GREENE COUNTY PUBLIC SCHOOLS

ALTERNATIVE EDUCATION BUILDING

254 MONROE DRIVE, STANARDSVILLE, VIRGINIA 22973

STRUCTURAL NOTES

FOUNDATIONS:

INSTALL FOUNDATIONS A MINIMUM OF 12 INCHES INTO SOUND, ORIGINAL, UNDISTURBED SOIL, OR PROPERLY INSTALLED STRUCTURAL (CONTROLLED) FILL, EITHER OF WHICH SHALL HAVE A MINIMUM SAFE BEARING CAPACITY OF 2,000 PSF. STRUCTURAL FILL PLACED UNDER FOOTINGS SHALL CONSIST OF VDOT #57, #21A, LOW PLASTICITY SOILS, OR OTHER CRUSHED STONE & SAND AGGREGATE ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.

UNDERCUT ROCK ENCOUNTERED IN FOOTING EXCAVATIONS TO A DEPTH OF 12 INCHES MINIMUM BELOW THE BOTTOM OF THE FOOTINGS, UNLESS THE FOOTINGS ARE INDICATED TO BEAR ON ROCK. BENCH ANY ANGLED EXPOSED ROCK TO A LEVEL SURFACE. INSTALL STRUCTURAL FILL IN PLACE OF THE REMOVED ROCK.

STEP FOOTINGS BELOW PIPES PENETRATING FOUNDATION WALLS IN ACCORDANCE WITH THE TYPICAL DETAIL.

PROVIDE CONSTRUCTION SITE DRAINAGE TO PREVENT SURFACE RUNOFF FROM ENTERING THE BASEMENT AND FOOTING EXCAVATIONS.

COMPACT GRANULAR FILL BELOW SLABS ON GRADE WITH VIBRATING COMPACTORS ACCORDING TO THE DIRECTIONS OF THE GEOTECHNICAL ENGINEER, BUT NOT LESS THAN 95 % OF MAXIMUM DENSITY IN ACCORDANCE WITH ASTM D698 OR D1557.

BRACE ANY WALLS THAT RETAIN UNBALANCED FILL OR BACKFILL UNTIL PERMANENT RESTRAINING CONSTRUCTION ASSEMBLIES (SUCH AS THE FLOOR SLAB ABOVE AND/OR BELOW) ARE INSTALLED AND ATTAIN DESIGN STRENGTH. IT IS THE INTENT OF THESE DRAWINGS THAT BASEMENT WALLS NOT BE BACKFILLED UNTIL THE FLOOR STRUCTURE ABOVE IS ERECTED AND THE CONCRETE SLABS ABOVE AND BELOW ATTAIN DESIGN STRENGTH.

INSTALL FOUNDATION DRAINS IN AN 18 INCH WIDE ZONE OF VDOT #57 AGGREGATE, SEPARATED FROM GENERAL BACKFILL BY A GEOFABRIC EQUIVALENT TO MIRAFI 140N. INSTALL GENERAL BACKFILL FOR ALL BASEMENT AND RETAINING WALLS CONSISTING OF FREELY-DRAINING / PREDOMINANTLY GRANULAR MATERIAL ACCEPTABLE TO THE GEOTECHNICAL ENGINEER.

CONCRETE:

INSTALL CONCRETE WORK IN CONFORMANCE WITH THE REQUIREMENTS OF THE AMERICAN CONCRETE INSTITUTE STANDARD ACI-318 (CURRENT EDITION).

PROVIDE CONCRETE CONFORMING TO THE FOLLOWING:
MINIMUM 28 DAY COMPRESSIVE STRENGTH:

FOOTINGS:	3,000 PSI
WALLS:	4,000 PSI
SLABS:	4,000 PSI
WALKS:	4,000 PSI
AIR ENTRAINMENT:	4 TO 6 %

DO NOT PROVIDE AIR ENTRAINMENT FOR INTERIOR SLABS.
NO ADMIXTURES OR PRODUCTS CONTAINING CHLORIDES ARE PERMITTED.
PROVIDE SUBMITTALS FOR CONCRETE MIX DESIGN, REINFORCING, AND ADMIXTURES FOR APPROVAL.

PROVIDE CONCRETE REINFORCING CONFORMING TO THE FOLLOWING:

CONCRETE BAR REINFORCEMENT:	ASTM A615, GRADE 60
STIRRUPS AND TIES:	ASTM A615, GRADE 60
WELDED WIRE FABRIC:	ASTM A185

PROVIDE TYPICAL FLOOR SLABS-ON-GRADE AND EXTERIOR WALKS AS FOLLOWS: 4 INCHES THICK, REINFORCED WITH 6x6-W1.4xW1.4 OR 6x6-W2.0xW2.0 WELDED WIRE FABRIC.

OPTIONAL TYPICAL FLOOR SLABS-ON-GRADE AND EXTERIOR WALKS DESIGN: 4 INCHES THICK, WITH FIBER-REINFORCING (1.5 POUNDS PER CUBIC YARD, FIBRILLATED POLYPROPYLENE, ASTM C1116 TYPE-III, FIBERMESH OR EQUAL).

FOR SLABS-ON-GRADE, PROVIDE A SAW-CUT SLAB CONTROL JOINT SYSTEM EQUAL TO THE "SOFF-CUT" SYSTEM AS INDICATED ON THE DRAWINGS AND AT COLUMN LINES AND TYPICAL LOCATIONS SUCH THAT:
(1) EACH AREA BOUNDED BY CONTROL JOINTS DOES NOT EXCEED 160 SF,
(2) THE DISTANCE BETWEEN CONTROL JOINTS DOES NOT EXCEED 13 FEET IN EITHER DIRECTION,
(3) THE RATIO OF LENGTH TO WIDTH OF ANY AREA BOUNDED BY CONTROL JOINTS DOES NOT EXCEED 2 TO 1. INSTALL CONTROL JOINTS AROUND COLUMNS AS INDICATED ON THE DETAILS.

WHERE EACH FLOOR SLAB ABUTS A CMU OR CONCRETE WALL, PROVIDE A BOND BREAK BY TURNING THE VAPOR BARRIER UP AT THE SLAB PERIMETER.

STRUCTURAL & ENGINEERED WOOD:

PROVIDE PRESERVATIVE-PRESSURE-TREATED (PT) LUMBER FOR LUMBER IN CONTACT WITH CONCRETE OR MASONRY.

PROVIDE DIMENSIONAL LUMBER CONFORMING TO THE FOLLOWING:
BEAMS, JOISTS, RAFTERS, HEADERS: (UNLESS OTHERWISE SPECIFIED)
2 SOUTHERN PINE, KD19
2 SPRUCE-PINE-FIR, KD19
STUDS:
STUD GRADE # 2 SOUTHERN PINE, KD19
STUD GRADE # 2 SPRUCE-PINE-FIR, KD19
2 SOUTHERN PINE, KD19
PLATES:
2 SOUTHERN PINE, KD19
2 SPRUCE-PINE-FIR, KD19

LAMINATED VENEER LUMBER (LVL):
Fb=2800, Fv=250, Fc=550, E=2,000,000, Ft=2600 (ALL PSI MIN)

PROVIDE STRUCTURAL PANELS CONFORMING TO THE FOLLOWING:
OSB SHEATHING OR ALL-VENEER PLYWOOD PANELS-
GROUP 1, AMERICAN PLYWOOD ASSOCIATION (APA) RATED AS FOLLOWS:
SUBFLOOR: 3/4", RATED STURD-I-FLOOR T&G, 24 OC, EXPOSURE 1
WALL SHEATHING / BRACING: 1/2", RATED SHEATHING, 32/16, EXPOSURE 1
ROOF SHEATHING: 19/32" OR 5/8", RATED SHEATHING, 40/20, EXPOSURE 1
ROOF SHEATHING & NAILBASE: 23/32" OR 3/4", RATED SHEATHING, 48/24, EXPOSURE 1, T&G WHERE INDICATED

DESIGN, FABRICATE, AND ERECT ROOF AND FLOOR TRUSSES IN ACCORDANCE WITH THE SPECIFICATIONS OF THE TRUSS PLATE INSTITUTE (TPI).
PROVIDE TRUSSES DESIGNED & FABRICATED BY THE FABRICATOR AS A SYSTEM.
PROVIDE STRUCTURAL DESIGN FOR TRUSSES AND HANGERS BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE COMMONWEALTH OF VIRGINIA. SUBMIT TRUSS SHOP DRAWINGS, SEALED BY THIS ENGINEER, FOR APPROVAL. THE FABRICATOR'S ENGINEER IS REQUIRED TO SELECT TRUSS HANGERS AND THE FABRICATOR IS REQUIRED TO FURNISH ALL HANGERS NECESSARY TO CONNECT ANY TRUSS TO ANOTHER TRUSS (SUCH AS A GIRDER-TRUSS).

COMPLY WITH ALL BRACING REQUIREMENTS INDICATED BY THE FABRICATOR, THE TPI SPECIFICATIONS, TPI-BWT, TPI-HIB, AND THESE DRAWINGS.

FABRICATOR: DESIGN TRUSSES TO MEET IBC REQUIREMENTS.
ROOF TRUSS LOADS (UNLESS INDICATED OTHERWISE):
BC DEAD = 5 PSF, BC LIVE = PER IBC
TC DEAD = 10 PSF, TC LIVE = 30 PSF (UNREDUCED BUT NOT CONCURRENT W/ SNOW),
TC SNOW = PER IBC / GROUND SNOW LOAD 30 PSF - APPLY SNOW-LOAD COEFFICIENTS FOR DRIFT, SLIDE, ROOF CONFIGURATION, AND EXPOSURE.

TRUSS MEMBERS: SOUTHERN PINE, KILN-DRIED TO MOISTURE CONTENT OF 19% OR LESS, SIZE AND GRADE AS REQUIRED BY DESIGN, BUT NOT LESS THAN NO. 2 FOR ANY MEMBER.

CONNECT BEARING POINTS OF ROOF AND ATTIC TRUSSES TO SUPPORTING CONSTRUCTION WITH ANCHORS INDICATED. WHERE ANCHORS ARE NOT DESIGNATED, INSTALL ANCHORS EQUAL TO SIMPSON H1 OR H2.5A AT ALL ROOF AND ATTIC TRUSS BEARING POINTS; AND DOUBLE H2.5A ANCHORS AT ALL GIRDER-TRUSS BEARING POINTS.

BRACE ALL EXTERIOR FRAME WALLS THROUGH-OUT (FULL COVERAGE) WITH APA-RATED STRUCTURAL WALL SHEATHING. REFER TO DETAILS FOR SPECIAL PANEL NAILING AND ANCHOR-STRAP REQUIREMENTS.

FASTENING SCHEDULE:
COMPLY WITH IBC TABLE 2304.9.1 UNLESS OTHERWISE INDICATED.

GENERAL:

THE TERM "PROVIDE", WHERE USED IN THESE DRAWINGS, IS TO BE INTERPRETED AS A COMBINATION OF BOTH "FURNISH" AND "INSTALL".

COORDINATE CONFIGURATION AND LOCATION OF EQUIPMENT SUPPORTS,PENETRATIONS, AN OPENINGS WITH APPROVED MECHANICAL OR OTHER APPROVED SHOP DRAWINGS. DO NOT CUT FLOOR TRUSSES FOR PLUMBING PENETRATIONS!

WHERE STRUCTURAL MEMBERS PASS THROUGH OR ABOVE NON-LOAD-BEARING PARTITIONS, PROVIDE CLEARANCES TO PERMIT THE STRUCTURE TO DEFLECT WITHOUT LOADING THE PARTITIONS. WHERE SPECIFIC CLEARANCES ARE NOT INDICATED, PROVIDE NOT LESS THAN 1" AROUND THE MEMBERS. PACK THE CLEARANCE SPACES WITH SAFING, MINERAL WOOL, FIBERGLASS, OR SPECIFIC UL RATED OR LISTED ASSEMBLIES INDICATED.

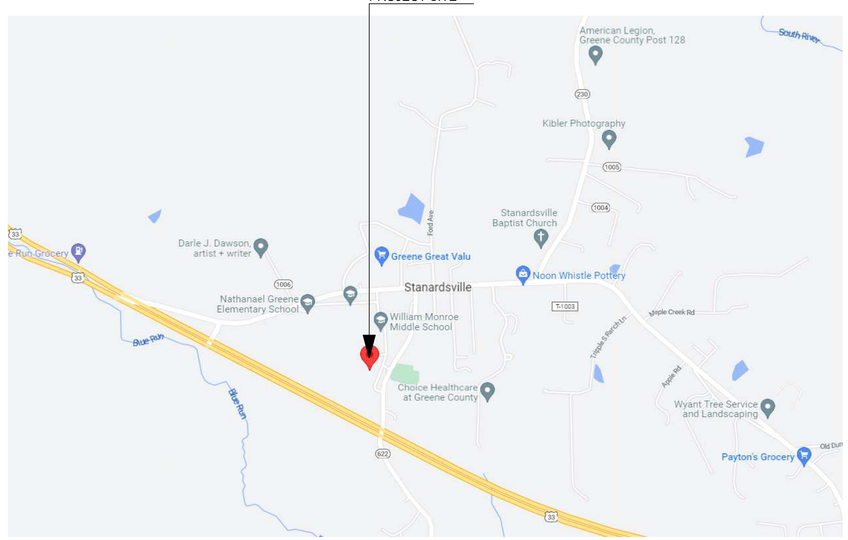
SOIL BEARING PRESSURE: 2,000 PSF ASSUMED

STRUCTURAL DESIGN LOADS:

LIVE LOADS:

FLOOR:	40 PSF
ROOF:	30 PSF
CEILING:	20 PSF
GROUND SNOW LOAD:	42.5 PSF
LATERAL WIND:	90 MPH

PROJECT SITE



VICINITY MAP

PROJECT BUILDING CODES

THIS PROJECT IS DESIGNED AND IS TO BE CONSTRUCTED IN CONFORMANCE WITH THE FOLLOWING CODES:

BUILDING CODE

2018 VIRGINIA CONSTRUCTION CODE

PLUMBING CODE

2018 INTERNATIONAL PLUMBING CODE

MECHANICAL CODE

2018 INTERNATIONAL MECHANICAL CODE.

ELECTRICAL CODE

2017 NATIONAL ELECTRICAL CODE

FIRE PREVENTION CODE:

2018 INTERNATIONAL FIRE PREVENTION CODE.

CODE COMPLIANCE

CODE REQUIREMENTS		REFERENCES
OCCUPANCY TYPE	NON-SEPARATED B AND E	
CONSTRUCTION TYPE	VB	VCC TABLE 601
ALLOWABLE FLOOR AREA	9,000 SQ. FT.	VCC TABLE 506.2
ACTUAL FLOOR AREA	3,779 SQ.FT.	
SPRINKLER SYSTEM	NOT REQUIRED	VCC 903.2 & 903.2.3
FIRE ALARM	NOT REQUIRED	VCC 907.2.2 & 907.2.3 EXC.2
OCCUPANT LOAD	93 OCCUPANTS	VCC TABLE 1004.1.2
ACCESS PROVIDED FOR THE DISABLED	YES	VCC 1103.1

DRAWING INDEX

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GREENE COUNTY PUBLIC SCHOOLS
ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

NOT FOR CONSTRUCTION

PROJ NO: 01-22-101

0

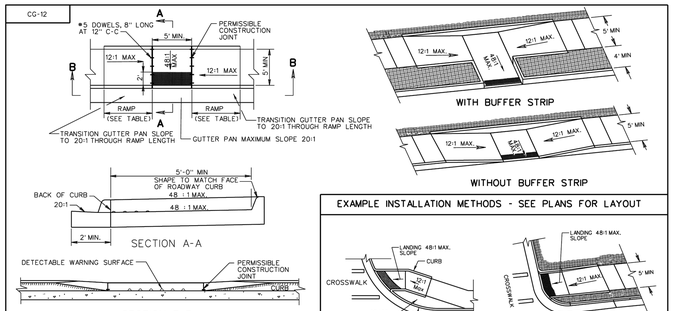
MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

T1

TITLE SHEET

6/20/2023 11:58 AM

CG-12



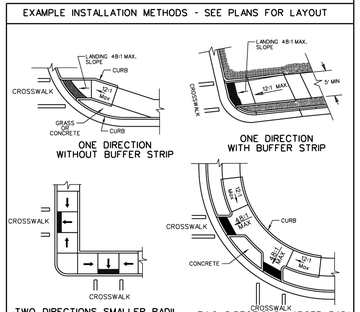
NOTES:

1. FOR GENERAL NOTES ON THE DETECTABLE WARNING SURFACE, SEE SHEET 1 OF 5.
2. THE REQUIRED LENGTH OF A PARALLEL RAMP IS LIMITED TO 15 FEET, REGARDLESS OF THE SLOPE.
3. GUTTER PAN SHALL BE A MAXIMUM SLOPE OF 20:1 AT THE RAMP OPENING.
4. DIAGONAL PLACEMENT IS NOT PERMITTED.

TYPE B PARALLEL APPLICATION

ROADWAY GRADE IN PERCENT	MINIMUM RAMP LENGTH IN FEET	
	4" CURB	6" CURB
0	4	6
1	5	7
2	5	8
3	6	9
4	8	12
5	10	15
6	14	15

EXAMPLE INSTALLATION METHODS - SEE PLANS FOR LAYOUT



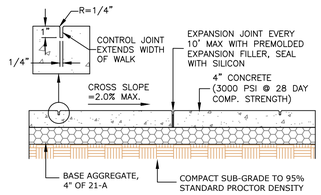
VDOT
ROAD AND BRIDGE STANDARDS

SHEET 3 OF 5	REVISION DATE
204.03	04/19

A COPY OF THE ORIGINAL SEALED AND SIGNED DRAWING IS ON FILE IN THE CENTRAL OFFICE.

CG-12 DETECTABLE WARNING SURFACE
TYPE B (PARALLEL) APPLICATION
VIRGINIA DEPARTMENT OF TRANSPORTATION
2016 ROAD & BRIDGE STANDARDS

SPECIFICATION REFERENCE: 105, 502, 504

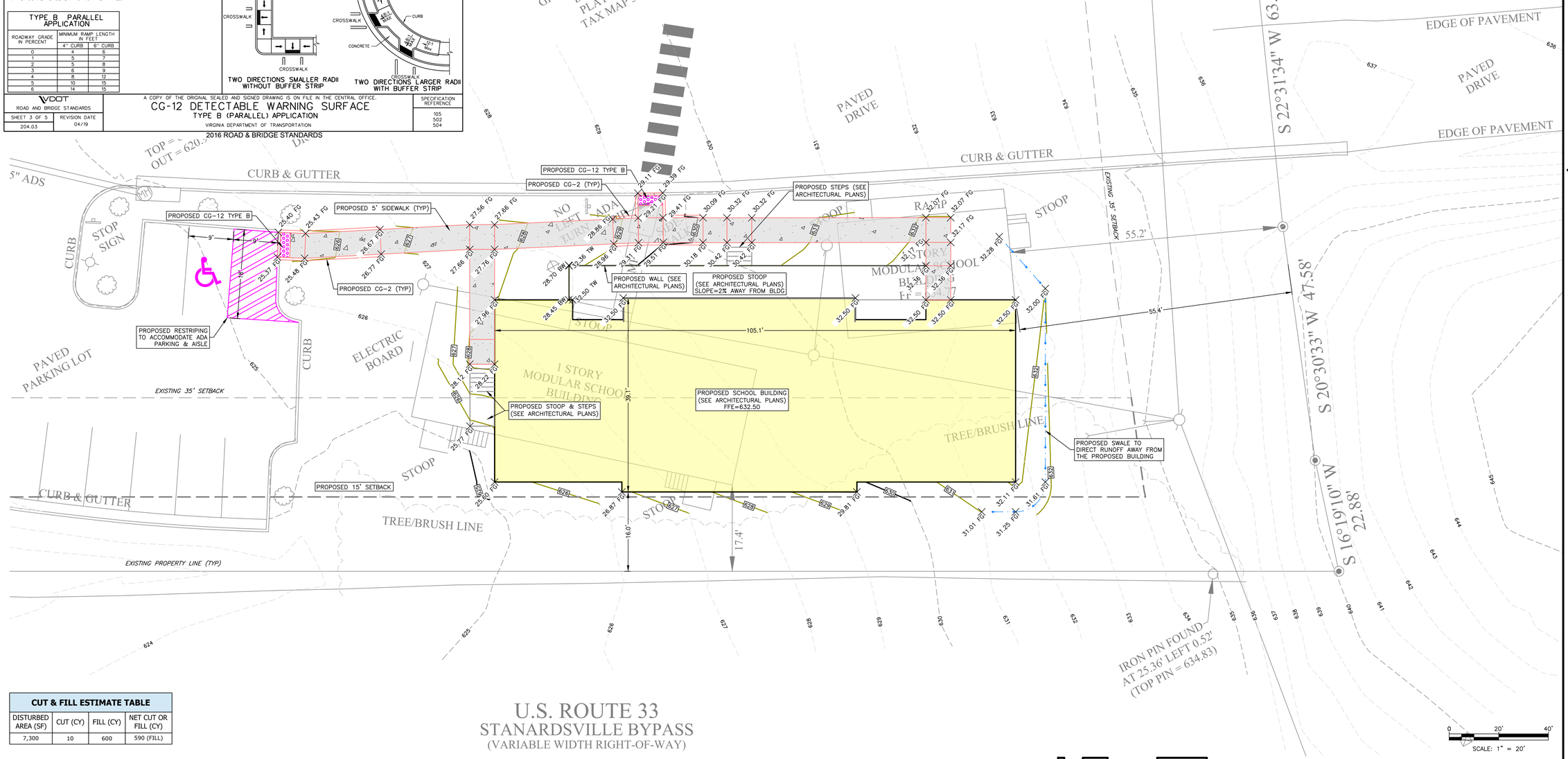


SIDEWALK SECTION
NTS

NOTES:
1. CONTRACTOR TO TIE INTO EXISTING UTILITIES FOR PROPOSED BUILDING.
2. CONTRACTOR TO INSTALL EROSION AND SEDIMENT CONTROL MEASURES AS PER VIRGINIA DEQ & COUNTY STANDARDS.
3. CONTRACTOR TO STRIP TOPSOIL AND HAUL OFF AS NEEDED.

BEFORE YOU DIG CALL
MISS UTILITY
1-800-552-7001

COUNTY SCHOOL BOARD OF GREENE COUNTY, VIRGINIA
D.B. 1351, PG. 316
PLAT CARD 2465
TAX MAP 37-(A)-11



CUT & FILL ESTIMATE TABLE			
DISTURBED AREA (SF)	CUT (CY)	FILL (CY)	NET CUT OR FILL (CY)
7,300	10	600	590 (FILL)

U.S. ROUTE 33
STANARDSVILLE BYPASS
(VARIABLE WIDTH RIGHT-OF-WAY)

WORKING DRAWING Set

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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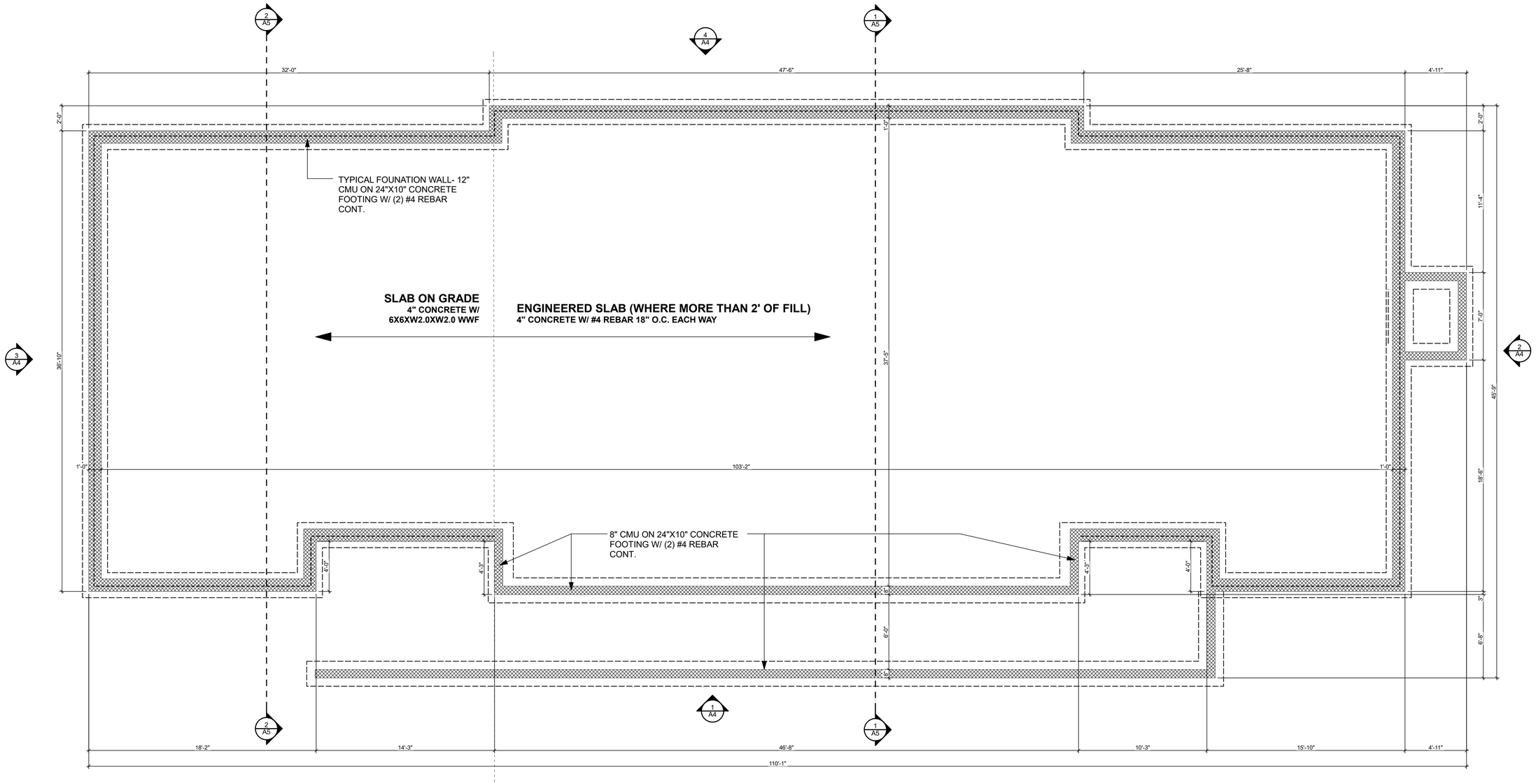
COLEMAN ENGINEERING PLC
CIVIL & WATER RESOURCES

GREENE COUNTY PUBLIC SCHOOLS
ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

COMMONWEALTH OF VIRGINIA
GUILLERMO L. COLMAN
Lic. No.045776
4/3/23
PROFESSIONAL ENGINEER

PROJ NO: 01-22-101

C1
SITE PLAN
4/3/2023 8:26 AM



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

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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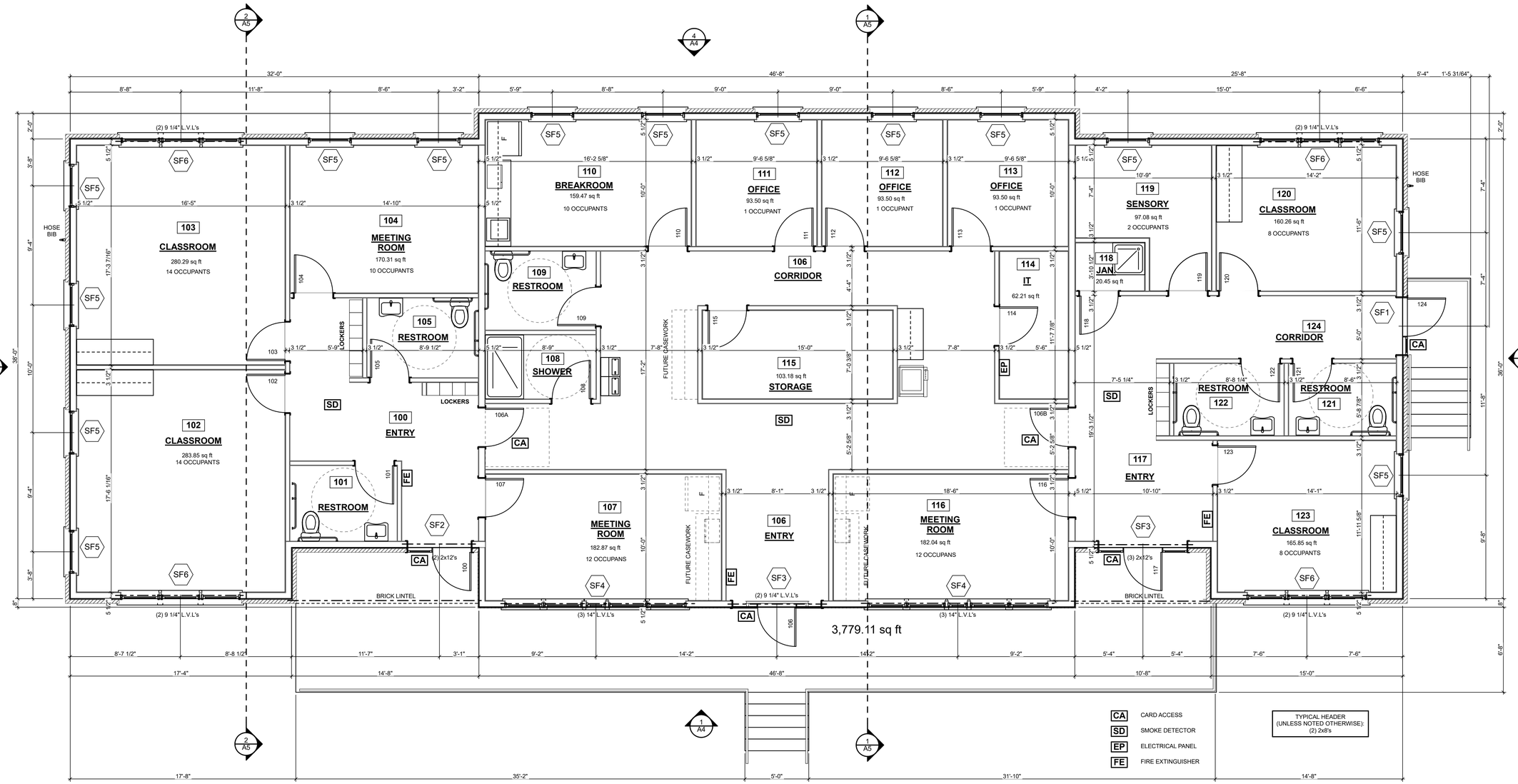
GREENE COUNTY PUBLIC SCHOOLS
ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

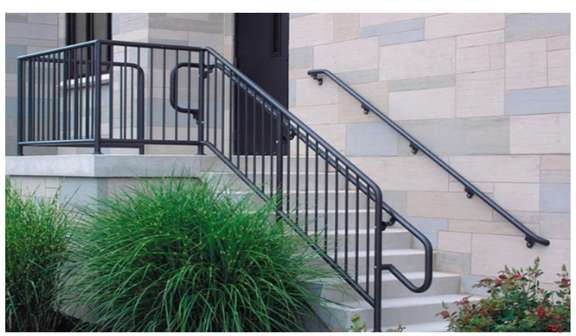
NOT FOR CONSTRUCTION

PROJ NO: 01-22-101

A1
FOUNDATION PLAN
4/1/2023 5:57 PM



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



ALUMINUM HANDRAIL, GUARDRAIL, TREAD AND RISER FOR ALL STAIRS TO COMPLY WITH VCC CHAPTER 10

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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GREENE COUNTY PUBLIC SCHOOLS
ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

NOT FOR CONSTRUCTION

PROJ NO: 01-22-101

A2
FLOOR PLAN
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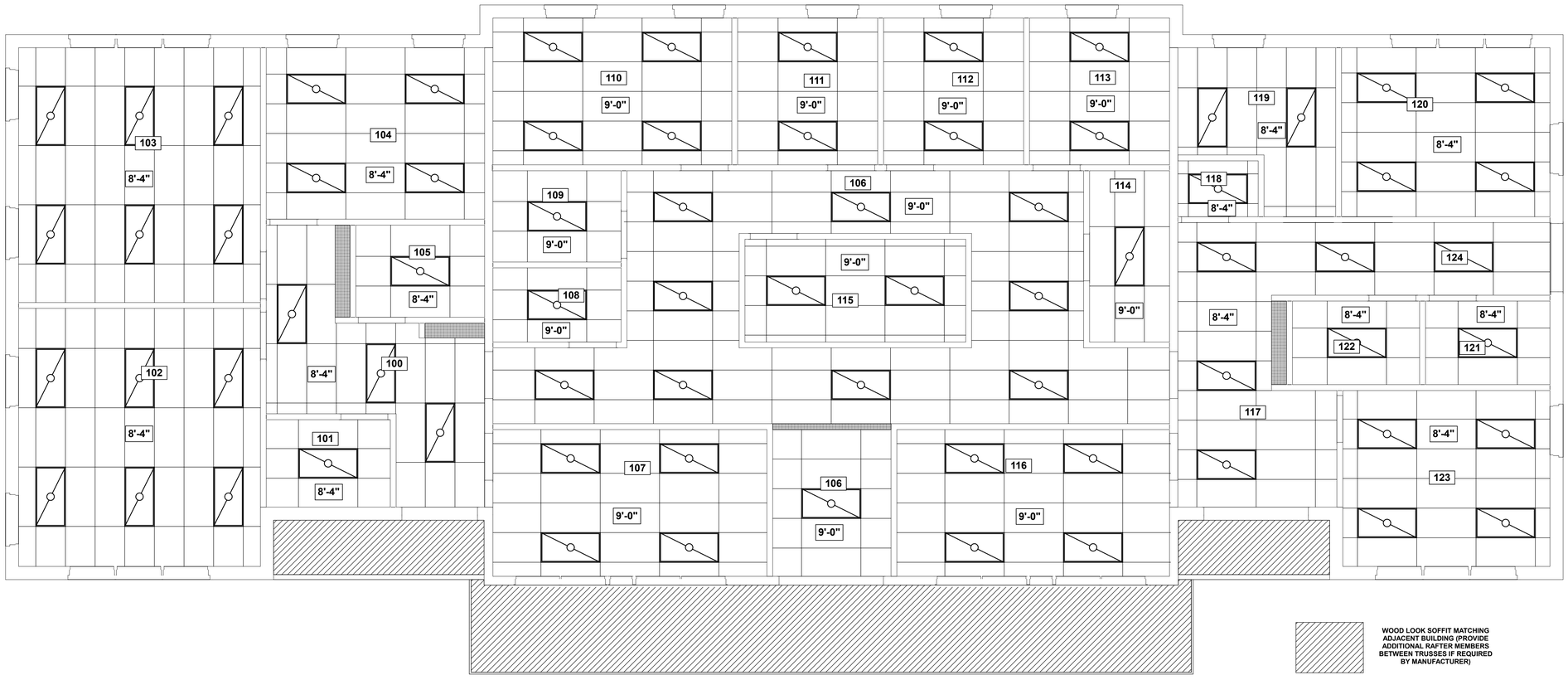

1 REFLECTED CEILING PLAN
SCALE: 1/4" = 1'-0"

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GREENE COUNTY PUBLIC SCHOOLS
ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

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PROJ NO: 01-22-101

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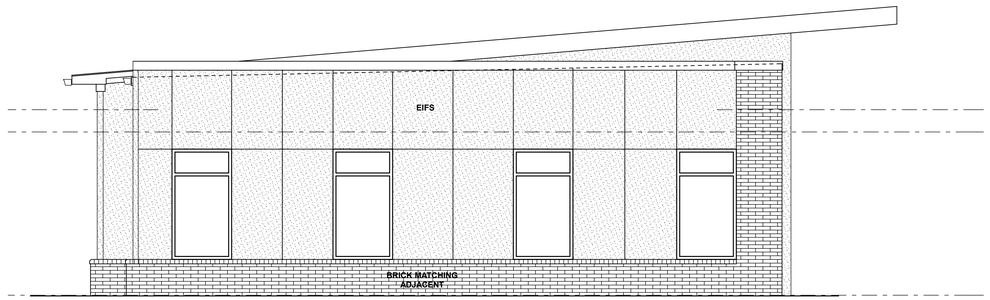
MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

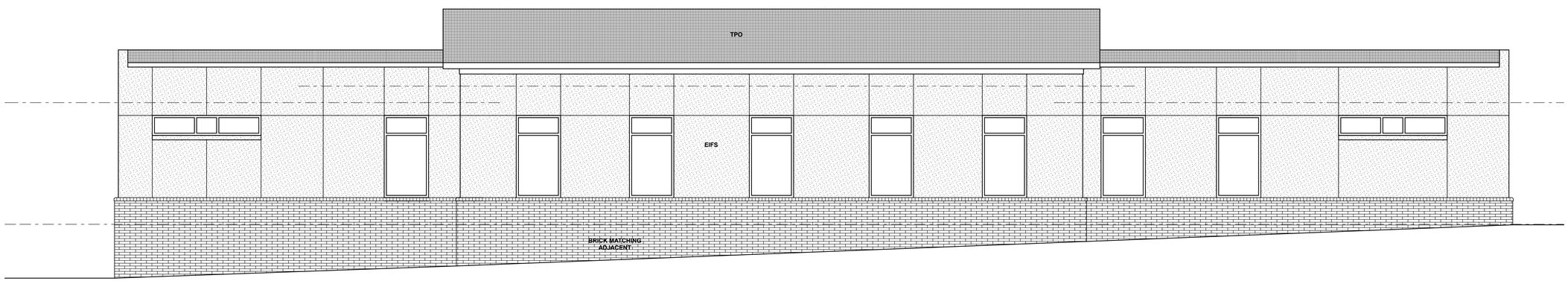
A3
REFLECTED CEILING PLAN
4/1/2023 5:58 PM

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

2 RIGHT ELEVATION
SCALE: 1/4" = 1'-0"



3 LEFT ELEVATION
SCALE: 1/4" = 1'-0"



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

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

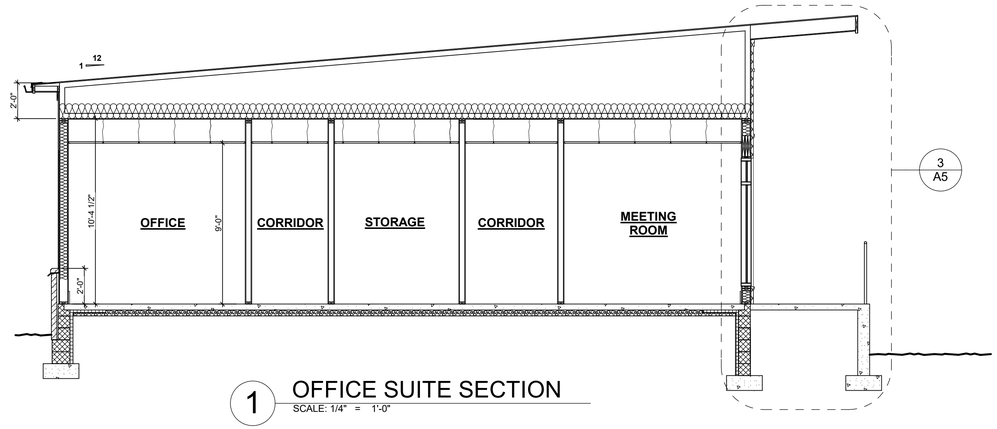
NOT FOR CONSTRUCTION

PROJ NO: 01-22-101

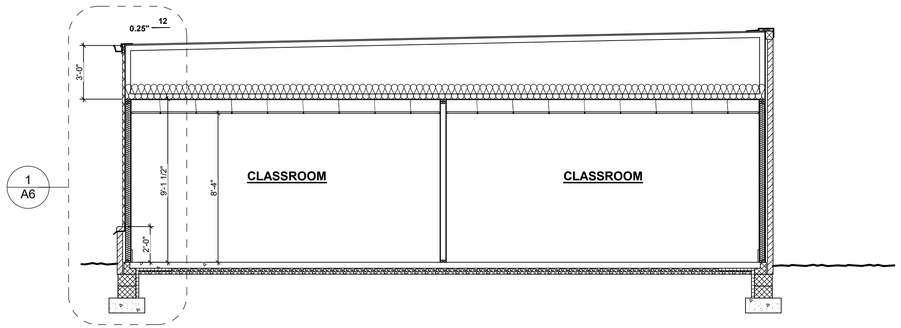
A4

ELEVATIONS

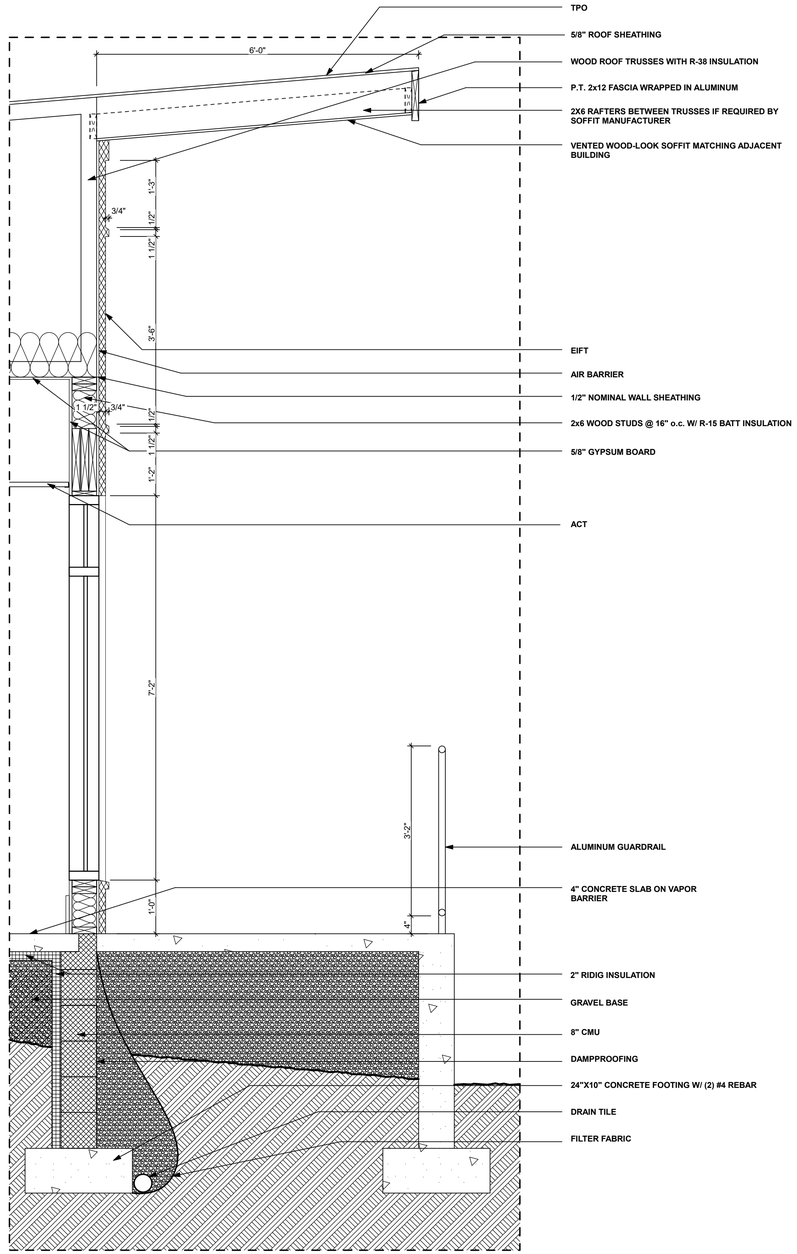
4/1/2023 5:58 PM



1 OFFICE SUITE SECTION
SCALE: 1/4" = 1'-0"



2 CLASSROOM WING SECTION
SCALE: 1/4" = 1'-0"



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

0

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ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
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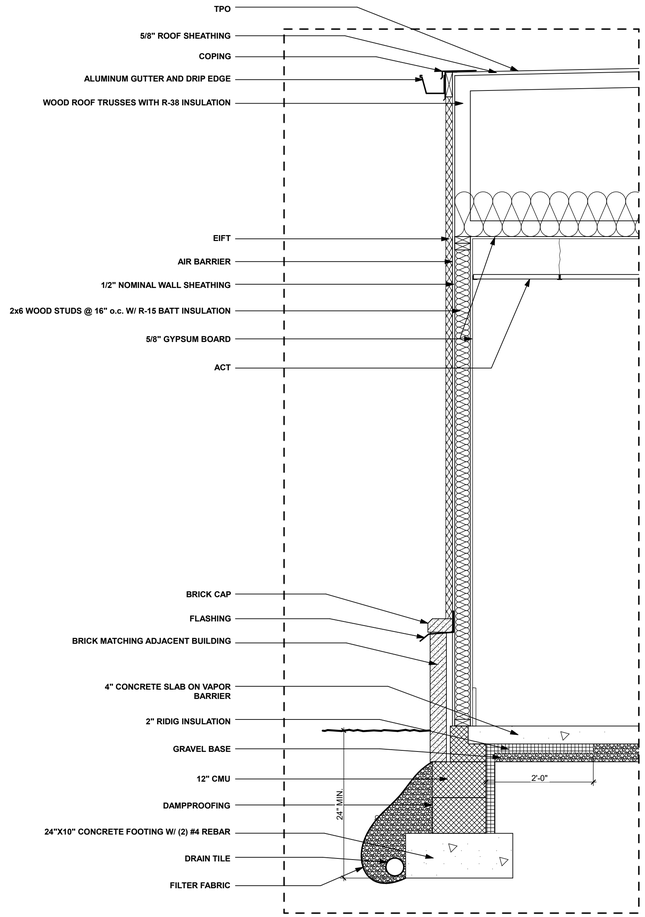
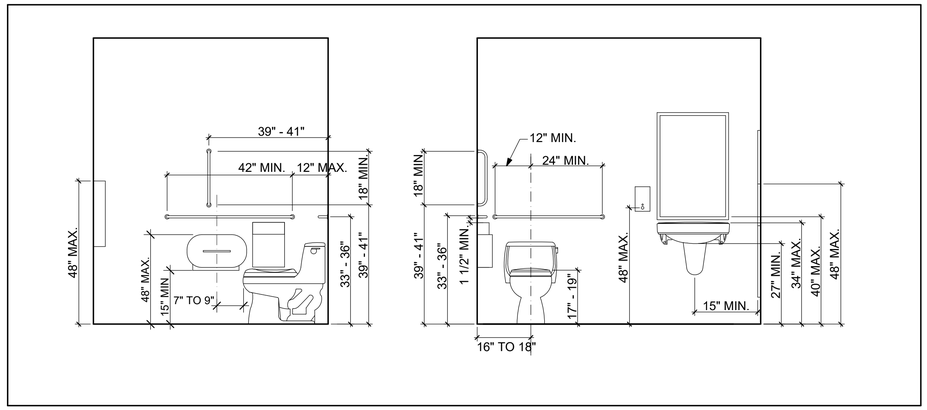
MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

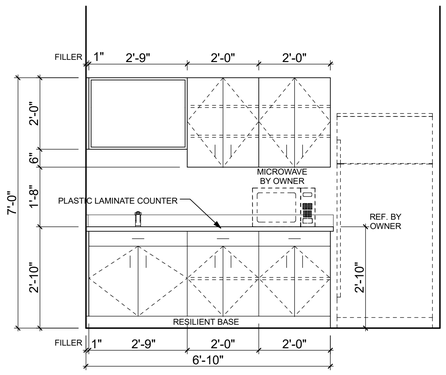
A5
SECTIONS
4/1/2023 5:58 PM



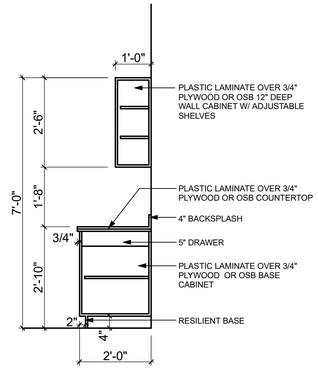
1 TYPICAL WALL SECTION 2
SCALE: 3/4" = 1'-0"

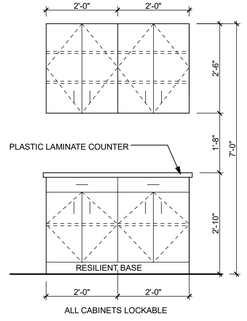


2 RESTROOM ELEVATIONS
SCALE: 1/2" = 1'-0"

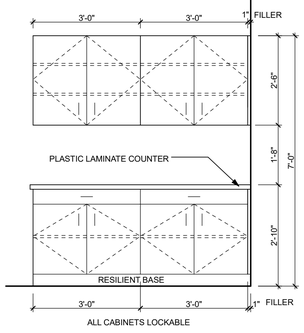


BREAKROOM 110 CABINETRY



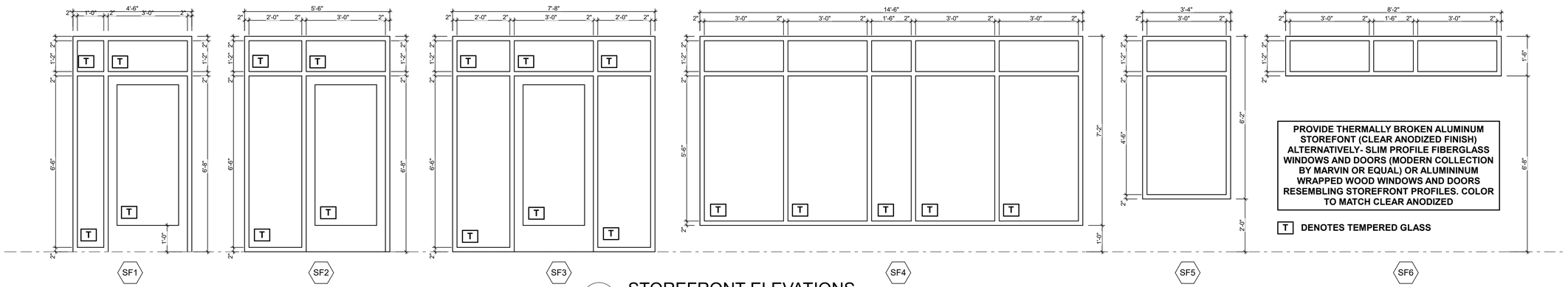


CORRIDOR 106 CABINETRY



TYPICAL CLASSROOM CABINETRY
(4 LOCATIONS- 1 OF THEM MIRRORED)

3 TYPICAL CASEWORK
SCALE: 1/2" = 1'-0"



4 STOREFRONT ELEVATIONS
SCALE: 1/2" = 1'-0"

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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A6

SECTIONS/DETAILS

4/1/2023 5:59 PM

DOOR SCHEDULE

DOOR							FRAME			HARDWARE							GLASS		
MARK	SIZE	THICKNESS	ELEV. TYPE	MATERIAL	FINISH	FIRE RATING (MINUTES)	MATERIAL	ELEVATION	FINISH	LOCKSET	LEVER HANDLE	PANIC DEVICE	PUSH & PULL	FLUSH BOLT	DOORSTOP	CLOSER	SAFETY TEMP.	INSULATED	KEYNOTE
100	3070		ST	AL	AN		AL		AN	F-81		X				X	X	X	1
101	3070	1 3/4"	F	WD	S&V		HM	A	P	F-76	X				X	X			
102	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
103	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
104	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
105	3070	1 3/4"	F	WD	S&V		HM	A	P	F-76	X				X	X			
106	3070		ST	AL	AN		AL		AN	F-81			X			X	X	X	1
107	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
108	3070	1 3/4"	F	WD	S&V		HM	A	P	F-76	X				X	X			
109	3070	1 3/4"	F	WD	S&V		HM	A	P	F-76	X				X	X			
110	3070	1 3/4"	FG	WD	S&V		HM	A	P	F-84	X				X		X		
111	3070	1 3/4"	FG	WD	S&V		HM	A	P	F-84	X				X		X		
112	3070	1 3/4"	FG	WD	S&V		HM	A	P	F-84	X				X		X		
113	3070	1 3/4"	FG	WD	S&V		HM	A	P	F-84	X				X		X		
114	3070	1 3/4"	F	WD	S&V		HM	A	P	F-86	X								
115	3070	1 3/4"	F	WD	S&V		HM	A	P	F-86	X				X				
116	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
117	3070		ST	AL	AN		AL		AN	F-81			X			X	X	X	1
118	3070	1 3/4"	F	WD	S&V		HM	A	P	F-86	X				X				
119	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
120	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
121	3070	1 3/4"	F	WD	S&V		HM	A	P	F-76	X				X	X			
122	3070	1 3/4"	F	WD	S&V		HM	A	P	F-76	X				X	X			
123	3070	1 3/4"	V	WD	S&V		HM	A	P	F-84	X				X	X	X		
124	3070		ST	AL	AN		AL		AN	F-81			X			X	X	X	1

LEGEND

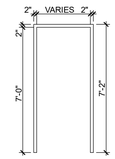
AL = ALUMINUM
AN = ANODIZED
HM = HOLLOW METAL
S&V = STAIN AND VARNISH
ST = STOREFRONT
WD = WOOD

HARDWARE MOUNTING HEIGHTS:

PUSH PLATES AND BARS	36" TO CENTER
PULL HANDLES	36" TO CENTER
LEVERS	36" TO CENTER
DEAD LOCKS	48" TO CENTER

ANSI LOCK FUNCTIONS:

F-76	PRIVACY LOCK
F-81	ENTRANCE LOCK
F-84	CLASSROOM LOCK
F-86	STOREROOM LOCK



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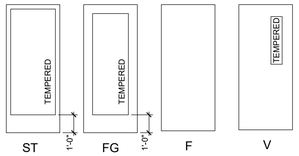
FRAME ELEVATION



DOOR ELEVATIONS

GENERAL NOTES:

1. COORDINATE KEYING WITH OWNER
2. DOOR VENEER COLOR TO BE SELECTED FROM STANDARD OPTIONS
3. STOREFRONT COLOR- CLEAR ANODIZED

KEYNOTES:

1. PREP DOOR IN COORDINATION WITH REQUIREMENTS OF CARD READER SYSTEM

ROOM FINISH SCHEDULE

NO.	NAME	FLOOR		WALLS			CEILING		NOTES
		SUB	FINISH	MATERIAL	FINISH	BASE	MATL	HEIGHT	
100	ENTRY	CONC	LVT	GB	P	RB	ACT	8'-4"	
101	RESTROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	1
102	CLASSROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	
103	CLASSROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	
104	MEETING ROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	
105	RESTROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	1
106	ENTRY	CONC	LVT	GB	P	RB	ACT	9'-0"	
107	MEETING ROOM	CONC	LVT	GB	P	RB	ACT	9'-0"	
108	SHOWER	CONC	LVT	GB	P	RB	ACT	9'-0"	1
109	RESTROOM	CONC	LVT	GB	P	RB	ACT	9'-0"	1
110	BREAKROOM	CONC	LVT	GB	P	RB	ACT	9'-0"	
111	OFFICE	CONC	LVT	GB	P	RB	ACT	9'-0"	
112	OFFICE	CONC	LVT	GB	P	RB	ACT	9'-0"	
113	OFFICE	CONC	LVT	GB	P	RB	ACT	9'-0"	
114	IT	CONC	LVT	GB	P	RB	ACT	9'-0"	
115	STORAGE	CONC	LVT	GB	P	RB	ACT	9'-0"	
116	MEETING ROOM	CONC	LVT	GB	P	RB	ACT	9'-0"	
117	ENTRY	CONC	LVT	GB	P	RB	ACT	8'-4"	
118	JANITOR'S	CONC	LVT	GB	P	RB	ACT	8'-4"	1
119	SENSORY ROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	
120	CLASSROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	
121	RESTROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	1
122	RESTROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	1
123	CLASSROOM	CONC	LVT	GB	P	RB	ACT	8'-4"	
124	CORRIDOR	CONC	LVT	GB	P	RB	ACT	8'-4"	

LEGEND

ACT = SUSPENDED ACOUSTICAL TILE
CONC = CONCRETE
GB = GYPSUM BOARD
LVT = LUXURY VINYL TILE
P = NEW PAINT
RB = RESILIENT BASE

GENERAL NOTES:

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ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

NOT FOR CONSTRUCTION

PROJ NO: 01-22-101

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

A7

SCHEDULES

4/1/2023 5:59 PM

PLUMBING SPECIFICATIONS

1. GENERAL

1.1 DESCRIPTION OF WORK:

A. ALL FIXTURES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED TO PROVIDE COMPLETE, COORDINATED, AND FULLY FUNCTIONAL PLUMBING SYSTEMS GENERALLY AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
   1. SANITARY SEWER
   2. DOMESTIC WATER

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THE CIVIL, ARCHITECTURAL, STRUCTURAL, HVAC, AND ELECTRICAL DRAWINGS AND SPECIFICATIONS SHALL APPLY TO AND BE CONSIDERED A PART OF THE PLUMBING WORK IN-SO-FAR AS THEY APPLY TO THE PLUMBING WORK AND ARE REQUIRED FOR COORDINATION.

1.3 JOB CONDITIONS:

A. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED TO PROVIDE A COMPLETE INSTALLATION OF THE WORK DESCRIBED AND INDICATED.

B. PROVIDE FITTINGS, OFFSETS, TRANSITIONS, AND ACCESSORIES REQUIRED TO MEET CONDITIONS OF THE PROJECT.

C. PROVIDE SERVICE ACCESS FOR EQUIPMENT, CONTROL COMPONENTS, VALVES, AND SPECIALTIES.

D. PROVIDE ACCESS PANELS FOR VALVES, ACCESS DOORS, ETC. CONCEALED BEHIND FINISHED SURFACES.

1.4 CONFORMANCE TO REGULATIONS:

A. WORK SHALL CONFORM WITH VIRGINIA UNIFORM STATEWIDE BUILDING CODE, NFPA, AND LOCAL ORDINANCES.

1.5 QUALITY ASSURANCE:

A. COMPLY WITH MANUFACTURER'S REQUIREMENTS AND NOTES AND DETAILS SHOWN HEREIN FOR INSTALLATION OF EQUIPMENT.

1.6 MATERIALS AND EQUIPMENT:

A. EQUIPMENT PROVIDED FOR THIS PROJECT SHALL BE EQUIVALENT TO PRODUCTS SPECIFIED.

B. CONTRACTOR SHALL GUARANTEE EQUIVALENCE AND IS RESPONSIBLE FOR MODIFICATIONS REQUIRED AND COORDINATION WITH OTHER TRADES TO FIT SUBSTITUTED PRODUCT INTO THE PROJECT.

C. MATERIALS AND EQUIPMENT OF THE SAME TYPE AND USE SHALL BE FROM A SINGLE MANUFACTURER.

D. PROTECT STORED MATERIALS AND EQUIPMENT FROM WEATHER.

1.7 UTILITIES AND CONNECTIONS:

A. OWNER WILL PAY FOR ALL WATER AND SEWER UTILITY CONNECTION FEES.

B. COORDINATE CONNECTIONS WITH SITE UTILITY DRAWINGS. WORK TO LOCATIONS AND INVERTS INDICATED ON SITE DRAWINGS. PROVIDE TRANSITIONS IN SIZE AND MATERIAL AT POINT OF CONNECTION.

1.8 SUBMITTALS:

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR FIXTURES AND EQUIPMENT SPECIFIED HEREIN AND ON THE DRAWINGS. SHOP DRAWINGS AND PRODUCT DATA SHALL BE IDENTIFIED PER INDICATIONS ON DRAWINGS, SHALL BE MARKED TO INDICATED SPECIFIC ITEM BE PROPOSED, AND SHALL BE ORGANIZED IN AN ORDERLY MANNER. SUBMIT SHOP DRAWINGS ELECTRONICALLY IN PDF FORMAT.

B. SUBMIT OPERATING AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT INSTALLED IN THIS PROJECT. INCLUDE COPIES OF SPECIFIC EQUIPMENT WARRANTIES IN MANUAL.

C. UPON COMPLETION OF THE INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE OWNER, CONTRACTOR SHALL FURNISH TWO COPIES OF AS-BUILT DOCUMENTATION. ALL CHANGES TO THE BIDDING DOCUMENTS SHALL BE NEATLY AND CLEARLY IDENTIFIED ON THE AS-BUILT DOCUMENTATION.

1.9 PROJECT CLOSEOUT:

A. REPLACE OR REPAIR DAMAGED EQUIPMENT AND CLEAN ALL EXPOSED SURFACES.

B. TOUCH-UP SHOP APPLIED FINISHES TO RESTORE DAMAGED OR SOILED AREAS.

C. INSTRUCT OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF EQUIPMENT UTILIZING OPERATION AND MAINTENANCE MANUAL.

2. PRODUCTS

2.1 PIPING SYSTEMS:

A. DOMESTIC WATER PIPING – DOMESTIC TYPE L COPPER W/ NO LEAD SOLDER JOINTS, PEX OR CVPC. UNDERSLAB WATER – TYPE K SOFT COPPER OR PEX W/ NO JOINTS.

B. WATER SERVICE – DUCTILE IRON.

C. SANITARY DRAINAGE – SCHEDULE 40 PVC WITH SOLVENT WELD FITTINGS, OR NO-HUB CAST IRON PIPING.

D. VENT PIPING – SCHEDULE 40 PVC W/ SOLVENT WELD FITTINGS, OR COPPER DWV WITH 50/50 SOLDER FITTINGS.

2.2 PLUMBING FIXTURES AND EQUIPMENT:

A. REFER TO FIXTURE SCHEDULE AND EQUIPMENT LIST ON DRAWINGS FOR MANUFACTURER'S AND MODEL NUMBERS.

3. EXECUTION

3.1 PIPING SYSTEMS

A. VERIFY INVERT ELEVATIONS PRIOR TO EXCAVATION.

B. BACKFILL BURIED PIPE IN TRENCHES WITH DIRT FREE OF ROCK, STONE OR DEBRIS.

C. VERIFY EXACT LOCATION OF EQUIPMENT AND FIXTURES PRIOR TO ROUGH-IN.

D. COORDINATE ROUTING OF WORK WITH OTHER TRADES AND INSTALL TO ALLOW MAXIMUM HEADROOM CLEARANCES, SERVICE ACCESS AND MAINTAIN PROPER PITCH OF SLOPING LINES.

E. INSULATE PIPING SYSTEMS AS FOLLOWS:
   1. DOMESTIC WATER – 1/2" FIBERGLASS W/ ASJ UP TO 1.5"; 1" FIBERGLASS W/ ASJ OVER 1.5" PIPE SIZE. HOT WATER – 1" FIBERGLASS W/ ASJ. UNDERSLAB WATER – 3/4" THICK CLOSED CELL RUBBER.
   2. SEAL VAPOR BARRIERS. SECURE WITH ADHESIVE AND SEAL JOINTS WITH SEALANT.
   3. PROVIDE GALVANIZED STEEL SADDLE AT HANGERS SURROUNDING INSULATED PIPE.
   4. DO NOT COMPRESS INSULATION EXCEPT IN AREAS OF STRUCTURAL INTERFERENCE.
   5. INSTALL PRE-FITTED PLASTIC ELBOWS OR APPLY CANVAS JACKET IN THREE LAYERS AT ELBOWS.
   6. INSULATE FITTINGS, VALVES AND EQUIPMENT BODIES.

F. PROVIDE SLEEVES FOR PIPING PENETRATING WALLS. INSULATION SHALL BE CONTINUOUS THROUGH SLEEVES.

G. FIRESTOP PIPING PASSING THROUGH FIRE RATED WALLS OR CEILINGS.

H. PATCH FINISHED AREAS DISTURBED BY WORK TO MATCH SURROUNDING AREAS.

I. WELDING SHALL BE DONE BY CERTIFIED WELDERS FOR THE APPROPRIATE SYSTEM BEING WELDED.

J. MAKE CONNECTIONS OF DISSIMILAR METALLIC PIPING WITH DIELECTRIC UNIONS.

K. PROVIDE CHROME PLATED ESCUTCHEON FOR EXPOSED PIPING PENETRATING A FINISHED SURFACE.

L. PROVIDE SHUT OFF VALVES AT EQUIPMENT CONNECTIONS. PROVIDE STOPS FOR ALL PLUMBING EQUIPMENT AND FIXTURES.

M. HANGERS SUPPORTING COPPER PIPING SHALL BE COPPER PLATED OR PLASTIC COVERED. HANGERS SUPPORTING INSULATED PIPING SHALL BE SIZED TO SURROUND INSULATION AND STEEL SADDLE.

N. PROVIDE VACUUM BREAKERS AT WALL HYDRANTS.

O. TEST PIPING SYSTEMS AS FOLLOWS:
   1. WATER PIPING – TEST AT PRESSURE NOT LESS THAN WORKING PRESSURE OF THE SYSTEM. MAINTAIN SUCH PRESSURE FOR MINIMUM OF 1 HOUR.
   2. SANITARY, STORM AND VENT PIPING – W/ 10 FT. HEAD OF WATER, MAINTAINING SUCH PRESSURE FOR MINIMUM OF 1 HOUR.
   3. TESTS SHALL SHOW NO SUBSTANTIAL LOSS IN PRESSURE.
   4. PIPING RUN IN CONCEALED AREAS SHALL BE LEAK TESTED PRIOR TO BEING CONCEALED.

3.2 PLUMBING FIXTURES

A. PROVIDE CHROME PLATED STOPS FOR FIXTURES.

B. PROVIDE TAILPIECE AND TRAP WITH CLEANOUT FOR LAVATORIES AND SINKS.

C. PROVIDE REMOVABLE CHROME PLATED BASKET STRAINER FOR SINKS.

D. CAULK BETWEEN FIXTURE AND FINISHED SURFACES WITH WHITE SILICONE CAULKING.

E. PROVIDE BOLT CAPS FOR WATER CLOSETS AND URINALS.

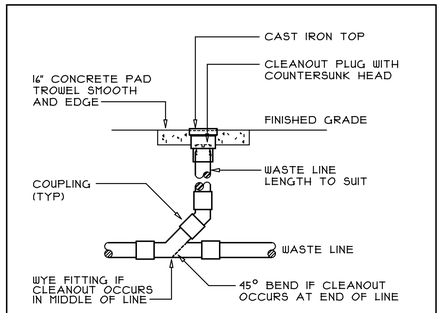
F. MOUNT WALL CLEANOUTS AND PLUGGED OUTLETS AT 18" ABOVE FINISHED FLOOR UNLESS OTHERWISE NOTED ON DRAWINGS.

HOT WATER RECIRC EQUIPMENT LIST

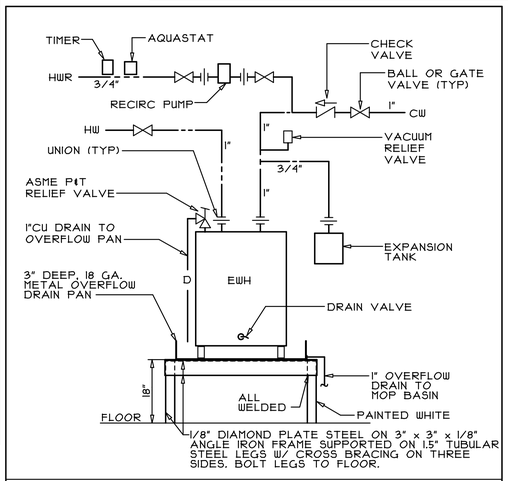
1. RECIRC PUMP SHALL BE GRUNDFOS MODEL UPS15-35SFC OR EQUAL. 120 VOLT, 1/2 HP, 2 GPM AT 10 FT OF HEAD.
2. AQUASTAT FOR HOT WATER RECIRC SHALL BE HONEYWELL MODEL T615A OR EQUAL. 55-175 DEG. F. TEMP. RANGE, 5 FT. CAPILLARY W/ T-STRAP & HEAT CONDUCTING COMPOUND.
3. TIMER SHALL BE TORK MODEL 1101 OR EQUAL.

PLUMBING FIXTURE CONNECTION SCHEDULE

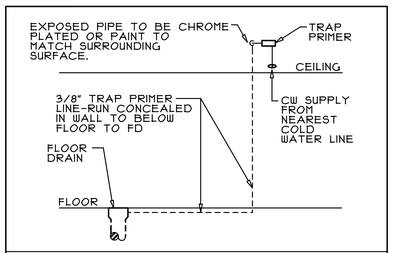
NO.	DESCRIPTION	W	V	CW	HW	REMARKS
WI	ACCESSIBLE, TANK TYPE WATER CLOSET	3	2	1/2	--	INSTALL FIXT. IN ACCORDANCE WITH APPLICABLE STANDARDS.
LI	ACCESSIBLE WALL HUNG LAVATORY	1.5	1.5	1/2	1/2	INSTALL FIXT. IN ACCORDANCE WITH APPLICABLE STANDARDS.
EWC	ACCESSIBLE ELEC. WATER COOLER	1.5	1.5	1/2	--	INSTALL FIXT. IN ACCORDANCE WITH APPLICABLE STANDARDS.
SHI	ACCESSIBLE SHOWER	1.5	1.5	1/2	--	INSTALL FIXT. IN ACCORDANCE WITH APPLICABLE STANDARDS.
SI	ACCESSIBLE SINGLE BOWL S/S SINK	1.5	1.5	1/2	1/2	INSTALL FIXT. IN ACCORDANCE WITH APPLICABLE STANDARDS.
MB	MOP BASIN	3	1.5	1/2	1/2	
WH	WALL HYDRANT	--	--	3/4	--	
FCO	FLOOR CLEANOUT	X	--	--	--	SIZE AS NOTED ON PLAN OR ON RISER DIAGRAM.
WCO	WALL CLEANOUT	X	--	--	--	SIZE AS NOTED ON PLAN OR ON RISER DIAGRAM.
COTG	CLEANOUT TO GRADE	4	--	--	--	MOUNT IN 16" SQUARE CONC. RING FLUSH W/ PAVEMENT OR GRADE.
FD	FLOOR DRAIN	X	X	--	--	SIZE AS NOTED ON PLAN OR ON RISER DIAGRAM.
EWH	ELEC. WATER HEATER	--	--	3/4	3/4	208V, 1PH, 4kW 40 GALLON
RIM	REFRIGERATOR/ICE MAKER BOX	--	--	3/8	--	W/ BUILT-IN SHOCK ARRESTER W/ BACKFLOW PREVENTER



CLEANOUT TO GRADE DIAGRAM



WATER HEATER DIAGRAM



FLOOR DRAIN TRAP PRIMER DIAGRAM

LEGEND

- SOIL OR WASTE PIPING
- W WATER SERVICE PIPING
- VENT PIPING
- CW COLD WATER PIPING
- HW HOT WATER PIPING
- HWR HOT WATER RECIRC. PIPING
- BALL OR GATE VALVE
- CHECK VALVE
- RPZ BACKFLOW PREVENTER
- PRESSURE REDUCING VALVE
- DROP IN PIPING
- W/1 RISER MARK - SEE DIAGRAM

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
WCO	WALL CLEANOUT
FCO	FLOOR CLEANOUT
COTG	CLEANOUT TO GRADE
VTR	VENT THRU ROOF
WH	WALL HYDRANT
EWH	ELECTRIC WATER HEATER
CW	COLD WATER
HW	HOT WATER
TW	TEMPERED WATER
HWR	HOT WATER RECIRC.
DN	DOWN
WC	WATER CLOSET
LAV	LAVATORY
FD	FLOOR DRAIN
DFU	DRAINAGE FIXTURE UNIT
SFU	SUPPLY FIXTURE UNIT

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254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

NOT FOR CONSTRUCTION

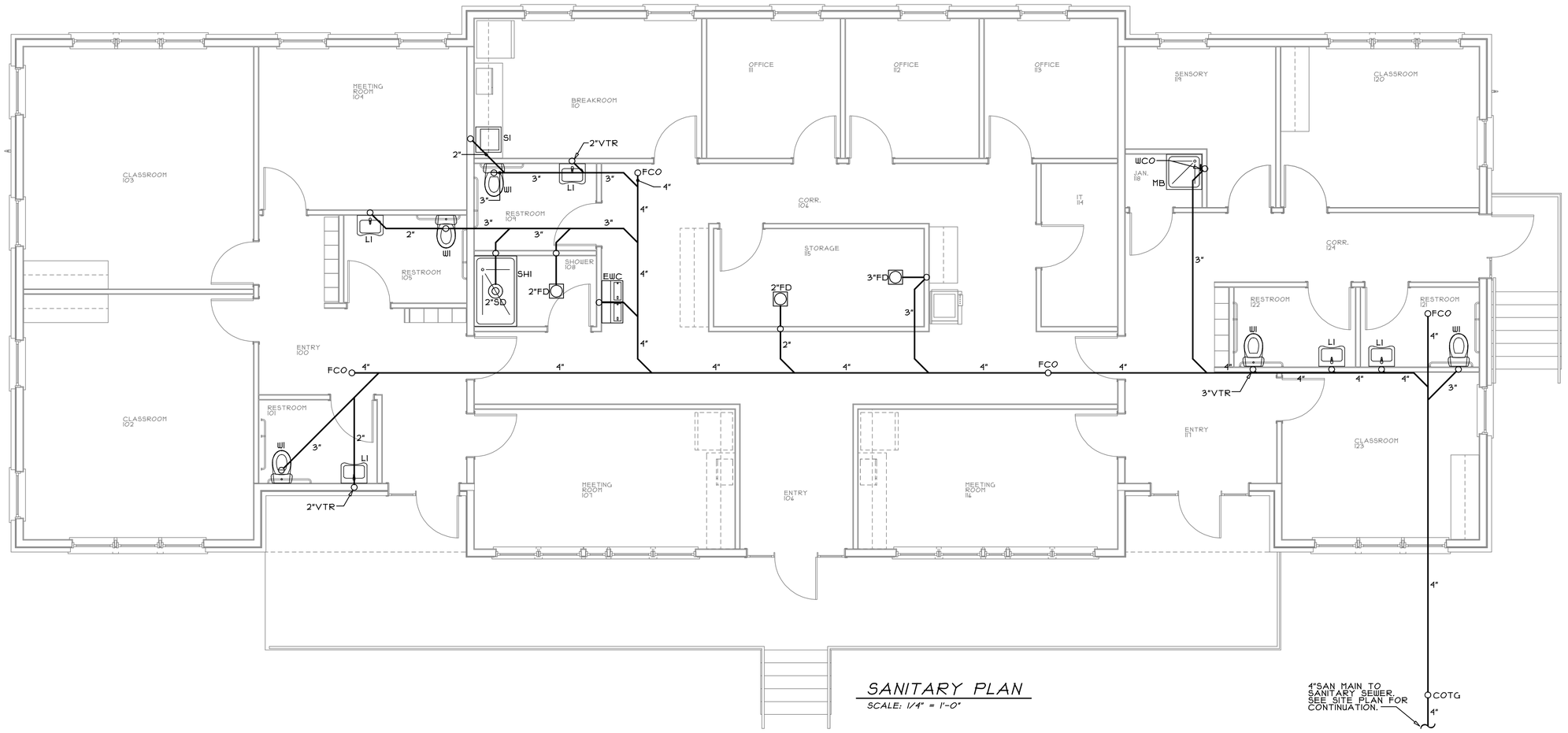
PROJ NO: 23080

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

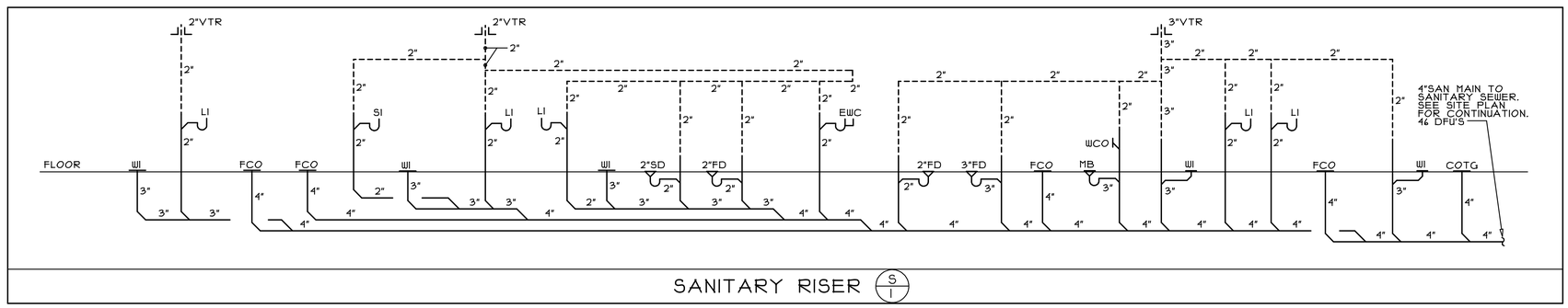
P1

PLUMBING SPECS., SCHEDULES & DETAILS



SANITARY PLAN

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



SANITARY RISER (S/1)

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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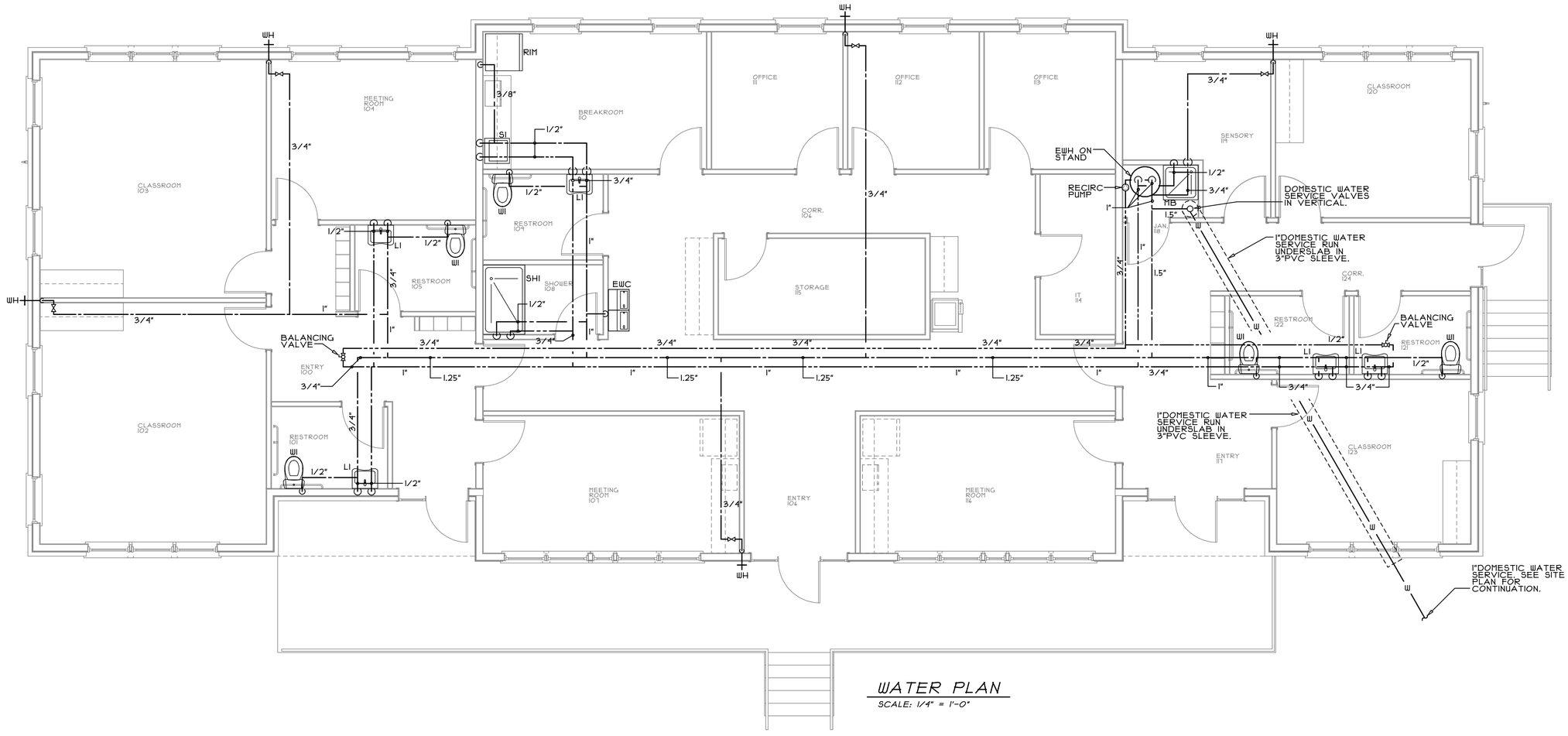
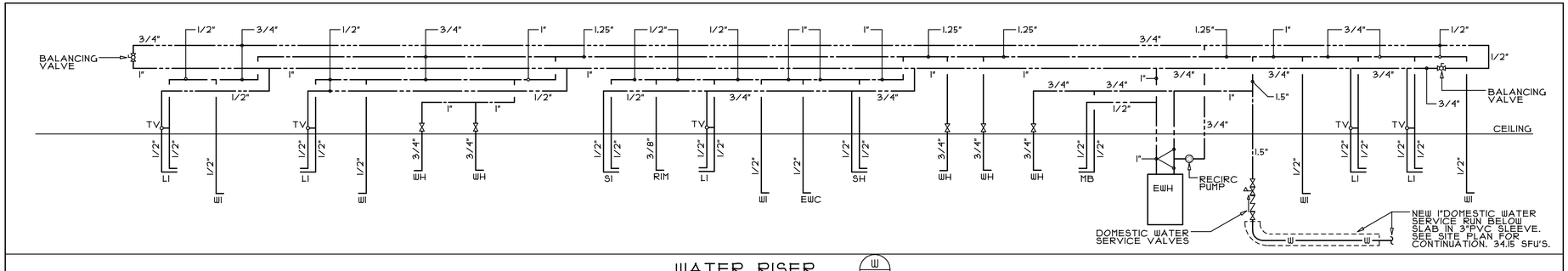
P2

SANITARY PLAN AND RISER



WATER PLAN

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



WATER RISER

W-1

0

MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

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254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

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P3

WATER PLAN AND RISER

HVAC SPECIFICATIONS

1. GENERAL

1.1 DESCRIPTION OF WORK:

A. ALL FIXTURES, EQUIPMENT, ACCESSORIES, MATERIALS, AND LABOR REQUIRED TO PROVIDE COMPLETE, COORDINATED, AND FULLY FUNCTIONAL HVAC SYSTEMS GENERALLY AS INDICATED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
1. HEATING SYSTEM
2. COOLING SYSTEM
3. VENTILATION SYSTEM
4. EXHAUST SYSTEMS

1.2 RELATED DOCUMENTS:

A. THE REQUIREMENTS OF THE CIVIL, ARCHITECTURAL, STRUCTURAL, PLUMBING AND ELECTRICAL DRAWINGS AND SPECIFICATIONS SHALL APPLY TO AND BE CONSIDERED A PART OF THE HVAC WORK IN-SO-FAR AS THEY APPLY TO THE HVAC WORK AND ARE REQUIRED FOR COORDINATION.

1.3 JOB CONDITIONS:

A. DUE TO THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES WHICH MAY BE REQUIRED TO PROVIDE A COMPLETE INSTALLATION OF THE WORK DESCRIBED AND INDICATED.

B. PROVIDE FITTINGS, OFFSETS, TRANSITIONS, CONTROL TRANSFORMERS AND ACCESSORIES REQUIRED TO MEET CONDITIONS OF THE PROJECT.

C. PROVIDE SERVICE ACCESS FOR EQUIPMENT, CONTROL COMPONENTS, VALVES, FILTERS AND SPECIALTIES.

D. PROVIDE ACCESS PANELS FOR VALVES, ACCESS DOORS, ETC. CONCEALED BEHIND FINISHED SURFACES.

E. MODIFY DUCT DIMENSIONS AS REQUIRED BY BUILDING STRUCTURE OR OTHER WORK AT NO ADDITIONAL COSTS TO THE OWNER. MAINTAIN EQUIVALENT FREE AREA SIZES.

1.4 CONFORMANCE TO REGULATIONS:

A. WORK SHALL CONFORM WITH VIRGINIA UNIFORM STATEWIDE BUILDING CODE, NFPA, AND LOCAL ORDINANCES.

B. COMPLY WITH OWNER'S REQUIREMENTS FOR INSTALLATION OF WORK.

1.5 QUALITY ASSURANCE:

A. COMPLY WITH MANUFACTURER'S REQUIREMENTS AND NOTES AND DETAILS SHOWN HEREIN FOR INSTALLATION OF EQUIPMENT.

B. COMPLY WITH RECOMMENDATIONS OF SMACNA AND ASHRAE.

1.6 MATERIALS AND EQUIPMENT:

A. EQUIPMENT PROVIDED FOR THIS PROJECT SHALL BE EQUIVALENT TO PRODUCTS SPECIFIED.

B. CONTRACTOR SHALL GUARANTEE EQUIVALENCE AND IS RESPONSIBLE FOR MODIFICATIONS REQUIRED AND COORDINATION WITH OTHER TRADES TO FIT SUBSTITUTED PRODUCT INTO THE PROJECT.

C. MATERIALS AND EQUIPMENT OF THE SAME TYPE AND USE SHALL BE FROM A SINGLE MANUFACTURER.

D. PROTECT STORED MATERIALS AND EQUIPMENT FROM WEATHER.

E. IF HVAC EQUIPMENT IS OPERATED DURING CONSTRUCTION, PROVIDE TEMPORARY FILTERS TO PROTECT AIR HANDLING EQUIPMENT.

1.7 SUBMITTALS:

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT SPECIFIED HEREIN AND ON THE DRAWINGS. SHOP DRAWINGS AND PRODUCT DATA SHALL BE IDENTIFIED PER INDICATIONS ON DRAWINGS, SHALL BE MARKED TO INDICATED SPECIFIC ITEM BE PROPOSED, AND SHALL BE ORGANIZED IN AN ORDERLY MANNER. SUBMIT IN .PDF FORMAT VIA EMAIL.

B. SUBMIT OPERATING AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT INSTALLED IN THIS PROJECT. INCLUDE COPIES OF SPECIFIC EQUIPMENT WARRANTIES IN MANUAL.

C. UPON COMPLETION OF THE INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE OWNER, CONTRACTOR SHALL FURNISH TWO COPIES OF AS-BUILT DOCUMENTATION. ALL CHANGES TO THE BIDDING DOCUMENTS SHALL BE NEATLY AND CLEARLY IDENTIFIED ON THE AS-BUILT DOCUMENTATION.

1.8 PROJECT CLOSEOUT:

A. REPLACE OR REPAIR DAMAGED EQUIPMENT AND CLEAN ALL EXPOSED SURFACES.

B. TOUCH-UP SHOP APPLIED FINISHES TO RESTORE DAMAGED OR SOILED AREAS.

C. INSTRUCT OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF EQUIPMENT UTILIZING OPERATION AND MAINTENANCE MANUAL. MINIMUM INSTRUCTION PERIOD SHALL BE TWO HOURS.

D. REPLACE FILTERS IN AIR HANDLING EQUIPMENT AT TIME OF PROJECT TURNOVER TO OWNER.

E. VACUUM INTERIORS OF DUCTWORK AND EQUIPMENT WHICH BECOMES DIRTY, PRIOR TO PROJECT TURNOVER TO OWNER. CLEAN ANY DIRTY EQUIPMENT COILS.

2. PRODUCTS

2.1 PIPING SYSTEMS:

A. CONDENSATE DRAIN - SCH. 40 PVC WITH SOLVENT WELD FITTINGS

B. REFRIGERANT - TYPE C&C OR ARC COPPER, SILVER SOLDER FITTINGS.

2.2 HVAC EQUIPMENT:

A. REFER TO SCHEDULE SHEETS AND EQUIPMENT LIST FOR MANUFACTURERS AND MODEL NUMBERS.

B. ALTERNATE MANUFACTURER'S ARE: LENNOX, YORK, MCQUAY, TITUS, CARRIER, SANYO, MITSUBISHI, TRANE, COOK, CARNES, TWIN CITY, ACME, METALAIRE

C. PROVIDE MINIMUM MERV 8 RETURN AIR FILTERS FOR AIR HANDLING EQUIPMENT.

2.3 AIR DISTRIBUTION:

A. METAL DUCTWORK: SHOP FABRICATED AS FOLLOWS.
1. MATERIALS: GALVANIZED STEEL SHEET, ASTM A 527-85.
2. CONSTRUCTION: PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS FOR LOW PRESSURE SYSTEM UP TO 2" W.C. CONSTRUCTION.
3. JOINT SEALANT: UL LISTED FOSTER MASTIC, HARDCAST FTA-20, KINGCO 18-136.
4. SUPPLY AIR BRANCH DUCTS RUN IN CONCEALED AREAS MAY BE PRE-INSULATED, UL CLASS 1, FLEXIBLE DUCT - LIMIT LENGTH TO TEN FEET - USE RIGID DUCT FOR REMAINDER OF RUNOUT.
5. WALL CAP SHALL BE ALUMINUM CONSTRUCTION WITH BACKDRAFT DAMPER, BIRDSCREEN AND HOOD. COLOR TO MATCH BUILDING FINISHES.

B. DAMPERS - AS MANUF. BY RUSKIN, CESCO, ARROW, CREATIVE METALS, PREFCO
1. VOLUME DAMPERS SHALL BE GALVANIZED STEEL, 16 GAUGE, BLADE HEIGHT SHALL NOT EXCEED 12", DAMPER LINKAGE AND LOCKING QUADRANT SHALL BE OUTSIDE OF AIRSTREAM.
2. MOTORIZED DAMPERS - REFER TO EQUIPMENT LIST ON DRAWINGS.
3. SPLITTER DAMPER SHALL BE GALV. STEEL, FULL HEIGHT OF DUCT LESS LINER THICKNESS, W/ PIVOT PINS AND STEEL ROD TO EXTERIOR OF DUCT. PROVIDE LOCKING ADJUSTMENT.

C. ACCESS DOORS -
1. FACTORY BUILT WITH SASH LOCKS, BUTT HINGE, GASKET, 24 GA. DOOR AND 22 GA. FRAME.
2. ACCESS DOOR IN INSULATED DUCT SHALL BE DOUBLE CONSTRUCTION, WITH INSULATION ENCASED.
3. MINIMUM SIZE TO BE 75% SIZE OF DUCT IN WHICH INSTALLED, OR 10" X 10".
4. CESCO MODEL HAD-10, LOUVERS AND DAMPERS, KEES, INC. OR AIR BALANCE.

2.4 CONTROLS:

A. PROVIDE ALL RELAYS, TRANSFORMERS, CONTROL WIRING, TERMINAL BLOCKS, ETC. FOR A COMPLETE SYSTEM.
1. COMPONENT MANUFACTURER'S AND MODEL NUMBERS AS SPECIFIED ON DRAWINGS.

B. THE WARRANTY PERIOD SHALL COMMENCE AFTER 60 DAYS OF BENEFICIAL USE, MEASURED FROM THE DATE OF ACCEPTANCE FROM THE OWNER.

3. EXECUTION

3.1 PIPING SYSTEMS:

A. VERIFY INVERT ELEVATIONS PRIOR TO EXCAVATION.

B. BACKFILL BURIED PIPE IN TRENCHES WITH DIRT FREE OF ROCK, STONE OR DEBRIS.

C. VERIFY EXACT LOCATION OF EQUIPMENT PRIOR TO ROUGH-IN.

D. COORDINATE ROUTING OF WORK WITH OTHER TRADES AND INSTALL TO ALLOW MAXIMUM HEADROOM CLEARANCES, SERVICE ACCESS AND MAINTAIN PROPER PITCH OF SLOPING LINES.

E. INSULATE PIPING SYSTEMS AS FOLLOWS:
1. REFRIGERANT - USE CODE REQUIRED THICKNESS OF CLOSED CELLULAR RUBBER
2. HORIZONTAL CONDENSATE DRAIN - 1/2" THICK FIBERGLASS WITH ASJ.
3. SEAL VAPOR BARRIERS. SECURE WITH ADHESIVE AND SEAL JOINTS WITH SEALANT.
4. PROVIDE GALVANIZED STEEL SADDLE AT HANGERS SURROUNDING INSULATED PIPE.
5. DO NOT COMPRESS INSULATION EXCEPT IN AREAS OF STRUCTURAL INTERFERENCE.
6. INSTALL PRE-FITTED PLASTIC ELBOWS OR APPLY CANVAS JACKET IN THREE LAYERS AT ELBOWS.
7. INSULATE FITTINGS, VALVES AND EQUIPMENT BODIES.
8. PROVIDE 2 COATS OF GREY WEATHERPROOF FINISH ON EXTERIOR REFRIGERANT PIPING.

F. PROVIDE SLEEVES FOR PIPING PENETRATING WALLS. INSULATION SHALL BE CONTINUOUS THROUGH SLEEVES.

G. FIRESTOP PIPING PASSING THROUGH FIRE RATED WALLS OR CEILINGS.

H. PATCH FINISHED AREAS DISTURBED BY WORK TO MATCH SURROUNDING AREAS.

I. WELDING SHALL BE DONE BY CERTIFIED WELDERS FOR THE APPROPRIATE SYSTEM BEING WELDED.

J. MAKE CONNECTIONS OF DISSIMILAR METALLIC PIPING WITH DIELECTRIC UNIONS.

K. DO NOT USE PLASTIC PIPING IN RETURN AIR PLENUM SPACES.

L. PROVIDE SHUT OFF VALVES AT EQUIPMENT CONNECTIONS.

M. HANGERS SUPPORTING COPPER PIPING SHALL BE COPPER PLATED OR PLASTIC COVERED. HANGERS SUPPORTING INSULATED PIPING SHALL BE SIZED TO SURROUND INSULATION AND STEEL SADDLE.

O. CLEAN AND FLUSH PIPING THEN TEST PIPING SYSTEMS AS FOLLOWS:
1. REFRIGERANT PIPING - TO 100 PSIG W/ COMPRESSED NITROGEN FOR FOUR HOURS AND TEST FITTINGS WITH FREON AND HALIDE LEAK DETECTOR.
2. CONDENSATE DRAIN PIPING - W/ 10 FT. WATER COLUMN OR 5 PSI COMPRESSED AIR FOR 12 HOURS.
3. TESTS SHALL SHOW NO SUBSTANTIAL LOSS IN PRESSURE.
4. PIPING RUN IN CONCEALED AREAS SHALL BE LEAK TESTED PRIOR TO BEING CONCEALED.
5. SUBMIT WRITTEN REPORT OF TEST RESULTS.

3.2 HVAC EQUIPMENT:

A. PROVIDE PERMANENT TAG ON EQUIPMENT INDICATING EXPIRATION DATE OF WARRANTIES. LOCATE TAG IN A READILY VISIBLE LOCATION.

B. PROVIDE FACTORY AUTHORIZED START-UP OF EQUIPMENT AND SUBMIT TEST REPORTS. (INCLUDE IN O&M MANUAL). COMPLY WITH MANUFACTURER REQUIREMENTS AND NOTES STATED ON THE CONSTRUCTION DOCUMENTS FOR INSTALLATION OF EQUIPMENT. BALANCE THE OUTSIDE AIR CFM TO QUANTITIES LISTED.

C. ROOFTOP UNITS:
1. INSTALL ROOF CURB ON ROOF WITH TOP LEVEL - VERIFY FLASHING REQUIREMENTS.
2. INSTALL RTU ON ROOF CURB.
3. CONNECT DUCTWORK TO UNITS WITH FLEXIBLE DUCT CONNECTORS.
4. PROVIDE 1" CONDENSATE DRAINS FROM COOLING COIL AND DISCHARGE TO ROOF.
5. INSTALL OUTSIDE AIR HOODS, ECONOMIZERS, DAMPERS, ETC., WHERE SPECIFIED. CONNECT CONTROL WIRING.
6. COMB BENT FINS AND REPAIR DEFECTS IN EQUIPMENT FINISH AND PANELS.
7. PROVIDE VIBRATION ISOLATION RAILS FOR LARGE ROOFTOP UNITS WHERE INDICATED ON DRAWINGS.

D. SPLIT SYSTEM UNITS:
1. SET INDOOR UNITS ON FLOOR OF STRUCTURE - INSTALL LEVEL. CONNECT DUCTWORK WITH FLEXIBLE DUCT CONNECTIONS. INSTALL TO ALLOW PROPER SERVICE ACCESS.
2. PROVIDE DRAIN PAN BENEATH UNITS. SUPPORT PAN FROM FLOOR STRUCTURE. SET UNIT 4X4X1" THICK NEOPRENE PADS.
3. PROVIDE CONDENSATE DRAIN PIPING AND EXTEND TO HUB DRAIN OR TO EXTERIOR - VERIFY TERMINATION POINT WITH LOCAL CODE OFFICIAL AND ARCHITECT.
4. CONNECT REFRIGERANT PIPING AND CONTROL WIRING.

E. FANS:
I. ASSURE PROPER BACKDRAFT DAMPER OPERATION.

3.3 AIR DISTRIBUTION:

A. DUCTWORK:
1. SEAL JOINTS IN DUCTWORK WITH COATING OF HARDCAST SEALANT OR UL LISTED FSK DUCT TAPE.
2. INSTALL INTERNAL ENDS OF SLIP JOINTS IN DIRECTION OF AIRFLOWS.
3. MAXIMUM ANGLE OF OFFSETS AND TRANSITIONS SHALL NOT EXCEED 30 DEGREES.
4. ADEQUATELY SUPPORT DUCT AS PER CODE REQUIREMENTS -ELIMINATE SAGGING AND COMPRESSION OF DUCT.
5. TRANSITION DUCTS TO FIT EQUIPMENT.
6. PROVIDE 1/2" THICK ACOUSTICAL SOUNDLINING IN RETURN AIR TRUNK DUCTS WITHIN TWENTY FEET OF RTU'S AND AHU'S. SECURE LINER TO DUCTS WITH ADHESIVE AT 70% COVERAGE AND WITH MECHANICAL FASTENERS AT 18" CENTERS,
7. USE LONG RADIUS RIGID DUCT FITTINGS AT ELBOWS IN FLEXIBLE DUCT LINER WITH MASTIC. ENLARGE DUCT TO ACCOMMODATE THE LINER - SIZES ON THE PLANS ARE INSIDE FREE AREA DIMENSIONS. AND WITHIN 6" OF BUTT JOINTS AND EDGES OF DUCT. COAT ALL EXPOSED 'ROUGH' FLEXIBLE DUCT EXCEEDING 60 DEGREE ANGLE. ELBOWS IN FLEXIBLE DUCT LESS THAN 60 DEGREE ANGLE SHALL BE LONG SWEEP TYPE.

B. INSULATE DUCT SYSTEMS PER CODE OR AS FOLLOWS, WHICHEVER IS MORE STRINGENT:
1. WITHIN BUILDING STRUCTURE AND INSIDE OF BUILDING INSULATION ENVELOPE (OUTSIDE AIR, SUPPLY AND RETURN AIR DUCTS): ONE LB./CU.FT. DENSITY, 2" THICK FIBERGLASS, WITH FSK JACKET; OR WITH 3/8" THICK FOIL FACED AIR CELL INSULATION, REFLECTIX OR EQUAL.
2. INSULATE SUPPLY AIR AND RETURN AIR DUCTS OUTSIDE OF BUILDING INSULATION WITH 3" THICK FIBERGLASS WITH FSK JACKET - MINIMUM R = 8.0 INSTALLED.
3. EXHAUST AIR DUCTS: DO NOT INSULATE.
4. SECURE INSULATION TO DUCTS W/ ADHESIVE AT 60% COVERAGE AND SECURE WITH MECHANICAL FASTENERS AND WASHERS AT 18" CENTERS - SEAL VAPOR BARRIER.

C. DAMPERS: ACTUATORS AND PUSH-RODS SHALL BE ACCESSIBLE.
1. ACTUATORS AND PUSH-RODS SHALL BE ACCESSIBLE.
2. PROVIDE COMBINATION DAMPER/EXTRACTOR/SPIN-IN FOR ROUND DUCT CONNECTIONS TO TRUNK DUCTS. PROVIDE 45 DEGREE BEVEL INLET WITH BALANCE DAMPER FOR RECTANGULAR DUCT CONNECTIONS TO TRUNK DUCT. DAMPER ADJUSTMENT TO BE LOCATED ON BOTTOM SIDE OF DUCT.

D. ACCESS DOORS - PROVIDE IN DUCT FOR ACCESS TO COILS, FILTERS, FIRE & MOTORIZED DAMPERS, AND ALL OTHER EQUIPMENT NOT OTHERWISE ACCESSIBLE. INSTALL TO ALLOW SERVICE ACCESS. PROVIDE LABEL ON ACCESS DOOR INDICATING DEVICE SERVED.

E. BALANCE AIR DISTRIBUTION TO WITHIN 10% OF DESIGN AND SUBMIT REPORT.
1. REPORT SHALL IDENTIFY ZONES, DESIGN AIRFLOWS AND FINAL AIRFLOWS (SUPPLY AIR, RETURN AIR AND OUTSIDE AIR). SUPPLY AND RETURN STATIC PRESSURES, ENTERING AND LEAVING AIR TEMPERATURES.
2. INCLUDE EXHAUST FAN SYSTEMS, AND HVAC EQUIPMENT.
3. COMPLY WITH NEBB AND AABC REQUIREMENTS.

3.4 CONTROLS:

A. SEAL PROBE PENETRATIONS FOR DUCT MOUNTED SENSORS.

B. PROVIDE JUNCTION BOX HOUSING FOR CONTROL WIRING INTERLOCK TO COMPONENTS.

C. ROUTE CONDUCTORS NEATLY AND PARALLEL OR PERPENDICULAR TO BUILDING CONSTRUCTION. WIRING AND CONDUCTORS IN FINISHED SPACES TO BE RUN CONCEALED.

D. SEQUENCE OF CONTROL
1. ON A CALL FOR COOLING - BLOWER AND COOL COMPRESSOR SHALL BE ENABLED. FOR UNITS WITH OA ECONOMIZERS, IF OA CONDITIONS ARE SUITABLE, OA DAMPER TO MODULATE OPEN FOR FIRST STAGE COOL. OTHERWISE DAMPER TO POSITION AS DESCRIBED HEREIN. MIXED AIR LOW LIMIT SET AT 55F (ADJUSTABLE) TO LIMIT OA MOTORIZED DAMPER POSITION. MOTORIZED DAMPER OPERATION.
2. ON A CALL FOR HEAT - BLOWER AND HEAT COMPRESSOR SHALL BE ENABLED. ON A CALL FOR ADDITIONAL HEAT, AUX. ELECTRIC STRIP HEAT SHALL BE ENABLED AND STAGED.
3. OA TO BE INTRODUCED IN SPACES WHEN BLOWER RUNS. FOR UNITS WITH MOTORIZED OA DAMPER ONLY, THERMOSTAT TO OPEN DAMPER IN OCCUPIED MODES TO MINIMUM SETPOINT, OTHERWISE OA DAMPER TO CLOSE.
4. BLOWER TO RUN CONTINUOUSLY IN OCCUPIED MODES AND CYCLE WITH THE THERMOSTAT IN UNOCCUPIED MODES
5. PROGRAM THERMOSTATS PER OWNER'S SCHEDULING.
6. FLOAT SWITCH IN DRAIN PAN TO DISABLE HVAC UNIT IN CASE OF WATER IN PAN.
7. OUTSIDE AIR TO BE INTRODUCED WHEN BLOWER RUNS. FOR UNITS WITH AIR QUALITY SENSOR, THERMOSTAT TO ENABLE SENSOR TO OPEN MOTORIZED OA DAMPER TO SETPOINT IN CASE OF POOR RA QUALITY (1000 PPM IN OCCUPIED MODES ONLY), OTHERWISE OA DAMPER TO CLOSE.

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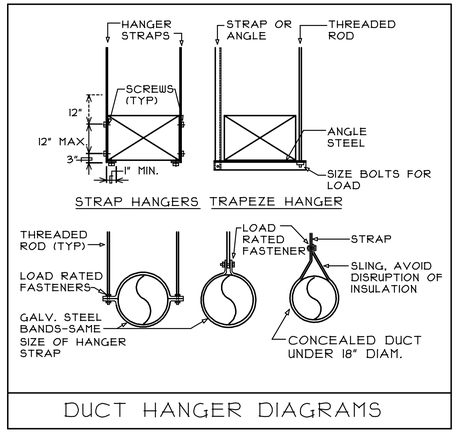
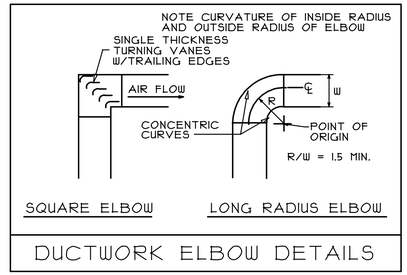
M1
HVAC SPECS



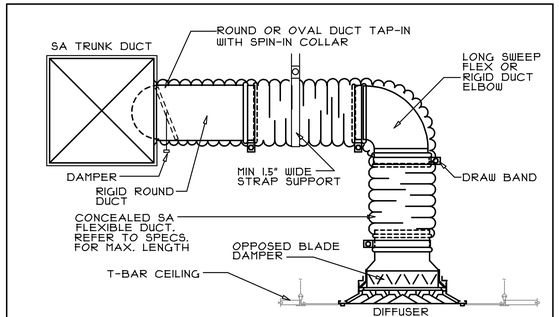
DUCT HANGER DIAGRAMS



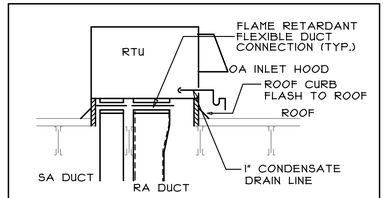
DUCTWORK ELBOW DETAILS

GRILLES, REGISTERS, DIFFUSERS AND LOUVERS

TYPE	DESCRIPTION	NECK	FRAME	FINISH	MFR. MDL.	REMARKS
D1	4-WAY CEILING DIFFUSER	6"	T-BAR LAY-IN	WHITE	PROSELECT PSHVD31BDU	24" SQUARE PANEL
D2	↓	8"	↓	↓	PROSELECT PSHVD31BDX	↓
D3	↓	10"	↓	↓	PROSELECT PSHVD31BDIO	↓
R1	RETURN AIR GRILLE	22X22	T-BAR LAY-IN	WHITE	PROSELECT PSAEC5TB2222	24" SQUARE PANEL
R2	RETURN AIR GRILLE	18X18	FLANGE	WHITE	PROSELECT PSAEC1616	



BRANCH DUCT DETAIL
NOT TO SCALE



RTU DIAGRAM
NOT TO SCALE

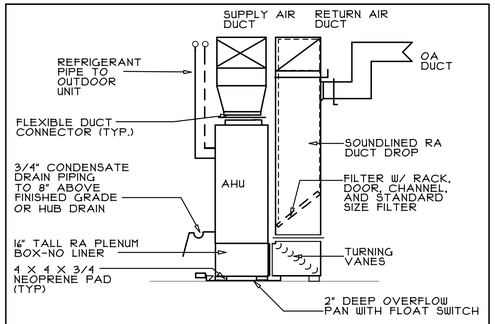
EQUIPMENT LIST

EQUIPMENT: EQUIVALENT MANUFACTURERS MAY BE SUBSTITUTED. EQUIPMENT TO BE UL OR ETL LISTED.

Ⓣ - THERMOSTAT- SHALL BE 24 VAC, HEATING-COOLING AUTO-CHANGEOVER TYPE, W/ FAN SWITCH SUBBASE, SUITABLE FOR HEAT PUMP USE AS APPLICABLE, 7 DAY PROGRAMMABLE, W/ OVERRIDE TIMER, AUX. CONTACT TO OPEN OA MOD IN OCCUPIED MODES, 2 STAGE HEAT, W/ LOCKING COVER FOR T'STATS IN PUBLIC AREAS. HONEYWELL OR EQUAL.

CO_2 SENSOR - CARBON DIOXIDE TYPE, 350 TO 2250 PPM RANGE, NON-GROUNDING, 24V TRANSFORMER, ASPIRATION BOX, 2 POSITION CONTROL OR MODULATING CONTROL. VULCAIN SERIES OR EQUAL BY TOX-ALERT, VAISALA, MICRO-METL.

MOD - 24VAC MOTORIZED DAMPER, 2 POSITION TYPE, W/ ACTUATOR AND LINKAGE MTD. OUTSIDE OF AIRSTREAM, NORMALLY CLOSED, SIZE TO FIT DUCT. COMPATIBLE W/ CO_2 SENSOR, HONEYWELL OR EQUAL.



UPFLOW AIR HANDLER UNIT DIAGRAM

SYMBOLS

⊠	SUPPLY DUCT
⊘	RETURN OR EXHAUST DUCT
Ⓣ	THERMOSTAT-MTD. 48" AFF
(A) 100	INDICATES AIR OUTLET OR INLET TOP LETTER INDICATES GRID TYPE (SEE SCHEDULE); BOTTOM NUMERAL INDICATES CFM FOR BALANCING
⊣⊢	DUCT TRANSITION
⊸CO	DUCT MTD. AIR QUALITY SENSOR
⋀⋀Ⓜ	MOTORIZED DAMPER (MOD)

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR
CD	CEILING DIFFUSER
DN	DOWN
EA	EXHAUST AIR
EF	EXHAUST FAN
MTD.	MOUNTED
OA	OUTSIDE AIR
RA	RETURN AIR
RG	RETURN GRILLE
SA	SUPPLY AIR
SF	SUPPLY FAN
TYP	TYPICAL
WC	WALL CAP

PACKAGED HVAC EQUIPMENT SCHEDULE

ZONE	MODEL	NOMINAL TONS	SENSIBLE COOLING	SEER	VOLTS	HEATING KW	CFM ②	ESP.	MIN. OA CFM	BLOWER SPEED	MCA	MOCP	WEIGHT	REMARKS
RTU-1	CARRIER 50VT-C36-5	3	36,000	14	208/3	11.3	1200	.55	365	BELT DRIVE	57.2	60	750	①②③④⑤⑥
RTU-2	CARRIER 50VTC48-5	4	48,000	14	208/3	15	1600	.55	198	BELT DRIVE	77.5	80	850	

NOTES:

① WITH REFRIGERANT HIGH AND LOW PRESSURE SWITCHES, REFRIGERANT LINE FILTER DRIER, COMPRESSOR TIME DELAY RELAY, COMPRESSOR CRANKCASE HEATER. R-410A REFRIGERANT, TXV.

② APPROXIMATE CFM AIRFLOW - REFER TO PLAN FOR EXACT NUMBERS FOR AIR BALANCE

③ W/ VOLTAGE PHASE LOSS MONITOR

④ PROVIDE OA INTAKE HOOD W/ INLET FILTER, 14" ROOF CURB, 35% EFF. RA FILTERS

⑤ W/ LOW AMBIENT COOLING CONTROLS OPERABLE TO 20F.

⑥ W/ 0-100% OA ECONOMIZER, BAROMETRIC RELIEF DAMPER, ENTHALPY CONTROLLED

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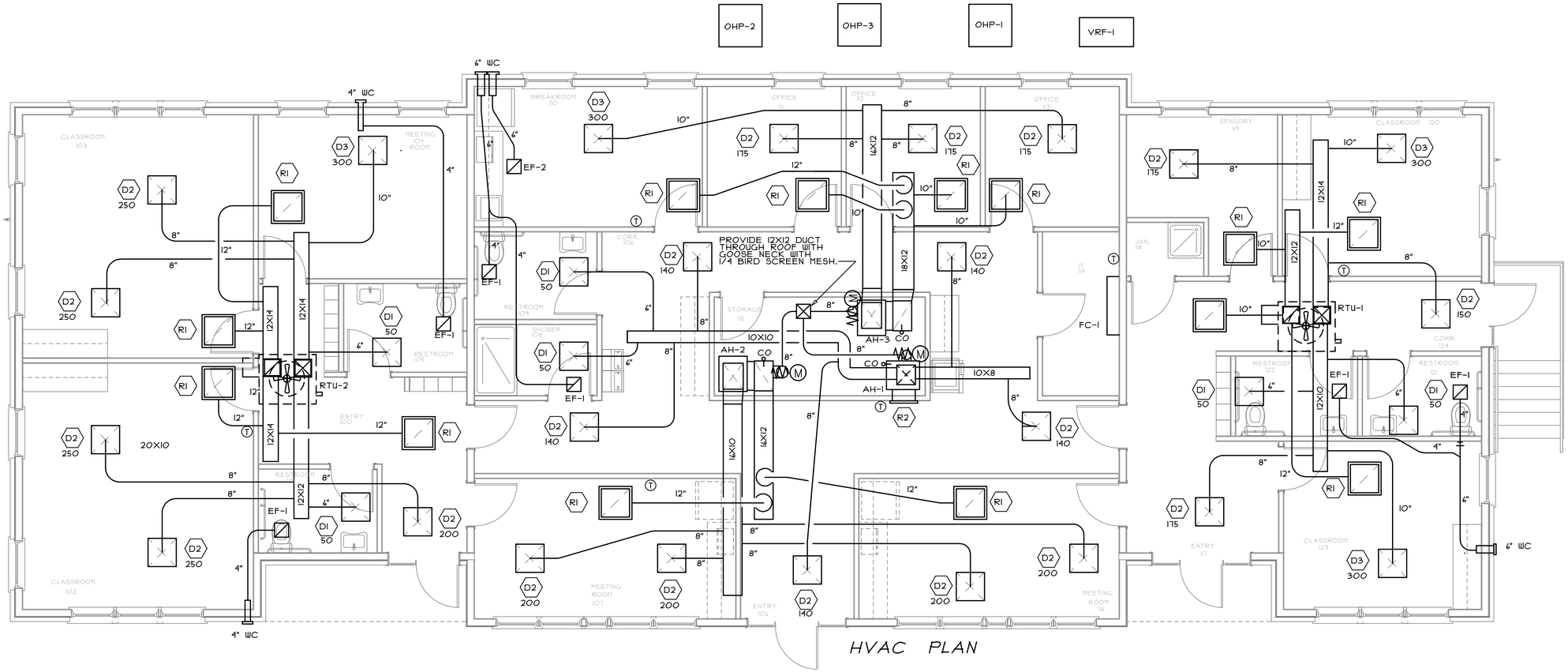
PROJ NO: 23080

M2
SCHEDS & DETAILS



HVAC EQUIPMENT SCHEDULE

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	TOTAL COOLING	SEER2	O.U. VOLTS	O.U. MCA/MOCP	HSPF2	INDOOR UNIT KW HEAT	INDOOR UNIT MODEL NO.	CFM	ESP.	MIN. OA CFM	BLOWER SPEED	HP	I.U. VOLTS	I.U. MCA/MOCP	I.U. WEIGHT	REMARKS
OHP-1 / AH-1	CARRIER 25TPA124A003	2.0	24,000	18	208/1	14.1 / 25	8.8	7.5	CARRIER FV4CNF002	800	0.50"	41	VARIABLE	1/2	208/1	53.8 / 60	215 LBS	①②③④⑤
OHP-2 / AH-2	CARRIER 25TPA124A003	2.0	24,000	18	↓	14.1 / 25	8.8	7.5	CARRIER FV4CNF002	800	0.50"	115	VARIABLE	3/4	↓	53.8 / 60	215 LBS	↓
OHP-3 / AH-4	CARRIER 25TPA124A003	2.0	24,000	18	↓	14.1 / 25	8.8	7.5	CARRIER FV4CNF002	800	0.50"	62	VARIABLE	1/2	↓	53.8 / 60	215 LBS	↓

NOTES:

1. COOLING CAPACITIES AT 95F DB/67F EWB TEMPERATURES. PROVIDE BLOWER TIME DELAY RELAYS.
2. REFER TO DRAWINGS FOR EXACT AIRFLOW QUANTITIES.
3. W/ COMPRESSOR TIME DELAY, COMPRESSOR CRANKCASE HEATER, REFRIGERANT LINE FILTER DRIER, HIGH AND LOW PRESSURE SWITCHES, RA FILTER.
4. W/ INTERGRAL ELECTRIC HEAT KIT CIRCUIT BREAKERS
5. W/ LOW AMBIENT CONTROLS

VRF EQUIPMENT SCHEDULE

ZONE	OUTDOOR HEAT PUMP	NOMINAL TONS	WEIGHT (LBS)	RATED COOLING	RATED	EER	O.U.	O.U. MCA/MOP	INDOOR UNIT I.U. NAME	I.U. MODEL NO.	CFM	MIN. OA	ESP.	RATED COOLING TOTAL	RATED HEATING	BLOWER SPEED	VOLTS 208/1	MCA
VRF-1	CARRIER 38MAQB24R-3	2	140	24,000 BTUH	24,000 BTUH	12.5	208/1	20 / 30	FC-1	CARRIER 40MAHBQ24XA3	719	0	N/A	24,000 BTUH	24,000 BTUH	HIGH	208/1	0.62

PROVIDE ALL PIPING, WIRING, W/ CENTRAL CONTROLLER, W/ WIRED WALL MOUNTED ROOM THERMOSTAT, WYE FITTINGS, ETC. AS REQUIRED FOR A COMPLETE OPERATING SYSTEM. SUBMIT REFRIGERANT PIPING, CONTROL AND LINE VOLTAGE WIRING SCHEMATICS FOR APPROVAL.

INDOOR UNIT IS POWERED FROM THE OUTDOOR UNIT FOR THIS SYSTEM

FAN SCHEDULE

NO.	DESCRIPTION	CFM	E.S.P.	HP	RPM	VOLT/PHASE	MFR. MDL.	REMARKS
EF-1	BATH ROOM EXHAUST FAN	109	0.125	87 W	640	120/1 FLA 1.10	BROAN L100	NOTES 1,2,
EF-2	BATH ROOM EXHAUST FAN	210	0.125	127 W	740	120/1 FLA 1.80	BROAN L200	NOTES 1,2

NOTES

1. WITH SAFETY SWITCH
2. WITH BACKDRAFT DAMPER

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M3
HVAC PLAN

ELECTRICAL SPECIFICATIONS

1. GENERAL

1.1 RELATED DOCUMENTS:

A. REQUIREMENTS OF THE GENERAL CONDITIONS, SUPPLEMENTARY GENERAL CONDITIONS, AND SPECIAL CONDITIONS APPLY TO THIS SECTION.
B. ARCHITECTURAL, STRUCTURAL, MECHANICAL AND PLUMBING DRAWINGS AND SPECIFICATIONS.
C. FINAL SUBMITTED AND APPROVED EQUIPMENT INSTALLATION GUIDE LINES.

1.2 WORK INCLUDED:

A. ELECTRICAL SYSTEMS AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.
B. PERMITS AND INSPECTIONS REQUIRED FOR WORK.
C. TEMPORARY ELECTRIC FOR SITE DURING CONSTRUCTION AS REQUIRED.
D. COORDINATION OF FINAL SELECTIONS, LOCATIONS, CONNECTIONS, ELECTRICAL CHARACTERISTICS, ETC. OF EQUIPMENT SUPPLIED BY OTHERS ON PROJECT.

1.3 JOB CONDITIONS:

A. COORDINATE WITH BUILDING CONSTRUCTION AND WITH OTHER TRADES.
B. IN CASE OF CONFLICT BETWEEN SPECIFICATIONS AND DRAWINGS, CONSULT ARCHITECT IMMEDIATELY FOR DETERMINATION OF PROCEDURE METHOD.

1.4 CONFORMANCE TO REGULATIONS:

A. WORK SHALL CONFORM WITH 2018 VIRGINIA UNIFORM STATEWIDE BUILDING CODE, NFPA, LOCAL ORDINANCES AND THE RULES AND REGULATIONS OF THE UTILITIES.
B. WORK SHALL BE IN ACCORDANCE WITH THE COUNTY'S BUILDING CRITERIA AND REQUIREMENTS.

1.5 QUALITY ASSURANCE:

A. MEET OR EXCEED RECOMMENDATIONS OF: IEEE, IES, NEMA AND UL.
B. NOTIFY ARCHITECT IMMEDIATELY OF CONFLICTS AND DEFICIENCIES. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN RESOLVED.

1.6 MATERIALS AND EQUIPMENT:

A. PROVIDE NEW MATERIALS AND EQUIPMENT UNLESS OTHERWISE NOTED.
B. FURNISH (INCLUDING FREIGHT AND UNLOADING) AND INSTALL UNLESS OTHERWISE NOTED.
C. EQUIPMENT PROVIDED FOR THIS PROJECT SHALL BE NEW UNLESS NOTED OTHERWISE.

1.7 UTILITIES AND CONNECTIONS:

A. OWNER WILL PAY ANY UTILITY SERVICE FEES DIRECTLY TO THE RESPECTIVE UTILITY COMPANIES.
B. PROVIDE ALL EQUIPMENT, MATERIALS, AND LABOR REQUIRED BUT NOT PROVIDED OR FURNISHED BY THE UTILITY COMPANIES TO BRING SERVICE INTO THE BUILDING.

1.8 SUBMITTALS:

A. SUBMIT SHOP DRAWINGS AND PRODUCT DATA FOR EQUIPMENT IN ACCORDANCE WITH THE ARCHITECT'S REQUIREMENTS.
B. UPON COMPLETION OF THE INSTALLATION, AND PRIOR TO ACCEPTANCE BY THE OWNER, CONTRACTOR SHALL FURNISH AS-BUILT DOCUMENTATION AND O&M MANUALS IN ACCORDANCE WITH THE ARCHITECT'S REQUIREMENTS.
C. PROVIDE WIRING DIAGRAMS SPECIFIC TO THIS PROJECT FOR ALL ROOMS WITH LOW VOLTAGE DEVICES SHOWING INTERCONNECTIONS BETWEEN POWER PACK, SWITCHES, AND OCCUPANCY SENSORS.

1.9 PROJECT CLOSEOUT:

A. REPAIR DAMAGED AND DEFECTIVE EQUIPMENT AND MATERIALS. REPLACE ITEMS THAT CANNOT BE PROPERLY REPAIRED.
B. CLEAN EXPOSED AND SEMI-EXPOSED SURFACES OF EQUIPMENT AND MATERIALS.
C. TOUCH-UP SHOP-APPLIED FINISHES TO RESTORE DAMAGED AND SOILED AREAS.
D. INSTRUCT OWNER'S REPRESENTATIVE IN OPERATION AND MAINTENANCE OF ELECTRICAL SYSTEMS UTILIZING THE OPERATION AND MAINTENANCE MANUAL.
I. INSTRUCTION PERIOD SHALL OCCUR AFTER SUBSTANTIAL COMPLETION OF ELECTRICAL SYSTEMS AND PRIOR TO COMPLETION OF THE PROJECT. COORDINATE WITH THE ARCHITECT AND OWNER.

2. PRODUCTS

2.1 RACEWAYS AND FITTINGS:

A. CONDUIT SIZES SHALL BE AS REQUIRED BY THE CODE (UNLESS INDICATED OR SPECIFIED OTHERWISE) FOR THE NUMBER AND SIZE OF WIRE INDICATED. MINIMUM SIZE CONDUIT SHALL BE 1/2" ELECTRICAL TRADE SIZE. FLEXIBLE METAL CONDUIT USED FOR LIGHTING FIXTURE WHIPS MAY BE 3/8" WHERE ALLOWED BY THE CODE.
B. USE ELECTRICAL METALLIC TUBING EXCEPT AS FOLLOWS. USE RIGID NONMETALLIC CONDUIT IN OR UNDER ON GRADE CONCRETE SLABS. USE FLEXIBLE METAL CONDUIT FOR MOTOR AND EQUIPMENT CONNECTIONS IN DRY LOCATIONS. USE LIQUIDTIGHT FLEXIBLE METAL CONDUIT IN WET OR DAMP LOCATIONS.

2.2 WIRE AND CABLE:

A. CONDUCTORS SHALL BE COPPER, MINIMUM SIZE NO. 12 AWG. OTHER WIRE SIZES SHALL BE AS NOTED OR AS REQUIRED FOR THE CIRCUIT SIZE. CONDUCTOR INSULATION SHALL BE THHN/THWN.
B. BRANCH CIRCUIT WIRING WHERE CONCEALED IN WALLS AND ABOVE CEILINGS MAY BE TYPE MC (METAL CLAD) CABLE WHERE ALLOWED BY THE CODE.

2.3 BOXES:

A. GALVANIZED SHEET STEEL TYPE. SINGLE DEVICE BOX SHALL BE "NON-GANGABLE" TYPE AND FOR MULTIPLE DEVICES "GANGABLE" TYPE SHALL BE USED. BOXES FOR EXPOSED WORK SHALL BE 4" SQUARE TYPE WITH KNOCKOUTS AND WITH LOCATIONS SHALL BE DIE CAST TYPE WITH THREADED HUBS. SECTIONAL BOXES SHALL NOT BE USED IN MASONRY OR CONCRETE. SIZED FOR NUMBER OF CONDUCTORS, FITTINGS AND DEVICES AS REQUIRED BY THE CODE.

2.4 WIRING DEVICES:

A. 20 AMPERE SPECIFICATION GRADE.
B. COVERPLATES SHALL BE AS FOLLOWS; INTERIOR RECESSED - SMOOTH UNBREAKABLE NYLON; SURFACE - 4" SQUARE RAISED COVER, GALVANIZED; WEATHERPROOF - DIE CAST ALUMINUM, GFCI TYPE, WATERTIGHT WHILE IN USE TYPE, USE EXTERNAL OPERATING TYPE FOR WEATHERPROOF SWITCHES.
C. DEVICE AND PLATE COLOR SHALL BE AS SELECTED BY ARCHITECT.
D. GFCI OUTLETS TO BE SELF-TESTING TYPE.

2.5 DISCONNECT SWITCHES:

A. SAME MANUFACTURER AS THE PANELBOARDS, NEMA 3R FOR OUTDOOR USE.
B. DISCONNECT SWITCHES SHALL BE FUSED OR NON-FUSED AS INDICATED AND BE VISIBLE BLADE TYPE WITH EXTERNAL OPERATING HANDLE AND COVER INTERLOCK AND PAD LOCKING.
C. ALL LABELING ON EXTERIOR DISCONNECT SWITCHES SHALL BE UV RESISTANT.

2.6 GROUNDING:

A. CONNECTIONS TO BUILDING STEEL, GROUND RODS AND PIPING SYSTEMS SHALL BE MADE WITH BRONZE OR BRASS BOLTED TYPE FITTINGS DESIGNED FOR THE USE.
B. GROUNDING ELECTRODE CONDUCTOR SHALL BE SIZE AS INDICATED ON THE DRAWINGS AND AS DESCRIBED IN ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.

2.7 PANELBOARDS (OR GEAR):

A. PANELBOARDS SHALL BE AS SCHEDULED OR BY: SQUARE-D, CUTLER HAMMER, GENERAL ELECTRIC OR SIEMENS. PANELS TO HAVE MINIMUM 20" WIDE CABINETS AND COPPER BUS BARS.
B. CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC, MOLDED CASE, BOLT-ON TYPE. MULTI-POLE SHALL BE COMMON TRIP TYPE. BREAKERS FOR HVAC EQUIPMENT SHALL BE "HACR" RATED WHERE REQUIRED.
C. PANELBOARDS SHALL HAVE LOCKABLE DOORS, LOCKS SHALL BE KEYED ALIKE.
D. PANELBOARDS AND SERVICE SWITCH SHALL BE FULLY RATED OR HAVE A UL LISTED SERIES CONNECTED RATING OF A MINIMUM 65,000 AIC. OBTAIN AND SUBMIT FAULT CURRENT VERIFICATION LETTER FROM THE POWER COMPANY TO THE LOCAL AUTHORITY HAVING JURISDICTION IF REQUIRED.
E. ALL LABELING ON EXTERIOR GEAR SHALL BE UV RESISTANT.

2.8 ELECTRIC SERVICE:

A. SERVICE SHALL BE 120/208 VOLT, 3 PHASE, 4 WIRE.

2.9 DRIVERS AND ACCESSORIES:

A. LED DRIVERS SHALL BE ELECTRONIC TYPE WITH EQUAL TO OR LESS THAN 10% THD AND A 3 YEAR WARRANTY, VOLTAGE TO MATCH SYSTEM VOLTAGE.
B. ACCESSORIES SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING FOR A COMPLETE LIGHTING FIXTURE INSTALLATION: PLASTER FRAMES, TEE BAR HANGERS, FIXTURE STUDS AND HOLD DOWN CLIPS FOR SUSPENDED CEILINGS.

2.10 LIGHTING FIXTURES:

A. LIGHTING FIXTURES SHALL BE AS SPECIFIED ON THE DRAWINGS.
B. PHOTOCELLS: SWIVEL MOUNT, 1800 WATT, TORK SERIES 2020 OR EQUAL.
C. OCCUPANCY CONTROL SENSORS AND SWITCHES SHALL BE BY SENSOR SWITCH, LUTRON, LEVITON, OR DOUGLAS CONTROLS AND COMPATIBLE WITH FIXTURES SERVED.

2.11 EMPTY CONDUIT SYSTEMS:

A. PROVIDE FOR USE BY THE OWNER'S CABLING CONTRACTOR. CONDUIT SYSTEM SHALL BE AS DESCRIBED ON THE DRAWINGS FOR DATA, TELEPHONE, TELEVISION, SOUND, SECURITY, ETC.

2.12 FIRE ALARM SYSTEM:

A. PROVIDE A COMPLETE ADDRESSABLE FIRE ALARM SYSTEM FOR BUILDING AS INDICATED ON THE PLANS AND NOTED HEREIN WITH CAPACITY FOR FUTURE TENANTS.
B. PROVIDE PROPERLY SIZED BATTERY TO BACK UP PANEL UPON LOSS OF NORMAL POWER.
C. PROVIDE CONTROL PANEL WITH INTEGRAL DACT (DIGITAL ALARM COMMUNICATING TRANSMITTER) TO PROVIDE OFF-SITE MONITORING OF THE SYSTEMS. MONITORING SHALL BE AS APPROVED BY THE LOCAL AUTHORITY. POTS LINES AND WIRELESS COMMUNICATOR SHALL BE PROVIDED AS REQUIRED FOR THIS MONITORING.
D. FIRE ALARM CONTRACTOR SHALL PROVIDE ALL DESIGN, DRAWINGS, CALCULATIONS, PRODUCT DATA, ETC. TO THE LOCAL AUTHORITY REQUIRED FOR PERMITTING AND INSPECTIONS OF THE SYSTEM.
E. SIGNALING DEVICES SHALL BE ADA COMPLIANT.
F. CABLE SHALL BE FIRE PROTECTIVE SIGNALING TYPE.
G. ALL ACCESSORIES, EXPANDERS, ANNUNCIATORS, GRAPHIC PANELS, ETC. SHALL BE INCLUDED AS REQUIRED FOR A COMPLETE FULLY FUNCTIONING SYSTEM MEETING STATE AND LOCAL CODE REQUIREMENTS.

3. EXECUTION

3.1 RACEWAYS AND FITTINGS:

A. INSTALL CONDUITS CONCEALED IN WALLS, CEILINGS OR FLOORS UNLESS INDICATED OR SPECIFIED OTHERWISE. CONDUITS MAY BE INSTALLED EXPOSED IN UNFINISHED AREAS (IE: EQUIPMENT ROOMS). INSTALL EXPOSED CONDUITS IN RUNS PARALLEL OR PERPENDICULAR TO WALLS STRUCTURAL MEMBERS, OR INTERSECTIONS OF VERTICAL PLANES OR CEILINGS. EXPOSED AND CONCEALED CONDUITS SHALL PASS THROUGH WALLS, FLOORS OR CEILINGS AT RIGHT ANGLES. UNDERGROUND CONDUITS SHALL HAVE BURY DEPTH AS REQUIRED BY THE CODE.
B. INSURE THAT CONDUITS ARE IN ALIGNMENT BETWEEN BENDS, ELBOWS AND TERMINATIONS; THAT BENDS ARE FREE OF CRIMPS, THAT JOINTS AND TERMINATIONS ARE TIGHT AND SECURE; THAT INTERIORS ARE SMOOTH AND FREE OF BURRS AND FOREIGN OBJECTS; AND THAT INTERIORS ARE FULL SIZE ENTIRE LENGTH. DURING CONSTRUCTION, CLOSE ENDS OF CONDUITS WITH METAL OR PLASTIC CAPS INTENDED FOR THE PURPOSE.
C. FIELD BENDING OF CONDUITS AND TUBING SHALL BE MADE WITH HAND OR POWERED EQUIPMENT APPROVED FOR THE PURPOSE. USE OF TORCHES TO BEND NONMETALLIC CONDUIT IS NOT APPROVED. RADIUS OF BENDS SHALL BE AS PER THE CODE FOR TYPE OF CONDUIT AND TUBING USED. CONDUITS PASSING THROUGH A FIRE RATED WALL OR FLOOR SHALL NOT LESSEN THE RATING OF THE STRUCTURE THROUGH WHICH THEY PASS. FINAL INSTALLATION OF CONDUITS PENETRATING WATERPROOF CONSTRUCTION SHALL BE COMPLETELY WATERTIGHT.
D. SLEEVE CONDUITS PASSING THROUGH CONCRETE FLOOR SLABS AND CONCRETE, MASONRY, TILE AND GYPSUM WALLS.
E. CONDUIT SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE AT INTERVALS REQUIRED BY THE CODE. USE STANDARD CONDUIT HANGERS, ONE HOLE SNAP STRAPS, THIN WALL CONDUIT CLAMPS, MALLEABLE IRON PIPE STRAPS, STRUT CHANNEL, BEAM CLAMPS, U-BOLTS AND ALL-THREAD RODS. DO NOT USE WIRE TIES, STAB-ON CLIPS OR PERFORATED STRAP IRON.
F. PAINT ANY EXPOSED CONDUITS NOT WITHIN UTILITY ROOMS TO MATCH SURROUNDINGS.

3.2 WIRE AND CABLE:

A. SPLICE CONDUCTORS NO. 10 AND SMALLER WITH STEEL SPRING WIRE CONNECTOR WITH THERMOPLASTIC SLEEVE. SPLICE CONDUCTORS NO.8 AND LARGER WITH MECHANICAL TYPE, TAP CONNECTORS WITH INSULATED COVERS OR SPLIT BOLTS TAPED TO CONDUCTOR INSULATION VALUE.
B. INSTALL CONDUCTORS IN RACEWAYS. CONDUCTORS SHALL BE CONTINUOUS FROM POINT OF ORIGIN TO PANEL OR EQUIPMENT TERMINATION WITHOUT RUNNING SPLICES IN INTERMEDIATE BOXES. CONDUCTORS OF DIFFERENT VOLTAGES SHALL NOT BE PULLED INTO SAME RACEWAY.
C. CABLE SHALL BE SUPPORTED DIRECTLY FROM THE BUILDING STRUCTURE WITH STAPLES OR ONE-HOLE STRAPS AT INTERVALS REQUIRED BY THE CODE. BORED HOLES SHALL NOT EXCEED 1" DIAMETER AND SHALL BE A MINIMUM OF 2'-0" FROM STRUCTURAL BEARING POINTS. NOTCHING OF STRUCTURAL MEMBERS IS PROHIBITED. PROVIDE GUARD STRIPS AT LEAST AS HIGH AS CABLE WHERE RUN ACROSS TOP OF STRUCTURE IN ACCESSIBLE ATTIC SPACES.
D. DO NOT RUN ANY WIRE OR CABLE IN PLUMBING WALLS UNTIL PIPING SYSTEMS HAVE BEEN COMPLETED. PLUMBING SHALL PRESIDE IN THESE WALLS.
E. DO NOT SHARE NEUTRAL CONDUCTORS FOR 120 VOLT CIRCUITS.
F. COLOR CODE CONDUCTORS TO INDUSTRY STANDARDS.
G. INCREASE WIRE SIZES AS REQUIRED TO COMPENSATE FOR VOLTAGE DROP BASED ON FEEDER/BRANCH CIRCUIT LENGTH.

3.3 BOXES:

A. SECURE BOXES TO STRUCTURE BY MEANS OF SCREWS, BOLTS, ROD HANGERS OR OTHER APPROVED MEANS. RACEWAYS ENTERING OR LEAVING BOX SHALL NOT BE USED AS SUPPORT. BOXES SHALL BE LEVEL AND PLUMB. BOXES FOR FLUSH EQUIPMENT SHALL BE PLACED TO WITHIN 1/4" OF THE FINISHED SURFACE. PROVIDE EXTENSIONS OR PLASTER RINGS AS REQUIRED. JUNCTION AND PULL BOXES SHALL BE INSTALLED READILY ACCESSIBLE, UNOBSTRUCTED BY PIPING, DUCTS OR OTHER EQUIPMENT.
B. BOXES SHALL BE MOUNTED AT HEIGHT INDICATED ON THE DRAWINGS OR DIRECTLY ADJACENT TO PIECE OF EQUIPMENT SERVED. SEAL SPARE OR UNUSED OPENINGS IN BOXES WITH APPROVED FITTINGS. FOR BOXES INSTALLED IN WET LOCATIONS PROVIDE CLEAR SILICONE CAULK BETWEEN BOX AND SURROUNDING SURFACE TO PREVENT WATER ENTRY.
C. BOXES IN RATED CONSTRUCTION SHALL BE SUITABLE FOR THE USE AND INSTALLED IN ACCORDANCE WITH THE CODE.

3.4 WIRING DEVICES:

A. INSTALL DEVICES APPROXIMATELY AT THE LOCATIONS INDICATED ON THE DRAWINGS. DETERMINE EXACT LOCATION BY CONDITIONS OF CONSTRUCTION. COORDINATE LOCATIONS TO AVOID CONFLICT WITH OTHER EQUIPMENT BEING INSTALLED. INSTALL DEVICES STRAIGHT AND SOLID TO BOX. MOUNTING HEIGHTS OF WALL OUTLETS SHALL BE AS INDICATED ON THE DRAWINGS AND SHALL BE MEASURED FROM THE FINISHED FLOOR TO THE CENTER OF THE OUTLET. WHERE DEVICES ARE SHOWN GROUPED TOGETHER, PROVIDE A SINGLE, MULTIPLE GANG PLATE.
B. COORDINATE PLACEMENT IN AND AROUND KNEE SPACES, LAVATORIES AND OTHER EQUIPMENT TO AVOID CONFLICTS WITH MIRRORS AND OTHER APPURTENANCES. REFER TO ARCHITECTURAL DRAWINGS. SWITCHES SHALL BE LOCATED TO STRIKE SIDE OF THE DOOR. VERIFY FINAL DOOR SWINGS.
C. WHERE GFCI OUTLETS ARE USED TO PROVIDE FEED-THRU PROTECTION FOR DOWNSTREAM OUTLETS ON SAME CIRCUIT, DO NOT FEED-THRU WIRE ACROSS PARTITIONS. USE A SEPARATE DEVICE.
D. VERIFY THE NEMA CONFIGURATIONS OF ALL OUTLETS WITH OWNER.

3.5 DISCONNECT SWITCHES:

A. MOUNT SWITCHES ON WALL OR AT ASSOCIATED PIECE OF EQUIPMENT. WALL MOUNTED SWITCHES SHALL BE 48 INCHES ABOVE FINISHED FLOOR. PROVIDE ENGRAVED PLASTIC LAMINATE NAMEPLATE FOR EACH DISCONNECT SWITCH LOCATED ON FRONT OUTSIDE COVER. NAMEPLATE SHALL INDICATE ITEM SERVED.
B. SWITCHES SCHEDULED ARE FOR DESIGN BASED EQUIPMENT. REVIEW OTHER TRADES' SUBMITTALS TO DETERMINE IF SUBSTITUTIONS HAVE BEEN MADE. PROVIDE SWITCH TO MATCH EQUIPMENT SUPPLIED.

3.6 GROUNDING:

A. CONDUIT SYSTEM SHALL NOT BE USED FOR GROUNDING.
B. FOR BONDING OF SERVICE EQUIPMENT PROVIDE BONDING BUSHINGS AND JUMPERS WHERE REQUIRED. WELDING OF CONDUIT AND FITTINGS WILL NOT BE CONSIDERED ACCEPTABLE FOR THE PURPOSE OF BONDING.
C. PROVIDE PROTECTION FROM PHYSICAL DAMAGE FOR ANY EXPOSED SECTION OF THE GROUNDING ELECTRODE CONDUCTOR SYSTEM.

3.7 PANELBOARDS (OR GEAR):

A. NEATLY PRINT CIRCUIT DESIGNATIONS ON DIRECTORY CARD. NOTATIONS SHALL INDICATE THE NATURE AND LOCATION OF LOADS SERVED. DO NOT USE A PERMANENT MARKER TO LABEL CIRCUIT DESIGNATIONS ON PANEL HOUSING.
B. PROVIDE ENGRAVED LAMINATE NAMEPLATE FOR EACH NEW PANELBOARD LOCATED ON OUTSIDE OF DOOR. NAMEPLATE SHALL INCLUDE PANELBOARD DESIGNATION ON THE DRAWINGS, SERVICE VOLTAGE, PHASE AND AMPERAGE.
C. BREAKERS SCHEDULED ARE FOR DESIGN BASED EQUIPMENT. REVIEW OTHER TRADES' SUBMITTALS TO DETERMINE IF SUBSTITUTIONS HAVE BEEN MADE. PROVIDE BREAKERS TO MATCH EQUIPMENT SUPPLIED.

3.8 ELECTRIC SERVICE:

A. PROVIDE LABOR AND MATERIALS NOT FURNISHED BY THE POWER COMPANY. DO WORK REGARDING THE ELECTRICAL SERVICE AND ITS EQUIPMENT IN ACCORDANCE WITH THE REQUIREMENTS OF THE POWER COMPANY. IF THE CONTRACT DOCUMENTS INDICATE WORK THAT IS TO EXCEED THESE REQUIREMENTS, FOLLOW THE CONTRACT DOCUMENTS.
B. LABEL EQUIPMENT FOR THE ELECTRIC SERVICE IN ACCORDANCE WITH THE APPROPRIATE SECTION OF THIS DIVISION. MAIN SWITCHES OR BREAKERS ARE TO BE IDENTIFIED AS SUCH IN ADDITION TO IDENTIFYING THE ITEM FED.
C. NOTIFY THE POWER COMPANY OF THE TIMING REQUIREMENTS FOR THE PROJECT AND ARRANGE FOR METERING EQUIPMENT, CONNECTIONS AND SERVICE.

3.9 LIGHTING FIXTURES:

A. INSTALLATION OF FIXTURES SHALL BE IN A NEAT, WORKMANLIKE MANNER. PROVIDE STRAPS, SUPPORTS, HANGERS AND OTHER MATERIALS REQUIRED FOR PROPER INSTALLATION.
B. SURFACE MOUNTED FIXTURES SHALL NOT HAVE GAPS BETWEEN THE FIXTURE AND ATTACHING SURFACE UNLESS MOUNTING IS DESIGNED TO HOLD FIXTURE OFF CEILING, OR EXCEPT WHERE REQUIRED BY THE CODE REGULATION. CONTINUOUS ROWS OF FIXTURES SHALL BE INSTALLED SO AS TO PROVIDE PERFECT ALIGNMENT.
C. SUPPORT SURFACE MOUNTED FIXTURES DIRECTLY FROM THE BUILDING STRUCTURE AND NOT FROM THE CEILING GRID SYSTEM. USE ALL-THREAD RODS, BEAM CLAMPS, PIPE CLAMPS AND PIPE OR PERFORATED STEEL CHANNEL FOR SUPPORT. WIRE TIES AND STAB-ON CLIPS WILL NOT BE ACCEPTED. THE SUPPORT ASSEMBLY SHALL BE CAPABLE OF SUPPORTING 150 POUNDS IN ADDITION TO THE FIXTURE WEIGHT INDEFINITELY.
D. RECESSED FIXTURES SHALL NOT HAVE GAPS BETWEEN THE FIXTURE TRIM AND ADJACENT SURFACE. WHERE LIGHT LEAKS OCCUR, SUITABLE GASKETS SHALL BE INSTALLED.
E. RECESSED LIGHTING FIXTURES INSTALLED IN MODULAR OR INTEGRATED CEILINGS SHALL BE OF THE PROPER TYPE FOR THE TYPE OF CEILING BEING INSTALLED. VERIFY TYPE OF CONSTRUCTION PRIOR TO ORDERING OF FIXTURES. ADDITIONAL CEILING TIES SHALL BE INSTALLED AT EACH CORNER OF THE LIGHTING FIXTURE TO REINFORCE THE CEILING SYSTEM.
F. CONNECT EXIT AND EMERGENCY LIGHTING FIXTURES TO BRANCH CIRCUIT SERVING NORMAL LIGHTING IN AREA AHEAD OF LOCAL SWITCHING OR TO NIGHT LIGHTING CIRCUIT AS SHOWN.
G. ADJUST LIGHTING CONTROL SENSOR TIME-OUTS AND SENSITIVITY TO OWNER'S SATISFACTION.

3.10 EMPTY CONDUIT SYSTEMS:

A. LEAVE CONDUITS WITH PULL CORDS. AT COMPLETION OF THE PROJECT, PROVIDE BLANK COVERPLATES FOR ANY OUTLET BOXES NOT UTILIZED AND LEFT SPARE BY THE OWNER'S CABLING CONTRACTOR.
B. PAINT ALL SIDES AND EDGES OF EQUIPMENT SPACE WITH 2 COATS OF GRAY ENAMEL PAINT PRIOR TO INSTALLATION.
C. COORDINATE WITH THE UTILITIES SELECTED BY THE OWNER AND PROVIDE ALL MEANS REQUIRED FOR SERVICES TO THE BUILDING.

3.11 FIRE ALARM SYSTEM:

A. ON CALL FROM INITIATING DEVICE, SYSTEM SHALL SOUND EVACUATION THROUGHOUT BUILDING AND NOTIFY CENTRAL STATION. SPRINKLER TAMPER SWITCHES TO SOUND TROUBLE SIGNAL.
B. COORDINATE FLOW AND TAMPER SWITCHES WITH SPRINKLER CONTRACTOR AND SHUTDOWN OF ROOF TOP UNITS WITH HVAC CONTRACTOR. VERIFY EXACT QUANTITIES AND LOCATIONS OF FLOW AND TAMPER SWITCHES WITH THE SPRINKLER CONTRACTOR REQUIRED FOR RISER, STANDPIPES, AND FIRE SERVICE LINE.
C. DUCT MOUNTED SMOKE DETECTORS SHALL BE TIED TO FIRE ALARM SYSTEM. COORDINATE WITH HVAC CONTRACTOR.
D. COORDINATE DEVICE ROUGH-IN LOCATIONS WITH FINAL FIRE ALARM DESIGN DRAWINGS.
E. TEST SYSTEM TO INDUSTRY STANDARDS AND PROVIDE WRITTEN DOCUMENTATION TO THE ARCHITECT OF SYSTEM ACCEPTANCE.

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MARK	DATE	DESCRIPTION
	06/21/2023	BID DRAWINGS

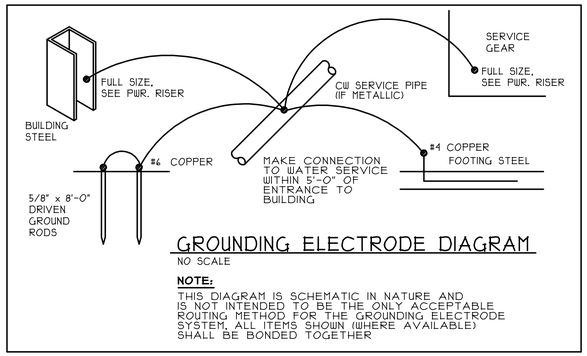
LDDBlueline™
MEI Engineering, Inc.
Mechanical - Electrical - Industrial Consultants
1592 CF Pours Drive
Harrisonburg, VA 22802
(540) 432-6272
MEIengineeringinc.com

GREENE COUNTY PUBLIC SCHOOLS
ALTERNATIVE EDUCATION BUILDING
254 MONROE DRIVE
STANARDSVILLE, VIRGINIA 22973

NOT FOR CONSTRUCTION

PROJ NO: 23080

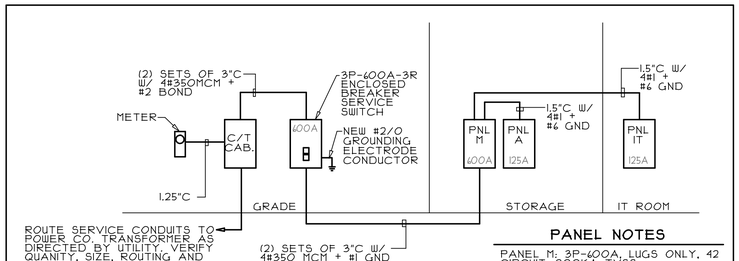
E1
ELEC. SPECS.



GROUNDING ELECTRODE DIAGRAM

NO SCALE

NOTE:
THIS DIAGRAM IS SCHEMATIC IN NATURE AND IS NOT INTENDED TO BE THE ONLY ACCEPTABLE ROUTING METHOD FOR THE GROUNDING ELECTRODE SYSTEM. ALL ITEMS SHOWN (WHERE AVAILABLE) SHALL BE BONDED TOGETHER



POWER RISER DIAGRAM

NO SCALE

PANEL NOTES

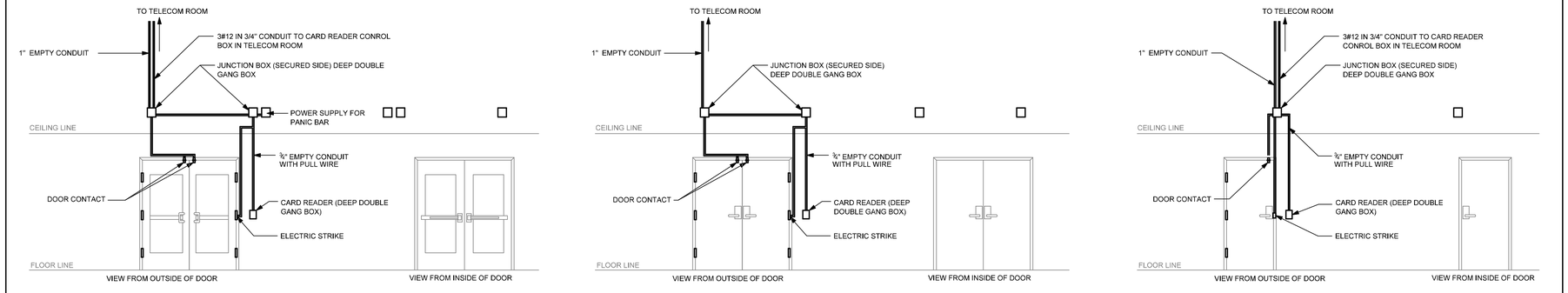
PANEL M: 3P-600A, LUGS ONLY. 42 CIRCUIT, 200KA TVSS

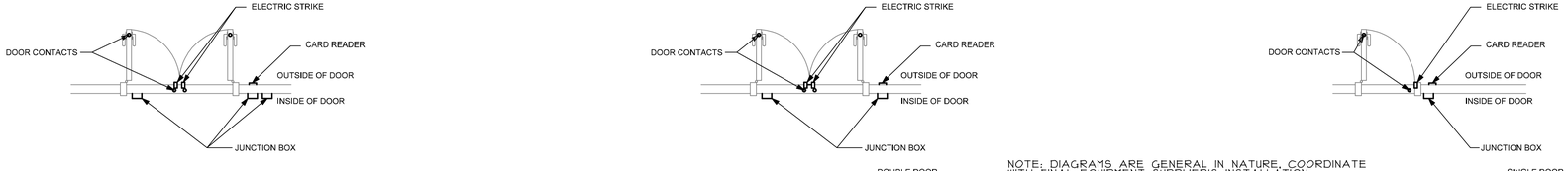
PANEL A: 3P-125A, LUGS ONLY. 72 CIRCUIT, 100KA TVSS

PANEL IT: 3P-125A, LUGS ONLY. 30 CIRCUIT, 100KA TVSS

SYMBOLS LIST

- A-1 — OUTLET FOR CEILING OR WALL MOUNTED LED LIGHTING FIXTURE WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED LED LIGHTING FIXTURE WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED EXIT LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED EMERGENCY EGRESS FLUORESCENT LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- A-1 — OUTLET FOR CEILING OR WALL MOUNTED COMBINATION EXIT/EMERGENCY EGRESS LIGHTING FIXTURE WITH BATTERY BACKUP WITH CIRCUIT NUMBER
- LIGHTING FIXTURE TYPE SEE SCHEDULE
- S — SINGLE POLE WALL SWITCH AT 48" AFF TO TOP OF BOX
- S_3 — THREE-WAY WALL SWITCH AT 48" AFF TO TOP OF BOX
- S_4 — FOUR-WAY WALL SWITCH AT 48" AFF TO TOP OF BOX
- A-1 — GENERAL PURPOSE DUPLEX RECEPTACLE AT 18" AFF TO BOTTOM OF BOX, WITH CIRCUIT NUMBER
- A-1 — GENERAL PURPOSE DUPLEX RECEPTACLE AT 48" AFF TO TOP OF BOX, WITH CIRCUIT NUMBER
- GFCI A-1 — GROUND FAULT CIRCUIT INTERRUPTER AT 18" AFF TO BOTTOM OF BOX, WITH CIRCUIT NUMBER
- GFCI — GROUND FAULT CIRCUIT INTERRUPTER AT 48" AFF TO TOP OF BOX, WITH CIRCUIT NUMBER
- A-1 — GENERAL PURPOSE QUADRAPLEX RECEPTACLE AT 18" AFF TO BOTTOM OF BOX, WITH CIRCUIT NUMBER
- A-1 — 3 WIRE, 250 VOLT DEVICE WITH CIRCUIT NUMBER
- EWC A-1 — OUTLET FOR ELECTRIC WATER COOLER COORDINATE LOCATION WITH PLUMBING ROUGH-IN DRAWINGS, WITH CIRCUIT NUMBER
- REF. A-1 — OUTLET FOR REFRIGERATOR HEIGHT TO SUIT APPLIANCE SERVED WITH CIRCUIT NUMBER
- A-1 — DUAL SERVICE FLUSH FLOOR OUTLET WITH DUPLEX RECEPTACLE WITH CIRCUIT NUMBER AND A 1" EC STUBBED INTO ACCESSIBLE CEILING SPACE AND 1" EC ROUTED TO TV DATA BOX IN ROOM FOR LOW VOLTAGE CABLE (DATA, TELEPHONE OR TELEVISION), WITH BRASS COVERPLATE
- JUNCTION BOX AT 18" AFF TO BOTTOM OF BOX OR AT ASSOCIATED PIECE OF EQUIPMENT
- OUTLET FOR LOW VOLTAGE CABLE (DATA, TELEPHONE OR TELEVISION) AT 18" AFF TO BOTTOM OF BOX WITH A 3/4" EC STUBBED OUT AT NEAREST CABLE TRAY
- OUTLET FOR LOW VOLTAGE CABLE (DATA, TELEPHONE OR TELEVISION) AT 48" AFF TO TOP OF BOX WITH A 3/4" EC STUBBED OUT AT NEAREST CABLE TRAY
- PASSIVE INFARED DUAL TECHNOLOGY MICROPHONIC LOW VOLTAGE CEILING MOUNTED OCCUPANCY SENSOR WIRED TO RESPECTIVE POWER PACK
- S_{OCD} — PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LINE VOLTAGE WALL MOUNT SENSOR, AT 48" AFF TO TOP OF BOX, MANUAL "ON" AUTOMATIC "OFF", WITH DIMMING
- S_{OCD2} — 2 POLE TYPE PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LINE VOLTAGE WALL MOUNT SENSOR, AT 48" AFF TO TOP OF BOX, MANUAL "ON" AUTOMATIC "OFF", WITH DIMMING
- S_{OC} — PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LINE VOLTAGE WALL MOUNT SENSOR, AT 48" AFF TO TOP OF BOX, MANUAL "ON" AUTOMATIC "OFF"
- S_{OC2} — PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC 2-POLE LINE VOLTAGE WALL MOUNT SENSOR, AT 48" AFF TO TOP OF BOX, MANUAL "ON" AUTOMATIC "OFF"
- S_{OCLT} — PASSIVE INFRARED DUAL TECHNOLOGY MICROPHONIC LINE VOLTAGE WALL MOUNT SENSOR, AT 48" AFF TO TOP OF BOX, MANUAL "ON" AUTOMATIC "OFF", DAMP LOCATION RATED.
- S_{LVD} — ON-OFF/ DIMMER, LOW VOLTAGE WALL MOUNT SWITCH WITH LOW VOLTAGE WIRING TO RELAY POWER PACK, AT 48" AFF TO TOP OF BOX
- RELAY POWER PACK ABOVE ACCESSIBLE CEILING
- 2P — RELAY POWER PACK ABOVE ACCESSIBLE CEILING 2 POLE TYPE
- A-1 (C) — DOOR ACCESS CONTROL TO BE PROVIDED AT THIS DOOR LOCATION, SEE DETAIL ON THIS SHEET. PROVIDE & INSTALL ALL BOXES, CONDUITS, AND WIRING. SHOWN ON DETAIL. VERIFY ALL REQUIREMENTS WITH OWNER AND SECURITY SYSTEM PROVIDER PRIOR TO ROUGH-IN. PROVIDE ADDITIONAL 120V CONNECTION FOR CONTROLLERS, TRANSFORMERS, ETC. AS REQUIRED. WIRE TO CIRCUIT INDICATED.
- (W) — 4-11/16 JBOX WITH SINGLE GANG PLASTER RING FOR CEILING MOUNTED WIRELESS ACCESS POINT WITH A 1"EC ROUTED TO NEAREST CABLE TRAY. COORDINATE WITH COMMUNICATIONS REPRESENTATIVE. PROVIDE AND INSTALL CONDUIT BUSHINGS AND LEAVE WITH PULL STRING.
- (F) — AUDIO/VISUAL FIRE ALARM SIGNAL DEVICE AT 6'-8" AFF
- F — FIRE ALARM PULL STATION AT 48" AFF TO TOP OF BOX
- (V) — VISUAL ONLY FIRE ALARM SIGNAL DEVICE AT 6'-8" AFF
- S — CEILING MOUNTED SMOKE DETECTOR
- FAA — FIRE ALARM ANNUNCIATOR PANEL
- FACP — FIRE ALARM CONTROL PANEL
- S — CEILING MOUNTED SMOKE DETECTOR
- CR S — CEILING MOUNTED SMOKE DETECTOR RATED FOR COMPUTER ROOM USE
- EF — EXHAUST FAN (120V-1PH) FURNISHED AND INSTALLED BY DIVISION 15 WIRED UNDER THIS DIVISION
- A-1 PC — PHOTOCELL, LOCATE IN ACCESSIBLE LOCATION AND SHIELD FROM SURROUNDING LIGHT SOURCES, WITH CIRCUIT NUMBER
- PANELBOARD
- 20 — EQUIPMENT CONNECTION DESIGNATION SEE SCHEDULE
- SWITCH LEG WIRING, 2 #12 - CROSS MARKS INDICATE NUMBER OF CONDUCTORS IF MORE THAN TWO
- SWITCH LEG WIRING, 2 #12 - WITH ADDITIONAL DIMMING CONTROL WIRING AS REQUIRED FOR FIXTURE SUPPLIED
- AFF — ABOVE FINISHED FLOOR
- C/EC — CONDUIT/EMPTY CONDUIT
- EWH — ELECTRIC WALL HEATER
- FSS/NFSS — FUSIBLE/NON-FUSIBLE SAFETY SWITCH
- NL — NIGHT LIGHT (UNSWITCHED)
- WP — WEATHERPROOF





NOTE: DIAGRAMS ARE GENERAL IN NATURE. COORDINATE WITH FINAL EQUIPMENT SUPPLIER'S INSTALLATION GUIDELINES PRIOR TO ROUGH-IN.

CARD READER ELECTRIC STRIKE DETAIL

NO SCALE

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E2

ELEC. SCHEDS., RISERS & FORMS

PANEL IT

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 125 | MAIN: LUGS ONLY (FED FROM 125A BREAKER IN PANEL M)

BRKR P	BRKR A	DESCRIPTION	CIRCUIT AMPS	CIRCUIT DEMAND	CIRCUIT NO.	PHASE LOAD A	PHASE LOAD B	PHASE LOAD C	CIRCUIT NO.	CIRCUIT DEMAND	CIRCUIT AMPS	DESCRIPTION	BRKR A	BRKR P
2	30	VRF-1	20.0	100%	1	23.0			2	100%	3.0	IT QUAD	20	1
-	--	----	20.0	100%	3		23.0		4	100%	3.0	IT QUAD	20	1
2	30	IT RACK	20.0	100%	5			23.0	6	100%	3.0	IT QUAD	20	1
-	--	-----	20.0	100%	7	26.0			8	100%	6.0	SECURITY SYS.	20	1
1	--	PROVISIONAL	0.0	100%	9		3.0		10	100%	3.0	IT QUAD	20	1
1	--	PROVISIONAL	0.0	100%	11			3.0	12	100%	3.0	IT QUAD	20	1
1	--	PROVISIONAL	0.0	100%	13	0.0			14	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	15		0.0		16	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	17			0.0	18	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	19	0.0			20	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	21		0.0		22	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	23			0.0	24	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	25	0.0			26	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	27		0.0		28	100%	0.0	SPARE	20	1
1	--	PROVISIONAL	0.0	100%	29			0.0	30	100%	0.0	SPARE	20	1
						49.0	26.0	26.0						

SQUARE-D NQ OR EQUAL
SEE SPEC. NOTES

WITH INTEGRAL 100KA TVSS

PANEL M

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 600A | MAIN: LUGS ONLY (FED FROM 600A SERVICE SWITCH)

BRKR P	BRKR A	DESCRIPTION	CIRCUIT AMPS	CIRCUIT DEMAND	CIRCUIT NO.	PHASE LOAD A	PHASE LOAD B	PHASE LOAD C	CIRCUIT NO.	CIRCUIT DEMAND	CIRCUIT AMPS	DESCRIPTION	BRKR A	BRKR P
3	80	RTU-2	77.5	100%	1	126.5			2	100%	49.0	PANEL IT	125	3
-	--	----	77.5	100%	3		103.5		4	100%	26.0	----	--	-
-	--	----	77.5	100%	5			103.5	6	100%	26.0	----	--	-
3	60	RTU-1	57.2	100%	7	153.3			8	100%	96.1	PANEL A	125	3
-	--	----	57.2	100%	9		153.8		10	100%	96.6	----	--	-
-	--	----	57.2	100%	11			153.8	12	100%	96.6	----	--	-
2	25	OHP-1	14.1	100%	13	50.1			14	125%	28.8	WATER HEATER	40	2
-	--	----	14.1	100%	15		50.1		16	125%	28.8	----	--	-
2	25	OHP-2	14.1	100%	17			17.1	18	100%	3.0	RECIRC PUMP	20	1
-	--	----	14.1	100%	19	14.1			20	100%	0.0	PROVISIONAL	--	1
2	25	OHP-3	14.1	125%	21		17.6		22	100%	0.0	PROVISIONAL	--	1
-	--	----	14.1	125%	23			17.6	24	100%	0.0	PROVISIONAL	--	1
2	60	AHU-1	53.8	100%	25	53.8			26	100%	0.0	PROVISIONAL	--	1
-	--	----	53.8	100%	27		53.8		28	100%	0.0	PROVISIONAL	--	1
2	60	AHU-2	53.8	100%	29			53.8	30	100%	0.0	PROVISIONAL	--	1
-	--	----	53.8	100%	31	53.8			32	100%	0.0	PROVISIONAL	--	1
2	60	AHU-3	53.8	100%	33		53.8		34	100%	0.0	PROVISIONAL	--	1
-	--	----	53.8	100%	35			53.8	36	100%	0.0	PROVISIONAL	--	1
1	--	PROVISIONAL	0.0	100%	37	0.0			38	100%	0.0	PROVISIONAL	--	1
1	--	PROVISIONAL	0.0	100%	39		0.0		40	100%	0.0	PROVISIONAL	--	1
1	--	PROVISIONAL	0.0	100%	41			0.0	42	100%	0.0	PROVISIONAL		1
						451.6	432.6	399.7						

SQUARE-D NQ OR EQUAL
SEE SPEC. NOTES

WITH INTEGRAL 200KA TVSS

PANEL A

VOLTS: 120/208 | PHASE: 3 | WIRES: 4 | MOUNTING: SURFACE
AMPS: 125 | MAIN: LUGS ONLY (FED FROM 125A BREAKER IN PANEL M)

BRKR P	BRKR A	DESCRIPTION	CIRCUIT AMPS	CIRCUIT DEMAND	CIRCUIT NO.	PHASE LOAD A	PHASE LOAD B	PHASE LOAD C	CIRCUIT NO.	CIRCUIT DEMAND	CIRCUIT AMPS	DESCRIPTION	BRKR A	BRKR P
1	20	106 REC	6.0	100%	1	15.4			2	125%	7.5	LIGHTS	20	1
1	20	106 REC	6.0	100%	3		15.9		4	125%	8.0	LIGHTS	20	1
1	20	106 COPIER	4.0	100%	5			10.6	6	125%	5.3	LIGHTS	20	1
1	20	STOR RECS	3.0	100%	7	14.3			8	125%	9.0	LIGHTS	20	1
1	20	EWC [1]	6.0	100%	9		11.1		10	125%	4.1	OUTDOOR LIGHTS [3]	20	1
1	20	110 REF	8.0	100%	11			10.0	12	100%	2.0	CO2 SENSORS	20	1
1	20	110 COUNTER	3.0	100%	13	15.5			14	125%	10.0	BUILDING SIGN	20	1
1	20	110 RECS	4.5	100%	15		7.5		16	100%	3.0	FACP [2]	20	1
1	20	111 RECS	6.0	100%	17			18.5	18	125%	10.0	MONUMENT SIGN	20	1
1	20	112 RECS	6.0	100%	19	10.5			20	100%	4.5	117/124 RECS	20	1
1	20	113 RECS	6.0	100%	21		12.0		22	100%	6.0	123 RECS	20	1
1	20	116 REF	6.0	100%	23			12.0	24	100%	6.0	123 RECS	20	1
1	20	116 MW	6.0	100%	25	10.5			26	100%	4.5	OUTDOOR RECS	20	1
1	20	116 COUNTER	3.0	100%	27		11.0		28	100%	8.0	110 MW	20	1
1	20	116 RECS	6.0	100%	29			6.0	30	100%	0.0	SPARE	20	1
1	20	116 RECS	6.0	100%	31	6.0			32	100%	0.0	SPARE	20	1
1	20	107 REF	6.0	100%	33		6.0		34	100%	0.0	SPARE	20	1
1	20	107 MW	8.0	100%	35			8.0	36	100%	0.0	SPARE	20	1
1	20	107 COUNTER REC	3.0	100%	37	3.0			38	100%	0.0	SPARE	20	1
1	20	107 RECS	7.5	100%	39		7.5		40	100%	0.0	SPARE	20	1
1	20	107 RECS	7.5	100%	41			7.5	42	100%	0.0	SPARE	20	1
1	20	109 REC	1.5	100%	43	1.5			44	100%	0.0	SPARE	20	1
1	20	100 RECS	4.5	100%	45		4.5		46	100%	0.0	SPARE	20	1
1	20	101/ 105 RECS	3.0	100%	47			3.0	48	100%	0.0	SPARE	20	1
1	20	102 RECS	6.0	100%	49	6.0			50	100%	0.0	SPARE	20	1
1	20	102 RECS	7.5	100%	51		7.5		52	100%	0.0	SPARE	20	1
1	20	103 RECS	6.0	100%	53			6.0	54	100%	0.0	SPARE	20	1
1	20	103 RECS	7.5	100%	55	7.5			56	100%	0.0	SPARE	20	1
1	20	104 RECS	6.0	100%	57		6.0		58	100%	0.0	SPARE	20	1
1	20	104 RECS	6.0	100%	59			6.0	60	100%	0.0	SPARE	20	1
1	20	SPARE	0.0	100%	61	0.0			62	100%	0.0	SPARE	20	1
1	20	118 RECS	1.5	100%	63		1.5		64	100%	0.0	SPARE	20	1
1	20	119 RECS	6.0	100%	65			6.0	66	100%	0.0	SPARE	20	1
1	20	120 RECS	6.0	100%	67	6.0			68	100%	0.0	SPARE	20	1
1	20	120 RECS	6.0	100%	69		6.0		70	100%	0.0	SPARE	20	1
1	20	121/122 RECS	3.0	100%	71			3.0	72	100%	0.0	SPARE	20	1
						96.1	96.6	96.6						

[1] - GFCI BREAKER
[2] - WITH RED HANDLE LOCK
[3] - WIRE CIRCUIT THROUGH PHOTOCELL
SQUARE-D NQ OR EQUAL
SEE SPEC. NOTES

WITH INTEGRAL 100KA TVSS

EQUIPMENT CONNECTION SCHEDULE

ITEM	DESCRIPTION	VOLTS	PH	FLA	WIRE	GND	MOCP	DISCONNECT	PNL.&CKT.	REMARKS
1	RTU-1	208	3	57.2	3#6	#10	60A	3P-60A-NFSS NEMA 3R	SEE PANEL SCHEDULES	
2	RTU-2	208	3	77.5	3#3	#8	80A	3P-100A-NFSS NEMA 3R		
3A	OHP-1	208	1	14.1	2#10	#10	25A	2P-30A-NFSS NEMA 3R		
3B	AHU-1	208	1	53.8	2#6	#10	60A	2P-60A-NFSS		
4A	OHP-2	208	1	14.1	2#10	#10	25A	2P-30A-NFSS NEMA 3R		
4B	AHU-2	208	1	53.8	2#6	#10	60A	2P-60A-NFSS		
5A	OHP-3	208	1	14.1	2#10	#10	25A	2P-30A-NFSS NEMA 3R		
5B	AHU-3	208	1	53.8	2#6	#10	60A	2P-60A-NFSS		
6A/6B	VRF-1 / FC-1	208	1	20.0	2#10	#10	30A	2P-30A-NFSS NEMA 3R		NOTE A
7	ELEC WATER HEATER	208	1	28.8	2#8	#10	40A	2P-60A-NFSS		
8	RECIRC PUMP	120	1	3.0	2#12	#12	20A	TOGGLE SWITCH		

SCHEDULE NOTES

-- VERIFY FINAL CONNECTIONS, ELECTRICAL CHARACTERISTICS, ETC. WITH FINAL EQUIPMENT SELECTIONS. CONTRACTOR IS RESPONSIBLE FOR CORRECTNESS OF ALL BREAKERS, WIRES, ETC.
A. WIRE INDOOR UNIT THROUGH OUTDOOR UNIT IN ACCORDANCE WITH MANUFACTURER'S GUIDELINES. SEE HVAC SPECIFICATIONS.

LIGHTING FIXTURE SCHEDULE

TYPE	MANUFACTURER/CATALOG NO.	LAMPS & WATTAGE	MOUNTING	REMARKS
1	LITHONIA LIGHTING STAKS-2X4-AL06-SWW7	4000 LUMEN, 3500K, 40 WATTS	RECESSED	NOTE A
1E	LITHONIA LIGHTING STAKS-2X4-AL06-SWW7-ILBCP10A	4000 LUMEN, 3500K, 40 WATTS	RECESSED	NOTE A, WITH BATTERY BACKUP
2	LITHONIA LIGHTING CPANL-2X4-AL06-SWW7-M2	LOW LUMEN, 3500K, 32 WATTS	RECESSED	NOTE A
3	SELECTED BY ARCHITECT PROVIDED AND INSTALLED BY CONTRACTOR	100 WATTS MAXIMUM	WALL ABOVE MIRROR	$200 ALLOWANCE
4	LITHONIA LIGHTING CSS-L48-AL03-MVOLT-SWW3-80CRI	MID LUMEN, 3500K, 28 WATTS	CEILING	NOTE A
5	LITHONIA LIGHTING WPX1-LED-P2-40K-MVOLT	3000 LUMEN LED ARRAY, 24 WATTS	WALL ABOVE 8' AFF	COLOR SELECTED BY ARCH.
6	LITHONIA LIGHTING LDN6-AL01-SWW1-L06-LSS-MVOLT-UGZ-WL	MID LUMEN, 4000K, 10 WATTS	RECESSED	NOTE A
7	GOTHAM LIGHTING 1CO4UDWC-40/15-AR-LSS-ASYM-U10LM-U25D-MVOLT-EZ10-JBX-WL	1500D/1000U LUMEN LED ARRAY, 25 WATTS	WALL AT 7'-8" AFF	COLOR SELECTED BY ARCH.
8	LITHONIA LIGHTING WPX1-LED-P1-40K-MVOLT	1500 LUMEN LED ARRAY, 11 WATTS		COLOR SELECTED BY ARCH.
E1	LITHONIA LIGHTING LHQM-LED-R	FURNISHED W/FIXTURE	WALL ABOVE DOOR	EMERGENCY EXIT/EGRESS WITH BATTERY BACKUP
E2	LITHONIA LIGHTING LQM-S-W-3-R-MVOLT-EL N	FURNISHED W/FIXTURE	CEILING	EMERGENCY EGRESS/EXIT WITH BATTERY BACKUP
E3	LITHONIA LIGHTING ELM2L	FURNISHED W/FIXTURE	WALL AT 7'-6"	EM. EGRESS WITH BATTERY BACKUP, 220 LUMEN LAMPING

SCHEDULE NOTES

-- EQUIVALENT FIXTURES ACCEPTED BY ALTERNATE MANUFACTURERS: SIGNIFY, CREE, AXIS.
-- ALL FINISHES SHALL BE AS SELECTED BY ARCHITECT.

A. SELECTABLE FIXTURE, INITIALLY SET TO SETTINGS NOTED, AND FIELD ADJUST TO OWNER'S SATISFACTION.

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MARK	DATE	DESCRIPTION
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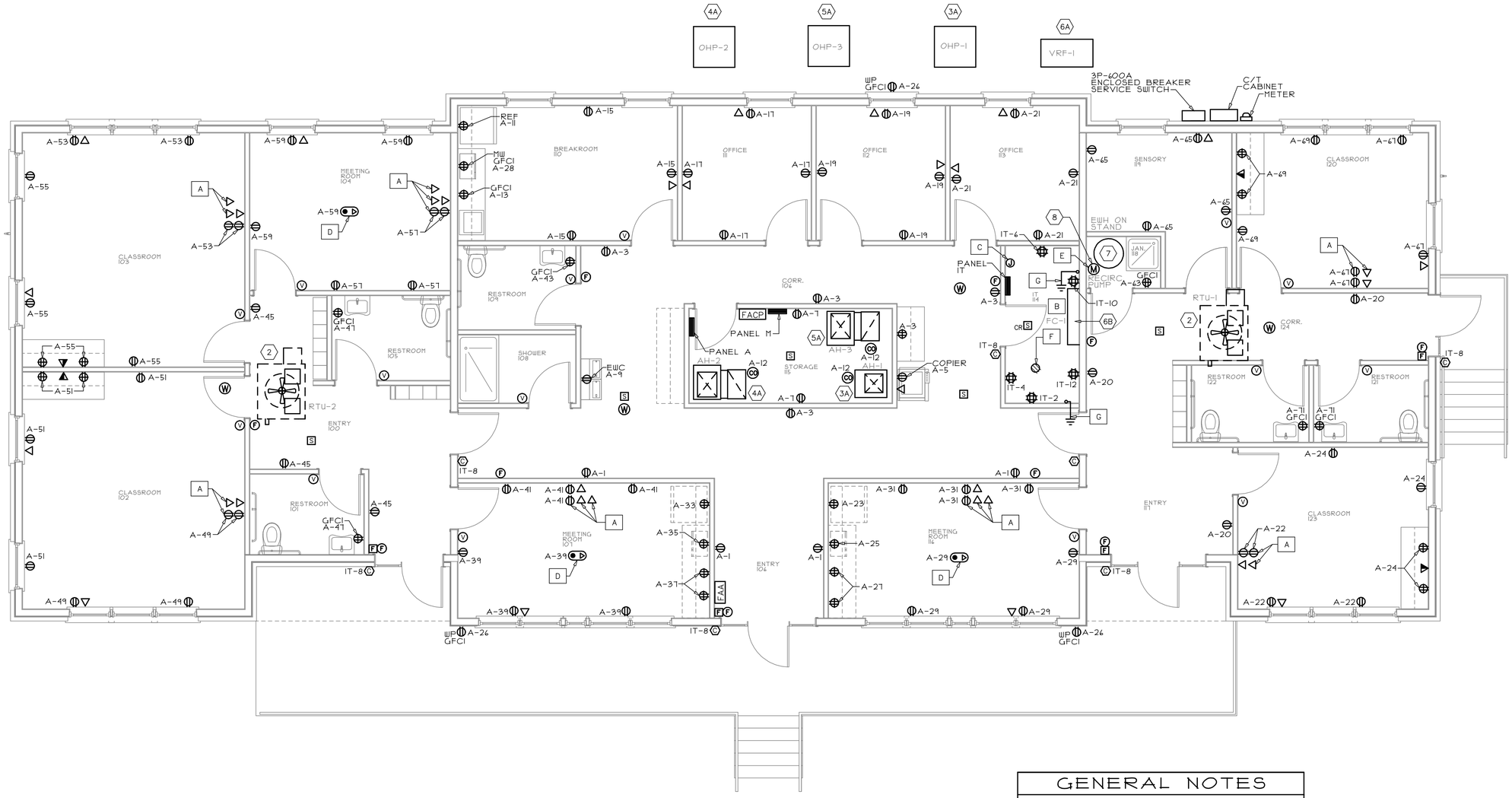
E3
ELEC. SCHEDS., RISERS & FORMS



POWER PLAN

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

GENERAL NOTES

-- VERIFY WIFI ACCESS POINT LOCATIONS, QUANTITIES, AND REQUIREMENTS WITH OWNER'S I.T. REPRESENTATIVE PRIOR TO ROUGH-IN.

[X] DRAWING NOTES

A. OUTLETS FOR WALL MOUNTED TELEVISION. VERIFY EXACT LOCATION AND MOUNTING HEIGHT WITH OWNER PRIOR TO ROUGH-IN. COORDINATE WITH MOUNTING HARDWARE.

B. LINE WALLS IN THIS ROOM WITH 8' TALL 3/4" FRT PLYWOOD BACKBOARD. ROUTE 3" EMPTY CONDUITS FROM UNDER BACKBOARD TO BUILDING DEMARK LOCATION (VERIFY QUANTITY AND TERMINATION POINTS WITH OWNER AND UTILITIES).

C. J-BOX FOR SECURITY SYSTEM CONTROL PANEL. VERIFY EXACT LOCATION AND REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.

D. VERIFY EXACT LOCATIONS WITH OWNER PRIOR TO ROUGH-IN.

E. HOT WATER RECIRC. PUMP. WIRE THROUGH AQUA-STAT AND TIMER. PROVIDE TOGGLE SWITCH DISCONNECT AT PUMP. COORDINATE WITH PLUMBING CONTRACTOR.

F. 2P-30A TWIST-LOCK OUTLET IN CEILING FOR SERVER EQUIPMENT. VERIFY ALL REQUIREMENTS AND LOCATION WITH OWNER'S I.T. REPRESENTATIVE PRIOR TO ROUGH-IN.

G. 2" x 10" GROUNDING BUS BAR WITH #6 GND TO PANEL M. VERIFY LOCATION WITH OWNER PRIOR TO ROUGH-IN.

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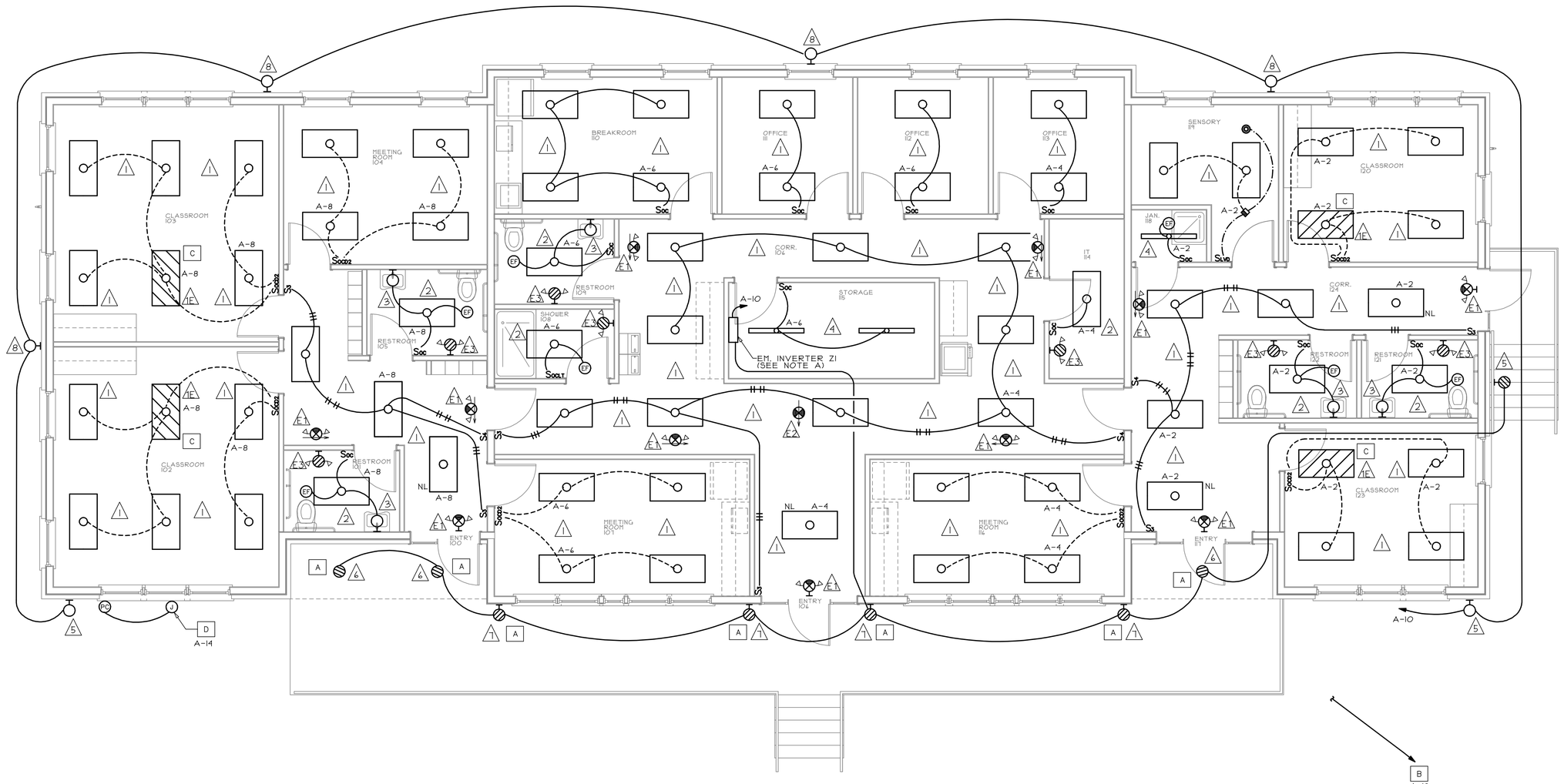
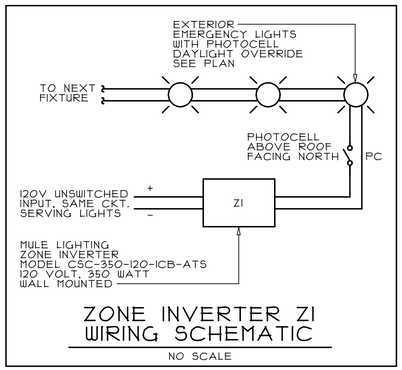
POWER PLAN



LIGHTING PLAN

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



ZONE INVERTER ZI WIRING SCHEMATIC

NO SCALE

GENERAL NOTES

-- WIRE EMERGENCY EXIT/ EGRESS LIGHTING FIXTURES TO CIRCUIT SERVING LIGHTS IN THAT AREA.
-- ADJUST ALL OCCUPANCY SENSORS TO OWNER'S SATISFACTION FOR TIME-OUTS AND SENSITIVITY.

[X] DRAWING NOTES

A. FIXTURE WIRED THROUGH EMERGENCY ZONE INVERTER. MULE LIGHTING CSC SERIES OR EQUAL. 350 WATT. LOCATE INVERTER ON WALL IN STORAGE 115. COORDINATE FINAL LOCATION OF INVERTER IN-FIELD. SEE DIAGRAM THIS SHEET.

B. CIRCUIT FOR MONUMENT SIGN. WIRE THROUGH PHOTOCELL. VERIFY EXACT LOCATION AND ALL REQUIREMENTS WITH OWNER PRIOR TO ROUGH-IN.

C. FIXTURE TO BE SWITCHED AS SHOWN UNDER NORMAL POWER. WIRE EMERGENCY LEAD TO BRANCH CIRCUIT AHEAD OF ALL SWITCHING CONTROL.

D. FOR WALL MOUNTED SIGN. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.

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LIGHTING PLAN AND DETAILS