



PURCHASING DEPARTMENT  
DIVISION OF BUDGET & FINANCE

PUR-1500  
ADDENDUM NO. 2  
INVITATION TO BID

**Public Safety Training Center Audiovisual System**

**DATE: Friday, June 4, 2021**

**BIDS DUE: Wednesday, June 9, 2021  
2:00 P.M.(EDT/EST)**

To Bidders:

This Addendum is hereby made a part of the Contract Documents on which all bids will be based and is issued to correct and clarify the original documents.

Please acknowledge receipt of this Addendum at the appropriate space on the Proposal Form. This Addendum consists of five (5) pages and three (3) attachments.

**NOTE: Washington County government has limited access to the Washington County Administration Complex at 100 West Washington Street, Hagerstown, Maryland until further notice. All Bidders shall allow ample time for delivery of their bid packets. Delivery of bid packets via-courier service or United States Postal Service (USPS) will be accepted. For those bidders who wish to deliver their bid packet in person will need to call 240-313-2330 to schedule an appointment.**

**ITEM NO. 1:** Inquiry: Can you please provide the date for the AV portion of this to be completed.

Response: Completion of the AV system shall be coordinated with the General Building Contractors construction schedule including Substantial Completion which is currently scheduled for February of 2022. See Attachment No. 1 for the most recent construction schedule.

**ITEM NO. 2:** Inquiry: **RFI #2, Item #1– General Note #1 Does Not Make Sense**  
AV Series drawing TA1.0, general note #1 specifies that “Audiovisual equipment including flat panel displays, projectors, etc. are not in contract (n.i.c.) and will be bid at a later time, except flat panel displays listed under specification section 012100 – allowances.” Please confirm that this note is carried over from a previous bid and is not applicable to AV specification 274100.

Response: Yes, the note is a carry-over from a previous bid.

**ITEM NO. 3:** Inquiry: **RFI #2, Item #2– Is AV Contractor to Provide and Install Conduit and/or Pull Boxes?** AV Series drawing TA1.0, general notes #4 through #8 discuss conduit and pull box

specifications, but do not specify which contractor is responsible for provision and installation.

Response: Conduit and pull boxes shall be provided by the General Building Contractor. Per the specifications, please furnish, layout, and install “J” hooks for cabling support above accessible ceilings.

**ITEM NO. 4:** Inquiry: **RFI #2, Item #3– Are Laptop Computers Owner Furnished?** Specification 274100 Section 2.8, 2.9, 2.10, and 2.11 specify video sources to come from a laptop. AV series drawings TA7.1, TA7.3, TA7.4, TA7.5, TA7.7, and TA7.10 also detail these laptop computers. No indication is given as to who is to provide these computers. Please confirm that the laptops are OFE.

Response: This will be owner furnished equipment (OFE).

**ITEM NO. 5:** Inquiry: **RFI #2, Item #4– Paging Gateway Manufacturer and Model Needed** AV series drawings TA6.1 Shared Equipment Racks and TA7.12 Multi-Purpose Room, detail a “paging gateway” in the shared rack. The schedule A equipment list does not specify this equipment. Please provide the manufacturer and model for the paging gateway.

Response: The QSC Core510 is intended to handle paging in a single building-wide zone via VoiP extension. The AV Contractor shall coordinate VoiP/SIP configuration with the Owner.

**ITEM NO. 6:** Inquiry: **RFI #2, Item #5– Input Plate Detailed, but Not Specified** AV series drawing TA5.1, detail 4, A119 Lobby LCD Display Detail shows an input plate on the wall below the display. The line drawing for this room, TA7.2, detail 2, does not detail a plate in this location. Please confirm if this input plate is required. If the plate is required for the AV system, please provide additional information regarding the integration of this equipment into the AV systems.

Response: This plate was removed in ASI-04 dated 2/22/21. Please note that this ASI was previously issued as part of the general building project. See Attachment No. 2 for ASI-04 dated 2/22/21.

**ITEM NO. 7:** Inquiry: **RFI #2, Item #6– Input Plate Detailed, but Not Specified** AV series drawing TA5.1, detail 2, A104 Office LCD Display Detail shows an input plate on the wall below the display. The line drawing for this room, TA7.1, detail 3, does not detail a plate in this location. Please confirm if this input plate is required. If the plate is required for the AV system, please provide additional information regarding the integration of this equipment into the AV systems.

Response: This is required. Please reference ASI-04 dated 2/22/21. Please note that this ASI was previously issued as part of the general building project. See Attachment No. 2 for ASI-04 dated 2/22/21.

*(NOTE: The wording of all “Inquiries” submitted are displayed exactly as received)*

**ITEM NO. 8:** **Inquiry:** **RFI #2, Item #7– Floor Pass Through Detailed, but Not Specified**  
AV series drawing TA7.12, Multi-Purpose Room line drawing, shows a “Floor Pass Through” in between the table top microphones and the stage rack. This item is not detailed anywhere else. Please provide information as to what the floor pass through is, if it is to be provided and installed by the AV contractor, and any additional information regarding the integration of this equipment into the AV systems.

**Response:** There will be three stage boxes (NIC) provided by the portable stage vendor at center, left, and right positions. Floor boxes (also NIC) are planned to be located within reach behind the stage skirt so cables, if needed, can be connected to any floor box and pulled through any stage box. Please ensure patch cables are of adequate length for this. Note that no AV connections are planned for the left/right cast-in-place floor boxes, and all AV connections are planned at the center floor box.

**ITEM NO. 9:** **Inquiry:** **RFI #2, Item #8– (2) Two Items Shown on Rack Detail, Only (1) One Shown Everywhere Else** AV series drawing TA6.1, Shared Equipment Racks, shows (2) two each of Control Processor Classroom B100 and TV Tuner Classroom B100. Drawing TA7.3 line drawing only shows (1) one each of the control processor and TV tuner to be required. Please clarify the required quantities of each of these pieces of equipment.

**Response:** This equipment is erroneously doubled on the rack elevation on TA6.1.

**ITEM NO. 10:** **Inquiry:** **RFI #2, Item #9– (4) Four Audio Amplifiers Specified in Divisible Classroom, but Only (2) Two Detailed** Schedule A Equipment List specifies a quantity of (4) four Extron 60-1501-01 Audio Amplifiers in the Divisible Room B110 and B112. AV series line drawing TA7.5, Divisible Classroom B110 & B112 details a quantity of (2) two of these amplifiers. Please confirm the correct number of amplifiers. If (4) four amplifiers are required, please provide additional information regarding the integration of this equipment into the AV systems.

**Response:** Four (4) of the specified amplifiers are required. Each room should be configured as a single zone, speakers tapped at 15W. To ensure adequate headroom, each 100W amplifier should have no more than six speakers connected, and nine are required per section. Substitutions for two-channel amplifiers (Extron 60-1767-02, not available during original design) are acceptable.

**ITEM NO. 11:** **Inquiry:** **RFI #2, Item #10– (2) Two Graphics Engines Specified in the Multi-Purpose Room, but Only (1) One Detailed** Schedule A Equipment List specifies a quantity of (2) two Crestron DM-DGE-200-C Graphics Engines in the Multi-Purpose Room C100. AV series line drawing TA7.13, Multi-Purpose Room details a quantity of (1) one of these graphics engines. Please confirm the correct number of graphics engines. If (2) two graphics engines are required, please provide additional information regarding the integration of this equipment into the AV systems.

**Response:** Two (2) graphics engines are required so annotated video will be simultaneously

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available as a route-able source. Design intent is for annotation at either front/rear touch panel to be displayed to any display within the MPR.

**ITEM NO. 12:** ***Inquiry:*** **RFI #2, Item #11– (1) One AES67 Interface Specified in the Multi-Purpose Room, but (2) Two Detailed** Schedule A Equipment List specifies a quantity of (1) one QSC I/O-8 Flex Audio Network Interface in the Multi-Purpose Room C100. AV series line drawings TA7.10 and TA7.11, Multi-Purpose Room details a quantity of (2) one of these interfaces. Please confirm the correct number of interfaces. If only (1) one interface is required, please provide additional information regarding the integration of this equipment into the AV systems.

***Response:*** Two (2) are required. One at the lectern and one at the rear AV cart.

**ITEM NO. 13:** ***Inquiry:*** **RFI #2, Item #12– (20) Twenty Speakers Specified in the Multi-Purpose Room, but (16) Sixteen Detailed** Schedule A Equipment List specifies a quantity of (20) twenty Klipsch CA-800T 8-Inch Speakers in the Multi-Purpose Room C100. AV series reflected ceiling plan drawing TA2.2, Multi-Purpose Room details a quantity of (16) sixteen of these speakers. Please confirm the correct number of speakers. If (20) twenty speakers are required, please provide additional information regarding the integration of this equipment into the AV systems.

***Response:*** Please refer to TA2-series drawings (RCPs) for all speaker quantities.

**ITEM NO. 14:** ***Inquiry:*** **RFI #3, Item #1 – Inductive Loop System Quote Number Specified, but Equipment is no Longer Available** Schedule A – Equipment List, MPR, specifies Listen Technologies Quote #HL3802P Dated 10/29/18 for an “Inductive Loop System”. Listen Technologies no longer produces this equipment and cannot provide any further information as to the equipment required for this system. Neither the AV series drawings, nor the AV specifications detail or quantify what equipment is required for this system. Please provide an acceptable manufacturer that may be substituted and what equipment is required.

***Response:*** The original quote provides details of a dual array loop system. The driver shall be Dante-enabled and minimally capable of dual 6.4A (rms), 17V (rms) output to drive two loops of flat copper tape. Each loop is estimated at 606 feet in length to cover four segments. The flat copper tape shall be installed above slab on grade and below finished flooring. Use Williams AV loop systems based on the DL207 SYS D or approved equal, and the AV Contractor shall provide nine (9) hearing loop receivers and all additional accessories as required for a turnkey system. For basis of design please refer to Attachment No. 3.

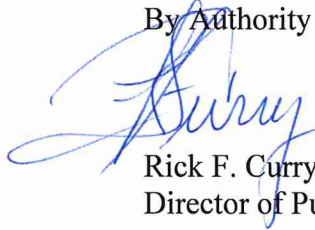
**ITEM NO. 15:** ***Inquiry:*** Quick question on the P&P Bonds. Do you want the cost of the bonds included in the Base Bid or not? The documentation seems to go both ways on that issue. Thanks for the clarity.

***Response:*** The cost of the bonds are to be included in the Base Bid.

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**ITEM NO. 16:** Bidders shall submit the ***Revised*** Microsoft Excel Schedule A Equipment List, the Bid Bond, the Standard Form of Proposal and Attachment "A" (Attachment "A" shall be submitted within forty-eight hours of bid submission) contained in the original document as their Invitation to Bid submittal no later than **2:00 P.M. (EDT/EST), Wednesday, June 9, 2021.**

By Authority of:



Rick F. Curry, CPPO  
Director of Purchasing

Washington County Public Safety Training Center				MJT				28-May-21 08:55					
Activity ID	RESPONIBLE	RESP.	Activity Name	Responsibility	Original Duration	Remaining Duration	Start	Actual Start	Finish	Actual Finish	Activity % Complete	Total Float	
20-032 Washington County Public Safety Training Center					321	191	23-Nov-20 A	23-Nov-20	18-Feb-22			-4	
20-032.5 General Requirements					13	0	23-Nov-20 A	23-Nov-20	14-Dec-20 A	14-Dec-20			
A1000			NTP		1	0	23-Nov-20 A	23-Nov-20	23-Nov-20 A	23-Nov-20	100%		
A1020			Mobilization		10	0	01-Dec-20 A	01-Dec-20	14-Dec-20 A	14-Dec-20	100%		
A1030			Temporary Fence		2	0	09-Dec-20 A	09-Dec-20	10-Dec-20 A	10-Dec-20	100%		
20-032.6 Material Procurement					101	70	25-Nov-20 A	25-Nov-20	02-Sep-21			86	
A3140			Submittals		30	0	25-Nov-20 A	25-Nov-20	21-May-21 A	21-May-21	100%		
A3120			DOAS Unit		70	0	08-Dec-20 A	08-Dec-20	14-May-21 A	14-May-21	100%		
A3130			RTU		50	0	08-Dec-20 A	08-Dec-20	14-May-21 A	14-May-21	100%		
A3090			Generator		70	70	22-Jan-21 A	22-Jan-21	02-Sep-21		0%	86	
A3070			Switchgear		45	0	03-Feb-21 A	03-Feb-21	26-May-21 A	26-May-21	100%		
A3080			Lighting		45	0	09-Feb-21 A	09-Feb-21	30-Apr-21 A	30-Apr-21	100%		
20-032.4 Sitework					183	26	21-Dec-20 A	21-Dec-20	27-Aug-21			121	
A1040			E&S Controls/Silt sock	MARTINEX	5	0	21-Dec-20 A	21-Dec-20	22-Dec-20 A	22-Dec-20	100%		
A1050			Start Footers	MARTINEX	1	0	28-Dec-20 A	28-Dec-20	28-Dec-20 A	28-Dec-20	100%		
A1060			Exterior Pads	LOBAR	5	0	08-Mar-21 A	08-Mar-21	12-Mar-21 A	12-Mar-21	100%		
A1070			Sidewalks	NORTHEASTFOL	5	5	23-Jul-21		29-Jul-21		0%	121	
A1120			Install Propane tank fence	Long F	5	5	23-Jul-21		30-Jul-21		0%	121	
A1110			Paving	CRAIGPAV	5	5	30-Jul-21		06-Aug-21		0%	121	
A1100			Pavement Markings/Signs	Linco	5	5	06-Aug-21		13-Aug-21		0%	121	
A1090			Dumpster Enclosure	Long F	5	5	13-Aug-21		20-Aug-21		0%	121	
A1080			Landscaping	BOTONICA	5	5	20-Aug-21		27-Aug-21		0%	121	
20-032.2 Area A Office/Locker Rooms					301	190	28-Dec-20 A	28-Dec-20	17-Feb-22			-4	
A1580			Dig Footers	MARTINEX	15	0	28-Dec-20 A	28-Dec-20	04-Feb-21 A	04-Feb-21	100%		
A1590			Pour Footers	LOBAR	15	0	30-Dec-20 A	30-Dec-20	04-Feb-21 A	04-Feb-21	100%		
A1600			CMU Foundation to slab height	Bragunier	20	0	08-Jan-21 A	08-Jan-21	12-Feb-21 A	12-Feb-21	100%		
A1620			Underground Plumbing	MICKSPLUMB	20	0	13-Jan-21 A	13-Jan-21	11-Feb-21 A	11-Feb-21	100%		
A2980			Underground Storm	MICKSPLUMB	20	0	13-Jan-21 A	13-Jan-21	11-Feb-21 A	11-Feb-21	100%		
A1610			Underground Electric	CROUSEELEC	15	0	20-Jan-21 A	20-Jan-21	19-Feb-21 A	19-Feb-21	100%		
<div><div></div> Actual Work</div> <div><div></div> Remaining Work</div> <div><div></div> Critical Remaining Work</div> <div><div></div> Milestone</div> <div><div></div> Summary</div>				Schedule Update 5/28/2021									



Washington County Public Safety Training Center				MJT				28-May-21 08:55					
Activity ID	RESPONIBLE	RESP.	Activity Name	Responsibility	Original Duration	Remaining Duration	Start	Actual Start	Finish	Actual Finish	Activity % Complete	Total Float	
<div><div></div><div></div><div></div></div>			A1630	Prep Stone for concrete slab	MARTINEX	5	0	26-Jan-21 A	26-Jan-21	01-Mar-21 A	01-Mar-21	100%	
			A1640	CMU walls to scaffold high	Bragunier	20	0	15-Feb-21 A	15-Feb-21	21-May-21 A	21-May-21	100%	
			A1720	Pour Concrete slabs	LOBAR	5	0	04-Mar-21 A	04-Mar-21	04-Mar-21 A	04-Mar-21	100%	
			A1650	CMU walls to bearing height	Bragunier	20	0	08-Mar-21 A	08-Mar-21	21-May-21 A	21-May-21	100%	
			A1760	Electrical Wall Rough Ins	CROUSEELEC	20	2	08-Mar-21 A	08-Mar-21	31-May-21		90%	75
			A1770	Plumbing Wall Rough Ins	MICKSPLUMB	20	2	08-Mar-21 A	08-Mar-21	31-May-21		90%	55
			A1660	Bearing Plates	RASERSTEEL	10	0	15-Mar-21 A	15-Mar-21	21-May-21 A	21-May-21	100%	
			A2070	HM Frames	LOBAR	5	0	15-Mar-21 A	15-Mar-21	28-May-21 A	28-May-21	100%	
			A1670	Steel Joists	RASERSTEEL	10	9	24-May-21 A	24-May-21	11-Jun-21		15%	-4
			A2000	Structural Steel	RASERSTEEL	10	10	28-May-21		10-Jun-21		0%	-4
			A1680	Steel Decking	RASERSTEEL	10	10	11-Jun-21		25-Jun-21		0%	-4
			A1690	Install Roof Drain Rough Ins	MICKSPLUMB	10	10	25-Jun-21		09-Jul-21		0%	12
			A1700	Pour concrete roof	LOBAR	5	5	25-Jun-21		02-Jul-21		0%	-4
			A1780	Brick Veneer Scaffold High	Bragunier	20	20	25-Jun-21		23-Jul-21		0%	17
			A2620	Roof Blocking	MSMROOFING	10	10	25-Jun-21		09-Jul-21		0%	12
			A2810	Mechanical Piping Rough Ins	MICKSPLUMB	20	20	25-Jun-21		23-Jul-21		0%	52
			A1730	Electrical Overhead Rough Ins	CROUSEELEC	20	20	02-Jul-21		30-Jul-21		0%	52
			A1740	Plumbing Overhead Rough Ins	MICKSPLUMB	20	20	02-Jul-21		30-Jul-21		0%	32
			A1810	Sprinkler Rough Ins	REGIONFIREPRC	20	20	02-Jul-21		30-Jul-21		0%	52
			A2040	Metal on High Roof	MSMROOFING	20	20	02-Jul-21		30-Jul-21		0%	-4
			A2530	Metal Stud Framing	EMPIRES	15	15	02-Jul-21		23-Jul-21		0%	12
			A1790	Brick Veneer complete	Bragunier	20	20	23-Jul-21		20-Aug-21		0%	17
			A2570	Electrical Rough In Metal Studs	CROUSEELEC	15	15	23-Jul-21		13-Aug-21		0%	12
			A2890	Mechanical Pipe Testing	MICKSPLUMB	5	5	23-Jul-21		30-Jul-21		0%	52
			A1710	Install PVC Roof System	MSMROOFING	20	20	30-Jul-21		27-Aug-21		0%	-4
			A2900	Plumbing Insulation	MICKSPLUMB	20	20	30-Jul-21		27-Aug-21		0%	32
			A1880	Install Windows	ALUMA	10	10	20-Aug-21		03-Sep-21		0%	54
			A2090	Aluminum Storefronts	ALUMA	10	10	20-Aug-21		03-Sep-21		0%	17
			A1750	HVAC Rough Ins	MICKSPLUMB	20	20	27-Aug-21		24-Sep-21		0%	-4
			A1890	Fire Alarm Rough Ins	TELEPLUS	20	20	27-Aug-21		24-Sep-21		0%	12
<div><div>Actual Work</div><div>Remaining Work</div><div>Critical Remaining Work</div><div>◆ Milestone</div><div>Summary</div></div>				Schedule Update 5/28/2021									

Washington County Public Safety Training Center				MJT				28-May-21 08:55						
Activity ID	RESPONIBLE	RESP.	Activity Name	Responsibility	Original Duration	Remaining Duration	Start	Actual Start	Finish	Actual Finish	Activity % Complete	Total Float		
<div><div></div><div></div><div></div></div>			A1980	Telecom/Data Rough In	HPPERFCABLIN	20	20	27-Aug-21		24-Sep-21		0%	12	
			A2010	AV Rough Ins	CROUSEELEC	20	20	27-Aug-21		24-Sep-21		0%	12	
			A2560	Roof Dried In	MSMROOFING	5	5	27-Aug-21		03-Sep-21		0%	-4	
			A2820	Install Heat Pumps	MICKSPLUMB	15	15	27-Aug-21		17-Sep-21		0%	56	
			A2540	Hang Drywall on Walls	EMPIRES	15	15	03-Sep-21		24-Sep-21		0%	-4	
			A2670	Cement Siding	MSMROOFING	5	5	03-Sep-21		10-Sep-21		0%	79	
			A2710	Frame Bulkheads/Ceilings	EMPIRES	5	5	03-Sep-21		10-Sep-21		0%	2	
			A2860	Set Roof Top Units	MICKSPLUMB	5	5	03-Sep-21		10-Sep-21		0%	61	
			A2550	Finish Drywall	EMPIRES	15	15	10-Sep-21		01-Oct-21		0%	-4	
			A2720	Hang Bulkheads/Ceilings	EMPIRES	5	5	10-Sep-21		17-Sep-21		0%	2	
			A2730	Finish Bulkheads/Ceilings	EMPIRES	5	5	17-Sep-21		24-Sep-21		0%	2	
			A2830	Mechanical Piping Tie Ins	MICKSPLUMB	20	20	17-Sep-21		15-Oct-21		0%	56	
			A2880	Insulate Ductwork	MICKSPLUMB	15	15	24-Sep-21		15-Oct-21		0%	-4	
			A1800	Paint	C Coats	10	10	01-Oct-21		15-Oct-21		0%	-4	
			A1820	Ceiling Grid	EMPIRES	10	10	15-Oct-21		29-Oct-21		0%	-4	
			A2020	AV Terminations		15	15	15-Oct-21		05-Nov-21		0%	39	
			A2610	Athletic Resilient Flooring	SOLARA	5	5	15-Oct-21		22-Oct-21		0%	44	
			A2840	Start up Heat Pumps	MICKSPLUMB	10	10	15-Oct-21		29-Oct-21		0%	56	
			A2870	Ceramic Tile in Showers	LOBAR	10	10	15-Oct-21		29-Oct-21		0%	9	
			A1930	Install Light Fixtures	CROUSEELEC	15	15	18-Oct-21		08-Nov-21		0%	-3	
			A1910	Sprinkler Heads and Drops	REGIONFIREPRC	20	20	19-Oct-21		16-Nov-21		0%	-4	
			A1940	Install GRD's	MICKSPLUMB	15	15	19-Oct-21		09-Nov-21		0%	2	
			A2120	Mirrors in Weight Room	LOBAR	5	5	22-Oct-21		29-Oct-21		0%	44	
			A1840	Casework	COMMCAB	15	15	25-Oct-21		15-Nov-21		0%	-3	
			A1900	Fire Alarm Install	TELEPLUS	15	15	25-Oct-21		15-Nov-21		0%	-3	
			A1990	Telecom/Data Terminations	HPPERFCABLIN	15	15	25-Oct-21		15-Nov-21		0%	-3	
			A2580	Resinous Flooring in Locker Rooms	PALMA	5	5	08-Nov-21		15-Nov-21		0%	3	
			A2590	Resinous Flooring in Showers	PALMA	5	5	08-Nov-21		15-Nov-21		0%	3	
			A2600	PT in Bathrooms	LOBAR	5	5	08-Nov-21		15-Nov-21		0%	3	
			A1920	Plumbing Fixtures	MICKSPLUMB	20	20	15-Nov-21		13-Dec-21		0%	3	
<div><div>Actual Work</div><div>Remaining Work</div><div>Critical Remaining Work</div><div>◆ Milestone</div><div>Summary</div></div>				Schedule Update 5/28/2021										



Washington County Public Safety Training Center				MJT				28-May-21 08:55						
Activity ID	RESPONIE	RESP.	Activity Name	Responsibility	Original Duration	Remaining Duration	Start	Actual Start	Finish	Actual Finish	Activity % Complete	Total Float		
<div><div></div><div></div><div></div></div>			A2750	Install Lockers	TIFFIN	10	10	15-Nov-21		29-Nov-21		0%	23	
			A1830	Ceiling Tile	EMPIRES	10	10	16-Nov-21		30-Nov-21		0%	-4	
			A1860	Flooring in Rooms	SOLARA	15	15	23-Nov-21		14-Dec-21		0%	-4	
			A2080	Doors and Hardware	LOBAR	10	10	26-Nov-21		10-Dec-21		0%	14	
			A1850	Visual Display Boards	B&C Des	5	5	03-Dec-21		10-Dec-21		0%	4	
			A1870	Sheet Vinyl in Corridors	SOLARA	15	15	03-Dec-21		24-Dec-21		0%	4	
			A1950	Install Electrical Devices	CROUSEELEC	10	10	10-Dec-21		24-Dec-21		0%	4	
			A2110	Toilet Partitions	LOBAR	10	10	13-Dec-21		27-Dec-21		0%	3	
			A2740	PT in Corridor	LOBAR	15	15	14-Dec-21		04-Jan-22		0%	-4	
			A1960	Final Cleaning	LOBAR	10	10	04-Jan-22		18-Jan-22		0%	-4	
			A3040	Contractor Punchlist	LOBAR	1	1	18-Jan-22		19-Jan-22		0%	-4	
			A2930	Perform Punchlist Walk Thru	CRA	1	1	19-Jan-22		20-Jan-22		0%	-4	
			A2920	Complete Punchlist	LOBAR	20	20	20-Jan-22		17-Feb-22		0%	-4	
	20-032.1 Area B Classroom Wing w/Alt. GC-1					256	160	14-Jan-21 A	14-Jan-21	06-Jan-22			26	
			A1130	Dig Footers	MARTINEX	15	0	14-Jan-21 A	14-Jan-21	05-Feb-21 A	05-Feb-21	100%		
			A1140	Pour Footers	LOBAR	15	0	14-Jan-21 A	14-Jan-21	05-Feb-21 A	05-Feb-21	100%		
			A1150	CMU Foundation to slab height	Bragunier	20	0	15-Jan-21 A	15-Jan-21	12-Feb-21 A	12-Feb-21	100%		
			A1160	Underground Electric	CROUSEELEC	10	0	20-Jan-21 A	20-Jan-21	12-Mar-21 A	12-Mar-21	100%		
			A2990	Underground Storm	MICKSPLUMB	10	0	01-Feb-21 A	01-Feb-21	12-Feb-21 A	12-Feb-21	100%		
			A1170	Underground Plumbing	MICKSPLUMB	10	0	02-Feb-21 A	02-Feb-21	12-Feb-21 A	12-Feb-21	100%		
			A1180	Prep Stone for concrete slab	MARTINEX	5	0	08-Mar-21 A	08-Mar-21	12-Mar-21 A	12-Mar-21	100%		
			A1270	Pour Concrete slabs	LOBAR	5	0	17-Mar-21 A	17-Mar-21	17-Mar-21 A	17-Mar-21	100%		
			A1190	CMU walls to scaffold high	Bragunier	20	0	22-Mar-21 A	22-Mar-21	21-May-21 A	21-May-21	100%		
			A1310	Electrical Wall Rough Ins	CROUSEELEC	15	0	22-Mar-21 A	22-Mar-21	21-May-21 A	21-May-21	100%		
			A1320	Plumbing Wall Rough Ins	MICKSPLUMB	15	0	22-Mar-21 A	22-Mar-21	21-May-21 A	21-May-21	100%		
			A2050	HM Frames	LOBAR	5	0	22-Mar-21 A	22-Mar-21	21-May-21 A	21-May-21	100%		
			A1200	CMU walls to bearing height	Bragunier	20	0	07-Apr-21 A	07-Apr-21	21-May-21 A	21-May-21	100%		
			A1210	Bearing Plates	LOBAR	5	0	14-Apr-21 A	14-Apr-21	21-May-21 A	21-May-21	100%		
			A1300	HVAC Rough Ins	MICKSPLUMB	10	9	17-May-21 A	17-May-21	28-Jul-21		15%	58	
			A1220	Steel Joists	RASERSTEEL	15	15	24-May-21 A	24-May-21	24-Jun-21		0%	26	
<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>				Schedule Update 5/28/2021										

Washington County Public Safety Training Center				MJT				28-May-21 08:55						
Activity ID	RESPONIBLE	RESP.	Activity Name	Responsibility	Original Duration	Remaining Duration	Start	Actual Start	Finish	Actual Finish	Activity % Complete	Total Float		
<div><div></div><div></div><div></div></div>			A1550	Structural Steel	RASERSTEEL	5	5	24-May-21 A	24-May-21	03-Jun-21		0%	26	
			A1230	Steel Decking	RASERSTEEL	15	15	25-Jun-21		15-Jul-21		0%	26	
			A1240	Install Roof Drain Rough Ins	MICKSPLUMB	10	10	16-Jul-21		29-Jul-21		0%	26	
			A1290	Plumbing Overhead Rough Ins	MICKSPLUMB	15	15	16-Jul-21		05-Aug-21		0%	61	
			A1330	Brick Veneer Scaffold High	Bragunier	20	20	16-Jul-21		12-Aug-21		0%	44	
			A2760	Mechanical Piping Rough Ins	MICKSPLUMB	20	20	16-Jul-21		12-Aug-21		0%	36	
			A2940	Insulate Ductwork	MICKSPLUMB	10	10	28-Jul-21		11-Aug-21		0%	58	
			A1250	Pour concrete roof	LOBAR	5	5	30-Jul-21		05-Aug-21		0%	26	
			A1280	Electrical Overhead Rough Ins	CROUSEELEC	15	15	30-Jul-21		19-Aug-21		0%	51	
			A1260	Install PVC Roof System	MSMROOFING	20	20	06-Aug-21		02-Sep-21		0%	26	
			A2680	Frame bulkheads	EMPIRES	5	5	06-Aug-21		12-Aug-21		0%	31	
			A1360	Sprinkler Rough Ins	REGIONFIREPRC	15	15	10-Aug-21		30-Aug-21		0%	29	
			A1340	Brick Veneer complete	Bragunier	20	20	13-Aug-21		09-Sep-21		0%	44	
			A2690	Hang Drywall Bulkheads	EMPIRES	5	5	13-Aug-21		19-Aug-21		0%	31	
			A2780	Install Heat Pumps	MICKSPLUMB	15	15	13-Aug-21		02-Sep-21		0%	66	
			A2950	Insulate Mechanical Pipe	MICKSPLUMB	20	20	13-Aug-21		09-Sep-21		0%	36	
			A2700	Finish Drywall Bulkheads	EMPIRES	5	5	20-Aug-21		26-Aug-21		0%	31	
			A1350	Paint	C Coats	15	15	31-Aug-21		20-Sep-21		0%	29	
			A1440	Fire Alarm Rough Ins	TELEPLUS	15	15	03-Sep-21		23-Sep-21		0%	26	
			A1530	Telecom/Data Rough In	HPPERFCABLING	15	15	03-Sep-21		23-Sep-21		0%	26	
			A1560	AV Rough Ins	CROUSEELEC	15	15	03-Sep-21		23-Sep-21		0%	26	
			A2770	Mechanical Piping Tie Ins	MICKSPLUMB	20	20	03-Sep-21		30-Sep-21		0%	66	
			A1430	Install Windows	ALUMA	10	10	10-Sep-21		23-Sep-21		0%	54	
			A2520	Roof Dried In	MSMROOFING	10	10	10-Sep-21		23-Sep-21		0%	44	
			A1500	Install Electrical Devices	CROUSEELEC	10	10	21-Sep-21		04-Oct-21		0%	77	
			A1370	Ceiling Grid	EMPIRES	10	10	24-Sep-21		07-Oct-21		0%	26	
			A1480	Install Light Fixtures	CROUSEELEC	10	10	28-Sep-21		11-Oct-21		0%	32	
			A1490	Install GRD's	MICKSPLUMB	10	10	28-Sep-21		11-Oct-21		0%	32	
			A1460	Sprinkler Heads and Drops	REGIONFIREPRC	15	15	29-Sep-21		19-Oct-21		0%	26	
			A2790	Start up Heat Pumps	MICKSPLUMB	10	10	01-Oct-21		14-Oct-21		0%	66	
<div><div></div><div></div><div></div></div> <div><div></div><div></div></div>				Schedule Update 5/28/2021										

Washington County Public Safety Training Center				MJT				28-May-21 08:55						
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<div><div></div><div></div><div></div></div>			A1400	Visual Display Boards	B&C Des	5	5	08-Oct-21		14-Oct-21	0%	39		
			A1450	Fire Alarm Install	TELEPLUS	10	10	08-Oct-21		21-Oct-21	0%	64		
			A1540	Telecom/Data Terminations	HPPERFCABLIN	15	15	08-Oct-21		28-Oct-21	0%	59		
			A1570	AV Terminations		10	10	08-Oct-21		21-Oct-21	0%	64		
			A1380	Ceiling Tile	EMPIRES	10	10	20-Oct-21		02-Nov-21	0%	26		
			A1390	Casework	COMMCAB	10	10	27-Oct-21		09-Nov-21	0%	26		
			A1410	Flooring in classrooms	SOLARA	10	10	03-Nov-21		16-Nov-21	0%	26		
			A2060	Doors and Hardware	LOBAR	10	10	10-Nov-21		23-Nov-21	0%	41		
			A1420	Flooring in Corridors	SOLARA	10	10	17-Nov-21		30-Nov-21	0%	26		
			A1470	Plumbing Fixtures	MICKSPLUMB	20	20	17-Nov-21		14-Dec-21	0%	26		
			A2100	Folding Partition	MODERNFO	5	5	17-Nov-21		23-Nov-21	0%	41		
			A1510	Final Cleaning	LOBAR	10	10	15-Dec-21		28-Dec-21	0%	26		
			A3050	Contractor Punchlist	LOBAR	1	1	15-Dec-21		15-Dec-21	0%	26		
			A2960	Punchlist Walk thru	CRA	1	1	16-Dec-21		16-Dec-21	0%	26		
			A2970	Complete Punchlist	LOBAR	15	15	17-Dec-21		06-Jan-22	0%	26		
	20-032.3 Area C Multi-purpose Room					278	191	08-Feb-21 A	08-Feb-21	18-Feb-22			-4	
			A2130	Dig Footers	MARTINEX	15	0	08-Feb-21 A	08-Feb-21	01-Mar-21 A	01-Mar-21	100%		
			A2140	Pour Footers	LOBAR	15	0	08-Feb-21 A	08-Feb-21	02-Mar-21 A	02-Mar-21	100%		
			A2150	CMU Foundation to slab height	Bragunier	20	0	12-Feb-21 A	12-Feb-21	12-Mar-21 A	12-Mar-21	100%		
			A2160	Underground Electric	CROUSEELEC	10	0	04-Mar-21 A	04-Mar-21	18-Mar-21 A	18-Mar-21	100%		
			A2180	Prep Stone for concrete slab	MARTINEX	5	0	22-Mar-21 A	22-Mar-21	22-Mar-21 A	22-Mar-21	100%		
			A2270	Pour Concrete slabs	LOBAR	5	0	23-Mar-21 A	23-Mar-21	23-Mar-21 A	23-Mar-21	100%		
			A2310	Electrical Wal Rough Ins	CROUSEELEC	20	0	29-Mar-21 A	29-Mar-21	24-May-21 A	24-May-21	100%		
			A2500	HM Frames	LOBAR	5	0	12-Apr-21 A	12-Apr-21	21-May-21 A	21-May-21	100%		
			A2190	CMU walls to scaffold high	Bragunier	20	0	21-Apr-21 A	21-Apr-21	24-May-21 A	24-May-21	100%		
			A2200	CMU walls to bearing height	Bragunier	20	0	10-May-21 A	10-May-21	25-May-21 A	25-May-21	100%		
			A2210	Bearing Plates	LOBAR	5	0	14-May-21 A	14-May-21	21-May-21 A	21-May-21	100%		
			A2330	Brick Veneer Scaffold High	Bragunier	20	20	28-May-21		24-Jun-21		0%	78	
			A2480	Structural Steel	RASERSTEEL	8	8	28-May-21		08-Jun-21		0%	35	
			A2630	Install Steel Trusses	RASERSTEEL	15	15	09-Jun-21		29-Jun-21		0%	35	
<div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div> <div><div></div><div></div><div></div></div>				Schedule Update 5/28/2021										

Washington County Public Safety Training Center				MJT				28-May-21 08:55						
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<div><div></div><div></div><div></div></div>			A2340	Brick Veneer complete	Bragunier	20	20	25-Jun-21		22-Jul-21		0%	78	
			A2230	Steel Decking	RASERSTEEL	20	20	30-Jun-21		27-Jul-21		0%	35	
			A2370	Install Windows	ALUMA	10	10	23-Jul-21		05-Aug-21		0%	78	
			A2280	Electrical Overhead Rough Ins	CROUSEELEC	20	20	28-Jul-21		24-Aug-21		0%	65	
			A2490	Metal Roof	MSMROOFING	20	20	28-Jul-21		24-Aug-21		0%	35	
			A2300	HVAC Rough Ins	MICKSPLUMB	20	20	25-Aug-21		21-Sep-21		0%	35	
			A2360	Sprinkler Rough Ins/Heads	REGIONFIREPRC	20	20	25-Aug-21		21-Sep-21		0%	45	
			A2380	Fire Alarm Rough Ins	TELEPLUS	20	20	25-Aug-21		21-Sep-21		0%	45	
			A2640	Cement Board Siding	MSMROOFING	20	20	25-Aug-21		21-Sep-21		0%	103	
			A2650	Roof Trims	MSMROOFING	10	10	25-Aug-21		07-Sep-21		0%	113	
			A2420	HVAC Finishes	MICKSPLUMB	15	15	22-Sep-21		12-Oct-21		0%	65	
			A3000	Insulate Ductwork	MICKSPLUMB	10	10	22-Sep-21		05-Oct-21		0%	35	
			A2350	Paint	C Coats	15	15	06-Oct-21		26-Oct-21		0%	35	
			A2390	Fire Alarm Install	TELEPLUS	10	10	27-Oct-21		09-Nov-21		0%	55	
			A2410	Install Light Fixtures	CROUSEELEC	15	15	27-Oct-21		16-Nov-21		0%	40	
			A2430	Install Electrical Devices	CROUSEELEC	15	15	27-Oct-21		16-Nov-21		0%	50	
			A2460	Telecom/Data Rough In	HPPERFCABLINC	15	15	27-Oct-21		16-Nov-21		0%	35	
			A3150	AV Tape on Concrete Under Flooring		5	5	27-Oct-21		02-Nov-21		0%	50	
			A3010	Commissioning	MICKSPLUMB	20	20	29-Oct-21		26-Nov-21		0%	56	
			A2470	Telecom/Data Terminations	HPPERFCABLINC	15	15	17-Nov-21		07-Dec-21		0%	35	
			A2660	Flooring	SOLARA	5	5	17-Nov-21		23-Nov-21		0%	40	
			A2510	Doors and Hardware	LOBAR	5	5	24-Nov-21		30-Nov-21		0%	40	
			A2440	Final Cleaning	LOBAR	5	5	08-Dec-21		14-Dec-21		0%	35	
			A3060	Contractor Punchlist	LOBAR	1	1	08-Dec-21		08-Dec-21		0%	36	
			A3020	Punchlist Walk thru	CRA	1	1	10-Dec-21		10-Dec-21		0%	35	
			A3030	Complete Punchlist	LOBAR	10	10	13-Dec-21		24-Dec-21		0%	35	
			A2450	Substantial Completion		1	1	17-Feb-22		18-Feb-22*		0%	-4	
<div><div>Actual Work</div><div>Remaining Work</div><div>Critical Remaining Work</div><div>◆ Milestone</div><div>Summary</div></div>				Schedule Update 5/28/2021										



**Crabtree, Rohrbaugh & Associates - Architects**

401 East Winding Hill Road  
Mechanicsburg, PA 17055  
Pennsylvania • Maryland • Virginia • West Virginia

**ARCHITECT'S SUPPLEMENTAL INSTRUCTION**

**ASI - 04**

**TO:** Lobar Inc.  
1 Old Mill Road, P.O. Box 50  
Dillsburg, PA 17019

**RE:** Washington County Public Safety Training Center  
CRA Project No. 3089

**ISSUED:** February 22, 2021

**DESCRIPTION OF REVISIONS:**

Clarifications to RFI-09:

Item 4.a., Behind the TV it shows a receptacle and data receptacle and requires we turn to the telecom drawings for more detail. *See attached revised AV drawings for locations of AV box type DB1's. AV box type DB1 has been removed from the telecom drawings. Also see attached revised telecom drawings showing data receptacles in correct locations. In most cases receptacles had to be relocated, however there are a couple cases where data receptacles were added and some cases where they were deleted. Note #16 has been ADDED to the Keyed Notes for these receptacles.*

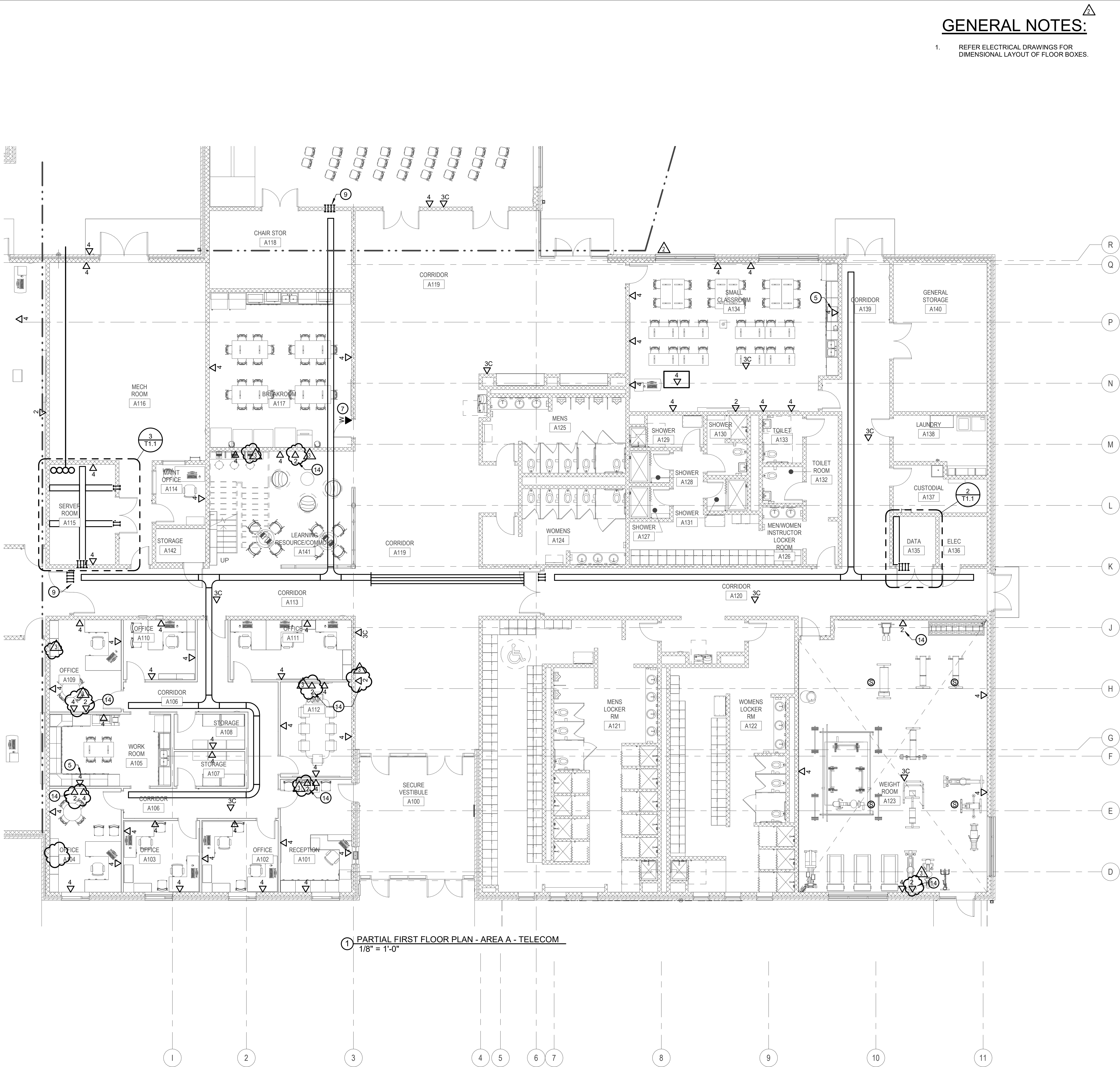
Items 4.d. and 5, centerline dimensioning for AV devices to be shown on Architectural elevations. *See attached revised AV elevation drawings for centerline dimensions for all projection screens and monitors from wall locations. Projection screen switches have also been relocated to avoid interference with marker and tack boards.*

Please contact me with any questions and/or concerns.

Sincerely,

John A. Pryor Jr., R.A. | Project Manager  
Crabtree, Rohrbaugh & Associates - Architects  
P: 717.458.0269 C: 717.673.9505  
E: jpryor@cra-architects.com



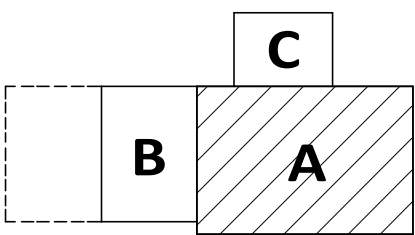
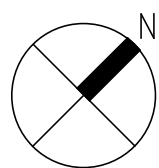
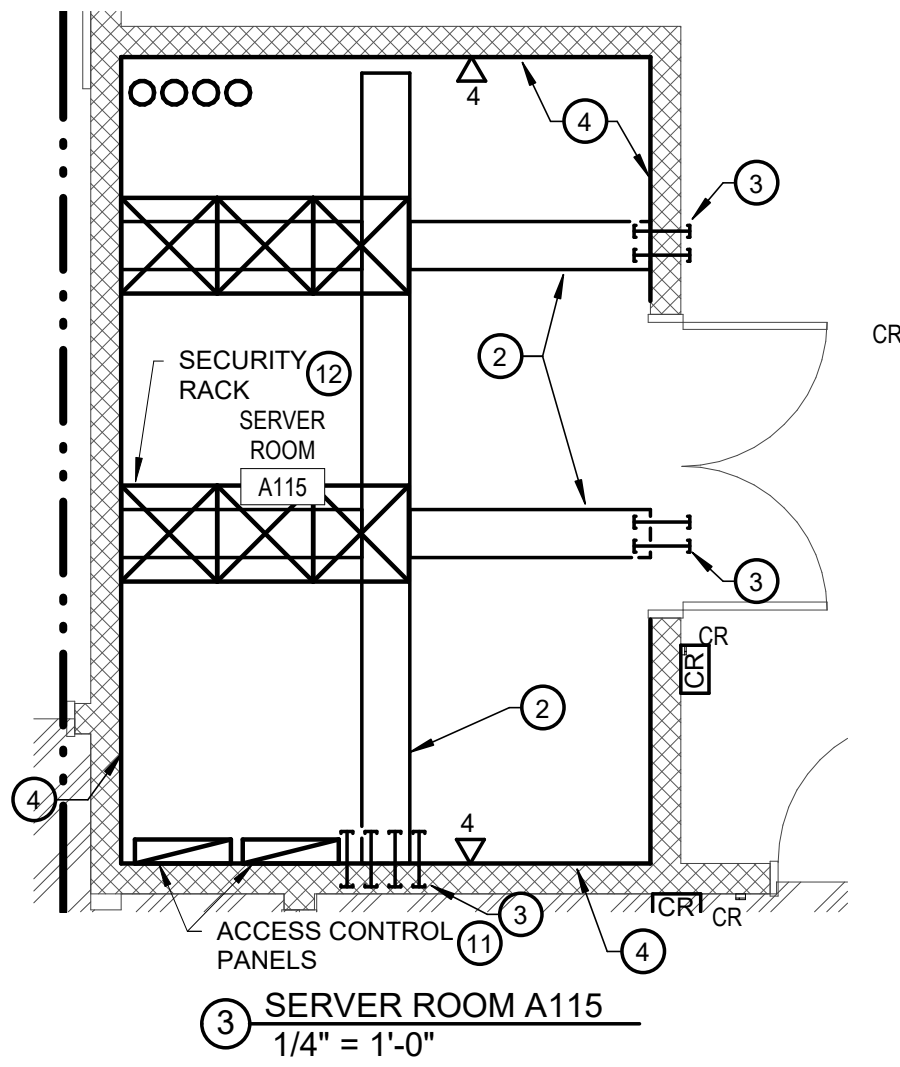
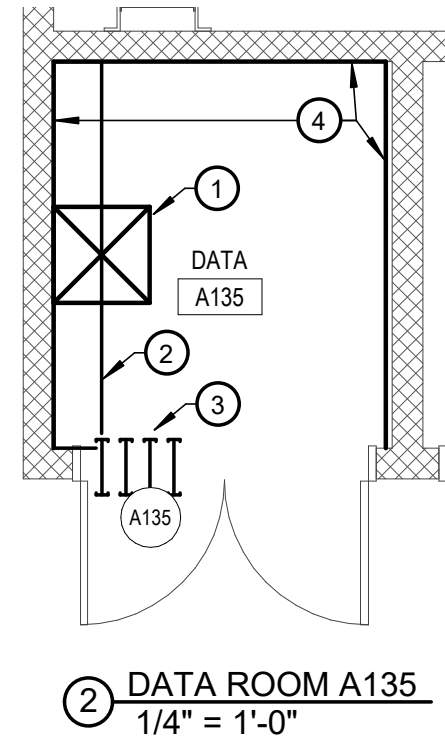


**GENERAL NOTES:**

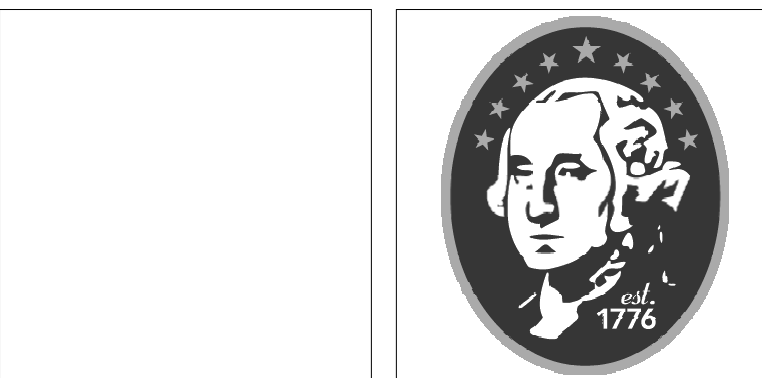
1. REFER ELECTRICAL DRAWINGS FOR DIMENSIONAL LAYOUT OF FLOOR BOXES.

**KEYED NOTES:**

- 1 PROVIDE TELECOM RACK (2 POST).
- 2 PROVIDE 18" WIDE LADDER TRAY.
- 3 PROVIDE 4" EZ PATH SLEEVES.
- 4 PROVIDE 3/4" FIRE RATED PLYWOOD (3 WALLS).
- 5 MOUNT ABOVE COUNTER.
- 6 MOUNT BEHIND DIGITAL SIGNAGE VIDEO DISPLAY.
- 7 PROVIDE 48" AFF WALL MOUNTED TELEPHONE OUTLET (BLUE).
- 8 PROVIDE (4) 4" ACROSS UNDERSIDE OF BRIDGE.
- 9 PROVIDE (4) 4" FIRE RATED SLEEVES.
- 10 PROVIDE (8) 4" C FROM MDF A115 TO SITE HANDBOXES (2 TELEPHONE, 1 CATV, 1 FIBER, 4 SPARE).
- 11 SECURITY ACCESS CONTROL PANELS. REFER TO T2.1.
- 12 SECURITY EQUIPMENT RACK.
- 13 MOUNT AT 10'-0" AFF BELOW ACOUSTIC WALL PANELS.
- 14 MOUNT BEHIND VIDEO DISPLAY.



**KEY PLAN**



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**REVISIONS**

NO.	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
1	12/18/2019		BID DOCUMENTS
2	12/22/2020		ADDENDUM NO. 5
3	02/22/2021		ASH-04 REVISIONS FOR RFI-09 RESPONSE

**CRABTREE ROHRBAUGH & ASSOCIATES - ARCHITECTS**

100 WEST ROAD, SUITE 402, TOWSON MD 21204 410-528-0272  
MECHANICSBURG, PENNSYLVANIA CHARLOTTEVILLE, VIRGINIA WHITE SULPHUR SPRINGS, WEST VIRGINIA

PROPOSED NEW

**WASHINGTON COUNTY PUBLIC SAFETY TRAINING CENTER**  
WASHINGTON COUNTY PROJECT NO. 28-266

18350 PUBLIC SAFETY PLACE  
HAGERSTOWN, MD 21740



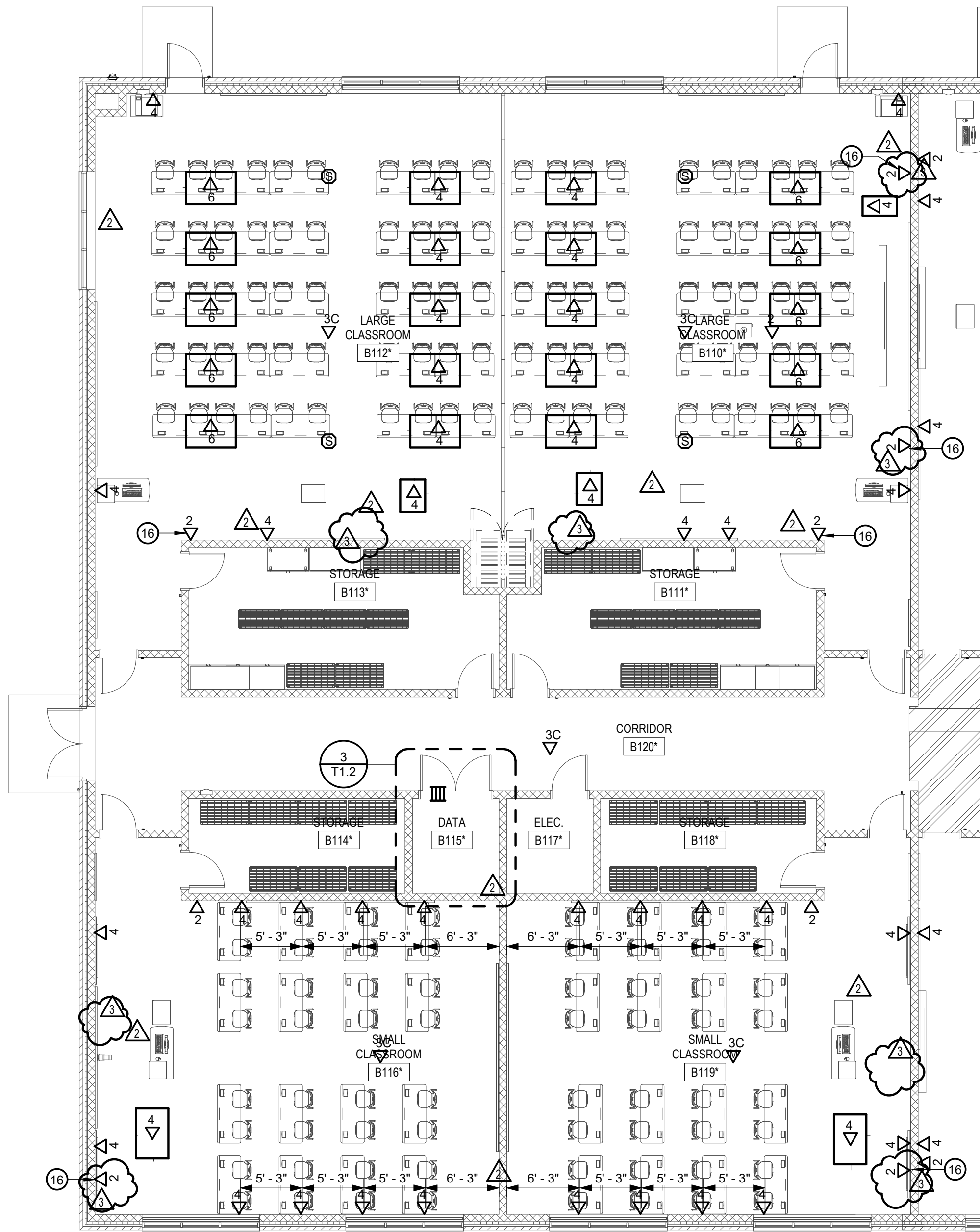
PARTIAL FIRST FLOOR PLAN - AREA A - TELECOM
PLOT SCALE: As Indicated
FILENAME:
DATE: DECEMBER 18, 2019

**PROJECT**  
3089

**T1.1**

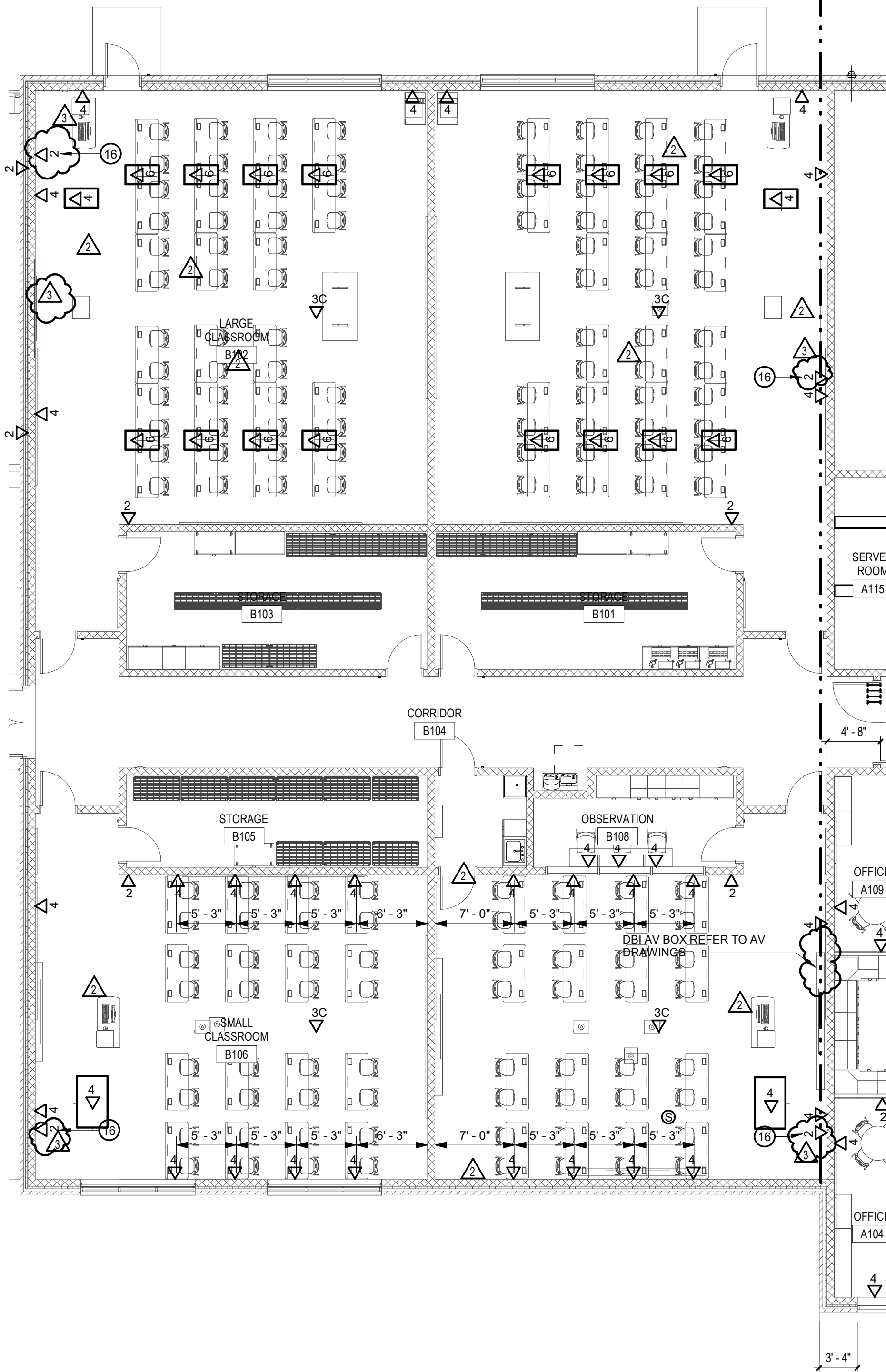


D



2 PARTIAL FIRST FLOOR PLAN - AREA B ALT - TELECOM  
1/8" = 1'-0"

R  
P  
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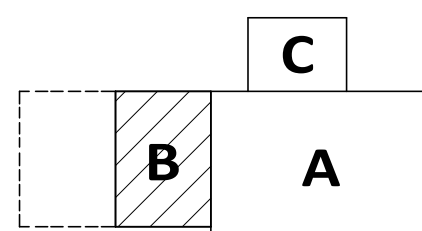
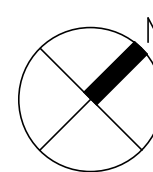
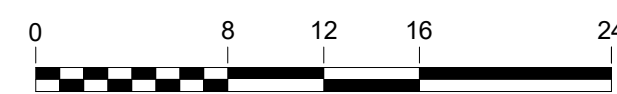
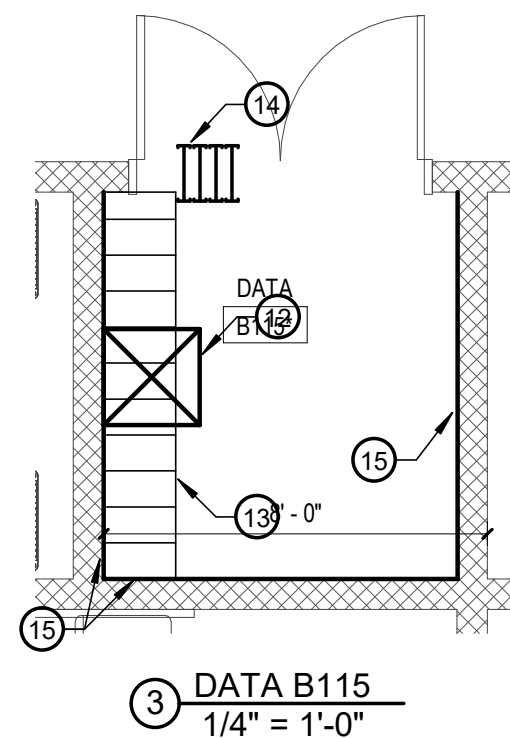
1 PARTIAL FIRST FLOOR PLAN - AREA B - TELECOM  
1/8" = 1'-0"

## GENERAL NOTES:

1. REFER ELECTRICAL DRAWINGS FOR DIMENSIONAL LAYOUT OF FLOOR BOXES.

## KEYED NOTES:

- 1 MOUNT 54" AFF FOR OWNER TIME CARD CLOCK (KRONOS).
- 2 MOUNT 48" AFF.
- 3 MOUNT 10' AFF.
- 4 PROVIDE DATA OUTLETS FOR CONNECTION TO TWO ELECTRIC METERS. COORDINATE EXACT LOCATION IN FIELD.
- 5 MOUNT 8" AFF ON WALL.
- 6 MOUNT ADJACENT TO SOUND CABINET.
- 7 MOUNT HIGH ON WALL BEHIND VIDEO DISPLAY. COORDINATE EXACT LOCATION IN FIELD.
- 8 PROVIDE (3) 4" C ABOVE CEILING FOR LOW VOLTAGE CABLING PATH ABOVE HARD CEILING.
- 9 PROVIDE TELEPHONE OUTLET INSIDE FLUSH MOUNTED TELEPHONE ENCLOSURE. MOUNT AT 48" AFF.
- 10 PROVIDE 48" AFF WALL VOIP TELEPHONE OUTLET.
- 11 AT THIS LOCATION PROVIDE CHANGE IN ELEVATION FOR CONDUITS SLOPING TO MATCH CABLE TRAY IN CORRIDOR B15.
- 12 PROVIDE TELECOM RACK (2 POST).
- 13 PROVIDE 18" WIDE LADDER TRAY.
- 14 PROVIDE 4" EZ PATH SLEEVES.
- 15 PROVIDE 3/4" FIRE RATED PLYWOOD (3 WALLS).
- 16 MOUNT BEHIND VIDEO DISPLAY



KEY PLAN



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PROPOSED NEW

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18350 PUBLIC SAFETY PLACE  
HAGERSTOWN, MD 21740



PARTIAL FIRST FLOOR PLAN - AREA B - TELECOM

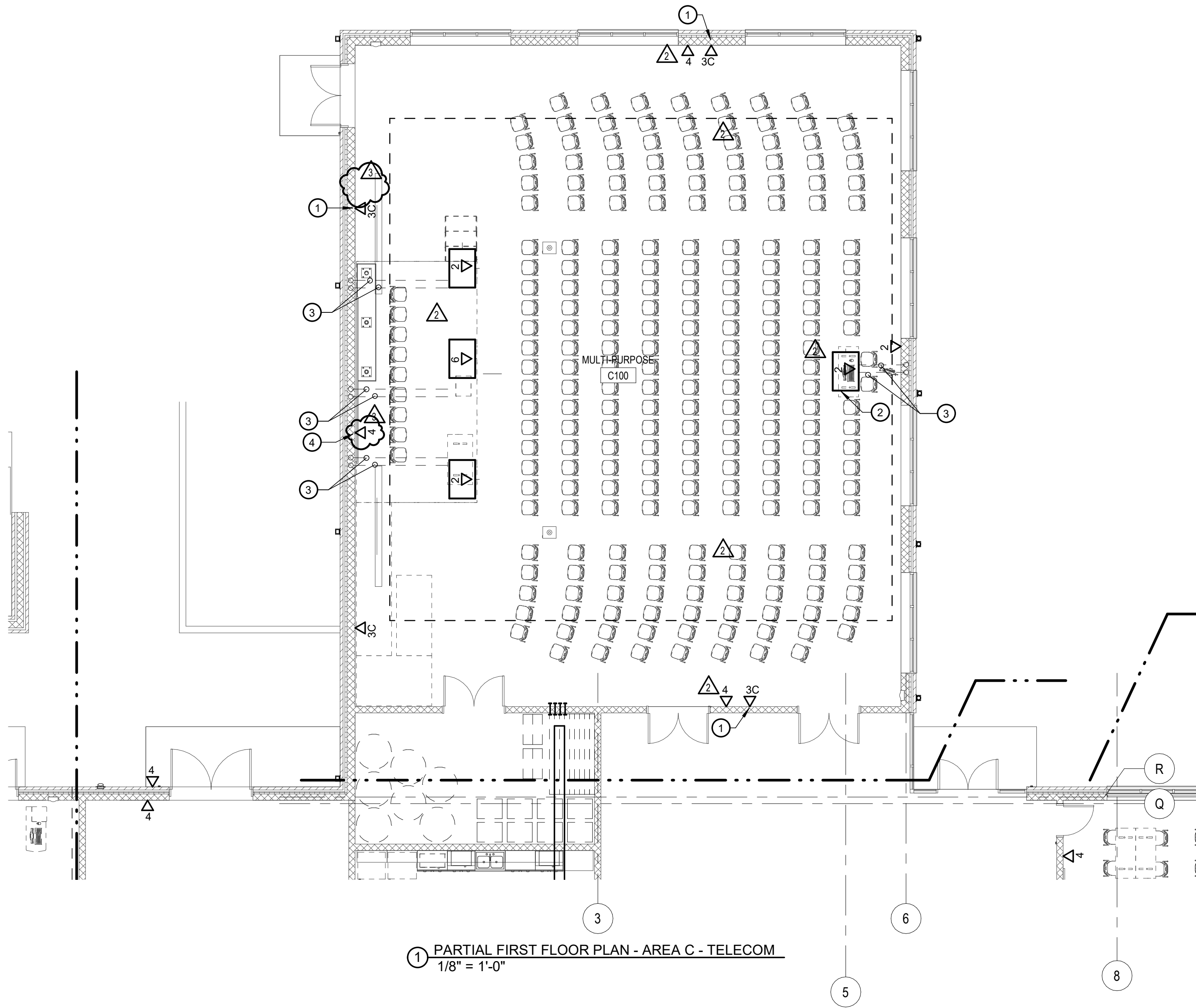
PLOT SCALE:  
As indicated

FILENAME:

DATE: DECEMBER 18, 2019

PROJECT  
3089

T1.2



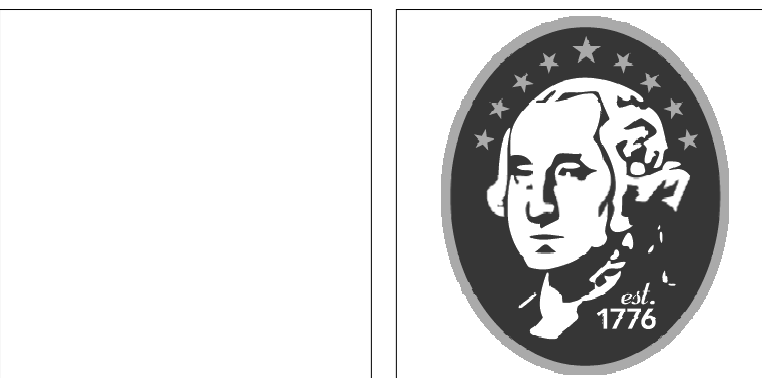
**GENERAL NOTES:**

- WHERE CABLING CANNOT BE CONCEALED FROM VIEW, PROVIDE PAINTED CONDUITS FOR CABLING RUNNING IN EXPOSED CEILING AREAS INCLUDING MULTIPURPOSE ROOM C100.
- REFER ELECTRICAL DRAWINGS FOR DIMENSIONAL LAYOUT OF FLOOR BOXES.



**DRAWING NOTES:**

- MOUNT 10'-0" AFF.
- MOUNT IN FLUSH FLOOR BOX IN CONCRETE FLOOR SLAB.
- PROVIDE (2) 1 1/4" C FOR TELECOM CABLES FROM ACCESSIBLE CEILING SPACE TO FLOOR BOX.
- MOUNT BEHIND VIDEO DISPLAY.



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**REVISIONS**

NO.	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
1	12/18/2019		BID DOCUMENTS
2	12/22/2020		ADDENDUM NO. 5
3	02/22/2021		ASH-04 REVISIONS FOR RFI-09 RESPONSE

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PROPOSED NEW  
**WASHINGTON COUNTY PUBLIC SAFETY TRAINING CENTER**  
WASHINGTON COUNTY PROJECT NO. 28-266  
18350 PUBLIC SAFETY PLACE  
HAGERSTOWN, MD 21740

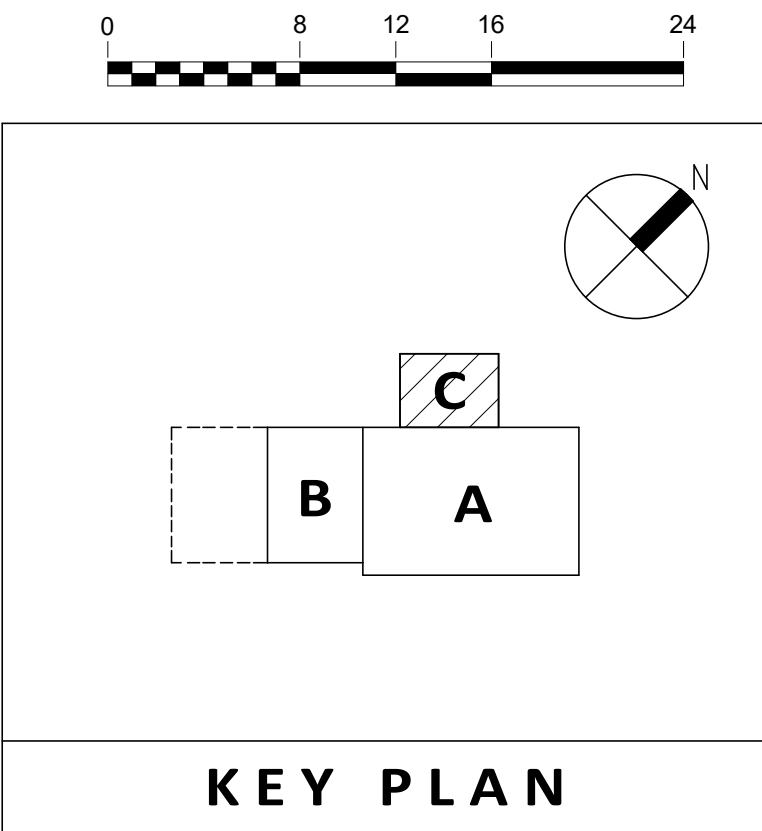


PARTIAL FIRST FLOOR PLAN - AREA C - TELECOM

PLOT SCALE:  
1/8" = 1'-0"  
FILENAME:  
DATE:  
DECEMBER 18, 2019

**PROJECT**  
3089

**T1.3**



## ABBREVIATIONS & NOTATIONS

A	
AC	ABOVE CEILING
ACP	ACCESS CONTROL PANEL
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISHED FLOOR
AIA	AMERICAN INSTITUTE OF ARCHITECTS
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
AP	ACCESS POINT
AWG	AMERICAN WIRE GAUGE
B	
BAS	BUILDING AUTOMATION SYSTEM
BDA	BI-DIRECTIONAL ANTENNA
BEF	BUILDING ENTRANCE FACILITY
BICSI	BUILDING INDUSTRY CONSULTING SERVICE INTERNATIONAL
BMS	BUILDING MANAGEMENT SYSTEM
BTS	BASE TRANSMITTER STATION
BTU	BRITISH THERMAL UNIT
C	
CA	CABLE
CAT	CATEGORY
CATV	COMMUNITY ANTENNA TELEVISION (CABLE TELEVISION)
CB	CONDUIT BANK
CCTV	CLOSED CIRCUIT TELEVISION
CPE	CUSTOMER FURNISHED EQUIPMENT
CN	INDIVIDUAL CONDUIT
CODEC	CODER/DECODER
CPU	CENTRAL PROCESSING UNIT
CT	CABLE TRAY
D	
D-A or D/A	DIGITAL TO ANALOG CONVERSION
DAS	DISTRIBUTED ANTENNA SYSTEM
dB	DECIBEL
DB	DUCT BANK
DC	DIRECT CURRENT
DC	DOOR CONTACT
DEMARC	DEMARCATION POINT
DL	DUCT LINER (INNER DUCT)
DSL	DIGITAL SUBSCRIBER LINE

J	
JB	JUNCTION BOX
K	
kHz	KILOHERTZ
KWH	KILOWATT-HOURS
L	
LAN	LOCAL AREA NETWORK
IBF	POUNDS, FORCE
LED	LIGHT-EMITTING DIODE
M	
MBA	MULTI-BAND ANTENNA
MC	MAIN CROSS-CONNECT
MDF	MAIN DISTRIBUTION FRAME
MM	MANHOLE, MAINTENANCE HOLE
MH	MULTI MODE
modem	MODULATOR/DEMODULATOR
MTR	MAIN TECHNOLOGY ROOM
MUTO	MULTI USER TELECOMMUNICATIONS OUTLET
MUX	MULTIPLEXER
N	
NEC	NATIONAL ELECTRICAL CODE
NESC	NATIONAL ELECTRICAL SAFETY CODE
NEXT	NEAR END CROSSTALK
NI	NETWORK INTERFACE
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE

O	
OEM	ORIGINAL EQUIPMENT MANUFACTURER
OSE	OUTSIDE PLANT ENGINEER
OSHA	OFFICE OF OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OSHPD	OFFICE OF STATEWIDE HEALTH PLANNING AND DEVELOPMENT
OSP	OUTSIDE PLANT
P	
PABX	PRIVATE AUTOMATIC BRANCH EXCHANGE
PAM	PULSE AMPLITUDE MODULATION
PB	PULL BOX
PBX	PRIVATE BRANCH EXCHANGE
PCM	PULSE CODE MODULATION
POTS	PLAIN OLD TELEPHONE SERVICE (COLLOQUIAL)
PR	PAIR
PTZ	PAN, TILT, ZOOM
PVC	POLYVINYL CHLORIDE
R	
RCD	REGISTERED COMMUNICATIONS DISTRIBUTION DESIGNER
REF	REQUEST TO EXIT
RFI	RADIO FREQUENCY INTERFERENCE
RFQ	REQUEST FOR QUOTE
RH	RELATIVE HUMIDITY
RIU	REMOTE INTERFACE UNIT

<div> <div>S</div> <div>Expiration: 10-14-2020</div> </div>	
ScTP	SCREENED TWISTED PAIR
SDN	SWITCHED DIGITAL NETWORK
SDSL	SYMMETRICAL DIGITAL SUBSCRIBER LINE
SI	SYSTEM INTERNATIONAL
SIM	SIMILAR
SM	SINGLE MODE
SM-PMD	SINGLE-MODE PHYSICAL MEDIUM DEPENDENT
SMPS	SWITCHED MODE POWER SUPPLY
SMS	SECURITY MANAGEMENT SYSTEM
SNR	SIGNAL-TO-NOISE RATIO
SOC	SECURITY OPERATIONS CENTER
SONET	SYNCHRONOUS OPTICAL NETWORK
SP	SERVICE PROVIDER
SPOT	SINGLE-POINT GROUND
STP	SYNCHRONOUS TRANSPORT SIGNAL
SYS	SYSTEM
<div>T</div>	
TB	TERMINAL BLOCK
TBB	TELECOMMUNICATIONS BONDING BACKBONE
TC	TELECOMMUNICATIONS CLOSET
TDC	TERMS & CONDITIONS
TDM	TIME-DIVISION MULTIPLEXING
TEL	TELEPHONE
TELCO	TELEPHONE COMPANY
TERM	TERMINAL OR TERMINATING
TGB	TELECOMMUNICATIONS GROUNDING BUSBAR
THD	TOTAL HARMONIC DISTORTION
IA	INTERNETWORKING INDUSTRY ASSOCIATION
TMG6	TELECOMMUNICATIONS MAIN GROUNDING BUSBAR
TO	TELECOMMUNICATIONS OUTLET
TP-PMD	TWISTED PAIR PHYSICAL MEDIA DEPENDENT
TR	TECHNOLOGY ROOM
<div>U</div>	
UBC	UNIFORM BUILDING CODE
UD	UNDER FLOOR DUCT
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORIES
UON	UNLESS OTHERWISE NOTED
UPS	UNINTERRUPTIBLE POWER SUPPLY
<div>W</div>	
WAO	WORK AREA OUTLET
WAP	WIRELESS ACCESS POINT
WDM	WAVELENGTH DIVISION MULTIPLEXING

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# PROPOSED NEW

WASHINGTON COUNTY PUBLIC SAFETY TRAINING CENTER




WASHINGTON COUNTY PROJECT NO. 28-266

18350 PUBLIC SAFETY PLACE  
HAGERSTOWN, MD 21740

## GENERAL NOTES

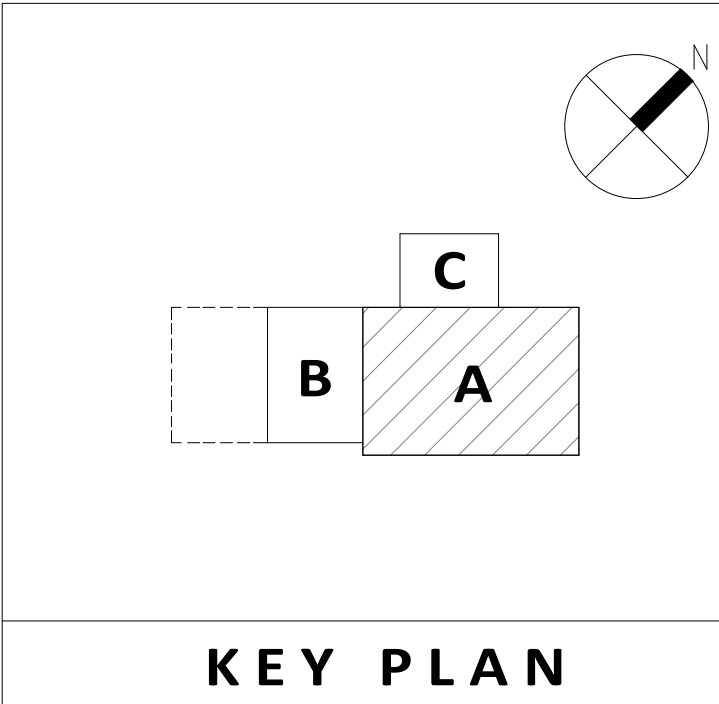
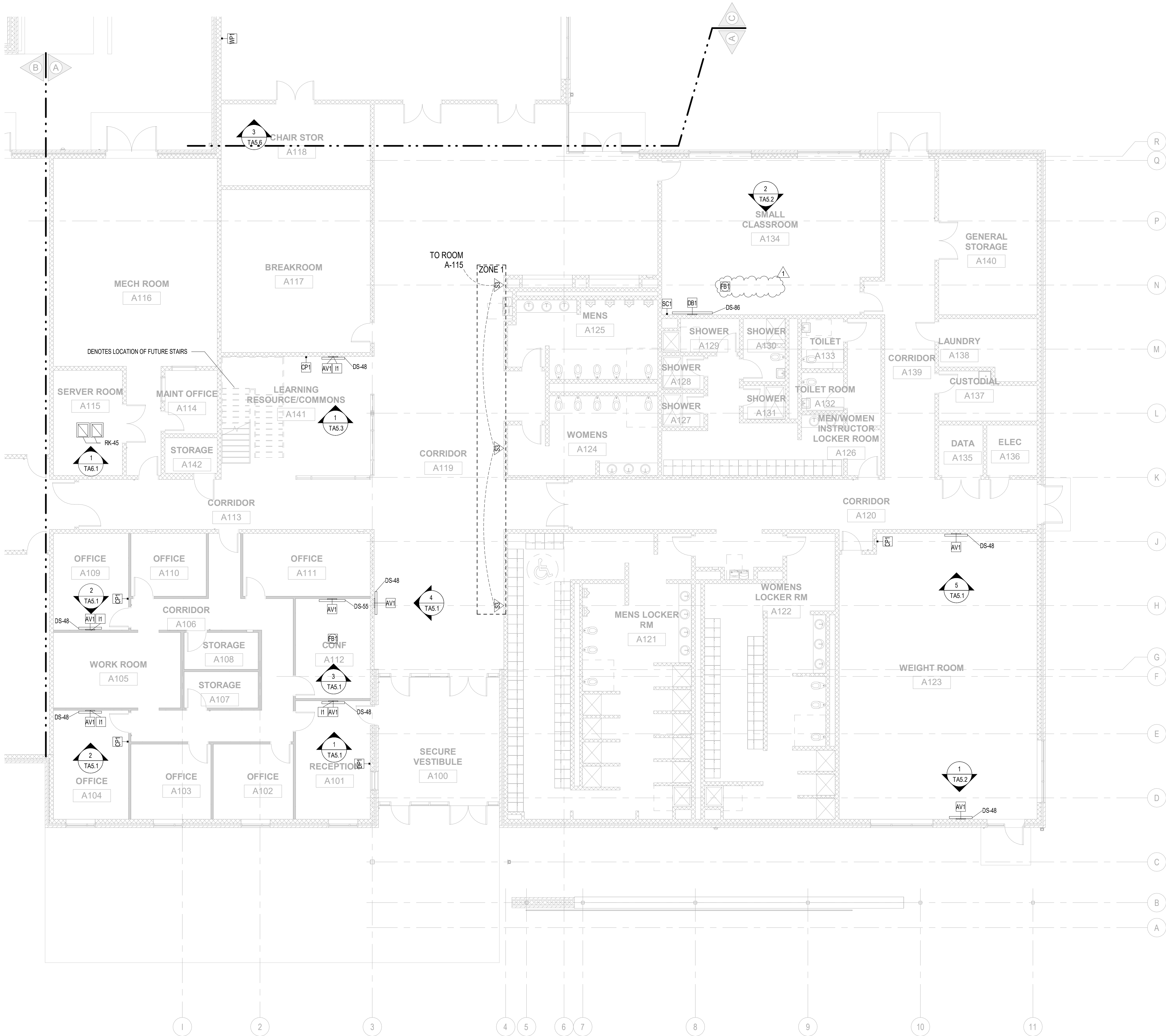
- 1 ADDITIONAL EQUIPMENT INCLUDING FLAT PANEL DISPLAYS, PROJECTORS, ETC. ARE NOT IN CONTRACT (N.I.C.) AND WILL BE BID AT A LATER TIME, EXCEPT FLAT PANEL DISPLAYS LISTED UNDER SPECIFICATION SECTION 012100 - ALLOWANCES.
- 2 THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL MATERIALS REQUIRED FOR A COMPLETE AND FUNCTIONAL INSTALLATION IN ACCORDANCE WITH THE DRAWINGS AND SPECIFICATIONS. ALL ITEMS ARE NOT ENUMERATED IN THE DESIGN PACKAGE AND THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND ACCESSORIES REQUIRED TO MEET THE DESIGN INTENT.
- 3 VERIFY DEVICE LOCATIONS IN THE FIELD WITH DUE REGARD TO AS-BUILT CONDITIONS BEFORE INSTALLATION. COORDINATE WORK WITH FIELD CONDITIONS AND OTHER TRADES IN ORDER TO MEET DESIGN INTENT.
- 4 DEBURR ALL CONDUIT AND PROVIDE BUSHINGS AND 200LB PULLSTRING PRIOR TO INSTALLING CABLE.
- 5 CONDUIT BENDS SHALL BE SWEEPS TO MAINTAIN PROPER CABLE BEND RADIUS.
- 6 CONDUIT STUB-OUTS SHALL BE EXTENDED TO NEAREST ACCESSIBLE CEILING SPACE WITHIN ROOM IN WHICH THE DEVICE RESIDES, UNLESS OTHERWISE NOTED.
- 7 PROVIDE PULL BOXES AND JUNCTION BOXES IN ACCORDANCE WITH SPECIFIED STANDARDS AND LOCAL CODES. AT A MINIMUM, PROVIDE ONE (1) PULL BOX FOR EVERY 100 FEET OF STRAIGHT CONDUIT RUN, AND ONE (1) PULL BOX AFTER TWO (2) 90-DEGREE BENDS.
- 8 COORDINATE EXACT ROUTING OF CONDUIT AND PATHWAYS BASED ON FIELD CONDITIONS. WHERE GENERAL DESIGN INTENT CAN NOT BE ACHIEVED, OBTAIN FORMAL APPROVAL OF ROUTING CHANGES FROM OWNER'S REPRESENTATIVE.
- 9 CABLES SHALL BE SUPPORTED FROM THE BUILDING STRUCTURE BY APPROVED J-HOOKS OR SLINGS WHEN NOT IN CONDUIT OR COMMON LOW VOLTAGE CABLE TRAY. CABLES TRANSITIONING TO AND FROM CABLE TRAY, CONDUIT, SLEEVES, J-HOOKS OR OTHER SUPPORT MECHANISM SHALL BE SUPPORTED WHEN THE TRANSITION SPANS MORE THAN 3 FEET.
- 10 PROVIDE PLENUM RATED CABLE WHEN INSTALLED IN PLENUM SPACE.
- 11 PROVIDE BLANK PLATES FOR ALL UNUSED BOXES.
- 12 ALL CABLING PASSING THROUGH WALL STRUCTURE SHALL BE SUPPORTED WITH CONDUIT, SLEEVE, FIRESTOP ASSEMBLY, ETC. AS REQUIRED THROUGH THE WALL STRUCTURE. PATHWAY SIZING SHALL ADHERE TO THE REFERENCED STANDARDS AND FILL RATIO REQUIREMENTS. PROVIDE CONDUIT, SLEEVES, FIRESTOP ASSEMBLIES, ETC. FOR ALL CABLE PENETRATING WALLS IN ACCORDANCE WITH THE REFERENCED STANDARDS IN THE SPECIFICATIONS.
- 13 SUBMIT DEVICE, FACEPLATE AND JACK COLOR SAMPLES TO OWNER'S REPRESENTATIVE PRIOR TO ORDER.
- 14 REFER TO LIFE SAFETY DRAWINGS FOR FIRE & SMOKE WALL LOCATIONS. CONDUIT PENETRATIONS SHALL BE PROPERLY FIRESTOPPED PER CODE. CABLE TRAY SHALL NOT PENETRATE FIRE & SMOKE WALLS. LISTED FIRESTOP ASSEMBLIES SHALL BE USED TO PENETRATE FIRE & SMOKE WALLS FOR CABLE TRAY PATHWAYS.
- 15 REFER TO SYMBOL LEGEND, SCHEDULES AND DETAILS FOR ALL BOX AND CONDUIT REQUIREMENTS.
- 16 REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR SHARED TECHNOLOGY AND ELECTRICAL FLOOR BOXES AND POKETHRUS.

## AUDIOVISUAL SYMBOLS

	AUDIOVISUAL WALL OUTLET (AWO) TYPE SCHEDULE, 'X' INDICATES TYPE					
	DEVICE TYPE	DEVICE BOX	DEVICE CONDUIT	MOUNTING HEIGHT	FUNCTION	
	AV1	1-GANG AV PASSTHRU PLATE	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	60" AFF	DISPLAY CABLE PASSTHRU	
	AV2	2-GANG AV PASSTHRU PLATE	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	REFER TO ELEVATION	DISPLAY CABLE PASSTHRU	
	C1	2-GANG CAMERA BOX	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	84" AFF U.O.N.	CAMERA DISCONNECT	
	CP1	CONTROL PANEL BACKBOX W/ WALL MOUNT	(1) 1 1/4 CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	STANDARD SWITCH HEIGHT	AV CONTROL PANEL	
	DB1	2-GANG AV PASSTHRU PLATE	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	60" AFF U.O.N.	DISPLAY CABLE PASSTHRU	
	DP1	1-GANG TOUCHPANEL DATA PLATE	(1) 1 1/4" CONDUIT STUBBED TO CEILING	COUNTER HEIGHT	TABLETOP TOUCHPANEL CONNECTION	
	AUDIOVISUAL FLOOR OUTLET (AFO) TYPE SCHEDULE, 'X' INDICATES TYPE					
	DEVICE TYPE	DEVICE BOX	DEVICE CONDUIT	MOUNTING HEIGHT	FUNCTION	
	FB1	FLOOR BOX, REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR BOX INFORMATION	(1) 1 1/4" CONDUITS STUBBED FROM BOTTOM HOUSING ASSEMBLY TO TV BACKBOX DB1 WITHIN ROOM DEDICATED FOR AUDIOVISUAL CABLING. ROUTE CONDUIT UP TO NEAREST ACCESSIBLE CEILING IF NO DISPLAY BOXES (DB1) ARE PRESENT. REFER TO ELECTRICAL AND TELECOM DRAWINGS FOR ADDITIONAL PATHWAY REQUIREMENTS	N-FLOOR	CONSOLIDATED POKETHRU FOR AUDIOVISUAL, ELECTRICAL, AND DATA. REFER TO ELECTRICAL AND TELECOM DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION	
		AUDIOVISUAL WALL SPEAKER SCHEDULE, 'X' INDICATES TYPE				
		DEVICE TYPE	DEVICE BOX	DEVICE CONDUIT	MOUNTING HEIGHT	FUNCTION
		S3	4-GANG SPEAKER BOX	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING DAISY-CHAINED AS SHOWN IN DRAWINGS AND HOME RUN TO A-115	120" AFF U.O.N.	PAGING SYSTEM REINFORCEMENT

AUDIOVISUAL WALL OUTLET (AWO) TYPE SCHEDULE, 'X' INDICATES TYPE				
DEVICE TYPE	DEVICE BOX	DEVICE CONDUIT	MOUNTING HEIGHT	FUNCTION
AV1	1-GANG AV PASSTHRU PLATE	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	60" AFF	DISPLAY CABLE PASSTHRU
A2	2-GANG AV PASSTHRU PLATE	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	REFER TO ELEVATION	DISPLAY CABLE PASSTHRU
CV1	2-GANG CAMERA BOX	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	84" AFF U.O.N.	CAMERA DISCONNECT
CP1	CONTROL PANEL BACKBOX W/ WALL MOUNT	(1) 1 1/4 CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	STANDARD SWITCH HEIGHT	AV CONTROL PANEL
DB1	2-GANG AV PASSTHRU PLATE	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	60" AFF U.O.N.	DISPLAY CABLE PASSTHRU
DP1	1-GANG TOUCHPANEL DATA PLATE	(1) 1 1/4" CONDUIT STUBBED TO CEILING	COUNTER HEIGHT	TABLETOP TOUCHPANEL CONNECTION
IP1	1-GANG INPUT PLATE, 3 1/2" DEEP BACK BOX	(1) 1 1/4" CONDUIT STUBBED TO CEILING	18" AFF U.O.N.	AV CABLE PASSTHRU
SC1	(1) 1-GANG, FLUSH MOUNTED, 2 1/2" DEEP BACK BOX	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	48" AFF	PROJECTION SCREEN CONTROL
WP1	(1) 2-GANG, FLUSH MOUNTED, 3 1/2" DEEP BACK BOX	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING	OUTLET HEIGHT	AV CABLE PASSTHRU
AUDIOVISUAL FLOOR OUTLET (AFO) TYPE SCHEDULE, 'X' INDICATES TYPE				
DEVICE TYPE	DEVICE BOX	DEVICE CONDUIT	MOUNTING HEIGHT	FUNCTION
FB1	FLOOR BOX, REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR BOX INFORMATION	(1) 1 1/4" CONDUITS STUBBED FROM BOTTOM HOUSING ASSEMBLY TO TV BACKBOX DB1 WITHIN ROOM DEDICATED FOR AUDIOVISUAL CABLING. ROUTE CONDUIT UP TO NEAREST ACCESSIBLE CEILING IF NO DISPLAY BOXES (DB1) ARE PRESENT. REFER TO ELECTRICAL AND TELECOM DRAWINGS FOR ADDITIONAL PATHWAY REQUIREMENTS	IN-FLOOR	CONSOLIDATED POKETHRU FOR AUDIOVISUAL, ELECTRICAL, AND DATA. REFER TO ELECTRICAL AND TELECOM DRAWINGS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION
AUDIOVISUAL WALL SPEAKER SCHEDULE, 'X' INDICATES TYPE				
DEVICE TYPE	DEVICE BOX	DEVICE CONDUIT	MOUNTING HEIGHT	FUNCTION
S3	4-GANG SPEAKER BOX	(1) 1 1/4" CONDUIT STUBBED TO ABOVE ACCESSIBLE CEILING DAISY-CHAINED AS SHOWN IN DRAWINGS AND HOME RUN TO A-115	120" AFF U.O.N.	PAGING SYSTEM REINFORCEMENT





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REVISIONS		
NO.	DATE	DESCRIPTION
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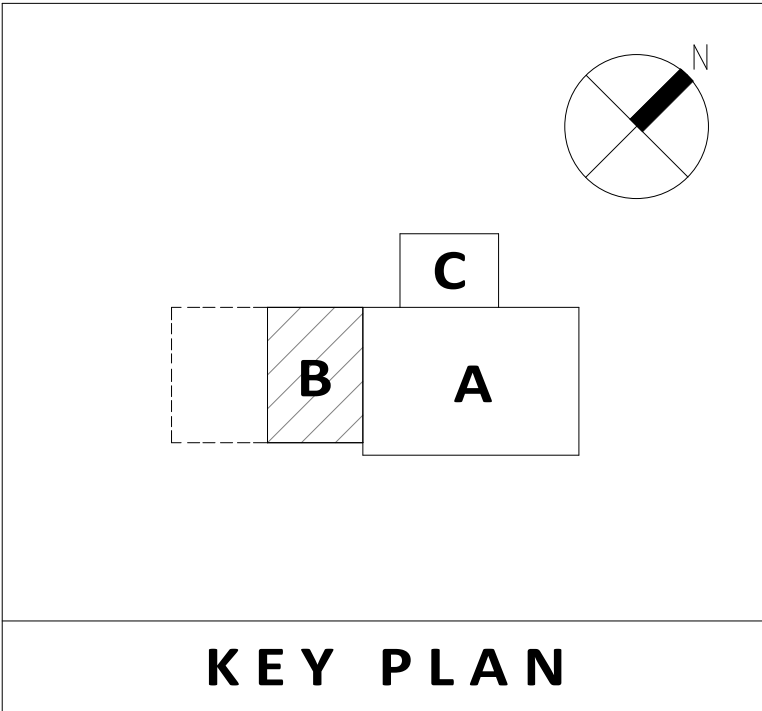
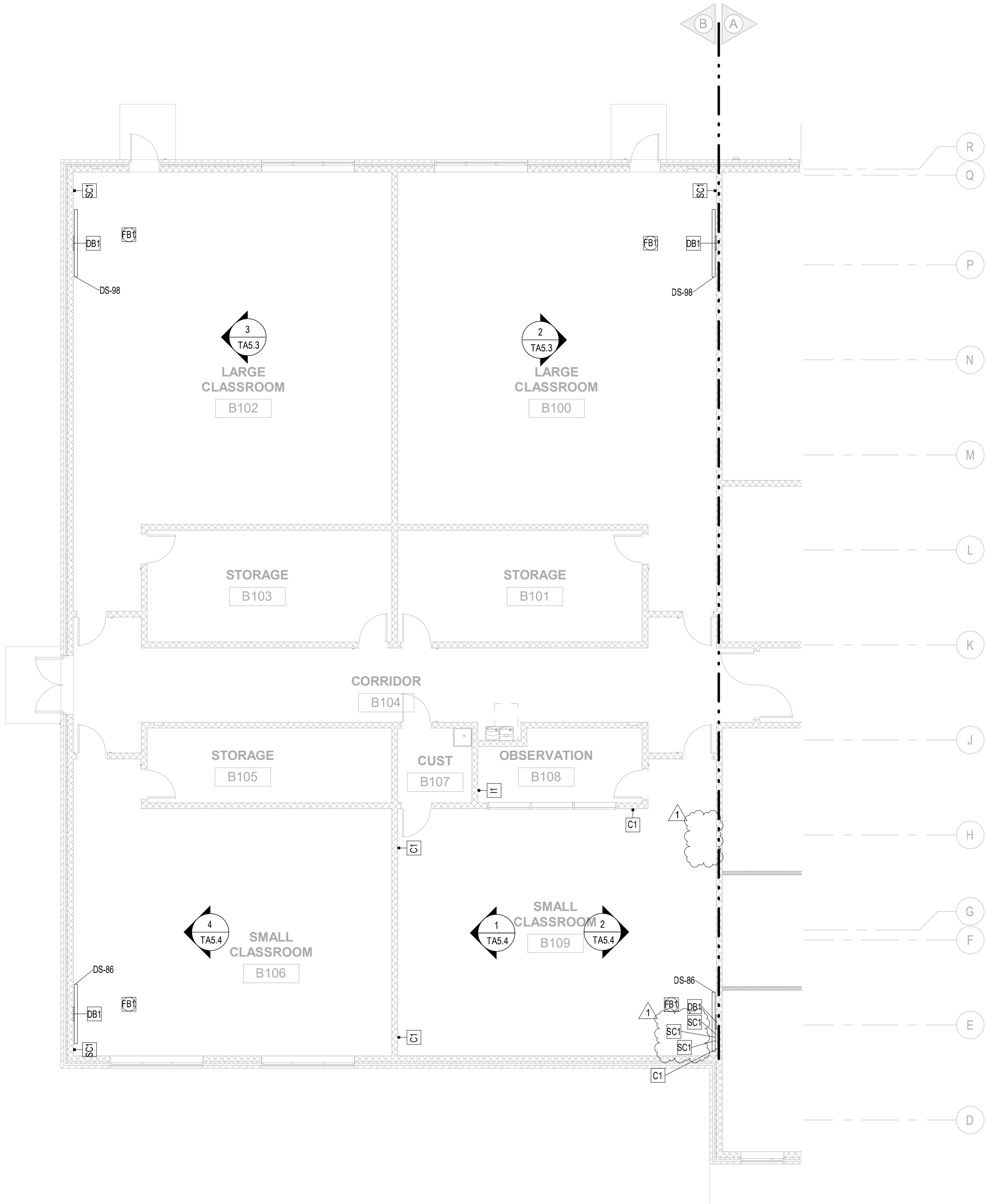
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WASHINGTON COUNTY PROJECT NO. 28-266  
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HAGERSTOWN, MD 21740

AUDIOVISUAL PLAN - UNIT A	
PLOT SCALE:	
FILENAME:	
DATE:	FEBRUARY 1, 2021

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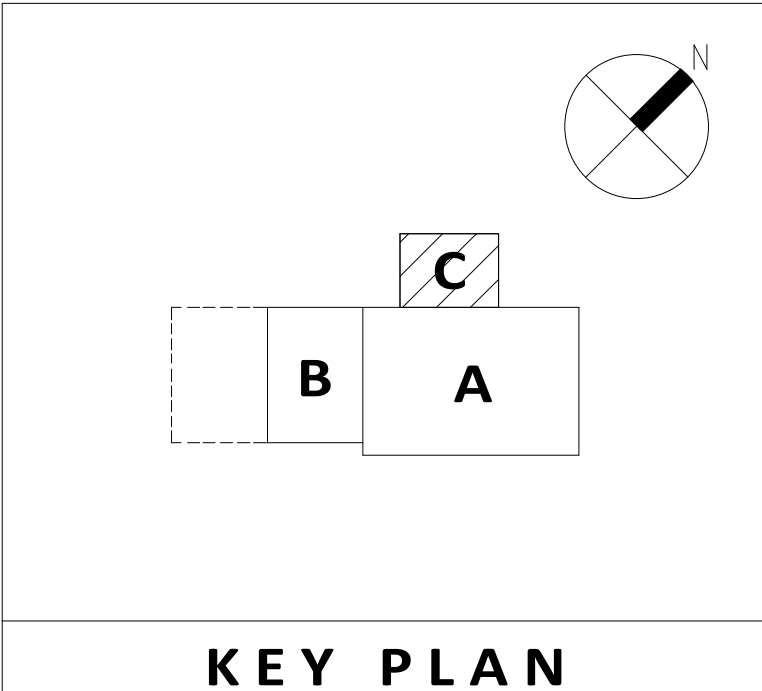
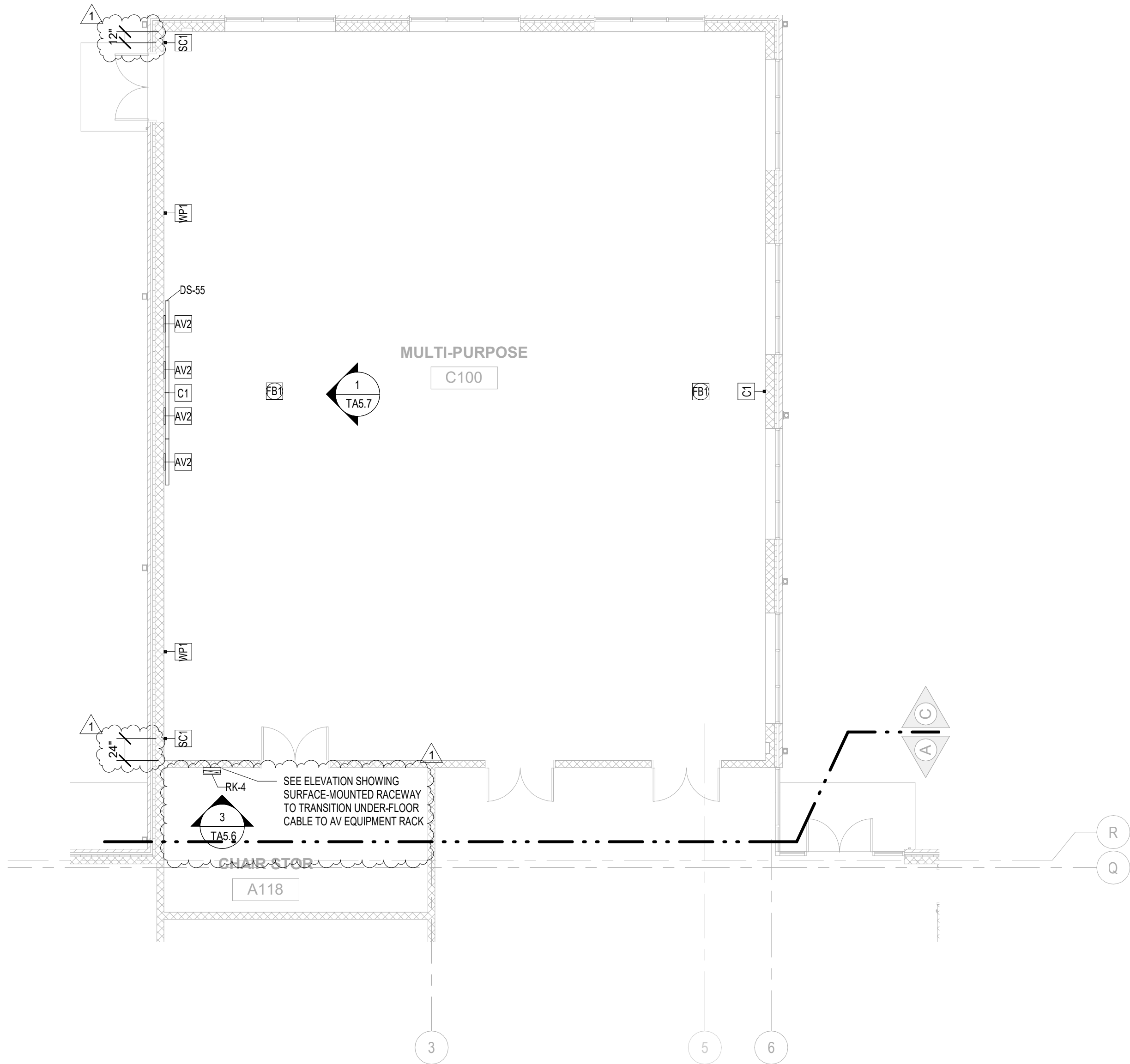
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AUDIOVISUAL PLAN - UNIT B  
PLOT SCALE:  
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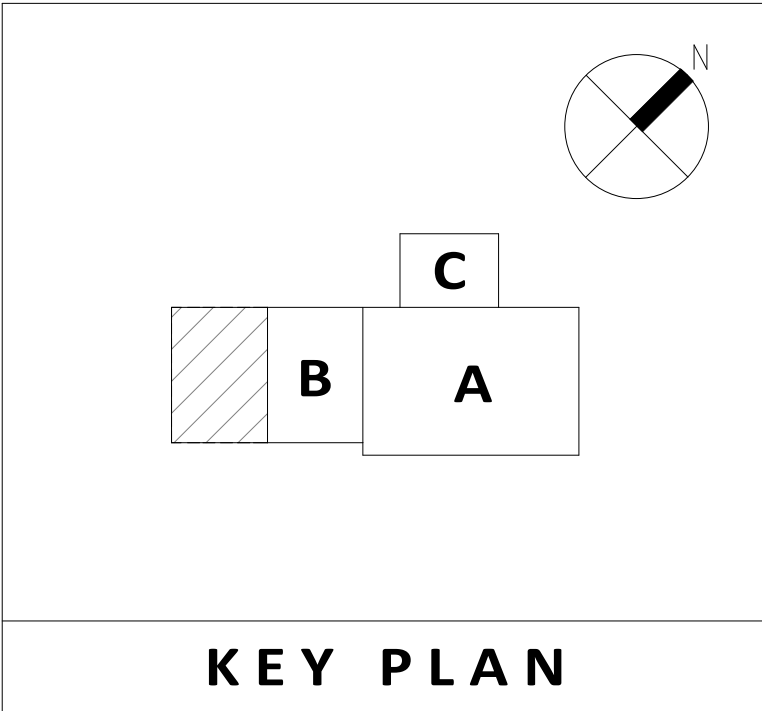
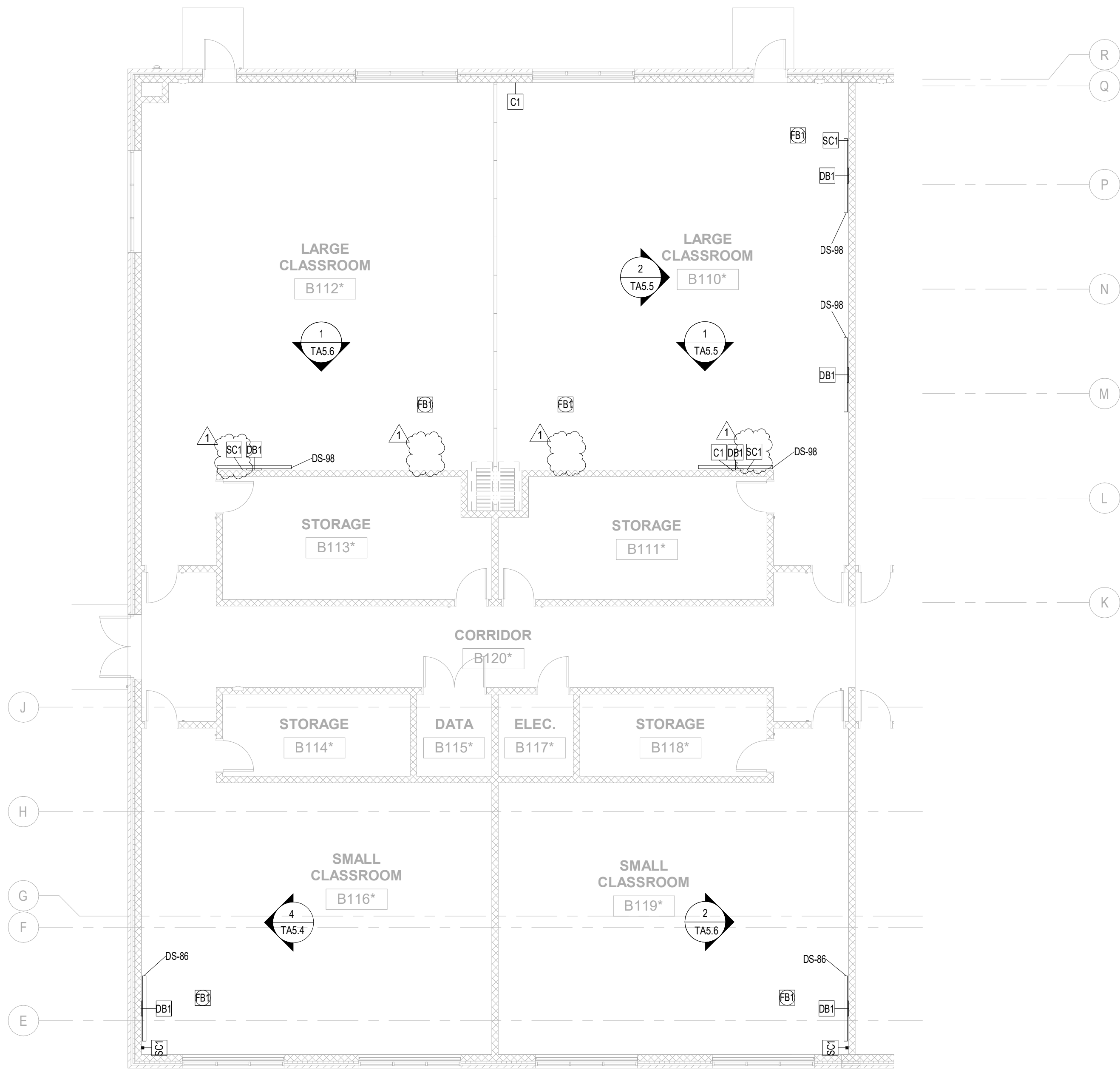
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AUDIOVISUAL PLAN - UNIT C  
PLOT SCALE:  
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**PROJECT**  
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AUDIOVISUAL PLAN - UNIT B  
- DIVISIBLE ROOM

PLOT SCALE:

FILENAME:

DATE: FEBRUARY 1, 2021

**PROJECT**  
3089

**TA1.4**

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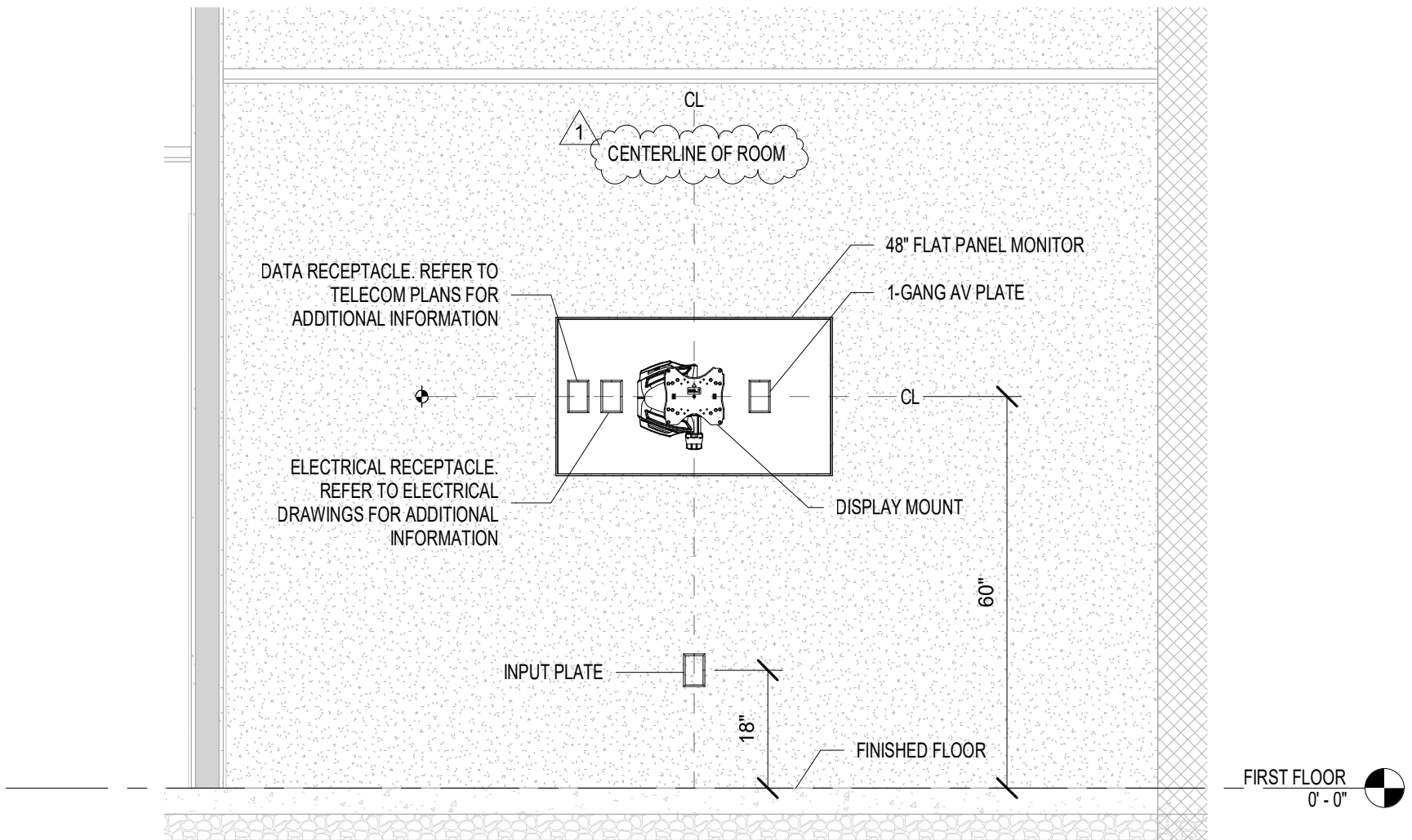
18350 PUBLIC SAFETY PLACE  
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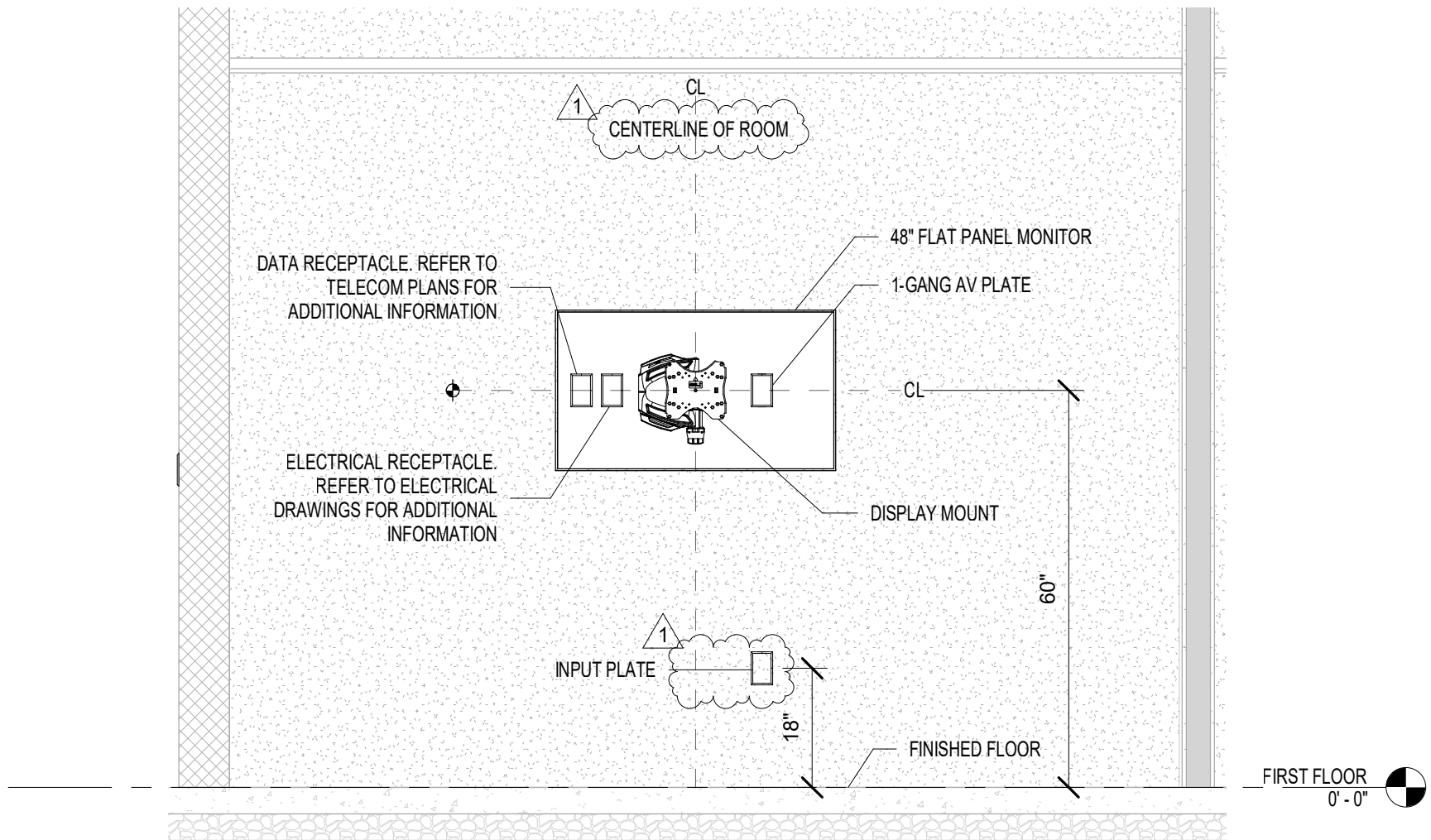
AUDIOVISUAL MOUNTING DETAILS  
PLOT SCALE:  
FILENAME:  
DATE: FEBRUARY 1, 2021

PROJECT  
3089

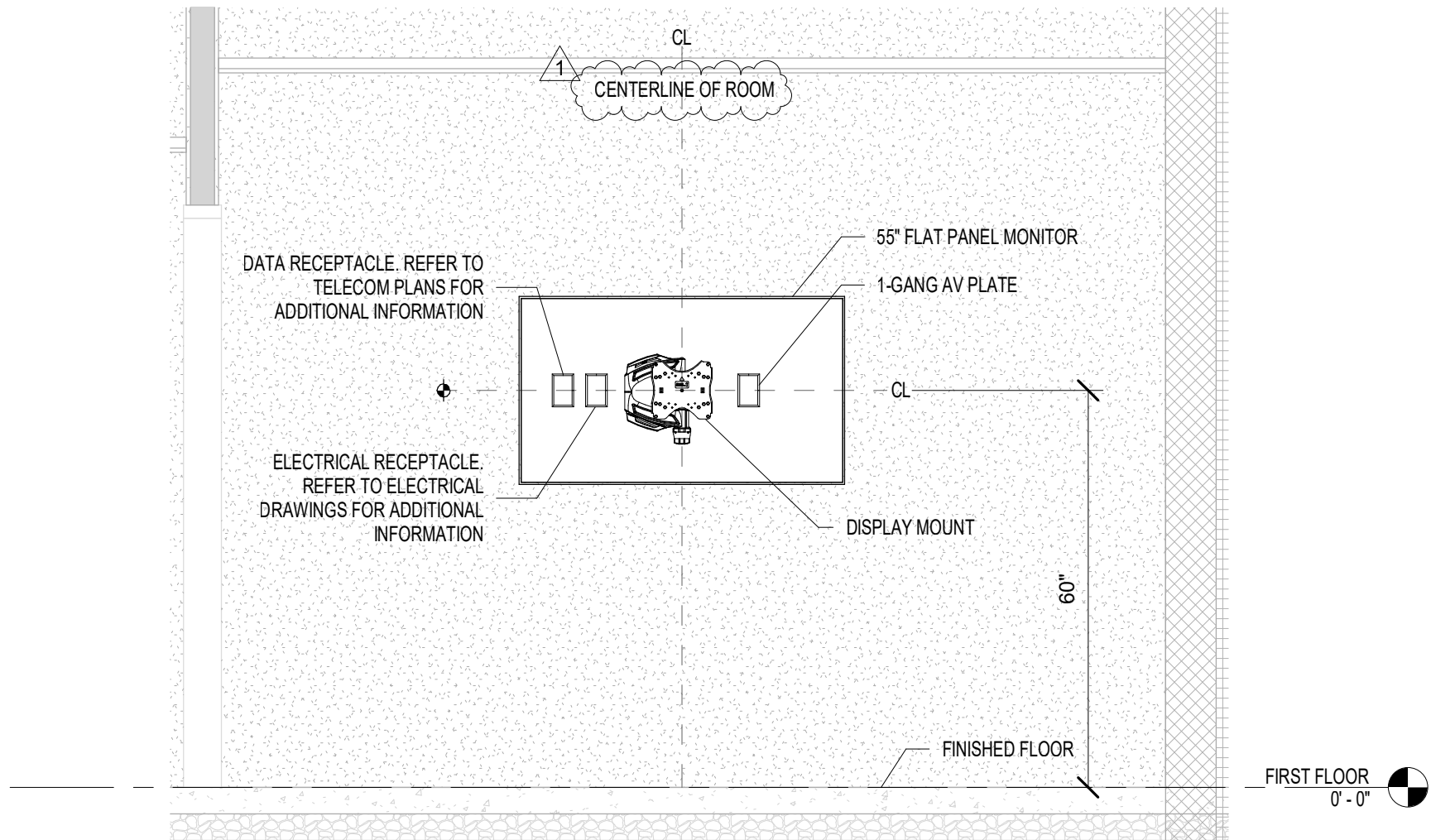
TA5.1



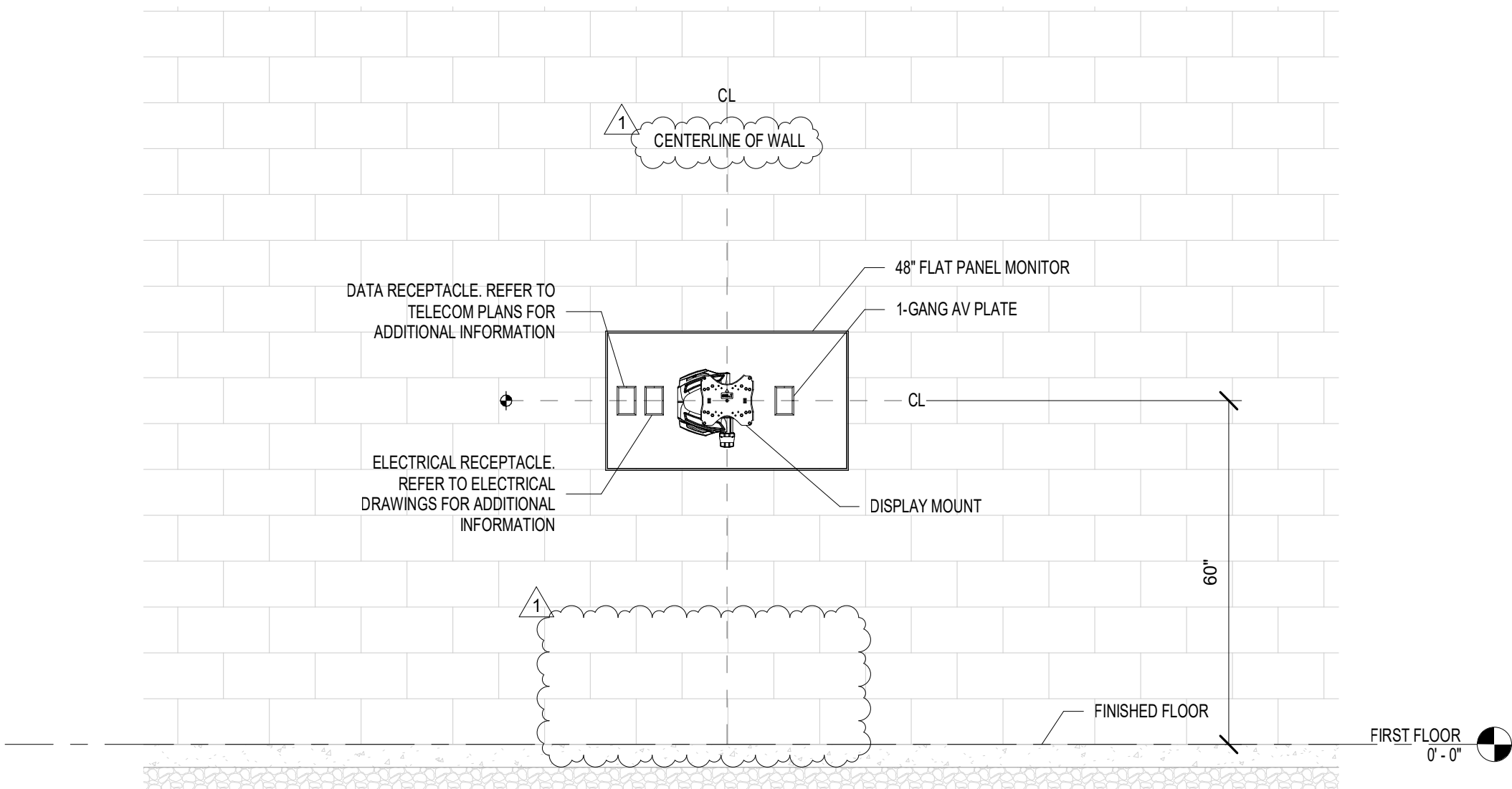
1 A101 RECEPTION LCD DISPLAY DETAIL  
1/2" = 1'-0"



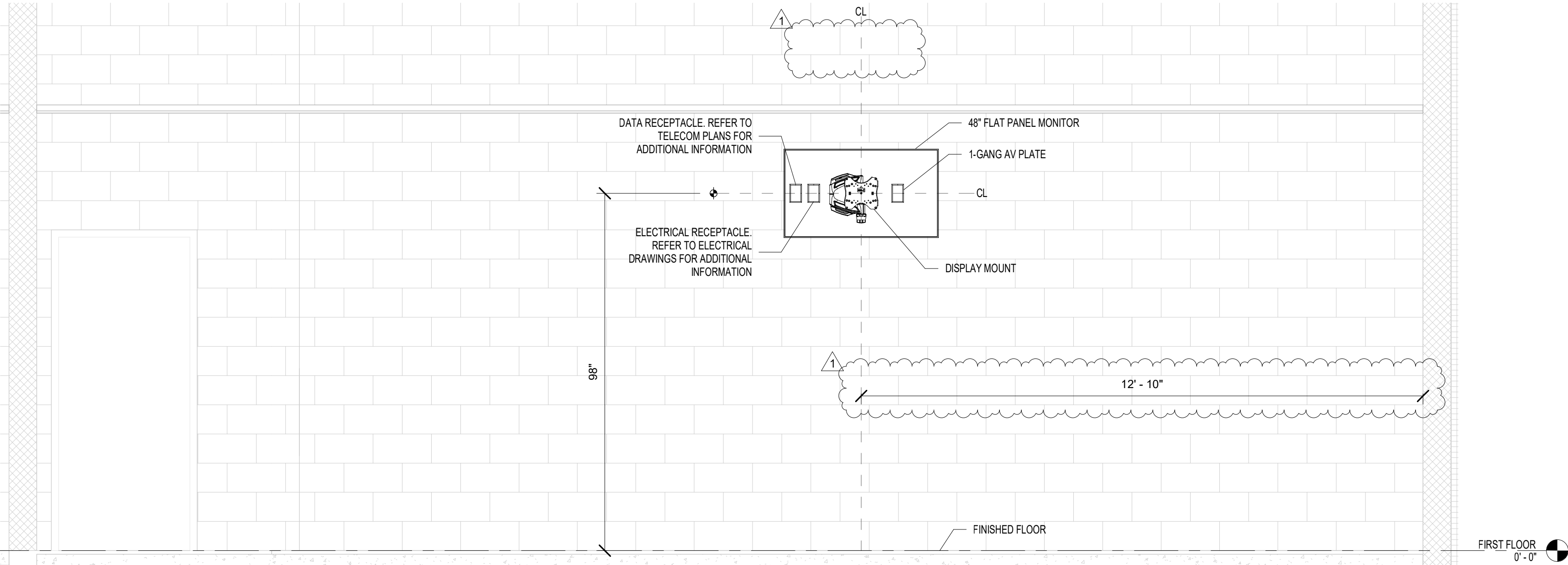
2 A104 OFFICE LCD DISPLAY DETAIL  
1/2" = 1'-0"



3 A112 CONFERENCE ROOM LCD DISPLAY DETAIL  
1/2" = 1'-0"



4 A119 LOBBY LCD DISPLAY DETAIL  
1/2" = 1'-0"



5 A123 WEIGHT ROOM LCD DISPLAY DETAIL  
1/2" = 1'-0"

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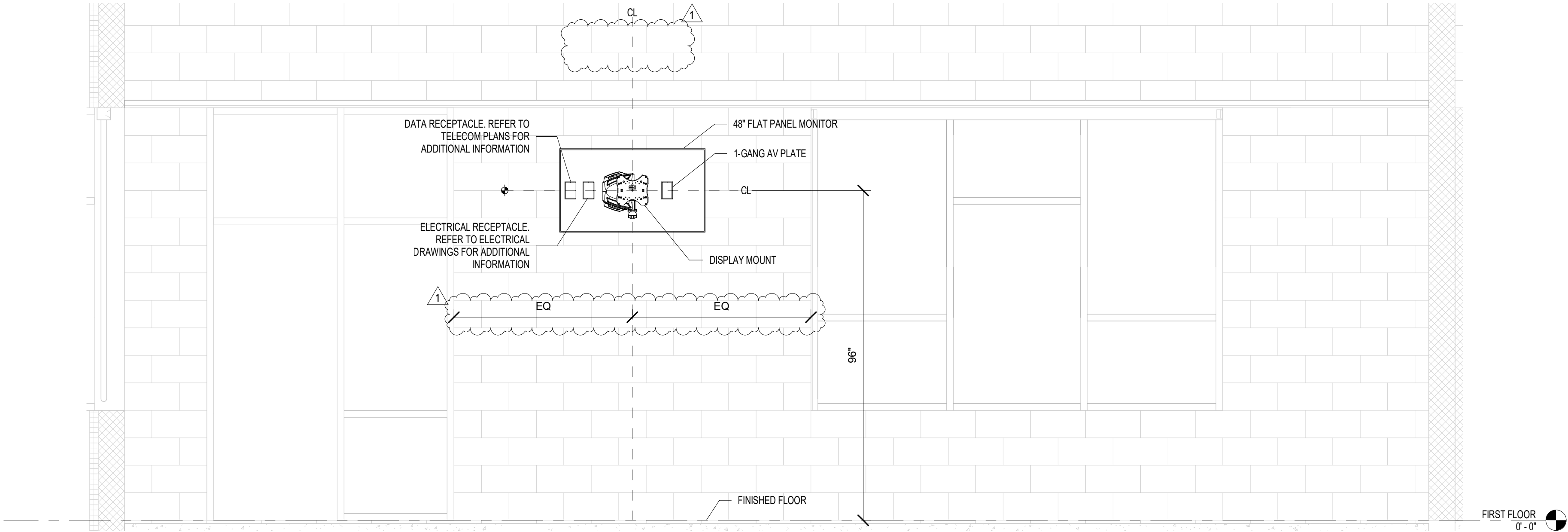


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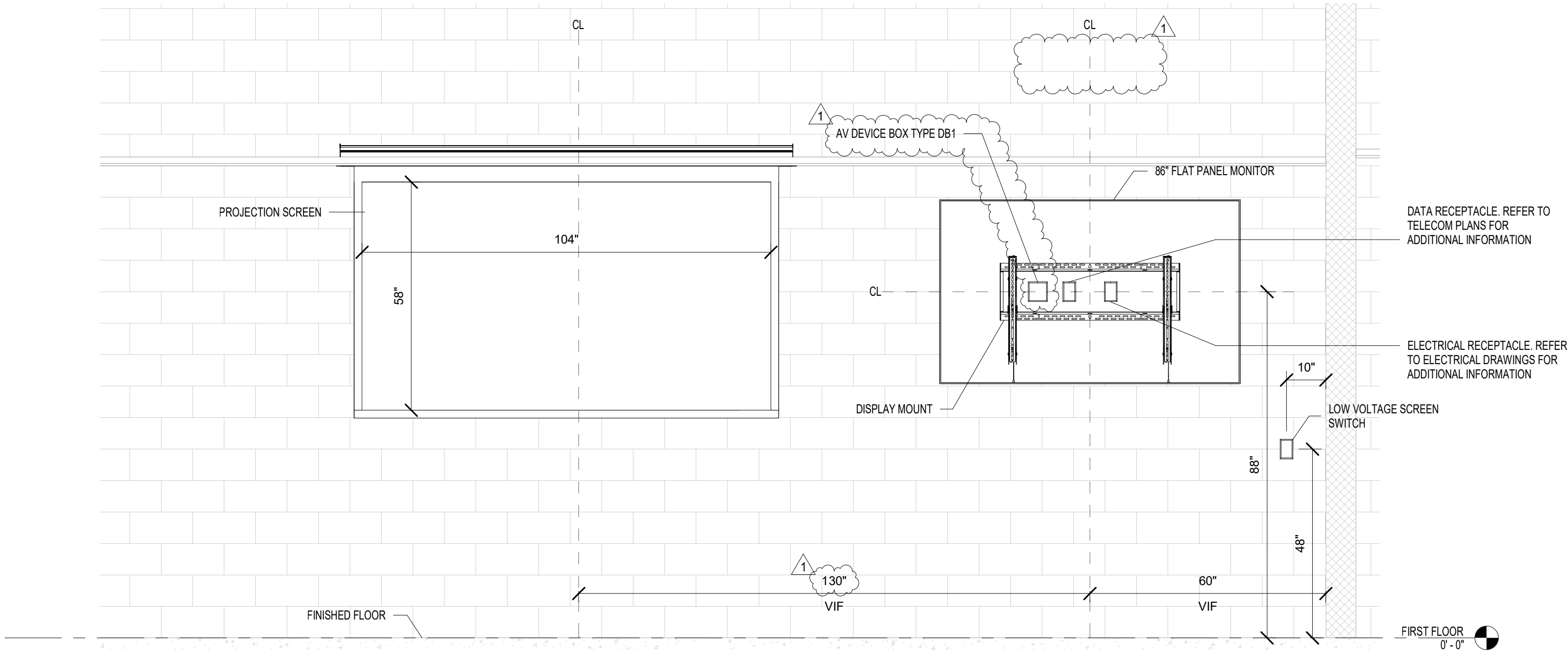
REVISIONS

NO.	MM-DD-YR	NAME	DESCRIPTION OF CHANGES
1	02-22-21	ASI-04	REVISIONS FOR RFI-09 RESPONSE

1 A123 WEIGHT ROOM SOUTH VIEW LCD DISPLAY DETAIL  
1/2" = 1'-0"



2 A134 SMALL CLASSROOM FRONT PROJECTION AND LCD DISPLAY DETAIL  
1/2" = 1'-0"



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AUDIOVISUAL MOUNTING  
DETAILS

PLOT SCALE:

FILENAME:

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TA5.2



## REVISIONS

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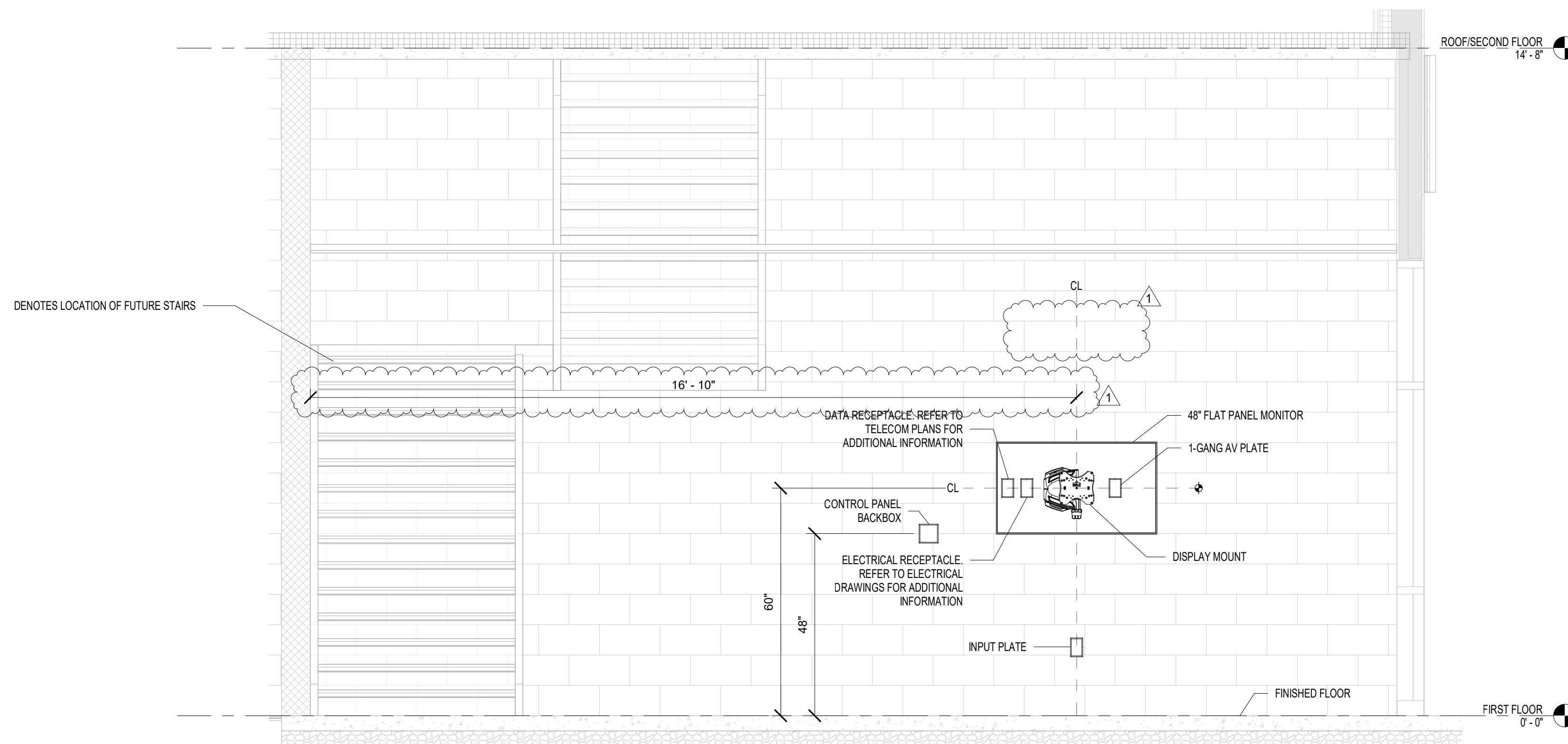
18350 PUBLIC SAFETY PLACE  
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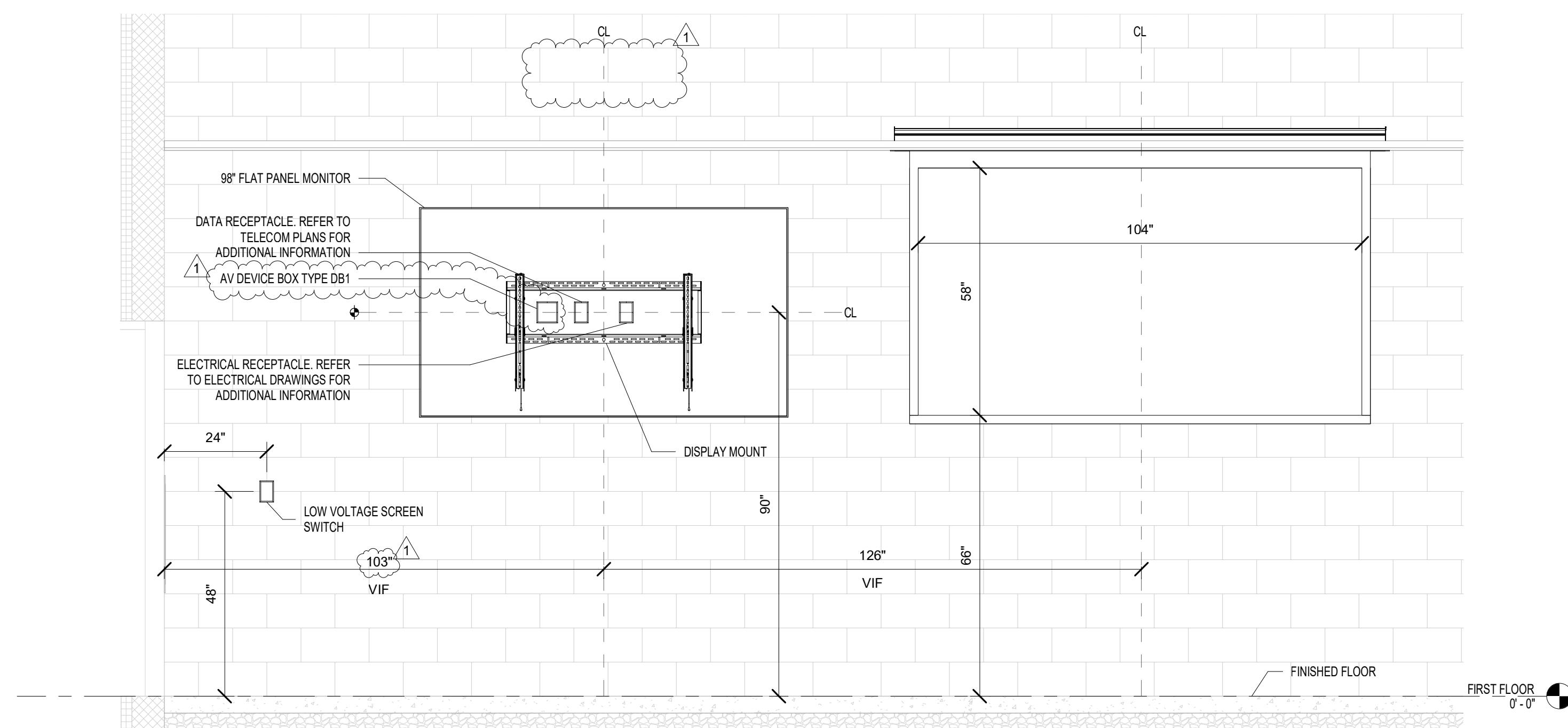
AUDIOVISUAL MOUNTING DETAILS	
PLOT SCALE:	
FILENAME:	
DATE:	FEBRUARY 1, 2021

**PROJECT**  
3089

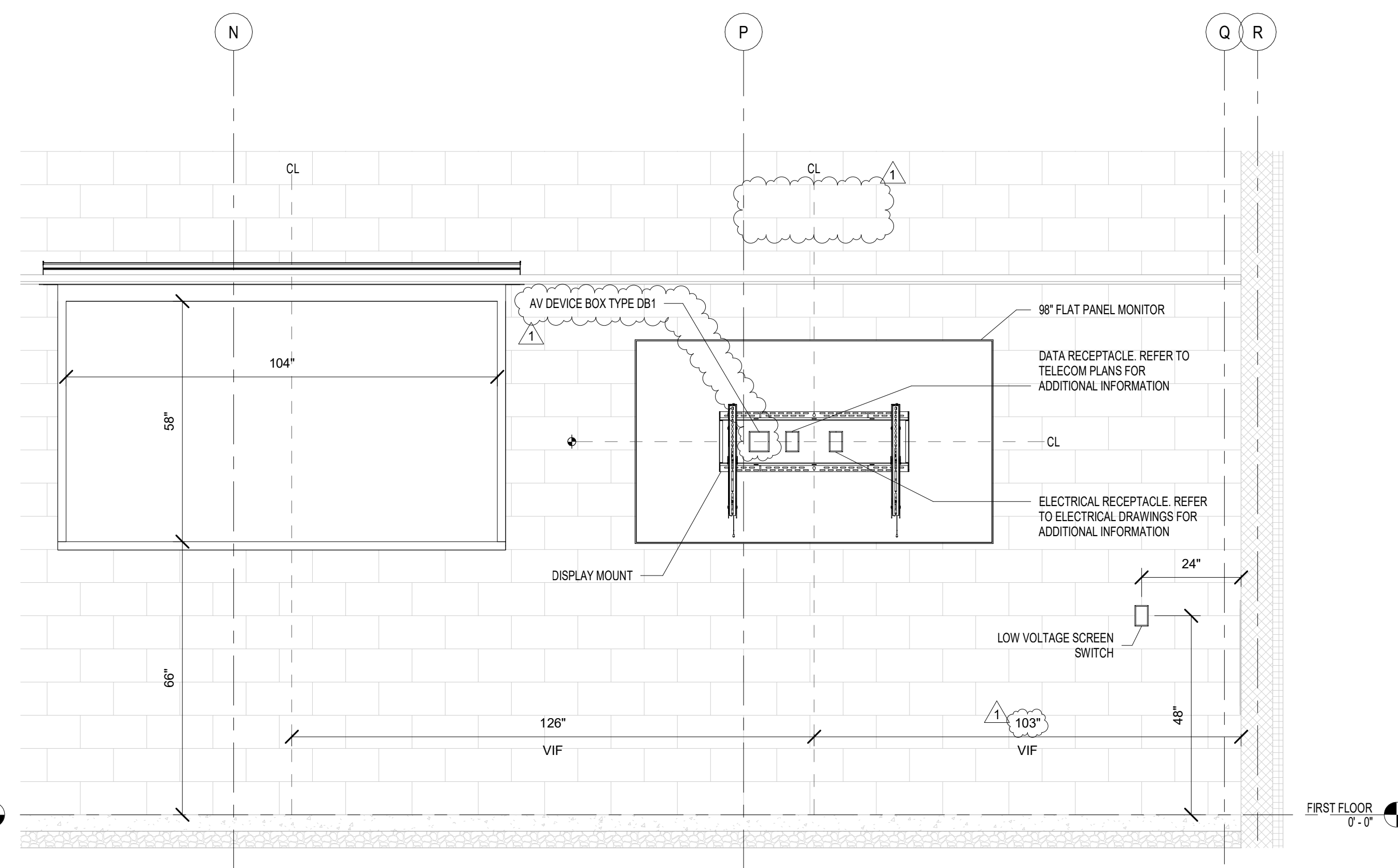
### TA5.3



1 A141 LEARNING RESOURCE AREA LCD DISPLAY DETAIL  
TA5.3 1/2" = 1'-0"



2 B100 LARGE CLASSROOM PROJECTION AND LCD DISPLAY DETAIL  
TA5.3 1/2" = 1'-0"



3	B102 LARGE CLASSROOM PROJECTION AND LCD DISPLAY DETAIL
TA5.3	1/2" = 1'-0"



[illegible]

AUDIOVISUAL MOUNTING DETAILS	
Plot Scale:	
Filename:	
Date:	FEBRUARY 1, 2021

TA5.4

1 B109 SIMULATION LAB SIDE PROJECTION SCREEN DETAIL  
TA5.4 1/2" = 1'-0"

2 B109 SIMULATION LAB SIDE VIEW LCD DISPLAY DETAIL  
TA5.4 1/2" = 1'-0"

3 B109 SIMULATION LAB FRONT PROJECTION SCREEN DETAIL  
TA5.4 1/2" = 1'-0"

4 B106 AND B116 SMALL CLASSROOM FRONT PROJECTION AND LCD DISPLAY DETAIL  
TA5.4 1/2" = 1'-0"

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AUDIOVISUAL MOUNTING  
DETAILS

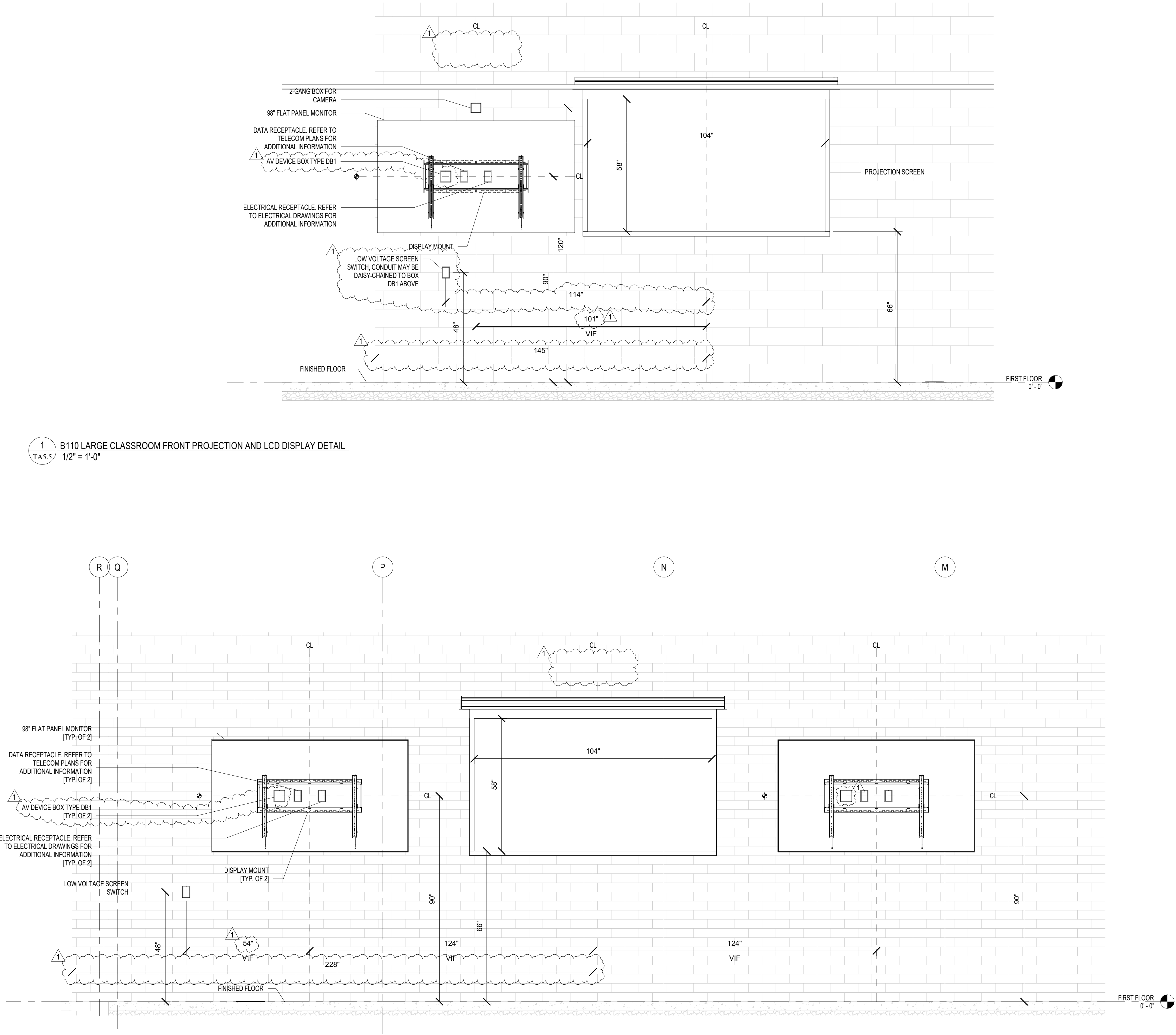
PLOT SCALE:

FILENAME:

DATE: FEBRUARY 1, 2021

PROJECT  
3089

TA5.5



1 B110 LARGE CLASSROOM FRONT PROJECTION AND LCD DISPLAY DETAIL  
1/2" = 1'-0"

2 B110 LARGE CLASSROOM SIDE PROJECTION AND LCD DISPLAY DETAIL  
1/2" = 1'-0"



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AUDIOVISUAL MOUNTING  
DETAILS

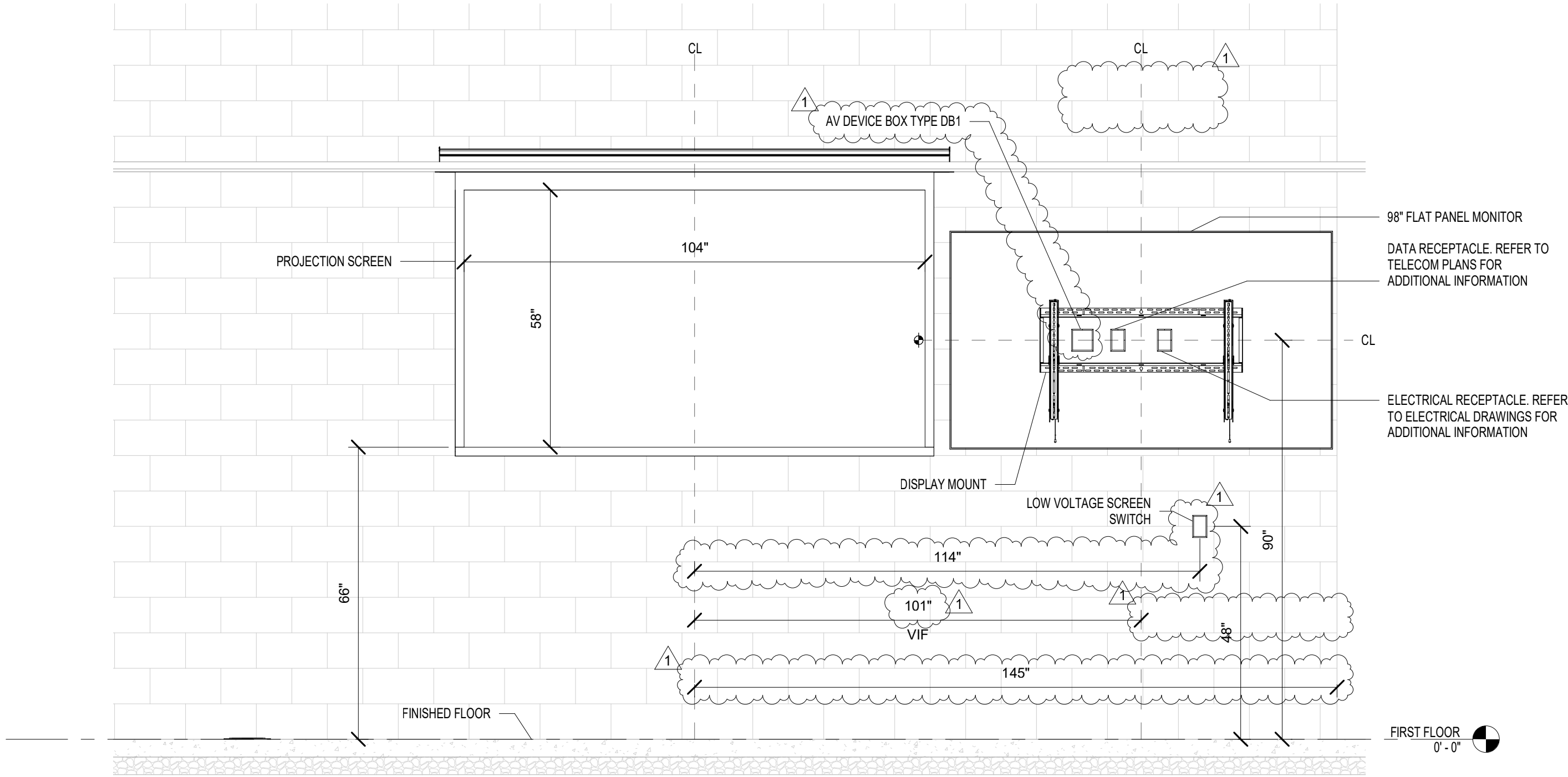
PLOT SCALE:

FILENAME:

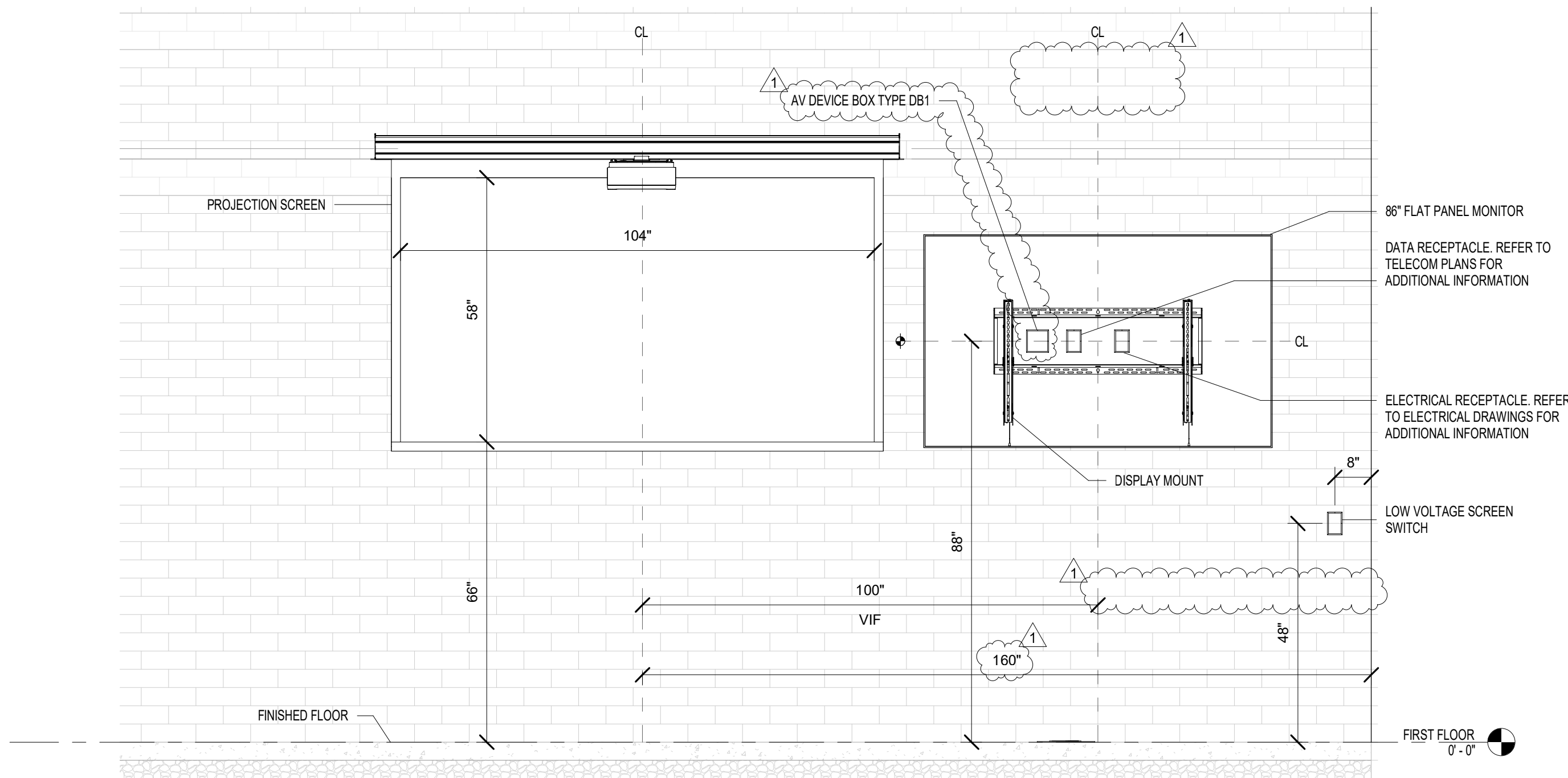
DATE: FEBRUARY 1, 2021

PROJECT  
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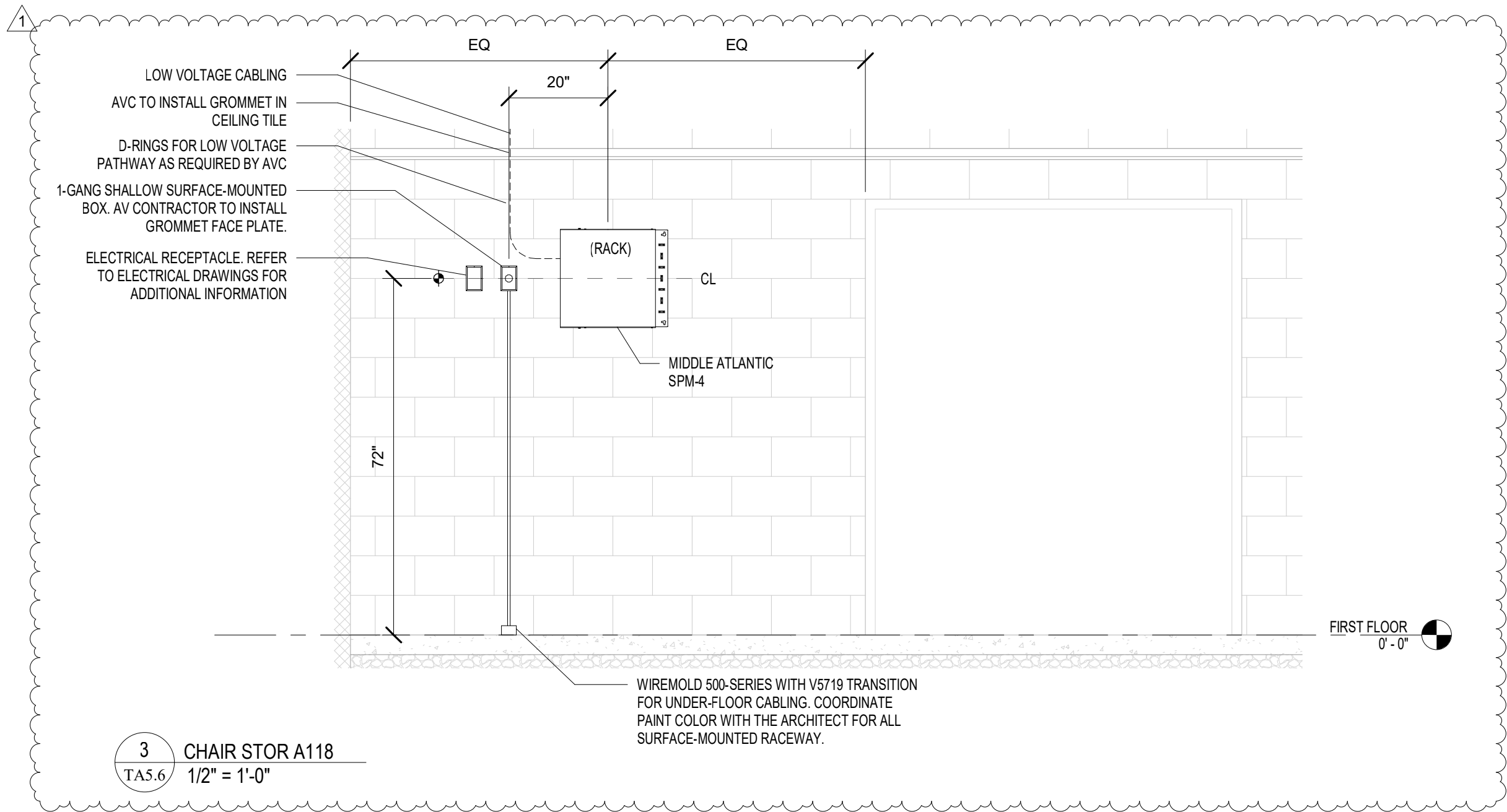
TA5.6



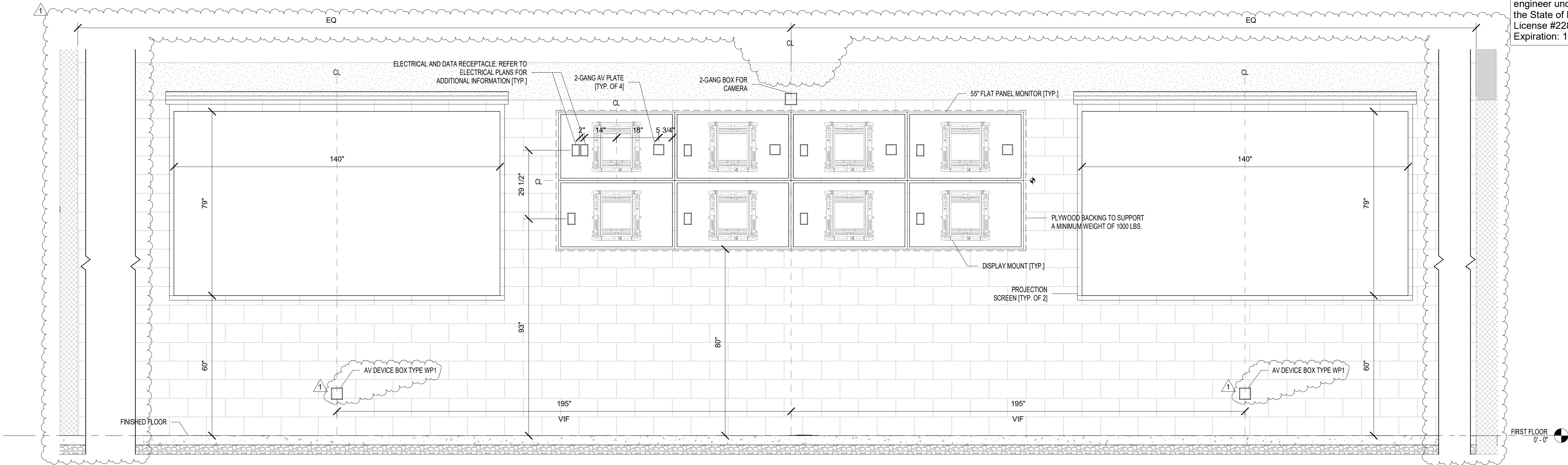
1 B112 LARGE CLASSROOM FRONT PROJECTION AND LCD DISPLAY DETAIL  
1/2" = 1'-0"



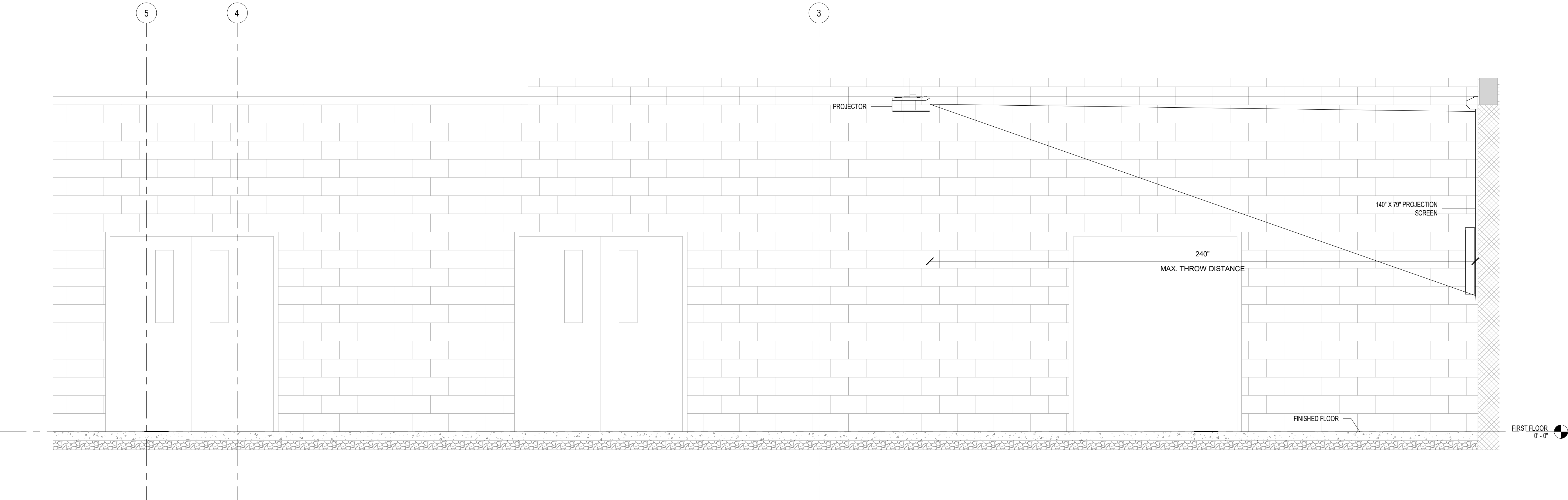
2 B119 SMALL CLASSROOM FRONT PROJECTION AND LCD DISPLAY DETAIL  
1/2" = 1'-0"



3 CHAIR STOR A118  
1/2" = 1'-0"



1 C100 MULTI-PURPOSE ROOM FRONT PROJECTION AND LCD DISPLAY DETAIL  
1/2" = 1'-0"



2 C100 MULTI-PURPOSE ROOM SIDE PROJECTION SCREEN DETAIL  
1/2" = 1'-0"

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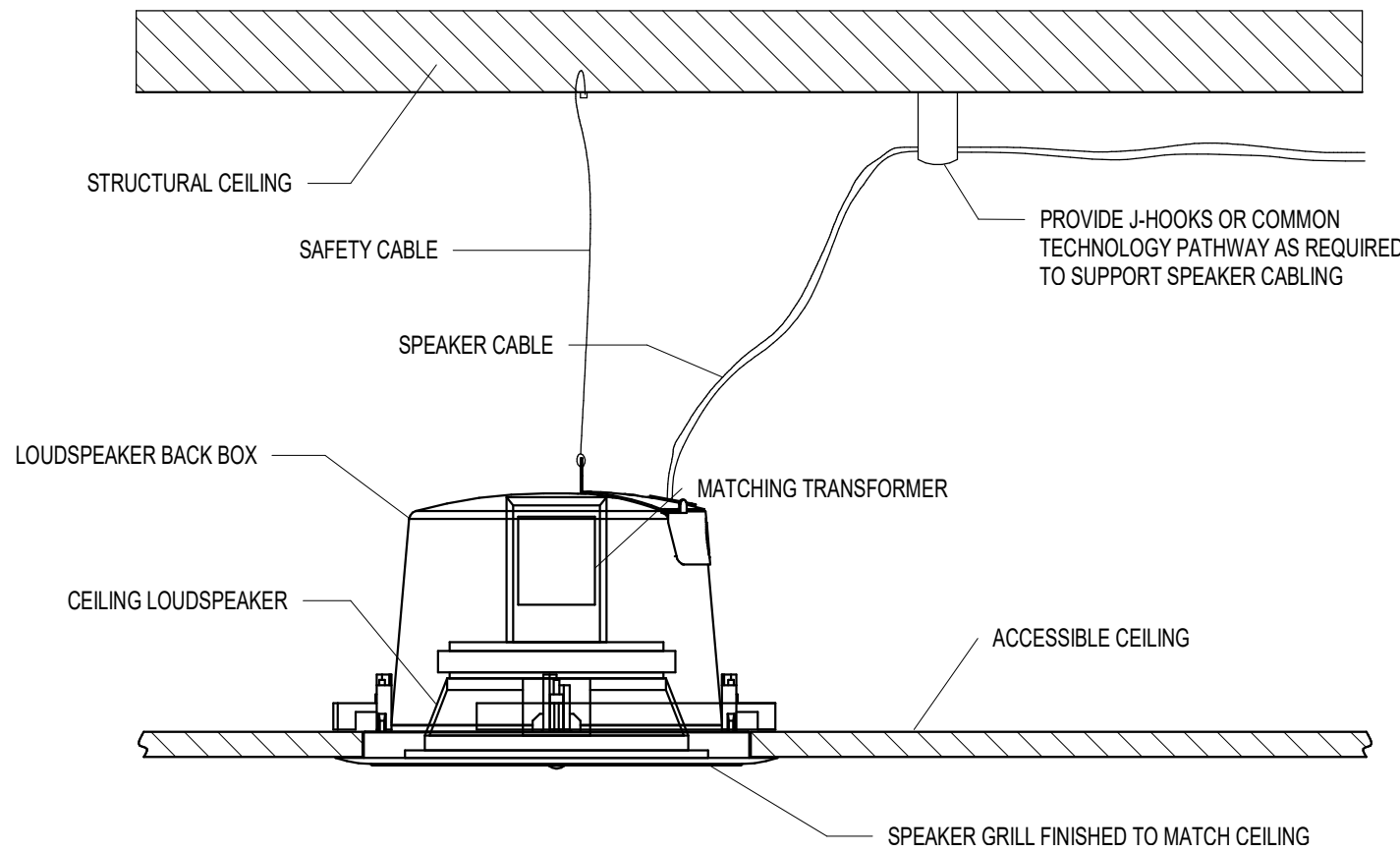
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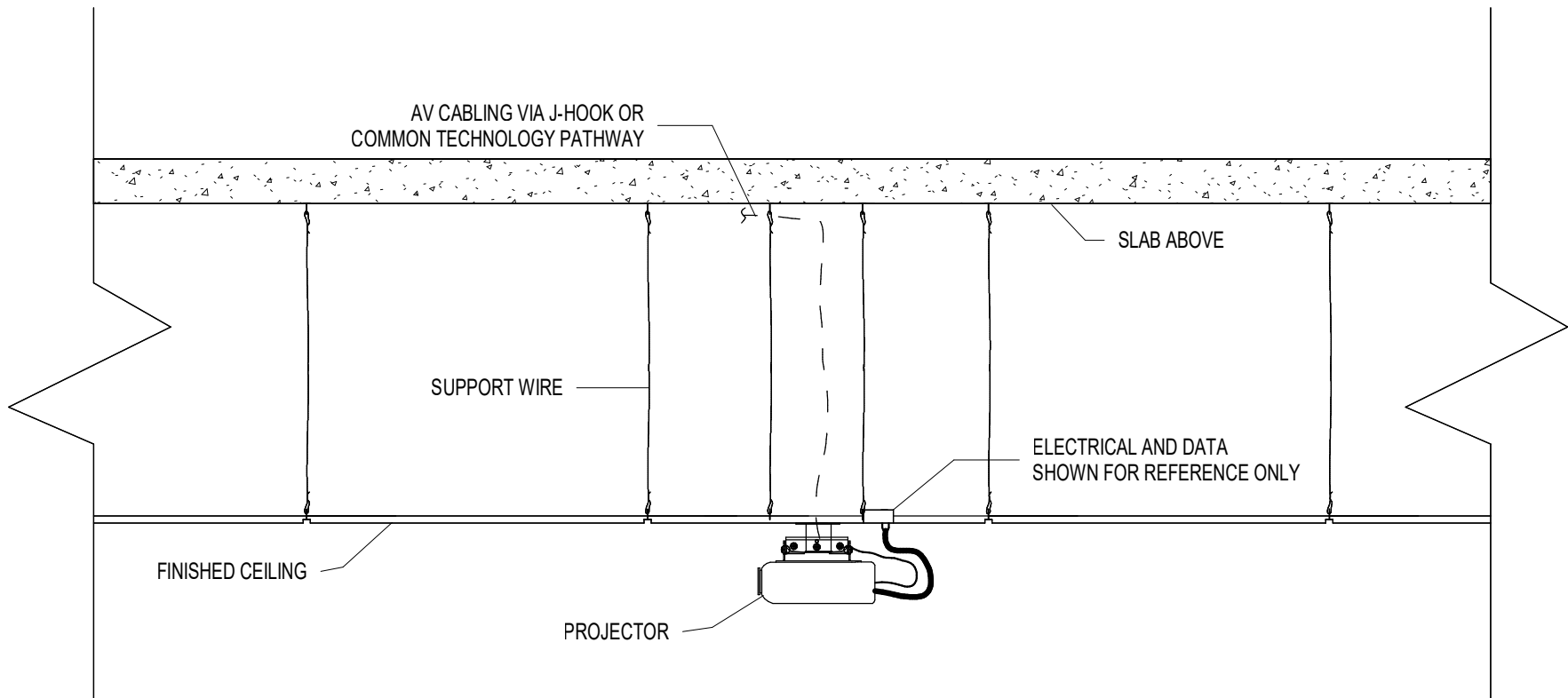
AUDIOVISUAL MOUNTING DETAILS  
PLOT SCALE:  
FILENAME:  
DATE: FEBRUARY 1, 2021

**PROJECT**  
3089

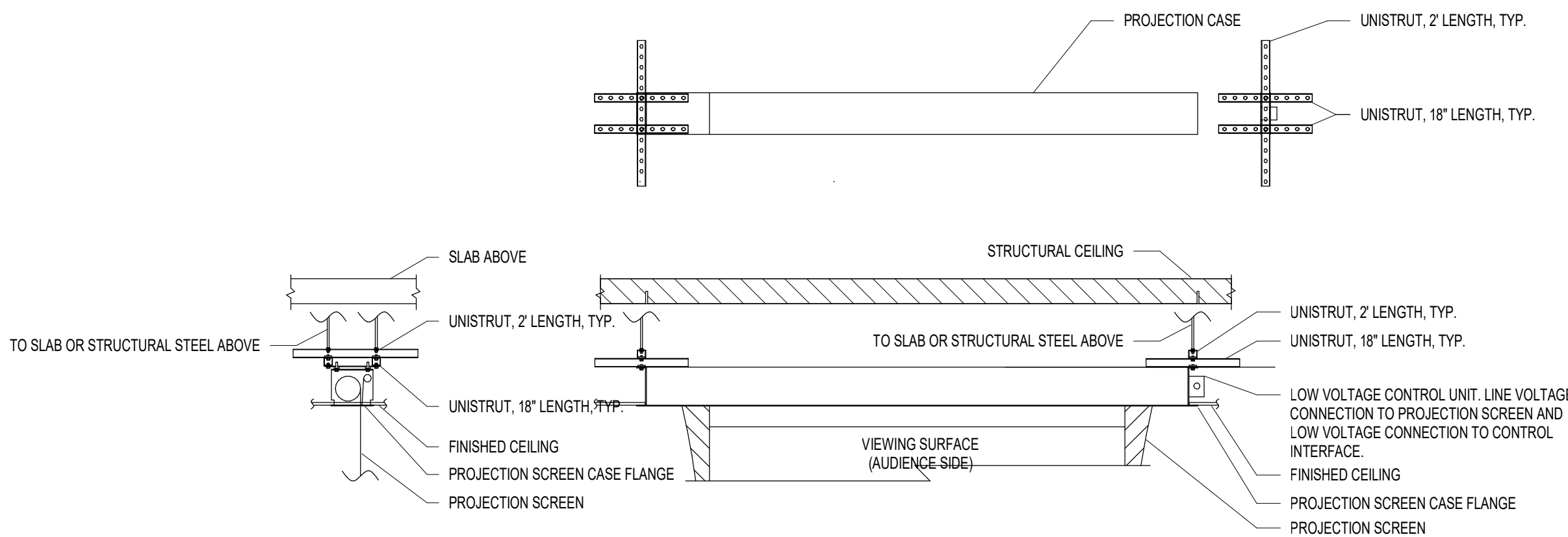
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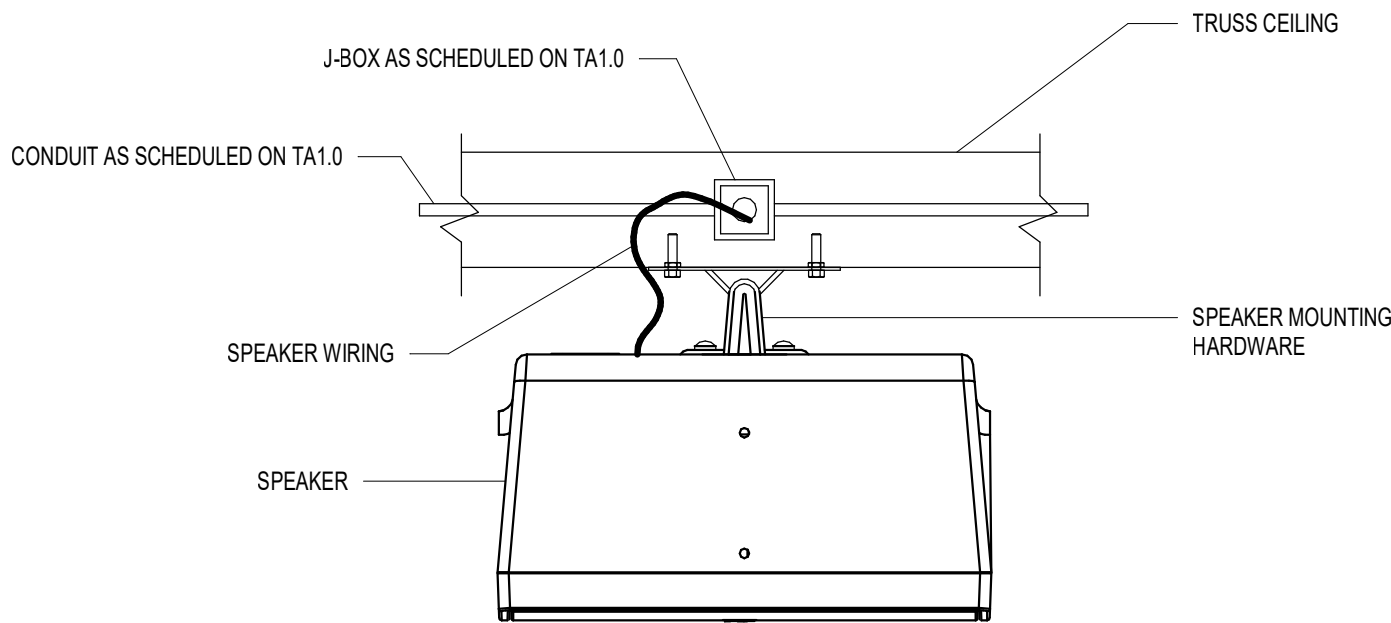
1  
TA5.8  
CEILING SPEAKER MOUNTING DETAIL  
1/2" = 1'-0"



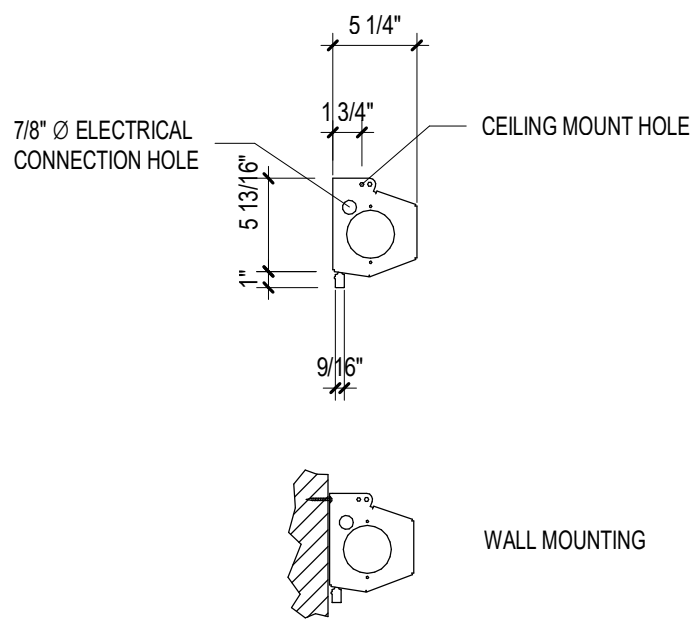
2  
TA5.8  
CEILING STRUT MOUNTED PROJECTOR DETAIL  
1" = 1'-0"



3  
TA5.8  
PROJECTION SCREEN MOUNTING DETAIL  
1/2" = 1'-0"



4  
TA5.8  
SURFACE MOUNTED SPEAKERS ATTACHED DIRECTLY TO TRUSS CEILING  
1 1/2" = 1'-0"



6  
TA5.8  
WALL MOUNT PROJECTION SCREEN DETAIL  
1" = 1'-0"

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AUDIOVISUAL MOUNTING  
DETAILS  
PLOT SCALE:  
FILENAME:  
DATE: FEBRUARY 1, 2021

PROJECT  
3089

TA5.8

TABLE

LAPTOP

HDMI

TOUCH PANEL

LAN/POE

TABLE TOP MOUNTED

TABLE BOX

TABLE GROMMET

FLOOR BOX

FLOOR BOX

RJ45

RJ45

WALL MOUNTED DISPLAY

CONTROL PROCESSOR

LAN

IR

TV TUNER

RF

HDMI

IR

DISPLAY

HDMI 1

HDMI 2

LAN

SPEAKER

SPEAKER

OFF CATV

AV LAN

AV LAN

1

CONFERENCE ROOMS

TA7.1

N.T.S.

WALL

LAPTOP

HDMI

WALL PLATE I1

WALL PLATE

HDMI

HDMI

TABLETOP

TOUCH PANEL

LAN/POE

WALL PLATE DP1

WALL PLATE

RJ45

RJ45

WALL MOUNTED DISPLAY

CONTROL PROCESSOR

LAN

IR

TV TUNER

RF

HDMI

IR

DISPLAY

HDMI 1

HDMI 2

LAN

OFF CATV

AV LAN

AV LAN

2

RECEPTION

TA7.1

N.T.S.

WALL

LAPTOP

HDMI

WALL PLATE I1

WALL PLATE

HDMI

HDMI

WALL

TOUCH PANEL

LAN/POE

WALL MOUNTED DISPLAY

CONTROL PROCESSOR

LAN

IR

TV TUNER

RF

HDMI

IR

DISPLAY

HDMI 1

HDMI 2

LAN

OFF CATV

AV LAN

AV LAN

3

OFFICES & LEARNING RESOURCE

TA7.1

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STATE OF MARYLAND

PROFESSIONAL ENGINEER

NO. 22868

EXPIRATION DATE 10-14-2020

CRABTREE ROHRBAUGH & ASSOCIATES, INC.

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AUDIOVISUAL LOGICAL DIAGRAMS

PLOT SCALE:

FILENAME:

DATE: FEBRUARY 1, 2021

PROJECT 3089

TA7.1

## Hearing Loop System – Preliminary Estimate

### Room / Area 1 (Multi-Purpose C100):

#### Requirements Summary:

This Preliminary Estimate is based on the amount and accuracy of the information provided in your Site Analysis form, as summarized below, plus provided drawings.

Please carefully review and let us know if there are any discrepancies or changes:

Venue Capacity:	225 seats shown on drawing
Loop Coverage Area(s):	Entire audience seating area
Requested Listening Height:	Seated height (approx. 4')
Dimensional Drawings Provided:	PDF drawing provided
Specialized Equipment Requirements:	None
Cable Installation Method:	At floor level below the floor covering
Spill Control Requirements:	No spill control required
Interference Control Requirements:	No interference control required
Metal Structure Description:	No information provided
Metal Loss Test Results Provided:	No information provided. Metal loss testing is highly recommended to confirm actual loss within the space. <u>Estimated system will support up to 7.5 dB of metal loss, which is commonly found with Mesh/Rebar types of construction.</u>
Background Noise Tested:	No information provided. Background noise testing is recommended.

#### Estimated Design Description:

Metal loss control phased array system implemented across the entire audience seating area and installed at floor level below the floor covering using flat copper cable.

#### Estimated Equipment:

Line	Product Description	Item Name	MSRP (\$) Price	Qty.	MSRP (\$) Extended Price
<b>Loop Driver:</b>					
1	MultiLoop Driver (6.4A)	MLD7		1	
<b>Loop Cable:</b>					
2	Flat Insulated Copper Cable 3.0 mm <sup>2</sup> 328 ft. (100 m) - UL	FB3.0-UL-100M		4	
3	Adhesive Install/Warning Tape 164 ft.	PWT		8	
<b>Loop Feeder Cable:</b>					
4	14 AWG Hearing Loop Cable - Green (Per ft./ .3 m)	LA-396-14-G		100	
5	14 AWG Hearing Loop Cable - Red (Per ft./ .3 m)	LA-396-14-R		100	

Room/Area Total: \_\_\_\_\_

## Supplemental Equipment:

### Description:

Seating capacity of space has been calculated per the ADA Requirements. The following equipment supports this calculation.

## Estimated Equipment:

Line	Product Description	Item Name	MSRP (\$) Price	Qty.	MSRP (\$) Extended Price
<b>Loop Receivers:</b>					
1	Hearing Loop Receiver with Lanyard Package	LP-IL-1		9	

Room/Area Total: \_\_\_\_\_

Listen Technologies does not guarantee actual performance. Although every effort has been taken to give realistic estimates of performance, the system may not perform to specified standards if the effect of metal and any other environmental conditions is greater or different than indicated in the information provided and/or if the system installation varies from the specified design.





## Loopworks<sup>®</sup> Hearing Loop System Design

---

### Design Name

Ampetronic Ref: L112-347-01-01\_V01\_ISSUED-1

Design Status: Issued

Design Date (Last Modified): 29-Oct-2018 6:52 PM

Report Generated On: 29-Oct-2018 7:10 PM

---

### Report Contents

1. System Design & Specification Summary
2. System Performance
3. Loop(s) Installation Arrangement
4. Plan View Installation Reference
5. Installation Drawing: Loop Array 1
6. Installation Drawing: Loop Array 2
7. Electrical Connections

Project	System	Report Prepared by	Report Prepared for
Washington County Public Safety Training Center 112-347	Multi-Purpose C100	Listen Technologies Corporation 14912 Heritagecrest Way Bluffdale 001 801 233 8992	Phase Shift Consulting, LLC

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# System Design and Specification Summary

## Area

Dimension X	54' 3"
Dimension Y	65' 9"
Loop Height	0' 0"
Gap around room	N 0' 6" E 0' 6" S 0' 6" W 0' 6"
Metal type (building structure)	Concrete with moderate reinforcement

Note on Metal type:

Unless measured on site and entered manually, metal loss has been estimated based on typical losses experienced with specific construction types. It should be noted that the actual loss may differ, which may affect the recommended loop driver.

## Driver Specification

Driver selected	MLD7	Voltage headroom	3.3 dB
Current with no loss	2.4 Amps RMS	Current headroom	3.7 dB
Max loss with this driver	8.2 dB	Estimated Loss	4.9 dB

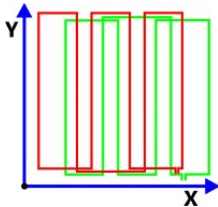
### MLD7 MultiLoop Driver

- Dual oop outputs
- 6.4 A<sub>RMS</sub> (9 A<sub>pk</sub>) Max Per Output
- 17 V<sub>RMS</sub> (24 V<sub>pk</sub>) Max Per Output
- 1U 19" rack mount



## Loop Design

Type	Loss control multiloop, optimised	
Options	Optimised, 0m Preferred segment width (if metal OK)	
	Array 1	Array 2
No. of segments	4	4
Cable length	606' 1"	606' 1"
Resistance $\Omega$	1.56	1.56



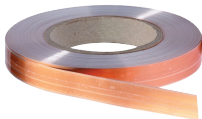
**N.B.** This representation is not to scale or dimensionally accurate. Do not use as an installation reference drawing.

## Cable Specification

Loop cables	FB3.0	Feed cable length	98' 5"
Total length (ft)	1212' 2"	Feed cable type	Twist AWG 14
Number of 50m reels	8 x 50m rolls		

### 3.0mm<sup>2</sup> Flat Copper Tape

- Available from Ampetronic.
- Sold in 50m rolls.
- For installation under floor coverings.
- UL approved.



### 2 x AWG14 single core cables

- Widely available
- CSA 2.1mm<sup>2</sup>
- Hook-up cable recommended



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Project Name	Washington County Public Safety Training Center	System Name	Multi-Purpose C100	Ampetronic Ref.	L112-347-01-01_V01_ISSUED-1
Client Name	Phase Shift Consulting, LLC	Client Ref.	HL3802P	Our Ref.	HL3802P

# System Design and Specification Summary

## General Installation Notes

### OVERVIEW

This is a summary of a design and equipment requirement for an audio induction loop system. It has been generated using Ampetronic design software tools. The accuracy of the design and specification of the equipment is based on the data provided.

Equipment required for the loop arrays is shown here. Please also note that test equipment is required to set up and commission this system, being a minimum of a field strength meter.

The venue should be provided with equipment to monitor the performance of the loop system (a listener or meter), suitable signage, and training for system operators.

### LAYOUTS

The loop system consists of one or two arrays of loops or narrow segments. Each is a continuous run of cable or tape, connected to the loop output of the loop driver specified.

This document does not specify the location for the cable installation - ensure this is assessed and appropriate location and materials are available and practical. Some materials have their own installation requirements, for example flat copper tape is designed for installation under floor covering (carpet etc.) with adhesive installation tape or under special purpose extrusion.

The loops must be installed and wired as shown in drawings provided.

The loop designs are based entirely on the data provided and it is assumed that it is compatible with any obstructions in the floor or areas where loop wires may not be placed, which must be checked by the installer prior to proceeding with this design.

### SETUP

Set-up and test the loop system using a suitable test signal and loop receiver. You should, wherever possible, use field strength measuring equipment to determine that the correct field strength and frequency response have been achieved. Where there are two similar arrays, the output currents should be the same on each channel.

The loop current per driver if there were no loss is specified here. The actual current required will depend on the loss experienced in practice. The equipment specified will cope with up to the loss level specified here in dB.

Follow set-up procedures provided with the drivers and test equipment. The field strength in the listening area should be 0dB +/-3dB re: 0.4Am-1 (RMS) where good coverage is required.

### CAUTION!

Metal structures in buildings affect loop systems, sometimes in an unpredictable way. While reasonable estimates are made based on the type of metal loss anticipated in this system, there is potential for variation unless a test loop or survey has been used to determine accurate loss levels.

Loop systems will interfere with other nearby loop systems. Please ensure the designs provided control spill to -40dB or better where other systems are present.

Loop systems can cause interference or crosstalk with magnetically sensitive systems, including low cost dynamic microphones or electric guitars. If such equipment is used in the proximity of the loop system, please take advice from Ampetronic or its representatives.

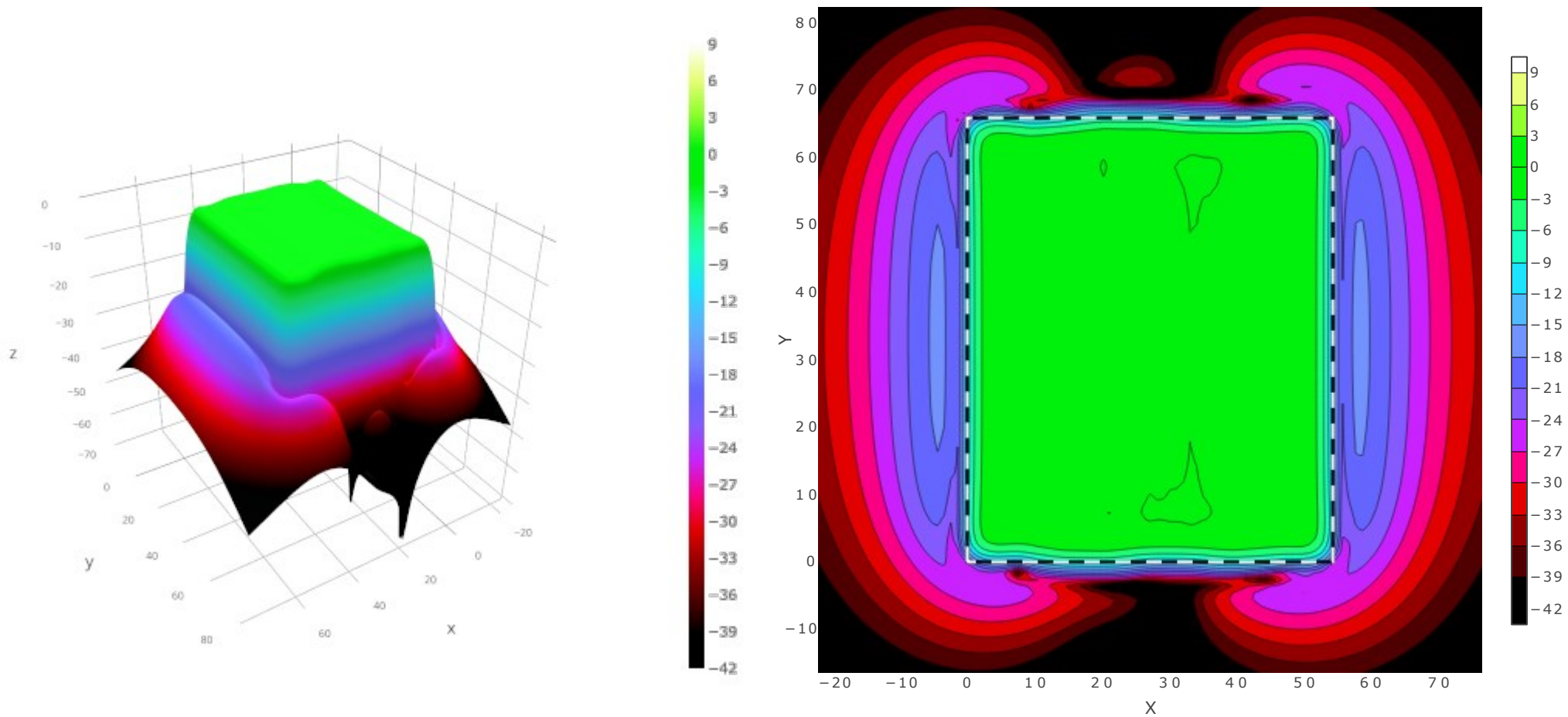


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<b>Project Name</b>	Washington County Public Safety Training Center	<b>System Name</b>	Multi-Purpose C100	<b>Ampetronic Ref.</b>	L112-347-01-01_V01_ISSUED-1
<b>Client Name</b>	Phase Shift Consulting, LLC	<b>Client Ref.</b>	HL3802P	<b>Our Ref.</b>	HL3802P

# System Design and Specification Summary

Area Colour plots at 4' 0" Height

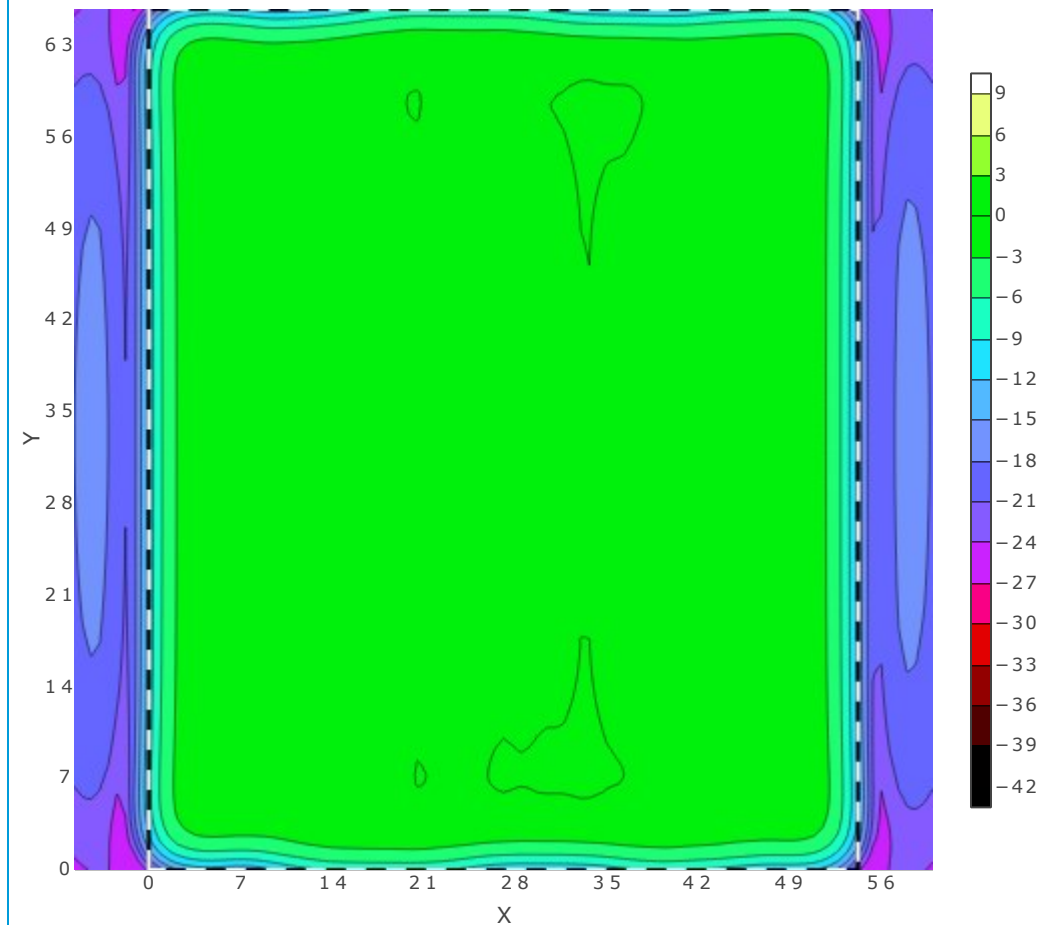


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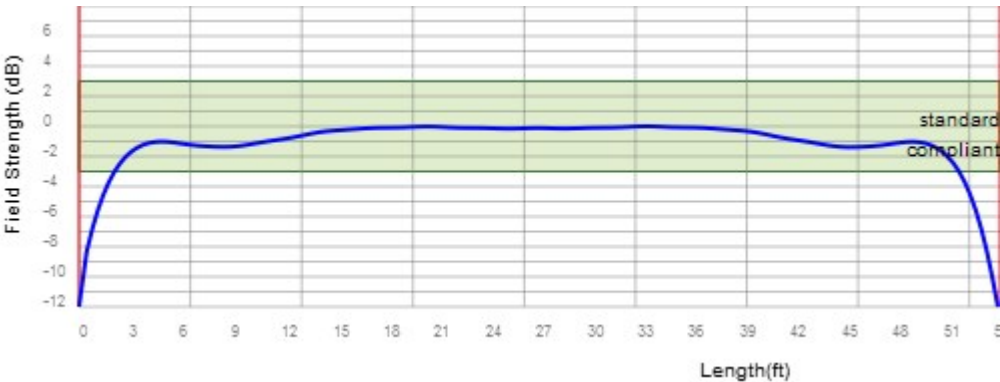
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<b>Client Name</b>	Phase Shift Consulting, LLC	<b>Client Ref.</b>	HL3802P	<b>Our Ref.</b>	HL3802P

# System Performance - Field Strength

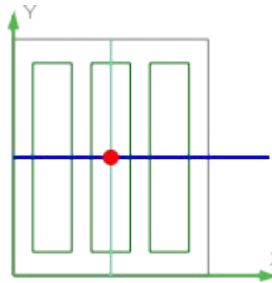
Area Colour plot at 4' 0" Height



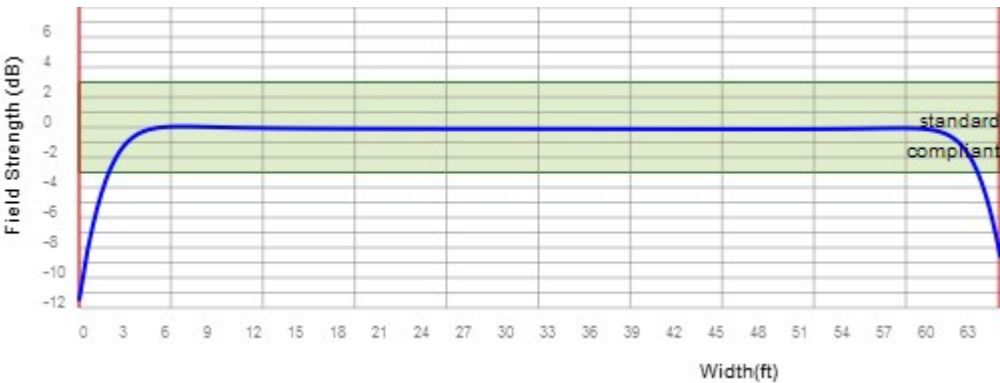
X Axis field strength plot across room at 4' 0" Height - Y = 32' 10"



Horizontal Coverage	X (Length)	Y (Width)
% area within +- 3 dB	91%	95%



Y Axis field strength plot across room at 4' 0" Height - X = 27' 1"



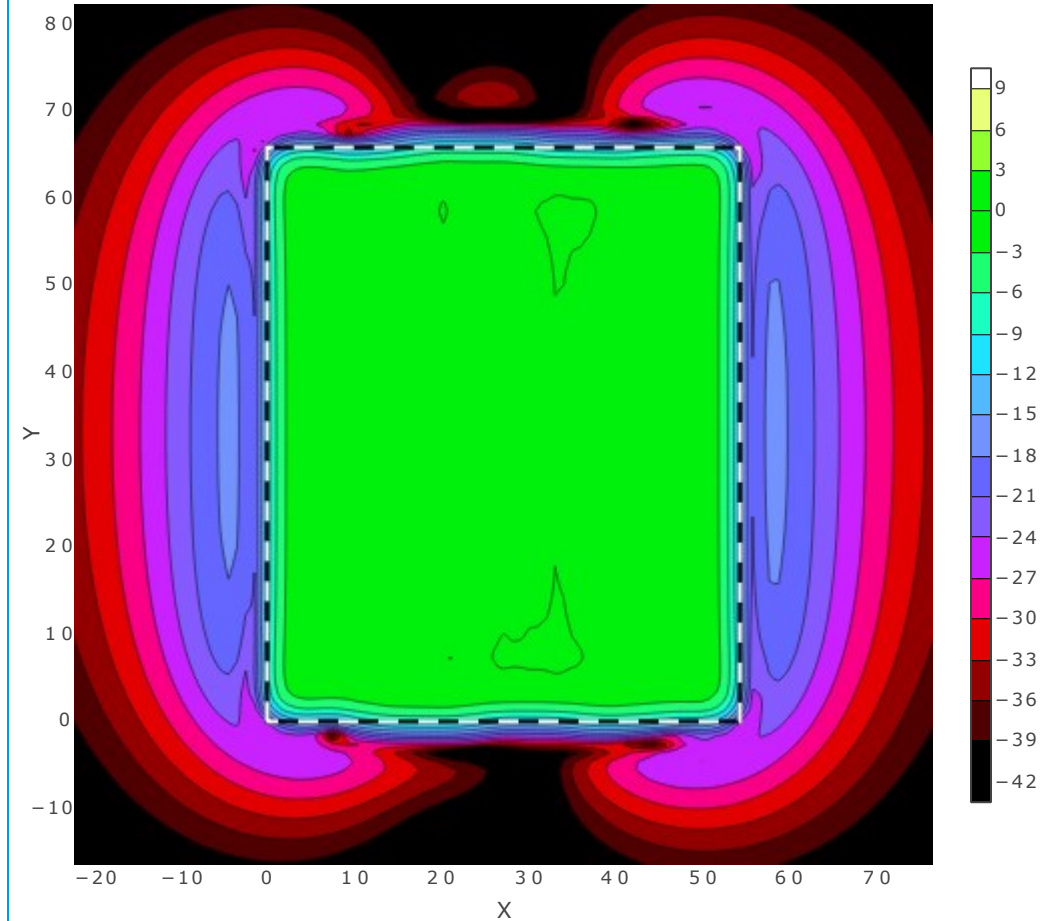
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<b>Project Name</b>	Washington County Public Safety Training Center	<b>System Name</b>	Multi-Purpose C100	<b>Ampetronic Ref.</b>	L112-347-01-01_V01_ISSUED-1
<b>Client Name</b>	Phase Shift Consulting, LLC	<b>Client Ref.</b>	HL3802P	<b>Our Ref.</b>	HL3802P

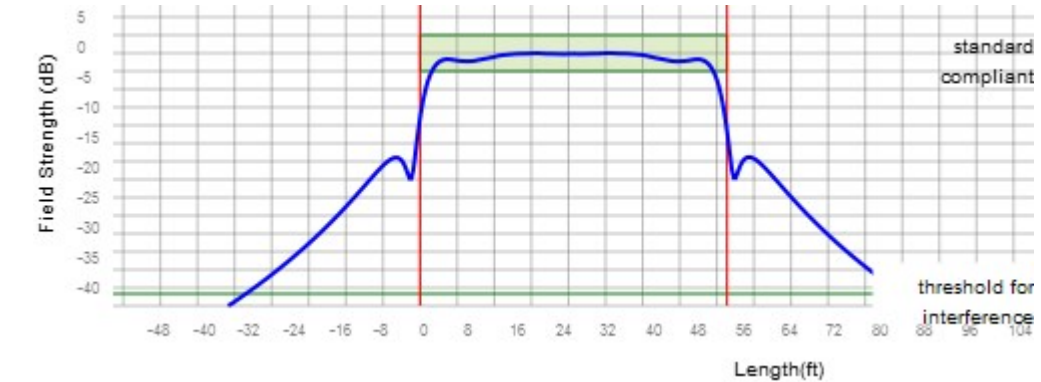


# System Performance - Overspill

Area Colour Overspill plot at 4' 0" Height



X Axis overspill plot across room at 4' 0" Height - Y = 32' 10"

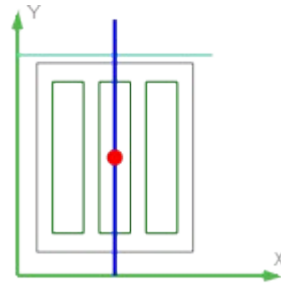


Overspill performance - Max dB level 2m outside the looped area

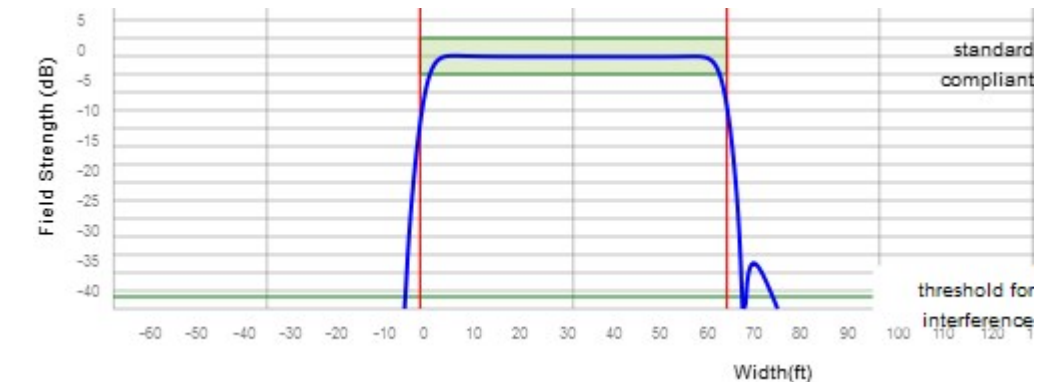
North	-25.4 dB	East	-18.9 dB
South	-25.6 dB	West	-18.7 dB

Vertical overspill performance

6m Above Floor Level	-29.8 dB
3m Below Floor level	-11.9 dB



Y Axis overspill plot across room at 4' 0" Height - X = 27' 1"



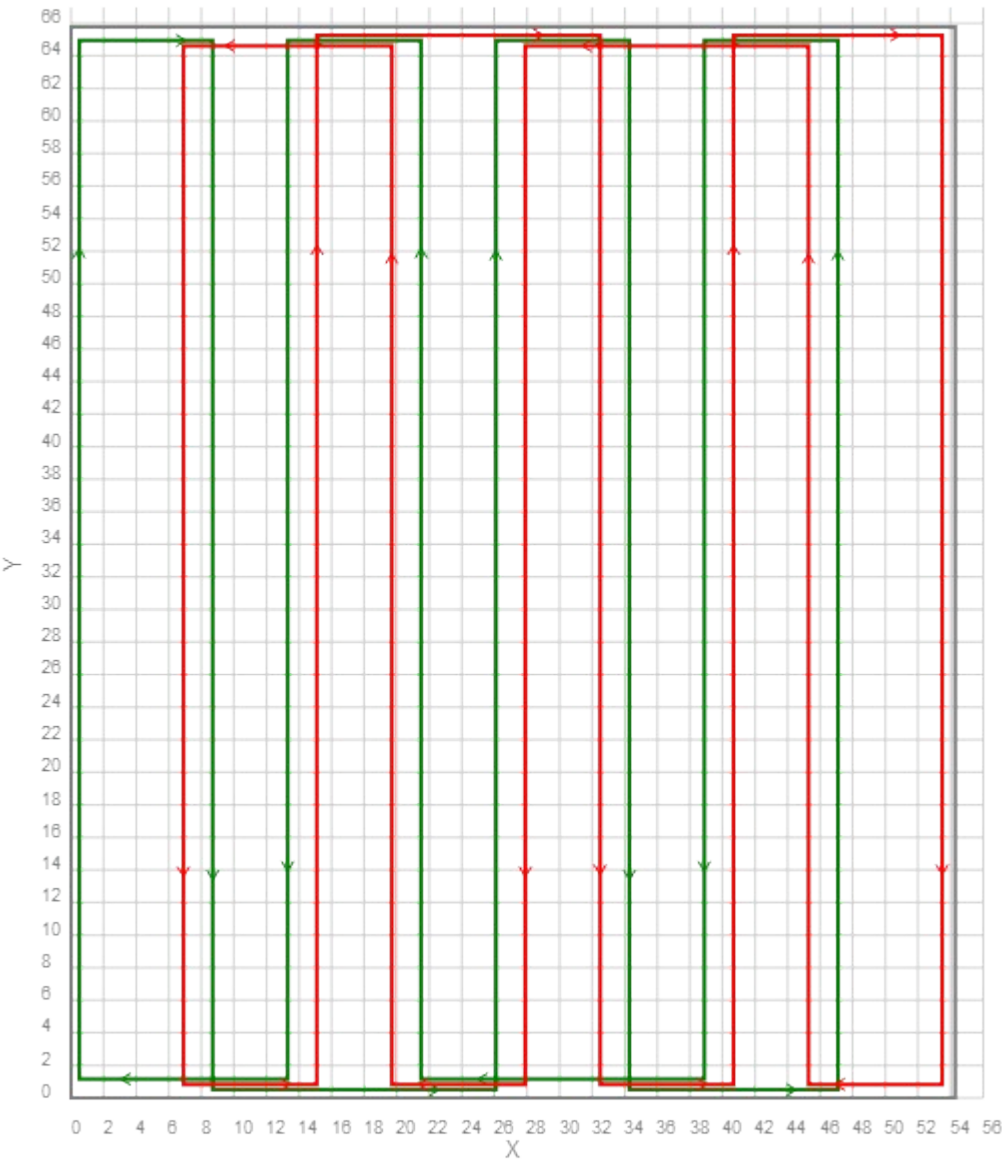
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# Loop(s) Installation Arrangement

## Full Loop(s) Installation Arrangement



## Installation Instructions

Layout drawings show the origin point and x-y axes to which all dimensions on the design drawings are referenced. Loop dimensions are all shown in metres relative to the reference point(X/Y origin).

Tolerance for the dimensions of any point is 50mm unless otherwise stated.

Mark the X and Y axes and origin on the floor before starting measurement or marking out.

If it is not possible to mark an axis in some part of the room (e.g. there are obstructions), derive a dimension line offset from the axis by a known (and preferably simple) amount.

For each array, mark out the loop dimensions on the floor (using chalk or tape – ideally use a different colour for each of the two arrays).

Start at one side of the feed point for the first array, and lay out the wire along the path of the electrical current slow as shown on the drawings.

At each corner, secure the wire in place, and continue around the whole of that array. Copper tape should be folded to make a 90° corner.

If correctly installed, you should pass along every wire element of the array once, and you should return to the other side of the array's feed point.

In some cases, additional obstructions may be found which were not on the original drawings. If the deviation required to go around such an obstruction is not more than 400mm long (along the original line of the loop wire) and up to 300mm sideways, the loop wire may follow a small diversion around the obstruction.

If any diversion is larger, you should contact Ampetronic or your distributor for advice. In such a case, other changes to the loop design may be needed if performance is to be maintained.

Repeat the exercise for the second array (if present).

Connect the loop drivers through the feed cable, and then connect you audio input system.

## Design Specific Installation Notes

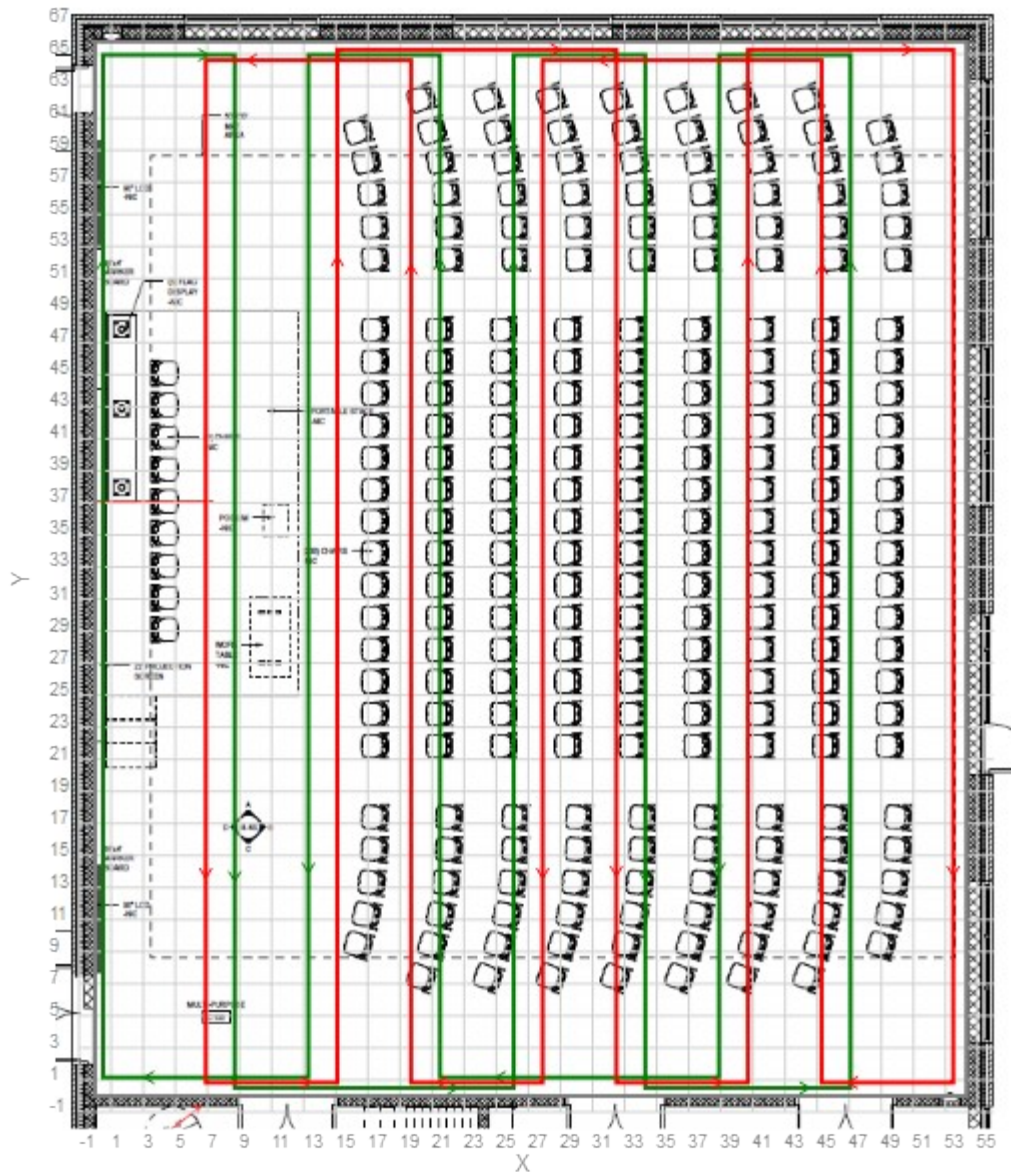


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<b>Project Name</b>	Washington County Public Safety Training Center	<b>System Name</b>	Multi-Purpose C100	<b>Ampetronic Ref.</b>	L112-347-01-01_V01_ISSUED-1
<b>Client Name</b>	Phase Shift Consulting, LLC	<b>Client Ref.</b>	HL3802P	<b>Our Ref.</b>	HL3802P

# Plan View Installations Reference

Loop(s) Reference to Plan View Drawing



Installation Instructions

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If it is not possible to mark an axis in some part of the room (e.g. there are obstructions), derive a dimension line offset from the axis by a known (and preferably simple) amount.

For each array, mark out the loop dimensions on the floor (using chalk or tape – ideally use a different colour for each of the two arrays).

Start at one side of the feed point for the first array, and lay out the wire along the path of the electrical current slow as shown on the drawings.

At each corner, secure the wire in place, and continue around the whole of that array. Copper tape should be folded to make a 90° corner.

If correctly installed, you should pass along every wire element of the array once, and you should return to the other side of the array's feed point.

In some cases, additional obstructions may be found which were not on the original drawings. If the deviation required to go around such an obstruction is not more than 400mm long (along the original line of the loop wire) and up to 300mm sideways, the loop wire may follow a small diversion around the obstruction.

If any diversion is larger, you should contact Ampetronic or your distributor for advice. In such a case, other changes to the loop design may be needed if performance is to be maintained.

Repeat the exercise for the second array (if present).

Connect the loop drivers through the feed cable, and then connect you audio input system.

Design Specific Installation Notes

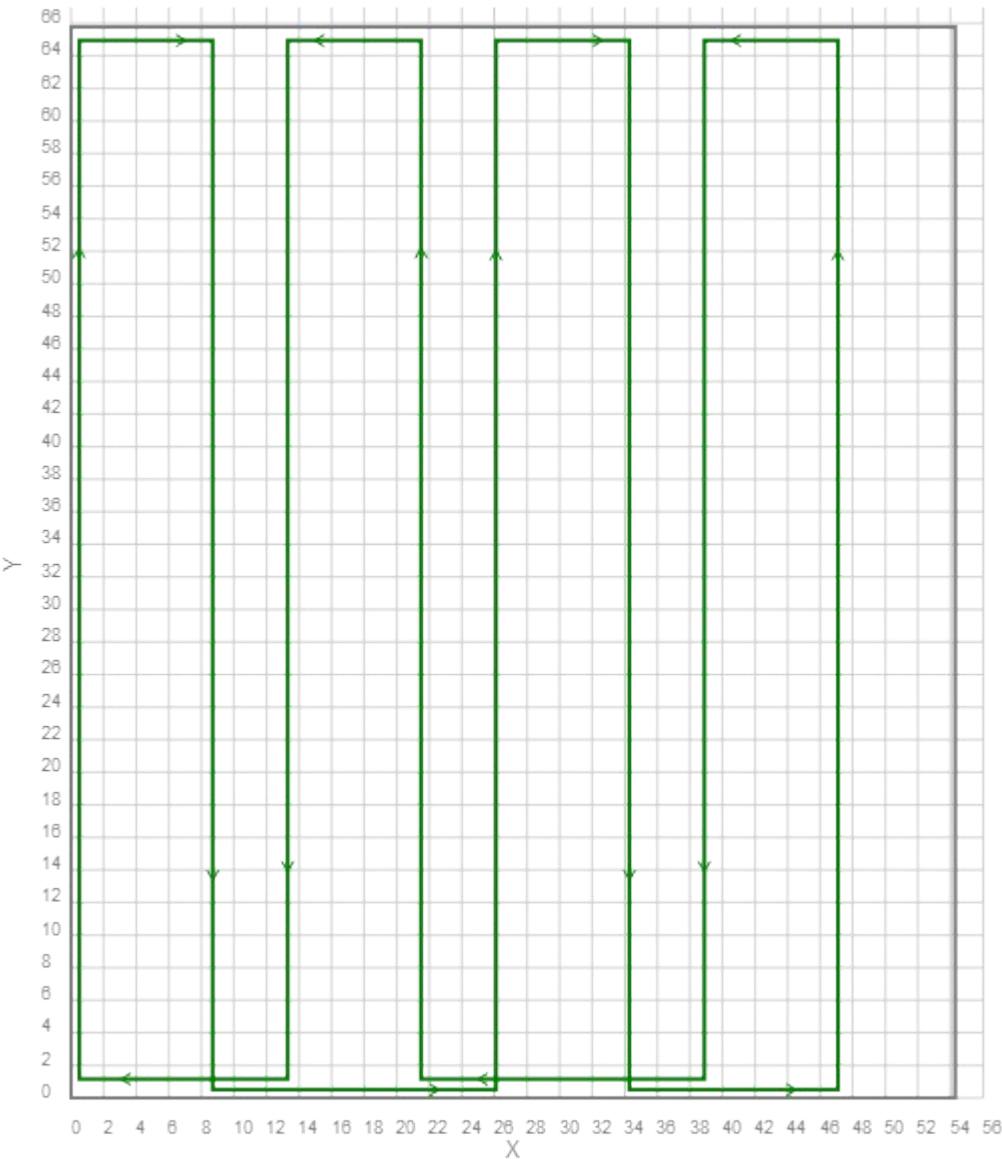


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# Installation Drawing: Loop Array 1

Array 1 Dimensioned Layout



Array 1 Dimensions

Dimensions (ft relative to origin)  
For all segments, y dimensions are:  
y1 (bottom) > 0' 6"  
y2 (top) > 65' 3"

Segment	x1 (left)	x2 (right)	Segment Width	Gap	Direction	Turns
1	0' 6"	8' 8"	8' 2"	4' 7"		1
2	13' 3"	21' 6"	8' 3"	4' 7"		1
3	26' 1"	34' 3"	8' 2"	4' 7"		1
4	38' 10"	47' 1"	8' 3"			1

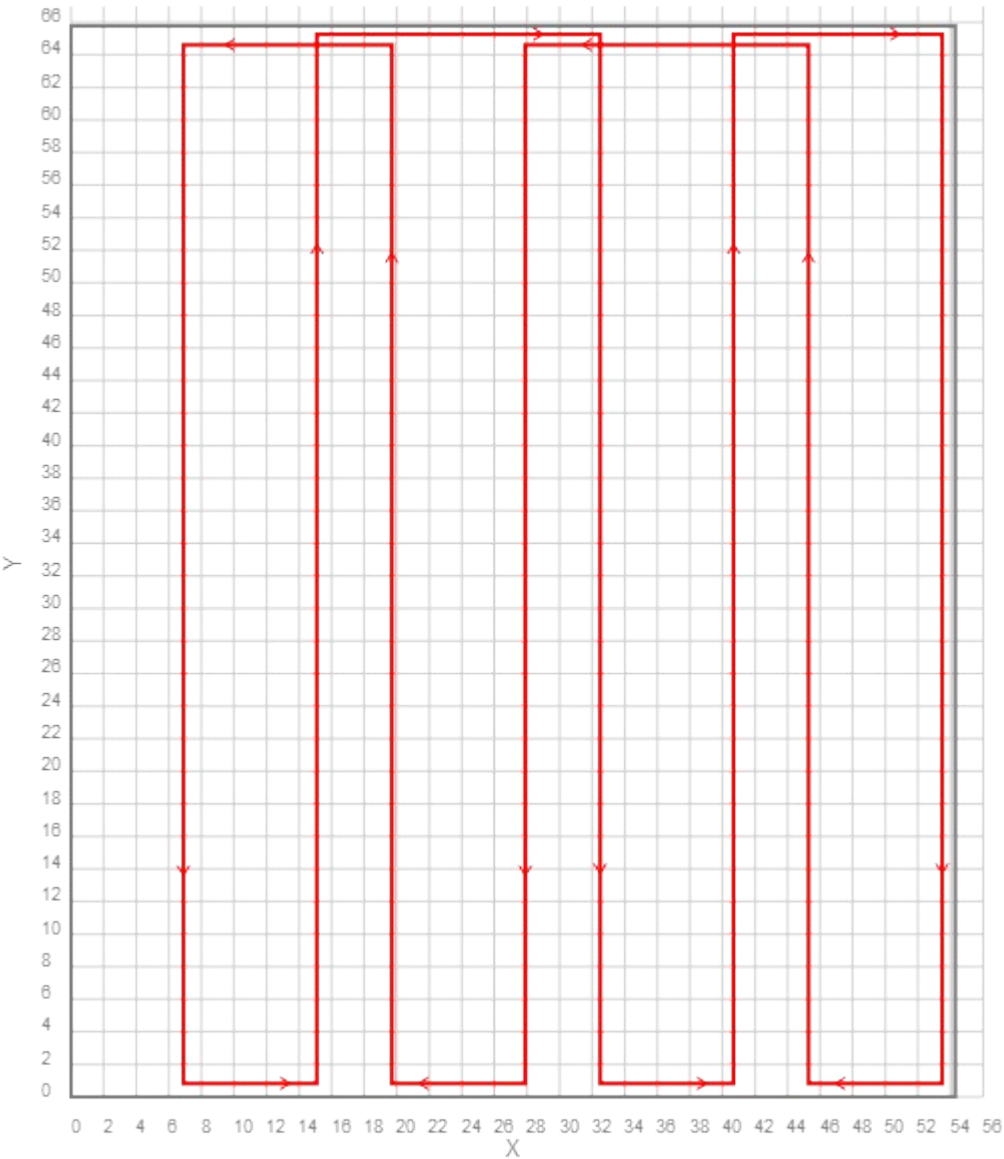


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# Installation Drawing: Loop Array 2

Array 2 Dimensioned Layout



Array 2 Dimensions

Dimensions (ft relative to origin)  
For all segments, y dimensions are:  
y1 (bottom) > 0' 6"  
y2 (top) > 65' 3"

Segment	x1 (left)	x2 (right)	Segment Width	Gap	Direction	Turns
1	6' 10"	15' 1"	8' 3"	4' 7"	↻	1
2	19' 8"	27' 10"	8' 2"	4' 8"	↻	1
3	32' 6"	40' 8"	8' 2"	4' 7"	↻	1
4	45' 3"	53' 6"	8' 3"		↻	1

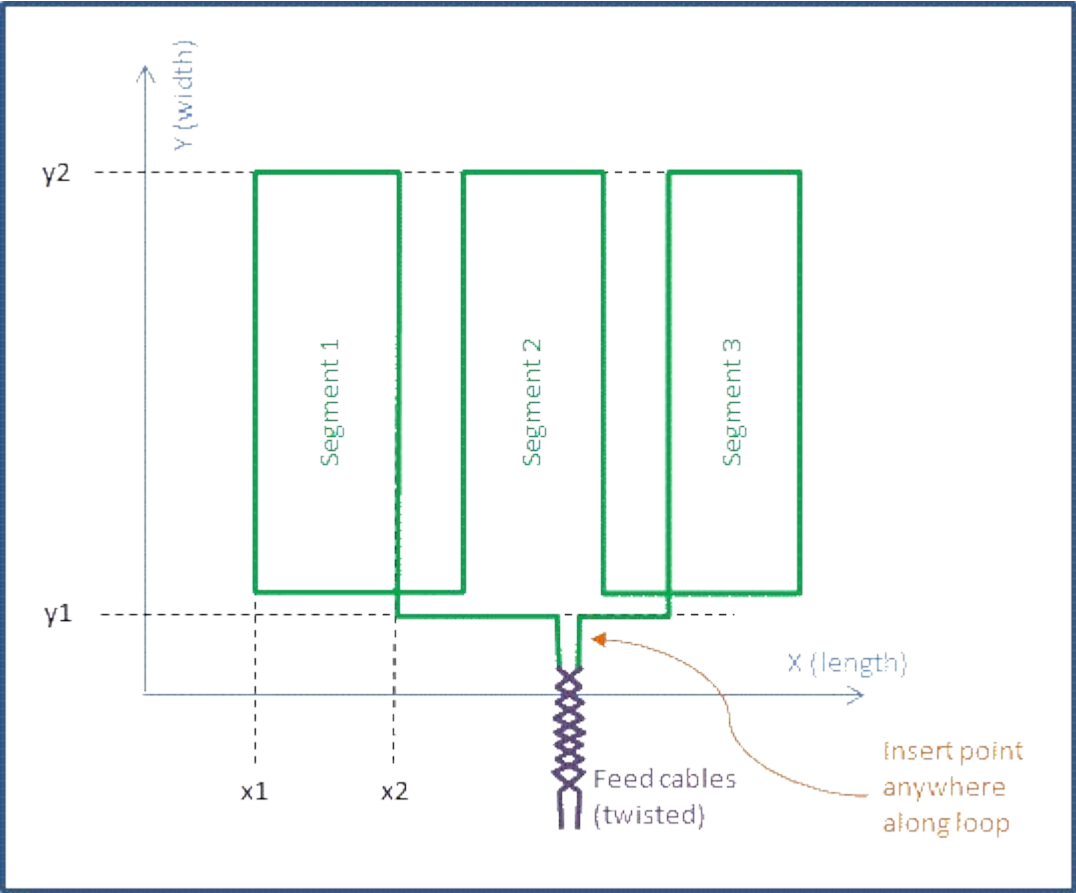


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# Electrical Connections

Representative Electrical Connections Diagram



Connection / Feeds Notes

Electrical connections shown on drawings are for illustration only.

The path of the cables shown on the layout must be followed to ensure each loop segment is in the correct polarity relative to each other. If the direction of one or more segments is reversed the system performance will be affected and it may not meet the required standard.

The loop wire path in each array must be broken at one point to connect the feed wires from the driver driving this array. This "feed point" is not marked on the drawing; it can be placed anywhere along the loop path that is convenient and practical.

All loop elements of each multiloop array are connected in series; there is only one electrical path from one side of the feed point, through all the loop elements, and back to the other side of the feed point.

The feed wires between each driver and the relevant array should be no more than the feed cable length specified here, assuming that these feed wires are as specified here. If the feed wires must be longer, this may affect the equipment specification, or a different feed wire may be needed. Please contact your distributor or Ampetronic for advice if this is an issue.



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<b>Project Name</b>	Washington County Public Safety Training Center	<b>System Name</b>	Multi-Purpose C100	<b>Ampetronic Ref.</b>	L112-347-01-01_V01_ISSUED-1
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