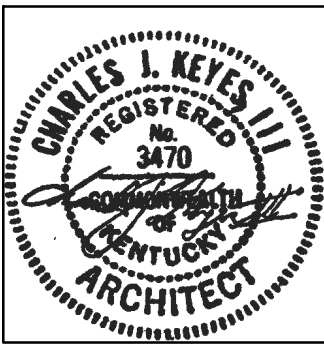


OFFICE ADDITION FOR:
ST GREGORY SCHOOL
330 SAMUELS LOOP
COX CREEK, KY 40013

REVISIONS:			NOTE SYMBOL
<div>1</div>	1/17/2025	REVISION PER STATE COMMENTS	
<div>2</div>	3/3/2025	REVISIONS PER STATE COMMENTS	



PROJECT INFORMATION

APPLICABLE BUILDING CODES
BUILDING CODE : KBC 2018
ACCESSIBILITY CODE : ADA / 2010 / 2009
ANSI 117.1
ENERGY CODE : IECC 2012

USE AND OCCUPANCY: E - EDUCATION /
B - BUSINESS - ACCESSORY

CONSTRUCTION TYPE: II-B

BUILDING INFORMATION SCHOOL OFFICE ADDITION TO EXISTING
EDUCATIONAL BUILDING, EXISTING CHURCH ASSEMBLY
BUILDING SEPARATED FROM SCHOOL BUILDING WITH 2 HR
SEPARATION WALL

EXISTING E BUILDING: 18,515 s.f.

BUILDING ADDITION: 1,670 s.f.

TOTAL BUILDING SIZE: 20,185 s.f.

FIRE SUPPRESSION: NON SPRINKLERED

OCCUPANCY ALLOWANCE

FUNCTION OF SPACE	ALLOWANCE	AREA	OCCUPANCY
SCHOOL OFFICES	100 GROSS	1,670 S.F	16

TOTAL OCCUPANCY ALLOWANCE: 16

Sheet List Table

Sheet Number	Sheet Title
T1.01	Title Sheet
Civil Plans	
C0.0	Civil Cover Sheet
C0.1	General Notes
C1.1	Demolition Plan
C2.1	Site Layout
C3.1	Grading & Drainage Plan
C4.1	Utility Plan
Life Safety Plans	
LS1.01	Life Safety Plan
LS1.02	Life Safety Plan
Demolition Plans & Details	
D1.01	Demolition Plan
Foundation Plans & Details	
F1.01	Foundation Plan
F2.01	Foundation Details
Floor Plans	
A1.01	School Office Floor Plan
A1.02	Roof Framing Plan
Exterior Elevations	
A2.01	Exterior Elevations
Schedules and Standards	
A3.01	Commercial ADA-Ansi Guidelines
A3.02	Accessibility Site Details
Details & Sections	
A5.01	Wall Sections and Details
A5.02	Wall Sections and Details
A5.03	Cabinetry Details
A6.01	Door and Window Details
Mechanical	
M0.01	General Mechanical Notes
MD1.01	Mechanical Demo Plan
M1.01	Mechanical Floor Plan
M5.01	Mechanical Schedule
M8.01	Mechanical Specifications
M8.02	Mechanical Specifications
M8.03	Mechanical Specifications

Plumbing		
P1.01	Plumbing Notes and Risers	
P1.02	Plumbing Floor Plan	
P1.03	Plumbing Gas Floor Plan	
Electrical		
ED1.0	Electrical Demolition Plan	
ED2.0	Demolition Panel Schedules	
E1.01	Power Plan	
E1.02	Lighting Plan	
Specifications		
SP1.01	Specifications	
SP1.02	Specifications	
SP1.03	Specifications	

ARCHITECT:

KEYES ARCHITECTS AND ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213
PH: (502) 636-5113
CONTACT:DEBORAH BIRD
EMAIL:DBIRD@KEYESARCHITECTS.COM
ARCHITECT: CHARLES J. KEYES III

MEP ENGINEER:

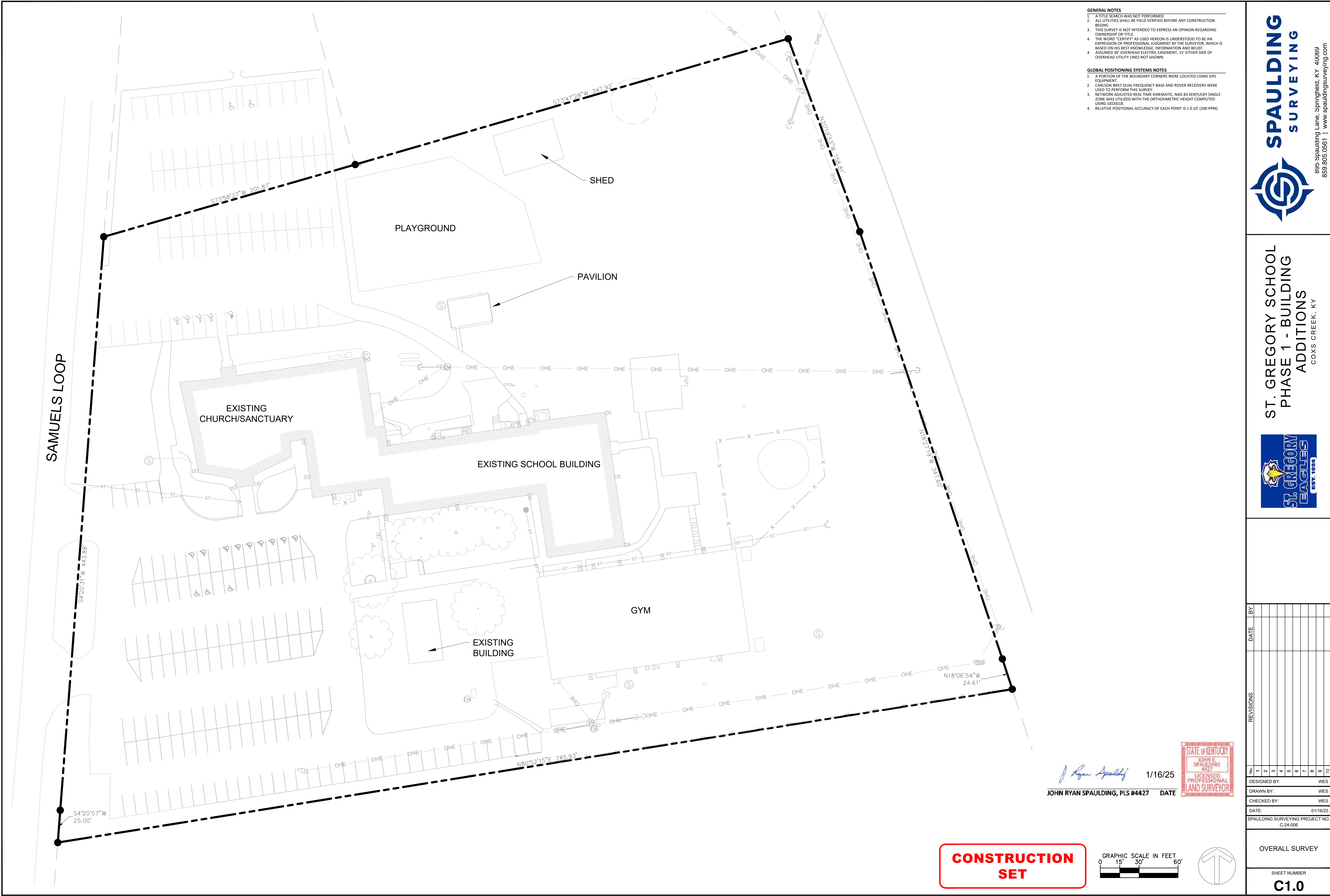
E.C. ENGINEERING INC
P.O. BOX 31
GOSHEN KY 40026
PH: 502-494-4219
CONTACT: ERNIE CRUSE
EMAIL: ECRUSE@ENGLTG.COM

OWNER:

ST GREGORY CATHOLIC CHURCH
330 SAMUELS LOOP
COX CREEK, KY 40013
PH: (502) 348-6337
CONTACT: CAMILLE BOON
EMAIL: CAMILLE.BOONE@STGREGORYPARISH.ORG

CIVIL ENGINEER:

SPAULDING SURVEYING, LLC
895 SPAULDING LANE
SPRINGFIELD, KY 40069
PH: (859) 805-0561
CONTACT: WILLIAM SPAULDING JR
EMAIL: WILL@SPAULDINGSURVEYING.COM

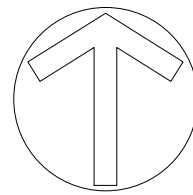
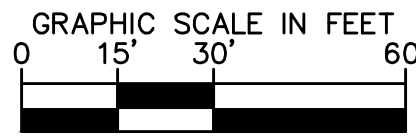


- GENERAL NOTES**
1. A TITLE SEARCH WAS NOT PERFORMED.
 2. ALL UTILITIES SHALL BE FIELD VERIFIED BEFORE ANY CONSTRUCTION BEGINS.
 3. THIS SURVEY IS NOT INTENDED TO EXPRESS AN OPINION REGARDING OWNERSHIP OR TITLE.
 4. THE WORD "CERTIFY" AS USED HEREON IS UNDERSTOOD TO BE AN EXPRESSION OF PROFESSIONAL JUDGMENT BY THE SURVEYOR, WHICH IS BASED ON HIS BEST KNOWLEDGE, INFORMATION AND BELIEF.
 4. ASSUMED 30' OVERHEAD ELECTRIC EASEMENT, 15' EITHER SIDE OF OVERHEAD UTILITY LINES NOT SHOWN.
- GLOBAL POSITIONING SYSTEMS NOTES**
1. A PORTION OF THE BOUNDARY CORNERS WERE LOCATED USING GPS EQUIPMENT.
 2. CARLSON BRK7 DUAL FREQUENCY BASE AND ROVER RECEIVERS WERE USED TO PERFORM THIS SURVEY.
 3. NETWORK ADJUSTED REAL TIME KINEMATIC, NAD 83 KENTUCKY SINGLE ZONE WAS UTILIZED WITH THE ORTHOMETRIC HEIGHT COMPUTED USING GEOID18.
 4. RELATIVE POSITIONAL ACCURACY OF EACH POINT IS ± 0.10' (200 PPM)

John Ryan Spaulding 1/16/25
JOHN RYAN SPAULDING, PLS #4427 DATE



CONSTRUCTION SET





895 Spaulding Lane, Springfield, KY 40069
859.805.0561 | www.spauldingsurveying.com

ST. GREGORY SCHOOL
PHASE 1 - BUILDING
ADDITIONS
COXS CREEK, KY



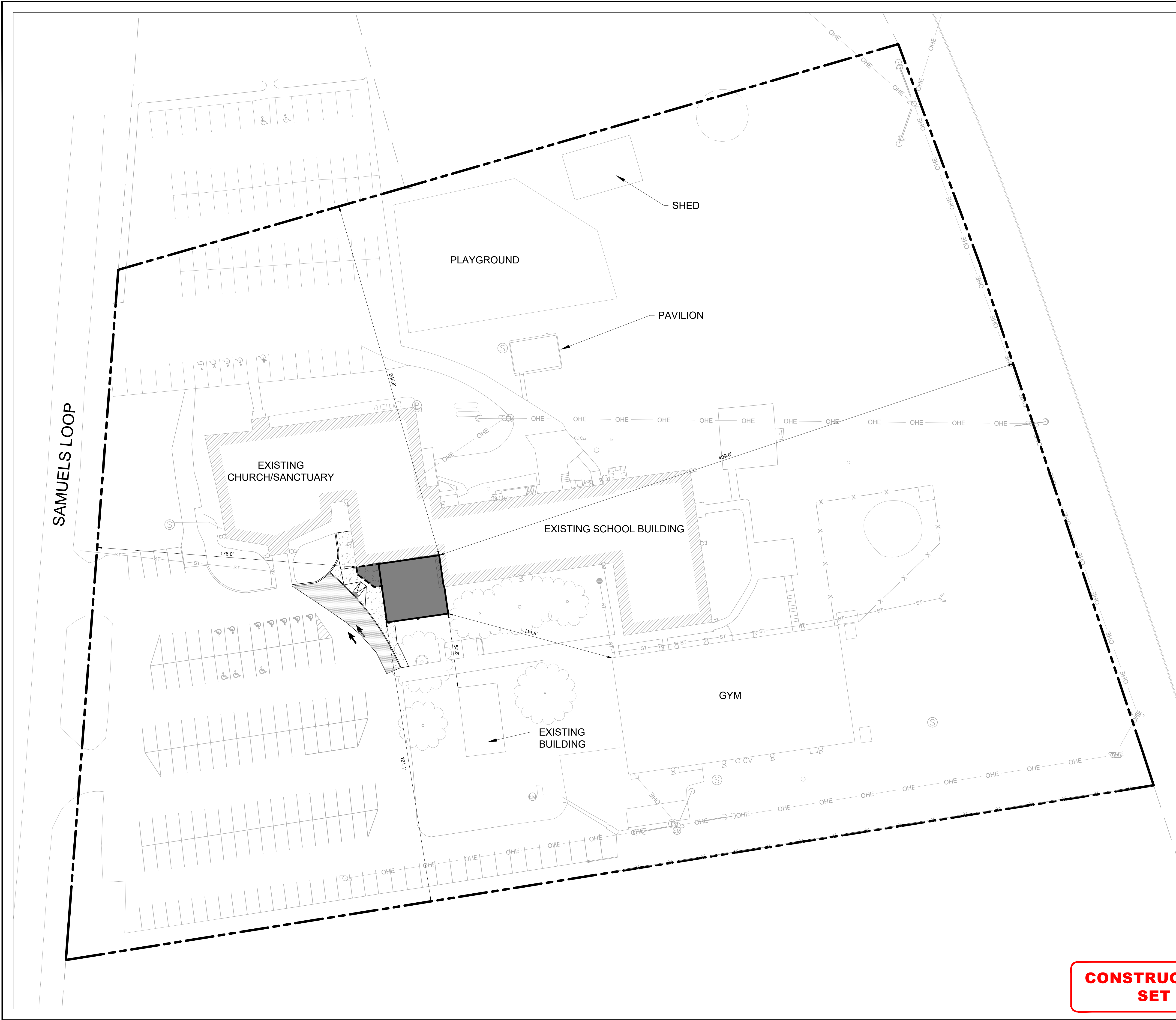
REVISIONS	DATE	BY

No.	1	2	3	4	5	6	7	8	9	10
DESIGNED BY:	WES									
DRAWN BY:	WES									
CHECKED BY:	WES									
DATE:	01/16/25									
SPAULDING SURVEYING PROJECT NO. C-24-006										

OVERALL SURVEY

SHEET NUMBER

C1.0



SAMUELS LOOP

SHEED

PAVILION

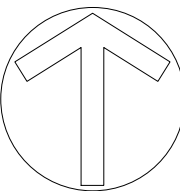
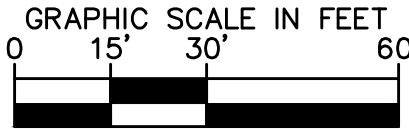
EXISTING
CHURCH/SANCTUARY

EXISTING SCHOOL BUILDING

GYM

EXISTING
BUILDING

CONSTRUCTION
SET



EXISTING PROPERTY SUMMARY

PROPERTY ADDRESS:	350 SAMUELS LOOP COXS CREEK, KENTUCKY
MAP AND PARCEL ID:	MAP 31SSW, PARCEL 05-004
U.S. FEMA FIRM PANEL:	21179C0025E DATED 05/23/23
EXISTING ZONING:	XXX
EXISTING LAND USE:	XXX

SITE DATA TABLE

SITE ADDRESS	350 SAMUELS LOOP COXS CREEK, KENTUCKY, 40013
TAX MAP	MAP 31SSW PARCEL 05-004

HATCH AND LINETYPE LEGEND

	ASPHALT PAVEMENT
	CONCRETE PAVEMENT
	LIGHT DUTY CONCRETE PAVEMENT
	HEAVY DUTY CONCRETE PAVEMENT
	PROPOSED BUILDING
	REMOVE TREES/BRUSH

SITE NOTES

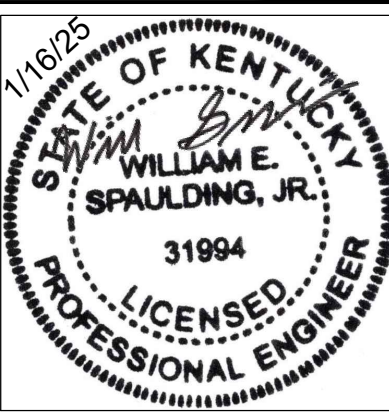
- ALL WORK AND MATERIALS SHALL COMPLY WITH ALL CITY/COUNTY/STATE REGULATIONS AND CODES AND O.S.H.A. STANDARDS.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL REQUIRED PERMITS AND APPROVALS HAVE BEEN OBTAINED.
- PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DRAINAGE AND UTILITY CONNECTIONS TO ENSURE THEY CAN BE PROPERLY CONNECTED.
- IN THE EVENT OF A CONFLICT BETWEEN THIS DRAWING AND ANY OTHER DRAWING AND/OR SPECIFICATION, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY FOR CLARIFICATION.
- ALL RIGID AND/OR FLEXIBLE PAVEMENT AND STONE SHALL MEET THE MATERIALS, EQUIPMENT, CONSTRUCTION, & TESTING REQUIREMENTS OF THESE DRAWINGS AND/OR THE KENTUCKY TRANSPORTATION CABINET STANDARD SPECIFICATIONS.
- ALL SETBACKS SHALL BE IN ACCORDANCE WITH THE LOCAL ZONING ORDINANCE.
- ALL PAVEMENT MARKINGS WITHIN THE DEVELOPMENT SHALL BE PAINTED.
- SEE ARCH FOR BUILDING PLAN AND DIMENSIONS.
- SEE ARCH FOR CANOPY DETAIL AND DIMENSIONS.
- THE LOCATION OF THE EXISTING UTILITIES SHOWN ON THESE DRAWINGS ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE DETERMINED IN THE FIELD BY COORDINATING WITH THE RESPECTIVE UTILITY COMPANIES INVOLVED. PROVIDE ALL NECESSARY PROTECTIVE MEASURES TO SAFEGUARD THE EXISTING UTILITIES FROM DAMAGE DURING THE CONSTRUCTION OF THIS PROJECT.
- ADA PARKING SPACES, GRADING, RAMPS, AND STRIPING PROVIDED MUST MEET ADA STANDARDS.
- ALL DEVELOPMENT WITHIN THE BOUNDARIES OF THIS PLAN SHALL MEET THE REQUIREMENTS OF THE AMERICANS WITH DISABILITIES ACT.
ADA: <http://www.ada.gov/>

SPAULDING
SURVEYING



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ST. GREGORY SCHOOL
PHASE 1 - BUILDING
ADDITIONS
COXS CREEK, KY



BY										
DATE										
REVISIONS										
No.	1	2	3	4	5	6	7	8	9	10

DESIGNED BY:	WES
DRAWN BY:	WES
CHECKED BY:	WES
DATE:	01/16/25
SPAULDING SURVEYING PROJECT NO.	C-24-006

SITE LAYOUT - OVERALL

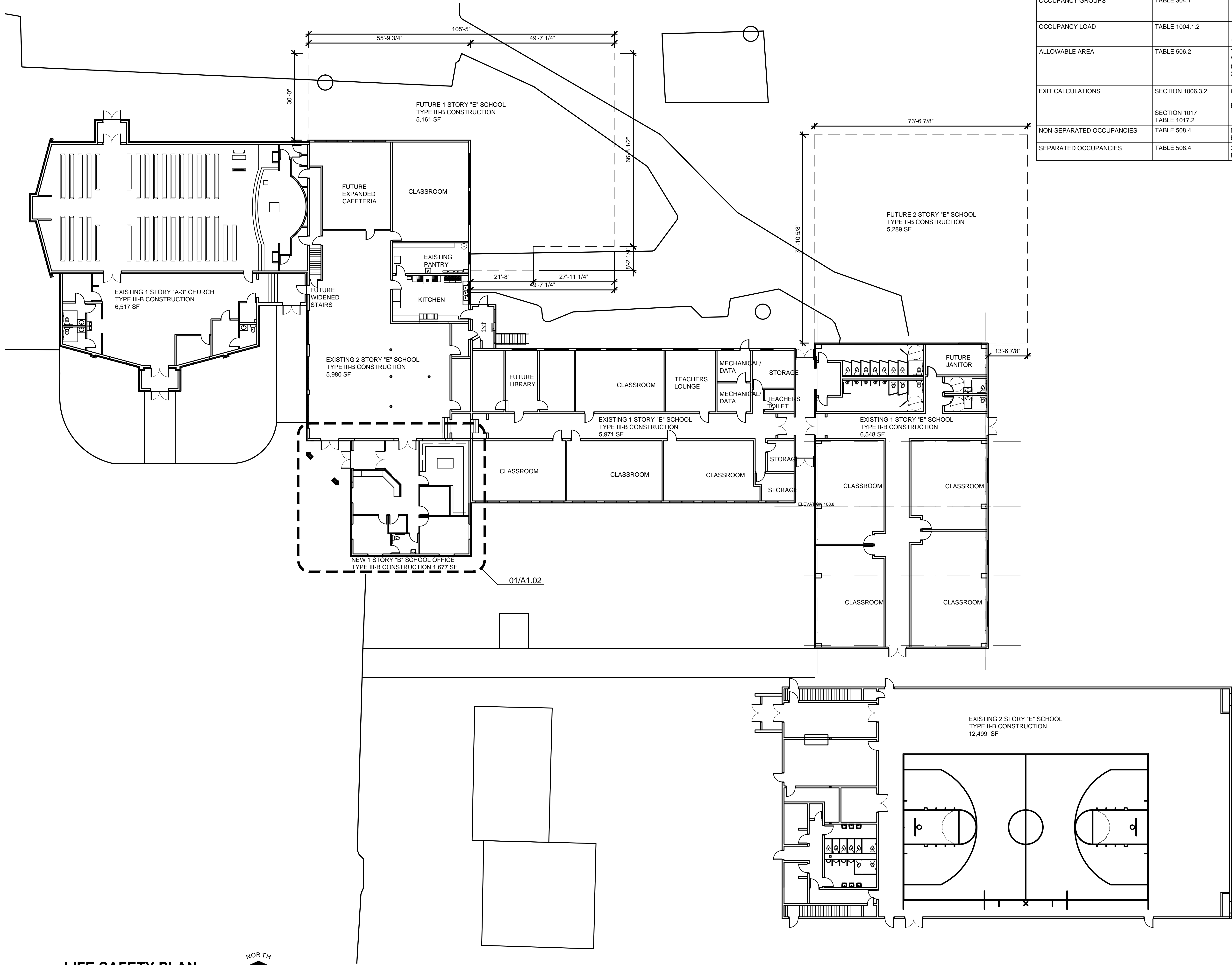
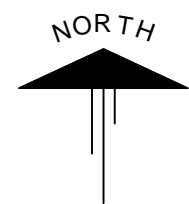
SHEET NUMBER

C2.0

PROJECT: ST GREGORY SCHOOL - FILE: LS1.01 Life Safety Plan.dwg - DATE: Mar 03, 2025 12:30PM - BY: NICK MCCART

01 LIFE SAFETY PLAN

SCALE: 3/32" = 1'-0"



CODE ANALYSIS

CATEGORY	CODE REFERENCE	REQUIREMENT/DESIGNATION	PROVIDED
CONSTRUCTION TYPE	TABLE 506.2		III-B
OCCUPANCY GROUPS	TABLE 304.1		E-EDUCATION, B-BUSINESS (ACCESSORY)
OCCUPANCY LOAD	TABLE 1004.1.2	16 TOTAL OCCUPANTS IN ADDITION	
ALLOWABLE AREA	TABLE 506.2	TABULAR AREA -14,500 SF WITH 42% FRONTAGE INCREASE 581'-8 7/8" 10'-.25 (CALCULATED WITH FUTURE ADDITIONS CONSIDERED) - 20,590 SF	20,185 S.F.
EXIT CALCULATIONS	SECTION 1006.3.2	COMMON PATH OF EGRESS TRAVEL GROUP	75 FT
	SECTION 1017 TABLE 1017.2	EXIT ACCESS TRAVEL DISTANCE	200 FT
NON-SEPARATED OCCUPANCIES	TABLE 508.4	NO SEPARATION BETWEEN EDUCATIONAL AND BUSINESS	
SEPARATED OCCUPANCIES	TABLE 508.4	2 HR SEPARATION BETWEEN ASSEMBLY AND EDUCATIONAL	EXISTING (VIF)

PROJECT NO:
23-4451
DRAWN BY:
DLB/
DATE:
05/17/2024



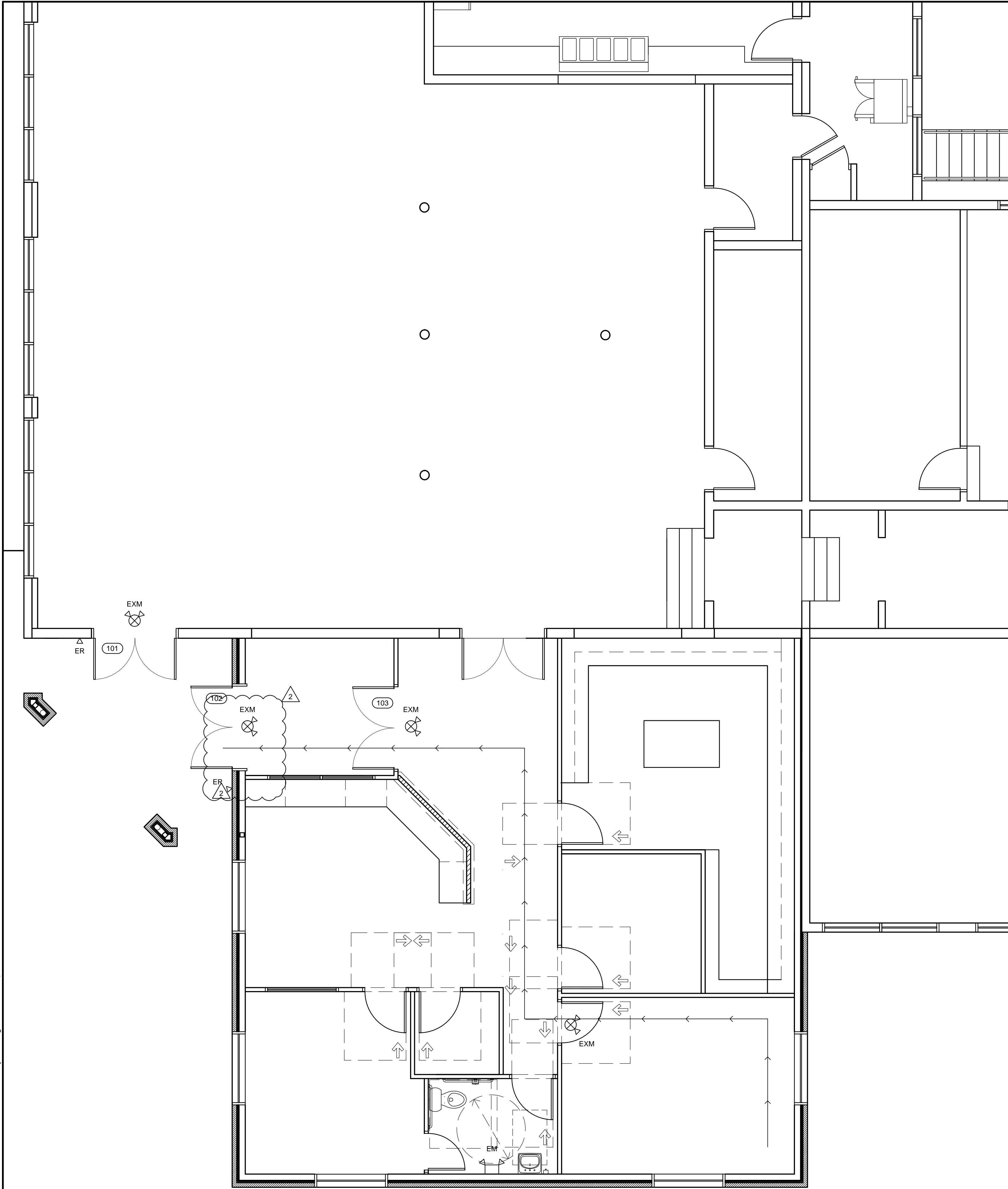
KEYES ARCHITECTS & ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113

OFFICE ADDITION FOR:
ST GREGORY SCHOOL
330 SAMUELS LOOP
COX CREEK, KY 40013

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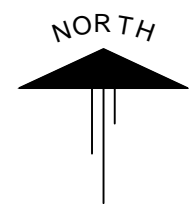
LIFE SAFETY PLAN
LS1.01

PROJECT: ST GREGORY SCHOOL - FILE: LS1.02 Life Safety Plan.dwg - DATE: Mar 03, 2025 12:30PM - BY: NICK MCCART



01 LIFE SAFETY PLAN

SCALE: 3/32" = 1'-0"



LIFE SAFETY PATHWAYS

		TOTAL TRAVEL DISTANCE
LOCATION	COMMON PATH	DOOR NUMBER
1	-	EXIT 102
	69'-0"	69'-0"

PATHWAY KEY PLAN:

→	: TRAVEL PATH W/ DIRECTION OF FLOW
#	: TRAVEL PATH STARTING LOCATION, WHERE "#" = LOCATION COLUMN IN THIS TABLE.
◆	: COMMON PATH LOCATION, WHERE "#" = LOCATION COLUMN IN THIS TABLE.
⊗	: EXIT DOOR LOCATION, WHERE "#" = DOOR IN THIS TABLE AND IN DOOR FINISH SCHEDULE.

EMERGENCY LIGHT FIXTURE SCHEDULE

TYPE	DESCRIPTION	MODEL#	BULBS
ER ▽	EMERGENCY REMOTE HEAD	LITHONIA #ELA-NX-H0606	INCLUDED
EM ⊞	EMERGENCY LIGHT W/ BATTERY PACK REMOTE HEAD WHERE SHOWN	LITHONIA #6ELM2P	INCLUDED
EXM ⊗	COMBINATION EXIT/EMERGENCY FIXTURE W/ BATTERY PACK	LITHONIA #LHQM-S-W-1-R-120/277-HO	INCLUDED

NOTE: EXIT EMERGENCY LIGHTING IS ON AN 'NL' CIRCUIT

NOTE:
ALL EXIT DISCHARGE AREAS TO INCLUDE
TACTILE SIGNAGE. SEE 04/A3.01 FOR MORE
INFORMATION

PROJECT NO:

23-4451

DRAWN BY:

DLB/

DATE:

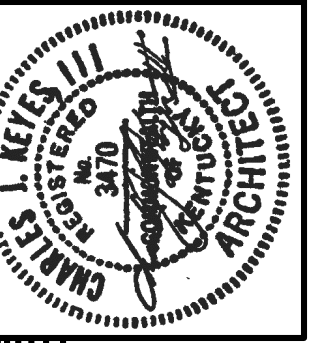
05/17/2024

1 STATE COMMENTS

1-17-25

2 STATE COMMENTS

3-03-25



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OFFICE ADDITION FOR:

ST GREGORY SCHOOL

330 SAMUELS LOOP
COX CREEK, KY 40013

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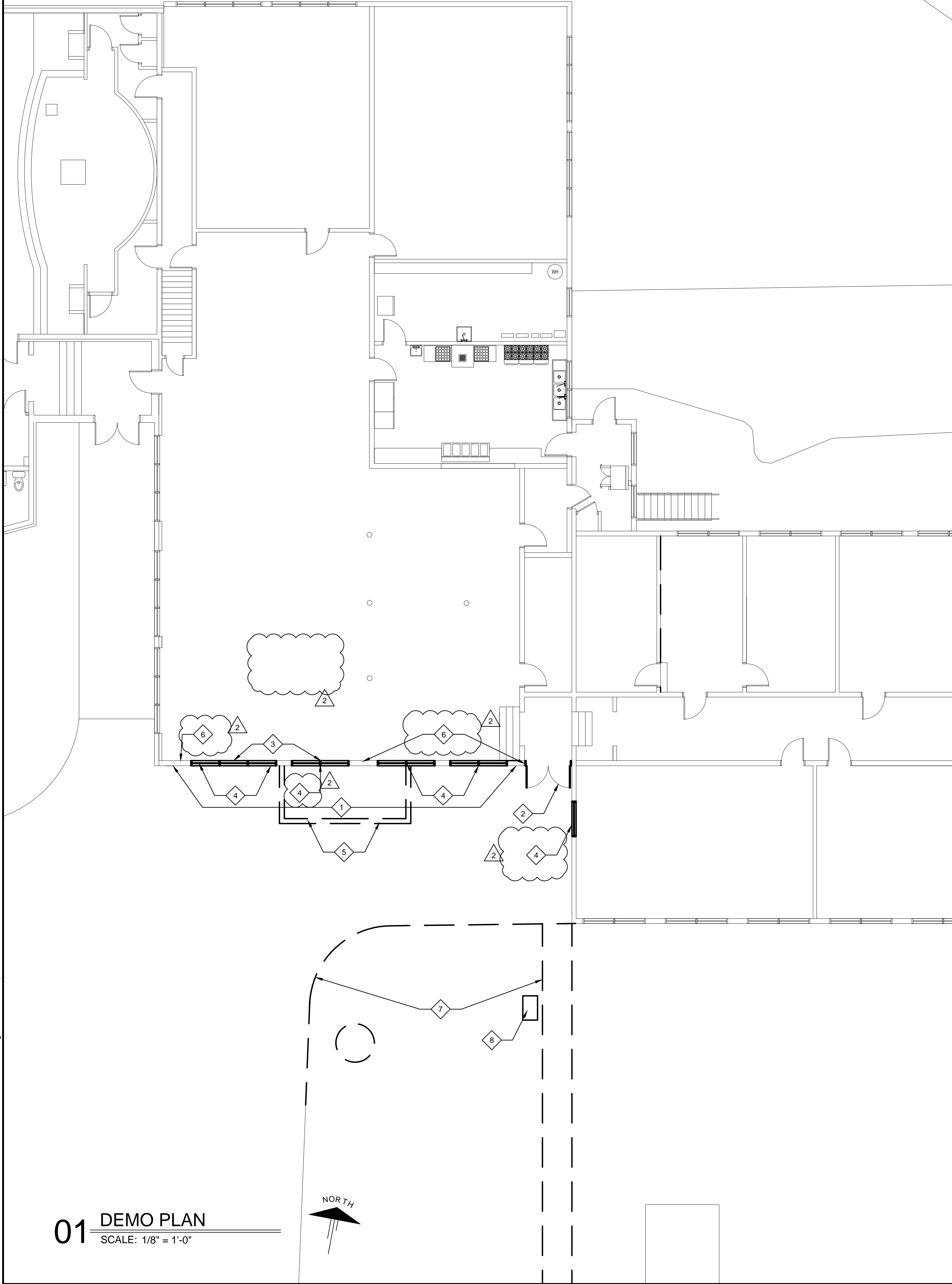
LIFE SAFETY PLAN

LS1.02

PROJECT: ST GREGORY SCHOOL - FILE: D1.01 Demolition Plan.dwg - DATE: Mar 03, 2025 12:30PM - BY: NICK MCCART

01 DEMO PLAN

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



PATCH AND REPAIR NOTES

PROMPTLY PATCH AND REPAIR HOLES AND DAMAGED SURFACES CAUSED TO ADJACENT CONSTRUCTION BY SELECTIVE DEMOLITION OPERATIONS.

WHERE REPAIRS TO EXISTING SURFACES ARE REQUIRED, PATCH TO PRODUCE SURFACES SUITABLE FOR NEW MATERIALS.

RESTORE EXPOSED FINISHES OF PATCHED AREAS AND EXTEND FINISH RESTORATION INTO ADJOINING CONSTRUCTION TO REMAIN IN A MANNER THAT ELIMINATES EVIDENCE OF PATCHING AND REFINISHING.

PATCH AND REPAIR FLOOR AND WALL SURFACES IN THE NEW SPACE WHERE DEMOLISHED WALLS OR PARTITIONS EXTEND ONE FINISHED AREA INTO ANOTHER, PROVIDE A FLUSH AND EVEN SURFACE OF UNIFORM COLOR AND APPEARANCES.

SELECTIVE DEMOLITION NOTES

REMOVE AND LEGALLY DISPOSE OF ITEMS EXCEPT THOSE INDICATED TO BE REINSTALLED SALVAGED, OR TO REMAIN THE OWNER'S PROPERTY.

REMOVE ITEMS INDICATED, CLEAN SURFACE, AND OTHERWISE REPAIR THEM FOR REUSE, STORE AND PROTECT AGAINST DAMAGE. REINSTALL ITEMS IN LOCATIONS INDICATED.

PROTECT CONSTRUCTION INDICATED TO REMAIN AGAINST DAMAGE AND SOILING DURING SELECTIVE DEMOLITION. WHEN PERMITTED BY THE ARCHITECT, ITEMS MAY BE REMOVED TO A SUITABLE, PROTECTED STORAGE LOCATION DURING SELECTED DEMOLITION AND THEN CLEANED AND REINSTALLED IN THEIR ORIGINAL LOCATIONS.

IDENTIFY AND ACCURATELY LOCATE CAPPED UTILITIES AND OTHER SUBSURFACE STRUCTURAL ELECTRICAL OR MECHANICAL CONDITIONS. DOCUMENT THESE UTILITIES ON RECORD DRAWINGS PROVIDED TO ARCHITECT UPON COMPLETION OF PROJECT.

PROTECT WALLS, CEILINGS, FLOORS, AND OTHER EXISTING FINISH WORK THAT ARE TO REMAIN AND ARE EXPOSED DURING SELECTIVE DEMOLITION OPERATIONS. REMOVE AND TRANSPORT DEBRIS IN A MANNER THAT WILL PREVENT SPILLAGE ON ADJACENT SURFACE AND AREAS.

COVER AND PROTECT FURNITURE, FURNISHINGS, AND EQUIPMENT THAT HAVE NOT BEEN REMOVED.

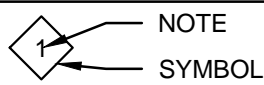
BY SELECTIVE DEMOLITION OPERATIONS. RETURN AREAS TO CONDITION EXISTING BEFORE START OF NEW WORK.

DEMOLISH AND REMOVE EXISTING CONSTRUCTION ONLY TO THE EXTENT REQUIRED BY NEW CONSTRUCTION AND AS INDICATED. DISPOSAL: PROMPTLY DISPOSE OF DEMOLISHED MATERIALS. DO NOT ALLOW DEMOLISHED MATERIALS TO ACCUMULATE ON SITE. TRANSPORT DEMOLISHED MATERIALS OFF OWNER'S PROPERTY AND LEGALLY DISPOSE OF THEM. SWEEP THE AREA OF WORK BROOM CLEAN ON COMPLETION OF SELECTIVE DEMOLITION OPERATION.

PROTECTION OF PEDESTRIANS SHALL BE PROVIDED DURING CONSTRUCTION, REMODELING, AND DEMOLITION ACTIVITIES AS REQUIRED BY STATE BUILDING CODE. SIGNS SHALL BE PROVIDED TO DIRECT PEDESTRIAN TRAFFIC DURING DEMOLITION. CONSTRUCTION AND REMODELING.

IF BUSINESS WILL REMAIN OPERATIONAL DURING DEMOLITION AND CONSTRUCTION COORDINATE ACTIVITIES WITH OWNER TO MINIMIZE OR ELIMINATE DISRUPTION TO THE OPERATION OF THE BUSINESS.

SHEET NOTES:



- 1 REMOVE BRICK FROM WALL, UP TO CORNER, NEW BRICK WILL BE INSTALLED TO MATCH NEW CONSTRUCTION
- 2 DEMO DOOR
- 3 DEMO RADIATORS- SEE MECHANICAL DRAWINGS
- 4 DEMO WINDOWS
- 5 DEMO MECHANICAL ENCLOSURE
- 6 OVERHANG TAILS OF FRAMING ABOVE MAY NEED TO BE REMOVED TO ACCOMODATE NEW WORK - VERIFY IN FIELD PRIOR TO CONSTRUCTION
- 7 DEMO CURB, ASPHALT FOR NEW CONSTRUCTION, DEMO EXISTING SIDEWALK
- 8 REMOVE SCHOOL BELL AND SAVE FOR RELOCATION IN COORDINATION WITH SCHOOL

NOTE: ALL DIMENSIONS ARE TO FACE OF STUD

NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER

NOTE: ELECTRICAL, HVAC AND PLUMBING TO BE RELOCATED PER FEDERAL, STATE AND LOCAL CODES. GENERAL CONTRACTOR TO COORDINATE.

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PROJECT NO:

23-4451

DRAWN BY:

DLB/

DATE:

05/17/2024

REVISION PER
STATE COMMENTS
2025-02-27
STATE COMMENTS
3-03-25



KEYES ARCHITECTS & ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113

OFFICE ADDITION FOR:

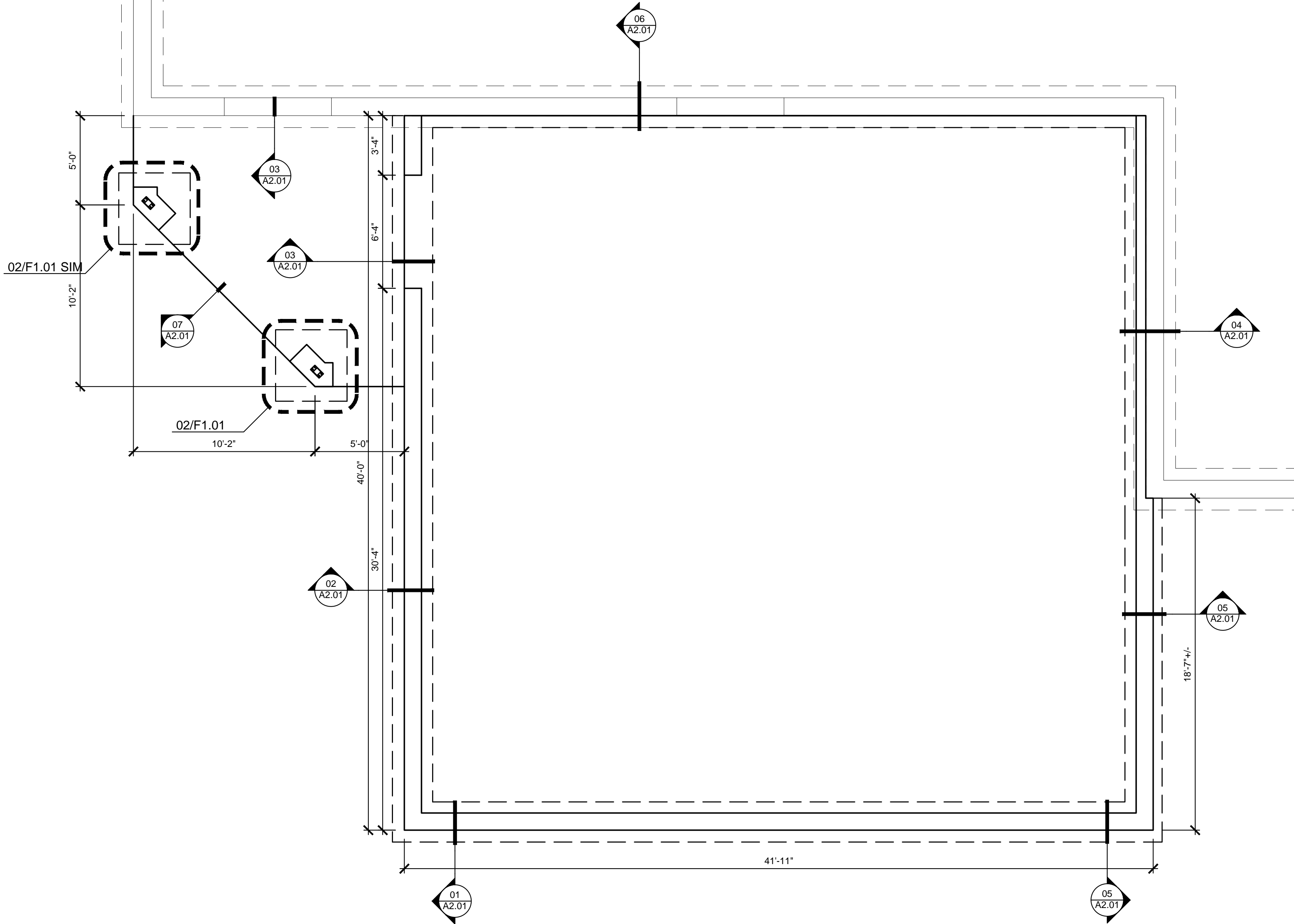
ST GREGORY SCHOOL

330 SAMUELS LOOP
COX CREEK, KY 40013

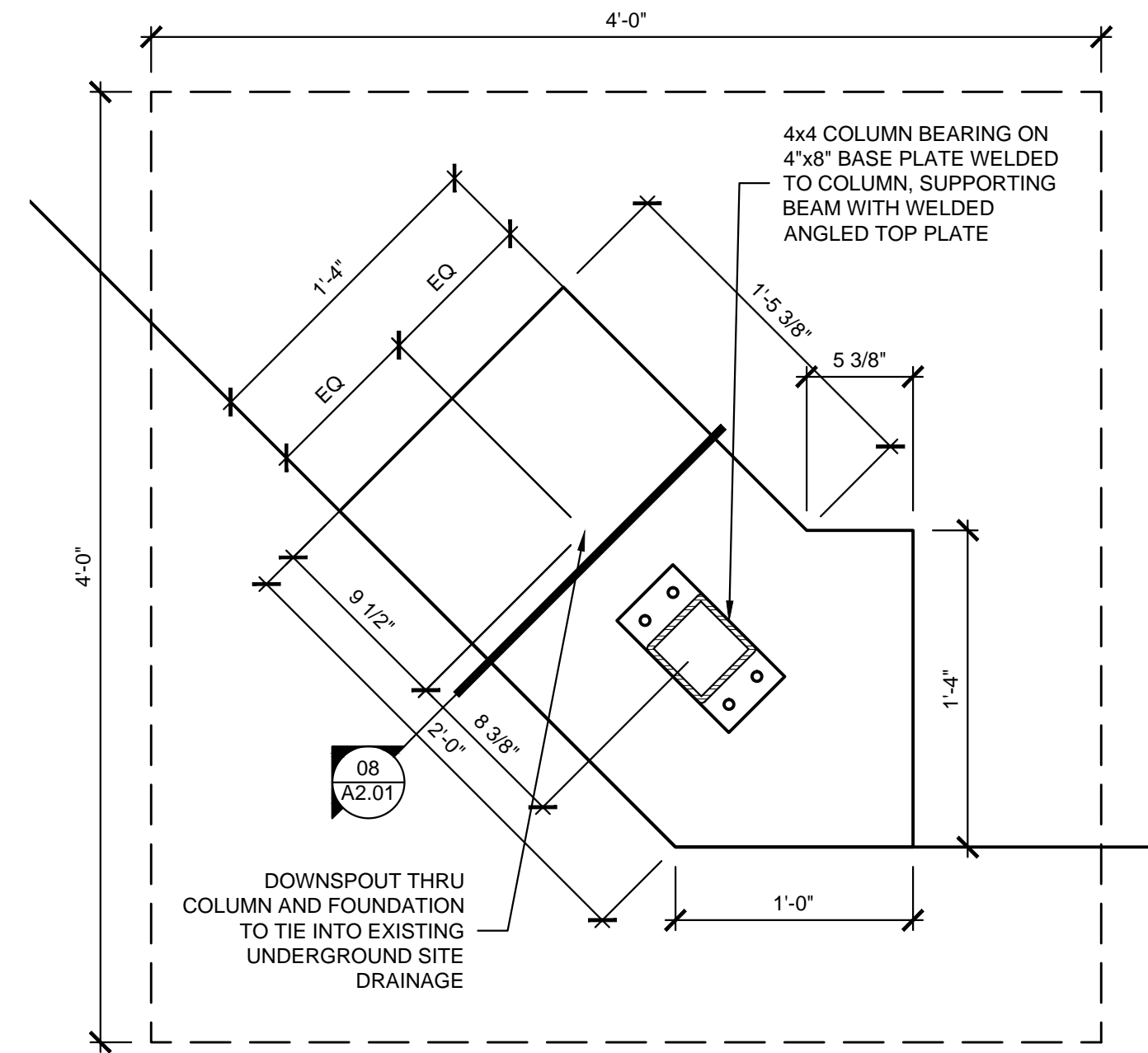
DEMOLITION PLAN

D1.01

PROJECT: ST GREGORY SCHOOL - FILE: F1.01 Foundation Plan.dwg - DATE: Mar 03, 2025 12:30PM - BY: NICK MCCART



01 OFFICE FOUNDATION PLAN
SCALE: 1/4" = 1'-0"



02 PIER FOUNDATION PLAN DETAIL
SCALE: 1 1/2" = 1'-0"

FOUNDATION NOTES

- 1) ALL CONCRETE TO BE 4,000 P.S.I.
- 2) ALL FOOTINGS AND PIERS ARE TO BE CENTERED ON THE BUILDING COLUMNS UNLESS OTHERWISE NOTED.
- 3) COLUMN PIERS ARE TO BE PLACED INTEGRAL WITH THE GRADE BEAM OR FOUNDATION WALLS WITH REINFORCING TO BE CONTINUOUS THROUGH PIERS.
- 4) BUILDING FOUNDATIONS ARE DESIGNED FOR 1,500 P.S.F. SOIL BEARING CAPACITY. VERIFY BEFORE CONSTRUCTION.
- 5) JUNCTURE OF FLOOR SLAB WITH ALL PIERS AND GRADE TO BE 1/2" WIDE EXPANSION JOINT MATERIAL.
- 6) FLOOR SLAB TO BE POURED THRU AT ALL DOORWAYS, SLOPE 2% TO OUTSIDE
- 7) FOOTING TO REST ON UNDISTURBED SOIL.
- 8) VERIFY FOUNDATION SIZE AND DEPTH OF EXISTING BUILDING BEFORE CONSTRUCTION. NOTIFY ARCHITECT IF THEY ARE NOT AS SHOWN.

PROJECT NO:
23-4451

DRAWN BY:

DLB/

DATE:

05/17/2024



KEYES ARCHITECTS & ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113

OFFICE ADDITION FOR:

ST GREGORY SCHOOL

330 SAMUELS LOOP
COX CREEK, KY 40013

FOUNDATION PLAN

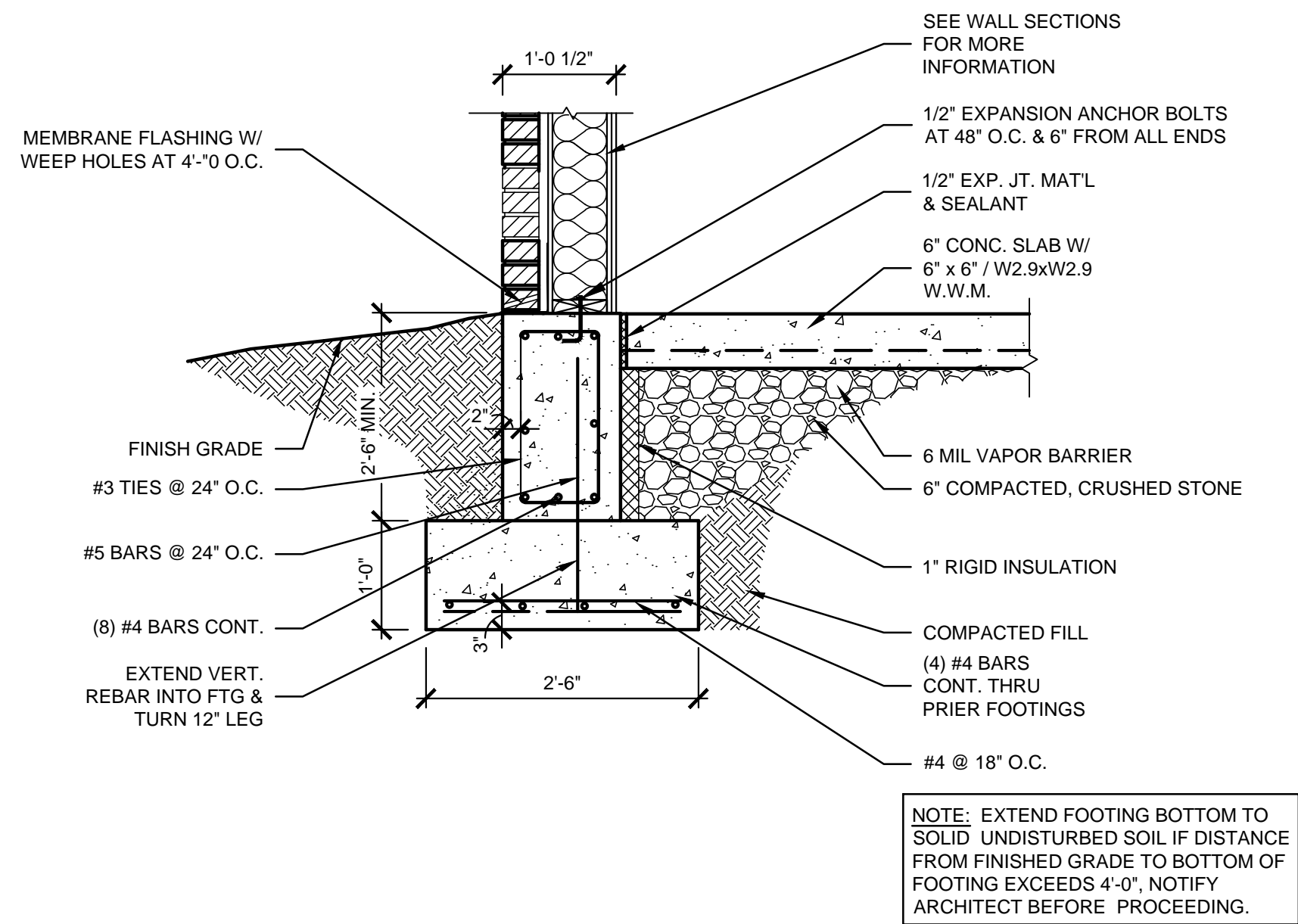
F1.01

NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER

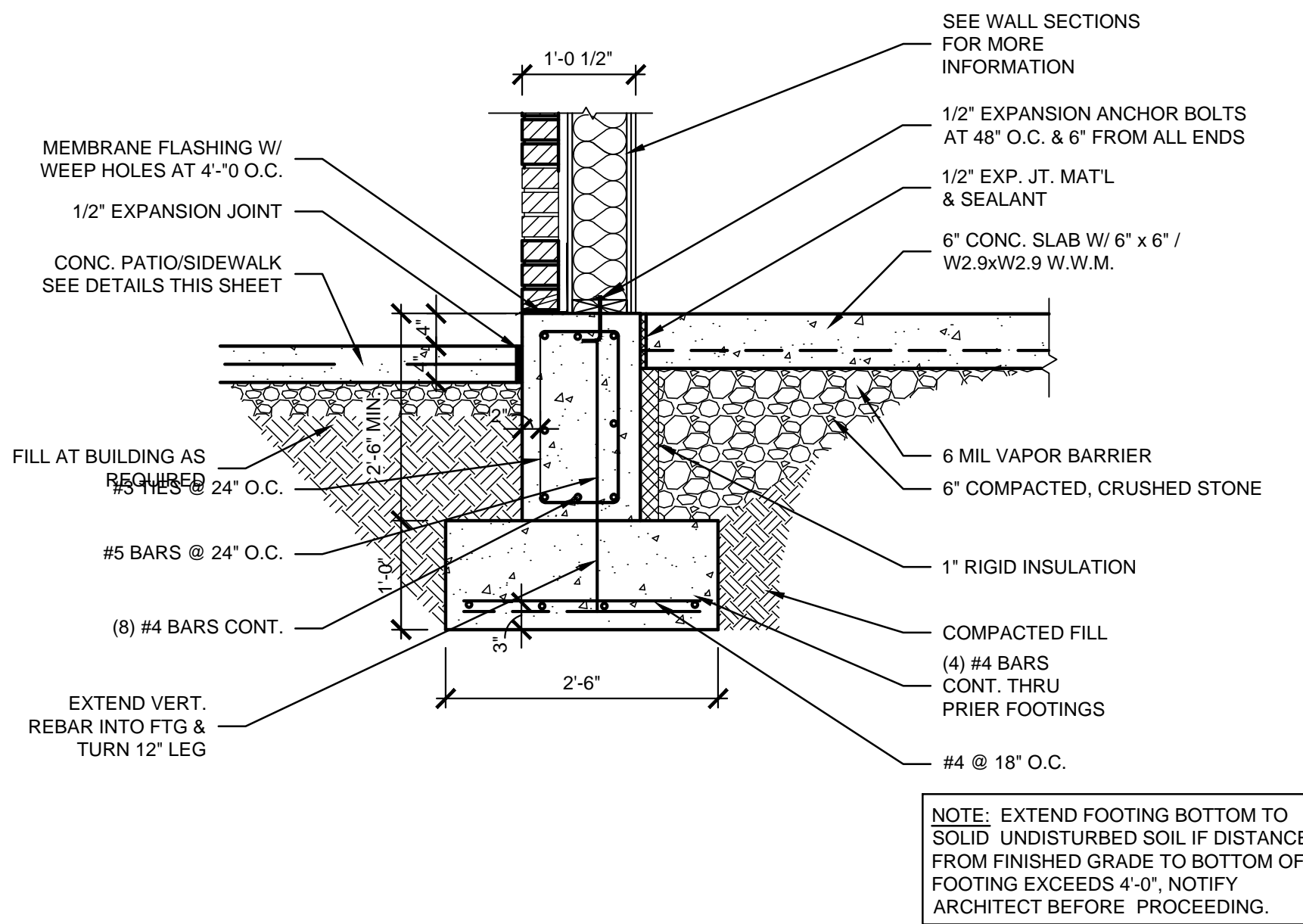
NOTE: ELECTRICAL, HVAC AND PLUMBING TO BE RELOCATED PER FEDERAL, STATE AND LOCAL CODES. GENERAL CONTRACTOR TO COORDINATE.

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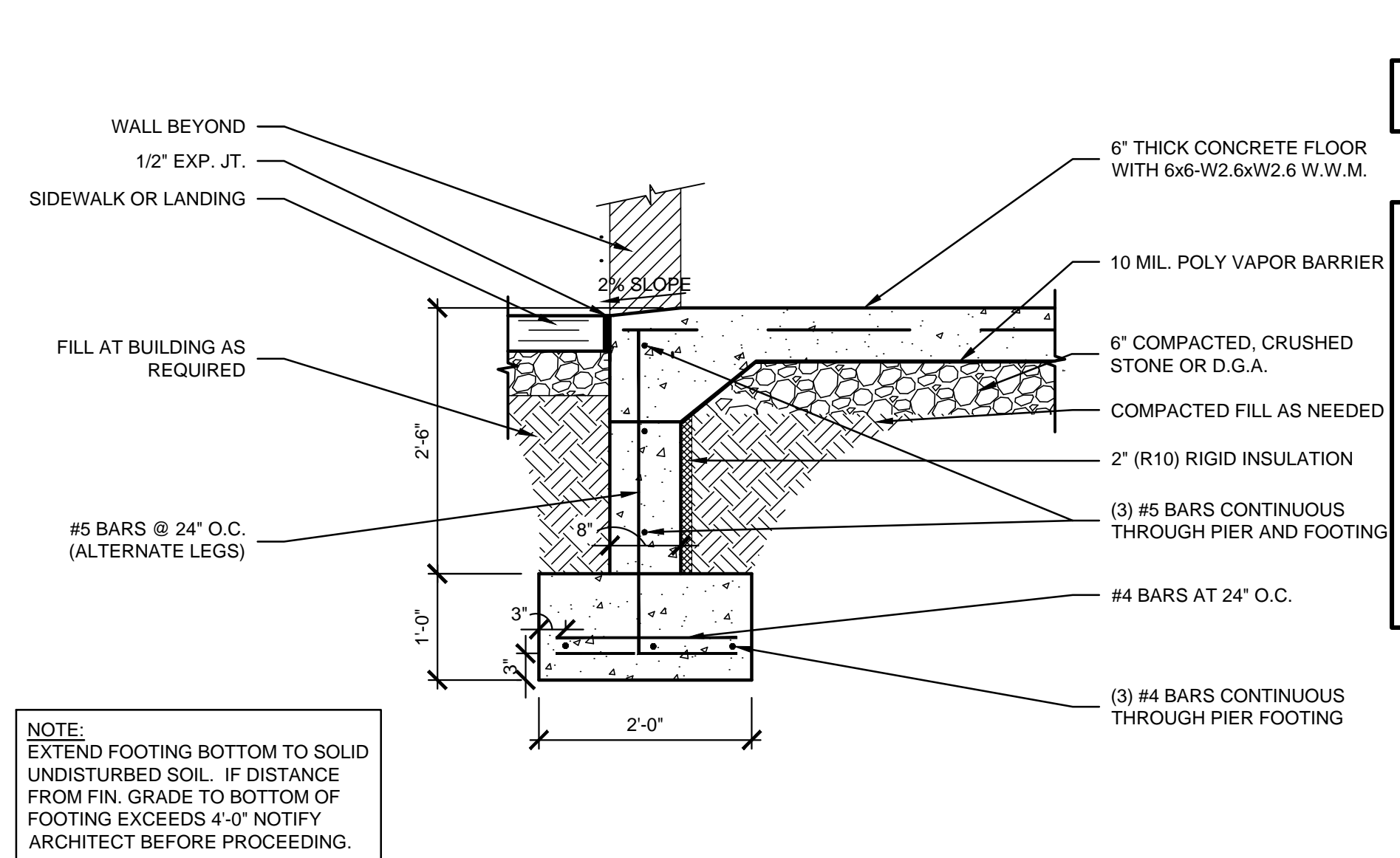
PROJECT: ST GREGORY SCHOOL - FILE: F2.01 Foundation Details.dwg - DATE: Mar 03, 2025 12:30PM - BY: NICK MCCART



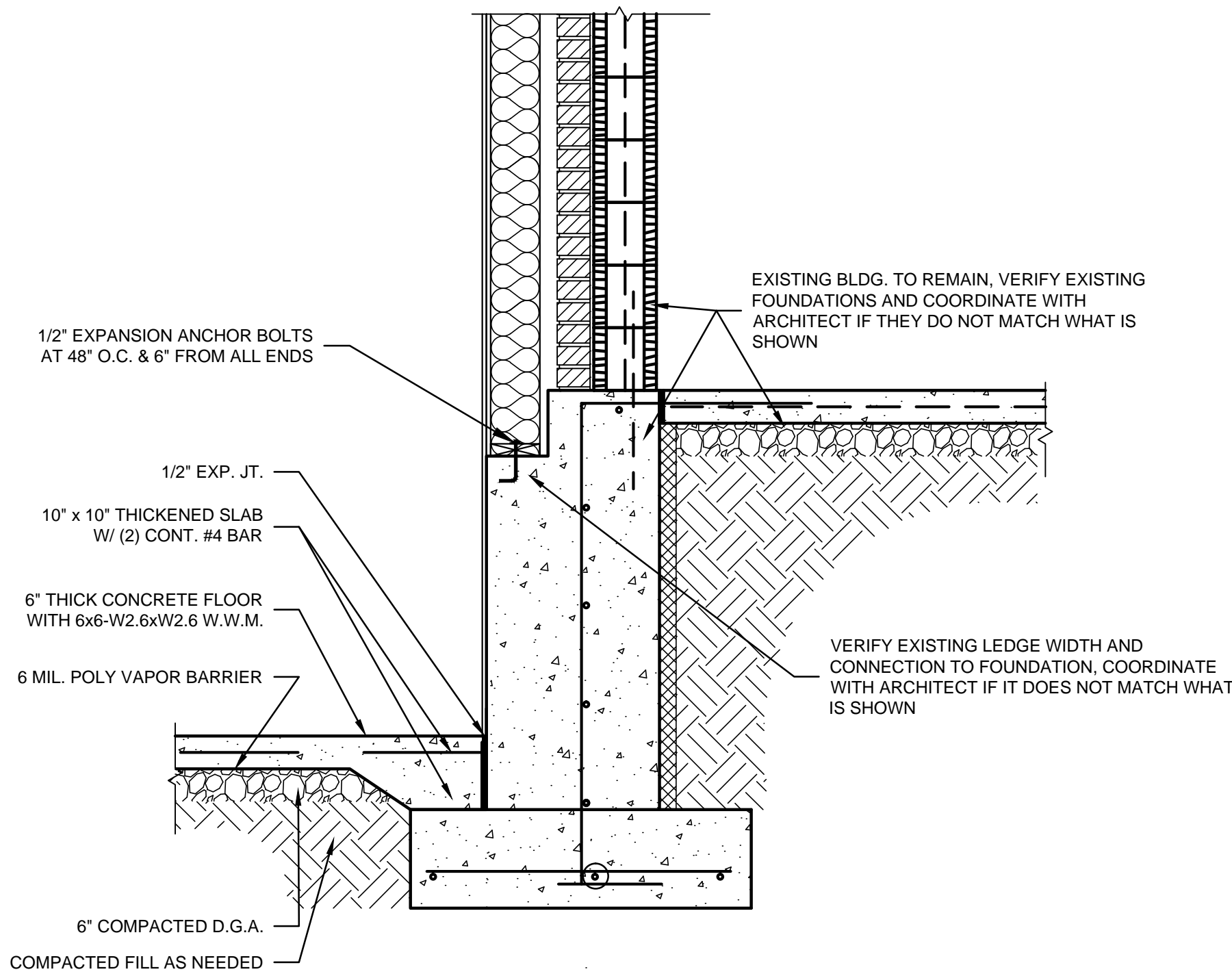
01 FOOTING 8"CMU w/ BRICK VENEER @ GRADE
SCALE: 3/4" = 1'-0"



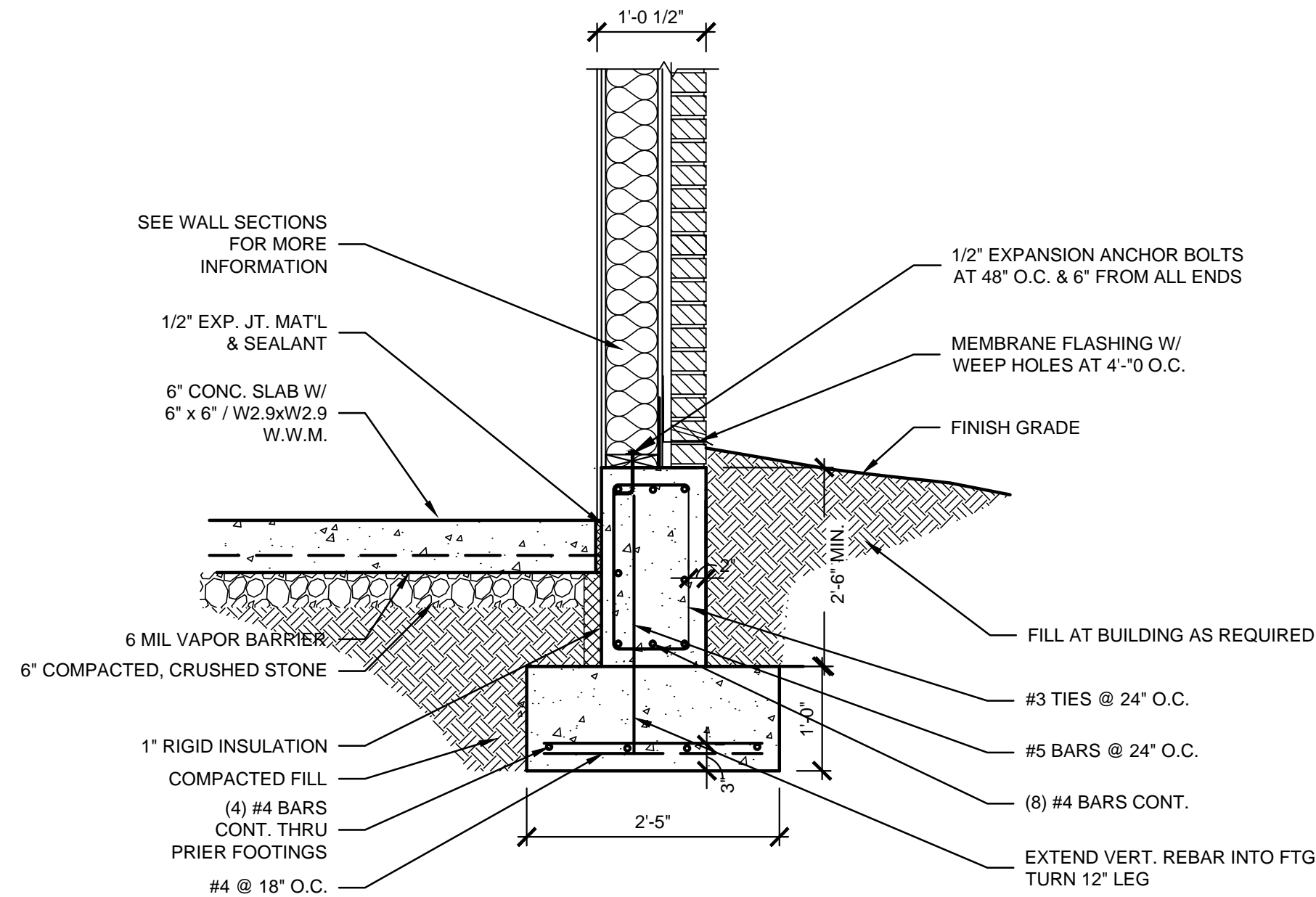
02 FOOTING 8"CMU w/ BRICK VENEER @ SIDEWALK
SCALE: 3/4" = 1'-0"



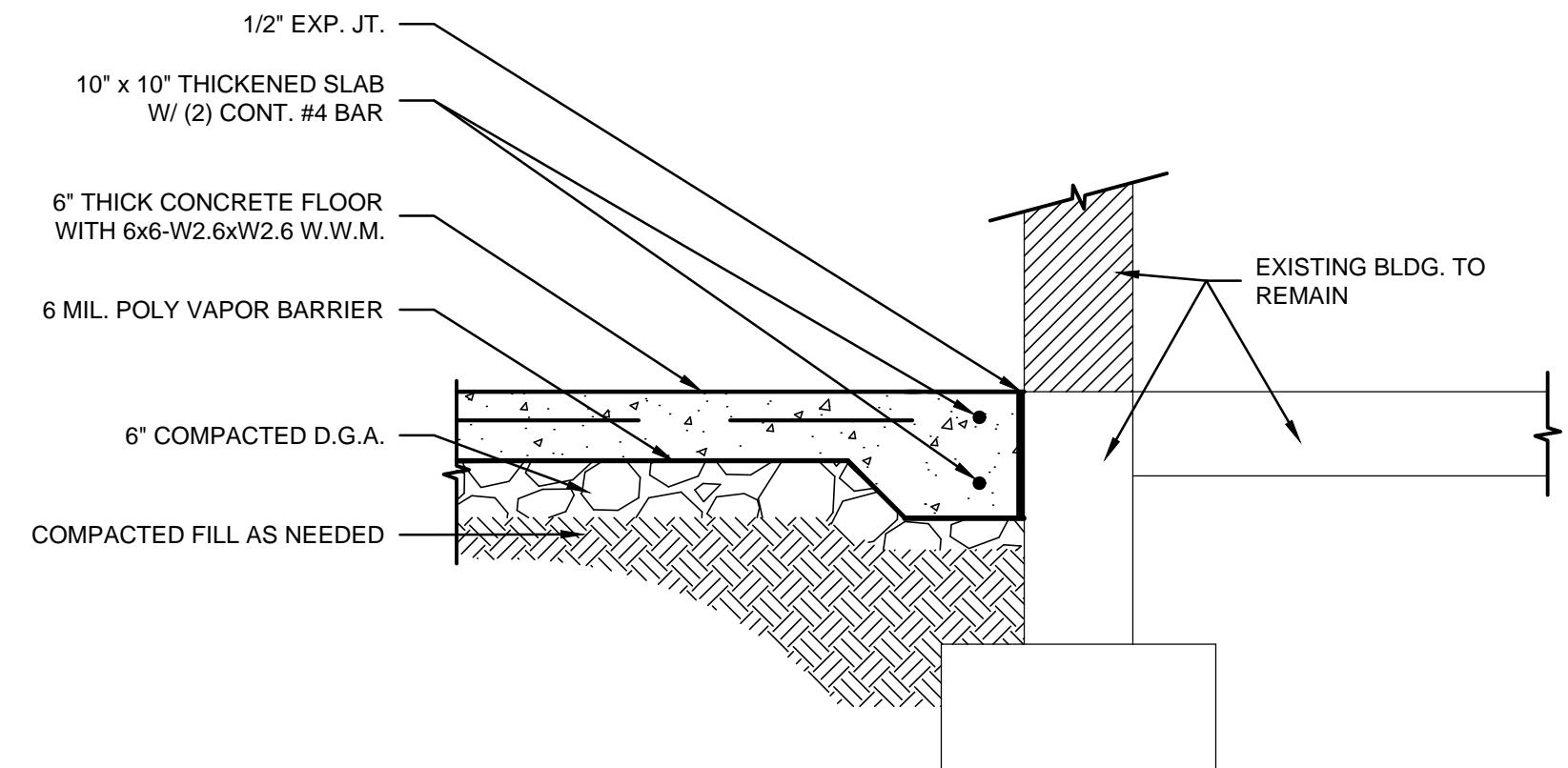
03 FOUNDATION THROUGH DOOR
SCALE: 3/4" = 1'-0"



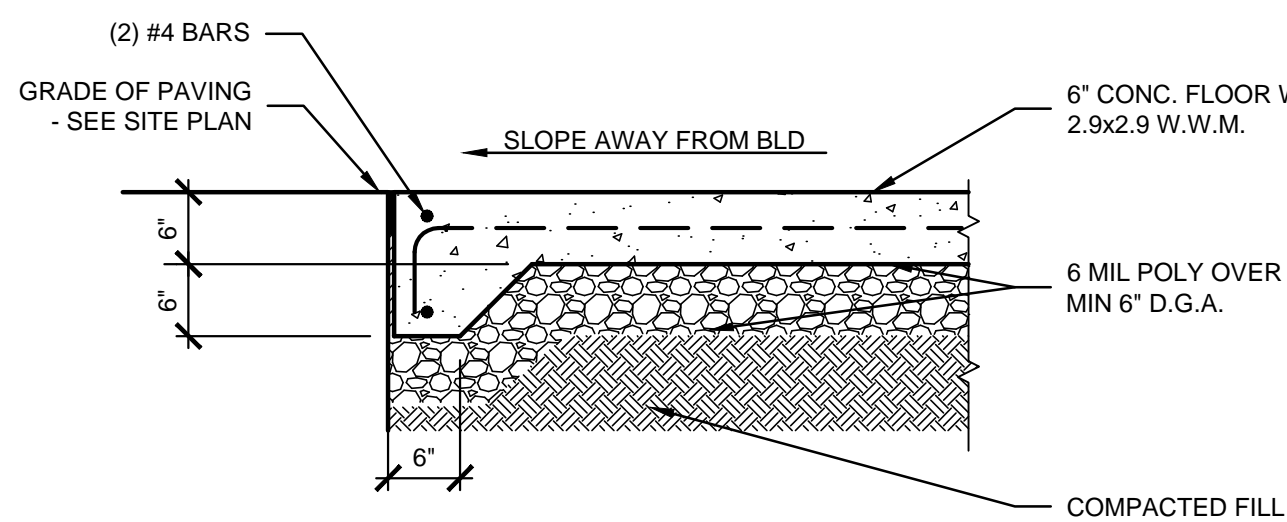
04 FOUNDATION DETAIL AT EXISTING WALL
SCALE: 3/4" = 1'-0"



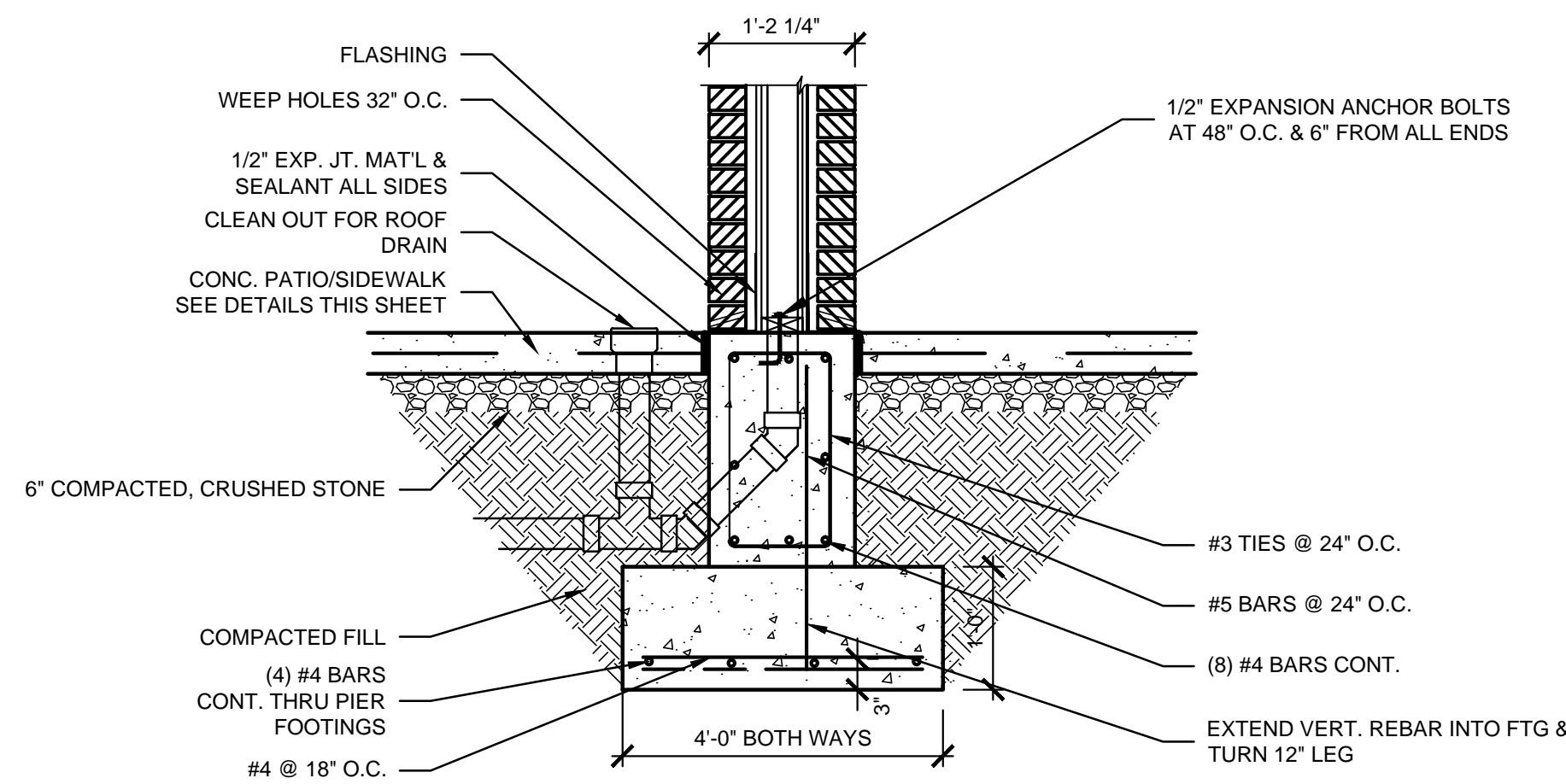
05 FOUNDATION DETAIL AT RETAINING WALL
SCALE: 3/4" = 1'-0"



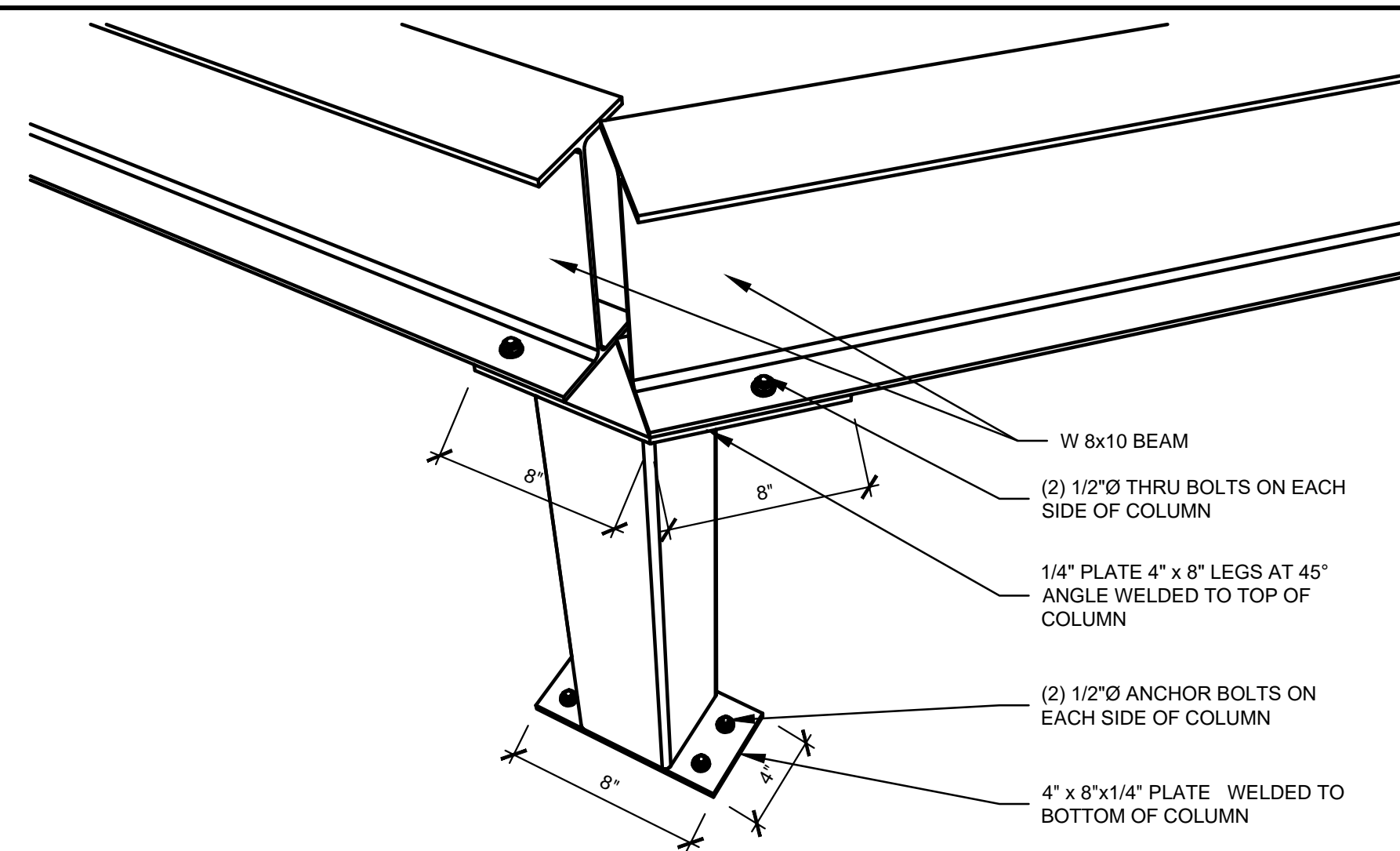
06 SLAB AT EXISTING BUILDING
SCALE: 3/4" = 1'-0"



07 CONCRETE APRON DETAIL
SCALE: 3/4" = 1'-0"



08 FOUNDATION DETAIL AT ENTRY COLUMNS
SCALE: 3/4" = 1'-0"



09 STEEL BEAM AND COLUMN CONNECTION
SCALE: NTS

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OFFICE ADDITION FOR:

ST GREGORY SCHOOL

330 SAMUELS LOOP
COX CREEK, KY 40013



KEYES ARCHITECTS & ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113

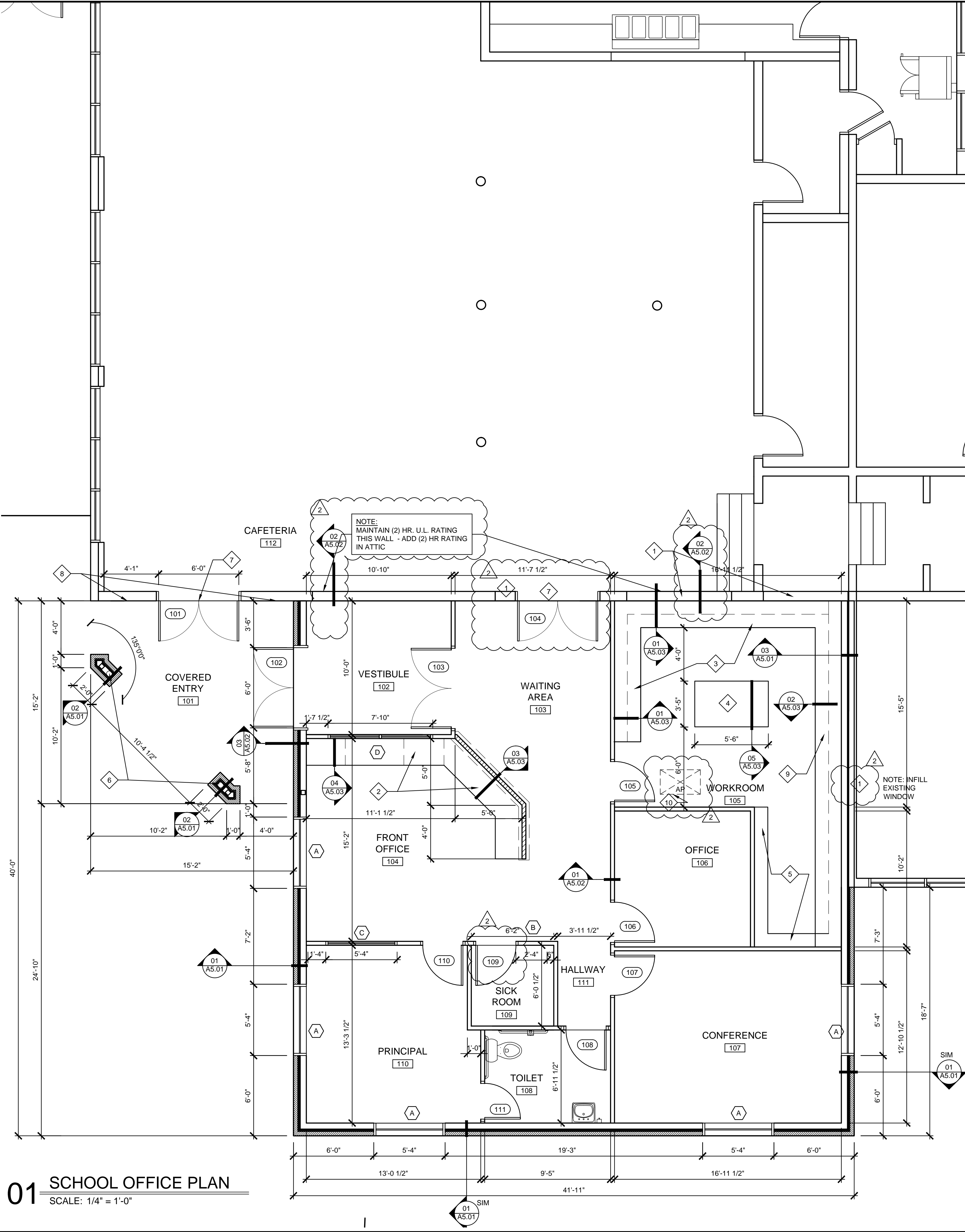
FOUNDATION DETAILS

F2.01

PROJECT NO:
23-4451
DRAWN BY:
DLB/
DATE:
05/17/2024

01 SCHOOL OFFICE PLAN

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



ROOM FINISH SCHEDULE

ROOM #	ROOM NAME	FLOOR	BASE	WALLS	CEILING MTL	CEILING HGT	REMARKS
101	COVERED ENTRY	CONCRETE	-	-	MTL. VENTED SOFFIT	9'-8"	
102	VESTIBULE	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1
103	WAITING AREA	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1
104	FRONT OFFICE	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1
105	WORKROOM	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1
106	OFFICE	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1
107	CONFERENCE	LVP	VINYL	WALL #1	CEILING #1	9'-8"	1
108	TOILET	LVP	VINYL	GYP-BD	CEILING #2	8'-0"	1
109	SICK ROOM	LVP	VINYL	GYP-BD	CEILING #1	8'-0"	1
110	PRINCIPAL'S OFFICE	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1
111	HALLWAY	LVP	VINYL	GYP-BD	CEILING #1	9'-8"	1

ROOM FINISH REMARKS

- 1) COORDINATE FINISHES WITH OWNER

FINISH SCHEDULE KEY

CARPET	GLUE DOWN PILE CARPET
LVP	LUXURY VINYL PLANK FLOORING - SEE SPECIFICATIONS
CERAMIC TILE	VERIFY SIZES AND STYLE WITH OWNER
CEILING #1	2x2' LAY-IN RECESSED WHITE GRID WITH ACOUSTICAL TILE - SEE SPECIFICATIONS
CEILING #2	2x4' LAY-IN FLUSH WHITE GRID WITH VINYL FACED TILE - SEE SPECIFICATIONS
WALL #1	CHAIR RAIL WITH GYP BD AND PAINT - VERIFY HEIGHT WITH OWNER

DOOR SCHEDULE

DOOR TYPE SYMBOL							
NUMBER	SIZE	FIRE	MATERIAL	FRAME	HARDWARE	DETAILS	REMARKS
101	PR (3'-0"x7'-0")		ALUM/GLASS	ALUM	1	03.04/A6.01	1
102	PR (3'-0"x7'-0")		ALUM/GLASS	ALUM	1	01.02/A6.01	1
103	PR (3'-0"x7'-0")		ALUM/GLASS	ALUM	1	05.06/A6.01	1
104	PR (3'-0"x7'-0")		HM	HM	5	03.04/A6.01	2
105	3'-0"x7'-0"		SC WOOD	HM	3	05.06/A6.01	
106	3'-0"x7'-0"		SC WOOD	HM	3	05.06/A6.01	
107	3'-0"x7'-0"		SC WOOD	HM	3	05.06/A6.01	
108	3'-0"x7'-0"		SC WOOD	HM	4	05.06/A6.01	
109	3'-0"x7'-0"		SC WOOD	HM	2	05.06/A6.01	2
110	3'-0"x7'-0"		SC WOOD	HM	3	05.06/A6.01	
111	3'-0"x7'-0"		SC WOOD	HM	4	05.06/A6.01	

DOOR HARDWARE SCHEDULE

*NRP = NON-REMOVABLE PIN

- 1) 2 PR. PIVOTS
2 PANIC DEVICE W/ PUBLIC ACCESS FEATURE
1 VERTICAL BAR
2 CLOSERS
1 WEATHERSTRIP SET
1 THRESHOLD

DOOR SCHEDULE REMARKS

- 1) DOOR PART OF ALUMINUM STOREFRONT SYSTEM (SEE SPECIFICATIONS)
2) VISION PANEL IN DOOR 6" WIDE BY 28" TALL

WINDOW SCHEDULE

WINDOW TYPE SYMBOL					
LETTER	SIZE	SILL HEIGHT	GLAZING	FRAME	DETAILS
A	5'-4" x 5'-0"	3'-0"	1" INSULATED CLEAR	ALUM	09.10,11/A6.01
B	2'-4" x 4'-0"	3'-0"	1/4" CLEAR	ALUM	07.08/A6.01
C	5'-4" x 4'-0"	3'-0"	1/4" CLEAR	ALUM	07.08/A6.01
D	7'-10" x 4'-0"	3'-0"	1/4" CLEAR	ALUM	07.08/A6.01

WINDOW SCHEDULE REMARKS

- 1) CENTER, VERTICAL MULLION

SHEET NOTES:

- 1 INFILL WALL TO MATCH ADJACENT WALL THICKNESS AND FINISHES
2 BUILT IN RECEPTION DESK WITH FILING CABINETS UNDERNEATH - COORDINATE FINISHES AND FINAL LAYOUT WITH OWNER
3 BUILT IN HI / LOW WORKROOM CABINETS - COORDINATE FINISHES AND FINAL LAYOUT WITH OWNER
4 BUILT IN WORKROOM WORKTABLE - COORDINATE FINISHES AND FINAL LAYOUT WITH OWNER
5 BUILT IN 12" DEEP SHELVING, FULL HEIGHT - COORDINATE FINISHES AND FINAL LAYOUT WITH OWNER
6 ROOF DRAIN RUNS THROUGH COLUMN AND CONNECTS TO EXISTING UNDERGROUND RUNOFF LINES
7 NEW DOOR IN EXISTING WINDOW OPENING
8 NEW BRICK TO CORNER
9 BUILT IN SHELVING 24" DEEP BELOW COUNTER HEIGHT, 12" DEEP ABOVE COUNTER HEIGHT - COORDINATE FINISHES AND FINAL LAYOUT WITH OWNER
10 22" x 36" ATTIC ACCESS PANEL ABOVE LAY IN CEILING - VERIFY LOCATION IN FIELD

NOTE: ALL DIMENSIONS ARE TO FACE OF STUD

NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER

NOTE: ELECTRICAL, HVAC AND PLUMBING TO BE RELOCATED PER FEDERAL, STATE AND LOCAL CODES. GENERAL CONTRACTOR TO COORDINATE.

WALL LEGEND

	2x4 WOOD STUD WALL
	(2) LAYERS 5/8" GYPSUM WALLBOARD ON 2x6 WOOD STUD @ 16" o.c. WITH 1/2" EXTERIOR GRADE GYPSUM SHEATHING, 1" AIR GAP AND 4" CLAY FACING BRICK LAID IN MORTAR WITH 3/4" WIDE x 6 5/8" LONG 20 MSG CORRUGATED WALL TIES SPACED AT 16" o.c. EACH WAY - U302
	2x4 WOOD STUD KNEE WALL

*ALL MATERIALS ARE SIZES LISTED IN THIS LEGEND UNLESS OTHERWISE DIMENSIONED ON THIS PLAN OR SPECIFIED IN THE DETAILS AT A DIFFERENT SIZE

PROJECT NO:

23-4451

DRAWN BY:

DLB/

DATE:

05/17/2024

REVISION PER
STATE COMMENTS
2025-03-03



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LOUISVILLE, KENTUCKY 40213 (502) 636-5113

OFFICE ADDITION FOR:

ST GREGORY SCHOOL

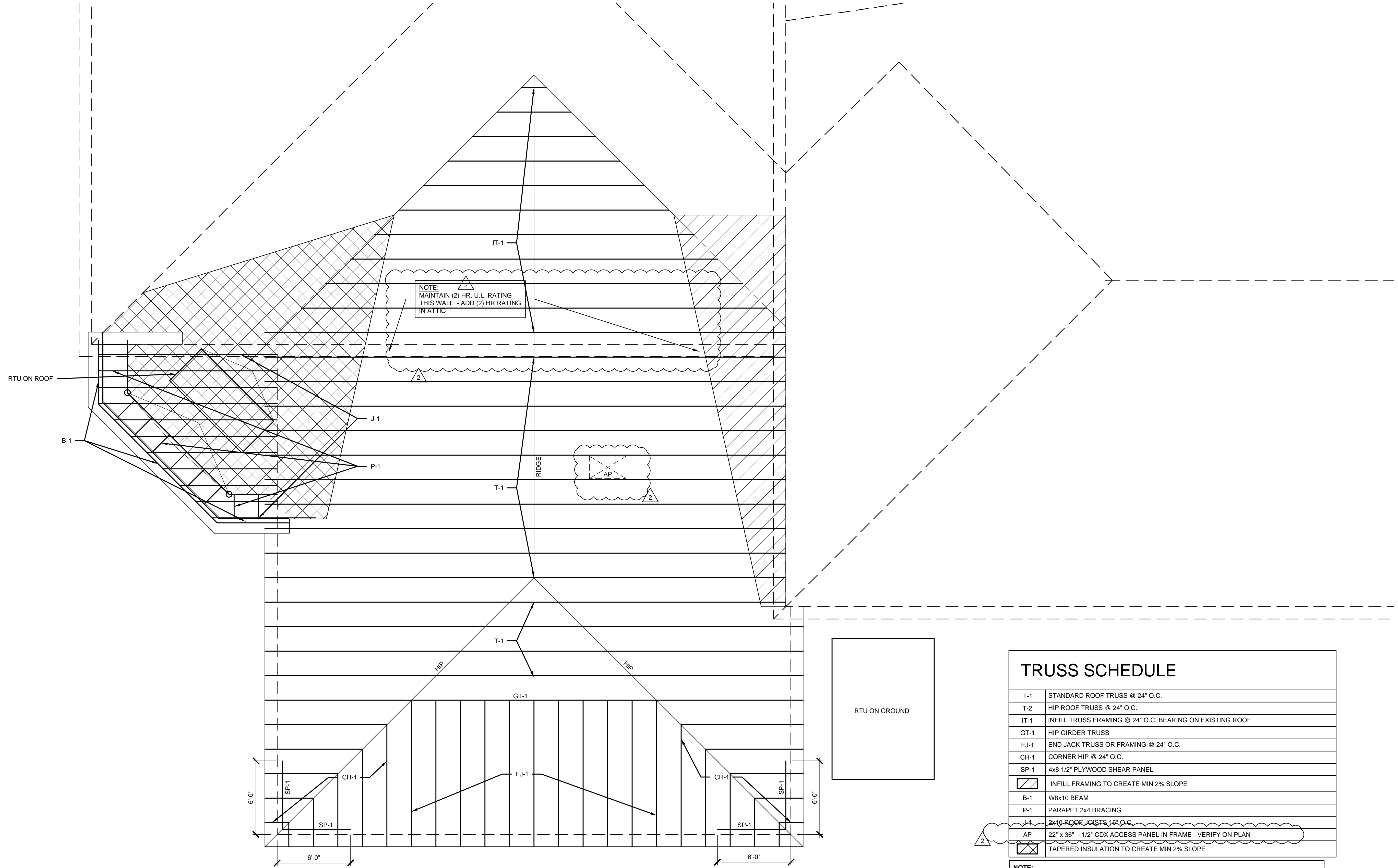
330 SAMUELS LOOP
COX CREEK, KY 40013

SCHOOL OFFICE FLOOR
PLAN

A1.01

01 ROOF FRAMING PLAN

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



TRUSS SCHEDULE

T-1	STANDARD ROOF TRUSS @ 24" O.C.
T-2	HIP ROOF TRUSS @ 24" O.C.
IT-1	INFILL TRUSS FRAMING @ 24" O.C. BEARING ON EXISTING ROOF
GT-1	HIP GIRDER TRUSS
EJ-1	END JACK TRUSS OR FRAMING @ 24" O.C.
CH-1	CORNER HIP @ 24" O.C.
SP-1	4x8 1/2" PLYWOOD SHEAR PANEL
	INFILL FRAMING TO CREATE MIN 2% SLOPE
B-1	W8x10 BEAM
P-1	PARAPET 2x4 BRACING
J-1	2x10 ROOF JOISTS 16" O.C.
AP	22' x 36' - 1/2" CDX ACCESS PANEL IN FRAME - VERIFY ON PLAN
	TAPERED INSULATION TO CREATE MIN 2% SLOPE

NOTE:
ALL TRUSSES SHALL BE DESIGNED BY A KENTUCKY LICENSED STRUCTURAL ENGINEER. TRUSS DESIGN SHALL MEET ALL REQUIREMENTS OF THE KENTUCKY BUILDING CODE. SHOP DRAWINGS SHALL BE STAMPED BY A KENTUCKY LICENSED STRUCTURAL ENGINEER.

NOTE: ALL DIMENSIONS ARE TO FACE OF STUD
NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER
NOTE: ELECTRICAL, HVAC AND PLUMBING TO BE RELOCATED PER FEDERAL, STATE AND LOCAL CODES. GENERAL CONTRACTOR TO COORDINATE.

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2025-03-03



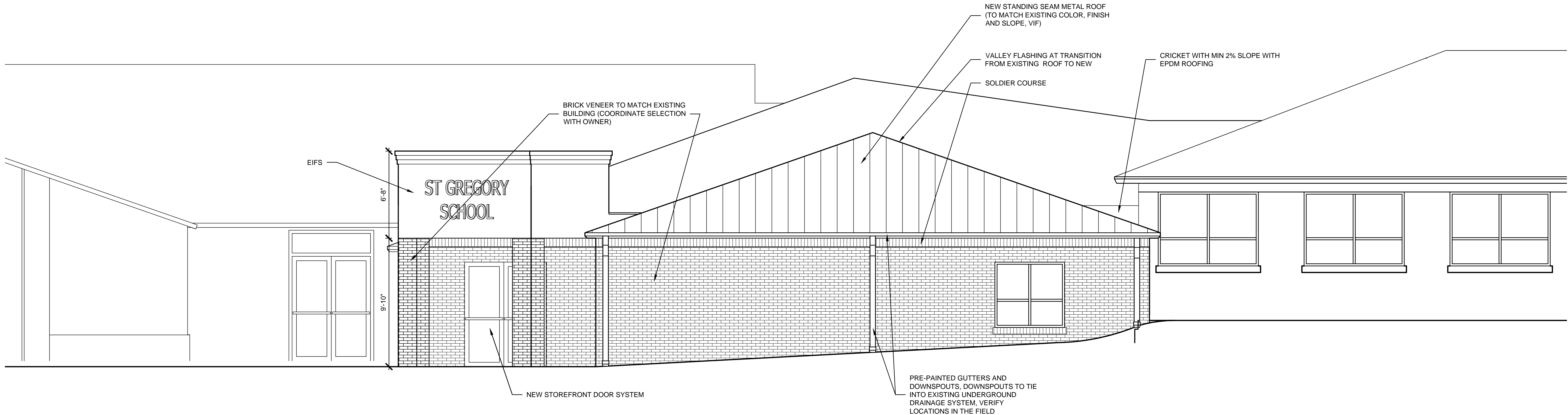
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330 SAMUELS LOOP
COX CREEK, KY 40013

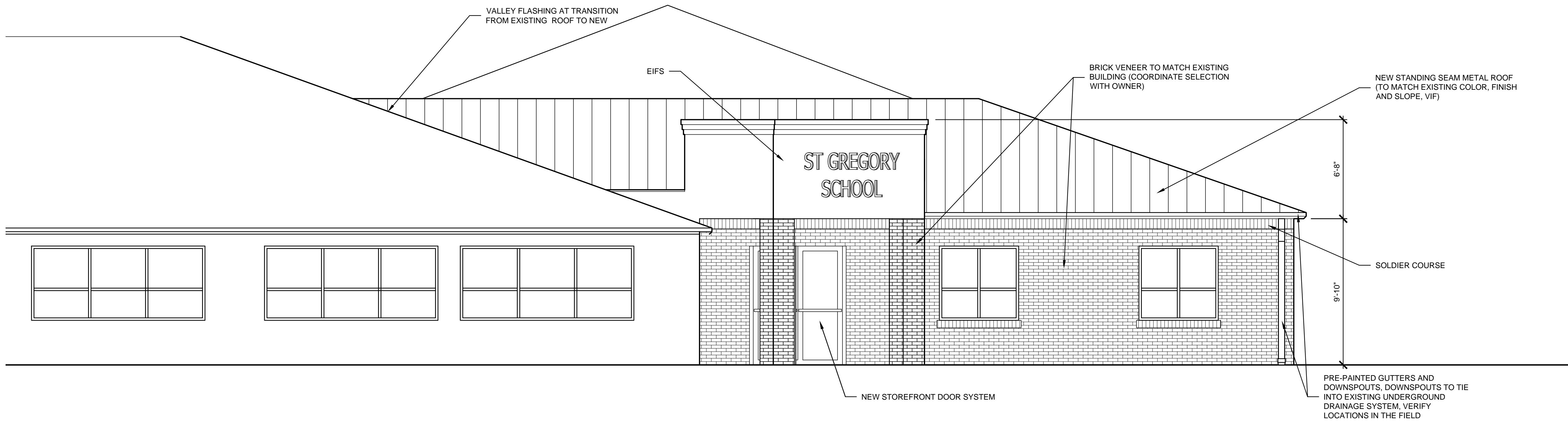
ROOF FRAMING PLAN

A1.02

PROJECT: ST GREGORY SCHOOL - FILE: A2.01 Exterior Elevations.dwg - DATE: Mar 03, 2025 12:31PM - BY: NICK MCCART



01 SCHOOL OFFICE ELEVATION
SCALE: 1/4" = 1'-0"



02 SCHOOL OFFICE ELEVATION
SCALE: 1/4" = 1'-0"

PROJECT NO:
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EXTERIOR ELEVATIONS

A2.01

PROJECT: ST GREGORY SCHOOL - FILE: A3.01 Commercial ADA-Ansi Guidelines.dwg - DATE: Mar 03, 2025 12:31 PM - BY: NICK MCCART

REQUIRED DOOR ACCESSIBLE CLEAR FLOOR SPACE

FRONT APPROACH

60" MIN

18" MIN

PULL SIDE

12" MIN*

48" MIN

PUSH SIDE

*IF BOTH CLOSER AND LATCH ARE PROVIDED

HINGE APPROACH

60" MIN

36" MIN

PULL SIDE

54" MIN

42" MIN

PULL SIDE (OPTION 2)

LATCH APPROACH

54" MIN IF CLOSER IS PROVIDED

48" MIN*

24" MIN

PULL SIDE

48" MIN IF CLOSER IS PROVIDED

24" MIN

42" MIN

PUSH SIDE

REQUIRED ACCESSIBLE CLEAR FLOOR SPACE

TYPICAL CLEAR FLOOR SPACES

1	TURNAROUND / TURNING CIRCLE: 60" DIAMETER CLEAR FLOOR SPACE (TYP.)
2	EQUIPMENT / FIXTURE: 30"x48" CLEAR FLOOR SPACE
3	TOILET WITHOUT 9" TOE CLEARANCE: 66"x66" CLEAR FLOOR SPACE
4	ACCESSIBLE SIGNAGE - SEE DETAIL 04/A3.01 FOR MORE INFORMATION

MEETS THE STRICTEST INTERPRETATION OF BOTH THE ANSI 117.1 AND 2010 FEDERAL ADA STANDARDS FOR ACCESSIBLE DESIGN

NOTE:
NOT ALL ITEMS LISTED ON THIS SHEET WILL APPLY TO THIS PROJECT. IF THERE ARE ANY QUESTIONS OR COMMENTS CONTACT KEYES ARCHITECTS AND ASSOCIATES.

01 TOILET ROOM DETAIL

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

02 TYPICAL ACCESSIBLE RESTROOM DETAILS

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

RESTROOM ACCESSORIES SCHEDULE

	ITEM (SEE NOTE 2)	MODEL #	SUPPLIER	BACKUP SUPPORT (SEE NOTE 3)
1A	GRAB BAR 42"	SEE SPECS.	SEE SPECS. FOR RECOMMENDED MANUFACTURERS	MOUNTED PER MANUFACTURER'S RECOMMENDATIONS
1B	GRAB BAR 36"	SEE SPECS.		
1C	GRAB BAR 24" (18" MIN)	SEE SPECS.		
2	TOILET TISSUE DISPENSER, DOUBLE, SURFACE MOUNTED (SEE NOTE 4)	SEE SPECS.	SEE SPECS. FOR RECOMMENDED MANUFACTURERS	MOUNTED PER MANUFACTURER'S RECOMMENDATIONS
4	TOWEL DISPENSER & WASTE RECEPTACLE, COMBINATION, RECESSED (OPTIONAL)	SEE SPECS.	SEE SPECS. FOR RECOMMENDED MANUFACTURERS	MOUNTED PER MANUFACTURER'S RECOMMENDATIONS

	ITEM (SEE NOTE 2)	MODEL #	SUPPLIER	BACKUP SUPPORT (SEE NOTE 3)
5	MIRROR, CHANNEL FRAME	SEE SPECS.	SEE SPECS. FOR RECOMMENDED MANUFACTURERS	MOUNTED PER MANUFACTURER'S RECOMMENDATIONS
6	SOAP DISPENSER, WALL-MOUNTED	SEE SPECS.	SEE SPECS. FOR RECOMMENDED MANUFACTURERS	MOUNTED PER MANUFACTURER'S RECOMMENDATIONS

NOTES:

1) SEE BELOW FOR ACCESSORY MOUNTING HEIGHTS

2) SELECT ONE ITEM FROM ITEM GROUPS 4 & 6, VERIFY WITH OWNER.

3) CUT BACK-UP SUPPORTS BETWEEN STUDS SO FACE OF SUPPORT IS FLUSH WITH WALL STUD

4) HATCHED AREA SHOWN FOR MOUNTING LOCATION

5) 48" MAX TO TOP OF COAT HOOK

ALL LAVATORIES MUST HAVE A COMBINATION FAUCET CAPABLE OF SUPPLYING WARM WATER FOR A MIN OF 10 SEC.

ADA / ANSI A117.1 COMPLIANT UNDER SINK PIPING PROTECTION - SEE PLUMBING SPECS.

WATER CLOSET FLUSH CONTROL TO BE LOCATED ON THE WIDE SIDE OF ACCESSIBLE STALL FIXTURE

03 LAVATORY DETAIL

SCALE: 1" = 1'-0"

04 DOOR SIGN / DOOR DETAIL

SCALE: 3/8" = 1'-0"

PROJECT NO: 23-4451

DRAWN BY: DLB/

DATE: 05/17/2024

KEYES ARCHITECTS & ASSOCIATES

4717 PRESTON HIGHWAY

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ST GREGORY SCHOOL

330 SAMUELS LOOP

COX CREEK, KY 40013

OFFICE ADDITION FOR:

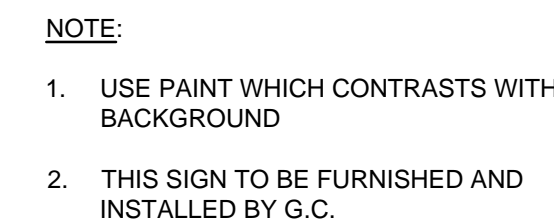
COMMERCIAL ADA-ANSI GUIDELINES

A3.01

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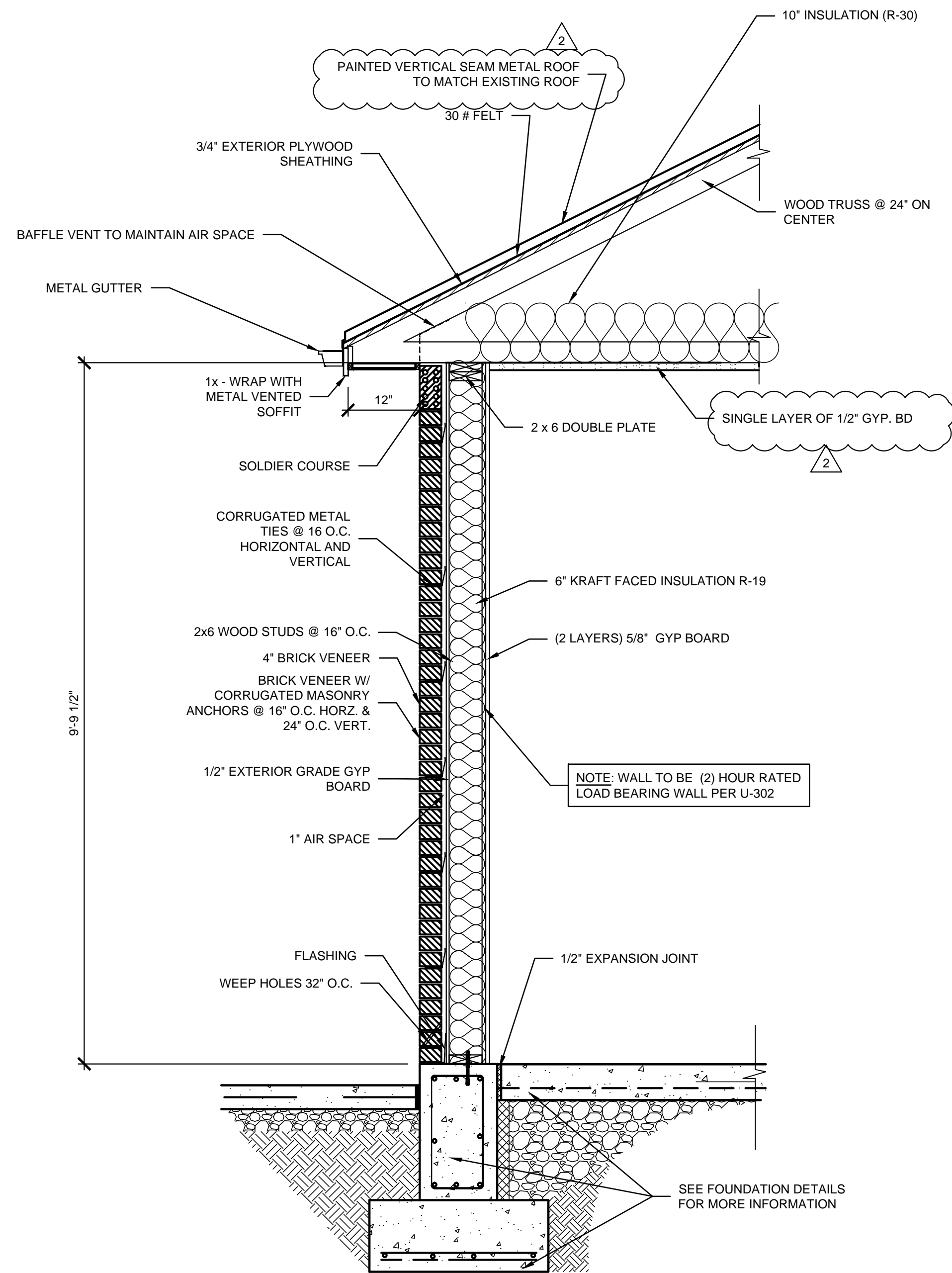
02 TYPE II ACCESSIBLE RAMP



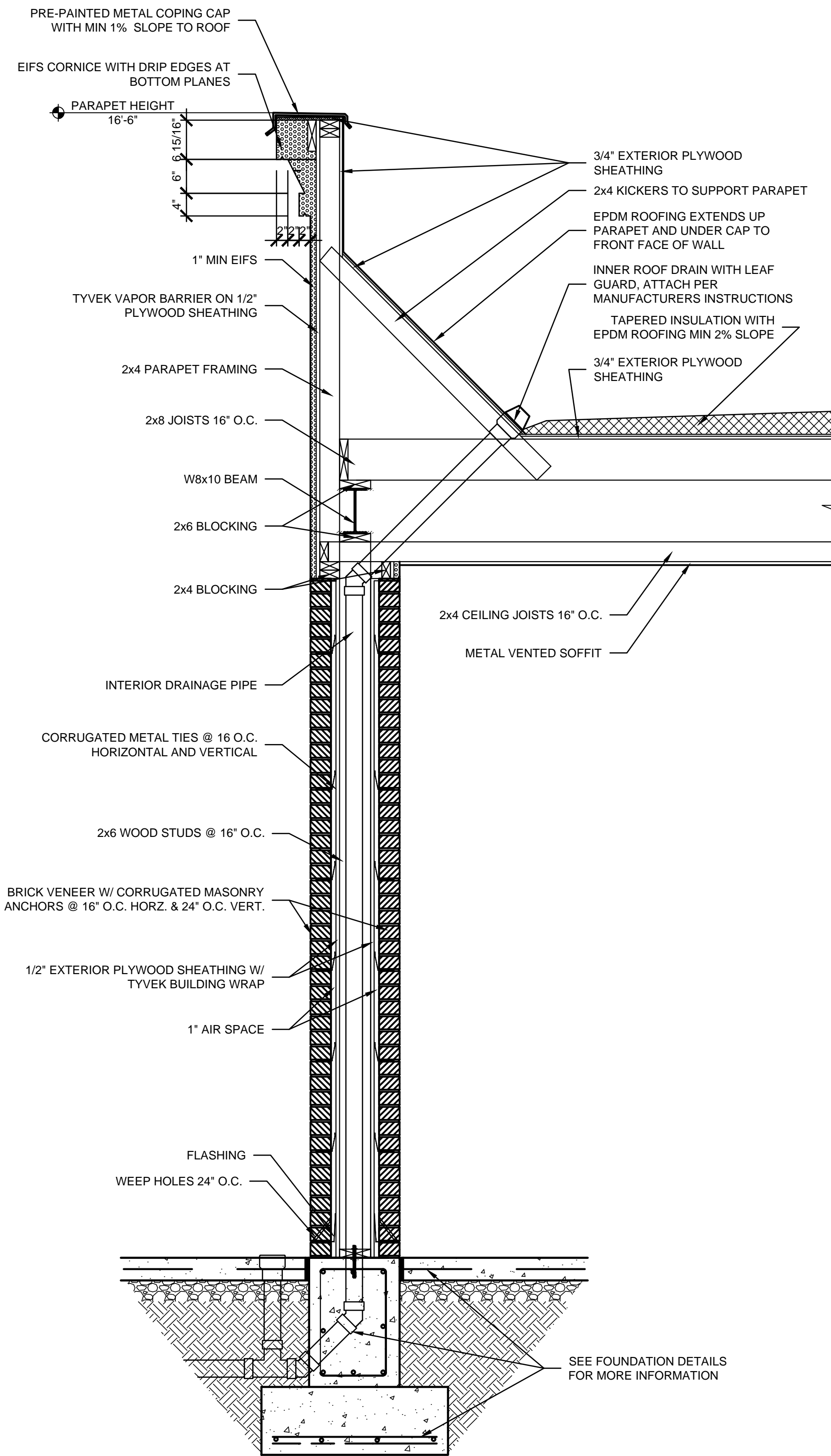
PARKING SPACES	
TOTAL NUMBER OF PARKING SPACES PROVIDED IN PARKING FACILITY	MINIMUM NUMBER OF REQUIRED ACCESSIBLE PARKING SPACES
1 TO 25	1
26 TO 50	2
51 TO 75	3
76 TO 100	4
101 TO 150	5
151 TO 200	6
201 TO 300	7
301 TO 400	8
401 TO 500	9
501 TO 1000	2 PERCENT OF TOTAL
1001 AND OVER	20, PLUS 1 FOR EACH 100, OR FRACTION THEREOF, OVER 1000

03 PAINTED ACCESSIBLE SYMBOL / PAINTED ACCESSIBLE PARKING

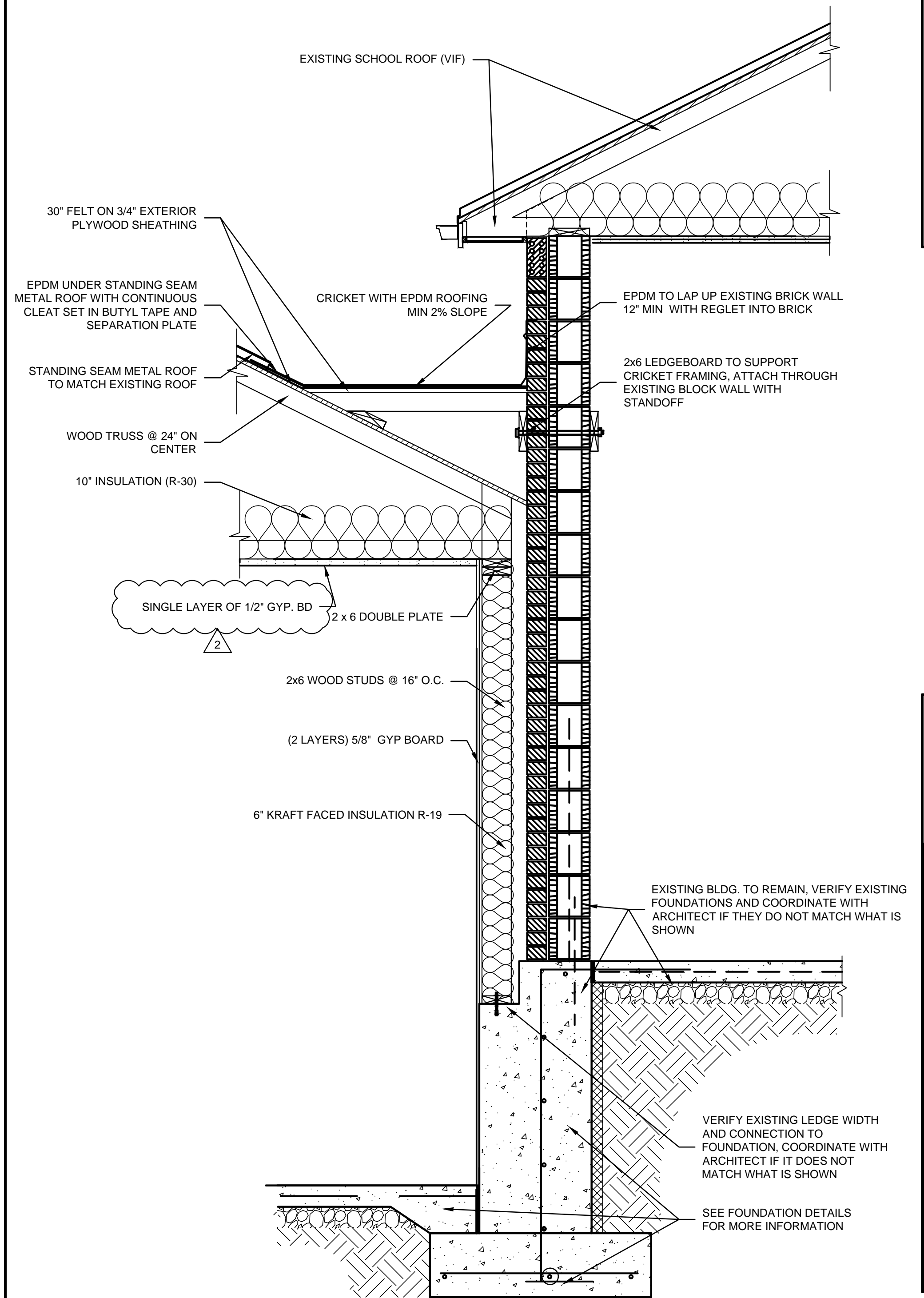
PROJECT: ST GREGORY SCHOOL - FILE: A5.01 Wall Sections and Details.dwg - DATE: Mar 03, 2025 12:31PM - BY: NICK MCCART



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



02 ENTRY COLUMN SECTION
SCALE: 3/4" = 1'-0"



03 EXISTING CLASSROOM CONNECTION SECTION
SCALE: 3/4" = 1'-0"

PROJECT NO:
23-4451
DRAWN BY:
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DATE:
05/17/2024

STATE COMMENTS
2023-03-03



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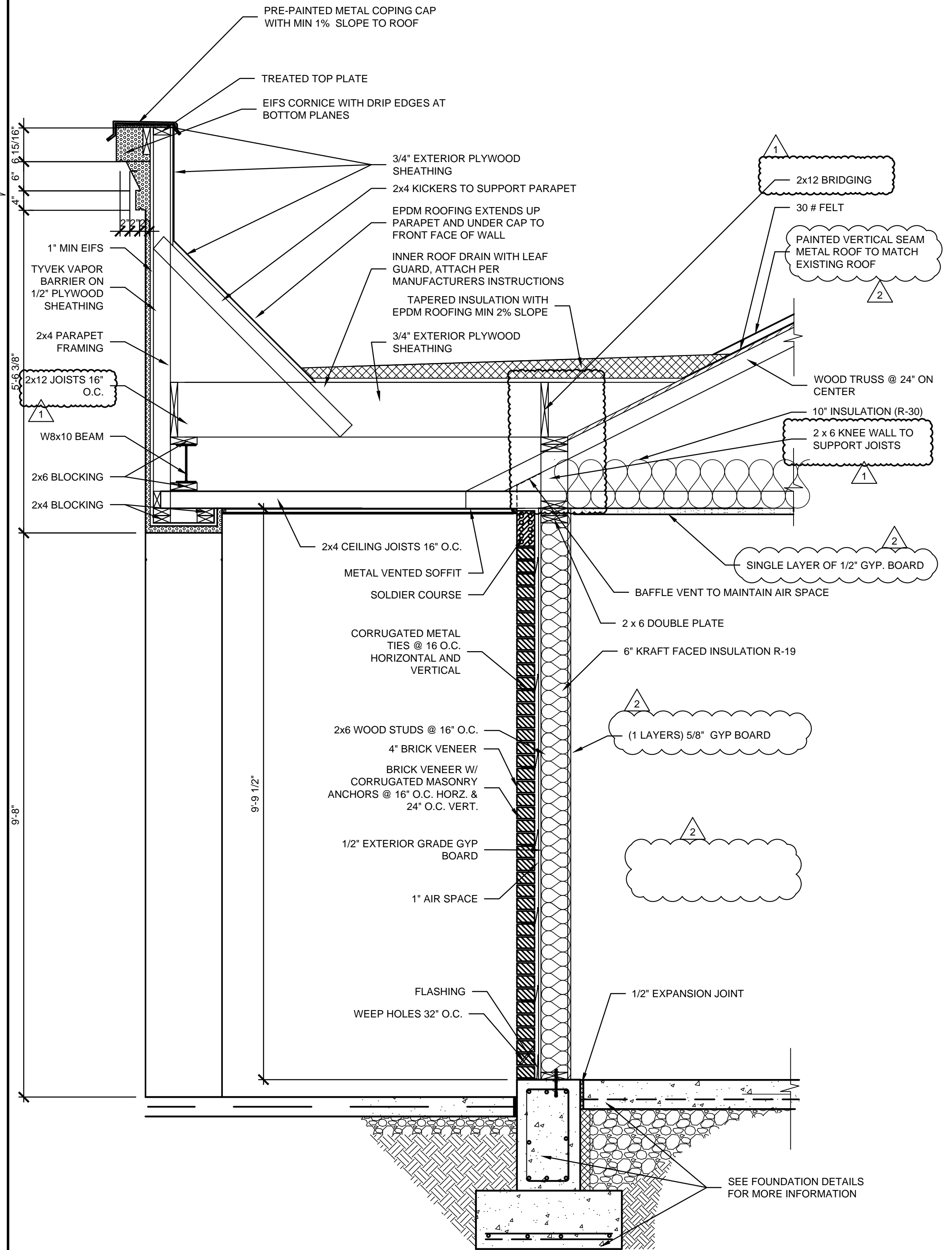
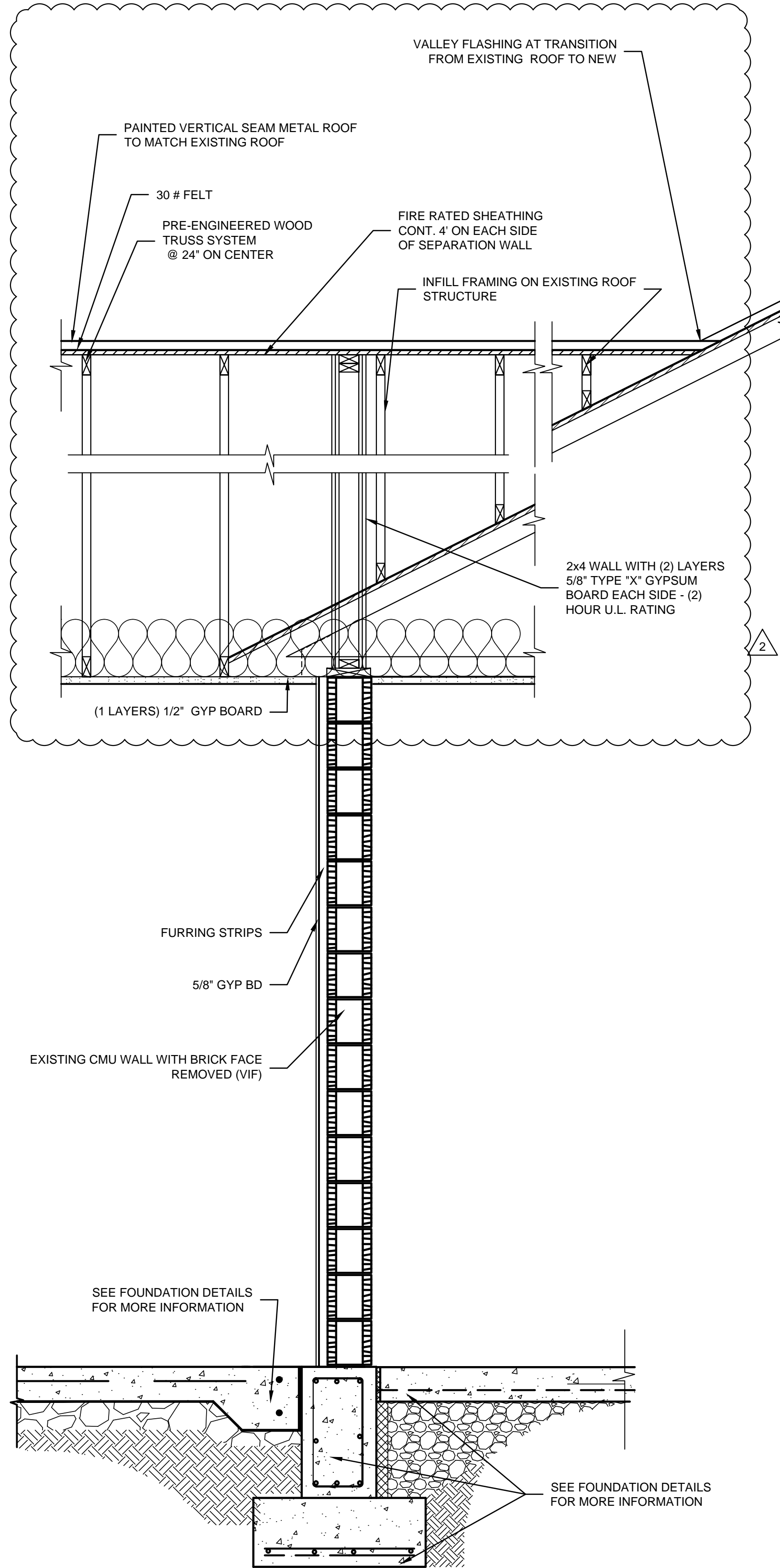
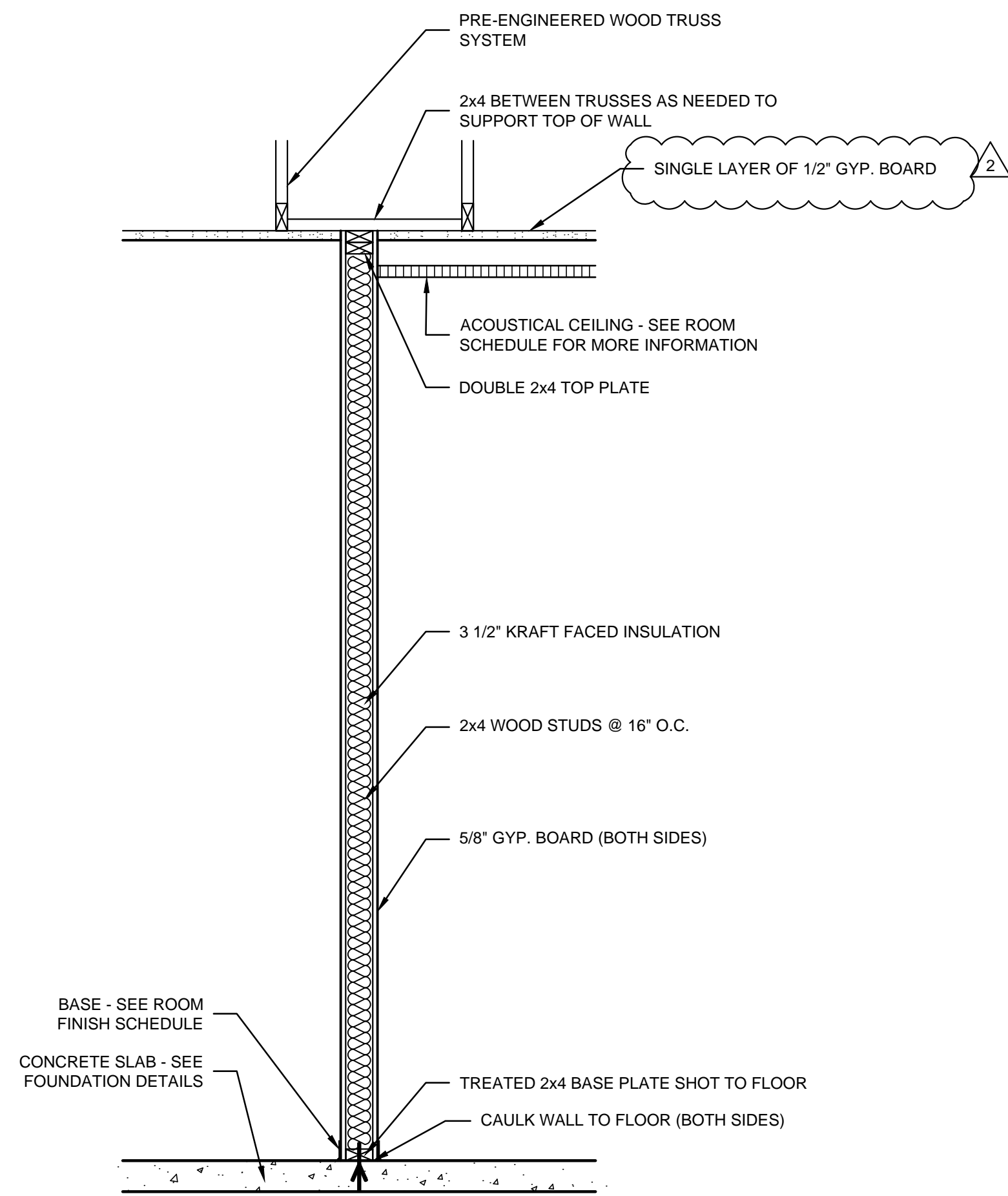
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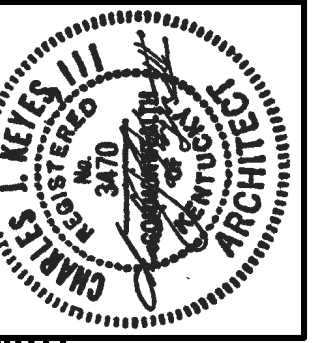
WALL SECTIONS AND
DETAILS

A5.01

PROJECT: ST GREGORY SCHOOL - FILE: A5.02 Wall Sections and Details.dwg - DATE: Mar 03, 2025 12:31PM - BY: NICK MCCART



PROJECT NO:
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DATE:
05/17/2024
STATE COMMENTS
2023-03-03



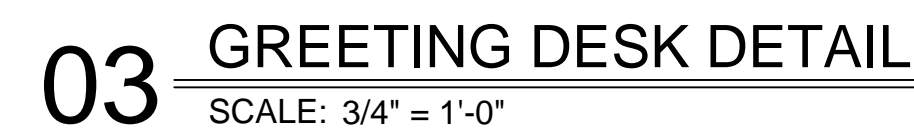
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WALL SECTIONS AND DETAILS

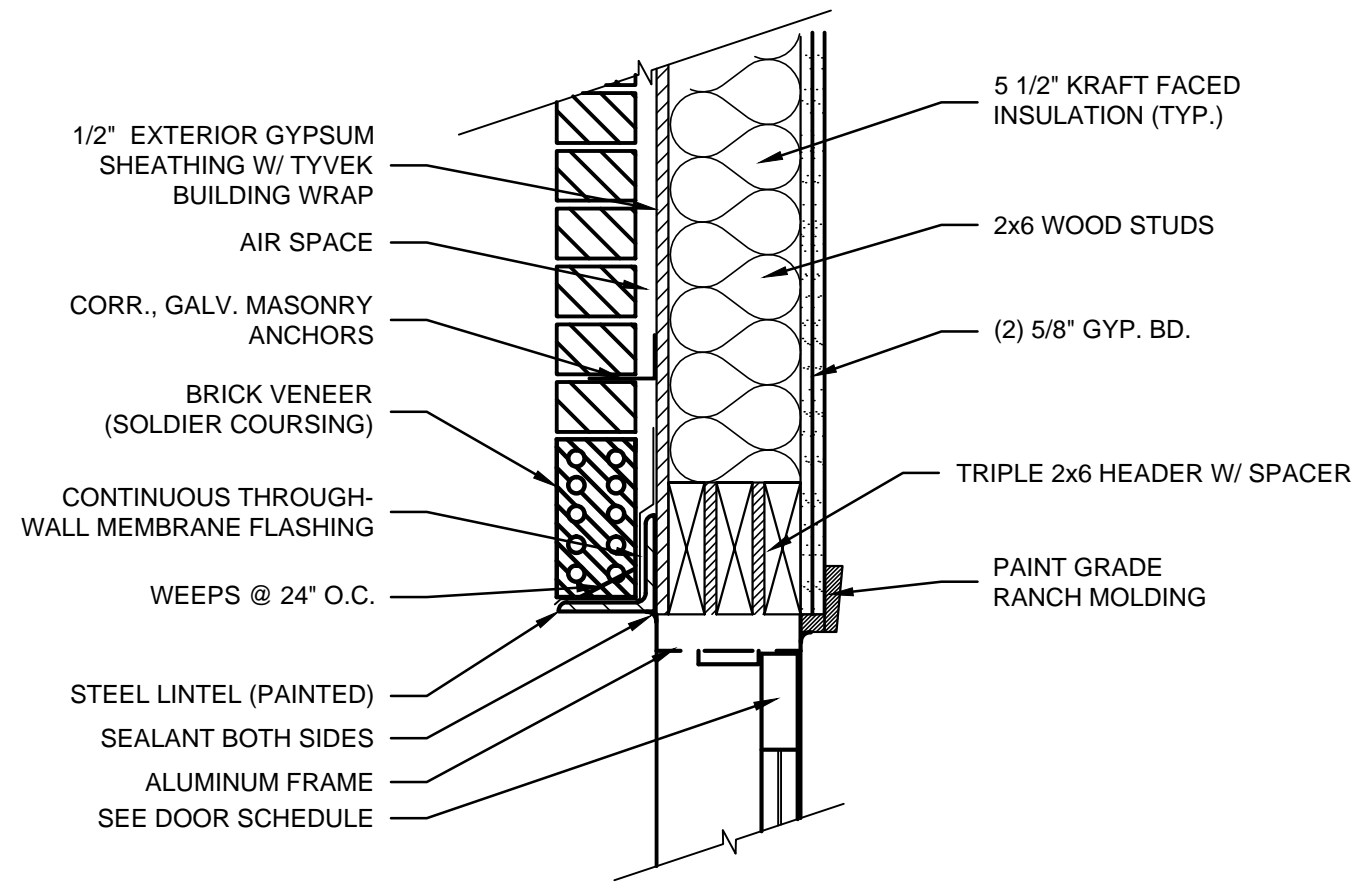
A5.02



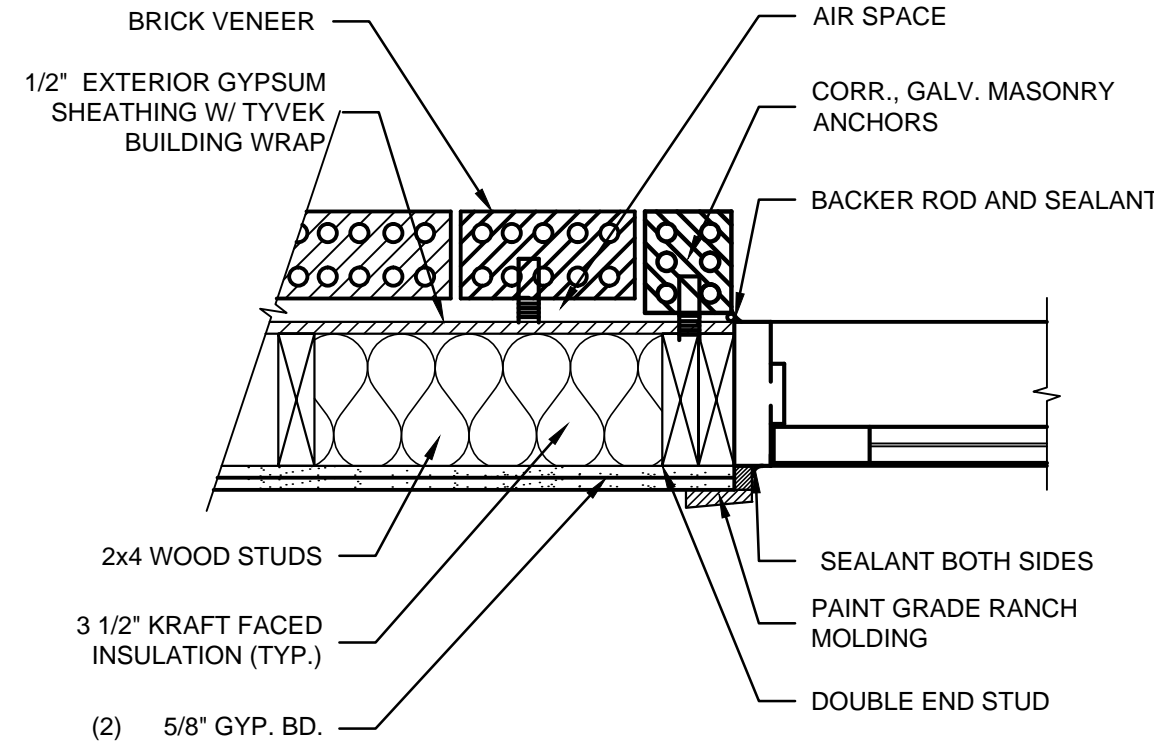
ST GREGORY SCHOOL
330 SAMUELS LOOP
COX CREEK, KY 40013

A5.03

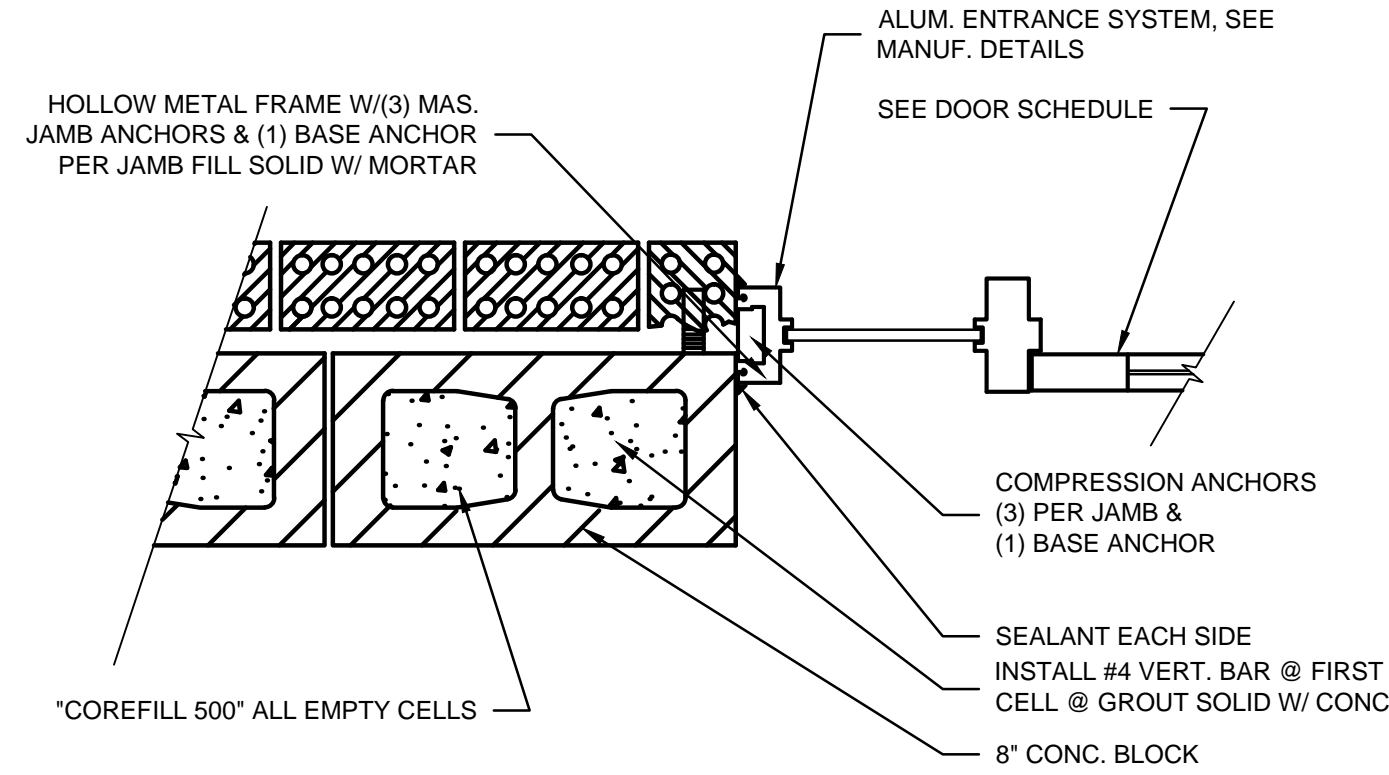
PROJECT: ST GREGORY SCHOOL - FILE: A6.01 Door Details.dwg - DATE: Mar 03, 2025 12:32PM - BY: NICK MCCART



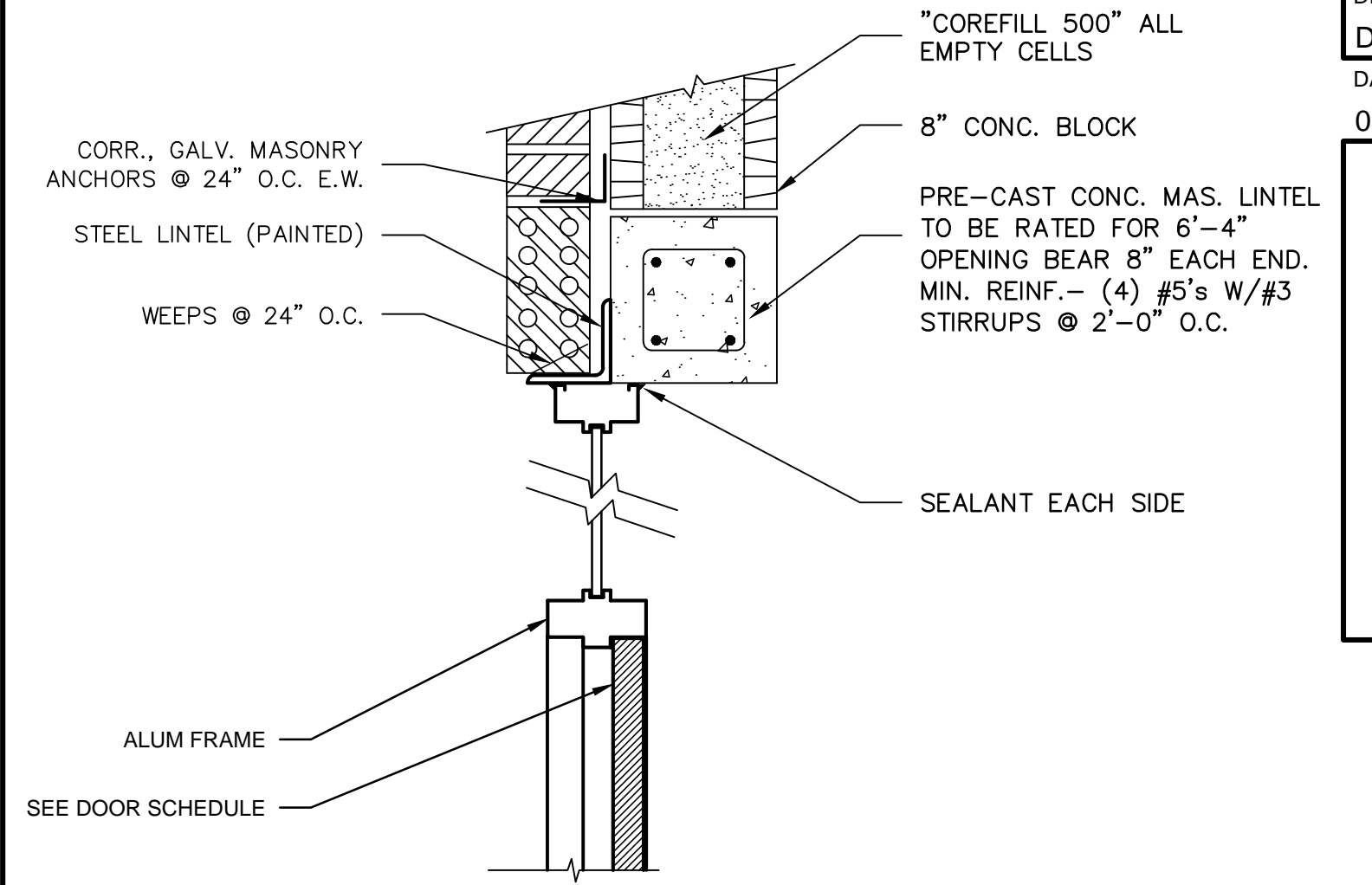
01 EXT. ALUMINUM DOOR HEAD
SCALE: 1-1/2" = 1'-0"



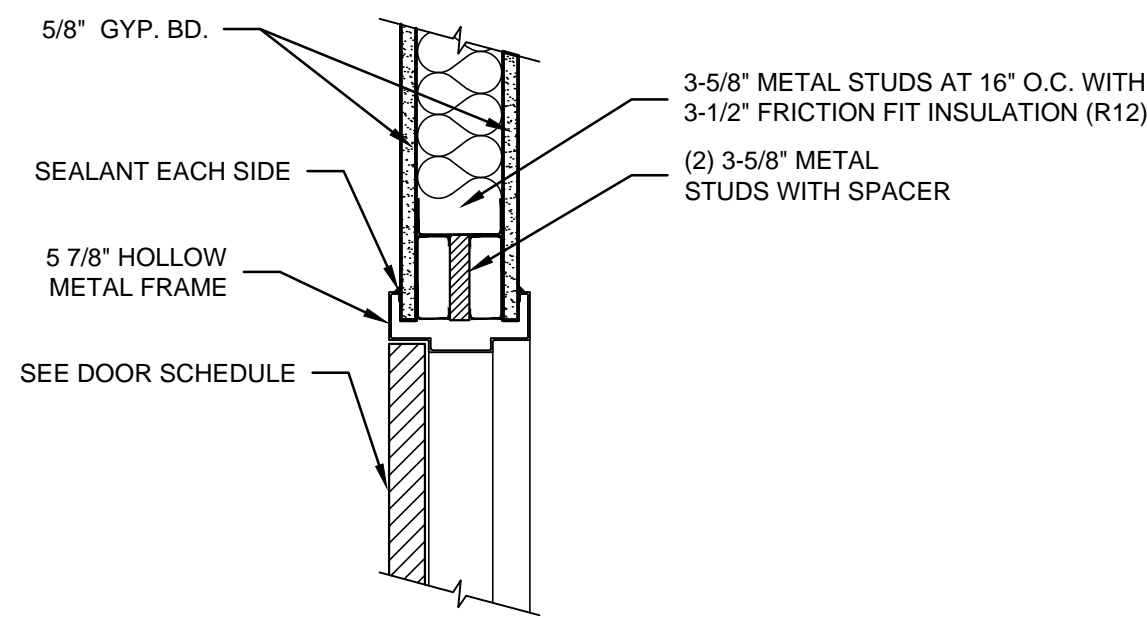
02 EXT. ALUMINUM DOOR JAMB
SCALE: 1-1/2" = 1'-0"



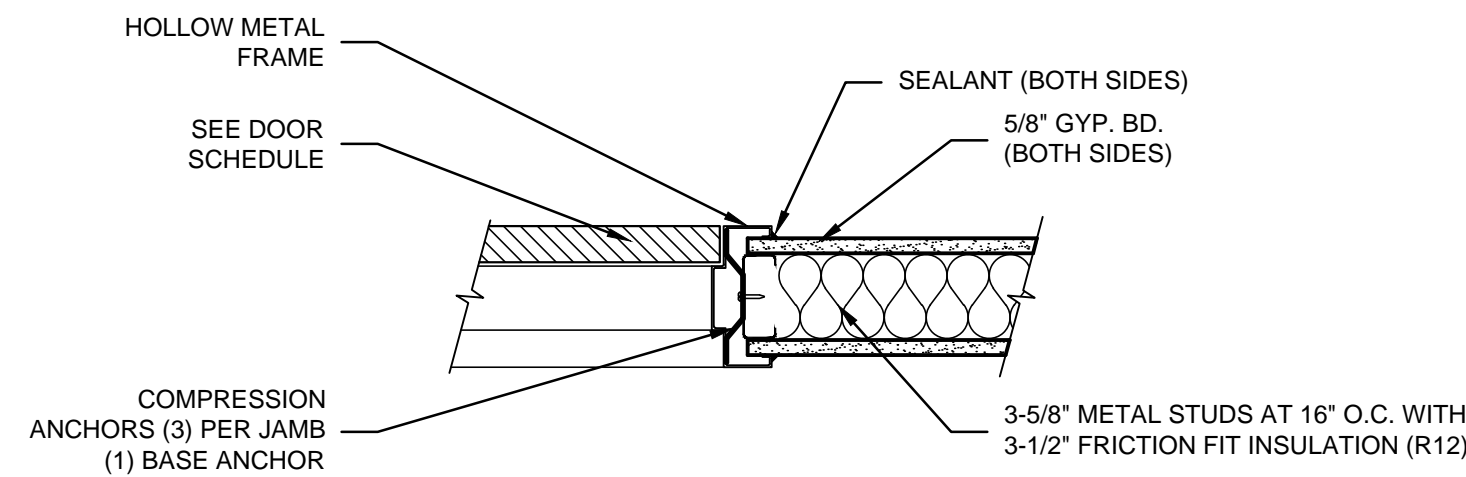
03 ALUMINUM DOOR JAMB
SCALE: 1-1/2" = 1'-0"



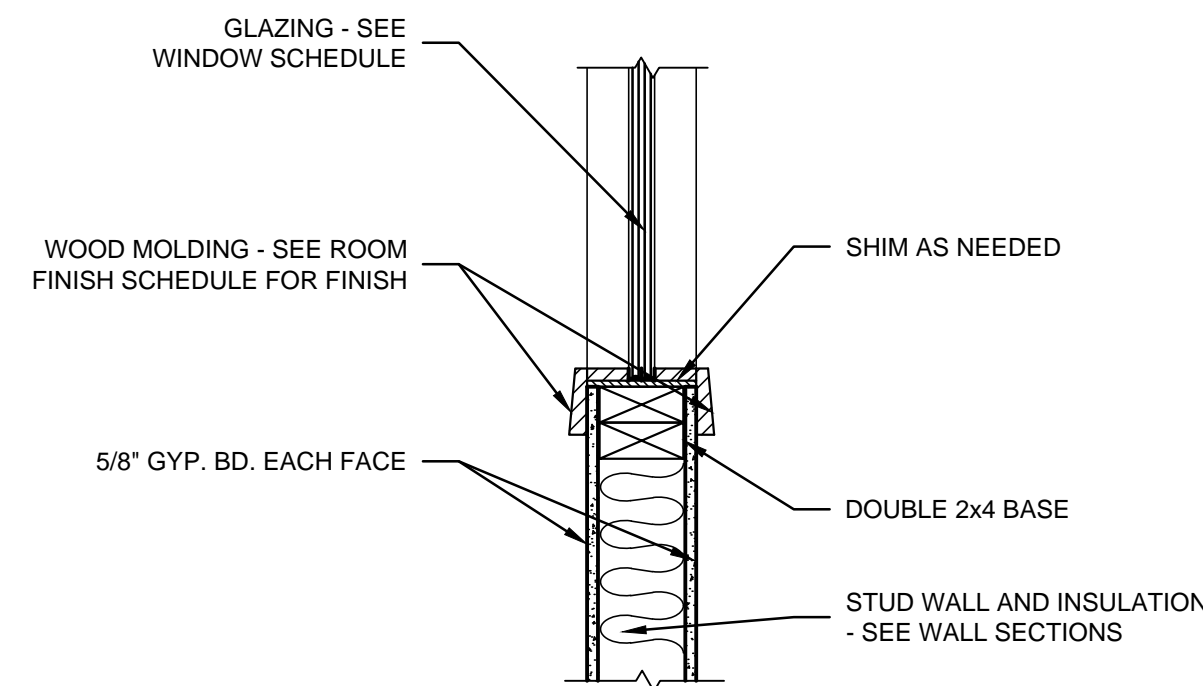
04 ALUMINUM STOREFRONT DOOR HEAD
SCALE: 1-1/2" = 1'-0"



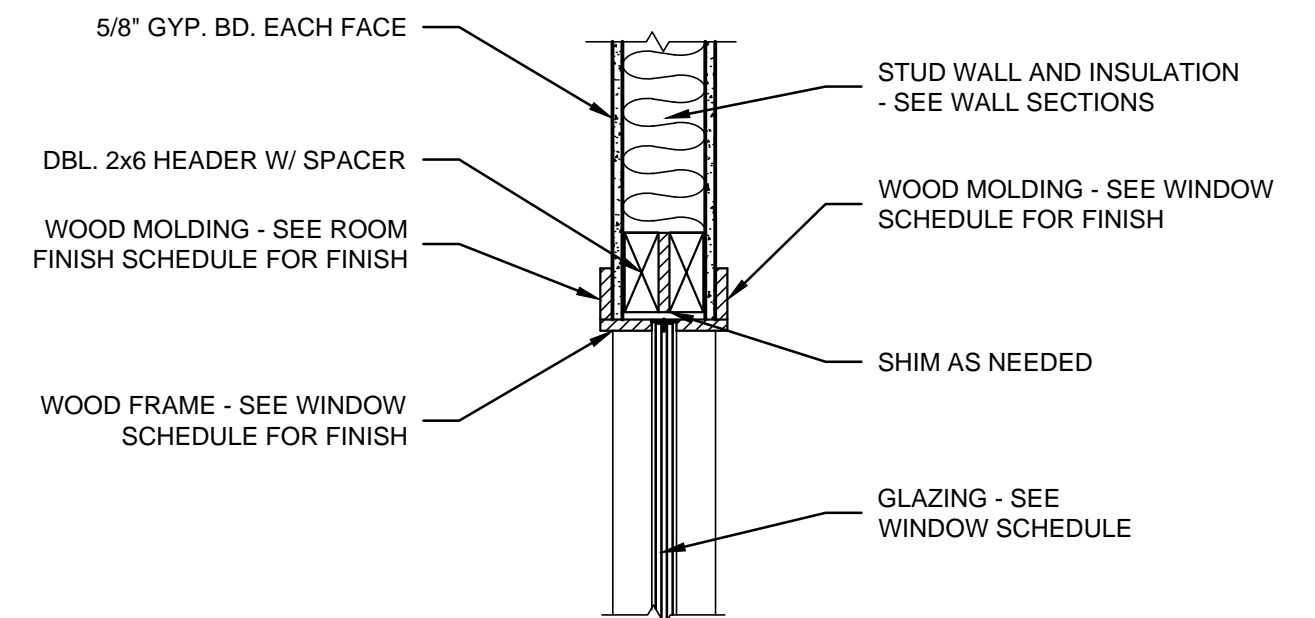
05 HOLLOW METAL DOOR HEAD
SCALE: 1-1/2" = 1'-0"



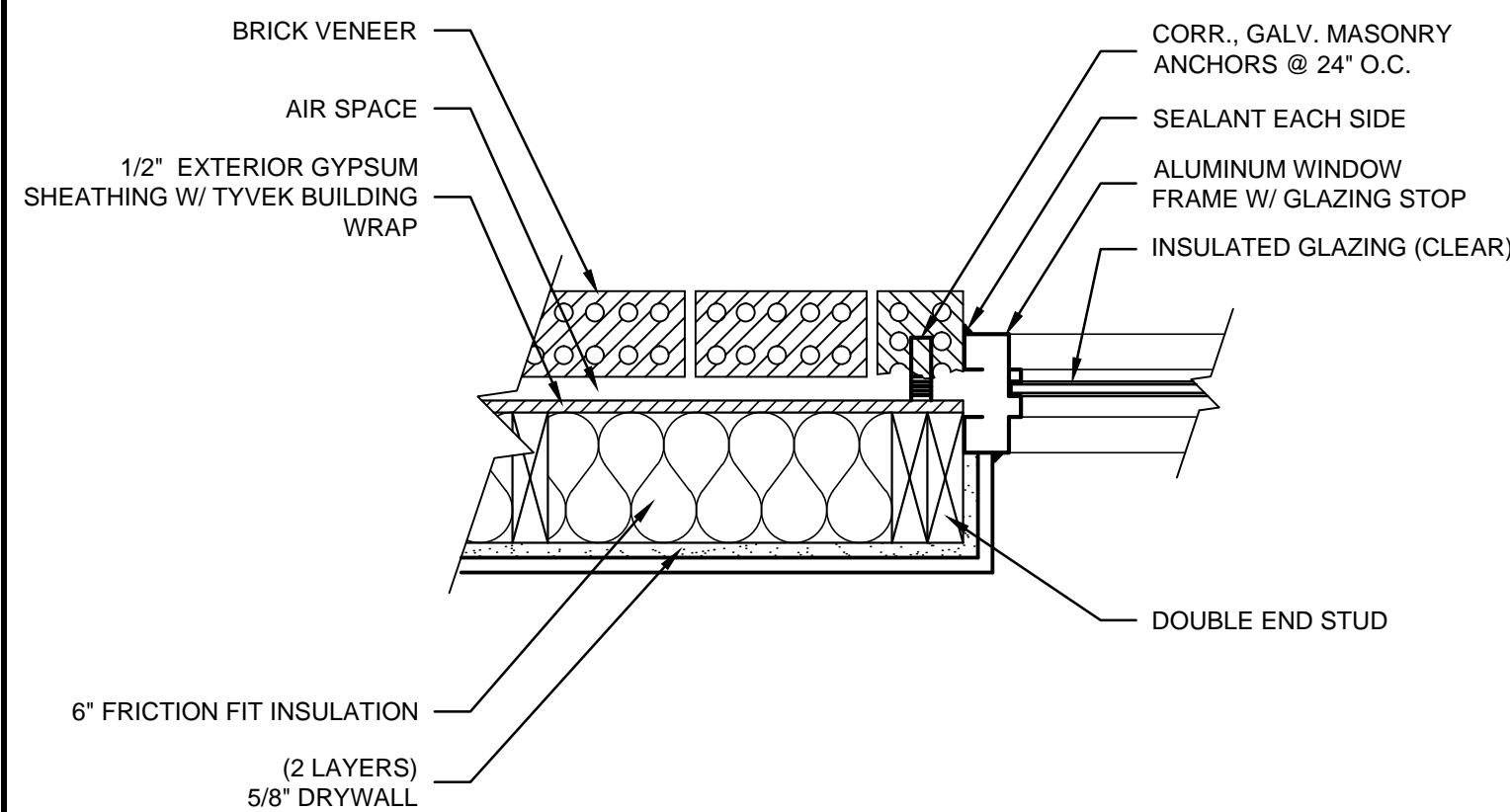
06 HOLLOW METAL DOOR JAMB
SCALE: 1-1/2" = 1'-0"



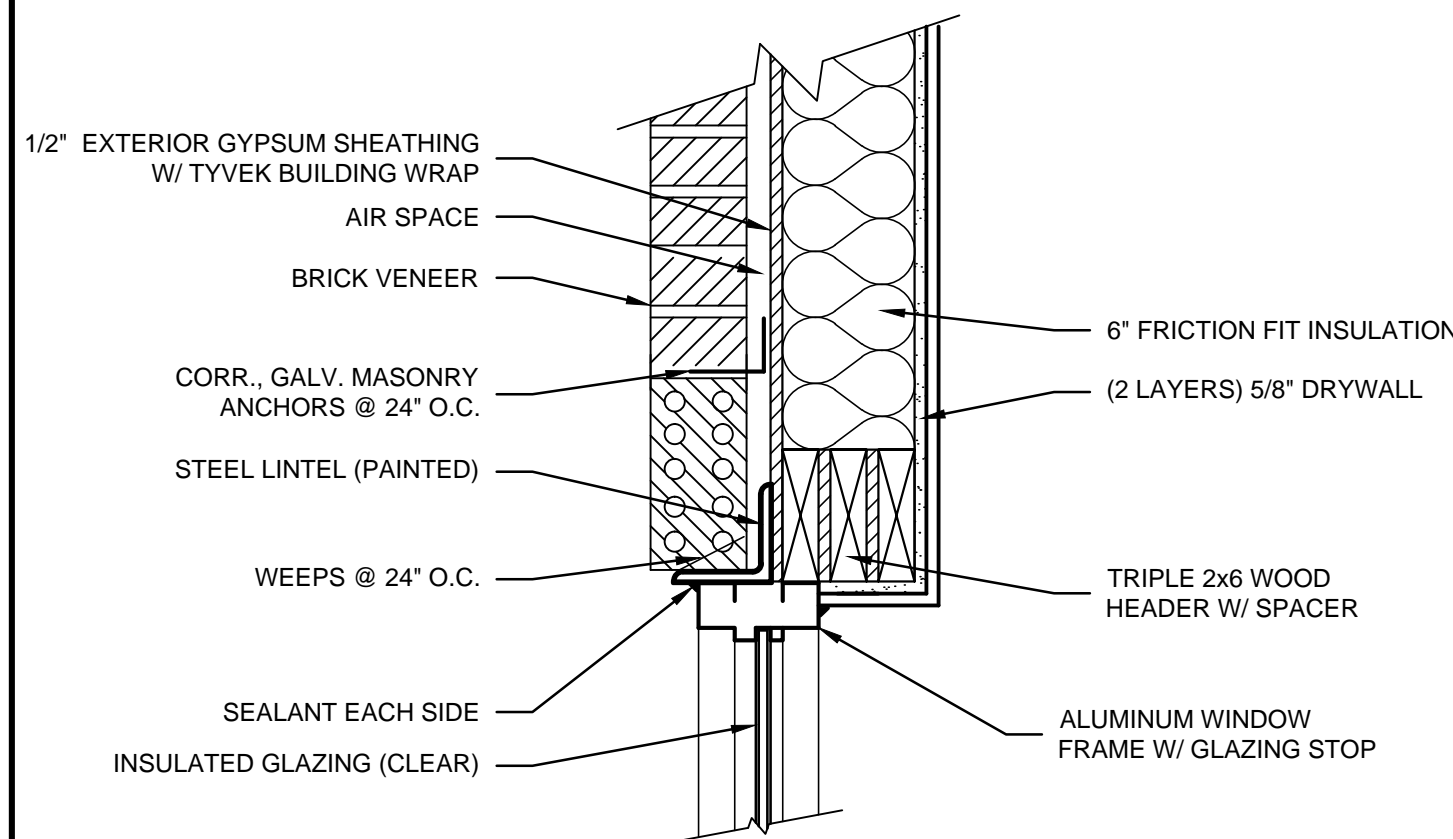
07 INTERIOR WOOD WINDOW SILL
SCALE: 1-1/2" = 1'-0"



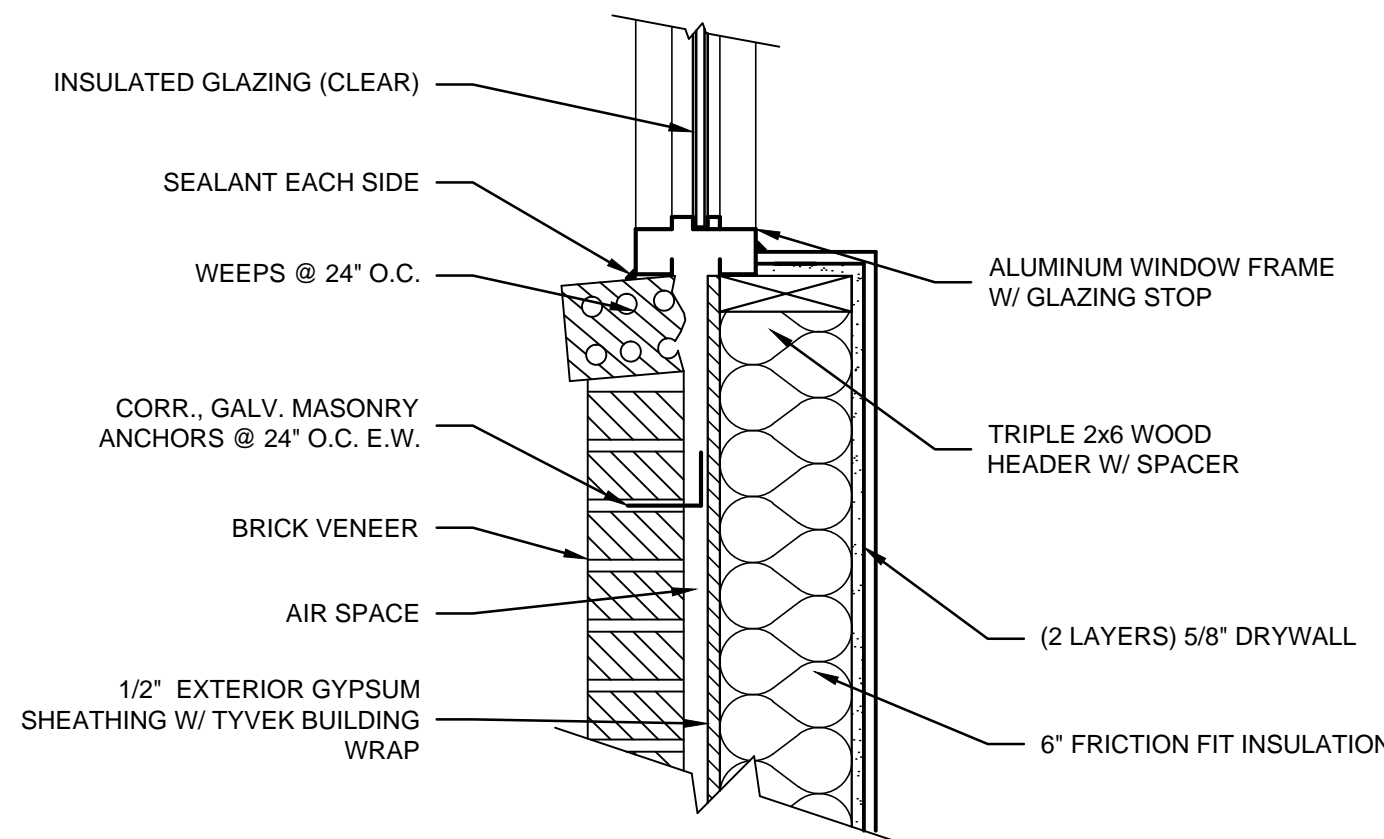
08 INTERIOR WOOD WINDOW HEAD
SCALE: 1-1/2" = 1'-0"



09 ALUMINUM WINDOW JAMB
SCALE: 1 1/2" = 1'-0"



10 ALUMINUM WINDOW HEAD
SCALE: 1 1/2" = 1'-0"



11 ALUMINUM WINDOW SILL
SCALE: 1 1/2" = 1'-0"

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OFFICE ADDITION FOR:

ST GREGORY SCHOOL

330 SAMUELS LOOP
COX CREEK, KY 40013

KEYES ARCHITECTS & ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113



PROJECT NO:
23-4451
DRAWN BY:
DLB/
DATE:
05/17/2024

DOOR AND WINDOW
DETAILS

A6.01

GENERAL NOTES:

- A. REFER TO SPECIFICATIONS AND THE CONTRACT DOCUMENTS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.

B. ALL MECHANICAL WORK SHALL BE PERFORMED BY A LICENSED MECHANICAL CONTRACTOR.

C. ALL WORK SHALL BE COORDINATED AND SCHEDULED WITH THE CONSTRUCTION MANAGER (CM) OR GENERAL CONTRACTOR (GC), OTHER TRADES, THE OWNER, AND RELATED UTILITY COMPANIES. ALL WORK SHALL COINCIDE WITH THE CONSTRUCTION PHASING PER THE CONTRACT DOCUMENTS OR CONSTRUCTION DOCUMENTS AND/OR AS MODIFIED BY THE CM/GC AND APPROVED BY THE OWNER AND DESIGN TEAM. THE MECHANICAL CONTRACTOR SHALL COORDINATE AND DEVELOP A PHASING PLAN WHERE ONE IS NOT EXPLICITLY SHOWN AND SHALL ENSURE THAT SAID PHASING PLAN IS APPROVED PRIOR TO PROCEEDING WITH WORK. ANY AND ALL DEMOLITION SHALL NOT PERMIT INTERRUPTION OF SERVICE IN AN OCCUPIED BUILDING UNLESS COORDINATED AND APPROVED.

D. ALL DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENTS OR GEOMETRICAL RELATIONSHIPS OF DUCTWORK, PIPING, EQUIPMENT, AND SERVICES. THEY ARE NOT INTENDED TO SPECIFY OR SHOW EVERY OFFSET, SEQUENCE, DEVICE, OPTION, FITTING, VALVE, OR COMPONENT. CONTRACTOR TO PROVIDE ANY ADDITIONAL DUCT OR PIPING OFFSETS AND/OR FITTINGS, INCLUDING DIVIDED DUCTS AND FLATTENED DUCTS, REQUIRED FOR PROPER INSTALLATION AND TO MAINTAIN CLEARANCES AS ENCOUNTERED IN THE FIELD.

E. THE MECHANICAL CONTRACTOR SHALL OBTAIN A COPY OF THE ENTIRE SET OF CONTRACT DOCUMENTS PRIOR TO BID AND SHALL COORDINATE ROUTING AND INSTALLATION OF MECHANICAL DUCTWORK, PIPING, AND EQUIPMENT WITH ALL OTHER DISCIPLINES AND TRADES INCLUDING BUT NOT LIMITED TO CIVIL, ARCHITECTURAL, STRUCTURAL, FIRE SUPPRESSION, PLUMBING, AND ELECTRICAL.

F. REFER TO THE ENTIRE SET OF CONTRACT DOCUMENTS FOR DETAILS OF CONSTRUCTION AND INSTALLATION REQUIREMENTS. FURNISH ALL LABOR, MATERIAL, AND EQUIPMENT REQUIRED FOR COMPLETION AND OPERATION OF A FULLY FUNCTIONAL MECHANICAL SYSTEM AND IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS INCLUDING BUT NOT LIMITED TO BUILDING CODE, ASHRAE, IMC, IECC, SMACNA, AND NFPA.

G. THE EXACT LOCATIONS OF ALL EQUIPMENT, DUCTS, DIFFUSERS, ETC. SHALL BE COORDINATED WITH ALL OTHER TRADES. CEILING MOUNTED LIGHTING AND ELECTRICAL REQUIREMENTS TAKE PRECEDENCE OVER CEILING MOUNTED MECHANICAL EQUIPMENT. SEE ARCHITECTURAL REFLECTED CEILING PLANS FOR CEILING GRID AND LIGHTING LAYOUT FOR COORDINATION OF FINAL DIFFUSER LOCATIONS.

H. THE MECHANICAL DRAWINGS REFLECT A "BASIS OF DESIGN" HVAC SYSTEM THAT HAS BEEN DESIGNED AROUND SPECIFIC PRODUCTS/MANUFACTURER'S (SEE SCHEDULES). THE SELECTION OF A "BASIS OF DESIGN" HAS INFLUENCED THE DESIGNS OF OTHER TRADES (ELECTRICAL, STRUCTURAL, ETC.). THE CONTRACTOR MAY USE "NON-BASIS OF DESIGN" PRODUCTS/MANUFACTURER'S AS PERMITTED BY THE SPECIFICATIONS AND/OR CONTRACT DOCUMENTS. COORDINATION OF ALL MODIFICATIONS TO EACH DISCIPLINE WHICH RESULT FROM THE USE OF "NON-BASIS OF DESIGN" EQUIPMENT OR MATERIALS SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR. IF "NON-BASIS OF DESIGN" MANUFACTURERS, SIZES, OR MODEL NUMBERS ARE BID, SUBMITTED, OR INSTALLED, IT IS THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND ALL OF HIS OR HER SUBCONTRACTORS TO COORDINATE ALL DIFFERENCES PRIOR TO BID. ALL COSTS OF ALL TRADES ASSOCIATED WITH THE USE OF "NON-BASIS OF DESIGN" EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR AND SHALL BE INCLUDED IN THE BID. SUBSEQUENTLY, ANY ADDITIONAL COST BORE BY THE ENGINEER (MECHANICAL, ELECTRICAL, ETC) TO ACCOMMODATE "NON-BASIS OF DESIGN" EQUIPMENT SHALL BE BORE BY THE CONTRACTOR AND PAID TO THE ENGINEER OF RECORD DURING SUBMITTALS.

I. NON-BASIS OF DESIGN EQUIPMENT OR MATERIALS AS ALLOWED BY THE SPECIFICATIONS AND/OR CONTRACT DOCUMENTS, WHICH ARE INSTALLED AND SUBSEQUENTLY VIEWED UNSATISFACTORY BY THE OWNER AND/OR ENGINEER WITHIN THE WARRANTY PERIOD, SHALL BE REMOVED COMPLETELY BY THE CONTRACTOR AND REPLACED WITH THE ORIGINAL DESIGN OR CORRECTED AS DIRECTED BY THE ENGINEER WITHOUT ADDITIONAL COST TO THE OWNER.

J. CONTRACTOR SHALL VISIT THE JOB SITE, FIELD VERIFY FIT, COORDINATE WITH OTHER TRADES, AND BECOME FAMILIAR WITH ALL PROJECT CONDITIONS PRIOR TO FABRICATING DUCTWORK, INSTALLING EQUIPMENT, ETC. NO ALLOWANCES WILL BE MADE FOR LACK THEREOF.

K. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION AND COSTS FOR ALL PERMITS, TESTING, AND INSPECTIONS.

L. THE ENTIRE MECHANICAL INSTALLATION SHALL BE AS REQUIRED TO MAINTAIN FIRE/SMOKE RATINGS AND/OR "UL" ASSEMBLY RATINGS AS REQUIRED BY THE CONTRACT DOCUMENTS AND AS SHOWN ON THE ARCHITECTURAL SEAL AROUND ALL PENETRATIONS THROUGH ALL FIRE/SMOKE SEPARATIONS AND/OR "UL" RATED ASSEMBLIES. COORDINATE ALL PENETRATIONS WITH THE CONSTRUCTION MANAGER AND/OR GENERAL CONTRACTOR. PROVIDE ADDITIONAL FIRE DAMPERS, SMOKE DETECTORS, AND SMOKE DAMPERS (INCLUSIVE OF WIRING) AS REQUIRED FOR A FULLY FUNCTIONAL AND CODE COMPLIANT SYSTEM.

M. ALL DUCTWORK, PIPING, AND MECHANICAL EQUIPMENT SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE. NO OTHER TRADES, I.E ELECTRICAL, CEILING, PLUMBING, ETC., SHALL BE SUSPENDED, HUNG, OR SUPPORTED FROM MECHANICAL DUCTWORK OR MECHANICAL PIPING.

N. ALL BUILDING PENETRATIONS MUST BE COORDINATED WITH THE ARCHITECT AND SHALL BE FLASHED AND SEALED WEATHER-TIGHT. ALL MATERIALS AND COLORS MUST BE PRE-APPROVED BY THE ARCHITECT. NEW OPENINGS AND/OR PENETRATIONS FOR MECHANICAL ITEMS SHALL BE CUT, SLEEVED, ETC. BY THE MECHANICAL CONTRACTOR. ALL OPENINGS SHALL BE CORE DRILLED OR SAW-CUT. NO **"HAMMER DRILLING"** WILL BE ALLOWED.

O. ROUTE DUCTWORK AS HIGH AS POSSIBLE TO FACILITATE ACCESS TO ABOVE CEILING SPACE. COORDINATE ROUTING WITH OTHER SERVICES AND TRADES. PROVIDE ADDITIONAL DUCTWORK, OFFSETS, ETC. TO ACCOMMODATE FIELD CONDITIONS AS REQUIRED FOR A COMPLETE AND FUNCTIONING SYSTEM AT NO ADDITIONAL COST. ADDITIONAL OFFSETS REQUIRE APPROVAL FROM THE ENGINEER. ROUTE DUCTWORK BETWEEN JOISTS WHERE POSSIBLE.

P. ALL AIR DEVICES LOCATED ABOVE GYPBOARD OR HARD CEILINGS SHALL HAVE ACCESSIBLE BALANCING DAMPERS.

Q. ALL DUCTWORK SHALL BE CONSTRUCTED AND INSTALLED PER SMACNA HVAC DUCT CONSTRUCTION STANDARDS.

R. PROVIDE AND INSTALL DUCT ACCESS DOORS FOR INSPECTION OF ALL INSTALLED FIRE DAMPERS AS DIRECTED BY SMACNA HVAC CONSTRUCTION STANDARDS.

S. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'-0". ALL FLEXIBLE DUCT SHALL CONFORM TO THE REQUIREMENTS OF UL 181 FLEXIBLE AIR DUCTS. SUPPORT TO ELIMINATE SAGGING AND KINKING. INSULATED FLEXIBLE DUCTS SHALL MEET MINIMUM R-VALUES REQUIRED BY THE IECC.

T. ALL HVAC EQUIPMENT TO BE INSTALLED PER MANUFACTURER'S REQUIREMENTS. UTILIZE FACTORY FILTERS DURING CONSTRUCTION.

U. THE MECHANICAL CONTRACTOR SHALL BALANCE SYSTEM TO AIR QUANTITIES INDICATED ON PLANS AND PROVIDE OWNERS REPRESENTATIVES WITH COMPLETE NEBB/AABC BALANCE REPORT. THE MECHANICAL CONTRACTOR SHALL PROVIDE AS MANY ADDITIONAL SITE VISITS BY THE LICENSED TAB CONTRACTOR AS REQUIRED BY THE ENGINEER FOR A COMPLETE AND FUNCTIONING AND APPROVED SYSTEM IN COMPLIANCE WITH THE CONTRACT DOCUMENTS.

V. PROVIDE A MANUAL VOLUME DAMPER AT ALL BRANCH TAKE-OFFS ON SUPPLY AND RETURN. COORDINATE ADDITIONAL MANUAL VOLUME DAMPER LOCATIONS REQUIRED FOR A FULLY FUNCTIONAL SYSTEM WITH THE ENGINEER PRIOR TO ORDER, FABRICATION, OR INSTALLATION.

W. ALL DUCT DIMENSIONS SHOWN ARE INTERIOR "CLEAR" DUCT DIMENSIONS.

X. MAINTAIN 10'-0" MINIMUM CLEARANCE BETWEEN OUTDOOR AIR INTAKES AND EXHAUST, PLUMBING VENTS, ETC. AND/OR AS REQUIRED BY THE BUILDING CODE, WHICHEVER IS MORE STRINGENT.

Y. MAINTAIN 10'-0" MINIMUM CLEARANCE FROM EDGE OF ROOFTOP EQUIPMENT TO ROOF EDGE UNLESS RAILING OR PARAPET OF SUFFICIENT HEIGHT IS TO BE PROVIDED IN ACCORDANCE WITH ALL APPLICABLE CODES INCLUDING BUT NOT LIMITED TO: IBC, IMC, LOCAL CODES, OSHA GUIDELINES (WHERE APPLICABLE). REFER TO ARCHITECTURAL.

Z. ALL CONTROL WIRING AND CONDUIT SHALL COMPLY WITH NEC.

AA. MECHANICAL CONTRACTOR SHALL COORDINATE WITH ELECTRICAL CONTRACTOR AND DRAWINGS FOR CONNECTIONS AND LOCATION OF ALL EQUIPMENT.

AB. CONTRACTOR SHALL PROVIDE ADDITIONAL OFFSETS OR BENDS IN PIPING AS REQUIRED TO ALLOW FOR EXPANSION AND CONTRACTION DUE TO TEMPERATURE CHANGES AND DIFFERENCES IN THE AMBIENT TEMPERATURE WHEN PIPING AND EQUIPMENT IS INSTALLED.

AC. ALL ROOF PENETRATIONS SHALL BE IN COMPLIANCE WITH THE ROOFING MANUFACTURER'S GUIDELINES AND THE AMERICAN ROOFING COUNCIL. CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AS NECESSARY TO MAINTAIN ALL WARRANTIES.

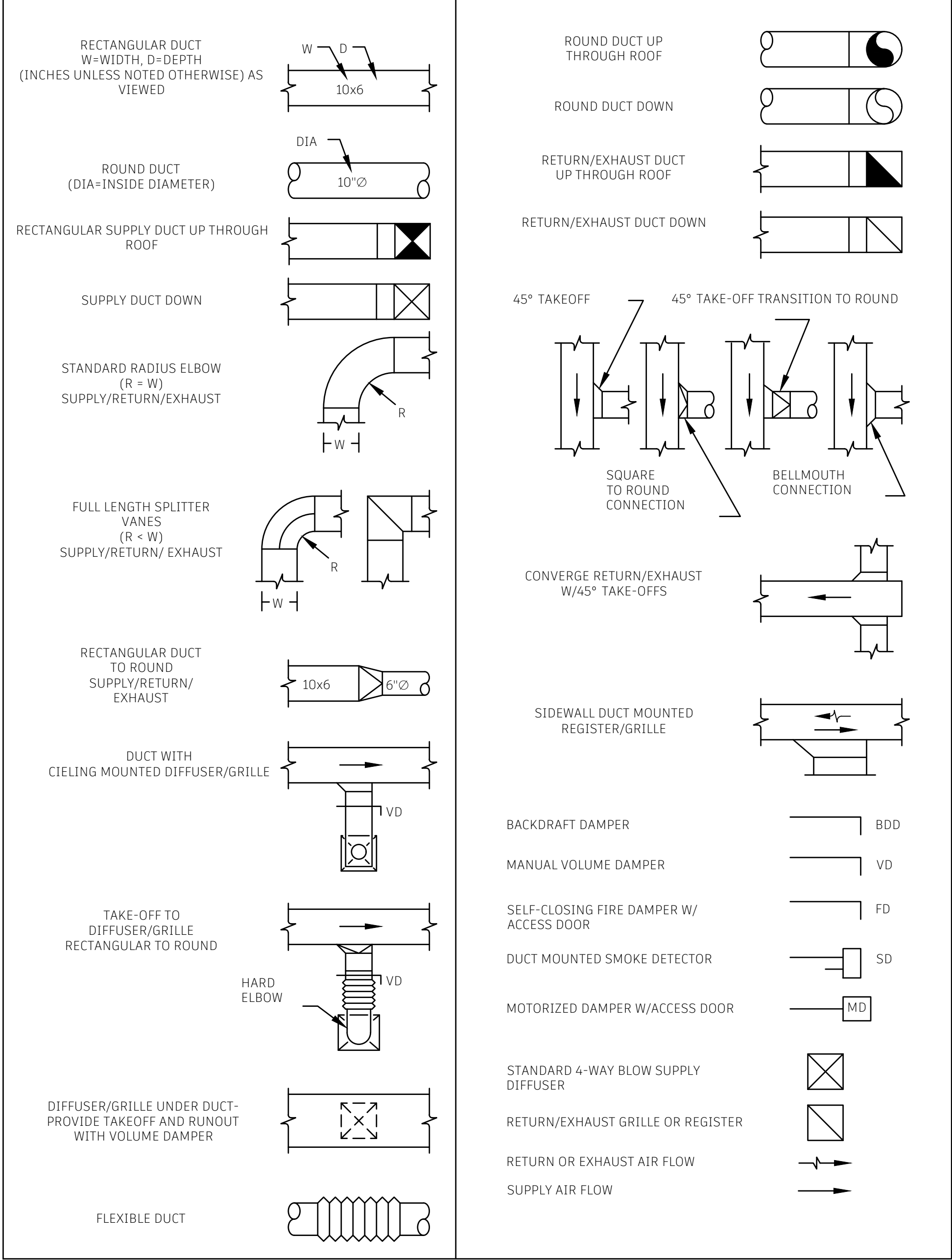
AD. STRUCTURAL MEMBERS SHALL NOT BE CUT OR COMPROMISED IN ANY WAY.

AE. DO NOT BLOCK ACCESS TO HVAC OR ELECTRICAL EQUIPMENT. DO NOT INSTALL PIPING, DUCTWORK, OR EQUIPMENT OVER ELECTRICAL PANELS/SWITCHGEAR OR THE 30" x 42" (W x D) CLEARANCE IN FRONT OF THESE ELECTRICAL ITEMS. COORDINATE ADDITIONAL REQUIREMENTS WITH NEC.

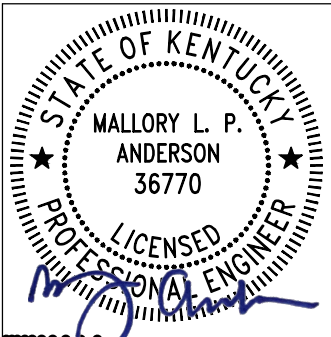
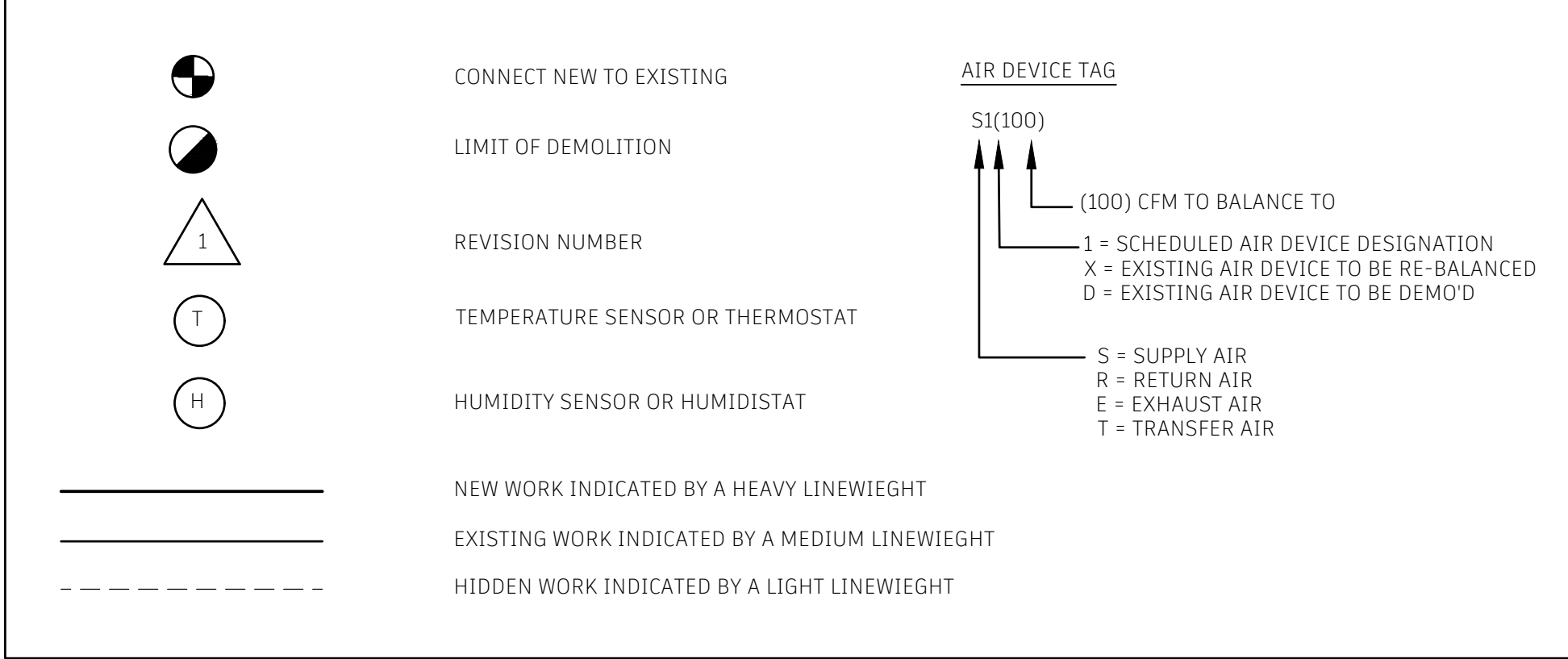
ABBREVIATIONS

GENERAL	
ATF	ABOVE FINISHED FLOOR
AMP	AMPERE
ARCH	ARCHITECT
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BTU PER HOUR
CFM	CUBIC FEET PER MINUTE
DB	DRY BULB TEMPERATURE
DEG	DEGREE
DDC	DIRECT DIGITAL CONTROL
DIA	DIAMETER
DIM	DIMENSION
DP	DIFFERENTIAL PRESSURE
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
ECM	ELECTRONIC COMMUTATED MOTOR
ELEC	ELECTRICAL
ESP	EXTERNAL STATIC PRESSURE
EX	EXISTING
F	FAHRENHEIT
FLA	FULL LOAD AMPS
FLEX	FLEXIBLE
FT	FEET
FT-HD	FEET HEAD
G	GAS
GA	GAUGE
GAL	GALLONS
GALV	GALVANIZED
GC	GENERAL CONTRACTOR
GPM	GALLONS PER MINUTE
HP	HORSEPOWER
HZ	HERTZ (FREQUENCY, CYCLES PER SECOND)
IN	INCHES
KW	KILOWATT
L	LENGTH
LAT	LEAVING AIR TEMPERATURE
MAX	MAXIMUM
MBH	THOUSAND BTUH
MCA	MINIMUM CIRCUIT AMPS
MECH	MECHANICAL
MIN	MINIMUM
N/A	NOT APPLICABLE
NC	NOISE CRITERIA
NO	NUMBER
NOM	NOMINAL
NTS	NOT TO SCALE
OA	OUTSIDE AIR
PD	PRESSURE DROP
PH	PHASE
PVC	POLYVINYL CHLORIDE
QTY	QUANTITY
RA	RETURN AIR
RPM	REVOLUTIONS PER MINUTE
SEN	SENSIBLE
SHC	SENSIBLE HEAT CAPACITY
SP	STATIC PRESSURE
SPECS	SPECIFICATIONS
SQ	SQUARE
SF	SQUARE FEET
SUP	SUPPLY
T	TEMPERATURE
TEMP	TEMPERATURE
TSTAT	THERMOSTAT
TON	12,000 BTUH COOLING CAPACITY
TYP	TYPICAL
V	VOLTS (ELECTRICAL)
WB	WET BULB TEMPERATURE
DUCTWORK	
EA	EXHAUST AIR
E	EXHAUST GRILLE
FD	FIRE DAMPER (W/ ACCESS DOOR)
MD	MOTOR OPERATED DAMPER
MUA	MAKE-UP AIR
OA	OUTSIDE AIR
OBD	OPPOSED BLADE DAMPER
RA	RETURN AIR
R	RETURN GRILLE
SA	SUPPLY AIR
S	SUPPLY GRILLE
TSP	TOTAL STATIC PRESSURE (IN. WG)
VD	VOLUME DAMPER
EQUIPMENT	
DDC	DIRECT DIGITAL CONTROL
EF	EXHAUST FAN
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MUA	MAKE-UP AIR UNIT
RTU	ROOF TOP UNIT

DUCTWORK



GENERAL SYMBOLOGY

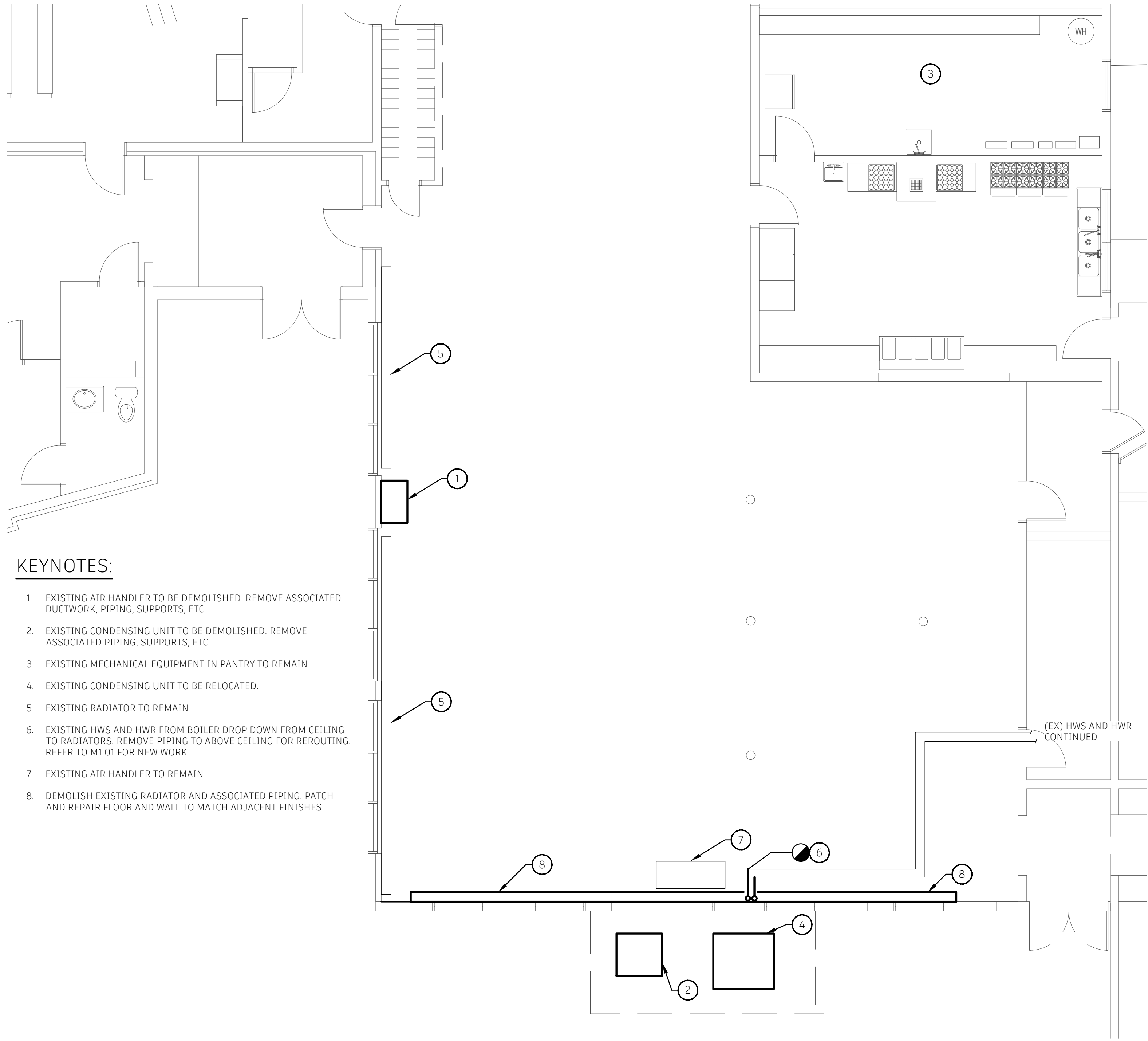


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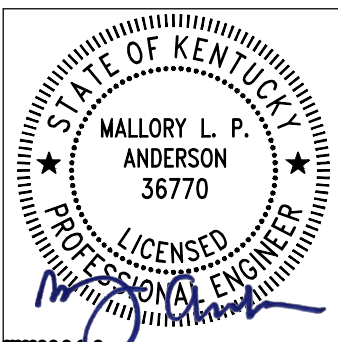
MASTERPLANNING
ST GREGORY SCHOOL
400 SAMUELS LOOP
COX CREEK, KY 40013

PROJECT: ST GREGORY SCHOOL - FILE: MD101 MECHANICAL DEMO PLAN.dwg - DATE: Feb 09, 2025 3:57PM - BY: MALLORY ANDERSON

PROJECT NO:
23-4451
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MLA
DATE:



① MECHANICAL DEMOLITION PLAN
3/16" = 1'-0"



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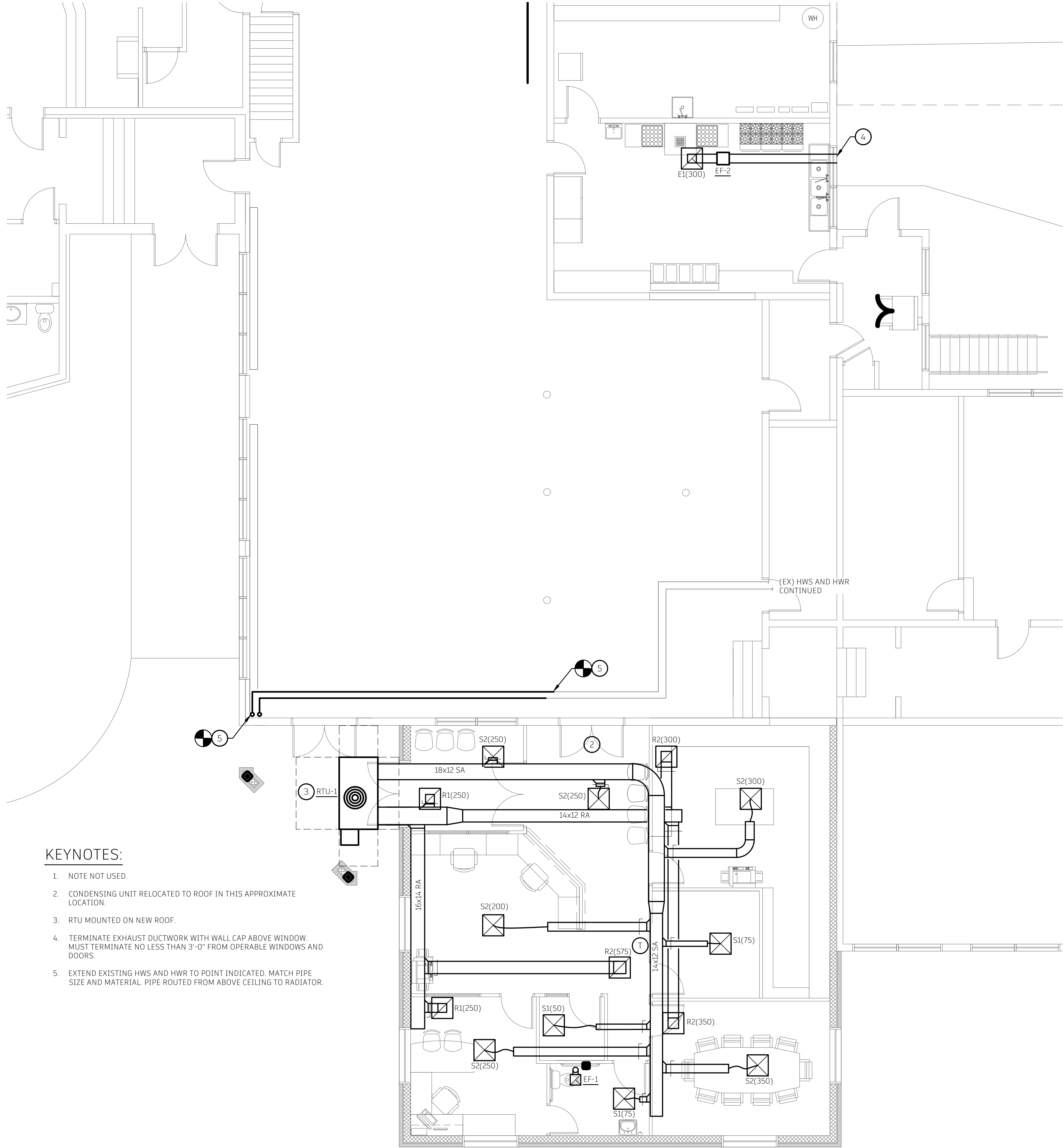
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MECHANICAL
DEMOLITION
MD1.01

PROJECT: ST GREGORY SCHOOL - FILE: M101 MECHANICAL FLOOR PLAN.dwg - DATE: Feb 09, 2025 3:57PM - BY: MALLORY ANDERSON

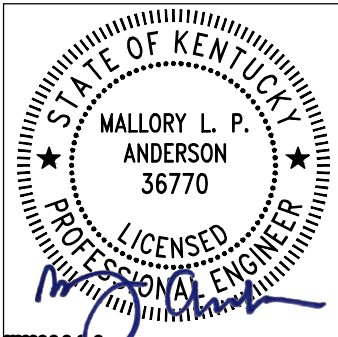
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DATE:



KEYNOTES:

1. NOTE NOT USED.
2. CONDENSING UNIT RELOCATED TO ROOF IN THIS APPROXIMATE LOCATION.
3. RTU MOUNTED ON NEW ROOF.
4. TERMINATE EXHAUST DUCTWORK WITH WALL CAP ABOVE WINDOW. MUST TERMINATE NO LESS THAN 3'-0" FROM OPERABLE WINDOWS AND DOORS.
5. EXTEND EXISTING HWS AND HWR TO POINT INDICATED. MATCH PIPE SIZE AND MATERIAL. PIPE ROUTED FROM ABOVE CEILING TO RADIATOR.

① MECHANICAL PLAN
3/16" = 1'-0"

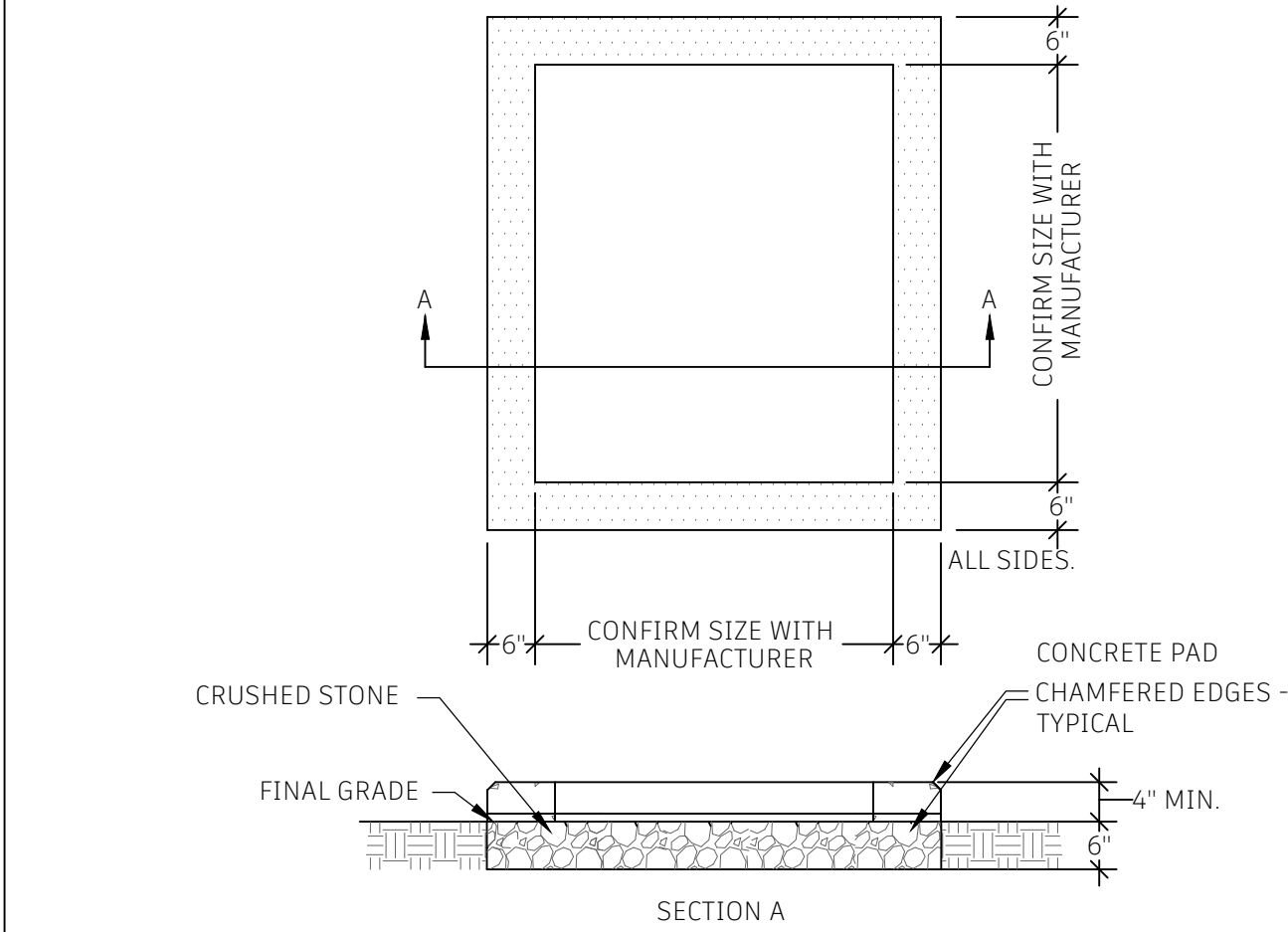


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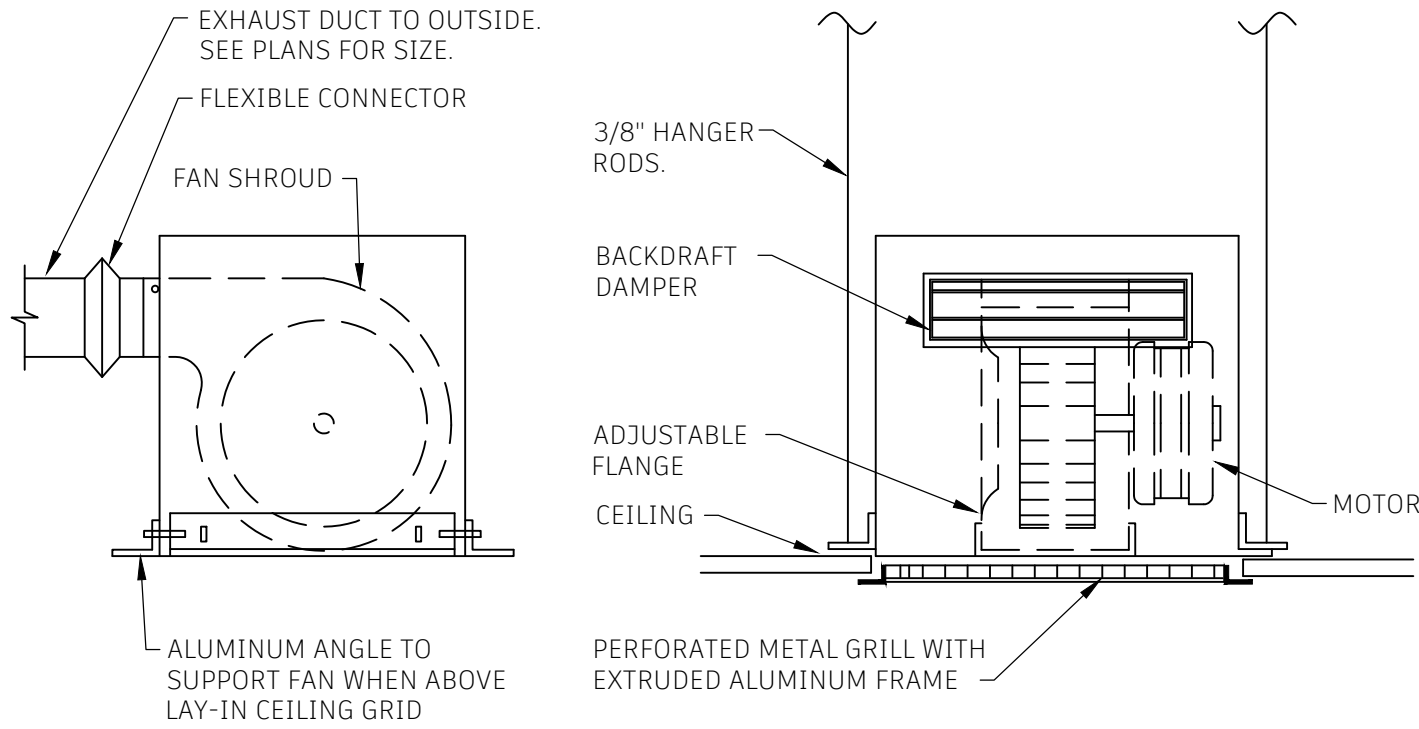
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MECHANICAL
FLOOR PLAN
M1.01



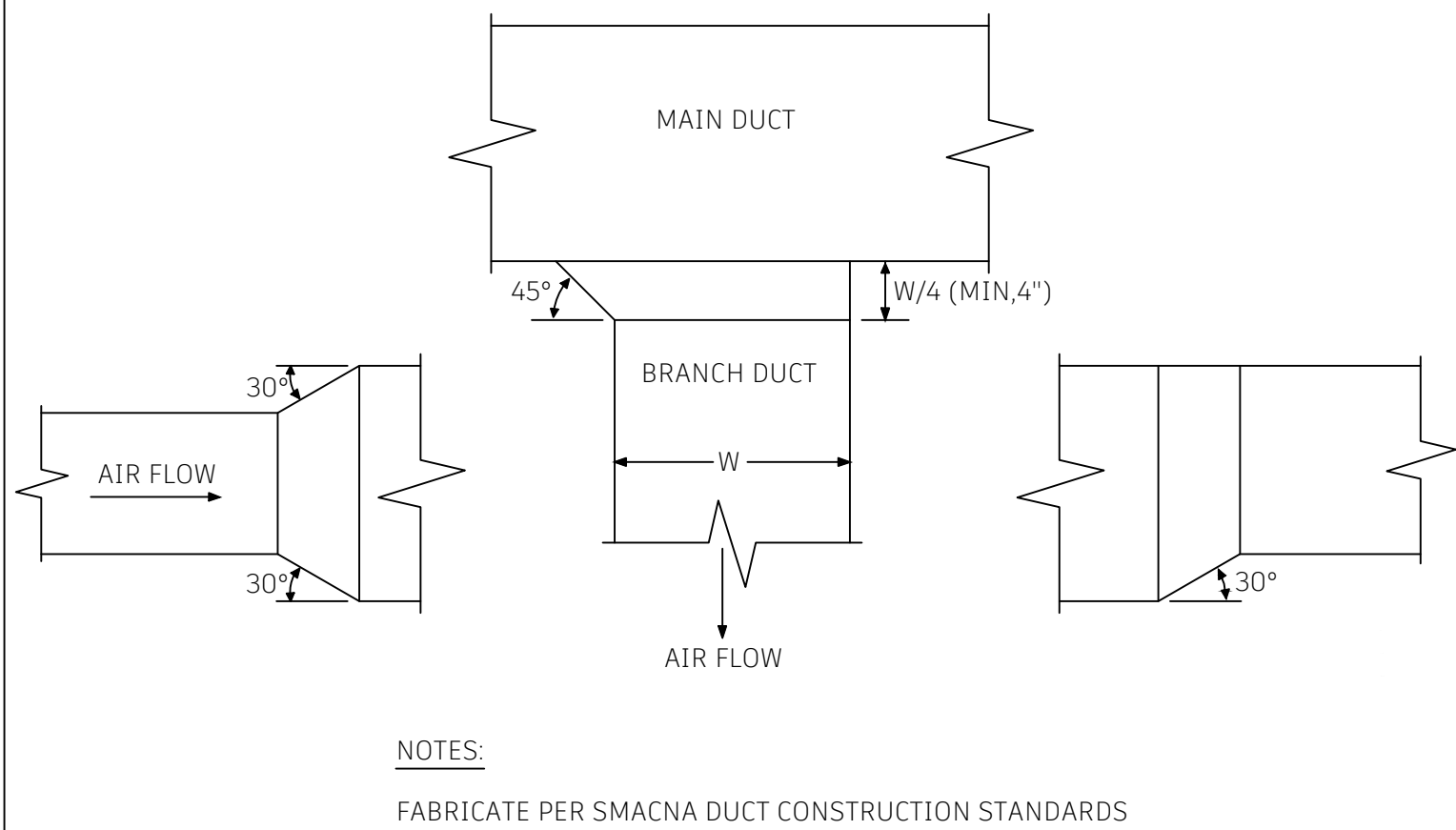
CONCRETE PAD DETAIL

NOT TO SCALE



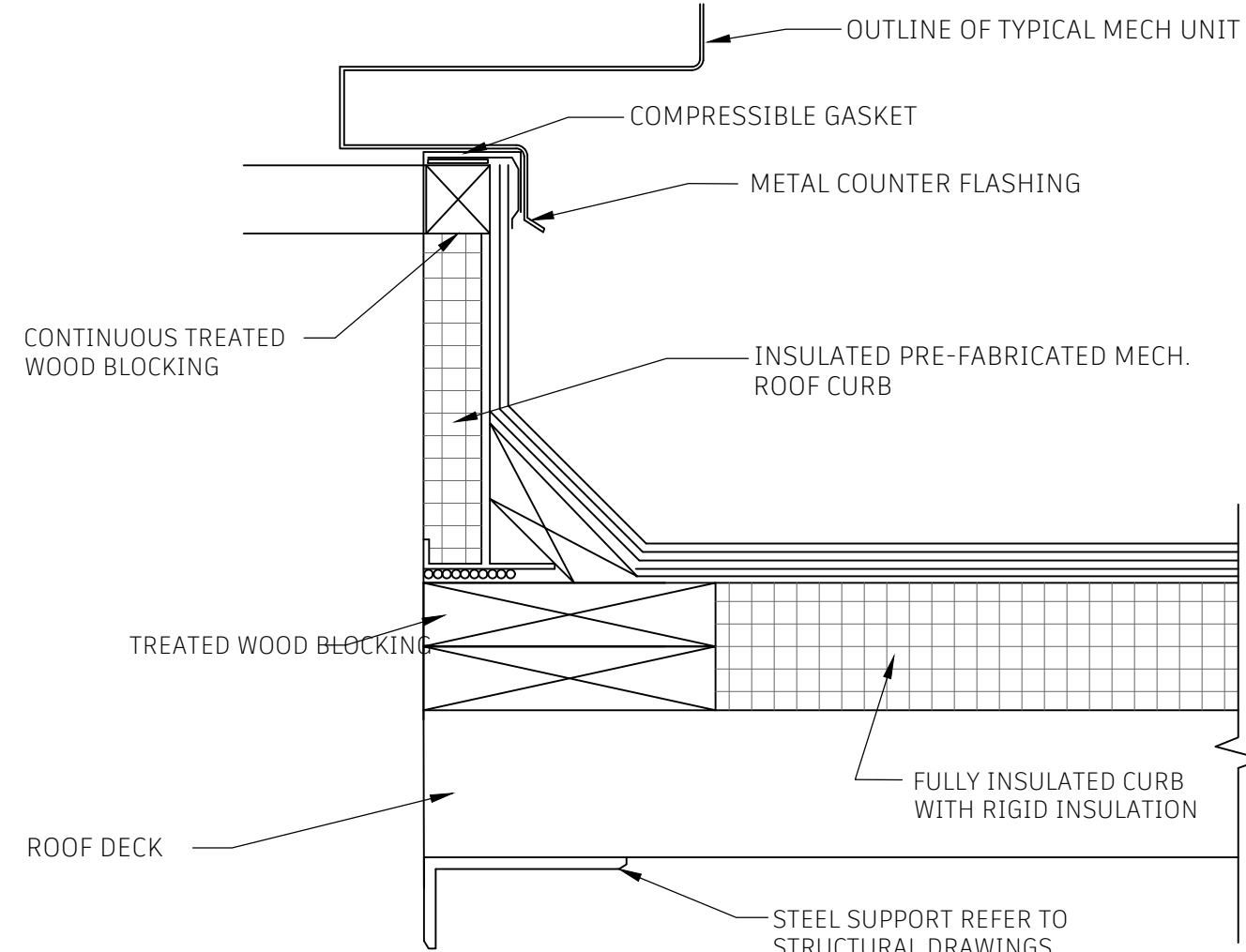
CEILING CABINET FAN DETAIL

NOT TO SCALE



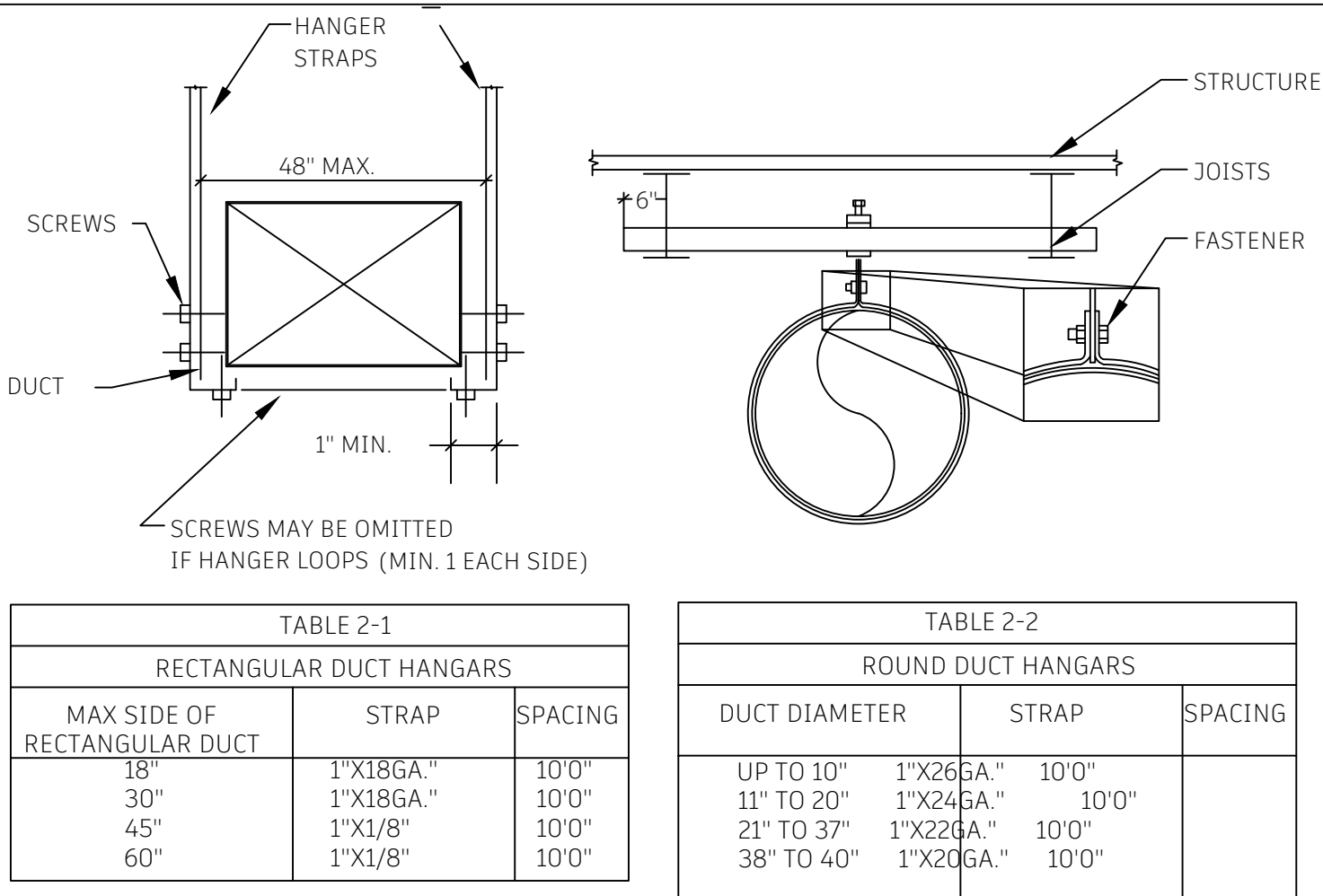
DUCT CONNECTION DETAIL

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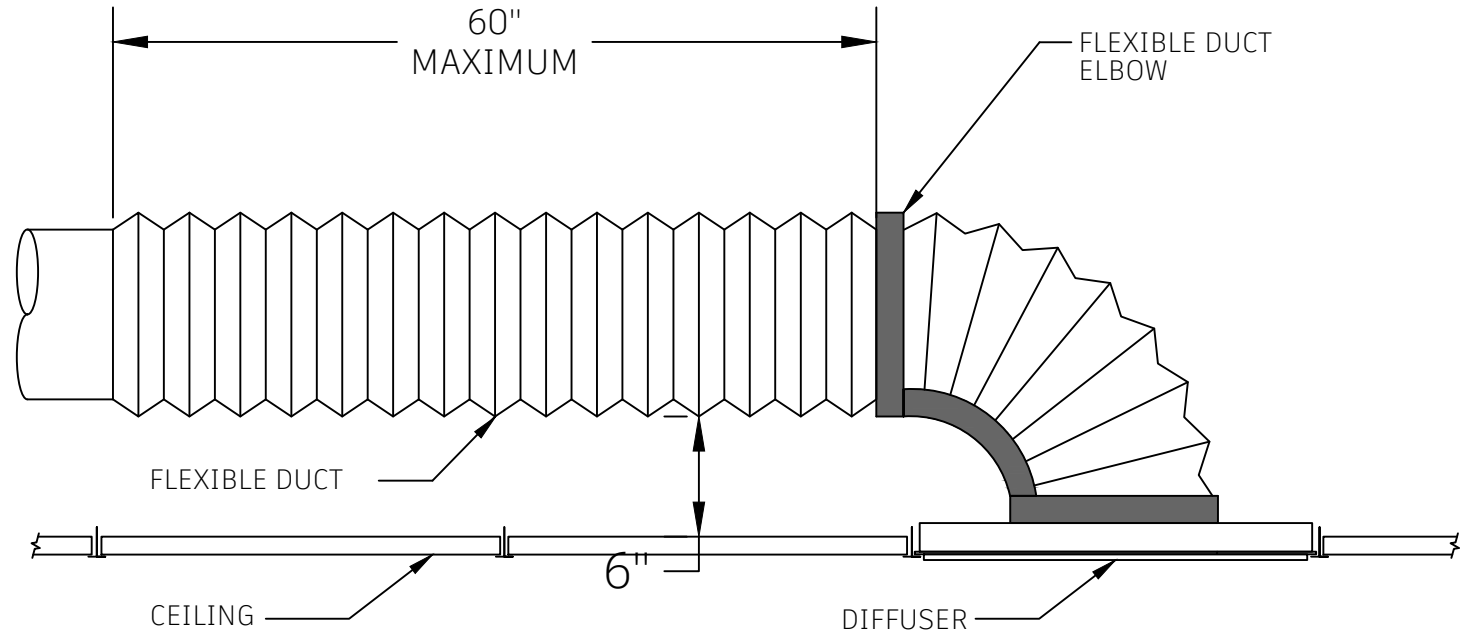
ROOFTOP UNIT CURB DETAIL

NOT TO SCALE



DUCT HANGER DETAIL

NOT TO SCALE



FLEX DUCT CONNECTION TO DIFFUSER DETAIL

NOT TO SCALE

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	CFM	ESP (IN H2O)	DRIVE TYPE	RPM	ELECTRICAL				REMARKS
							V/Ø/Hz	WATTS	MCA	MOCP	
EF-1	GREENHECK	SP-A90	75	0.25	DIRECT	900	115/1/60	15	0.2	15	1-6
EF-2	GREENHECK	CSP-A390	300	0.5	DIRECT	1350	115/1/60	135	1.8	15	1-3,6,7
REMARKS: 1. PROVIDE WITH UNIT MOUNTED DISCONNECT. 2. PROVIDE WITH UNIT MOUNTED SPEED CONTROL. 3. PROVIDE WITH APPROPRIATE BACKDRAFT DAMPER. 4. TERMINATE WITH ROOF CAP. 5. EXHAUST FAN TO OPERATE WITH LIGHTING CONTROL. 6. SUPPORT FROM THE STRUCTURE WITH VIBRATION ISOLATION HARDWARE. 7. FAN TO OPERATE BASED ON 7-DAY PROGRAMMABLE TIME CLOCK. OTHER ACCEPTABLE MANUFACTURERS INCLUDE: CARNES, COOK. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.											

AIR DEVICE SCHEDULE

MARK	MANUFACTURER	MODEL	MAX CFM	MODULE	MOUNTING	DUCT RUN OUT SIZE	REMARKS
S-1	PRICE	SCD	50 - 75	24X24	LAY-IN	6"Ø	ALL
S-2	PRICE	SCD	200 - 350	24X24	LAY-IN	10"Ø	ALL
R-1	PRICE	80	250	24X24	LAY-IN	10x10	1-3,5,6
R-2	PRICE	80	300 - 575	24X24	LAY-IN	12x12	1-3,5,6
E-1	PRICE	80	300	24X24	LAY-IN	10x10	1-3,5,6
REMARKS: 1. PROVIDE WITH WHITE FINISH. 2. COORDINATE AIR DEVICE LOCATIONS WITH REFLECTED CEILING PLANS PRIOR TO INSTALLATION. LIGHTING HAS PRIORITY OVER HVAC. 3. PROVIDE SQUARE TO ROUND ADAPTER AS REQUIRED. 4. PROVIDE WITH INSULATED BACK. 5. N.C. SHALL NOT EXCEED 20. 6. PROVIDE WITH APPROPRIATE ACCESSORIES FOR MOUNTING TYPE INDICATED. OTHER ACCEPTABLE MANUFACTURERS INCLUDE: PRICE, NAILOR. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.							

VENTILATION SCHEDULE - 2015 IMC

UNIT	AREA SERVED	AREA (SQ FT)	ROOM TYPE	CFM/SQ FT	NO. OF OCCUPANTS	CFM/PERSON	EXHAUST AIR (CFM)	TOTAL OUTSIDE AIR REQUIRED (CFM)	TOTAL OUTSIDE AIR PROVIDED (CFM)
RTU-1	VESTIBULE 102	109	MAIN ENTRY LOBBY	0.06	3	5	-	22	25
	WAITING AREA 103	238	MAIN ENTRY LOBBY	0.06	4	5	-	34	35
	FRONT OFFICE 104	234	OFFICE SPACE	0.06	2	5	-	24	25
	WORK ROOM 105	320	OFFICE SPACE	0.06	5	5	-	44	45
	OFFICE 106	95	OFFICE SPACE	0.06	2	5	-	16	20
	CONFERENCE 107	240	CONFERENCE	0.06	10	5	-	64	65
	TOILET 108	72	RESTROOM	-	-	-	75	-	-
	SICK ROOM 109	30	OFFICE SPACE	0.06	1	5	-	7	10
EF-2	PRINCIPAL 110	188	OFFICE SPACE	0.06	3	5	-	26	30
	KITCHEN	420	KITCHEN	-	-	-	294	-	-

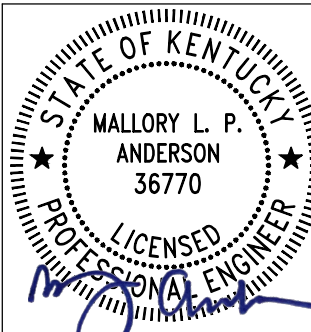
PACKAGED UNIT SCHEDULE

UNIT					SUPPLY FAN				EAT		LAT		COOLING			HEAT PUMP HEATING		LP HEATING				ELECTRICAL			REMARKS
MARK	MANUFACTURER	MODEL	WEIGHT	SEER	AIRFLOW (CFM)	OUTSIDE AIR (CFM)	ESP (inH ² O)	BHP	EDB / EWB (F)	LDB / LWB (F)	TOTAL CAPACITY (MBH)	SENSIBLE CAPACITY (MBH)	TYPE	QTY	REFRIGERANT	TOTAL CAPACITY @ 47° F (MBH)	TOTAL CAPACITY @ 17° F (MBH)	INPUT (MBH)	OUTPUT (MBH)	EAT (° F)	LAT (° F)	V/Ø/Hz	MCA	MOCP	
RTU-1	AAON	RQ-005-8-H	1000	15	1800	255	0.75	1.13	77/64	55 / 54	58	45	SCROLL	1	R-410A	52	30	60	48	65	90	208/3/60	35	50	ALL
REMARKS: 1. COOLING DESIGN CONDITIONS: 92F DB / 75F WB AMBIENT. HEATING AMBIENT DESIGN CONDITIONS BASED ON 10F DB / 7F WB. 2. AIR SOURCE HEAT PUMP WITH SUPPLEMENTAL LP HEAT 3. PROVIDE ROOF TOP UNIT WITH ROOF CURB. 4. PROVIDE ECONOMIZER WITH BAROMETRIC RELIEF. 5. SINGLE POINT POWER CONNECTION WITH FACTORY INSTALLED DISCONNECT SWITCH AND 115V GFI CONVENIENCE OUTLET. 6. PROVIDE WITH PHASE PROTECTION / PHASE MOTOR KIT. 7. PROVIDE UNIT WITH 2", 30% EFFICIENCY PRIMARY FILTERS. 8. PROVIDE WITH HAIL GUARD. 9. PROVIDE WITH REMOTE WALL MOUNT THERMOSTAT.																									
OTHER ACCEPTABLE MANUFACTURERS INCLUDE: JCI, CARRIER, AAON, TRANE. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.																									

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MECHANICAL
SCHEDULES

M5.01

SECTION 23 01 00 - GENERAL PROVISIONS FOR MECHANICAL

PART 1 - GENERAL

11 SUMMARY

A. THIS SECTION COVERS THE GENERAL ARRANGEMENT OF THE MECHANICAL SYSTEMS AND RELATED ITEMS TO COMPLETE THE WORK AS SHOWN ON THE DRAWINGS AND AS SPECIFIED HEREIN.

B. THE GENERAL AND SPECIAL CONDITIONS AND ALL OTHER CONTRACT DOCUMENTS ARE APPLICABLE TO WORK UNDER THIS SECTION OF THE SPECIFICATIONS. ALL THE WORK UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE GOVERNED BY ANY ALTERNATES AND UNIT PRICES CALLED FOR IN THE FORM OF PROPOSAL INsofar AS THEY AFFECT THIS PORTION OF THE WORK.

C. THE CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE WORK OF ALL OTHER TRADES, GENERAL TYPE CONSTRUCTION AND THE RELATIONSHIP OF HIS WORK TO OTHER SECTIONS. HE SHALL EXAMINE ALL WORKING DRAWINGS, SPECIFICATIONS AND CONDITIONS AFFECTING HIS WORK. THE CONTRACTOR SHALL VISIT THE PREMISES AND THOROUGHLY FAMILIARIZE HIMSELF WITH ALL DETAILS OF THE WORK AND WORKING CONDITIONS, VERIFY ALL DIMENSIONS IN THE FIELD AND ADVISE THE ENGINEER OF ANY DISCREPANCY BEFORE PERFORMING ANY WORK.

D. THE WORK SHALL INCLUDE COMPLETE TESTING OF ALL EQUIPMENT AND PIPING AT THE COMPLETION OF THE WORK AND MAKING ANY MINOR CONNECTION CHANGES OR ADJUSTMENTS NECESSARY FOR THE PROPER FUNCTIONING OF THE SYSTEM AND EQUIPMENT.

E. THE CONTRACTOR SHALL PERFORM ALL NECESSARY TEMPORARY WORK DURING CONSTRUCTION.

F. WORK UNDER THIS SECTION SHALL CONFORM TO ALL GOVERNING CODES, ORDINANCES AND REGULATIONS OF THE CITY, COUNTY AND STATE.

G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ERRORS IN FABRICATION, FOR THE CORRECT FITTING, INSTALLATION AND ERECTION OF THE VARIOUS MECHANICAL SYSTEMS AS SHOWN ON THE DRAWINGS.

H. ANY MATERIALS, LABOR, EQUIPMENT, OR SERVICES NOT MENTIONED SPECIFICALLY HEREIN WHICH MAY BE NECESSARY TO COMPLETE ANY PART OF THE ME/PP SYSTEMS IN A SUBSTANTIAL MANNER AND IN COMPLIANCE WITH THE REQUIREMENTS STATED, IMPLIED, OR INTENDED IN THE PLANS AND/OR SPECIFICATIONS, SHALL BE INCLUDED IN THE BID AS PART OF THIS CONTRACT.

I. THE CONTRACTOR SHALL HOLD HARMLESS AND INDEMNIFY THE ENGINEER, ARCHITECT, EMPLOYEES, OFFICERS, AGENTS AND CONSULTANTS FROM ALL CLAIMS, LOSS, DAMAGE, ACTIONS, CAUSES OF ACTIONS, EXPENSE AND/OR LIABILITY RESULTING FROM, BROUGHT FOR, OR ON ACCOUNT OF ANY PERSONAL INJURY OR PROPERTY DAMAGE RECEIVED OR SUSTAINED BY ANY PERSON, PERSONS, (INCLUDING THIRD PARTIES), OR ANY PROPERTY GROWING OUT OF, OCCURRING, OR ATTRIBUTABLE TO ANY WORK PERFORMED UNDER OR RELATED TO THIS CONTRACT, RESULTING IN WHOLE OR IN PART FROM THE NEGLIGENCE OF THE CONTRACTOR, ANY SUB-CONTRACTOR, ANY EMPLOYEE, AGENT OR REPRESENTATIVE.

12 SCOPE

A. THIS BRANCH OF THE WORK INCLUDES COORDINATION WITH ALL UTILITY COMPANIES, AGENCY REVIEW FEES AND ALL INSPECTION FEES, ALL LABOR, MATERIALS, TOOLS, EXCAVATION AND BACKFILL AND ALL EQUIPMENT NECESSARY FOR THE INSTALLATION OF ALL HEATING, VENTILATING AND AIR CONDITIONING, SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFICATIONS AND/OR AS REQUIRED FOR COMPLETE AND OPERATING SYSTEMS. THE WORK SHALL INCLUDE STARTING, BALANCING, AND THE NECESSARY AND REQUIRED TESTS TO INSURE THE PROPER OPERATION OF THE COMPLETE SYSTEM.

B. IN GENERAL (AS A MINIMUM) ALL MATERIALS AND EQUIPMENT MUST BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS, AND PROVIDED WITH ALL REQUIRED CONTROLS, INTERNAL FUSING, RELAYS, PIPING CONNECTIONS, ELECTRICAL CONNECTIONS, DUCTWORK CONNECTIONS, ETC., TO PROVIDE FOR COMPLETE AND OPERABLE SYSTEMS.

C. THE ARCHITECT AND ENGINEER DO NOT DEFINE THE SCOPE OF INDIVIDUAL TRADES, SUB-CONTRACTORS, MATERIAL SUPPLIERS AND VENDORS. ANY SHEET NUMBERING SYSTEM OR SPECIFICATION NUMBERING SYSTEM USED WHICH IDENTIFIES DISCIPLINES IS SOLELY FOR THE ARCHITECT AND ENGINEERS CONVENIENCE AND IS NOT INTENDED TO DEFINE A SUB-CONTRACTOR'S SCOPE OF WORK. INFORMATION REGARDING INDIVIDUAL TRADES, SUB-CONTRACTORS, MATERIAL SUPPLIERS AND VENDORS MAY BE DETAILED, DESCRIBED, AND INDICATED AT DIFFERENT LOCATIONS THROUGHOUT THE CONTRACT DOCUMENTS. NO CONSIDERATION WILL BE GIVEN TO REQUESTS FOR CHANGE ORDERS FOR FAILURE TO OBTAIN AND REVIEW THE COMPLETE SET OF CONTRACT DOCUMENTS WHEN PREPARING BIDS, PRICES, AND QUOTATIONS. UNLESS STATED OTHERWISE, THE SUBDIVISION AND ASSIGNMENT OF WORK UNDER THE VARIOUS SECTIONS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR HOLDING THE PRIME CONTRACT.

D. IT IS THE RESPONSIBILITY OF THE BIDDER TO COMPLETELY REVIEW THE CONTRACT DOCUMENTS, ANY INTERPRETATION AS TO DESIGN INTENT OR SCOPE SHALL BE PROVIDED BY THE ENGINEER / ARCHITECT. SHOULD AN INTERPRETATION BE REQUIRED, THE BIDDER SHALL REQUEST A CLARIFICATION NOT LESS THAN TEN (10) DAYS PRIOR TO THE SUBMISSION OF THE PROPOSAL. SO THAT THE CONDITION MAY BE CLARIFIED BY ADDITIONAL MEANS. IN THE EVENT OF ANY CONFLICT, DISCREPANCY, OR INCONSISTENCY DEVELOPS, THE INTERPRETATION OF THE ENGINEER SHALL BE FINAL.

E. THE CONTRACTOR SHALL GIVE WRITTEN NOTICE OF ANY MATERIALS OR APPARATUS BELIEVED INADEQUATE OR UNSUITABLE; IN VIOLATION OF LAWS, ORDINANCES, CODES, RULES, OR REGULATIONS OF AUTHORITIES HAVING JURISDICTION; AND ANY NECESSARY ITEMS OF WORK OMITTED A MINIMUM OF TEN (10) DAYS PRIOR TO BID. IN THE ABSENCE OF SUCH WRITTEN NOTICE AND BY THE ACT OF SUBMITTING A BID, IT SHALL BE UNDERSTOOD THAT THE CONTRACTOR HAS INCLUDED THE COST OF ALL REQUIRED ITEMS IN THE BID, AND THAT WILL BE RESPONSIBLE FOR THE APPROVED SATISFACTORY FUNCTIONING OF THE ENTIRE SYSTEM WITHOUT EXTRA COMPENSATIONS.

13 DRAWINGS AND SPECIFICATIONS

A. CONTRACT DRAWINGS FOR WORK UNDER THIS SECTION ARE IN PART DIAGMATIC, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT, PIPING AND THE APPROXIMATE SIZE AND LOCATION OF EQUIPMENT AND OUTLETS. THE CONTRACTOR SHALL FOLLOW THESE DRAWINGS IN LAYING OUT HIS WORK AND SHALL VERIFY SIZES IN WHICH HIS WORK WILL BE INSTALLED, INDICATING TO THE ENGINEER WHERE ANY CONFLICTS OR OVERLAPPING OF WORK MAY OCCUR. ANY CONFLICTS OR OVERLAPPING SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. ANY CHANGES TO THE PLANS, MECHANICAL, ARCHITECTURAL, STRUCTURAL OR ELECTRICAL, SPECIFICATIONS, CODES AND FIELD CONDITIONS, SHALL BE CLARIFIED BY A WRITTEN REQUEST TO THE ARCHITECT BY THE BIDDER BEFORE BIDDING, OTHERWISE, THE BIDDER SHALL, AT HIS OWN EXPENSE, SUPPLY THE PROPER LABOR AND MATERIALS TO INCLUDE THESE ITEMS OF WORK AND TO MAKE GOOD ANY WORKING CONDITIONS WHICH MAY BE CREATED BY SUCH CONFLICTS OR OVERLAPPING. UNDER NO CIRCUMSTANCES SHALL A CONTRACTOR SCALE THE DRAWINGS FOR THE LOCATION OF EQUIPMENT AND WORK.

B. IN THE EVENT THERE IS A CONFLICT WITHIN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. IF A CLARIFICATION IS NOT GIVEN, THE CONTRACTOR SHALL BID THE MORE STRINGENT OF THE TWO REQUIREMENTS.

C. SHOULD CONFLICT, OVERLAP OR DUPLICATION OF WORK BETWEEN THE VARIOUS TRADES BECOME EVIDENT, THIS SHALL BE CALLED TO THE ATTENTION OF THE ENGINEER. NEITHER TRADE SHALL ASSUME TO BE RELIEVED OF THE WORK WHICH IS SPECIFIED UNDER THEIR BRANCH UNTIL INSTRUCTIONS IN WRITING ARE RECEIVED FROM THE ENGINEER.

D. WHERE JOB CONDITIONS REQUIRE REASONABLE CHANGES IN INDICATED LOCATIONS AND ARRANGEMENT, PROPOSED DEPARTURES SHALL BE SUBMITTED WITH DETAILED DRAWINGS TO THE ENGINEER FOR APPROVAL BEFORE ANY OF THE PROPOSED WORK IS COMMENCED. ALL APPROVED DEPARTURES SHALL BE MADE AT NO ADDITIONAL COST TO THE OWNER.

E. THE DRAWINGS AND THE SPECIFICATIONS ARE INTENDED TO INDICATE COMPLETE AND WORKING SYSTEMS, UNLESS SPECIFICALLY INDICATED TO THE CONTRARY. THE WORK INCLUDES THE FURNISHING, INSTALLING, AND CONNECTING OF A COMPLETE WORKING INSTALLATION IN EACH CASE TO THE FULL EXTENT SET FORTH IN THE DRAWINGS AND HEREIN SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE FUNCTIONING SYSTEM, UNLESS SPECIFICALLY NOTED OTHERWISE.

F. THE DRAWINGS AND SPECIFICATIONS CONSTITUTE THE CONTRACT DOCUMENTS AND SHALL BE CONSIDERED AS COOPERATIVE. WORK AND MATERIAL INCLUDED IN EITHER, THOUGH NOT MENTIONED IN BOTH, SHALL BE A PART OF THE WORK TO BE ACCOMPLISHED AND SHALL BE CARRIED OUT COMPLETLY IN AS THOROUGH MANNER AS IS COVERED BY BOTH. ALL ITEMS SHOWN ON THE DRAWINGS AND/OR LISTED IN THE SPECIFICATIONS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR UNLESS SPECIFICALLY NOTED THAT IT WILL BE PROVIDED AND/OR INSTALLED BY OTHERS. IN THE EVENT THERE IS A CONFLICT WITHIN THE CONTRACT DOCUMENTS, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IMMEDIATELY. IF A CLARIFICATION IS NOT GIVEN, THE CONTRACTOR SHALL BID THE MORE STRINGENT OF THE TWO REQUIREMENTS.

G. BECAUSE OF THE SMALL SCALE OF THE DRAWINGS, IT IS NOT POSSIBLE TO INDICATE ALL OFFSETS, FITTINGS AND ACCESSORIES THAT ARE REQUIRED TO COMPLETE THE STRUCTURAL AND FINISH WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR AFFECTING ALL HIS WORK AND SHALL ARRANGE SUCH WORK, ACCORDINGLY, FURNISHING SUCH FITTINGS, PIPE, TRAPS, VALVES, AND ACCESSORIES AS MAY BE REQUIRED TO MAKE A FUNCTIONAL INSTALLATION AT NO ADDITIONAL COST TO THE OWNER.

H. MECHANICAL AS-BUILT "RECORD DRAWINGS" SHALL BE KEPT UP TO DATE EACH DAY. "RECORD DRAWINGS" SHALL BE REVIEWED BY ARCHITECT/ENGINEER EACH MONTH WITH CONTRACTOR'S PAY REQUEST REVIEW.

I. ANY DEVIATION IN WORK AS SHOWN ON PLANS AND SPECIFICATIONS MUST BE APPROVED IN WRITING BY ARCHITECT/ENGINEER PRIOR TO INSTALLATION.

J. EACH CONTRACTOR SHALL REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR THE GENERAL CONSTRUCTION OF THE BUILDING, FOR FLOOR AND CEILING HEIGHTS, FOR LOCATION OF WALLS, PARTITIONS, BEAMS ETC., AND SHALL BE GUIDED ACCORDINGLY FOR THE SETTING OF ALL SLEEVES AND EQUIPMENT.

K. UNDER NO CIRCUMSTANCES SHALL A CONTRACTOR SCALE THE DRAWINGS FOR THE LOCATIONS OF EQUIPMENT AND WORK.

L. COORDINATION: CONFER WITH ALL OTHER TRADES RELATIVE TO LOCATION OF ALL APPARATUS AND EQUIPMENT TO BE INSTALLED AND SELECT LOCATIONS SO AS NOT TO CONFLICT WITH OR HINDER THE PROGRESS OF THE WORK OF OTHER SECTIONS. WHEN INSTALLED ACCESS REQUIRED BY CODE (INCLUDING CLEARANCES TO ELECTRICAL COMPONENTS) OR TO CONDUCT MAINTENANCE AND/OR ADJUSTMENTS SHALL BE MODIFIED AT NO ADDITIONAL COST TO THE OWNER.

M. CODES, STANDARDS, AUTHORITIES AND PERMITS: CODES, LAWS AND ORDINANCES PROVIDE A BASIS FOR THE MINIMUM INSTALLATION CRITERIA. THESE DRAWINGS AND SPECIFICATIONS ILLUSTRATE THE SCOPE REQUIRED FOR THIS PROJECT, WHICH MAY EXCEED MINIMUM CODE, LAW AND STANDARDS CRITERIA. GIVE NOTICES, FILE PLANS, OBTAIN PERMITS AND LICENSES, PAY FEES AND BACKCHARGES AND OBTAIN NECESSARY APPROVALS FROM AUTHORITIES HAVING JURISDICTION AS REQUIRED FOR THE EXECUTION OF ALL WORK ASSOCIATED WITH THIS PROJECT. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST EDITIONS OF: 1) THE STATE BUILDING, ELECTRICAL, MECHANICAL, AND ENERGY CODES, 2) SMACNA, NFPA, ANSI/ASHRAE, ASME, UL, AND NEMA STANDARDS, 3) ALL OTHER APPLICABLE CODES, REGULATIONS, STANDARDS AND LAWS OF LOCAL, STATE AND FEDERAL GOVERNMENT AND OTHER AUTHORITIES HAVING JURISDICTION, AND 4) APPLICABLE BASE BUILDING STANDARDS AND SPECIFICATIONS.

14 EXAMINATION OF SITE

A. BIDDERS SHALL VISIT THE SITE BEFORE SUBMITTING PROPOSALS TO SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF THE WORK AND ANY DIFFICULTIES ATTENDING TO THE EXECUTION

B. THE SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, MATERIALS, ETC., REQUIRED FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE, WILL NOT BE RECOGNIZED.

15 CUTTING AND PATCHING

A. ALL CUTTING AND PATCHING REQUIRED IN CONNECTION WITH THE INSTALLATION OF THIS WORK, AND WORK DUE TO ERRORS, DEFECTIVE WORK, ILL-TIMED WORK, OR TARDINESS IN PROPERLY DESIGNATING SIZE AND LOCATION IN SUFFICIENT TIME OR BY FAILURE TO NOTIFY OTHER TRADES, SHALL BE DONE UNDER THIS SECTION, BUT ONLY IN THE MANNER DIRECTED BY THE ENGINEER SO AS TO PREVENT OR MINIMIZE DAMAGE TO INSTALLED WORK. DAMAGE AS A RESULT OF CUTTING FOR INSTALLATION, SHALL BE REPAIRED BY MECHANICS SKILLED IN THE TRADE INVOLVED, AT NO ADDITIONAL EXPENSE TO THE OWNER.

B. NO CUTTING OF STRUCTURAL MEMBERS WILL BE PERMITTED, EXCEPT WHEN PRIOR PERMISSION OF THE ENGINEER HAS BEEN OBTAINED. THIS WORK MUST CONFORM IN EVERY RESPECT TO THE SURROUNDING FINISH AND TO THE QUALITY OF WORKMANSHIP AND MATERIALS USED.

C. PIERCING OF ANY WATERPROOFING OR ROOFING SHALL BE DONE ONLY BY THE TRADE INVOLVED. AFTER THE PART PIERCING THE WATERPROOFING HAS BEEN SET IN PLACE, THE OPENING MADE FOR THIS PURPOSE SHALL BE FILLED AND MADE ABSOLUTELY WATERTIGHT TO THE SATISFACTION OF THE ENGINEER.

D. SEE SECTION 230517 - SLEEVING, CUTTING, PATCHING AND REPAIRING - MECHANICAL.

16 FIRE AND SMOKE-STOPPING

A. FIRE-STOPPING AND SMOKE-STOPPING SHALL BE PROVIDED AROUND ALL PIPING AND DUCTWORK PENETRATIONS OF FIRE RATED AND/OR SMOKE-RATED FLOORS, WALLS, CEILINGS, OR OTHER BARRIERS.

B. THE MATERIALS USED SHALL BE UL 263 OR UL 1479 CLASSIFIED AND MEET ASTM E814 STANDARDS AND BE RATED FOR ASSEMBLIES WHERE APPLIED.

C. CLEAN SURFACES TO BE IN CONTACT WITH PENETRATION SEAL, MATERIALS, OF DIRT, GREASE, OIL, LOOSE MATERIALS, RUST, OR OTHER SUBSTANCES THAT MAY AFFECT PROPER FITTING, ADHESION, OR THE REQUIRED FIRE RESISTANCE.

D. INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.

E. SEAL HOLES OR VOIDS MAY BE PENETRATIONS TO ENSURE AN EFFECTIVE FIRE AND/OR SMOKE BARRIER.

F. PROTECT MATERIALS FROM DAMAGE ON SURFACES SUBJECT TO TRAFFIC.

G. STOP INSULATION FLUSH WITH WALL ON INSULATED PIPE AND SEAL EDGES.

H. ALL EXPOSED PIPING PASSING THROUGH FLOORS, CEILINGS AND WALLS IN FINISHED AREAS SHALL BE FITTED WITH A CHROME PLATED ESCUTCHEON OF SUFFICIENT OUTSIDE DIAMETER TO AMPLY COVER THE SLEEVED OPENING AND AD INSIDE DIAMETER TO CLOSELY FIT THE PIPE AROUND WHICH IT IS INSTALLED.

I. GALVANIZED SHEET METAL COLLARS SHALL BE PROVIDED AROUND ALL DUCTS, EQUIPMENT, ETC., EXPOSED IN FINISHED AREAS WHERE SUCH OPENINGS ARE FINISHED AND THE SPACE AROUND THE UNIT IS SMALL, THE COLLAR MAY BE OMITTED WITH THE APPROVAL OF THE ARCHITECT.

17 ACCESS PANELS

A. THE MECHANICAL CONTRACTOR SHALL FURNISH ALL OTHER ACCESS PANELS NEEDED FOR ACCESS TO VALVES, OPEN RECEIPTABLES, VENTS, FIRE DAMPERS, MECHANICAL UNITS, ETC., IN INACCESSIBLE LOCATIONS INSTALLED UNDER THIS DIVISION OF THE WORK.

B. ACCESS PANELS SHALL HAVE A MINIMUM SIZE OF 12" X 12" AND SHALL BE CENTERED BENEATH EQUIPMENT FOR ACCESSIBILITY AND MAINTENANCE. ACCESS PANELS MUST BE OF ADEQUATE SIZE TO SERVICE, OBSERVE, REMOVE, AND MAINTAIN EQUIPMENT.

C. ACCESS PANELS SHALL BE EQUAL TO THE TYPES SPECIFIED UNDER THE ARCHITECTURAL SPECIFICATIONS, AS A MINIMUM THE ACCESS PANELS SHALL BE EQUIVALENT TO AUCOR PRODUCTS, CENDREX, INC., MIFAB, INC., LANE-AIRE MANUFACTURING, 14 GAUGE WITH VANDAL PROOF LOCK AND FRAME AS SELECTED BY ARCHITECT. ACCESS PANELS SHALL BE FIRE RATED WHEN INSTALLED IN FIRE RATED CONSTRUCTION.

D. ACCESS PANELS SHALL HAVE A PRIMED WHITE FINISH.

E. CEILING TYPES

1. IN AREAS WITH SUSPENDED ACOUSTICAL TILE CEILINGS (INSTALLED ON EXPOSED METAL GRID SUSPENSION SYSTEM SO THAT THE TILE MAY BE READILY REMOVED), EQUIPMENT, VALVES, ETC., INSTALL ABOVE THESE CEILINGS WILL BE CONSIDERED TO BE ACCESSIBLE.

2. ALL PLASTERED CEILINGS OR CEILINGS HAVING CONCEALED SPLINE TYPE OF SUSPENSION SYSTEM WILL BE CONSIDERED AS NOT REQUIRED FOR ACCESSIBILITY TO EQUIPMENT; THEREFORE, ACCESS PANELS WILL BE REQUIRED.

3. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR THE TYPES OF CEILINGS THROUGHOUT THE BUILDING.

F. ACCESS PANELS SHALL BE INSTALLED BY SUB-CONTRACTOR SPECIALIZED IN ACCESS PANEL INSTALLATION.

18 WARRANTY AND SERVICE

A. ALL EQUIPMENT SHALL BE WARRANTED FOR A PERIOD OF AT LEAST ONE (1) YEAR FROM THE DATE OF ACCEPTANCE, AS EVIDENCED BY DATE OF SUBSTANTIAL COMPLETION FOR THE ENTIRE PROJECT OR FOR THE LAST PHASE OF THE PROJECT, WHICHEVER OCCURS LATER, AGAINST DEFECTIVE MATERIALS, DESIGN, AND WORKMANSHIP.

19 AS-BUILT DRAWINGS

A. THE CONTRACTOR SHALL DELIVER TO THE ENGINEER AT THE COMPLETION OF THE WORK, ONE (1) PRINT OF "AS-BUILT" DRAWINGS, SHOWING LEGIBLY AND ACCURATELY, PLUMBING AND PIPING SYSTEMS WITH EQUIPMENT LOCATIONS SHOWN AS ACTUALLY INSTALLED. CHANGES IN ORIGINAL PLANS SHALL BE NEATLY SHOWN IN RED PENCIL. EACH PRINT SHALL BE SIGNED BY THE SUB-CONTRACTOR WHO HAS DONE THE WORK.

B. DURING CONSTRUCTION, THE CONTRACTOR SHALL RETAIN A SET OF BLUE LINE DRAWINGS ON THE SITE FOR RECORDING ALL CHANGES. THESE DRAWINGS SHALL BE AVAILABLE FOR INSPECTION BY THE ENGINEER.

C. OPERATION AND MAINTENANCE DATA: SUBMIT (3) SETS OF OPERATING AND MAINTENANCE MANUALS PRIOR TO THE COMPLETION OF THE PROJECT. PROVIDE ON-SITE DEMONSTRATION OF ALL SYSTEMS TO OWNER AFTER SYSTEMS ARE FULLY OPERATIONAL. O&M MANUALS SHALL INCLUDE ALL COMPONENTS (DIFFUSERS, VALVES, ETC.) AS WELL AS SYSTEM DESCRIPTIONS OF ALL SYSTEMS WITH FLOW DIAGRAMS, WRITTEN WARRANTIES, RECOMMENDED SPARE PARTS AND ROUTINE MAINTENANCE REQUIREMENTS WITH RECOMMENDED INTERVALS FOR ALL MOVING EQUIPMENT AND CONTROLS.

110 SAFETY PRECAUTIONS: LIFE SAFETY AND ACCIDENT PREVENTION SHALL BE A PRIMARY CONSIDERATION, COMPLY WITH ALL OF THE SAFETY REQUIREMENTS OF THE OWNER AND OSHA THROUGHOUT THE ENTIRE CONSTRUCTION PERIOD OF THE PROJECT. FURNISH, PLACE AND MAINTAIN PROPER GUARDS AND ANY OTHER NECESSARY CONSTRUCTION REQUIRED TO SECURE SAFETY OF LIFE AND PROPERTY.

111 PROJECT CLOSEOUT: A CERTIFICATE OF COMPLETION SHALL BE ISSUED BY THE CONTRACTOR INDICATING THAT THE INSTALLATION IS IN CONFORMANCE WITH ALL PERMITS, ORDINANCES, AND LOCAL, STATE AND FEDERAL STATUTES AND CODES. ALL SUBMITTALS, AS-BUILTS, O&M MANUALS, AND BALANCING REPORTS ARE TO BE PROVIDED, FOR ENGINEER'S REVIEW, PRIOR TO REQUEST FOR COMPLETION CERTIFICATES. IN ADDITION, AND ALSO PRIOR TO REQUEST FOR COMPLETION CERTIFICATES, ALL PUNCH LIST ITEMS MUST BE COMPLETED TO THE SATISFACTION OF THE ENGINEER. THE CONTRACTOR MUST VERIFY THAT ALL SEQUENCES OF OPERATIONS AND CONTROLS HAVE BEEN INCORPORATED AND ALL SYSTEMS AND EQUIPMENT ARE WORKING PER THE SPECIFIED SEQUENCES OF OPERATIONS. A BLANK CONTRACTOR'S CERTIFICATE FORM CAN BE FURNISHED BY ROK ENGINEERS UPON REQUEST. FINAL OBSERVATION/ WALK-THROUGH BY THE ENGINEER SHALL BE CONDUCTED AFTER RECEIPT OF THE CERTIFICATE OF COMPLETION. PREMATURE REQUESTS FOR FINAL OBSERVATION/ WALK-THROUGH THAT REQUIRE REOBSERVATION OF DEFICIENT ITEMS WILL RESULT IN BACK CHARGES OF THE COSTS ASSOCIATED WITH THE REOBSERVATION.

SECTION 23 05 17 - SLEEVING, CUTTING, PATCHING AND REPAIRING FOR MECHANICAL

PART 1 - GENERAL

11 SUMMARY

A. THIS SECTION INCLUDES REQUIREMENTS FOR THE MECHANICAL CONTRACTOR RELATED TO SLEEVING, CUTTING, PATCHING, AND REPAIRING ASSOCIATED WITH MECHANICAL WORK.

12 WORK INCLUDED

A. SLEEVES AND ESCUTCHEONS

A. CAST-IRON WALL PIPES: CAST OR FABRICATED OF CAST OR DUCTILE IRON AND EQUIVALENT TO DUCTILE-IRON PRESSURE PIPE, WITH PLAIN ENDS AND INTEGRAL WATER STOP UNLESS OTHERWISE INDICATED.

B. GALVANIZED-STEEL WALL PIPES: ASTM A 53/A 53M, SCHEDULE 40, WITH PLAIN ENDS AND WELDED STEEL COLLAR, ZINC COATED.

C. GALVANIZED-STEEL-PIPE SLEEVES: ASTM A 53/A 53M, TYPE E, GRADE B, SCHEDULE 40, ZINC COATED, WITH PLAIN ENDS.

D. PVC-PIPE SLEEVES: ASTM D 1785, SCHEDULE 40.

E. GALVANIZED-STEEL-SHEET SLEEVES: 0.0239-INCH MINIMUM THICKNESS, ROUND TUBE CLOSED WITH LONGITUDINAL JOINT.

22 ESCUTCHEONS

A. ESCUTCHEONS SHALL BE BEATON AND CALDWELL, CARPENTER AND PATTERSON; FEE AND MASON OR APPROVED EQUIVALENT. CHROMIUM-PLATED IRON OR CHROMIUM-PLATED BRASS, EITHER ONE PIECE OR SPLIT PATTERNS, HELD IN PLACE BY INTERNAL SPRING TENSION OR SET SCREW THAT COMPLETELY COVERS OPENING.

PART 3 - EXECUTION

31 GENERAL

A. THE CONTRACTOR SHALL BE SUBJECT TO ALL OPENINGS, SLEEVES, TRENCHES, ETC., THAT HE MAY REQUIRE OR CREATE BY DEMOLITION IN FLOORS, ROOFS, CEILINGS, WALLS, ETC. AND SHALL COORDINATE ALL SUCH WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES. COORDINATE WITH THE GENERAL CONTRACTOR, ANY OPENINGS WHICH HE IS TO PROVIDE BEFORE SUBMITTING A BID PROPOSAL. IN ORDER TO AVOID CONFLICT AND DISAGREEMENT DURING CONSTRUCTION, IMPROPERLY LOCATED OPENINGS SHALL BE REWORKED AT THE EXPENSE OF THE CONTRACTOR.

B. THE CONTRACTOR SHALL PLAN HIS WORK AHEAD AND SHALL PLACE SLEEVES, FRAMES OR FORMS THROUGH THE WALLS, FLOORS, AND CEILINGS DURING THE INITIAL CONSTRUCTION, WHERE IT IS NECESSARY FOR PIPING, DUCTWORK, CONDUIT, ETC., TO GO THROUGHOUT; HOWEVER, WHEN THIS IS NOT DONE, THE CONTRACTOR SHALL DO ALL CUTTING AND PATCHING REQUIRED FOR THE INSTALLATION OF HIS WORK, OR HE SHALL PAY OTHER TRADES FOR DOING THIS WORK WHEN SO DIRECTED BY THE ENGINEER. ANY DAMAGE CAUSED TO THE BUILDINGS BY THE WORKMEN OF THE RESPONSIBLE CONTRACTOR MUST BE CORRECTED OR RECTIFIED BY HIM AT HIS OWN EXPENSE.

C. THE CONTRACTOR SHALL NOTIFY OTHER TRADES IN DUE TIME WHERE HE WILL REQUIRE OPENINGS OR CHASES IN NEW CONCRETE OR MASONRY. HE SHALL SET ALL CONCRETE INSERTS AND SLEEVES FOR HIS WORK. FAILING TO DO THIS, HE SHALL CUT OPENINGS FOR HIS WORK AND PATCH SAME AS REQUIRED AT HIS OWN EXPENSE.

D. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROPERLY SHORING, BRACING, SUPPORTING, ETC., ANY EXISTING AND/OR NEW CONSTRUCTION TO GUARD AGAINST CRACKING, SETTLING, DISPLACING, OR WEAKENING WHILE OPENINGS ARE BEING MADE. ANY DAMAGE OCCURRING TO THE EXISTING AND/OR NEW STRUCTURES, DUE TO FAILURE TO EXERCISE PROPER PRECAUTIONS OR DUE TO ACTION OF THE ELEMENTS SHALL BE PROMPTLY AND PROPERLY MADE GOOD TO THE SATISFACTION OF THE ENGINEER.

E. ALL WORK IMPROPERLY DONE OR NOT DONE AT AS ALL REQUIRED BY THE MECHANICAL TRADES IN THIS SECTION, WILL BE PERFORMED BY THE CONTRACTOR AT THE DIRECTION OF THE TRADE WHOSE WORK IS AFFECTED.

32 SLEEVES

A. INSTALL SLEEVES FOR PIPING PASSING THROUGH PENETRATIONS IN FLOORS, PARTITIONS, ROOFS, AND WALLS.

B. FOR SLEEVES THAT WILL HAVE SLEEVE-SEAL SYSTEM INSTALLED, SELECT SLEEVES OF SIZE LARGE ENOUGH TO PROVIDE 1-INCH ANNUAL CLEAR SPACE BETWEEN PIPING AND CONCRETE SLABS AND WALLS.

1. SLEEVES ARE NOT REQUIRED FOR CORE-DRILLED HOLES.

2. INSTALL SLEEVES IN CONCRETE FLOORS, CONCRETE ROOF SLABS, AND CONCRETE WALLS AS NEW SLABS AND WALLS ARE CONSTRUCTED.

1. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES.

a. EXCEPTION: EXTEND SLEEVES INSTALLED IN FLOORS OF MECHANICAL EQUIPMENT AREAS OR OTHER WET AREAS 2 INCHES ABOVE FINISHED FLOOR LEVEL.

2. USING GROUT, SEAL THE SPACE OUTSIDE OF SLEEVES IN SLABS AND WALLS WITHOUT SLEEVE-SEAL SYSTEM.

2. INSTALL SLEEVES FOR PIPES PASSING THROUGH INTERIOR PARTITIONS

1. CUT SLEEVES TO LENGTH FOR MOUNTING FLUSH WITH BOTH SURFACES.

2. INSTALL SLEEVES THAT ARE LARGE ENOUGH TO PROVIDE 1/4-INCH (6.4-MM) ANNUAL CLEAR SPACE BETWEEN SLEEVE AND PIPE OR PIPE INSULATION

3. SEAL ANNUAL SPACE BETWEEN SLEEVE AND PIPING OR PIPING INSULATION, USE JOINT SEALANTS APPROPRIATE FOR SIZE, DEPTH, AND LOCATION OF JOINT.

E. FIRE-BARRIER PENETRATIONS: MAINTAIN INDICATED FIRE RATING OF WALLS, PARTITIONS, CEILINGS, AND FLOORS AT PIPE PENETRATIONS. SEAL PIPE PENETRATIONS WITH FIRESTOP MATERIALS

F. PIPES PASSING THROUGH WATERPROOFING MEMBRANES: PIPES PASSING THROUGH FLOOR WATERPROOFING MEMBRANE SHALL BE INSTALLED THROUGH 4-POUND LEAD-FASHING SLEEVE, OR A 0.032-INCH THICK ALUMINUM SLEEVE, EACH WITH AN INTEGRAL SKIRT OR FLANGE. FLASHING SLEEVE SHALL BE SUITABLY FORMED, AND THE SKIRT OF FLANGE SHALL EXTEND NOT LESS THAN 8 INCHES FROM THE PIPE AND SHALL SET OVER THE FLOOR MEMBRANE IN A TROWELED COATING OF BITUMINOUS CEMENT. THE FLASHING SLEEVE SHALL EXTEND UP THE PIPE A MINIMUM OF 1 INCH ABOVE THE FLOOR. THE ANNUAL SPACE BETWEEN THE FLASHING SLEEVE AND THE METAL JACKET COVERED INSULATION SHALL BE SEALED. AT THE CONTRACTORS OPTION, PIPES PASSING THROUGH FLOOR WATERPROOFING MEMBRANE MAY BE INSTALLED THROUGH A CAST IRON SLEEVE WITH CALLKING RECESS, ANCHOR LUGS, FLASHING CLAMP DEVICE, AND A PRESSURE RING WITH BRASS BOLTS. WATERPROOFING MEMBRANE SHALL BE CLAMPED INTO SPACE AND SEALANT SHALL BE PLACED IN THE CALLKING RECESS.

G. PIPES PASSING THROUGH ROOF: PIPES PASSING THROUGH THE ROOF SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS. ANY PENETRATION IN ROOF SHALL BE APPROVED BY THE ROOFING MANUFACTURER.

H. OPENINGS FOR DUCTWORK, FIXTURES, EQUIPMENT, ETC. THROUGH FLOORS, WALLS, CEILING, AND ROOFS, SHALL BE LOCATED AND SIZED BY THE CONTRACTOR AND THIS DIVISION WORK SHALL PROVIDE AND SET NECESSARY LINTELS, SLEEVES, AND SHEET METAL FORMS FOR ALL SUCH OPENINGS.

I. GALVANIZED SHEET METAL COLLARS SHALL BE PROVIDED AROUND ALL DUCTS, EQUIPMENT, ETC., EXPOSED IN FINISHED AREAS WHERE SUCH OPENINGS AND FINISHED AND THE SPACE AROUND THE PENETRATION IS SMALL, THE COLLAR MAY BE OMITTED WITH THE APPROVAL OF THE ARCHITECT/ENGINEER.

33 ESCUTCHEONS

A. ESCUTCHEONS SHALL BE PROVIDED AT ALL FINISHED SURFACES WHERE EXPOSED PIPING, BARE OR INSULATED, PASSES THROUGH FLOORS, WALLS, OR CEILINGS. ESCUTCHEONS SHALL BE FASTENED SECURELY TO PIPE SLEEVES OR TO EXTENSIONS OF SLEEVES WITHOUT ANY PART OF SLEEVES BEING VISIBLE. WHERE SLEEVES PROJECT SLIGHTLY FROM FLOORS, SPECIAL DEEP-TYPE ESCUTCHEONS SHALL BE USED.

34 CUTTING

A. ALL RECTANGULAR OR SPECIAL SHAPED OPENINGS IN PLASTER, STUCCO, OR SIMILAR MATERIALS, INCLUDING GYPSUM BOARD, SHALL BE FRAMED BY BEAMS OF PLASTER FRAMES, CASING BEADS, WOOD OR SIMILAR ANGLE MEMBERS AS REQUIRED. THE INTENT OF THIS REQUIREMENT IS TO PROVIDE SMOOTH EVEN TERMINATION OF WALL, FLOOR, AND CEILING FINISHES AS WELL AS TO PROVIDE A FASTENING MEANS FOR GRILLES, DIFFUSERS, LIGHTING FIXTURES, ETC.

B. ALL TRADES SHALL COORDINATE ALL OPENINGS IN MASONRY WALLS WITH THE GENERAL CONTRACTOR, AND, UNLESS OTHERWISE INDICATED ON THE ARCHITECTURAL DRAWINGS, SHALL PROVIDE LINTELS FOR ALL OPENINGS REQUIRED FOR THE PLUMBING WORK (PIPING, WALL BOXES, ETC.)

C. NO CUTTING IS TO BE DONE AT POINTS OR IN A MANNER THAT WILL WEAKEN THE STRUCTURE AND UNNECESSARY CUTTING MUST BE AVOIDED. IF IN DOUBT, CONTACT THE ENGINEER.

D. PIPE OPENINGS IN SLABS AND WALLS SHALL BE CUT WITH CORE DRILL. HAMMER DEVICES WILL NOT BE PERMITTED. EDGES OF TRENCHES AND LARGE OPENINGS SHALL BE SCRIBE CUT WITH A MASONRY SAW.

E. OPENINGS IN METAL BUILDING WALLS SHALL BE MADE IN STRICT ACCORD WITH BUILDING SUPPLIERS RECOMMENDATIONS.

35 PATCHING AND REPAIRING

A. PATCHING AND REPAIRING MADE NECESSARY BY WORK PERFORMED UNDER THIS DIVISION SHALL BE INCLUDED AS PART OF THE WORK AND SHALL BE DONE BY SKILLED MECHANICS OF THE TRADE OR TRADES FOR WORK CUT OR DAMAGED, IN STRICT ACCORDANCE WITH THE PROVISIONS HEREIN BEFORE SPECIFIED FOR WORK OF LIKE TYPE TO MATCH ADJACENT SURFACES AND IN A MANNER ACCEPTABLE TO THE ENGINEER.

B. WHERE PORTIONS OF EXISTING WALLS, SHURBS, PAVING, ETC. ARE DISTURBED FOR INSTALLATION OR WORK OF THIS DIVISION, SUCH ITEMS SHALL BE REPAIRED AND/OR REPLACED TO THE SATISFACTION OF THE ENGINEER.

C. WHERE THE INSTALLATION OR REMOVAL OF PIPING, ETC. REQUIRES OR CREATES THE PENETRATION OF FIRE OR SMOKE RATED WALLS, CEILINGS OR FLOORS, THE SPACE AROUND SUCH PIPE, ETC., SHALL BE TIGHTLY FILLED WITH AN APPROVED NON-COMBUSTIBLE FIRE INSULATING MATERIAL SATISFACTORY TO MAINTAIN THE RATING INTEGRITY OF THE WALL, FLOOR OR CEILINGS AFFECTED.

D. PIPING PASSING THROUGH FLOORS, CEILINGS, AND WALLS IN FINISHED AREAS, UNLESS OTHERWISE SPECIFIED, SHALL BE FITTED WITH CHROME PLATED BRASS ESCUTCHEONS OF SUFFICIENT OUTSIDE DIAMETER TO AMPLY COVER THE SLEEVED OPENINGS AND AN INSIDE DIAMETER TO CLOSELY FIT THE PIPE AROUND WHICH IT IS INSTALLED.

E. WHERE PIPES PASS THROUGH EXTERIOR WALLS, THE WALL OPENINGS SHALL BE SEALED AIR AND WATERTIGHT. THIS SHALL INCLUDE SEALING ON BOTH SIDES OF THE WALL TO ENSURE AIR AND WATER DOES NOT ENTER OR EXIT THE WALL CAVITY. THIS IS ESPECIALLY CRITICAL ON EXTERIOR WALLS WHERE THE WALL CAVITY MAY BE VENTED TO THE EXTERIOR.

SECTION 23 05 29 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

11 WORK INCLUDED

A. PIPE AND EQUIPMENT HANGERS, SUPPORTS, AND ASSOCIATED ANCHORS

12 ACTION SUBMITTALS

A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

13 SCOPE

A. THIS SPECIFICATION SHALL APPLY FOR THE DESIGN AND FABRICATION OF ALL HANGERS, SUPPORTS, ANCHORS AND GUIDES. WHERE PIPING DESIGN IS SUCH THAT EXCEPTIONS TO THIS SPECIFICATION ARE NECESSARY, THE SYSTEM SHALL BE IDENTIFIED, AND THE EXCEPTIONS APPROVED BY ENGINEER PRIOR TO INSTALLATION.

14 STRUCTURE

A. THIS SECTION IS INTENDED TO COVER THE STRUCTURAL REQUIREMENTS OF THE PIPING AND EQUIPMENT. IT IS NOT INTENDED TO IMPLY THAT THE BUILDING STRUCTURE WILL SUPPORT THE LOADS IMPOSED. THE CONTRACTOR SHALL REVIEW THE STRUCTURAL DRAWINGS FOR WHERE LOADS CAN BE APPLIED, WHAT LOAD CAN BE SUPPORTED, AND WHAT STRUCTURAL REINFORCING IS REQUIRED. SPECIFIC QUESTIONS CAN BE DIRECTED TO THE STRUCTURAL ENGINEER PRIOR TO BIDDING.

15 DESIGN

A. ALL SUPPORTS AND PARTS SHALL CONFORM TO THE LATEST REQUIREMENTS OF THE ANSI CODE FOR PRESSURE PIPING B31.10, AND MSS STANDARD PRACTICE SP-58, SP-69 AND SP-89 EXCEPT AS SUPPLEMENTED OR MODIFIED BY THE REQUIREMENTS OF THIS SPECIFICATION.

B. DESIGNS GENERALLY ACCEPTED AS EXEMPLIFYING GOOD ENGINEERING PRACTICE, USING STOCK OR PRODUCTION PARTS, SHALL BE UTILIZED WHEREVER POSSIBLE.

C. ACCURATE WEIGHT BALANCE CALCULATIONS SHALL BE MADE TO DETERMINE THE REQUIRED SUPPORTING FORCE AT EACH HANGER LOCATION AND THE PIPE WEIGHT LOAD AT EACH EQUIPMENT CONNECTION.

D. PIPE HANGERS SHALL BE CAPABLE OF SUPPORTING THE PIPE IN ALL CONDITIONS OF OPERATION. THEY SHALL ALLOW FREE EXPANSION AND CONTRACTION OF THE PIPING, AND PREVENT EXCESSIVE STRESS RESULTING FROM TRANSFERRED WEIGHT BEING INDUCED INTO THE PIPE OR CONNECTED EQUIPMENT.

E. WHERE POSSIBLE, STEEL STRUCTURAL ATTACHMENTS SHALL BE BEAM CLAMPS. OTHER ATTACHMENTS SHALL BE AS SCHEDULED.

F. ALL RIGID HANGERS SHALL PROVIDE A MEANS OF VERTICAL ADJUSTMENT AFTER ERECTION.

G. HANGER RODS SHALL BE SUBJECT TO TENSILE LOADING ONLY. AT HANGER LOCATIONS WHERE LATERAL OR AXIAL MOVEMENT IS ANTICIPATED, SUITABLE SUPPORT SHALL BE PROVIDED TO ELIMINATE SWING AND ALLOW FOR EXPANSION.

H. WHERE HORIZONTAL PIPING MOVEMENTS ARE GREATER THAN 1/2 INCH, OR WHERE THE HANGER LOAD ANGLARITY FROM THE VERTICAL IS GREATER THAN 4 DEGREES FROM THE COLD TO HOT POSITION OF THE PIPE, THE HANGER ROD TO STRUCTURAL ATTACHMENT SHALL BE BY USE OF ANVIL FIG. 47 AND FIG. 299 OR THE HANGER ROD AND STRUCTURAL ATTACHMENTS SHALL BE OFFSET IN SUCH MANNER THAT THE ROD IS VERTICAL IN THE HOT POSITION.

I. CONTRACTOR TO FABRICATE AND PROVIDE ADDITIONAL STRUCTURAL SUPPORT AS REQUIRED TO PREVENT SWAY WHERE HANGER ROD LENGTHS EXCEED 48" IN LENGTH.

J. HANGERS SHALL BE DESIGNED SO THAT THEY CANNOT BECOME DISENGAGED BY MOVEMENTS OF THE SUPPORTED PIPE.

K. ALL PIPING AND EQUIPMENT SHALL BE BRACED AND SECURED TO PREVENT SWAY AND MOVEMENT IN ALL AXES.

L. HANGERS SHALL BE SPACED IN ACCORDANCE WITH ANSI B31.10

M. WHERE PRACTICAL, RISER PIPING SHALL BE SUPPORTED INDEPENDENTLY OF THE CONNECTED HORIZONTAL PIPING.

N. 1. PIPE SUPPORT ATTACHMENTS TO THE RISER PIPING SHALL BE RISER CLAMP LUGS. WELDED ATTACHMENTS SHALL BE OF MATERIAL COMPARABLE TO THAT OF THE PIPE AND DESIGNED IN ACCORDANCE WITH ANSI B31.1 CODES.

2. SUPPORTS, GUIDES AND ANCHORS SHALL BE SO DESIGNED THAT EXCESSIVE HEAT WILL NOT BE TRANSMITTED TO THE BUILDING STEEL. THE TEMPERATURE OF SUPPORT PARTS SHALL BE BASED ON A TEMPERATURE GRADIENT OF 100 DEGREES F PER INCH DISTANCE FROM THE OUTSIDE SURFACE OF THE PIPE.

PART 2 - PRODUCTS

21 ACCEPTABLE MANUFACTURERS

A. ANVIL, ELLEN, MASON INDUSTRIES, ADVANCED THERMAL, FEE & MASON, PIPING SPECIALTIES, MIRO INDUSTRIES.

22 SHIELDS

A. INSULATION-INSERT MATERIAL FOR COLD PIPING: ASTM C552, TYPE II CELLULAR GLASS WITH 100-PSI MINIMUM COMPRESSIVE STRENGTH AND VAPOR BARRIER.

B. INSULATION-INSERT MATERIAL FOR HOT PIPING: WATER-REPELLENT-TREATED, ASTM C533, TYPE I CALCIUM SILICATE WITH 100-PSI MINIMUM COMPRESSIVE STRENGTH.

C. FOR TRAPEZE OR CLAMPED SYSTEMS: INSERT AND SHIELD SHALL COVER ENTIRE CIRCUMFERENCE OF PIPE.

D. FOR CLEVIS OR BAND HANGERS: INSERT AND SHIELD SHALL COVER LOWER 180 DEGREES OF PIPE.

E. INSERT LENGTH: EXTEND 2 INCHES BEYOND SHEET METAL SHIELD FOR PIPING OPERATING BELOW AMBIENT AIR TEMPERATURE.

F. SHIELDS FOR COPPER PIPE SHALL UTILIZE SHEET LEAD.

23 INSERTS

A. INSERTS: MALLEABLE IRON CASE OR GALVANIZED STEEL SHELL AND EXPANDER PLUG FOR THREADED CONNECTION WITH LATERAL ADJUSTMENT, TOP SLOT FOR REINFORCING RODS, LUGS FOR ATTACHING TO FORMS, SIZE INSERTS TO SUIT THREADED HANGER RODS.

24 METAL PIPE HANGERS AND SUPPORTS

A. CARBON-STEEL PIPE HANGERS AND SUPPORTS:

1. DESCRIPTION: MSS SP-58, TYPES 1 THROUGH 58, FACTORY-FABRICATED COMPONENTS

2. GALVANIZED METALLIC COATINGS: PRE-GALVANIZED, HOT DIP GALVANIZED, OR ELECTRO-GALVANIZED

3. NONMETALLIC COATINGS: PLASTIC COATED, OR EPOXY POWDER COATED

4. PADDED HANGERS: HANGER WITH FIBERGLASS OR OTHER PIPE INSULATION PAD OR CUSHION TO SUPPORT BEARING SURFACE OF PIPING

5. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF CARBON STEEL

B. COPPER PIPE AND TUBE HANGERS

1. DESCRIPTION: MSS SP-58, TYPES 1 THROUGH 58, COPPER-PLATED STEEL, FACTORY-FABRICATED COMPONENTS

2. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF COPPER-PLATED STEEL

25 TRAPEZE PIPE HANGERS

A. DESCRIPTION: MSS SP-58, TYPE 59, SHOP- OR FIELD-FABRICATED PIPE-SUPPORT ASSEMBLY MADE FROM STRUCTURAL CARBON-STEEL SHAPES WITH MSS SP-58 CARBON-STEEL HANGER RODS, NUTS, SADDLES, AND U-BOLTS.

26 METAL FRAMING SYSTEMS

A. MFMA MANUFACTURER METAL FRAMING SYSTEMS:

1. DESCRIPTION: SHOP- OR FIELD-FABRICATED, PIPE-SUPPORT ASSEMBLY MADE OF STEEL CHANNELS, ACCESSORIES, FITTINGS, AND OTHER COMPONENTS FOR SUPPORTING MULTIPLE PARALLEL PIPES

2. STANDARD: COMPLY WITH MFMA-4 FACTORY-FABRICATED COMPONENTS FOR FIELD ASSEMBLY

3. CHANNELS: CONTINUOUS SLOTTED CARBON-STEEL CHANNEL WITHIN TURNED LIPS

4. CHANNEL WIDTH: SELECTED FOR APPLICABLE LOAD CRITERIA

5. CHANNEL NUTS: FORMED OR STAMPED NUTS OR OTHER DEVICES DESIGNED TO FIT INTO CHANNEL SLOT AND, WHEN TIGHTENED, PREVENT SLIPPING ALONG CHANNEL

6. HANGER RODS: CONTINUOUS-THREAD ROD, NUTS, AND WASHER MADE OF GALVANIZED STEEL

7. METALLIC COATING: PRE-GALVANIZED G90 (Z275)

27 BEAM CLAMPS

1. BEAM CLAMPS SHALL HAVE MALLEABLE IRON JAWS, STEEL BOLT OR TIE ROD, NUTS, AND JAMB NUTS.

2. C-CLAMPS WILL NOT BE PERMITTED UNLESS RETAINER IS PROVIDED.

28 EQUIPMENT SUPPORTS

A. DESCRIPTION: WELDED, SHOP- OR FIELD-FABRICATED EQUIPMENT SUPPORT MADE FROM STRUCTURAL CARBON-STEEL SHAPES.

29 FINISH

A. PRIME COAT EXPOSED STEEL HANGERS AND SUPPORTS. HANGERS AND SUPPORTS LOCATED IN CRAWL SPACES, PIPE SHAFTS, AND SUSPENDED CEILING SPACES ARE NOT CONSIDERED EXPOSED.

PART 3 - EXECUTION

31 INSERTS

A. PROVIDE INSERTS FOR SUSPENDING HANGERS FROM REINFORCED CONCRETE SLABS AND SIDES OF REINFORCED CONCRETE BEAMS.

B. WHERE CONCRETE SLABS FORM FINISHED CEILING, PROVIDE INSERTS TO BE FLUSH WITH SLAB SURFACE.

32 PIPE HANGERS AND SUPPORTS

A. COMPLY WITH MSS SP-58 FOR PIPE-HANGER SELECTIONS AND APPLICATIONS.

B. USE HANGERS AND SUPPORTS WITH GALVANIZED METALLIC COATINGS FOR PIPING AND EQUIPMENT THAT WILL NOT HAVE FIELD-APPLIED FINISH.

C. USE NONMETALLIC COATINGS ON ATTACHMENTS FOR ELECTROLYTIC PROTECTION WHERE ATTACHMENTS ARE IN DIRECT CONTACT WITH COPPER TUBING.

D. USE CARBON-STEEL PIPE HANGERS AND SUPPORTS AND METAL FRAMING SYSTEMS AND ATTACHMENTS FOR GENERAL SERVICE APPLICATIONS.

E. USE COPPER-PLATED PIPE HANGERS AND COPPER ATTACHMENTS FOR COPPER PIPING AND TUBING.

F. USE THERMAL-HANGER SHIELD INSERTS FOR INSULATED PIPING AND TUBING.

G. INSTALL HANGERS TO PROVIDE MINIMUM 1/2 INCH SPACE BETWEEN FINISHED COVERING AND ADJACENT WORK.

H. PLACE A HANGER WITHIN 12 INCHES OF EACH HORIZONTAL ELBOW.

I. PROVIDE HANGERS WITH 1-1/2 INCH MINIMUM VERTICAL ADJUSTMENT.

J. PROVIDE ADDITIONAL STRUCTURAL SUPPORT WHERE REQUIRED TO PREVENT PIPE MOVEMENT AND SWAY.

K. SUPPORT RISER PIPING INDEPENDENTLY OF CONNECTED HORIZONTAL PIPING.

L. SUPPORT PIPING AS FOLLOWS:

NOMINAL PIPE SIZESINGLE ROD DIAMETERTHICKNESS OF INSULATION SHIELDMAXIMUM SPACING FERROUS PIPINGCOPPER TUBINGSHOPE PIPING3/4" & UNDER3/8"16 GAUGE6"52"1/3"3/8"16 GAUGE67"31"43/8"16 GAUGE68"34"1/2"3/8"16 GAUGE69"84"

SECTION 23 05 48 - VIBRATION CONTROL FOR HVAC

PART 1 - GENERAL

11 SUMMARY

A. THIS SPECIFICATION INCLUDES VIBRATION ISOLATION, EQUIPMENT BALANCING REQUIREMENTS AND SOUND LEVEL CRITERIA FOR EQUIPMENT SPACES AND EXTERIOR MOUNTED EQUIPMENT.

B. MECHANICAL AND ELECTRICAL EQUIPMENT AND ASSOCIATED PIPING AND DUCTWORK SHALL BE MOUNTED ON VIBRATION ISOLATORS AS SPECIFIED AND/OR REQUIRED TO MINIMIZE TRANSMISSION OF VIBRATION AND STRUCTURE-BORNE NOISE TO BUILDING STRUCTURE OR SPACES.

C. ALL ROTATING EQUIPMENT SHALL BE BALANCED BOTH STATICALLY AND DYNAMICALLY. THE EQUIPMENT WHEN MOUNTED AND PLACED IN OPERATION SHALL NOT EXCEED A SELF-EXCITED VIBRATION VELOCITY OF 0.10 INCHES PER SECOND IN THE VERTICAL, HORIZONTAL, OR AXIAL DIRECTIONS WHEN MEASURED WITH A VIBRATION METER ON THE BEARING CAPS OR AT THE EQUIPMENT MOUNTING FEET IF THE BEARINGS ARE CONCEALED.

D. SECTION INCLUDES: ELASTOMERIC ISOLATORS, SUSPENSION TYPE ISOLATORS, FLEXIBLE CONNECTIONS

12 ACTION SUBMITTALS

A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

13 VIBRATION

A. ISOLATION SYSTEM SHALL BE STABLE DURING STARTING AND STOPPING OF EQUIPMENT WITHOUT EXCESSIVE TRANSVERSE OR ECCENTRIC MOVEMENT.

B. THE INSTALLED VIBRATION ISOLATION SYSTEM SHALL HAVE A MAXIMUM LATERAL MOTION UNDER START-UP AND SHUT-DOWN CONDITIONS OF 0.25 INCH. MOTIONS IN EXCESS SHALL BE RESTRAINED BY APPROVED SPRING TYPE MOUNTINGS.

C. ALL ELECTRICAL AND PIPING CONNECTIONS SHALL BE SUFFICIENTLY FLEXIBLE TO PERMIT PROPER ISOLATION.

D. ISOLATION COMPONENTS SHALL BE SELECTED FOR THE LOWEST OPERATING SPEED OF THE EQUIPMENT.

E. ISOLATORS, INCLUDING SPRINGS, EXPOSED TO WEATHER SHALL BE HOT DIP GALVANIZED AFTER FABRICATION.

F. ISOLATORS SHALL BE SELECTED AND LOCATED TO PRODUCE UNIFORM LOADING AND DEFLECTION EVEN WHEN EQUIPMENT WEIGHT IS NOT EVENLY DISTRIBUTED.

G. THE TYPE OF ISOLATION, BASE AND MINIMUM DEFLECTION SHALL BE AS REQUIRED FOR EACH SPECIFIC APPLICATION WHEN SUPPORTED ON A SOLID CONCRETE SLAB, 6 INCHES TOTAL THICK MINIMUM. VIBRATION ISOLATORS WITH A DEFLECTION GREATER THAN THE MINIMUM SPECIFIED SHALL BE SUBMITTED FOR APPROVAL. IF THEY ARE NEEDED TO MEET THE NOISE CRITERIA.

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PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. MASON INDUSTRIES, AMBER/BOOTH COMPANY, VIBRATION ELIMINATION CO., INC.

2.2 ELASTOMERIC ISOLATORS

- A. ELASTOMERIC ISOLATORS SHALL BE ONE OF THE FOLLOWING:

1. NEOPRENE ISOLATION MOUNTS OF THE STRAIGHT-LINE DEFLECTION CURVE TYPE. THE ISOLATION MOUNTS SHALL BE MANUFACTURED WITH BOLT HOLES FOR BOLTING TO EQUIPMENT BASE. BOTTOM STEEL PLATES FOR MOUNTING TO SUBBASE SHALL BE PROVIDED WHERE REQUIRED TO PREVENT MOVEMENT OF EQUIPMENT. THESE ISOLATORS SHALL BE MOLDED IN BLACK OIL-RESISTANT NEOPRENE AND COLOR CODED. ALL METAL PARTS SHALL BE EMBEDDED IN NEOPRENE.
2. NEOPRENE PADS SHALL BE OF CROSS-RIBBED OR WAFFLE DESIGN, 5/16-INCH MINIMUM THICKNESS. WHERE CONCENTRATED LOAD BEARING IS ENCOUNTERED, STEEL BEARING PLATES SHALL BE BONDED TO THE NEOPRENE PADS. THE NEOPRENE PADS SHALL BE SIZED FOR A LOAD OF 50 PSI.

2.3 SUSPENSION TYPE ISOLATION

- A. SUSPENSION TYPE SPRING ISOLATION FOR PIPING SYSTEM OR EQUIPMENT HANGERS SHALL BE A COMBINATION OF SPRING AND NEOPRENE IN SERIES. THE SPRING AND ELASTOMER COMBINATION SHALL BE ENCASED IN A STRUCTURALLY STABLE STEEL BRACKET. SPRING DIAMETERS SHALL BE LARGE ENOUGH TO PERMIT A 15-DEGREE ANGULAR MISALIGNMENT OF THE ROD WITHOUT RUBBING ON THE HANGER BOX.
- B. SUSPENSION TYPE ELASTOMERIC ISOLATORS SHALL BE DOUBLE DEFLECTION. ISOLATORS SHALL BE MOUNTED IN AN OPEN STEEL BRACKET WITH OPENINGS FOR HANGER ROD CONNECTIONS. THE HANGER ROD SHALL BE SEPARATED FROM CONTACT WITH THE HANGER BRACKET BY A NEOPRENE GROMMET. THE NEOPRENE ISOLATOR SHALL HAVE A MINIMUM DEFLECTION OF 0.35 INCH.
- C. WHERE REQUIRED, PIPE HANGERS SHALL BE EQUIPPED WITH A METHOD OF HOLDING THE PIPING AT A FIXED ELEVATION DURING INSTALLATION AND A SECONDARY ADJUSTMENT TO TRANSFER THE LOAD TO THE SPRING AND MAINTAIN THE SAME ELEVATION. DEFLECTION SHALL BE CLEARLY INDICATED BY A PERMANENT POINTER AND SCALE.
- D. DUCT ISOLATION HANGERS SHALL CONSIST OF SPRING AND NEOPRENE GROMMET, OR MOUNT ENCASED IN A STEEL BRACKET WITH SUITABLE MEANS OF CONNECTING TO DUCTS AND BUILDING STRUCTURE.

2.4 FLEXIBLE CONNECTIONS

- A. FLEXIBLE HOSE SHALL BE DESIGNED FOR AN OPERATING TEMPERATURE OF 50 DEGREES F ABOVE THE MAXIMUM SYSTEM DESIGN TEMPERATURE AND FOR A WORKING PRESSURE OF NOT LESS THAN 125 PSIG OR 150 PERCENT OF THE SYSTEM OPERATING PRESSURE WHICHEVER IS GREATER.
- B. METAL FLEXIBLE HOSE SHALL BE GRADE E PHOSPHOR BRONZE, MONEL OR STAINLESS STEEL CORRUGATED TUBE COVERED WITH COMPARABLE BRONZE OR STAINLESS BRAID RESTRAINING AND PRESSURE COVER. STAINLESS STEEL GRADE SHALL BE 304. LIVE LENGTHS OF FLEXIBLE METAL HOSE SHALL GENERALLY BE NOT LESS THAN RECOMMENDED BY THE MANUFACTURER FOR CONTINUOUS VIBRATION APPLICATION.

PART 3 - EXECUTION

- 3.1 PROVIDE EQUIPMENT AND PIPING VIBRATION ISOLATION WHERE REQUIRED BY EQUIPMENT MANUFACTURER AND WHERE CALLED FOR ON DRAWINGS.

- 3.2 TYPE OF VIBRATION ISOLATORS TO BE PROVIDED SHALL BE BASED AS FOLLOWS:

1. STATIC DEFLECTION UP TO 1/4 INCH - SINGLE DEFLECTION NEOPRENE MOUNTING OR PADS.
2. STATIC DEFLECTION 5/16 INCH TO 3/8 INCH - DOUBLE DEFLECTION NEOPRENE MOUNTINGS.
3. STATIC DEFLECTION ABOVE 3/8 INCH - SPRING ISOLATORS.

- 3.3 FURNISH VIBRATION ISOLATION FOR ALL PIPING CONNECTED TO EQUIPMENT MOUNTED ON VIBRATION ISOLATION. EQUIPMENT THAT HAS INTERNALLY ISOLATED UNITS (COMPRESSORS, ETC.) SHALL BE CONSIDERED SEPARATELY AS TO ISOLATION REQUIREMENTS.

3.4 FLEXIBLE CONNECTIONS

- A. FLEXIBLE CONNECTIONS SHALL BE PROVIDED FOR ALL CONNECTIONS INDICATED ON DRAWINGS, MANUFACTURED OF MATERIALS SUITABLE FOR THE OPERATING TEMPERATURES AND PRESSURES OF THE FLUID OR GAS IT IS CONVEYING.
- B. FLEXIBLE HOSE SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS INCLUDING PLACEMENT IN THE PIPELINE WITHOUT DAMAGE, MISALIGNMENT OR CHANGE IN ITS NORMAL LENGTH. PRIOR TO FILLING THE SYSTEM, THE ALIGNMENT AND LENGTH SHALL BE CHECKED BY LOOSENING THE FLANGE BOLTS TO DETERMINE THE INSTALLATION CONDITIONS. THE PIPING INSTALLATION SHALL BE CORRECTED IF NECESSARY AND THE FLEXIBLE HOSE REPLACED IF DAMAGED, AT NO COST TO THE OWNER.

SECTION 23 05 93 - TEST, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL SPECIFICATIONS

1.1 DESCRIPTION OF WORK

- A. THE TOTAL SYSTEM BALANCE SHALL BE PERFORMED BY AN INDEPENDENT TEST AND BALANCE FIRM THAT SPECIALIZES IN TESTING AND BALANCING OF HVAC SYSTEMS.
- B. THIS SPECIALTY FIRM SHALL PERFORM THE FOLLOWING:
1. ON-GOING JOB SITE INSPECTIONS OF EQUIPMENT, CONTROLS, AND METERING DEVICES DURING CONSTRUCTION TO VERIFY CONFORMANCE WITH DESIGN SPECIFICATIONS.
2. AIR SYSTEM BALANCE: OUTSIDE AIR SYSTEMS, SUPPLY AIR SYSTEMS, RETURN AIR SYSTEMS, EXHAUST AIR SYSTEMS
3. CONTROL SYSTEMS VERIFICATION

PART 2 - EXECUTION

2.1 AIR SYSTEM TEST AND BALANCE PROCEDURES

- A. FAN SPEEDS: TEST AND ADJUST FAN RPM TO ACHIEVE DESIGN CFM REQUIREMENTS.
- B. CURRENT AND VOLTAGE: MEASURE AND RECORD MOTOR CURRENT AND VOLTAGE.
- C. PITOT TUBE TRAVERSE: PERFORM A PITOT TUBE TRAVERSE OF MAIN SUPPLY AND RETURN DUCTS TO OBTAIN TOTAL CFM. IF A PITOT TUBE TRAVERSE IS NOT PRACTICAL, THE SUMMATION OF THE OUTLETS OR INLETS MAY BE USED. AN EXPLANATION OF WHY A TRAVERSE WAS NOT MADE MUST APPEAR ON THE APPROPRIATE DATA SHEET.
- D. OUTSIDE AIR: TEST AND ADJUST SYSTEM MINIMUM OUTSIDE AIR BY PITOT TUBE TRAVERSE. IF A PITOT TUBE TRAVERSE IS NOT PRACTICAL, THE PERCENTAGE OF OUTSIDE AIR MAY BE DETERMINED BY CALCULATIONS FROM THE RETURN AIR, OUTSIDE AIR, AND MIXED AIR TEMPERATURE. MAKE ALLOWANCES FOR HEAT OF COMPRESSION AND MOTOR HEAT WHERE APPLICABLE.
- E. STATIC PRESSURE: TEST AND RECORD SYSTEM STATIC PRESSURES, INCLUDING SUCTION AND DISCHARGE STATIC PRESSURE PROFILE OF EACH FAN.
- F. AIR TEMPERATURE: TAKE WET BULB AND DRY BULB AIR TEMPERATURES ON THE ENTERING AND LEAVING SIDE OF EACH COOLING COIL. DRY BULB TEMPERATURES SHALL BE TAKEN ON THE ENTERING AND LEAVING SIDE OF EACH HEATING COIL.
- G. ZONE DUCTS (SUPPLY AND RETURN): ADJUST ZONE DUCTS TO WITHIN DESIGN CFM REQUIREMENTS. AT LEAST ONE ZONE BALANCING DAMPER SHALL BE COMPLETELY OPEN.
- H. MAIN DUCTS: ADJUST MAIN DUCTS TO WITHIN DESIGN CFM REQUIREMENTS. MULTI-DIFFUSER BRANCH DUCTS SHALL HAVE AT LEAST ONE OUTLET OR INLET VOLUME DAMPER COMPLETELY OPEN.
- I. BRANCH DUCTS: ADJUST BRANCH DUCTS TO WITHIN DESIGN CFM REQUIREMENTS. MULTI-DIFFUSER BRANCH DUCTS SHALL HAVE AT LEAST ONE OUTLET OR INLET VOLUME DAMPER COMPLETELY OPEN.
- J. TOLERANCE - TEST AND BALANCE EACH DIFFUSER, GRILLE, AND REGISTER TO WITHIN 10 PERCENT OF DESIGN REQUIREMENT.
- K. IDENTIFICATION: IDENTIFY THE LOCATION AND AREA OF EACH GRILLE, DIFFUSER, REGISTER, AND TERMINAL BOX. THIS INFORMATION SHALL BE RECORDED ON AIR OUTLET DATA SHEETS.
- L. DESCRIPTION: RECORD THE SIZE AND TYPE OF EACH DIFFUSER, GRILLE, AND REGISTER ON AIR OUTLET DATA SHEETS.
- M. MINIMIZING DRAFTS: ADJUST ALL DIFFUSERS, GRILLES, AND REGISTERS TO MINIMIZE DRAFTS IN ALL AREAS.
- N. EXHAUST FANS: MEASURE EXHAUST FAN STATIC PRESSURE, TOTAL CFM, MAKEUP AIR AND FAN RPM. MEASURE MOTOR OPERATING VOLTAGE AND AMPERAGE.
- O. MEASURE EXHAUST FAN STATIC PRESSURES, TOTAL CFM, MAKEUP AIR AND FAN RPM.
- P. MEASURE MOTOR OPERATING VOLTAGE AND AMPERAGE.
- Q. RECORD THE SPECIFIED AGAINST THE ACTUAL SUPPLIED HORSEPOWER AND ELECTRICAL CHARACTERISTICS OF ALL MOTORS.

2.2 CONTROL SYSTEMS VERIFICATION

- A. VERIFY THAT ALL CONTROL DEVICES ARE PROPERLY CONNECTED.
- B. VERIFY THAT ALL DAMPERS, VALVES, AND OTHER CONTROLLED DEVICES ARE OPERATED BY THE INTENDED CONTROLLER.
- C. VERIFY THAT ALL DAMPERS AND VALVES ARE IN THE POSITION INDICATED BY THE CONTROLLER (OPEN, CLOSED OR MODULATING).
- D. VERIFY THE INTEGRITY OF VALVES AND DAMPERS IN TERMS OF TIGHTNESS OF CLOSE-OFF AND FULL-OPEN POSITIONS. THIS INCLUDES DAMPERS IN MULTIZONE UNITS.
- E. CHECK THAT ALL VALVES ARE PROPERLY INSTALLED IN THE PIPING SYSTEM IN RELATION TO DIRECTION OF FLOW AND LOCATION.
- F. CHECK THE CALIBRATION OF ALL CONTROLLERS.
- G. VERIFY THE PROPER APPLICATION OF ALL NORMALLY OPEN AND NORMALLY CLOSED VALVES.
- H. CHECK THE LOCATION OF ALL THERMOSTATS AND HUMIDISTATS FOR POTENTIAL ERRATIC OPERATION FROM OUTSIDE INFLUENCES SUCH AS SUNLIGHT, DRAFTS, OR COLD WALLS.
- I. CHECK THE LOCATIONS OF ALL SENSORS TO DETERMINE WHETHER THEIR POSITION WILL ALLOW THEM TO SENSE ONLY THE INTENDED TEMPERATURES OR PRESSURES OF THE MEDIA. CONTROL CONTRACTOR WILL RELOCATE AS DEEMED NECESSARY BY THE TAB AGENCY.
- J. CHECK THE SEQUENCE OF OPERATION THAT ANY CONTROL MODE IS IN ACCORDANCE WITH APPROVED SHOP DRAWINGS. VERIFY THAT ONLY MINIMUM SIMULTANEOUS HEATING AND COOLING OCCURS.
- K. VERIFY THAT ALL CONTROLLER SET POINTS MEET THE DESIGN INTENT.
- L. CHECK ALL DAMPERS FOR FREE TRAVEL.
- M. VERIFY THE OPERATION OF ALL INTERLOCK SYSTEMS.
- N. PERFORM ALL SYSTEM VERIFICATION TO ASSURE THE SAFETY OF THE SYSTEM AND ITS COMPONENTS.

2.3 RECORD AND REPORT DATA

- A. THE TEST AND BALANCE REPORT SHALL BE COMPLETE WITH LOGS, DATA AND RECORDS AS REQUIRED HEREIN. ALL LOGS, DATA AND RECORDS SHALL BE TYPED ON WHITE BOND PAPER AND BOUND. THE REPORT SHALL BE CERTIFIED ACCURATE AND COMPLETE BY THE TESTING AND BALANCING (TAB) AGENCY'S CERTIFIED TEST AND BALANCE ENGINEER.

SECTION 23 31 13 - DUCTWORK AND DUCTWORK INSULATION

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. LOW PRESSURE DUCTS, INSULATION, AND DUCT CLEANING

1.2 ACTION SUBMITTALS

- A. SHOP DRAWINGS: FOR EACH: DUCTWORK, DUCTWORK INSULATIONS, DUCTWORK HANGERS.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. C&R SHEET METAL, DUCTMATE, DUCTSOX CORPORATION, EASTERN SHEET METAL, EURO-AIRE, FABRICAR, FLEXMASTERUSA, KE FIBERTEC, LINDAB, NORDFAB, PRIHODA, TURNKEY OR HAMLIN.

2.2 MATERIALS

- A. GENERAL: NON-COMBUSTIBLE OR CONFORMING TO REQUIREMENTS FOR CLASS 1 AIR DUCT MATERIALS, OR UL181.
- B. ALL DUCT MATERIAL AND COVERING SHALL HAVE A FLAME SPREAD RATING OF 24 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.
- C. STEEL DUCTS: ASTM A653/A653M GALVANIZED STEEL SHEET, LOCK FORMING QUALITY, HAVING ZINC COATING OF 1.25 OZ. PER SQ. FT. FOR EACH SIDE IN CONFORMANCE WITH ASTM G90.
- D. DUCT SCHEDULE:

1. SUPPLY, RETURN, EXHAUST AND OUTSIDE AIR DUCTS CONNECTED TO FAN COIL UNITS, FURNACES, HEAT PUMPS, VARIABLE AIR VOLUME BOX (VAV) BOX OUTLET TO GRILLE, REGISTER, DIFFUSER) AND TERMINAL UNITS:
- a. PRESSURE CLASS (LOW PRESSURE): POSITIVE 2-INCH WG.
- b. MINIMUM SMACNA SEAL CLASS: C.
- c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 16.
- d. SMACNA LEAKAGE CLASS FOR ROUND AND FLAT OVAL: 8.
2. SUPPLY DUCTS CONNECTED TO CONSTANT-VOLUME AND VARIABLE-VOLUME AIR-HANDLING UNITS (AIR HANDLING UNIT TO VAV BOX INLET):
- a. PRESSURE CLASS (MEDIUM PRESSURE): POSITIVE 3-INCH WG.
- b. MINIMUM SMACNA SEAL CLASS: B.
- c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 8.
- d. SMACNA LEAKAGE CLASS FOR ROUND AND FLAT OVAL: 4.
3. ALL OTHER DUCTS NOT LISTED ABOVE:
- a. PRESSURE CLASS (LOW PRESSURE): POSITIVE 2-INCH WG.
- b. MINIMUM SMACNA SEAL CLASS: C.
- c. SMACNA LEAKAGE CLASS FOR RECTANGULAR: 16.
- d. SMACNA LEAKAGE CLASS FOR ROUND AND FLAT OVAL: 8.
- E. FLEXIBLE DUCTS: INTERLOCKING SPIRAL OF GALVANIZED STEEL, OR FABRIC SUPPORTED ON HELICALLY WOUND SPRING STEEL WIRE RATED TO 2 INCHES WG POSITIVE AND 15 INCHES WG NEGATIVE FOR LOW PRESSURE DUCTS AND 15 INCHES POSITIVE OR NEGATIVE FOR MEDIUM HIGH-PRESSURE DUCTS. FLEXIBLE DUCTS SHALL CONFORM TO UL181. MAXIMUM LENGTH PER RUN SHALL BE 48".
- F. INSULATED FLEXIBLE DUCT: FLEXIBLE DUCT WRAPPED WITH FLEXIBLE GLASS FIBER INSULATION, ENCLOSED BY SEAMLESS ALUMINUM PIGMENTED PLASTIC VAPOR BARRIER JACKET, MAXIMUM 0.23 K VALUE AT 75 DEGREES F. MAXIMUM LENGTH PER RUN SHALL BE 48".
- G. STAINLESS STEEL DUCTS: ASTM A480/A480M, TYPE 304.
- H. FASTENERS: RIVETS, BOLTS, OR SHEET METAL SCREWS.
- I. SEALANT: NON-HARDENING, WATER RESISTANT, FIRE RESISTIVE, COMPATIBLE WITH MATING MATERIALS, LIQUID USED ALONG OR WITH TAPE, OR HEAVY MASTIC.
- J. HANGER ROD: STEEL, GALVANIZED, THREADED BOTH ENDS, THREADED ONE END, OR CONTINUOUSLY THREADED. STAINLESS STEEL FOR STAINLESS STEEL DUCT.

2.3 INSULATION

- A. INTERNAL: GLASS FIBER: ASTM C1071, G21 AND G22 WITH AN NRC NOT LESS THAN .65, 1.5 LB./CU. FT. MINIMUM DENSITY; SMOOTH BLACK MATTED AIR SIDE SURFACE FOR MAXIMUM 5000 FPM AIR VELOCITY.
- B. EXTERNAL (CHOOSE ONE OF THE FOLLOWING):
1. FLEXIBLE OR RIGID GLASS FIBER: ASTM C1290 AND C1136 ALL-SERVICE DUCT WRAP; K VALUE OF .27 AT 75 DEGREES F AND A MINIMUM INSTALLED R-VALUE OF R-6. PROVIDE WITH FOIL SCRIM FACING.
2. REFLECTIX (OR EQUAL) R-6.0 INSULATION HAVING TWO LAYERS OF ALUMINUM FOIL WITH POLYETHYLENE BONDED FOR STRENGTH, AND TWO INNER LAYERS OF INSULATED BUBBLES; 5/16" THICK; 1.25 OZ./SQ. FT. FLAME AND SMOKE 25/50.
- C. INSULATION MATERIAL AND JACKETS SHALL HAVE A FLAME SPREAD RATING OF 25 OR LESS AND A SMOKE DEVELOPED RATING OF 50 OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM E84.
- D. ADHESIVES: WATERPROOF FIRE-RETARDANT TAPE.
- E. LAGGING ADHESIVES: FIRE RESISTIVE TO ASTM E84, NFPA 255, UL723.
- F. IMPALE ANCHORS: GALVANIZED STEEL, 12- GAGE, SPOT WELDED OR SELF-ADHESIVE PAD. NO ANCHORS SHALL PENETRATE DUCT WALLS.
- G. JOINT TAPE: GLASS FIBER CLOTH, OPEN MESH.
- H. TIE WIRE: ANNEALED STEEL, 16-GAGE.

DUCT HANGERS

- A. ALL DUCT HANGERS IN DIRECT CONTACT WITH GALVANIZED DUCT SHALL BE GALVANIZED STEEL.
- B. ALL DUCT HANGERS IN DIRECT CONTACT WITH STAINLESS STEEL DUCTS SHALL BE STAINLESS STEEL.

PART 3 - EXECUTION

3.1 LOW PRESSURE DUCTWORK

- A. FABRICATE AND SUPPORT IN COMPLETE ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS, METAL AND FLEXIBLE AND ASHRAE HANDBOOKS LATEST EDITIONS, EXCEPT AS INDICATED. PROVIDE DUCT MATERIAL, GAGES, REINFORCING, AND SEALING FOR OPERATION PRESSURES INDICATED.
- B. SIZE ROUND DUCTS INSTALLED IN PLACE OF RECTANGULAR DUCTS IN ACCORDANCE WITH ASHRAE TABLE OF EQUIVALENT RECTANGULAR AND ROUND DUCTS. NO VARIATION OF DUCT CONFIGURATION OR SIZES PERMITTED EXCEPT BY WRITTEN PERMISSION.
- C. CONSTRUCT TS, BENDS, AND ELBOWS WITH A RADIUS OF NOT LESS THAN 1-1/2 TIMES WIDTH OF DUCT ON CENTERLINE. WHERE NOT POSSIBLE AND WHERE RECTANGULAR ELBOWS ARE USED, PROVIDE TURNING VANES. WHERE ACOUSTICAL LINING IS INDICATED, PROVIDE TURNING VANES OF PERFORATED METAL WITH GLASS FIBER INSULATION FILL.
- D. INCREASE DUCT SIZES GRADUALLY. NOT EXCEEDING 15 DEGREES DIVERGENCE WHEREVER POSSIBLE. DIVERGENCE UPSTREAM OF EQUIPMENT SHALL NOT EXCEED 30 DEGREES; CONVERGENCE DOWNSTREAM SHALL NOT EXCEED 30 DEGREES.
- E. PROVIDE EASEMENTS WHERE LOW PRESSURE DUCTWORK CONFLICTS WITH PIPING AND STRUCTURE. WHERE EASEMENTS EXCEED 10 PERCENT DUCT AREA, SPLIT INTO TWO DUCTS MAINTAINING ORIGINAL DUCT AREA.
- F. CONNECT FLEXIBLE DUCTS TO METAL DUCTS WITH DRAW BANDS OR ADHESIVE PLUS SHEET METAL SCREWS.
- G. USE CRIMP JOINTS WITH OR WITHOUT BEAD FOR JOINING ROUND DUCT SIZES 8 INCH AND SMALLER WITH CRIMP IN DIRECTION OF AIR FLOW.

DUCTWORK INSTALLATION

- A. PROVIDE ENGINEERED OPENINGS IN DUCTWORK WHERE REQUIRED TO ACCOMMODATE THERMOMETERS AND CONTROLLERS. PROVIDE PITOT TUBE OPENINGS WHERE REQUIRED FOR TESTING OF SYSTEMS, COMPLETE WITH METAL CAN WITH SPRING DEVICE OR SCREW TO ENSURE AGAINST AIR LEAKAGE. WHERE OPENINGS ARE PROVIDED IN INSULATED DUCTWORK, INSTALL INSULATION MATERIAL INSIDE A METAL RING AND MAINTAIN VAPOR BARRIER WHERE APPLICABLE.
- B. LOCATE DUCTS WITH SUFFICIENT SPACE AROUND EQUIPMENT TO ALLOW NORMAL OPERATING AND MAINTENANCE ACTIVITIES.
- C. PROVIDE RESIDUE TRAPS IN KITCHEN HOOD EXHAUST DUCTS AT BASE OF VERTICAL RISERS WITH PROVISIONS FOR CLEANOUT. USE STAINLESS STEEL FOR DUCTWORK EXPOSED TO VIEW AND STAINLESS STEEL OR GALVANIZED STEEL FOR DUCTS WHERE CONCEALED.
- D. DURING CONSTRUCTION, PROVIDE TEMPORARY CLOSURES OF METAL OR TAPED POLYETHYLENE ON OPEN DUCTWORK TO PREVENT CONSTRUCTION DUST FROM ENTERING DUCTWORK SYSTEM.
- E. CLEAN DUCT SYSTEM AND FORCE AIR AT HIGH VELOCITY THROUGH DUCT TO REMOVE ACCUMULATED DUST. TO OBTAIN SUFFICIENT AIR, CLEAN HALF THE SYSTEM AT A TIME. PROTECT EQUIPMENT WHICH MAY BE HARMED BY EXCESSIVE DIRT WITH TEMPORARY FILTERS, OR BYPASS DURING CLEANING.
- F. SPACE BETWEEN DUCT AND FLOOR OR MASONRY WALL OPENINGS SHALL BE SEALED WITH FIRE RATED CAULK.
- G. VERIFY ALL FIELD CONDITIONS BEFORE FABRICATION OF DUCTWORK TO AVOID INSTALLATION CONFLICTS. NOTIFY ENGINEER OF ANY CONFLICT AREAS.
- H. DO NOT CHANGE THE DESIGNED PATH OF DUCTWORK, ADD EXCESSIVE TURNS OR OFFSETS, OR CHANGE DUCT SIZES WITHOUT FIRST CONSULTING THE ENGINEER.

3.3 INSULATION INSTALLATION

- A. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. EXTERIOR INSULATION APPLICATION
1. SECURE INSULATION WITH VAPOR BARRIER WITH WIRES AND SEAL JACKET JOINTS WITH VAPOR BARRIER ADHESIVE OR TAPE TO MATCH JACKET.
2. SEAL VAPOR BARRIER PENETRATIONS BY MECHANICAL FASTENERS WITH VAPOR BARRIER ADHESIVE.
3. CONTINUE INSULATION WITH VAPOR BARRIER THOUGH PENETRATIONS.
- C. INSULATION SCHEDULE
1. SUPPLY AND OUTSIDE AIR DUCTWORK SHALL BE INSULATED WITH EXTERNAL INSULATION AS NOTED BELOW.
2. EXTERNALLY INSULATED DUCTWORK SHALL BE INSULATED USING ONE OF THE FOLLOWING METHODS:
- a. DUCTWORK SHALL BE EXTERNALLY INSULATED WITH REFLECTIX (OR EQUAL) R-6.0 INSULATION HAVING TWO LAYERS OF ALUMINUM FOIL WITH POLYETHYLENE BONDED FOR STRENGTH, AND TWO INNER LAYERS OF INSULATED BUBBLES; 5/16" THICK; 1.25 OZ./SQ. FT. FLAME AND SMOKE 25/50.
- a) DUCTWORK MAY ALSO BE INSULATED WITH FIBERGLASS INSULATION, MAINTAINING THE INSULATION VALUE OF R-6.0, IN LIEU OF REFLECTIX INSULATION.
3. INSULATION MUST BE INSTALLED IN STRICT ACCORDANCE WITH INSULATION MANUFACTURER'S REQUIREMENTS. PROVIDE SPACERS, PINS, BANDS AND ADHESIVE AS REQUIRED. SPECIAL CARE MUST BE TAKEN ON LARGE DUCTWORK TO PREVENT SAGGING OF INSULATION AWAY FROM DUCTWORK.
4. INTERIOR EXHAUST DUCT SHALL NOT REQUIRE INSULATION
5. COMBUSTION AIR DUCT SHALL HAVE 1/2 INCH EXTERNAL INSULATION.
6. WHERE DUCT IS SCHEDULED TO BE INSULATED (EITHER EXTERNALLY OR INTERNALLY) HEREIN AND SHOWN TO BE ROUTED IN AN AREA THAT WILL

BE EXPOSED BASED ON ARCHITECTURAL DRAWINGS, THE CONTRACTOR SHALL PROVIDE DOUBLE-WALL DUCT CONFORMING WITH THE SPECIFICATIONS PROVIDED HEREIN.

7. ALL DUCTWORK INSULATION MUST CONFORM TO THE MINIMUM REQUIREMENTS OF ASHRAE 90.1 (CURRENT EDITION) AND INTERNATIONAL ENERGY CONSERVATION CODE (CURRENT EDITION) UNLESS OTHERWISE SPECIFIED IN THIS SECTION.

3.4 HANGERS

- A. DUCT HANGERS MAY BE DIRECTLY ATTACHED TO DUCTS. DUCTS SHALL BE HUNG BY ANGLES OR STRAPS AS LISTED IN THE FOLLOWING SCHEDULE. RODS, STRAPS OR ANGLES MAY BE USED IN TRAPEZE HANGERS. HANGERS SHALL BE IN ACCORDANCE WITH THE FOLLOWING SCHEDULE, EXCEPT THAT THERE SHALL BE NO LESS THAN ONE SET OF HANGERS FOR EACH SECTION OF DUCTWORK. WHERE ELBOWS OR TEES ARE INSTALLED FOR CHANGES IN DIRECTION, HANGERS SHALL BE PROVIDED. NO DUCTWORK SHALL REST ON THE BUILDING STRUCTURAL SYSTEM. NO DUCTWORK SHALL BE SUPPORTED BY SUSPENDED CEILING SYSTEMS. ALL DUCTWORK MUST BE INDEPENDENTLY SUPPORTED FROM BUILDING STRUCTURAL SYSTEM.
- B. ALL HANGERS SHALL BE SUFFICIENTLY ACROSS-BRACED TO ELIMINATE, IN THE OPINION OF THE ARCHITECT, EXCESSIVE SWAY. WHEREVER DUCTWORK CONTAINS FILTER SECTIONS, COILS, FANS OR OTHER HEAVY EQUIPMENT (EXCLUDING REGISTERS, GRILLES, DIFFUSERS, SPLITTER DAMPERS, ETC.) SUCH EQUIPMENT SHALL BE HUNG INDEPENDENTLY OF THE DUCTWORK, WITH RODS OR ANGLES OF SIZES ADEQUATE TO SUPPORT THE LOAD.

3.5 TESTING

- A. THE TEST APPARATUS SHALL CONSIST OF:
1. A SOURCE OF HIGH PRESSURE AIR - A PORTABLE ROTARY BLOWER OR A TANK TYPE VACUUM CLEANER.
2. A FLOW MEASURING DEVICE ORIFICE ASSEMBLY CONSISTING OF STRAIGHTENING VANES AND AN ORIFICE PLATE MOUNTED IN A STRAIGHT TUBE WITH PROPERLY LOCATED PRESSURE TAPS. EACH ORIFICE ASSEMBLY IS ACCURATELY CALIBRATED WITH ITS OWN CALIBRATION CURVE. PRESSURE AND FLOW READINGS SHALL BE TAKEN WITH U-TUBE MANOMETERS OR EQUIVALENT GAUGE.
- B. TEST PROCEDURES
1. CLOSE OFF AND SEAL ALL OPENINGS IN THE DUCT SECTION TO BE TESTED. CONNECT THE TEST APPARATUS TO THE DUCT BY MEANS OF A SECTION OF FLEXIBLE DUCT.
2. START THE BLOWER WITH ITS CONTROL DAMPER CLOSED.
3. GRADUALLY OPEN THE INLET DAMPER UNTIL THE DUCT PRESSURE REACHES 25 PERCENT IN EXCESS OF DESIGNED DUCT OPERATING PRESSURE INDICATED.
4. SURVEY ALL JOINTS FOR AUDIBLE LEAKS. REPAIR EACH LEAK AFTER SHUTTING DOWN BLOWER. DO NOT APPLY A RETEST UNTIL SEALANTS HAVE SET.
5. IF MEASURED LEAKAGE EXCEEDS 1 PERCENT OF TOTAL DESIGN FLOW, LOCATE AND SEAL LEAKAGE.
6. AFTER ALL AUDIBLE LEAKS HAVE BEEN SEALED, THE REMAINING LEAKAGE SHOULD BE MEASURED WITH THE ORIFICE SECTION OF THE TEST APPARATUS AS FOLLOWS:
- a. START BLOWER AND OPEN DAMPER UNTIL PRESSURE IN DUCT REACHES 25% IN EXCESS OF DESIGNED DUCT OPERATING PRESSURE INDICATED.
- b. READ THE PRESSURE DIFFERENTIAL ACROSS THE ORIFICE ON MANOMETER TO DETERMINE LEAKAGE.
- c. TOTAL ALLOWABLE LEAKAGE SHOULD NOT EXCEED ONE (1) PERCENT OF THE TOTAL SYSTEM DESIGN AIR FLOW RATE. WHEN PARTIAL SECTIONS OF THE DUCT SYSTEM ARE TESTED, THE SUMMATION OF THE LEAKAGE FOR ALL SECTIONS SHALL NOT EXCEED THE TOTAL ALLOWABLE LEAKAGE.
7. PROVIDE DUCT LEAK TESTING REPORT.

SECTION 23 33 00 - DUCTWORK ACCESSORIES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. VOLUME CONTROL DAMPERS, BACKDRAFT DAMPERS, AIR TURNING DEVICES, FLEXIBLE DUCT CONNECTORS, DUCT TEST HOLES

1.2 ACTION SUBMITTALS

- SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT SPECIFIED.

PART 2 - PRODUCTS

2.1 VOLUME CONTROL DAMPERS

- A. ACCEPTABLE MANUFACTURER: UNITED ENERTECH, AIR BALANCE, AMERICAN WARMING, ARROW, CESCO, CREATIVE METALS, NAILOR, RUSKIN, VENT PRODUCTS, AND WHIZ AIR.
- B. FABRICATE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, AND AS INDICATED.
- C. FABRICATE SPLITTER DAMPERS OF MATERIAL SAME GAGE AS DUCT TO 24 INCHES SIZE IN EITHER DIRECTION AND TWO GAGES HEAVIER FOR SIZES OVER 24 INCHES.
- D. FABRICATE SPLITTER DAMPERS TO STREAMLINE SHAPE. SECURE BLADE WITH CONTINUOUS HINGE OR ROD. OPERATE WITH MINIMUM 1/4-INCH DIAMETER ROD IN SELF ALIGNING, UNIVERSAL JOINT ACTION FLANGED BUSHING WITH SET SCREW.
- E. FABRICATE SINGLE BLADE DAMPERS FOR DUCT SIZES TO 12 INCH.
- F. FABRICATE MULTI-BLADE DAMPER OF OPPOSED BLADE PATTERN WITH MAXIMUM BLADE SIZES 12 X 72 INCHES. ASSEMBLE CENTER AND EDGE CRIMPED BLADES IN PRIME COATED OR GALVANIZED CHANNEL FRAME WITH SUITABLE HARDWARE.
- G. EXCEPT IN ROUND DUCTWORK 12 INCHES AND SMALLER, PROVIDE END BEARINGS. ON MULTIPLE BLADE DAMPERS, PROVIDE OIL-IMPREGNATED NYLON OR SINTERED BRONZE BEARINGS.
- H. PROVIDE LOCKING, INDICATING QUADRANT REGULATORS ON SINGLE AND MULTI-BLADE DAMPERS. WHERE ROD LENGTHS EXCEED 30 INCHES PROVIDE REGULATOR AT BOTH ENDS.
- I. WHERE DUCTWORK IS REQUIRED TO HAVE EXTERNAL INSULATION WRAP APPLIED, DAMPERS SHALL BE PROVIDED WITH 2" STAND-OFF (MINIMUM) TO ALLOW FULL RANGE OF MOTION OF DAMPER HANDLE WITHOUT DAMAGE TO SURROUNDING INSULATION.

2.3 BACKDRAFT DAMPERS

- A. ACCEPTABLE MANUFACTURERS
1. UNITED ENERTECH, AIR BALANCE, ARROW, CESCO, NAILOR, RUSKIN, AND VENT PRODUCTS.
- B. GRAVITY BACKDRAFT DAMPERS, SIZE 18 X 18 INCHES OR SMALLER, FURNISHED WITH AIR MOVING EQUIPMENT, MAY BE AIR MOVING EQUIPMENT MANUFACTURERS STANDARD CONSTRUCTION.
- C. FABRICATE MULTI-BLADE, PARALLEL ACTION GRAVITY BALANCED BACKDRAFT DAMPERS OF 16 GAGE GALVANIZED STEEL, WITH CENTER PIVOTED BLADES OF MAXIMUM 6-INCH WIDTH, WITH FELT OR FLEXIBLE VINYL SEALED EDGES, LINKED TOGETHER IN BATTLE-FREE MANNER WITH 90 DEGREE STOP, STEEL BALL BEARINGS, AND PLATED STEEL PIVOT PIN; ADJUSTMENT DEVICE TO PERMIT SETTING FOR VARYING DIFFERENTIAL STATIC PRESSURE.

2.4 AIR TURNING DEVICES

- A. ACCEPTABLE MANUFACTURERS
1. DUCTMATE INDUSTRIES, DURO-DYNE, METALAIRE, SEMCO, WARD INDUSTRIES.
- B. MULTI-BLADE DEVICE WITH BLADES ALIGNED IN SHORT DIMENSION; STEEL OR ALUMINUM CONSTRUCTION, WITH INDIVIDUALLY ADJUSTABLE BLADES, MOUNTING STRAPS. PROVIDE IN ALL SQUARE TURNS.

2.5 FLEXIBLE DUCT CONNECTORS

- A. ACCEPTABLE MANUFACTURERS
1. DUCTMATE INDUSTRIES, DURO-DYNE, VENT FABRICS, WARD INDUSTRIES.
- B. FABRICATE IN ACCORDANCE WITH SMACNA LOW PRESSURE DUCT CONSTRUCTION STANDARDS, AND AS INDICATED.
- C. UL LISTED FIRE-RETARDANT NEOPRENE COATED WOVEN GLASS FIBER FABRIC TO NFPA 90A, MINIMUM DENSITY 20 OZ. PER SQUARE YARD, APPROXIMATELY 6 INCHES WIDE, CRIMPED INTO METAL EDGING STRIP.

2.7 DUCT TEST HOLES

- A. CUT OR DRILL TEMPORARY TEST HOLES IN DUCTS AS REQUIRED. CAP WITH NEAT PATCHES, NEOPRENE PLUGS, THREADED PLUGS, OR THREADED OR TWIST-ON METAL CAPS.
- B. PERMANENT TEST HOLES SHALL BE FACTORY FABRICATED, AIR TIGHT FLANGED FITTINGS WITH SCREW CAP. PROVIDE EXTENDED NECK FITTINGS TO CLEAR INSULATION.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. INSTALL ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. PROVIDE BALANCING DAMPERS AT POINTS ON LOW PRESSURE SUPPLY, RETURN, AND EXHAUST SYSTEMS WHERE BRANCHES ARE TAKEN FROM LARGER DUCTS AS REQUIRED FOR AIR BALANCING. USE SPLITTER DAMPERS WHERE REQUIRED.
- C. PROVIDE BACKDRAFT DAMPERS ON EXHAUST FANS OR EXHAUST DUCTS NEAREST TO OUTSIDE AND WHERE INDICATED.
- D. PROVIDE FLEXIBLE CONNECTIONS IMMEDIATELY ADJACENT TO EQUIPMENT IN DUCTS ASSOCIATED WITH FANS AND MOTORIZED EQUIPMENT.
- E. PROVIDE DUCT ACCESS DOORS FOR INSPECTION AND CLEANING BEFORE AND AFTER FILTERS, COILS, FANS, AUTOMATIC DAMPERS, AT FIRE DAMPERS, AND ELSEWHERE AS INDICATED. PROVIDE MINIMUM 8 X 8-INCH SIZE FOR HAND ACCESS, 18 X 18-INCH SIZE FOR SHOULDER ACCESS, AND AS INDICATED.
- F. PROVIDE DUCT TEST HOLES WHERE INDICATED AND REQUIRED FOR TESTING AND BALANCING PURPOSES.
- G. PROVIDE FIRE DAMPERS AT LOCATIONS INDICATED, WHERE DUCTS AND OUTLETS PASS THROUGH FIRE RATED COMPONENTS, AND WHERE REQUIRED BY AUTHORITIES HAVING JURISDICTION. INSTALL WITH REQUIRED PERIMETER MOUNTING ANGLES, SLEEVES, BREAKAWAY DUCT CONNECTIONS, CORROSION RESISTANT SPRINGS, BEARINGS, BUSHINGS AND HINGES.
- H. ONLY DYNAMIC FIRE DAMPERS ARE TO BE USED UNLESS OTHERWISE SPECIFIED. DYNAMIC FIRE DAMPERS ARE SPECIFICALLY TO BE USED WHERE HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS ARE DESIGNED TO OPERATE WITH FANS ON DURING A FIRE.
- I. DEMONSTRATE RE-SETTING OF FIRE DAMPERS TO AUTHORITIES HAVING JURISDICTION AND OWNER'S REPRESENTATIVE.

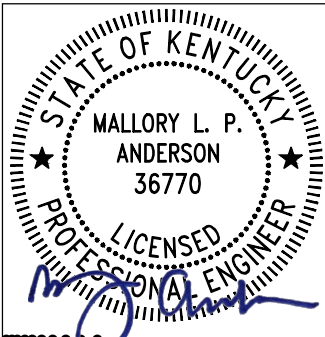
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MECHANICAL
SPECIFICATIONS

M8.02

SECTION 23 34 23 - POWER VENTILATORS

PART 1 - GENERAL

11 WORK INCLUDED

- A. Inline Exhaust Fans
- B. Ceiling Exhaust Fans

PART 2 - PRODUCTS

21 ACCEPTABLE MANUFACTURERS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following: Carnes Company, Greenheck Fan Corporation, Loren Cook Company.

22 GENERAL

- A. Provide all fans with disconnect.
- B. Provide all fans with motor starters. See Section 230100 for details.
- C. Integral phase relay shall be provided as a part of all three phase motor starters. Relay shall shut motor down on phase loss or phase unbalance and automatically reset when normal phasing is restored. Phase failure relay shall have adjustable restart time capabilities. Mechanical contractor shall coordinate staggered restart times as required.
- D. See drawings or Specification Section 230900 - INSTRUMENTATION AND CONTROLS FOR HVAC for control of fans.

23 INLINE EXHAUST FAN

- A. Duct mounted, exhaust fans shall be of the centrifugal belt or direct driven in-line type as specified. The fan housing shall be of the square design constructed of heavy gauge galvanized steel and shall include square duct mounting collars.
- B. Fan housing shall be equipped with a hinge able service door assembly supporting the motor, drives, wheel and inlet cone. The door assembly must swing out for cleaning, inspection or service without dismantling the fan in any way.
- C. The fan wheel shall be of the aluminum backward inclined, centrifugal type. Wheels shall be dynamically and statically balanced and shall overlap the spun inlet venturi for maximum performance.
- D. The motor and drives shall be isolated from the air stream. Motors shall be of the heavy-duty type with permanently lubricated, sealed ball bearings. The wheel shaft shall be ground, and polished shafting mounted in heavy duty permanently sealed pillow block bearings. Drives shall be sized for a minimum of 165% of driven horsepower. Pulleys shall be of the fully machined cast iron type, keyed and securely attached to the wheel and motor shafts. The motor pulleys shall be adjustable for final system balancing.
- E. Flexible wiring leads shall be provided from the fan motor to an external mounted junction box and disconnect switch permitting access for service without disconnecting the field wiring.
- F. All fans shall bear the AMCA Certified Ratings Seal for both air and sound performance.

24 CEILING EXHAUST FANS

- A. Centrifugal Fan Unit: V-belt or direct drive as specified, with galvanized steel housing lined with 1/2-inch acoustic insulation resilient mounted motor, gravity backdraft damper in discharge.
- B. Disconnect Switch: Factory wired, non-fusible, in housing for thermal overload protected motor and wall mounted multiple speed switch/solid state speed controller.
- C. Grille: Molded white plastic or aluminum with baked white enamel finish.
- D. Sheaves: Cast iron or steel, dynamically balanced, bored to fit shafts and keyed, variable and adjustable pitch motor sheaves selected so required rpm is obtained with sheaves set at mid-position, fan shaft with self-aligning pre-lubricated ball bearings.

PART 3 - EXECUTION

31 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. Install equipment in a manner to provide required clearances for proper operation and maintenance.
- C.

SECTION 23 37 13 - AIR DISTRIBUTION DEVICES

PART 1- GENERAL

11 WORK INCLUDED

- A. DIFFUSERS, REGISTERS/GRILLES

12 ACTION SUBMITTALS

- A. SHOP DRAWINGS: FOR EACH TYPE OF PRODUCT.

PART 2 - PRODUCTS

21 ACCEPTABLE MANUFACTURERS

- A. MANUFACTURER LISTED IN SCHEDULE IS FOR DESIGN SELECTION ONLY.
- B. REGISTERS, GRILLES, AND DIFFUSERS: PRICE, NAILOR, TITUS

22 RECTANGULAR CEILING DIFFUSERS

- A. SQUARE, STAMPED, MULTICORE TYPE DIFFUSER TO DISCHARGE AIR IN FIXED 360-DEGREE PATTERN, OR ADJUSTABLE PATTERN AS SPECIFIED.
- B. PROVIDE FOR SURFACE MOUNT AND INVERTED T-BAR WHERE SHOWN. IN PLASTER CEILINGS, PROVIDE PLASTER FRAME AND CEILING FRAME.
- C. FABRICATE OF ALUMINUM WITH BAKED ENAMEL FINISH.
- D. PROVIDE RADIAL OPPOSED BLADES DAMPER ADJUSTABLE FROM DIFFUSER FACE FOR SURFACE MOUNTED UNIT WHERE SPECIFIED.

23 CEILING GRID CORE EXHAUST AND RETURN REGISTERS/GRILLES

- A. FIXED GRILLES OF 1/2 X 1/2 X 1-INCH LOUVERS.
- B. FABRICATE MARGIN FRAME WITH COUNTERSUNK SCREW MOUNTING OR LAY-IN FRAME FOR SUSPENDED GRID CEILINGS AS SHOWN IN SCHEDULE ON DRAWINGS
- C. FABRICATE OF ALUMINUM WITH FACTORY CLEAR LACQUER FINISH.
- D. WHERE SCHEDULED PROVIDE INTEGRAL, GANG-OPERATED OPPOSED BLADE DAMPERS WITH REMOVABLE KEY OPERATOR, OPERABLE FROM FACE
- E. ALL LOUVER-FACED GRILLES SHALL BE PROVIDED WITH PATTERN CONTROLLER BLADES UNLESS SCHEDULED OTHERWISE ON THE DRAWINGS.

PART 3 - EXECUTION

31 INSTALLATION

- A. FURNISH AND INSTALL WHERE SHOWN ON DRAWINGS ALL REGISTERS, GRILLES AND DIFFUSERS IN ACCORDANCE WITH THE TABULATION IN THE SCHEDULE ON DRAWINGS.
- B. PROVIDE ACCESSORIES AND MODIFICATIONS AS INDICATED IN SCHEDULE NOTES.
- C. INSTALL ITEMS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS
- D. INSTALL IN LOCATIONS AS SHOWN ON DRAWINGS. ITEMS HAVE BEEN LOCATED AS SHOWN TO PROVIDE MAXIMUM PERFORMANCE. COORDINATE WITH ARCHITECTURAL FEATURES AND NOTIFY ARCHITECT/ENGINEER OF ANY CONFLICTS.
- E. INSTALL DIFFUSERS TO DUCTWORK WITH AIR TIGHT CONNECTION.
- F. PROVIDE ACCESSIBLE BALANCING DAMPERS ON DUCT TAKE-OFF TO DIFFUSERS, AND GRILLES AND REGISTERS, REGARDLESS OF WHETHER DAMPERS ARE SPECIFIED AS PART OF THE DIFFUSER, OR GRILLE AND REGISTER.

SECTION 23 74 13 - PACKAGED ROOF TOP GAS/ELECTRIC AIR CONDITIONING UNITS

PART 1- GENERAL

11 SECTION INCLUDES

- A. PACKAGED ROOF TOP UNIT
- B. UNIT CONTROLS
- C. ROOF MOUNTING FRAME AND BASE

12 RELATED DOCUMENTS

- A. THE GENERAL AND SPECIAL CONDITIONS, DIVISION 01 SPECIFICATION SECTIONS, AND ALL OTHER CONTRACT DOCUMENTS (ESPECIALLY DIVISIONS 21, 22, 23 AND 26) ARE APPLICABLE TO WORK UNDER THIS SECTION OF THE SPECIFICATIONS. ALL THE WORK UNDER THIS SECTION OF THE SPECIFICATIONS SHALL BE GOVERNED BY ANY ALTERNATES AND UNIT PRICES CALLED FOR IN THE FORM OF PROPOSAL INsofar AS THEY AFFECT THIS PORTION OF THE WORK.
- B. SECTION 220100 - GENERAL PROVISION FOR MECHANICAL WORK

13 ACTION SUBMITTALS

- A. SHOP DRAWINGS:
 - I. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
 - a. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES, AND RELATED ROOF CURB.
 - b. INCLUDE RATED CAPACITIES, OPERATING CHARACTERISTICS, ELECTRICAL CHARACTERISTICS, AND FURNISHED SPECIALTIES AND ACCESSORIES.
 - c. INCLUDE UNIT DIMENSIONS AND WEIGHT.
 - d. INCLUDE CABINET MATERIAL, METAL THICKNESS, FINISHES, INSULATION, AND ACCESSORIES.
 - e. INCLUDE CERTIFIED FAN-PERFORMANCE CURVES WITH SYSTEM OPERATING CONDITIONS INDICATED.
 - f. INCLUDE CERTIFIED COIL-PERFORMANCE RATINGS WITH SYSTEM OPERATING CONDITIONS INDICATED.
 - g. INCLUDE FILTERS WITH PERFORMANCE CHARACTERISTICS.

- h. INCLUDE DAMPERS, INCLUDING HOUSINGS, LINKAGES, AND OPERATORS.

- i. WIRING DIAGRAMS: FOR POWER, SIGNAL, AND CONTROL WIRING.

1.4 CLOSEOUT SUBMITTALS

- A. APPROVED SHOP DRAWINGS: FOR ALL ROOF TOP UNITS AND RELATED COMPONENTS. PROVIDE IN OPERATION AND MAINTENANCE MANUAL.
- B. OPERATION AND MAINTENANCE DATA: FOR ROOF TOP UNITS TO INCLUDE IN OPERATION AND MAINTENANCE MANUALS.

1.5 WARRANTY

- A. PROVIDE ONE (1) YEAR MANUFACTURER'S WARRANTY ON UNIT.
- B. INCLUDE FOUR (4) YEAR EXTENDED COVERAGE OF REFRIGERATION COMPRESSORS.

1.6 EXTRA MATERIALS

- A. PROVIDE ONE (1) EXTRA SET OF FILTERS FOR EACH UNIT.

PART 2 - PRODUCTS

21 ACCEPTABLE MANUFACTURER

- A. TRANE, CARRIER, MCQUAY, YORK.

2.2 MANUFACTURED UNITS

- A. PROVIDE ROOF-MOUNTED UNITS HAVING ELECTRIC REFRIGERATION.
- B. UNIT SHALL BE SELF-CONTAINED, PACKAGED, FACTORY ASSEMBLED AND PREWIRED, CONSISTING OF CABINET AND FRAME, SUPPLY FAN, CONTROLS, AIR FILTERS, REFRIGERANT COOLING COIL AND COMPRESSOR, CONDENSER COIL, CONDENSER FAN, AND NATURAL GAS-FIRED BURNER SECTION.

2.3 FABRICATION

- A. CABINET: GALVANIZED STEEL WITH BAKED ENAMEL FINISH, ACCESS DOORS OR REMOVABLE ACCESS PANELS WITH QUICK FASTENERS. STRUCTURAL MEMBERS SHALL BE MINIMUM 1/4 GAGE WITH ACCESS DOORS OR REMOVABLE PANELS OF MINIMUM 1/8 GAGE.
- B. INSULATION: ONE INCH (1") THICK NEOPRENE COATED GLASS FIBER ON SURFACES WHERE CONDITIONED AIR IS HANDLED. PROTECT EDGES FROM EROSION.
- C. SUPPLY FAN: FORWARD CURVED CENTRIFUGAL TYPE, RESILIENTLY MOUNTED WITH V-BELT DRIVE, ADJUSTABLE VARIABLE PITCH MOTOR PULLEY AND RUBBER ISOLATED HINGE MOUNTED MOTOR. ISOLATE COMPLETE FAN ASSEMBLY.
- D. AIR FILTERS: TWO INCH (2") THICK GLASS FIBER DISPOSABLE FILTERS, FARR MODEL 30/30 OR EQUAL. NEW FILTERS SHALL BE INSTALLED AT SUBSTANTIAL COMPLETION IN ADDITION TO THE EXTRA SET OF FILTERS PROVIDED.
- E. ROOF CURB: INSULATED, WEATHERPROOF TWELVE INCHES (12") HIGH GALVANIZED STEEL, CHANNEL FRAME WITH GASKETS, NAILER STRIPS AND INTEGRAL SPRING ISOLATORS. FABRICATE CURB TO MATCH UNIT REQUIREMENTS AND FIT SLOPE OF ROOF. SEE SECTION 220548.

2.4 EVAPORATOR COIL

- A. PROVIDE COPPER TUBE ALUMINUM FIN COIL ASSEMBLY WITH GALVANIZED DRAIN PAN AND CONNECTION.
- B. PROVIDE THERMOSTATIC EXPANSION VALVES AND ALTERNATE ROW CIRCUITING.

2.5 COMPRESSOR

- A. PROVIDE HERMETIC COMPRESSOR, 1750 RPM RESILIENTLY MOUNTED WITH POSITIVE LUBRICATION, CRANKCASE HEATER-, HIGH- AND LOW-PRESSURE SAFETY CONTROLS, MOTOR OVERLOAD PROTECTION, SUCTION AND DISCHARGE SERVICE VALVES AND GAGE PORTS AND FILTER DRIER.
- B. PROVIDE STEP CAPACITY CONTROL BY CYCLING COMPRESSORS AND CYLINDER UNLOADING WHERE SCHEDULED.

2.6 CONDENSER

- A. PROVIDE COPPER TUBE ALUMINUM FIN COIL ASSEMBLY WITH SUBCOOLING ROWS.
- B. PROVIDE DIRECT DRIVE PROPELLER FANS, RESILIENTLY MOUNTED WITH FAN GUARD, MOTOR OVERLOAD PROTECTION, WIRED TO OPERATE WITH COMPRESSOR.

2.7 SUPPLY/RETURN CASING

- A. DAMPERS ECONOMIZER: PROVIDE LOW LEAKAGE OUTSIDE, RETURN AND RELIEF DAMPERS, NOT TO EXCEED 3% LEAKAGE AT 1 IN. W.G. PRESSURE DIFFERENTIAL WITH DAMPER OPERATOR AND CONTROL PACKAGE TO AUTOMATICALLY VARY OUTSIDE AIR QUANTITY. OUTSIDE AIR DAMPER SHALL FALL TO CLOSED POSITION. RELIEF DAMPERS MAY BE GRAVITY BALANCED.
- B. GASKETS: PROVIDE TIGHT FITTING DAMPERS WITH EDGE GASKETS, MAXIMUM LEAKAGE 3% AT PRESSURE DIFFERENTIAL.

2.8 OPERATING CONTROLS

- A. TIME DELAY RELAY SHALL PROVIDE A FOUR-MINUTE TIME DELAY BETWEEN STARTING OF THE FIRST AND SECOND COMPRESSOR.
- B. ANTISHORT CYCLE: A LOCKOUT TIME SHALL PROVIDE A MINIMUM OFF TIME OF FIVE MINUTES BETWEEN COMPRESSOR CYCLING.
- C. AUTOMATICALLY MODULATING, OUTDOOR AND RETURN AIR DAMPERS MAINTAIN PROPER ROOM TEMPERATURE INTO THE CONDITIONED SPACE. ADJUSTABLE MINIMUM POSITION CONTROL SHALL BE STANDARD. SPRING RETURN MOTOR, UPON LOSS OF POWER, DAMPERS WILL CLOSE SHUT. ECONOMIZERS SHALL OFFER THE ENERGY SAVING LOW-LEAK ECONOMIZER DAMPERS. THESE DAMPERS SHALL REDUCE DAMPER LEAKAGE DOWN TO 10 CFM/FT AT 1" WG DIFFERENTIAL STATIC PRESSURE OR LESS THAN 1% OF NOMINAL UNIT AIR FLOW ACCORDING TO THE AIR MOVEMENT AND CONTROL ASSOCIATION (AMCA) LABORATORIES IN ACCORDANCE WITH AMCA STANDARD 575.
- D. CENTRAL CONTROL PANEL: PROVIDE COMBINED STANDARD THERMOSTAT SUBBASE WITH HEAT, COOL, OFF, FAN-AUTO-AND-ON POSITION WITH 3 STAGES OF COOLING AND 1 STAGE OF HEATING. FOUR SIGNAL LIGHTS INDICATE POWER, PILOT OUTAGE, CLOGGED FILTERS AND RESET RELAY. POWER SIGNALS SHOWS GREEN INDICATING POWER AVAILABLE TO UNIT. POWER SIGNALS SHOW RED INDICATING POWER OUTAGE. PILOT SIGNAL SHOWS RED WHEN THERE IS A HEATING MALFUNCTION. FILTER SIGNAL SHALL SHOW RED WHEN FILTERS CLOG AND NEED REPLACEMENT. RESET SIGNALS SHALL SHOW RED IF SYSTEM IS OUT ON ANY COOLING SAFETY CONTROLS. ECONOMIZER SHALL PROVIDE FIRST STAGE OF COOLING.
- E. CONTROL COOLING BY CYCLING COMPRESSORS AND CYLINDER UNLOADING.

2.9 GAS HEATING SECTION

- A. INDUCED-DRAFT COMBUSTION TYPE WITH ENERGY SAVING DIRECT-SPARK IGNITION SYSTEM AND REDUNDANT MAIN GAS VALVE.
- B. THE HEAT EXCHANGER SHALL BE OF THE TUBULAR-SECTION TYPE CONSTRUCTED OF A MINIMUM OF 20-GAUGE STEEL COATED WITH A NOMINAL 12 MIL ALUMINUM-SILICONE ALLOY FOR CORROSION RESISTANCE.
- C. BURNERS SHALL BE OF THE IN-SHOT TYPE CONSTRUCTED OF ALUMINUM-COATED STEEL.

PART 3 - EXECUTION

31 INSTALLATION

- A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- B. MOUNT UNITS ON FACTORY-BUILT ROOF MOUNTING FRAME PROVIDING WATERTIGHT ENCLOSURE TO PROTECT DUCTWORK AND UTILITY SERVICES. INSTALL ROOF MOUNTING FRAME LEVEL.
- C. INSTALL UNITS IN A MANNER TO PROVIDE THE REQUIRED CLEARANCES FOR OPERATION, SERVICE, AND MAINTENANCE OF UNITS.

3.2 DEMONSTRATION

- A. PROVIDE OWNER'S MAINTENANCE PERSONNEL TRAINING AS REQUIRED TO ADJUST, OPERATE, AND MAINTAIN UNITS.

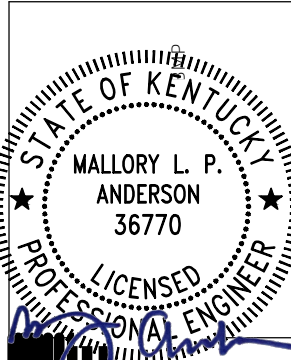
PROJECT NO:

23-4451

DRAWN BY:

MLA

DATE:



KEYES ARCHITECTS & ASSOCIATES
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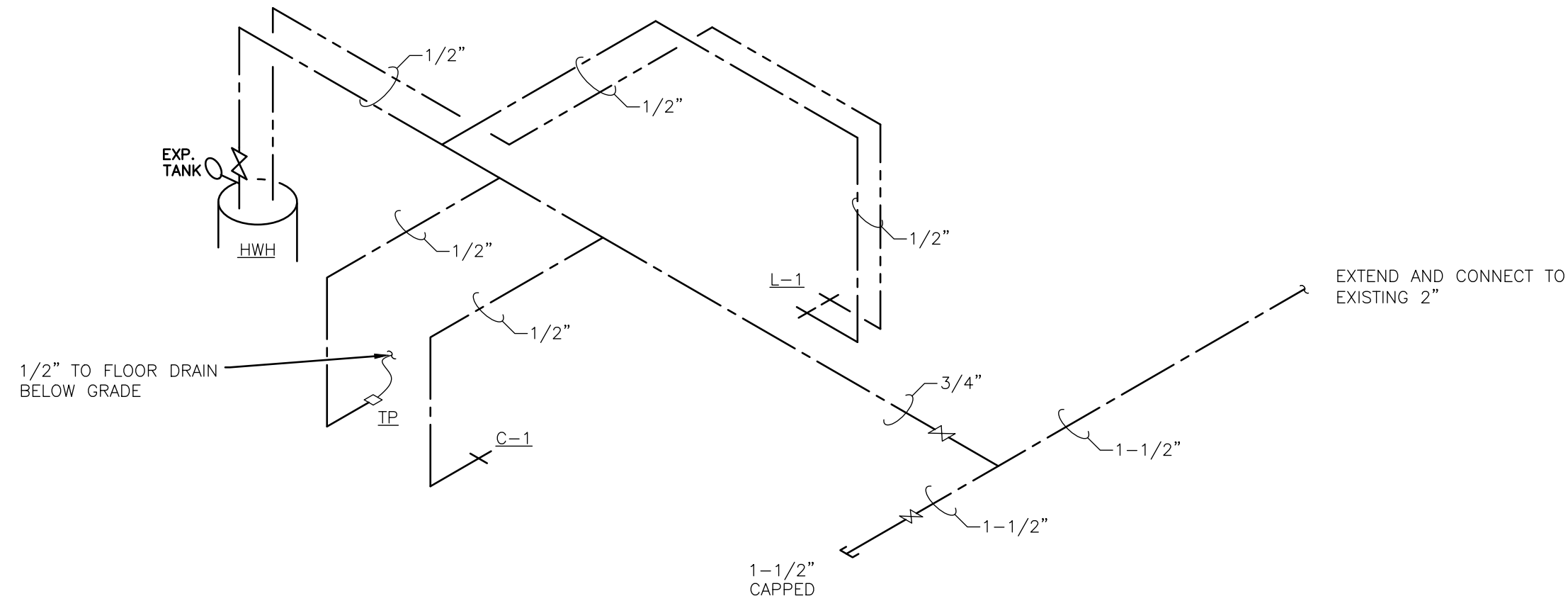
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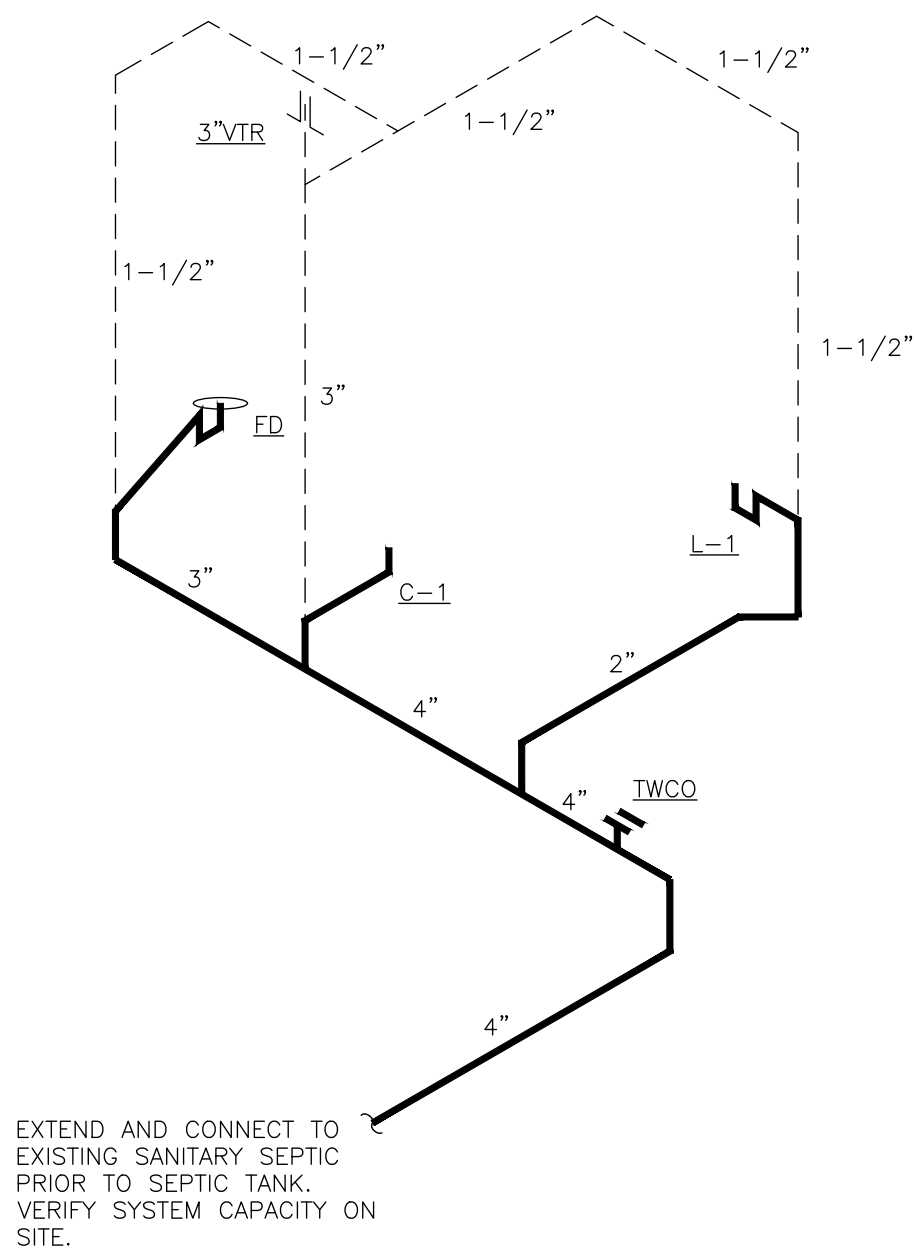
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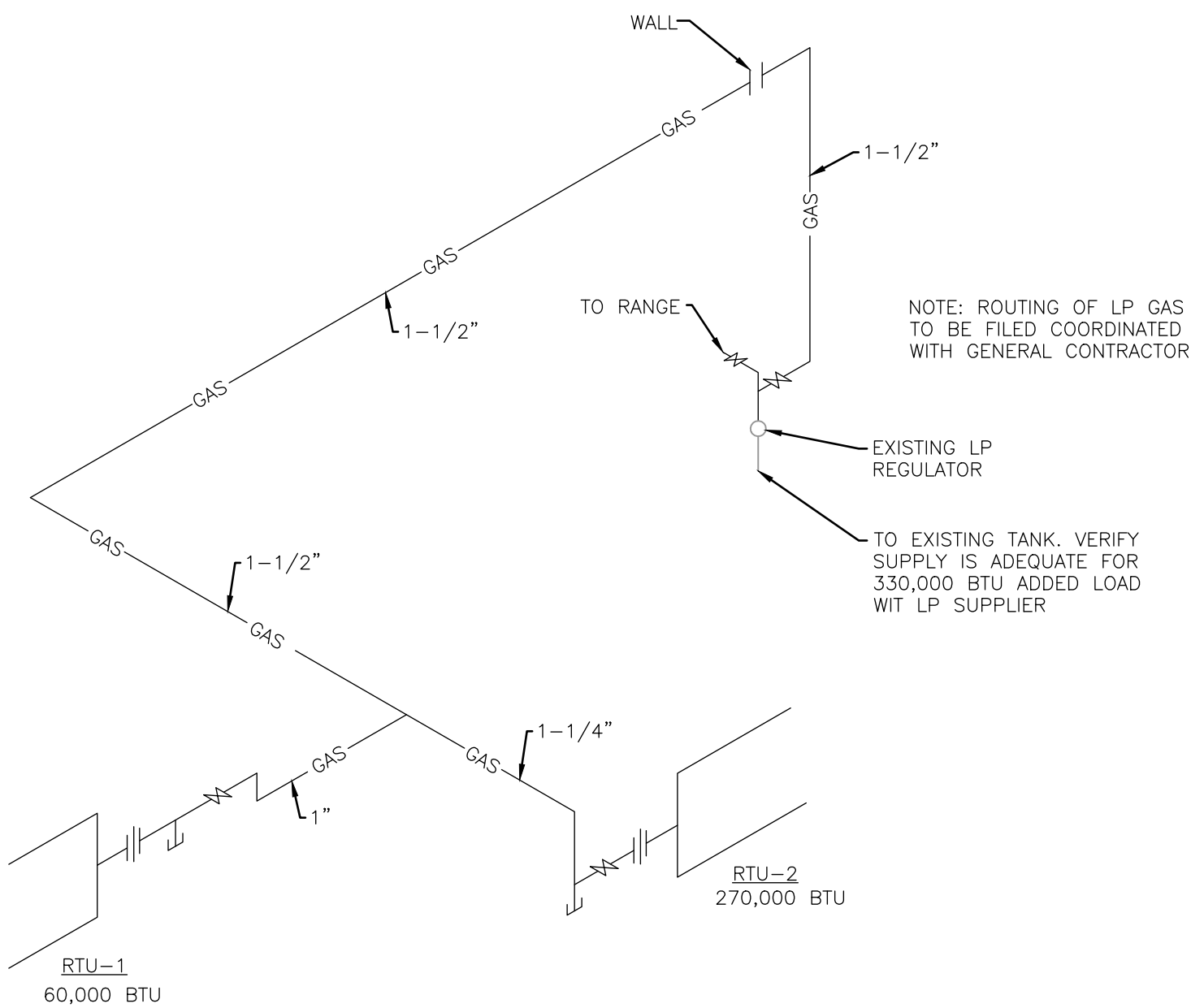
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DOMESTIC WATER RISER DIAGRAM
NO SCALE



WASTE AND VENT RISER DIAGRAM
NO SCALE



GAS RISER DIAGRAM
NO SCALE

PLUMBING FIXTURE SCHEDULE:

FIXTURES AND EQUIPMENT SHALL BE EQUAL TO ITEMS DESCRIBED BELOW:

RPZ	3/4" REDUCED PRESSURE PRINCIPLE BACKFLOW PREVENTOR WITH STRAINER- PROVIDE ADEQUATE DRAIN TO PREVENT FLOODING, IN THE EVENT DEVICE WERE TO DISCHARGE.
TWCO	4" PVC TWO WAY CLEANOUT - IF THIS OCCURS IN GRASS AREA, THERE SHALL BE A 18"x18"x6" THICK CONCRETE PAD INSTALLED AT GRADE BY GENERAL CONTRACTOR.
CO	4" PVC BODY CLEANOUT WITH ADJUSTABLE METAL TOP
C-1	WHITE ADA HEIGHT ELONGATED TOILET WITH WHITE OPEN FRONT, LESS COVER SEAT- WAX RING SEAL- BRASS CLOSET BOLTS, NUTS AND WASHERS- LOOSE KEY CHROME ANGLE COMPRESSION STOP - CHROME ESCUTCHEON- BRAIDED CLOSET SUPPLY - FLUSH MECHANISM ON "WIDE SIDE" OF ADA AREA
L-1	19"x17" CHINA WALL HUNG CONCEALED ARM LAVATORY- 1- 1/4" GRID DRAIN - ADA SINGLE LEVER CHROME LAVATORY FAUCET - TEMPERING VALVE - STOP AND TRAP PROTECTOR KIT - PVC P TRAP - LOOSE KEY CHROME ANGLE COMPRESSION STOPS - FLOOR MOUNTED, CONCEALED ARM LAVATORY CARRIER - WALL HANGER ALSO
HWH	6 GALLON ELECTRIC WATER HEATER - THERMAL EXPANSION TANK - RELIEF VALVE AND CODE APPROVED DISCHARGE- METAL PAN WITH DRAIN - MANUFACTURED WATER HEATER SHELF SECURED TO STRUCTURE FOR SUPPORTING 100 #.
TP	PRIME RITE OR EQUAL TRAP PRIMER VALVE WITH LOCKING 8"x8" STAINLESS STEEL ACCESS PANEL FOR MAINTENANCE. EXTEND 1/2" PIPING BELOW FLOOR, TO CONNECT TO FLOOR DRAIN WITH WATER TIGHT CONNECTION.
FD	3" OR 4" PVC BODY FLOOR DRAIN WITH ADJUSTABLE METAL TOP

PLUMBING SHEET NOTES:

- ALL WORK SHALL BE PERFORMED UNDER CURRENT LAWS, RULES AND REGULATIONS IN PLACE AT TIME OF CONSTRUCTION. CONSIDER OSHA REGULATIONS AND ALL CODES FOR PROJECT CONSTRUCTION.
- ALL PERSONNEL SHALL BE LICENSED, IN JURISDICTION OF THE PROJECT, THIS INCLUDES CONTRACTOR'S LICENSING AND REGISTRATION.
- DRAWINGS FOR THE PROJECT ARE DIAGRAMMATIC IN NATURE, AND MAY NOT SHOW EVERY BEND, OFFSET OR FITTING REQUIRED FOR A COMPLETED PROJECT. CONTRACTOR SHALL INCLUDE ALL THESE ITEMS IN PROJECT PRICING.
- DO NOT SCALE DRAWINGS FOR ROUGH-INS, REFER TO DIMENSIONED DRAWINGS AND EQUIPMENT SPECIFICATION SHEETS FOR REVIEWING THOSE REQUIREMENTS.
- CONSULT PROJECT DOCUMENTS FOR EXACT LOCATIONS OF UTILITIES, EQUIPMENT AND DRAINS, SHOWN ON DRAWING.
- DURING THE COURSE OF THE PROJECT, ADVISE GENERAL CONTRACTOR AND ARCHITECT OF ANY FOUND DISCREPANCIES IN PROJECT PLANS, UTILITIES OR CONDITIONS.
- RESPECT THE INSTALLATION AND EQUIPMENT OF OTHER TRADES AND COORDINATE WITH THOSE PERSONS, TO ENSURE THAT THE NEEDS OF ALL TRADES ARE CONSIDERED DURING CONSTRUCTION.
- "RECORD DRAWINGS" REFLECTING ANY CHANGES IN THE PROJECT, SHALL BE DOCUMENTED AND "RED LINED" ON A SET OF DOCUMENTS, THAT SHALL BE KEPT ON SITE, FOR ALL CONCERNED PARTIES TO REVIEW AND COMMENT ON ANY CHANGES. AT THE END OF THE PROJECT, RECORD DRAWINGS OR AN ELECTRONIC COPY OF SAME, SHALL BE TURNED OVER TO OWNER FOR FUTURE REFERENCE.
- PROVIDE DEPARTMENT CERTIFICATE OR CONFIRMATION ON CORPORATE STATIONERY, OF FINAL PLUMBING INSPECTION, WITH DATE OF SAME AFFIXED.
- STANDARD MANUFACTURER'S WARRANTY SHALL APPLY, ALONG WITH CONTRACTOR'S WARRANTY OF LABOR AND MATERIALS SUPPLIED FOR THE PROJECT, FOR A PERIOD OF ONE YEAR, FROM DATE OF FINAL PLUMBING INSPECTION.
- ALL MATERIALS FOR PROJECT SHALL BE NEW AND OF BEST QUALITY, AS SPECIFIED.
- THERE SHALL BE NO PIPING OR SYSTEMS COVERED OR INSULATED, UNTIL SUCH TIME THAT THE SYSTEM IS PROVEN TO BE SOUND, LEAK-FREE AND INSPECTED, AS REQUIRED BY CODES.
- PLANS, COPIES, REVIEW FEES AND SUBMITTAL FOR GOVERNMENT APPROVALS, SHALL BE PERFORMED AND PAID FOR BY OTHERS OR GENERAL CONTRACTOR, AS IS APPLICABLE.
- PLUMBING CONTRACTOR SHALL PROVIDE REQUIRED PLUMBING PERMITS AND INSPECTIONS.
- FURNISH AND INSTALL, PER ALL CODES, ALL FIRE STOPPING OR SMOKE CAULKING OF ANY PENETRATIONS THAT OCCUR IN RATED STRUCTURES. PROVIDE SLEEVES AND INSTALLATION OF SAME AS NEEDED FOR THIS OPERATION TO MEET CODES.
- INSTALL ALL PIPING SYSTEMS, SO AS TO BE PROTECTED FROM FREEZING.
- ALL EXCAVATIONS FOR PROJECT PLUMBING SHALL BE DENATURED AS NECESSARY. DO NOT BACKFILL WITH FROZEN MATERIALS. EXCAVATIONS SHALL BE KEPT TO A MINIMUM, YET SHALL HAVE PROPER GRILLAGE FOR SUPPORT AND BACKFILLED SO AS TO PREVENT FUTURE SETTLEMENT OF THE AREA.
- BENEATH PAVED OR CONCRETE AREAS, EXCAVATIONS SHALL BE BACKFILLED PROPERLY TO SUBGRADE, AND MECHANICALLY TAMPED, AS NECESSARY.
- RESTORATION OF AREAS DISTURBED FOR PLUMBING CONSTRUCTION SHALL BE EQUAL TO OR BETTER, THAN CONDITIONS OF EXISTING, UPON ONSET OF CONSTRUCTION. COORDINATE THE EXTENT OF THIS RESTORATION, WITH GENERAL CONTRACTOR, AS TO ACTUAL LIMITS REQUIRED TO BE PERFORMED BY PLUMBING CONTRACTOR.
- CONTRACTOR REQUIRING SAME, SHALL SCRIBE CUT, BREAK AND REMOVE CONCRETE OR PAYMENT FOR INSTALLATION OF NEW PIPING OR SYSTEMS. MINIMIZE CROSS CUTS IN TRENCH AREA.
- COORDINATE SCRIBE CUT WITH GENERAL CONTRACTOR TO ALLOW FOR POSSIBILITY OF OTHER TRADE SHARING CUTS, AND/OR EXCAVATIONS FOR UTILITIES.
- PERSONNEL SHALL CONDUCT THEMSELVES PROFESSIONALLY AT ALL TIMES, AS THE PROJECT IS LOCATED IN VIEW AND IN CONTACT WITH THE PUBLIC AT A RELIGIOUS SCHOOL, CONSTRUCTION PERSONNEL SHALL LIMIT THEIR PRESENCE TO THE AREA UNDER CONSTRUCTION AND AVOID S DISRUPTION OF DAY TO DAY SCHOOL ACTIVITIES.
- COORDINATE ANY UTILITIES INTERRUPTIONS WITH SCHOOL MAINTENANCE PERSONNEL. BE AWARE AND ADVISED OF LOCATIONS AND CONDITIONS OF ALL VALVES THAT ARE PERTINENT TO THE SYSTEMS YOU ARE CONNECTING TO FOR NEW UTILITIES FOR THE PROJECT.
- IF ROCK MAY BE ENCOUNTERED DURING EXCAVATIONS, CONSULT WITH GENERAL CONTRACTOR AS TO THE METHOD AND COSTS OF REMOVAL AND DISPOSAL OF SAME.
- SPOILS FROM EXCAVATIONS SHALL BE STOCKPILED ON SITE IN AREA DESIGNATED FOR THE DISPOSAL OF THE SPOILS, OR PLACED IN DUMPSTER ON SITE FOR HANDLING AND DISPOSAL BY OTHERS.
- THERE SHALL BE NO CUTTING OR ALTERATIONS TO STRUCTURAL MEMBERS, WITH OUT PRIOR CONSULTATION WITH AND WRITTEN CONSENT OF THE ARCHITECT/ENGINEER.
- CORE DRILLING OF OPENINGS SHALL BE AT A MINIMUM, SO AS TO ALLOW FOR PROPER FIRE CAULK, SMOKE CAULK OR FIRE STOPPING OPERATIONS.
- CONTRACTOR IS TO DISPOSE OF HIS GENERATED WASTE, IN THE PROVIDED DUMPSTER, AS ACCUMULATED AND/OR AT THE END OF THE DAY.
- PROVIDE LOCKING ACCESS PANELS, FOR VALVES OR MAINTENANCE, MATCHING FIRE RATING OF STRUCTURE IN WHICH THEY ARE PROPOSED TO BE INSTALLED.
- PROVIDE HANGERS AND SUPPORTS TO ADHERE TO MANUFACTURER'S RECOMMENDATIONS AND CODES, COMPATIBLE WITH THE MATERIAL THAT IS TO BE SUPPORTED.
- ALL PIPING SHALL BE INSTALLED AND SUPPORTED, SO THAT THERE IS NO STRAIN ON SAME, AND SHALL BE PLUMB, TRUE AND STRAIGHT. CONCEAL PIPING WHERE POSSIBLE, UNLESS OTHERWISE NOTED.
- GENERAL CONTRACTOR SHALL PROVIDE ANY ADDITIONAL CHASES, SOFFITS OR COVERS AS REQUIRED.
- PROVIDE DIELECTRIC UNIONS FOR CONNECTIONS OF DISSIMILAR METALS.
- SUPPORT BLOCKING FOR FIXTURE HANGERS SHALL BE INSTALLED BY GENERAL CONTRACTOR, WITH DIRECTIONS AND COORDINATION OF PLUMBING CONTRACTOR.
- VERIFY CONDITIONS, LOCATION AND INVERT OF EXISTING PIPING THAT IS PROPOSED TO RECEIVE WASTE FROM THE NEW SYSTEMS, PRIOR TO ANY CONSTRUCTION. LOCATE AND KNOW VALUING OF EXISTING WATER SYSTEM, PRIOR TO COMMENCEMENT OF CONNECTION OF NEW WATER SERVICE PIPING. ADVISE GENERAL CONTRACTOR AND ARCHITECT OF ANY UNFORESEEN OR UNKNOWN PROBLEMS THAT MAY BE FOUND.
- SYSTEM VALVES SHALL BE COMPATIBLE WITH SELECTED WATER PIPING SYSTEM, AND INSTALLED IN ACCESSIBLE LOCATIONS. PROVIDE 1" BRASS VALVE TAGS WITH BEADED CHAIN TO ATTACH SAME. CREATE VALVE LOCATION CHART FOR OWNER, AS A PART OF RECORD DRAWINGS PACKAGE, UPON COMPLETION.
- WATER PIPE AND FTGS, SHALL MEET DESIGN CRITERIA AND ADHERE TO ALL CODES AND REGULATIONS.
- FIELD VERIFY POINT OF CONNECTION, PRIOR TO CONSTRUCTION.
- NON-METALLIC DOMESTIC WATER SERVICE SHALL HAVE 16 AWG TRACER WIRE INTO METER VAULT AND 2 FT. COILED ABOVE GRADE AT WATER SERVICE ENTRY, TO ALLOW FOR UTILITY TRACING. RECOMMENDED COVER FOR EXTERIOR WATER PIPING IS 36" COVER.
- FOR THE PURPOSE OF THIS PROJECT, DOMESTIC WATER PIPING BELOW GRADE SHALL BE SCHEDULE 80 CPVC SOLVENT WELD - PEX - AQUA PEX - WIRSBO - ZURN PEX -OR HOPE, ALL ADHERING TO APPLICABLE CODES.
- VALVES AND ANY SOLDER ON PROJECT, SHALL BE "LEAD -FREE", PER ALL REGULATIONS.
- PERFORM HYDROSTATIC TESTING OF DOMESTIC WATER SYSTEMS, PRIOR TO COVERING OR INSULATING SAME.
- SANITIZE WATER PIPING SYSTEMS, PRIOR TO COMMISSIONING TO SERVICE. ENSURE THAT SANITIZING AGENTS ARE PROPERLY FLUSHED FROM THE SYSTEMS AFTER USE.
- ALL WATER PIPING SHALL HAVE HOT WATER ON THE LEFT AND COLD WATER ON THE RIGHT.
- WATER PIPING SHALL BE INSULATED WITH 1" FLEXIBLE WALL INSULATION, WITH MAXIMUM FLAME SPREAD OF 25, MEETING ALL CODES AND SPECIFICATIONS.
- IF PEX PIPING IS USED FOR WATER, PROVIDE COPPER PRE-FORMED SUPPLY 90 DEGREE BEND, TO PROJE THROUGH WALL, FOR FUTURE STOP CONNECTION. SECURE TO PREVENT MOVEMENT OF SUPPLY STUB OUT.
- PEX PIPING SHALL BE 3/8" MAXIMUM FOR FIXTURE BRANCHES ONLY, WHEN UTILIZING 1/2" PIPING AND FITTINGS.
- DO NOT INSTALL ANY WATER OR WASTE PIPING OVERHEAD OF ANY ELECTRICAL EQUIPMENT IF POSSIBLE TO AVOID THAT ROUTING.
- SANITARY WASTE AND VENT SYSTEM SHALL BE CONSTRUCTED AND INSTALLED, PER ALL CODES AND REGULATIONS AND DESIGN CRITERIA. BASIS OF DESIGN FOR THIS PROJECT IS SCH. 40, DWV, SOLVENT WELD PVC PIPE AND FITTINGS SYSTEM, ADHERING TO ALL CODES, RULES AND REGULATIONS. VERIFY INVERT AT POINTS OF CONNECTIONS, PRIOR TO STARTING CONSTRUCTION.
- NO NON-METALLIC PIPING SHALL BE LOCATED WITHIN PLENUM RATED SPACES. IF THIS SHOULD OCCUR, THERE SHALL BE THE NEED TO INSTALL FIRE RATED INSULATION AND WRAP, TO MEET ALL CODES.
- NEW HVAC EQUIPMENT SHALL REQUIRE ADDITIONAL LP GAS PIPING. CONTRACTOR MUST BE CERTIFIED AND LICENSED FOR THAT SYSTEM INSTALLATION, FOLLOWING ALL RULES AND REGULATIONS.
- CONFIRM WITH CURRENT LP SUPPLIER, THAT EXISTING PIPING AND LP REGULATOR FROM TANK TO BUILDING, IN AREA OF THE KITCHEN IS ADEQUATE TO SUPPORT ADDED LP GAS LOAD OF 3330,000 BTU FOR NEW HVAC EQUIPMENT. IF FOUND TO BE INADEQUATE, COORDINATE WITH LP SUPPLIER FOR INSTALLATION OF A NEW SUPPLY LINE FROM TANK TO THE BUILDING AT CURRENT OR NEW REGULATOR LOCATION.
- INTERIOR LP GAS PIPING SHALL BE COORDINATED WITH GENERAL CONTRACTOR AS TO ACTUAL ROUTING.
- POINT OF CONNECTION FOR NEW LP GAS PIPING SHALL BE ON THE OUTLET SIDE OF THE REGULATOR THAT IS IN PLACE AT THIS TIME NEAR KITCHEN. INTENTIONS OF NEW LP GAS PIPING IS TO BE OUNCES DELIVERY PRESSURE, TO THE NEW HVAC EQUIPMENT.
- ALL GAS CONNECTIONS SHALL BE PROVIDED WITH A LINE SIZE DRIP LEG AT POINT OF CONNECTION AND ANAGA APPROVED GAS VALVE.
- ALL EXPOSED GAS PIPING SHALL BE PAINTED FOR CORROSION PROTECTION PER ALL CODES AND REGULATIONS.
- THERE SHALL BE NO UNIONS, IN ANY PIPING SYSTEMS, THAT ARE INSTALLED IN A CONCEALED MANNER.
- ALL GAS PIPING TO TESTED TO BE PROVEN SOUND AND LEAK FREE.
- LP GAS PIPING SHALL BE SCHEDULE 40 BLACK PIPE WITH 125 # BLACK IRON MALLEABLE FITTINGS.
- USE A NON-HARDENED THREAD SEALANT, FOR ALL THREADED CONNECTIONS.
- SUPPORT PIPING AS IS REQUIRED BY MANUFACTURER'S AND ALL CODES.
- PROVIDE PVC SLEEVES, WITH SILICONE SEALED ENDS, AT ALL LP GAS PIPING WALL PENETRATIONS, SO AS TO BE SEALED WATER TIGHT.
- NEW 6" SANITARY SEWER ON EXTERIOR SHALL CONNECT TO EXISTING SEPTIC SYSTEM. LOCATE INVERT OF PROPOSED POINT OF CONNECTION, PRIOR TO CONSTRUCTION. THIS PIPING MAY BE PVC SDR 35 PIPE AND FITTINGS, AS LONG AS THE INSTALLATION ADHERES TO ALL CODES.
- EXACT ROUTING TO AVOID UNNECESSARY RESTORATIONS IS TO BE CONSIDERED, IN PLANNING ROUTE TO EXISTING.
- VERIFY WITH FACILITIES SEPTIC SYSTEM MAINTENANCE PERSONNEL, THAT EXISTING SEPTIC SYSTEM IN PLACE, IS ADEQUATE TO ACCEPT ADDITIONAL WASTE, FROM PROPOSED NEW PLUMBING. ADVISE GENERAL CONTRACTOR AND ARCHITECT, OF ANY INEFFICIENCIES ENCOUNTERED OR DISCOVERED IN EXISTING SYSTEMS PROPOSED TO SERVE NEW ADDITION PLUMBING.

PROJECT NO:

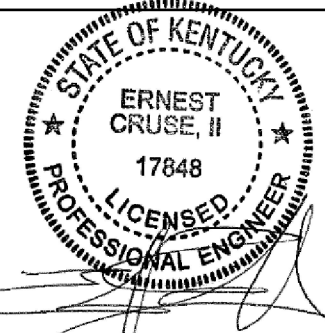
23-4451

DRAWN BY:

JMK

DATE:

05-09-2024



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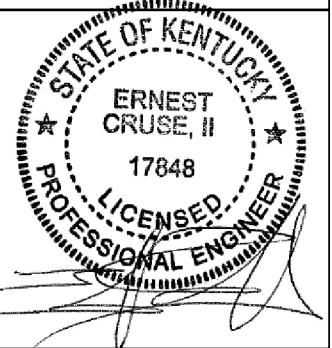
MASTER PLANNING
ST GREGORY SCHOOL

400 SAMUELS LOOP
COX CREEK, KY 40013

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PLUMBING NOTES
AND RISERS

P1.01



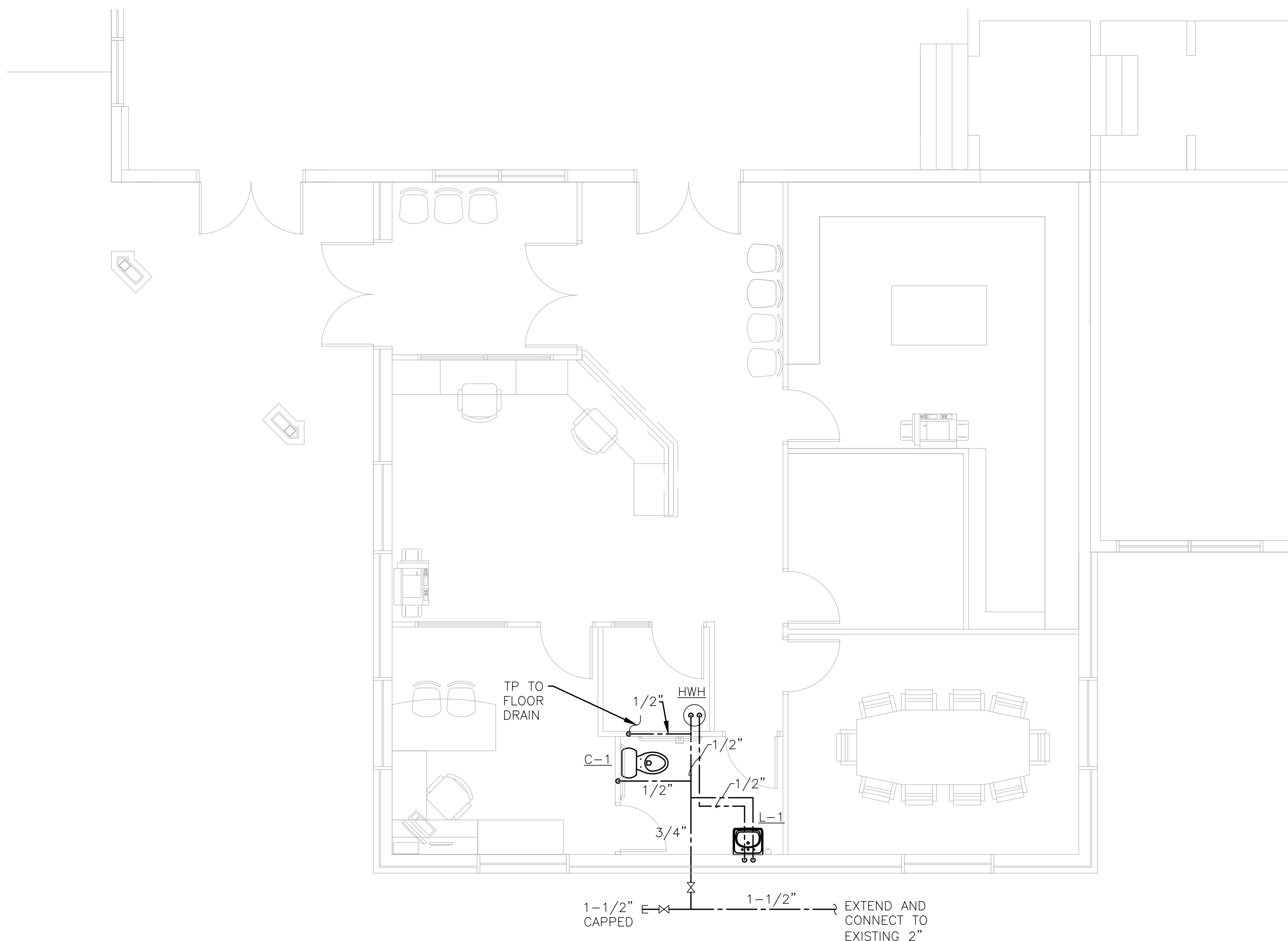
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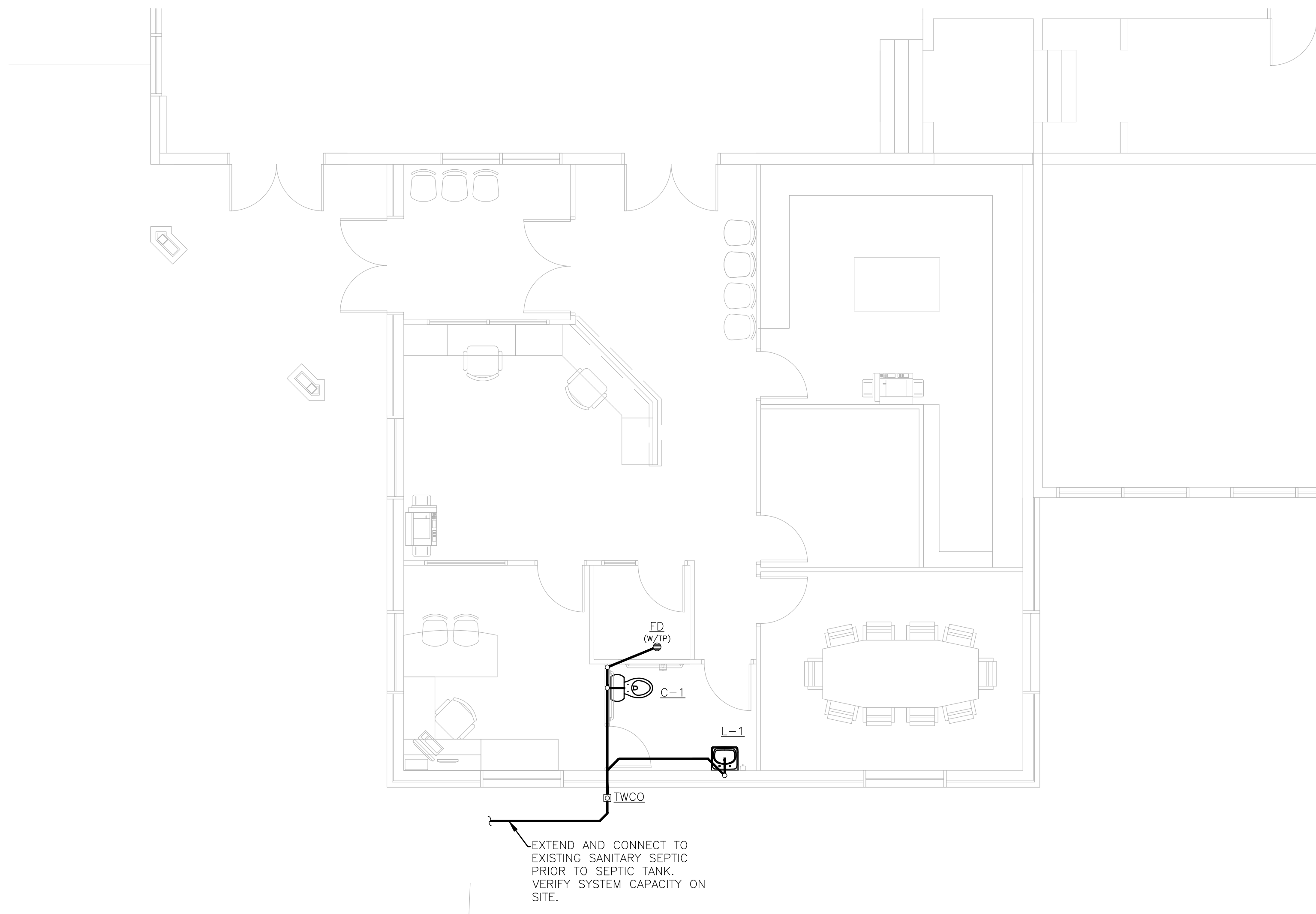
PLUMBING FLOOR
PLANS

P1.02

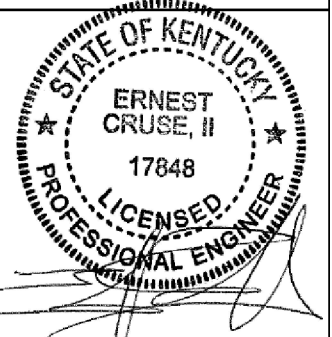
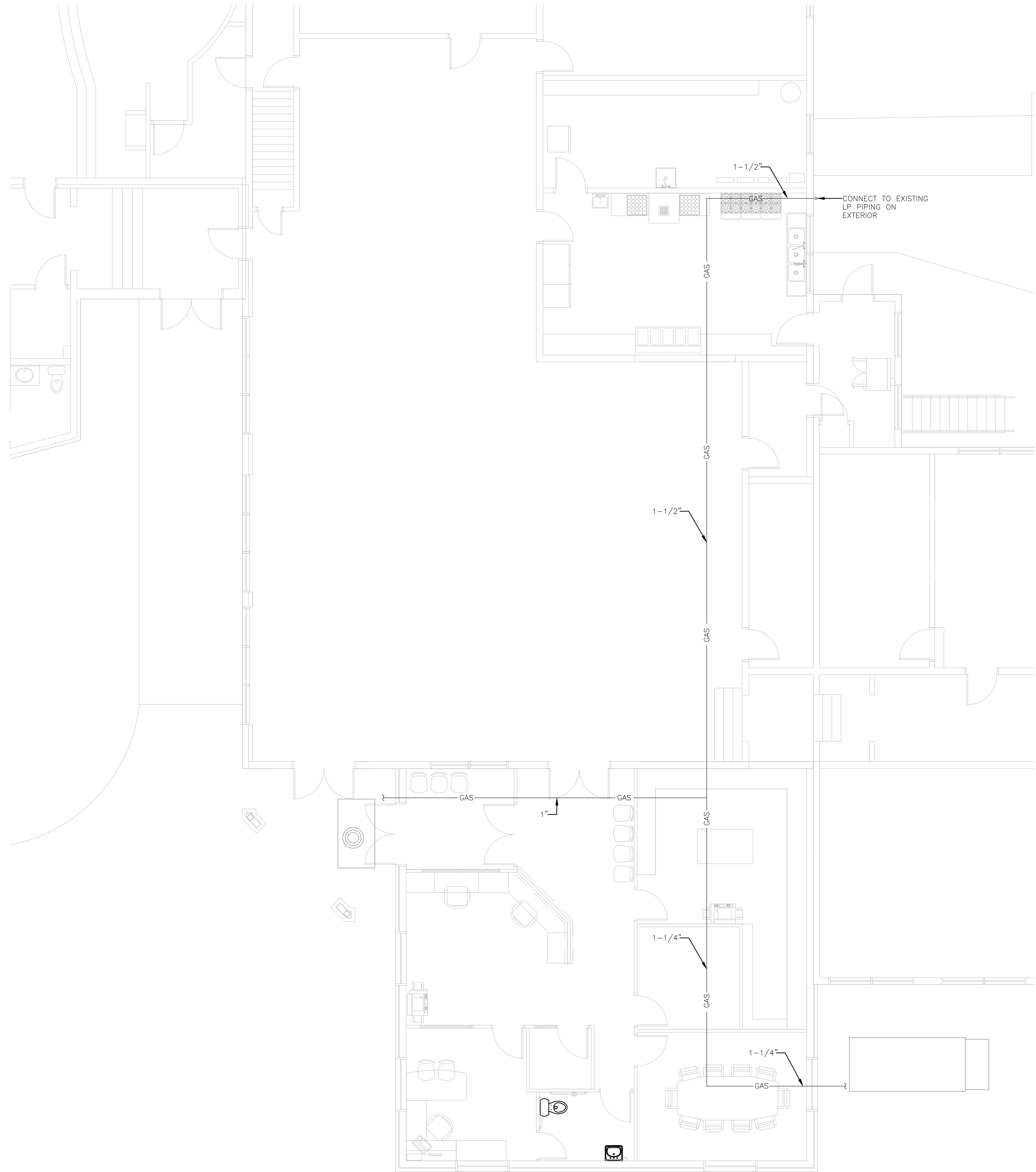
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01 PLUMBING DOMESTIC WATER FLOOR PLAN
SCALE: 3/16" = 1'-0"



01 PLUMBING WASTE AND VENT FLOOR PLAN
SCALE: 3/16" = 1'-0"



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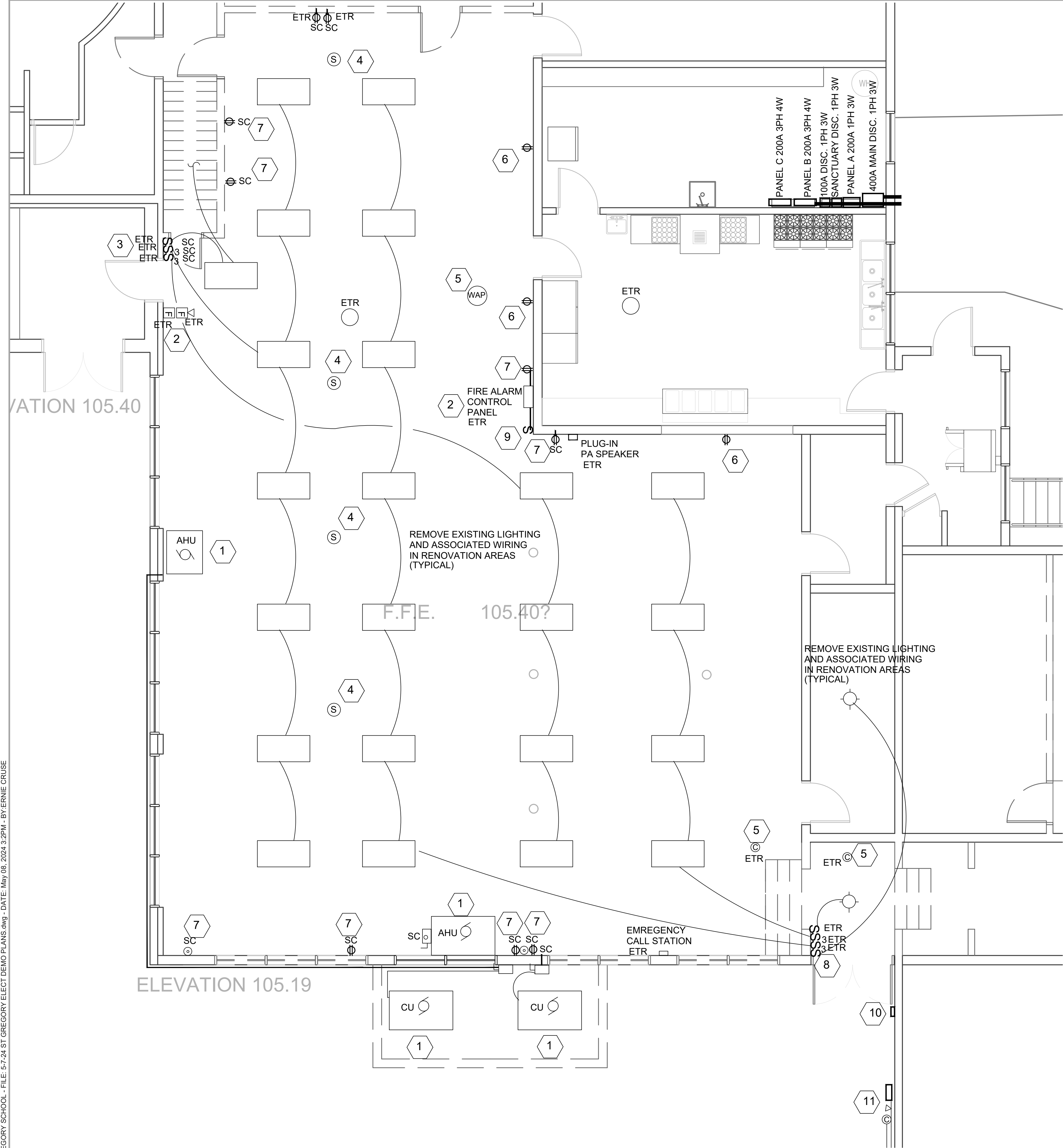
01 PLUMBING GAS FLOOR PLAN
SCALE: 3/16" = 1'-0"

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PLUMBING GAS
FLOOR PLAN

P1.03

PROJECT: ST GREGORY SCHOOL - FILE: S-7-24 ST GREGORY ELECT DEMO PLANS.dwg - DATE: May 08, 2024 3:27PM - BY: ERNIE CRUSE



DEMOLITION SYMBOL LEGEND

	DATA/TELEPHONE OUTLET
	ABOVE COUNTER GROUND FAULT RECEPTACLE
	EXISTING EXTERIOR CONDENSING UNIT TO BE REMOVED/REPLACED COMPLETE
	EXISTING INTERIOR AIR HANDLING UNIT TO BE REMOVED/REPLACED COMPLETE
	LIGHT SWITCH
	SURFACE CONDUIT/WIREMOLD FEED TO DEVICE
	DUPLEX RECEPTACLE
	CATV OUTLET
	CEILING MOUNTED SECURITY CAMERA
	WIRELESS ACCESS POINT
	ELECTRICAL DISCONNECT SWITCH FOR EQUIPMENT
	EMERGENCY LIGHT
	EXIST EXIT SIGN
	RECESSED FLUORESCENT FIXTURE
	SURFACE LIGHTING FIXTURE
	CEILING SPEAKER
	FIRE ALARM HORN A/V UNIT
	FIRE ALARM MANUAL PULL STATION
	CEILING SMOKE DETECTOR
	INDICATES DEVICE TO REMAIN ON SAME EXISTING CIRCUIT AND BE REPLACED WITH NEW DEVICE OR REMAIN AS CURRENTLY WIRED IN THE CASE OF LOW VOLTAGE DEVICES SUCH AS SPEAKERS FIRE ALARM DEVICES

GENERAL ELECTRICAL DEMOLITION NOTES:

- ALL ELECTRICAL DEMOLITION SHALL FOLLOW APPLICABLE GUIDELINES PER THE NATIONAL ELECTRICAL CODE.
- IT IS THE INTENT THAT THE EXISTING ELECTRICAL EQUIPMENT INDICATED IS TO BE REMOVED OR REPLACED. REMOVE ALL ELECTRICAL EQUIPMENT AND ASSOCIATED CONDUITS AND WIRING UNLESS OTHERWISE NOTED THAT INTERFERE WITH THE NEW PROPOSED RENOVATION AND AS INDICATED. FIELD VERIFY ALL FINAL REQUIREMENTS.
- CONTRACTOR SHALL VISIT THE SITE TO VERIFY ALL EXISTING CONDITIONS. IT SHOULD BE UNDERSTOOD THAT ONLY THE PRIMARY ITEMS ARE SHOWN ON THE DEMOTION PLAN. THE EXISTING WIRING AND CONDUIT RUNS ARE PARTIALLY SHOWN BUT PROVISIONS SHALL BE MADE IN THE CONTRACTORS BID TO COVER REMOVAL OR REWORK AS REQUIRED ACCORDING TO THE DEMOLITION AND NEW WORK PLANS.
- CONTRACTOR SHALL PROPERLY DISPOSE OF ALL MATERIALS. COORDINATE WITH THE GENERAL CONTRACTOR FOR ON SITE DUMPSTER.
- WHERE AN EXISTING SYSTEM NOT INDICATED ON THE PLAN IS AFFECTED BY DEMOLITION OF THE DEVICES AND COMPONENTS SHOWN, CONTRACTOR SHALL MAKE PROVISIONS TO PRESERVE THESE EXISTING SYSTEMS AND DISCUSS THE DETERMINATION OF THE SYSTEM WITH THE PROJECT ARCHITECT AND OR ENGINEER PRIOR TO DEMOLITION.
- WHERE DEMOLITION OF AN EXISTING ELECTRICAL DEVICE MAY AFFECT THE EXISTING OR NEW FINISHES IN AN ADJACENT AREA ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE GENERAL CONTRACTOR FOR PATCHING AND REPAIRING THE EXISTING SURFACE AS REQUIRED TO MATCH THE NEW FINISHES.
- THE INTENT IS TO RE-USE THE EXISTING POWER DISTRIBUTION PANELS IN THE RENOVATION SPACES. CONTRACTOR SHALL KEEP TRACK OF CIRCUITS MADE AVAILABLE AS A RESULT OF DEMOLITION TO BE REUSED IN THE NEW WORK PLANS IF APPLICABLE AND RE-LABEL ANY AFFECTED EXISTING PANEL CIRCUIT DIRECTORIES AS NEEDED TO REFLECT THE FINAL CONFIGURATIONS.
- WHILE NOT SPECIFICALLY SHOWN ON THE DEMOLITION PLANS, IT IS THE INTENT THAT THE CONTRACTOR REMOVE AND DISPOSE OF ALL EXISTING NON- FUNCTIONAL LOW VOLTAGE WIRING IN THE AFFECTED AREAS COMPLETELY. ANY EXISTING SYSTEMS THAT MAY BE AFFECTED WHICH ARE INTENDED TO REMAIN SHALL BE PRESERVED. THIS INCLUDES SPECIFICALLY THE FIRE ALARM WIRING AND THE SOUND SYSTEM WIRING THAT MAY AFFECT THE FUNCTION OF THE REST OF THE FACILITY.
- IT SHOULD BE UNDERSTOOD THAT THIS IS A FUNCTIONING FACILITY AND ANY DEMOLITION OF AN EXISTING DEVICE OR SYSTEM THAT MAY AFFECT AREAS NOT IN THE SCOPE SHOULD BE COORDINATED WITH THE OCCUPANTS TO ENSURE THAT THERE IS NO DISRUPTION TO THE FACILITY. WHEN IN DOUBT, DO NOT REMOVE OR OTHERWISE AFFECT ANYTHING THAT YOU ARE NOT CERTAIN WHAT THE RAMIFICATIONS WILL BE TO THE FACILITY. COORDINATE ANY NECESSARY SHUT DOWNS OR EQUIPMENT REMOVAL WITH THE FACILITY PRIOR TO ANY DEMOLITION OCCURRING.

ELECTRICAL DEMOLITION SHEET NOTES

- REMOVE EXISTING POWER CONNECTIONS TO HVAC EQUIPMENT TO BE DEMOLISHED COMPLETE. UPDATE PANEL CIRCUIT DIRECTORY AND PRESERVE PANEL SPACE FOR NEW BREAKER(S) TO SERVE NEW PROPOSED EQUIPMENT. REFER TO NEW WORK PLAN.
- EXISTING FIRE ALARM EQUIPMENT TO REMAIN IN PLACE. PRESERVE AS REQUIRED DURING DEMOLITION.
- EXISTING SWITCHES TO REMAIN AND BE REPLACED IN PLACE IN NEW WORK PLAN. FIELD VERIFY AND INTERCEPT CIRCUIT(S) ABOVE CEILING TO RE-USE IN NEW WORK PLAN TO SERVE NEW LIGHTING IN THE SPACE.
- REMOVE EXISTING CEILING SPEAKERS AND PRESERVE WIRING FOR USE WITH NEW COMPATIBLE REPLACEMENT SPEAKERS IN SAME LOCATION.
- EXISTING CAMERAS AND LOW VOLTAGE EQUIPMENT TO BE REMOVED AND RE-INSTALLED AS REQUIRED IN NEW WORK PLAN. FIELD VERIFY AND COORDINATE WITH SECURITY SYSTEM VENDOR AND I.T. PERSONNEL AS REQUIRED.
- EXISTING IN WALL RECEPTACLES ARE TO BE REPLACED WITH NEW DEVICES. RE-USE EXISTING CIRCUIT WIRING IF POSSIBLE IF NOT THEN REPLACE EXISTING WIRING BACK TO NEAREST ACCESSIBLE JUNCTION POINT.
- REMOVE ALL EXISTING SURFACE CONDUIT SERVED RECEPTACLES. PRESERVE CIRCUIT FOR POSSIBLE RE-USE IN NEW CONSTRUCTION TO SERVE NEW REPLACEMENT DEVICES AS NEEDED. UPDATE ANY AFFECTED PANEL CIRCUIT DIRECTORY TO INDICATE ACTUAL LOADS SERVED WHEN COMPLETE.
- REMOVE EXISTING SWITCH SERVING STORAGE ROOM LIGHT. PROVIDE NEW BLANK CLOSURE PLATE WHERE FORMER SWITCH IS LOCATED IN NEW CONSTRUCTION PHASE.
- HVAC WATER LOOP CONTROL POINT. COORDINATE WITH MECHANICAL CONTRACTOR FOR DEMOLITION AND DETERMINATION OF ONGOING USAGE OF DEVICE.
- REMOVE EXISTING SECURITY ACCESS SYSTEM AND PRESERVE FOR RE-USE IN NEW WORK PLAN. COORDINATE WITH OWNER'S SECURITY ACCESS COMPANY AS REQUIRED TO REMOVE AND RE-INSTALL SYSTEM.
- REMOVE EXISTING WIFI EQUIPMENT, CAMERA AND LIGHT FIXTURE COMPLETE. TURN OVER TO OWNER FOR USE IN FUTURE WORK. FIELD VERIFY EXISTING CONDUIT ROUTES TO REMOVE COMPLETE. FIELD VERIFY FINAL REQUIREMENTS.

NOTE: ALL DIMENSIONS ARE TO FACE OF STUD

NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER

NOTE: ELECTRICAL, HVAC AND PLUMBING TO BE RELOCATED PER FEDERAL, STATE AND LOCAL CODES. GENERAL CONTRACTOR TO COORDINATE.

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PROJECT NO:
23-4451
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DLB/
DATE:

KEYES ARCHITECTS & ASSOCIATES
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MASTERPLANNING
ST GREGORY SCHOOL
400 SAMUELS LOOP
COX CREEK, KY 40013

SCHOOL OFFICE FLOOR PLAN
ED1.0

PROJECT: ST GREGORY SCHOOL - FILE: 57-24 ST GREGORY ELECT DEMO PLANS.dwg - DATE: May 07, 2024 9:7PM - BY: ERNIE CRUSE

EXISTING PANEL SCHEDULE FOR PANEL "A"
120/240V 1 PH 3W 200 AMP

20A 1P - CONFESSIONAL LIGHTS	50A 2P - COND. UNIT FRONT OF SCHOOL
20A 1P- SANCTUARY LIGHTS	20A 1P - KITCHEN COUNTER RECEPTS
20A 1P - CHURCH PLUGS	20A 1P - CONF. EXH FAN
20A 1P - ATTIC FANS	20A 1P - UNKNOWN
20A 1P - ALTER LIGHTS	20A 1P - UNKNOWN
20A 1P - CHURCH LIGHTS	20A 1P - UNKNOWN
20A 1P - 7TH AND 8TH GRADE LIGHTS	20A 1P - UNKNOWN
20A 1P - ORGAN POWER	20A 1P - FREEZER
20A 2P - LIGHTS IN CHURCH WINDOW	20A 1P - CONVENT
20A 1P - UPSTAIRS BATHROOM	20A 1P - HALLWAY LIGHTS
20A 1P - 1ST GRADE PLUGS	20A 1P - KITCHEN LIGHTS
20A 1P - STAINLESS STEEL FREEZER	20A 1P - FIRE ALARM PANEL
20A 1P - 2ND GRADE PLUGS	20A 1P - UNKNOWN
20A 2P - UNKNOWN	20A 1P - UNKNOWN
20A 1P - UNKNOWN	20A 1P - CONVENT ROOM LIGHTS
20A 1P - CAFETERIA LIGHTING	20A 1P - PLUGS
20A 1P - UNKNOWN	20A 1P - FRIGERATOR
20A 1P - PRESCHOOL RECEPTACLES	20A 1P - DISHWASHER
20A 1P - DORIS OFFICE	20A 1P - UNKNOWN
20A 1P - STOVE FAN	20A 1P - CONVENT PLUGS
20A 1P - ICE MACHINE/POPCORN	20A 1P - CONVENT WASHER
	20A 1P - AHU IN FRONT OF SCHOOL
	20A 1P - UNKNOWN
	30A 2P - TRUCK
	40A 2P - A/C PRESCHOOL
	50A 2P - DISHWASHER BOOSTER HTR

EXISTING PANEL SCHEDULE FOR PANEL "B"
120/240V 3 PH 4W 200 AMP

50A 2P - COND UNIT 1ST GRADE	15A 1P - UNKNOWN
20A 2P - COND UNIT 7TH AND 8TH GRADE	20A 1P - UNKNOWN
20A 1P - POPCORN POPPER	20A 1P - UNKNOWN
40A 2P - COND UNIT PRE K	20A 1P - UNKNOWN
50A 2P - UNKNOWN	100A 3P - UNIT #1 10 TON A/C AHU
SPACE	20A 1P - UNKNOWN
SPACE	20A 2P - UNKNOWN
SPACE	30A 2P - EXPRESSO MACHINE
SPACE	20A 1P - HAND DRYER
SPACE	SPACE
	SPACE

EXISTING PANEL SCHEDULE FOR PANEL "C"
120/240V 3 PH 4W 200 AMP

20A 3P - AIR HANDLING UNIT	70A 3P - AIR CONDITIONING UNIT
20A 2P - 3RD AND 4TH GRADE A/C UNIT	20A 1P - SIDE DOOR FREEZER
20A 2P - 5TH AND 6TH GRADE A/C UNIT	20A 2P - A/C UNIT KINDERGARTEN ROOM
20A 1P - COFFEE MACH. NEXT TO STEPS	100A 3P - 10 TON A/C AHU UNIT #2
30A 2P - FURNACE FOR PRE-K	20A 1P - FREEZER RECEPTACLE
60A 2P - UNKNOWN	20A 2P - NEW 3 DOOR FREEZER
30A 1P - UNKNOWN	20A 1P - PLUG BY PANEL
SPACE	30A 2P - FURNACE FOR PRE-K
SPACE	SPACE
SPACE	SPACE
SPACE	SPACE
SPACE	SPACE
	SPACE

EXISTING PANEL SCHEDULES NOTE:

EXISTING PANEL SCHEDULES ARE PRESENTED HERE AS DETERMINED IN THE FIELD. ACCURACY OF THE SCHEDULES CAN NOT BE DETERMINED BUT ARE REPRESENTATIVE OF WHAT IS CURRENTLY IN PLACE. CONTRACTOR SHALL FIELD VERIFY ANY EXISTING CIRCUITS AND DEVICES AFFECTED BY DEMOLITION AS TO THE ACTUAL SOURCE AND BREAKER SERVING THE CIRCUITS. CONTRACTOR SHALL UPDATE ANY AFFECTED PANEL SCHEDULE WITH A NEW CIRCUIT DIRECTORY INCORPORATING ANY FINAL REVISIONS AS A RESULT OF DEMOLITION AND NEW WORK IN THE AFFECTED AREAS.

NOTE: ALL DIMENSIONS ARE TO FACE OF STUD
NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER
NOTE: ELECTRICAL, HVAC AND PLUMBING TO BE RELOCATED PER FEDERAL, STATE AND LOCAL CODES. GENERAL CONTRACTOR TO COORDINATE.

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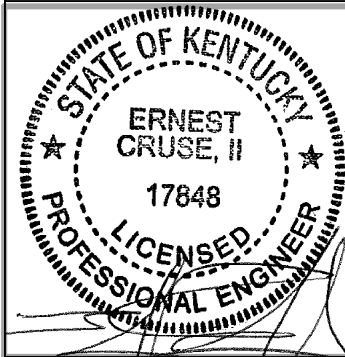
ST GREGORY SCHOOL

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COX CREEK, KY 40013

KEYES ARCHITECTS & ASSOCIATES

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PROJECT NO:
23-4451

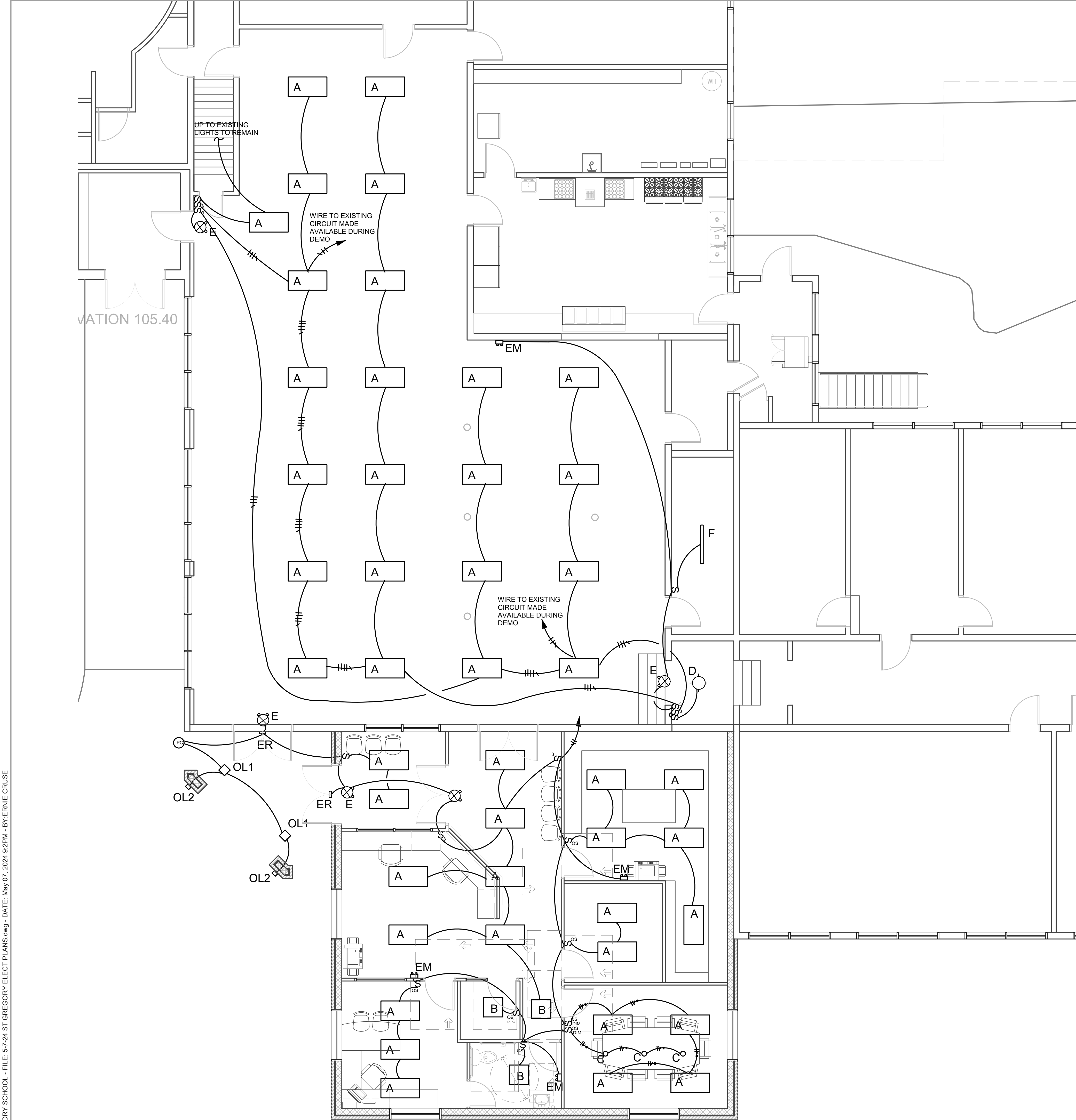
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PROJECT: ST GREGORY SCHOOL - FILE: 5-7-24 ST GREGORY ELECT PLANS.dwg - DATE: May 07, 2024 9:2PM - BY: ERNIE CRUSE



LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MODEL	LUMENS COLOR TEMP	REMARKS	VOLTAGE
A	LED 2X4 FLAT PANEL COLOR TEMP AND LUMEN SELECTABLE	METALUX # 24GTCS-L3C3 CREE # EQUAL WILLIAMS # EQUAL	5200 LUMENS 4000 KELVIN	PROVIDE HOLD DOWN CLIPS FOR FIXTURE TO SECURE TO CEILING GRID	120V
B	LED 2X2 FLAT PANEL COLOR TEMP AND LUMEN SELECTABLE	METALUX # 22GTCS-L3C3 CREE # EQUAL WILLIAMS # EQUAL	3890 LUMENS 4000 KELVIN	PROVIDE HOLD DOWN CLIPS FOR FIXTURE TO SECURE TO CEILING GRID	120V
C	6" RECESSED LED DOWN LIGHT WITH HAZE FINISH TRIM	HALO #HC8-20-D010-HB128APKH6-0525040-41MD-H CREE # EQUAL PRESCOLITE # EQUAL	2000 LUMENS 4000 KELVIN	MOUNT IN CENTER OF CEILING GRID TILE TO MATCH PLAN LAYOUT	120V
D	SURFACE LED DECORATIVE CLOSE TO CEILING LIGHT	BROWNLEE # 2085-15-FINISH-R22-FINISH-40K OCL # EQUAL G LIGHTING # EQUAL	1900 LUMENS 4000 KELVIN	MOUNT IN FORMER FIXTURE LOCATION	120V
F	SURFACE LED LENSED STRIP LIGHT	METALUX #4ST2L4040R CREE # EQUAL WILLIAMS # EQUAL	4600 LUMENS 4000 KELVIN	MOUNT IN FORMER FIXTURE LOCATION HOLD AS HIGH AS POSSIBLE	120V
E	COMBINATION EXIT EMERGENCY LIGHT WITH ADDITIONAL CAPACITY TO DRIVE FIXTURE TYPE "ER" IN EMERGENCY MODE	COOPER # APCH70 EMERGLITE # EQUAL CHLORIDE# EQUAL	INCLUDED	PROVIDE UN-SWITCHED HOT CONDUCTOR TO SERVE UNIT WIRE AHEAD OF ANY LOCAL CONTROL	120V
EM	SELF CONTAINED SURFACE LED EMERGENCY FIXTURE WITH 2 HEADS	COOPER # SEL25 EMERGLITE # EQUAL CHLORIDE# EQUAL	LAMPS INCLUDED	PROVIDE UN-SWITCHED HOT CONDUCTOR TO SERVE UNIT WIRE AHEAD OF ANY LOCAL CONTROL	120V
ER	EXTERIOR WET LOCATION LINE VOLTAGE REMOTE EMERGENCY EGRESS LIGHT WITH INTEGRAL BATTERY	COOPER # SELW25 EMERGLITE # EQUAL CHLORIDE# EQUAL	LAMPS INCLUDED	PROVIDE UN-SWITCHED HOT CONDUCTOR TO SERVE UNIT WIRE AHEAD OF ANY LOCAL CONTROL- FINISH TO BE SELECTED BY ARCHITECT	120V
OL1	SURFACE SMALL PROFILE LED CANOPY LIGHT	ILP# CP-SL-U-40-FINISH RAB # EQUAL HUBBLE # EQUAL	5000 LUMENS 4000 KELVIN	SURFACE MOUNT TO BOTTOM OF ENTRY CANOPY	120V
OL2	15" SURFACE DECORATIVE EXTERIOR WALL BRACKET LIGHT FIXTURE	BROWNLEE # 7110-15-FINISH-H16-40K OCL # EQUAL VISA # EQUAL	1370 LUMENS 4000 KELVIN	PROVIDE ROUGH-IN IN CANOPY COLUMN AT HEIGHT AS SPECIFIED BY ARCHITECT- ARCHITECT TO SELECT FINISH	120V

LIGHTING SYMBOL LEGEND

- LINE VOLTAGE SPECIFICATION GRADE SWITCH
- I/R TYPE LINE VOLTAGE VACANCY SENSOR SWITCH
- THREE WAY SWITCH
- COMBINATION VACANCY SENSOR/0-10 VOLT DIMMER LINE VOLTAGE SWITCH
- LINE VOLTAGE PHOTO CELL
- CIRCUIT HOMERUN TO ELECTRICAL PANEL
- MC CABLE WITH 3-#12 UNLESS OTHERWISE INDICATED

GENERAL LIGHTING NOTES

- ALL WORK SHALL BE INSTALLED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE.
- WIRE ALL EMERGENCY LIGHTING FIXTURES AHEAD OF LOCAL AREA SWITCHING.
- COORDINATE EXACT FIXTURE PLACEMENT WITH OTHER EQUIPMENT IN THE CEILING SPACE.
- MINIMUM WIRE SIZE SHALL BE #12 COPPER. UTILIZE MC CABLE FOR LIGHTING CIRCUITS.
- UPDATE ANY AFFECTED PANEL SCHEDULES FOR NEW OR MODIFIED EXISTING CIRCUITS AS NEEDED.

NOTE: ALL DIMENSIONS ARE TO FACE OF STUD

NOTE: GENERAL CONTRACTOR RESPONSIBLE FOR COORDINATION OF ALL SUB TRADES AND REQUIREMENTS BY OWNER

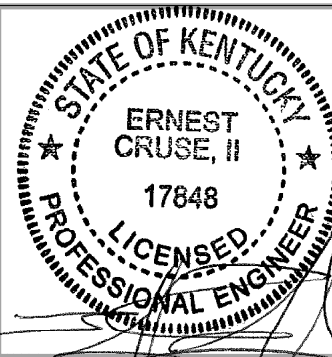
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ST GREGORY SCHOOL

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4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113

PROJECT NO:
23-4451
DRAWN BY:
DLB/
DATE:

PROJECT: ST GREGORY SCHOOL - FILE: SPL 03 Specifications.dwg - DATE: Mar 03, 12:32PM - BY: NICK MCCART

ST Gregory School Office Addition	
Project #: 23-4451	
GENERAL NOTES AND SPECIFICATIONS	
01000 GENERAL	
A. These drawings and specifications are for general guidance, with the understanding that the Owner will negotiate directly with a contractor for proper execution of work to assure completeness and code compliance.	
B. All contractors are to guarantee their work for a minimum of one year from date of acceptance and turnover of a completed project. Longer guarantees are required where specified elsewhere in these documents .	
C. Contractor to verify the information contained in these plans in field (V.I.F.) and immediately notify the Architect of any discrepancies.	
D. The Contractor shall carefully study and compare these contract documents and shall at once report and discovered items to the Owner and Architect any errors, inconsistency , or omissions that cannot be resolved by standard industry practices. Do not proceed with work until clarifications have been made by the Architect and notification has been given to proceed .	
E. Keyes Architects & Associates has a set number of drawing sets that we have guaranteed the owner / client by contract. These documents are the owner's / client's to use as they see fit but it was intended for their use to create additional documents and for permitting purposes. In addition, Keyes will supply at no additional charge a PDF set of the supplied paper set of drawings to the owner / client. Any additional sets beyond the sets supplied will be considered extras and will be billed accordingly by Keyes Architects & Associates current rates table. It is the responsibility of the General Contractor to acquire this PDF set from the owner for the purposes of making additional sets and to pay for all needed construction sets.	
F. Before bidding, General Contractor and all Subcontractors are responsible for obtaining all bid documents including but not limited to construction documents and specifications. Contractor is responsible for reviewing other trades work that directly affects their trade, to ensure that no conflict is present. Should a conflict arise as a result of design difference with other trades, subcontractor should use industry standard practices to bid and create a product to accomplish the design intent of the construction documents and include it as part of their bid. Then the General Contractor shall be notified of the intended changes in order that these changes can be discussed with the architect and coordinated with other trades that are affected.	
G. Where drawings do not specifically show how work is to be executed, the subcontractor responsible for the work will be responsible for figuring out and bidding an acceptable industry standard method of completing the work.	
H. Where plans and specifications conflict, specifications shall supersede plans. Where plans and details conflict, the more detailed (larger scaled) item will take precedence. If it is unclear as to the intent of the work due to the conflict, notify the Architect immediately before proceeding.	
I. Contractors are not to scale the plans for missing or unclear information. Where plans are unclear, verify with architect before proceeding .	
J. Contractor's bids are to be complete and to include all material, labor , and facilities required to complete the work shown on drawings and specified herein.	
K. All Subcontractor questions concerning bidding, the drawings, or site visits shall be directed to the General Contractor.	
L. All Subcontractors shall obtain any specific permits and code review for their trade. General Contractor will obtain overall construction permit.	
M. The Owners may have other contractors, workers and suppliers engaged on this project. Verify exact limits of responsibility during bidding and coordinate with all work being conducted under other contracts.	
N. Payment of Monthly Draws for work completed to date is based upon receipt of lien releases and site inspections. Items listed as complete on the draw but not completed to the owner's and architect's satisfaction, must be completed or removed from the draw before payment will be made. All outstanding invoices for this project from all subcontractors and suppliers will be paid and a lien release issued from the general contractor in charge before payment will be made.	
O. Final Payment of all portions of this project is based upon receipt of lien releases, warranties and maintenance/operations manuals for all items.	
P. For all sections in these documents where multiple colors, finishes, and/or material choices occur and where the owner can only make these choices after the contract has been awarded , this contract is to include the most restrictive and/or expensive of the choices given so the owner can make a choice at a later time without change orders. Should the owner make a choice that is less expensive than what were bid, then the owner is to be credited back the difference between what was specified and what was selected .	
Q. Value engineered items and/or approved equals are to be submitted as part of the bid package for approval by the owner and architect. Due to limited bidding time, owner and architect cannot/will not review products during bidding for equality or equivalency to these documents. Owner and architect will approve these items as part of the bid review and may ask for proof of product equality, product specification and clarification, resubmittal of original items, or other requirements as a condition of acceptance of any and all bids. Items not listed on bid forms and submitted as part of bid package are assumed to be as specified in these documents and any item not meeting these documents can be asked to be replaced or a change order applied to the project in the amount of the difference of the original item specified at the owner's and architect's discretion.	
01001 TAX EXEMPT PROJECT	
A. This project is being bid to a Tax Exempt Organization, here forward known as the "Client", with federal and/or state approved tax exempt status. The following shall apply to the entirety of this project, unless otherwise stated herein:	
1. All labor and materials necessary to complete this project are to be included as part of this bid package.	
2. The tax exemption status of the Client will only apply to material purchases made through a wholesaler or retailer for the use on this project. Materials directly purchased by the General Contractor or Subs through their offices for use on this project will not qualify for exemption.	
3. The awarded General Contractor and their Subs will be responsible for setting up the Client's tax exempt information with all material suppliers.	
4. All materials are to be invoiced to the Client, care of the General Contractor or Subs.	
5. General Contractor or Subs to be responsible for the shipping, handling, storage and installation of all materials for the duration of the project, until the final project is turned over to the Client.	
6. Any deliveries made to anywhere other than to the project site, to the General Contractor or the Sub-contractor responsible for the materials, will be returned to the shipper at the General Contractor's expense.	
7. All material invoices are to be routed through the General Contractor and any invoices sent directly to the Client will be returned to the issuer. The General Contractor shall be responsible for any late fees or penalties that should be incurred as a result of these returned invoices.	
8. As part of their monthly pay application / monthly draw, the General Contractor will submit materials invoices to be paid along with their draw.	
Issued as part of this monthly draw shall be a list of how much money is to be paid to the General	

Contractor as well as a list of all invoices to be paid, including Name of the Payee, any Purchase Order #s and the amount to be paid. A single check will be issued to Suppliers with multiple PO submitted as a part of this draw.	
A Change Order will also be issued reducing the amount of the General Contractor's project cost by the dollar amount of the material invoices being paid as part of the current draw.	
9. Monthly draws will be approved by the Client and all issued material supplier checks will be given to the care of the General Contractor.	
It will be the responsibility of the General Contractor to make sure payment is delivered to the material suppliers in an expedient and timely manner.	
Any late fees or penalties that occur as a result to deliver these checks, will be the responsibility of the General Contractor, unless these fees can be documented as not being incurred as a fault of General Contractor or Subs.	
01500 DEMOLITIONS	
A. General contractor shall be responsible for all demolition work unless otherwise noted. Sub-contractors shall be responsible for all demolition that pertains to their trade and not covered by the General Contractor. All demolition shall conform to O.S.H.A., state and local permit and safety codes.	
B. Verify structural integrity before & during construction. Provide temporary support as required.	
C. Contractors shall provide for dust/debris control, cleanup and protection of other personnel and visitors as needed. Dust control to include but is not limited to creating a temporary structure between any spaces to remain occupied and work space, covering doors/vents/windows as needed to prevent the passage of dust, and cleaning up any accumulation of dust.	
D. The site is to be left "broom" clean and secure from intruders at the end of each day.	
E. Contractor to properly remove and properly dispose of all debris and demolished items except items specifically listed to be delivered to owner.	
F. All items or utilities "capped" after demolition shall be in a neat manner, paint to match adjoining or conceal behind finished area. All "capped" items to meet applicable codes and industry standard practices .	
G. Remove and properly dispose of all unused (or no longer used) brackets, supports, misc. items, and equipment from the project areas. This includes all electrical, HVAC and plumbing items. As directed herein, turn over specific items to owner and dispose of all others.	
02000 SITE-WORK/FOUNDATIONS	
B. Perform all excavations, backfilling and grading, as well as paving, required to complete work shown. Contractors shall take this data and submit in their bid any changes necessary for completion of the project. Provide positive drainage throughout the site from the parking areas and away from the building.	
C. Protect against damage to any lawns, shrubs, trees, roads, walks, signs, underground tanks , etc., and other work that is to remain in place.	
D. Materials to be excavated are assumed to be earth or other materials that can be removed by power shovel or other normal excavating equipment, but not requiring the use of explosives or drills. If other conditions are encountered within the limits of the excavation, notify Architect immediately.	
E. All building and column footings shall bear directly on undisturbed soil, unless specifically designed otherwise herein to bear on other subsurface.	
F. Assumed bearing capacity as indicated by Owner is 2 , 0 00 lbs. s.f., unless otherwise note on the plans or by Geotechnical reporting. If this bearing capacity is not encountered at the depth shown on drawings, the site contractor shall notify the general contractor. The general contractor, architect, engineer, and other parties will then establish an additional volume of excavation.	
G. Building slab areas, drives, walks and parking areas that require undercutting or fill are to be backfilled with lean clay or granular fill, uniformly compacted to at least 95% standard proctor (ASTM D698). Periodic field density testing to be performed during construction if required and paid for by the Owner.	
H. General Contractor to include additional cost breakout in their initial bid for either the trench excavation or mass excavation of rock if it is determined to be necessary. Bids are to include all markup, overhead, disposal , and grading at lower areas of this site.	
I. Furnish and install all site items as shown on the drawings or list herein .	
J. Furnish and install sod within 3' of all concrete walks and building areas. Seed and straw all other disturbed earth areas.	
K. Contractor to include all erosion control measures necessary. Erosion control measures are to follow those policies, standards and practices as set forth by the civil plan and/or all federal, state, and local requirements. The contractor will be responsible for maintaining all erosion control measures and maintaining all documentation as required. Any penalties occurred as a result of failure to maintain these controls shall be the responsibility of the contractor and the owner shall bare no responsibility for these penalties unless there is documented proof that these penalties were as a result of neglect from the owner or his representatives.	
L. If a landscaping plan has not been provided as part of these documents and a cost determination cannot be made, an allowance of \$5,000.00 is to be included in the bid to furnish and install landscaping as to be determined by the owner.	
M. All existing excavated material that cannot be used as fill will be wasted on site in areas as directed by owner. The material will be spread, compacted, smoothed and disced. The excavated material will then be seed and straw as indicated above.	
N. Foundation excavation	
1. Follow OSHA and local requirements for determining the angle of repose. No angle of repose can be assumed when soil is under adverse moisture conditions. Use forms where concrete surfaces are shown vertical or steeper than the angle of repose.	
2. Cut earth neatly for grade beams and footings, excavate by hand if necessary, to remove all loose material and disturbed earth.	
3. Replace disturbed earth and over-excavated locations with fill concrete.	
4. Keep excavations constantly shored and dewatered.	
5. Pour footings only after excavations have been individually inspected and approved.	
6. After inspection and approval, place concrete promptly before any change in excavation conditions occur.	
O. Trenching and backfilling for drain pipes	
1. Commence from low point so excavation and pipe can be kept drained at all times.	
2. Width to be sufficient to make joints and compact backfill under pipe.	
3. Final excavation to be done by hand so pipe rests continuously on solid earth except where backfilled with cement stabilized sand.	
4. After placing pipe, immediately place some backfill to hold the pipe; compact sufficient backfill under the pipe to hold it securely against any possible movement; do not cover until inspected.	
02741 ASPHALT PAVING	

A. If paving details are not specified on the site plan, then new paved areas shall have a minimum 6" thick DGA with a minimum 2" layer of asphalt binder course and 1" layer of asphalt surface course rolled separately. All new paving heights to be adjusted as required in order to match the existing pavement height.	
B. Existing paved areas to be repaved, shall have all damaged areas removed and then be reconstructed to match the above. Install minimum 1" thick topping over existing paved areas to remain.	
C. All paving shall conform to State Highway specifications for material and installation.	
D. If Paving is anticipated in winter, the surface coat may have to wait until spring. Cost of paving to be completed may be held by the owner (if necessary) until final completion.	
03000 CONCRETE	
A. Concrete to be dimensions shown on drawings and reinforced as detailed.	
B. Concrete shall develop a minimum compressive strength of 4000 psi at 28 days.	
C. Contractor to make (3) concrete cylinder samples for every 150 cubic yards (or fraction thereof) of concrete placed per day. Concrete cylinders are to follow the practices set forth in ASTM C31 for Standard Practice for Making and Curing Concrete Test Specimens in the Field and ASTM C172 for Standard Practices for Sampling Freshly Mixed Concrete. Samples are to be taken from the middle of a truck load and not the beginning or ending portions. All cylinders are to be labeled, dated and stored on site in the same environment as the concrete placed. Owner, architect or construction manager may call for testing of these samples at any time. Owner will pay for testing as needed.	
D. Interior floor slabs are to receive smooth trowel finish.	
E. Exterior concrete drives, walks and stoops are to be light broom finished in the direction of water flow, unless noted otherwise.	
F. Concrete Curing and Sealing Compounds are to be surface applied solvent which cures, seals, hardens, and dustproofs.	
1. Unfinished Exposed Interior Concrete Floors are to receive "Intraseal" by Comspec or approved equal. Verify existing conditions before starting work. Apply product per manufacturer's requirements and recommendations.	
2. All other concrete slabs to receive "Cure 'N Seal" by Sakrete, "Seal Cure-25" by W. R. Meadows or approved equal. Verify existing conditions before starting work. Apply product per manufacturer's requirements and recommendations. Before starting work, verify that selected cure and seal product is compatible with the anticipated finished floor and sub finishes.	
G. All concrete floors are to have a vapor retarder installed before the concrete is placed. Vapor retarder is to be as specified in the latest ASTM E 1745 and have the following properties: a minimum of 0.03 permeability, 5lb puncture resistance, and 45.0 lb./in tensile strength. Retarder to be installed per manufacturer's recommendations and specifications.	
H. Materials and construction methods shall conform to the latest requirements of ACI 318-83.	
I. All exposed 90-degree edges of vertical and horizontal corners of concrete shall have tooled edges, unless indicated otherwise.	
J. Reinforcing steel shall be A615-83 Grade 60. Contractor may use Fibermesh equivalent reinforcing in 4" slabs on grade, but elevated slabs must have wire reinforcing as shown.	
K. Welding of or to reinforcing bars without prior approval of engineer is prohibited except where specified on the drawings.	
L. All reinforcing bars are to be supported in the form and spaced with wire bars supports meeting the requirements of the ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315-latest edition).	
M. All detailing, fabrication and erection of reinforcing bars, unless otherwise noted, must follow the ACI "Manual of Standard Practice for Detailing Reinforced Concrete Structures" (ACI 315-latest edition).	
N. Concrete walks shall have molded expansion joint material as shown. Final joint layout to be approved by Owner.	
O. Control joints (C.J.) shall be saw-cut a minimum of 1/4 of slab thickness and with a maximum spacing as shown on the drawings.	
P. Isolation joints (I.J.) if required shall receive 1/2" thick expansion joint filler extending from bottom of slab to 1/2" below top of slab and the top 1/2" filled with Polyurethane joint sealant, unless otherwise noted.	
Q. Construction joints (Const. J.), if required, shall be formed using "Key-Loc Joint System" manufactured by Form-A-Key.	
R. All dimensions and grades shall be verified in the field (V.I.F.) by the contractor and any discrepancies or interferences shall be reported to the Architect before proceeding with affected work.	
S. Where shown, all junctions of walls, piers and floors to have 1/2" wide expansion joints, filled with elastic expansion joint material.	
T. Exposed piers and foundation walls to have rubbed finish. Any honeycombing that occurs that is less than 4" in diameter is to be filled and finished with a non-expanding grout. Contact the architect immediately for any honeycombing that is 4" or greater in diameter, for review of the concrete and resolution of the issue.	
U. Concrete Contractor to place all exterior equipment pads unless otherwise directed during bidding. Coordinate final size, details and locations with the applicable sub-trades.	
04000 MASONRY	
A. Mortar to be type "M or S" complying with ASTM C-90-97. If Concrete block or veneer contains an integral water repellent, then the mortar is to receive a water repellent additive as approved by the block / veneer manufacturer.	
B. Provide 3/8" thick mortar joints between units with full mortar coverage on the vertical and horizontal face shells only, except for this first bed course shells shall be laid in a full mortar bed.	
C. Concrete block to be standard common light weight concrete masonry units (C.M.U.) in 4", 6", and 8" thicknesses. Unless noted on the plans otherwise, all blocks to include an integral water repellent. See architectural plans and details for selected size and finishes.	
D. Provide manufactured smooth face corner block , toothed in at front corners as required.	
E. All concrete masonry units to have galvanized #9 wire reinforcing, Hohmann & Barnard's Lox All Truss-Mesh, at every second course and every course below floor line.	
F. All self-supporting and load bearing concrete masonry walls to have vertical reinforced cells at 5'-0" on center and 16" from each end. Vertical reinforcing to be (1) continuous #5 bar centered in cell. Cell to be slush full.	
G. Unless otherwise noted on these plans, all self-supporting or load bearing concrete masonry walls are to have a 8" high bond beam at the top coarse and all walls over 15' tall are to have an intermediate 8" high bond beam at 10'-0" on center. Bond beam to have (2) #5 bars continuous and slush full.	
H. Unless otherwise noted on these plans, all concrete masonry opening heads are to receive a precast concrete masonry lintel with minimum (4) #5 bars and #3 stirrups @ 12" on center. Lintel to be sized so to have a minimum 8" bearing each end.	
I. Brick materials allowance to be \$600.00 per 1000, delivered. Color and style to be selected by owner.	

J. In veneer walls, furnish and install galvanized, corrugated masonry anchors at 16" on center horizontally, 24" on center vertically and on each side of masonry control joint at 24" on center vertical .	
K. In all veneer walls, provide weep holes at 24" on center and continuous 8" high membrane flashing along bottom row, at or above grade.	
L. Masonry subcontractor to be responsible for water-tightness of his work.	
M. Workmanship, including joint reinforcement and cold weather installation shall comply with National Masonry Associations applicable recommendations.	
N. Masonry contractor to brush clean final surfaces and prepare exterior faces for paint or sealer as called out.	
O. Provide control joints as indicated on elevations, with backer rod and paintable elastomeric caulk.	
05000 METALS	
A. Provide structural and miscellaneous metal items as shown on drawings, and as required to complete the project.	
B. Furnish shop drawings to satisfy local code requirements, fabricate materials and install all metal work as needed. This shall include structural steel and miscellaneous steel items.	
C. Take field measurements prior to fabrication. Subcontractor shall be responsible for the accuracy of all such measurements and the precise fitting and assembly of the finished products.	
D. Use materials of size and thickness indicated or, if not indicated, as required to develop the maximum loads in the member. Weld corners and seams continuously, complying with AWS recommendations. Provide for anchorage of type shown, coordinated with supporting structure. Fabricate and space anchoring devices to provide adequate support for intended use.	
E. Clean and Shop paint miscellaneous metal work, except members or portions of members to be embedded in concrete or masonry, surfaces and edges to be field welded unless otherwise indicated.	
F. Furnish bent or otherwise custom fabricated, plates, anchors, hangers, dowels and other miscellaneous steel shapes as required.	
G. Provide loose bearing and leveling plates for steel items bearing on masonry, concrete construction, or other portions of the structure as indicated.	
H. Provide miscellaneous steel elements, framing and supports that are not a part of structural steel framework, as required to complete work.	
I. Provide anchorage devices and fasteners where necessary for securing miscellaneous metal fabrications to in-place construction; including, threaded fasteners for concrete and masonry inserts, toggle bolts, through-bolts, lag bolts, wood screws and other connectors as required.	
J. Provide A-325 bolts as shown on the plans or as required to develop the maximum capacity of the connection shown.	
K. Perform cutting, drilling and fitting required for installation of miscellaneous metal fabrications.	
L. Field Welding shall comply with AWS Code for procedures of manual shielded metal-arc welding, appearance and quality of welds made, and methods used in correcting welding work.	
M. Set loose leveling and bearing plates on wedges, or other adjustable devices. After the bearing members have been positioned and plumbed, tighten anchor bolts. Do not remove wedges or shims, but if protruding, cut-off flush with the edge of the bearing plate before packing with grout. Use metallic non-shrink grout in concealed locations where not exposed to moisture; use non-metallic non-shrink grout in exposed locations, unless otherwise indicated. Pack grout solidly between bearing surfaces and plates to ensure that no voids remain.	
N. Touch-Up Painting immediately after erection, clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with same material used for shop painting. Apply by brush or spray to provide a minimum dry film thickness of 2.0 mils.	
O. Miscellaneous Items:	
1. Steel Plates, Shapes and Bars: ASTM A-36	
2. Cold formed Steel Tubing use ASTM A-500	
3. Hot-rolled Steel Tubing use ASTM A- 501	
4. Hot-rolled Structural Steel Sheet use ASTM A-570 . Class 1 or grade required for design loading.	
5. Cold-rolled Structural Steel Sheet use ASTM A-611 . Class 1 or grade required for design loading.	
6. Non-Shrink Metallic Grout to be pre-mixed, factory-packaged, non- staining, non-corrosive, non-gaseous grout complying with CE CRD-C588. Provide grout specifically recommended by manufacturer for interior and exterior applications.	
7. Zinc-coated fasteners for exterior use or where built into exterior walls. Select fasteners for the type, grade and class required.	
06000 CARPENTRY	
A. All wood in contact with concrete or masonry or to be exposed on the exterior to be pressure treated against decay and insects.	
B. Carpenter shall furnish all necessary blocking and grounds for all tops, cabinetry items, handrails, casework and other miscellaneous items as needed.	
C. Provide small areas of wood framing where shown for shelves or equipment by owner.	
D. Carpenter to furnish & install all moldings, trim work and finish hardware (at windows, doors, handrails, and platform areas). Also, shelving, brackets, rods and hangers as shown. Exposed wood trim and moldings to be paint grade spruce or fir, (finger joints allowed).	
E. Furnish and install all rough & finish carpentry including rough hardware, form work indicated and required to complete the project.	
F. Wood framing is to follow good practice and code requirements for fire blocking and wood blocking. Verify fire blocking requirements with the building inspector before completing the frame work.	
G. Provide bridging at all exterior walls and interior load bearing walls, at midpoint of walls for walls up to 9'-4" high, at 1/3 points for walls 9' - 12' high, and at 1/4 points for walls up to 13'-4" high. The bridging shall be 2 x 6 or 2 x 4 as appropriate, matching the studs used in the remainder of the wall.	
H. Framing contractor is responsible for bracing required to resist seismic, wind, and live loads specified and required by I.B.C. Provide let-in and G.W.B. bracing as noted on Sheet Set.	
I. Remove all wood including form lumber, scrap lumber, shavings, and sawdust in contact with the ground. Leave no wood buried in any fill.	
J. All lumber and plywood shall be graded and marked in accordance with the latest grading rules of the Manufacturer's Association having jurisdiction. Plywood decking shall be tongue and groove or to be blocked at all joints, and to be glued to all supporting members.	
K. All materials shall be delivered and stored to insure proper protection from damage. All material shall be well seasoned.	
L. Framing lumber to be stress graded lumber (1250 f. Minimum) #2 yellow pine or approved equal of other species of the following minimum unit strengths in #'s per SQ. IN: FB = 1,200; H = 105; C (perpendicular) = 390; (compression parallel to grain) C= 900; and E = 1,760,000.	

PROJECT NO:
23-4451

DRAWN BY:
DLB/

DATE:
05/17/2024



KEYES ARCHITECTS & ASSOCIATES
4717 PRESTON HIGHWAY
LOUISVILLE, KENTUCKY 40213 (502) 636-5113

OFFICE ADDITION FOR:

ST GREGORY SCHOOL

330 SAMUELS LOOP
COX CREEK, KY 40013

SPECIFICATIONS

SP1.01

PROJECT: ST GREGORY SCHOOL - FILE: SPI 03 Specifications.dwg - DATE: Mar 03, 2025 12:32PM - BY: NICK MCCART

M.Studs & Plates to be furnish and install as specified, detailed and required. Materials shall be straight and without defects that will impair the strength or alignment. Double studs at openings, triple at corners.

N. Double top plates to have (2) 16d through at each stud through plate. Secure upper member of top plate with (2) 10d at each end and 16d at 16" o.c. staggered. Double members secured with 16d at 12" o.c. staggered.

O.Exterior O.S.B. sheathing to be nailed to studs at 12" o.c. staggered.

P. Install all joists with crown up. Double jousts at openings, unless noted to be greater. Double members secured with 16 d at 6" on center, staggered. Laps over supports secured with a minimum of (4) 10d, (3) 20d through header into joists ends. Block solidly at plywood joints.

Q.Header beams for openings in wood framed walls are to be double members with 1/2" plywood between as follows: (2) 2 x 4's for openings 30" wide or smaller, (2) 2 x 6's from 30" up to 48" wide, (2) 2 x 8's from 48" up to 72" wide, and (2) 2 x 10's from 72" up to 96" wide. Framing for openings wider than 96" must be coordinated with the architects.

R. On exterior framing use galvanized, electroplated 16d nails. Interior nails are to be common coated 16d nails unless otherwise notes.

06175 PRE-ENGINEERED WOOD TRUSSES AND PRE-ENGINEERED JOISTS

A. Before bidding, supplier / designer of the trusses and joists is responsible for obtaining all bid documents including but not limited to construction documents and specifications. Supplier / designer is responsible for coordinating final design of this product with all other trades, including but not limited to all roof top loads, spacing for ductwork and other miscellaneous design loads. Should a conflict arise as a result of design difference with other trades, this designer should use industry standard practices to bid and create a product to accomplish the design intent of the construction documents and as part of this bid, then notify General Contractor of the intended changes.

B. Trusses or pre-engineered joists are to be of profile shown on building sections and details.

C.Number of panels points, member sizing, grade, and species as designed by the truss manufacturer.

D.The design is to be the responsibility of the manufacturer, who is responsible for meeting all requirements of I.B.C. This includes the truss girders required at spans as shown on Sheet Set.

E. The scissors trusses shall be designed with a pinned connection at one end of the trusses and a roller connection at the other end support condition.

F. Proper installation and anchoring of all members and anchoring of the trusses for adequate strength are the responsibility of the framing contractor. Anchoring to be an appropriate strap or tie as recommended by manufacturer, and federal, state and local code requirements. System to be by Simpson Strong-Tie or equal.

G.Design of all trusses and joists are to be based on maximum deflection of L/360.

H.Bearing web members of floor trusses are to be designed to carry the axial load of the stud wall above.

I. The manufacturer is to provide shop drawings and structural calculations stamped by a state registered structural engineer of the state work to be performed in, before fabricating the trusses.

J. Design of trusses and handling and erection of trusses, including temporary and permanent bracing, is to follow the latest edition of the specifications of the Truss Plate Institute. Refer to Section 1000 item B of these specifications with regards to inconsistencies.

K.Design is to include sizing and spacing of bracing members.

L. Trusses are to be designed to the following minimum loads:

(NOTE: Greater snow loads required at valleys, roof level changes, etc. per I.B.C. Code requirements supersedes these loads.)

Roof Trusses	
Wind Load	15 psf
Snow Load	20 psf plus snow load build-up at valleys and roof level changes per I.B.C. plus roof top equipment as directed by the Contractor.
Top Chord D.L.	10 psf
Bottom Chord D.L.	5 psf
Uplift	12 psf (9 in excess of D.L.)

06410 WOOD CASEWORK

A.Furnish and install a complete system for cabinets and casework following the standards set forth by AWI and millwork best practices.

B. Cabinets to be oak finish MDF board with overlay doors, wire pulls and fully adjustable plywood shelves, by "Merillat" or approved equal.

C. Tops to be square edge, plastic laminate covered with 4" splash at all walls, scribe fit. Colors to be selected by owner from standard lines.

D.Provide elevations and shop drawings for review by owner.

07000 MOISTURE PROTECTION

A. Insulation:

- Roll glass fiber insulation to be thickness and type shown on drawings for specific uses, to be "Fiberglass" or "Celotex".
- Blown-In Fiberglass Insulation:
 - Insulation to be thickness shown on drawings for the specified uses. Product to meet ASTM C764, Mineral Fiber Loose-Fill Thermal Insulation Type 1 or better standards. Product to be by CertainTeed, Owens Corning or Approved Equal.
 - At all eave vents, vertically install a 2x6 insulation dam between all trusses, on top of the wall bearing plates.
 - At all eave vents, install a 24" wide by 48" long rafter baffle, made of extruded polystyrene foam. Product to be by Owens Corning or approved equal.
- Rigid below grade insulation at foundation and basement walls to be extruded, expanded polystyrene 2" thick (R-value: 5), unless otherwise noted on the plans.
- Exterior concrete masonry units to receive "Core-fill 500" foamed in place system or approved equal.

B. Caulking:

- Use Sherwin Williams 950A siliconized acrylic latex caulk, GE Silicone II or approved equal. Color to match surrounding area being caulked. Caulk all exterior joints and both sides of all door and window frames.
- All Equipment, Mechanical, Plumbing and Electrical Contractors shall supply all flashings and curbs for roof or wall penetrations to the building erector. Building erector shall install and flash all building penetrations as part of their bid project.
- All exterior basement walls to receive exterior rubberized asphaltic damp proofing system. Acceptable systems to be by Hydrotech, Hydro-Shur, Grace, Mar-Flex or approved equal. Entire system to be

installed per manufacturers recommendations.

- Where called out on the drawings, fire caulk to meet all ASTM requirements for fire and smoke barrier. Product to be 3M Fire Barrier Sealant CP 25WB+ or approved equal.

C. All exterior masonry to receive stain or sealer and paint as per finishes in section 9,000.

07240 - EXTERIOR INSULATION & FINISH SYSTEM (E.I.F.S. - Class PB)

A. Exterior Insulation and Finish System (E.I.F.S.) to be a Drainage EIFS system, consisting of a water resistant barrier, drainage plane, expanded polystyrene insulation (EPS) board, adhesive, cementitious base coat with embedded reinforcing fabric mesh, primer (optional), and finish coat, to be by Parex, STO, Dryvit, or approved equal.

B. Water Resistant Barrier to be a building vapor barrier as specified in Section 07250 or a liquid applied system as specified by manufacturer.

C. Drainage plane to be either a surface applied material approved by manufacturer or a EPS board with integral drainage plane.

D. Flashing shall be continuous and watertight. Flashing shall be designed and installed to prevent water infiltration behind E.I.F.S.

E. E.I.F.S. standard system shall be classified in accordance with EIMA for E.I.F.S. classification and impact ranges of 25-49 inch-lbs.

F. Continuous expansion joints shall be installed at locations as shown and in accordance with manufacturer's recommendations.

G. Substrate systems shall be engineered to withstand applicable design loads.

H. Maximum deflection under positive or negative design loads of substrate system shall not exceed 1/240 of span except as otherwise approved in writing by architect before installation.

I. Substrate dimensional tolerances to be flat with 1/4 inch within any 4-foot radius.

J. Substrate movement and any expansion or contraction of E.I.F.S. and adjacent materials shall be taken into account in design of expansion joints. Proper consideration should be given to sealant properties, installation conditions, temperature range, coefficients of material expansion, joint width to depth ratios, and other material factors. Minimum width of expansion joints shall be as recommended by E.I.F.S. manufacturer.

K. Entire system shall be acceptable for use on this project by the building code department that has jurisdiction.

L. Comply with manufacturer's instructions and recommendations for installation of exterior insulation and finish system.

07250 WEATHER BARRIER - VAPOR BARRIER

A. Building vapor barrier to be commercial grade weather barrier Tyvek CommercialWrap by DuPont or approved equal.

B. All joints are to be lapped minimum 3" and taped as specified by manufacturer.

C. All penetrations are to be taped around entire perimeter.

D. Tape to be 3" wide Tyvek Tape for commercial applications by DuPont or approved equal.

E. Barrier to be anchored in wood with 1" plastic caps fasteners with min 5/8" penetration.

F. Barrier to be anchored in metal with 1-5/8" rust resistant screw with 2" plastic cap.

07530 ELASTOMERIC SHEET ROOFING (EPDM)

A. Contractors shall field verify all conditions and submit shop drawings for all details and material before ordering the roof components.

B. System to be Versico talc-free black 50-mil EPDM Membrane System installed over 1/2" recovery board and metal batten strips as required, or approved equal.

C. System and application shall exceed all State Building Codes, local ordinances and these construction documents.

D. Provide written 10-year manufacturer and installer's warranties/guarantees from the date of the Owner's written final acceptance of the installation.

E. Install additional blocking and nailers as required, Grade #2 or better lumber, pressure-treated for fire and rot resistance with a salt-based preservative (Wolmanized). Creosote and asphaltic-based preservatives are not acceptable.

F. Non-skid white molded rubber walk pads, 3/8" x 36" x 44" and 3/8" x 36" x 22", for roof protection are to be provided from the roof access to all roof top units.

G. Install roof top curbs supplied by the HVAC contractor.

H. Install flashing as required by the manufacturer's details and contract drawing details.

07610 METAL ROOFING - STANDING SEAM (OVER DECK)

A. Metal roofing to be a pre-painted standing seam roof system over 15lb felt with a plywood substrate and to include all closure strips, trim and flashing as needed to create a water tight system.

B. System to be Snap-Loc 24ga by Metal Sales Manufacturing or approved equal. System to be installed per manufacturer's specifications, recommendations and industry standard best practices.

08000 DOORS AND WINDOWS

A. Doors, frames, windows and glazing to be as shown on drawings. Finish hardware to comply with building code.

B. All door and window glazing to conform to section 08800 Glazing.

C. Egress doors shall be able to be opened from inside without a key or special knowledge.

D. All exterior outward swinging hinged doors are to have Non-Removable Pin (NRP) hinges, unless otherwise specified on the drawings.

E. Hollow metal frames shall be standard profile, 16ga. shop primed. Three (3) anchors each side, one (1) at head. Use wrap around frames at Gypsum board partitions.

F. Hollow metal doors shall be flush, 18 GA., 1 3/4" thick, exterior doors to be insulated with rigid bd. insulation. Head of doors to be solid and flush. Doors to be shop primed.

G. Wood doors shall be 1 3/4" solid core (particle bd. core) as indicated with flush stain grade veneer. Doors to be job stained and sealed, color as selected.

H. Finish hardware shall be medium grade commercial products by Stanley, Schlage, Von Duprin, Yale or an approved equal. Finish to be selected by owner. U.L. rated and Handicapped accessible hardware as required. See door schedule.

I. Exterior clad windows to be fixed, double hung or double casement units as shown on plans. Windows to be by Anderson, Pella, Marvin, or approved equal. All units to have clear insulated glazing with Low-E coating. Install per manufacturer's instructions and recommendations.

08410 ALUMINUM STOREFRONT SYSTEM

A. Exterior frame are to be thermally broken aluminum frames.

B. Frames to be black, bronze, white or clear anodized (as selected by owner).

C. Aluminum storefront system to be "Kawneer 451T" or approved equal.

D. Glazing contractor shall be responsible to securely anchor units to framing or masonry as needed to transfer loads to the building.

E. All glazing to conform to section 08800 Glazing.

08520 SLIDING / GLIDING VINYL WINDOW

A. Overall product frame depth to be a minimum 3-1/4".

B. Interior and Exterior surfaces are to be extruded rigid uPVC, with sashes having a foam insulation.

C. Members are to have mitered and heat fused fully welded corners.

D. Sill to be fitted with weeps.

E. Frame to have a setback nail fin appropriate for wall depth.

F. Glazing to be dual pane Low-E coated insulated glass per section "08800 Glazing" below.

G. Unless specified otherwise elsewhere interior and exterior finish to be white.

H. Units are to include factory installed locks and insect screen in a finish to match window.

I. Where shown on elevations, windows to have 3/4" wide grills-between-the-glass, in a finish to match window.

J. Window to be Pella 250 Series Sliding Window, Sierra Pacific 8000 Series Horizontal Slider, Jeld-Wen V-2500 Series Sliding Window, or approved equal.

08800 GLAZING

A. Unless specified herein, all glazing is per door and window schedules located on the construction documents.

B. All glazing to comply with safety glazing laws. Installer to verify requirements before ordering and installing all glazing.

C. All insulated glazing units, Low-E finishing and glaze tinting are to carry a minimum of a 10 year warranty from date of acceptance of project.

D. Where glazing is specified to be Low-E and Tinted, glazing is to be tempered as per glazing types below.

E. All glazing to follow Standard Specifications for ASTM C 1036, ASTM C 1048 and ASTM E 774.

F. Glazing to be by PPG, LOF, Guardian Industries, Ford Glass, Hordis Brothers Inc., or equal. Provide all tinted and Low-E glass from the same manufacturer for the entire project.

G. Glazing:

- Exterior glazing to be 1", double layer insulated glazing.
- Interior glazing to be 1/4", single layer.

H. Glazing Types:

- Annealed: Clear float glass conforming to ASTM C 1036, Type I, Class 1, quality q3.
- Tempered: As specified for clear annealed except fully tempered to conform to ASTM C 1048, Kind FT.
- Clear Wire: 1/4 inch (6 mm) thick, clear rolled glass conforming to ASTM C-1036, Type II (flat), Class I, Form 1 (wired and polished both faces), wired with welded polished wires, 1/2 inch (13 mm) x 1/2 inch (13 mm) square pattern, smooth wires vertical, manufactured by Hordis Bros., Sierracin/Transtech, or equal.

I. Glazing Finish Types:

- Obscure: Conforming to ASTM C 1036, Type II, Class I, Form 3, Finish 1, pattern p3 "hammered" texture glass.
 - Low-E: PPG "Sungate 500(2)" or equal, clear float glass with transparent reflective coating on inboard (No. 2) surface, conforming to glass type.
 - Low-E Tinted: PPG "Sungate 1000(2)" or equal, tinted float glass with transparent reflective coating on inboard (No. 2) surface, conforming to tempered glass type.
 - Spandrel: Tempered spandrel glass conforming to DD-G-1403, Grade B, Style II, color as shown or selected by owner.
- J. Tint Finish Types - Glare reducing float glass to be: PPG "Solargray", gray color, PPG "Solarbronze", bronze color, or equal.
- K. Configuration to be per Window Schedule located in the Construction Documents.

L. Glazing materials and accessories shall be fully compatible with the materials and finishes with which they are in contact. Neoprene and EPDM materials shall not come in contact with silicone sealant materials. Silicone rubber spacers, setting and edge blocks and gaskets shall be either Type I (designed to prevent adhesion) or Type II (designed for adhesion) as per glazing system manufacturer's recommendations for each condition of use.

09000 FINISHES

A. All finishes shall be as called for and specified on drawings.

B. Inspection of finished surfaces for blemishes and defect at the end of the project shall follow the generally accepted standard - PDCA (P1-09) Industry Standards for reviewing finished surfaces. "Viewing and inspection of finished surfaces shall be at a distance of thirty-nine (39) inches from the surface under finished lighting or natural lighting without the use of any optic magnifications or enhanced lighting. Any blemishes or defects detected at this range shall be removed or repaired and patched to match the surrounding."

C. Fiberglass Reinforced Plastic (FRP) Panels are to be by Marlite, Duralite by Kemlite, or approved equal. Furnish and install complete system, include panels, trim, and adhesive system.

D. Gypsum Board:

- All gypsum board to be 5/8" thick and installed per U.S. Gypsum association standards and best industry practices.
- Use mold / moisture-resistant gypsum board ("Green" Board or equal) in all toilet rooms and within 4'-0" of all plumbing fixtures such as sinks, drinking fountains, washing machines or any other equipment not listed here in.
- Where indicated on plans all fire rated assemblies are to use 5/8" Type "X" gypsum board, installed per details and best industry practices.
- Furnish and install metal or plastic corner bead at all outside corners and "J" mold at all exposed

edges.

5. Control Joints: All walls are to follow the latest ASTM C840-08 and GA-216 as it pertains to control joint placement. Unless shown on the plans differently, all walls and ceilings greater than (30) linear feet in any direction are to have a control joint every 30'-0" O.C. All control joints are to receive a metal or plastic control joint strip, installed per manufacturer's recommendations.

E. Ceramic wall tile to be 4"x4" ceramic mosaic tiles by American Olean or approved equal. Install thin set over cement board substrate. Use C-Cure grout, 100% epoxy additive. Tile and grout colors to be selected by owner from standard architectural line (maximum of three tile colors).

F. Ceramic floor tile to be 12"x12"x5/16" thin set tile by StonePeak or approved equal, with cap tile along edges and base. Install with C-Cure grout, 100% epoxy additive. Install per manufacturer's recommendations and installation instructions. Tile and grout colors to be selected by owner from standard architectural line (maximum three tile colors).

G. VCT or VET (Vinyl Enhanced Tile) Floor Tile to be 12"x12"x1/8" Azrock by Tarkett, or approved equal. Owner to select maximum of three colors from full architectural line.

H. Vinyl plank flooring is to be nominal 0.125" thick vinyl with a minimum 0.02" wear layer. Tile to be 48" in length, 6" to 9" in width, and shall be laid in a straight pattern. Owner to select final product from a standard list of manufacturer's product in a minimum of (2) colors. Product to be I.D. Freedom by Tarkett, Classics V5000 by J+J Flooring or approved equal. Product to be glued down using a standard adhesive recommended by manufacturer.

I. Carpet to be commercial grade \$15.00/sq. yd. (installed). This allowance cost is to be independent of the special pads shown for commercial glue down.

J. Vinyl base to be 4" high, 1/8" thick by Tarkett, Roppe, or approved equal. Use coved at vinyl floor tile and coveless at carpet. Stairs shall receive Vinyl treads and backs, treads shall have replaceable slip resistant strip at nosing. Colors as selected by Owner from standard architectural line. Installed per manufacturer's instructions.

K. Floor transitions shall be vinyl as recommended for the specific material transitions. Material shall be by Tarkett, Roppe or approved equal selected from full architectural color lines.

L. Coating Schedule:

1. Surfaces not to be painted are floor coverings, items with factory applied final finish, concealed ducts, pipes and conduit, acoustical ceiling tiles, items with pre-finished surfaces, aluminum windows and door frames, and all items called not to be painted on plans.

2. Surfaces to be painted:

Note: consult with Owner for final colors and finishes.

a) Exposed interior Drywall:

1st coat: Latex Wall Primer.
2nd coat: Latex eggshell or Alkyd based enamel as called for.
3rd coat: Latex eggshell or Alkyd based enamel as called for.

b) Interior Drywall Ceilings:

1st coat: Latex Wall Primer
2nd coat: Alkyd Flat Ceiling Paint

c) Interior Wood or Masonite (Painted):

1st coat: Wall and Wood Primer
2nd coat: Semi-Gloss Alkyd Enamel
3rd coat: Semi-Gloss Alkyd Enamel

d) Interior Wood (Stained):

1st coat: Interior Wood Stain
2nd coat: Gloss Polyurethane (sand between coats)
3rd coat: Gloss Polyurethane

e) Interior Metal:

1st coat: Metal Primer
2nd coat: Semi-Gloss Alkyd Enamel
3rd coat: Semi-Gloss Alkyd Enamel

f) Exterior Metal:

1st coat: Metal Primer
2nd coat: Semi-Gloss Alkyd Enamel
3rd coat: Semi-Gloss Alkyd Enamel

g) Asphalt Striping:

Install 4" wide Bright White stripes at all shown parking spaces.
Install 4" wide Safety Yellow stripes at Handicapped parking and loading areas.
Directional arrows where shown, to be Safety Yellow.
All Striping and marking to be straight, perpendicular and uniform.

09511 ACOUSTICAL CEILING TILES

A. Ceiling grids to be standard 2'x4' or 2'x2' by Donn, Armstrong, or approved equal.

B. Ceiling tiles to be 2'x2' or 2'x4' vinyl faced square edge, standard fissured square edge, or standard fissured tegular panels by Armstrong, U.S.G., or approved equal.

C. Acoustical sound panels to be 2'x2' colored Acoustone panels by U.S.G. or approved equal.

D. Wet areas such as kitchens, restrooms, and wash rooms are to receive a smooth texture 2'x4' washable, scratch resistant, and anti-microbial acoustical tile. Tile to be Kitchen Zone - 672 by Armstrong or approved equal.

E. Grid and panels are to be white unless otherwise noted on the finish schedule.

10000 SPECIALTIES

A. Storage shelving, where shown on drawings shall be plastic coated wire systems by ClosetMaid, Schulte, K&V, or approved equal. Each location shall have a fully adjustable track system with a minimum of six shelves. Final styles of the supplied shelves to be selected (Some areas may receive only a rod and shelf).

B. Fire extinguisher and cabinets to be by owner as required by code and by the fire inspector.

C. Toilet accessories: The following list of new items shall be furnished and installed:

- Fixed standard mirror(s) 30"x36" - Bobrick B-165 B 3036
- Fixed standard mirror(s) 24"x36" - Bobrick B-165 B 2436
- 18" vertical grab bar(s) - Bobrick B-6806x18
- 36" horizontal grab bar(s) - Bobrick B-6806x36
- 42" horizontal grab bar(s) - Bobrick B-6806x42
- Toilet paper holder(s) - Bobrick B-2888
- Paper towel dispenser(s) - Bobrick B-262

PROJECT NO:
23-4451

DRAWN BY:

DLB/

DATE:

05/17/2024



KEYES ARCHITECTS & ASSOCIATES
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OFFICE ADDITION FOR:

ST GREGORY SCHOOL
330 SAMUELS LOOP
COX CREEK, KY 40013

SPECIFICATIONS

SP1.02

PROJECT: ST GREGORY SCHOOL - FILE: SP1.03 Specifications.dwg - DATE: Mar 03, 2025 12:32PM - BY: NICK MCCART

(1) Wall mounted soap dispenser(s) - Bobrick B-5050

10350 FLAGPOLE

- A. Project to include one ground set 25 feet tall flagpole, along with all accessories to install and utilize this unit. Flag to be supplied by owner.
- B. Submit show drawings that include product data, manufacturer's descriptive literature for flagpoles, details on all components and mounting details.
- C. Provide Manufacturer's standard warranty against defects in product workmanship and materials.
- D. Manufacturers:
1. Concord Industries, Inc., 4150 Kellway Cir. P. O. Box 2449; Addison, TX 75001-2449; 800-527-3902
 2. American Flagpole, Inc., P.O. Box 547, Abingdon VA 24210; 800-368-7171
 3. Acme/Lingo Flagpoles, LLC; 1865 Rt. 206, Southampton NJ 08088; 800-260-1897
 4. Or Approved Equal

10440 FIRE AND/OR SMOKE BARRIER PROTECTION SIGNAGE

- A. This project will require a "Fire Wall", "Fire Barrier", and/or "Smoke Barrier" as part of the scope of work. Per the building code, signage will be required on these walls identifying these walls as needing to be protected.
- B. Signage will be required as listed below unless otherwise specified by these drawings or by a local building code.
- C. Where Required: Where there is an accessible concealed floor, floor-ceiling or attic space, fire walls, fire barriers, fire partitions, smoke barrier and smoke partitions, or any wall required to have protected openings or penetrations shall be effectively and permanently identified with signs or stenciling in the concealed space.
- D. Signage Location: Signs will be located within 15 feet of the end of each wall and at intervals not exceeding 30 feet on center measured horizontally along the wall or partition.
- E. Signage Requirement: Include lettering not less than 3 inches in height with a minimum 3/8 inch stroke in a contrasting color incorporating the suggested wording, "FIRE AND/OR SMOKE BARRIER - PROTECT ALL OPENINGS," or other wording. Signs to be worded with the identification of the wall rating being applied to.
- F. Where stenciling is allowed by local codes and owners, lettering to be concise and clear applied to a smooth surface.
- G. Where signage is required by local code and owners, signage to be made of high durability vinyl or sheet metal with a permanent adhesive or a minimum of (4) screws.

11000 EQUIPMENT

- A. General contractor to install all equipment so listed on drawings, verify and coordinate requirements with suppliers during bidding.
- B. Owner to supply and install all equipment not required or listed herein. See equipment schedules.

12000 FURNISHINGS

- A. Owner to furnish and install all furnishings not required or listed herein.

14000 CONVEYING EQUIPMENT - Not Used

SPECIAL NOTE:

- A. Final detailed layout of Steel Structures, Plumbing, Mechanical, Fire Suppression and Electrical systems are by separate Engineers or installers, it is the responsibility of the owner and General Contractor to coordinate all work with affected other trades to assure completeness and code compliance.
- B. It is the responsibility of the General Contractor and the Mechanical, Electrical, and Plumbing Contractors to ensure that all parts of their work is to be accessible as per Federal ADAAG Guidelines and all State / Local Guidelines. This includes but is not limited to Electrical Controls such as Thermostats or Lighting Controls, Light Switches, Outlet Plugs, Hand Dryers, and Faucet Controls. If there are concerns about how to determine reach ranges, equipment clearance or other accessibility items, contact the architect immediately before work begins for guidance.

END OF SPECIFICATIONS

ABBREVIATIONS

These are abbreviations used on the plans and in these specifications. Not all items may be use and are for reference only.

- ACT - Acoustical Ceiling Tile
- AFF - Above Finished Floor
- CJ - Control Joint
- E.I.F.S. - Exterior Insulation and Finish System
- FRP - Fiberglass Reinforced Panels
- Gyp. Bd. - Gypsum Board
- I.B.C. - International Building Code
- MAX - Maximum
- MIN - Minimum
- NRP - Non-Removable Pin
- O.C. - On Center
- VCT - Vinyl Composite Tile
- VET - Vinyl Enhanced Tile
- V.I.F. - Verify In Field

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