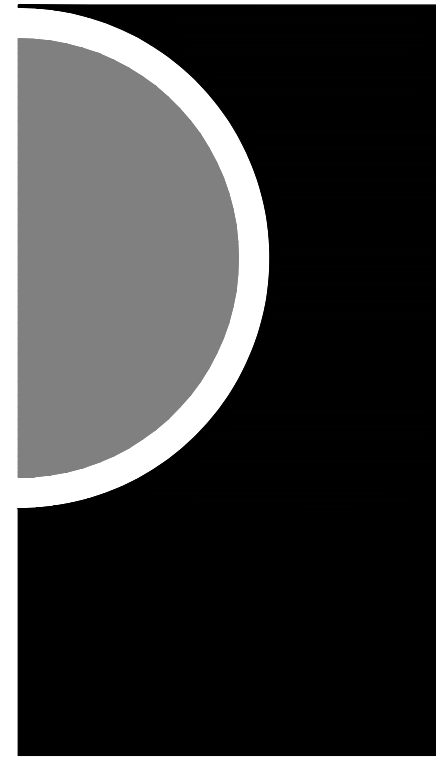


# HPS HVAC Improvements - Phase 1

## Tau Beta School

3056 Hanley, Hamtramck, MI 48212

### PARTNERS



Architect:

PARTNERS in Architecture, PLC

65 Market Street  
Mount Clemens, MI 48043  
586-469-3600

Mechanical / Electrical Engineer:

Shymanski & Associates, LLC

33426 Five Mile Road  
Livonia, MI 48154  
734-855-4810

Owner:

Hamtramck Public Schools

3201 Roosevelt St.  
Hamtramck, MI 48212  
(Phone) 313-872-9270

Mechanical / Electrical Engineer:

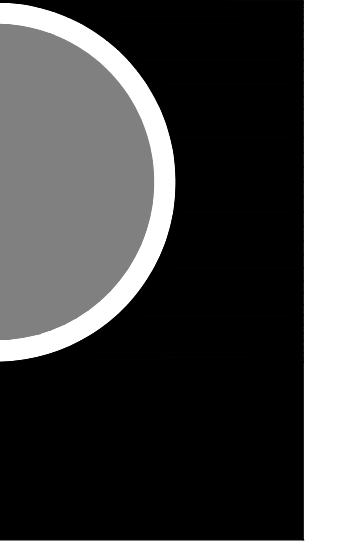
Peter Basso Associates Inc.

5145 Livernois, Suite 100  
Troy, MI 48098  
(Phone) 248-879-5666

### List of Drawings

Sheet Number	Sheet Title
A0-00	Cover Sheet
Architectural	
A0-01	General Project Information
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A3-01	Composite Plan
A3-10	Roof Plan
Structural	
S3-20	Roof Framing Plan
S4-00	General Notes
S5-00	Details
Mechanical	
M0-01	Mechanical Standards And Drawing Index
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MD1-10	Main Level Mechanical Demolition Plan
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MD1-30	Roof Mechanical Demolition Plan
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ED3-20	Roof Electrical Demolition Plan
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E3-10	Main Level Electrical Plan
E3-20	Roof Electrical Plan
E5-01	One Line Diagram

### PARTNERS



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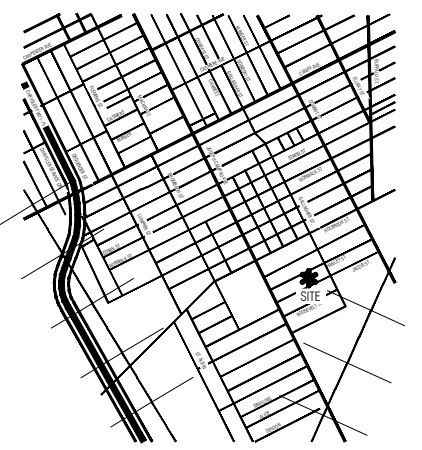
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LOCATION MAP



OWNER

Hamtramck  
Public Schools

PROJECT NAME

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

22-106D

ISSUES / REVISIONS

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022

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AAA

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ACS

APPROVED BY

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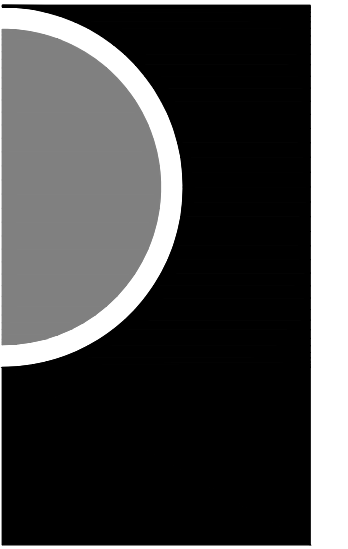
SHEET NAME

COVER SHEET

SHEET NO.

A0-00



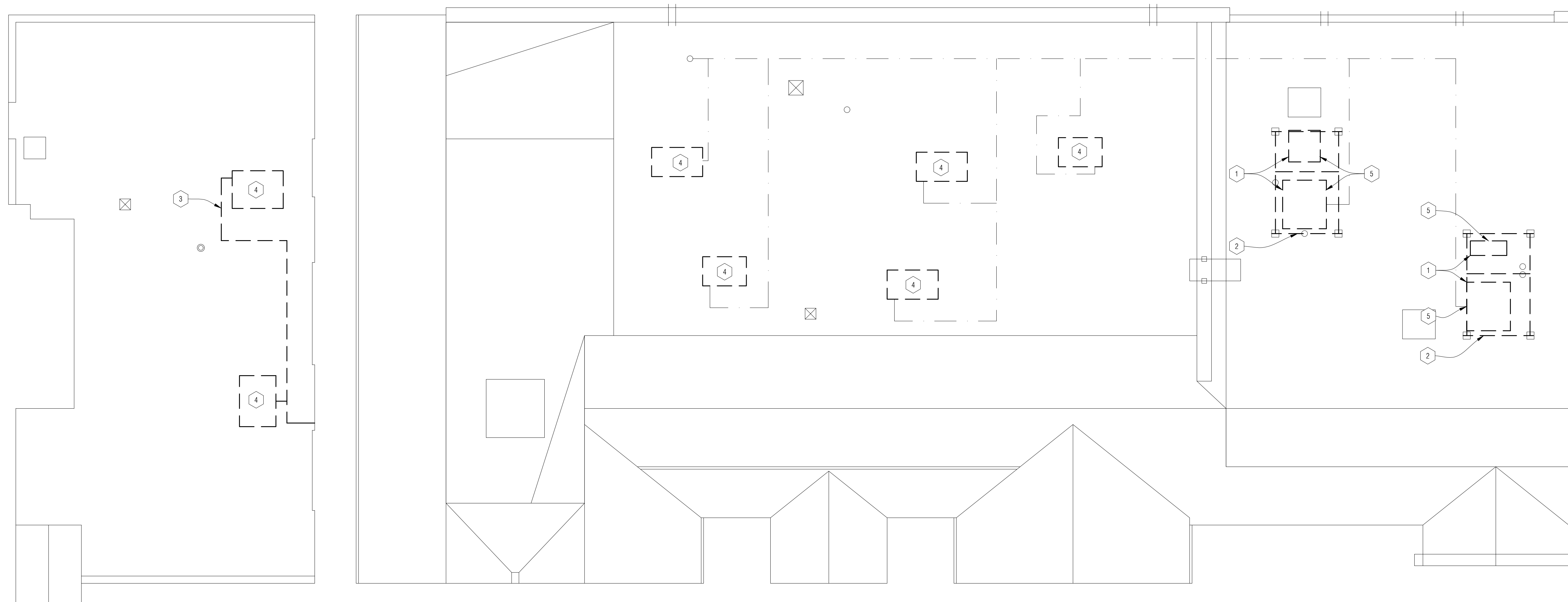


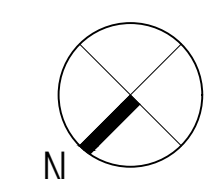
**GENERAL NOTES:**

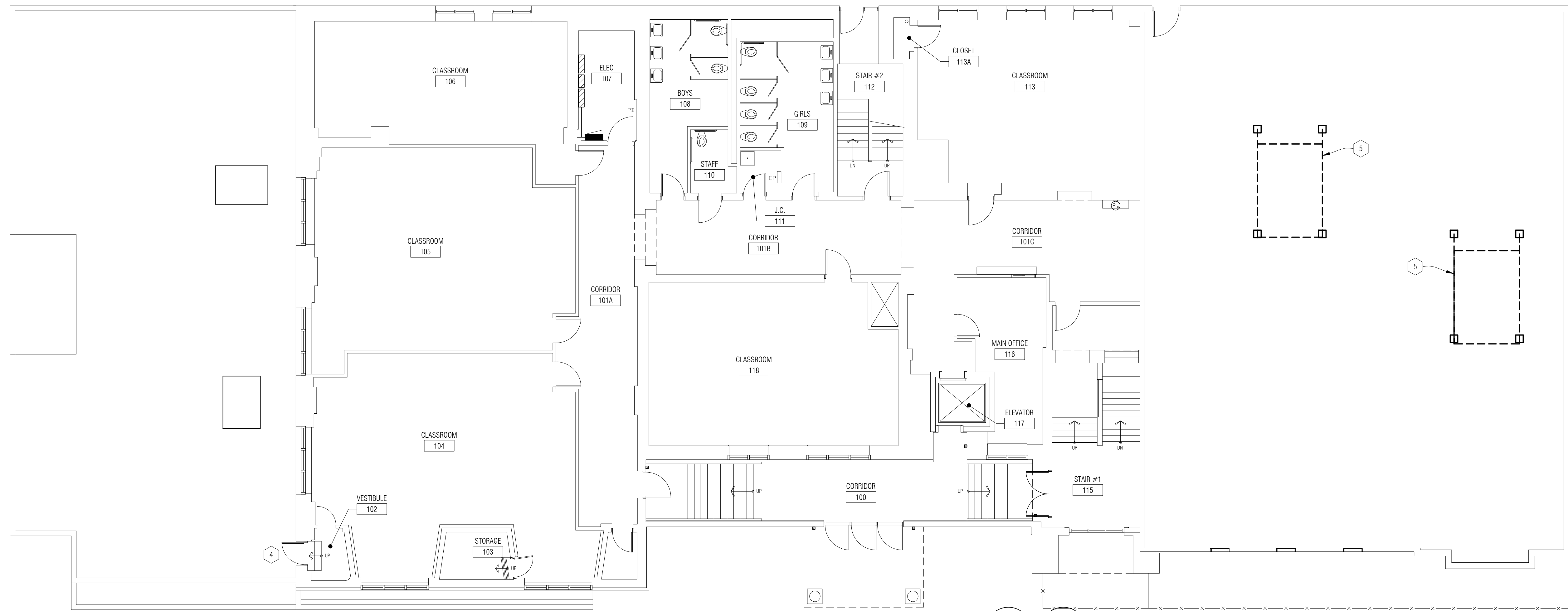
- A. DO NOT SCALE DRAWINGS. USE DIMENSIONS PROVIDED AND VERIFY IN FIELD. IF A CONFLICT IS ENCOUNTERED OR A REQUIRED DIMENSION IS NOT PROVIDED, REQUEST A CLARIFICATION FROM THE ARCHITECT.
- B. NOTIFY ARCHITECT OF ANY DISCREPANCIES AND/OR CONFLICTS WITH FLOOR PLAN AND EXISTING BUILDING CONDITIONS PRIOR TO STARTING ANY WORK.
- C. ALL DEMOLITION DRAWINGS & DETAILS ARE PROVIDED TO SHOW THE GENERAL SCOPE OF THE DEMOLITION WORK. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PERFORM ALL DEMOLITION WORK NECESSARY TO ACCOMPLISH NEW WORK. THE DEMOLITION DRAWINGS AND DETAILS MAY NOTE TYPICAL ITEMS IN SOME AREAS, WHICH APPLY IN OTHER AREAS (AND ARE DESIGNATED WITH DASHED LINES) COORDINATE ALL DEMOLITION WORK WITH ALL ARCHITECTURAL, CIVIL, STRUCT, MECH AND ELEC DRAWINGS. THE CONTRACTOR IS RESPONSIBLE TO REFERENCE ALL DRAWINGS & SPECIFICATIONS TO CONFIRM EXTENT OF DEMOLITION WORK.
- D. ALL CONSTRUCTION AND DEMOLITION MEANS, METHODS AND SAFETY PRECAUTIONS SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- E. DISPOSE OF ALL DEMOLITION MATERIALS LEGALLY OFF-SITE, U.O.N.
- F. ASBESTOS AND OTHER HAZARDOUS MATERIALS WILL BE REMOVED BY OWNER'S ABATEMENT CONTRACTOR PRIOR TO START OF CONSTRUCTION. IF ANY SUSPECTED HAZARDOUS MATERIAL IS ENCOUNTERED, STOP WORK IN THAT AREA AND IMMEDIATELY INFORM THE CONSTRUCTION MANAGER.
- G. CONTRACTOR SHALL PROTECT EXISTING BUILDING ELEMENTS AND SITE FROM DAMAGE CAUSED BY CONTRACTOR AND SHALL REPAIR ALL DAMAGED AREAS (IDENTIFIED BY OWNER, ARCHITECT AND/OR CM) AT NO ADDITIONAL COST.
- H. REMOVE ALL ITEMS PROJECTING FROM EXISTING WALLS OR FLOORS TO REMAIN (BLOCKING, SCREWS, FASTENERS, OBSOLETE PIPE & CONDUIT, MOUNTING PLATES, OBSOLETE FIXED EQUIPMENT, ETC). PATCH AND REPAIR TO RECEIVE NEW FINISH.

**DEMO PLAN KEY NOTES:**

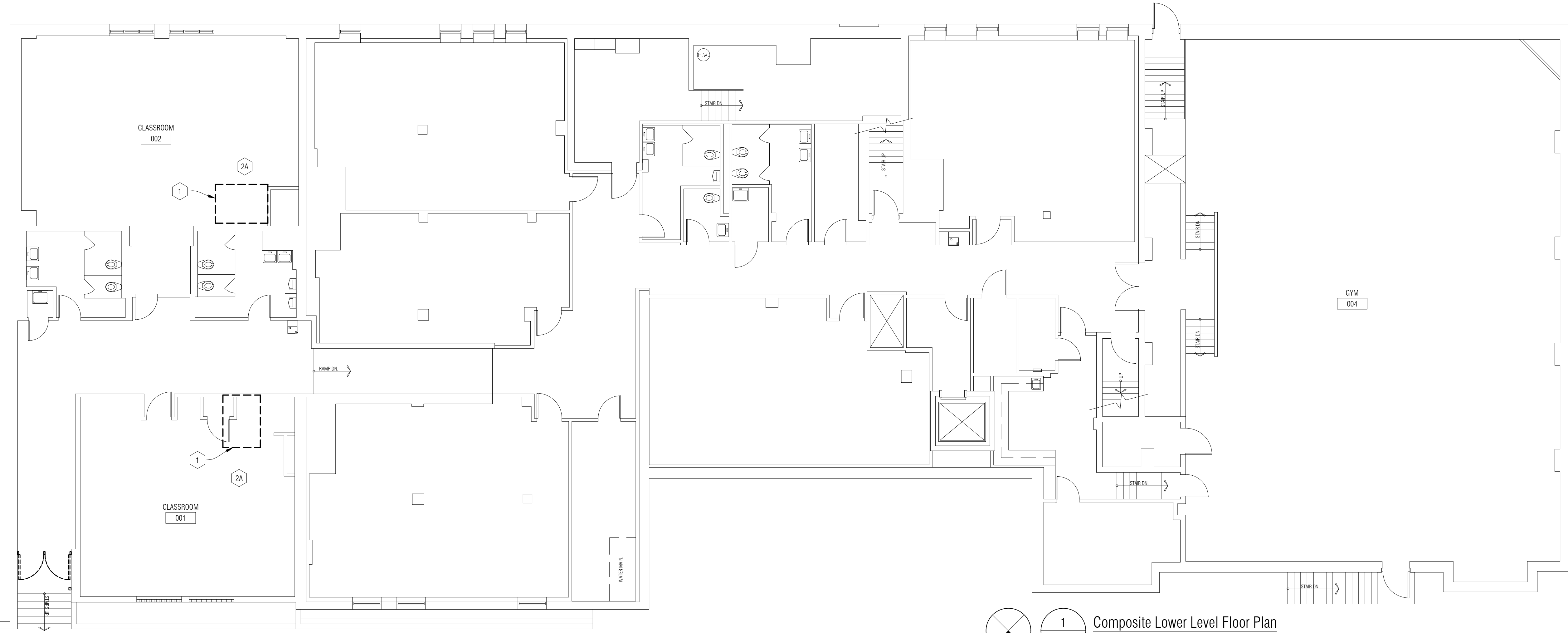
- 1 REMOVE EXISTING CURB CAP INCLUDING SEALANT AND FASTENERS, FLASHING AND ROOF MEMBRANE TO REMAIN - PROTECT DURING DEMOLITION / NEW WORK INSTALLATION.
- 2 REMOVE STRUCTURAL STEEL FRAMING TO TOP OF STEEL PLATE BELOW. COMPLETE - STEEL PLATE AND COLUMNS TO REMAIN.
- 3 EXISTING GAS SUPPLY PIPE TO BE REMOVED AND REPLACED BY MECH - REMOVE EXIST PIPE SUPPORT.
- 4 EXIST ROOF TOP MECH UNIT / EQUIPMENT TO BE REMOVED BY MECH - EXISTING CURB ASSEMBLY AND FLASHING TO REMAIN. PROTECT DURING DEMOLITION / NEW WORK INSTALLATION.
- 5 EXISTING HVAC EQUIPMENT ON STL SUPPORT GRILLE TO BE REMOVED W/ ASSOCIATED UTILITY / ELEC SERVICE PIPING - REFER TO MECH / ELEC.



 **1** Roof Demolition Plan  
1/8" = 1'-0"



2 Composite Main Level Floor Plan  
1/8" = 1'-0"



1 Composite Lower Level Floor Plan  
1/8" = 1'-0"

**BUILDING CODE INFORMATION**

**OWNER:** HAMTRAMCK PUBLIC SCHOOLS  
**PROJECT:** HVAC IMPROVEMENTS  
**ADDRESS:** 3056 HANLEY, HAMTRAMCK MICHIGAN 48212

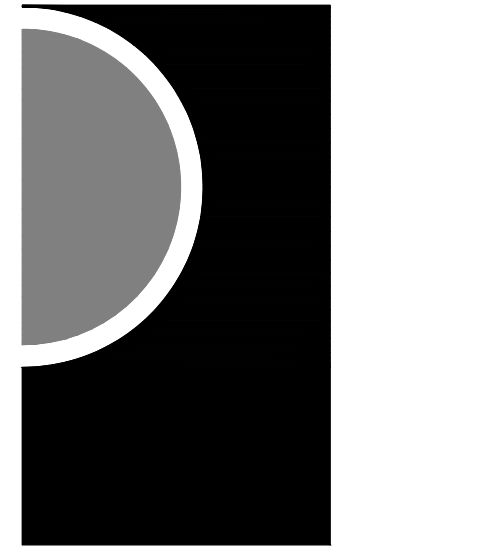
**GOVERNING CODES:**  
 2015 MICHIGAN BUILDING CODE (MBC)  
 2012 NFPA LIFE SAFETY CODE 101 (LSC)  
 - CHAPTERS 1 TO 11, 15, 26,27,32 & 33 (WITH AMENDMENTS)  
 2015 MICHIGAN ENERGY CODE INCORPORATING ANSI/ASHRAE/IESNA STANDARD 90.1  
 2015 MICHIGAN MECHANICAL CODE (MCC)  
 2017 NATIONAL ELECTRICAL CODE (NEC)  
 2018 MICHIGAN PLUMBING CODE (MPC)

**BUILDING DATA SUMMARY:**

- OCCUPANCY: (E) EDUCATIONAL
- CONSTRUCTION TYPE: TYPE III (UNPROTECTED, COMBUSTIBLE)
- SUPPRESSION: EXISTING SPRINKLERED
- BUILDING AREA: UNCHANGED
- BUILDING HEIGHT: UNCHANGED

**NEW WORK KEY NOTES (NOT ALL KEYNOTES ARE APPLICABLE):**

- 1 APPROXIMATE LOCATION OF ROOF TOP UNIT (V.I.F.).
- 2A APPROXIMATE AREA FOR CEILING ACCESS TO MECH EQUIPMENT AND/OR STRUCTURAL STEEL REINFORCING - REFER TO MECH AND/OR STRUCTURAL DRAWINGS - LAY-IN CEILING TILE; REMOVE AND REPLACE TILE AND/OR GRID AS NEEDED FOR ACCESS.
- 2B APPROXIMATE AREA FOR CEILING ACCESS TO MECH EQUIPMENT AND/OR STRUCTURAL STEEL REINFORCING - REFER TO MECH AND/OR STRUCTURAL DRAWINGS - HARD SURFACE CEILING; REVIEW ADJACENT AREAS PRIOR TO ACCESSING AREA THROUGH HARD SURFACE CEILING TO DETERMINE IF OTHER ACCESS IS AVAILABLE. IF ACCESS MUST BE FROM HARD SURFACE CEILING AREA, REMOVE PORTION OF EXISTING CEILING AS NEEDED FOR ACCESS - PATCH AND REPAIR ALL AFFECTED AREAS, PAINT TO MATCH EXISTING SURFACES.
- 3 APPROXIMATE LOCATION OF CONDENSING UNITS ON ROOF - PIPING ACCESSIBLE FROM GYMNASIUM (METAL DECK ON STEEL JOISTS) AT APPROXIMATELY 25'-0" FROM AUX GYM FF.
- 4 ROOF ACCESS.
- 5 APPROXIMATE LOCATION OF STEEL TABLE ON ROOF - REFER TO STRUCTURAL FOR STEEL REINFORCING - LAY-IN CEILING AT APPROXIMATELY 25'-0" FROM GYM FF.
- 6 APPROXIMATE SIZE AND LOCATION OF EXISTING CAP AND ROOF CURB TO BE MODIFIED AND NEW CURB CAP INSTALLED BELOW STL SUPPORTS (V.I.F.).
- 7 APPROXIMATE AREA FOR NEW DUCT PENETRATION THROUGH CURB CAP. PROVIDE DUCT PENETRATION FLASHING - COORDINATE W/ MECH FOR LAYOUT AND SIZE.
- 8 APPROXIMATE AREA OF FINISH CEILING REMOVAL AND REINSTALLATION / REPLACEMENT FOR ROOF STRUCTURAL REINFORCEMENT - REFER TO STRUCT.
- 9 APPROXIMATE AREA OF ROOF STRUCTURAL REINFORCEMENT WITHIN OVERHANG CONSTRUCTION - VERIFY INTERIOR ACCESS TO OVERHANG. REMOVE AND REPLACE EXTERIOR SOFFIT AS REQD TO COMPLETE REINFORCEMENT WORK - VERIFY SOFFIT MATERIAL AND CONSTRUCTION IN FIELD - REFER TO STRUCT.
- 10 APPROXIMATE LOCATION OF RATED WALL PENETRATION FOR NEW JOIST REINFORCEMENT. REMOVE AND RECONSTRUCT RATED WALL CONSTRUCTION TO COMPLETE REINFORCEMENT WORK - REFER TO STRUCT - SEAL WALL CONSTRUCTION SMOKE TIGHT AT MODIFIED CONSTRUCTION.
- 11 EXISTING DAMPER / ACTUATOR REMOVAL / REPLACEMENT BY MECH - TOUCH UP PAINT / PAINT NEW EXPOSED COMPONENT TO MATCH EXISTING CEILING COLOR - MATCH IN FIELD.
- 12 NEW HVAC UNIT CONTROLS INSTALLATION BY MECH - TOUCH UP PAINT AT CONTROL INSTALLATION AND/OR EXPOSED CONDUIT ALTERATIONS.
- 13 TOUCH UP / PAINT NEW EXPOSED CONDUIT TO MATCH EXISTING EXPOSED ROOF DECK COLOR - REFER TO ELEC.



PARTNERS in Architecture, PLC  
 65 MARKET STREET  
 MOUNT CLEMENS, MI 48043  
 P 586.469.3600

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CONSULTANT

KEY PLAN

OWNER  
**Hamtramck Public Schools**

PROJECT NAME  
**HVAC Improvements Phase 1 Tau Beta School**

3056 Hanley Hamtramck, MI 48212

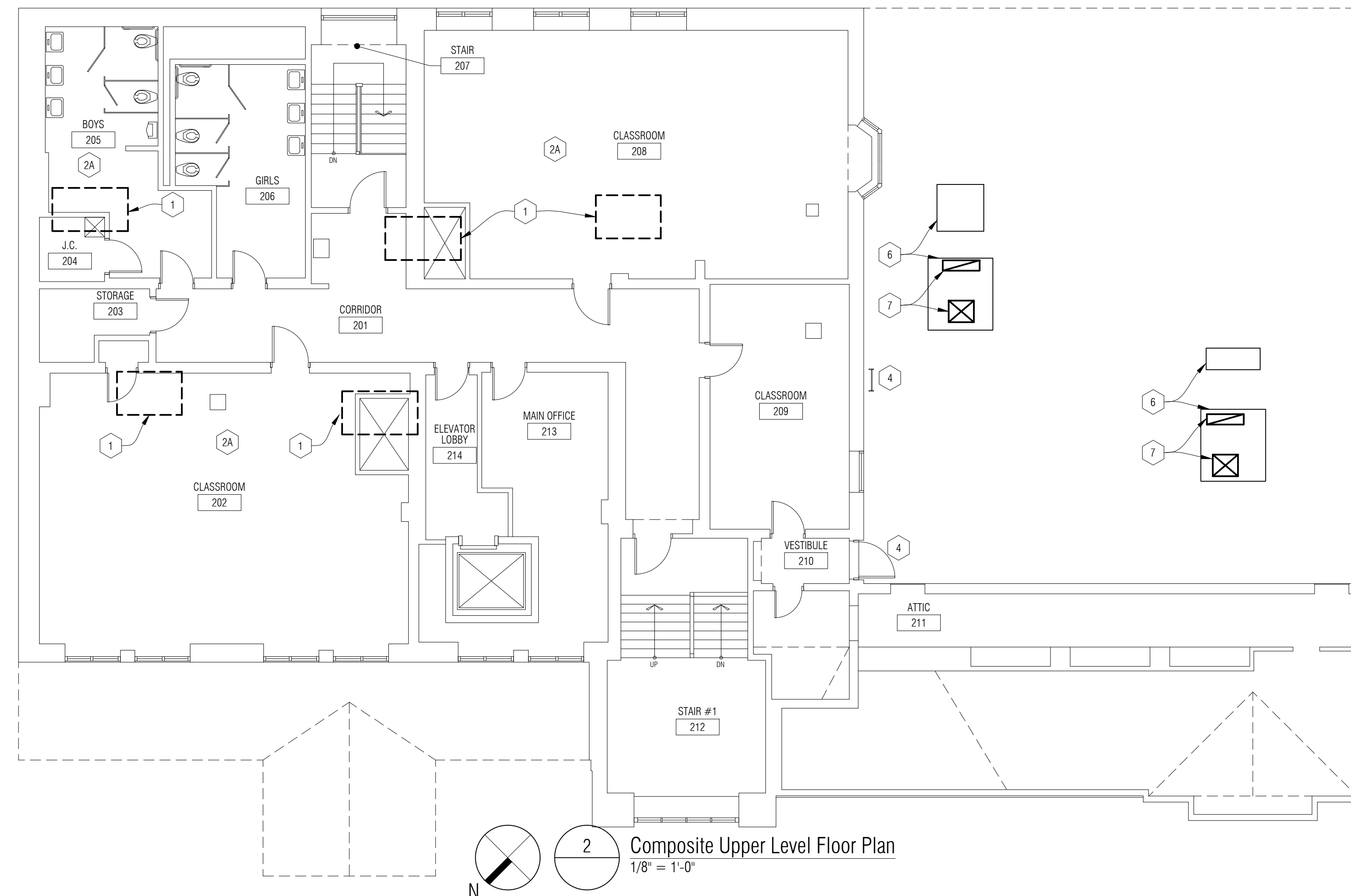
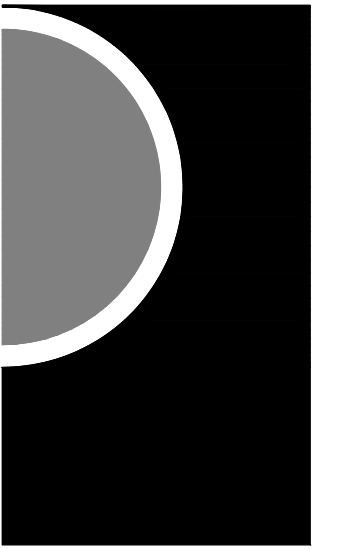
PROJECT NO.  
**22-106D**

ISSUES / REVISIONS  
 Owner Review 03/22/2022  
 Bidding - Construction 04/07/2022

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 CHECKED BY  
 ACS  
 APPROVED BY  
 MAM  
 SHEET NAME

**COMPOSITE FLOOR PLANS**

SHEET NO.  
**A3-01**



**NEW WORK KEY NOTES (NOT ALL KEYNOTES ARE APPLICABLE):**

- 1 APPROXIMATE LOCATION OF ROOF TOP UNIT (V.I.F.).
- 2A APPROXIMATE AREA FOR CEILING ACCESS TO MECH EQUIPMENT AND/OR STRUCTURAL STEEL REINFORCING - REFER TO MECH AND/OR STRUCTURAL DRAWINGS - LAY-IN CEILING TILE; REMOVE AND REPLACE TILE AND/OR GRID AS NEEDED FOR ACCESS.
- 2B APPROXIMATE AREA FOR CEILING ACCESS TO MECH EQUIPMENT AND/OR STRUCTURAL STEEL REINFORCING - REFER TO MECH AND/OR STRUCTURAL DRAWINGS - HARD SURFACE CEILING; REVIEW ADJACENT AREAS PRIOR TO ACCESSING AREA THROUGH HARD SURFACE CEILING TO DETERMINE IF OTHER ACCESS IS AVAILABLE. IF ACCESS MUST BE FROM HARD SURFACE CEILING AREA, REMOVE PORTION OF EXISTING CEILING AS NEEDED FOR ACCESS - PATCH AND REPAIR ALL AFFECTED AREAS, PAINT TO MATCH EXISTING SURFACES.
- 3 APPROXIMATE LOCATION OF CONDENSING UNITS ON ROOF - PIPING ACCESSIBLE FROM GYMNASIUM (METAL DECK ON STEEL JOISTS) AT APPROXIMATELY 25'-0" FROM AUX GYM FF.
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- 7 APPROXIMATE AREA FOR NEW DUCT PENETRATION THROUGH CURB CAP. PROVIDE DUCT PENETRATION FLASHING - COORDINATE W/ MECH FOR LAYOUT AND SIZE.
- 8 APPROXIMATE AREA OF FINISH CEILING REMOVAL AND REINSTALLATION / REPLACEMENT FOR ROOF STRUCTURAL REINFORCEMENT - REFER TO STRUCT.
- 9 APPROXIMATE AREA OF ROOF STRUCTURAL REINFORCEMENT WITHIN OVERHANG CONSTRUCTION - VERIFY INTERIOR ACCESS TO OVERHANG. REMOVE AND REPLACE EXTERIOR SOFFIT AS NEEDED TO COMPLETE REINFORCEMENT WORK - VERIFY SOFFIT MATERIAL AND CONSTRUCTION IN FIELD - REFER TO STRUCT.
- 10 APPROXIMATE LOCATION OF RATED WALL PENETRATION FOR NEW JOIST REINFORCEMENT. REMOVE AND RECONSTRUCT RATED WALL CONSTRUCTION TO COMPLETE REINFORCEMENT WORK - REFER TO STRUCT - SEAL WALL CONSTRUCTION SMOKE TIGHT AT MODIFIED CONSTRUCTION.
- 11 EXISTING DAMPER / ACTUATOR REMOVAL / REPLACEMENT BY MECH - TOUCH UP PAINT / PAINT NEW EXPOSED COMPONENT TO MATCH EXISTING CEILING COLOR - MATCH IN FIELD.
- 12 NEW HVAC UNIT CONTROLS INSTALLATION BY MECH - TOUCH UP PAINT AT CONTROL INSTALLATION AND/OR EXPOSED CONDUIT ALTERATIONS.
- 13 TOUCH UP / PAINT NEW EXPOSED CONDUIT TO MATCH EXISTING EXPOSED ROOF DECK COLOR - REFER TO ELEC.

OWNER

**Hantramck  
Public Schools**

PROJECT NAME

**HVAC Improvements  
Phase 1  
Tau Beta School**

3056 Hanley  
Hantramck, MI 48212

PROJECT NO.

**22-106D**

ISSUES / REVISIONS

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022

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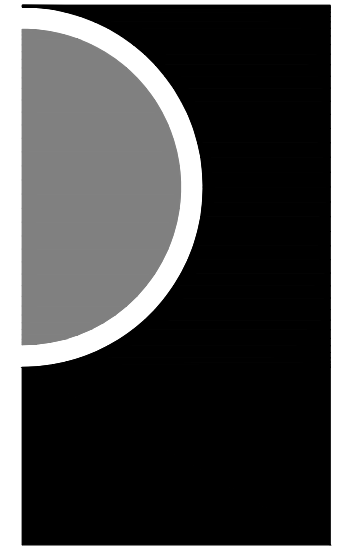
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SHEET NAME

**COMPOSITE  
FLOOR PLAN**

SHEET NO.  
**A3-02**

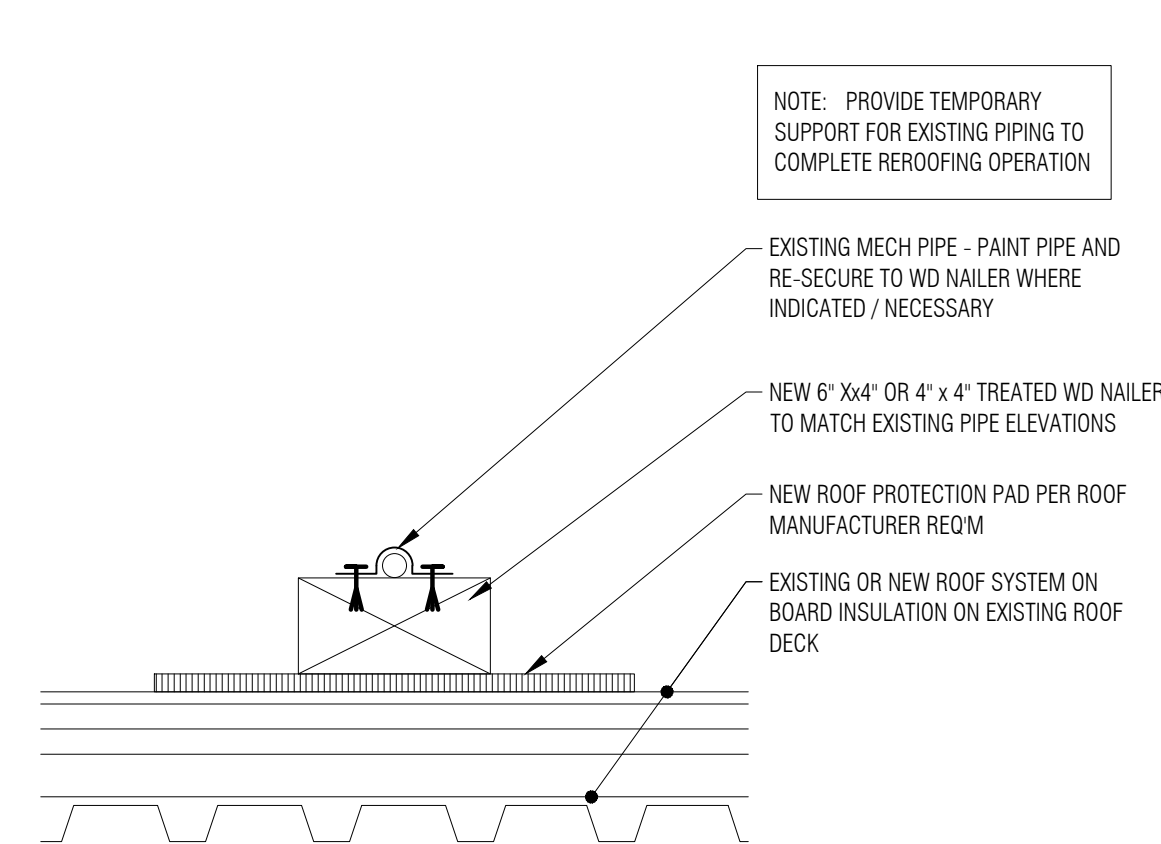


ROOF NEW WORK GENERAL NOTES:

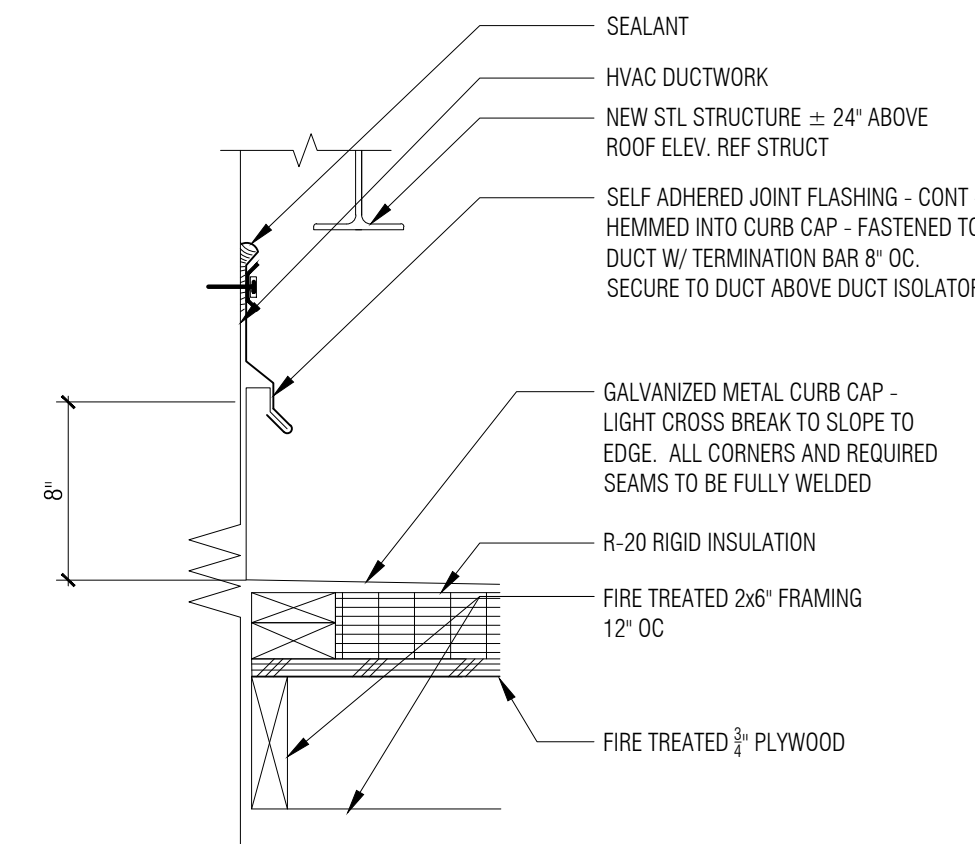
- A. NEW WORK DRAWINGS ARE PROVIDED TO SHOW THE GENERAL SCOPE OF NEW WORK INSTALLATION BUT DO NOT INDICATE ALL INCIDENTAL WORK ITEMS. IT IS THE CONTRACTORS RESPONSIBILITY TO FIELD VERIFY EXISTING CONDITIONS AND INCLUDE ALL INCIDENTAL WORK ITEMS TO COMPLETE THE ROOF REPAIR/ INSTALLATION AS DEFINED BY THE CONSTRUCTION DOCUMENTS.
- B. ALL CONSTRUCTION AND DEMOLITION THE MEANS, METHODS AND SAFETY PRECAUTIONS SHALL BE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- C. CONTRACTOR IS RESPONSIBLE FOR FIELD VERIFYING EXISTING CONDITIONS AND ROOF ACCESS PRIOR TO SUBMITTING BIDS.
- D. ALL ROOFING MODIFICATIONS SHALL BE INSPECTED BY A MANUFACTURERS CERTIFIED INSPECTOR AND DOCUMENTATION PROVIDED CONFIRMING ALL WORK/MODIFICATIONS HAVE BEEN PER MANUFACTURER REQUIREMENTS AND FULL SYSTEM WARRANTY REMAINS IN EFFECT.
- E. ANY DEFICIENCIES NOTED BY INSPECTOR OR REVIEW AUTHORITIES SHALL BE PROMPTLY REPAIRED/REPLACED TO SATISFY INSPECTORS NOTED DEFICIENCIES AND RESTORE FULL ROOF SYSTEM WARRANTY.
- F. NEW OR EXISTING MECH EQUIPMENT AND UTILITY MODIFICATIONS TO BE BY MECH/ELEC TRADES U.O.N.
- G. NEW ROOF OPENING AND/OR MODIFICATIONS TO EXISTING ROOF OPENINGS INCLUDING DEMO/FILL OF STRUCTURAL DECK W/ ASSOCIATED STEEL SUPPORTS TO BE BY MECH/ELEC/STRUCTURAL TRADES U.O.N.
- H. PROTECT ROOF MEMBRANE DURING CONSTRUCTION

ROOF NEW WORK KEY NOTES:

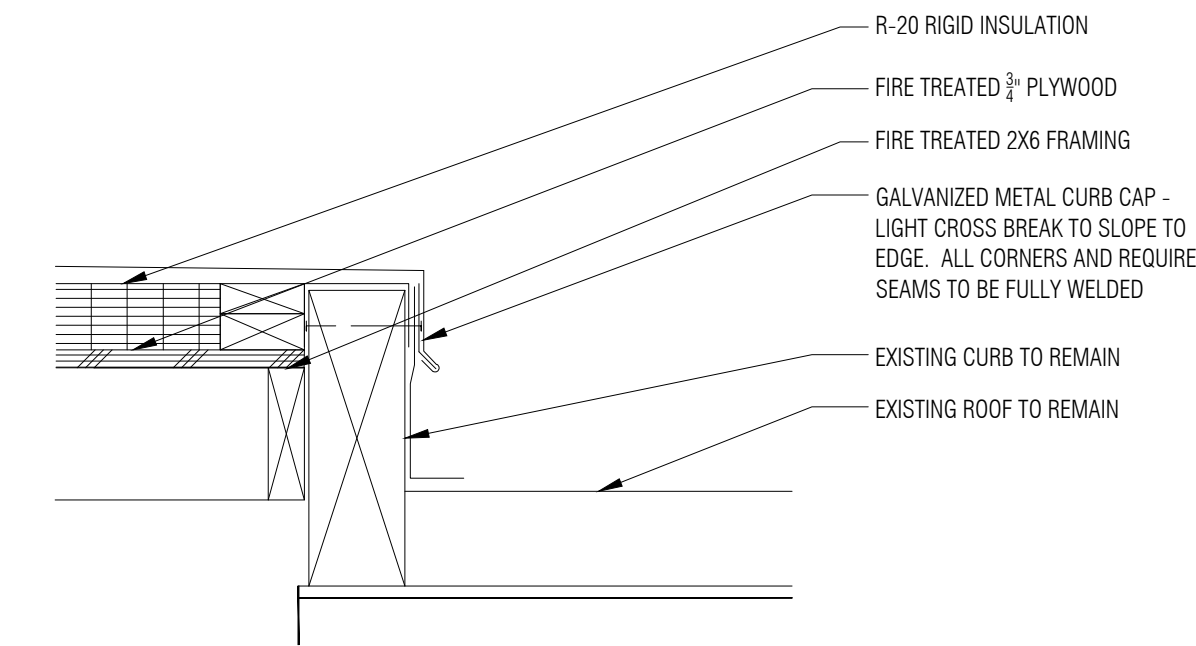
- 1 NEW STRUCTURAL STEEL ON EXISTING STEEL PLATE/COLUMN - COORDINATE W/ STRUCTURAL.
- 2 MECHANICAL UNIT ON STRUCTURAL STEEL PLATFORM - COORD W/ MECH FOR EXACT UNIT SIZE. COORDINATE W/ STRUCT DRAWINGS.
- 3 NEW ROOF CURB CAP ON EXISTING CURB. REFER TO DETAIL 2 THIS SHEET.
- 4 EXISTING CURB TO REMAIN - NEW MECH UNIT TO BE PLACED ON CURB ADAPTER - REFER TO MECH - CURB ADAPTER TO BE OF FULLY WELDED CONSTRUCTION.
- 5 NEW DUCT PENETRATION THROUGH NEW ROOF CURB CAP - REFER TO DETAIL 3 THIS SHEET - COORD LAYOUT W/ MECH.
- 6 NEW MAIN GAS PIPE AND BRANCH. PROVIDE NEW PIPE SUPPORT W/ PROTECTION PADS LOCATED 10'-0" +/- O.C. - REFER TO DETAIL 4 THIS SHEET - COORD LAYOUT AND LOCATION W/ MECH.



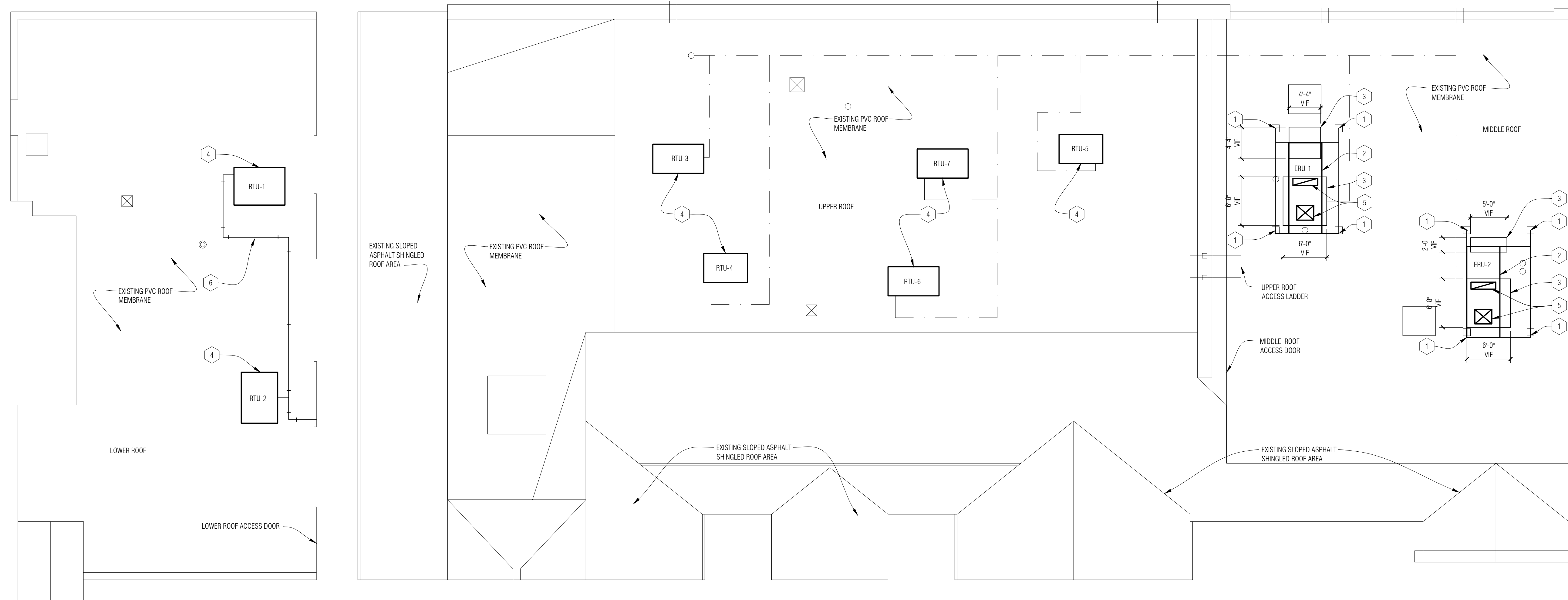
4 Typical Conduit / Piping Support  
N.T.S.

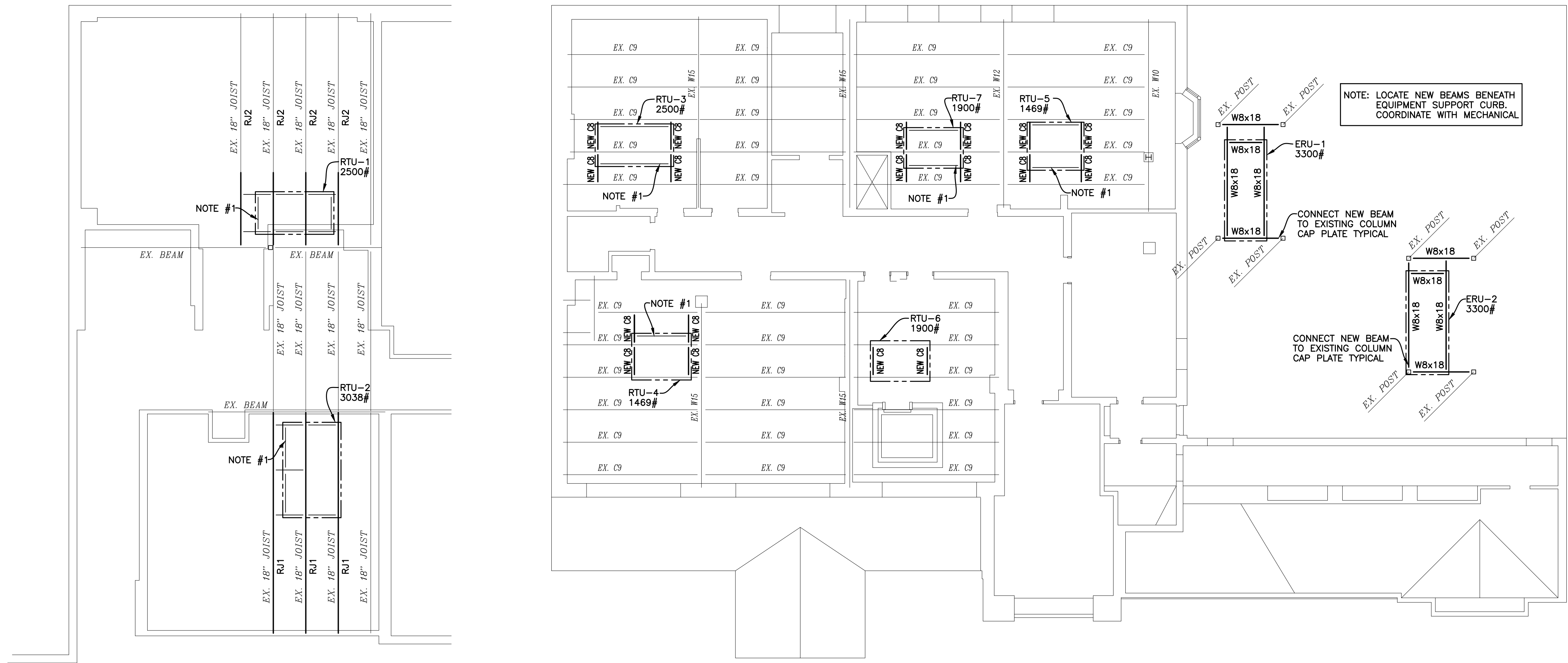


3 HVAC Duct Thru Roof Flashing  
1 1/2\"/>



2 Cap @ Existing Curb  
1-1/2\"/>





**ROOF FRAMING PLAN**  
SCALE : 1/8" = 1'-0"

- NOTE #1: NEW MECHANICAL UNIT TO BE PLACED ON EXISTING CURB USING CURB ADAPTOR (SEE MECHANICAL DRAWINGS). IF SUPPORT STEEL IS NOT FOUND BENEATH EXISTING CURB, PROVIDE FRAMING PER DETAILS 1 & 2/S5-00 AS REQUIRED.
- C8: NEW C8x11.5 BRACING BETWEEN EXISTING C9 JOISTS. LOCATE C8 AT VERTICAL LEGS OF EXISTING RTU SUPPORT FRAMES. FIELD VERIFY FOR LOCATION AND CONNECTIONS. SEE DETAIL 7/S5-00
- ALL EXPOSED STEEL TO BE GALVANIZED.
- RJ1: INDICATES JOIST REINFORCEMENT SEE DETAILS 3, 4 & 5/S5-00.
- RJ2: INDICATES JOIST REINFORCEMENT SEE DETAILS 5 & 6/S5-00.

**GENERAL NOTES**  
GENERAL CONDITIONS

- IF ANY GENERAL NOTE CONFLICTS WITH ANY DETAIL OR NOTE ON THE PLANS OR IN THE SPECIFICATIONS, THE STRICTEST PROVISION SHALL GOVERN.
- THE STRUCTURAL DRAWINGS ARE FOR THE PLACEMENT AND SIZE OF STRUCTURAL COMPONENTS ONLY. O.S.H.A., LOCAL GOVERNMENT CODES AND SAFETY CODE REQUIREMENTS SHALL BE ADHERED TO BY THE CONTRACTOR.
- THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER IT IS FULLY COMPLETED. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES PROVIDING TEMPORARY BRACING, SHORING, GUYS OR TIE-DOWNS. THESE TEMPORARY SUPPORTS WILL REMAIN IN PLACE UNTIL ALL STRUCTURAL COMPONENTS ARE IN PLACE AND COMPLETED.
- USE OF ENGINEERING DRAWINGS AS ERECTION DRAWINGS BY THE CONTRACTOR IS STRICTLY PROHIBITED. DIMENSIONS SHOWN ON THE STRUCTURAL DRAWINGS ARE FOR REFERENCE ONLY AND SHOULD NOT BE USED FOR BUILDING LAYOUT AND LOCATION. SEE ARCHITECTURAL DRAWINGS AND SITE PLAN FOR THESE PURPOSES.
- THE CONTRACTOR SHALL CHECK SHOP DRAWINGS PRIOR TO SUBMITTAL AND IS SOLELY RESPONSIBLE FOR ERRORS & OMISSION IN THE PREPARATION OF SHOP DRAWINGS TO CONFORM TO THE DESIGN DRAWINGS. SUBMIT NO MORE THAN ONE REPRODUCIBLE AND TWO PRINTS OF SHOP DRAWINGS FOR ENGINEER REVIEW. TWO COPIES WILL BE RETURNED TO THE ARCHITECT.
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ALL RELEVANT DIMENSIONS AND ELEVATIONS FOR EQUIPMENT INSTALLATIONS AGAINST PURCHASED MANUFACTURER'S CERTIFIED EQUIPMENT DRAWINGS. DIMENSIONS THAT DEPEND UPON SPECIFIC EQUIPMENT SUCH AS ELEVATOR OPENINGS, MECHANICAL EQUIPMENT SUPPORTS, ETC. SHALL BE COORDINATED BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER. SUCH DIMENSIONS SHALL BE PROVIDED ON THE SHOP DRAWINGS BY THE CONTRACTOR PRIOR TO SUBMITTAL TO THE ARCHITECT/ENGINEER.

**EXISTING CONDITIONS**

- VERIFY ALL EXISTING ASSUMED DIMENSIONS AND CONDITIONS (I.E. EXISTING MATERIALS; FRAMING MEMBER SIZES AND LOCATIONS; METHODS OF CONSTRUCTION; ETC.) AT THE SITE PRIOR TO CONSTRUCTION AND FABRICATION. IF DISCREPANCIES ARE FOUND, NOTIFY ARCHITECT BEFORE PROCEEDING WITH WORK.

**STRUCTURAL STEEL**

- STEEL DESIGN, FABRICATION AND ERECTION TO BE IN ACCORDANCE WITH THE LATEST A.I.S.C. MANUAL AND SPECIFICATION FOR STRUCTURAL STEEL FOR BUILDINGS. ALL WELD FLANGE BEAMS AND COLUMNS SHALL CONFORM TO THE LATEST ASTM. SERIAL DESIGNATION A992, GR50; ALL MISCELLANEOUS STEEL PLATES, BARS, ANGLES, ETC., SHALL CONFORM TO ASTM A36; STEEL TUBING TO BE ASTM A500, GRADE B; STEEL PIPE ASTM A-53, GRADE B. ANCHOR BOLTS TO BE ASTM F1554 GRADE 36 KSI MINIMUM UNLESS OTHERWISE NOTED.
- ALL WELDED CONNECTIONS SHALL BE IN ACCORDANCE WITH THE LATEST AWS CODE, E70XX ELECTRODES, WITH WELDING PERFORMED BY QUALIFIED WELDERS.
- BOLTED CONNECTIONS SHALL BE MADE WITH A-325 OR A-490 BOLTS. ALL BOLTS ARE TO BE INSTALLED IN ACCORDANCE WITH THE LATEST SPECIFICATIONS FOR "STRUCTURAL JOINTS USING A.S.T.M. A-325 OR A-490 BOLTS." TYPICAL BOLTED CONNECTIONS ARE "BEARING TYPE" UNLESS NOTED OTHERWISE.
- DESIGN CONNECTIONS FOR MINIMUM ONE-HALF THE TOTAL ALLOWABLE UNIFORM LOAD PER A.I.S.C. BEAM LOAD TABLES, UNLESS OTHERWISE NOTED. (MIN. 2 BOLTS EACH CONNECTION).
- THE DESIGN, CONFIGURATION & ERECTION SAFETY OF ALL STRUCTURAL STEEL CONNECTIONS SHALL BE THE RESPONSIBILITY OF THE STRUCTURAL STEEL FABRICATOR. REVIEW AND ACCEPTANCE OF THE SHOP DRAWINGS BY THE ENGINEER SHALL CONSTITUTE APPROVAL OF THE LOAD CARRYING ADEQUACY ONLY.
- TYPE OF CONSTRUCTION PER ASCE A2.2 IS TYPE 2 "SIMPLE FRAMING" UNLESS NOTED OTHERWISE.
- TEMPORARY ERECTION SEATS SHALL BE PROVIDED AS RECOMMENDED ON PAGE 3-59 OF THE A.I.S.C. PUBLICATION "ENGINEERING FOR STEEL CONSTRUCTION".
- ALL PROVISIONS OF THE RECOMMENDED CODE OF STANDARD PRACTICE FOR STEEL JOISTS AS ADOPTED BY THE STEEL JOIST INSTITUTE SHALL BE ADHERED TO.
- REFER TO ARCHITECTURAL DRAWINGS FOR ADDITIONAL ANGLES, PLATES, BARS, CLIPS, ETC., ATTACHED TO STRUCTURAL STEEL.
- UNLESS OTHERWISE NOTED, ALL FLOOR AND ROOF OPENINGS SHALL BE FRAMED WITH L 5 X 3-1/2 X 5/16 L.L.V. VERIFY EXACT SIZE AND LOCATION OF ALL FLOOR AND ROOF OPENINGS WITH ARCHITECTURAL AND MECHANICAL DRAWINGS AND WITH CONTRACTOR INVOLVED.
- THE CONTRACTOR SHALL FURNISH ALL ACCESSORIES INCLUDING CLOSURES, "Z" CLOSURES, COLUMN CLOSURES, SCREED ANGLES AND GIRDER FILLERS AS
- NO LOADS SHALL BE PERMITTED TO BE HUNG FROM ANY ROOF DECK. ALL HANGERS FOR CEILINGS, DUCTWORK, ELECTRICAL CONDUIT, PIPING, ETC., SHALL BE HUNG DIRECTLY FROM STRUCTURAL STEEL WORK OR SUPPLEMENTARY MEMBERS.

**JOIST REINFORCEMENT**

- GENERAL: FABRICATE MATERIAL IN LENGTHS MANAGEABLE AT THE SITE SPLICES OF MATERIAL SHALL BE MADE WITH FULL PENETRATION WELDS OR OTHER AS REVIEWED IN ADVANCE BY THE ENGINEER OF RECORD.
- COORDINATE MATERIAL LENGTHS WITH ACCESS LOGISTICS. HEADROOM OR OTHER ACCESS LIMITATIONS MAY REQUIRE SUBSTITUTIONS OF PLATES OR SHAPES WITH OTHER PLATES OR SHAPES OF NOMINALLY EQUAL WEIGHT. SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.
- FIELD VERIFY WEB AND CHORD CONFIGURATIONS OF EXISTING JOISTS TO BE REINFORCED. CONFIGURATIONS INDICATED ON THE DRAWINGS ARE DIAGRAMMATIC ONLY WHICH INDICATE ONLY THE EXTENT OF WEB AND CHORD REINFORCEMENT. OTHER CONFIGURATIONS MAY EXIST, I.E. PANEL DIMENSIONS MAY BE DIFFERENT AND THERE MAY BE MORE VERTICALS AND DIAGONALS THAN SHOWN ON THE DRAWINGS, BUT NONETHELESS ALL WEB MEMBERS WITHIN THE ZONE INDICATED ARE TO BE REINFORCED.
- THE SHAPE OF THE EXISTING CHORDS OR WEB MEMBERS MAY REQUIRE SUBSTITUTIONS OF PLATES OR SHAPES WITH OTHER PLATES OR SHAPES OF NOMINALLY EQUAL WEIGHT. SUBSTITUTIONS MUST BE REVIEWED BY THE ENGINEER OF RECORD PRIOR TO FABRICATION.
- INSTALLING JOIST REINFORCEMENT:
  - INSTALL REINFORCEMENT MATERIAL TO COMPLY WITH STRENGTHENING REQUIREMENTS INDICATED ON THE DESIGN DRAWINGS.
    - PRIOR TO WELDING NEW MATERIAL TO EXISTING SURFACES, THOROUGHLY CLEAN ALL SURFACES TO REMOVE RUST, PAINT, DIRT, MILL SCALE OR OTHER FOREIGN MATTER IN THE WELD AREA.
    - ALL FIELD WELDS SHALL BE CLEANED OF SLAG AND SCALE AND INSPECTED BY THE SITE QUALITY ASSURANCE INSPECTOR.
    - PRIME PAINT WELDS AFTER WELDING PASSES INSPECTION WITH MINIMUM TWO COATS OF ZINC RICH RUST INHIBITIVE PAINT.
  - PRIOR TO REINFORCING OF JOIST ALL SNOW AND ICE LOADS SHALL BE REMOVED FROM THE ROOF IF JOIST ARE BEING REINFORCED FOR NEW EQUIPMENT. JOIST ARE TO BE REINFORCED PRIOR TO ADDING NEW EQUIPMENT.

**SPECIAL INSPECTION**

- WORK CONSTRUCTED SHALL BE INSPECTED BY AN INDEPENDENT TESTING AGENCY TO ENSURE COMPLIANCE WITH THE REQUIREMENTS SHOWN ON THE DRAWINGS. INSPECTIONS REQUIRED BY CHAPTER 17 OF THE OHIO BUILDING CODE; LOCAL BUILDING DEPARTMENTS AND THE CONTRACT DOCUMENTS SHALL BE PERFORMED BY AN INDEPENDENT TESTING AGENCY. SITE VISITS BY THE DESIGN ENGINEER DO NOT CONSTITUTE OR REPLACE INSPECTION
- THE FOLLOWING ITEMS SHALL BE INSPECTED IN ACCORDANCE WITH IBC 2015 SEC. 1704 & 1705 BY A CERTIFIED SPECIAL INSPECTOR UNLESS NOTED OTHERWISE IN REMARKS COLUMN. ALL INSPECTION SHALL BE CONTINUOUS UNLESS OTHERWISE NOTED. ALL PRODUCTS WITH ICC APPROVALS SHALL BE INSTALLED PER THE APPROVAL AND PER MANUFACTURER'S RECOMMENDATIONS. FOR MATERIAL TESTING REQUIREMENTS, SEE SPECIFICATIONS AND/OR GENERAL NOTES. TESTING AGENCY SHALL SEND COPIES OF ALL STRUCTURAL TESTING AND INSPECTION REPORTS DIRECTLY TO THE ARCHITECT.

**INSPECTION OF FABRICATOR'S (SEC. 1704.2.5) \* FABRICATION AND IMPLEMENTATION PROCEDURES 1704.2.5.1**

\*SPECIAL INSPECTION IS NOT REQUIRED FOR FABRICATOR SHOP IF CERTIFICATE OF APPROVAL SUBMITTED BY FABRICATOR'S INSPECTION AGENCY PER EXCEPTION 1704.2.5.1

TABLE 1705.2.2 REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION OTHER THAN STRUCTURAL STEEL				
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	NOT APPLICABLE	REFERENCED STANDARD
<b>1. MATERIAL VERIFICATION OF COLD-FORMED STEEL DECK:</b>				
a. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	-	APPLICABLE ASTM MATERIAL STANDARDS
b. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	X	-	-
<b>2. INSPECTION OF WELDING:</b>				
a. COLD-FORMED STEEL DECK:				
1) FLOOR AND ROOF DECK WELDS.	-	X	-	ANS D1.3
b. REINFORCING STEEL:				
1) VERIFICATION OF WELDABILITY OF REINFORCING STEEL OTHER THAN ASTM A 706.	-	X	-	-
2) REINFORCING STEEL RESISTING FLEXURAL AND AXIAL FORCES IN INTERMEDIATE AND SPECIAL MOMENT FRAMES, AND BOUNDARY ELEMENTS OF SPECIAL STRUCTURAL WALLS OF CONCRETE AND SHEAR REINFORCEMENT.	-	X	-	ANS D1.4 ACI 318; SECTION 3.5.2
3) SHEAR REINFORCEMENT.	X	-	-	-
4) OTHER REINFORCING STEEL.	-	X	-	-

TABLE NS.4-1 INSPECTION TASKS PRIOR TO WELDING				
INSPECTION TASKS PRIOR TO WELDING	QC	QA	NOT APPLICABLE	
WELDING PROCEDURE SPECIFICATIONS (WPS) AVAILABLE	P	P	-	
MANUFACTURER CERTIFICATION FOR WELDING CONSUMABLES AVAILABLE	P	P	-	
MATERIAL IDENTIFICATION (TYPE/GRADE)	O	O	-	
WELDER IDENTIFICATION SYSTEM <sup>1</sup>	O	O	-	
FIT-UP OF GROOVE WELDS (INCLUDING JOINT GEOMETRY) <ul style="list-style-type: none"> <li>JOINT PREPARATION</li> <li>DIMENSIONS (ALIGNMENT, ROOT OPENING, ROOT FACE, BEVEL)</li> <li>CLEANLINESS (CONDITION OF STEEL SURFACES)</li> <li>TACKING (TACK WELD QUALITY AND LOCATION)</li> <li>BACKING TYPE AND FIT (IF APPLICABLE)</li> </ul>	O	O	-	
CONFIGURATION AND FINISH OF ACCESS HOLES	O	O	-	
FIT-UP OF FILLET WELDS <ul style="list-style-type: none"> <li>DIMENSIONS (ALIGNMENT, GAPS AT ROOF)</li> <li>CLEANLINESS (CONDITION OF STEEL SURFACES)</li> <li>TACKING (TACK WELD QUALITY AND LOCATION)</li> </ul>	O	O	-	
CHECK WELDING EQUIPMENT	O	-	-	

<sup>1</sup>THE FABRICATOR OR ERECTOR, AS APPLICABLE, SHALL MAINTAIN A SYSTEM BY WHICH A WELDER WHO HAS WELDED A JOINT OR MEMBER CAN BE IDENTIFIED. STAMPS, IF USED, SHALL BE THE LOW-STRESS TYPE.

**SPECIAL INSPECTION (CONT.)**

TABLE NS.4-2 INSPECTION TASKS DURING WELDING				
INSPECTION TASKS DURING WELDING	QC	QA	NOT APPLICABLE	
USE OF QUALIFIED WELDERS	O	O	-	
CONTROL AND HANDLING OF WELDING CONSUMABLES <ul style="list-style-type: none"> <li>PACKAGING</li> <li>EXPOSURE CONTROL</li> </ul>	O	O	-	
NO WELDING OVER CRACKED TACK WELDS	O	O	-	
ENVIRONMENTAL CONDITIONS <ul style="list-style-type: none"> <li>WIND SPEED WITHIN LIMITS</li> <li>PRECIPITATION AND TEMPERATURE</li> </ul>	O	O	-	
WPS FOLLOWED <ul style="list-style-type: none"> <li>SETTINGS ON WELDING EQUIPMENT</li> <li>TRAVEL SPEED</li> <li>SELECTED WELDING MATERIALS</li> <li>SHIELDING GAS TYPE/FLOW RATE</li> <li>PREHEAT APPLIED</li> <li>INTERPASS TEMPERATURE MAINTAINED (MIN./MAX.)</li> <li>PROPER POSITION (F, V, H, OH)</li> </ul>	O	O	-	
WELDING TECHNIQUES <ul style="list-style-type: none"> <li>INTERPASS AND FINAL CLEANING</li> <li>EACH PASS WITHIN PROFILE LIMITATIONS</li> <li>EACH PASS MEETS QUALITY REQUIREMENTS</li> </ul>	O	O	-	

TABLE NS.4-3 INSPECTION TASKS AFTER WELDING				
INSPECTION TASKS AFTER WELDING	QC	QA	NOT APPLICABLE	
WELDS CLEANED	O	O	-	
SIZE, LENGTH AND LOCATION OF WELDS	P	P	-	
WELDS MEET VISUAL ACCEPTANCE CRITERIA <ul style="list-style-type: none"> <li>CRACK PROHIBITION</li> <li>WELD/BASE-METAL FUSION</li> <li>CRATER CROSS SECTION</li> <li>WELD PROFILES</li> <li>WELD SIZE</li> <li>UNDERCUT</li> <li>POROSITY</li> </ul>	P	P	-	
ARC STRIKES	P	P	-	
K-AREA <sup>1</sup>	P	P	-	
BACKING REMOVED AND WELD TABS REMOVED (IF REQUIRED)	P	P	-	
REPAIR ACTIVITIES	P	P	-	
DOCUMENT ACCEPTANCE OR REJECTION OF WELDED JOINT OR MEMBER	P	P	-	

<sup>1</sup>WHEN WELDING OF DOUBLER PLATES, CONTINUITY PLATES OF STIFFENERS HAS BEEN PERFORMED IN THE K-AREA, VISUALLY INSPECT THE WEB K-AREA FOR CRACKS WITHIN 3 IN. (75MM) OF THE WELD.

TABLE NS.6-1 INSPECTION TASKS PRIOR TO BOLTING				
INSPECTION TASKS PRIOR TO BOLTING	QC	QA	NOT APPLICABLE	
MANUFACTURER'S CERTIFICATIONS AVAILABLE FOR FASTENER MATERIALS	O	P	-	
FASTENERS MARKED IN ACCORDANCE WITH ASTM REQUIREMENTS	O	O	-	
PROPER FASTENERS SELECTED FOR THE JOINT DETAIL (GRADE, TYPE, BOLT LENGTH IF THREADS ARE TO BE EXCLUDED FROM SHEAR PLANE)	O	O	-	
PROPER BOLTING PROCEDURE SELECTED FOR JOINT DETAIL	O	O	-	
CONNECTING ELEMENTS, INCLUDING THE APPROPRIATE FINISH SURFACE CONDITION AND HOLE PREPARATION, IF SPECIFIED, MEET APPLICABLE REQUIREMENTS	O	O	-	
PRE-INSTALLATION VERIFICATION TESTING BY INSTALLATION PERSONNEL OBSERVED AND DOCUMENTED FOR FASTENER ASSEMBLIES AND METHODS USED	P	O	-	
PROPER STORAGE PROVIDED FOR BOLTS, NUTS, WASHERS AND OTHER FASTENER COMPONENTS	O	O	-	

TABLE NS.6-2 INSPECTION TASKS DURING BOLTING				
INSPECTION TASKS DURING BOLTING	QC	QA	NOT APPLICABLE	
FASTENERS ASSEMBLIES, OF SUITABLE CONDITION, PLACED IN ALL HOLES AND WASHERS (IF REQUIRED) ARE POSITIONED AS REQUIRED	O	O	-	
JOINT BROUGHT TO THE SNUG-TIGHT CONDITION PRIOR TO THE PRETENSIONING OPERATION	O	O	-	
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O	-	
FASTENERS ARE PRETENSIONED IN ACCORDANCE WITH THE RCSC SPECIFICATION, PROGRESSING SYSTEMATICALLY FROM THE MOST RIGID POINT TOWARD THE FREE EDGES	O	O	-	

TABLE NS.6-3 INSPECTION TASKS AFTER BOLTING				
INSPECTION TASKS AFTER BOLTING	QC	QA	NOT APPLICABLE	
FASTENER COMPONENT NOT TURNED BY THE WRENCH PREVENTED FROM ROTATING	O	O	-	

- O - OBSERVE THESE ITEMS ON A RANDOM BASIS. OPERATIONS NEED NOT BE DELAYED PENDING THESE INSPECTIONS.
- P - PERFORM THESE TASKS FOR EACH WELDED JOINT OR MEMBER.

**SPECIAL INSPECTION (CONT.)**

DESIGN CRITERIA	
CODE:	2014 OHIO BUILDING CODE THE STRUCTURE IS DESIGNED FOR THE FOLLOWING LIVE LOADS, IN ADDITION TO THE LATERAL LOADS, SUPER-IMPOSED DEAD LOADS, & SELF WEIGHT OF THE STRUCTURE, WHERE APPLICABLE LIVE LOADS ARE REDUCED IN ACCORDANCE WITH THE PROVISIONS OF THE BUILDING CODE.
	A. AMERICAN CONCRETE INSTITUTE BUILDING CODE (ACI-318). LATEST EDITION.
	B. MANUAL OF STEEL CONSTRUCTION BY AMERICAN INSTITUTE OF STEEL CONSTRUCTION (LATEST EDITION).
	C. LATEST MASONRY STANDARDS JOINT COMMITTEE (MSJC) BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (TMS 402/ACI 530/ASCE 5) AND SPECIFICATIONS FOR MASONRY STRUCTURES (TMS 602/ACI 530.1/ASCE 6)
	D. AMERICAN INSTITUTE OF TIMBER CONSTRUCTION (AITC) STANDARDS AND SPECIFICATIONS.
	E. NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION (NDS) AS PUBLISHED BY AMERICAN FOREST AND PAPER ASSOCIATION.
	CODE REFERENCE
BUILDING OCCUPANCY CATEGORY	II IBC Table 1604.5 ASCE Table 1.5-1

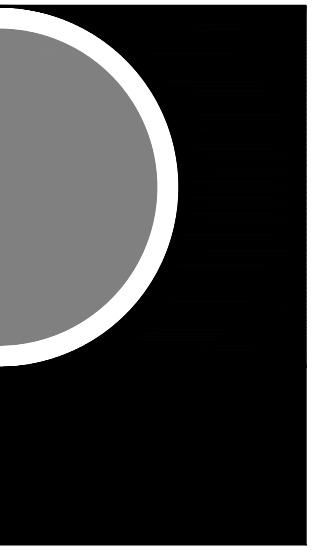
SNOW LOADS/ROOF LIVE LOADS		
SNOW CRITERIA		CODE REFERENCE
GROUND SNOW LOAD	Pg = 20 PSF	IBC FIG. 1606.2 ASCE Fig. 7-1
FLAT ROOF SNOW LOAD	Pf = 20 PSF (MINIMUM)	ASCE Sec. 7-3
EXPOSURE FACTOR	Ce = 1.0	ASCE Table 7-2
IMPORTANCE FACTOR	I = 1.0	ASCE Table 1.5-2
THERMAL FACTOR	Ct = 1.0	ASCE Table 7-3
ROOF LIVE LOADS	Lf = 20 PSF	ASCE Table 4-1

NOTE: SNOW LOADS ADJACENT VERTICAL PROJECTIONS, ON LOWER ROOFS, ADJACENT TO HIGH ROOFS, OR SLOPED ROOFS ARE INCREASED FOR THE EFFECT OF DRIFTING

WIND LOADS		
WIND CRITERIA		CODE REFERENCE
BASIC WIND SPEED (3 SEC. GUST)	V = 115 MPH, V = 89 MPH ALLOWABLE	ASCE FIG. 26.5-1A, 26.5-1B, 26.5-1C
RISK CATEGORY	II	ASCE Table 1.5-1
EXPOSURE CATEGORY	B	ASCE Sec. 26.7-3
INTERNAL PRESSURE COEFFICIENT	+ 0.18 (ENCLOSED)	ASCE Table 26.11-1
WINDS ANALYSIS PROCEDURE	DIRECTIONAL PROCEDURE	ASCE CHAP. 27
COMPONENTS AND CLADDING	+ 33 PSF MINIMUM ULTIMATE AND PER CODE REQUIREMENTS BASED ON ABOVE INFORMATION	ASCE Sec. 30.2-2

SEISMIC LOADS		
SEISMIC CRITERIA		CODE REFERENCE
SEISMIC RISK CATEGORY	II	ASCE Table 1.5-1
SEISMIC IMPORTANCE FACTOR	I = 1.0	ASCE Table 1.5-2
+0.2 SEC MAPPED SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING) Ss	Ss = .142	ASCE Sec. 11.4
-1.0 SEC MAPPED SPECTRAL RESPONSE ACCELERATION (5% OF CRITICAL DAMPING) S1	S1 = .075	ASCE Sec. 11.4
SHORT PERIOD SPECTRAL RESPONSE ACCELERATION	Sds = .151	ASCE Sec. 11.4-3
1.0 SEC PERIOD SPECTRAL RESPONSE ACCELERATION	Sd1 = .121	ASCE Sec. 11.4-4
SOIL SITE CLASS	D	ASCE Sec. 11.4-2
SEISMIC DESIGN CATEGORY	B	ASCE Sec. 11.6
SEISMIC FORCE RESISTING SYSTEM	STEEL NOT SPECIFICALLY DETAILED FOR SEISMIC	ASCE Table 12.2-1
RESPONSE MODIFICATION FACTOR	R = 3.0	ASCE Table 12.2-1
DEFLECTION AMPLIFICATION FACTOR	Cd = 3.0	ASCE Table 12.2-1
ANALYSIS PROCEDURE	EQUIVALENT LATERAL FORCE	ASCE Sec. 12.8

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**KEY PLAN**

**OWNER**

**Hamtramck Public Schools**

**PROJECT NAME**

**HVAC Improvements Phase 1 Tau Beta School**

3056 Hanley  
Hamtramck, MI 48212

**PROJECT NO.**

**22-106D**

**ISSUES / REVISIONS**

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022

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MAM

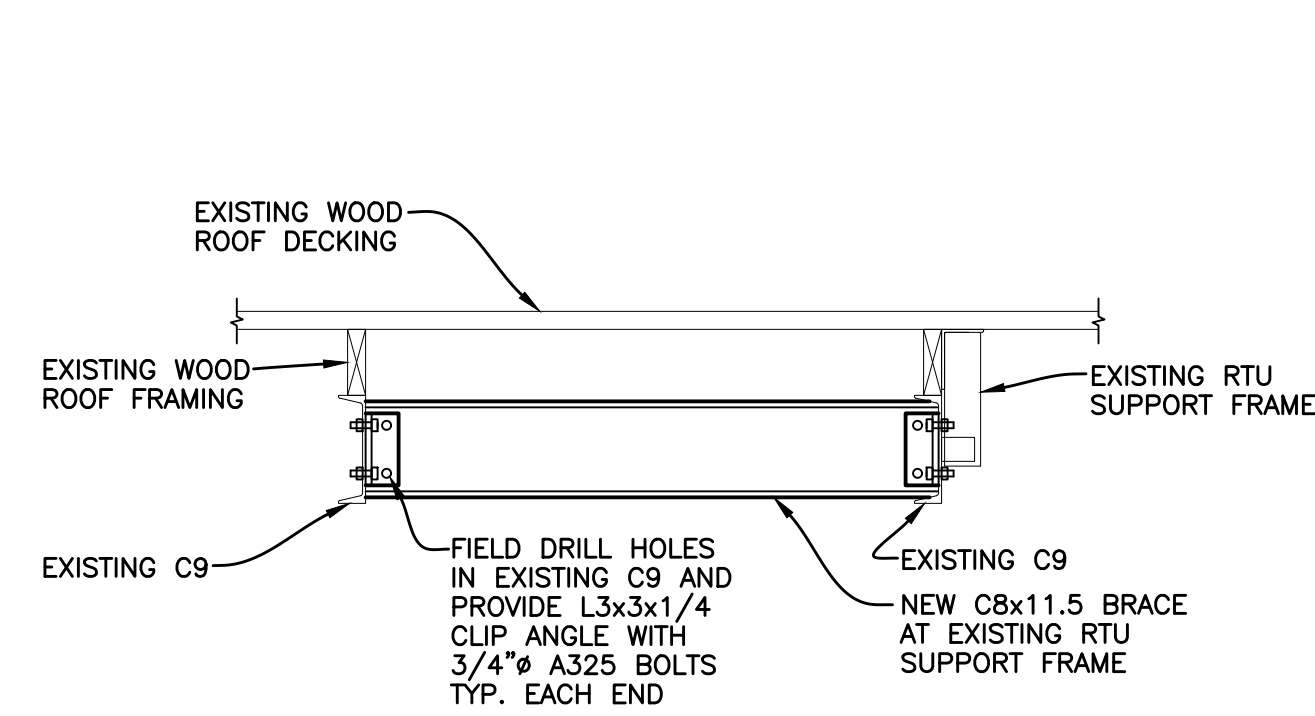
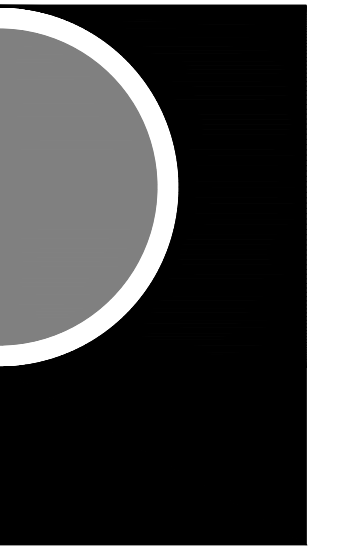
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**GENERAL NOTES**

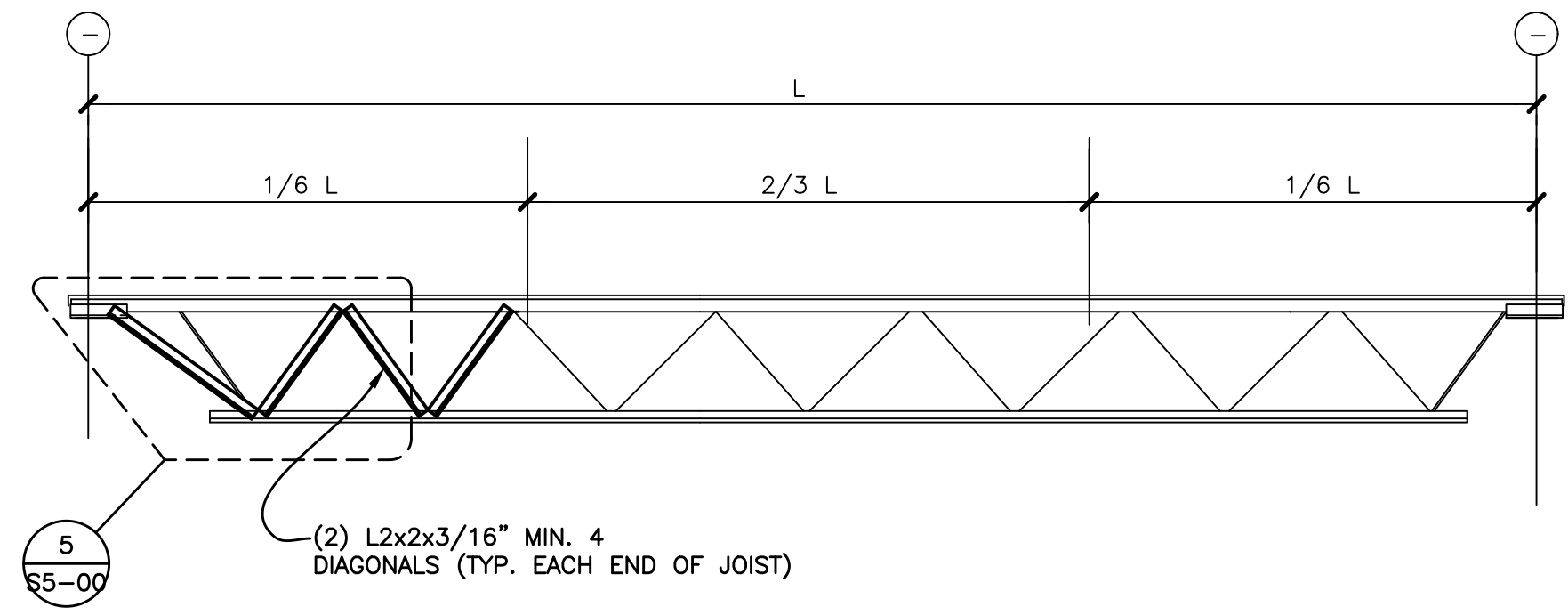
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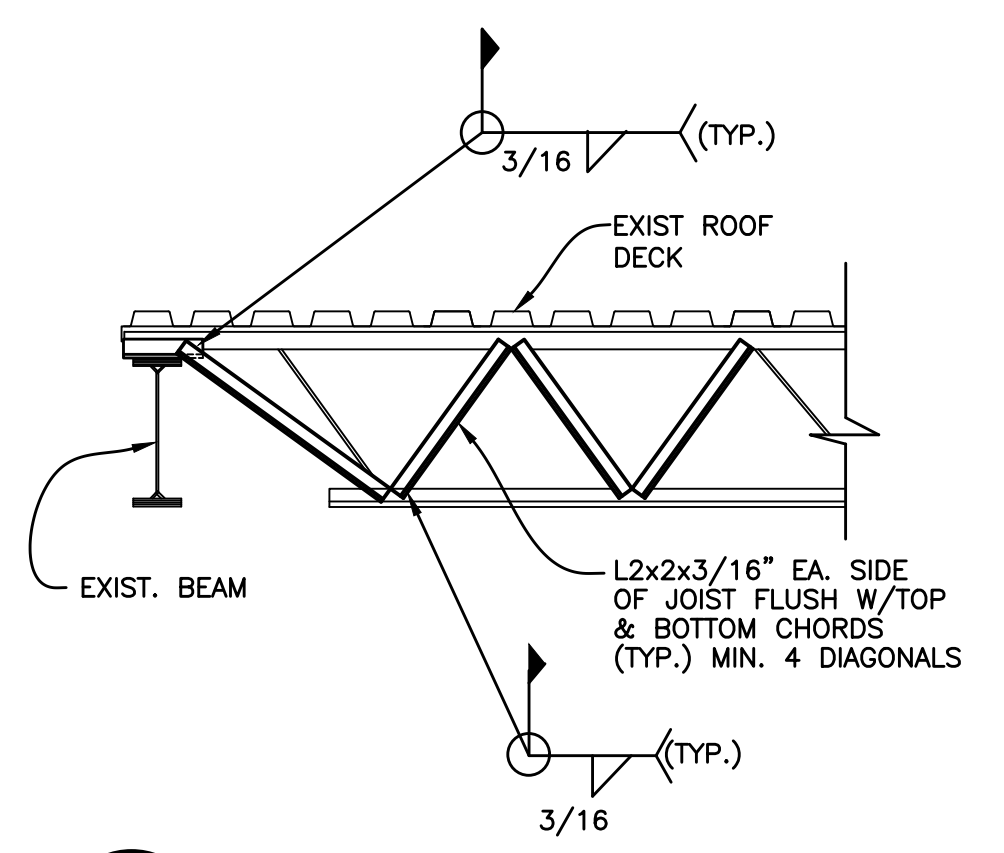




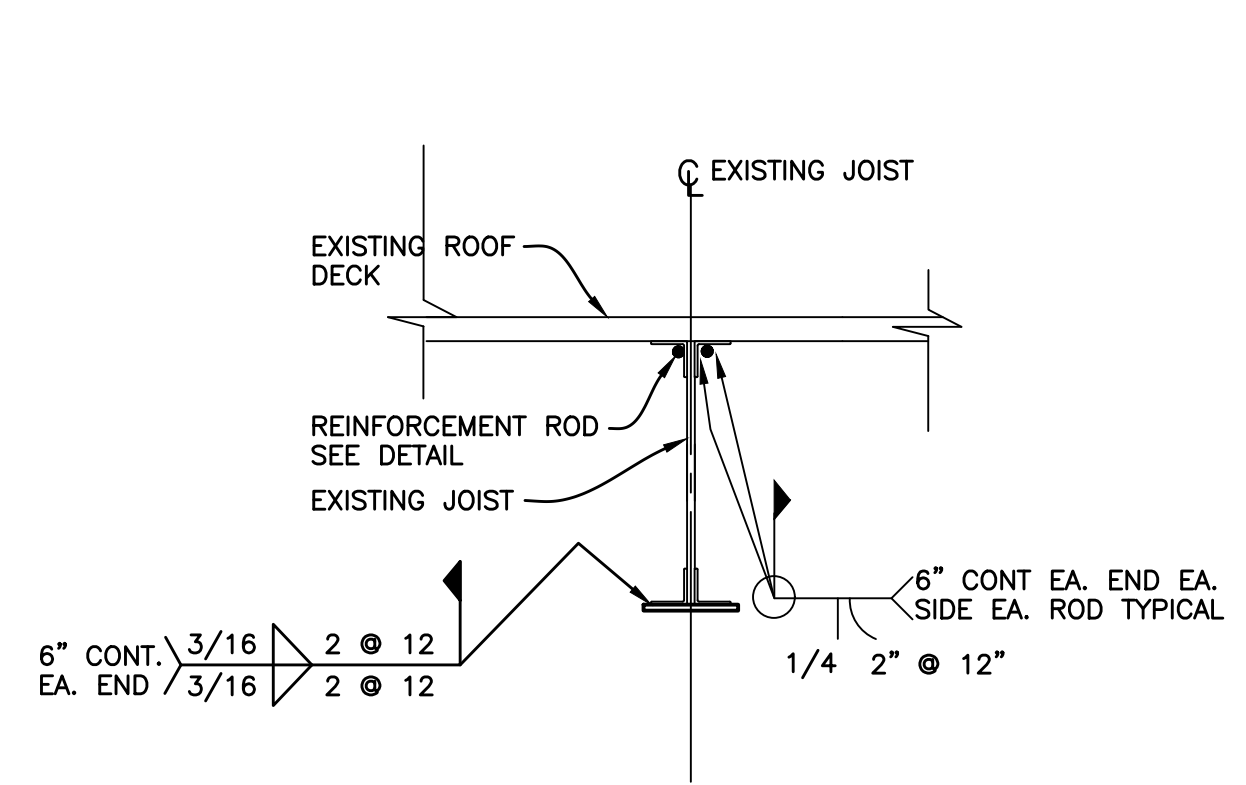
**7 SECTION**  
S5-00 SCALE : 1 1/2" = 1'-0"



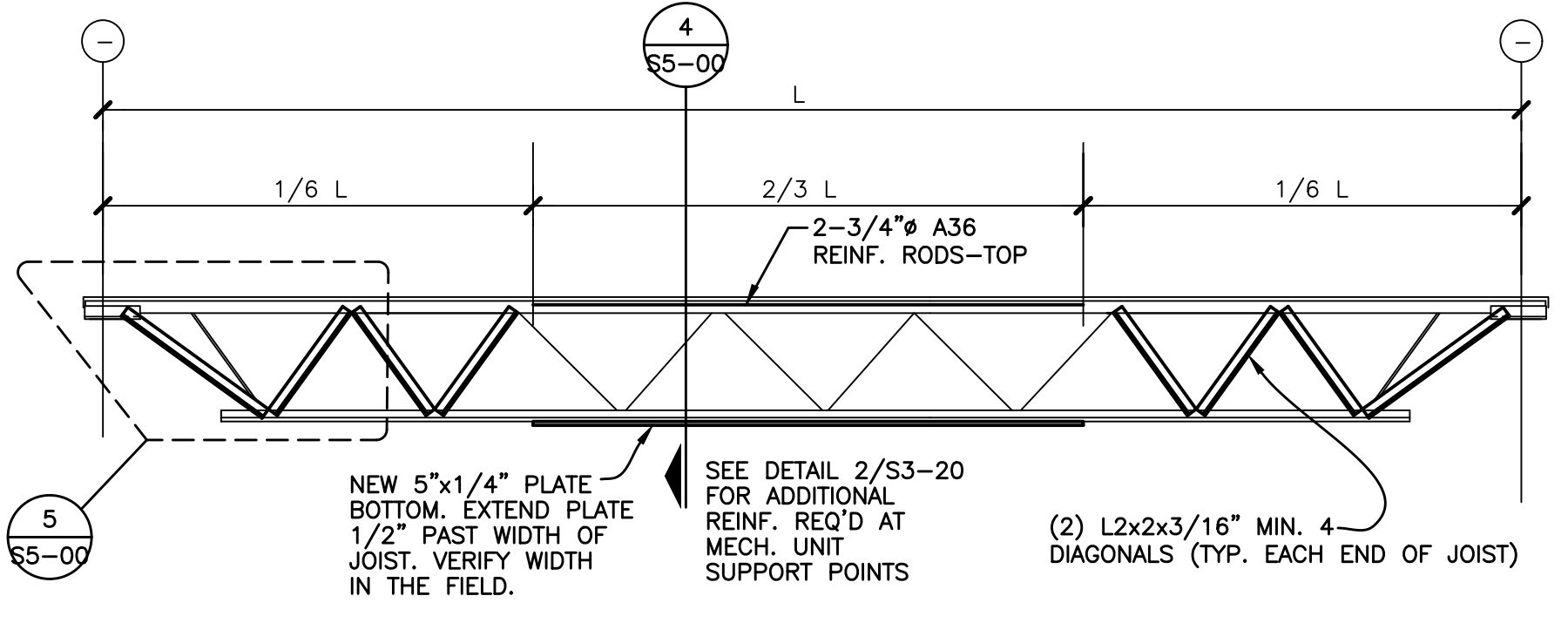
**6 EXISTING JOIST TO BE REINFORCED - RJ2**  
S5-00 SCALE : NONE



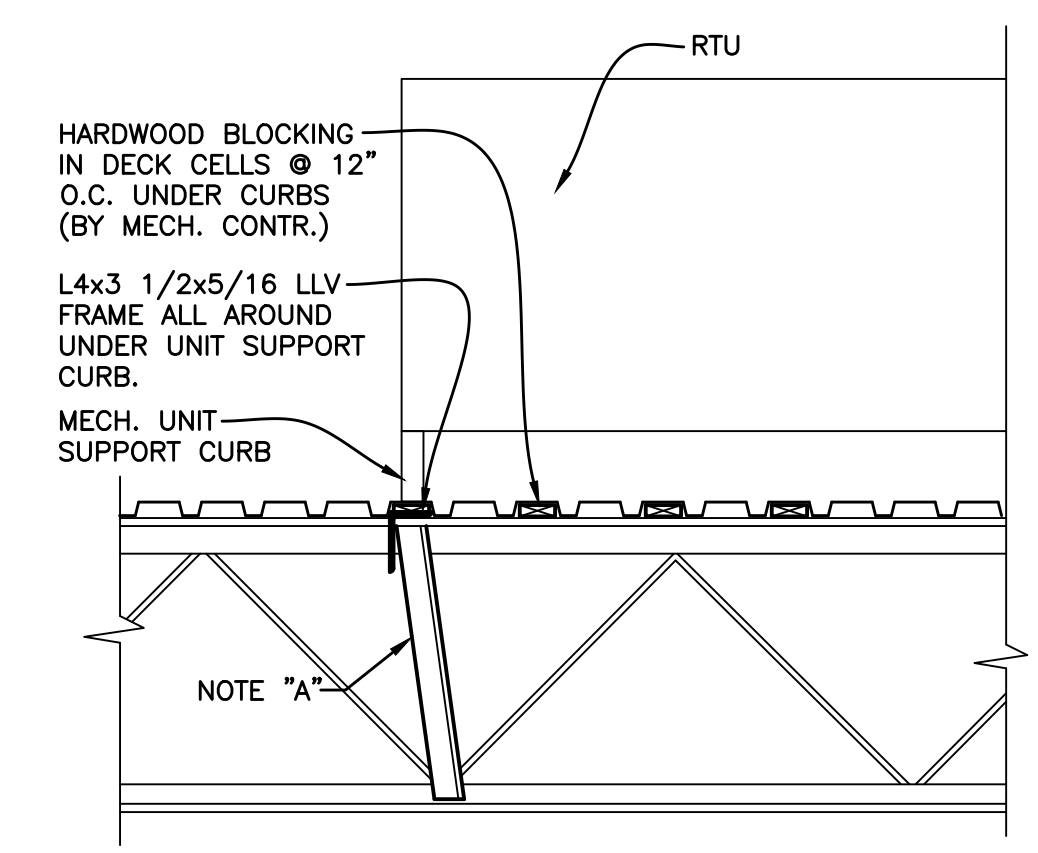
**5 JOIST END REINFORCING**  
S5-00 SCALE : NONE



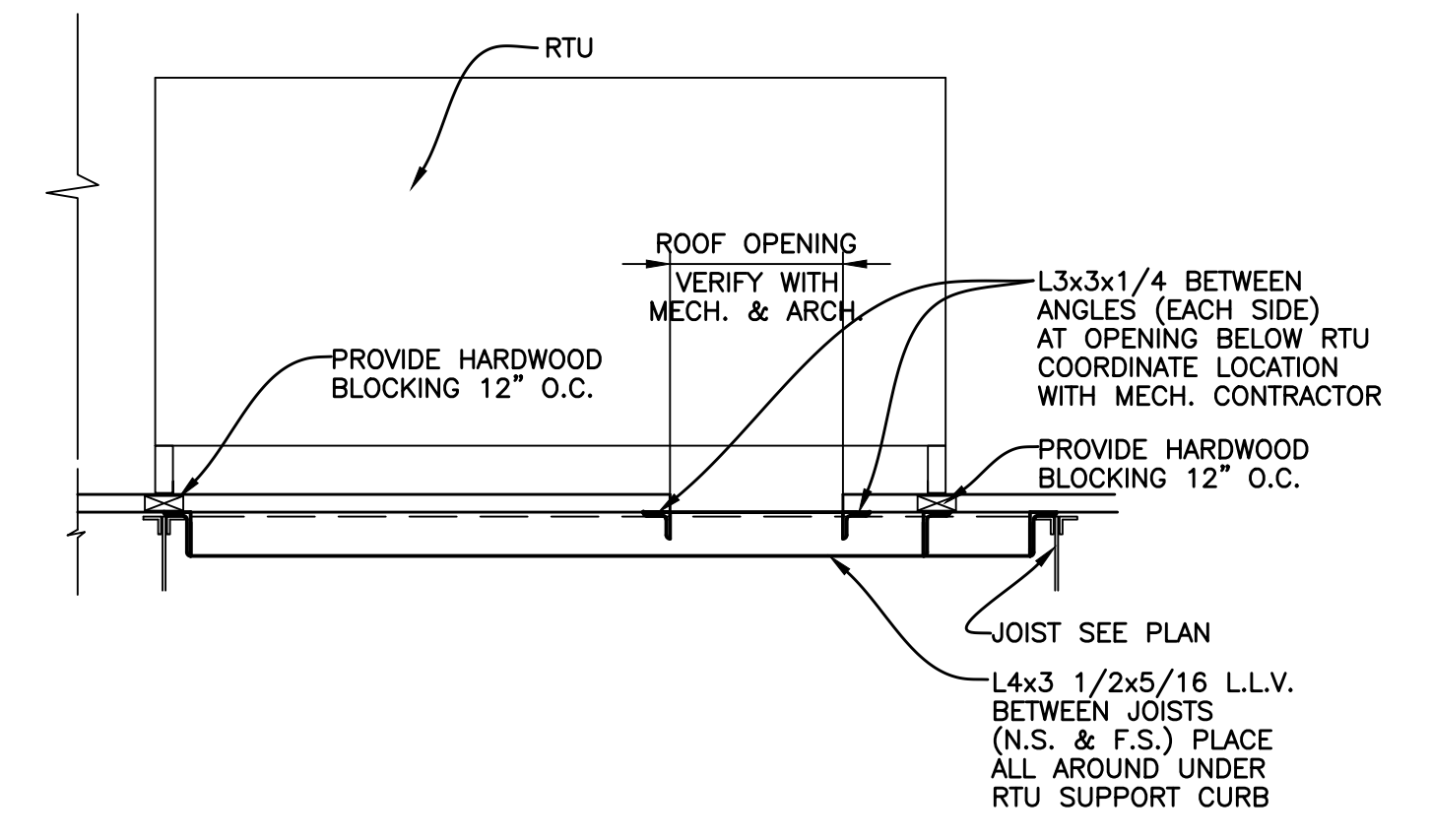
**4 JOIST REINFORCEMENT**  
S5-00 SCALE : NONE



**3 EXISTING JOIST TO BE REINFORCED - RJ1**  
S5-00 SCALE : NONE



**2 TYPICAL JOIST REINFORCING DETAIL AT NEW MECHANICAL UNIT**  
S5-00 SCALE : NONE FOR ADDED LOADS



**1 TYPICAL DETAIL AT MECHANICAL UNIT SUPPORT**  
S5-00 SCALE : 3/4" = 1'-0"

**MECHANICAL ABBREVIATION LIST**

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR	FD	FLOOR DRAIN	PACU	PACKAGED AIR CONDITIONING UNIT
A( )	COMPRESSED AIR (SPECIFIC PSIG)	FFD	FUNNEL FLOOR DRAIN	PBD	PARALLEL BLADE DAMPER
AAV	AUTOMATIC AIR VENT	FI	FIRE HYDRANT	PC	PUMPED CONDENSATE
ACC	AIR COOLED CONDENSER	FC	FIRE HOSE CABINET	PCW	PROCESS COOLING WATER
ACCU	AIR COOLED CONDENSING UNIT	FHR	FIRE HOSE RACK	PCWR	PROCESS COOLING WATER RETURN
AD	ACCESS DOOR	FHV	FIRE HOSE VALVE	PCWS	PROCESS COOLING WATER SUPPLY
AD	AREA DRAIN	FLA	FULL LOAD AMPS	PD	PRESSURE DROP (FEET OF WATER)
AE	AIR EXTRACTOR	FLR	FLOOR	PH	PERIMETER HEAT
AFF	AIR HANDLING UNIT	FM	FLOW METER	PHR	PERIMETER HEAT RETURN
AHU	AIR HANDLING UNIT	FMS	FLOW MEASURING STATION	PHS	PERIMETER HEAT SUPPLY
ALT	ALTERNATE	FBM	FEET PER MINUTE	PNL	PANEL
AMP	AMPERE	FR	FIRE PUMP	PPM	PARTS PER MILLION
AP	AIR PRESSURE DROP	FPTU	FAN POWERED (AIR) TERMINAL UNIT	PRV	PRESSURE REDUCING VALVE
AR	ARGON	FS	FLOOR SINK	PSAN	PUMPED SANITARY
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS	FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR	PST	PUMPED STORM
ASR	AUTOMATIC SPRINKLER RISER	FT	FEET	PSI	POUNDS PER SQUARE INCH
ATD	AIR TRANSFER DUCT	FTR	FINNED TUBE RADIATION	PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
AUX	AUXILIARY	FR	FACE VELOCITY	PSIG	POUNDS PER SQUARE INCH - GAUGE
AV	ACID VENT	G	NATURAL GAS	PW	PURIFIED WATER
AW	ADD WASTE	GAL	GALLON	PWR	PURIFIED WATER RETURN
		GAL	GALLON	PWS	PURIFIED WATER SUPPLY
BAS	BUILDING AUTOMATION SYSTEM	GRH	GRAVITY RELIEF HOOD	(R)	RELOCATED
BCU	BLOWER COIL UNIT	GPH	GALLONS PER HOUR	R	RETURN GRILLE OR REGISTER
BDD	BACKDRAFT DAMPER	GPM	GALLONS PER MINUTE	RA	RETURN AIR
BFF	BELOW FINISHED FLOOR	GSAN	GREASE SANITARY WASTE	RA	RETURN AIR TEMPERATURE
BFP	BACKFLOW PREVENTER	H	HYDROGEN	RC	RADIANT CEILING PANEL
BHP	BRAKE HORSEPOWER	HB	HOSE BIBB	RD	ROOM DRAIN
BOD	BOTTOM OF DUCT	HDC	HEATING COIL	REQD	REQUIRED
BOP	BOTTOM OF PIPE	HD	HOT DECK	REF	ROOF EXHAUST FAN
BTU	BRITISH THERMAL UNIT	HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE	RF	RETURN FAN
BTUH	BRITISH THERMAL UNIT PER HOUR	HFC	HEATING COIL	RH	RELATIVE HUMIDITY
BVC	BEVERAGE CONDUT	HHA	HAND/OFF/AUTO	RL	REFRIGERANT LIQUID
BWV	BACKWATER VALVE	HP	HORSEPOWER	RLFA	REFRIGERANT LIQUID
		HP	HORSEPOWER	RPM	REVOLUTIONS PER MINUTE
C	COMMON	HPWH	HIGH PRESSURE DOMESTIC HOT WATER	RPA	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY
CAP	CAPACITY	HPWHR	HIGH PRESSURE DOMESTIC HOT WATER RETURN	RPS	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY
CAV	CATCH AIR VOLUME	HPL	HEAT PUMP LOOP	RS	REFRIGERANT SUCTION
CB	CATCH BASIN	HPLR	HEAT PUMP LOOP RETURN	RTU	ROOFTOP UNIT
CC	COOLING COIL	HPS	HEAT PUMP LOOP SUPPLY	S	SUPPLY AIR DIFFUSER OR GRILLE
CD	COLD DECK	HRT	HEATING	SA	SOUND ATTENUATOR
CD	CONDENSATE DRAIN	HRT	HEATING	SA	SOUND ATTENUATOR
CFD	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	HV	HEATING VENTILATING	SA	SOUND ATTENUATOR
CFM	CUBIC FEET PER MINUTE	HVAC	HEATING, VENTILATING, AIR CONDITIONING	SAN	SANITARY WASTE
CH	CHILLER	HWM	HOT WATER HEATING	SAT	SANITARY AIR TEMPERATURE
CHW	CHILLED WATER	HWS	HOT WATER HEATING RETURN	SECT	SECTION
CHWR	CHILLED WATER RETURN	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CHWS	CHILLED WATER SUPPLY	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CLC	COOLING	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CLC	COOLING	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
COND	CONDENSATE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
COND ( )	CONDENSATE (SPECIFIC PSIG)	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CO	CLEAN OUT	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CO2	CARBON DIOXIDE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CONT	CONTINUATION OR CONTINUED	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CONTR	CONTRACTOR	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CONV	CONVERTED OF PERFORMANCE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
COP	Coefficient of Performance	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CR	CIRCULATING PUMP	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CRU	CONDENSATE RETURN UNIT	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CSS	CLINICAL SERVICE SINK	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CT	COOLING TOWER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CUH	CABINET UNIT HEATER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CW	CONDENSER WATER RETURN	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CWF	CONDENSER WATER - FILTERED	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CWR	CONDENSER WATER RETURN	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
CWS	CONDENSER WATER SUPPLY	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
		HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
D&T	DRIP AND TRAP	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DA	DISCHARGE AIR	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DAT	DISCHARGE AIR TEMPERATURE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DB	DRY BULB	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DDC	DIRECT DIGITAL CONTROL	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DEG	DEGREE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DFU	DRAINAGE FIXTURE UNITS	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DA	DRAIN	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DMPR	DAMP	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
D/N	DAY/NIGHT	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DN	DOWN	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DZ	DOWNSPOUT NOZZLE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DU	DUCT SILENCER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DT	DRAIN TILE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DTC	DRAIN TILE CONNECTION	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DWH	DOMESTIC WATER HEATER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
DWG	DRAWING	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
		HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
(E)	EXISTING	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
E	EXHAUST GRILLE OR REGISTER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EA	EACH	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EAT	ENTERING AIR	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EAT	ENTERING AIR TEMPERATURE	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EC	EXPANSION COMPENSATOR	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
ECOH	ELECTRIC CABINET UNIT HEATER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EDB	ENTERING DRY BULB	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EER	ENERGY EFFICIENCY RATIO	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EEI	EMERGENCY EYE WASH / SHOWER	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EEW	EMERGENCY EYE WASH	HWSH	HOT WATER HEATING SUPPLY	SECT	SECTION
EF	EXHAUST FAN	HWSH	HOT WATER HEATING SUPPLY	SECT </tr	

**TEMPERATURE CONTROL - PARTIAL SYMBOLS LIST**

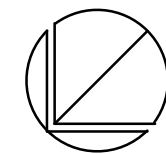
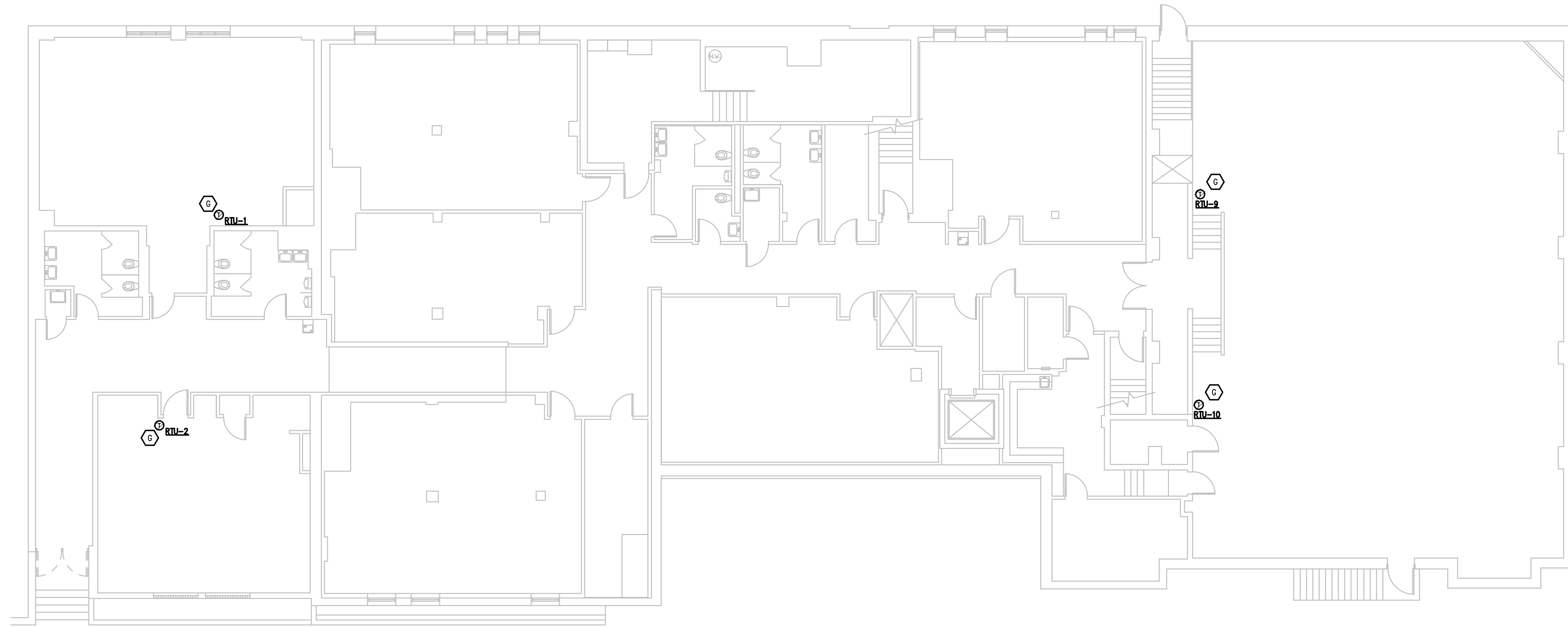
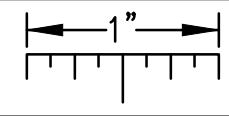
SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	CARBON DIOXIDE SENSOR		OCCUPANCY SENSOR
	CARBON MONOXIDE SENSOR		PRESSURE TRANSMITTER
	DIFFERENTIAL PRESSURE TRANSMITTER		STATIC PRESSURE SENSOR OR PROBE
	FLOW METER		VALVE - 2 WAY CONTROL VALVE
	GUARD FOR STAT OR SENSOR		VALVE - 3 WAY CONTROL VALVE
	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)		THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)

NOTE: LIST OF ADDITIONAL SYMBOLS & ABBREVIATIONS ASSOCIATED WITH TEMPERATURE CONTROLS ARE IDENTIFIED ON TC DRAWINGS.

**MECHANICAL SYMBOL LIST**

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	AIR VENT - AUTOMATIC		AIR TERMINAL UNIT
	AIR VENT - MANUAL		AIR TERMINAL UNIT WITH HEATING COIL
	BACKFLOW PREVENTER		VENTURI AIR TERMINAL UNIT
	CATCH BASIN		VENTURI AIR TERMINAL UNIT WITH HEATING COIL
	CIRCULATING PUMP		DAMPER - HORIZONTAL FIRE (EXISTING, NEW)
	CLEAN OUT - IN FLOOR		DAMPER - HORIZONTAL FIRE / SMOKE (EXISTING, NEW)
	CLEAN OUT - FLANGE		DAMPER - VERTICAL FIRE (EXISTING, NEW)
	DIRECTION OF FLOW		DAMPER - VERTICAL FIRE / SMOKE (EXISTING, NEW)
	DIRECTION OF PITCH - DOWN		DAMPER - BACK DRAFT
	FINNED TUBE RADIATION		DAMPER - MOTORIZED
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING		DAMPER - VOLUME (MANUALLY ADJUSTABLE)
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED		DIFFUSER - BLANK OFF
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED		DIFFUSER - LINEAR SLOT
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT		DIFFUSER - SQUARE OR RECTANGULAR
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT		DUCT CROSS SECTION - SUPPLY
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL		DUCT CROSS SECTION - RETURN
	FLOOR DRAIN		DUCT CROSS SECTION - EXHAUST
	FLOOR DRAIN - ELEVATION		DUCT - FLEXIBLE CONNECTION
	HEATING COIL		DUCT - FLEXIBLE DUCT
	HOT DECK		DUCT TAKE-OFF - ROUND CONICAL
	HIGH EFFICIENCY PARTICULATE ARRESTANCE		DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	HIGH LIMIT		ELBOW - RECTANGULAR WITH TURNING VANES
	RELATIVE HUMIDITY		ELBOW - RECTANGULAR / ROUND SMOOTH RADIUS
	REFRIGERANT LIQUID		ELBOW DOWN - RECTANGULAR
	REVOLUTIONS PER MINUTE		ELBOW DOWN - ROUND
	REDUCED PRESSURE BACKFLOW PREVENTION DETECTION ASSY		ELBOW UP - RECTANGULAR
	REDUCED PRESSURE BACKFLOW PREVENTION ZONE ASSY		ELBOW UP - ROUND
	REFRIGERANT SUCTION		FAN - AXIAL
	ROOFTOP UNIT		FAN - CENTRIFUGAL (ELEVATION)
	SUPPLY AIR DIFFUSER OR GRILLE		HEATING COIL
	PIPE - ANCHOR		INCLINED DROP IN DIRECTION OF AIRFLOW
	PIPE - CAP OR PLUG		INCLINED RISE IN DIRECTION OF AIRFLOW
	PIPE - ELBOW DOWN		INTAKE OR RELIEF HOOD
	PIPE - ELBOW UP		REGISTER - RETURN OR EXHAUST
	PIPE - EXPANSION JOINT OR COMPENSATOR		REGISTER - RETURN WITH BOOT
	PIPE - FLANGE		REGISTER - TRANSFER GRILLE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION		ROOF EXHAUST FAN
	PIPE - RUBBER FLEXIBLE CONNECTION		TRANSITION - CONCENTRIC
	PIPE - GUIDE		TRANSITION - ECCENTRIC
	PIPE - TEE DOWN		UNIT HEATER - HORIZONTAL THROW
	PIPE - TEE UP		UNIT HEATER - VERTICAL THROW
	PIPE - UNION		DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	PRESSURE AND TEMPERATURE TEST PLUG		DUCT TAKE-OFF - ROUND CONICAL
	PRESSURE GAUGE AND COCK		ELBOW - RECTANGULAR WITH TURNING VANES
	REDUCER - CONCENTRIC		ELBOW - ROUND
	REDUCER - ECCENTRIC		ELBOW - RECTANGULAR SMOOTH RADIUS
	ROOF/OVERFLOW DRAIN		ELBOW DOWN - RECTANGULAR
	STEAM TRAP - FLOAT AND THERMOSTATIC		ELBOW DOWN - ROUND
	STEAM TRAP - BUCKET		ELBOW UP - RECTANGULAR
	STRAINER		ELBOW UP - ROUND
	STRAINER WITH VALVE AND BLOW-OFF		HEATING COIL
	THERMOMETER		INCLINED DROP IN DIRECTION OF AIRFLOW
	TRAP		INCLINED RISE IN DIRECTION OF AIRFLOW
	VALVE - ANGLE		INTAKE OR RELIEF HOOD
	VALVE - BALL		REGISTER - RETURN OR EXHAUST
	VALVE - BUTTERFLY		REGISTER - RETURN WITH BOOT
	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)		REGISTER - TRANSFER GRILLE
	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)		ROOF EXHAUST FAN
	VALVE - CHECK		TRANSITION - CONCENTRIC
	VALVE - SPRING CHECK		TRANSITION - ECCENTRIC
	VALVE - GAS (MANUAL)		UNIT HEATER - HORIZONTAL THROW
	VALVE - GLOBE		UNIT HEATER - VERTICAL THROW
	VALVE - ISOLATION		DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	VALVE - NEEDLE		DUCT TAKE-OFF - ROUND CONICAL
	VALVE - OS&Y		ELBOW - RECTANGULAR WITH TURNING VANES
	VALVE - PLUG		ELBOW - ROUND
	VALVE - PRESSURE REGULATING		ELBOW - RECTANGULAR SMOOTH RADIUS
	VALVE - PRESSURE REDUCING		ELBOW DOWN - RECTANGULAR
	VALVE - PRESSURE RELIEF		ELBOW DOWN - ROUND
	VALVE - PRESSURE & TEMPERATURE RELIEF		ELBOW UP - RECTANGULAR
	VENT THROUGH ROOF		ELBOW UP - ROUND
	WALL HYDRANT		HEATING COIL
	WATER PRESSURE DROP		INCLINED DROP IN DIRECTION OF AIRFLOW
	WEIGHT		INCLINED RISE IN DIRECTION OF AIRFLOW
	TRANSFORMER		INTAKE OR RELIEF HOOD
	ZONE VALVE BOX		REGISTER - RETURN OR EXHAUST
	FLANGE		REGISTER - RETURN WITH BOOT
	FLEX CONNECTION		REGISTER - TRANSFER GRILLE
	STRAINER - BASKET		ROOF EXHAUST FAN
	STRAINER - Y TYPE		TRANSITION - CONCENTRIC
	VALVE - 2 WAY CONTROL		TRANSITION - ECCENTRIC
	VALVE - 3 WAY CONTROL		UNIT HEATER - HORIZONTAL THROW
	VALVE - BUTTERFLY		UNIT HEATER - VERTICAL THROW
	VALVE - CHECK		DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	VALVE - DETECTOR CHECK		DUCT TAKE-OFF - ROUND CONICAL
	VALVE - OS&Y HORIZONTAL STEM		

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



**LOWER LEVEL MECHANICAL DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"

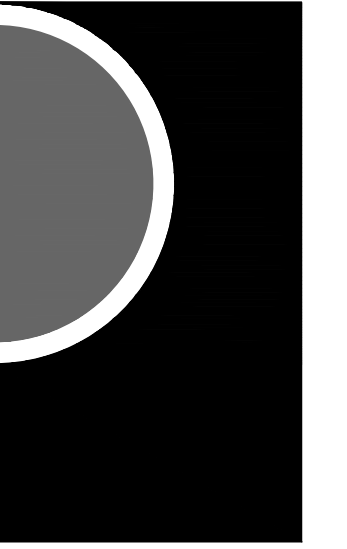
**MECHANICAL DEMOLITION GENERAL NOTES:**

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2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

**DEMOLITION KEY NOTES:**

- A. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 6 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- B. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 10 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- C. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 12.5 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- D. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 15 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- E. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 12 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- F. REMOVE ENERGY RECOVERY BOX COMPLETE. CAP DUCTWORK IN CEILING BELOW AT MAINS. CAP ROOF PENETRATION. REFER TO DETAIL.
- G. REMOVE THERMOSTAT COMPLETE.
- H. REMOVE 2 1/2 GAS PIPE. PREPARE FOR NEW WORK.

**PARTNERS**



**PARTNERS in Architecture, PLC**

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Fax: 248-879-0007  
www.PeterBassoAssociates.com  
PIA Project No. 2022-0016

KEY PLAN

OWNER

Hamtramck  
Public Schools

PROJECT NAME

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

**22-106D**

ISSUES / REVISIONS

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022

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SHEET NAME

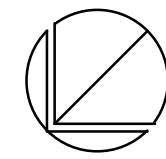
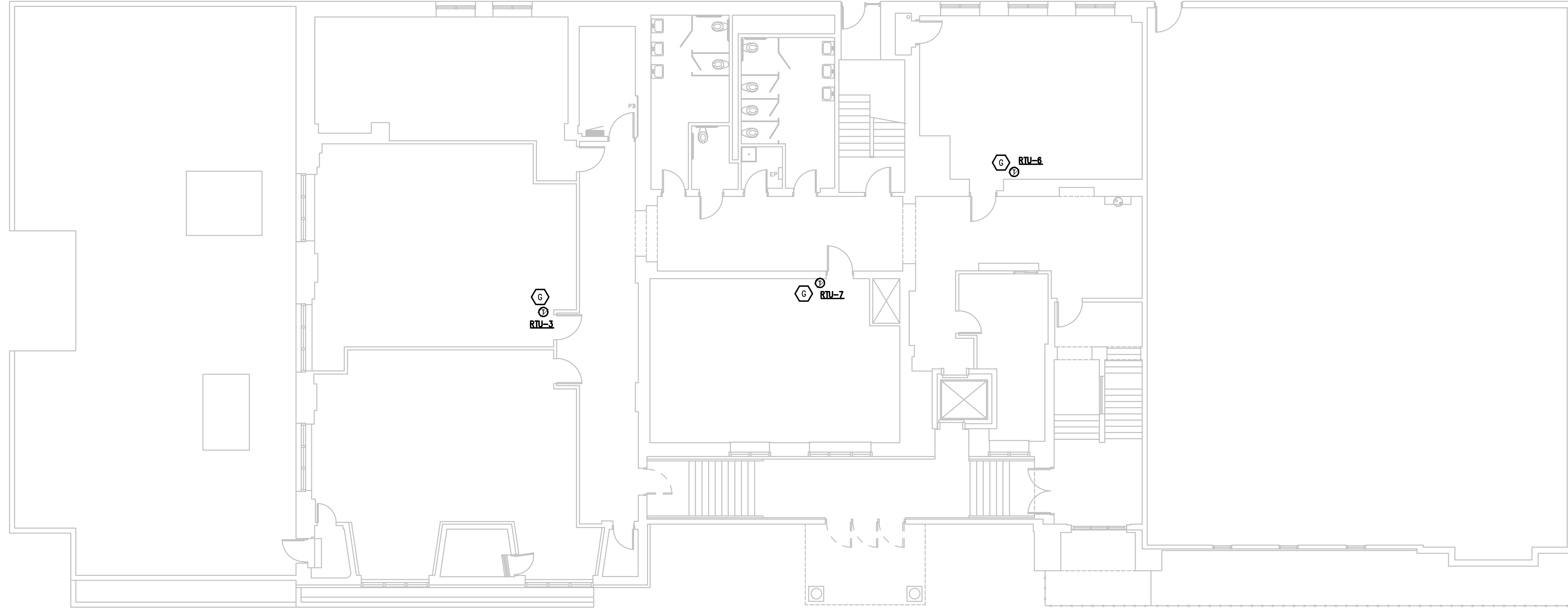
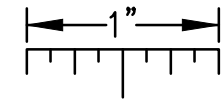
LOWER LEVEL MECHANICAL  
DEMOLITION PLAN

SHEET NO.

**MD1-00**

g:\2022\2022-0016-00\CAD\CAD\2022-0016-MD1-MD2-MPO.dwg, MD1-00, 4/7/2022 11:48:59 AM, Devin J. Senetchal, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



**MAIN LEVEL MECHANICAL DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"

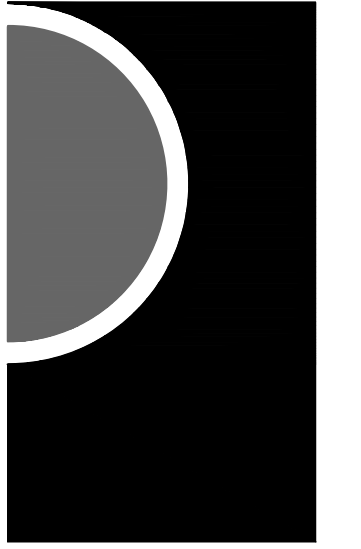
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- G. REMOVE THERMOSTAT COMPLETE.
- H. REMOVE 2 1/2 GAS PIPE. PREPARE FOR NEW WORK.

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PROJECT NO.

**22-106D**

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SHEET NAME

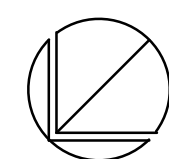
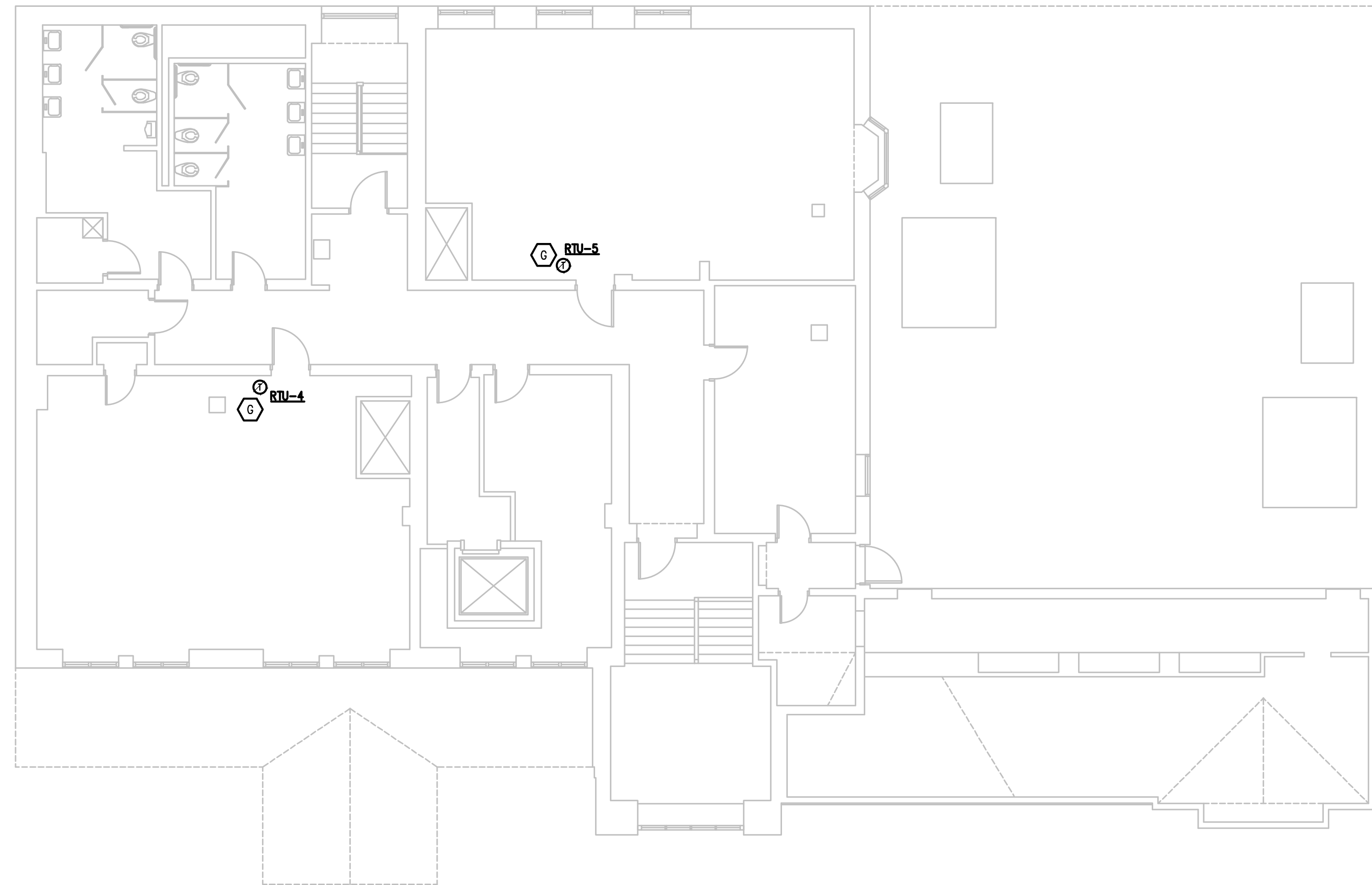
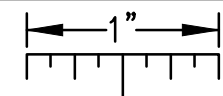
**MAIN LEVEL MECHANICAL  
DEMOLITION PLAN**

SHEET NO.

**MD1-10**

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



**SECOND LEVEL MECHANICAL DEMOLITION PLAN**

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

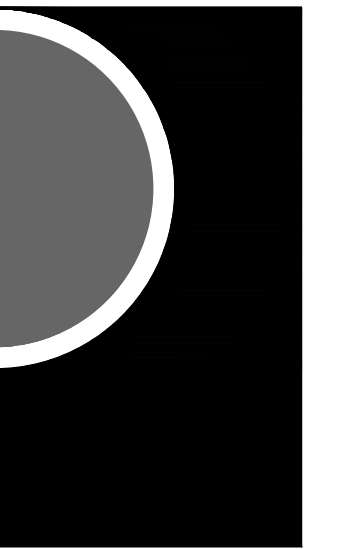
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4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

**DEMOLITION KEY NOTES:**

- A. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 6 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- B. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 10 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- C. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 12.5 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- D. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 15 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- E. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 12 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
- F. REMOVE ENERGY RECOVERY BOX COMPLETE. CAP DUCTWORK IN CEILING BELOW AT MAINS. CAP ROOF PENETRATION. REFER TO DETAIL.
- G. REMOVE THERMOSTAT COMPLETE.
- H. REMOVE 2 1/2 GAS PIPE. PREPARE FOR NEW WORK.

**PARTNERS**



**PARTNERS in Architecture, PLC**

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CONSULTANT



**Peter Basso Associates Inc**

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PBA Project No. 2022-0056

KEY PLAN

OWNER

Hamtramck  
Public Schools

PROJECT NAME

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

**22-106D**

ISSUES / REVISIONS

Owner Review 03/22/2022

Bidding - Construction 04/07/2022

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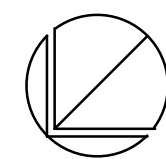
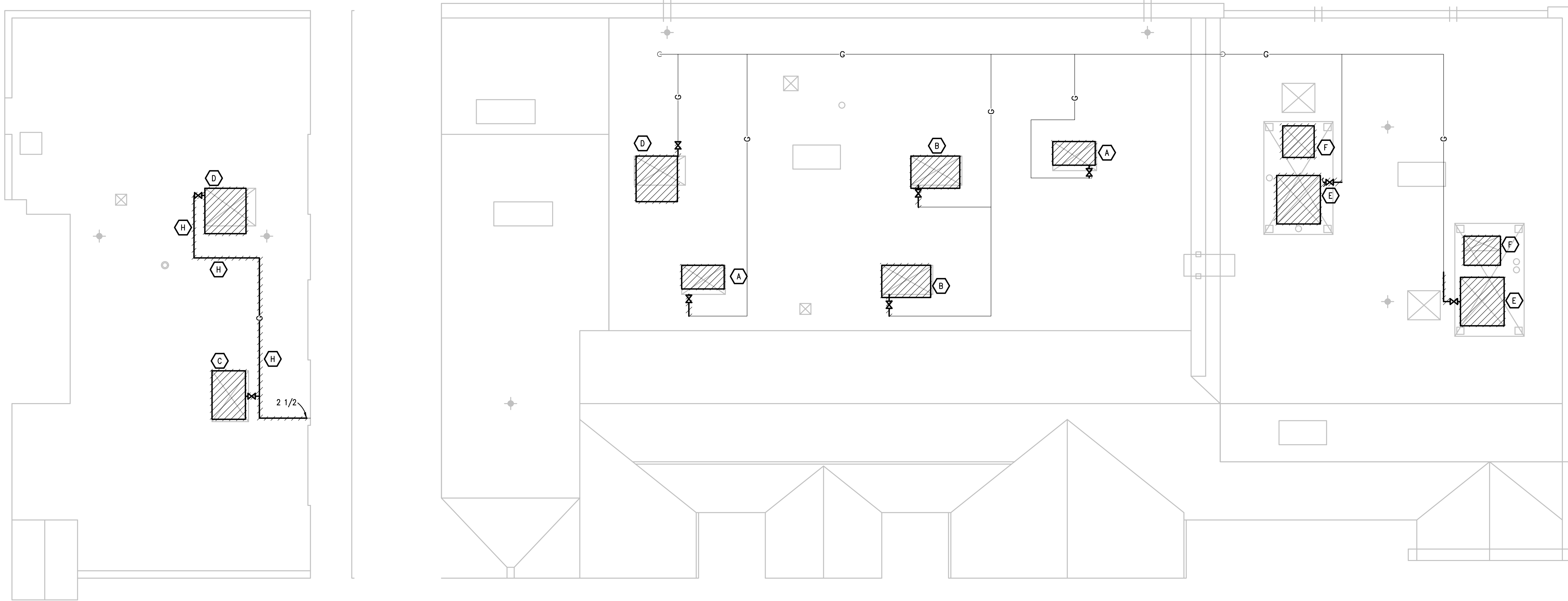
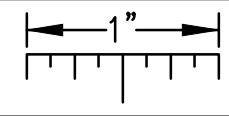
SECOND LEVEL MECHANICAL

DEMOLITION PLAN

SHEET NO.

**MD1-20**

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



**ROOF MECHANICAL DEMOLITION PLAN**

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

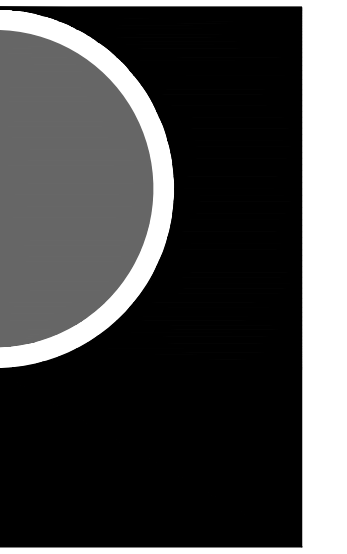
**MECHANICAL DEMOLITION GENERAL NOTES:**

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
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- B. PROVIDE PRE-DEMOLITION AIR FLOW READING AT UNIT. REMOVE 10 TON DX COOLING GAS FIRED HEATING ROOFTOP UNIT. DISCONNECT LOW PRESSURE GAS PIPING UP TO AND INCLUDING SHUTOFF VALVE. PREPARE GAS PIPING FOR NEW CONNECTION. PREPARE SUPPLY & RETURN DUCTWORK BELOW FOR NEW WORK. PREPARE ROOF CURB FOR NEW WORK.
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OWNER

Hamtramck  
Public Schools

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Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

22-106D

ISSUES / REVISIONS

Owner Review	03/22/2022
Bidding - Construction	04/07/2022

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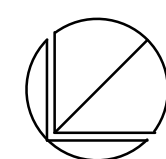
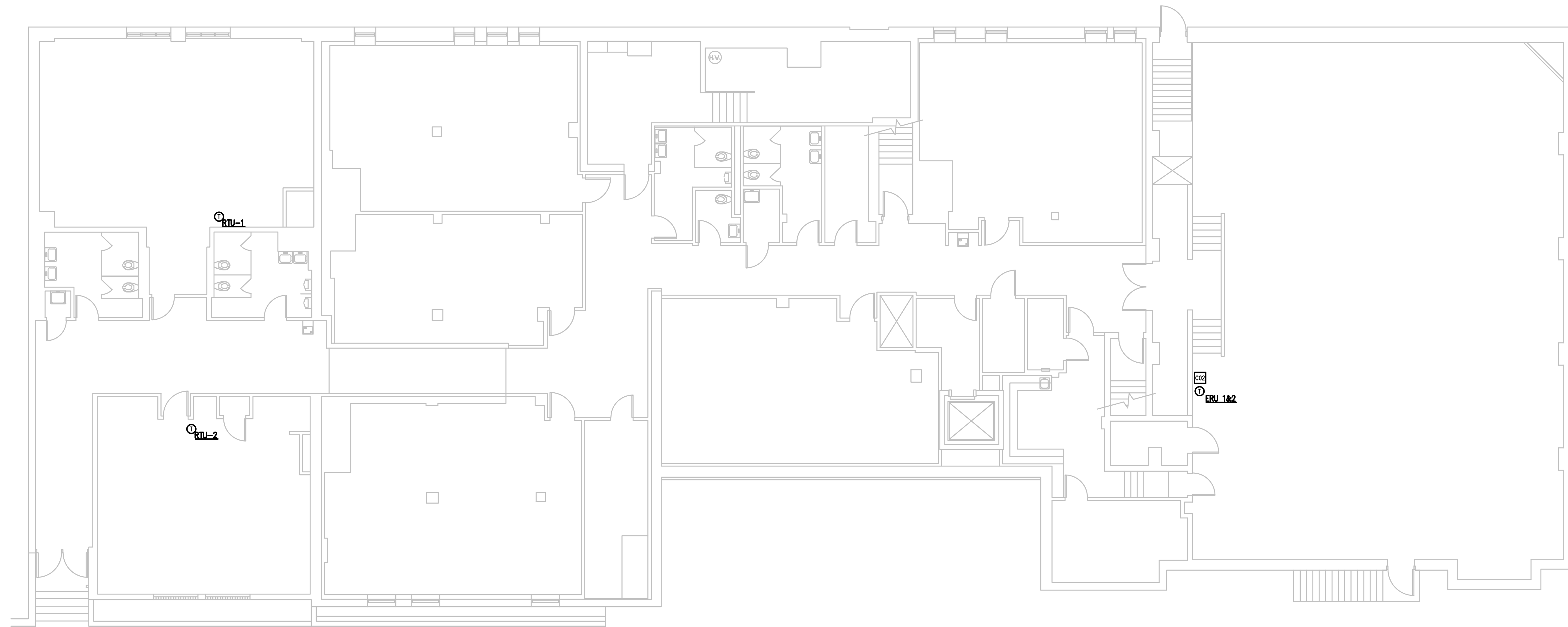
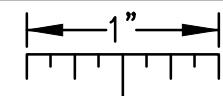
ROOF MECHANICAL DEMOLITION PLAN

SHEET NO.

MD1-30

g:\2022\2022-0016-00\CAD\CAD\2022-0016-MD1-30 ROOF MECHANICAL DEMOLITION PLAN, 4/7/2022 11:49:13 AM, Devin J. Senechal, Peter Basso Associates Inc.

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



**LOWER LEVEL MECHANICAL PLAN**

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

**PLUMBING GENERAL NOTES:**

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
11. WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST , OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

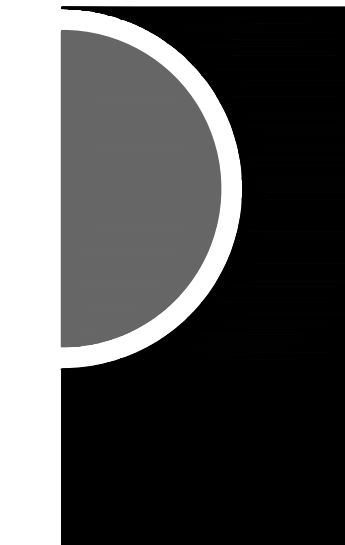
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7. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

**CONSTRUCTION KEY NOTES:**

1. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 39x70. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
2. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 53x80.5. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
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4. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 68x75. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
5. CONNECT UNIT SUPPLY AND RETURN TO EXISTING DUCTWORK IN CEILING BELOW.
6. PROVIDE ELECTRIC HEAT TRACE (120V) AND INSULATION ON CONDENSATE DRAIN. RUN CONDENSATE TO NEARBY ROOF DRAIN.

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PIA Project No. 2022-0036

KEY PLAN

OWNER

**Hamtramck  
Public Schools**

PROJECT NAME

**HVAC Improvements  
Phase 1  
Tau Beta School**

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

**22-106D**

ISSUES / REVISIONS

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022

NO.	DESCRIPTION	DATE

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SHEET NAME

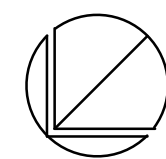
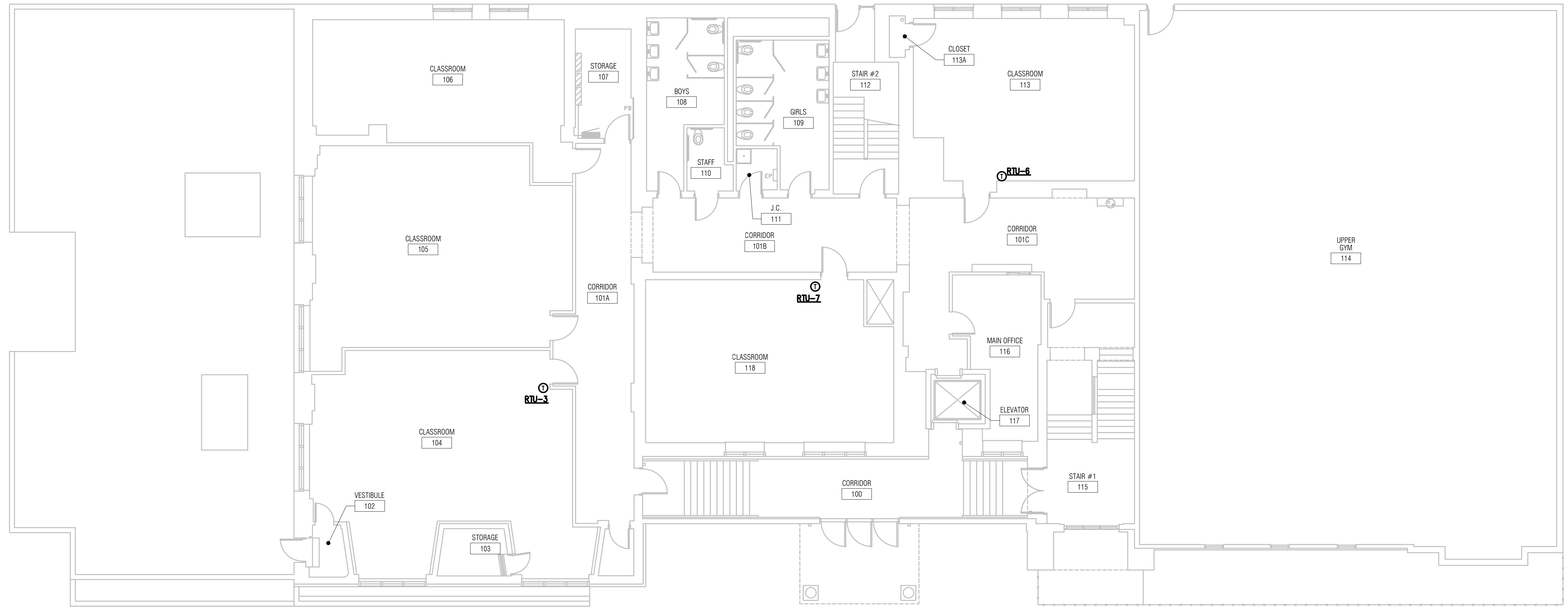
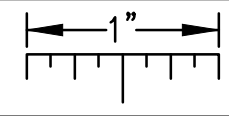
LOWER LEVEL MECHANICAL PLAN

SHEET NO.

**M3-00**

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**MAIN LEVEL MECHANICAL PLAN**  
SCALE: 1/8" = 1' - 0"

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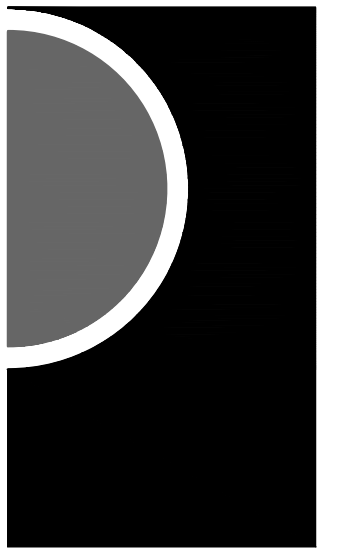
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Public Schools

**PROJECT NAME**

HVAC Improvements  
Phase 1  
Tau Beta School

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**PROJECT NO.**

22-106D

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MAIN LEVEL MECHANICAL PLAN

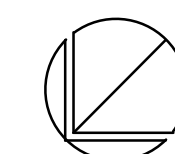
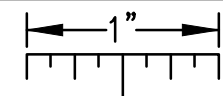
**SHEET NO.**

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**SECOND LEVEL MECHANICAL PLAN**

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

**PLUMBING GENERAL NOTES:**

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5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
11. WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST 12", OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

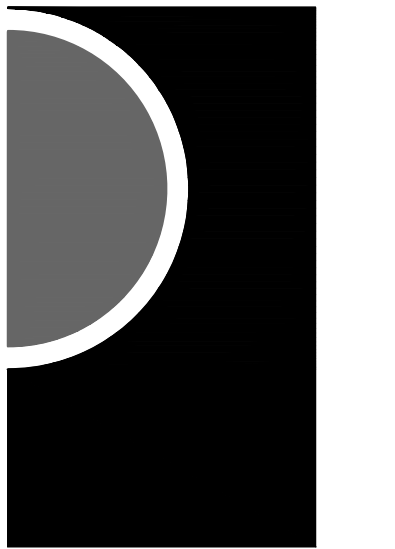
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7. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

**CONSTRUCTION KEY NOTES:**

1. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 39x70. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
2. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 53x80.5. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
3. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 55x80. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
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5. CONNECT UNIT SUPPLY AND RETURN TO EXISTING DUCTWORK IN CEILING BELOW.
6. PROVIDE ELECTRIC HEAT TRACE (120V) AND INSULATION ON CONDENSATE DRAIN. RUN CONDENSATE TO NEARBY ROOF DRAIN.

**PARTNERS**



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PIA Project No. 2022-1066

KEY PLAN

OWNER

Hamtramck  
Public Schools

PROJECT NAME

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

22-106D

ISSUES / REVISIONS

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022


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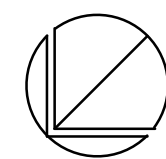
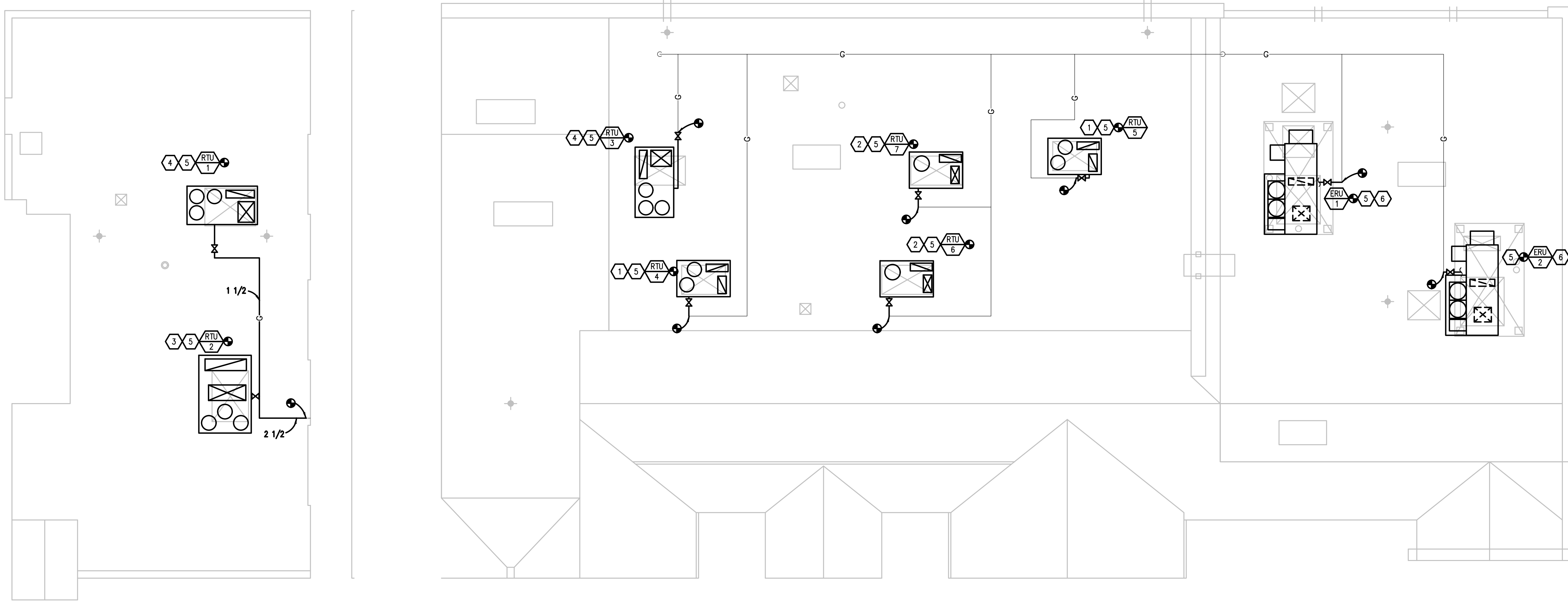
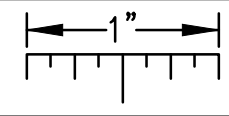
SHEET NAME

SECOND LEVEL MECHANICAL PLAN

SHEET NO.

M3-20

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



**ROOF MECHANICAL PLAN**  
SCALE: 1/8" = 1' - 0"

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**SHEET METAL GENERAL NOTES:**

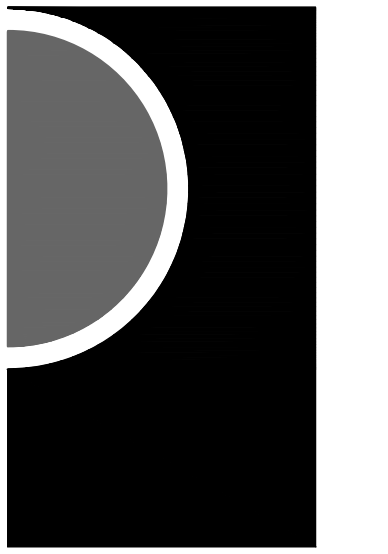
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g:\2022\2022-0016-00\CAD\CAD\2022-0016-MP-RF.dwg, M3-30 ROOF MECHANICAL PLAN, 4/7/2022 11:49:32 AM, Devin J. Senechal, Peter Basso Associates Inc.



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 PBA Project No. 2022-0016

KEY PLAN

OWNER  
 Hamtramck  
 Public Schools

PROJECT NAME  
 HVAC Improvements  
 Phase 1  
 Tau Beta School

3056 Hanley  
 Hamtramck, MI 48212

PROJECT NO.  
 22-106D

ISSUES / REVISIONS  
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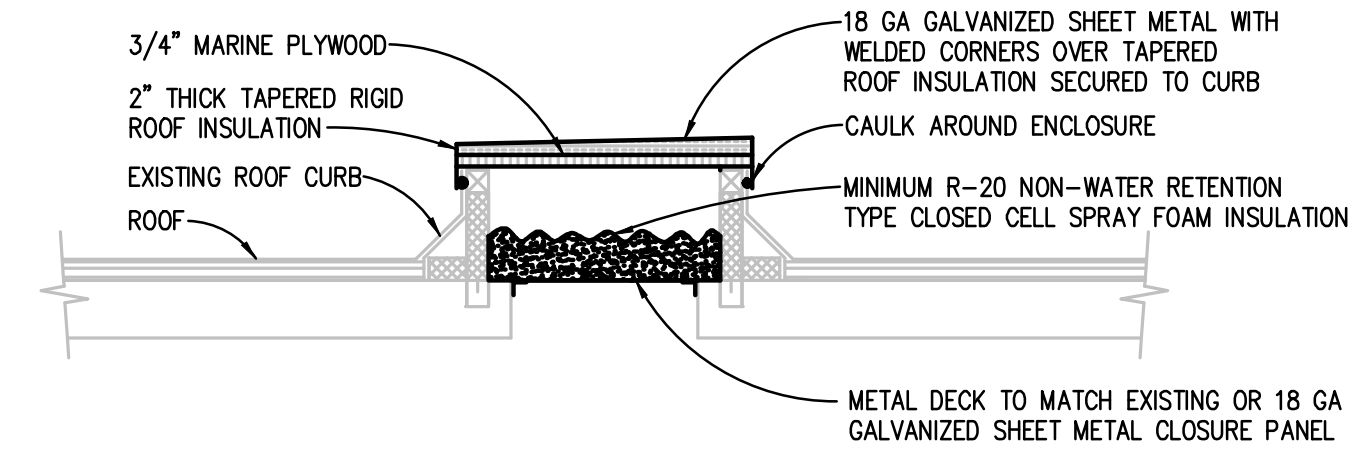
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 SHEET NAME  
 MECHANICAL DETAILS

SHEET NO.  
 M6-01

TRAP DIMENSION TABLE

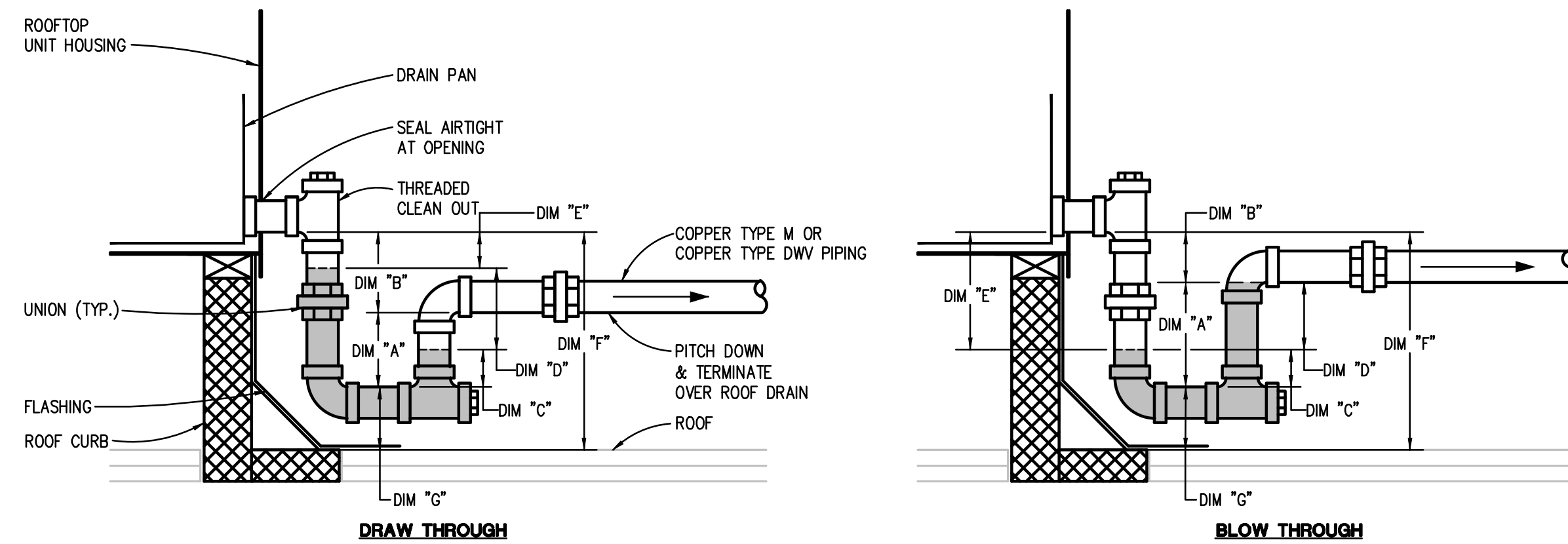
TYPE OF SYSTEM	S.P. AT DRAIN PAN (IN.) (NOTE A)	DIMENSION "A" (INCHES) MIN.	DIMENSION "B" (INCHES)	DIMENSION "C" (INCHES) (TRAP SEAL)	DIMENSION "D" (INCHES)	DIMENSION "E" (INCHES)	DIMENSION "F" (INCHES)			
							DRAIN PIPE SIZE (INCHES)			
							1 1/2	2	2 1/2, 3	4
DRAW THROUGH	-5.1 TO -6	5.0	5.0	2	6	2	13.0	14.0	15.0	16.0
	-4.1 TO -5	4.5	4.5	2	5	2	12.0	13.0	14.0	15.0
	-3.1 TO -4	4.0	4.0	2	4	2	11.0	12.0	13.0	14.0
	-2.1 TO -3	3.5	3.5	2	3	2	10.0	11.0	12.0	13.0
	UP TO -2	3.0	3.0	2	2	2	9.0	10.0	11.0	12.0
BLOW THROUGH	UP TO +2	4.0	2.0	2	2	4	9.0	10.0	11.0	12.0
	+2.1 TO +3	5.0	2.0	2	3	5	10.0	11.0	12.0	13.0
	+3.1 TO +4	6.0	2.0	2	4	6	11.0	12.0	13.0	14.0
	+4.1 TO +5	7.0	2.0	2	5	7	12.0	13.0	14.0	15.0
	+5.1 TO +6	8.0	2.0	2	6	8	13.0	14.0	15.0	16.0

NOTES: A. REFER TO ROOFTOP AIR HANDLING UNIT (COMMERCIAL, UNITARY, MODULAR) SCHEDULE FOR (-) OR (+) STATIC PRESSURE AT DRAIN PAN.  
 B. CONDENSATE DRAIN PAN TRAP PIPING SERVING ENERGY RECOVERY UNIT HEAT EXCHANGER AND HUMIDIFIER SECTIONS, WHERE LOCATED OUTDOORS, SHALL BE INSULATED AND HEAT TRACED.  
 C. DIMENSION "G" IS MIN: 3" FOR UP TO 1 1/2" DRAIN PIPE  
 4" FOR 2" DRAIN PIPE  
 5" FOR 2 1/2" OR 3" DRAIN PIPE  
 6" FOR 4" DRAIN PIPE  
 D. PROVIDE ROOF CURB WITH ADEQUATE HEIGHT TO MEET DIMENSION "F"



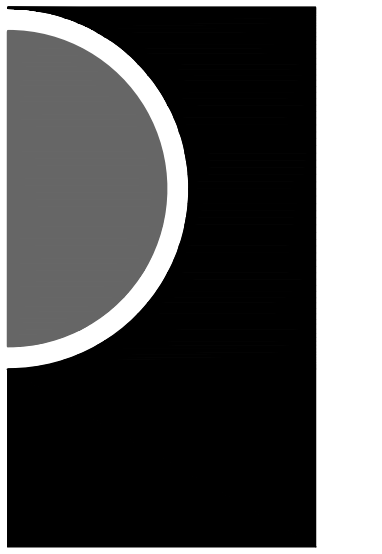
NOTE:  
 1. FASTEN TOP CLOSURE, WITH SCREWS THROUGH SIDE.  
 2. NOT TO BE USED FOR CURBS GREATER THAN 24" IN ANY DIMENSION

**SMALL ROOF CURB CAP DETAIL**  
 NO SCALE



**ROOFTOP AIR HANDLING/AIR CONDITIONING UNIT CONDENSATE DRAIN PAN TRAP DETAIL**  
 NO SCALE





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 MECHANICAL SCHEDULES

SHEET NO.  
 M7-02

UNITARY ROOFTOP AIR CONDITIONING UNIT SCHEDULE

UNIT I.D.	SUPPLY FAN								EXHAUST/RELIEF FAN				COOLING SECTION - DX						INTEGRAL AIR-COOLED CONDENSING SECTION				HEATING SECTION - GAS FIRED (NATURAL GAS)						FILTER SECTION		ROOF CURB		MAXIMUM UNIT DIMENSIONS			MAXIMUM UNIT OPERATING WEIGHT LBS. (WITH CURB ADAPTER)					TOTAL UNIT ELECTRICAL					MODEL NO.	KEYED NOTES			
	AIRFLOW CFM	MINIMUM OUTSIDE AIR FLOW CFM	E.S.P. IN. W.G.	FAN SUCTION OR DISCHARGE S.P. IN. W.G. AT COOLING COIL DRAIN PAN	IN. W.G.	FAN SPEED RPM	BHP	HP	AIRFLOW CFM	E.S.P. IN. W.G.	FAN SPEED RPM	BHP	HP	MIXED AIR	UNIT LEAVING AIR	NET UNIT CAPACITY	NUMBER OF CIRCUITS	REFRIG. TYPE	MAX. FACE VEL. F.P.M.	DESIGN AMBIENT TEMP °F	MIN. AMBIENT TEMP °F	NO. OF CAPACITY CONTROL STAGES	AIR TEMP.		CAPACITY (MBH)		MIN/MAX MANUFACTURER REQUIRED INLET PRESSURE AT GAS TRAIN	MAXIMUM ALLOWABLE OUTPUT AT MINIMUM FIRING RATE (MBH)	MIN. NO. OF CAPACITY CONTROL STAGES	TYPE	MERV	AIR PRESS. DROP		TYPE	HEIGHT	LENGTH	HEIGHT (WITH CURB)	WIDTH	VOLTS	PHASE	FLA	MOP	SCCR KA	OPTIONS/ACCESSORIES						
																							E.A.T. °F	L.A.T. °F	INPUT	OUTPUT						INITIAL IN. W.G.	FINAL IN. W.G.												STANDARD			VIBRATION ISOLATION SPRING CURB		
RTU-1	5600	2400	1.00	+0.81/-0.81	1.81	1075	4.57	10	4571	0.41	-	-	-	82	68.3	60.7	58.7	174.32	125.5	-	R-410A	500	95	45	3	45	99.9	400	324	7/11 IN. WC.	260	2	PLEATED	13	0.25	0.5	NO	NO	18	115.9	75	63.4	2500	240	3	92	100	5	B	48TCW16K3M 5-2W5J0
RTU-2	4800	1920	1.00	+0.81/-0.81	1.81	1040	3.12	7.5	4251	0.41	-	-	-	82	68.3	59	58.5	143.48	106.07	-	R-410A	500	95	45	3	45	94.6	310	251	7/11 IN. WC.	200	2	PLEATED	13	0.25	0.5	NO	NO	18	127.9	64.5	86.4	3400	240	3	104	110	5	B	48LCW14K4M 5-1SSA0
RTU-3	5600	2400	1.00	+0.81/-0.81	1.81	1075	4.57	10	4571	0.41	-	-	-	82	68.3	60.7	58.7	174.32	125.5	-	R-410A	500	95	45	3	45.0	99.9	400	324	7/11 IN. WC.	260	2	PLEATED	13	0.25	0.5	NO	NO	18	115.9	75	63.4	2500	240	3	92	100	5	B	48TCW16K3M 5-2W5J0
RTU-4	2800	1120	1.00	+0.90/-0.90	1.9	1085	2.47	3	-	-	-	-	-	82	68.3	62.9	60.8	69.65	56.34	-	R-410A	500	95	45	2	39.2	89.3	180	148	7/11 IN. WC.	98	2	PLEATED	13	0.25	0.5	NO	NO	18	88.1	63.4	59.5	1800	240	3	43	50	5	B	48CTA07K3M 5-1R5C0
RTU-5	2800	1120	1.00	+0.90/-0.90	1.9	1085	2.47	3	-	-	-	-	-	82	68.3	62.9	60.8	69.65	56.34	-	R-410A	500	95	45	2	39.2	89.3	180	148	7/11 IN. WC.	98	2	PLEATED	13	0.25	0.5	NO	NO	18	88.1	63.4	59.5	1800	240	3	43	50	5	B	48CTA07K3M 5-1R5C0
RTU-6	3750	1500	1.00	+0.64/-0.64	1.64	939	3.85	5	2782	0.41	-	-	-	82	68	58.5	58	108.37	79.57	-	R-410A	500	95	45	2	53.6	99.8	310	270	7/11 IN. WC.	156	2	PLEATED	13	0.25	0.5	NO	NO	18	88.1	68	59.5	2000	240	3	70	80	5	B	48HCUE11K3M 5-2W5J0
RTU-7	3750	1500	1.00	+0.64/-0.64	1.64	939	3.85	5	2782	0.41	-	-	-	82	68	58.5	58	108.37	79.57	-	R-410A	500	95	45	2	53.6	99.8	310	270	7/11 IN. WC.	156	2	PLEATED	13	0.25	0.5	NO	NO	18	88.1	68	59.5	2000	240	3	70	80	5	B	48HCUE11K3M 5-2W5J0

- GENERAL NOTES:  
 1. REFER TO SCHEDULES GENERAL NOTES.  
 2. MODEL NUMBERS ARE CARRIER UNLESS OTHERWISE NOTED.  
 3. DESIGN MINIMUM OUTSIDE AIRFLOW CFM (VENTILATION) LISTED IS BASED ON THE ESTIMATED MAXIMUM OCCUPANT LOAD. REFER TO TEMPERATURE CONTROL DRAWINGS FOR OUTSIDE AIR CONTROL SEQUENCE.  
 4. MERV DESIGNATES THE "MINIMUM EFFICIENCY REPORTING VALUE" AS EVALUATED UNDER ASHRAE STANDARD 52.2 1999.  
 5. AIR HANDLING UNIT TOTAL STATIC PRESSURE FOR VARIABLE AIR VOLUME SYSTEMS IS BASED ON THE FILTER DIRTY AIR PRESSURE DROP AND AVERAGE/MIDLIFE FILTER AIR PRESSURE DROP FOR CONSTANT VOLUME SYSTEMS UNLESS NOTED OTHERWISE.  
 6. ALL UNITS TO BE SUPPLIED WITH FULLY WELDED CURB ADAPTER. CONTRACTOR TO VERIFY EXISTING ROOF CURB SIZE PRIOR TO ORDERING ADAPTER.  
 7. UNITS TO COME WITH HOT GAS REHEAT

MAXIMUM SOUND POWER LEVELS

UNIT I.D.	UNIT INLET Lw BY OCTAVE BAND								CASING RADIATED Lw BY OCTAVE BAND							
	63 HZ (DB)	125 HZ (DB)	250 HZ (DB)	500 HZ (DB)	1000 HZ (DB)	2000 HZ (DB)	4000 HZ (DB)	8000 HZ (DB)	63 HZ (DB)	125 HZ (DB)	250 HZ (DB)	500 HZ (DB)	1000 HZ (DB)	2000 HZ (DB)	4000 HZ (DB)	8000 HZ (DB)
RTU-1	90.6	79.2	73.3	65.2	59.9	54.6	49.4	40.2	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
RTU-2	89.0	78.5	72.0	63.7	58.5	53.0	48.7	40.1	92.2	83.9	80.4	81.8	78.7	76.5	72.2	65.4
RTU-3	90.6	79.2	73.3	65.2	59.9	54.6	49.4	40.2	97.1	88.3	84.4	83.3	80.7	77.4	73.4	67.3
RTU-4	96.7	88.0	76.6	67.9	65.6	60.6	60.7	59.6	88.0	85.0	81.6	79.5	77.4	74.1	71.0	66.3
RTU-5	96.7	88.0	76.6	67.9	65.6	60.6	60.7	59.6	88.0	85.0	81.6	79.5	77.4	74.1	71.0	66.3
RTU-6	96.0	89.6	76.5	70.2	68.4	64.0	64.6	62.3	89.3	86.0	82.9	80.7	78.5	73.6	69.6	64.5
RTU-7	96.0	89.6	76.5	70.2	68.4	64.0	64.6	62.3	89.3	86.0	82.9	80.7	78.5	73.6	69.6	64.5

NOTE: SEE NOTES UNDER PART "A"

GYM ENERGY RECOVERY UNIT SCHEDULE - PART A

UNIT IDENTIFICATION	SUPPLY FAN						EXHAUST FAN				HEAT EXCHANGER (SUMMER)				HEAT EXCHANGER (WINTER)				COOLING SECTION - DX						INTEGRAL AIR-COOLED CONDENSING SECTION				HEATING SECTION - GAS FIRED (NATURAL GAS)						HOT GAS REHEAT COIL (HEAT RECLAIM)														
	CFM	MIN. OA CFM SUMMER/WINTER	ESP*	TSP*	CONTROL TYPE	MOTOR	CFM SUMMER/WINTER	ESP*	TSP*	CONTROL TYPE	MOTOR	SUPPLY SIDE			EXHAUST SIDE			EFFIC. (%)	SUPPLY SIDE			EXHAUST SIDE			EFFIC. (%)	MIXED AIR		UNIT LEAVING AIR	UNIT NET CAPACITY	NUMBER OF CIRCUITS	REFRIG. TYPE	MAX. FACE VEL. F.P.M.	DESIGN AMBIENT TEMP °F	MIN. AMBIENT TEMP °F	NO. OF CAPACITY CONTROL STAGES	AIR TEMP.		CAPACITY (MBH)		GAS PRESSURE TO GAS TRAIN IN. WC.	MAXIMUM ALLOWABLE OUTPUT AT MINIMUM FIRING RATE (MBH)	MIN. NO. OF CAPACITY CONTROL STAGES	CAPACITY TOTAL MBH	E.W.B. °F	L.D.B. °F				
												BHP	HP	E.A.T. °F	L.A.T. °F	A.P.D. IN. WG.	E.A.T. °F		L.A.T. °F	A.P.D. IN. WG.	E.A.T. °F	L.A.T. °F	A.P.D. IN. WG.	E.A.T. °F		L.A.T. °F	A.P.D. IN. WG.									E.A.T. °F	L.A.T. °F	A.P.D. IN. WG.	E.A.T. °F							L.A.T. °F	A.P.D. IN. WG.	E.A.T. °F	L.A.T. °F
ERU-1	3600	2400/2400	2.50	4.67	VFD	7.34	7.5	2400/2400	0.5	1.84	VFD	1.05	5	91	81	0.43	75.0	83.9	0.42	63	-10.0	38.1	0.36	72.0	30.9	0.39	71	81.3	70.4	56.0	56.0	149.6	107	1	R-410A	444	95	45	1	53.6	95	200	160	6-14	120	MODULATING	69	60.2	76.4
ERU-2	3600	2400/2400	2.50	4.67	VFD	7.34	7.5	2400/2400	0.5	1.84	VFD	1.05	5	91	81	0.43	75.0	83.9	0.42	63	-10.0	38.1	0.36	72.0	30.9	0.39	71	81.3	70.4	56.0	56.0	149.6	107	1	R-410A	444	95	45	1	53.6	95	200	160	6-14	120	MODULATING	69	60.2	76.4

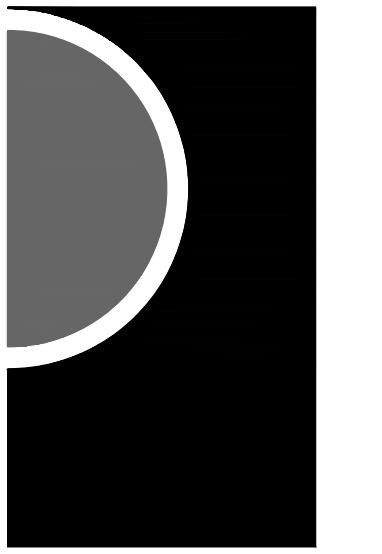
- NOTES:  
 1. REFER TO SCHEDULES GENERAL NOTES.  
 2. MODEL NUMBERS ARE VALENT UNLESS OTHERWISE NOTED.  
 3. COORDINATE UNIT CONFIGURATION WITH PLANS IN ORDER TO ALLOW FOR PROPER SERVICE ACCESS.  
 4. PROVIDE SINGLE POINT ELECTRICAL CONNECTION WITH MAIN DISCONNECT.  
 5. PROVIDE 2 INCHES OF NEOPRENE BETWEEN UNIT AND STRUCTURAL STEEL SUPPORT RACK.  
 6. ELECTRIC HEAT TRACE CONDENSATE LINE LENGTH.

GYM DEHUMIDIFICATION UNIT SCHEDULE - PART B

UNIT IDENTIFICATION	OUTSIDE AIR FILTERS						RETURN FILTERS				CURB			UNIT WEIGHT (LBS.)	SA/RA CONFIG.	EA/OA CONFIG.	ELECTRICAL						MODEL NO.	REMARKS
	EFF. %	AREA SQ. FT.	SP* TOTAL	EFF. %	AREA SQ. FT.	SP* TOTAL	STANDARD	VIBRATION ISOLATION SPRING CURB (NOTE 5)	HEIGHT	VOLTS	PHASE	MCA	MOP				SCCR KA	OPTIONS/ACCESSORIES						
																			TYPE					
ERU-1	30	16	0.4	30	16	0.62	YES	--	14	3,300	BOTTOM/BOTTOM	SIDE/END	240	3	62	90	10	B	VXE-112-36-30H-12.50-G					
ERU-2	30	16	0.4	30	16	0.62	YES	--	14	3,300	BOTTOM/BOTTOM	SIDE/END	240	3	62	90	10	B	VXE-112-36-30H-12.50-G					

NOTE: SEE NOTES UNDER PART "A"

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KEY PLAN

OWNER

Hamtramck  
Public Schools

PROJECT NAME

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

22-106D

ISSUES / REVISIONS

Owner Review 03/22/2022  
Bidding - Construction 04/07/2022

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SVM

SHEET NAME

TEMPERATURE CONTROL STANDARDS  
AND GENERAL NOTES

SHEET NO.

M8-01

TEMPERATURE CONTROL - SYMBOLS LIST

SCHEMATIC SYMBOLS

SYMBOL	DESCRIPTION
CS	CURRENT SWITCH
	DAMPER - OPPOSED BLADE
	DAMPER - PARALLEL BLADE
M	DAMPER MOTOR
DPT	DIFFERENTIAL PRESSURE TRANSMITTER
DPS	DIFFERENTIAL PRESSURE SWITCH
CM	FIRE ALARM SYSTEM, ADDRESSABLE CONTROL MODULE
P	GAUGE - PRESSURE
H	HUMIDITY SENSOR, DUCT MOUNTED
LS	LIMIT SWITCH
—	LINE - ELECTRIC
- - - -	LINE - PNEUMATIC
	MOTOR STARTER
R	RELAY, ELECTRIC
AI	SIGNAL - DDC/BAS, ANALOG INPUT
AO	SIGNAL - DDC/BAS, ANALOG OUTPUT
DI	SIGNAL - DDC/BAS, DIGITAL INPUT
DO	SIGNAL - DDC/BAS, DIGITAL OUTPUT
	SIGNAL - PACKAGED EQUIPMENT, ANALOG INPUT
	SIGNAL - PACKAGED EQUIPMENT, ANALOG OUTPUT
	SIGNAL - PACKAGED EQUIPMENT, DIGITAL INPUT
	SIGNAL - PACKAGED EQUIPMENT, DIGITAL OUTPUT
DD	SMOKE DETECTOR - DUCT MOUNTED
SD	SMOKE DETECTOR - SPACE MOUNTED

NOTES:

- SOME SYMBOLS & ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.
- REFER TO MECHANICAL STANDARDS ON DRAWING M0.1 FOR ADDITIONAL SYMBOLS & ABBREVIATIONS THAT MAY BE USED ON TEMPERATURE CONTROL DRAWINGS.

SCHEMATIC SYMBOLS (CONT.)

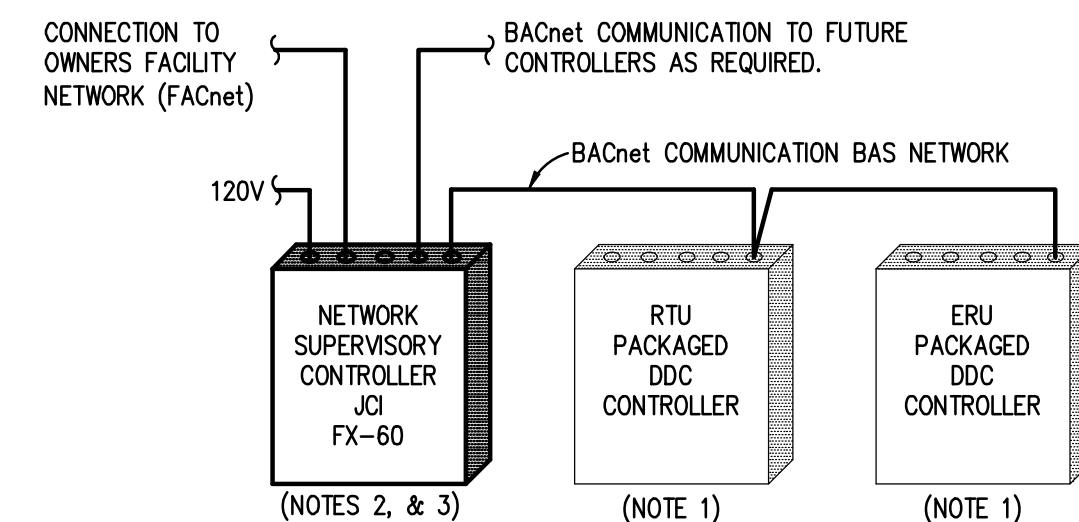
SYMBOL	DESCRIPTION
S/S	START/STOP RELAY
SPT	STATIC PRESSURE TRANSMITTER
SP	STATIC PRESSURE SENSOR OR PROBE
SW	SWITCH
T	TEMPERATURE SENSOR - DUCT MOUNTED AVG ELEMENT
T	TEMPERATURE SENSOR - DUCT MOUNTED RIGID ELEMENT
T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)
VFC	VARIABLE SPEED DRIVE
XF	TRANSFORMER

WIRING SYMBOLS

SYMBOL	DESCRIPTION
	COIL - RELAY
	CONTACT - INSTANT OPERATING, NO
	CONTACT - INSTANT OPERATING, NC
	GROUND
	MOTOR, SINGLE PHASE
	SWITCH - LIMIT, NO
	SWITCH - PRESSURE & VACUUM, NC
	WIRE TERMINATION AT DEVICE
	WIRE TO WIRE TERMINATION

ABBREVIATIONS

ABBREVIATION	DESCRIPTION
BAS	BUILDING AUTOMATION SYSTEM
DDC	DIRECT DIGITAL CONTROL
TC	TEMPERATURE CONTROLS
NO	NORMALLY OPEN
NC	NORMALLY CLOSED

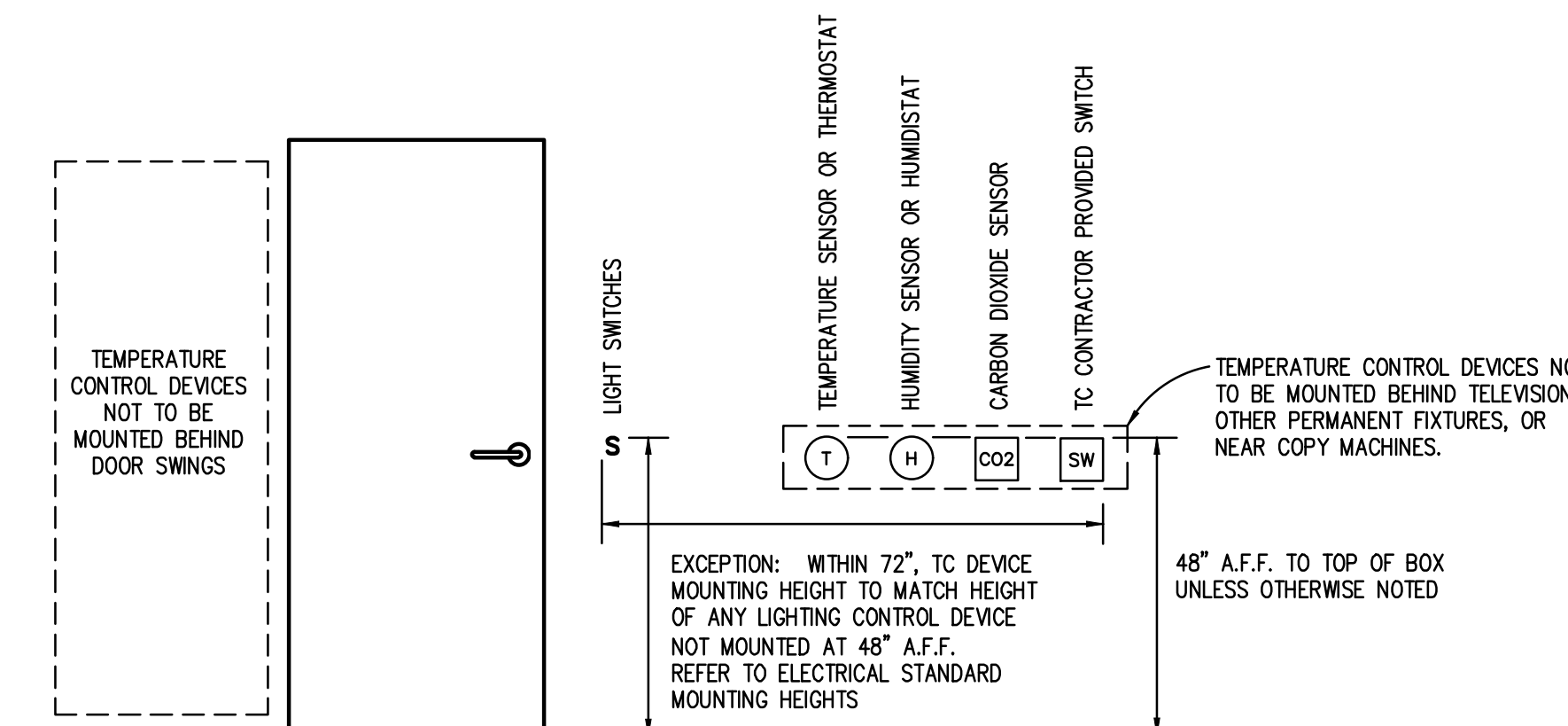


DDC SYSTEM ARCHITECTURE

NO SCALE

NOTES:

- REFER TO TEMPERATURE CONTROL SCHEMATICS FOR THE REQUIRED POINTS ASSOCIATED FOR EACH SYSTEM.
- TC CONTRACTOR SHALL PROVIDE NEW TRIDIUM N4 VYCON NETWORK SUPERVISORY CONTROLLER FOR CONNECTION TO OWNER'S FUTURE BACnet NETWORK. COORDINATE BACnet CONNECTION.
- TC CONTRACTOR SHALL PROVIDE REQUIRED POWER SUPPLIES FROM DEDICATED AND/OR SPARE CIRCUITS IDENTIFIED ON ELECTRICAL PANEL SCHEDULES. COORDINATE WITH ELEC CONTRACTOR. REFER TO ELECTRICAL DWGS FOR PANEL SCHEDULES AND PANEL LOCATIONS.
- GRAPHICS FOR OPERATOR INTERFACE OF SYSTEMS ARE TO RESIDE ON THE JACE WITH VIEWABLE ACCESS FROM A LOCAL TOUCHSCREEN DISPLAY.



TC DEVICE STANDARD MOUNTING HEIGHTS DETAIL

NO SCALE

TC GENERAL NOTES

- THESE GENERAL NOTES SHALL BE APPLICABLE FOR ALL TEMPERATURE CONTROL (TC) DRAWINGS.
- "PROVIDE" IS DEFINED AS "FURNISH AND INSTALL".
- TEMPERATURE CONTROLS CONTRACTOR (TC CONTRACTOR) SHALL BE RESPONSIBLE TO COMPLY WITH ALL APPLICABLE CODES AND STANDARDS.
- FOR TEMPERATURE CONTROL DRAWINGS ONLY: ALL DETAILED INFORMATION IDENTIFIED WITH HEAVY LINE WEIGHT SHALL BE PROVIDED BY TC CONTRACTOR. ALL OTHER INFORMATION IDENTIFIED WITH LIGHT LINE WEIGHT SHALL BE PROVIDED BY OTHER TRADES.
- ALL CONTROL SCHEMATICS AND WIRING DIAGRAMS ARE FOR THE CLARIFICATION OF EQUIPMENT INTERLOCKING FUNCTIONS AND THE INTERFACE OF VARIOUS CONTRACTORS' WORK AND SHALL NOT BE MISTAKEN AS SHOP DRAWINGS FOR ACTUAL INSTALLATION.
- TC CONTRACTOR SHALL PROVIDE DDC CONTROLLERS AS REQUIRED TO MEET INTENT OF DESIGN DOCUMENTS. REFER TO THE PLANS FOR THE DDC FUNCTIONS THAT APPLY TO EACH MECHANICAL SYSTEM.
- ALL TC PROVIDED COMPONENTS AND ALL TC CONTRACTOR INSTALLED WIRING SHALL BE LABELED PER SPECIFICATIONS.
- ALL WIRING AND SYSTEM CONTROL VOLTAGES SHALL BE IN ACCORDANCE WITH THE EQUIPMENT MANUFACTURER'S RECOMMENDATION AND THE ELECTRICAL SPECIFICATIONS.
- VARIABLE FREQUENCY CONTROLLER, FAN AND PUMP MOTOR STARTERS, STARTER WIRING, CONTROL VOLTAGE TRANSFORMERS AND ASSOCIATED POWER WIRING SHALL BE PROVIDED BY OTHER TRADES.
- DUCT SMOKE DETECTORS SHALL BE FURNISHED, INSTALLED AND WIRED TO THE FIRE ALARM SYSTEM BY THE ELECTRICAL CONTRACTOR. ELECTRICAL SHALL PROVIDE FIRE ALARM SYSTEM CONTROL MODULES FOR REQUIRED SAFETIES TO MOTOR STARTERS OR VFC'S AS INDICATED. CONTROL MODULES SHALL BE LOCATED NEAR RESPECTIVE MOTOR STARTERS OR VFC'S. TC CONTRACTOR SHALL PROVIDE INTERLOCK WIRING FROM CONTROL MODULES TO MOTOR STARTERS OR VFC'S.
- ALL DDC AND CONTROL INTERLOCK WIRING SHALL BE BY TC CONTRACTOR UNLESS OTHERWISE NOTED. TC CONTRACTOR SHALL COORDINATE WITH VFC AND MOTOR STARTER SUPPLIERS TO DETERMINE EXACT WIRING REQUIREMENTS AND TERMINATION POINTS.
- ALL DDC AND CONTROL INTERLOCK WIRING BETWEEN COMPONENTS SHALL BE INSTALLED WITHOUT INTERMEDIATE STOPS. WIRE SPLICING AT INTERMEDIATE TERMINAL STRIPS IS NOT ACCEPTABLE.
- ALL ELECTRICAL WIRING AND RACEWAY SYSTEMS SHALL COMPLY WITH ELECTRICAL SPECIFICATION REQUIREMENTS. WHERE RACEWAY IS REQUIRED, TWO SEPARATE ELECTRICAL RACEWAY SYSTEMS SHALL BE PROVIDED: ONE FOR 120V WIRING AND THE OTHER FOR 24V WIRING.
- TC CONTRACTOR SHALL BE RESPONSIBLE FOR ALL POWER SUPPLIES REQUIRED FOR TC SYSTEM UNLESS OTHERWISE NOTED. REFER TO ELECTRICAL PANEL SCHEDULES FOR SPARE CIRCUITS OR CIRCUITS DEDICATED TO TEMPERATURE CONTROLS. COORDINATE CIRCUIT USE WITH ELECTRICAL CONTRACTOR.
- TC CONTRACTOR SHALL VERIFY EXACT LOCATION OF ALL FIELD MOUNTED COMPONENTS.
- REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES. PROVIDE WALL MOUNTED DEVICE GUARDS WHERE INDICATED ON TC DETAILS OR AT SPECIFIC LOCATIONS INDICATED ON MECHANICAL FLOOR PLANS.
- TC CONTRACTOR SHALL PROVIDE AUXILIARY PANELS FOR REQUIRED PANEL MOUNTED EQUIPMENT SUCH AS RELAYS, TRANSDUCERS, CONTROL TRANSFORMERS, ETC. AUXILIARY PANELS SHALL BE LOCATED NEXT TO ASSOCIATED DDC PANEL. DEPENDING ON WIRE QUANTITY OR COMPLEXITY, PROVIDE CONDUITS BETWEEN PANELS OR WIRING THROUGH WITH CONDUIT STUBS ABOVE ALL ASSOCIATED PANELS.
- REMOTELY MOUNTED FIELD DEVICES SUCH AS RELAYS, CONTROL TRANSFORMERS, ETC., SHALL BE HOUSED IN AN ENCLOSURE PROVIDED BY THE TC CONTRACTOR.
- CONTROL TRANSFORMERS WHEN REQUIRED SHALL BE SIZED FOR 150% OF ACTUAL LOAD.
- FREEZESTATS SHALL BE MOUNTED ON UPSTREAM FACE OF COOLING COILS. FREEZESTAT QUANTITY SHALL BE ONE PER 20 SQ. FT OF CROSS SECTIONAL AREA.
- CURRENT SWITCHES USED FOR OPERATIONAL STATUS SHALL HAVE CURRENT THRESHOLD SETPOINT ADJUSTED TO INDICATE BELT OR DRIVE FAILURE.
- ALL CONTROL VALVES, CONTROL DAMPERS AND ASSOCIATED CONTROL ACTUATORS IDENTIFIED ON TC DRAWINGS SHALL BE FURNISHED BY TC CONTRACTOR UNLESS OTHERWISE NOTED. DAMPER SIZE AND LOCATIONS ARE INDICATED ON MECHANICAL FLOOR PLAN DRAWINGS.
- ALL CONTROL VALVES AND DAMPERS FURNISHED BY THE TC CONTRACTOR SHALL BE INSTALLED BY THE MECHANICAL CONTRACTOR. ALL PIPE PENETRATIONS AND BASIC FITTINGS REQUIRED FOR SENSOR INSTALLATIONS SHALL BE PROVIDED BY MECHANICAL CONTRACTOR.
- DAMPER ACTUATORS SHALL BE INSTALLED BY TC CONTRACTOR WHEN FURNISHED BY TC CONTRACTOR.
- ALL INSTRUMENTATION TUBING REQUIRED FOR DPS AND DPT COMPONENT INSTALLATIONS SHALL BE PROVIDED BY TC CONTRACTOR.
- TC CONTRACTOR SHALL FIELD MOUNT ALL REQUIRED "SHIPPED LOOSE" PACKAGED CONTROL COMPONENTS FURNISHED BY EQUIPMENT SUPPLIERS WHERE INDICATED. ALL REQUIRED 24V AND 120V FIELD WIRING SHALL BE PROVIDED BY TC CONTRACTOR UNLESS NOTED OTHERWISE. TC CONTRACTOR SHALL COORDINATE SPECIFIC SYSTEM WIRING REQUIREMENTS WITH PACKAGED EQUIPMENT SUPPLIERS.



**ELECTRICAL SYMBOL LIST**

(NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT)

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
FX (NL)	FIXTURE TYPE (NL INDICATES NIGHT LIGHT)	TWC	TWO-WAY COMMUNICATION SYSTEM CALL STATION	CP	CONTROL PANEL	SC	SECURITY CAMERA
[Symbol]	LIGHTING FIXTURE	TWCD	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER	[Symbol]	MOTOR	MD	MOTION DETECTOR
[Symbol]	DIRECT/INDIRECT LIGHTING FIXTURE	TWCA	TWO-WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL	VFC	VARIABLE FREQUENCY CONTROLLER	DK	SECURITY KEY SWITCH
[Symbol]	EMERGENCY FIXTURE	TWCP	TWO-WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK-UP	[Symbol]	MANUAL CONTROLLER	DC	DOOR CONTACT
[Symbol]	LIGHTING FIXTURE	TWCDP	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK-UP	[Symbol]	MAGNETIC CONTROLLER	KP	KEY PAD
[Symbol]	WALL MOUNTED LIGHTING FIXTURE	RGP	REMOTE GENERATOR ANNUNCIATOR PANEL	[Symbol]	COMBINATION MAGNETIC CONTROLLER	CR	CARD READER
[Symbol]	LIGHTING FIXTURE	ATS	AUTOMATIC TRANSFER SWITCH	[Symbol]	NON-FUSIBLE DISCONNECT SWITCH	DB	DURESS PUSH BUTTON STATION
[Symbol]	DIRECTIONAL LIGHTING FIXTURE	UPS	UNINTERRUPTIBLE POWER SUPPLY	[Symbol]	FUSIBLE DISCONNECT SWITCH	DE	DELAYED EGRESS
[Symbol]	PENDANT LIGHTING FIXTURE	CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE	[Symbol]	ENCLOSED CIRCUIT BREAKER	REX	REQUEST TO EXIT STATION
[Symbol]	WALL SCONCE	[Symbol]	SINGLE/DUPLEX RECEPTACLE OUTLET "X" INDICATES TYPE	[Symbol]	PUSH BUTTON STATION	PP	AUTOMATIC DOOR PUSH PAD OPERATOR
[Symbol]	LIGHTING TRACK	[Symbol]	SINGLE/DUPLEX RECEPTACLE OUTLET CONTROLLED BY AUTOMATIC CONTROL DEVICE/SYSTEM	[Symbol]	JUNCTION BOX	DO	DOOR OPERATOR
[Symbol]	TRACK LIGHTING FIXTURE	[Symbol]	QUAD RECEPTACLE OUTLET	[Symbol]	HARD WIRE POWER CONNECTION	DA	DOOR ACTUATOR
[Symbol]	POLE MOUNTED LIGHTING FIXTURE	[Symbol]	ABOVE COUNTER DUPLEX RECEPTACLE (SIMILAR FOR TAMPER RESISTANT, QUADS, EMERGENCY, USB AND GFCI RECEPTACLES)	[Symbol]	GROUND ROD	AC	ACCESS CONTROL STATION
[Symbol]	POLE MOUNTED LIGHTING FIXTURE - POST TOP	[Symbol]	DUPLEX RECEPTACLE-GROUND FAULT CIRCUIT INTERRUPTER	[Symbol]	GROUND CONNECTION	ACCP	ACCESS CONTROL CONTROL PANEL
[Symbol]	BOLLARD LIGHTING FIXTURE	[Symbol]	DEAD FRONT-GROUND FAULT CIRCUIT INTERRUPTER	[Symbol]	HANDHOLE	ACPS	ACCESS CONTROL POWER SUPPLY
[Symbol]	EMERGENCY LIGHTING UNIT	[Symbol]	DUPLEX EMERGENCY RECEPTACLE OUTLET	[Symbol]	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE	[Symbol]	CIRCUIT BREAKER
[Symbol]	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)	[Symbol]	DUPLEX TAMPER RESISTANT RECEPTACLE OUTLET	[Symbol]	CONDUIT UP	[Symbol]	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
[Symbol]	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)	[Symbol]	QUAD TAMPER RESISTANT RECEPTACLE OUTLET	[Symbol]	CONDUIT DOWN	[Symbol]	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
[Symbol]	EXIT LIGHTING FIXTURE - WALL MOUNTED	[Symbol]	ABOVE COUNTER DUPLEX TAMPER RESISTANT RECEPTACLE OUTLET	[Symbol]	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET	[Symbol]	SWITCH
[Symbol]	EXIT/EMERGENCY LIGHTING COMBO	[Symbol]	DUPLEX UPS RECEPTACLE	[Symbol]	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET	[Symbol]	AUTOMATIC OR MANUAL TRANSFER SWITCH
[Symbol]	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH	[Symbol]	DUPLEX RECEPTACLE WITH 2 USB PORTS OUTLET	[Symbol]	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET	[Symbol]	FUSE
[Symbol]	AUTOMATIC LOAD CONTROL RELAY	[Symbol]	4 PORT USB CHARGING STATION	[Symbol]	TELECOMMUNICATION OUTLET "X" INDICATES TYPE	[Symbol]	TRANSFORMER
[Symbol]	LIGHTING CONTROL DEVICE - REFER TO LIGHTING CONTROL SCHEDULE	[Symbol]	CEILING MOUNTED DUPLEX/QUAD RECEPTACLE	[Symbol]	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE	[Symbol]	CURRENT TRANSFORMER
[Symbol]	ROOM CONTROL DESIGNATION - REFER TO LIGHTING CONTROL SCHEDULE	[Symbol]	POWER POLE	[Symbol]	TELECOMMUNICATION BACKBOARD	[Symbol]	POTENTIAL TRANSFORMER
[Symbol]	SINGLE POLE TOGGLE SWITCH	[Symbol]	WALL/CEILING MOUNTED SPECIAL RECEPTACLE - REFER TO ELECTRICAL STANDARD SCHEDULES	[Symbol]	TELECOMMUNICATION GROUNDING BUS BAR	[Symbol]	LIGHTNING ARRESTOR
S2	TWO POLE TOGGLE SWITCH	[Symbol]	MULTI-OUTLET SURFACE RACEWAY	[Symbol]	TELECOMMUNICATION MAIN GROUNDING BUS BAR	[Symbol]	PANELBOARD "X" INDICATES PANELBOARD NAME
S3	3 WAY TOGGLE SWITCH	[Symbol]	MULTI-SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE	[Symbol]	INTERCOM OUTLET	[Symbol]	GROUND
S4	4 WAY TOGGLE SWITCH	[Symbol]	POKE-THROUGH ASSEMBLY "X" INDICATES TYPE	[Symbol]	SPEAKER	[Symbol]	STRESS CONE TERMINATION
K	KEY OPERATED SWITCH	[Symbol]	FLOOR SERVICE FITTING "X" INDICATES TYPE	[Symbol]	SPEAKER - WALL MOUNTED	[Symbol]	SECURITY KEY INTERLOCK
K3	3 WAY KEY OPERATED SWITCH	[Symbol]	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE	[Symbol]	MICROPHONE	[Symbol]	ENGINE GENERATOR
K4	4 WAY KEY OPERATED SWITCH	[Symbol]	CORD REEL "X" INDICATES TYPE	[Symbol]	VOLUME CONTROL/STATION SELECTOR	[Symbol]	UTILITY METER
D	DIMMER SWITCH	[Symbol]	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES	[Symbol]	SIGNALING BELL	[Symbol]	ELECTRONIC METERING UNIT
D3	3 WAY DIMMER SWITCH	[Symbol]	3-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES	[Symbol]	SINGLE FACE CLOCK - CEILING MOUNTED	[Symbol]	AMMETER
Do	DIMMER OCCUPANCY SENSOR SWITCH	[Symbol]	4-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES	[Symbol]	SINGLE FACE CLOCK - WALL MOUNTED	[Symbol]	VOLTMETER
DL	LOW VOLTAGE DIMMER SWITCH	[Symbol]	DIGITAL TIME SWITCH	[Symbol]	DOUBLE FACE CLOCK - CEILING MOUNTED	[Symbol]	AMMETER SWITCH
SP	PILOT SWITCH	[Symbol]	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER-ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION	[Symbol]	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED	[Symbol]	VOLTMETER SWITCH
		[Symbol]	LOW VOLTAGE SWITCH	[Symbol]	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED	[Symbol]	SURGE PROTECTIVE DEVICE
		[Symbol]	OCCUPANCY SENSOR	[Symbol]	TIME CLOCK	[Symbol]	CONTROL RELAY
		[Symbol]	OCCUPANCY SENSOR REFER TO ELECTRICAL STANDARD SCHEDULES	[Symbol]	CONTACTOR	[Symbol]	TIME DELAY RELAY
		[Symbol]	OCCUPANCY SENSOR "X" INDICATES TYPE	[Symbol]	PHOTOCELL	[Symbol]	
		[Symbol]		[Symbol]	TWIST TIMER	[Symbol]	

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
[Symbol]	SECURITY CAMERA	[Symbol]	CONTROL PANEL	[Symbol]	SECURITY CAMERA	[Symbol]	MANUAL FIRE ALARM BOX
[Symbol]	MOTION DETECTOR	[Symbol]	MOTOR	[Symbol]	MOTION DETECTOR	[Symbol]	SMOKE DETECTOR
[Symbol]	SECURITY KEY SWITCH	[Symbol]	VARIABLE FREQUENCY CONTROLLER	[Symbol]	SECURITY KEY SWITCH	[Symbol]	DUCT SMOKE DETECTOR
[Symbol]	DOOR CONTACT	[Symbol]	MANUAL CONTROLLER	[Symbol]	DOOR CONTACT	[Symbol]	CARBON MONOXIDE DETECTOR
[Symbol]	KEY PAD	[Symbol]	MAGNETIC CONTROLLER	[Symbol]	KEY PAD	[Symbol]	REMOTE TEST STATION (FOR DUCT DETECTOR)
[Symbol]	CARD READER	[Symbol]	COMBINATION MAGNETIC CONTROLLER	[Symbol]	CARD READER	[Symbol]	THERMAL DETECTOR
[Symbol]	DURESS PUSH BUTTON STATION	[Symbol]	NON-FUSIBLE DISCONNECT SWITCH	[Symbol]	DURESS PUSH BUTTON STATION	[Symbol]	PROJECTED BEAM DETECTOR
[Symbol]	DELAYED EGRESS	[Symbol]	FUSIBLE DISCONNECT SWITCH	[Symbol]	DELAYED EGRESS	[Symbol]	FIRE ALARM BELL
[Symbol]	REQUEST TO EXIT STATION	[Symbol]	ENCLOSED CIRCUIT BREAKER	[Symbol]	REQUEST TO EXIT STATION	[Symbol]	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
[Symbol]	AUTOMATIC DOOR PUSH PAD OPERATOR	[Symbol]	PUSH BUTTON STATION	[Symbol]	AUTOMATIC DOOR PUSH PAD OPERATOR	[Symbol]	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
[Symbol]	DOOR OPERATOR	[Symbol]	JUNCTION BOX	[Symbol]	DOOR OPERATOR	[Symbol]	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
[Symbol]	DOOR ACTUATOR	[Symbol]	HARD WIRE POWER CONNECTION	[Symbol]	DOOR ACTUATOR	[Symbol]	FIRE ALARM COMBINATION VISUAL/ AUDIBLE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
[Symbol]	ACCESS CONTROL STATION	[Symbol]	GROUND ROD	[Symbol]	ACCESS CONTROL STATION	[Symbol]	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
[Symbol]	ACCESS CONTROL CONTROL PANEL	[Symbol]	GROUND CONNECTION	[Symbol]	ACCESS CONTROL CONTROL PANEL	[Symbol]	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE - CEILING MOUNTED
[Symbol]	ACCESS CONTROL POWER SUPPLY	[Symbol]	HANDHOLE	[Symbol]	ACCESS CONTROL POWER SUPPLY	[Symbol]	FIREFIGHTERS PHONE JACK
[Symbol]	CIRCUIT BREAKER	[Symbol]	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE	[Symbol]	CIRCUIT BREAKER	[Symbol]	
[Symbol]	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED	[Symbol]	CONDUIT UP	[Symbol]	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED	[Symbol]	
[Symbol]	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED	[Symbol]	CONDUIT DOWN	[Symbol]	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED	[Symbol]	
[Symbol]	SWITCH	[Symbol]	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET	[Symbol]	SWITCH	[Symbol]	
[Symbol]	AUTOMATIC OR MANUAL TRANSFER SWITCH	[Symbol]	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET	[Symbol]	AUTOMATIC OR MANUAL TRANSFER SWITCH	[Symbol]	
[Symbol]	FUSE	[Symbol]	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET	[Symbol]	FUSE	[Symbol]	
[Symbol]	TRANSFORMER	[Symbol]	TELECOMMUNICATION OUTLET "X" INDICATES TYPE	[Symbol]	TRANSFORMER	[Symbol]	
[Symbol]	CURRENT TRANSFORMER	[Symbol]	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE	[Symbol]	CURRENT TRANSFORMER	[Symbol]	
[Symbol]	POTENTIAL TRANSFORMER	[Symbol]	TELECOMMUNICATION BACKBOARD	[Symbol]	POTENTIAL TRANSFORMER	[Symbol]	
[Symbol]	LIGHTNING ARRESTOR	[Symbol]	TELECOMMUNICATION GROUNDING BUS BAR	[Symbol]	LIGHTNING ARRESTOR	[Symbol]	
[Symbol]	PANELBOARD "X" INDICATES PANELBOARD NAME	[Symbol]	TELECOMMUNICATION MAIN GROUNDING BUS BAR	[Symbol]	PANELBOARD "X" INDICATES PANELBOARD NAME	[Symbol]	
[Symbol]	GROUND	[Symbol]	INTERCOM OUTLET	[Symbol]	GROUND	[Symbol]	
[Symbol]	STRESS CONE TERMINATION	[Symbol]	SPEAKER	[Symbol]	STRESS CONE TERMINATION	[Symbol]	
[Symbol]	SECURITY KEY INTERLOCK	[Symbol]	SPEAKER - WALL MOUNTED	[Symbol]	SECURITY KEY INTERLOCK	[Symbol]	
[Symbol]	ENGINE GENERATOR	[Symbol]	MICROPHONE	[Symbol]	ENGINE GENERATOR	[Symbol]	
[Symbol]	UTILITY METER	[Symbol]	VOLUME CONTROL/STATION SELECTOR	[Symbol]	UTILITY METER	[Symbol]	
[Symbol]	ELECTRONIC METERING UNIT	[Symbol]	SIGNALING BELL	[Symbol]	ELECTRONIC METERING UNIT	[Symbol]	
[Symbol]	AMMETER	[Symbol]	SINGLE FACE CLOCK - CEILING MOUNTED	[Symbol]	AMMETER	[Symbol]	
[Symbol]	VOLTMETER	[Symbol]	SINGLE FACE CLOCK - WALL MOUNTED	[Symbol]	VOLTMETER	[Symbol]	
[Symbol]	AMMETER SWITCH	[Symbol]	DOUBLE FACE CLOCK - CEILING MOUNTED	[Symbol]	AMMETER SWITCH	[Symbol]	
[Symbol]	VOLTMETER SWITCH	[Symbol]	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED	[Symbol]	VOLTMETER SWITCH	[Symbol]	
[Symbol]	SURGE PROTECTIVE DEVICE	[Symbol]	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED	[Symbol]	SURGE PROTECTIVE DEVICE	[Symbol]	
[Symbol]	CONTROL RELAY	[Symbol]	TIME CLOCK	[Symbol]	CONTROL RELAY	[Symbol]	
[Symbol]	TIME DELAY RELAY	[Symbol]	CONTACTOR	[Symbol]	TIME DELAY RELAY	[Symbol]	
[Symbol]		[Symbol]	PHOTOCELL	[Symbol]		[Symbol]	
[Symbol]		[Symbol]	TWIST TIMER	[Symbol]		[Symbol]	

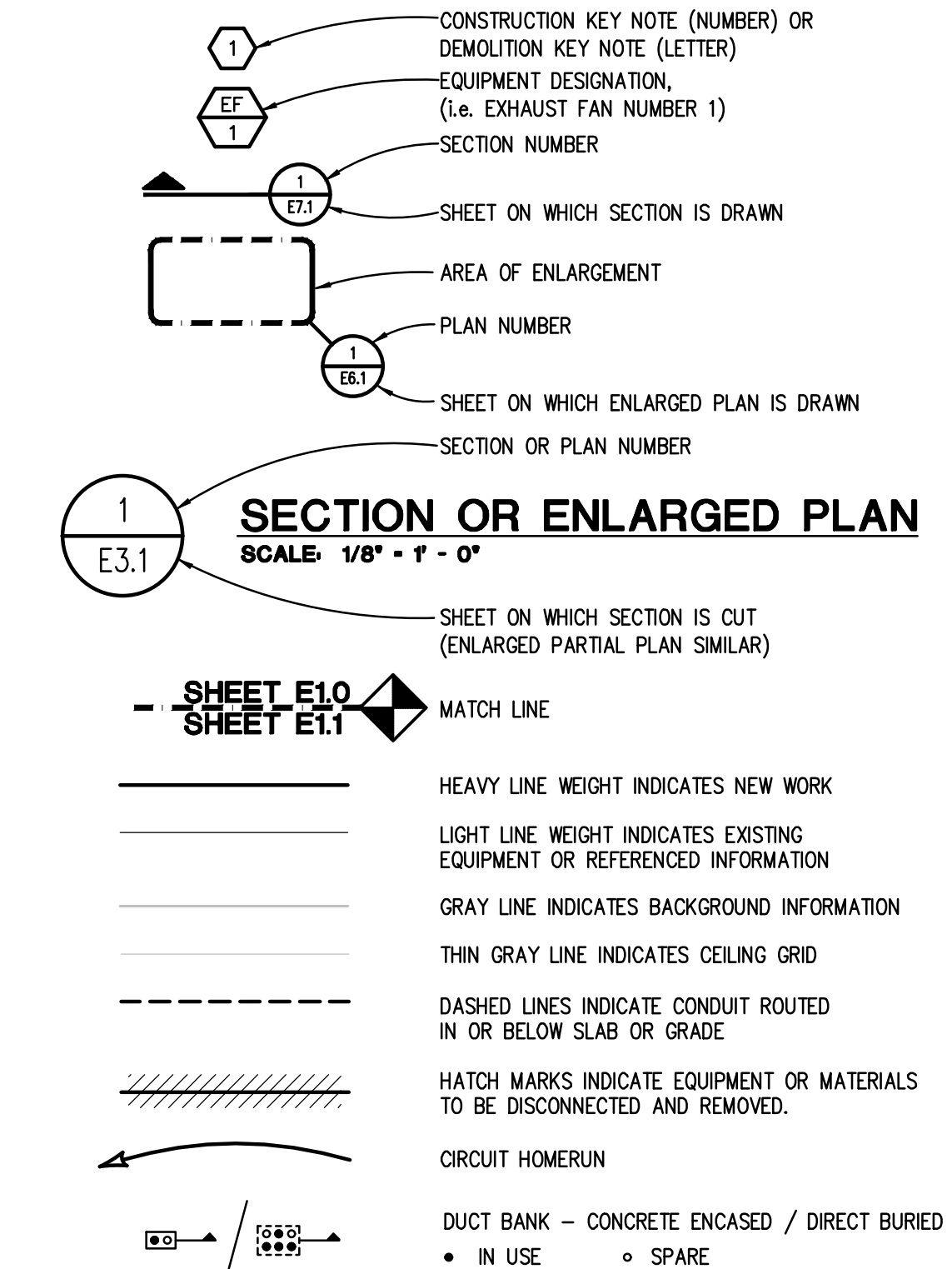
**ELECTRICAL DRAWING INDEX**

SHEET NO.	SHEET TITLE
E0-01	ELECTRICAL STANDARDS AND DRAWING INDEX
E0-02	ELECTRICAL STANDARD SCHEDULES
ED3-20	ROOF ELECTRICAL DEMOLITION PLAN
E3-00	LOWER LEVEL ELECTRICAL PLAN
E3-10	MAIN LEVEL ELECTRICAL PLAN
E3-20	ROOF ELECTRICAL PLAN
E5-01	ONE LINE DIAGRAM

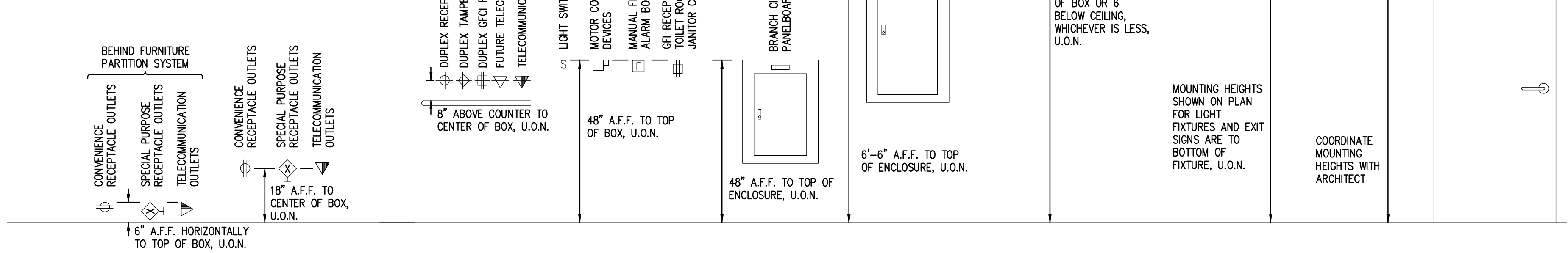
**ELECTRICAL ABBREVIATION LIST**

ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
A	AMPERES	JB	JUNCTION BOX	P	POLE
AER	ARC ENERGY REDUCTION	KA	THOUSAND AMP	PB	PUSHBUTTON STATION
AF	AMPERES FRAME (BREAKER RATING)	KV	KILOVOLT	PH	PHASE
AFCI	ARC FAULT CIRCUIT INTERRUPTER	KVA	KILOVOLT - AMPERES	PT	POTENTIAL TRANSFORMER
A.F.F.	ABOVE FINISH FLOOR	KW	KILOWATT	PDP	POWER DISTRIBUTION PANEL
AIC	AMPS INTERRUPTING CAPACITY	KWH	KILOWATT - HOURS	RECEPT.	RECEPTACLE
AL	AUDIENCE LEFT	LA	LIGHTNING ARRESTOR	RDP	RECEPTACLE DISTRIBUTION PANEL
ALCR	AUTOMATIC LOAD CONTROL RELAY	LP	LIGHTING PANEL	RP	RECEPTACLE PANEL
AR	AUDIENCE RIGHT	LDP	LIGHTING DISTRIBUTION PANEL	RSC	RIGID STEEL CONDUIT
AT	AMPERES TRIP (BREAKER SETTING)	MAX	MAXIMUM	SCCR	SHORT CIRCUIT CURRENT RATING
ATS	AUTOMATIC TRANSFER SWITCH	MCA	MINIMUM CIRCUIT AMPACITY	SCHED	SCHEDULE
AUX	AUXILIARY	MCB	MAIN CIRCUIT BREAKER	SPD	SURGE PROTECTION DEVICE
BCELT5	BRANCH CIRCUIT EMERGENCY LIGHTING TRANSFER SWITCH	MCC	MOTOR CONTROL CENTER	SW	SWITCH
BKR	BREAKER	MCC	MOTOR CONTROL CENTER	SWBD	SWITCHBOARD
BPS	BOLTED PRESSURE SWITCH	MDP	MAIN DISTRIBUTION PANEL	SWGR	SWITCHGEAR
C	CONDUIT	MECH	MECHANICAL	TB	TERMINAL BOX
CB	CIRCUIT BREAKER	MIN	MINIMUM	TELECOM	TELECOMMUNICATIONS
CB	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	MISC.	MISCELLANEOUS	TR	TAMPER RESISTANT
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	MLO	MAIN LUGS ONLY	TTB	TELEPHONE TERMINAL BACKBOARD
CKT	CIRCUIT	MOP	MAXIMUM OVERCURRENT PROTECTION	TYP	TYPICAL
CT	CURRENT TRANSFORMER	MTD	MOUNTED	U.O.N.	UNLESS OTHERWISE NOTED
DEMO	DEMOLITION	MTG	MOUNTING	US	UPSTAGE
DM	DIMENSION	MTR	MOTOR	V	VOLTS
DISC	DISCONNECT	N	NEUTRAL	W	WIRE OR WATTS
DP	DISTRIBUTION PANEL	NC	NORMALLY CLOSED	WG	WIRE GUARD
DS	DOWNSTAGE	NEC	NATIONAL ELECTRICAL CODE	WP	WEATHERPROOF
DWG	DRAWING	NF	NON-FUSIBLE	WR	WEATHER RESISTANT
EBU	EMERGENCY BATTERY UNIT	NIC	NOT IN CONTRACT	NL	NIGHT LIGHT
EC	ELECTRICAL CONTRACTOR ELECTRICAL	NO	NORMALLY OPEN	NTS	NOT TO SCALE
ELEC	ELECTRICAL CONTRACTOR ELECTRICAL	OC	OWNER FURNISHED, CONTRACTOR INSTALLED	OFDI	OWNER FURNISHED, OWNER INSTALLED
EM/EMERG	EMERGENCY ELECTRICAL METALLIC TUBING ELECTRICALLY OPERATED	OC	OWNER FURNISHED, CONTRACTOR INSTALLED		
EMT	ELECTRICAL METALLIC TUBING	OFDI	OWNER FURNISHED, OWNER INSTALLED		
EPO	ELECTRICALLY OPERATED EMERGENCY POWER OFF				
EWC	ELECTRIC WATER COOLER				
EXIST	EXISTING				
FA	FIRE ALARM				
FLA	FULL LOAD AMPS				
FLR	FLOOR				
FOH	FRONT OF HOUSE				
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR				
FU	FUSE				
G/GRD/EG	GROUND				
GFCI	GROUND FAULT CIRCUIT INTERRUPTER				
GFP	GROUND FAULT PROTECTION				
HDA	HAND-OFF-AUTO				
HP	HORSEPOWER				
HV	HIGH VOLTAGE				
HZ	HERTZ				
IG	ISOLATED GROUND				

**STANDARD METHODS OF NOTATION**



**STANDARD MOUNTING HEIGHTS**



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FBA Project No. 2022-0036

KEY PLAN

OWNER

**Hamtramck Public Schools**

PROJECT NAME

**HVAC Improvements Phase 1**  
**Tau Beta School**

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

**22-106D**

ISSUES / REVISIONS

Owner Review	03/22/2022
Bidding - Construction	04/07/2022

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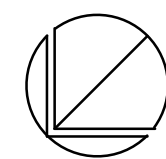
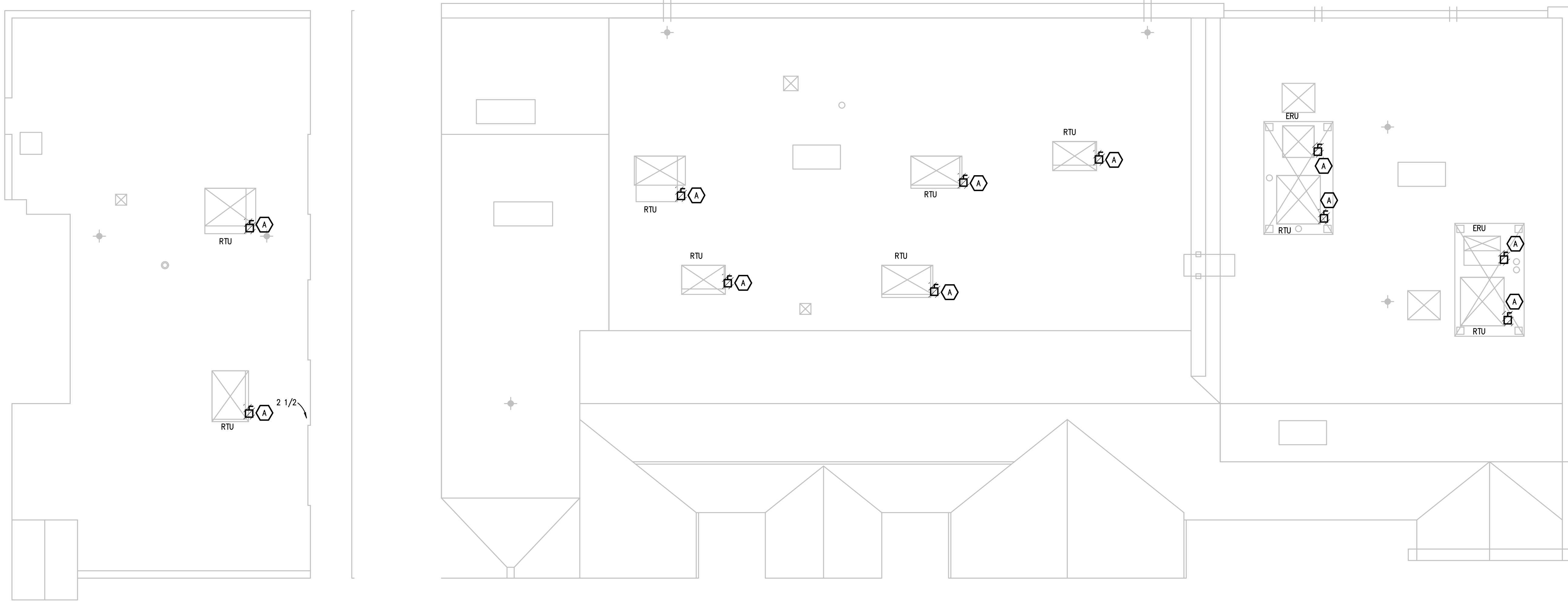
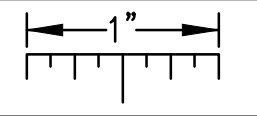
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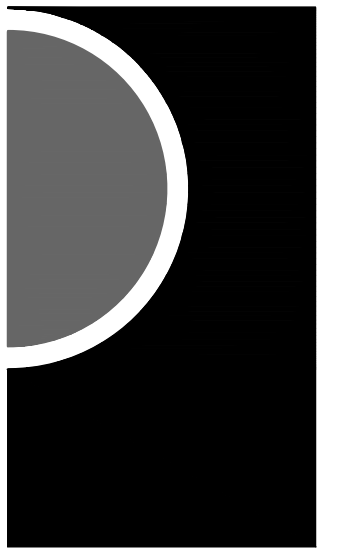
**ROOF ELECTRICAL DEMOLITION PLAN**  
SCALE: 1/8" = 1' - 0"

**ELECTRICAL DEMOLITION GENERAL NOTES:**

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE EQUIPMENT OR MATERIALS AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE COMPONENTS SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
7. MAINTAIN ELECTRICAL SERVICE TO ALL LIGHTING FIXTURES, DEVICES AND EQUIPMENT THAT ARE TO REMAIN. EXTEND CONDUIT AND WIRE AS REQUIRED WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DOWNSTREAM LOADS THAT ARE TO REMAIN.
8. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
9. RING OUT AND TAG ALL CIRCUITS AFFECTED BY THIS ALTERATION AT BOTH ENDS. MARK ALL UNUSED CIRCUIT BREAKERS "SPARE".
10. PROVIDE UPDATED TYPED-IN DIRECTORIES FOR ALL PANELS AFFECTED BY THIS ALTERATION.
11. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

**DEMOLITION KEY NOTES:**

- A. MECHANICAL EQUIPMENT BEING REPLACED. MAINTAIN BRANCH CIRCUIT FOR REUSE. REFER TO NEW WORK PLANS.



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PIA Project No. 2022-0056

KEY PLAN

OWNER

**Hamtramck  
Public Schools**

PROJECT NAME

**HVAC Improvements  
Phase 1  
Tau Beta School**

3056 Hanley  
Hamtramck, MI 48212

PROJECT NO.

**22-106D**

ISSUES / REVISIONS

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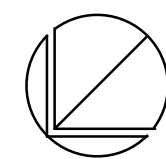
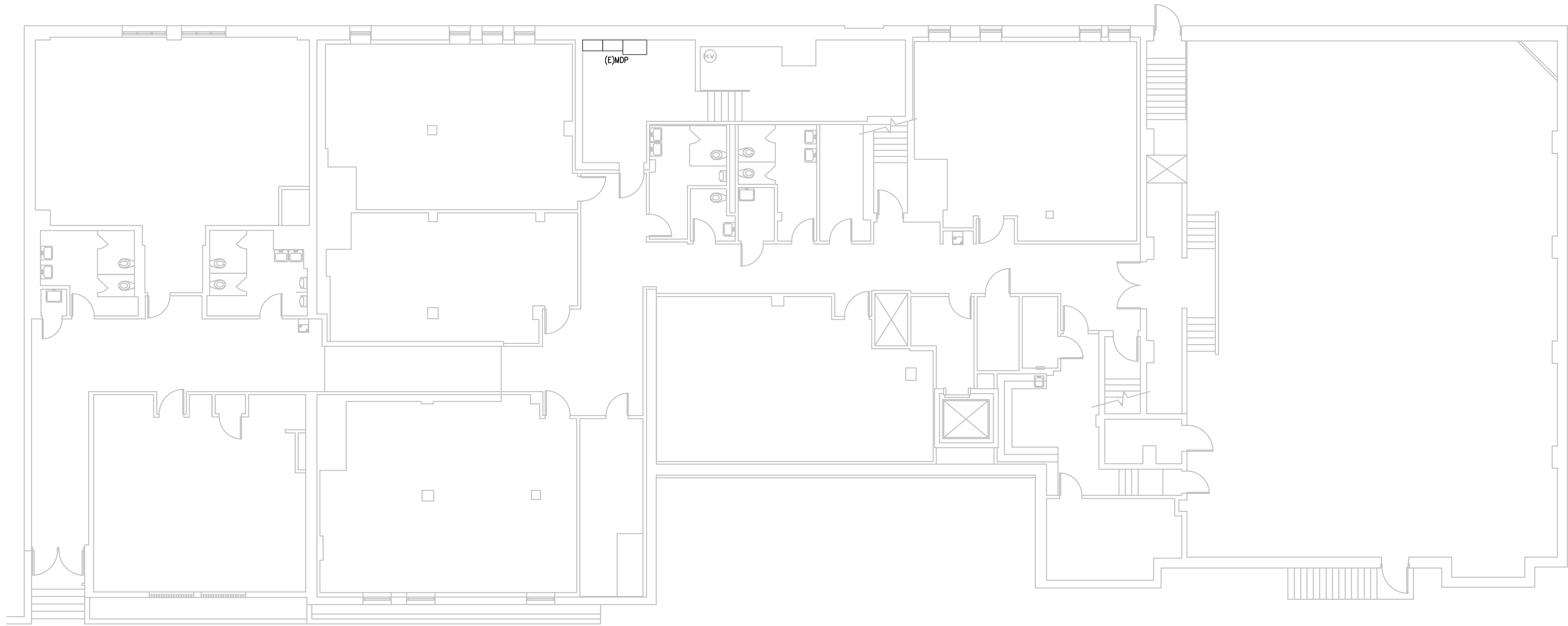
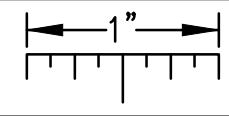
ROOF ELECTRICAL DEMOLITION PLAN

SHEET NO.

**ED3-20**

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**LOWER LEVEL ELECTRICAL PLAN**  
SCALE: 1/8" = 1' - 0"

**ELECTRICAL GENERAL NOTES:**

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
7. REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
8. ALL FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH EXISTING NATIONAL TIME FIRE ALARM SYSTEM. PROVIDE NECESSARY COMPONENTS, MODULES, ETC. AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. RE-TEST AND CERTIFY EXISTING FIRE ALARM SYSTEM AT COMPLETION OF PROJECT.

**CONSTRUCTION KEY NOTES:**

1. CIRCUIT MECHANICAL EQUIPMENT TO MAINTAINED BRANCH CIRCUIT. EXTEND CONDUIT AND WIRE AS REQUIRED.
2. DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.
3. CIRCUIT TO 20A, 1P SPARE CIRCUIT BREAKER IN NEAREST 208Y/120V, 3Ø, 4W PANELBOARD WITH SPARE AMPACITY.
4. CIRCUIT HEAT TRACE TO 20A, 1P SPARE CIRCUIT BREAKER IN NEAREST 208Y/120V, 3Ø, 4W PANELBOARD WITH SPARE AMPACITY.

**PARTNERS**



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PBA Project No. 2022-0056

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**SHEET NO.**

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LOWER LEVEL ELECTRICAL PLAN

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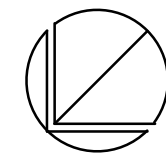
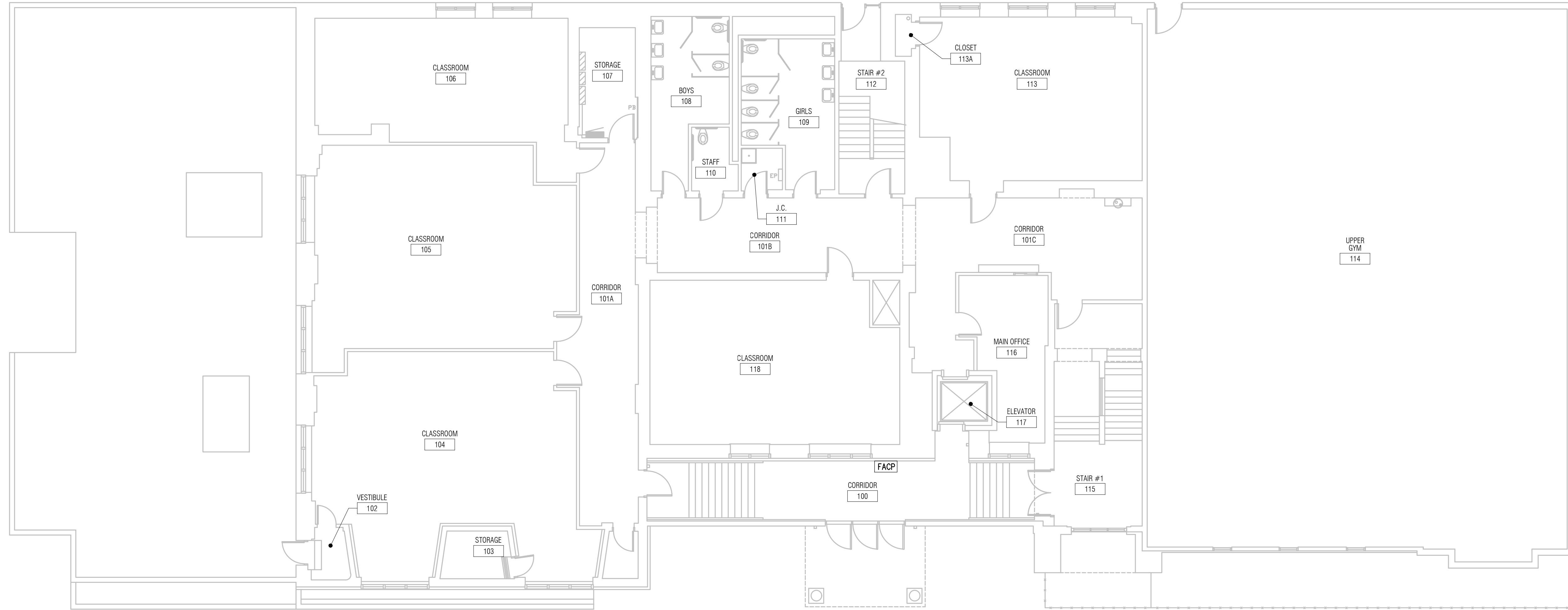
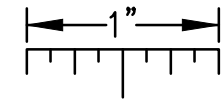
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**MAIN LEVEL ELECTRICAL PLAN**  
SCALE: 1/8" = 1' - 0"

**PLUMBING GENERAL NOTES:**

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL PLANS FOR DIMENSIONED LOCATIONS OF PLUMBING FIXTURES.
7. HOT AND COLD WATER PIPING RUN-OUTS TO LAVATORIES AND SINKS SHALL BE 1/2" UNLESS OTHERWISE NOTED.
8. PLUMBING VENT PIPING THROUGH ROOF SHALL BE LOCATED A MINIMUM OF 10'-0" FROM ANY FRESH AIR INTAKE LOCATION AND A MINIMUM OF 18" CLEAR FROM THE INSIDE FACE OF PARAPET.
9. PROVIDE CODE REQUIRED CLEARANCE FOR ALL CLEANOUTS INSTALLED IN SANITARY WASTE AND VENT PIPING.
10. MINIMUM UNDERGROUND PIPE SIZE SHALL BE 3".
11. WATER SERVICE ENTRANCE PIPING SHALL BE BURIED WITH DEPTH OF COVER OVER TOP OF PIPE OF AT LEAST , OR WITH TOP OF PIPE AT LEAST 12" BELOW LEVEL OF MAXIMUM FROST PENETRATION, OR AS REQUIRED BY AUTHORITIES HAVING JURISDICTION, WHICHEVER IS DEEPEST.

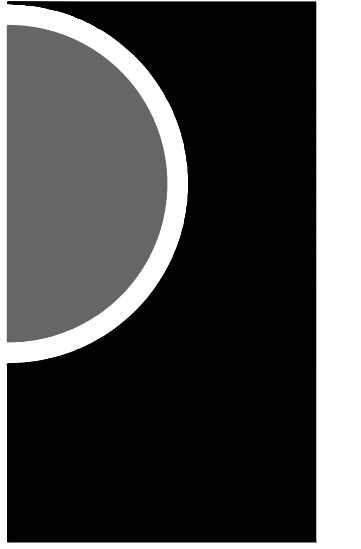
**SHEET METAL GENERAL NOTES:**

1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. PIPING AND DUCTWORK SHALL NOT BE INSTALLED ABOVE ELECTRICAL TRANSFORMERS, SWITCHBOARDS, PANELBOARDS OR MOTOR CONTROL CENTERS.
4. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
5. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
6. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.
7. REFER TO TEMPERATURE CONTROLS STANDARD MOUNTING HEIGHTS DETAIL FOR ELEVATIONS OF WALL MOUNTED TEMPERATURE CONTROL DEVICES.

**CONSTRUCTION KEY NOTES:**

1. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 39x70. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
2. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 53x80.5. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
3. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 55x80. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
4. PROVIDE ROOF CURB ADAPTER. APPROXIMATE EXISTING CURB SIZE: 68x75. CONTRACTOR TO FIELD VERIFY PRIOR TO FABRICATION.
5. CONNECT UNIT SUPPLY AND RETURN TO EXISTING DUCTWORK IN CEILING BELOW.
6. PROVIDE ELECTRIC HEAT TRACE (120V) AND INSULATION ON CONDENSATE DRAIN. RUN CONDENSATE TO NEARBY ROOF DRAIN.

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PIA Project No. 2022-0016

**KEY PLAN**

**OWNER**

Hamtramck  
Public Schools

**PROJECT NAME**

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley  
Hamtramck, MI 48212

**PROJECT NO.**

22-106D

**ISSUES / REVISIONS**

Owner Review	03/22/2022
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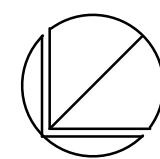
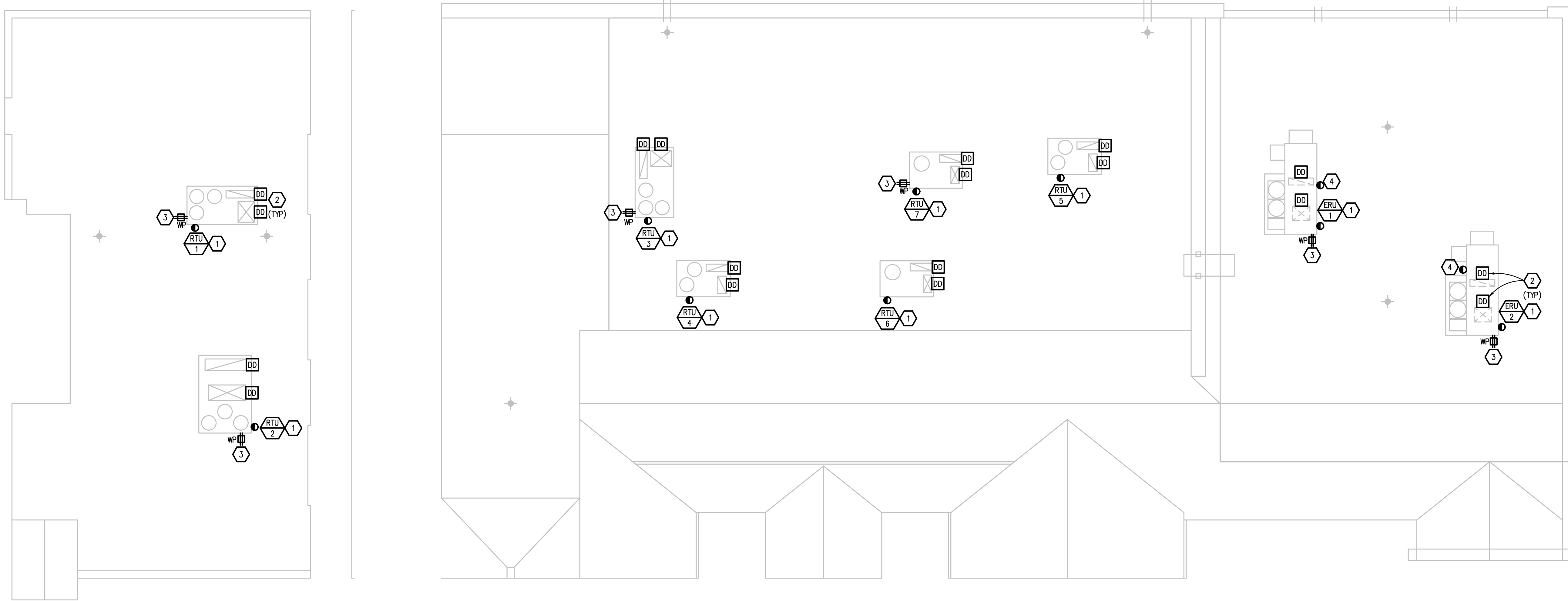
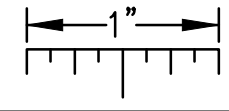
MAIN LEVEL ELECTRICAL PLAN

**SHEET NO.**

E3-10

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THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE.



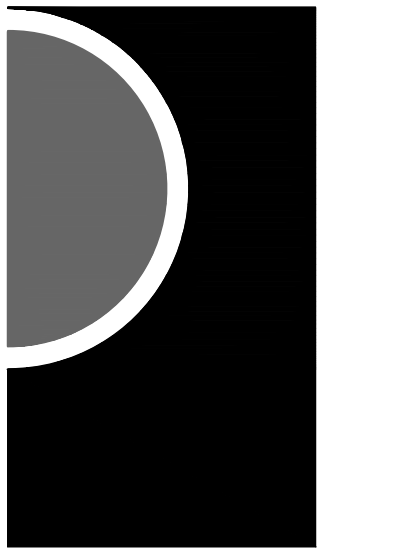
**ROOF ELECTRICAL PLAN**  
SCALE: 1/8" = 1' - 0"

**ELECTRICAL GENERAL NOTES:**

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.
7. REFER TO TEMPERATURE CONTROLS SHEETS FOR REQUIRED FIRE ALARM CONTROL MODULES, DUCT SMOKE DETECTORS, AND MOTOR CONTROLLERS. PROVIDE ALL ACCESSORIES INDICATED.
8. ALL FIRE ALARM DEVICES SHALL BE COMPATIBLE WITH EXISTING NATIONAL TIME FIRE ALARM SYSTEM. PROVIDE NECESSARY COMPONENTS, MODULES, ETC. AS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM. RE-TEST AND CERTIFY EXISTING FIRE ALARM SYSTEM AT COMPLETION OF PROJECT.

**CONSTRUCTION KEY NOTES:**

1. CIRCUIT MECHANICAL EQUIPMENT TO MAINTAINED BRANCH CIRCUIT. EXTEND CONDUIT AND WIRE AS REQUIRED.
2. DUCT SMOKE DETECTOR SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR. COORDINATE MOUNTING LOCATION AND QUANTITY WITH THE MECHANICAL DUCTWORK CONTRACTOR. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR/RTU SUPPLY/ RETURN FAN MOTOR STARTER SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. THIS SHALL BE ACCOMPLISHED VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WITH WITH THE TEMPERATURE CONTROL/FIRE ALARM CONTRACTOR. PROVIDE WEATHER PROOF ENCLOSURES AS REQUIRED.
3. CIRCUIT TO 20A, 1P SPARE CIRCUIT BREAKER IN NEAREST 208Y/120V, 3Ø, 4W PANELBOARD WITH SPARE AMPACITY.
4. CIRCUIT HEAT TRACE TO 20A, 1P SPARE CIRCUIT BREAKER IN NEAREST 208Y/120V, 3Ø, 4W PANELBOARD WITH SPARE AMPACITY.



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PIA Project No. 2022-1066

KEY PLAN

OWNER

Hamtramck  
Public Schools

PROJECT NAME

HVAC Improvements  
Phase 1  
Tau Beta School

3056 Hanley

Hamtramck, MI 48212

PROJECT NO.

22-106D

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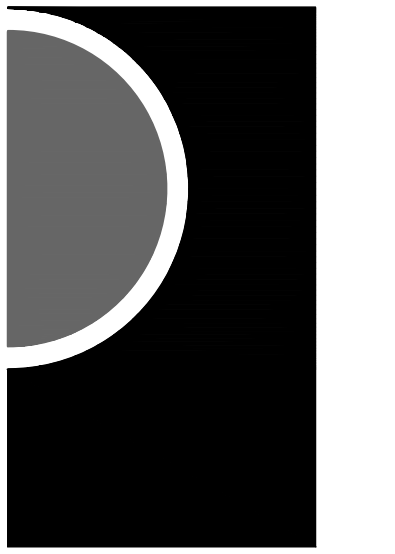
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SHEET NAME

ROOF ELECTRICAL PLAN

SHEET NO.

E3-20



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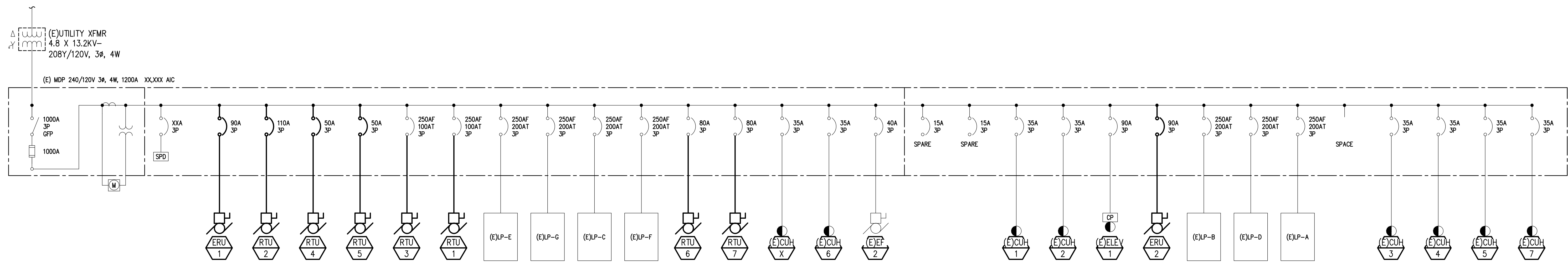
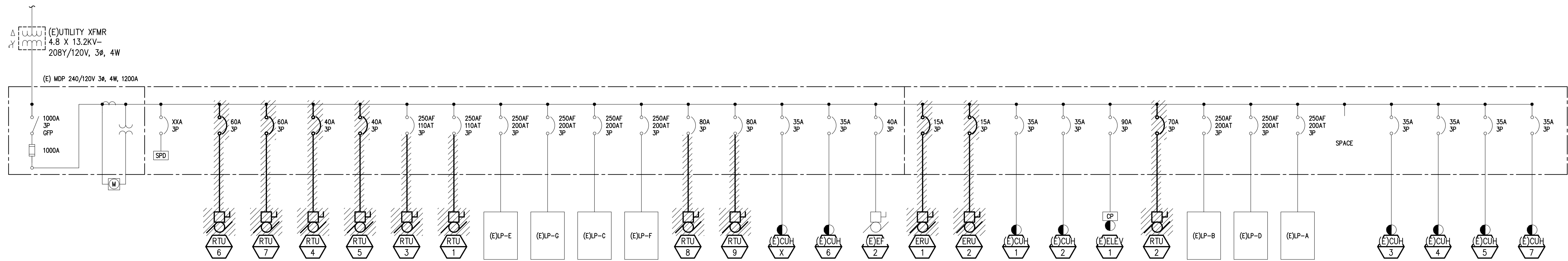
ONE LINE DIAGRAM

SHEET NO.

E5-01

**DIAGRAM GENERAL NOTES:**

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS. COORDINATE EXACT EQUIPMENT LOCATIONS, ELEVATIONS, AND FINAL CONNECTION REQUIREMENTS. PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS AND OFFSETS.
2. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE-GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
3. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH THE MOTOR CIRCUIT SIZING SCHEDULES ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
4. VARIABLE FREQUENCY CONTROLLERS (VFC) FURNISHED BY MECHANICAL TRADES. ELECTRICAL CONTRACTOR SHALL INSTALL VFC, PROVIDE POWER FEEDER FROM DISTRIBUTION EQUIPMENT TO VFC AND PROVIDE POWER FEEDER FROM VFC TO MOTOR. REFER TO SPECIFICATIONS FOR APPLICATION OF VFC POWER CABLE FROM VFC TO MOTOR.



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