



1 PRODUCT NAME

TUFF-R Commercial Insulation and SUPER TUFF-R Commercial Insulation

2 Manufacturer

The Dow Chemical Company
 Building Materials
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 architect

3 Product Description

TUFF-R* Commercial and SUPER TUFF-R* Commercial polyisocyanurate insulation products consist of a patented, high-insulating-value, closed-cell polyisocyanurate foam core sandwiched between a choice of durable, exterior facers.

TUFF-R Commercial insulation has reflective/radiant barrier-quality facers on both sides of the board. When additional durability is required, SUPER TUFF-R Commercial insulation is the product of choice. The SUPER TUFF-R Commercial facers are composed of a reinforced, coated three-ply polymer/foil facer on one side. The other side is an equally reinforced polymer/foil super Tri-Plex non-reflective facer. SUPER TUFF-R Commercial three-ply facers improve shipping, storage and job site durability.

TUFF-R Commercial and SUPER TUFF-R Commercial insulation products offer high, long-term R-value**. The facers reduce intrusion by water and water vapor into the foam insulation core, and allow the foam R-value to stabilize at a higher value.

TUFF-R Commercial and SUPER TUFF-R Commercial insulation can be detailed as an air barrier.

BASIC USE

TUFF-R Commercial and SUPER TUFF-R Commercial insulation products can be used in commercial interior wall construction behind a minimum 1/2" gypsum board or equivalent thermal barrier interior finish.

SIZE

Product thicknesses and R-values are shown in Table 1. Not all products are available in all parts of the country. Other product sizes are available by custom order. Consult a Dow representative for board sizes and additional thickness information.

4 Technical Data

APPLICABLE STANDARDS

- ASTM International
- ASTM D1621 – Standard Test Method for Compressive

Properties of Rigid Cellular Plastics

- ASTM C209 – Standard Test Methods for Cellulosic Fiber Insulating Board
- ASTM E96 – Standard Test Methods for Water Vapor Transmission of Materials
- ASTM D1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics
- ASTM C203 – Standard Test Methods for Breaking Load and Flexural Properties of Block-Type Thermal Insulation
- ASTM C236 – Standard Test Method for Steady-State Thermal Performance of Building Assemblies by Means of a Guarded Hot Box
- ASTM C518 – Standard Test Method for Steady-State Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus
- ASTM C1289 Type I, Class 2 – Standard Specification for Faced Rigid Cellular Polyisocyanurate Thermal Insulation Board

TABLE 1

Nominal Foam Thickness, in.	Stabilized R-Value ¹		System R-Value ²	
	TUFF-R Commercial Insulation	SUPER TUFF-R Commercial Insulation	TUFF-R Commercial Insulation	SUPER TUFF-R Commercial Insulation
1	6.5	6.5	9.3	9.3
1.5	9.8	9.8	12.6	12.6
1.75	11.4	11.4	14.2	14.2
2.0	13.0	13.0	15.8	15.8

¹Stabilized R-values @ 75°F mean temperature determined in accordance with ASTM C236/C518 on full-sized products.
²System R-value is the sum of the stabilized R-value plus additional R-value calculated when the aluminum foil surface is installed next to a non-ventilated 3/4" air space (R-value = 2.8). All values from the ASHRAE Fundamentals Handbook.

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**R means resistance to heat flow. The higher the R-value, the greater the insulating power.

TUFF-R Commercial Insulation and SUPER TUFF-R Commercial Insulation

PHYSICAL/CHEMICAL PROPERTIES

TUFF-R Commercial and SUPER TUFF-R Commercial polyisocyanurate insulation products exhibit physical properties as indicated in Table 2.

For chemical resistance properties of TUFF-R Commercial and SUPER TUFF-R Commercial insulation products, see Table 3.

ENVIRONMENTAL DATA

TUFF-R Commercial and SUPER TUFF-R Commercial insulation products are manufactured with hydrocarbon blowing agents, which have no ozone depletion potential.

FIRE PROTECTION

TUFF-R Commercial and SUPER TUFF-R Commercial insulations are combustible; protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector.

CODE COMPLIANCES

TUFF-R Commercial and SUPER TUFF-R Commercial insulation products comply with the following standards and codes:

- IBC – International One- and Two-Family Dwelling Code, Section 317. International Building Code, Section 2603
- BOCA – Section 2603.0
- ICBO – Section 2602
- SBCCI – Section 2603
- FHA – Federal Housing Administration Minimum Property Standards
- Federal Specification HH-I-1972/1, Class 2
- ASTM C1289, Type I, Class 2
- NES – National Evaluation Services (NER616)

TABLE 2

Physical Properties of TUFF-R Commercial Insulation and SUPER TUFF-R Commercial Insulation	
Property and Test Method	Value
Compressive Strength, ASTM D1621, psi, min.	25
Water Absorption, ASTM C209, % by volume, max., core foam	0.05
Water Vapor Permeance, ASTM E96, perm	< 0.03
Maximum Use Temperature, °F	190
Flexural Strength, ASTM C203, psi, min, for 1" core foam	55

TABLE 3

Chemical Resistance of TUFF-R Commercial Insulation and SUPER TUFF-R Commercial Insulation			
Acid, inorganic	Not recommended	Hydrocarbons	Excellent
Acid, organic	Excellent	Insecticides	Excellent
Alcohol	Excellent	Kerosene	Excellent
Asphalt, water-based	Good	Mineral oil USP	Excellent
Bases (caustics)	Poor	Naphtha	Excellent
Brines and other salts	Excellent	Paints, alcohol-based	Excellent
Cements and mortar	Poor (aluminum foil facers)/ Excellent (other facers)	Paints, water-based	Excellent
Gases, carbon dioxide (CO ₂)	Excellent	Polyglycols, including propylene glycol	Excellent
Gasoline	Excellent	Water ⁽¹⁾	Excellent

NOTE: This table should be used as a guide only. For design purposes, specific test data on the intended application may be needed.
(1) Water may cause discoloration of aluminum facers. This does not impact the R-value of dry core insulation.

5 Installation

TUFF-R Commercial and SUPER TUFF-R Commercial insulation boards are easy to handle, cut and install. They can be cut with a utility knife or any sharp blade. Contact a local Dow representative or access the literature library at www.dowstyrofoam.com/architect for more specific instructions.

6 Availability

TUFF-R Commercial and SUPER TUFF-R Commercial insulation products are distributed through an extensive network. For more information, contact your local Dow representative or call 1-866-583-BLUE (2583).

7 Warranty

A 15-year limited thermal warranty is available. Ask your Dow representative for details.

8 Maintenance

Not applicable.

9 Technical Services

Dow can provide technical information to help address questions when using TUFF-R Commercial and SUPER TUFF-R Commercial polyisocyanurate insulation products. Technical personnel are available at Dow sales offices to assist with any insulation project.

10 Filing Systems

- www.dowstyrofoam.com/architect
- www.sweets.com

IN THE U.S.:

- For Technical Information: **1-866-583-BLUE (2583)**
- For Sales Information: **1-800-232-2436**

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COMBUSTIBLE: Protect from high heat sources. Local building codes may require a protective or thermal barrier. For more information, consult MSDS, call Dow at 1-866-583-BLUE (2583) or contact your local building inspector. In an emergency, call 1-989-636-4400.



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