

ToughGard® R Duct Liner

1. PRODUCT NAME

ToughGard® R Duct Liner

2. MANUFACTURER

CertainTeed Corporation
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 insulation

3. PRODUCT DESCRIPTION

Basic Use: ToughGard R Duct Liner 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 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. Product contains minimum 25% recycled content based on LEED definition.

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

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

4. TECHNICAL DATA

Applicable Standards:

- Model Building Codes:
 - (ICC)
 - California Title 24
 - Material Standards
 - (ASTM C1071) Type I
 - CAN/CGSB-51.11-92
 - Fire Safety Standards
 - (NFPA 90A, NFPA 90B)
- Fire Resistance:
Fire Hazard Classification:
 – (UL 723, ASTM E84, 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 other side.
- Acoustical Performance:
 - See table on other side.
- Operating Limits:
 - Temperature: (ASTM C 411)
Max. 250°F (121°C)
 - Air Velocity: (ASTM C1071)
Max. 6,000 fpm (30.5 m/s)
- Water Vapor Sorption:
 - (ASTM C1104)
 - < 3% by weight
- Corrosiveness: (ASTM C665)
 - Pass
- Bacteria Resistance: (ASTM G22)
 - No Growth
- Fungi Resistance:
 - (ASTM C1338 & ASTM G21)
Pass; No Growth
- Water Repellency Rating
 - ≥ 4 (INDA IST 80.6-92)

Quality Assurance: Many of CertainTeed's insulation manufacturing plants are 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 ensure all joints are neatly and tightly butted with no interruptions or gaps.

All duct liner products shall be adhered to the sheet metal ductwork using an adhesive meeting the requirements of ASTM C916. 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, ensuring 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 "buttered" 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.

| AVAILABLE SIZES | | | | | | | |
|-----------------|------------------------------------|-----------|----|--------|------------|-------|----------|
| Product Type | Density | Thickness | | Length | | Width | |
| | | in. | mm | ft. | m | in. | mm |
| 150 | 1.5 pcf (32 kg/m ³) | 1 | 25 | 50-140 | 15.2-42.67 | 34-72 | 864-1829 |
| | | 1½ | 38 | 50-90 | 15.2-27.43 | 34-72 | 864-1829 |
| | | 2 | 51 | 50-70 | 15.2-21.34 | 34-72 | 864-1829 |
| 200 | 2.0 pcf (32 kg/m ³) | ½ | 13 | 50-200 | 15.2-61 | 34-72 | 864-1829 |

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 (30-33-010).

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. 30-36-081
- Additional product information available upon request.

| THERMAL PERFORMANCE | | | | | | | | |
|---------------------|-----------|----|--------------------|----------|-----------------|-----------|-----------------|-----------|
| PRODUCT | | | K-VALUE | | C-VALUE | | R-VALUE | |
| Type | Thickness | | Btu*in h*ft.2°F | W m°C | Btu h*ft.2°F | W m2°C | h*ft.2°F Btu | m2°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 C518 and/or ASTM C177 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 | 0.18 | 0.36 | 0.59 | 0.86 | 0.95 | 0.90 | 0.70 |
| | 1½ | 38 | 0.35 | 0.51 | 0.83 | 0.93 | 0.97 | 0.96 | 0.80 |
| | 2 | 51 | 0.34 | 0.64 | 0.96 | 1.03 | 1.00 | 1.03 | 0.90 |
| 200 | ½ | 13 | 0.09 | 0.14 | 0.40 | 0.60 | 0.73 | 0.82 | 0.45 |

Sound absorption tested in accordance with ASTM C423 using Type A mounting per ASTM E795



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