

**Recreation & Parks Classroom Reclamation Project at (4) Schools  
BID # 076.23.B4**

**Addendum 2  
Date: March 31, 2023**

**Items**

1. A full-time superintendent is required for the duration of the project. A designated, qualified, responsible-in-charge person(s) from the Contractor is required to be on-site at each school whenever work is occurring at a school. If work is occurring at all four schools, there needs to be at least one qualified personnel on-site at each school. The on-site personnel at each school is not required to be a superintendent.
2. Attached Pre-Bid RFI Log.
3. Attached Updated Project Schedule reflecting the last day of school for students (June 14, 2023).
4. Attached Bid Clarification No.2 from DLR Group.

END OF DOCUMENT

Recreation & Park Reclamation at (4) Schools Pre-Bid RFI Log		
Item Number	Question	Answer
1	Provide the warranty information (manufacturer, time remaining, etc.) for the existing school roofs.	See response to Item Number 3.
2	In the bid documents, there are two Attachment B forms for the MBE Participation Schedule. The first one says "Non-Wage" at the top in red and says "Original" in the top right corner. The second version does not say "Non-Wage" at the top and it says "Revised" in the top right corner. Are we supposed to only fill out one of these (if so, which one?) or both? These can be found on pages 24-25 of the IFB document.	The original should be submitted.
3	Will there be specifications provided for roofing? Including scope, material, and warranty information. All of the schools have duct penetrations to be sealed by a roofing contractor. Three have piping for an outdoor condensing unit that shows a pitch pocket that needs to be sealed.	No specifications will be provided for the roofing. See attached spreadsheet with existing roof information.

**Recreation Park Reclamation at (4) Schools Existing Roofing Information**

SCHOOL	INSTALLED	ROOF TYPE	Total SqFt	WARRANTY #	Installer
Bushy Park Elem	2006	GAF/B.U.R.	116,656	2006-3358	Citi Roof
Dayton Oaks Elem	2007	B.U.R.	116,656	jm-anb131042952-20yr	
Rockburn Elem	2013-2014	Metal Slope-Sarnfil		sar phase2 0000016884-317214.1	Cole Roofing
Triadelphia Ridge Elem	1997	B.U.R.		JM / ANB0157122 / 20	

**Howard County Public School System Master Schedule for Summer 2023 Work**

**Preliminary Bid Schedule**

**Data Date: 31-Mar-23**

Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	Total Float	2023												2024	
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan
<b>Howard County Public School System Master Schedule for Summer 2023 Work</b>							186d   104d   05-Dec-22 A   28-Aug-23   0d													
<b>Design</b>							73d   0d   05-Dec-22 A   28-Feb-23 A													
DES-1000	GENERATE / DELIVER COMBINED 100% SD / DD DOCUMENTS	5d	0d	05-Dec-22 A	31-Jan-23 A		■ GENERATE / DELIVER COMBINED 100% SD / DD DOCUMENTS													
DES-1020	PERFORM 100% COMBINED SD / DD DOCUMENTS CONSTRUCTABILITY REVIEW	5d	0d	31-Jan-23 A	03-Feb-23 A		■ PERFORM 100% COMBINED SD / DD DOCUMENTS CONSTRUCTABILITY REVIEW													
DES-1030	HCPSS REVIEW & APPROVE 100% COMBINED SD / DD DOCUMENTS	5d	0d	31-Jan-23 A	03-Feb-23 A		■ HCPSS REVIEW & APPROVE 100% COMBINED SD / DD DOCUMENTS													
DES-1010	GENERATE 100% COMBINED SD / DD ESTIMATE	5d	0d	31-Jan-23 A	07-Feb-23 A		■ GENERATE 100% COMBINED SD / DD ESTIMATE													
DES-1040	GENERATE / DELIVER BID SET DOCUMENTS	17d	0d	01-Feb-23 A	27-Feb-23 A		■ GENERATE / DELIVER BID SET DOCUMENTS													
DES-1050	HCPSS REVIEW & APPROVE BID SET DOCUMENTS	2d	0d	27-Feb-23 A	28-Feb-23 A		■ HCPSS REVIEW & APPROVE BID SET DOCUMENTS													
DES-1060	PERFORM BID SET DOCUMENTS CONSTRUCTABILITY REVIEW	2d	0d	27-Feb-23 A	28-Feb-23 A		■ PERFORM BID SET DOCUMENTS CONSTRUCTABILITY REVIEW													
<b>Permitting</b>							33d   11d   08-Mar-23 A   14-Apr-23   19d													
PER-1000	SUBMIT PERMIT PACKAGE	1d	0d	08-Mar-23 A	08-Mar-23 A		■ SUBMIT PERMIT PACKAGE													
PER-1010	HC AHJ REVIEW AND PROVIDE COMMENTS	10d	6d	09-Mar-23 A	07-Apr-23	19d	■ HC AHJ REVIEW AND PROVIDE COMMENTS													
PER-1020	A/E RESPOND TO HC AHJ COMMENTS	2d	2d	10-Apr-23	11-Apr-23	19d	■ A/E RESPOND TO HC AHJ COMMENTS													
PER-1030	PERMIT RECEIVED	3d	3d	12-Apr-23	14-Apr-23	19d	■ PERMIT RECEIVED													
<b>Bid &amp; Award</b>							62d   40d   01-Mar-23 A   25-May-23   64d													
BEA-1000	ISSUE INVITATION TO BID	0d	0d	01-Mar-23 A			◆ ISSUE INVITATION TO BID													
BEA-1010	BIDDING PERIOD	30d	8d	01-Mar-23 A	11-Apr-23	0d	■ BIDDING PERIOD													
BEA-1110	PRE-BID MEETING	1d	0d	14-Mar-23 A	14-Mar-23 A		■ PRE-BID MEETING													
BEA-1100	PRE-BID SITE VISITS	1d	0d	15-Mar-23 A	15-Mar-23 A		■ PRE-BID SITE VISITS													
BEA-1130	ISSUE CONTRACT ADDENDUM #1	1d	0d	16-Mar-23 A	16-Mar-23 A		■ ISSUE CONTRACT ADDENDUM #1													
BEA-1020	ALL QUESTIONS DUE FROM BIDDERS	0d	0d		23-Mar-23 A		◆ ALL QUESTIONS DUE FROM BIDDERS													
BEA-1120	ISSUE CONTRACT ADDENDUM #2	1d	1d	31-Mar-23	31-Mar-23	2d	■ ISSUE CONTRACT ADDENDUM #2													
BEA-1030	BIDS RECEIVED	0d	0d		11-Apr-23	0d	◆ BIDS RECEIVED													
BEA-1040	PURCHASING REVIEW / APPROVE MBE COMPLIANCE	10d	10d	12-Apr-23	25-Apr-23	0d	■ PURCHASING REVIEW / APPROVE MBE COMPLIANCE													
BEA-1060	SCHOOL CONSTRUCTION COORDINATION WITH BOE - ESTABLISH INFO ITEM FOR BOE MEETING	21d	21d	12-Apr-23	10-May-23	0d	■ SCHOOL CONSTRUCTION COORDINATION WITH BOE - ESTABLISH INFO ITEM FOR BOE MEETING													
BEA-1050	PURCHASING NOTIFICATION OF APPARENT LOW BIDDER	1d	1d	26-Apr-23	26-Apr-23	0d	■ PURCHASING NOTIFICATION OF APPARENT LOW BIDDER													
BEA-1070	BOE ACTION ITEM - APPROVAL TO EXECUTE CONTRACT	1d	1d	11-May-23	11-May-23	0d	■ BOE ACTION ITEM - APPROVAL TO EXECUTE CONTRACT													
BEA-1080	ISSUE LETTER OF INTENT TO AWARD	1d	1d	12-May-23	12-May-23	0d	■ ISSUE LETTER OF INTENT TO AWARD													
BEA-1090	CONTRACT EXECUTION	10d	10d	12-May-23	25-May-23	11d	■ CONTRACT EXECUTION													
<b>Procurement</b>							60d   60d   15-May-23   08-Aug-23   0d													
PRO-1010	SHOP DRAWING SUBMITTALS FOR LONG LEAD PROCUREMENT ITEMS	15d	15d	15-May-23	05-Jun-23	0d	■ SHOP DRAWING SUBMITTALS FOR LONG LEAD PROCUREMENT ITEMS													
PRO-1000	ISSUE NOTICE TO PROCEED	1d	1d	25-May-23	25-May-23	11d	■ ISSUE NOTICE TO PROCEED													
PRO-1020	REVIEW & APPROVE SUBMITTALS FOR LONG LEAD PROCUREMENT ITEMS	5d	5d	06-Jun-23	12-Jun-23	0d	■ REVIEW & APPROVE SUBMITTALS FOR LONG LEAD PROCUREMENT ITEMS													
PRO-1030	FABRICATION & DELIVERY OF DOORFRAMES, DOORS, AND HARDWARE	20d	20d	13-Jun-23	11-Jul-23	3d	■ FABRICATION & DELIVERY OF DOORFRAMES, DOORS, AND HARDWARE													
PRO-1060	FABRICATION & DELIVERY OF FCU-01 / OU-01	20d	20d	13-Jun-23	11-Jul-23	6d	■ FABRICATION & DELIVERY OF FCU-01 / OU-01													
PRO-1080	FABRICATION & DELIVERY OF LIGHT FIXTURES	20d	20d	13-Jun-23	11-Jul-23	9d	■ FABRICATION & DELIVERY OF LIGHT FIXTURES													
PRO-1040	FABRICATION & DELIVERY OF CASEWORK	35d	35d	13-Jun-23	01-Aug-23	1d	■ FABRICATION & DELIVERY OF CASEWORK													
PRO-1050	FABRICATION & DELIVERY OF TECHNOLOGY	40d	40d	13-Jun-23	08-Aug-23	0d	■ FABRICATION & DELIVERY OF TECHNOLOGY													
<b>Construction</b>							51d   51d   14-Jun-23   28-Aug-23   0d													
CON-1000	LAST DAY OF 2022 - 2023 SCHOOL YEAR	0d	0d		14-Jun-23*	0d	◆ LAST DAY OF 2022 - 2023 SCHOOL YEAR													
CON-1010	CONTRACTOR MOBILIZATION TO SITE	0d	0d	15-Jun-23		0d	◆ CONTRACTOR MOBILIZATION TO SITE													
CON-1040	SUBSTANTIAL COMPLETION	0d	0d		15-Aug-23	0d	◆ SUBSTANTIAL COMPLETION													
CON-1050	SCHOOL STAFF RETURNS	0d	0d	16-Aug-23*		0d	◆ SCHOOL STAFF RETURNS													
CON-1060	FINAL COMPLETION	0d	0d		25-Aug-23	0d	◆ FINAL COMPLETION													
CON-1070	FIRST DAY OF 2022 - 2023 SCHOOL YEAR	0d	0d	28-Aug-23*		0d	◆ FIRST DAY OF 2022 - 2023 SCHOOL YEAR													
<b>Bushy Park Elementary School</b>							43d   43d   15-Jun-23   15-Aug-23   0d													
BPES-1000	MOBILIZE / TEMP PROTECTION	1d	1d	15-Jun-23	15-Jun-23	10d	■ MOBILIZE / TEMP PROTECTION													
BPES-1010	CUT / CAP / MAKE SAFE	1d	1d	16-Jun-23	16-Jun-23	10d	■ CUT / CAP / MAKE SAFE													

- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

**For Information Only - Not for Construction**



Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	Total Float	2023												2024				
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb		
BPES-1020	DEMO / SALVAGE	3d	3d	19-Jun-23	21-Jun-23	10d																	
BPES-1030	WALL LAYOUT / FRAMING / BLOCKING	1d	1d	22-Jun-23	22-Jun-23	10d																	
BPES-1040	PLUMBING ROUGH-IN	1d	1d	23-Jun-23	23-Jun-23	10d																	
BPES-1050	INFILL MASONRY WALLS	2d	2d	23-Jun-23	26-Jun-23	11d																	
BPES-1060	ELECTRICAL / LOW-VOLTAGE WALL ROUGH-IN	3d	3d	23-Jun-23	27-Jun-23	10d																	
BPES-1070	HVAC ROUGH-IN	3d	3d	23-Jun-23	27-Jun-23	14d																	
BPES-1510	OH MECHANICAL PIPING ROUGH-IN	3d	3d	23-Jun-23	27-Jun-23	14d																	
BPES-1080	SPRINKLER ADJUSTMENTS	1d	1d	26-Jun-23	26-Jun-23	18d																	
BPES-1090	TEST / INSPECT PLUMBING	1d	1d	26-Jun-23	26-Jun-23	10d																	
BPES-1260	INSTALL ROOF OPENINGS SUPPORT STEEL	1d	1d	27-Jun-23	27-Jun-23	27d																	
BPES-1100	INSULATE PLUMBING	1d	1d	27-Jun-23	27-Jun-23	10d																	
BPES-1110	INSULATE DUCTWORK	1d	1d	28-Jun-23	28-Jun-23	16d																	
BPES-1290	INSTALL CURBS AND ADJUST ROOFING	1d	1d	28-Jun-23	28-Jun-23	27d																	
BPES-1520	TEST / INSPECT OH MECHANICAL PIPING	1d	1d	28-Jun-23	28-Jun-23	15d																	
BPES-1120	WALL CLOSE-IN INSPECTIONS	3d	3d	28-Jun-23	30-Jun-23	10d																	
BPES-1130	ELECTRICAL CEILING ROUGH-IN	3d	3d	28-Jun-23	30-Jun-23	14d																	
BPES-1530	INSULATE OH MECHANICAL PIPING	1d	1d	29-Jun-23	29-Jun-23	15d																	
BPES-1140	SET DOOR FRAMES	1d	1d	12-Jul-23	12-Jul-23	3d																	
BPES-1150	INSTALL FCU-01	1d	1d	12-Jul-23	12-Jul-23	6d																	
BPES-1420	SET OU-01	1d	1d	12-Jul-23	12-Jul-23	19d																	
BPES-1540	INSTALL ERV-1-1	1d	1d	12-Jul-23	12-Jul-23	6d																	
BPES-1160	ELECTRICAL CONNECTIONS TO FCU-01	1d	1d	13-Jul-23	13-Jul-23	6d																	
BPES-1440	CONNECT OU-01 ELECTRICAL	1d	1d	13-Jul-23	13-Jul-23	19d																	
BPES-1550	ELECTRICAL CONNECTIONS TO ERV-1-1	1d	1d	13-Jul-23	13-Jul-23	6d																	
BPES-1170	INSTALL & FINISH DRYWALL	3d	3d	13-Jul-23	17-Jul-23	3d																	
BPES-1180	PRIME & FIRST COAT PAINT	1d	1d	18-Jul-23	18-Jul-23	3d																	
BPES-1190	ACT GRID	1d	1d	19-Jul-23	19-Jul-23	3d																	
BPES-1210	CEILING LOW-VOLTAGE DEVICES	1d	1d	20-Jul-23	20-Jul-23	4d																	
BPES-1220	REGISTERS, GRILLES, & DIFFUSERS	1d	1d	20-Jul-23	20-Jul-23	4d																	
BPES-1230	SPRINKLER HEADS	1d	1d	20-Jul-23	20-Jul-23	4d																	
BPES-1270	LIGHT FIXTURES	2d	2d	20-Jul-23	21-Jul-23	3d																	
BPES-1240	CERAMIC TILE	3d	3d	20-Jul-23	24-Jul-23	10d																	
BPES-1310	CEILING CLOSE-IN INSPECTIONS	3d	3d	24-Jul-23	26-Jul-23	3d																	
BPES-1250	PLUMBING FIXTURES	2d	2d	25-Jul-23	26-Jul-23	10d																	
BPES-1280	TOILET ACCESSORIES	1d	1d	27-Jul-23	27-Jul-23	10d																	
BPES-1320	ACT TILES	1d	1d	27-Jul-23	27-Jul-23	3d																	
BPES-1330	VCT FLOORING	1d	1d	28-Jul-23	28-Jul-23	3d																	
BPES-1200	ELECTRICAL & LOW-VOLTAGE DEVICES / TRIM OUT	1d	1d	31-Jul-23	31-Jul-23	7d																	
BPES-1340	DOORS & HARDWARE	1d	1d	31-Jul-23	31-Jul-23	3d																	
BPES-1380	MARKERBOARDS / TACK BOARDS	1d	1d	31-Jul-23	31-Jul-23	4d																	
BPES-1450	TESTING & BALANCING	1d	1d	01-Aug-23	01-Aug-23	7d																	
BPES-1300	LIGHT FIXTURE PROGRAMMING	1d	1d	01-Aug-23	01-Aug-23	7d																	
BPES-1500	REMOVE TEMP BARRIERS	1d	1d	01-Aug-23	01-Aug-23	3d																	
BPES-1360	CASEWORK	2d	2d	02-Aug-23	03-Aug-23	1d																	
BPES-1370	CASEWORK SINK	1d	1d	04-Aug-23	04-Aug-23	4d																	
BPES-1350	POINT UP / FINAL PAINT	2d	2d	04-Aug-23	07-Aug-23	1d																	
BPES-1390	WINDOW TREATMENTS	1d	1d	08-Aug-23	08-Aug-23	2d																	
BPES-1400	SIGNAGE	1d	1d	08-Aug-23	08-Aug-23	2d																	

■ Actual Work  
■ Remaining Work  
■ Critical Remaining Work  
◆ Milestone

**For Information Only - Not for Construction**











Howard County Public School System Master Schedule for Summer 2023 Work		Preliminary Bid Schedule					Data Date: 31-Mar-23																							
Activity ID	Activity Name	Orig Dur	Rem Dur	Start	Finish	Total Float	2023												2024											
							Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb									
TRES-1170	WALL CLOSE-IN INSPECTIONS	3d	3d	11-Jul-23	13-Jul-23	2d											■	WALL CLOSE-IN INSPECTIONS												
TRES-1180	SET DOOR FRAMES	1d	1d	12-Jul-23	12-Jul-23	3d													SET DOOR FRAMES											
TRES-1190	INSTALL FCU-01	1d	1d	12-Jul-23	12-Jul-23	6d													INSTALL FCU-01											
TRES-1460	SET OU-01	1d	1d	12-Jul-23	12-Jul-23	19d													SET OU-01											
TRES-1580	INSTALL ERV-1-1	1d	1d	12-Jul-23	12-Jul-23	6d													INSTALL ERV-1-1											
TRES-1200	ELECTRICAL CONNECTIONS TO FCU-01	1d	1d	13-Jul-23	13-Jul-23	6d													ELECTRICAL CONNECTIONS TO FCU-01											
TRES-1480	CONNECT OU-01 ELECTRICAL	1d	1d	13-Jul-23	13-Jul-23	19d													CONNECT OU-01 ELECTRICAL											
TRES-1590	ELECTRICAL CONNECTIONS TO ERV-1-1	1d	1d	13-Jul-23	13-Jul-23	6d													ELECTRICAL CONNECTIONS TO ERV-1-1											
TRES-1210	INSTALL & FINISH DRYWALL	3d	3d	14-Jul-23	18-Jul-23	2d												■	INSTALL & FINISH DRYWALL											
TRES-1220	PRIME & FIRST COAT PAINT	1d	1d	19-Jul-23	19-Jul-23	2d													PRIME & FIRST COAT PAINT											
TRES-1230	ACT GRID	1d	1d	20-Jul-23	20-Jul-23	2d													ACT GRID											
TRES-1250	CEILING LOW-VOLTAGE DEVICES	1d	1d	21-Jul-23	21-Jul-23	3d													CEILING LOW-VOLTAGE DEVICES											
TRES-1260	REGISTERS, GRILLES, & DIFFUSERS	1d	1d	21-Jul-23	21-Jul-23	3d													REGISTERS, GRILLES, & DIFFUSERS											
TRES-1270	SPRINKLER HEADS	1d	1d	21-Jul-23	21-Jul-23	3d													SPRINKLER HEADS											
TRES-1280	LIGHT FIXTURES	2d	2d	21-Jul-23	24-Jul-23	2d												■	LIGHT FIXTURES											
TRES-1290	CERAMIC TILE	3d	3d	21-Jul-23	25-Jul-23	9d												■	CERAMIC TILE											
TRES-1310	CEILING CLOSE-IN INSPECTIONS	3d	3d	25-Jul-23	27-Jul-23	2d												■	CEILING CLOSE-IN INSPECTIONS											
TRES-1330	PLUMBING FIXTURES	2d	2d	26-Jul-23	27-Jul-23	9d													PLUMBING FIXTURES											
TRES-1350	TOILET ACCESSORIES	1d	1d	28-Jul-23	28-Jul-23	9d													TOILET ACCESSORIES											
TRES-1360	ACT TILES	1d	1d	28-Jul-23	28-Jul-23	2d													ACT TILES											
TRES-1370	VCT FLOORING	1d	1d	31-Jul-23	31-Jul-23	2d													VCT FLOORING											
TRES-1240	ELECTRICAL & LOW-VOLTAGE DEVICES / TRIM OUT	1d	1d	01-Aug-23	01-Aug-23	6d													ELECTRICAL & LOW-VOLTAGE DEVICES / TRIM OUT											
TRES-1380	DOORS & HARDWARE	1d	1d	01-Aug-23	01-Aug-23	2d													DOORS & HARDWARE											
TRES-1420	MARKERBOARD / TACK BOARDS	1d	1d	01-Aug-23	01-Aug-23	3d													MARKERBOARD / TACK BOARDS											
TRES-1490	TESTING & BALANCING	1d	1d	02-Aug-23	02-Aug-23	6d													TESTING & BALANCING											
TRES-1300	LIGHT FIXTURE PROGRAMMING	1d	1d	02-Aug-23	02-Aug-23	6d													LIGHT FIXTURE PROGRAMMING											
TRES-1540	REMOVE TEMP BARRIERS	1d	1d	02-Aug-23	02-Aug-23	2d													REMOVE TEMP BARRIERS											
TRES-1400	CASEWORK	2d	2d	02-Aug-23	03-Aug-23	1d													CASEWORK											
TRES-1410	CASEWORK SINK	1d	1d	04-Aug-23	04-Aug-23	4d													CASEWORK SINK											
TRES-1390	POINT UP / FINAL PAINT	2d	2d	04-Aug-23	07-Aug-23	1d												■	POINT UP / FINAL PAINT											
TRES-1430	WINDOW TREATMENTS	1d	1d	08-Aug-23	08-Aug-23	2d													WINDOW TREATMENTS											
TRES-1440	SIGNAGE	1d	1d	08-Aug-23	08-Aug-23	2d													SIGNAGE											
TRES-1450	WALL BASE	1d	1d	08-Aug-23	08-Aug-23	2d													WALL BASE											
TRES-1470	TEACHING WALL SYSTEM	2d	2d	09-Aug-23	10-Aug-23	0d													TEACHING WALL SYSTEM											
TRES-1500	FINAL CLEAN	3d	3d	11-Aug-23	15-Aug-23	0d												■	FINAL CLEAN											
TRES-1510	PUNCHLIST	3d	3d	11-Aug-23	15-Aug-23	0d												■	PUNCHLIST											
TRES-1520	FINAL INSPECTIONS	3d	3d	11-Aug-23	15-Aug-23	0d												■	FINAL INSPECTIONS											
TRES-1530	SUBSTANTIAL COMPLETION	0d	0d		15-Aug-23	0d												◆	SUBSTANTIAL COMPLETION											

- Actual Work
- Remaining Work
- Critical Remaining Work
- ◆ Milestone

**For Information Only - Not for Construction**





**DLR Group of D.C., P.C.**

a District of Columbia professional corporation

701 8<sup>th</sup> Street NW, Suite 700

Washington, D.C. 20001

March 31, 2023

ADDENDUM NO. 2  
TO THE DRAWINGS AND SPECIFICATIONS  
FOR

HOWARD COUNTY PUBLIC SCHOOL SYSTEM  
BUSHY PARK ES SCHOOL CLASSROOM RENOVATION, DAYTON OAKS ES CLASSROOM RENOVATION,  
TRIADELPHIA CLASSROOM RENOVATION, AND ROCKBURN ES CLASSROOM RENOVATION  
DLR Group Project No. 56-23102-00

Prepared by:

DLR Group

701 8<sup>TH</sup> Street NW, STE. 700

Washington, DC 20001

The Drawings and Specifications for the above-named Project, dated March 01, 2023, are modified, amended, and supplemented as set forth in this Addendum, dated March 31, 2023, and shall be taken into account in preparing Bids. The Addendum shall become part of the Contract Documents.

Wherein the Addendum is in conflict with the Specifications and Drawings, the requirements of this Addendum shall govern.

ITEM NO. 1 – REVISIONS TO THE PROJECT MANUAL

- A. The following Specification Sections are revised and reissued with this Addendum:

**Section 017300 – EXECUTION**

**017300-4, added article, “1.6 Existing Warranties**

- A. Replace, patch, and repair material and surfaces cut or damaged by methods and materials in such a manner as not to void any existing warranties.”**

ITEM NO. 2 – REVISIONS TO THE DRAWINGS

**For the BUSHY PARK ES & DAYTON OAKS ES drawing sets:**

- A. The following Drawings are revised as indicated. The Drawings are re-issued with this Addendum:

**A1.1 Level 01 Floor Plan & RCP**

The sheet was modified as follows:

- a. At floor plan, Classroom A23B west wall, delete Tackboard (keynote A12) and add Markerboard (keynote A11) at north end of wall.

- b. At floor plan, Classroom A23A east wall, delete Tackboard (keynote A12) and add Markerboard (keynote A11) at north end of wall.
- c. At floor plan, Classroom A23A, at west wall near sink at millwork, added Soap Dispenser (Keynote SD-1)
- d. At floor plan, added keynote A21, for new room signage at the corridor classroom entry doors and at the toilet room door.

### **A1.3 Roof Plan**

Added new roof penetration detail 2/A1.3

### **E2-1 Electrical Power Plan**

The sheet was modified as follows:

- a. At power plan, added duct heater circuit.

### **E7-1 Electrical Schedules**

The sheet was modified as follows:

- b. At panel schedule, added duct heater circuit to panel schedule.

### **M1.1 LEVEL 01 – HVAC PLAN**

The sheet was modified as follows:

Added condensate piping from FCU-1-1 to storm riser.

### **M5.1 MECHANICAL CONTROLS**

The sheet was modified as follows:

Added electric duct heater control.

### **M8.1 MECHANICAL SCHEDULES**

The sheet was modified as follows:

Added electric duct coil schedule.

### **FPD1.1 Level 01 Fire Protection Demolition Plan**

The sheet was modified as follows:

Revised sprinkler head from demolished to existing to remain in the storage closet.

## **For the ROCKBURN ES drawing set:**

- B. The following Drawings are revised as indicated. The Drawings are re-issued with this Addendum:

### **A1.1 Level 01 Floor Plan & RCP**

The sheet was modified as follows:

- a. At floor plan, Classroom A23B west wall, delete Tackboard (keynote A12) and add Markerboard (keynote A11) at north end of wall.
- b. At floor plan, Classroom A23A, at west wall near sink at millwork, add Soap Dispenser (Keynote SD-1)

### **FPD1.1 Level 01 Fire Protection Demolition Plan**

The sheet was modified as follows:

Revised sprinkler heads from demolished to existing to remain in the storage closets.

**For the Triadelphia ES drawing set:**

- C. The following Drawings are revised as indicated. The Drawings are re-issued with this Addendum:

**A1.1 Level 01 Floor Plan & RCP**

The sheet was modified as follows:

- a. At floor plan, Classroom A07A south wall, delete Tackboard (keynote A12) and add Markerboard (keynote A11) at west end of wall.
- b. At floor plan, Classroom A07 north wall, delete Tackboard (keynote A12) and add Markerboard (keynote A11) at west end of wall.
- c. At floor plan, Classroom A07, at west wall near sink at millwork, add Soap Dispenser (Keynote SD-1)
- d. At floor plan, added keynote A21, for new room signage at both corridor classroom entry doors.

**A1.3 Roof Plan**

Added new roof penetration detail 2/A1.3

**MD1.1 LEVEL 01 – HVAC DEMOLITION PLAN**

The sheet was modified as follows:

Added keynote to clarify hot water radiators are being demolished

**M1.1 LEVEL 01 – HVAC PLAN**

The sheet was modified as follows:

Added condensate piping from FCU-1-1 to storm riser.

**FPD1.1 Level 01 Fire Protection Demolition Plan**

The sheet was modified as follows:

Revised sprinkler head from demolished to existing to remain in the storage closet.

END OF ADDENDUM NO. 2

## SECTION 017300 - EXECUTION

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work, including, but not limited to, the following:
1. Construction layout.
  2. Field engineering and surveying.
  3. Installation of the Work.
  4. Cutting and patching.
  5. Coordination of Owner's portion of the Work.
  6. Coordination of Owner-installed products.
  7. Progress cleaning.
  8. Starting and adjusting.
  9. Protection of installed construction.
  10. Correction of the Work.
- B. Related Requirements:
1. Section 011000 "Summary" for coordination of Owner-furnished products, Owner-performed work, Owner's separate contracts, and limits on use of Project site.
  2. Section 017700 "Closeout Procedures" for replacing defective work, and final cleaning.
  3. Section 024119 "Selective Demolition" for demolition and removal of selected portions of the building.
  4. Section 078413 "Penetration Firestopping" for patching penetrations in fire-rated construction.

#### 1.2 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of subsequent work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of subsequent work.

#### 1.3 PREINSTALLATION MEETINGS

- A. Cutting and Patching Conference: Conduct conference at Project site.
1. Prior to commencing work requiring cutting and patching, review extent of cutting and patching anticipated and examine procedures for ensuring satisfactory result from cutting

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and patching work. Inform Architect[**and Construction Manager**] of scheduled meeting. Require representatives of each entity directly concerned with cutting and patching to attend, including the following:

- a. Contractor's superintendent.
  - b. Trade supervisor responsible for cutting operations.
  - c. Trade supervisor(s) responsible for patching of each type of substrate.
  - d. Mechanical, electrical, and utilities subcontractors' supervisors, to the extent each trade is affected by cutting and patching operations.
2. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.

~~B. Layout Conference: Conduct conference at Project site.~~

- ~~1. Prior to establishing layout, review building location requirements. Review benchmark, control point, and layout and dimension requirements. Inform Architect[**and Construction Manager**] of scheduled meeting. Require representatives of each entity directly concerned with Project layout to attend, including the following:
  - ~~a. Contractor's superintendent.~~
  - ~~b. Professional surveyor responsible for performing Project surveying and layout.~~
  - ~~c. Professional surveyor responsible for performing site survey serving as basis for Project design.~~~~
- ~~2. Review meanings and intent of dimensions, notes, terms, graphic symbols, and other layout information indicated on the Drawings.~~
- ~~3. Review requirements for including layouts on Shop Drawings and other submittals.~~
- ~~4. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding. (Addendum No. 1)~~

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For professional engineer.
- B. Certificates: Submit certificate signed by professional engineer, certifying that location and elevation of improvements comply with requirements.
- C. Cutting and Patching Plan: Submit plan describing procedures at least 10 days prior to the time cutting and patching will be performed. Include the following information:
  1. Extent: Describe reason for and extent of each occurrence of cutting and patching.
  2. Changes to In-Place Construction: Describe anticipated results. Include changes to structural elements and operating components as well as changes in building appearance and other significant visual elements.
  3. Products: List products to be used for patching and firms or entities that will perform patching work.
  4. Dates: Indicate when cutting and patching will be performed.

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5. Utilities and Mechanical and Electrical Systems: List services and systems that cutting and patching procedures will disturb or affect. List services and systems that will be relocated and those that will be temporarily out of service. Indicate length of time permanent services and systems will be disrupted.
  - a. Include description of provisions for temporary services and systems during interruption of permanent services and systems.

1.5 QUALITY ASSURANCE

- A. Professional Engineer Qualifications: Refer to Section 014000 "Quality Requirements."
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
  1. Structural Elements: When cutting and patching structural elements, or when encountering the need for cutting and patching of elements whose structural function is not known, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
  2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
    - a. Primary operational systems and equipment.
    - b. Fire separation assemblies.
    - c. Air or smoke barriers.
    - d. Fire-suppression systems.
    - e. Plumbing piping systems.
    - f. Mechanical systems piping and ducts.
    - g. Control systems.
    - h. Communication systems.
    - i. Fire-detection and -alarm systems.
    - j. Conveying systems.
    - k. Electrical wiring systems.
    - l. Operating systems of special construction.
  3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
    - a. Water, moisture, or vapor barriers.
    - b. Membranes and flashings.
    - c. Exterior curtain-wall construction.

- d. Sprayed fire-resistive material.
  - e. Equipment supports.
  - f. Piping, ductwork, vessels, and equipment.
  - g. Noise- and vibration-control elements and systems.
4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of specified products and equipment.

## 1.6 EXISTING WARRANTIES

- A. Replace, patch, and repair material and surfaces cut or damaged by methods and materials in such a manner as not to void any existing warranties. (Addendum No. 2)**

## PART 2 - PRODUCTS

### 2.1 MATERIALS

- A. Comply with requirements specified in other Sections.
1. For projects requiring compliance with sustainable design and construction practices and procedures, use products for patching that comply with sustainable design requirements.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials. Use materials that are not considered hazardous.
- C. Cleaning Agents: Use cleaning materials and agents recommended approved by HCPSS Custodial or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
1. Use cleaning products that comply with Green Seal's GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.



### PART 3 - EXECUTION

#### 3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, gas service piping, and water-service piping; underground electrical services; and other utilities.
  2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
  2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
  3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
1. Description of the Work, including Specification Section number and paragraph, and Drawing sheet number and detail, where applicable.
  2. List of detrimental conditions, including substrates.
  3. List of unacceptable installation tolerances.
  4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

#### 3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

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- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Architect [ through Construction Manager] in accordance with requirements in Section 013100 "Project Management and Coordination."

~~3.3 CONSTRUCTION LAYOUT~~

- ~~A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks and existing conditions. If discrepancies are discovered, notify Architect **and Construction Manager** promptly.~~
- ~~B. Engage a land surveyor experienced in laying out the Work, using the following accepted surveying practices:
  - ~~1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.~~
  - ~~2. Establish limits on use of Project site.~~
  - ~~3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.~~
  - ~~4. Inform installers of lines and levels to which they must comply.~~
  - ~~5. Check the location, level and plumb, of every major element as the Work progresses.~~
  - ~~6. Notify Architect **and Construction Manager** when deviations from required lines and levels exceed allowable tolerances.~~
  - ~~7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.~~~~
- ~~C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.~~
- ~~D. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.~~
- ~~E. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect **and Construction Manager**. (Addendum No. 1)~~

~~3.4 FIELD ENGINEERING~~

- ~~A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations. (Addendum No. 1)~~

3.5 INSTALLATION

- A. Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb, and make horizontal work level.
  2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
  3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
  4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces, unless otherwise indicated on Drawings.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure satisfactory results as judged by Architect. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations, so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy of type expected for Project.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on-site and placement in permanent locations.
- F. Tools and Equipment: Select tools or equipment that minimize production of excessive noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for Work specified to be factory prepared and field installed. Check Shop Drawings of other portions of the Work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions with manufacturer.
1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
  2. Allow for building movement, including thermal expansion and contraction.

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3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.

- I. Joints: Make joints of uniform width. Where joint locations in exposed Work are not indicated, arrange joints for the best visual effect, as judged by Architect. Fit exposed connections together to form hairline joints.

3.6 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.

1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

- B. Temporary Support: Provide temporary support of Work to be cut.

- C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

- D. Adjacent Occupied Areas: Where interference with use of adjoining areas or interruption of free passage to adjoining areas is unavoidable, coordinate cutting and patching in accordance with requirements in Section 011000 "Summary."

- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.

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6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as practicable, as judged by Architect. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
  2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
    - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
    - b. Restore damaged pipe covering to its original condition.
  3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
    - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch, corner to corner of wall and edge to edge of ceiling. Provide additional coats until patch blends with adjacent surfaces.
  4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
  5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 COORDINATION OF OWNER'S PORTION OF THE WORK

- A. Site Access: Provide access to Project site for Owner's construction personnel and Owner's separate contractors.
1. Provide temporary facilities required for Owner-furnished, Contractor-installed and Owner-furnished, Owner-installed products.
  2. Refer to Section 011000 "Summary" for other requirements for Owner-furnished, Contractor-installed and Owner-furnished, Owner-installed products.

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- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel and Owner's separate contractors.
  - 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
  - 2. Preinstallation Conferences: Include Owner's construction personnel and Owner's separate contractors at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.8 PROGRESS CLEANING

- A. Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
  - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
  - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
  - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
    - a. Use containers intended for holding waste materials of type to be stored.
  - 4. Coordinate progress cleaning for joint-use areas where Contractor and other contractors are working concurrently.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where Work is in progress to the level of cleanliness necessary for proper execution of the Work.
  - 1. Remove liquid spills promptly.
  - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

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- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 015000 "Temporary Facilities and Controls."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.9 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.10 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Protection of Existing Items: Provide protection and ensure that existing items to remain undisturbed by construction are maintained in condition that existed at commencement of the Work.
- C. Comply with manufacturer's written instructions for temperature and relative humidity.

3.11 CORRECTION OF THE WORK

- A. Repair or remove and replace damaged, defective, or nonconforming Work. Restore damaged substrates and finishes.

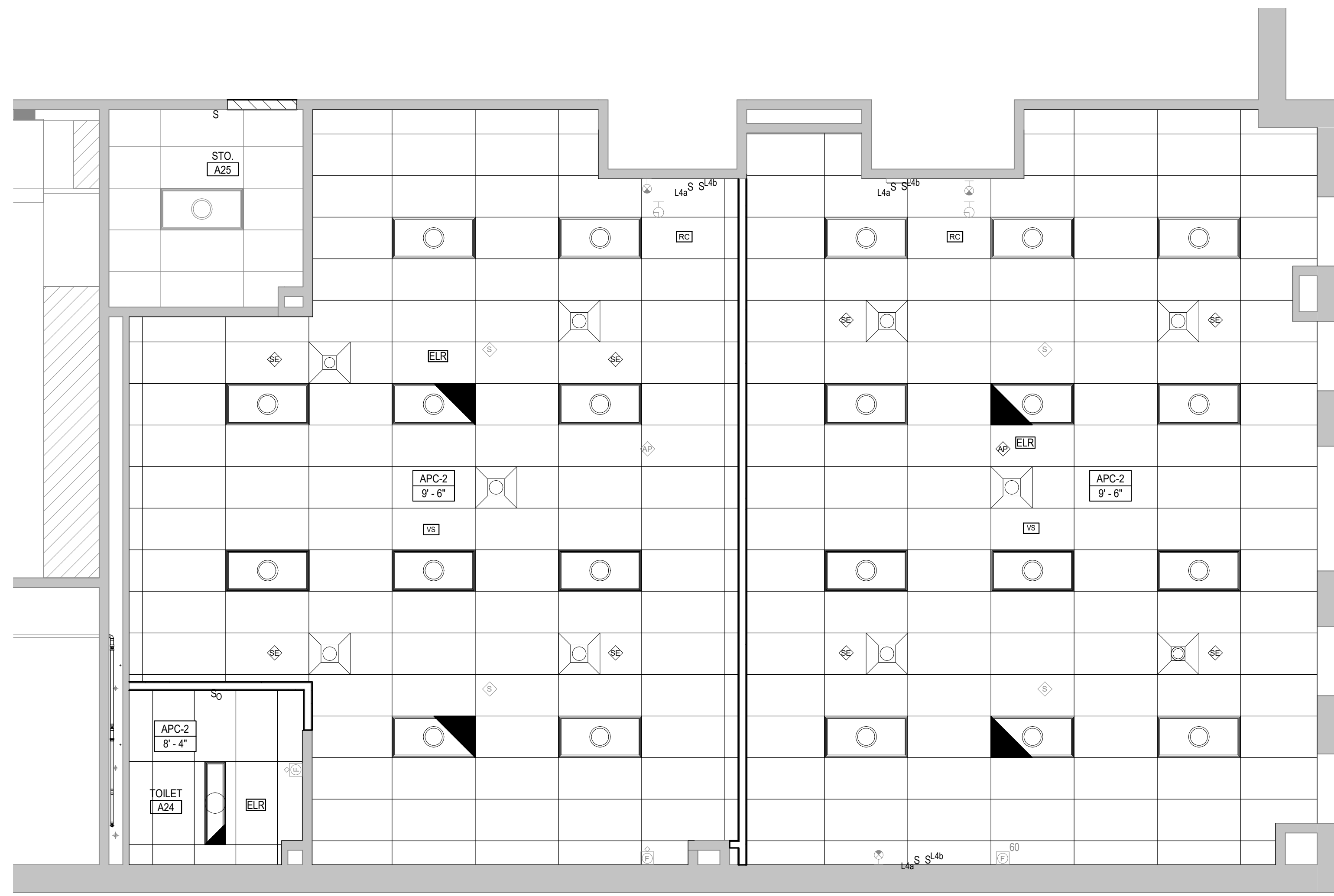
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1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Restore permanent facilities used during construction to their specified condition.
- D. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- E. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- F. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

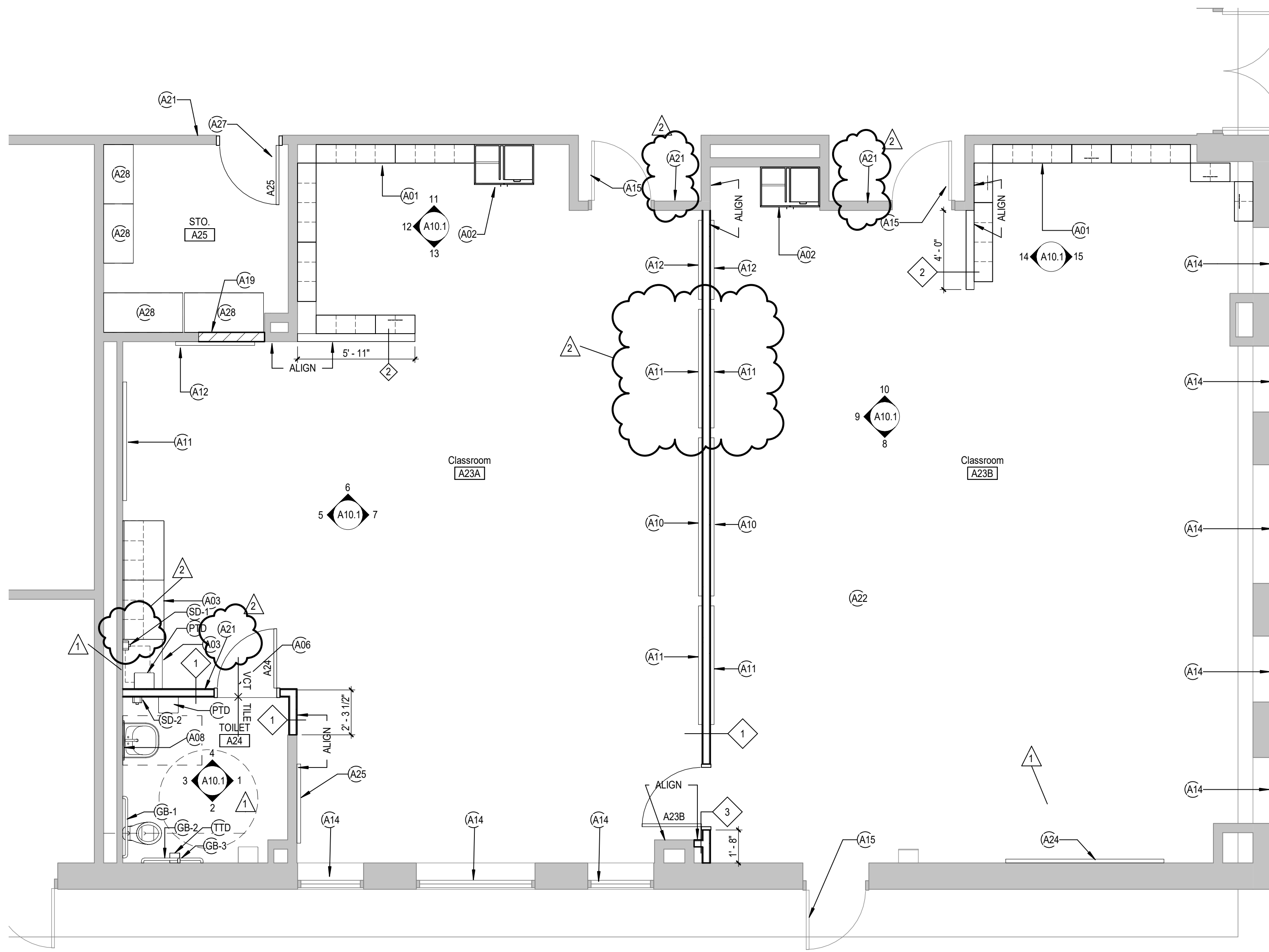
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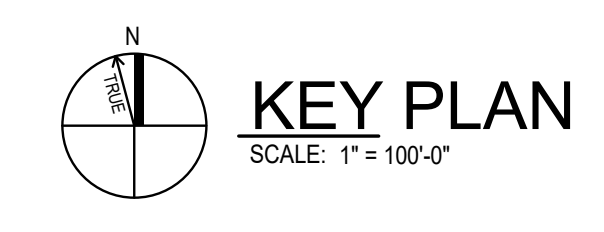
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**OVERALL REFLECTED CEILING PLAN, LEVEL 1**  
SCALE: 1/4" = 1'-0"



**OVERALL FLOOR PLAN, LEVEL 1**  
SCALE: 1/4" = 1'-0"



**GENERAL ARCHITECTURAL NOTES**

1. ALL INTERIOR CMU WALLS SHALL BE 8 INCHES NOMINAL THICKNESS, UNLESS NOTED OTHERWISE.
2. PARTITION TYPES SHALL BE DESIGNATED ON FLOOR PLANS THUS: SEE SHEET A8.2 FOR TYPES.
3. ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE. PER PARTITION TYPE, FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS, I.E. TOILET ACCESSORIES, CASEWORK, MILLWORK, WALL-MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
4. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
5. "MBD" AND "TBD" INDICATE MARKER BOARDS AND TACK BOARDS ON PLANS. THE LENGTH PRECEDES THE DESIGNATION (EXAMPLE 16" MBD). ALL BOARDS ARE 4'-0" TALL. SEE WALL ELEVATIONS OR SPECIFICATIONS FOR MOUNTING HEIGHT.
6. EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
7. SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
8. PROVIDE SEISMIC BRACINGS FOR SUSPENDED CEILINGS OR AS SHOWN ON THE DRAWINGS.

**REFLECTED CEILING PLAN GENERAL NOTES**

- A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
- B. ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
- C. CEILING HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
- D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, AND OTHER CEILING MOUNTED DEVICES, SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3-INCH RADIUS CENTERED BETWEEN CEILING GRIDS.
- E. IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCE IN NOTE D IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR ACP WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH THE ARCHITECT.
- F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, AND OTHER CEILING MOUNTED DEVICES AT ACOUSTICAL PANEL CEILINGS.
- G. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
  - a. FACE OF FINISHED WALL
  - b. FACE OF FINISHED BULKHEADS
  - c. CENTERLINE OF COLUMNS
  - d. CENTERLINE OF TEES
- H. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH REPRESENTATIVE SUBCONTRACTOR.
- I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 4 INCHES ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

**REFERENCE KEYNOTES**

A01	CASEWORK, PRE-K STORAGE CUBBIES.
A02	CASEWORK, AUDIO / VIDEO WARDROBE. SEE INTERIOR ELEVATIONS AND DETAILS.
A03	CASEWORK. SEE INTERIOR ELEVATIONS AND DETAILS.
A06	SINK. SEE PLUMBING DRAWINGS.
A08	MIRROR.
A10	PROJECTION BOARD, 6'-6" X 4'.
A11	MARKER BOARD (MBD), 4' X 4'.
A12	TACK BOARD (TBD), 4' X 4'.
A14	PROVIDE NEW ALUMINUM WINDOW BLINDS AT EACH CLASSROOM WINDOW. VERIFY DIMENSIONS ON-SITE.
A15	EXISTING DOOR TO REMAIN.
A19	INFILL PARTITION TO MATCH EXISTING CMU PARTITION.
A21	ROOM STORAGE TO MATCH EXISTING.
A22	NEW VCT FLOORING.
A24	EXISTING TO REMAIN, MARKER BOARD.
A25	EXISTING TO REMAIN, TACK BOARD.
A27	INSTALL SALVAGED DOOR WITH NEW HM FRAME. SEE LITEL SCHEDULE AND DETAIL 3A8.2
A28	REINSTALL SALVAGED METAL SHELVING UNITS.
GB-1	GRAB BAR (BACK WALL)
GB-2	GRAB BAR (SIDE WALL)
GB-3	GRAB BAR (VERTICAL)
PTD	PAPER TOWEL DISPENSER
SD-1	SOAP DISPENSER, ADULT HEIGHT
SD-2	SOAP DISPENSER, CHILD HEIGHT
TTD	TOILET TISSUE DISPENSER

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**BUSHY PARK ES CLASSROOM RENOVATION**  
HOWARD COUNTY PUBLIC SCHOOLS  
14601 CARRS MILL RD, GLENWOOD, MD 21738

**PERMIT AND BID**  
03/01/2023  
REVISIONS  
1 Addendum No. 1 03-16-2023  
2 Addendum No. 2 03-31-2023

Project Number  
**LEVEL 01 - FLOOR PLAN AND RCP**

**A1.1**

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C

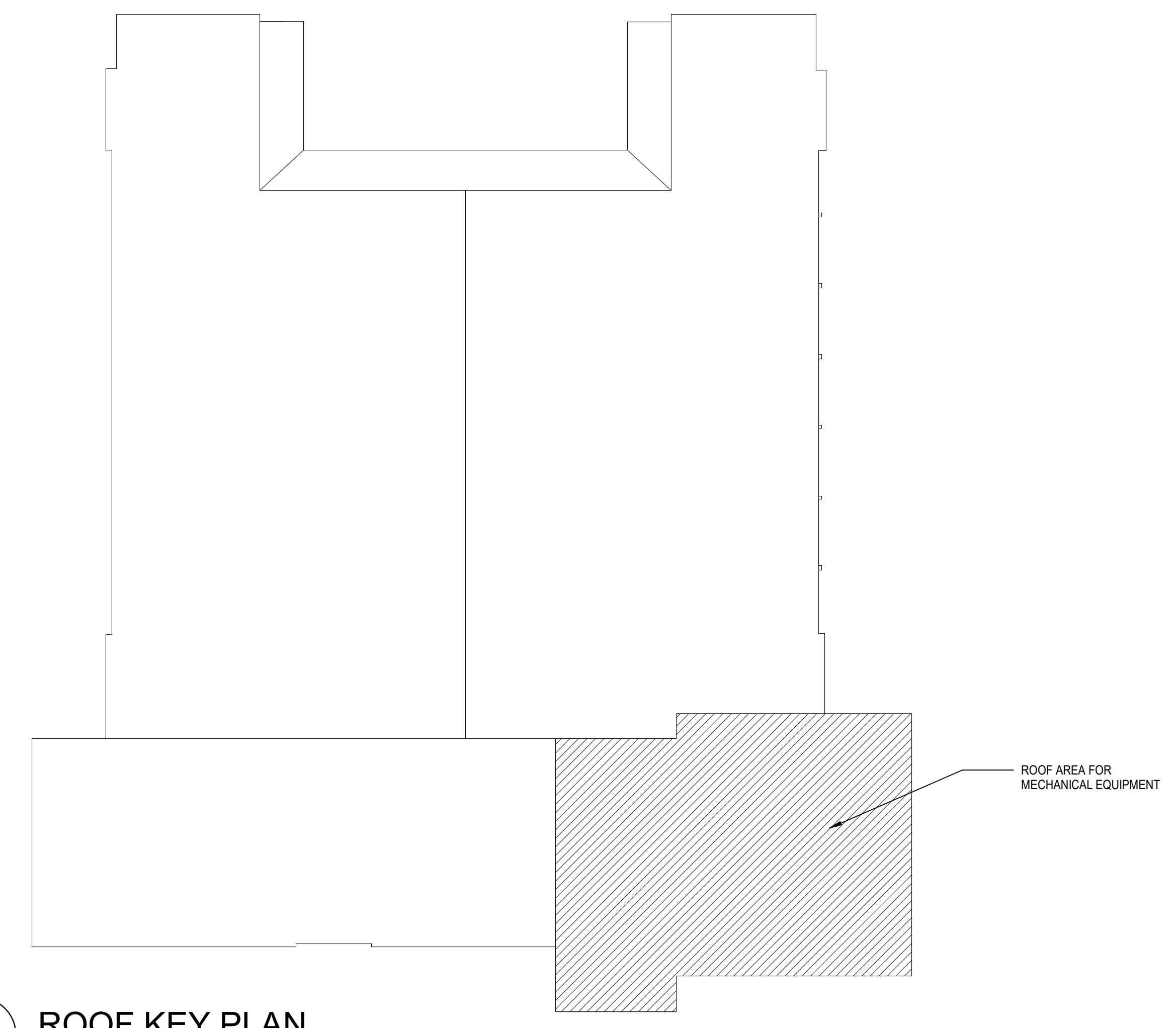
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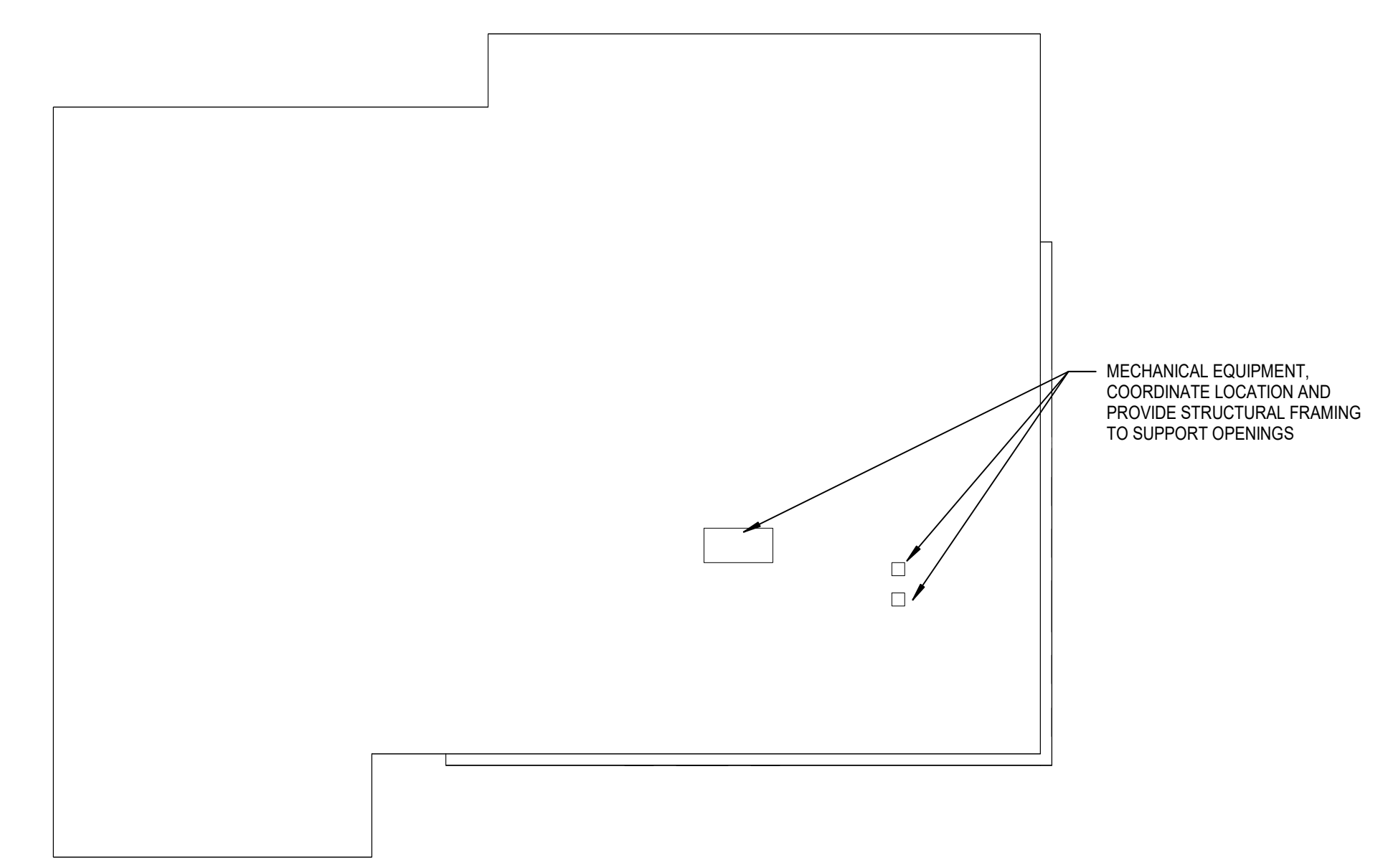
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ROOF PLAN GENERAL NOTES

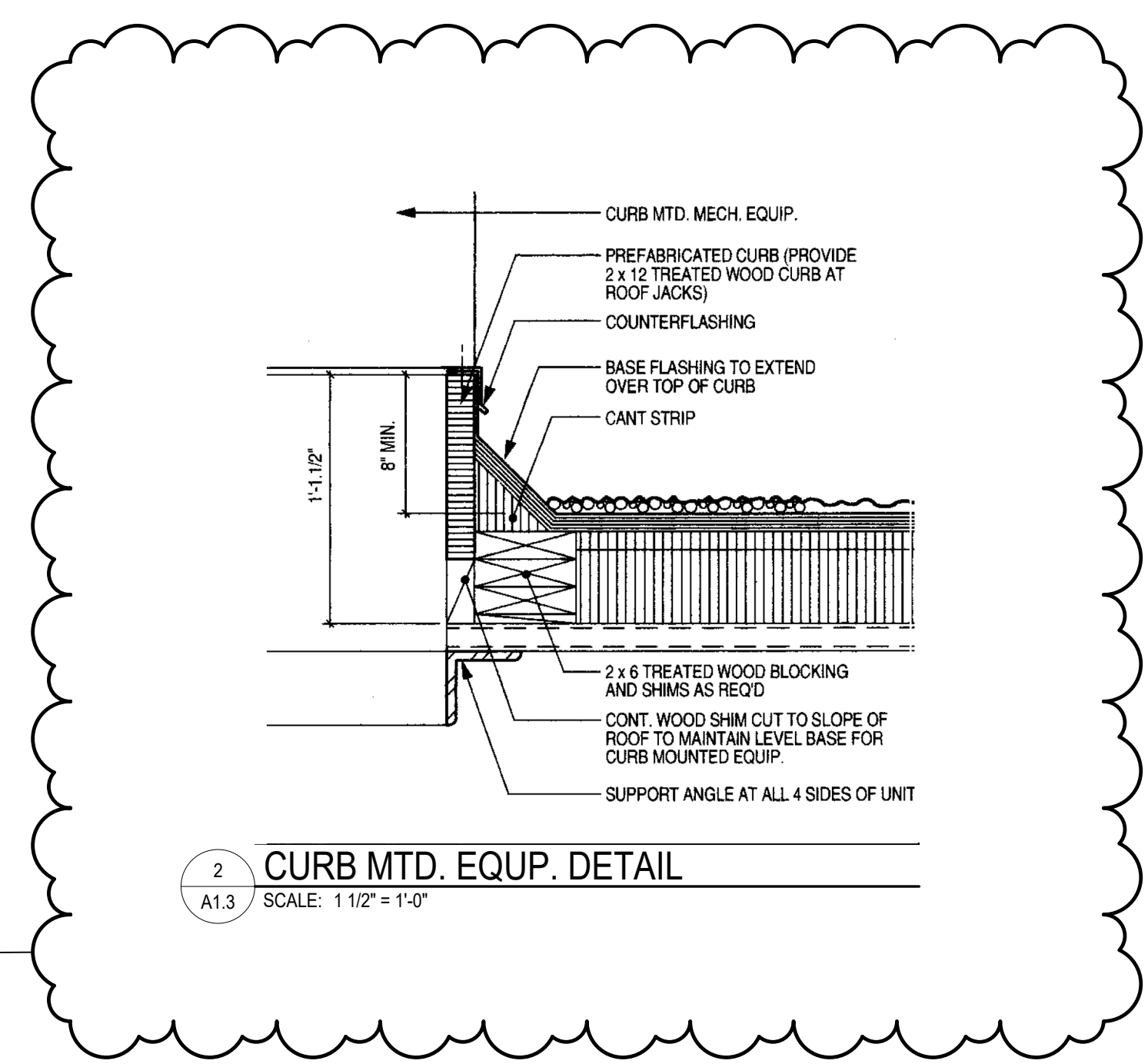
- A. ALL ROOF CURBS TO BE A MINIMUM OF 8 INCHES ABOVE ROOFING LEVELS. PROVIDE TAPERED INSULATION ROOF SADDLES AT ROOF CURBS TO PROVIDE DRAINAGE AROUND CURB.
- B. DELEGATED DESIGN FOR FRAMING AROUND ROOF PENETRATIONS.
- C. COORDINATE THE SIZE AND LOCATION OF ROOF PENETRATIONS FOR MECHANICAL AND ELECTRICAL EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR PENETRATIONS NOT SHOWN ON THIS DRAWING.
- D. FLASH DRAINS, CURBS, VENTS AND STACKS PER MANUFACTURER'S RECOMMENDATIONS IF DETAIL NOT SHOWN ON DRAWINGS.
- E. NO ROOF PENETRATIONS ALLOWED WITHIN 4'-0" EACH SIDE OF FIREWALL.



**ROOF KEY PLAN**  
SCALE: 1/32" = 1'-0"

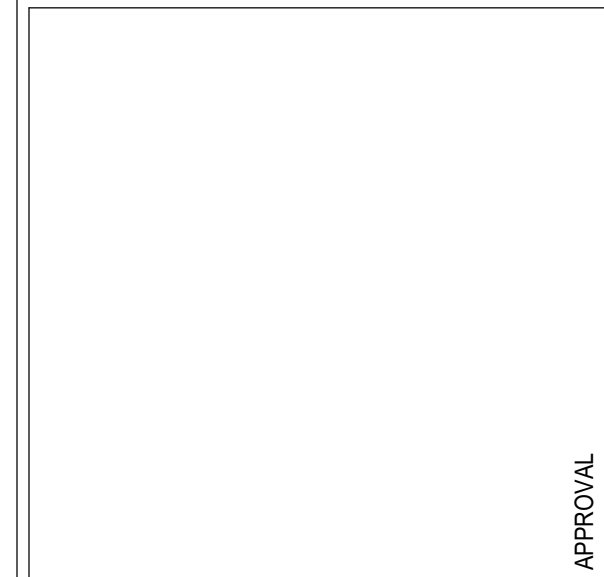


**Partial Roof Plan**  
SCALE: 1/16" = 1'-0"



**2 CURB MTD. EQP. DETAIL**  
SCALE: 1/12" = 1'-0"

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**BUSHY PARK ES CLASSROOM RENOVATION**  
HOWARD COUNTY PUBLIC SCHOOLS

14601 CARRS MILL RD. GLENWOOD, MD 21738

PERMIT AND BID  
03/01/2023  
REVISIONS  
1 Addendum No. 2 03/31/2023

Project Number  
**ROOF PLAN**

**A1.3**

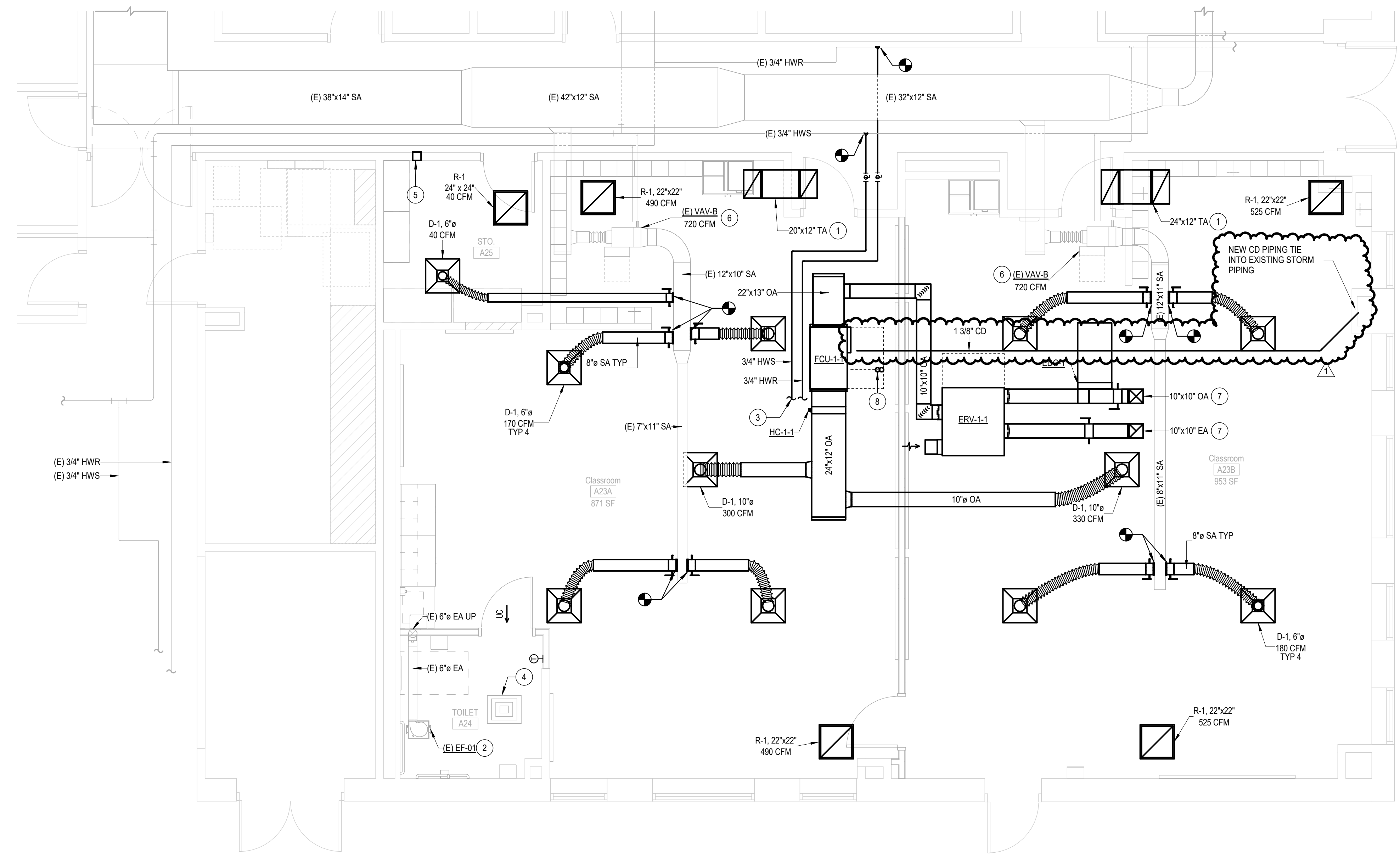
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**GENERAL NOTES**

- A FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING M0.1
- B PROVIDE TEMPORARY PROTECTION FOR ALL EXISTING TO REMAIN MECHANICAL & PIPING SYSTEMS.

**SHEET NOTES**

- 1 RETURN AIR U-DUCT THROUGH EXISTING WALL OPENING. SEE DRAWING FOR DUCT SIZE.
- 2 EXISTING CEILING EXHAUST FAN TO BE RECONNECTED TO THE EXHAUST DUCTWORK AND ELECTRICAL WIRING.
- 3 TO HC-1.1 REFER TO 8M7.1 FOR 3-WAY COIL PIPING CONNECTION.
- 4 EXISTING ELECTRIC CEILING RADIANT PANEL TO BE RECONNECTED TO THE ELECTRICAL AND CONTROL WIRING. REUSE AND RELOCATION EXISTING THERMOSTAT AND ASSOCIATED PERFORATED COVER SHOWN ON THE PLAN.
- 5 PROVIDE 8"Ø TRANSFER AIR OPENING ABOVE CEILING. EXISTING VAN DEVICE REFER TO SCHEDULE FOR MINIMUM AIRFLOW REQUIREMENT.
- 6 DUCTWORK THROUGH ROOF. REFER TO DETAIL 6M7.1 FOR DUCTWORK PENETRATION THROUGH ROOF.
- 7 RISRL SIZE PER MANUFACTURER'S RECOMMENDATIONS. PIPE UP THROUGH ROOF PER 4M7.1.
- 8

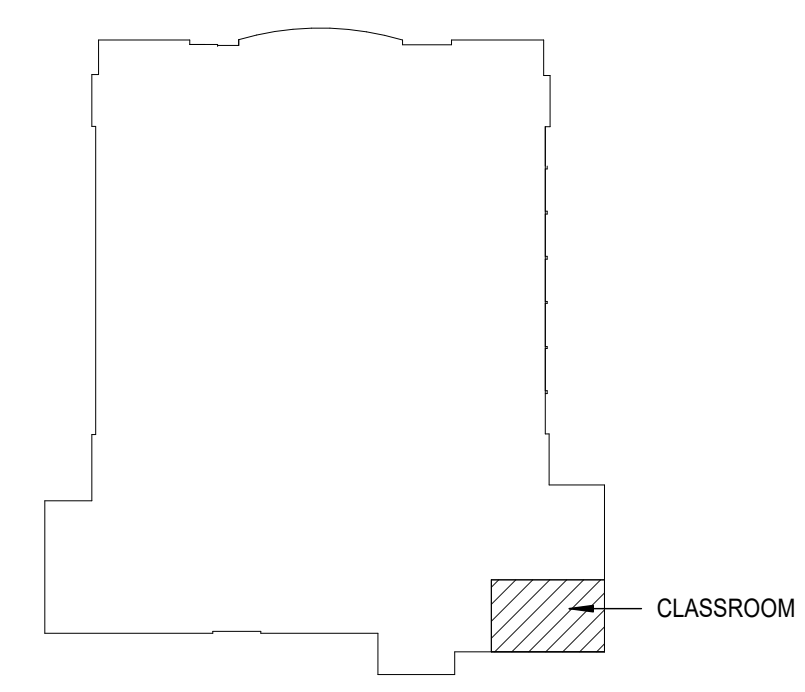


1 LEVEL 01 - HVAC PLAN  
M1.1 / SCALE: 1/4" = 1'-0"

**BUSHY PARKES CLASSROOM RENOVATION**  
HOWARD COUNTY PUBLIC SCHOOLS  
14801 CARRS HILL RD, GLENWOOD, MD 21738

**PERMIT AND BID**  
03/01/2023  
REVISIONS  
1 3/31/2023 ADDENDUM NO. 2

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LICENSE NO. \_\_\_\_\_  
EXPIRATION DATE: \_\_\_\_\_

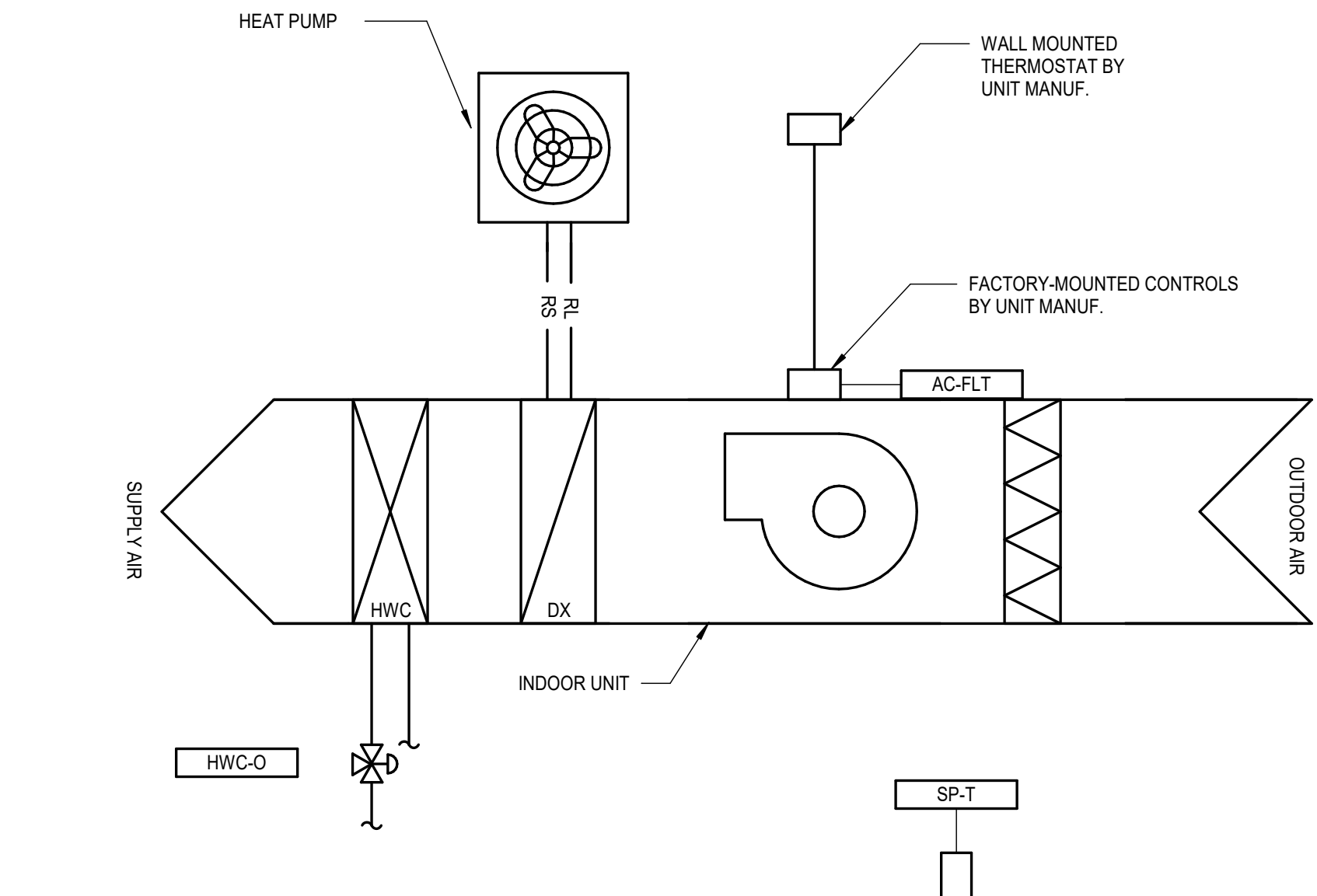
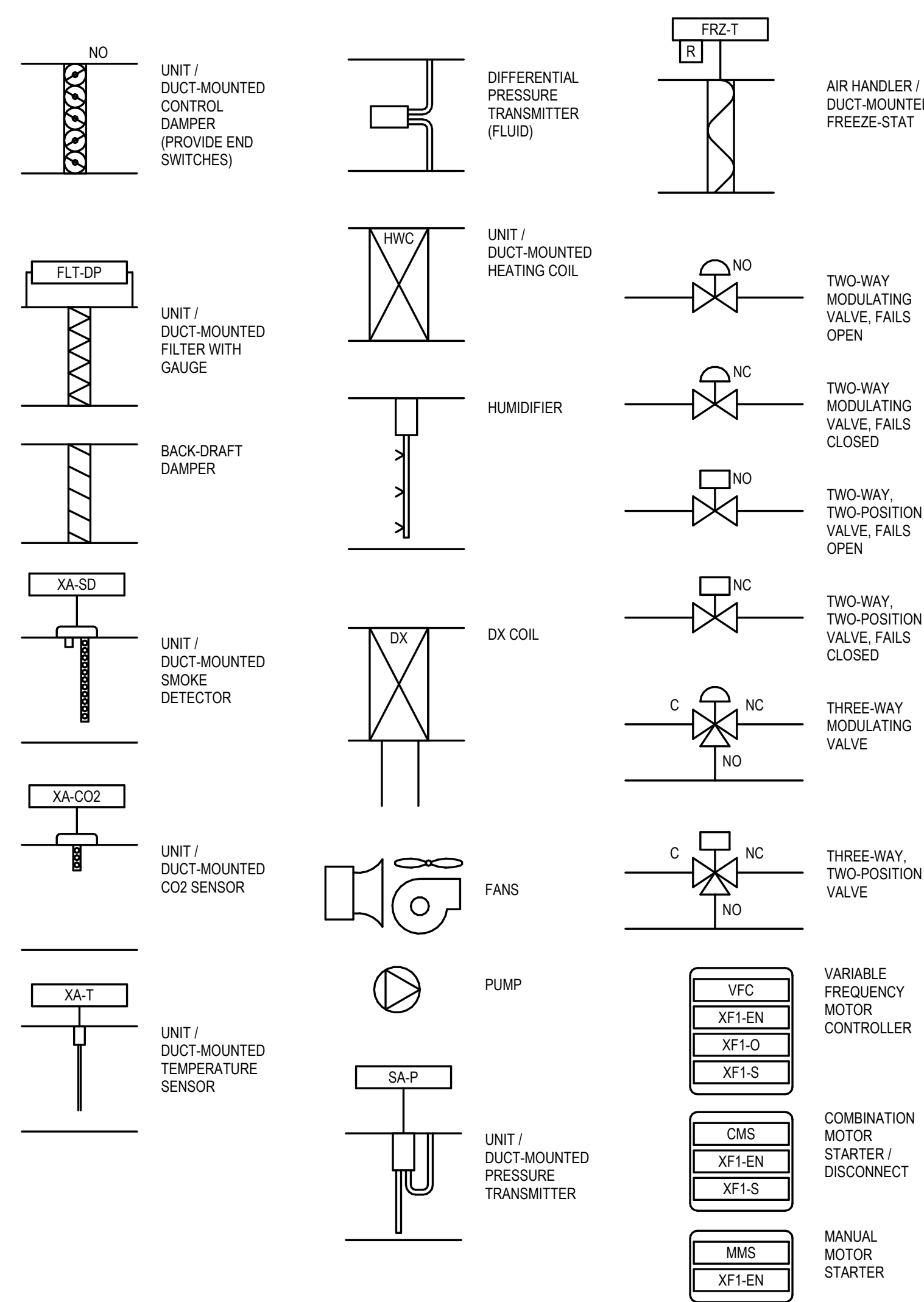


Project Number  
**LEVEL 01 - HVAC PLAN**

**M1.1**

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# CONTROL DIAGRAM EQUIPMENT SYMBOLS



**RUN CONDITIONS** - THE UNIT SHALL RUN DURING A USER DEFINABLE SCHEDULE DETERMINES THE SYSTEM IS IN THE OCCUPIED MODE IN THE FOLLOWING OPERATION MODES:

**HEATING MODE:** DISCHARGE AIR TEMPERATURE [DA-T] = 85°F (ADJ.) WHEN OUTDOOR AIR (OA) TEMPERATURE IS BELOW 70°F AND OA DEWPOINT IS LESS THAN 55°F.

**COOLING MODE:** (DA-T) RESET = 75°F (ADJ.) FOR 75°F OA-T; FOR 95°F OA-T; WHEN OA TEMPERATURE IS ABOVE 75°F AND OA DEWPOINT IS BELOW 55°F. EXISTING VALVES SERVING THE NEW DAYCARES ROOMS SHALL BE TURN DOWN TO MINIMUM AIRFLOW WHILE THE UNIT IS IN COOLING MODE, AND STARTS MODULATING TO MAXIMUM AIRFLOW WHEN SP-T IS ABOVE 75°F.

**DEHUMIDIFICATION MODE:** DX COIL LEAVING AIR TEMPERATURE(LAT) = 55°F (ADJ.) (REHEAT COIL LAT RESET = 75°F (ADJ.) FOR 60°F OA-T, 55°F FOR 95°F OA-T); WHEN THE OA DEWPOINT IS ABOVE 55°F.

**DOAS OPTIMAL START:**

THE UNIT SHALL START PRIOR THE SCHEDULED OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONE TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

**HEATING AND COOLING:**

THE COMPRESSOR SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.

**FAN:**

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS IN THE OCCUPIED MODE, UNLESS SHUTDOWN ON SAFETIES.

**ALARMS SHALL BE PROVIDED AS FOLLOWS:**

- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

**HOT WATER DUCT HEATER CONTROL:**

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE DOWNSTREAM OF THE DUCT HEATER AND MODULATE THE HEATING COIL TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.

THE HEATING COIL SHALL BE ENABLED WHEN:

- THE SUPPLY FAN STATUS IS ON.
- THE UNIT IS ON DEHUMIDIFICATION MODE.

**ALARMS SHALL BE PROVIDED AS FOLLOWS:**

- HEAT PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CONTROL VALVE FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

## GENERAL NOTES FOR CONTROLS

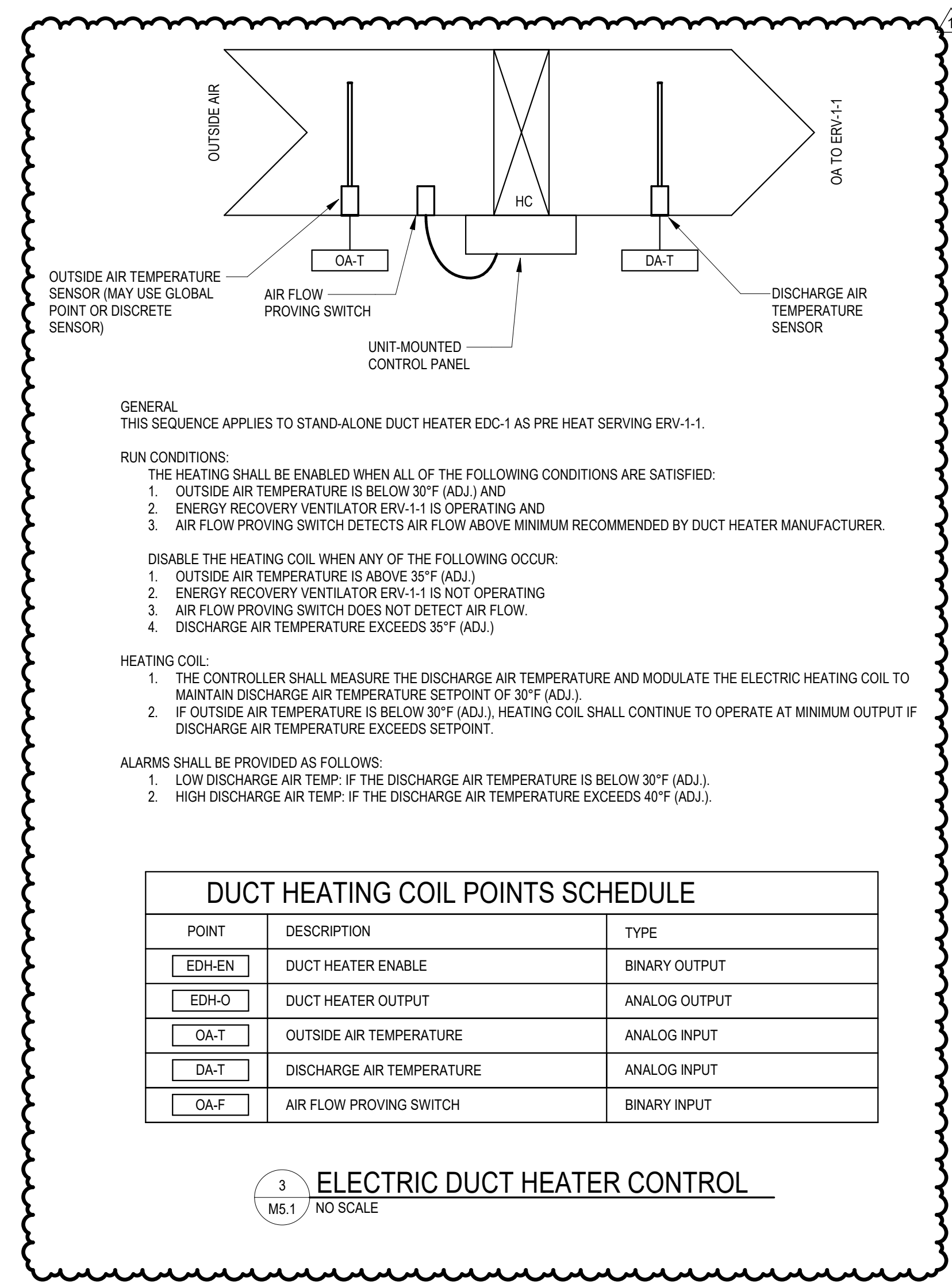
- UNLESS OTHERWISE NOTED, ALL CONTROLS SHALL BE DIRECT DIGITAL TYPE (DDC) AND ACTUATORS SHALL BE ELECTRIC. ALL NEW CONTROL SYSTEMS AND COMPONENTS SHALL BE COMPATIBLE WITH AND FULLY INTEGRATED INTO THE EXISTING BUILDING AUTOMATION SYSTEM.
- ALL SENSORS SHALL INCLUDE PROVISIONS FOR FIELD CALIBRATION.
- ALL SETPOINTS INDICATED IN THE SEQUENCES SHALL BE ADJUSTABLE AT THE HOST COMPUTER WORKSTATION AND VIA A LAPTOP COMPUTER CONNECTED TO ANY BAS CONTROL PANEL OR CONTROLLER.
- THE BUILDING AUTOMATION SYSTEM SHALL BE CONNECTED TO STANDBY POWER AND PROVIDED WITH NONVOLATILE MEMORY FOR SEAMLESS OPERATION THROUGH POWER FLUCTUATIONS. FAIL-SAFE POSITIONS INDICATED ARE POSITIONS THAT DEVICES WILL GO TO WHEN DEENERGIZED. WHENEVER AN ALARM IS INITIATED, THE BAS SHALL RETAIN IN MEMORY THE READINGS AND SET POINTS OF EACH DEVICE TO ASSIST THE OPERATOR TO ISOLATE THE CAUSE OF THE ALARM.
- REFER TO FLOOR PLANS FOR THE LOCATIONS OF ALL SPACE MOUNTED SENSORS AND TRANSMITTERS. TEMPERATURE TRANSMITTERS ARE INDICATED (T), HUMIDITY TRANSMITTERS ARE INDICATED (H), PRESSURE TRANSMITTERS ARE INDICATED (P) AND GAS SENSORS ARE INDICATED (G) OR CO2.
- EACH SEQUENCE WITH A DEFINED OCCUPIED PERIOD SHALL HAVE THE PERIOD ADJUSTABLE GLOBALLY (SO THAT ALL CAN BE ON THE SAME TIME FRAME) AND INDIVIDUALLY (SO THAT ANY ONE OPERATION CAN HAVE A DIFFERENT OCCUPIED PERIOD).
- VARIABLE FREQUENCY MOTOR CONTROLLER, VFC, THE HAND-OFF-AUTOMATIC SWITCH ON THE VFC SHALL PROVIDE FOR THE FOLLOWING BASIS OF CONTROL:
  - HAND POSITION: THE DDC SYSTEM SHALL HAVE NO CONTROL OVER THE MOTOR SPEED NOR SHALL IT BE ABLE TO START OR STOP THE MOTOR (EXCEPT FOR SAFETY PURPOSES WHERE THE MOTOR SHALL SHUT DOWN). THE MOTOR SHALL RUN UNDER SPEED CONTROL FROM THE HAND POTENTIOMETER ON THE VFC. ALL SAFETIES CONTROLLING THE SHUTDOWN SHALL BE OPERATIONAL (i.e. SMOKE DETECTORS, PRESSURE SWITCHES, ETC). TEMPERATURE AND HUMIDITY CONTROL SHALL BE AVAILABLE THROUGH THE BAS SYSTEM.
  - OFF POSITION: THE MOTOR SHALL BE OFF. THE BAS SYSTEM SHALL NOT CONTROL THE MOTOR. ALL OTHER CONTROL POINTS SHALL BE IN THEIR FAIL-SAFE POSITION.
  - AUTOMATIC POSITION: THE MOTOR SHALL BE CONTROLLED BY THE DDC SYSTEM AS DESCRIBED HEREIN.
- THE TERMS "VARIABLE FREQUENCY CONTROLLER (VFC) AND VARIABLE FREQUENCY DRIVE (VFD) ARE USED INTERCHANGEABLY. SOME FANS AND PUMPS MAY USE SOLID-STATE CONTROL WITH ELECTRONICALLY COMMUTATED MOTORS.
- SEQUENCES OF OPERATIONS OUTLINED (UNLESS OTHERWISE SPECIFIED) SHALL BE PERFORMED BY DIRECT DIGITAL CONTROL FIELD PANELS CONNECTED TO A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). ADDRESS IDENTIFIERS FOR ALL POINTS AND VARIABLES SHOWN IN THE DIAGRAMS SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER. UNLESS OTHERWISE SPECIFIED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE BY THE OPERATOR THROUGH THE BAS AND THROUGH MENU ACCESS AT THE LOCAL TERMINAL / UNITARY CONTROLLER WITHOUT ANY HARDWARE OR SOFTWARE REVISIONS. MONITORING OF ALL FUNCTIONS SHALL BE AVAILABLE AT THE BAS AND AT THE DDC/F. PROVIDE MENU-DRIVEN CAPABILITY FOR THE OPERATOR TO OVERRIDE AUTOMATED START/STOP SEQUENCES FOR EACH PIECE OF EQUIPMENT (PUMPS, AIR HANDLERS, ETC). IF A SEQUENCE IS DISABLED BY THE OPERATOR BUT AN AUTOMATIC START IS INITIATED, THE SYSTEM SHALL ISSUE AN ALARM STATING THAT THE EQUIPMENT WAS UNABLE TO START/STOP DUE TO USER INPUT. THE BAS SYSTEM SHALL THEN ATTEMPT TO START THE NEXT SEQUENTIAL PIECE OF EQUIPMENT.
- THE CONTROL SYSTEM SHALL MONITOR PRESSURES, TEMPERATURES AND FLOWS AND SHALL CONTROL VALVES, DAMPERS, VARIABLE FREQUENCY CONTROLLERS (VFC), FANS, AND PUMPS. MONITORED DATA WILL BE USED TO ENERGIZE OR DEENERGIZE FANS, PUMPS, ETC.
- ALL EQUIPMENT CONTROLLED BY THE DDC SYSTEM SHALL BE CAPABLE OF MANUAL OPERATION THROUGH HAND-OFF-AUTOMATIC (HOA) SWITCHES IN STARTERS PROVIDED. THE POSITIONS OF ALL VALVES CONTROLLED BY THE BAS SHALL BE CAPABLE OF MANUAL POSITIONING (OPEN, CLOSED, MODULATED, AUTO) VIA LABELED POTENTIOMETERS AND MANUAL SWITCHES PROVIDED BY DIVISION 28.
- COORDINATE ALL SENSOR INSTALLATIONS AND SUBMIT PROPOSED LOCATIONS ON PIPING AND DUCT COORDINATION DRAWINGS. COORDINATE TO INSURE THAT THE SENSOR MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM CONDITIONS ARE PROVIDED (ESPECIALLY FLOW ELEMENTS AND TRANSMITTERS).
- PROVIDE ADEQUATE DAMPING OF ALL MODULATING CONTROL LOOPS TO PREVENT HUNTING.
- IF ANY LOCAL TERMINAL OR UNITARY CONTROLLER OR EQUIPMENT MANUFACTURER'S CONTROL SYSTEM LOSES COMMUNICATION WITH THE BAS NETWORK, AN ALARM SHALL BE GENERATED BY THE BAS INDICATING THE LOCATION OF THE FAULT.
- DDC SYSTEM SHALL BE CAPABLE OF PROVIDING CONTROL LOGIC INCLUDING MONITORING ZONE AND SYSTEM DEMAND FOR FAN PRESSURE, PUMP PRESSURE, HEATING, AND COOLING, TRANSFERRING ZONE AND SYSTEM DEMAND INFORMATION FROM ZONES TO AIR DISTRIBUTION SYSTEM CONTROLLERS AND FROM AIR DISTRIBUTION SYSTEMS TO HEATING AND COOLING PLANT CONTROLLERS. AUTOMATICALLY DETECTING AND ALERTING SYSTEM OPERATOR WHEN ZONES AND SYSTEMS EXCESSIVELY DRIVE THE RESET LOGIC, ALLOW OPERATOR REMOVAL OF ZONE(S) FROM THE RESET ALGORITHM, AND CAPABLE OF TRENDED AND GRAPHICALLY DISPLAYING INPUT AND OUTPUT POINTS.
- THE BAS SHALL COMPLY WITH ALL DDC REQUIREMENTS OF ASHRAE STANDARD 90.1-2013 CHAPTER 6 (2011) DC ENERGY CODE).

## GENERAL NOTES ON SEQUENCES OF OPERATIONS

- SEQUENCES OF OPERATIONS OUTLINED (UNLESS OTHERWISE SPECIFIED) SHALL BE PERFORMED BY DIRECT DIGITAL CONTROL FIELD PANELS CONNECTED TO A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). ADDRESS IDENTIFIERS FOR ALL POINTS AND VARIABLES SHOWN IN THE DIAGRAMS SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER. UNLESS OTHERWISE SPECIFIED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE BY THE OPERATOR THROUGH THE BAS AND THROUGH MENU ACCESS AT THE LOCAL TERMINAL / UNITARY CONTROLLER WITHOUT ANY HARDWARE OR SOFTWARE REVISIONS. MONITORING OF ALL FUNCTIONS SHALL BE AVAILABLE AT THE BAS AND AT THE DDC/F. PROVIDE MENU-DRIVEN CAPABILITY FOR THE OPERATOR TO OVERRIDE AUTOMATED START/STOP SEQUENCES FOR EACH PIECE OF EQUIPMENT (PUMPS, AIR HANDLERS, ETC). IF A SEQUENCE IS DISABLED BY THE OPERATOR BUT AN AUTOMATIC START IS INITIATED, THE SYSTEM SHALL ISSUE AN ALARM STATING THAT THE EQUIPMENT WAS UNABLE TO START/STOP DUE TO USER INPUT. THE BAS SYSTEM SHALL THEN ATTEMPT TO START THE NEXT SEQUENTIAL PIECE OF EQUIPMENT.
  - THE DESIGN INTENT IS FOR THE CONTROL SYSTEM TO MONITOR PRESSURES, TEMPERATURES AND FLOWS AND TO CONTROL VALVES, VARIABLE FREQUENCY DRIVES (VFD), FANS, AND PUMPS. MONITORED DATA WILL BE USED TO ENERGIZE OR DEENERGIZE FANS, PUMPS, ETC.
  - ALL EQUIPMENT CONTROLLED BY THE DDC SYSTEM SHALL BE CAPABLE OF MANUAL OPERATION THROUGH HAND-OFF-AUTOMATIC (HOA) SWITCHES IN STARTERS PROVIDED. THE POSITIONS OF ALL VALVES CONTROLLED BY THE BAS SHALL BE CAPABLE OF MANUAL POSITIONING (OPEN, CLOSED, MODULATED, AUTO) VIA LABELED POTENTIOMETERS AND MANUAL SWITCHES PROVIDED BY DIVISION 28.
  - COORDINATE ALL SENSOR INSTALLATIONS WITH THE MECHANICAL CONTRACTOR AND SUBMIT PROPOSED LOCATIONS ON PIPING AND DUCT COORDINATION DRAWING SUBMITTAL. COORDINATE TO ENSURE THAT THE SENSOR MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM PIPE DIAMETERS ARE PROVIDED (ESPECIALLY FLOW ELEMENTS AND TRANSMITTERS).
  - PROVIDE COMMUNICATIONS INTERFACE AND SOFTWARE BETWEEN BAS AND EACH EQUIPMENT MANUFACTURER SUPPLIED CONTROL PANEL TO READ/DISPLAY ALL DATA AVAILABLE AT THE PANEL VIA MANUFACTURER'S PROTOCOL. WHERE CONTROL IS REQUIRED PROVIDE INPUT/OUTPUT INTERFACE INDICATED.
  - FAIL-SAFE POSITIONS INDICATED ARE POSITIONS THAT DEVICES WILL GO TO WHEN DEENERGIZED.
  - PROVIDE ADEQUATE DAMPING OF ALL MODULATING CONTROL LOOPS TO PREVENT HUNTING.
  - WHENEVER A UNIT IS SHUTDOWN BECAUSE OF ONE OF ITS SAFETIES, THE BAS SHALL RETAIN IN MEMORY THE READING AND SET POINT OF EACH DEVICE TO HELP THE OPERATOR TO ISOLATE THE CAUSE OF THE SHUTDOWN.
  - WHENEVER AN ALARM IS INITIATED, THE BAS SHALL RETAIN IN MEMORY THE READINGS AND SET POINTS OF EACH DEVICE TO ASSIST THE OPERATOR TO ISOLATE THE CAUSE OF THE ALARM.
  - IF ANY LOCAL TERMINAL OR UNITARY CONTROLLER OR EQUIPMENT MANUFACTURER'S CONTROL SYSTEM LOSES COMMUNICATION WITH THE BAS NETWORK, AN ALARM SHALL BE GENERATED BY THE BAS INDICATING THE LOCATION OF THE FAULT.
- ENERGY MONITORING REQUIREMENTS**
- THE FOLLOWING EQUIPMENT SHALL HAVE METERING:
- PUMPS: ALL DEMAND AND CONSUMPTION (BY VFD, PANEL METERING, OR CURRENT TRANSDUCER)
  - FANS: ALL DEMAND AND CONSUMPTION (BY VFD, PANEL METERING, OR CURRENT TRANSDUCER)

## 100% OUTDOOR AIR PROCESSING SYSTEM CONTROLS

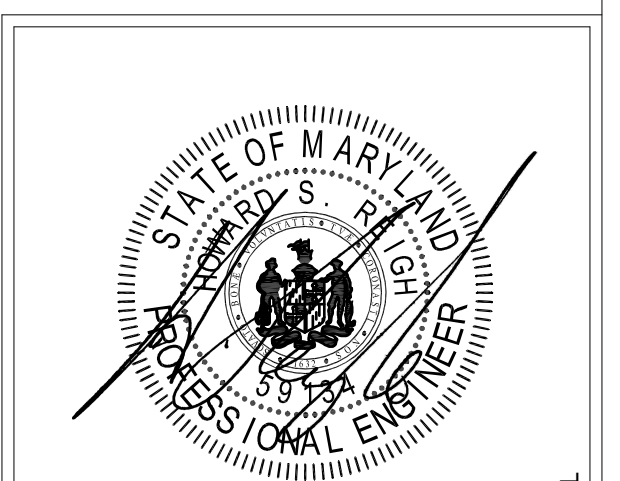
2 MS.1 NO SCALE



## CONTROLS ARCHITECTURE DIAGRAM 1

1 MS.1 NO SCALE

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Project Number  
**MECHANICAL CONTROLS**

**M5.1**

### EXISTING VAV TERMINAL UNIT SCHEDULE

NOTES:  
 1. PROVIDE DDC CONTROLLER ON EXISTING VAV TERMINAL UNIT AND DDC CONTROL VALVE FOR THE VAV TERMINAL UNIT HEATING WATER COILS. INTEGRATE THE VAV TERMINAL UNIT INTO THE EXISTING HONEYWELL TRidium BUILDING AUTOMATION SYSTEM.  
 2. EXISTING VAV BOX TO REMAIN, REBALANCE AS INDICATED ON PLANS.

ID	PRIMARY AIRFLOW			HEATING COIL					SOUND ATTENUATOR	MANUFACTURER	MODEL	NOTES	
	MAXIMUM CFM	MINIMUM CFM	INLET SIZE IN	MIN MBH	GPM	EWT (°F)	EAT (°F)	MAX WPD (FT/HD)					MAX SP (IN. WC)
(E) VAV-B	SEE PLANS	500	8	25	1.0	200	60	1.5	0.4	-	ENVIRO-TECH	SDR-WC-8	1, 2
(E) VAV-C	SEE PLANS	750	10	33.9	1.0	200	60	1.5	0.4	-	ENVIRO-TECH	SDR-WC-10	1, 2

### EXISTING ROOFTOP AIR HANDLING UNIT SCHEDULE

NOTES:  
 1. VAV SYSTEM WITH DX COIL AND SPLIT CONDENSING UNIT.

ID	SERVES	SUPPLY AIR FAN DATA				COOLING DATA		HEATING DATA		RETURN AIR FAN DATA			MANUFACTURER	MODEL	NOTES	
		CFM	EXT. S.P.	TOTAL S.P.	FAN MOTOR HP	MIN. O.A. CFM	EAT DB/WB (°F)	LAT DB/WB (°F)	EAT DB/WB (°F)	LAT DB/WB (°F)	CFM	T.S.P. (IN. W.G.)				FAN MOTOR HP
RTU-7	ADMINISTRATION	7700	2.15	4.30	15	3000	85.5/70.9	57/56.2	42.5	62	6250	0.55	1	MCOUAY	RDS-802-B	1

### DIFFUSER & GRILLE SCHEDULE

NOTES:  
 1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES AND MOUNTING REQUIREMENTS.  
 2. FINISH TO BE SELECTED BY ARCHITECT.  
 3. PROVIDE OPPOSED BLADE DAMPERS IN DRYWALL CEILING AND INACCESSIBLE AREAS.

MARK	S-1	R-1
AIR	SUPPLY	RETURN
TYPE	SQUARE PLAQUE	LOUVERED GRILLE
MODULE	24"X24"	24"X24"
	0-150	
	151-250	22"X22"
	250-375	10"
	375-500	12"
NC	25	25
FRAME/BORDER TYPE	NOTE 1	NOTE 1
FINISH	NOTE 2	NOTE 2
MANUFACTURER	PRICE	PRICE
MODEL NUMBER	SPD	POR
NOTES	1-3	1-3

### DUCT MOUNTED COIL SCHEDULE

NOTES:  
 1. REFER TO SMT 1 FOR 2-WAY COIL CONNECTION.  
 2. THE CONTRACTOR SHALL CONFIRM ENTERING WATER TEMPERATURE.

ID	SERVES	HEATING COIL DATA				GEOMETRY				MANUFACTURER	MODEL	NOTES
		CAPACITY (MBH)	AIR SIDE AIRFLOW (CFM)	EAT (°F)	LAT (°F)	FIN PER INCH	NO. OF ROW	FIN HEIGHT	FIN LENGTH			
HC-1-1	DAYCARE	10000	615	55	70	8	1	12	24	DAIKIN	58B0801C	1

### SPLIT SYSTEM HEAT PUMP SCHEDULE

NOTES:  
 1.  
 2.  
 3.  
 4.  
 5.

ID	AREA SERVED	TYPE	FAN DATA		COOLING COIL DATA			HEATING COIL DATA			ELECTRICAL DATA			BASIS OF DESIGN		NOTES				
			DESIGN AIR FLOW (CFM)	MOTOR QTY	NOMINAL CAPACITY (TON)	TOTAL CAPACITY (BTUH)	ENT AIR TEMP (°F)	DB	WB	CAPACITY (BTUH)	ENT	LVG	MCA (A)	MOC (A)	VOLT (V)		PH	OUTDOOR UNIT ID	WEIGHT (LBS)	MANUFACTURER
FCU-1-1	DAYCARE	DUCTED UNIT	630	1	4	48,000	0	0	30,000	55	85	2.1	15	230	1	OU-1	190	DAIKIN	FXMQ48MFVJU	

### ELECTRIC DUCT COIL SCHEDULE

NOTES:  
 1. PROVIDE IN DUCT DISCHARGE AIR TEMPERATURE SENSOR.  
 2. REFER TO 3MS.1 FOR CONTROL SEQUENCE.  
 3.  
 4.  
 5.

ID	AREA SERVED	TYPE	HEATING COIL DATA				ELECTRICAL DATA			BASIS OF DESIGN		NOTES					
			DESIGN AIRFLOW (CFM)	TEMP DB (°F)	LVG	QTY	FLA (A)	MCA (A)	MOC (A)	VOLT (V)	PH		MANUFACTURER	MODEL			
EDC-1	ERV PRE HEATING	SLIP IN	630	15	30	1	ELECTRIC	3	Yes	8.3	10.4	15	208	3	INDECO	QUA	1, 2

### SPLIT SYSTEM CONDENSING UNIT SCHEDULE

NOTES:  
 1. PROVIDE REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNIT. SIZE PER MANUFACTURER'S RECOMMENDATION.

ID	LOCATION		TYPE	COMPRESSOR DATA			AMBIENT TEMP DB (°F)			ELECTRICAL DATA				INDOOR UNIT ID	WEIGHT (LBS)	BASIS OF DESIGN		NOTES				
	NO.	NAME		REFRIGERANT TYPE	CAPACITY (TON)	CHARGE (LBS)	QTY	RLA (A)	SUMMER	WINTER	SEER	EER	FLA (A)			MCA (A)	MOC (A)		VOLT (V)	PH	MANUFACTURER	MODEL
OU-1-1			AIR COOLED HEAT PUMP	4	R-410A	6.4	1	19	97.2	0	16	10.5	23.3	29.1	35	240	1	FCU-1-1	176	DAIKIN	R2R48TAVJUA	

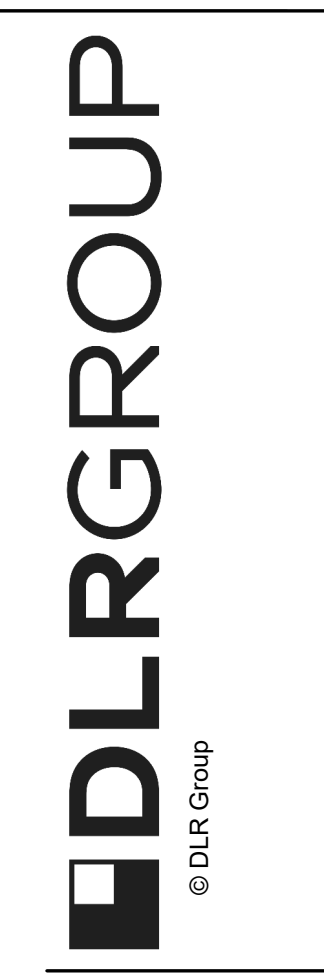
### ENERGY RECOVERY VENTILATOR SCHEDULE

NOTES:  
 1. INTERLOCK WITH FCU-1-1.  
 2. PROVIDE 2-POSITION MOTORIZED DAMPER SHOWN ON M.1.1.

ID	SERVES	FAN DATA		ENERGY RECOVERY SECTION/MODULE PERFORMANCE DATA														ELECTRICAL DATA				MANUFACTURER	MODEL	NOTES							
		SUPPLY FAN DATA	EXHAUST FAN DATA	SUMMER CONDITION							WINTER CONDITION							MCA	MOP	VOLTAGE	PHASE										
AIRFLOW (CFM)	ESP (inH2O)	AIRFLOW (CFM)	ESP (inH2O)	OA DB (°F)	OA WB (°F)	RA DB (°F)	RA WB (°F)	SA DB (°F)	SA WB (°F)	EA DB (°F)	EA WB (°F)	TOTAL COOLING CAPACITY (MBH)	LATENT COOLING CAPACITY (MBH)	OA DB (°F)	OA WB (°F)	RA DB (°F)	RA WB (°F)	SA DB (°F)	SA WB (°F)	EA DB (°F)	EA WB (°F)	TOTAL HEATING CAPACITY (MBH)	MCA	MOP	VOLTAGE	PHASE					
ERV-1-1	DAYCARE	615	0.6	615	0.6	97.2	76.3	75	63	81.6	70.3	90.6	70	15.1	10.7	28.4	-	68	56.7	55	43.6	36.9	36.1	12.7	4.2	15.0	208.0	1	DAIKIN	VAM600GVJU	1, 2

### VENTILATION CALCULATION

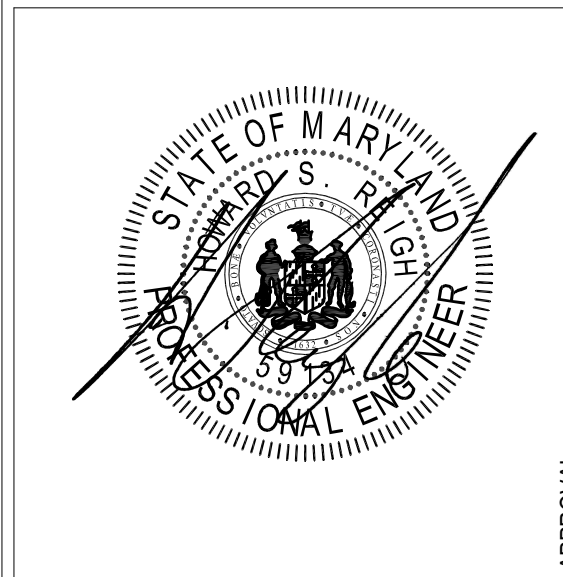
ROOM NAME	ROOM NUMBER	DESCRIPTION	AREA (ft²) (Az)	AREA OUTDOOR AIR RATE PER VMC TABLE 403.3 (Ra)	AREA OUTDOOR AIR (Ra*Az)	Occupant Density Per IMC Table 403.3 (People/ 1000 ft²)	OCCUPANCY (C * F/1000) (Pz)	OCCUPANT OUTDOOR AIR RATE PER VMC TABLE 403.3 (Rp)	OCCUPANT OUTDOOR AIR (Rp*Pz)	BREATHING ZONE OUTDOOR AIR (Vbz = Rp*Pz + Ra*Az)	ZONE AIR DISTRIBUTION EFFECTIVENESS (Ez)	ZONE OUTDOOR AIR (Voz = Vbz / Ez)	WEIGHTED SUPPLY AIR DESIGN (Vpz)	OUTDOOR AIR PERCENTAGE FROM AHU	PROVIDED ZONE OA	ADDITIONAL OA REQUIRED
Classroom	A23A	Day Care (Through age 4)	871.0	0.18	157	25	22	10	220	377	0.80	471	680	26%	174	298
Classroom	A23B	Day Care (Through age 4)	953.0	0.18	172	25	24	10	240	412	0.80	515	720	26%	184	331
							46					986	1,400			



**BUSHY PARKES CLASSROOM RENOVATION**  
 HOWARD COUNTY PUBLIC SCHOOLS  
 14801 CARRS HILL RD, GLENWOOD, MD 21738

PERMIT AND BID  
 03/01/2023  
 REVISIONS  
 1 3/31/2023 ADDENDUM NO. 2

PROFESSIONAL CERTIFICATION:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. \_\_\_\_\_ EXPIRATION DATE: \_\_\_\_\_



Project Number  
**MECHANICAL SCHEDULE**

**M8.1**

1

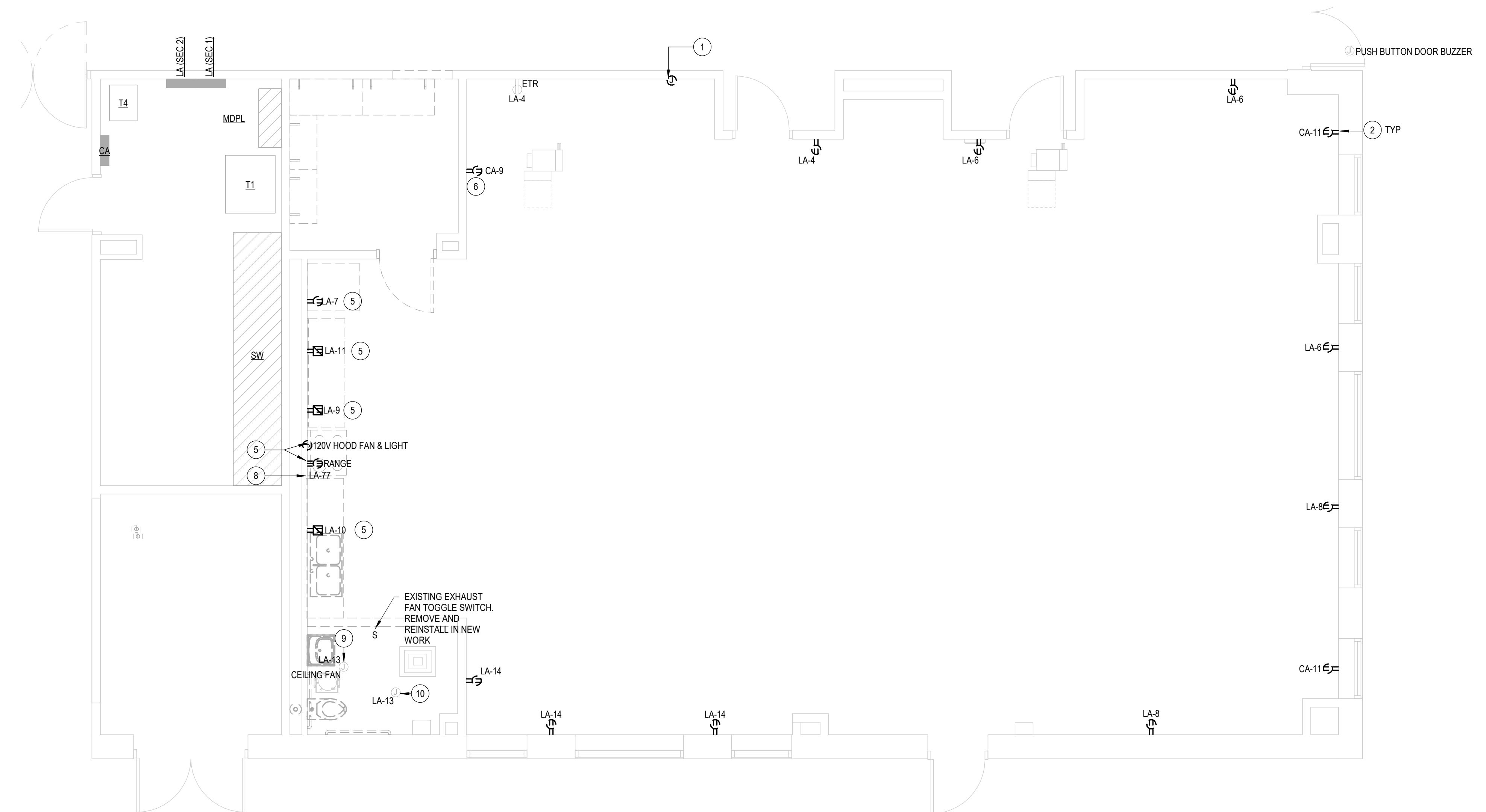
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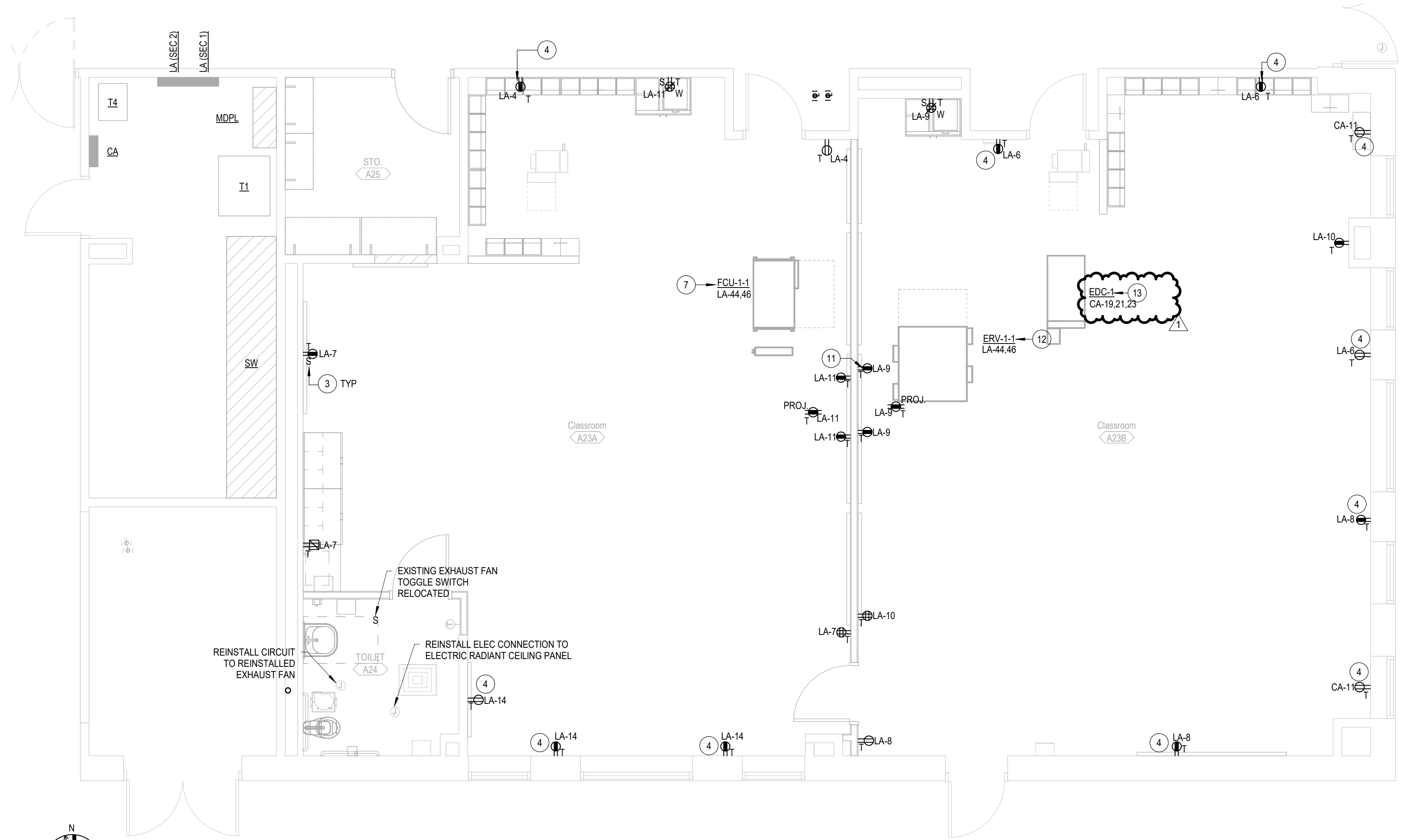
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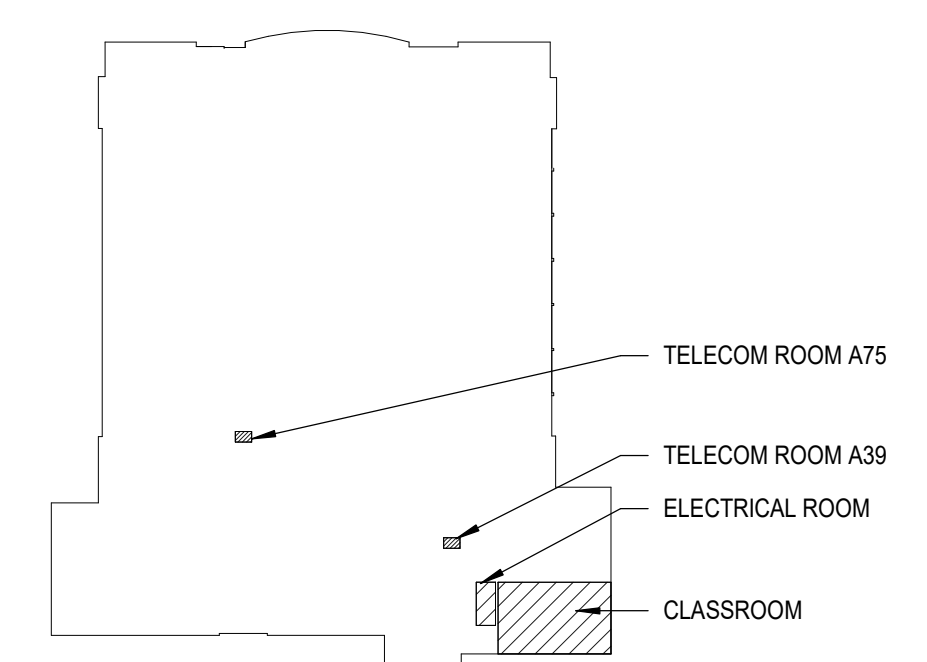
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3/31/2023 2:43:28 AM



**POWER FLOOR PLAN - DEMOLITION**  
SCALE: 1/4" = 1'-0"



**POWER FLOOR PLAN - NEW WORK**  
SCALE: 1/4" = 1'-0"

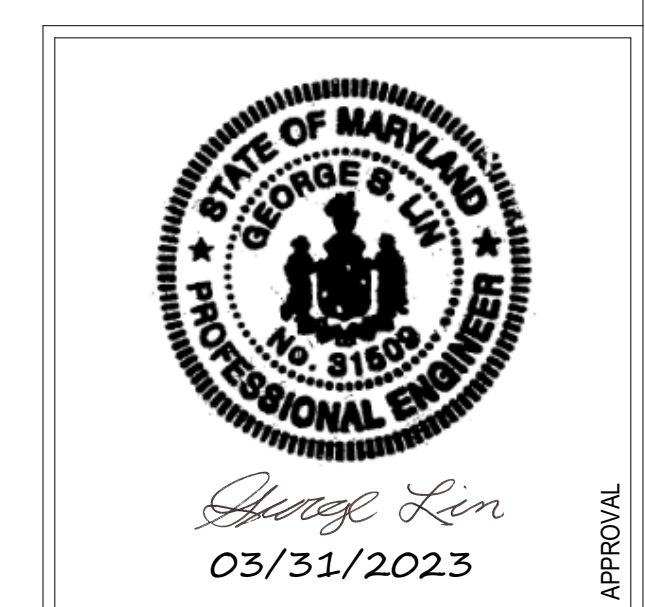


**SHEET NOTES**

- 1 REMOVE BUZZER ASSOCIATED WITH OUTDOOR ENTRY PUSH BUTTON SWITCH. REMOVE EXISTING WIRE TO ABOVE CEILING GRID AND PROVIDE JUNCTION BOX. PROVIDE BLANK PLATE AT EXISTING BUZZER OUTLET BOX PER HCPSS.
- 2 REMOVE RECEPTACLE. EXISTING CIRCUIT TO REMAIN.
- 3 'S' INDICATES PROVIDE SURFACE MOUNTED RECEPTACLE WITH WIRELOD RACEWAY.
- 4 RECONNECT TO EXISTING CIRCUIT FROM DEMOLITION. REMOVE CIRCUIT BACK TO SOURCE. PROVIDE BLANK COVER PLATE.
- 5 REMOVE RECEPTACLE. REMOVE WIRING TO POINT ABOVE CEILING. MAINTAIN EXISTING CIRCUIT.
- 6 FCU-1 (INDOOR UNIT): 208V, 1-PHASE, 2 1/2 MCA, 20A MOCPS.
- 7 FCU-1 (OUTDOOR UNIT): 208V, 1-PHASE, 2 1/2 MCA, 20A MOCPS. PROVIDE 2#10 + #10 GND IN 3/4" C. PROVIDE NEMA 3R NON-FUSED DISC SWITCH AT UNIT.
- 8 REMOVE ELECTRICAL CONNECTION TO EXHAUST FAN TO ALLOW NEW CEILING TO BE CONSTRUCTED. FAN SHALL BE REINSTALLED IN NEW WORK. CIRCUIT TO REMAIN.
- 9 REMOVE ELECTRICAL CONNECTION TO ELECTRIC RADIANT CEILING PANEL TO ALLOW NEW CEILING TO BE CONSTRUCTED. ELECTRIC RADIANT CEILING PANEL SHALL BE REINSTALLED IN NEW WORK. CIRCUIT TO REMAIN.
- 10 SHADED RECEPTACLE INDICATES AUTO-OFF CONTROLLABLE RECEPTACLE OUTLET. LABEL AND WIRE BOTTOM OUTLET AS CONTROLLABLE OUTLET. PROVIDE SEPARATE POWER PACK AND CONNECT TO LIGHTING OCCUPANCY SENSOR FOR CONTROL. (TYPICAL).
- 11 EDC-1: 208V, 3-PHASE, 8.3A MCA, 20A MOCPS.

EDC-1: 208V, 3-PHASE, 8.3A MCA, 20A MOCPS

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I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31509, EXPIRATION DATE: 04-29-2025



Project Number  
ELECTRICAL POWER FLOOR PLAN - DEMOLITION & NEW WORK

**E2.1**

### LUMINAIRE SCHEDULE

NOTES:  
1.  
2.  
3.  
4.  
5.

TYPE	DESCRIPTION	VOLTAGE	WATTS	CCT	LUMENS	MFR	CATALOG NUMBER
A	2x4 LED FLAT PANEL FIXTURE, STEEL HOUSING, WHITE REFLECTOR FINISH, ACRYLIC LENS, 0-10V DRIVER	277 V	29 W	4000K	3608	METALUX	24FP3140C
B	1x4 LED FLAT PANEL FIXTURE, STEEL HOUSING, WHITE REFLECTOR FINISH, ACRYLIC LENS, 0-10V DRIVER	277 V	25 W	4000K	3017	METALUX	14FP2940C

PANEL: LA (MOD) SERVICE: 208Y120V - 3P - 4W PROJ.: BUSHY PARK ELEM SCHOOL  
 MAIN BUS: 400 A MLO: --  
 SCRR: 10 KA NOTE:  
 MODIFIED PANEL MOUNT: SURFACE NOTE:  
 SECTION 1 of 2 LOCATI.: ELEC RM A27 NEMA.: 1

CKT NO.	BREAKER	LOAD				TYPE	DESCRIPTION	BREAKER	CKT NO.
		AMP	P	RM*	RM*				
1	20	1				(E) UNKNOWN	20	1	2
3	20	1				(E) S/E STAIRWELL WATER COOLER	20	1	4
5	20	1				(E) SOUTH ELEV. PIT GFCCI POWER	20	1	6
7	20	1				(E) A23 RECEPT	20	1	8
9	20	1				(E) A23B RECEPT	20	1	10
11	20	1				(E) A23 RECEPT	20	1	12
13	20	1				(E) ROOM A24 FAN/RECIP UNIT	20	1	14
15	20	1				(E) A28.43.22 RECEP.TS	20	1	16
17	20	1				(E) A42 GFCCI	20	1	18
19	20	1				(E) A18 RECEP.TS	20	1	20
21	20	1				(E) A17.05.15 RECEP.TS/A05 DOOR...	20	1	22
23	20	1				(E) A13 GFCCI/A11 GFCCI & FAN	20	1	24
25	20	1				(E) A08.A07 RECEP.TS	20	1	26
27	20	1				(E) A06.A05 RECEP.TS	20	1	28
29	20	1				(E) A39 QUAD RECEPT	20	1	30
31	20	1				(E) A44 GFCCI	20	1	32
33	20	1				(E) A44 GFCCI	20	1	34
35	20	1				(E) A44 RECEPT & HILO TV	20	1	36
37	20	1				(E) SPARE (ON)	20	1	38
39	20	1				(E) A02 RECEP.TS	20	1	40
41	20	1				(E) A93.A94 UNIT VENTS	20	1	42

CONN.: 12.7 19.0 16.7

LOAD TYPE: (D) DEDICATED, (H) HVAC, (M) MISC., (L) LIGHTING, (C) CONT., (K) KITCHEN, (R) RECEPT.

NOTE: (E) = EXISTING CIRCUIT AND BREAKER, (N) = PROVIDE CIRCUIT AND BREAKER

PANEL: LA (MOD) SERVICE: 208Y120V - 3P - 4W PROJ.: BUSHY PARK ELEM SCHOOL  
 MAIN BUS: 400 A MLO: --  
 SCRR: 10 KA NOTE:  
 MODIFIED PANEL MOUNT: SURFACE NOTE:  
 SECTION 2 of 2 LOCATI.: ELEC RM A27 NEMA.: 1

CKT NO.	BREAKER	LOAD				TYPE	DESCRIPTION	BREAKER	CKT NO.
		AMP	P	RM*	RM*				
43	20	1				(E) B02 A90 UNIT VENTS	20	1	44
45	20	1				(E) STAGE TRACK LIGHTS	20	1	46
47	20	1				(E) STAGE TRACK LIGHTS	20	1	48
49	20	1				(E) STAGE TRACK LIGHTS	20	1	50
51	20	1				(E) STAGE TRACK LIGHTS	20	1	52
53	20	1				(E) STAGE TRACK LIGHTS	20	1	54
55	20	1				(E) STAGE TRACK LIGHTS	20	1	56
57	20	1				(E) 2ND FLOOR UNIT VENTS	20	1	58
59	20	1				(E) UNKNOWN	20	1	60
61	20	1				(E) UNKNOWN	20	1	62
63	20	1				(E) ELEVATOR 208V TO PUMP	20	1	64
65	20	1				(E) A07 HTRS	20	1	66
67	20	1				(E) SPARE (ON)	20	1	68
69	20	1				(E) SPARE (ON)	20	1	70
71	20	1				(E) SPARE (ON)	20	1	72
73	35	2				(E) UNKNOWN	20	1	74
75	-	-				(E) UNKNOWN	20	1	76
77	50	2				(E) UNKNOWN COUNTER EQUIP	30	2	78
79	-	-				(E) UNKNOWN (RANGE)	50	2	80
81	50	2				(E) UNKNOWN (RANGE)	50	2	82
83	-	-				(E) UNKNOWN (RANGE)	-	-	84

CONN.: 12.7 19.0 16.7

LOAD TYPE: (D) DEDICATED, (H) HVAC, (M) MISC., (L) LIGHTING, (C) CONT., (K) KITCHEN, (R) RECEPT.

NOTE: (E) = EXISTING CIRCUIT AND BREAKER, (N) = PROVIDE CIRCUIT AND BREAKER

PANEL: CA (MOD) SERVICE: 208Y120V - 3P - 4W PROJ.: BUSHY PARK ELEM SCHOOL  
 MAIN BUS: 150 A MLO: --  
 SCRR: NOTE:  
 MODIFIED PANEL MOUNT: SURFACE NOTE:  
 SECTION 1 of 1 LOCATI.: ELEC... NEMA.: 1

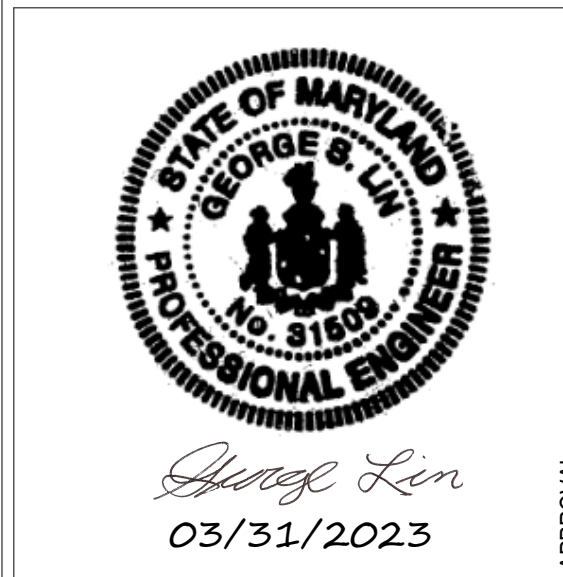
CKT NO.	BREAKER	LOAD				TYPE	DESCRIPTION	BREAKER	CKT NO.
		AMP	P	RM*	RM*				
1	20	1				(E) A05 FLOOR REC	20	1	2
3	20	1				(E) A07 REC	20	1	4
5	20	1				(E) A08 REC	20	1	6
7	20	1				(E) A05 REC	20	1	8
9	20	1				(E) A23 NW REC	20	1	10
11	20	1				(E) A23B REC	20	1	12
13	20	1				(E) A99 REC	20	1	14
15	20	1				(E) SPARE (ON)	20	1	16
17	20	1				(E) SPARE (ON)	20	1	18
19	20	3				(N) EDC-1	-	1	20
21	-	-				(E) SPACE	-	1	22
23	-	-				(E) SPACE	-	1	24
25	-	-				(E) SPACE	-	1	26
27	-	1				(E) SPACE	-	1	28
29	-	1				(E) SPACE	-	1	30
31	-	1				(E) SPACE	-	1	32
33	-	1				(E) SPACE	-	1	34
35	-	1				(E) SPACE	-	1	36
37	-	1				(E) SPACE	-	1	38
39	-	1				(E) SPACE	-	1	40
41	-	1				(E) SPACE	-	1	42

CONN.: 4.6 2.8 3.4

LOAD TYPE: (D) DEDICATED, (H) HVAC, (M) MISC., (L) LIGHTING, (C) CONT., (K) KITCHEN, (R) RECEPT.

NOTE: (E) = EXISTING CIRCUIT AND BREAKER, (N) = PROVIDE CIRCUIT AND BREAKER

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Project Number  
ELECTRICAL SCHEDULES

E7.1

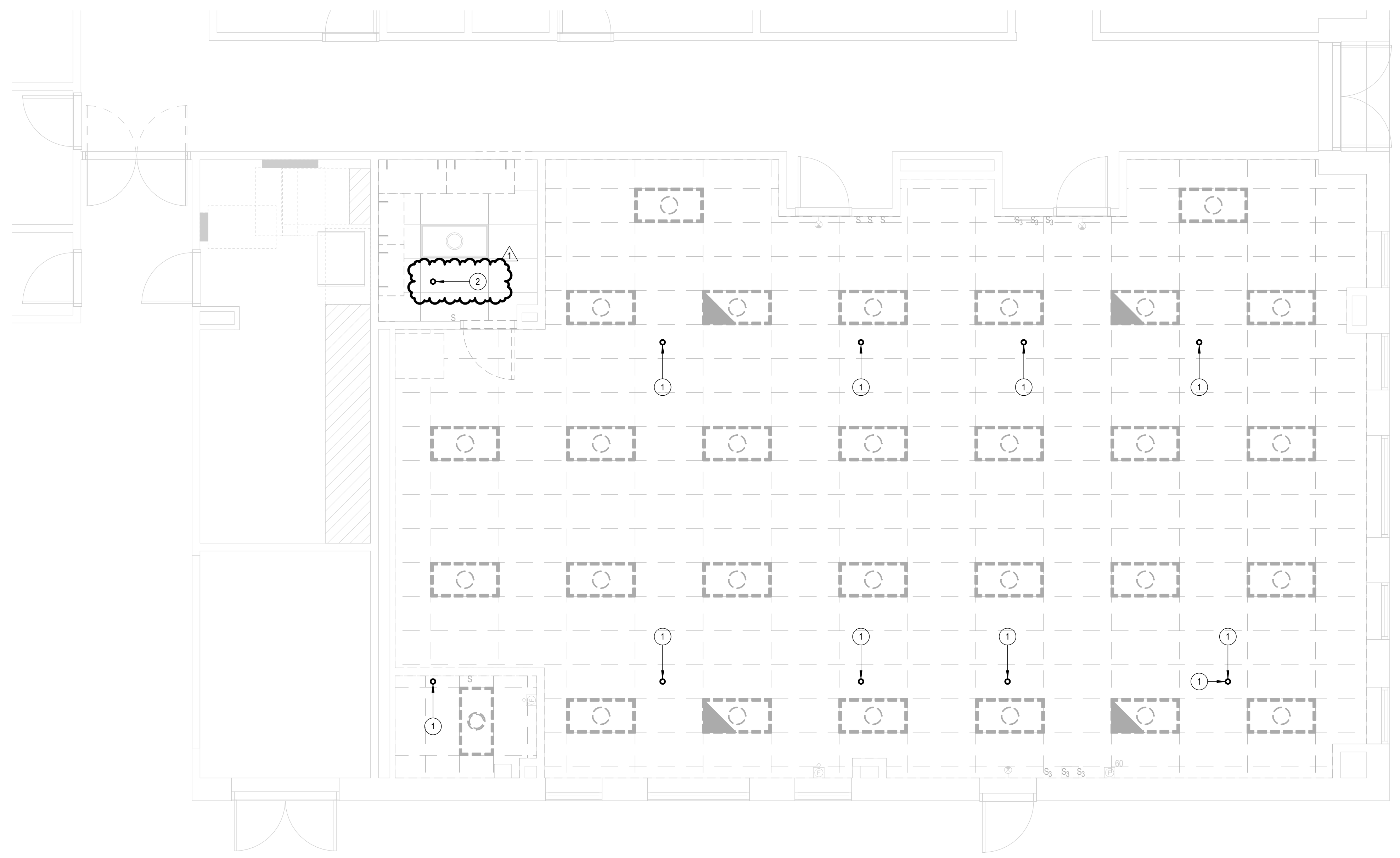
Addendum Docs/195-2102-00\_HCPSS Classroom Renovation/195-2102-00\_Bushy Park ES Classroom Reno\_MEP\_2023.rvt 3/31/2023 2:43:28 AM

**GENERAL NOTES**

A EXISTING FIRE SPRINKLER SYSTEM TO REMAIN UNLESS NOTED OTHERWISE. INDIVIDUAL HEADS TO BE RELOCATED TO COMPLY WITH NFPA 13-2019.

**SHEET NOTES**

- 1 REMOVE EXISTING SPRINKLER HEAD. RELOCATE BRANCH COORDINATE WITH NEW CEILING PLAN ON NEW SPRINKLER HEAD LOCATION AND PROVIDE NEW SPRINKLER HEAD.
- 2 EXISTING SPRINKLER HEAD AND ASSOCIATED BRANCH. BRING TO REMAIN.



**LEVEL 01 - FIRE PROTECTION DEMOLITION PLAN**

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

**BUSHY PARKES CLASSROOM RENOVATION**  
HOWARD COUNTY PUBLIC SCHOOLS  
14801 CARRS HILL RD, GLENWOOD, MD 21738

**PERMIT AND BID**  
03/01/2023  
REVISIONS  
1 3/31/2023 ADDENDUM NO. 2

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LICENSE NO.  
EXPIRATION DATE:

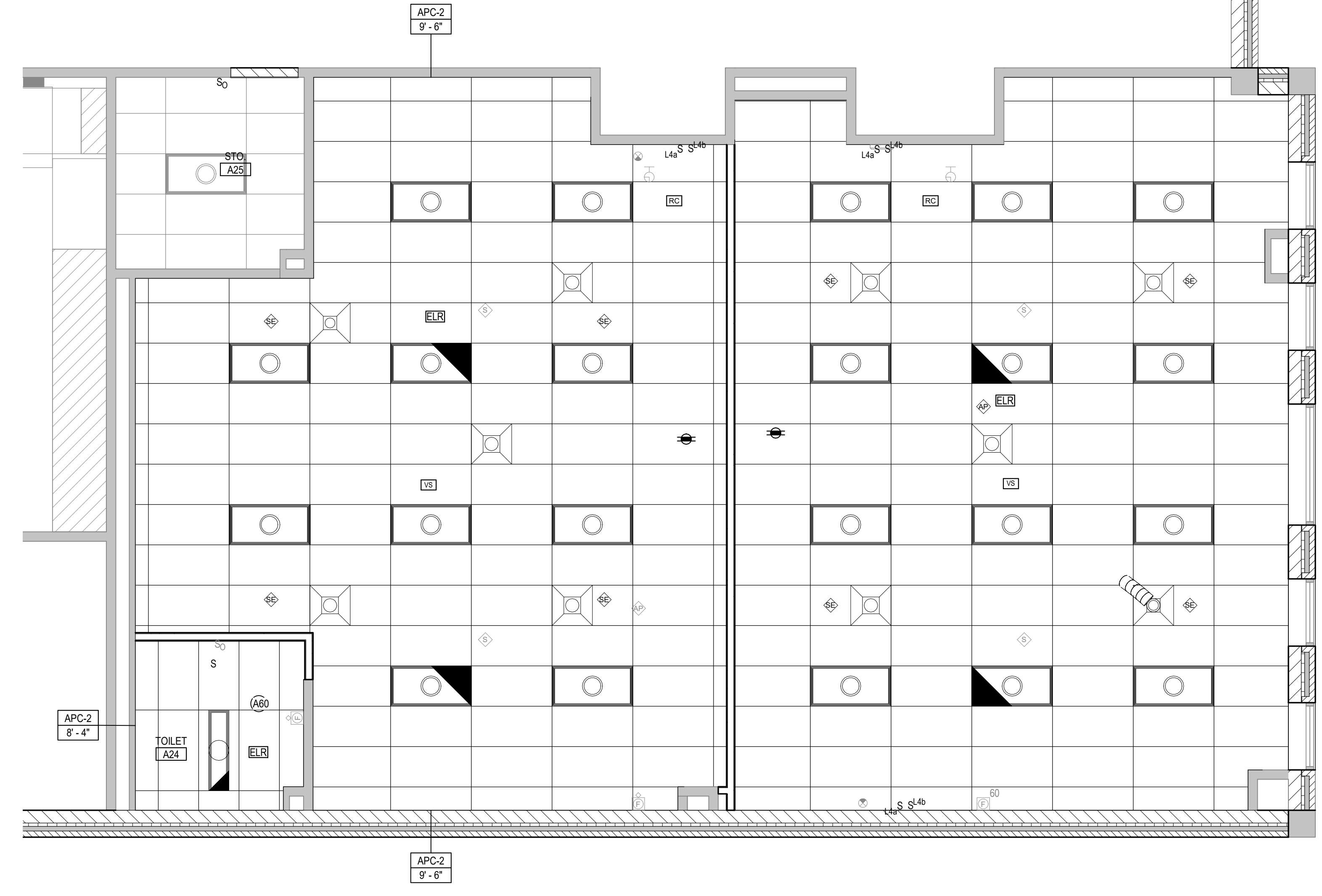


Project Number  
**LEVEL 01 - FIRE PROTECTION DEMOLITION PLAN**

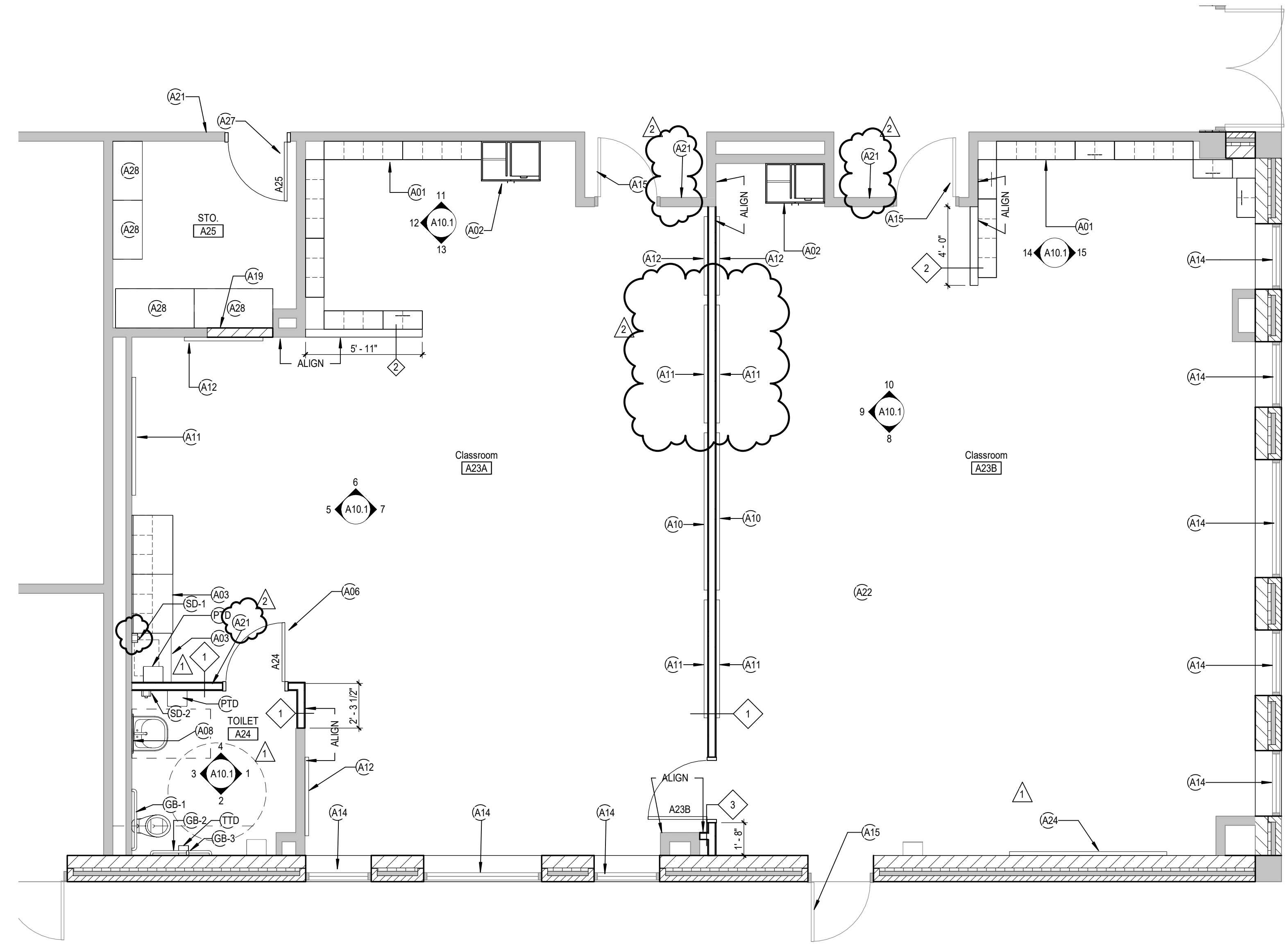
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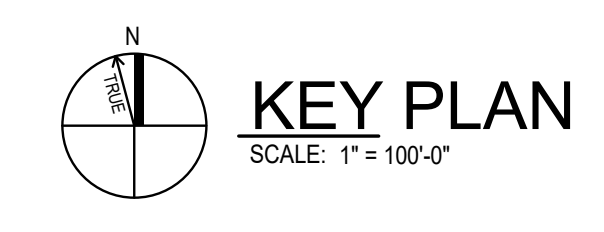
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5



**OVERALL REFLECTED CEILING PLAN, LEVEL 1**  
SCALE: 1/4" = 1'-0"



**OVERALL FLOOR PLAN, LEVEL 1**  
SCALE: 1/4" = 1'-0"



**GENERAL ARCHITECTURAL NOTES**

- ALL INTERIOR CMU WALLS SHALL BE 8 INCHES NOMINAL THICKNESS, UNLESS NOTED OTHERWISE.
- PARTITION TYPES SHALL BE DESIGNATED ON FLOOR PLANS (XX, X, XX) THIS SHEET AS 'F' FOR TYPES. ALL INTERIOR PARTITIONS ARE TYPE XX,XXX UNLESS NOTED OTHERWISE.
- ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE, PER PARTITION TYPE.
- PROVISIONS SHALL BE MADE AT ALL FULL HEIGHT NON-BEARING WALLS FOR 1-INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH MINERAL WOOL INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS. SEE DETAILS ON SHEET XXX.
- SEE STRUCTURAL DRAWINGS FOR BRACING OF NON-LOAD BEARING MASONRY WALLS.
- FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS, I.E. TOILET ACCESSORIES, CASEWORK, MILLWORK, WALL-MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
- GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
- MASONRY CONTROL JOINTS (CJ) AND CONTROL JOINTS ABOVE (CIA) SHALL BE LOCATED AS SHOWN ON THE FLOOR PLAN AND BUILDING ELEVATIONS, AND WHERE LARGE PLUMBING VENTS OR RISERS OCCUR IN SINGLE WYTHE MASONRY WALLS, AND WHERE MASONRY WALLS BEARING ON CONCRETE FOOTINGS OR AS INDICATED ON DRAWINGS.
- "MBD" AND "TBD" INDICATE MARKER BOARDS AND TACK BOARDS ON PLANS. THE LENGTH PRECEDES THE DESIGNATION (EXAMPLE: "12 MBD"). ALL BOARDS ARE 4'-0" TALL. SEE WALL ELEVATIONS OR SPECIFICATIONS FOR MOUNTING HEIGHT.
- EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
- SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
- PROVIDE SEISMIC BRACING FOR SUSPENDED CEILINGS OR AS SHOWN ON THE DRAWINGS.

**REFLECTED CEILING PLAN GENERAL NOTES**

- REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
- ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
- CEILING HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
- ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, AND OTHER CEILING MOUNTED DEVICES, SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3-INCH RADIUS CENTERED BETWEEN CEILING GRIDS.
- IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCE IN NOTE D IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR ACP WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH THE ARCHITECT.
- PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, AND OTHER CEILING MOUNTED DEVICES AT ACOUSTICAL PANEL CEILINGS.
- ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
  - FACE OF FINISHED WALL
  - FACE OF FINISHED BULKHEADS
  - CENTERLINE OF COLUMNS
  - CENTERLINE OF TEES
- IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH REPRESENTATIVE SUBCONTRACTOR.
- ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 4 INCHES ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

**REFERENCE KEYNOTES**

A01	CASEWORK, PRE-K STORAGE CUBBIES.
A02	CASEWORK, AUDIO / VIDEO WARDROBE. SEE INTERIOR ELEVATIONS AND DETAILS.
A03	CASEWORK. SEE INTERIOR ELEVATIONS AND DETAILS.
A06	SINK. SEE PLUMBING DRAWINGS.
A08	MIRROR.
A10	PROJECTION BOARD, 6'-6" X 4'.
A11	MARKER BOARD (MBD), 4' X 4'.
A12	TACK BOARD (TBD), 4' X 4'.
A14	PROVIDE NEW ALUMINUM WINDOW BLINDS AT EACH CLASSROOM WINDOW. VERIFY DIMENSIONS ON SITE.
A15	EXISTING DOOR TO REMAIN.
A19	INFILL PARTITION TO MATCH EXISTING CMU PARTITION.
A21	ROOM STORAGE TO MATCH EXISTING.
A22	NEW VCT FLOORING.
A24	EXISTING TO REMAIN, MARKER BOARD.
A27	INSTALL SALVAGED DOOR WITH NEW HM FRAME. SEE LINTEL SCHEDULE AND DETAIL 304.2.
A28	REINSTALL SALVAGED METAL SHELVING UNITS.
A60	ACOUSTICAL CEILING TILE + GRID (APC-1).
GB-1	GRAB BAR (BACK WALL)
GB-2	GRAB BAR (SIDE WALL)
GB-3	GRAB BAR (VERTICAL)
PTD	PAPER TOWEL DISPENSER
SD-1	SOAP DISPENSER, ADULT HEIGHT
SD-2	SOAP DISPENSER, CHILD HEIGHT
TTD	TOILET TISSUE DISPENSER

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16988, EXPIRATION DATE: 07-09-2024.

**PERMIT AND BID**

03/01/2023	REVISIONS
1 ADDENDUM NO. 1	03-16-2023
2 ADDENDUM NO. 2	03-31-2023

56-23102-00  
**LEVEL 01 - FLOOR PLAN AND RCP**

**A1.1**

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**REFLECTED CEILING PLAN  
GENERAL NOTES**

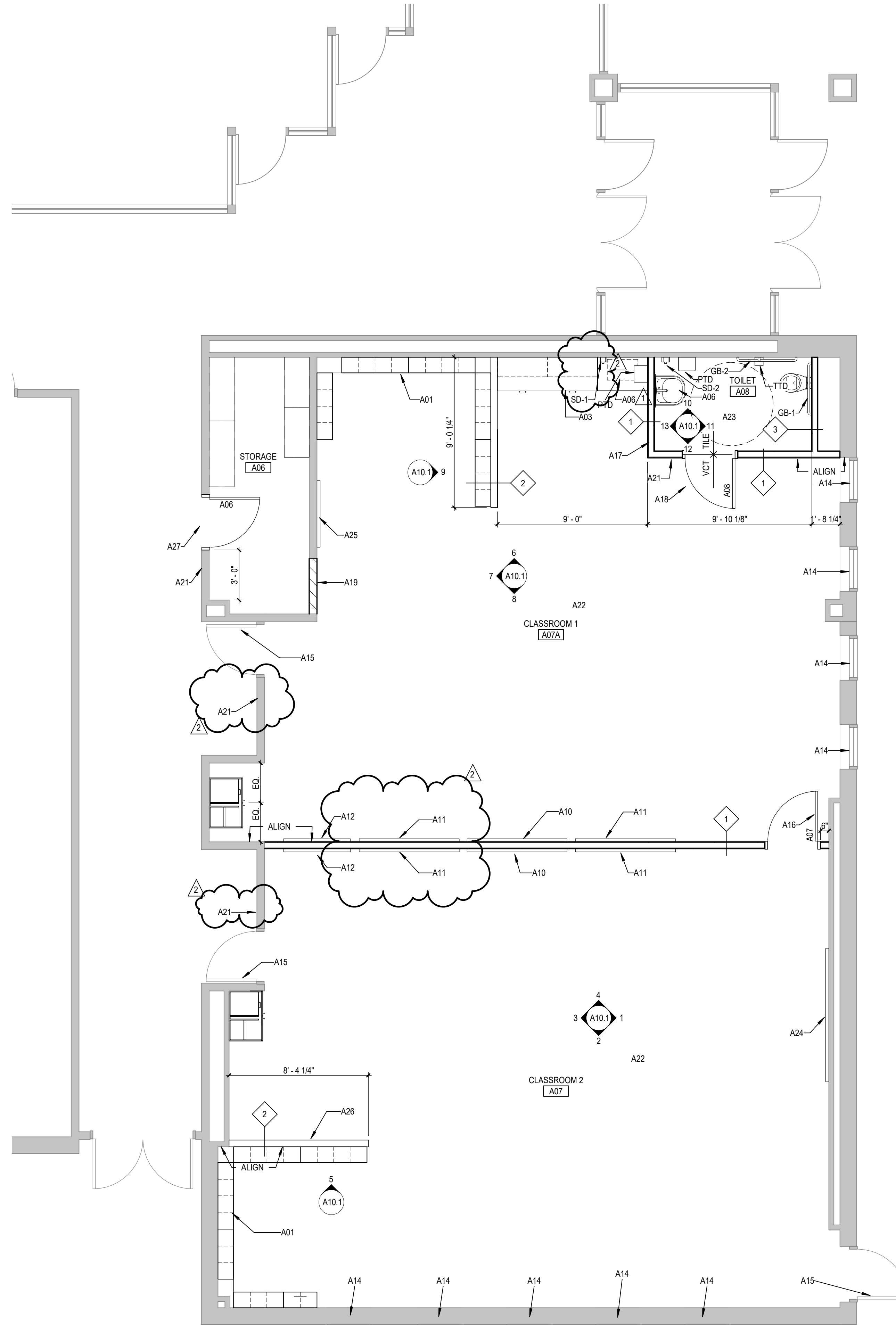
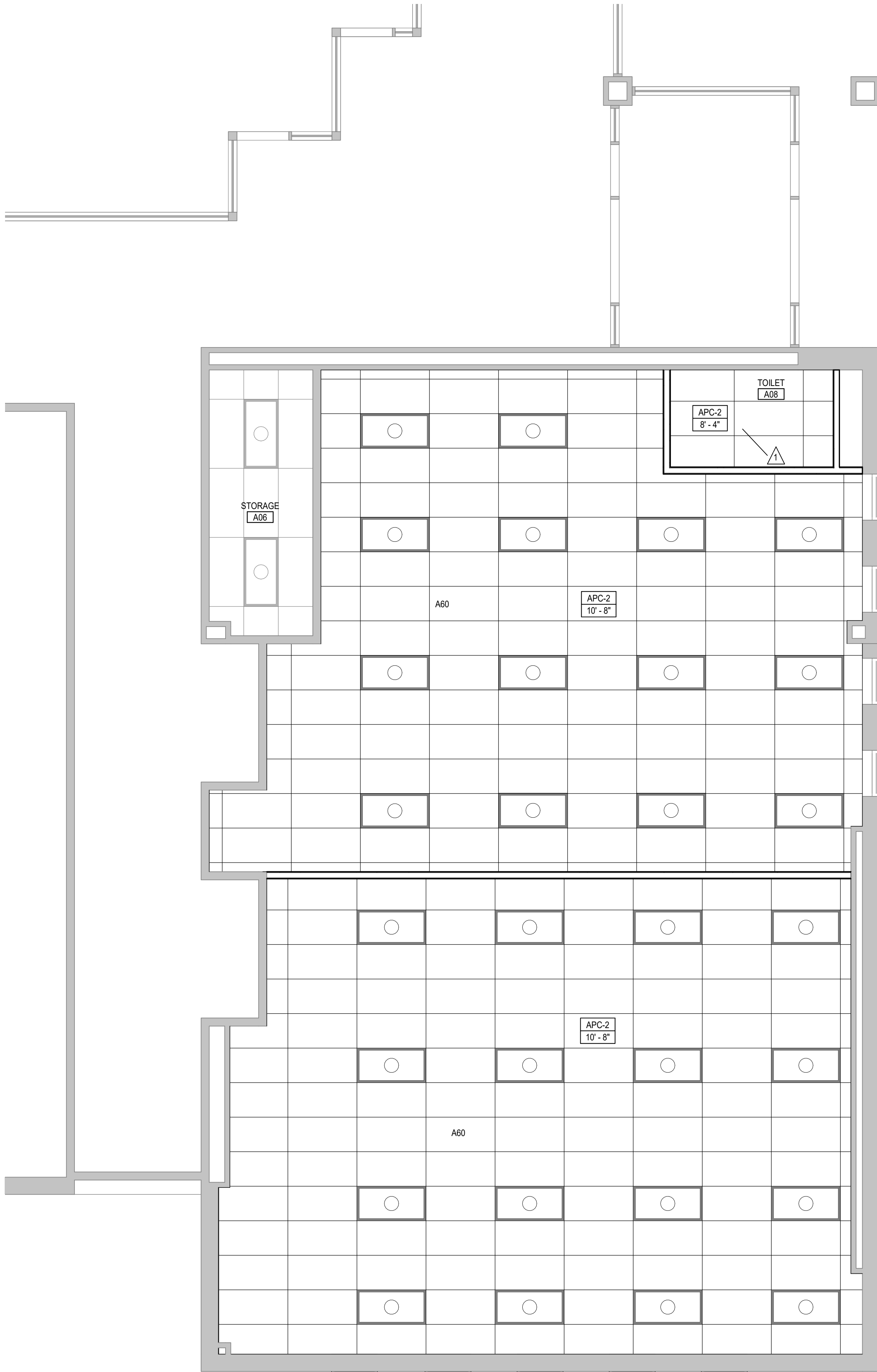
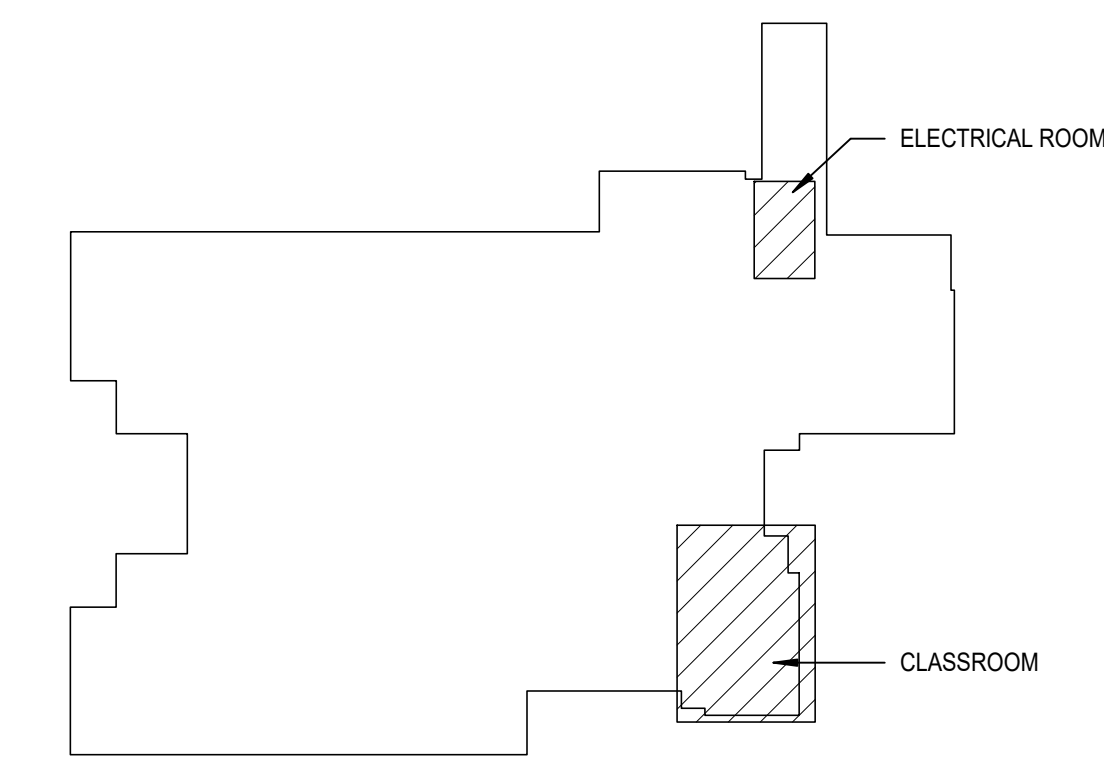
- A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
- B. ALL CEILING GRID PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
- C. CEILING HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS AND MEASURED FROM THE FINISH FLOOR OF THE ROOM.
- D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, AND OTHER CEILING MOUNTED DEVICES, SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3-INCH RADIUS CENTERED BETWEEN CEILING GRIDS.
- E. IN ACoustICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCE IN NOTE D IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR ACP WITH MULTIPLE SCORE PATTERNS, COORDINATE LOCATION WITH THE ARCHITECT.
- F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, AND OTHER CEILING MOUNTED DEVICES. AT ACoustICAL PANEL CEILING.
- G. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
  - a. FACE OF FINISHED BULKHEADS
  - b. FACE OF FINISHED BULKHEADS
  - c. CENTERLINE OF COLUMNS
  - d. CENTERLINE OF TEES
- H. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH REPRESENTATIVE SUBCONTRACTOR.
- I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 4 INCHES ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

**GENERAL ARCHITECTURAL NOTES**

- 1. ALL INTERIOR CMU WALLS SHALL BE 8 INCHES NOMINAL THICKNESS, UNLESS NOTED OTHERWISE.
- 2. PARTITION TYPES SHALL BE DESIGNATED ON FLOOR PLANS (XX.XX) THIS: SEE SHEET A8 FOR TYPES. ALL INTERIOR PARTITIONS ARE TYPE XX.XX UNLESS NOTED OTHERWISE.
- 3. ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE, PER PARTITION TYPE.
- 4. PROVISIONS SHALL BE MADE AT ALL FULL HEIGHT NON-BEARING WALLS FOR 1-INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH MINERAL WOOL INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS. SEE DETAILS ON SHEET XXX.
- 5. SEE STRUCTURAL DRAWINGS FOR BRACING OF NON-LOAD BEARING MASONRY WALLS.
- 6. FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS, I.E. TOILET ACCESSORIES, CASEWORK, MILLWORK, WALL-MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
- 7. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
- 8. MASONRY CONTROL JOINTS (CJ) AND CONTROL JOINTS ABOVE (CJA) SHALL BE LOCATED AS SHOWN ON THE FLOOR PLAN AND BUILDING ELEVATIONS, AND WHERE LARGE PLUMBING VENTS OR RISERS OCCUR IN SINGLE WYTHE MASONRY WALLS, AND WHERE MASONRY WALLS BEARING ON THE CONCRETE FLOOR SLAB ABUT MASONRY WALLS BEARING ON CONCRETE FOOTINGS OR AS INDICATED ON DRAWINGS.
- 9. "MBD" AND "TBD" INDICATE MARKER BOARDS AND TACK BOARDS ON PLANS. THE LENGTH PRECEDES THE DESIGNATION (EXAMPLE: 10" MBD). ALL BOARDS ARE 4'-0" TALL. SEE WALL ELEVATIONS OR SPECIFICATIONS FOR MOUNTING HEIGHT.
- 10. EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
- 11. SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
- 12. PROVIDE SEISMIC BRACING FOR SUSPENDED CEILINGS OR AS SHOWN ON THE DRAWINGS.

**REFERENCE KEYNOTES**

- A01 CASEWORK, PRE-K STORAGE CUBBIES.
- A03 CASEWORK, SEE INTERIOR ELEVATIONS AND DETAILS.
- A06 SINK, SEE PLUMBING DRAWINGS.
- A10 PROJECTION BOARD, 6'-5" X 4'.
- A11 MARKER BOARD (MBD).
- A12 TACK BOARD (TBD), 4' X 4'.
- A14 PROVIDE NEW ALUMINUM WINDOW BLINDS AT EACH CLASSROOM WINDOW, VERIFY DIMENSIONS ON SITE.
- A15 EXISTING DOOR TO REMAIN.
- A16 NEW HM DOOR AND FRAME WITH LITE (3'X 33"). PAINTED.
- A17 5/8" THK GYPSUM DRYWALL PARTITION SYSTEM WITH BATT INSULATION ON 3-5/8" 20 GA. METAL STUDS AT 16" O.C.
- A18 NEW HM DOOR AND FRAME, PAINTED.
- A19 INFILL PARTITION TO MATCH EXISTING CMU PARTITION.
- A21 ROOM SIGNAGE TO MATCH EXISTING.
- A22 NEW VCT FLOORING.
- A23 NEW CERAMIC TILE FLOORING.
- A24 EXISTING TO REMAIN, MARKER BOARD.
- A25 EXISTING TO REMAIN, TACK BOARD.
- A26 NEW PARTITION HEIGHT OF CUBBIES, 4 FT HIGH. INSTALL SALVAGED DOOR WITH NEW HM FRAME. SEE LITEL SCHEDULE AND DETAIL 3/8.2
- A27
- A60 ACOUSTICAL CEILING TILE + GRID (APC-1).
- GB-1 GRAB BAR (BACK WALL)
- GB-2 GRAB BAR (SIDE WALL)
- PTD PAPER TOWEL DISPENSER
- SD-1 SOAP DISPENSER, ADULT HEIGHT
- SD-2 SOAP DISPENSER, CHILD HEIGHT
- TTD TOILET TISSUE DISPENSER



**PROPOSED RCP CLASSROOM**  
SCALE: 1/4" = 1'-0"

**PROPOSED PLAN CLASSROOM**  
SCALE: 1/4" = 1'-0"

**PERMIT AND BID**  
03/01/2023  
REVISIONS  
1 Addendum No. 1 03-16-2023  
2 Addendum No. 2 03-31-2023

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16986, EXPIRATION DATE: 07-09-2024.

56-23102-00  
**LEVEL 01 - FLOOR PLAN & RCP**

**A1.1**

A

B

C

D

E

F

1

2

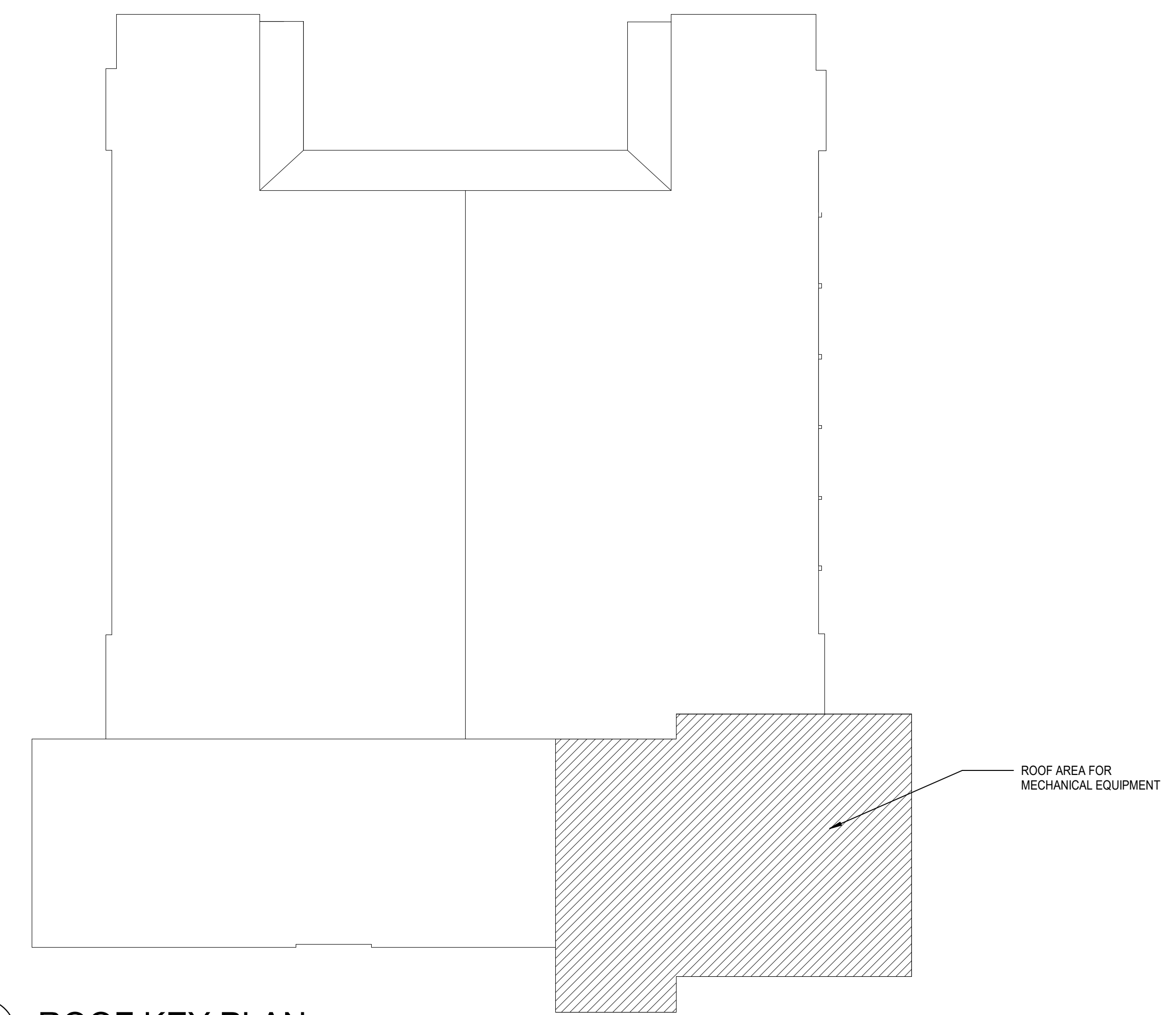
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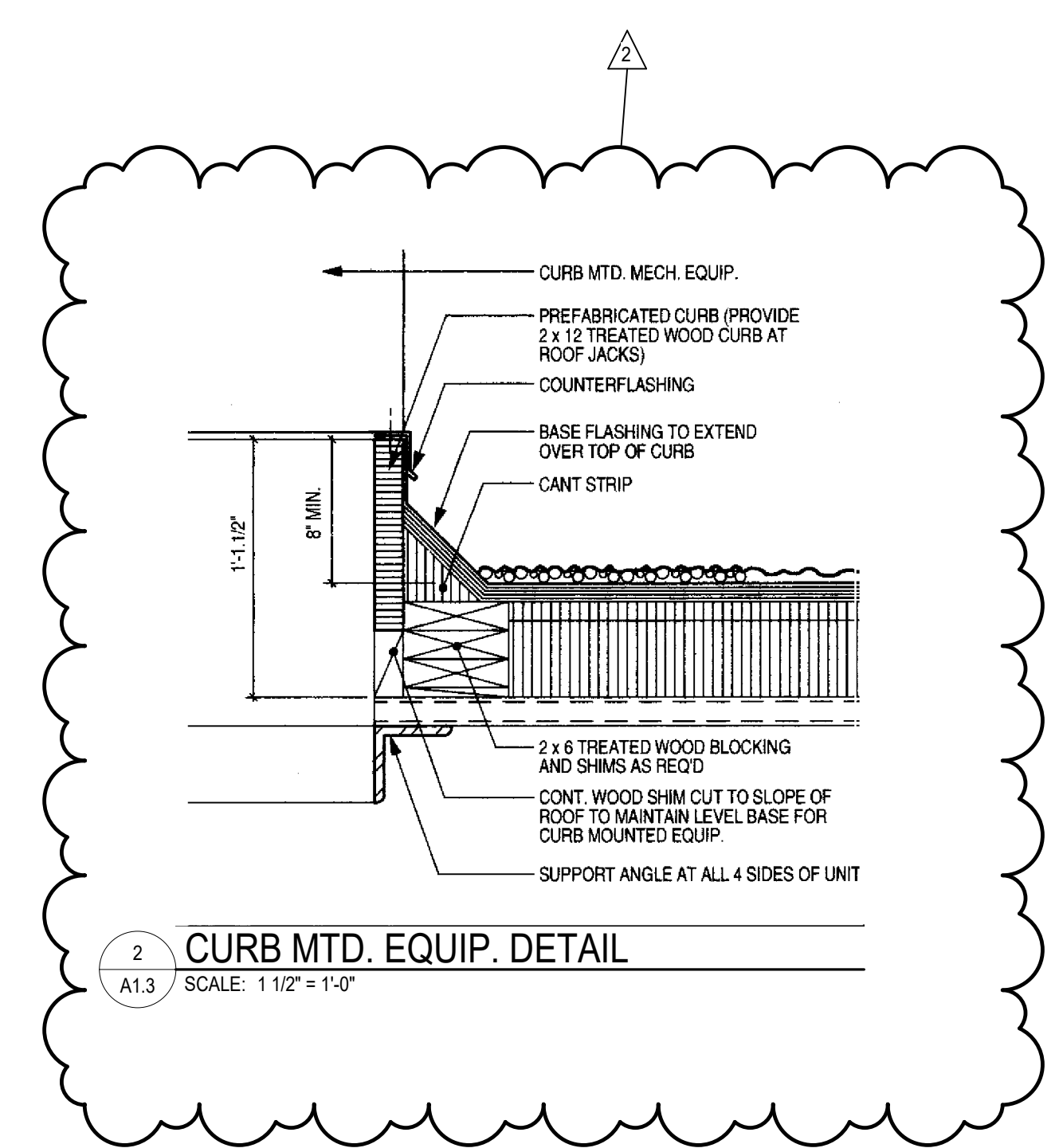
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ROOF PLAN GENERAL NOTES

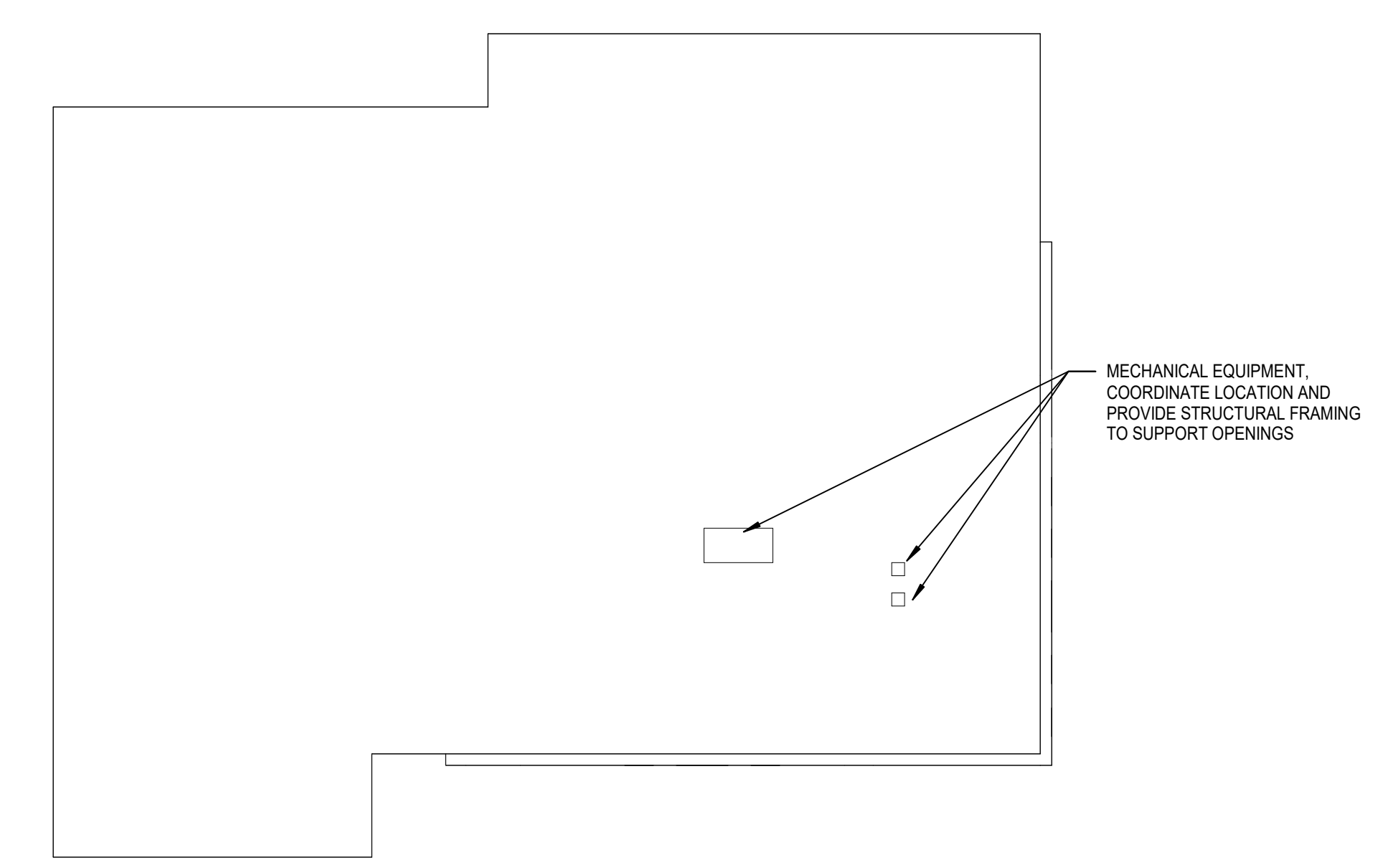
- A. ALL ROOF CURBS TO BE A MINIMUM OF 8 INCHES ABOVE ROOFING LEVELS. PROVIDE TAPERED INSULATION ROOF SADDLES AT ROOF CURBS TO PROVIDE DRAINAGE AROUND CURB.
- B. DELEGATED DESIGN FOR FRAMING AROUND ROOF PENETRATIONS.
- C. COORDINATE THE SIZE AND LOCATION OF ROOF PENETRATIONS FOR MECHANICAL AND ELECTRICAL EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR PENETRATIONS NOT SHOWN ON THIS DRAWING.
- D. FLASH DRAINS, CURBS, VENTS AND STACKS PER MANUFACTURER'S RECOMMENDATIONS IF DETAIL NOT SHOWN ON DRAWINGS.
- E. NO ROOF PENETRATIONS ALLOWED WITHIN 4'-0" EACH SIDE OF FIREWALL.



**ROOF KEY PLAN**  
SCALE: 1/32" = 1'-0"

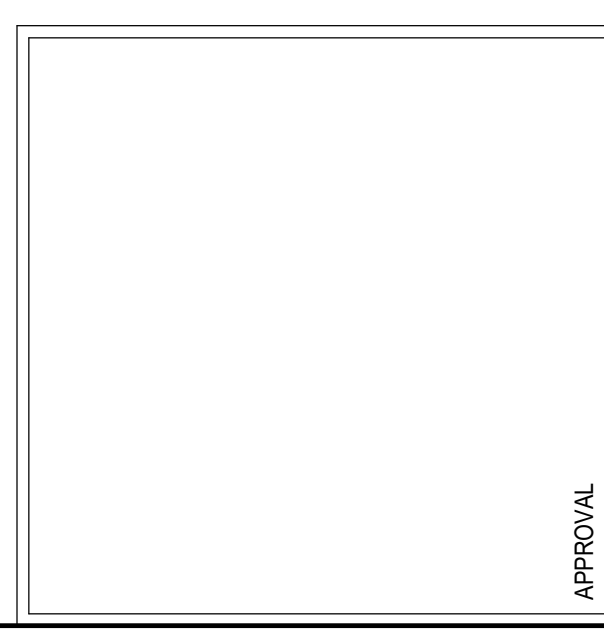


**2 CURB MTD. EQUIP. DETAIL**  
A1.3 SCALE: 1 1/2" = 1'-0"



**Partial Roof Plan**  
SCALE: 1/16" = 1'-0"

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 HOWARD COUNTY PUBLIC SCHOOLS  
 4891 TEN OAKS RD. DAYTON, MD 21086

PERMIT AND BID  
 03/01/2023  
 REVISIONS

2 ADDENDUM NO. 2 03-31-2023

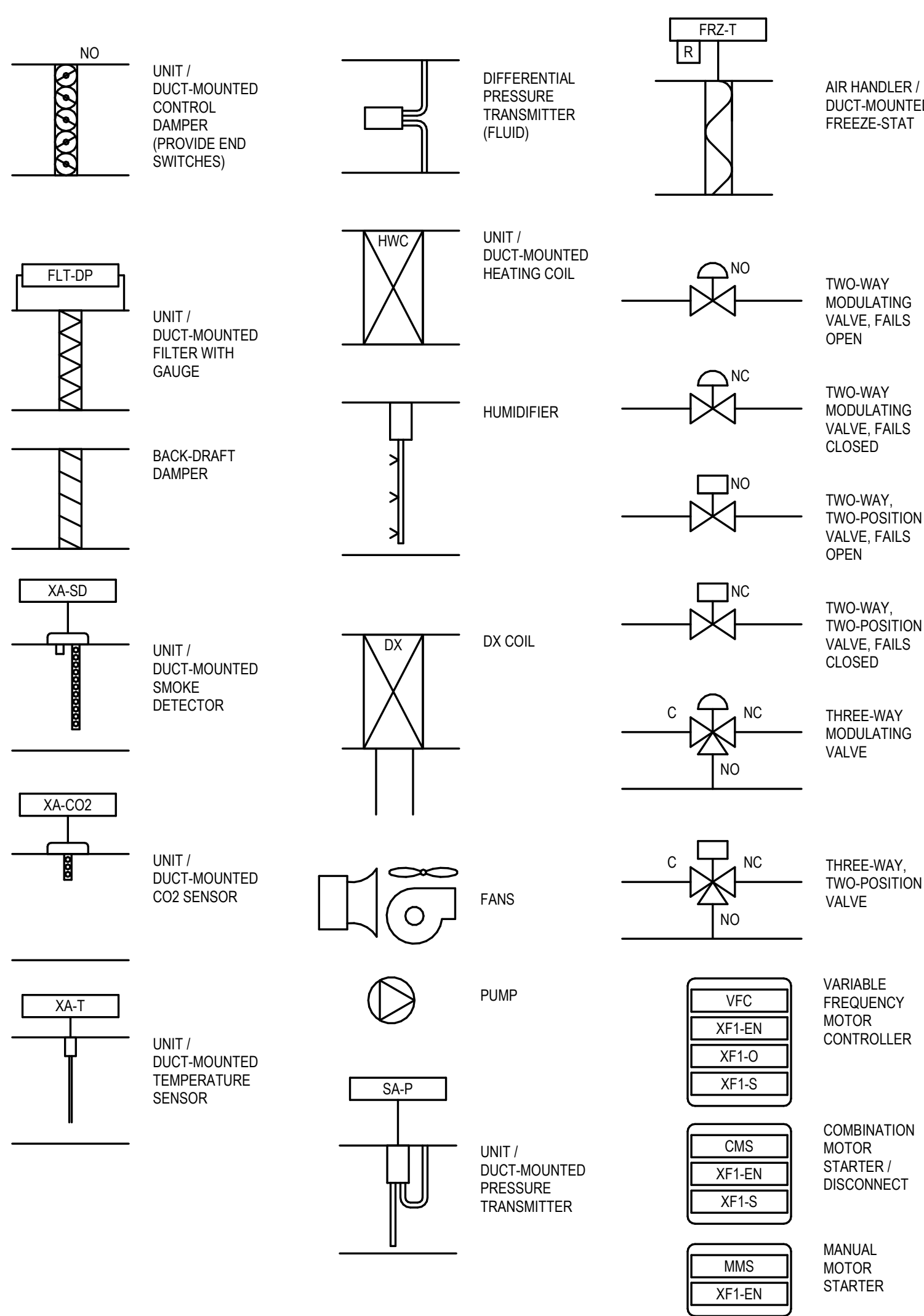
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 ROOF PLAN

A1.3

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**CONTROL DIAGRAM EQUIPMENT SYMBOLS**



**GENERAL NOTES FOR CONTROLS**

- UNLESS OTHERWISE NOTED, ALL CONTROLS SHALL BE DIRECT DIGITAL TYPE (DDC) AND ACTUATORS SHALL BE ELECTRIC. ALL NEW CONTROL SYSTEMS AND COMPONENTS SHALL BE COMPATIBLE WITH AND FULLY INTEGRATED INTO THE EXISTING BUILDING AUTOMATION SYSTEM.
- ALL SENSORS SHALL INCLUDE PROVISIONS FOR FIELD CALIBRATION.
- ALL SETPOINTS INDICATED IN THE SEQUENCES SHALL BE ADJUSTABLE AT THE HOST COMPUTER WORKSTATION AND VIA A LAPTOP COMPUTER CONNECTED TO ANY BAS CONTROL PANEL OR CONTROLLER.
- THE BUILDING AUTOMATION SYSTEM SHALL BE CONNECTED TO STANDBY POWER AND PROVIDED WITH NONVOLATILE MEMORY FOR SEAMLESS OPERATION THROUGH POWER FLUCTUATIONS. FAIL-SAFE POSITIONS INDICATED ARE POSITIONS THAT DEVICES WILL GO TO WHEN DEENERGIZED. WHENEVER AN ALARM IS INITIATED, THE BAS SHALL RETAIN IN MEMORY THE READINGS AND SET POINTS OF EACH DEVICE TO ASSIST THE OPERATOR TO ISOLATE THE CAUSE OF THE ALARM.
- REFER TO FLOOR PLANS FOR THE LOCATIONS OF ALL SPACE MOUNTED SENSORS AND TRANSMITTERS. TEMPERATURE TRANSMITTERS ARE INDICATED (T), HUMIDITY TRANSMITTERS ARE INDICATED (H), PRESSURE TRANSMITTERS ARE INDICATED (P) AND GAS SENSORS ARE INDICATED (G) OR CO2.
- EACH SEQUENCE WITH A DEFINED OCCUPIED PERIOD SHALL HAVE THE PERIOD ADJUSTABLE GLOBALLY (SO THAT ALL CAN BE ON THE SAME TIME FRAME) AND INDIVIDUALLY (SO THAT ANY ONE OPERATION CAN HAVE A DIFFERENT OCCUPIED PERIOD).
- VARIABLE FREQUENCY MOTOR CONTROLLER, VFC, THE HAND-OFF-AUTOMATIC SWITCH ON THE VFC SHALL PROVIDE FOR THE FOLLOWING BASIS OF CONTROL:
  - HAND POSITION: THE DDC SYSTEM SHALL HAVE NO CONTROL OVER THE MOTOR SPEED NOR SHALL IT BE ABLE TO START OR STOP THE MOTOR (EXCEPT FOR SAFETY PURPOSES WHERE THE MOTOR SHALL SHUT DOWN). THE MOTOR SHALL RUN UNDER SPEED CONTROL FROM THE HAND POTENTIOMETER ON THE VFC. ALL SAFETIES CONTROLLING THE SHUTDOWN SHALL BE OPERATIONAL (i.e. SMOKE DETECTORS, PRESSURE SWITCHES, ETC). TEMPERATURE AND HUMIDITY CONTROL SHALL BE AVAILABLE THROUGH THE BAS SYSTEM.
  - OFF POSITION: THE MOTOR SHALL BE OFF. THE BAS SYSTEM SHALL NOT CONTROL THE MOTOR. ALL OTHER CONTROL POINTS SHALL BE IN THEIR FAIL-SAFE POSITION.
  - AUTOMATIC POSITION: THE MOTOR SHALL BE CONTROLLED BY THE DDC SYSTEM AS DESCRIBED HEREIN.
- THE TERMS "VARIABLE FREQUENCY CONTROLLER (VFC) AND VARIABLE FREQUENCY DRIVE (VFD) ARE USED INTERCHANGEABLY. SOME FANS AND PUMPS MAY USED SOLID-STATE CONTROL WITH ELECTRONICALLY COMMUTATED MOTORS.
- SEQUENCES OF OPERATIONS OUTLINED (UNLESS OTHERWISE SPECIFIED) SHALL BE PERFORMED BY DIRECT DIGITAL CONTROL FIELD PANELS CONNECTED TO A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). ADDRESS IDENTIFIERS FOR ALL POINTS AND VARIABLES SHOWN IN THE DIAGRAMS SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER. UNLESS OTHERWISE SPECIFIED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE BY THE OPERATOR THROUGH THE BAS AND THROUGH MENU ACCESS AT THE LOCAL TERMINAL/UNITARY CONTROLLER WITHOUT ANY HARDWARE OR SOFTWARE REVISIONS. MONITORING OF ALL FUNCTIONS SHALL BE AVAILABLE AT THE BAS AND AT THE DDC/F. PROVIDE MENU-DRIVEN CAPABILITY FOR THE OPERATOR TO OVERRIDE AUTOMATED START/STOP SEQUENCES FOR EACH PIECE OF EQUIPMENT (PUMPS, AIR HANDLERS, ETC). IF A SEQUENCE IS DISABLED BY THE OPERATOR BUT AN AUTOMATIC START IS INITIATED, THE SYSTEM SHALL ISSUE AN ALARM STATING THAT THE EQUIPMENT WAS UNABLE TO START/STOP DUE TO USER INPUT. THE BAS SYSTEM SHALL THEN ATTEMPT TO START THE NEXT SEQUENTIAL PIECE OF EQUIPMENT.
- THE CONTROL SYSTEM SHALL MONITOR PRESSURES, TEMPERATURES AND FLOWS AND SHALL CONTROL VALVES, DAMPERS, VARIABLE FREQUENCY CONTROLLERS (VFC), FANS, AND PUMPS. MONITORED DATA WILL BE USED TO ENERGIZE OR DEENERGIZE FANS, PUMPS, ETC.
- ALL EQUIPMENT CONTROLLED BY THE DDC SYSTEM SHALL BE CAPABLE OF MANUAL OPERATION THROUGH HAND-OFF-AUTOMATIC (HOA) SWITCHES IN STARTERS PROVIDED. THE POSITIONS OF ALL VALVES CONTROLLED BY THE BAS SHALL BE CAPABLE OF MANUAL POSITIONING (OPEN, CLOSED, MODULATED, AUTO) VIA LABELED POTENTIOMETERS AND MANUAL SWITCHES PROVIDED BY DIVISION 28.
- COORDINATE ALL SENSOR INSTALLATIONS AND SUBMIT PROPOSED LOCATIONS ON PIPING AND DUCT COORDINATION DRAWINGS. COORDINATE TO INSURE THAT THE SENSOR MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM CONDITIONS ARE PROVIDED (ESPECIALLY FLOW ELEMENTS AND TRANSMITTERS).
- PROVIDE ADEQUATE DAMPING OF ALL MODULATING CONTROL LOOPS TO PREVENT HUNTING.
- IF ANY LOCAL TERMINAL OR UNITARY CONTROLLER OR EQUIPMENT MANUFACTURER'S CONTROL SYSTEM LOSES COMMUNICATION WITH THE BAS NETWORK, AN ALARM SHALL BE GENERATED BY THE BAS INDICATING THE LOCATION OF THE FAULT.
- DDC SYSTEM SHALL BE CAPABLE OF PROVIDING CONTROL LOGIC INCLUDING MONITORING ZONE AND SYSTEM DEMAND FOR FAN PRESSURE, PUMP PRESSURE, HEATING, AND COOLING. TRANSFERRING ZONE AND SYSTEM DEMAND INFORMATION FROM ZONES TO AIR DISTRIBUTION SYSTEM CONTROLLERS AND FROM AIR DISTRIBUTION SYSTEMS TO HEATING AND COOLING PLANT CONTROLLERS. AUTOMATICALLY DETECTING AND ALERTING SYSTEM OPERATOR WHEN ZONES AND SYSTEMS EXCESSIVELY DRIVE THE RESET LOGIC. ALLOW OPERATOR REMOVAL OF ZONE(S) FROM THE RESET ALGORITHM, AND CAPABLE OF TRENDDING AND GRAPHICALLY DISPLAYING INPUT AND OUTPUT POINTS.
- THE BAS SHALL COMPLY WITH ALL DDC REQUIREMENTS OF ASHRAE STANDARD 90.1-2013 CHAPTER 6 (2011 DC ENERGY CODE).

**CONTROLS ARCHITECTURE DIAGRAM 1**

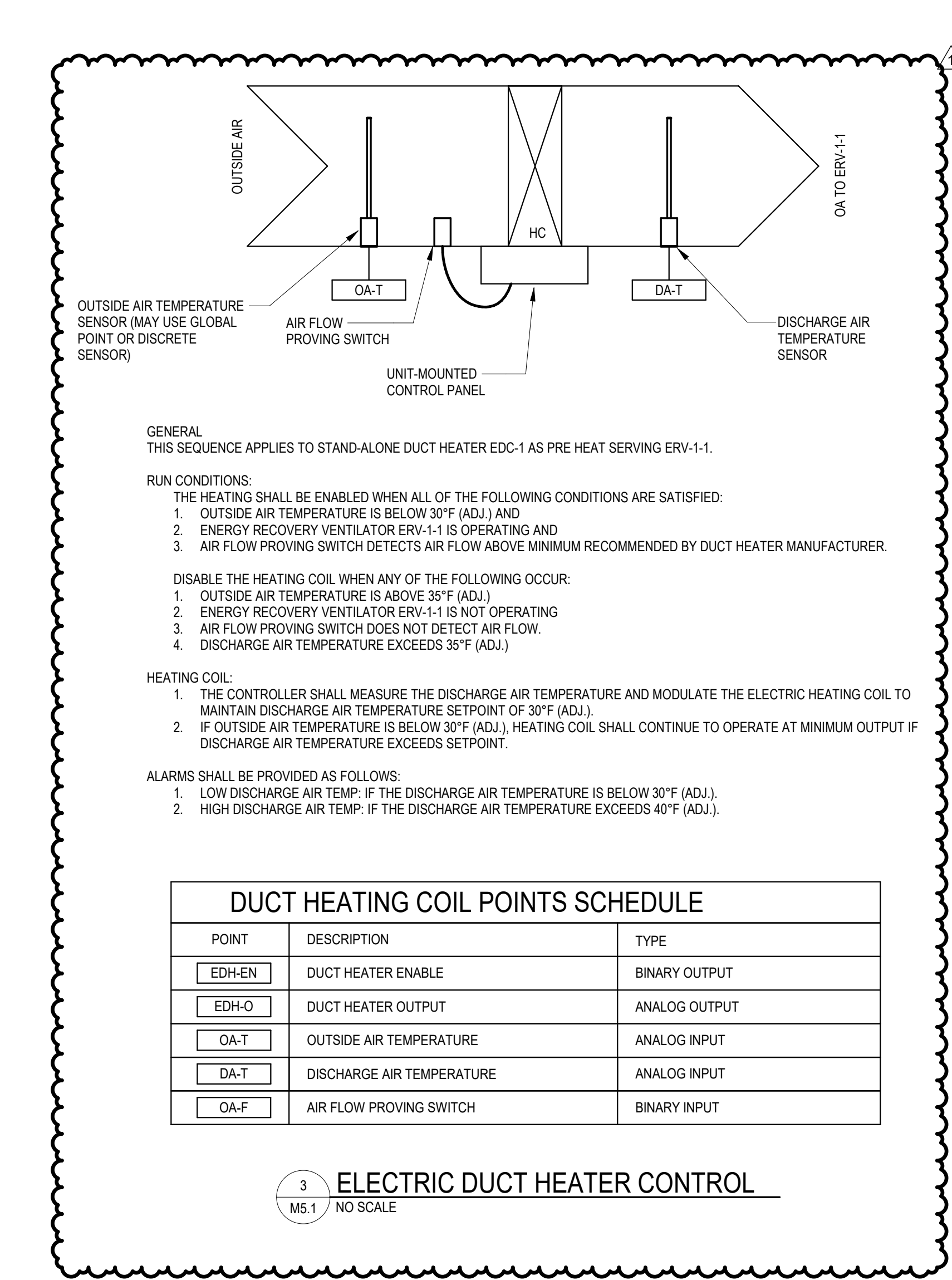
M5.1 NO SCALE

**GENERAL NOTES ON SEQUENCES OF OPERATIONS**

- SEQUENCES OF OPERATIONS OUTLINED (UNLESS OTHERWISE SPECIFIED) SHALL BE PERFORMED BY DIRECT DIGITAL CONTROL FIELD PANELS CONNECTED TO A CENTRAL BUILDING AUTOMATION SYSTEM (BAS). ADDRESS IDENTIFIERS FOR ALL POINTS AND VARIABLES SHOWN IN THE DIAGRAMS SHALL BE COORDINATED WITH AND APPROVED BY THE ENGINEER. UNLESS OTHERWISE SPECIFIED, ALL SETPOINTS AND TIME DELAYS SHALL BE ADJUSTABLE BY THE OPERATOR THROUGH THE BAS AND THROUGH MENU ACCESS AT THE LOCAL TERMINAL/UNITARY CONTROLLER WITHOUT ANY HARDWARE OR SOFTWARE REVISIONS. MONITORING OF ALL FUNCTIONS SHALL BE AVAILABLE AT THE BAS AND AT THE DDC/F. PROVIDE MENU-DRIVEN CAPABILITY FOR THE OPERATOR TO OVERRIDE AUTOMATED START/STOP SEQUENCES FOR EACH PIECE OF EQUIPMENT (PUMPS, AIR HANDLERS, ETC). IF A SEQUENCE IS DISABLED BY THE OPERATOR BUT AN AUTOMATIC START IS INITIATED, THE SYSTEM SHALL ISSUE AN ALARM STATING THAT THE EQUIPMENT WAS UNABLE TO START/STOP DUE TO USER INPUT. THE BAS SYSTEM SHALL THEN ATTEMPT TO START THE NEXT SEQUENTIAL PIECE OF EQUIPMENT.
  - THE DESIGN INTENT IS FOR THE CONTROL SYSTEM TO MONITOR PRESSURES, TEMPERATURES AND FLOWS AND TO CONTROL VALVES, VARIABLE FREQUENCY DRIVES (VFD), FANS, AND PUMPS. MONITORED DATA WILL BE USED TO ENERGIZE OR DEENERGIZE FANS, PUMPS, ETC.
  - ALL EQUIPMENT CONTROLLED BY THE DDC SYSTEM SHALL BE CAPABLE OF MANUAL OPERATION THROUGH HAND-OFF-AUTOMATIC (HOA) SWITCHES IN STARTERS PROVIDED. THE POSITIONS OF ALL VALVES CONTROLLED BY THE BAS SHALL BE CAPABLE OF MANUAL POSITIONING (OPEN, CLOSED, MODULATED, AUTO) VIA LABELED POTENTIOMETERS AND MANUAL SWITCHES PROVIDED BY DIVISION 28.
  - COORDINATE ALL SENSOR INSTALLATIONS WITH THE MECHANICAL CONTRACTOR AND SUBMIT PROPOSED LOCATIONS ON PIPING AND DUCT COORDINATION DRAWING. SUBMITTAL, COORDINATE TO ENSURE THAT THE SENSOR MANUFACTURER'S RECOMMENDED UPSTREAM AND DOWNSTREAM PIPE DIAMETERS ARE PROVIDED (ESPECIALLY FLOW ELEMENTS AND TRANSMITTERS).
  - PROVIDE COMMUNICATIONS INTERFACE AND SOFTWARE BETWEEN BAS AND EACH EQUIPMENT MANUFACTURER SUPPLIED CONTROL PANEL TO READ/DISPLAY ALL DATA AVAILABLE AT THE PANEL VIA MANUFACTURER'S PROTOCOL. WHERE CONTROL IS REQUIRED PROVIDE INPUT/OUTPUT INTERFACE INDICATED.
  - FAIL-SAFE POSITIONS INDICATED ARE POSITIONS THAT DEVICES WILL GO TO WHEN DEENERGIZED.
  - PROVIDE ADEQUATE DAMPING OF ALL MODULATING CONTROL LOOPS TO PREVENT HUNTING.
  - WHENEVER A UNIT IS SHUTDOWN BECAUSE OF ONE OF ITS SAFETIES, THE BAS SHALL RETAIN IN MEMORY THE READING AND SET POINT OF EACH DEVICE TO HELP THE OPERATOR TO ISOLATE THE CAUSE OF THE SHUTDOWN.
  - WHENEVER AN ALARM IS INITIATED, THE BAS SHALL RETAIN IN MEMORY THE READINGS AND SET POINTS OF EACH DEVICE TO ASSIST THE OPERATOR TO ISOLATE THE CAUSE OF THE ALARM.
  - IF ANY LOCAL TERMINAL OR UNITARY CONTROLLER OR EQUIPMENT MANUFACTURER'S CONTROL SYSTEM LOSES COMMUNICATION WITH THE BAS NETWORK, AN ALARM SHALL BE GENERATED BY THE BAS INDICATING THE LOCATION OF THE FAULT.
- ENERGY MONITORING REQUIREMENTS
- THE FOLLOWING EQUIPMENT SHALL HAVE METERING:
- PUMPS: ALL DEMAND AND CONSUMPTION (BY VFD, PANEL METERING, OR CURRENT TRANSDUCER)
  - FANS: ALL DEMAND AND CONSUMPTION (BY VFD, PANEL METERING, OR CURRENT TRANSDUCER)

**100% OUTDOOR AIR PROCESSING SYSTEM CONTROLS**

M5.1 NO SCALE



**DUCT HEATING COIL POINTS SCHEDULE**

POINT	DESCRIPTION	TYPE
EDH-EN	DUCT HEATER ENABLE	BINARY OUTPUT
EDH-O	DUCT HEATER OUTPUT	ANALOG OUTPUT
OA-T	OUTSIDE AIR TEMPERATURE	ANALOG INPUT
DA-T	DISCHARGE AIR TEMPERATURE	ANALOG INPUT
OA-F	AIR FLOW PROVING SWITCH	BINARY INPUT

**ELECTRIC DUCT HEATER CONTROL**

M5.1 NO SCALE

**RUN CONDITIONS** - THE UNIT SHALL RUN DURING A USER DEFINABLE SCHEDULE DETERMINES THE SYSTEM IS IN THE OCCUPIED MODE IN THE FOLLOWING OPERATION MODES:

**HEATING MODE:** DISCHARGE AIR TEMPERATURE (DA-T) = 85°F (ADJ.) WHEN OUTDOOR AIR (OA) TEMPERATURE IS BELOW 70°F AND OA DEWPOINT IS LESS THAN 55°F.

**COOLING MODE:** (DA-T) RESET = 75°F (ADJ.) FOR 75°F OA-T; FOR 95°F OA-T; WHEN OA TEMPERATURE IS ABOVE 75°F AND OA DEWPOINT IS BELOW 55°F. EXISTING VALVES SERVING THE NEW DAYCARES ROOMS SHALL BE TURN DOWN TO MINIMUM AIRFLOW WHILE THE UNIT IS IN COOLING MODE, AND STARTS MODULATING TO MAXIMUM AIRFLOW WHEN SP-T IS ABOVE 75°F.

**DEHUMIDIFICATION MODE:** DX COIL LEAVING AIR TEMPERATURE(LAT) = 55°F (ADJ.) (REHEAT COIL LAT RESET = 75°F (ADJ.) FOR 80°F OA-T, 55°F FOR 95°F OA-T); WHEN THE OA DEWPOINT IS ABOVE 55°F.

**DOAS OPTIMAL START:**

THE UNIT SHALL START PRIOR THE SCHEDULED OCCUPANCY BASED ON THE TIME NECESSARY FOR THE ZONE TO REACH THEIR OCCUPIED SETPOINTS. THE START TIME SHALL AUTOMATICALLY ADJUST BASED ON CHANGES IN OUTSIDE AIR TEMPERATURE AND ZONE TEMPERATURES.

**HEATING AND COOLING:**

THE COMPRESSOR SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES.

**FAN:**

THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS IN THE OCCUPIED MODE, UNLESS SHUTDOWN ON SAFETIES.

**ALARMS SHALL BE PROVIDED AS FOLLOWS:**

- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

**HOT WATER DUCT HEATER CONTROL:**

THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE DOWNSTREAM OF THE DUCT HEATER AND MODULATE THE HEATING COIL TO MAINTAIN DISCHARGE AIR TEMPERATURE SETPOINT.

THE HEATING COIL SHALL BE ENABLED WHEN:

- THE SUPPLY FAN STATUS IS ON.
- THE UNIT IS ON DEHUMIDIFICATION MODE.

**ALARMS SHALL BE PROVIDED AS FOLLOWS:**

- HEAT PUMP FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- CONTROL VALVE FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
- FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. \_\_\_\_\_ EXPIRATION DATE: \_\_\_\_\_



Project Number  
**MECHANICAL CONTROLS**

**M5.1**

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### EXISTING VAV TERMINAL UNIT SCHEDULE

NOTES:  
1. PROVIDE DDC CONTROLLER ON EXISTING VAV TERMINAL UNIT AND DDC CONTROL VALVE FOR THE VAV TERMINAL UNIT HEATING WATER COILS. INTEGRATE THE VAV TERMINAL UNIT INTO THE EXISTING HONEYWELL TRIDIUM BUILDING AUTOMATION SYSTEM.  
2. EXISTING VAV BOX TO REMAIN, REBALANCE AS INDICATED ON PLANS.

ID	PRIMARY AIRFLOW			HEATING COIL					SOUND ATTENUATOR	MANUFACTURER	MODEL	NOTES	
	MAXIMUM CFM	MINIMUM CFM	INLET SIZE IN	MIN MBH	GPM	EWT (°F)	EAT (°F)	MAX WPD (FT/HD)					MAX SP (IN. WC)
(E) VAV-B	SEE PLANS	500	8	25	1.0	200	60	1.5	0.4	-	ENVIRO-TECH	SDR-WC-8	1, 2
(E) VAV-C	SEE PLANS	750	10	33.9	1.0	200	60	1.5	0.4	-	ENVIRO-TECH	SDR-WC-10	1, 2

### EXISTING ROOFTOP AIR HANDLING UNIT SCHEDULE

NOTES:  
1. VAV SYSTEM WITH DX COIL AND SPLIT CONDENSING UNIT.

ID	SERVES	SUPPLY AIR FAN DATA					COOLING DATA		HEATING DATA		RETURN AIR FAN DATA			MANUFACTURER	MODEL	NOTES
		CFM	EXT. S.P.	TOTAL S.P.	FAN MOTOR HP	MIN. O.A. CFM	EAT DB/WB (°F)	LAT DB/WB (°F)	EAT DB/WB (°F)	LAT DB/WB (°F)	CFM	T.S.P. (IN. W.G.)	FAN MOTOR HP			
RTU-7	ADMINISTRATION	7700	2.15	4.30	15	3000	85.5/70.9	57/56.2	42.5	62	6250	0.55	1	MCOJAY	RDS-802-B	1

### DIFFUSER & GRILLE SCHEDULE

NOTES:  
1. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR CEILING TYPES AND MOUNTING REQUIREMENTS.  
2. FINISH TO BE SELECTED BY ARCHITECT.  
3. PROVIDE OPPOSED BLADE DAMPERS IN DRYWALL CEILING AND INACCESSIBLE AREAS.

MARK	S-1	R-1
AIR	SUPPLY	RETURN
TYPE	SQUARE PLAQUE	LOUVERED GRILLE
MODULE	24"X24"	24"X24"
	0-150	
	151-250	22"X22"
	250-375	10"
	375-500	12"
NC	25	25
FRAME/BORDER TYPE	NOTE 1	NOTE 1
FINISH	NOTE 2	NOTE 2
MANUFACTURER	PRICE	PRICE
MODEL NUMBER	SPD	POR
NOTES	1-3	1-3

### DUCT MOUNTED COIL SCHEDULE

NOTES:  
1. REFER TO SMT 1 FOR 2-WAY COIL CONNECTION.  
2. THE CONTRACTOR SHALL CONFIRM ENTERING WATER TEMPERATURE.

ID	SERVES	HEATING COIL DATA					GEOMETRY					MANUFACTURER	MODEL	NOTES	
		CAPACITY (MBH)	AIR SIDE AIRFLOW (CFM)	EAT (°F)	LAT (°F)	FLOW (GPM)	FIN PER INCH	NO. OF ROW	FIN HEIGHT	FIN LENGTH					
HC-1-1	DAYCARE	10000	615	55	70	0.7	200	170	8	1	12	24	DAIKIN	58B0801C	1

### SPLIT SYSTEM HEAT PUMP SCHEDULE

NOTES:  
1.  
2.  
3.  
4.  
5.

ID	AREA SERVED	TYPE	FAN DATA		COOLING COIL DATA			HEATING COIL DATA			ELECTRICAL DATA			BASIS OF DESIGN		NOTES				
			DESIGN AIR FLOW (CFM)	MOTOR QTY	NOMINAL CAPACITY (TON)	TOTAL CAPACITY (BTUH)	ENT AIR TEMP (°F)	DB	WB	CAPACITY (BTUH)	ENT	LVG	MCA (A)	MOC (A)	VOLT (V)		PH	OUTDOOR UNIT ID	WEIGHT (LBS)	MANUFACTURER
FCU-1-1	DAYCARE	DUCTED UNIT	630	1	4	48,000	0	0	30,000	55	85	2.1	15	230	1	OU-1	190	DAIKIN	FXMQ48MFVJU	

### ELECTRIC DUCT COIL SCHEDULE

NOTES:  
1. PROVIDE IN DUCT DISCHARGE AIR TEMPERATURE SENSOR.  
2. REFER TO 3MS.1 FOR CONTROL SEQUENCE.  
3.  
4.  
5.

ID	AREA SERVED	TYPE	HEATING COIL DATA					ELECTRICAL DATA			BASIS OF DESIGN		NOTES				
			DESIGN AIRFLOW (CFM)	TEMP DB (°F)	LVG	QTY	TYPE	KW	SCR	FLA (A)	MCA (A)	MOC (A)		VOLT (V)	PH	MANUFACTURER	MODEL
EDC-1	ERV PRE HEATING	SLIP IN	630	15	30	1	ELECTRIC	3	Yes	8.3	10.4	15	208	3	INDECO	QUA	1, 2

### SPLIT SYSTEM CONDENSING UNIT SCHEDULE

NOTES:  
1. PROVIDE REFRIGERANT PIPING BETWEEN INDOOR AND OUTDOOR UNIT. SIZE PER MANUFACTURER'S RECOMMENDATION.

ID	LOCATION		TYPE	COMPRESSOR DATA			AMBIENT TEMP DB (°F)			ELECTRICAL DATA				INDOOR UNIT ID	WEIGHT (LBS)	BASIS OF DESIGN		NOTES				
	NO.	NAME		CAPACITY (TON)	REFRIGERANT TYPE	CHARGE (LBS)	QTY	RLA (A)	SUMMER	WINTER	SEER	EER	FLA (A)			MCA (A)	MOC (A)		VOLT (V)	PH	MANUFACTURER	MODEL
OU-1-1			AIR COOLED HEAT PUMP	4	R-410A	6.4	1	19	97.2	0	16	10.5	23.3	29.1	35	240	1	FCU-1-1	176	DAIKIN	R2R48TAVJUA	

### ENERGY RECOVERY VENTILATOR SCHEDULE

NOTES:  
1. INTERLOCK WITH FCU-1-1.  
2. PROVIDE 2-POSITION MOTORIZED DAMPER SHOWN ON M.1.1.

ID	SERVES	FAN DATA		ENERGY RECOVERY SECTION/MODULE PERFORMANCE DATA																ELECTRICAL DATA				MANUFACTURER	MODEL	NOTES					
		SUPPLY FAN DATA	EXHAUST FAN DATA	SUMMER CONDITION								WINTER CONDITION								MCA	MOP	VOLTAGE	PHASE								
AIRFLOW (CFM)	ESP (inH2O)	AIRFLOW (CFM)	ESP (inH2O)	OA DB (°F)	OA WB (°F)	RA DB (°F)	RA WB (°F)	SA DB (°F)	SA WB (°F)	EA DB (°F)	EA WB (°F)	TOTAL COOLING CAPACITY (MBH)	LATENT COOLING CAPACITY (MBH)	OA DB (°F)	OA WB (°F)	RA DB (°F)	RA WB (°F)	SA DB (°F)	SA WB (°F)	EA DB (°F)	EA WB (°F)	TOTAL HEATING CAPACITY (MBH)	MCA	MOP	VOLTAGE	PHASE					
ERV-1-1	DAYCARE	615	0.6	615	0.6	97.2	76.3	75	63	81.6	70.3	90.6	70	15.1	10.7	28.4	-	68	56.7	55	43.6	36.9	36.1	12.7	4.2	15.0	208.0	1	DAIKIN	VAM600GVJU	1, 2

### VENTILATION CALCULATION

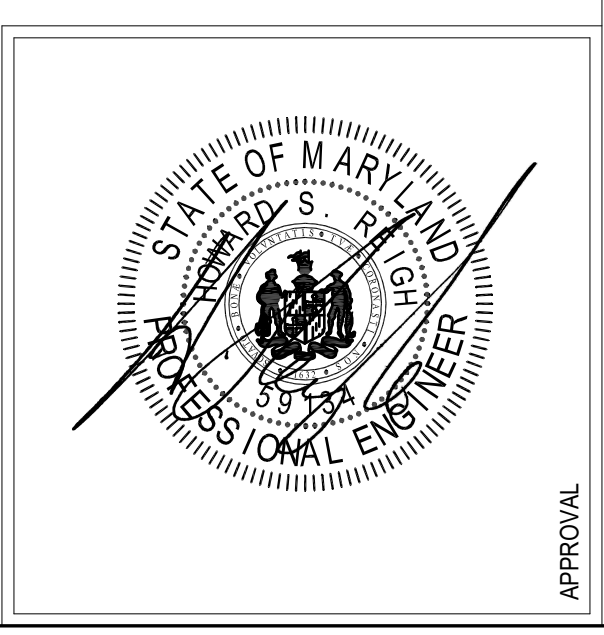
ROOM NAME	ROOM NUMBER	DESCRIPTION	AREA (ft²) (Az)	AREA OUTDOOR AIR RATE PER VMC TABLE 403.3 (Ra)	AREA OUTDOOR AIR (Ra*Az)	Occupant Density Per IMC Table 403.3 (People/ 1000 ft²)	OCCUPANCY (C * F/1000) (Pz)	OCCUPANT OUTDOOR AIR RATE PER VMC TABLE 403.3 (Rp)	OCCUPANT OUTDOOR AIR (Rp*Pz)	BREATHING ZONE OUTDOOR AIR (Vbz = Rp*Pz + Ra*Az)	ZONE AIR DISTRIBUTION EFFECTIVENESS (Ez)	ZONE OUTDOOR AIR (Voz = Vbz / Ez)	WEIGHTED SUPPLY AIR DESIGN (Vpz)	OUTDOOR AIR PERCENTAGE FROM AHU	PROVIDED ZONE OA	ADDITIONAL OA REQUIRED
Classroom	A23A	Day Care (Through age 4)	871.0	0.18	157	25	22	10	220	377	0.80	471	680	26%	174	298
Classroom	A23B	Day Care (Through age 4)	953.0	0.18	172	25	24	10	240	412	0.80	515	720	26%	184	331
							46					986	1,400			



DAYTON OAKS ES CLASSROOM RENO  
 HOWARD COUNTY PUBLIC SCHOOLS  
 4891 TEN OAKS RD. DAYTON, MD 21086

PERMIT AND BID  
 03/01/2023  
 REVISIONS  
 1 3/31/2023 ADDENDUM NO. 2

PROFESSIONAL CERTIFICATION:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. \_\_\_\_\_ EXPIRATION DATE: \_\_\_\_\_



Project Number  
 MECHANICAL SCHEDULE

M8.1

1

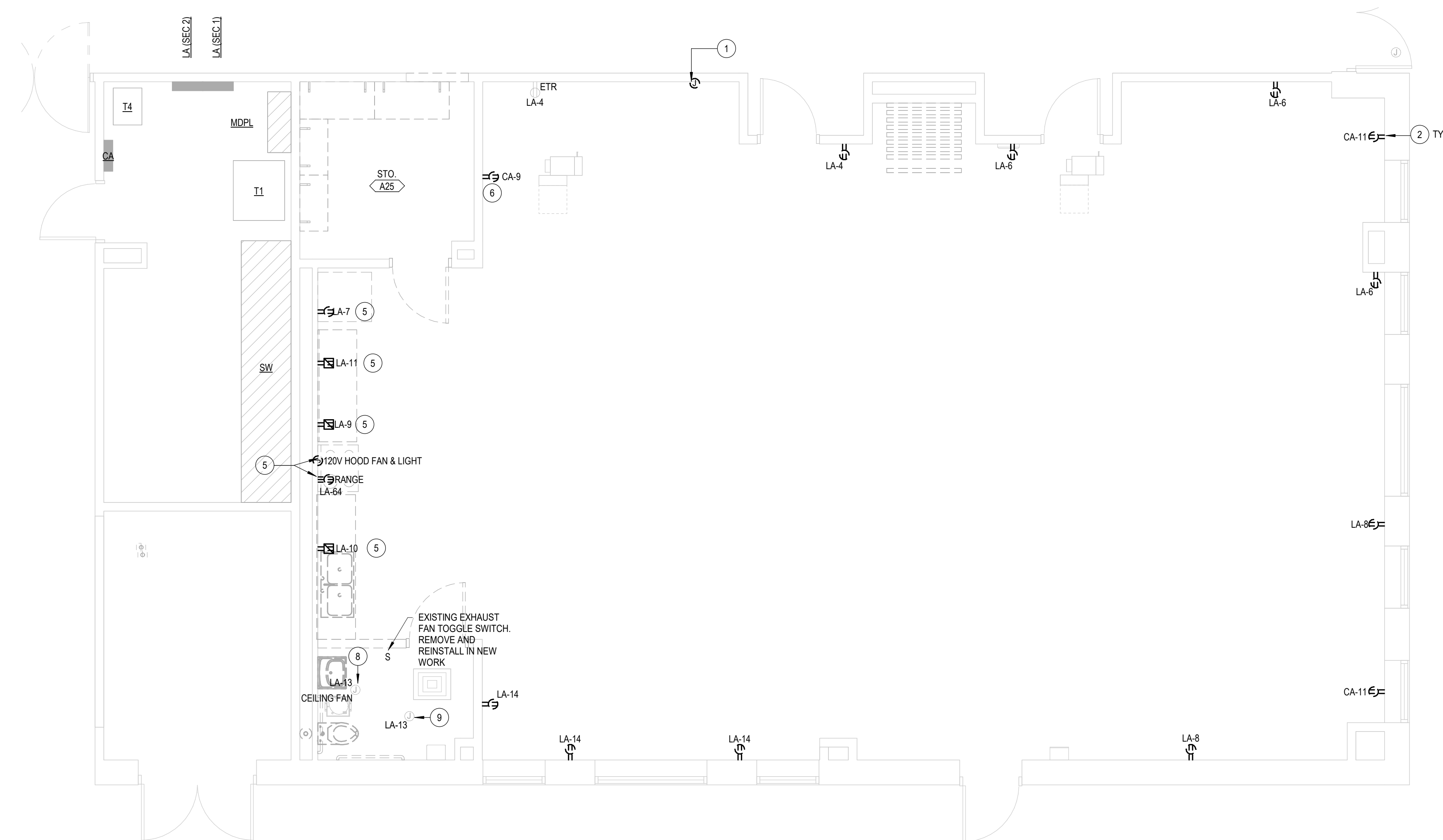
2

3

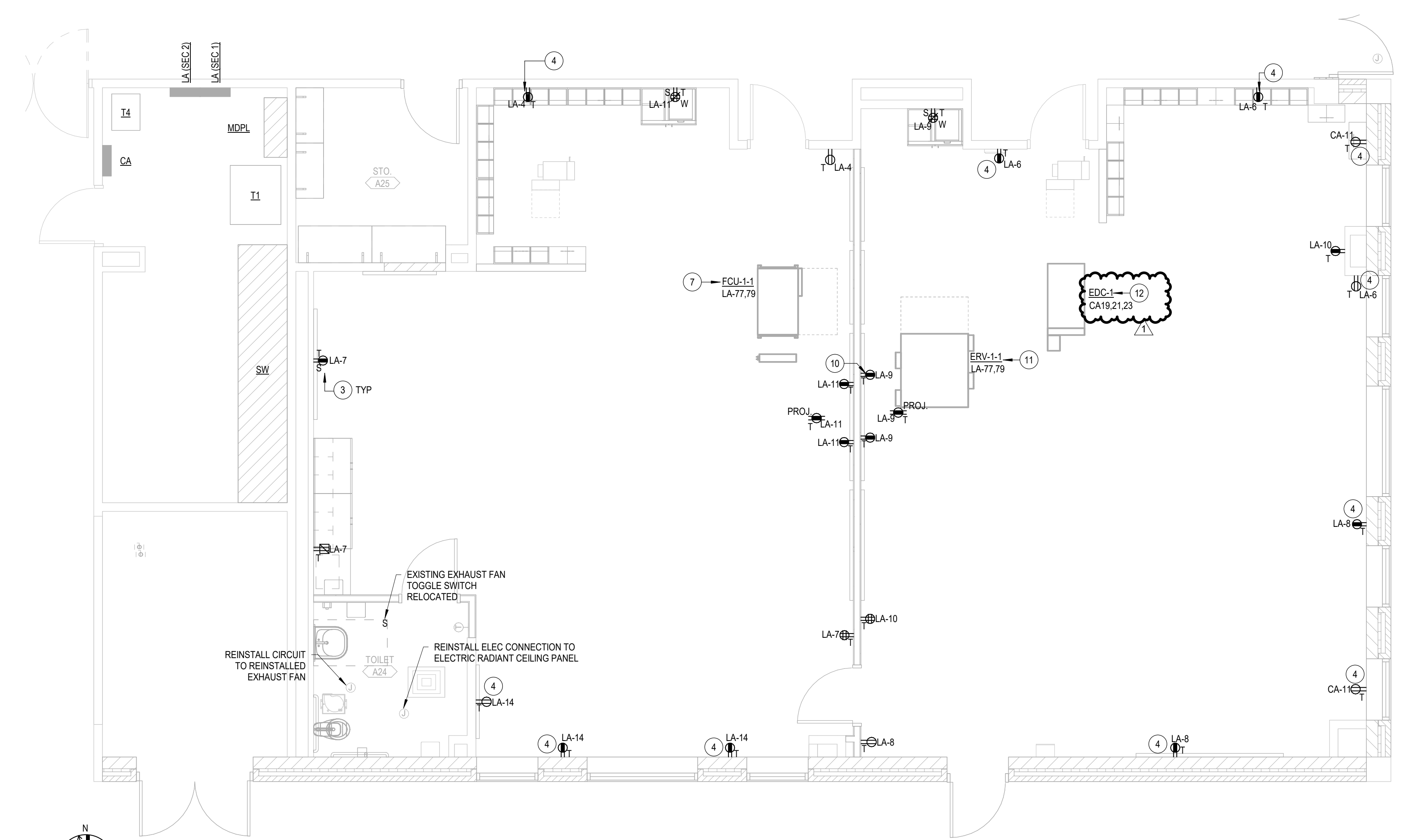
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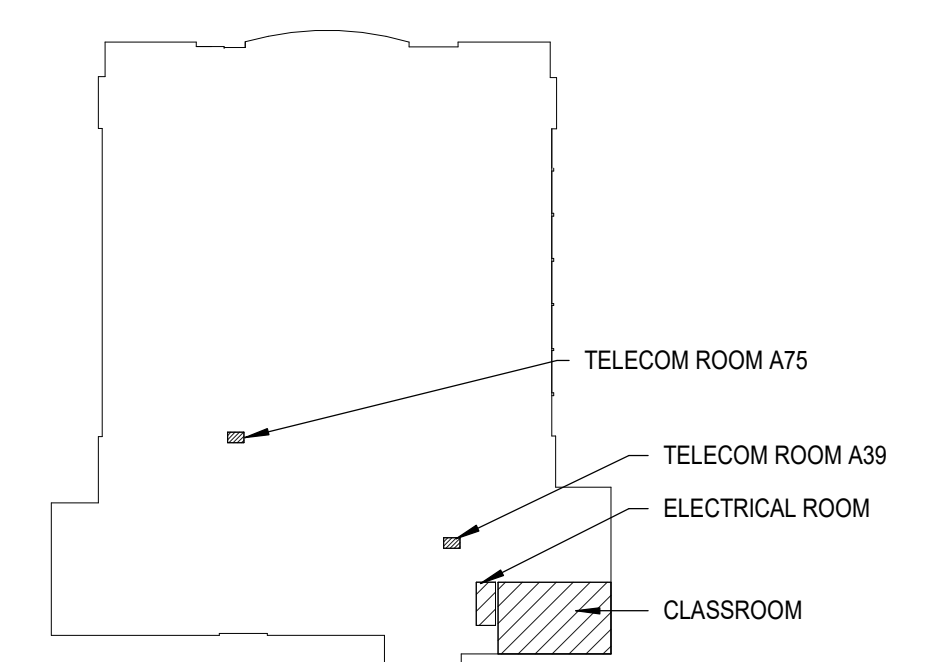
Autodesk Docs/56-23102-00\_HCPSS Classroom Renovation/56-23102-00\_Dayton Oaks ES Classroom Reno\_MEP\_2022.rvt  
3/31/2023 2:51:31 AM



**POWER FLOOR PLAN - DEMOLITION**  
SCALE: 1/4" = 1'-0"

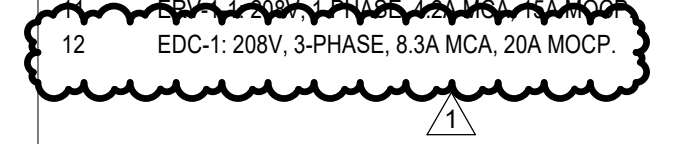


**POWER FLOOR PLAN - NEW WORK**  
SCALE: 1/4" = 1'-0"



**SHEET NOTES**

- 1 REMOVE BUZZER ASSOCIATED WITH OUTDOOR ENTRY PUSH BUTTON SWITCH. REMOVE EXISTING WIRE TO ABOVE CEILING GRID AND PROVIDE JUNCTION BOX. PROVIDE BLANK PLATE AT EXISTING BUZZER OUTLET BOX PER HCPSS.
- 2 REMOVE RECEPTACLE. EXISTING CIRCUIT TO REMAIN.
- 3 'S' INDICATES PROVIDE SURFACE MOUNTED RECEPTACLE WITH WIREMOLD RACEWAY.
- 4 RECONNECT TO EXISTING CIRCUIT FROM DEMOLITION.
- 5 REMOVE CIRCUIT BACK TO SOURCE. PROVIDE BLANK COVER PLATE.
- 6 REMOVE RECEPTACLE. REMOVE WIRING TO POINT ABOVE CEILING. MAINTAIN EXISTING CIRCUIT.
- 7 FCU-(INDOOR UNIT): 208V, 1-PHASE, 2 1/4 MCA, 20A MOCF.
- 8 REMOVE ELECTRICAL CONNECTION TO EXHAUST FAN TO ALLOW NEW CEILING TO BE CONSTRUCTED. FAN SHALL BE REINSTALLED IN NEW WORK. CIRCUIT TO REMAIN.
- 9 REMOVE ELECTRICAL CONNECTION TO ELECTRIC RADIANT CEILING PANEL TO ALLOW NEW CEILING TO BE CONSTRUCTED. ELECTRIC RADIANT CEILING PANEL SHALL BE REINSTALLED IN NEW WORK. CIRCUIT TO REMAIN.
- 10 SHADED RECEPTACLE INDICATES AUTO-OFF CONTROLLABLE RECEPTACLE OUTLET. LABEL AND WIRE BOTTOM OUTLET AS CONTROLLABLE OUTLET. PROVIDE SEPARATE POWER PACK AND CONNECT TO LIGHTING OCCUPANCY SENSOR FOR CONTROL. (TYPICAL).
- 11 EDC-1: 208V, 3-PHASE, 6.3A MCA, 20A MOCF.



PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31509, EXPIRATION DATE: 04-28-2025



56-23102-00  
ELECTRICAL POWER FLOOR PLAN - DEMOLITION & NEW WORK

**E2.1**

## LUMINAIRE SCHEDULE

NOTES:  
1.  
2.  
3.  
4.  
5.

TYPE	DESCRIPTION	VOLTAGE	WATTS	CCT	LUMENS	BASIS OF DESIGN	
						MFR	CATALOG NUMBER
A	2x4 LED FLAT PANEL FIXTURE, STEEL HOUSING, WHITE REFLECTOR FINISH, ACRYLIC LENS, 0-10V DRIVER	277 V	29 W	4000K	3608	METALUX	24FP3140C
B	1x4 LED FLAT PANEL FIXTURE, STEEL HOUSING, WHITE REFLECTOR FINISH, ACRYLIC LENS, 0-10V DRIVER	277 V	25 W	4000K	3017	METALUX	14FP2640C

PANEL <b>LA (EXIST)</b>	SERVICE: <b>208Y120V - 3P - 4W</b>	PROJ.: <b>DAYTON OAKS ELEM SCHOOL</b>	MLO: <b>--</b>
EXISTING PANEL SECTION 1 of 2	MAIN BUS: <b>400 A</b>	NOTE: <b>UPSTREAM FEEDER BREAKER IS 400A/3P</b>	NOTE: <b>---</b>
	SCCR: <b>10 kA</b>	NOTE: <b>---</b>	
	MOUNT: <b>SURFACE</b>	NOTE: <b>---</b>	
	LOCATI: <b>ELEC RM A27</b>	NEMA: <b>1</b>	

CKT NO.	BREAKER	LOAD	TYPE	KVA	A <sub>p</sub>	B <sub>p</sub>	C <sub>p</sub>	KVA	TYPE	DESCRIPTION	BREAKER	CKT NO.		
													AMP	P
1	20	1	(E) SPARE (ON)					0.75	X	(E) STAFF LOUNGE C13 DISHW	20	1	2	
3	20	1	(E) DISPLAY CASES	L	0.1	X	0.46	X	0.4	R	(E) CLASSRM 1 A23 REC	20	1	4
5	20	1	(E) SP CIRCUIT ABOVE EWC	R	0.5	1.08	X	0.54	0.5	R	(E) CLASSRM 2 A23B REC	20	1	6
7	20	1	(E) CLASSRM 1 A23 REC	R	0.5	1.08	X	0.5	0.5	R	(E) CLASSRM 2 A23B REC	20	1	8
9	20	1	(E) CLASSRM 2 A23B REC	R	1.0	X	1.35	X	0.4	R	(E) CLASSRM 2 A23B REC	20	1	10
11	20	1	(E) CLASSRM 1 A23 REC	R	1.0	X	1.17	0.2	R	(E) ELEC RM 1 REC	20	1	12	
13	20	1	(E) ACT RM BATHRM HEATER	H	1.0	1.72	X	0.7	R	(E) ACTIVITY RM A23 REC	20	1	14	
15	20	1	(E) CORRIDOR REC	R	0.7	X	1.44	X	0.7	R	(E) BLDG SERVICES OFF REC	20	1	16
17	20	1	(E) STAFF RESTROOM REC	R	0.7	X	1.44	0.7	R	(E) EXAM RM REC	20	1	18	
19	20	1	(E) HEALTH RM REC	R	0.7	1.44	X	0.7	R	(E) PRINC & ASST PR OFFICE REC	20	1	20	
21	20	1	(E) MAIN OFFICE REC	R	0.7	1.44	X	0.7	R	(E) WORKRM & OFFICE REC	20	1	22	
23	20	1	(E) WORKRM & BATHRM REC	R	0.7	X	1.44	0.7	R	(E) HEALTH RM REC	20	1	24	
25	20	1	(E) ASST PRINCING & CONF RM	R	0.7	0.82	X	0.1	L	(E) DISPLAY CASES	20	1	26	
27	20	1	(E) MAIN OFFICE REC	R	0.7	X	1.44	0.7	R	(E) STAFF LOUNGE A44 REC	20	1	28	
29	20	1	(E) TELECOM CLOSET REC	R	0.7	X	1.44	0.7	R	(E) STAFF LOUNGE A44 REC	20	1	30	
31	20	1	(E) STAFF LOUNGE A44 REC	R	0.7	1.44	X	0.7	K	(E) STAFF LOUNGE DISHWASH	20	1	32	
33	20	1	(E) STAFF LOUNGE A44 REC	R	0.7	X	1.08	0.4	R	(E) ELEV MACH RM REC	20	1	34	
35	20	1	(E) STAFF LOUNGE A44 REC	R	0.7	X	0.72			(E) SPARE CKT IN LOUNGE A44	20	1	36	
37	20	1	(E) SPARE CKT ABOVE VESTIBULE			0.6	X	0.6	M	(E) WATER COOLER	20	1	38	
39	20	1	(E) CORRIDOR REC	R	0.7	X	1.32	0.6	M	(E) WATER COOLER	20	1	40	
41	20	1	(E) UNIT VENTILATORS 1ST FL	H	0.8	X	2.25	1.5	H	(E) UNIT HEATERS & CUHS	20	1	42	
CONN. 7.9 8.5 9.0														
CONN. 16.3 14.9 13.0														

LOAD TYPE	KVA	DEMAND FACTOR	KVA DEMAND
(D) DEDICATED			
(H) HVAC	12.9	1	12.9
(M) MISC.	4.1	1	4.1
(L) LIGHTING	18.7	1	18.7
(C) CONT.	1.25		
(K) KITCHEN	14.8	0.7	10.3
(R) RECEPT.	19.3	NEC	14.6

TOTAL... 69.7  
TOTAL... 60.6  
TOTAL... **167.9**

\* BREAKER REMARKS:  
S=SHUNT TRIP, H=HACR, G=GFCI, L=C/B Lock,  
T=TIME CLK, S=SWITCH CTRL, C=CONTACTOR CTRL,  
N=NEW BREAKER (INSTALLED IN EXISTING PANEL),  
NL=NEW LOAD ON EXISTING BREAKER, EX=EXISTING LOAD ON EXISTING BREAKER, RV=EXISTING CIRCUIT MODIFIED ON EXISTING BREAKER

NOTE:  
(E) = EXISTING CIRCUIT AND BREAKER  
(N) = PROVIDE CIRCUIT AND BREAKER

PANEL <b>LA (MOD)</b>	SERVICE: <b>208Y120V - 3P - 4W</b>	PROJ.: <b>DAYTON OAKS ELEM SCHOOL</b>	MLO: <b>--</b>
EXISTING PANEL SECTION 2 of 2	MAIN BUS: <b>400 A</b>	NOTE: <b>---</b>	NOTE: <b>---</b>
	SCCR: <b>10 kA</b>	NOTE: <b>---</b>	
	MOUNT: <b>SURFACE</b>	NOTE: <b>---</b>	
	LOCATI: <b>ELEC RM A27</b>	NEMA: <b>1</b>	

CKT NO.	BREAKER	LOAD	TYPE	KVA	A <sub>p</sub>	B <sub>p</sub>	C <sub>p</sub>	KVA	TYPE	DESCRIPTION	BREAKER	CKT NO.		
													AMP	P
43	20	1	(E) UNIT VENTILATORS 1ST FL	H	0.8	2.25	X	1.5	L	(E) STAGE TRACK LIGHTS	20	1	44	
45	20	1	(E) STAGE TRACK LIGHTS	L	1.5	X	3	X	1.5	L	(E) STAGE TRACK LIGHTS	20	1	46
47	20	1	(E) STAGE TRACK LIGHTS	L	1.5	X	3	X	1.5	L	(E) STAGE TRACK LIGHTS	20	1	48
49	20	1	(E) STAGE TRACK LIGHTS	L	1.5	3	X	1.5	L	(E) STAGE TRACK LIGHTS	20	1	50	
51	20	1	(E) STAGE TRACK LIGHTS	L	1.5	X	3	X	1.5	L	(E) STAGE TRACK LIGHTS	20	1	52
53	20	1	(E) STAGE TRACK LIGHTS	L	1.5	X	3	1.5	L	(E) STAGE TRACK LIGHTS	20	1	54	
55	20	1	(E) STAGE TRACK LIGHTS	L	1.5	2.25	X	0.8	H	(E) UNIT VENTILATORS 2ND FL	20	1	56	
57	20	1	(E) CEILING FCU	H	0.8	X	1.5	X	0.8	H	(E) UNIT VENTILATORS 2ND FL	20	1	58
59	30	2	(E) SPARE (ON)				X			(E) SPARE	20	1	60	
61	-	-				0.4	X	0.4	M	(E) SECURITY GATE	20	1	62	
63	20	1	(E) ELEV #1 CAB LIGHTS	L	0.1	X	2.3464	2.2	H	(N) DU-1-1	35	2	N	
65	50	2	(E) STAFF LOUNGE A44 RANGE	K	3.3	X	5.5744	2.2	H				66	
67	-	-				3.3	X	3.3	K	(E) STAFF LOUNGE C13 RANGE	50	2	68	
69	20	1	(E) COPIER WORK RM	M	1.2	X	4.528	3.3	K				70	
71	20	1	(E) ELEV #1 SHUNT TRIP	M	0.2	X	0.2			(E) SPARE (ON)	20	1	72	
73	20	1	(E) ELEV #1 PIT SUMP PUMP	M	0.5	0.5	X			(E) SPARE (ON)	20	1	74	
75	20	1	(E) ELEV #1 PIT REC & LTS	L	0.4	X	0.36	X		(E) SPARE (ON)	20	1	76	
77	15	2	(E) FCU-1-1 & ERV-1-1	H	1.1	X	1.06496			(E) SPARE (ON)	-	1	78	
79	-	-				1.1	1.26496	X	0.2	M	(E) SENSAPHONE	20	3	80
81	-	-	(E) SPACE				X	0.2	X				82	
83	-	-	(E) SPACE				X	0.2	X				84	
CONN. 16.3 14.9 13.0														

LOAD TYPE	KVA	DEMAND FACTOR	KVA DEMAND
(D) DEDICATED			
(H) HVAC	9.6	1	9.6
(M) MISC.	2.9	1	2.9
(L) LIGHTING	18.5	1	18.5
(C) CONT.	1.25		
(K) KITCHEN	13.3	0.9	12.0
(R) RECEPT.		NEC	

TOTAL... 44.3  
TOTAL... 43.0  
TOTAL... **119.0**

\* BREAKER REMARKS:  
S=SHUNT TRIP, H=HACR, G=GFCI, L=C/B Lock,  
T=TIME CLK, S=SWITCH CTRL, C=CONTACTOR CTRL,  
N=NEW BREAKER (INSTALLED IN EXISTING PANEL),  
NL=NEW LOAD ON EXISTING BREAKER, EX=EXISTING LOAD ON EXISTING BREAKER, RV=EXISTING CIRCUIT MODIFIED ON EXISTING BREAKER

NOTE:  
(E) = EXISTING CIRCUIT AND BREAKER  
(N) = PROVIDE CIRCUIT AND BREAKER

PANEL <b>CA (MOD)</b>	SERVICE: <b>208Y120V - 3P - 4W</b>	PROJ.: <b>DAYTON OAKS ELEM SCHOOL</b>	MLO: <b>--</b>
MODIFIED PANEL SECTION 1 of 1	MAIN BUS: <b>150 A</b>	NOTE: <b>---</b>	NOTE: <b>---</b>
	SCCR: <b>---</b>	NOTE: <b>---</b>	
	MOUNT: <b>SURFACE</b>	NOTE: <b>---</b>	
	LOCATI: <b>ELEC...</b>	NEMA: <b>1</b>	

CKT NO.	BREAKER	LOAD	TYPE	KVA	A <sub>p</sub>	B <sub>p</sub>	C <sub>p</sub>	KVA	TYPE	DESCRIPTION	BREAKER	CKT NO.	
													AMP
1	20	1	(E) A05 FLOOR REC	R	0.5	0.72	X	0.7	R	(E) A10.13 REC	20	1	2
3	20	1	(E) A07 REC	R	0.5	1.08	X	0.5	R	(E) A09 REC	20	1	4
5	20	1	(E) A08 REC	R	0.5	X	1.08	0.5	R	(E) A20.17.15 REC	20	1	6
7	20	1	(E) A05 REC	R	1.4	1.8	X	0.4	R	(E) A40.38 REC	20	1	8
9	20	1	(E) A23 RW REC	R	0.2	X	0.54	0.4	R	(E) A44 REC	20	1	10
11	20	1	(E) EAST REC A23	R	0.4	X	1.08	0.7	R	(E) A47 REC	20	1	12
13	20	1	(E) A09 REC	R	0.5	0.72	X	0.2	R	(E) KITCHEN CASH REGISTER REC	20	1	14
15	20	1	(E) SPARE (ON)				X			(E) SPARE (ON)	20	1	16
17	20	1	(E) SPARE (ON)				X			(E) SPARE	20	1	18
19	20	3	(N) EDC-1	H	1.0	1	X			(E) SPACE	-	1	20
21	-	-		H	1.0	X	1	X		(E) SPACE	-	1	22
23	-	-		H	1.0	X	X	1		(E) SPACE	-	1	24
25	-	-					X			(E) SPACE	-	1	26
27	-	-					X			(E) SPACE	-	1	28
29	-	-					X			(E) SPACE	-	1	30
31	-	-					X			(E) SPACE	-	1	32
33	-	-					X			(E) SPACE	-	1	34
35	-	-					X			(E) SPACE	-	1	36
37	-	-					X			(E) SPACE	-	1	38
39	-	-					X			(E) SPACE	-	1	40
41	-	-					X			(E) SPACE	-	1	42
CONN. 4.2 2.6 3.2													

LOAD TYPE	KVA	DEMAND FACTOR	KVA DEMAND
(D) DEDICATED			
(H) HVAC	3.0	1	3.0
(M) MISC.	1		
(L) LIGHTING	1		
(C) CONT.	1.25		
(K) KITCHEN	1		
(R) RECEPT.	7.0	NEC	7.0

TOTAL... 10.0  
TOTAL... 10.0  
TOTAL... **27.8**

\* BREAKER REMARKS:  
S=SHUNT TRIP, H=HACR, G=GFCI, L=C/B Lock,  
T=TIME CLK, S=SWITCH CTRL, C=CONTACTOR CTRL,  
N=NEW BREAKER (INSTALLED IN EXISTING PANEL),  
NL=NEW LOAD ON EXISTING BREAKER, EX=EXISTING LOAD ON EXISTING BREAKER, RV=EXISTING CIRCUIT MODIFIED ON EXISTING BREAKER

NOTE:  
FOR NEW PANELS, ALL BREAKERS ARE NEW, UON.  
FOR EXISTING PANELS, ALL BREAKERS ARE EXISTING, UON.

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 31509, EXPIRATION DATE: 04-28-2025



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**GENERAL NOTES**

A EXISTING FIRE SPRINKLER SYSTEM TO REMAIN UNLESS NOTED OTHERWISE. INDIVIDUAL HEADS TO BE RELOCATED TO COMPLY WITH NFPA 13-2019.

**SHEET NOTES**

- 1 REMOVE EXISTING SPRINKLER HEAD. RELOCATE BRANCH COORDINATE WITH NEW CEILING PLAN ON NEW SPRINKLER HEAD LOCATION AND PROVIDE NEW SPRINKLER HEAD.
- 2 EXISTING SPRINKLER HEAD AND ASSOCIATED BRANCH. BRING TO REMAIN.

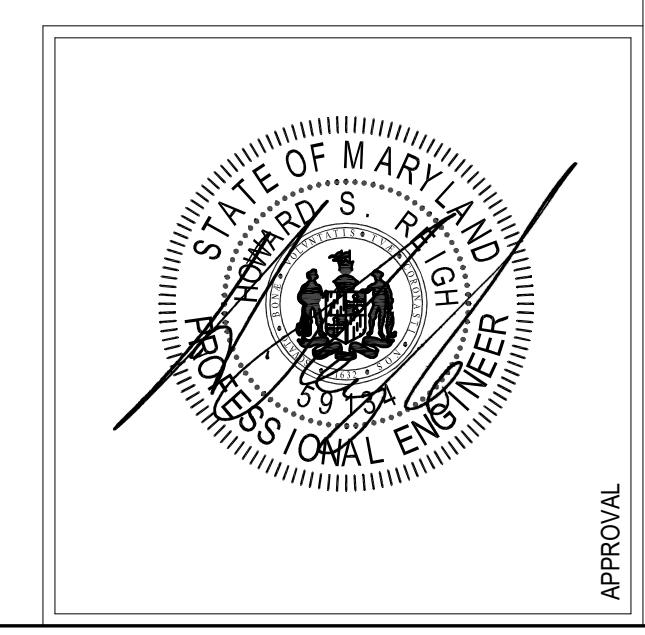


**LEVEL 01 - FIRE PROTECTION DEMOLITION PLAN**

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

**PERMIT AND BID**  
03/01/2023  
REVISIONS  
1 3/31/2023 ADDENDUM NO. 2

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. \_\_\_\_\_  
EXPIRATION DATE: \_\_\_\_\_



Project Number  
**LEVEL 01 - FIRE PROTECTION DEMOLITION PLAN**

**FPD1.1**

REFLECTED CEILING PLAN  
GENERAL NOTES

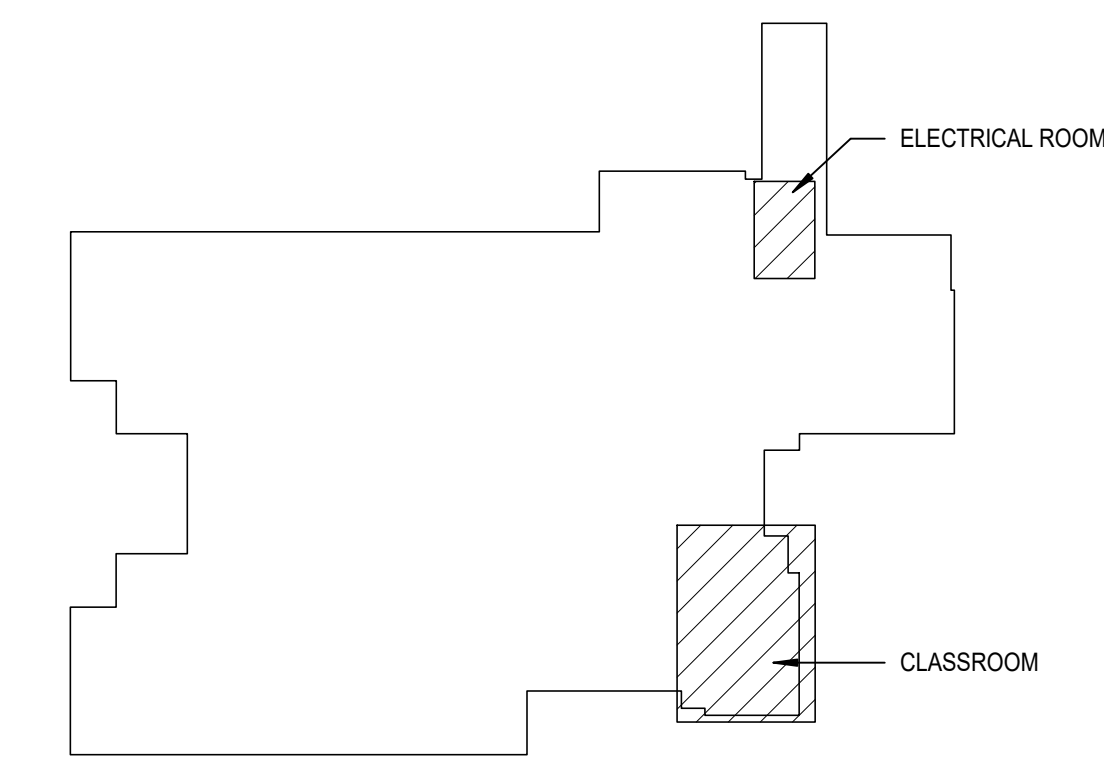
- A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
- B. ALL CEILING GRID PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
- C. CEILING HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS AND MEASURED FROM THE FINISH FLOOR OF THE ROOM.
- D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, AND OTHER CEILING MOUNTED DEVICES, SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3-INCH RADIUS CENTERED BETWEEN CEILING GRIDS.
- E. IN ACoustICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCE IN NOTE D IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR ACP WITH MULTIPLE SCORE PATTERNS, COORDINATE LOCATION WITH THE ARCHITECT.
- F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, AND OTHER CEILING MOUNTED DEVICES. AT ACoustICAL PANEL CEILING.
- G. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
  - a. FACE OF FINISHED WALLS
  - b. FACE OF FINISHED BULKHEADS
  - c. CENTERLINE OF COLUMNS
  - d. CENTERLINE OF TEES
- H. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH REPRESENTATIVE SUBCONTRACTOR.
- I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 4 INCHES ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

GENERAL ARCHITECTURAL NOTES

- 1. ALL INTERIOR CMU WALLS SHALL BE 8 INCHES NOMINAL THICKNESS, UNLESS NOTED OTHERWISE.
- 2. PARTITION TYPES SHALL BE DESIGNATED ON FLOOR PLANS (XX.XX) THIS: SEE SHEET A8 FOR TYPES. ALL INTERIOR PARTITIONS ARE TYPE XX.XX UNLESS NOTED OTHERWISE.
- 3. ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE, PER PARTITION TYPE.
- 4. PROVISIONS SHALL BE MADE AT ALL FULL HEIGHT NON-BEARING WALLS FOR 1-INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH MINERAL WOOL INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS. SEE DETAILS ON SHEET XXX.
- 5. SEE STRUCTURAL DRAWINGS FOR BRACING OF NON-LOAD BEARING MASONRY WALLS.
- 6. FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS, I.E. TOILET ACCESSORIES, CASEWORK, MILLWORK, WALL-MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
- 7. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
- 8. MASONRY CONTROL JOINTS (CJ) AND CONTROL JOINTS ABOVE (CJA) SHALL BE LOCATED AS SHOWN ON THE FLOOR PLAN AND BUILDING ELEVATIONS, AND WHERE LARGE PLUMBING VENTS OR RISERS OCCUR IN SINGLE WYTHE MASONRY WALLS, AND WHERE MASONRY WALLS BEARING ON THE CONCRETE FLOOR SLAB ABUT MASONRY WALLS BEARING ON CONCRETE FOOTINGS OR AS INDICATED ON DRAWINGS.
- 9. "MBD" AND "TBD" INDICATE MARKER BOARDS AND TACK BOARDS ON PLANS. THE LENGTH PRECEDES THE DESIGNATION (EXAMPLE: 10" MBD). ALL BOARDS ARE 4'-0" TALL. SEE WALL ELEVATIONS OR SPECIFICATIONS FOR MOUNTING HEIGHT.
- 10. EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
- 11. SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
- 12. PROVIDE SEISMIC BRACING FOR SUSPENDED CEILINGS OR AS SHOWN ON THE DRAWINGS.

REFERENCE KEYNOTES

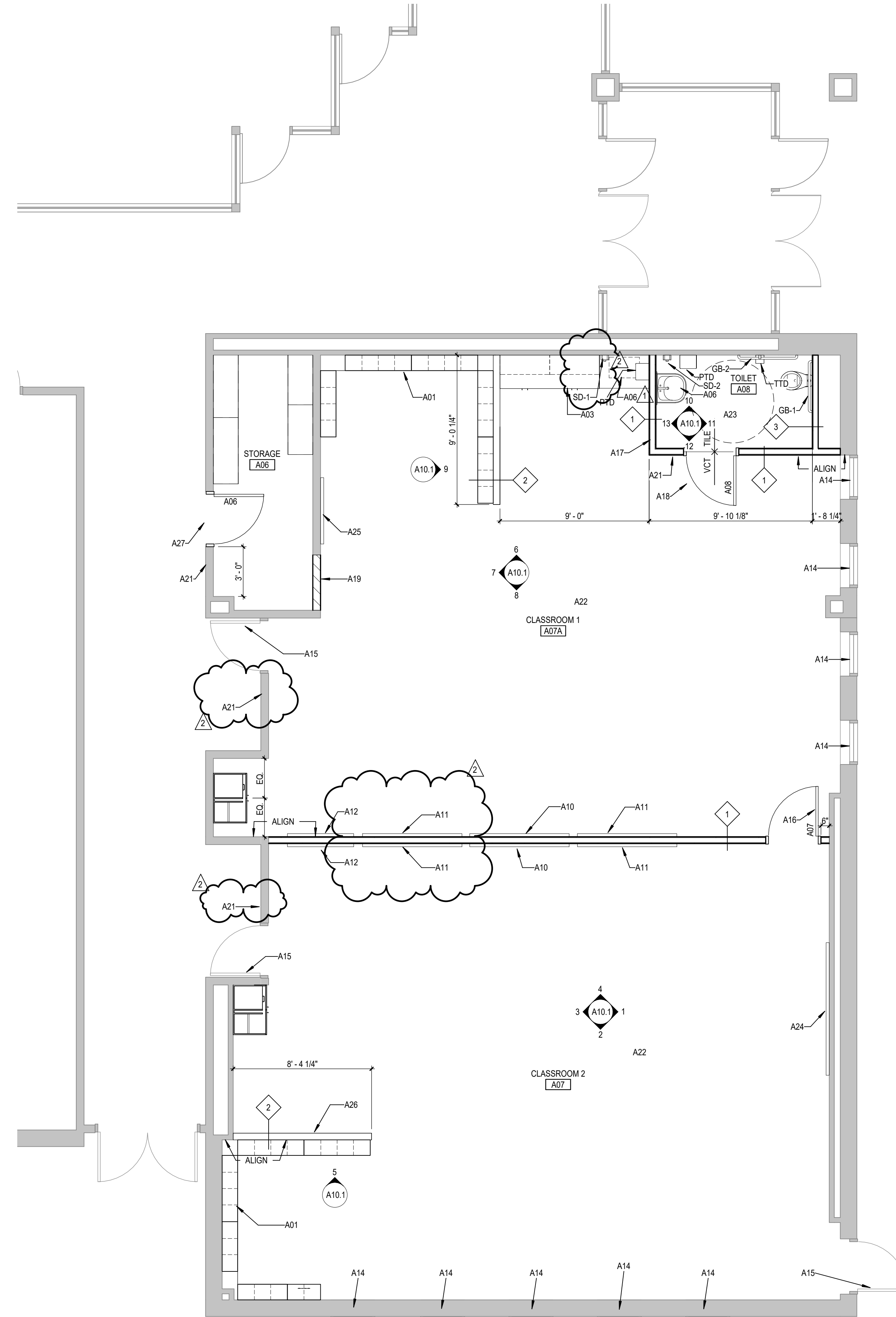
- A01 CASEWORK, PRE-K STORAGE CUBBIES.
- A03 CASEWORK, SEE INTERIOR ELEVATIONS AND DETAILS.
- A06 SINK, SEE PLUMBING DRAWINGS.
- A10 PROJECTION BOARD, 6'-5" X 4'.
- A11 MARKER BOARD (MBD).
- A12 TACK BOARD (TBD), 4' X 4'.
- A14 PROVIDE NEW ALUMINUM WINDOW BLINDS AT EACH CLASSROOM WINDOW, VERIFY DIMENSIONS ON SITE. EXISTING DOOR TO REMAIN.
- A15 NEW HM DOOR AND FRAME WITH LITE (3'X 33"). PAINTED.
- A16 NEW HM DOOR AND FRAME WITH LITE (3'X 33"). PAINTED.
- A17 5/8" THK GYPSUM DRYWALL PARTITION SYSTEM WITH BATT INSULATION ON 3-5/8" 20 GA. METAL STUDS AT 16" O.C.
- A18 NEW HM DOOR AND FRAME, PAINTED.
- A19 INFILL PARTITION TO MATCH EXISTING CMU PARTITION.
- A21 ROOM SIGNAGE TO MATCH EXISTING.
- A22 NEW VCT FLOORING.
- A23 NEW CERAMIC TILE FLOORING.
- A24 EXISTING TO REMAIN, MARKER BOARD.
- A25 EXISTING TO REMAIN, TACK BOARD.
- A26 NEW PARTITION HEIGHT OF CUBBIES, 4 FT HIGH. INSTALL SALVAGED DOOR WITH NEW HM FRAME. SEE LITEL SCHEDULE AND DETAIL 3/8.2
- A27
- A60 ACOUSTICAL CEILING TILE + GRID (APC-1).
- GB-1 GRAB BAR (BACK WALL)
- GB-2 GRAB BAR (SIDE WALL)
- PTD PAPER TOWEL DISPENSER
- SD-1 SOAP DISPENSER, ADULT HEIGHT
- SD-2 SOAP DISPENSER, CHILD HEIGHT
- TTD TOILET TISSUE DISPENSER



KEY PLAN



PROPOSED RCP CLASSROOM  
SCALE: 1/4" = 1'-0"



PROPOSED PLAN CLASSROOM  
SCALE: 1/4" = 1'-0"

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16986, EXPIRATION DATE: 07-09-2024.

PERMIT AND BID  
03/01/2023  
REVISIONS  
1 Addendum No. 1 03-16-2023  
2 Addendum No. 2 03-31-2023

56-23102-00  
LEVEL 01 - FLOOR PLAN & RCP

A1.1

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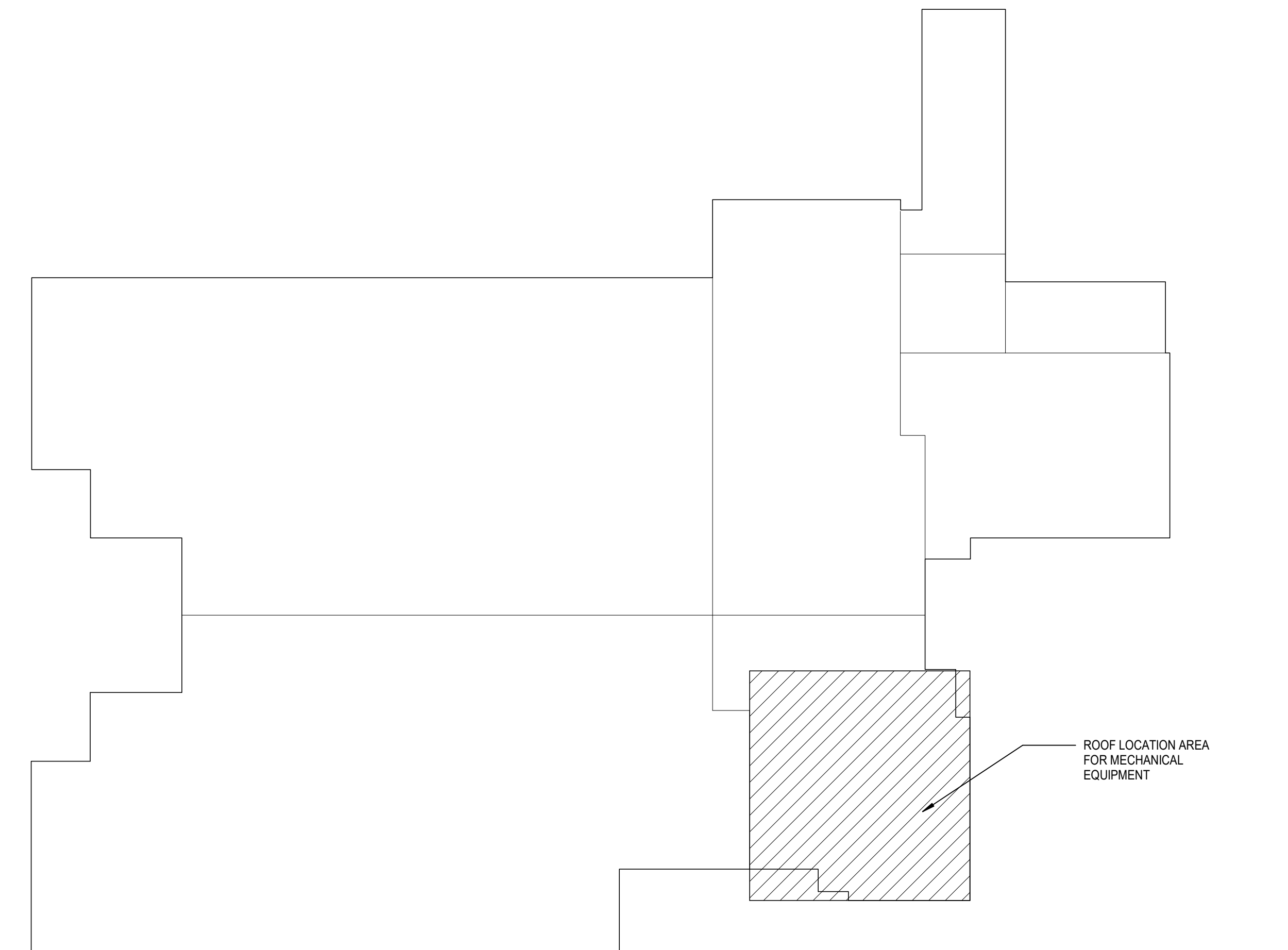
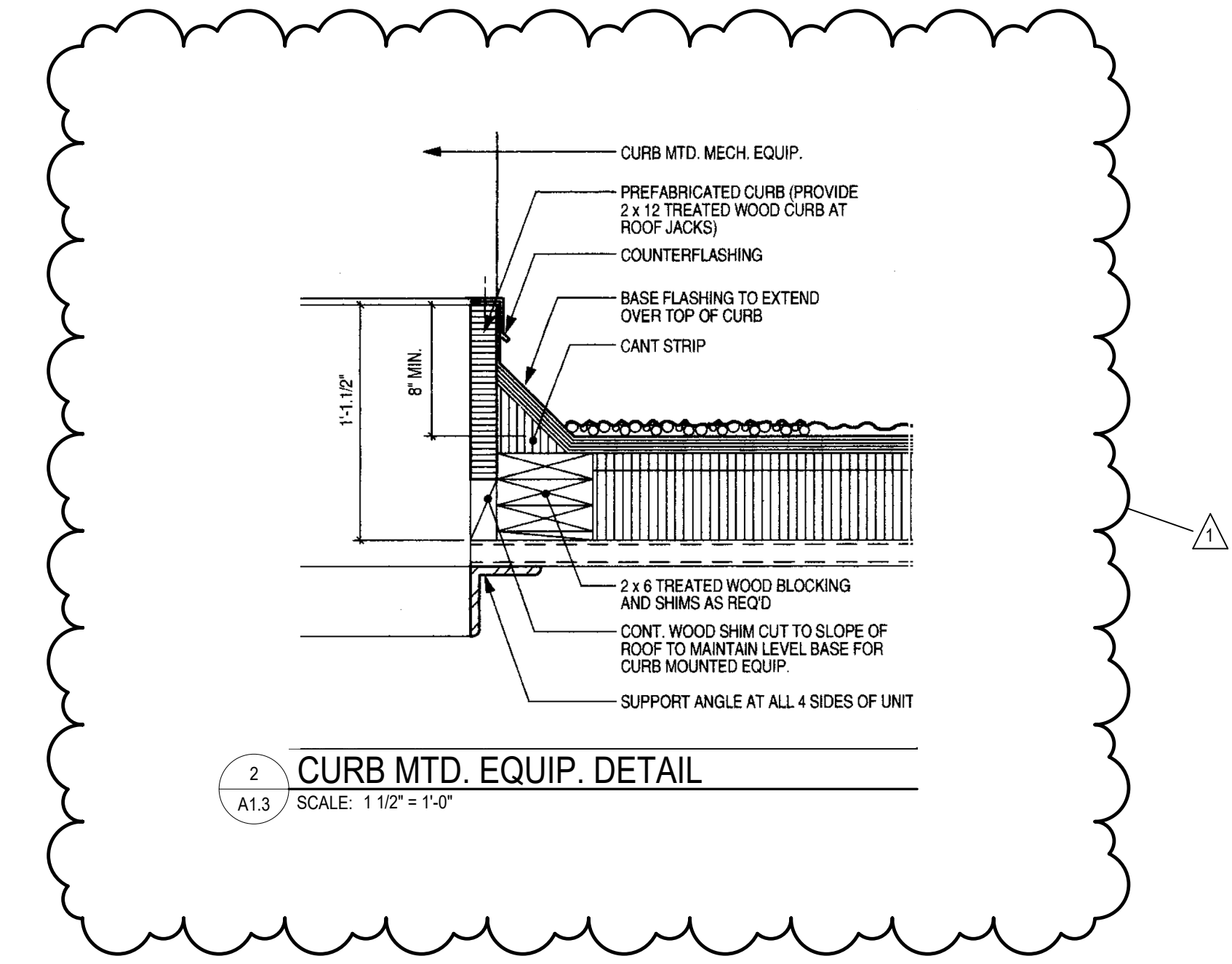
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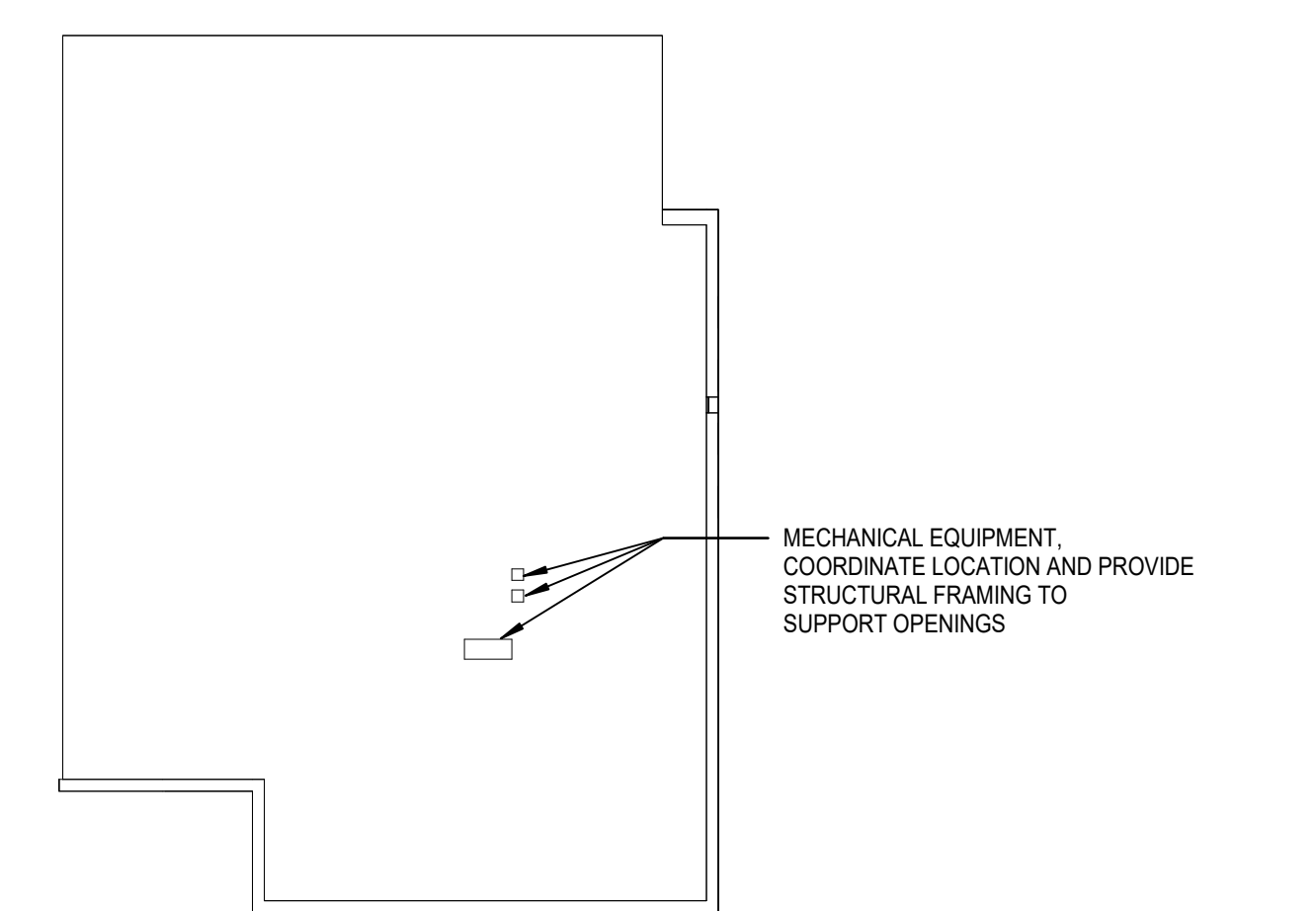
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ROOF PLAN GENERAL NOTES

- A. ALL ROOF CURBS TO BE A MINIMUM OF 8 INCHES ABOVE ROOFING LEVELS. PROVIDE TAPERED INSULATION ROOF SADDLES AT ROOF CURBS TO PROVIDE DRAINAGE AROUND CURB.
- B. DELEGATED DESIGN FOR STRUCTURAL FRAMING AROUND ROOF PENETRATIONS.
- C. COORDINATE THE SIZE AND LOCATION OF ROOF PENETRATIONS FOR MECHANICAL AND ELECTRICAL EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR PENETRATIONS NOT SHOWN ON THIS DRAWING.
- D. FLASH DRAINS, CURBS, VENTS AND STACKS PER MANUFACTURER'S RECOMMENDATIONS IF DETAIL NOT SHOWN ON DRAWINGS.
- E. NO ROOF PENETRATIONS ALLOWED WITHIN 4'-0" EACH SIDE OF FIREWALL. SEE CODE PLAN FOR FIRE WALL LOCATIONS.

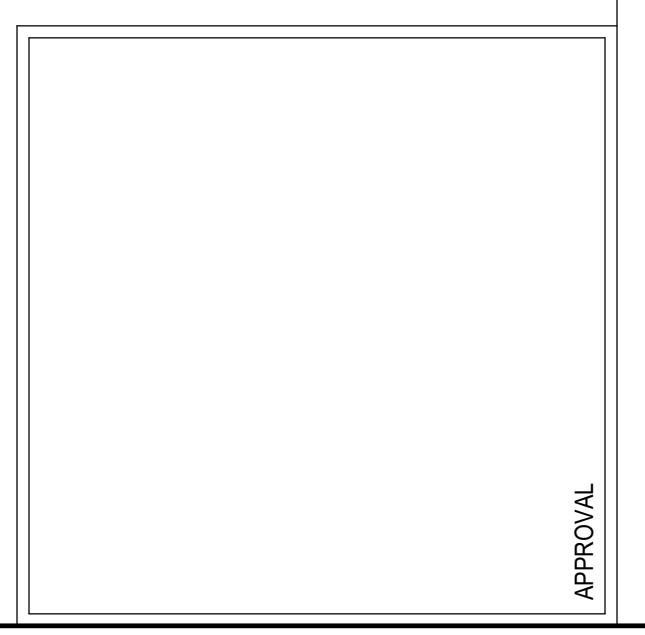


ROOF KEY PLAN  
SCALE: 1/32" = 1'-0"



Partial Roof Plan  
SCALE: 1/16" = 1'-0"

PROFESSIONAL CERTIFICATION:  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16986, EXPIRATION DATE: 07-09-2024.



PERMIT AND BID  
 03/01/2023  
 REVISIONS  
 1 Addendum No. 2 03/31/2023

56-23102-00  
 ROOF PLAN

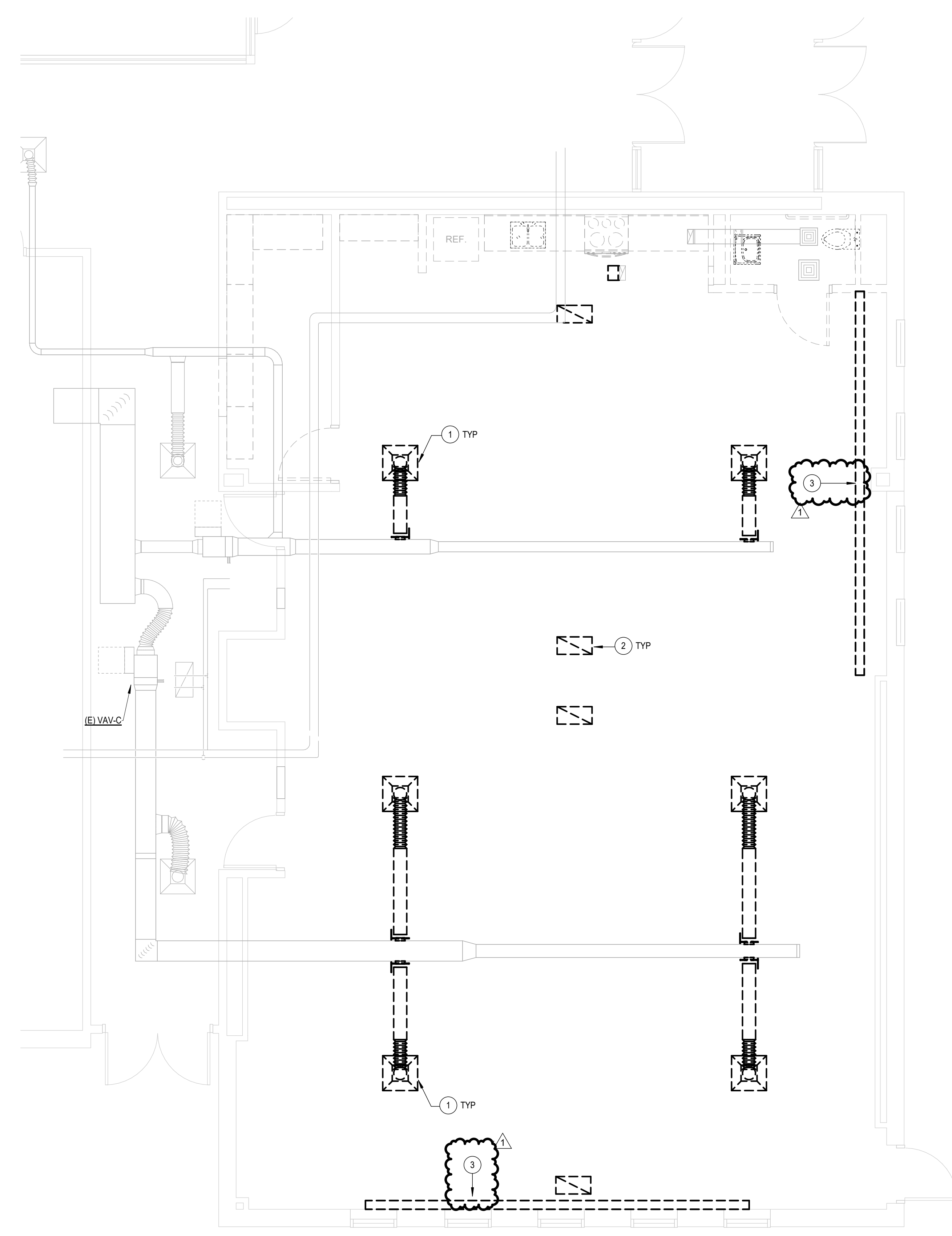
A1.3

**GENERAL NOTES**

- A FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING MD.1.
- B PROVIDE TEMPORARY PROTECTION FOR ALL EXISTING TO REMAIN MECHANICAL & PIPING SYSTEMS.

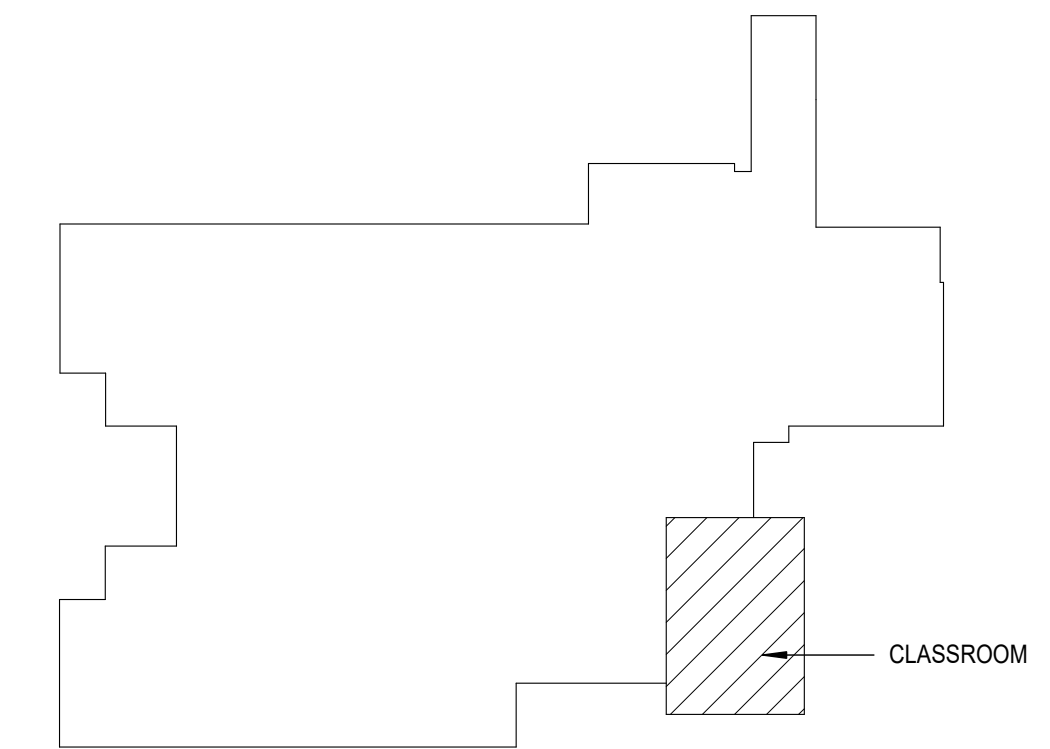
**SHEET NOTES**

- 1 EXISTING DIFFUSER, ASSOCIATED BRANCH DUCTWORK AND VOLUME DAMPER TO BE DEMOLISHED.
- 2 EXISTING RETURN AIR GRILLE TO BE DEMOLISHED, PATCH
- 3 EXISTING HOT WATER RADIATOR TO BE DEMOLISHED, CAP SUPPLY AND RETURN PIPING ABOVE CEILING SLEEVES.



**1 LEVEL 01 - HVAC DEMOLITION PLAN**  
MD1.1 SCALE: 1/4" = 1'-0"

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. \_\_\_\_\_  
EXPIRATION DATE: \_\_\_\_\_



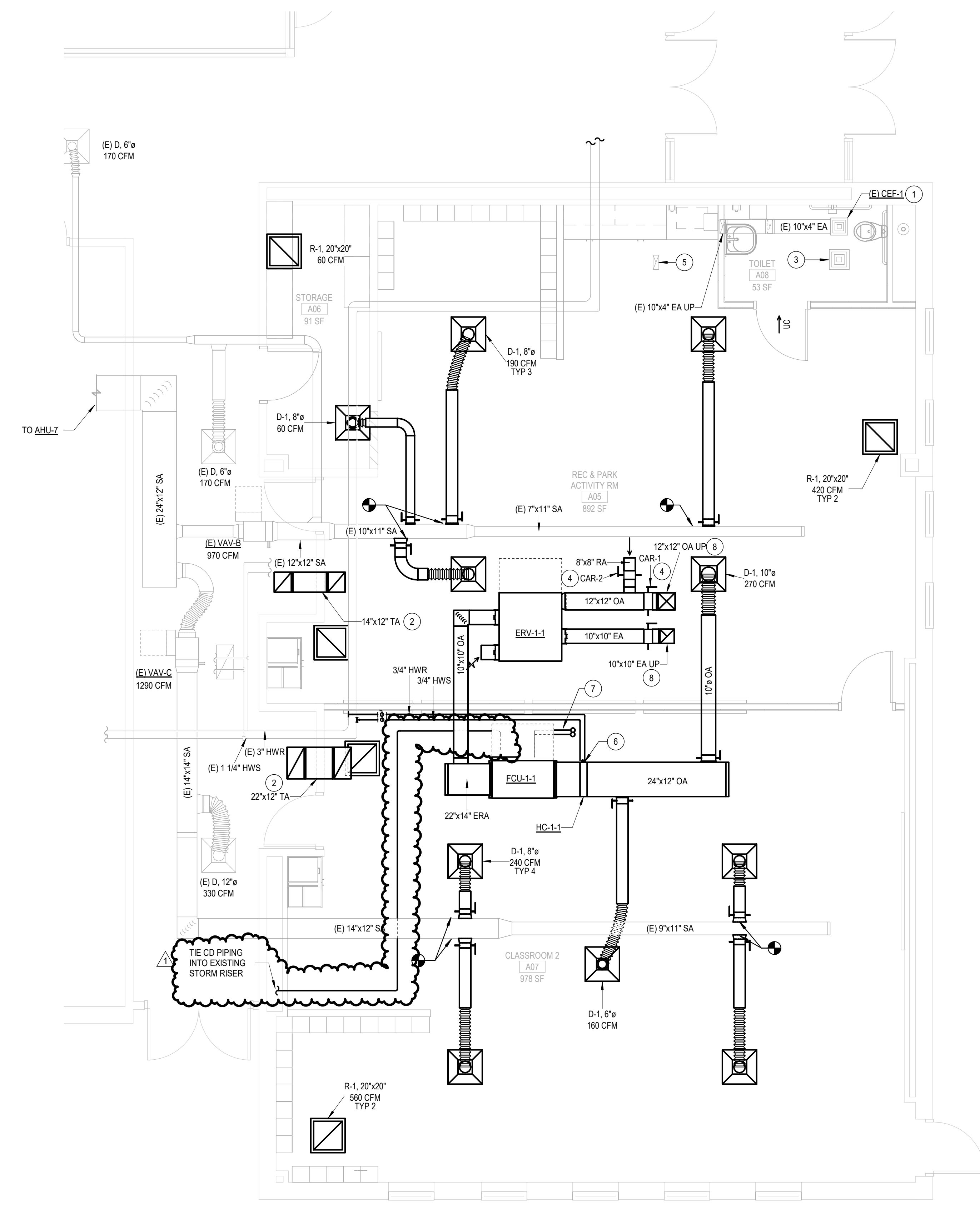
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GENERAL NOTES

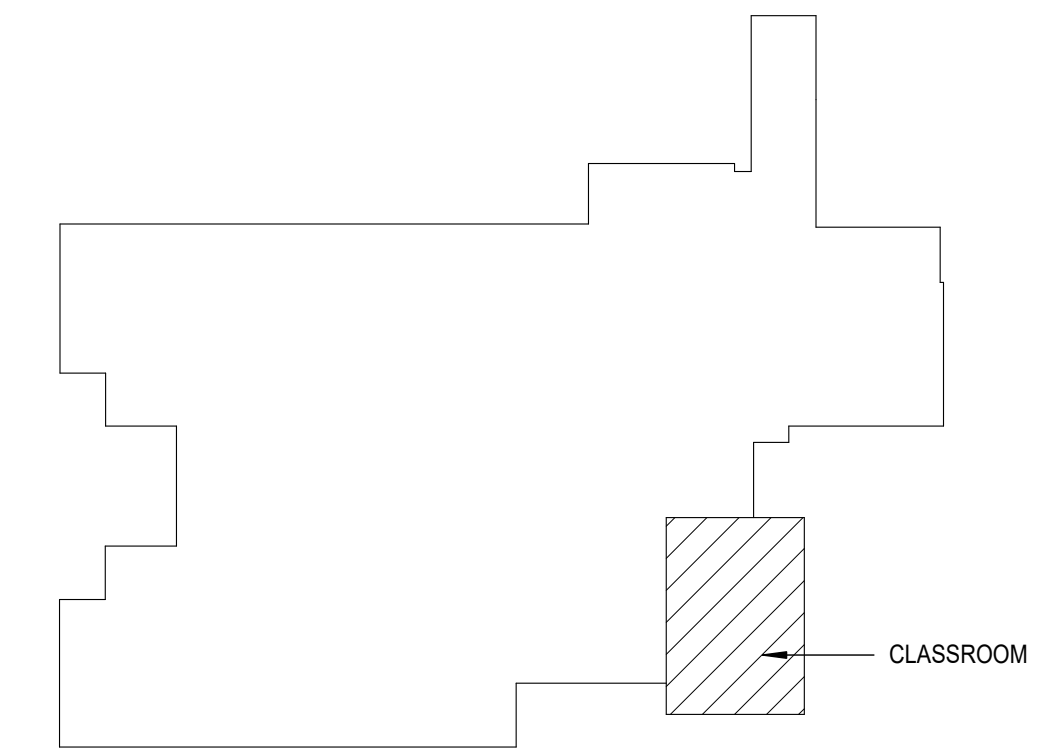
- A FOR SYMBOLS AND ABBREVIATIONS SEE DRAWING M0.1
- B PROVIDE TEMPORARY PROTECTION FOR ALL EXISTING TO REMAIN MECHANICAL & PIPING SYSTEMS.

SHEET NOTES

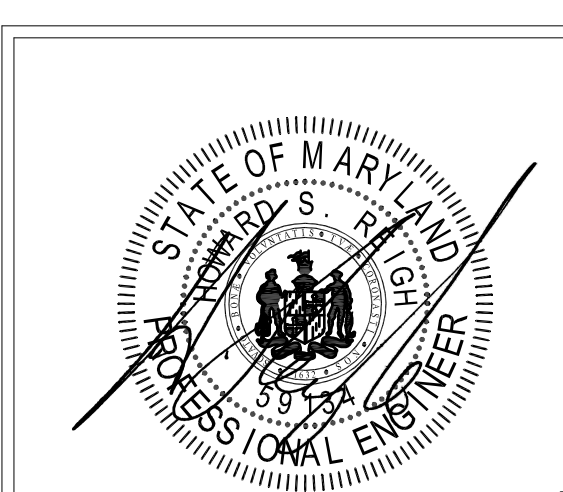
- 1 EXISTING CEILING EXHAUST FAN TO BE RECONNECTED TO THE EXHAUST DUCTWORK AND ELECTRICAL WIRING.
- 2 RETURN AIR DUCT THROUGH EXISTING WALL OPENING. SEE DRAWING FOR DUCT SIZE.
- 3 EXISTING ELECTRIC CEILING RADIANT PANEL TO BE RECONNECTED TO THE ELECTRICAL AND CONTROL WIRING. REUSE AND RELOCATION EXISTING THERMOSTAT AND ASSOCIATED PERFORATED COVER SHOWN ON THE PLAN.
- 4 CONSTANT AIRFLOW REGULATOR. REFER TO CONSTANT AIRFLOW REGULATOR SCHEDULE ON M8.1 FOR ADDITIONAL INFORMATION.
- 5 EXISTING DUCTWORK CAPPED BELOW ROOF PENETRATION.
- 6 TO HC-1.1 REFER TO 8M7.1 FOR 3-WAY COIL PIPING CONNECTION.
- 7 RSRL SIZE PER MANUFACTURER'S RECOMMENDATIONS. PIPE UP THROUGH ROOF PER 4M7.1.
- 8 DUCTWORK THROUGH ROOF. REFER TO DETAIL 6M7.1 FOR DUCTWORK PENETRATION THROUGH ROOF.



1 LEVEL 01 - HVAC PLAN  
M1.1 SCALE: 1/4" = 1'-0"



PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND. LICENSE NO. EXPIRATION DATE:



Autodesk Docs//56-23102-00\_HCPSS Classroom Renovation/56-23102-00\_Triadelphia Ridge ES Classroom Reno MEP\_2022.rvt 3/31/2023 10:21:41 AM

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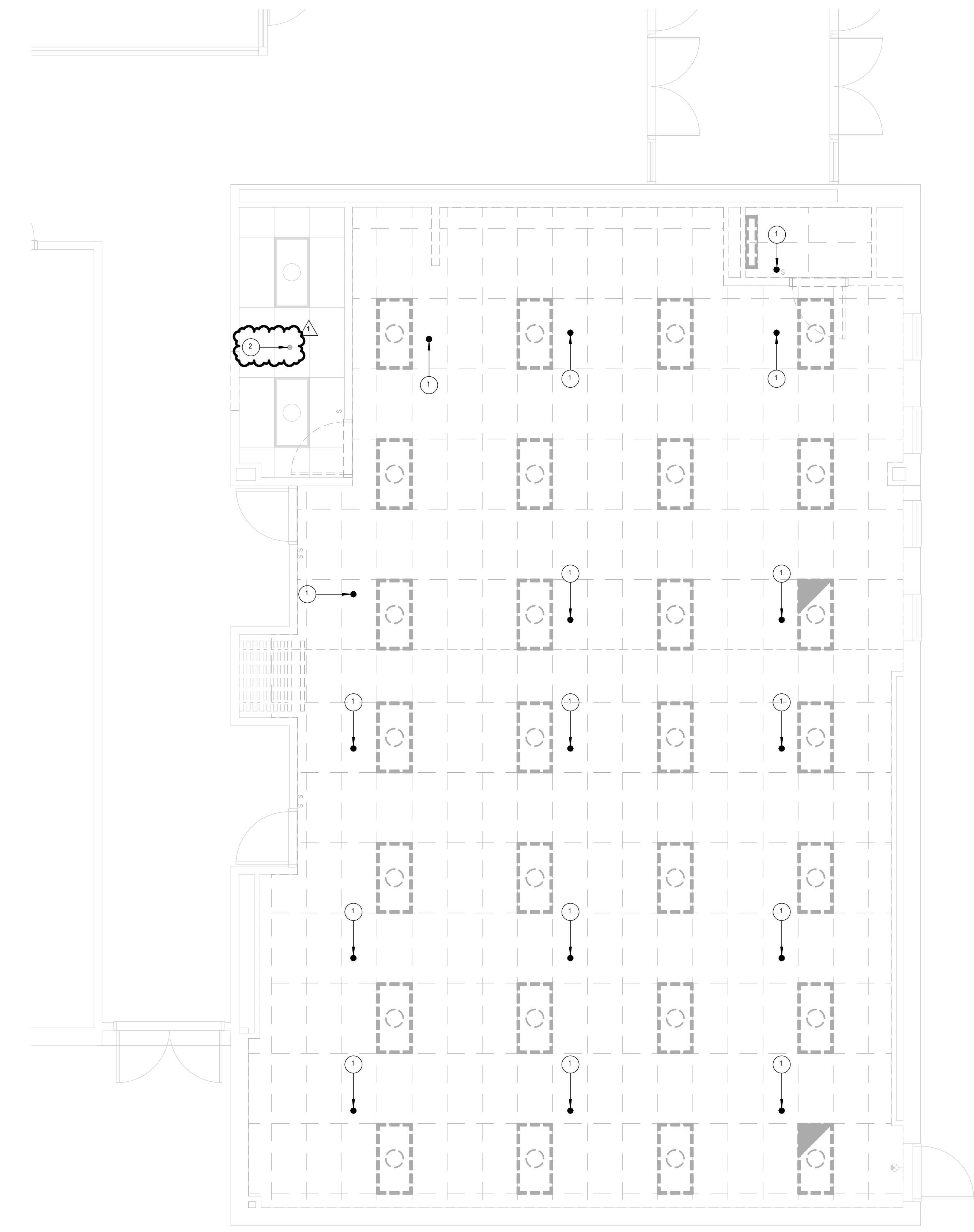
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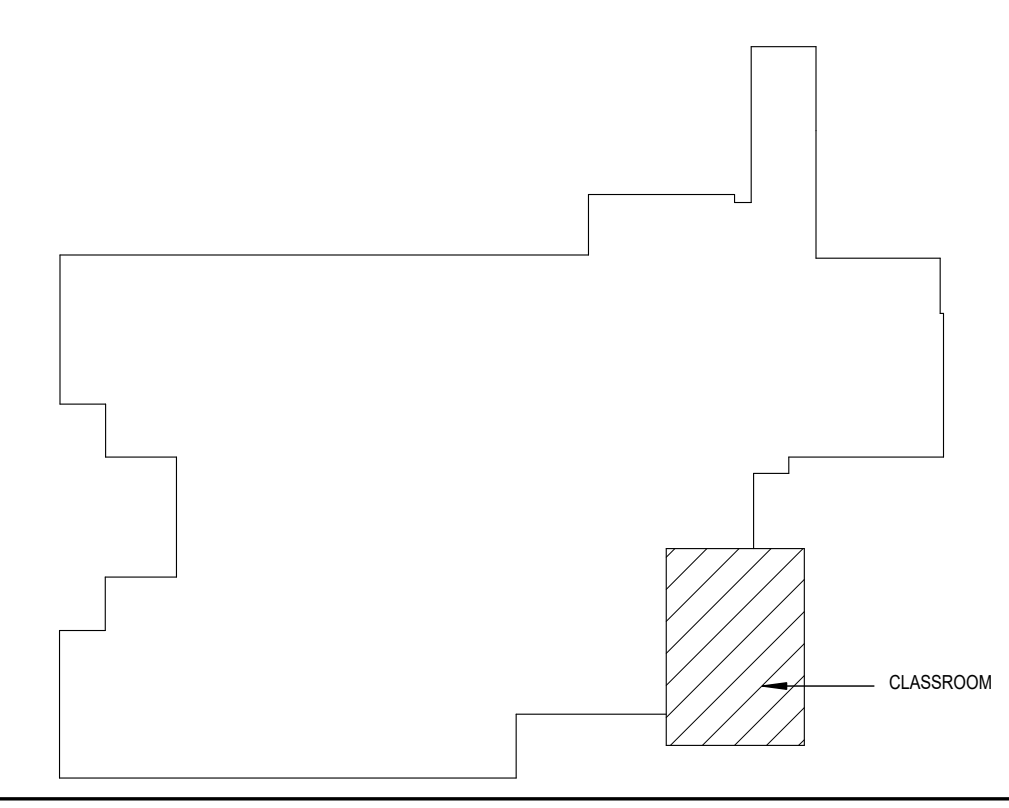
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 FPD1.1 SCALE: 1/8" = 1'-0"

**GENERAL NOTES**

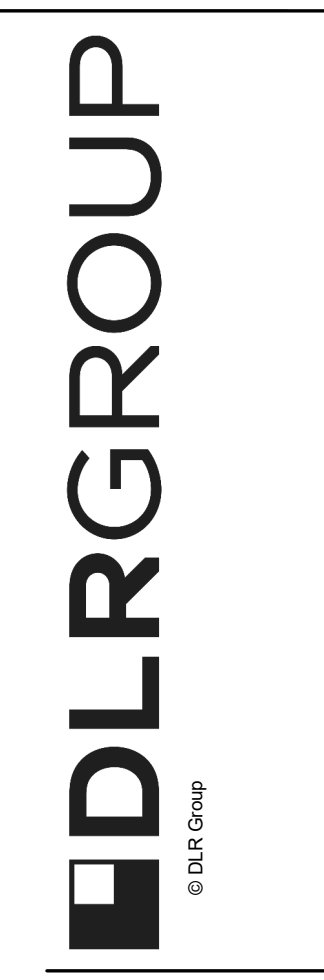
- A EXISTING FIRE SPRINKLER SYSTEM TO REMAIN UNLESS NOTED OTHERWISE. INDIVIDUAL HEADS TO BE RELOCATED TO COMPLY WITH NFPA 13-2019.

**SHEET NOTES**

- 1 REMOVE EXISTING SPRINKLER HEAD. RELOCATE BRANCH COORDINATE WITH NEW CEILING PLAN ON NEW SPRINKLER HEAD LOCATION AND PROVIDE NEW SPRINKLER HEAD.
- 2 EXISTING SPRINKLER HEAD AND ASSOCIATED BRANCH PIPING TO REMAIN.



PROFESSIONAL CERTIFICATION  
 I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME AND THAT I AM A FULLY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
 LICENSE NO. 55370  
 EXPIRATION DATE:



**TRIADELPHIA RIDGE ES CLASSROOM RENO**  
 HOWARD COUNTY PUBLIC SCHOOLS  
 1400 TRIANDELPHIA ROAD, ELICOTT CITY, MD 21042

PERMIT AND BID  
 03/31/2023  
 REVISIONS  
 1 3/31/2023 ADDENDUM NO. 2

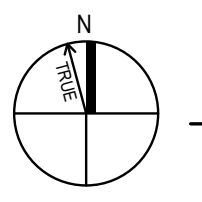
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 LEVEL 01 - FIRE PROTECTION DEMOLITION PLAN

FPD1.1

APPROVAL

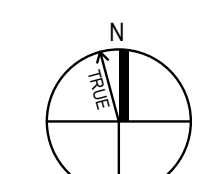
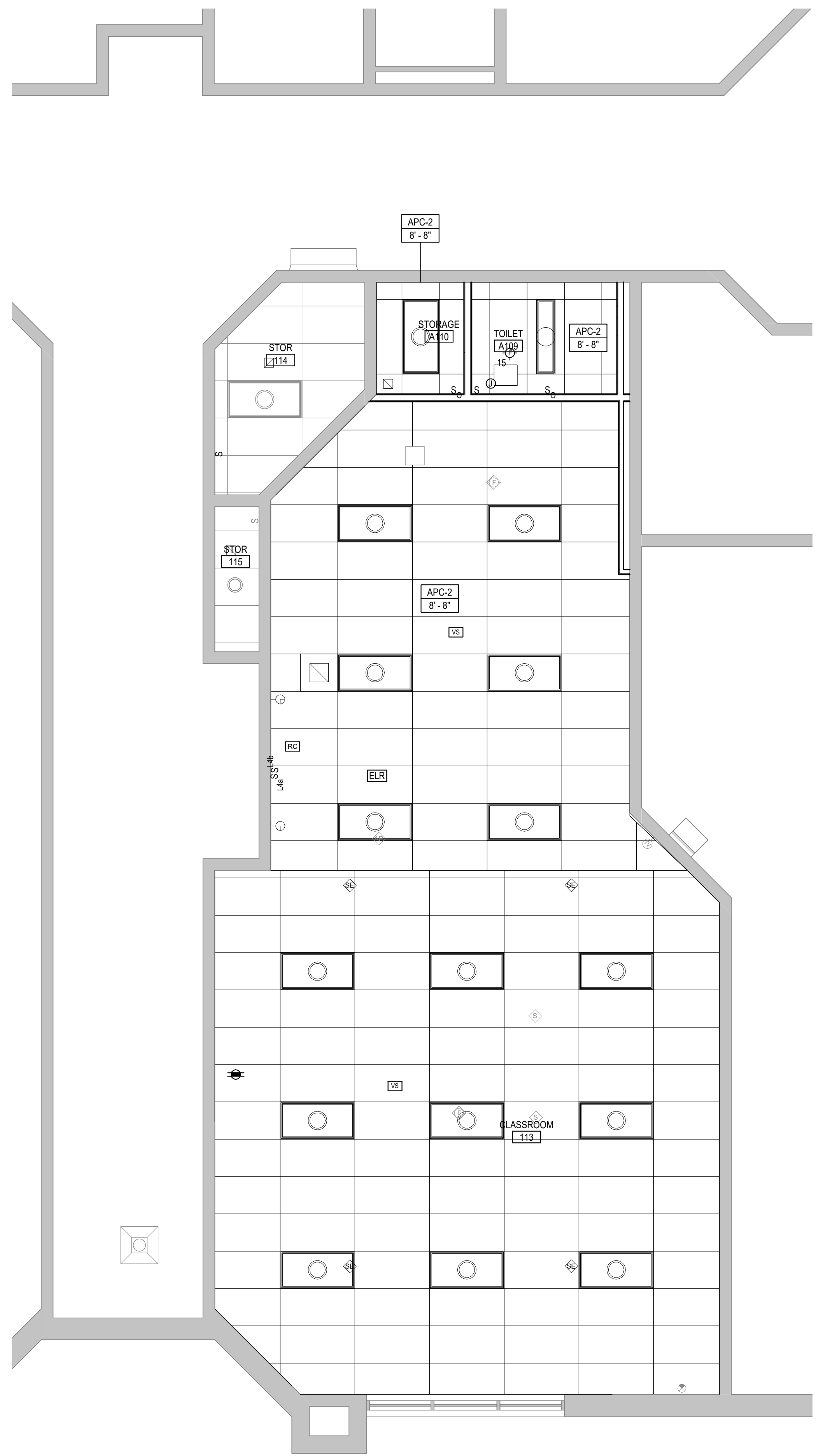
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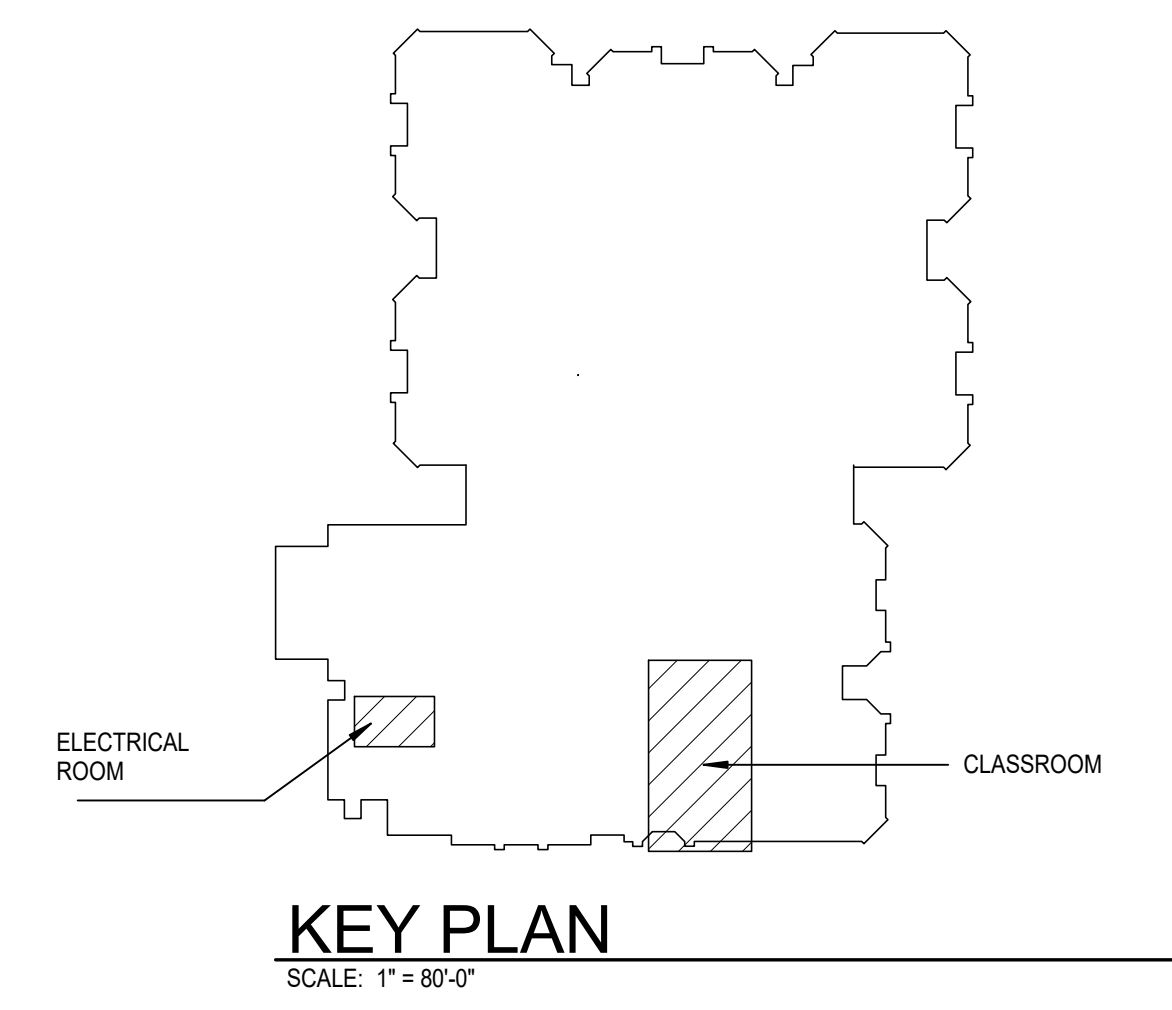
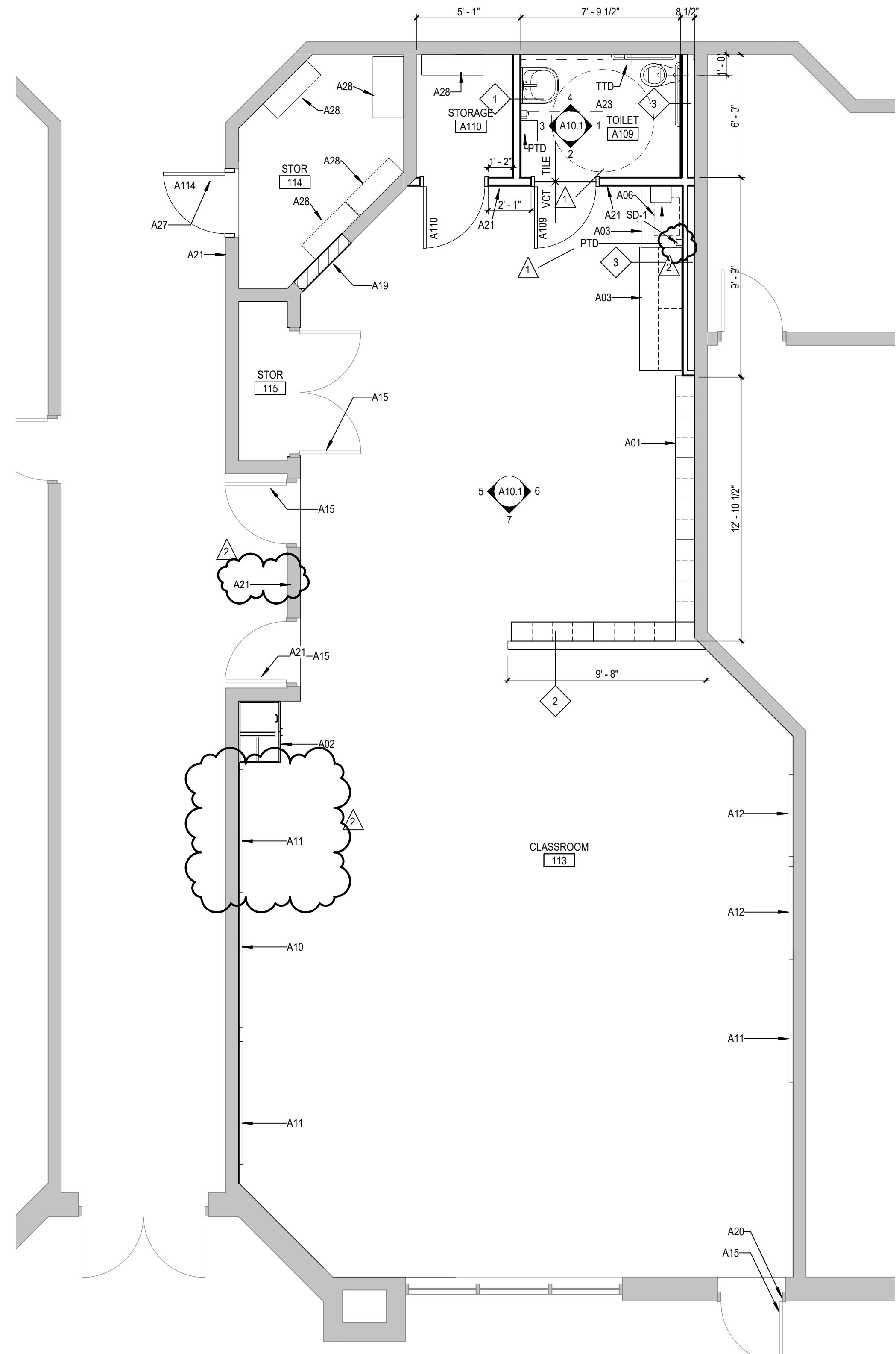
**PROPOSED RCP CLASSROOM**

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



**PROPOSED PLAN CLASSROOM**

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



**GENERAL ARCHITECTURAL NOTES**

1. ALL INTERIOR CMU WALLS SHALL BE 8 INCHES NOMINAL THICKNESS, UNLESS NOTED OTHERWISE.
2. PARTITION TYPES SHALL BE DESIGNATED ON FLOOR PLANS THIS: SEE SHEET A01 FOR TYPES
3. ALL MASONRY WALLS AND INTERIOR STUD WALLS SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE UNLESS NOTED OTHERWISE, PER PARTITION TYPE.
4. PROVISIONS SHALL BE MADE AT ALL FULL HEIGHT NON-BEARING WALLS FOR 1-INCH VERTICAL MOVEMENT OF THE BUILDING STRUCTURE WITHOUT TRANSFER OF COMPRESSIVE LOADS TO WALL. FILL IRREGULARITIES BETWEEN TOP OF WALL AND DECK ABOVE WITH MINERAL WOOL INSULATION OR FIRE STOPPING MATERIALS AS REQUIRED TO MEET FIRE RATING OF RESPECTIVE WALLS.
5. FURNISH AND INSTALL FIRE-TREATED WOOD BLOCKING OR METAL BACKING PLATE IN METAL STUD PARTITIONS FOR THE PROPER ANCHORAGE OF ALL WALL ATTACHED ITEMS, I.E. TOILET ACCESSORIES, CASEWORK, MILLWORK, WALL-MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, AND OTHER WALL ATTACHED ITEMS.
6. GYPSUM BOARD SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE SHOWN ON DRAWINGS AND AS DESCRIBED IN THE SPECIFICATIONS.
7. MASONRY CONTROL JOINTS (CJ) AND CONTROL JOINTS ABOVE (CA) SHALL BE LOCATED AS SHOWN ON THE FLOOR PLAN AND BUILDING ELEVATIONS, AND WHERE LARGE PLUMBING VENTS OR RISERS OCCUR IN SINGLE WYTHE MASONRY WALLS, AND WHERE MASONRY WALLS BEARING ON THE CONCRETE FLOOR SLAB ABUT MASONRY WALLS BEARING ON CONCRETE FOOTINGS OR AS INDICATED ON DRAWINGS.
8. "MBD" AND "TBD" INDICATE MARKER BOARDS AND TACK BOARDS ON PLANS. THE LENGTH PRECEDES THE DESIGNATION (EXAMPLE: 10" MBD). ALL BOARDS ARE 4'-0" TALL. SEE WALL ELEVATIONS OR SPECIFICATIONS FOR MOUNTING HEIGHT.
9. EXTEND FURRING CHANNELS AND GYPSUM BOARD UP 4 INCHES ABOVE FINISHED CEILING ON CMU WALLS.
10. SCRIBE GYPSUM WALL BOARD OF WALLS AND PARTITIONS TO IRREGULARITIES OF DECK ABOVE. SEAL TIGHTLY AROUND ALL PENETRATIONS.
11. PROVIDE SEISMIC BRACING FOR SUSPENDED CEILINGS OR AS SHOWN ON THE DRAWINGS.

**REFLECTED CEILING PLAN GENERAL NOTES**

- A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
- B. ALL CEILING GRID/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
- C. CEILING HEIGHTS ARE NOTED ON THE REFLECTED CEILING PLANS ARE MEASURED FROM THE FINISH FLOOR OF THE ROOM.
- D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, AND OTHER CEILING MOUNTED DEVICES, SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE. SPRINKLER HEADS SHALL BE WITHIN A 3-INCH RADIUS CENTERED BETWEEN CEILING GRIDS.
- E. IN ACoustICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCE IN NOTE D IN ONE HALF OF THE TILE. DO NOT LOCATE ON THE SCORE. FOR ACP WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH THE ARCHITECT.
- F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, AND OTHER CEILING MOUNTED DEVICES. AT ACOUSTICAL PANEL CEILINGS.
- G. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
  - a. FACE OF FINISHED WALL
  - b. FACE OF FINISHED BULKHEADS
  - c. CENTERLINE OF COLUMNS
  - d. CENTERLINE OF TEES
- H. IN AREAS WITH EXPOSED STRUCTURE CEILINGS, COORDINATE EXACT LOCATIONS OF MECHANICAL GRILLES, DIFFUSERS, DUCTWORK AND ELECTRICAL FIXTURES WITH EACH REPRESENTATIVE SUBCONTRACTOR.
- I. ALL WALLS EXTEND TO UNDERSIDE OF DECK EXCEPT THOSE SHOWN SHADED IN WHICH GYPSUM BOARD OR MASONRY EXTENDS MIN 4 INCHES ABOVE FINISHED CEILING. ALL METAL STUDS EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK.

**REFERENCE KEYNOTES**

- |      |  |
|------|--|
| A01  | CASEWORK, PRE-K STORAGE CUBBIES.   |
| A02  | CASEWORK, AUDIO VIDEO WARDROBE. SEE INTERIOR ELEVATIONS AND DETAILS.           |
| A03  | CASEWORK. SEE INTERIOR ELEVATIONS AND DETAILS.                                 |
| A06  | SINK. SEE PLUMBING DRAWINGS.   |
| A10  | PROJECTION BOARD, 6'-5" X 4'.  |
| A11  | MARKER BOARD (MBD).  |
| A12  | TACK BOARD (TBD), 4' X 4'.   |
| A15  | EXISTING DOOR TO REMAIN.   |
| A19  | INFILL PARTITION TO MATCH EXISTING CMU PARTITION.                              |
| A20  | REPAIR RUSTED HOLLOW METAL DOOR FRAME. ROOM SIGNAGE TO MATCH EXISTING.         |
| A21  | NEW CERAMIC TILE FLOORING.   |
| A27  | INSTALL SALVAGED DOOR WITH NEW HM FRAME. SEE LINTEL SCHEDULE AND DETAIL 3/A8.2 |
| A28  | REINSTALL SALVAGED METAL SHELVING UNITS.                                       |
| PTD  | PAPER TOWEL DISPENSER.   |
| SD-1 | SOAP DISPENSER, ADULT HEIGHT.  |
| TTD  | TOILET TISSUE DISPENSER.   |

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MARYLAND, LICENSE NO. 16986, EXPIRATION DATE: 07-09-2024.



**ROCKBURN ES CLASSROOM RENOVATION**  
HOWARD COUNTY PUBLIC SCHOOLS  
6145 MONTGOMERY RD., ELURIDGE, MD 21075

**PERMIT AND BID**  
3/01/2023  
REVISIONS  
1 Addendum No. 1 03-16-2023  
2 Addendum No. 2 03-31-2023

56-23102-00  
**LEVEL 01 - FLOOR & RCP PLAN**

**A1.1**

APPROVAL

**GENERAL NOTES**

A EXISTING FIRE SPRINKLER SYSTEM TO REMAIN UNLESS NOTED OTHERWISE. INDIVIDUAL HEADS TO BE RELOCATED TO COMPLY WITH NFPA 13-2019.

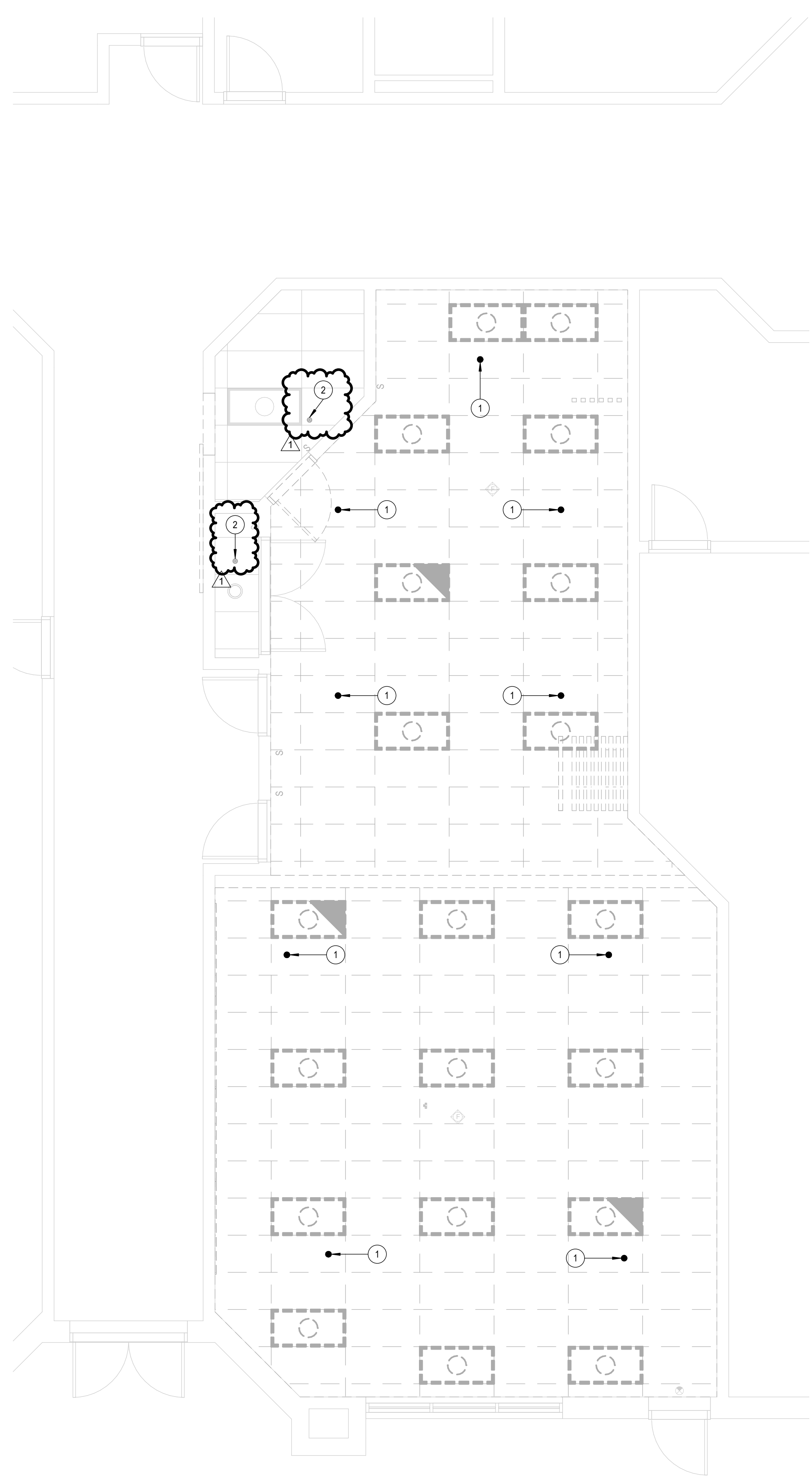
**SHEET NOTES**

- 1 REMOVE EXISTING SPRINKLER HEAD. RELOCATE BRANCH COORDINATE WITH NEW CEILING PLAN ON NEW SPRINKLER HEAD LOCATION AND PROVIDE NEW SPRINKLER HEAD.
- 2 EXISTING SPRINKLER HEAD AND ASSOCIATED BRANCH PIPING TO REMAIN.

PROFESSIONAL CERTIFICATION:  
I HEREBY CERTIFY THAT THESE DOCUMENTS WERE PREPARED OR APPROVED BY ME, AND THAT I AM A DULY LICENSED ENGINEER UNDER THE LAWS OF THE STATE OF MARYLAND.  
LICENSE NO. \_\_\_\_\_  
EXPIRATION DATE: \_\_\_\_\_



APPROVAL



**LEVEL 01 - FIRE PROTECTION DEMOLITION PLAN**

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

