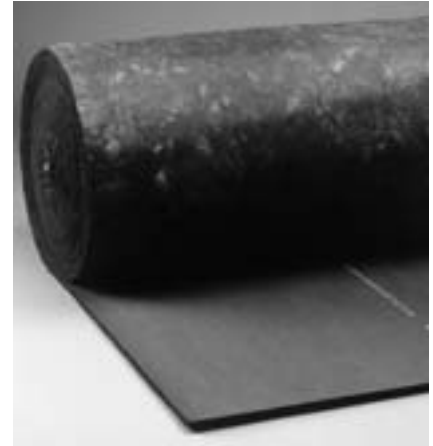


Specification Sheet

ToughGard™ R Duct Liner with Enhanced Surface



1. PRODUCT NAME

ToughGard™ R Duct Liner with Enhanced Surface

2. MANUFACTURER

CertainTeed Corporation
 P.O. Box 860
 Valley Forge, PA 19482-0105
 Phone: 610-341-7000
 800-233-8990
 Fax: 610-341-7571
 Fax-On-Demand: 800-947-0057
 Website: www.certainteed.com

3. PRODUCT DESCRIPTION

Basic Use: ToughGard™ R Duct Liner with Enhanced Surface is used primarily as an acoustical liner in HVAC sheet metal ducts to absorb unwanted crosstalk, equipment and air rush noise. This product can be used in most types of heating and cooling duct systems, operating at velocities up to 6,000 fpm (30.5 m/s) and temperatures to 250°F (121°C).

Benefits: ToughGard™ R Duct Liner with Enhanced Surface is 40% more water repellent than standard duct liner. This product provides excellent thermal properties, exhibits low air flow resistance and meets applicable fire resistance standards and building code requirements. It is durable, easy-to-clean and has a factory-applied edge coating that assures sealing of the transverse edges as per SMACNA and NAIMA Installation Standards.

Composition and Materials: Composed of rotary-type glass fibers firmly bonded together with a thermosetting resin overlaid with an extremely tough and durable fire-resistant, black composite surface on the air stream side. The air stream surface contains an EPA registered anti-microbial agent in order to reduce the potential of microbial growth that may affect this product. The antimicrobial properties are intended to only protect this product.

Limitations: Duct Liner should be kept clean and dry during shipping, storage, installation and system operation.

Sizes: See the table below for available sizes. Contact CertainTeed for availability and minimum order quantities.

4. TECHNICAL DATA

Applicable Standards:

- Model Building Codes:
 - (BOCA, CABO ICBO, SBCCI, ICC)
 - California Title 24
- Material Standards
 - (ASTM C 1071) Type I
 - CAN/CGSB-51.11-92
- Fire Safety Standards
 - (NFPA 90A, NFPA 90B)

Fire Resistance:

- Fire Hazard Classification:
 - (UL 723, ASTM E 84, NFPA 255, CAN/ULC-5102-M88)
 - Max. Flame Spread Index; 25
 - Max Smoke Developed Index; 50
- Limited Combustible:
 - (NFPA 259)
 - < 3500 Btu/lb

Physical/Chemical Properties:

- Thermal Performance:
 - See table on back page.
- Acoustical Performance:
 - See table on back page.
- Operating Limits:
 - Temperature: (ASTM C 411)
 - Max. 250°F (121°C)
 - Air Velocity: (ASTM C 1071)
 - Max. 6,000 fpm (30.5 m/s)
- Water Vapor Sorption:
 - (ASTM C 1104)
 - < 3% by weight

- Corrosion Resistance: (ASTM C 665)
 - Pass
- Bacteria Resistance: (ASTM G 22)
 - No Growth
- Fungi Resistance:
 - (ASTM C 1338 & ASTM G 21)
 - Pass; No Growth
- Water Repellency Rating
 - ≥ 4 (INDA IST 80.6-92)

Quality Assurance: CertainTeed was the first fiber glass insulation manufacturer to have its manufacturing plants, R&D center and corporate headquarters registered to ISO 9001-2000 standards.

5. INSTALLATION

All duct liner shall be installed in accordance with the requirements of the NAIMA Fibrous Glass Duct Liner Standard, or SMACNA HVAC Duct Construction Standard and the project specification.

The liner shall be cut and fitted to assure all joints are neatly and tightly butted with no interruptions or gaps.

All duct liner products shall be adhered to the sheet metal ductwork

AVAILABLE SIZES							
Product Type	Density	Thickness		Length		Width	
		in.	mm	ft.	m	in.	mm
150	1.5 pcf (32 kg/m ³)	1	25	50-150	15.2-45.7	34-72	864-1829
		1½	38	50-100	15.2-30.5	34-72	864-1829
		2	51	50-75	15.2-22.9	34-72	864-1829
200	2.0 pcf (32 kg/m ³)	½	13	50-200	15.2-61	34-72	864-1829

using an adhesive meeting the requirements of ASTM C 916. The adhesive film coverage shall be a minimum 90% of the metal surface. Additionally, secure duct liner as required to the sheet metal ductwork using mechanical fasteners (impact-driven or weld-secured). These fasteners vary in length and type. Mechanical fasteners of the specified type and length shall be used assuring no greater than 10% compression of the liner thickness.

Maximum fastener spacing shall be in accordance with NAIMA or SMACNA standards. ToughGard R provides clean "battered" transverse edges. However, some circumstances will require the use of adhesive to "butter"

raw exposed liner edges. Final job site "buttering" may be required to coat duct cut-ins and/or minor installation damage.

ToughGard Duct Liner fabricated duct systems shall be kept clean and dry from the point of fabrication through job site installation and system commissioning. Special precautions at the job site may be necessary to accomplish this.

Design Considerations:

- "Butter" all raw exposed edges
- High, in-duct air turbulence areas may require special procedures, i.e. perforated inner metal liner, etc.
- Metal nosings shall be securely installed over transversely oriented

liner edges facing air stream at fan discharge and at any interval of lined duct preceded by unlined duct.

6. AVAILABILITY AND COST

Manufactured and sold throughout the United States. For availability and cost contact your local distributor, or call CertainTeed Sales Support Group in Valley Forge, PA at 800-233-8990.

7. WARRANTY

Refer to CertainTeed's One-Year Limited Warranty for ToughGard™ R Fiber Glass Duct Liner (30-29-047).

8. MAINTENANCE

An inspection and preventative maintenance program for the HVAC system is recommended to ensure optimum performance. Use NAIMA guidelines for duct cleaning methods and procedures.

9. TECHNICAL SERVICES

Technical assistance can be obtained either from the local CertainTeed sales representative, or by calling CertainTeed Sales Support Group in Valley Forge, PA at 800-233-8990.

10. FILING SYSTEMS

- Sweet's Catalog Files: 15080/CER
- CertainTeed Pub. No. 30-36-004
- Additional product information available upon request.

THERMAL PERFORMANCE								
PRODUCT			K-VALUE		C-VALUE		R-VALUE	
Type	Thickness		$\frac{Btu \cdot in}{h \cdot ft^2 \cdot ^\circ F}$	$\frac{W}{m \cdot ^\circ C}$	$\frac{Btu}{h \cdot ft^2 \cdot ^\circ F}$	$\frac{W}{m^2 \cdot ^\circ C}$	$\frac{h \cdot ft^2 \cdot ^\circ F}{Btu}$	$\frac{m^2 \cdot ^\circ C}{W}$
	in.	mm						
150	1	25	0.24	0.035	0.24	1.36	4.2	0.73
	1½	38	0.24	0.035	0.16	0.91	6.3	1.10
	2	51	0.24	0.035	0.12	0.68	8.3	1.47
200	½	13	0.24	0.035	0.48	2.73	2.1	0.37

Thermal conductance (C) and resistance (R) values are derived from the material thermal conductivity (k) value. Tested in accordance with ASTM C 518 and/or ASTM C 177 at 75° F (24° C) mean temperature.

ACOUSTICAL PERFORMANCE									
PRODUCT			ABSORPTION COEFFICIENTS @ OCTAVE BAND CENTER FREQUENCIES (HZ)						NRC
Type	Thickness		125	250	500	1000	2000	4000	
	in.	mm							
150	1	25	0.10	0.32	0.66	0.84	0.91	0.91	0.70
	1½	38	0.16	0.53	0.95	1.02	1.03	1.00	0.90
	2	51	0.24	0.79	1.09	1.05	1.02	1.01	1.00
200	½	13	0.03	0.12	0.35	0.61	0.75	0.84	0.45

Sound absorption tested in accordance with ASTM C 423 using Type A mounting per ASTM E 795

