CITY OF AMARILLO

DEPARTMENT OF BUILDING SAFETY

Minimum Requirements

COMMERCIAL ROOFING Informational Bulletin

Material and methods of recovering or replacing an existing roof shall comply with Chapter 15 of the 2012 IBC.

Commercial Re-Roofing Submittal Requirements:

- **Completed** roofing application for each address (side 1 & 2) to include:
  - ✓ Project address
  - ✓ Business Name of project (EG: Holiday Inn, McDonald's, Heart Surgery Center, Tripp's Harley)
  - ✓ Contractor information including address, telephone number/s and email address
  - ✓ Indicate that the project is commercial
  - ✓ Total number of squares for each type of roofing material
  - ✓ Valuation of project
  - ✓ Approximate roof slope for each type of roof
  - ✓ Existing roof information and if it is being removed
  - ✓ All roofing projects affecting any electrical, mechanical, plumbing, or signage, require state licensed contractor to perform those tasks.
  - ✓ New roof information including type, insulation thickness and R value & any special removal, installation or preparation comments.
  - ✓ Roof Scupper or roof drain information
- Scope/Work summary for each project (***see "Jones Building Sample Submittal"***)
- Architectural Cut Sheet (Manufacturer's Specifications) for each type of roofing being applied.
- Sketch of roof (plan view) for each building indicating each type of roof, drain or scupper locations and a North arrow for orientation.

Note: If a single address has multiple buildings, attach an extra sheet to the application with a breakdown of the number of squares and valuation for each building. The buildings should be identified as they are identified on site by building numbers. If there is not a building number, then a description (IE: laundry room, postal kiosk, leasing office, etc.) should be provided or a location in relation to the main building and/or where the structure is located (IE: north of main building or at northwest corner of property.

Commercial Roofing MINIMUM Requirements:

- Roofing contractor is responsible for providing access for all roof inspections
- Roof metal required to meet ANSI/SPRI-1 (coping, caps, and edge metal) Properly labeled
- Minimum R-20 roof deck insulation on all re-roofing projects when the roof assembly is considered as the exterior envelope of conditioned buildings.
- When roof assembly is insulated attic; ventilation is prohibited.
- Minimum roof curb height and flashing height 8" (exception pitch pan)
- Plumbing vent stack minimum height 12"
- Elevating, supporting, and securing electrical conduit, gas lines, etc., in compliance with current standards is required on all roofs. Licensed contractors are required for all electrical, mechanical, plumbing, and sign work.
- Positive drainage required on all roofing systems; all roofs shall be designed and built to have "positive drainage." Roof drains or roof slope shall be provided to ensure drainage of a roof area within 48 hours following rainfall. (See NRCA definition, NRCA Roofing and Waterproofing Manual, Fifth Edition)

ROOFING PERMIT APPLICATION

Department of Building Safety, City of Amarillo

CITY OF AMARILLO DEPARTMENT OF BUILDING SAFETY (806) 378-3041
509 SE 7TH AVE. PO BOX 1971, AMARILLO, TX 79105-1971
Fax (806) 378-3085 www.amarillo.gov
Inspection line 806-342-1555 Automated system 24 Hours a day

R

I. Job Location

email address: building@amarillo.gov

Site Address			Project / Business Name (Commercial Only)	
#1 ANY STREET			THE JONES BUILDING	
Name of Property Owner			Phone	
MR. JONES			806/555-1212	
City	State	Zip Code		
ANYTOWN	TX	79000		

II. Contractor/ Homeowner Information (permit holder)

☑ Contractor ☐ Homeowner	Name of Roofing Contractor or Homeowner	
	A ROOFING CONTRACTOR	

Address (Street no. and Name)			Insurance Carrier /number (or reason for exemption)	Fax
123 MAIN ST.			ALLSGOOD INS.	806/555-1213
City	State	Zip Code	Primary Telephone number	Cell Phone number
ANYTOWN	TX	79000	806/555-1212	806/555-1212
Email address				
joeschmo@a-roofingcontractor.com				

III. Type of Job – Required Information

☐ **Residential**
- ☐ Main Building
- ☐ Garage
- ☐ Accessory Building
- ☐ Other _____
- ☐ Manufactured Home

Number of Squares: 132 SQUARES

Valuation of job: $ 200,000.00

Type of Roof Covering:
- ☐ Composition
- ☐ Wood
- ☑ Metal
- ☑ Other _____

☑ **Commercial**
(MUST complete sections VII & VIII on page 2)

Estimated start date: 03.03.14

Description of work to be performed (Residential only):

DETAILS ON PAGE 2 & SCOPE OF WORK ATTACHED.

IV. Types of Appliances

Please mark what **type of appliances** are used in the structure:
☐ Gas fired heating ☐ Gas fired water heater ☐ All electric ☐ Combination _____ ☐ None

V. Homeowner Affidavit / Applicant Signature

I hereby certify the work described on this permit application shall be **installed by myself in my own home** in which is my legal residence of record and I have not obtained or held a Roofing permit within the past two (2) years at any other residence. All work shall be installed in accordance with the City of Amarillo Building Code. I will cooperate with the City of Amarillo inspector and assume the responsibility to arrange for required inspections.

I herby certify that the proposed work is authorized by the owner of record and that I have been authorized by the owner to make this application as his/her authorized agent, and we agree to conform to all applicable laws of the State of Texas and the City of Amarillo. All information on this application is accurate to the best of my knowledge.

Signature of Licensee or Homeowner (Homeowner's signature indicates compliance with Section V Homeowner Affidavit)	Date
Joe Schmo	03.02.14
Printed name JOE SCHMO	

VI. Instructions for Completing Application

GENERAL: Work shall not be started until the application for permit has been filed with City of Amarillo Department of Building Safety. All work shall be in conformance with the City of Amarillo Building Code. The inspection telephone number is provided on the top of this permit form. When ready for inspection, call the Amarillo Department of Building Safety providing as much advance notice as possible. The inspection department will need the **job address** and/or **permit number.**

EXPIRATION OF PERMIT: A roofing permit is valid for 60 days. A permit shall become invalid if the authorized work is not commenced within two months after issuance of the permit or if the authorized work is suspended or abandoned for a period of six months after the time of commencing the work. **A PERMIT WILL BE CANCELLED WHEN NO INSPECTIONS ARE REQUESTED AND CONDUCTED WITHIN SIX MONTHS OF THE DATE OF ISSUANCE OR THE DATE OF A PREVIOUS INSPECTION. CANCELLED PERMITS CANNOT BE REFUNDED OR REINSTATED.**

COMMERCIAL ROOFING PERMIT INFORMATION

VII. Existing Roof Information

Existing Roof Type	Existing Deck Type	Surfacing
☑ Built Up	☐ Wood	☐ Gravel
☐ Modified Bitumen	☑ Steel	☐ Granules
☐ Thermoplastic	☐ Concrete	☐ Coating
☐ Thermoset	☑ Gypsum	☑ Smooth –surfaced
☐ Metal	☑ Lightweight Concrete	☐ N/A
☐ Asphalt Shingle		
☐ Wood Shingle / Shake		
☐ Tile		
☑ Other DURALAST		

Existing Roof Information:

Existing insulation: ☐ Yes ☑ No If Yes, approximate thickness _____

Number of existing roofs: 2 Existing roof(s) to be removed: ☑ Yes ☐ No

Does existing roof have positive drainage: ☑ Yes ☐ No

VIII. New Roof Information:

New Roof Type

- ☐ Built Up
- ☐ Modified Bitumen
- ☐ Thermoplastic
- ☑ Thermoset
- ☐ Metal
- ☐ Asphalt Shingle
- ☐ Wood Shingle / Shake
- ☐ Tile
- ☐ Coating
- ☐ Other _____

~~MATCH~~ EXISTING.

Roof Manufacturer: ~~GAF~~ EVERGUARD

Is new insulation provided: ☑ Yes ☐ No

If yes:
Type POLYISOCYANURATE

Thickness 1.5" R-Value 20

Is perimeter edge securement certified for compliance with ANSI / SPRI ES-1 ☑ Yes ☐ No

If a recover system (not a tear off):

Preparation: N/A

Separation layer: N/A

Is new roof a variance from manufacturer's requirements? ☐ Yes ☑ No

If yes, explain: _____

Is new roof a variance from local code ? ☐ Yes ☑ No

If yes, explain: _____

Special Remarks: 3 ROOF AREAS / ~~PLEASE EMAIL PERMIT~~ WHEN ISSUED.

Project: _____

SCOPE / WORK SUMMARY

Job Number:	TBD
Job Name & Address:	THE JONES BUILDING #1 ANY STREET
Lightning Protection:	
Crane:	Nortex
Construction Type:	Existing Facility
Roof Types:	TPO
Deck Type:	Steel, Gyp & LWIC
Building Height:	Really High
Roof Area:	Penthouse – 61 SQ's 13th Floor – 45 SQ's Low Roof Areas – 26 SQ's

DEMOLITION / PREPARATION – All areas

1. Complete removal of existing roof systems (DuroLast and Built-Up) down to deck with proper disposal
2. Includes minor deck repairs and replacement not to exceed 500 sf.
   - ***NOTE: Deck repairs exceeding 500 sf (total) will be tracked and billed***
3. Existing thru-wall scuppers and downspouts are to remain in place

NEW ROOF SYSTEM – All areas

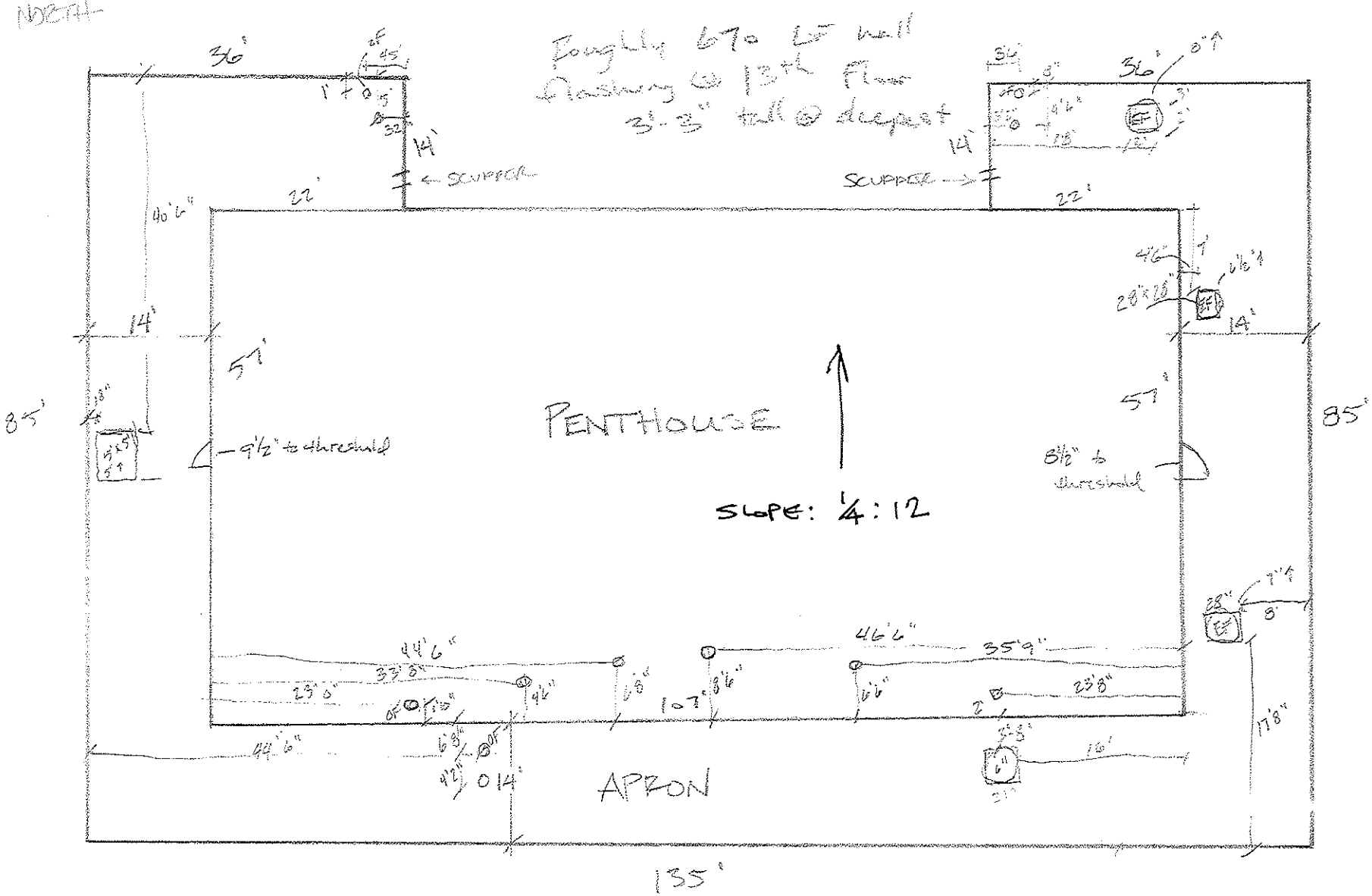
1. Mechanically attach 1.5" polyisocyanurate insulation
   a. Gyp and LWIC decks = 2.8" Twin Loc Nails (3.8" if necessary)
   b. Steel Decks = 3" screws and plates
      i. Fastening patterns from GAF on high roofs
2. OlyBond ¼" Securock
3. Fully-adhered, white, 80-mil TPO membrane
4. Provide new 60-mil membrane flashing at all walls, curbs, and penetrations.

5. Provide roof protection pads below all rooftop blocking and supports.
6. Provide approximately 100 lineal feet of walk pad – locations as directed by owner
7. Provide 20'x30' section of walkway pad under large condenser
8. Install new 24 ga prefinished metal coping on lower roofs – color as selected by owner (standard colors only)

GENERAL

1. Owner will provide the south parking lot for material storage and crane set-up
2. Owner will provide interior roof access (interior protection of access points is included in our scope)
3. Lightning protection testing will be performed before and after roof work has been completed to insure that the existing system is functional.
    - *Repair pricing will be provided if damage is found during the initial test*

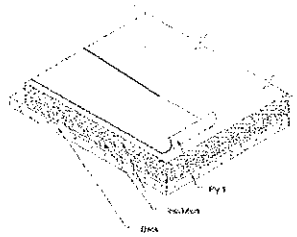
THE JONES BUILDING
AMARILLO, TX



Quality You Can Trust Since 1886...From North America's Largest Roofing Manufacturer

ESK-24604 THE JONES Building 10/17/2013

Amarillo, TX



SPECIFICATION: T-FA-T-I-80

COMPONENT	*TYPE*	*REQUIRED*	*ATTACHMENT*	*RATE OF APPLICATION*
DECK	Concrete T		Per Code	
INSULATION	1.5" EnergyGuard™ PolyIso Roof Insulation ASTM C-1289	One (1) layer	OlyBond500™ Insulation Adhesive	Per GAF® Requirements
INSULATION	¼" Securock by USG	One (1) layer	OlyBond500™ Insulation Adhesive	Per GAF® Requirements
SINGLE PLY MEMBRANE	EverGuard® TPO 80 Mil Membrane ASTM D-6878	One (1) ply	EverGuard® TPO or WB181 Bonding Adhesive	60 sq ft/gallon per surface for solvent based adhesive or 135-145 sq ft/gallon per surface for WB181 bonding adhesive Adhesive is applied to both the substrate surface and the underside of the membrane
FLASHING MEMBRANE	EverGuard® TPO 60 Mil Membrane ASTM D-6878	One (1) ply	EverGuard® TPO or WB181 Bonding Adhesive	60 sq ft/gallon per surface for solvent based adhesive or 135-145 sq ft/gallon per surface for WB181 bonding adhesive Adhesive is applied to both the substrate surface and the underside of the membrane
GUARANTEE	WeatherStopper® EverGuard® Diamond Pledge™ NDL	Fifteen (15) years		GUARANTEE FEE APPLICABLE

All GAF® and EverGuard® accessories shall be used where applicable.
This system shall be installed by a GAF® Master Select™ Contractor.

Each roof has unique requirements. This specification is a graphic representation of products and their installation. To properly assess specific roofing needs, code compliance, system configurations and warranty eligibility, contact Contractor Services. Note: Your Area Field Services or Technical Services Managers are the only employees who can approve any deviation from GAF's published specification manual(s). Always review the appropriate Application & Specification Manual (EverGuard,Topcoat or GAF Asphaltic) before commencing this project, as the Manual may contain information that is important for a successful installation.

This Cut Spec specification shall not waive, supersede or alter the requirements and recommendations found in the most current Application & Specification Manual(s) referenced above, printed technical bulletins or specific correspondence drafted for this project by the Area Field Services or Technical Services Manager.

Architectural Information Services 1212 Brai Drive Port Arthur, TX 77640
Ph: 1-800-522-9224 Fax: 877-271-6588

EnergyGuard™ PolyISO Sell Sheet
(COMGT318)

Updated: 9/13

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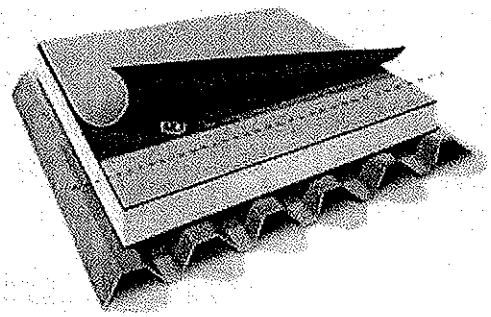
EnergyGuard™ POLYISO INSULATION



Description

EnergyGuard™ Polyiso Insulation board is made of glass fiber reinforced cellulosic felt facers bonded to a core of isocyanurate foam. EnergyGuard™ Polyiso Insulation manufactured in our Statesboro, GA & Gainesville, TX plant uses the latest technology in manufacturing to provide a product of the highest quality.

Features and Benefits

- EnergyGuard™ Polyiso Insulation is designed for use in practically any low-slope roof application including built up roofs, modified bitumen, or most single-ply roofing systems
- High insulation value — Superior "LTTR" value compared to any other FM Class I rated product of equivalent thickness at 5.7 per inch
- Meets the requirements of ASTM C1289 Type II, Class 1, Grade 2 (20 PSI) and available in Grade 3 (25 PSI)
- Because of its light weight, this material is easy to handle on the job site and installs faster. Easier cutting in the field provides the installer with simplified fabricating on the roof deck.
- Manufactured with EPA-compliant blowing agents containing no CFCs or HCFCs; has zero ozone depletion potential (ODP) and virtually no global warming potential (GWP)
- Available in a variety of thicknesses from 0.5" to 4.0" to best suit your needs
- Available in 4'x4' and 4'x8' boards
- Tapered panels are also available for when the roof design requires improved drainage in slopes of 1/16", 3/16", 1/8", 3/8", 1/4", and 1/2"

EnergyGuard™ Polyiso Insulation and Tapered Polyiso Insulation Codes & Compliance

- FM Approved—consult RoofNav.com for specific assemblies
- UL Classified—consult ul.com for specific assemblies
- For additional information contact GAF Technical Services at 1-800-ROOF-411 or technicalquestions@gaf.com

TYPICAL PHYSICAL PROPERTY DATA CHART (POLYISO FOAM CORE ONLY)		
PROPERTY	**TEST METHOD**	**VALUE**
Compressive Strength	ASTM D1621	≥ 20 PSI
Dimensional Stability (Length + Width)	ASTM D2126	< 2%
Water Absorption	ASTM C209	< 1.5%
Moisture Vapor Transmission	ASTM E96	< 1.5 Perm
Service Temperature		-100° to 250°F
Flame Spread Index	ASTM E84	< 75*
Smoke Developed Index	ASTM E84	< 200*

*Foam Core

POLYISO INSULATION

Flat Stock and Tapered Boards

gaf.com

Flat Stock Physical Characteristics and Shipping Information

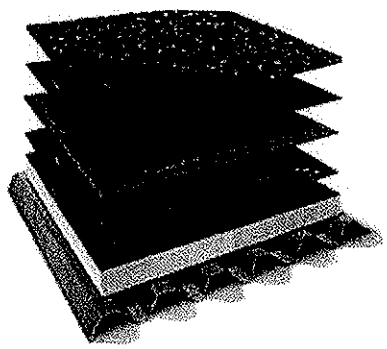
Physical Characteristics			Shipping Information (4'x4')				Shipping Information (4'x8')			
Size*	R-value	Max Flute Span (in)	Bds/ Bundle	Bds/Truck	Bundles/ Truck	Sq. Ft. Per Truck	Bds/ Bundle	Bds/Truck	Bundles/ Truck	Sq. Ft. Per Truck
1.0	5.6	2 5/8"	48	2,304	48	36,864	48	1,152	24	36,864
1.1	6.2	2 5/8"	43	2,064	48	33,024	43	1,032	24	33,024
1.2	6.7	2 5/8"	38	1,824	48	29,184	38	912	24	29,184
1.3	7.3	3 5/8"	36	1,728	48	27,648	36	864	24	27,648
1.4	7.9	4 3/8"	34	1,632	48	26,112	34	816	24	26,112
1.5	8.5	4 3/8"	32	1,536	48	24,576	32	768	24	24,576
1.6	9.1	4 3/8"	30	1,440	48	23,040	30	720	24	23,040
1.7	9.6	4 3/8"	28	1,344	48	21,504	28	672	24	21,504
1.8	10.2	4 3/8"	25	1,200	48	19,200	25	600	24	19,200
1.9	10.8	4 3/8"	25	1,200	48	19,200	25	600	24	19,200
2.0	11.4	4 3/8"	24	1,152	48	18,432	24	576	24	18,432
2.1	12.0	4 3/8"	22	1,056	48	16,896	22	528	24	16,896
2.2	12.6	4 3/8"	21	1,008	48	16,128	21	504	24	16,128
2.3	13.2	4 3/8"	20	960	48	15,360	20	480	24	15,360
2.4	13.8	4 3/8"	20	960	48	15,360	20	480	24	15,360
2.5	14.4	4 3/8"	19	912	48	14,592	19	456	24	14,592
2.6	15.0	4 3/8"	18	864	48	13,824	18	432	24	13,824
2.7	15.6	4 3/8"	17	816	48	13,056	17	408	24	13,056
2.8	16.2	4 3/8"	17	816	48	13,056	17	408	24	13,056
2.9	16.8	4 3/8"	16	768	48	12,288	16	384	24	12,288
3.0	17.4	4 3/8"	16	768	48	12,288	16	384	24	12,288
3.1	18.0	4 3/8"	15	720	48	11,520	15	360	24	11,520
3.2	18.6	4 3/8"	15	720	48	11,520	15	360	24	11,520
3.25	18.9	4 3/8"	15	720	48	11,520	15	360	24	11,520
3.3	19.2	4 3/8"	14	672	48	10,752	14	336	24	10,752
3.4	19.9	4 3/8"	14	672	48	10,752	14	336	24	10,752
3.5	20.5	4 3/8"	13	624	48	9,984	13	312	24	9,984
3.6	21.1	4 3/8"	13	624	48	9,984	13	312	24	9,984
3.7	21.7	4 3/8"	12	576	48	9,216	12	288	24	9,216
3.8	22.3	4 3/8"	12	576	48	9,216	12	288	24	9,216
3.9	23.0	4 3/8"	12	576	48	9,216	12	288	24	9,216
4.0	23.6	4 3/8"	12	576	48	9,216	12	288	24	9,216

*Other sizes available upon request

Tapered Physical Characteristics and Shipping Information

Physical Characteristics			Shipping Information (4'x4')			
Slope	Thickness	Size*	Bds/ Bundle	Bds/Truck	Bundles/ Truck	Sq. Ft. Per Truck
1/8"	.5"-1"	AA	64	3,072	48	49,152
	1"-1.5"	A	38	1,824	48	29,184
	1.5"-2"	B	26	1,248	48	19,968
	2"-2.5"	C	20	960	48	15,360
	2.5"-3"	D	16	768	48	12,288
	3"-3.5"	E	14	672	48	10,752
	3.5"-4"	F	12	576	48	9,216
1/4"	.5"-1.5"	X	48	2,304	48	36,864
	1.5"-2.5"	Y	24	1,152	48	18,432
	2.5"-3.5"	Z	16	768	48	12,288
	1"-2"	G	32	1,536	48	24,576
	2"-3"	H	19	912	48	14,592
	3"-4"	I	12	576	48	9,216
1/2"	.5"-2.5"	Q	32	1,536	48	24,576
	1"-3"	XX	22	1,056	48	16,896

*Other sizes available upon request



EnergyGuard®
High Density Fiberboard

Information Sheet

GAF MATERIALS CORPORATION

Quality You Can Trust Since 1886...
From North America's Largest Roofing Manufacturer™

Product Data Sheet
EnergyGuard™
High Density Fiberboard

Description
EnergyGuard™ High Density Fiberboard Roof Insulation is an insulation board of interlocking natural, long fibers, impregnated for asphalt moisture resistance and extra strength. The top face is further treated to reduce the absorption of asphalt.

Advantages
- Strong and rigid.
- Increases strength of entire roof.
- Excellent dimensional stability.
- Withstands normal deck traffic during and after construction.
- Excellent bonding to BUR felts.
- Good insulating properties.
- Resists damage due to rough handling in shipment.
- Excellent recover board.

Uses
- EnergyGuard™ High Density Fiberboard roof insulation can be used directly over structural roof decks, see chart.
- It is also widely used as a separation board over existing roofs in recover installations. In recover applications, all wet areas of the old roof must be removed. All loose and protruding gravel must also be removed.
- Properly installed, EnergyGuard™ High Density Fiberboard roof insulation is suitable as a cover board for use under most built-up, modified bitumen and most single ply roofing systems.
- Refer to the application specifications in the current membrane manufacturer's Application and Specifications Manual for proper installation procedures for Fiberboard roof insulation.

Limitations and Potential Fire Hazard
- EnergyGuard™ High Density Fiberboard roof insulation is a non-structural, non-load bearing material.
- EnergyGuard™ High Density Fiberboard roof insulation should be stored dry and protected from the elements. No more insulation should be installed than can be covered completely with roofing on the same day.
- As unprotected fiberboard will burn, fire safety precautions should be observed whenever fiberboard product is used.
- Direct torching of modified bitumen roofing to EnergyGuard™ High Density Fiberboard is a fire hazard. DO NOT use under torch-applied modified systems.

Code Compliance
- Listed by UL, ULC for use under Class A, B, or C Roof Covering. See UL, ULC Inc. *Roofing Materials and Systems Directory* for details. Materials will have UL, ULC labels only when specified on order.
- Subject to the conditions of Approval as a roof insulation when installed as shown in the current edition of the *Factory Mutual Research Approvals Guide.*
- For details, consult current Factory Mutual Approvals Guide. ASTM C208,ASTM C209 and Federal Specification LLL-I-535B, Class E (Cancelled 4-18-85), CAN/ULC S706.

EnergyGuard™ High Density Fiberboard Roof Insulation

Thickness/Thermal Values/Flute Spanability

Nominal Thickness Inches	THERMAL VALUES C-Value[2]	R-Value[3]	Maximum Flute Spanability
½" (12 mm)	0.77	1.3	1 ⅞"
1" (25 mm)	0.40	2.5	2 ⅝" (66.7 mm)
1½" (38 mm)	0.26	3.8	4 ⅜" (111.1 mm)

(2) C = BTU/°F • ft² • h (3) R = °F • ft² • h/Btu

Typical Physical Properties

Property	Test Method	Value
Water Absorption	ASTM C208, C209	7% Volume Maximum
Weight/Sq. Ft., 1" (25.4 mm) Thick		1.7 lbs. Maximum
Linear Expansion	ASTM C208, C209	0.5% Maximum

(1) Note: Physical and thermal properties shown are based on data obtained under controlled laboratory conditions and are subject to normal manufacturing tolerances.

SAFETY WARNING: DO NOT EXPOSE TO OPEN FLAME OR EXCESSIVE HEAT, MAY BURN IF IGNITED. IF IGNITED, EXTINGUISH COMPLETELY.

NOTE: REPAIR ROOF LEAKS PROMPTLY TO AVOID ADVERSE CONDITIONS, INCLUDING MOLD.

EnergyGuard™ Perlite Roof Insulation

Data Sheet

Updated: 1/10

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GAF MATERIALS CORPORATION

Quality You Can Trust Since 1886...
From North America's Largest Roofing Manufacturer™

GAF MATERIALS CORPORATION

ENERGYGUARD™ PERLITE ROOF INSULATION (1 of 2)

Description

EnergyGuard™ Perlite roof insulation is a homogenous board composed of expanded Perlite particles, selected binders and cellulose fibers, which give EnergyGuard™ Perlite roof insulation its insulating efficiency. The surface is treated to reduce bitumen absorption assuring proper adhesion of roof membranes.

EnergyGuard™ Perlite roof insulation is available in 2' x 4' (0.6m x 1.2m) and 4' x 4' (1.2m x 1.2m) boards in standard thicknesses of 3/4", 1", 1-1/2", and 2" (19mm, 25mm, 38mm and 51mm). Other sizes are available on request.

Uses

- EnergyGuard™ Perlite roof insulation is designed to be used directly over structural roof decks.
- It is also widely used as a separation board over existing roofs in recover installations. In recover applications, all wet areas of the old roof must be removed. All loose and protruding gravel must also be removed.
- Properly installed, EnergyGuard™ Perlite roof insulation is suitable for use under built-up, modified bitumen and some single ply roofing systems.
- Refer to the application specifications in the current Membrane Manufacturer's Application and Specifications Manual for proper installation procedures for EnergyGuard™ Perlite roof insulation.

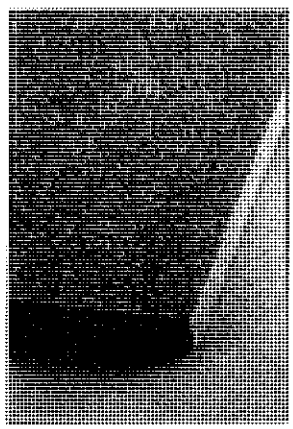
Advantages

- Stable insulating properties.
- Exceptional fire resistance (Class 25).
- Excellent dimensional stability.
- Resists damage due to normal deck traffic during and after construction.
- Fast and easy to apply.
- Tough performance proven for over 30 years.
- The minimum recycled content is 25% by weight.

Limitations

- EnergyGuard™ Perlite roof insulation is a non-structural, non-loadbearing material.
- EnergyGuard™ Perlite roof insulation should be stored dry and be protected from the elements. Once properly loaded at the job site, remove factory wraps and cover with a breathable tarp.
- No more insulation should be applied than can be completely covered with the finished roofing on the same day.
- Do NOT use under fully adhered single ply systems or with direct torch application of modified bitumen.
- If torch grade modified bitumen roofing is to be installed over EnergyGuard™ Perlite, a fiberglass base sheet MUST first be installed.

EnergyGuard™ Perlite Roof Insulation



WARNING: DO NOT EXPOSE TO OPEN FLAME OR EXCESSIVE HEAT. MAY SMOLDER IF IGNITED. IF IGNITED, EXTINGUISH COMPLETELY.

Code Compliance

EnergyGuard™ Perlite complies with the requirements of ASTM Standard C728 (which supercedes Federal Specifications HH-I-529).

Listed by Underwriters Laboratories for use under Class A, B or C Roof Covering. See UL, ULC Roofing Materials and System Directory for details. Materials will have UL, ULC labels only when specified on order.

Factory Mutual rated for fire and wind resistance. For current approvals, see current Factory Mutual Approvals Guide.

Is approved for use in UL, ULC Fire Resistance Roof-Ceiling Design (P&R-Designs). Please see the UL, ULC Roofing Materials and System Directory for the latest approvals.

Complies with the Environmental Protection Agency Regulation 40 CFR Part 248, "Guideline for Federal Procurement of Building Insulation Products Containing Recovered Materials", as a recycled product approved for use on any project using federal funds.

Thermal Values[1]

Thickness* (nominal)		"C" value (Conductance)		R-Value (Resistance)	
Inches	mm	BTU/(hr•ft2•°F)	W/m2•°C	(hr•ft2•°F)/BTU	m2•°C/W
3/4"	19	0.48	2.73	2.08	.37
1"	25	0.36	2.04	2.78	.49
1 1/2"	38	0.24	1.36	4.17	.74
2"	51	0.18	1.02	5.56	.98

For Use Over Metal Decks

The minimum thickness of EnergyGuard™ Perlite insulation over metal decks is as follows:

	Narrow	Intermediate	Wide
Width of Rib Opening	Up to 1" (25mm) maximum	Up to 1 3/4" (44mm) maximum	Up to 2 1/2" (64mm) maximum
Thickness of Insulation (minimum)	3/4" (19mm)	1" (25mm)	1 1/2" (38mm)

Avoid concentrating loads on insulation. Minimum bearing on flat surface: 2" (51mm).

Typical Physical Properties

Property	Value	Test Method
Water Absorption, % by Volume – 2 hours	1.5 max.	ASTM C209
Compression Resistance 5% Consolidation— psi (kPa)	30 (207) nom.	
10% Consolidation— psi (kPa)	40 (276) nom	ASTM C165
Laminar Tensile Strength — psi (kPa)	7 (48)	ASTM C209
Thermal Conductance (C) BTU / (hr • ft2 • °F) [nominal 1"]	0.36	ASTM C177
(W/m² • °C) [nominal 25mm]	(2.04)	ASTM C177
Flexural Strength — psi (kPa)	65 (448)	ASTM C203
Product Density — pcf (kg/m³)	9 (144)	ASTM C209
Dimensional Stability	0.5%	ASTM C209

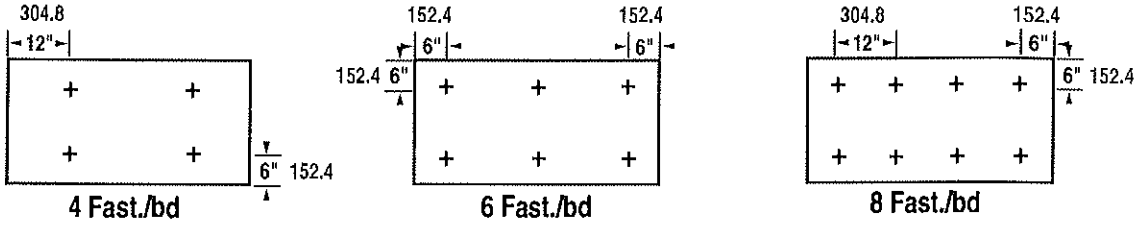
[1]Note: Physical and thermal properties shown are based on data obtained under controlled laboratory conditions and are subject to normal manufacturing tolerances.

GAF MATERIALS CORPORATION

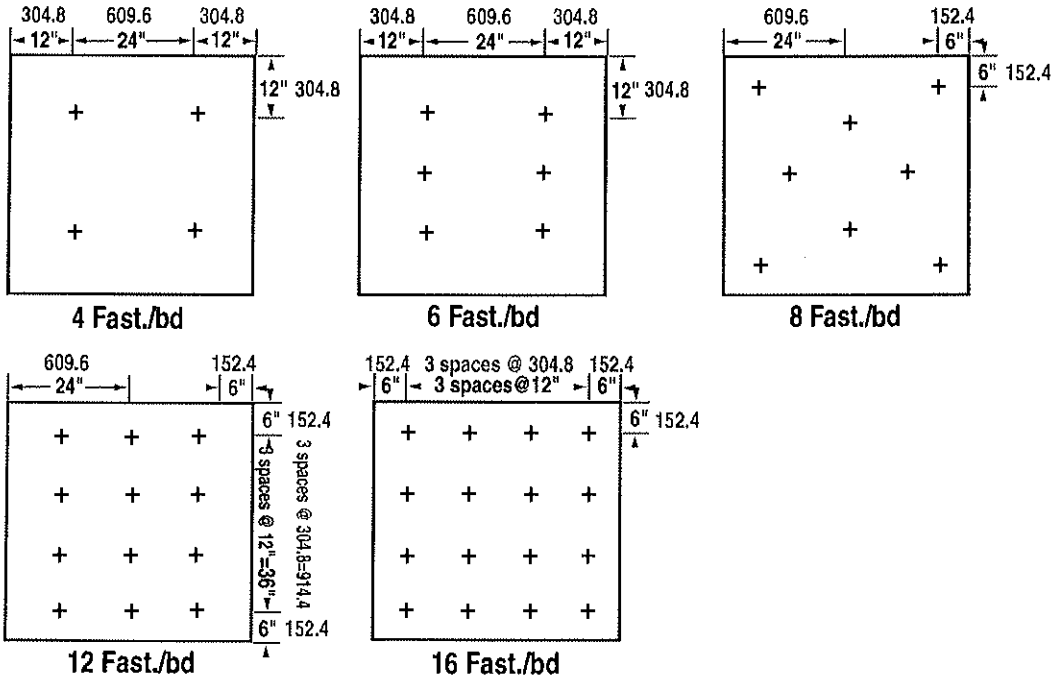
ENERGYGUARD™ PERLITE ROOF INSULATION (2 of 2)

Design Considerations – Suggested Insulation Fastener Patterns
(NOTE: Measurements in GRAY are in millimeters)

4' x 4' (1220 x 1220) Boards



2' x 4' (610 x 1220) Boards



NOTE: These patterns are for FM Approved Decks utilizing appropriate FM Approved screws and plates. Consult FM Loss Prevention Data Sheets 1-49 for specific perimeter and corner fastening details. For proper attachment, fasteners must penetrate the flange or the metal deck a minimum of 3/4"(19.05 mm). Due to ongoing testing programs and changes in FM Global requirements, the number of fasteners and their placement are subject to change without notice. Consult current FM Approvals Guide and Loss Prevention Data Sheets 1-28, 1-29 and 1-29R for approved fastener density for EnergyGuard™ Perlite Roof Insulations. If your fastener pattern is not listed, please contact Contractor Services Hotline at 1-800-766-3411.

LIMITED WARRANTY: GAF Materials Corp. warrants that, at the time of delivery, the product contained herein shall conform to GAF Materials Corp. specifications therefor. THIS WARRANTY IS EXCLUSIVE AND IS IN LIEU OF ALL OTHER WARRANTIES, CONDITIONS AND REPRESENTATIONS, WHETHER BY STATUTE, AT LAW OR IN EQUITY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Recommendations made by GAF Materials Corp. are believed to be reliable, but GAF Materials Corp. makes no warranty of results to be obtained. BUYER'S SOLE AND EXCLUSIVE REMEDY, regardless of the theory on which a claim may be based, including, without limitation, negligence, contract, breach of warranty, strict product liability or misrepresentation, IS THE REPLACEMENT OF THIS PRODUCT. In NO event shall GAF Materials Corp. be liable for INCIDENTAL, CONSEQUENTIAL, SPECIAL, INDIRECT, OR OTHER SIMILAR PUNITIVE DAMAGES OF ANY KIND, INCLUDING DAMAGE TO THE INTERIOR OR EXTERIOR OF ANY BUILDING.

Dens-Deck® Prime™ Roof Board

Data Sheet

Updated: 1/10

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Quality You Can Trust Since 1886...
From North America's Largest Roofing Manufacturer™

Distributed by:

GAF®

GAF MATERIALS CORPORATION

DENS-DECK® PRIME™ ROOF BOARD (1 of 2)

Manufactured by:

G-P Gypsum
a Georgia-Pacific company

133 Peachtree Street, N.E.
Atlanta, GA 30303
Technical: 1-800-225-6119

Description

Dens-Deck® Prime™ Roof Board combines an exceptional fire barrier, thermal barrier and recovery board used in various commercial roofing systems with a pre-primed surface to make the bond even stronger. The patented Dens-Deck® design employs glass mat facings front and back that are embedded into a water resistant and moisture resistant treated gypsum core, providing excellent fire resistance, moisture resistance and wind uplift properties. The unique construction of Dens-Deck® Prime™ provides superior flute spanning and will help stiffen and stabilize the roof deck. Additionally, Dens-Deck® Prime™ has been shown to withstand delamination, deterioration, warping and job-site damage more effectively than roofing membrane substrates such as paper-faced gypsum board, fiberboard and perlite insulation.

Primary Uses

Roof system manufacturers and designers have found Dens-Deck® Prime™ roof board to be compatible with many types of roofing systems, including: modified asphalt, single ply, metal systems, recover board, as well as an overlayment for polyisocyanurate and polystyrene insulation. Dens-Deck® Prime™ can also be used as a form board for poured gypsum concrete deck in roof applications as well as a substrate for spray foam roofing systems. 1/2" and 5/8" Dens-Deck® Prime™ may also be used in vertical applications as a backer board or liner for the roof side of parapet walls.

Dens-Deck® Prime™ allows the bonding of cold mastic modified bitumen and torching directly to the surface. **Refer to specific membrane system application instructions.** System manufacturers and designers have found Dens-Deck® Prime™ to be compatible with bonding adhesives for fully-adhered single-ply membrane applications and has been shown to extend the adhesive usage.

Dens-Deck® Prime's exceptional moisture resistance and low R-value make it the preferred substrate for vapor retarders. An excellent fire barrier, Dens-Deck® Prime™ features a noncombustible core and inorganic surface that offers greater fire protection than other conventional commercial roofing products when applied over combustible roof decks and steel decks. Dens-Deck® Prime™ is FM tested and approved as the only 1/2' gypsum product to meet the calorimeter requirements for conventionally insulated decks. Tested in accordance with ASTM E84, its surface burning characteristics are Flame Spread-0 and Smoke Developed-0. 5/8" Dens-Deck® Prime™ can replace any generic type X gypsum board in any roof assembly in the UL Fire Resistance Directory under the prefix "P".

Limitations

Dens-Deck® Prime™ is designed to act with a properly designed roof system. The actual use of Dens-Deck® Prime™ roof board as a roofing component is the responsibility of the roofing system's designing authority.

Conditions beyond the control of G-P Gypsum such as weather conditions, dew, application temperatures and techniques may cause adverse effects with adhered roofing systems. Always consult the roofing system specific manufacturer's instructions for applying the various roofing types to Dens-Deck® Prime™ roof board.

Panels must be kept dry before, during and after installation. Apply only as much Dens-Deck® Prime™ as can be covered by a roof membrane system in the same day.

Accumulation of water due to leaks or condensation in or on Dens-Deck® Prime™ roof board must be avoided during construction and after construction. Avoid over-use of non-vented direct-fired heaters during winter months. Avoid application of Dens-Deck® Prime™ during rains, heavy fogs and other conditions that may deposit moisture on the surface.

When applying solvent-based adhesives or primers, allow sufficient time for the solvent to flash off to avoid damage to roofing components.

Maximum flute span is 2-5/8" for 1/4" Dens-Deck® Prime™ ; 5" for 1/2" Dens-Deck® Prime™ ; and 8" for 5/8" Dens-Deck® Prime™ Fireguard® Type X.

Refer to the installation instructions for the specific roof system to be installed for additional requirements.

Technical Data

Flame spread 0, smoke developed 0, when tested in accordance with ASTM E84 or CAN/ULC-S102. Noncombustible when tested in accordance with ASTM E136.

Dens-Deck® Prime™ Fireguard: UL Classified when tested in accordance with ASTM E119.

1/4" Dens-Deck® Prime™ has been G-P sponsored tested with Factory Mutual for 60 psf and 90 psf wind uplift for BUR, EPDM, thermoplastics and modified bitumen roof systems. Higher wind uplift ratings have been achieved by numerous membrane manufacturers using Dens-Deck® Prime™ in their FMRC-approved construction designs.

Products Specifications (nominal)	
Thickness	1/4" – 6.4mm; 1/2" – 12.7mm; 5/8" – 15.9mm Fireguard® type X
Widths	4' – 1220mm standard, 1/8" – 3mm tolerance
Lengths	8' – 2440mm standard, tolerance 1/4 – 6.4mm; Optional: 4' – 1220mm available
Edges	Square
Spanning	1/4" Dens-Deck Prime spans flute widths up to 2 5/8" 1/2" Dens-Deck Prime spans flute widths up to 5" 5/8" Dens-Deck Prime spans flutes up to 8" wide

Distributed by:

GAF MATERIALS CORPORATION

DENS-DECK® PRIME™ ROOF BOARD (2 of 2)

Manufactured by:

G-P Gypsum
a Georgia-Pacific company

133 Peachtree Street, N.E.
Atlanta, GA 30303
Technical: 1-800-225-6119

Installation

1. Dens-Deck® Prime™ should be used with fasteners specified in accordance with FM requirements and roof membrane manufacturer's written recommendations.
2. For wind uplift/FMRC compliance where Dens-Deck® Prime™ is mechanically attached to metal decks, Dens-Deck® Prime™ shall be installed to the specifics of the FMRC design assembly.
3. For installations involving BUR, EPDM, thermoplastics and modified bitumen roof systems, call Technical Hotline at 1-800-ROOF-411 for fastener patterns of G-P's FMRC uplift assemblies.
4. In accordance with approved shop drawings, FM-approved fasteners shall be installed with plates through the Dens-Deck® Prime™, flush with the surface.
5. Where Dens-Deck® Prime™ is installed over combustible wood decks or insulation, all joints should be staggered. The optional separator sheet should be installed prior to Dens-Deck® Prime™ installation.
6. Edge joints should be located on, and parallel to, deck ribs. End joints of adjacent lengths of Dens-Deck Prime should be staggered.
7. For FM Class I-60, fastener density typically is increased by 50% at the roof corners, in conjunction with FM-approved covering.
8. For FM Class I-90, fastener density typically is increased by 50% at the roof corners and roof perimeter, in conjunction with FM-approved covering.
9. Adhered Systems: Insta-Foam Products, Inc.'s Insta-Stik Adhesive used with 1/4" Dens-Deck® Prime™ achieved a FMRC Class I-180 according to test report 1Y7A5.AM in selected Class 1 insulated steel and concrete deck roof construction. Contact Insta-Foam Products, Inc. for details at 1-800-800-FOAM.
10. Dens-Deck® Prime™ shall be installed with ends and edges butted tightly.
11. Dens-Deck® Prime™ is manufactured to conform to ASTM C 1177.

PHYSICAL PROPERTIES

PROPERTIES	1/4" DENS-DECK® PRIME	1/2" DENS-DECK® PRIME	5/8" DENS-DECK® FIREGUARD®
Thickness, nominal inches	5/16"	1/2"	5/8"
Width, standard	4'	4'	4'
Length, standard	8' ± 1/4"	8' ± 1/4"	8' ± 1/4"
Weight, lbs./M sq. ft., nominal	1100	1950	2500
Surfacing	Glass mat/primed	Glass mat/primed	Glass mat/primed
Flexural Strength, Parallel, lbs. min.[4]	40	80[5]	100[5]
Flexural Strength, Perpendicular, lbs. min.[4]	50	100[5]	140[5]
Flute Spanability[1]	2-5/8"	5"	8"
Permeance Perms[2]	50	35	32
R Value[3]	.28	.56	.67
Coefficient of Thermal Expansion, inches/inch/°F	8.5×10^{-6}	8.5×10^{-6}	8.5×10^{-6}
Linear Variation with Change in Moisture in/in/%RH	6.25×10^{-6}	6.25×10^{-6}	6.25×10^{-6}
Absorption, % max[4]	10.0	10.0	10.0
Compression, psi	500	500	500
Surface Water Absorption, grams[4]	2.5	2.5	2.5
Flame Spread Smoke Developed (ASTM E84)	0	0	0
Fire Classification	UL Class A, ULC S-102 UL 1256, ULC S-126	FMRC Class 1 UL 1256, ULC S-126 UL Class A, ULC 102	FMRC Class 1 UL Classified "P" assemblies ULC S-101
FM Uplift Approvals	60 and 90 psf uplift	FMRC 1-60, 1-90	FMRC 1-60, 1-90

[1]Tested in accordance with ASTM E661 (400 lb. conc. load).
[2]Tested in accordance with ASTM C355 (dry cup method).
[3]Tested in accordance with ASTM C518 (heat flow meter).
[4]Tested in accordance with ASTM C473.
[5]ASTM C1177 minimums.