

SUBMITTAL TRANSMITTAL

CONTRACTOR'S REVIEW STAMP

A/E REVIEW STAMP

DENCO CONSTRUCTION SPECIALISTS
SHOP DRAWING AND SUBMITTAL REVIEW

JOB NO. DPA-072100
DATE 4-26-19
REVIEWER Shawnee Hallmark

Corrections or comments made relative to submittals during this review do not relieve the subcontractor from compliance with the requirements of the drawings and specifications. This check is only for review of general conformance with the design concept of the project and general compliance with the information given in the contract documents. The subcontractor is responsible for conforming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction, coordinating his work with that of other trades and performing his work in a safe and satisfactory manner.

**THIS REVIEW DOES NOT INDICATE NOR IMPLY ANY APPROVAL
OF CHANGES TO TIME OR CHANGES IN COSTS**

B - Exceptions As Noted
SUBMITTAL REVIEW
PERKINS See Submittal Transmittal for important qualifications and limitations.
+ WILL
Project No: 146054.000
Submittal ID: 07 21 00-001
Reviewed by: Iari Wickard
Date: 5/29/2019

Approved Pending
review of overall
roof assembly.

Correct Submittal # is
07 52 16-001

SUBMITTAL DATA

Project Dallas Park & Rec Dept Admin Offices Location 10031 E. Northwest Highway Dallas, TX 75238

General Contractor DENCO CONSTRUCTION SPECIALISTS

Trade Roofing

Items Submitted Thermal Insulation

Supplier Green Roofing Phone 214-505-1442

Substitutions and Deviations _____

Remarks _____

I CERTIFY THAT THE ABOVE ITEM DESCRIBED IN THE ATTACHED SUBMITTAL COMPLIES WITH THE CONTRACT DOCUMENTS EXCEPT AS NOTED ABOVE.

Shawnee Hallmark 972-226-2609 ext. 108 4-26-19

NAME (TRADE) PHONE NO. DATE

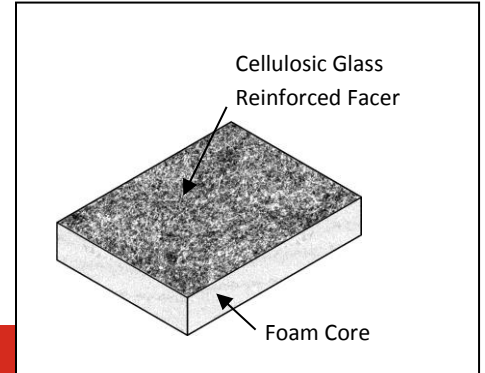
Review Comments: _____

ISO 95+™ GL Insulation

Item Description

Flat and Tapered Polyiso Boards

<u>Flat Boards:</u>	4' x 4' (1.22 m x 1.22 m) 4' x 8' (1.22 m x 2.44 m)
<u>Tapered Boards:</u>	4' x 4' (1.22 m x 1.22 m)
<u>Slope range:</u>	1/16" per foot (.5%) to 1/2" per foot (4%)
<u>Thickness range:</u>	0.5" (12.7 mm) to 4.5" (114.3 mm)



Meets or exceeds performance requirements of ASTM C 1289, Type II, Class 1

Product Information

Description:

Firestone ISO 95+ GL flat and tapered roof insulation consists of a closed-cell polyiso foam core laminated to a black glass reinforced mat facer on both major surfaces. Flat and tapered ISO 95+ GL insulation provides outstanding thermal performance on commercial roofing applications, while providing positive rooftop drainage to help eliminate ponding water when tapered ISO 95+ GL insulation is used.

All Firestone polyisocyanurate foam insulations use EPA accepted blowing agents. Firestone ISO 95+ GL incorporates a HCFC-free blowing agent that does not contribute to the depletion of the ozone layer (ODP-free).

Method of Application:

1. Insulation shall be neatly fitted to all roof penetrations, projections and nailers.
2. No more insulation shall be installed than can be covered with membrane and completed before the end of each day's work or before the onset of inclement weather.
3. Firestone ISO 95+ GL board may be installed using:
 - Firestone fasteners and plates

NOTE: For ballasted systems, the top layer of Firestone insulation may not be mechanically attached.

 - Hot asphalt (requires a cover board)
 - Firestone approved insulation adhesives
 - I.S.O. Twin Pack™
 - I.S.O. Stick™
 - Twin Jet
 - I.S.O. Spray™ R
 - I.S.O. FIX™ II

Acceptable Immediate Substrates:

- 3,000 psi Structural concrete (must be clean, dry, and properly cured)
- Steel deck (min 22 ga)
- Plywood and OSB (min 1/2")
- Lightweight concrete
- Gypsum deck (min 2")

NOTE: Please consult the Design Guides and QuickSpecs online at www.firestonebpco.com to review specific information regarding the assembly.

Storage:

- Keep insulation dry at all times
- Elevate insulation above the deck or ground
- Cover insulation with waterproof tarps

ISO 95+™ GL Insulation

Precautions:

- Polyiso foam will burn if exposed to a flame of sufficient heat and intensity. Keep away from heat, sparks, and open flames.
- Protect against dust that may be generated during installation.
- Refer to Safety Data Sheet (SDS) for additional information.
- Take care when transporting and handling Firestone insulation to avoid physical damage.

Specification Compliance:

ASTM C1289, Type II, Class 1
 UL Classified—UL1256
 FM Class 1 Approved
 Manufactured in an ISO 9001 Registered Facility
 CAN/ULC-S704, Type 1, Class 3



CCMC 13274-L

LEED® Information:

See Recycled Content in table below.

Manufacturing Locations: Florence, KY Corsicana, TX Bristol, Ct
 De Forest, WI Salt Lake City, UT Youngwood, PA
 Jacksonville, FL

NOTE: Miami Dade Classified polyiso is only produced in the Jacksonville, FL and Youngwood, PA facilities.

Typical Properties (Meets ASTM C 1289, Type II, Class 1)

Property	ASTM Test Method	Firestone Typical Performance
Compressive Strength:	D1621	Grade 2: 20 psi (138 kPa)
		Grade 3: 25 psi (172 kPa) *
Density:	D1622	2 pcf (32 kg/m ³)
Dimensional Stability:	D2126	<2%
Moisture Vapor Transmission:	E96	<1 perm (<57.5 ng/(Pa·s·m ²))
Water Absorption:	C209	<1% by volume
Service Temperature:	----	-100 to 250 °F (-73 to 121 °C)
Flame Spread:	E84	Index 50
Smoke Development:	E84	Index 160 - 180

*25 psi (172 kPa) available upon request.

TECHNICAL INFORMATION SHEET



ISO 95+™ GL Insulation

Product Information

Thickness*		(R-Value) **	Max Flute Span		Approx. Recycled Content		
inches	mm		inches	mm	Post-Consumer	Post Industrial	Total
0.5	12.70	2.9	1.50	38.10	52%	15%	67%
1.0	25.40	5.7	2.62	66.67	37%	15%	52%
1.1	27.94	6.3	2.62	66.67	36%	15%	51%
1.2	30.48	6.8	2.62	66.67	34%	15%	49%
1.3	33.02	7.4	3.67	93.34	32%	15%	47%
1.4	35.56	8.0	3.67	93.34	30%	15%	45%
1.5	38.10	8.6	4.37	111.12	29%	15%	44%
1.6	40.64	9.1	4.37	111.12	27%	15%	42%
1.7	43.18	9.7	4.37	111.12	26%	15%	41%
1.75	44.45	10.0	4.37	111.12	26%	15%	41%
1.8	45.72	10.3	4.37	111.12	25%	15%	40%
1.9	48.26	10.8	4.37	111.12	24%	15%	39%
2.0	50.80	11.4	4.37	111.12	24%	15%	39%
2.1	53.34	12.0	4.37	111.12	22%	15%	37%
2.2	55.88	12.6	4.37	111.12	21%	15%	36%
2.25	57.15	12.9	4.37	111.12	21%	15%	36%
2.3	58.42	13.2	4.37	111.12	21%	15%	36%
2.4	60.96	13.8	4.37	111.12	20%	15%	35%
2.5	63.50	14.4	4.37	111.12	20%	15%	35%
2.6	66.04	15.0	4.37	111.12	19%	15%	34%
2.7	68.58	15.6	4.37	111.12	18%	15%	33%
2.75	69.85	15.9	4.37	111.12	18%	15%	33%
2.8	71.12	16.2	4.37	111.12	18%	15%	33%
2.9	73.66	16.8	4.37	111.12	17%	15%	32%
3.0	76.20	17.4	4.37	111.12	17%	15%	32%
3.1	78.74	18.0	4.37	111.1	16%	15%	31%
3.2	81.28	18.6	4.37	111.12	16%	15%	31%
3.25	82.55	18.9	4.37	111.1	16%	15%	31%
3.3	83.82	19.2	4.37	111.12	16%	15%	31%
3.4	86.36	19.9	4.37	111.1	15%	15%	30%
3.5	88.90	20.5	4.37	111.12	15%	15%	30%
3.6	91.44	21.1	4.37	111.1	14%	15%	29%
3.7	93.98	21.7	4.37	111.12	14%	15%	29%
3.75	95.25	22.0	4.37	111.1	14%	15%	29%
3.8	96.52	22.3	4.37	111.12	14%	15%	29%
3.9	99.06	23.0	4.37	111.1	14%	15%	29%
4.0	101.60	23.6	4.50	114.30	14%	15%	29%
4.1	104.14	24.2	4.50	114.3	13%	15%	28%
4.2	1.6.58	24.9	4.50	114.30	13%	15%	28%
4.25	107.95	25.2	4.50	114.3	13%	15%	28%
4.3	109.22	25.5	4.50	114.30	13%	15%	28%
4.4	111.76	26.1	4.50	114.3	13%	15%	28%
4.5	114.3	26.8	4.50	114.30	13%	15%	28%

*Other thicknesses available upon request.

**R- values provide a 15-year time-weighted average in accordance with CAN/ULC-S770.

Please Firestone Technical Services Department at 1-800-428-4511 for further information.

This sheet is meant to highlight Firestone products and specifications and is subject to change without notice. Firestone takes responsibility for furnishing quality materials which meet published Firestone product specifications or other technical documents, subject to normal roof manufacturing tolerances. 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.

TECHNICAL INFORMATION SHEET

Insulation Attachment Patterns

Item Description

Fastening Patterns

Product Information

Description:

The diagrams below show the required patterns for proper placement of approved fasteners and plates for insulation on Standard Firestone 55 mph Roofing Systems.

The most common fastener density and pattern requirements are shown on this technical information sheet. Certain specifications may call for increased densities of fasteners in the perimeters and corners of roofs. For non-standard fastener densities, contact The Quality Building Services Technical Department at 800-428-4511 or visit the Firestone Website at www.firestonebpc.com.

Minimum Number of Fasteners and Plates

<u>Property</u>	<u>Insulation</u>	<u>Thickness</u>	<u>4'x4' Boards</u>	<u>4'x8' Boards</u>
Mechanically Fastened Systems*:	Any approved insulation	Any approved thickness	4	5
Non-Mechanically Fastened Systems:	ISO 95+™ GL or ISOGARD™ Insulation, RESISTA™ or ISOGARD CG Insulation, HailGard™ or ISOGARD HG Composite Board, ISO 95+ GL or ISOGARD Woodfiber Composite, or ISOGARD™ HD Composite	0.5"-1.4"	8	16
		1.5"-1.9"	6	12
		2"-4"	4	8
	FiberTop™ Insulation Structodeck HD (with primed red coating)	0.5"-1"	8	16
	ISOGARD HD Cover Board	0.5"-1"	6	12
	SECUROCK® Gypsum Fiber Roof Board (in a single-ply system)	0.25"	8	10
		0.50"	6	8
		0.625"	4	8
	DensDeck® (in a single-ply system)	0.25"	8	16
		0.50"	6	12
		0.625"	4	8
	DensDeck Prime (in a single-ply system)	0.25"	6	12
		0.50"	5	10
0.625"		4	8	
DensDeck or SECUROCK Gypsum Fiber Roof Board (in an asphalt system)	Any approved thickness	6	12	
DensDeck Prime (in an asphalt system)	Any approved thickness	4	8	

(All the above insulations require the minimum fastener densities listed)

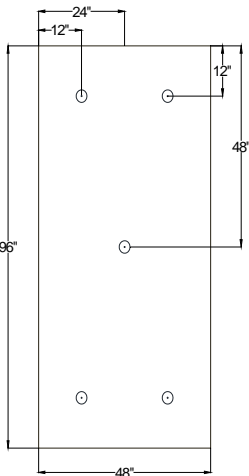
*Contact the Quality Building Services Technical Department for fastening rates with and air or vapor barrier/retarder.

TECHNICAL INFORMATION SHEET

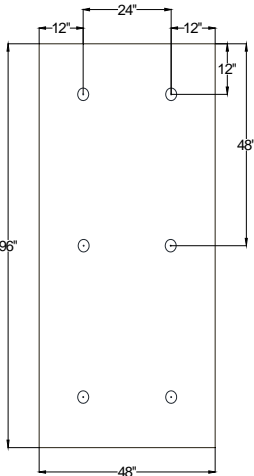
Insulation Attachment Patterns

Fastening Patterns: Representing 4'x8' insulation boards

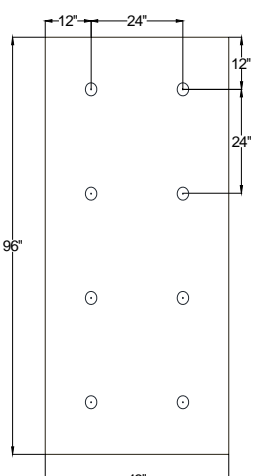
Please refer to the above mentioned attachment patterns for a specific board attachment rate. For further information relating to attachment patterns or system specifications please refer to the Firestone Technical Database at www.firestonebpco.com.



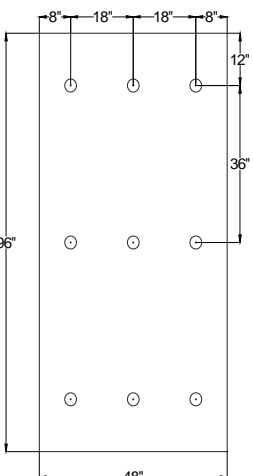
5 FASTENERS



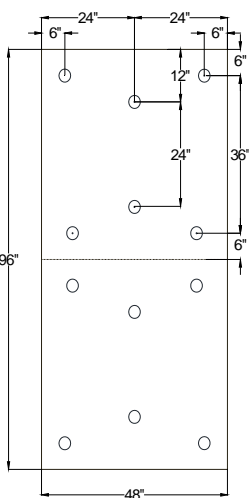
6 FASTENERS



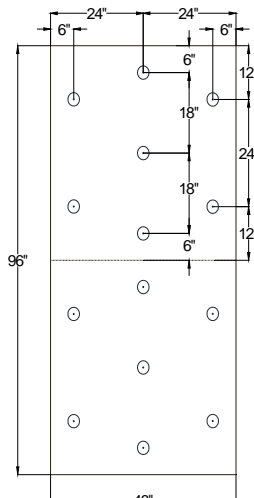
8 FASTENERS



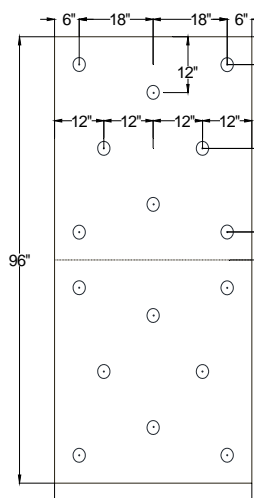
9 FASTENERS



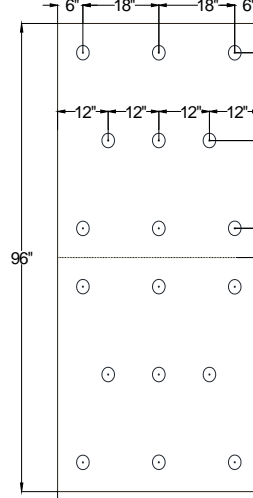
12 FASTENERS



14 FASTENERS



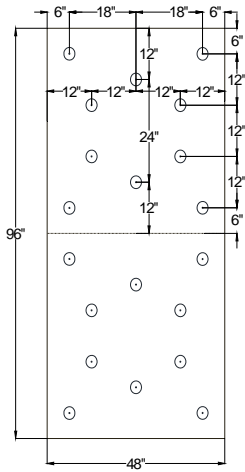
16 FASTENERS



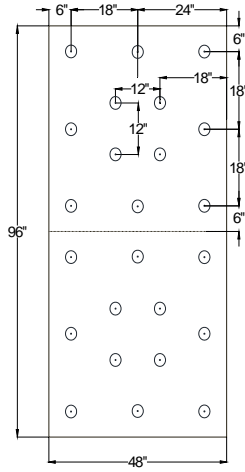
18 FASTENERS

TECHNICAL INFORMATION SHEET

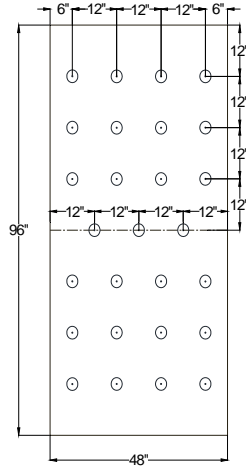
Insulation Attachment Patterns



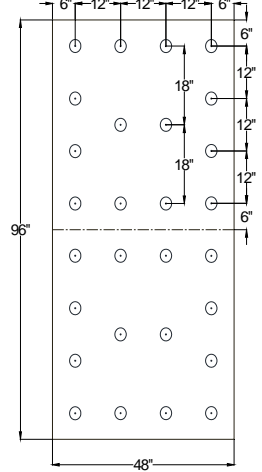
20 FASTENERS



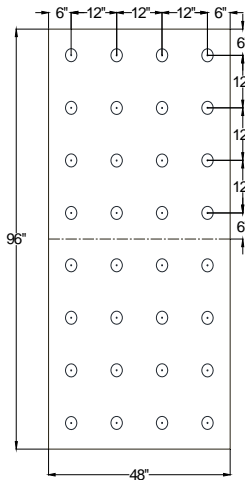
24 FASTENERS



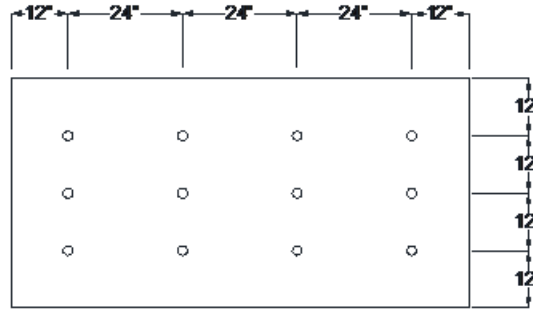
27 FASTENERS



28 FASTENERS



32 FASTENERS



FM Global Fastening Pattern for 1-90
Attachment of ISOGARD™ HD Cover Board

Please contact the Quality Building Services Technical Department at 1-800-428-4511 for further information.

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