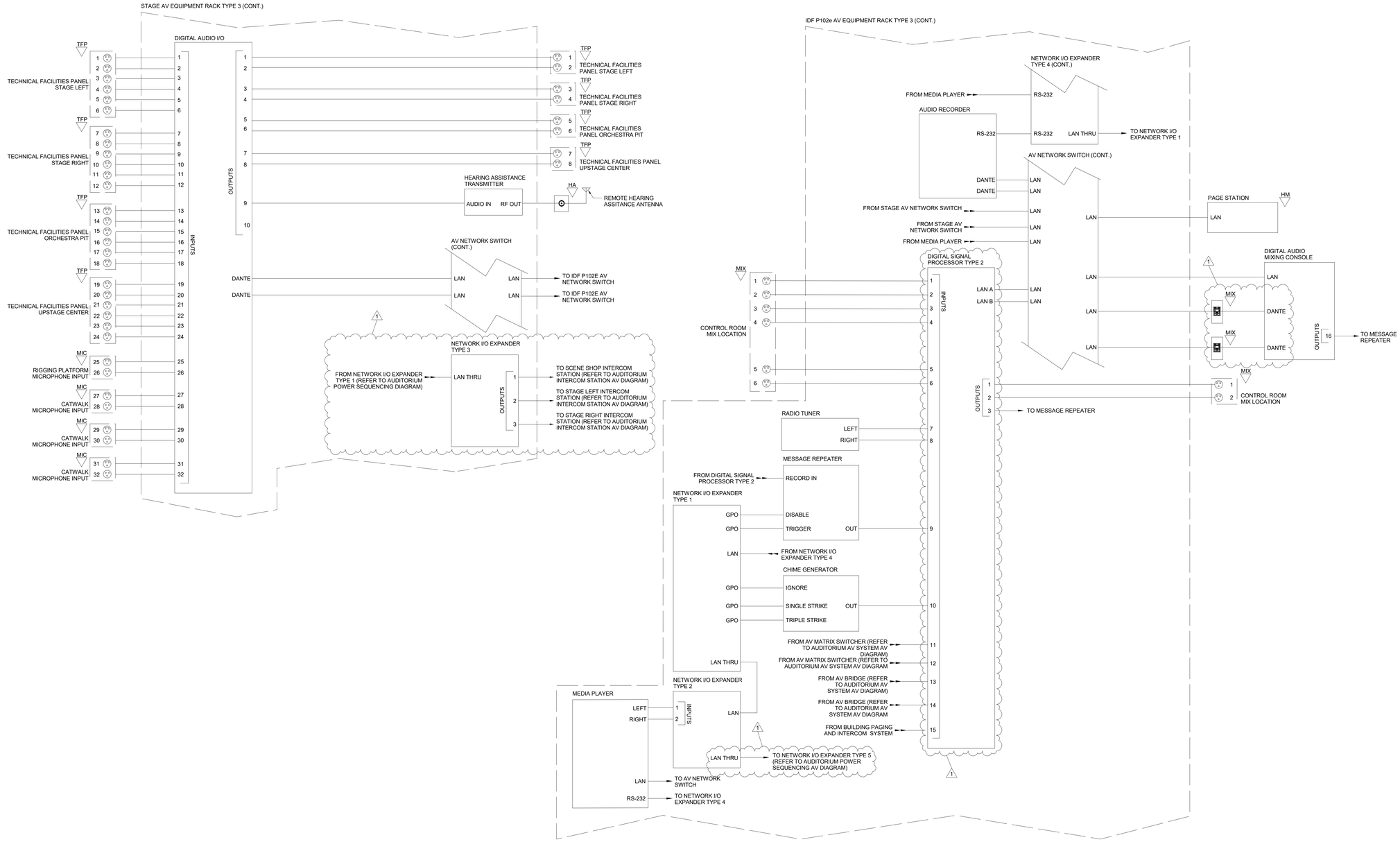
T310



1 AUDITORIUM AUDIO SYSTEM AV DIAGRAM - PART 1
N.T.S.

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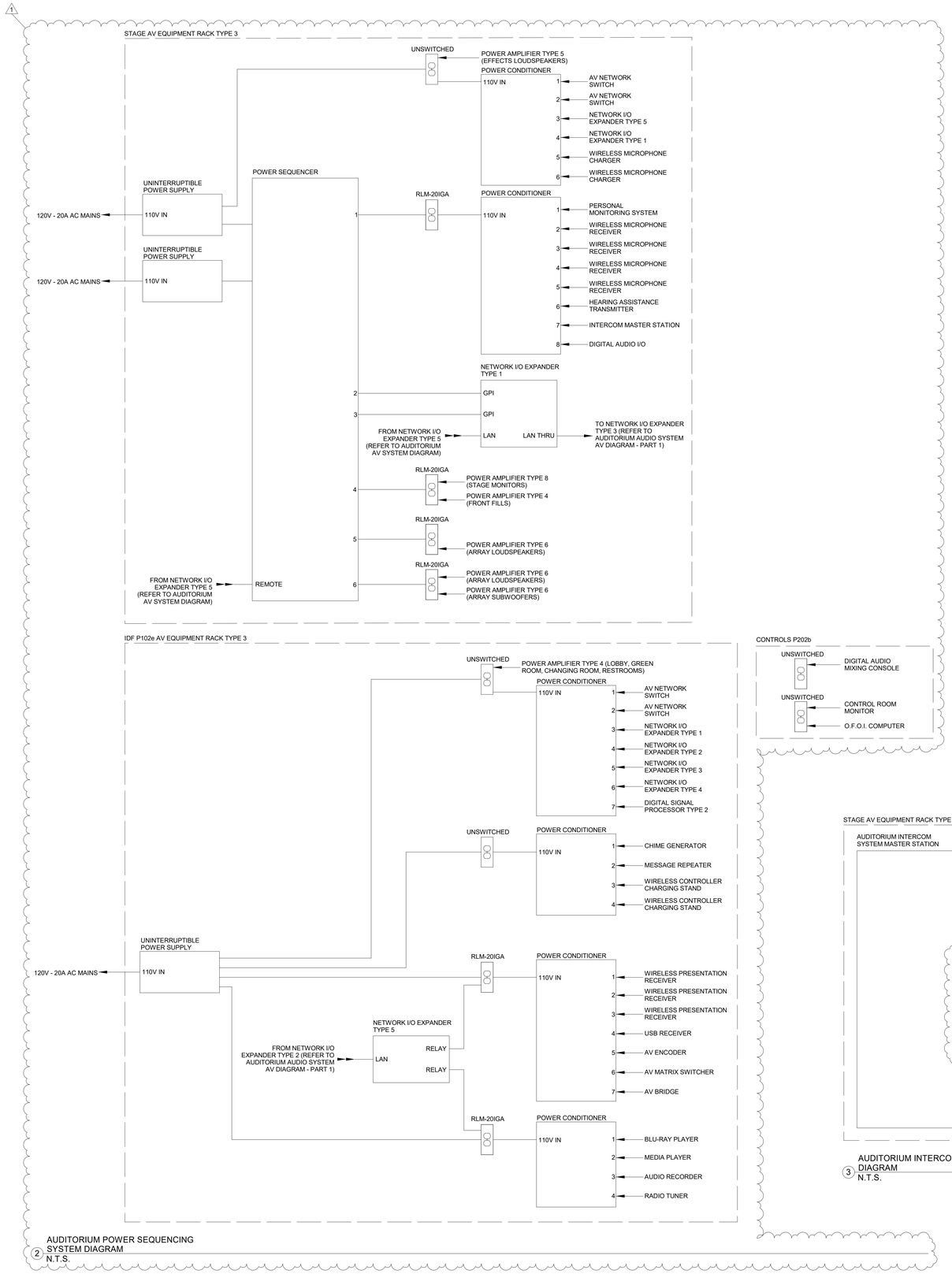
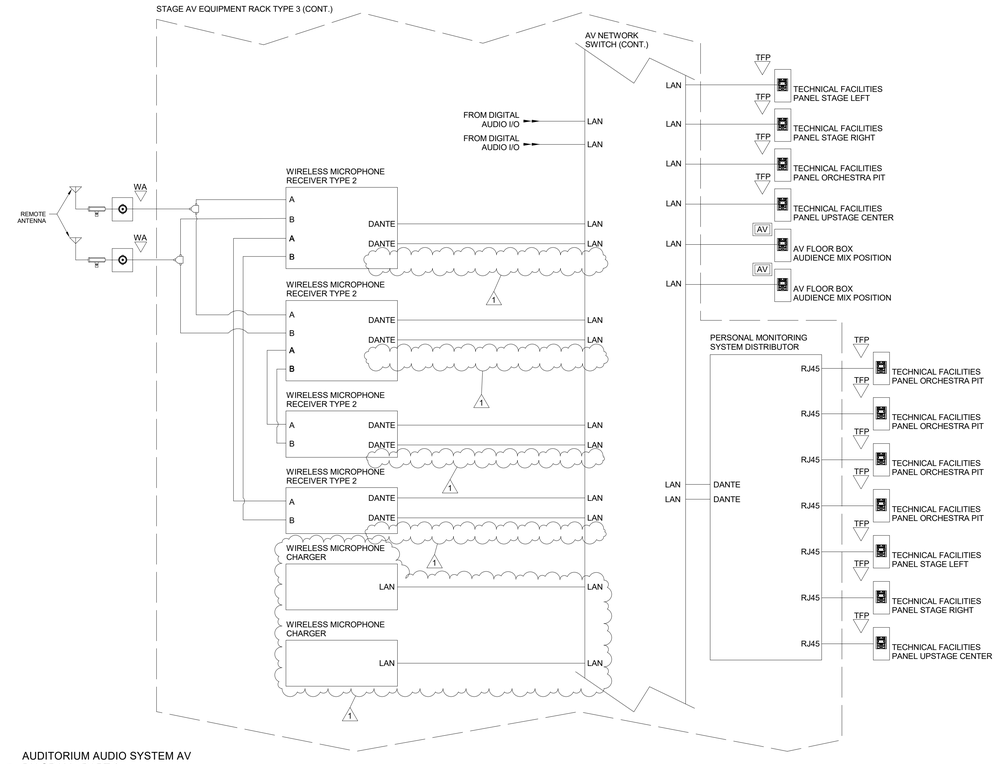
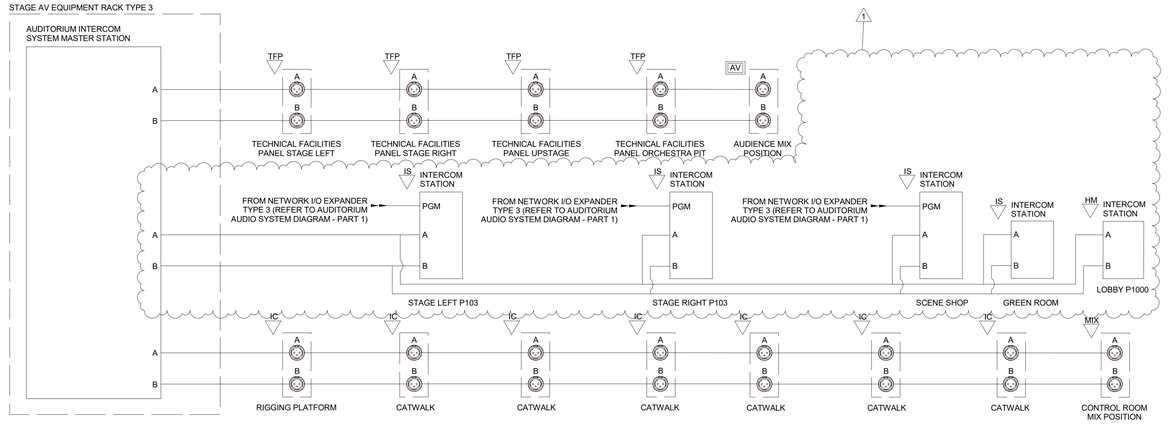
T311



AUDITORIUM POWER SEQUENCING SYSTEM DIAGRAM
2 N.T.S.



AUDITORIUM AUDIO SYSTEM AV DIAGRAM - PART 2
1 N.T.S.



AUDITORIUM INTERCOM SYSTEM DIAGRAM
3 N.T.S.

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AUDIO VISUAL DIAGRAMS

T312

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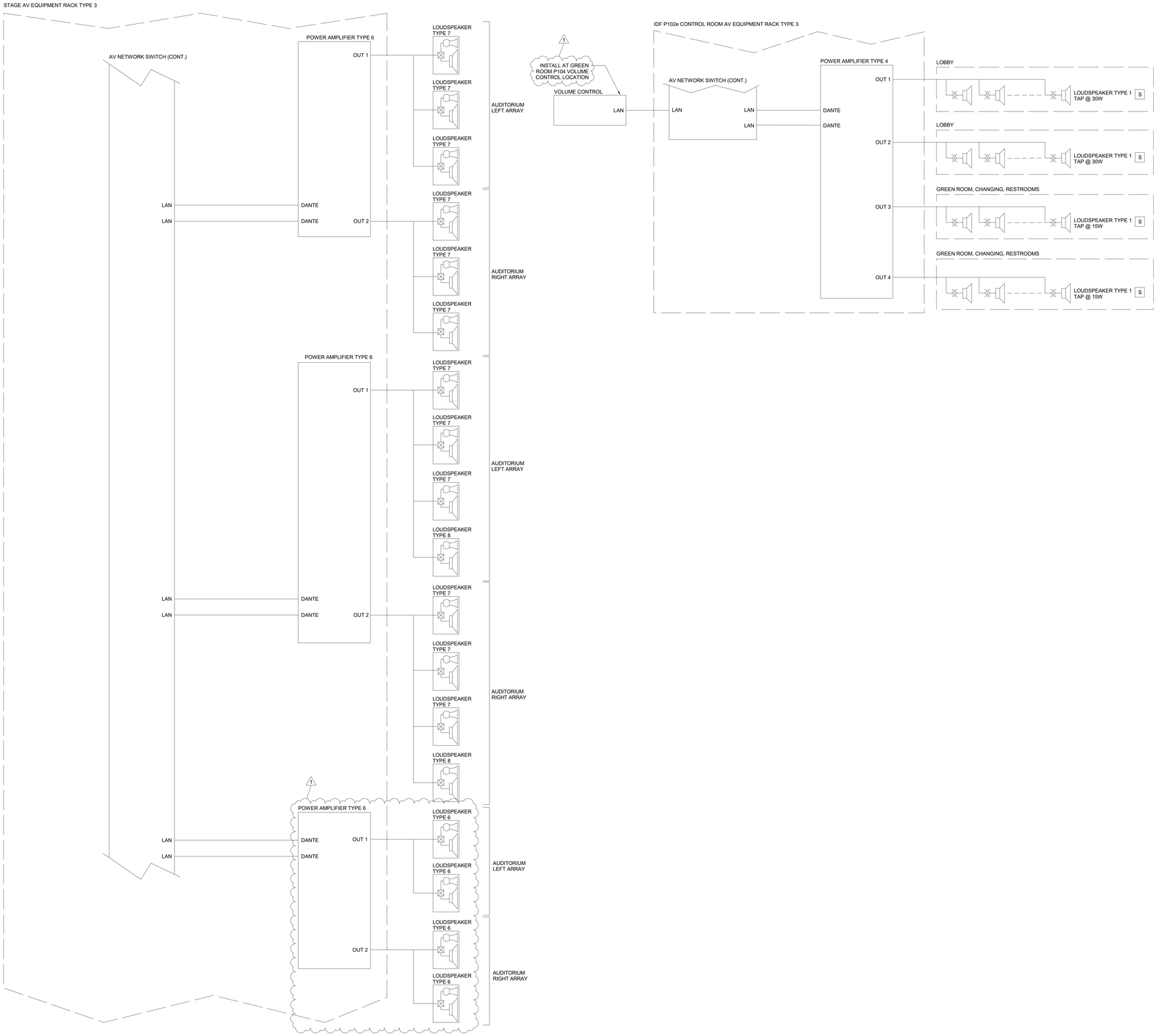

1 AUDITORIUM LOUDSPEAKER AV DIAGRAM - PART 1
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AUDIO VISUAL DIAGRAMS

T313

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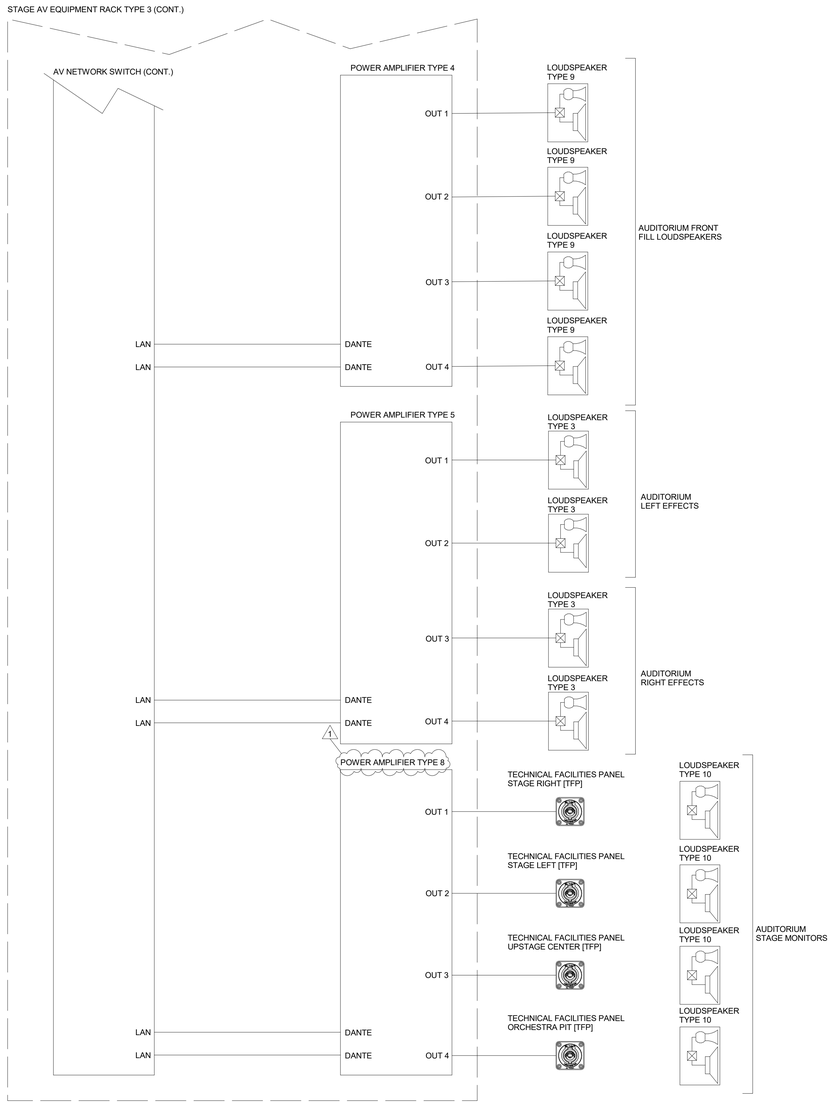

1 AUDITORIUM LOUDSPEAKER AV DIAGRAM - PART 2
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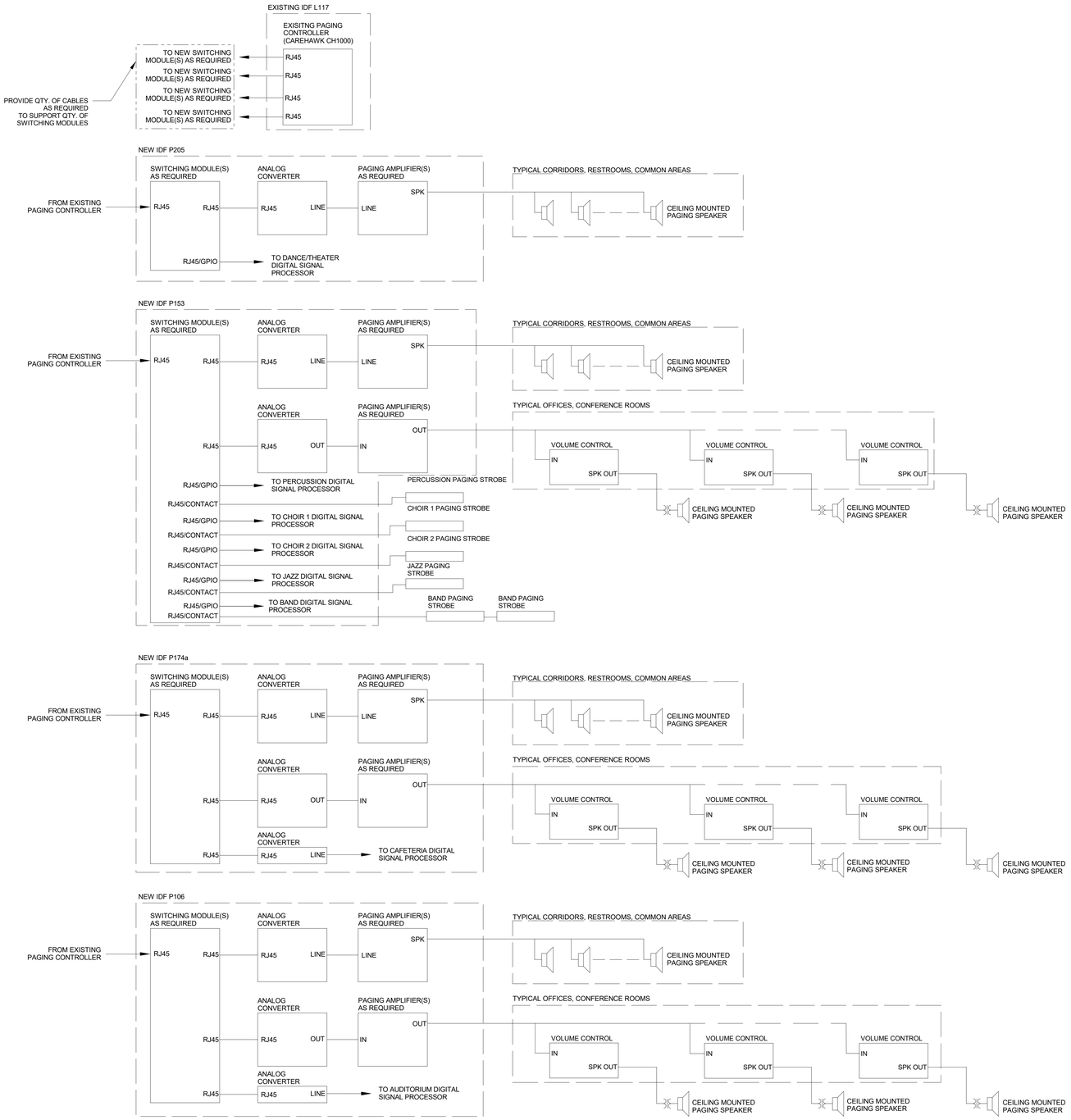

2 PAGING DIAGRAM
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1
T314

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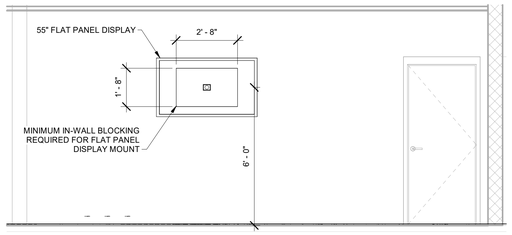
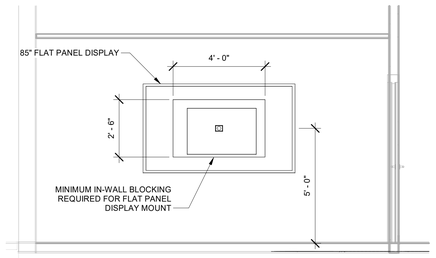
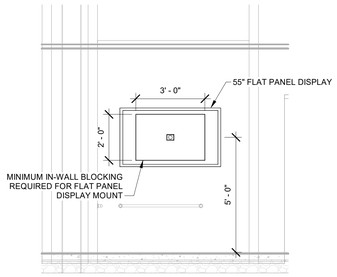


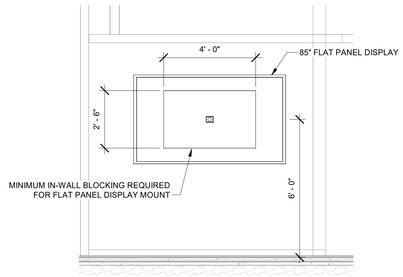
1 COFFEE SHOP DIGITAL SIGNAGE ELEVATION
3/8" = 1'-0"



2 CONFERENCE MONITOR ELEVATION
3/8" = 1'-0"

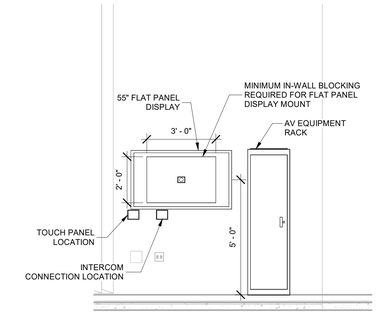


3 GREEN ROOM MONITOR ELEVATION
3/8" = 1'-0"

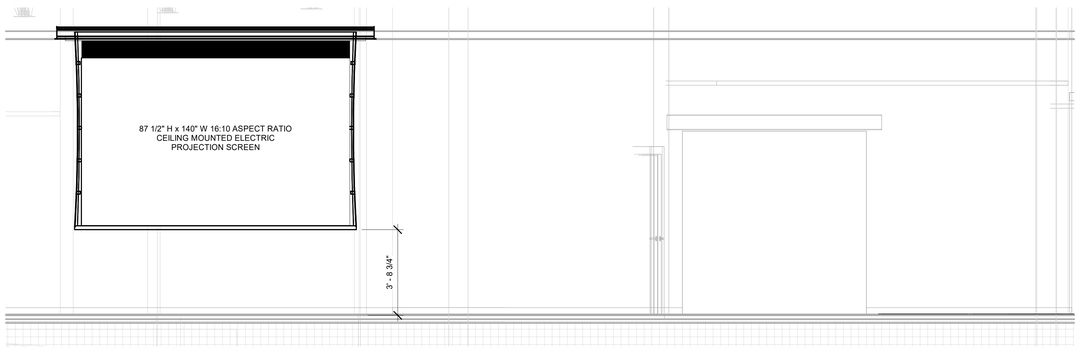


4 LOBBY MONITOR ELEVATION
3/8" = 1'-0"

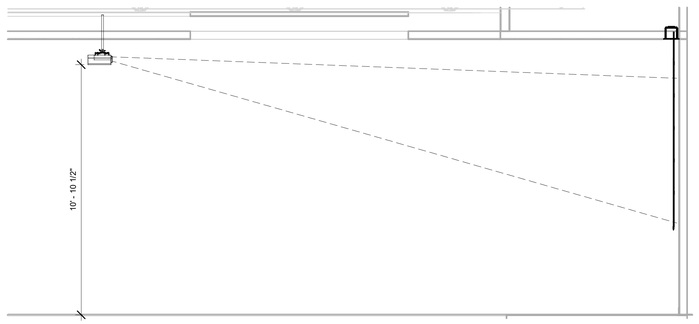
5 SERVING LINE DIGITAL SIGNAGE ELEVATION - FRONT
3/8" = 1'-0"



6 STAGE MONITOR ELEVATION
3/8" = 1'-0"



7 CAFETERIA PROJECTION ELEVATION - FRONT
3/8" = 1'-0"



8 CAFETERIA PROJECTION ELEVATION - SIDE
3/8" = 1'-0"

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BICSI
Douglas J Driscoll
BICSI ID # 123408
EXPIRES 12-31-26
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#	Date	Desc.
1	10/11/24	ADDENDUM 3

100% CONSTRUCTION DOCUMENTS

PROJECT: #22130
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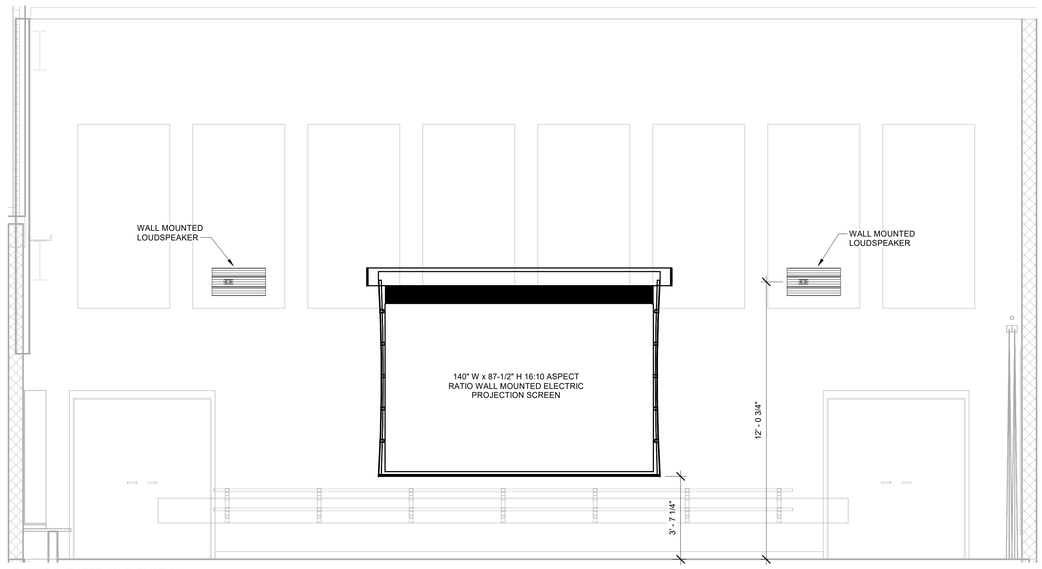
AUDIO VISUAL ELEVATIONS

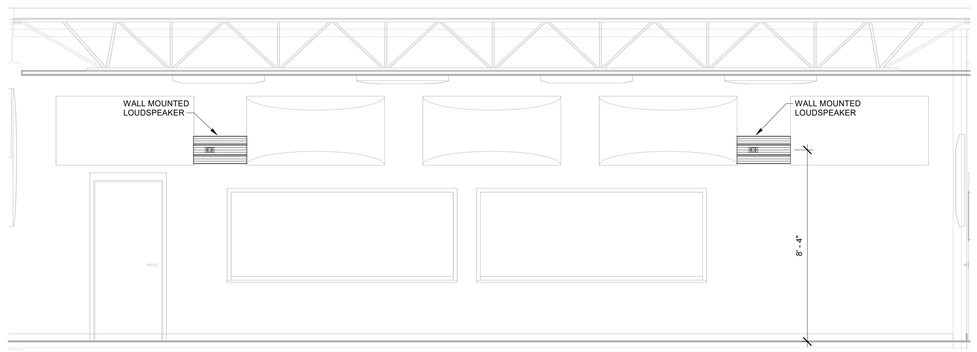
1
T315

PLOT DATE/TIME: 10/10/2024 4:51:12 PM

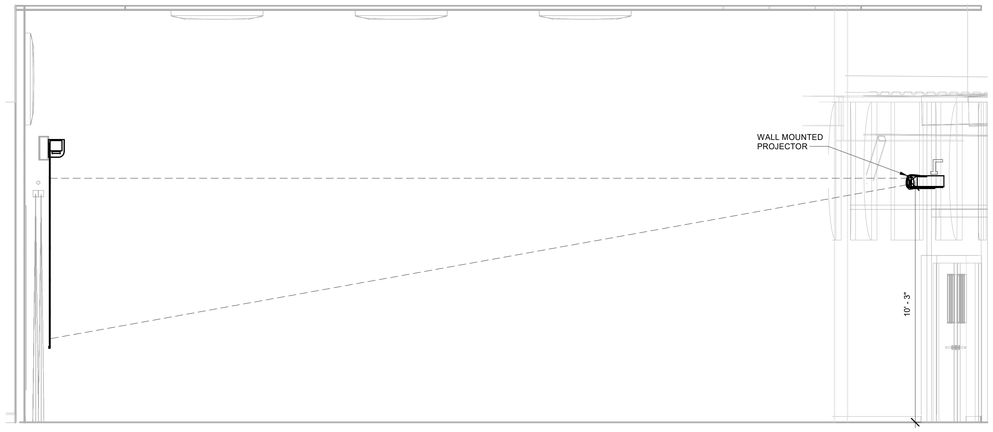


1 DANCE/THEATER AV ELEVATION - FRONT
3/8" = 1'-0"

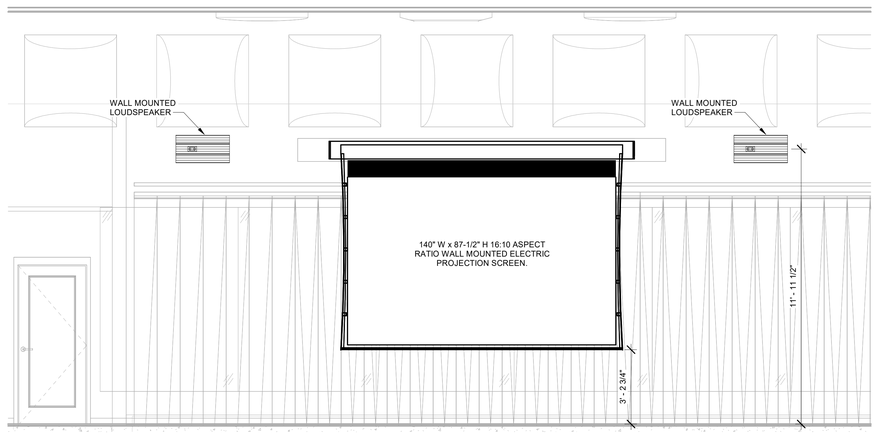
2 DANCE/THEATER AV ELEVATION - SIDE
3/8" = 1'-0"



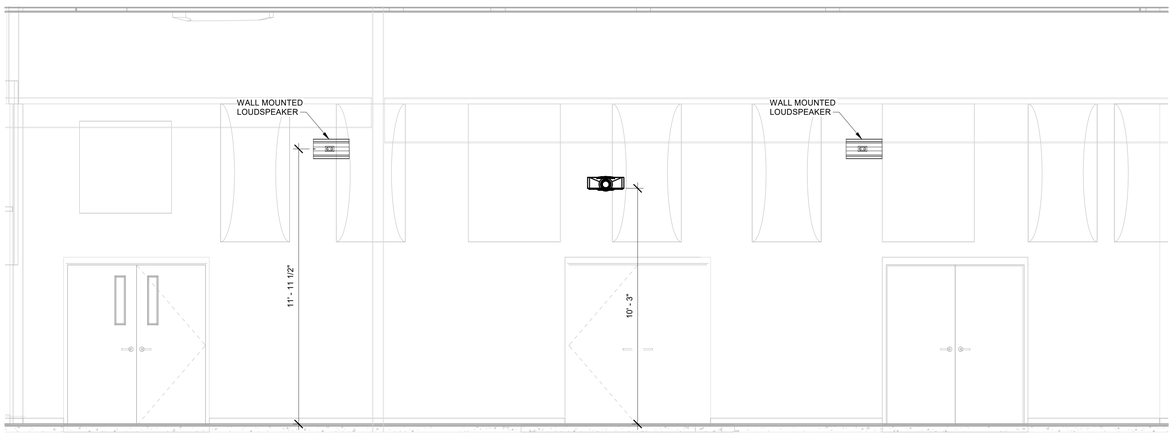
3 JAZZ AV ELEVATION
3/8" = 1'-0"



4 CHOIR 2 AV ELEVATION - SIDE
3/8" = 1'-0"



5 CHOIR 2 AV ELEVATION - FRONT
3/8" = 1'-0"



6 CHOIR 2 AV ELEVATION - REAR
3/8" = 1'-0"

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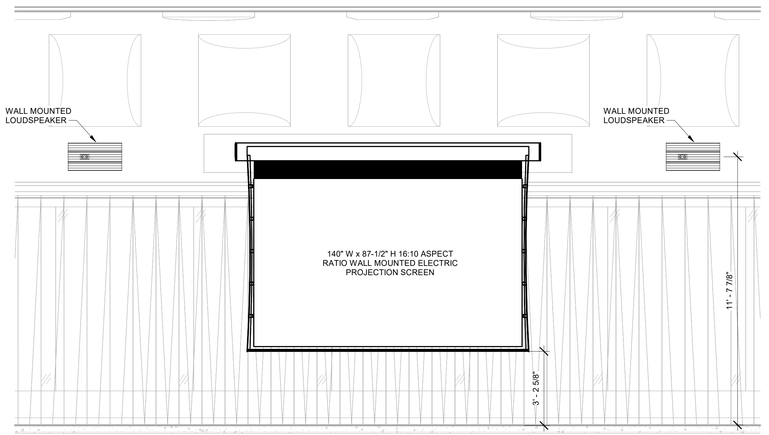
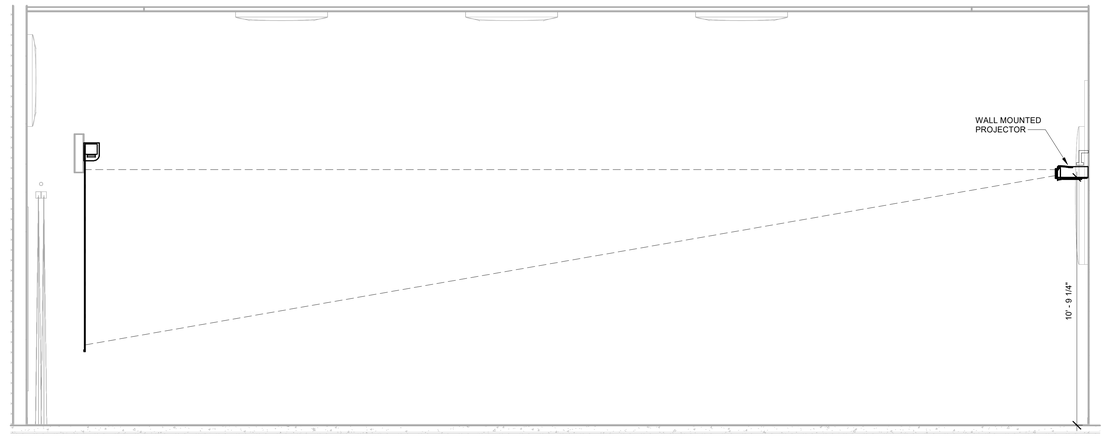
AUDIO VISUAL ELEVATIONS

T316

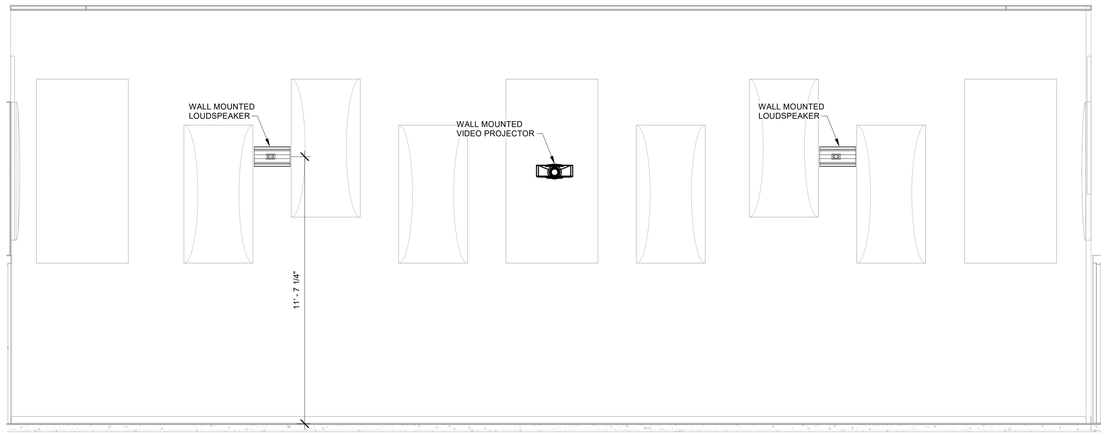
PLOT DATE/TIME: 10/10/2024 4:51:20 PM



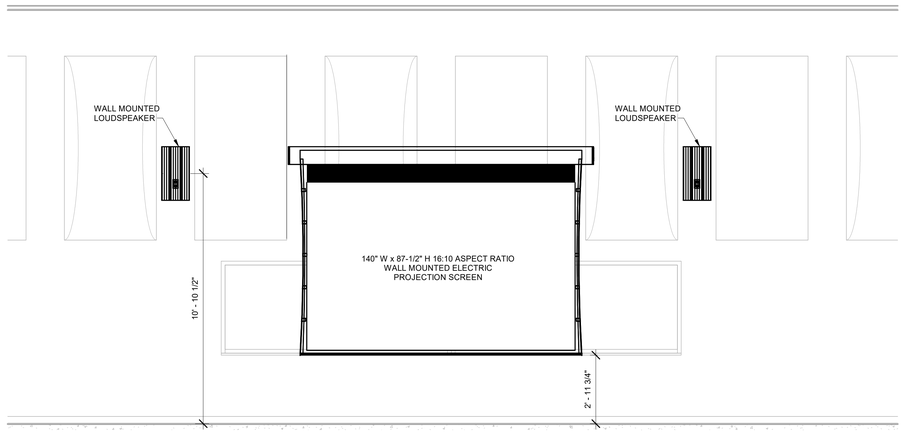
1 CHOIR 1 AV ELEVATION - FRONT
3/8" = 1'-0"



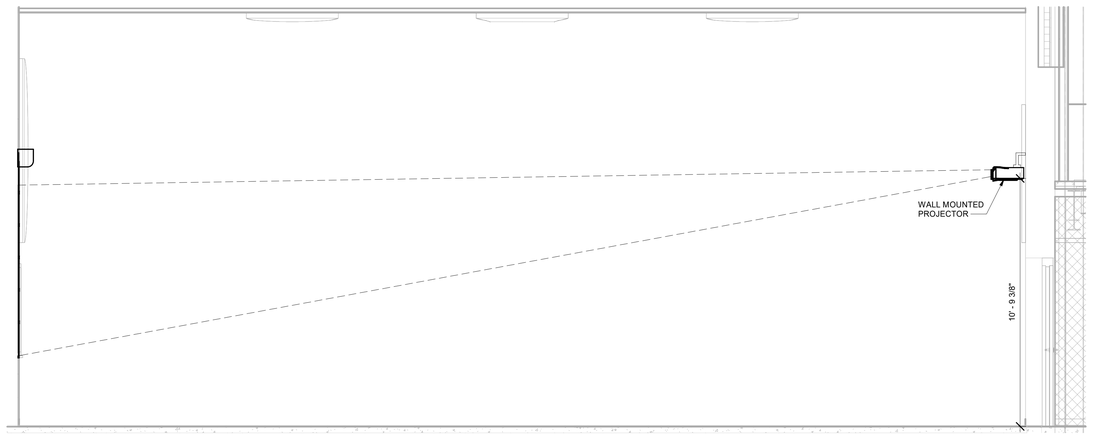
2 CHOIR 1 AV ELEVATION - SIDE
3/8" = 1'-0"



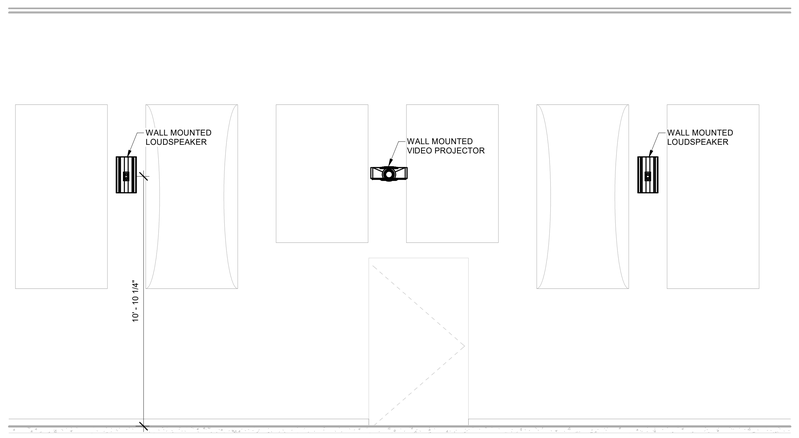
3 CHOIR 1 AV ELEVATION - REAR
3/8" = 1'-0"



4 PERCUSSION AV ELEVATION - FRONT
3/8" = 1'-0"



5 PERCUSSION AV ELEVATION - SIDE
3/8" = 1'-0"



6 PERCUSSION AV ELEVATION - REAR
3/8" = 1'-0"

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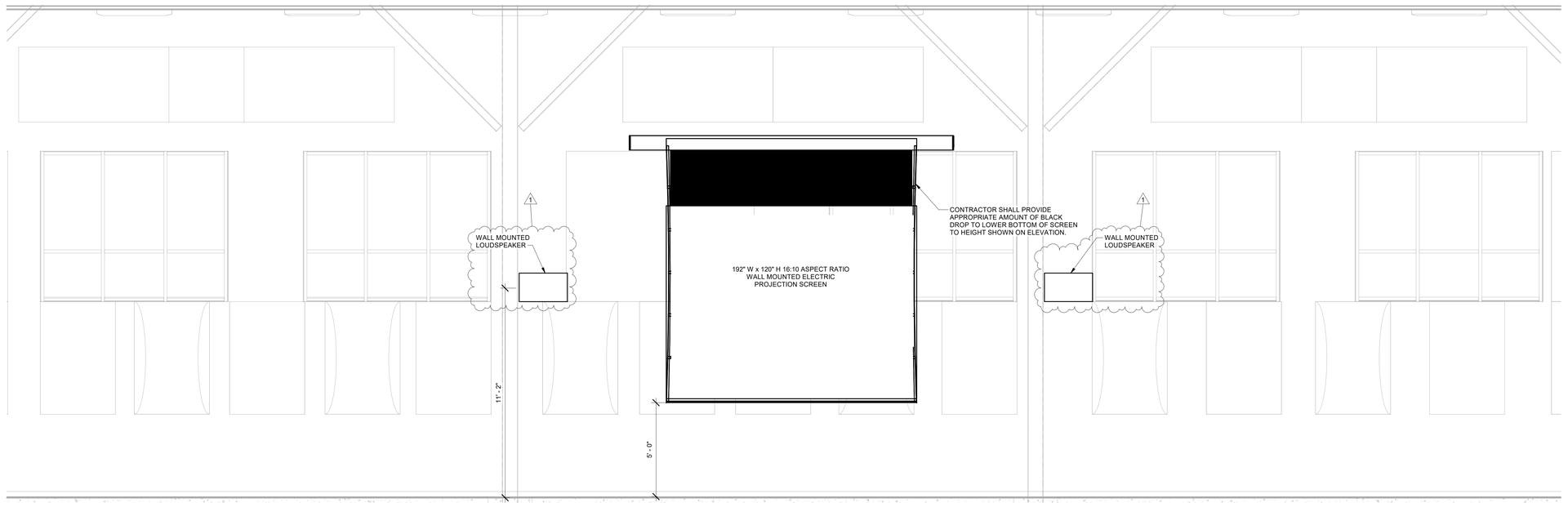
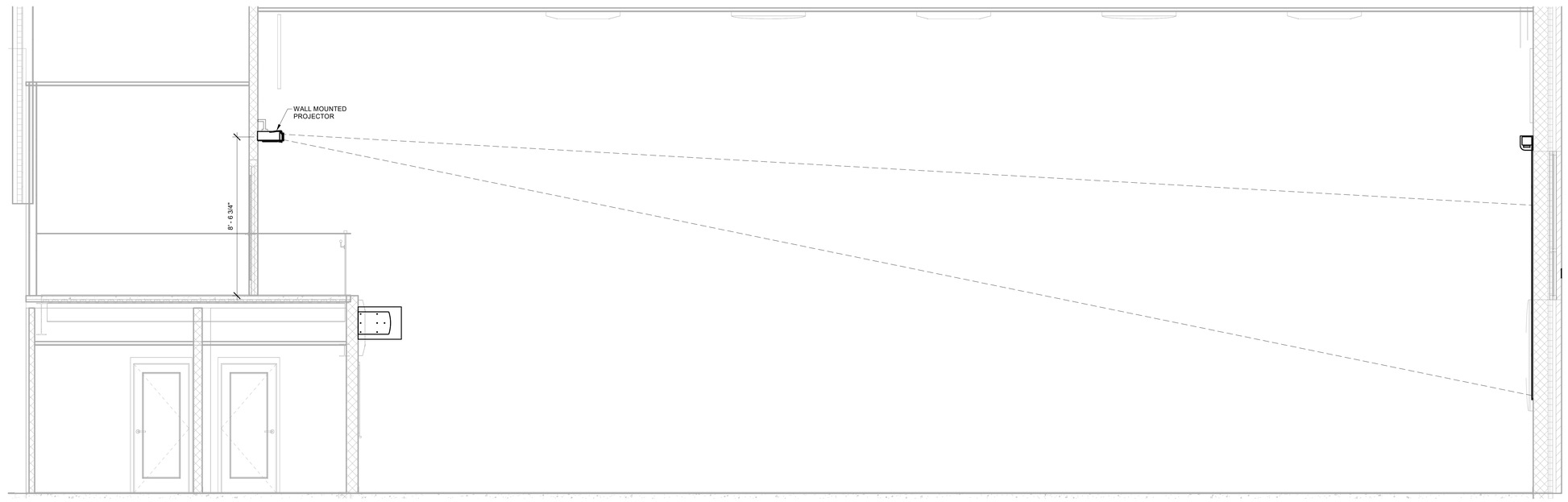
AUDIO VISUAL ELEVATIONS

T317

PLOT DATE/TIME: 10/10/2024 4:51:35 PM



1 BAND AV ELEVATION - REAR
3/8" = 1'-0"



2 BAND AV ELEVATION - SIDE
3/8" = 1'-0"

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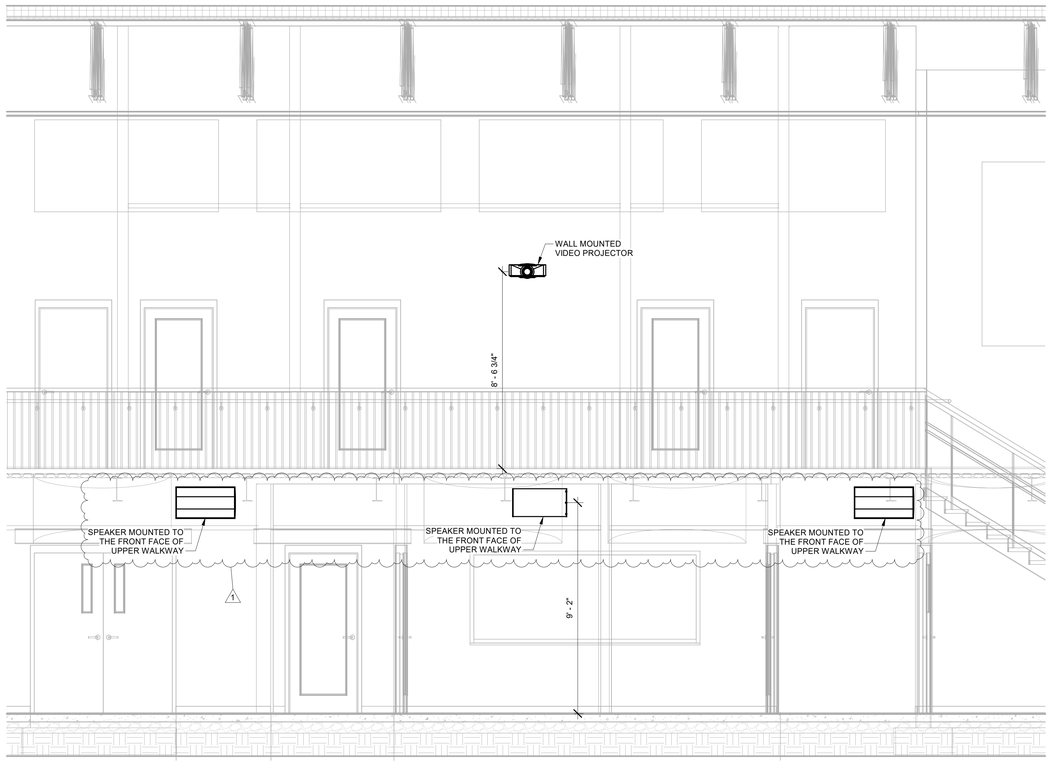
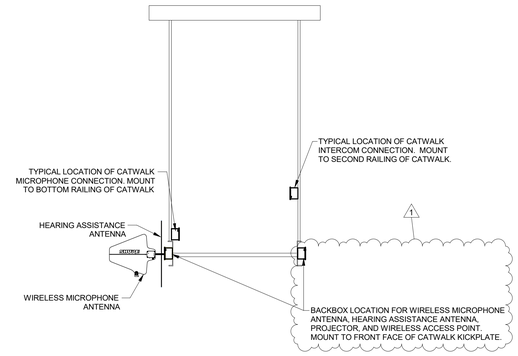
AUDIO VISUAL ELEVATIONS

1
T318

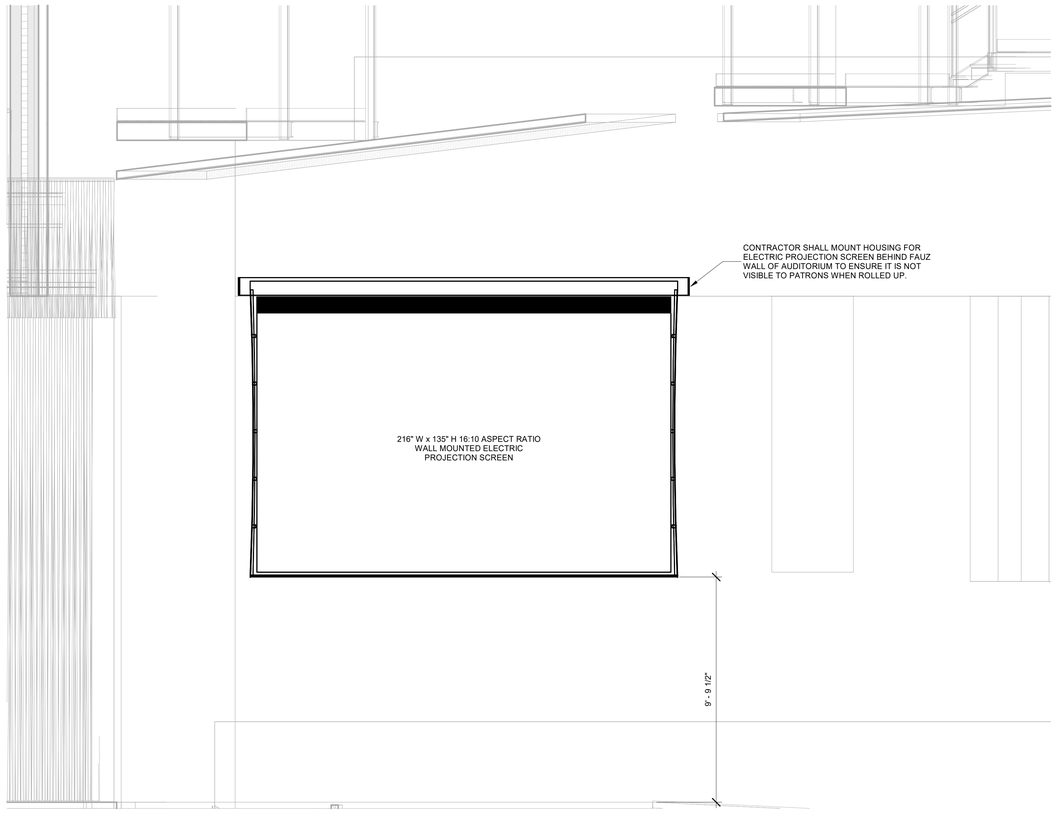
PLOT DATE/TIME: 10/10/2024 4:51:37 PM



1 BAND AV ELEVATION - FRONT
3/8" = 1'-0"



TYPICAL CATWALK DEVICE MOUNTING
2 DETAIL
N.T.S.



AUDITORIUM FLANKING SCREEN
3 ELEVATION
3/8" = 1'-0"

PLOT DATE/TIME: 10/10/2024 4:51:40 PM

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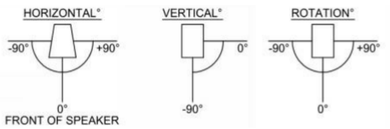
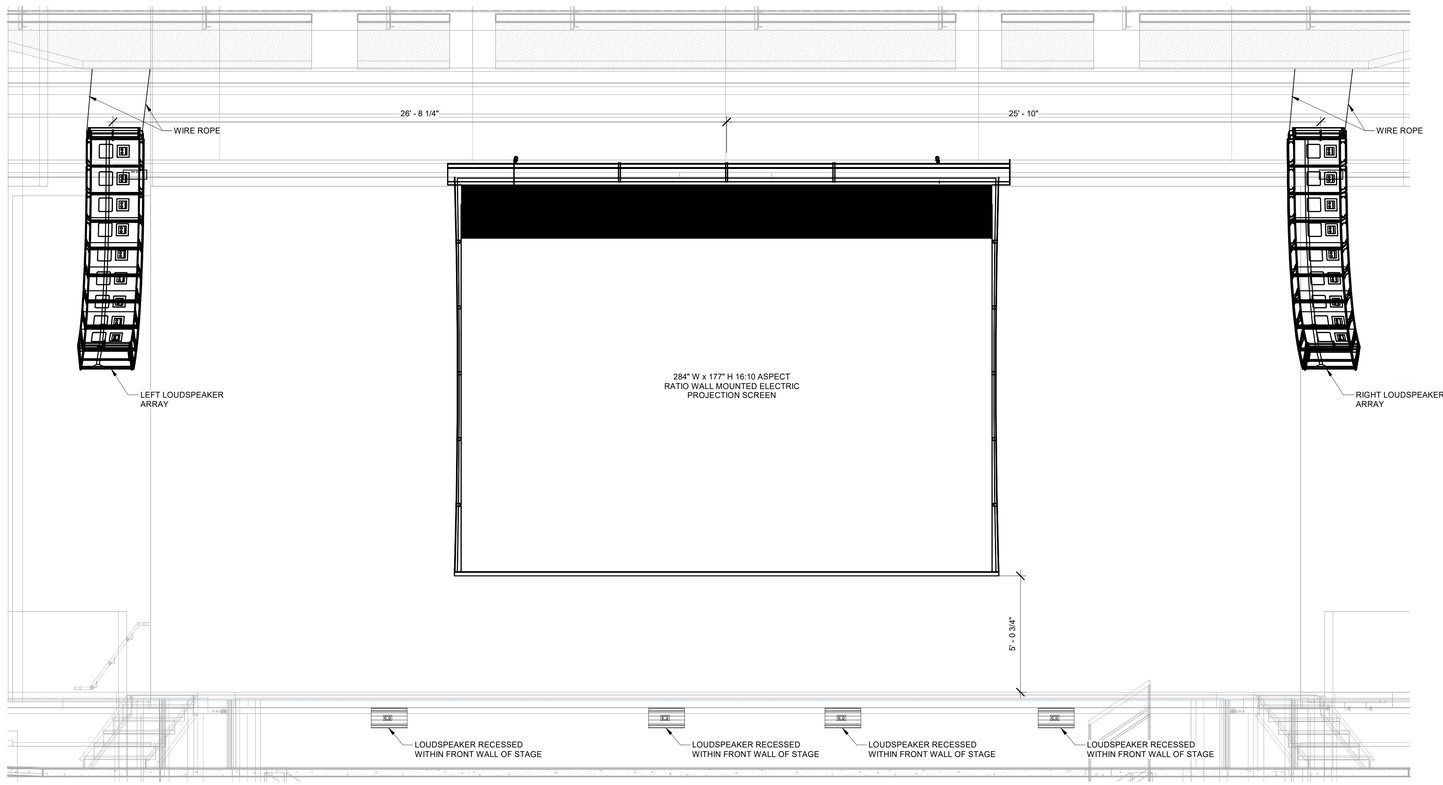
AUDIO VISUAL ELEVATIONS

1
T319

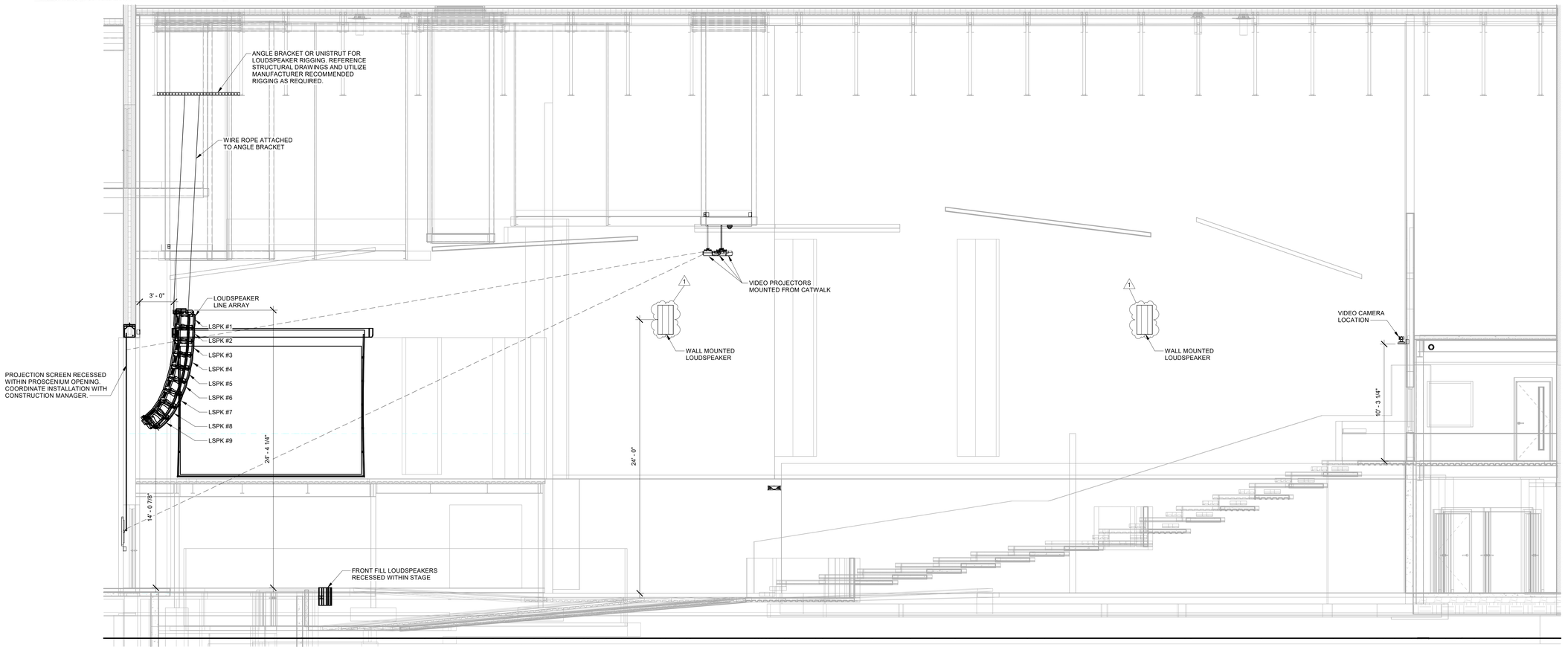
HOUSE-LEFT ARRAY LOUDSPEAKER AIMING TABLE					
LSPK #	ELEMENT	VERT ANGLE	HORZ ANGLE	ATTEN. (dB)	HF ATTEN. (dB)
	ARRAY FRAME				
1	LOUDSPEAKER TYPE 6	3.5	10.0	0.0	0.0
	SPLAY BRACKET				
2	LOUDSPEAKER TYPE 6	3.5	10.0	0.0	0.0
	SPLAY BRACKET				
3	LOUDSPEAKER TYPE 7	1.0	10.0	0.0	0.0
	SPLAY BRACKET				
4	LOUDSPEAKER TYPE 7	-4.0	10.0	0.0	0.0
	SPLAY BRACKET				
5	LOUDSPEAKER TYPE 7	-9.0	10.0	0.0	0.0
	SPLAY BRACKET				
6	LOUDSPEAKER TYPE 7	-14.0	10.0	0.0	-1.5
	SPLAY BRACKET				
7	LOUDSPEAKER TYPE 7	-19.0	10.0	-3.0	-1.5
	SPLAY BRACKET				
8	LOUDSPEAKER TYPE 8	-29.0	10.0	-1.5	-1.5
	SPLAY BRACKET				
9	LOUDSPEAKER TYPE 8	-41.5	10.0	-1.5	-4.5

HOUSE-RIGHT ARRAY LOUDSPEAKER AIMING TABLE					
LSPK #	ELEMENT	VERT ANGLE	HORZ ANGLE	ATTEN. (dB)	HF ATTEN. (dB)
	ARRAY FRAME				
1	LOUDSPEAKER TYPE 6	3.5	-10.0	0.0	0.0
	SPLAY BRACKET				
2	LOUDSPEAKER TYPE 6	3.5	-10.0	0.0	0.0
	SPLAY BRACKET				
3	LOUDSPEAKER TYPE 7	1.0	-10.0	0.0	0.0
	SPLAY BRACKET				
4	LOUDSPEAKER TYPE 7	-4.0	-10.0	0.0	0.0
	SPLAY BRACKET				
5	LOUDSPEAKER TYPE 7	-9.0	-10.0	0.0	0.0
	SPLAY BRACKET				
6	LOUDSPEAKER TYPE 7	-14.0	-10.0	0.0	-1.5
	SPLAY BRACKET				
7	LOUDSPEAKER TYPE 7	-19.0	-10.0	-3.0	-1.5
	SPLAY BRACKET				
8	LOUDSPEAKER TYPE 8	-29.0	-10.0	-1.5	-1.5
	SPLAY BRACKET				
9	LOUDSPEAKER TYPE 8	-41.5	-10.0	-1.5	-4.5





1 AUDITORIUM AV ELEVATION - FRONT
3/8" = 1'-0"



2 AUDITORIUM AV ELEVATION - SIDE
1/4" = 1'-0"

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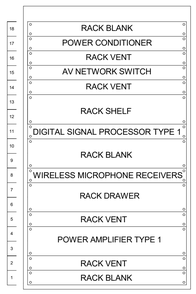
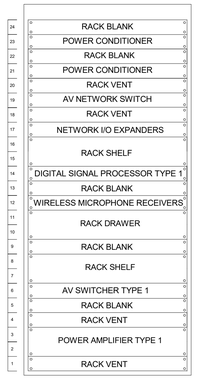
AUDIO VISUAL ELEVATIONS

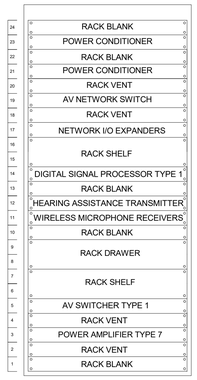
1
T320



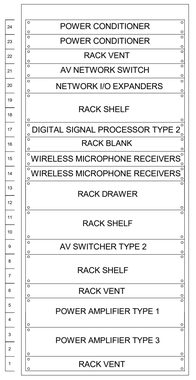
1 JAZZ REHEARSAL ROOM AV RACK ELEVATION
N.T.S.



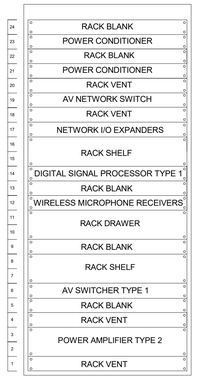
2 DANCE/THEATER REHEARSAL AV RACK ELEVATION
N.T.S.



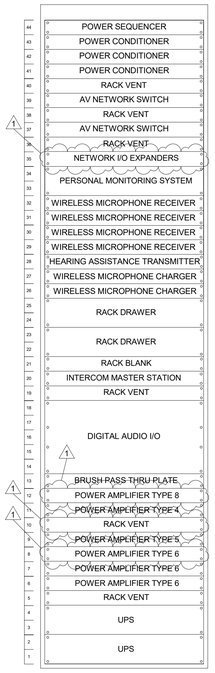
3 CAFETERIA AV RACK ELEVATION
N.T.S.



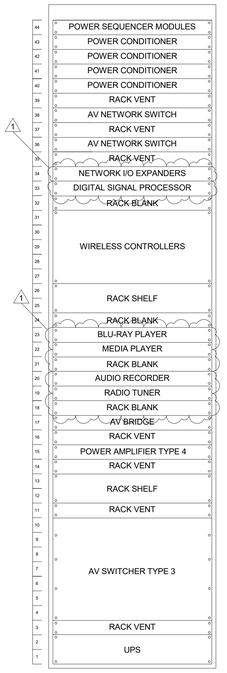
4 BAND REHEARSAL ROOM AV RACK ELEVATION
N.T.S.



5 TYPICAL REHEARSAL ROOM AV RACK ELEVATION
N.T.S.



6 AUDITORIUM STAGE AV RACK ELEVATION
N.T.S.



7 AUDITORIUM CONTROL ROOM AV RACK ELEVATION
N.T.S.

PLOT DATE/TIME: 10/10/2024 4:51:48 PM

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AV RACK ELEVATIONS

T321