THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Corrections
DIVISION OF ADMINISTRATIVE SERVICES

802 3rd Street, Suite 224
Douglas, Alaska 99824
Main: 907.465.6014
Email: Michael.lim@alaska.gov

Issue Date: October 14, 2022

ATTN: Vendors

RE:	**Project Name:**	AMCC Boiler Replacement
	Project Number:	220002535-5
	Project Location:	Anvil Mountain Correctional Center
	ITB Deadline	**October 19, 2022 @ 2:00 p.m. local time**

Addendum # One (1)

The Department of Corrections is issuing this Addendum to the Invitation to Bid (ITB) for the above project.

The following changes are required:

1. Delete the Original ITB Electrical Specifications, Page 128 and replace with: See attached Electrical Specifications (2 pages).
2. Delete the Original ITB Mechanical Specifications, Pages 129 - 138 and replace with: See attached Mechanical Specifications (8 pages).
3. Delete the Original ITB Substantial Completion date of December 15, 2022. Replace with **Substantial Completion date of December 30, 2022.**
4. Delete the Original ITB Final Completion date of January 15, 2023 and its entirety. Replace with **Final Completion date of May 15, 2023**.

The following are questions from interested parties and the department's response.

Q: What is the age of the boiler to be replaced? Has any testing for asbestos materials been done?

A: *No asbestos materials in the boiler room.*

Q: Will alternate heating be required to be provided in this contract while the heating system is offline?

A: *Please see ITB Scope of Work, 2nd paragraph.*

Q: There is an existing DDC system. Who manages it? Will DDC work be a part of this contract?

A: *DDC work is not part of this contract.*

Q: Will providing Glycol be a part of the work? If so, what type of Glycol is to be provided.

A: *Yes, provide glycol quantity required to fill new boiler and lines. Provide spare 55 gallon 50/50 pre-mix to match existing glycol.*

Q: Drawing M0.2 section 22 05 00 Common work results for mechanical calls for a trisodium phosphate rinse of the heating system. Drawing M0.2 section 23 21 13 C-7 States, to flush the system before final fill. This will require the entire heating system to be drained, is this the intent for the project? We suggest adding a 3" bypass in the 6-inch heating headers at the tie-in point with isolation valves so that the new piping, pumps, and boiler can be flushed without impacting the rest of the system.

A: *Trisodium phosphate rinse shall be limited to new lines and boiler. Complete rinse of system not required.*

Q: Please confirm that combustion testing will be part of start-up for the new boiler. We recommend that combustion testing also be done on the two existing boilers to take advantage of a boiler technician being on site. Please advise if that is to be added to the scope of work.

A: *DOC will provide combustion testing at the start up. DOC will provide all boiler work after installation by the contractor.*

Q: Are there pictures that could be shared? Specifically, could we receive pictures of the Rack mounted Boiler controls, the DDC control panel, The doorway that everything will have to pass through, the flue venting going up through the roof and connecting the boilers (including any manufacturers tags / information), plus general pictures that show the piping and the boiler to be demoed.

A: *Pictures were provided on the original ITB pages 138 through 142.*

Q: How many pipe taps with wells will the Control Contractor require in the new piping we are installing?

A: *Install pipe taps and wells for temperature, pressure and low water cutoff per Mechanical M3/1 detail #2. No new DDC control wiring required. Provide new piping from low water cutoff to boiler burner controls.*

Q: With the current timeline getting the correct material for the project is not going to be feasible. Can we utilize a temporary stack to get the boiler up and running until the project be revisited in the spring of 2023 so longer shutdowns can be scheduled to properly install the boiler system piping and the stack can be permanently installed through the roof.

A: *Yes, temporary stack may be used. System must be completed to provide functional use by December 30, 2022. Final Completion date of May 15, 2023.*

Q: Regarding the roof work for the installation of the new flashing, do you know what kind of roof that is, and is there a roofing company that has a warranty on the roof?

A: *Attached is the AMCC EPDM roof contractors' submittals. (52 pages)*

This addendum is considered part of the Invitation to Bid (ITB) and is to be acknowledge on your quote form.

Sincerely,

Michael Lim

Michael Lim
Procurement Specialist IV

Attachments

1. Electrical Specification (2 page)
2. Mechanical Specification (8 pages)
3. AMCC EPDM Roof Contractors submittals (52 pages)

cc: Clif Reagle, Facilities Manager II, DOC
John Gard, Facilities Manager I, DOC

End of Addendum

Total number of pages contained within this Addendum: 65

ELECTRICAL SPECIFICATIONS

26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

A. SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIAL AND EQUIPMENT FOR AN EXTENSION TO THE EXISTING ELECTRICAL SYSTEM AS INDICATED ON THE DRAWINGS AND IN THESE SPECIFICATIONS.

B. STANDARDS, CODES AND REGULATIONS: COMPLY WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE, INTERNATIONAL BUILDING CODE, AND INTERNATIONAL FIRE CODE INCLUDING ALL STATE AND LOCAL AMENDMENTS TO THESE CODES. COMPLY WITH THE LATEST PUBLISHED VERSION OF THE NECA STANDARD OF INSTALLATION.

C. DRAWINGS: THE DRAWINGS ARE DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF FIXTURES, EQUIPMENT, ETC. UNLESS SPECIFICALLY DIMENSIONED. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITIES REGULATIONS TO THE ATTENTION OF THE OWNER. CODES, ORDINANCES, REGULATIONS, MANUFACTURER'S INSTRUCTIONS OR STANDARDS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS.

D. RECORD DRAWINGS: MARK UP A CLEAN SET OF DRAWINGS AS THE WORK PROGRESSES TO SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL ELECTRICAL WORK WHICH WILL BECOME PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN.

E. WORKMANSHIP: INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS AND IN ACCORDANCE WITH NECA STANDARDS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, NEMA STANDARDS AND UNDERWRITERS LABORATORIES STANDARDS WHERE APPLICABLE.

F. SUBMITTALS: PROVIDE MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING A COMPLETE LISTING OF MATERIAL AND EQUIPMENT SHOWN ON THE DRAWINGS. INCLUDE CATALOG NUMBERS, WIRING DIAGRAMS, ROUGH–IN DIMENSIONS AND PERFORMANCE DATA FOR ALL MATERIAL AND EQUIPMENT. SUBMITTALS SHALL BE IN ELECTRONIC .PDF FORMAT, SEPARATE FROM WORK FURNISHED UNDER OTHER DIVISIONS. INDEX AND CLEARLY IDENTIFY ALL MATERIAL AND EQUIPMENT BY ITEM, NAME OR DESIGNATION USED ON THE DRAWINGS. SUBMITTAL REVIEW IS FOR GENERAL DESIGN AND ARRANGEMENT ONLY AND DOES NOT RELIEVE THE CONTRACTOR FROM ANY REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE SUBMITTALS ARE NOT CHECKED FOR QUANTITY, DIMENSION, OR FOR PROPER OPERATION. WHERE DEVIATIONS OF A SUBSTITUTE PRODUCT OR SYSTEM PERFORMANCE HAVE NOT BEEN SPECIFICALLY NOTED IN THE SUBMITTAL BY THE CONTRACTOR, PROVISIONS OF A COMPLETE AND SATISFACTORY WORKING INSTALLATION IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

G. WARRANTY: THE CONTRACTOR SHALL GUARANTEE ALL WORK EXECUTED UNDER THIS CONTRACT TO BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM BENEFICIAL OCCUPANCY. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE GUARANTEE PERIOD.

H. PERMITS: SECURE AND PAY FOR ALL FEES, PERMITS, ETC. REQUIRED BY LOCAL AND STATE AGENCIES.

I. REFERENCE SYMBOLS: THE ELECTRICAL "LEGEND" ON THE DRAWINGS IS A STANDARDIZED VERSION, AND ALL SYMBOLS SHOWN MAY NOT BE USED. USE THE "LEGEND" AS A REFERENCE FOR THE SYMBOLS USED ON THE DRAWINGS.

J. PENETRATION OF FIRE BARRIERS: ALL ELECTRICAL PENETRATIONS THROUGH FIRE RATED BARRIERS SHALL BE SEALED IN ACCORDANCE WITH NEC ARTICLE 300.21 AND THE FOLLOWING:
1. ALL HOLES OR VOIDS CREATED TO EXTEND ELECTRICAL SYSTEMS THROUGH FIRE RATED FLOORS, WALLS OR CEILING SHALL BE SEALED WITH AN ASBESTOS–FREE INTUMESCENT FIRE STOPPING MATERIAL CAPABLE OF EXPANDING 8 TO 10 TIMES WHEN EXPOSED TO TEMPERATURES 250 DEGREES F OR HIGHER.
2. MATERIALS SHALL BE SUITABLE FOR THE FIRE STOPPING OF PENETRATIONS MADE BY STEEL, GLASS, PLASTIC AND SHALL BE CAPABLE OF MAINTAINING AN EFFECTIVE BARRIER AGAINST FLAME, SMOKE AND GASES IN COMPLIANCE WITH THE REQUIREMENTS OF ASTM E814, UL 1479 AND THE UL FIRE RESISTANCE DIRECTORY REQUIREMENTS FOR THROUGH–PENETRATION FIRESTOP DEVICES (XHCR).
3. THE RATING OF THE FIRE STOPS SHALL BE THE SAME AS THE TIME–RATED FLOOR, WALL OR CEILING ASSEMBLY.
4. INSTALL FIRE STOPPING MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.

26 05 05 – SELECTIVE DEMOLITION FOR ELECTRICAL

A. DEMOLITION DRAWINGS ARE BASED ON A NON–DESTRUCTIVE FIELD OBSERVATION AND EXISTING RECORD DRAWING. REPORT DISCREPANCIES TO OWNER/ENGINEER BEFORE DISTURBING THE EXISTING INSTALLATION. DISCONNECT ELECTRICAL SYSTEMS IN WALLS, FLOORS, AND CEILINGS SCHEDULED FOR REMOVAL. PROVIDE TEMPORARY WIRING AND CONNECTIONS TO MAINTAIN ALL EXISTING ELECTRICAL SYSTEMS (TELEPHONE, FIRE ALARM, LIGHTING, ELECTRICAL SERVICE, ETC.) IN SERVICE DURING CONSTRUCTION. DISABLE SYSTEMS ONLY TO MAKE SWITCHOVERS AND CONNECTIONS.

B. OBTAIN PERMISSION FROM OWNER AT LEAST 24 HOURS BEFORE PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREA. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS.

C. REMOVE, RELOCATE AND EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTION. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED CONDUIT, INCLUDING ABANDONED CONDUIT ABOVE ACCESSIBLE CEILING FINISHES. WHERE ABANDONED CONDUIT ENTERS EXISTING SURFACES TO REMAIN, CUT CONDUIT FLUSH WITH WALLS AND FLOORS, AND PATCH SURFACES. DISCONNECT ABANDONED OUTLETS AND REMOVE DEVICES. REMOVE ABANDONED OUTLETS IF CONDUIT SERVICING THEM IS ABANDONED AND REMOVED. PROVIDE BLANK COVER FOR ABANDONED OUTLETS WHICH ARE NOT REMOVED.

D. DISCONNECT AND REMOVE ABANDONED PANELBOARDS AND DISTRIBUTION EQUIPMENT. DISCONNECT AND REMOVE ELECTRICAL DEVICES AND EQUIPMENT SERVING UTILIZATION EQUIPMENT THAT HAS BEEN REMOVED. DISCONNECT AND REMOVE ABANDONED LUMINAIRES. REMOVE BRACKETS, STEMS, HANGERS AND OTHER ACCESSORIES. REPAIR ADJACENT CONSTRUCTION AND FINISHES DAMAGED DURING DEMOLITION AND EXTENSION WORK. MAINTAIN ACCESS TO EXISTING ELECTRICAL INSTALLATIONS WHICH REMAIN ACTIVE.

26 05 19 – WIRE AND CABLE

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS:
1. ALL CONDUCTORS SHALL BE COPPER WITH TYPE XHHW, THWN, THW OR THHN INSULATION. MINIMUM BRANCH CIRCUIT CONDUCTOR SIZE SHALL BE #12 AWG. MINIMUM CONTROL CIRCUIT CONDUCTOR SIZE SHALL BE #18 AWG.
2. CONTROL CIRCUITS SHALL BE COPPER, STRANDED CONDUCTOR, 600V INSULATION, THHN/THWN, MINIMUM SIZE #18 AWG.

C. INSTALLATION:
1. COLOR CODE WIRES BY LINE OR PHASE. COLOR CODE THE 120/208V CONDUCTORS BLACK, RED, BLUE, AND WHITE.
2. DO NOT SHARE NEUTRAL CONDUCTORS. PROVIDE A DEDICATED NEUTRAL CONDUCTOR FOR EACH BRANCH CIRCUIT THAT REQUIRES A NEUTRAL.
3. USE PROPERLY SIZED INSULATED SPRING WIRE CONNECTORS WITH PLASTIC CAPS FOR ALL CONDUCTORS #8 AWG AND SMALLER.
4. INSTALLATION SCHEDULE: BUILDING WIRE IN RACEWAYS AT ALL LOCATIONS UNLESS OTHERWISE NOTED.

26 05 26 – GROUNDING AND BONDING

A. INSTALLATION:
1. PROVIDE A SEPARATE, INSULATED EQUIPMENT GROUNDING CONDUCTOR IN ALL NEW BRANCH CIRCUITS. TERMINATE EACH END ON A GROUNDING LUG, BUS, OR BUSHING.
2. MECHANICAL CONNECTORS: NON–REVERSIBLE CRIMP TYPE LUGS ONLY. USE FACTORY MADE COMPRESSION LUG FOR ALL TERMINATIONS. CRIMP TYPE ONE HOLE FOR CONDUCTORS SMALLER THAN #6 AWG.
3. BOND TOGETHER EXPOSED NON–CURRENT CARRYING METAL PARTS OF ELECTRICAL EQUIPMENT, METAL RACEWAY SYSTEMS, GROUNDING CONDUCTOR IN RACEWAYS AND CABLES.

26 05 29 – HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIAL: SUPPORT CHANNEL SHALL BE GALVANIZED OR PAINTED STEEL. HARDWARE SHALL BE CORROSION RESISTANT.

C. INSTALLATION: EQUIPMENT WEIGHING MORE THAN 50 POUNDS SHALL BE ADEQUATELY ANCHORED TO THE BUILDING STRUCTURE TO RESIST LATERAL EARTHQUAKE FORCES.

26 05 33 – RACEWAY AND BOXES FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS:
1. RIGID STEEL CONDUIT: ANSI C80.1. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; THREADED TYPE WITH INSULATED THROAT BUSHINGS, MATERIAL TO MATCH CONDUIT.
2. ELECTRICAL METALLIC TUBING CONDUIT (EMT): ANSI C80.3. GALVANIZED TUBING. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON, COMPRESSION TYPE OR SET SCREW FITTINGS WITH INSULATED THROAT BUSHINGS. DIE–CAST FITTINGS ARE NOT ACCEPTABLE. PROVIDE FACTORY ELBOWS ON SIZES 1–1/2" AND LARGER.
3. FLEXIBLE METAL CONDUIT: FS WW–C–566; STEEL, FULL WALL OR REDUCED WALL THICKNESS. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
4. LIQUIDTIGHT FLEXIBLE CONDUIT: FLEXIBLE METAL CONDUIT WITH PVC JACKET. FITTINGS AND CONDUIT BODIES: ANSI/NEMA FB 1; STEEL OR MALLEABLE IRON WITH INSULATED THROAT BUSHINGS. DIE CAST FITTINGS ARE NOT ACCEPTABLE.
5. PROVIDE GALVANIZED OR CADMIUM PLATED, ONE PIECE PRESSED STEEL OUTLET BOXES 4 INCH SQUARE OR OCTAGONAL, 1–1/2 INCHES DEEP MINIMUM SIZE FOR USE IN INTERIOR AREAS.
6. PROVIDE CAST ALUMINUM OR FERALLOY TYPE BOXES WITH GASKETED COVER, THREADED HUBS AND NEMA 3R RATING FOR USE IN EXTERIOR OR WET LOCATIONS.

C. INSTALLATION:
1. INSTALL CONDUIT FOR ALL SYSTEMS UNLESS OTHERWISE NOTED, 1/2 INCH MINIMUM SIZE, EXCEPT CONDUIT FOR SPECIAL SYSTEMS SHALL BE 3/4" MINIMUM. IN SLAB ABOVE GRADE, WET INTERIOR LOCATIONS, AND FEEDERS SHALL BE RIGID STEEL CONDUIT.
2. EXPOSED DRY INTERIOR LOCATIONS SHALL BE RIGID STEEL CONDUIT. ELECTRICAL METALLIC TUBING MAY BE USED EXPOSED WHEN INSTALLED ON THE CEILING, A MINIMUM OF TEN FEET ABOVE THE FLOOR OR WHERE NOT SUBJECT TO PHYSICAL DAMAGE. EMT MAY ALSO BE USED FOR CONCEALED, DRY, INTERIOR LOCATIONS.
3. MOTOR AND EQUIPMENT CONNECTIONS SHALL BE SHORT EXTENSIONS OF FLEXIBLE METAL CONDUIT TO ALLOW FOR VIBRATION. LIQUIDTIGHT FLEXIBLE CONDUIT AND FITTINGS SHALL BE USED FOR THESE CONNECTIONS IN DAMP OR WET LOCATIONS.
4. PROVIDE OUTLET BOXES AS SHOWN ON THE DRAWINGS, AND AS REQUIRED FOR SPLICES, TAPS, WIRE PULLING, EQUIPMENT CONNECTIONS, DEVICE INSTALLATION AND CODE COMPLIANCE.
5. INSTALL FITTINGS AND FLEXIBLE METAL CONDUIT TO ACCOMMODATE 3–AXIS MOVEMENTS WHERE RACEWAY CROSSES SEISMIC JOINTS. INSTALL FITTINGS DESIGNED AND LISTED TO ACCOMMODATE EXPANSION AND CONTRACTION WHERE RACEWAY CROSSES CONTROL AND EXPANSION JOINTS.
6. SUPPORT BOXES INDEPENDENTLY OF CONDUIT.

26 05 53 – IDENTIFICATION FOR ELECTRICAL SYSTEMS

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS:
1. NAMEPLATES: ENGRAVED THREE–LAYER LAMINATED PLASTIC, WHITE LETTERS ON A BLACK BACKGROUND. NAMEPLATES SHALL BE PROVIDED TO IDENTIFY ALL ELECTRICAL DISTRIBUTION AND CONTROL EQUIPMENT AND LOADS SERVED.
2. WIRE AND CABLE MARKERS: CLOTH MARKERS, SPLIT SLEEVE OR TUBING TYPE.

C. INSTALLATION:
1. GEAR: PROVIDE ENGRAVED THREE–LAYER LAMINATED PLASTIC NAMEPLATES WITH WHITE LETTERS ON A BLACK BACKGROUND TO IDENTIFY ALL ELECTRICAL DISTRIBUTION, CONTROL EQUIPMENT, LOADS SERVED, AND LOW–VOLTAGE SYSTEM PANELS.
2. CONDUITS: MARK ALL CONDUITS ENTERING OR LEAVING PANELBOARDS WITH INDELIBLE BLACK MAGIC MARKER WITH THE CIRCUIT NUMBERS OF THE CIRCUITS CONTAINED INSIDE. LABEL FEEDER CONDUITS AND SPARE CONDUITS AT EACH END WITH SOURCE AND TERMINATION POINT.
3. JUNCTION BOXES: MARK ALL CIRCUIT NUMBERS OF WIRING ON ALL JUNCTION BOXES WITH SHEET STEEL COVERS. MARK WITH INDELIBLE BLACK MARKER. ON EXPOSED JUNCTION BOXES IN PUBLIC AREAS, MARK ON INSIDE OF COVER.
4. WIRE IDENTIFICATION: PROVIDE WIRE MARKERS ON EACH CONDUCTOR IN PANELBOARD GUTTERS, PULL BOXES, OUTLET AND JUNCTION BOXES, AND AT LOAD CONNECTION. MARKERS SHALL BE LOCATED WITHIN ONE INCH OF EACH CABLE END, EXCEPT AT PANELBOARDS, WHERE MARKERS FOR BRANCH CIRCUIT CONDUCTORS SHALL BE VISIBLE WITHOUT REMOVING PANEL DEADFRONT.
5. DEVICE PLATES: LABEL EACH POINT OF CONNECTION DENOTING THE PANELBOARD NAME AND CIRCUIT NUMBER. INSTALL LABEL ON THE TOP OF EACH PLATE.

26 24 16 – PANELBOARDS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIAL:
1. NEW BREAKERS IN EXISTING PANELS: NEMA AB 1; UL LISTED FOR USE IN THE PANEL, AMPERE RATING AND NUMBER OF POLES AS INDICATED ON PLANS. AIC RATING SHALL MATCH THE LOWEST RATED DEVICE IN THE PANEL.

C. INSTALLATION:
1. INSTALL NEW BREAKERS IN EXISTING PANELS AND TEST FOR PROPER OPERATION. UPDATE CIRCUIT DIRECTORY TO REFLECT ALL CHANGES.

26 27 26 – WIRING DEVICES

A. SUBMITTALS: NONE REQUIRED FOR THIS SECTION.

B. MATERIALS:
1. WALL SWITCHES: SWITCHES SHALL BE NEMA WD1 AND FEDERAL SPECIFICATION FS W–S–896 AC GENERAL USE SNAP SWITCH WITH TOGGLE HANDLE, RATED 20 AMPERES AND 120–277 VOLTS AC. HANDLE: WHITE NYLON.
2. WALL PLATES: PROVIDE 1/2 INCH RAISED, SQUARE, GALVANIZED OR CADMIUM PLATED, PRESSED STEEL COVER PLATE SUPPORTING DEVICES INDEPENDENT OF THE OUTLET BOX FOR ALL EXPOSED WORK.

C. INSTALLATION:
1. INSTALL GALVANIZED STEEL PLATES ON OUTLET BOXES AND JUNCTION BOXES IN UNFINISHED AREAS, ABOVE ACCESSIBLE CEILINGS, AND ON SURFACE–MOUNTED OUTLETS.

26 29 13 – ENCLOSED CONTROLLERS

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.

B. MATERIALS:
1. MANUFACTURERS: SQUARE D, GE, EATON, OR EQUAL
2. MAGNETIC MOTOR STARTERS: NEMA ICS 2; AC GENERAL–PURPOSE CLASS A, FULL VOLTAGE STARTING, NON–REVERSING TYPE MAGNETIC CONTROLLER FOR INDUCTION MOTORS RATED IN HORSEPOWER. PROVIDE BI–METAL THERMAL OVERLOAD RELAY. PROVIDE 120V COIL OPERATING VOLTAGE AND 120V CONTROL POWER TRANSFORMER WITH VA CAPACITY AS REQUIRED BY THE LOAD SERVED IN EACH MOTOR STARTER. COMBINE MOTOR STARTERS IN COMMON ENCLOSURE WITH MOTOR CIRCUIT PROTECTOR THAT HAS INTEGRAL INSTANTANEOUS MAGNETIC TRIP IN EACH POLE. INCLUDE TWO FIELD CONVERTIBLE CONTACTS IN ADDITION TO SEAL–IN CONTACT, RED LED LIGHT, AND HAND/OFF/AUTO SELECTOR SWITCH IN FRONT COVER. INCLUDE A THREE–PHASE POWER MONITOR IN EACH MAGNETIC STARTER CONNECTED TO SHUT DOWN THE MOTOR ON LOSS OF ANY PHASE, PHASE REVERSAL, OR LOW VOLTAGE ON ANY PHASE. POWER MONITOR SHALL AUTOMATICALLY RESET AND RESTART MOTOR WHEN PHASE AND VOLTAGE CONDITIONS RETURN TO NORMAL. PROVIDE OVERSIZE STARTER ENCLOSURES AS REQUIRED TO INSTALL POWER MONITOR.

C. INSTALLATION
1. SELECT AND INSTALL HEATER ELEMENTS IN MOTOR STARTERS TO MATCH INSTALLED MOTOR CHARACTERISTICS.
2. FIELD ADJUST THE TRIP SETTINGS OF ALL MOTOR STARTER MAGNETIC TRIP ONLY CIRCUIT BREAKERS TO APPROXIMATELY 11 TIMES MOTOR FULL LOAD CURRENT. DETERMINE FULL LOAD CURRENT FROM MOTOR NAMEPLATE FOLLOWING INSTALLATION.
3. AFTER FINAL CONNECTIONS ARE MADE, CHECK AND CORRECT THE ROTATION OF ALL MOTORS.
4. MOTOR STARTING EQUIPMENT SHALL BE LISTED FOR USE AND PROPERLY SIZED FOR OPERATION WITH THE MOTORS SPECIFIED BY MECHANICAL.

LEGEND

	CONDUIT, CONCEALED
#10	NUMBER AND SIZE OF WIRES (NO MARKS = 3 #12)
A–2	HOMERUN TO PANEL (PANEL AND CIRCUIT No.)
	EXISTING PANEL
J	JUNCTION BOX
	EMERGENCY PUSHBUTTON SWITCH
	MOTOR (SIZED AS NOTED)
$	TOGGLE SWITCH
	COMBINATION DISCONNECT/MAGNETIC MOTOR STARTER
	DUPLEX RECEPTACLE TO BE REMOVED (DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED TYPICAL)
1	NOTE TAG (No. INDICATES NOTE)
E	DENOTES EXISTING ITEM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
NEC	NATIONAL ELECTRICAL CODE
TYP	TYPICAL

ELECTRICAL SERVICE LOAD CALCULATION

EXISTING LOAD REMOVE	NO.	VA	
B-1	1	(1,951)	(1,951) VA
CP-B1,B2	2	(1,242)	(2,484) VA
TOTAL LOAD REMOVED			**(4,435) VA = (12) A**

NEW LOAD ADDED	NO.	VA	
B-1	1	1,200	1,200 VA
BP-1,2A,2B	3	1,296	3,888 VA
TOTAL LOAD ADDED			**5,088 VA = 14 A**
NEW CALCULATED LOAD ADDED			**653 VA = 2 A**

LARGEST MOTOR ON PANEL 'SL' IS EXISTING CP-1 LESS THAN 2A ADDED TO PANEL 'SL' AND LESS THAN 1A ADDED TO REST OF DISTRIBUTION SYSTEM AND SERVICE WHICH IS A NEGLIGIBLE AMOUNT OF NEW LOAD ADDED. THEREFORE, THE EXISTING DISTRIBUTION SYSTEM HAS ADEQUATE CAPACITY FOR THE NEW LOAD ADDED.

STATE OF ALASKA
PATRICK C. COLLINS
EE-13219
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2930 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

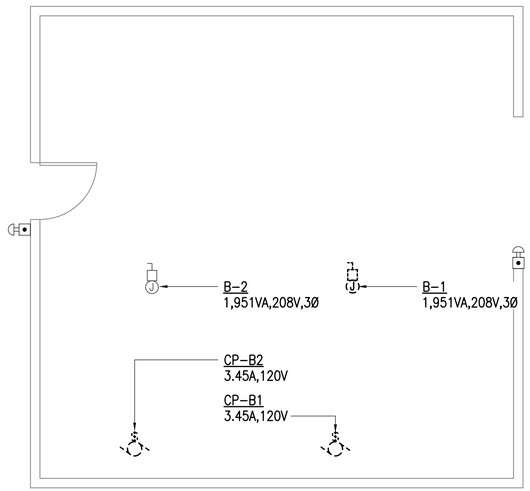
AMCC BOILER UPGRADE
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

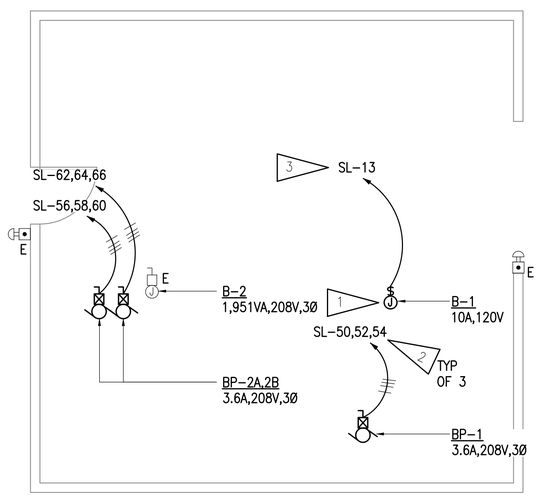
DRAWN BY: CK,CSZ
CHECKED BY: PCC,SB
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: ESERIES

DRAWING TITLE:
ELECTRICAL LEGEND, SPECIFICATIONS, AND LOAD CALCULATION

SHEET:
E0.1



1 ENLARGED MECHANICAL ROOM ELECTRICAL DEMOLITION PLAN
1/4" = 1'-0"



2 ENLARGED MECHANICAL ROOM ELECTRICAL REMODEL PLAN
1/4" = 1'-0"

GENERAL NOTES

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM RECORD DRAWINGS AND A NON-DESTRUCTIVE WALK THROUGH OF THE FACILITY. THERE IS NO WARRANTY OR GUARANTEE AS TO THE ACCURACY OF THE INFORMATION SHOWN HERE-IN. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

B. THE OWNER SHALL HAVE FIRST RIGHT OF REFUSAL ON ALL SALVAGEABLE MATERIALS. THE CONTRACTOR SHALL DELIVER SALVAGED MATERIALS AS DIRECTED BY THE OWNER. THE CONTRACTOR SHALL DISPOSE OF, OFF SITE, ALL UNWANTED MATERIALS.

C. DASHED OR DOTTED LINES INDICATE ITEMS TO BE REMOVED. SOLID LINES INDICATE EXISTING ITEMS TO REMAIN.

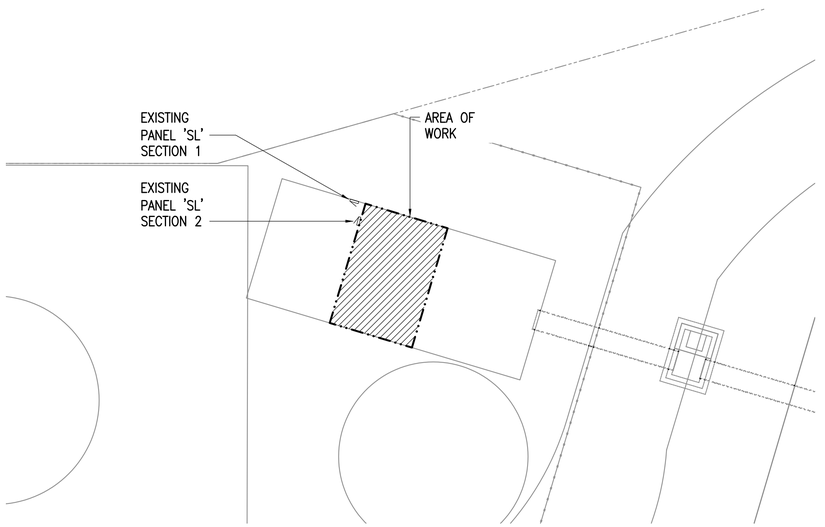
D. AT CONTRACTORS OPTION EXISTING WIRING AND CONDUIT PATHS MAY BE REUSED WHERE IT IS RELABELED PROPERLY AND INSTALLED MEETING CURRENT CODE.

SHEET NOTES

1. CONNECT EXISTING EMERGENCY SHUT OFF CIRCUIT TO BOILER SHUT DOWN SAFETY CIRCUIT PER MANUFACTURER'S INSTRUCTIONS.

2. PROVIDE NEW 15A/3P CIRCUIT BREAKER LISTED FOR USE IN THE EXISTING SIEMENS TYPE P1 PANEL 'SL'. NEW BREAKER SHALL HAVE A SHORT CIRCUIT CURRENT INTERUPTING RATING TO MATCH THE EXISTING LOWEST RATED BREAKER IN THE PANEL.

3. PROVIDE NEW 15A/1P CIRCUIT BREAKER LISTED FOR USE IN THE EXISTING SIEMENS TYPE P1 PANEL 'SL'. NEW BREAKER SHALL HAVE A SHORT CIRCUIT CURRENT INTERUPTING RATING TO MATCH THE EXISTING LOWEST RATED BREAKER IN THE PANEL.



KEY PLAN
1/16" = 1'-0"

STATE OF ALASKA
PATRICK C. COLLINS
EE-133219
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2700 West Tudor Road, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

AMCC BOILER UPGRADE
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

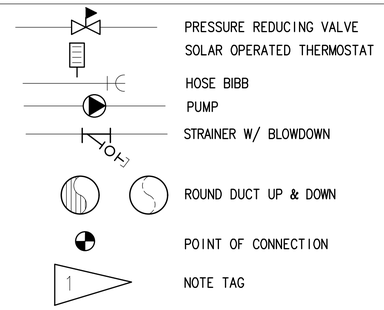
DRAWN BY: CK,CSZ
CHECKED BY: PCC,SB
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: ESERIES

DRAWING TITLE:
BOILER ROOM
ELECTRICAL PLANS

SHEET:
E1.1

LEGEND

- DENOTES DEMOLITION
- COLD WATER
- HOT WATER
- XXX — SEE ABBREVIATIONS FOR MEDIA
- PIPE UP
- PIPE DOWN
- TEE UP
- TEE DOWN
- CAP
- BALL/BUTTERFLY VALVE
- UNION
- DIRECTION OF FLOW
- BALL/BUTTERFLY VALVE
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- PRESSURE REDUCING VALVE
- FLEXIBLE PIPING CONNECTOR
- PRESSURE/TEMPERATURE RELIEF VALVE
- CHECK VALVE
- BALANCE VALVE
- PRESSURE SENSOR



ABBREVIATIONS

ABV	ABOVE
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AHAP	AS HIGH AS POSSIBLE
AMPS	AMPERES
APD	AIR PRESSURE DROP
ARCH	ARCHITECTURAL
BLDG	BUILDING
BOD	BOTTOM OF DUCT
BTUH	BRITISH THERMAL UNIT/HOUR
BT-X	BUFFER TANK DESIGNATOR
CFM	CUBIC FEET PER MINUTE
CIRC	CIRCULATING
CLG	CEILING
CONT	CONTINUED
CONN	CONNECTION
CP-X	CIRCULATION PUMP DESIGNATOR
CU	COPPER
CW	COLD WATER
DB	DECIBLES
DEG	DEGREE
DIA	DIAMETER
DIM	DIMENSION
DN	DOWN
DWG	DRAWING
(E)	EXISTING
E/A	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EFF	EFFICIENCY
ENT	ENTERING
ESP	EXTERNAL STATIC PRESSURE
EXH	EXHAUST
FD	FLOOR DRAIN
F	FAHRENHEIT
FIN	FINISHED
FLR	FLOOR
FPM	FEET PER MINUTE
FT	FEET
G	NATURAL GAS
GA	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
GPH	GALLON PER HOUR
HGS	HEATING GLYCOL SUPPLY
HGR	HEATING GLYCOL RETURN
HW	HOT WATER
HWC	HOT WATER CIRCULATING
HWG-X	HOT WATER GENERATOR DESIGNATOR
HP	HORSE POWER
IN	INCHES
LAT	LEAVING AIR TEMPERATURE
LF	LINEAL FEET
MFGR	MANUFACTURER
MIN.	MINIMUM
MTD	MOUNTED
N.C.	NORMALLY CLOSED
NO.	NUMBER
NTS	NOT TO SCALE
OFCI	OWNER FURNISHED CONTRACTOR SUPPLIED
PD	PRESSURE DROP
PG	PROPYLENE GLYCOL
PH	PHASE
PSI	POUND PER SQUARE INCH
SP	STATIC PRESSURE
TYP	TYPICAL
UPC	UNIFORM PLUMBING CODE
W/	WITH
W.C.	WATER COLUMN

BOILER SCHEDULE (OFCI)

			HEATED		INPUT	GROSS	ELECTRICAL			
SYMBOL	MANUFACTURER	MODEL	MEDIUM	FUEL	FUEL OIL GPH	OUTPUT (MBH)	AMPS	VOLTS/PH	LABEL	REMARKS
B-1	DEDIETRICH	GT-338-A	50% PG	#2 FUEL OIL	8.5	1,044	10	120/1	ASME	PROVIDE WITH BECKETT CF1400 OIL BURNER.
B-2(E)	WEIL-MCLAIN	994W	50% PG	#2 FUEL OIL	20	2,320	4.7	240/3	UL	EXISTING BOILER.

PUMP SCHEDULE

				PUMPED		HEAD		MOTOR DATA			
SYMBOL	MANUFACTURER	MODEL	FUNCTION	MEDIUM	GPM	FEET	RPM	WATTS	VOLTAGE/PHASE	MAX AMPS	REMARKS
BP-1	GRUNDFOS	UPS 80-80F	BOILER CIRCULATOR	50% PG	116	15	3-SPEED	1,050	208/3	3.6	3-SPEED, BALANCER TO SET SPEED.
BP-2A,B	GRUNDFOS	UPS 80-80F	BOILER CIRCULATOR	50% PG	129	15	3-SPEED	1,050	208/3	3.6	3-SPEED, BALANCER TO SET SPEED, PUMPS OPERATE IN PARALLEL.

STATE OF ALASKA — RYAN R. DESTEFANO — ME-8973 — REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2700 Gambell Street, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
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DWG FILE: MSERIES

DRAWING TITLE:
MECHANICAL LEGEND ABBREVIATIONS AND SCHEDULES

SHEET:
M0.1

SECTION 22 05 00; 23 05 00 – COMMON WORK RESULTS FOR MECHANICAL

PLANS – THE CONTRACTOR SHALL PROVIDE ALL MATERIALS AND LABOR NECESSARY FOR A COMPLETE AND OPERABLE SYSTEM. THE DRAWINGS ARE PARTLY DIAGRAMMATIC, NOT NECESSARILY SHOWING ALL OFFSETS OR EXACT LOCATIONS OF PIPING AND DUCTS UNLESS SPECIFICALLY DIMENSIONED. CONTRACTOR IS TO COORDINATE PIPING, DUCTWORK, SPRINKLER HEADS, AND EQUIPMENT LOCATIONS WITH ARCHITECTURAL, STRUCTURAL, AND ELECTRICAL PLANS TO AVOID CONFLICTS. REVIEW THE DRAWINGS AND SPECIFICATIONS FOR EQUIPMENT FURNISHED BY OTHER CRAFTS BUT INSTALLED IN ACCORDANCE WITH THIS SECTION. BRING QUESTIONABLE OR OBSCURE ITEMS, APPARENT CONFLICTS BETWEEN PLANS AND SPECIFICATIONS, GOVERNING CODES OR UTILITY REGULATIONS TO THE ATTENTION OF THE OWNER. CODES, ORDINANCES, REGULATIONS, STANDARDS, OR MANUFACTURER'S INSTRUCTIONS TAKE PRECEDENCE WHEN THEY ARE MORE STRINGENT OR CONFLICT WITH THE DRAWINGS AND SPECIFICATIONS. COORDINATE WITH PHASING PLAN TO PERFORM COORDINATED WORK IN SEQUENCE WITH OTHER TRADES. MAINTAIN CODE MINIMUM MECHANICAL SERVICE TO ALL AREAS IMPACTED BY WORK WHERE STILL OCCUPIED BY THE OWNER.

STANDARDS, CODES, AND REGULATIONS – ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE INTERNATIONAL BUILDING CODE (IBC), INTERNATIONAL MECHANICAL CODE (IMC), INTERNATIONAL FIRE CODE (IFC), UNIFORM PLUMBING CODE (UPC), INTERNATIONAL ENERGY CONSERVATION CODE (IECC), INTERNATIONAL FUEL GAS CODE (IFGC), AND NATIONAL ELECTRIC CODE (NEC) AS AMENDED BY THE STATE OF ALASKA. SHEET METAL WORK SHALL BE DONE IN ACCORDANCE WITH SMACNA DUCT CONSTRUCTION STANDARDS.

ELECTRICAL WORK – ALL ELECTRICAL WORK IS TO BE PERFORMED BY A LICENSED ELECTRICIAN AND IN ACCORDANCE WITH NEC STANDARDS.

PERMITS – THE CONTRACTOR SHALL SECURE AND PAY FOR ALL NECESSARY PERMITS AND FEES.

SUBMITTALS – SUBMITTALS SHALL BE IN ELECTRONIC FORM. THE DATA SHALL BE ARRANGED AND BOOKMARKED BY SPECIFICATION SECTION. SUBMIT ON ALL SCHEDULED EQUIPMENT AND ALL MATERIALS AND EQUIPMENT AS NOTED IN THE SPECIFICATIONS.

MATERIALS – ALL MATERIALS OTHER THAN OWNER SUPPLIED SHALL BE NEW AND UNUSED, INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S DIRECTIONS AND IN THE BEST PRACTICE OF THE CRAFT. OBTAIN OWNER APPROVAL OF ALL PRODUCTS PRIOR TO ORDERING OR INSTALLING ANY PART OF ANY SYSTEM.

EQUIPMENT SUBSTITUTIONS – ALL EQUIPMENT LISTED AND SCHEDULED ARE REPRESENTATIVE OF THE STANDARD OF QUALITY AND PERFORMANCE REQUIRED. "OR EQUAL" SUBSTITUTIONS WILL BE CONSIDERED IF SUBSTITUTE DATA SHEETS ARE SUBMITTED AND ARE SHOWN TO BE OF EQUAL OR BETTER QUALITY, INCLUDING EFFICIENCY OF PERFORMANCE, AND SIZE AND WEIGHT. OWNER SHALL HAVE FIRST RIGHT OF REFUSAL FOR ALL SUBSTITUTIONS.

WORKMANSHIP – INSTALLATION OF ALL WORK SHALL BE MADE SO THAT ITS SEVERAL COMPONENT PARTS SHALL FUNCTION AS A WORKABLE SYSTEM COMPLETE WITH ALL ACCESSORIES NECESSARY FOR ITS OPERATION. ALL MATERIAL AND EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS, INSTRUCTIONS AND/OR INSTALLATION DRAWINGS. MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL CONFORM WITH APPLICABLE INDUSTRY STANDARDS, AND THIRD PARTY LISTINGS WHERE APPLICABLE.

WARRANTY – ALL WORK PERFORMED UNDER THIS CONTRACT SHALL BE FREE FROM DEFECTS IN MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM PROJECT COMPLETION AND OWNER ACCEPTANCE. ANY FAULTY MATERIALS OR WORKMANSHIP SHALL BE REPAIRED OR REPLACED TO THE SATISFACTION OF THE OWNER DURING THE WARRANTY PERIOD.

EQUIPMENT INSTALLATION AND ACCESS – INSTALL ALL EQUIPMENT WHERE NOTED ON THE DRAWINGS IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. PROVIDE MISCELLANEOUS APPURTENANCES IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS INCLUDING ACCESSORIES, SUPPORTS AND CONTROL CONNECTIONS REQUIRED FOR COMPLETE AND OPERATING SYSTEMS. MAINTAIN MANUFACTURER'S RECOMMENDED SERVICE CLEARANCES AND PROVIDE WORKABLE ACCESS TO ALL SERVICEABLE AND/OR OPERABLE EQUIPMENT.

TEST AND START-UP – TEST ALL PLUMBING AND PIPING SYSTEMS WITH 60 PSIG FOR ONE HOUR BEFORE FILLING AND IN ACCORDANCE WITH THE UNIFORM PLUMBING CODE (UPC). FILL ALL HEATING PIPING WITH TRISODIUM PHOSPHATE SOLUTION AND OPERATE FOR SEVERAL HOURS AT NORMAL OPERATING TEMPERATURE BEFORE FLUSHING AND FILLING WITH HEATING FLUID.

OPERATION AND MAINTENANCE MANUAL – PROVIDE THE OWNER WITH AN OPERATING AND MAINTENANCE MANUAL. TO INCLUDE DATA CUTSHEETS MARKED WITH THE SPECIFIC ITEM USED, MANUFACTURER'S SPECIFICATIONS, OPERATING AND MAINTENANCE INSTRUCTIONS, WARRANTY INFORMATION ON EACH PIECE OF EQUIPMENT, RECORD DRAWINGS WITH INSTALLED LOCATIONS NOTED, SOURCE OF SUPPLY FOR SPARE PARTS AND SERVICE. OPERATION AND MAINTENANCE MANUAL SHALL BE IN ELECTRONIC FORM AND SHALL BE SUBMITTED FOR REVIEW. THE DATA SHALL BE ARRANGED AND BOOKMARKED BY SPECIFICATION SECTION.

RECORD DRAWINGS – PROVIDE ACCURATE PROJECT RECORD DRAWINGS, SHOWN IN RED INK ON A CLEAN SET OF PRINTS. SHOWING ALL CHANGES FROM THE ORIGINAL PLANS MADE DURING INSTALLATION OF THE WORK. SHOW THE DIMENSIONED LOCATION AND ROUTING OF ALL MECHANICAL WORK THAT IS PERMANENTLY CONCEALED. SHOW ROUTING OF WORK IN PERMANENTLY CONCEALED BLIND SPACES WITHIN THE BUILDING. SHOW COMPLETE ROUTING AND SIZING OF ANY SIGNIFICANT REVISIONS TO THE SYSTEMS SHOWN. SUBMIT ORIGINAL COPY TO OWNER AT THE COMPLETION OF WORK AND PRIOR TO SUBSTANTIAL COMPLETION INSPECTION. PROVIDE ELECTRONIC COPY OF UPDATED CONTROLS SHOP DRAWINGS INCLUDING PLANS, PANEL WIRING DIAGRAMS, AND SEQUENCES OF OPERATIONS TO ACCURATELY REFLECT INSTALLED CONDITIONS.

SEISMIC RESTRAINT – ALL PIPING, DUCTWORK, AND EQUIPMENT INSTALLED UNDER THIS PROJECT SHALL BE SEISMICALLY RATED AND RESTRAINED FOR A SEISMIC EVENT IN ACCORDANCE WITH THE 2018 EDITION OF THE IBC AND ASCE 7 AS AMENDED BY THE STATE OF ALASKA. THE CONTRACTOR SHALL PROVIDE A DEFERRED SUBMITTAL FOR REVIEW TO THE OWNER FOR SEISMIC RESTRAINT DESIGN WITH CALCULATIONS AND SHOP DRAWINGS. SEISMIC RESTRAINT CALCULATIONS AND SHOP DRAWINGS SHALL INCLUDE A STRUCTURAL ENGINEERS STAMP AND SIGNATURE PRIOR TO INSTALLATION. SEISMIC CATEGORY D, COMPONENT IMPORTANCE FACTOR IP–1.5.

DEMOLITION DRAWINGS ARE BASED ON AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALK-THROUGH OF THE FACILITY. REPORT DISCREPANCIES TO OWNER BEFORE DISTURBING THE EXISTING INSTALLATION. DISABLE SYSTEMS ONLY TO MAKE SWITCH OVERS AND CONNECTIONS. COORDINATE WITH PHASING PLAN TO PERFORM WORK IN SEQUENCE WITH OTHER TRADES AND MAINTAIN CODE MINIMUM MECHANICAL SERVICE CLEARANCES TO ALL AREAS IMPACTED BY WORK AND STILL OCCUPIED. OBTAIN PERMISSION FROM OWNER AT LEAST 72 HOURS PRIOR TO PARTIALLY OR COMPLETELY DISABLING SYSTEM. MINIMIZE OUTAGE DURATION AND MAKE TEMPORARY CONNECTIONS TO MAINTAIN SERVICE IN AREAS ADJACENT TO WORK AREAS. WHEN WORK MUST BE PERFORMED ON ENERGIZED EQUIPMENT OR CIRCUITS, USE PERSONNEL EXPERIENCED IN SUCH OPERATIONS. REMOVE, RELOCATE, AND/OR EXTEND EXISTING INSTALLATIONS TO ACCOMMODATE NEW CONSTRUCTIONS. REMOVE ABANDONED WIRING TO SOURCE OF SUPPLY. REMOVE EXPOSED ABANDONED PIPING, DUCTWORK, INSULATION, HANGERS AND SUPPORTS, CONTROLS AND CONTROL WIRING, AND ANY OTHER ABANDONED MECHANICAL EQUIPMENT.

SECTION 23 05 93 – TESTING, ADJUSTING, AND BALANCING FOR HVAC

A. MATERIALS:
   1. BALANCING INSTRUMENTS AS NECESSARY TO COMPLETE WORK TO MEASURE FLOW.
B. EXECUTION:
   1. FLOWS ARE TO BE BALANCED TO WITHIN 10% OF INDICATED FLOWS.

SECTION 23 07 00 – INSULATION

C. SUBMITTALLS: SUBMIT PRODUCT DATA FOR APPROVAL.
D. MATERIALS
   1. PIPING INSULATION – GLASS FIBER, RIGID, MOLDED, NON-COMBUSTIBLE INSULATION; ANSI/ASTM C547; 'K' VALUE OF 0.24 AT 75 DEG F, RATED TO 850 DEG F, VAPOR RETARDER JACKET OF KRAFT PAPER BONDED TO ALUMINUM FOIL; JOHNS MANVILLE "MICRO-LOK" OR EQUAL. COMPLETE WITH VAPOR BARRIER JACKET AND PLASTIC COVERS FOR FITTINGS.
C. INSTALLATION
   1. PIPING
   1.1. INSULATE ALL HEATING PIPING PRE-FORMED FIBERGLASS INSULATION, COMPLETE WITH FACTORY VAPOR BARRIER AND PLASTIC COVERS FOR FITTINGS.
   1.2. INSULATE ALL HYDRONIC HEATING PIPING SIZE 1-1/4" AND SMALLER WITH 1" INSULATION, SIZE 1-1/2" AND LARGER WITH 1-1/2" INSULATION.
   2. INSTALL ALL INSULATION MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, AND ALL APPLICABLE BUILDING CODES AND INDUSTRY STANDARDS.

SECTION 23 09 00 – INSTRUMENTATION AND CONTROL FOR HVAC

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
B. MATERIALS:
   1. THERMOMETERS:
   1.1. STEM TYPE – 9 INCH SCALE, UNIVERSAL ADJUSTABLE ANGLE, RED APPEARING MERCURY, LENS FRONT TUBE, CAST ALUMINUM CASE WITH METALLIC FINISH AND CLEAR LEXAN WINDOW, EXTENDED BRASS STEM, CAST ALUMINUM ADJUSTABLE JOINT WITH POSITIVE LOCKING DEVICE, 2 PERCENT OF SCALE ACCURACY TO ASTM E77, SCALE CALIBRATED IN BOTH DEGREES F AND DEGREES C. TRERICE "BX9" OR APPROVED EQUAL.
   1.2. SOLAR POWERED, DIGITAL – CAST ALUMINUM CASE; -50/300°F (-45/150°C) SWITCHABLE RANGE; 9/16" LCD DIGITS, WIDE AMBIENT FORMULA DISPLAY; 1% ACCURACY; 10 LUX RATING, 10 SECOND UPDATE, GLASS PASSIVATED THERMISTOR. TRERICE "SX9" OR APPROVED EQUAL.
   2. PRESSURE GAUGES – 4-1/2" DIAMETER CAST ALUMINUM CASE, PHOSPHOR BRONZE BOURBON TUBE, ROTARY BRONZE MOVEMENT, BRASS SOCKET, SILICONE FLUID DAMPENING BLACK FIGURES ON WHITE BACKGROUND, 1% MID-SCALE ACCURACY, CALIBRATED IN PSI. TRERICE "600CB" OR APPROVED EQUAL.
C. INSTALLATION:
   1. ALL DEVICES SHALL BE INSTALLED IN ACCORDANCE W/ MANUFACTURERS INSTRUCTIONS.
   2. PROVIDE TWO PRESSURE GAUGES PER PUMP, INSTALLING TAPS BEFORE STRAINERS AND ON SUCTION AND DISCHARGE OF PIPE. PIPE TO GAUGE WITH ISOLATION VALVE TO EACH TAPPING.
   3. INSTALL THERMOMETERS IN PIPING SYSTEMS IN SOCKETS WITH SHORT COUPLING. SELECT BULB LENGTH TO REACH CENTERLINE OF PIPE.
   4. ALL INSTRUMENTS SHALL BE PROVIDED WITH SCALE RANGES ACCORDING TO LARGEST PRESSURE IN SYSTEM SERVED.
   5. INSTALL ALL GAUGES AND THERMOMETERS IN LOCATIONS WHERE THEY ARE EASILY READ.

SECTION 23 11 13 – FACILITY FUEL-OIL PIPING

A. SUBMITTALS: SUBMIT ON PRODUCT DATA FOR APPROVAL, PIPING SYSTEM PRESSURE TEST RESULTS.
B. MATERIALS
   1. ABOVE GRADE PIPING – ASTM A53, SCHEDULE 40 BLACK. FITTINGS: ANSI/ASTM B16.3, MALLEABLE IRON, OR ASTM A234, STEEL WELDING TYPE. JOINTS: THREADED FOR PIPE 2" AND SMALLER OR VIEGA MEGAPRESS; WELDED, FOR PIPE 2-1/2" AND LARGER.
   2. BALL VALVES – MSS SP 110, CLASS 125, TWO-PIECE, FULL PORT, THREADED ENDS, BRONZE BODY, CHROME PLATED BRONZE BALL, REINFORCED TEFLON SEATS, BLOW-OUT PROOF STEM, LEVER HANDLE, UL 842 LISTED FOR FLAMMABLE LIQUIDS AND LFG.
   3. CHECK VALVES – MSS SP 80, CLASS 150, BRONZE BODY, BUNA-N DISC, THREADED ENDS.
   4. STRAINERS – CLASS 150, Y-PATTERN, BRONZE BODY, THREADED ENDS, 1/32" STAINLESS STEEL PERFORATED SCREEN.
   5. FLEXIBLE CONNECTORS – CORRUGATED TYPE 304 STAINLESS STEEL INNER HOSE WITH SINGLE LAYER OF TYPE 304 STAINLESS STEEL EXTERIOR BRAIDING. 200 PSIG MAX WORKING PRESSURE.
C. INSTALLATION
   1. INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
   2. PROVIDE CLEARANCE FOR ACCESS TO VALVES AND FITTINGS.
   3. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
   4. INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
   5. INSTALL HANGERS AND SUPPORTS IN ACCORDANCE WITH MSS-SP-69 AND 89.
   6. TEST ALL PIPING IN ACCORDANCE WITH IMC AND UPC REQUIREMENTS.
   7. ABOVE GROUND FUEL OIL PIPING SYSTEMS SHALL BE INSTALLED IN ACCORDANCE WITH THE IMC AND NFPA 31.

SECTION 23 21 13 – HYDRONIC PIPING

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL, PIPING SYSTEM PRESSURE TEST RESULTS.
B. MATERIALS:
   1. COPPER TUBING – ASTM B88, TYPE L, HARD DRAWN. FITTINGS: ANSI/ASME B16.18 CAST BRONZE OF ASME B16.22 WROUGHT COPPER. JOINTS: ASTM B32, SOLDER, GRADE 95TA OR ANSI/AWS A5.8, BCUP SILVER BRAZE; FLUX: ASTM B813 OR VIEGA PRO PRESS SYSTEM.
   2. STEEL PIPING, 4" AND LARGER – ASTM A53, SCHEDULE 40, BLACK. FITTINGS: ANSI/ASTM B16.3, MALLEABLE IRON OR ASTM A234, STEEL WELDED TYPE FITTINGS. JOINTS: SCREWED, OR ANSI/AWS D1.1 WELDED.
   3. BALL VALVES:
   3.1. SIZES 2" AND SMALLER – BRONZE TWO-PIECE BODY, FULL PORT, FORGED BRASS, CHROME PLATED BALL, TEFLON SEATS AND STUFFING BOX RING, LEVER HANDLE. SOLDER, THREADED, OR PRESS-FIT ENDS.
   3.2. SIZES 2-1/2" AND LARGER – CAST STEEL TWO-PIECE BODY, FULL PORT CHROME PLATED STEEL BALL, TEFLON SEAT AND STUFFING BOX SEALS, LEVER HANDLE. FLANGED, SOLDER, THREADED, OR PRESS-FIT ENDS.
   4. BUTTERFLY VALVES (ONLY OVER 2"):
   4.1. DUCTILE IRON BODY, ALUMINUM BRONZE DISC, EPDM SEAT FOR SERVICE TO 250°F, LUG ENDS.
   5. SWING CHECK VALVES:
   5.1. SIZES 2" AND SMALLER – BRONZE SWING DISC. SOLDER, SCREWED, OR PRESS FIT ENDS.
   5.2. SIZES 2-1/2" AND LARGER – IRON BODY, SWING DISC, RENEWABLE DISC AND SEAT, FLANGED ENDS.
   6. SPRING LOADED CHECK VALVES – IRON BODY, BRONZE TRIM, STAINLESS STEEL SPRING, RENEWABLE COMPOSITION DISC. SCREWED, WAFER, OR FLANGED ENDS.
   7. FLANGES, UNIONS, AND COUPLINGS – BRONZE UNIONS FOR COPPER PIPE, SOLDERED JOINTS.
   8. RELIEF VALVES – BRONZE BODY, TEFLON SEAT, STAINLESS STEEL STEM AND SPRINGS, AUTOMATIC, DIRECT PRESSURE ACTUATED, CAPACITIES ASME CERTIFIED AND LABELED.
C. INSTALLATION:
   1. INSTALL ALL PIPING IN CRAFTSMANLIKE MANNER, PLUMB AND PARALLEL TO BUILDING LINES. GROUP PIPING AT COMMON ELEVATIONS WHERE PRACTICAL.
   2. PROVIDE CLEARANCE FOR INSTALLATION OF INSULATION AND ACCESS TO VALVES AND FITTINGS.
   3. INSTALL VALVES WITH STEMS UPRIGHT OR HORIZONTAL, NOT INVERTED.
   4. PROVIDE PROPERLY SIZED HANDLES FOR VALVE OPERATION. HANDLES SHALL NOT BE CUT OR BENT TO MAKE FIT WHERE INSTALLED.
   5. INSTALL BALL VALVES FOR SHUT-OFF TO ISOLATE EQUIPMENT.
   6. PROVIDE 3/4" DRAIN VALVES AT EQUIPMENT AND PIPING LOW POINTS FOR DRAINING OF SYSTEM.
   7. PRIOR TO FLUSHING SYSTEM, VERIFY SYSTEM IS COMPLETE. THOROUGHLY FLUSH AND CLEAN THE SYSTEM. DRAIN ALL LOW POINTS AND REMOVE AND CLEAN ANY STRAINER BASKETS. UPON COMPLETION OF FLUSHING, FEED HEATING MEDIUM INTO SYSTEM THROUGH MAKE-UP LINE WITH PRESSURE REGULATOR WHILE VENTING HIGH POINTS. SET INITIAL FILL PRESSURE TO 5 PSIG. ADJUST PRESSURE AS NECESSARY TO ACHIEVE 12 PSIG VERIFY SYSTEM OPERATING PRESSURE DURING SYSTEM OPERATION.

SECTION 23 21 16 – HYDRONIC SPECIALTIES

A. SUBMITTALS: SUBMIT PRODUCT DATA FOR APPROVAL.
B. MATERIALS:
   1. GLYCOL – PROVIDE HEAVY DUTY PREMIXED HYDRONIC GRADE PROPYLENE ANTIFREEZE AT A RATE OF 50% WATER TO 50% GLYCOL FOR A -29 DEGREES F PROTECTION OR BETTER. SUPPLY PRE-MIXED GLYCOL-WATER SOLUTION WITH INHIBITORS, DOWFROST "HD" OR EQUAL. MIXING CONCENTRATED GLYCOL WITH SITE WATER IS NOT ACCEPTABLE. PROVIDE GLYCOL TEST AT FINAL COMPLETION. ADD 100% GLYCOL AS NECESSARY TO ACHIEVE SPECIFIED 50/50 CONCENTRATION. PROVIDE GLYCOL SOLUTION AS REQUIRED TO SET HYDRONIC SYSTEM PRESSURE AND ADDITIONAL 55GAL DRUM GLYCOL SOLUTION.

SECTION 23 51 00 – BREECHINGS, CHIMNEYS, & STACKS

A. SUBMITTALS: SUBMIT PRODUCT DATA, SHOP DRAWINGS, AND STACK SIZING CALCULATIONS FOR APPROVAL.
B. MATERIALS:
   2. DOUBLE WALL STACK FOR OIL FIRED EQUIPMENT – UL 103HT LISTED, NFPA 211 COMPLIANT. TYPE 403 STAINLESS STEEL INNER JACKET, 28 GAUGE. TYPE 430 STAINLESS STEEL OUTER JACKET, 28 GAUGE. MINIMUM 1" INSULATED SPACE BETWEEN INNER AND OUTER SHELLS.
C. INSTALLATION:
   1. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
   2. PROVIDE DOUBLE WALL, INSULATED VENT CONTINUOUS FROM APPLIANCE OUTLET TO EXTERIOR TERMINATION.
   3. MAINTAIN UL LISTED MINIMUM CLEARANCE FROM COMBUSTIBLES.
   4. NO SINGLE WALL VENTS ARE PERMITTED.

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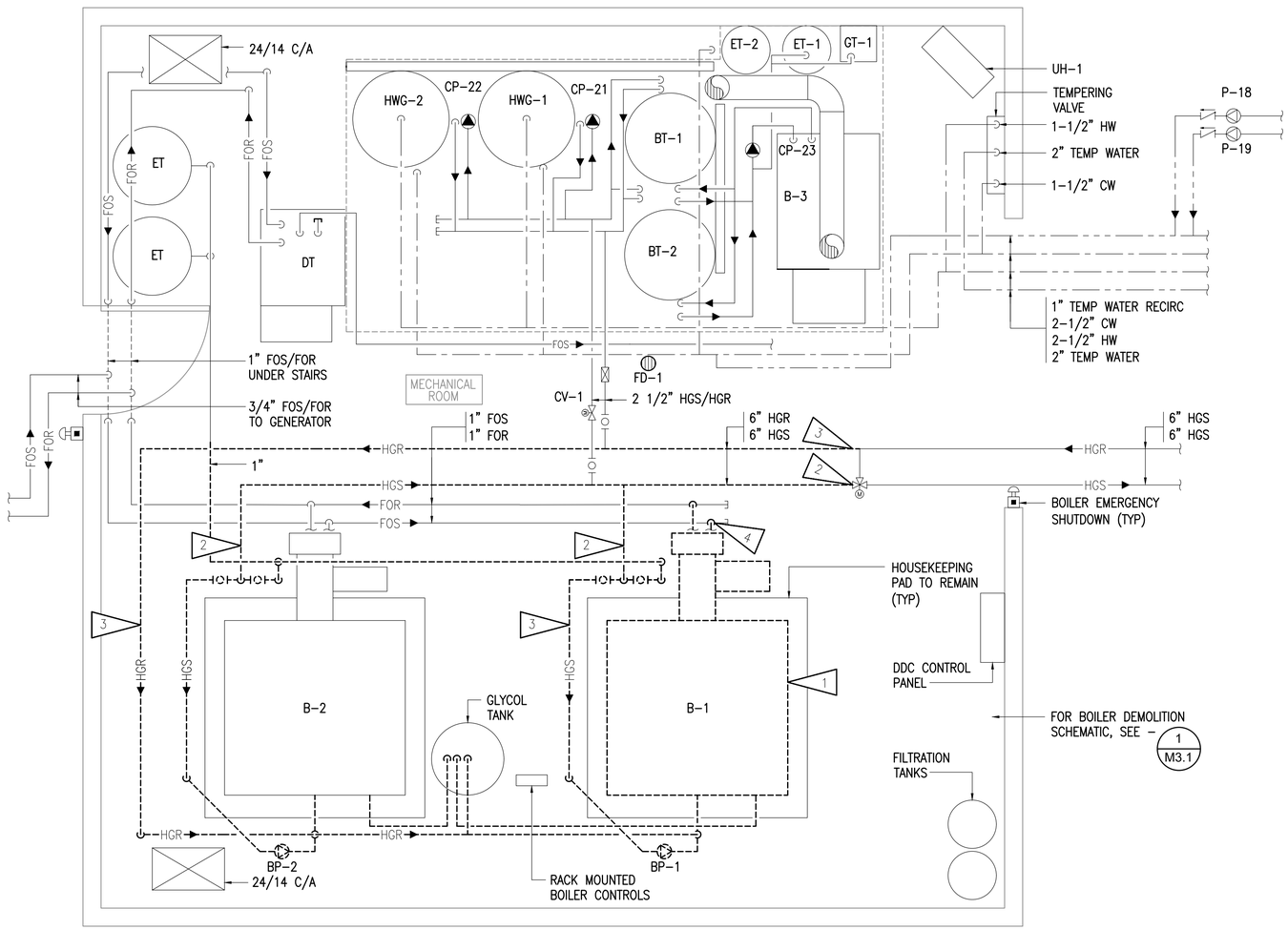
DRAWING TITLE:
MECHANICAL SPECIFICATIONS

SHEET:
M0.2



1 MECHANICAL ROOM PIPING DEMOLITION PLAN

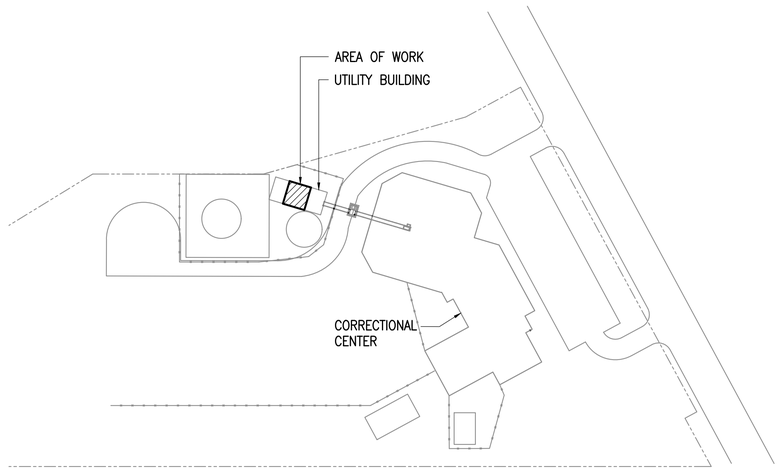
SCALE: 1/2" = 1'-0"

GENERAL NOTE:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALKTHROUGH OF THE FACILITY. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

SHEET NOTES:

1. DEMOLISH BOILER, CIRCULATION PUMP, AND ASSOCIATED APPURTENANCES. DRAIN AND DISPOSE OF SYSTEM GLYCOL AS NECESSARY TO ACCOMMODATE REMODEL WORK.
2. DEMOLISH HGS PIPING UP TO EXTENT NECESSARY FOR THE DEMOLITION OF THE EXISTING BOILER AND THE INSTALLATION OF THE NEW BOILER.
3. DEMOLISH HGR PIPING UP TO EXTENT NECESSARY FOR THE DEMOLITION OF THE EXISTING BOILER AND THE INSTALLATION OF THE NEW BOILER.
4. DEMOLISH AND CAP FUEL OIL PIPING SUPPLY AND RETURN AS INDICATED SERVING BOILER. SEE REMODEL PLANS FOR NEW FUEL OIL SUPPLY CONNECTION.



KEY PLAN

NO SCALE

STATE OF ALASKA
RYAN R. DESTEFANO
ME-8973
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2930 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

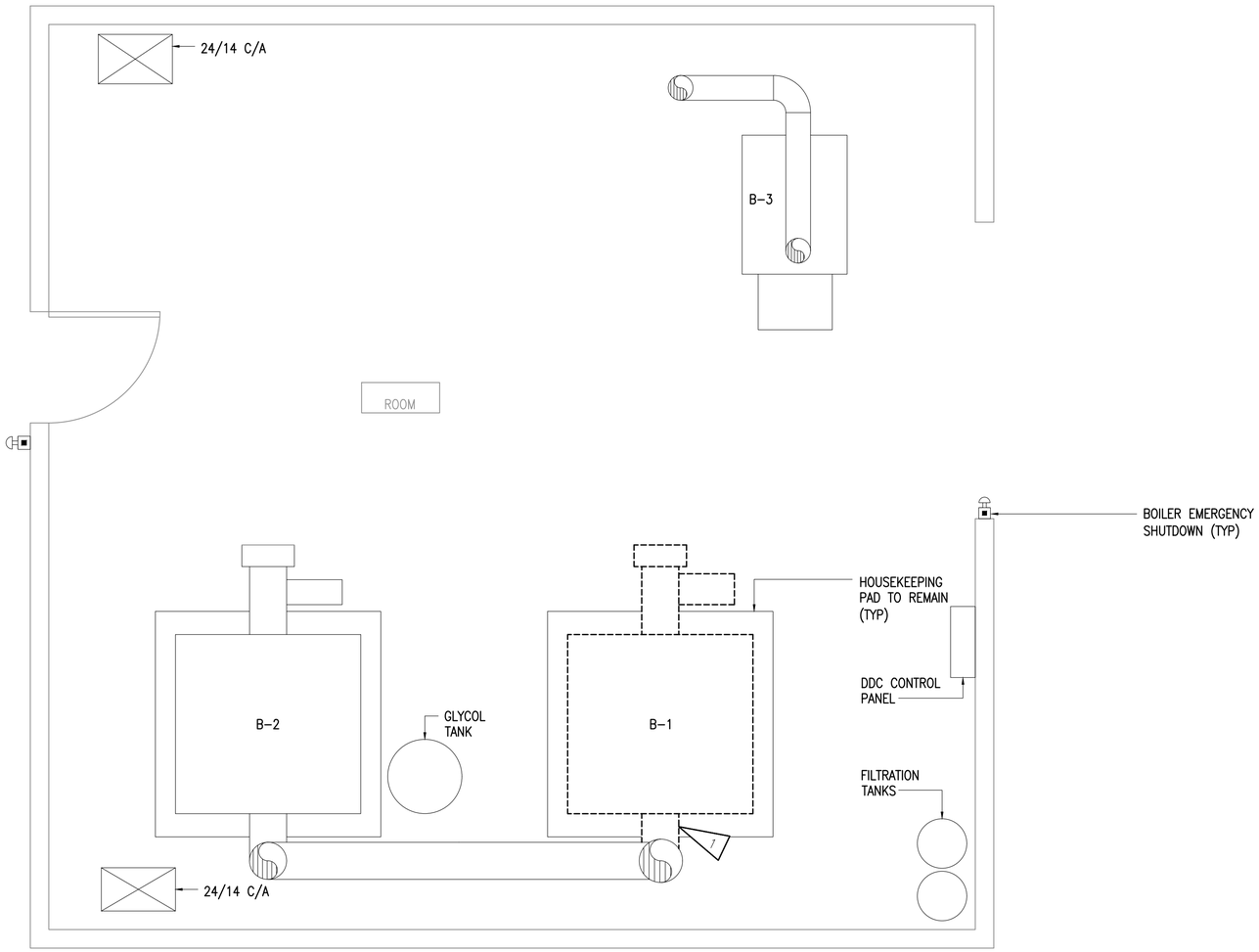
AMCC BOILER UPGRADE
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

DRAWN BY: JMC
CHECKED BY: RRD
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: MSERIES

DRAWING TITLE:
MECHANICAL PIPING DEMOLITION PLAN

SHEET:
M1.1



1 MECHANICAL ROOM VENTILATION DEMOLITION PLAN

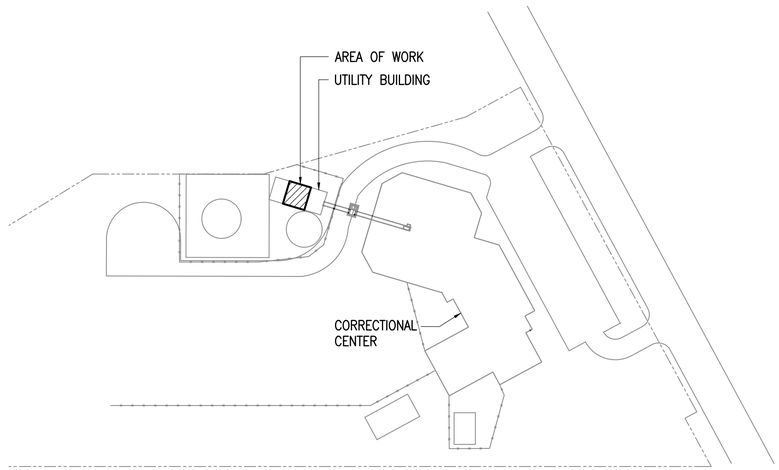
SCALE: 1/2" = 1'-0"

GENERAL NOTE:

A. THE INFORMATION SHOWN ON THIS DRAWING IS TAKEN FROM AS-BUILT DRAWINGS AND A NON-DESTRUCTIVE WALKTHROUGH OF THE FACILITY. THE CONTRACTOR SHALL FIELD VERIFY ALL ITEMS SCHEDULED FOR DEMOLITION PRIOR TO START OF WORK.

SHEET NOTES:

1 DEMOLISH AND CAP BOILER FLUE TO EXTENT NECESSARY TO ACCOMMODATE REMODEL WORK.



KEY PLAN

NO SCALE

STATE OF ALASKA
AQIB
R.R. DESTEFANO
ME-8973
REGISTERED PROFESSIONAL ENGINEER

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2930 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

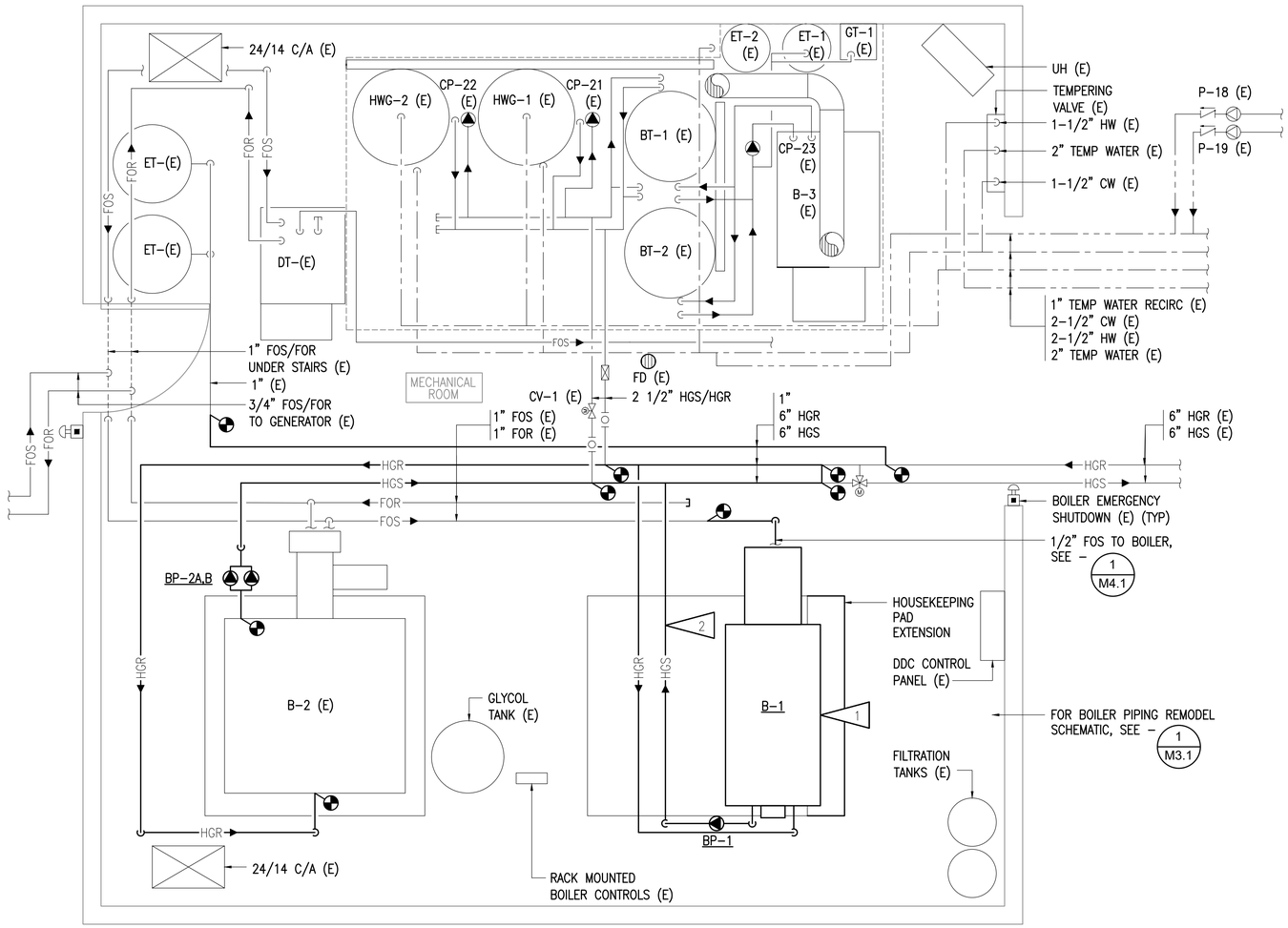
AMCC BOILER UPGRADE
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

DRAWN BY: JMC
CHECKED BY: RRD
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: MSERIES

DRAWING TITLE:
MECHANICAL VENTILATION DEMOLITION PLAN

SHEET:
M1.2



1 MECHANICAL ROOM PIPING REMODEL PLAN

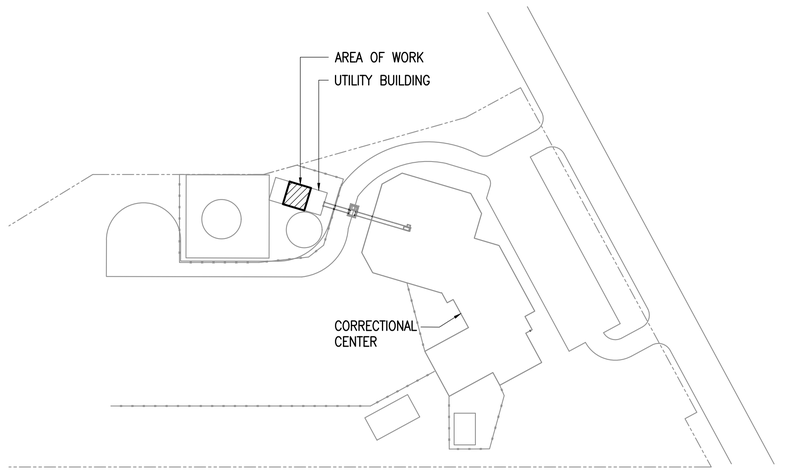
SCALE: 1/2" = 1'-0"

GENERAL NOTE:

A. REFILL SYSTEM GLYCOL AS NECESSARY TO ACHIEVE OPERATING PRESSURE. CONTRACTOR TO PROVIDE ADDITIONAL SPARE 55GAL GLYCOL SOLUTION FOR HEATING SYSTEM.

REMODEL NOTES:

1. INSTALL BOILER. EXTEND EXISTING HOUSEKEEPING PAD TO ACCOMMODATE BOILER PLACEMENT. FOR HOUSEKEEPING PAD DETAIL, SEE – 3 / M4.1
2. INSTALL HGS AND HGR PIPING.



KEY PLAN

NO SCALE

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2930 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

STATE OF ALASKA — R.R. DESTEFANO — ME-8973 — REGISTERED PROFESSIONAL ENGINEER

AMCC BOILER UPGRADE

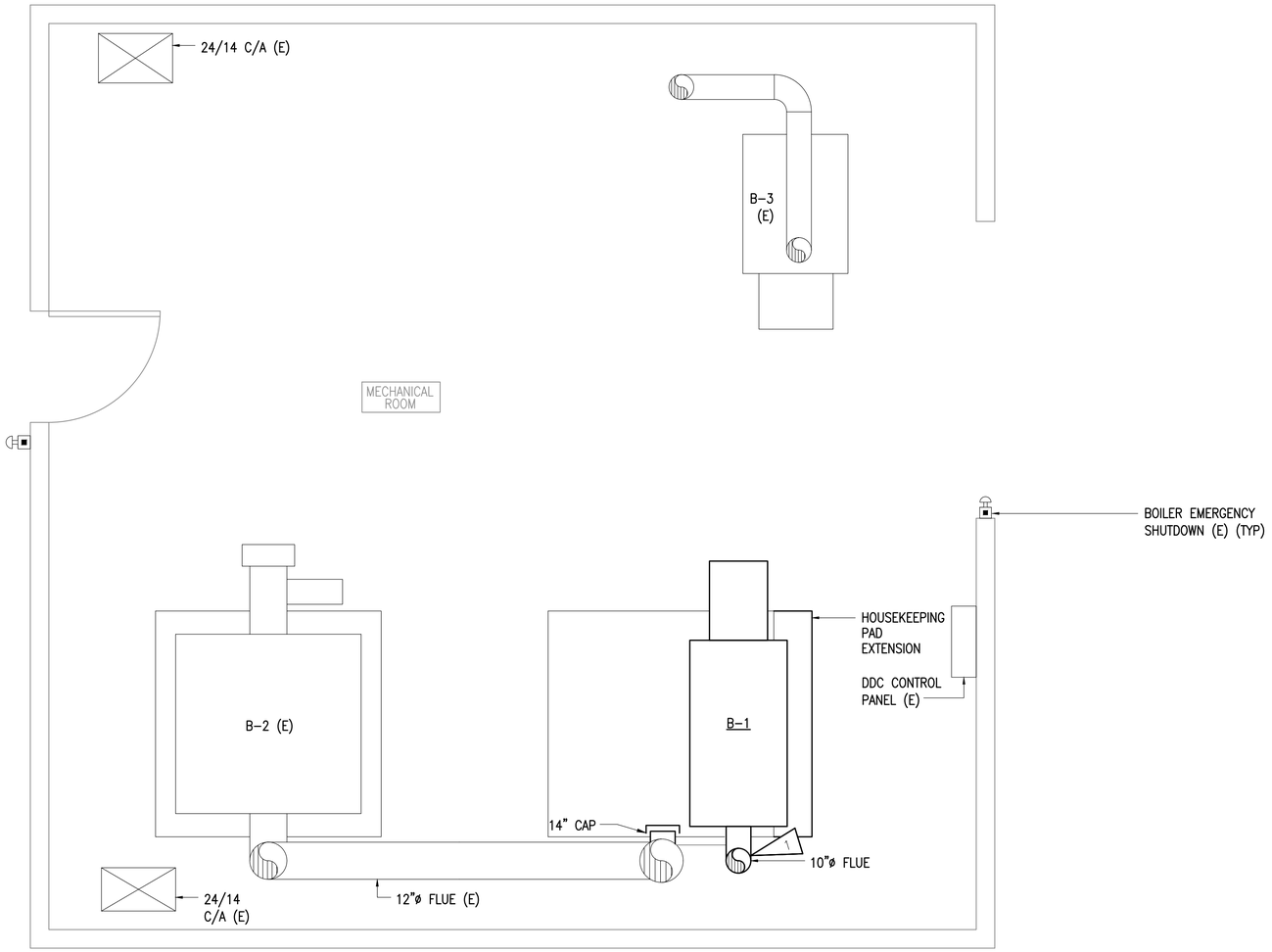
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

DRAWN BY: JMC
CHECKED BY: RRD
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: MSERIES

DRAWING TITLE: MECHANICAL PIPING REMODEL PLAN

SHEET: M2.1

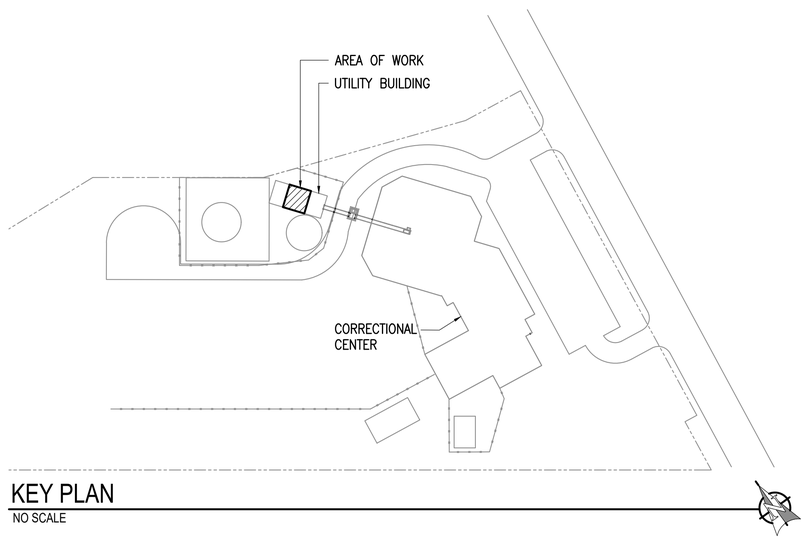


1 MECHANICAL ROOM VENTILATION REMODEL PLAN

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

REMODEL NOTES:

1. CONNECT 10" FLUE TO BOILER, B–1. FOR FLUE PIPE DETAIL, SEE – 2/M4.1



KEY PLAN

NO SCALE

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2930 West Fireweed Lane, Suite 200
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AMCC BOILER UPGRADE
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
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REVISIONS:

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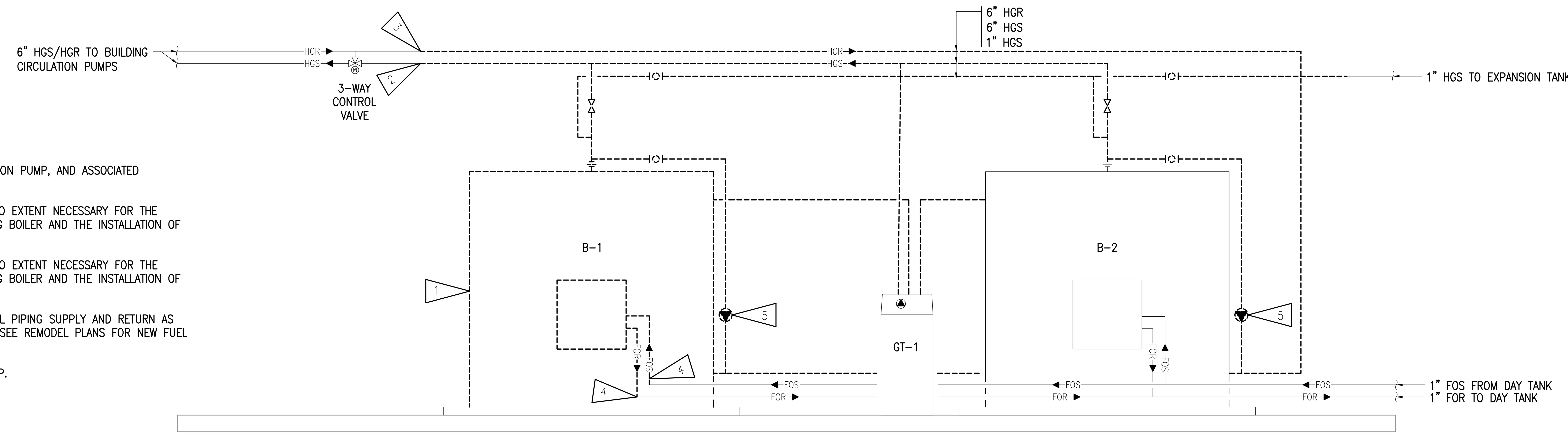
JOB NUMBER: M1207.10
DWG FILE: MSERIES

DRAWING TITLE:
MECHANICAL VENTILATION REMODEL PLAN

SHEET:
M2.2

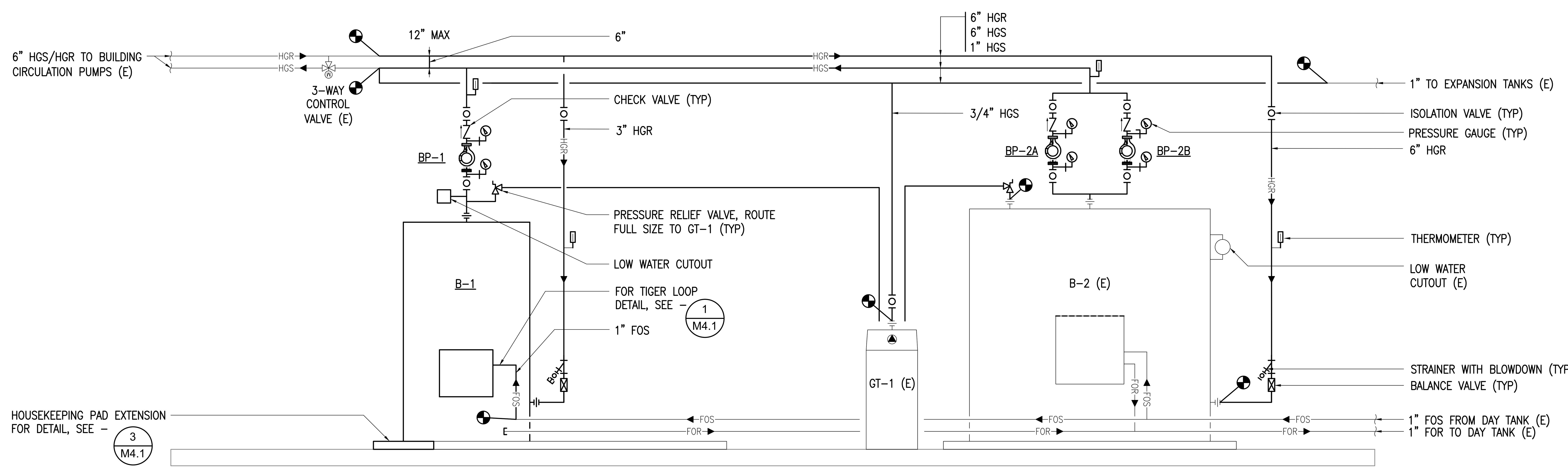


SHEET NOTES:

1. DEMOLISH BOILER, CIRCULATION PUMP, AND ASSOCIATED APPURTENANCES.
2. DEMOLISH HGS PIPING UP TO EXTENT NECESSARY FOR THE DEMOLITION OF THE EXISTING BOILER AND THE INSTALLATION OF THE NEW BOILER.
3. DEMOLISH HGR PIPING UP TO EXTENT NECESSARY FOR THE DEMOLITION OF THE EXISTING BOILER AND THE INSTALLATION OF THE NEW BOILER.
4. DEMOLISH AND CAP FUEL OIL PIPING SUPPLY AND RETURN AS INDICATED SERVING BOILER. SEE REMODEL PLANS FOR NEW FUEL OIL SUPPLY CONNECTION.
5. DEMOLISH CIRCULATION PUMP.

1 BOILER DEMOLITION PIPING SCHEMATIC

NO SCALE



2 BOILER REMODEL PIPING SCHEMATIC

NO SCALE

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
670 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

AMCC BOILER UPGRADE

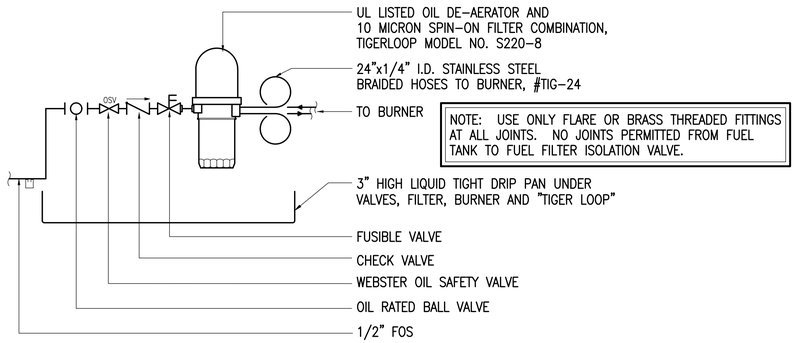
ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

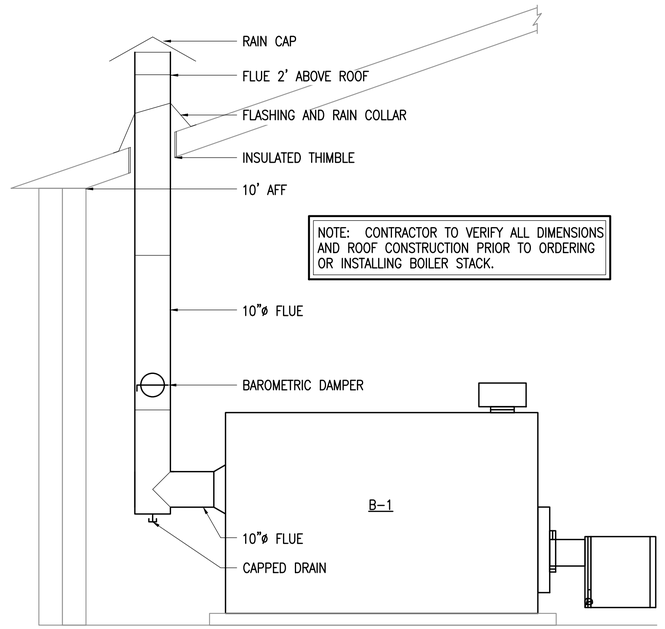
DRAWN BY: JMC
CHECKED BY: RRD
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: MSERIES

DRAWING TITLE: MECHANICAL SCHEMATICS

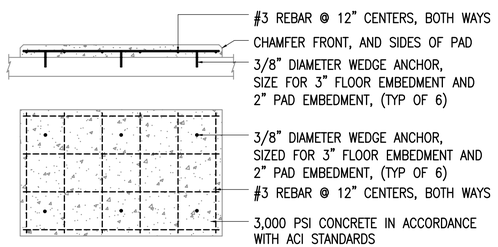
SHEET: M3.1



1 TIGER LOOP DETAIL
NO SCALE



2 FLUE DETAIL
NO SCALE



CONCRETE – STRUCTURAL CONCRETE SHALL HAVE A 28 DAY STRENGTH, F'C OF 4,500 PSI. MAXIMUM WATER TO CEMENT RATIO EQUAL 0.45. MAXIMUM UN-PLASTICIZED SLUMP SHALL BE 4 INCHES. ENTRAIN AIR IN ACCORDANCE WITH IBC TABLE 1904.2.1 FOR SEVERE EXPOSURE CONCRETE. REINFORCING STEEL SHALL BE ASTM A615, GRADE 60 DETAILED OR IN ACCORDANCE WITH ACI 318. CONCRETE COVER OVER REINFORCEMENT SHALL BE AS NOTED ON THE DRAWINGS AND IN ACCORDANCE WITH ACI 301. WELDING OF REINFORCEMENT IS PROHIBITED. SUPPORT ALL REBAR ON CHAIRS, DOBIES OR OTHER APPROVED MEANS. CONTRACTOR SHALL TAKE SPECIAL CARE TO PREVENT DISTURBANCE DURING CONCRETE PLACEMENT TO ENSURE THAT REINFORCEMENT REMAINS AT ITS PROPER ELEVATION AND POSITION. ALL CONCRETE SHALL CONFORM TO THE LATEST STANDARDS AND SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE.

3 HOUSEKEEPING PAD DETAIL
NO SCALE

RSA Engineering, Inc.
MECHANICAL AND ELECTRICAL CONSULTING ENGINEERS
2930 West Fireweed Lane, Suite 200
Anchorage, AK 99503
Phone (907) 276-0521
Corporate No.: AECC542

AMCC BOILER UPGRADE

ALASKA DEPARTMENT OF CORRECTIONS
550 WEST 7TH AVE, SUITE 1800
ANCHORAGE, AK 99501

REVISIONS:

DRAWN BY: JMC
CHECKED BY: RRD
DATE: 10/07/2022
JOB NUMBER: M1207.10
DWG FILE: MSERIES

DRAWING TITLE:
MECHANICAL DETAILS

SHEET:
M4.1

3.B

Silver Bow Construction
5331 Shaune Drive
Juneau, AK 99801
PH. (907)780-4157, FAX. (907)780-5127
E-mail: silvebow@ptialaska.net

LETTER OF TRANSMITTAL

TO: STATE OF ALASKA DOT & PF CENTRAL REGION

ATTN.: RONALD SEARCY

DATE: 4-21-11

PROJECT: ANVIL MT. C.C. ROOF

RE: PRODUCT SUBMITTALS

WE ARE SENDING YOU AS CHECKED BELOW:

- ✓ ATTACHED
- ✓ SHOP DRAWINGS
- __ COPY OF LETTER
- __ SAMPLES
- __ OTHER, SEE COMMENTS
- __ PRINTS
- __ CHANGE ORDER
- __ PLANS
- __ SPECIFICATIONS

NO.	DATE	COPIES	DESCRIPTION
1.	4/21	1	SBC SUBMITTAL # 3.B SECTION 07532 "EPDM ROOFING"

THESE ARE TRANSMITTED AS CHECKED BELOW:

- ✓ FOR APPROVAL
- __ AS REQUESTED
- __ FOR BIDS DUE
- __ APPROVED AS NOTED
- __ RESUBMIT ____ COPIES FOR APPROVAL
- __ SUBMIT ____ COPIES FOR DISTRIBUTION
- ✓ RETURN 1 CORRECTED PRINTS ELECTRONICALLY
- __ FOR YOUR USE
- ✓ FOR REVIEW & COMMENT
- __ APPROVED AS SUBMITTED
- __ RETURNED FOR CORRECTIONS

COMMENTS: PLEASE LOOK FOR IN A FOUR PART EMAIL. PLEASE REVIEW & LET US KNOW IF APPROVED AS SOON AS POSSIBLE

COPY TO: ANVIL MT. ROOF SUBMITTALS

SIGNED: E. Ziemer

- ☐ No Exceptions Noted
- ■ Exceptions Noted, Furnish as Corrected
- ☐ Exceptions Noted, Revise & Resubmit
- ☐ Unacceptable, Resubmit

This review does not waive or alter the contract requirements. Any deviations from the contract requirements must be specifically brought to the attention of the Architect in writing. Contractor is responsible for, but not limited to: dimensions which shall be confirmed, coordination of all trades, fabrication process and techniques of construction. Distribution of these documents by the Contractor shall constitute his approval.

By David Ziemer Date 4/26/2011
RIM ARCHITECTS INC.

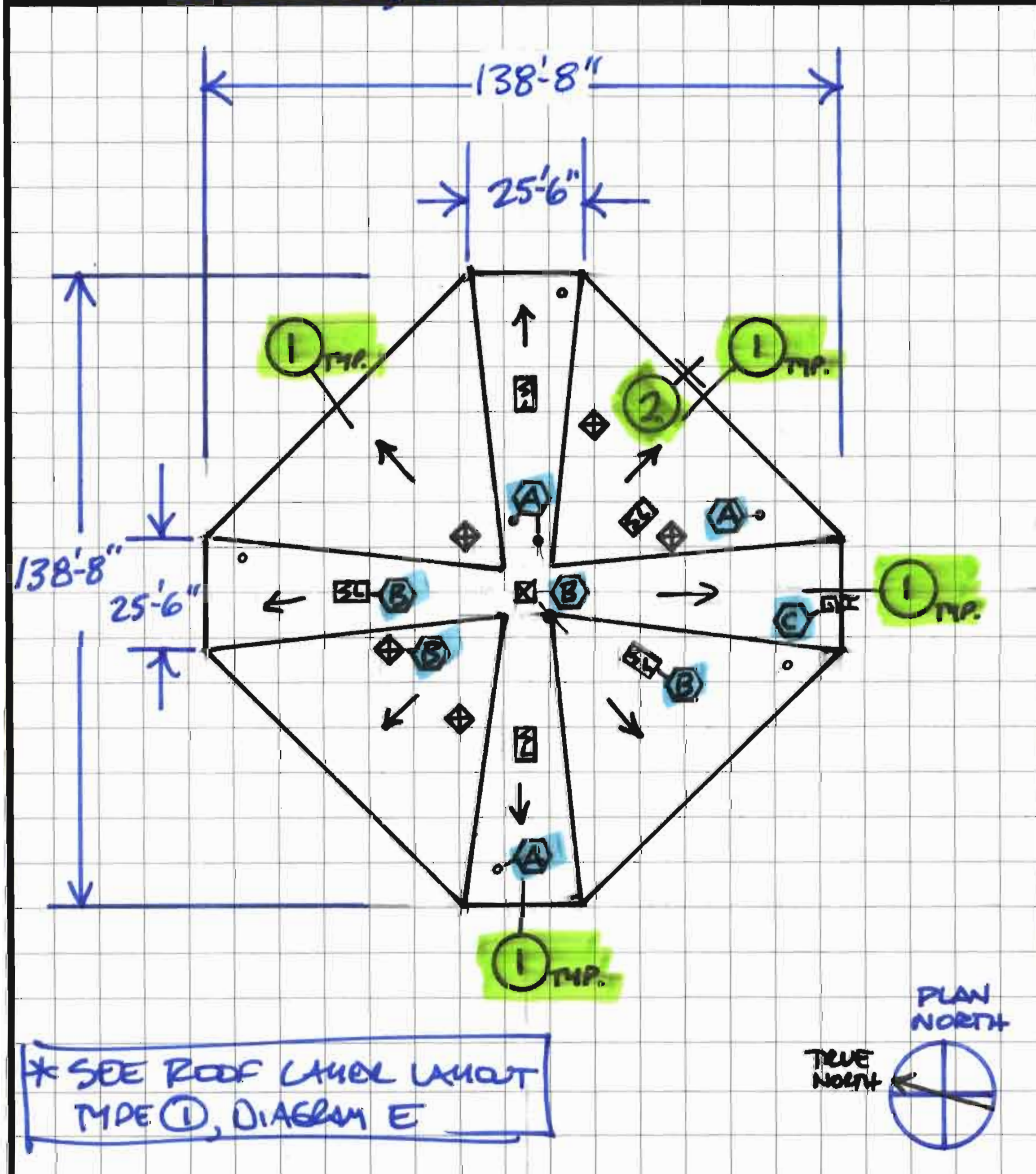
PROVIDE CATALOG CUTS FOR ITEMS 2.3,C,G,H & M

ANVIL MOUNTAIN CORRECTIONAL CENTER ROOF REPLACEMENT
STATE OF ALASKA, DEPARTMENT OF TRANSPORTATION & PUBLIC FACILITIES CENTRAL REGION PROJECT NO. 81029
PRODUCT SUBMITTALS

SBC SUBMITTAL 3.B.
SECTION 07532 "EPDM ROOFING"
TABLE OF CONTENTS

SILVER BOW CONSTRUCTION

PROJECT: ANVIL MOUNTAIN C.C. ROOF	DIAGRAM A
SUBJECT: UPPER ROOF PLAN	
DATE: APRIL 20, 2011	



KEY: SKYLIGHT . . . SL
VTR . . . . . ○
MECHANICAL . . . . ☒
ANCHOR POST . . . .
SLOPE . . . . . . →

DRWG. BY: JA

SCALE: 1 EA □ = 10'x10' = 100 SF

SBC

PERIMETER DETAIL . . . . . (1)

PENETRATION DETAIL . . . . (A)

LADDER . . . . .

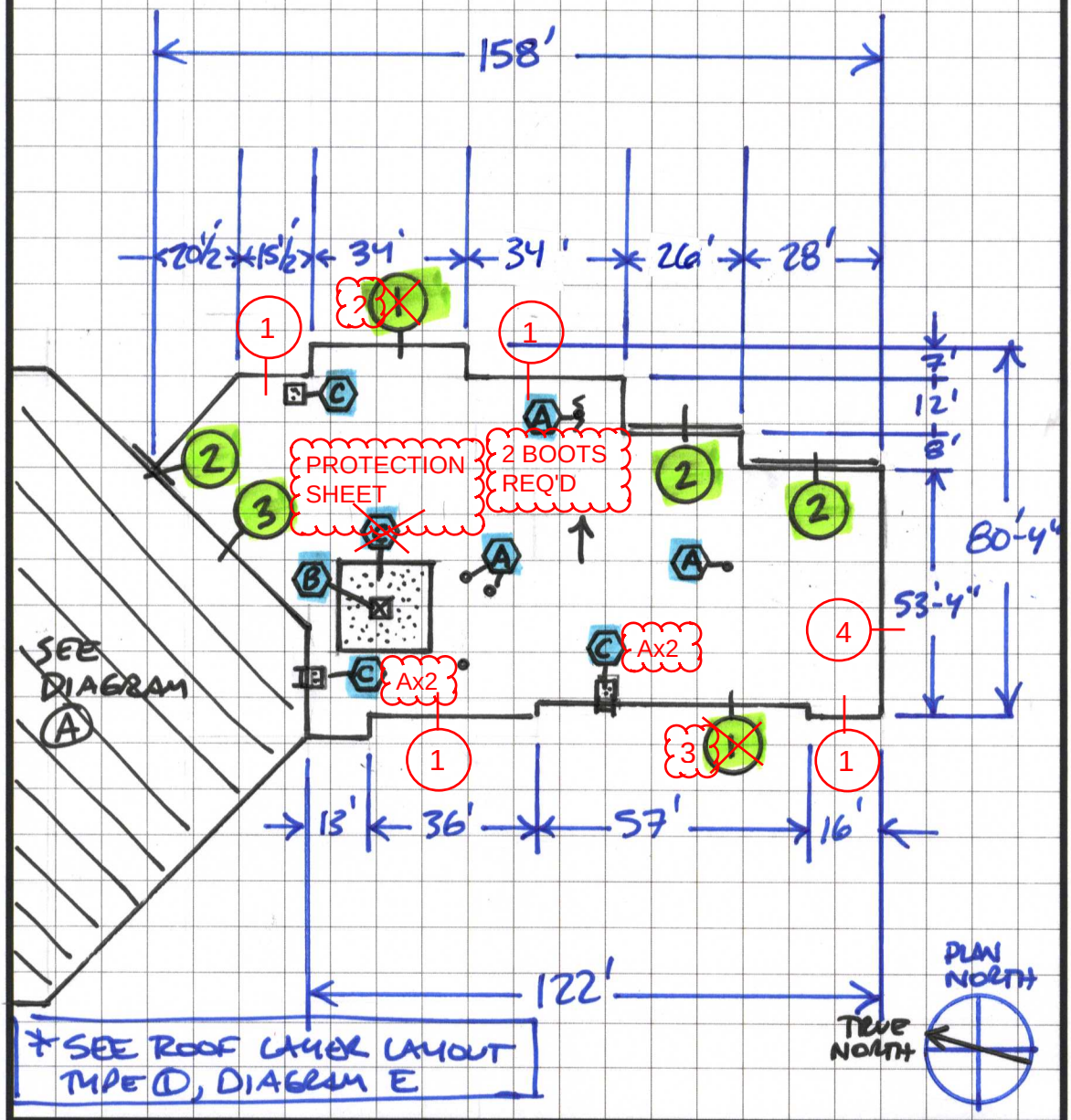
WALKPAD . . . . .

GUTTER . . . . ═

SILVER BOW CONSTRUCTION

PROJECT: ANVIL MOUNTAIN C.C. ROOF
SUBJECT: LOW ROOF PLAN
DATE: APRIL 20, 2011

DIAGRAM B



KEY:
VTR
MECHANICAL
SLOPE
LADDER
WALKPAD
GUTTER
PERIMETER DETAIL
PENETRATION DETAIL
PHOTO CELL

DRWG. BY: JA

SCALE: 1 EA. □ = 10'x10' = 100 SF

SBC

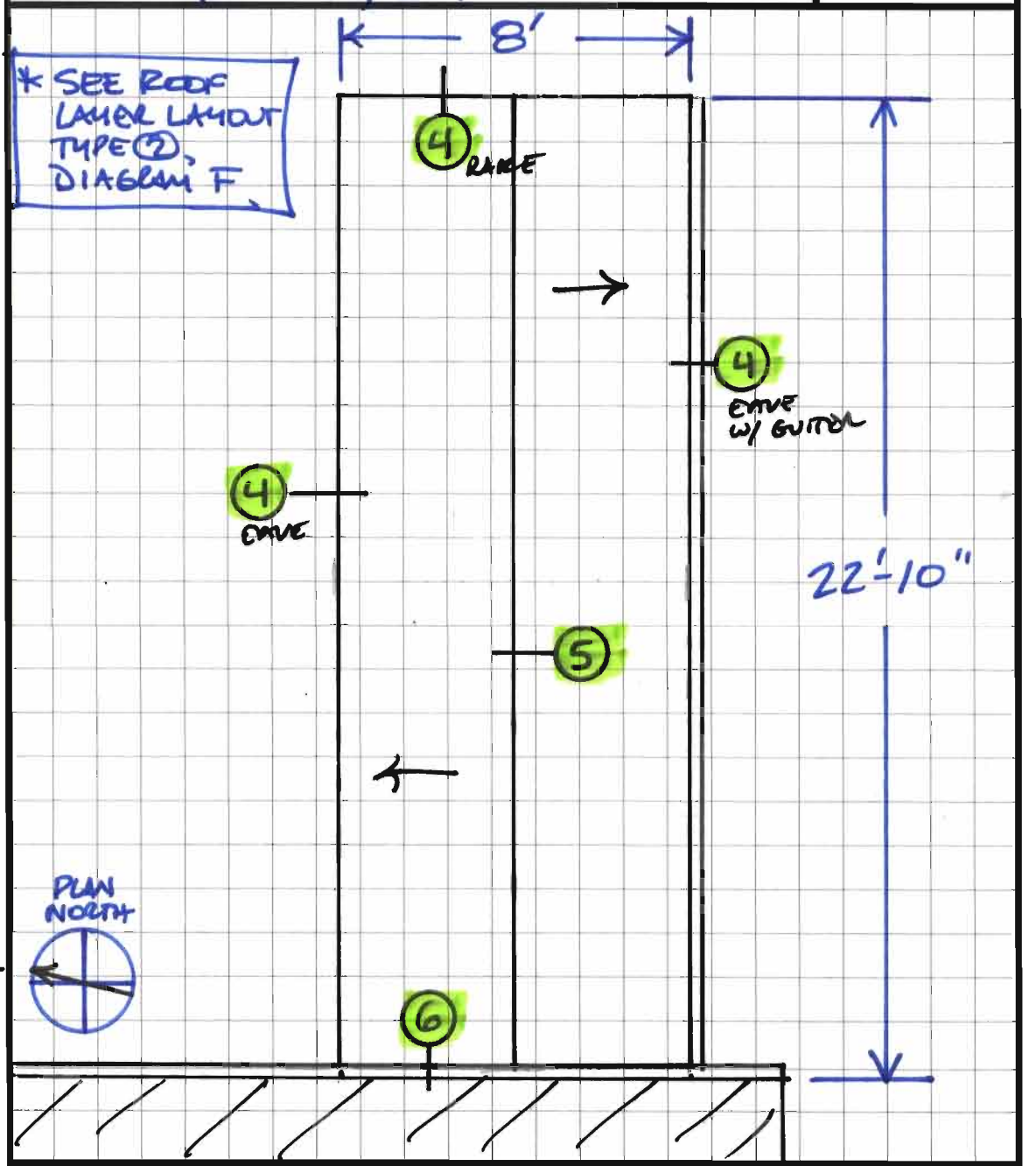
SILVER BOW CONSTRUCTION

PROJECT: ANVIL MOUNTAIN C.C. ROOF

SUBJECT: ENTRY CANOPY PLAN

DATE: APRIL 21, 2011

DIAGRAM C



KEY:

SLOPE - - - - →

GUTTER - - - ≡

PERIMETER .... (1)

DETAILS

DRWG. BY: JA

SCALE: 1 EA □ = 1'x1' = 1 SQFT

SBC

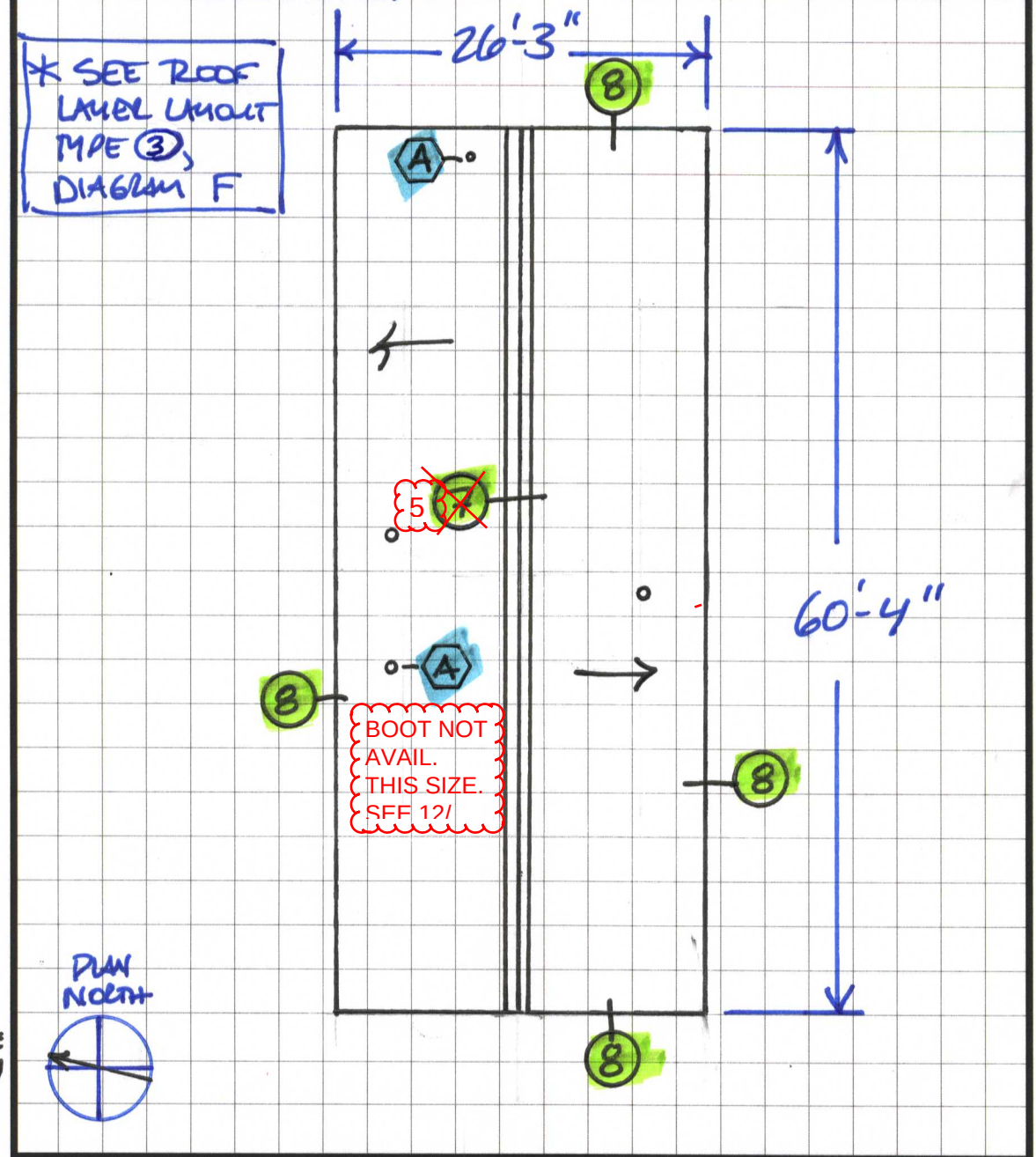
1.D

SILVER BOW CONSTRUCTION

PROJECT: ANVIL MOUNTAIN C.C. ROOF
SUBJECT: UTILITY BLDG. ROOF PLAN
DATE: APRIL 21, 2011

DIAGRAM D

* SEE ROOF LAYER LAYOUT TYPE (3), DIAGRAM F



KEY:
- SLOPE - - - - →
- RIDGE VENT ... ≡
- PERIMETER DETAILS - - - (1)
- PENETRATION DETAILS . . . . . (A)
- VTR - - - — - - - - o

DRWG. BY: JA

SCALE: 1 EA. □ = 3'×3' = 9 SQFT

SBC

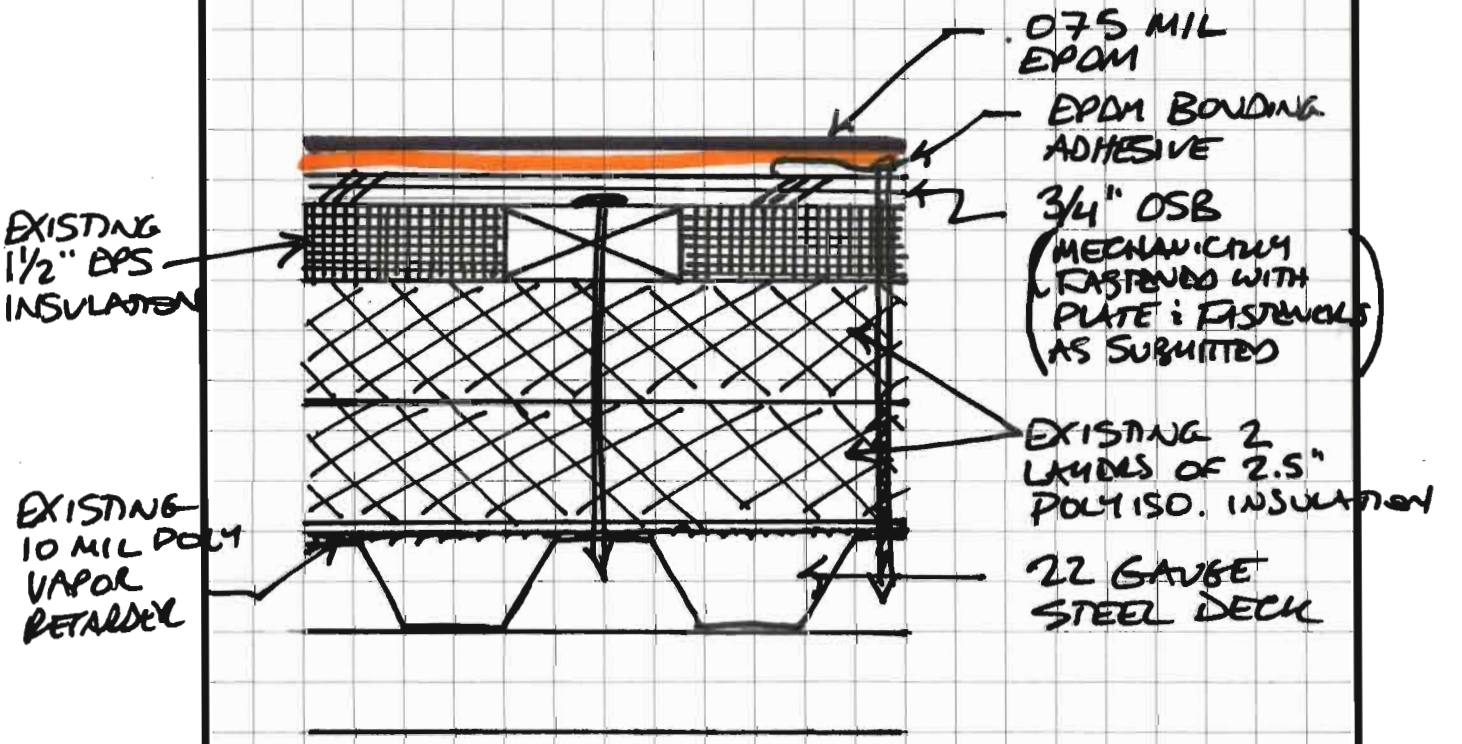
SILVER BOW CONSTRUCTION

PROJECT: ANVIL MOUNTAIN C.C. ROOF

SUBJECT: ROOF LAYER LAYOUT TYPE ①

DATE: APRIL 21, 2011

DIAGRAM E



* SEE DETAIL 1/A501 REGARDING 2x4's AND 1½" EPS INSULATION BOARD MODIFICATIONS

KEY: N/A

DRWG. BY: JA

SCALE: N/A

SBC

SILVER BOW CONSTRUCTION

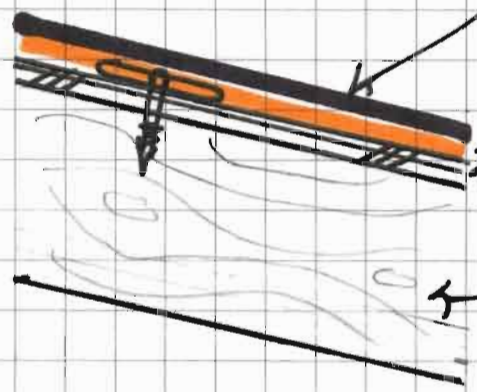
PROJECT: ANVIL MOUNTAIN C.C. ROOF

SUBJECT: ROOF LAYER LAYOUT TYPE (2) & (3)

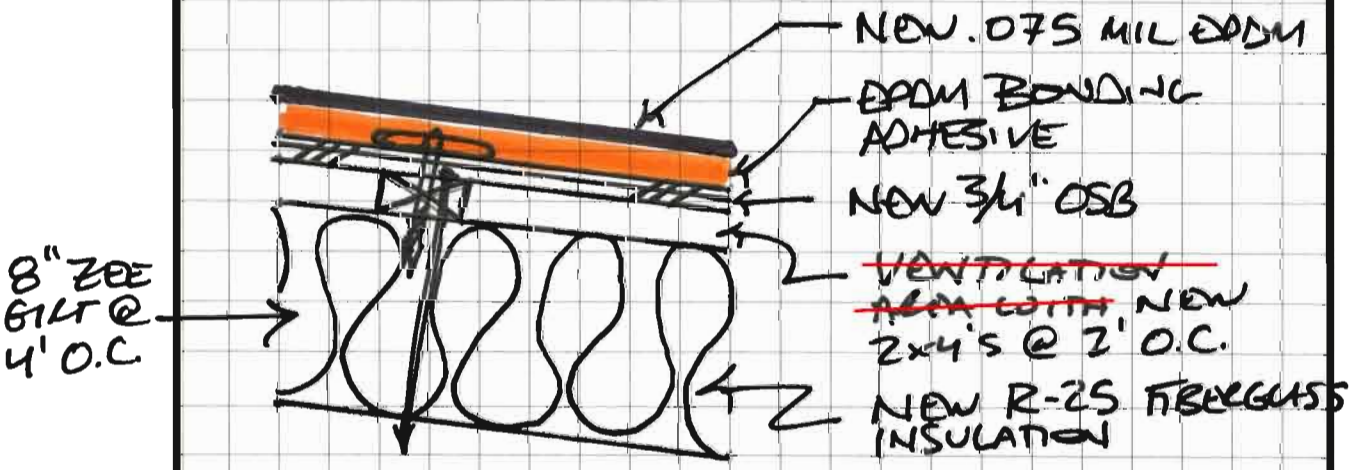
DATE: APRIL 21, 2011

DIAGRAM F

(2) ENTRY CANOPY:



(3) UTILITY BLDG. ROOF:



KEY: ~~?~~ N/A ~~?~~

DRWG. BY: ~~JA~~

SCALE: — N/A —

SBC

SILVER BOW CONSTRUCTION

PROJECT: ANVIL MOUNTAIN C.C. ROOF

SUBJECT: ROOFS DETAIL SCHEDULE

DATE: APRIL 21, 2011

DIAGRAM 6.

#	DETAIL DESCRIPTION	ARCHITECT DETAIL #	FIRESTONE DETAIL #	SBC SUBMITTAL #
1	EAVE FASCIA DETAIL RAKE DETAIL (SIM.)	2/A501	RE-1	2.B.1
2	EAVE FASCIA W/ GUTTER DETAIL	6/A501	RE-2	2.B.2
3	ROOF TO WALL FLASHING DETAIL	3/A501	T-1 BT-1	2.D 2.E
4	RAKE DETAIL EAVE DETAIL (SIM.) EAVE W/ GUTTER	7/A502 9/A502 9/A502	RE-1 RE-1 RE-2	2.B.1 2.B.1 2.B.2
5	RIDGE DETAIL	NONE	EPDM MEMBRANE INSTALLED CENTERED OVER RIDGE	
6	ROOF TO WALL FLASHING (SIM.)	3/A501	T-1 BT-1	2.D 2.E
7	RIDGE DETAIL	7/A103	RE-1 @ EAVE	2.B.1 @ EAVE
8	EAVE FASCIA DETAIL RAKE DETAIL (SIM.)	6/A103	RE-1	2.B.1
A	VENT PIPE, FLUE ANCHOR & LADDER FLASHING	1-6/A502 4, 8, 12/A501 1-2/A503	P-1	2.J
B	MECHANICAL CURB & SKYLITE FLASHING	9-11/A501	C-8	2.F
C	WALKWAY PAD DETAIL	NONE	W-1	2.K
D	NOT USED			

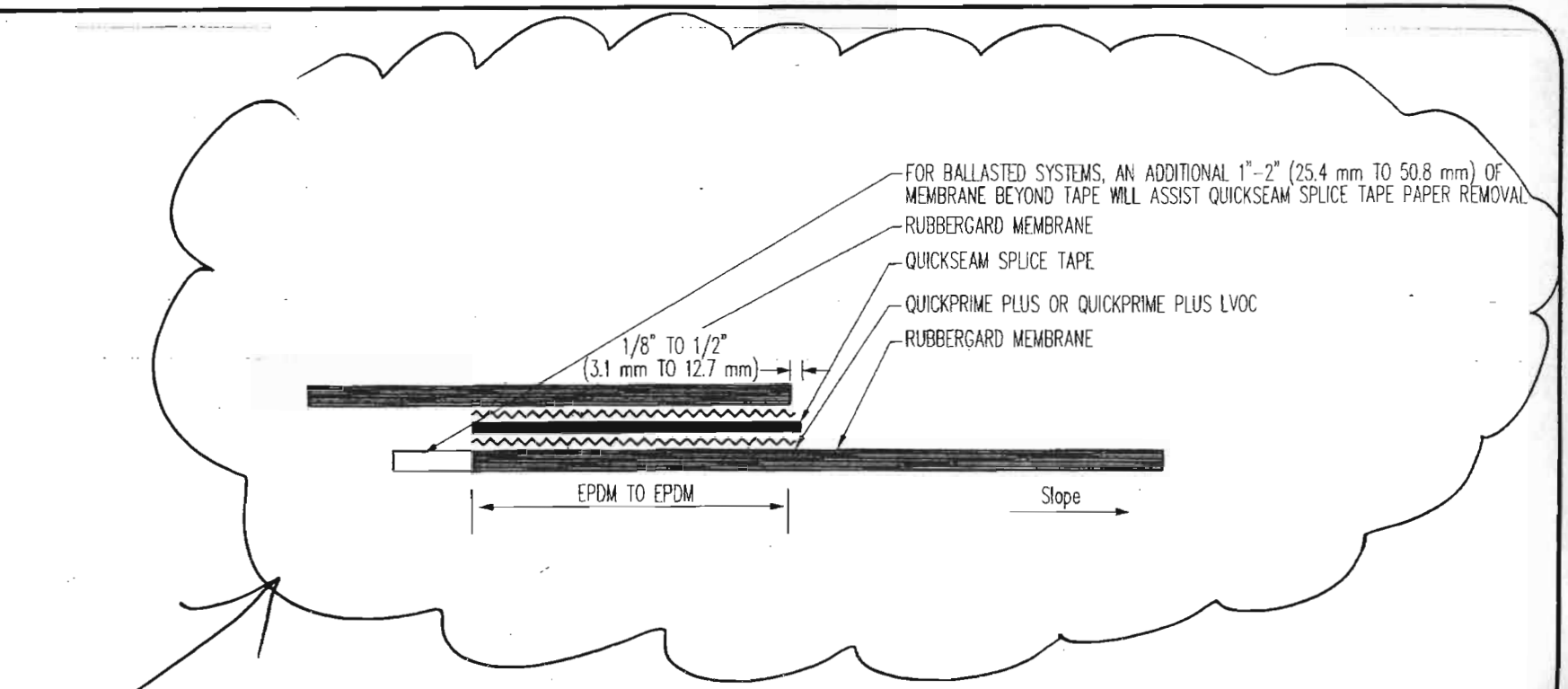
VENT DELETED BY ADDENDUM

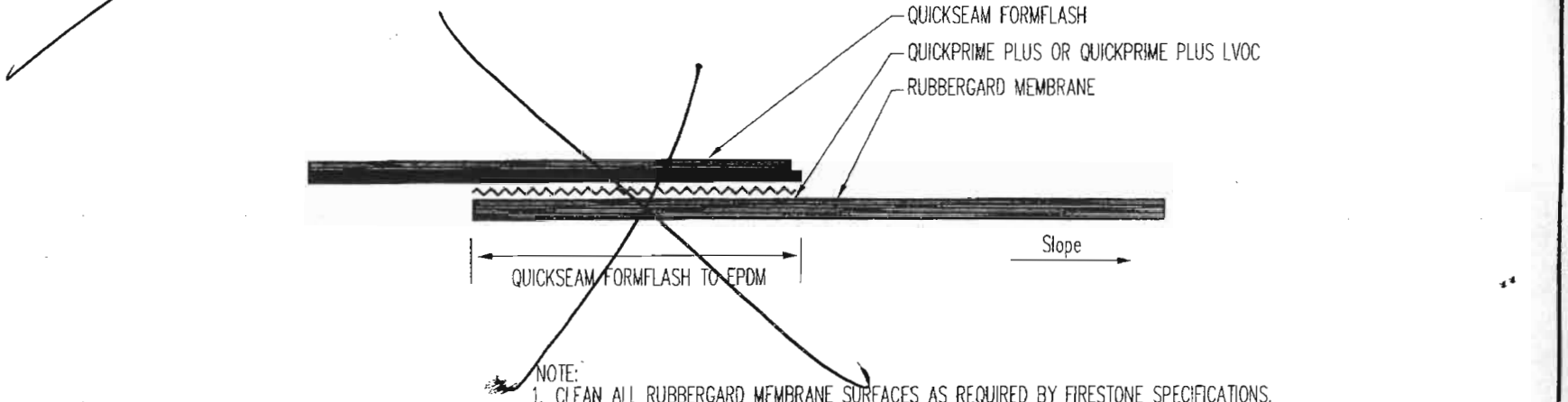
KEY:
PERIMETER DETAILS 1
PENETRATION DETAILS . . . A

DRWG. BY: JA

SCALE: N/A

SBC

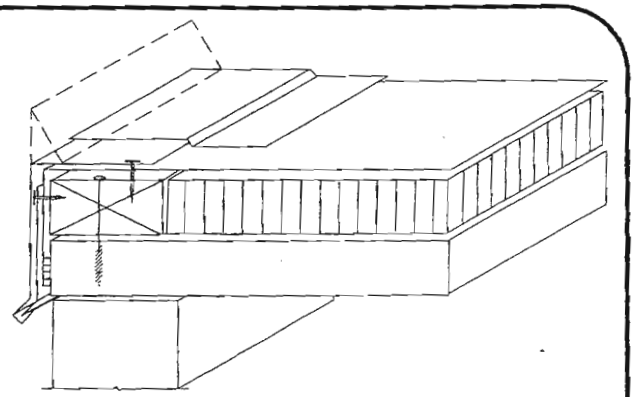


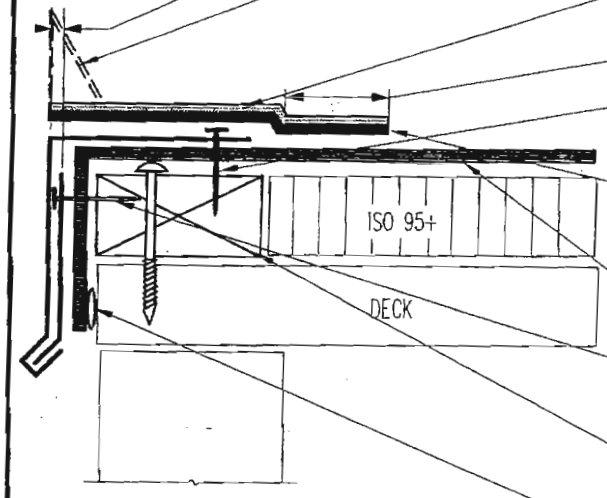


NOTE:
1. CLEAN ALL RUBBERGARD MEMBRANE SURFACES AS REQUIRED BY FIRESTONE SPECIFICATIONS.
2. TAKE EXTRA CARE TO CLEAN FACTORY SPLICES AND OTHER AREAS WHERE EXCESS DUSTING AGENT MAY HAVE ACCUMULATED.
3. IF .090 MEMBRANE IS USED, ADDITIONAL SEAMING REQUIREMENTS ARE NECESSARY. CONTACT FIRESTONE TECHNICAL SERVICES.

Firestone 20 Building Products 03	**RubberGard® EPDM** QuickSeam Cross Section	**Detail No.** LS–1 **Systems** All

2.A





1/4" (6.35 mm) TO 1/2" (12.7 mm)

ON BALLASTED ROOFS, GRAVEL STOP HEIGHT MUST MEET OR EXCEED BALLAST OR PAVER HEIGHT (2" (50.8 mm) MIN.). SEE NOTE #1

QUICKSEAM FLASHING
SEE NOTE #2

2" (50.8 mm) MIN

HOT DIPPED GALVANIZED NAILS 1-1/4" (31.7 mm) LONG WITH 3/8" (9.5 mm) DIA. HEAD (MIN.) AT 4" O.C. (101.6 mm) MAX.

SEAM EDGE TREATMENT IS REQUIRED ALONG UPSLOPE EDGE OF QUICKSEAM FLASHING WHEN ROOF SLOPE IS 1" (25.4 mm) PER FOOT OR GREATER.

RUBBERGARD EPDM

HOT DIPPED GALVANIZED NAILS 1-1/4" (31.7 mm) LONG WITH 3/8" (9.5 mm) DIA. HEAD (MIN.) AT 6" (152.4 mm) O.C.

WOOD NAILER MUST EXTEND BEYOND METAL FLANGE IN ALL DIRECTIONS.

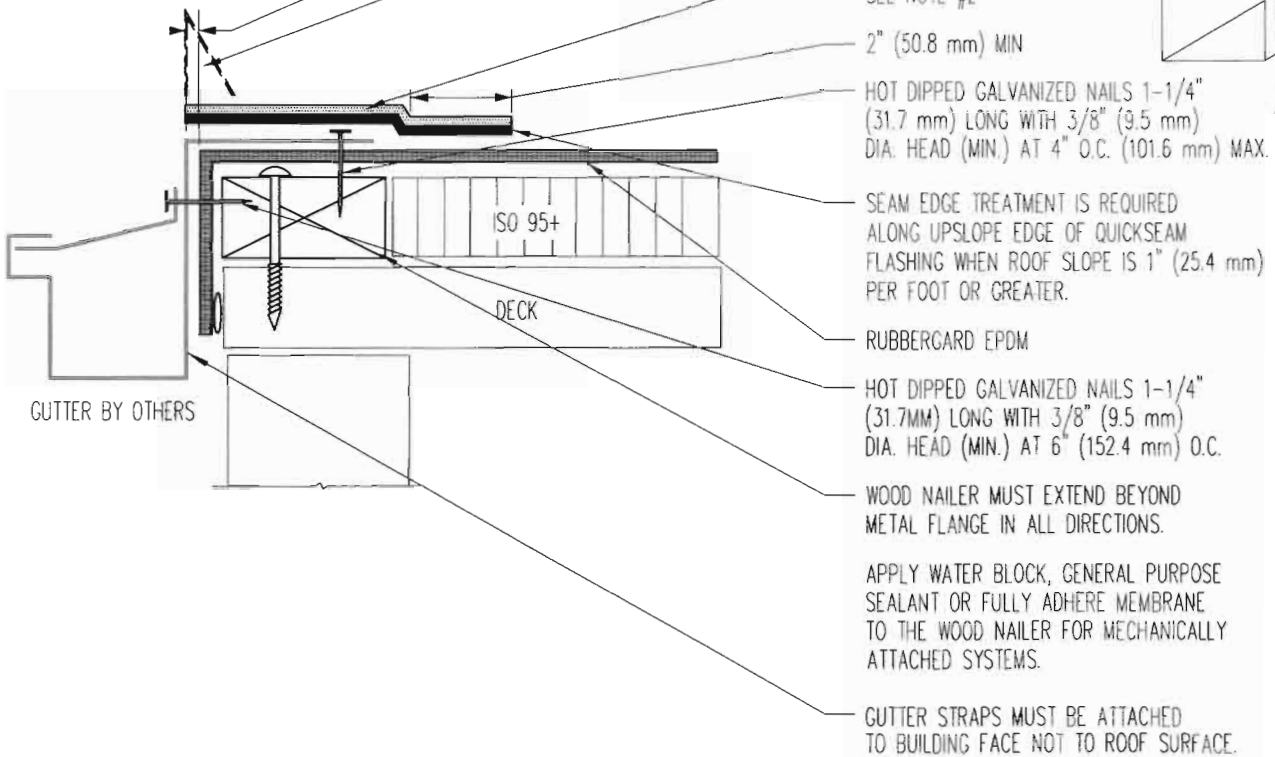
APPLY WATER BLOCK, GENERAL PURPOSE SEALANT OR FULLY ADHERE MEMBRANE TO THE WOOD NAILER FOR MECHANICALLY ATTACHED SYSTEMS.

NOTES:

1. IF THE ROOF EDGE INCLUDES A GRAVEL STOP, AND SEALANT IS NOT APPLIED BETWEEN THE LAPS IN THE METAL EDGING, AN ADDITIONAL PIECE OF QUICKSEAM FLASHING SHALL BE APPLIED OVER THE METAL LAP AFTER THE INITIAL APPLICATION OF QUICKSEAM FLASHING. LAP EDGE TREATMENT SHALL BE APPLIED AT THE INTERSECTIONS OF THE TWO FLASHING SECTIONS.
2. IF THE METAL EDGE FLANGE IS NOT COMPLETELY COVERED WITH QUICKSEAM FLASHING, THEN ALL JOINTS IN METAL SHALL BE COVERED WITH QUICKSEAM FLASHING – SEE DETAIL RE-8.

Firestone 20 Building Products 03	**RubberGard® EPDM** Standard Roof Edge	**Detail No.** RE–1 **Systems** All

2.B.1



~~1/4" (6.35 mm) TO 1/2" (12.7 mm)~~

~~ON BALLASTED ROOFS, GRAVEL STOP HEIGHT MUST MEET OR EXCEED BALLAST OR PAVER HEIGHT (2" (50.8 mm) MIN.). SEE NOTE #1~~

QUICKSEAM FLASHING
SEE NOTE #2

2" (50.8 mm) MIN

HOT DIPPED GALVANIZED NAILS 1-1/4" (31.7 mm) LONG WITH 3/8" (9.5 mm) DIA. HEAD (MIN.) AT 4" O.C. (101.6 mm) MAX.

SEAM EDGE TREATMENT IS REQUIRED ALONG UPSLOPE EDGE OF QUICKSEAM FLASHING WHEN ROOF SLOPE IS 1" (25.4 mm) PER FOOT OR GREATER.

RUBBERGARD EPDM

HOT DIPPED GALVANIZED NAILS 1-1/4" (31.7MM) LONG WITH 3/8" (9.5 mm) DIA. HEAD (MIN.) AT 6" (152.4 mm) O.C.

WOOD NAILER MUST EXTEND BEYOND METAL FLANGE IN ALL DIRECTIONS.

APPLY WATER BLOCK, GENERAL PURPOSE SEALANT OR FULLY ADHERE MEMBRANE TO THE WOOD NAILER FOR MECHANICALLY ATTACHED SYSTEMS.

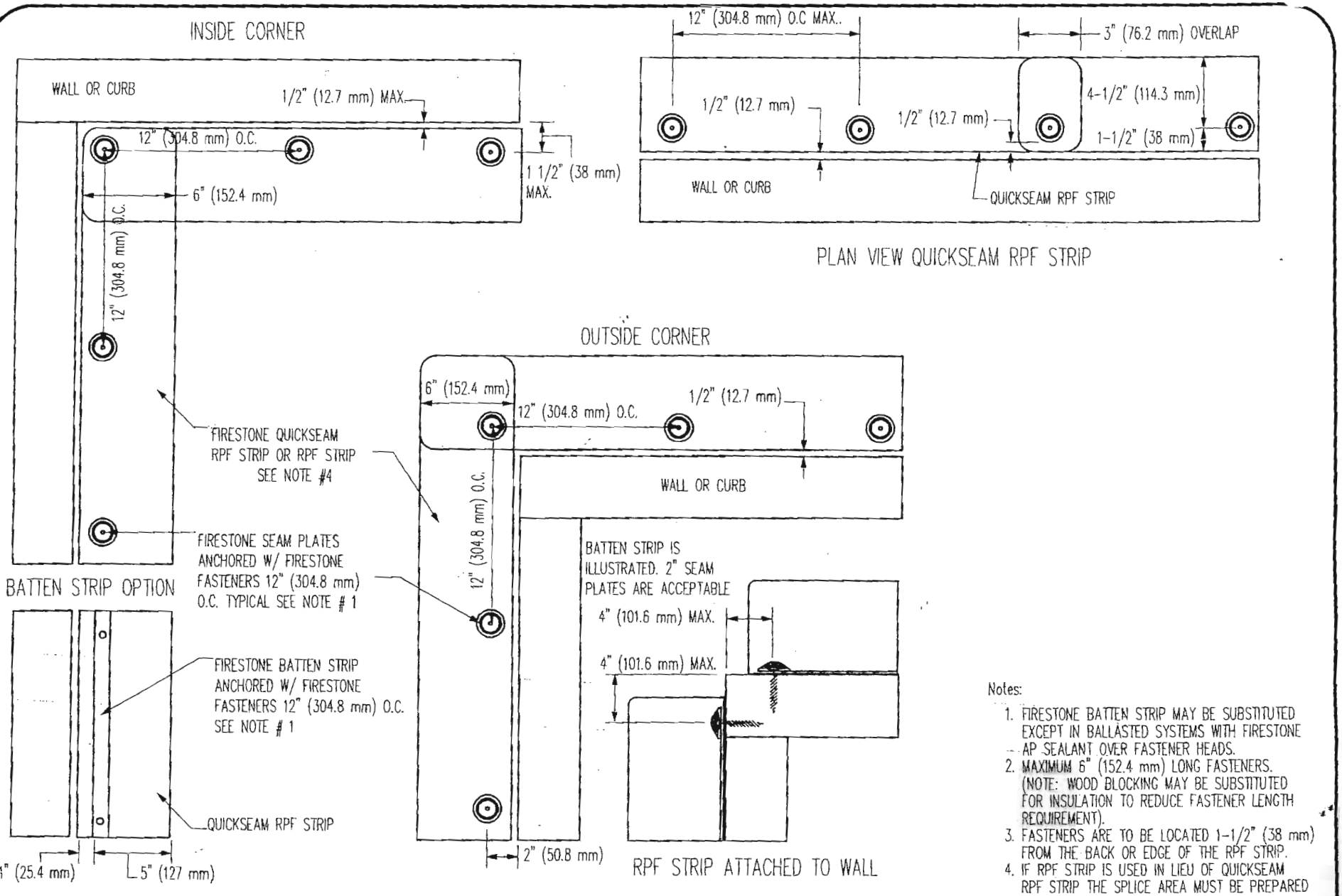
GUTTER STRAPS MUST BE ATTACHED TO BUILDING FACE NOT TO ROOF SURFACE.

NOTES:

1. IF THE ROOF EDGE INCLUDES A GRAVEL STOP, AND SEALANT IS NOT APPLIED BETWEEN THE LAPS IN THE METAL EDGING, AN ADDITIONAL PIECE OF QUICKSEAM FLASHING SHALL BE APPLIED OVER THE METAL LAP AFTER THE INITIAL APPLICATION OF QUICKSEAM FLASHING. LAP EDGE TREATMENT SHALL BE APPLIED AT THE INTERSECTIONS OF THE TWO FLASHING SECTIONS.
2. IF THE METAL EDGE FLANGE IS NOT COMPLETELY COVERED WITH QUICKSEAM FLASHING, THEN ALL JOINTS IN METAL SHALL BE COVERED WITH QUICKSEAM FLASHING - SEE DETAIL RE-9.

Firestone 20 Building Products 03	**RubberGard® EPDM** Roof Edge Gutter	**Detail No.** RE-2 **Systems** All

2.B.2



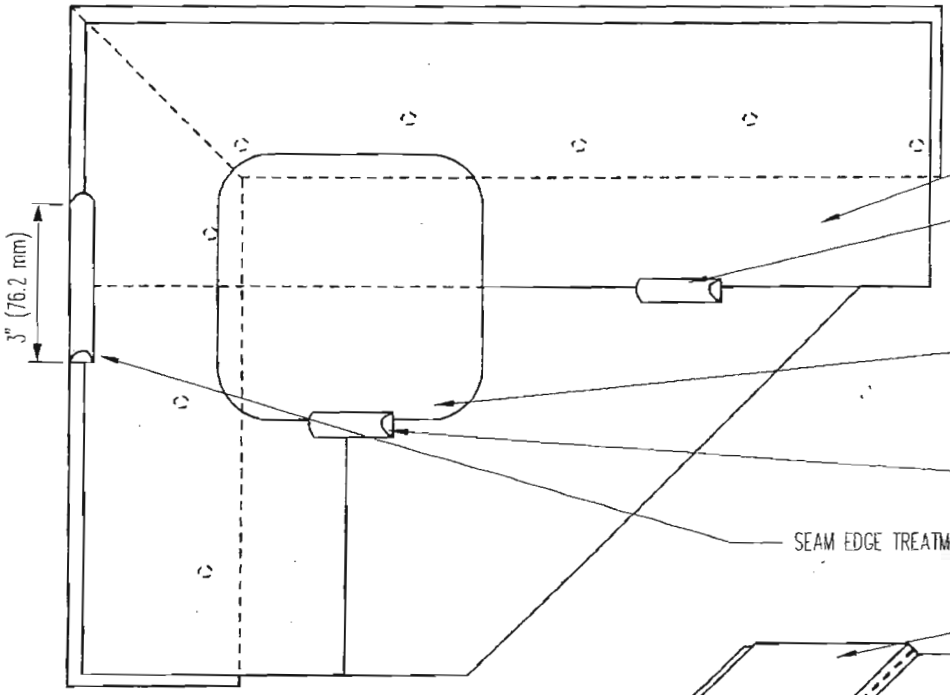
Notes:

1. FIRESTONE BATTEN STRIP MAY BE SUBSTITUTED EXCEPT IN BALLASTED SYSTEMS WITH FIRESTONE AP SEALANT OVER FASTENER HEADS.
2. MAXIMUM 6" (152.4 mm) LONG FASTENERS. (NOTE: WOOD BLOCKING MAY BE SUBSTITUTED FOR INSULATION TO REDUCE FASTENER LENGTH REQUIREMENT).
3. FASTENERS ARE TO BE LOCATED 1-1/2" (38 mm) FROM THE BACK OR EDGE OF THE RPF STRIP.
4. IF RPF STRIP IS USED IN LIEU OF QUICKSEAM RPF STRIP THE SPLICE AREA MUST BE PREPARED WITH SPLICE WASH AND SPLICE ADHESIVE.

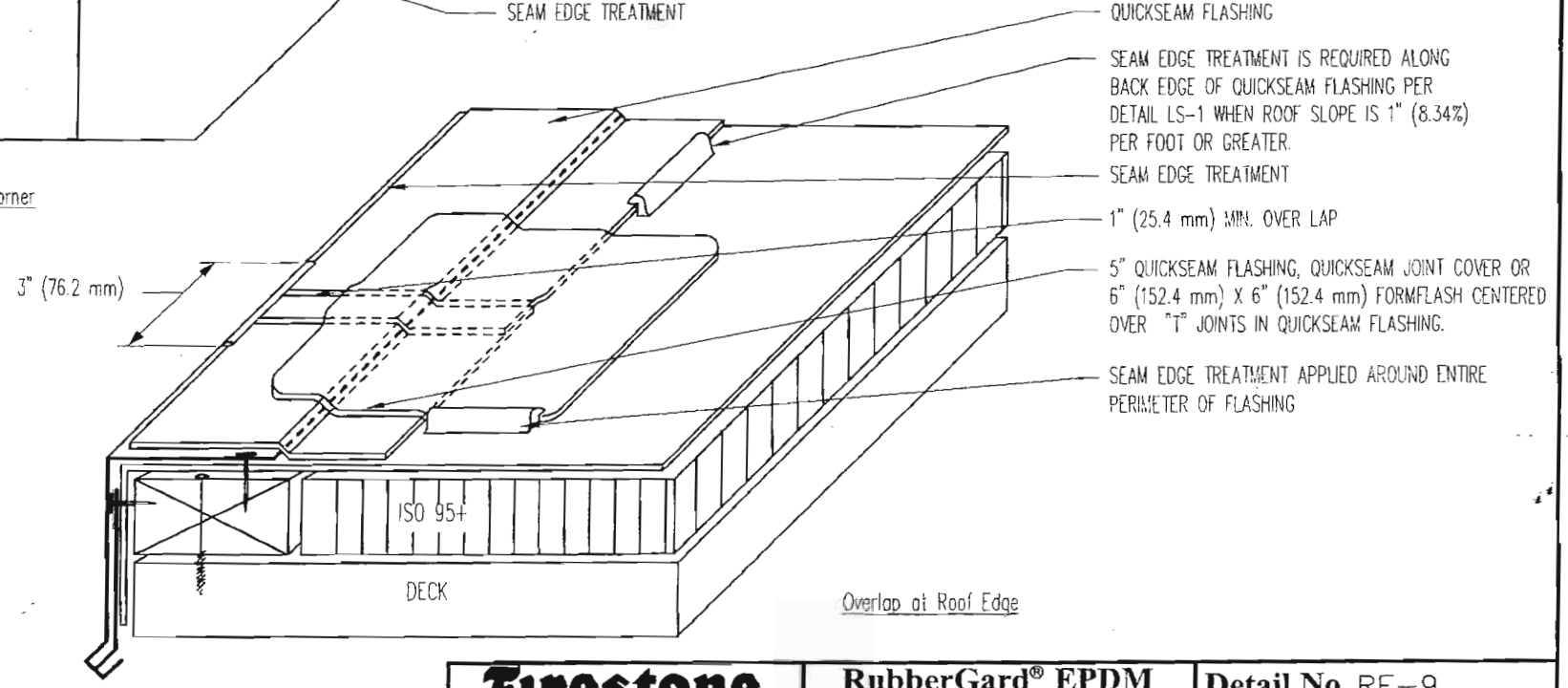
*TAPE PORTION OF QUICKSEAM RPF STRIP NOT SHOWN FOR CLARITY.

Firestone 20 Building Products 03	**RubberGard® EPDM** Plan View of QuickSeam RPF Strip	**Detail No.** BT–5 **Systems** All

2.C



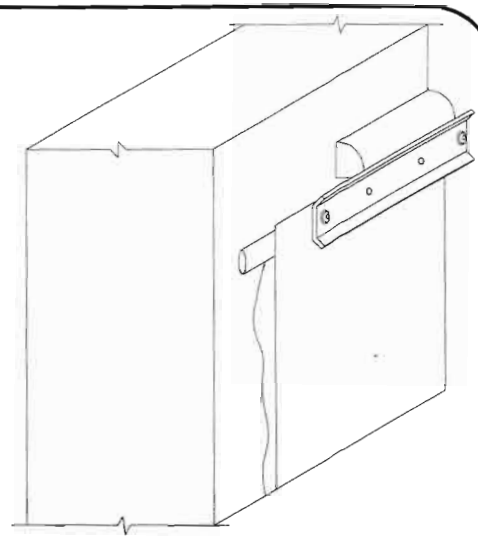
Roof Edge Corner

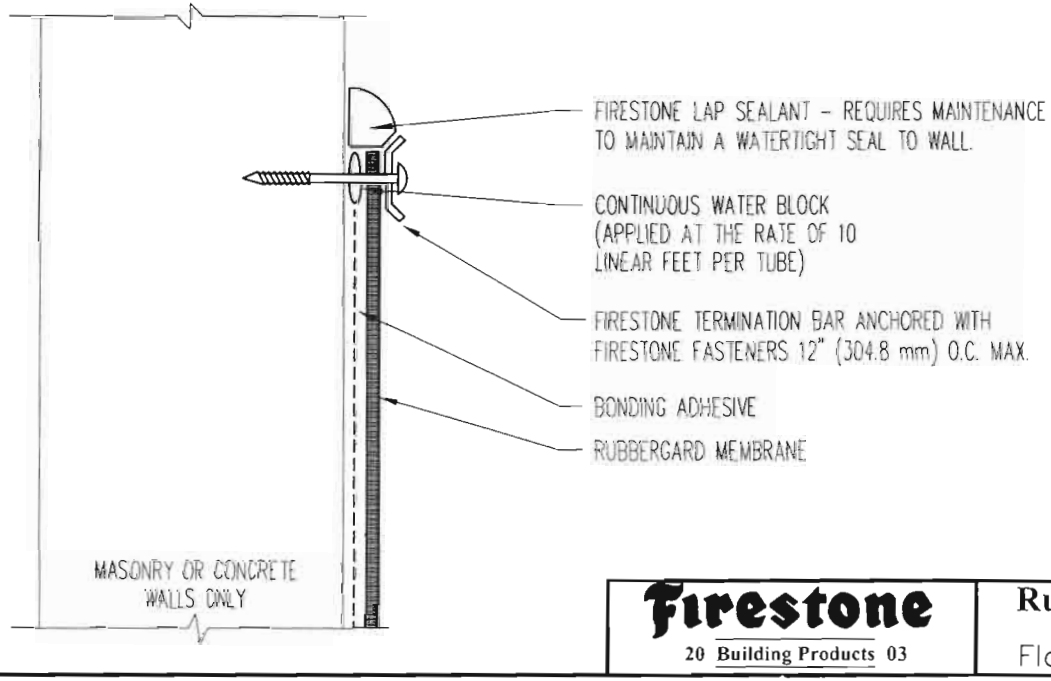


Overlap at Roof Edge

Firestone 20 Building Products 03	**RubberGard® EPDM** Roof Edge with QuickSeam Flashing	**Detail No.** RE-9 **Systems** All

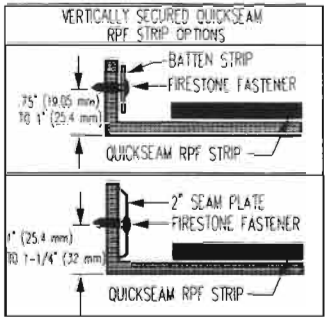
MASONRY AND CONCRETE WALLS MUST BE WATERPROOFED AND MAINTAINED IN ORDER FOR ANY SURFACE MOUNTED TERMINATION TO BE EFFECTIVE.

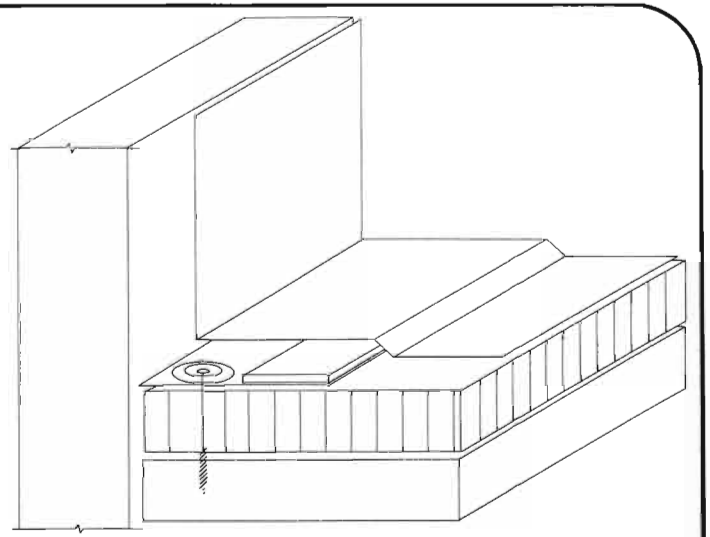


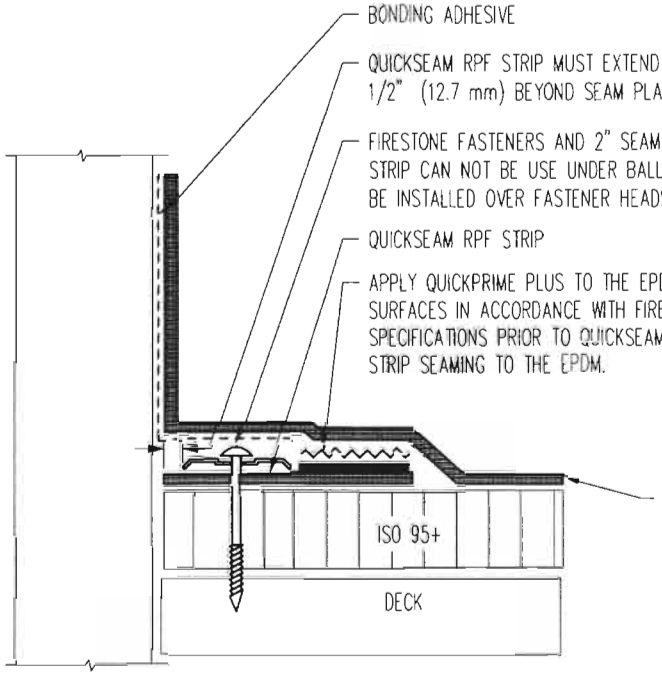


NOTES

1. KEEP EACH LENGTH OF TERMINATION BAR SEPARATED FROM ADJOINING BAR BY 1/4" (6.35 mm).
2. TERMINATION BAR MUST BE INSTALLED DIRECTLY TO WALL SURFACE, NOT TO EXISTING SHEET METAL, FLASHING ETC.
3. INSTALL TERMINATION BAR VERTICALLY WHERE BASE FLASHING ENDS AND APPLY LAP SEALANT TO ALL SIDES OF THE BAR.
4. DO NOT INSTALL TERMINATION BAR TO WOOD SUBSTRATES.
5. AT INSIDE AND OUTSIDE CORNERS, TERMINATION BAR MUST BE CUT. DO NOT BEND AROUND CORNERS.
6. TERMINATION BAR MUST BE FASTENED 1" (25.4 mm) MAX. IN FROM END OF ALL SECTIONS.
7. REFER TO DETAIL T-6 FOR HIGH WALL FLASHINGS.
8. REFER TO DETAIL T-4 OR T-5 FOR EXPANSION JOINTS.







BONDING ADHESIVE

QUICKSEAM RPF STRIP MUST EXTEND 1/2" (12.7 mm) BEYOND SEAM PLATE

FIRESTONE FASTENERS AND 2" SEAM PLATES OR BATTEN STRIP. FIRESTONE BATTEN STRIP CAN NOT BE USE UNDER BALLASTED SYSTEMS. FIRESTONE AP SEALANT MUST BE INSTALLED OVER FASTENER HEADS WHEN BATTENS ARE USED. SEE NOTES #1,#2 AND#3

QUICKSEAM RPF STRIP

APPLY QUICKPRIME PLUS TO THE EPDM MATING SURFACES IN ACCORDANCE WITH FIRESTONE SPECIFICATIONS PRIOR TO QUICKSEAM RPF STRIP SEAMING TO THE EPDM.

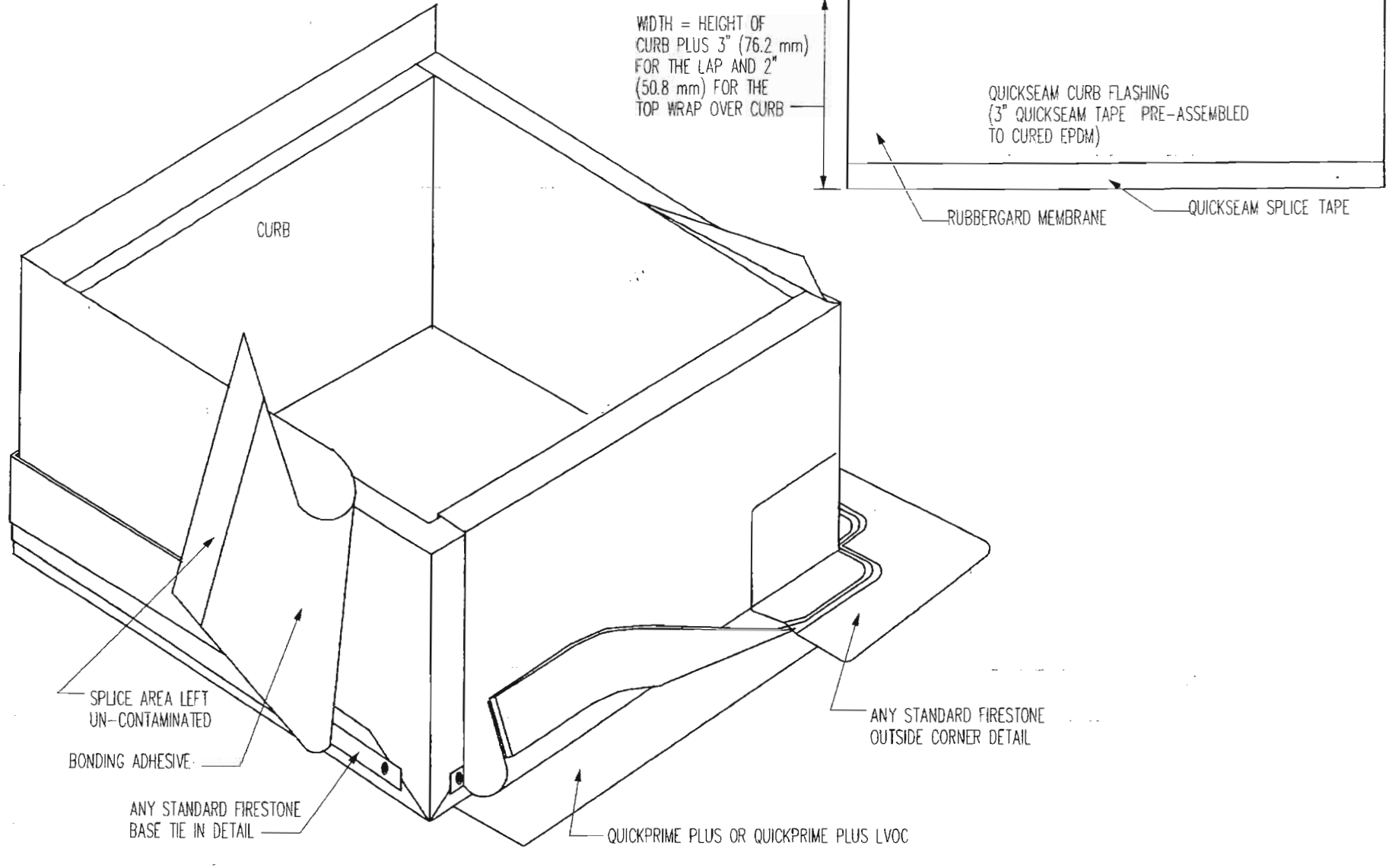
RUBBERGARD MEMBRANE
SEE DETAIL BT-12 FOR JOINT COVER FLASHINGS.
.060 OR .090 MEMBRANE (ADHERED) FOR 20 YEAR SYSTEMS

NOTES:

1. MAXIMUM 6" (152.4 mm) LONG FASTENERS. (NOTE: WOOD BLOCKING MAY BE SUBSTITUTED FOR INSULATION TO REDUCE FASTENER LENGTH REQUIREMENT).
2. FASTENER SPACING FOR BASE TIE IN MUST BE 12" (304.8 mm) O.C. MAX.
3. IN CASE OF OBSTRUCTION REFER TO DETAIL BT-3 OR BT-4.

Firestone 20 Building Products 03	**RubberGard® EPDM** QuickSeam RPF Strip Parapet/Curb Base Tie-In	**Detail No.** BT-1 **Systems** All

2.E

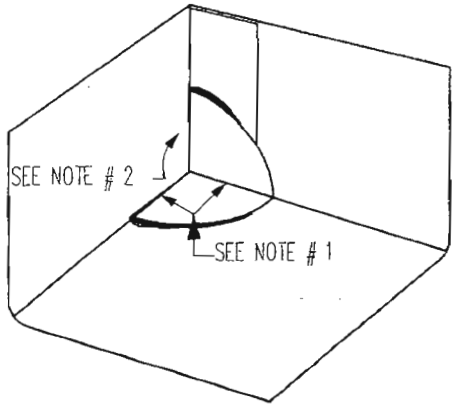


REFER TO INSTALLATION INSTRUCTIONS CONTAINED WITHIN PRODUCT PACKAGE FOR COMPLETE DESCRIPTION OF INSTALLATION PROCEDURE.

Firestone 20 Building Products 03	**RubberGard® EPDM** QuickSeam Curb Flashing	**Detail No.** C-8 **Systems** All

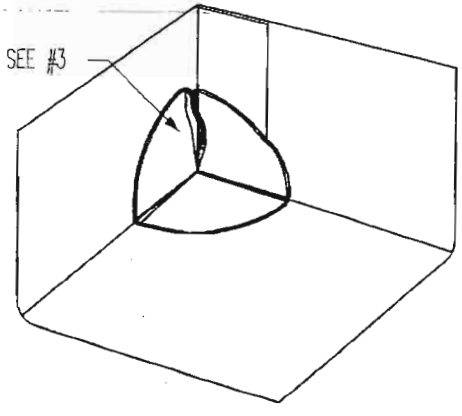
2.7

Step #1



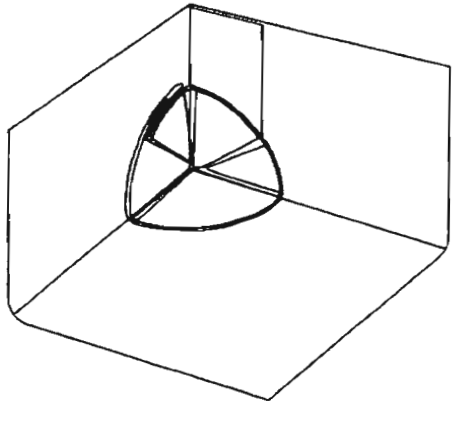
1. APPLY QUICKPRIME TO AN AREA THAT WILL BE FLASHED WITH QUICKSEAM FLASHING, USING QUICKSCRUBBER PAD AND HANDLE.
2. FOLD CORNER FLASHING TIGHTLY INTO THE CORNER.

Step #2



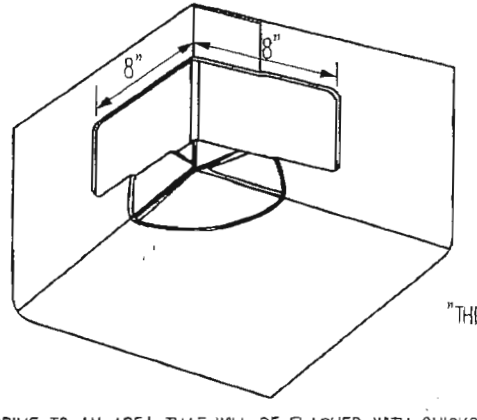
1. REMOVE THE RELEASE PAPER FROM THE OTHER HALF OF THE QUICKSEAM CORNER FLASHING.
2. MOLD THE CORNER FLASHING TIGHTLY INTO THE VERTICAL, FORMING A PIG-EAR AS SHOWN ABOVE
3. APPLY QUICKPRIME TO THE AREA THAT WILL BE COVERED BY THE PIG-EAR, USING THE QUICKSCRUBBER TOOL. KEEP PIG EAR OPPOSITE THE VERTICAL SEAM.

Step #3



1. ALLOW THE QUICKSEAM PRIMER TO DRY BEFORE PROCEEDING.
2. MOLD THE PIG-EAR TIGHT INTO CORNER AND TO THE WALL AS SHOWN ABOVE.

Step #4



"THIS PROCESS IS COVERED BY U.S. PATENT 5,520,761"

1. APPLY QUICKPRIME TO AN AREA THAT WILL BE FLASHED WITH QUICKSEAM FLASHING, USING QUICKSCRUBBER PAD AND HANDLE.
2. CUT A SECTION OF QUICKSEAM FLASHING 16" LONG.
3. REMOVE THE RELEASE PAPER, AND CENTER THE FLASHING OVER THE TOP EDGE OF THE QUICKSEAM FLASHING CORNER. THE QUICKSEAM FLASHING WILL EXTEND 2-1/2" (69 mm) BEYOND THE QUICKSEAM FLASHING CORNER.

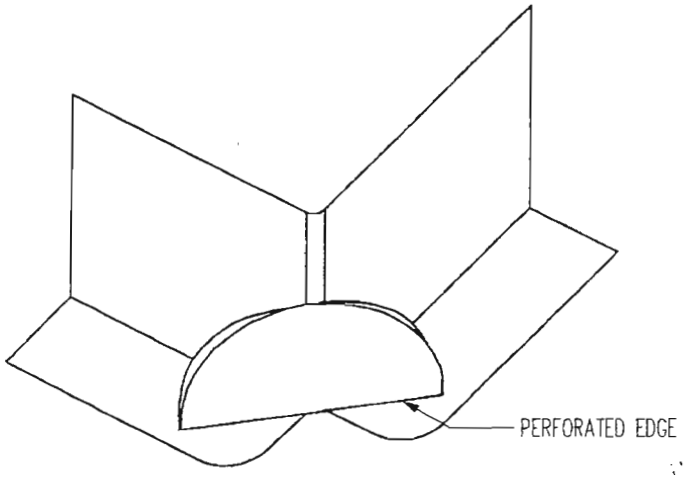
NOTE:

1. APPLY CONTINUOUS SEAM EDGE TREATMENT AROUND THE QUICKSEAM CORNER, QUICKSEAM FLASHING, AND TO THE SEAM EDGE OF THE MEMBRANE. REFER TO DETAIL LS-1.
2. DURING COOL WEATHER CONDITIONS (60° F (16C) OR BELOW) USE A HEAT GUN TO ASSIST FORMING OF THE QUICKSEAM CORNER FLASHING.

Firestone 20 Building Products 03	**RubberGard® EPDM** Inside Corner using QuickSeam Cover Flashing	**Detail No.** C-4 **Systems** All

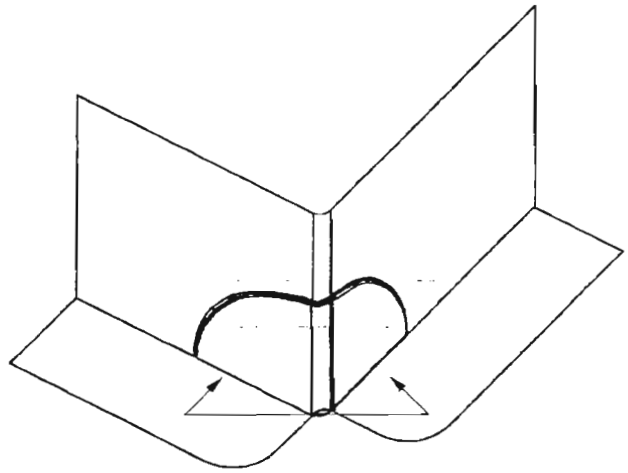
2.9

Step #1



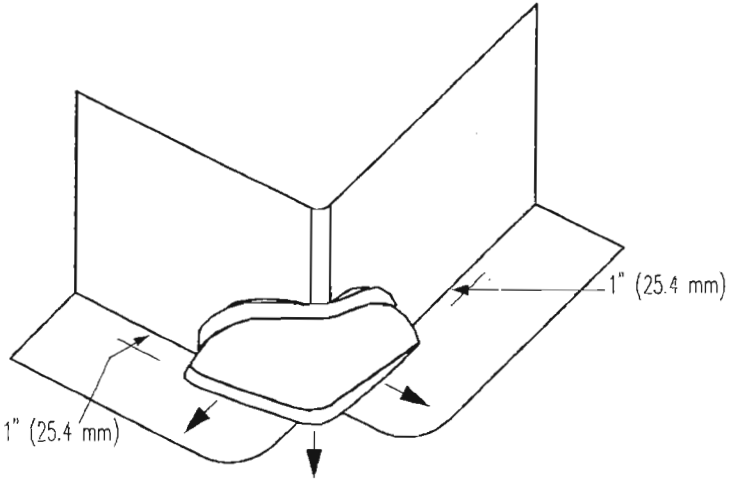
1. APPLY QUICKPRIME TO THE FLASHING AREA.
2. FOLD THE QUICKSEAM CORNER FLASHING IN HALF SO THAT THE PERFORATED EDGE IS ON THE BOTTOM.
3. REMOVE THE SMALLER HALF OF THE RELEASE PAPER FROM THE OUTSIDE CORNER AND PLACE AGAINST VERTICAL FLASHING AS SHOWN.
4. PLACE THE RELEASE PAPER BETWEEN THE FOLDED FLASHING TO KEEP FLASHING FROM STICKING. THIS WILL AID IN STEPS 3 AND 4.

Step #2



1. STARTING FROM THE VERTICAL CENTER, MOLD EACH SIDE OF THE QUICKSEAM CORNER FLASHING AROUND THE CORNER.

Step #3

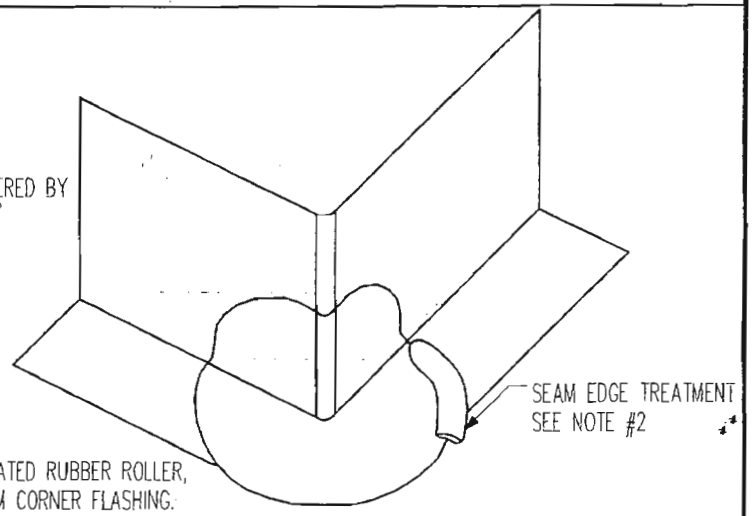


1. REMOVE THE RELEASE PAPER FROM THE QUICKSEAM CORNER FLASHING.
2. PLACE YOUR HANDS ON THE FLASHING, PUSHING DOWN UNTIL THE FLASHING EXTENDS 1" (25.4 mm) ONTO ROOF SURFACE, AND TIGHTLY INTO THE 90° BREAK

DURING COOL WEATHER CONDITIONS (60° F (16C) OR BELOW) USE A HEAT GUN TO ASSIST FORMING OF THE QUICKSEAM CORNER FLASHING.

Step #4

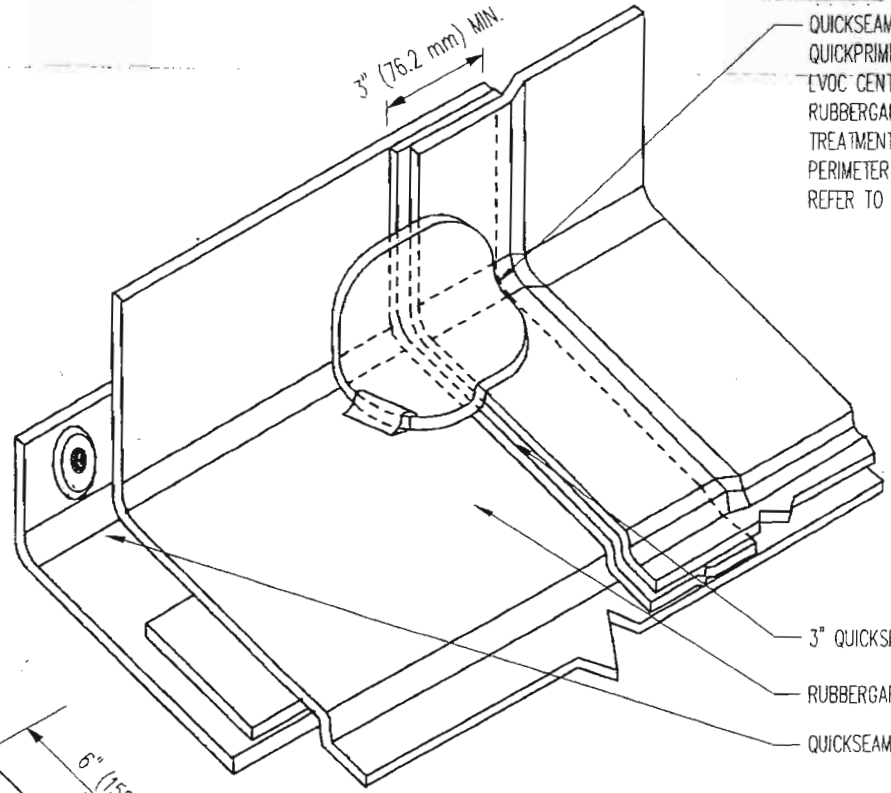
"THIS PROCESS IS COVERED BY U.S. PATENT 5,520,761"

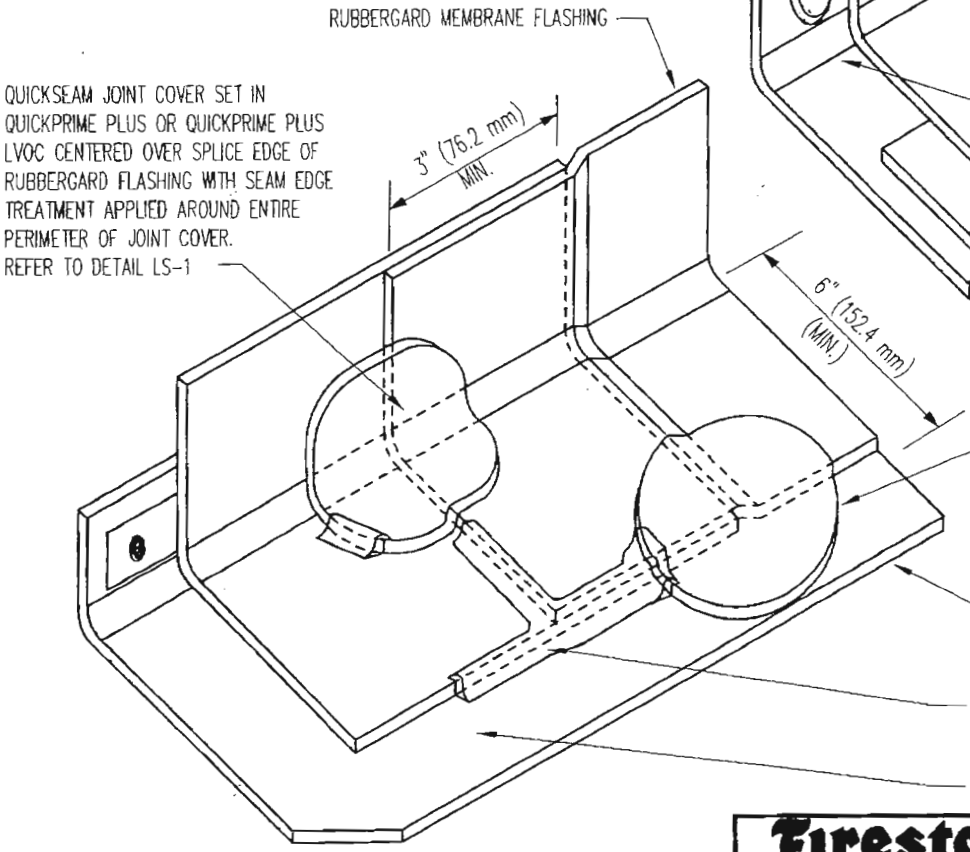


1. WITH A SILICONE COATED RUBBER ROLLER, ROLL THE QUICKSEAM CORNER FLASHING.
2. APPLY CONTINUOUS SEAM EDGE TREATMENT AROUND THE QUICKSEAM CORNER FLASHING AND EXTEND IT 3" (76.2 mm) BEYOND THE EDGE OF THE FLASHING. REFER TO DETAIL LS-1 .

Firestone 20 Building Products 03	**RubberGard® EPDM** Outside Corner Flashing QuickSeam Corner Flashing	**Detail No.** C–1 **Systems** All

2.4



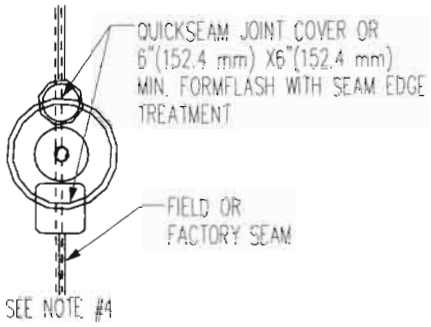


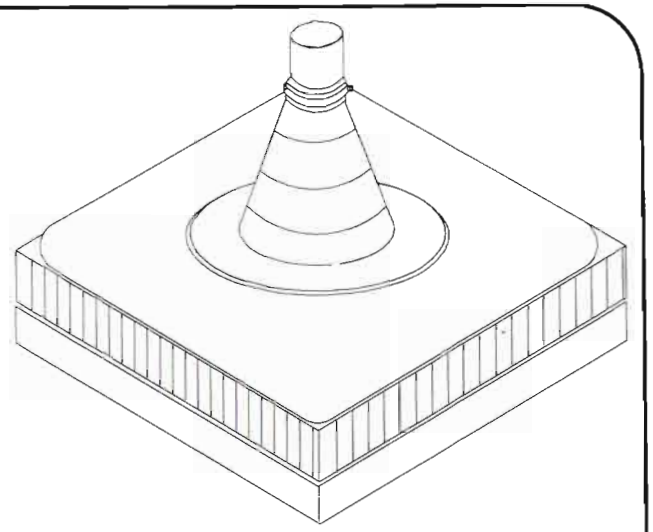
NOTE:

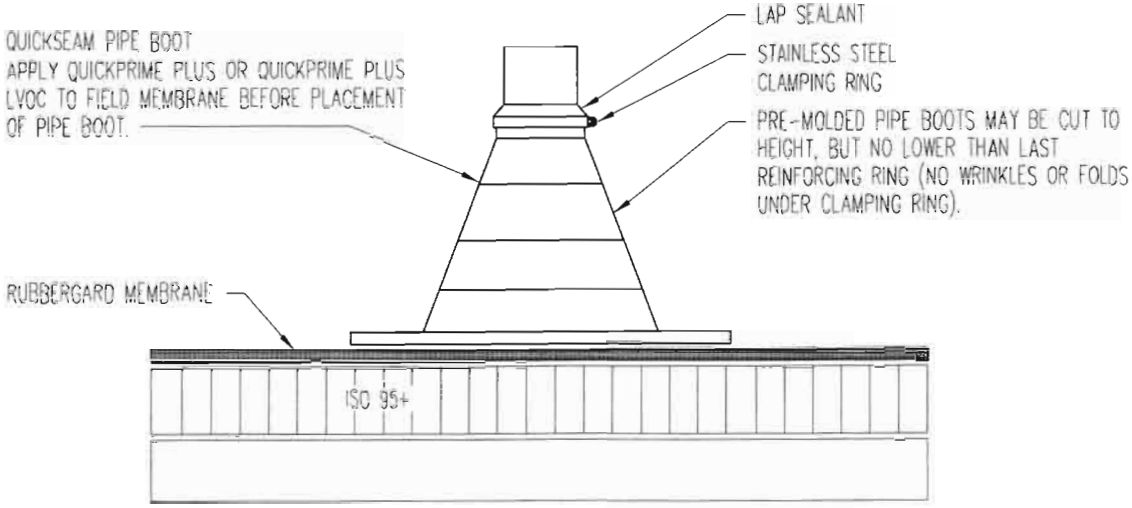
1. REFER TO FIRESTONE ACCEPTED BASE-TIE-IN, TERMINATION, AND SPLICE DETAILS.
2. JOINT COVERS MAY ALSO BE FABRICATED WITH QUICKSEAM FLASHING OR FORMFLASH PROVIDED THE COVER EXTENDS THREE INCHES FROM THE "T" JOINT IN ALL DIRECTIONS.
3. REGARDLESS OF JOINT COVER MATERIAL, THE ENTIRE PERIMETER OF THE COVER MUST HAVE EDGE TREATMENT APPLIED.
4. WHEN USING QUICKSEAM FLASHING OR QUICKSEAM JOINT COVERS THE SPLICE AREA OF THE EPDM MUST FIRST BE PREPARED WITH QUICKPRIME PLUS OR QUICKPRIME PLUS LVOC.

Firestone 20 Building Products 03	**RubberGard® EPDM** QuickSeam Joint Cover Overlap Joint	**Detail No.** BT-12 **Systems** All

2.1





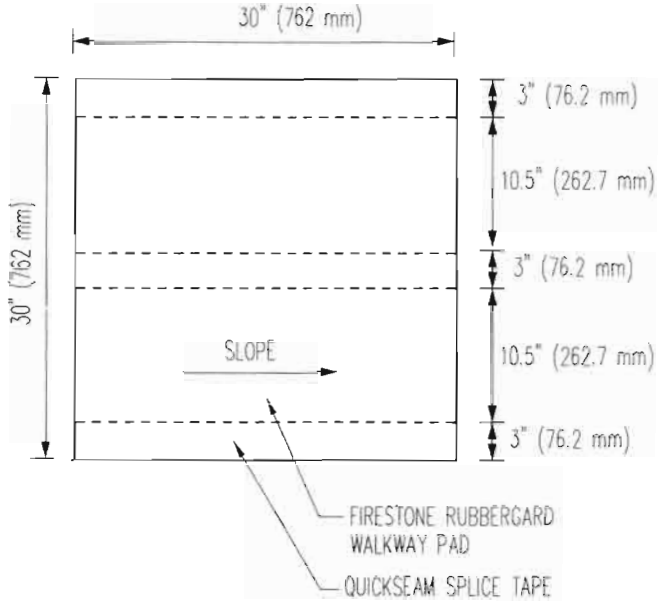


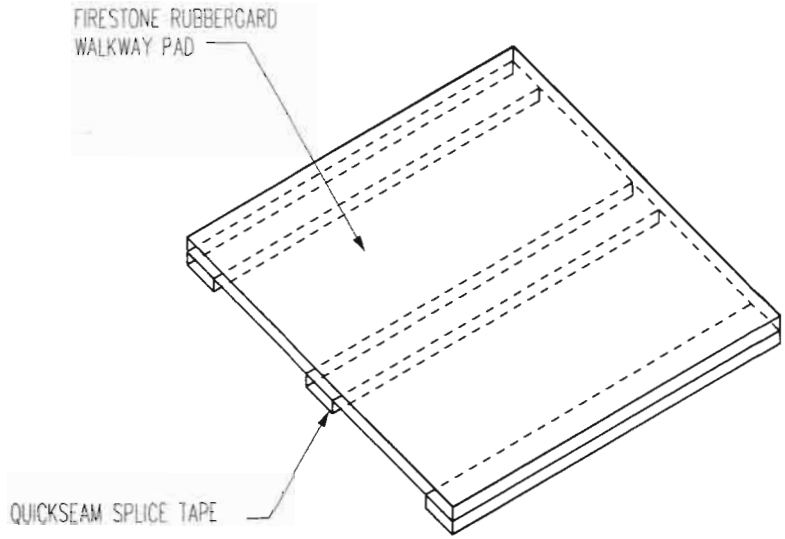
PRE-MOLDED PIPE BOOTS WITHOUT QUICKSEAM TAPE ARE AVAILABLE AND ACCEPTABLE FOR USE WITH SPLICE WASH, SA-1065 AND SEAM EDGE TREATMENT

NOTES:

1. REMOVE ALL EXISTING FLASHINGS, LEAD, ETC. PIPE SURFACE MUST BE FREE OF ALL RUST, GREASE, ETC.
2. PIPE MUST BE AN ANCHORED TO BOTTOM SIDE OF DECK TO ASSURE STABILITY.
3. PIPE BATTEN LAYOUT REQUIRED WHEN THIS DETAIL IS USED ON MECHANICALLY ATTACHED SYSTEMS. REFER TO DETAILS P-11, P-12 OR P-13.
4. IF THE FLANGE OF THE PIPE BOOT OVERLAPS A FIELD OR FACTORY SEAM, A "T" JOINT PATCH OR 6" (152.4 mm) X 6" (152.4 mm) MIN. PIECE OF FORMFLASH, CENTERED OVER THE INTERSECTION, IS REQUIRED.

Firestone 20 Building Products 03	**RubberGard® EPDM** QuickSeam Pre-Molded Pipe Boot	**Detail No.** P-1 **Systems** All





NOTE:

1. REFER TO FIRESTONE SPECIFICATIONS FOR ROOF WALKWAY ATTACHMENT REQUIREMENTS.

Firestone 20 Building Products 03	**RubberGard® EPDM** Walkway Pads	**Detail No.** M–1 **Systems** All

2.K

TECHNICAL INFORMATION SHEET

Firestone BUILDING PRODUCTS

RubberGard™ MAX PT

DESCRIPTION:

RubberGard™ MAX PT is a polyester reinforced EPDM membrane panel with 3" (76 mm) or 6" (152 mm) wide QuickSeam™ tape factory laminated continuously along one 100' (30.478 m) length of the panel. The pre-applied tape extends slightly beyond the edge of the MAX PT membrane, forming a selvage edge.

METHOD OF APPLICATION:

1. Prepare the substrate to receive the mechanically attached system per current Firestone Building Products specifications.
2. Unroll and position the RubberGard MAX PT membrane so field seams form in shingle fashion, not "bucking" water, with finished lap edges facing down-slope. Remove and discard spacers included in each panel of RubberGard MAX PT. Allow RubberGard MAX PT membrane to relax. The bottom RubberGard MAX PT panel must be attached along the leading edge prior to seaming. Lap the top panel (tape side) over the lower panel and align to lap marks.
3. Fold back the top panel back exposing the bottom surface of the field seam that has been anchored. Prime the MAX membrane field seam area to receive tape with QuickPrime™ Plus or QuickPrime Plus LVOC primer utilizing QuickScrubber™ or QuickScrubber Plus pad as required by Firestone's application specifications, ensuring that the area to receive tape is completely and thoroughly primed. Use the touch-push test to determine primer readiness.
4. When primer is ready to receive tape, position the top portion of the field seam with pre-applied tape and release liner in place over the primed area. Remove the release liner from the pre-applied tape, pulling the liner at about the same level as the seam so all seam elements mate evenly. Roll the freshly mated field seam using a 1-1/2" wide silicone hand roller to promote and ensure proper adhesion.
5. Field seams along the panel widths, and cut/trimmed membrane edges, shall be completed per current specifications and details using QuickSeam tape. Cut edges shall receive Firestone Seam Edge Treatment per current specifications and details.

PACKAGING:

RubberGard MAX PT is packaged one roll per core. The protective shroud on each roll is labeled to indicate the direction that the panel should be unrolled.

CRRC CHARTER MEMBER

This sheet is meant to highlight Firestone's products and specifications and is subject to change without notice. Firestone takes responsibility for furnishing quality materials, which meet Firestone's published product specifications. Neither Firestone nor its representatives practice architecture. Firestone offers no opinion on and expressly disclaims any responsibility for the soundness of any structure. Firestone accepts no liability for structural failure or resultant damages. Consult a competent structural engineer prior to installation if the structural soundness or structural ability to properly support a planned installation is in question. No Firestone representative is authorized to vary this disclaimer.

PROPERTY DATA:

QuickSeam Tape:

Property	Minimum Performance
Base:	Rubber Polymers
Color:	Black
Solvents:	None
Percent Solids:	100%
Cure State:	Cured
Thickness:	0.035" ± 0.008" (0.89 mm ± 0.20 mm)
Width:	3.00" - 0"/+ 0.125" (76 mm -0/+ 1.6 mm) 6.00" - 0"/+ 0.125" (152 mm - 0/+ 3.2 mm)

RubberGard MAX EPDM:

Property	Minimum Performance
Base:	EPDM
Color:	Dark Gray
Solvents:	None
Thickness:	0.045" (1.1 mm); 0.060" (1.5 mm); 0.075" (1.9 mm)
Width:	7'-6" (2.28 m); 10' (3.04 m)
Length:	100' (30.4 m)

STORAGE:

1. Store away from sources of punctures and physical damage.
2. Assure that structural decking will support the loads incurred by material when stored on rooftop. The deck load limitations should be specified by the project designer.
3. Store away from ignition sources as membrane will burn when exposed to open flame.
4. MAX PT membrane should be installed within one year after production. Store in original unopened packaging indoors at 60 °F to 80 °F (15.6 °C to 26.7 °C). Protect the tape portion from physical damage, and the MAX PT membrane from puncture sources.

PRECAUTIONS:

1. Take care when moving, transporting, handling, etc. to avoid sources of punctures and physical damage.
2. Isolate waste products, such as petroleum products, greases, oils (mineral and vegetable) and animal fats from the RubberGard membrane. Contact your Firestone Technical Coordinator at 1-800-428-4511 for specific recommendations.
3. Refer to Material Safety Data Sheets (MSDS) for safety information.

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Locations:	Kingstree, SC

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MIAMI-DADE COUNTY APPROVED

Firestone Building Products Company, LLC
250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

Firestone
BUILDING PRODUCTS

RubberGard™ MAX EPDM Membrane

DESCRIPTION:

Firestone RubberGard™ MAX EPDM is an internally reinforced cured single-ply roofing membrane that features a 9 x 9, 1,000 denier polyester weft inserted reinforcing scrim. It is available in .045" (1.1 mm), .060" (1.5 mm) and .075" (1.9 mm) thicknesses.

PREPARATION OF SUBSTRATES:

1. Substrates must be clean, dry smooth, and free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials that may damage the membrane.
2. All roughened surfaces that could damage the membrane shall be repaired as specified to offer a smooth substrate.
3. All surface voids greater than 1/4" (6.3 mm) wide shall be properly filled with an acceptable fill material.

METHOD OF APPLICATION:

RubberGard MAX Reinforced EPDM Membrane must be installed in accordance with current RubberGard specifications, details and workmanship requirements. It can be used in ballasted, fully adhered and mechanically attached systems.

CRRC
COOL ROOF RATING COUNCIL
CHARTER MEMBER

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PANEL SIZES:

Thickness	Widths	Lengths*	Weight
0.045" (1.1 mm)	7.5 ft (2.3 m) 10 ft (3 m)	100 ft (30.5 m) 100 ft (30.5 m)	0.32 lb/sf (1.5 kg/m^2)
0.060" (1.5 mm)	7.5 ft (2.3 m) 10 ft (3 m)	100 ft (30.5 m) 100 ft (30.5 m)	0.42 lb/sf (2.0 kg/m^2)
0.075" (1.9 mm)	7.5 ft (2.3 m) 10 ft (3 m)	100 ft (30.5 m) 100 ft (30.5 m)	0.52 lb/sf (2.4 kg/m^2)

* Available sizes vary by product. Contact your Firestone Customer Service Representative for availability and packaging information.

STORAGE:

1. Store away from sources of punctures, and physical damage.
2. Assure that structural decking will support the loads incurred by material when stored on rooftop. The deck load limitations should be specified by the project designer.
3. Store away from ignition sources as membrane will burn when exposed to open flame.

PRECAUTIONS:

1. Take care when moving, transporting, handling, etc. to avoid sources of punctures and physical damage.
2. Isolate waste products, such as petroleum products, greases, oils (mineral and vegetable) and animal fats from the RubberGard membrane. Contact your Firestone Technical Coordinator at 1-800-428-4511 for specific recommendations.
3. Refer to Material Safety Data Sheets (MSDS) for safety information.

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Locations:	Prescott, AR

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Firestone Building Products Company, LLC
250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

RubberGard™ MAX EPDM Membrane

Firestone BUILDING PRODUCTS

PHYSICAL PROPERTIES

Property	Test Method	ASTM Performance Minimum	Typical Values 45 mil	Typical Values 60 mil	Typical Values 75 mil
Thickness, min Sheet-overall	ASTM D 751	0.0405 in (1.028 mm) 0.054 in (1.372 mm)	0.043 in (1.092 mm)	0.059 in (1.499 mm)	0.074in (1.88 mm)
Coating over scrim or fabric	ASTM D 751	0.015 in (0.381 mm)	0.015 in (0.381 mm)	0.022 in (0.599 mm)	0.029 in (0.74 mm)
Breaking strength, min	ASTM D 751 (Grab Method)	90 lbf (400 N)	217 lbf (965 N)	232 lbf (1032 N)	325 lbf (1445 N)
Elongation, ultimate, min	ASTM D 412 (Die C)	250%[A]	475%[A]	475%[A]	475%[A]
Tearing strength, min	ASTM D 751 (Tongue Tear)	10 lbf (45 N)	60 lbf (267 N)	81 lbf (360 N)	88 lbf (391 N)
Brittleness point, max	ASTM D 2137	-65 °F (-54 °C	-65 °F (-54 °C	-65 °F (-54 °C	-65 °F (-54 °C)
Ozone resistance, no cracks	ASTM D 1149	Pass	Pass	Pass	Pass
Heat Aging:	ASTM D 573				
Breaking strength, min	ASTM D 751 (Grab Method)	80 lbf (356 N)	248 lbf (1103 N)	265 lbf (1179 N)	410 lbf (1824 N)
Elongation, ultimate, min	ASTM D 412 (Die C)	200%[A]	300%[A]	300%[A]	300%[A]
Linear dimensional change, max	ASTM D 1204	±1.0%	-0.7%	-0.43%	-0.43%
Water absorption, max, mass %	ASTM D 471	+8, -2%[A]	+1.8%[A]	2.94%[A]	2.94%[A]
Weather resistance: Visual inspection	ASTM D 518	Pass	Pass	Pass	Pass

[A]Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced products.

RubberGard MAX EPDM membrane meets or exceeds the minimum requirements set forth by ASTM D 4637 for Type II scrim-reinforced EPDM single-ply roofing membranes.

Firestone
BUILDING PRODUCTS

Bonding Adhesive BA-2004 (T)

COVERAGE RATE:

- A coverage rate of 45-60 ft² per gallon (1.10-1.47 m² per liter) may be obtained depending on the substrate. Some insulation surfaces are more uneven and porous and will result in a lower coverage rate while smooth non-porous substrates will result in higher coverage rates. Rates are based on roller application to both mating surfaces.

- Very porous substrates (rough wood, concrete block) may require two coats of Bonding Adhesive, to ensure proper adhesion. This can be determined by testing a small area. Check by adhering a small piece of membrane to the porous substrate to verify the bonding strength.

PHYSICAL PROPERTIES:

Property	Minimum Performance
Base:	A blend of Polychloroprene and SBR rubbers
Color:	Yellow
Solvents:	A blend of Textile Spirits, Toluene and Acetone
Viscosity:	3,300-3,800 cps, with R.V.F. spindle @ 10 rpm
Weight/Gallon:	6.6 - 7.4 lb/gal
Specific Gravity:	0.7909 - 0.8868
V.O.C. Content:	5.282 lb/gal (633 g/L)

PACKAGING:

- Available in 5 gallon (18.9 L) pails
- Each pail weighs about 40 lb (18 kg)
- 45 pails per pallet

SHELF LIFE:

- Shelf life of one year can be expected if stored in original sealed container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C). If exposed to lower temperatures, restore to room temperature prior to use.
- Shelf life will be shortened if exposed to elevated temperatures.

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STORAGE:

- Store in original unopened cartons at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C) until ready for use.
- For optimum results, rotate stock to ensure stored material will not go beyond the shelf life of one year.

PRECAUTIONARY INFORMATION:

- Review applicable Material Safety Data Sheet prior to using.
- Flammable. Keep away from fire and open flame and other possible ignition sources during storage and use. Do not smoke when using.
- Harmful or fatal if swallowed.
- Avoid prolonged inhalation.
- Avoid prolonged contact with skin. Gloves should be worn (OSHA approved).
- Avoid eye contact by wearing safety goggles with side shields.
- Thinning is not allowed.
- Do not use for splicing.
- Do not use with TPO membrane.
- Use only in well ventilated areas.
- Cover tightly when not in use.
- Recommended cleaner is Toluene (while fluid).
- Review Technical Information Sheet 1705, "Recommended Guidelines for Application of Roofing Adhesives to an Occupied Building".

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	South Bend, IN

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250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

Firestone
BUILDING PRODUCTS

EPDM Bonding Adhesive BA-2004 (T)

Firestone Item Number: W563587052

DESCRIPTION:
Firestone Bonding Adhesive BA-2004 (T) is a solvent based contact adhesive designed specifically for bonding Firestone RubberGard™ membranes and flashings to approved substrates such as insulations, wood, metal, masonry and other acceptable substrates.

METHOD OF APPLICATION:
1. Surfaces to receive Firestone Bonding Adhesive BA-2004 (T) must be clean, smooth, dry, and free of sharp edges, loose and foreign materials, oil, grease, and other contaminants.
2. Stir the adhesive thoroughly to achieve a uniform mix with no sediment on the bottom and no marbling evident before and during use.
3. Apply Bonding Adhesive at about the same time to both the exposed underside of the sheet and the substrate to which it will be adhered so as to allow approximately the same drying time. Apply Bonding Adhesive evenly avoiding areas of accumulation.
4. Apply the Bonding Adhesive with a solvent resistant paint roller, and roll the adhesive onto the mating surfaces. When applying Bonding Adhesive, ensure complete uniform coverage of both surfaces that will be adhered. **Care must be taken not to apply Bonding Adhesive over seam areas.**
5. Bonding Adhesive BA-2004 (T) can be dispensed by means of Garlock Power Roller or Garlock Spray Equipment. Other equipment may be used as recommended by the manufacturer for application of this adhesive.
   Note: Spray applied bonding adhesive requires back rolling with 9" (228.6 mm) wide solvent resistant roller (medium nap) to insure 100% coverage of the adhesive on the substrate and membrane.
6. Allow Bonding Adhesive to flash off until tacky. Touch down on the Bonding Adhesive surface with a clean, dry finger to be certain that the adhesive does not string. As you are touching the adhesive, pushing straight down to check for stringing, also push forward on the adhesive at an angle to ensure that the adhesive solvents have flashed off and are ready throughout its thickness. If either motion exposes wet areas or sticking when the finger is lifted, then it is not ready for mating. Flash off time will vary depending on ambient conditions.
7. Starting at the fold, roll the previously coated portion of the sheet into the coated substrate slowly and evenly so as to minimize wrinkles.
8. To ensure proper contact, compress the bonded half of the sheet to the substrate with a stiff push broom using heavy pressure immediately after mating.

APPROVED POWER EQUIPMENT:

Garlock 25ST Roller Boss Power Roller
4 hp Honda Engine
4 CFM Compressor
25 gal pressurized supply tank (20 gal for material; 60-80 psi)
Up to 100 psi rating
2 – ¾" x 30' supply hoses with swivels
2 – 18" roller head assemblies

Garlock 2120 Commander Sprayer
18 hp Kohler Engine
4500 psi Rating
5 Gallon per Minute Flow, 1200 P.S.I. Pressure (minimum)
Pump Displacement 45:1
GPM Rating: up to 5 gpm
½" x 100' hose
2" Intake pipe with screen
5 or 55 gal drum containers
Graco Spray Tips: .023 to .031diameter hose

Garlock 314 Glue Machine
5.5 hp Honda Engine
4000 psi Rating; spray at 2500 to 3000 psi
Pump Displacement 30:1
GPM Rating: up to 1 gpm
1" intake pipe
25' or 50' x ½" hose & flushing agents
Pail shelf for 5 gal pails
Magnetic grounding unit
Reversaclean spray tips, size .035 to .041

Graco Spray Equipment:
P70EC4-70 – 70:1 Xtreme Sprayer Package w/Heavy Duty car, Hopper package, w/NXT motor and Data Track Xtreme-Duty high pressure hose, 3/8" x 50', 7250 psi, with ¼" x 6' whip hose
XTR-7 applicator with XHD821-825 tips.

3.C

TECHNICAL INFORMATION SHEET 807 09/30/2009

Firestone
BUILDING PRODUCTS

Splice Wash SW-100

Firestone Item Number: W563587066

DESCRIPTION:

Splice Wash SW-100 is designed to clean and prepare Firestone single-ply membranes to receive adhesives as specified by Firestone Specifications and Details.

METHOD OF APPLICATION:

1. Apply Splice Wash to the splicing area using a clean, white, natural fiber rag. Use a scrubbing motion until the splicing surface is clean of dirt and debris. Additional attention must be given to factory seams and where other excess accumulations of dusting agent occur.
2. Allow the washed surfaces to dry until the solvent's sheen is gone. This is usually between 10-30 minutes and may vary with ambient weather conditions. Membrane is clean when it is uniform in color without streaks, and any contaminate is gone.

COVERAGE RATE:

200-250 ft²/gallon (4.9 - 6.1 m²/L) on one side

PHYSICAL PROPERTIES:

Property	Minimum Performance
Solvents:	Aliphatic Hydrocarbon Mixture
Viscosity:	Very thin, free flowing
Weight per Gallon:	6.3 lb/gal (0.75 kg/L)(nominal)
Specific Gravity:	0.75 (nominal)
Boiling Point:	247 °F (119.4 °C)
V.O.C. Content:	6.21 lb/gal (745 g/L)

PACKAGING:

5 gallon (18.9 L) pail; about 35 lb (13.6 kg) per pail

SHELF LIFE:

Although there is no shelf life for Splice Wash, it's best to use within one year.

STORAGE:

- Store in original unopened pails indoors at temperatures between 60 °F - 80 °F (16 °C - 27 °C) away from all sources of direct heat and ignition - this is a flammable liquid.
- When exposed to lower temperatures, restore to room temperature prior to use.
- Keep the material out of direct sunlight until ready for immediate use.

PRECAUTIONARY INFORMATION:

- Review Material Safety Data Sheet prior to use.
- Flammable liquid. Store and use away form all sources of direct heat and ignition.
- Cover tightly when not in use.
- Thinning is not allowed.
- Use of solvent-resistant Neoprene gloves is required when applying Splice Wash. Do not allow Splice Wash to come in direct contact with skin.
- Avoid breathing vapors.
- Do not use as a pre-wash for any QuickSeam™ Tape products. Single-Ply QuickPrime™, QuickPrime Plus or QuickPrime Plus LVOC must be used for QuickSeam Tape products.

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	South Bend, IN

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250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
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3.D

TECHNICAL INFORMATION SHEET 804 09/25/2009

Firestone
BUILDING PRODUCTS

Splice Adhesive SA-1065
(For Flashing)

Firestone Item Number:
1 Gallon Pail: W563587058
3 Gallon Pail: W563587059

DESCRIPTION:
Firestone Splice Adhesive (SA-1065) is designed for splicing RubberGard™ membrane flashing, FormFlash™, and the attachment of field membrane panels to Reinforced Perimeter Fastening Strips, and to metal surfaces as specified in the Firestone RubberGard Specifications. It is also used as a primer at seam edges for Lap Sealant application.

METHOD OF APPLICATION:
1. Position the membrane to overlap the distance specified along the entire length of the flashing splice. Fold the top sheet back to allow for cleaning of both surfaces that are to be spliced.
2. Clean the dry mating surfaces using clean cotton cloths with Firestone Splice Wash. Allow to dry. Additional cleaning may be required to assure that the membrane is completely cleaned. *(Caution: More attention should be given to cleaning the areas at factory seams.)* Cotton cloths must be discarded as they become dirty and replaced with clean ones to assure proper cleaning. Proper cleaning has been achieved when the membrane surface is dark gray in color and no streaking is evident. (As an alternative, the seaming area can be cleaned with Single-Ply QuickPrime™, QuickPrime Plus LVOC, or QuickPrime Plus using QuickScrubber™ or QuickScrubber Plus per Firestone Specifications.)
3. Thoroughly stir Firestone Splice Adhesive (SA-1065), to achieve a uniform mix with no sediment on the bottom and no marbling evident before and during use.
4. Apply the Splice Adhesive using Firestone Splice Adhesive Brush (W56 358 2040) 3" (76 mm) or 4" (102 mm) wide by 1/2" (12.7 mm) (minimum) thick solvent-resistant paint brush in a thick, even smooth coat with long painting type strokes such that brush marks bleed out, yielding a smooth, glossy adhesive surface.

DO NOT USE CIRCULAR MOTIONS FOR APPLYING SPLICE ADHESIVE.

DO NOT USE PAINT ROLLERS, SPRAY EQUIPMENT, OR MECHANICAL EQUIPMENT FOR THE APPLICATION OF SPLICE ADHESIVE!

DO NOT APPLY SPLICE ADHESIVE WITH A BRUSH ATTACHED TO A LONG HANDLE.

5. Both mating surfaces should have Splice Adhesive applied at about the same time to allow approximately the same flash-off time. (Make one short backstroke at each field and factory cross seam to leave extra adhesive at the step-off.)
6. Allow the solvents in the Splice Adhesive to flash off. Touch the adhesive surface in the middle of the area to be spliced with a clean, dry finger to be certain that the adhesive does not stick or string. As you are touching the adhesive, pushing straight down to check for stringing, also push forward on the adhesive at an angle to ensure that the adhesive is ready throughout its thickness. If either motion exposes wet or stringy adhesive when the finger is lifted, then it is not ready for mating and the seam should not be closed. Flash-off time will vary depending on ambient air conditions.
7. Once the adhesive has dried per the "touch-push" test, roll the top sheet toward the lap area until the adhesive-coated area nearly touches the adhesive on the bottom sheet along the entire length of the lap. Allow the top sheet to fall freely onto the bottom sheet so as not to stretch or wrinkle the membrane.
8. Apply pressure to completely mate the two surfaces. Roll the entire lap splice using a Firestone QuickSeam™ Silicone Roller 1 6/16" (35 mm) dia. x 1 ¾" (44.5 mm) wide (Item #: W56 358 2023) with positive pressure towards the outside edge of the lap, then along the entire length of the lap, being careful not to damage the flashing.
9. Apply Seam Edge Treatment in accordance with Firestone Specification and Details.

COVERAGE RATES:

Width Of Finished Splice	Approximate Width Of Actual Adhesive Application, One Substrate	Completed Flashing Seam Per Gallon, Both Substrates Included	Completed Flashing Seam Per Liter, Both Substrates Included
3" (76 mm)	4" (102 mm)	150 ft	45.7 m
4" (102 mm)	5" (127 mm)	120 ft	36.5 m

Firestone
BUILDING PRODUCTS

Splice Adhesive SA-1065

PHYSICAL PROPERTIES:

Property	Typical Property
Base:	Synthetic Polymers
Color:	Black
Solvents:	Hexane, Toluene, Xylene
Solids:	26% Minimum
Viscosity:	2900-3700 Centipoise, R.V.F. #3 Spindle @ 10 RPM
Weight:	7.35 ± .37 lb/gal (.88 ± 40 g/L)
Specific Gravity:	0.876 ± 5%
V.O.C. Content:	5.13 lb/gal (615 g/L)

PACKAGING:

- 3 gal (11.4 L) pail; about 24 lb (10.9 kg)
- 1 gal (3.8 L) pail; about 8 lb (3.6 kg); 4 1-gal pails per carton

SHELF LIFE:

- Shelf life of twelve (12) months can be expected if stored in original sealed container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:

- Store in original unopened cartons at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C) until ready for use.
- During hot weather, do not expose to sunlight/elevated temperatures until use.
- For optimum results, rotate stock to ensure stored material will not go beyond the shelf life of one year.

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PRECAUTIONARY INFORMATION:

- Review Material Safety Data Sheet prior to use.
- Flammable. Keep away from fire and open flames. Do not smoke when using.
- Avoid prolonged contact with skin. Gloves should be worn (OSHA approved).
- Use only in well ventilated areas.
- Do not contaminate with foreign materials.
- After can has been opened once and closed, use remainder of adhesive within one week.
- Cover can when not in use. When applying adhesive, work out of small pails with a cover to minimize skimming of adhesive.
- When exposed to lower temperatures, restore to room temperature prior to use.
- Thinning is not allowed.
- Recommended cleaner is Firestone Splice Wash (while the Splice Adhesive is fluid).
- Review to Technical Information Sheet 1705, "Recommended Guidelines for Application of Roofing Adhesives to an Occupied Building".

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	South Bend, IN

PATENTS:

The products described herein, or the methods of their use, may be covered by one or more of the following United States Patents: 5,084,119; 5,520,761; 5,976,292; 5,985,981.

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Firestone Building Products Company
250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

3.E.

TECHNICAL INFORMATION SHEET

1411
12/29/2009

Firestone
BUILDING PRODUCTS

QuickPrime™ Plus

Firestone Item Number:
1- Quart: W56RAC1695
1- Gallon: W563587041
3- Gallon: W563587044

DESCRIPTION:
QuickPrime Plus is designed to clean and prime RubberGard™ EPDM membrane prior to application of QuickSeam™ products where required by Firestone Specifications and Details.

QuickPrime Plus must be applied with a QuickScrubber™ or QuickScrubber Plus pad and handle when preparing RubberGard membrane to receive QuickSeam Tape products. It may also be used to clean membrane prior to the application of Firestone Splice Adhesive (SA-1065).

METHOD OF APPLICATION:
1. Splice surfaces must be clean, dry, and free of foreign materials and excess dusting agent. Clean with broom or rags to remove contaminates.
2. Stir QuickSeam Plus thoroughly before and during use. Apply QuickPrime Plus at the rate of 200 - 250 square feet per gallon (4.91 - 6.14 square meters per liter) per side to the splicing surfaces using the QuickScrubber or QuickScrubber Plus pad and handle.
3. Use back and forth strokes with heavy pressure along the length of the splicing area, until membrane surfaces become dark gray in color with no streaking or puddling.
4. Additional scrubbing is required at factory seams, areas of excess dusting agent, or other contaminated areas of the RubberGard membrane. Change pads every 200' (61 m).
5. When using the QuickScrubber or the QuickScrubber Plus pad and handle, factory seams require parallel as well as perpendicular application motions along the factory seam. Apply sufficient pressure on the QuickScrubber Plus pad and handle during application so the pad holder flattens to allow the total surface of the pad to contact with the RubberGard membrane.
6. Allow the surfaces to dry according to the touch-push test (usually less than 10 minutes) before applying QuickSeam products or Splice Adhesive SA-1065.
7. Complete seaming procedures per Firestone's Specifications and Details.

COVERAGE RATE:
200 - 250 square feet per gallon (4.91 - 6.14 square meter per liter) one side (100-125 square feet per gallon both sides).

Coverage rates per gallon for various QuickSeam products are as follows:
3" QuickSeam Tape: 375-450 ft (114-137 m) / gal
6" QuickSeam Tape: 180-225 ft (55-68 m) / gal
7" QuickSeam Tape: 150-200 ft (46-61 m) / gal
6" QuickSeam Batten Cover: 300-375 ft (91-114 m) / gal
5" QuickSeam Flashing: 340-400 lf (104-122 m) / gal

PHYSICAL PROPERTIES:

Property	Minimum Performance
Base:	Synthetic Rubber Polymers
Color:	Translucent Gray
Solvents:	Heptane, Toluene
Percent Solids:	16 - 18%
Viscosity:	Very thin, free flowing
Weight:	6.62 lb/gal (0.79 kg/L) (nominal)
Specific Gravity:	0.793 Nominal (H_2O = 1)
Flash Point:	0.0 °F (-17.8 °C)
V.O.C. Content:	Not to exceed 5.55 lb/gal (664 g/L)

PACKAGING:
QuickPrime Plus is available in:
1-quart cans (.95 liter) can
1-gallon (3.8 liter) pail
3-gallon (11.4 liter) pail

Containers:	Weight: lb / kg
12 1-quart cans / carton	23 / 10.45
600 1-quart cans (50 ctns) / pallet	1150 / 522.7
4 1-gallon pails / carton	32 / 14.5
216 1-gallon pails (54 ctns) / pallet	1728 / 785.5
75 3-gallon pails / pallet	1658.25 / 753.35

SHELF LIFE:
- Shelf life of one year can be expected if stored in original container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

TECHNICAL INFORMATION SHEET

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12/29/2009

Firestone
BUILDING PRODUCTS

QuickPrime™ Plus

STORAGE:

- Store in original unopened cartons indoors at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Do not store on the roof in direct sunlight or at temperatures above 100 °F (37.78 °C).
- When exposed to lower temperatures, restore to 60 °F (15.6 °C) and 80 °F (26.7 °C) prior to use.

PRECAUTIONARY DATA:

1. Thinning is not allowed.
2. Flammable. Keep away from fires (open flame) and other possible ignition sources during storage and use. Do not smoke when using.
3. Use only in well-ventilated areas.
4. Use of neoprene or nitrile gloves and eye protection with side shield is recommended.
5. Use only in conjunction with QuickScrubber or QuickScrubber Plus. Do not apply with rollers, brushes or rags.
6. Mix thoroughly before and during use.
7. Refer to Material Safety Data Sheet (MSDS).

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LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	South Bend, IN

PATENTS:

The products contained herein, or the methods of their use, may be covered by one or more of the following United States Patents: 5,520,761, 5,976,292, 5,985,981

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Firestone Building Products Company
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Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

3.F

TECHNICAL INFORMATION SHEET

1401
12/29/2009

Firestone
BUILDING PRODUCTS

QuickSeam™ Splice Tape

Firesto[redacted]
3" x 100': W56RAC1603
[redacted]

DESCRIPTION:
Firestone 3" (76.2 mm), 4" (101.6 mm) 6" (152.4 mm) and 7" (177.8 mm) QuickSeam Splice Tape is designed for field splicing of RubberGard™ EPDM membrane panels and flashing.

METHOD OF APPLICATION:
1. Use QuickPrime™ Plus and a QuickScrubber™ or QuickScrubber Plus pad and handle to clean and prime mating surfaces.
2. Refer to Firestone Specifications and Details.
3. Refer to application instructions for specifics: Technical Database, www.firestonebpco.com.

PHYSICAL PROPERTIES:

Property	Minimum Performance
Base:	Rubber Polymers
Color:	Black
Solvents:	None
Solids:	100%
Cured State:	Cured
Thickness:	0.030" (0.77 mm) ± 0.005" (0.127 mm)

PACKAGING:
- 3" (76.3 mm) x 100' (30.48 m) roll, 6 rolls per carton
- [redacted]

NOTE: QuickScrubber and/or QuickScrubber Plus pads and handles are included in each carton. Quantities vary depending on the QuickSeam product.

SHELF LIFE:
- Shelf life of one year can be expected when stored in original container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:
- Store in original unopened containers indoors at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Do not store on roof in direct sunlight or at temperatures above 80 °F (26.7 °C).
- When exposed to lower temperatures; restore to room temperature prior to use.

PRECAUTIONARY INFORMATION:
Refer to Material Safety Data Sheet (MSDS).

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	Prescott, AR

PATENTS:
The products contained herein, or the methods of their use, may be covered by one or more of the following United States Patents: 5,242,727; 5,520,761; 5,976,292.

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3.G

TECHNICAL INFORMATION SHEET

1402
12/29/2009

Firestone
BUILDING PRODUCTS

QuickSeam™ Flashing

Firestone Item Number:
5" x 100': W56RAC1615
6" x 100': W56RAC1649

DESCRIPTION:
QuickSeam Flashing is a semi-cured EPDM flashing laminated to cured seam tape. QuickSeam Flashing is used to flash gravel stops and other details as specified in the Firestone Specifications and Details.

METHOD OF APPLICATION:
1. Use QuickPrime™ Plus and QuickScrubber™ or QuickScrubber Plus pad and handle to clean and prime membrane and metal mating surfaces.
2. Refer to Firestone Specifications and Details.
3. Refer to application instructions for specifics: Technical Database, www.firestonebpco.com.

PHYSICAL PROPERTIES:
QUICKSEAM TAPE

Property	Minimum Performance
Base:	Rubber Polymer
Color:	Black
Solvents:	None
Percent Solids:	100%
Cured State:	Cured
Thickness:	0.045" (1.14 mm) ± 0.005" (0.13 mm)
Width:	5-1/4" (133.3 mm) + 0" (+ 0 mm), - 1/16" (- 1.6 mm)
Length:	100 ft (30.5 m)

EPDM FLASHING

Property	Minimum Performance
Base:	EPDM
Color:	Black
Solvents:	None
Percent Solids:	100%
Cured State:	Semi-cured
Thickness:	0.045" (1.1 mm) ± 10%
Width:	5" (127 mm) + 0" (+ 0 mm), - 1 /8" (- 3.18 mm)
Length:	100 ft (30.5 m)

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PACKAGING:
- 100' (30.5 m) rolls, 2 rolls per carton.
- 36 cartons per pallet.
- Rolls may consist of two separate sections of QuickSeam Flashing to make 100' (30.5 m) total length.

NOTE: QuickScrubber and/or QuickScrubber Plus pads and handles are included in each carton. Quantities vary depending on the QuickSeam product.

SHELF LIFE:
- Shelf life of one year can be expected when stored in original container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:
- Store in original unopened containers indoors at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Do not store on roof in direct sunlight or at temperatures above 80 °F (26.7 °C).
- When exposed to lower temperatures; restore to room temperature prior to use.

PRECAUTIONARY DATA:
- Refer to Material Safety Data Sheet (MSDS).
- QuickSeam Flashing is semi-cured. **Do not stretch.**

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	Prescott, AR

PATENTS:
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3.H.

TECHNICAL INFORMATION SHEET

1408
12/29/2009

Firestone
BUILDING PRODUCTS

QuickSeam™ Corner Flashing

Firestone Item Number: W56RAC1646

DESCRIPTION:
QuickSeam Corner Flashing consists of Firestone FormFlash™ factory laminated to QuickSeam Tape. It is 8.5" (216 mm) in diameter and is designed to flash inside and outside corners of RubberGard™ EPDM roof systems.

METHOD OF APPLICATION:
1. Use QuickPrime™ Plus and a QuickScrubber™ or QuickScrubber Plus pad and handle to clean and prime mating surfaces.
2. When cloudy conditions below 60 °F (15.6 °C) occur, use heat guns (without ignition sources) to heat QuickSeam Corner Flashing. This will ensure good formability of the QuickSeam Corner Flashing to the primed substrate.
3. On sunny days less that 70 °F (21.1 °C), place QuickSeam Corner Flashing on roof (prior to application) with flashing side up to allow QuickSeam Corner Flashing to warm to ensure good formability.
4. On sunny days greater than 70 °F (21.1 °C), place QuickSeam Corner Flashing on roof (prior to application) with release paper side up to prevent QuickSeam Corner Flashing from gaining too much heat and to ensure good formability.
5. Refer to Firestone Specifications and Details.
6. Refer to application instructions for specifics: Technical Database, www.firestonebpco.com.

PHYSICAL PROPERTIES:
QUICKSEAM TAPE

Property	Minimum Performance
Base:	Rubber Polymer
Color:	Black
Solvents:	None
Percent Solids:	100%
Cure State:	Cured
Thickness:	0.025" ± 0.005" (0.64 mm ± 0.13 mm)

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FORMFLASH

Property	Minimum Performance
Base:	EPDM
Color:	Black
Solvents:	None
Percent Solids:	100%
Cure State:	Uncured
Thickness:	0.065" ± 0.005" (1.59 mm ± 0.13 mm)

PACKAGING:
- 20 Corner Flashings per carton
- 100 cartons per pallet

SHELF LIFE:
- Shelf life of one year can be expected when stored in original container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:
- Store in original unopened containers indoors at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Do not store on roof in direct sunlight or at temperatures above 80 °F (26.7 °C).
- When exposed to lower temperatures; restore to room temperature prior to use.

LEED INFORMATION

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	Prescott, AR

PATENTS:
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250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
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3.I

TECHNICAL INFORMATION SHEET

1405
12/29/2009

Firestone
BUILDING PRODUCTS

QuickSeam™ FormFlash™

Firestone Item Number:

~~9": W56RAC1650~~
12": W56RAC1653
18": W56RAC162A

DESCRIPTION:
QuickSeam FormFlash consists of uncured FormFlash factory laminated to QuickSeam Tape. It is designed to flash inside and outside corners, pipes, penetration pockets and other applications as required by Firestone Specifications and Details.

METHOD OF APPLICATION:
1. Use QuickPrime™ Plus and a QuickScrubber™ or QuickScrubber Plus pad and handle to clean and prime mating surfaces. Refer to Firestone Installation Instruction Sheet for QuickSeam FormFlash (included in each carton) and Firestone Specifications and Details.
2. When cloudy conditions below 60 °F (15.6 °C) occur, use heat guns (without ignition sources) to heat QuickSeam FormFlash. This will ensure good formability of the QuickSeam FormFlash to the primed substrate.
3. On sunny days less that 70 °F (21.1 °C), place QuickSeam FormFlash on roof (prior to application) with flashing side up to allow QuickSeam FormFlash to warm to ensure good formability.
4. On sunny days greater than 70 °F (21.1 °C), place QuickSeam FormFlash on roof (prior to application) with release paper side up to prevent QuickSeam FormFlash from gaining too much heat and to ensure good formability.
5. Refer to application instructions for specifics: Technical Database, www.firestonebpco.com

PHYSICAL PROPERTIES:
QUICKSEAM TAPE

Property	Minimum Performance
Base:	Rubber Polymer
Color:	Black
Solvents:	None
Percent Solids:	100%
Cure State:	Cured
Thickness:	0.025" (0.635 mm) ± 0.007" (0.18 mm)

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EPDM FLASHING

Property	Minimum Performance
Base:	EPDM
Color:	Black
Solvents:	None
Percent Solids:	100%
Cure State:	Uncured
Thickness:	0.065" (1.6 mm) ± 0.005" (0.13 mm)

PACKAGING:
- 9" (228.6 mm) x 50' (15.2 m) rolls, 2 rolls per carton, 40 cartons per pallet
- 12" (3-4.8 mm) x 50' (15.2 m) rolls, 1 roll per carton, 36 cartons per pallet
- 18" (457.2 mm) x 50' (15.2 m) rolls, 1 roll per carton, 24 cartons per pallet

NOTE: QuickScrubber and/or QuickScrubber Plus pads and handles are included in each carton. Quantities vary depending on the QuickSeam product.

SHELF LIFE:
- Shelf life of one year can be expected when stored in original container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:
- Store in original unopened containers indoors at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Do not store on roof in direct sunlight or at temperatures above 80 °F (26.7 °C).
- When exposed to lower temperatures; restore to room temperature prior to use.

PRECAUTIONARY DATA:
Refer to Material Safety Data Sheet (MSDS).

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Locations:	Prescott, AR

PATENTS:
The products described herein, or the methods of their use, may be covered by one or more of the following United States Patents: 5,242,727; 5,520,761; 5,804,661; 5,976,292; 5,985,981; 6,426,129.

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250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
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3.J.

TECHNICAL INFORMATION SHEET

1406
12/29/2009

Firestone
BUILDING PRODUCTS

QuickSeam™ Joint Cover

Firestone Item Number: W56RAC1644

DESCRIPTION:
QuickSeam Joint Cover is uncured FormFlash™ laminated to QuickSeam tape. A second 3" (76.2 mm) layer of tape is applied at the center and is a special uncured, flowable QuickSeam tape compound. The QuickSeam Joint Cover conforms to irregular surfaces such as encountered at "T" joints, readily providing an excellent seal.

QuickSeam Joint Covers are designed to cover and seal:

- "T" joints formed by field seam intersections.
- Joint covers for seams at change in plane on wall or curb flashings.
- 2" (51 mm) seam plates for RubberGard™ MAX pipe penetration attachment layouts.
- "T" joints formed by the installation of pre-fabricated pipe flashings over field or factory seams.
- As a protection pad under sheet metal joints for EdgeGard™ or snap-on metal.

METHOD OF APPLICATION:

1. Clean the RubberGard membrane using QuickPrime™ Plus and the QuickScrubber™ or QuickScrubber Plus pad and handle to remove all dusting agents, dirt and other contaminants that will affect the finished seam.
2. Allow to dry according to the touch-push test.
3. Additional cleaning may be required to assure that the membrane is completely cleaned. *(Caution: more cleaning is needed at factory seams.)*
4. **Cleaning option:** *clean the RubberGard membrane using clean cotton cloths and Firestone Splice Wash SW-100 to remove all dusting agents, dirt and other contaminants that will affect the finished seam. Allow to dry.*
5. Brush apply Firestone Splice Adhesive SA-1065 over the RubberGard membrane to receive the QuickSeam Joint Cover.
6. Allow to dry according to the touch-push test.
7. Remove the release paper from the joint cover, taking care not to touch the outside edges of the joint cover.
8. Fold the joint cover in half. Position the center of the joint cover over the target point and mate the joint cover to the prepared surface.
9. Roll the mated surface of the joint cover with a 2" (51 mm) silicone roller from the center outward working the joint cover into the step-off or irregularity.
10. Install Seam Edge Treatment per Firestone Specifications and Details.
11. Refer to application instructions for specifics: Technical Database, www.firestonebpco.com

PHYSICAL CHARACTERISTICS:

- FormFlash will cure when exposed to heat and over time.
- Uncured 3" (76.2 mm) tape center layer will cure when exposed to heat and over time.

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PHYSICAL PROPERTIES:
QUICKSEAM TAPE:

Property	Minimum Performance
Base:	Rubber Polymers
Color:	Black
Solvents:	None
Solids:	100%
Cure State	
Splice Tape: 3" (76.2 mm)	Cured
Center Layer	Uncured and flowable
Thickness	
Splice Tape: 3" (76.2 mm)	0.030" ± .005" (0.77 mm ± 0.13 mm)
Center Layer:	0.037" ± 0.005" 0(.94 mm ± 0.13 mm)

FORMFLASH:

Property	Minimum Performance
Material:	Uncured FormFlash, conforming to RMA minimum specifications
Color:	Black
Size:	5.75" ± 0.125" diameter (146 mm ± 3.17 mm)
Thickness:	0.030" ± 0.005" (0.76 mm ± 0.13 mm)

SHELF LIFE:

- Shelf life of one year can be expected when stored in original container at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:

- Store in original unopened containers indoors at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
- Do not store on roof in direct sunlight or at temperatures above 100 °F (37.8 °C).
- When exposed to lower temperatures; restore to room temperature prior to use.

PACKAGING:
100 QuickSeam Joint Covers/carton; 60 cartons per pallet

PRECAUTIONARY DATA:
Refer to the Material Safety Data Sheet (MSDS).

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Locations:	Prescott, AR

PATENTS:
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250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
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3.K.

Firestone
BUILDING PRODUCTS

RubberGard™ EPDM Reinforced Perimeter Fastening (RPF) Strip

DESCRIPTION:

Firestone RubberGard™ Reinforced Perimeter Fastener (RPF) Strip is a 6" (152 mm) wide reinforced EPDM membrane for use in non-penetrating base tie-ins as specified in Firestone Specifications and Details.

PREPARATION OF SUBSTRATES:

1. Substrates must be clean, dry, smooth, and free of sharp edges, fins, loose or foreign materials, oil, grease, and other materials which may damage the RPF Strip.
2. All roughened surfaces which could damage the RPF Strip shall be repaired as specified to offer a smooth substrate.
3. All surface voids greater than 1/4" (6.3 mm) wide shall be properly filled with an acceptable fill material.

METHOD OF APPLICATION:

1. Unroll the RPF Strip over even substrate and position per Firestone Specifications.
2. Fasten with Firestone V-plates, 2" (51mm) seam plates or Firestone Batten Strips and fasteners max 12" (304 mm). AP Sealant is required on all fastener heads when Firestone Batten Strips are used per Firestone Specifications.
3. Clean the RPF Strip and membrane with clean cotton cloths and Firestone Splice Wash SW-100, or QuickPrime™ Plus to remove all dusting agent and other contaminants that will affect the finished bond strength. Allow to air dry.
4. Brush-apply Splice Adhesive to both surfaces and mate according to Firestone Specifications.
5. Roll finished base tie-in with a 2" (51 mm) wide silicone roller or Firestone QuickRoller™.

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PACKAGING:

1. Two 6" (152.0 mm) x 100' (30.5 m) rolls per carton.
2. Weight is approximately 30 lb (13.6 kg) per carton.

STORAGE:

Store original unopened cartons indoors until ready to use.

PRECAUTIONS:

1. Take care when moving, transporting, handling, etc. to avoid sources of punctures and physical damage.
2. Isolate waste products, such as petroleum products, greases, oils (mineral and vegetable) and animal fats from the RubberGard membrane. Contact Firestone Roofing System Solutions Department for specific recommendations.
3. Refer to Material Safety Data Sheets (MSDS) for safety information.

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Consumer Recycled Content:	0%
Manufacturing Locations:	Prescott, AR

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Sales: (800) 428-4442 • Technical (800) 428-4511
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Firestone BUILDING PRODUCTS

RubberGard™ EPDM Reinforced Perimeter Fastening (RPF) Strip

PHYSICAL PROPERTIES

Property	Test Method	Minimum ASTM Performance	Typical Values
Thickness, min			
Sheet-overall	ASTM D 751	0.0405 in (1.028 mm)	0.043 in (1.092 mm)
Coating over scrim or fabric	ASTM D 751	0.015 in (0.381 mm)	0.015 in (0.381 mm)
Breaking strength, min	ASTM D 751 (Grab Method)	90 lbf (400 N)	240 lbf (1068 N)
Elongation, ultimate, min	ASTM D 412 (Die C)	250%[A]	475%[A]
Brittleness point, max	ASTM D 2137	-49 °F (-45 °C)	-65 °F (-54 °C)
Ozone resistance, no cracks	ASTM D 1149	pass	pass
Heat Aging:	ASTM D 573		
Breaking strength, min	ASTM D 751 (Grab Method)	80 lbf (356 N)	275 lbf (1223 N)
Elongation, ultimate, min	ASTM D 412 (Die C)	200%[A]	300%[A]
Linear dimensional change, max	ASTM D 1204	±1.0%	-0.7%
Water absorption, max, mass %	ASTM D 471	+8, -2%[A]	+1.8%[A]
Weather resistance:			
Visual inspection	ASTM D 518	pass	pass

[A] Specimens to be prepared from coating rubber compound, vulcanized in a similar method to the reinforced products.

RubberGard membrane meets or exceeds the minimum requirements set forth by ASTM D 4637 for Type II scrim-reinforced EPDM single-ply roofing membranes.

TECHNICAL INFORMATION SHEET

1002
10/22/2009

Firestone
BUILDING PRODUCTS

Heavy-Duty Fastener

Firestone Item Number:

Red		White*	
1-1/4"	W56RAC4230	1-1/4"	W56RAC4390
2"	W56RAC4232	2"	W56RAC4391
3"	W56RAC4234	3"	W56RAC4392
4"	W56RAC4236	4"	W56RAC4393
5"	W56RAC4237	5"	W56RAC4394
6"	W56RAC4249	6"	W56RAC4395
7"	W56RAC4239		
8"	W56RAC4240		
10"	W56RAC4241		
12"	W56RAC4242		
14"	W56RAC4243		

**Firestone is not responsible for, nor guarantees that the white coating will remain on the fastener during or after installation. Because the coating on Firestone's white fasteners is removed to some degree during the installation process, Firestone suggests that 1) the building owner be made aware of the expectations of the white fasteners and that re-painting of the deck may be required after roofing is complete or 2) any deck painting take place after the roof is installed. in this case, any color of screw will work.*

DESCRIPTION:
The Firestone Heavy-Duty Fastener is specifically designed to be used in roofing applications which require additional corrosion protection and additional pullout resistance. The Heavy-Duty Fastener may be used for attachment of roofing insulation, and base sheets in combination with Firestone Insulation Plates, or for attachment of Firestone Batten Strips, Seam Plates, Termination Bars, and other accessories to steel, wood, concrete and other decks where approved by Firestone Technical Specifications.

METHOD OF APPLICATION:
Using the #3 Phillips tip provided and a variable speed drill, engage the fastener into the deck as noted below, taking care not to over or under drive the fastener.

Note: If pre-drilling of the deck substrate is necessary, use a hammer drill in impact mode with a 7/32" (5.56 mm) carbide drill bit. Install fasteners by using a variable speed drill at a maximum of 1,500 rpm.

PRECAUTIONARY DATA:
Eye protection must be worn during the installation of the fasteners and during any drilling operation.

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PRODUCT DATA

Property	Minimum Performance
Material:	SAE 1022, heat treated steel
Thread Size:	0.275" (6.98 mm) nom. diameter
Threads/Inch:	13 min.
Thread Design:	Buttress thread
Fastener Tip:	Drill point design
Fastener Head:	#3 Phillips drive
Pullout in New 22 gauge (0.76 mm) Steel Deck:	
Grade C (Grade 33):	595 lb (270 kg) min.
Grade E (Grade 80):	650 lb (295 kg) min.
Pullout in New Structural Concrete:	700 lb (317.5 kg) min.
Pullout in New ½" (12.7mm) Plywood:	360 lb (163 kg) min.
Corrosion Resistant Coating:	Red epoxy applied by Electrocoating

Screw Length	Thread Length	Pieces/ Plastic Pail	Cartons/ Pallet
1-¼" (31.75 mm)	Full	1,000	40
2" (50.80 mm)	Full	1,000	40
3" (76.20 mm)	Full	1,000	60
4" (101.6 mm)	3" (76.20 mm)	1,000	60
5" (127.0 mm)	4" (101.6 mm)	1,000	40
6" (152.4 mm)	4" (101.6 mm)	500	60
7" (177.8 mm)	4" (101.6 mm)	500	60
8" (203.2 mm)	4" (101.6 mm)	500	60
10" (254.0 mm)	4" (101.6 mm)	500*	24
12" (304.8 mm)	4" (101.6 mm)	500*	24
14" (355.6 mm)	4" (101.6 mm)	500*	24

**Packaged in cardboard cartons due to fastener length and may require lead time of 30 days.*

Determine required screw length as follows:

Steel Decks: Select fastener length to penetrate through the deck a minimum of 3/4" (19.1 mm).

Wood Decks: Select fastener length to penetrate into or through deck a minimum of 1" (25.4 mm).

Concrete Decks: Select fastener length to penetrate into deck a minimum of 1" (25.4 mm).

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	30%
Manufacturing Location:	West Chicago, IL

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Firestone Building Products Company
250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

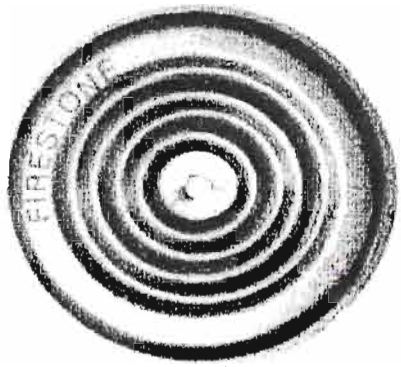
3.M

906
7/2002

TECHNICAL INFORMATION SHEET

Firestone
BUILDING PRODUCTS COMPANY

INSULATION FASTENING PLATE



PRODUCT DATA:

PROPERTIES:

Material:	Galvalume® AZ50
Material Thickness:	.017" (.43 mm) - .023" (.58 mm)
Corrosion Resistance:	Meets FM No. 4470 criteria
Pull-Through Resistance:	400 lb (181.4 kg) (min.) from center hole
Diameter:	3" (76 mm)

Note: Galvalume® is a registered trademark of BIEC International, Inc.

DESCRIPTION:

Firestone Insulation Fastening Plates are specially designed to be used with Firestone All-Purpose, Heavy-Duty and Concrete Drive fasteners in roofing applications for attaching insulation as required by Firetone Specifications and Details.

METHOD OF APPLICATION:

Position plates over roof insulation as specified by Firestone Specifications and Details. Attach plates to roof deck using the appropriate Firestone fastener. Install plates with ribbed side up, showing "Firestone" label.

STORAGE:

Store in unopened original containers protected from the weather.

PACKAGING:

1,000 plates per pail
48 cartons per pallet

PRECAUTIONARY DATA:

1. Do not overdrive or underdrive fastener.
2. Plates are designed to anchor roof insulation only.
3. Avoid field seams directly over insulation plates.
4. Can not be used with Firestone HD Plus Fasteners.

FM APPROVED

"Subject to the conditions of Approval as a Roof Cover when installed as described in the current edition of the FMRC Approval Guide"

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FIRESTONE BUILDING PRODUCTS COMPANY
525 Congressional Blvd., Carmel, Indiana 46032
Sales: 1-800-428-4442 · Technical: 1-800-428-4511
Internet Address: http://www.firestonebpco.com

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Firestone
BUILDING PRODUCTS

2" Metal Seam Plate

Firestone Item Number: W56RAC4180

DESCRIPTION:

The Firestone 2" (51 mm) Metal Seam Plates are specifically designed to be used with Firestone All-Purpose, Heavy-Duty and Concrete Drive Fasteners in roofing system applications for attaching Firestone Reinforced Perimeter Fastening Strips as specified in Firestone Specifications and Details.

METHOD OF APPLICATION:

Position plates along the Reinforced Perimeter Fastening Strip as specified by Firestone Specifications and Details. Attach plates to roof deck using the appropriate length Firestone Fastener. Install plates with ribbed side up, showing the "Firestone" label.

PRECAUTIONARY DATA:

- Do not overdrive or underdrive fastener.
- Plates are designed to anchor Reinforced Perimeter Fastening Strips (RPFS and QSRPFS) only.
- Avoid field seams directly over insulation plates where possible.

PRODUCT DATA

Property	Minimum Performance
Material:	Steel with a Galvalume® coating
Material Thickness:	0.026"- 0.036" (0.66 mm - 0.91 mm)
Diameter:	2" (51 mm)
Corrosion Resistance:	Meets FM No. 4470 criteria
Pull-Through Resistance:	400 lbf (181.4 kg) from center hole

Galvalume® is a registered trademark of BIEC International, Inc.

STORAGE:

Store in unopened original containers protected from the weather.

PACKAGING:

Pail: 1000 plates
Weight: 34 lb (15.4 kg)/pail
Pallet: 40 pails

LEED INFORMATION:

Post Consumer Recycled Content:	8%
Post Industrial Recycled Content:	17%
Manufacturing Locations:	Bryan, OH Cleveland, OH

FM APPROVED

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Firestone Building Products Company
250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

3.0

TECHNICAL INFORMATION SHEET

1308
09/29/2009

Firestone
BUILDING PRODUCTS

Lap Sealant HS

Firestone Item Number:
W563587032: 5-Gallon Pails
W563687031: 11 oz Cartridges (Plastic Pail)
W563587034: Quart Cartridges
W563587030: Sausage Chubs
W56368703E: 11 oz Cartridges (Cardboard Carton)

DESCRIPTION:
Lap Sealant HS is a low volatile organic compound sealant designed to be used with SA-1065 Splice Adhesive for seam edge treatment applications and as a sealant in other applications as indicated by current Firestone Specifications and Details.

METHOD OF APPLICATION:
Surfaces to which Lap Sealant HS is applied must be clean, dry, and free from loose and foreign materials, oil and grease. The procedure to apply Lap Sealant (Seam Edge Treatment) at flashing seam edges is as follows:

1. **Wait Before Applying Seam Edge Treatment:**
   Wait to apply Seam Edge Treatment a minimum of 4 hours after the completion of a flashing seam unless weather is threatening. If weather is threatening, apply SA-1065 Splice Adhesive to the edge of the flashing splice (Step 2 below) before leaving project. If weather is not threatening, the Seam Edge Treatment must be applied no later than the end of the next day following the completion of the seam.
2. **Coat Flashing Seam Step-off:**
   Apply a layer of SA-1065 Splice Adhesive along the entire seam edge, a minimum of 1" (25.4 mm) on each side of the step-off following current Firestone SA-1065 Splice Adhesive application procedures. Allow the SA-1065 Splice Adhesive to flash off. (Refer to current Firestone Specifications for readiness check.)
   Note: If the seam edge has been contaminated, clean the seam edge a minimum of 1" (25.4 mm) on each side of the step off with Firestone QuickPrime Plus and allow to dry, prior to application of the Seam Edge Treatment.
3. **Apply Lap Sealant HS:**
   Apply a continuous bead of Lap Sealant HS approximately 3/8" x 1/4" (9.5 mm x 6.3 mm) centered over the flashing seam edge, using the plastic nozzle applicator supplied by Firestone. Be sure to keep the nozzle applicator centered over the lap step-off. Refer to seam details.

PHYSICAL PROPERTIES:

Property	Typical Performance
Base:	EPDM Rubber
Color:	Black
Solvents:	Light Aliphatic Solvent
Solids:	80% (minimum)
Press-Flow Viscosity:	30-50 seconds to extrude 20 g through 0.104" (2.64 mm) diameter orifice at 72-74 °F (22.2-23.3 °C)
Weight:	11.2-12.2 lb/gal (1.34-1.46 kg/L)
Specific Gravity:	1.34-1.46
V.O.C. Contents:	Less than 2.1 lb/gal (250 g/L)

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PACKAGING AND COVERAGE:
- 11 fl oz (0.326 L) Cartridges (plastic pail): Packed 28 cartridges per plastic container. Coverage rate of 20-22 feet (6-6.7 meters) of 3/8" x 1/4" (9.5 mm x 6.3 mm) bead per 11 fl oz (.3261 L) cartridge.
- 1 Quart/ (0.946 L) Cartridges: Packed 10 cartridges per carton. Coverage rate of 60-64 ft (18.3-19.5 m) of 3/8" x 1/4" (9.5 mm x 6.3 mm) bead per quart (0.946 L) cartridge.
- 5-Gallon (18.93 L) Pail: Coverage rate of 1,250-1,280 ft (381.0 – 390.1 m) of 3/8" x 1/4" (9.5 mm x 6.3 mm) bead per 5-gal (18.93 L) pail.
- 20 fl oz (0.568 L) Sausage Chub: Packed 20 sausage chubs per carton. Coverage rate of 35-38 ft (10.7 – 11.6 m) of 3/8" x 1/4" (9.5 mm x 6.3 mm) bead per 20 fl oz (0.568 L) Sausage Chub.
- 11 fl oz (0.326 L) Cartridges (cardboard carton): Packed 25 cartridges per cardboard carton. Coverage rate of 20-22 ft (6-6.7 m) of 3/8" x 1/4" (9.5 mm x 6.3 mm) bead per 11 fl oz (.326 L) cartridge.

SHELF LIFE:
- Shelf life of one year can be expected if stored in original sealed container at temperatures between 60 °F and 80 °F (16 °C and 27 °C). If exposed to lower temperatures, restore to room temperature prior to use.
- Shelf life will be shortened if exposed to elevated temperatures for a prolonged period of time.

STORAGE:
- Store in original unopened containers at temperatures between 60 °F and 80 °F (16 °C and 27 °C) until ready for use.
- For optimum results, rotate your stock to ensure stored material has not exceeded the shelf life of one year.

PRECAUTIONARY DATA:
- Review Material Safety Data Sheet (MSDS) prior to use.
- Flammable. Keep away from fire and open flames during storage and use. Do not smoke when using.
- Use only in well ventilated areas.
- Do not contaminate with foreign materials.
- Recommended cleaner is rubbing alcohol followed by soap and water.

LEED INFORMATION:

Post Consumer Recycled Content:	0%
Post Industrial Recycled Content:	0%
Manufacturing Location:	Michigan Center, MI

PATENTS:
The products contained herein, or the methods of their use, may be covered by one or more of the following United States Patents: 5,084,119; 5,985,981; 6,291,571.119.

CLASSIFIED C UL US

Firestone Building Products Company
250 W. 96th Street, Indianapolis, IN 46260
Sales: (800) 428-4442 • Technical (800) 428-4511
www.firestonebpco.com

TECHNICAL INFORMATION SHEET

Firestone
BUILDING PRODUCTS COMPANY

QUICKSEAM WALKWAY PAD

DESCRIPTION:

QuickSeam Walkway Pads are high quality rubber walkway pads with QuickSeam Tape factory laminated to the bottom. The QuickSeam Tape secures the walkway pads to the primed RubberGard membrane.

QuickSeam Walkway Pads help protect the membrane from damage due to necessary rooftop service traffic. The material incorporates excellent levels of hardness, tensile strength, tear resistance, wear and displays excellent cold flexibility. The owner is responsible for maintaining walkways in specific areas:

1. At all access points (ladders, hatches, doorways, etc.) to the roof.
2. Around all mechanical equipment which will require maintenance.
3. As a walkway system on roofs subjected to traffic more frequently than once per month.

METHOD OF APPLICATION:

Position the QuickSeam Walkway pads so that the flat surface is over the completed RubberGard membrane, spacing each pad a minimum of 1" (25.4 mm) and a maximum 6" (152.4 mm) from each other to allow for drainage. If the installation of QuickSeam Walkway Pads over field fabricated seams or within 3" (76.2 mm) of a lap edge can not be avoided, the seam must be stripped in using 6" (152.4 mm) QuickSeam Batten Cover. The QuickSeam Batten Cover must extend beyond the walkway pad a minimum of 6" (152.4 mm) each side of the pad.

Use QuickPrime Plus and a QuickScrubber or QuickScrubber Plus pad and handle to clean and prime the RubberGard membrane. Allow QuickPrime Plus to dry according to the touch-push test. Remove the release paper on the tape and place the taped walkway pad into place on the primed membrane. Walk on the pad to assure proper overall adhesion.

PRODUCT DATA:

WALKWAY PAD

Property	ASTM Test Method	Min. Performance
Base:		Rubber Polymers
Elongation, %, min.	ASTM D-412	
Parallel to grain flow	(Die C)	75
Perpendicular to grain flow	(Die C)	75
Brittleness Temperature	ASTM D-2137	-40 °F (-40 °C)
Hardness Shore A	ASTM D-2240	60 ± 5

QUICKSEAM TAPE

Property	Min. Performance
Base:	Rubber Polymers
Color:	Black
Solvents:	None
Percent Solids:	100%
Cure State:	Cured
Thickness:	.030" ± .005" (.77 mm ± .13 mm)

Physical Characteristics

1. Pad size is 30" x 30" x .300" thick (76.2 cm x 76.2 cm x .762 cm thick).
2. QuickSeam Tape is factory laminated to walkway pads: 3 rows of 3" (76.2 mm) wide tape, or two rows of 7" (177.8 mm) wide tape.

TECHNICAL INFORMATION SHEET

Firestone
BUILDING PRODUCTS COMPANY

QUICKSEAM WALKWAY PAD

PRECAUTIONARY DATA:

1. When installing walkway pads on a ballasted system, additional ballast must be added around pads to maintain 10 lb/sq ft (48.82 kg/sq m).
2. Do not install walkway pads within 10' (3.05 m) of a roof edge when used in conjunction with ballasted systems. Concrete paving stones must be used in these areas.
3. Do not expose to open flame or ignition source.
4. Primers may have an adverse affect on styrene insulations.

SHELF LIFE:

1. Shelf life of one year can be expected when stored at 60 °F (15.6 °C) and 80 °F (26.7 °C) in original unopened packaging indoors.
2. Shelf life will be shortened if exposed to elevated temperatures.

STORAGE:

1. Store in original unopened packaging on a flat surface at temperatures between 60 °F (15.6 °C) and 80 °F (26.7 °C).
2. Do not store on roof in direct sunlight or at temperatures above 80 °F (26.7 °C).
3. When exposed to lower temperatures, restore to room temperature prior to use.

PACKAGING:

50 QuickSeam Walkway Pads per pallet- 445 lb (201.9 kg)/ pallet

Note: QuickSeam Walkway Pads are covered by U. S. Patent: No.6,080,458.

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ROOF INSULATION

3.0

FMI EPS LLC

EPS (Expanded Polystyrene) Insulation is a moisture resistant closed cell foam which contains no ozone depleting CFCs, HCFCs or HFC blowing agents, dyes, or formaldehyde and is 100% recyclable.

EPS offers outstanding flexibility in design and is ideal for most construction needs, offering the best insulating value per dollar spent of any material available today. Additionally, its long-term insulation value is assured since aging has absolutely no effect upon performance.

Technical Data **EPS Tapered Insulation meets or exceeds physical and thermal property standards as established in ASTM C 578**

Physical Properties	Units	ASTM Test	Type XI	Type I	Type VIII	Type II	Type IX	Type XIV
Compressive Resistance at 10% Strain Deformation (2" cube)	Min psi (kPa)	D 1621, C 165	5.0 (35)	10.0 (69)	13.0 (90)	15.0 (104)	25.0 (173)	40.0 (276)
Flexural Strength	Min psi (kPa)	C 203	10.0 (69)	25.0 (173)	30.0 (208)	35.0 (242)	50.0 (345)	60.0 (414)
Thermal Resistance (R-Value)* 75 ± 2° F (24 ± 1° C) 40 ± 2° F (4.4 ± 1° C)	Min R* for 1" thickness	C 177, C518	3.22 (0.57) 3.43 (0.60)	3.85 (0.67) 4.17 (0.73)	3.92 (0.69) 4.25 (0.75)	4.17 (0.73) 4.55 (0.80)	4.35 (0.77) 4.76 (0.84)	4.35 (0.77) 4.76 (0.84)
Thermal Conductivity (K-Value)* 75 ± 2° F (24 ± 1° C) 40 ± 2° F (4.4 ± 1° C)	BTU/(hr)(Sq.Ft.)(F/in.)	C 177, C518	0.310 (1.76) 0.292 (1.67)	0.260 (1.48) 0.240 (1.37)	0.255 (1.46) 0.235 (1.35)	0.240 (1.37) 0.220 (1.26)	0.230 (1.31) 0.210 (1.20)	0.230 (1.31) 0.210 (1.20)
Coefficient of Thermal Expansion	in./(in.)(F)	D 696	0.000035	0.000035	0.000035	0.000035	0.000035	0.000035
Moisture Resistance Water Absorption by total immersion	% by volume Max	C 272	<4.0	<4.0	<3.0	<3.0	<2.0	<2.0
Water Vapor Permeability of 1" (25.4 mm) thickness max perm	Max perm/in (ng/PA*s*m²)	E 96	5.0 (287)	5.0 (287)	3.5 (201)	3.5 (201)	2.5 (115)	2.5 (115)
Oxygen Index	Min Volume %	D 2863	24.0	24.0	24.0	24.0	24.0	24.0
Dimensional Stability (Change in dimensions)	Max %	D 2126	2.0	2.0	2.0	2.0	2.0	2.0
Max. Service Temperature Long Term / Intermittent	F		167 / 180	167 / 180	167 / 180	167 / 180	167 / 180	167 / 180
Density, minimum Density, nominal	Min lb/ft³ (kg/m³) lb/ft³	C 303	0.70 (12) 0.75	0.90 (15) 1.00	1.15 (18) 1.25	1.35 (22) 1.50	1.80 (29) 2.00	2.40 (38) 2.50

*R means resistance to heat flow. The higher the R-value, the greater the insulating power.
Federal Trade Commission requires using the R-Value publication at 75°F temperature when calculating R-Values of all insulations. Aged R-Values of alternative products should be compared to determine long-term benefit. Some types of insulation lose their R-Value over time.
FMI-EPS has a flame spread index of 20 and a smoke developed index of 150-300 when tested in accordance with ASTM E84/UL 723 for densities from 0.7 - 2.0 lb/ft³.

Insulation Consideration:

- **DO NOT COMPARE** polyisocyanurate conditioned R-Values by RIC-TIMA and PIMA to EPS R-Values as per ASTM C-578.
- Ask for a **20 year 100% R-Value Warranty.**
- EPS Insulation offers the **Best Insulating Value Per Dollar** than any material available today.

Features:

- **Low Moisture Absorption:** EPS' moisture absorption is low. Moisture takes the path of least resistance and travels around individual beads rather than through them; the non-interconnecting cell structure prevents capillary absorption. Moisture absorption rates decrease as density increase, but is still minimal.
- **Permeability:** EPS has a low permeability, but is not considered a vapor barrier.
- **Inert:** EPS experiences no physical or chemical breakdowns over time. No nutrient value to animals, insects, organisms. No nutrient value to bacterial growth including mold.
- **No Leachates:** EPS will not contaminate the surrounding environment.
- **Design Flexibility:** EPS can be fabricated into various shapes and sizes as needed.

Design Cautions:

- **Flammability:** EPS is combustible and should not be exposed to flame or other ignition sources. EPS should be covered with a thermal barrier or otherwise installed in accordance with applicable code requirements.
- **Solvent Damage:** EPS is susceptible to damage by petroleum based solvents and their vapors. Protect with vapor barrier covering and or use compatible adhesives when applicable.
- **Ultraviolet Damage:** Extended exposure to sunlight causes minor discoloration and surface dusting. Shield EPS from direct sunlight for prolonged periods of time.

EPS Molders Association · EPS Resource Council · Energy Star Insulation · Classified UL · FM Approved

The information in this bulletin is presented in good faith, and is believed to be accurate. All statements are made without warranty expressed or implied.

FMI-EPS, LLC 9465 N. McGuire Rd. Post Falls, ID 83854 USA Ph: 208-777-8485 888-777-8485
280 Rose Street Jerome, ID 83338 USA Ph: 208-324-5998 www.fmi-eps.com

4 April 2011

Firestone BUILDING PRODUCTS

Mr. Jeremy Adam
Silver Bow Construction (Firestone License # 08495)
5331 Shaune Drive
Juneau, Alaska 99801

Firestone Building Products Company, LLC
250 West 96th Street
Indianapolis, IN 46260
Phone: 317-575-7000
Fax: 317-575-7100

Project: **Anvil Mountain Correctional Center (No FBPCO #)**
Nome, Alaska

To Whom It May Concern:

Firestone Building Products is pleased to inform you that the roofing systems listed below have been reviewed and are eligible for the **20-Year Firestone Red Shield Warranty**:

UTILITY BUILDING
Firestone RubberGard EPDM Fully Adhered Roofing System:

Construction:	Partial Tear-Off & Recover
Deck:	22-ga Steel
Slopes:	1":12"
Vapor Barrier:	Existing 10-mill poly taped (by others)
Insulation (1st layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (2nd layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (3rd layer):	Existing Expanded Polystyrene (by others), 1.5"
Coverboard:	Oriented-Strand Board (OSB), .075", 4'x8' boards
Attachment:	Firestone Heavy Duty Fasteners and Insulation Plates
Rate:	Field/16 fasteners per board; Perimeter/24 fasteners per board; Corners/32 fasteners per board
Membrane:	.075 Firestone RubberGard EPDM
Attachment:	Firestone BA-2004 T Bonding Adhesive, at a rate of 60 sq. ft. per gallon, both mating surfaces

HOUSING BUILDING
Firestone RubberGard EPDM Fully Adhered Roofing System:

Construction:	Partial Tear-Off & Recover
Deck:	22-ga Steel
Slopes:	1":12"
Vapor Barrier:	Existing 10-mill poly taped (by others)
Insulation (1st layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (2nd layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (3rd layer):	Existing Expanded Polystyrene (by others), 1.5"
Coverboard:	Oriented-Strand Board (OSB), .075", 4'x8' boards
Attachment:	Firestone Heavy Duty Fasteners and Insulation Plates
Rate:	Field/16 fasteners per board; Perimeter/24 fasteners per board; Corners/32 fasteners per board
Membrane:	.075 Firestone RubberGard EPDM
Attachment:	Firestone BA-2004 T Bonding Adhesive, at a rate of 60 sq. ft. per gallon, both mating surfaces

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http://www.firestonebpco.com

ENTRANCE CANOPY

Firestone RubberGard EPDM Fully Adhered Roofing System:

Construction:	Partial Tear-Off & Recover
Deck:	22-ga Steel
Slopes:	3":12"
Vapor Barrier:	Existing 10-mill poly taped (by others)
Insulation (1st layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (2nd layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (3rd layer):	Existing Expanded Polystyrene (by others), 1.5"
Coverboard:	Oriented-Strand Board (OSB), .075", 4'x8' boards
Attachment:	Firestone Heavy Duty Fasteners and Insulation Plates
Rate:	Field/16 fasteners per board; Perimeter/24 fasteners per board; Corners/32 fasteners per board
Membrane:	.075 Firestone RubberGard EPDM
Attachment:	Firestone BA-2004 T Bonding Adhesive, at a rate of 60 sq. ft. per gallon, both mating surfaces

ADMINISTRATION BUILDING

Firestone RubberGard EPDM Fully Adhered Roofing System:

Construction:	Partial Tear-Off & Recover
Deck:	22-ga Steel
Slopes:	¼":12"
Vapor Barrier:	Existing 10-mill poly taped (by others)
Insulation (1st layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (2nd layer):	Existing 2.50" ISO (by others), 4'x8' boards
Insulation (3rd layer):	Existing Expanded Polystyrene (by others), 1.5"
Coverboard:	Oriented-Strand Board (OSB), .075", 4'x8' boards
Attachment:	Firestone Heavy Duty Fasteners and Insulation Plates
Rate:	Field/16 fasteners per board; Perimeter/24 fasteners per board; Corners/32 fasteners per board
Membrane:	.075 Firestone RubberGard EPDM
Attachment:	Firestone BA-2004 T Bonding Adhesive, at a rate of 60 sq. ft. per gallon, both mating surfaces

The assemblies are attached at a rate suitable for the anticipated wind uplift pressures associated with this project based on the ASCE wind uplift criteria noted below provided by the designer*.

Ground Roughness:	=	"C"
Wind Zone:	=	130 MPH Wind Speed
Deck Height	=	26'
Building Type	=	Enclosed
Importance Factor	=	1.15
Uplift Pressure - Field	=	55.656+ PSF
Uplift Pressure - Field w/safety factor of 2	=	111.312+ PSF
Uplift Pressure – Perimeters	=	93.389+ PSF
Uplift Pressure – Perimeters w/safety factor of 2	=	186.778+ PSF
Uplift Pressure – Corners	=	140.555+ PSF
Uplift Pressure – Corners w/safety factor of 2	=	281.110 + PSF

*** NOTE:** Factory Mutual references ASCE 7 for uplift pressures in the field of the roof as they pertain to wind speed in a given geographic area, and ground roughness, according to the height of the building and an assigned Importance Factor. The above information is provided based on the information provided to Firestone by the design professional. This information was then used in the ASCE 7 charts to determine the uplift. Firestone is not liable for the calculations provided and the pressures listed should be verified by the design professional prior to the new installation to determine the applicability.

ADDITIONAL WARRANTY COVERAGE
These Firestone Roofing Systems are also eligible for the following additional warranty coverage:

- Wind up to 120mph.

PERFORMANCE REQUIREMENTS
Performance standards and construction requirements regarding wind uplift and fire resistance are established by the agencies indicated in the construction specification. These agencies' construction requirements are subject to change; please consult the appropriate agencies for full information regarding compliance with their current standards and requirements.

These Firestone Roofing Systems meet the following Performance Requirements as specified by the project roof designer, architect, or engineer:

- FM 1A-150 (Field)
- FM 1A-225 (Perimeters)
- FM 1A-300 (Corners)
- These systems have not been tested and rated by FM Approvals; however, the systems attachment rate is identical to tested and rated assemblies of the Class indicated above.

DEFINITION OF PERIMETER AND CORNER AREAS
Following *ANSI/SPRI* guidelines, the perimeter area is defined as the outer boundary of the roof with a width equal to 40% of the building height or 10% of the building width, whichever is less, but not less than 6 feet (1.8 m). The perimeter area may be enlarged depending upon the building configuration. The corner area is defined as the portion of the perimeter area beginning at the intersection of two roof edges and proceeding in both directions a distance equal to the width of the perimeter area. Corner areas on buildings with minimum 3 feet high continuous parapet walls and a maximum 2 inch in 12 inch roof slope can be treated as perimeter areas. For buildings insured by FM Global, please consult *FM Global Data Sheet 1-29* for specific information.

WARRANTY REQUIREMENTS

1. The Applicator must submit a Pre-Installation Notice (PIN) to Firestone, and must include an Approved Roof Drawing (ARD) with their PIN.
2. The roofing system must be installed by a licensed Firestone Red Shield Applicator, and installed in accordance with all current Firestone technical standards, warranty requirements, and detail drawings.
3. The roofing system installation must successfully pass an on-site audit by a Quality Building Services (QBS) Technical Representative, upon substantial completion.

PLEASE NOTE
Firestone does not engage in the practice of architecture or engineering; the Firestone review referenced in this letter is for warranty eligibility purposes. Firestone technical standards are subject to change; please consult the Firestone Technical Database, http://technicaldatabase.fsbp.com/, for the most current information regarding Firestone roofing system design guidelines, detail drawings, and product information. The information in this letter expires twelve (12) months after the date shown.

Please feel free to contact me with any questions, and thank you for choosing Firestone.

Sincerely,

FIRESTONE BUILDING PRODUCTS COMPANY, LLC

Steve Mackiewicz
Regional Technical Coordinator, West Region
1-800-428-4511, Extension 57018
mackiewiczstephen@firestonebp.com

cc: Bill Kemp – Kemp Northwest Group, Inc
File

Jeremy Adams

From: Mackiewicz, Stephen M [MackiewiczStephen@firestonebp.com]
Sent: Monday, April 04, 2011 6:49 AM
To: Jeremy Adams
Cc: lmsroofer@aol.com; Kemp NW Group
Subject: RE: Assembly Letter for Silver Bow Construction - Anvil Mountain Correctional Center Revision 1
Attachments: Silver Bow Construction Anvil Mountain Correctional Cntr. Assembly Letter Revision 2 04APR11.PDF

Here is the revised letter.

Steve Mackiewicz
Technical Coordinator, Western Region
Ph: *800-428-4511, x-57018*
Fax: *317-853-3095*
e-mail: *mackiewiczstephen@firestonebp.com*

Firestone
BUILDING PRODUCTS

For Technical Information:
http://technicaldatabase.fsbp.com/

Firestone Building Products Company, LLC
250 West 96th Street | Indianapolis, IN | 46260
800-428-4511 | www.firestonebpco.com

"If you don't have the time to do it right, when will you have the time to do it over?" - Anonymous

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From: Jeremy Adams [mailto:silvebow@ptialaska.net]
Sent: Friday, April 01, 2011 3:32 PM
To: Mackiewicz, Stephen M
Cc: lmsroofer@aol.com; Kemp NW Group
Subject: FW: Assembly Letter for Silver Bow Construction - Anvil Mountain Correctional Center Revision 1
Importance: High

Hi Stephen,

We're very close on letter. Just one minor change requested. See message below and make requested change to letter and get back to us as soon as possible (Monday 4-4-11). Thanks and have a great weekend!

Jeremy Adam
Silver Bow Construction
531 Shaune Drive Juneau, AK 99801
Ph. 907-780-2205, Fax. 907-780-5127
Email: silvebow@ptialaska.net

From: Smith, Sharon L (DOT) [mailto:sharon.smith@alaska.gov]
Sent: Friday, April 01, 2011 10:45 AM

To: Jeremy Adams
Cc: Harsany, Vinera S (DOT)
Subject: FW: Assembly Letter for Silver Bow Construction - Anvil Mountain Correctional Center Revision 1

Jeremy - a correction is needed.

Please see the below and the attached.

Sharon

From: Searcy, Ronald A (DOT)
Sent: Friday, April 01, 2011 10:43 AM
To: Smith, Sharon L (DOT)
Subject: FW: Assembly Letter for Silver Bow Construction - Anvil Mountain Correctional Center Revision 1

Sharon,

Attached is the Firestone Assembly Letter with the ADOT&PF stamp on it. There is one small error; the Administration Building has a 0.25 to 12 slope and not a 1-1/4 to 12 slope. The ADOT&PF Architect does not see this minor error as a problem. Firestone's Letter Intent to Warranty (see attached) lists the various roof slopes.

I stamped this letter as "Make Corrections Noted". Specification Section 01300, Paragraph 1.8.G.2.b states that this note "denotes review is conditional on compliance with notes made on the submittal." Please forward this to Siler Bow Construction, who can forward it to Firestone to review and correction. Please call me if you have any questions.

Ronald A. Searcy, P.E.
ADOT&PF Statewide Public Facilities
Phone: (907) 269-0809
Fax: (907) 269-0805
Email: ronald.searcy@alaska.gov