AUDIO VISUAL SCOPE REQUIREMENTS

1. **GENERAL**
   - 1.1. EACH TYPICAL ROOM TYPE INCLUDES A GENERAL FUNCTIONAL SUMMARY OUTLINING THE GENERAL SCOPE REQUIRED FOR THAT SPACE.
   - 1.2. EACH TYPICAL ROOM TYPE INCLUDES A MANUFACTURER AND MODEL FOR MAJOR COMPONENTS REQUIRED TO COMPLETE THE FUNCTION SUMMARY IN THE SPACE. IT IS THE RESPONSIBILITY OF THE AVC TO PROVIDE ALL MINOR COMPONENTS, CONNECTORS AND CABLES TO COMPLETE THE SYSTEM BASED UPON THE LOCATIONS SHOWN ON THE DRAWINGS AND THE REQUIREMENTS OUTLINED IN THE FUNCTION SUMMARIES. EQUIPMENT MODEL NUMBERS CHANGE FREQUENTLY IN THE AV INDUSTRY - ANY DISCONTINUED MODEL SHALL BE BROUGHT TO ENGINEERING PLUS ATTENTION WITH A CUT SHEET OF THE REPLACEMENT.
   - 1.3. END USER CABLING.
     - 1.3.1. UNLESS NOTED OTHERWISE, EACH AV SYSTEM SHALL BE PROVIDED WITH (1) END USER CONNECTION CABLE FOR EACH CONNECTION TYPE AND LOCATION PLACED WITHIN THE ROOM.
     - 1.3.2. END USER CABLING SHALL BE SIZED AS FOLLOWS UNLESS NOTED OTHERWISE.
     - 1.3.3. TABLES OR FURNITURE CONNECTIONS SHALL BE 6'.
     - 1.3.4. TABLES OR FURNITURE CONNECTIONS WHERE CABLING IS FED THROUGH GROMMETS FOR USER ACCESS THE CABLING SHALL BE SIZED TO ALLOW FOR 6' OF TRAVEL FROM THE GROMMET FOR USER CONNECTIONS.
     - 1.3.5. WALL OR FLOOR CONNECTION CABLES FOR ROOMS DESIGNED SHALL BE 12'.
     - 1.3.6. RACK CONNECTION CABLES SHALL BE SIZED AS NECESSARY BASED ON THE INTENDED DISTANCE OF THE DEVICE.
     - 1.3.7. ALL END USER CABLES SHALL BE DESIGNED FOR COMMERCIAL USE
     - 1.3.8. CABLES TO BE PROVIDED AND CONNECTED TO FACEPLATE PRIOR TO PUNCH LIST FOR USE WITH TESTING.
     - 1.3.9. AVC TO PROVIDE ADAPTERS TO MEET CLIENT NEEDS FOR ALL END USER CABLES.
2. **CONTROL SYSTEMS**
   - 2.1. THE SYSTEMS INSTALLED SHALL GENERALLY BE EASY TO USE WITHOUT REQUIRED TRAINING.
   - 2.2. THE AVC SHALL BE RESPONSIBLE FOR TURNING OVER ALL EQUIPMENT MANUFACTURER REMOTES TO THE OWNER. THE REMOTES SHALL BE LOCATED WITHIN THE SAME ROOM AS THE EQUIPMENT IT NEEDS TO CONTROL.
3. **TRANSMISSION & CABLING**
   - 3.1. ALL VIDEO TRANSPORT EXCEEDING 10 FEET OR THROUGH CONDUIT SHALL BE CONVERTED TO A DIGITAL TWISTED PAIR TRANSPORT.
     - 3.1.1. STREAMING: NETWORK BASED VIDEO STREAM OVER STANDARD UTP CABLING AND SWITCHES AND TRANSCEIVERS AT EACH ENDPOINT.
     - 3.1.2. HDBASET: SHIELDED TWISTED PAIR CABLING WITH CONVERTERS ON EACH ENDPOINT.
     - 3.1.3. FOR ALL TRANSMITTER/RECEIVER PAIRS UTILIZING TWISTED PAIR CABLING, ALSO PROVIDE AN 18 AWG 2-CONDUCTOR WIRE ALONG THE SAME PATH.
   - 3.2. UNLESS NOTED OTHERWISE ALL CABLING REQUIRED TO COMPLETE AV INTERCONNECTIONS SHALL BE FURNISHED AND INSTALLED BY THE AVC.
   - 3.3. MICROPHONE AND AUDIO SIGNAL TRANSMISSION.
     - 3.3.1. AVB/DANTE: ROUTING OUT OF A CONTROLLED SPACE SHALL BE CONVERTED TO A DIGITAL TRANSPORT ALLOWING MULTIPLE CHANNELS TO BE TRANSMITTED OVER SINGLE DATA CABLES
     - 3.3.2. ANALOG: WITHIN CONTROL ENVIRONMENTS (EG. UNDER TABLE, WITHIN SAME ROOM) SHIELDED BALANCED CABLING SHALL BE PROVIDED.
   - 3.4. SPEAKER CABLING: ALL SPEAKER CABLING SHALL BE ROUTED IN SEPARATE PATHWAYS FROM AUDIO SIGNAL AND SIZED BASED UPON THE DISTANCE. NO SPEAKER CABLING SHALL BE SMALLER THAN 16AWG.
   - 3.5. THE COLOR OF ALL EXPOSED AUDIO-VISUAL CABLING IN THE CEILING TO BE CONFIRMED WITH ARCHITECT.
   - 3.6. ALL AUDIO-VISUAL CABLING TO BE BLACK UNLESS NOTED OTHERWISE.
   - 3.7. AVC SHALL MITIGATE ALL RF INTERFERENCE AND ADJUST, AS NECESSARY.
4. **FLAT PANEL DISPLAYS**
   - 4.1. UNLESS NOTED OTHERWISE, ALL DISPLAYS SHALL BE COMMERCIALLY RATED AND DESIGNED FOR A COMMERCIAL ENVIRONMENT. THIS INCLUDES A FULL 3-YEAR WARRANTY WITH COMMERCIAL USE.
   - 4.2. THE NUMBER OF UNIQUE MANUFACTURERS AND MODEL NUMBERS SHALL BE MINIMIZED WITHIN A SITE FOR SERVICE AND SUPPORT.
   - 4.3. DISPLAYS RATED FOR COMMERCIAL USE SHALL BE RATED FOR 12 HOURS, 5 DAYS PER WEEK.
   - 4.4. MINIMUM BRIGHTNESS OF DISPLAYS (NITS): NO WINDOWS=250 | WITH WINDOWS=400
   - 4.5. FLAT PANEL MOUNTS SHALL BE PROVIDED BY THE AVC WITH PROPER RATING AND CERTIFICATION FROM THE MOUNT MANUFACTURER FOR THE DISPLAY PROVIDED.
   - 4.6. THE MAXIMUM DEPTH OF THE DISPLAY AND THE MOUNT MUST BE LESS THAN 4" FROM THE FINISHED WALL IN ANY PATH OF TRAVEL PER ADA. ENGINEERING PLUS TO BE NOTIFIED OF ANY LOCATION THAT THE FINAL EQUIPMENT SPECIFICATIONS WILL NOT ALLOW THIS.
   - 4.7. LOCK OUT OR BLOCK INPUTS THAT ARE NOT BEING UTILIZED ON THE DISPLAYS. THE AVC IS REQUIRED TO GO INTO THE MENU AND BLANK OUT THE INPUTS THAT ARE NOT USED.
   - 4.8. THE FINAL INSTALLATION, ELEVATION AND COORDINATION OF THE FLAT PANEL DISPLAYS SHALL BE COMPLETED BY THE AVC.
   - 4.9. IN ROOMS THAT UTILIZE THE MANUFACTURER'S REMOTE FOR CONTROL, REMOTES MUST BE ATTACHED WITH VELCRO TO THE BACK OF DISPLAY IN A LOCATION THAT IS ACCESSIBLE TO END USERS.
5. **AUDIO**
   - 5.1. AVC SHALL INTEGRATE ALL AUDIO SYSTEMS INTO FIRE ALARM SYSTEM FOR EMERGENCY COMMUNICATIONS AS REQUIRED BY AHJ. AVC TO COORDINATE WITH FIRE ALARM CONTRACTOR. FIRE ALARM CONTRACTOR TO PROVIDE RELAYS AND CABLING FROM FIRE ALARM SYSTEM AS NEEDED.
   - 5.2. AVC SHALL PROVIDE ALL DSP PROGRAMMING FOR THE SYSTEM AND TUNE THE INPUTS AND OUTPUTS TO OPTIMUM LEVELS.
   - 5.3. EQUALIZER SETTING SHALL BE CONFIGURED FOR ALL INPUT AND OUTPUT CHANNELS AND TUNED TO THE DEVICE AND ROOM CONFIGURATION INCLUDING LOUDNESS.
   - 5.4. AUTO GAIN SHALL BE SET ON ALL VARIABLE INPUT SOURCES
6. **FURNITURE**
   - 6.1. USER CONNECTIVITY BOXES: AVC SHALL COORDINATE WITH THE FURNITURE VENDOR INSERTS OR GROMMETS REQUIRED FOR AV CONNECTVITY WITHIN FURNITURE.
   - 6.2. A SKETCH SHALL BE PROVIDED BY THE AVC AND APPROVED BY OWNER PRIOR TO HOLE DRILLING OR CUTTING.
7. **RACK REQUIREMENTS**
   - 7.1. THE AVC IS REQUIRED TO PROVIDE ALL RACK MOUNTING HARDWARE FOR ALL SOURCE EQUIPMENT.
   - 7.2. THE AVC IS REQUIRED TO PROVIDE A BLANK RACK PANEL AS NEEDED IN BETWEEN ALL EQUIPMENT TO FULLY POPULATE THE RACK FRONT.
   - 7.3. UL LISTED CORDS AND POWER STRIPS ARE REQUIRED FOR ALL RACK AND EQUIPMENT POWER.
   - 7.4. COOLING FANS AND VENTILATION ARE REQUIRED FOR ADEQUATE AIRFLOW.
   - 7.5. PROPER GROUNDING IS REQUIRED AT EACH RACK
8. **EXISTING EQUIPMENT**
   - 8.1. AVC IS RESPONSIBLE FOR THE REMOVAL AND RELOCATION OF ALL OWNER EQUIPMENT THAT WILL BE REUSED.

AUDIO VISUAL TAG LIST

TAG	DESCRIPTION	COLOR/FINISH	MFR	MODEL #
DISPLAYS				
D55A	55" FLAT PANEL DISPLAY	N/A	SAMSUNG	QM55C
D55B	55" FLAT PANEL DISPLAY (SOC/NOC)	N/A	SHARP	PN-M552
D75A	75" FLAT PANEL DISPLAY	N/A	SAMSUNG	QM75C
D85A	85" FLAT PANEL DISPLAY	N/A	SAMSUNG	QM85C
D98A	98" FLAT PANEL DISPLAY	N/A	SAMSUNG	QM98C
MOUNTING HARDWARE				
MH01	AV BACKBOX FOR FLAT PANEL DISPLAYS	WHITE	CHIEF	PAC526FCW
MH02	ARTICULATING MOUNT FOR DISPLAYS UP TO 65"	N/A	CHIEF	TSS25TU
	ARTICULATING MOUNT FOR DISPLAYS OVER 65"	N/A	CHIEF	AS3LD
SPEAKERS				
SP01	IN-CEILING SPEAKER POE	BY ARCH	SHURE	MXN5W-C
SP02	SUSPENDED PENDANT SPEAKER	BY ARCH	QSC	AD-P6T
MICROPHONES				
MC01	EXPANSION MICROPHONE	N/A	LOGITECH	RALLY MIC POD
	MICROPHONE EXTENSION CABLE	N/A	LOGITECH	MIC POD EXTENSION CABLE
	MICROPHONE HUB	N/A	LOGITECH	MIC POD HUB
MC02	TABLE TOP MICROPHONE	BY ARCH	SHURE	MXA300 SERIES
MC03	2X2 STEERABLE CEILING MICROPHONE ARRAY (ADD ALTERNATE)	BY ARCH	SHURE	MXA900 SERIES
CAMERAS				
CM01	ALL-IN-ONE CONFERENCING BAR	NA	LOGITECH	RALLY MEETUP 2
CM02	ALL-IN-ONE CONFERENCING BAR	NA	LOGITECH	RALLY BAR MINI
CM03	ALL-IN-ONE CONFERENCING BAR	NA	LOGITECH	RALLY BAR
CM04	PTZ CAMERA (ADD ALTERNATE)	N/A	LOGITECH	RALLY PTZ
CONNECTIVITY DEVICES				
CD00	GROMMETED AV WALL PLATE (SEE DETAIL PAGES)	BY ARCH	CUSTOM	BY EC
CD01	CUSTOM AV TABLE TOP CONNECTION	BY ARCH	CUSTOM	BY AVC
	HDMI END USER CABLE (INCLUDE AW11 LISTED BELOW)	N/A	BY AVC	BY AVC
	USB END USER CABLE	N/A	BY AVC	BY AVC
CD02	CUSTOM AV TABLE TOP CONNECTION	BY ARCH	CUSTOM	BY AVC
CD03	6X6 CONDUIT PULL BOX FOR CABLE PASS-THROUGH	WHITE	BY EC	BY EC
RACK DEVICES				
RK01	EQUIPMENT RACK IN MILLWORK (ADD ALTERNATE)	BLACK	MIDDLE ATLANTIC	CFR-10-18
RK02	CUT-IN CABINET VENTILATION FANS FOR FURNITURE	BLACK	MIDDLE ATLANTIC	CAB-COOL-50
ROOM SOURCES				
RS01	WIRELESS AV CONNECTION FOR PRESENTATION AND BYOM	N/A	SCREENBEAM	1100 PLUS
RS02	MEDIA PLAYER	N/A	ROKU	ULTRA 4K
RS03	TOWER PC WITH 2 VIDEO OUTPUTS MINUMUM	N/A	BY OWNER	BY OWNER
AV INFRASTRUCTURE				
AV01	HDMI AND USB TRANSMITTER AND RECEIVER	N/A	LIGHTWARE	TPX-2X1-TX20-RX107 BUNDLE
AV02	HDMI AND USB TRANSMITTER AND RECEIVER	N/A	LIGHTWARE	UCX-2X1-TPX-TX20 & UCX-3X3-TPX-RX20
AV03	AUDIO DIGITAL PROCESSOR	N/A	SHURE	P300
AV04	AV NETWORK SWITCH	N/A	NETGEAR	M4250 POE+ SERIES
AV05	USB EXTENDER	N/A	LOGITECH	STRONG USB
AV06	AUDIO POWER AMPLIFIER	N/A	Q-SYS	SPA2-60
AV07	HDMI TRANSMITTER AND RECEIVER	N/A	CRESTRON	HD-TXC-4KZ-101 & HD-RX-4KZ-101
SIGNAL CABLING				
AW01	HDBASET TRANSMISSION CABLE	N/A	BY AVC	MANUFACTURER APPROVED
AW02	CAT 6 CABLE (AVB, DANTE, NETWORK CABLING)	N/A	BY AVC	BY AVC
AW03	BALANCED MICROPHONE CABLE	N/A	BY AVC	BY AVC
AW05	SPEAKER CABLING (GAUGE AS REQUIRED BY RUN)	N/A	BY AVC	BY AVC
AW06	SHIELDED RS232 CABLE	N/A	BY AVC	BY AVC
AW07	18AWG 4CONDUCTOR CONTACT CLOSURE CABLE	N/A	BY AVC	BY AVC
AW08	RG-58 50 OHM ANTENNA CABLE	N/A	BY AVC	BY AVC
AW10	INSTALLATION HDMI CABLE	N/A	BY AVC	BY AVC
AW11	LIBERTY ADAPTER RING - APPLE USB-C, USB-C (PROVIDE 1 PER HDMI END USER CABLE)	N/A	LIBERTY	DL-AR2820
AW12	HDMI END USER CABLE (PROVIDE 1 6' PER TABLE CONNECTION, PROVIDE 12' PER WALL AND FLOOR CONNECTION)	N/A	EXTRON	HDMI ULTRA SERIES
AW16	12' USB CABLE (PROVIDE 1 PER USB CONNECTION INTERFACE)	N/A	BY AVC	BY AVC
PROJECT STANDARDS				
THE FOLLOWING MATERIALS ARE TO BE USED AS NECESSARY FOR PROPER FUNCTION OF THE SYSTEM				
AM01	BLANK/VENTED RACK PANEL	BLACK	MIDDLE ATLANTIC	BL1 / BL2 / BL3VT1 / VT2 / VT3
AM02	VENTED RACK SHELF	BLACK	MIDDLE ATLANTIC	U1V / U2V / U3V
AM03	2, 3, & 4RU CLAMPING COMPONENT RACK SHELF	BLACK	MIDDLE ATLANTIC	RC-2/3/4
AM04	3U LOCKBOX DRAWER	BLACK	MIDDLE ATLANTIC	LBX-3 & ACC-KEY
AM05	STEREO TO MONO SUMMING ADAPTER	N/A	BY AVC	BY AVC
AM06	DRAWERS, SHELVES, BLANKS, LACER BARS, ETC	BLACK	BY AVC	BY AVC
AM07	OFE UPS	N/A	OFE	OFE

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TGRWA STRUCTURAL ENGINEERS

kW Mission Critical Engineering Member of WSP

EP ENGINEERING PLUS

Kimley»Horn

ISSUES

1	12/12/2025	SCHEMATIC DESIGN
2	01/23/2026	DESIGN DEVELOPMENT
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REVISIONS

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1/23/2026 7:52:43 PM T00-10 AUDIO VISUAL SPECIFICATIONS

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