ADDENDUM #001 ITB 2452-2025

Date: April 11, 2025

Solicitation: Invitation to Bid (ITB) 2452-2025 Amos P. Godby High School Building 400 Re-Roof Project

Bid Opening: June 4, 2024, at 2:00 P.M. EST

Failure to file a protest within the time prescribed in Section 120.57(3), Florida Statutes, or failure to post the bond or other security required by law within the time allowed for filing a bond shall constitute a waiver of proceedings under Chapter 120, Florida Statutes.

Please be advised that the changes below are applicable to the original specifications of the above-referenced solicitation. Added or new language to the ITB is highlighted in yellow, while deleted language has been stricken.

Change #1:

Exhibits D, E, F and G added to the Invitation to Bid

Change #2:

Exhibit C Project Manual SECTION 075423 - THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING pages 075423 – 1 through 075423 – 14 are hereby deleted in their entirety and replaced with the attached REVISED SECTION 075423 - THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING

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This Addendum provides the Board's written answers to the timely written questions received.

Question	Answer
1. Johns Manville (a Berkshire Hathaway Company) submitting a pre-bid system approval request for roofing materials tailored to the above referenced project, to provide a JM TPO [60] [115 FB] roofing system	A forthcoming addendum will provide an updated list of approved manufacturers. For deviations from the contract documents, refer to the Substitution Procedures (012500) section of the specifications.
2. The plans and specs reference installation of a TPO membrane. However, the manufacturers listed do not produce TPO sheets. They only produce KEE or PVC sheet membranes. Can you please provide further clarification? If TPO is to be specified for installation, we will need to utilize alternative manufacturers.	We have confirmed that two of the three listed manufacturers produce a TPO membrane. We will revise the list of approved manufacturers in a forthcoming addendum. For deviations from the contract documents, refer to the Substitution Procedures (012500) section of the specifications.
3. Also, the specs call for the membrane to be Fleeceback, but the plans do not. Can you please confirm that, or is smooth membrane acceptable?	The design is intended to be fleeceback For deviations from the contract documents, refer to the Substitution Procedures (012500) section of the specifications.

1. GENERAL NOTES

1.1. THE GOVERNING CODE FOR THIS PROJECT IS THE FLORIDA BUILDING CODE 8th EDITION (2023). THIS CODE PRESCRIBES WHICH EDITION OF EACH REFERENCE STANDARD APPLIES TO THIS PROJECT. UNLESS OTHERWISE NOTED, ALL WORK AND MATERIALS SHALL CONFORM WITH THE GOVERNING BUILDING CODE AND ALL OTHER APPLICABLE FEDERAL, STATE AND LOCAL CODES, STANDARDS, REGULATIONS AND LAWS.

1.2. THE CONTRACTOR SHALL COORDINATE ALL CONTRACT DOCUMENTS WITH FIELD CONDITIONS, DIMENSIONS, AND PROJECT SHOP DRAWINGS PRIOR TO CONSTRUCTION. DO NOT SCALE DRAWINGS, USE ONLY PRINTED DIMENSIONS. REPORT ANY DISCREPANCIES OR FIELD CONDITIONS ENCOUNTERED IN CONFLICT WITH THE DRAWINGS IN WRITING TO THE ARCHITECT AND/OR ENGINEER PRIOR TO PROCEEDING WITH WORK. DO NOT CHANGE SIZE OR LOCATION OF STRUCTURAL MEMBERS WITHOUT WRITTEN INSTRUCTIONS FROM THE ARCHITECT OR ENGINEER OF RECORD.

1.3. THE STRUCTURE SHOWN ON THESE DRAWINGS IS SELF-SUPPORTING ONLY IN ITS COMPLETED FORM. THE DESIGN, ADEQUACY, SAFETY AND STABILITY OR ERECTION BRACING, FORMWORK, SHORING, AND TEMPORARY SUPPORTS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

1.4. DETAILS LABELED AS "TYPICAL" APPLY TO ALL SITUATIONS THAT ARE THE SAME OR SIMILAR TO THOSE SPECIFICALLY REFERENCED, WHETHER OR NOT THEY ARE KEYED IN AT EACH LOCATION.

1.5. THE CONTRACTOR SHALL PROTECT ADJACENT PROPERTY, HIS OWN WORK, AND THE GENERAL PUBLIC FROM HARM. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR CONSTRUCTION MEANS AND METHODS, AND JOBSITE SAFETY INCLUDING ALL OSHA REQUIREMENTS. THE STRUCTURAL ENGINEER OF RECORD HAS NO AUTHORITY TO EXERCISE ANY CONTROL OVER ANY CONSTRUCTION PERSONNEL RELATED TO THEIR WORK OR ANY HEALTH OR SAFETY PRECAUTIONS.

2. DESIGN LOADS

	LIVE LOAD
ROOF	20 PSF

4. WIND LOAD DESIGN CRITERIA (PER ASCE 7-22)

WIND SPEED (ULT/ASD)	= 130 MPH / 101 MPH
RISK CATEGORY	= III
WIND EXPOSURE CATEGORY	= B
ENCLOSURE CLASSIFICATION	= ENCLOSED
EDGE ZONE WIDTH (a)	= 4'-0"

SEE CLADDING DIAGRAM (THIS SHEET FOR COMPONENTS AND CLADDING LOADING)

5. METAL ROOF DECK

5.1. METAL ROOF DECK SHALL BE GALVANIZED STEEL DECK WITH THE FOLLOWING MINIMUM PHYSICAL PROPERTIES:

TYPE	0.6C FORM
DEPTH	0.6 INCH
GAUGE	22 GA (0.0295")
STEEL YIELD STRENGTH	60 KSI
MOMENT OF INERTIA	0.024 IN^4
SECTION MODULUS	0.070 IN^3

5.2. ALL STEEL DECK SHALL BE MANUFACTURED AND ERECTED IN ACCORDANCE WITH THE STEEL DECK INSTITUTE

5.3. ALL DECK SHALL BE FABRICATED FROM GALVANIZED SHEETS CONFORMING TO ASTM A653, CLASS G60 COATINGS.

5.4. CONNECT METAL DECK TO STRUCTURAL STEEL BEAMS WITH 5/8 INCH PUDDLE WELDS AT 12 INCHES ON CENTER FOR ALL BEAMS WITHOUT HEADED STUDS WELDED THROUGH THE DECK. PROVIDE (2) #10 SIDELAP FASTENERS FOR ALL SPANS.

6. GYPSUM PATCHING

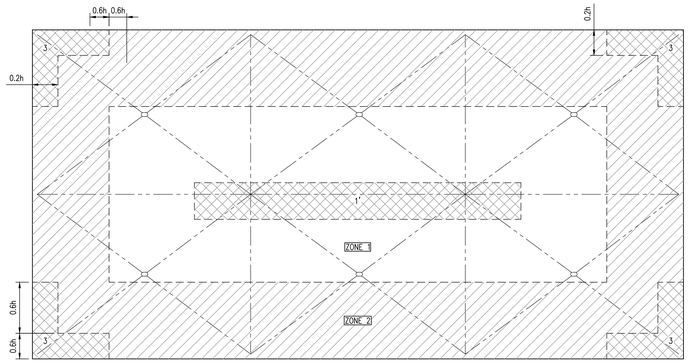
6.1. ALL GYPSUM PATCHING SHALL BE MADE W/ SECUROCK GYPSUM-CONCRETE PATCH MANUFACTURED BY USG OR APPROVED ALTERNATIVE.

6.2. INSTALL PATCHING MATERIAL PER MANUFACTURE'S INSTALLATION REQUIREMENTS.

7. EXISTING FORM BOARD REPAIR

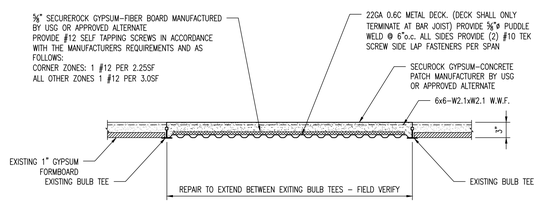
7.1. WHERE EXISTING FORM BOARD IS DAMAGED, REMOVE EXISTING GYPSUM AND FORM BOARD BETWEEN EXISTING DOUBLE TEES AND BETWEEN EXISTING BAR JOISTS.

7.2. SEE SECTION A/S001 FOR REPAIR DETAILS.



BUILDING ROOF PLAN

COMPONENT & CLADDING LOADS - ROOF		
TRIB AREA	PRESSURE	
ZONE (1')	ROOF - INTERIOR	
10 SQ. FT.	+16.0	-28.8
20 SQ. FT.	+16.0	-28.8
50 SQ. FT.	+16.0	-28.8
100 SQ. FT.	+16.0	-28.8
ZONE (1)	ROOF - INTERIOR	
10 SQ. FT.	+16.0	-50.1
20 SQ. FT.	+16.0	-46.8
50 SQ. FT.	+16.0	-42.4
100 SQ. FT.	+16.0	-39.1
ZONE (2)	ROOF - EXTERIOR EDGE	
10 SQ. FT.	+16.0	-66.1
20 SQ. FT.	+16.0	-61.8
50 SQ. FT.	+16.0	-56.2
100 SQ. FT.	+16.0	-51.9
ZONE (3)	ROOF - EXTERIOR CORNER	
10 SQ. FT.	+16.0	-90.0
20 SQ. FT.	+16.0	-81.5
50 SQ. FT.	+16.0	-70.3
100 SQ. FT.	+16.0	-61.8



TYP. ROOF DECK REPAIR SECTION — A S001
SCALE: 1"=1'-0"

FITZGERALD COLLABORATIVE

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TALLAHASSEE
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Authorization No. 31293

Patrick M. McKee, P.E.
Florida PE No. 63122

REVISION

NO.	DESCRIPTION	DATE

PERMIT DOCUMENTS

CLIENT
LEON COUNTY SCHOOLS

PROJECT TITLE
LCS GODBY HIGH SCHOOL-BLDG 4 REROOF
1717 W Tharpe St, Tallahassee, FL 32304

PROJECT NUMBER
240208

ISSUE DATE
2/3/2025

DRAWING TITLE
STRUCTURAL NOTES

SHEET NUMBER
S001

SYMBOL LEGEND

ABBREVIATIONS

A	AMPERE
AC	ALTERNATING CURRENT
ER	EXISTING DEVICE SHOWN IN RELOCATED POSITION
EX	EXISTING - RECONNECT AS REQUIRED AT EXISTING LOCATION. REMOVE AND REINSTALL IF REQUIRED
ETR	EXISTING TO REMAIN
J	JUNCTION
RELO	DEVICE TO BE RELOCATED
V	VOLT
VA	VOLT-AMPS
W	WATT
WP	WEATHERPROOF (NEMA 3R)

LIGHTING CONTROLS

(PE) ADJUSTABLE PHOTO ELECTRIC SWITCH - EXISTING

CODES AND REQUIREMENTS

THE INSTALLATION SHALL COMPLY WITH THE INDICATED EDITION OF THE FOLLOWING CODES AND ORDINANCES. WHERE SPECIFIC EDITION IS NOT INDICATED, COMPLY WITH THE LATEST PUBLISHED EDITION.

NATIONAL FIRE PROTECTION ASSOCIATION - NFPA
NFPA 70 - 2020; NATIONAL ELECTRICAL CODE

FLORIDA BUILDING CODE
FBC-B 2023; THE FLORIDA BUILDING CODE (8th EDITION)
FPC 2023; THE FLORIDA FIRE PREVENTION CODE (8th EDITION)
INCLUDING NFPA 101 - 2018; THE LIFE SAFETY CODE
FBC-EB 2023; THE FLORIDA BUILDING CODE, EXISTING BUILDING (8th EDITION)

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

IEEE C2 - NATIONAL ELECTRICAL SAFETY CODE

SERVING UTILITY COMPANY POLICIES

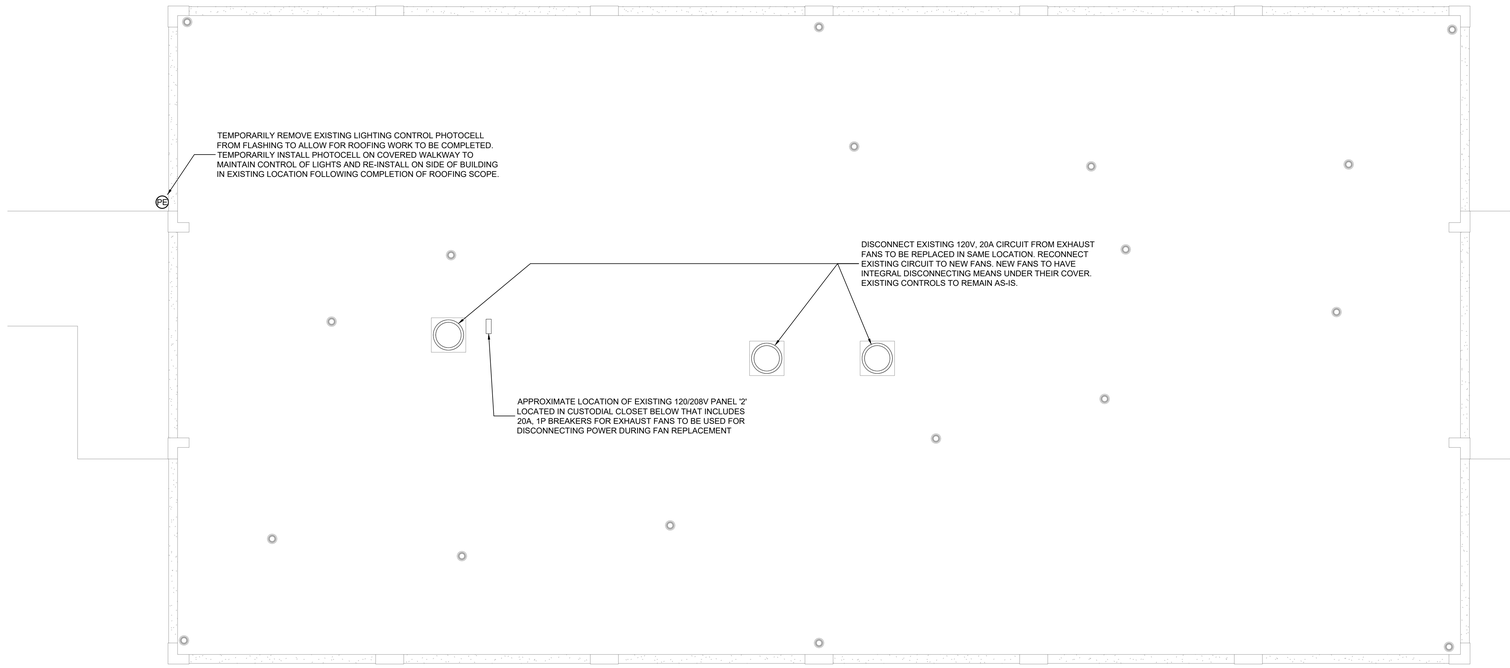
STATE AND MUNICIPAL CODES AND REQUIREMENTS

GENERAL NOTES

1. ALL CONDUCTORS SHALL BE INSTALLED IN METAL CONDUIT OR TUBING. FLEXIBLE CONDUIT INSTALLED OUT-OF-DOORS, IN ANY MECHANICAL EQUIPMENT ROOM, OR IN NORMALLY WET AREAS, SHALL BE LIQUID TIGHT FLEX WITH SUITABLE FITTINGS.
2. CONDUIT SHALL PASS THROUGH WALLS AT 90 DEGREES AND SHALL BE RUN PARALLEL AND PERPENDICULAR TO WALLS.
3. BRANCH CIRCUITS AND HOMERUNS SHALL BE #12 WIRE AND 3/4" CONDUIT MINIMUM. EVERY CONDUIT SHALL HAVE A GREEN GROUND WIRE (#12 MINIMUM).
4. ALL CONDUCTORS SHALL BE COPPER WITH THHN/THWN INSULATION. CONDUCTORS SIZE # 8 AWG AND LARGER SHALL BE STRANDED.
5. NO MORE THAN 3 PHASE CONDUCTORS SHALL BE INSTALLED IN ONE CONDUIT UNLESS NOTED OTHERWISE. SHARED NEUTRALS ARE NOT PERMITTED.
6. ALL CONDUITS PENETRATING ROOF SHALL BE SEALED BY THE ELECTRICAL CONTRACTOR, USING SEALING METHOD APPROVED BY THE ROOFING INSTALLER.
7. ALL WALL PENETRATIONS SHALL BE SEALED USING AN APPROPRIATE UL ASSEMBLY TO MAINTAIN THE RATING OF THE WALL.
8. WHERE CORE DRILLING OCCURS, CONTRACTOR SHALL USE CAUTION TO AVOID DAMAGING SURROUNDING SURFACES. CONTRACTOR RESPONSIBLE FOR CLEANING UP ALL SLURRY AND ENSURING A CLEAN AND PROFESSIONAL FINISH. CONTRACTOR SHALL REPLACE OR REPAIR BUILDING SURFACES OR EQUIPMENT DAMAGED BY SLURRY OR CORE DRILLING MATERIALS.
9. WHERE INSTALLING ELECTRICAL CONDUIT, MAINTAIN CONDUIT STRAPPING AND FASTENING PER NEC.
10. WHERE INSTALLING ELECTRICAL CONDUIT, MAINTAIN PULL POINTS PER NEC AND DO NOT EXCEED 360 DEGREES IN BENDS IN ANY CONDUIT RUN WITHOUT APPROPRIATE PULL POINTS.
11. ALL JUNCTION BOXES, PULLBOXES, AND DEVICES SHALL BE LABELED WITH CIRCUIT NUMBER AND CIRCUIT VOLTAGE.

DESCRIPTION OF WORK

1. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE ALL ELECTRICAL WORK AS SHOWN ON THE CONTRACT DRAWINGS.
2. THIS SHALL INCLUDE THE INSTALLATION OF A COMPLETE AND PROPERLY OPERATING ELECTRICAL SYSTEM. THIS SYSTEM REQUIRED CONSISTS BASICALLY OF, AND IS NOT LIMITED TO, THE FOLLOWING:
   - EXTEND THE DISTRIBUTION SYSTEM FOR POWER INCLUDING THE NECESSARY FEEDERS, BRANCH CIRCUITS, INSTALLATION OF AND CONNECTION TO DEVICES, SWITCHES, AND ALL OTHER EQUIPMENT SHOWN.
3. THE BIDDER SHALL INSPECT THE PRESENT JOBSITE CONDITIONS BEFORE PREPARING HIS BID. THE SUBMISSION OF A BID WILL BE CONSIDERED EVIDENCE THAT SUCH A VISIT AND INSPECTION WAS PERFORMED BY THE BIDDER AND THAT HE TAKES FULL RESPONSIBILITY FOR ALL FACTORS GOVERNING HIS WORK.
4. THE ELECTRICAL WORK SHALL BE COMPLETE, FULLY OPERATIONAL, AND SUITABLE IN EVERY WAY FOR THE SERVICE REQUIRED. DRAWINGS ARE GENERALLY DIAGRAMMATIC IN NATURE AND DO NOT SHOW ALL DETAILS, DEVICES AND INCIDENTAL MATERIALS NECESSARY TO ACCOMPLISH THEIR INTENT. THEREFORE, IT SHALL BE UNDERSTOOD THAT SUCH DEVICES AND INCIDENTAL MATERIALS REQUIRED SHALL BE FURNISHED AT NO COST TO THE OWNER.



01 ROOF PLAN
1/8" = 1'-0"

NORTH

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BRIAN K. WALLACE LICENSE No. 75562 STATE OF FLORIDA PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by Brian K. Wallace, PE, on 01/28/2025. Printed copies of this document are not considered signed and sealed and the signatures must be verified on any electronic copies.

REVISION

NO.	DESCRIPTION	DATE

PERMIT DOCUMENTS

CLIENT
LEON COUNTY SCHOOLS

PROJECT TITLE
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1717 W Thorpe St, Tallahassee, FL 32304

PROJECT NUMBER
240208

ISSUE DATE
2/3/2025

DRAWING TITLE
NOTES, LEGEND, AND ROOF PLAN

SHEET NUMBER
E100

SCOPE OF WORK NOTES:

FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE ALL MECHANICAL WORK SHOWN ON THE CONTRACT DRAWINGS. THE WORK REQUIRED CONSISTS BASICALLY OF, BUT IS NOT LIMITED TO, THE FOLLOWING:

1. DEMOLITION OF ROOF-MOUNTED EXHAUST FANS
2. SUPPLY & INSTALLATION OF SCHEDULED EQUIPMENT, DUCT, ETC. TO MAKE A COMPLETE MECHANICAL SYSTEM FOR THE RENOVATED SPACES.

GENERAL NOTES:

- FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE ALL WORK SHOWN ON THE CONTRACT DRAWINGS.

- ALL CONSTRUCTION SHALL CONFORM TO APPLICABLE CODE STANDARDS INCLUDING:

  FBC-B 2023; THE FLORIDA BUILDING CODE (8th EDITION)
  FPC 2023; THE FLORIDA FIRE PREVENTION CODE (8th EDITION)
  INCLUDING NFPA 101 - 2021; THE LIFE SAFETY CODE
  FBC-M 2023; THE FLORIDA MECHANICAL CODE (8th EDITION)
  FBC-A 2023; THE FLORIDA BUILDING CODE, ACCESSIBILITY (8th EDITION)
  FBC-EC 2023; THE FLORIDA BUILDING CODE, ENERGY CONSERVATION (8th EDITION)
  FBC-FG 2023; THE FLORIDA BUILDING CODE, FUEL GAS (8th EDITION)
  FBC-P 2023; THE FLORIDA BUILDING CODE, PLUMBING (8th EDITION)
  FBC-EB 2023; THE FLORIDA BUILDING CODE, EXISTING BUILDING (8th EDITION)

  STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES - 2014 EDITION

- SHOULD CONFLICT OCCUR BETWEEN PROJECT SPECIFICATIONS & DRAWING NOTES, THE DRAWING NOTES WILL TAKE PRECEDENCE.

- THE CONTRACTOR IS EXPECTED TO PROVIDE PROFESSIONAL WORK PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND BEST PRACTICES.

- THE WORK SHALL BE COMPLETE, FULLY OPERATIONAL, AND SUITABLE IN EVERY WAY FOR THE SERVICE REQUIRED.

- DRAWINGS INDICATE SCOPE AND DO NOT SHOW ALL DETAILS, DEVICES AND INCIDENTAL MATERIALS NECESSARY TO ACCOMPLISH THE WORK. THEREFORE, IT SHALL BE UNDERSTOOD THAT SUCH DEVICES AND INCIDENTAL MATERIALS REQUIRED SHALL BE FURNISHED AT NO COST TO THE OWNER.

- CONTRACTOR SHALL TAKE INTO ACCOUNT FIELD CONDITIONS AND COORDINATE IN ORDER TO AVOID CONFLICTS WITH EXISTING CONDITIONS AND INTERFERENCE BETWEEN TRADES.

- EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS FOR PROPER OPERATION, MAINTENANCE, AND SERVICE. IF CHANGES TO THE CONTRACT DOCUMENTS ARE NECESSARY TO AVOID CONFLICTS, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING CLARIFICATION IN A TIMELY FASHION.

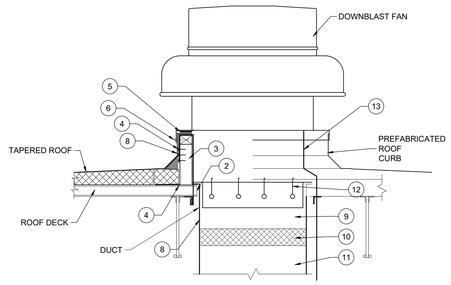
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEFICIENCIES ASSOCIATED WITH WORK PERFORMED BEFORE OBTAINING WRITTEN CLARIFICATION.

FAN SCHEDULE

DESIGNATION		EF-07	EF-08	EF-09
AREA/ROOM SERVED & BUILDING		BUILDING 4	BUILDING 4	JANITOR
SERVICE		GENERAL EXHAUST	GENERAL EXHAUST	GENERAL EXHAUST
MANUFACTURER		GREENHECK	GREENHECK	GREENHECK
MODEL		G-095-VG	G-095-VG	G-060-D
TYPE		DOWNBLAST	DOWNBLAST	DOWNBLAST
FAN CONSTRUCTION		ALUMINUM	ALUMINUM	ALUMINUM
DRIVE TYPE		DIRECT	DIRECT	DIRECT
AIR FLOWRATE DESIGN	CFM	1000	1000	105
DESIGN STATIC PRESSURE	IN	0.25	0.25	0.28
DESIGN FAN SPEED	RPM	1700	1700	1550
RADIATED SOUND POWER	SONES	10.1	10.1	3.6
ELECTRICAL CHARACTERISTICS	V/Ø/HZ	115 / 1 / 60	115 / 1 / 60	115 / 1 / 60
MOTOR HORSEPOWER	HP	1/6	1/6	1/60
MIN CIRCUIT AMPACITY	AMPS	2.8	2.8	-
OPTIONS		1,2,3,4,5,6	1,2,3,4,5,6	1,2,3,4
CONTROL NOTES		1	1	1
PROJECT QTY.		1	1	1

OPTIONS:
1. PROVIDE 12" HIGH ROOF CURB FOR FLAT ROOF.
2. PREWIRED MOTOR DISCONNECT SWITCH, NEMA-3R.
3. BACKDRAFT DAMPER
4. FAN & CURB ARE TO BE RATED FOR HIGH WIND APPLICATION
5. VARI-GREEN MOTOR
6. UPON INSTALLATION, FAN SPEED TO BE SET TO ~25% UNTIL A FUTURE PROJECT

CONTROL NOTES:
1. FAN WILL OPERATE VIA WALL SWITCH



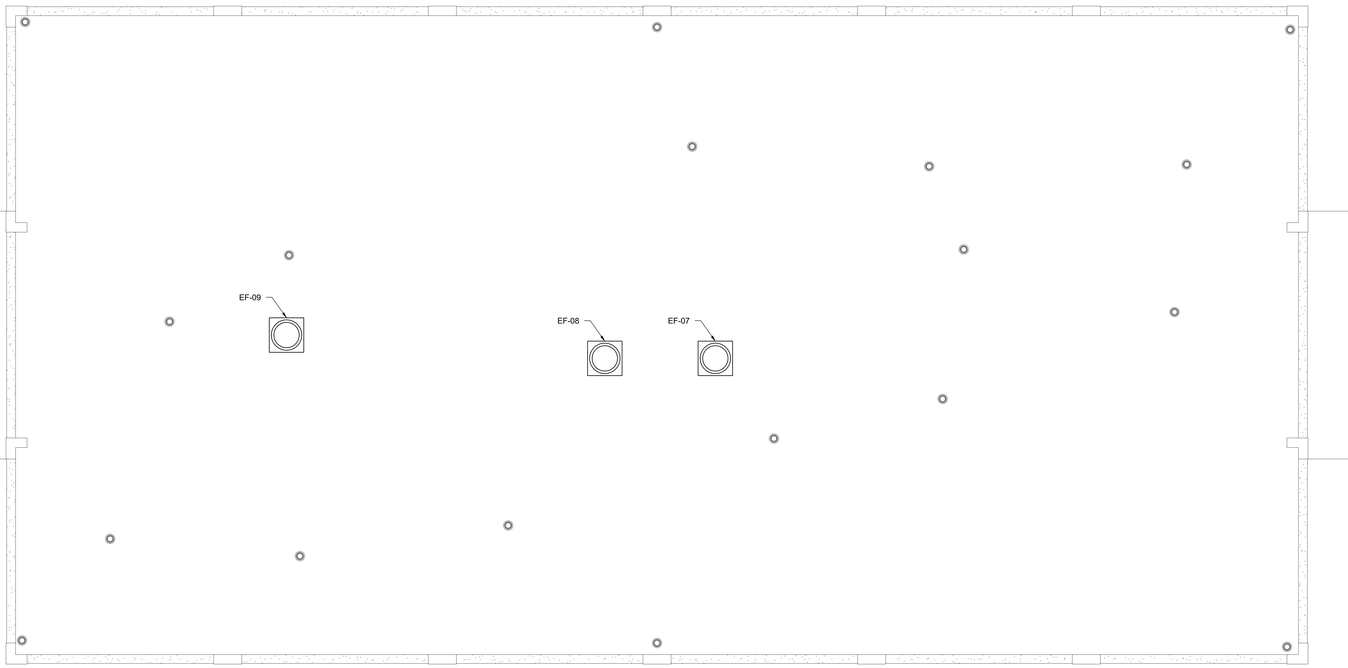
DOWNBLAST ROOF FAN DETAIL

SCALE: NONE

NOTES:
1. COORDINATE CURB AND FAN INSTALLATION WITH ARCHITECTURAL DETAILS.
2. ROOF OPENING SIZE WILL REMAIN AS-IS.
3. CURB SHALL EXTEND MIN. OF 8" ABOVE TOP OF ROOF.
4. SECURE CURB TO ROOF DECK. INSTALLATION TO RESIST UPLIFT TO 120 MPH.
5. APPLY FOAM RUBBER GASKET TO TOP OF CURB FOR AIR-TIGHT JOINT.
6. SECURE FAN TO CURB WITH ¼" Ø LAG BOLTS @ 12" O.C. ALL AROUND OR AS REQUIRED BY THE MANUFACTURER TO COMPLY WITH THE PRODUCT'S WIND LOAD CAPABILITY.
7.
8. MODIFY DUCT AS REQUIRED FOR NEW CURB AND FAN.
9. UPPER SECTION OF DUCT TO BE SUPPORTED AT ROOF.
10. FLEXIBLE CONNECTION
11. DUCT SUPPORTED FROM JOISTS
12. BACK-DRAFT DAMPER
13. POWER TO CONNECT TO FACTORY DISCONNECT

DEMO & INSTALLATION NOTES:

1. THE EXISTING EXHAUST FANS AND ROOF CURBS ARE TO BE DEMOLISHED WITH THE ROOF DEMOLITION. THE DUCT TO THE INLET OF THE FANS AND THE POWER CIRCUITS SHALL BE MAINTAINED FOR REUSE WITH NEW FANS.
2. INSTALL NEW FANS AND CURBS IN THE SAME LOCATION. SEE ARCHITECTURAL SHEETS FOR CURB INSTALLATION DETAILS.
3. RECONNECT EXISTING DUCT TO NEW FAN / CURB.
4. THERE ARE NO CHANGES TO CONTROLS OR OPERATION OF THE FANS.
5. FANS EF-07 & EF-09 ARE TO BE TURNED DOWN TO MINIMUM SPEED WITH THE ECM MOTOR CONTROLLER. THE SYSTEM WILL BE RE-BALANCED IN A FUTURE PROJECT.



01 ROOF PLAN
1/8" = 1'-0"

NORTH

FITZGERALD COLLABORATIVE

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JON M. BARBER
LICENSEE
No. 55427
STATE OF FLORIDA
PROFESSIONAL ENGINEER

This item has been digitally signed and sealed by **Jon Barber, PE** on 1/31/25
Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

REVISION

NO.	DESCRIPTION	DATE

PERMIT DOCUMENTS

CLIENT
LEON COUNTY SCHOOLS

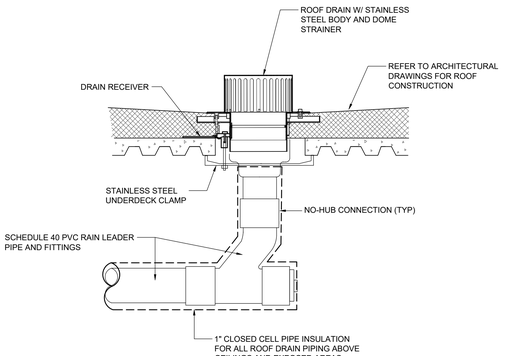
PROJECT TITLE
LCS GODBY HIGH SCHOOL-BLDG 4 REROOF
1717 W Thorpe St, Tallahassee, FL 32304

PROJECT NUMBER
240208

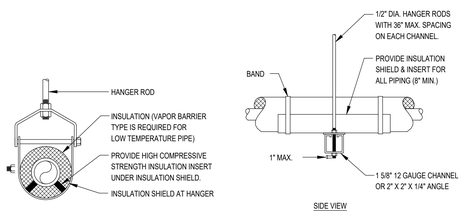
ISSUE DATE
2/3/2025

DRAWING TITLE
NOTES, LEGEND, SCHEDULE, AND ROOF PLAN

SHEET NUMBER
M100



01 ROOF DRAIN
NTS



NOTES:
1. SEE SPECIFICATIONS FOR SPACING OF HANGERS.
2. PROVIDE SPRING ISOLATORS FOR FIRST 3 HANGERS UP TO AND BEYOND EQUIPMENT CONNECTION AND/OR THROUGH OUT MECHANICAL ROOMS OR MEZZANINE AREAS.

02 TYPICAL PIPE HANGERS
NTS

LCSB PLUMBING SPECIFICATIONS

1. ALL ROOF DRAINAGE PIPING AND FITTINGS SHALL BE SCHEDULE 40 PVC
2. ALL PIPING SHALL BE INSTALLED PARALLEL OR PERPENDICULAR TO WALLS, AND SHALL PASS THROUGH WALLS AT 90 DEGREES. UNLESS SHOWN OR APPROVED, PIPING INSTALLED DIAGONALLY IS NOT ALLOWED.
3. ROOF DRAIN CONSTRUCTION: CORROSION RESISTANT, STAINLESS STEEL FASTENERS, HARDWARE, AND ACCESSORIES SHALL BE USED WHERE FEASIBLE, TO INCLUDE STRAINER DOME, TOP CLAMP, TOP CLAMP BOLTS, DRAIN BODY, AND UNDERDECK CLAMP.

PLUMBING LEGEND

4"RL	EXISTING RAIN LEADER PIPING
4"RL	PRIMARY RAIN LEADER
3"ST	STORM DRAIN PIPING
	CAP
	ELBOW TURNED UP
	ELBOW TURNED DOWN
	TEE, OUTLET UP
	TEE, OUTLET DOWN
	CONNECTION, NEW TO EXISTING

ABBREVIATIONS

AC	ABOVE CEILING
AF	ABOVE FLOOR
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AS	ABOVE SLAB
BFF	BELOW FINISHED FLOOR
BG	BELOW GRADE
BS	BELOW SLAB
CO	CLEANOUT
DN	DOWN
EXIST	EXISTING
INV EL	INVERT ELEVATION
PDI	PLUMBING DRAINAGE INSTITUTE
RD	ROOF DRAIN
RL	RAIN LEADER
TYP	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
WCO	WALL CLEANOUT

PLUMBING NOTES

GENERAL CONDITIONS

1. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. CONTRACTOR SHALL FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND INCIDENTALS REQUIRED TO COMPLETE ALL WORK SHOWN ON THE CONTRACT DRAWINGS.
3. ALL CONSTRUCTION SHALL CONFORM TO APPLICABLE CODE STANDARDS INCLUDING:

   FLORIDA BUILDING CODE, BUILDING, 8TH EDITION (2023)
   FLORIDA BUILDING CODE, PLUMBING, 8TH EDITION (2023)
   FLORIDA BUILDING CODE, MECHANICAL, 8TH EDITION (2023)
   FLORIDA FIRE PREVENTION CODE, 8TH EDITION (2023)
   FLORIDA BUILDING CODE, ENERGY CONSERVATION CODE, 8TH EDITION (2023)
   NFPA 70, NATIONAL ELECTRIC CODE (NEC) 2020 EDITION
   SREF 2014 - STATE REQUIREMENTS FOR EDUCATIONAL FACILITIES
   STATE AND LOCAL CODES AND ORDINANCES

4. THE BIDDERS SHALL INSPECT THE PRESENT JOB SITE CONDITIONS BEFORE PREPARING A BID. THE SUBMISSION OF A BID WILL BE CONSIDERED EVIDENCE THAT SUCH A VISIT AND INSPECTION WAS PERFORMED BY THE BIDDER AND THAT HE TAKES FULL RESPONSIBILITY FOR ALL FACTORS GOVERNING HIS WORK.
5. THE CONTRACTOR IS EXPECTED TO PROVIDE PROFESSIONAL WORK PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND GOOD PRACTICE. WORK SHALL CONFORM TO THE MANUFACTURER'S INSTRUCTIONS AND THE REQUIREMENTS OF THE LOCAL HEALTH DEPARTMENT.
6. THE CONTRACTORS ARE EXPECTED TO FIELD VERIFY ALL DIMENSIONS. CONTRACTORS ARE EXPECTED TO ACCOUNT FOR FIELD CONDITIONS. CONTRACTORS ARE EXPECTED TO COORDINATE IN ORDER TO AVOID INTERFERENCE BETWEEN TRADES. CONTRACTORS ARE EXPECTED TO INSTALL EQUIPMENT SUCH THAT PROPER MAINTENANCE CLEARANCES ARE MAINTAINED FOR EQUIPMENT OF ALL TRADES. IF CHANGES TO THE CONTRACT DOCUMENTS ARE NECESSARY TO AVOID CONFLICTS, THE CONTRACTOR IS RESPONSIBLE FOR REQUESTING CLARIFICATION IN A TIMELY FASHION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DEFICIENCIES ASSOCIATED WITH WORK PERFORMED BEFORE OBTAINING CLARIFICATION.
7. UPON COMPLETION OF THE WORK THE CONTRACTOR SHALL CLEAN SPACES THAT WERE OCCUPIED BY TEMPORARY WORK AND TEMPORARY FACILITIES. REMOVE DEBRIS, RUBBISH AND EXCESS MATERIALS FROM THE SITES. REPAIR DAMAGES CAUSED BY INSTALLATION OR USE OF TEMPORARY FACILITIES.

GENERAL PLUMBING NOTES

1. PLUMBING PLANS ARE SCHEMATIC. LOCATE PIPING TO AVOID FIELD INTERFERENCES. CHANGES IN THE PIPING SCHEMATIC REQUIRE PRIOR APPROVAL OF THE ENGINEER.
2. TRANSITION CONNECTION BETWEEN SITE PIPING AND BUILDING PLUMBING SHALL OCCUR IN AN ACCESSIBLE GREEN SPACE.
3. THE CONTRACTOR IS EXPECTED TO VERIFY DIMENSIONS AND FIELD FABRICATE PIPING AS NECESSARY TO ACCOMMODATE CONDITIONS.
4. PRIOR TO ANY NEW WORK THE CONTRACTOR SHALL VERIFY BY ALL MEANS AVAILABLE THE DIRECTION OF FLOW OF ALL EXISTING PIPING THAT WILL BE TIED INTO FOR THE NEW WORK. REPORT TO THE ENGINEER ANY DIFFERENCES FROM WHAT THE CONTRACT DOCUMENTS SHOW.

MATERIALS AND DEVICES

1. ALL MATERIALS, EQUIPMENT AND APPARATUS COVERED BY THIS SPECIFICATION SHALL BE NEW, OF CURRENT MANUFACTURE.
2. SEE PROJECT SPECIFICATIONS FOR MATERIALS.
3. CONNECTION JOINTS BETWEEN PLASTIC AND METALLIC PIPE SHALL BE MADE WITH TRANSITION FITTING FOR THE SPECIFIC PURPOSE.

PIPING NOTES

1. INSTALL GRAVITY LINES AT UNIFORM GRADES.
2. INSTALL SLEEVES AT ALL PENETRATIONS WHERE CONCRETE MIGHT CONTACT COPPER PIPING. PROVIDE SLEEVES AND SEAL ALL PENETRATIONS OF FULL HEIGHT WALLS AIR TIGHT. PROVIDE SLEEVES AT ALL PENETRATIONS OF FLOOR. PROVIDE POLY PIPE COVER OR INSULATION WHERE COPPER PIPING IS ENCASED WITHIN CMU WALLS.
3. PIPING INSTALLATIONS ARE EXPECTED TO BE RIGID. SUPPORT AND SECURE PIPING IN ACCORDANCE WITH GOOD PRACTICE.

CLOSEOUT, TESTING AND INSPECTIONS

1. COORDINATE INSPECTIONS WITH THE SPECIFICATIONS.
2. ALL ROOF DRAINAGE PIPING SHALL BE LEAK TESTED IN ACCORDANCE WITH THE FBC, PLUMBING CODE BUT NOT LESS THAN 10' OF HEAD.
3. NO PIPING SHALL BE COVERED OR CLOSED UP BEFORE INSPECTION AND APPROVAL. PROVIDE TEST TEES AT CONNECTION TO EXISTING AT EACH FLOOR & AS NEEDED FOR COMPLETE TESTING.

DRAIN SCHEDULE (BASIS OF DESIGN)

TYPE	DESCRIPTION	MODEL	TRIM & ACCESSORIES	FIXTURE CONNECTIONS		
				CW	WASTE	VENT
RD-1	STAINLESS STEEL ROOF DRAIN	JOSAM 21500-SS	TYPE 304 STAINLESS STEEL ROOF DRAIN DOME, TOP CLAMP, DRAIN BODY, AND UNDERDECK CLAMP. 4" NO-HUB OULET.	SEE PLANS FOR SIZING		

PLUMBING SPECIFICATIONS

PART 1 - GENERAL

GENERAL CONDITIONS

The work described hereunder shall be installed in accordance with the "Mechanical General Conditions," Section 15010.

DESCRIPTION OF THE WORK

The extent of the work is indicated on the Drawings. In general, the work consists of, but is not limited to, the following:
Roof drains and accessories.
A system of roof drainage piping.

RELATED WORK

Site Utilities have generally been completed under other contracts.

QUALITY ASSURANCE

All materials and installations are to comply with the following. If conflicts occur between plumbing codes and the specifications, the most restrictive requirements shall govern.

Florida Building Code, Building, 8th edition (2023)
Florida Building Code, Plumbing, 8th edition (2023)
SREF 2014 - state requirements for educational facilities
State and local codes and ordinances
State requirements for educational facilities

Furnish and install equipment having the characteristics and accessories indicated on the drawings or in these specifications. The manufacturer's specifications for the models shown on the drawings or given as basis for design, plus all features, options, and accessories indicated on the drawings or in these specifications, whether or not standard for the model scheduled or offered as a substitute, shall constitute the minimum requirements for equipment furnished under this section.

SUBMITTALS

Submit to the Architect/Engineer for approval six (5) copies of brochures, technical data and/or shop drawings of the following, and as many additional copies as required for Contractor use:

Roof drains
Roof drainage piping
Insulation
Proposed fire proofing systems at penetrations of rated walls

CHANGES

The Drawings indicate generally the locations of plumbing fixtures, apparatus, piping, etc., and while these are to be followed as closely as possible, if before installation, it is found necessary to change the location of same to accommodate the conditions at the building, such changes shall be made without additional cost to the Owner and as directed by the Architect/Engineer.

PART 2 - PRODUCTS

MATERIALS EXPOSED TO PLENUM CEILING CAVITY

Insure all materials which are exposed in the ceiling cavities are plenum rated having a smoke development rating less than 50 and a flame spread less than 25.

MATERIALS WHICH PENETRATE FIRE WALLS

Where insulated piping or plastic materials penetrate fire walls, provide a UL listed systems for maintaining the rating.
Where bear metal piping systems penetrate fire walls, provide a permanent sleeve which is grouted or rocked into wall. Provide a UL listed fire caulk for the annular space.

PIPING

Where more than one material is specified for a particular application, the contractor may select.
All materials shall comply with latest ASTM specifications in each instance that ASTM has specifications and standards relating to such materials.

Roof Drain Piping:

Above grade piping, polyvinyl chloride (PVC) plastic pipe (Type DWV, SDR26, SDR35, SDR41, PS50 or PS100) in IPS diameters, including Schedule 40, DR 22 (PS 200) and DR 24 (PS 140); with a solid, cellular core or composite wall.

PIPE ACCESSORIES:

Pipe sleeves: metal (pvc may be used where appropriate) sized to allow minimum clearance between pipe and sleeves or insulation and sleeves.
Provide chrome-plated brass escutcheon plates where exposed pipe passes through walls, floors, or ceiling in finished areas.
Adjustable wrought clevis type hanger and rods: Anvil Company or equivalent. Provide copper hangers for copper piping.

PIPE INSULATION

Pipe insulation shall be 1" closed-cell insulation with aluminum jacket, Armaflex or equal.

PART 3- EXECUTION

INSTALLATION OF PIPING

On roof drain piping, use wyes and eighth bends.
Make joints in PVC plastic pipe with solvent cement in accordance with pipe manufacturer's instructions.
Lay horizontal drain pipes to uniform grade; riser pipes, vertical. Make changes in directions of drain pipes with long bends. No screwed joints permitted in drain pipes, except as described herein.
Lay all sewers and branches, where practicable, on undisturbed earth cut at proper grade. Where laid on fill, provide adequate supports to maintain pitch of the line.
Sizes of risers and mains of water system piping shall be as designated on the Drawings. Verify any omitted sizes before installation.
Cover pipe openings at all times that the work is not in progress at that point.
Adequately support all piping above floors inside the building from or on the building structure. Support piping suspended from the building structure by means of the specified pipe hangers and rods. Make maximum spacing between pipe supports as follows:

Nominal Pipe Size	Maximum Span
3/4" and under	5'
1"	7'
1-1/4"	7'
1-1/2"	9'
2"	10'
2-1/2"	11'
3"	12'
4"	14'

Storm drain piping shall be supported by at least one hanger on each full length of pipe close to hub where possible and at least one within 24 inches of each fitting, and wherever else required to prevent tendency toward deflection due to load. Provide a hanger at upper angle at each drop. Locate hangers adjacent to hubs on multiple fittings not more than four feet on centers.
For support spacing of all other horizontal piping refer to MSS-SP-69 and provide additional supports at valves, strainers, in line pumps and other heavy components. Provide a support within one foot of each elbow.
Vertical Pipe Supports: Up to 6 inch 60 feet long or not over 12 inch pipe up to 30 feet long, Riser clamps bolted to pipe below couplings, or welded to pipe and resting securely on the building structure. Vertical pipe larger than the foregoing, support on base elbows or tees, or substantial pipe legs extending to the building structure. Vertical runs less than 15 feet long may be supported by the hangers on the connecting horizontal runs.
Bases of drain stacks: If not buried in earth support on concrete, brick in cement mortar, or metal brackets permanently attached to building structure.
Make joints in PVC plastic pipe with solvent cement in accordance with pipe manufacturer's instructions.

INSTALLATION OF PIPE SLEEVES

Install pipe sleeves at all locations where pipe passes through walls, floors, or ceilings above or below grade.
Where subject to moisture or weather, seal sleeves with watertight sealant.

TESTS AND INSPECTIONS

Make all water and air tests of the piping systems in the presence of and to the satisfaction of the Architect/Engineer or his designated representative. Conduct these tests at such places and with timing to permit work to proceed with as little interruption as possible. Make tests before work is concealed.
After the installation of roof drainage piping and before the pipe is concealed or the fixtures are installed, cap or plug the ends of the system and fill all lines with water to top of vents above roof and allow to stand until a thorough inspection has been made. Should leaks appear, repeat the tests until the system is tight.
Do not use resin, candle wax or any other such substance for stopping leaks in cast iron soil, waste or vent lines or in storm drain lines. Caulking of screw joints to stop leaks will not be permitted.

END OF SECTION

FITZGERALD COLLABORATIVE

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1201 W. PEACHTREE ST, SUITE 630
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TALLAHASSEE
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JON M. BARBER — LICENSED — No. 55427 — STATE OF FLORIDA — PROFESSIONAL ENGINEER

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REVISION

NO.	DESCRIPTION	DATE

PERMIT DOCUMENTS

CLIENT

LEON COUNTY SCHOOLS

PROJECT TITLE

LCS GODBY HIGH SCHOOL-BLDG 4 REROOF

1717 W Tharpe St, Tallahassee, FL 32304

PROJECT NUMBER

240208

ISSUE DATE

2/3/2025

DRAWING TITLE

PLUMBING NOTES, LEGEND, SCEDULE, AND DETAILS

SHEET NUMBER

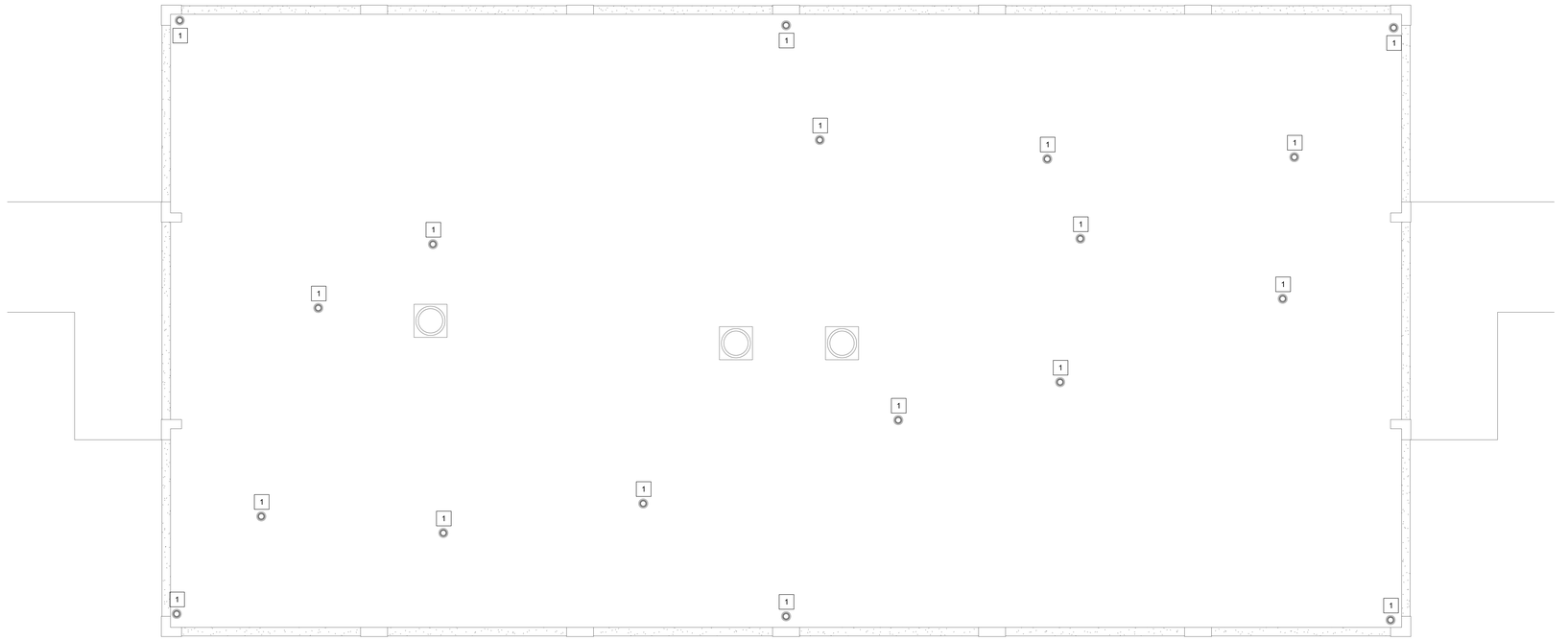
P001

PLAN KEYNOTES - PLUMBING DEMOLITION

1. REMOVE EXISTING ROOF DRAIN, DRAIN BODY, UNDERDECK CLAMP, AND ASSOCIATED APPURTENANCES.
2. REMOVE ALL EXISTING LATERAL AND VERTICAL SCHEDULE 40 PVC RAINLEADERS BACK TO EXISTING ROOF DRAINS.
3. REPAIR AND/OR PATCH EXISTING RAINLEADER PIPE PENETRATION BACK TO ORIGINAL CONDITION.
4. EXISTING EXTERIOR WALL PIPE PENETRATION TO BE REUSED.
5. DISCONNECT AND ABANDON VERTICAL RAIN LEADER IN COLUMN. REMOVE EXISTING CLEANOUT, AND REPAIR/PATCH INTERIOR COLUMN BACK TO ORIGINAL CONDITION.

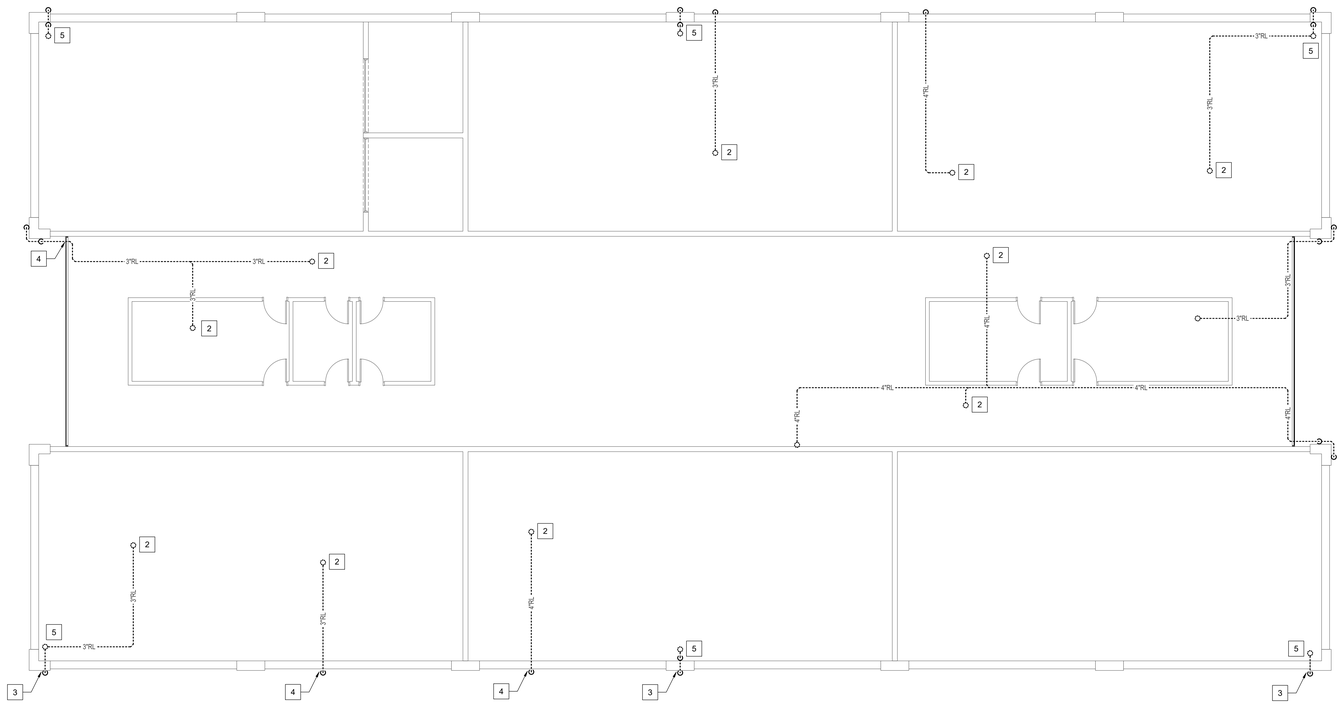
DEMOLITION GENERAL NOTES

1. DEMOLITION IS NOT LIMITED TO WHAT IS SHOWN ON THESE DRAWINGS. THE INTENT IS TO INDICATE THE GENERAL SCOPE OF DEMOLITION REQUIRED TO COMPLETE THE WORK IN ACCORDANCE WITH THE CONTRACT DRAWINGS.



01 DEMOLITION ROOF PLAN - PLUMBING
1/8" = 1'-0"

NORTH



02 DEMOLITION FLOOR PLAN - PLUMBING
1/8" = 1'-0"

NORTH

FITZGERALD COLLABORATIVE

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1717 W Thorpe St, Tallahassee, FL 32304

PROJECT NUMBER
240208

ISSUE DATE
2/3/2025

DRAWING TITLE
DEMOLITION PLANS - PLUMBING

SHEET NUMBER
P100

PLAN KEYNOTES - PLUMBING RENOVATION

1. NEW ROOF DRAIN RD-1. PROVIDE W/ NEW DRAIN BODY, UNDERDECK CLAMP, AND ASSOCIATED APPURTENANCES.
2. 4" RL UP TO NEW ROOF DRAIN.
3. ROUTE NEW 4"RL THROUGH EXISTING RAINLEADER PENETRATION. MODIFY OPENING AS REQUIRED.
4. ROUTE 4"RL DOWN EXTERIOR TIGHT TO WALL AND TERMINATE 8" ABOVE NEW CONCRETE SPLASH BLOCK. EXTERIOR PIPE TO BE PAINTED BLACK.

PLUMBING GENERAL NOTES

1. RENOVATED ROOF SHALL NOT BE DESIGNED WITH PARAPETS. SECONDARY RAIN WATER SHALL FLOW OFF EDGE OF ROOF AND ON TO GROUND SURFACE.
2. ALL RAIN LEADER PIPE AND FITTINGS SHALL BE SCHEDULE 4 PVC.

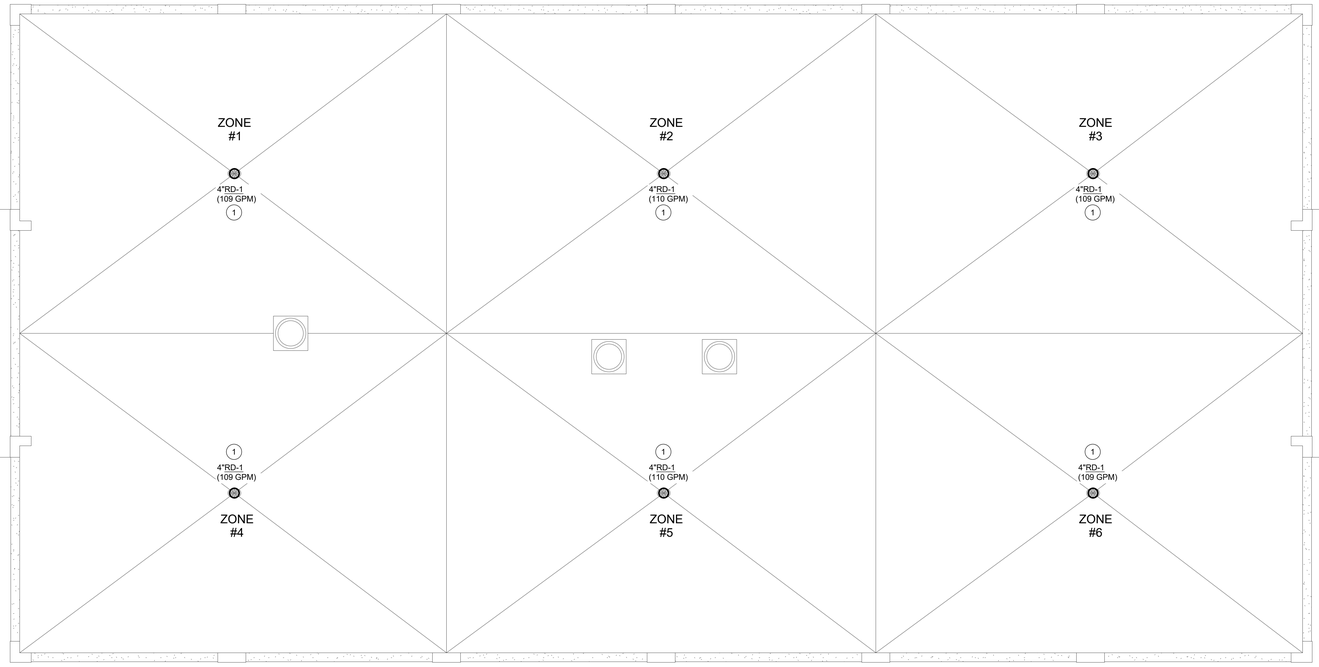
ROOF DRAINAGE TABLE

DRAINAGE ZONE	'C' COEFFICIENT OF RUNOFF	'I' 100-YEAR RAINFALL RATE (IN/HR)	'A' AREA (SF)					Q_s (GPM)	Q_s (CFS)
			ROOF AREA (SF)	PARAPET AREA (SF)			TOTAL ROOF AREA (SF)		
				L (FT)	H/2 (FT)	TOTAL AREA (SF)			
ZONE 1	1.0	4.5	2320	0.0	0.0	0.0	2320.0	108.49	0.24
ZONE 2	1.0	4.5	2335	0.0	0.0	0.0	2335.0	109.19	0.24
ZONE 3	1.0	4.5	2320	0.0	0.0	0.0	2320.0	108.49	0.24
ZONE 4	1.0	4.5	2320	0.0	0.0	0.0	2320.0	108.49	0.24
ZONE 5	1.0	4.5	2335	0.0	0.0	0.0	2335.0	109.19	0.24
ZONE 6	1.0	4.5	2320	0.0	0.0	0.0	2320.0	108.49	0.24
TOTAL								652.34	1.45

RATIONAL CALCULATION METHOD

Q = (C x I x A)/96.23 where:

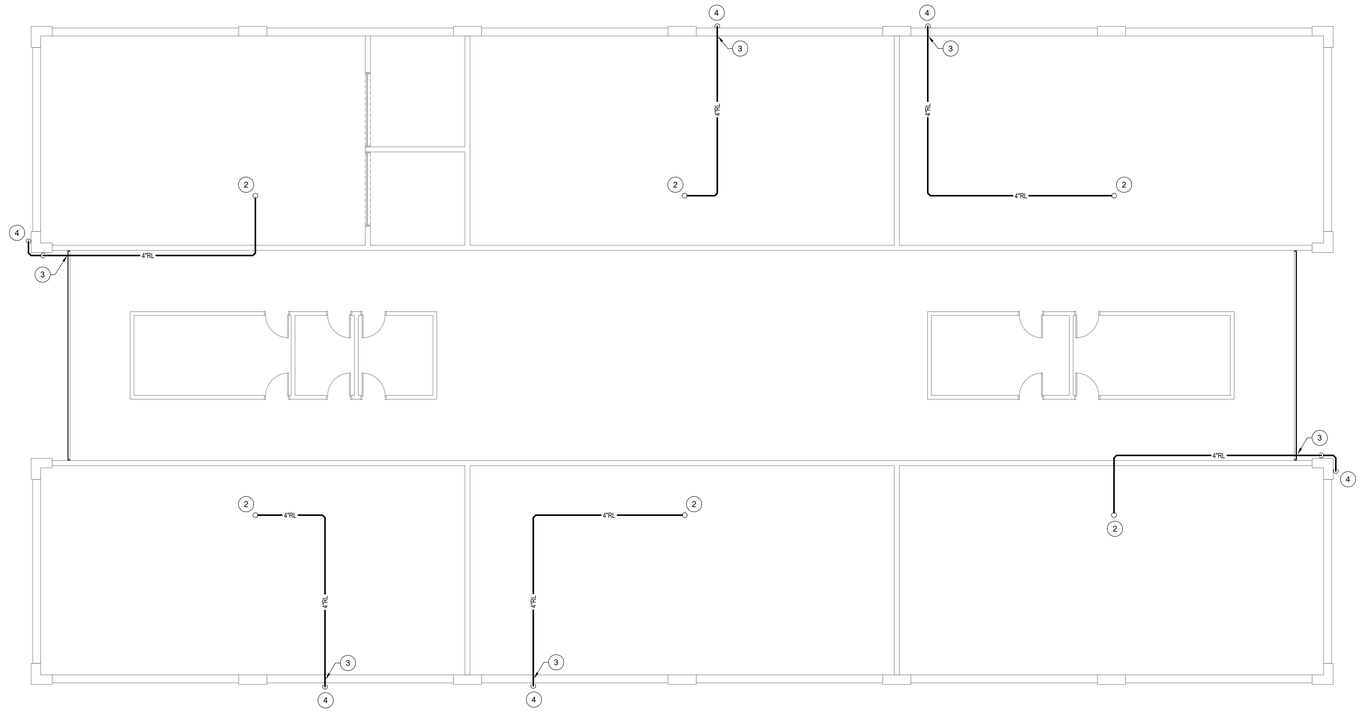
Q_s = Storm Water Runoff (in gallons per minute)
Q_s = Storm Water Runoff (in cubic feet per second)
C = Coefficient of Runoff
I = Rainfall Intensity (in inches per hour)
A = Area of Drainage Zone (in square feet)



01 NEW WORK ROOF PLAN - PLUMBING

1/8" = 1'-0"

NORTH



02 NEW WORK FLOOR PLAN - PLUMBING

1/8" = 1'-0"

NORTH

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PROJECT NUMBER

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ISSUE DATE

2/3/2025

DRAWING TITLE

NEW WORK PLANS - PLUMBING

SHEET NUMBER

P101

REVISED

SECTION 075423 - THERMOPLASTIC-POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Adhered thermoplastic polyolefin (TPO) roofing system.
2. Roof insulation.
3. Cover board.
4. Flexible Walkways.

B. Related Requirements:

1. Section 061053 "Miscellaneous Rough Carpentry" for wood nailers, curbs, and blocking; and for wood-based, structural-use roof deck panels.
2. Section 076200 "Sheet Metal Flashing and Trim" for metal roof flashings and counterflashing.
3. Section 077100 "Roof Specialties" for manufactured copings and roof edge flashings.
4. Section 079200 "Joint Sealants" for joint sealants, joint fillers, and joint preparation.

1.3 DEFINITIONS

A. Roofing Terminology: Definitions in ASTM D1079 and glossary in NRCA's "The NRCA Roofing Manual: Membrane Roof Systems" apply to Work of this Section.

1.4 PREINSTALLATION MEETINGS

A. Preliminary Roofing Conference: Before starting roof deck construction, conduct conference at Project site.

1. Meet with Owner, Architect Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.

4. Review deck substrate requirements for conditions and finishes, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

B. Preinstallation Roofing Conference: Conduct conference at **Project site**.

1. Meet with Owner, Architect, Owner's insurer if applicable, testing and inspecting agency representative, roofing Installer, roofing system manufacturer's representative, deck Installer, air barrier Installer, and installers whose work interfaces with or affects roofing, including installers of roof accessories and roof-mounted equipment.
2. Review methods and procedures related to roofing installation, including manufacturer's written instructions.
3. Review and finalize construction schedule, and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
4. Examine deck substrate conditions and finishes for compliance with requirements, including flatness and fastening.
5. Review structural loading limitations of roof deck during and after roofing.
6. Review base flashings, special roofing details, roof drainage, roof penetrations, equipment curbs, and condition of other construction that affects roofing system.
7. Review governing regulations and requirements for insurance and certificates if applicable.
8. Review temporary protection requirements for roofing system during and after installation.
9. Review roof observation and repair procedures after roofing installation.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Sustainable Design Submittals:

1. Provide VOC content for adhesives and sealants.

C. Shop Drawings: Include roof plans, sections, details, and attachments to other work, including the following:

1. Layout and thickness of insulation.
2. Base flashings and membrane termination details.
3. Flashing details at penetrations.
4. Tapered insulation layout, thickness, and slopes.
5. Roof plan showing orientation of steel roof deck and orientation of roof membrane, fastening spacings, and patterns for mechanically fastened roofing system.
6. Insulation fastening patterns for corner, perimeter, and field-of-roof locations.

7. Tie-in with adjoining air barrier.

D. Samples for Verification: For the following products:

1. Roof membrane and flashings, of color required.
2. Walkway pads or rolls, of color required.

E. Wind Uplift Resistance Submittal: For roofing system, indicating compliance with wind uplift performance requirements.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer.

B. Manufacturer Certificates:

1. Performance Requirement Certificate: Signed by roof membrane manufacturer, certifying that roofing system complies with requirements specified in "Performance Requirements" Article.

a. Submit evidence of compliance with performance requirements.

2. Special Warranty Certificate: Signed by roof membrane manufacturer, certifying that all materials supplied under this Section are acceptable for special warranty.

C. Field quality-control reports.

D. Sample Warranties: For manufacturer's special warranties.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For roofing system to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Manufacturer Qualifications: A qualified manufacturer that is UL listed for roofing system identical to that used for this Project.

B. Installer Qualifications: A qualified firm that is approved, authorized, or licensed by roofing system manufacturer to install manufacturer's product and that is eligible to receive manufacturer's special warranty.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver roofing materials to Project site in original containers with seals unbroken and labeled with manufacturer's name, product brand name and type, date of manufacture, approval or listing agency markings, and directions for storing and mixing with other components.

B. Store liquid materials in their original undamaged containers in a clean, dry, protected location and within the temperature range required by roofing system manufacturer. Protect stored liquid material from direct sunlight.

1. Discard and legally dispose of liquid material that cannot be applied within its stated shelf life.

C. Protect roof insulation materials from physical damage and from deterioration by sunlight, moisture, soiling, and other sources. Store in a dry location. Comply with insulation manufacturer's written instructions for handling, storing, and protecting during installation.

D. Handle and store roofing materials, and place equipment in a manner to avoid permanent deflection of deck.

1.10 FIELD CONDITIONS

A. Weather Limitations: Proceed with installation only when existing and forecasted weather conditions permit the roofing system to be installed according to manufacturer's written instructions and warranty requirements.

1.11 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of roofing system that fail in materials or workmanship within specified warranty period.

1. Special warranty is full a full weather tightness warranty and includes roof membrane, base flashings, roof insulation, fasteners, cover boards, and other components of roofing system.
2. Warranty Period: 20 years from date of Substantial Completion.

B. Special Project Warranty: Submit roofing Installer's warranty, on warranty form at end of this Section, signed by Installer, covering the Work of this Section, including all components of roofing system such as roof membrane, base flashing, roof insulation, fasteners, cover boards, and walkway products, for the following warranty period:

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. General Performance: Installed roofing system and flashings shall withstand specified uplift pressures, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction. Roof system and flashings shall remain watertight.

1. Accelerated Weathering: Roof membrane shall withstand 2000 hours of exposure when tested according to ASTM G152, ASTM G154, or ASTM G155.
2. Impact Resistance: Roof membrane shall resist impact damage when tested according to ASTM D3746, ASTM D4272, or the "Resistance to Foot Traffic Test" in FM Approvals 4470.

B. Material Compatibility: Roofing materials shall be compatible with one another and adjacent materials under conditions of service and application required, as demonstrated by roof membrane manufacturer based on testing and field experience.

C. Wind Uplift Resistance: Design roofing system to resist the following wind uplift pressures when tested according to FM Approvals 4474, UL 580, or UL 1897:

1. See Structural Drawings.

D. Energy Performance: Roofing system shall have an initial solar reflectance of not less than 0.70 and an emissivity of not less than 0.75 when tested according to CRRC-1.

E. Exterior Fire-Test Exposure: ASTM E108 or UL 790, Class A; for application and roof slopes indicated; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

2.2 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

A. TPO Sheet: ASTM D6878/D6878M, internally fabric- or scrim-reinforced, uniform flexible TPO sheet.

1. Provide product by manufacturer “”Garland” or comparable products by one of the following:

a. Soprema
b. Carlisle Syntec Incorporation
c. Johns Manville
d. Holcim Elevate

2. Source Limitations: Obtain components for roofing system from roof membrane manufacturer or manufacturers approved by roof membrane manufacturer.
3. Thickness: 60 mils, nominal.
4. Fleece back
5. Exposed Face Color: White.
6. Solar Reflectance Index (SRI): 78

2.3 AUXILIARY ROOFING MATERIALS

A. General: Auxiliary materials recommended by roofing system manufacturer for intended use and compatible with other roofing components.

1. Adhesive and Sealants: Comply with VOC limits of authorities having jurisdiction.

B. Sheet Flashing: Manufacturer's standard unreinforced TPO sheet flashing, 55 mils thick, minimum, of same color as TPO sheet.

C. Prefabricated Pipe Flashings: Pre-molded flexible membrane pipe collar with aluminum ring bonded to base as recommended by roof membrane manufacturer.

D. Roof Vents: As recommended by roof membrane manufacturer.

1. Size: Not less than 4-inch diameter.

E. Bonding Adhesive: Manufacturer's standard.

F. Slip Sheet: Manufacturer's standard, of thickness required for application.

G. Metal Termination Bars: Manufacturer's standard, predrilled stainless steel or aluminum bars, approximately 1 by 1/8 inch thick; with anchors.

H. Fasteners: Factory-coated steel fasteners and metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roofing components to substrate, and acceptable to roofing system manufacturer.

I. Miscellaneous Accessories: Provide pourable sealers, preformed cone and vent sheet flashings, preformed inside and outside corner sheet flashings, T-joint covers, lap sealants, termination reglets, and other accessories.

2.4 ROOF INSULATION

A. General: Preformed roof insulation boards manufactured or approved by TPO roof membrane manufacturer, approved for use in SPRI's Directory of Roof Assemblies listed roof assemblies.

B. Polyisocyanurate Board Insulation: ASTM C1289, Type II, Class 2, Grade 2, felt or glass-fiber mat facer on both major surfaces.

1. Compressive Strength: 20 psi.
2. Size: 48 by 48 inches.
3. Thickness:

   a. Base Layer: 1-1/2 inches.
   b. Upper Layer: 2 inches .

4. Provide factory, tapered insulation boards where indicated for sloping to drain. Fabricate with ¼” per 12” in taper, unless otherwise indicated.
5. Provide performed saddles, crickets, tapered edge strips, and other insulation shapes where indicated for sloping to drain. Fabricated to slopes indicated.
6. Total Minimum R-value = 25 c.i.

2.5 INSULATION ACCESSORIES

A. General: Roof insulation accessories recommended by insulation manufacturer for intended use and compatibility with other roofing system components.

B. Fasteners: Factory-coated steel fasteners with metal or plastic plates complying with corrosion-resistance provisions in FM Approvals 4470, designed for fastening roof insulation and cover boards to substrate, and acceptable to roofing system manufacturer.

C. Insulation Adhesive: Insulation manufacturer's recommended adhesive formulated to attach roof insulation to substrate or to another insulation layer as follows:

1. Modified asphaltic, asbestos-free, cold-applied adhesive.
2. Bead-applied, low-rise, one-component or multicomponent urethane adhesive.
3. Full-spread, spray-applied, low-rise, two-component urethane adhesive.
4. Basis of Design (product standard):

    a. OMG Inc.; Olybond 500

D. Cover Board: ASTM C1177/C1177M, glass-mat, water-resistant gypsum board or ASTM C1278/C1278M fiber-reinforced gypsum board.

1. Manufacturer: Provide product:

    a. 1/2” IsoGard HD by Firestone Building Products

2. Thickness: 1/2 inch.
3. Strength: 120 psi

2.6 WALKWAYS

A. Flexible Walkways: Factory-formed, nonporous, heavy-duty, slip-resisting, surface-textured walkway pads or rolls, approximately 3/16 inch thick and acceptable to roofing system manufacturer.

1. Size: Approximately 36 by 60 inches.
2. Color: Contrasting with roof membrane.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements and other conditions affecting performance of the Work.

1. Verify that roof openings and penetrations are in place, curbs are set and braced, and roof-drain bodies are securely clamped in place.

2. Verify that wood blocking, curbs, and nailers are securely anchored to roof deck at penetrations and terminations and that nailers match thicknesses of insulation.
3. Verify that minimum concrete drying period recommended by roofing system manufacturer has passed.
4. Verify that concrete substrate is visibly dry and free of moisture, and that minimum concrete internal relative humidity is not more than 75 percent, or as recommended by roofing system manufacturer, when tested according to ASTM F2170.

    a. Test Frequency: One test probe per each 1000 sq. ft., or portion thereof, of roof deck, with not less than three tests probes.
    b. Submit test reports within 24 hours after performing tests.

5. Verify that concrete-curing compounds that will impair adhesion of roofing components to roof deck have been removed.
6. Verify that minimum curing period recommended by roofing system manufacturer for lightweight insulating concrete roof decks has passed.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing system installation according to roofing system manufacturer's written instructions. Remove sharp projections.

B. Prevent materials from entering and clogging roof drains and conductors and from spilling or migrating onto surfaces of other construction. Remove roof-drain plugs when no work is taking place or when rain is forecast.

C. Perform fastener-pullout tests according to roof system manufacturer's written instructions.

1. Submit test result within 24 hours after performing tests.

    a. Include manufacturer's requirements for any revision to previously submitted fastener patterns required to achieve specified wind uplift requirements.

D. Install sound-absorbing insulation strips according to acoustical roof deck manufacturer's written instructions.

3.3 INSTALLATION OF ROOFING, GENERAL

A. Install roofing system according to roofing system manufacturer's written instructions.

B. Complete terminations and base flashings and provide temporary seals to prevent water from entering completed sections of roofing system at end of workday or when rain is forecast. Remove and discard temporary seals before beginning Work on adjoining roofing.

C. Coordinate installation and transition of roofing system component serving as an air barrier with air barrier specified under Section 072726 "Fluid-Applied Membrane Air Barriers."

3.4 INSTALLATION OF INSULATION

A. Coordinate installing roofing system components so insulation is not exposed to precipitation or left exposed at end of workday.

B. Comply with roofing system and roof insulation manufacturer's written instructions for installing roof insulation.

C. Installation Over Metal Decking:

1. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows and with long joints continuous at right angle to flutes of decking.

    a. Locate end joints over crests of decking.
    b. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
    c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
    e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

        1) Trim insulation so that water flow is unrestricted.

    f. Fill gaps exceeding 1/4 inch with insulation.
    g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
    h. Loosely lay base layer of insulation units over substrate.
    i. Mechanically attach base layer of insulation using mechanical fasteners specifically designed and sized for fastening specified board-type roof insulation to metal decks.

        1) Fasten insulation according to requirements in FM Approvals' RoofNav for specified Windstorm Resistance Classification.
        2) Fasten insulation to resist specified uplift pressure at corners, perimeter, and field of roof.

2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

    a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
    b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
    c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
    d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
    e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

        1) Trim insulation so that water flow is unrestricted.

f. Fill gaps exceeding 1/4 inch with insulation.
g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
h. Loosely lay each layer of insulation units over substrate.
i. Adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

D. Installation Over Gypsum Concrete Decks:

1. Install base layer of insulation with joints staggered not less than 24 inches in adjacent rows.

a. Where installing composite and noncomposite insulation in two or more layers, install noncomposite board insulation for bottom layer and intermediate layers, if applicable, and install composite board insulation for top layer.
b. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
c. Make joints between adjacent insulation boards not more than 1/4 inch in width.
d. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

1) Trim insulation so that water flow is unrestricted.

e. Fill gaps exceeding 1/4 inch with insulation.
f. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
g. Loosely lay base layer of insulation units over substrate.
h. Adhere base layer of insulation to concrete roof deck according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

1) Prime surface of concrete deck with asphalt primer at rate of 3/4 gal./100 sq. ft., and allow primer to dry.
2) Set insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
3) Set insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
4) Set insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

2. Install upper layers of insulation and tapered insulation with joints of each layer offset not less than 12 inches from previous layer of insulation.

a. Staggered end joints within each layer not less than 24 inches in adjacent rows.
b. Install with long joints continuous and with end joints staggered not less than 12 inches in adjacent rows.
c. Trim insulation neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
d. Make joints between adjacent insulation boards not more than 1/4 inch in width.
e. At internal roof drains, slope insulation to create a square drain sump with each side equal to the diameter of the drain bowl plus 24 inches.

1) Trim insulation so that water flow is unrestricted.

f. Fill gaps exceeding 1/4 inch with insulation.
g. Cut and fit insulation within 1/4 inch of nailers, projections, and penetrations.
h. Adhere each layer of insulation to substrate using adhesive according to FM Approvals' RoofNav listed roof assembly requirements for specified Windstorm Resistance Classification and FM Global Property Loss Prevention Data Sheet 1-29, as follows:

1) Set each layer of insulation in a solid mopping of hot roofing asphalt, applied within plus or minus 25 deg F of equiviscous temperature.
2) Set each layer of insulation in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
3) Set each layer of insulation in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

3.5 INSTALLATION OF COVER BOARDS

A. Install cover boards over insulation with long joints in continuous straight lines with end joints staggered between rows. Offset joints of insulation below a minimum of 6 inches in each direction.

1. Trim cover board neatly to fit around penetrations and projections, and to fit tight to intersecting sloping roof decks.
2. At internal roof drains, conform to slope of drain sump.

a. Trim cover board so that water flow is unrestricted.

3. Cut and fit cover board tight to nailers, projections, and penetrations.
4. Loosely lay cover board over substrate.
5. Adhere cover board to substrate using adhesive as follows:
   a. Set cover board in ribbons of bead-applied insulation adhesive, firmly pressing and maintaining insulation in place.
   b. Set cover board in a uniform coverage of full-spread insulation adhesive, firmly pressing and maintaining insulation in place.

B. Install slip sheet over cover board and beneath roof membrane.

3.6 INSTALLATION OF ADHERED ROOF MEMBRANE

A. Adhere roof membrane over area to receive roofing according to roofing system manufacturer's written instructions.

B. Unroll roof membrane and allow to relax before installing.

C. Start installation of roofing in presence of roofing system manufacturer's technical personnel.

D. Accurately align roof membrane and maintain uniform side and end laps of minimum dimensions required by manufacturer. Stagger end laps.

E. Bonding Adhesive: Apply to substrate and underside of roof membrane at rate required by manufacturer and allow to partially dry before installing roof membrane. Do not apply to splice area of roof membrane.

F. In addition to adhering, mechanically fasten roof membrane securely at terminations, penetrations, and perimeter of roofing.

G. Apply roof membrane with side laps shingled with slope of roof deck where possible.

H. Seams: Clean seam areas, overlap roof membrane, and hot-air weld side and end laps of roof membrane and sheet flashings, to ensure a watertight seam installation.

1. Test lap edges with probe to verify seam weld continuity. Apply lap sealant to seal cut edges of roof membrane and sheet flashings.
2. Verify the field strength of seams a minimum of twice daily, and repair seam sample areas.
3. Repair tears, voids, and lapped seams in roof membrane that do not comply with requirements.

I. Spread sealant bed over deck-drain flange at roof drains, and securely seal roof membrane in place with clamping ring.

3.7 INSTALLATION OF BASE FLASHING

A. Install sheet flashings and preformed flashing accessories and adhere to substrates according to roofing system manufacturer's written instructions.

B. Apply bonding adhesive to substrate and underside of sheet flashing at required rate and allow to partially dry. Do not apply to seam area of flashing.

C. Flash penetrations and field-formed inside and outside corners with cured or uncured sheet flashing.

D. Clean seam areas, overlap, and firmly roll sheet flashings into the adhesive. Hot-air weld side and end laps to ensure a watertight seam installation.

E. Terminate and seal top of sheet flashings and mechanically anchor to substrate through termination bars.

3.8 INSTALLATION OF WALKWAYS

A. Flexible Walkways:

1. Install flexible walkways at the following locations:

   a. Between each rooftop unit location, creating a continuous path connecting rooftop unit locations.
   b. Between each roof hatch and each rooftop unit location or path connecting rooftop unit locations.
   c. Between each roof access ladder and each rooftop unit location or path connecting rooftop unit locations.
   d. Any additional locations indicated on Drawings.

2. Provide 6-inch clearance between adjoining pads.
3. Heat weld to substrate or adhere walkway products to substrate with compatible adhesive according to roofing system manufacturer's written instructions.

3.9 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and to inspect substrate conditions, surface preparation, roof membrane application, sheet flashings, protection, and drainage components, and to furnish reports to Architect.

B. Final Roof Inspection: Arrange for roofing system manufacturer's technical personnel to inspect roofing installation on completion, in presence of Architect, and to prepare inspection report.

C. Repair or remove and replace components of the roofing system where inspections indicate that they do not comply with specified requirements.

D. Additional testing and inspecting, at Contractor's expense, will be performed to determine if replaced or additional work complies with specified requirements.

3.10 PROTECTING AND CLEANING

A. Protect the roofing system from damage and wear during remainder of construction period. When the remaining construction does not affect or endanger roofing system, inspect roofing system for deterioration and damage, describing its nature and extent in a written report, with copies to Architect and Owner.

B. Correct deficiencies in or remove roofing system that does not comply with requirements, repair substrates, and repair or reinstall roofing system to a condition free of damage and deterioration at time of Substantial Completion and according to warranty requirements.

C. Clean overspray and spillage from adjacent construction using cleaning agents and procedures recommended by the manufacturer of affected construction.

END OF SECTION 075423