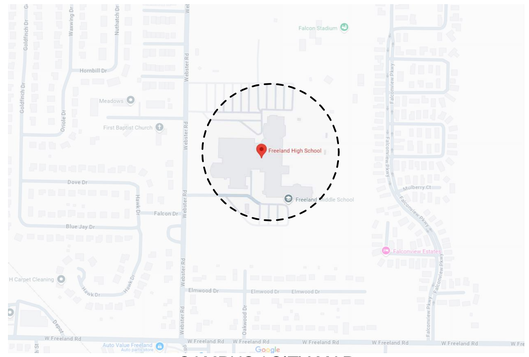
MIDDLE SCHOOL ADDITION

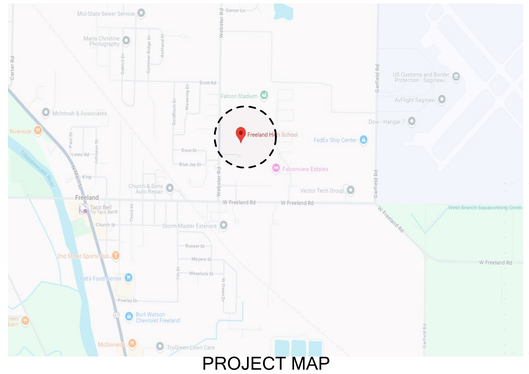
FREELAND SCHOOLS

8250 WEBSTER RD FREELAND MI 48623

THE COLLABORATIVE



CAMPUS / CITY MAP



PROJECT MAP

CELEBRATING 75 Wolgast CORPORATION

CONTRACTOR:

MACMILLAN ASSOCIATES CONSULTING ENGINEERS

ENGINEER CONSULTANT

ANDREW BROCK ENGINEER structural & civil engineering

ENGINEER CONSULTANT

PEA GROUP
t: 844.813.2949
www.peagroup.com

ENGINEER CONSULTANT

DRAWING INDEX: (ALL DRAWINGS LISTED BELOW, EXCEPT THOSE UNDER "DEFFERRED SUBMITTALS" ARE INCLUDED IN THIS PACKAGE, UNLESS NOTED OTHERWISE)

DEFERRED SUBMITTALS

THE FOLLOWING ITEMS ARE NOT INCLUDED IN THIS PACKAGE AND ARE CONSIDERED "DEFERRED SUBMITTALS" AS THEIR DESIGN & CONTENT ARE DELEGATED DESIGNS TO BE AUTHORED BY THE CONTRACTOR(S) AND/OR THE CONTRACTOR'S ENGINEER(S). CONTRACTOR(S) AND/OR CONTRACTOR'S ENGINEER(S) ARE RESPONSIBLE TO SUBMIT THE NECESSARY DOCUMENTS & DRAWINGS TO THE LOCAL AUTHORITY-HAVING-JURISDICTION (AHJ) FOR REVIEW AND APPROVED TO OBTAIN THE REQUIRED PERMITTING TO EXECUTE THE WORK LISTED BELOW.

LIST OF DEFERRED SUBMITTALS:

- -FIRE ALARM ENGINEERED DRAWINGS AND DOCUMENTS
- -UL DETAILS
- -COLD-FORMED METAL FRAMING ENGINEERED DRAWINGS AND DOCUMENTS
- -STRUCTURAL STEEL ENGINEERED DRAWINGS AND DOCUMENTS
- -STEEL JOIST ENGINEERED DRAWINGS AND DOCUMENTS
- -CURTAIN WALL ENGINEERED DRAWINGS AND DOCUMENTS

STRUCTURAL

S0.01 STRUCTURAL NOTES & SPECIAL INSPECTIONS
S1.01 FOUNDATION PLAN
S3.10 ROOF & WALL FRAMING PLAN
S5.10 FOUNDATION & STRUCTURAL DETAILS

ARCHITECTURAL

A0.00 GENERAL INFORMATION
A1.00 OVERALL FLOOR PLAN
A1.01 OVERALL ROOF PLAN
A1.10 FIRST FLOOR PLAN
A1.11 ROOF PLAN
A1.20 ENLARGED FIRST FLOOR PLAN
A2.00 DOOR SCHEDULE
A3.00 EXTERIOR ELEVATIONS
A4.00 BUILDING SECTIONS
A4.10 WALL SECTIONS
A4.11 WALL SECTIONS
A4.12 WALL SECTIONS
A4.13 WALL SECTIONS
A4.20 PLAN DETAILS
A7.10 FIRST FLOOR REFLECTED CEILING PLAN
A7.20 FIRST FLOOR FINISH PLAN
A8.00 FIRST FLOOR SIGNAGE PLANS & DETAILS

PLUMBING & MECHANICAL

M1.10 UNDERGROUND PLUMBING AND VENT PIPING
M2.10 FIRST FLOOR PLAN - PLUMBING
M2.11 FIRST FLOOR PLAN - OVERALL
M3.10 FIRST FLOOR PLAN - HVAC PIPING
M3.11 OVERALL - FIRST FLOOR PLAN - HVAC PIPING
M4.10 FIRST FLOOR PLAN - HVAC
M5.10 MECHANICAL - ROOF PLAN
M6.10 MECHANICAL SCHEDULES
M7.10 MECHANICAL DETAILS
M8.10 MECHANICAL CONTROLS
M8.11 MECHANICAL CONTROLS

ELECTRICAL & TECH.

E1.01 OVERALL ELECTRICAL FLOOR PLAN
E1.02 FIRST FLOOR - ELECTRICAL DEMOLITION PLANS
E2.01 FIRST FLOOR PLAN - VESTIBULE AND ADDITION LIGHTING
E2.02 FIRST FLOOR PLAN - VESTIBULE AND ADDITION POWER AND SYSTEMS
E3.01 ELECTRICAL INFORMATION
E3.02 RISER DIAGRAM
E3.03 ELECTRICAL PANEL SCHEDULES
E4.01 EMERGENCY LIGHTING POINT BY POINT PLANS

LIFE SAFETY & CODE INFORMATION

LS1.00 FIRST FLOOR LIFE SAFETY PLAN

DEMOLITION

D1.00 FIRST FLOOR DEMOLITION PLAN
D2.00 DEMOLITION ELEVATIONS

CIVIL

C-0.0 CIVIL COVER SHEET
C-1.0 TOPOGRAPHIC SURVEY
C-2.0 DEMOLITION PLAN
C-3.0 DIMENSION AND PAVING PLAN
C-4.0 GRADING PLAN
C-5.0 SESC PLAN
C-6.0 UTILITY PLAN
C-9.0 NOTES AND DETAILS
C-9.1 DETAILS

12.12.2024	ISSUED FOR BID & PERMIT

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

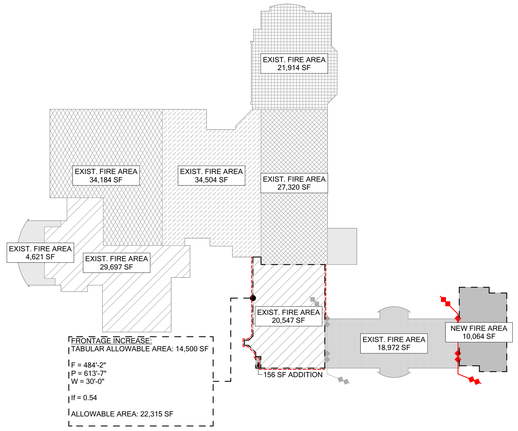
Michael Muse, License #1301048954
Expiration Date 12/31/2025

TC JOB NO. 107270

One SeaGate, Park Level 118
Toledo, OH 43604 / 419.242.7405

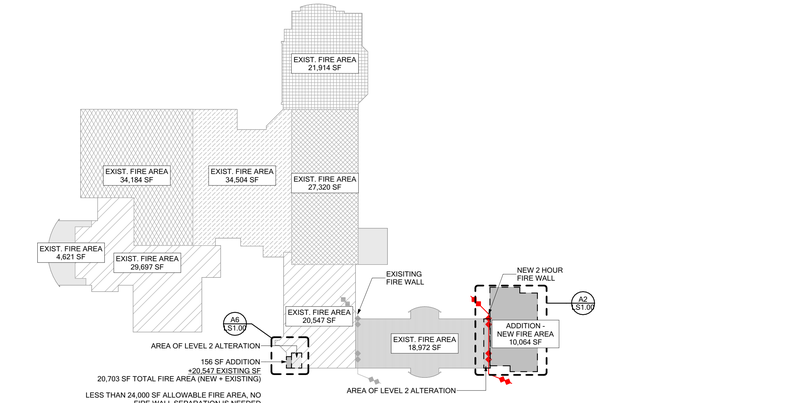
213 South Main Street, Suite 200
Ann Arbor, MI 48104 / 734.922.8002

800 North High Street, Third Floor
Columbus, OH 43215 / 419.242.7405



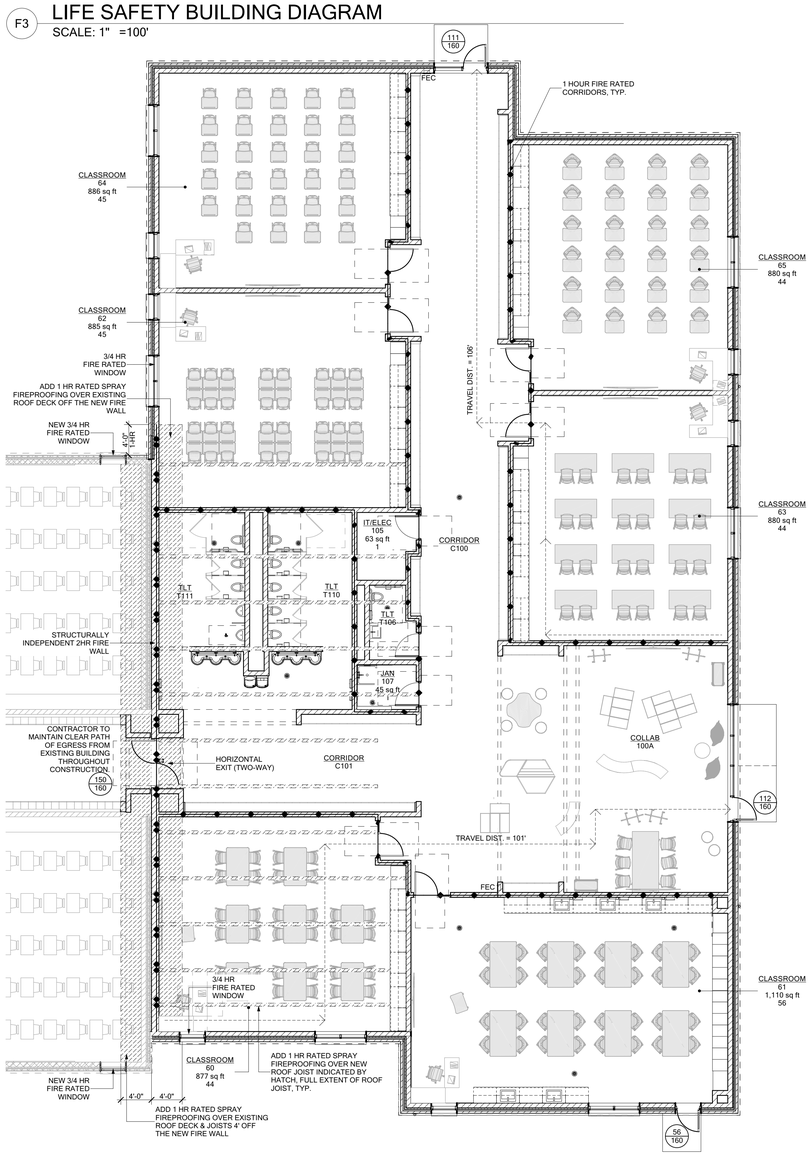
F6 BUILDING FRONTAGE DIAGRAM

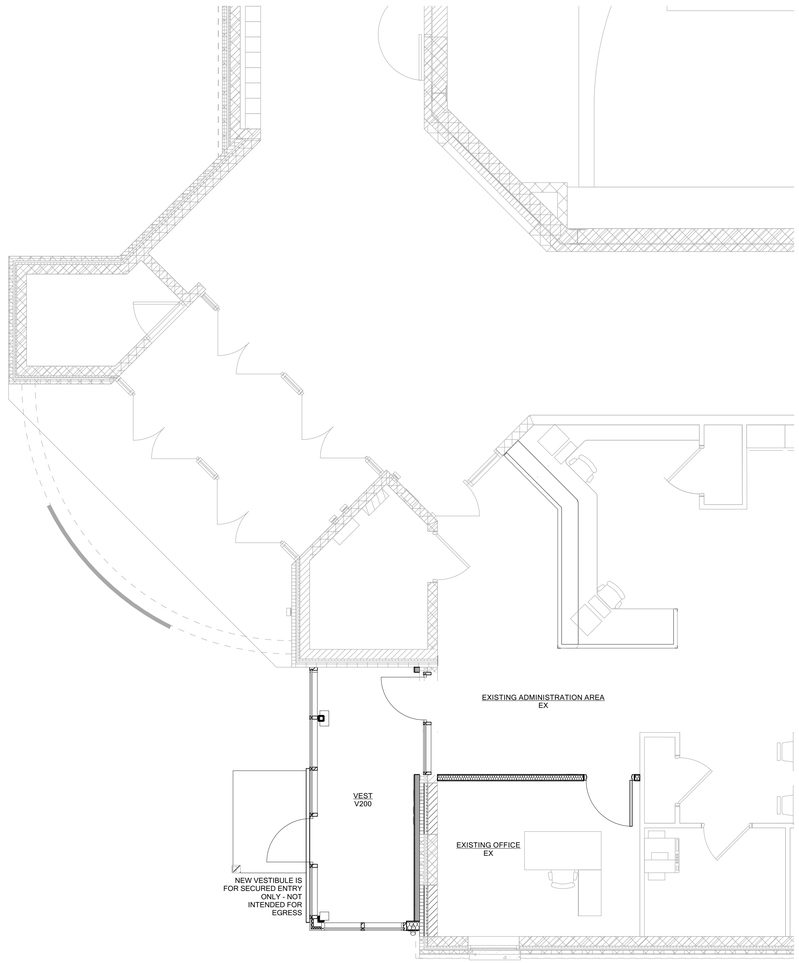
SCALE: 1" =100'



F3 LIFE SAFETY BUILDING DIAGRAM

SCALE: 1" =100'





A6 VESTIBULE ENLARGED FLOOR PLAN

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

A2 FLOOR PLAN

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

N

BUILDING CODE:	2015 MICHIGAN BUILDING CODE 2015 MICHIGAN BUILDING REHAB CODE 2018 MICHIGAN PLUMBING CODE; IPC 2018 & AMMENDMENTS 2015 MICHIGAN MECHANICAL CODE; IMC 2015 & AMMENDMENTS 2015 MICHIGAN ENERGY CODE; IECC 2015 & AMMENDMENTS 2017 MICHIGAN ELECTRICAL CODE; NFPA 70 & AMMENDMENTS MICHIGAN ACCESSIBILITY CODE; A117.1 2009 & AMMENDMENTS; 2010 ADA STANDARDS NFPA 101; 2012 NFPA 13; 2013 NFPA 72; 2013 ABA; 2015
TYPE OF PROJECT:	ADDITION EXTERIOR / INTERIOR ALTERATIONS (WORK AREA COMPLIANCE)
EXISTING USE GROUP:	E/A-3
PRIMARY OCCUPANCY CLASSIFICATION: SECONDARY OCCUPANCY CLASSIFICATION:	E
MIXED USE GROUPS:	SEPARATED
REQUIRED SEPARATION OF OCCUPANCIES	N/A
EXISTING CONSTRUCTION CLASSIFICATION:	II-B
PROPOSED CONSTRUCTION CLASSIFICATION:	II-B
FIRE SPRINKLER SYSTEM:	NO
STANDPIPES:	NO
FIRE ALARM SYSTEM:	YES SEE ELECTRICAL DWGS.
FIRE DEPARTMENT CONNECTION:	NO
FIRE PUMPS:	NO

PROPOSED BUILDING HEIGHT:	EXISTING	ALLOWABLE	PROPOSED
OVERALL HEIGHT (FEET)	36	55	14
NUMBER OF STORIES	1	2	1

ALLOWABLE AREA PER STORY:	
TABULAR AREA:	14,500
FRONTAGE INCREASE:	SEE FRONTAGE DIAGRAM
TOTAL ALLOWABLE AREA PER STORY:	SEE FRONTAGE DIAGRAM

TOTAL ALLOWABLE AREA ($A_a = [A_t + (NS \times I_f)] \times S_a$): SEE FRONTAGE DIAGRAM

BUILDING AREA:	EXISTING	ADDITION
FIRST FLOOR	167,640	10,220
TOTAL BUILDING AREA:		177,860

FIRE RESISTANCE RATINGS:	REQUIRED	PROPOSED	DESIGN # FOR RATED ASSEMBLY
STRUCTURAL FRAME - INCLUDING COLUMNS, BEAMS, TRUSSES	0 HOUR	0 HOUR	-
BEARING WALLS -			
EXTERIOR	0 HOUR	0 HOUR	-
INTERIOR	0 HOUR	0 HOUR	-
NON BEARING WALLS & PARTITIONS -			
EXTERIOR	0 HOUR	0 HOUR	-
INTERIOR	0 HOUR	0 HOUR	-
FLOOR CONSTRUCTION - INCLUDING SUPPORTING BEAMS & JOISTS	0 HOUR	0 HOUR	-
ROOF CONSTRUCTION - INCLUDING SUPPORTING BEAMS & JOISTS	0 HOUR	0 HOUR	-
EXTERIOR WALLS	0 HOUR	0 HOUR	-
FIRE WALLS (TO SEPARATE BUILDINGS AREAS W/ STRUCTURAL STABILITY)	2 HOUR	2 HOUR	#U-905
FIRE BARRIERS			
SEPARATION OF INCIDENTAL USES	0 HOUR	0 HOUR	-
SEPARATION OF OCCUPANCIES	0 HOUR	0 HOUR	-
FIRE PARTITIONS	1 HOUR	1 HOUR	#U-905
SMOKE BARRIERS	0 HOUR	0 HOUR	-
SMOKE PARTITIONS	0 HOUR	0 HOUR	-
HORIZONTAL ASSEMBLIES	0 HOUR	0 HOUR	-
SHAFT ENCLOSURES	0 HOUR	0 HOUR	-
CORRIDORS	1 HOUR	1 HOUR	#U-905
EXIT STAIRS	0 HOUR	0 HOUR	-
EXIT PASSAGEWAYS	0 HOUR	0 HOUR	-

INTERIOR WALL & CEILING FINISH REQUIREMENTS:	OCCUPANCY GROUP	EXIT ENCLOSURE & EXIT PASSAGEWAY	CORRIDORS	ROOMS & ENCLOSED SPACES
	E	A	B	C

OCCUPANT LOAD:	
FIRST FLOOR	279 OCCUPANTS
TOTAL	279 OCCUPANTS

NUMBER OF EXITS:	REQUIRED	PROVIDED
FIRST FLOOR	2	2

EXIT ACCESS TRAVEL DISTANCE: 200'

EGRESS WIDTHS:	REQUIRED	PROVIDED
DOORS, RAMPS, CORRIDORS (.2 INCHES PER OCCUPANT)	55.8	64

PLUMBING FIXTURES REQUIRED:	REQUIRED	NEW
WOMEN'S WATER CLOSETS	3	6
WOMEN'S LAVATORIES	3	4
MEN'S WATER CLOSETS	3	3
MEN'S URINALS	-	2
MEN'S LAVATORIES	3	3
DRINKING FOUNTAINS	3	2 (WITHIN REQUIRED DISTANCE OF EXISTING DRINKING FOUNTAINS WITHIN SCHOOL
SERVICE SINKS	1	1

LEGEND

- 1 HOUR WALL
- 2 HOUR WALL
- 20 / 180 — REQUIRED OCCUPANT LOAD FOR THIS EXIT / PROVIDED OCCUPANT LOAD FOR THIS EXIT
- (NFPA 10) F.E. — BRACKET MOUNTED FIRE EXTINGUISHER
- (NFPA 10) F.E. CAB. — FIRE EXTINGUISHER AND CABINET

THE COLLABORATIVE

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KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

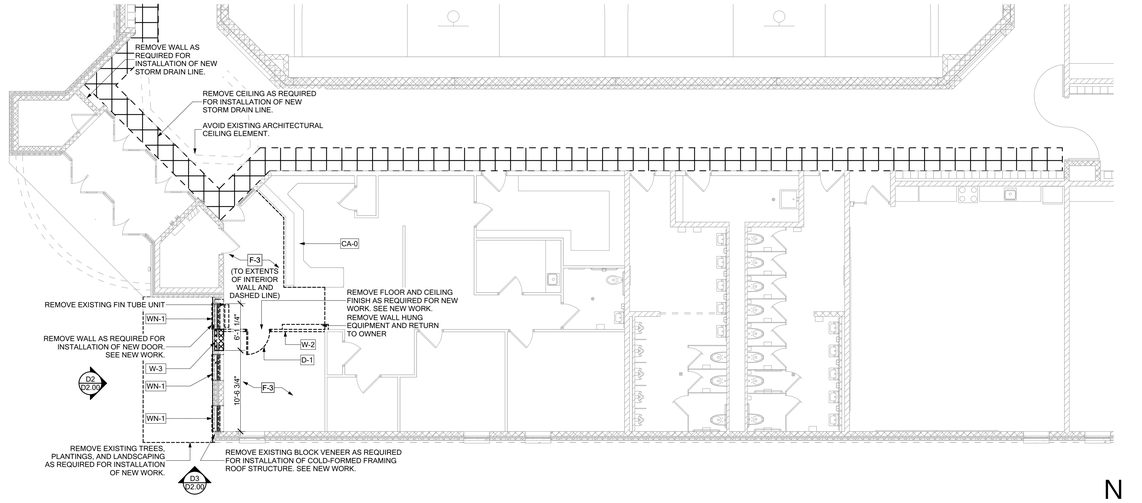
TC JOB NO. 107270

SHEET TITLE

FIRST FLOOR LIFE SAFETY PLAN

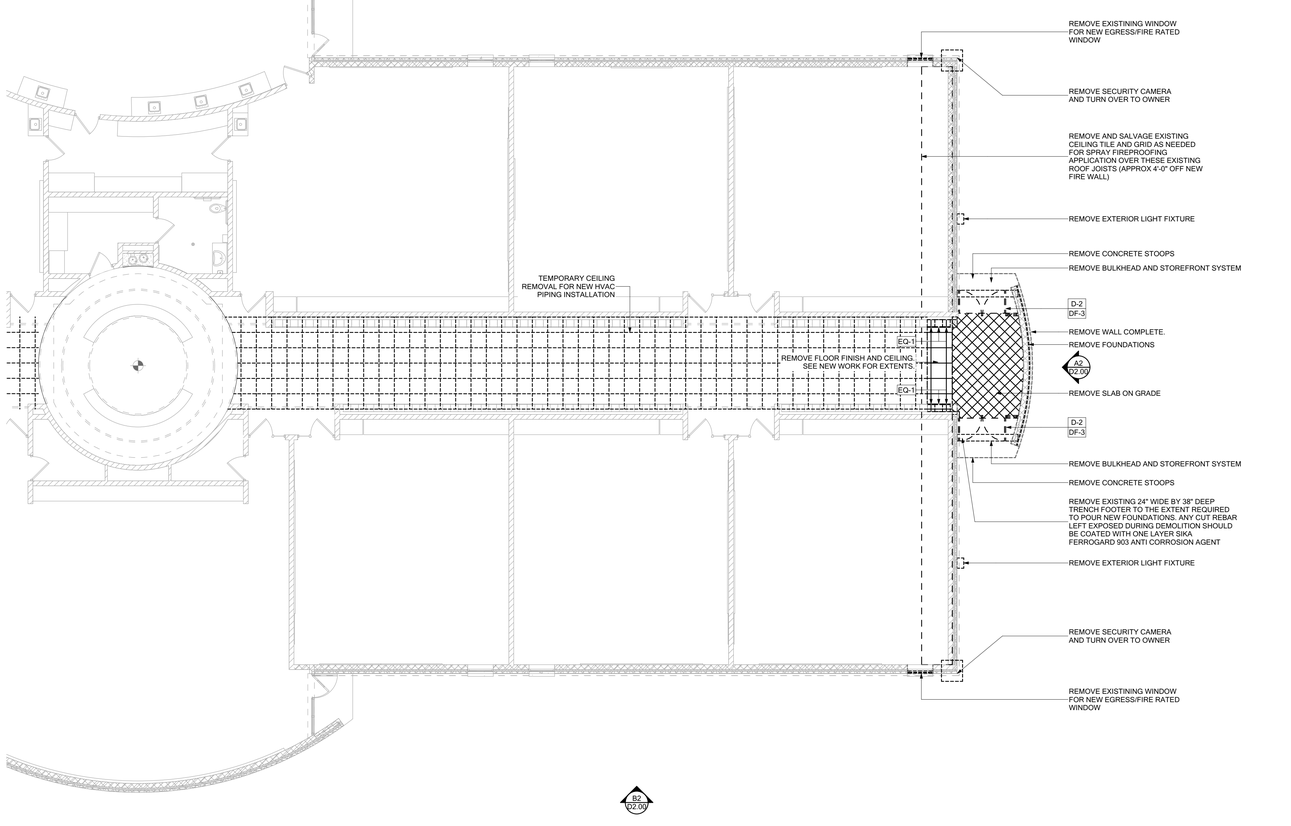
SHEET NO.

LS1.00



E2 FIRST FLOOR DEMOLITION PLAN

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



A2 FIRST FLOOR DEMOLITION PLAN

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

DEMOLITION LEGEND

REFER TO THE FOLLOWING TAG FOR GENERAL CEILING AND FLOORING DEMOLITION INFORMATION FOR EACH ROOM UNLESS OTHERWISE NOTED.

C-1 ← CEILING DEMOLITION KEYNOTE
F-1 ← FLOORING DEMOLITION KEYNOTE

DEMOLITION GENERAL NOTES

1. REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS FOR DEMOLITION SCOPE RELATED TO EXISTING MEP SYSTEMS.
2. FOR ALL REMOVED FINISHES, FURNISHINGS, CASEWORK, AND BUILDING ELEMENTS, REMOVE ALL ASSOCIATED MOUNTING MATERIALS, ADHESIVES, HARDWARE, AND RELATED ELEMENTS.
3. PATCH ALL DISTURBED SUBSTRATES AT LOCATIONS OF REMOVED ELEMENTS AS REQUIRED TO CREATE SMOOTH SURFACES FOR NEW CONSTRUCTION.
4. AT INTERIOR WALLS WHERE DOORS AND WINDOWS HAVE BEEN REMOVED, PATCH OPENINGS TO MATCH EXISTING CONSTRUCTION AS REQUIRED FOR NEW WORK.
5. AT ALL REMOVED DOORS, SALVAGE THE FOLLOWING HARDWARE AND RETURN TO OWNER (CONTRACTOR TO DISPOSE OF ALL OTHER HARDWARE):
   A. LOCKSETS
   B. PANIC HARDWARE
6. REFER TO FLOOR PLAN FOR COORDINATION REQUIREMENTS FOR NEW CONSTRUCTION

DEMOLITION KEYNOTES

(NOTE: NOT ALL NUMBERS ARE USED)

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C-0A: NO CEILING DEMOLITION IN THIS AREA, EXPOSED STRUCTURE ABOVE
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C-1: REMOVE ACOUSTICAL PANEL CEILING SYSTEM AND METAL SUSPENSION SYSTEM
C-2: REMOVE GYPSUM BOARD CEILING SYSTEM
C-3: REMOVE DIRECT-MOUNT ACOUSTICAL CEILING TILES, SUBSTRATE, AND SUSPENSION SYSTEM

CA: CASEWORK
CA-0: EXISTING CASEWORK AND/OR SHELVING TO REMAIN
CA-1: REMOVE BUILT-IN CASEWORK AND/OR SHELVING

D: DOORS:
D-1: REMOVE SINGLE DOOR
D-2: REMOVE DOUBLE DOORS
D-3: REMOVE OVERHEAD DOOR AND TRACK
D-5: REMOVE ACCESS PANEL/ACCESS DOOR AND FRAME
D-6: REMOVE COILING DOOR/SHUTTER, TRACK AND MECHANISM
D-7: REMOVE ALUMINUM ENTRANCE DOOR(S) AND ADJACENT STOREFRONT SYSTEM

DF: DOOR FRAMES
DF-1: REMOVE HOLLOW METAL DOOR FRAME
DF-2: REMOVE WOOD DOOR FRAME
DF-3: REMOVE ALUMINUM DOOR FRAME

E: ELEVATORS
E-1: REMOVE HYDRAULIC ELEVATOR AND ASSOCIATED COMPONENTS
E-2: REMOVE GEARED TRACTION ELEVATOR AND ASSOCIATED COMPONENTS

EQ: EQUIPMENT
EQ-1: REMOVE EXISTING LOCKERS
EQ-2: REMOVE CHALKBOARD/MARKERBOARD AND RETURN TO OWNER
EQ-3: REMOVE TACKBOARDS AND RETURN TO OWNER

F: FLOORING
F-0: NO FLOORING DEMOLITION IN THIS AREA - EXISTING EXPOSED CONCRETE FLOOR TO REMAIN
F-1: NO FLOORING DEMOLITION IN THIS AREA - EXISTING FLOOR FINISH TO REMAIN
F-2: REMOVE RESILIENT FLOORING
F-3: REMOVE CARPET AND ACCESSORIES
F-4: REMOVE TILE FLOORING TO STRUCTURAL SUBFLOOR
F-5: REMOVE TERRAZZO FLOORING TO STRUCTURAL SUBFLOOR
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FD: FLOOR DRAINS
FD-1: PLUG FLOOR DRAIN BELOW FLOOR LINE. SEE PLUMBING DRAWINGS FOR LINE TERMINATION REQUIREMENTS. FILL DRAIN WITH CONCRETE. APPLY LEVELING COMPOUND TO AREA AROUND DRAIN TO MAKE FLOOR LEVEL WITH ADJACENT FLOOR ELEVATION.
FD-2: REMOVE TRENCH FLOOR DRAIN GRATING AND PLUG EXISTING FLOOR DRAIN BELOW FLOOR LINE. SEE PLUMBING DRAWINGS FOR LINE TERMINATION REQUIREMENTS. FILL DRAIN WITH CONCRETE. APPLY LEVELING COMPOUND TO AREA AROUND DRAIN TO MAKE FLOOR LEVEL WITH ADJACENT FLOOR ELEVATION.

ST: STAIRS:
ST-1: REMOVE INTERIOR STAIR INCLUDING TREADS, RISERS, STRINGERS, LANDINGS, HANDRAILS, GUARDS, SUPPORTS AND ANCHORS; FIELD VERIFY MATERIALS OF STAIR CONSTRUCTION TO BE REMOVED
ST-2: REMOVE INTERIOR STAIR HANDRAIL
ST-3: REMOVE EXTERIOR CONCRETE STAIR, INCLUDING HANDRAILS, FOUNDATIONS AND FOOTINGS.

T: TOILET FIXTURES:
T-1: REMOVE SINK AND ASSOCIATED PLUMBING LINES
T-2: REMOVE TOILET AND ASSOCIATED PLUMBING LINES
T-3: REMOVE TOILET PARTITIONS AND DOORS
T-4: REMOVE SHOWER FIXTURE AND ALL ASSOCIATED PLUMBING LINES

W: WALLS AND PARTITONS:
W-1: REMOVE CMU WALL
W-2: REMOVE STUD AND GYPSUM BOARD PARTITION
W-3: REMOVE DECORATIVE WALL FINISH (PANELING, WALLCOVERING, TILE, ETC.), AND ASSOCIATED ADHESIVE, FURRING, MORTAR, ANCHORS, ETC. DOWN TO SUBSTRATE

WN: WINDOWS, STOREFRONTS, & CURTAIN WALL SYSTEMS:
WN-1: REMOVE WINDOW
WN-2: REMOVE STOREFRONT/CURTAIN WALL SYSTEM

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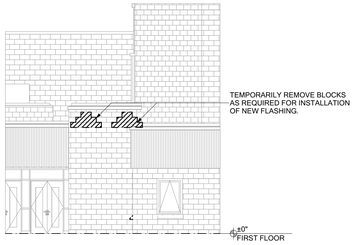
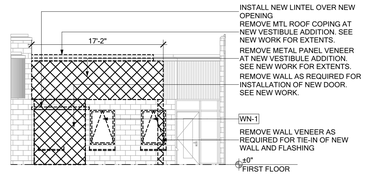
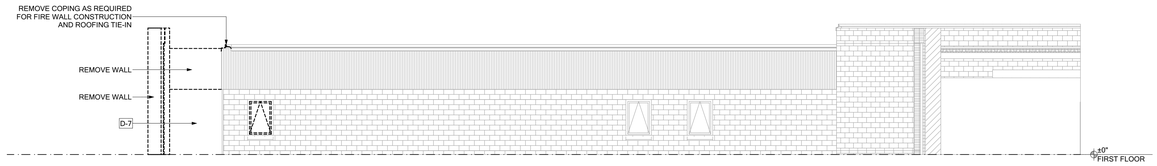
D1.00



D3 DEMOLITION ELEVATION
SCALE: 1/8" = 1'-0"



D2 DEMOLITION ELEVATION
SCALE: 1/8" = 1'-0"



C2 DEMOLITION ELEVATION
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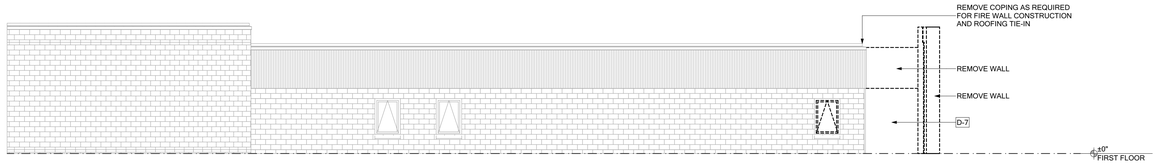

B2 DEMOLITION ELEVATION
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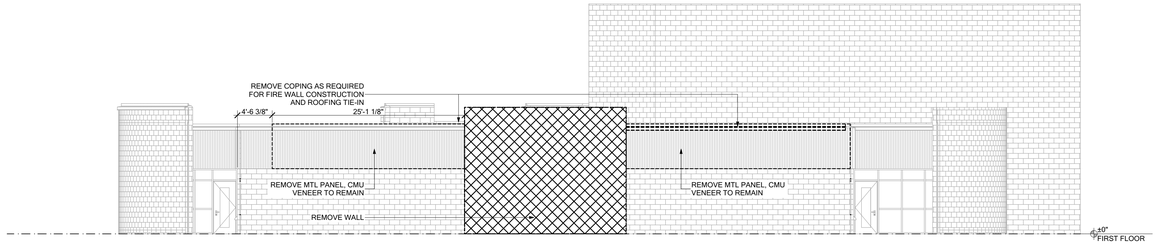

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ST-3: REMOVE EXTERIOR CONCRETE STAIR, INCLUDING HANDRAILS, FOUNDATIONS AND FOOTINGS.

T: TOILET FIXTURES:
T-1: REMOVE SINK AND ASSOCIATED PLUMBING LINES
T-2: REMOVE TOILET AND ASSOCIATED PLUMBING LINES
T-3: REMOVE TOILET PARTITIONS AND DOORS
T-4: REMOVE SHOWER FIXTURE AND ALL ASSOCIATED PLUMBING LINES

W: WALLS AND PARTITONS:
W-1: REMOVE CMU WALL
W-2: REMOVE STUD AND GYPSUM BOARD PARTITION
W-3: REMOVE DECORATIVE WALL FINISH (PANELING, WALLCOVERING, TILE, ETC.), AND ASSOCIATED ADHESIVE, FURRING, MORTAR, ANCHORS, ETC. DOWN TO SUBSTRATE

WN: WINDOWS, STOREFRONTS, & CURTAIN WALL SYSTEMS:
WN-1: REMOVE WINDOW
WN-2: REMOVE STOREFRONT/CURTAIN WALL SYSTEM

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

TC JOB NO. 107270

SHEET TITLE

DEMOLITION ELEVATIONS

SHEET NO.

D2.00

CONSTRUCTION PLANS

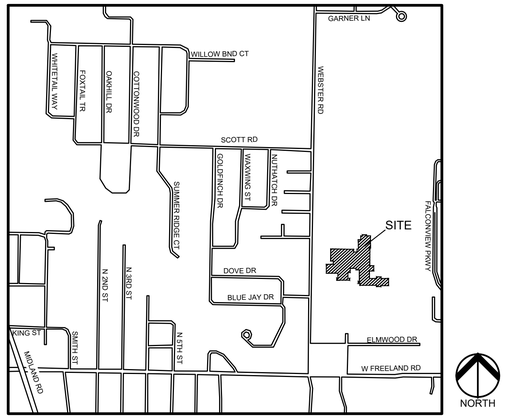
FREELAND SCHOOLS BUILDING ADDITION

8250 WEBSTER ROAD

FREELAND, SAGINAW COUNTY, MI

PERMIT / APPROVAL SUMMARY		
DATE SUBMITTED	DATE APPROVED	PERMIT / APPROVAL

INDEX OF DRAWINGS	
NUMBER	TITLE
	COVER SHEET
C-1.0	TOPOGRAPHIC SURVEY
C-2.0	DEMOLITION PLAN
C-3.0	DIMENSION AND PAVING PLAN
C-4.0	GRADING PLAN
C-5.0	SESC PLAN
C-6.0	UTILITY PLAN
C-9.0	NOTES AND DETAILS
C-9.1	DETAILS



LOCATION MAP
NO SCALE

DESIGN TEAM

OWNER/APPLICANT/DEVELOPER

FREELAND COMMUNITY SCHOOL DISTRICT
710 POWLEY DRIVE
FREELAND, MI 48623
CONTACT:
PHONE: 989.695.5527

CIVIL ENGINEER

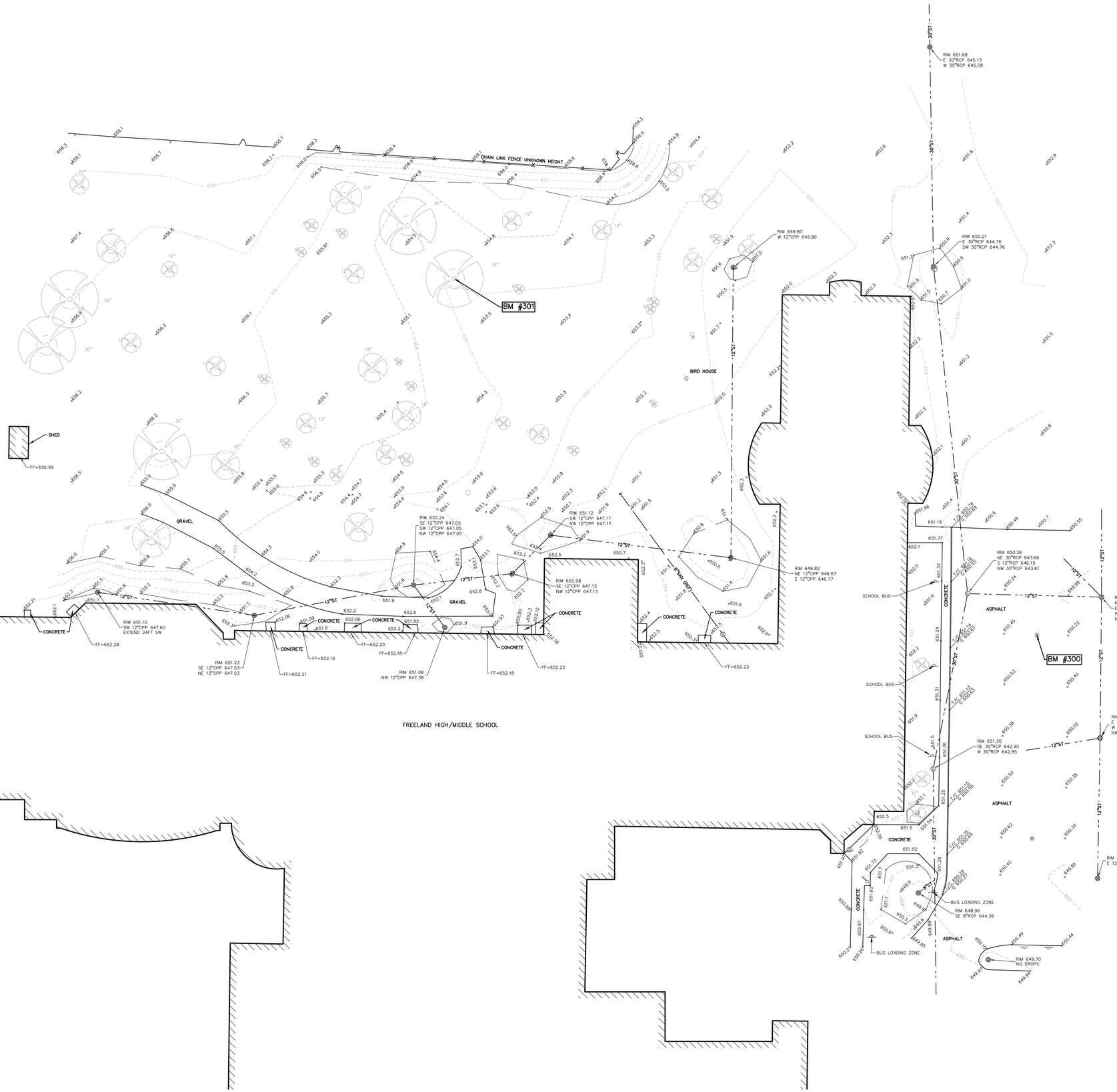
PEA GROUP
7927 NEMCO WAY, STE. 115
BRIGHTON, MI 48116
CONTACT: THOM DUMOND, PLA, LEED AP
PHONE: 844.813.2949
EMAIL: TDUMOND@PEAGROUP.COM

ARCHITECT

THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OHIO 43604
CONTACT: NICK ROSE
PHONE: 419.242.7405
EMAIL: NROSE@TC.DESIGN

PEA GROUP

REVISIONS	
DESCRIPTION	DATE
ISSUED FOR PERMITS & BIDS	12.12.2024



LEGEND:

OH–ELEC	EX. OH. ELEC, POLE & GUY WIRE
UG–CATV	EX. U.G. CABLE TV & PEDESTAL
UG–COMM	EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
UG–ELEC	EX. U.G. ELEC,MANHOLE, METER & HANDHOLE
	EX. GAS LINE
GAS	EX. GAS VALVE & GAS LINE MARKER
T	EX. TRANSFORMER & IRRIGATION VALVE
	EX. WATER MAIN
W	EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
	EX. WATER VALVE BOX & SHUTOFF
	EX. SANITARY SEWER
S	EX. SANITARY CLEANOUT & MANHOLE
	EX. COMBINED SEWER MANHOLE
	EX. STORM SEWER
	EX. CLEANOUT & MANHOLE
	EX. SQUARE, ROUND & BEEHIVE CATCH BASIN
D	EX. YARD DRAIN, U.G. ROOF DRAIN & DOWNSPOUT
	EX. UNIDENTIFIED STRUCTURE
M	EX. MAILBOX, SIGN, LIGHTPOLE & GUARD POST
	EX. FENCE
	EX. GUARD RAIL
	EX. DEC. TREE, CONIFEROUS TREE & SHRUB
724	EX. TREE TAG, & TREE LINE
686.91	EX. SPOT ELEVATION
670	EX. CONTOUR
	EX. WETLAND
	IRON FOUND / SET
	NAIL FOUND / NAIL & CAP SET
	BRASS PLUG SET
	MONUMENT FOUND / SET
	SECTION CORNER FOUND
R M C	RECORDED / MEASURED / CALCULATED
GNSS	GLOBAL NAVIGATION SATELLITE SYSTEM

REFERENCE DRAWINGS:
MISS DIG TICKET NUMBER: 2024102201181-000

WATER MAIN	NO EMAIL AS OF 10/22/24
SANITARY SEWER	NO EMAIL AS OF 10/22/24
STORM SEWER	NO EMAIL AS OF 10/22/24
ELECTRIC	NO EMAIL AS OF 10/22/24
COMMUNICATION	NO EMAIL AS OF 10/22/24
GAS	NO EMAIL AS OF 10/22/24

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ELEV. - 652.28
CHISELED 'X' ON THE TOP OF LIGHT POLE BASE 75' SOUTH OF THE SOUTH SIDE OF FREELAND MIDDLE SCHOOL BUILDING AND 65' WEST OF THE EASTERLY EDGE OF PARKING LOT.

BM #301
ELEV. - 655.02
BENCH TIE IN THE WEST FACE OF A 36" OAK TREE 80' WEST OF THE WESTERLY FEANCE OF THE SOCCER FILED AND 200 FEET NORTH OF THE EAST WING OF FREELAND MIDDLE SCHOOL BUILDING.

FLOODPLAIN NOTE:
THIS PROPERTY IS AN UNMAPPED AREA LOCATED WITHIN A MUNICIPALITY THAT DOES NOT PARTICIPATE IN THE FEMA NATIONAL FLOOD INSURANCE PROGRAM. FLOOD ZONES FOR THIS AREA ARE NOT AVAILABLE.

FLOODPLAIN:
(PER FLOOD INSURANCE RATE MAP NUMBER 26145C0040E, REVISED DATE 8/15/2023)

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD
THE 1% ANNUAL CHANCE FLOOD (100 YEAR FLOOD), ALSO KNOWN AS THE BASE FLOOD, IS THE FLOOD THAT HAS A 1% CHANCE OF BEING EQUALED OR EXCEEDED IN ANY GIVEN YEAR. THE SPECIAL FLOOD HAZARD AREA IS THE AREA SUBJECT TO FLOODING BY THE 1% ANNUAL CHANCE FLOOD. AREAS OF SPECIAL FLOOD HAZARD INCLUDE ZONES A, AE, AH, AO, AR, A99, V AND VE. THE BASE FLOOD ELEVATION IS THE WATER-SURFACE ELEVATION OF THE 1% ANNUAL CHANCE FLOOD.

ZONE AE - BASE FLOOD ELEVATIONS DETERMINED.

FLOODWAY AREAS IN ZONE AE
THE FLOODWAY IS THE CHANNEL OF STREAM PLUS ANY ADJACENT FLOODPLAIN AREAS THAT MUST BE KEPT FREE OF ENCROACHMENT SO THAT THE 1% ANNUAL CHANCE FLOOD CAN BE CARRIED WITHOUT SUBSTANTIAL INCREASES IN FLOOD HEIGHTS.

OTHER FLOOD AREAS
ZONE X - AREA OF 0.2% ANNUAL CHANCE FLOOD; AREAS OF 1% ANNUAL CHANCE FLOOD WITH AVERAGE DEPTHS OF LESS THAN 1 FOOT OR WITH DRAINAGE AREAS LESS THAN 1 SQUARE MILE; AND AREAS PROTECTED BY LEVEES FROM 1% ANNUAL CHANCE FLOOD.

OTHER AREAS
ZONE X - AREA TO BE DETERMINED OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN.

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
JOSEPH B. WYWROT
ENGINEER
No. 6201046874
LICENSED PROFESSIONAL ENGINEER

NORTH

0 15 30 60
SCALE: 1" = 30'

811 Know what's below. Call before you dig.

CAUTION!!
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CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
TOPOGRAPHIC SURVEY

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-1.0

GENERAL DEMOLITION NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT:

1. ALL MATERIAL TO BE REMOVED, WHETHER SPECIFICALLY NOTED IN THE PLANS OR NOT, SHALL BE REMOVED FROM THE SITE BY THE CONTRACTOR AND DISPOSED OF OFF-SITE IN A LEGAL MANNER. NO ON-SITE BURY OR BURN PITS SHALL BE ALLOWED.
2. ALL DEMOLITION WORK SHALL CONFORM TO ALL LOCAL CODES AND ORDINANCES.
3. STAGING/PHASING OF DEMOLITION AND CONSTRUCTION IS TO BE COORDINATED WITH THE OWNER AND THE CONTRACTOR PRIOR TO CONSTRUCTION.
4. SPECIFIC DEMOLITION ITEMS HAVE BEEN INDICATED ON THE PLANS AS A GUIDE TO THE GENERAL SCOPE OF THE WORK. IT IS THE INTENT THAT THESE ITEMS SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR ABOVE AND BELOW GROUND, UNLESS SPECIFICALLY NOTED OTHERWISE, AND THAT DEMOLITION WILL INCLUDE BUT WILL NOT NECESSARILY BE LIMITED TO THESE ITEMS. CONTRACTOR SHALL VISIT SITE TO VERIFY EXISTING CONDITIONS AND EXTENTS OF THE DEMOLITION THAT WILL BE REQUIRED PRIOR TO SUBMITTING A BID.
5. REMOVE ALL STRUCTURES DESIGNATED FOR REMOVAL ACCORDING TO THE DEMOLITION PLAN. THIS INCLUDES FOUNDATIONS, FOOTINGS, FOUNDATION WALLS, FLOOR SLABS, UNDERGROUND UTILITIES, CONCRETE, ASPHALT, TREES, ETC.
6. REFER TO SHEET C-9.0 FOR TREE PROTECTION DETAILS.
7. THE CONTRACTOR SHALL, AS A MINIMUM, PROVIDE TREE PROTECTION FENCING AROUND EXISTING TREES TO BE SAVED THAT ARE WITHIN 15 FEET OF CONSTRUCTION ACTIVITIES AND AS INDICATED IN THE PLANS OR PER LOCAL AGENCY REQUIREMENTS.
8. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CLEAN UP, NOISE, DUST CONTROL, STREET SWEEPING AND HOURS OF OPERATION IN ACCORDANCE WITH THE LOCAL CODES.
9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADES, SIGNAGE, MARKINGS, LIGHTS AND OTHER TRAFFIC CONTROL DEVICES TO PROTECT THE WORK ZONE AND SAFELY MAINTAIN TRAFFIC PER AGENCY REQUIREMENTS AND IN ACCORDANCE WITH THE LATEST EDITION OF THE STATE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES.
10. THE CONTRACTOR SHALL CONTACT THE APPROPRIATE UTILITY COMPANIES TO CONFIRM THAT UTILITY LEADS HAVE BEEN TAKEN OUT OF SERVICE PRIOR TO DEMOLITION.
11. ALL BUILDING GAS LEADS, METERS AND ASSOCIATED EQUIPMENT SHALL BE REMOVED AS SHOWN ON THE PLANS. COORDINATE ALL ASSOCIATED WORK WITH THE APPROPRIATE UTILITY COMPANY.
12. REMOVE ALL OVERHEAD AND UNDERGROUND ELECTRICAL LINES WITHIN THE AREA OF CONSTRUCTION AS SHOWN ON THE PLANS. COORDINATE SHUTDOWNS AND REMOVALS WITH ELECTRICAL SERVICE PROVIDER OR THE APPROPRIATE UTILITY COMPANY. (NOTE: PHONE AND CABLE T.V. SERVICES MAY ALSO BE LOCATED ON OVERHEAD LINES.)
13. THE CONTRACTOR IS RESPONSIBLE FOR THE REMOVAL AND REPLACEMENT OF SIGNS AND SUPPORTS WITHIN THE WORK AREA, AS NECESSARY TO FACILITATE CONSTRUCTION. SIGNS SHALL BE PROTECTED OR STOCKPILED FOR REUSE AS SPECIFIED IN THE PLANS OR AS REQUIRED BY THE AGENCY OF JURISDICTION. THE CONTRACTOR SHALL REPLACE ANY DAMAGED SIGNS AND SUPPORTS AT NO ADDITIONAL COST TO THE OWNER.
14. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

DEMOLITION LEGEND:

- ITEM TO BE PROTECTED
- ITEM TO BE REMOVED
- CURB/FENCE REMOVAL
- CONCRETE PAVEMENT AND SIDEWALK REMOVAL
- AREA OR ITEMS TO BE REMOVED
- UTILITY REMOVAL
- ABANDON UTILITY
- ASPHALT REMOVAL
- TREE REMOVAL
- SAWCUT LINE

DEMOLITION QUANTITIES:

REMOVE CONCRETE SIDEWALK	89 SY
REMOVE TREE	6 EA
REMOVE STORM SEWER	45 LF

PEA GROUP

t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN JOSEPH B. WYWROT ENGINEER No. 6201046674 LICENSED PROFESSIONAL ENGINEER

NORTH

0 15 30 60
SCALE: 1" = 30'

811 Know what's below. Call before you dig.

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CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

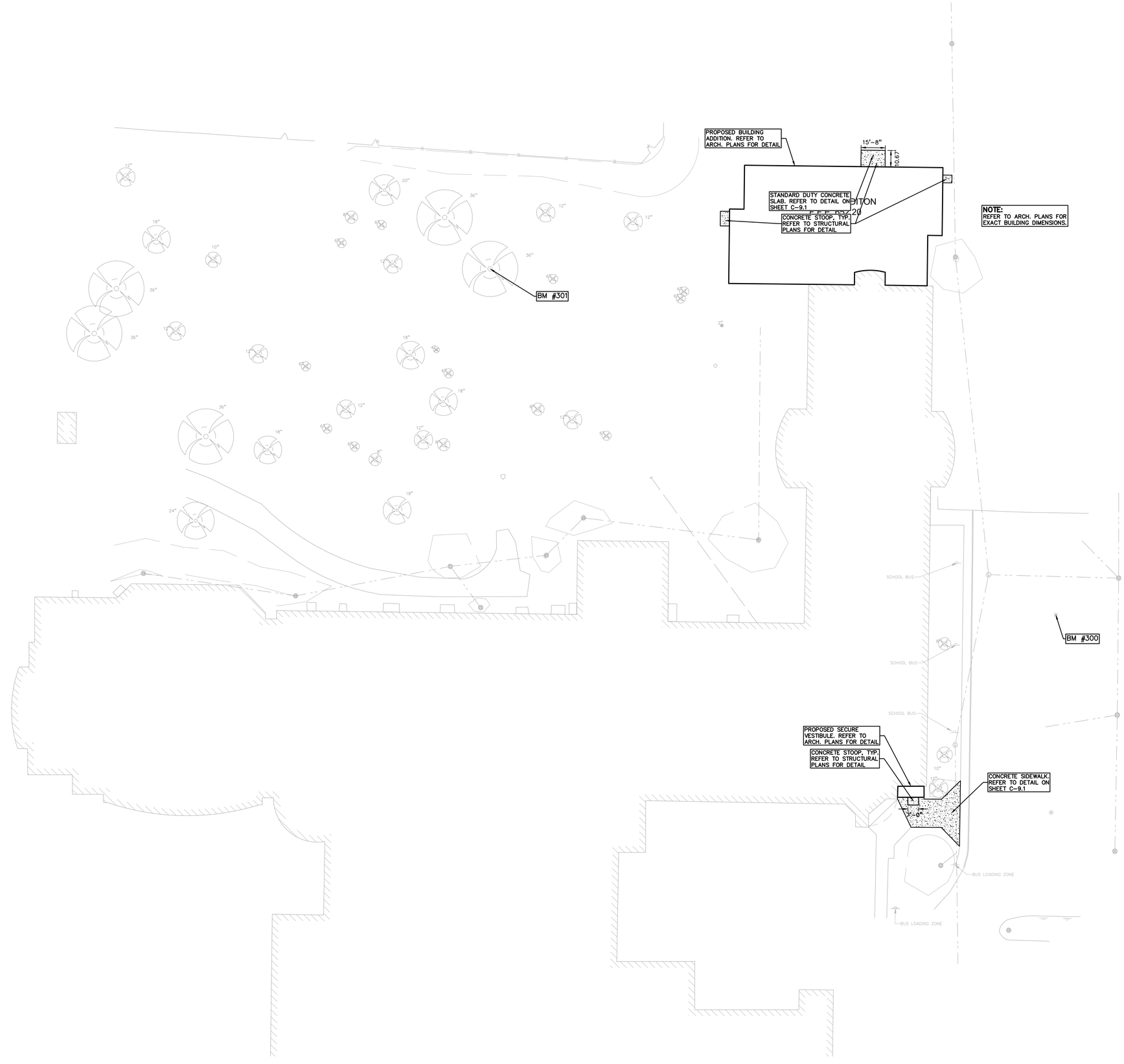
REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
DEMOLITION PLAN

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-2.0



NOTE:
REFER TO ARCH. PLANS FOR EXACT BUILDING DIMENSIONS.

LEGEND:

- CONCRETE PAVEMENT (STD DUTY / HEAVY DUTY / R.O.W. ONLY)
- ASPHALT PAVEMENT (STD DUTY / HEAVY DUTY / DEEP STRENGTH)
- GRAVEL
- WETLAND
- CONCRETE CURB AND GUTTER
- REVERSE GUTTER PAN
- SETBACK LINE
- SIGN
- LIGHTPOLE
- FENCE
- GUARD RAIL

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL DIMENSIONS SHOWN ARE TO BACK OF CURB, FACE OF SIDEWALK, OUTSIDE FACE OF BUILDING, PROPERTY LINE, CENTER OF MANHOLE/CATCH BASIN OR CENTERLINE OF PIPE UNLESS OTHERWISE NOTED.
2. 'NO PARKING-FIRE LANE' SIGNS SHALL BE POSTED ALONG ALL FIRE LANES AT 100 FOOT INTERVALS OR AS DIRECTED BY THE FIRE OFFICIAL.
3. REFER TO NOTES & DETAILS SHEET FOR ON-SITE PAVING DETAILS.
4. REFER TO NOTES & DETAILS SHEET FOR ON-SITE SIDEWALK RAMP DETAILS

PAVING QUANTITIES:

STANDARD DUTY CONCRETE SLAB	9 SY
CONCRETE SIDEWALK	88 SY

NORTH

0 15 30 60

SCALE: 1" = 30'

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PEA GROUP
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STATE OF MICHIGAN
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ENGINEER
No. 6201046874
LICENSED PROFESSIONAL ENGINEER

CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

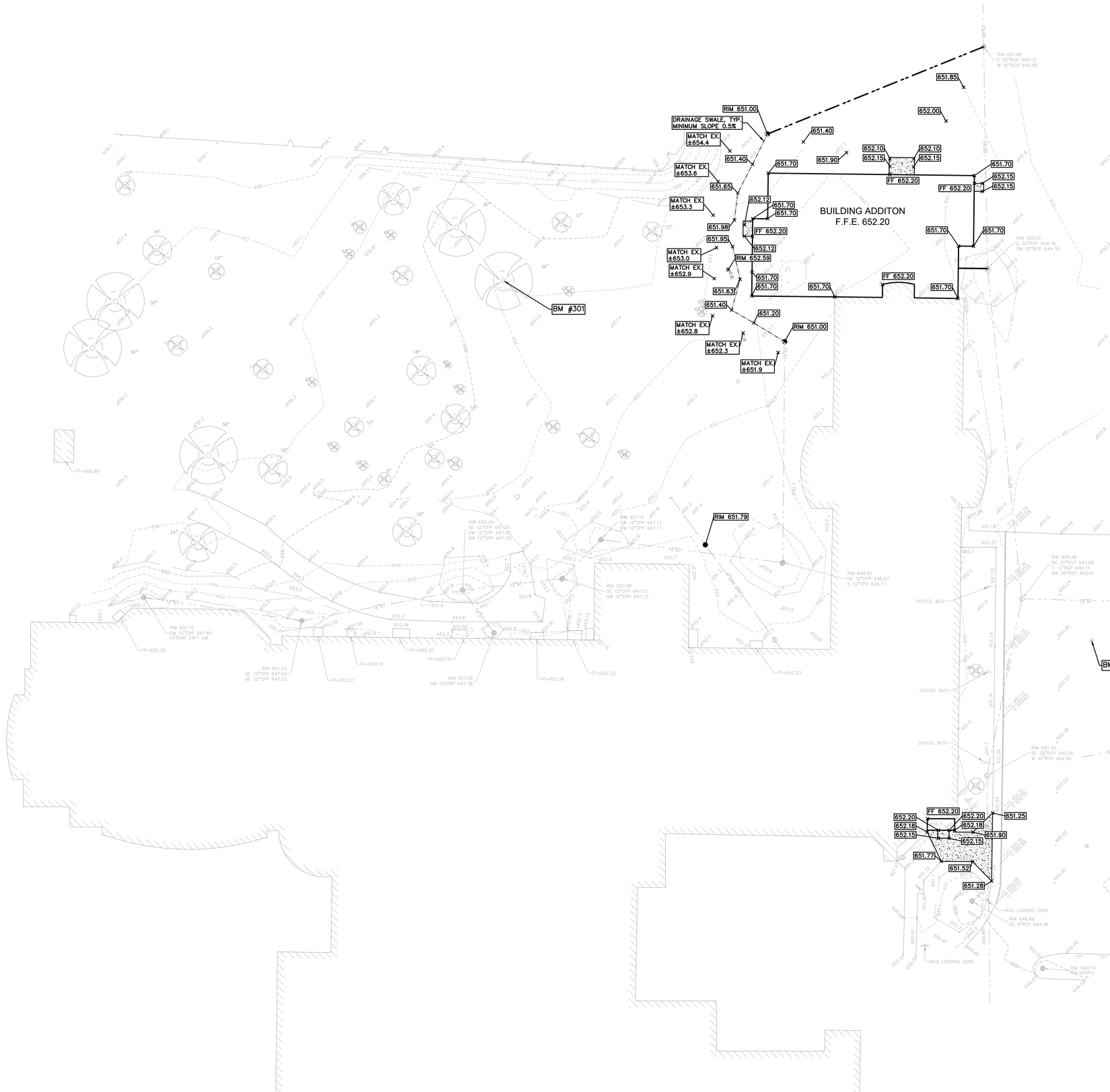
REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
DIMENSION AND PAVING PLAN

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-3.0



GRADING LEGEND:

+698.97 / 622.50	EXISTING SPOT ELEVATION / PROPOSED SPOT ELEVATION: TYPICALLY TOP OF PAVEMENT IN PAVED AREAS, GUTTER GRADE IN CURB LINES.
670	EXISTING CONTOUR
922	PROPOSED CONTOUR
	PROPOSED REVERSE GUTTER PAN
	PROPOSED RIDGE LINE
	PROPOSED SWALE/DITCH

ABBREVIATIONS

T/C = TOP OF CURB	F = FLUSH WALK
T/P = TOP OF PAVEMENT	G = GUTTER GRADE
T/S = TOP OF SIDEWALK	FF = FINISH FLOOR
T/W = TOP OF WALL	FG = FINISH GRADE
B/W = BOTTOM OF WALL	RIM = RIM ELEVATION

REFER TO GRADING NOTES ON SHEET C-9.0.

EARTHWORK BALANCING NOTE:

THE CONTRACTOR SHALL BE RESPONSIBLE FOR IMPORTING OR EXPORTING ALL MATERIALS AS REQUIRED TO PROPERLY GRADE THIS PROJECT TO THE FINISHED ELEVATIONS SHOWN ON THE APPROVED PLANS. THE CONTRACTOR SHALL MAKE THEIR OWN DETERMINATION OF CUT AND FILL QUANTITIES AND ALLOW FOR REMOVAL OF EXCESS OR IMPORTATION OF ADDITIONAL MATERIAL AT NO ADDITIONAL COST TO THE OWNER.

BENCHMARKS:
(GPS DERIVED - NAVD88)

BM #300
ELEV. - 652.28
CHISELED 'X' ON THE TOP OF LIGHT POLE BASE 75' SOUTH OF THE SOUTH SIDE OF FREELAND MIDDLE SCHOOL BUILDING AND 65' WEST OF THE EASTERLY EDGE OF PARKING LOT.

BM #301
ELEV. - 655.02
BENCH TIE IN THE WEST FACE OF A 36" OAK TREE 80' WEST OF THE WESTERLY FEANCE OF THE SOCCER FILED AND 200 FEET NORTH OF THE EAST WING OF FREELAND MIDDLE SCHOOL BUILDING.

GRADING QUANTITIES:

SUBGRADE UNDERCUT (ESTIMATED)	100 CY

PEA GROUP
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STATE OF MICHIGAN
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ENGINEER
No. 6201046874
LICENSED PROFESSIONAL ENGINEER

NORTH

0 15 30 60
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CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

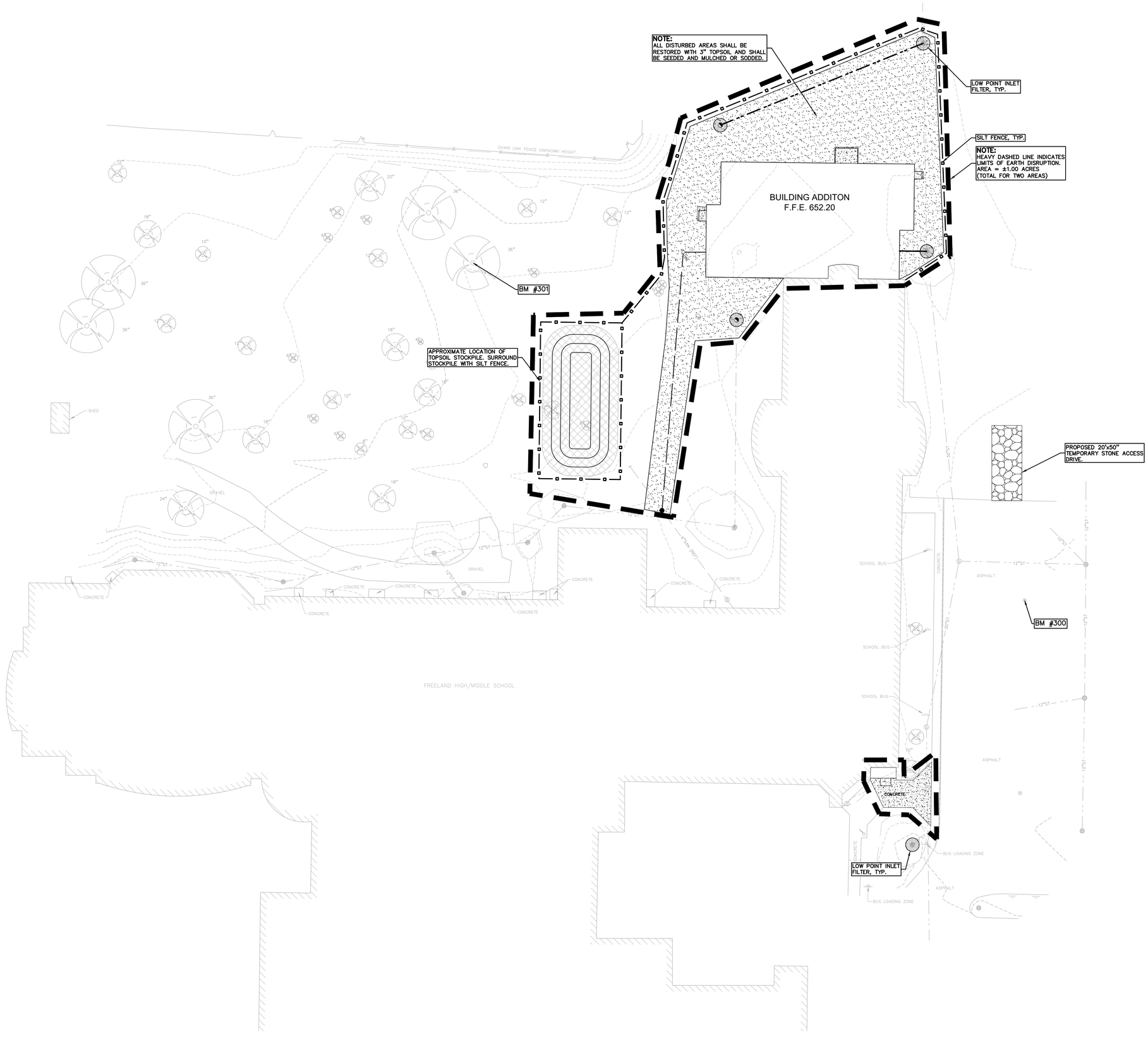
ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
GRADING PLAN

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-4.0

s: \PROJECTS \2024 \24-1779 freeland community schools \DWG \3_construction \ (C-4.0) GRADE-24-1779.dwg PLOT DATE: 12/13/2024 BY: Allison Gray



SYMBOLS: EROSION CONTROL

- SILT FENCE (REFER TO DETAIL ON SHEET C-9.0)
- STORM SEWER INLET FILTER (REFER TO DETAIL ON SHEET C-9.0)
- TEMPORARY CONSTRUCTION ACCESS DRIVE (REFER TO DETAIL ON SHEET C-9.0)
- RIP RAP (REFER TO DETAIL ON SHEET C-9.0)
- EROSION CONTROL BLANKETS (REFER TO DETAIL ON SHEET C-9.0)
- APPROXIMATE TEMPORARY SEEDING LOCATIONS

EROSION CONTROL QUANTITIES:

SILT FENCE	818 LF
INLET FILTERS	5 EA.
TEMPORARY CONSTRUCTION ACCESS DRIVE	1 EA.

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CLIENT
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ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

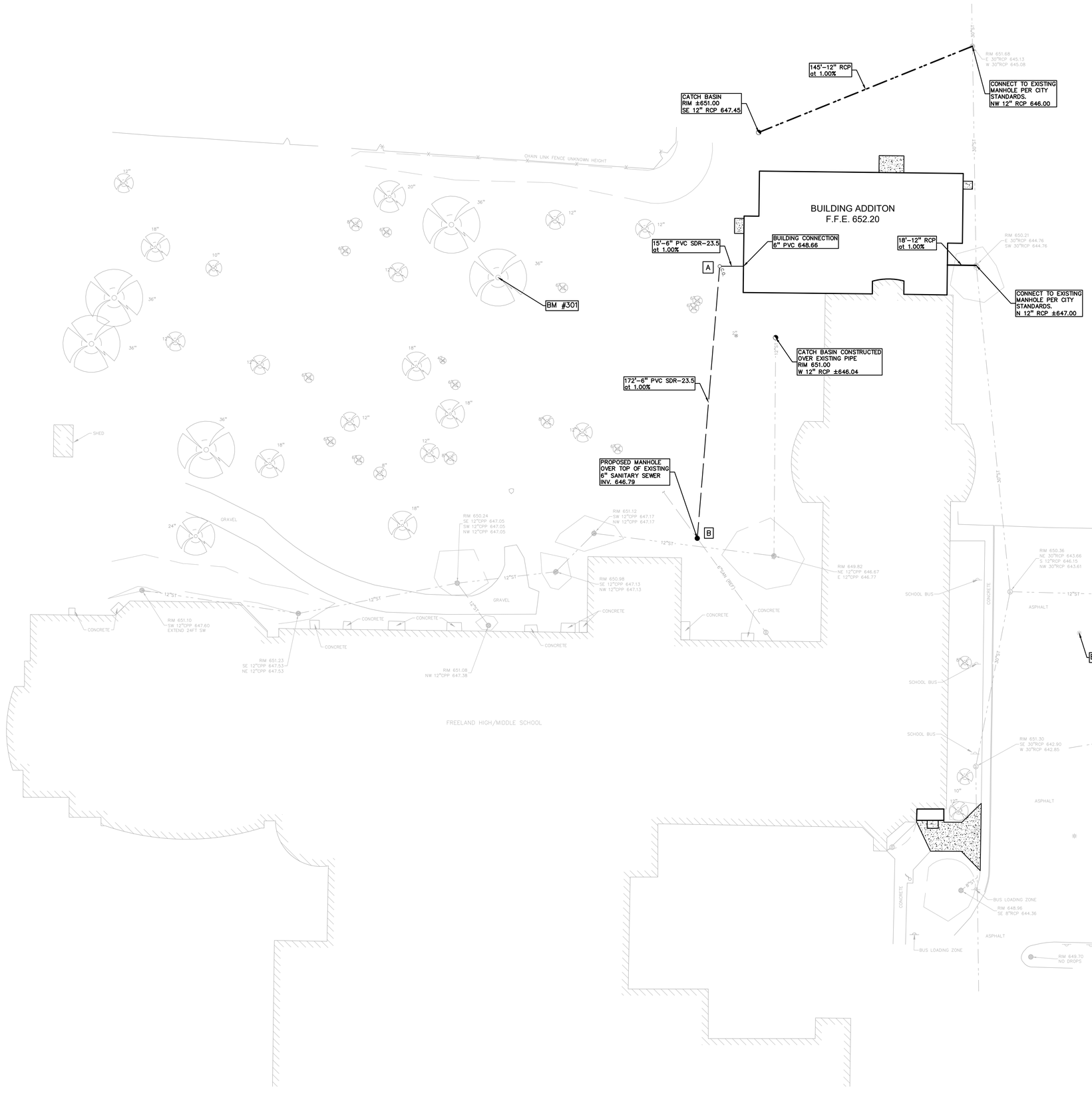
ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
SESC PLAN

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-5.0

s: \PROJECTS\2024\24-1779 freeland community schools\DWG\3_construction\(C-5.0) SESC-24-1779.dwg PLOT DATE: 12/13/2024 BY: Jillian Gray



UTILITY LEGEND:

- EX. OH. ELEC, POLE & GUY WIRE
- EX. U.G. CABLE TV & PEDESTAL
- EX. U.G. COMMUNICATION LINE, PEDESTAL & MANHOLE
- EX. U.G. ELEC.MANHOLE, METER & HANDHOLE
- EX. GAS LINE
- EX. GAS VALVE & GAS LINE MARKER
- EX. TRANSFORMER & IRRIGATION VALVE
- EX. WATER MAIN
- EX. HYDRANT, GATE VALVE & POST INDICATOR VALVE
- EX. WATER VALVE BOX & SHUTOFF
- EX. SANITARY SEWER
- EX. SANITARY CLEANOUT & MANHOLE
- EX. COMBINED SEWER MANHOLE
- EX. STORM SEWER
- EX. CLEANOUT & MANHOLE
- EX. SQUARE, ROUND, & BEEHIVE CATCH BASIN
- EX. YARD DRAIN & ROOF DRAIN
- EX. UNIDENTIFIED STRUCTURE
- PROPOSED WATER MAIN
- PROPOSED HYDRANT AND GATE VALVE
- PROPOSED TAPPING SLEEVE, VALVE & WELL
- PROPOSED POST INDICATOR VALVE
- PROPOSED SANITARY SEWER
- PROPOSED SANITARY CLEANOUT & MANHOLE
- PROPOSED STORM SEWER
- PROPOSED STORM SEWER CLEANOUT & MANHOLE
- PROPOSED CATCH BASIN, INLET & YARD DRAIN

STORM SEWER QUANTITIES:

12" RCP CL-IV PIPE	163 LF
4' DIA. CATCH BASIN	2 EA.
CONNECT TO EXISTING MANHOLE	2 EA.

SANITARY SEWER QUANTITIES:

6" PVC SDR 23.5 PIPE	187 LF
CLEANOUT AND BOX	1 EA.
4' DIA. MANHOLE	1 EA.

NOTE:
CONTRACTOR TO VERIFY ALL QUANTITIES. ANY DEVIATIONS TO THE PLAN QUANTITIES SHALL BE BROUGHT TO THE ATTENTION OF PEA GROUP FOR VERIFICATION, PRIOR TO BIDDING.

PREMIUM TRENCH BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 3' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY DENSITY (ASTM D-1557).

REFER TO:
UTILITY NOTES AND DETAILS ON SHEET C-9.0

STORM SEWER FRAME & COVER NOTES

CATCH BASIN/INLET IN CURB
EJIW #7045 WITH M1 GRATE & 7050 T1 BACK

CATCH BASIN/INLET IN PAVED AREA
EJIW #1040 WITH TYPE M1 GRATE

CATCH BASIN/INLET IN GRASS AREAS
EJIW #1040 WITH TYPE N GRATE

MANHOLE
EJIW #1040 WITH TYPE B VENTED COVER

SANITARY CLEANOUTS	
A	C.O. IN BOX RIM = 652.59 INV. 646.85

SANITARY STRUCTURES	
B	MH (4' DIA.) RIM = 651.79 6" INV. 645.13 PR 6" INV. 645.00 EX

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
JOSEPH B. WYWROT
ENGINEER
No. 6201046874
LICENSED PROFESSIONAL ENGINEER

NORTH

0 15 30 60
SCALE: 1" = 30'

811 Know what's below. Call before you dig.

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE AND CANNOT BE GUARANTEED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
UTILITY PLAN

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-6.0

e: \PROJECTS\2024\24-1779 freeland community schools\DWG\3_construction\(C-6.0) UTIL_24-1779.dwg PLOT DATE:12/13/2024 BY: Jillian Gray

GENERAL NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT.

1. ALL CONSTRUCTION, WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH CURRENT OSHA, MDOT AND MUNICIPALITY STANDARDS AND REGULATIONS.
2. THE CONTRACTOR SHALL NOTIFY THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.
3. THE CONTRACTOR SHALL CONTACT THE ENGINEER SHOULD THEY ENCOUNTER ANY DESIGN ISSUES DURING CONSTRUCTION. IF THE CONTRACTOR MAKES DESIGN MODIFICATIONS WITHOUT THE WRITTEN DIRECTION OF THE DESIGN ENGINEER, THE CONTRACTOR DOES SO AT HIS OWN RISK.
4. ALL NECESSARY PERMITS, TESTING, BONDS AND INSURANCES ETC., SHALL BE PAID FOR BY THE CONTRACTOR. THE OWNER SHALL PAY FOR ALL CITY INSPECTION FEES.
5. THE CONTRACTOR SHALL NOTIFY THE APPROPRIATE 811/ONE CALL UTILITY LOCATING CENTER, THE CITY ENGINEER AND/OR THE AUTHORITY HAVING JURISDICTION 3 BUSINESS DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION. IF NO NOTIFICATION IS GIVEN AND DAMAGE RESULTS, SAID DAMAGE WILL BE REPAIRED AT SOLE EXPENSE OF THE CONTRACTOR. IF EXISTING UTILITY LINES ARE ENCOUNTERED THAT CONFLICT IN LOCATION WITH NEW CONSTRUCTION, THE CONTRACTOR SHALL NOTIFY THE DESIGN ENGINEER SO THAT THE CONFLICT MAY BE RESOLVED.
6. CONTRACTOR SHALL VERIFY THAT THE PLANS AND SPECIFICATIONS ARE THE VERY LATEST PLANS AND SPECIFICATIONS AND FURTHERMORE, VERIFY THAT THESE PLANS AND SPECIFICATIONS HAVE BEEN APPROVED. ALL ITEMS CONSTRUCTED BY THE CONTRACTOR PRIOR TO RECEIVING FINAL APPROVAL, HAVING TO BE ADJUSTED OR RE-DONE, SHALL BE AT THE CONTRACTORS EXPENSE. SHOULD THE CONTRACTOR ENCOUNTER A CONFLICT BETWEEN THESE PLANS AND/OR SPECIFICATIONS, THEY SHALL SEEK CLARIFICATION IN WRITING FROM THE ENGINEER BEFORE COMMENCEMENT OF CONSTRUCTION. FAILURE TO DO SO SHALL BE AT SOLE EXPENSE TO THE CONTRACTOR.
7. ANY WORK WITHIN THE STREET OR HIGHWAY RIGHTS-OF-WAY SHALL BE PERFORMED IN ACCORDANCE WITH THE REQUIREMENTS OF THE AGENCIES HAVING JURISDICTION AND SHALL NOT BEGIN UNTIL ALL NECESSARY PERMITS HAVE BEEN ISSUED FOR THE WORK.
8. ALL PROPERTIES OR FACILITIES IN THE SURROUNDING AREAS, PUBLIC OR PRIVATE, DESTROYED OR OTHERWISE DISTURBED DUE TO CONSTRUCTION, SHALL BE REPLACED AND/OR RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR.
9. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY BARRICADING, SIGNAGE, LIGHTS AND TRAFFIC CONTROL DEVICES TO PROTECT THE WORK AND SAFELY MAINTAIN TRAFFIC IN ACCORDANCE WITH LOCAL REQUIREMENTS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES (LATEST EDITION). THE DESIGN ENGINEER, OWNER, CITY AND STATE SHALL NOT BE HELD LIABLE FOR ANY CLAIMS RESULTING FROM ACCIDENTS OR DAMAGES CAUSED BY THE CONTRACTOR'S FAILURE TO COMPLY WITH TRAFFIC AND PUBLIC SAFETY REGULATIONS DURING THE CONSTRUCTION PERIOD.
10. THE USE OF CRUSHED CONCRETE IS PROHIBITED ON THE PROJECT WITHIN 100 FEET OF ANY WATER COURSE (STREAM, RIVER, COUNTY DRAIN, ETC.) AND LAKE, REGARDLESS OF THE APPLICATION OR LOCATION OF THE WATER COURSE OR LAKE RELATIVE TO THE PROJECT LIMITS.
11. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO ADJUST THE TOP OF ALL EXISTING AND PROPOSED STRUCTURES (MANHOLES, CATCH BASINS, INLETS, GATE WELLS ETC.) WITHIN GRADED AND /OR PAVED AREAS TO FINAL GRADE SHOWN ON THE PLANS. ALL SUCH ADJUSTMENTS SHALL BE INCIDENTAL TO THE JOB AND WILL NOT BE PAID FOR SEPARATELY.

PAVING NOTES:

1. IN AREAS WHERE NEW PAVEMENTS ARE BEING CONSTRUCTED, THE TOPSOIL AND SOIL CONTAINING ORGANIC MATTER SHALL BE REMOVED PRIOR TO PAVEMENT CONSTRUCTION.
2. REFER TO ARCHITECTURAL PLANS FOR DETAILS OF FROST SLAB AT EXTERIOR BUILDING DOORS.
3. CONSTRUCTION TRAFFIC SHOULD BE MINIMIZED ON THE NEW PAVEMENT. IF CONSTRUCTION TRAFFIC IS ANTICIPATED ON THE PAVEMENT STRUCTURE, THE INITIAL LIFT THICKNESS COULD BE INCREASED AND PLACEMENT OF THE FINAL LIFT COULD BE DELAYED UNTIL THE MAJORITY OF THE CONSTRUCTION ACTIVITIES HAVE BEEN COMPLETED. THIS ACTION WILL ALLOW REPAIR OF LOCALIZED FAILURE, IF ANY DOES OCCUR, AS WELL AS REDUCE LOAD DAMAGE ON THE PAVEMENT SYSTEM.
4. ALL EXPANSION JOINTS AND CONCRETE PAVEMENT JOINTS TO BE SEALED.
5. CONCRETE PAVEMENT JOINTING – UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION;
   - 5.1. WHERE PROPOSED CONCRETE ABUTS A STRUCTURE, PROVIDE A MINIMUM 1/2" EXPANSION JOINT. THE JOINT FILLER BOARD MUST BE AT LEAST THE FULL DEPTH OF THE CONCRETE AND HELD DOWN A 1/2" TO ALLOW FOR SEALING.
   - 5.2. WHERE PROPOSED CONCRETE ABUTS EXISTING CONCRETE OR IN BETWEEN POURS OF PROPOSED CONCRETE (CONSTRUCTION JOINT), PROVIDE 5/8" DOWELS EVERY 30" CENTER TO CENTER HALF WAY ALONG THE THICKNESS OF THE PROPOSED PAVEMENT. ALTERNATE DOWELS SIZES AND SPACING MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
   - 5.3. WHERE PROPOSED CONCRETE ABUTS EXISTING OR PROPOSED SIDEWALK OR CURBING, PROVIDE A MINIMUM 1/2" EXPANSION JOINT.
   - 5.4. CONTROL, LONGITUDINAL AND/OR TRANSVERSE JOINTS SHALL BE PLACED TO PROVIDE PANELS WITHIN THE PAVEMENT AS SQUARE AS POSSIBLE WITH THE FOLLOWING MAXIMUM SPACING PARAMETERS:
     - 5.4.1. 6-INCH THICK CONCRETE PAVEMENT: 12' X 12'
     - 5.4.2. 8-INCH THICK CONCRETE PAVEMENT: 15' X 15'
   - 5.5. IRREGULAR-SHAPED PANELS MAY REQUIRE THE USE OF REINFORCING MESH OR FIBER MESH AS DETERMINED BY THE ENGINEER. THE USE OF MESH MUST BE APPROVED THE ENGINEER PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
   - 5.6. IF A JOINT PLAN IS NOT PROVIDED IN THE PLANS, THE CONTRACTOR SHALL SUBMIT ONE TO THE ENGINEER FOR REVIEW PRIOR TO COMMENCING WORK AND VIA THE SUBMITTAL PROCESS.
6. CONCRETE CURBING JOINTING – UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION
   - 6.1. JOINTS WHEN ADJACENT TO ASPHALT PAVEMENT
     - 6.1.1. PLACE CONTRACTION JOINTS AT 10' INTERVALS
     - 6.1.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
     - 6.1.3. PLACE 1" EXPANSION JOINT:
       - 6.1.3.1. AT SPRING POINTS OF INTERSECTIONS OR ONE OF THE END OF RADIUS LOCATIONS IN A CURVE
       - 6.1.3.2. AT 400' MAXIMUM INTERVALS ON STRAIGHT RUNS
       - 6.1.3.3. AT THE END OF RADIUS AT OPPOSITE ENDS IN A CURBED LANDSCAPE ISLAND
   - 6.2. JOINTS WHEN TIED TO CONCRETE PAVEMENT
     - 6.2.1. PLACE CONTRACTION JOINTS OPPOSITE ALL TRANSVERSE CONTRACTION JOINTS IN PAVEMENT
     - 6.2.2. PLACE 1/2" EXPANSION JOINT AT CATCH BASINS, EXISTING AND PROPOSED SIDEWALK OR EXISTING CURBING.
     - 6.2.3. PLACE 1" EXPANSION JOINT OPPOSITE ALL TRANSVERSE EXPANSION JOINTS IN PAVEMENT
     - 6.2.4. CURB AND GUTTER AND CONCRETE SHALL BE TIED TOGETHER SIMILAR TO A LONGITUDINAL LANE TIE JOINT (MDOT B1 JOINT)
   - 6.3. IN BETWEEN POURS OF PROPOSED CONCRETE CURBING (CONSTRUCTION JOINT):
     - 6.3.1. CARRY THE REBAR CONTINUOUSLY BETWEEN POURS
     - 6.3.2. IF THE REBAR IS NOT LONG ENOUGH TO CARRY CONTINUOUSLY, THEN TIE TWO PIECES OF REBAR PER THE LATEST MDOT SPECIFICATIONS
7. CONCRETE SIDEWALK JOINTING – UNLESS SHOWN OTHERWISE IN THE PLANS OR REQUIRED BY THE AUTHORITY HAVING JURISDICTION
   - 7.1. PLACE TRANSVERSE CONTRACTION JOINTS EQUAL TO THE WIDTH OF THE WALK WHEN WIDTH IS LESS THAN 8'
   - 7.2. PLACE TRANSVERSE AND LONGITUDINAL CONTRACTION JOINTS EQUAL TO 1/2 THE WIDTH OF THE WALK WHEN WIDTH IS EQUAL TO OR GREATER THAN 8'
   - 7.3. PLACE 1" EXPANSION JOINT WHERE ABUTTING SIDEWALK RAMP AND/OR RADIUS IN INTERSECTION
   - 7.4. PLACE TRANSVERSE 1/2" EXPANSION JOINT AT MAXIMUM OF 100' SPACING
   - 7.5. PLACE 1/2" EXPANSION JOINT WHEN ABUTTING A FIXED STRUCTURE, OTHER PAVEMENT (CONCRETE PAVEMENT AND DRIVE APPROACHES), UTILITY STRUCTURES, LIGHT POLE BASES AND COLUMNS

GENERAL GRADING AND EARTHWORK NOTES:

THESE NOTES APPLY TO ALL CONSTRUCTION ACTIVITIES ON THIS PROJECT

1. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING TREES AND BRUSH AND REMOVE ALL THAT ARE NECESSARY TO GRADE SITE.
2. ALL GRADES ARE TO TOP OF PAVEMENT UNLESS OTHERWISE NOTED.
3. THE STAGING OF CONSTRUCTION ACTIVITIES SHALL OCCUR ONLY WITHIN THE SITE BOUNDARIES. ANY CONSTRUCTION ACTIVITIES OUTSIDE OF THE SITE BOUNDARIES SHALL BE AT THE SOLE RESPONSIBILITY AND RISK OF THE CONTRACTOR.
4. ALL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES SHALL MEET THE REQUIREMENTS OF THE AUTHORIZED PUBLIC AGENCY OF JURISDICTION. AN EROSION CONTROL PERMIT MUST BE SECURED FROM THE CITY PRIOR TO CONSTRUCTION.
5. ALL EARTHWORK AND GRADING OPERATIONS SHALL BE PERFORMED IN ACCORDANCE WITH THE SOILS INVESTIGATION AND REPORT.
6. REFER TO SOIL EROSION CONTROL PLAN FOR ADDITIONAL SOIL EROSION AND SEDIMENTATION CONTROL MEASURES AND NOTES.
7. THE DETENTION BASIN SIDE SLOPES AND ALL SLOPE EXCEEDING 1:6 MUST BE STABILIZED BY SODDING OR BY PLACING A MULCH BLANKET PEGGED IN PLACE OVER SEED.
8. ALL DISTURBED AREAS SHALL BE SEEDED AND MULCHED OR SODDED IN ACCORDANCE WITH THE LANDSCAPE PLANS. PROVIDE A MINIMUM OF 3" OF TOPSOIL IN THESE AREAS UNLESS OTHERWISE NOTED.
9. THE CONTRACTOR SHALL NOTE EXISTING UNDERGROUND UTILITIES WITHIN AND ADJACENT TO THE SITE. BACKFILL FOR EXISTING UTILITY TRENCHES SHALL BE EXAMINED CRITICALLY. ANY TRENCHES FOUND TO HAVE SOFT, UNSTABLE OR UNSUITABLE BACKFILL MATERIAL, IN THE OPINION OF THE THIRD PARTY TESTING COMPANY, THAT ARE TO BE WITHIN THE ZONE OF INFLUENCE OF PROPOSED BUILDINGS OR PAVEMENT SHALL BE COMPLETELY EXCAVATED AND BACKFILLED WITH SUITABLE MATERIAL.
10. ON-SITE FILL CAN BE USED IF THE SPECIFIED COMPACTION REQUIREMENTS CAN BE ACHIEVED. IF ON-SITE SOIL IS USED, IT SHOULD BE CLEAN AND FREE OF FROZEN SOIL, ORGANICS, OR OTHER DELETERIOUS MATERIALS.
11. THE FINAL SUBGRADE/EXISTING AGGREGATE BASE SHOULD BE THOROUGHLY PROOFROLLED USING A FULLY LOADED TANDEM AXLE TRUCK OR FRONT END LOADER UNDER THE OBSERVATION OF A GEOTECHNICAL/PAVEMENT ENGINEER. LOOSE OR YIELDING AREAS THAT CANNOT BE MECHANICALLY STABILIZED SHOULD BE REINFORCED USING GEOGRIDS OR REMOVED AND REPLACED WITH ENGINEERED FILL OR AS DICTATED BY FIELD CONDITIONS.
12. SUBGRADE UNDERCUTTING, INCLUDING BACKFILLING SHALL BE PERFORMED TO REPLACE MATERIALS SUSCEPTIBLE TO FROST HEAVING AND UNSTABLE SOIL CONDITIONS. ANY EXCAVATIONS THAT MAY BE REQUIRED BELOW THE TOPSOIL IN FILL AREAS OR BELOW SUBGRADE IN CUT AREAS WILL BE CLASSIFIED AS SUBGRADE UNDERCUTTING.
13. SUBGRADE UNDERCUTTING SHALL BE PERFORMED WHERE NECESSARY AND THE EXCAVATED MATERIAL SHALL BECOME THE PROPERTY OF THE CONTRACTOR. ANY SUBGRADE UNDERCUTTING SHALL BE BACKFILLED AS RECOMMENDED IN THE GEOTECHNICAL ENGINEERING REPORT FOR THE PROJECT.
14. ANY SUB-GRADE WATERING REQUIRED TO ACHIEVE REQUIRED DENSITY SHALL BE CONSIDERED INCIDENTAL TO THE JOB.

GENERAL UTILITY NOTES:

1. ALL WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH THE STANDARDS AND SPECIFICATIONS OF THE CITY
2. ALL TRENCHES UNDER OR WITHIN THREE (3) FEET OR THE FORTY-FIVE (45) DEGREE ZONE OF INFLUENCE LINE OF EXISTING AND/OR PROPOSED PAVEMENT, BUILDING PAD OR DRIVE APPROACH SHALL BE BACKFILLED WITH SAND COMPACTED TO AT LEAST NINETY-FIVE (95) PERCENT OF MAXIMUM UNIT WEIGHT (ASTM D-1557). ALL OTHER TRENCHES TO BE COMPACTED TO 90% OR BETTER.
3. WHERE EXISTING MANHOLES OR SEWER PIPE ARE TO BE TAPPED, DRILL HOLES 4" CENTER TO CENTER, AROUND PERIPHERY OF OPENING TO CREATE A PLANE OF WEAKNESS JOINT BEFORE BREAKING SECTION OUT.
4. THE LOCATIONS AND DIMENSIONS SHOWN ON THE PLANS FOR EXISTING UTILITIES ARE IN ACCORDANCE WITH AVAILABLE INFORMATION WITHOUT UNCOVERING AND MEASURING. THE DESIGN ENGINEER DOES NOT GUARANTEE THE ACCURACY OF THIS INFORMATION OR THAT ALL EXISTING UNDERGROUND FACILITIES ARE SHOWN. CONTRACTOR SHALL FIELD VERIFY UTILITIES.
5. THE CONTRACTOR SHALL COORDINATE TO ENSURE ALL REQUIRED PIPES, CONDUITS, CABLES AND SLEEVES ARE PROPERLY PLACED FOR THE INSTALLATION OF GAS, ELECTRIC, PHONE, CABLE, IRRIGATION, ETC. IN SUCH A MANNER THAT WILL FACILITATE THEIR PROPER INSTALLATION PRIOR TO THE PLACEMENT OF THE PROPOSED PAVEMENT AND LANDSCAPING.
6. PIPE LENGTHS INDICATED ARE FROM CENTER OF STRUCTURE AND TO END OF FLARED END SECTION UNLESS NOTED OTHERWISE.
7. CONTRACTOR SHALL INSPECT ALL EXISTING PUBLIC STORM SEWER, SANITARY SEWER AND WATER MAIN STRUCTURES WITHIN THE LIMITS OF CONSTRUCTION AND WITH THE GOVERNING AGENCY INSPECTOR PRIOR TO ESTABLISHING FINAL GRADE. NOTIFY THE ENGINEER, OWNER/DEVELOPER, AND GOVERNING AGENCY IF STRUCTURE IS DEEMED TO BE STRUCTURALLY UNSOUND AND/OR IN NEED OF REPAIR.

STORM SEWER NOTES:

1. ALL STORM SEWER 12" DIAMETER OR LARGER SHALL BE REINFORCED CONCRETE PIPE (RCP C-76) CLASS IV WITH MODIFIED TONGUE AND GROOVE JOINT WITH RUBBER GASKETS UNLESS SPECIFIED OTHERWISE (ASTM C-443).
2. ALL STORM SEWER LEADS SHALL BE CONSTRUCTED AT 1.00% MINIMUM SLOPE.
3. ALL STORM SEWER 10" OR LESS AND/OR LEADS SHALL BE SDR 26.
4. JOINTS FOR P.V.C. PIPE SHALL BE ELASTOMERIC (RUBBER GASKET) AS SPECIFIED IN A.S.T.M. DESIGNATION D-3212.

SANITARY SEWER NOTES:

1. DOWNSPOUTS, WEEP TILE, FOOTING DRAINS OR ANY CONDUIT THAT CARRIES STORM OR GROUND WATER SHALL NOT BE ALLOWED TO DISCHARGE INTO A SANITARY SEWER.
2. ALL SANITARY LEADS SHALL BE CONSTRUCTED AT 1.00% MINIMUM SLOPE.
3. ALL SANITARY SEWER 8" OR LARGER SHALL BE P.V.C. TRUSS PIPE (ASTM D2680) AND FITTINGS, WITH ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
4. ALL SANITARY SEWER LEADS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 23.5 PIPE AND FITTINGS. ALL JOINTS TO BE ELASTOMERIC GASKET JOINTS PER ASTM D3212 UNLESS OTHERWISE NOTED.
5. SANITARY LEADS SHALL BE PROVIDED WITH CLEANOUTS EVERY 100 FEET AND AT EVERY BEND AS SHOWN. ALL CLEANOUTS TO BE PROVIDED WITH E.J.I.W. #1565 BOX OR EQUAL.

CONSTRUCTION MATERIAL SUBMITTALS

UNLESS REQUIRED OTHERWISE IN THE PROJECT SPECIFICATIONS, THE CONTRACTOR SHALL ONLY SUBMIT THE FOLLOWING CONSTRUCTION MATERIAL SUBMITTALS, AS APPLICABLE TO THE PLANS, FOR REVIEW BY THE ENGINEER. UNLESS APPROVED IN ADVANCE AND IN WRITING BY THE ENGINEER, ANY MATERIAL SUBMITTALS PROVIDED TO THE ENGINEER FOR REVIEW IN ADDITION TO THIS LIST SHALL BE RETURNED TO THE CONTRACTOR WITHOUT A REVIEW BEING PERFORMED.

1. SOIL EROSION AND SEDIMENTATION CONTROL MEASURES
2. UTILITY TRENCH BACKFILL MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
3. RIP RAP MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
4. STORM AND SANITARY SEWER PIPING INCLUDING JOINTS
5. STORM AND SANITARY SEWER STRUCTURES
6. STORM AND SANITARY SEWER STRUCTURE FRAME AND COVERS INCLUDING CLEAN OUTS
7. WATER DISTRIBUTION SYSTEM PIPING INCLUDING JOINTS
8. WATER DISTRIBUTION SYSTEM STRUCTURES
9. WATER DISTRIBUTION SYSTEM STRUCTURE FRAME AND COVERS
10. WATER DISTRIBUTION SYSTEM SHUT OFF BOXES
11. WATER DISTRIBUTION SYSTEM FIRE HYDRANTS
12. WATER DISTRIBUTION SYSTEM GATE VALVES
13. STORM WATER MANAGEMENT OUTLET CONTROL STRUCTURES INCLUDING COVERS OR GRATES
14. STORM WATER MANAGEMENT OUTLET SEDIMENTATION BASIN RISERS INCLUDING GRATES
15. STORM WATER MANAGEMENT MECHANICAL PRE-TREATMENT UNITS INCLUDING COVERS
16. STORM WATER MANAGEMENT OIL/GREASE SEPARATORS
17. STORM WATER MANAGEMENT UNDERGROUND DETENTION SYSTEM MATERIAL AND SHOP DRAWINGS DEPICTING THE LAYOUT OF THE SYSTEM
18. PAVEMENT AGGREGATE BASE MATERIAL WITH ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
19. PAVEMENT UNDERDRAIN MATERIAL AND BACKFILL WITH ALL BACKFILL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER
20. PAVEMENT MIX DESIGNS SUBMITTED FOR REVIEW BY THE ENGINEER MUST FOLLOW THE CURRENT MDOT REVIEW CHECKLISTS AS SUMMARIZED BELOW AND ALL MATERIAL DATA INCLUDED IN THE SUBMITTAL BEING DATED WITHIN 60 DAYS OF THE SUBMITTAL UNLESS APPROVED OTHERWISE BY THE ENGINEER:
    - 8.1. CONCRETE MIX DESIGN REVIEW CHECKLIST (FORM 2000)
    - 8.2. SUPERPAVE MIX DESIGN CHECKLIST (FORM 1862)
    - 8.3. MARSHALL MIX DESIGN CHECKLIST (FORM 1849)
21. SITE FENCING AND GATES INCLUDING FOOTINGS
22. SITE RAILINGS INCLUDING FOOTING OR EMBEDMENTS
23. ANY ITEMS SHOWN IN THE PLANS OR DETAIL SHEETS THAT SPECIFICALLY STATE FOR THE CONTRACTOR TO SUBMIT A SHOP DRAWING TO THE ENGINEER FOR REVIEW. THESE ITEMS INCLUDE, BUT ARE NOT LIMITED TO:
    - RETAINING WALL MATERIAL AND STRUCTURAL CALCULATIONS
    - TRENCH DRAIN MATERIAL AND SHOP DRAWING DEPICTING THE LAYOUT OF THE SYSTEM
    - ANY SPECIALITY ITEMS SHOWN IN THE PLANS OR DETAIL SHEETS THAT SPECIFICALLY DO NOT STATE FOR THE CONTRACTOR SHALL SUBMIT A SHOP DRAWING TO THE ENGINEER FOR REVIEW BUT THE CONTRACTOR REQUESTS TO BE REVIEWED. THE CONTRACTOR'S REQUEST FOR REVIEW MUST BE IN WRITING AND APPROVED BY THE ENGINEER PRIOR TO SUBMITTING THE INFORMATION.

PEA GROUP
t: 844.813.2949
www.peagroup.com

NORTH

0 15 30 60
SCALE: 1" = 30'

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CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
8250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

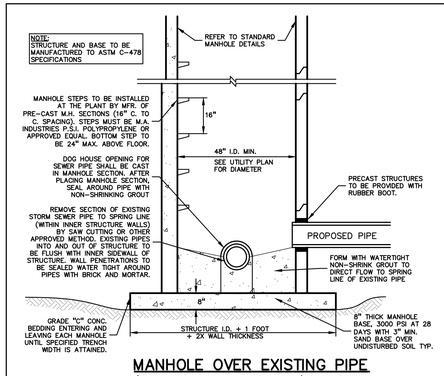
REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
NOTES AND DETAILS

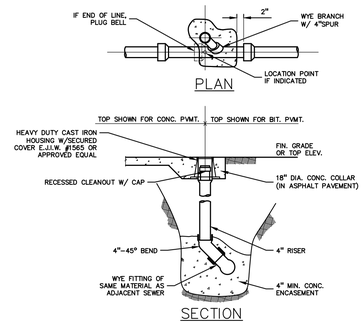
PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-9.0



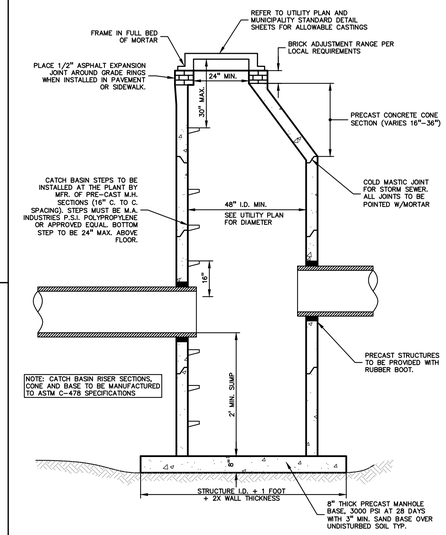
MANHOLE OVER EXISTING PIPE (DOGHOUSE MANHOLE) DETAIL

NOT TO SCALE



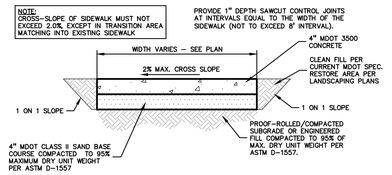
SEWER CLEANOUT

NOT TO SCALE



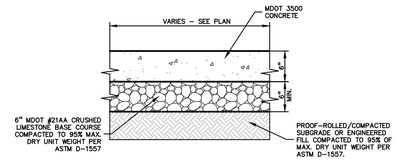
STANDARD CATCH BASIN DETAIL

NOT TO SCALE



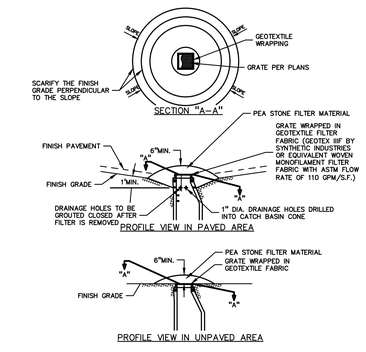
CONCRETE SIDEWALK

NOT TO SCALE



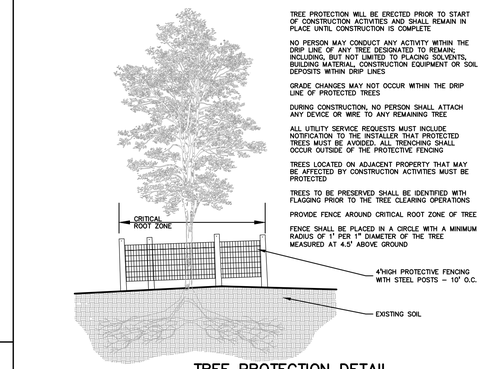
STANDARD DUTY CONCRETE DETAIL

NOT TO SCALE



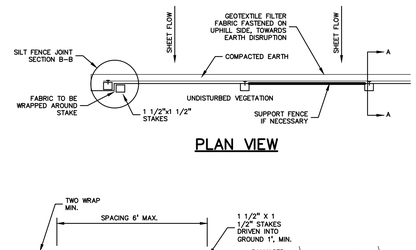
INLET FILTER

NOT TO SCALE

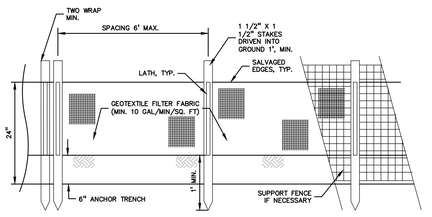


TREE PROTECTION DETAIL

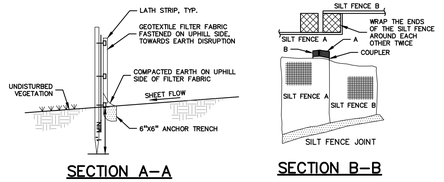
NOT TO SCALE



PLAN VIEW



FRONT VIEW



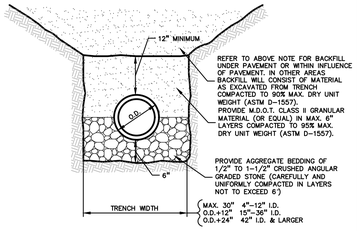
SECTION A–A

SECTION B–B

SILT FENCE DETAIL

NOT TO SCALE

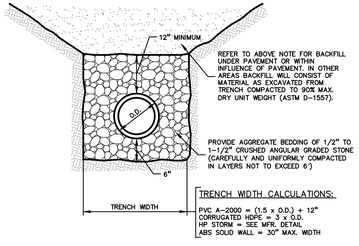
SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 5' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY UNIT WEIGHT (ASTM D-1557)



STANDARD PIPE BEDDING FOR RIGID PIPE

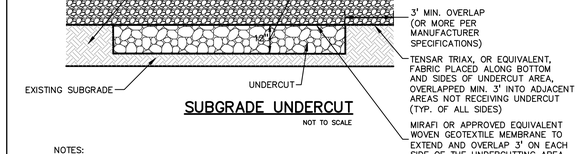
NOT TO SCALE

SAND BACKFILL NOTE:
ALL UTILITIES UNDER PAVEMENT OR WITHIN 5' OF THE EDGE OF PAVEMENT (OR WITHIN THE 45° LINE OF INFLUENCE OF PAVEMENT) SHALL HAVE M.D.O.T. CLASS II GRANULAR BACKFILL COMPACTED TO 95% MAX. DRY UNIT WEIGHT (ASTM D-1557)



STANDARD PIPE BEDDING FOR FLEXIBLE PIPE

NOT TO SCALE



SUBGRADE UNDERCUT

NOT TO SCALE

NOTES:

1. REMOVE SUB-GRADE TO MIN. DEPTH OF 12" AS SHOWN, INSTALL GEO-TEXTILE FABRIC, AND BACKFILL WITH WASHED CRUSHED 1-3" SIZED STONE.
2. THE WORK OF FULL DEPTH UNDERCUT CONSISTS OF THE EXCAVATION AND DISPOSAL OF THE SUB-GRADE TO A DEPTH OF 12", PLACING AND COMPACTING THE REPLACEMENT MATERIALS AND FABRIC AS SHOWN, AND REPLACING THE EXISTING AGGREGATE BASE (IF SUITABLE, AGGREGATE BASE REMOVED TO EXPOSE SUB-GRADE MAY BE RE-USED) AND COMPACTING TO MIN. 98% MAX. DRY DENSITY PER A.S.T.M D-1557.
3. SUB-GRADE UNDERCUTTING SHALL BE PERFORMED IN ACCORDANCE WITH THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION CONSTRUCTION SPECIFICATIONS.
4. THE GEO-TEXTILE FABRIC SHALL BE IN ACCORDANCE WITH THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION, SECTION 910, AND/OR APPLICABLE SPECIAL PROVISIONS.
5. UNLESS OTHERWISE APPROVED BY THE OWNER, ALL CONSTRUCTION MATERIALS SHALL BE PER THE MICHIGAN DEPARTMENT OF TRANSPORTATION QUALIFIED PRODUCTS LIST, AND SHALL BE PROVIDED BY MDOT APPROVED MANUFACTURERS.
6. REFER TO SECTION 205 OF THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION FOR ADDITIONAL REQUIREMENTS, ALONG WITH PROJECT SPECIFICATIONS.
7. IF EXCAVATED AGGREGATE BASE IS UNSUITABLE FOR RE-USE FOLLOWING SUB-GRADE UNDERCUTTING, NEW MATERIAL SHALL MEET THE REQUIREMENTS AND BE INSTALLED IN ACCORDANCE WITH THE 2020 MICHIGAN DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS FOR CONSTRUCTION. NEW AGGREGATE BASE SHALL BE MDOT 21AA OR OTHER SUITABLE AGGREGATE BASE MATERIAL.

PEA GROUP
t: 844.813.2949
www.peagroup.com

STATE OF MICHIGAN
JOSEPH B. WYWROT
ENGINEER
No. 6201046874
LICENSED PROFESSIONAL ENGINEER

NORTH

0 15 30 60
SCALE: 1" = 30'

811 Know what's below. Call before you dig.

CAUTION!!
THE LOCATIONS AND ELEVATIONS OF EXISTING UNDERGROUND UTILITIES AS SHOWN ON THIS DRAWING ARE ONLY APPROXIMATE. NO GUARANTEE IS EXPRESSED OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF. THE CONTRACTOR SHALL BE EXCLUSIVELY RESPONSIBLE FOR DETERMINING THE EXACT UTILITY LOCATIONS AND ELEVATIONS PRIOR TO THE START OF CONSTRUCTION.

CLIENT
THE COLLABORATIVE
ONE SEAGATE, PARK LEVEL 118
TOLEDO, OH 43604

PROJECT TITLE
FREELAND SCHOOLS BUILDING ADDITION
6250 WEBSTER RD
FREELAND, SAGINAW COUNTY, MI

REVISIONS
ISSUED FOR PERMITS & BIDS 12.12.2024

ORIGINAL ISSUE DATE:
OCTOBER 4, 2024

DRAWING TITLE
NOTES AND DETAILS

PEA JOB NO.	24-1779
P.M.	TD
DN.	JG
DES.	JG

DRAWING NUMBER:
C-9.1

STRUCTURAL DESIGN CRITERIA

BUILDING INFORMATION

STRUCTURE: RISK CATEGORY III, TYPE II-B CONSTRUCTION
DESIGNED USING MICHIGAN BUILDING CODE 2015 w/ IBC 2015 & ASCE 7-10 BASIS
LATERAL FORCE RESISTING SYSTEM: ORDINARILY REINFORCED MASONRY SHEAR WALLS

FLOOR LOADS

SLAB ON GRADE LIVE LOAD = 125 psf

ROOF LOADS

ROOF LIVE LOAD = 20 psf (UNREDUCED)
ROOF TOTAL DEAD LOAD = 20 psf *(23 psf FOR SAPFM)*
ROOF MEP-FP = 4 psf
ROOF UNDERHUNG CEILING + COLLATERAL = 7 psf
SPRAY-APPLIED FIRE PROTECTION MAT'L *(WHERE INDICATED)* = +3 psf

SNOW DESIGN

GROUND SNOW LOAD, P_g = 35 psf
ROOF FLAT SNOW LOAD, P_f = 27.0 psf
SNOW IMPORTANCE FACTOR, I_s = 1.1
ROOF EXPOSURE FACTOR, C_e = 1.0
ROOF THERMAL FACTOR, C_t = 1.0
ROOF THERMAL FACTOR, C_t = 1.2 (CANOPIES)
ROOF MIN. SNOW LOAD, P_m = 22.0 psf
DESIGN ROOF SNOW LOAD = 27.0 psf

RAIN DESIGN

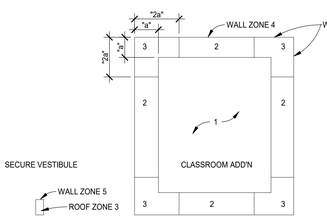
RAIN INTENSITY, i = 12.62 in/hr
STATIC HEAD d_s = 2.00 in
PONDING HEAD d_p = 0.50 in
RAIN LOAD, R = 26.5 psf

WIND DESIGN

ULTIMATE DESIGN WIND SPEED, V_{ult} = 120 mph
GUST FACTOR, G = 0.85
WIND EXPOSURE CATEGORY = C
TOPOGRAPHIC FACTOR, K_{zt} = 1.0
DIRECTIONALITY FACTOR, K_d = 0.85
ELEVATION FACTOR, K_e = 1.0
INTERNAL PRESSURE COEFFICIENT, GC_{pi} = +/- 0.18 (ENCLOSED)
EDGE STRIP, a = 5.2 ft
BASE PRESSURE, q_h = 31.3 psf

SELECTED WIND COMPONENT AND CLADDING LOADS

	A_e	10 sf		50 sf		100 sf	
ROOF		(+)	(-)	(+)	(-)	(+)	(-)
	ZONE 1	16.0	36.9 psf	16.0	34.7 psf	16.0	33.8 psf
	ZONE 2	16.0	62.0 psf	16.0	46.6 psf	16.0	40.1 psf
	ZONE 3	16.0	93.3 psf	16.0	56.0 psf	16.0	40.1 psf
	OVERHANG ZONE 1 & 2	- -	53.2 psf	- -	51.0 psf	- -	50.1 psf
	OVERHANG ZONE 3	- -	87.6 psf	- -	43.8 psf	- -	25.0 psf
WALLS		(+)	(-)	(+)	(-)	(+)	(-)
	ZONE 4	33.8	36.6 psf	30.3	33.1 psf	28.8	31.6 psf
	ZONE 5	33.8	45.1 psf	30.3	38.1 psf	28.8	35.1 psf



NOTE: NEW SECURE VESTIBULE, CONSIDER ALL WALLS ZONE 5 AND ALL ROOF ZONE 3 CORNER

SEISMIC DESIGN

RISK CATEGORY = III
SEISMIC IMPORTANCE FACTOR, I_e = 1.25
S_s = 0.063g S_{DS} = 0.067g
S_1 = 0.039g S_{D1} = 0.062g
SITE CLASS = D (ASSUMED)
SEISMIC DESIGN CATEGORY = A
LATERAL FORCE RESISTING SYSTEM:
ORDINARY REINFORCED MASONRY BEARING & SHEAR WALLS

RESPONSE COEFFICIENT, C_s = 0.042
RESPONSE MODIFICATION FACTOR, R = 2.0
OVERSTRENGTH, Ω_o = 2.0
DEFLECTION AMPLIFICATION, C_d = 1.75
ANALYSIS PROCEDURE:
EQUIVALENT LATERAL FORCE

BASE SHEAR, V = 27.9k
STORY DRIFT = 0.007 h_{sx} = 1.1"

VERTICAL IRREGULARITY: NONE PRESENT
HORIZONTAL IRREGULARITY: NONE PRESENT

GENERAL CONDITIONS

1. THE CONTRACTOR SHALL EXAMINE THE STRUCTURAL DRAWINGS AND SHALL NOTIFY THE STRUCTURAL ENGINEER IN WRITING OF ANY DISCREPANCIES FOUND BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND SITE CONDITIONS BEFORE STARTING WORK. ALL OMISSIONS OR CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE WORKING DRAWINGS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT AND THE STRUCTURAL ENGINEER BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
2. WORKING DIMENSIONS SHOULD NOT BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THESE DRAWINGS.
3. REFER TO THE ARCHITECTURAL DRAWINGS FOR INFORMATION NOT COVERED BY THESE GENERAL NOTES OR THE STRUCTURAL DRAWINGS.
4. PIPES, DUCTS, SLEEVES, OPENINGS, POCKETS, CHASES, BLOCK-OUTS, ETC., CAN NOT BE PLACED IN SLABS, FOUNDATIONS, ETC., AND NO STRUCTURAL MEMBER CAN BE CUT FOR SUCH ITEMS, UNLESS SPECIFICALLY DETAILED ON THESE STRUCTURAL DRAWINGS.
5. WHILE EVERY ATTEMPT HAS BEEN MADE TO COORDINATE BETWEEN ALL DISCIPLINES, THE CONTRACTOR ULTIMATELY MUST REVIEW AND COORDINATE BETWEEN TRADES REGARDING OPENINGS AND CLASHES ON THIS CONSTRUCTION PROJECT. DO NOT ASSUME THE DOCUMENTS ARE CLASH-FREE AND SHOW EVERY OPENING, PENETRATION, AND/OR CONDITION.

SAFETY

1. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE WHEN COMPLETED. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE PROCEDURES FOR ERECTION AND CONSTRUCTION SEQUENCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE SAFETY OF THE BUILDING AND ITS OCCUPANTS THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE ADEQUATE SHORING OR BRACING DURING CONSTRUCTION TO RESIST FORCES SUCH AS WIND AND UNBALANCED LOADING DUE TO CONSTRUCTION.

DEFERRED STRUCTURAL SUBMITTALS

1. THE FOLLOWING STRUCTURAL SYSTEMS ARE DEFINED AS VENDOR DESIGNED COMPONENTS PER THE STRUCTURAL DOCUMENTS. THE CONTRACTOR WILL BE REQUIRED TO SUBMIT THE COMPONENT SYSTEM DOCUMENTS. ENGINEER WILL REVIEW AND APPROVE ALL SUBMITTALS PRIOR TO FABRICATION.
2. THE FOLLOWING LIST INCLUDES THE ITEMS THAT ARE DEFINED AS DEFERRED STRUCTURAL SUBMITTAL COMPONENTS ONLY.
3. DEFERRED STRUCTURAL SUBMITTAL COMPONENTS TO BE SUPPLIED BY CONTRACTOR:

   STEEL JOISTS
   CURTAIN WALL OR STOREFRONT SYSTEMS
   COLD-FORMED METAL FRAMING (CFMF) NON-STRUCTURAL INTERIOR WALLS

FOUNDATION

1. STRUCTURAL DESIGN COMPLIES WITH THE BEARING CAPACITY AND LATERAL PRESSURE CAPACITIES LISTED IN THE GEOTECHNICAL REPORT FROM PEA GROUP, 1849 POND RUN, AUBURN HILLS, MI 48326, REPORT NUMBER 24-1779 DATED DECEMBER 6, 2024.

   ALLOWABLE SHALLOW SOIL BEARING PRESSURE = 3000 psf
   SUBGRADE MODULUS OF REACTION = 130 pci
   FROST DEPTH = 42" BELOW GRADE MIN.
2. GROUNDWATER ELEVATION IS EXPECTED BETWEEN 3.5' AND 13.5 BELOW CURRENT GRADE. CONTRACTOR SHALL REPORT EXCAVATION STANDING WATER TO THE ENGINEER. IT IS LIKELY SHALLOW ENCOUNTERED GROUNDWATER IS PERCHED.
3. SUBGRADE PREPARATION, DRAINAGE PROVISIONS, AND OTHER RELEVANT SOIL CONSIDERATIONS ARE TO BE IN ACCORDANCE WITH GEOTECHNICAL INSPECTOR DIRECTION AND IN ACCORDANCE w/ GEOTECHNICAL REPORT SECTION "SITE PREPARATION" PAGES 3-6.
4. A GEOTECHNICAL ENGINEER SHOULD BE RETAINED TO PROVIDE OBSERVATION AND TESTING SERVICES DURING FOUNDATION SOILS EXCAVATION, BACKFILL, GRADING, COMPACTION AND SUBGRADE PREPARATIONS. THE GEOTECHNICAL INSPECTION SHALL COMPLY WITH THE SPECIAL INSPECTIONS NOTE ELSEWHERE IN THESE DOCUMENTS. DO NOT COMMENCE CONSTRUCTION OF FOUNDATIONS UNTIL SITE IS IN CONFORMANCE.
5. FILL UNDER BUILDING SLABS SHALL BE MADE WITH CRUSHED STONE COMPACTED TO NOT LESS THAN 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY ASTM D1557 UNLESS NOTED OTHERWISE.
6. THE STABILITY AND POSITION OF WALLS SHALL BE MAINTAINED DURING BACKFILLING BY BRACING OF THE WALL OR PLACEMENT OF THE FILL SHALL BE SUCH THAT THE HEIGHT OF FILL ON EACH SIDE OF THE WALL IS APPROXIMATELY EQUAL.
7. FOUNDATION ELEMENTS BEARING ON SHALLOW FOUNDATIONS SHALL BEAR ON SUBGRADE WITH A MINIMUM BEARING PRESSURE AS SHOWN ABOVE AND SHALL BE TESTED TO ENSURE THIS BEARING PRESSURE IS MET. THESE EXISTING SOILS SHALL BE PREPARED OR UNDERCUT & FILLED FOLLOWING THE GEOTECHNICAL INSPECTOR'S AND REPORT RECOMMENDATIONS.

CONCRETE

1. CONCRETE SHALL CONFORM TO THE INDICATED REFERENCE CODES AND STANDARDS EXCEPT AS MODIFIED BELOW:

   ACI-301 - "STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE"
   ACI-318 - "BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE"
   ACI-305R - "HOT WEATHER CONCRETING"
   ACI-306R - "COLD WEATHER CONCRETING"
   ACI-304 - "GUIDE FOR MEASURING, MIXING, TRANSPORTING AND PLACING CONCRETE"
2. CONCRETE MIX SPECIFICATIONS:

   MIX CATEGORIES:

   -SLAB ON GRADE: 4000 psi w/ 0.45 w/c RATIO TARGET; NO AIR; MAX. AGGREGATE: 1", GGBFS OR FLY ASH IS ACCEPTABLE UP TO 20% OF CEMENT WEIGHT. EXPOSURES: F1, C0, W0, S0

   -FOUNDATIONS: 4500 psi w/ 0.45 w/c RATIO TARGET; 6% AIR; MAX. AGGREGATE: 1.5", GGBFS OR FLY ASH IS ACCEPTABLE UP TO 25% OF CEMENT WEIGHT. EXPOSURES: F2, C1, W1, S0
3. TOTAL AIR CONTENT IS SPECIFIED IN THE TABLE ABOVE. AIR CONTENT TOLERANCE SHALL BE +/- 1-1/2 % AND SHALL BE MEASURED AT THE POINT OF PLACEMENT.
4. MUD-MAT OR FLOWABLE FILL SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AT 7-DAYS OF 1500 psi.
5. THE CONCRETE MIX SUBMITTAL SHALL INCLUDE THE AMOUNTS OF CEMENT, FINE AND COARSE AGGREGATE, WATER AND ADMIXTURES AS WELL AS THE WATER CEMENT RATIO, TARGET SLUMP, CONCRETE YIELD AND SUBSTANTIATING STRENGTH DATA.
6. ACCELERATED SET, OR HIGH EARLY STRENGTH MAY BE ACHIEVED BY USING APPROVED ADMIXTURES. ALL ADMIXTURES SHALL BE CHLORIDE FREE.
7. CURING: REFERENCE ACI 308 - STANDARD PRACTICE FOR CURING CONCRETE AND ACI 301 - STANDARD SPECIFICATIONS FOR STRUCTURAL CONCRETE.
   A. CURING COMPOUNDS SHALL BE COMPATIBLE WITH FUTURE FLOOR FINISHES. SLABS TO RECEIVE SUBSEQUENT FLOORING MATERIALS SHALL RECEIVE AN APPROVED DISSIPATING SEALER. BASIS OF DESIGN IS EUCLID CHEMICAL DR. VOX.
8. NON-SHRINK, NON-METALLIC GROUT SHALL BE CEMENT BASED AND HAVE A MINIMUM COMPRESSIVE STRENGTH OF f'_c = 8,500 psi AT 28 DAYS WHEN TESTED IN ACCORDANCE WITH ASTM C109M. GROUT BASIS OF DESIGN IS EUCLID CHEMICAL "NS GROUT" OR APPROVED EQUAL.
9. PROVIDE CONTROL JOINTS IN SLABS ON GRADE AS ANNOTATED ON THE FOUNDATION PLAN DRAWINGS. LOCATE CONTROL JOINTS AT COLUMN CENTER LINES OR AS INDICATED ON THE DRAWINGS. SAW CUT JOINTS TO 1/3 SLAB DEPTH.
10. FLOOR FLATNESS & LEVELNESS: F_F = 35 / F_L = 25

REINFORCING STEEL

1. DESIGN, DETAIL, FABRICATE, AND ERECT REINFORCING STEEL ACCORDING TO THE LATEST ACI AND CRSI SPECIFICATION, REFERENCE STANDARDS: *ACI "DETAILING MANUAL" (SP-66); CRSI MANUAL OF STANDARD PRACTICE (MSP-1)*.
2. DO NOT WELD REBAR UNLESS OTHERWISE APPROVED BY ENGINEER
3. EPOXY-COATED OR STAINLESS REBAR IS NOT PERMITTED
4. REINFORCING STEEL: ASTM A706 / A615, GRADE 60 (60 ksi), TYPICAL
5. STANDARD CONCRETE COVER REQUIREMENTS, UNLESS OTHERWISE NOTED:
   EARTH CAST:
      FOOTINGS: 3"
      SLABS: 2"
   FORM CAST:
      #5 BARS & SMALLER, EXPOSED FACE: 1.5"
      LARGER THAN #5 BARS, EXPOSED FACE: 2"
      SLABS & WALLS, INTERIOR FACE: 0.75"
      BEAMS & COLUMNS, INTERIOR FACE: 1.5"
   EXPOSED SURFACES
      COLUMNS (CLEAR TO TIES, HOOPS, OR SPIRALS): 1.5"
      COLUMNS (CLEAR TO PRIMARY REINF.): 2"
      COLUMNS & WALLS: 0.75"
      SLABS, INTERIOR: 0.75"
      SLABS, EXTERIOR: 1"
   CONCRETE IN CONTACT WITH OR OVER WATER: 2" MIN.
   CAISSONS / DRILLED SHAFTS: 4" (TO VERT. REINF.)
6. REINFORCING LAP SPLICES IN CONCRETE SHALL CONFORM WITH ACI 318-19 (22) SECTIONS 25.4.2 AND 25.5. ALL SPLICES SHALL BE CLASS A SPLICES.
7. REINFORCING TENSION DEVELOPMENT LENGTHS SHALL CONFIRM WITH ACI 318-19 (22) SECTION 25.4.2.4a

STRUCTURAL STEEL JOISTS & JOIST GIRDERS

1. OPEN WEB STEEL JOISTS (INCLUDING BRIDGING) SHALL CONFORM TO THE *SPECIFICATIONS OF THE STEEL JOIST INSTITUTE (SJI), LATEST EDITION*, FOR ALL JOISTS AND JOIST GIRDERS SERIES DESIGNATED ON THE PLANS.
2. PROVIDE STANDARD BRIDGING, BOTTOM CHORD BRACES, AND WALL ANCHORS FOR ALL JOISTS AND JOIST GIRDERS ACCORDING TO SJI SPECIFICATIONS. THE ENDS OF BRIDGING ROWS SHALL BE FIELD WELDED TO STRUCTURAL STEEL MEMBERS OR PIECES EMBEDDED IN CONCRETE UNLESS DETAILED OTHERWISE.
3. EXTEND THE BOTTOM CHORDS OF ALL JOIST AND JOIST GIRDERS AT COLUMNS. IF WELDING IS SPECIFIED, DO NOT WELD UNTIL ALL DEAD LOADS ARE APPLIED.
4. PROVIDE BEARING PLATES FOR ALL JOISTS AND JOIST GIRDERS BEARING ON CONCRETE.
   A. PROVIDE DEEP BEARING AND SLOPED BEARING WHERE CALLED OUT FOR ON DRWAINGS OR WHERE REASONABLY IMPLIED BY THE DETAILS.
5. DESIGN ROOF JOISTS FOR A NET UPLIFT LOAD SHOWN ON THE PLANS.
6. PROVIDE ADDITIONAL BOTTOM CHORD BRIDGING AND BOTTOM CHORD BRACES AT JOISTS AND JOIST GIRDERS AS REQUIRED TO BRACE AGAINST STRESSES IMPARTED FROM NET UPLIFT FORCES.
7. JOISTS AND JOIST GIRDERS NOTED ON PLANS AS SPECIAL "SP" SHALL BE DESIGNED FOR CONCENTRATED LOADS AND DRIFT LOADS INDICATED, SUPERIMPOSED WITH THE UNIFORM LOADS SHOWN.
8. JOISTS TO RECEIVE SPRAY-APPLIED FIRE PROOFING MATERIALS SHALL NOT BE PRIMED OR PAINTED.
9. UNLESS NOTED, STANDARD JOIST CALLOUTS w/o "SP" MARK OR "TL/LL" MARK ARE BASED ON THE STANDARD SJI LOAD TABLES.
10. PRIOR TO FABRICATION, DESIGN CALCULATIONS AND SHOP DRAWINGS FOR ALL COMPONENTS OF THIS SYSTEM SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. DRAWINGS AND CALCULATIONS SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF THE PROJECT.
11. OVERALL GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING BETWEEN THE STEEL FABRICATOR, THE JOIST SUPPLIER, PRECAST MFR., AND FIRE PROTECTION INSTALLER. THIS JOB HAS ESFR SPRINKLER HEADS WHICH MUST MAINTAIN A MINIMUM CLEARANCE FROM JOIST BRIDGING. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL BRIDGING LOCATIONS, AND PROVIDING BRIDGING DRAWINGS TO THE FIRE PROTECTION CONTRACTOR INSTALLER FOR FINAL COORDINATION. AS THE FIRE PROTECTION SYSTEM IS A DELEGATED DESIGN, THE ENGINEER/ARCHITECT DOES NOT RETAIN RESPONSIBILITY FOR COORDINATING BETWEEN THESE ELEMENTS.

POST-INSTALLED EPOXY ADHESIVES ANCHORS & MECHANICAL ANCHORS

1. ANCHORS SHOWN IN DETAILS AND SCHEDULES CONSTITUTE A BASIS OF DESIGN ANCHOR.
2. CONTRACTOR MAY SUBMIT ALTERNATIVE ANCHOR MANUFACTURERS THROUGH SHOP DRAWINGS. PROVIDE AN ICC REPORT VALIDATING THE PROPOSED ANCHOR PERFORMANCE IS EQUAL TO THE BASIS OF DESIGN ANCHOR.
3. CONTRACTOR SHALL INSTALL ALL POST-INSTALLED EPOXY AND MECHANICAL ANCHORS PER ALL MANUFACTURER INSTRUCTIONS, WITH ATTENTION TO TEMPERATURE AND HOLE PREPARATION REQUIREMENTS.
4. CONTRACTOR MAY NOT DEVIATE FROM THE ANCHOR DIAMETER, EMBEDMENT, EDGE DISTANCE AND SPACING CRITERIA NOTED ON THE DETAILS. IF NOT NOTED, PROVIDE THE MOST RESTRICTIVE SPACING AND EDGE DISTANCE DIMENSIONS THAT ALLOW FOR NO REDUCTION IN ANCHOR STRENGTH. ANY DEVIATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL.
5. NOTIFY THE ENGINEER IMMEDIATELY IF CONDITIONS ENCOUNTERED DIFFER FROM THE EXPECTED CONDITIONS. FOR EXAMPLE, IF THE MASONRY CELL IS HOLLOW INSTEAD OF GROUTED.

CONCRETE MASONRY

1. CEMENT FOR MORTAR AND GROUT SHALL BE TYPE 1 PORTLAND CEMENT CONFORMING TO ASTM C150; MORTAR AGGREGATE PER ASTM C144; GROUT PER ASTM C404; HYDRATED LIME PER ASTM C207; QUICK LIME PER ASTM C5; WATER WILL BE CLEAN AND POTABLE.
2. NEW CMU WALL DESIGN TARGET f'_m = 2000 psi
3. CONCRETE MASONRY UNITS SHALL BE TYPE 1, NORMAL WEIGHT AND HAVE A MIN. NET AREA COMPRESSIVE STRENGTH f'_{cmu} = 3250 psi IN ACCORDANCE WITH ASTM C90.
4. MORTAR SHALL BE MASONRY-CEMENT, TYPE S, UNIFORMLY MIXED, IN ACCORDANCE WITH ASTM C91. AVERAGE COMPRESSIVE STRENGTH OF MORTAR (28-DAY) IS 1800 psi. THE MAXIMUM AIR CONTENT SHALL BE 19%.
5. GROUT FOR SHOULD CONFORM TO ASTM C476. MINIMUM COMPRESSIVE STRENGTH f'_g = 2000 psi (28-DAY) IS REQUIRED. FINE GROUT OR COARSE GROUT SHALL BE SELECTED BASED ON MINIMUM GROUT SPACING REQUIREMENTS OF ACI 530.1. MAX AGGREGATE SIZE IS 3/8" FOR COARSE GROUT. ADMIXTURES MAY BE ADDED TO ACHIEVE THE DESIRED SLUMP OR WORKABILITY.
6. ALL CELLS CONTAINING REINFORCING OR EMBEDDED ITEMS AND ALL CELLS BELOW GRADE SHALL BE SOLID GROUTED. GROUT LIFTS SHALL BE LESS THAN 5'-0".
7. ALL UNITS TO BE CONSTRUCTED UP IN RUNNING BOND. THICKNESS OF BED AND HEAD JOINTS SHALL NOT EXCEED 5/8".
8. ALL EXTERIOR EXPOSED CMU SHALL HAVE INTRINSIC WATERPROOFING ADMIXTURE ADDED TO CONCRETE MASONRY CASTING MIX. SUBMIT DATA SHEET TO A/E FOR REVIEW.
9. ALL WALLS HAVE LADDER MASONRY WALL REINFORCEMENT IN EVERY OTHER HORIZONTAL JOINT (16" C/C) AND IN EACH JOINT (8" C/C) FOR TWO JOINTS ABOVE & BELOW OPENINGS. REINFORCEMENT SHALL BE CONTINUOUS WITH 6" MIN. LAPS. REINFORCEMENT AT OPENINGS SHALL EXTEND 2'-0" BEYOND EACH SIDE OF THE OPENING. CAVITY WALLS SHALL HAVE ONE ROD FOR EACH BED JOINT. MIN. LADDER WIRE SIZE IS W1.7 (9 ga) GALVANIZED.
10. **MASONRY WALLS ON THESE DOCUMENTS ARE NOT DESIGNED AS FREE-END CANTILEVER** OR RETAINING WALL ELEMENTS. WALLS SHALL BE EQUALLY BACKFILLED BOTH SIDES. DO NOT ATTEMPT TO UNEQUALLY BACKFILL WALLS. DO NOT OPERATE HEAVY EQUIPMENT IN THE VICINITY OF THESE SUB-SURFACE MASONRY WALLS. WALLS ABOVE GRADE MUST BE BRACED DURING CONSTRUCTION FOR WIND LOADS WHILE UNDER CONSTRUCTION.
11. MASONRY DEVELOPMENT OR EMBED LENGTHS (inches)

REBAR	CENTERED SPLICE / DEVELOP.	OFFSET DEVELOP.	HOOK EMBED
#3	12"	19"	4.8"
#4	15"	34"	6.5"
#5	23"	45"	8.1"
#6	43"	54"	9.7"
#7	60"	63"	11.3"

LIGHT-GAUGE METAL FRAMING (COLD-FORMED STEEL)

1. LIGHT GAUGE FRAMING SHALL BE DESIGNED, FABRICATED, AND ERECTED IN ACCORDANCE WITH THE LATEST AISI *"SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS"*.
2. COLD FORMED STEEL STUDS ON THIS PROJECT ARE NON-STRUCTURAL IN NATURE AND ARE REQUIRED TO HAVE A DELEGATED DESIGN. PROVIDE STUD SIZES AS NOTED ON THE ARCHITECTURAL AND STRUCTURAL PLANS. SHOP DRAWINGS SHALL BE SUBMITTED TO THE A/E FOR REVIEW.
3. MATERIALS SHALL MEET ASTM A446 AND A525 REQUIREMENTS FOR ZINC COATED SHEET STEEL. ALL COLD FORMED STUDS USED IN EXTERIOR CURTAINWALL AND SHEARWALL APPLICATIONS SHALL BE MIN. 50 ksi (F_y=50 ksi) STRENGTH.
4. ALL WELDING SHALL BE IN ACCORDANCE WITH AWS "CODE FOR WELDING IN BUILDING CONSTRUCTION, D1.0" AND ANSI Z49.1. IF WELDING IS USED, APPLY A REPLACEMENT ZINC-RICH PAINT.
5. MINIMUM WELD THICKNESS (t) MUST MATCH OR EXCEED BASE STEEL THICKNESS OF THE THINNEST CONNECTED PART UNLESS NOTED OTHERWISE.
6. COLD-FORMED LIGHT GAUGE STEEL FRAMING MEMBERS SHALL INCLUDE "C"-SHAPED AND ANGLES, STRUCTURAL STEEL STUDS, JOIST, AND RUNNER TRACK.
7. PROVIDE WALL BRACING, JOIST BRIDGING, WEB STIFFENERS, AND OTHER ACCESSORIES PER MANUFACTURERS' SPECIFICATIONS AND REQUIREMENTS. WALL STUDS SHOULD BE BRACED TO PREVENT ROTATION OF FLANGES AT 4' MAX. JOISTS SHALL BE BRACED AGAINST ROTATION AT 5' MAX. BASIS OF DESIGN FOR KNOCK OUT BRACING BTW. STUDS IS "CLARK DIETRICH TRADEREADY SPAZZER 5400 BRIDGING/SPACER". STUD TO BRACE SHALL BE EITHER "CLARK DIETRICH S545 w/ (2) #10-16 SCREWS TO STUD & TO SPAZZER" OR "CLARK DIETRICH SPAZZER 5400 GUARD w/ (2) #10-16 SCREWS"
8. USE A MIN. OF (3) STUDS AT CORNERS OF ALL EXTERIOR WALLS AND (3) STUDS AT INTERSECTIONS OF ALL LOAD BEARING WALLS (INTERIOR AND EXTERIOR).
9. HEADERS AND BEAMS SHALL BE CONSTRUCTED OF UNPUNCHED MATERIALS.
10. MAXIMUM GAP BETWEEN WEB OF STUDS AND WEB OF TRACK FOR A SEATED STUD IS 1/8" FOR ALL STRUCTURAL WALLS. PRESSURE SHOULD BE APPLIED TO NEST STUDS INTO TRACKS.
11. HEADERS SHALL BE LOCATED AT THE TOP OF THE WALL OR AT BEARING OF STRUCTURE ABOVE WITH "FALSEWORK" DOWN TO FORM OPENING. VOIDS WITHIN HEADERS IN INSULATED WALLS SHALL BE FILLED w/ INSULATION.
12. JAMB STUDS (JACK STUDS) SHALL BE ATTACHED TO KING (FULL HEIGHT) STUDS w/ (1) #10 SCREW @ 8" O.C., CENTERED ON STUD.
13. SILL TRACK ASSEMBLY SHALL BE ANCHORED TO JAMB STUDS w/ LIGHT GAUGE CLIP ANGLE, BASIS OF DESIGN IS "CLARK DIETRICH S545 w/ (2) #10-16 SCREWS PER LEG"
14. SHEATHING MATERIALS SHALL BE FASTENED TO STUD WALLS IN COMPLIANCE w/ PLANS.
15. INSTALLER SHALL NOTE ALL WALL LOUVERS & DUCT PENETRATIONS AND PROVIDE BOX HEADERS, JACK STUDS, AND APPROPRIATE METHODS FOR SUCH LOCATIONS.
16. SCREWS ARE AS INDICATED ON DETAILS OR DRAWINGS, PROVIDED TO FOLLOWING:
    A. CFS TO CFS: #10-16 x 5/8" PAN HEAD, BUILDEX "TEKS" OR GRABBER SELF-DRILL
    B. CFS TO CFS: #12-24 x 1-1/4" HEX HEAD, #5 TIP, BUILDEX "TEKS" OR HILTI KWIK-PRO
    C. CFS TO CONCRETE: 0.157" DIA. PAF (POWDER ACTUATED FASTENER), HILTI X-U
17. ALL SCREWS REQUIRE 1/2" MINIMUM CLEARANCE TO EDGES OF MEMBERS AND 1/2" MINIMUM CLEARANCE BETWEEN SCREWS.

STRUCTURAL AND MISCELLANEOUS STEEL

1. FABRICATION AND ERECTION OF STEEL SHALL BE IN ACCORDANCE WITH THE FOLLOWING AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) STANDARDS AND SPECIFICATIONS:
   A. *MANUAL OF STEEL CONSTRUCTION, 14th EDITION (ASD)*
   B. *CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES, LATEST EDITION*
   C. *SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS*.
2. STEEL SHALL CONFORM TO THE FOLLOWING STANDARDS:

BEAM WIDE FLANGE & CHANNELS:	ASTM A992 (Min. F_y = 50 ksi)
HSS RECT. & SQUARE TUBE:	ASTM A500, GRADE C (F_y = 50 ksi)
HSS ROUND:	ASTM A500, GRADE C (F_y = 50 ksi)
PIPE:	ASTM A53, GRADE B (F_y = 35 ksi)
GUSSET PLATES:	ASTM A36 (F_y = 36 ksi)
ALL OTHER STEEL:	ASTM A36 (F_y = 36 ksi)
COMMON BOLTS:	ASTM A325
ANCHOR RODS:	ASTM F1554 (GRADE 36, PER DETAIL) THREADED ROD w/ NUT

ANCHOR ROD WASHER DIAMETERS REQUIRED:

3/4" ROD =	2" DIA. WASHER / 1/4" THK.
1" ROD =	3" DIA. WASHER / 3/8" THK.
1.25" ROD =	3" DIA. WASHER / 1/2" THK.

3. ALL BOLTS SHALL BE SNUG-TIGHT
4. ALL COLUMNS SHALL HAVE A NON-SHRINK GROUT AND 1/4" LEVELING PLATE(S) AND/OR NUTS BETWEEN THE BASE PLATE AND CONCRETE.

STRUCTURAL STEEL WELDING

1. CONFORM TO THE AWS CODES D1.1 AND D1.3, AND USE ONLY CERTIFIED WELDERS. INCREASE WELD SIZE TO AWS MINIMUM SIZES, BASED ON PLATE THICKNESS. USE DRY E70xx ELECTRODES. SEISMIC LATERAL FORCE RESISTING SYSTEM MARKS: "SFRS" CONFORM TO AWS D1.8
2. ALL WELDING SHALL MEET APPLICABLE PRE-HEAT REQUIREMENTS
3. ANY SPECIFIED FIELD CJP WELDS FOR MEMBER SPLICES SHALL BE TESTED w/ NDT.

STRUCTURAL STEEL DECK

1. DECK SHALL ADHERE TO THE FOLLOWING CODES & STANDARDS:
   A. AISI "SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS"
   B. AWS D1.3 "SPECIFICATIONS FOR WELDING STEEL IN STRUCTURES"
2. STEEL DECK SHALL COMPLY WITH ASTM A446, GRADE A, ZINC-COATED PER ASTM A525, G60 w/ MANUFACTURER'S STANDARD GREY PRIMER FINISH ON BOTTOM SIDE.
3. STEEL DECK TO RECEIVE SPRAY-APPLIED FIRE PROOFING MATERIALS SHALL NOT BE PRIMED OR PAINTED.
4. ALL STEEL DECK SPECIFIED ON THIS PROJECT SHALL BE GRADE 50 (50 ksi) YIELD STRENGTH OR GREATER.
5. PROVIDE STANDARD DECK MANUFACTURER ACCESSORIES SUCH AS VALLEYS, SUMP PANS, RIDGES, FILLERS, CLOSURES, ETC., AS REQUIRED. DECK EDGE ANGLES OR BENT PLATES NOT SPECIFIED OR SHOWN SHALL BE PROVIDED BASED ON THE FABRICATOR'S PREFERENCE FOR THE ASSEMBLY THICKNESS NOTED.
6. DECK EDGE ANGLES ON THE PERIMETER OF THE BUILDING SHALL BE GALVANIZED IF EXPOSED TO THE EXTERIOR.
7. ALL DECK POSITIONING SHALL HAVE A MINIMUM OF 2" BEARING ON SUPPORTING MEMBERS.
8. PLACE UNITS END-TO-END WITH LAP (NOT BUTTED) BEFORE PERMANENTLY FASTENING.
9. ALL DECK SHALL BE IN A 3-SPAN CONDITION. DECK SUPPLIER & DETAILER SHALL CALL TO THE ATTENTION OF THE ENGINEER ANY 1 OR 2 SPAN DECK CONDITIONS ON THE SHOP DRAWINGS SUBMITTAL.
10. SUPPORTS PARALLEL TO RIBS AND EDGEMOST PANELS OF THE DIAPHRAGM PERIMETER: SECURE TO SUPPORTING MEMBERS WITH FASTENERS AND SPACING MATCHING OR BETTER THAN THE CONNECTIONS AT THE SUPPORTS PERPENDICULAR TO THE RIBS UNLESS OTHERWISE NOTED.

SPECIAL INSPECTIONS

1. SPECIAL INSPECTIONS LISTED BELOW SHOULD COMPLY WITH THE APPLICABLE LISTED STANDARDS. SPECIFIC INSPECTION REQUIREMENTS ARE NOT NOTED HERE FOR PURPOSES OF BREVITY. THE OWNER AND/OR CONTRACTOR SHALL PROVIDE FOR SPECIAL INSPECTIONS AS INDICATED BELOW.
2. AT THE COMPLETION OF CONSTRUCTION, THE CONTRACTOR AND/OR OWNER OR THEIR REPRESENTATIVE WILL PROVIDE A STATEMENT OF CONFORMANCE TO THE ENGINEER FOR REVIEW, CONCURRENCE, AND SUBMITTAL TO THE AUTHORITY HAVING JURISDICTION FOR THE RECORD.
3. SPECIAL INSPECTIONS REQUIRED:
   A. STEEL SPECIAL INSPECTIONS PER 1705.2: **REQUIRED (JOISTS)**
   B. CONCRETE SPECIAL INSPECTIONS PER 1705.3: **REQUIRED**
   C. MASONRY SPECIAL INSPECTIONS PER 1705.4: **REQUIRED, LEVEL 2 QA/QC**
   D. WOOD SPECIAL INSPECTIONS PER 1705.5: NOT APPLICABLE
   E. SOIL SPECIAL INSPECTIONS PER 1705.6: **REQUIRED**
   F. DEEP DRIVEN FOUNDATION SPECIAL INSPECTIONS PER 1705.7: NOT APPLICABLE
   G. SPECIAL INSPECTIONS FOR WIND RESISTANCE: NOT REQUIRED
   H. SPECIAL INSPECTIONS FOR SEISMIC RESISTANCE: NOT REQUIRED
4. SPECIAL INSPECTIONS TO COMPLY WITH THE FOLLOWING:
   A. STEEL
      a. STEEL: AISC 360-16
      b. COLD-FORMED STEEL DECK: SDI QA/QC
      c. COLD-FORMED STEEL TRUSSES: 1705.2.4 VISUAL INSPECTIONS
      d. OPEN WEB STEEL JOISTS AND JOIST GIRDERS: TABLE 1705.2.3
   B. CONCRETE: TABLE 1705.3 AND ACI 318
      a. ITEM 3 ANCHORS - PERIODIC
      b. ITEM 4 POST-INSTALLED ANCHORS - CONTINUOUS
      c. ITEM 5 MIXES - PERIODIC
      d. ITEM 6 BATCH TESTING - CONTINUOUS
      e. ITEM 7 PLACEMENT - CONTINUOUS
      f. ITEM 8 CURING - PERIODIC
   C. MASONRY: TMS 402/602 TABLE 3 & TABLE 4
   D. SOIL: TABLE 1705.6
      a. ITEM 1 SOIL ADEQUACY - PERIODIC
      b. ITEM 2 EXCAVATION EXTENTS - PERIODIC
      c. ITEM 3 CLASS & COMPACTION - PERIODIC
      d. ITEM 4 MAT'L & THICKNESS TESTING - CONTINUOUS
      e. ITEM 5 SUBGRADE PREP - PERIODIC
   E. DEEP DRIVEN FOUNDATIONS: TABLE 1705.7

THE
COL
LAB
ORAT
IVE

ANDREW
BROCK
ENGINEER
structural &
civil engineering

ANDREW M. BROCK
ENGINEER
No. 6201069379
12/11/2024

KEY PLAN
N.T.S.

PROJECT TITLE
Freeland Schools

Middle School Addition

8250 Webster Road
Freeland, Michigan 48623

12.11.2024	PERMIT / BIDS

TC JOB NO. 107270
OWNER JOB NO.
AMB ENG. JOB NO. 20240060

SHEET TITLE
STRUCTURAL NOTES & SPECIAL INSPECTIONS

SHEET NO.
S0.01

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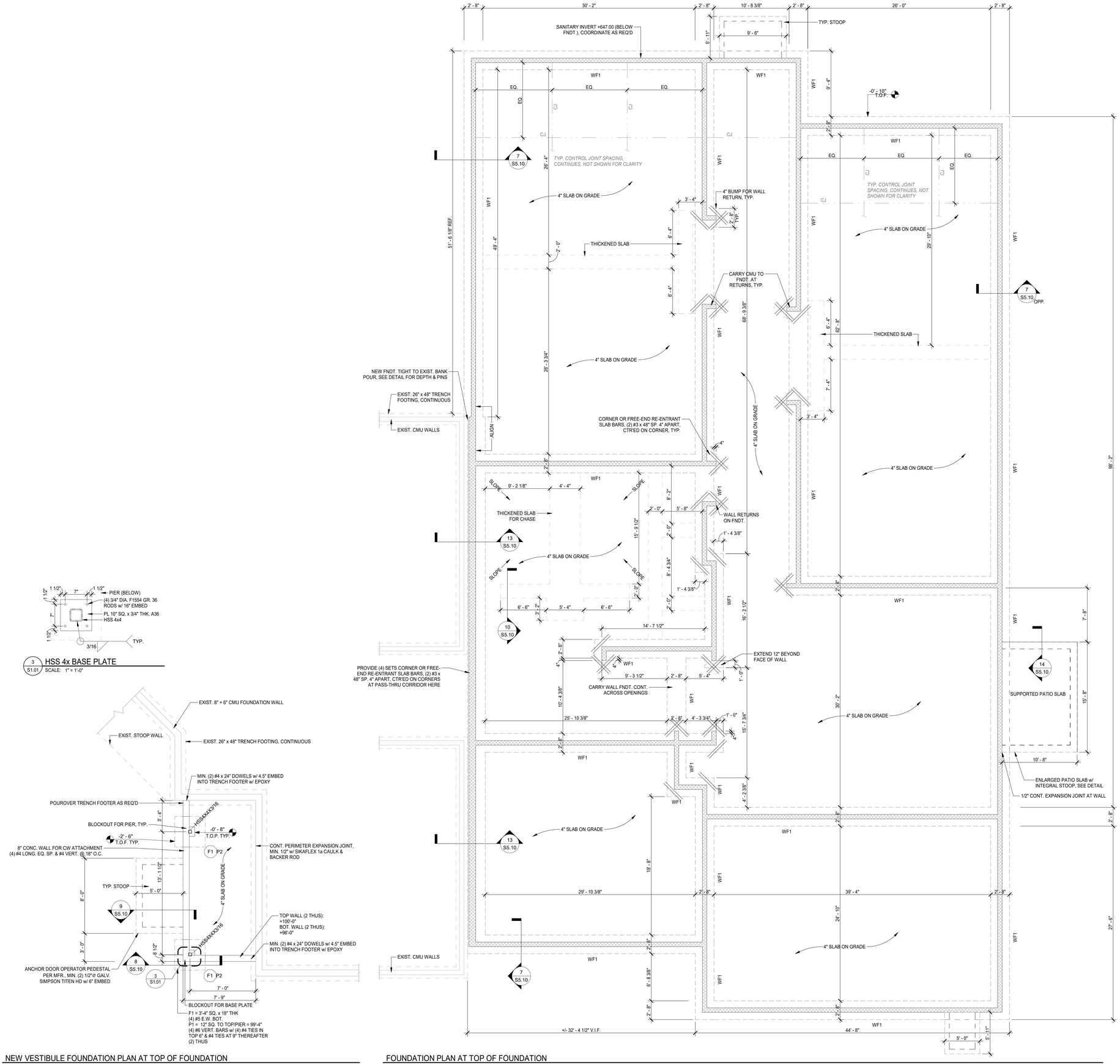

3 S1.01 HSS 4x BASE PLATE
SCALE: 1" = 1'-0"

NEW VESTIBULE FOUNDATION PLAN AT TOP OF FOUNDATION
SCALE: 1/4" = 1'-0"

FOUNDATION PLAN AT TOP OF FOUNDATION
SCALE: 3/16" = 1'-0"

NOTES:

1. FINISH FLOOR = 100'-0" = EL. 652.20' +/- REFER TO CIVIL PLANS
2. 4" SLAB ON GRADE ALL AREAS:
   A. REINFORCED w/ WWF 6x6xW2.9xW2.9
   B. MAX. DESIGN LIVE LOAD: 125 psf (NO RACKING OR EQUIPMENT DESIGNED FOR)
   C. SUBBASE: 6" COMPACTED AGGREGATES, 1-1/2" MINUS w/ LIMITED FINES OR SIM. TO MDOT 21AA GRADATION
   D. PROVIDE MIL 15 mil VAPOR BARRIER
   E. PROVIDE BURNISHED FINISH & FLATNESS WITHIN 1/8" IN 10'
3. SLOPE SLAB LOCALLY AT RESTROOMS, WHERE INDICATED "SLOPE" THUS, TO FLOOR DRAINS, SEE PLUMBING DRAWINGS.
4. ALL CONCRETE SURFACES SHALL HAVE A DISSIPATING CURING AGENT APPLIED, BASIS OF DESIGN IS EUCLID CHEMICAL DR. VOX. ENSURE COMPATIBILITY w/ FLOORING MATERIALS AND FINISHES.
5. PROVIDE SAW-CUT CONTROL JOINTS AS INDICATED (GENERALLY 10'-8" PANELS), CUT TO 1.375" DEPTH, FILLED w/ SIKAFLEX 1a JOINT SEALANT
6. CUT EVERY OTHER WIRE ACROSS CONTROL JOINTS, TYP.
7. PROVIDE CONT. 1/2" PERIMETER EXPANSION JOINT AGAINST ALL MASONRY WALLS, FILLED w/ SIKAFLEX 1a JOINT SEALANT & BACKER ROD.

THE COLLABORATIVE

ANDREW BROCK ENGINEER
structural & civil engineering

STATE OF MICHIGAN
ANDREW M BROCK
ENGINEER
No. 6201069379
LICENSED PROFESSIONAL ENGINEER
12/11/2024

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SHEET TITLE
FOUNDATION PLAN

SHEET NO.
S1.01

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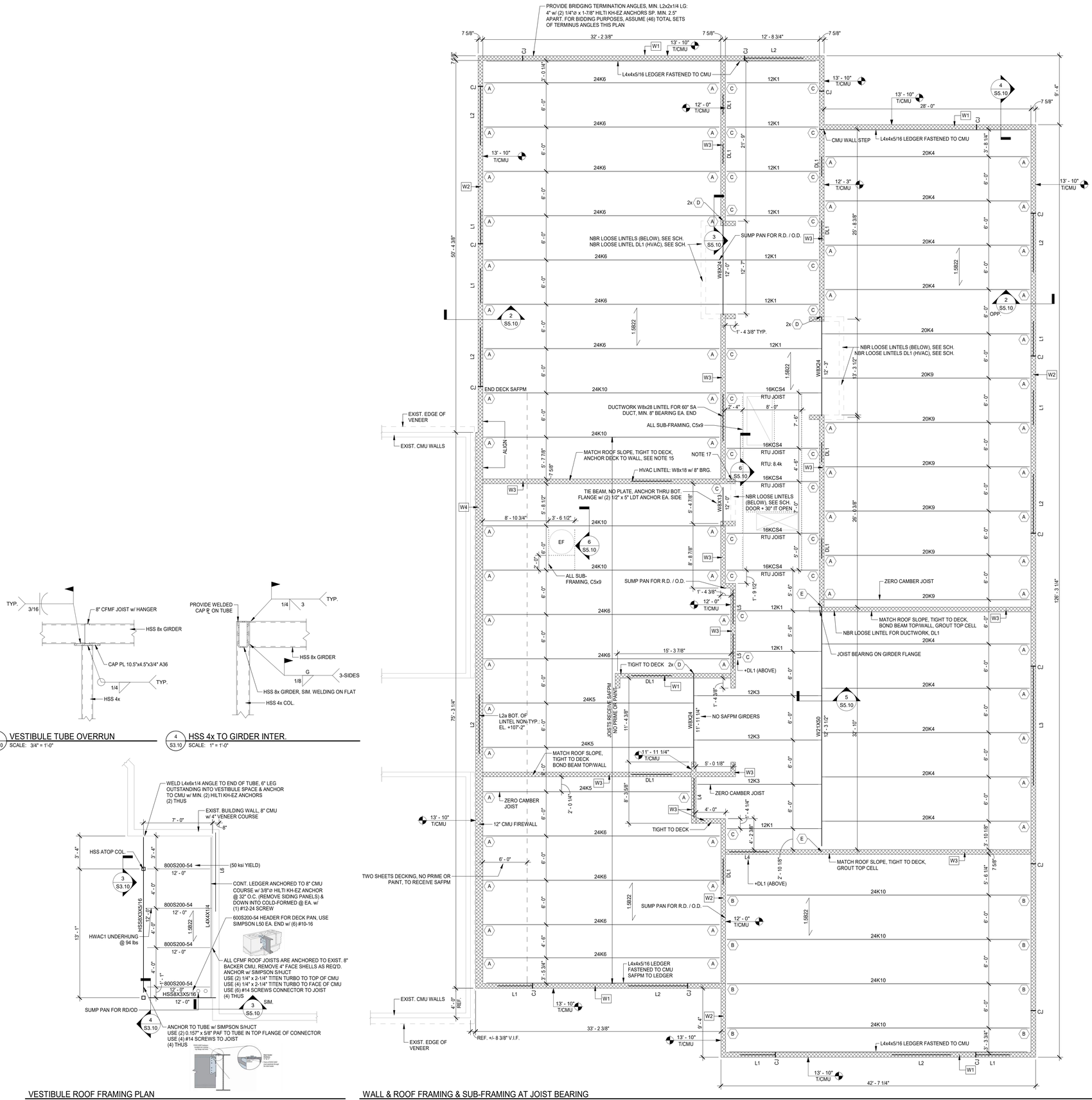


3 S3.10 VESTIBULE TUBE OVERRUN
SCALE: 3/4" = 1'-0"

4 S3.10 HSS 4x TO GIRDER INTER.
SCALE: 1" = 1'-0"

VESTIBULE ROOF FRAMING PLAN
SCALE: 1/4" = 1'-0"

WALL & ROOF FRAMING & SUB-FRAMING AT JOIST BEARING
SCALE: 3/16" = 1'-0"

NOTES:

1. ELEVATIONS SHOWN ARE TO JOIST BEARING ELEVATIONS
2. WALL DIMENSIONS AND LOCATIONS SHOWN HERE ARE CONSIDERED STRUCTURAL IN NATURE; PLEASE COORDINATE w/ THE ARCHITECTURAL DRAWINGS FOR FULL WALL EXTENTS AND DIMENSIONS. NOT ALL WALLS IN THIS PROJECT ARE SHOWN ON THIS PLAN, ESPECIALLY AS IT RELATES TO PARTITION WALLS.
3. ALL JOISTS ARE DESIGNED FOR THE FOLLOWING IMPROVED SERVICE LEVEL DEFLECTION LIMITS:
   Δ_{TL} = SPAN / 240 $\Delta_{LL/SL}$ = SPAN / 360
4. ROOF DECK BASIS OF DESIGN: 1-1/2" B DECK, 50 ksi YIELD, 22 GAUGE, PRIME PAINTED MFR. STD. GREY COLOR BOTTOM SIDE ONLY, G60 GALVANIZED. *(EXCEPT WHERE NOTED FOR APPLIED FIREPROOFING)*
5. ATTACH ROOF DECK TO DEVELOP SERVICE-LEVEL DIAPHRAGM SHEAR STRENGTHS OF:
   WIND: 148 plf (ASD) w/ 19.2 psf MWFRS NET UPLIFT (ASD)
   SEISMIC: 132 plf (ASD)
6. FASTENER LAYOUT (FIELD): 36/4 w/ (3) SIDELAP FASTENERS PER SPAN. SUPPORT FASTENERS ARE HILTI X-ENP-19 PAF. SIDELAP FASTENERS ARE HILTI S-SLC 01 SCREWS. ALTERNATE FASTENING METHODS CAN BE SUBMITTED IN SHOP DRAWING REVIEW MEETING ABOVE CRITERIA.
7. SPECIAL JOIST DESIGNATION LOADS ARE IN ASD USING THE CONTROLLING LOAD COMBINATION FOR GRAVITY AT 1.0 DEAD + 1.0 SNOW.
8. JOIST DESIGNATIONS INDICATED INCLUDE THE SELF-WEIGHT OF THE JOIST UP TO 4 psf ABOVE THE REPORTED DEAD LOAD.
9. ALL JOISTS ARE DESIGNED FOR A NET SERVICE UPLIFT OF 16.8 psf C&C UPLIFT (0.6D + 0.6W)
10. JOIST DESIGNATION CALLOUTS INCLUDE WEIGHT OF ROOFTOP UNITS AND SNOW DRIFTS WHERE APPLICABLE.
11. DESIGN ALL JOISTS FOR THE FOLLOWING ADD'L LOADS NOT STANDARD TO SJI TABLES:
    TOP CHORD AXIAL LOAD: +/- 1.91k (ASD, WIND) THROUGH THE JOIST SEAT
    LATERAL ROLLOVER FORCE: 0.9k (ASD, WIND)
12. PROVIDE ERECTION BRIDGING & UPLIFT BRIDGING FOR JOISTS AS REQUIRED BY SJI.
13. (X) INDICATES EMBEDDED PLATE IN CMU FOR JOIST OR GIRDER BEARING, SEE DETAILS PER PLATE CALL
14. FASTEN L4x DECK LEDGER AT CMU ENDWALLS w/ 1/2" ø HILTI KWIK HUS-EZ (KH-EZ) ANCHORS w/ MIN. 4.25" EMBED SPACED AT 24" O.C. ALONG LEDGER. LEDGER IS SLOPED TO MATCH ROOF SLOPE AT BOTTOM OF DECK
15. "CJ" ALONG WALLS INDICATES MASONRY CONTROL JOINT, COORDINATE w/ ARCH. FOR VENEER JOINTS.
16. ANCHOR DECK AT BYPASS OVER CMU WALLS w/ 1/2" ø HILTI KWIK HUS-EZ (KH-EZ) ANCHORS w/ MIN. 4.25" EMBED SPACED AT 32" DOWN INTO CMU BOND BEAM AT TOP COURSE.
17. HOLD FLANKING WING-WALLS TOP/WALL EL. TO UNDERSIDE OF JOIST DEPTH WHERE INDICATED.

WALL SCHEDULE, MARK THUS: Wx

W1 = 8" CMU w/ #5 VERT. REINF. @ 72" O.C. IN FULLY GROUTED CELLS
W2 = 8" CMU w/ #5 VERT. REINF. @ 40" O.C. IN FULLY GROUTED CELLS
W3 = 8" CMU w/ #5 VERT. REINF. @ 72" O.C. IN FULLY-GROUTED CELLS ALIGNED w/ JOIST BEARING
W4 = 12" CMU w/ #5 VERT. REINF. @ 40" O.C. IN FULLY-GROUTED CELLS (FIRE WALL)

LINTEL SCHEDULE, MARK THUS: "Lx"

L1 = TYP. WINDOW & DOOR: LL5x3-1/2x5/16 LLBB LLV w/ 1/4" x 7.5" WELDED BOT. PLATE ⊥
BOT./LINTEL = EL. +108'-6" TYP.
BEARING, EA. END: 8"
BOT. PLATE HELD SHORT OF BEARING POINTS (ONLY IN MASONRY OPENING)

L2 = WIDE WINDOW OR 6'-4" DOOR: W8x18 w/ 1/4" x 7.5" WELDED BOT. PLATE ⊥
BOT./LINTEL = EL. +108'-6" TYP.
BEARING, EA. END: 8"
BOT. PLATE HELD SHORT OF BEARING POINTS (ONLY IN MASONRY OPENING)
"L2a", SEE PLAN FOR BOTTOM OF LINTEL; PROVIDE 1/4" x 11.5" WELDED BOT. PLATE

L3 = STOREFRONT OPENING COMMON AREA: W16x36 ⊥
BOT./LINTEL = EL. +108'-6"
BEARING, EA. END: 16"

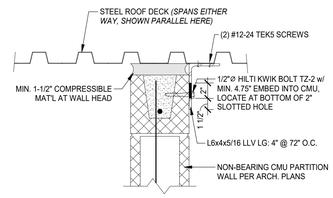
L4 = INTERIOR BEARING WALL DOOR: W8x18 w/ 1/4" x 7.5" WELDED BOT. PLATE ⊥
BOT./LINTEL = EL. +107'-2" TYP.
BEARING, EA. END: 8"
BOT. PLATE HELD SHORT OF BEARING POINTS (ONLY IN MASONRY OPENING)

L5 = INTERIOR BEARING WALL DOOR: LL5x3-1/2x5/16 LLBB LLV ⊥
w/ 1/4" x 7.5" WELDED BOT. PLATE
BOT./LINTEL = EL. +107'-2" TYP.
BEARING, EA. END: 8"

L6 = SECURE VESTIBULE NEW DOOR: W8x18 w/ 1/4" x 7.5" WELDED BOT. PLATE ⊥
BOT./LINTEL = EL. +107'-2" TYP.
BEARING, EA. END: 8"
BOT. PLATE HELD SHORT OF BEARING POINTS (ONLY IN MASONRY OPENING)

ALL OPENINGS L1 & L2 & L6: VENEER COURSE TERMINATES AT HEAD, NO LOOSE REQ'D

DL1 = DUCTWORK LINTEL TYPE 1: LL5x3-1/2x5/16 LLBB LLV ⊥
BOT./LINTEL VARIES, SEE AND COORDINATE w/ MECHANICAL SHEET M4.10
BEARING, EA. END: 4"
PROVIDE (1) ADD'L DL1 TYPE FOR CHASE ACCESS PANEL IN TOILET ROOM 111



5 S3.10 NON-BEARING CMU WALL TOP CONNECTION
SCALE: N.T.S

THE COLLABORATIVE

ANDREW BROCK ENGINEER
structural & civil engineering

STATE OF MICHIGAN
ANDREW M BROCK
ENGINEER
No. 6201069379
LICENSED PROFESSIONAL ENGINEER
12/11/2024

KEY PLAN
N.T.S.

PROJECT TITLE

Freeland Schools

Middle School Addition

8250 Webster Road
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12.11.2024	PERMIT / BIDS

TC JOB NO. 107270

OWNER JOB NO.

AMB ENG. JOB NO. 20240060

SHEET TITLE

ROOF & WALL FRAMING PLAN

SHEET NO.

S3.10

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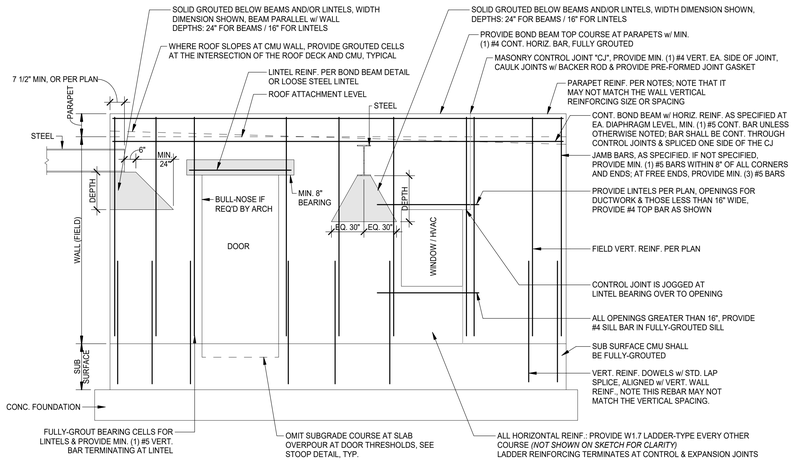
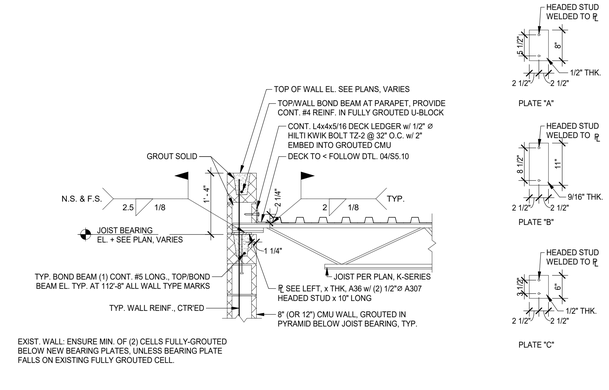
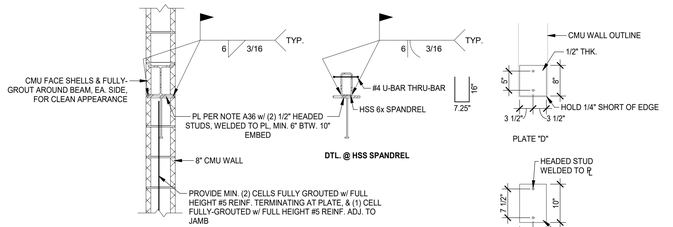


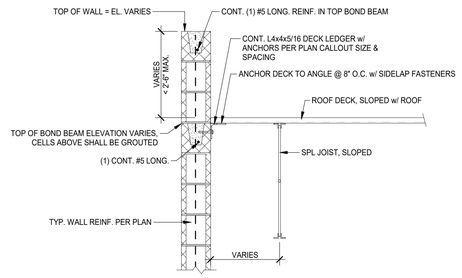
1 S5.10 ORDINARY REINF. CMU WALL TYPICAL ELEVATION
SCALE: 3/8" = 1'-0"



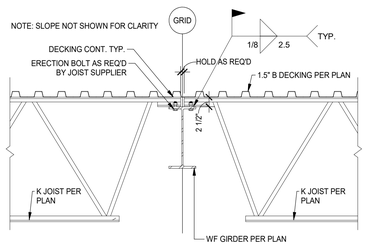
2 S3.10 CMU JOIST SEAT, PLATE "x"
SCALE: 3/4" = 1'-0"



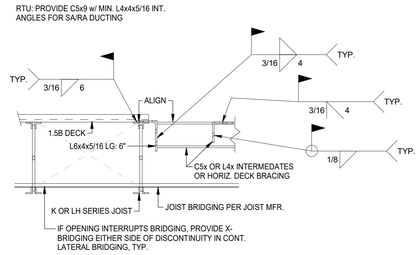
3 S3.10 WF BEAM SEAT TO CMU, PLATE "x"
SCALE: 3/4" = 1'-0"



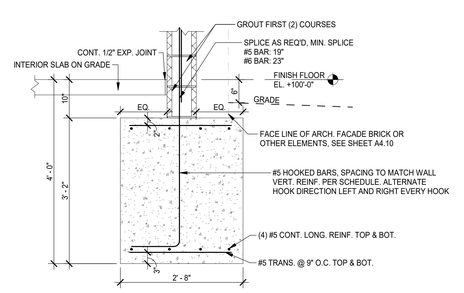
4 S3.10 DECK LEDGER AT CMU
SCALE: 3/4" = 1'-0"



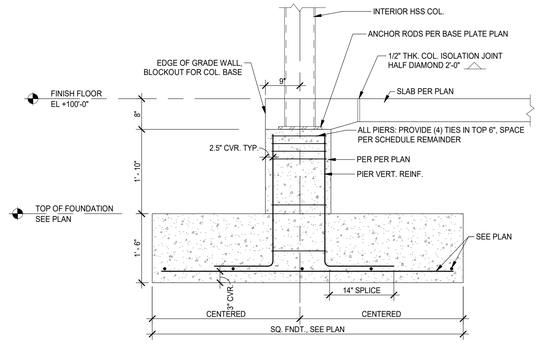
5 S3.10 JOIST TO WIDE FLANGE GIRDER
SCALE: 3/4" = 1'-0"



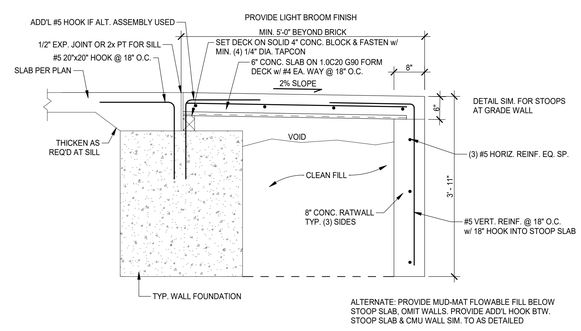
6 S3.10 JOIST HANGER DETAIL
SCALE: 1" = 1'-0"



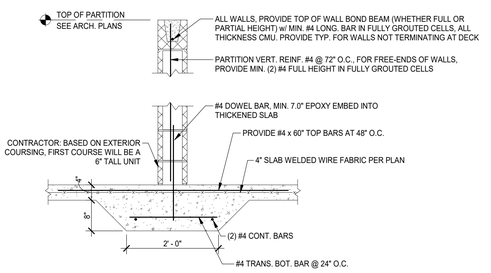
7 S1.01 TYP. CMU FOUNDATION MARK "WF1"
SCALE: 3/4" = 1'-0"



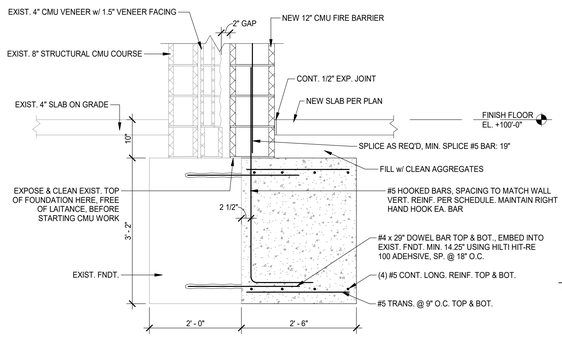
8 S1.01 TYP. VESTIBULE FOUNDATION DETAIL
SCALE: 3/4" = 1'-0"



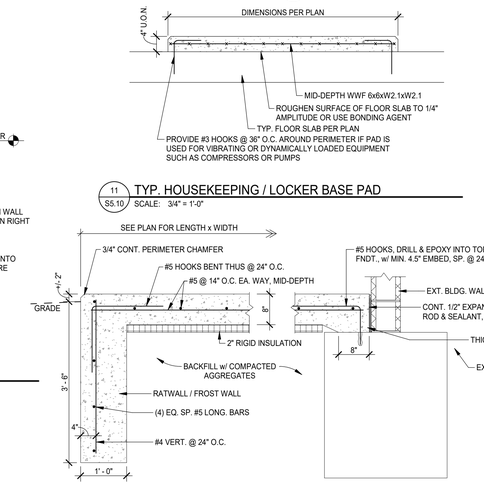
9 S1.01 TYP. STOOP DETAIL SECTION
SCALE: 3/4" = 1'-0"



10 S1.01 THICKENED SLAB DETAIL
SCALE: 3/4" = 1'-0"

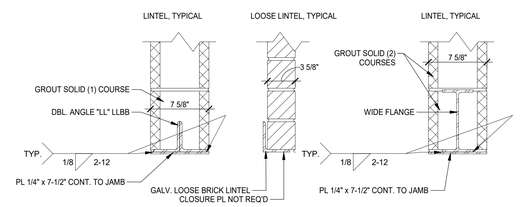


13 S1.01 FOUNDATION ALONG EXIST. BLDG. AT FIREWALL
SCALE: 3/4" = 1'-0"



11 S5.10 TYP. HOUSEKEEPING / LOCKER BASE PAD
SCALE: 3/4" = 1'-0"

14 S1.01 PATIO FROST-FREE SLAB
SCALE: 3/4" = 1'-0"



STEEL ANGLE LINTEL SCHEDULE FOR NON-BEARING BRICK & INTERIOR PARTITION CMU			
CLEAR SPAN	LINTEL	END BEARING	NOTES
UP TO 5'-0"	L3-1/2x3-1/2x5/16	6"	
5'-0" - 7'-0"	L4x3-1/2x5/16 LLV	8"	
7'-0" - 8'-0"	L5x3-1/2x5/16 LLV	8"	
8'-0" - 9'-0"	L5x3-1/2x3/8 LLV	8"	
9'-0" - 10'-8"	L6x3-1/2x3/8 LLV	8"	
10'-8" +	SEE PLAN		

NOTES:
1. PROVIDE (1) ANGLE FOR EACH ~4" OF BRICK OR CMU THICKNESS, TYPICALLY
2. REFER TO ARCH. PLANS FOR OPENING LOCATIONS & CLEAR SPANS
3. ANY LINTELS w/ MORE THAN (1) ANGLE, PROVIDE 1/4" STEEL CLOSURE PLATE AT HEAD

12 S5.10 CMU STEEL LINTEL DETAILS
SCALE: 1 1/2" = 1'-0"

THE COLLABORATIVE
ANDREW BROCK ENGINEER
structural & civil engineering
STATE OF MICHIGAN
ANDREW M. BROCK ENGINEER No. 6201069379
LICENSED PROFESSIONAL ENGINEER
12/11/2024

KEY PLAN
N.T.S.
N

PROJECT TITLE
Freeland Schools

Middle School Addition

8250 Webster Road
Freeland, Michigan 48623

12.11.2024	PERMIT / BIDS

TC JOB NO. 107270
OWNER JOB NO.
AMB ENG. JOB NO. 20240060

SHEET TITLE
FOUNDATION & STRUCTURAL DETAILS

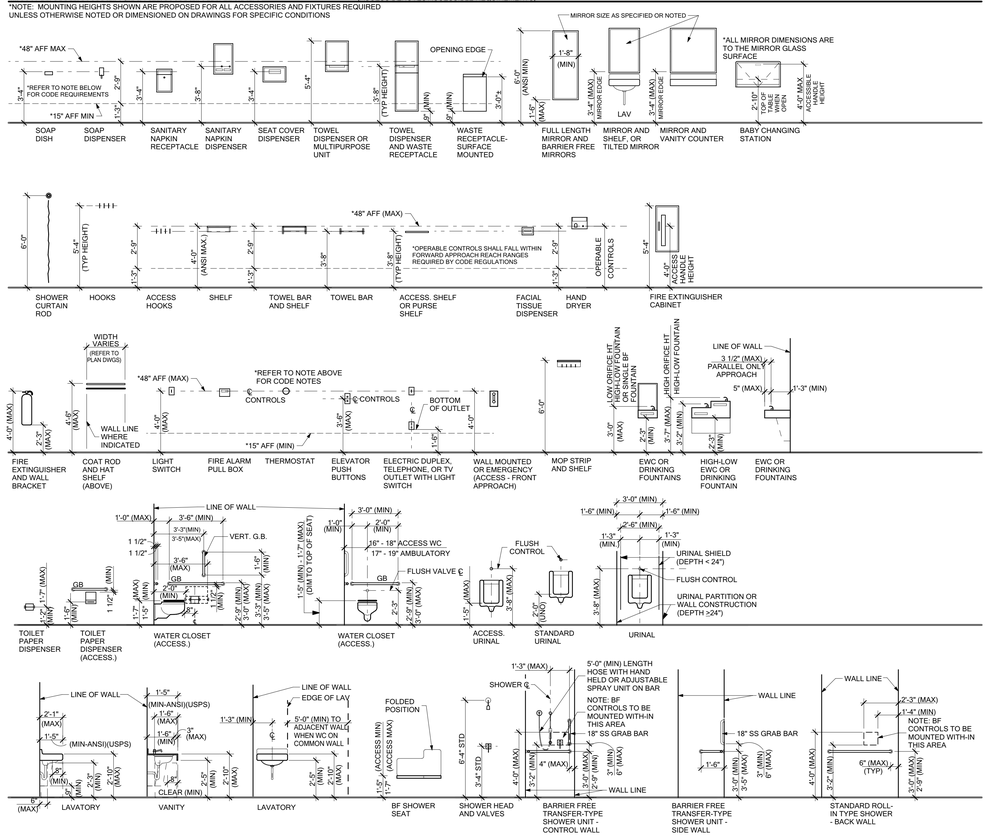
SHEET NO.
S5.10

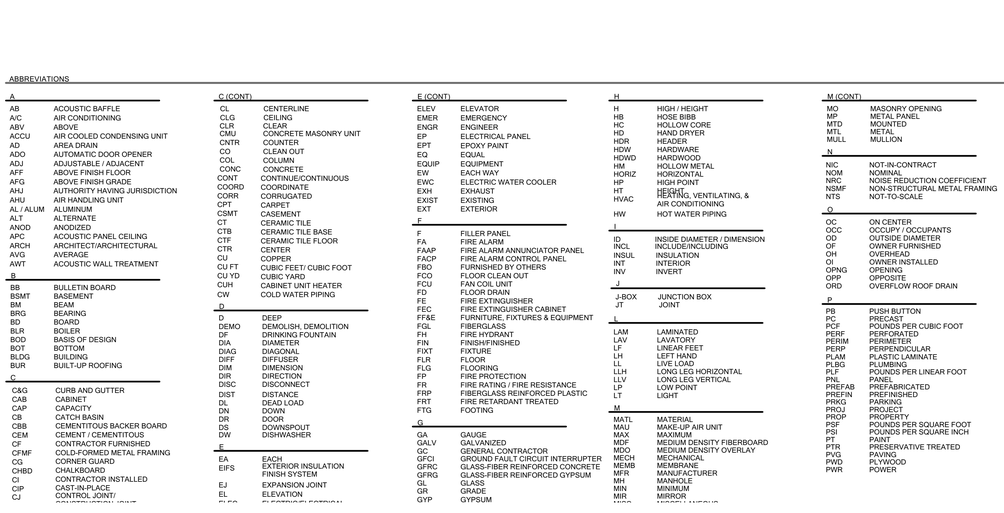
PLOTTED: 12/11/2024 9:40:43 AM

TYPICAL MOUNTING HEIGHTS (BASED ON ICC - A117.1 - 2009)

MISCELLANEOUS ACCESSORIES, TOILET ACCESSORIES AND FIXTURES (ACCESS DENOTES ACCESSIBLE REQUIREMENTS)

*NOTE: MOUNTING HEIGHTS SHOWN ARE PROPOSED FOR ALL ACCESSORIES AND FIXTURES REQUIRED UNLESS OTHERWISE NOTED OR DIMENSIONED ON DRAWINGS FOR SPECIFIC CONDITIONS





REFERENCE SYMBOLS

ROOM NAME AND NUMBER IDENTIFICATION

ROOM NAME
000 — ROOM IDENTIFICATION NUMBER

KEYED NOTE IDENTIFICATION

XX-# — KEYED NOTE IDENTIFICATION NUMBER AS LISTED IN "KEYED NOTES LEGEND"

GRID LINE IDENTIFICATION

A — GRID ID (NEW CONSTRUCTION)

A — GRID ID (EXISTING CONSTRUCTION)

WALL TYPE IDENTIFICATION

C — WALL CONSTRUCTION TYPE LETTER AS LISTED IN "WALL TYPES" SHEET

(DESCRIPTION ORIGINATES AT WALL SURFACE DESIGNATION)

FENESTRATION IDENTIFICATION

A — WINDOW IDENTIFICATION NUMBER, REFER TO WINDOW SCHEDULE

SF-A — STOREFRONT IDENTIFICATION NUMBER, REFER TO STOREFRONT ELEVATIONS

CW-A — CURTAIN WALL IDENTIFICATION NUMBER, REFER TO CURTAIN WALL ELEVATIONS

DOOR IDENTIFICATION

101
101A — DOOR IDENTIFICATION NUMBER

STAIR DIRECTION NOTATION

10 T (11 R) — UP (DN) — STAIR DIRECTION TO FLOOR ABOVE (UP) OR BELOW (DN.)

NUMBER OF TREADS (OR RISERS) IN STAIR RUN

MATERIAL OR WORK DIVISION NOTATION

MATERIAL "A" (NEW CONST.) — MATERIAL "B" (EXIST. CONST.)

JOINT BETWEEN MATERIALS (OR CONSTRUCTION WORK DIVISION LINE)

DRAWING DIMENSION LINES

5'-3" — NOTE: DO NOT SCALE DRAWINGS WITHOUT GRAPHIC SCALES WITH PROPORTIONS OTHER THAN 1:1

NORTH INDICATION

ASSUMED NORTH IF NOT TRUE NORTH OR PLAN NORTH WHERE TRUE NORTH IS INDICATED BY ARROW NOTATION

DRAWING NOTE

MATERIAL NOTATION AND INFORMATION (REFER TO TECHNICAL SPECIFICATIONS FOR MATERIAL DESCRIPTIONS AND METHODS OF CONSTRUCTION)

DRAWING/DETAIL/SECTION IDENTIFICATION

X — IDENTIFICATION NUMBER

DRAWING/DETAIL/SECTION TITLE
SCALE: 1/8" = 1'-0"

SECTION LOCATION INDICATION

X / XX.XX — SECTION IDENTIFICATION NUMBER

SHEET IDENTIFICATION NUMBER

DETAIL LOCATION INDICATION

X / XX.XX — DETAIL IDENTIFICATION NUMBER

SHEET IDENTIFICATION NUMBER

MATCH LINE INDICATION

A1.1 / A1.2 — SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER OF DRAWING)

ZONE 'A' — ZONE 'A'
ZONE 'B' — ZONE 'B'

SHEET IDENTIFICATION NUMBER (INDICATES SHEET NUMBER WHERE DRAWING IS CONTINUED)

ELEVATION INDICATION

X / XX.XX — ELEVATION IDENTIFICATION NUMBER(S)

INDICATES DIRECTION OF VIEW OR MULTIPLE VIEWS

SHEET IDENTIFICATION NUMBER

DOOR INDICATION

DOOR SWING INDICATION- NEW DOOR

DOOR SWING INDICATION- EXISTING DOOR

DOOR SWING INDICATION- EXISTING DOOR TO BE REMOVED

BULLETIN OR ADDENDUM IDENTIFICATION

1 — BULLETIN NUMBER

(CURRENT REVISIONS SHALL BE SHOWN ENCIRCLED BY A FREEFORM LINE)

ABBREVIATIONS

A	
AB	ACOUSTIC BAFFLE
A/C	AIR CONDITIONING
ABV	ABOVE
ACCU	AIR COOLED CONDENSING UNIT
AD	AREA DRAIN
ADO	AUTOMATIC DOOR OPENER
ADJ	ADJUSTABLE / ADJACENT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AL / ALUM	ALUMINUM
ALT	ALTERNATE
ANOD	ANODIZED
APC	ACOUSTIC PANEL CEILING
ARCH	ARCHITECT/ARCHITECTURAL
AVG	AVERAGE
AWT	ACOUSTIC WALL TREATMENT
B	
BB	BULLETIN BOARD
BSMT	BASEMENT
BM	BEAM
BRG	BEARING
BD	BOARD
BLR	BOILER
BOD	BASIS OF DESIGN
BOT	BOTTOM
BLDG	BUILDING
BUR	BUILT-UP ROOFING
C	
C&G	CURB AND GUTTER
CAB	CABINET
CAP	CAPACITY
CB	CATCH BASIN
CBB	CEMENTITOUS BACKER BOARD
CEM	CEMENT / CEMENTITIOUS
CF	CONTRACTOR FURNISHED
CFMF	COLD-FORMED METAL FRAMING
CG	CORNER GUARD
CHBD	CHALKBOARD
CI	CONTRACTOR INSTALLED
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT/

C (CONT)	
CL	CENTERLINE
CLG	CEILING
CLR	CLEAR
CMU	CONCRETE MASONRY UNIT
CNTR	COUNTER
CO	CLEAN OUT
COL	COLUMN
CONC	CONCRETE
CONT	CONTINUE/CONTINUOUS
COORD	COORDINATE
CORR	CORRUGATED
CPT	CARPET
CSMT	CASEMENT
CT	CERAMIC TILE
CTB	CERAMIC TILE BASE
CTF	CERAMIC TILE FLOOR
CTR	CENTER
CU	COPPER
CU FT	CUBIC FEET/ CUBIC FOOT
CU YD	CUBIC YARD
CUH	CABINET UNIT HEATER
CW	COLD WATER PIPING
D	
D	DEEP
DEMO	DEMOLISH, DEMOLITION
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIFF	DIFFUSER
DIM	DIMENSION
DIR	DIRECTION
DISC	DISCONNECT
DIST	DISTANCE
DL	DEAD LOAD
DN	DOWN
DR	DOOR
DS	DOWNSPOUT
DW	DISHWASHER
E	
EA	EACH
EIFS	EXTERIOR INSULATION FINISH SYSTEM
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL/ELECTRICIAN

E (CONT)	
ELEV	ELEVATOR
EMER	EMERGENCY
ENGR	ENGINEER
EP	ELECTRICAL PANEL
EPT	EPOXY PAINT
EQ	EQUAL
EQUIP	EQUIPMENT
EW	EACH WAY
EWC	ELECTRIC WATER COOLER
EXH	EXHAUST
EXIST	EXISTING
EXT	EXTERIOR
F	
F	FILLER PANEL
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FCO	FLOOR CLEAN OUT
FCU	FAN COIL UNIT
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF&E	FURNITURE, FIXTURES & EQUIPMENT
FG	FIBERGLASS
FH	FIRE HYDRANT
FIN	FINISH/FINISHED
FIXT	FIXTURE
FLR	FLOOR
FLG	FLOORING
FP	FIRE PROTECTION
FR	FIRE RATING / FIRE RESISTANCE
FRP	FIBERGLASS REINFORCED PLASTIC
FRT	FIRE RETARDANT TREATED
FTG	FOOTING
G	
GA	GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFRC	GLASS-FIBER REINFORCED CONCRETE
GFRG	GLASS-FIBER REINFORCED GYPSUM
GL	GLASS
GR	GRADE
GYP	GYPSUM

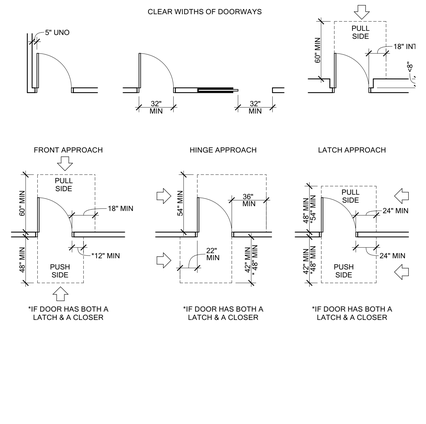
H	
H	HIGH / HEIGHT
HB	HOSE BIBB
HC	HOLLOW CORE
HD	HAND DRYER
HDR	HEADER
HDW	HARDWARE
HDWD	HARDWOOD
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HW	HOT WATER PIPING
I	
ID	INSIDE DIAMETER / DIMENSION
INCL	INCLUDE/INCLUDING
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
J	
J-BOX	JUNCTION BOX
JT	JOINT
L	
LAM	LAMINATED
LAV	LAVATORY
LF	LINEAR FEET
LH	LEFT HAND
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LP	LOW POINT
LT	LIGHT
M	
MATL	MATERIAL
MAU	MAKE-UP AIR UNIT
MAX	MAXIMUM
MDF	MEDIUM DENSITY FIBERBOARD
MDO	MEDIUM DENSITY OVERLAY
MECH	MECHANICAL
MEMB	MEMBRANE
MFR	MANUFACTURER
MH	MANHOLE
MIN	MINIMUM
MIR	MIRROR
MISC	MISCELLANEOUS

M (CONT)	
MO	MASONRY OPENING
MP	METAL PANEL
MTD	MOUNTED
MTL	METAL
MULL	MULLION
N	
NIC	NOT-IN-CONTRACT
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NSMF	NON-STRUCTURAL METAL FRAMING
NTS	NOT-TO-SCALE
O	
OC	ON CENTER
OCC	OCCUPY / OCCUPANTS
OD	OUTSIDE DIAMETER
OF	OWNER FURNISHED
OH	OVERHEAD
OI	OWNER INSTALLED
OPNG	OPENING
OPP	OPPOSITE
ORD	OVERFLOW ROOF DRAIN
P	
PB	PUSH BUTTON
PC	PRECAST
PCF	POUNDS PER CUBIC FOOT
PERF	PERFORATED
PERIM	PERIMETER
PERP	PERPENDICULAR
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PLF	POUNDS PER LINEAR FOOT
PNL	PANEL
PREFAB	PREFABRICATED
PREFIN	PREFINISHED
PRKG	PARKING
PROJ	PROJECT
PROP	PROPERTY
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT
PTR	PRESERVATIVE TREATED
PVG	PAVING
PWD	PLYWOOD
PWR	POWER

Q	
QT	QUARRY TILE
QTB	QUARRY TILE BASE
QTF	QUARRY TILE FLOOR
QTY	QUANTITY
R	
RAD	RADIUS
RBR	RUBBER
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
REC	RECESSED
RECPT	RECEPTACLE
RECT	RECTANGLE/RECTANGULAR
REF	REFRIGERATOR
REINF	REINFORCE
REQD	REQUIRED
RESIL	RESILIENT
RFG	ROOFING
RH	RIGHT HAND
RM	ROOM
RO	ROUGH OPENING
ROW	RIGHT OF WAY
RTF	RUBBER TILE FLOOR
RTU	ROOF TOP UNIT
RWB	RESILIENT WALL BASE
S	
SAFB	SOUND ATTENUATION FIRE BLANKET
SAFM	SPRAY-APPLIED FIRE-RESISTIVE MATERIAL
SAN	SANITARY
SC	SOLID CORE
SCHED	SCHEDULE
SCRN	SCREEN
SCWD	SOLID CORE WOOD
SD	SMOKE DETECTOR
SF	SQUARE FEET
SHT	SHEET
SIM	SIMILAR
SM	SHEET METAL
SPEC	SPECIFICATIONS
SPKLR	SPRINKLER
SPKR	SPEAKER
SS	SOLID SURFACE
SSR	STANDING SEAM ROOF
SST	STAINLESS STEEL
STC	SOUND TRANSMISSION CLASS
STL	STEEL
STRUCT	STRUCTURAL
SURF	SURFACE

T	
T&G	TONGUE AND GROOVE
T&B	TOP AND BOTTOM
TB	TERRAZZO BASE
TD	TRENCH DRAIN
TEMP	TEMPORARY
TER	TERRAZZO
TG	TRANSFER GRILLE
THK	THICK/ THICKNESS
TME	TO MATCH EXISTING
TO	TOP OF
TOC	TOP OF CURB / CONCRETE
TSTAT	THERMOSTAT
TYP	TYPICAL
U	
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UNFIN	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
V	
VAR	VARIATION / VARIES / VARIOUS
VAV	VARIABLE AIR VOLUME
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL/ VERTICALLY
VIF	VERIFY IN FIELD
VNR	VENEER
VWC	VINYL WALL COVERING
W	
W	WIDTH
W/	WITH
W/O	WITHOUT
WB	WOOD BASE
WBL	WOOD BLOCKING
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WD	WOOD
WH	WATER HEATER
WM	WATER METER
WP	WORKING POINT
WT	WEIGHT
WWF	WELDED WIRE FABRIC

DOOR CLEARANCE REQUIREMENTS



THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

TC JOB NO. 107270

SHEET TITLE

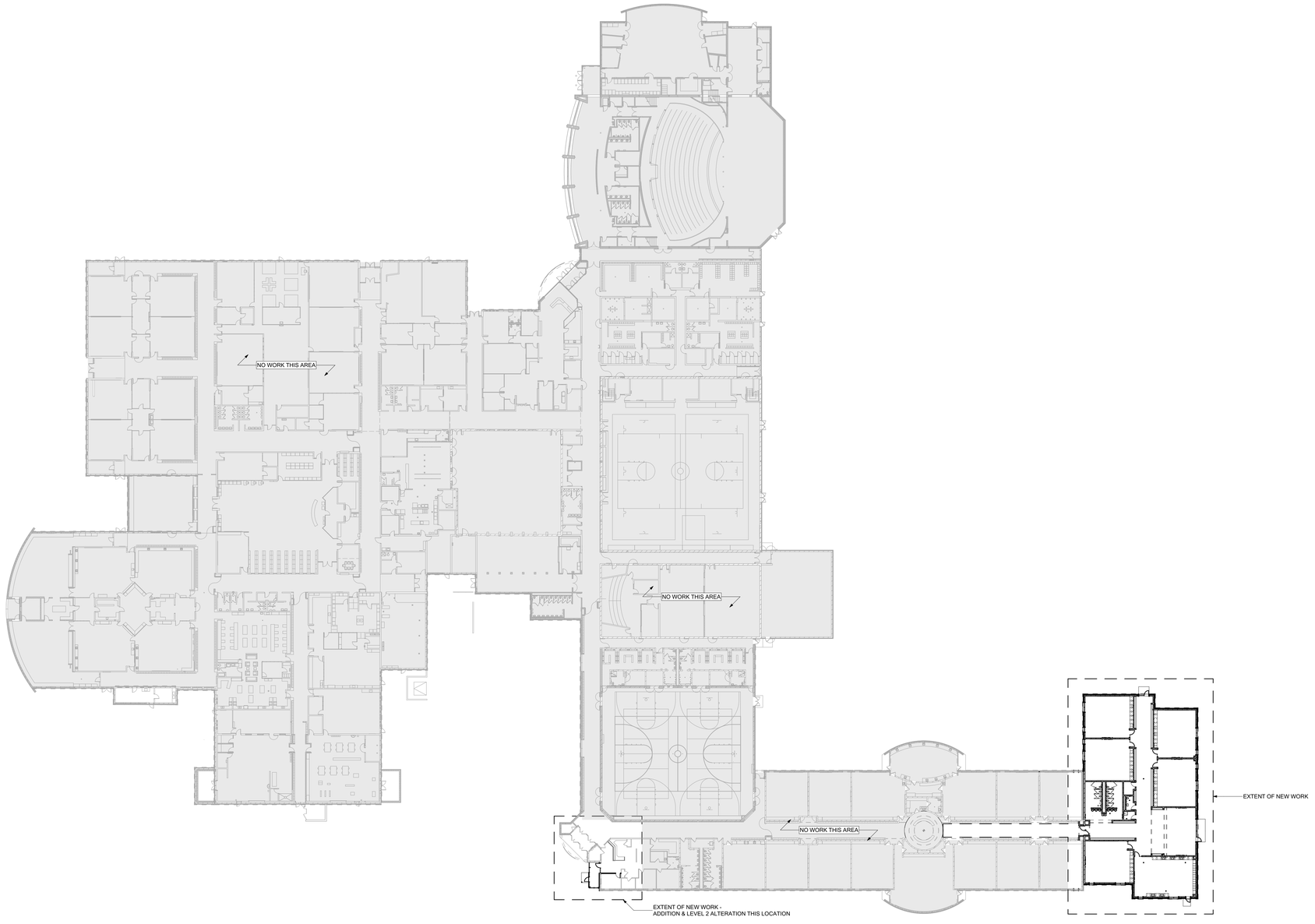
GENERAL INFORMATION

SHEET NO.

A0.00

PLAN GENERAL NOTES:

1. COORDINATE SIZE AND LOCATION OF ALL HOUSEKEEPING PADS AND/OR EQUIPMENT SUPPORTS WITH APPROPRIATE EQUIPMENT MANUFACTURER.
2. COORDINATE SIZES AND LOCATIONS OF ALL MISCELLANEOUS ACCESS PANELS REQUIRED. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE TO BE PROVIDED BY TRADES REQUIRING THEM. ALL LOCATIONS MUST BE APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
3. FLOOR PLANS ARE DIMENSIONED TO ACTUAL WALL THICKNESS UNLESS OTHERWISE NOTED.
4. DIMENSIONS FOLLOWED BY ± MUST BE FIELD REVIEWED AND ALL NECESSARY ADJUSTMENTS MADE PRIOR TO FABRICATION AND/OR INSTALLATION OF AFFECTED WORK. NOTIFY ARCHITECT IF DISCREPANCIES ARISE BEFORE PROCEEDING WITH THE WORK.
5. PROVIDE INTERIOR GYPSUM BOARD CONTROL JOINTS @ 25' O.C. AT LOCATIONS SHOWN ON PLANS AND/OR INTERIOR ELEVATIONS OR AS DIRECTED BY ARCHITECT.
6. VERIFY QUANTITY, SIZES, AND LOCATIONS OF ALL FLOOR, ROOF, AND WALL OPENINGS FOR MECHANICAL AND ELECTRICAL WORK WITH THE APPROPRIATE TRADES. PROVIDE ALL OPENINGS SHOWN OR REQUIRED FOR THE COMPLETION OF THE WORK. PROVIDE ALL LINTELS REQUIRED FOR THESE OPENINGS PER SPECIFICATIONS.
7. REFER TO LS & A0 SERIES DRAWINGS FOR LOCATIONS OF REQUIRED FIRE RESISTANCE RATINGS, UL DESCRIPTIONS, AND JOINT DETAILS.
8. REFER TO FINISH PLANS FOR FLOOR FINISHES, ROOM FINISHES, AND FINISH LAYOUTS.
9. SEE REFLECTED CEILING PLANS FOR WINDOW SHADE LOCATIONS. REFER TO SPECIFICATIONS FOR REQUIREMENTS.



OVERALL FIRST FLOOR PLAN
SCALE: 1/32" = 1'-0"

N

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
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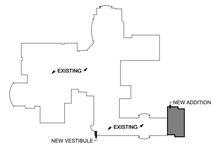
Michael Muse, License #1301048954
Expiration Date 12/31/2025



KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

TC JOB NO. 107270

SHEET TITLE

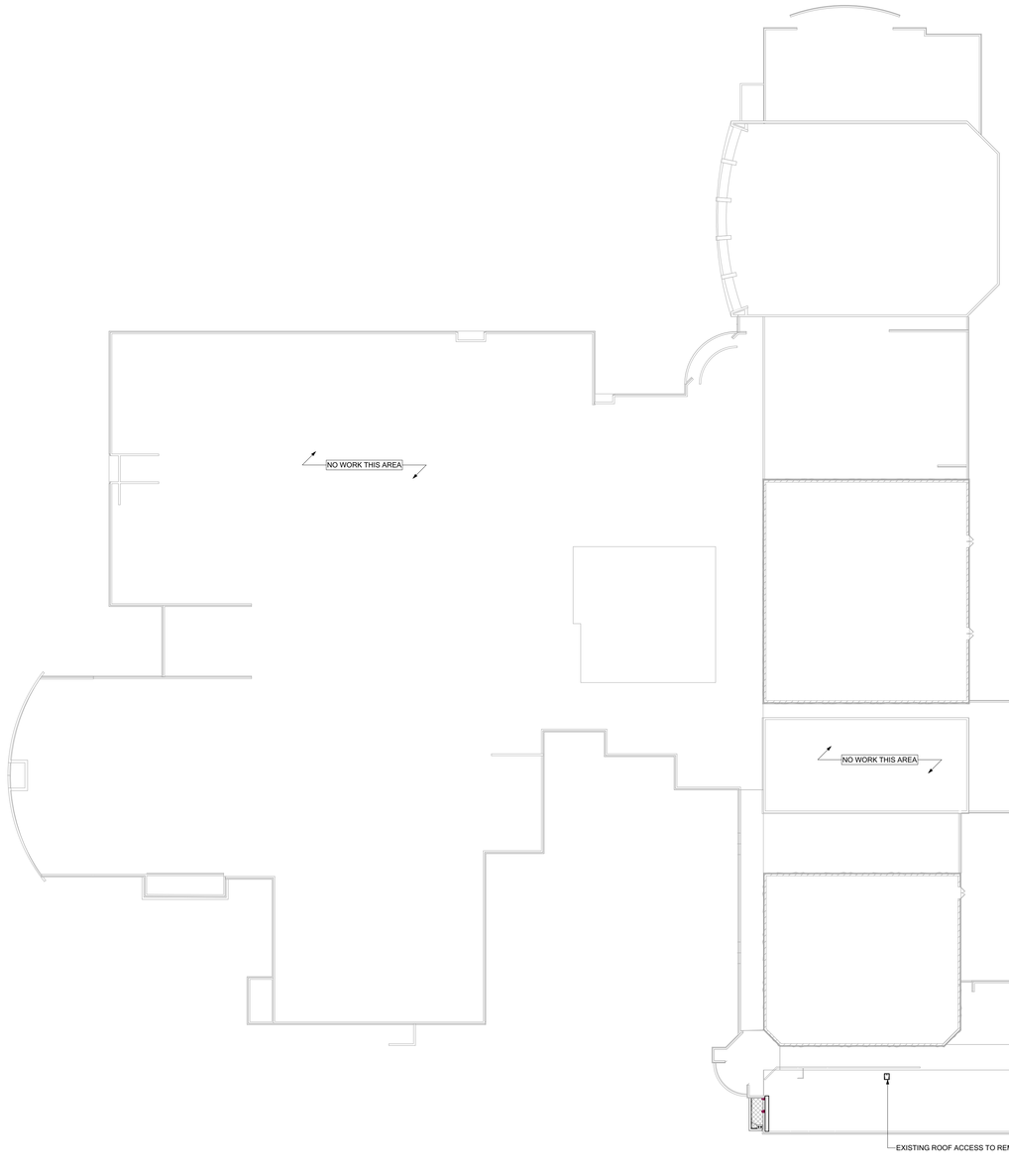
OVERALL FLOOR PLAN

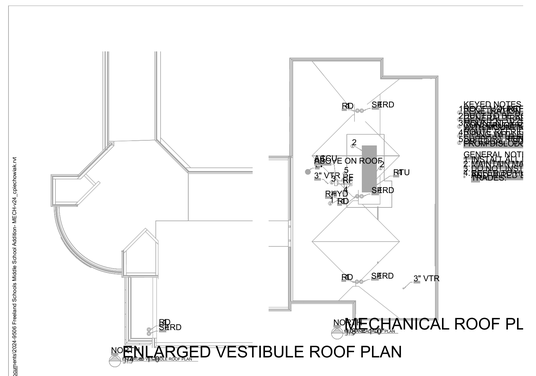
SHEET NO.

A1.00

PLAN GENERAL NOTES:

1. COORDINATE SIZE AND LOCATION OF ALL HOUSEKEEPING PADS AND/OR EQUIPMENT SUPPORTS WITH APPROPRIATE EQUIPMENT MANUFACTURER.
2. COORDINATE SIZES AND LOCATIONS OF ALL MISCELLANEOUS ACCESS PANELS REQUIRED. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE TO BE PROVIDED BY TRADES REQUIRING THEM. ALL LOCATIONS MUST BE APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
3. FLOOR PLANS ARE DIMENSIONED TO ACTUAL WALL THICKNESS UNLESS OTHERWISE NOTED.
4. DIMENSIONS FOLLOWED BY ± MUST BE FIELD REVIEWED AND ALL NECESSARY ADJUSTMENTS MADE PRIOR TO FABRICATION AND/OR INSTALLATION OF AFFECTED WORK. NOTIFY ARCHITECT IF DISCREPANCIES ARISE BEFORE PROCEEDING WITH THE WORK.
5. PROVIDE INTERIOR GYPSUM BOARD CONTROL JOINTS @ 25' O.C. AT LOCATIONS SHOWN ON PLANS AND/OR INTERIOR ELEVATIONS OR AS DIRECTED BY ARCHITECT.
6. VERIFY QUANTITY, SIZES, AND LOCATIONS OF ALL FLOOR, ROOF, AND WALL OPENINGS FOR MECHANICAL AND ELECTRICAL WORK WITH THE APPROPRIATE TRADES. PROVIDE ALL OPENINGS SHOWN OR REQUIRED FOR THE COMPLETION OF THE WORK. PROVIDE ALL LINTELS REQUIRED FOR THESE OPENINGS PER SPECIFICATIONS.
7. REFER TO LS & A0 SERIES DRAWINGS FOR LOCATIONS OF REQUIRED FIRE RESISTANCE RATINGS, UL DESCRIPTIONS, AND JOINT DETAILS.
8. REFER TO FINISH PLANS FOR FLOOR FINISHES, ROOM FINISHES, AND FINISH LAYOUTS.
9. SEE REFLECTED CEILING PLANS FOR WINDOW SHADE LOCATIONS. REFER TO SPECIFICATIONS FOR REQUIREMENTS.





ENLARGED VESTIBULE ROOF PLAN

A1 OVERALL FLOOR PLAN
SCALE: 1/32" = 1'-0"

N

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

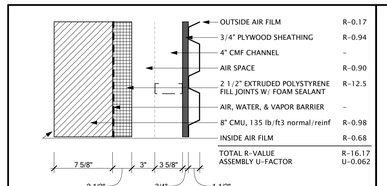
TC JOB NO. 107270

SHEET TITLE

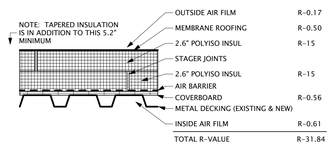
OVERALL ROOF PLAN

SHEET NO.

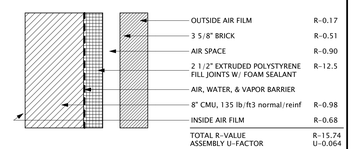
A1.01



WALL TYPE - CMU/CAVITY INSULATION/METAL PANEL



ROOF TYPE - MEMBRANE ON METAL DECKING



WALL TYPE - CMU/CAVITY INSULATION/BRICK

EXTERIOR WALL & ROOF ASSEMBLIES FOR COMPLIANCE WITH CODE MINIMUM R-VALUES

MICHIGAN BUILDING CODE 2015
REFERENCES MICHIGAN ENERGY CODE, PART 10A
REFERENCES ASHREA 90.1-2013

		CLIMATE ZONE 5, NONRESIDENTIAL ASSEMBLY MAXIMUM U	INSULATION MIN. R-VALUE
ROOFS	INSULATION ENTIRELY ABOVE DECK	U-0.032 (R-31.25)	R-30 c.i.
ROOFS	METAL BUILDING	U-0.037 (R-27)	R-19 + R-11 Ls or R-25 + R-8 Ls
ROOFS	ATTIC & OTHER	U-0.021	R-49
WALLS	MASS (CMU BACK-UP)	U-0.090 (R-11.1)	R-11.4 c.i.
WALLS	METAL BUILDING	U-0.050 (R-20)	R-0 + R-19 c.i.
WALLS	STEEL STUD	U-0.055 (R-18.18)	R-13 + R-10 c.i.
WALLS	WOOD STUD	U-0.051 (R-19.6)	R-13 + R-7.5 c.i. or R-19 + R-5 c.i.
WALLS	BELOW GRADE		R-7.5 c.i.
SLAB-ON-GRADE FLOORS (PERIMETER)			R-15 for 24 in

PLAN GENERAL NOTES:

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2. COORDINATE SIZES AND LOCATIONS OF ALL MISCELLANEOUS ACCESS PANELS REQUIRED. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE TO BE PROVIDED BY TRADES REQUIRING THEM. ALL LOCATIONS MUST BE APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
3. FLOOR PLANS ARE DIMENSIONED TO ACTUAL WALL THICKNESS UNLESS OTHERWISE NOTED.
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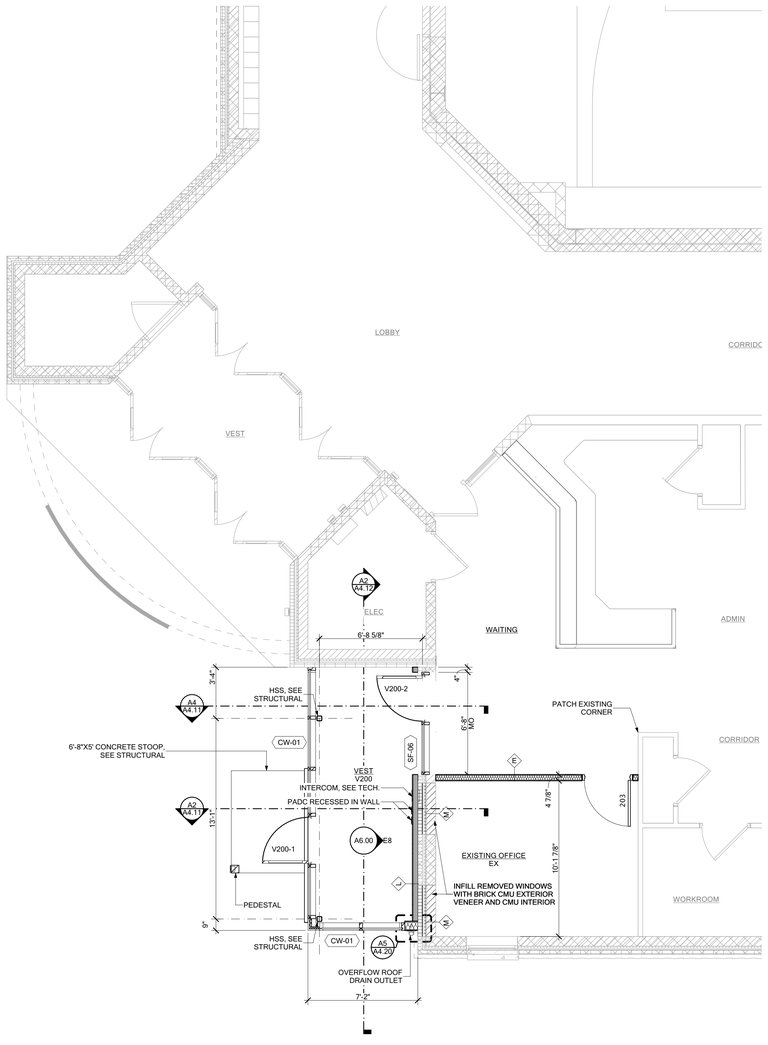
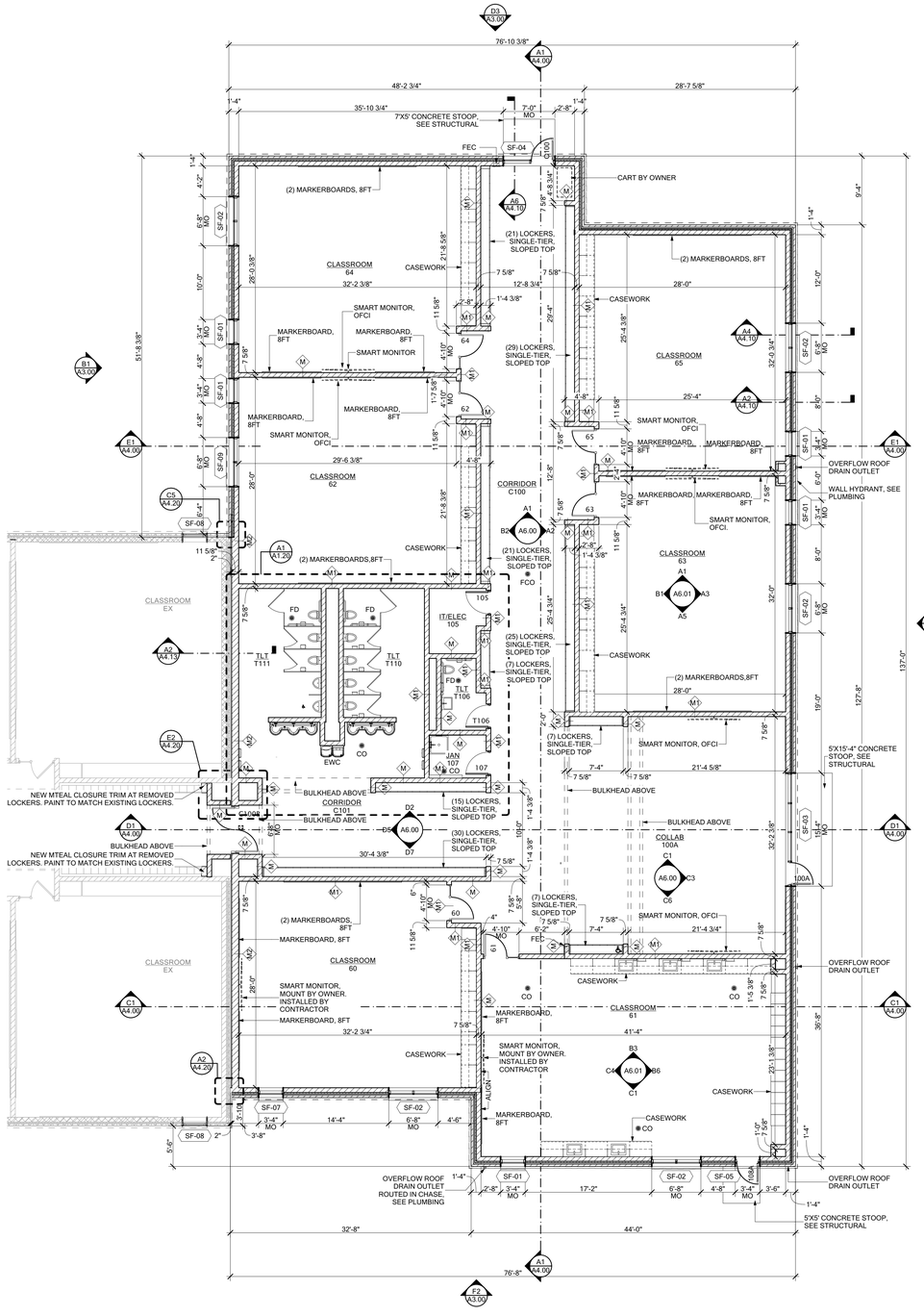
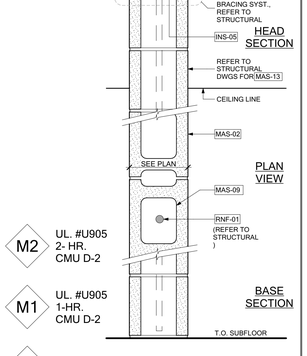
5. PROVIDE INTERIOR GYPSUM BOARD CONTROL JOINTS @ 25' O.C. AT LOCATIONS SHOWN ON PLANS AND/OR INTERIOR ELEVATIONS OR AS DIRECTED BY ARCHITECT.
6. VERIFY QUANTITY, SIZES, AND LOCATIONS OF ALL FLOOR, ROOF, AND WALL OPENINGS FOR MECHANICAL AND ELECTRICAL WORK WITH THE APPROPRIATE TRADES. PROVIDE ALL OPENINGS SHOWN OR REQUIRED FOR THE COMPLETION OF THE WORK. PROVIDE ALL LINTELS REQUIRED FOR THESE OPENINGS PER SPECIFICATIONS.
7. REFER TO LS & A0 SERIES DRAWINGS FOR LOCATIONS OF REQUIRED FIRE RESISTANCE RATINGS, UL DESCRIPTIONS, AND JOINT DETAILS.
8. REFER TO FINISH PLANS FOR FLOOR FINISHES, ROOM FINISHES, AND FINISH LAYOUTS.
9. SEE REFLECTED CEILING PLANS FOR WINDOW SHADE LOCATIONS. REFER TO SPECIFICATIONS FOR REQUIREMENTS.



A6 VESTIBULE ENLARGED FLOOR PLAN
SCALE: 1/4" = 1'-0"



A2 FLOOR PLAN
SCALE: 1/8" = 1'-0"



N

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT
Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE
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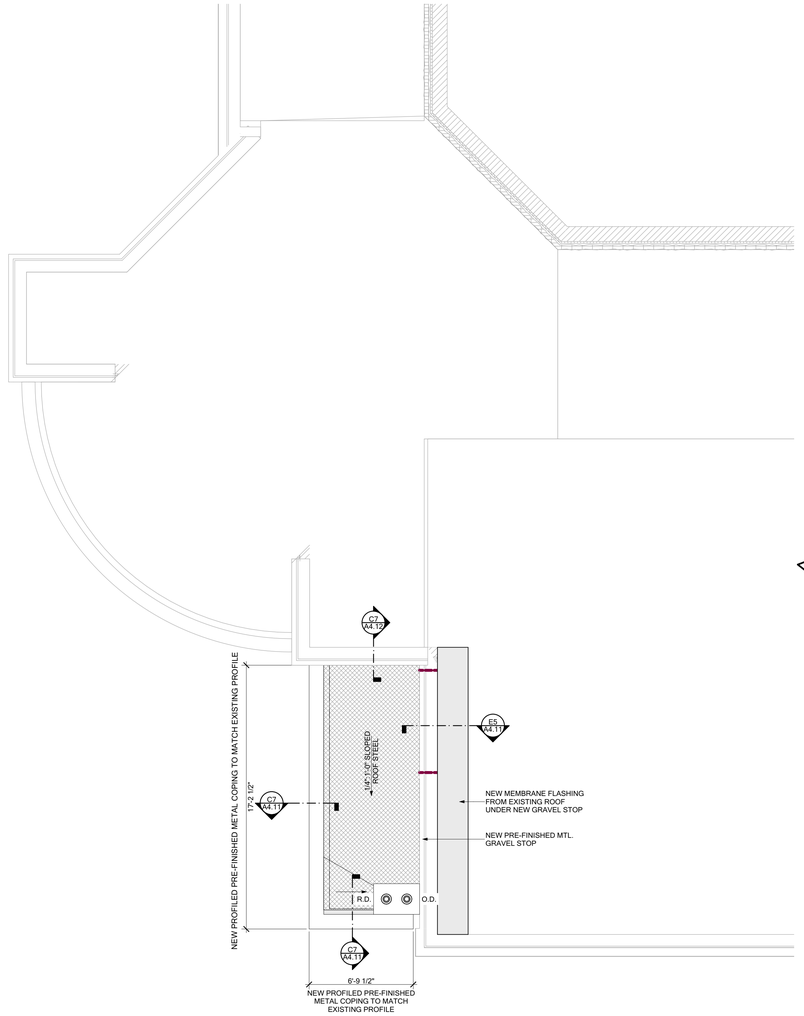
SHEET TITLE
FIRST FLOOR PLAN

SHEET NO.
A1.10



A6 VESTIBULE ENLARGED ROOF PLAN
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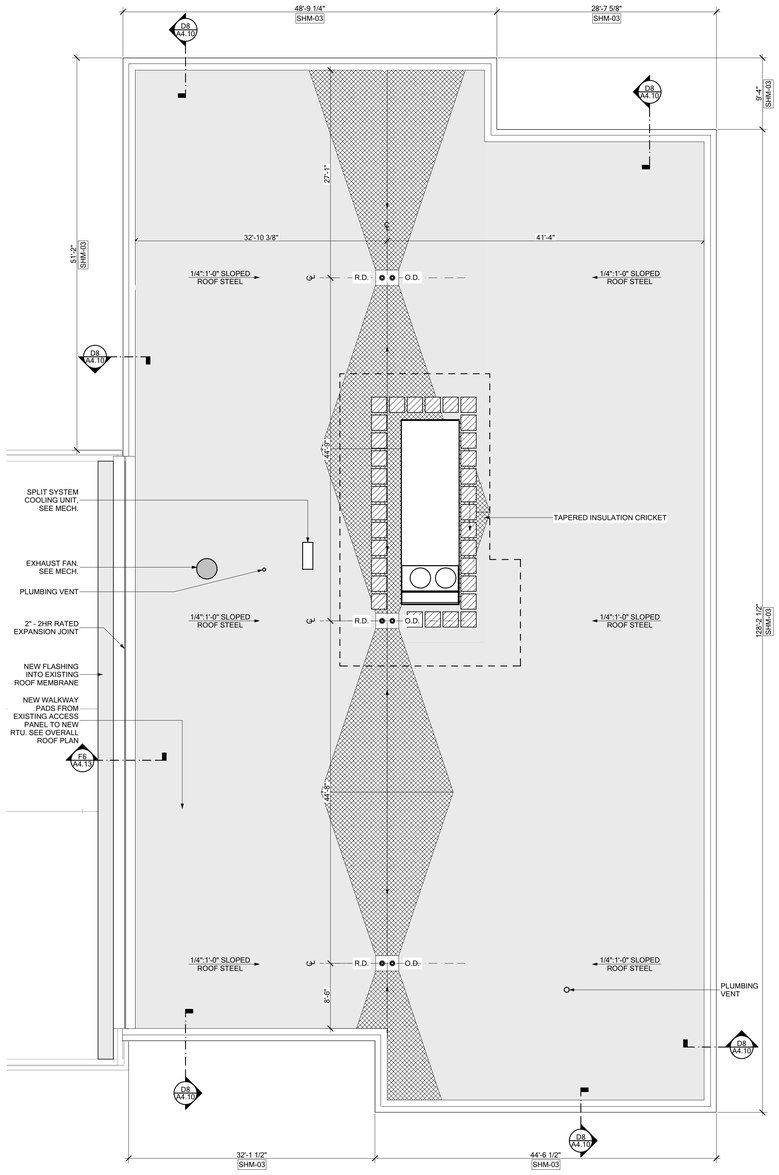

A2 ROOF PLAN
SCALE: 1/8" = 1'-0"

N

ROOF GENERAL NOTES:

1. MAINTAIN ROOF DRAINS IN FUNCTIONING CONDITION TO ENSURE ROOF DRAINAGE AT END OF EACH WORKDAY.
2. PREVENT DEBRIS FROM ENTERING OR BLOCKING ROOF DRAINS AND CONDUCTORS.
3. PATCH ROOF SYSTEM AT ALL REMOVED PENETRATIONS, CURBS, AND EQUIPMENT. REFER TO MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.
4. PATCH ROOF SYSTEM AND PROVIDE FLASHING AT ALL NEW ROOF PENETRATIONS, CURBS, AND EQUIPMENT. REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS.
5. SEE MECHANICAL, ELECTRICAL & PLUMBING DRAWINGS FOR GENERAL ROOFING NOTES SPECIFIC TO THOSE TRADES.
6. PROVIDE CRICKETS ON HIGH SIDE OF ROOFTOP UNITS & OTHER EQUIPMENT, TYPICAL.
7. FINAL LOCATION OF ROOFTOP EQUIPMENT TO BE COORDINATED WITH STRUCTURAL AND MECHANICAL WORK.
8. PAINT ALL EXPOSED ROOFTOP NATURAL GAS LINES, REFER TO SPECIFICATIONS.
9. ALL EQUIPMENT IS TO REMAIN OPERATIONAL DURING CONSTRUCTION. COORDINATE REMOVAL AND OR REPLACEMENT OF EQUIPMENT WITH OWNER.
10. ROOF SLOPES INDICATED ON THE DRAWINGS ARE TO INDICATE DESIGN INTENT ONLY. CONTRACTOR SHALL PROVIDE SHOP DRAWINGS FOR THE COMPLETE ROOFING SYSTEM TO ENSURE PROPER DRAINAGE, INCLUDING TAPERED INSULATION LAYOUT, FLOW DIRECTIONS, DRAIN LAYOUT, AND CRICKET LOCATIONS. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.
11. PROVIDE ROOF FLASHING FOR ALL ROOF MOUNTED EQUIPMENT AND PENETRATIONS AT ALL NEW ROOFING LOCATIONS. REFER TO PLUMBING, MECHANICAL & ELECTRICAL DRAWINGS.
12. REFER TO GENERAL ROOFING ASSEMBLY DETAILS AND SPECIFICATIONS FOR R-VALUE REQUIRED OF ROOFING INSULATION.
13. SEE ASSEMBLY DETAILS AND SPECIFICATIONS FOR COVERBOARD AND VAPOR RETARDER/AIR BARRIER REQUIREMENTS.
14. AT EXISTING AREAS TO RECEIVE NEW ROOFING, REMOVE ALL EXISTING ROOF RELATED ACCESSORIES INCLUDING, BUT NOT LIMITED TO, SNOW GUARDS, PITCH POCKETS, PIPE PENETRATION SLEEVES, EXPANSION JOINTS, CANTS, SADDLES, CRICKETS, ATTIC VENTS, RIDGE VENTS, WALKWAY PADS AND SIMILAR.

KEYNOTES:

XX-# (NOTE: NOT ALL NUMBERS ARE USED)

RFG: ROOFING

RFG-01	SINGLE-PLY MEMBRANE ROOFING
RFG-02	ROOF MEMBRANE FLASHING
RFG-03	ROOFING INSULATION, R-20 MIN
RFG-04	TAPERED ROOFING INSULATION, R-20 MIN
RFG-05	ROOFING VAPOR RETARDER
RFG-06	TERMINATION BAR
RFG-07	PREFORMED PIPE BOOT
RFG-08	STANDING-SEAM METAL ROOFING
RFG-09	STANDING-SEAM ROOF FLASHING
RFG-10	ROOFING UNDERLAYMENT
RFG-11	ASPHALT SHINGLES ON UNDERLAYMENT

SHM: SHEET METAL FABRICATIONS

SHM-01	GUTTER
SHM-02	DOWNSPOUT
SHM-03	GRAVEL STOP (SEE SECTION DETAILS)
SHM-04	COPING
SHM-05	SHEET METAL FLASHING
SHM-06	DRIP EDGE
SHM-07	COUNTERFLASHING

ROOF PLAN LEGEND:

- MEMBRANE ROOF SYSTEM ON FLAT INSULATION
- MEMBRANE ROOF SYSTEM ON TAPERED INSULATION
- ROOF WALKWAY PADS

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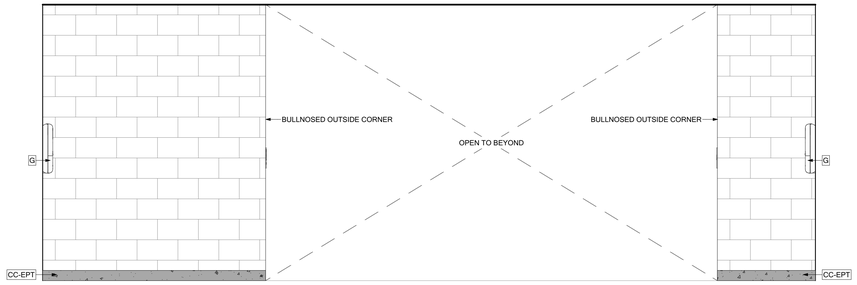
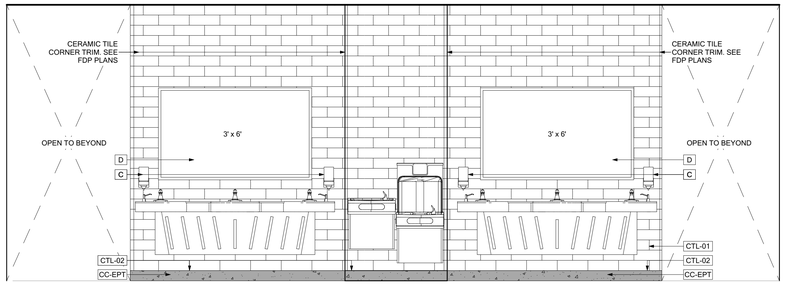
SHEET TITLE
ROOF PLAN

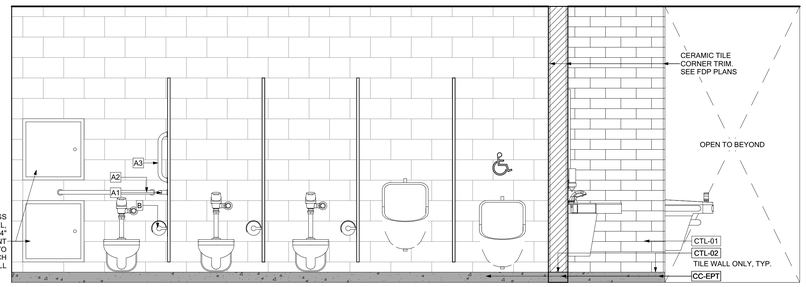
SHEET NO.
A1.11



F6 ADDITION AREA -S
SCALE: 1/2" = 1'-0"



E6 ADDITION AREA -N
SCALE: 1/2" = 1'-0"



D6 ADDITION AREA -E
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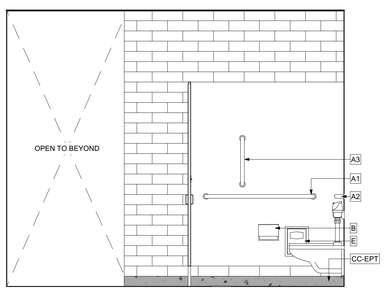
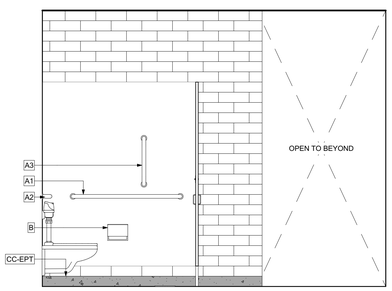
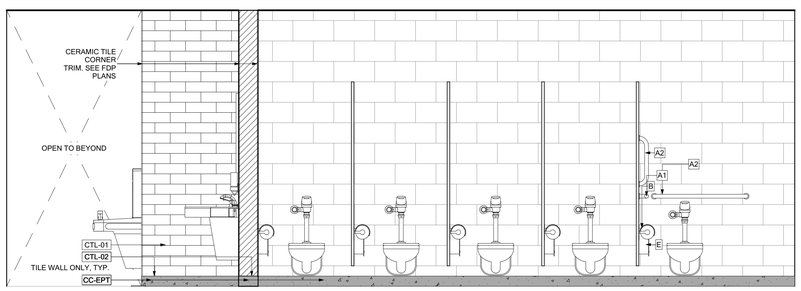


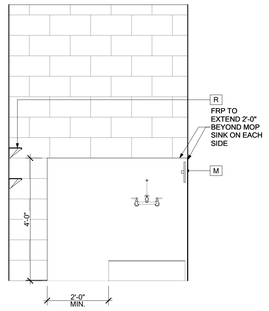
B8 EXTERIOR ELEVATION - NORTH
SCALE: 1/2" = 1'-0"



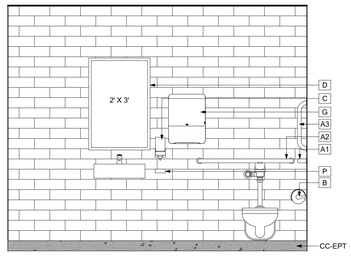
B6 EXTERIOR ELEVATION - NORTH
SCALE: 1/2" = 1'-0"



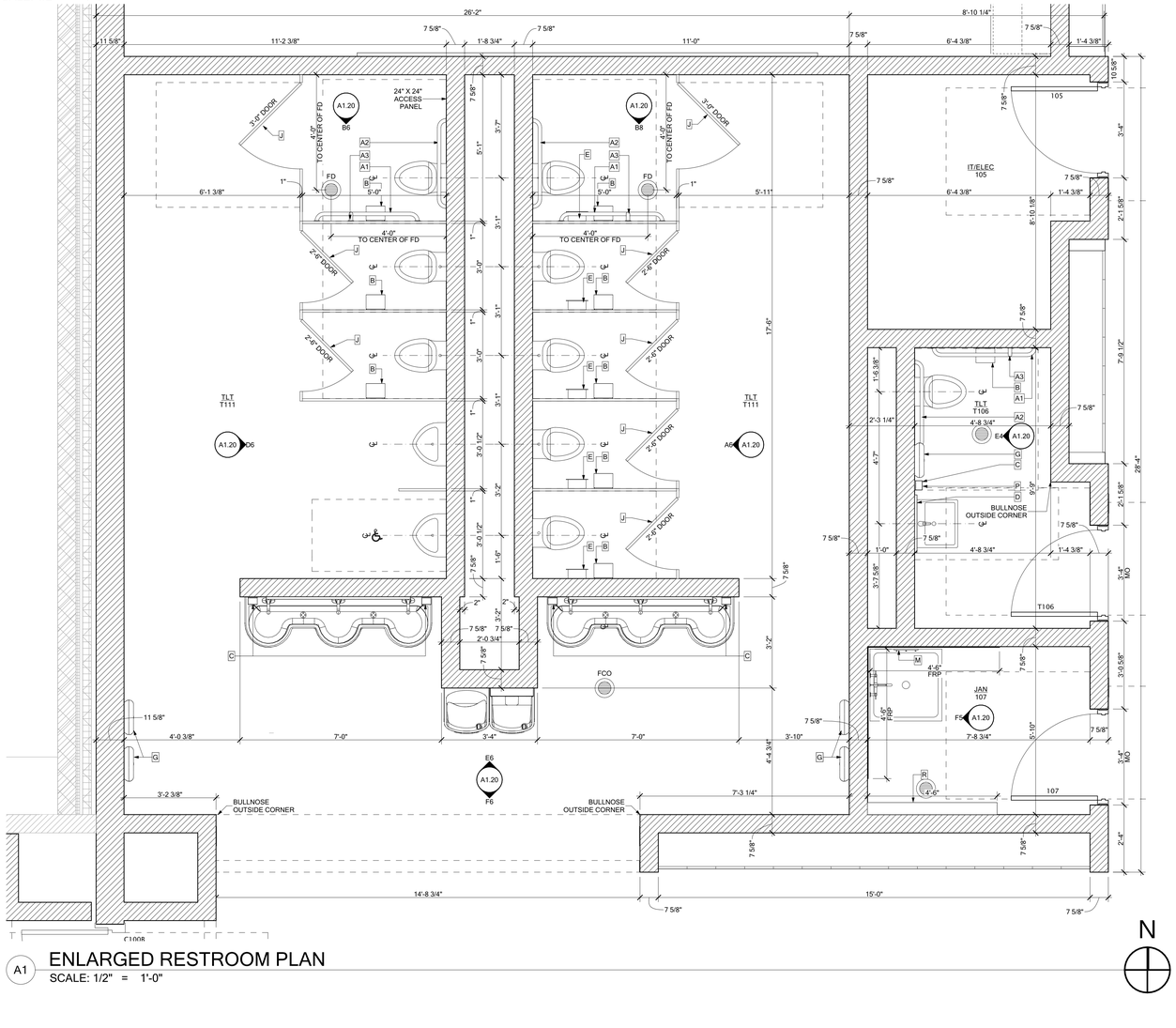
A6 ADDITION AREA -W
SCALE: 1/2" = 1'-0"



F5 JAN -W
SCALE: 1/2" = 1'-0"



E4 T106 - W
SCALE: 1/2" = 1'-0"



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A1 ENLARGED RESTROOM PLAN
SCALE: 1/2" = 1'-0"

TOILET ROOM ACCESSORIES SCHEDULE

	ITEM	MANUFACTURER	MODEL #	REMARKS
A1	GRAB BAR (42")	BOBRICK	B-6806 X 42	
A2	GRAB BAR (36")	BOBRICK	B-6806 X 36	
A3	GRAB BAR (18" VERTICAL BAR)	BOBRICK	B-6806 X 18	
B	TOILET TISSUE DISPENSER	BOBRICK	OWNER PROVIDED, CONTRACTOR INSTALLED	
C	SOAP DISPENSER	BOBRICK	OWNER PROVIDED, CONTRACTOR INSTALLED	
D	MIRROR - STAINLESS STEEL FRAME	BOBRICK	B-290	
E	SANITARY NAPKIN DISPOSAL	BOBRICK	B-270	
G	PAPER TOWEL DISPENSER	BOBRICK	OWNER PROVIDED, CONTRACTOR INSTALLED	
H	WASTE RECEPTACLE (FREE STANDING)	BOBRICK	B-2250	
J	GARMENT HOOKS / DOOR STOP	PER TOILET PARTITION MFGR.	ONE PER COMPARTMENT	
M	MOP HOLDER	BOBRICK	B-223	
P	SOAP DISH	BOBRICK	B-680	
R	FIXED SHELF	BOBRICK	B-295	
S	SANITARY NAPKIN AND TAMPON DISPENSER	ASI	OWNER PROVIDED, CONTRACTOR INSTALLED	

ACCESSORY NOTES:
1. ACCESSORIES TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
2. SEE A0.00 GENERAL INFORMATION FOR MOUNTING HEIGHTS.

PLAN GENERAL NOTES:

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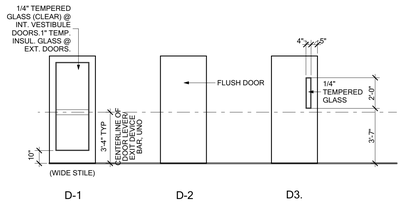
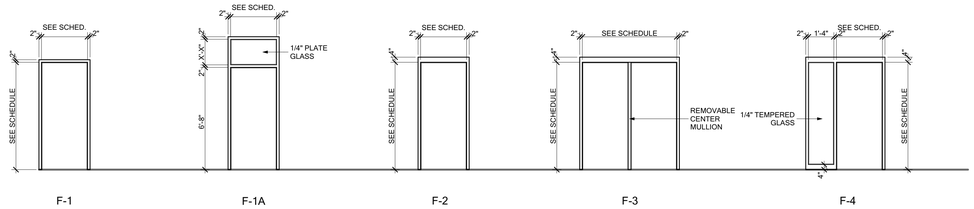
SHEET TITLE
ENLARGED FIRST FLOOR PLAN

SHEET NO.
A1.20

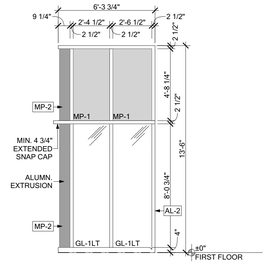


F7 **DOOR ELEVATIONS**
SCALE: 1/4" = 1'-0"

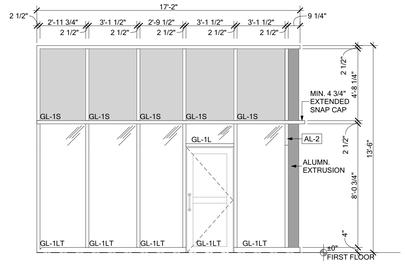


E5 **DOOR FRAME ELEVATIONS**
SCALE: 1/4" = 1'-0"

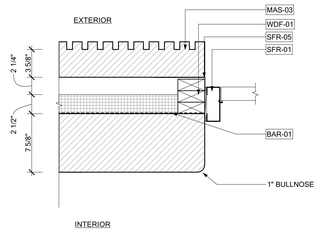
PROVIDE SAFETY RATED GLASS AT ALL 20 MINUTE RATED DOORS



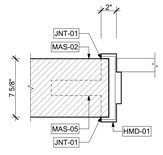
C8 **CW-02**
SCALE: 1/4" = 1'-0"



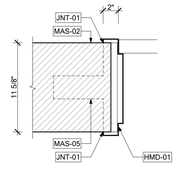
C6 **CW-01**
SCALE: 1/4" = 1'-0"



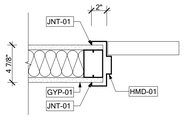
H1/J1



H2/J2

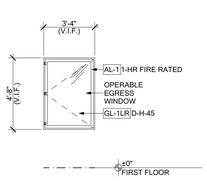


H3/J3



H4/J4

C1 **DOOR/FRAME JAMBS**
SCALE: 1 1/2"= 1'-0"



B8 **SF-08**
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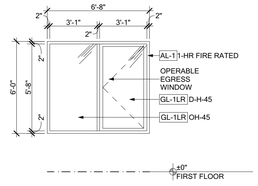

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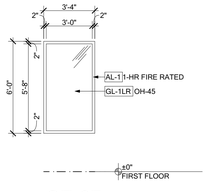

A8 **SF-07**
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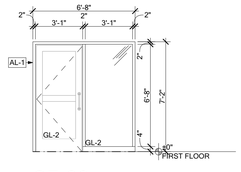

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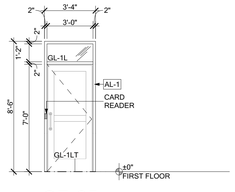
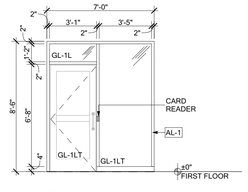
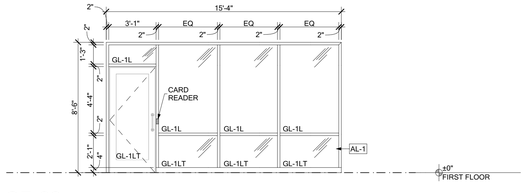


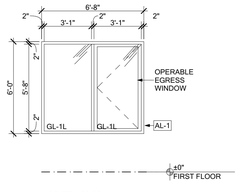
A6 **SF-05**
SCALE: 1/4" = 1'-0"



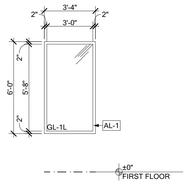
A5 **SF-04**
SCALE: 1/4" = 1'-0"



A3 **SF-03**
SCALE: 1/4" = 1'-0"



A2 **SF-02**
SCALE: 1/4" = 1'-0"



A1 **SF-01**
SCALE: 1/4" = 1'-0"

ENLARGED WINDOW LEGEND:

(A) WINDOW TYPE
(CW-1) CURTAIN WALL TYPE
(SF-1) STOREFRONT WALL TYPE

XX-# **KEYED WINDOW NOTES:**
(NOTE: NOT ALL NUMBERS ARE USED)

ALUMINUM (AL):

AL-1 ALUMINUM FRAMED STOREFRONT SYSTEM
AL-2 ALUMINUM FRAMED CURTAIN WALL SYSTEM
AL-3 ALUMINUM WINDOW

GLASS (GL): (TEMPERED GLASS WHERE REQUIRED BY CODE)

GL-1 1" INSULATING GLASS UNIT
GL-1L 1" INSULATING GLASS UNIT LAMINATED
GL-1LR 1" INSULATING GLASS UNIT LAMINATED AND FIRE RATED
GL-1LT 1" INSULATING GLASS UNIT LAMINATED AND TEMPERED
GL-1T 1" INSULATING GLASS UNIT TEMPERED
GL-1S 1" INSULATING GLASS UNIT (SPANDREL)

GL-2 1 3/8" GLASS UNIT TEMPERED (BULLET RESISTANT)

GL-4 1/4" GLASS UNIT
GL-4T 1/4" GLASS UNIT TEMPERED

HOLLOW METAL (HM):

HM HOLLOW METAL FRAME. PAINT

DOOR SCHEDULE

No.	SIZE	EL	MATL	FIN	FRAME EL	FRAME MATL	FRAME FIN	H	J	BASE BID HDW SET	ALT HDW SET	FIRE RATING	REMARKS
60	3'-0"x7'-0"	D-2	HM	PT	F-4	HM	PT	H2	J2	9.0	12.0	20 minutes	
61	3'-0"x7'-0"	D-2	HM	PT	F-4	HM	PT	H2	J2	9.0	12.0	20 minutes	
62	3'-0"x7'-0"	D-2	HM	PT	F-4	HM	PT	H2	J2	9.0	12.0	20 minutes	
63	3'-0"x7'-0"	D-2	HM	PT	F-4	HM	PT	H2	J2	9.0	12.0	20 minutes	
64	3'-0"x7'-0"	D-2	HM	PT	F-4	HM	PT	H2	J2	9.0	12.0	20 minutes	
65	3'-0"x7'-0"	D-2	HM	PT	F-4	HM	PT	H2	J2	9.0	12.0	20 minutes	
100A	3'-0"x7'-0"	D-1	AL	CLEAR	*	AL	CLEAR	H1	J1	2.0		-	SEE SF-03 FOR FRAME
105	3'-0"x7'-0"	D-2	HM	PT	F-2	HM	PT	H2	J2	6.0	11.0	20 minutes	
107	3'-0"x7'-0"	D-2	HM	PT	F-2	HM	PT	H2	J2	6.0	11.0	20 minutes	
108A	3'-0"x7'-0"	D-1	AL	CLEAR	-	AL	CLEAR	H1	J1	3.0		-	CR, FREE EGRESS, SEE SF-05 FOR FRAME
203	3'-0"x7'-0"	D-3	SCWD	STAIN	F-1	HM	PT	H4	J4	10.0		-	
C100	3'-0"x7'-0"	D-1	AL	CLEAR	*	AL	PT	H1	J1	2.0		-	CR, FREE EGRESS, SEE SF-04 FOR FRAME
C100B	6'-0"x7'-0"	D-2	HM	PT	F-3	HM	PT	H3	J3	5.0		1.5 hours	HOLD OPENS
T106	3'-0"x7'-0"	D-2	HM	PT	F-2	HM	PT	H2	J2	7.0		20 minutes	
V200-1	3'-0"x7'-0"	D-1	AL	CLEAR	F-1	AL	CLEAR	*	*	1.0		-	FREE EGRESS, TIMED ACCESS CONTROLS, PADC OPERATOR, SEE CW-01 FOR FRAME
V200-2	3'-0"x7'-0"	D-1	AL	CLEAR	F-1	AL	CLEAR	-	-	4.0		-	BALLISTIC LEVEL 2 GLAZING IN DOOR AND FRAME, SEE SF-06 FOR FRAME

THE COL LAB ORAT IVE

STATE OF MICHIGAN
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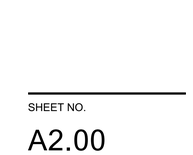
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025



KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR BID & PERMIT

TC JOB NO. 107270

SHEET TITLE
DOOR SCHEDULE

SHEET NO.
A2.00

EXTERIOR GENERAL NOTES:

1. SEALANT COLORS TO MATCH ADJACENT MATERIALS. VERIFY COLORS WITH ARCHITECT PRIOR TO APPLICATION. VERTICAL BRICK EXPANSION JOINT COLOR TO MATCH CMU VENEER, NOT MORTAR.
2. END DAMS REQUIRED FOR EACH END OF FLASHINGS AT ALL DOORS, WINDOWS, STOREFRONTS, CURTAIN WALLS, AND SIMILAR OPENINGS.

EXTERIOR FINISH SCHEDULE:

NOTE: SEE SPECIFICATIONS FOR ADDITIONAL FINISH INFORMATION. ALL PRODUCTS AND MANUFACTURERS INDICATED BELOW ARE BASIS OF DESIGN. SPECIFICATIONS LIST OTHER ACCEPTABLE MANUFACTURERS AND/OR PRODUCTS.

(CMU) CONCRETE MASONRY UNITS

CMU-1	MATCH EXISTING SIZE, FINISH, AND BOND PATTERN (CMU)
CMU-2	MATCH EXISTING SIZE, FINISH, AND BOND PATTERN (FLUTED CMU)
CMU-3	MATCH EXISTING SIZE, FINISH, AND BOND PATTERN (SPLIT FACE CMU)

(CS) CAST STONE MASONRY

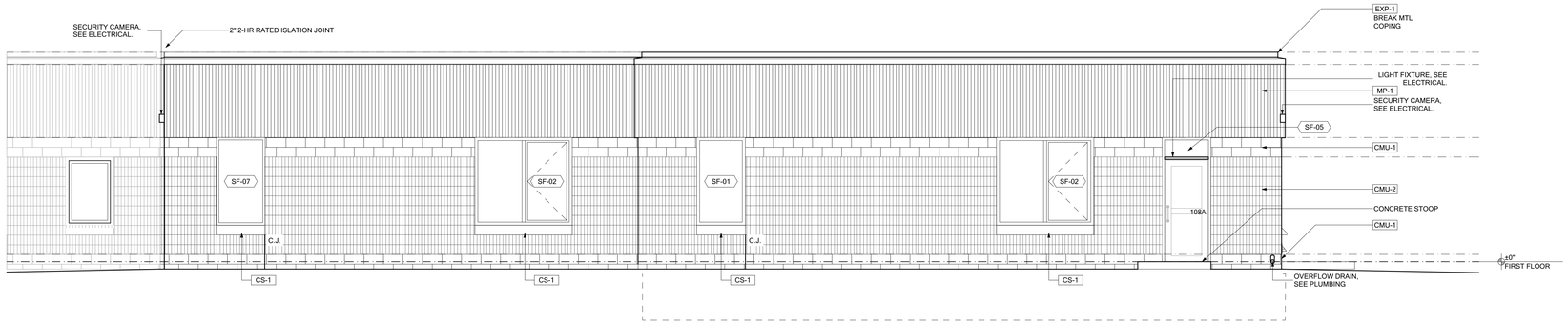
CS-1	MATCH EXISTING - CUSTOM SILL PROFILE

(EXP) EXTERIOR PAINTS

EXP-1	MATCH EXISTING - CUSTOM COLOR - FREELAND SCHOOLS GREEN

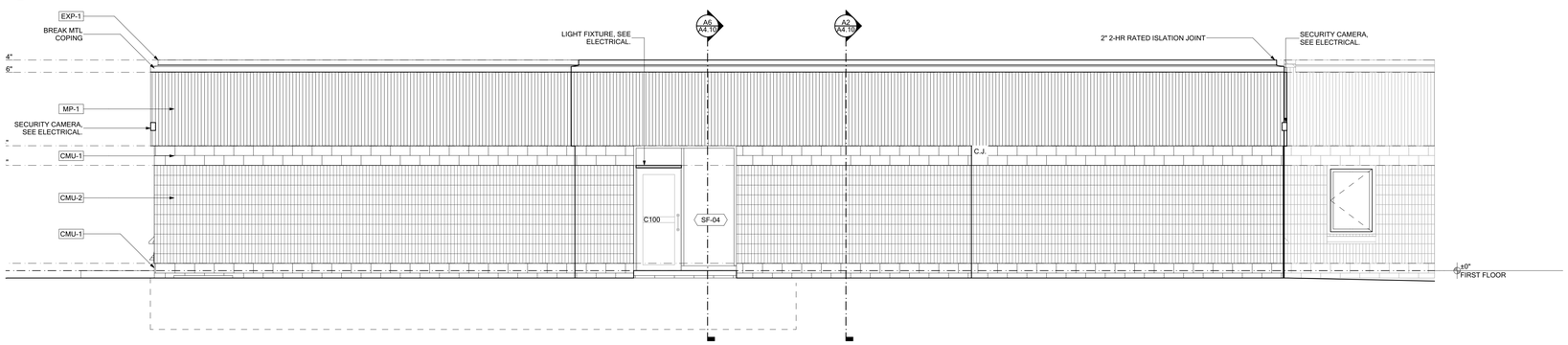
(MP) METAL PANELS

MP-1	MATCH EXISTING SIZE, TYPE, AND COLOR (CORRUGATED)
MP-2	ALUCABOND, TBD, CUSTOM COLOR - FREELAND SCHOOLS GREEN



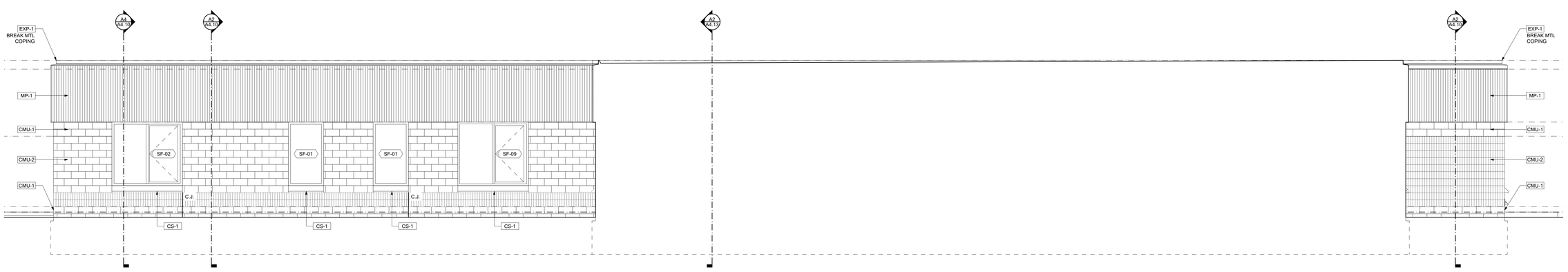
F2 EXTERIOR ELEVATION - SOUTH

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



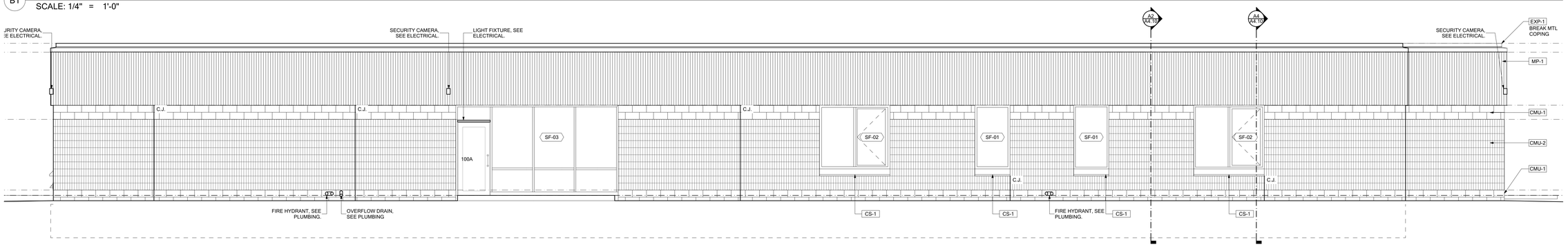
D3 EXTERIOR ELEVATION - NORTH

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



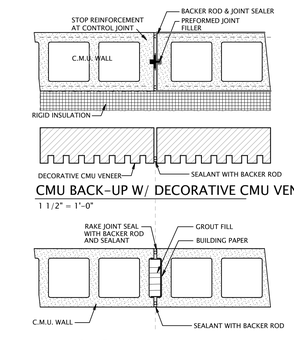
B1 EXTERIOR ELEVATION - WEST

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



A1 EXTERIOR ELEVATION - EAST

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



CMU BACK-UP W/ DECORATIVE CMU VENEER

1 1/2" = 1'-0"

INTERIOR CMU

1 1/2" = 1'-0"

D1 TYP. C.J. AND E.J. DETAILS

SCALE: 1 1/2"= 1'-0"

THE COLLABORATIVE

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LICENSED ARCHITECT

Michael Muse, License #1301048954
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KEY PLAN
N.T.S.

N

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

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FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

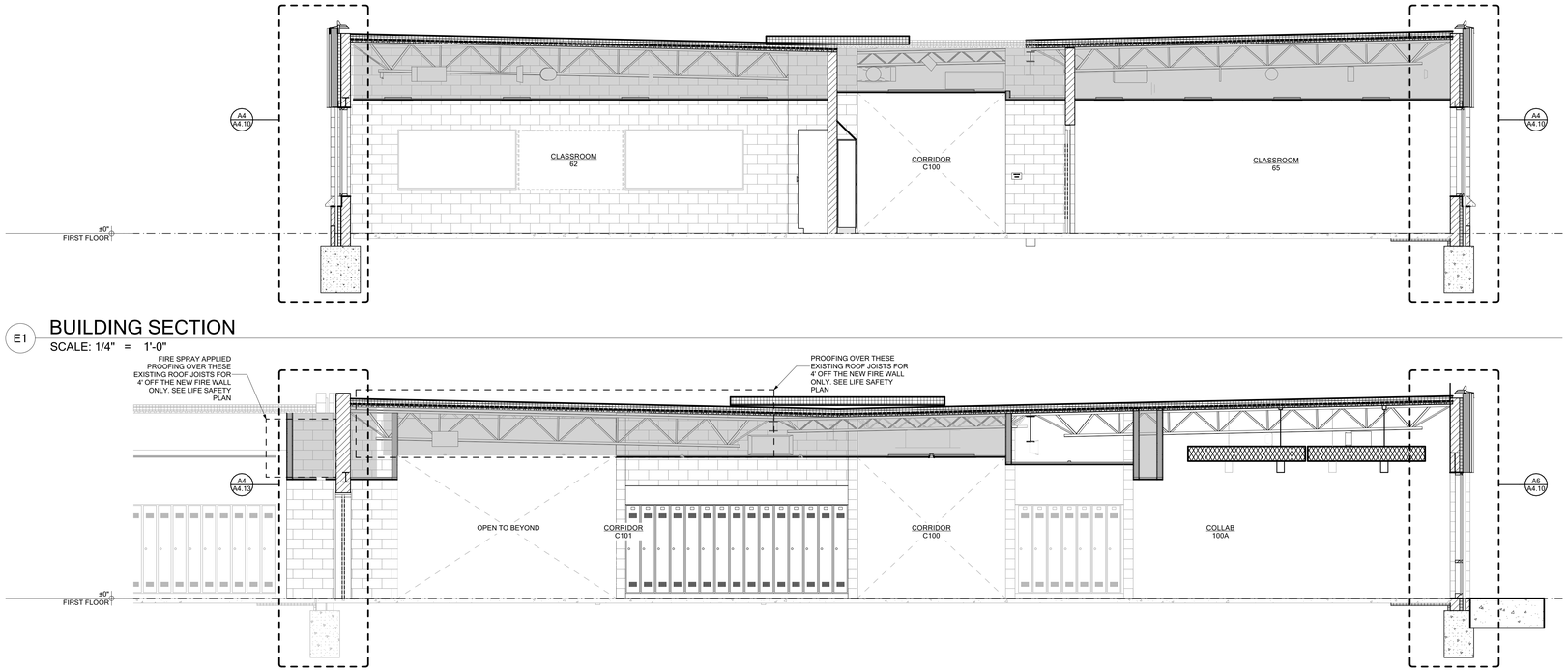
TC JOB NO. 107270

SHEET TITLE

EXTERIOR ELEVATIONS

SHEET NO.

A3.00

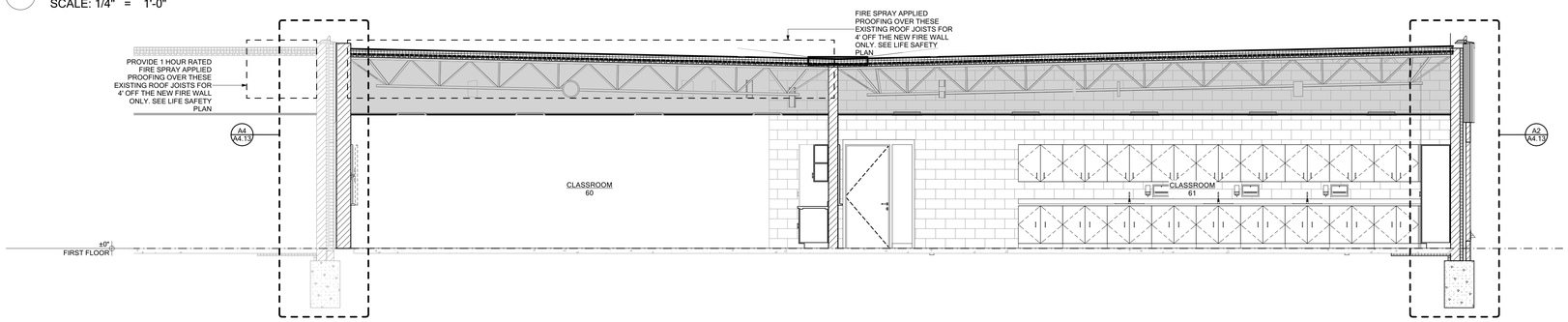


E1 BUILDING SECTION

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

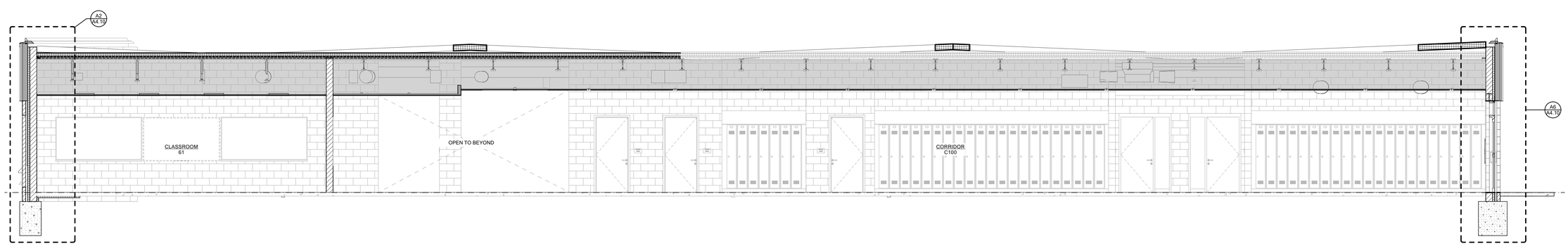
D1 BUILDING SECTION

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



C1 BUILDING SECTION

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



A1 BUILDING SECTION

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

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PROJECT TITLE

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MIDDLE SCHOOL ADDITION

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12.12.2024	ISSUED FOR BID & PERMIT

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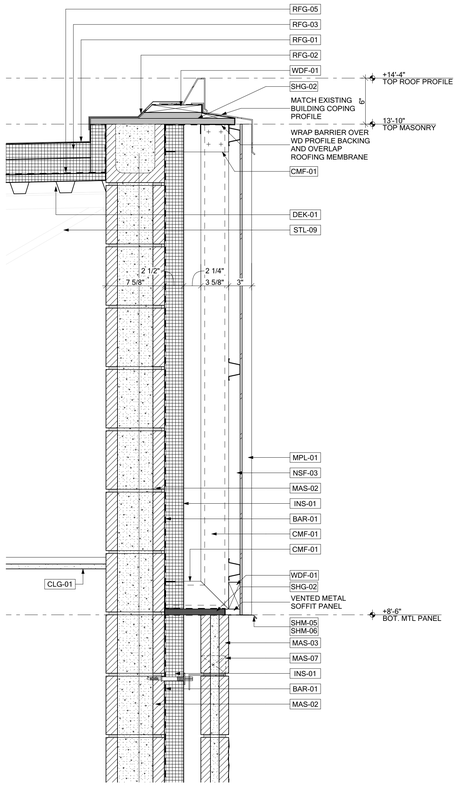
SHEET TITLE

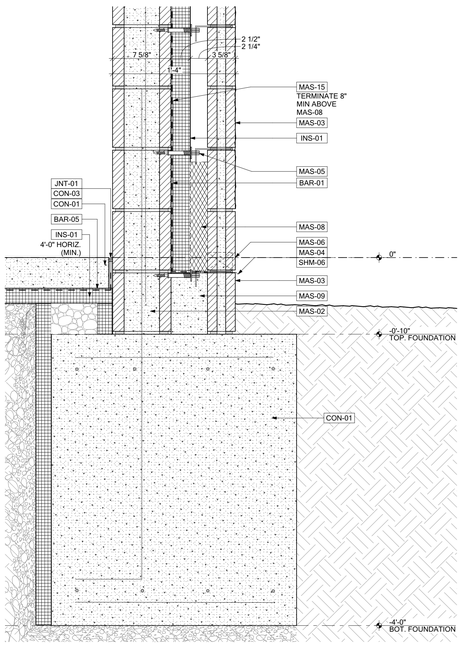
BUILDING SECTIONS

SHEET NO.

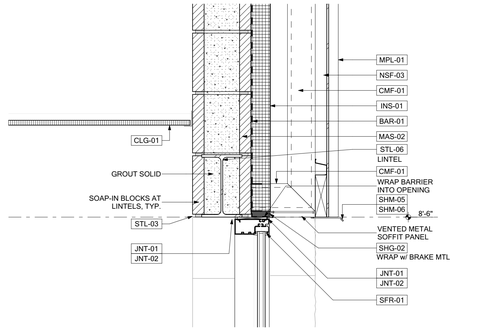
A4.00



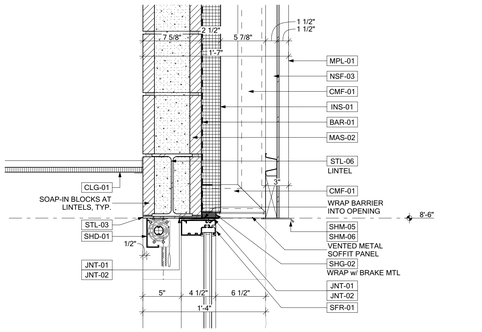
D8 DETAIL
SCALE: 1 1/2"= 1'-0"



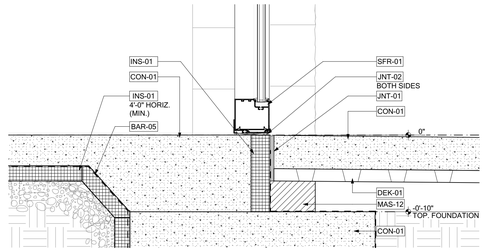
A8 DETAIL
SCALE: 1 1/2"= 1'-0"



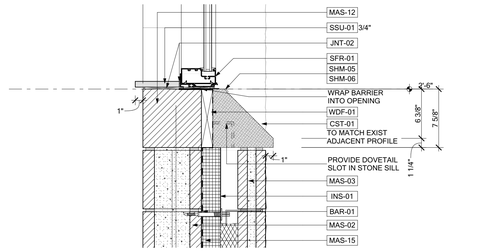
F6 DETAIL
SCALE: 1 1/2"= 1'-0"



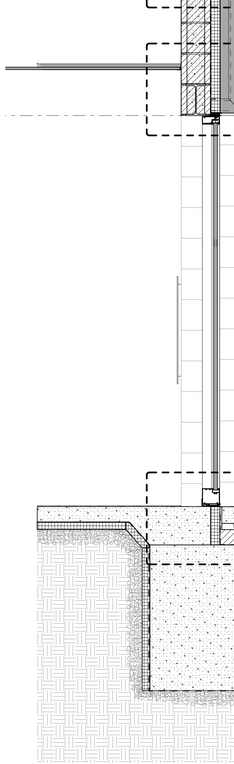
F4 DETAIL
SCALE: 1 1/2"= 1'-0"



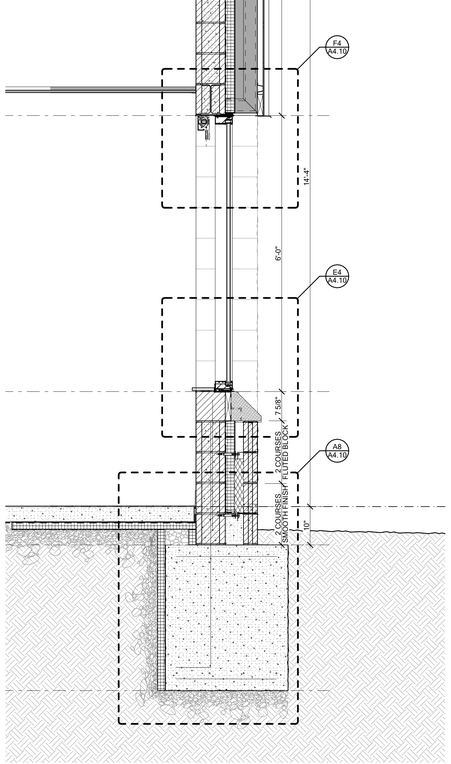
E6 DETAIL
SCALE: 1 1/2"= 1'-0"



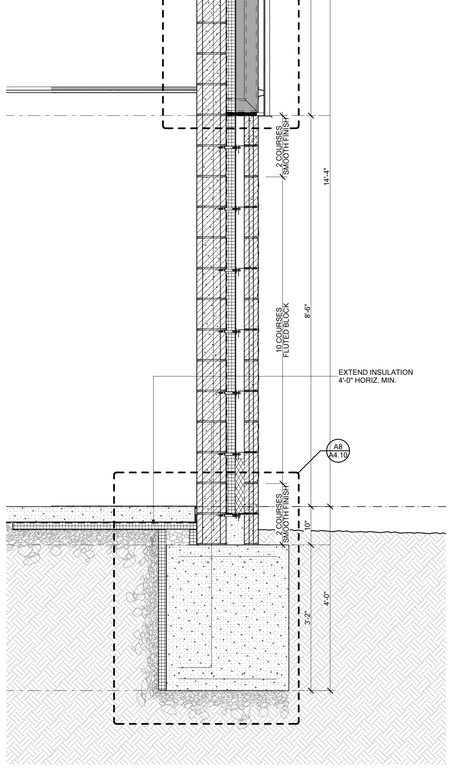
E4 DETAIL
SCALE: 1 1/2"= 1'-0"



A6 WALL SECTION
SCALE: 3/4" = 1'-0"



A4 WALL SECTION
SCALE: 3/4" = 1'-0"



A2 WALL SECTION
SCALE: 3/4" = 1'-0"

KEYNOTES:

XX-#

(NOTE: NOT ALL NUMBERS ARE USED)

BAR: VAPOR, AIR, AND WEATHER BARRIERS
BAR-01 VAPOR-RETARDING AIR BARRIER SYSTEM
BAR-02 VAPOR-PERMEABLE AIR BARRIER SYSTEM
BAR-03 VAPOR-PERMEABLE WATER-RESISTIVE BARRIER
BAR-04 BARRIER TRANSITION SHEET
BAR-05 APPLIED DAMPPROOFING

CLG: CEILINGS
CLG-01 SEE REFLECTED CEILING PLANS A7.00 SERIES SHEETS

CMF: COLD-FORMED METAL FRAMING (DELEGATED DESIGN)
CMF-01 COLD-FORMED METAL FRAMING
CMF-02 COLD-FORMED DEFLECTION TRACK
CMF-03 COLD-FORMED CLIP ANGLE
CMF-04 COLD-FORMED BOX HEADER

CON: CONCRETE
CON-01 CAST-IN-PLACE CONCRETE
CON-02 UNDERSLAB VAPOR RETARDER
CON-03 EXPANSION JOINT FILLER

CST: CAST STONE
CST-01 CAST STONE SILL - MATCH EXISTING CAST STONE SILL
CST-02 CAST STONE CAP
CST-03 CAST STONE VENEER

DEK: METAL DECKING
DEK-01 STEEL DECKING
DEK-02 STEEL ACOUSTICAL DECKING

EFS: EXTERIOR INSULATION AND FINISH SYTEMS
EFS-01 EXTERIOR INSULATION FINISH SYSTEM
EFS-02 DIRECT-APPLIED EXTERIOR FINISH SYSTEM

FLR: FLOORING - SEE FINISH PLANS
FLR-01 CARPET

FST: FIRE STOPPING, SEALANTS, AND RESISTIVE MATERIALS
FST-01 FIRESTOPPING
FST-02 FIRE SEALANT
FST-03 SPRAY-APPLIED FIRE-RESISTIVE MATERIAL
FST-04 INTUMESCENT COATING

GYP: GYPSUM BOARD ASSEMBLIES
GYP-01 GYPSUM BOARD
GYP-02 GLASS MAT-FACED GYPSUM BOARD
GYP-03 CONTROL JOINT
GYP-04 CORNER BEAD
GYP-05 J-BEAD
GYP-06 F-REVEAL
GYP-07 U-REVEAL
GYP-08 Z-REVEAL
GYP-09 CEMENT BACKER BOARD

HMD: HOLLOW METAL DOORS AND FRAMES
HMD-01 HOLLOW METAL DOOR FRAME
HMD-02 HOLLOW METAL WINDOW OPENING
HMD-03 HOLLOW METAL DOOR

INS: INSULATION
INS-01 RIGID INSULATION BOARD
INS-02 SPRAYED-FOAM INSULATION
INS-03 THERMAL BATT INSULATION
INS-04 ACOUSTICAL BATT INSULATION
INS-05 MINERAL WOOL FIRESAFING INSULATION
INS-06 SEMIRIGID MINERAL WOOL INSULATION BOARD

JNT: JOINT SEALANTS
JNT-01 JOINT SEALANT
JNT-02 BACKER ROD & SEALANT
JNT-03 ACOUSTICAL SEALANT
JNT-04 PREFORMED JOINT SEAL
JNT-05 BUILDING EXPANSION JOINT ASSEMBLY

MAS: MASONRY (GENERAL)
MAS-01 BRICK MASONRY
MAS-02 CONCRETE MASONRY UNIT
MAS-03 DECORATIVE CMU VENEER
MAS-04 FLASHING
MAS-05 VENEER ANCHOR
MAS-06 MASONRY WEEP, 24" O.C.
MAS-07 PRESSURE EQUALIZATION VENT, 24" O.C.
MAS-08 CAVITY DRAINAGE MATERIAL
MAS-09 GROUT
MAS-10 PREFORMED MASONRY CONTROL JOINT
MAS-11 LINTEL
MAS-12 SOLID CONCRETE MASONRY UNIT
MAS-13 CMU BOND BEAM
MAS-14 CMU FLASHING PAN
MAS-15 FLASHING TERMINATION BAR

MPL: METAL PANELS
MPL-01 ARCHITECTURAL METAL PANEL
MPL-02 METAL COMPOSITE MATERIAL PANEL
MPL-03 FLASHING TO MATCH METAL PANEL
MPL-04 PERFORATED METAL PANEL
MPL-05 INSULATED METAL PANEL
MPL-06 METAL SOFFIT PANEL
MPL-07 THERMAL CLIPS

NSF: NON-STRUCTURAL METAL FRAMING
NSF-01 NON-STRUCTURAL METAL FRAMING
NSF-02 NON-STRUCTURAL DEFLECTION TRACK
NSF-03 HAT CHANNEL FURRING
NSF-04 RESILIENT CHANNEL FURRING
NSF-05 Z-FURRING
NSF-06 NON-STRUCTURAL CLIP ANGLE
NSF-07 SHAFT WALL FRAMING
NSF-08 J-TRACK
NSF-09 FRAMING TRACK

OHD: OVERHEAD DOORS
OHD-01 OVERHEAD COILING DOOR
OHD-02 OVERHEAD PANELIZED DOOR
OHD-03 OVERHEAD COILING SHUTTER
OHD-04 OVERHEAD COILING FIRE SHUTTER

RAC: ROOFING ACCESSORIES
RAC-01 ROOF HATCH
RAC-02 PREFABRICATED CURB
RAC-03 EQUIPMENT RAILS
RAC-04 SNOW GUARDS

RFG: ROOFING
RFG-01 SINGLE-PLY MEMBRANE ROOFING
RFG-02 ROOF MEMBRANE FLASHING
RFG-03 ROOFING INSULATION
RFG-04 TAPERED ROOFING INSULATION
RFG-05 ROOFING VAPOR RETARDER
RFG-06 TERMINATION BAR
RFG-07 PREFORMED PIPE BOOT
RFG-08 STANDING-SEAM METAL ROOFING
RFG-09 STANDING-SEAM ROOF FLASHING
RFG-10 ROOFING UNDERLAYMENT
RFG-11 ASPHALT SHINGLES ON UNDERLAYMENT

SFR: STOREFRONT FRAMING
SFR-01 STOREFRONT FRAMING SYSTEM
SFR-02 COMPENSATING HEAD RECEPTOR
SFR-03 EXTRUDED SILL FLASHING
SFR-04 STOREFRONT ENTRANCE
SFR-05 BRAKE METAL TRIM TO MATCH FRAMING
SFR-06 PREFINISHED FLASHING TO MATCH FRAMING

SHD: WINDOW SHADES - SEE REFLECTED CEILING PLANS
SHD-01 ROLLING WINDOW SHADE
SHD-02 DOUBLE ROLLING WINDOW SHADE

SHG: SHEATHING
SHG-01 FIBERGLASS MAT GYPSUM SHEATHING
SHG-02 PLYWOOD SHEATHING (FRT UNO)
SHG-03 NAIL BASE SHEATHING

SHM: SHEET METAL FABRICATIONS
SHM-01 GUTTER
SHM-02 DOWNSPOUT
SHM-03 GRAVEL STOP
SHM-04 COPING
SHM-05 SHEET METAL FLASHING
SHM-06 DRIP EDGE
SHM-07 COUNTERFLASHING

SSU: SOLID SURFACE
SSU-01 SOLID SURFACE MATERIAL, SEE FINISH SCHEDULE

STL: STRUCTURAL STEEL
STL-01 STEEL COLUMN
STL-02 STEEL BEAM
STL-03 STEEL PLATE
STL-04 STEEL ANGLE
STL-05 STEEL CHANNEL
STL-06 STEEL WIDE FLANGE BEAM
STL-07 STEEL RECTANGULAR TUBE
STL-08 STEEL ROUND TUBE
STL-09 STEEL JOIST
STL-10 BEARING PLATE

WFN: WOOD FINISH CARPENTRY
WFN-01 WOOD TRIM
WFN-02 WOOD VENEER TRIM PANEL
WFN-03 WOOD BASE
WFN-04 WOOD FINISH FLOORING

WDF: ROUGH WOOD FRAMING (FRT UNO)
WDF-01 WOOD BLOCKING
WDF-02 WOOD FRAMING (2X4 UNO)
WDF-03 WOOD FURRING

WIN: WINDOWS
WIN-01: WINDOW

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
REGISTERED ARCHITECT

Michael Muse, License #1301048954
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KEY PLAN
N.T.S.

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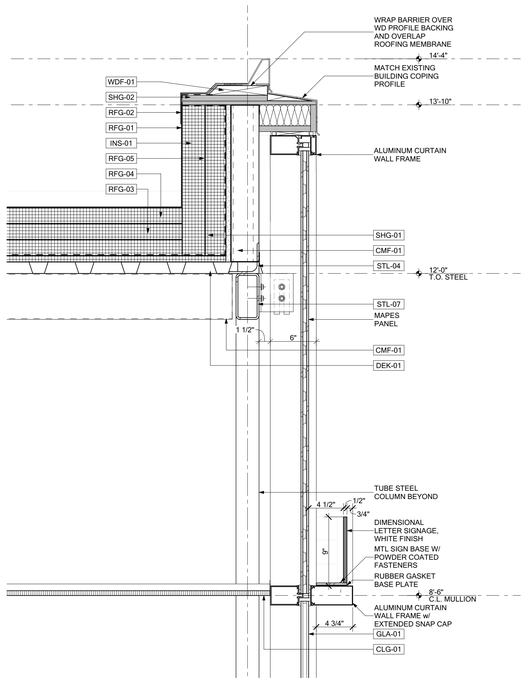
TC JOB NO. 107270

SHEET TITLE

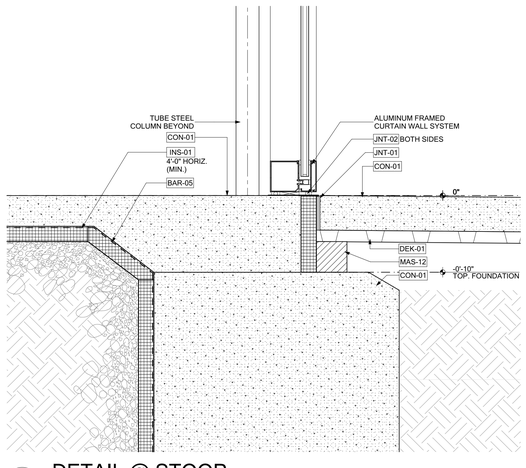
WALL SECTIONS

SHEET NO.

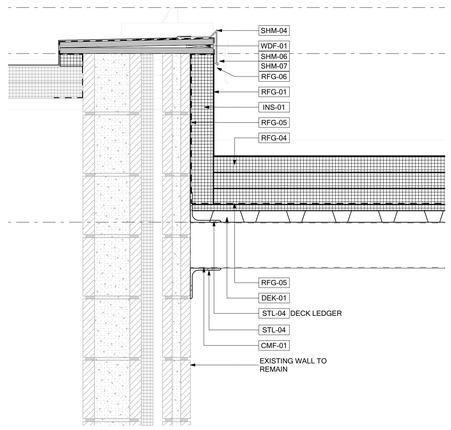
A4.10



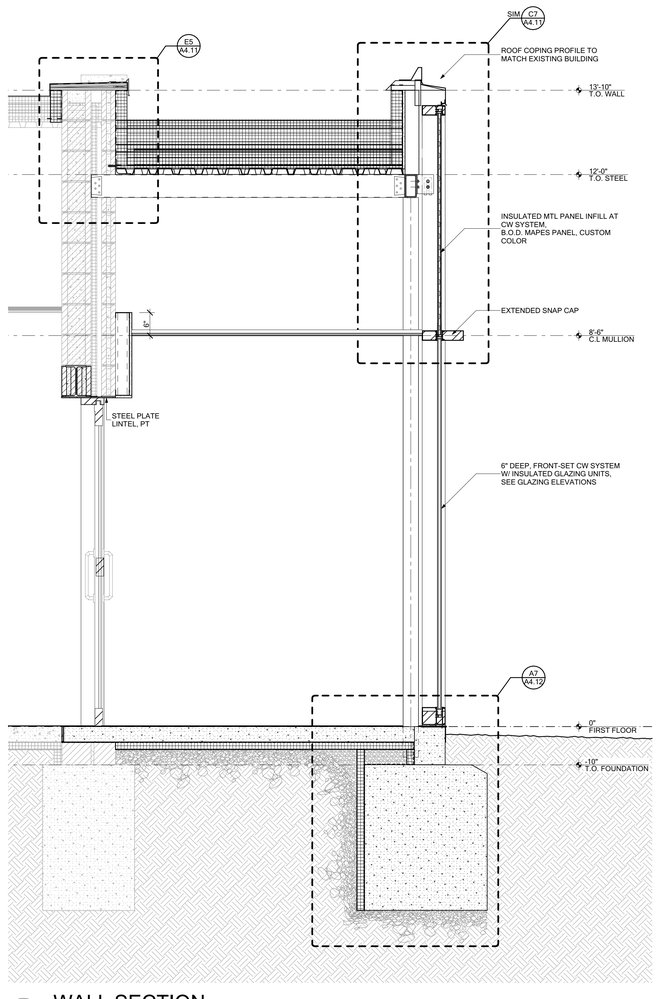
C7 **DETAIL**
SCALE: 1 1/2"= 1'-0"



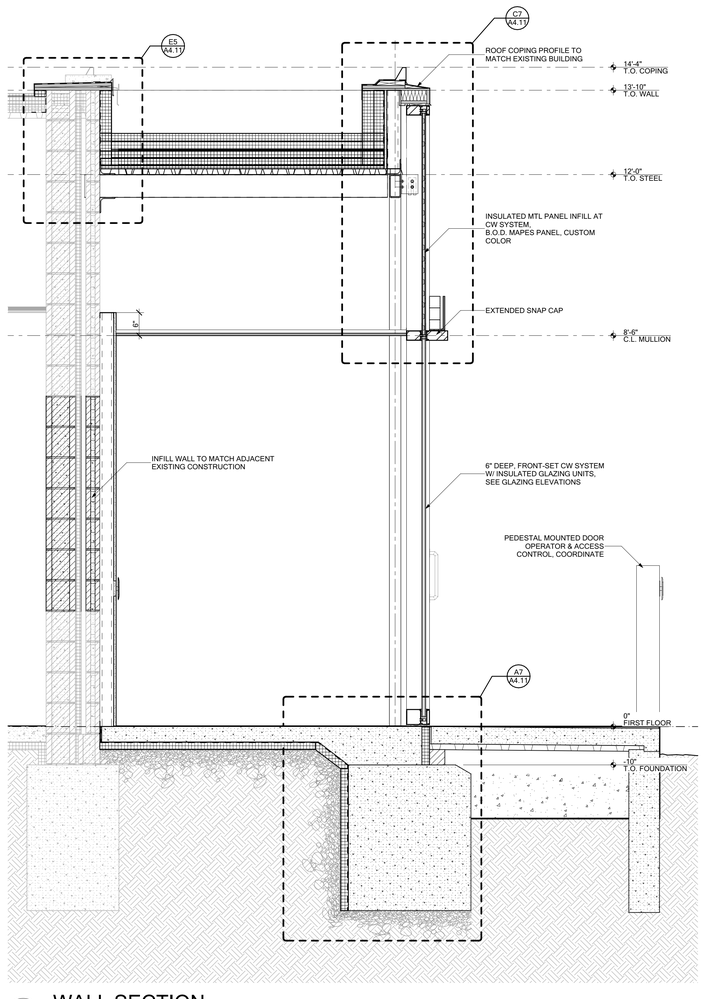
A7 **DETAIL @ STOOP**
SCALE: 1 1/2"= 1'-0"



E5 **DETAIL**
SCALE: 1 1/2"= 1'-0"



A4 **WALL SECTION**
SCALE: 3/4" = 1'-0"



A2 **WALL SECTION**
SCALE: 3/4" = 1'-0"

KEYNOTES:

XX-#

(NOTE: NOT ALL NUMBERS ARE USED)

BAR: VAPOR, AIR, AND WEATHER BARRIERS
BAR-01 VAPOR-RETARDING AIR BARRIER SYSTEM
BAR-02 VAPOR-PERMEABLE AIR BARRIER SYSTEM
BAR-03 VAPOR-PERMEABLE WATER-RESISTIVE BARRIER
BAR-04 BARRIER TRANSITION SHEET
BAR-05 APPLIED DAMPPROOFING

CLG: CEILINGS
CLG-01 SEE REFLECTED CEILING PLANS A7.00 SERIES SHEETS

CMF: COLD-FORMED METAL FRAMING (DELEGATED DESIGN)
CMF-01 COLD-FORMED METAL FRAMING
CMF-02 COLD-FORMED DEFLECTION TRACK
CMF-03 COLD-FORMED CLIP ANGLE
CMF-04 COLD-FORMED BOX HEADER

CON: CONCRETE
CON-01 CAST-IN-PLACE CONCRETE
CON-02 UNDERSLAB VAPOR RETARDER
CON-03 EXPANSION JOINT FILLER

CST: CAST STONE
CST-01 CAST STONE SILL - MATCH EXISTING CAST STONE SILL
CST-02 CAST STONE CAP
CST-03 CAST STONE VENEER

DEK: METAL DECKING
DEK-01 STEEL DECKING
DEK-02 STEEL ACOUSTICAL DECKING

EFS: EXTERIOR INSULATION AND FINISH SYTEMS
EFS-01 EXTERIOR INSULATION FINISH SYSTEM
EFS-02 DIRECT-APPLIED EXTERIOR FINISH SYSTEM

FLR: FLOORING - SEE FINISH PLANS
FLR-01 CARPET

FST: FIRE STOPPING, SEALANTS, AND RESISTIVE MATERIALS
FST-01 FIRESTOPPING
FST-02 FIRE SEALANT
FST-03 SPRAY-APPLIED FIRE-RESISTIVE MATERIAL
FST-04 INTUMESCENT COATING

GYP: GYPSUM BOARD ASSEMBLIES
GYP-01 GYPSUM BOARD
GYP-02 GLASS MAT-FACED GYPSUM BOARD
GYP-03 CONTROL JOINT
GYP-04 CORNER BEAD
GYP-05 J-BEAD
GYP-06 F-REVEAL
GYP-07 U-REVEAL
GYP-08 Z-REVEAL
GYP-09 CEMENT BACKER BOARD

HMD: HOLLOW METAL DOORS AND FRAMES
HMD-01 HOLLOW METAL DOOR FRAME
HMD-02 HOLLOW METAL WINDOW OPENING
HMD-03 HOLLOW METAL DOOR

INS: INSULATION
INS-01 RIGID INSULATION BOARD
INS-02 SPRAYED-FOAM INSULATION
INS-03 THERMAL BATT INSULATION
INS-04 ACOUSTICAL BATT INSULATION
INS-05 MINERAL WOOL FIRESAFING INSULATION
INS-06 SEMIRIGID MINERAL WOOL INSULATION BOARD

JNT: JOINT SEALANTS
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JNT-03 ACOUSTICAL SEALANT
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MAS-08 CAVITY DRAINAGE MATERIAL
MAS-09 GROUT
MAS-10 PREFORMED MASONRY CONTROL JOINT
MAS-11 LINTEL
MAS-12 SOLID CONCRETE MASONRY UNIT
MAS-13 CMU BOND BEAM
MAS-14 CMU FLASHING PAN
MAS-15 FLASHING TERMINATION BAR

MPL: METAL PANELS
MPL-01 ARCHITECTURAL METAL PANEL
MPL-02 METAL COMPOSITE MATERIAL PANEL
MPL-03 FLASHING TO MATCH METAL PANEL
MPL-04 PERFORATED METAL PANEL
MPL-05 INSULATED METAL PANEL
MPL-06 METAL SOFFIT PANEL
MPL-07 THERMAL CLIPS

NSF: NON-STRUCTURAL METAL FRAMING
NSF-01 NON-STRUCTURAL METAL FRAMING
NSF-02 NON-STRUCTURAL DEFLECTION TRACK
NSF-03 HAT CHANNEL FURRING
NSF-04 RESILIENT CHANNEL FURRING
NSF-05 Z-FURRING
NSF-06 NON-STRUCTURAL CLIP ANGLE
NSF-07 SHAFT WALL FRAMING
NSF-08 J-TRACK
NSF-09 FRAMING TRACK

OHD: OVERHEAD DOORS
OHD-01 OVERHEAD COILING DOOR
OHD-02 OVERHEAD PANELIZED DOOR
OHD-03 OVERHEAD COILING SHUTTER
OHD-04 OVERHEAD COILING FIRE SHUTTER

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RAC-02 PREFABRICATED CURB
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RAC-04 SNOW GUARDS

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RFG-02 ROOF MEMBRANE FLASHING
RFG-03 ROOFING INSULATION
RFG-04 TAPERED ROOFING INSULATION
RFG-05 ROOFING VAPOR RETARDER
RFG-06 TERMINATION BAR
RFG-07 PREFORMED PIPE BOOT
RFG-08 STANDING-SEAM METAL ROOFING
RFG-09 STANDING-SEAM ROOF FLASHING
RFG-10 ROOFING UNDERLAYMENT
RFG-11 ASPHALT SHINGLES ON UNDERLAYMENT

SFR: STOREFRONT FRAMING
SFR-01 STOREFRONT FRAMING SYSTEM
SFR-02 COMPENSATING HEAD RECEPTOR
SFR-03 EXTRUDED SILL FLASHING
SFR-04 STOREFRONT ENTRANCE
SFR-05 BRAKE METAL TRIM TO MATCH FRAMING
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SHD-01 ROLLING WINDOW SHADE
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SHG-03 NAIL BASE SHEATHING

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SHM-01 GUTTER
SHM-02 DOWNSPOUT
SHM-03 GRAVEL STOP
SHM-04 COPING
SHM-05 SHEET METAL FLASHING
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SSU: SOLID SURFACE
SSU-01 SOLID SURFACE MATERIAL, SEE FINISH SCHEDULE

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WDF-01 WOOD BLOCKING
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WIN-01: WINDOW

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
REGISTERED ARCHITECT
Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

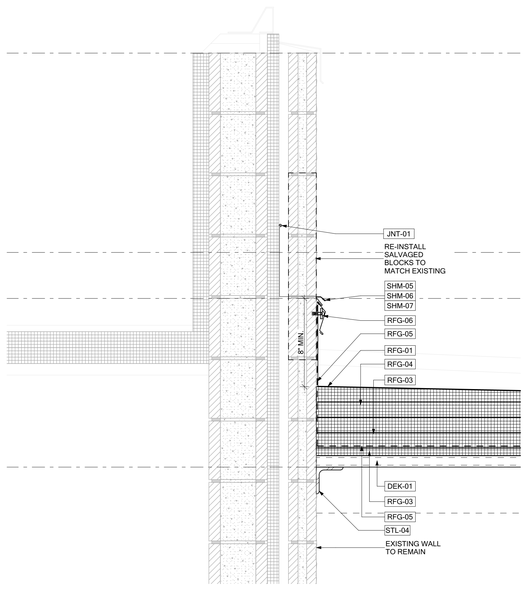
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

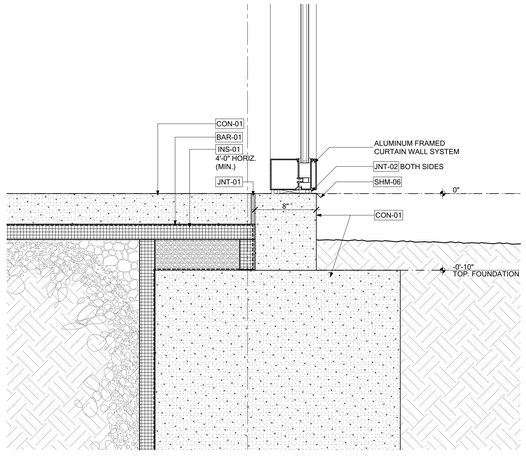
TC JOB NO. 107270

SHEET TITLE
WALL SECTIONS

SHEET NO.
A4.11



C7 DETAIL
SCALE: 1 1/2"= 1'-0"



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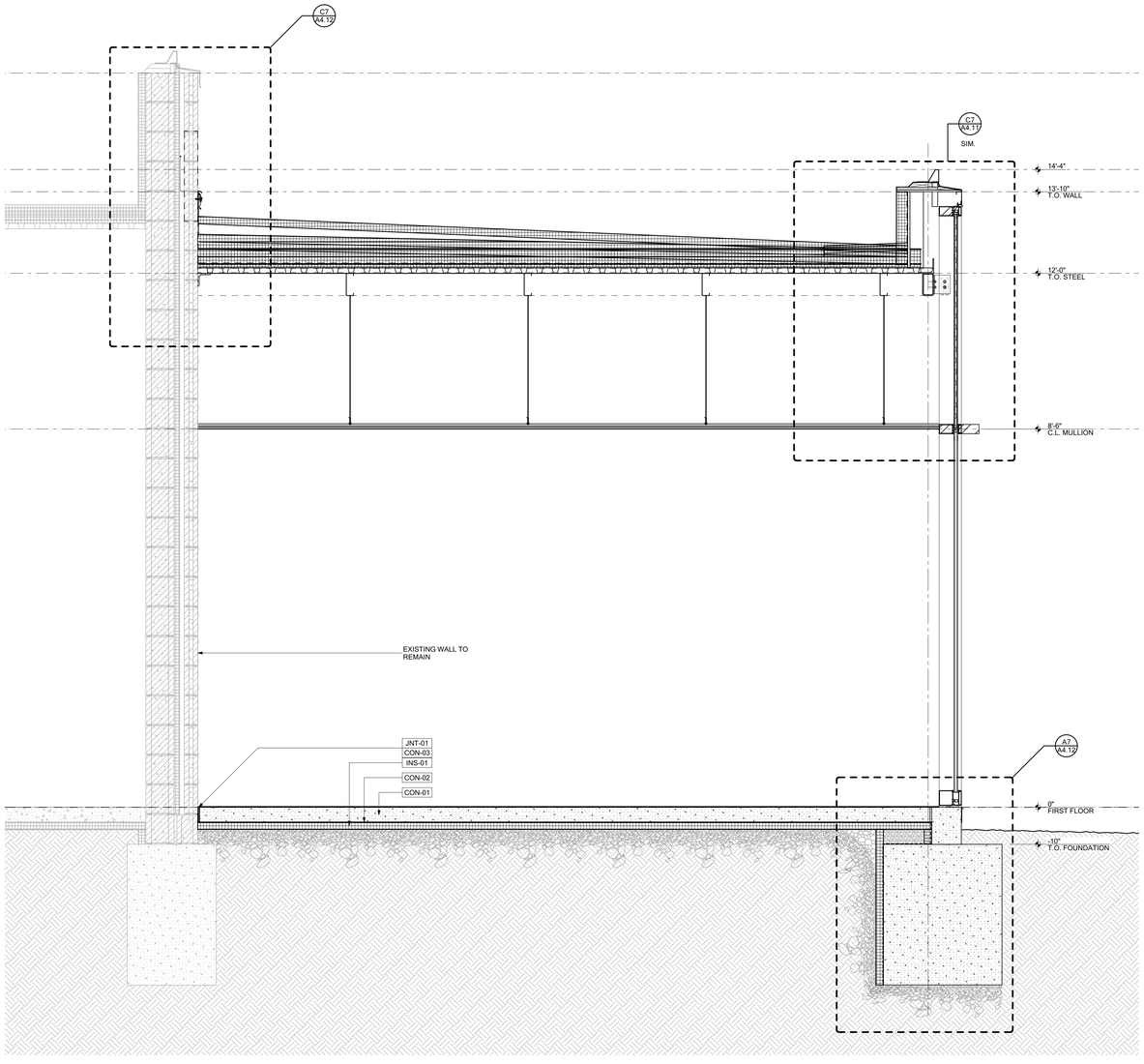

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THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
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Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN N.T.S.

PROJECT TITLE
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MIDDLE SCHOOL ADDITION

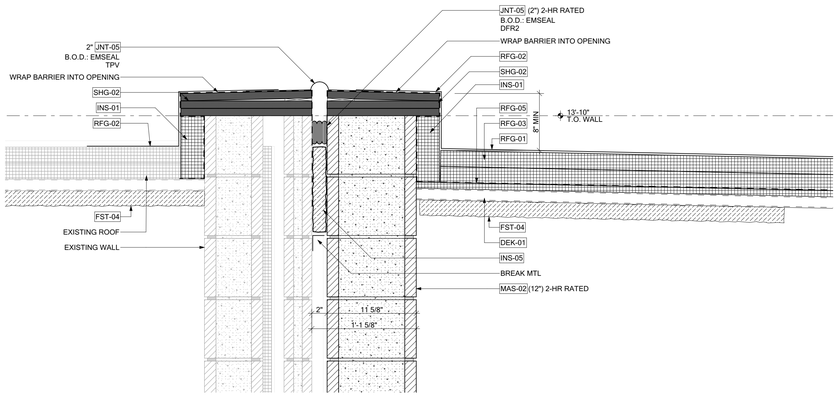
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

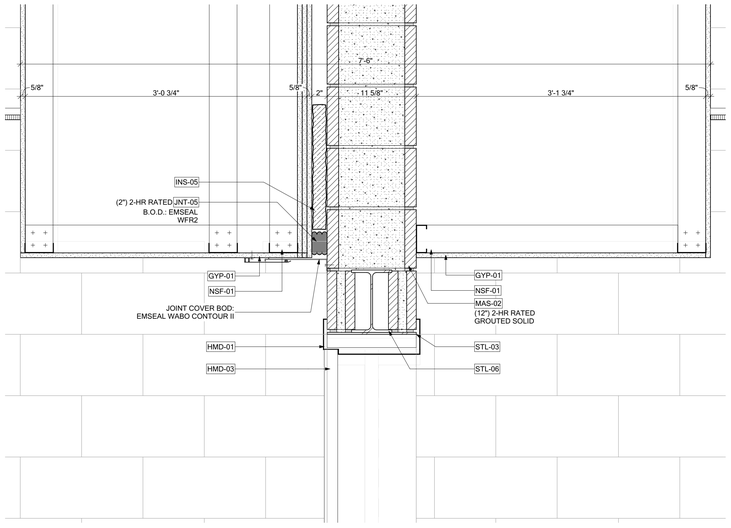
TC JOB NO. 107270

SHEET TITLE
WALL SECTIONS

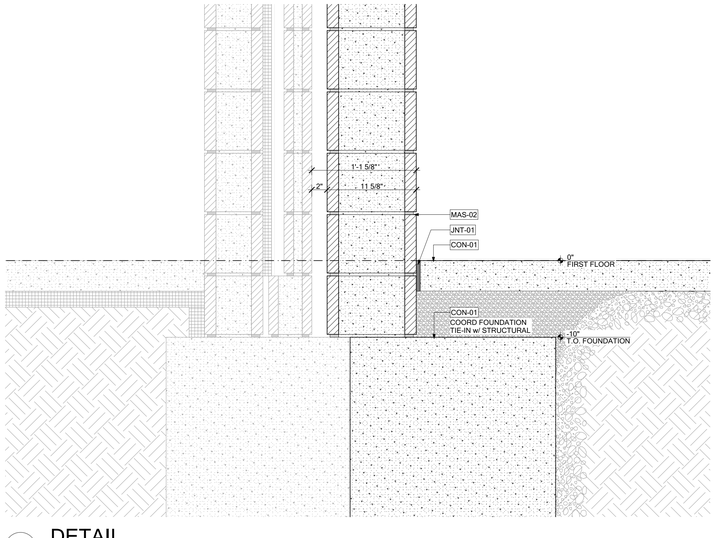
SHEET NO.
A4.12



F6 **DETAIL**
SCALE: 1 1/2"= 1'-0"



C6 **DETAIL**
SCALE: 1 1/2"= 1'-0"



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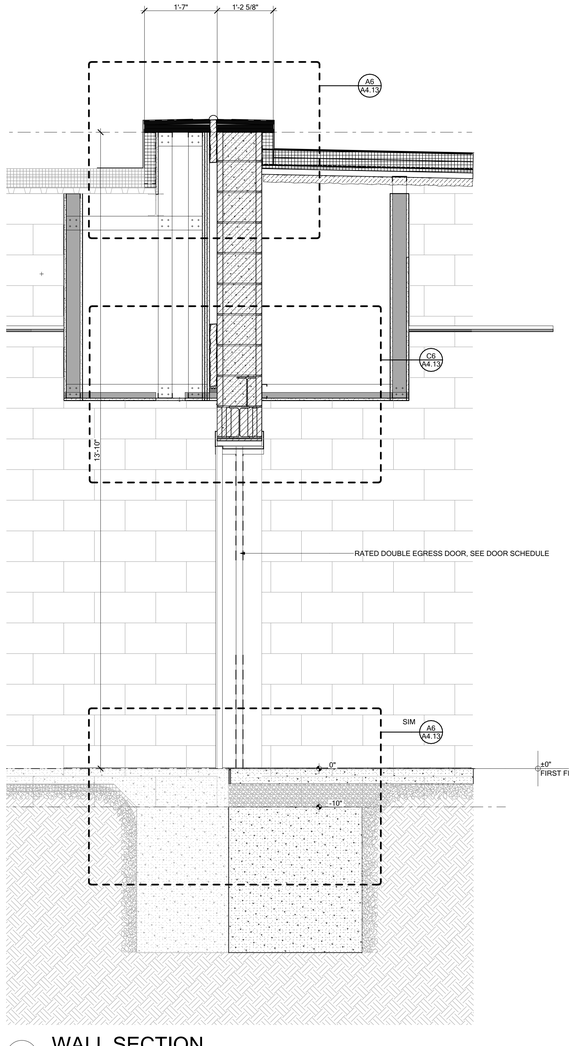

A4 **WALL SECTION**
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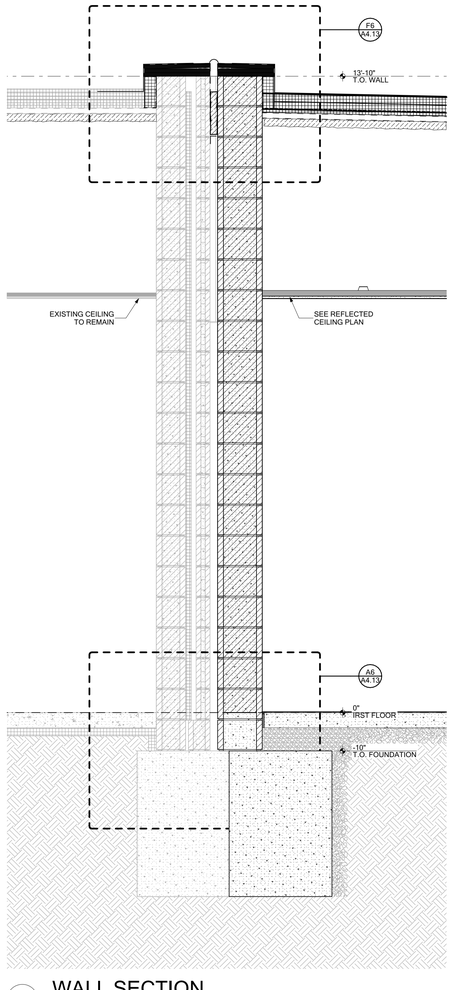

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RFG-04 TAPERED ROOFING INSULATION
RFG-05 ROOFING VAPOR RETARDER
RFG-06 TERMINATION BAR
RFG-07 PREFORMED PIPE BOOT
RFG-08 STANDING-SEAM METAL ROOFING
RFG-09 STANDING-SEAM ROOF FLASHING
RFG-10 ROOFING UNDERLAYMENT
RFG-11 ASPHALT SHINGLES ON UNDERLAYMENT

SFR: STOREFRONT FRAMING
SFR-01 STOREFRONT FRAMING SYSTEM
SFR-02 COMPENSATING HEAD RECEPTOR
SFR-03 EXTRUDED SILL FLASHING
SFR-04 STOREFRONT ENTRANCE
SFR-05 BRAKE METAL TRIM TO MATCH FRAMING
SFR-06 PREFINISHED FLASHING TO MATCH FRAMING

SHD: WINDOW SHADES - SEE REFLECTED CEILING PLANS
SHD-01 ROLLING WINDOW SHADE
SHD-02 DOUBLE ROLLING WINDOW SHADE

SHG: SHEATHING
SHG-01 FIBERGLASS MAT GYPSUM SHEATHING
SHG-02 PLYWOOD SHEATHING (FRT UNO)
SHG-03 NAIL BASE SHEATHING

SHM: SHEET METAL FABRICATIONS
SHM-01 GUTTER
SHM-02 DOWNSPOUT
SHM-03 GRAVEL STOP
SHM-04 COPING
SHM-05 SHEET METAL FLASHING
SHM-06 DRIP EDGE
SHM-07 COUNTERFLASHING

SSU: SOLID SURFACE
SSU-01 SOLID SURFACE MATERIAL, SEE FINISH SCHEDULE

STL: STRUCTURAL STEEL
STL-01 STEEL COLUMN
STL-02 STEEL BEAM
STL-03 STEEL PLATE
STL-04 STEEL ANGLE
STL-05 STEEL CHANNEL
STL-06 STEEL WIDE FLANGE BEAM
STL-07 STEEL RECTANGULAR TUBE
STL-08 STEEL ROUND TUBE
STL-09 STEEL JOIST
STL-10 BEARING PLATE

WFN: WOOD FINISH CARPENTRY
WFN-01 WOOD TRIM
WFN-02 WOOD VENEER TRIM PANEL
WFN-03 WOOD BASE
WFN-04 WOOD FINISH FLOORING

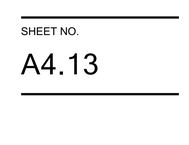
WDF: ROUGH WOOD FRAMING (FRT UNO)
WDF-01 WOOD BLOCKING
WDF-02 WOOD FRAMING (2X4 UNO)
WDF-03 WOOD FURRING

WIN: WINDOWS
WIN-01: WINDOW

THE COL LAB ORAT IVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025



KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

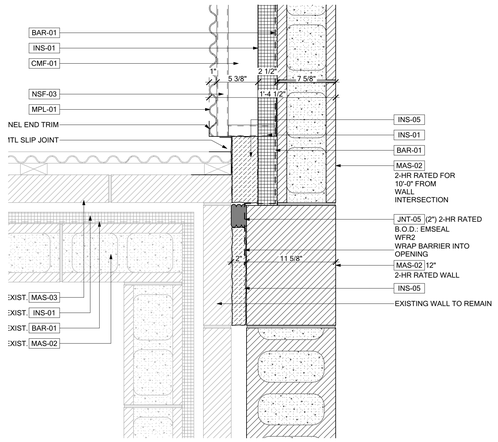
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

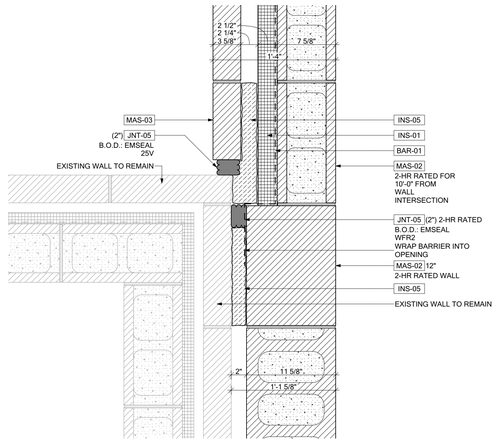
TC JOB NO. 107270

SHEET TITLE
WALL SECTIONS

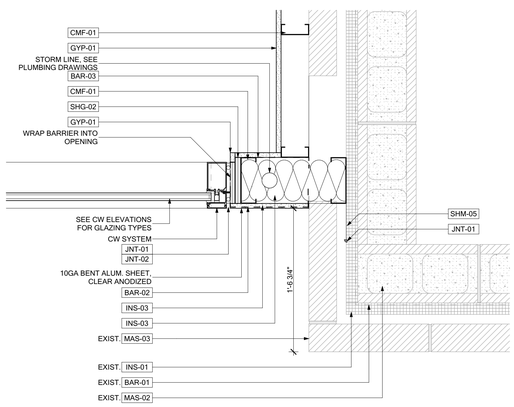
SHEET NO.
A4.13



E5 DETAIL - HIGH
SCALE: 1 1/2"= 1'-0"



C5 DETAIL
SCALE: 1 1/2"= 1'-0"



A5 DETAIL
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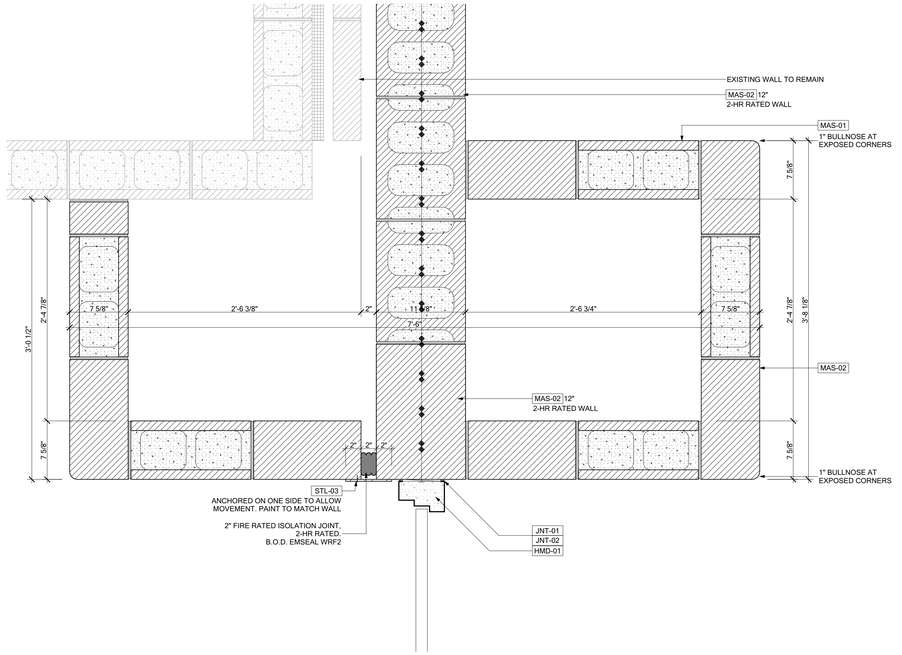

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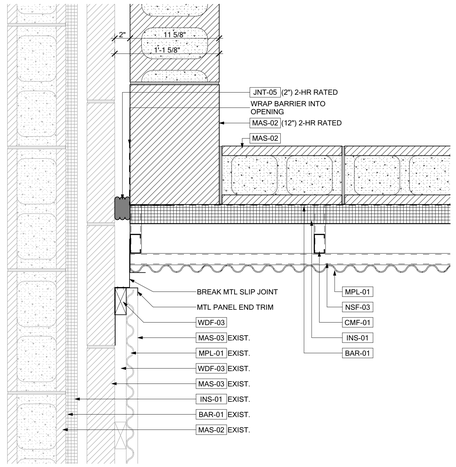
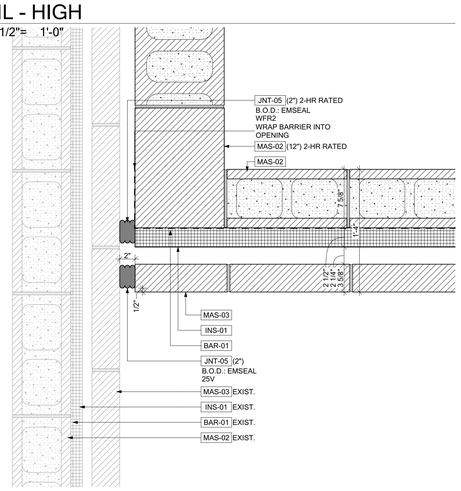
SCALE: 1 1/2"= 1'-0"



C2 DETAIL - HIGH
SCALE: 1 1/2"= 1'-0"



A2 DETAIL
SCALE: 1 1/2"= 1'-0"

KEYNOTES:

XX-#

(NOTE: NOT ALL NUMBERS ARE USED)

BAR: VAPOR, AIR, AND WEATHER BARRIERS
BAR-01 VAPOR-RETARDING AIR BARRIER SYSTEM
BAR-02 VAPOR-PERMEABLE AIR BARRIER SYSTEM
BAR-03 VAPOR-PERMEABLE WATER-RESISTIVE BARRIER
BAR-04 BARRIER TRANSITION SHEET
BAR-05 APPLIED DAMPPROOFING

CLG: CEILINGS
CLG-01 SEE REFLECTED CEILING PLANS A7.00 SERIES SHEETS

CMF: COLD-FORMED METAL FRAMING (DELEGATED DESIGN)
CMF-01 COLD-FORMED METAL FRAMING
CMF-02 COLD-FORMED DEFLECTION TRACK
CMF-03 COLD-FORMED CLIP ANGLE
CMF-04 COLD-FORMED BOX HEADER

CON: CONCRETE
CON-01 CAST-IN-PLACE CONCRETE
CON-02 UNDERSLAB VAPOR RETARDER
CON-03 EXPANSION JOINT FILLER

CST: CAST STONE
CST-01 CAST STONE SILL - MATCH EXISTING CAST STONE SILL
CST-02 CAST STONE CAP
CST-03 CAST STONE VENEER

DEK: METAL DECKING
DEK-01 STEEL DECKING
DEK-02 STEEL ACOUSTICAL DECKING

EFS: EXTERIOR INSULATION AND FINISH SYTEMS
EFS-01 EXTERIOR INSULATION FINISH SYSTEM
EFS-02 DIRECT-APPLIED EXTERIOR FINISH SYSTEM

FLR: FLOORING - SEE FINISH PLANS
FLR-01 CARPET

FST: FIRE STOPPING, SEALANTS, AND RESISTIVE MATERIALS
FST-01 FIRESTOPPING
FST-02 FIRE SEALANT
FST-03 SPRAY-APPLIED FIRE-RESISTIVE MATERIAL
FST-04 INTUMESCENT COATING

GYP: GYPSUM BOARD ASSEMBLIES
GYP-01 GYPSUM BOARD
GYP-02 GLASS MAT-FACED GYPSUM BOARD
GYP-03 CONTROL JOINT
GYP-04 CORNER BEAD
GYP-05 J-BEAD
GYP-06 F-REVEAL
GYP-07 U-REVEAL
GYP-08 Z-REVEAL
GYP-09 CEMENT BACKER BOARD

HMD: HOLLOW METAL DOORS AND FRAMES
HMD-01 HOLLOW METAL DOOR FRAME
HMD-02 HOLLOW METAL WINDOW OPENING
HMD-03 HOLLOW METAL DOOR

INS: INSULATION
INS-01 RIGID INSULATION BOARD
INS-02 SPRAYED-FOAM INSULATION
INS-03 THERMAL BATT INSULATION
INS-04 ACOUSTICAL BATT INSULATION
INS-05 MINERAL WOOL FIRESAFING INSULATION
INS-06 SEMIRIGID MINERAL WOOL INSULATION BOARD

JNT: JOINT SEALANTS
JNT-01 JOINT SEALANT
JNT-02 BACKER ROD & SEALANT
JNT-03 ACOUSTICAL SEALANT
JNT-04 PREFORMED JOINT SEAL
JNT-05 BUILDING EXPANSION JOINT ASSEMBLY

MAS: MASONRY (GENERAL)
MAS-01 BRICK MASONRY
MAS-02 CONCRETE MASONRY UNIT
MAS-03 DECORATIVE CMU VENEER
MAS-04 FLASHING
MAS-05 VENEER ANCHOR
MAS-06 MASONRY WEEP, 24" O.C.
MAS-07 PRESSURE EQUALIZATION VENT, 24" O.C.
MAS-08 CAVITY DRAINAGE MATERIAL
MAS-09 GROUT
MAS-10 PREFORMED MASONRY CONTROL JOINT
MAS-11 LINTEL
MAS-12 SOLID CONCRETE MASONRY UNIT
MAS-13 CMU BOND BEAM
MAS-14 CMU FLASHING PAN
MAS-15 FLASHING TERMINATION BAR

MPL: METAL PANELS
MPL-01 ARCHITECTURAL METAL PANEL
MPL-02 METAL COMPOSITE MATERIAL PANEL
MPL-03 FLASHING TO MATCH METAL PANEL
MPL-04 PERFORATED METAL PANEL
MPL-05 INSULATED METAL PANEL
MPL-06 METAL SOFFIT PANEL
MPL-07 THERMAL CLIPS

NSF: NON-STRUCTURAL METAL FRAMING
NSF-01 NON-STRUCTURAL METAL FRAMING
NSF-02 NON-STRUCTURAL DEFLECTION TRACK
NSF-03 HAT CHANNEL FURRING
NSF-04 RESILIENT CHANNEL FURRING
NSF-05 Z-FURRING
NSF-06 NON-STRUCTURAL CLIP ANGLE
NSF-07 SHAFT WALL FRAMING
NSF-08 J-TRACK
NSF-09 FRAMING TRACK

OHD: OVERHEAD DOORS
OHD-01 OVERHEAD COILING DOOR
OHD-02 OVERHEAD PANELIZED DOOR
OHD-03 OVERHEAD COILING SHUTTER
OHD-04 OVERHEAD COILING FIRE SHUTTER

RAC: ROOFING ACCESSORIES
RAC-01 ROOF HATCH
RAC-02 PREFABRICATED CURB
RAC-03 EQUIPMENT RAILS
RAC-04 SNOW GUARDS

RFG: ROOFING
RFG-01 SINGLE-PLY MEMBRANE ROOFING
RFG-02 ROOF MEMBRANE FLASHING
RFG-03 ROOFING INSULATION
RFG-04 TAPERED ROOFING INSULATION
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WIN: WINDOWS
WIN-01: WINDOW

THE COL LAB ORAT IVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
REGISTERED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

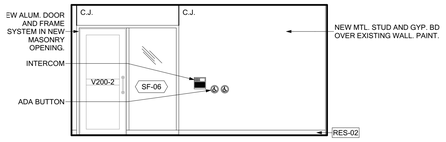
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

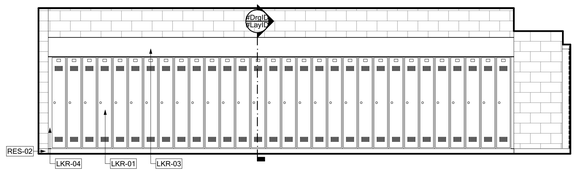
TC JOB NO. 107270

SHEET TITLE
PLAN DETAILS

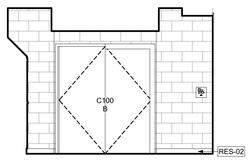
SHEET NO.
A4.20



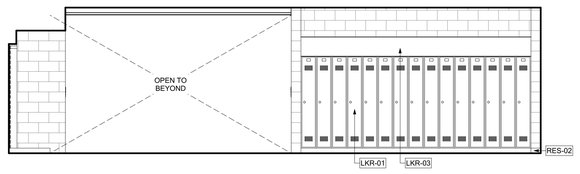
E8 V200 VEST - E
SCALE: 1/4" = 1'-0"



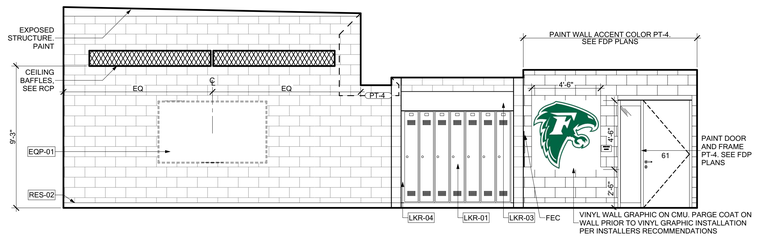
D7 C101 CORRIDOR -S
SCALE: 1/4" = 1'-0"



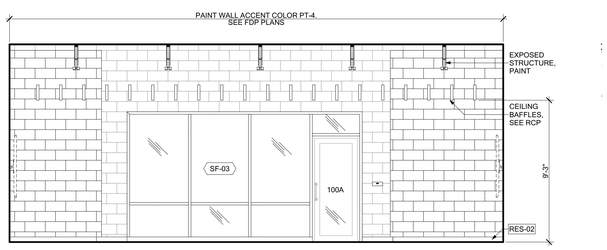
D5 C101 CORRIDOR -W
SCALE: 1/4" = 1'-0"



D2 C101 CORRIDOR -N
SCALE: 1/4" = 1'-0"



C6 100A COLLAB - S
SCALE: 1/4" = 1'-0"



C3 100A COLLAB - E
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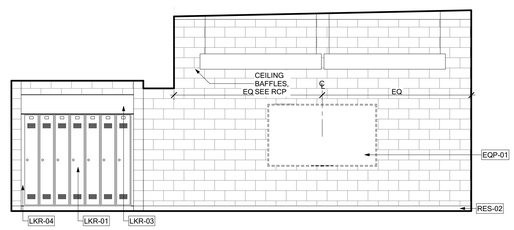
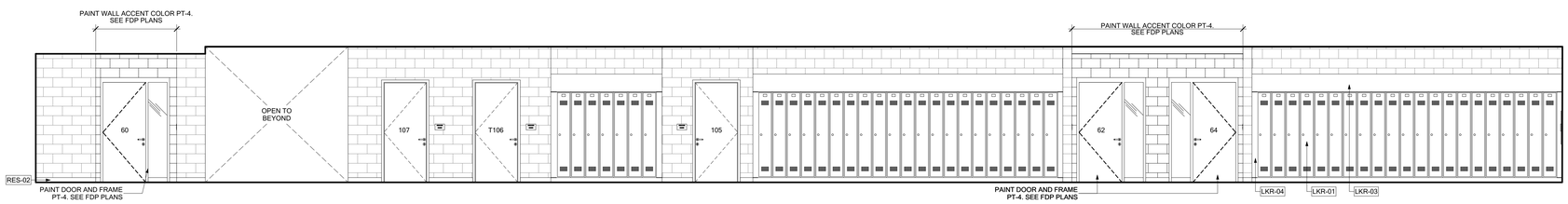


C1 100A COLLAB - N
SCALE: 1/4" = 1'-0"



B2 C100 CORRIDOR - W
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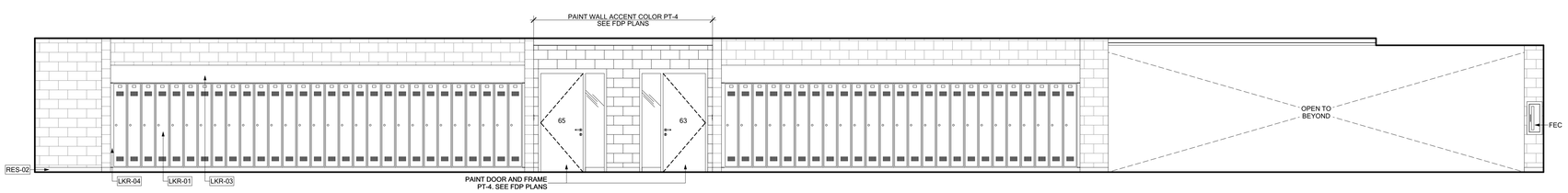

A2 C100 CORRIDOR - E
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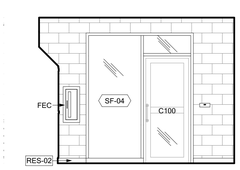

A1 C100 CORRIDOR - N
SCALE: 1/4" = 1'-0"

XX-# **KEYNOTES:**
(NOTE: NOT ALL NUMBERS ARE USED)

BASE: WALL BASE (SEE FINISH PLANS/LEGEND)

CLG: CEILINGS (SEE REFLECTED CEILING PLANS)

CSW: CASEWORK
CSW-01 CABINET
CSW-02 SHELVING
CSW-03 COUNTERTOP
CSW-04 SUPPORT BRACKET
CSW-05 BACKSPLASH
CSW-06 REMOVABLE SKIRT W/ CONCEALED FASTENERS
CSW-07 COAT ROD
CSW-08 FINISHED END PANEL

CTL: CERAMIC TILING
CTL-01 TILE
CTL-02 METAL TRIM (SEE BASE / WALL CORNERS DETAILS)
CTL-03 BULLNOSE TILE
CTL-04 TILE WALL BASE

DOM: DOMESTIC APPLIANCES
DOM-01 DOMESTIC REFRIGERATOR (OFCI OR OFOI OR CFCI)
DOM-02 DOMESTIC MICROWAVE (OFCI OR OFOI OR CFCI)
DOM-03 DOMESTIC RANGE (OFCI OR OFOI OR CFCI)
DOM-04 DOMESTIC DISHWASHER (OFCI OR OFOI OR CFCI)
DOM-05 DOMESTIC WASHING MACHINE (OFCI OR OFOI OR CFCI)
DOM-06 DOMESTIC DRYER (OFCI OR OFOI OR CFCI)
DOM-07 DOMESTIC COMBINATION WASHER/DRYER (OFCI OR OFOI OR CFCI)

EQP: EQUIPMENT
EQP-01 MONITOR (OFCI OR OFOI OR CFCI)
EQP-02 PROJECTION SCREEN (OFCI OR OFOI OR CFCI)
EQP-03 SPEAKER (OFCI OR OFOI OR CFCI)
EQP-04 MARKERBOARD (OFCI OR OFOI OR CFCI)

LKR: LOCKERS
LKR-01 LOCKER
LKR-02 LOCKER END PANEL
LKR-03 SLOPING TOP
LKR-04 LOCKER FILLER PANEL
LKR-05 LOCKER ROOM BENCH

SSU: SOLID SURFACE
SSU-01 SOLID SURFACE MATERIAL, SEE FINISH SCHEDULE

TLT: TOILET PARTITIONS AND ACCESSORIES
TLT-01 TOILET / URINAL PARTITION
TLT-02 PLUMBING PIPING PROTECTION

WDF: ROUGH WOOD FRAMING (FRT UNO)
WDF-01 WOOD BLOCKING

WFN: WOOD FINISH CARPENTRY
WFN-01 WOOD TRIM
WFN-02 WOOD VENEER TRIM PANEL

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR BID & PERMIT

TC JOB NO. 107270

SHEET TITLE
INTERIOR ELEVATIONS

SHEET NO.
A6.00

XX-#

KEYNOTES:

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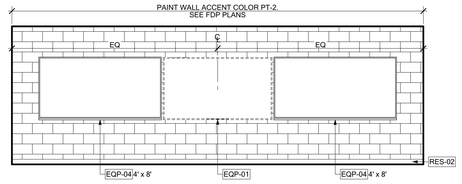
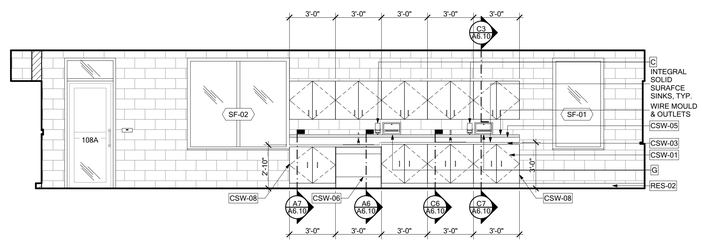
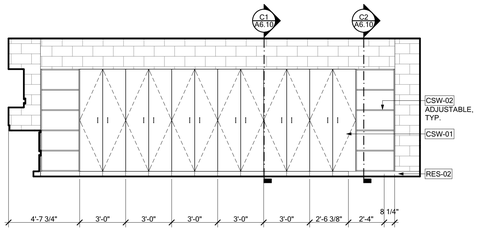


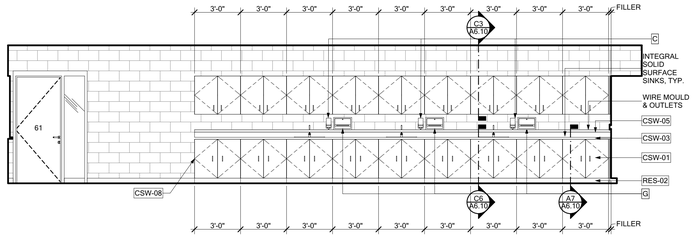
C4 **108 CLASSROOM - W**
SCALE: 1/4" = 1'-0"



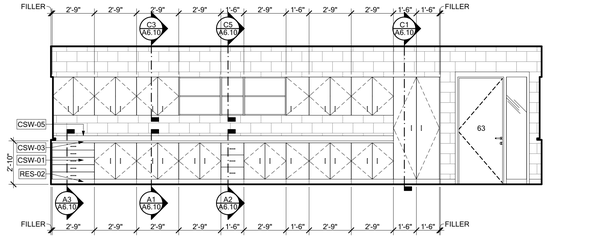
C1 **61 CLASSROOM - S** ALL CASEWORK THIS ELEVATION TO BE LOCKABLE
SCALE: 1/4" = 1'-0"



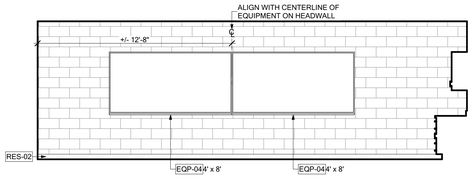
B6 **61 CLASSROOM - E** ALL CASEWORK THIS ELEVATION TO BE LOCKABLE
SCALE: 1/4" = 1'-0"



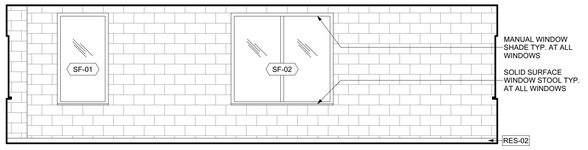
B3 **61 CLASSROOM - N** ALL CASEWORK THIS ELEVATION TO BE LOCKABLE
SCALE: 1/4" = 1'-0"



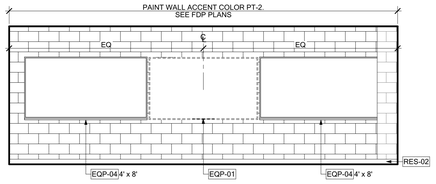
B1 **63 CLASSROOM -W** ALL CASEWORK THIS ELEVATION TO BE LOCKABLE
SCALE: 1/4" = 1'-0"



A5 **63 CLASSROOM -S**
SCALE: 1/4" = 1'-0"
TYPICAL REARWALL



A3 **63 CLASSROOM -E**
SCALE: 1/4" = 1'-0"



A1 **63 CLASSROOM -N**
SCALE: 1/4" = 1'-0"
TYPICAL HEADWALL

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

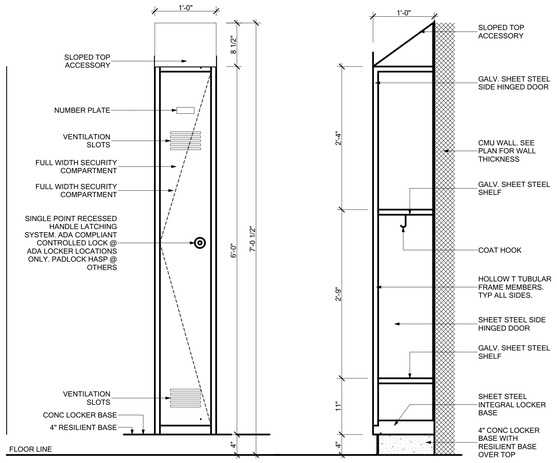
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR BID & PERMIT

TC JOB NO. 107270

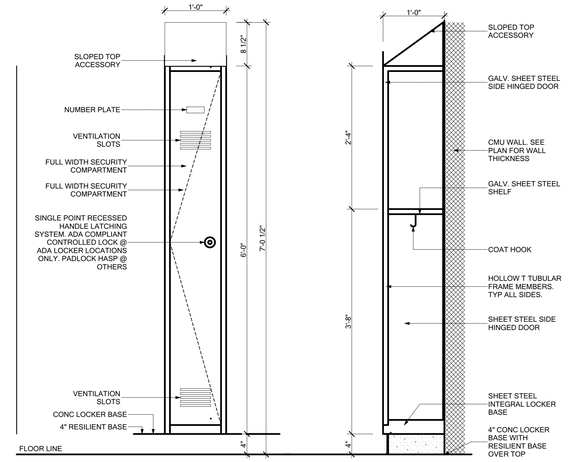
SHEET TITLE
INTERIOR ELEVATIONS

SHEET NO.
A6.01



E5 **ADA LOCKER DETAIL** 5% OF TOTAL LOCKERS TO BE ADA ACCESSIBLE

SCALE: 1" = 1'-0"



E2 **LOCKER DETAIL**

SCALE: 1" = 1'-0"

XX-# **KEYNOTES:**

(NOTE: NOT ALL NUMBERS ARE USED)

BASE: WALL BASE (SEE FINISH PLANS/LEGEND)

CLG: CEILINGS (SEE REFLECTED CEILING PLANS)

CSW: CASEWORK
- CSW-01 CABINET
- CSW-02 SHELVING
- CSW-03 COUNTERTOP
- CSW-04 SUPPORT BRACKET
- CSW-05 BACKSPLASH
- CSW-06 REMOVABLE SKIRT W/ CONCEALED FASTENERS
- CSW-07 COAT ROD
- CSW-08 FINISHED END PANEL

CTL: CERAMIC TILING
- CTL-01 TILE
- CTL-02 METAL TRIM (SEE BASE / WALL CORNERS DETAILS)
- CTL-03 BULLNOSE TILE
- CTL-04 TILE WALL BASE

DOM: DOMESTIC APPLIANCES
- DOM-01 DOMESTIC REFRIGERATOR (OFCI OR OFOI OR CFCI)
- DOM-02 DOMESTIC MICROWAVE (OFCI OR OFOI OR CFCI)
- DOM-03 DOMESTIC RANGE (OFCI OR OFOI OR CFCI)
- DOM-04 DOMESTIC DISHWASHER (OFCI OR OFOI OR CFCI)
- DOM-05 DOMESTIC WASHING MACHINE (OFCI OR OFOI OR CFCI)
- DOM-06 DOMESTIC DRYER (OFCI OR OFOI OR CFCI)
- DOM-07 DOMESTIC COMBINATION WASHER/DRYER (OFCI OR OFOI OR CFCI)

EQP: EQUIPMENT
- EQP-01 MONITOR (OFCI OR OFOI OR CFCI)
- EQP-02 PROJECTION SCREEN (OFCI OR OFOI OR CFCI)
- EQP-03 SPEAKER (OFCI OR OFOI OR CFCI)
- EQP-04 MARKERBOARD (OFCI OR OFOI OR CFCI)

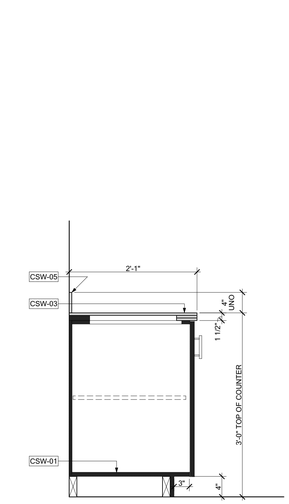
LKR: LOCKERS
- LKR-01 LOCKER
- LKR-02 LOCKER END PANEL
- LKR-03 SLOPING TOP
- LKR-04 LOCKER FILLER PANEL
- LKR-05 LOCKER ROOM BENCH

SSU: SOLID SURFACE
- SSU-01 SOLID SURFACE MATERIAL, SEE FINISH SCHEDULE

TLT: TOILET PARTITIONS AND ACCESSORIES
- TLT-01 TOILET / URINAL PARTITION
- TLT-02 PLUMBING PIPING PROTECTION

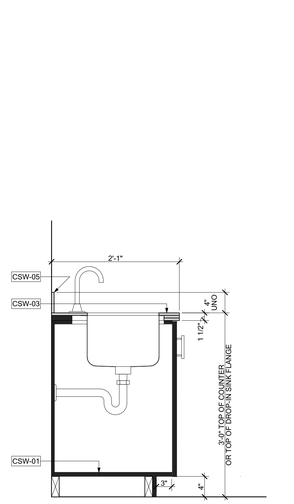
WDF: ROUGH WOOD FRAMING (FRT UNO)
- WDF-01 WOOD BLOCKING

WFN: WOOD FINISH CARPENTRY
- WFN-01 WOOD TRIM
- WFN-02 WOOD VENEER TRIM PANEL



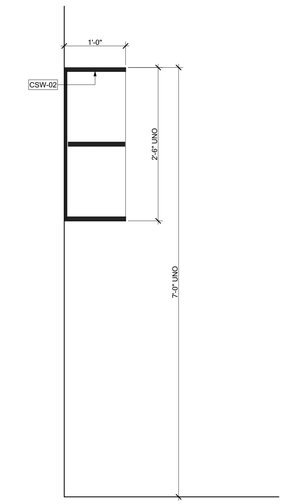
C7 **BASE CABINET**

SCALE: 1" = 1'-0" 108 CLASSROOM



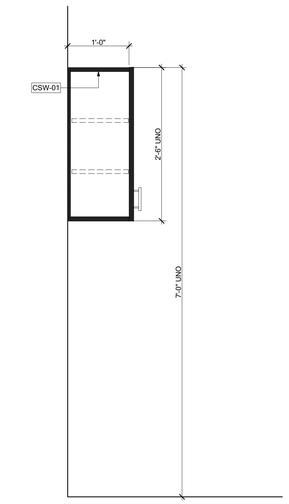
C6 **SINK BASE CABINET**

SCALE: 1" = 1'-0" 108 CLASSROOM



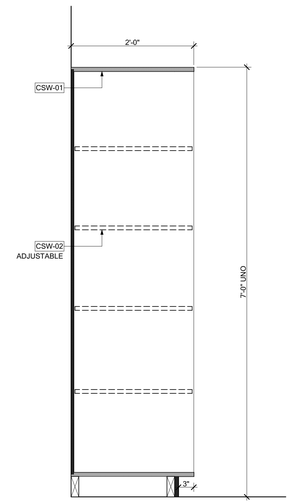
C5 **WALL SHELF CABINET**

SCALE: 1" = 1'-0"



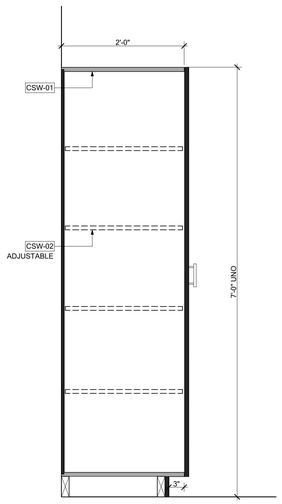
C3 **WALL CABINET**

SCALE: 1" = 1'-0"



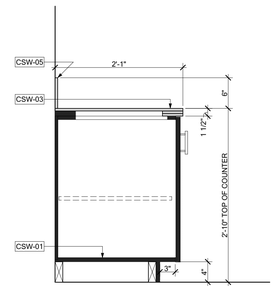
C2 **TALL CABINET**

SCALE: 1" = 1'-0"



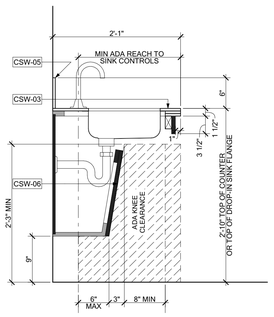
C1 **TALL CABINET**

SCALE: 1" = 1'-0"



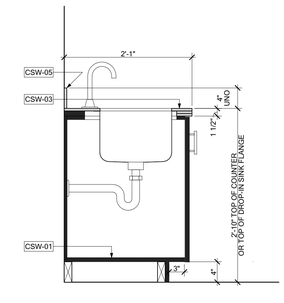
A7 **BASE CABINET**

SCALE: 1" = 1'-0" 108 CLASSROOM



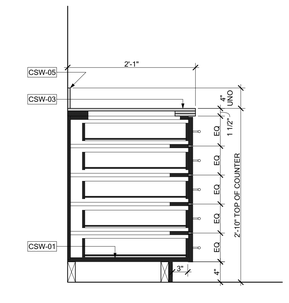
A6 **ADA SINK CABINET**

SCALE: 1" = 1'-0" 108 CLASSROOM



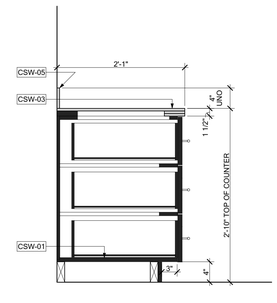
A5 **SINK BASE CABINET**

SCALE: 1" = 1'-0"



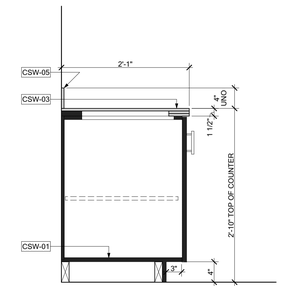
A3 **5 DRAWER CABINET**

SCALE: 1" = 1'-0"



A2 **3 DRAWER CABINET**

SCALE: 1" = 1'-0"



A1 **BASE CABINET**

SCALE: 1" = 1'-0"

THE COLLABORATIVE

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

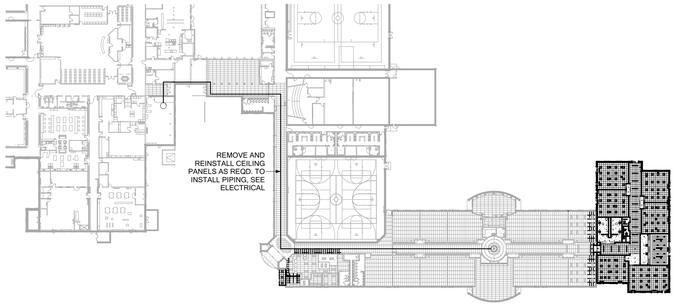
TC JOB NO. 107270

SHEET TITLE

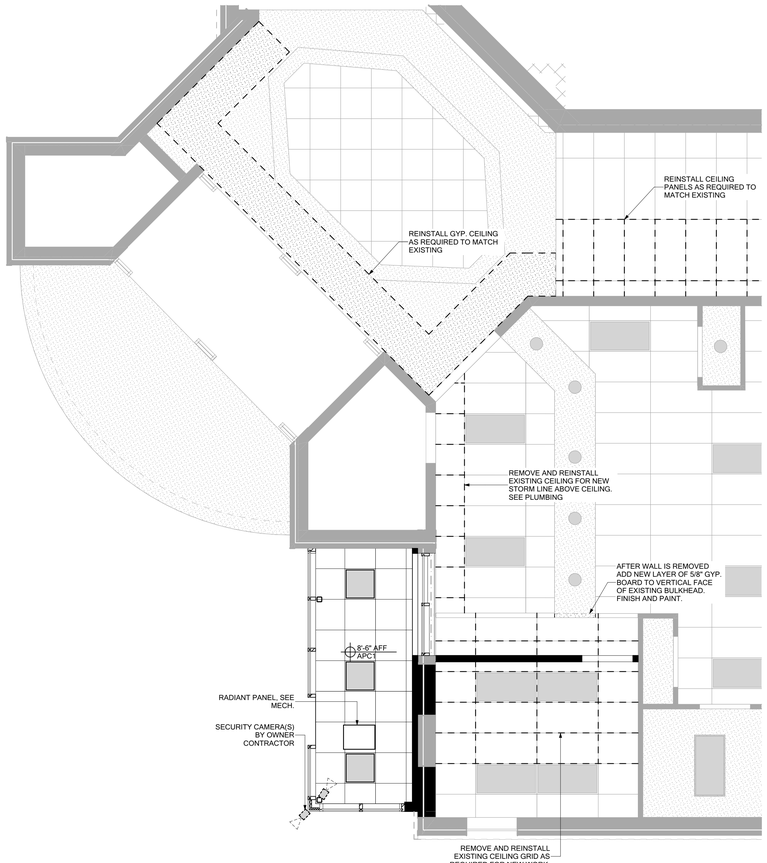
CASEWORK DETAILS

SHEET NO.

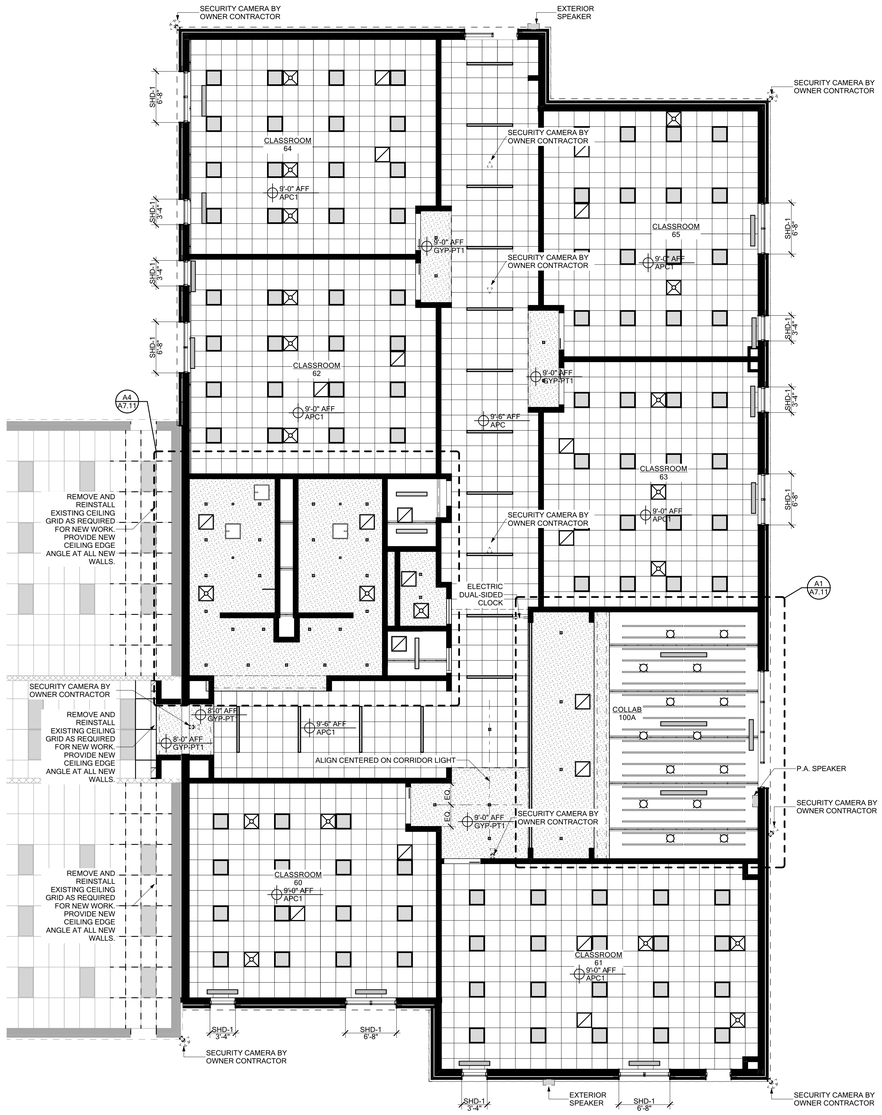
A6.10



F2 REFLECTED CEILING PLAN
SCALE: 1/64" = 1'-0"



A6 VESTIBULE REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"



A2 REFLECTED CEILING PLAN
SCALE: 1/8" = 1'-0"

CEILING LEGEND

REFER TO THE FOLLOWING TAG FOR CEILING TYPE & BOTTOM ELEVATION INFORMATION FOR EACH ROOM OR ELEMENT UNLESS OTHERWISE NOTED.

9'-0" — CEILING HEIGHT AS MEASURED TO BOTTOM OF ELEMENT
GYP-01 — CEILING TYPE/FINISH

CEILING GENERAL NOTES

1. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION ON MATERIALS AND CONSTRUCTION.
2. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR FIXTURE TYPES AND ADDITIONAL INFORMATION PERTAINING TO MECHANICAL AND ELECTRICAL WORK.
3. COORDINATE SIZE AND LOCATION OF ALL ACCESS PANELS WITH TRADE REQUIRING THE SAME. ACCESS PANELS ARE SPECIFIED ARCHITECTURALLY BUT ARE REQUIRED TO BE PROVIDED BY TRADE. INDICATE ALL LOCATIONS WITHIN FIXED GYPSUM BOARD CEILINGS BEFORE INSTALLATION OF GYPSUM BOARD AND RECEIVE WRITTEN APPROVAL FROM ARCHITECT BEFORE PROCEEDING WITH INSTALLATION.
4. COORDINATE INSTALLATION OF CEILING SUSPENSION SYSTEMS WITH OTHER CEILING SPACE EQUIPMENT SUPPORTS.
5. ALL SMOKE BARRIER PARTITIONS, HORIZONTAL EXIT ENCLOSURES AND FIRE RATED PARTITIONS THAT EXTEND TO DECK ABOVE SHALL BE MARKED EVERY 20'-0" HORIZONTALLY WITHIN THE CEILING SPACE: "FIRE AND SMOKE BARRIER - PROTECT ALL OPENINGS."
6. ALL GYPSUM BOARD FASCIAS AT SOFFITS ADJACENT TO ACOUSTICAL PANEL CEILINGS SHALL EXTEND 6"MINIMUM ABOVE ACOUSTICAL PANEL CEILINGS.
7. PROVIDE WOOD BLOCKING ABOVE GYPSUM BOARD CEILINGS AS REQUIRED FOR MISCELLANEOUS SUSPENDED ITEMS, INCLUDING CURTAIN TRACKS, WINDOW SHADES, ACOUSTICAL BAFFLES, ETC.
8. CENTER ALL SPRINKLER HEADS IN CEILING PANELS UNLESS SHOWN OTHERWISE.
9. CONTRACTOR TO PAINT ALL NON-FINISH ELEMENTS IN AREAS NOTED AS EXP-PT TO INCLUDE, BUT NOT LIMITED TO, STRUCTURE (BEAMS, JOISTS, STRUTURAL DECK, ETC), FP/PLUMB LINES (PIPING, HANGERS, ETC), MECHANICAL DUCTWORK AND PIPING (HANGERS, STRAPPING, UNISTRUT, ETC), ELECTRICAL (CONDUITS, HANGERS, BACKBOXES, ETC), AND TECHNOLOGY (CONDUITS, HANGERS, BACKBOXES, ETC). COORDINATE WITH ARCHITECT FOR QUESTIONS RELATED TO ELEMENTS TO BE PAINTED.

CEILING FIXTURE LEGEND

NOTE: NOT ALL SYMBOLS SHOWN ARE USED ON DRAWINGS.

ELECTRICAL FIXTURES

- RECESSED TROFFER FIXTURE
- SUSPENDED INDUSTRIAL FIXTURE
- SURFACE MOUNTED FIXTURE
- PENDANT MOUNTED FIXTURE
- RECESSED DOWNLIGHT
- EXIT SIGN / LIGHT
- SPEAKER

MECHANICAL EQUIPMENT / FIXTURES

- CEILING MOUNTED CABINET UNIT HEATER
- EXHAUST / RETURN GRILLE
- SUPPLY DIFFUSER
- LINEAR SLOT DIFFUSER

MISCELLANEOUS FIXTURES

- WINDOW SHADE TO BE PROVIDED AT OPENING

CEILING MATERIAL LEGEND

- GYPSUM BOARD OR SYNTHETIC VENEER PLASTER CEILING / SOFFIT / BULKHEAD
- SUSPENDED ACOUSTICAL PANEL CEILING
- EXPOSED OR EXISTING CONSTRUCTION TO REMAIN

CEILING LEGEND

ACOUSTICAL PANEL CEILINGS (APC):

APC1	ARMSTRONG, ULTIMA BEVELED TEGULAR, 24" X 24", COLOR: WHITE GRID: 15/16" PRELUDE, COLOR: WHITE

ACOUSTICAL BAFFLE CEILINGS (BAF):

BAF1	FRASCH, BAFL PLUS, 12" H X 1.5" THICK X 95" LONG, COLOR: 88 PINE, INSTALL: UNISTRUT WITH AIRCRAFT CABLE

GYPSUM BOARD CEILINGS (GYP) - SEE FINISH PLANS FOR PAINT COLORS OR OTHER FINISHES:

GYP-PT1	PAINTED GYP-01 (UNO) CEILING ON SUSPENDED CEILING GRID SYSTEM OR NSMF-X
GYP-EPT1	EPOXY PAINTED GYP-01 (UNO) CEILING ON SUSPENDED CEILING GRID SYSTEM OR NSMF-X

WINDOW TREATMENTS

WINDOW SHADES (SHD):

SHD1	MANUAL SINGLE ROLLER SHADE WITH 3% LIGHT FILTERING FABRIC & FASCIA ENCLOSURE

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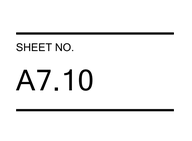


KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

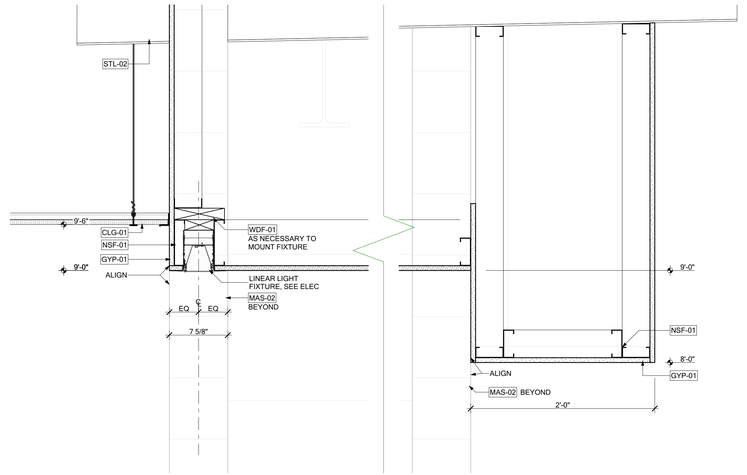
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

TC JOB NO. 107270

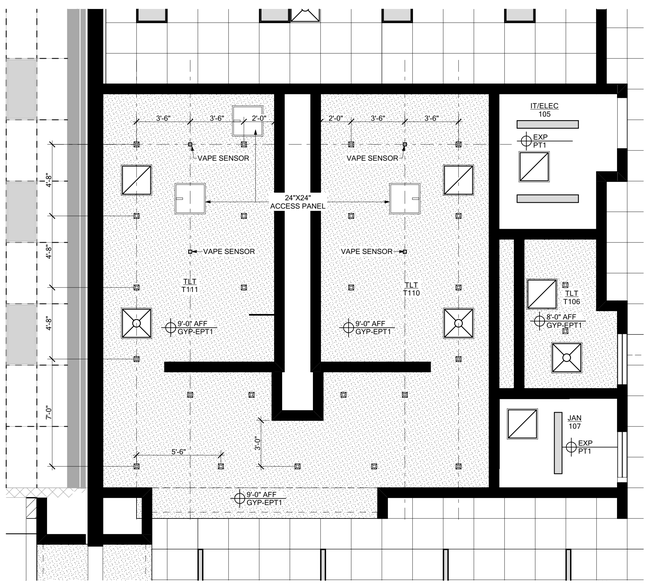
SHEET TITLE
FIRST FLOOR REFLECTED CEILING PLAN

SHEET NO.
A7.10



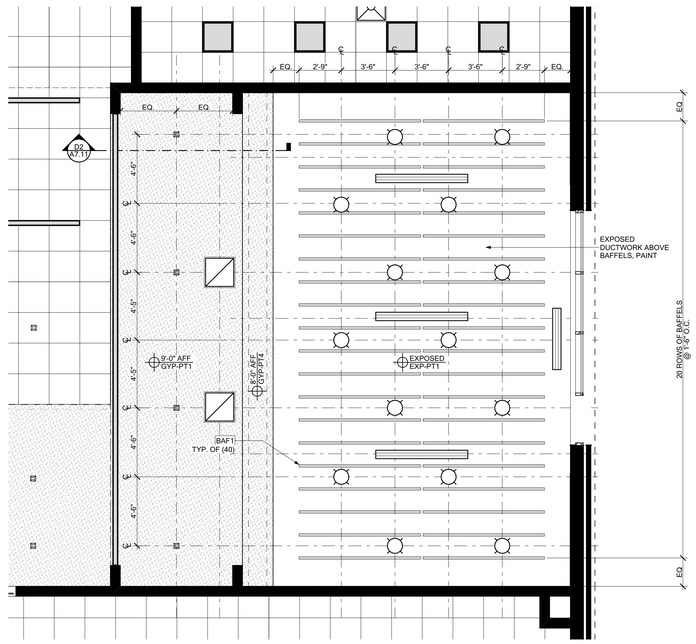
D2 CEILING SECTION DETAIL

SCALE: 1 1/2"= 1'-0"



A4 RESTROOM REFLECTED CEILING PLAN

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



A1 COLLABORATION REFLECTED CEILING PLAN

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

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

N

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

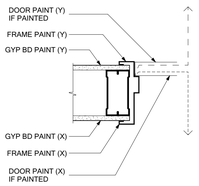
TC JOB NO. 107270

SHEET TITLE

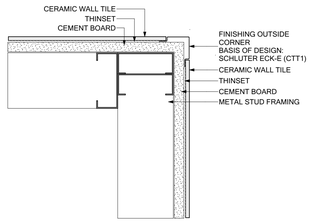
ENLARGED REFLECTED CEILING PLANS DETAILS

SHEET NO.

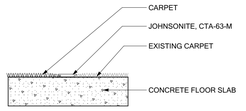
A7.11



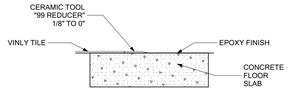
F8 PAINTING DETAIL
SCALE: 1 1/2"= 1'-0"



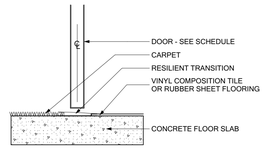
F7 CERAMIC TILE DETAIL
SCALE: 3" = 1'-0"



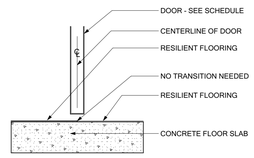
4 CPT TO EXISTING CPT TRANSITION



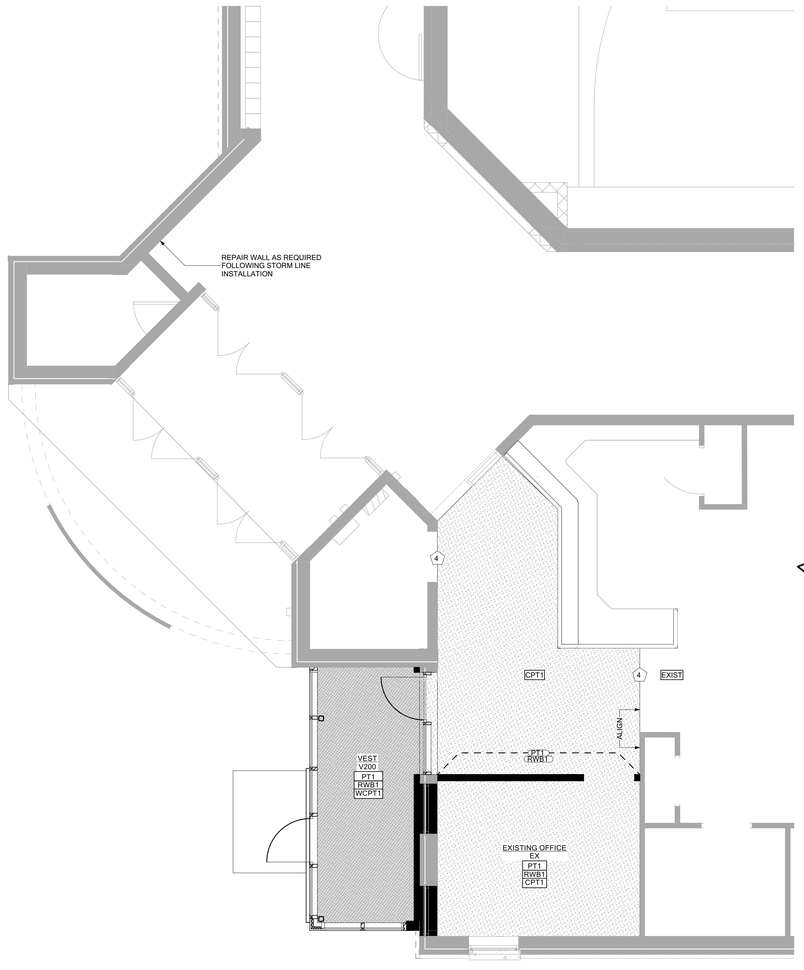
3 LVT TO EPOXY TRANSITION



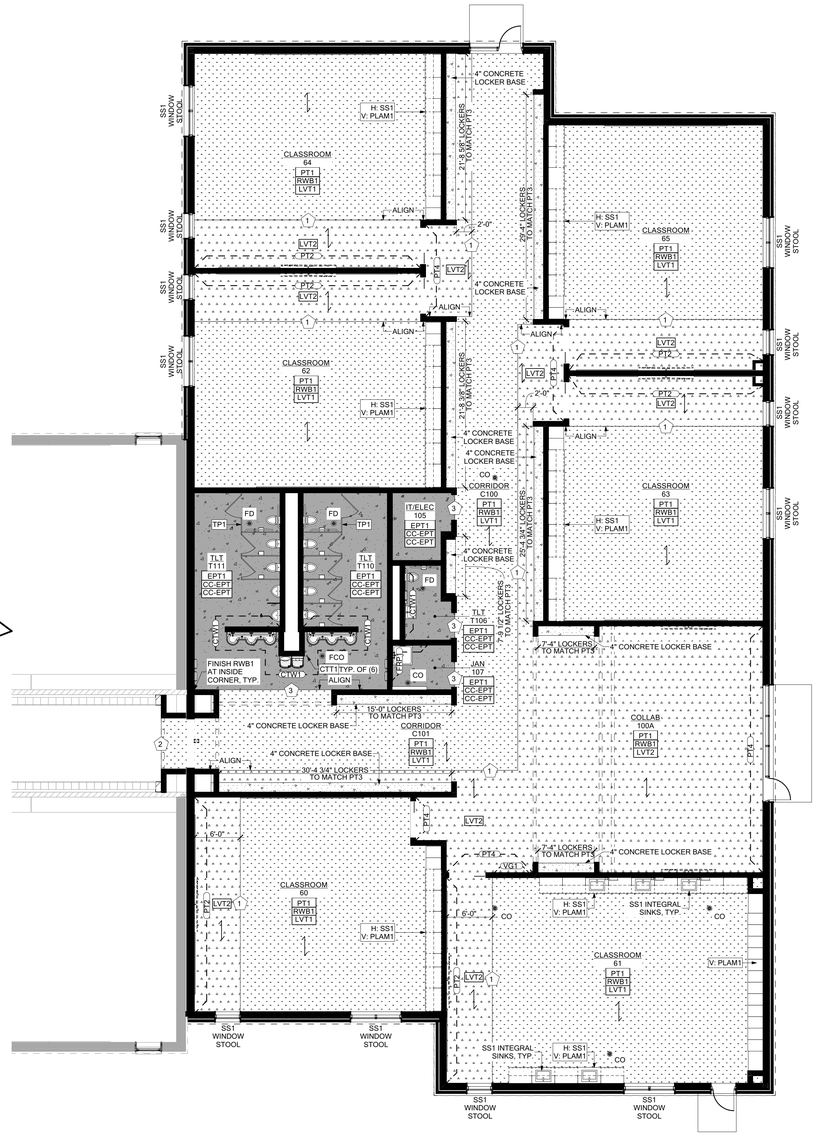
2 CPT TO LVT TRANSITION



1 LVT TO LVT TRANSITION



A6 VESTIBULE ENLARGED FINISH FLOOR PLAN
SCALE: 1/4" = 1'-0"



A2 FINISH FLOOR PLAN
SCALE: 1/8" = 1'-0"

FINISHES LEGEND

REFER TO THE FOLLOWING TAG FOR GENERAL FLOOR FINISH, WALL BASE, AND WALL FINISH INFORMATION FOR EACH ROOM UNLESS OTHERWISE NOTED.

PT1	← WALL FINISH KEYNOTE
RWB1	← WALL BASE KEYNOTE
CC-S	← FLOOR FINISH KEYNOTE

FINISHES GENERAL NOTES

1. REFER TO REFLECTED CEILING PLANS FOR INFORMATION ON CEILING FINISHES AND WINDOW TREATMENTS.
2. REFER TO ARCHITECTURAL PLANS AND SPECIFICATIONS FOR ADDITIONAL INFORMATION ON MATERIALS AND CONSTRUCTION.
3. GYPSUM BOARD THAT RECEIVES EPOXY PAINT(S) EPT1 AND PAINT(S) PT2, PT4 ARE TO RECEIVE A LEVEL 5 GYPSUM BOARD FINISH. SURFACES ARE TO BE SKIM COATED AND SHALL BE SMOOTH AND FREE OF TOOL MARKS AND RIDGES. REFER TO GYPSUM BOARD SPECIFICATIONS FOR ADDITIONAL INFORMATION, INCLUDING DETAILED LEVEL 5 FINISH REQUIREMENTS.
4. DOOR FRAME PAINT COLOR TO MATCH ADJACENT WALL COLOR UNO
5. ALL FLOORING TRANSITIONS MUST BE ACCESSIBLE, NOT TO EXCEED 1/2" RISE.

FINISHES SYMBOL LEGEND

NOTE: NOT ALL SYMBOLS SHOWN ARE USED ON DRAWINGS.

- CORNER GUARD (CG) / WALL END CORNER GUARD (EG)
- FLOOR DRAIN (FD)
- 1 — TRANSITION TYPE TAG (SEE TRANSITION TYPE DETAILS)
- PTX — ACCENT FINISH AT WALLS INDICATED

FLOORING MATERIAL LEGEND

- CARPET
- WALK OFF CARPET
- LUXURY VINYL TILE (LVT2)
- LUXURY VINYL TILE (LVT1)
- CONCRETE - EPOXY PAINT

FINISH SCHEDULE

ACOUSTICAL PANEL CEILINGS (APC):

SEE REFLECTED CEILING PLANS.

CONCRETE FLOORING (CC):

CC-EPT	CONCRETE - EPOXY PAINTED. BASIS OF DESIGN FORMULA: TNEMEC, 224-503 DECO-FLECK, 284-6000 DECO-CLEAR. 4" A.F.F. WHEN USED FOR BASE WALL TRIM

CARPET (CPT):

CPT1	SHAW CONTRACT, CENTERED TILE, 18" X 36", COLOR: OPTIMISTIC 90375, INSTALL: ASHLAR (COORDINATE FINAL SELECTION WITH OWNER PRIOR TO PURCHASING)

CERAMIC WALL TILE (CTW):

CTW1	DALTILE, MYTHOLOGY, 4" X 12", COLOR: CYCLADE MY94, FINISH: GLOSSY, INSTALL: HORIZONTAL RUNNING BOND, GROUT: TBD (USE WITH CTT1 & CTT2)

CERAMIC TILE TRIM (CTT):

CTT1	SCHLUTER, ECK-E, FINISH: TBD (USE WITH CTW1)
CTT2	SCHLUTER, JOLLY/SCHIENE, FINISH: TBD (USE WITH CTW1)

FIBER REINFORCED PLASTIC (FRP):

FRP1	CRANE COMPOSITES, GLASBOARD, 4' X 8' PANEL CUT TO SIZE, COLOR: TBD, FINISH: EMBOSSED (SEE INTERIOR ELEVATIONS FOR SIZES)

LUXURY VINYL TILE (LVT):

LVT1	SHAW CONTRACT, CODED, 6" X 48" X 5MM THICK, COLOR: INTERPRET 43761, INSTALL: ASHLAR
LVT2	SHAW CONTRACT, CODED, 6" X 48" X 5MM THICK, COLOR: CONNECT 43375, INSTALL: ASHLAR

PLASTIC LAMINATE (PLAM):

PLAM1	FORMICA, PENCIL WOOD 7747-58, FINISH: MATTE

PAINTS (PT) & EPOXY PAINTS (EPT):

PT1	SHERWIN WILLIAMS, SW7005 PURE WHITE
PT2	SHERWIN WILLIAMS, SW7019 GAUNTLET GRAY
PT3	SHERWIN WILLIAMS, SW7742 AGATE GREEN
PT4	BENJAMIN MOORE, 2047-10 FOREST GREEN
PT5	BENJAMIN MOORE, 2137-60 GRAY OWL
EPT1	SHERWIN WILLIAMS, SW7005 PURE WHITE

RUBBER WALL BASE (RWB):

RWB1	JOHNSONITE, 4" HIGH RUBBER COVE BASE, COLOR: 63 BURNT UMBER

SOLID SURFACE (SS):

SS1	FORMICA EVERFORM, COLOR: 748 WHITE RENEW

TOILET PARTITION (TP):

TP1	SCRANTON, HDPE TOILET PARTITION, COLOR: SHALE, FINISH: ORANGE PEEL, INSTALL: FLOOR-MOUNTED / OVERHEAD-BRACED

VINYL GRAPHIC (VG)(SEE ALSO INTERIOR ELEVATIONS):

VG1	VINYL GRAPHIC APPLIED TO CMU, PARGE COAT WALL BEFORE INSTALL. PROVIDED/INSTALLED BY: CONTRACTOR. (CONFIRM LOGO & COLORS WITH OWNER PRIOR TO FABRICATION)

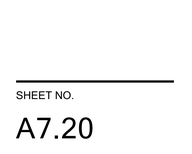
WALK OFF CARPET (WCPT):

WCPT1	SHAW CONTRACT, PACE TILE, 24" X 24",

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025



KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024	ISSUED FOR BID & PERMIT

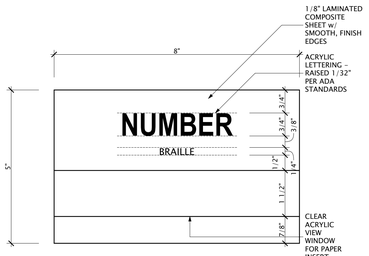
TC JOB NO. 107270

SHEET TITLE

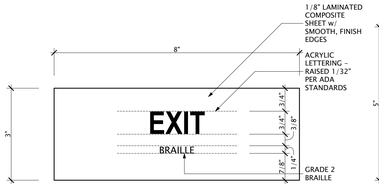
FIRST FLOOR FINISH PLAN

SHEET NO.

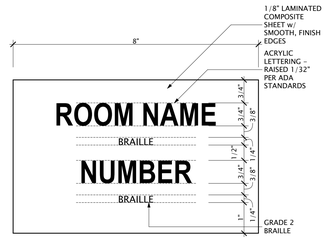
A7.20



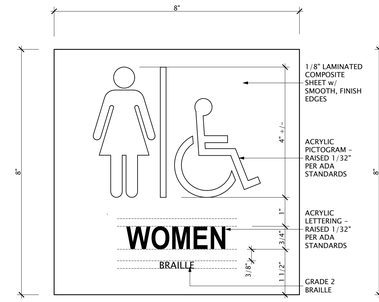
RM3: ROOM SIGNAGE w/ INSERT



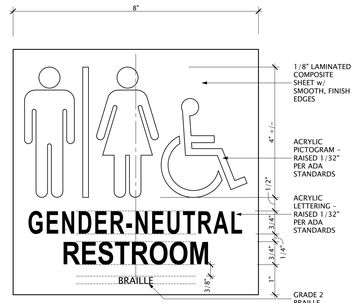
TES: TACTILE EGRESS SIGNAGE



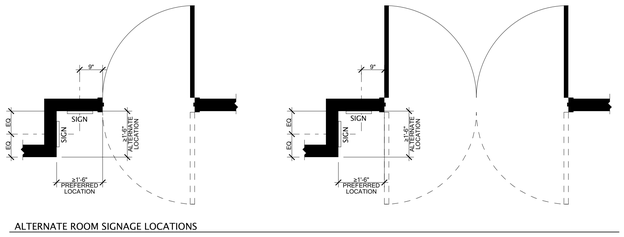
RM1: ROOM SIGNAGE



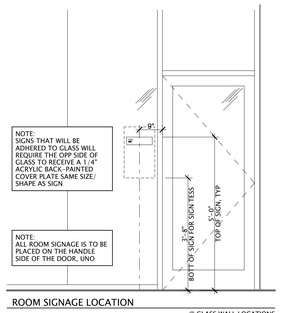
RR2: GENDER-DESIGNATED RESTROOMS



RR1: GENDER-NEUTRAL RESTROOMS

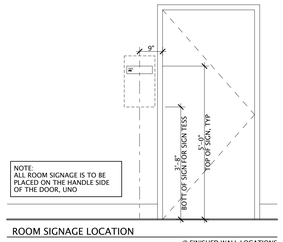


ALTERNATE ROOM SIGNAGE LOCATIONS



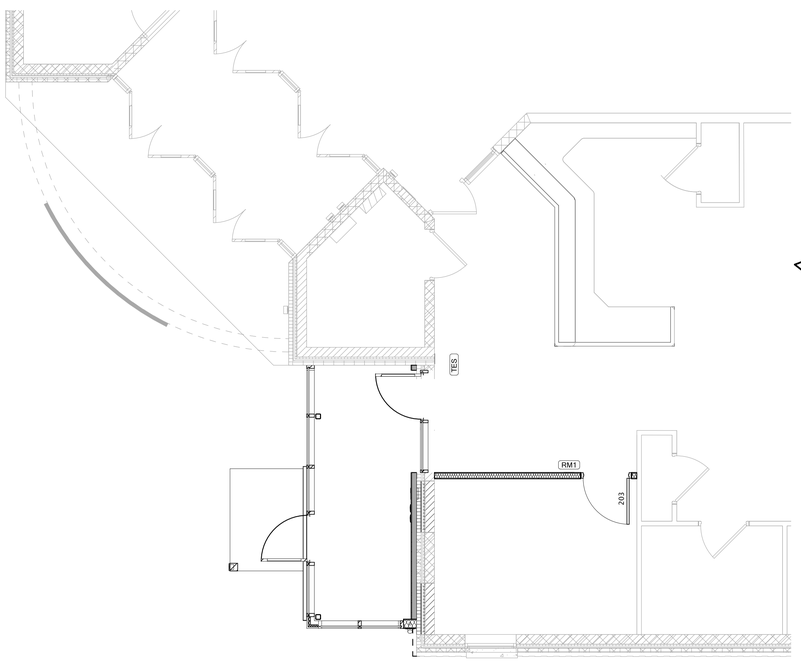
ROOM SIGNAGE LOCATION

@ GLASS WALL LOCATIONS



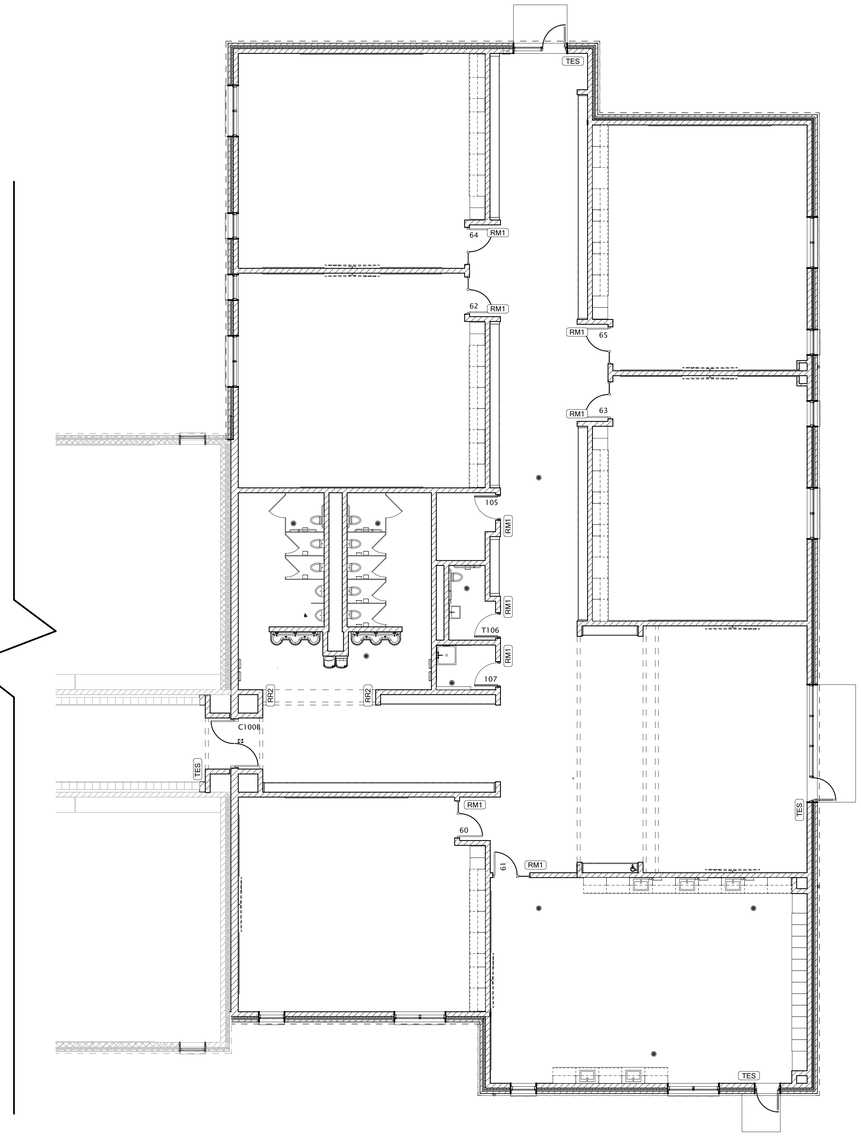
ROOM SIGNAGE LOCATION

@ FINISHED WALL LOCATIONS



A6 VESTIBULE ENLARGED FLOOR PLAN

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



A2 SIGNAGE FLOOR PLAN

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

THE COLLABORATIVE

STATE OF MICHIGAN
Michael A. Muse
License No. 1301048954
LICENSED ARCHITECT

Michael Muse, License #1301048954
Expiration Date 12/31/2025

KEY PLAN
N.T.S.

N

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 . ISSUED FOR BID & PERMIT

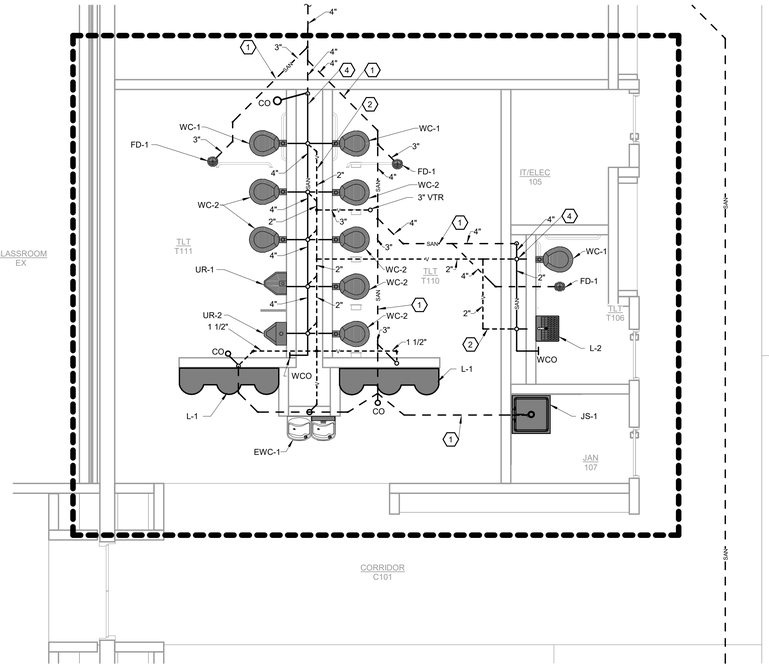
TC JOB NO. 107270

SHEET TITLE

FIRST FLOOR SIGNAGE PLANS & DETAILS

SHEET NO.

A8.00



NORTH

ENLARGED TOILET ROOM - UNDERGROUND PLUMBING

1/4" = 1'-0"

NORTH

UNDERGROUND PLUMBING AND VENT PIPING PLAN

1/8" = 1'-0"

KEYED NOTES

1. SANITARY PIPING LOCATED UNDERGROUND BELOW FLOOR. (TYP.)
2. VENT PIPING TO BE ROUTED IN CEILING SPACE ABOVE. (TYP.)
3. 4" UNDERGROUND SANITARY PIPING ROUTED TO 5'-0" BEYOND BUILDING WITH CLEANOUT, BY MECHANICAL TRADES. PIPING BEYOND 5'-0" BY CIVIL/SITE CONTRACTOR. COORDINATE INVERT ELEVATION WITH CIVIL/SITE DRAWINGS AND CONTRACTOR.
4. SANITARY PIPING CONNECTING ALL WATER CLOSETS AND URINALS SHALL BE ROUTED ABOVE GROUND INSIDE OF PLUMBING CHASE. COORDINATE EXACT ELEVATION WITH PLUMBING FIXTURE CONNECTIONS AT CARRIERS AND ALLOW PROPER SLOPING OF SANITARY PIPE.
5. 6" UNDERGROUND STORM PIPING ROUTED TO 5'-0" BEYOND BUILDING WITH CLEANOUT, BY MECHANICAL TRADES. PIPING BEYOND 5'-0" BY CIVIL/SITE CONTRACTOR. COORDINATE INVERT ELEVATION WITH CIVIL/SITE DRAWINGS AND CONTRACTOR.
6. VERTICAL STORM PIPING TO BE ROUTED DOWN BELOW GROUND. REFER TO PLUMBING PLAN FOR CONTINUATION OF STORM PIPING ABOVE FLOOR.
7. ROUTE DOMESTIC CW AND HW PIPING BELOW GROUND TO SERVE SINKS ON EXTERIOR WALL. ROUTE PIPING DOWN IN WALL AND CONNECT TO THE PRE-INSULATED PIPING CARRIER SYSTEM JUST ABOVE THE FLOOR ON THE NORTH SIDE AND THEN CONNECT STANDARD PIPING TO THE CARRIER SYSTEM JUST ABOVE THE FLOOR OF THE CASEWORK ON THE SOUTH SIDE.
8. FURNISH AND INSTALL ISOLATION BALL VALVES ON COPPER PIPING PRIOR TO CONNECTION TO PRE-INSULATED BURIED PIPING SYSTEM. VALVES SHALL BE LOCATED INSIDE CASEWORK.
9. FURNISH AND INSTALL ISOLATION BALL VALVES ON COPPER PIPING PRIOR TO CONNECTION TO PRE-INSULATED BURIED PIPING SYSTEM. VALVES SHALL BE LOCATED ABOVE THE CEILING.

GENERAL NOTES

1. ALL PLUMBING AND VENTING SHALL BE INSTALLED PER STATE/LOCAL CODES.
2. COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES. DETERMINE LOCATION OF ALL PIPING, DUCTWORK, CONDUIT, CABLE TRAY, ETC. PRIOR TO INSTALLING PIPING IN FINAL LOCATION.
3. NO PIPING SHALL BE LOCATED DIRECTLY ABOVE ELECTRICAL PANELS OR DEVICES. NO PIPING SHALL BE ALLOWED WITHIN 3'-0" OF PANELS, UNLESS PIPING IS HIGHER THAN 7'-0" ABOVE FLOOR. VERIFY ALL PIPE ROUTING WITH ELECTRICAL TRADES.
4. UNDERGROUND DOMESTIC WATER PIPING WITHIN THE BOUNDARY OF THE BUILDING SHALL BE PRE-INSULATED PEX-A PIPING. TWIN PRODUCT INCLUDES (2) 3/4" PEX-A PIPES WITHIN A SINGLE CORRUGATED, WATERPROOF HYDE JACKET ENCLOSURE, WITH INTERNAL PEX FOAM INSULATION. PEX-A PIPING SHALL BE RATED FOR POTABLE WATER USE. NO FITTINGS SHALL BE LOCATED BELOW FLOOR.

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ORAT
IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

Gary [illegible]
December 11, 2024
MAI #2024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND
SCHOOLS

MIDDLE SCHOOL
ADDITION

8250 WEBSTER RD.
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

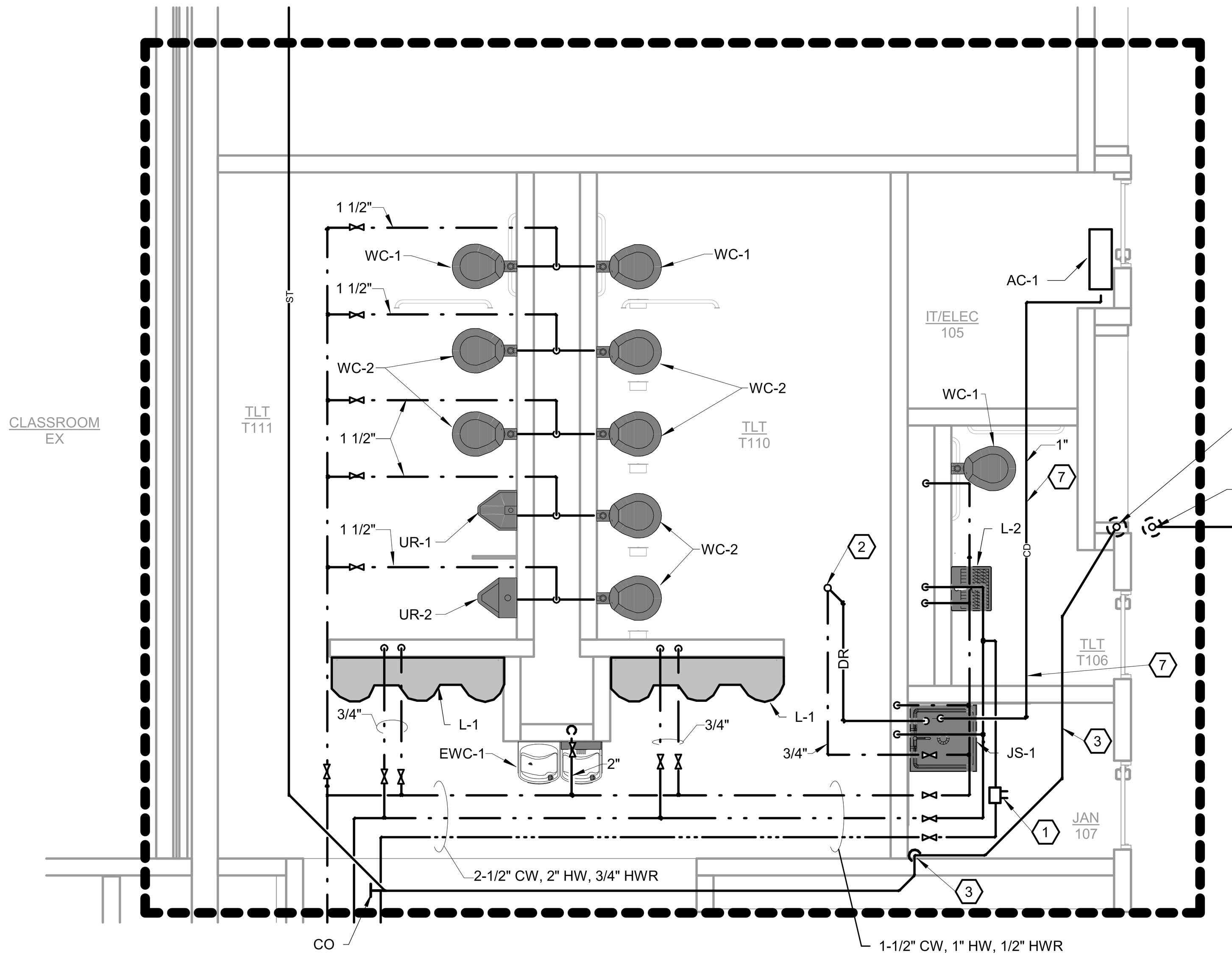
TC JOB NO. 107270

SHEET TITLE

UNDERGROUND
PLUMBING AND
VENT PIPING

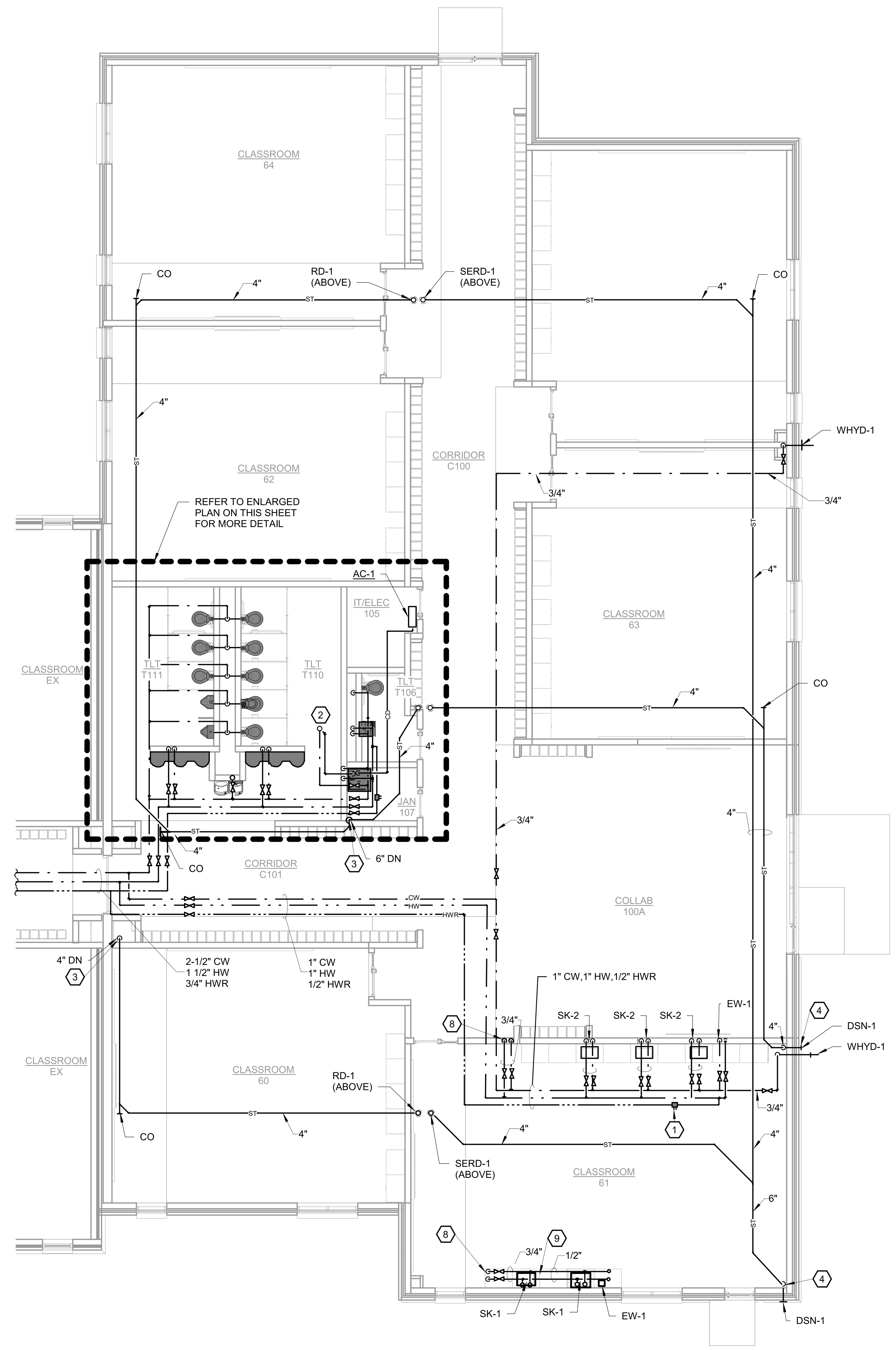
SHEET NO.

M1.10



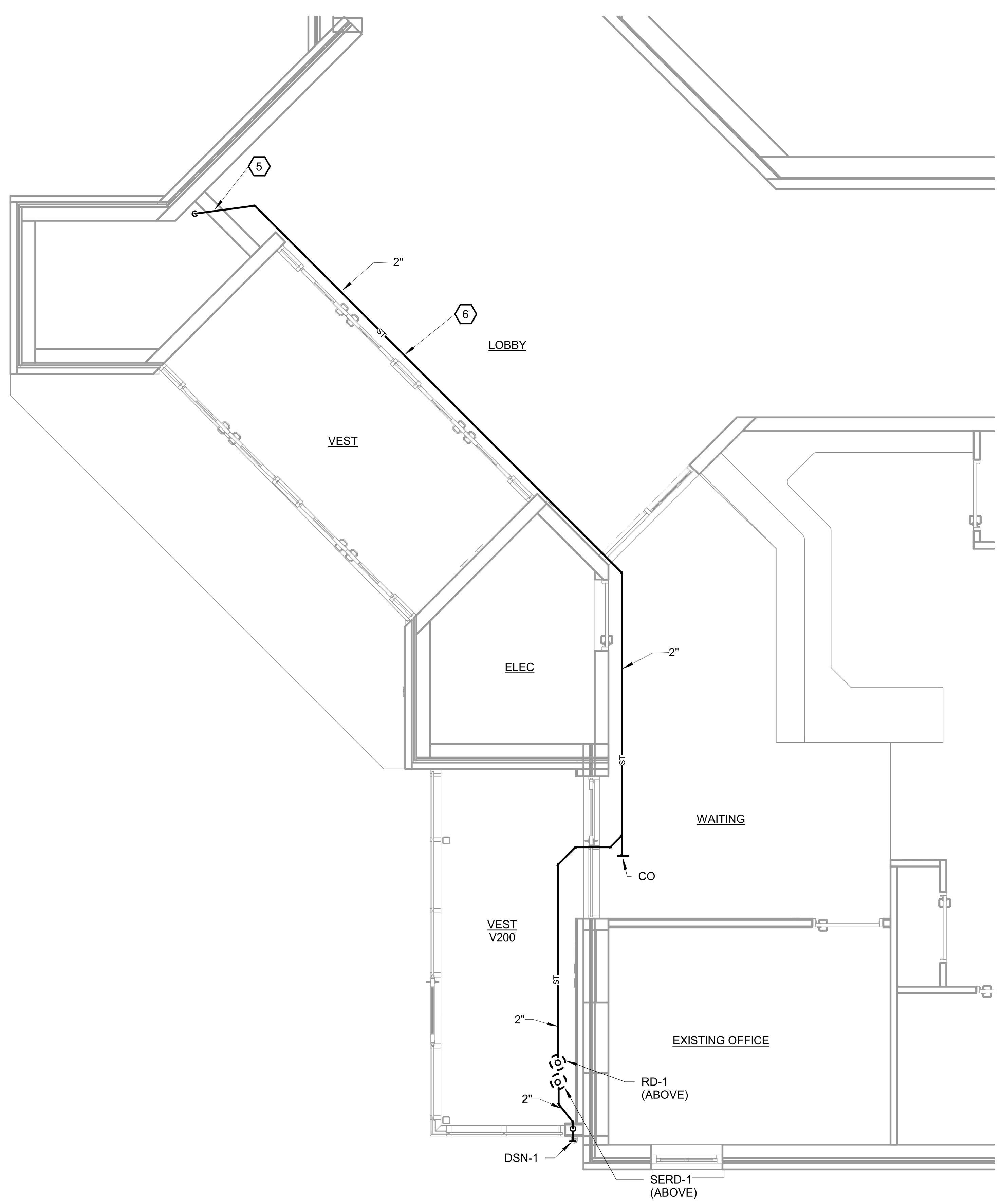
ENLARGED TOILET ROOM - PLUMBING

1/4" = 1'-0"



FIRST FLOOR PLAN - PLUMBING

1/8" = 1'-0"



FIRST FLOOR VESTIBULE PLUMBING

1/4" = 1'-0"

KEYED NOTES

1. FURNISH AND INSTALL AUTOMATIC FLOW LIMITING DEVICE, SET AT 0.5 GPM. DOMESTIC HOT WATER RETURN PIPING SHALL BE A MINIMUM OF 3/4".
2. ROUTE 3/4" DOMESTIC CW PIPING UP TO ROOF HYDRANT ON ROOF ABOVE. ROUTE 1/2" DRAIN LINE FROM BOTTOM OF HYDRANT TO AIR GAP DISCHARGE AT JANITOR'S SINK.
3. STORM PIPING TO ROUTE DOWN THROUGH FLOOR BELOW GRADE. REFER TO UNDERGROUND PLUMBING PLAN CONTINUATION.
4. ROUTE STORM PIPING DOWN IN CHASE OR WALL TO CONNECT TO A DOWNSPOUT NOZZLE. DOWNSPOUT NOZZLE SHALL BE MOUNTED APPROXIMATELY 18" ABOVE GRADE.
5. ROUTE NEW STORM PIPING THRU EXISTING WALL TO CONNECT TO EXISTING VERTICAL STORM PIPING IN CHASE. COORDINATE THE OPENING UP OF THE EXISTING WALL AND THE WALL REPAIR WITH GENERAL TRADES.
6. ROUTE NEW STORM PIPING ABOVE EXISTING CEILING. COORDINATE THE TEMPORARY REMOVAL OF EXISTING CEILING TILES WITH GENERAL TRADES. FIELD VERIFY ROUTING PRIOR TO INSTALLING PIPING.
7. ROUTE 3/4" CONDENSATE DRAIN FROM AC UNIT ABOVE CEILING TO AIR GAP DISCHARGE AT JANITOR'S SINK.
8. ROUTE 3/4" CW AND HW PIPING DOWN TO PRE-INSULATED UNDERGROUND PIPING. FURNISH AND INSTALL ISOLATION BALL VALVES PRIOR TO TRANSITIONING TO UNDERGROUND PIPING PRODUCT. REFER TO UNDERGROUND PIPING PLAN.
9. DOMESTIC WATER PIPING ROUTED WITHIN CASEWORK TO SERVE SINKS. COORDINATE WITH CASEWORK CONTRACTOR AND GENERAL TRADES. FURNISH AND INSTALL ISOLATION BALL VALVES FOR EACH FIXTURE SERVED.

GENERAL NOTES

1. ALL PLUMBING AND VENTING SHALL BE INSTALLED PER STATE/LOCAL CODES.
2. COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES. DETERMINE LOCATION OF ALL PIPING, DUCTWORK, CONDUIT, CABLE TRAY, ETC. PRIOR TO INSTALLING PIPING IN FINAL LOCATION.
3. NO PIPING SHALL BE LOCATED DIRECTLY ABOVE ELECTRICAL PANELS OR DEVICES. NO PIPING SHALL BE ALLOWED WITHIN 3'-0" OF PANELS, UNLESS PIPING IS HIGHER THAN 7'-0" ABOVE FLOOR. VERIFY ALL PIPE ROUTING WITH ELECTRICAL TRADES.
4. FURNISH AND INSTALL ISOLATION BALL VALVES ON ALL CW AND HW BRANCH PIPES SERVING PLUMBING FIXTURES.
5. CW AND HW PIPING BRANCH LINES SERVING FIXTURES SHALL MATCH FIXTURE CONNECTION SIZE, UNLESS OTHERWISE NOTED, IF CONNECTION SIZE IS LESS THAN 1/2" UTILIZE 1/2" FOR BRANCH LINE AND REDUCE AT FIXTURE.

THE COLLABORATIVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #2024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD.
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107270

SHEET TITLE

FIRST FLOOR PLAN - PLUMBING

SHEET NO.

M2.10

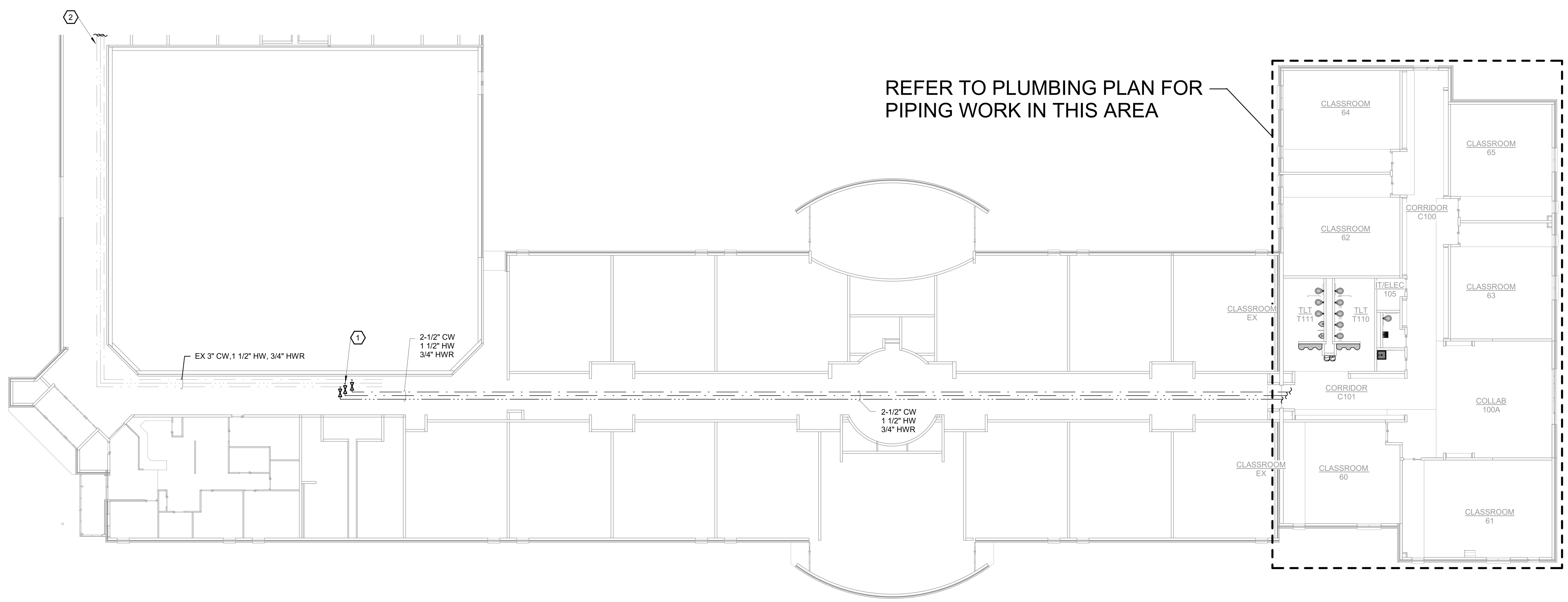
KEYED NOTES

(1) CONNECT NEW DOMESTIC WATER PIPING TO EXISTING DOMESTIC WATER PIPING LOCATED ABOVE THE CEILING OF THE EXISTING PART OF THE BUILDING. FIELD VERIFY EXACT LOCATION OF EXISTING PIPING. COORDINATE WITH GENERAL TRADES TO TEMPORARILY REMOVE CEILING TILES AND RE-INSTALL WHEN COMPLETE. FURNISH AND INSTALL ISOLATION BALL VALVES ON NEW PIPING NEAR CONNECTION TO EXISTING PIPING.

(2) UTILIZE EXISTING VALVES AT BOILER ROOM TO ISOLATE EXISTING DOMESTIC WATER PIPING IN ORDER TO DRAIN PIPING WHEN MAKING NEW CONNECTIONS. FIELD VERIFY VALVES AND COORDINATE WITH OWNER.

GENERAL NOTES

1. ALL PLUMBING AND VENTING SHALL BE INSTALLED PER STATE/LOCAL CODES.
2. COORDINATE ROUTING OF PIPING WITH ALL OTHER TRADES. DETERMINE LOCATION OF ALL PIPING, DUCTWORK, CONDUIT, CABLE TRAY, ETC. PRIOR TO INSTALLING PIPING IN FINAL LOCATION.
3. NO PIPING SHALL BE LOCATED DIRECTLY ABOVE ELECTRICAL PANELS OR DEVICES. NO PIPING SHALL BE ALLOWED WITHIN 3'-0" OF PANELS, UNLESS PIPING IS HIGHER THAN 7'-0" ABOVE FLOOR. VERIFY ALL PIPE ROUTING WITH ELECTRICAL TRADES.
4. FURNISH AND INSTALL ISOLATION BALL VALVES ON ALL DOMESTIC WATER BRANCH PIPES CONNECTING TO MAINS.



OVERALL FIRST FLOOR PLAN - PLUMBING
1/16" = 1'-0"

THE COL LAB ORAT IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

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PROJECT TITLE

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FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

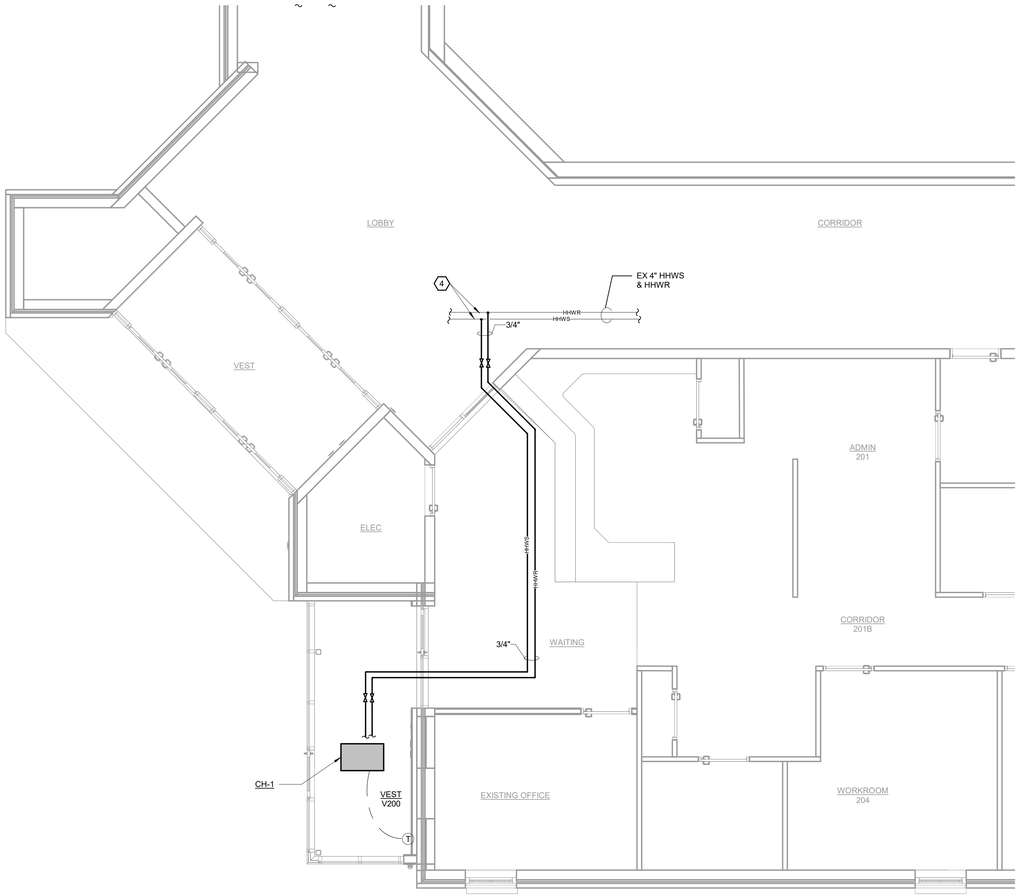
TC JOB NO. 107270

SHEET TITLE

FIRST FLOOR PLAN - OVERALL PLUMBING

SHEET NO.

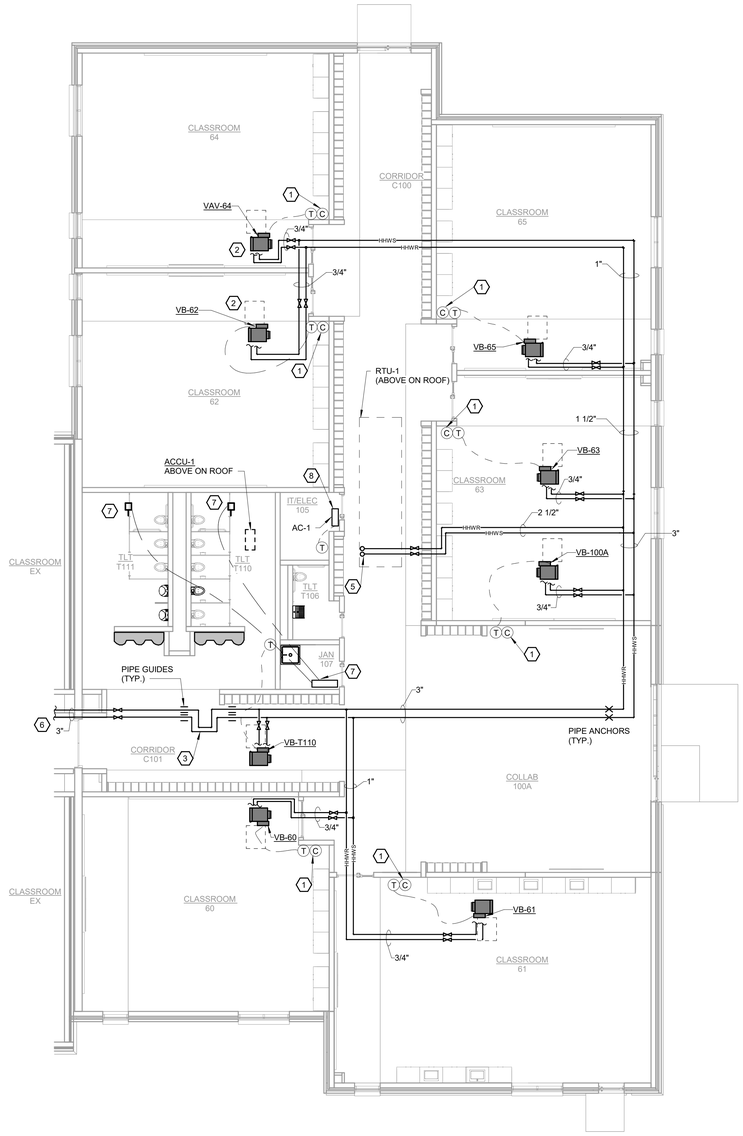
M2.11



NORTH

VESTIBULE ENLARGED PLAN - HVAC PIPING

1/4" = 1'-0"



NORTH

FIRST FLOOR PLAN - HVAC PIPING

1/8" = 1'-0"

KEYED NOTES

1. CONTROLS CONTRACTOR TO FURNISH AND INSTALL CO2 SENSOR (OR PROVIDE ROOM SENSOR THAT IS COMBINATION TEMPERATURE AND CO2) TO UTILIZE DEMAND CONTROL VENTILATION FOR THIS SPACE.
2. VAV BOX REHEAT COIL PIPING SHALL UTILIZE 3-WAY CONTROL VALVE. REFER TO COIL PIPING DETAIL. REFER TO VAV BOX SCHEDULE.
3. FURNISH AND INSTALL PIPING EXPANSION LOOPS AS NECESSARY TO ACCOMMODATE EXPANSION IN PIPING SYSTEM. MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CALCULATIONS, INSTALLATION OF LOOPS, GUIDES AND ANCHORS. PROVIDE EXPANSION LOOP SIMILAR TO METRAFLEX MATRALOOP TO ALLOW AXIAL MOVEMENT OF +/- 2"
4. CONNECT NEW HEATING PIPING TO EXISTING HEATING PIPING LOCATED ABOVE EXISTING CEILING. FIELD VERIFY EXACT LOCATION. COORDINATE TEMPORARY REMOVAL OF EXISTING CEILING TILES WITH GENERAL TRADES.
5. ROUTE HEATING PIPING UP TO ROOFTOP HVAC UNIT. VERIFY EXACT CONNECTION LOCATION WITH MANUFACTURER'S INSTRUCTIONS. REDUCE PIPING AT CONNECTION POINT, IF NECESSARY, BUT AFTER ALL VALVES AND PIPING DEVICES. REFER TO PIPING DETAIL.
6. REFER TO OVERALL HVAC PIPING PLAN FOR CONTINUATION AND CONNECTION TO EXISTING HEATING PIPING ABOVE CEILING.
7. FURNISH AND INSTALL REMOTE BALANCE DAMPER TO ALLOW FOR DAMPERS ABOVE UNACCESSIBLE CEILING TO BE AIR BALANCED. DAMPER SHALL BE GREENHECK RBD-10, OR EQUAL. PRODUCT SHALL BE FURNISHED WITH ACTUATOR, PLENUM-RATED CABLE (50-FEET), REMOTE WALL PLATE WITH (2) PORTS AND EZ- BALANCE REMOTE CONTROL DEVICE (UTILIZING 9-VOLT BATTERY). MOUNT WALL PLATE IN JANITOR'S CLOSET AND ROUTE CABLES BETWEEN DAMPER AND WALL PLATE.
8. WALL MOUNTED COOLING UNIT TO BE MOUNTED ON WALL ABOVE THE DOOR. COORDINATE WITH ALL IT EQUIPMENT AND ELECTRICAL DEVICES.

GENERAL NOTES

1. FURNISH AND INSTALL ISOLATION BALL VALVES ON BRANCH HEATING HOT WATER PIPING THAT SERVES EACH INDIVIDUAL VAV BOX REHEAT COIL, WHERE BRANCH PIPING LEAVES A MAIN AND WHERE NEW PIPING CONNECTS TO EXISTING PIPING.
2. ALL BRANCH HEATING HOT WATER PIPING SERVING AN INDIVIDUAL VAV BOX REHEAT COIL SHALL BE 3/4" UNLESS OTHERWISE NOTES.

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PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

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FREELAND, MI 48623

12.12.2024	ISSUED FOR PERMIT & BID

TC JOB NO. 107270

SHEET TITLE

FIRST FLOOR PLAN - HVAC PIPING

SHEET NO.

M3.10

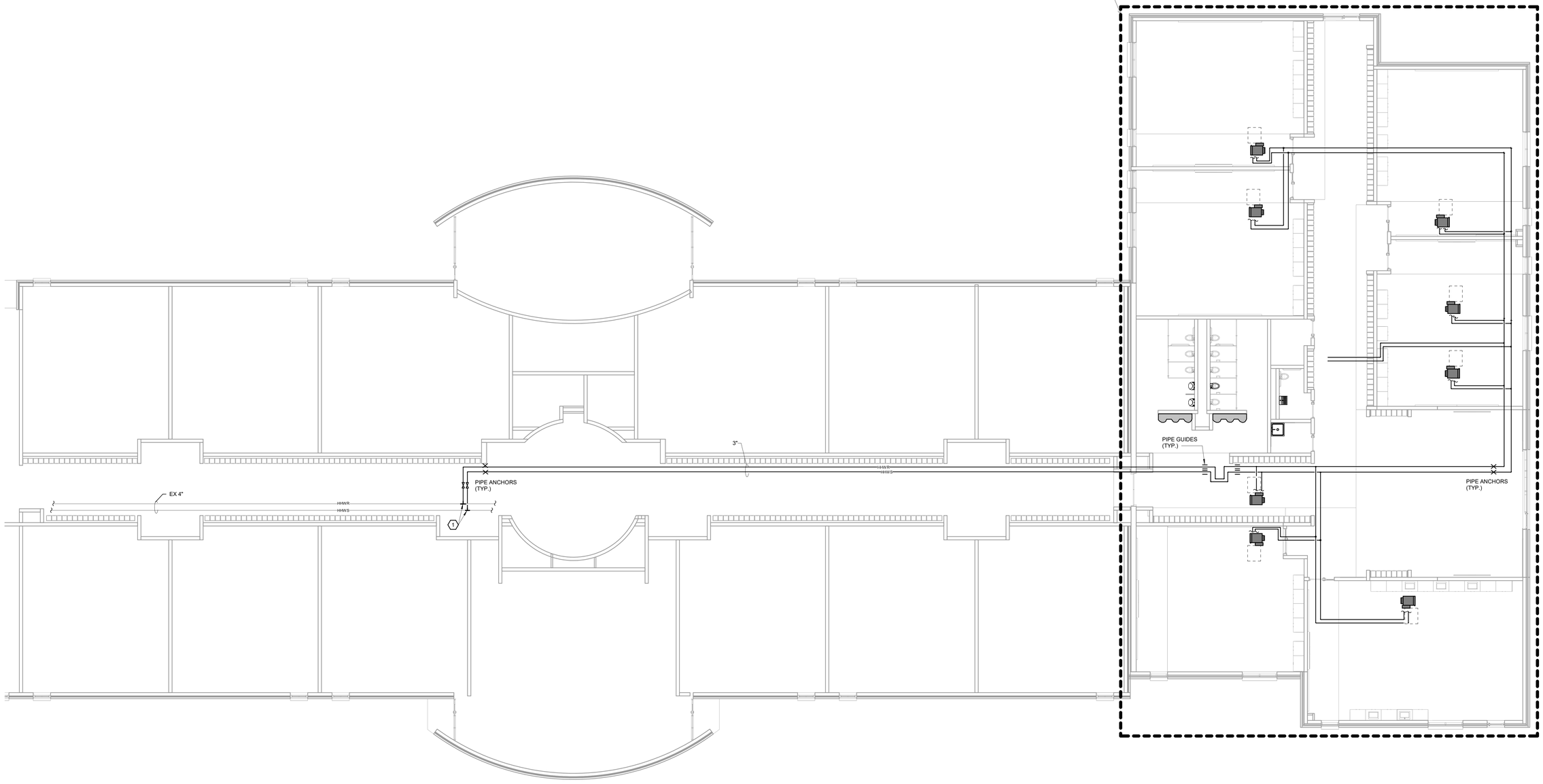
KEYED NOTES

1 CONNECT NEW 3" HEATING HOT WATER PIPING TO EXISTING 4" HEATING HOT WATER PIPING LOCATED ABOVE THE CEILING OF THE EXISTING PART OF THE BUILDING. FIELD VERIFY EXACT LOCATION OF EXISTING 4" PIPING. COORDINATE WITH GENERAL TRADES TO TEMPORARILY REMOVE CEILING TILES AND RE-INSTALL WHEN COMPLETE. FURNISH AND INSTALL ISOLATION BALL VALVES ON NEW PIPING NEAR CONNECTION TO EXISTING PIPING.

GENERAL NOTES

1. WHEN CONNECTING NEW HEATING PIPING TO EXISTING SYSTEM, CONTRACTOR SHALL WORK WITH OWNER TO PROPERLY ISOLATE SYSTEM USING EXISTING VALVES (AT BOILER ROOM, IF NECESSARY) AND DRAIN PIPING ACCORDINGLY TO MAKE CONNECTION.
2. THE GLYCOL MIXTURE IN THE EXISTING HYDRONIC SYSTEM SHALL BE PROPERLY CAPTURED DURING DRAINING AND RE-USED.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING NEW GLYCOL MIXTURE (MATCHING THE EXISTING MIXTURE) TO FILL THE NEW SYSTEM.

REFER TO HVAC PIPING PLAN FOR HVAC PIPING WORK IN THIS AREA



NORTH

OVERALL FIRST FLOOR PLAN - HVAC PIPING
1/8" = 1'-0"

THE COLLABORATIVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #2024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD.
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107270

SHEET TITLE

OVERALL FIRST FLOOR PLAN - HVAC PIPING

SHEET NO.

M3.11

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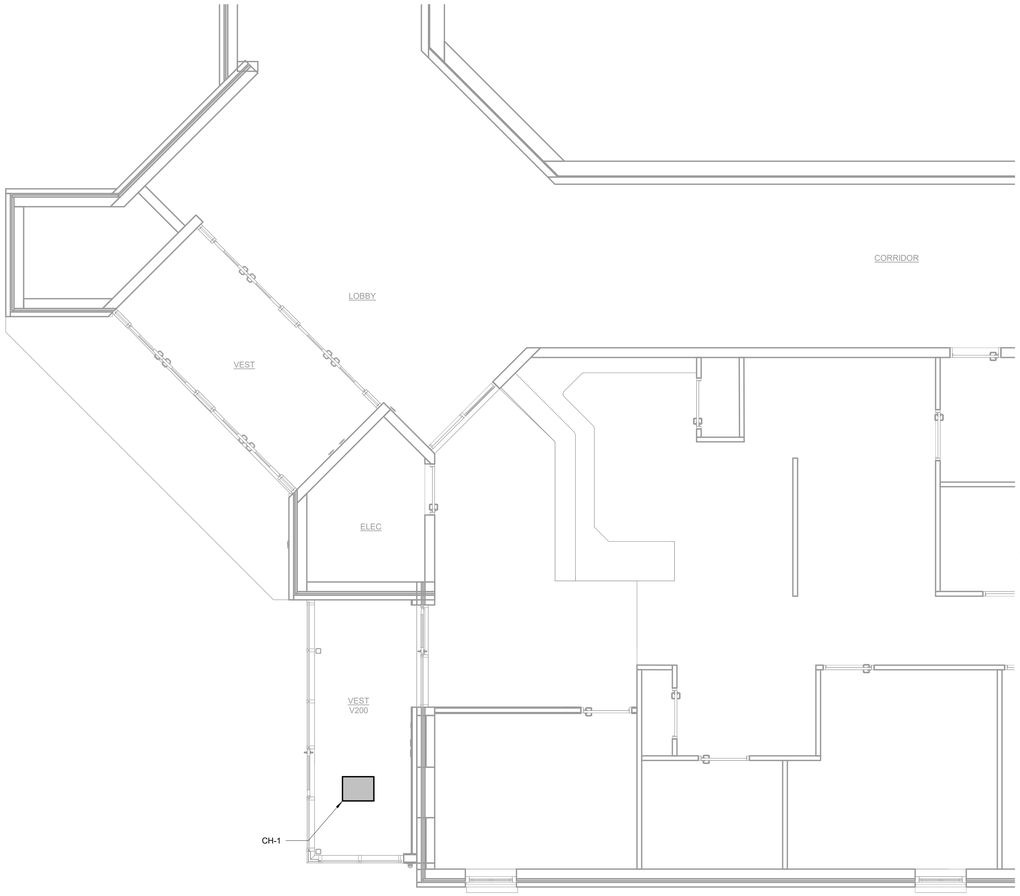
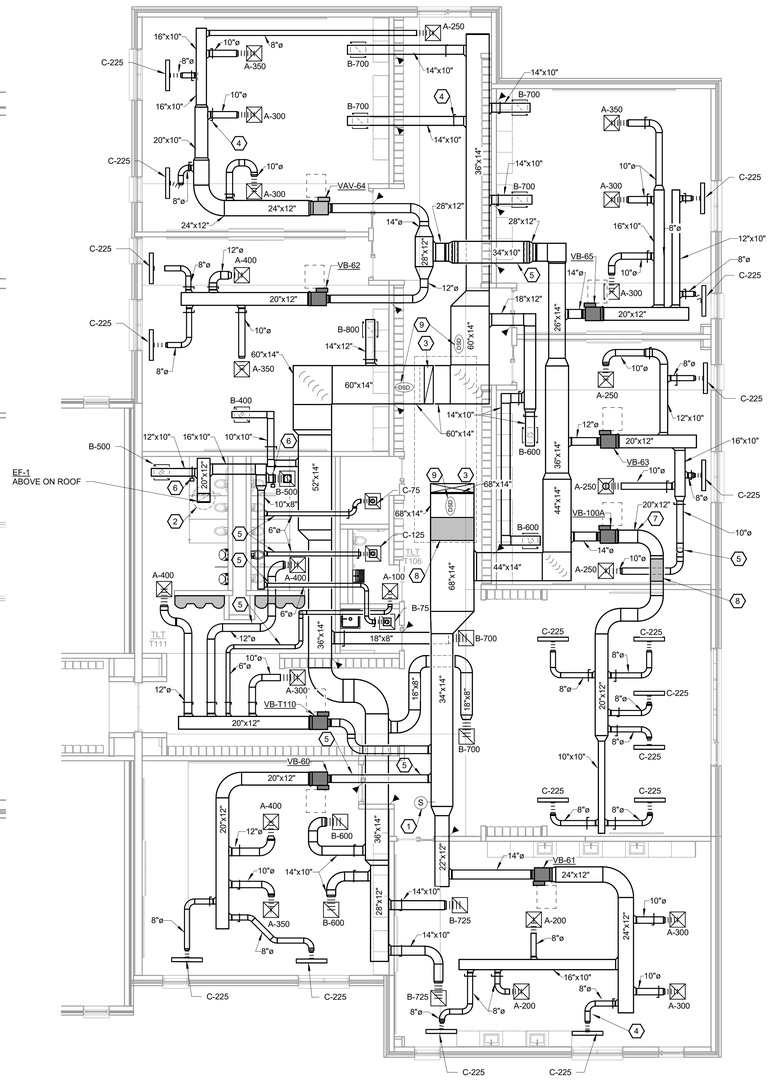


NORTH

VESTIBULE ENLARGED PLAN - HVAC

1/4" = 1'-0"



NORTH

FIRST FLOOR PLAN - HVAC

1/8" = 1'-0"

KEYED NOTES

1. DUCT-MOUNTED STATIC PRESSURE SENSOR. MECHANICAL CONTRACTOR AND CONTROLS CONTRACTOR SHALL COORDINATE INSTALLATION. CONTROLS CONTRACTOR TO WIRE BACK TO RTU CONTROLLER TO MODULATE FAN SPEED/AIRFLOW.
2. EXHAUST DUCT ROUTED UP TO EXHAUST FAN ON ROOF. REFER TO ROOF PLAN FOR CONTINUATION. TRANSITION DUCTWORK AS NECESSARY TO MATCH FAN INLET SIZE.
3. DUCT ROUTED UP THROUGH ROOF TO ROOFTOP HVAC UNIT. REFER TO ROOF PLAN FOR CONTINUATION. TRANSITION DUCTWORK AS NECESSARY TO MATCH RTU INLET SIZE. COORDINATE WITH CURB MANUFACTURER TO PROVIDE DUCT OPENINGS THAT FIT WITHIN CORRIDOR WALLS.
4. INSTALL MANUAL BALANCING DAMPER IN DUCTWORK. (TYPICAL)
5. DUCTWORK SHALL BE ROUTED UP AND UTILIZE SPACE BETWEEN AND/OR THROUGH JOIST TO AVOID CONFLICT WITH OTHER DUCTWORK OR EQUIPMENT. FIELD VERIFY EXACT LOCATION AND CONDITIONS.
6. UTILIZE A REMOTE-OPERATED BALANCE DAMPER. REFER TO HVAC PIPING PLAN FOR WALL CONTROL PANEL LOCATION AND DETAILS ON BALANCE DAMPER.
7. ALL SUPPLY AIR DUCTWORK DOWNSTREAM OF THE VAV BOX SERVING THE COLLABORATION AREA SHALL BE INSTALLED WITH INTERNAL DUCT LINER. REFER TO SPECIFICATIONS.
8. FURNISH AND INSTALL 36" LONG DUCT SILENCER. VERIFY DUCT SIZE OF APPLICATION AND CONFIRM CEILING SPACE EXISTS TO ALLOW FOR PROPER INSTALLATION. REFER TO MECHANICAL SCHEDULES FOR MODEL AND PERFORMANCE REQUIREMENTS.
9. LOCATION OF NEW DUCT SMOKE DETECTOR. COORDINATE WITH ELECTRICAL TRADES.

GENERAL NOTES

1. ALL DIFFUSER AND GRILLE LOCATIONS SHALL BE COORDINATED WITH ARCHITECTURAL REFLECTED CEILING PLANS.
2. FURNISH AND INSTALL MANUAL BALANCING DAMPERS ON ALL SUPPLY AIR, RETURN AIR, AND EXHAUST BRANCH DUCTWORK TO ALLOW BALANCING OF EACH INDIVIDUAL AIR OUTLET. THIS INCLUDES GRILLES MOUNTED DIRECTLY TO DUCTS, WHICH SHOULD BE INSTALLED WITH ENOUGH DUCTWORK AT GRILLE TO INSTALL DAMPER.
3. FOR BRANCH DUCTS ROUTED TO DIFFUSERS OR GRILLES THAT DO NOT SHOW SIZES ON DRAWINGS, DUCT SIZE SHALL MATCH DIFFUSER OR GRILLE NECK SIZE NOTED ON DIFFUSER AND GRILLE SCHEDULE.
4. REFER TO PLANS FOR DUCT SMOKE DETECTOR LOCATIONS. DUCT SMOKE DETECTORS SHALL BE PROVIDED AND WIRED BY ELECTRICAL TRADES, WITH DUCT INSTALLATION OF PROBE TO BE PERFORMED BY MECHANICAL TRADES.
5. PROVIDE NEW FILTERS IN RTU(S) AFTER CONSTRUCTION IS COMPLETE AND BUILDING HAS BEEN CLEANED OF ALL DIRT AND DUST.

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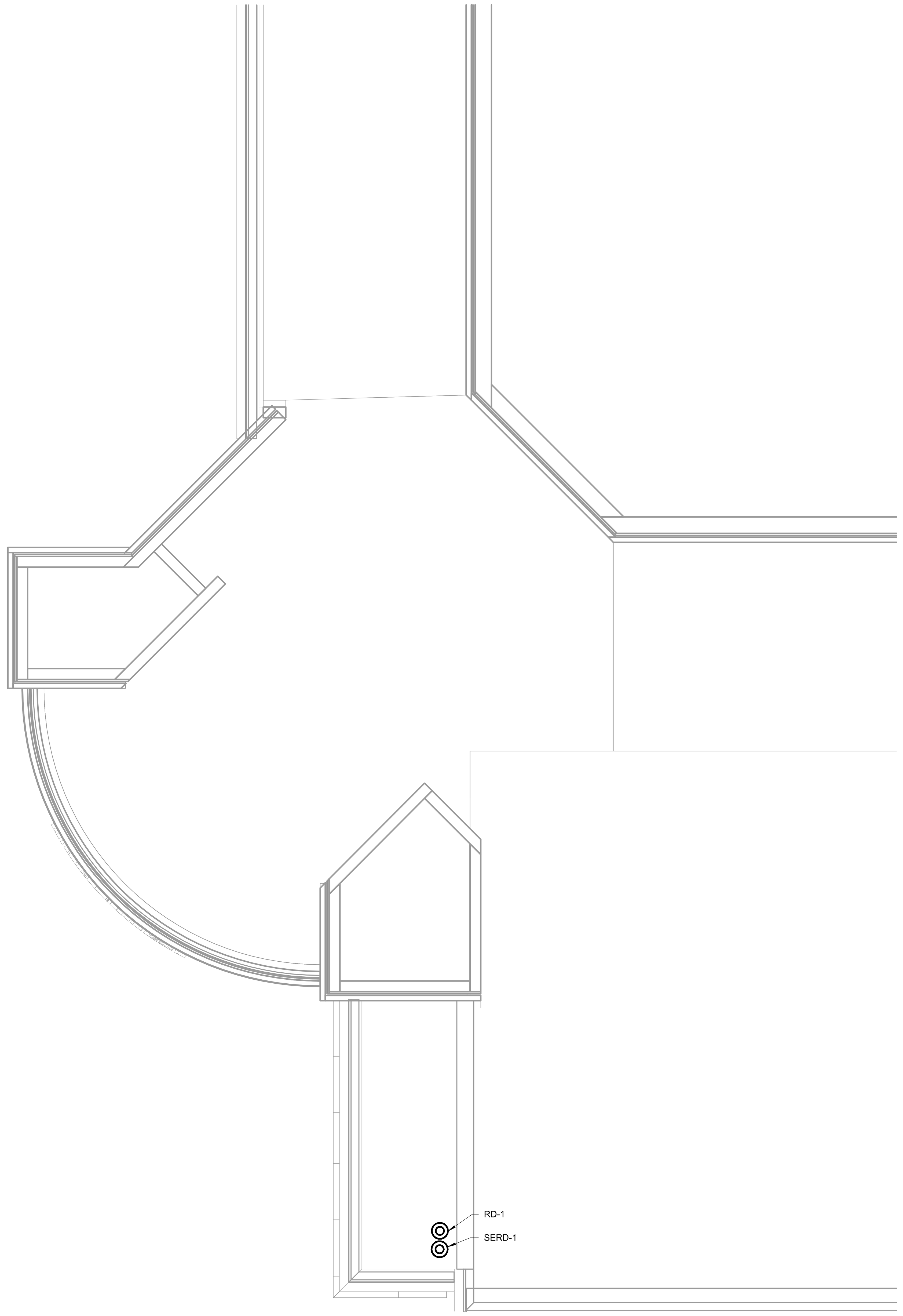
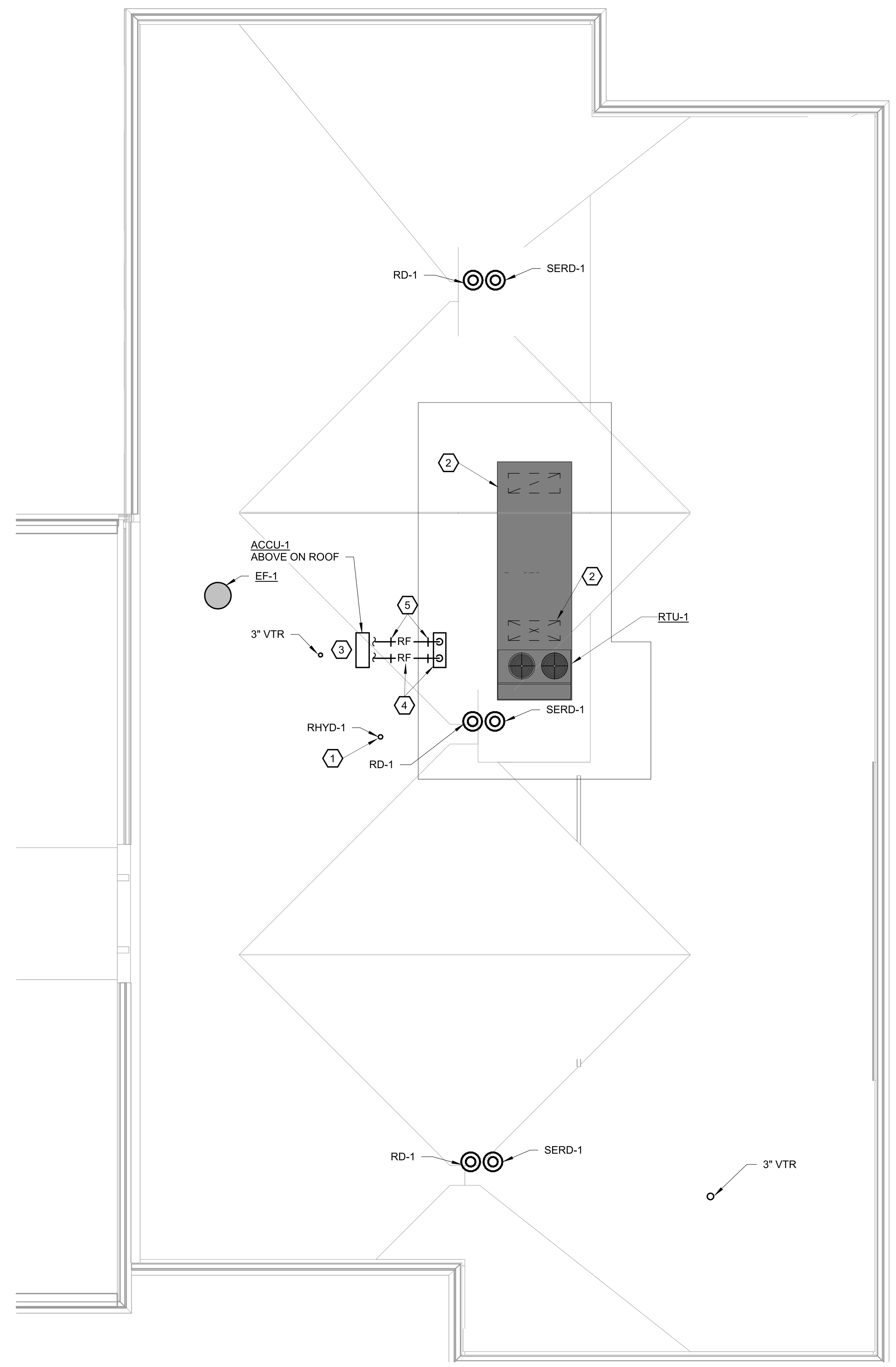
TC JOB NO. 107270

SHEET TITLE
FIRST FLOOR PLAN - HVAC

SHEET NO.
M4.10



NORTH
ENLARGED VESTIBULE ROOF PLAN
1/4" = 1'-0"



NORTH
MECHANICAL ROOF PLAN
1/8" = 1'-0"

KEYED NOTES

1. ROOF MOUNTED HYDRANT, RHYD-1. REFER TO PLUMBING PLANS AND PLUMBING SCHEDULES. REFER TO PIPE PENETRATION DETAIL AND PROPERLY FLASH AROUND PENETRATION.
2. DUCT TO BE ROUTED DOWN THROUGH ROOF. REFER TO HVAC PLAN. COORDINATE WITH STRUCTURAL STEEL AND GENERAL TRADES.
3. MOUNT NEW CONDENSING UNIT ON MANUFACTURED MINI-SPLIT RAIL SUPPORT, BY MIRO OR EQUAL. SUPPORT SHALL BE CONSTRUCTED OF 14-GAUGE CHANNEL WITH BRACKETS FOR FASTENING UNIT TO SUPPORT AND POLYCARBONATE BASE WITH MOUNTING PADS.
4. ROUTE REFRIGERANT PIPING FROM UNIT TO PIPE PENETRATION CURB (PATE OR EQUAL). INSULATE ALL REFRIGERANT PIPING WITH ELASTORMERIC INSULATION AND VENTURE CLAD JACKETING. REFER TO SPECIFICATIONS.
5. SUPPORT REFRIGERANT PIPING WITH NON-PENETRATING STRUT-TYPE SUPPORTS, SIMILAR TO 8-BASE/STRUT-8 BY MIRO, OR EQUAL. SUPPORTS SHALL INCLUDE A SUPPORT PAD UNDER SUPPORT, AS WELL AS A TOP BRACKET TO KEEP PIPE FROM DISLODGING FROM SUPPORT. INSTALL SUPPORTS IN LOCATIONS SHOWN.

GENERAL NOTES

1. INSTALL ALL MECHANICAL EQUIPMENT ON ROOF A MINIMUM OF 10 FEET AWAY FROM ROOF EDGE.
2. MAINTAIN MANUFACTURERS CLEARANCE FOR ALL EQUIPMENT.
3. DO NOT INSTALL ANY PLUMBING VENTS OR EXHAUST FAN WITHIN 10' OF OUTSIDE AIR INTAKE ON RTU.
4. REFER TO HVAC PLANS FOR DUCT SMOKE DETECTOR LOCATIONS. DUCT SMOKE DETECTORS SHALL BE PROVIDED AND WIRED BY ELECTRICAL TRADES, WITH DUCT INSTALLATION OF PROBE TO BE PERFORMED BY MECHANICAL TRADES.

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SHEET TITLE

MECHANICAL-ROOF PLAN

SHEET NO.

M5.10

PACKAGE VAV ROOFTOP HOT WATER HEAT/ELECTRIC COOLING UNIT

MARK	MANUFACTURER	MODEL NO	TOTAL AIRF LOW	HEATING AIR FLOW	MIN. OUTSIDE AIR FLOW	EXT STATIC PRESSURE	TOTAL STATIC PRESSURE	COOLING CAPACITY										HEATING CAPACITY					FANS			ELECTRICAL DATA			
								NET COOLING CAPACITY	NET SENS CAPACITY	EER	IEER	EAT Db	EAT Wb	LAT Db	LAT Wb	OSA DESIGN TEMP	SYSTEM POWER (Kw)	HEATING OUTPUT	FLOW RATE	FLUID	EAT Db	LAT Db	SUPPLY		TOTAL UNIT WEIGHT	UNIT POWER CONNECTION			
			CFM	CFM	CFM	IN W.C.	IN W.C.	MBH	MBH			°F	°F	°F	°F	°F		MBH	GPM	TYPE	°F	°F	QTY / HP	TOTAL BHP	LBS	MCA	MOP	VOLT	PHASE
RTU-1	TRANE	SLHPF3043	10,000	7,500	2,825	2.5	4.12	326.6	250.2	9.9	16.2	80	67	62	58	95	44.83	589.9	39.3	30% PROPYLENE GLYCOL	45	90	(2) 7.5	14.7	8,400	88	100	480	3

NOTES:

1. 30" INSULATED PLENUM ROOF CURB.
2. UNIT INCLUDES PACKAGED RELIEF FAN (NO ADDIITONAL WIRING REQUIRED FOR RELIEF FAN)
3. FACTORY FURNISHED AND WIRED VFD WITH EXTERNAL HANDLE NON-FUSED DISCONNECT SWITCH. ELECTRICAL TRADES SHALL PROVIDE SINGLE-POINT POWER CONNECTION. UNIT SHALL BE FURNISHED WITH CONVENIENCE OUTLET.
4. DOUBLE-WALL, FOAM-INJECTED PANELS (DOORS, BASE AND ROOF) WITH THERMAL RESISTANCE OF R-9. CONDENSING SECTION SHALL HAVE HAIL GUARDS.
5. UNIT SHALL HAVE STAINLESS STEEL HEAT EXCHANGER.
6. RTU FILTRATION: MERV 8 DISPOSABLE
7. ECONOMIZER WITH COMPARATIVE ENTHALPY CONTROL.
8. FURNISH 5 YEAR COMPRESSOR WARRANTY FOR RTU.
9. FURNISH ONE YEAR OF COMPLETE WARRANTY OF ROOFTOP UNIT. INCLUDE FACTORY CHECK TEST AND START-UP OF ROOFTOP UNIT AND CONTROL SYSTEM. PROVIDE FACTORY AND FIELD WIRING DIAGRAMS, AND PROVIDE TECHNICAL ASSISTANCE AS REQUIRED TO ASSURE FIRST CLASS OPERATING SYSTEM.
10. SELECTION IS BASED ON TRANE. DAIKIN SHALL BE CONSIDERED EQUAL, IF ALL REQUIREMENTS ARE MATCHED.

EXHAUST FAN SCHEDULE

MARK	SERVING	AIRFLOW (CFM)	EXTERNAL STATIC PRESSURE (IN. W.G.)	TYPE	MOTOR	BHP	HP	FLA	VOLTS/PH/HZ	MANUFACTURER MODEL NUMBER	SONES	WEIGHT (LBS)	DIMENSIONS	NOTES
EF-1	TOILET ROOM EXHAUST	1,275	0.75	DOWNBLAST	DIRECT-DRIVE	0.18	1/2	6.6	115V /1PH /60HZ	G-120-VG	9.3	73	24"DIA X 36"H	1,2,3,4

NOTES:

1. MOTOR TO BE EC MOTOR, DESIGNED FOR FAN APPLICATIONS (GREENHECK VARI-GREEN WITH DIAL ON MOTOR CONTROL). VFD SHALL BE FACTORY-FURNISHED BY MANUFACTURER.
2. NEMA-1 DISCONNECT SWITCH SHALL BE FACTORY-MOUNTED AND INTERNALLY WIRED BY FAN MANUFACTURER. ELECTRICAL SHALL PROVIDE SINGLE-POINT ELECTRICAL CONNECTION.
3. PROVIDE BACKDRAFT DAMPER FOR INSTALLATION DOWNSTREAM OF FAN IN DUCTWORK.
4. FANS SHALL BE MANUFACTURERED BY GREENHECK OR EQUAL.

PLUMBING FIXTURE SCHEDULE

TAG/ DESCRIPTION	TYPE	MANUFACTURER	MODEL #	NOTES
WC-1	FLUSH VALVE WALL MOUNT ADA	AMERICAN STANDARD	#3351.101	WALL HUNG FLUSH VALVE WATER CLOSET (BARRIER FREE): AFWALL MILLENNIUM WITH EVERCLEAN AND SIPHON JET ACTION, ELONGATED BOWL, OFF-FLOOR MOUNTING, 1 1/2 TOP SPUD, WHITE VITREOUS CHINA, 1.6 GALLONS PER FLUSH. FITTINGS SHALL INCLUDE Z-6000AV-WS1 FLUSH VALVE WITH VACUUM BREAKER, CENTOCO 1500CC WHITE OPEN FRONT SEAT LESS COVER, CARRIER AND HARDWARE, BOLTS, ETC. WATER CLOSET SHALL BE MOUNTED AT HEIGHT TO MEET BARRIER FREE AND A.D.A. REQUIREMENTS OF 17" A.F.F TO TOP OF SEAT. INSTALLATION SHALL MEET A.D.A. REQUIREMENTS. CONTROL FOR FLUSH VALVE SHALL BE MOUNTED ON THE WIDE SIDE OF THE TOILET AREA.
WC-2	FLUSH VALVE WALL MOUNT	AMERICAN STANDARD	#3351.101	WALL HUNG FLUSH VALVE WATER CLOSET: AFWALL MILLENNIUM WITH EVERCLEAN AND SIPHON JET ACTION, ELONGATED BOWL, OFF-FLOOR MOUNTING, 1 1/2" TOP INLET SPUD, WHITE VITREOUS CHINA, 1.6 GALLONS PER FLUSH. FITTINGS SHALL INCLUDE ZURN Z-6000AV-WS1 FLUSH VALVE WITH VACUUM BREAKER, CENTOCO 1500CC WHITE OPEN FRONT SEAT LESS COVER, CARRIER AND HARDWARE, BOLTS, ETC. CONTROL FOR FLUSH VALVE SHALL BE MOUNTED ON THE WIDE SIDE OF THE TOILET AREA.
UR-1	WALL MOUNT (ADA)	AMERICAN STANDARD	6590.001EC	WALL-MOUNTED URINAL (ADA): FITTINGS SHALL INCLUDE ZURN Z-6003AV-EWS FLUSH VALVE WITH VACUUM BREAKER, ZURN CONCEALED ARM CARRIER WITH FLOOR SUPPORT. WALL HUNG URINAL (BARRIER FREE): AMERICAN STANDARD #6590.001EC WASHBROOK URINAL WITH EVERCLEAN, WHITE VITREOUS CHINA, WASH OUT WATER SAVER URINAL WITH 3/4" TOP INLET SPUD, OUTLET THREADED 2" FEMALE, 0.5 GALLON PER FLUSH. URINAL SHALL BE MOUNTED AT HEIGHT TO MEET BARRIER FREE AND A.D.A. REQUIREMENTS. CONTROL FOR FLUSH VALVE SHALL BE MOUNTED ON THE WIDE SIDE OF TOILET AREA.
UR-2	WALL MOUNT	AMERICAN STANDARD	6590.001EC	WALL-MOUNTED URINAL: FITTINGS SHALL INCLUDE ZURN Z-6003AV-EWS FLUSH VALVE WITH VACUUM BREAKER, ZURN CONCEALED ARM CARRIER WITH FLOOR SUPPORT. WALL HUNG URINAL: WASHBROOK URINAL WITH EVERCLEAN, WHITE VITREOUS CHINA WASH OUT WATER SAVER URINAL WITH 3/4" TOP INLET SPUD, OUTLET THREADED 2" FEMALE, 0.5 GALLON PER FLUSH. CONTROL FOR FLUSH VALVE SHALL BE MOUNTED ON THE WIDE SIDE OF THE TOILET AREA.
L-1	WALL MOUNT LAVATORY SYSTEM	BRADLEY	MG-3	ADA COMPLIANT, CONTINUOUS 3-BOWL LAVATORY STATION, 30" SPACING, PRE-ASSEMBLED SPRAYHEADS, 120V-1PH, 1AMP, MANUFACTURER PROVIDED CORD AND PLUG. FURNISH AND INSTALL SUPPORT FRAME AND ACCESS PANEL. COLOR TO BE SELECTED BY ARCHITECT.
L-2	WALL MOUNT	AMERICAN STANDARD	#0353	WALL HUNG LAVATORY: LUCERNE, NOMINAL 20"X18" WHITE VITREOUS CHINA, FRONT OVERFLOW, FAUCET LEDGE, "D" SHAPED BOWL, SELF DRAINING DECK, 4" CENTERSET WITH (3) HOLE, CONSTRUCTED FOR CONCEALED ARM CARRIER AND ADA COMPLIANT. FITTINGS SHALL INCLUDE 0.5 GPM FLOW DEVICE, SOLENOID VALVE, GRID DRAIN, P-TRAP, WHEEL HANDLE STOPS AND TAILPIECE, UNDERSINK PROTECTIVE PIPE COVERS, ZURN CONCEALED ARM CARRIER WITH FLOOR SUPPORT, ETC. INSTALL THERMOSTATIC MIXING VALVE THAT IS ASSE 1070 LISTED UNDER EACH LAVATORY. FAUCET SHALL BE ZURN Z81101-XL FAUCET WITH RIGID SPOUT. FAUCET SHALL BE POLISHED CHROME PLATED CAST BRASS WITH INTEGRAL SHANKS, HEAVY-DUTY QUARTER TURN CERAMIC DISK CARTRIDGE, 4" LONG INTEGRAL CAST SPOUT, 2.5" METAL HANDLES.
SK-1	COUNTERTOP	ELKAY	LUSTERSTONE #LRAD191855	SINGLE COMPARTMENT ADA COUNTERTOP SINK, 19" X 18 "X 5-1/2 " SINK DIMENSIONS. 16" X 11-1/2" X 5-3/8" DEEP INSIDE BOWL, SEAMLESS DRAWN #18 GAUGE TYPE 304 (18-8) NICKEL BEARING STAINLESS STEEL, SELF RIM, SATIN FINISH, UNDERSIDE SHALL BE FULLY UNDERCOATED, THREE FAUCET HOLES. FITTING SHALL INCLUDE ZURN Z-831C4 AERATOR FAUCET, ADJUSTABLE 8" CENTER INLETS, 8" SWING GOOSENECK WITH AERATOR, 0.5 GPM FLOW DEVICE, 4" BRASS WRIST BLADE HANDLES WITH COLOR INDEXES, CERAMIC DISC CARTRIDGES, POLISHED CHROME FINISH. ALSO INCLUDE LK-35 STAINLESS STEEL CONICAL STRAINER BASKET WITH NEOPRENE STOPPER, TAILPIECE, Z-8702 P-TRAP, WHEEL HANDLE STOPS, ETC. FURNISH AND INSTALL THERMOSTATIC MIXING VALVE UNDER SINK, PIPE TO HOT WATER SIDE OF FAUCET AND ADJUST TO 105 DEGREE HOT WATER MAXIMUM AT FAUCET. FURNISH WITH STRIEM SIDEKICK POINT-OF-USE SOLIDS INTERCEPTOR MOUNTED BELOW SINK IN DRAIN LINE.
SK-2	COUNTERTOP	ELKAY	LUSTERSTONE #LRAD191810	SINGLE COMPARTMENT COUNTERTOP SINK, 19" X 18 "X 10-1/8 " SINK DIMENSIONS. 16" X 11-1/2" X 10" DEEP INSIDE BOWL, SEAMLESS DRAWN #18 GAUGE TYPE 304 (18-8) NICKEL BEARING STAINLESS STEEL, SELF RIM, SATIN FINISH, UNDERSIDE SHALL BE FULLY UNDERCOATED, THREE FAUCET HOLES. FITTING SHALL INCLUDE ZURN Z-831C4 AERATOR FAUCET, ADJUSTABLE 8" CENTER INLETS, 8" SWING GOOSENECK WITH AERATOR, 0.5 GPM FLOW DEVICE, 4" BRASS WRIST BLADE HANDLES WITH COLOR INDEXES, CERAMIC DISC CARTRIDGES, POLISHED CHROME FINISH. ALSO INCLUDE LK-35 STAINLESS STEEL CONICAL STRAINER BASKET WITH NEOPRENE STOPPER, TAILPIECE, Z-8702 P-TRAP, WHEEL HANDLE STOPS, ETC. FURNISH AND INSTALL THERMOSTATIC MIXING VALVE UNDER SINK, PIPE TO HOT WATER SIDE OF FAUCET AND ADJUST TO 105 DEGREE HOT WATER MAXIMUM AT FAUCET. FURNISH WITH STRIEM SIDEKICK POINT-OF-USE SOLIDS INTERCEPTOR MOUNTED BELOW SINK IN DRAIN LINE.
EW-1	COUNTERTOP	GUARDIAN	G1895	DECK-MOUNTED EYEWASH: ALL STAINLESS STEEL AUTOFLOW EYEWASH FOR MOUNTING ON COUNTER NEXT TO SINK. SWINGING THE SPRAY HEAD ASSEMBLY HORIZONTALLY OVER THE SINK ACTIVATES WATER FLOW. (2) SPRAY HEADS WITH FLIP-TOP DUST COVERS, INTERNAL FLOW CONTROL. FILTER, INLINE STRAINER, PROVIDED WITH MOUNTING EQUIPMENT. FURNISH AND INSTALL EMERGENCY RATED THERMOSTATIC MIXING VALVE.
EWC-1		ELKAY	LVRCGRNTL8WSK	BI-LEVEL ELECTRIC WATER COOLER WITH BOTTLE-FILLER: PROVIDE ZURN Z OR EQUAL WALL HANGER WITH FLOOR SUPPORT. HI/LO ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION, WALL MOUNTED BARRIER FREE, BI-LEVEL HIGH EFFICIENCY VANDAL RESISTANT COOLER, FILTERED 8 GPH STAINLESS. CHILLING CAPACITY OF 0.8 GPH. FEATURES SHALL INCLUDE HANDS FREE, VISUAL FILTER MONITOR, FILTERED, HIGH EFFICIENCY, LAMINAR FLOW, ANTIMICROBIAL, REAL DRAIN, VANDAL RESISTANT. FURISHED WITH VANDAL RESISTANT BUBBLER. ELECTRONIC BOTTLE FILLER SENSOR WITH MECHANICAL FRONT BUBBLER BUTTON ACTIVATION, CORD WITH 3 PRONG PLUG, 115 VOLT, 260 WATTS, 5.5 AMP. UNIT SHALL BE MOUNTED AT HEIGHT TO MEET BARRIER FREE AND A.D.A. REQUIREMENTS. VERIFY MOUNTING HEIGHT WITH ARCHITETURAL DRAWINGS.
JS-1		FLORESTONE	81	FLOOR-MOUNTED JANITOR'S SINK: FITTINGS SHALL BE MOP SERVICE SINK FAUCET WITH HOSE END OUTLET, INTEGRAL STOPS, VACUUM BREAKER AND ADJUSTABLE TOP BRACE PAIL HOOK AND ROUGH CHROME FINISH CHROME FINISH. PROVIDE MOP HANGER, HOSE AND HOSE BRACKET, AND SILICONE SEALANT. TERRAZZO 24"X24"X12", STAINLESS STEEL THRESHOLD, TILING FLANGES AND STAINLESS STEEL SPLASH CATCHER PANELS. DRAIN BODY SHALL BE 3" STAINLESS STEEL CAST INTEGGRAL WITH REMOVABLE FLAT TYPE 16 GAUGE #302 STAINLESS STEEL STRAINER. RECEPTOR SHALL BE COMPOSED OF MARBLE CHIPS AND WHITE PORTLAND CEMENT GROUND SMOOTH, GROUNTED AND SEALED TO RESIST STAINS. REINFORCE WALL FOR FAUCET AS REQUIRED. USE MODEL 82 FOR CORNER INSTALLATIONS WITH (2) FLANGES.
FD-1		ZURN	ZN-415B	CAST IRON FLOOR DRAIN WITH FLANGE, INTEGRAL REVERSIBLE CLAMPING COLLAR 6" DIAMETER SATIN NICKEL BRONZE STRAINER. AND TRAP PRIMER CONNECTION WHERE REQUIRED. FURNISH A DEEP SEAL TRAP FOR EACH FLOOR DRAIN.
RHYD-1		ZURN	Z1388	ROOF HYDRANT: NON FREEZING, AUTOMATIC DRAINING, WITH ANCHOR FLANGE AND CLAMPING COLLAR, DURA-COATED CAST IRON HEAD AND LIFT HANDLE, LOCK OPTION
WHYD-1		ZURN	Z-1321-6	EXTERIOR RECESSED BRONZE WALL HYDRANT, AUTOMATIC DRAINING, VACUUM BREAKER BACKFLOW PROTECTOR, FREEZELESS FROST-PROOF WALL HYDRANT WITH LOOSE KEY AND 3/4" MALE HOSE THREAD.
RD-1		ZURN	Z100-EADP	ROOF DRAIN: DURA-COATED CAST IRON BODY AND DOME, WITH FLASHING, CLAMP/GRAVEL GUARD, TOP-SET DECK PLATE, ADJUSTABLE EXTENSION, AND 18" SQUARE ROOF DRAIN RECIEVER. SECONDARY EMERGENCY OVERFLOW DRAIN SAME AS ABOVE EXCEPT WITH -W2 2" INTERNAL WATER DAM.
SERD-1		ZURN	Z100-EADP	SECONDARY EMERGENCY OVERFLOW ROOF DRAIN: DURA-COATED CAST IRON BODY AND DOME, WITH FLASHING, CLAMP/GRAVEL GUARD, TOP-SET DECK PLATE, ADJUSTABLE EXTENSION, AND 18" SQUARE ROOF DRAIN RECIEVER. INCLUDE W2 2" INTERNAL WATER DAM.
DSN-1		ZURN	Z199	DOWNSPOUT NOZZLE: ALL NICKEL BRONZE BODY, DECORATIVE FACE,REMOVABLE STAINLESS SCREEN, OPTIONAL THREADED OR NO HUB INLET, OR PVC CONNECTION.
CO-1		ZURN	Z-1400	CLEANOUT: DURA-COATED CAST IRON CLEANOUTS WITH BRONZE PLUG AS FOLLOWS: FINISHED FLOORS: ZB-1400 NICKEL BRONZE ROUND TOP, CERAMIC TILE: ZN-1400-T NICKEL BRONZE SQUARE TOP, CARPETED FLOORS: ZN-1400-CM NICKEL BRONZE WITH CARPET MAKER ROUND TOP, WALL CLEANOUTS: ZS-1469 STAINLESS STEEL ACCESS AS REQUIRED BY PIPE SIZE
UNDER LAVATORY PROTECTIVE PIPE COVERS		ZURN	Z8946	TRAP AND STOP/RISER INSULATED COVERS SHALL BE FURNISHED AND INSTALLED ON ALL EXPOSED PIPING AND VALVES BELOW LAVATORIES TO MEET ADA REQUIREMENTS. THIS SHALL INCLUDE DRAIN, CW AND HW PIPING, FITTINGS, VALVES, ETC.
THERMOSTATIC MIXING VALVE			ASSE 1070	THERMOSTATIC MIXING VALVE SHALL BE FURNISHED AND INSTALLED UNDER EACH NEW LAVATORY, HAND SINK, COUNTERTOP SINK AND SIMILAR FIXTURES. VALVE SHALL BE LISTED ASSE 1070, 1/2" SIZE WITH STRAINER AND CHECK-STOPS. PIPE TO HOT WATER SIDE OF FAUCET AND ADJUST TO PROVIDE 105F HOT WATER AT FAUCET.
TRAP SEAL				EACH FLOOR DRAIN, FLOOR SINK AND HUB DRAIN SHALL HAVE A MEANS OF MAINTAINING THE WATER SEAL IN THE TRAP BY MEANS OF A TRAP SEAL. SIZE OF TRAP SEAL SHALL MATCH INTERNAL PIPE SIZE DIAMETER.FLOW RATES: 2"-8 GPM, 3"-24 GPM, 4"-35 GPM.

SPLIT SYSTEM COOLING UNIT - INDOOR UNIT AND OUTDOOR UNIT SCHEDULE

MARK	LOCATION	SERVING	CAPACITY		ELECTRICAL			MANUFACTURER MODEL NUMBER	WEIGHT (LBS)	SIZE (H x W x D)	REMARKS
			AIRFLOW (CFM)	COOLING CAPACITY (BTUH)	MCA	MOP	VOLTS/PH/HZ				
AC-1	INDOOR	IT ROOM	399-321-237	9,000	1.0	-	-	MITSUBISHI MSY-GL09NA	22	31-7/16" X 11-5/8" X 9-1/8"	1, 2, 3, 4, 5, 6, 7, 8
ACCU-1	OUTDOOR	INDOOR AC-1	N/A	9,000	7.0	15	208/1/60	MITSUBISHI MUY-GL09NA	81	31-1/2" X 21-5/8" X 11-1/4"	2, 4, 6, 7

NOTES:

1. PROVIDE ADJUSTABLE SUPPLY AIR BAFFLES AND ADJUST FOR DIRECTION SHOWN ON PLANS.
2. INDOOR UNIT IS POWERED FROM THE OUTDOOR UNIT. THE ELECTRICAL CONTRACTOR SHALL PROVIDE POWER TO THE OUTDOOR UNIT AND THEN WIRE BETWEEN OUTDOOR UNIT AND INDOOR UNIT (14 AWG), AS REQUIRED BY MANUFACTURER'S INSTRUCTIONS.
3. PROVIDE DELUXE MA REMOTE CONTROLLER (WIRED) FOR EACH INDOOR UNIT.
4. VARIABLE CAPACITY WITH INVERTER-DRIVEN COMPRESSOR.
5. ADVANCED BLUE DIAMOND MINI CONDENSATE PUMP WITH RESERVIOR AND SENSOR.
6. DISCONNECTS FOR INDOOR UNIT SHALL BE FACTORY MOUNTED. OUTDOOR UNIT SHALL HAVE DISCONNECT SWITCH FURNISHED, INSTALLED AND WIRED BY ELECTRICAL TRADES.
7. PROVIDE CONTROLS INTERFACE (COORDINATE WITH CONTROLS CONTRACTOR).
8. CONDENSATE PUMP SHALL BE PROVIDED LOOSE BY MANUFACTURER TO BE MOUNTED BY MECHANICAL CONTRACTOR AND WIRED FROM ELECTRICAL POWER BLOCK INSIDE UNIT BY ELECTRICAL CONTRACTOR. PUMP COMES COMPLETE WITH INTERNAL TRAP, RESERVOIR, INTEGRAL FLOAT SWITCH AND AUXILIARY SAFETY FLOAT SWITCH TO SHUT UNIT OFF IN EVENT OF PUMP FAILURE. RATED 5 GPM AT 10 FT HEAD, 208/1/60. INTERLOCK/CONTROL WIRING FROM PUMP TO UNIT SHALL BE BY CONTRACTOR.

VAV SCHEDULE

MARK	MAX COOLING CFM	MAX HEATING CFM	MIN CFM	HEATING COIL MBH	GPM	INLET SIZE
VB-064	1650	1200	650	53.7	3.6	14" DIA
VB-065	1400	1100	650	45.6	3.0	14" DIA
VB-062	1200	1000	550	39.1	2.6	12" DIA
VB-063	1200	1000	550	39.1	2.6	12" DIA
VB-061	1450	1100	650	47.2	3.1	14" DIA
VB-060	1200	1000	550	39.1	2.6	12" DIA
VB-100A	1400	1100	650	45.6	3.0	14" DIA
VB- T110	1200	1200	800	35.8	2.4	12" DIA
TOTALS	9500	7500	4250	309.2	20.6	

NOTES: (APPLY TO ALL VAV BOXES)

1. VB (VARIABLE AIR VOLUME BOXES) TO BE INSULATED DOUBLE WALL CONSTRUCTION.
2. VB BOXES SHALL HAVE A DAMPER ACTUATOR AND FLOW RING, ALL WIRED TO A TERMINAL STRIP. TEMPERATURE CONTROL CONTRACTOR SHALL BE RESPONSIBLE FOR 120 VAC WIRING FROM CIRCUIT BREAKERS IN ELECTRICAL DISTRIBUTION PANEL TO THE TRANSFORMER AND FOR THE 24 VAC WIRING FROM THE TRANSFORMER TO VB BOXES. TRANSFORMER TO BE FURNISHED AND INSTALLED BY THE TEMPERATURE CONTROL CONTRACTOR. NOT MORE THAN SIX (6) VB BOXES TO BE ON ONE 20 AMP CIRCUIT. IDENTIFY IN A PERMANENT MANNER EACH VB BOX AND THE PANEL AND CIRCUIT SERVING THE BOX.
3. SPACE TEMPERATURE SENSORS AND OTHER DIRECT DIGITAL CONTROLS SHALL BE FURNISHED AND INSTALLED BY THE TEMPERATURE CONTROL CONTRACTOR.
4. HEATING CAPACITY BASED ON P30% PROPYLENE GLYCOL, AT 180° F E.W.T., 150° F L.W.T. AND 0.4" MAX APD.
5. THE FOLLOWING VAV BOXES SHALL HAVE 3-WAY HOT WATER CONTROL VALVES AS INDICATED ON DRAWINGS. ALL OTHER VB BOXES SHALL HAVE 2-WAY HOT WATER CONTROL VALVES: VB-062 AND VB-064.
6. SEE SPECIFICATIONS FOR FURTHER INFORMATION.

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

TYPE		MODEL NUMBERS	DEFLECTION	NECK SIZE	REMARKS
REF	SERVICE AND TYPE				
A	SUPPLY AIR DIFFUSER	PRICE SCD OR EQUAL TITUS	4 WAY	0-125 CFM: 6" x 6" (6" DIA) 126-250 CFM: 9" x 9" (8" DIA) 251-350 CFM: 12" x 12" (10" DIA) 351-450 CFM: 12" x 12" (12" DIA) 451-600 CFM: 15" x 15" (14" DIA) 601-900 CFM: 18" x 18" (16" DIA)	ALL STEEL CONSTRUCTION, ADJUSTABLE HORIZONTAL TO VERTICAL AIRFLOW PATTERN, 3 CONE, 24X24, BAKED ON ENAMEL FINISH WITH COLOR SELECTED BY ARCHITECT. FRAME AS REQUIRED FOR CEILING TYPE WITH DIFFUSER PANEL SHALL MATCH GRID SIZE WHERE INSTALLED IN LAY IN CEILING. MAXIMUM NECK VELOCITY SHALL BE 700 FPM AND MAXIMUM NC LEVEL SHALL BE 25.
B	DUCTED RETURN AIR OR EXHAUST AIR GRILLE	PRICE 80F OR EQUAL TITUS	EGGCRATE	0-125 CFM: 6" x 6" (6" DIA) 126-250 CFM: 9" x 9" (8" DIA) 251-350 CFM: 12" x 12" (10" DIA) 351-450 CFM: 12" x 12" (12" DIA) 451-600 CFM:15" x 15" (14" DIA) 601-900 CFM: 18" x 18" (16" DIA) 901-1200 CFM: 21" x 21"	ALL STEEL CONSTRUCTION, BAKED ON ENAMEL FINISH WITH COLOR SELECTED BY ARCHITECT. FRAME AS REQUIRED FOR CEILING TYPE WITH DIFFUSER PANEL SHALL MATCH GRID SIZE WHERE INSTALLED IN LAY IN CEILING. MAXIMUM NECK VELOCITY SHALL BE 700 FPM AND MAXIMUM NC LEVEL SHALL BE 25. FURNISH AND INSTALL RETURN AIR CANOPY ON TOP OG GRILLE, SIMILAR TO PRICE #RAC OR EQUAL.
C	LINEAR SUPPLY AIR CEILING DIFFUSER	PRICE #SDS WITH PRICE #SDAI INSULATED PLENUM OR EQUAL TITUS	LINEAR SLOT	225 CFM, 4' LENGTH, (2) 3/4" SLOTS, 7" BOOT NECK	NC SHALL BE LESS THAN 30, ADJUSTABLE FLOW PATTERN, ALL ALUMINUM CONSTRUCTION, BORDER STYLE AS REQUIRED BY CEILING, BAKED ON ENAMEL FINISH WITH COLOR SELECTED BY ARCHITECT.
D	WALL SUPPLY GRILLE	PRICE 520LF OR EQUAL TITUS	DOUBLE DEFLECTION	SEE DRAWINGS FOR SIZES	ALL STEEL CONSTRUCTION, DOUBLE DEFLECTION BLADES, ADJUSTABLE HORIZONTAL FRONT BLADES, ADJUTABLE VERTICAL REAR BLADES, BAKED ON ENAMEL FINISH WITH COLOR SELECTED BY ARCHITECT. IF GRILLE SIZE REQUIRES 2 SECTIONS, DECREASE WIDTH OF TRIM AT JOINT AS MUCH AS POSSIBLE.
E	WALL RETURN AIR OR EXHAUST AIR GRILLE	PRICE 530LF OR EQUAL TITUS	SINGLE DEFLECTION	SEE DRAWINGS FOR SIZES	ALL STEEL CONSTRUCTION, SINGLE DEFLECTION BLADES, 45 DEGREE HORIZONTAL FRONT BLADES, BAKED ON ENAMEL FINISH WITH COLOR SELECTED BY ARCHITECT.

CABINET HEATER SCHEDULE

MARK	MANUFACTURER	MODEL	SIZE (LxWxD)	HEATING CAPACITY (MBH)	GPM	CFM	FAN MOTOR	ELECTRICAL
CH-1	RITTLING	RFRC-420	54" X 27" X 10"	32.3	3.3	310	1/25 HP	120/1/60

NOTES

1. FIELD MEASURE CEILING TYPE AND DEPTH TO DETERMINE HOW MUCH OF UNIT CAN BE RECESSED (INTENT IS TO BE FULLY-RECESSED).
2. PROVIDE FULL-FINISHED COVER FOR FULLY-RECESSED, PARTIALLY RECESSED OR SURFACE MOUNT AS REQUIRED.
3. MANUFACTURER TO PROVIDE WITH: DISPOSABLE FILTER AND MANUAL MOTOR STARTER W/ DISCONNECT.
4. ALL CABINET HEATERS TO HAVE 3-WAY CONTROL VALVES.

DUCT SILENCER SCHEDULE

MARK	MANUFACTURER	MODEL	SIZE (WxHxL)	PRESSURE DROP (IN. W.G.)	AIRFLOW	VELOCITY
DS-1	PRICE	RH	68" X 14" X 36"	0.16	10,000	1800
DS-2	PRICE	RM	20" X 12" X 36"	0.08	1,400	900

NOTES

1. GALVANIZED STEEL CONSTRUCTION.
2. 22 GAUGE STEEL FOR SILENCERS 24" OR LESS IN WIDTH. 16 GAUGE FOR SILENCERS 60" OR MORE IN WIDTH
3. BASED ON PRICE, RUSKIN SHALL BE CONSIDERED EQUAL IF ALL REQUIREMENTS ARE MATCHED.

THE COL LAB ORAT IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #2024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD.
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107270

SHEET TITLE

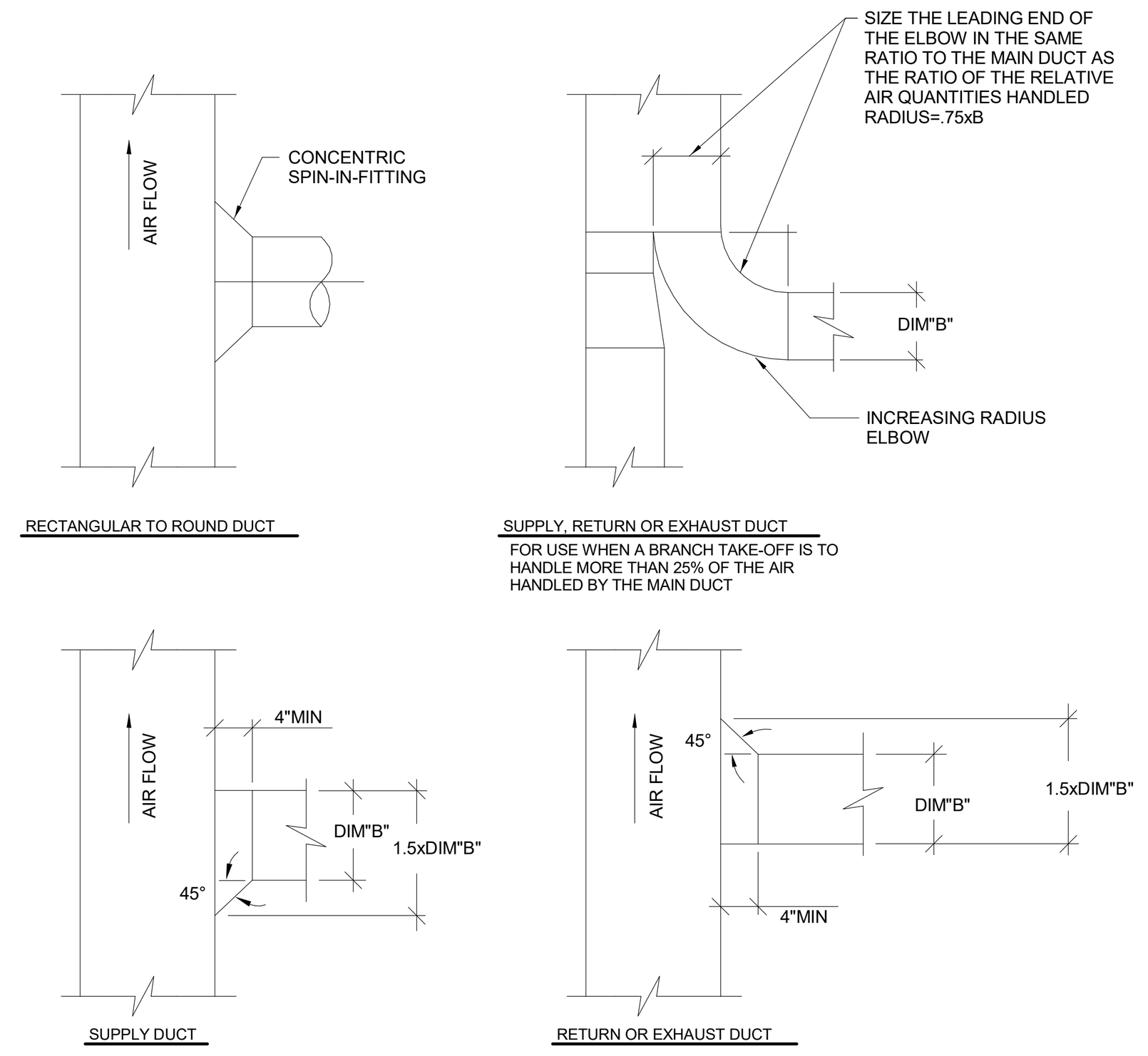
MECHANICAL SCHEDULES

SHEET NO.

M6.10

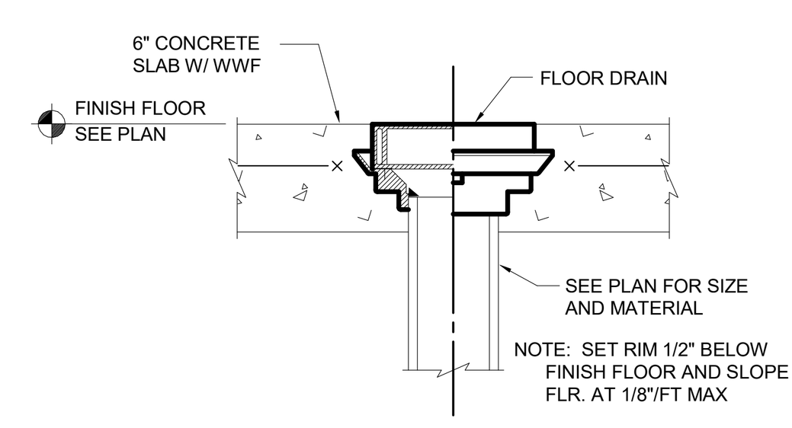
MECHANICAL SYMBOL LIST

Symbol	Description
— SAN —	SANITARY PIPING BELOW FLOOR OR GRADE
— SAN —	SANITARY PIPING ABOVE FLOOR
— ST —	STORM PIPING BELOW FLOOR OR GRADE
— ST —	STORM PIPING ABOVE FLOOR
— SED —	SECONDARY EMERGENCY DRAINAGE PIPING
— SAN —	CO ABOVE FLOOR
— SAN —	CO UP TO GRADE
— SAN —	CO UP TO FLOOR
- - CW - -	UNDERGROUND DOMESTIC COLD WATER PIPING
- - HW - -	UNDERGROUND DOMESTIC HOT WATER PIPING
— HHWS —	HEATING HOT WATER SUPPLY PIPING
— HHWR —	HEATING HOT WATER RETURN PIPING
— CHWS —	CHILLED WATER SUPPLY PIPING
— W —	WATER PIPING LOCATED OUTSIDE OF BUILDING
— COND —	STEAM CONDENSATE RETURN PIPING
— CD —	MISC. EQUIP. COND DRAIN PIPING
— G —	NATURAL GAS PIPING
- - V - -	VENT PIPING
	DOMESTIC COLD WATER PIPING
	DOMESTIC HOT WATER PIPING
	DOMESTIC HOT WATER RETURN PIPING
— FP —	FIRE PROTECTION PIPING
	REDUCER
	CAP
	UNION
	CHECK VALVE
	TWO WAY CONTROL VALVE (ELECTRIC)
	THREE WAY CONTROL VALVE (ELECTRIC)
	ISOLATION BALL VALVE
	GAS REGULATOR
	FLOW ARROW
	GRISWOLD AUTOMATIC FLOW LIMITING VALVE
PRV	PRESSURE REGULATING OR REDUCING VALVE
RPBP	REDUCED PRESURE BACKFLOW PREVENTER
	EXPANSION JOINT
	OS & Y GATE VALVE
	STRAINER
	BUTTERFLY VALVE
	BALL VALVE
	FLEXIBLE CONNECTION
	GAS COCK
	INTERIOR HOSE BIB
	EXTERIOR WALL HYDRANT
	VALVE IN RISER
	ELBOW RISING UP
	ELBOW DROPPING DOWN
	TEE WITH PIPE UP
	TEE WITH PIPE DOWN
	PRESSURE REGULATING VALVE
	TEMPERATURE & PRESSURE RELIEF VALVE
	INLINE PUMP
PS	PRESSURE SENSOR OR SWITCH
FS	FLOW SWITCH
	THERMOMETER
	PRESSURE GAUGE W/COCK
	MANUAL AIR VENT
	AUTOMATIC AIR VENT
	PIPE ANCHOR
	PIPE GUIDE
	SERVICE SINK
	FLUSH VALVE FLOOR MOUNTED
	FLUSH VALVE WALL MOUNTED
	URINAL
	LAVATORY OR SINK
	FLOOR SINK
	FLOOR DRAIN
CO2	CARBON DIOXIDE SENSOR
T	THERMOSTAT OR WALL SENSOR
H	HUMIDISTAT
S	SENSOR
	ROOF DRAIN BELOW ROOF (FLOOR PLAN)
	ROOF DRAIN ON ROOF (ROOF PLAN)
	EXHAUST FAN WITH FAN ABOVE (FLOOR PLAN)
	EXHAUST FAN ON ROOF (ROOF PLAN)
	EX. VERTICAL FIRE DAMPER
	EX. HORIZONTAL FIRE DAMPER
	VERTICAL FIRE DAMPER
	HORIZONTAL FIRE DAMPER
S	VERTICAL SMOKE DAMPER
S	HORIZONTAL SMOKE DAMPER
	VERTICAL COMBINATION FIRE/SMOKE DAMPER
	HORIZONTAL COMBINATION FIRE/SMOKE DAMPER
`[A-250`]	SUPPLY AIR DIFFUSER - TYPE "A", 250 CFM
`[B-250`]	RETURN OR EXHAUST AIR GRILLE - TYPE "B", 250 CFM
	SLOT DIFFUSER
	MANUAL DAMPER
	MOTORIZED DAMPER
DSD	DUCT SMOKE DETECTOR
	DUCT PRESSURE SENSOR
ABV	ABOVE
ACCU	AIR COOLED CONDENSING UNIT
ACU	AIR CONDITIONING UNIT
AFF	ABOVE FINISHED FLOOR
BF	BARRIER FREE
BFG	BELOW FINISHED GRADE
CFM	CUBIC FEET PER MINUTE
CH	CABINET HEATER
CO	CLEAN OUT
CP	CIRCULATING PUMP
CW	COLD WATER
DT	DRAIN TILE
EF	EXHAUST FAN
EL	ELEVATION
EWC	ELECTRIC WATER COOLER
EX	EXISTING
FD	FLOOR DRAIN
FS	FLOOR SINK
FTR	FIN TUBE RADIATION
GI	GREASE INTERCEPTOR
HB	INTERIOR HOSE BIB
HW	HOT WATER
HWR	HOT WATER RETURN
HWRP	HOT WATER RADIANT PANEL
HX	HEAT EXCHANGER
IE	INVERT ELEVATION
JS	JANITORS SINK
L	LAVATORY
MBD	MANUAL BALANCING DAMPER
NC	NORMALLY CLOSED
NO	NORMALLY OPENED
OA	OUTSIDE AIR
PRV	PRESSURE REGULATING OR REDUCING VALVE
PSI	POUNDS PER SQUARE INCH
PSIG	POUNDS PER SQUARE INCH GAUGE
RA	RETURN AIR
RAR	RETURN AIR REGISTER
RC	RAIN WATER CONDUCTOR
RD	ROOF DRAIN
SA	SUPPLY AIR
SED	SECONDARY EMERGENCY DRAINAGE
SERC	SECONDARY EMERGENCY RAIN WATER CONDUCTOR
SERD	SECONDARY EMERGENCY ROOF DRAIN
SH	SHOWER
SK	SINK
SP	STATIC PRESSURE
SS	SERVICE SINK
UH	UNIT HEATER
UNO	UNLESS NOTED OTHERWISE
UR	URINAL
UV	UNIT VENTILATOR
V	VENT
VA	VALVE
VAV	VARIABLE AIR VOLUME BOX
VFD	VARIABLE FREQUENCY DRIVE
VS	VENT STACK
VTR	VENT THRU ROOF
WC	WATER CLOSET
WCO	WALL CLEAN OUT
WH	WATER HEATER
WHYD	EXTERIOR WALL HYDRANT
	DIFFERENTIAL PRESSURE SENSOR



RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS

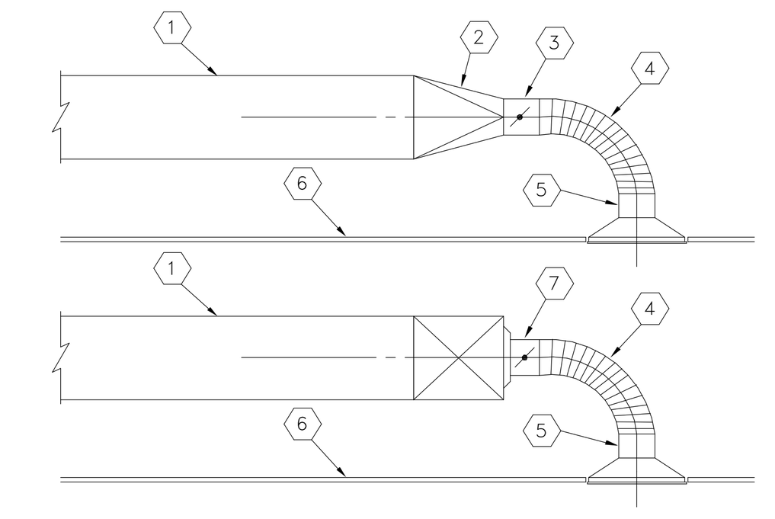
NO SCALE



FLOOR DRAIN (FD)

NO SCALE

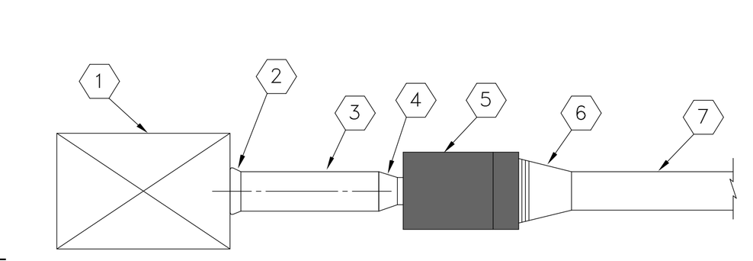
1. BRANCH DUCT
2. TRANSITION
3. DAMPER WITH POSITIVE LOCKING WING NUT
4. FLEXIBLE INSULATED DUCT SIMILAR TO FLEXMASTER TYPE 3 OR APPROVED EQUAL MAXIMUM 5'-0" LENGTH
5. DIFFUSER OR GRILLE W/ ROUND NECK OR SQUARE TO ROUND NECK ADAPTER
6. LAY-IN CEILING
7. TAKE-OFF FITTING SIMILAR TO FLEXMASTER MODEL #CB-D CONICAL BELL MOUTH FITTING WITH DAMPER AND POSITIVE LOCKING WING NUT



BRANCH DUCT CONNECTION TO DIFFUSER OR GRILLE DETAIL

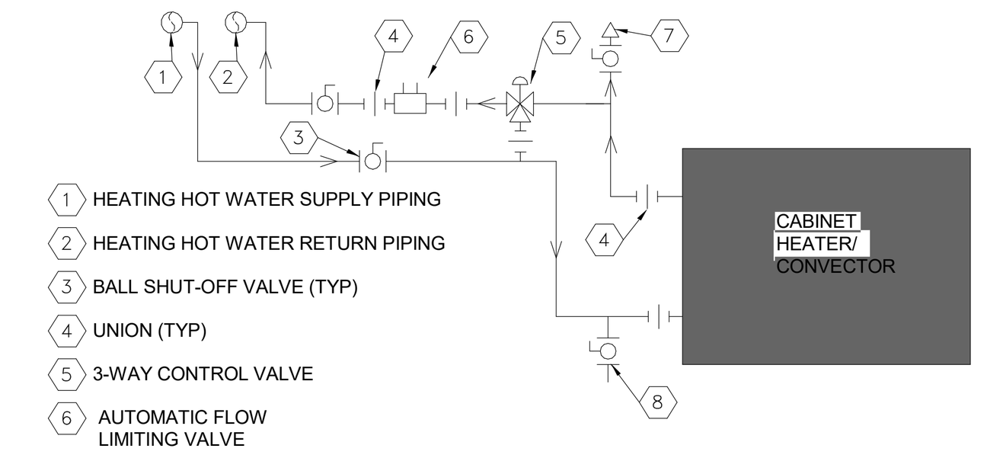
NO SCALE

1. SUPPLY AIR DUCT MAIN
2. BELLMOUTH SPIN-IN FITTING OR TAPERED TAKEOFF ADAPTER FITTING. SEAL TAKE-OFF CONNECTION W/ FIRE RETARDANT DUCT SEALER
3. DUCT TAKE-OFF SIZE TO VOLUME BOX SHALL BE SAME SIZE AS VAV BOX INLET CONNECTION UNLESS DUCT RUN IS GREATER THAN 8 EQUIVALENT FEET OF DUCT. INCREASE DUCT SIZE 2" LARGER FOR DUCT RUNS GREATER THAN 8 EQUIVALENT FEET OF DUCT.
4. DUCT TRANSITION TO VOLUME BOX INLET
5. VOLUME BOX
6. DUCT TRANSITION
7. SUPPLY AIR DUCT TO DIFFUSERS



VOLUME BOX DUCTING DETAIL

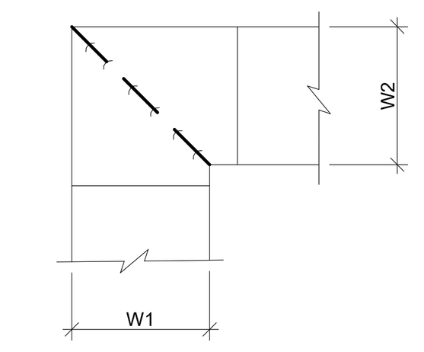
NO SCALE



1. HEATING HOT WATER SUPPLY PIPING
2. HEATING HOT WATER RETURN PIPING
3. BALL SHUT-OFF VALVE (TYP)
4. UNION (TYP)
5. 3-WAY CONTROL VALVE
6. AUTOMATIC FLOW LIMITING VALVE
7. MANUAL AIR VENT (ACCESSIBLE LOCATION)
8. DRAIN VALVE

HEATING HOT WATER CABINET HEATER/CONVECTOR PIPING DETAIL

NO SCALE



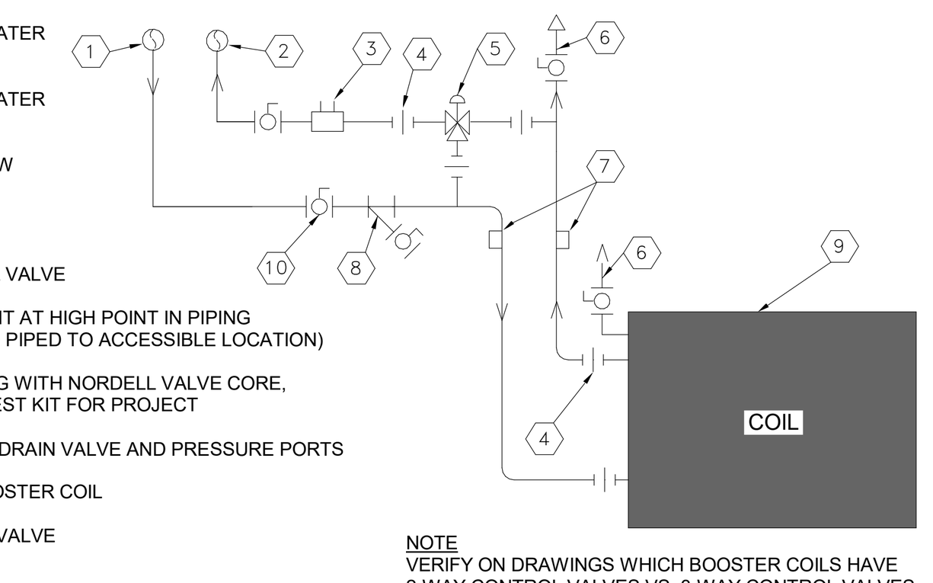
NOTE

1. ALL VANE ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. WHEN W1 DOES NOT EQUAL W2, VANE SHALL BE SINGLE THICKNESS VANE TYPE REGARDLESS OF W DIMENSION.
3. ALL SINGLE THICKNESS VANES SHALL HAVE A 2 " RADIUS, 1 1/2" MAXIMUM SPACE BETWEEN VANES AND A 3/4" TRAILING EDGE.
4. WHEN W EQUALS W2 AND W1 IS GREATER THAN 20", VANES SHALL BE DOUBLE VANE TYPE.
5. NO MITERED ELBOW WITHOUT VANES SHALL BE INSTALLED.

DUCTWORK SQUARE VANE MITERED ELBOWS

NO SCALE

1. HEATING HOT WATER SUPPLY PIPING
2. HEATING HOT WATER RETURN PIPING
3. AUTOMATIC FLOW LIMITING VALVE
4. UNION (TYP)
5. 3-WAY CONTROL VALVE
6. MANUAL AIR VENT AT HIGH POINT IN PIPING (1/4" BALL VALVE PIPED TO ACCESSIBLE LOCATION)
7. #110 PETES PLUG WITH NORDELL VALVE CORE, FURNISH ONE TEST KIT FOR PROJECT
8. STRAINER WITH DRAIN VALVE AND PRESSURE PORTS
9. HOT WATER BOOSTER COIL
10. BALL SHUT-OFF VALVE

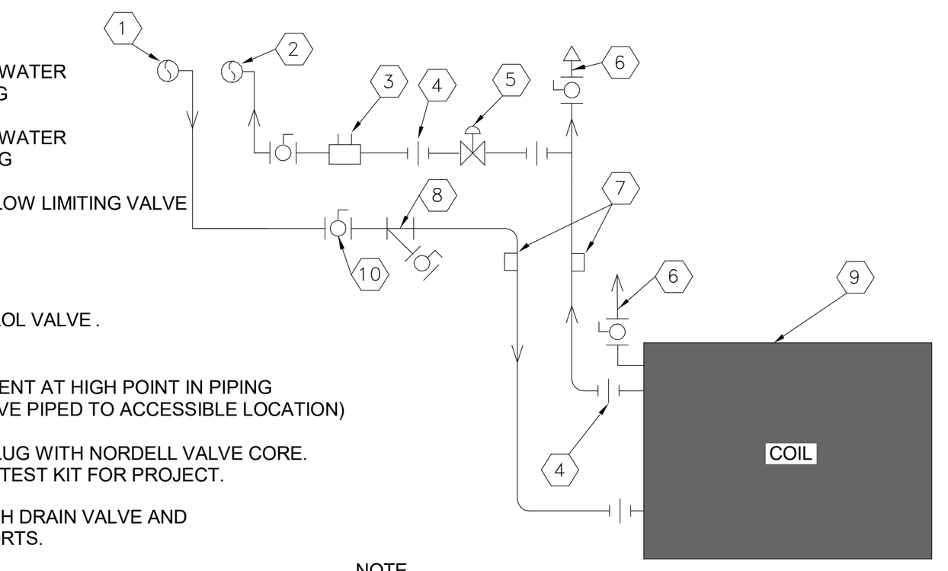


NOTE
VERIFY ON DRAWINGS WHICH BOOSTER COILS HAVE 2-WAY CONTROL VALVES VS. 3-WAY CONTROL VALVES.

BOOSTER COIL PIPING DETAIL WITH 3-WAY CONTROL VALVE

NO SCALE

1. HEATING HOT WATER SUPPLY PIPING
2. HEATING HOT WATER RETURN PIPING
3. AUTOMATIC FLOW LIMITING VALVE
4. UNION (TYP)
5. 2-WAY CONTROL VALVE .
6. MANUAL AIR VENT AT HIGH POINT IN PIPING (1/4" BALL VALVE PIPED TO ACCESSIBLE LOCATION)
7. #110 PETES PLUG WITH NORDELL VALVE CORE. FURNISH ONE TEST KIT FOR PROJECT.
8. STRAINER WITH DRAIN VALVE AND PRESSURE PORTS.
9. HEATING HOT WATER BOOSTER COIL
10. BALL SHUT-OFF VALVE

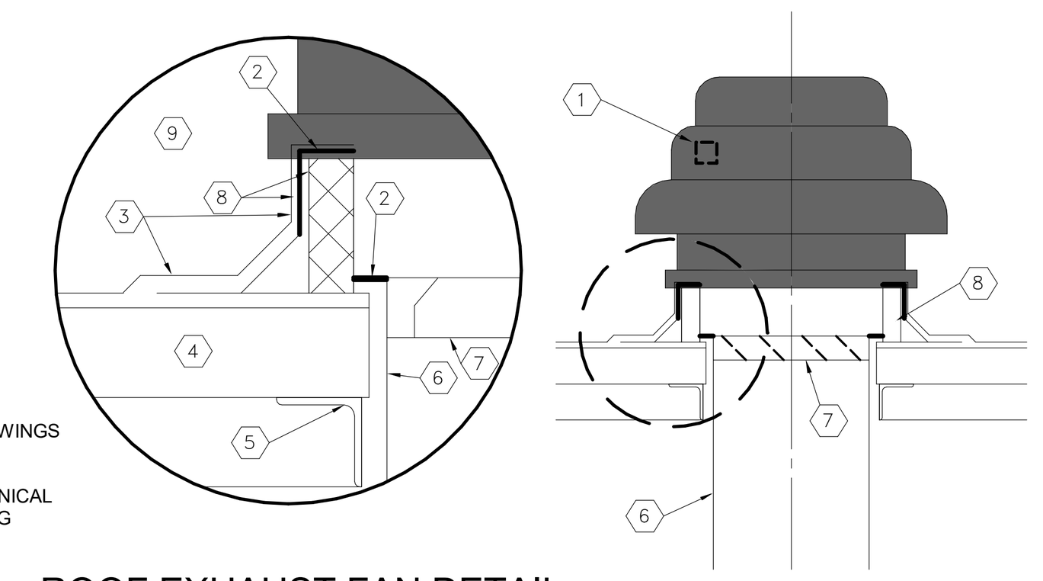


NOTE
VERIFY ON DRAWINGS WHICH BOOSTER COILS HAVE 2-WAY CONTROL VALVES VS. 3-WAY CONTROL VALVES.

BOOSTER COIL PIPING DETAIL WITH 2-WAY CONTROL VALVE

NO SCALE

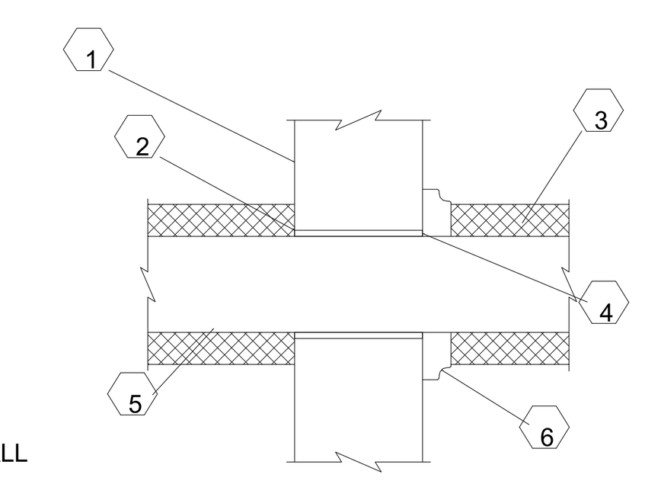
1. DISCONNECT SWITCH
2. GASKET SEAL
3. ROOFING AND FLASHING BY G.C.
4. ROOF CONSTRUCTION
5. STRUCTURAL STEEL SUPPORT SEE STRUCTURAL DRAWINGS
6. EXHAUST DUCT
7. BACKDRAFT DAMPER
8. INSULATED ROOF CURB BY M.C. (PREFABRICATED)-SEE DRAWINGS FOR CURB HEIGHT
9. VERIFY ROOF PITCH-THE MECHANICAL TRADE SHALL FURNISH BLOCKING AS NECESSARY TO LEVEL CURB AND EXHAUST FAN



ROOF EXHAUST FAN DETAIL

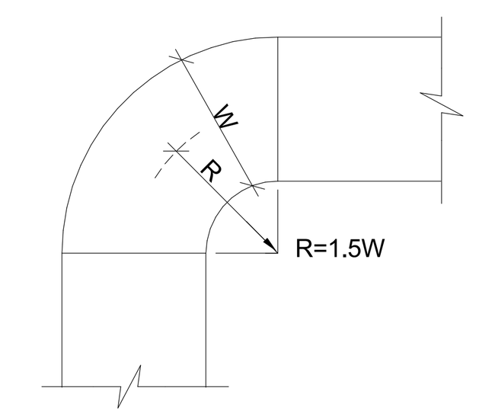
NO SCALE

1. WALL ASSEMBLY (NON-RATED)
2. STEEL SLEEVE ONE PIPE SIZE LARGER THAN PIPE (SLEEVE NOT REQUIRED FOR CORED DRILLED HOLES). TERMINATE SLEEVE FLUSH WITH FINISHED WALL SURFACE
3. PIPE INSULATION MATERIAL AS SPECIFIED
4. SEALANT (ALL EDGES)
5. PIPE SHALL BE CENTERED IN SLEEVE, DO NOT SUPPORT PIPE FROM SLEEVE.
6. ESCUTCHEON PLATE FLUSH AGAINST WALL AND OF SIZE TO COMPLETELY COVER OPENING (REQUIRED AT ALL FINISHED AREAS)



HORIZONTAL PIPE SLEEVE DETAIL - NON-RATED WALLS

NO SCALE



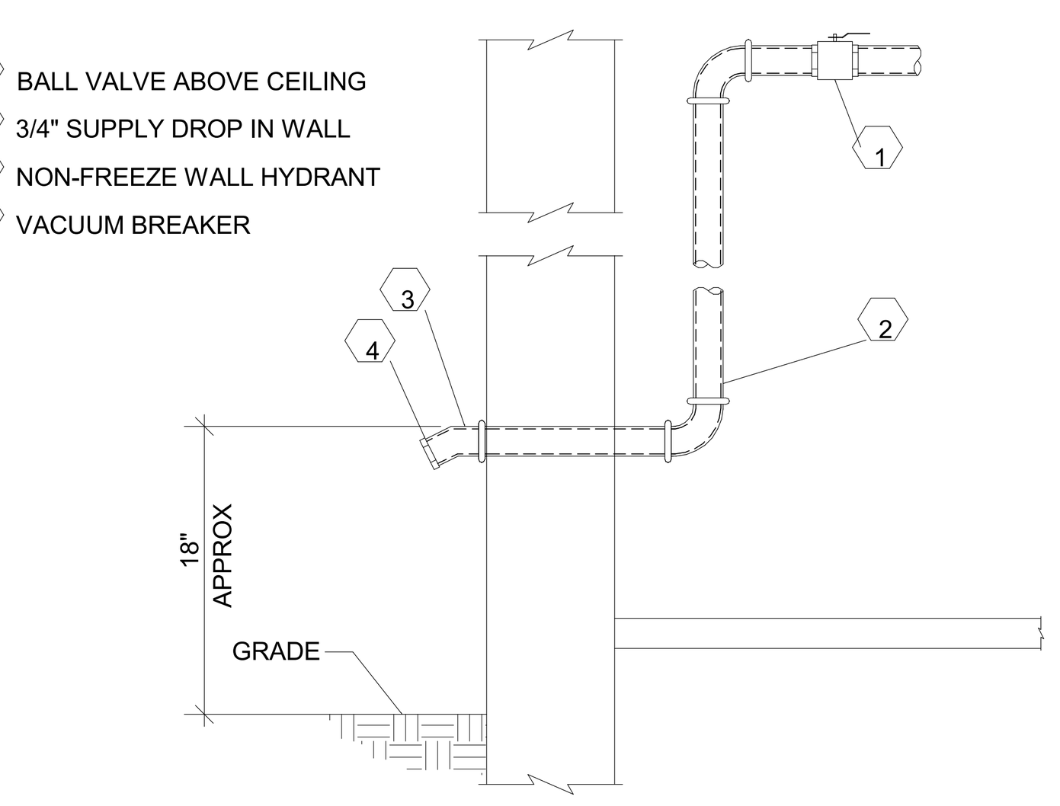
NOTE

1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS CAN BE SUBSTITUTED WITH A SQUARE VANE MITERED ELBOW.
3. NO MITERED ELBOWS WITHOUT VANES SHALL BE INSTALLED.

DUCTWORK RADIUS ELBOW

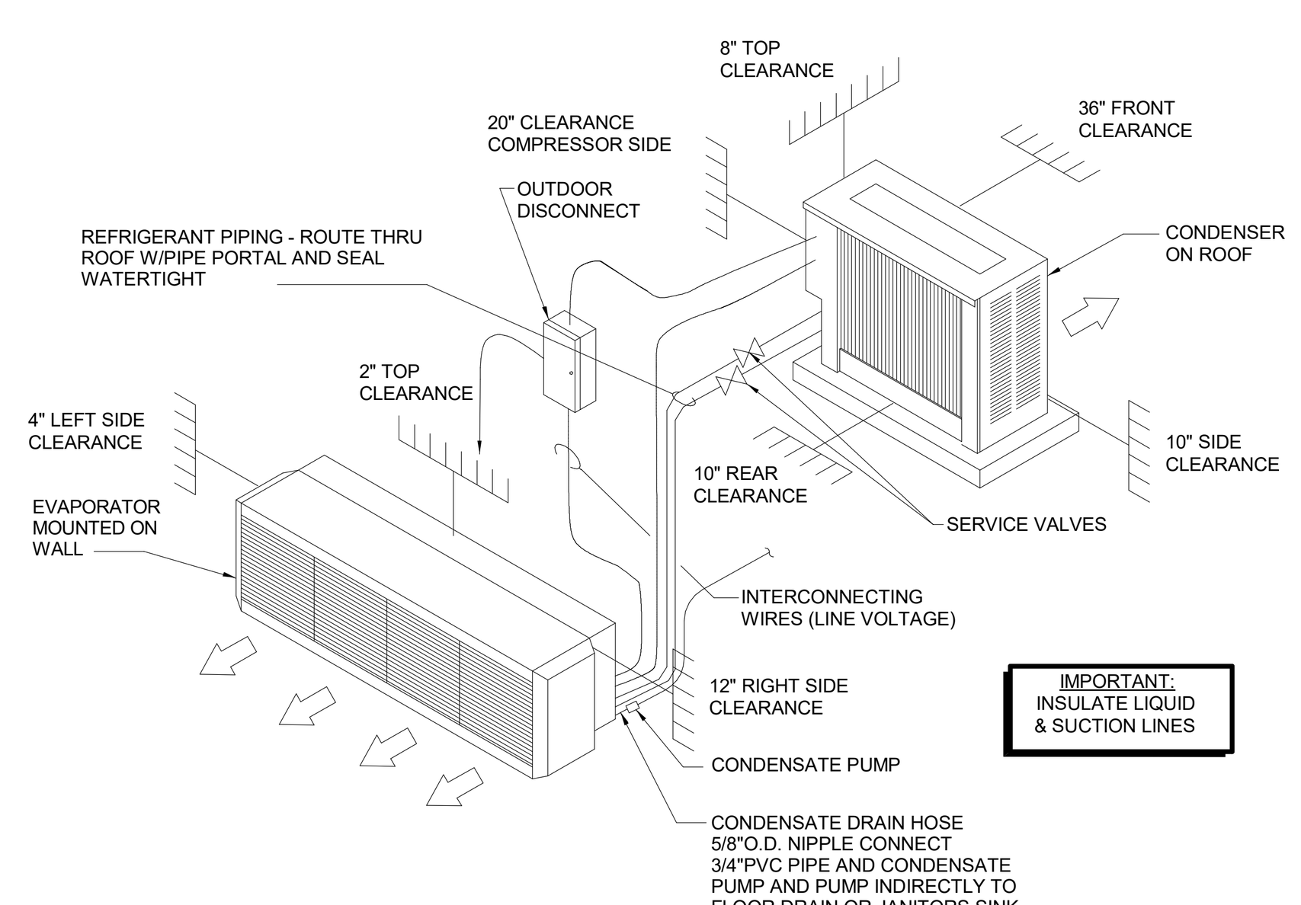
NO SCALE

1. BALL VALVE ABOVE CEILING
2. 3/4" SUPPLY DROP IN WALL
3. NON-FREEZE WALL HYDRANT
4. VACUUM BREAKER



TYP WALL HYDRANT AT WALL

NO SCALE

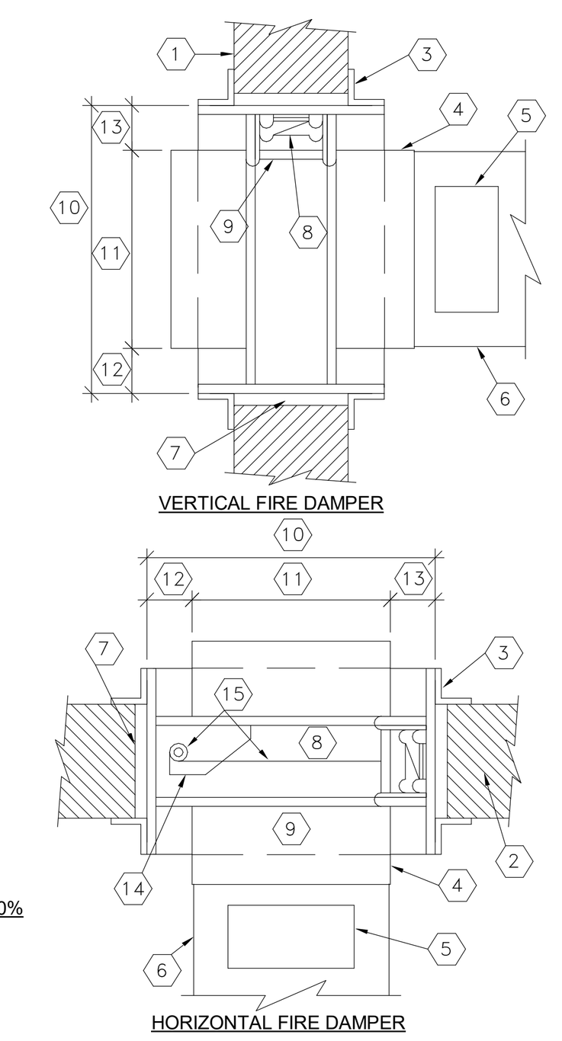


SERVER ROOM AIR CONDITIONER INSTALLATION DETAIL

NO SCALE (WALL MOUNTED)

1. WALL CONSTRUCTION
2. FLOOR OR ROOF CONSTRUCTION
3. METAL ANGLE 1 1/2"x1 1/2"x14" GA MINIMUM FASTENED TO FIRE DAMPER SLEEVE, WELD OR RIVET TO ALL FOUR SIDES (TYP)
4. DUCT MOUNTING FLANGE
5. ACCESS DOOR IN DUCTWORK
6. DUCTWORK (VERIFY INTERNAL OR EXTERNAL INSULATION)
7. 1/2" MAXIMUM CLEARANCE
8. INTERLOCKING STEEL BLADES MINIMUM 22 GA
9. REPLACEABLE FUSIBLE LINK (165°F VERIFY TEMP)
10. OPENING HEIGHT/WIDTH (DAMPER SHALL BE 1/4" LESS)
11. DUCT HEIGHT/WIDTH PLUS 1/4"
12. 1" TYP THREE SIDES
13. VARIES WITH DAMPER SIZE
14. BLADE LOCK
15. NAGATOR STAINLESS STEEL CLOSURE SPRING

NOTE: FIRE DAMPER SHALL GIVE 100% FREE AREA OF DUCT SIZE FOR AIR FLOW. BLADES SHALL NOT HANG DOWN INTO AIR STREAM.

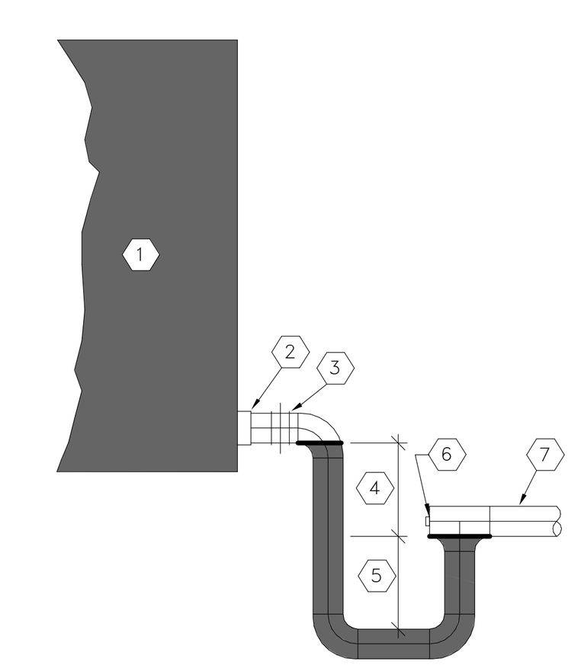


FIRE DAMPER DETAIL

NO SCALE

NOTE: REFER TO MANUFACTURERS INSTALLATION INSTRUCTIONS AND MEET ALL REQUIREMENTS.

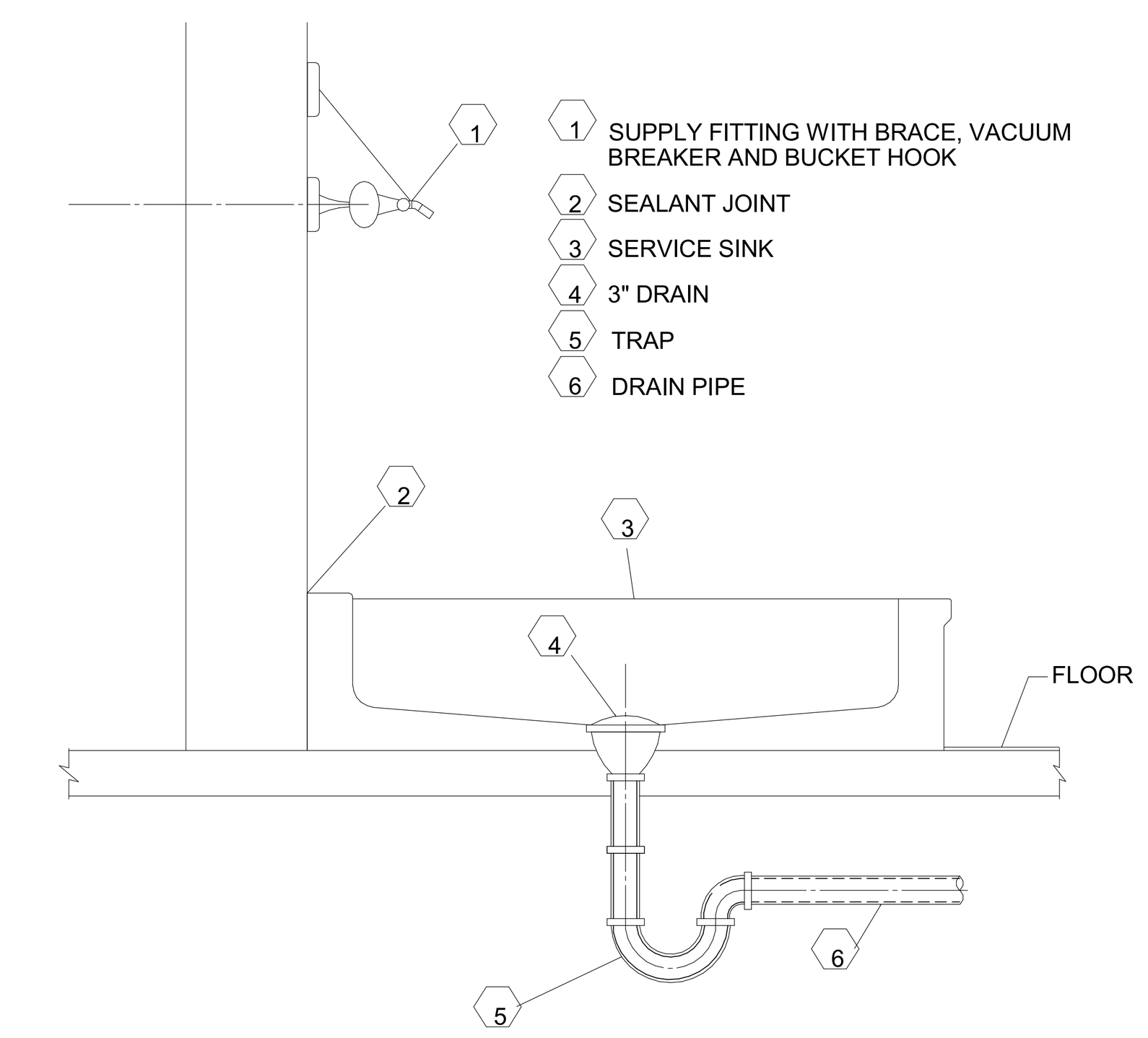
1. COOLING COIL
2. COOLING COIL CONDENSATE DRAIN CONNECTION
3. UNION
4. MINIMUM 6" DEEP TRAP SEAL FOR AIR HANDLERS MIN. 3" DEEP TRAP SEAL FOR U.V.'S AND FAN COIL UNITS
5. SAME DEPTH AS 4
6. CLEANOUT FITTING
7. CONDENSATE DRAIN - EXTEND TO FLOOR DRAIN, FLOOR SINK, AS NOTED ON DRAWINGS OR REQUIRED.



COOLING COIL CONDENSATE DRAIN TRAP DETAIL

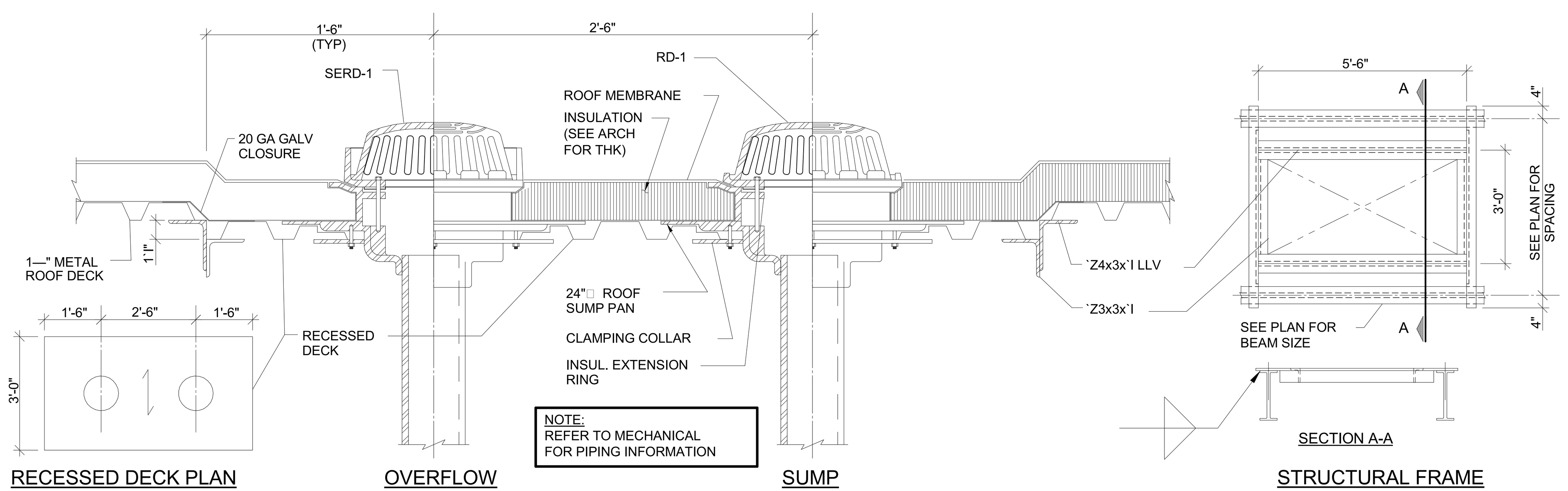
NO SCALE

1. SUPPLY FITTING WITH BRACE, VACUUM BREAKER AND BUCKET HOOK
2. SEALANT JOINT
3. SERVICE SINK
4. 3" DRAIN
5. TRAP
6. DRAIN PIPE



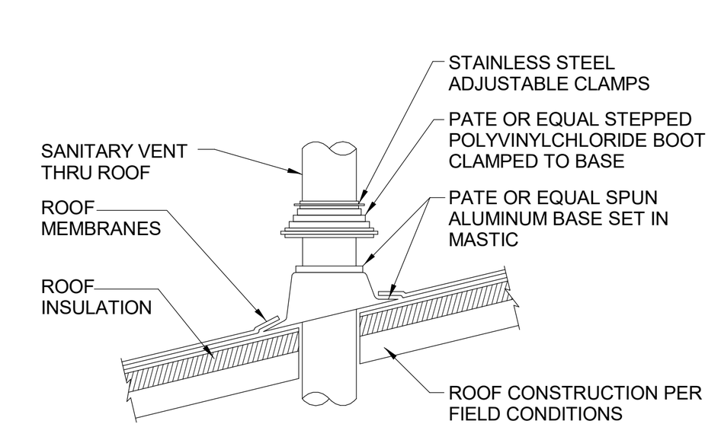
SERVICE SINK DETAIL

NO SCALE



TYP ROOF DRAIN (RD)

NTS

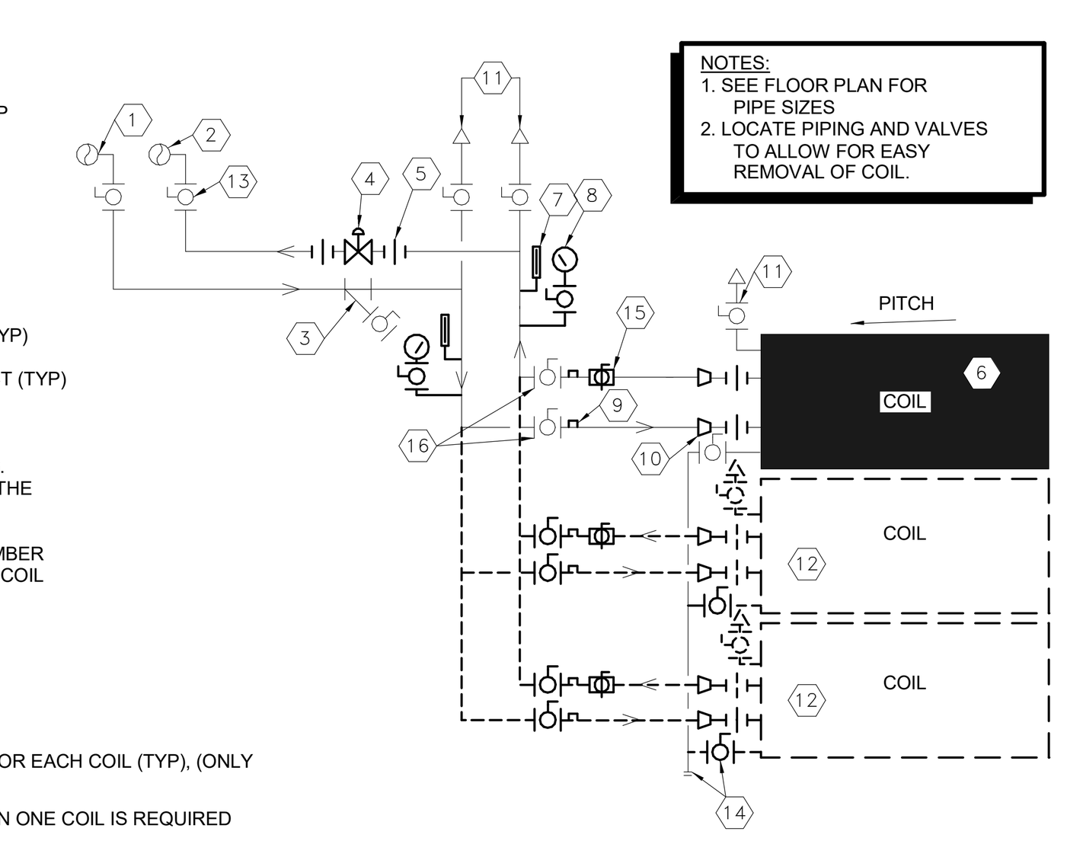


VENT THRU ROOF DETAIL

NO SCALE

1. HEATING HOT WATER SUPPLY PIPING MAIN
2. HEATING HOT WATER RETURN PIPING MAIN
3. STRAINER W/BALL VALVE, HOSE CONNECTION AND CAP
4. 2-WAY CONTROL VALVE
5. UNION (TYP)
6. COIL
7. THERMOMETER-ANGLE TYPE READABLE FROM FLOOR
8. PRESSURE GAUGE WITH SNUBBER AND BALL VALVE (TYP)
9. #110 PETES PLUG-FURNISH ONE TEST KIT FOR PROJECT (TYP)
10. REDUCING COUPLING IF REQUIRED (TYP)
11. MANUAL AIR VENT-1/4" BALL VALVE WITH CAP OR PLUG. PROVIDE A MANUAL AIR VENT AT EACH HIGH POINT IN THE PIPING SYSTEM (TYP)
12. VERIFY WITH AIR HANDLING UNIT MANUFACTURER NUMBER OF COILS TO BE FURNISHED FOR UNIT AND PIPE EACH COIL INDIVIDUALLY AS DETAILED
13. BALL SHUT-OFF VALVE (TYP)
14. COIL DRAIN WITH SHUT-OFF VALVE, EXTEND DRAIN TO FLOOR DRAIN
15. IF MORE THAN ONE COIL IS REQUIRED) BELL & GOSSETT CIRCUIT SETTER VALVE REQUIRED FOR EACH COIL (TYP), (ONLY
16. SHUT OFF VALVE REQUIRED (TYP), ONLY IF MORE THAN ONE COIL IS REQUIRED

NOTES:
1. SEE FLOOR PLAN FOR PIPE SIZES
2. LOCATE PIPING AND VALVES TO ALLOW FOR EASY REMOVAL OF COIL.

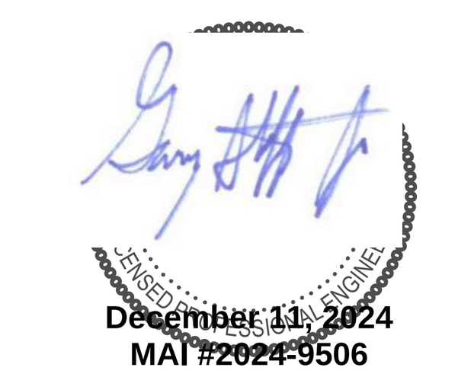


HEATING WATER COIL PIPING DETAIL WITH 2-WAY CONTROL VALVE

NO SCALE

THE COLLABORATIVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM



December 11, 2024
MAI #2024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD.
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107270

SHEET TITLE

MECHANICAL DETAILS

SHEET NO.

M7.10

RTU-1
VARIABLE AIR VOLUME RTU

RUN CONDITIONS - REQUESTED:
THE UNIT SHALL RUN WHENEVER:
•ANY ZONE IS OCCUPIED.
•OR A DEFINABLE NUMBER OF UNOCCUPIED ZONES NEED HEATING OR COOLING.

FREEZE PROTECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A FREEZESTAT STATUS.

HIGH STATIC SHUTDOWN:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING AN HIGH STATIC SHUTDOWN SIGNAL.

RETURN AIR SMOKE DETECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A RETURN AIR SMOKE DETECTOR STATUS.

SUPPLY AIR SMOKE DETECTION:
THE UNIT SHALL SHUT DOWN AND GENERATE AN ALARM UPON RECEIVING A SUPPLY AIR SMOKE DETECTOR STATUS.

SUPPLY FAN:
THE SUPPLY FAN SHALL RUN ANYTIME THE UNIT IS COMMANDED TO RUN, UNLESS SHUTDOWN ON SAFETIES. TO PREVENT SHORT CYCLING, THE SUPPLY FAN SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•SUPPLY FAN FAILURE: COMMANDED ON, BUT THE STATUS IS OFF.
•SUPPLY FAN IN HAND: COMMANDED OFF, BUT THE STATUS IS ON.
•SUPPLY FAN RUNTIME EXCEEDED: STATUS RUNTIME EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

SUPPLY AIR DUCT STATIC PRESSURE CONTROL:
THE CONTROLLER SHALL MEASURE DUCT STATIC PRESSURE AND MODULATE THE SUPPLY FAN VFD SPEED TO MAINTAIN A DUCT STATIC PRESSURE SETPOINT. THE SPEED SHALL NOT DROP BELOW 30% (ADJ.). THE STATIC PRESSURE SETPOINT SHALL BE RESET BASED UPON THE POSITION OF THE ZONE DAMPERS, WITH A GOAL OF REDUCING THE STATIC PRESSURE UNTIL AT LEAST ONE ZONE DAMPER IS NEARLY WIDE OPEN.
•THE INITIAL DUCT STATIC PRESSURE SETPOINT SHALL BE 1.5IN H2O (ADJ.).
•IF NO ZONE DAMPER IS NEARLY WIDE OPEN, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 1.3IN H2O (ADJ.) .
•AS ONE OR MORE DAMPERS NEARS THE WIDE OPEN POSITION, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 1.8IN H2O (ADJ.).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•HIGH SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) GREATER THAN SETPOINT.
•LOW SUPPLY AIR STATIC PRESSURE: IF THE SUPPLY AIR STATIC PRESSURE IS 25% (ADJ.) LESS THAN SETPOINT.
•SUPPLY FAN VFD FAULT.

SUPPLY AIR TEMPERATURE SETPOINT - OPTIMIZED:
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE AND SHALL MAINTAIN A SUPPLY AIR TEMPERATURE SETPOINT RESET BASED ON ZONE COOLING AND HEATING REQUIREMENTS

THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR COOLING BASED ON ZONE COOLING REQUIREMENTS AS FOLLOWS:
•THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 55°F (ADJ.).
•AS COOLING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 53°F (ADJ.).
•AS COOLING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 72°F (ADJ.) .

IF MORE ZONES NEED HEATING THAN COOLING, THEN THE SUPPLY AIR TEMPERATURE SETPOINT SHALL BE RESET FOR HEATING AS FOLLOWS:
•THE INITIAL SUPPLY AIR TEMPERATURE SETPOINT SHALL BE 82°F (ADJ.).
•AS HEATING DEMAND INCREASES, THE SETPOINT SHALL INCREMENTALLY RESET UP TO A MAXIMUM OF 85°F (ADJ.).
•AS HEATING DEMAND DECREASES, THE SETPOINT SHALL INCREMENTALLY RESET DOWN TO A MINIMUM OF 72°F (ADJ.).

COOLING STAGES:
THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND STAGE THE COOLING TO MAINTAIN ITS COOLING SETPOINT. TO PREVENT SHORT CYCLING, THERE SHALL BE A USER DEFINABLE (ADJ.) DELAY BETWEEN STAGES, AND EACH STAGE SHALL HAVE A USER DEFINABLE (ADJ.) MINIMUM RUNTIME.

THE COOLING SHALL BE ENABLED WHENEVER:
•OUTSIDE AIR TEMPERATURE IS GREATER THAN 60°F (ADJ.).
•AND THE ECONOMIZER (IF PRESENT) IS DISABLED OR FULLY OPEN.
•AND THE SUPPLY FAN STATUS IS ON.
•AND THE HEATING (IF PRESENT) IS NOT ACTIVE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 5°F (ADJ.) GREATER THAN SETPOINT.

HEATING COIL VALVE:
THE CONTROLLER SHALL MEASURE THE SUPPLY AIR TEMPERATURE AND MODULATE THE HEATING COIL VALVE TO MAINTAIN ITS HEATING SETPOINT.

THE HEATING SHALL BE ENABLED WHENEVER:
•OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
•AND THE SUPPLY FAN STATUS IS ON.
•AND THE COOLING (IF PRESENT) IS NOT ACTIVE.

THE HEATING COIL VALVE SHALL OPEN WHENEVER:
•SUPPLY AIR TEMPERATURE DROPS FROM 40°F TO 35°F (ADJ.).
•OR THE FREEZESTAT (IF PRESENT) IS ON.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS 5°F (ADJ.) LESS THAN SETPOINT.

ECONOMIZER:
THE CONTROLLER SHALL MEASURE THE MIXED AIR TEMPERATURE AND MODULATE THE ECONOMIZER DAMPERS IN SEQUENCE TO MAINTAIN A SETPOINT 2°F (ADJ.) LESS THAN THE SUPPLY AIR TEMPERATURE SETPOINT. THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION OF 20% (ADJ.) OPEN WHENEVER OCCUPIED.

THE ECONOMIZER SHALL BE ENABLED WHENEVER:
•OUTSIDE AIR TEMPERATURE IS LESS THAN 65°F (ADJ.).
•AND THE OUTSIDE AIR ENTHALPY IS LESS THAN 22BTU/LB (ADJ.)
•AND THE OUTSIDE AIR TEMPERATURE IS LESS THAN THE RETURN AIR TEMPERATURE.
•AND THE OUTSIDE AIR ENTHALPY IS LESS THAN THE RETURN AIR ENTHALPY.
•AND THE SUPPLY FAN STATUS IS ON.

THE ECONOMIZER SHALL CLOSE WHENEVER:
•MIXED AIR TEMPERATURE DROPS FROM 40°F TO 35°F (ADJ.)
•OR THE FREEZESTAT (IF PRESENT) IS ON.
•OR ON LOSS OF SUPPLY FAN STATUS.

THE OUTSIDE AND EXHAUST AIR DAMPERS SHALL CLOSE AND THE RETURN AIR DAMPER SHALL OPEN WHEN THE UNIT IS OFF. IF OPTIMAL START UP IS AVAILABLE THE MIXED AIR DAMPER SHALL OPERATE AS DESCRIBED IN THE OCCUPIED MODE EXCEPT THAT THE OUTSIDE AIR DAMPER SHALL MODULATE TO FULLY CLOSED.

MINIMUM OUTSIDE AIR VENTILATION - FIXED PERCENTAGE:
THE OUTSIDE AIR DAMPERS SHALL MAINTAIN A MINIMUM ADJUSTABLE POSITION DURING BUILDING OCCUPIED HOURS AND BE CLOSED DURING UNOCCUPIED HOURS.

FINAL FILTER DIFFERENTIAL PRESSURE MONITOR:
THE CONTROLLER SHALL MONITOR THE DIFFERENTIAL PRESSURE ACROSS THE FINAL FILTER.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•FINAL FILTER CHANGE REQUIRED: FINAL FILTER DIFFERENTIAL PRESSURE EXCEEDS A USER DEFINABLE LIMIT (ADJ.).

MIXED AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE MIXED AIR TEMPERATURE AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR PREHEATING CONTROL (IF PRESENT).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•HIGH MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
•LOW MIXED AIR TEMP: IF THE MIXED AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

RETURN AIR HUMIDITY:
THE CONTROLLER SHALL MONITOR THE RETURN AIR HUMIDITY AND USE AS REQUIRED FOR ECONOMIZER CONTROL (IF PRESENT) OR HUMIDITY CONTROL (IF PRESENT).

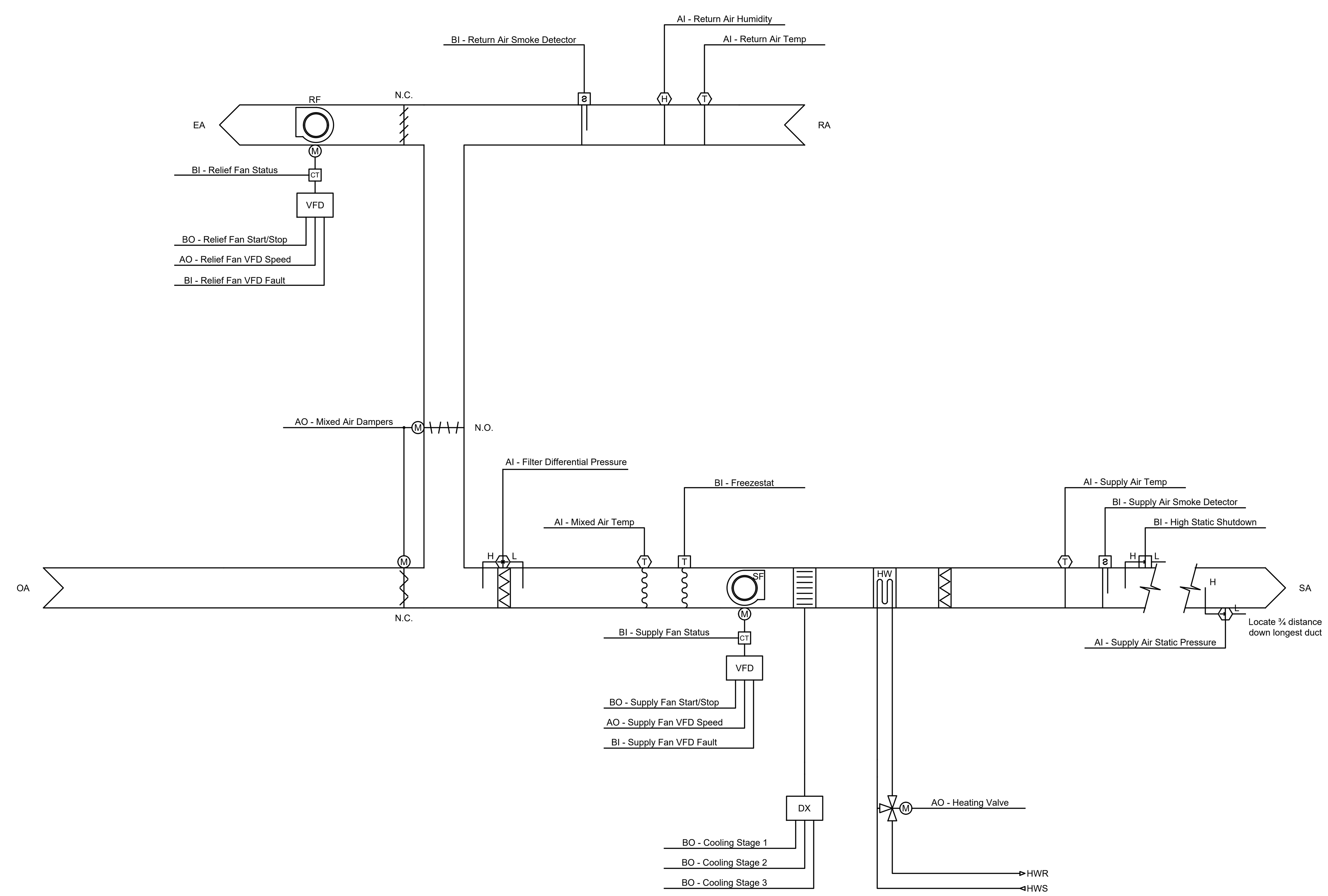
ALARMS SHALL BE PROVIDED AS FOLLOWS:
•HIGH RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS GREATER THAN 70% (ADJ.).
•LOW RETURN AIR HUMIDITY: IF THE RETURN AIR HUMIDITY IS LESS THAN 35% (ADJ.).

RETURN AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE RETURN AIR TEMPERATURE AND USE AS REQUIRED FOR SETPOINT CONTROL OR ECONOMIZER CONTROL (IF PRESENT).

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•HIGH RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS GREATER THAN 90°F (ADJ.).
•LOW RETURN AIR TEMP: IF THE RETURN AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).

SUPPLY AIR TEMPERATURE:
THE CONTROLLER SHALL MONITOR THE SUPPLY AIR TEMPERATURE.

ALARMS SHALL BE PROVIDED AS FOLLOWS:
•HIGH SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS GREATER THAN 120°F (ADJ.).
•LOW SUPPLY AIR TEMP: IF THE SUPPLY AIR TEMPERATURE IS LESS THAN 45°F (ADJ.).



THE
COL
LAB
ORAT
IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

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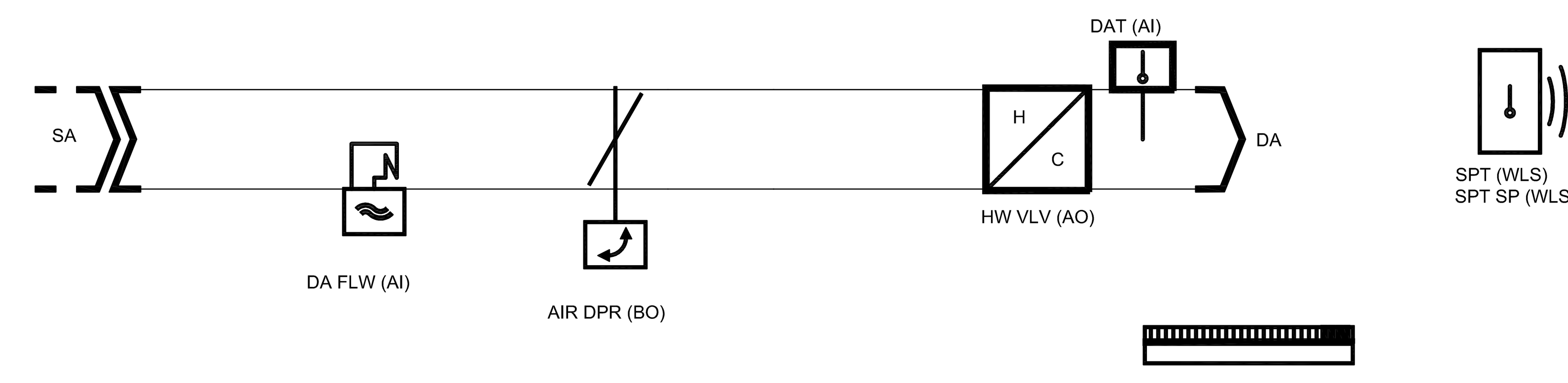


FLOW DIAGRAM: VAV BOX

SEQUENCE OF OPERATIONS: VAV BOX

BUILDING AUTOMATION SYSTEM INTERFACE:

THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED, AND UNOCCUPIED COMMANDS. THE BAS MAY ALSO SEND A HEAT/COOL MODE, PRIORITY SHUTDOWN COMMANDS, SPACE TEMPERATURE AND/OR SPACE TEMPERATURE SETPOINT. IF COMMUNICATION IS LOST WITH THE BAS, THE CONTROLLER SHALL OPERATE USING ITS LOCAL SETPOINTS.

OCCUPIED:

NORMAL OPERATING MODE FOR OCCUPIED SPACES OR DAYTIME OPERATION. WHEN THE UNIT IS IN THE OCCUPIED MODE THE VAV SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE OCCUPIED HEATING OR COOLING SETPOINT. APPLICABLE VENTILATION AND AIRFLOW SETPOINTS SHALL BE ENFORCED. THE OCCUPIED MODE SHALL BE THE DEFAULT MODE OF THE VAV.

UNOCCUPIED:

NORMAL OPERATING MODE FOR UNOCCUPIED SPACES OR NIGHTTIME OPERATION. WHEN THE UNIT IS IN UNOCCUPIED MODE THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE STORED UNOCCUPIED HEATING OR COOLING SETPOINT REGARDLESS OF THE PRESENCE OF A HARDWIRED OR COMMUNICATED SETPOINT. WHEN THE SPACE TEMPERATURE EXCEEDS THE ACTIVE UNOCCUPIED SETPOINT THE VAV SHALL MODULATE FULLY CLOSED.

OCCUPIED BYPASS:

MODE USED TO TEMPORARILY PLACE THE UNIT INTO THE OCCUPIED OPERATION. TENANTS SHALL BE ABLE TO OVERRIDE THE UNOCCUPIED MODE FROM THE SPACE SENSOR. THE OVERRIDE SHALL LAST FOR A MAXIMUM OF 4 HOURS (ADJ.). THE TENANTS SHALL BE ABLE TO CANCEL THE OVERRIDE FROM THE SPACE SENSOR AT ANY TIME. DURING THE OVERRIDE THE UNIT SHALL OPERATE IN OCCUPIED MODE.

HEAT/COOL MODE:

THE HEAT/COOL MODE SHALL BE SET BY A COMMUNICATED VALUE OR AUTOMATICALLY BY THE VAV. IN STANDALONE OR AUTO MODE THE VAV SHALL COMPARE THE PRIMARY AIR TEMPERATURE WITH THE CONFIGURED AUTO CHANGEOVER SETPOINT TO DETERMINE IF THE AIR IS "HOT"" OR ""COLD"". HEATING MODE IMPLIES THE PRIMARY AIR TEMPERATURE IS HOT. COOLING MODE IMPLIES THE PRIMARY AIR TEMPERATURE IS COLD."

HEAT/COOL SETPOINT:

THE SPACE TEMPERATURE SETPOINT SHALL BE DETERMINED EITHER BY A LOCAL (E.G., THUMBWHEEL) SETPOINT, THE VAV DEFAULT SETPOINT OR A COMMUNICATED VALUE. THE VAV SHALL USE THE LOCALLY STORED DEFAULT SETPOINTS WHEN NEITHER A LOCAL SETPOINT NOR COMMUNICATED SETPOINT IS PRESENT. IF BOTH A LOCAL SETPOINT AND COMMUNICATED SETPOINT EXIST, THE VAV SHALL USE THE COMMUNICATED VALUE.

COOLING MODE:

WHEN THE UNIT IS IN COOLING MODE, THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE COOLING SETPOINT BY MODULATING THE AIRFLOW BETWEEN THE ACTIVE COOLING MINIMUM AIRFLOW SETPOINT TO THE MAXIMUM COOLING AIRFLOW SETPOINT. THE VAV SHALL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE COOLING SETPOINT TO DETERMINE THE REQUESTED COOLING CAPACITY OF THE UNIT. THE OUTPUTS WILL BE CONTROLLED BASED ON THE UNIT CONFIGURATION AND THE REQUESTED COOLING CAPACITY. WHEN IN THE OCCUPIED MODE, THE CONTROLLER SHALL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE COOLING SETPOINT TO DETERMINE THE REQUESTED COOLING CAPACITY OF THE UNIT. THE OUTPUTS SHALL BE CONTROLLED BASED ON THE UNIT CONFIGURATION AND THE REQUESTED COOLING CAPACITY.

HEATING MODE:

WHEN THE UNIT IS IN HEATING MODE, THE VAV CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE AT THE ACTIVE HEATING SETPOINT BY MODULATING THE AIRFLOW BETWEEN THE ACTIVE HEATING MINIMUM AIRFLOW SETPOINT TO THE MAXIMUM HEATING AIRFLOW SETPOINT. THE VAV CONTROLLER SHALL USE THE MEASURED SPACE TEMPERATURE AND THE ACTIVE HEATING SETPOINT TO DETERMINE THE REQUESTED HEATING CAPACITY OF THE UNIT. THE OUTPUTS WILL BE CONTROLLED BASED ON THE UNIT CONFIGURATION AND THE REQUESTED HEATING CAPACITY.

REHEAT CONTROL:

REHEAT WILL ONLY BE ALLOWED WHEN THE PRIMARY AIR TEMPERATURE IS 5.0 DEG. F BELOW THE CONFIGURED REHEAT ENABLE SETPOINT OF 70.0 DEG. F (ADJ.). THE REHEAT SHALL BE ENABLED WHEN THE SPACE TEMPERATURE DROPS BELOW THE ACTIVE HEATING SETPOINT AND THE MINIMUM AIRFLOW REQUIREMENTS ARE MET. DURING REHEAT THE VAV SHALL OPERATE AT ITS MINIMUM HEATING AIRFLOW SETPOINT AND ENERGIZE THE HEAT AS FOLLOWS:

PROPORTIONAL HOT WATER REHEAT:

IF THE SPACE TEMPERATURE IS BELOW THE HEATING SETPOINT THE HOT WATER REHEAT VALVE SHALL CONTROL AS REQUIRED TO MAINTAIN THE ACTIVE HEATING SETPOINT.

VENTILATION CONTROL:

WHEN THE UNIT IS IN UNOCCUPIED MODE, THE VENTILATION AIRFLOW SETPOINT WILL BE ZERO. WHEN THE UNIT IS IN OCCUPIED MODE, THE VENTILATION AIRFLOW SETPOINT SHALL EQUAL THE DESIGN OUTDOOR AIRFLOW (SEE VAV SCHEDULE).

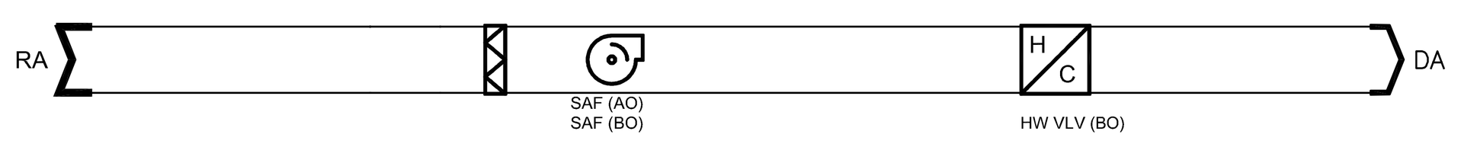
THE CURRENT VENTILATION AIRFLOW SETPOINT SHALL BE COMMUNICATED TO THE BAS FOR CONTROL OF THE SYSTEM OUTDOOR-AIR INTAKE.

SPACE SENSOR FAILURE:

IF THERE IS A FAULT WITH THE OPERATION OF THE ZONE SENSOR AN ALARM SHALL BE ANNUNCIATED AT THE BAS. SPACE SENSOR FAILURE SHALL CAUSE THE VAV TO DRIVE THE DAMPER TO MINIMUM AIR FLOW IF THE VAV IS IN THE OCCUPIED MODE, OR DRIVE IT CLOSED IF THE VAV IS IN THE UNOCCUPIED MODE.

REMOTE HEAT:

THE REMOTE HEAT WILL CONTROL AND ACT AS THE FIRST STAGE OF HEATING WHEN THE SPACE TEMPERATURE IS BELOW THE OCCUPIED SPACE TEMPERATURE SETPOINT.



FLOW DIAGRAM: CABINET UNIT HEATER

SEQUENCE OF OPERATIONS: CABINET UNIT HEATER

BUILDING AUTOMATION SYSTEM INTERFACE:

THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER MORNING WARM-UP AND OCCUPIED/UNOCCUPIED MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE USING DEFAULT MODES AND SETPOINTS.

OCCUPIED:

DURING OCCUPIED PERIODS, THE SUPPLY FAN SHALL CYCLE ON/OFF AND THE HOT WATER VALVE SHALL CONTROL TO MAINTAIN THE ACTIVE SPACE TEMPERATURE SETPOINT.

UNOCCUPIED:

WHEN THE SPACE TEMPERATURE IS BELOW THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) THE SUPPLY FAN SHALL START AND THE HOT WATER VALVE SHALL OPEN. WHEN THE SPACE TEMPERATURE RISES ABOVE THE UNOCCUPIED HEATING SETPOINT OF 60.0 DEG. F (ADJ.) PLUS THE UNOCCUPIED DIFFERENTIAL OF 4.0 DEG. F. (ADJ.) THE SUPPLY FAN SHALL STOP AND THE HOT WATER VALVE SHALL CLOSE.

OPTIMAL START:

THE BAS SHALL MONITOR THE SCHEDULED OCCUPIED TIME, OCCUPIED SPACE SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL START OCCURS.

MORNING WARM-UP MODE:

DURING OPTIMAL START, IF THE SPACE TEMPERATURE IS BELOW THE OCCUPIED HEATING SETPOINT, A MORNING WARM-UP MODE SHALL BE ACTIVATED. WHEN MORNING WARM-UP IS INITIATED THE UNIT SHALL ENABLE THE HEATING AND SUPPLY FAN. WHEN THE SPACE TEMPERATURE REACHES THE OCCUPIED HEATING SETPOINT (ADJ.) THE UNIT SHALL TRANSITION TO THE OCCUPIED MODE.

OPTIMAL STOP:

THE BAS SHALL MONITOR THE SCHEDULED UNOCCUPIED TIME, OCCUPIED SETPOINTS AND SPACE TEMPERATURE TO CALCULATE WHEN THE OPTIMAL STOP OCCURS. WHEN THE OPTIMAL STOP MODE IS ACTIVE THE UNIT CONTROLLER SHALL MAINTAIN THE SPACE TEMPERATURE TO THE SPACE TEMPERATURE OFFSET SETPOINT.

SPACE TEMPERATURE CONTROL:

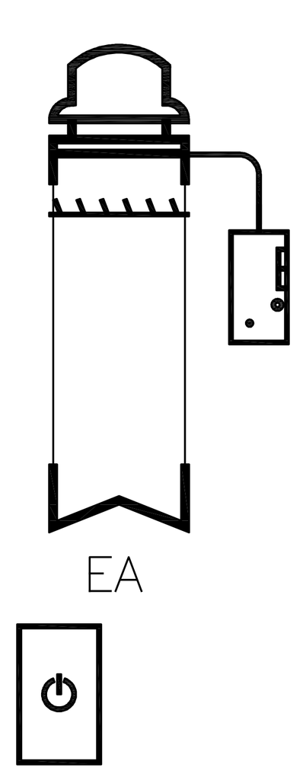
CASCADE ZONE CONTROL SHALL BE USED IN THE OCCUPIED, OCCUPIED BYPASS, AND OCCUPIED STANDBY MODES. IT MAINTAINS ZONE TEMPERATURE BY CONTROLLING THE DISCHARGE AIR TEMPERATURE TO CONTROL THE ZONE TEMPERATURE WHILE MINIMIZING THE FAN SPEED. THE SPACE TEMPERATURE SHALL BE MAINTAINED AT THE OCCUPIED HEATING SETPOINT OF 71.0 DEG. F (ADJ.).

SUPPLY FAN OPERATION:

THE SUPPLY FAN SHALL CYCLE ON DEMAND DURING THE UNOCCUPIED MODE. WHEN THE CONTROLLER IS IN THE OCCUPIED MODE, THE SUPPLY FAN SHALL OPERATE CONTINUOUSLY AT THE LOWEST MINIMUM SPEED REQUIRED TO MAINTAIN SPACE TEMPERATURE. THE SUPPLY FAN STATUS SHALL BE MONITORED BY THE ECM MOTOR CONTROLLER. IF THE SUPPLY FAN FAILS THE FAN SHALL BE COMMANDED OFF AND AN ALARM SHALL ANNUNCIATE AT THE BAS. A MANUAL RESET SHALL BE REQUIRED TO RESTART THE FAN.

FILTER TIMER:

THE FAN-RUN TIME (HRS) SHALL BE COMPARED TO THE FILTER MAINTENANCE TIMER SETPOINT. ONCE THE SETPOINT IS REACHED A FILTER TIMER ALARM DIAGNOSTIC SHALL ANNUNCIATE AT THE BAS. WHEN THE DIAGNOSTIC IS CLEARED, THE FILTER-MAINTENANCE TIMER IS RESET TO ZERO, AND THE TIMER BEGINS ACCUMULATING FAN-RUN TIME AGAIN.



SEQUENCE OF OPERATIONS: EXHAUST FANS

OPERATION:

BUILDING AUTOMATION SYSTEM INTERFACE:

THE BUILDING AUTOMATION SYSTEM (BAS) SHALL SEND THE CONTROLLER OCCUPIED AND UNOCCUPIED MODES. IF A BAS IS NOT PRESENT, OR COMMUNICATION IS LOST WITH THE BAS THE CONTROLLER SHALL OPERATE BY DEFAULTING TO FAN RUNNING.

OCCUPIED:

DURING OCCUPIED PERIODS, THE FAN SHALL RUN CONTINUOUSLY.

UNOCCUPIED:

DURING UNOCCUPIED PERIODS, THE FAN SHALL BE OFF.

FLOW DIAGRAM: EXHAUST FANS

THE COL LAB ORAT IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #2024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD.
FREELAND, MI 48623

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TC JOB NO. 107270

SHEET TITLE

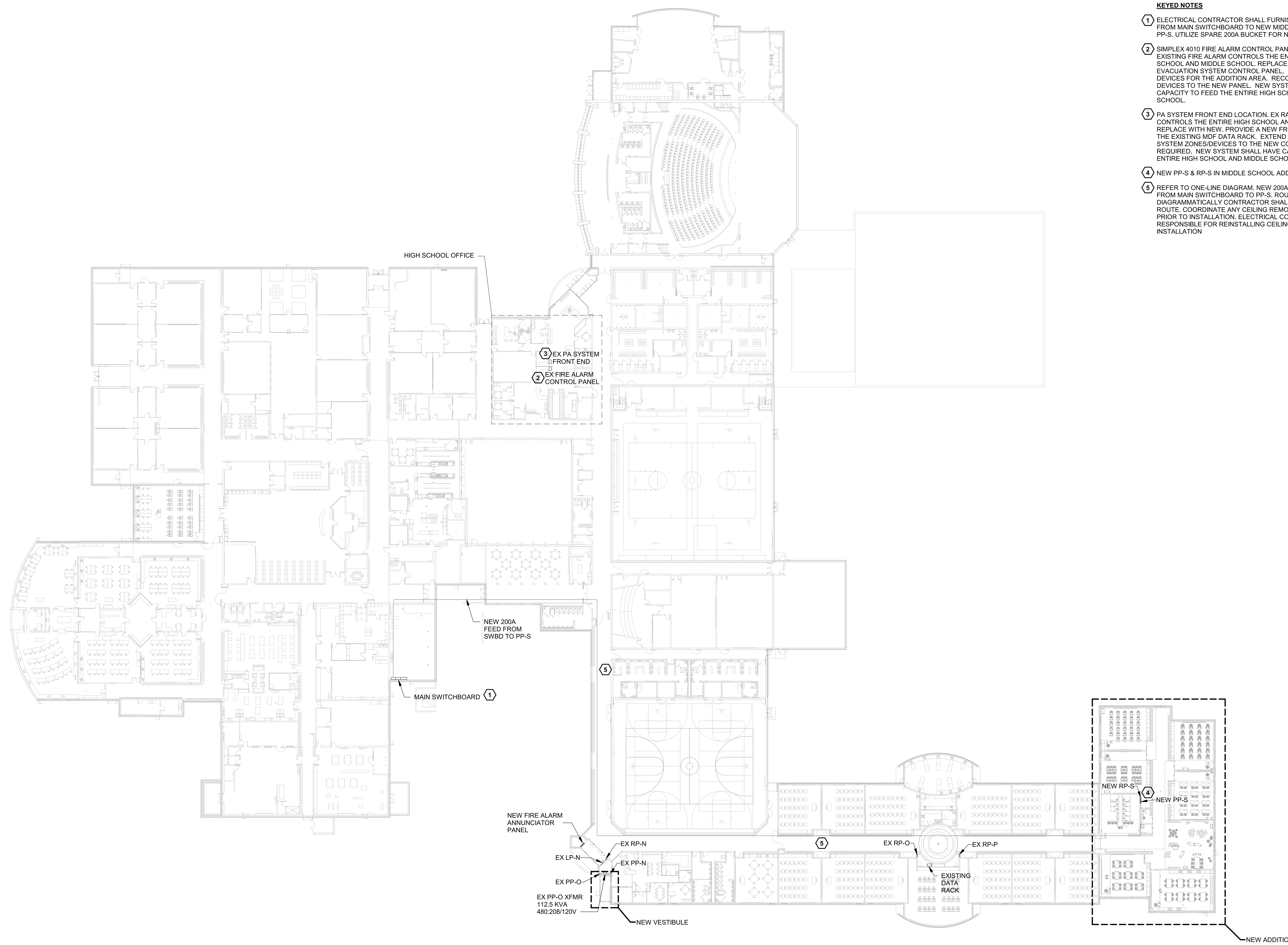
MECHANICAL CONTROLS

SHEET NO.

M8.11

KEYED NOTES

1. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL FEED FROM MAIN SWITCHBOARD TO NEW MIDDLE SCHOOL ADDITION PP-S. UTILIZE SPARE 200A BUCKET FOR NEW FEED.
2. SIMPLEX 4010 FIRE ALARM CONTROL PANEL LOCATION. EXISTING FIRE ALARM CONTROLS THE ENTIRE EXISTING HIGH SCHOOL AND MIDDLE SCHOOL. REPLACE WITH NEW VOICE EVACUATION SYSTEM CONTROL PANEL. UTILIZE TO FEED NEW DEVICES FOR THE ADDITION AREA. RECONNECT ALL EXISTING DEVICES TO THE NEW PANEL. NEW SYSTEM SHALL HAVE CAPACITY TO FEED THE ENTIRE HIGH SCHOOL AND MIDDLE SCHOOL.
3. PA SYSTEM FRONT END LOCATION. EX RAULAND SYSTEM CONTROLS THE ENTIRE HIGH SCHOOL AND MIDDLE SCHOOL. REPLACE WITH NEW. PROVIDE A NEW FRONT END PA SYSTEM IN THE EXISTING MDF DATA RACK. EXTEND THE EXISTING PA SYSTEM ZONES/DEVICES TO THE NEW CONTROLLER AS REQUIRED. NEW SYSTEM SHALL HAVE CAPACITY TO FEED THE ENTIRE HIGH SCHOOL AND MIDDLE SCHOOL.
4. NEW PP-S & RP-S IN MIDDLE SCHOOL ADDITION.
5. REFER TO ONE-LINE DIAGRAM. NEW 200A ELECTRICAL FEED FROM MAIN SWITCHBOARD TO PP-S. ROUTE IS SHOWN DIAGRAMMATICALLY CONTRACTOR SHALL FIELD VERIFY EXACT ROUTE. COORDINATE ANY CEILING REMOVAL WITH ARCHITECT PRIOR TO INSTALLATION. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR REINSTALLING CEILING TILES AFTER INSTALLATION



NORTH

OVERALL ELECTRICAL FLOOR PLAN

1/32" = 1'-0"

THE COL LAB ORAT IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #22024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107112

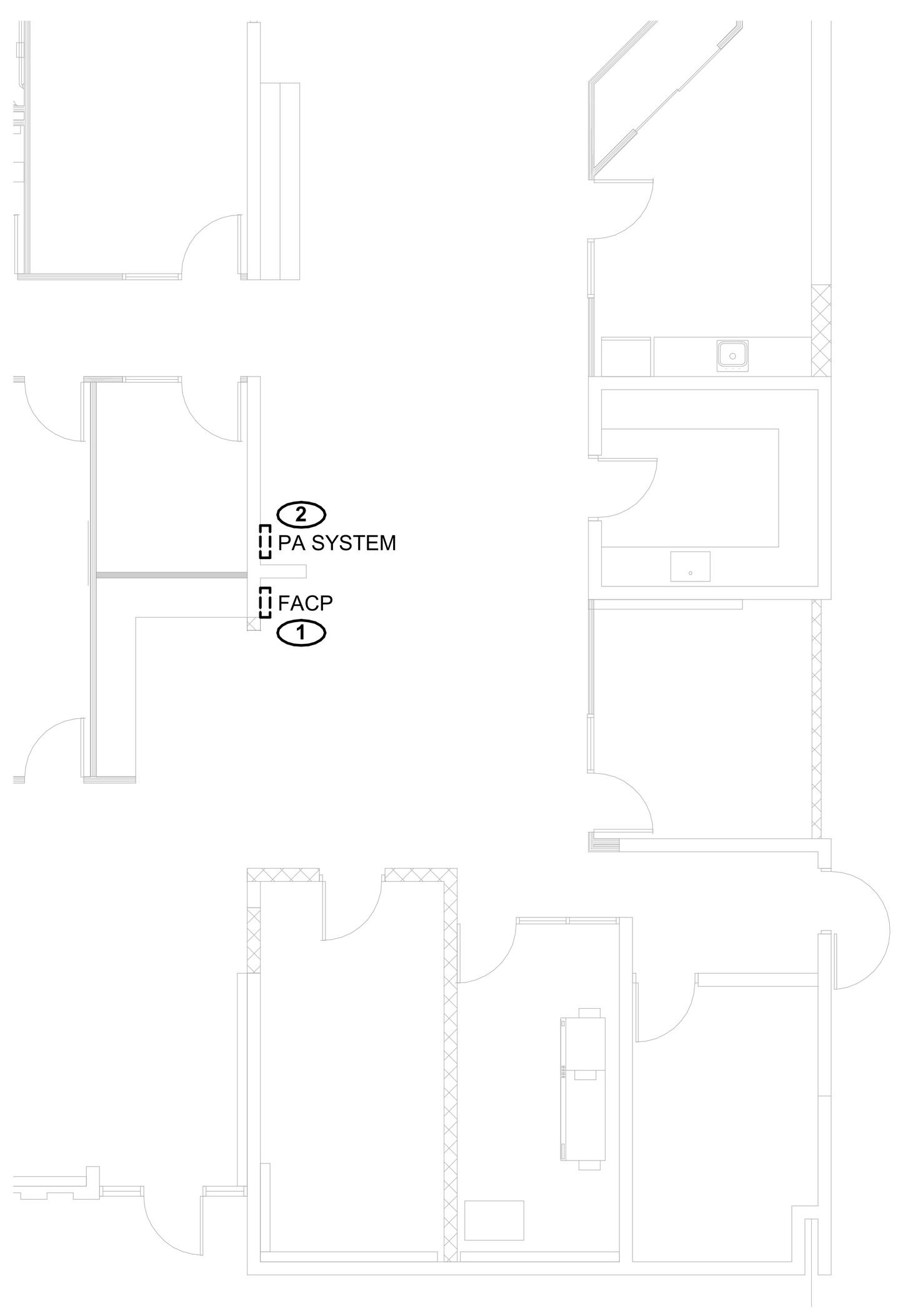
SHEET TITLE

OVERALL ELECTRICAL FLOOR PLAN

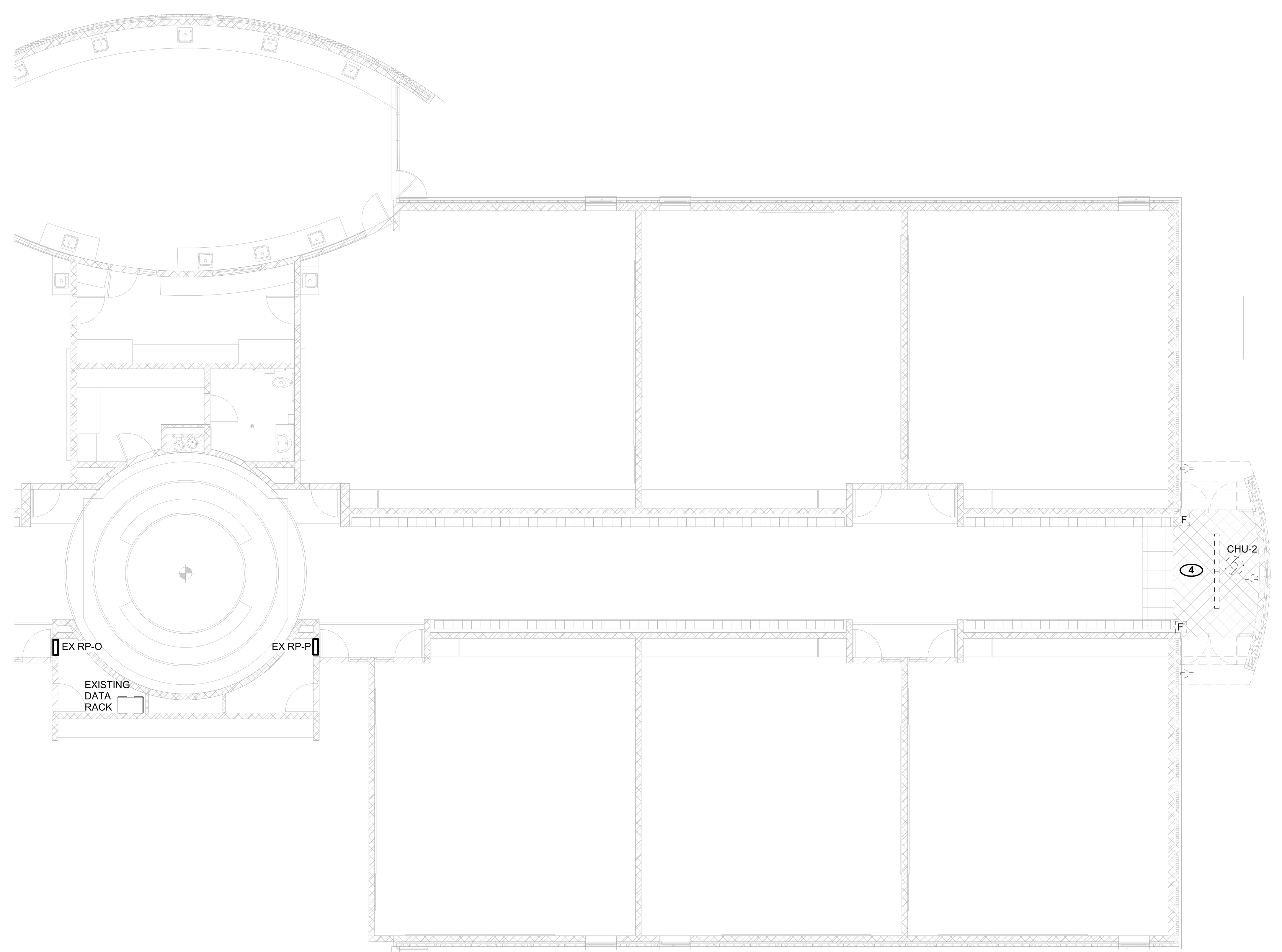
SHEET NO.

E1.01

NORTH
VESTIBULE - ELECTRICAL DEMOLITION PLAN
1/8" = 1'-0"



NORTH
FLOOR PLAN - HIGH SCHOOL OFFICE DEMOLITION
1/8" = 1'-0"



NORTH
FLOOR PLAN - ELECTRICAL DEMOLITION PLAN
1/8" = 1'-0"

GENERAL NOTES DEMOLITION

1. ELECTRICAL CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL FIXTURES, LAMPS, BALLASTS AND WIRING SHOWN FOR DEMOLITION.
2. ELECTRICAL CONTRACTOR SHALL REMOVE ALL BLANK COVERS ON BOXES TO CONFIRM THE TYPE OF WIRING, POWER OR LOW VOLTAGE. REMOVE ALL WIRING, BOXES IF EMPTY SHALL BE REMOVED FOR WALL PATCHING.
3. ALL ITEMS SHOWN DASHED SHALL BE REMOVED UNLESS OTHERWISE NOTED.
4. REMOVE ALL CONDUIT AND WIRING BACK TO SOURCE FOR ALL DEVICES SHOWN TO BE REMOVED UNLESS OTHERWISE NOTED.
5. REMOVE ALL FIRE ALARM DEVICES. AS NOTES EXISTING MAIN FIRE ALARM CONTROL PANEL AND ASSOCIATED DEVICES IN AREA WITH LIMITED DEMOLITION SHALL REMAIN. IDENTIFY, PROTECT AND MARK EXISTING CABLING.
6. REMOVE ALL WIRELESS ACCESS POINTS AND RETURN TO OWNER. REMOVE CABLING BACK TO THE SOURCE.
7. REMOVE ALL HANGERS, SUPPORTS AND STRAPS ASSOCIATED WITH ITEMS BEING REMOVED.
8. DEVICE LOCATIONS ARE SHOWN DIAGRAMMATICAL. FIELD CONFIRM EXACT LOCATION.
9. DASHED LINES SHOWN ON DEMOLITION SHEETS ARE ITEMS SHOWN TO BE REMOVED UNLESS NOTED OTHERWISE.
10. THE DESIGN INTENT IS TO COMPLETELY DISCONNECT AND REMOVE ALL ELECTRICAL SYSTEMS BACK TO THE SOURCE. INCLUDE ALL CONDUIT, HANGERS AND WIRING IN THE AREA OF REMODEL. ONLY SELECT ROUGH-INS WILL BE REUSED AS SPECIFICALLY NOTED.
11. ALL DEMOLITION ITEMS ARE NOT SHOWN CONTRACTORS SHALL FIELD VERIFY EXTEND AND QUANTITY OF DEMOLITION AND ALSO FULLY COORDINATE WITH THE ARCHITECTURAL AND MECHANICAL DRAWINGS.
12. REMOVE ALL EXISTING AP DEVICES, SAVE AND RETURN TO OWNER.
13. EXISTING FIRE ALARM SYSTEM SHALL REMAIN. REMOVE AND REINSTALL EXISTING FIRE ALARM DEVICES AS SHOWN ON DRAWINGS.

KEYED NOTES - DEMOLITION

(1) ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING FIRE ALARM CONTROL PANEL. ELECTRICAL CONTRACTOR SHALL RECONNECT ALL EXISTING DEVICES TO NEW FIRE ALARM PANEL.

(2) ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING PA SYSTEM PANEL. ELECTRICAL CONTRACTOR SHALL RECONNECT ALL EXISTING DEVICES TO NEW PA SYSTEM PANEL.

(3) ELECTRICAL CONTRACTOR SHALL DISCONNECT AND REMOVE EXISTING REMOTE ANNUNICATOR. REPLACE WITH NEW.

(4) DISCONNECT AND REMOVE EXISTING ELECTRICAL DEVICES, POWER CONNECTIONS, LIGHT FIXTURES ETC IN THE EXISTING AREA TO BE DEMOLISHED IN ORDER TO BUILDING THE NEW ADDITIONS. REMOVE ALL EXISTING CONDUCTORS, CONDUIT AND RELATED SUPPORTS BACK TO THE SOURCE.

THE COL LAB ORAT IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

STATE OF MICHIGAN
December 11, 2024
MAI #22024-9506

KEY PLAN
N.T.S.

PROJECT TITLE
FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

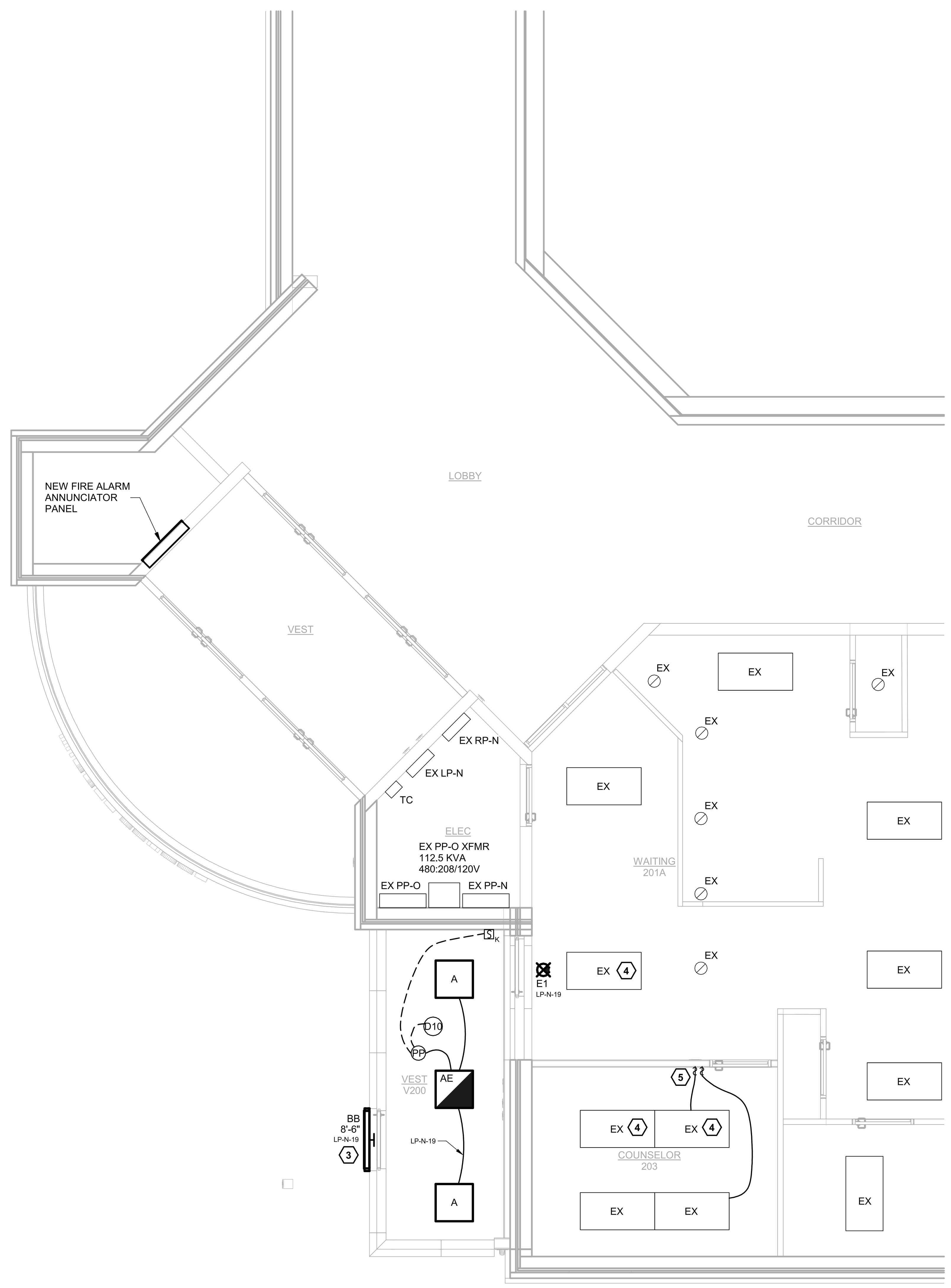
8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107112

SHEET TITLE
FIRST FLOOR - ELECTRICAL DEMOLITON PLANS

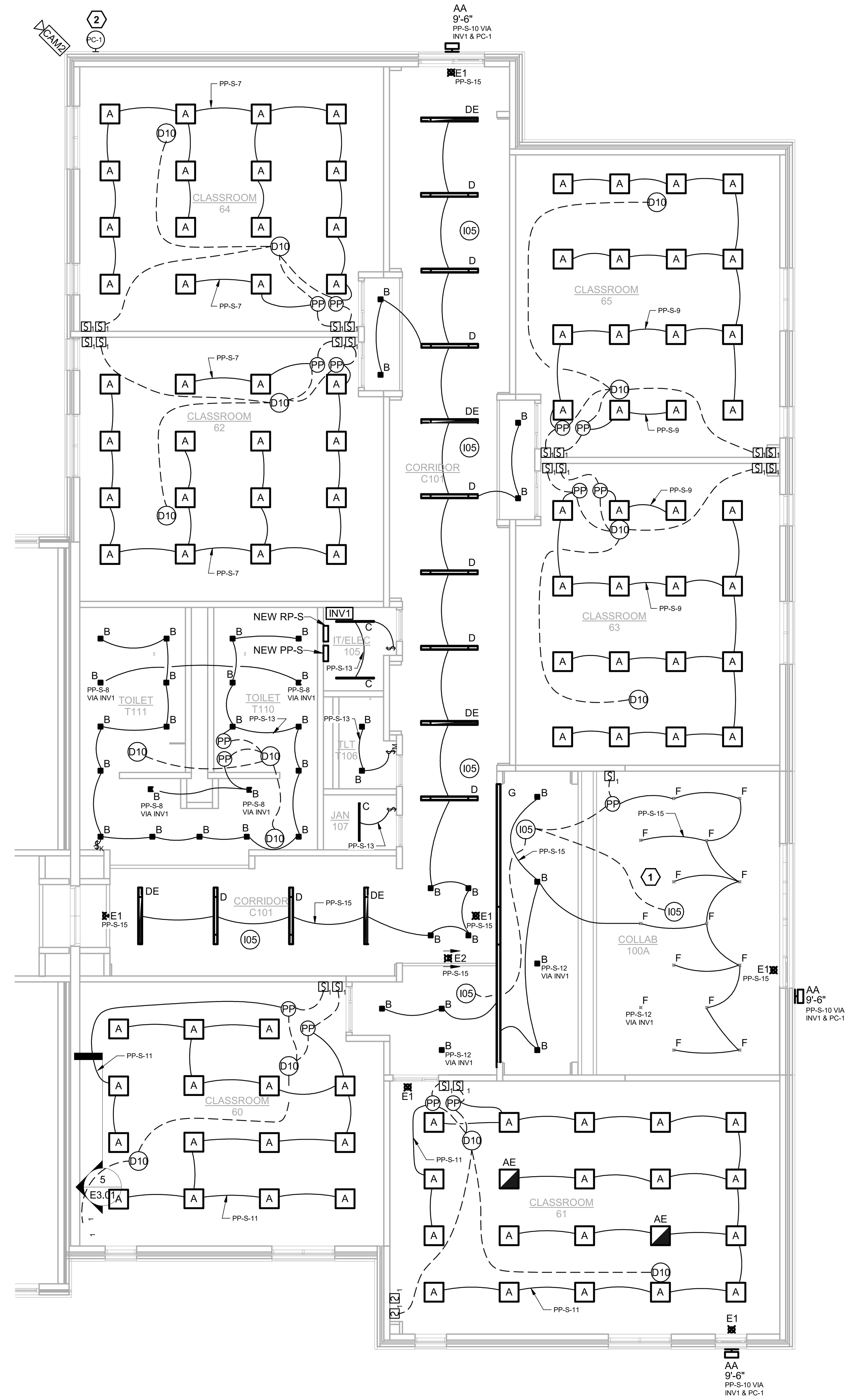
SHEET NO.
E1.02



NORTH

VESTIBULE FLOOR PLAN - LIGHTING

1/4" = 1'-0"



NORTH

ADDITION FLOOR PLAN - LIGHTING

1/8" = 1'-0"

GENERAL NOTES - LIGHTING

1. ALL LIGHTING CONTROL STATIONS LOCATED SHALL BE GRAY DEVICES WITH STAINLESS STEEL COVER PLATES. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL STAINLESS STEEL DECORA STYLE COVER PLATE.
2. ELECTRICAL CONTRACTOR SHALL NOT CORE THROUGH STRUCTURAL MEMBERS.
3. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, BOXES, LINE VOLTAGE WIRING, LINE VOLTAGE CONNECTIONS, SUPPORTS AS REQUIRED.

LIGHTING WIRING METHODS

1. EXIT LIGHTS SHALL OPERATE 24-7 AND ARE EQUIPPED WITH A BATTERY RATED FOR 90 MINUTES, WIRE THE EXIT LIGHT TO THE LOCAL LIGHTING CIRCUIT AHEAD OF ANY SWITCHING.
2. HALF-TONE SHADED FIXTURES REPRESENTS THE FIXTURE IS AN EMERGENCY LIGHT AND ARE EQUIPPED WITH A BATTERY RATED FOR 90 MINUTES.
3. CONFIRM LIGHT FIXTURE LAYOUT WITH THE ARCHITECTURAL REFLECTED CEILING PLAN AND ARCHITECTURAL DETAILS FOR LOCATION AND MOUNTING DETAILS.
4. MC CABLE IS ONLY ACCEPTABLE AS A FINAL WIRING CONNECTION TO RECESSED LIGHTING INSTALLED IN ACCESSIBLE CEILINGS. MC CABLE LENGTH SHALL NOT EXCEED 6'-0".
5. PROVIDE AN EQUIPMENT GROUNDING CONDUCTOR FOR LIGHTING CIRCUITS. THE USE OF THE RACEWAY FOR A GROUNDING PATH IS NOT ACCEPTABLE FOR THIS PROJECT.
6. SMALL ROOMS SUCH AS STORAGE ROOM, INDIVIDUAL TOILET ROOMS, JANITORS CLOSET, DATA CLOSET AND OFFICES SHALL HAVE WALL SWITCH TYPE OCCUPANCY SENSORS SWITCHES TO AUTOMATICALLY CONTROL THE LIGHTS AS NOTED AND SPECIFIED ON THE DRAWINGS.
7. OCCUPANCY SENSORS, POWER PACKS AND CONTROLS ARE SHOWN DIAGRAMMATICALLY. INFRARED SENSORS MUST REMAIN AT A MINIMUM OF 4'-0" AWAY FROM ANY MECHANICAL HEAT DIFFUSER TO ELIMINATE FALSE TRIPS. CIRCUIT LINES ARE SHOWN FROM SWITCHES TO LIGHT FIXTURES TO COMMUNICATE SWITCHING CONFIGURATION ONLY. ALL SENSORS, POWER PACKS AND WIRING MUST BE WIRED PER MANUFACTURER'S WIRING METHOD.
8. A SINGLE POWER PACK CAN HAVE MULTIPLE SWITCHES WIRED TO THE DEVICE PROVIDED THAT THE FIXTURES BEING CONTROLLED BY THESE SWITCHES ARE ON THE SAME CIRCUIT. TWO POWER PACKS ARE REQUIRED IF A SECOND CIRCUIT IS INTRODUCED. REFER TO MANUFACTURER'S WIRING METHODS. POWER PACKS AND OR OCCUPANCY SENSORS SHALL INCLUDE A HVAC RELAY AS SCHEDULED AND NOTED ON THE DRAWINGS FOR THE BUILDING AUTOMATION SYSTEM CONNECTION. BUILDING AUTOMATION WIRING SHALL BE COMPLETED AS PART OF THE TEMPERATURE CONTROL CONTRACTOR'S BID.
9. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR FIRE STOPPING PENETRATIONS THRU FIRE RATED WALLS FOR THEIR WORK.

KEYED NOTES

1. INSTALL PENDANT FIXTURE SO THE BOTTOM OF THE FIXTURE IS 1" ABOVE THE BOTTOM OF THE CEILING SYSTEM
2. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL PHOTOCELL TO CONTROL EXTERIOR LIGHT FIXTURES. PHOTOCELL SHALL OPERATE LIGHTS DUSK TILL DAWN.
3. FURNISH AND INSTALL LIGHT FIXTURE MOUNTED TO THE MULLION. FISH FRAME AS REQUIRED.
4. REMOVE AND REINSTALL LIGHT FIXTURES AS REQUIRED TO ACCOMMODATE THE REMOVAL AND INSTALLATION OF THE OFFICE WALL.
5. ELECTRICAL CONTRACTOR SHALL REUSE EXISTING LIGHTING CIRCUIT IN COUNSELORS OFFICE. FURNISH AND INSTALL NEW SWITCHES IN WALL. RECONNECT EXISTING LIGHT FIXTURES TO NEW SWITCHES.

THE
COL
LAB
ORAT
IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #22024-9506

KEY PLAN
N.T.S.

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FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

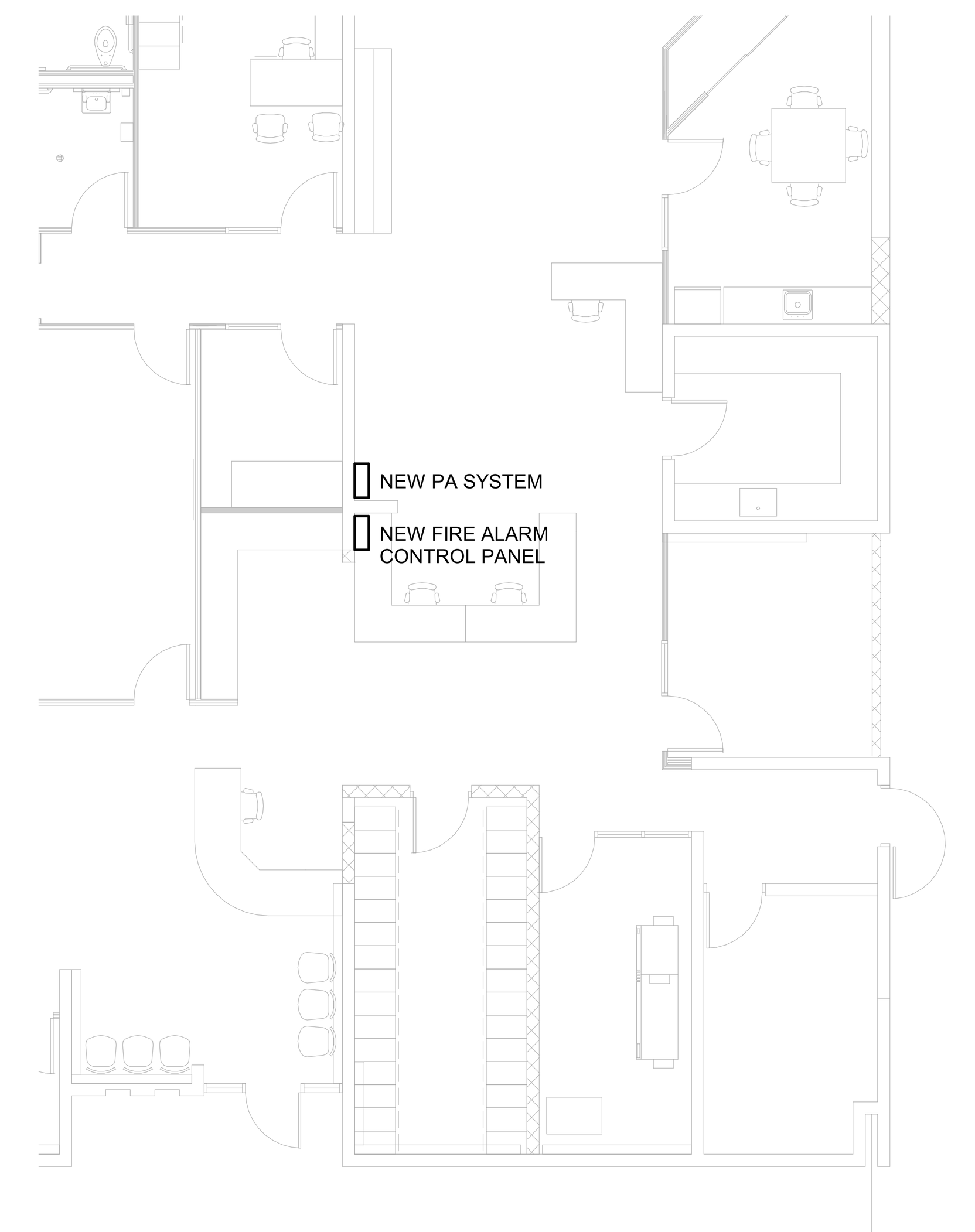
TC JOB NO. 107112

SHEET TITLE

FIRST FLOOR PLAN - VESTIBULE AND ADDITION LIGHTING

SHEET NO.

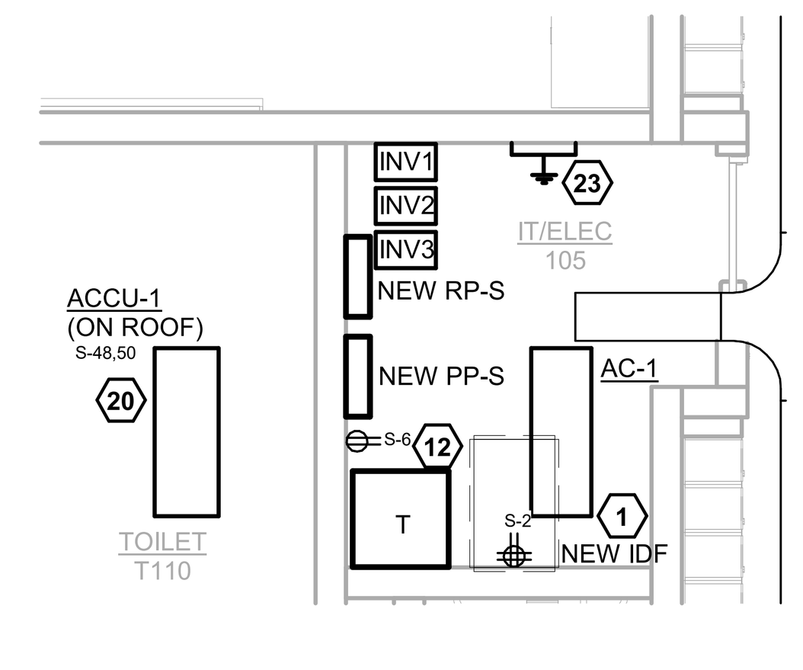
E2.01



NORTH

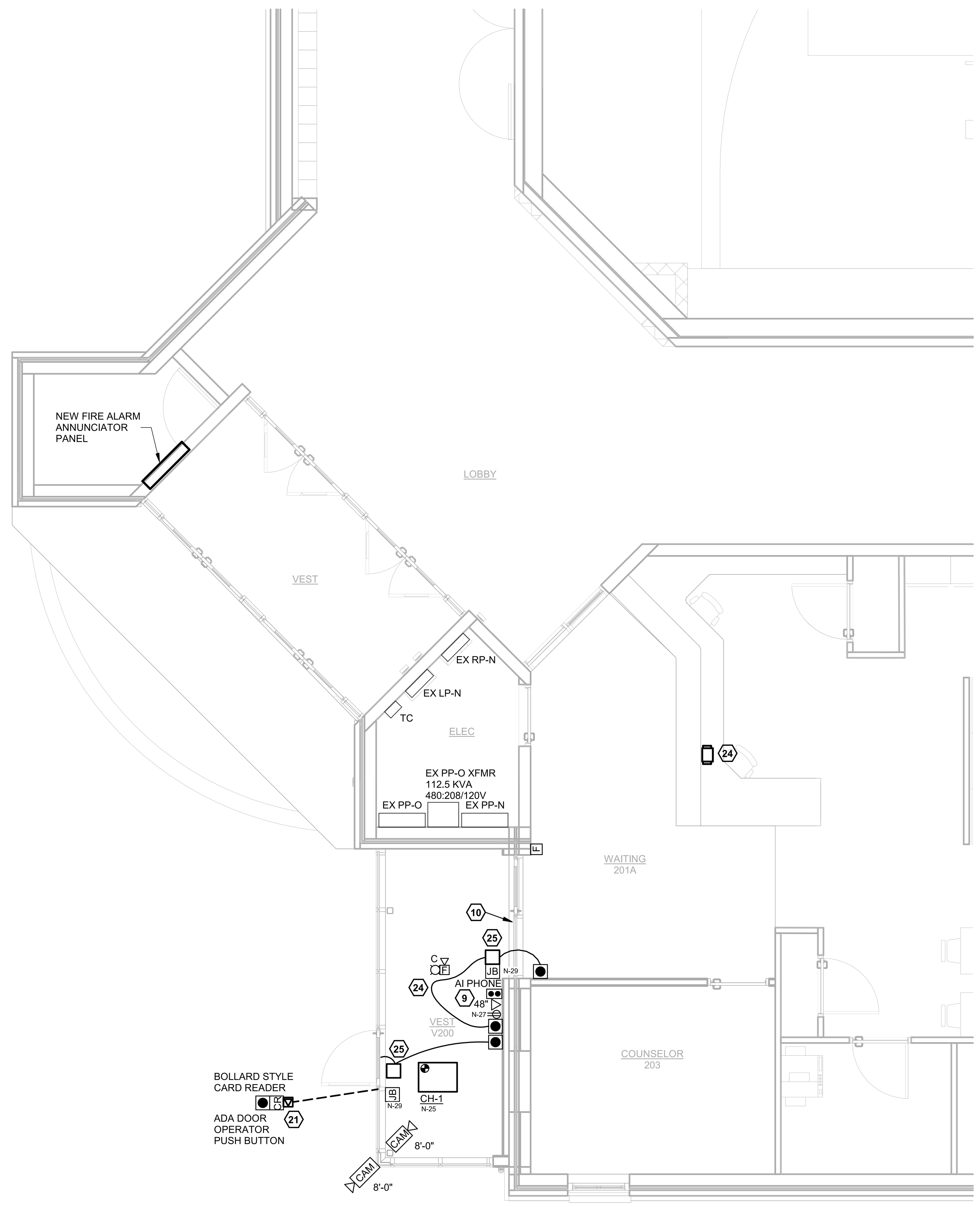
FLOOR PLAN - HIGH SCHOOL OFFICE POWER AND SYSTEMS

1/8" = 1'-0"



ENLARGED ELECTRICAL ROOM

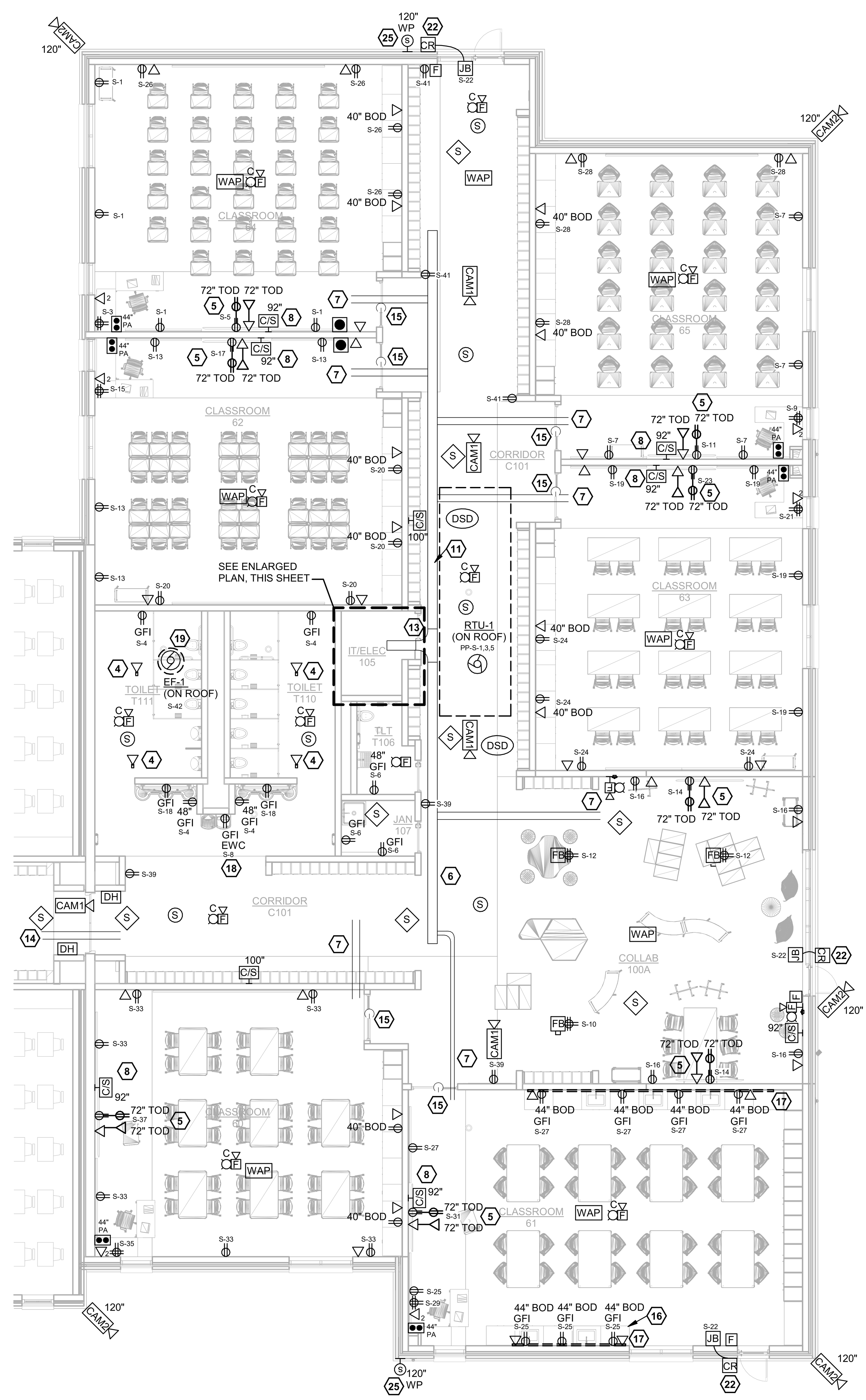
1/4" = 1'-0"



NORTH

VESTIBULE FLOOR PLAN - POWER AND SYSTEMS

1/4" = 1'-0"



NORTH

ADDITION FLOOR PLAN - POWER AND SYSTEMS

1/8" = 1'-0"

GENERAL NOTES

1. ALL RECEPTACLES LOCATED SHALL BE GRAY DEVICES WITH STAINLESS STEEL COVERPLATES.
2. ELECTRICAL CONTRACTOR SHALL NOT CORE THROUGH STRUCTURAL MEMBERS.
3. ELECTRICAL CONTRACTOR MAY REUSE EXISTING CIRCUITS WHEN POSSIBLE OTHERWISE PROVIDE NEW.
4. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW J-HOOKS AND SUPPORTS FOR ANY EXISTING CONDUITS AND LOW VOLTAGE CABLING LOCATED ABOVE THE CEILING.
5. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL ALL CONDUIT, BOXES, LINE VOLTAGE WIRING, LINE VOLTAGE CONNECTIONS, RECEPTACLES, SUPPORTS AS REQUIRED FOR A/V INSTALLATION.

POWER & SYSTEMS WIRING METHODS

1. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH RECEPTACLE CIRCUIT. SHARED NEUTRALS ARE NOT PERMITTED.
2. PROVIDE EQUIPMENT GROUNDING CONDUCTOR FOR EACH RECEPTACLE. PROVIDE A #12 MINIMUM GROUNDING CONDUCTOR IN EACH RACEWAY. THE USE OF METAL CONDUIT OR RACEWAY FOR A BOND PATH IS NOT ACCEPTABLE FOR THIS PROJECT. PROVIDE ISOLATED GROUND CONDUCTOR FOR THE A/V CIRCUITS AS NOTED AND SPECIFIED.
3. ALL POWER WIRING SHALL BE INSTALLED IN CONDUIT.
4. ALL NEW RECEPTACLES AND VOICE/DATA OUTLETS SHALL BE MOUNTED AT A MINIMUM OF 16" TO THE BOTTOM OF BOX ABOVE THE FINISHED FLOOR, UNLESS NOTED OTHERWISE. 18" IS ONLY AN ACCEPTABLE MOUNTING HEIGHT PENDING FOR MASONRY COARSE LINE INSTALLATION. COORDINATE ALL DEVICE HEIGHTS WITH ARCHITECT.
5. ELECTRICAL TRADES SHALL CONFIRM VOICE/DATA AND RECEPTACLE LOCATION WITH THE OWNER'S FURNITURE LAYOUTS AND INSTALLATION.
6. GENERAL PURPOSE DUPLEX RECEPTACLES SHALL BE WHITE, GRAY OR IVORY AS ADVISED BY THE ARCHITECT.
7. FIRE ALARM WIRING INSTALLED ABOVE THE FINISHED CEILING IS ACCEPTABLE TO USE THE FREE-AIR METHOD. USE "J" HOOKS OR "D" RINGS FOR SUPPORT METHODS. PROVIDE PLENUM RATED CABLE FOR THE ENTIRE PROJECT.
8. FIRE ALARM DEVICE MOUNTING HEIGHTS SHALL BE INSTALLED IN ACCORDANCE WITH NFPA 72 NATIONAL FIRE ALARM CODE, BUREAU OF FIRE SERVICES, 2003 MICHIGAN BARRIER FREE DESIGN MANUAL AND OTHER APPLICABLE CODES. MOUNTING HEIGHT REQUIREMENTS:

   · WALL MOUNTED AUDIO/VISUAL UNITS SHALL BE MOUNTED SUCH THAT THE ENTIRE LENS IS NOT LESS THAN 80" AND NOT GREATER THAN 96" ABOVE THE FINISHED FLOOR. CEILING MOUNTED DEVICES ARE ACCEPTABLE AND ARE NOTED ON THE DRAWINGS.

   · MANUAL PULL STATIONS SHALL BE MOUNTED 48" MAXIMUM TO THE TOP OF BOX FROM THE FINISHED FLOOR.
9. ALL BRANCH DEVICES SHALL USE A 4" SQUARE STEEL BOX WITH A SINGLE GANG TRIM RING FOR INTERIOR GYPSUM BOARD WALLS. MASONRY BOXES ARE ACCEPTABLE FOR MASONRY WALL INSTALLATION. NON-METALLIC BOXES ARE NOT ACCEPTABLE FOR THIS PROJECT.
10. J-HOOKS AND D-RINGS SHALL BE USED FOR THE LOW-VOLTAGE SYSTEM WIRING INCLUDING BUT NOT LIMITED TO: FIRE ALARM, VOICE, DATA, PA, LIGHTING CONTROL, ETC.
11. USE MINIMUM 1" CONDUIT SIZE FOR VOICE/DATA OUTLET DROPS. EXTEND THE CONDUIT TO THE ADJACENT CORRIDOR ACCESSIBLE CEILING SPACE.
12. MC CABLE IS ONLY ACCEPTABLE FOR FINAL LIGHT FIXTURE CONNECTIONS ABOVE THE LAY-IN CEILING ON THIS PROJECT, UNLESS SPECIFICALLY NOTED.
13. RECEPTACLES, VOICE AND DATA OUTLET LOCATIONS SHOWN IN THE OFFICES, WORKROOM, CONFERENCE/LOUNGE AREA ARE BASED ON WORKSTATION, CASEWORK SHOWN AND THE ANTICIPATED OFFICE FURNITURE ARRANGEMENTS. CONFIRM THE FINAL LOCATIONS DURING THE ROUGH-IN PHASE.
14. CAMERA LOCATIONS IN CORRIDORS SHALL HAVE A CAT-6E CABLE AT EACH LOCATION BACK TO DATA RACK.
15. COORDINATE FLOOR BOX LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.

KEYED NOTES

1. NEW DATA RACK. DATA RACK IS TO BE CONNECTED TO EXISTING DATA RACK LOCATED IN MIDDLE SCHOOL SUPPLY CLOSET NEAR EXISTING COMMONS.
2. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL DISCONNECT FOR RTU-1. RTU-1 HAS MAINTENANCE INSTALLED BY MANUFACTURER.
3. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL 24VDC TRANSFORMER FOR BATHROOM POWERED FIXTURES. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ALL CONNECTIONS TO BATHROOM EQUIPMENT.
4. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL JUNCTION BOX WITH CAT5E CABLING FOR VAPE DETECTORS IN BATHROOM CEILING.
5. REFER TO CLASSROOM MONITOR ELEVATION DRAWING, SHEET E3.01 FOR INSTALLATION INSTRUCTIONS.
6. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL 12" X 2" CABLE TRAY FOR NEW ADDITION.
7. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL (2) 1-1/2" CONDUIT SLEEVES FROM CABLE TRAY INTO CLASSROOM.
8. INSTALL CLOCK/SPEAKER COMBINATION ROUGH IN CENTERED OVER THE TV MONITOR
9. FURNISH AND INSTALL AI PHONE STATION WITH CAMERA AT 60" AFF.
10. PROVIDE 3/4" CONDUIT INTO DOOR FRAME FOR ELECTRONIC LOCKS.
11. TRANSITION CABLE TRAY UP AND OVER DUCT AT THIS APPX LOCATION.
12. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL TRANSFORMER HIGH ON WALL.
13. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL (2) HILTI CFS-MSL MODULAR FIRE SLEEVE OR EQUAL BETWEEN IT ROOM AND CORRIDOR.
14. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL (2) 1-1/2" CONDUITS FROM EXISTING MIDDLE SCHOOL CORRIDOR TO NEW MIDDLE SCHOOL ADDITION.
15. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL 1" CONDUIT FROM ACCESSIBLE CEILING SPACE INTO DOOR FRAME FOR FUTURE DOOR HARDWARE. STUB CONDUIT 1 FOOT INTO ACCESSIBLE CEILING SPACE.
16. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL QUAD RECEPTACLE FLUSH MOUNTED IN WALL ABOVE ADA DESK.
17. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL 4000 SERIES WIRE MOLD ALONG WALL. WIRE MOLD ONLY PERMITTED ABOVE DESK AS SHOWN.
18. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL GFI BREAKER IN RP-S FOR ELECTRIC WATER COOLER.
19. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL SINGLE POINT POWER CONNECTION TO EXHAUST FAN. DISCONNECT PROVIDED WITH UNIT.
20. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL DISCONNECT FOR ACCU-1. ELECTRICAL CONTRACTOR SHALL PROVIDE SINGLE POINT POWER CONNECTION TO ACCU-1. ELECTRICAL CONTRACTOR SHALL PROVIDE FINALIZED CONNECTIONS FROM ACCU-1 TO AC-1. WIRE PER MANUFACTURERS SPECIFICATIONS.
21. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL 1" CONDUIT FOR CARD READER IN BOLLARD. ELECTRICAL CONTRACTOR SHALL ROUTE CONDUIT FROM ACCESSIBLE CEILING SPACE IN VESTIBULE THROUGH DOOR FRAME, UNDERGROUND AND INTO THE BOLLARD. BOLLARD BY OTHERS.
22. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL CARD READER ROUGH-IN. REFER TO CARD READER DETAIL FOR INSTALLATION INSTRUCTIONS.
23. PROVIDE A #3.0 COPPER GROUNDING CONDUCTOR FROM NEW REBAR AND FROM NEW STEEL STRUCTURE ROUTED BACK TO THE EXISTING MAIN ELECTRICAL DISTRIBUTION PANEL MAIN GROUND BAR. REFER TO GROUND BAR DETAIL.
24. PROVIDE AIPHNE SYSTEM JP SERIES VIDEO INTERCOM. PROVIDE HANDSET WITH 7" TOUCHSCREEN ON DESK . PROVIDE DOOR STATION WITH CAMERA IN THE VESTIBULE. SYSTEM SHALL BE CAPABLE OF UNLOCKING THE VESTIBULE DOORS. WIRE PER MANUFACTURERS INSTALLATION INSTRUCTIONS
25. FURNISH AND INSTALL WEATHER PROOF SPEAKER AS PART OF THE PA SYSTEM.

THE COLLABORATIVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

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TC JOB NO. 107112

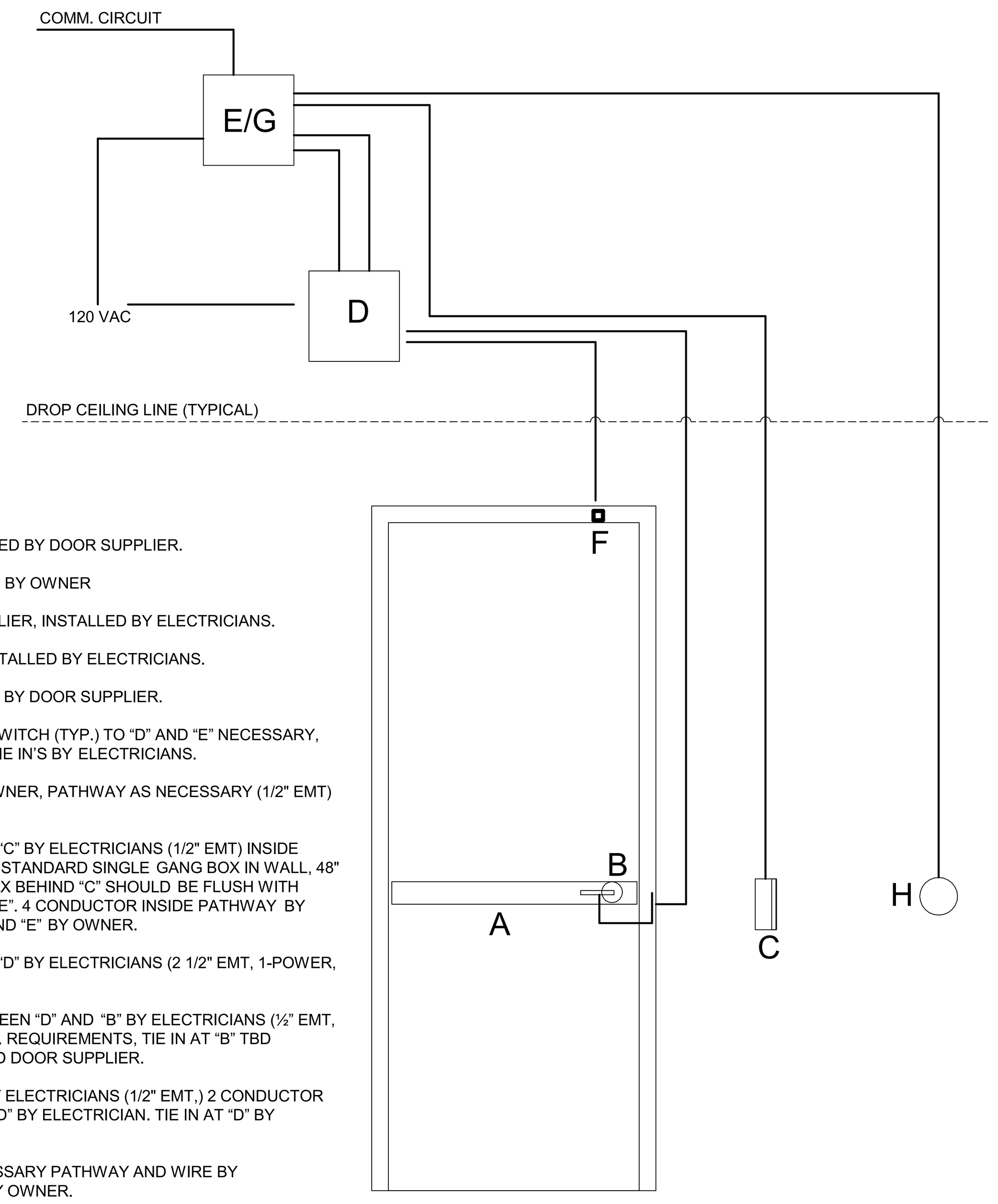
SHEET TITLE

FIRST FLOOR PLAN - VESTIBULE AND ADDITION POWER AND SYSTEMS

SHEET NO.

E2.02

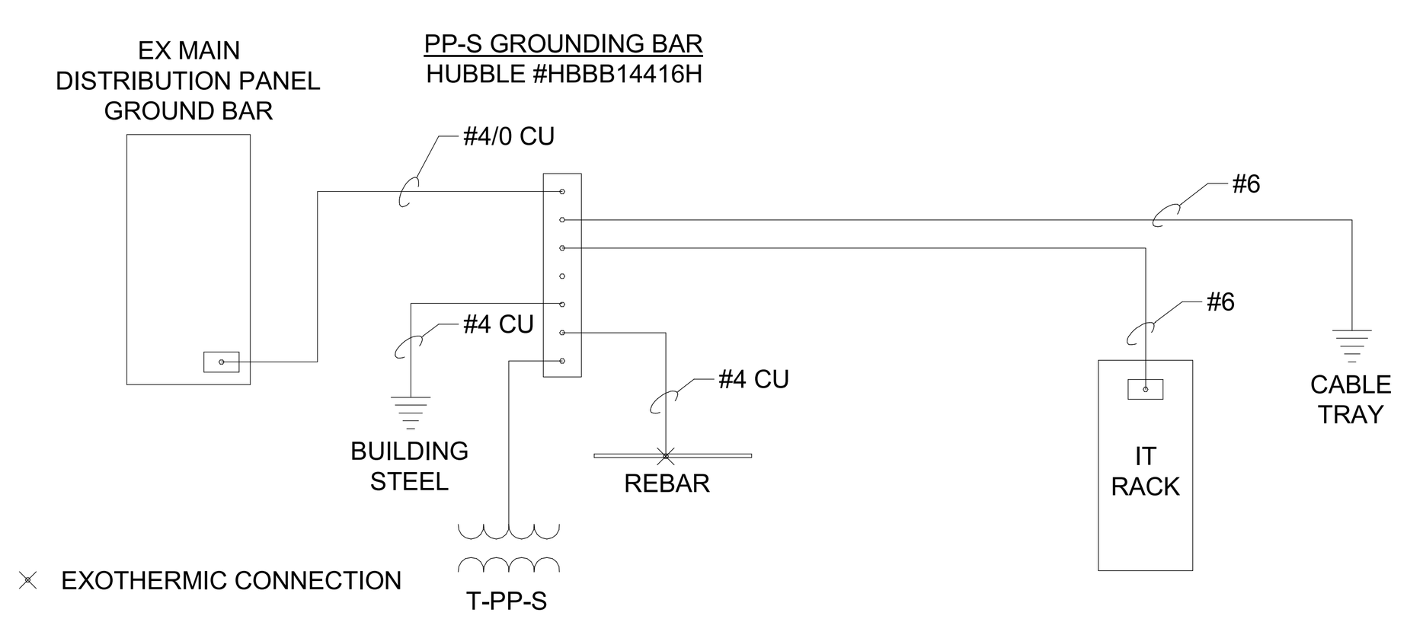
A EXIT DEVICE
B POWER TRANSFER (ELECTRIC CRASH BAR, STRIKE, OR LATCH)
C CARDSLOT/SHROUD/MOUNTING PLATE
D POWER SUPPLY
(ONLY NEEDED WITH CRASH BARS AND/OR DOORS WITH HANDICAP OPENERS)
E ENCLOSURE AND POWER SUPPLY
F DOOR POSITION SWITCH
G MASTER/DOOR CONTROLLER
H HANDICAP PUSH BUTTON



- “A, B” SUPPLIED AND INSTALLED BY DOOR SUPPLIER.
- “C” SUPPLIED AND INSTALLED BY OWNER
- “D” SUPPLIED BY DOOR SUPPLIER, INSTALLED BY ELECTRICIANS.
- “E” SUPPLIED BY OWNER, INSTALLED BY ELECTRICIANS.
- “F” SUPPLIED AND INSTALLED BY DOOR SUPPLIER.
- 120 VAC SUPPLY THROUGH SWITCH (TYP.) TO “D” AND “E” NECESSARY, CAN BE SAME CIRCUIT. ALL TIE IN’S BY ELECTRICIANS.
- “COMM CIRCUIT” TO “E” BY OWNER, PATHWAY AS NECESSARY (1/2" EMT) BY ELECTRICIANS.
- PATHWAY BETWEEN “E” AND “C” BY ELECTRICIANS (1/2" EMT) INSIDE WALL (TYP.) TERMINATES TO STANDARD SINGLE GANG BOX IN WALL, 48" ON CENTER, “BEHIND” “C”. BOX BEHIND “C” SHOULD BE FLUSH WITH EXTERIOR BUILDING SURFACE”. 4 CONDUCTOR INSIDE PATHWAY BY ELECTRICIAN. TIE IN AT “C” AND “E” BY OWNER.
- PATHWAY BETWEEN “E” AND “D” BY ELECTRICIANS (2 1/2" EMT, 1-POWER, 1-COMM.)
- PATHWAY AND WIRING BETWEEN “D” AND “B” BY ELECTRICIANS (½” EMT, WIRE BASED ON DOOR SPEC. REQUIREMENTS, TIE IN AT “B” TBD BETWEEN ELECTRICIANS AND DOOR SUPPLIER.
- PATHWAY FROM “D” TO “F” BY ELECTRICIANS (1/2" EMT,) 2 CONDUCTOR WIRING FROM “E” TO “F” VIA “D” BY ELECTRICIAN. TIE IN AT “D” BY OWNER”.
- INPUT FROM “H” TO “G” NECESSARY PATHWAY AND WIRE BY ELECTRICIAN, TIE IN AT “E” BY OWNER.

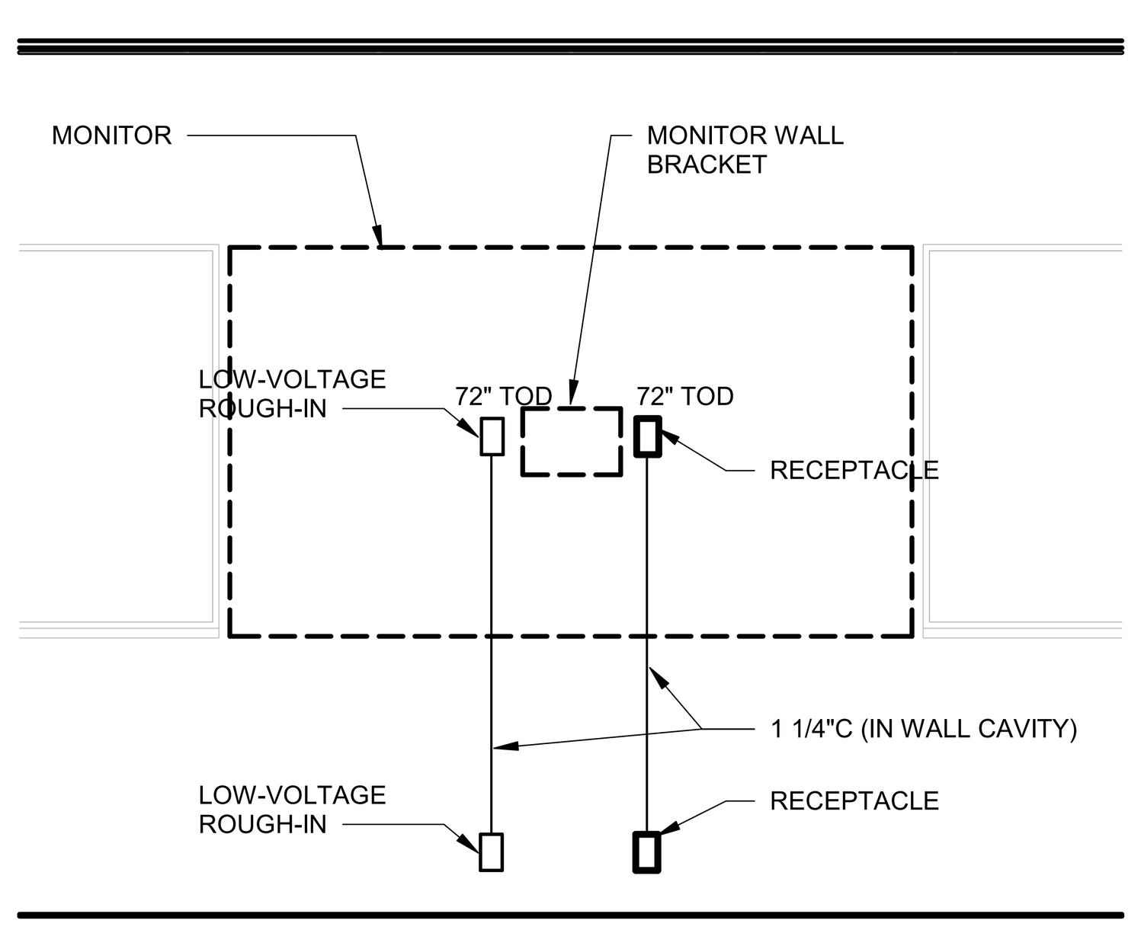
CARD READER SCHEMATIC

NO SCALE



× EXOTHERMIC CONNECTION
· MECHANICAL CONNECTION

GROUNDING/BONDING DIAGRAM



CLASSROOM MONITOR ELEVATION

1/2" = 1'-0"

LIGHTING CONTROL STATION SCHEDULE

S_1 1 CHANNEL. ON/OFF PLUS RAISE/LOWER CONTROL. GRAY DEVICE.
ACUITY #NPODMA-DX-GY

S_2 2 CHANNEL. ON/OFF PLUS RAISE/LOWER CONTROL. GRAY DEVICE.
ACUITY #NPODMA-2P-DX-GY

S LOW VOLTAGE ON/OFF BUTTON SWITCH. GRAY DEVICE
ACUITY #NPODMA-GY

S_M DUAL TECHNOLOGY LIGHTING CONTROL STATION. GRAY DEVICE.
ACUITY #NWSX-PDT-LV-GY

S_{MD} DUAL TECHNOLOGY DIMMING CONTROL STATION WITH OCCUPANCY SESNOR.
ACUITY #NWSX-PDT-LV-DX-GY

S MANUAL ON/MANUAL OFF SINGLE SWITCH CONTROL STATION

LIGHTING CONTROL EXECUTIVE SUMMARY

CORRIDORS
KEYED SWITCH MANUAL ON/OFF, RAISE/LOWER. SEPARATE CONTROL OF DOWNLIGHTS AND LINEARS. MOTION AUTO ON TO LAST SETTING. NO ACTIVITY.

CLASSROOMS
MANUAL ON/OFF, RAISE/LOWER. SEPARATE CONTROL OF MAIN CLASSROOM LIGHTS AND TEACHER BOARD LIGHTING.
AUTO ON TO 50%. AUTO OFF AFTER 20 MIN. NO ACTIVITY.

EXTERIOR BUILDING MOUNT LIGHTING
ALL LIGHTS TO BE INSTALLED WITH INTEGRATED PHOTOSENSORS. ALL FIXTURES SHALL WIRELESSLY COMMUNICATE TO TURN ON AND OFF SYNCHRONOUSLY. AUTO ON AT DUSK, OFF AT 11PM. AUTO ON AT 6AM, OFF AT DUSK.

RESTROOMS
AUTOMATIC ON TO 100% UPON DETECTING ACTIVITY. AUTOMATIC OFF AFTER 20 MINUTES OF NO ACTIVITY. LOCAL KEYED SWITCH CONTROL.

EMERGENCY LIGHTING BATTERY INVERTER SCHEDULE

INV1, INV2, INV3: MIRCO POWER WAVE 200 WATT EMERGENCY LIGHTING BATTERY INVERTER, 90 MINUTES BACKUP POWER AT FULL LOAD, UL924, WALL MOUNT, 277V OUTPUT VOLTAGE, SELF TEST OR EQUAL

FURNISH (1) 200W BATTERY FOR EACH CIRCUIT
(3) TOTAL

LOW VOLTAGE SYSTEM NOTES

DIVISION 26000 REQUIREMENTS

▽ 1"C TO ACCESSIBLE CEILING SPACE WITH 4" SQUARE EXTRA DEEP BOX AND SINGLE GANG TRIM RING.
▼ 1"C TO ACCESSIBLE CEILING SPACE WITH 4" SQUARE EXTRA DEEP BOX AND SINGLE GANG TRIM RING.
W▼ 1"C TO ACCESSIBLE CEILING SPACE WITH 4" SQUARE EXTRA DEEP BOX AND SINGLE GANG TRIM RING.
TV▼ 1"C TO ACCESSIBLE CEILING SPACE WITH 4" SQUARE EXTRA DEEP BOX AND SINGLE GANG TRIM RING.
CR 3/4"C TO ACCESSIBLE CEILING SPACE WITH 4" SQUARE EXTRA DEEP BOX AND SINGLE GANG TRIM RING.
CAM 1" C TO ACCESSIBLE CEILING SPACE WITH 4" SQUARE EXTRA DEEP BOX AND SINGLE GANG TRIM RING.

FLOOR BOX SCHEDULE

FB 6" ROUND POKE-THROUGH FLOOR BOX 3 HOUR RATED. (1) DUPLEX RECEPTACLE, (2) DATA JACKS. 1 1/4" CONDUIT CONNECTION FOR A/V/DATA INCLUDE SUB BASE PLATE AND COVERPLATE. COVERPLATE SHALL BE SILVER ANODIZED COLOR.
LEGRAND #6ATC2PAVBK - 6MAAP2A - 1125CHA OR EQUAL BY HUBBELL

LIGHT FIXTURE SCHEDULE

A DAY-BRITE RECESSED FLUXPANEL LED GEN 2 FLAT PANEL, 2'X2', 3800 LUMEN, 80 CRI, 4000K COLOR TEMPERATURE, UNIVERSAL VOLTAGE, 0-10V DIMMING TO 1%, WITH DAYLIGHT HARVESTING
DAY-BRITE# 2FPZ-38L-840-2-INV-DIM

AE SAME AS TYPE A EXCEPT WITH 10 WATT BATTERY BACKUP

B INTENSE LIGHTING 4" SQUARE DOWNLIGHT, 19 WATT, 4000K COLOR TEMPERATURE, 80 CRI, 0-10V DIMMING TO 1%, 277V, FL OPTIC
INTENSE# SD4DS-L3-40-ED10V1-27-FL

C DAY-BRITE FLUXSPACE 4' LINEAR, 4000 LUMEN, STANDARD EFFICANCY, 80 CRI, 4000K COLOR TEMPERATURE, ROUND FROSTED LENS, UNIVERSAL VOLTAGE, 120-277V, DIMMING (0-10V), CHAIN HANG KIT
DAY-BRITE# FLP-4-40L-840-R-UNV-DIM

D LEDALITE TRUGROOVE 6 FOOT LINEAR, RECESSED LINEAR, PERFORMANCE SYMMETRIC, LED SOURCE, 90 CRI, 4000K COLOR TEMPERATURE, 4000 LUMEN, FLUSH MESOOPTICS LENS, STANDARD HOUSING, T GRID, 6 FOOT LENGTH, 120-277 VOLT, 0-10V 1% DIMMING, STANDARD WHITE TRIM FINISH
LEDALITE# 39-0-1-L-940-40-Q-S-1-06-D-W

DE SAME AS TYPE D EXCEPT WITH 10 WATT BATTERY PACK

E1 EMERGENSEE LIGHTING EXIT SIGNAGE, SEEXREL, SINGLE FACE, RED COLOR, MIRROR PANEL, ALUMINUM TRIM, CEILING MOUNT, 277 VOLT
EMERGENSEE# SEEXREL-1-R-M-A-277V

E2 EMERGENSEE LIGHTING EXIT SIGNAGE, SEEXREL, DOUBLE FACE, RED COLOR, MIRROR PANEL, ALUMINUM TRIM, CEILING MOUNT, 277 VOLT
EMERGENSEE# SEEXREL-2-R-M-A-277V

F INTENSE LIGHTING 6" CYLINDER DOWNLIGHT, 18 WATT, 4000K COLOR TEMPERATURE, 82 CRI, 0-10V DIMMING TO 1%, FLOOD LIGHT, BLACK FINISH, WHITE REFLECTOR, 36" PENDANT CUT TO LENGTH
INTENSE# GC6DR-L4-40-ED10V1-FL-B-W-P24

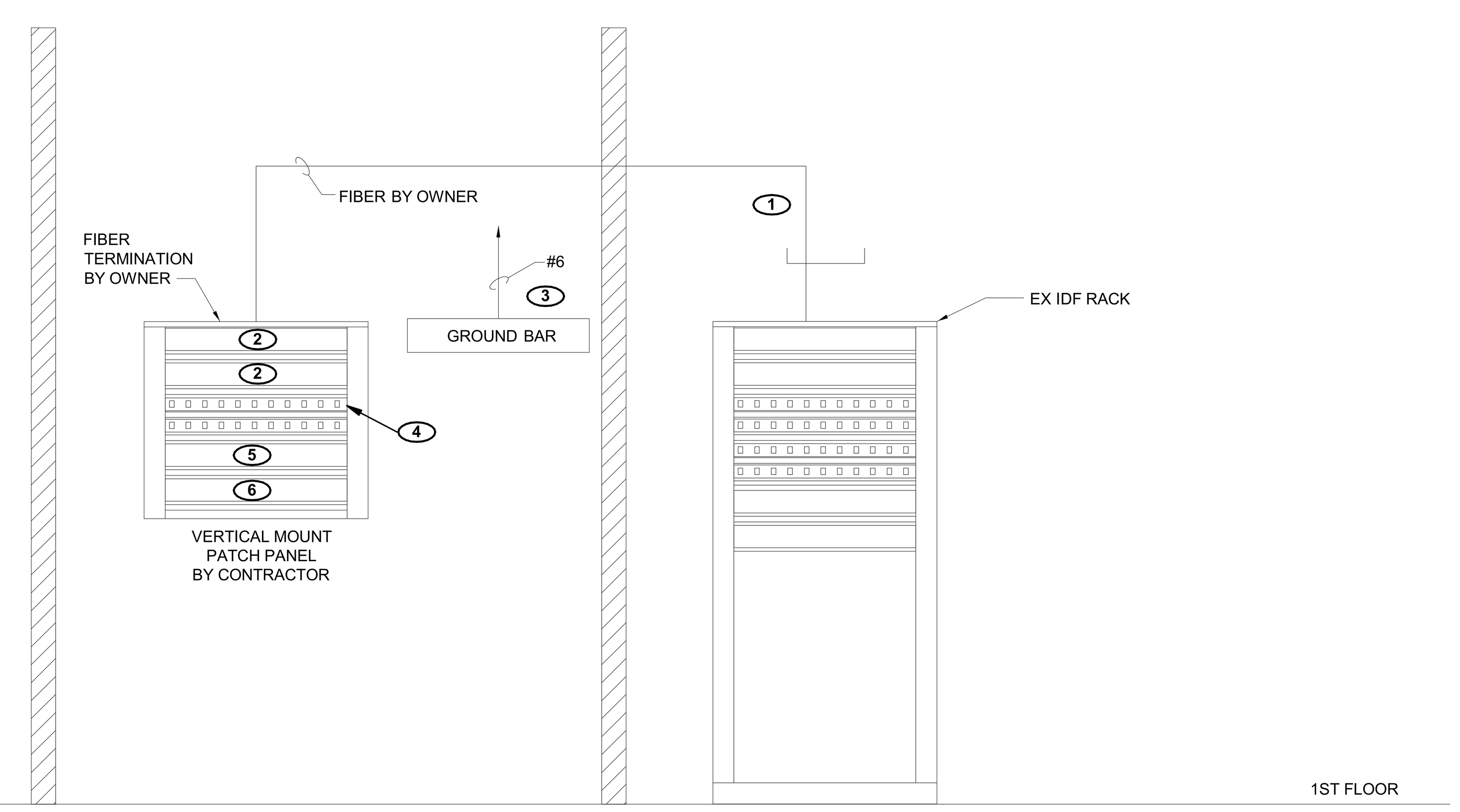
G LEDALITE TRUGROOVE 30 FOOT CONTINUOUS RUN LINEAR, RECESSED LINEAR, PERFORMANCE SYMMETRIC, LED SOURCE, 90 CRI, 4000K COLOR TEMPERATURE, 1500 LUMEN, FLUSH MESOOPTICS LENS, STANDARD HOUSING, T GRID, 30 FOOT CONTINUOUS RUN LENGTH, 120-277 VOLT, 0-10V 1% DIMMING, STANDARD WHITE TRIM FINISH
LEDALITE# 39-0-1-L-940-15-Q-S-1-30-D-W

AA GARDCO GEOFORM WEDGE SMALL, 4000 LUMENS, 80 CRI, 4000K COLOR TEMPERATURE, TYPE 2 DISTRIBUTION, 120-277 VOLT, BLACK FINISH
GARDCO# GWS-A03-840-T2M-UNV-BK

BB 3'-0" WALL MOUNT WET LOCATION LISTED LINEAR. 900 LM/FT, 40 WATTS, 4000K, 120-277V, 0-10V DIMMING. FORWARD THROW. CUSTOM RAL COLOR.
VISA #OW2480 L40K-H MVOLT FT

MIDDLE SCHOOL ADDITION IT/ELEC 105

MIDDLE SCHOOL



DATA RISER

NO SCALE

GENERAL NOTES

1. FURNISH ALL PATCH PANELS FOR ALL DATA AND SECURITY CABLES. ALL DATA AND SECURITY PATCH CABLES SHALL BE FURNISHED AND INSTALLED BY THE OWNER.CABLES SHALL BE TERMINATED TO SEPARATE PATCH PANELS.

   GENERAL - BLUE

2. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TERMINATIONS AND TESTING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL LABELING AT RACK AND JACK LOCATIONS. COORDINATE WITH OWNER.
4. REFER TO THE SPECIFICATION FOR FURTHER DETAIL.
5. ALL LOW VOLTAGE CABLING SHALL BE INSTALLED IN CONDUIT IN EXPOSED FINISHED CEILING AREAS OR ABOVE NON ACCESSIBLE CEILINGS. CONDUIT SHALL BE PAINTED WITH THE STRUCTURE. WHEN EXPOSED IN FINISHED SPACES. UTILIZE CABLE TRAY WHENEVER POSSIBLE.
6. ALL LOW VOLTAGE CABLING SHALL BE PLENUM RATED.

LOW VOLTAGE SCHEDULE
PROVIDE AS SCHEDULED OR EQUAL

IDF

12U LOW PROFILE HORIZONTAL LOCKABLE WALL RACK.
EATON TRIPP LITE #SRWF5U36

RACK SHALL BE CONSTRUCTED OF ALUMINUM AND BLACK FINISH. RACK SHALL ALSO INCLUDE GROUND BAR, GROUND CONNECTION KIT W/ 1/0 LUG, AND 48 PORT ALL METAL MODULAR PATCH PANELS. 48 PORT PATCH PANEL SHALL INCLUDE TYPE RJ45 TYPE MODULAR JACKS.
BELDEN #XDR8419-3122836

48 PORT CAT6A PATCH PANEL
BELDEN #RVAPPF1U48BK

COPPER

CAT6A CABLE AND TERMINATIONS
BELDEN #10GXW13 CAT 6A PLENUM
BELDEN #RVAMJKUxx-S1 CAT 6A JACK
BELDEN #RVAFFPUEW18-S1 CAT 6A FLEX PLUG (FOR WAP)

CAT6 CABLE AND TERMINATIONS
BELDEN #2413 CAT 6 PLENUM
BELDEN #RV6MJKUxx-S1 CAT 6 JACK

KEYED NOTES

(1) OWNER SHALL FURNISH, INSTALL AND TERMINATE A NEW SINGLE MODE FIBER CABLE ROUTED FROM THE IDF TO THE IDF. UTILIZE LC-LC CONNECTORS.
(2) FURNISH AND INSTALL COPPER GROUND BAR ON INSULATED STAND OFFS AT APPROXIMATELY 8'-0" ON WALL OF ROOM. BOND TO EACH RACK AND CABLE TRAY WITH #6 THHN GREEN JACKETED CONDUCTOR, REFER TO GROUNDING DETAIL.
(3) FURNISH AND INSTALL 48 PORT PATCH PANEL(S). PROVIDE QUANTITY AS REQUIRED TO MEET DRAWING DATA CABLING REQUIRED QUANTITIES.
(4) TERMINATE FIBER AT NETWORK SWITCH. SWITCH BY OTHERS.
(5) PATCH PANEL RESERVED FOR SECURITY SYSTEM. FURNISHED AND INSTALLED BY OTHERS.

ELECTRICAL SYMBOLS

A 2'x2' FIXTURE TYPE INDICATED, TYPE A FIXTURE SYMBOL
HALF SHADED FIXTURES ARE EMERGENCY FIXTURES
A 1'x4' LED FIXTURE TYPE INDICATED
DOWNLIGHT OR SURFACE FIXTURE
A WALL MOUNTED FIXTURE
E EXIT LIGHT
E MOUNTED EXIT LIGHT
DUPLEX RECEPTACLE
QUADPLEX RECEPTACLE
SPECIAL RECEPTACLE
GFI GFI RECEPTACLE
S SINGLE POLE SWITCH
S_M WALL MOTION SWITCH SENSOR
S_{MD} COMBINATION WALL MOTION, DIMMING SWITCH SENSOR
S LOW VOLTAGE BUTTON SWITCH (REFER TO CONTROL SUMMARY FOR BUTTON CONFIGURATION)
DEVICE CONNECTION
NON-FUSED DISCONNECT SWITCH
FEED THRU GFI TEST STATION
SINGLE PHASE MOTOR
PANELBOARD
FB FLOOR BOX
PS DAYLIGHT PHOTO SENSOR
JB JUNCTION BOX
CR CARD/PROX READER
PR POWER RELAY
PP POWER PACK RELAY
ACUITY #NPP16 D SERIES
EBS UL 924 DEVICE
POWER FEED CONNECTION
D10 DUAL TECH, 360°, CEILING MOUNTED OCCUPANCY SENSOR .
ACUITY #CM-PDT-9-RJB-AR OR EQUAL
D20 2000 SQUARE FOOT CEILING MOUNTED 360 DEGREE DUAL TECHNOLOGY OCCUPANCY SENSOR. ACUITY #NCM PDT 10 RJB AR OR EQUAL
I05 PASSIVE INFRARED 360° 500SF CEILING MOUNTED OCCUPANCY SENSOR WITH BAS RELAY WITH BAS RELAY AND DAYLIGHT SAVING
ACUITY #CM-PIR-11-R OR EQUAL
I10 1000SF INFRARED CEILING SENSOR
U10 1000SF ULTRASONIC CEILING SENSOR
DHM DUAL TECH, 360 DEGREE, CEILING MOUNTED OCCUPANCY SENSOR. HIGH CEILING MOUNT.
S SOUND SYSTEM SPEAKER 10.75x10.75"x3.75" DEEP SQUARE ROUGH IN, 1" CONDUIT TO ACCESSIBLE CEILING SPACE
DATA OUTLET 4" SQUARE ROUGH IN, DOUBLE GANG TRIM RING, DATA AND PANIC, 1" CONDUIT TO ACCESSIBLE CEILING SPACE
CAM1 SECURITY CAMERA FURNISHED BY OWNER. PROVIDE CAT6 CABLE COILED ABOVE CEILING SPACE TERMINATE IN COOKIE WITH DATA JACK
CAM2 SECURITY CAMERA FURNISHED BY OWNER. PROVIDE SINGLE GANG ROUGH IN WITH 1 CAT6 CABLE AND DATA JACK
C/S CLOCK/SPEAKER BOX INSTALL 4" SQUARE ROUGH IN 1" CONDUIT STUB TO ACCESSIBLE CEILING SPACE
PHONE OUTLET
TV VIDEO/TV OUTLET 4" SQUARE ROUGH IN, SINGLE GANG TRIM RING, 1" CONDUIT TO ACCESSIBLE CEILING SPACE
DATA OUTLET 4" SQUARE ROUGH IN, SINGLE GANG TRIM RING, 1" CONDUIT TO ACCESSIBLE CEILING SPACE 1 CATE6E WITH JACK AND FACEPLATE
2 DATA OUTLET 4" SQUARIE ROUGH IN, SINGLE GANGE TRIM RING, 1" CONDUIT TO ACCESSIBLE CEILING SPACE, 2 CATE 6E WITH JACKS AND FACEPLATE
DATA OUTLET FOR VAPE SENSOR PROVIDE CATE 6E TERMINATED IN A SURFACE BLOCK "BISCUIT JACK" WITH A 10' MAINTENANCE LOOP
WAP WIRELESS ACCESS POINT PROVIDE CAT6E TERMINATED IN A SURFACE BLOCK "BISCUIT JACK" WITH A 10' MAINTENANCE LOOP
DSD DUCT SMOKE DETECTOR
F FIRE ALARM PULL STATION
S SMOKE DETECTOR
F FIRE ALARM STROBE ONLY
F FIRE ALARM SPEAKER/STROBE COMBO
AC ABOVE COUNTER
AFF ABOVE FINISH FLOOR
BOD BOTTOM OF DEVICE
EC ELECTRICAL CONTRACTOR
EX EXISTING
GFI GROUND FAULT CIRCUIT INTERRUPTER
IDF INTERMEDIATE DATA FRAME
MDF MAIN DATA FRAME
TOD TOP OF DEVICE
WP WEATHER PROOF
WR WEATHER RESISTANT

THE
COL
LAB
ORAT
IVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

STATE OF MICHIGAN
December 11, 2024
MAI #22024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107112

SHEET TITLE

ELECTRICAL INFORMATION

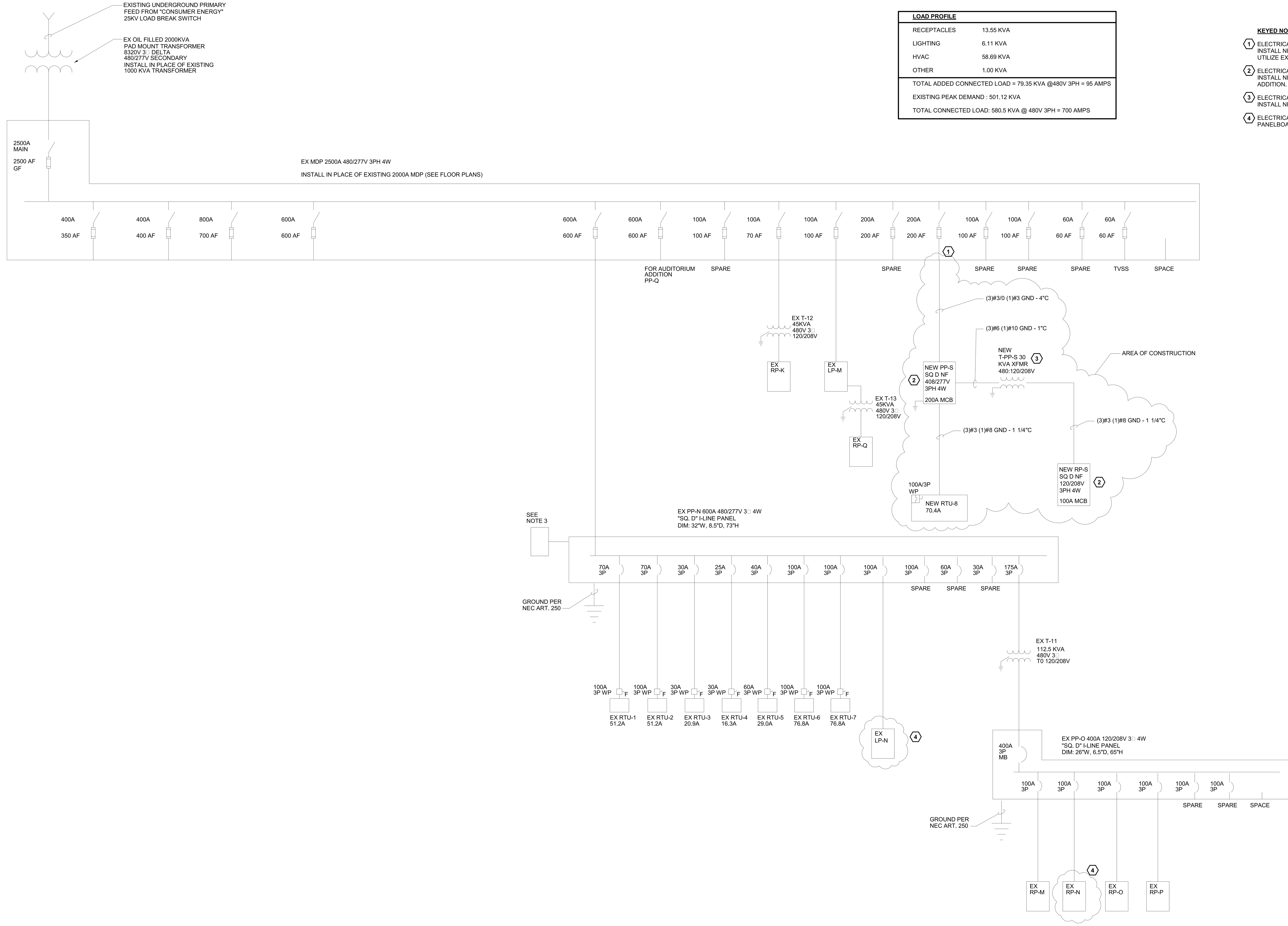
SHEET NO.

E3.01

LOAD PROFILE	
RECEPTACLES	13.55 KVA
LIGHTING	6.11 KVA
HVAC	58.69 KVA
OTHER	1.00 KVA
TOTAL ADDED CONNECTED LOAD = 79.35 KVA @480V 3PH = 95 AMPS	
EXISTING PEAK DEMAND : 501.12 KVA	
TOTAL CONNECTED LOAD: 580.5 KVA @ 480V 3PH = 700 AMPS	

KEYED NOTES

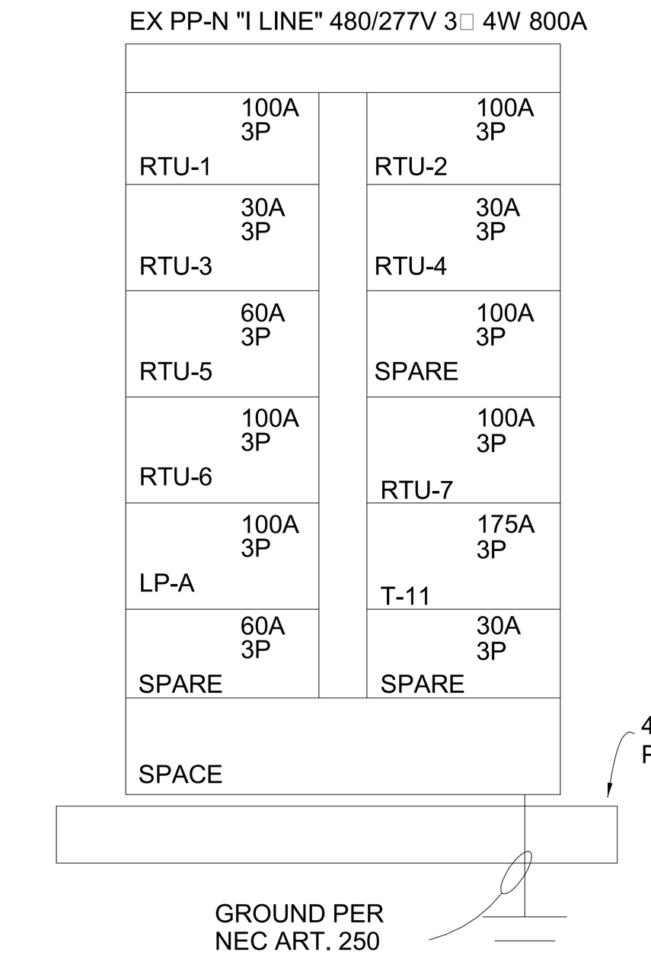
1. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW FEED FOR MIDDLE SCHOOL ADDITION. UTILIZE EXISTING SPARE BUCKET IN MDP.
2. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW PANELBOARD FOR MIDDLE SCHOOL ADDITION.
3. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL NEW TRANSFORMER.
4. ELECTRICAL CONTRACTOR SHALL UTILIZE EXISTING PANELBOARD FOR CIRCUITS IN VESTIBULE AREA



RISER DIAGRAM

1/8" = 1'-0"

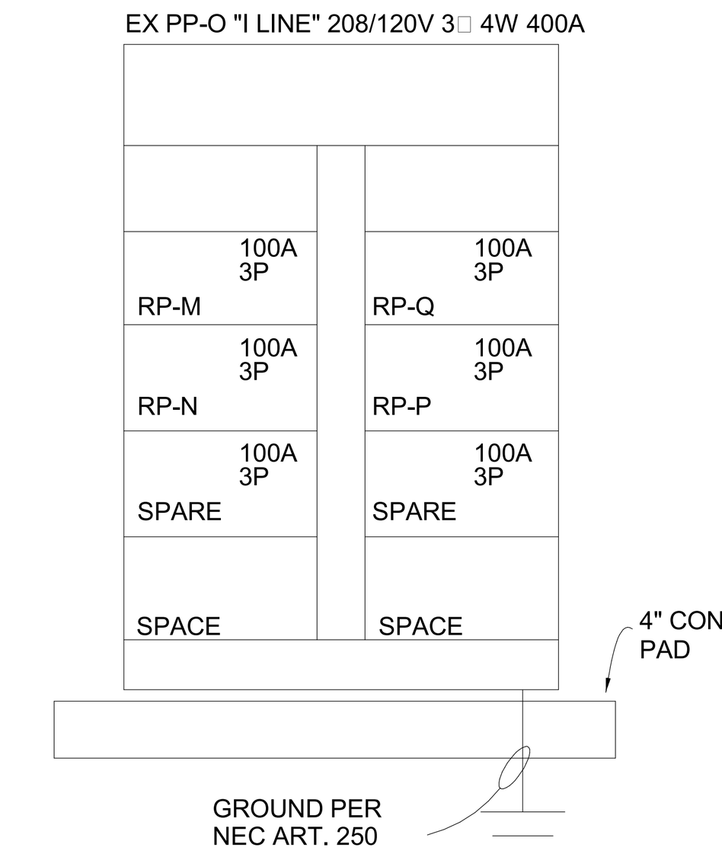
EX PP-N "I LINE" 480/277V 3 4W 800A



4 PP-N ELEVATION

NO SCALE

EX PP-O "I LINE" 208/120V 3 4W 400A



5 PP-O ELEVATION

NO SCALE

THE COLLABORATIVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #22024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107112

SHEET TITLE

RISER DIAGRAM

SHEET NO.

E3.02

EXISTING

PNL RP-M

MAIN: SIZE & TYPE: **100** A **MLO**
BUS RATING: **100** A
VOLTAGE: **120 / 208** V **3** Ø, **4** WIRE
MOUNTING: **SURFACE**
PANEL LOCATION: **MIDDLE SCHOOL OFFICE**
FEEDER SIZE: **SEE SINGLE LINE**
FED FROM: **PP-O**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX OUTLETS RM 1236	0.800			20/1	1	E	E	2	20/1	1.000			EX OUTLETS RM 1221	2
3	EX OUTLETS RM 1226		1.200		20/1	3	E	E	4	20/1		0.800		EX OUTLETS RM 1222	4
5	EX COPIER RM 1224			1.000	20/1	5	E	E	6	20/1			1.000	EX OUTLETS RM 1224	6
7	EX COMP OUTLETS 1225,6	1.000			20/1	7	E	E	8	20/1	1.200			EX OUTLETS RM 1225,7	8
9	EX OUTLETS RM 1232		1.000		20/1	9	E	E	10	20/1		0.800		EX OUTLETS RM 1228	10
11	EX OUTLETS RM 1230			1.000	20/1	11	E	E	12	20/1			1.000	EX OUTLETS RM 1233	12
13	EX HAND DRYER 1233	1.500			20/1	13	E	E	14	20/1	1.500			EX HAND DRYER RM 1233	14
15	EX HAND DRYER 1235		1.500		20/1	15	E	E	16	20/1		1.500		EX HAND DRYER RM 1235	16
17	EX COMP OUTLETS 1237			1.000	20/1	17	E	E	18	20/1			1.400	EX OUTLETS RM 1237	18
19	EX OUTLETS RM 1237	1.000			20/1	19	E	E	20	50A	4.000			EX RANGE RM 1237	20
21	EX OUTLETS RM 1234		1.000		20/1	21	E	E	22	2P		4.000		EX RANGE RM 1237	22
23	EX HEAD END RM 1226			0.540	20/1	23	E	E	24	20/1			0.500	EX DOOR OPERATOR	24
25	EX EXHAUST HOOD	0.700			15/1	25	E	E	26	15/1	0.700			EF-3 1/3HP	26
27	SPARE				20/1	27			28	20/1				SPARE	28
29	SPARE				20/1	29			30	20/1				SPARE	30
31	SPARE				20/1	31			32	20/1				SPARE	32
33	SPACE				20/1	33			34	20/1				SPARE	34
35	SPACE				20/1	35			36	20/1				SPACE	36
37	SPACE				20/1	37			38	20/1				SPACE	38
39	SPACE				20/1	39			40	20/1				SPACE	40
41	SPACE				20/1	41			42	20/1				SPACE	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.000	0.000	0.000	0.000	0.950	0.000	
OTHER	O	0.000	0.000	0.000	0.000	1.000	0.000	
EXISTING	E	13.400	11.800	7.440	32.640	1.000	32.640	
TOTAL KVA		13.400	11.800	7.440	32.640		32.640	TOTAL ESTIMATE KVA
VOLTS / PHASE		120	120	120	208		208	SYSTEM VOLTAGE
AMPS / PHASE		111.667	98.333	62.000	90.602		90.602	AMPS

NOTES:

EXISTING

PNL RP-N

MAIN: SIZE & TYPE: **100** A **MLO**
BUS RATING: **100** A
VOLTAGE: **120 / 208** V **3** Ø, **4** WIRE
MOUNTING: **SURFACE**
PANEL LOCATION: **MIDDLE SCHOOL OFFICE**
FEEDER SIZE: **100A**
FED FROM: **PP-O**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX OUTLETS RM 1201,11	1.200			20/1	1	E	E	2	20/1	1.000			EX OUTLETS RM 1204	2
3	EX OUTLETS RM 1203		1.500		20/1	3	E	E	4	20/1		1.600		EX OUTLETS RM 1205,6,12,14	4
5	EX OUTLETS RM 1207			1.200	20/1	5	E	E	6	20/1			1.000	EX EWC RM 1217	6
7	EX EWC RM 1217	1.000			20/1	7	E	E	8	20/1	1.000			EX OUTLETS RM 1215,EXIT	8
9	EX OUTLETS RM 1217		1.500		20/1	9	E	E	10	20/1		1.500		EX HAND DRYER 1208	10
11	EX HAND DRYER 1209,13			1.500	20/1	11	E	E	12	20/1			1.500	EX HAND DRYER 1209	12
13	EX HAND DRYER 1217	1.500			20/1	13	E	E	14	20/1	1.000			EX OUTLETS RM 1217	14
15	EX OUTLETS RM 1217		1.000		20/1	15	E	E	16	20/1		1.000		EX BLEACHERS	16
17	EX SCOREBOARD 1217			1.000	20/1	17	E	E	18	20/1			1.700	EX BACKBOARD RM 1217	18
19	EX BACKBOARDS 1217	1.700			20/1	19	E	E	20	20/1	1.700			EX BACKBOARD RM 1217	20
21	EX BACKBOARDS 1217		1.700		20/1	21	E	E	22	20/1		1.700		EX BACKBOARD RM 1217	22
23	EX BACKBOARDS 1217			1.700	20/1	23	E	E	24	20/1			0.700	EX EF-1 1/4HP	24
25	**NEW CH-1**	**0.075**			20/1	25	**H**		26	20/1				SPARE	26
27	**NEW VESTIBULE RECEPT**		**0.180**		20/1	27	**R**		28	20/1				SPARE	28
29	**NEW CARD READER**			**0.100**	20/1	29	**O**		30	20/1				SPARE	30
31	SPARE				20/1	31			32	20/1				SPARE	32
33	SPACE				20/1	33			34	20/1				SPACE	34
35	SPACE				20/1	35			36	20/1				SPACE	36
37	SPACE				20/1	37			38	20/1				SPACE	38
39	SPACE				20/1	39			40	20/1				SPACE	40
41	SPACE				20/1	41			42	20/1				SPACE	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.180	0.000	0.180		0.180	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.075	0.000	0.000	0.075	0.950	0.071	
OTHER	O	0.000	0.000	0.100	0.100	1.000	0.100	
EXISTING	E	10.100	11.500	10.300	31.900	1.000	31.900	
TOTAL KVA		10.175	11.680	10.400	32.255		32.251	TOTAL ESTIMATE KVA
VOLTS / PHASE		120	120	120	208		208	SYSTEM VOLTAGE
AMPS / PHASE		84.792	97.333	86.667	89.534		89.523	AMPS

NOTES: UTILIZE EXISTING SPARE CIRCUIT FOR NEW ELECTRICAL CIRCUITS

EXISTING

PNL RP-O

MAIN: SIZE & TYPE: **100** A **MLO**
BUS RATING: **100** A
VOLTAGE: **120 / 208** V **3** Ø, **4** WIRE
MOUNTING: **FLUSH**
PANEL LOCATION: **COMPUTER LAB CLOSET**
FEEDER SIZE: **100A**
FED FROM: **PP-O**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX COMP OUTLETS 1239	1.600			20/1	1	E	E	2	20/1	0.600			EX COMP OUTLETS 1239	2
3	EX COMP OUTLETS 1239		1.000		20/1	3	E	E	4	20/1		1.000		EX OUTLETS 1241	4
5	EX COMP OUTLETS 1241			1.000	20/1	5	E	E	6	20/1			0.600	EX COMP OUTLETS 1242	6
7	SPARE	0.000			20/1	7		E	8	20/1	0.600			EX COMP OUTLETS 1243	8
9	EX COMP OUTLETS 1243		1.000		20/1	9	E	E	10	20/1		1.600		EX COMP OUTLETS 1243	10
11	SPARE			1.000	20/1	11		E	12	20/1			0.600	EX COMP OUTLETS 1240	12
13	EX COMP OUTLETS 1240	1.600			20/1	13	E	E	14	20/1	0.600			EX COMP OUTLETS 1242	14
15	EX COMP OUTLETS 1242		1.000		20/1	15	E	E	16	20/1		1.600		EX COMP OUTLETS 1242	16
17	EX COMP OUTLETS 1249			1.000	20/1	17	E	E	18	20/1			0.600	EX COMP OUTLETS 1244	18
19	EX COMP OUTLETS 1244	1.600			20/1	19	E	E	20	20/1	1.200			EX COMP OUTLETS 1246	20
21	EX COMP OUTLETS 1244		1.600		20/1	21	E	E	22	20/1		1.200		EX COMP OUTLETS 1246	22
23	EX COMP OUTLETS 1244			1.000	20/1	23	E	E	24	20/1			1.200	EX COMP OUTLETS 1246	24
25	EX COMP OUTLETS 1246	1.200			20/1	25	E	E	26	20/1	1.200			EX COMP OUTLETS 1246	26
27	EX COMP OUTLETS 1246		1.200		20/1	27	E	E	28	20/1		1.000		EX COMP OUTLETS 1247	28
29	EX COMP OUTLETS 1246			1.200	20/1	29	E	E	30	20/1			1.000	EX COMP OUTLETS 1246	30
31	EX COMP OUTLETS 1246	1.200			20/1	31	E	E	32	20/1	1.000			EX COMP OUTLETS 1246	32
33	EX OUTLETS RM 1245		0.800		20/1	33	E	E	34	20/1		0.700		EF-2 1/3HP	34
35	SPARE				20/1	35			36	20/1					36
37	SPARE				20/1	37			38	20/1					38
39	SPACE				20/1	39			40	20/1					40
41	SPACE				20/1	41			42	20/1					42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.000	0.000	0.000	0.000	0.950	0.000	
OTHER	O	0.000	0.000	0.000	0.000	1.000	0.000	
EXISTING	E	12.400	13.700	8.200	34.300	1.000	34.300	
TOTAL KVA		12.400	13.700	8.200	34.300		34.300	TOTAL ESTIMATE KVA
VOLTS / PHASE		120	120	120	208		208	SYSTEM VOLTAGE
AMPS / PHASE		103.333	114.167	68.333	95.210		95.210	AMPS

NOTES:

EXISTING

PNL RP-P

MAIN: SIZE & TYPE: **100** A **MLO**
BUS RATING: **100** A
VOLTAGE: **120 / 208** V **3** Ø, **4** WIRE
MOUNTING: **FLUSH**
PANEL LOCATION: **COMPUTER LAB CLOSET**
FEEDER SIZE: **100A**
FED FROM: **PP-O**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX OUTLETS RM 1252	1.600			20/1	1	E	E	2	20/1	1.600			EX OUTLETS RM 1252	2
3	EX OUTLETS RM 1252		1.600		20/1	3	E	E	4	20/1		1.000		EX OUTLETS RM 1251,2	4
5	EX OUTLETS RM 1251			1.000	20/1	5	E	E	6	20/1			1.200	EX OUTLETS RM 1249	6
7	EX OUTLETS RM 1250	0.200			20/1	7	E	E	8	20/1	1.200			EX EXTERIOR OUTLETS	8
9	EX OUTLETS 1260,35		1.000		20/1	9	E	E	10	20/1		1.000		EX COMP OUTLETS 1253	10
11	EX OUTLETS RM 1253			1.800	20/1	11	E	E	12	20/1			0.600	EX COMP OUTLETS 1235	12
13	EX COMP OUTLETS 1255	1.000			20/1	13	E	E	14	20/1	1.800			EX OUTLETS RM 1255	14
15	EX COMP OUTLETS 1255		0.600		20/1	15	E	E	16	20/1		0.600		EX COMP OUTLETS 1254	16
17	EX COMP OUTLETS 1254			1.600	20/1	17	E	E	18	20/1			1.600	EX OUTLETS RM 1254	18
19	EX OUTLETS RM 1254	1.000			20/1	19	E	E	20	20/1	1.000			EX COMP OUTLETS 1256	20
21	EX OUTLETS RM 1256		1.600		20/1	21	E	E	22	20/1		0.600		EX COMP OUTLETS 1256	22
23	EX OUTLETS RM 1258			1.600	20/1	23	E	E	24	20/1			1.000	EX COMP OUTLETS 1258	24
25	EX COMP OUTLETS 1258	0.600			20/1	25	E	E	26	20/1	1.600			EX OUTLETS RM 1258	26
27	EX COMP OUTLETS 1256		0.600		20/1	27	E	E	28	20/1		1.000		EX COMP OUTLETS 1257	28
29	EX EWC			1.000	20/1	29	E	E	30	20/1			0.800	EX DROP CORDS RM 1252	30
31	SPARE				20/1	31			32	20/1				SPARE	32
33	SPARE				20/1	33			34	20/1				SPARE	34
35	SPARE				20/1	35			36	20/1				SPARE	36
37	SPACE				20/1	37			38	20/1				SPACE	38
39	SPACE				20/1	39			40	20/1				SPACE	40
41	SPACE				20/1	41			42	20/1				SPACE	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.000	0.000	0.000	0.000	0.950	0.000	
OTHER	O	0.000	0.000	0.000	0.000	1.000	0.000	
EXISTING	E	11.600	9.600	12.200	33.400	1.000	33.400	
TOTAL KVA		11.600	9.600	12.200	33.400		33.400	TOTAL ESTIMATE KVA
VOLTS / PHASE		120	120	120	208		208	SYSTEM VOLTAGE
AMPS / PHASE		96.667	80.000	101.667	92.712		92.712	AMPS

NOTES:

EXISTING

PNL RP-R

MAIN: SIZE & TYPE: **100** A **MLO**
BUS RATING: **100** A
VOLTAGE: **120 / 208** V **3** Ø, **4** WIRE
MOUNTING:
PANEL LOCATION:
FEEDER SIZE: **SEE SINGLE LINE**
FED FROM: **PP-N**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX OUTLETS RM 201	1.000			20/1	1	E	E	2	20/1	0.500			EX REFRIG RM 907	2
3	EX COMP OUTLETS RM 200,201		1.400		20/1	3	E	E	4	20/1		1.200		EX OUTLETS RM 200,02,03	4
5	EX 220V COPIER			1.000	30A	5	E	E	6	20/1			0.800	EX COMP OUTLETS RM 203,05	6
7	EX 220V COPIER	1.000			2P	7	E	E	8	20/1	0.800			EX COMP OUTLETS RM 207,8	8
9	EX OUTLETS RM 207,8		1.200		20/1	9	E	E	10	20/1		0.800		EX COMP OUTLETS RM 200,15	10
11	EX COMP OUTLETS RM 209			1.600	20/1	11	E	E	12	20/1			0.800	EX COMP OUTLETS 211,214	12
13	EX COMP OUTLETS RM 209	1.600			20/1	13	E	E	14	20/1	1.000			EX COMP OUTLETS RM 209	14
15	EX OUTLETS RM 210,15,14		1.200		20/1	15	E	E	16	20/1		0.500		EX OUTLETS RM 212,13	16
17	SPARE				20/1	17		E	18	20/1			1.000	EX BLEACHERS	18
19	SPARE				20/1	19		E	20	20/1	1.000			EX BLEACHERS	20
21	SPARE				20/1	21			22	20/1				SPARE	22
23	SPARE				20/1	23			24	20/1				SPARE	24
25	SPARE				20/1	25			26	20/1				SPARE	26
27	SPARE				20/1	27			28	20/1				SPARE	28
29	SPARE				20/1	29			30	20/1				SPARE	30
31	SPACE				20/1	31			32	20/1				SPACE	32
33	SPACE				20/1	33			34	20/1				SPACE	34
35	SPACE				20/1	35			36	20/1				SPACE	36
37	SPACE				20/1	37			38	20/1				SPACE	38
39	SPACE				20/1	39			40	20/1				SPACE	40
41	SPACE				20/1	41			42	20/1				SPACE	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.000	0.000	0.000	0.000	0.950	0.000	
OTHER	O	0.000	0.000	0.000	0.000	1.000	0.000	
EXISTING	E	6.900	6.300	5.200	18.400	1.000	18.400	
TOTAL KVA		6.900	6.300	5.200	18.400		18.400	TOTAL ESTIMATE KVA
VOLTS / PHASE		120	120	120	208		208	SYSTEM VOLTAGE
AMPS / PHASE		57.500	52.500	43.333	51.075		51.075	AMPS

NOTES: EC SHALL PROVIDE SURGE SUPPRESSION DEVICE (IF EM PNL PER NEC 700 & 701)

EXISTING

PNL LP-M

MAIN: SIZE & TYPE: **225** A **MLO**
BUS RATING: A
VOLTAGE: **277 / 480** V **3** Ø, **4** WIRE
MOUNTING:
PANEL LOCATION:
FEEDER SIZE: **SEE SINGLE LINE**
FED FROM: **MDP**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX HVAC A4	4.500			25A	1	E	E	2	60A	14.100			EX HVAC B8	2
3	EX HVAC A4		4.500		/	3	E	E	4	/		14.100		EX HVAC B8	4
5	EX HVAC A4			4.500	3P	5	E	E	6	3P			14.100	EX HVAC B8	6
7	EX LIGHTING RM 915	2.100			20/1	7	E	E	8	20/1	3.000			EX LIGHTING RM 906,907	8
9	EX LIGHTING RM 908,905		3.200		20/1	9	E		10	20/1				SPARE	10
11	SPARE				20/1	11			12	20/1				SPARE	12
13	SPARE				20/1	13			14	20/1				SPARE	14
15	SPARE				20/1	15			16	20/1				SPACE	16
17	SPARE				20/1	17			18	20/1				SPACE	18
19	SPARE				20/1	19			20	20/1				SPACE	20
21	SPACE				20/1	21			22	20/1				SPACE	22
23	SPACE				20/1	23			24	20/1				SPACE	24
25	SPACE				20/1	25		E	26	70A	11.700			EX RP-Q	26
27	SPACE				20/1	27		E	28	/		11.700		EX RP-Q	28
29	SPACE				20/1	29		E	30	3P			11.700	EX RP-Q	30

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.000	0.000	0.000	0.000	0.950	0.000	
OTHER	O	0.000	0.000	0.000	0.000	1.000	0.000	
EXISTING	E	35.400	33.500	30.300	99.200	1.000	99.200	
TOTAL KVA		35.400	33.500	30.300	99.200		99.200	TOTAL ESTIMATE KVA
VOLTS / PHASE		277	277	277	480		480	SYSTEM VOLTAGE
AMPS / PHASE		127.798	120.939	109.386	119.323		119.323	AMPS

NOTES: EC SHALL PROVIDE SURGE SUPPRESSION DEVICE (IF EM PNL PER NEC 700 & 701)

EXISTING

PNL LP-N

MAIN: SIZE & TYPE: **100** A **MLO**
BUS RATING: **100** A
VOLTAGE: **277 / 480** V Ø, WIRE
MOUNTING: **SURFACE**
PANEL LOCATION: **MIDDLE SCHOOL OFFICE**
FEEDER SIZE: **100A**
FED FROM: **PP-N**
MIN RMS AMPS:

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	EX LIGHT RM 1253,1255, 1257	3.800			20/1	1	E	E	2	20/1	4.000			EX LIGHT RM 1254,1256,1258	2
3	EX LIGHT RM 1246,1247,1245		2.600		20/1	3	E	E	4	20/1		2.400		EX LIGHT RM 1249,1252,1251,1250	4
5	EX LIGHT RM 1260,1235,1236			2.800	20/1	5	E	E	6	20/1			2.800	EX LIGHT RM 1260,1235,1236	6
7	EX LIGHT RM 1233,1234,1235,1237	3.400			20/1	7	E	E	8	20/1	3.300			EX LIGHT RM 1220-1232	8
9	EX LIGHTING RM 1217		2.600		20/1	9	E	E	10	20/1		2.600		EX LIGHITNG RM 1217	10
11	EX LIGHTING RM 1217			2.600	20/1	11	E	E	12	20/1			2.600	EX LIGHTING RM 1217	12
13	EX LIGHTING RM 1217	2.600			20/1	13	E	E	14	20/1	2.600			EX LIGHTING RM 1217	14
15	EX LIGHTING RM 1202-1216		3.400		20/1	15	E	E	16	20/1		2.500		EX LIGHTING RM 1202	16
17	EX EXTERIOR LIGHTING			2.500	20/1	17	E	E	18	20/1			3.400	EX LIGHT RM 301-304	18
19	**NEW VESTIBULE LIGHTING**	**0.015**			20/1	19	**L**		20	20/1				SPARE	20
21	SPARE				20/1	21			22	20/1				SPARE	22
23	SPARE				20/1	23			24	20/1				SPARE	24
25	SPARE				20/1	25			26	20/1				SPARE	26
27	SPARE				20/1	27			28	20/1				SPARE	28
29	SPACE				20/1	29			30	20/1				SPACE	30
31	SPACE				20/1	31			32	20/1				SPACE	32
33	SPACE				20/1	33			34	20/1				SPACE	34
35	SPACE				20/1	35			36	20/1				SPACE	36
37	SPACE				20/1	37			38	20/1				SPACE	38
39	SPACE				20/1	39			40	20/1				SPACE	40
41	SPACE				20/1	41			42	20/1				SPACE	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	0.015	0.000	0.000	0.015	1.000	0.015	
HVAC	H	0.000	0.000	0.000	0.000	0.950	0.000	
OTHER	O	0.000	0.000	0.000	0.000	1.000	0.000	
EXISTING	E	19.700	16.100	16.700	52.500	1.000	52.500	
TOTAL KVA		19.715	16.100	16.700	52.515		52.515	TOTAL ESTIMATE KVA
VOLTS / PHASE		277	277	277	480		480	SYSTEM VOLTAGE
AMPS / PHASE		71.173	58.123	60.289	63.168		63.168	AMPS

NOTES: UTILIZE EXISTING SPARE CIRCUIT FOR NEW ELECTRICAL CIRCUITS

NEW

PNL PP-S

MAIN: SIZE & TYPE: **200** A **MCB**
BUS RATING: **200** A
VOLTAGE: **277 / 480** V **3** Ø, **4** WIRE
MOUNTING: **SURFACE**
PANEL LOCATION: **MIDDLE SCHOOL ADDITION EC**
FEEDER SIZE: **200A**
FED FROM: **MDP**
MIN RMS AMPS: **42KAIC**

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	RTU-8	19.487			100A	1	H	O	2	45A	6.080			T-RP-S	2
3	RTU-8		19.487		/	3	H	O	4	/		6.080		T-RP-S	4
5	RTU-8			19.487	3P	5	H	O	6	3P			6.080	T-RP-S	6
7	CLASS RM LIGHT 62 & 64	1.280			20/1	7	L		8	20/1	0.072			EM CKT 1: BATHROOMS	8
9	CLASS RM LIGHT 63 & 65		1.280		20/1	9	L		10	20/1		0.078		EM CKT 2: EXTERIOR LIGHTING	10
11	CLASS RM LIGHT 60 & 61			1.400	20/1	11	L		12	20/1			0.054	EM CKT 3: COLLABORATIVE	12
13	LIGHT RM 105,106,107,110,111	0.800			20/1	13	L		14	20/1				SPARE	14
15	NEW CORRIDOR AND COLLAB LI		1.350		20/1	15	L		16	20/1				SPARE	16
17	SPARE				20/1	17			18	20/1				SPARE	18
19	PREPARED SPACE				20/1	19			20	20/1				PREPARED SPACE	20
21	PREPARED SPACE				20/1	21			22	20/1				PREPARED SPACE	22
23	PREPARED SPACE				20/1	23			24	20/1				PREPARED SPACE	24
25	PREPARED SPACE				20/1	25			26	20/1				PREPARED SPACE	26
27	PREPARED SPACE				20/1	27			28	20/1				PREPARED SPACE	28
29	PREPARED SPACE				20/1	29			30	20/1				PREPARED SPACE	30
31	PREPARED SPACE				20/1	31			32	20/1				PREPARED SPACE	32
33	PREPARED SPACE				20/1	33			34	20/1				PREPARED SPACE	34
35	PREPARED SPACE				20/1	35			36	20/1				PREPARED SPACE	36
37	PREPARED SPACE				20/1	37			38	20/1				PREPARED SPACE	38
39	PREPARED SPACE				20/1	39			40	20/1				PREPARED SPACE	40
41	PREPARED SPACE				20/1	41			42	20/1				PREPARED SPACE	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	0.000	0.000	0.000	0.000		0.000	
LIGHTING	L	2.080	2.630	1.400	6.110	1.000	6.110	
HVAC	H	19.487	19.487	19.487	58.461	0.950	55.538	
OTHER	O	6.080	6.080	6.080	18.241	1.000	18.241	
EXISTING	E	0.000	0.000	0.000	0.000	1.000	0.000	
TOTAL KVA		27.647	28.197	26.967	82.812		79.889	TOTAL ESTIMATE KVA
VOLTS / PHASE		277	277	277	480		480	SYSTEM VOLTAGE
AMPS / PHASE		99.810	101.795	97.355	99.610		96.094	AMPS

NOTES:

NEW

PNL RP-S

MAIN: SIZE & TYPE: **100** A **MCB**
BUS RATING: **100** A
VOLTAGE: **120 / 208** V **3** Ø, **4** WIRE
MOUNTING: **SURFACE**
PANEL LOCATION: **MIDDLE SCHOOL ADDITION EC**
FEEDER SIZE: **100A**
FED FROM: **T-PP-S**
MIN RMS AMPS: **14KAIC**

CKT #	CIRCUIT DESCRIPTION	LOAD (KVA)			AMPS / POLES	CKT #	LOAD	TYPE	CKT #	AMPS / POLES	LOAD (KVA)			CIRCUIT DESCRIPTION	CKT #
		A	B	C							A	B	C		
1	CLASSROOM 64 RECEPT	1.080			20/1	1	R	O	2	20/1	0.360			NEW IDF DATA RACK	2
3	CLASSROOM 64 TEACHER RECE		0.360		20/1	3	R	R	4	20/1		0.720		TOILET ROOM RECEPT	4
5	CLASSROOM 64 TV RECEPT			0.360	30A	5	R	R	6	20/1			0.720	JANITOR,SINGLE BR, ELEC RECE	6
7	CLASSROOM 65 RECEPT	1.080			2P	7	R	O	8	20/1	0.260			EWC GFI RECEPT	8
9	CLASSROOM 65 TEACHER RECE		0.360		20/1	9	R	R	10	20/1		0.720		COLLABRATION FLOOR BOXES	10
11	CLASSROOM 65 TV RECEPT			0.360	20/1	11	R	R	12	20/1			0.720	COLLABRATION FLOOR BOXES	12
13	CLASSROOM 62 RECEPT	1.080			20/1	13	R	R	14	20/1	0.720			COLLABRATION TV RECEPT	14
15	CLASSROOM 62 TEACHER RECE		0.360		20/1	15	R	R	16	20/1		0.720		COLLABRATION RECEPT	16
17	CLASSROOM 62 TV RECEPT			0.360	20/1	17	R	R	18	20/1			0.360	BATHROOM SINK RECEPT	18
19	CLASSROOM 63 RECEPT	1.080			20/1	19	R	R	20	20/1	0.720			CLASSROOM 62 RECEPT	20
21	CLASSROOM 63 TEACHER RECE		0.360		20/1	21	R	O	22	20/1		0.100		CARD READERS	22
23	CLASSROOM 63 TV RECEPT			0.360	20/1	23	R	R	24	20/1			0.720	CLASSROOM 63 RECEPT	24
25	CLASSROOM 61 SOUTH RECEPT	0.900			20/1	25	R	R	26	20/1	0.720			CLASSROOM 64 RECEPT	26
27	CLASSROOM 61 NORTH RECEPT		0.720		20/1	27	R	R	28	20/1		0.720		CLASSROOM 65 RECEPT	28
29	CLASSROOM 61 TEACHER RECE			0.360	20/1	29	R		30	20/1				SPARE	30
31	CLASSROOM 61 TV RECEPT	0.360			20/1	31	R		32	20/1				SPARE	32
33	CLASSROOM 60 RECEPT		1.080		20/1	33	R		34	20/1				SPARE	34
35	CLASSROOM 60 TEACHER RECE			0.360	20/1	35	R		36	20/1				SPARE	36
37	CLASSROOM 60 TV RECEPT	0.360			20/1	37	R	H	38	20/1	0.936			ACCU-1	38
39	CORRIDOR RECEPT		0.540		20/1	39	R	H	40	20/1		0.936		ACCU-1	40
41	CORRIDOR RECEPT			0.540	20/1	41	R	H	42	20/1			0.792	EF-1	42

LOAD SUMMARY		KVA CONNECTED			KVA SUMMARY			
		A	B	C	TOTAL		DEMAND	
RECEPTACLES	R	8.100	6.660	5.220	19.980		14.990	
LIGHTING	L	0.000	0.000	0.000	0.000	1.000	0.000	
HVAC	H	0.936	0.936	0.792	2.664	0.950	2.531	
OTHER	O	0.620	0.100	0.000	0.720	1.000	0.720	
EXISTING	E	0.000	0.000	0.000	0.000	1.000	0.000	
TOTAL KVA		9.656	7.696	6.012	23.364		18.241	TOTAL ESTIMATE KVA
VOLTS / PHASE		120	120	120	208		208	SYSTEM VOLTAGE
AMPS / PHASE		80.467	64.133	50.100	64.854		50.633	AMPS

NOTES:

12/11/2024 11:38:21 AM

C:\Users\rmccarthy\Documents\2024-9506 Freeland Schools Middle School Addition-ELEC-v24_rmccarthy@macmillanassociates.com.rvt

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THE COLLABORATIVE

MACMILLAN ASSOCIATES
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM

December 11, 2024
MAI #22024-9506

KEY PLAN
N.T.S.

PROJECT TITLE

FREELAND SCHOOLS

MIDDLE SCHOOL ADDITION

8250 WEBSTER RD
FREELAND, MI 48623

12.12.2024 ISSUED FOR PERMIT & BID

TC JOB NO. 107112

SHEET TITLE

ELECTRICAL PANEL SCHEDULES

SHEET NO.

E3.03

THE
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IVE

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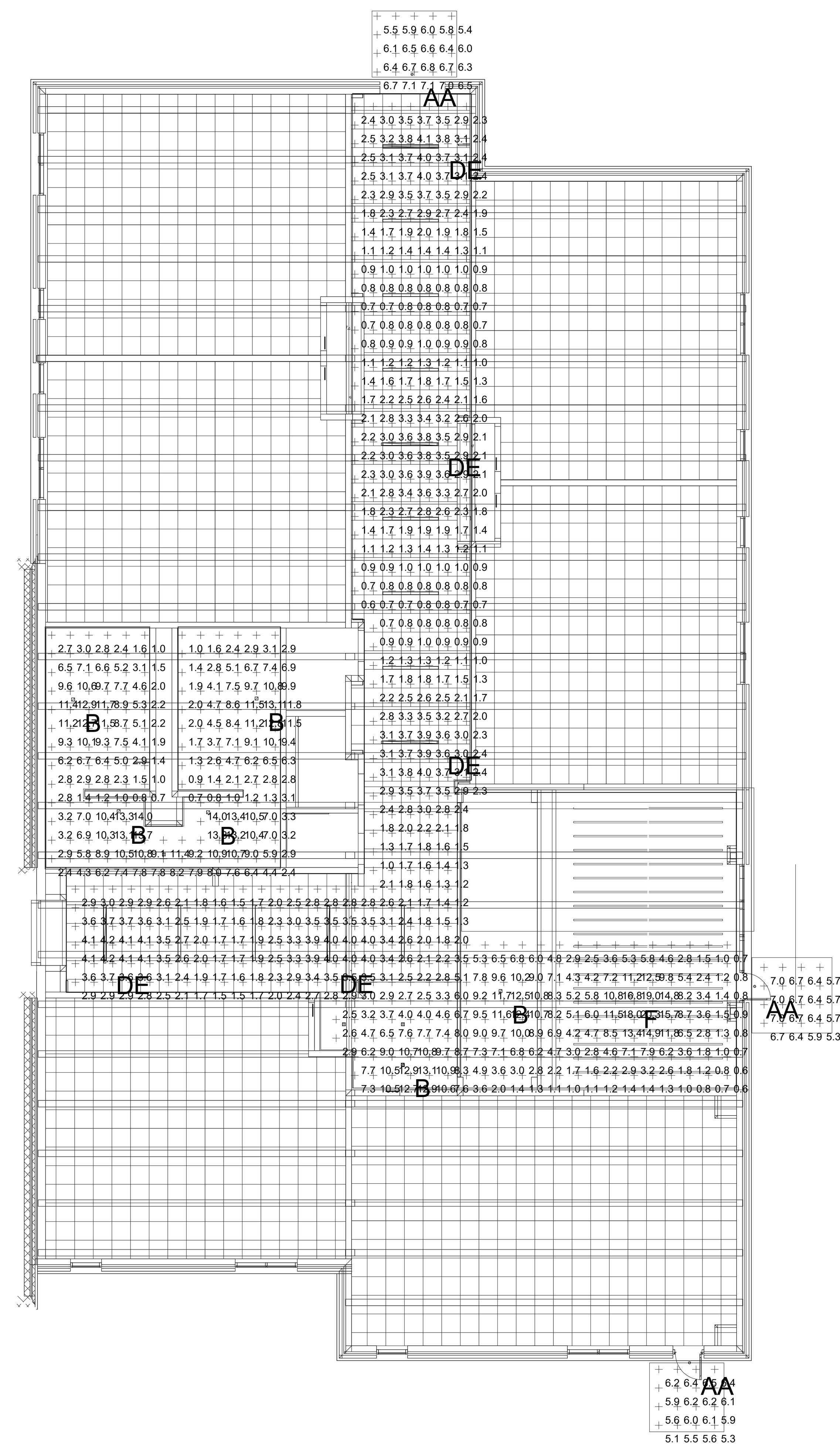
CONSULTING ENGINEERS
714 EAST MIDLAND STREET
BAY CITY, MICHIGAN 48706
(989) 894-4300 F (989) 894-9930
WWW.MACMILLANASSOCIATES.COM



NORTH

EMERGENCY LIGHTING POINT BY POINT PLAN
1/8" = 1'-0"

Statistics

Description	Symbol	Avg	Max	Min	Max/Min	Avg/Min
Bathrooms	+	6.1 fc	14.0 fc	0.7 fc	20.0:1	8.7:1
Exterior North	+	6.4 fc	7.1 fc	5.4 fc	1.3:1	1.2:1
Exterior South	+	5.9 fc	6.5 fc	5.1 fc	1.3:1	1.2:1
Exterior West	+	6.4 fc	7.0 fc	5.3 fc	1.3:1	1.2:1
Main Corridor	+	3.3 fc	20.3 fc	0.6 fc	33.8:1	5.5:1

KEY PLAN
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SHEET TITLE
EMERGENCY LIGHTING POINT BY POINT PLANS

SHEET NO.
E4.01