USC

DRAMATIC ARTS BUILDING

Operation & Maintenance
Audio & Video Manual

CLAIR | INTEGRATION

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INTRODUCTION

Welcome to your comprehensive guide for managing, operating, and maintaining the audio, video, control, and network systems in your new Dramatic Arts Building. This manual has been crafted to ensure that you, as the professor, student, or operator, have all the tools and knowledge needed to make the most of these versatile and dynamic spaces.

The Sanctuary and Stop Gap Theaters are designed to be vibrant flexible venues that cater to a wide range of performances and events. Whether you are hosting a thought-provoking play, an experimental performance, or an intimate workshop, these spaces offer the adaptability and functionality to bring your creative vision to life.

The surrounding classrooms and spaces enhance the versatility of your facility, providing support for educational programs, rehearsals, staging, and workshops. This manual will guide you through the specific features and operational protocols of each area, ensuring that you can maximize their potential while maintaining a seamless experience for performers, audiences, and students.

Inside this manual, you will find detailed sections on:

- **Theater Layouts and Specifications:** Understand the unique configurations of each theater and how to optimize them for diverse types of events.
- **Technical Equipment Descriptions and Operations:** Get acquainted with the sound, video, and stage equipment available to you, including troubleshooting tips and maintenance.
- **Classroom Utilization:** Explore the setup and management of the surrounding classrooms for educational and rehearsal purposes.

Our goal is to provide you with a resource that not only informs but also inspires. By following this manual, you will be well-equipped to create memorable experiences and maintain a professional and welcoming environment for everyone involved.

Thank you for choosing Clair Integration to be a part of your creative community. We look forward to seeing the remarkable productions and programs you will bring to life within these spaces.

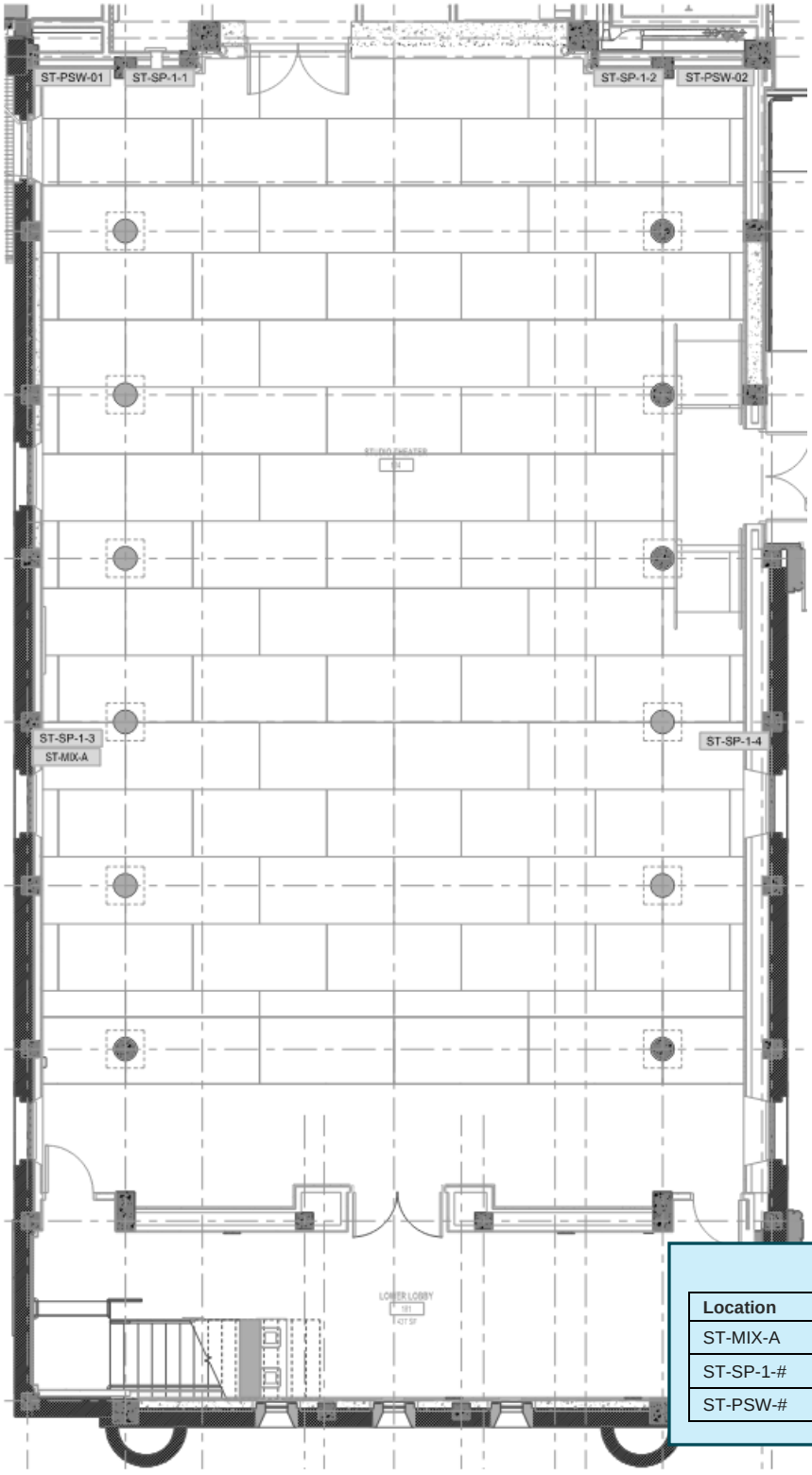
1. SANCTUARY (STUDIO) THEATER AV TECHNICAL DESCRIPTION

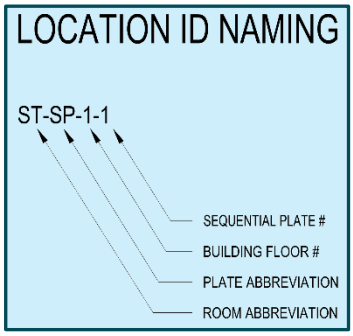
The Sanctuary Theater (previously named Studio Theater) is a black box style theater where the user can create and support a wide variety of productions. This chapter will dive into the specifics of how the audio, video, and control systems are designed to facilitate the different facets of these productions.

1.1 Venue Overview

Let us start with an overview of the floor and ceiling plans to orient you to the space from a bird's eye perspective. The next few pages will give you an understanding of important plate and device locations to notate.

1.1.1 Panel Locations 1st Level

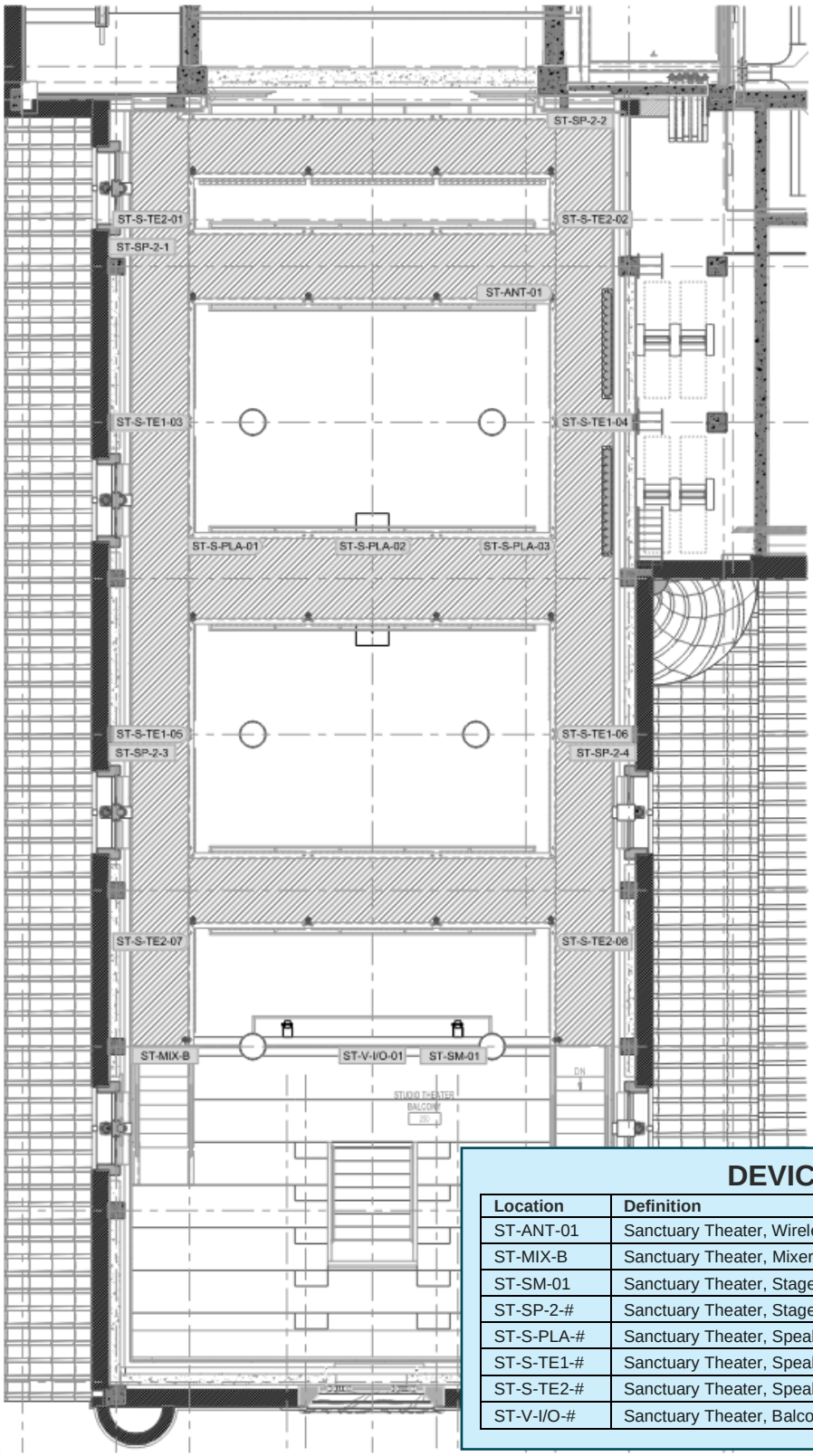


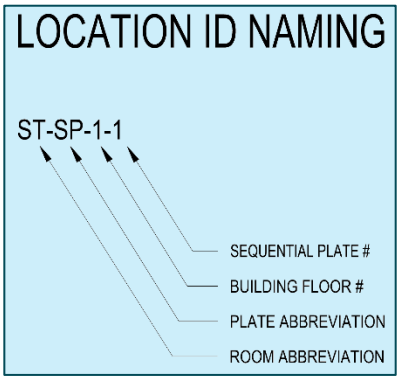


DEVICE LEGEND

Location	Definition
ST-MIX-A	Sanctuary Theater, Mixer Panel A
ST-SP-1-#	Sanctuary Theater, Stage Panel Level 1, Series #
ST-PSW-#	Sanctuary Theater, Speaker, Powered Subwoofer

1.1.2 Panel Locations 2nd Level

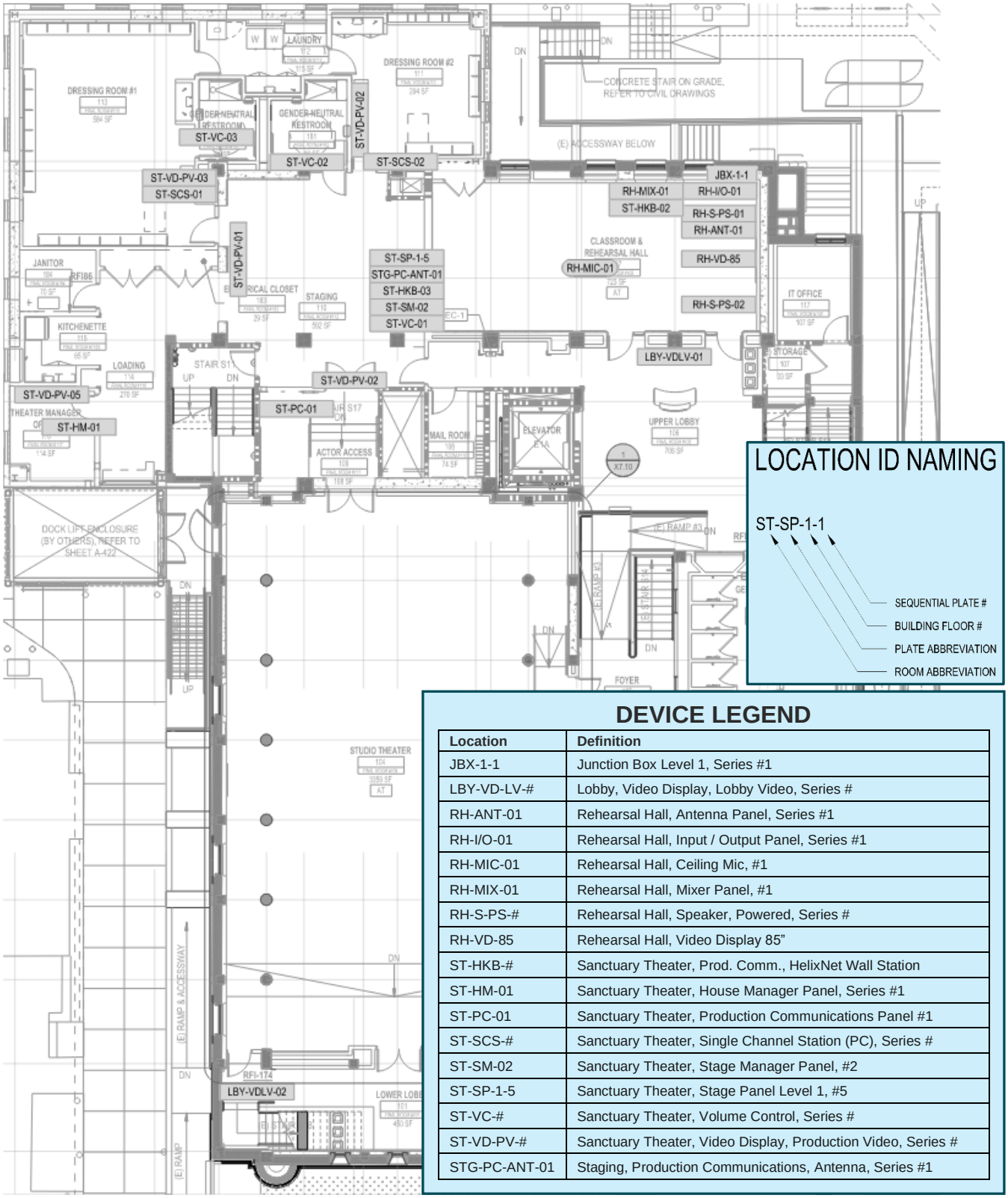




DEVICE LEGEND

Location	Definition
ST-ANT-01	Sanctuary Theater, Wireless Mic & Intercom Antenna Panel
ST-MIX-B	Sanctuary Theater, Mixer Panel (B) Balcony
ST-SM-01	Sanctuary Theater, Stage Manager Panel #1
ST-SP-2-#	Sanctuary Theater, Stage Panel Level 2, Series #
ST-S-PLA-#	Sanctuary Theater, Speaker, Powered Line Array, Series #
ST-S-TE1-#	Sanctuary Theater, Speaker, Theatrical Effects Panel Type 1, Series #
ST-S-TE2-#	Sanctuary Theater, Speaker, Theatrical Effects Panel Type 2, Series #
ST-V-I/O-#	Sanctuary Theater, Balcony Video Input & Output Panel, Series #

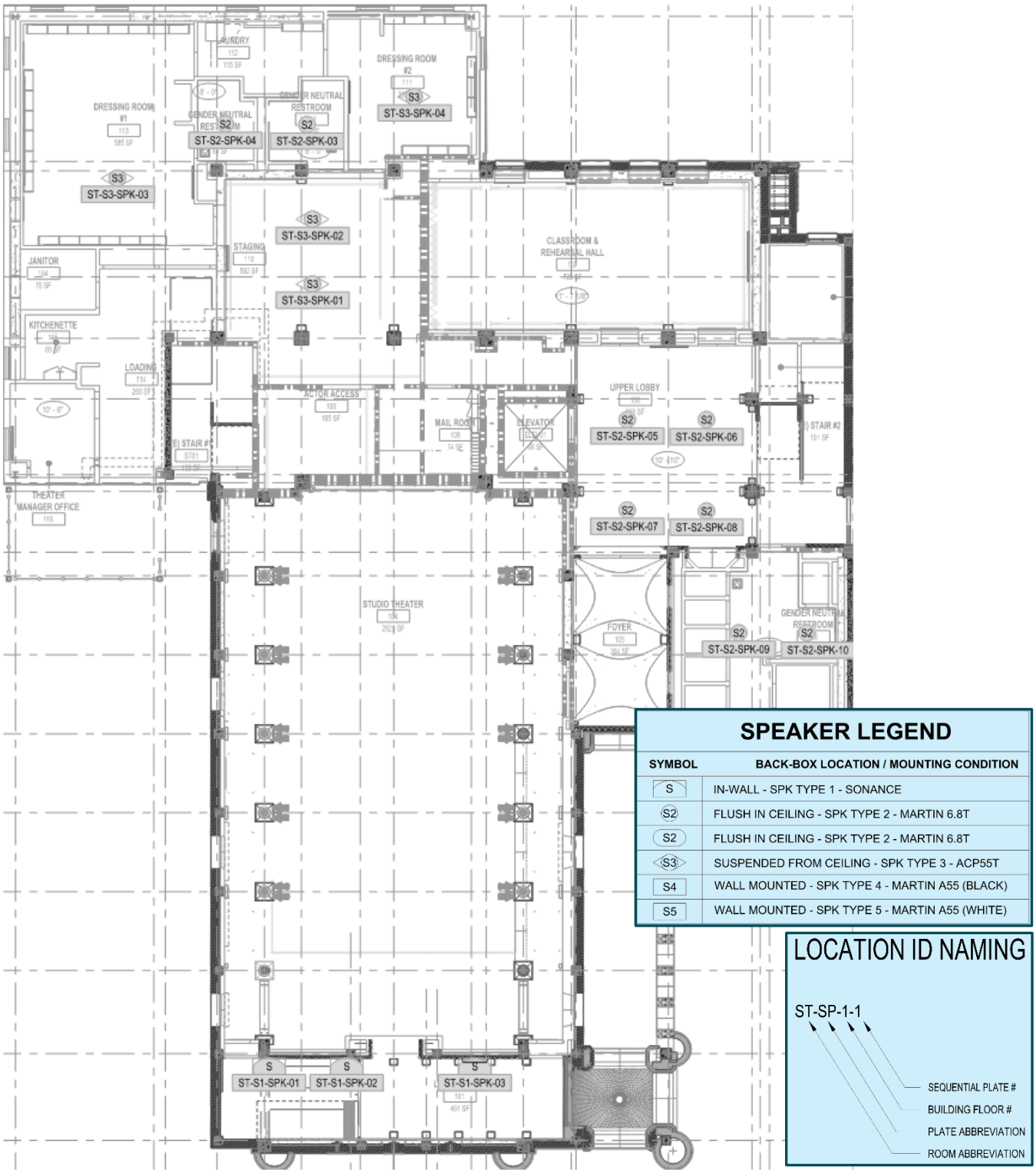
1.1.3 Panel & Device Floorplan Locations BOH & FOH



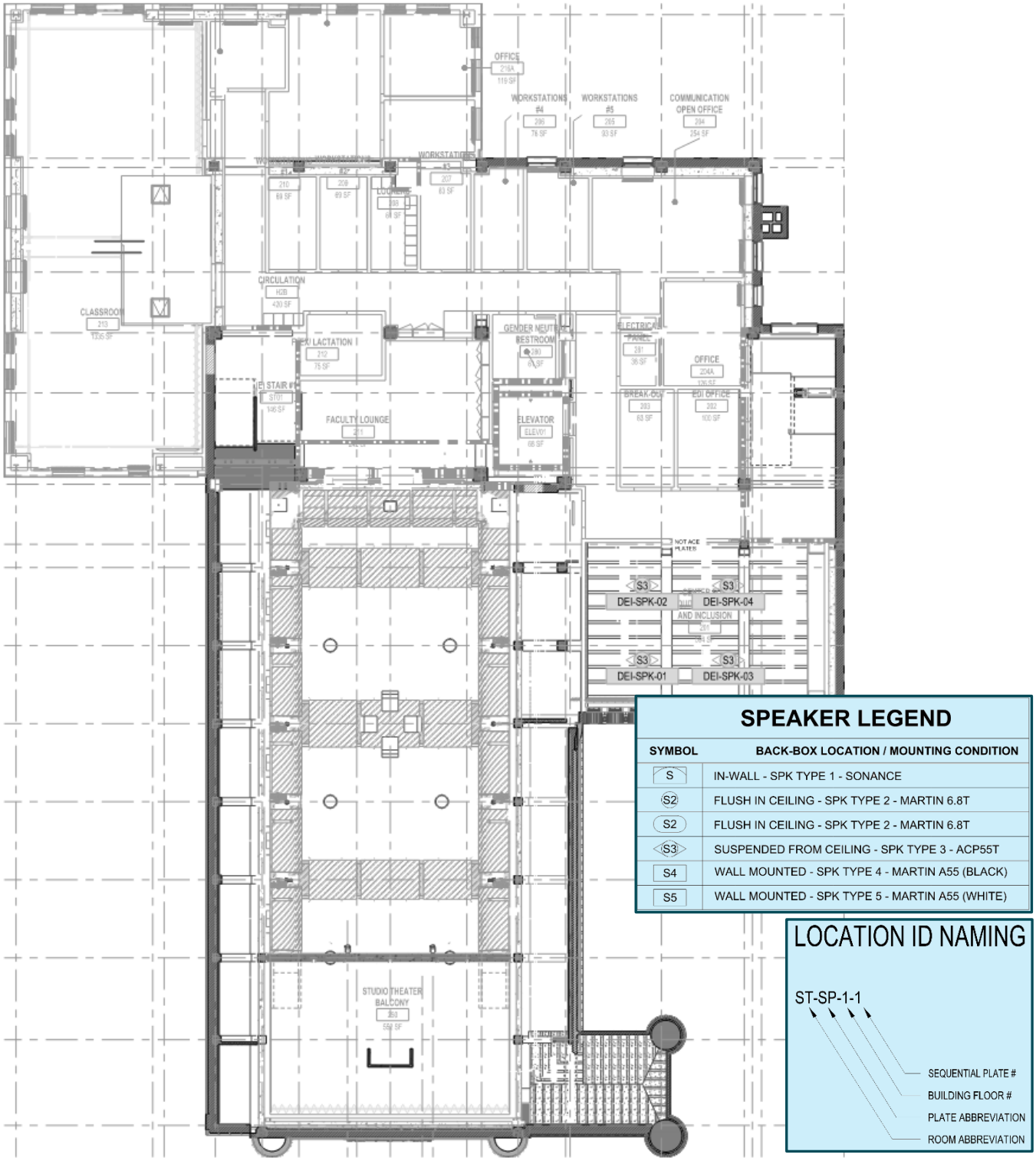
DEVICE LEGEND

Location	Definition
JBX-1-1	Junction Box Level 1, Series #1
LBY-VD-LV-#	Lobby, Video Display, Lobby Video, Series #
RH-ANT-01	Rehearsal Hall, Antenna Panel, Series #1
RH-I/O-01	Rehearsal Hall, Input / Output Panel, Series #1
RH-MIC-01	Rehearsal Hall, Ceiling Mic, #1
RH-MIX-01	Rehearsal Hall, Mixer Panel, #1
RH-S-PS-#	Rehearsal Hall, Speaker, Powered, Series #
RH-VD-85	Rehearsal Hall, Video Display 85”
ST-HKB-#	Sanctuary Theater, Prod. Comm., HelixNet Wall Station
ST-HM-01	Sanctuary Theater, House Manager Panel, Series #1
ST-PC-01	Sanctuary Theater, Production Communications Panel #1
ST-SCS-#	Sanctuary Theater, Single Channel Station (PC), Series #
ST-SM-02	Sanctuary Theater, Stage Manager Panel, #2
ST-SP-1-5	Sanctuary Theater, Stage Panel Level 1, #5
ST-VC-#	Sanctuary Theater, Volume Control, Series #
ST-VD-PV-#	Sanctuary Theater, Video Display, Production Video, Series #
STG-PC-ANT-01	Staging, Production Communications, Antenna, Series #1

1.1.4 Device Locations 1st Level Reflected Ceiling Plan

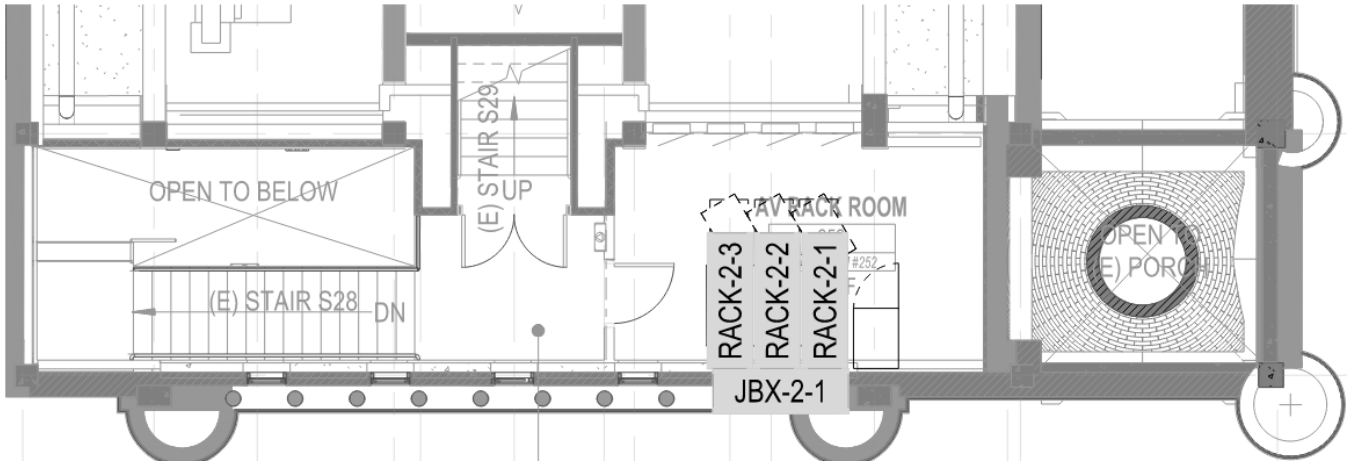


1.1.5 Device Locations 2nd Level Reflected Ceiling Plan



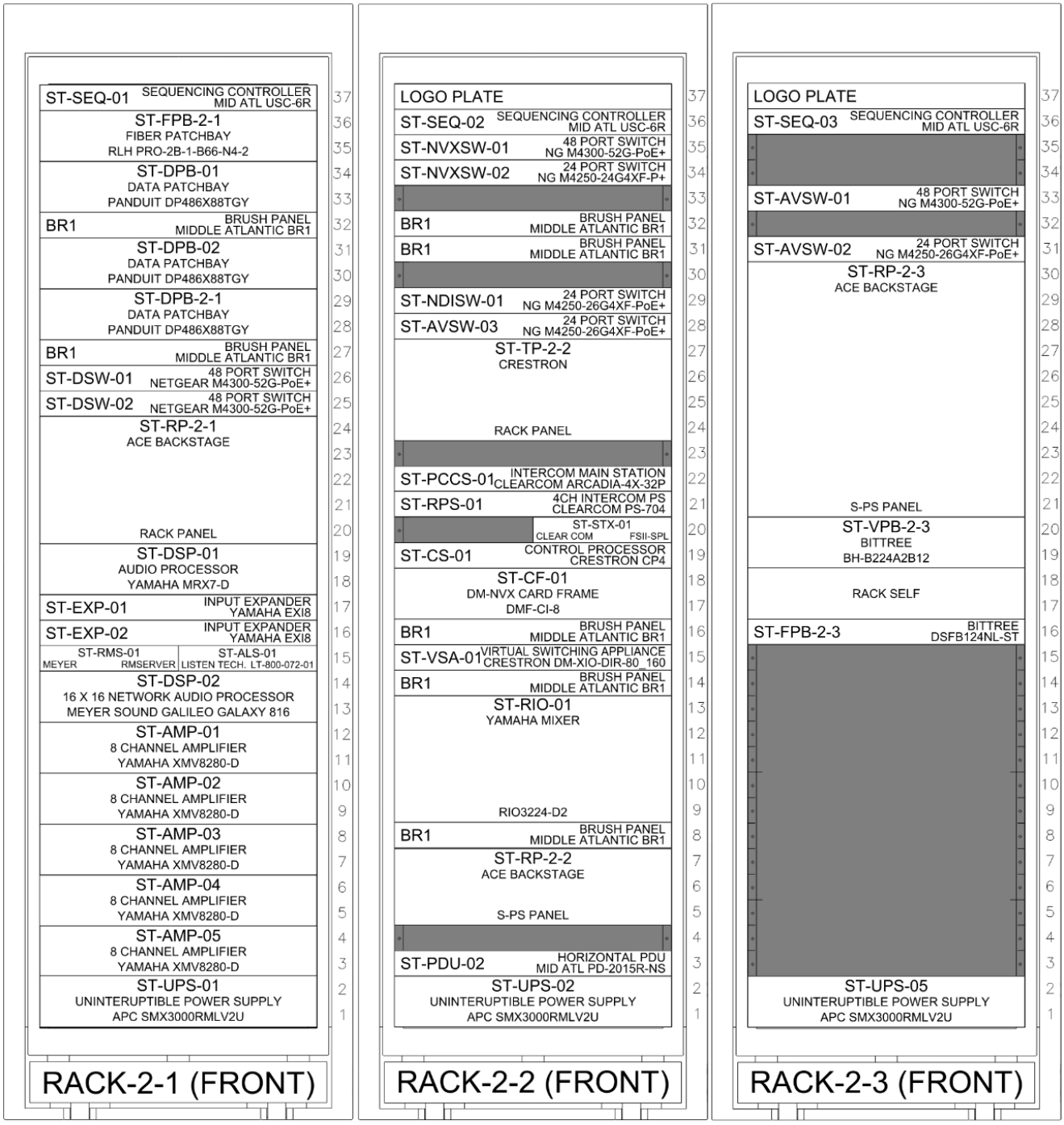
1.2 Equipment Racks - Room 252

Three (3) Middle Atlantic WR-37-42 (37RU x 42” Depth) slide out racks are located in the Sanctuary Theater primary rack room as shown below (see next page for elevations).



1.2.1 Equipment Rack - Elevations

Sanctuary Theater Rack Room Elevation Detail



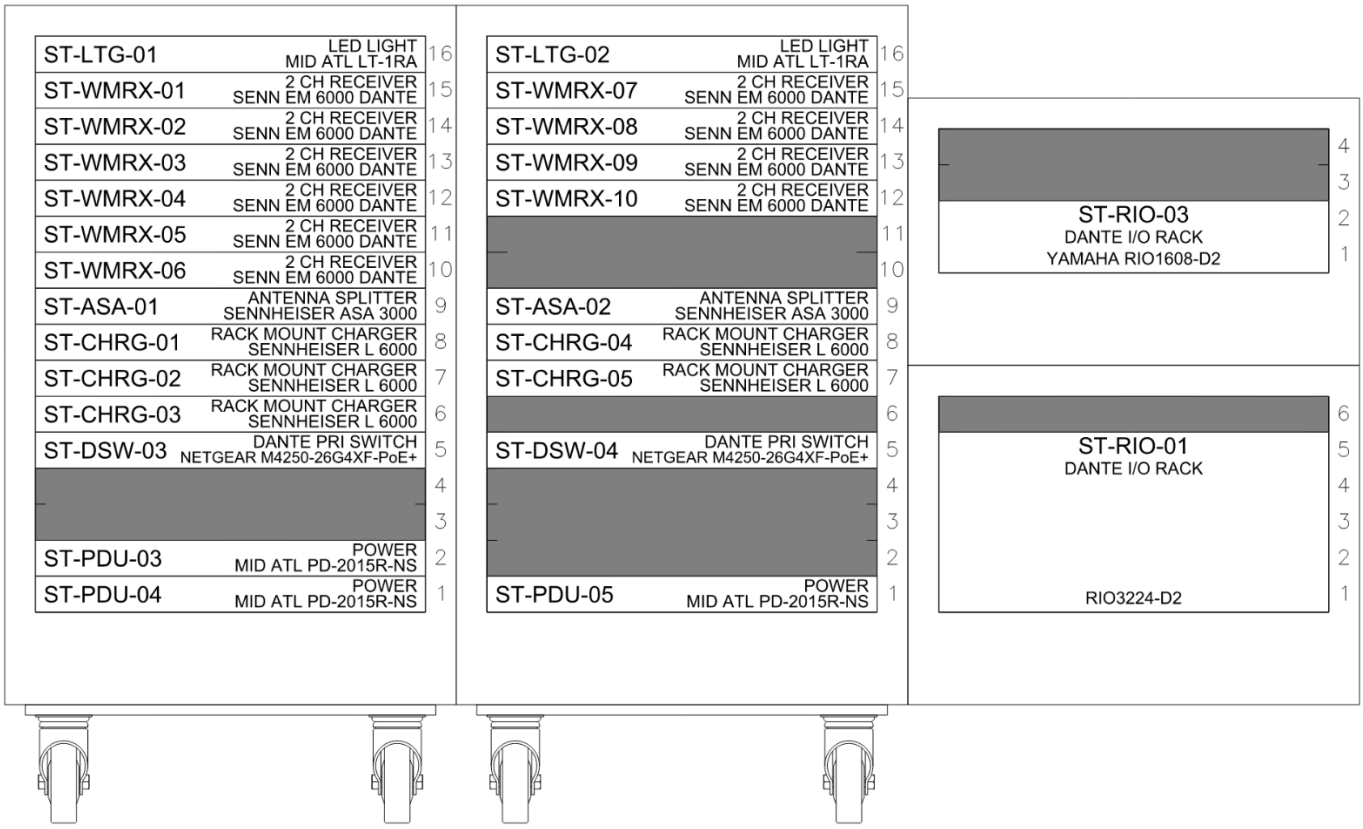
1.2.2 Power Distribution and Sequencing

Each primary rack has a vertical power strip capable of sequenced power for items such as the audio amplifiers. This is achieved by engaging the power sequencer located at the top of the amp rack. Most devices in the building have their power strip modules set to a constant “On” mode as power sequencing is not desired for all devices.

1.2.3 Uninterruptible Power Supplies

Each primary rack has a dedicated uninterruptable power supply (UPS) installed in the instance of a power outage to keep all critical equipment protected and online for a short duration of time.

1.2.4 Portable Equipment Racks



- Two (2) 16RU road cases were provided for wireless mic receivers.
- Two (2) SKB cases were provided for Yamaha Rio I/O devices.

1.3 Audio System

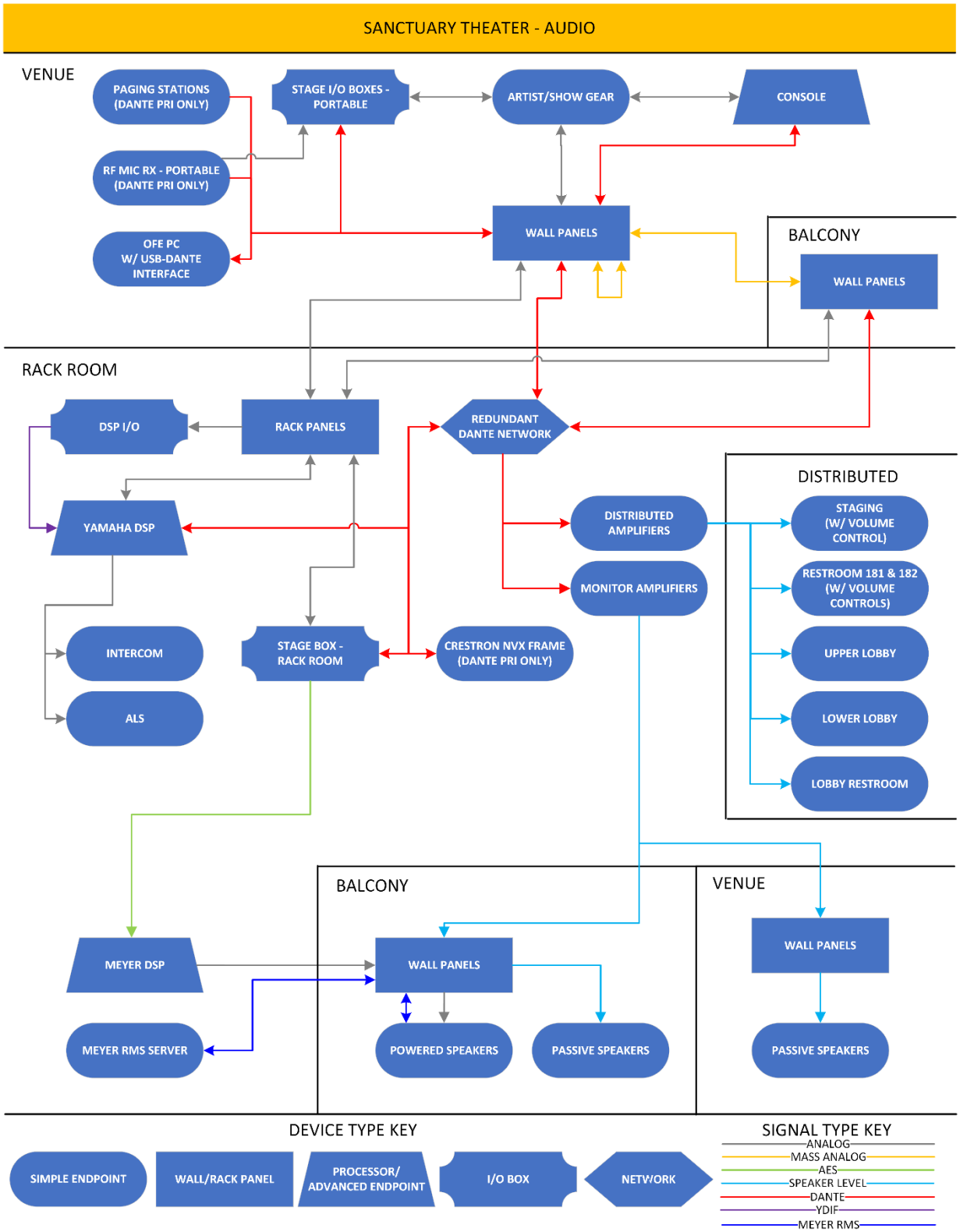
The audio system for Sanctuary Theater (Previously named Studio Theater) is designed to be adjusted to accommodate diverse types of performances, from theater productions to concerts.

Primary Components and Terminology:

1. **Mixing Console:** A Yamaha DM7 mixing console has been provided with 120 input, 48 aux mixes, 12 matrices to control audio I/O levels, effects, and routing for microphones, instruments, and playback sources.
2. **Microphones:** A wide assortment of wireless and wired microphones were provided, including handheld, headset, lavaliere, dynamic, and condenser microphones. Used to capture speech, vocals, and instrumentation effectively.
3. **Speakers:** A variety of high-quality Meyer speakers were provided to be used as main speakers, monitors, and effect speakers that can be positioned strategically around the space to ensure even coverage and support. Additionally passive owner furnished speakers can be added to the theatrical effect positions on the balcony.
4. **Subwoofers:** Two (2) Meyer single 15” subwoofers were provided for enhanced low-frequency support for music and dramatic effects.
5. **Amplifiers:** Four (4) Yamaha 8 channel amplifiers support the passive theatrical effects system, and a fifth Yamaha 8 channel amplifier supports 70v and low impedance BOH and FOH speaker systems outside the theater.
6. **Digital Signal Processors:** This system has two digital signal processors. The first is a Meyer Galaxy 816 DSP used for the Meyer speaker system which is driven from AES/EBU outputs on Yamaha Rio ST-RIO-01. The second DSP is a Yamaha MRX7 used to support paging, assistive listening, FOH, and BOH speaker systems. The Yamaha also has tie-lines to rack panel ST-RP-2-1.
7. **Audio I/O Interface:** The Yamaha Rio’s provide inputs for mic or line level instrumentation, and source devices to enter the mixing console over Dante (digital audio over ethernet). This provides a multitude of outputs for things like speakers, subwoofers, monitors, sound effect support, and recording capabilities.
8. **Cabling and Connectors:** This system can use Dante audio, a digital audio over network through CAT6 and provides up to 64 inputs by 64 outputs. Additionally, various forms of analog and digital cabling were provided to support your audio needs.

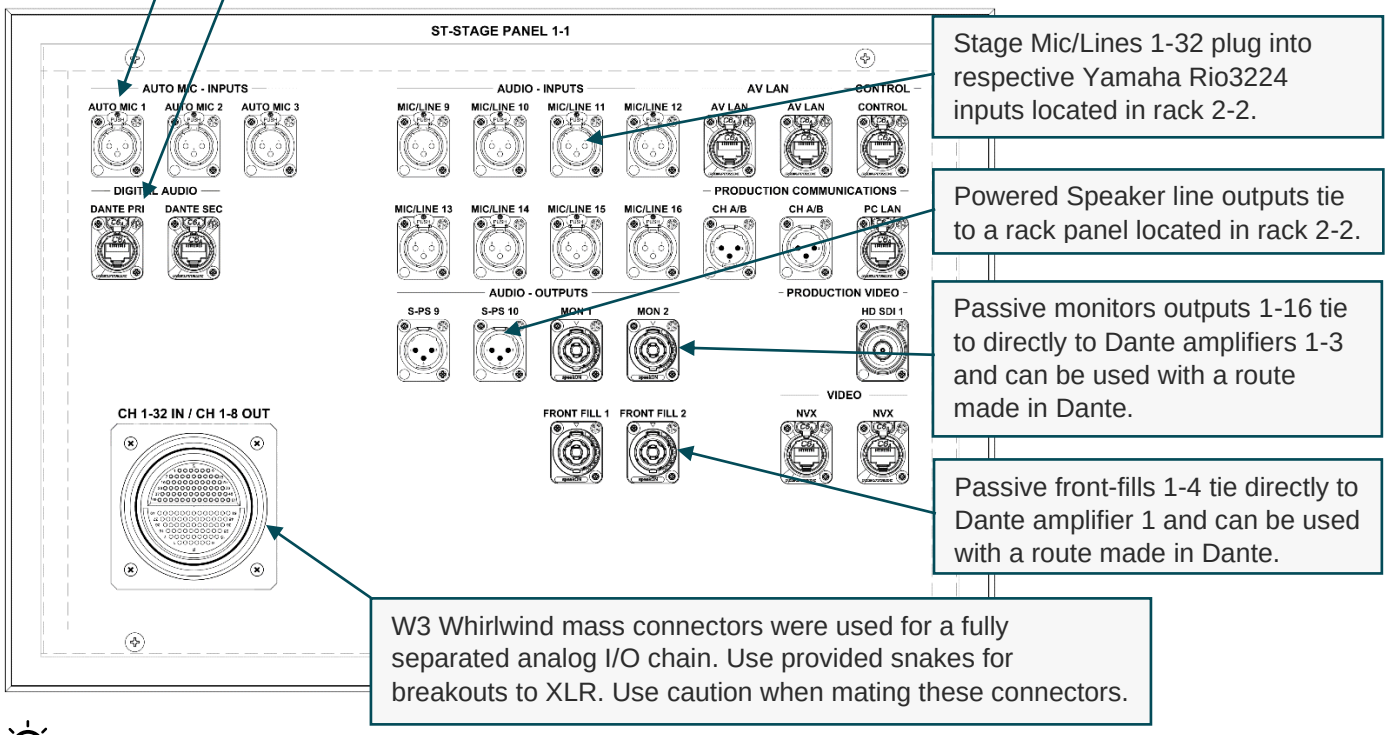
Tip: Use caution when positioning speakers to ensure balanced sound distribution and maximize your gain before feedback. Meyer MAPP or MAPP 3D design software can assist with proper coverage in your designs.

1.3.1 Audio System Overview



1.3.2 Stage I/O and Setup

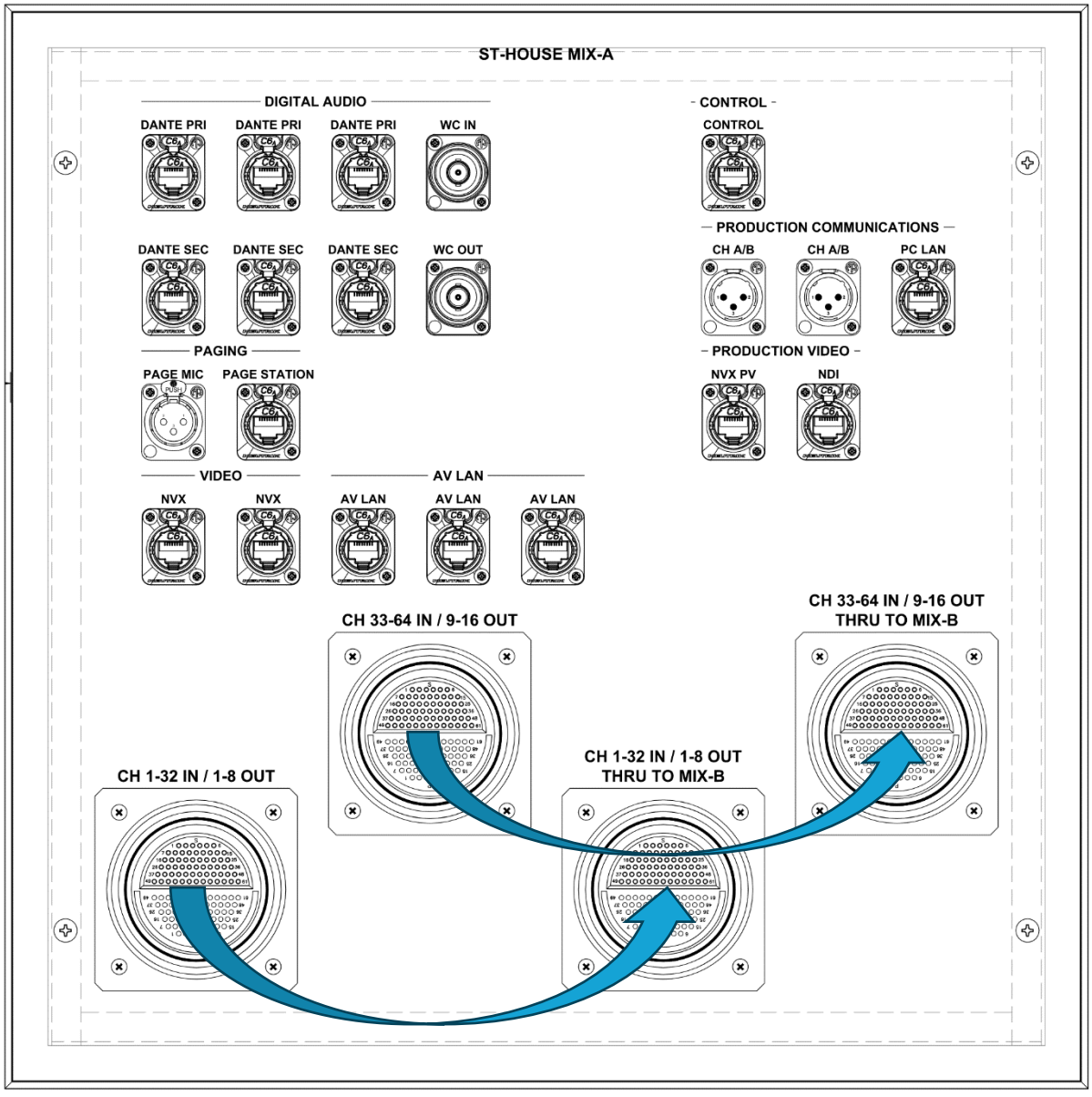
There are a variety of input/output (I/O) panels throughout the entire venue. These panels facilitate a variety of audio signal types. All these panels are tied back to the AV Rack Room for centralized management of the system I/O.



Tip: Never bridge a Dante primary and secondary network. These are meant to work independently from each other. Either use primary only for all devices in “Daisy Chain Mode” or use all devices in “Redundant Mode” which must be set before patching any devices to the two networks. Failing to adhere to these guidelines can crash a Dante network with a broadcast storm.

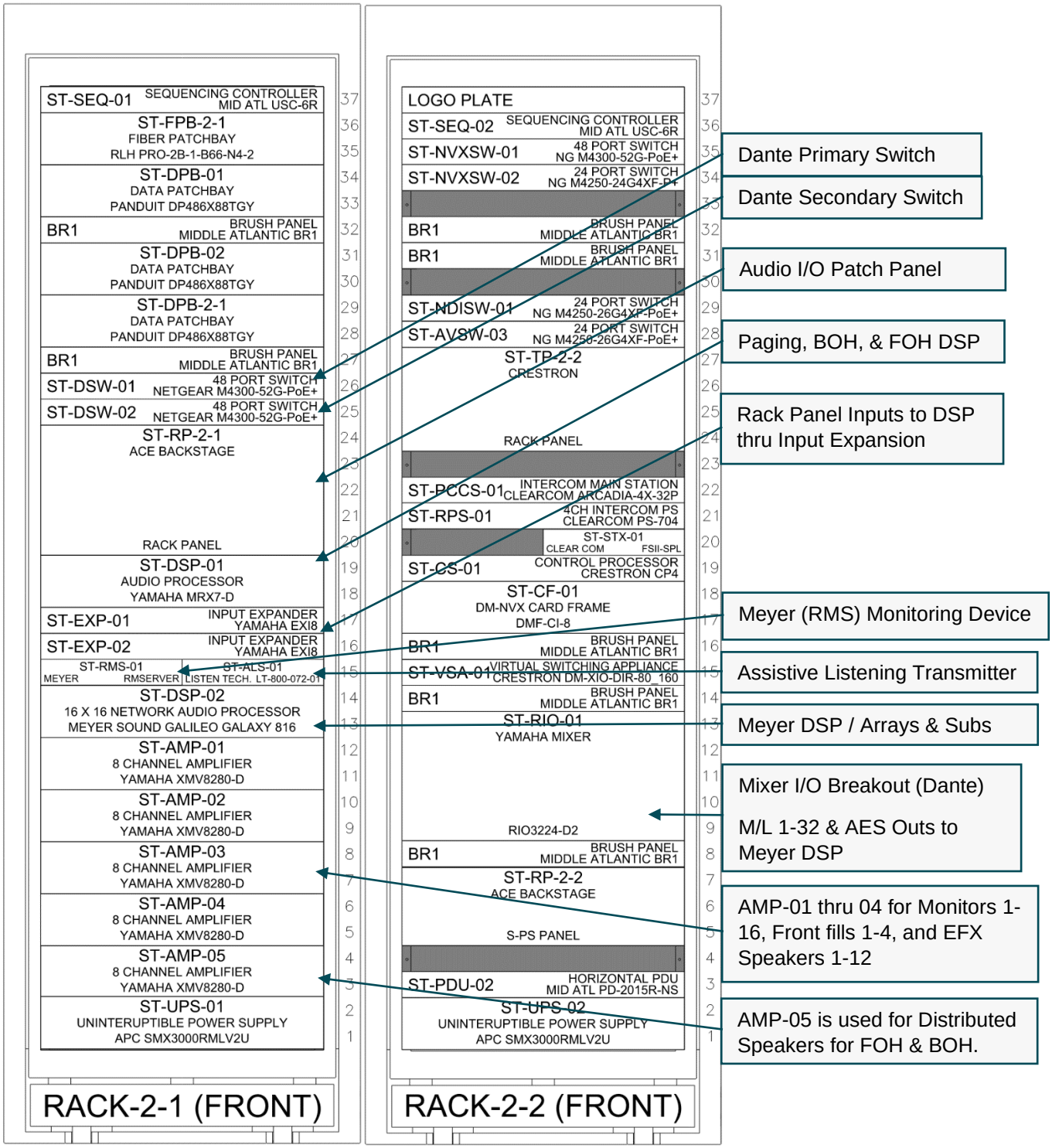
1.3.3 Stage I/O and Setup

The Mix-A location audio mass connectors will function directly from stage panel plates as labeled. To enable Mix-B location mass connector jumpers will need to be connected as shown below.



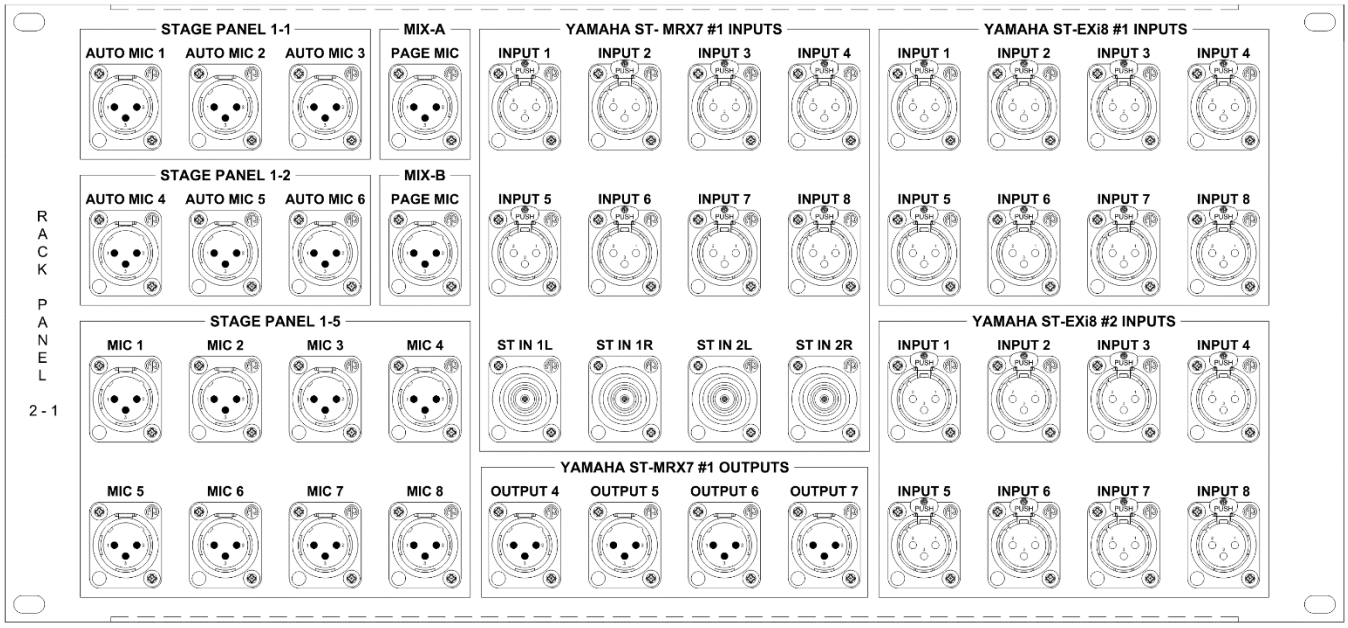
Note: Be cautious when connecting W3 connections, W3 connections are a tight fit when new.

1.3.4 Audio Equipment - Sanctuary Theater Racks

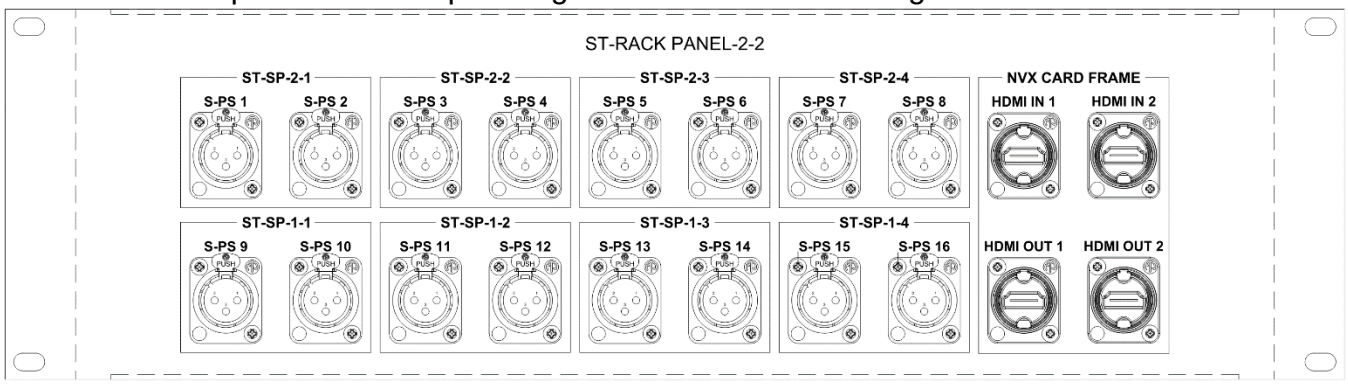


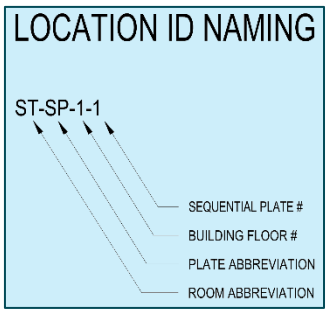
1.3.5 Rack Panels & Patching

Rack Panel 2-1 provides audio patching to and from the following locations and devices.



Rack Panel 2-2 provides audio patching to and from the following location and devices.





1.3.6 Wireless Microphones

The Sanctuary Theater has a Dante or analog capable Sennheiser 6000 series wireless mic system. In this system you will find ten (10) x dual channel receivers to give you a total of twenty (20) active wireless mic channels. Driving these channels are twenty (20) body packs or twenty (20) handhelds or any combination you choose. Accessories include: two (2) antenna splitters, four (4) active directional antennas (used locally or on catwalk), twenty (20) lavalier microphones, lithium-ion batteries for each transmitter unit, and five (5) rack mount charging stations. There are twelve (12) wireless channels in wireless road case number one (1), and eight (8) channels in wireless road case number two (2). Additionally, there are two (2) pelican cases for accessories.

1.3.7 Mixing & Recording

Mixing in the Sanctuary Theater would start with the provided Yamaha DM7-EX console plugging into either ST-MIX-A or ST-MIX-B panels with analog or digital Dante (digital audio over Ethernet) but could also be used at any panel with a Dante primary port. All Dante primary ports are active, and a single connection can give you access to 144x144 Dante routable I/O connections to and from this console. A rack mounted Yamaha Rio3224-D2 has AES/EBU outputs 1-8 that drive the Meyer DSP, which provides signal to the Meyer system. All other devices can be driven from Dante as labeled in Dante Controller. Please refer to Yamaha DM7 owner's manual for operational details on this console.

Recording options:

1. USB recording from console.

2. Dante patched to another record device or PC. A Dante based Yamaha RUIO-D digital audio converter was provided for D/A and A/D conversion from Dante if needed.

3. Analog or AES/EBU outputs are also available on console and/or Rio's and may be used to embed audio into streaming devices or video hardware.

1.3.8 Audio Network Routing

Use your Dante Primary network with Dante Controller software to route audio signals to and from Dante based source and destinations on the Dante Primary network. This includes wireless mics, digital I/O stage boxes, consoles, amplifiers, digital signal processors (DSP) and more. It is recommended to digitally label all inputs and outputs in Dante for ease of use. Be mindful, re-labeling in Dante Controller will erase patching from devices within Dante. Secondarily, audio for video routing is controlled through NVX director. See the NVX video section in this manual for more details on this routing, setup, audio em-bedding and de-embedding.

1.3.9 Amplification

The first four (4) Yamaha XMV series Dante 8 channel amplifiers are set up to support all passive speaker positions (monitor, front fill, and effect speakers). Use Dante Controller to activate audio routes from mixing console to amplifiers to activate relevant speaker panel ports. The fifth Yamaha XMV series amplifier is set up to support all FOH/BOH passive speaker zones. Routing is currently set in Dante Controller to corresponding labeled amplifier ports and is driven from DM7-EX to Yamaha MRX7-D DSP and then to the amplifier.

1.3.10 Digital Signal Processing

Two (2) digital signal processors exist in the Sanctuary Theater rack room, the first is a Yamaha MRX7-D used for BOH and FOH speaker support including paging mics and chime functions from SD-Card and triggered by Yamaha PGM1 paging stations. This processor uses filters, delays, matrix routing, and level balancing while allowing for various rack room panel ports to convert from A/D or D/A. The second DSP is a Meyer Galaxy 816 and per design is being driven from the Yamaha Rio3224-D2's AES/EBU outputs (8 channel) and feeds the subwoofer (PSW) and powered line array (PLA) panels.

1.3.11 Speaker Mains & Monitors

The Sanctuary Theater was designed with the following speaker package:

- Two (2) Meyer 750-LFC / powered, Single 15" Subwoofers.
- Six (6) Meyer Lina / powered, 110° x 10°, dual 6.5" line array speakers.
- Four (4) Meyer Ultra-X20 / powered, 110° x 50°, dual 5" point source speakers.
- Four (4) Meyer Ultra-X40 / powered, 110° x 50°, dual 8" point source speakers.
- Four (4) Meyer UPM-1P / powered, 100° x 100°, dual 5" point source speakers.

Note: Rigging frames, hardware, and U-brackets were provided to support the devices listed. No passive speakers were specified for monitor, effects, and front fill locations.

Tip: Ultra X series point source horns can be rotated to accommodate proper coverage.

1.3.12 Distributed Speakers

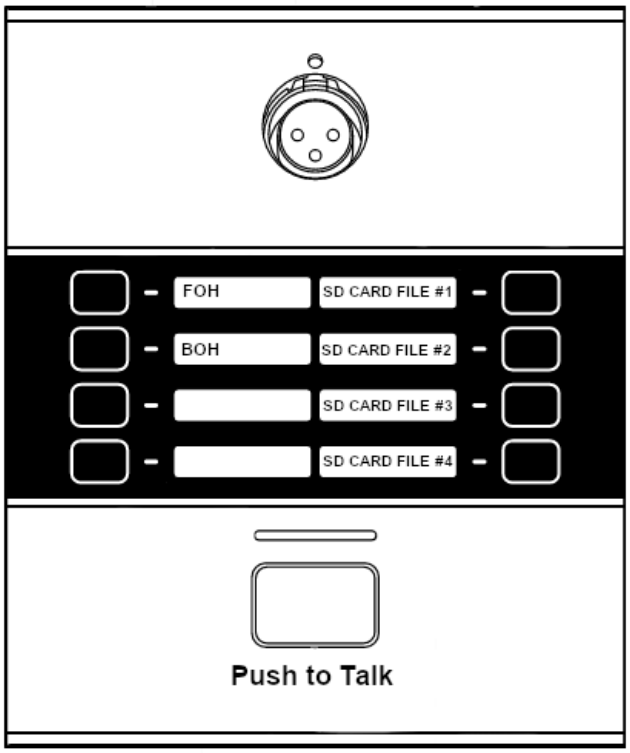
A distributed speaker system supports the following Sanctuary Theater spaces for paging, and program audio: front of house (FOH) upper lobby, lower lobby, upper lobby bathroom, back of house (BOH) bathrooms, dressing rooms, and staging area. RACK 2-2 has a touch panel used for overall volume control of any front of house or back of house location. The back of house bathrooms additionally has local volume controls on the bathroom door entry wall. All of this is driven from the Yamaha DM7-EX driving to MRX7-D DSP (ST-DSP-01) over Dante to Yamaha XMV-8250-D amplifier #5 (ST-AM-05).

1.3.13 Assistive Listening System

The Sanctuary Theater is equipped with a radio frequency (RF) based assistive listening system to support the ADA requirement for this theater. A Dante program feed labeled ALS (assistive listening system) in Dante Controller drives the input of the Yamaha MRX7-D DSP (ST-DSP-01) with processing to output six (6) which drives a Listen Technologies transmitter that supports the twelve (12) provided receivers. ALS antenna is located on the pipe grid by the ST-ANT-01 panel.

1.3.14 Paging

The Sanctuary Theater has four (4) Yamaha PGM1 paging stations that work in conjunction with the Yamaha MRX7-D DSP (ST-DSP-01). These paging stations have eight total buttons that currently select the two FOH and BOH zones along with four buttons reserved for chime or pre-recorded messages from your SD card inserted on the front of ST-DSP-01.



To operate a PGM1 paging station, plug into any Dante port and wait for unit to power up. Next, engage a zone/s and select the “P” button. Wait for button to turn green and the microphone will be active in the corresponding selected zone/s. The process to engage a chime is similar, where the user selects a zone/s followed by chime sound button and engages the “Push to Talk” button to push the chime to the corresponding selected zone/s.

The process to add or remove chime effects is a very specific process, file types, and exact naming. Please see the Yamaha MTX-MRX editor user guide for more information.

https://usa.yamaha.com/files/download/other_assets/5/446335/mtx-mrx_editor_en_ug_m0.pdf

Note: Dip switches on rear can get bumped and can affect your connectivity or settings of PGM1 paging station. It is recommended to take pictures or document dip switches to reference later in the event a dip switch gets changed on these units.

1.4 Video Systems

The video systems for Sanctuary Theater (previously named Studio Theater) are designed to support diverse types of performances, theater productions, lectures, or concerts.

Primary Components and Terminology:

1. **Network Encoding:** Crestron network video protocol (NVX) is used to encode HDMI video onto the network with Crestron DM-NVX-E30 or DM-NVX-363C encoders. A separate network device interface (NDI) network also exists for future camera and video support *(Note: This is shared equipment amongst facility)*.

2. **Network Decoding:** Crestron network video protocol (NVX) is used to decode HDMI video onto the network with Crestron DM-NVX-D30 or DM-NVX-363C decoders. A separate network device interface (NDI) network also exists for future camera and video support *(Note: This is shared equipment amongst facility)*.

3. **Network Switches:** The NVX & NDI video networks are comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Stop Gap, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports.

4. **SDI Transmitters:** Four (4) AJA 12G-SDI (FIDO-T-12G-ST) single-mode fiber converters were provided to transmit 12G-SDI down to the Integrated Media Suite via fiber patch bays from either theater *(Note: This is shared equipment amongst facility)*.

5. **SDI Receivers:** Four (4) AJA 12G-SDI (FIDO-R-12G-ST) single-mode fiber receiver converters were provided to receive 12G-SDI down in the Integrated Media Suite via fiber patch bays from either theater *(Note: This is shared equipment amongst facility)*.

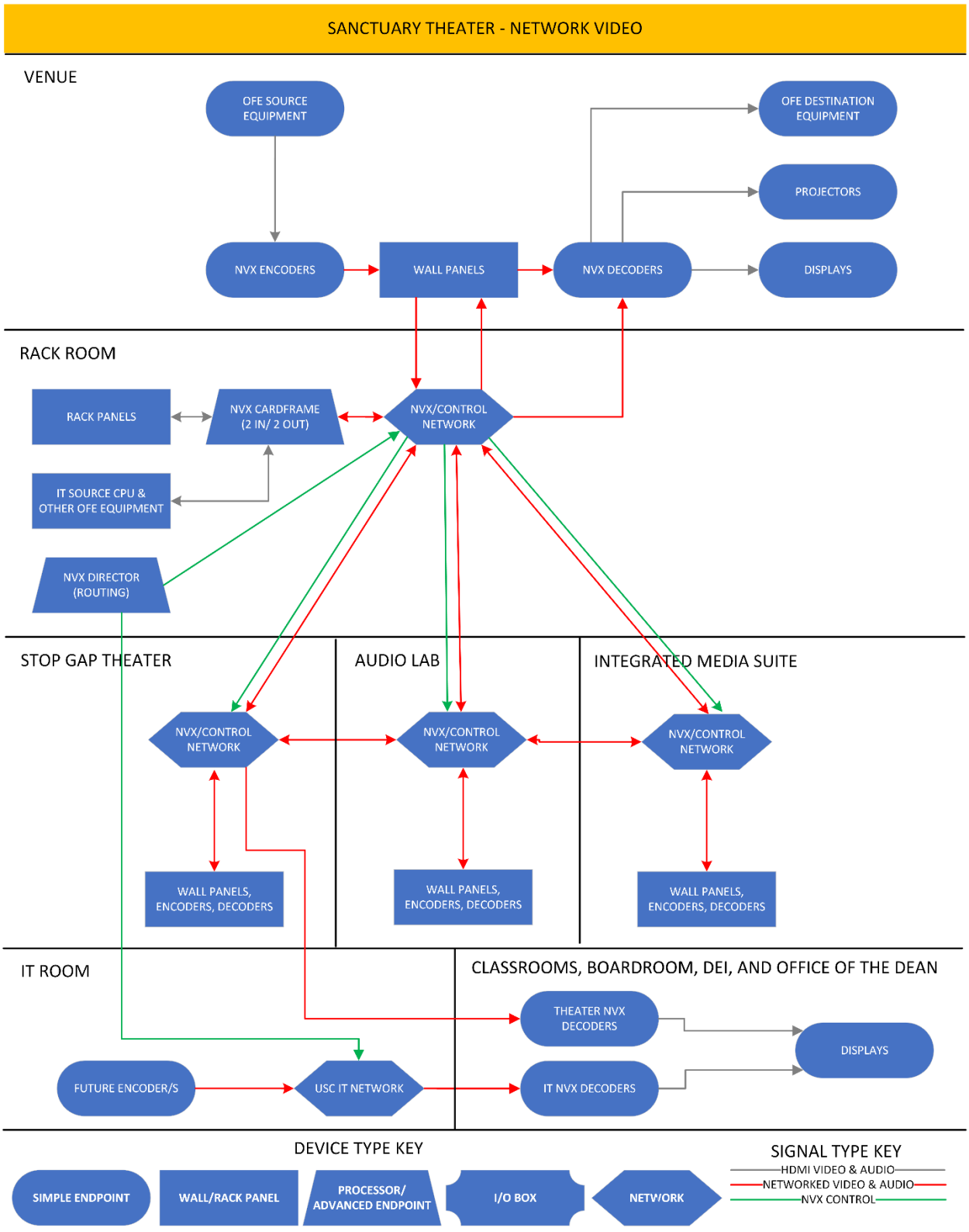
6. **SDI Audio Breakout:** Five (5) 12G-SDI audio embedders / dis-embedders were provided to allow for audio embedding and/or dis-embedding to and from SDI with analog and/or AES/EBU audio (Note: This is shared equipment amongst facility).

7. **Cameras:** One (1) Panasonic AW-UE80KPJ PTZ camera and Panasonic AW-RP150GJ Camera controller was provided for production, distribution, recording, archival, and/or streaming purposes in the Sanctuary Theater. One additional AW-UE80KPJ PTZ camera was purchased for the portable package.

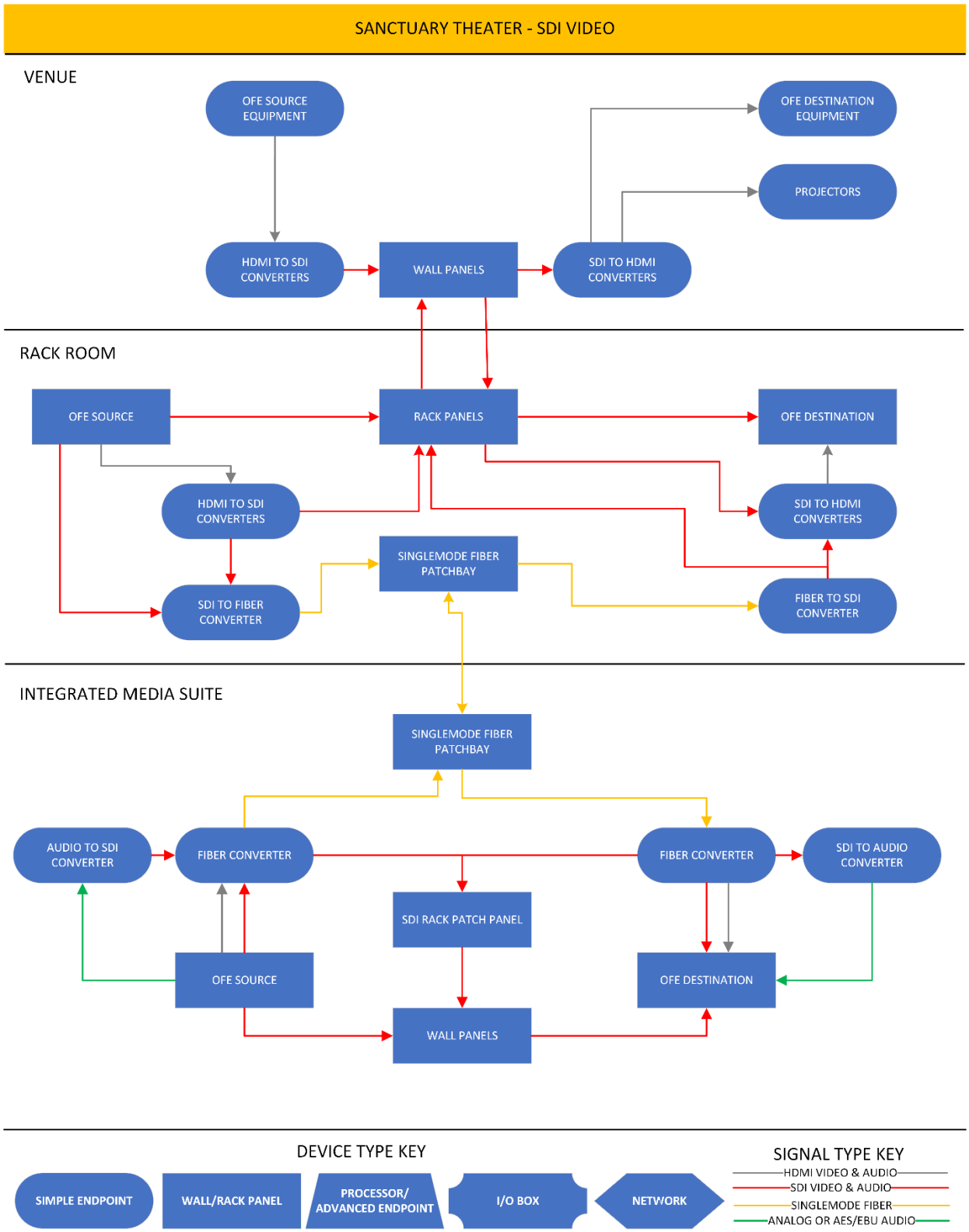
8. **Projection:** Four (4) Christie Digital DWU1400A-GS projectors were provided with two (2) lens options for each projector. These projectors are intended to be used for theater production support and no fixed or portable screens were provided in this theater.

Tip: Christie Digital has an online projection calculator to verify ideal distance, lens, and screen sizing.https://projection-calculator.christiedigital.com/

1.4.1 NVX Video Systems Overview

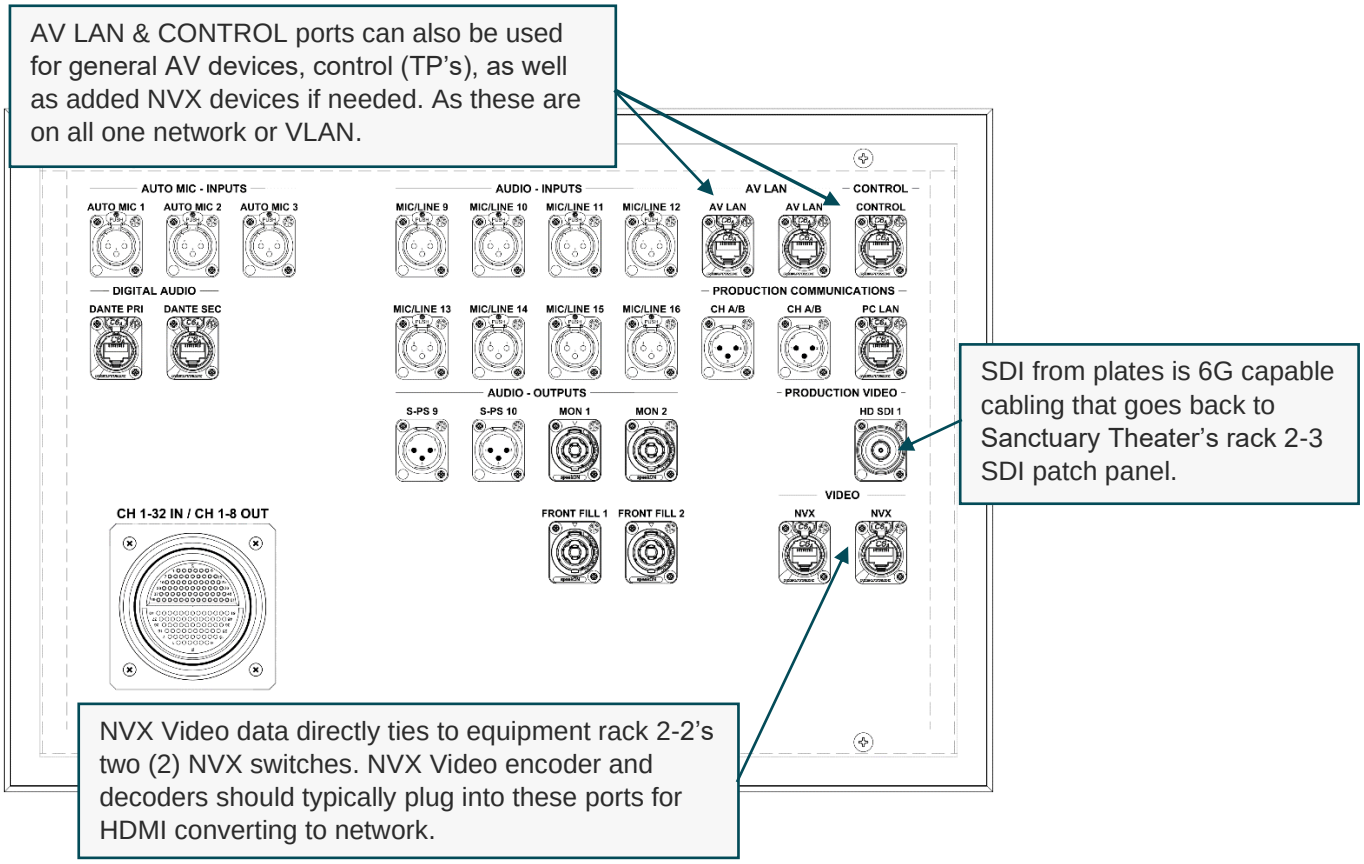


1.4.2 SDI Video Systems Overview



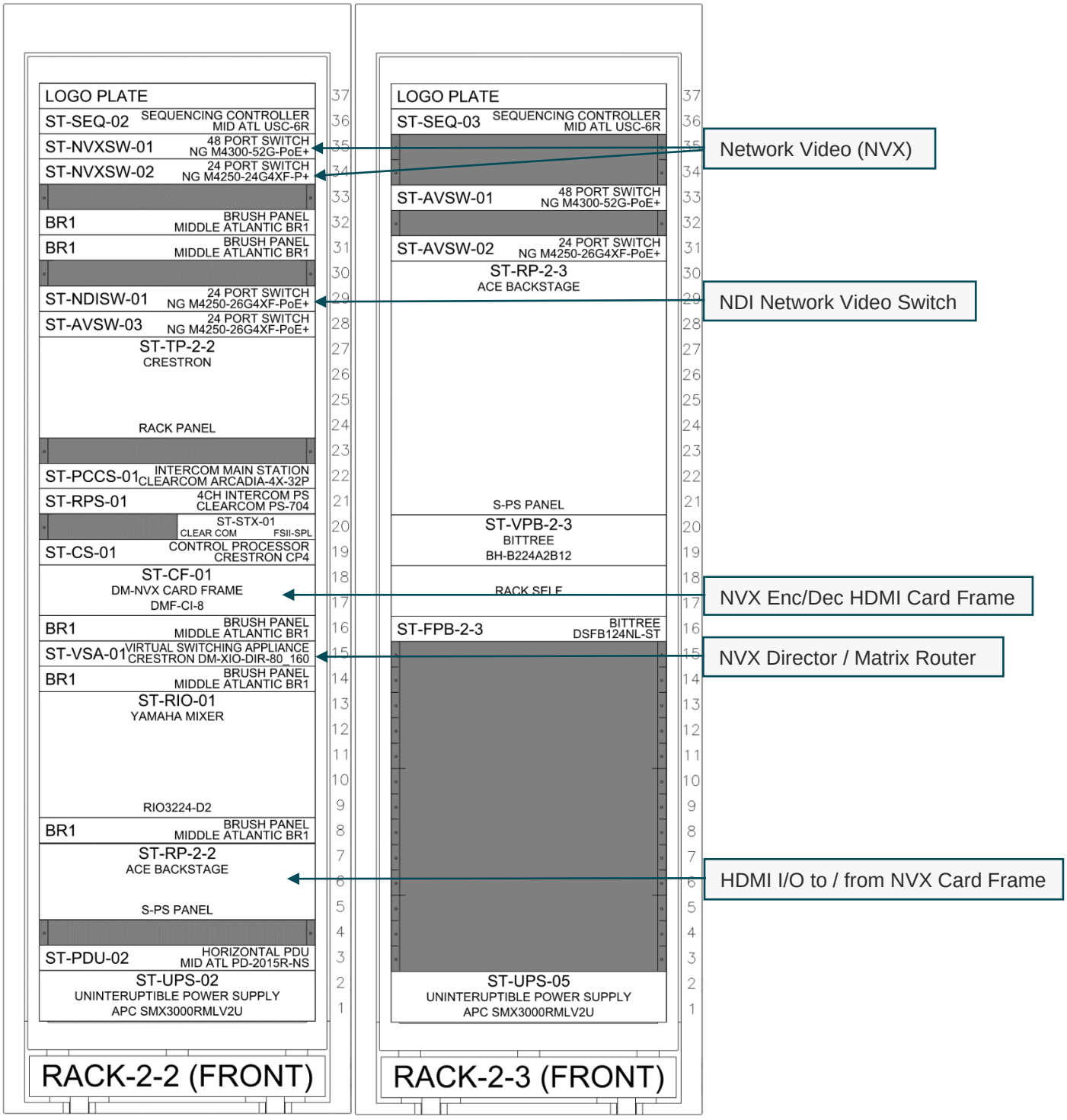
1.4.3 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire venue. These panels facilitate a variety of video signal types and are tied back to the Sanctuary Theater AV rack room for centralized management of the video system I/O.



Tip: AV LAN, CONTROL, and NVX act as one large network and VLAN. Feel free to use interchangeably if needed. These networks also tie to the Stop Gap Theater, Audio Lab, Integrated Media Suite for distribution and unified Crestron control across the building.

1.4.4 Video Equipment - Sanctuary Theater Racks

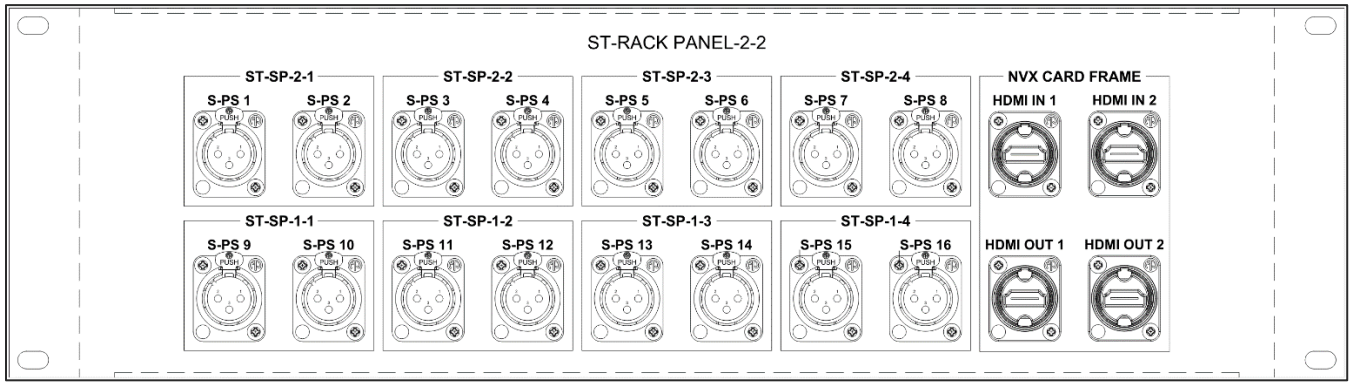


Note: Please refer to the entire Clair drawing set provided for more information.

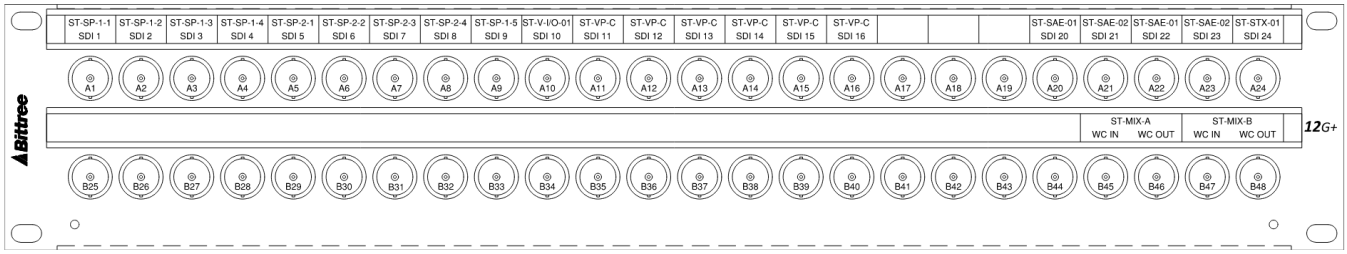
1.4.5 Rack Panels & Patching

Rack panel 2-2 has two (2) HDMI and two (2) HDMI outputs that tie to the Crestron DMF-CI-8 card frame in rack 2-2 that is loaded with four (4) DM-NVX-363C encoder/decoder cards. Card slot 5 is dedicated to HDMI output 1, card slot 6 is dedicated to HDMI output 2, card slot 7 is dedicated to HDMI input 1, and card slot 8 is dedicated to HDMI input 2 on this rack panel. Engage the Crestron Director web page matrix router to route devices.

Note: See “Networked Video” section below for more info on the Crestron Director.



ST-RP-2-2 (Rack Panel)



ST-VPB-2-3 (SDI Patchbay)

1.4.6 Source Devices

Two portable Crestron (DM-NVX-E30) HDMI encoders were provided to support the Sanctuary Theater along with four rack chassis mounted HDMI encoder/decoder (DM-NVX363C) cards in rack 2-2. These devices can convert HDMI into a Crestron network video protocol (NVX) and distribute anywhere the Sanctuary Theater NVX switches are tied.

1.4.7 Production Video (SDI)

The SDI system was designed with tie-lines from wall panels to ST-VPB-2-3 (SDI patch bay) located in RACK-2-3 with 6G SDI cabling from SP-1-1 through SP-2-4. Additionally, there are six (6) 12G-SDI lines at the balcony ST-VP-C plate providing a total of sixteen (16) points of SDI in the theater. Local fiber and audio converters are also tied into this local ST-VPB-2-3 patch bay for conversion, transmitting, and receiving to the Integrated Media Suite over single-mode fiber.

The following Camera/s, Camera Controller, SDI Tx's, SDI Rx's, and SDI Converters were provided for Sanctuary Theater, Stop Gap Theater, Integrated Media Suite, and portable package.

Mfr.	Model #	Description	Qty.
AJA	12G-AMA-R-ST	12G-SDI 4-Ch. Analog Embedder/Dis-embedder w/ ST Fiber Rx SFP	2
AJA	12G-AMA-T-ST	12G-SDI 4-Ch. Analog Embedder/Dis-embedder w/ ST Fiber Tx SFP	1
AJA	12G-AM-T-ST	12G-SDI 8-Ch. AES Embedder/Dis-embedder w/ ST Fiber Tx SFP	1
AJA	FIDO-R-12G-ST	1-Ch. 12G-SDI to Single Mode ST Fiber Receiver (Portable)	2
AJA	FIDO-R-12G-ST	1-Ch.12G-SDI to Single Mode ST Fiber Receiver	2
AJA	12G-AM-R-ST	12G-SDI 8-Ch. AES Embedder/Dis-embedder with ST Fiber Rx SFP	1
AJA	FIDO-T-12G-ST	1-Ch.12G-SDI to Single Mode ST Fiber Transmitter (Portable)	2
AJA	FIDO-T-12G-ST	1-Ch.12G-SDI to Single Mode ST Fiber Transmitter	2
Panasonic	AW-UE80(x)PJ	4K Professional PTZ Camera (3 Black & 1 White)	4
Panasonic	FEC-40WM(x)	Wall Mount (3 Black & 1 White)	4
Panasonic	AW-RP150GJ	Camera Controller	3

Note: See section on "Fiber Infrastructure" for more information on the single-mode patch-bay dedicated to SDI transmission.

1.4.8 Networked Video (NVX & HDMI)

The Sanctuary Theater is set up with a Crestron NVX video network which is intended for HDMI encoding (transmitting) and decoding (receiving) anywhere a NVX device is placed or located. To make a connection plug in your DM-NVX-E30 (Encoder), DM-NVX-D30 (Decoder), or DM-NVX-363 (Enc or Dec) to any "NVX" port with a shielded CAT6A. Once connected, you will need a computer that is connected to the network set to DHCP with its LAN port and navigate to "10.0.0.200" in a web browser. A login page will then appear for your Crestron Director login with user: admin password: #atkusc123 and a matrix routing grid will open. All existing NVX devices on the network will be shown in this matrix grid with current active routes. To make a new route, find your device and route its source to its destination using the purple NAX button for audio only routes, blue NVX button for video routes, or NUX button for USB routes (If applicable). Any combination of audio, video, and potentially USB can be selected for that route.

1.4.9 Projection

Four (4) Christie Digital DWU1400A-GS - 14,250 lumen, WUXGA, 1DLP laser projectors were provided with optional zoom lens installed to support lectures, screenings, or productions.

1.4.10 Distributed Video

The NVX network video system discussed above also ties to all your displays in the front of house (FOH) and back of house (BOH) locations. You can turn on these displays and engage their program feeds with any local Crestron touch panel in your theater. Additionally, a manual route can be made to these decoders if needed within Creston's Director router (discussed above). Optionally, the Dean's Office, Audio Lab, Integrated Media Suite, Boardroom, Center for DEI, Rehearsal Hall, and Dance Classroom 213 can view the production program video from input two (2) on their local displays with a route created in the Crestron Director router.

Please see the Clair drawing set for more information on locations and naming conventions used for these display locations.

Note: IT has a separate set of NVX devices behind the FOH displays that attach to their main network this can be used for campus feed content on these displays. Routing for these should be handled by any active touch panel in the theater rack. Additionally, there are other portable touch panels that can be plugged into the "control" port at various locations for more convenient access.

1.4.11 Recording & Streaming

Two (2) Panasonic AW-UE80KPJ PTZ cameras and one (1) Panasonic AW-RP150GJ controller were provided to assist in the Sanctuary Theater record setup. No recorders, broadcast switcher, or direct streaming devices were provided in this design as this was intended for future use. The infrastructure provided with multi-mode, single-mode, and SDI patching can accommodate recording with owner furnished hardware. Please see Clair's drawing set for locations and flow of mentioned I/O.

Note: Please keep in mind one (1) Panasonic AW-UE80KPJ camera is intended to be dedicated to the program feed at all times.

1.5 Control System

The control system for Sanctuary Theater is designed to support FOH and BOH displays and basic audio zone functions.

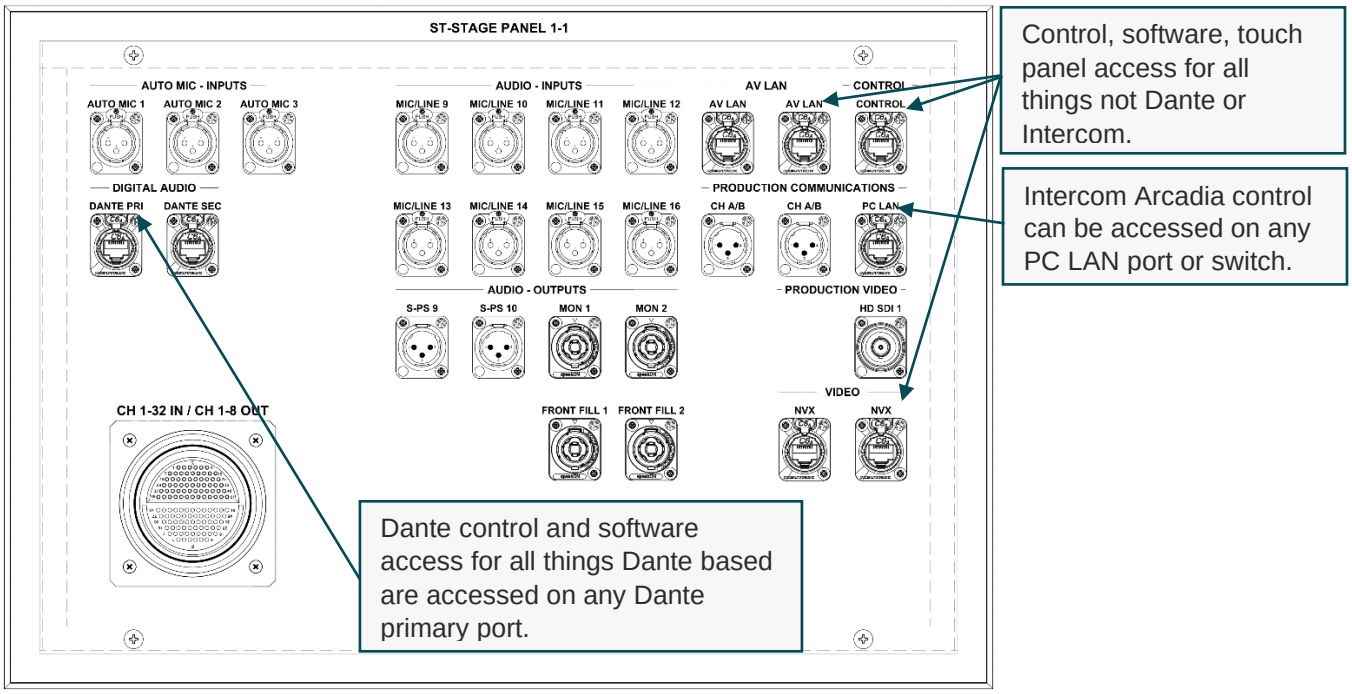
Primary Components and Terminology:

1. **Touch Panel:** The primary 10” Crestron touch panel located in RACK-2-2 can be used to control BOH/FOH distributed display’s, zone level and muting along with other control functions. Additionally, three (3) portable 7” desktop touch panels can be deployed for production access to these same functions.
2. **Controller:** The main Crestron controller (CP4) located in RACK-2-2 is the device managing all control code for this Sanctuary Theater and surrounding Stop Gap, Integrated Media Suite, Audio Lab, and BOH/FOH zones. It is critical for this device to stay online in order to maintain device and touch panel control through the entire building.
3. **Control Network Switches:** The control network is comprised of Netgear M4250 and M4300 series AV specific switches and can interconnect to Sanctuary Theater, Stop Gap, Integrated Media Suite, and the Audio Lab over multi-mode fiber paths and specified SFP ports. Any port labeled Control, AV LAN, or NVX can be used as a control port to engage a touch panel or av control through another device.

Tip: Touch panels should be used for turning on/off displays when possible. If a user uses a local display remote it is possible the system can get out of sync with the on/off functionality which could require you to cycle from the touch panel the display to off state and then back to the on state to regain sync.

1.5.1 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire venue. These panels facilitate a variety of control (Control, AV LAN, NVX) signal types. All these panels tie back to the Sanctuary Theater AV rack room relative switches for centralized management of control systems. Any port labeled Control, AV LAN, or NVX can be used as a control port to engage a touch panel, AV device control over LAN, or make a NVX video route.

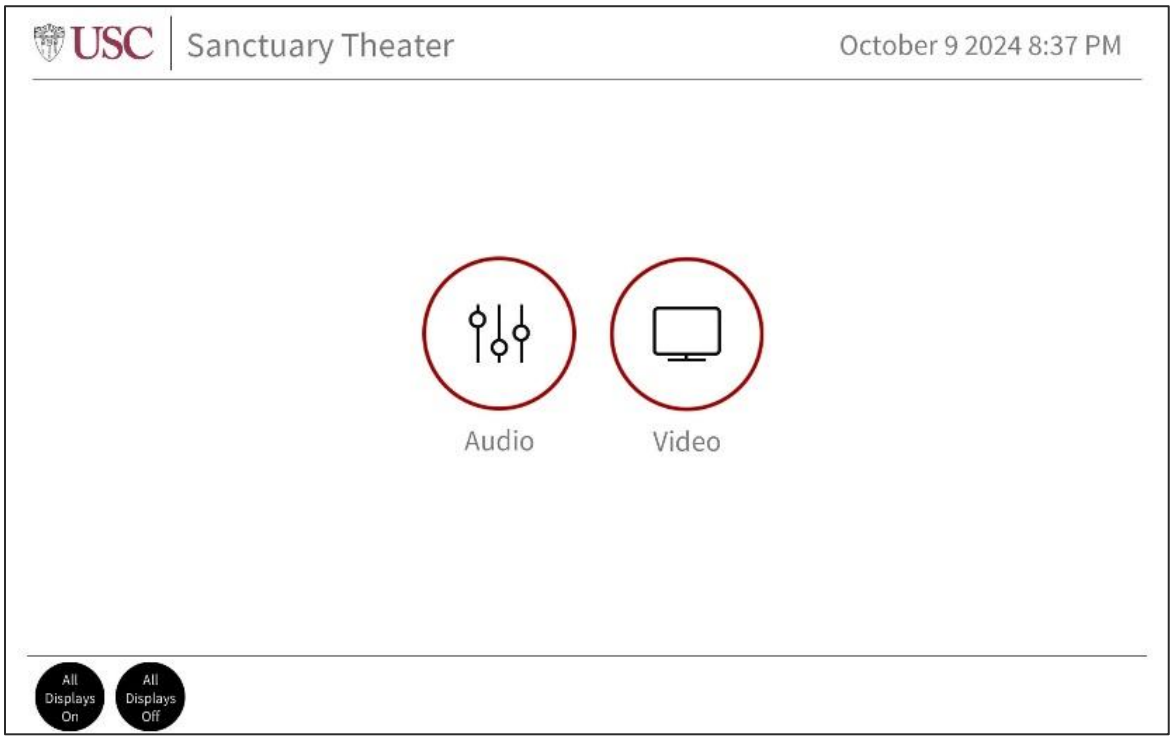


Reminder: AV LAN, Control, and NVX ports are all on the same network and can be used interchangeably.

1.5.2 Rack Panels & Patching

Rack 2-2 has been supplied with a 10” touch panel for control of FOH and BOH systems. Additionally, three portable 7” touch panels can be deployed for sanctuary theater production BOH/FOH control from any position in the theater with any Control, AV LAN, or NVX port.

1.5.3 Touch Panel Layout & Function



MAIN PAGE

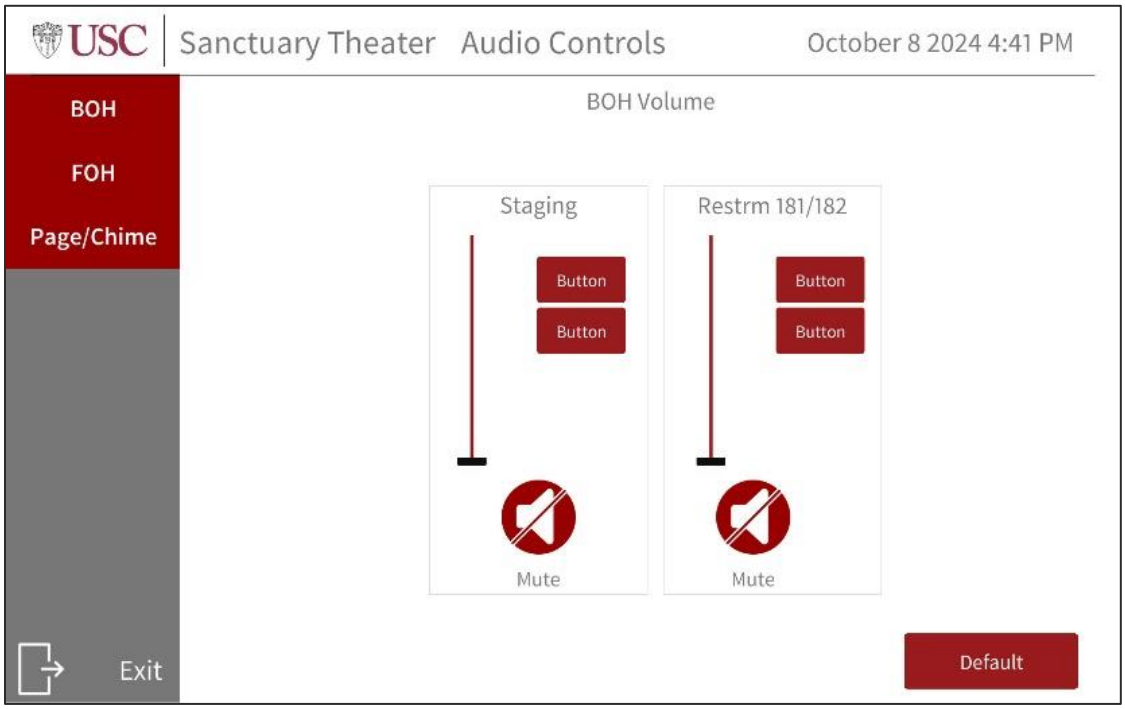
Main Page

- **Source Selection (Main Page)** – At the middle of the touch screen, you can select the desired control types. This will bring you to additional pages that will give controls to specific locations.
- **Display Power (Main Page)** – On the lower left side of the touch screen is a display on and off for all displays that are part of the Sanctuary Theater. These include dressing rooms, staging, lobby, and manager office.

Audio Page – Menus & BOH

From the main page select audio from the source selection and the functions below will be available to you.

- **Menu Column** – To the left side of the touch screen are your buttons for locations that are available for the Sanctuary Theater, use this to navigate each area to control source selections, volume levels, or mutes.
- **Exit Button** – If you want to go back to the main page, use the button on the lower left of the touch screen (labeled “Exit”) to navigate back.

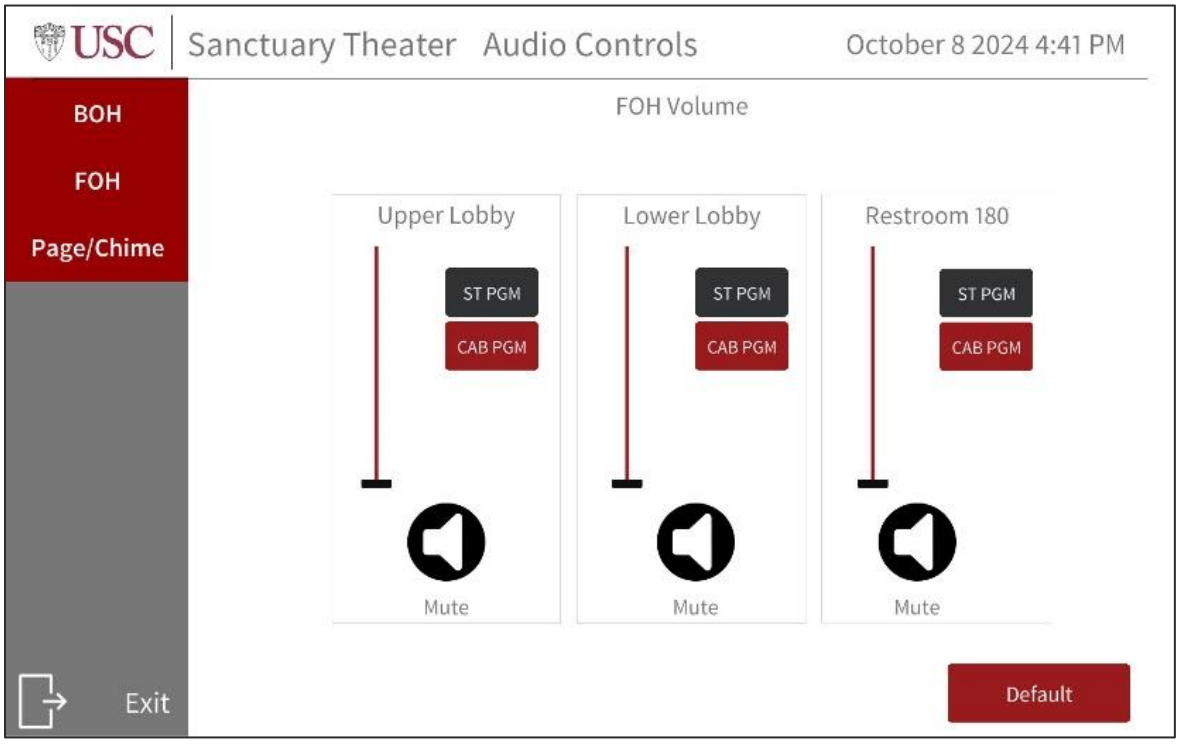


BOH PAGE

- **BOH Tab** – When the back of house tab is pressed, the subpage above will display, allowing the user to utilize the volume controls for their respective location. The controls available to each area include a source selection, volume slider, and audio mute. The source selection buttons are latching and will require an additional press to turn on or off the audio source.

  On the lower left, there is a ‘Default’ button; this allows the user to have a preset volume level without adjusting individual volume faders during each use. To use the ‘Default’ button, set the appropriate volume levels on the slider, then press and hold the ‘Default’ button for about 6 seconds or until you see the button blink. Once set, press on the ‘Default’ button to adjust your volume levels to what the level was set to (this does not apply if the levels you are at are the same level that was set). The ‘Default’ button affects all available volume sliders on their own subpage.

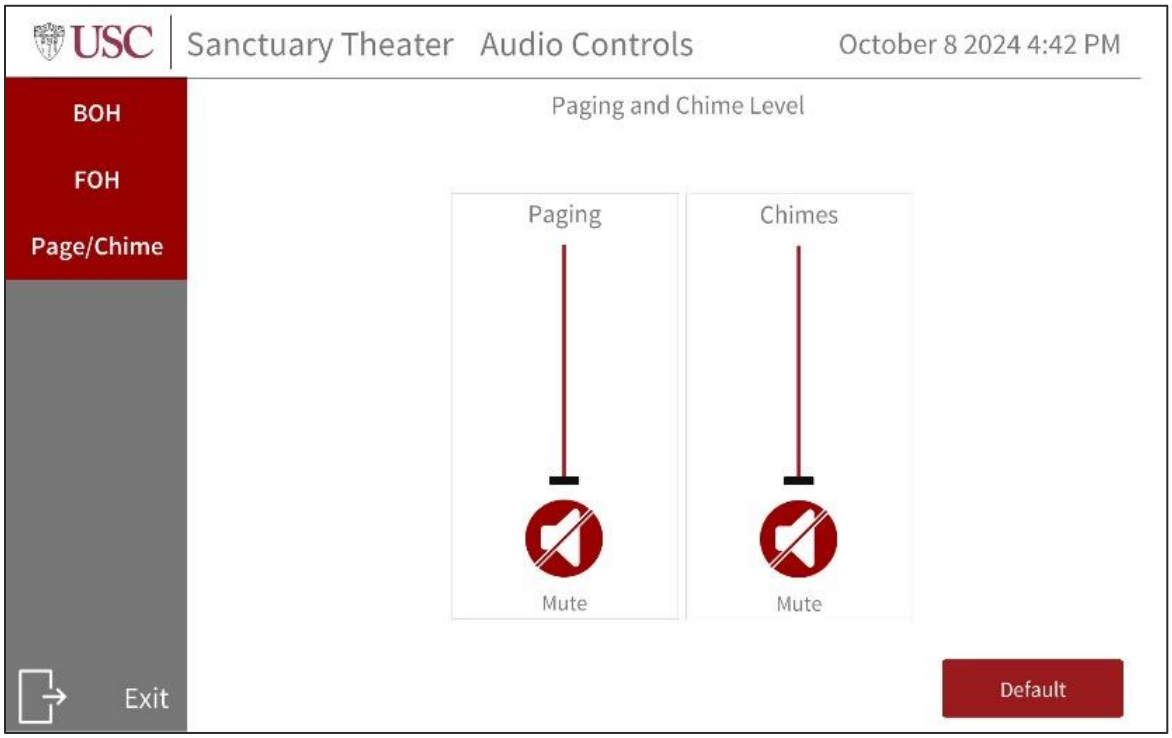
Audio Page – FOH



FOH PAGE

- **FOH Tab** – When the front of house tab is pressed, the subpage above will display, specifically for front of house. Refer to BOH (Audio Page) for instructions.

Audio Page – Page & Chimes



PAGING & CHIME PAGE

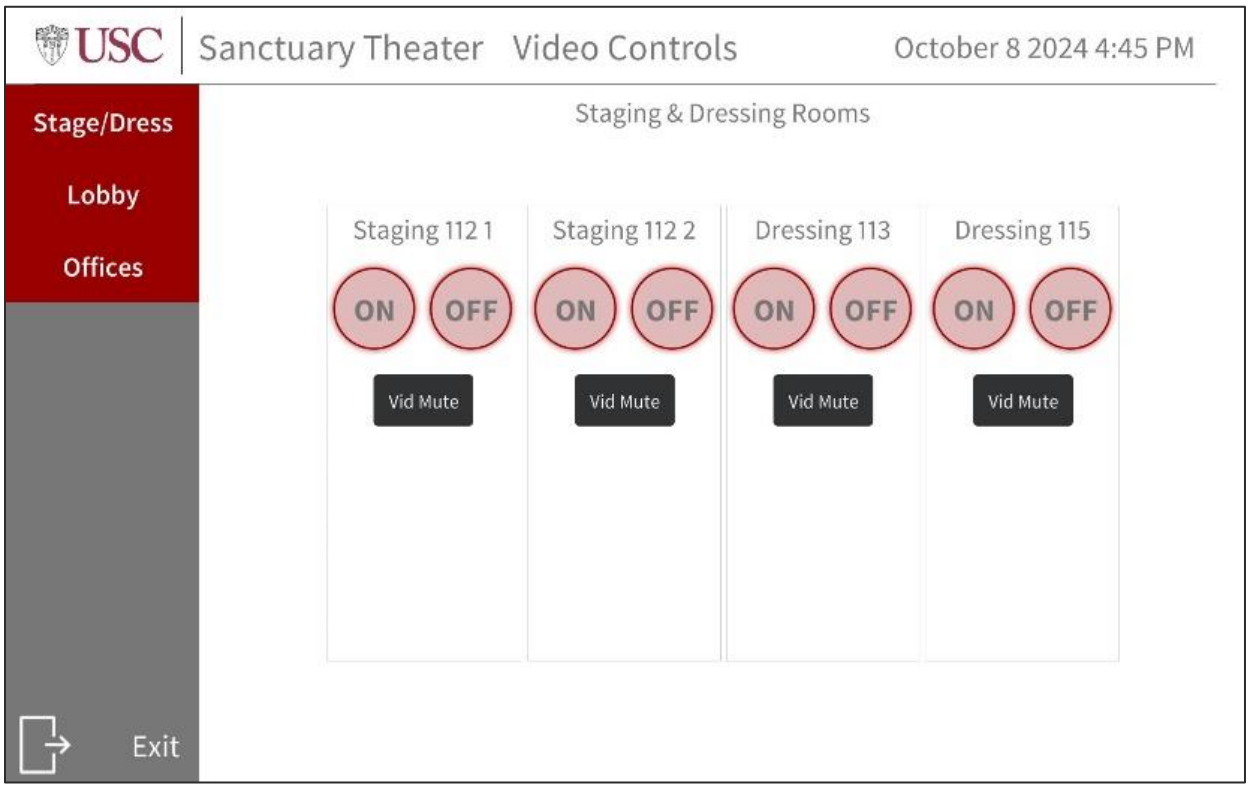
- **Page/Chime Tab** - When the paging and chime tab is pressed, the subpage above will display. Page and chime levels are fine tuning when in use with the paging stations. Please refer to BOH (Audio Page) for instructions, there are no source selection for these controls.

Video Page - Staging and Dressing Rooms

From the main page select video from the source selection and the functions below will be available to you.

- **Menu Column** – To the left side of the touch screen are your buttons for locations that are available for the Sanctuary Theater, use this to navigate each area to control source selection (if applicable), display power, or display inputs.

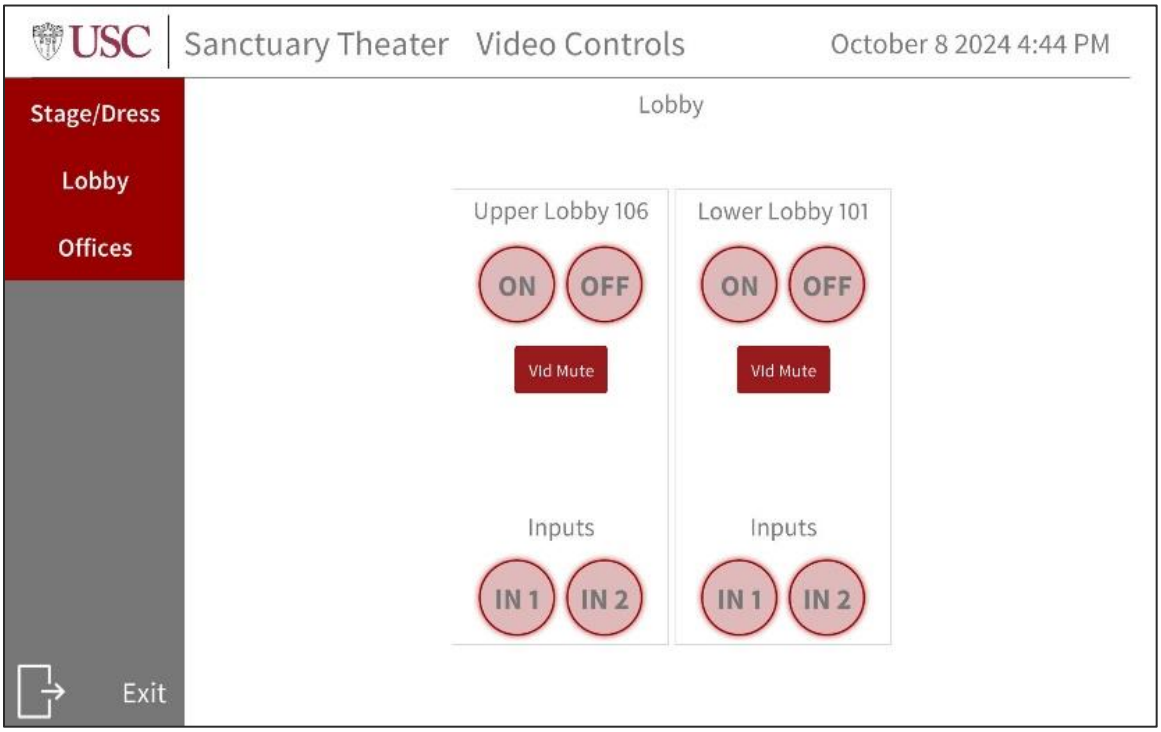
- **Exit Button** – If you want to go back to the main page, use the button on the lower left of the touch screen (labeled 'Exit') to navigate back.



STAGING & DRESSING ROOMS PAGE

- **Stage/Dress Tab** – Pressing the staging and dressing rooms tab on the left column menu to present a subpage for each display in the corresponding location, see picture above. Currently, only display power and video mute (blanking) are available to the user. The source feed is the camera feed from the Sanctuary Theater.

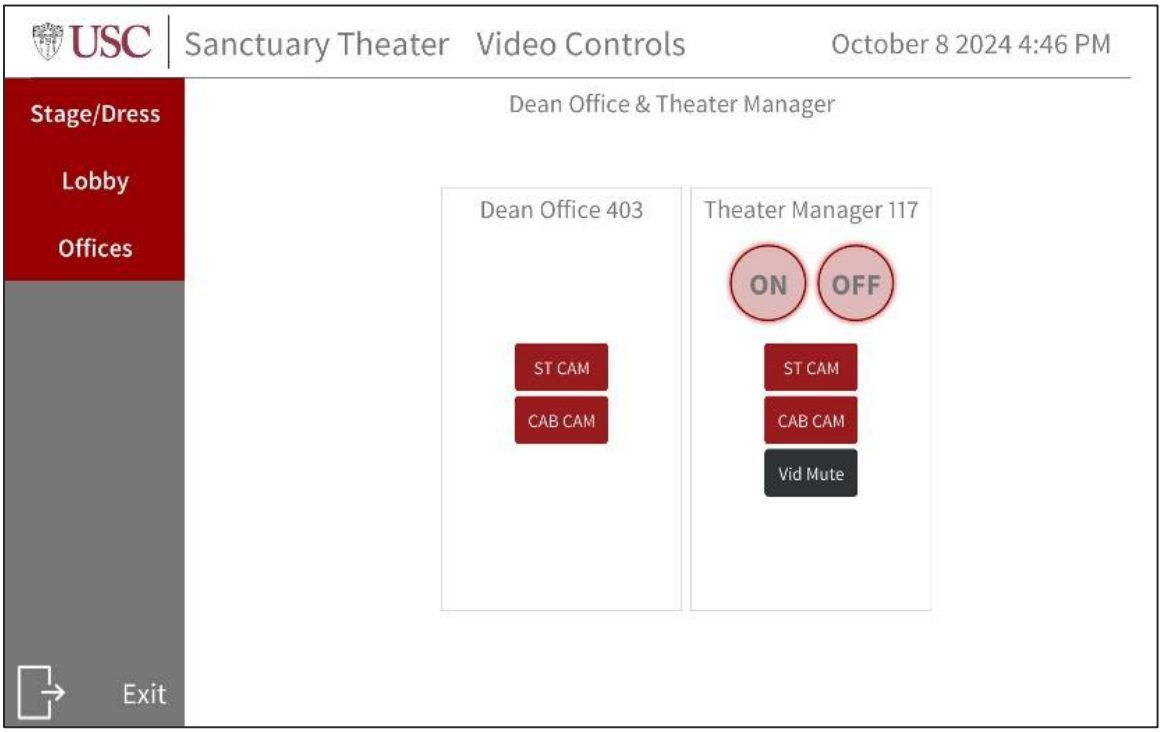
Video Page – Lobby



LOBBY PAGE

- **Lobby Tab** – Pressing the lobby tab on the menu will present a subpage for each display in the corresponding location, see picture above. Currently, only display power, display inputs, and video mute (blanking) are available to the user. The source feed available is the camera feed from the Sanctuary Theater. When ‘IN 1’ is selected, the camera feed will be viewable, if ‘IN 2’ is selected, the source feed will be from IT, when they are pushing out content.

Video Page – Offices



DEAN'S OFFICE

- **Offices Tab** – Pressing the offices tab on the menu will present a subpage for each display in the corresponding location, see picture above. The Theater Manager 117 has display power and source selection, the source feed available are cameras from Sanctuary Theater or Stop Gap Theater. The Dean's Office 403 offers no display controls, these controls are only available locally only. The source selection for the Dean's Office 403 gives the user the ability to push the theater camera feed, the input of the display in the office needs to be set to input 2 to view the feed.

1.6 Network Systems

The network systems in the Sanctuary Theater (previously named Studio Theater) are designed to be robust and custom configured for your specific AV network protocols. Be mindful, bridging networks and/or introducing a non-configured switch into this ecosystem can cause network issues or even crash your entire network. It is recommended to use only the switches provided, if more switches are needed, please contact Clair for assistance with proper configuration.

1.6.1 Network Switches

Each AV switch in the Dramatic Arts Building is dedicated across all the access ports and has an abbreviated acronym switch name. For example: ST-DSW-01 is our acronym for “Sanctuary Theater Dante Switch #1” (see below for acronyms list).

Netgear AV Series M4250 and M4300 switches were used in the DAB AV installation. These are considered the premiere switch models for the AV industry currently and have user friendly interfaces for AV configuration. These switches are programmed beyond that user friendly interface to adhere to strict Crestron and Audinate Dante recommendations.

Switch Acronyms:

Acronym	Name	Function
ST-AVSW-01	Sanctuary Theater Audio/Video Lan Switch #1	NVX, AV LAN, Control
ST-AVSW-02	Sanctuary Theater Audio/Video Lan Switch #2	NVX, AV LAN, Control
ST-AVSW-03	Sanctuary Theater Prod Comm Switch	Helixnet, Intercom Control
ST-DSW-01	Sanctuary Theater Dante Primary Switch #1	Dante Primary, Dante/Yamaha Control
ST-DSW-02	Sanctuary Theater Dante Primary Switch #2	Dante Secondary
ST-DSW-03	Sanctuary Theater Dante Primary Switch #3	Dante Primary, Dante/Yamaha Control
ST-DSW-04	Sanctuary Theater Dante Primary Switch #4	Dante Secondary
ST-NDISW-01	Sanctuary Theater NDI Switch #1	NDI, NDI Control
ST-NVXSW-01	Sanctuary Theater NVX Switch #1	NVX, AV LAN, Control
ST-NVXSW-02	Sanctuary Theater NVX Switch #2	NVX, AV LAN, Control

Switch Port Types

Access Port: General RJ45 network switch ports that are configured to carry network traffic for a specific virtual local area network (VLAN) only.

Trunk Port: Trunk ports are commonly a small form-factor pluggable (SFP or SFP+) fiber or RJ45 module that can transmit data traffic for multiple virtual local area networks (VLANs) truncating them between switches to make a larger network. These ports are used and/or reserved for trunk allocation as they typically are higher bandwidth capable.

Switch VLAN's: The following isolated virtual local area networks (VLAN's) were created to separate the distinct aspects of the network. Each network port can be separated or grouped into one of these six (6) VLAN's.

- 0001 MGMT VLAN – Management VLAN
- 0101 DANTE PRI VLAN – Dante Primary / Dante Device Control VLAN
- 0102 DANTE SEC VLAN – Dante Secondary VLAN
- 0300 NVX VLAN – NVX Video, Control, and AV Device Network
- 0400 NDI VLAN – NDI Video/Control VLAN
- 0500 HELIXNET – Intercom and Helix Net VLAN

Switch models:

- Netgear M4300-52G-PoE+ / 48x1G PoE+,1,000W, 2x10GBASE-T,2xSFP+, Managed
- Netgear M4250-26G4XF-PoE+ / 24x1G PoE+,480W,2x1G,4xSFP+, Managed
- Netgear M4250-9G1F-PoE+ / 8x1G PoE+,110W,1x1G,1xSFP, Managed

1.6.2 Network Patching

All network types, other than Dante, tie directly to the switches. To activate any device on a network type, plug your device or computer into your available system type port. Dante ports tie to a patch bay in the Sanctuary Theater rack 2-1 and then require an additional patch to their respective ST-DSW-01/02 (Primary/Secondary) switch.

This patch bay provides a quick and straightforward way to activate Dante devices on the limited forty-seven (47) available primary Dante ports in the Sanctuary Theater. Additionally, a data tie-line patch bay labeled ST-DPB-2-1 in the Sanctuary Theater ties to Stop Gap, Audio Lab, and Integrated Media Suite with eight (8) CAT6A tie lines for each.

1.6.3 Network Types & Functions

Dante Network/s: Dante is an acronym for **D**igital **A**udio **N**etwork **T**hrough **E**thernet, an Audinate based audio connectivity standard that enables audio-based media systems to identify and communicate with one another over IP and to encode, transmit, and receive high- quality 48k/96k sample rate and 24-bit or 32-bit depth, extremely low latency audio over network.

There are two Dante networks running in the Sanctuary Theater on switches ST-DSW-01 (Primary) and ST-DSW-02 (Secondary). The primary network is commonly used by itself and can run your audio system without a secondary patch needed. If redundancy is desired, a secondary Dante network is available for use. Proper configuration of all devices to “Redundant Mode” with device reboots must be set before proceeding with secondary patching. Failure to do so, will result in the Dante primary network crashing as devices are commonly set in “Daisy Chain” mode by default and currently set as such as requested from the school staff. This mode acts as two primary ports instead of primary and secondary which is how most devices are labeled.

Additionally, you have a multi-mode LC fiber patch bay system available to patch Studio Theater, Stop Gap Theater, and Integrated Media Suite together as a broader Dante network. Configuration on switch trunk ports is already set for this link. This network is set to auto-config or link local, so devices are plug & play for Dante. Being that there is no DHCP router these devices will default to a 169.254.xxx.xxx/16 address and be accessible in Dante controller. One thing to note is that devices that needed control from Crestron are statically assigned in this link local space as 169.254.0.xxx/16 this way they are always at the same IP and can be found for control purposes.

NVX, AV, and Control Network: NVX stands for Network Video Interface, a Crestron based video connectivity standard that enables HDMI based multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video, audio, and USB communication. The NVX, AV, and Control network in Sanctuary Theater is your main network for Crestron NVX video, AV system control, and hardware access over LAN.

This network has been programmed with strict Crestron NVX protocol requirements to maintain success with the complex nature of NVX multicast traffic, prioritization of traffic, and removal of efficiency ethernet to name a few specifics. This network has a DHCP router handing out addresses from the IP scheme 10.0.xxx.xxx/20 (4094 address capable) network. This large address range allows us to bridge the entire DAB if needed for all NVX and AV control. As mentioned above we have multi-mode LC fiber patch bays tying Audio Lab, Integrated Media Suite, and Stop Gap Theater to the overall NVX and AV Control network.

Management Network: The last access port on each switch is programmed as a management port accessing the virtual local area network (VLAN) this exists on all switches so that programmers can manage the connected switches from a centralized switch location. To manage switches, get on any management port and change your IP to the management IP schema. With your computer, point to any management switch IP address using a web browser. Then enter the following login: User: “admin” / Password: “#atkusc123”.

NDI Network: NDI stands for Network Device Interface, a video connectivity standard that enables multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video and audio, and exchange metadata in real-time.

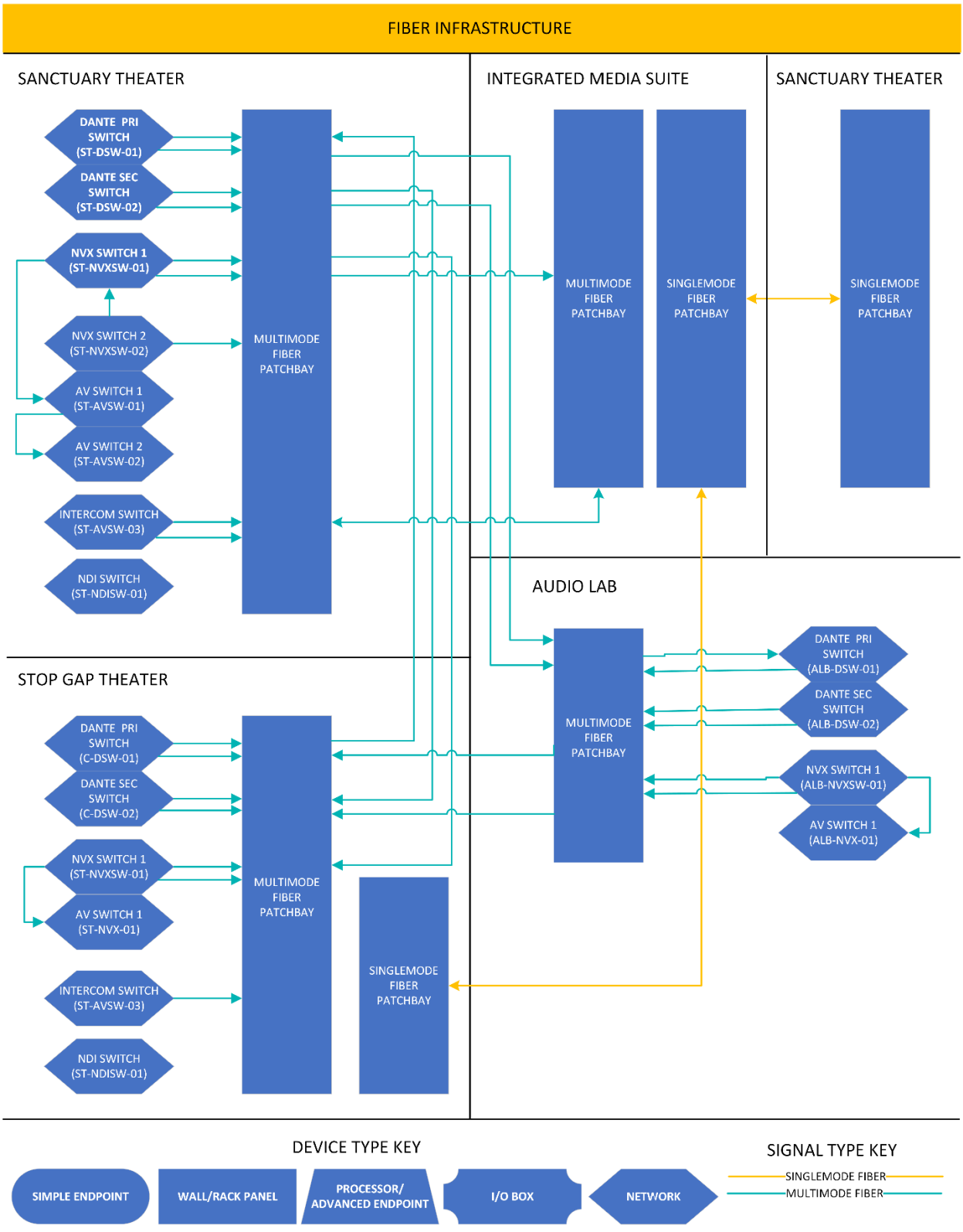
Tip: When someone lists an IP address followed by Classless Inter-Domain Routing (CIDR) reference “10.0.xxx.xxx/20” it is a quick reference to the subnet size being used in this case /20 (4094 available addresses) in your NVX/Control network or /16 (65534 available addresses) in your Dante network.

1.6.4 Fiber Infrastructure

The Dramatic Arts Building has two fiber tie-line systems. The first is a multi-mode LC based fiber tie-line system that ties the Sanctuary Theater, Cabaret, Audio Lab, and Integrated Media Suite together. The primary purpose of this multi-mode fiber is to tie each switch type together with fiber trunks connected via their SFP/+ trunk ports.

The second fiber tie-line system is a single-mode ST based fiber system that ties the Integrated Media Suite to the Sanctuary (Studio) Theater and Stop Gap (Cabaret) Theater. The primary purpose of this single-mode fiber is to provide a means for 3G, 6G, and 12SDI broadcast video transport to the integrated media suite which is the hub for video production and streaming.

1.6.5 Fiber Infrastructure Overview



1.7 Intercom System

The production intercom system in the Sanctuary Theater (previously named Studio Theater) is designed to be an all-encompassing Clear-Com intercom package allowing the theater to train on the distinct types of Clear-Com technologies.

Primary Components and Terminology:

1. **Central Station:** The Sanctuary Theater is equipped with a Clear-Com Arcadia-X4-32P central management station that is the hub for all Sanctuary Theater intercom communications. This Arcadia central station has been set up for: HelixNet, Analog 2-Wire, and Free-Speak wireless. To connect to the Sanctuary Theater Arcadia, plug into a “PC LAN” port or switch and change your personal computer to a 10.0.10.xxx network. Next, type 10.0.10.081 into a web browser to discover the management portal for this Arcadia. When a login appears, use the following login info: (user: admin / password: #atkusc123). Please see the manufacturer’s user manual for more information on Arcadia capability, limitations, and routing.
2. **HelixNet:** HelixNet is a family of digital party-line intercom over a single data cable. HelixNet devices can have access of up to four (4) channels of intercom communications over this single data cable. Please see the manufacturer’s user manual for more information on specific devices *(Note: This is shared equipment amongst facility)*.
3. **Analog 2-Wire:** It is estimated that there can be a maximum of thirty (30) RS-701/702 belt-packs active with your two (2) dressing room wall stations. Eight (8) single channel and four (4) dual channel analog belt packs were provided for the entire portable package. If you add the provided portable party-line wall stations (KB-701 or KB-702) for your productions, be aware you will need to reduce total bodypacks by three (3) for every wall station. See Clear-Com’s Encore party-line calculator for more information *(Note: This is shared equipment amongst facility).*

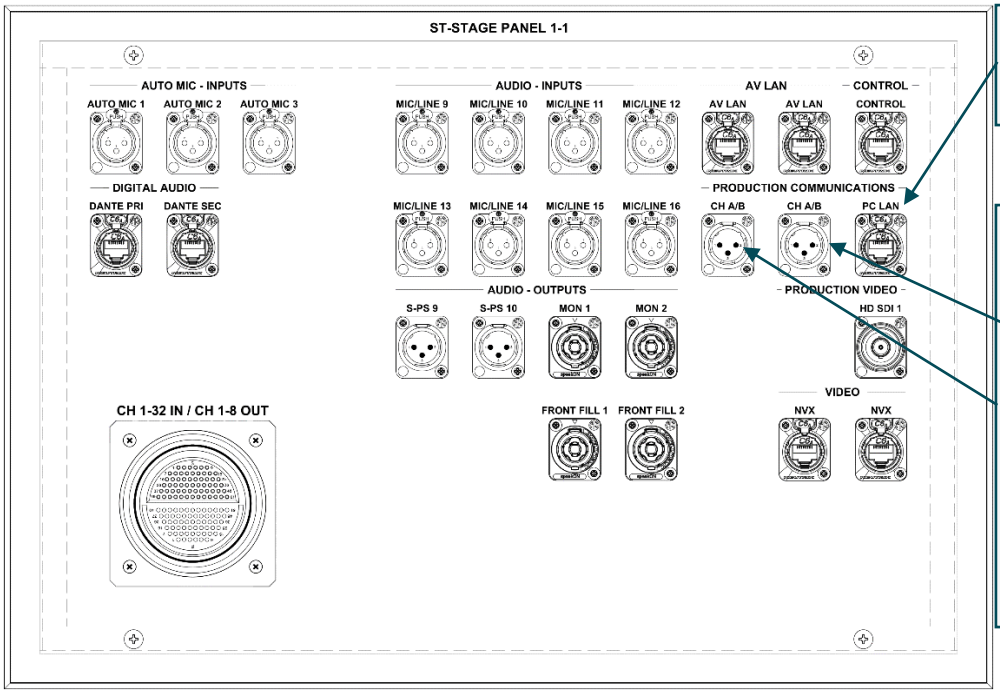
   https://clearcom.com/DownloadCenter/technicaldocs/EncorePowerSupplyCalculator/EncorePowerSupplyCalculator.xlsx

Tip: Do not forget to “Null” your system through Arcadia main menu once you have setup all intercom devices for your productions. Warning nulling is loud! Please make sure everyone is off of comms when nulling.

4. **Free-Speak:** Is a five-channel, wireless intercom system that connects the supplied two (2) wireless belt packs (FSII-BP19) over the 1.9 GHz spectrum with two (2) transceiver antennas (FSII-TCVR-19) located in Sanctuary Theater staging and catwalk areas. These connect through a splitter (FSII-SPL) that is located in your rack room and is driven from the Arcadia central station. Five (5) wireless body packs can be supported on this model of transceiver giving you a maximum of ten (10) wireless belt backs can be supported before needing to add more transceivers. Currently, the two (2) theaters are intended to be discreet and not set up to be on the same intercom channels *(Note: This is shared equipment amongst facility).*

1.7.1 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire Sanctuary Theater and corresponding BOH spaces surrounding this venue. These panels facilitate a variety of production communication (intercom) signal types. All these panels are tied back to the Sanctuary Theater AV rack room for a centralized management of intercom systems for this theater.



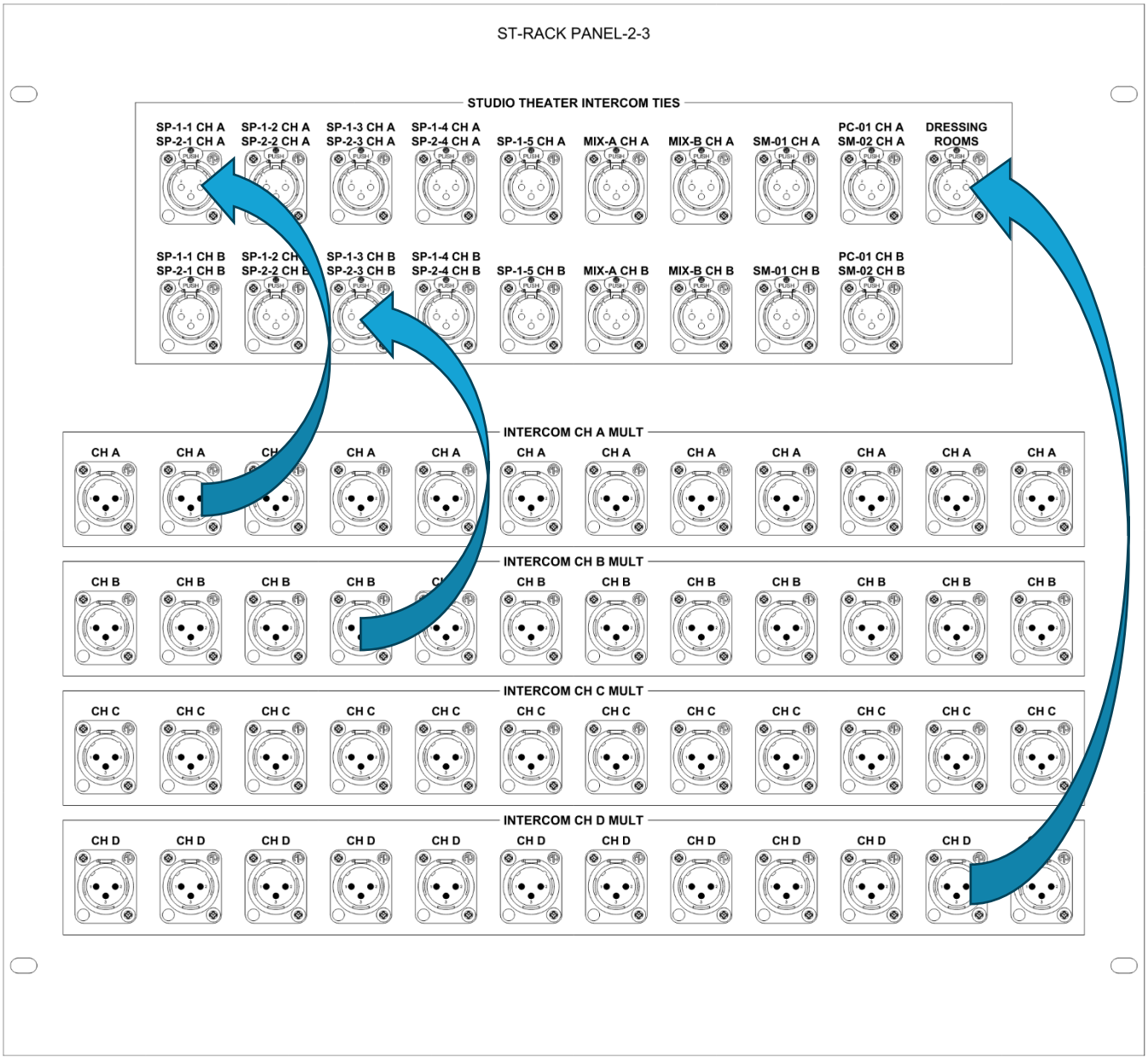
Production Communication Control, and HelixNet ONLY.

Due to a design change, the first port is a dedicated “A” channel, and the second port is a dedicated “B” channel” in the Sanctuary Theater. These can also be patched as “C” or “D” if desired. Please see the next section on intercom rack patching for this process.

Note: FreeSpeak transceivers are not to be used on the PC LAN. Doing so may result in damage to your production communication network switch. FreeSpeak transceivers are only to be plugged into provided splitter (FSII-SPL) or Arcadia/FreeSpeak central stations directly.

1.7.2 Rack Panels & Patching

The ST-RP-2-3 intercom tie-line panel is a XLR patch bay allowing the user the capability to patch four (4) discrete two-way communication intercom channel groups shown in the “Mult” sections below. The upper section is the theater and BOH locations available to be patched to/from the discrete channel “Mult’s” below. In the patching example below SP-1-1 & SP-2-1 (A) ports would be active with CH. A, SP-1-3 & SP-2-3 (B) ports would be active with CH.B and the dressing rooms would be active with CH.D signal all driven from the Arcadia central station.



1.7.3 Devices

The following devices were provided to support the Sanctuary Theater and surrounding spaces. Please keep in mind that some items shown below were part of a shared “portable” package that was designed to be shared with the Stop Gap Theater, Audio Lab, and Integrated Media Suite (NMS) if needed. Separate central stations exist for Stop Gap and Integrated Media Suite additionally.

Mfr.	Model #	Description	Qty.
Clear-Com	110 340	110 Series Gooseneck Microphone: Standard 13"	1
Clear-Com	110 340	110 Series Gooseneck Microphone: Standard 13"	1
Clear-Com	110/100	110 Series Gooseneck Microphone: Standard 4"	1
Clear-Com	AB-120	Encore Commentator Console	1
Clear-Com	ARCADIA-X4-32P	Arcadia Central Station: (32) Licensed Ports	1
Clear-Com	CC-26K-X4	Headset: Single ear, Light weight, XLR (F) 4 Pin, w/Mic	2
Clear-Com	CC-300-X4	Headset: Single Ear, Medium weight, XLR (F) 4 pin w/Mic	18
Clear-Com	CC-300-X4	Headset: Single Ear, Medium weight, XLR (F) 4 pin w/Mic	2
Clear-Com	CC-400-X4	Headset: Double Ear, Medium weight, XLR (F) 4 pin w/Mic	1
Clear-Com	FL-7	Encore Call Signal Flasher	4
Clear-Com	FSII-BP19-X4-US	FreeSpeak II Beltpack: 1.9GHz, US	2
Clear-Com	FSII-SPL	FreeSpeak II Transceiver Splitter	1
Clear-Com	FSII-TVCR-19	FreeSpeak II Transceiver: 1.9GHz, US	3
Clear-Com	GN-250-TRS	Gooseneck Microphone Short	3
Clear-Com	HKB-2X	HelixNet Speaker Station	1
Clear-Com	HKB-2X	HelixNet Speaker Station	2
Clear-Com	HRM-4X	HelixNet Remote Station: 4Ch	1
Clear-Com	IC-25-6	Encore IFB Control Cable-25'	4
Clear-Com	KB-701	Encore Speaker Station: 1Ch	4
Clear-Com	KB-701	Encore Speaker Station: 1Ch	2
Clear-Com	PS-704	Encore Power Supply: 4Ch	1
Clear-Com	RS-701	Encore Belt pack: 1 Ch	8
Clear-Com	RS-702	Encore Belt pack: 2 Ch with Program Audio	4
Clear-Com	S-Mount	HelixNet Surface Mount: Desk/Wall for HKB-2X	1
Clear-Com	Terminal Block	Custom Terminal Block	3
Clear-Com	U-BOX-X3	Surface Mount: 1Ch, Desk/Wall for KB Speaker Stations	4
Clear-Com	YC-36	Y-Splitter: 2Ch 6-pin to (2) 3-pin for RS-702-style belt packs	4

2. STOP GAP (CABARET) THEATER AV TECHNICAL DESCRIPTION

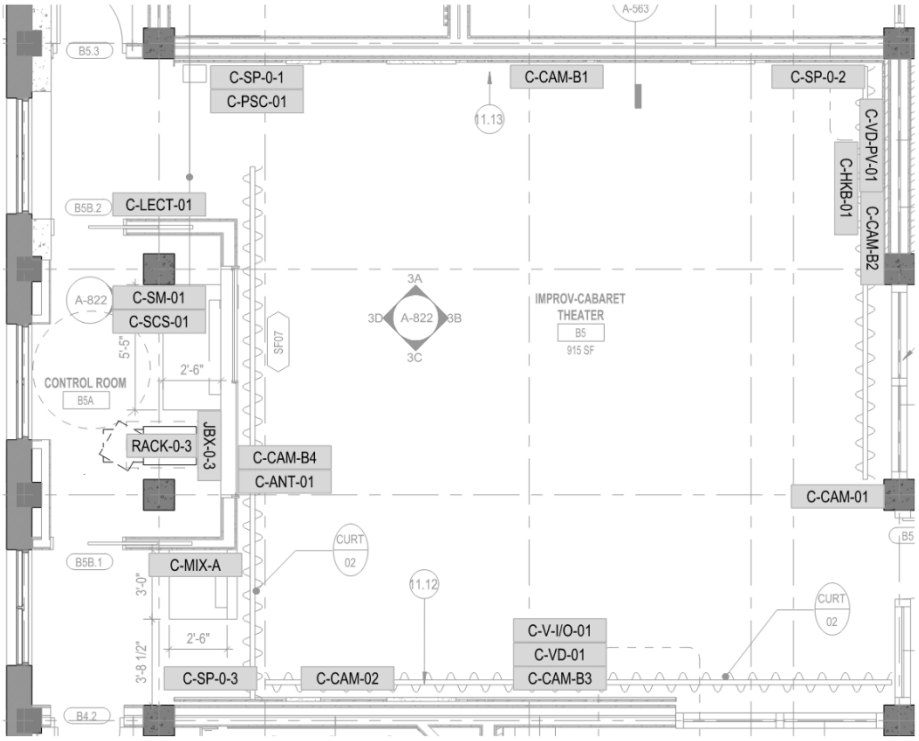
The Stop Gap Theater (previously known and referenced as Cabaret Theater) is a black box or improv style theater where the user can create and support a wide variety of smaller productions, events and classes. This chapter will dive into the specifics of how the audio, video, and control systems are designed to facilitate the different facets of these productions.

2.1 Venue Overview

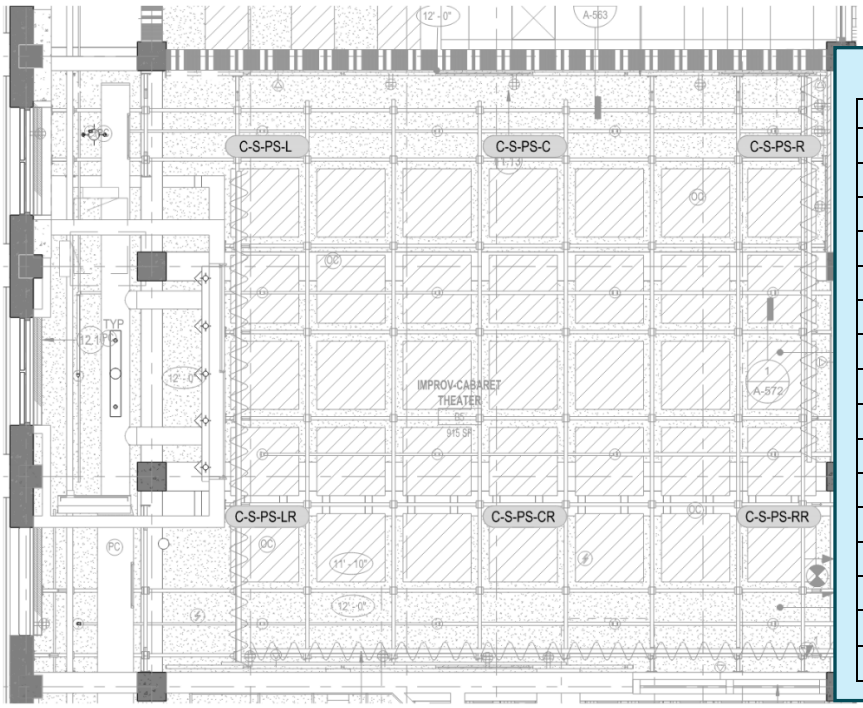
Let us start with an overview of the floor and ceiling plans to orient you to the space from a bird's eye perspective. The next few pages will give you an understanding of important plate and device locations to notate.

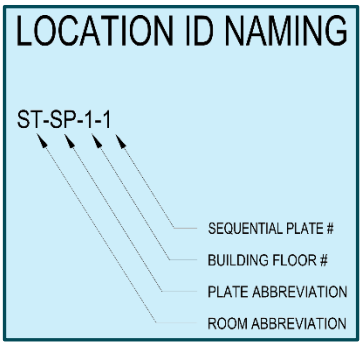
2.1.1 Panel & Device Locations Stop Gap Theater - Floor & RCP

Floorplan



Reflected Ceiling Plan

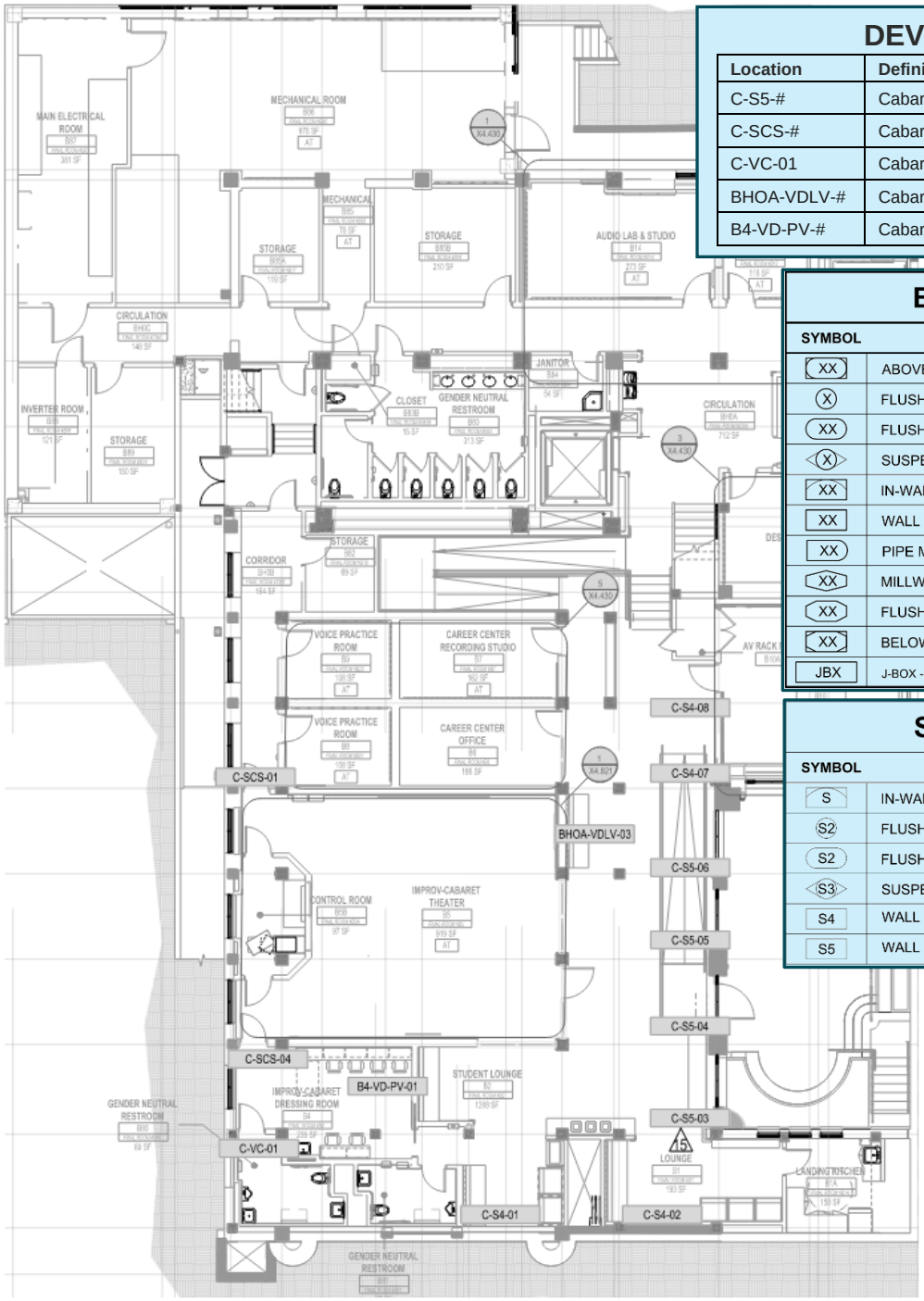




DEVICE LEGEND

Location	Definition
C-ANT-01	RF & Prod. Comm. Antenna Panel
C-CAM-#	Camera Panel
C-CAM-B#	Camera Panel - Broadcast
C-HKB-01	Cabaret, Prod. Comm., HelixNet Wall Station
C-LECT-01	Cabaret, Lecture Panel
C-MIX-A	Cabaret, Mixer Panel, A Location
C-PSC-01	Cabaret, Projection Screen Control Box
C-SCS-01	Cabaret, Screen Control Switch, #1
C-SM-01	Cabaret, Stage Manager Panel, #1
C-SP-0-#	Cabaret, Stage Panel Level 0, Series #
C-S-PS-#	Cabaret, Speaker, Powered
C-V-I/O-01	Cabaret, Video I/O Panel, #1
C-VD-01	Cabaret, Video Display (Stage Display), #1
C-VD-PV-#	Cabaret, Video Display, Prod. Video, Series #
JBX-0-3	Junction Box Level 1, Series #3
RACK-0-3	Audio Video Rack-0-3

2.1.2 Panel & Device Locations Basement Level FOH/BOH - Floorplan



DEVICE LEGEND

Location	Definition
C-S5-#	Cabaret, Speaker Type 5, Series #
C-SCS-#	Cabaret, Prod. Comm., Wall Station, Series #
C-VC-01	Cabaret, Volume Control, #1
BHOA-VDLV-#	Cabaret, Video Display, Lobby Video, Series #
B4-VD-PV-#	Cabaret, Video Display, Production Video, Series #

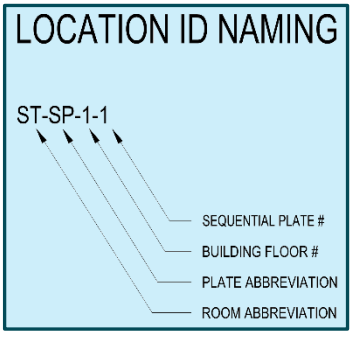
BACK-BOX LEGEND

SYMBOL	BACK-BOX LOCATION / MOUNTING CONDITION
XX	ABOVE FINISH CEILING
X	FLUSH IN CEILING
XX	FLUSH IN CEILING
X	SUSPENDED FROM CEILING
XX	IN-WALL MOUNTED DEVICE
XX	WALL MOUNTED DEVICE
XX	PIPE MOUNTED
XX	MILLWORK MOUNTED DEVICE
XX	FLUSH IN FLOOR FLOOR
XX	BELOW FINISH FLOOR
JBX	J-BOX - CONDITION VARIES SEE SCHEDULE AND DETAILS

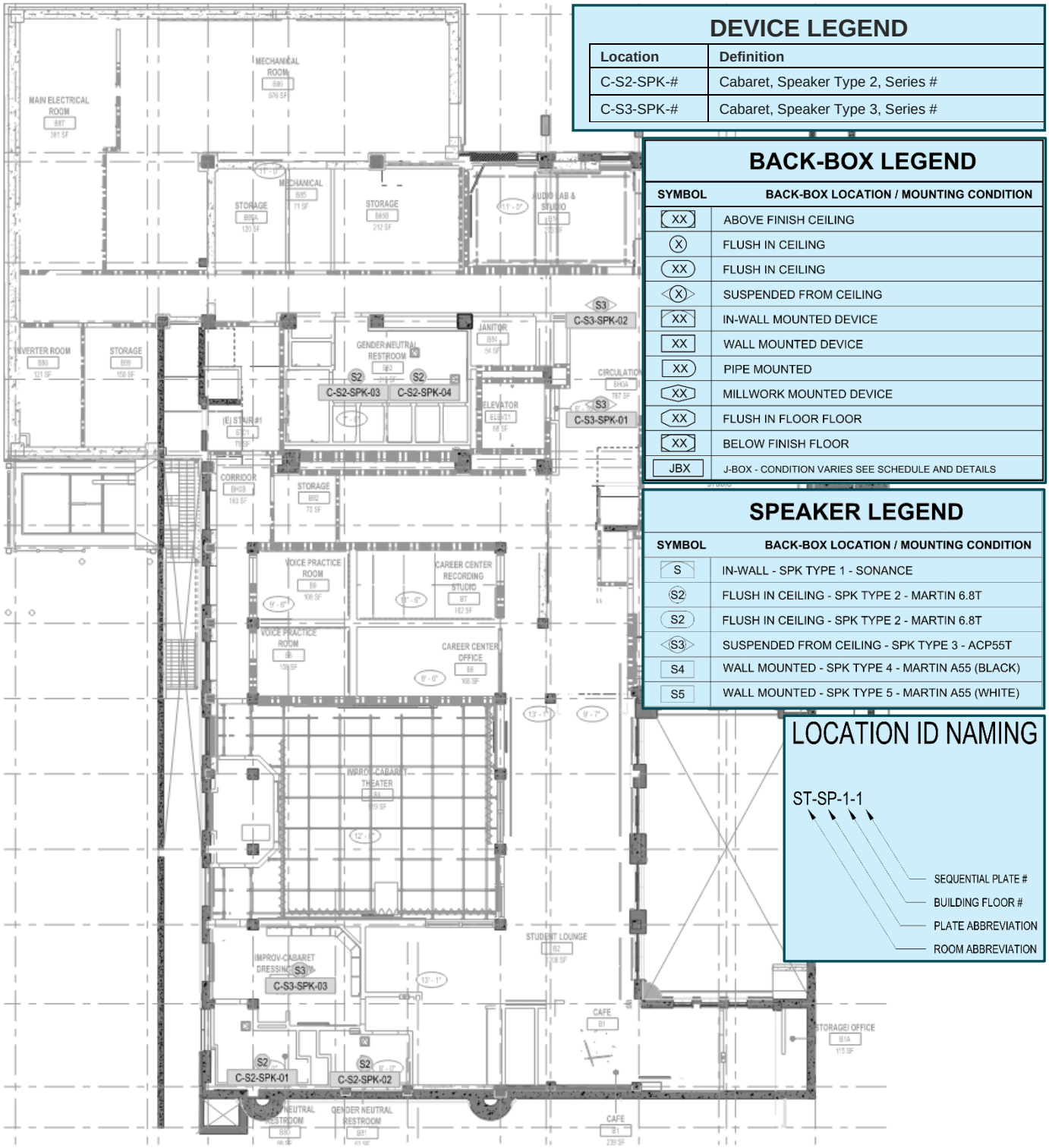
SPEAKER LEGEND

SYMBOL	BACK-BOX LOCATION / MOUNTING CONDITION
S	IN-WALL - SPK TYPE 1 - SONANCE
S2	FLUSH IN CEILING - SPK TYPE 2 - MARTIN 6.8T
S2	FLUSH IN CEILING - SPK TYPE 2 - MARTIN 6.8T
S3	SUSPENDED FROM CEILING - SPK TYPE 3 - ACP55T
S4	WALL MOUNTED - SPK TYPE 4 - MARTIN A55 (BLACK)
S5	WALL MOUNTED - SPK TYPE 5 - MARTIN A55 (WHITE)

LOCATION ID NAMING

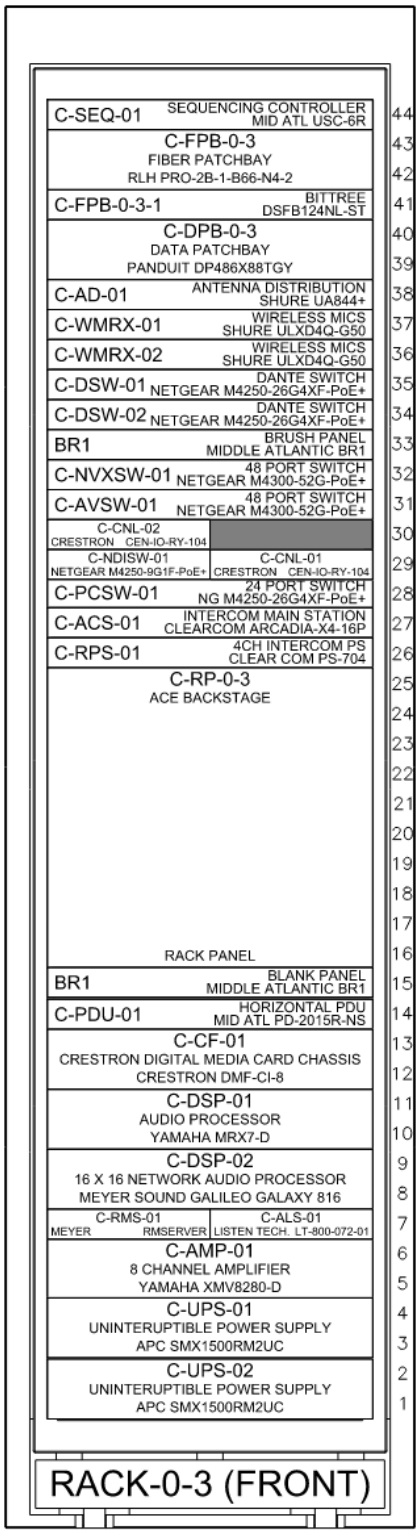


2.1.3 Device Locations Basement Level FOH/BOH - Reflected Ceiling Plan

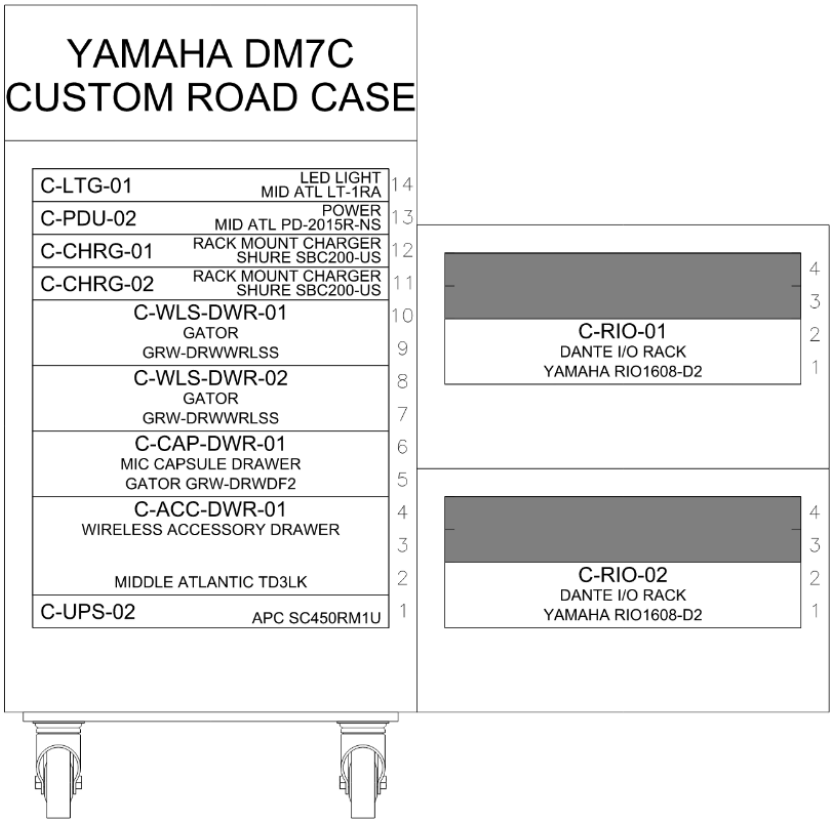


*Note: *RCP = Is a common architectural abbreviation for Reflected Ceiling Plan.*

2.2 Equipment Rack - Elevations



- One (1) Middle Atlantic WR-44-32 (44RU x 32” Depth) slide out rack was provided for the Stop Gap Theater booth.
- One (1) console case and one (1) 14RU road case were provided for console and wireless mics respectively.
- Two (2) 4RU SKB portable cases were provided for Yamaha Dante I/O racks.



2.2.1 Power Distribution & Sequencing

The primary rack has a vertical power strip capable of sequenced power for items such as the audio amplifiers. This is achieved by engaging the power sequencer located at the top of the amp rack. Most devices in the building have their power strip modules set to a constant “On” mode as power sequencing is not desired for all devices.

2.2.2 Uninterruptible Power Supplies

Each primary rack has a dedicated uninterruptable power supply (UPS) installed in the instance of a power outage to keep all critical equipment protected and online for a short duration of time.

2.3 Audio System

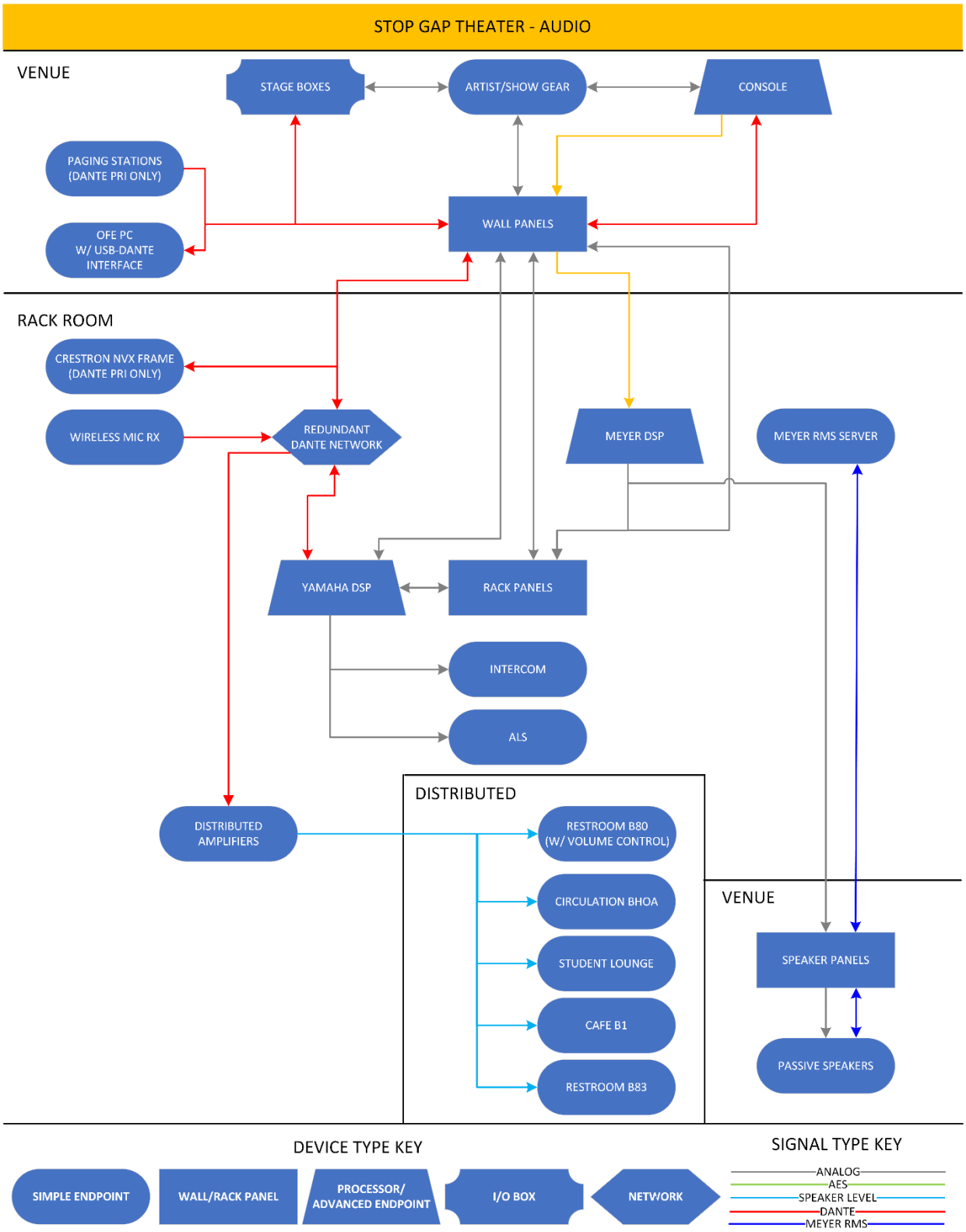
The audio system for Stop Gap Theater (previously known and referenced as Cabaret Theater) is designed to be adjusted to accommodate diverse types of performances, productions, improv, various events, and classes.

Primary Components and Terminology:

1. **Mixing Console:** A Yamaha DM7C (Compact) mixing console has been provided with 72 inputs, 48 aux mixes, 12 matrices to control audio I/O levels, effects, and routing for microphones, instruments, and playback sources.
2. **Microphones**: An assortment of wireless and wired microphones were provided, including handheld, headset, lavaliere, dynamic, and condenser microphones. Used to capture speech, vocals, and instrumentation effectively.
3. **Speakers**: A variety of high-quality Meyer speakers were provided to be used as main speakers and monitors that are and can be positioned strategically around the space to ensure even coverage and support.
4. **Subwoofers**: Two Meyer dual 10” subwoofers were provided for enhanced low-frequency support for music and dramatic effects in this theater.
5. **Amplifiers**: One (1) Yamaha 8 channel amplifier supports the 70v and low impedance BOH and FOH speaker systems for this theater.
6. **Digital Signal Processors**: This system has two (2) digital signal processors (DSP’s). The first is a Meyer Galaxy 816 DSP for the Meyer mains speakers, monitor support speakers, and subwoofers in this system. The second DSP is a Yamaha MRX7-D used to support paging, assistive listening, FOH, and BOH speaker systems. Both DSP’s also tie to the Stop Gap (C-RP-0-3) rack panel.
7. **Audio I/O Interface**: The Yamaha Rio’s provide inputs for mic or line level instrumentation, and source devices to enter the mixing console over Dante (digital audio over ethernet), while allowing for multitude of outputs for things like speakers, subwoofers, monitors, sound effect support, and recording capabilities.
8. **Cabling and Connectors**: This system can use Dante audio a digital audio over network through a CAT6. Providing up to 64 inputs by 64 outputs. Additionally, various forms of analog and digital cabling were provided to support your audio needs.

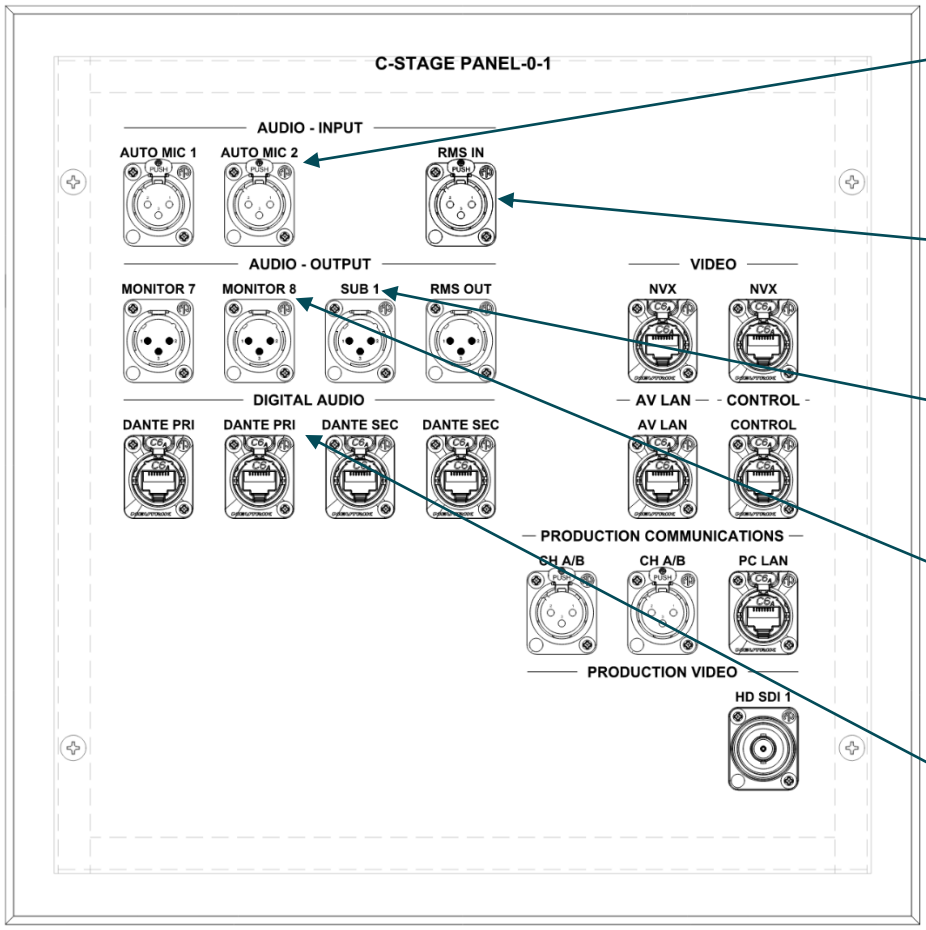
Tip: Use caution when positioning speakers to ensure balanced sound distribution and maximize your gain before feedback. Meyer MAPP or MAPP 3D design software can assist with proper coverage in your designs.

2.3.1 Audio System Overview



2.3.2 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire venue. These panels facilitate a variety of audio signal types. All these panels are tied back to the AV Rack (Rack-0-3, located in booth) for centralized management of the system I/O. The example below is of the Stop Gap C-SP-0-1 stage panel.



Auto-mics in Stop Gap will automatically work with just an SM-58 plugged in. No console needed.

RMS loop requires a continuous loop to use the RMS server to monitor your Meyer speakers. This includes jumpers on plates when speakers are not attached.

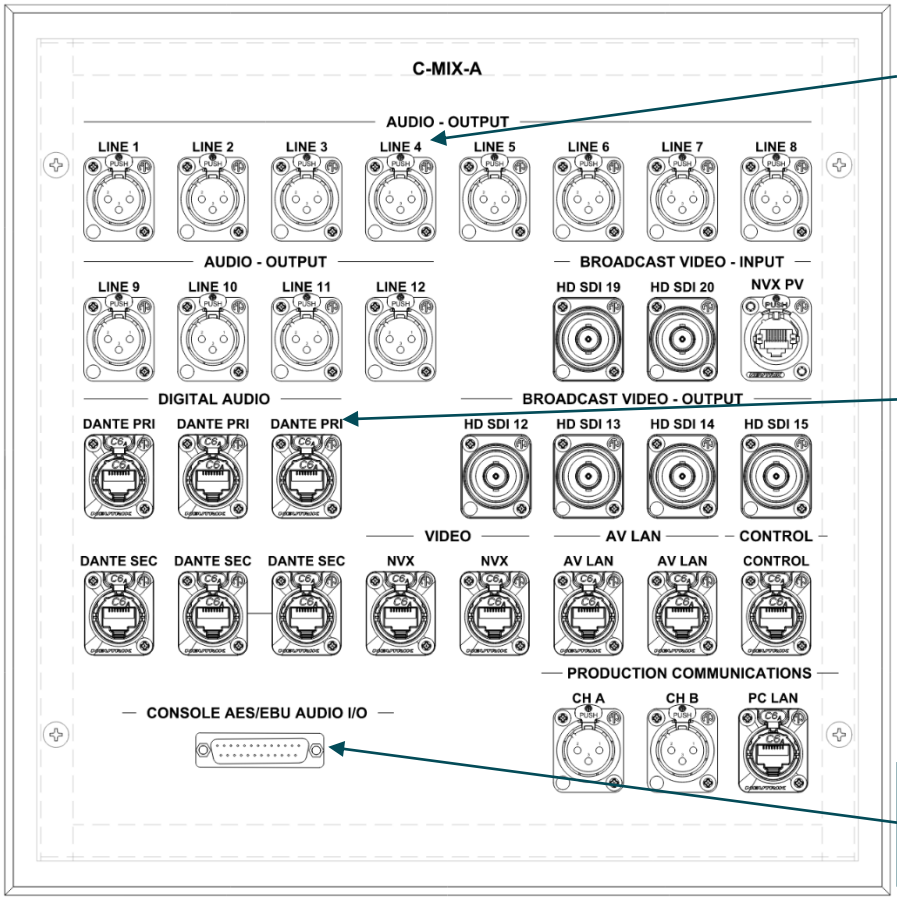
SUB 1 or SUB 2 can be used for provided Meyer USW-210 subwoofers.

Monitor locations can be patched on the C-RP-0-3 rack panel from Meyer DSP outputs 9-16 to monitor locations shown on stage panels.

Dante lines land directly on respective Dante primary or secondary switch in the Stop Gap Theater. Any primary port can be used for Dante controller routing.

2.3.3 Stage I/O and Setup – Continued

The example below is of the Stop Gap C-MIX-A panel.



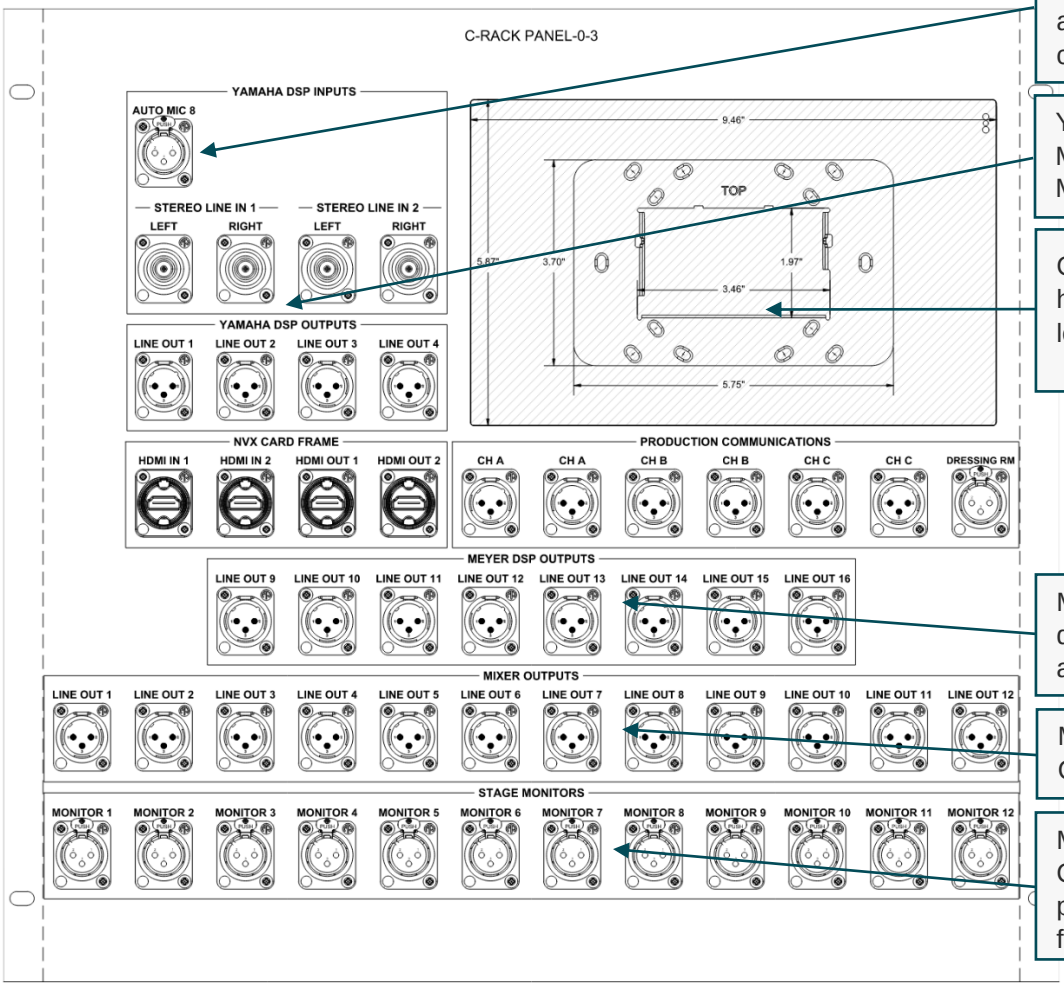
Line outputs 1-12 from the DM7C can plug in here to populate tie line connections on the C-RP-0-3 rack panel.

Dante lines land directly on respective Dante primary or secondary switches in the Stop Gap Theater. Any primary port can be used for Dante controller routing.

DM7C patches to Meyer DSP via these AES/EBU DB-25 based outputs (1-8).

2.3.4 Rack Panels & Patching

C-Rack Panel-0-3 provides audio patching to and from the following locations and devices.



Auto Mic 8 in Stop Gap will automatically work with just an SM-58 plugged in and no console needed.

Yamaha DSP I/O and Auto-Mic to get in and out of MRX7-D if needed.

Crestron touch panel resides here and controls audio levels for FOH/BOH zones.

Meyer DSP outputs 9-16 can drive monitors, speakers, or another device.

Mixer Outputs 1-12 tie from C-MIX-A panel to here.

Monitors 1-12 exist on ceiling C-S-PS-# and C-SP-0-# wall plates. See Clair drawings for exact locations.

2.3.5 Wireless Microphones

The Stop Gap Theater has been outfitted with a Dante or analog capable Shure ULXD series wireless mic system. In this system you will find two (2) quad channel receivers to give you a total of eight (8) active wireless mic channels for this theater. Driving these channels are eight (8) body packs and four (4) handhelds. Accessories include: one (1) antenna splitter, two (2) active directional antennas (mounted to grid), eight (8) lavalier microphones, lithium-ion batteries for each transmitter unit, and two (2) batteries charging rack mount stations. These are mounted in a road case with drawers for all accessories.

2.3.6 Mixing & Recording

Mixing in the Stop Gap Theater would start with the provided Yamaha DM7C console plugging into either C-MIX-A panel with AES/EBU DB-25 (25-pin) connector to connect the outputs needed to the Meyer DSP. Additionally, Dante (digital audio over ethernet) is connected for the input and output needs of the room activating the I/O stage box Yamaha Rio1608-D2's and driving the Yamaha DSP for paging, assistive listening, rack panel C-RP-0-3, and FOH/BOH systems. All Dante primary ports are active, and a single connection can give you access to 144x144 Dante routable I/O connections to and from this console. Please refer to Yamaha DM7C owner's manual for operational details on this console.

Recording options:

1. USB recording from console (thumb stick or USB-C cable).
2. Dante patched to another record device or PC. A Dante based Yamaha RUIO-D digital audio converter was provided for D/A and A/D conversion from Dante if needed.
3. Analog or AES/EBU outputs are also available on console and/or Rio's and may be used to embed audio into things like streaming devices or video hardware.

2.3.7 Audio Network Routing

Use your Dante Primary network with Dante Controller software to route audio signals to and from Dante based source and destinations on the Dante Primary network. This includes wireless mics, digital I/O stage boxes, consoles, amplifiers, digital signal processors (DSP) and more. It is recommended to digitally label all inputs and outputs in Dante for ease of use. Be mindful re-labeling in Dante Controller will erase your patching from devices within Dante. Secondarily, audio for video routing is routed through NVX director. See the NVX video section in this manual for more details on this routing, setup, audio em-bedding and de-embedding.

2.3.8 Amplification

The singular Yamaha XMV series Dante eight (8) channel amplifier in the Stop Gap Theater is set up to support all FOH/BOH passive speaker zones. Routing is currently set in Dante Controller to corresponding labeled amplifier ports and is driven from DM7C to Yamaha MRX7D DSP and then to amplifier.

2.3.9 Digital Signal Processing

Two (2) digital signal processors exist in the Stop Gap Theater (previously Cabaret) booth, the first is a Yamaha MRX7-D used for BOH and FOH speaker support including paging mics and chime functions from SD-Card and triggered by Yamaha PGM1 paging stations. This processor uses filters, delays, matrix routing, and level balancing while allowing various rack room panel ports to convert from A/D or D/A. The second DSP is a Meyer Galaxy 816 and per design is being driven from the console (Yamaha DM7C) AES/EBU outputs (8 channel) via a DB-25 (25-pin connector) and feeds the subwoofer (C-SP-0-#) and main speaker (C-S-PS-#) panels. Including a monitor patch panel (C-RP-0-3) located in the rack in the booth.

2.3.10 Speaker Mains & Monitors

The Stop Gap Theater was designed with the following speaker package:

- Two (2) Meyer USW-210P's / powered, Dual 10" Subwoofers.
- Four (4) Meyer Ultra-X42's / powered, 70° x 50°, dual 8" point source speakers.
- One (1) Meyer Ultra-X20 / powered, 110° x 50°, dual 5" point source speakers.
- Two (2) Meyer UPM-1P / powered, 100° x 100°, dual 5" point source speakers.

Note: U-brackets were provided to support the devices listed.

Tip: Ultra X series point source horns can be rotated to accommodate proper coverage.

2.3.11 Distributed Speakers

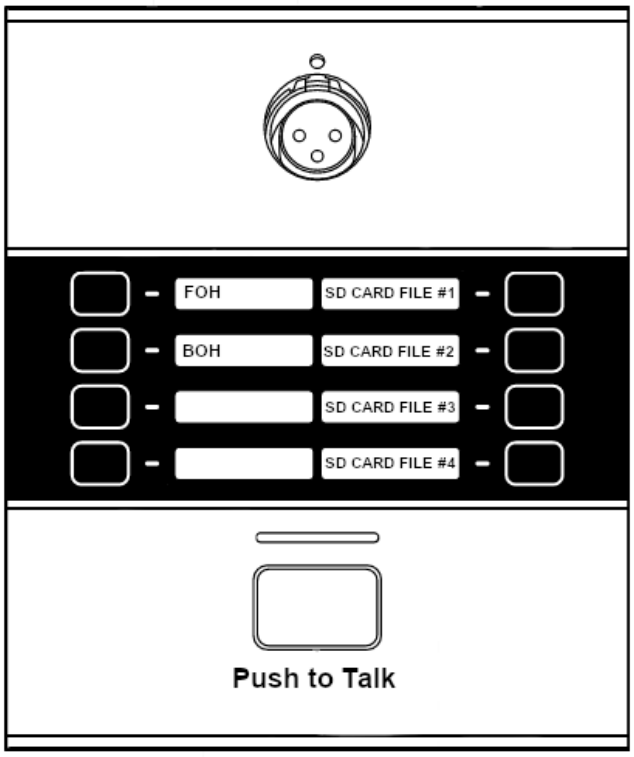
A distributed speaker system supports the following Stop Gap Theater spaces for paging, and program audio: front of house (FOH) basement lobby, basement lobby bathrooms, back of house (BOH) bathrooms, dressing rooms, and staging area. In rack RACK-0-3 exists a touch panel used for overall volume control of any front of house or back of house location. The back of house dressing room bathroom and dressing room additionally have a local volume control near entry doors. All of this is driven from the Yamaha DM7C console to MRX7-D DSP (C-DSP-01) over Dante to Yamaha XMV-8250-D amplifier #1 (C-AMP-01).

2.3.12 Assistive Listening System

The Stop Gap Theater was equipped with a radio frequency (RF) based assistive listening system to support the ADA requirement for this theater. A Dante program feed labeled ALS (assistive listening system) in Dante Controller drives the input of the Yamaha MRX7-D DSP (C-DSP-01) with processing to output six to drive a Listen Technologies transmitter that can be used with up the twelve (12) receivers. ALS antenna is located on the pipe grid by the C-ANT-01 panel.

2.3.13 Paging

The Stop Gap Theater has two (2) Yamaha PGM1 paging stations that work in conjunction with the Yamaha MRX7-D DSP (C-DSP-01). These paging stations have eight total buttons that currently select the two FOH and BOH zones along with four buttons reserved for chime or pre-recorded messages from your SD card inserted on the front of C-DSP-01.



To operate a PGM1 paging station, plug unit into any Dante port and wait for unit to power up. Next, engage a zone/s and select the “push to talk” button. Wait for button to turn green and the microphone will be active in the corresponding selected zone/s. The process to engage a chime is similar, where the user selects a zone/s followed by chime sound button and engages the “Push to Talk” button to push the chime to the corresponding selected zone/s.

The process to add or remove chime effects is a very specific process, file types, and exact naming. Please see the Yamaha MTX-MRX editor user guide for more information.

https://usa.yamaha.com/files/download/other_assets/5/446335/mtx-mrx_editor_en_ug_m0.pdf

Note: Dip switches on rear can get bumped and can affect your connectivity or settings of PGM1 paging station. It is recommended to take pictures or document dip switches to reference later in the event a dip switch gets changed on these units.

2.4 Video Systems

The video systems for Stop Gap Theater are designed to support diverse types of performances, theater productions, and lectures.

Primary Components and Terminology:

1. **Network Encoding:** Crestron network video protocol (NVX) is used to encode HDMI video onto the network with Crestron DM-NVX-E30 or DM-NVX-363C encoders. A separate network device interface (NDI) network also exists for future camera and video support *(Note: This is shared equipment amongst facility)*.

2. **Network Decoding:** Crestron network video protocol (NVX) is used to decode HDMI video onto the network with Crestron DM-NVX-D30 or DM-NVX-363C decoders. A separate network device interface (NDI) network also exists for future camera and video support *(Note: This is shared equipment amongst facility)*.

3. **Network Switches:** The NVX & NDI video networks are comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Sanctuary Theater, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports.

4. **SDI Transmitters:** Four (4) AJA 12G-SDI (FIDO-T-12G-ST) single-mode fiber converters were provided to transmit 12G-SDI down to the integrated media suite via fiber patch bays from either theater space *(Note: This is shared equipment amongst facility)*.

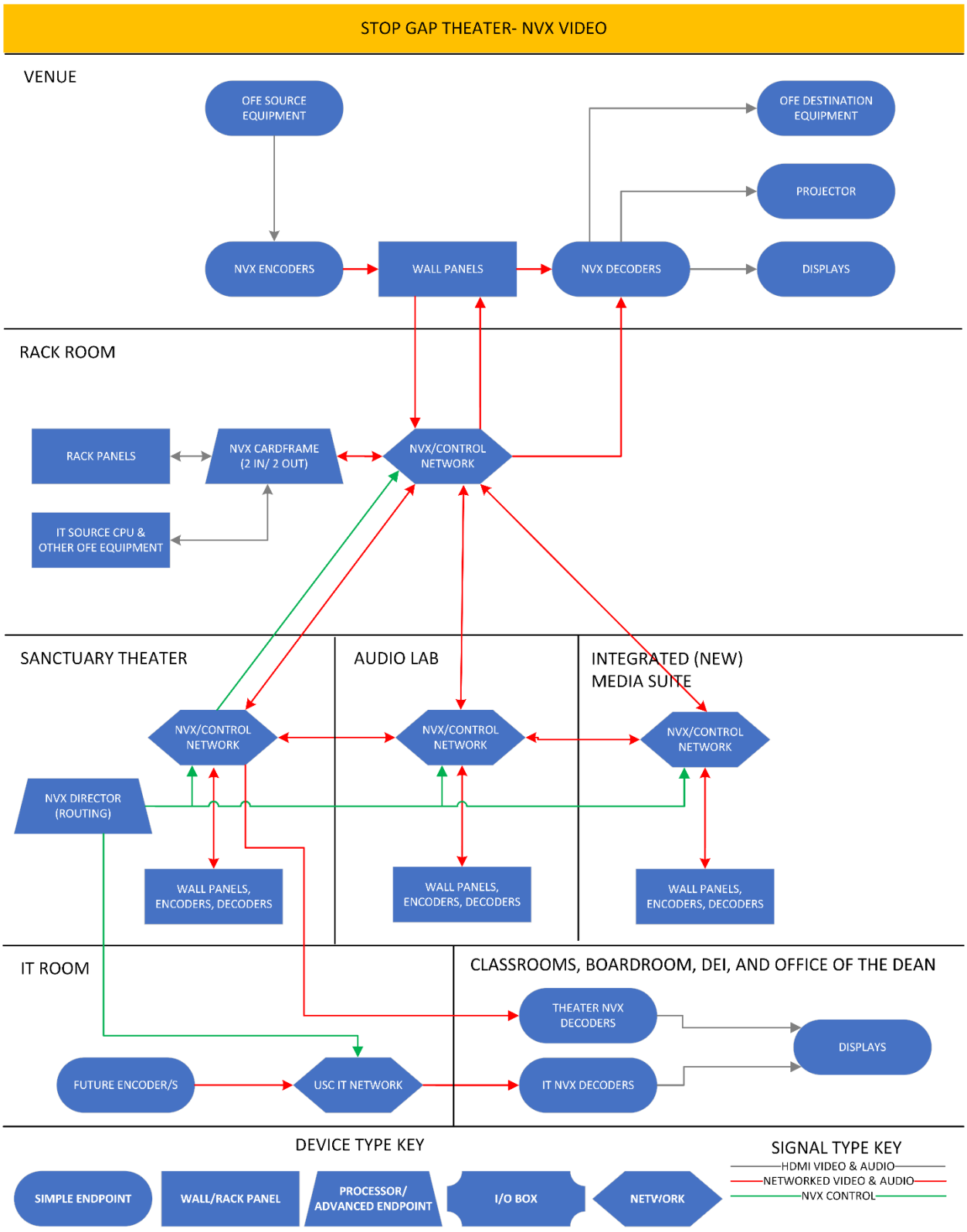
5. **SDI Receivers:** Four (4) AJA 12G-SDI (FIDO-R-12G-ST) single-mode fiber receiver converters were provided to receive 12G-SDI down in the integrated media suite via fiber patch bays from either theater space *(Note: This is shared equipment amongst facility)*.

6. **SDI Audio Breakout:** Five (5) 12G-SDI audio embedders / dis-embedders were provided to allow for audio embedding and/or dis-embedding to and from SDI with analog and/or AES/EBU audio from either theater or Integrated Media Suite *(Note: This is shared equipment amongst facility)*.

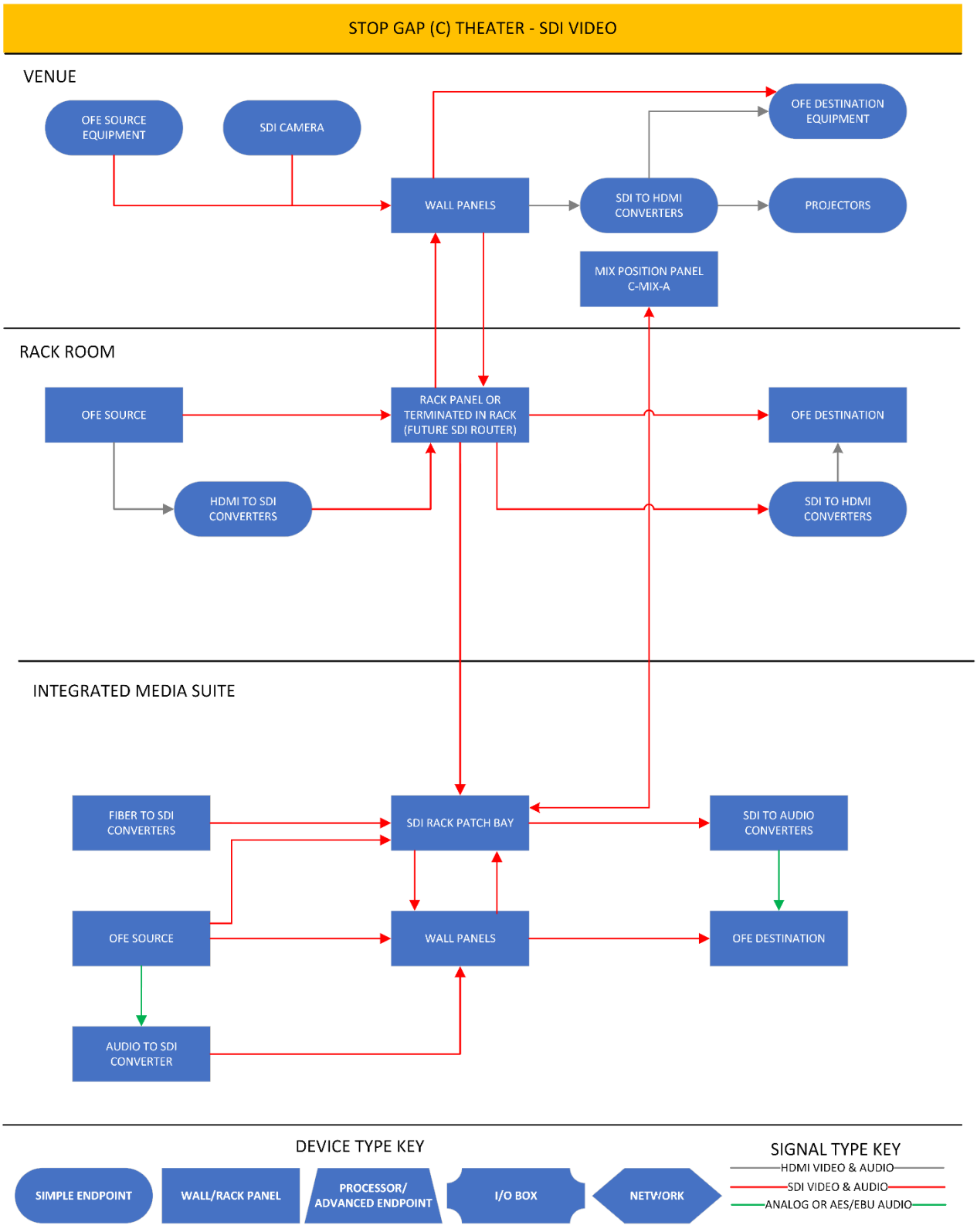
7. **Cameras:** One (1) Panasonic AW-UE80KPJ PTZ camera and Panasonic AW-RP150GJ Camera controller was provided for production, distribution, recording, archival, and/or streaming purposes in the Stop Gap Theater.

8. **Projection:** One (1) Christie Digital DWU1400A-GS projector, lens, and Stewart electric screen were provided to support this space for production, lecture, and other use cases.

2.4.1 NVX Video System Overview

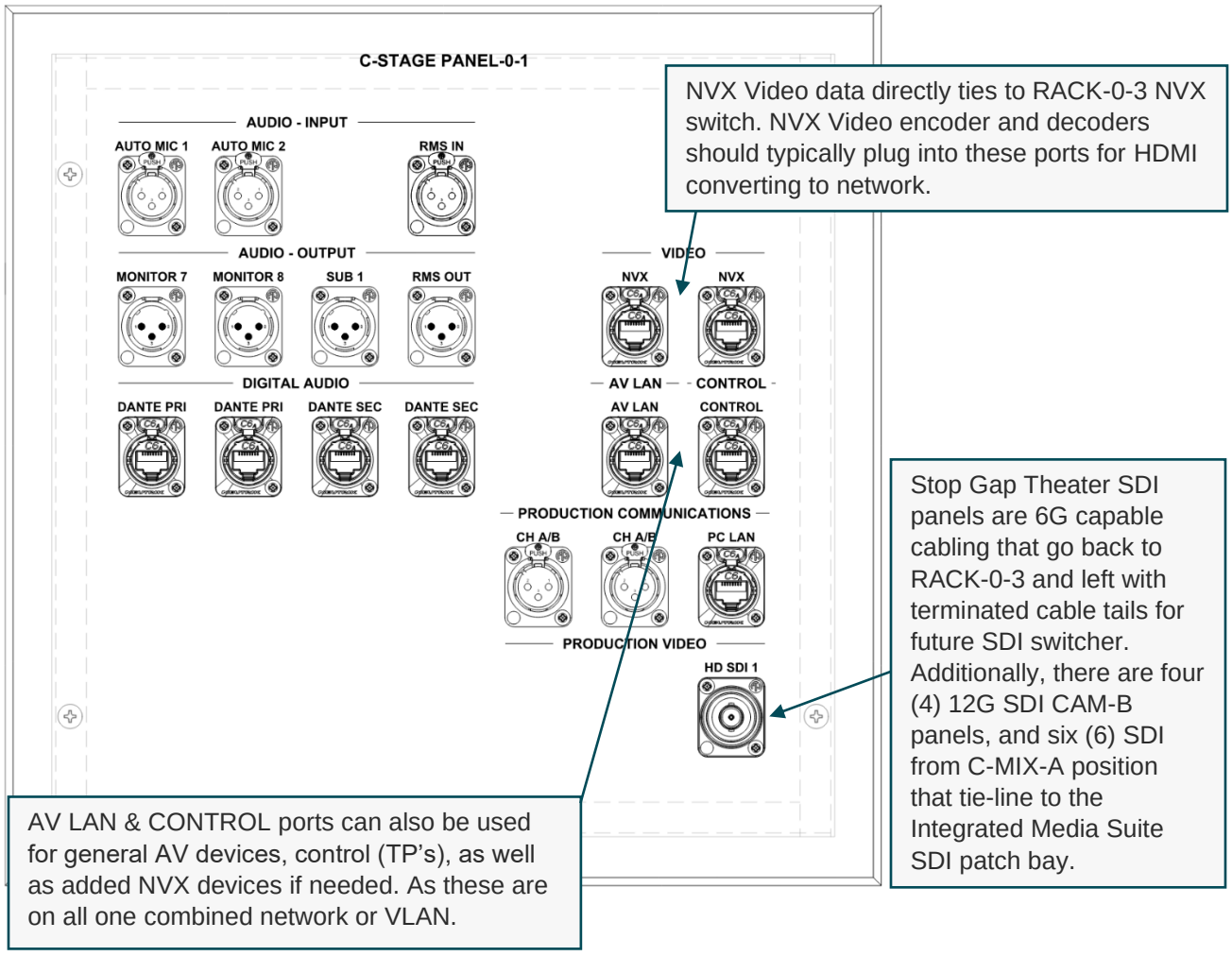


2.4.2 SDI Video System Overview



2.4.3 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire venue. These panels facilitate a variety of video signal types. All these panels are tied back to the Stop Gap Theater AV rack (RACK-0-3) for centralized management of the video system I/O.

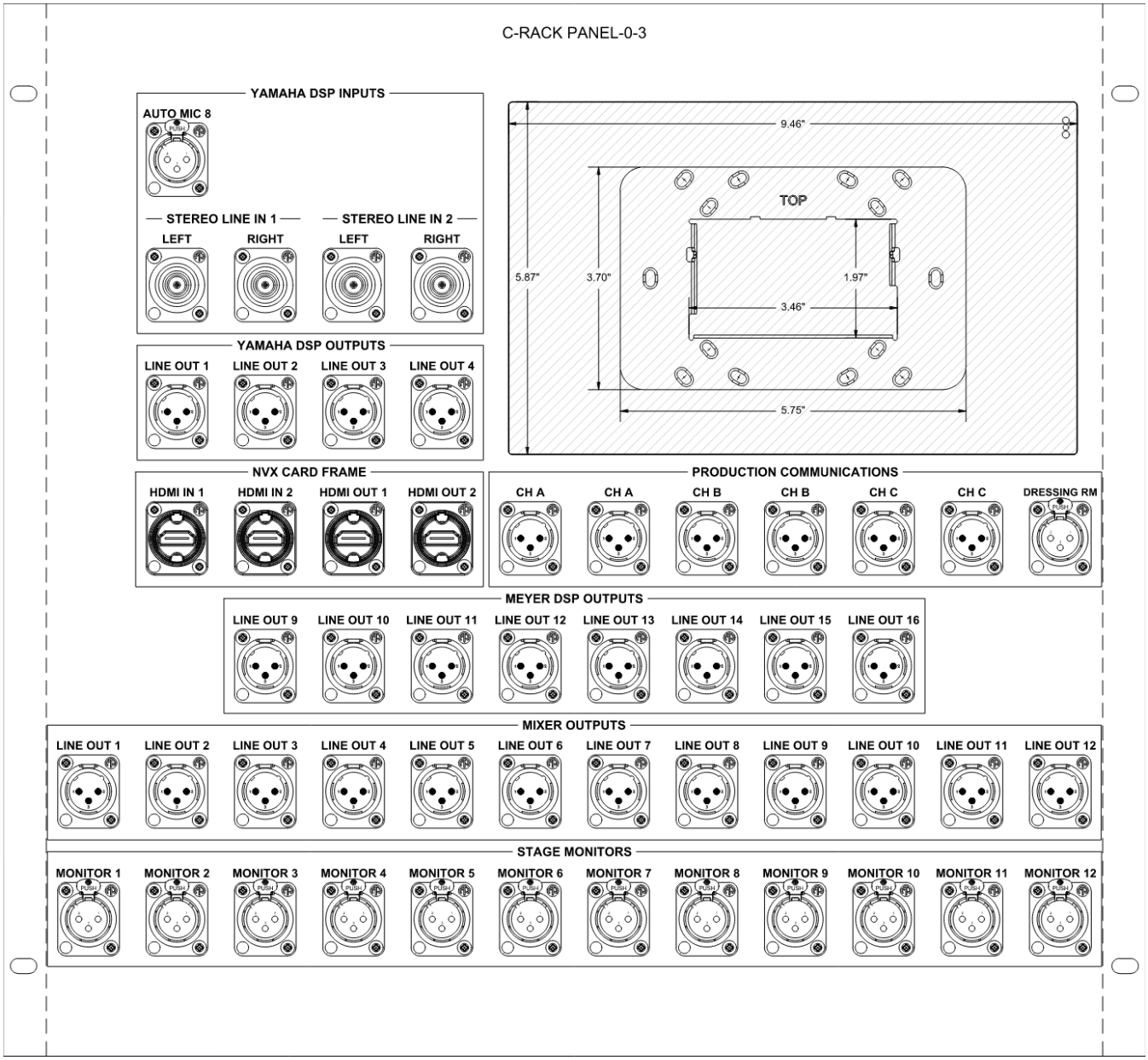


Tip: AV LAN, CONTROL, and NVX act as one large network and VLAN. Feel free to use interchangeably if needed. These networks also tie to the Sanctuary Theater, Audio Lab, Integrated Media Suite for distribution and unified Crestron control across the building.

2.4.4 Rack Panels & Patching

Rack panel 0-3 (C-RP-0-3) has two (2) HDMI and two (2) HDMI outputs that tie to the Crestron DMF-CI-8 card frame in RACK-0-3 that is loaded with eight (8) DM-NVX-363C encoder/decoder cards. Card slot 1 is dedicated to HDMI output 1, card slot 2 is dedicated to HDMI output 2, card slot 7 is dedicated to HDMI input 1, and card slot 8 is dedicated to HDMI input 2 on this rack panel. Engage the Crestron Director web page matrix router to route devices.

Note: See "Networked Video" section below for more info on the Crestron Director.



2.4.5 Source Devices

Four (4) portable Crestron (DM-NVX-E30) HDMI encoders labeled “NVE-0X” were provided to support the Stop Gap Theater along with up to eight rack chassis mounted HDMI encoder/decoder (DM-NVX363C) cards in RACK-0-3. These devices can convert HDMI into a Crestron network video protocol (NVX) and distribute anywhere the Stop Gap NVX switches are tied.

2.4.6 Production Video (SDI)

The SDI system was designed with tie-lines from wall panels to RACK-0-3 (booth) with connectorized 6G SDI cable whips to be used with a future video switcher. Additionally, there are six (6) 12G-SDI lines at the C-MIX-A plate and four (4) 12G-SDI lines at C-CAM-B# locations tying back to the Integrated Media Suite providing a total of sixteen (16) total points of SDI in this theater. A local single mode ST fiber patch bay (C-CFB-0-3-1) ties back to the Integrated Media Suite for 12G SDI fiber support over fiber converters. See provided devices below to be used for the entire project.

Note: See section on “Fiber Infrastructure” for more information on the single-mode patch-bay dedicated to SDI transmission.

The following Camera/s, Camera Controller, SDI Tx’s, SDI Rx’s, and SDI Converters were provided for Sanctuary Theater, Stop Gap Theater, Integrated Media Suite, and portable package.

Mfr.	Model #	Description	Qty.
AJA	12G-AMA-R-ST	12G-SDI 4-Ch. Analog Embedder/Dis-embedder w/ ST Fiber Rx SFP	2
AJA	12G-AMA-T-ST	12G-SDI 4-Ch. Analog Embedder/Dis-embedder w/ ST Fiber Tx SFP	1
AJA	12G-AM-T-ST	12G-SDI 8-Ch. AES Embedder/Dis-embedder w/ ST Fiber Tx SFP	1
AJA	FIDO-R-12G-ST	1-Ch. 12G-SDI to Single Mode ST Fiber Receiver (Portable)	2
AJA	FIDO-R-12G-ST	1-Ch.12G-SDI to Single Mode ST Fiber Receiver	2
AJA	12G-AM-R-ST	12G-SDI 8-Ch. AES Embedder/Dis-embedder with ST Fiber Rx SFP	1
AJA	FIDO-T-12G-ST	1-Ch.12G-SDI to Single Mode ST Fiber Transmitter (Portable)	2
AJA	FIDO-T-12G-ST	1-Ch.12G-SDI to Single Mode ST Fiber Transmitter	2
Panasonic	AW-UE80(x)PJ	4K Professional PTZ Camera (3 Black & 1 White)	4
Panasonic	FEC-40WM(x)	Wall Mount (3 Black & 1 White)	4
Panasonic	AW-RP150GJ	Camera Controller	3

Note: This is shared equipment amongst facility.

2.4.7 Networked Video (NVX & HDMI)

The Stop Gap Theater is set up with a Crestron NVX video network which is intended for HDMI encoding (transmitting) and decoding (receiving) anywhere a NVX device is placed or located. To make a connection plug in your DM-NVX-E30 (Encoder), DM-NVX-D30 (Decoder), or DM-NVX-363 (Enc or Dec) to any “NVX” port with a shielded CAT6A. Once connected, you will need to grab a computer that is connected to the network set to DHCP with its LAN port and navigate to “10.0.0.200” in a web browser.

A login page will then appear for your Crestron Director login with user: admin password: #atkusc123 and a matrix routing grid will open. All existing NVX devices on the network will be shown in this matrix grid with current active routes. To make a new route, find your device and route its source to its destination using the purple NAX button for audio only routes, blue NVX button for video routes, or NUX button for USB routes (If applicable). Any combination of audio, video, and potentially USB can be selected for that route.

2.4.8 Distributed Video

The NVX network video system discussed above also ties to all your displays in the front of house (FOH) and back of house (BOH) locations. You can turn on these displays and engage their program feeds with any local Crestron touch panel in your theater. Additionally, a manual route can be made to these decoders if needed within Creston’s Director router (discussed above).

Please see the Clair drawing set for more information on locations and naming conventions used for these display locations.

Note: IT has a separate set of NVX devices behind the FOH displays that attach to their main network this can be used for campus feed content on these displays. Routing for these should be handled by any active touch panel in the theater rack. Additionally, there are other portable touch panels that can be plugged into the “control” port at various locations for more convenient access.

2.4.9 Projection

A Christie Digital DWU1400A-GS - 14,250 lumen, WUXGA, 1DLP laser projector with room specific zoom lens and motorized Stewart film screen was installed to support lectures, screenings, or productions. Please use either of the provided Crestron touch panels to engage projector power on/off, source selection, or electric screen controls. There is a dedicated Crestron DM-NVX-E30 encoder dedicated for this purpose (labeled C-TX-01).

2.4.10 Recording & Streaming

One Panasonic AW-UE80KPJ PTZ camera and Panasonic AW-RP150GJ was provided to assist in the Stop Gap Theater video record setup as the primary production feed. No recorders, broadcast switcher, or direct streaming devices were provided in this design as this was intended for future use. The infrastructure provided with multi-mode, single-mode, and SDI patching can accommodate recording with owner furnished hardware. Please see Clair's drawing set for locations and flow of mentioned I/O.

2.5 Control System

The control system for Stop Gap Theater is designed to support FOH/BOH displays and projection.

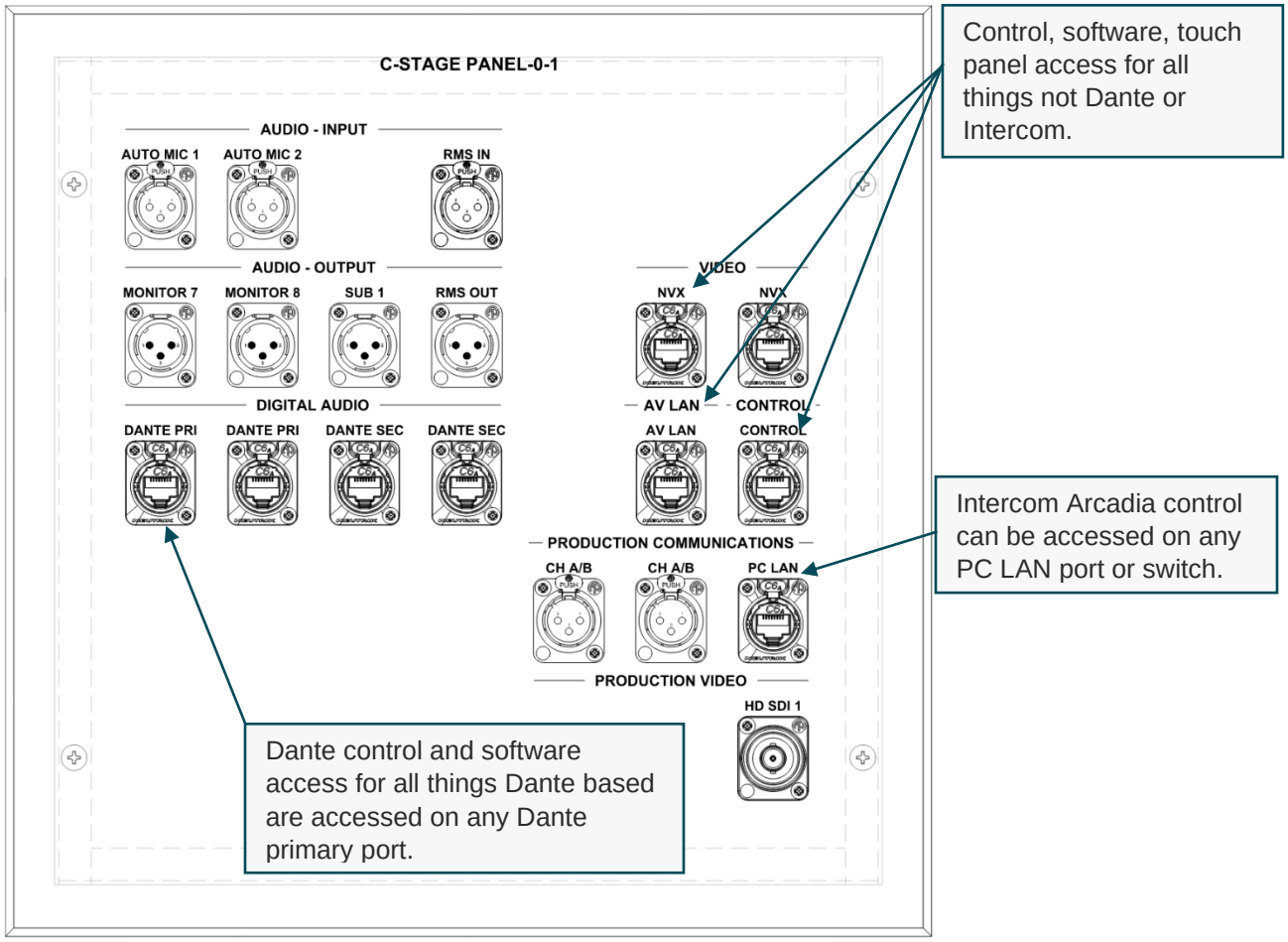
Primary Components and Terminology:

1. **Touch Panel:** The primary 10” Crestron touch panel located in RACK-0-3 can be used to control BOH/FOH distributed display’s, zone level and muting along with other control functions. Additionally, three (3) portable 7” desktop touch panels can be deployed for production access to these same functions.
2. **Controller:** The main Crestron controller (CP4) located in RACK-2-2 is the device managing all control code for this Sanctuary Theater and surrounding Stop Gap, Integrated Media Suite, Audio Lab, and BOH/FOH zones. It is critical for this device to stay online in order to maintain device and touch panel control.
3. **Control Network Switches:** The control network is comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Sanctuary Theater, Stop Gap, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports. Any port labeled Control, AV LAN, or NVX can be used as a control port to engage a touch panel or av control through another device.

Tip: Touch panels should be used for turning on/off displays when possible. If a user uses a local display remote it is possible the system can get out of sync with the on/off functionality which could require you to cycle from the touch panel the display to off state and then back to the on state to regain sync.

2.5.1 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire venue. These panels facilitate a variety of control (Control, AV LAN, NVX) signal types. All these panels tie back to the Sanctuary Theater AV rack room relative switches for centralized management of control systems. Any port labeled Control, AV LAN, or NVX can be used as a control port to engage a touch panel, AV device control over LAN, or make a NVX video route.

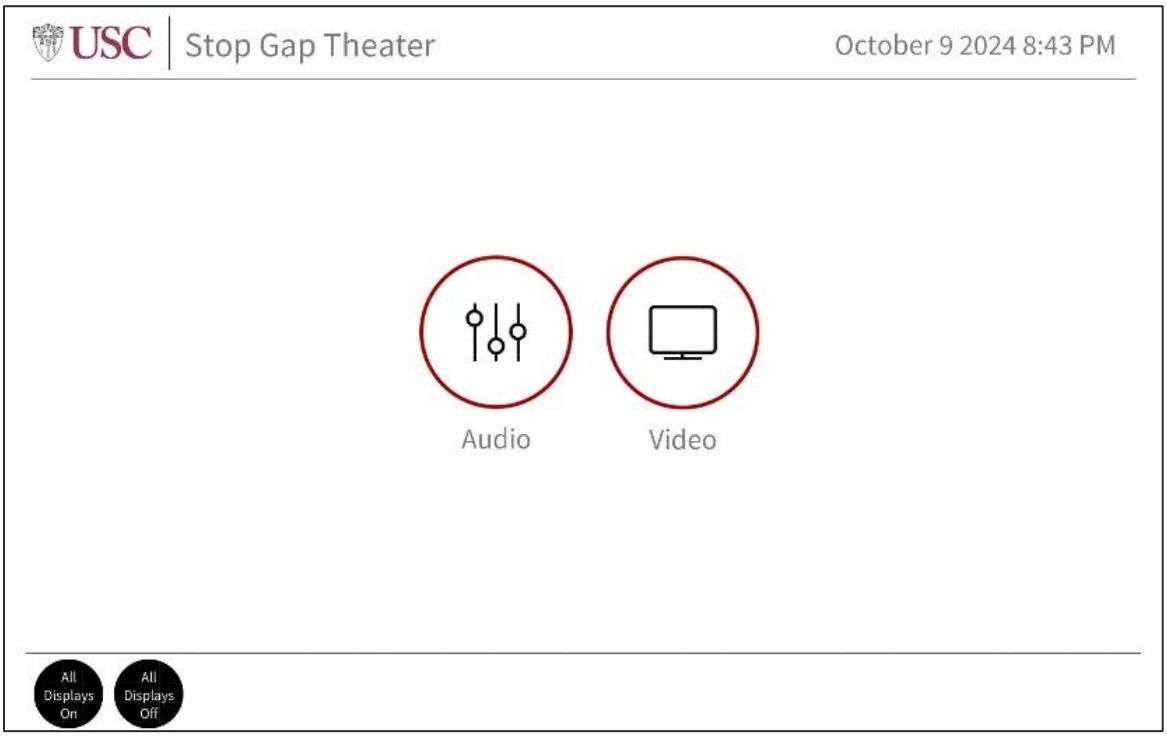


Reminder: AV LAN, Control, and NVX ports are all on the same network and can be used interchangeably.

2.5.2 Rack Panels & Patching

RACK-0-3 has been supplied with a 10” touch panel for control of FOH and BOH systems. Additionally, there is a portable 7” touch panel that can be deployed for Stop Gap production BOH/FOH control from any position in the theater with any Control, AV LAN, or NVX port.

2.5.3 Touch Panel Layout & Function



MAIN PAGE

Main Page

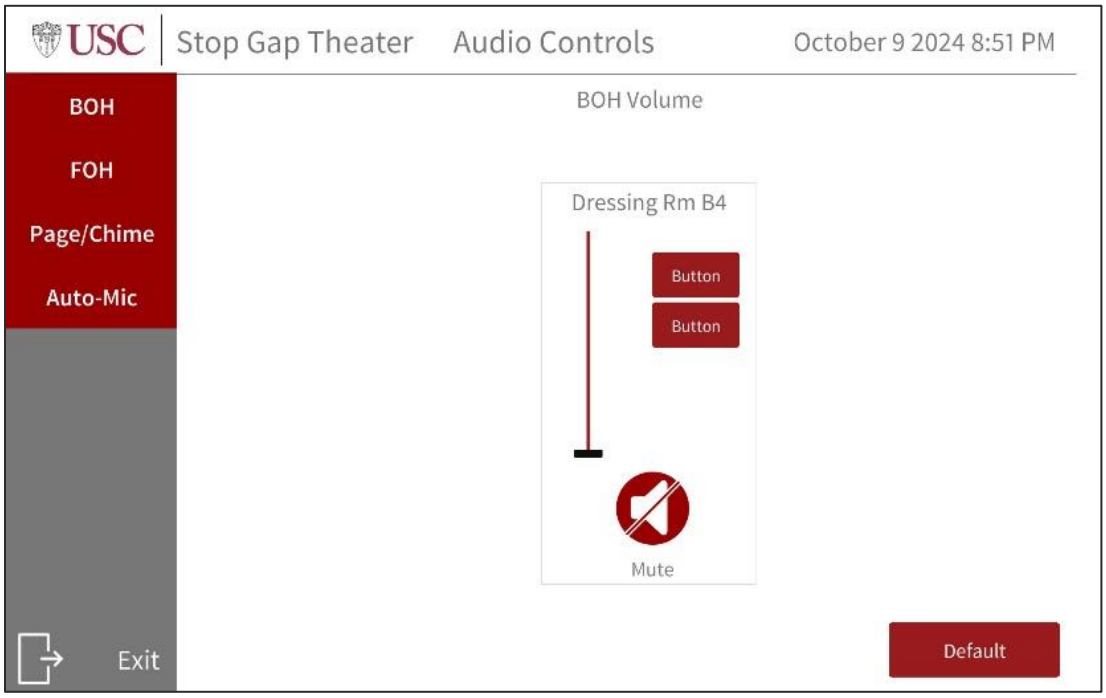
- **Source Selection** – At the middle of the touch screen, you can select the desired control types. This will bring you to additional pages that will give controls to specific locations.
- **Display Power** – On the lower left side of the touch screen is a display on and off for all displays and projectors that are part of the Stop Gap Theater. These include dressing rooms, staging, lobby, and manager office. This will also raise and lower the projection screen, depending on whether you press the ‘All Display On’ or ‘All Display Off’.

Audio Page – Menus & BOH

MAIN PAGE

From the main page select audio from the source selection and the functions below will be available to you.

- **Menu Column**– To the left side of the touch screen are your buttons for locations that are available for the Stop Gap Theater, use this to navigate each area to control source selections, volume levels, or mutes.
- **Exit Button**– If you want to go back to the main page, use the button on the lower left of the touch screen (labeled “Exit”) to navigate back.

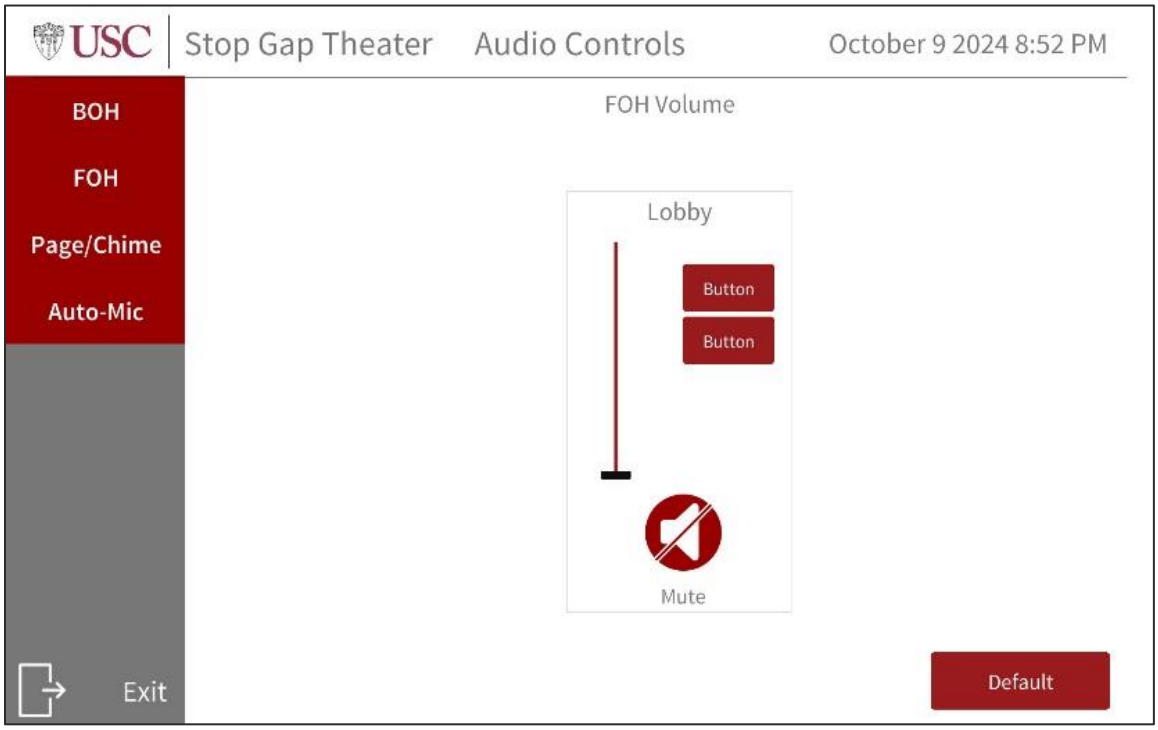


BOH PAGE

- **BOH Tab** – When the back of house tab is pressed, the subpage above will display, allowing the user to utilize the volume controls for their respective location. The controls available to each area includes a source selection, volume slider, and audio mute. The source selection buttons are latching and will require an additional press to turn on or off the audio source.

  On the lower left, there is a ‘Default’ button, this allows the user to have a preset volume level without adjusting individual volume faders during each use. To use the ‘Default’ button, set the appropriate volume levels on the slider, then press and hold the ‘Default’ button for about 6 seconds or until you see the button blink. Once set, press on the ‘Default’ button to adjust your volume levels to what the level was set to (this does not apply if the levels you are at are the same level that was set). The ‘Default’ button affects all available volume sliders on their own subpage.

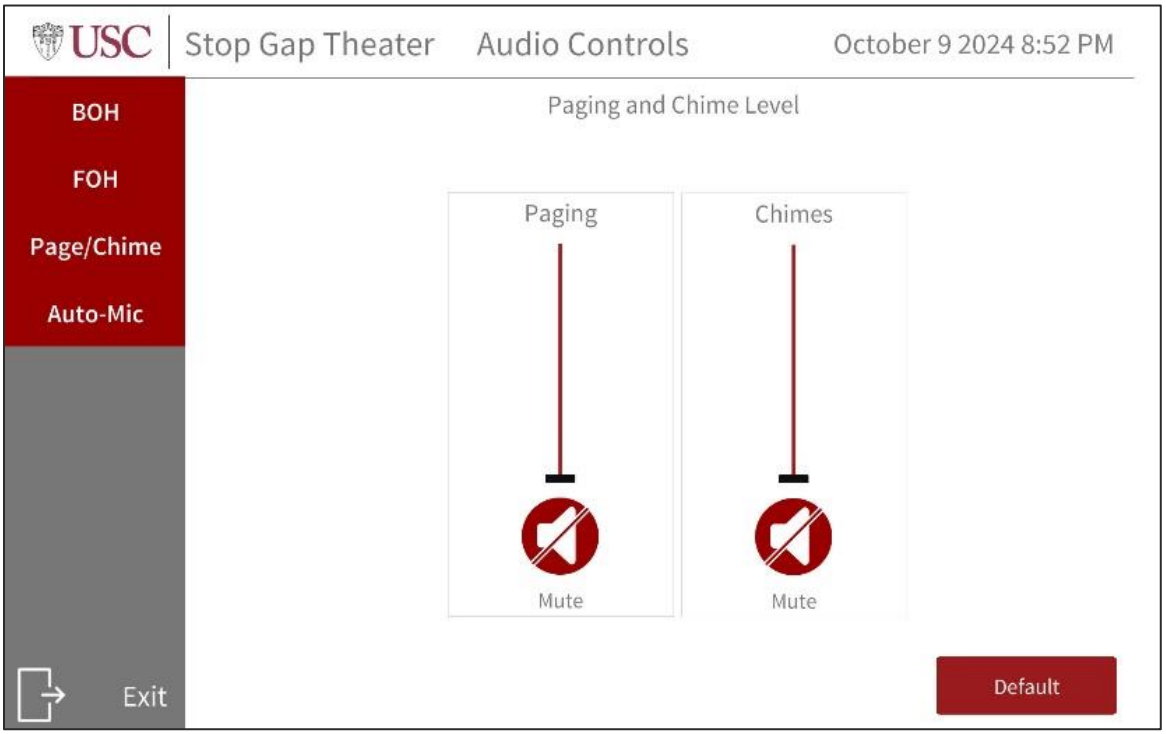
Audio Page – FOH



FOH PAGE

- **FOH Tab**– When the front of house tab is pressed, the subpage above will display, specifically for front of house. Refer to BOH (Audio Page) for instructions.

Audio Page – Paging & Chimes



PAGE & CHIME PAGE

- **Page/Chime Tab**- When the paging and chime tab is pressed, the subpage above will display. Page and chime levels are fine tuning when in use with the paging stations. Refer to BOH (Audio Page) for instructions, there are no source selection for these controls.

Audio Page – Auto-Mic

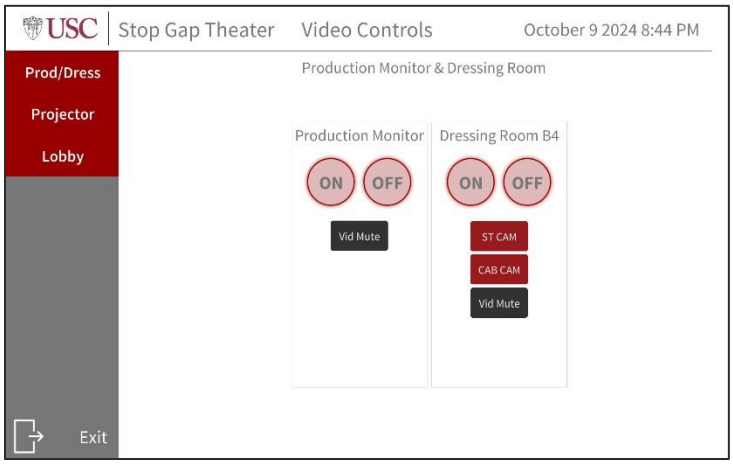
AUTO-MIC PAGE

- **Auto-Mic Tab**- When the auto-mic tab is pressed, the subpage above will display. For level adjustments when microphones are in use.

Video Page - Production Monitor & Dressing Room

From the main page select video from the source selection and the functions below will be available to you.

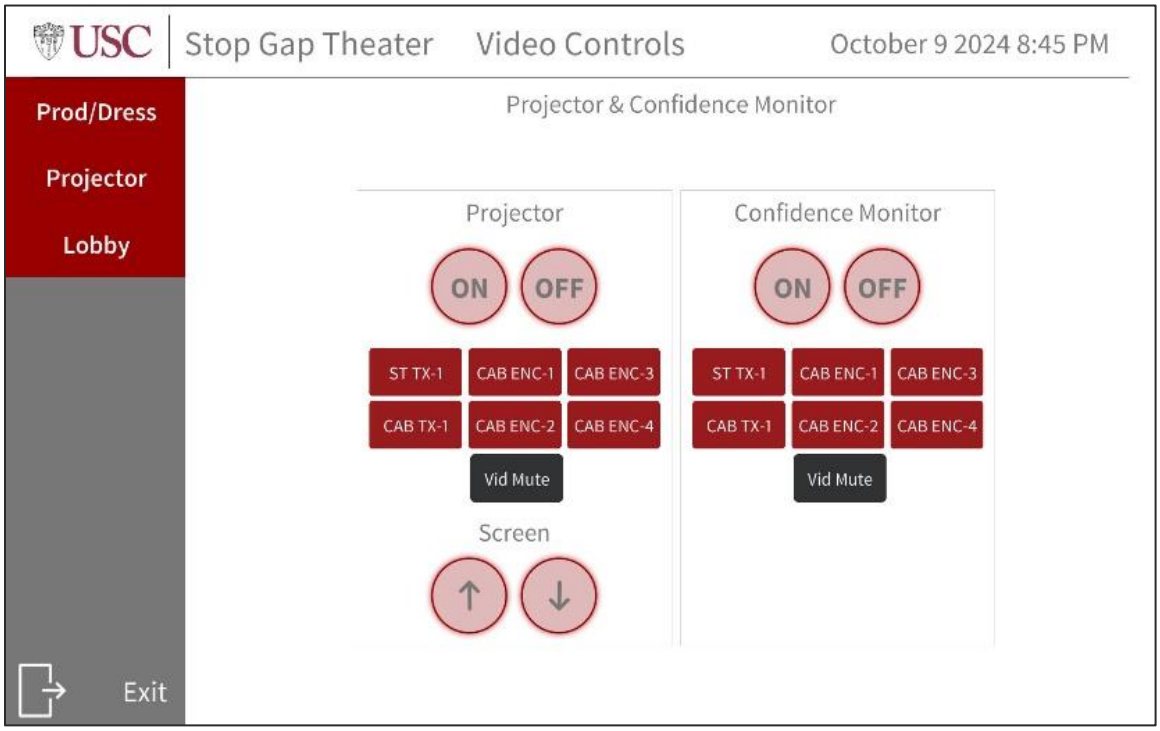
- **Menu Column**– To the left side of the touch screen are your buttons for locations that are available for the Stop Gap Theater, use this to navigate each area to control source selection (if applicable), display power, or display inputs.
- **Exit Button**– If you want to go back to the main page, use the button on the lower left of the touch screen (labeled ‘Exit’) to navigate back.



PRODUCTION MONITOR & DRESSING ROOM PAGE

- **Prod/Dress Tab**– Pressing the production and dressing room tab on the menu will present a subpage for each display or projector in the corresponding location, see picture above. Production monitor has display power and video mute available, the feed will only be the Stop Gap Theater camera feed. For Dressing Room B4, display power, source select, and video mute (blanking) are available controls, the sources include Sanctuary Theater camera or Stop Gap camera.

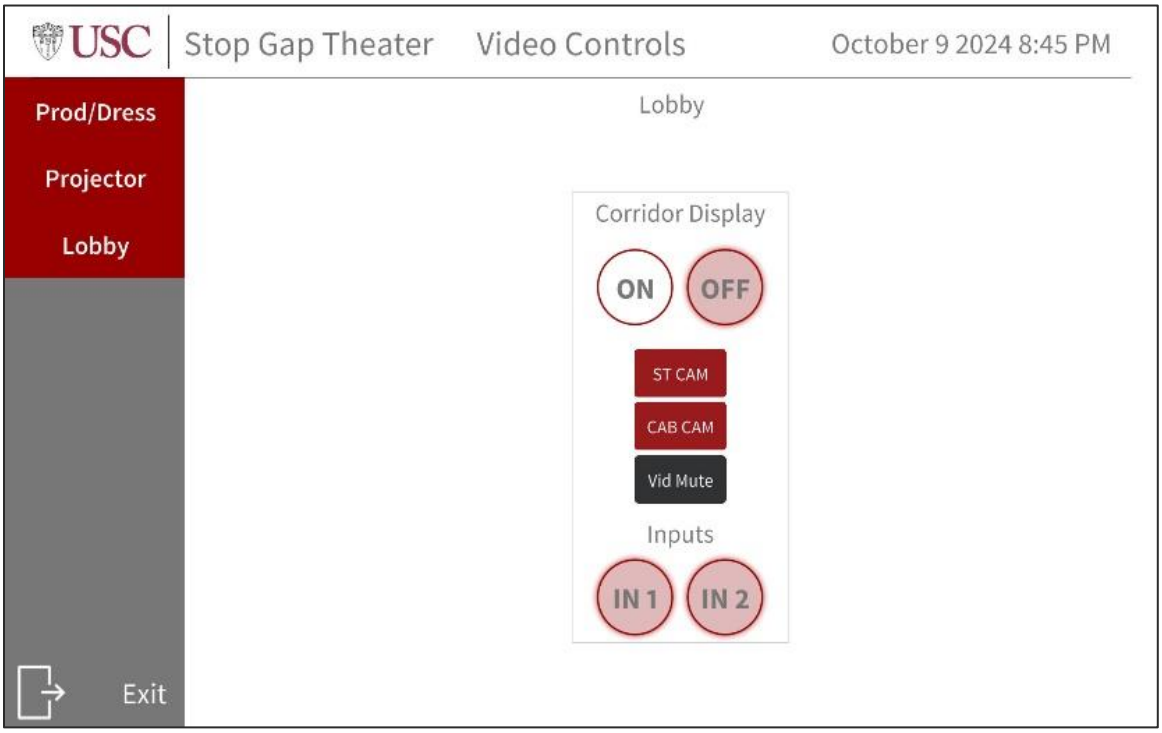
Video Page – Projector & Confidence Monitor



PROJECTOR & CONFIDENCE MONITOR PAGE

- **Projector Tab** – Pressing the projector and confidence monitor tab on the menu will present a subpage for each display in the corresponding location, see picture above. For the display and the projector, there will be power, source selection, and video mute (blanking) available. ‘ST TX 1’ and ‘CAB TX 1’ are Crestron NVX encoders (labeled) that are available in the Stop Gap Theater (CAB) or Sanctuary Theater (ST), ‘ENC’ 1-4 are in the Stop Gap Theater rack on the back of the Crestron DMF-CI-8. Only the projector has projection screen controls.

Video Page – Lobby



LOBBY PAGE

- **Lobby Tab** – Pressing the lobby tab on the menu will present a subpage for each display in the corresponding location, see picture above. Display power, source selection, display inputs, and video mute (blanking) are available to the user. The source feed available is the camera feed from the Sanctuary Theater or camera feed from the Stop Gap Theater. When ‘IN 1’ is selected, the source select on the touch screen will be viewable, if ‘IN 2’ is selected, the source feed will be from IT, when they are pushing out content.

2.6 Network Systems

The network systems in the Stop Gap (previously named Cabaret Theater) Theater are designed to be robust and custom configured for specific your specific AV network protocols. Be mindful, bridging networks and/or introducing a non-configured switch into this ecosystem can cause network issues or even crash your entire network. It is recommended to use only the switches provided, if more switches are needed, please contact Clair for assistance with proper configuration.

2.6.1 Network Switches

Each AV switch in the Dramatic Arts Building is dedicated across all the access ports and has an abbreviated acronym switch name. For example: C-DSW-01 is our acronym for “Cabaret (Stop Gap) Theater Dante Switch #1” (see below for acronyms list).

Netgear AV Series M4250 and M4300 switches were used in the DAB AV installation. These are considered the premiere switch models for the AV industry currently and have user friendly interfaces for AV configuration. These switches are programmed beyond that user friendly interface to adhere to strict Crestron and Audinate Dante recommendations.

Switch Acronyms:

Acronym	Name	Function
C-AVSW-01	Cabaret Theater AV Lan Switch #1	NVX, AV LAN, Control
C-DSW-01	Cabaret Theater Dante Primary Switch #1	Dante Primary, Dante/Yamaha Control
C-DSW-02	Cabaret Theater Dante Primary Switch #2	Dante Secondary
C-NDISW-01	Cabaret Theater NDI Switch #1	NDI, NDI Control
C-NVXSW-01	Cabaret Theater NVX Switch #1	NVX, AV LAN, Control
C-PCSW-01	Cabaret Theater Prod. Comm. Switch #1	Helixnet, Intercom Control

Note: Cabaret Theater was renamed to the Stop Gap Theater and all drawing, plate, and programming references the original naming convention.

2.6.2 Network Patching

All network types tie directly to the switches directly in the Stop Gap Theater. To activate any device on a network type, plug your device or computer into your available system type data port. Additionally, a data tie-line patch bay labeled C-DPB-0-3 in the Stop Gap Theater ties to Sanctuary Theater, Audio Lab, and Integrated Media Suite with eight (8) CAT6A tie lines for each.

2.6.3 Network Types & Functions

Dante Network/s: Dante is an acronym for **D**igital **A**udio **N**etwork **T**hrough **E**thernet, an Audinate based audio connectivity standard that enables audio-based media systems to identify and communicate with one another over IP and to encode, transmit, and receive high- quality 48k/96k sample rate and 24-bit or 32-bit depth, extremely low latency audio over network.

There are two (2) Dante networks running in the Stop Gap (Cabaret) Theater on switches C-DSW-01 (Primary) and C-DSW-02 (Secondary). The primary network is commonly used by itself and can run your audio system without a secondary patch needed. If redundancy is desired, a secondary Dante network is available for use. Proper configuration of all devices to “Redundant Mode” with device reboots must be set before proceeding with secondary patching. Failure to do so, will result in the Dante primary network crashing as devices are commonly set in “Daisy Chain” mode by default and currently set as such as requested from the school staff. This mode acts as two primary ports instead of primary and secondary which is what most devices are labeled as.

Additionally, we have a multi-mode LC fiber patch bay system available to patch Studio Theater, Stop Gap Theater, and Integrated Media Suite together as a broader Dante network. Configuration on switch trunk ports is already set for this link. This network is set to auto-config or link local, so devices are plug & play for Dante. Being that there is no DHCP router these devices will default to a 169.254.xxx.xxx/16 address and be accessible in Dante controller. One thing to note is that devices that needed control from Crestron are statically assigned in this link local space as 169.254.0.xxx/16 this way they are always at the same IP and can be found for control purposes.

NVX, AV, and Control Network: NVX stands for Network Video Interface, a Crestron based video connectivity standard that enables HDMI based multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video, audio, and USB communication. The NVX, AV, and Control network in Sanctuary Theater is your main network for Crestron NVX video, AV system control, and hardware access over LAN.

This network has been programmed with strict Crestron NVX protocol requirements to maintain success with the complex nature of NVX multicast traffic, prioritization of traffic, and removal of efficiency ethernet to name a few specifics. This network has a DHCP router handing out addresses from the IP scheme 10.0.xxx.xxx/20 (4094 address capable) network. This large address range allows us to bridge the entire DAB if needed for all NVX and AV control. As mentioned above we have multi-mode LC fiber patch bays tying Audio Lab, Integrated Media Suite, and Stop Gap Theater to the overall NVX and AV Control network.

Management Network: The last access port for every switch is programmed as a management port accessing the virtual local area network (VLAN) this exists on all switches so that programmers can manage the connected switches from a centralized switch location. To manage switches, get on any management port and change your IP to the management IP schema and with your computer point to any management switch IP address using a web browser. Then enter the following login: User: “admin” / Password: “#atkusc123”.

NDI Network: NDI stands for Network Device Interface, a video connectivity standard that enables multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video and audio, and exchange metadata in real-time.

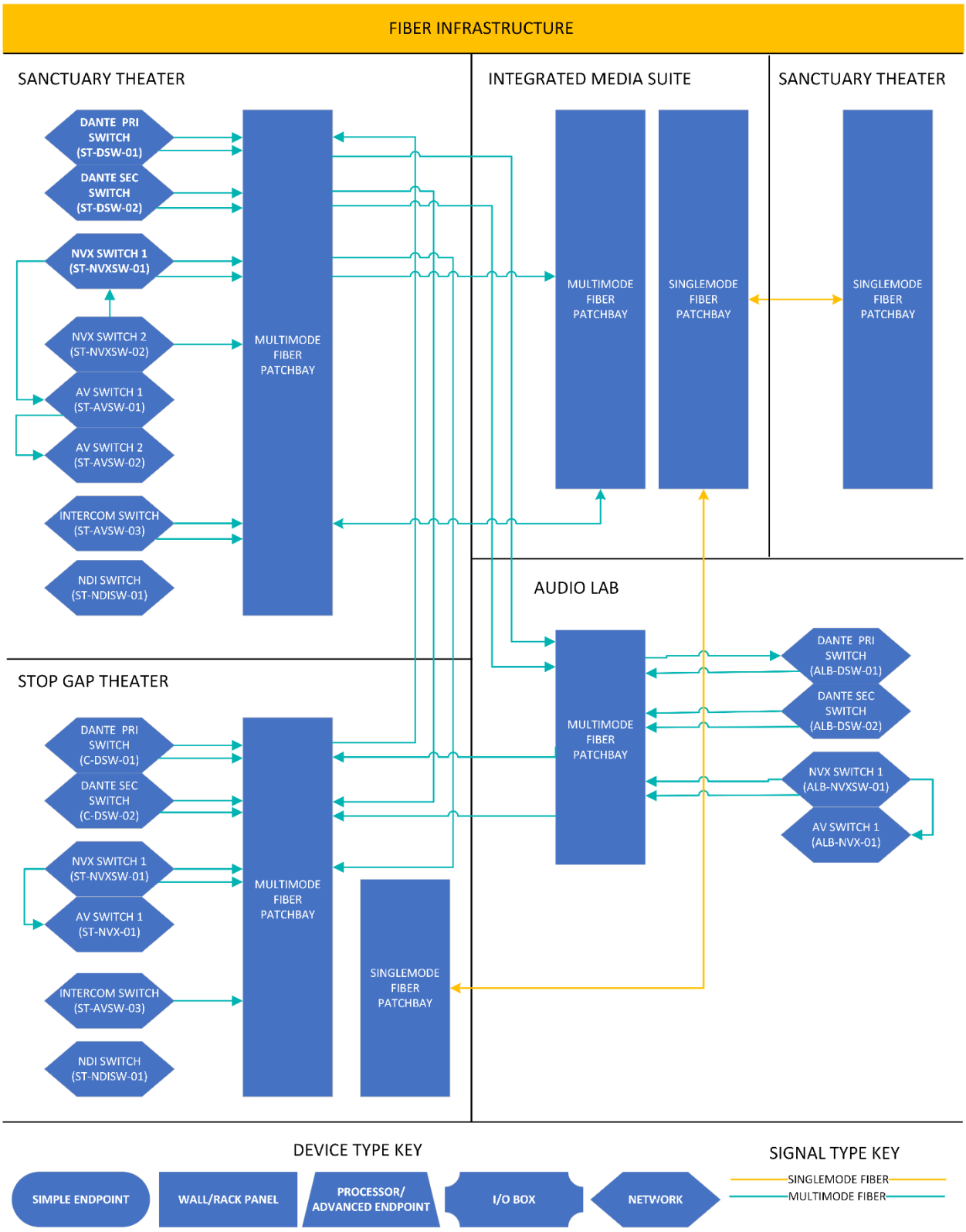
Tip: When someone lists an IP address followed by Classless Inter-Domain Routing (CIDR) reference “10.0.xxx.xxx/20” it is a quick reference to the subnet size being used in this case /20 (4094 available addresses) in your NVX/Control network or /16 (65534 available addresses) in your Dante network.

2.6.4 Fiber Infrastructure

The Dramatic Arts Building has two (2) fiber tie-line systems. The first is a multi-mode LC based fiber tie-line system that ties the Sanctuary Theater, Cabaret, Audio Lab, and Integrated Media Suite together. The primary purpose of this multi-mode fiber is to tie each switch type together with fiber trunks connected via their SFP/+ trunk ports.

The second fiber tie-line system is a single-mode ST based fiber system that ties the Integrated Media Suite to the Sanctuary (Studio) Theater and Stop Gap (Cabaret) Theater. The primary purpose of this single-mode fiber is to provide a means for 3G, 6G, and 12SDI broadcast video transport to the integrated media suite which is the hub for video production and streaming.

2.6.5 Fiber Overview



2.7 Intercom System

The production intercom system in the Stop Gap Theater (previously named Cabaret Theater) is designed to be an all-encompassing Clear-Com intercom package allowing the theater to train on the distinct types of Clear-Com technologies.

Primary Components and Terminology:

1. **Central Station:** The Stop Gap Theater is equipped with a Clear-Com Arcadia-X4-16P central management station that is the hub for all Stop Gap Theater intercom communications. This Arcadia central station has been set up for: HelixNet, Analog 2-Wire, and Free-Speak wireless. To connect to the Stop Gap Theater Arcadia, plug into a “PC LAN” port or switch and change your personal computer to a 10.0.10.xxx network. Next, type 10.0.10.082 into a web browser to discover the management portal for this Arcadia unit. When a login appears, use the following login info: (user: admin / password: #atkusc123). Please see the manufacturer’s user manual for more information on Arcadia capability, limitations, and routing.

2. **HelixNet**: HelixNet is a family of digital party-line intercom over a single data cable. HelixNet devices can have access of up to four (4) channels of intercom communications over this single data cable. Please see the manufacturer’s user manual for more information on specific devices.

3. **Analog 2-Wire:** It is estimated that there can be a maximum of twenty-four (24) RS-701/702 belt-packs active in the Stop Gap Theater with your active four (4) wall stations in corridor CBB, voice practice B20 & B21, and dressing room B4. Eight (8) single channel and four (4) dual channel analog belt packs were provided for the entire portable package. If you add the provided portable party-line wall stations (KB-701 or KB-702) for your productions, be aware you will need to reduce total bodypacks by three (3) for every wall station. See Clear-Com’s Encore party-line calculator for more information.

   https://clearcom.com/DownloadCenter/technicaldocs/EncorePowerSupplyCalculator/EncorePowerSupplyCalculator.xlsx

Tip: Do not forget to “Null” your system through Arcadia main menu once you have setup all intercom devices for your productions. Warning nulling is loud! Please make sure everyone is off of comms when nulling.

4. **Free-Speak:** Is a five-channel capable wireless intercom system that can connect the two (2) portable wireless belt packs (FSII-BP19) over the 1.9 GHz spectrum with the one (1) transceiver antennas (FSII-TCVR-19) located in the Stop Gap Theater. These connect through a splitter (FSII-SPL) that is located in your rack room and is driven from the Arcadia central station. Five (5) wireless body packs can be supported in this space before adding another transceiver. Currently the two (2) theaters are intended to be discreet and not set up to be on the same intercom channels.

2.7.1 Stage I/O and Setup

There are a variety of input/output (I/O) panels throughout the entire Stop Gap Theater and corresponding BOH spaces surrounding this venue. These panels facilitate a variety of production communication (intercom) signal types. All these panels tie back to the Stop Gap Theater AV rack room for a centralized management of intercom systems for this theater.

2.7.2 Rack Panels & Patching

The Stop Gap Theater does not have a 2-wire intercom patching system. All plate locations are active with CH. A / CH. B on their respective ports.

2.7.3 Devices

The following devices were provided to support the Stop Gap Theater and surrounding spaces. Please keep in mind that most items shown below were part of a shared “portable” package that was designed to be shared with the Sanctuary Theater, Audio Lab, and Integrated Media Suite (NMS) if needed. Separate central stations exist for Sanctuary Theater and Integrated Media Suite additionally.

Mfr.	Model #	Description	Qty.
Clear-Com	110/340	110 Series Gooseneck Microphone: Standard 13"	3
Clear-Com	110/100	110 Series Gooseneck Microphone: Standard 4"	3
Clear-Com	ARCADIA-X4-16P	Arcadia Central Station: (16) Licensed Ports	1
Clear-Com	CC-26K-X4	Headset: Single ear, Light weight, XLR (F) 4 Pin with Dynamic Mic	2
Clear-Com	CC-300-X4	Headset: Single Ear, Medium weight, XLR (F) 4 pin with Dynamic Mic	18
Clear-Com	CC-300-X4	Headset: Single Ear, Medium weight, XLR (F) 4 pin with Dynamic Mic	2
Clear-Com	CC-400-X4	Headset: Double Ear, Mediuweight, XLR (F) 4 pin with Dynamic Mic	1
Clear-Com	FL-7	Encore Call Signal Flasher	4
Clear-Com	FSII-BP19-X4-US	FreeSpeak II Beltpack: 1.9GHz, US	2
Clear-Com	GN-250-TRS	Gooseneck Microphone Short	3
Clear-Com	HKB-2X	HelixNet Speaker Station	2
Clear-Com	HKB-2X	HelixNet Speaker Station	2
Clear-Com	HRM-4X	HelixNet Remote Station: 4Ch	1
Clear-Com	IC-25-6	Encore IFB Control Cable-25'	4
Clear-Com	KB-701	Encore Speaker Station: 1Ch	4
Clear-Com	KB-701	Encore Speaker Station: 1Ch	4
Clear-Com	PS-704	Encore Power Supply: 4Ch	1
Clear-Com	RS-701	Encore Beltpack: 1 Ch	8
Clear-Com	RS-702	Encore Beltpack: 2 Ch with Program Audio	4
Clear-Com	RS-703	Encore TW Beltpack: 2Ch	12
Clear-Com	S-Mount	HelixNet Surface Mount: Desk/Wall for HKB-2X	1
Clear-Com	S-Mount	HelixNet Surface Mount: Desk/Wall for HKB-2X	1
Clear-Com	U-BOX-X3	Encore Surface Mount: 1Ch, Desk/Wall for KB Speaker Stations	4
Clear-Com	YC-36	Encore Intercom Splitter: 2Ch 6-pin to (2) 3-pin for RS-702-style beltpacks	4

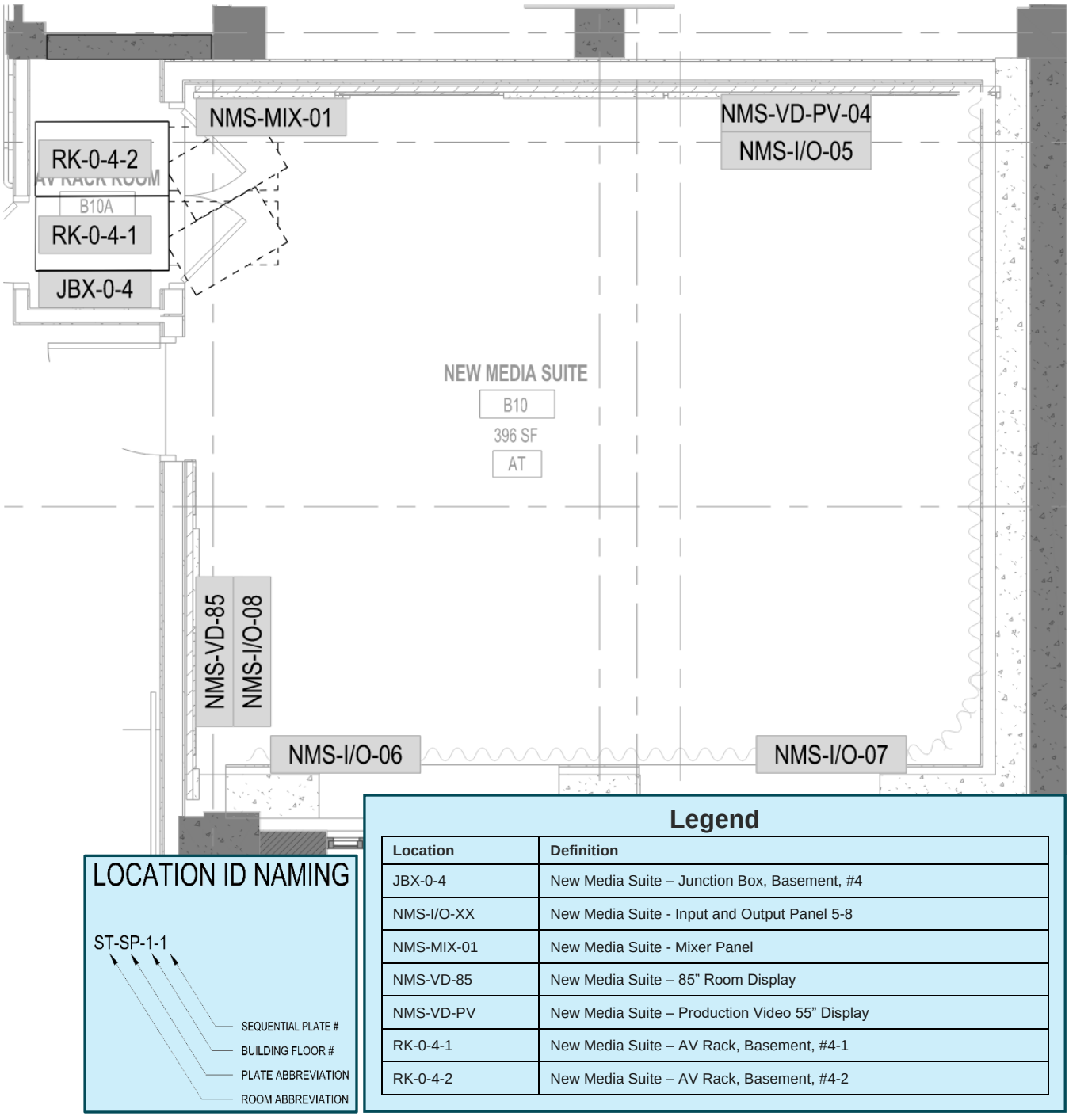
3. INTERACTIVE (NEW) MEDIA SUITE AV TECHNICAL DESCRIPTION

The Interactive Media Suite (previously known and referenced as New Media Suite) is a space designed to be a future centralized broadcast production hub between Sanctuary Theater, Stop Gap Theater, Audio Lab, and still be used as a localized classroom. Local plates tie to RACK-0-4-1 and cabling is terminated, labeled, and bundled here for future use. RACK-0-4-2 houses a multi-mode and single-mode patch bay that ties to both Stop Gap and Sanctuary Theaters. Additionally, there is a data patch bay with eight (8) data tie-lines to the Stop Gap Theater, Sanctuary Theater, and Audio Lab. This chapter will dive into the specifics of how this room is set up and how it can be used.

3.1 Venue Overview

Let us start with an overview of the floor and ceiling plans to orient you to the space from a bird's eye perspective. The next few pages will give you an understanding of important plate and device locations to notate.

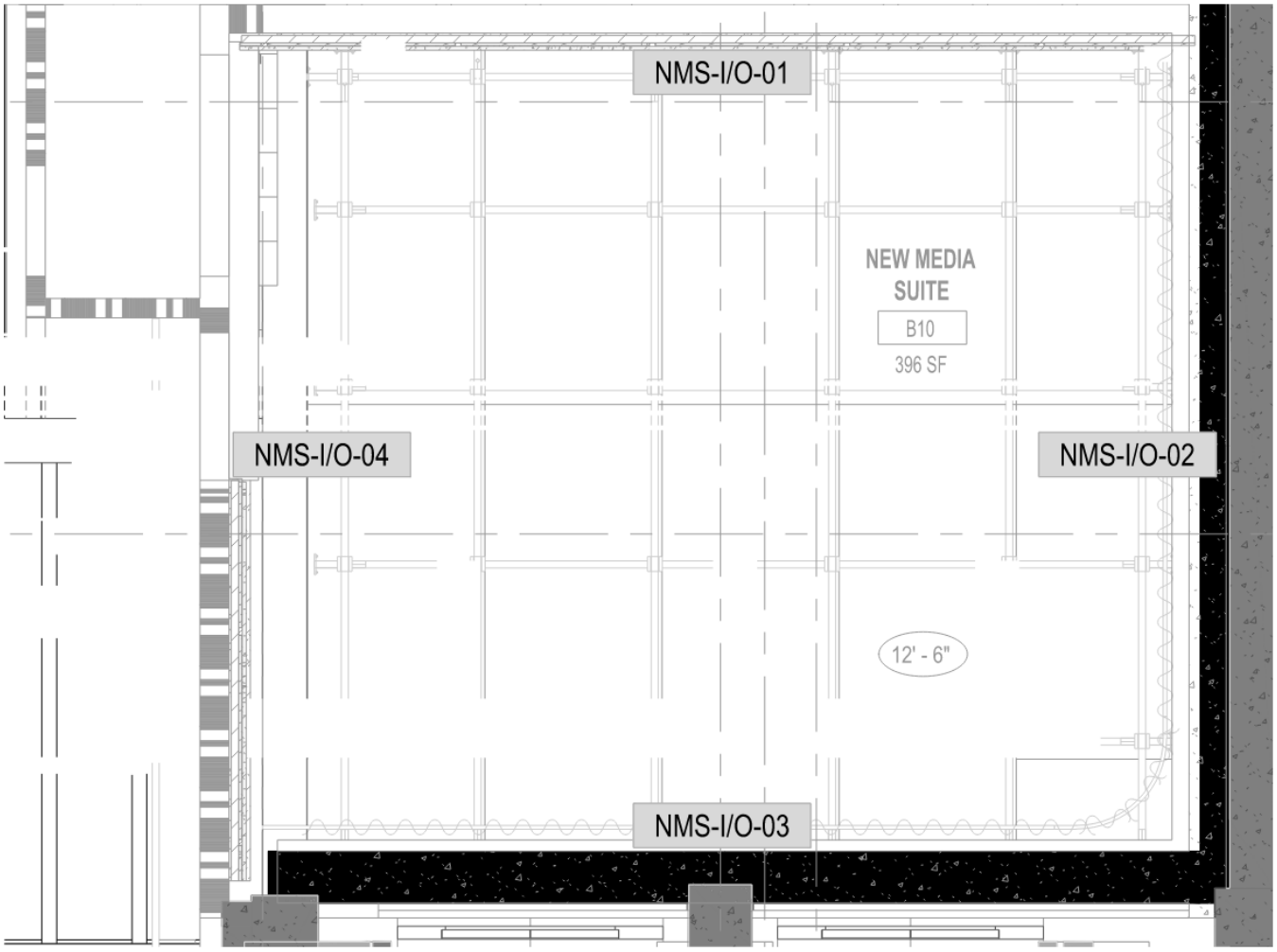
3.1.1 Interactive Media Suite (NMS) - Floorplan

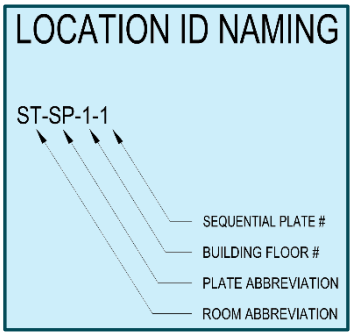


Legend

Location	Definition
JBX-0-4	New Media Suite – Junction Box, Basement, #4
NMS-I/O-XX	New Media Suite - Input and Output Panel 5-8
NMS-MIX-01	New Media Suite - Mixer Panel
NMS-VD-85	New Media Suite – 85" Room Display
NMS-VD-PV	New Media Suite – Production Video 55" Display
RK-0-4-1	New Media Suite – AV Rack, Basement, #4-1
RK-0-4-2	New Media Suite – AV Rack, Basement, #4-2

3.1.2 Interactive Media Suite (NMS) – Reflected Ceiling Plan



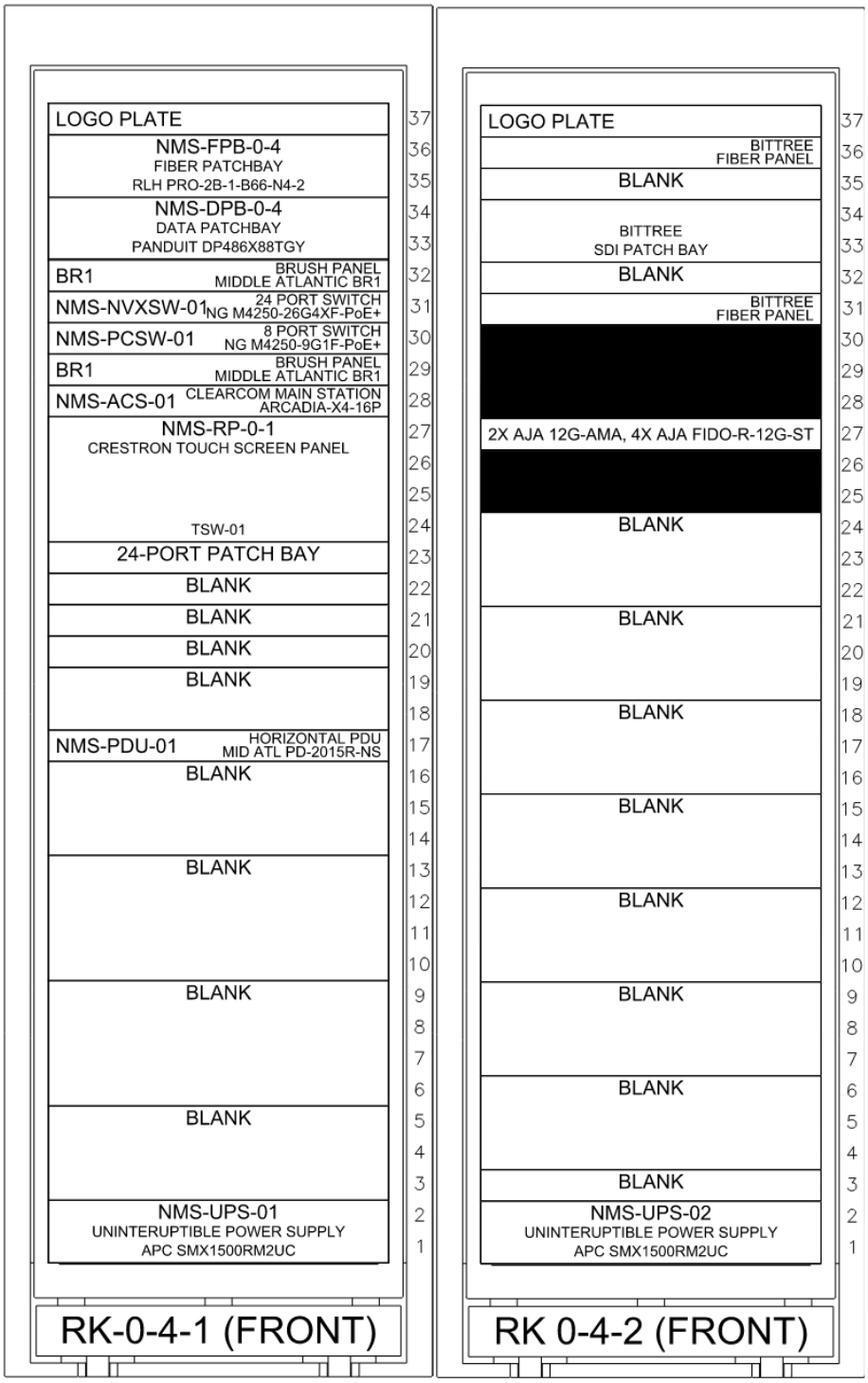


Legend

Location	Definition
NMS-I/O-XX	New Media Suite - Input and Output Panel 1-4

3.2 Equipment Racks

Two (2) Middle Atlantic WR-37-32 (37RU x 32” Depth) slide out racks were provided for the Interactive (New) Media Suite rack room as shown below.



3.2.1 Power Distribution and Sequencing

Each rack has a vertical power strip capable of sequenced power. These power strips modules were set to a constant “On” mode as power sequencing is not being used for this room.

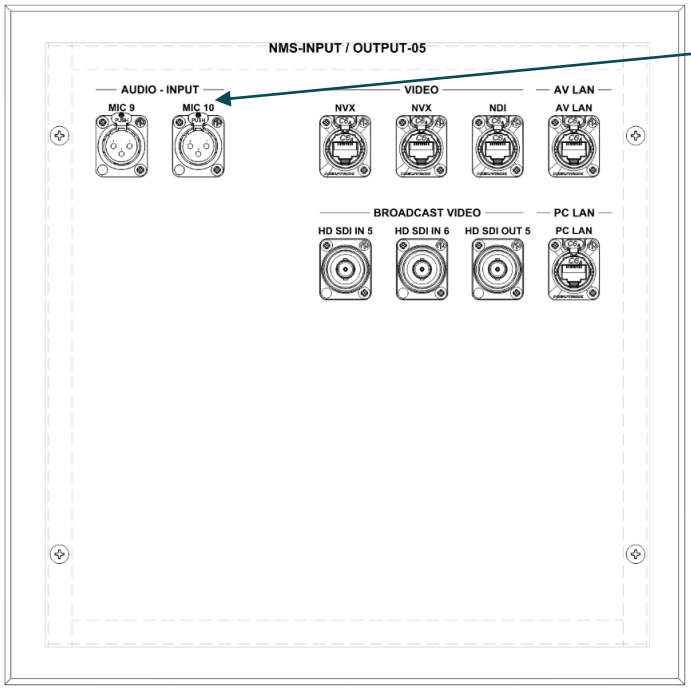
3.2.2 Uninterruptible Power Supplies

Each rack has a dedicated uninterruptable power supply (UPS) installed in the instance of a power outage to keep all critical equipment protected and online for a short duration of time.

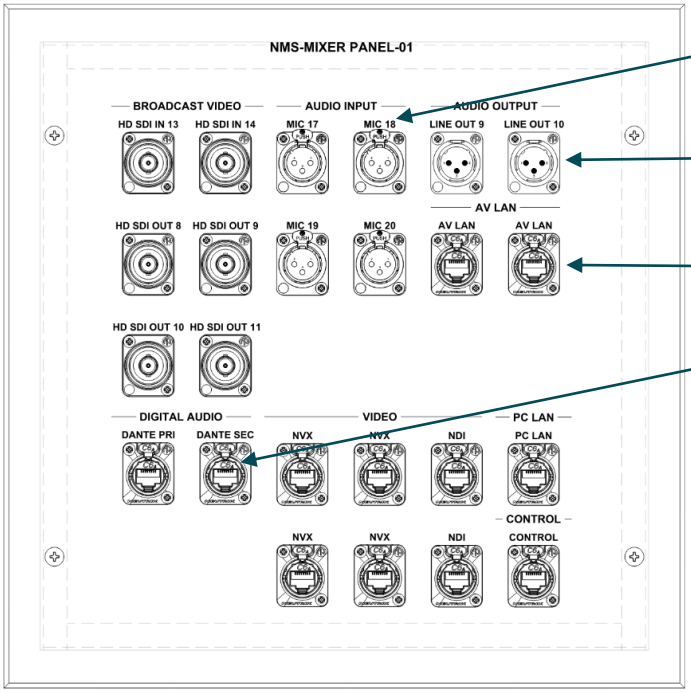
3.3 Audio System

The audio system is comprised of audio tie-lines to and from panels to RACK-0-4-1 for future use. Dante audio would need to be tied in via tie-lines from associated theater or Audio Lab. See network section for tie-line patch bay details.

3.3.1 I/O and Setup



Mic/Line Inputs 1-20 are terminated to XLR and bundled in rack for future use.



Mic/Line Inputs 1-20 are terminated to XLR and bundled in rack for future use.

Line Outputs 1-10 are terminated to XLR and bundled in rack for future use.

AV LAN is terminated to RJ45 plugs and bundled in rack for future use.

Dante lines are terminated to RJ45 plugs and bundled in rack for future use.

3.3.2 Mixing & Recording

Mixing requires OFE equipment to make use of the provided tie-line cabling to RACK-0-4-1. Recording audio from this system will require OFE broadcast equipment connected via SDI or SDI converters (see previously discussed converters in respective theater video sections) or over Dante through the data tie-line patchbays to respective theaters or Audio Lab.

3.3.3 Audio Network Routing

One (1) data tie-line patch bay labeled NMS-DPB-0-4 in the Integrated (New) Media Suite ties to the following spaces: Sanctuary Theater, Stop Gap Theater, and Audio Lab with eight (8) CAT6A data tie lines for each space. You can use these tie-lines to tie to a Dante Primary network switch from either theater if Dante audio is needed. Secondarily, audio for video routing is routed through the NVX network and can be accessed from the NVX switch in this room. See the NVX video section in this manual for more details on this routing, setup, audio em-bedding and de-embedding.

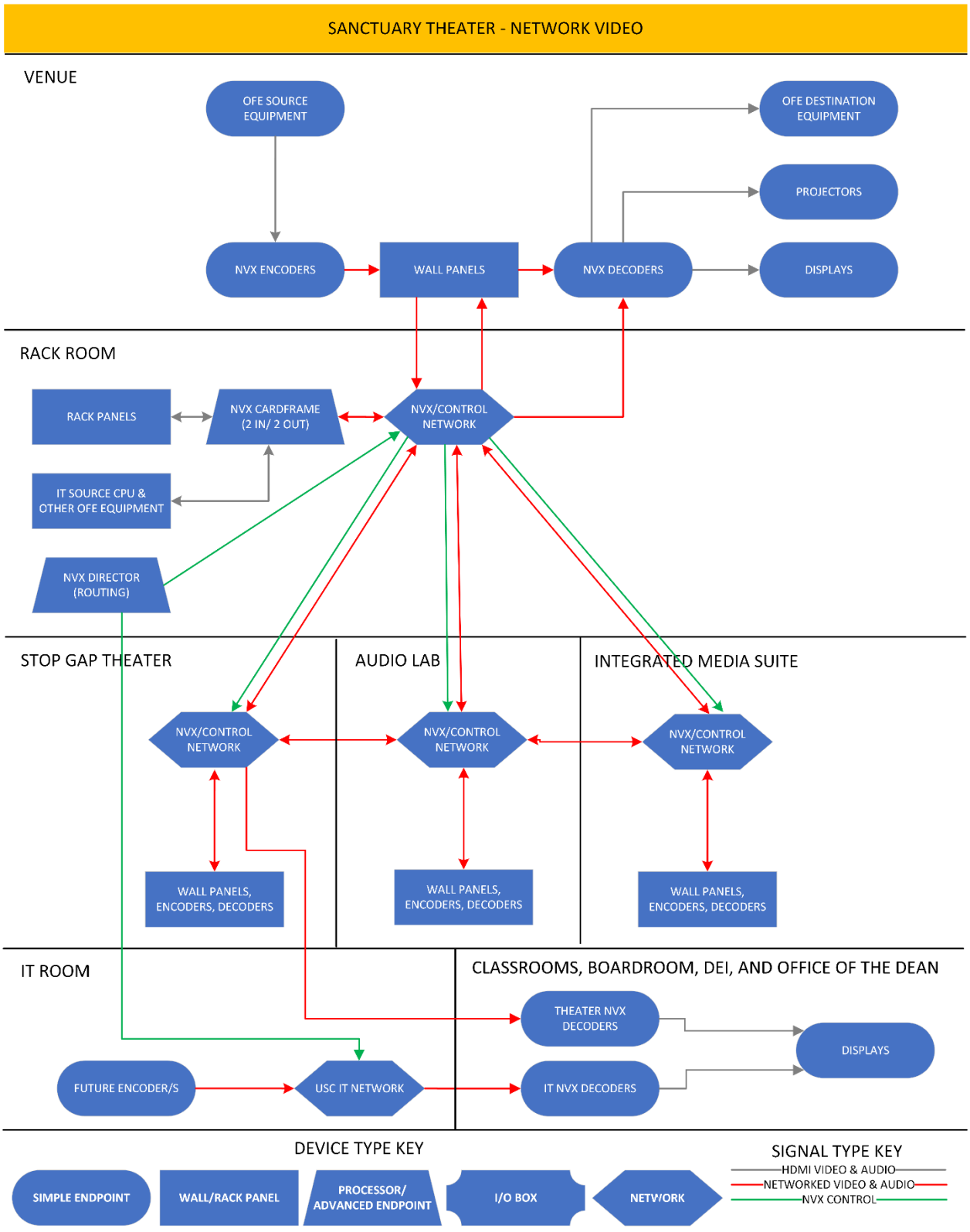
3.4 Video System

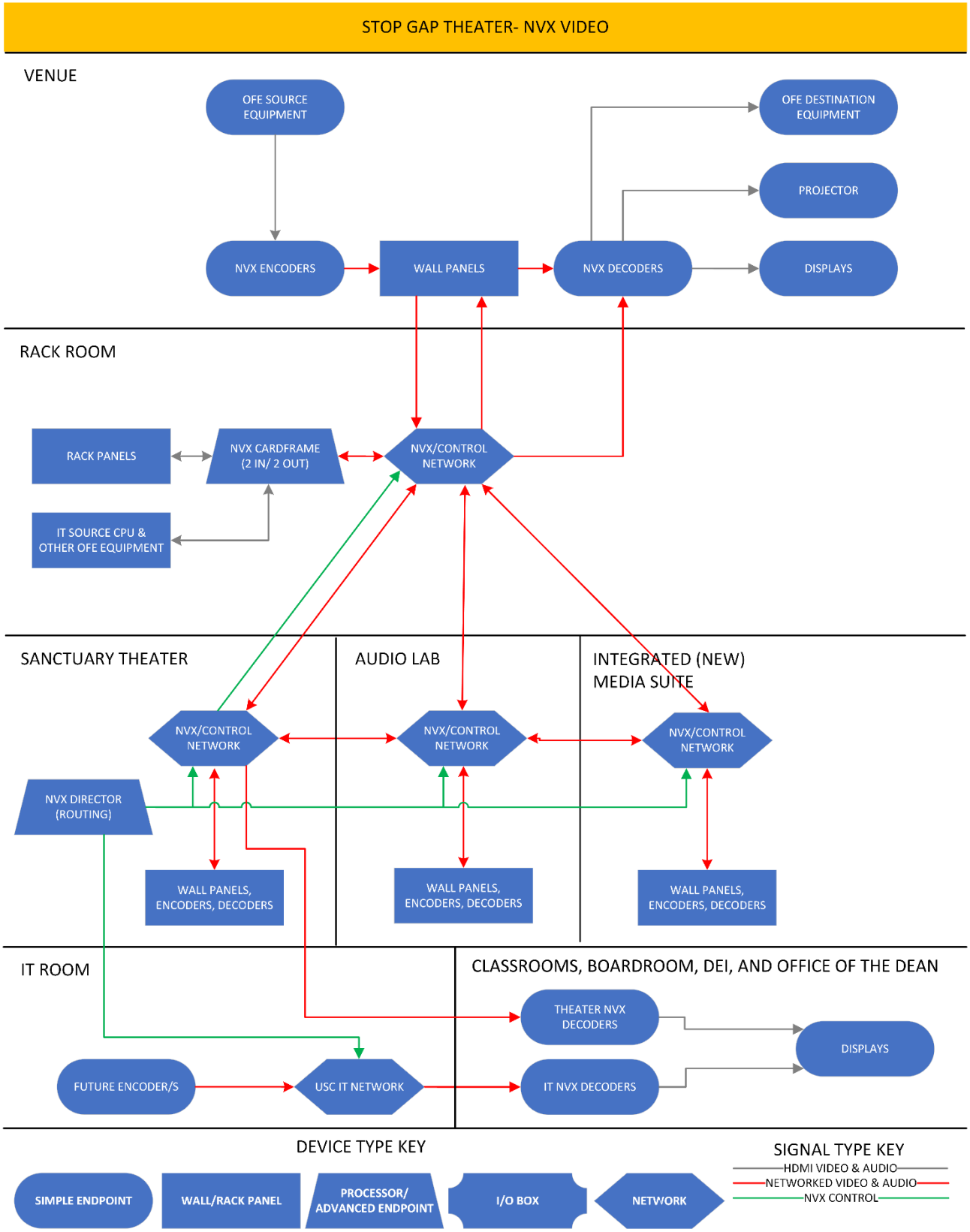
The video system for the Interactive Media Suite is designed to support future applications for this space along with accommodating some basic support of broadcast streaming over the fiber tie-lines within this room.

Primary Components and Terminology:

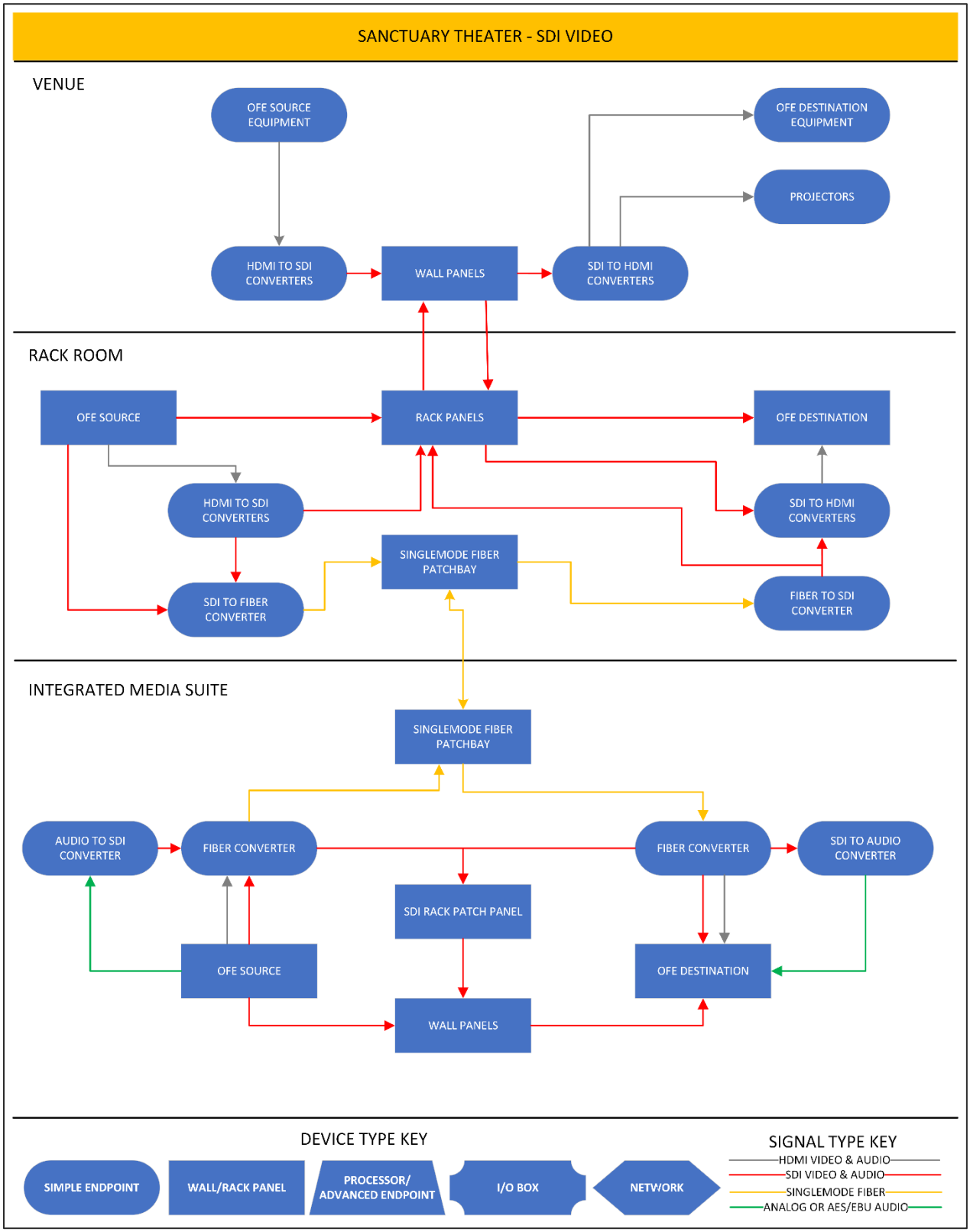
1. **Network Encoding:** Crestron network video protocol (NVX) is used to encode HDMI video onto the network with Crestron DM-NVX-E30 or DM-NVX-363C encoders. A separate network device interface (NDI) network also exists for future camera and video support *(Note: This is shared equipment amongst facility)*.
2. **Network Decoding:** Crestron network video protocol (NVX) is used to decode HDMI video onto the network with Crestron DM-NVX-D30 or DM-NVX-363C decoders. A separate network device interface (NDI) network also exists for future camera and video support *(Note: This is shared equipment amongst facility)*.
3. **Network Switches:** The NVX & NDI video networks are comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Stop Gap, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports .
4. **SDI Transmitters:** Four (4) AJA 12G-SDI (FIDO-T-12G-ST) single-mode fiber converters were provided to transmit 12G-SDI down to the integrated media suite via fiber patch bays from either theater *(Note: This is shared equipment amongst facility)*.
5. **SDI Receivers:** Four (4) AJA 12G-SDI (FIDO-R-12G-ST) single-mode fiber receiver converters were provided to receive 12G-SDI down in the integrated media suite via fiber patch bays from either theater *(Note: This is shared equipment amongst facility)*.
6. **SDI Audio Breakout:** Five (5) 12G-SDI audio embedders / dis-embedders were provided to allow for audio embedding and/or dis-embedding to and from SDI with analog and/or AES/EBU audio *(Note: This is shared equipment amongst facility)*.
7. **Cameras:** No cameras were provided for this space though this space can receive signal from either theater via NVX network or fiber tie-lines. No camera controller was specified specifically for this room but could be borrowed from either theater and setup to control either theater space over the NMS-NVXSW-01 switch.
8. **Video Switcher/Router:** No video switcher or router was provided at this time for this space. This was planned as a future item.

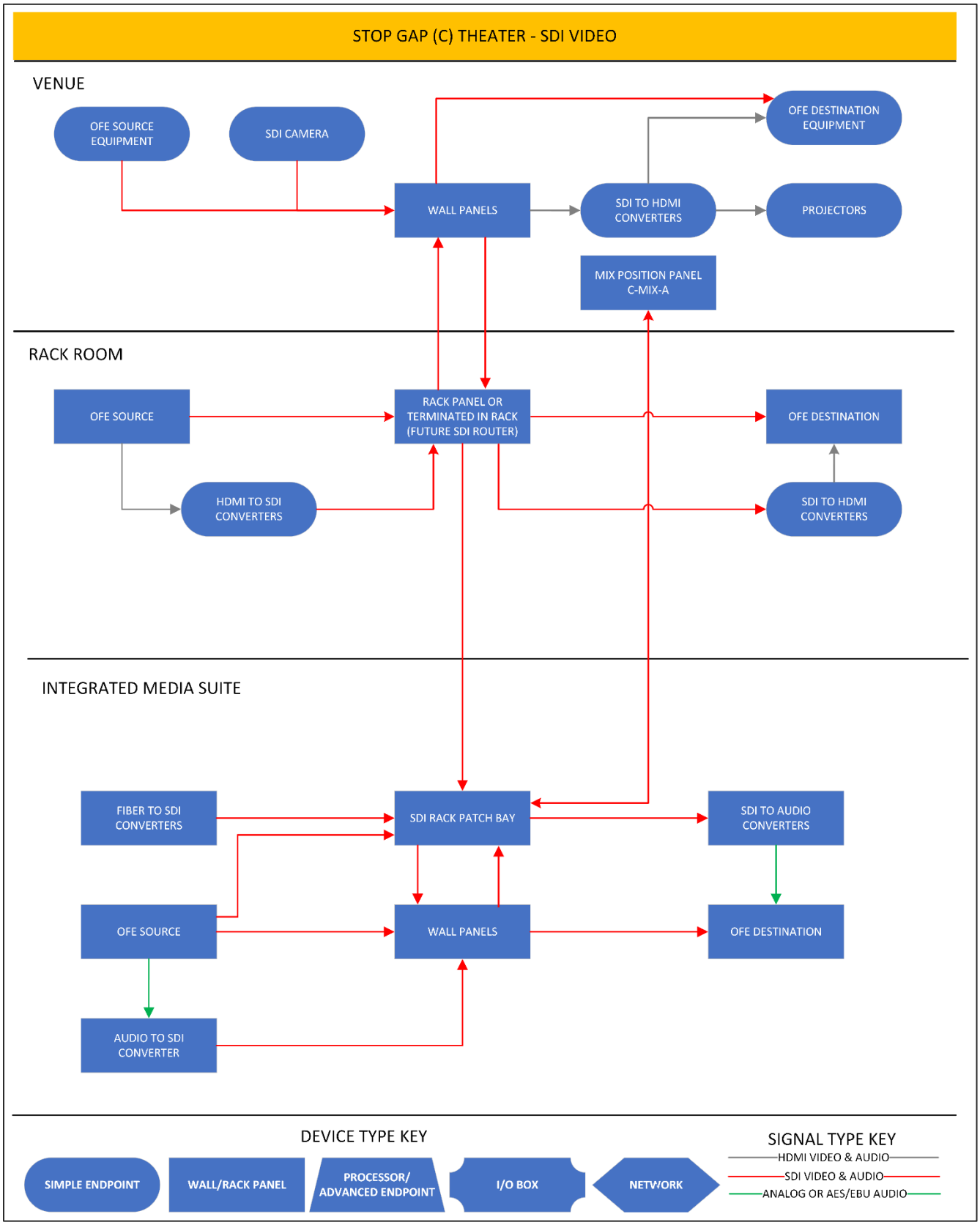
3.4.1 NVX Video System Overview



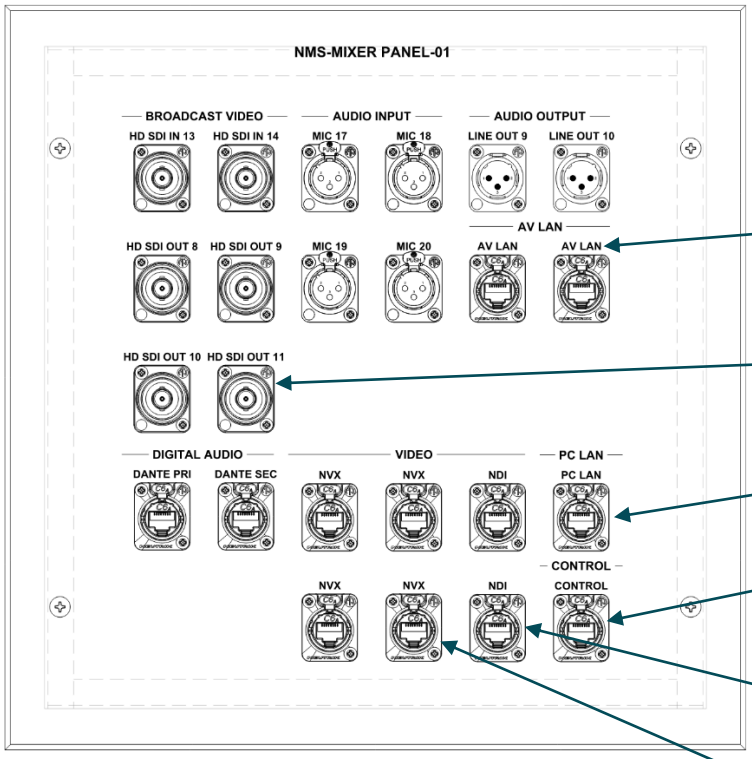

STOP GAP THEATER- NVX VIDEO
VENUE
OFE SOURCE EQUIPMENT
OFE DESTINATION EQUIPMENT
PROJECTOR
NVX ENCODERS
WALL PANELS
NVX DECODERS
DISPLAYS
RACK ROOM
RACK PANELS
NVX CARDFRAME (2 IN/ 2 OUT)
NVX/CONTROL NETWORK
IT SOURCE CPU & OTHER OFE EQUIPMENT
SANCTUARY THEATER
AUDIO LAB
INTEGRATED (NEW) MEDIA SUITE
NVX/CONTROL NETWORK
NVX/CONTROL NETWORK
NVX/CONTROL NETWORK
NVX DIRECTOR (ROUTING)
WALL PANELS, ENCODERS, DECODERS
WALL PANELS, ENCODERS, DECODERS
WALL PANELS, ENCODERS, DECODERS
IT ROOM
CLASSROOMS, BOARDROOM, DEI, AND OFFICE OF THE DEAN
THEATER NVX DECODERS
DISPLAYS
FUTURE ENCODER/S
USC IT NETWORK
IT NVX DECODERS
DEVICE TYPE KEY
SIMPLE ENDPOINT
WALL/RACK PANEL
PROCESSOR/ ADVANCED ENDPOINT
I/O BOX
NETWORK
SIGNAL TYPE KEY
HDMI VIDEO & AUDIO
NETWORKED VIDEO & AUDIO
NVX CONTROL

3.4.2 SDI System Overview




STOP GAP (C) THEATER - SDI VIDEO
VENUE
OFE SOURCE EQUIPMENT
SDI CAMERA
WALL PANELS
SDI TO HDMI CONVERTERS
OFE DESTINATION EQUIPMENT
PROJECTORS
MIX POSITION PANEL C-MIX-A
RACK ROOM
OFE SOURCE
RACK PANEL OR TERMINATED IN RACK (FUTURE SDI ROUTER)
OFE DESTINATION
HDMI TO SDI CONVERTERS
SDI TO HDMI CONVERTERS
INTEGRATED MEDIA SUITE
FIBER TO SDI CONVERTERS
SDI RACK PATCH BAY
SDI TO AUDIO CONVERTERS
OFE SOURCE
WALL PANELS
OFE DESTINATION
AUDIO TO SDI CONVERTER
DEVICE TYPE KEY
SIMPLE ENDPOINT
WALL/RACK PANEL
PROCESSOR/ ADVANCED ENDPOINT
I/O BOX
NETWORK
SIGNAL TYPE KEY
HDMI VIDEO & AUDIO
SDI VIDEO & AUDIO
ANALOG OR AES/EBU AUDIO

3.4.3 I/O and Setup



AV LAN ports are terminated to RJ45 plugs and bundled in rack for future use.

SDI In/Out ports land on the SDI patch panel (NMS-VPB-0-4) for SDI patching within this room and to/from SDI fiber converters.

PC LAN ports are terminated to RJ45 plugs and bundled in rack for future use.

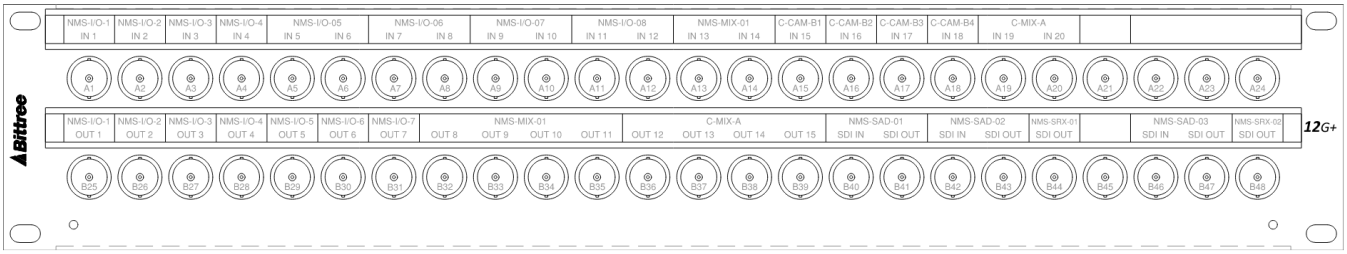
CONTROL ports are terminated to RJ45 plugs and bundleNMS-MIX-01d in rack for

NDI ports are terminated to RJ45 plugs and bundleNMS-MIX-01d in rack for future

NVX ports are terminated to RJ45 plugs and bundled in rack for future use.

3.4.4 Rack Panels & Patching

Interactive (New) Media Suite has an SDI video patch bay labeled (NMS-VPB-0-4) that ties to all local I/O panels, Stop Gap (Cabaret) Theater, and local SDI rack converters for fiber transport and audio encoding and decoding. Patch bay is labeled according to device or location.



3.4.5 Production Video (SDI)

Use the patch bay above to tie to the local room, Stop Gap (C) Theater, or to use provided portable local fiber to 12G SDI converters to/from other theaters. Additionally, you can use the single-mode patch bay to convert 12G SDI to fiber for transport from the theaters.

3.4.6 Networked Video (NVX & HDMI)

The Interactive (New) Media Suite is set up with a Crestron NVX video network which is intended for HDMI encoding (transmitting) and decoding (receiving) anywhere a NVX device is placed or located. To make a connection plug in your DM-NVX-E30 (Encoder), DM-NVX-D30 (Decoder), or DM-NVX-363 (Enc or Dec) to any “NVX” port with a shielded CAT6A. Once connected, you will need to grab a computer that is connected to the network set to DHCP with its LAN port and navigate to “10.0.0.200” in a web browser.

A login page will then appear for your Crestron Director login with user: admin password: #atkusc123 and a matrix routing grid will open. All existing NVX devices on the network will be shown in this matrix grid with current active routes. To make a new route, find your device and route its source to its destination using the purple NAX button for audio only routes, blue NVX button for video routes, or NUX button for USB routes (If applicable). Any combination of audio, video, and potentially USB can be selected for that route.

3.4.7 Video Displays

The 55” production video (PV) display (NMS-VMON-02) and 85” display in this room are both tied to the local NVX network. This NVX network is tied to the Sanctuary Theater, Stop Gap Theater, and Audio Lab giving user access to route video from any encoder available on the overall NVX network via Crestron Director. Additionally, you can select multiple preset sources from the 10” touch panel (located in RACK 0-4-1) for the production video 55” display. The 85” display source selection can only be selected via Crestron Director.

3.4.8 Recording & Streaming

Recording and Streaming will require owner furnished broadcast equipment to make use of the provided SDI patch bay, or single-mode fiber tie-lines, or NVX network to/from RACKS 0-4-1/ 0-4-2 with provided SDI converters or NVX encoder or decoders.

3.5 Control System

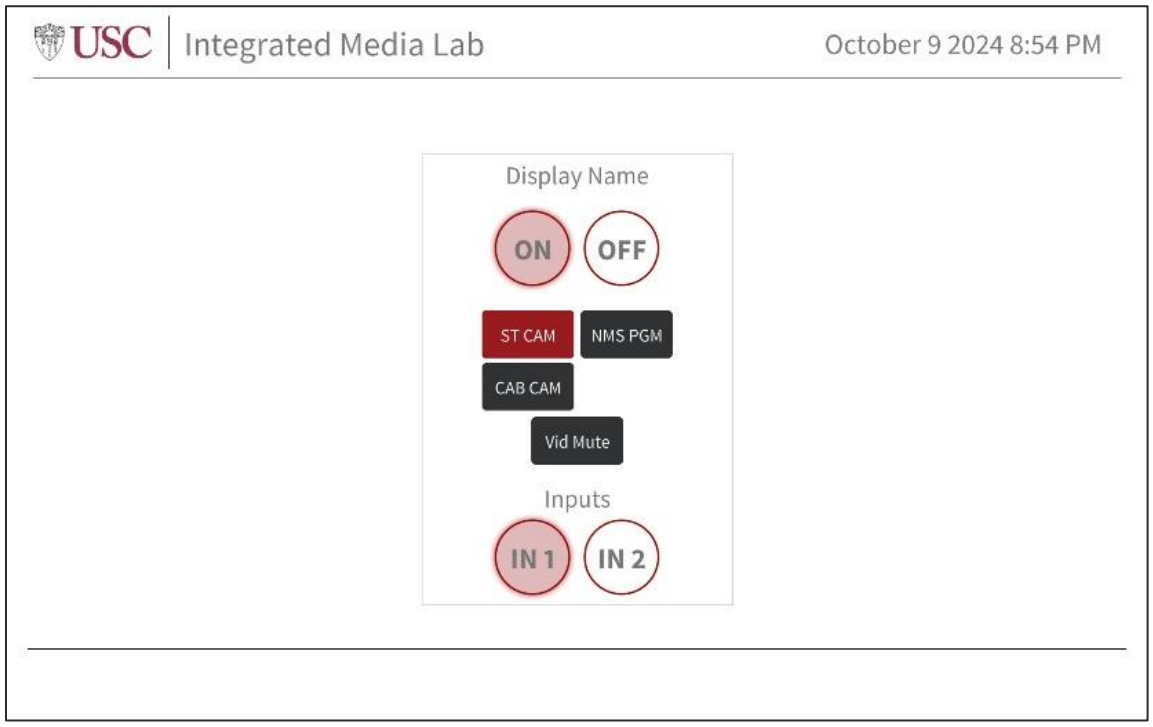
The control system for Integrated (New) Media Suite is designed to support just the local room displays.

Primary Components and Terminology:

1. **Touch Panel:** One (1) 10” Crestron touch panel located in RACK-0-1-1 is used to control local 55” display source selection and power on/off.
2. **Controller:** The main Crestron controller (CP4) located in RACK-2-2 in the Sanctuary Theater is the device managing all control code for the Integrated Media Suite. It is critical for this device to stay online in order to maintain device and touch panel control.
3. **Control Network Switches:** The control network is comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Sanctuary Theater, Stop Gap, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports. Any port labeled Control, AV LAN, or NVX can be used as a control port to engage a touch panel or AV control through another device.

Tip: Touch panels should be used for turning on/off displays when possible. If a user uses a local display remote it is possible the system can get out of sync with the on/off functionality which could require you to cycle from the touch panel the display to off state and then back to the on state to regain sync.

3.5.1 Touch Panel Layout & Function



MAIN PAGE

Main Page (55” Display Only)

- **Display Power** – Power on and off for 55” production video display.
- **Display Inputs** – ‘IN1’ to view local sources available from the source selects. ‘IN 2’ is a feed from IT when available.
- **Source Select:**
  - **ST CAM** – Sanctuary Theater camera feed.
  - **CAB CAM** – Stop Gap Theater camera feed.
  - **NMS PGM** – NMS (Integrated Media Suite) Crestron encoder, available when plugged into the wall plate with a source plugged in.
  - **Video Mute** – Screen blanking.

3.6 Network Systems

The network systems in the Integrated (New) Media Suite are designed to be robust and custom configured for specific your specific AV network protocols. Be mindful, bridging networks and/or introducing a non-configured switch into this ecosystem can cause network issues or even crash your entire network. It is recommended to use only the switches provided, if more switches are needed, please contact Clair for assistance with proper configuration.

3.6.1 Network Switches

Each AV switch in the Dramatic Arts Building is dedicated across all the access ports and has an abbreviated acronym switch name. For example: C-DSW-01 is our acronym for “Cabaret (Stop Gap) Theater Dante Switch #1” (see below for acronyms list).

Switch Acronyms:

Acronym	Name	Function
NMS-NVXSW-01	Integrated (New) Media Suite NVX Switch #1	NVX, AV LAN, Control
NMS-PCSW-01	Integrated (New) Media Suite Prod. Comm. Switch #1	Helixnet, Intercom Control

Netgear AV Series M4250 and M4300 switches were used in the DAB AV installation. These are considered the premiere switch models for the AV industry and have user friendly interfaces for AV configuration. These switches are programmed beyond that user friendly interface to adhere to strict Crestron and Audinate Dante recommendations.

Note: New Media Suite was renamed to the Integrated Media Suite and all drawing, plate, and programming references the original naming convention.

3.6.2 Network Patching

NMS-MIX-01 panel ties with control and NVX ports directly to the NVX switch in RACK 0-4-1. All other network ports on I/O panels are pre-terminated and ready for integration with future devices. Additionally, a data tie-line patch bay labeled NMS-DPB-0-4 ties to Sanctuary Theater, Stop Gap Theater, and the Audio Lab with eight (8) CAT6A tie lines for each.

3.6.3 Network Types & Functions

NVX, AV, and Control Network: NVX stands for Network Video Interface, a Crestron based video connectivity standard that enables HDMI based multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video, audio, and USB communication. The NVX, AV, and Control network in Sanctuary Theater is your main network for Crestron NVX video, AV system control, and hardware access over LAN.

This network has been programmed with strict Crestron NVX protocol requirements to maintain success with the complex nature of NVX multicast traffic, prioritization of traffic, and removal of efficiency Ethernet to name a few specifics. This network has a DHCP router handing out addresses from the IP scheme 10.0.xxx.xxx/20 (4094 address capable) network. This large address range allows us to bridge the entire DAB if needed for all NVX and AV control. As mentioned above, there are multi-mode LC fiber patch bays tying Audio Lab, Integrated Media Suite, and Stop Gap Theater to the overall NVX and AV Control network.

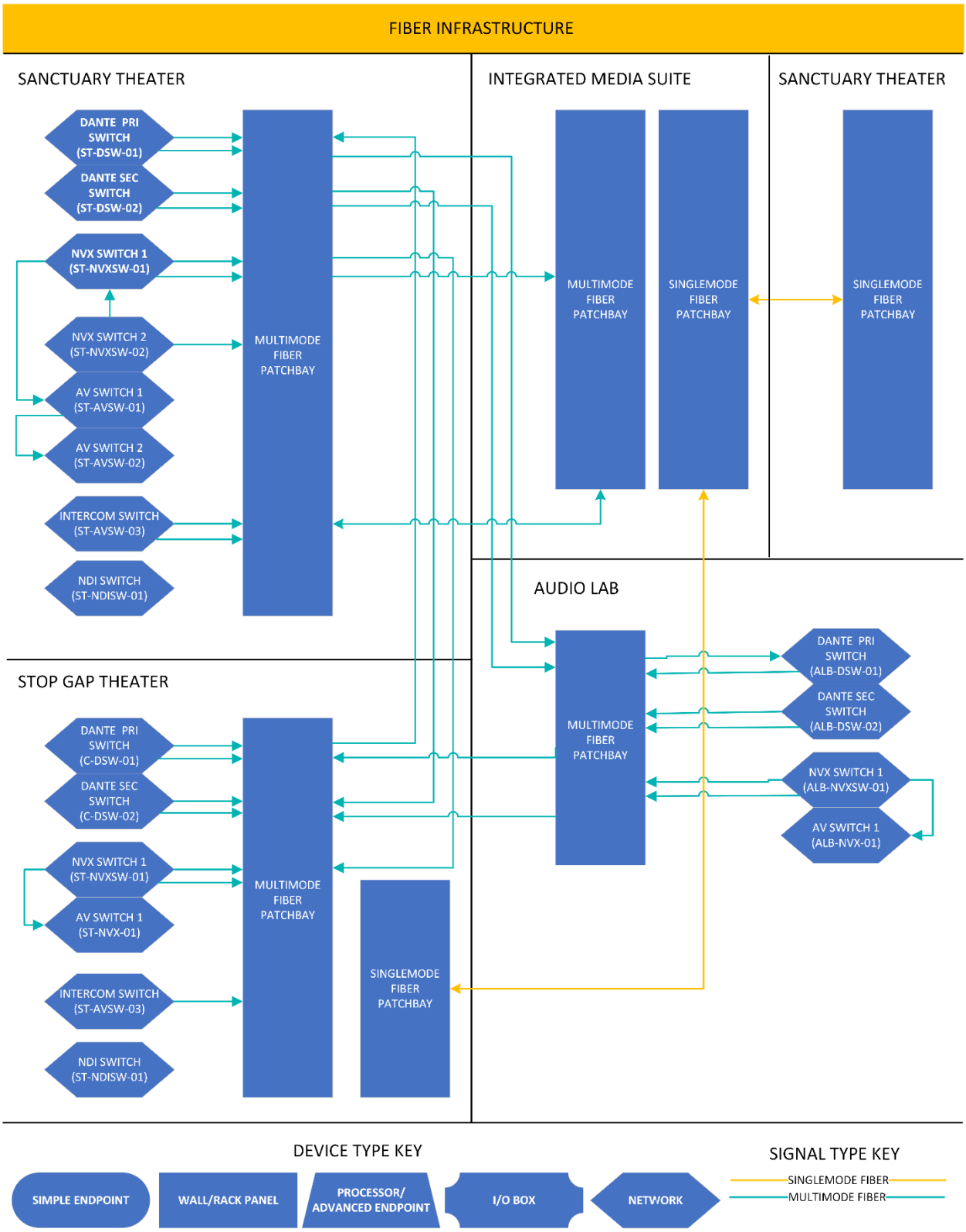
Management Network: The last access port for every switch is programmed as a management port accessing the virtual local area network (VLAN) this exists on all switches so that programmers can manage the connected switches from a centralized switch location. To manage switches, connect to any management port and change your IP to the management IP schema and with your computer point to any management switch IP address using a web browser. Then enter the following login: User: “admin” / Password: “#atkusc123”.

3.6.4 Fiber Infrastructure

The Dramatic Arts Building has two (2) fiber tie-line systems. The first is a multi-mode LC based fiber tie-line system that ties the Sanctuary Theater, Cabaret, Audio Lab, and Integrated Media Suite together. The primary purpose of this multi-mode fiber is to tie each switch type together with fiber trunks connected via their SFP/+ trunk ports.

The second fiber tie-line system is a single-mode ST based fiber system that ties the Integrated Media Suite to the Sanctuary (Studio) Theater and Stop Gap (Cabaret) Theater. The primary purpose of this single-mode fiber is to provide a means for 3G, 6G, and 12SDI broadcast video transport to the integrated media suite which is the hub for video production and streaming.

3.6.5 Fiber Overview



3.6.6 Intercom Systems

The production intercom central station in the Integrated Media Suite is designed to be used locally within the Integrated Media Suite for future use.

Primary Components and Terminology:

1. **Central Station:** The Integrated Media Suite is equipped with a Clear-Com Arcadia-X4-16P central management station. This Arcadia central station has been set up for: HelixNet for use locally. To connect to the Integrated Media Suite Arcadia unit, plug into the “PC LAN” switch and change your personal computer to a 10.0.10.xxx network. Next, type 10.0.10.083 into a web browser to discover the management portal for this Arcadia. When a login appears, use the following login info: (user: admin / password: #atkusc123). Please see the manufacturer’s user manual for more information on Arcadia capability, limitations, and routing.
2. **HelixNet:** HelixNet is a family of digital party-line intercom over a single data cable. HelixNet devices can have access of up to four (4) channels of intercom communications over this single data cable. Please see the manufacturer’s user manual for more information on specific devices.
3. **Theater Communication** – For production communication with either theater use a provided HelixNet unit and connect it to the production communication switch labeled “NMS-PCSW-01” in RACK-0-4-1. This will allow the user to activate channels from the Sanctuary theater space automatically. If they want to communicate with the Stop Gap Theater the end user will need to program the HelixNet station for routing from the Stop Gap Theater. See the Clear-Com Arcadia manual for more information on routing with HelixNet.

Tip: Do not forget to “Null” your system through Arcadia main menu once you have setup all intercom devices for your productions. Warning nulling is loud! Please make sure everyone is off of comms when nulling.

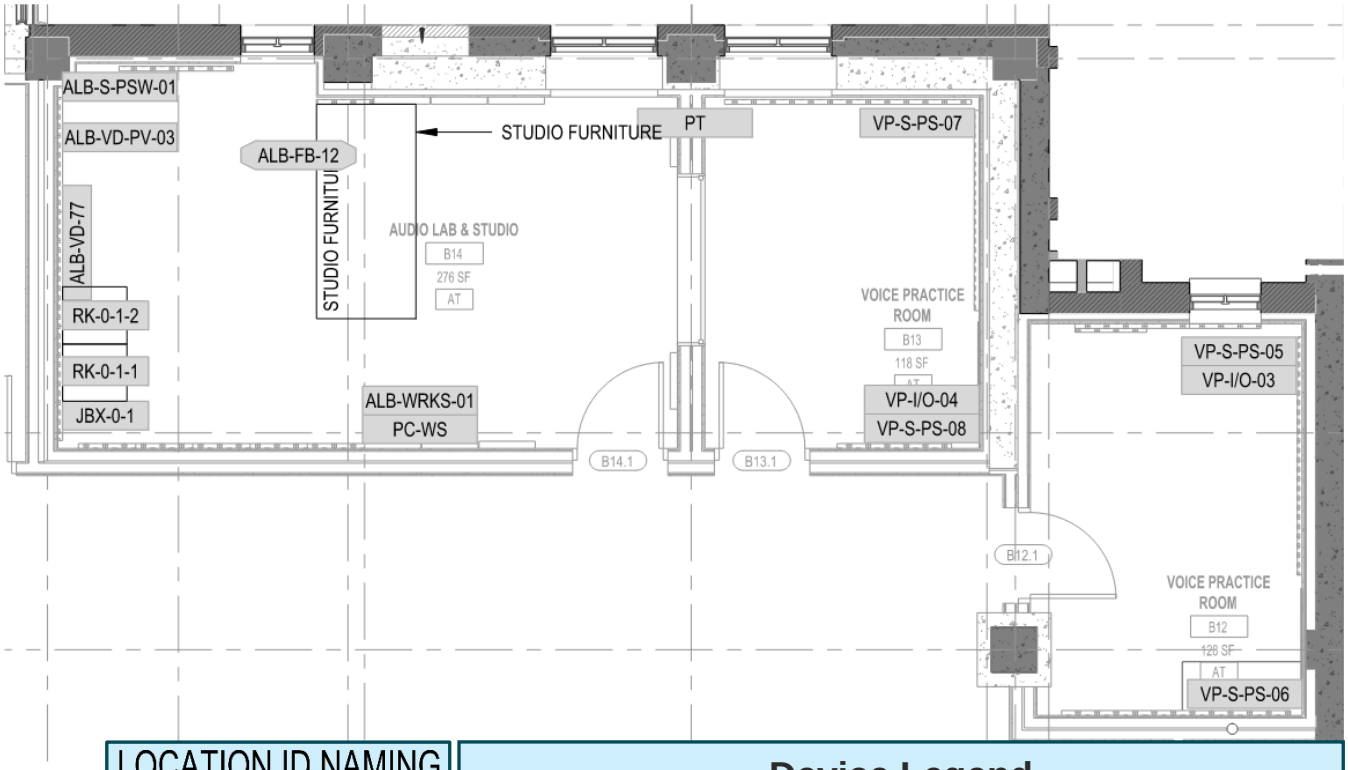
4. AUDIO LAB AV TECHNICAL DESCRIPTION

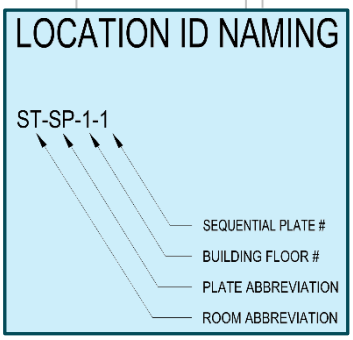
The Audio Lab is a space designed to be a localized classroom and a centralized hub for audio production between Sanctuary Theater, Stop Gap Theater, and Integrated (New) Media Suite. RACK-0-1-1 houses network switches along with multi-mode fiber patch bay that both ties these switches to the Stop Gap (Cabaret) Theater, Sanctuary (Studio) Theater, and Integrated (New) Media Suite. Local plates tie to RACK-0-1-2. Additionally, there is a data patch bay that ties eight data tie-lines to the Stop Gap Theater, Sanctuary Theater, and Integrated (New) Media Suite. This chapter will dive into the specifics of how the audio, video, and control systems are designed to facilitate the different facets of this space.

4.1 Venue Overview

Let us start with an overview of the floor and ceiling plans to orient you to the space from a bird's eye perspective. The next few pages will give you an understanding of important plate and device locations to notate.

4.1.1 Plate & Device Location & Description – Floorplan

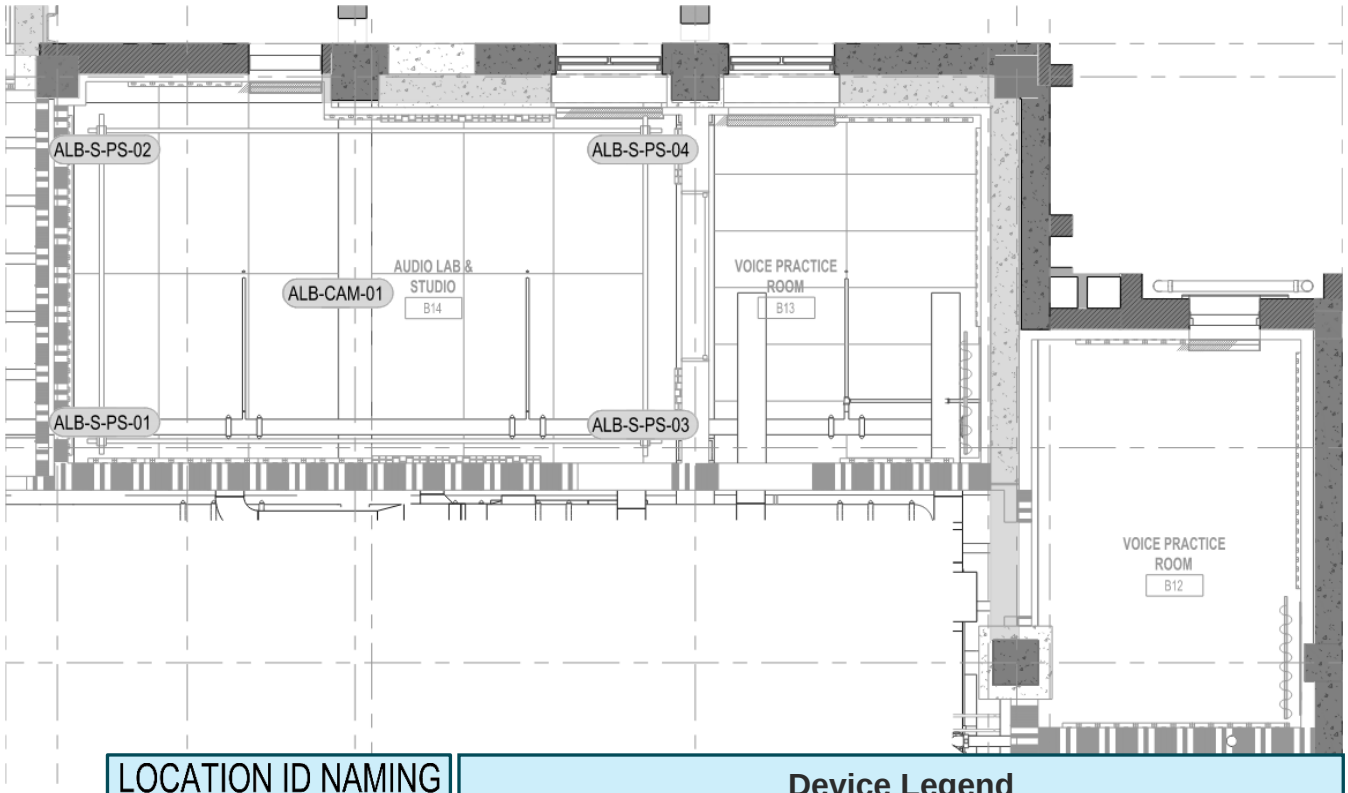


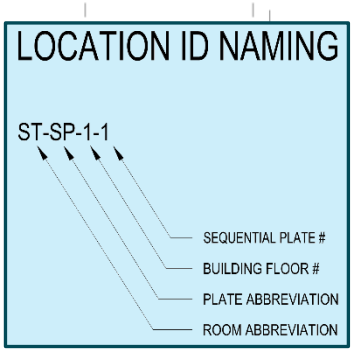


Device Legend

Location	Definition
ALB-S-PSW-#	Audio Lab – Powered Subwoofer #
ALB-FB-12	Audio Lab – Floor Box – Architectural Type 12
ALB-VD-77	Audio Lab – 77” Main Display
ALB-VD-PV	Audio Lab – 55” Display, Production Video
ALB-WRKS-01	Audio Lab – Workstation #1
JBX-0-1	Junction Box – Basement, Series #
RK-0-1-1	Audio Lab – AV Rack, Basement, Series #1-1
RK-0-1-2	Audio Lab – AV Rack, Basement, Series #1-2
PT	AV Pass Through from Voice Practice to Audio Lab
VP-I/O-#	Voice Practice – Input/Output Panel, Series #
VP-S-PS-#	Voice Practice – Powered Speaker, Series #

4.1.2 Plate & Device Location & Description – Reflected Ceiling Plan



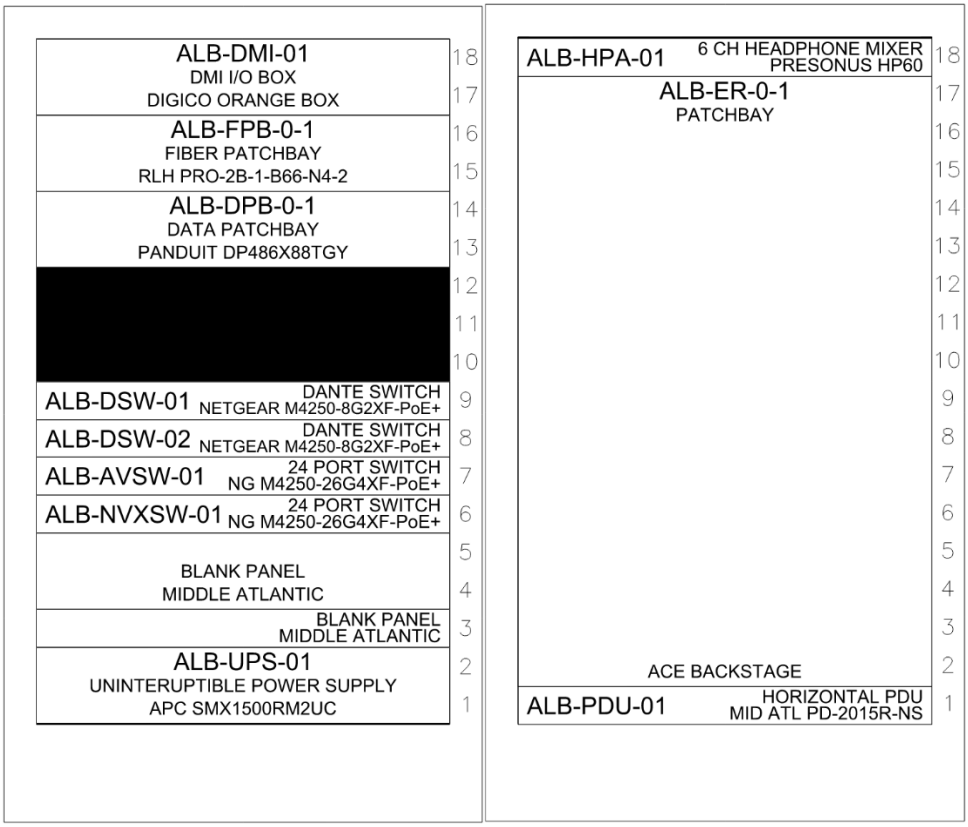


Device Legend

Location	Definition
ALB-CAM-01	Audio Lab – Camera, Series #1
ALB-S-PS-#	Audio Lab – Powered Speaker, Series #

4.2 Equipment Racks

Two (2) Volutone LR18U (18RU x 23.62” Depth) racks were provided for the Audio Lab as shown below.



4.2.1 Power Distribution and Sequencing

Each rack has a vertical power strip capable of sequenced power. These power strips modules were set to a constant “On” mode as power sequencing is not desired for devices within these racks. No power sequencing is active within this space.

4.2.2 Uninterruptible Power Supplies

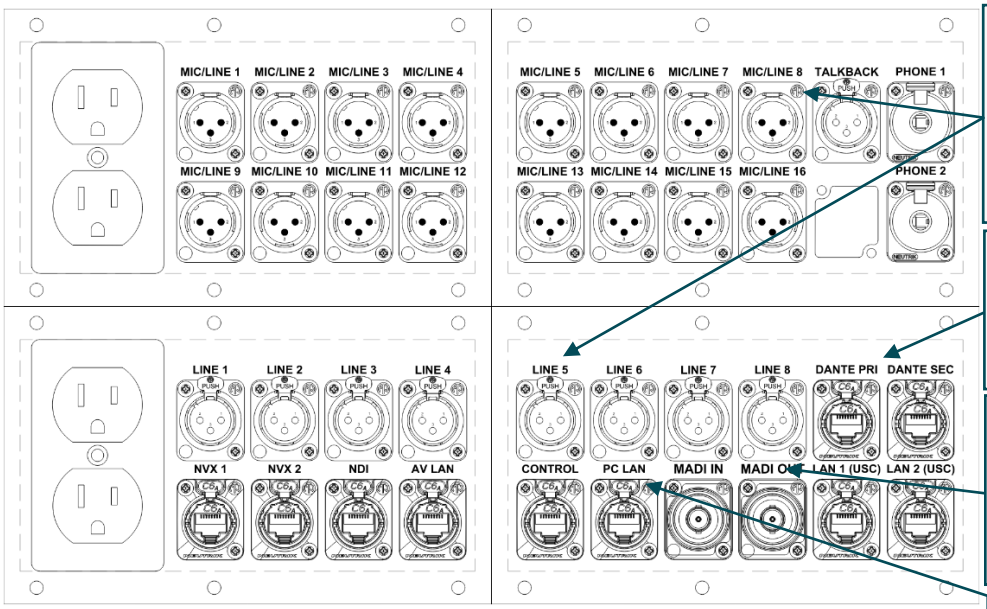
Each provided rack has a dedicated uninterruptable power supply (UPS) installed in the instance of a power outage to keep all critical equipment protected and online for a short duration of time.

4.3 Audio System

The audio system is comprised of audio input and output tie-lines to and from RACK-0-1-2, floor box, and workstation panel locations. There are speaker panels with a small variety of Meyer speakers to support this room and accommodate a variety of surround or zone formats.

4.3.1 I/O and Setup – Floor box

Below is the Audio Lab floor box (ALB-FB-12) and descriptions of audio connections.



Analog I/O - Mic/Line 1-16, Talkback, Phone 1/2, and Line (outs) 1-8 all tie back to the rack panel (ALB-RP-0-1) and are intended to support a local audio mixing console.

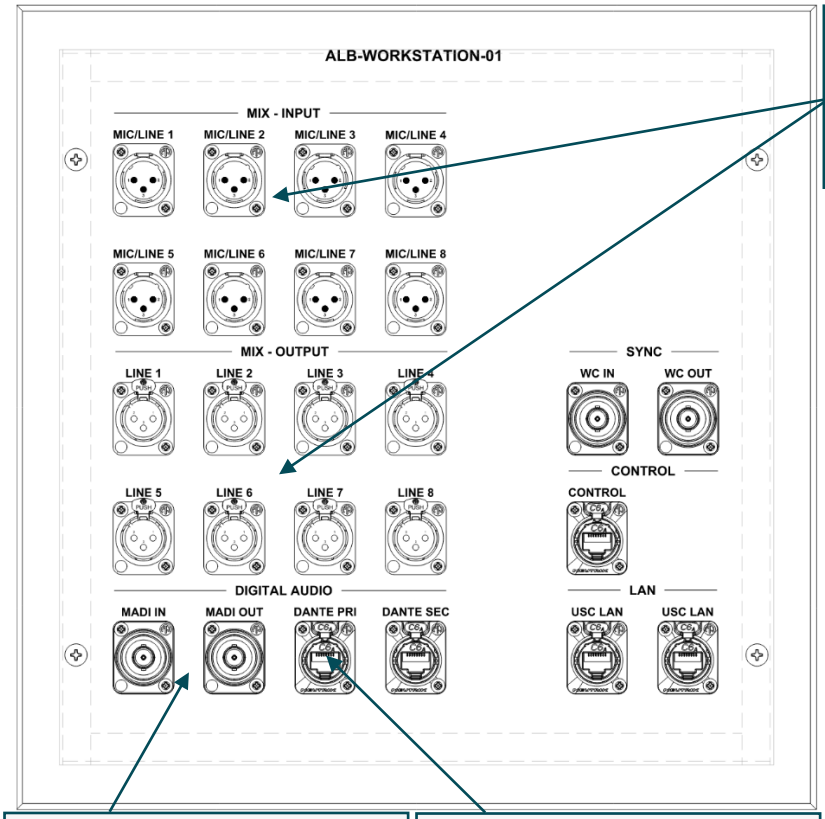
Dante – Are tie-lines from the floor box ALB-FB-12 location back to the rack panel (ALB-RP-0-1).

MADI I/O – Are tie-lines from the floor box ALB-FB-12 back to the rack panel (ALB-RP-0-1). Landing on the “Orange Box” MADI ports.

PC LAN – Connects from the floor box ALB-FB-12 back to the production communications switch in the Stop Gap Theater. PC LAN is tied across all spaces so the user has access to PC control and can add a HelixNet station to support this room.

4.3.2 I/O and Setup – Workstation

Below is the Audio Lab workstation (ALB-WRKS-01) and descriptions of each audio type.

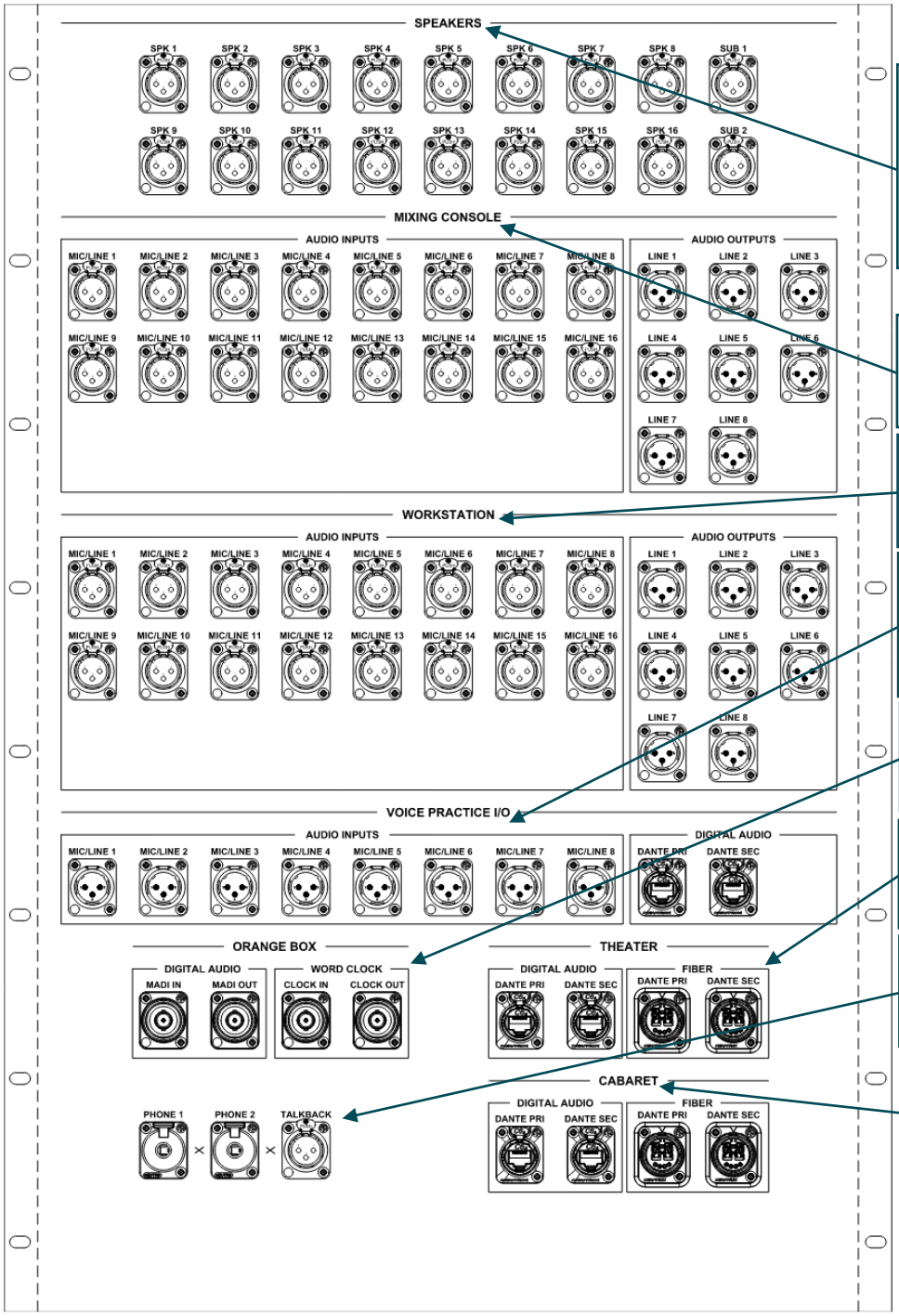


Analog I/O - Mic/Line 1-8, and Line (outs) 1-8 all tie back to the rack panel (ALB-RP-0-1) and are intended to support a local workstation.

MADI I/O – Are tie-lines from the workstation back to the rack landing on the “Orange Box” MADI ports.

Dante – Are tie-lines from the floor box ALB-FB-12 location back to the rack panel (ALB-RP-0-1).

4.3.3 Rack Panels & Patching



SPEAKERS – Tie to the ceiling mounted ALB-S-PS-# panels and wall mounted ALB-S-PSW-# subwoofer panel. See Clair drawing X8.107 for exact breakdown.

MIXING CONSOLE – Are tie-lines from the floor box ALB-FB-12 location.

WORKSTATION – Are tie-lines from the workstation ALB-WRKS-01 plate location.

VOICE PRACTICE I/O – Are tie-lines from the nearest Voice Practice Room (B13) located behind the Audio Lab.

ORANGE BOX – Are tie-lines from the DigiCo Orange Box located in RACK-0-1-1

THEATER – Are direct Dante tie-lines from the Sanctuary Theater.

Phones & Talkback – Are tie-lines from the ALB-FB-12 to the rack.

CABARET – Are direct Dante tie-lines from the Stop Gap (Cabaret) Theater.

4.3.4 Mixing & Recording

Mixing in the Audio Lab would start with the provided DiGiCo SD10 console connecting to the ALB-FB-12 floor box with analog I/O, Dante (Primary), or Madi I/O. The floor box analog lines directly tie to the local RACK-0-1-1 for I/O that can be interconnected from your console.

The Dante primary connection from this floor box gives you access to 64x64 Dante routable I/O connections to/from either theater over the local Dante Primary switch. The Integrated Media Suite can be tied in with patching across data tie-lines only. Your DiGiCo SD10 console uses **M**ultichannel **A**udio **D**igital **I**nterface (MADI) for digital audio transport and will need to convert to Dante over the provided DiGiCo Orange Box cross-converter to send/receive audio to/from any of the dramatic arts building production spaces.

Meyer speakers within the Audio Lab connect using analog patching on RACK-0-1-1 from “MIXING CONSOLE / AUDIO OUTPUTS” section to the “SPEAKERS” section. For more information on the DiGiCo SD10, please refer to the manufacture’s owner’s manual for operational details on this console.

Playback options:

1. USB - Console USB playback.
2. Dante - Device/PC Dante playback from Device/DAW (Dante Virtual Soundcard) to Dante network converts over DiGiCo Orange Box to DiGiCo Console (Madi).
3. Analog or AES/EBU – Device/PC playback through Apogee Symphony I/O MKII to your console I/O.
4. Madi – Madi Device to Console.

Recording options:

1. USB - Console USB recording.
2. Dante - Device/PC Dante recording from DiGiCo Console (Madi) to DiGiCo Orange Box converts to Dante to get into Device/DAW (Dante Virtual Soundcard).
3. Analog or AES/EBU – Device/PC playback through Apogee Symphony I/O MKII to your console I/O.
4. Madi – Madi Device to Console.

4.3.5 Audio Network Routing

Use your Dante Primary network with Dante Controller software to route audio signals to and from Dante based source and destinations on the Dante Primary network. This includes wireless mics, digital I/O stage boxes, consoles, amplifiers, digital signal processors (DSP) and more. It is recommended to digitally label all inputs and outputs in Dante for ease of use. Be mindful re-labeling in Dante Controller will erase your patching from devices within Dante. Secondarily, audio for video routing is routed through NVX director. See the NVX video section in this manual for more details on this routing, setup, audio em-bedding and de-embedding.

4.4 Video System

The video system for the Audio Lab is designed to support the localized room and provide capability to view the remote theater production program video feeds.

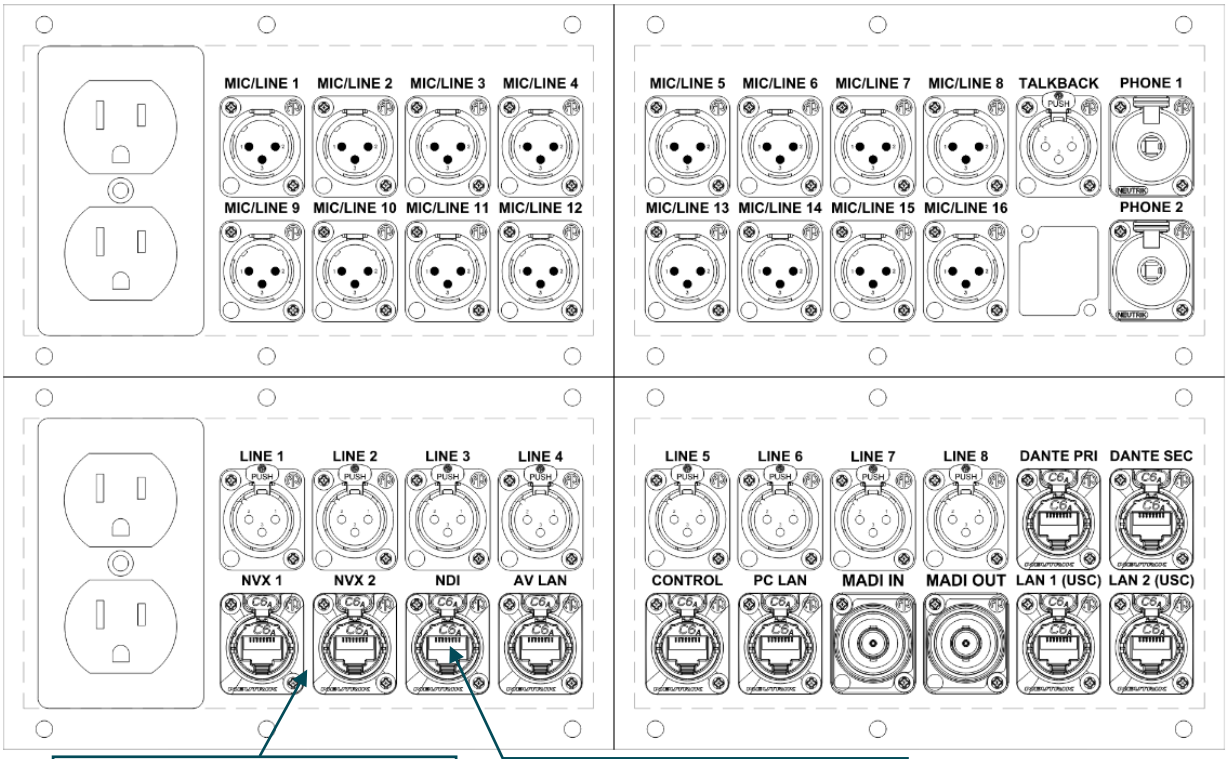
Primary Components and Terminology:

1. **Network Encoding:** Crestron network video protocol (NVX) is used to encode HDMI video onto the network with Crestron DM-NVX-E30 or DM-NVX-363C encoders *(Note: This is shared equipment amongst facility)*.
2. **Network Decoding:** Crestron network video protocol (NVX) is used to decode HDMI video onto the network with Crestron DM-NVX-D30 or DM-NVX-363C decoders *(Note: This is shared equipment amongst facility)*.
3. **Network Switches:** The NVX & NDI video networks are comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Stop Gap, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports.
4. **SDI Transmitters:** Four (4) AJA 12G-SDI (FIDO-T-12G-ST) single-mode fiber converters were provided to transmit 12G-SDI down to the integrated media suite via fiber patch bays from either theater *(Note: This is shared equipment amongst facility)*.
5. **SDI Receivers:** Four (4) AJA 12G-SDI (FIDO-R-12G-ST) single-mode fiber receiver converters were provided to receive 12G-SDI down in the integrated media suite via fiber patch bays from either theater *(Note: This is shared equipment amongst facility)*.
6. **SDI Audio Breakout:** Five (5) 12G-SDI audio embedders / dis-embedders were provided to allow for audio embedding and/or dis-embedding to and from SDI with analog and/or AES/EBU audio *(Note: This is shared equipment amongst facility)*.
7. **Cameras:** No cameras were provided for this space though this space can receive signal from either theater via NVX network or fiber tie-lines. No camera controller was specified specifically for this room but could be borrowed from either theater or setup to control either theater space over the NMS-NVXSW-01 switch.
8. **Video Switcher/Router:** No video switcher or router was provided at this time for this space. This was planned as a future item.

Note: Equipment above is part of the building package and is shown in the other sections of this manual.

4.4.1 I/O and Setup – Floor box

Below is the Audio Lab floor box (ALB-FB-12) and descriptions of each video connection.



NVX 1/2 – Connect from the floor box ALB-FB-12 back to the local NVX (ALB-NVXSW-01) switch. Providing Crestron NVX encoder support for the local computer and NVX control access.

NDI – Connects from the floor box ALB-FB-12 back to the NDI switch in Stop Gap Theater. Providing future NDI support to this space.

4.4.2 I/O and Setup – Workstation

No video connections exist at the workstation panel.

4.4.3 Patching

NVX patching can occur at the floor box or directly at the NVX switch (ALB-NVXSW-01) in RACK-0-1-1.

4.4.4 PTZ Camera & Control

The Audio Lab has been outfitted with a Panasonic AW-UE80WPJ 4K-NDI camera which connects via HDMI to a dedicated Crestron DM-NVX-E30 encoder. This encoder is available for source selection to either display through your local Crestron 10” touch panel. Additionally, this room was provided a Panasonic AW-RP150 camera controller that allows the user to make presets, or use pan, tilt, zoom functionality as needed to setup your camera into position for training.

4.4.5 Networked Video (NVX & HDMI)

Connect PC or devices over HDMI to provided Crestron DM-NVX-E30 (ALB-ENC-02 or ALB-NVX-03) encoder and connect encoder to the NVX ports in the ALB-FB-12 floor box to access control of these video sources over your control system touch panel (see control section for details on control). Once encoders are connected to any NVX port these sources will be routable to either display through the Crestron touch panel.

4.4.6 Recording

No video recording is capable for this room at this time. A Crestron HDMI decoder could be added in the future to record the local camera feed.

4.5 Control System

The control system for the Audio Lab is designed to support only the local room displays.

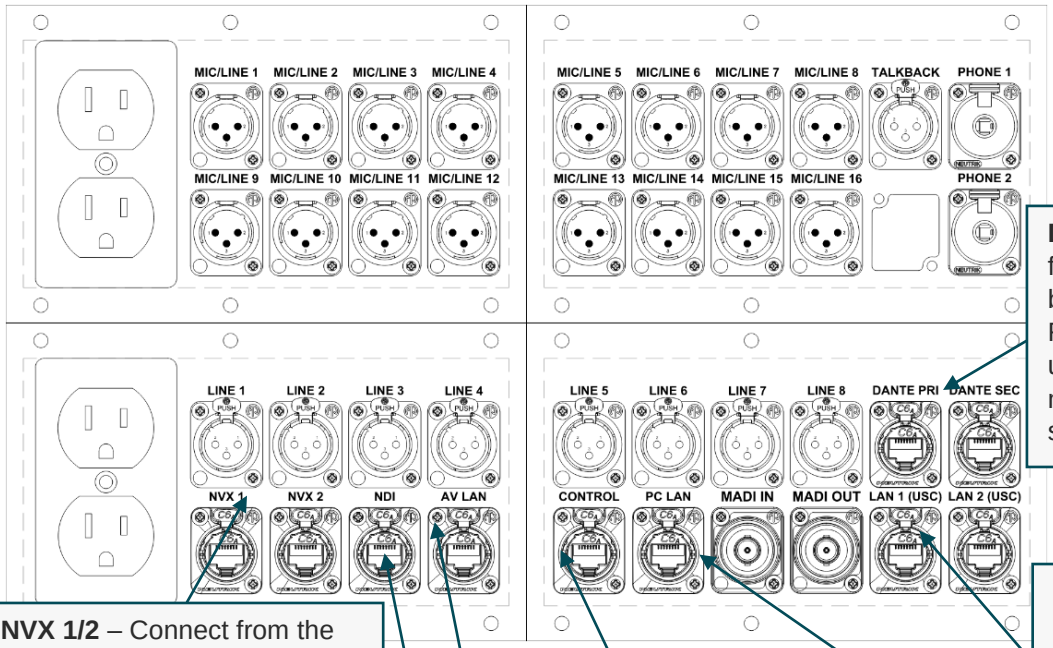
Primary Components and Terminology:

1. **Touch Panel:** One (1) 10” Crestron touch panel located on top of RACK-0-1-1 is used to control local display source selection and power on/off.
2. **Controller:** The main Crestron controller (CP4) is located in the Sanctuary Theater RACK-2-2 and is the device managing all control code for the Audio Lab. It is critical for this device to stay online in order to maintain device and touch panel control.
3. **Control Network Switches:** The control network is comprised of Netgear M4250 & M4300 series AV specific switches and can interconnect to Sanctuary Theater, Stop Gap, Integrated Media Suite, and the Audio Lab over provided multi-mode fiber paths and specified SFP ports. Any port labeled Control, AV LAN, or NVX can be used as a control port to engage a touch panel or AV control through another device.

Tip: Touch panels should be used for turning on/off displays when possible. If a user uses a local display remote it is possible the system can get out of sync with the on/off functionality which could require you to cycle from the touch panel the display to off state and then back to the on state to regain sync.

4.5.1 I/O and Setup – Floor box

Below is the Audio Lab floor box (ALB-FB-12) and descriptions of each control type.



Dante – Are tie-lines from the floor box ALB-FB-12 location back to the rack panel (ALB-RP-0-1). This port can also be used to access routing and monitoring in Dante Controller software.

LAN 1/2 (USC) – Are tie-lines from the floor box ALB-FB-12 back to the USC IT Room allowing for internet and hardline IT connection.

PC LAN – Connects from the floor box ALB-FB-12 back to the production communications switch in the Stop Gap Theater. PC LAN is tied across all spaces so the user has access to PC control and can add a HelixNet station to support this room.

NVX 1/2 – Connect from the floor box ALB-FB-12 back to the local NVX (ALB-NVXSW-01) switch. Providing Crestron NVX encoder support for the local computer and camera.

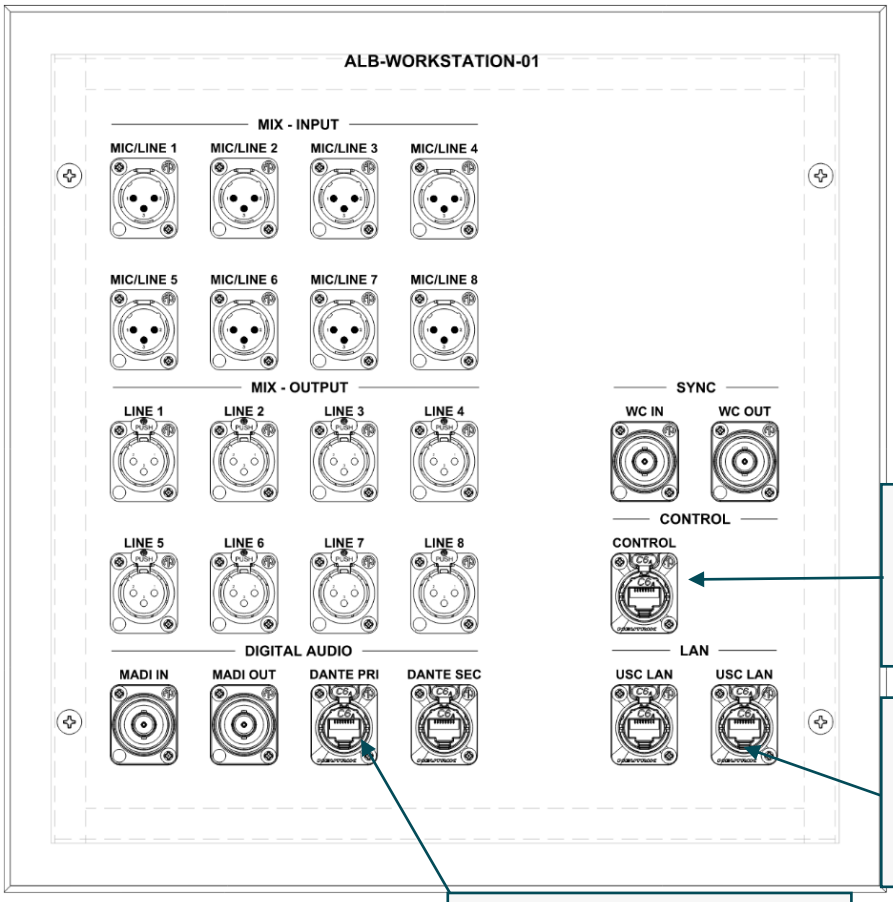
NDI – Connects from the floor box ALB-FB-12 back to the NDI switch in Stop Gap Theater. Providing future NDI support to this space.

AV LAN – Connects from the floor box ALB-FB-12 back to the local NVX switch (ALB-AVSW-01).To be used for general AV device software control.

CONTROL – Connects from the floor box ALB-FB-12 back to the local NVX switch (ALB-AVSW-01) intended for Crestron touch panel control.

4.5.2 I/O and Setup – Workstation

Below is the Audio Lab workstation (ALB-WRKS-01) and descriptions of each control type.

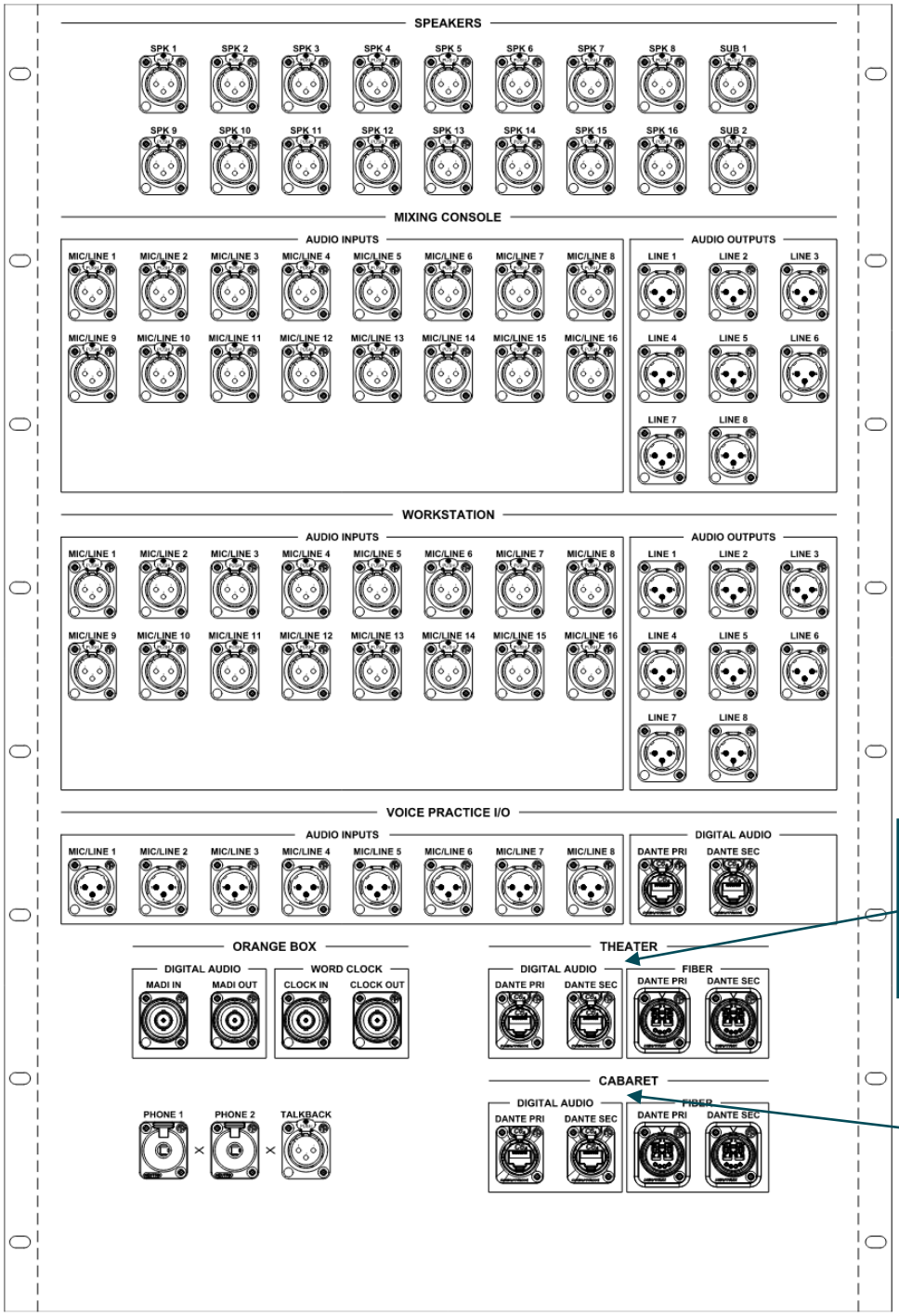


CONTROL – Connects from the floor box ALB-FB-12 back to the local NVX switch (ALB-AVSW-01) intended for Crestron touch panel control.

LAN 1/2 (USC) – Are tie-lines from the floor box ALB-FB-12 back to the USC IT Room allowing for internet and hardline IT connection.

Dante – Are tie-lines from the floor box ALB-FB-12 location back to the rack panel (ALB-RP-0-1). This port can also be used to access routing and monitoring in Dante Controller software.

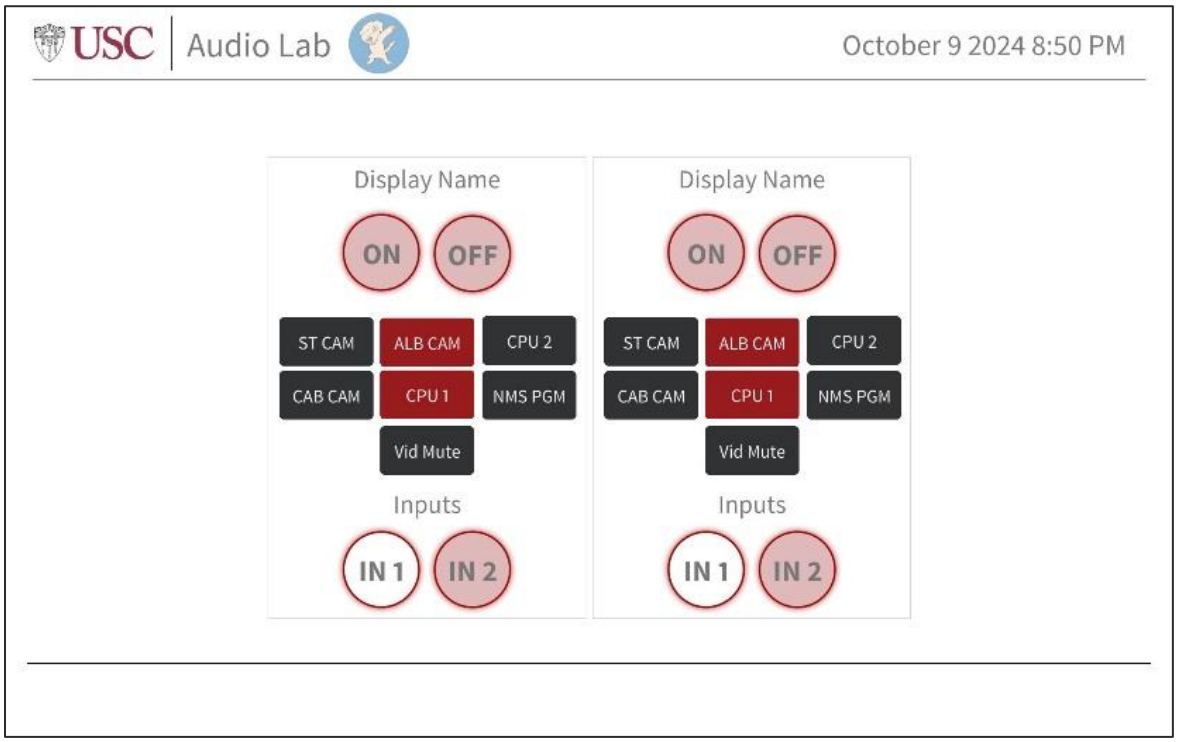
4.5.3 Rack Panels & Patching



THEATER – Are direct Dante tie-lines from the Sanctuary Theater and can be used for audio/control access of Dante from the Sanctuary Theater.

CABARET – Are direct Dante tie-lines from the Stop Gap (Cabaret) Theater and can be used for control access of Dante in the Stop Gap (Cabaret) Theater.

4.5.4 Touch Panel Layout & Function



MAIN PAGE

Main Page

- **Display Power** – Power on and off display.
- **Display Inputs** – 'IN1' to view local sources available from the source selects. 'IN 2' is a feed from IT when available.
- **Source Select:**
  - **ST CAM** – Sanctuary Theater camera feed.
  - **CAB CAM** – Stop Gap Theater camera feed.
  - **ALB CAM** – Audio Lab camera feed.
  - **CPU 1 / CPU 2** – Local PCs.
  - **NMS PGM** – NMS (Integrated Media Suite) Crestron encoder, available when plugged into the wall plate with a source plugged in.
  - **Video Mute** – Screen blanking.

4.6 Network Systems

The network systems in the Audio Lab are designed to be robust and custom configured for specific your specific AV network protocols. Be mindful, bridging networks and/or introducing a non-configured switch into this ecosystem can cause network issues or even crash your entire network. It is recommended to use only the switches provided, if more switches are needed, please contact Clair for assistance with proper configuration.

4.6.1 Network Switches

Each AV switch in the Dramatic Arts Building is dedicated across all the access ports and has an abbreviated acronym switch name. For example: ALB-DSW-01 is our acronym for “Audio Lab Dante Switch #1” (see below for acronyms list).

Netgear AV Series M4250 and M4300 switches were used in the DAB AV installation. These are considered the premiere switch models for the AV industry currently and have user friendly interfaces for AV configuration. These switches are programmed beyond that user friendly interface to adhere to strict Crestron and Audinate Dante recommendations.

Switch Acronyms:

Acronym	Name	Function
ALB-AVSW-01	Audio Lab AV Lan Switch #1	NVX, AV LAN, Control
ALB-DSW-01	Audio Lab Dante Primary Switch #1	Dante Primary, Dante/Yamaha Control
ALB-DSW-02	Audio Lab Dante Primary Switch #2	Dante Secondary
ALB-NVXSW-01	Audio Lab NVX Switch #1	NVX, AV LAN, Control

4.6.2 Network Patching

All network types tie directly to the switches directly in the Stop Gap Theater. To activate any device on a network type, plug your device or computer into your available system type data port. Additionally, a data tie-line patch bay labeled C-DPB-0-3 in the Stop Gap Theater ties to Sanctuary Theater, Audio Lab, and Integrated Media Suite with eight (8) CAT6A tie lines for each.

4.6.3 Network Types & Functions

Dante Network/s: Dante is an acronym for **D**igital **A**udio **N**etwork **T**hrough **E**thernet, an Audinate based audio connectivity standard that enables audio-based media systems to identify and communicate with one another over IP and to encode, transmit, and receive high- quality 48k/96k sample rate and 24-bit or 32-bit depth, extremely low latency audio over network.

There are two (2) Dante networks running in the Audio Lab on switches ALB-DSW-01 (Primary) and ALB-DSW-02 (Secondary). The primary network is commonly used by itself and can run your audio system without a secondary patch needed. If redundancy is desired, a secondary Dante network is available for use. Proper configuration of all devices to “Redundant Mode” with device reboots must be set before proceeding with secondary patching. Failure to do so, will result in the Dante primary network crashing as devices are commonly set in “Daisy Chain” mode by default and currently set as such as requested from the school staff. This mode acts as two (2) primary ports instead of primary and secondary which is what most devices are labeled as.

Additionally, we have a multi-mode LC fiber patch bay system available to patch Studio Theater, Stop Gap Theater, and Integrated Media Suite together as a broader Dante network. Configuration on switch trunk ports is already set for this link. This network is set to auto-config or link local, so devices are plug & play for Dante. Being that there is no DHCP router these devices will default to a 169.254.xxx.xxx/16 address and be accessible in Dante controller. One thing to note is that devices that needed control from Crestron are statically assigned in this link local space as 169.254.0.xxx/16 this way they are always at the same IP and can be found for control purposes.

NVX, AV, and Control Network: NVX stands for Network Video Interface, a Crestron based video connectivity standard that enables HDMI based multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video, audio, and USB communication. The NVX, AV, and Control network in Sanctuary Theater is your main network for Crestron NVX video, AV system control, and hardware access over LAN.

This network has been programmed with strict Crestron NVX protocol requirements to maintain success with the complex nature of NVX multicast traffic, prioritization of traffic, and removal of efficiency Ethernet to name a few specifics. This network has a DHCP router handing out addresses from the IP scheme 10.0.xxx.xxx/20 (4094 address capable) network. This large address range allows us to bridge the entire DAB if needed for all NVX and AV control. As mentioned above there are multi-mode LC fiber patch bays tying Audio Lab, Integrated Media Suite, and Stop Gap Theater to the overall NVX and AV Control network.

Management Network: The last access port for every switch is programmed as a management port accessing the virtual local area network (VLAN) this exists on all switches so that programmers can manage the connected switches from a centralized switch location. To manage switches, get on any management port and change your IP to the management IP schema and with your computer point to any management switch IP address using a web browser. Then enter the following login: User: “admin” / Password: “#atkusc123”.

NDI Network: NDI stands for Network Device Interface, a video connectivity standard that enables multimedia systems to identify and communicate with one another over IP and to encode, transmit, and receive high-quality, low latency, frame-accurate video and audio, and exchange metadata in real-time.

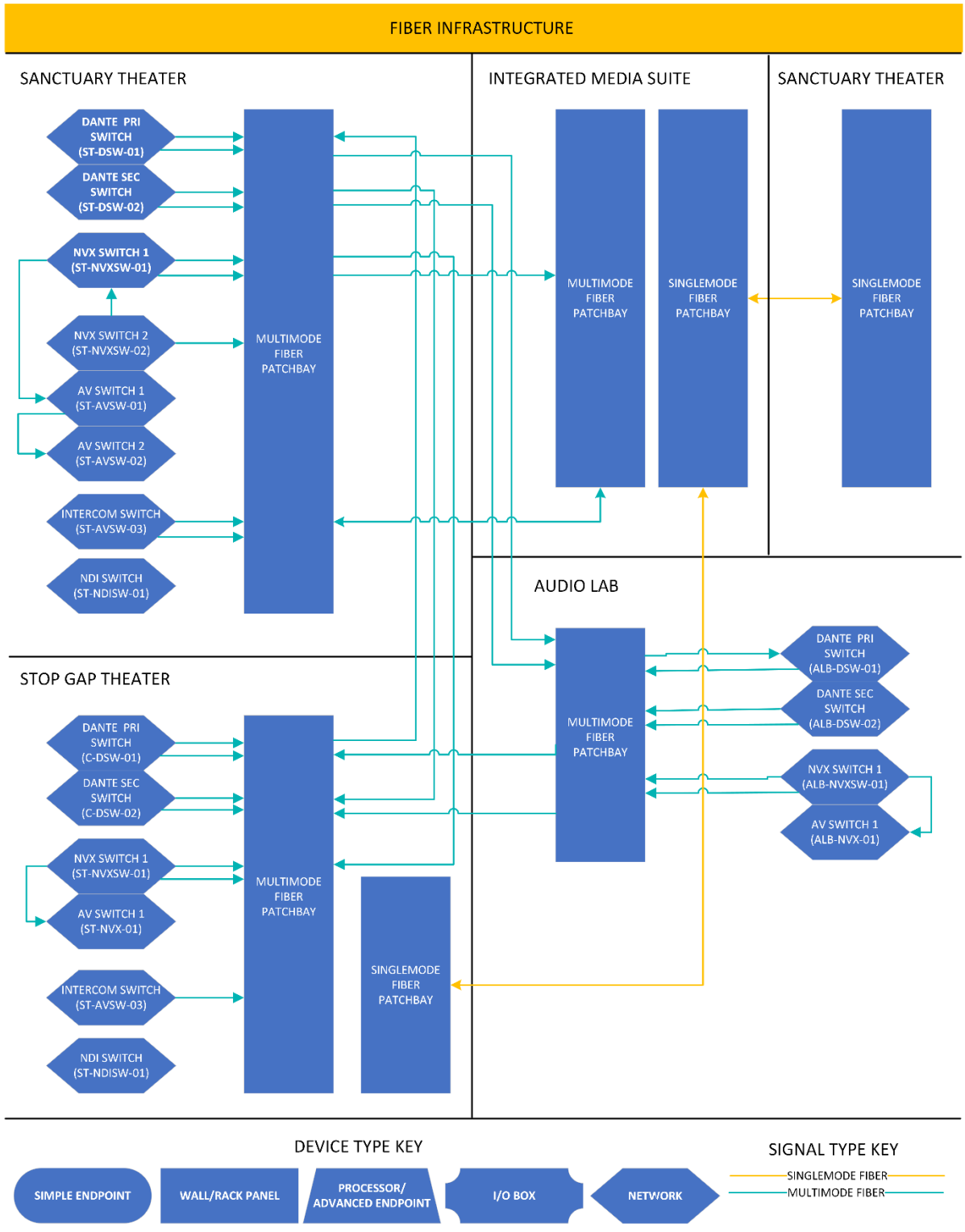
Tip: When someone lists an IP address followed by Classless Inter-Domain Routing (CIDR) reference “10.0.xxx.xxx/20” it is a quick reference to the subnet size being used in this case /20 (4094 available addresses) in your NVX/Control network or /16 (65534 available addresses) in your Dante network.

4.6.4 Fiber Infrastructure

The Audio Lab has a fiber tie-line system. A multi-mode LC based fiber tie-line system that ties the Sanctuary Theater, Cabaret, Audio Lab, and Integrated Media Suite together. The primary purpose of this multi-mode fiber is to tie each switch type together with fiber trunks connected via their SFP/+ trunk ports.

4.6.5 Fiber Overview

Below is a flow chart diagram to understand the overall flow of your fiber systems.



4.6.6 Intercom Systems

The production intercom central station in the Audio Lab system is designed to be used locally within the Audio Lab for future use.

Primary Components and Terminology:

1. **Central Station:** Central stations only exist in the main theater spaces for isolated communication of each theater.
2. **HelixNet:** HelixNet is a family of digital party-line intercom over a single data cable. HelixNet devices can have access of up to four (4) channels of intercom communications over this single data cable. Please see the manufacturer's user manual for more information on specific devices.
3. **Theater Communication** – For production communication with either theater from the Audio Lab use a provided HelixNet unit or patch into either the workstation PC LAN port or the floor box PC LAN port. This will allow the user to activate channels from the Sanctuary theater space automatically. If they want to communicate with the Stop Gap Theater the end user will need to program the HelixNet station for routing from the Stop Gap Theater. See the Clear-Com Arcadia manual for more information on routing with HelixNet.

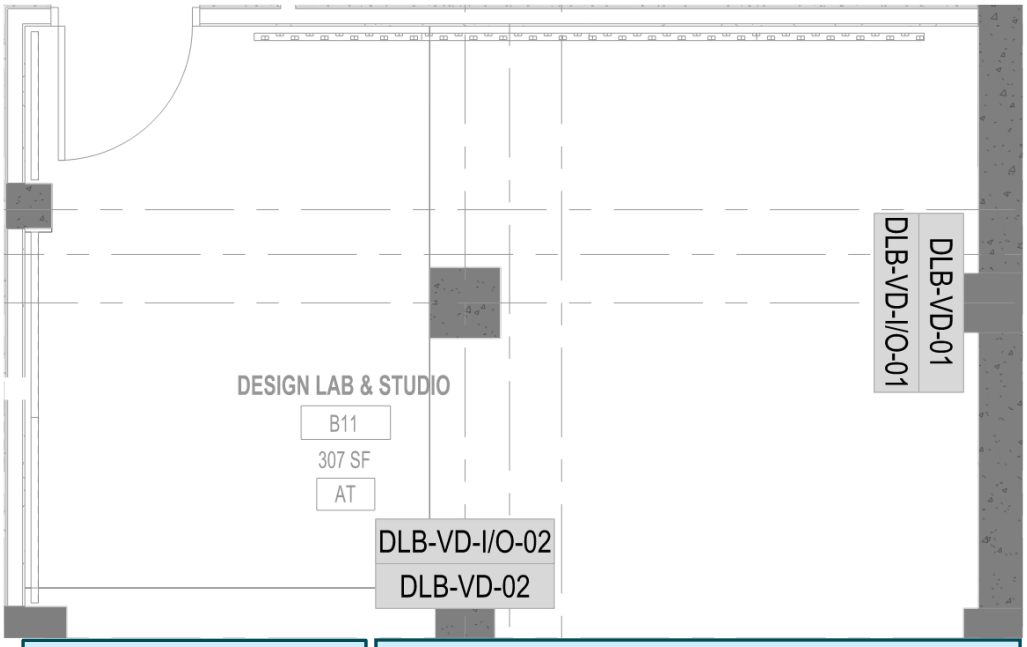
Tip: Do not forget to "Null" your system through Arcadia main menu once you have setup all intercom devices for your productions. Warning nulling is loud! Please make sure everyone is off of comms when nulling.

5. DESIGN LAB AV TECHNICAL DESCRIPTION

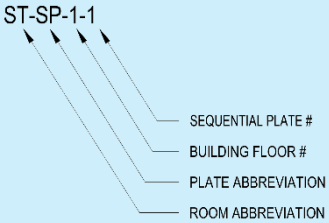
The Design Lab is a space designed to be a localized classroom. This chapter will dive into the specifics of how the audio and video systems are designed to facilitate this space.

5.1 Venue Overview

Let us start with an overview of the floor and ceiling plans to orient you to the space from a bird's eye perspective. The next few pages will give you an understanding of important plate and device locations to notate.



LOCATION ID NAMING

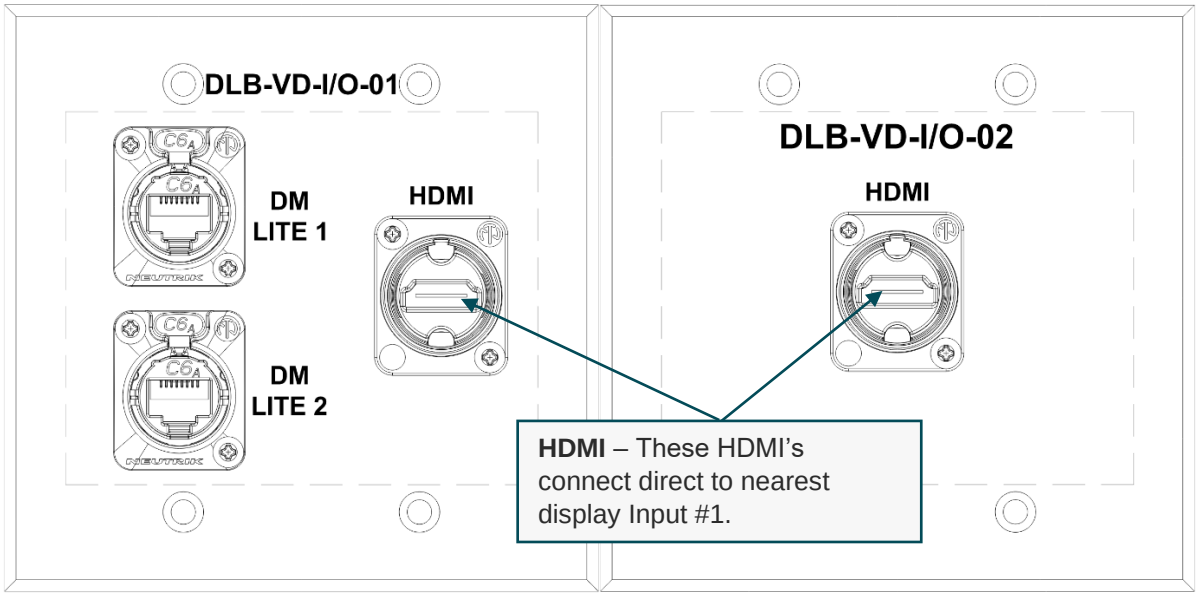


Device Legend

Location	Definition
DLB-VD-I/O-#	Design Lab, Video Display I/O Panel, Series #
DLB-VD-#	Design Lab, Video Display, Series #

5.1.1 System Use

The Design Lab connects two ways to the local displays. The first way would be for the user to turn on displays from the remote, select input 1 on either display from the display remote and simply connect with an HDMI to the nearest I/O panel local to that display.



The second way allows the user to share content to both displays. The user would need to turn on the displays from remote and select input 2 on both displays then simply connect using the provided HDMI connected to the Crestron HD-PS402 matrix switcher and then select your preferred routing of input to both outputs.

6. MAINTENANCE & SUPPORT

Routine maintenance for an audio-video system in a theater is essential for ensuring optimal performance and longevity. Follow this detailed, step-by-step guide to perform routine maintenance tasks and keep your AV system in top condition.

6.1 Monthly Maintenance Routine

1. **Dusting and Cleaning**

Regular dusting and cleaning will help prevent dust buildup, which can affect the performance of your AV equipment.

- **Power Down:** Turn off your AV devices or system and unplug all the equipment from the power source for safety.
- **Dust Removal:** Using a soft dry microfiber cloth, gently wipe the surfaces of your AV equipment, including speakers, displays, and amplifiers. Pay attention to vents, buttons, and knobs. Vacuum around and carefully within equipment racks and air vents.
- **Screen Cleaning:** Ensure display screens are cleaned regularly. Use manufacturer's recommendation cleaning process, products, and procedures. Be aware some projection screens are textured and require a specific manufacture required method for cleaning.
- **Air Vent and Fan Cleaning:** Use a soft brush or compressed air to clean air vents and ensure proper ventilation for your AV equipment. Try not to over spin equipment fans.
- **Air Purification:** Using an air purifier in rack rooms can minimize airborne dust particles. This helps reduce the amount of dust that settles on your equipment.
- **Proper Storage:** When not in use, cover your AV equipment with dust covers or store it in enclosed cabinets or road cases to shield them from dust and debris.
- **Microphone Cleaning:** Use disinfectant wipes to clean microphone grills every use. Refer to the manufacturer's manual for deeper cleaning or replacement of internal foam behind grills.

2. **Proper Ventilation**

   Ensuring proper ventilation for your AV equipment is crucial for preventing overheating and maximizing performance. Implement the following practices for adequate airflow:

   - **Equipment Placement**: Position your AV equipment in well-ventilated areas, away from heat sources like radiators or direct sunlight.
   - **Open Spaces:** Leave sufficient space around the equipment to allow for proper airflow. Avoid crowding devices together, which can impede ventilation.
   - **Cooling Solutions:** Use building A/C to maintain a cool 68–70-degree rack room temperature to extend the life of your equipment.

3. **Connection Check**

   Verifying connections ensures that all components are properly connected, preventing any audio or video issues.

   - **Cable Organization:** Organize, manage, and secure cables with Velcro or trick line to minimize tangling and ensure a clean setup.
   - **Label Review:** Check the labels on cables and confirm that each connection matches its corresponding input/output. Temporary labels for productions may help with troubleshooting.
   - **Secure Connections:** Make sure all cables are securely plugged into their respective ports. Gently wiggle the connectors to ensure a snug fit.
   - **Input/Output Selection:** Verify that your AV system is set to the correct input/output patching paths for each connected device.
   - **Functionality Checks:** Run through functionality system checks prior to rehearsals or productions.

4. **Inspection and Maintenance**

   - **Rigging Maintenance:** Inspect ALL rigging hardware for structural integrity. Any signs of stress cracks, fractures, bending, tears, or deformity should be replaced immediately or consult manufacturer for repair. Verify all rigging attachments are secure and secondary safety cables are being used on all hung devices.
   - **Speaker Maintenance:** Inspect speaker grills are not missing any screws and are fully secure. Dented or heavily scratched grills can be repaired by the owner or replaced by a manufacturer's dealer (AV Vendor). Check for loose or damaged speaker box connections and determine if speaker needs to be sent in for repair for power, XLR, or NL4 connections.

6.2 Yearly Maintenance Routine

1. **Professional Inspection**
   - Schedule a professional technician to conduct a thorough inspection.
   - Perform detailed checks of all components, including amplifiers and processors.
2. **System Updates**
   - Review and update the overall system design based on new technologies.
   - Plan for any necessary upgrades or expansions.
3. **Training Sessions**
   - Conduct training for staff on equipment usage and basic troubleshooting.
   - Review emergency protocols related to AV equipment failure.
4. **Software & Firmware Updates**

Updating software & firmware for your AV equipment can keep you up to date with the latest features, bug fixes, performance improvements, and added functionality. Check firmware and computer software updates regularly for all AV equipment. It is recommended to update only when there is ample time to do so and not before an important event. Be aware of not adopting major firmware or software revisions early.

- **Backup Configurations:** Before performing updates, back up your AV system configuration files to restore them just in case any issues occur during the update process.
- **Manufacturer's Website:** Visit the manufacturer's website to check for software or firmware updates specifically designed for each AV specific device.
- **Download Instructions:** Follow the manufacturer’s instructions verbatim for firmware updates. Download the firmware update file and follow manufacture’s step by step procedure.
- **Update Process:** Update processes will vary, but make sure your computer and device will not shut off or go to sleep during the update process. Loss of power during this process can be detrimental to your AV hardware device and may require the manufacturer to repair.
- **Confirmation:** Once the update is complete, verify that the firmware version matches the latest release.

5. System Check and Verification

Testing your AV system after maintenance ensures everything is functioning correctly and allows you to address any potential issues promptly.

- **Inventory Management:** Take inventory of all AV equipment and accessories. Assess the need for any replacements or upgrades.
- **Power:** Verify all devices are powered up, test power sequencing, verify all power plugs have secure connections, verify uninterruptable power supplies (UPS's) are working as intended, and replace batteries per manufacturers specification or as needed.
- **Audio Check:** Test audio content from all important source devices (Console, digital I/O boxes, plates, and paging system. Check for latency in system, Dante, or software programs. Next, test all speakers with a sine wave sweep generator at low level and verify your speaker can reproduce frequencies across the 80Hz to 20kHz spectrum or according to its specifications. Conduct a full system patching and routing test, passing audio to all inputs and outputs of your system.
- **Video Check:** Play video content on all destination devices and check for any visual abnormalities, such as distorted images, burn-in images, ghosting, sparkles in your image, noise, extreme compression, color inconsistencies, or dimming. Conduct a full system patching and routing test passing audio to all inputs and outputs.
- **Intercom Check:** Conduct a full system patching and routing test with all devices. Passing two-way communication audio to all inputs and outputs under maximum device load. The central controller and transceivers have maximum device limits for most devices. Read the manufactures manual for specifics on how to calculate.
- **Device Inspection:** Regularly verify devices are in working order. If damaged under warranties contact Clair to facilitate a warranty repair. If you are out of your device warranty you can talk to our support department about options for repair or replacement.
- **System Audits:** Check power sequencing, UPS backup systems, fire alarm muting, device status after a power outage, and Dante redundancy (if used).
- **Re-Calibrate:** Use calibration tools or professional services to re-optimize audio and video settings for your systems as needed.

6. **Rack Maintenance**

- **Regular Cleaning**: Dust the exterior and use compressed air to blow out interior components to prevent overheating and maintain performance. Use a soft, dry cloth and avoid liquid cleaners. Avoid spinning device fans when using compressed air.
- **Cable Management**: Organize new cables with Velcro to prevent tangling and reduce strain on connectors.
- **Check Connections**: Periodically inspect and tighten all connections to ensure optimal performance and prevent signal loss.
- **Ventilation**: Ensure adequate airflow around and above the rack to prevent overheating. Avoid blocking fan vents at the top of the racks.
- **Update Firmware/Software**: Keep all devices updated with the latest firmware and software to ensure compatibility and security.
- **Inspect Components**: Regularly check for signs of wear or damage to equipment, cables, and connectors. Replace any faulty components promptly.
- **Test Functionality**: Perform routine tests to ensure all equipment is functioning correctly and troubleshoot any issues immediately.

7. **Maintenance Schedule**

Create a school maintenance schedule that can be posted in rack rooms to perform routine scheduled tasks and keep track of maintenance completion.

- **Frequency:** Determine how often you will perform maintenance-based tasks on both Clair and manufacturer's recommendations with consideration of your level of usage.
- **Task List:** Create a checklist of all the maintenance tasks you need to perform and their respective intervals.
- **Calendar Reminders**: Set reminders on your calendar or use maintenance apps to stay organized and prompt you when tasks are due.
- **Create a Comprehensive AV System Checklist:** Create an internal maintenance checklist starting with the points listed above and add details as needed to ensure the optimal care and maintenance of your AV system. This checklist will help you stay organized and ensure no maintenance task is overlooked.

Following these steps will help keep your AV equipment running smoothly and extend its overall lifespan.

6.3 Support Contact Information

Support is an important part of our company's success, and we want to make sure you get the help you need when you need it. Here is our support contact info:

Clair Global Integration Support:
28238 Avenue Crocker (Los Angeles Office)
Valencia, CA. 91355

1(877) 285-3494

Services-Support@clairglobal.com

7. TROUBLESHOOTING

- **Audio Issues:** Check cable connections, verify A or B input is active on console channel strip, check if you have broken paths on console inserts on I/O channels, verify entire gain structure, avoid heavy compression, verify speaker aiming, and use proper mic techniques to provide adequate gain before feedback. Place monitors in nulls of microphone patterns to increase gain before feedback.
- **Audio Distortion:** If you experience audio distortion, check your gain structure through the entirety of the signal chain.
- **Video Signal Loss:** When encountering video signal loss, start by examining the cable connections between your AV equipment and display devices. Make sure the cables are attached and not damaged. Try swapping the cables or using different input ports on your source device or destination device or display. Additionally, verify network video encoders/decoders have power and are online. Verify your switch is powered on and input/output routing configurations are correct to resolve your video-related issues.
- **Control Issues:** Ensure Crestron controller is online and connected to the proper network. Verify touch panels are connected to the same network and are powering up over PoE. When using a touch panel, wait for response or feedback before trying multiple attempts.
- **Power Issues:** Start at the problematic outlet source with an outlet tester and verify wiring is correct. If tester shows no power at outlet determine if a breaker has flipped and re-engage breaker (outlets are labeled by others to determine breaker panel locations). If circuit trips again, you are either overloading the circuit with power draw or you have an electrical fault, and a licensed electrician should be called immediately to resolve.
- **UPS Issues:** If a UPS alarm is beeping it has lost power, or the battery is near end of life. Check your incoming power from wall, circuit breaker, or determine if your building has lost power. If a battery needs replacement, you can call Clair for service, it is not recommended to perform this maintenance without following the manufacturer's instructions to replace a UPS battery safely due to shock hazard.

7.1 Troubleshooting Tips

- **Speaker Placement:** Optimal speaker placement can significantly enhance audio performance, be mindful of horn patterns and follow your AV integrators design and/or manufacturer's recommendations for speaker positioning to achieve the best results.
- **Room Acoustics:** Consider the impact of room acoustics on your AV system's performance. Incorporate acoustic treatments such as diffusers, absorbers, and bass traps to minimize sound reflections and improve clarity. A well-balanced room can enhance the overall audio experience.
- **Equipment Ventilation:** Proper ventilation is crucial for AV equipment longevity. Ensure that AV components have adequate space around them for airflow and avoid placing them in enclosed cabinets without proper ventilation. Overheating can lead to performance issues and even damage your equipment. Keeping rack room’s temperature controlled to 70 degrees or lower at all times which will increase the life expectancy of your equipment.
- **Documentation:** Keep AV Vendor drawings near rack rooms for assistance when troubleshooting. Maintain detailed records of all maintenance activities, issues encountered, and repairs performed. Document any system changes or adds, to help with future troubleshooting.
- **AV Tools:** Maintain a toolkit and/or workspace space with essential tools and spare parts for quick access to fix cables, equipment, and more.

APPENDIX A: Network Device Information

Sanctuary Theater - Management VLAN

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
SANCTUARY THTR.							
RACK-2-1	ST-DSW-01	NETGEAR	M4300-52G-PoE+	10.0.020.051	(blank)	(0001) MGMT	(blank)
	ST-DSW-02	NETGEAR	M4300-52G-PoE+	10.0.020.071	(blank)	(0001) MGMT	(blank)
RACK-2-2	ST-AVSW-03	NETGEAR	M4250-26G4XF-PoE+	10.0.020.101	(blank)	(0001) MGMT	(blank)
	ST-NDISW-01	NETGEAR	M4250-26G4XF-PoE+	10.0.020.091	(blank)	(0001) MGMT	(blank)
	ST-NVXSW-01	NETGEAR	M4300-52G-PoE+	10.0.020.011	(blank)	(0001) MGMT	(blank)
	ST-NVXSW-02	NETGEAR	M4250-26G4XF-PoE+	10.0.020.012	(blank)	(0001) MGMT	(blank)
RACK-2-3	ST-AVSW-01	NETGEAR	M4300-52G-PoE+	10.0.020.016	(blank)	(0001) MGMT	(blank)
	ST-AVSW-02	NETGEAR	M4250-26G4XF-PoE+	10.0.020.017	(blank)	(0001) MGMT	(blank)
Wireless Rack 1	ST-DSW-03	NETGEAR	M4250-26G4XF-PoE+	10.0.020.052	(blank)	(0001) MGMT	(blank)
Wireless Rack 2	ST-DSW-04	NETGEAR	M4250-26G4XF-PoE+	10.0.020.053	(blank)	(0001) MGMT	(blank)

Sanctuary Theater - HelixNet VLAN

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
SANCTUARY THTR.							
RACK-2-2	ST-PCCS-01	CLEARCOM	ARCADIA	10.0.010.081	LAN 1	(0500) HELIXNET	ST-AVSW-01
STAGE MANAGER	HRM-01	CLEARCOM	HRM-4X	10.0.010.088	LAN	(0500) HELIXNET	ST-AVSW-01

Sanctuary Theater - NDI VLAN

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
SANCTUARY THTR.							
BALCONY	ST-RCC-01	PANASONIC	AW-RP150	10.0.003.51	LAN	(0400) NDI	ST-NDISW-01
CATWALK	CAM-01	PANASONIC	AW-UE80KPJ	10.0.003.61	LAN	(0400) NDI	ST-NDISW-01

Sanctuary Theater - Dante Primary VLAN

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
SANCTUARY THTR							
BALCONY	ST-PSM-01	YAMAHA	PGM1	AUTOCONF PRI	LAN	(0101) DANTE PRI	ST-DSW-01
				169.254.000.039	LAN	(0101) DANTE PRI	ST-DSW-01
	ST-PSM-02	YAMAHA	PGM1	AUTOCONF PRI	LAN	(0101) DANTE PRI	ST-DSW-01
				169.254.000.036	LAN	(0101) DANTE PRI	ST-DSW-01
DESK	ST-CON-01	YAMAHA	DM7-EX	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.099	LAN	(0101) DANTE PRI	ST-CON-02
	ST-CON-02	YAMAHA	DM7-EX	169.254.000.098	LAN	(0101) DANTE PRI	(blank)
HOUSE	ST-PSM-03	YAMAHA	PGM1	AUTOCONF PRI	LAN	(0101) DANTE PRI	ST-DSW-01
				169.254.000.038	LAN	(0101) DANTE PRI	ST-DSW-01
PORTABLE	ST-RIO-01	YAMAHA	RIO-3224-D2	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
RACK-2-1	ST-AMP-01	YAMAHA	XMV8280-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.031	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	ST-DSW-01
	ST-AMP-02	YAMAHA	XMV8280-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.032	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	ST-DSW-01
	ST-AMP-03	YAMAHA	XMV8280-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.033	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	ST-DSW-01
	ST-AMP-04	YAMAHA	XMV8280-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.034	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	ST-DSW-01
	ST-AMP-05	YAMAHA	XMV8280-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.035	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	ST-DSW-01
	ST-DSP-01	YAMAHA	MRX7-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	ST-DSW-01
				169.254.000.030	DCP	(0101) DANTE PRI	ST-AVSW-01
	ST-DSP-02	MEYER	GALAXY 816	AUTOCONF IPV6	AVB SECONDARY	(0101) DANTE PRI	(blank)
	ST-EXP-01	YAMAHA	EXi8	169.254.000.028	LAN	(0101) DANTE PRI	ST-AVSW-01
	ST-EXP-02	YAMAHA	EXi8	169.254.000.029	LAN	(0101) DANTE PRI	ST-AVSW-01
ROAD CASE 1	ST-DSW-03	YAMAHA	SWP1-16MMF	169.254.0.241	(blank)	(0101) DANTE PRI	(blank)
	ST-WMRX-01	SENNHEISER	EM 6000	169.254.000.041	LAN	(0101) DANTE PRI	ST-DSW-03
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-03
	ST-WMRX-02	SENNHEISER	EM 6000	169.254.000.042	LAN	(0101) DANTE PRI	ST-DSW-03
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-03
	ST-WMRX-03	SENNHEISER	EM 6000	169.254.000.043	LAN	(0101) DANTE PRI	ST-DSW-03
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-03
	ST-WMRX-04	SENNHEISER	EM 6000	169.254.000.044	LAN	(0101) DANTE PRI	ST-DSW-03
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-03
	ST-WMRX-05	SENNHEISER	EM 6000	169.254.000.045	LAN	(0101) DANTE PRI	ST-DSW-03
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-03
	ST-WMRX-06	SENNHEISER	EM 6000	169.254.000.046	LAN	(0101) DANTE PRI	ST-DSW-03
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-03
ROAD CASE 2	ST-DSW-04	YAMAHA	SWP1-16MMF	169.254.0.242	(blank)	(0101) DANTE PRI	(blank)
	ST-WMRX-07	SENNHEISER	EM 6000	169.254.000.047	LAN	(0101) DANTE PRI	ST-DSW-04
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-04
	ST-WMRX-08	SENNHEISER	EM 6000	169.254.000.048	LAN	(0101) DANTE PRI	ST-DSW-04
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-04
	ST-WMRX-09	SENNHEISER	EM 6000	169.254.000.049	LAN	(0101) DANTE PRI	ST-DSW-04
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-04
	ST-WMRX-10	SENNHEISER	EM 6000	169.254.000.050	LAN	(0101) DANTE PRI	ST-DSW-04
				AUTOCONF PRI	DANTE	(0101) DANTE PRI	ST-DSW-04

Sanctuary Theater - Dante Secondary VLAN

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
SANCTUARY THTR.							
DESK	ST-CON-01	YAMAHA	DM7-EX	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02
PORTABLE	ST-RIO-01	YAMAHA	RIO-3224-D2	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-01
RACK-2-1	ST-AMP-01	YAMAHA	XMV8280-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02
	ST-AMP-02	YAMAHA	XMV8280-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02
	ST-AMP-03	YAMAHA	XMV8280-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02
	ST-AMP-04	YAMAHA	XMV8280-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02
	ST-AMP-05	YAMAHA	XMV8280-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02
	ST-DSP-01	YAMAHA	MRX7-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	ST-DSW-02

Sanctuary Theater - NVX VLAN & IP's

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
SANCTUARY THTR.							
BALCONY	ST-NVD-01	CRESTRON	DM-NVX-D30	10.0.000.236	LAN	(0300) NVX	ST-NVXSW-02
	ST-NVD-02	CRESTRON	DM-NVX-D30	10.0.000.237	LAN	(0300) NVX	ST-NVXSW-02
	ST-NVD-03	CRESTRON	DM-NVX-D30	10.0.000.238	LAN	(0300) NVX	ST-NVXSW-02
CATWALK	HDR-01	CRESTRON	DM-NVX-E30	10.0.000.213	LAN	(0300) NVX	ST-NVXSW-02
	PRJ-01	CHRISTIE	DWU1400-GS	(blank)	LAN	(0300) NVX	ST-AVSW-01
	PRJ-02	CHRISTIE	DWU1400-GS	(blank)	LAN	(0300) NVX	ST-AVSW-01
	PRJ-03	CHRISTIE	DWU1400-GS	(blank)	LAN	(0300) NVX	ST-AVSW-01
	PRJ-04	CHRISTIE	DWU1400-GS	(blank)	LAN	(0300) NVX	(blank)
	ST-HDR-03	CRESTRON	DM-NVX-D30	10.0.000.231	LAN	(0300) NVX	ST-NVXSW-01
	ST-HDR-04	CRESTRON	DM-NVX-D30	10.0.000.232	LAN	(0300) NVX	ST-NVXSW-01
	ST-HDR-05	CRESTRON	DM-NVX-D30	10.0.000.233	LAN	(0300) NVX	ST-NVXSW-01
	ST-HDR-06	CRESTRON	DM-NVX-D30	10.0.000.234	LAN	(0300) NVX	(blank)
DESK	ST-CPU-01	OFE	OFE	(blank)	LAN	(0300) NVX	ST-AVSW-01
HOUSE	ST-TS-01	CRESTRON	TS-770-B-S	10.0.000.061	LAN	(0300) NVX	ST-AVSW-01
	ST-TS-02	CRESTRON	TS-770-B-S	10.0.000.063	LAN	(0300) NVX	ST-AVSW-01
PORTABLE	ST-HDR-01	CRESTRON	DM-NVX-E30	10.0.000.211	LAN	(0300) NVX	ST-NVXSW-01
	ST-HDR-02	CRESTRON	DM-NVX-E30	10.0.000.212	LAN	(0300) NVX	ST-NVXSW-01
RACK 2-2	ST-TSW-01	CRESTRON	TSW-1070-B-S	10.0.000.062	LAN	(0300) NVX	ST-AVSW-01
RACK-2-1	ST-DSP-02	MEYER	GALAXY 816	AUTOCONF IPV6	AVB PRIMARY	(0300) NVX	ST-AVSW-01
	ST-RMS-01	MEYER	RMS SERVER	10.0.000.026	LAN	(0300) NVX	ST-AVSW-01
RACK-2-2	ST-CF-01-A	CRESTRON	Reserved	10.0.000.202	(blank)	(0300) NVX	(blank)
	ST-CF-01-B	CRESTRON	Reserved	10.0.000.203	(blank)	(0300) NVX	(blank)
	ST-CF-01-C	CRESTRON	Reserved	10.0.000.204	(blank)	(0300) NVX	(blank)
	ST-CF-01-D	CRESTRON	Reserved	10.0.000.205	(blank)	(0300) NVX	(blank)
	ST-CF-01-E	CRESTRON	DM-NVX-363C	10.0.000.206	LAN	(0300) NVX	ST-NVXSW-01
	ST-CF-01-F	CRESTRON	DM-NVX-363C	10.0.000.207	LAN	(0300) NVX	ST-NVXSW-01
	ST-CF-01-G	CRESTRON	DM-NVX-363C	10.0.000.208	LAN	(0300) NVX	ST-NVXSW-01
	ST-CF-01-H	CRESTRON	DM-NVX-363C	10.0.000.209	LAN	(0300) NVX	ST-NVXSW-01
	ST-CS-01	CRESTRON	CP4	10.0.000.060	LAN	(0300) NVX	ST-AVSW-01
	ST-VSA-01	CRESTRON	DM-XIO-DIR-80_160	10.0.000.200	LAN 4	(0300) NVX	ST-AVSW-01

Sanctuary Theater Surrounding Spaces - NVX VLAN & IP's

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
DRESSING 113							
WALL	ST-NVD-06	CRESTRON	DM-NVX-D30	10.0.000.241	LAN	(0300) NVX	ST-NVXSW-02
	ST-VMON-03	SONY	XR-55A80L	10.0.000.162	LAN	(0300) NVX	ST-AVSW-02
DRESSING 115							
WALL	ST-NVD-07	CRESTRON	DM-NVX-D30	10.0.000.242	LAN	(0300) NVX	ST-NVXSW-02
	ST-VMON-04	SONY	XR-55A80L	10.0.000.163	LAN	(0300) NVX	ST-AVSW-02
LOWER LOBBY							
WALL	NVRX-02	CRESTRON	DM-NVX-D30	10.0.003.245	LAN	(0300) NVX	ST-NVXSW-01
STAGING 112							
STAGING 112	T-TS-03	CRESTRON	TS-770-B-S	10.0.000.064	LAN	(0300) NVX	ST-AVSW-01
WALL	ST-NVD-04	CRESTRON	DM-NVX-D30	10.0.000.239	LAN	(0300) NVX	ST-NVXSW-02
	ST-NVD-05	CRESTRON	DM-NVX-D30	10.0.000.240	LAN	(0300) NVX	ST-NVXSW-02
	ST-VMON-01	SONY	XR-42A90K	10.0.000.160	LAN	(0300) NVX	ST-AVSW-02
	ST-VMON-02	SONY	XR-55A80L	10.0.000.161	LAN	(0300) NVX	ST-AVSW-02
THEATER MANAGER OFFICE 117							
WALL	ST-NVD-08	CRESTRON	DM-NVX-D30	10.0.000.243	LAN	(0300) NVX	ST-NVXSW-02
	ST-VMON-04	SONY	XR-55A80L	10.0.000.164	LAN	(0300) NVX	ST-AVSW-02
UPPER LOBBY							
WALL	NVRX-01	CRESTRON	DM-NVX-D30	10.0.003.243	LAN	(0300) NVX	ST-NVXSW-01

Sanctuary Theater Surrounding Spaces - Dante Primary VLAN & IP's

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
STAGING 112							
STAGING 112	ST-PSM-04	YAMAHA	PGM1	AUTOCONF PRI	LAN	(0101) DANTE PRI	ST-DSW-01
				169.254.000.037	LAN	(0101) DANTE PRI	ST-DSW-01

Sanctuary Theater Surrounding Spaces - Helixnet VLAN & IP's

Row Labels	Device	Make	Model	IP Address	D-int	VLAN	Switch
STAGING 112							
WALL	HKB-03	CLEARCOM	HKB-2X	10.0.010.087	LAN	(0500) HELIXNET	ST-AVSW-01
THEATER MANAGER OFFICE 117							
DESK	TMO-HKB-01	CLEARCOM	HKB-2X	10.0.010.085	LAN	(0500) HELIXNET	ST-AVSW-01

Stop Gap – Management VLAN

Location	Device	Make	Model	IP Address	D-int	VLAN	Switch
STOP GAP (CABARET)							
RACK-0-3	C-AVSW-01	NETGEAR	M4300-52G-PoE+	10.0.020.026	(blank)	(0001) MGMT	(blank)
	C-DSW-01	NETGEAR	M4250-26G4XF-PoE+	10.0.020.056	(blank)	(0001) MGMT	(blank)
	C-DSW-02	NETGEAR	M4250-26G4XF-PoE+	10.0.020.076	(blank)	(0001) MGMT	(blank)
	C-NDISW-01	NETGEAR	M4250-9G1F-PoE+	10.0.020.096	(blank)	(0001) MGMT	(blank)
	C-NVXSW-01	NETGEAR	M4300-52G-PoE+	10.0.020.021	(blank)	(0001) MGMT	(blank)
	C-PCSW-01	NETGEAR	M4250-26G4XF-PoE+	10.0.020.106	(blank)	(0001) MGMT	(blank)

Stop Gap – Helixnet VLAN

Location	Device	Make	Model	IP Address	D-int	VLAN	Switch
STOP GAP (CABARET)							
CONTROL BOOTH DESK	HRM-01	CLEARCOM	HRM-4X	10.0.010.091	LAN	(0500) HELIXNET	C-PCSW-01
PORTABLE	HKB-02	CLEARCOM	HKB-2X	10.0.010.093	LAN	(0500) HELIXNET	C-PCSW-01
RACK-0-3	C-ACS-01	CLEARCOM	ARCADIA	10.0.010.082	LAN 1	(0500) HELIXNET	C-PCSW-01
WALL	C-HKB-01	CLEARCOM	HKB-2X	10.0.010.092	LAN	(0500) HELIXNET	C-PCSW-01

Stop Gap – NDI VLAN

Location	Device	Make	Model	IP Address	D-int	VLAN	Switch
STOP GAP (CABARET)							
CEILING	C-PCAM-01	PANASONIC	AW-UE80KPJ	10.0.003.62	LAN	(0400) NDI	C-NDISW-01

Stop Gap – Dante Primary VLAN

Location	Device	Make	Model	IP Address	D-int	VLAN	Switch
STOP GAP (CABARET)							
CONTROL BOOTH DESK	C-PSM-01	YAMAHA	PGM1	169.254.000.022	LAN (CONTROL)	(0101) DANTE PRI	C-DSW-01
				AUTOCONF PRI	LAN (Dante)	(0101) DANTE PRI	C-DSW-01
PORTABLE	C-RIO-01	YAMAHA	RIO-1608-D2	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
	C-RIO-02	YAMAHA	RIO-1608-D2	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
PORTABLE DESK	C-CON-01	YAMAHA	DM7C	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
				169.254.000.027	LAN	(0101) DANTE PRI	(blank)
	C-DAC-01	YAMAHA	RUio16-D	AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
RACK-0-3	C-AMP-01	YAMAHA	XMV8280-D	169.254.000.021	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	C-DSW-01
				AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
	C-DSP-01	YAMAHA	MRX7-D	169.254.000.020	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
	C-DSP-02	MEYER	GALAXY 816	AUTOCONF IPV6	AVB SECONDARY	(0101) DANTE PRI	C-DSW-01
	C-WMRX-01	SHURE	ULXD4Q-G50	169.254.000.061	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	C-DSW-01
				AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
	C-WMRX-02	SHURE	ULXD4Q-G50	169.254.000.062	DANTE PRIMARY (CONTROL)	(0101) DANTE PRI	C-DSW-01
				AUTOCONF PRI	DANTE PRIMARY	(0101) DANTE PRI	C-DSW-01
SPARE	C-PSM-02	YAMAHA	PGM1	169.254.000.023	LAN (CONTROL)	(0101) DANTE PRI	ST-DSW-01
				AUTOCONF PRI	LAN (Dante)	(0101) DANTE PRI	ST-DSW-01

Stop Gap – Dante Secondary VLAN

Location	Device	Make	Model	IP Address	D-int	VLAN	Switch
STOP GAP (CABARET)							
PORTABLE	C-RIO-01	YAMAHA	RIO-1608-D2	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
	C-RIO-02	YAMAHA	RIO-1608-D2	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
PORTABLE DESK	C-CON-01	YAMAHA	DM7C	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
	C-DAC-01	YAMAHA	RUio16-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
RACK-0-3	C-AMP-01	YAMAHA	XMV8280-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
	C-DSP-01	YAMAHA	MRX7-D	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
	C-WMRX-01	SHURE	ULXD4Q-G50	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02
	C-WMRX-02	SHURE	ULXD4Q-G50	AUTOCONF SEC	DANTE SECONDARY	(0102) DANTE SEC	C-DSW-02

Stop Gap - NVX VLAN

Location	Device	Make	Model	IP Address	D-int	VLAN	Switch
STOP GAP (CABARET)							
BY C-LECT-01	NVD-03	CRESTRON	DM-NVX-D30	10.0.001.238	LAN	(0300) NVX	C-NVXSW-01
	NVE-03	CRESTRON	DM-NVX-E30	10.0.001.214	LAN	(0300) NVX	C-NVXSW-01
BY C-MIX-A	NVE-04	CRESTRON	DM-NVX-E30	10.0.001.215	LAN	(0300) NVX	C-NVXSW-01
BY C-SP-0-1	NVE-01	CRESTRON	DM-NVX-E30	10.0.001.212	LAN	(0300) NVX	C-NVXSW-01
BY C-SP-0-3	NVE-02	CRESTRON	DM-NVX-E30	10.0.001.213	LAN	(0300) NVX	C-NVXSW-01
CEILING	C-NVE-01	CRESTRON	DM-NVX-E30	10.0.001.211	LAN	(0300) NVX	C-NVXSW-01
	C-PRJ-01	CHRISTIE	DWU1400-GS	10.0.1.200	ETHERNET	(0300) NVX	C-AVSW-01
	NVD-01	CRESTRON	DM-NVX-D30	10.0.001.236	LAN	(0300) NVX	C-NVXSW-01
CONTROL BOOTH	C-TS-01	CRESTRON	TS-770-B-S	10.0.001.061	LAN	(0300) NVX	C-AVSW-01
CONTROL BOOTH DESK	C-NVD-01	CRESTRON	DM-NVX-D30	10.0.001.231	LAN	(0300) NVX	C-NVXSW-01
	C-NVD-02	CRESTRON	DM-NVX-D30	10.0.001.232	LAN	(0300) NVX	C-NVXSW-01
	C-RCC-01	PANASONIC	AW-RP150	(blank)	LAN	(0300) NVX	C-NDISW-01
	C-TS-01	CRESTRON	TS-770-B-S	10.0.001.061	LAN	(0300) NVX	C-AVSW-01
PORTABLE DESK	C-CPU-01	OFE	OFE	(blank)	LAN	(0300) NVX	C-AVSW-01
RACK-0-3	C-CF-01-A	CRESTRON	DM-NVX-363C	10.0.001.203	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-B	CRESTRON	DM-NVX-363C	10.0.001.204	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-C	CRESTRON	DM-NVX-363C	10.0.001.205	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-D	CRESTRON	DM-NVX-363C	10.0.001.206	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-E	CRESTRON	DM-NVX-363C	10.0.001.207	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-F	CRESTRON	DM-NVX-363C	10.0.001.208	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-G	CRESTRON	DM-NVX-363C	10.0.001.209	LAN	(0300) NVX	C-NVXSW-01
	C-CF-01-H	CRESTRON	DM-NVX-363C	10.0.001.210	LAN	(0300) NVX	C-NVXSW-01
	C-DSP-01	YAMAHA	MRX7-D	10.0.001.020	DCP	(0300) NVX	C-AVSW-01
	C-DSP-02	MEYER	GALAXY 816	AUTOCONF IPV6	AVB PRIMARY	(0300) NVX	C-AVSW-01
	C-MOD-01	CRESTRON	CEN-IO-RY-104	10.0.001.060	LAN	(0300) NVX	C-AVSW-01
	C-RMS-01	MEYER	RMS SERVER	10.0.001.026	ETHERNET	(0300) NVX	C-AVSW-01
	C-TSW-01	CRESTRON	TSW-1070-B-S	10.0.001.062	LAN	(0300) NVX	C-AVSW-01
WALL	C-NVD-04	CRESTRON	DM-NVX-D30	10.0.001.234	LAN	(0300) NVX	C-AVSW-01
	C-NVD-05	CRESTRON	DM-NVX-D30	10.0.001.235	LAN	(0300) NVX	C-AVSW-01
	C-VMON-01	SONY	XR-85Z9G	10.0.1.160	LAN	(0300) NVX	C-AVSW-01
	C-VMON-02	SONY	XR-55A80L	10.0.1.161	LAN	(0300) NVX	C-AVSW-01
	NVD-02	CRESTRON	DM-NVX-D30	10.0.001.237	LAN	(0300) NVX	C-NVXSW-01

Integrated Media Suite - ALL VLAN's

Location	Device	Make	Model	IP Address	VLAN	Switch
NEW MEDIA SUITE						
BY NMS-MIX-01	NMS-NVE-01	CRESTRON	DM-NVX-E30	10.0.003.211	(0300) NVX	NMS-NVXSW-01
RACK 0-4-1	NMS-TSW-01	CRESTRON	TSW-1070-B-S	(blank)	(0300) NVX	C-AVSW-01
RACK-0-4-1	NMS-ACS-01	CLEARCOM	ARCADIA	10.0.010.083	(0500) HELIXNET	NMS-PCSW-01
	NMS-NVXSW-01	NETGEAR	M4250-26G4XF-PoE+	10.0.020.041	(0001) MGMT	(blank)
	NMS-PCSW-01	NETGEAR	M4250-9G1F-PoE+	10.0.020.111	(0001) MGMT	(blank)
WALL	NMS-NVD-07	CRESTRON	DM-NVX-D30	10.0.003.249	(0300) NVX	NMS-NVXSW-01
	NMS-VMON-01	SONY	XR-85Z9K	(blank)	(----) IT NETWORK	IT NETWORK
	NMS-VMON-02	SONY	XR-55A80L	(blank)	(0300) NVX	C-AVSW-01
	NVD-02	CRESTRON	DM-NVX-363	10.0.003.231	(0300) NVX	NMS-NVXSW-01

Audio Lab - ALL VLAN's

Location	Device	Make	Model	IP Address	VLAN	Switch
AUDIO LAB B14						
BEHIND TV	ALB-NVD-01	CRESTRON	DM-NVX-D30	10.0.002.231	(0300) NVX	ALB-NVXSW-01
CEILING	ALB-CM-01	PANASONIC	AW-UE80WPJ	10.0.003.63	(0400) NDI	C-NDISW-01
	ALB-ENC-01	CRESTRON	DM-NVX-E30	10.0.002.211	(0300) NVX	ALB-NVXSW-01
DESK	ALB-CON-01	DIGICO	SD10T	10.0.002.027	(0300) NVX	(blank)
	ALB-ENC-02	CRESTRON	DM-NVX-E30	10.0.002.212	(0300) NVX	ALB-NVXSW-01
	ALB-ENC-03	CRESTRON	DM-NVX-E30	10.0.002.213	(0300) NVX	ALB-NVXSW-01
	ALB-RCC-01	PANASONIC	AW-RP150	10.0.003.52	(0400) NDI	C-NDISW-01
	HKB-02	CLEARCOM	HKB-2X	10.0.010.097	(0500) HELIXNET	ST-AVSW-01
RACK-0-1	ALB-AVSW-01	NETGEAR	M4250-26G4XF-PoE+	10.0.020.036	(0001) MGMT	(blank)
	ALB-DMI-01	DIGICO	ORANGEBOX	AUTOCONF PRI	(0101) DANTE PRI	ALB-DSW-01
	ALB-DMI-01	DIGICO	ORANGEBOX	AUTOCONF SEC	(0102) DANTE SEC	ALB-DSW-02
	ALB-DSW-01	NETGEAR	M4250-8G2XF-PoE+	10.0.020.061	(0001) MGMT	(blank)
	ALB-DSW-02	NETGEAR	M4250-8G2XF-PoE+	10.0.020.081	(0001) MGMT	(blank)
	ALB-NVXSW-01	NETGEAR	M4250-26G4XF-PoE+	10.0.020.031	(0001) MGMT	(blank)
	ALB-TSW-01	CRESTRON	TSW-1070-B-S	10.0.002.061	(0300) NVX	ALB-TSW-01
WALL	ALB-HKB-02	CLEARCOM	HKB-2X	10.0.010.096	(0500) HELIXNET	C-PCSW-01
	ALB-NVD-06	CRESTRON	DM-NVX-D30	10.0.002.232	(0300) NVX	ALB-NVXSW-01
	ALB-VMON-02	SONY	XR-55A80L	(blank)	(0300) NVX	C-AVSW-01

APPENDIX B: System Credentials

Credentials for all AV: User: **admin** / Password: **#atkusc123**

APPENDIX C: Room Name Cross-Reference

Plate/Device Abbreviated Room Name	Original Project Room Name	New USC Room Name
ALB	Audio Lab	
BHOA	Audio Lab Corridor	
BR	Boardroom	
C	Cabaret Theater	Stop Gap Theater
CCRS	Career Center & Recording Studio	
CLS	Classroom 213	
DEI	Center for Diversity, Equity, & Inclusion	
DLB	Design Lab	
DR	Dressing Room	
FAC	Faculty Lounge	
LBY	Lobby	
NMS	New Media Suite	Integrated Media Suite
OTD	Office of the Dean	
RH	Rehearsal Hall	
RR	Restroom/s	
ST	Studio Theater	Sanctuary Theater
VP	Voice Practice	

APPENDIX D: Drawing Device Abbreviation Terminology

DWG Device Abbreviation	Device Name	DWG Device Abbreviation	Device Name
AAS	Arcadia Analog Splitter (Cable)	**IT**	Information Technology
ACP	Audio Conferencing Processor	**JBX**	Junction Box
ACS	Arcadia Central Station	**LECT**	Lecture
AD	Antenna Distribution	**MBT**	MicroStation Bluetooth
ADA	Americans with Disabilities Act	**MCA**	Modular Chassis Audio Interface
ALS	Assistive Listening System	**MIC**	Microphone
AMP	Amplifier	**MIX**	Mixer
ANT	Antenna	**MM**	Multi-Mode Fiber
ASA	Antenna Splitter (Sennheiser)	**MOD**	Module
ATX	Prod. Comm. Antenna Transceiver	**MON**	Monitor
AVS	Audio Video Switcher	**MPS**	Motorized Projection Screen
AVSW	AV Lan Switch	**NDISW**	NDI Switch
BRP	Blu-Ray Player	**NVD**	Network Video Decoder
CAM	Camera	**NVE**	Network Video Encoder
CCAM	Conference Camera	**NVED**	Network Video Encoder/Decoder
CDD	Martin Speaker Type	**NVRx**	Network Video Receiver
CF	Card Frame	**NVX**	Network Video Interface
CM	Camera	**NVXSW**	NVX Switch
CNL	Control	**OFE**	Owner Furnished Equipment
COM	Communications	**PCANT**	Prod.Comm. Antenna
CON	Console	**PCAM**	Production Camera
CPU	Computer	**PCB**	Patchbay
CPUMON	Computer Monitor	**PCCS**	Prod.Comm. Central Station
CS	Control System	**PCMON**	Personal Computer Monitor
CVT	Converter	**PCSW**	Prod.Comm. Switch
DA	Distribution Amplifier	**PLA**	Powered Line Array
DANT	Dante Transmitter	**PLY**	Player
DMI	DiGiCo Multichannel Interface	**PRJ**	Projector
DMRx	Digital Media Transmitter	**PS**	Power Supply
DMTx	Digital Media Receiver	**PSM**	Paging Station Mic
DPB	Data Patch Bay	**PSW**	Powered Subwoofer
DSP	Digital Signal Processor	**PY**	DM7 PY Card Type
DSW	Dante Switch	**RIO**	Remote Input / Output Device
ER	Equipment Rack	**RMS**	Remote Monitoring System
EXP	Expansion	**RP**	Rack Panel
FAVD	Faculty Video Monitor Plate	**RPS**	Rack Power Supply
FAVMON	Faculty Video Monitor	**RTX**	RF Transmitter
FB	Floor Box	**RX**	Receiver
FB4	Floor Box Type 4	**S**	Speaker
FB12	Floor Box Type 12	**S#**	Speaker, #
FPB	Fiber Patch Bay	**SAD**	SDI Audio Decoder
HDR	High Dynamic Range	**SAE**	SDI Audio Encoder
HKB	HelixNet King Biscuit	**SBX**	Stage Box
HM	House Manager	**SCS**	Single Channel Speaker Station
HPA	Headphone Amplifier	**SFP**	Small Form Factor (Modular Port)
HRM	HelixNet Remote Station	**SM**	Single-Mode Fiber
I/O	Input & Output	**SNB**	Soundbar
IPAD	Apple iPAD Tablet	**SP**	Stage Panel

DWG Device Abbreviation	Device Name		
SPK	Speaker		
SRX	SDI Receiver		
STG	Stage		
STX	SDI Transmitter		
SUB	Subwoofer		
TB	Terminal Block		
TBL	Table		
TMO	Theater Managers Office		
TS	Touch Screen		
TSW	Touch Screen Wall		
UCE	Unified Communication Engine		
V	Video		
VD	Video Display		
VDLV	Video Display Lobby Video		
VMON	Video Monitor		
VPB	Video Patch Bay		
VSA	Virtual Switching Appliance		
VSW	Video Switcher		
WMRX	Wireless Mic Receiver		