



**1. Product Name**

DragonBoard Flooring Products

**2. Manufacturer**

DragonBoard US  
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**3. Product Description**

**BASIC USE**

DragonBoard is a U.S. patented, UL approved fire resistant, water resistant, high-impact interior and exterior construction panel. Load capacities handle both residential and commercial structures. With its mold resistant, fire resistant and high-impact properties, DragonBoard should be used whenever there is a high value placed on a building's contents and equipment or when health and safety concerns exist. Applications include single-family homes, apartment complexes, commercial high-rise buildings, theaters, museums, schools, hospitals, retail, hotels, restaurants, nightclubs, airports, subway stations, tunnels, fire separations, etc.

**COMPOSITION & MATERIALS**

DragonBoard is manufactured from a combination of magnesium oxide and magnesium chloride and includes fibrous reinforcement. Standard production material is very smooth on one side and sand textured on the other. Square or shiplap joints are available. DragonBoard may be cut, trimmed or shaped using ordinary power or hand tools. Every DragonBoard product is clearly labeled with the red dragon logo and pertinent UL design numbers to eliminate confusion in the field.

**SIZES**

- Standard panel size - 4' x 8' (1.2 x 2.4 m)
- Thickness - 3/4" (19.1 mm)

Note - Other panel sizes are available by special order, including 2' x 4', 2' x 8' and 4' x 4' (0.6 x 1.2, 0.6 x 2.4 and 1.2 x 1.2 m).

**COLOR**

DragonBoard is light tan to cream in color.

**BENEFITS**

- DragonBoard can be used with wood or light-gauge steel framing
- DragonBoard's diaphragm stiffness allows distributed loads of over 240 psf (1172 kg/m<sup>2</sup>) for L/360 when supported on 16" (406 mm) centers and 360 psf (1758 kg/m<sup>2</sup>) for L/240. Flexural strength is equivalent to concrete at approximately 3000 psi (20,670 kPa) in compression
- DragonBoard can be used in heavy commercial construction with the assembly consisting of I-beam construction and Type B corrugated decking in spans up to 5' (1.5 m), thus eliminating costly and time-consuming concrete pours
- DragonBoard significantly reduces installation costs, offering savings of 20 - 85% over competing products, depending on the application
- DragonBoard is a non-nutrient to mold or fungus per ASTM G21 and does not support insect life. It provides superior moisture resistance in high-humidity areas and combats the growth of mold and mildew
- DragonBoard is completely waterproof. It will not disintegrate when immersed in water or exposed to freeze/thaw cycles for prolonged periods of time

**LIMITATIONS**

- Where exposed to high-moisture conditions or water, panels must be sealed or painted to preclude water absorption or staining
- Align control joints with building structure control joints

**4. Technical Data**

**APPLICABLE STANDARDS**

- ASTM C684 Standard Test Method for Making, Accelerated Curing, and Testing Concrete Compression Test Specimens
- ASTM D5628 Standard Test Method for Impact Resistance of Flat, Rigid Plastic Specimens by Means of a Falling Dart (Tup or Falling Mass)
- ASTM D6109 Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastic Lumber and Related Products
- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials

- ASTM E662 Standard Test Method for Specific Optical Density of Smoke Generated by Solid Materials
- ASTM G21 Standard Practice for Determining Resistance of Synthetic Polymeric Materials to Fungi

**APPROVALS**

DragonBoard's New York City MEA number is 359-02-M. ICC approval is pending.

**PHYSICAL/CHEMICAL PROPERTIES**

See Tables 1 - 5.

Note - Test reports and system design recommendations are available from the manufacturer upon request.

**FIRE PERFORMANCE**

The DragonBoard floor assembly (assembly number UL U055) is available as a UL tested 2-hour fire resistant system.

**Surface Burning Characteristics (ASTM E84)**

- Flamespread - 0
- Smoke developed - 0

**SOUND PERFORMANCE**

Test reports are available upon request.

**ENVIRONMENTAL CONSIDERATIONS**

DragonBoard is manufactured from mineral components and water and does not contain any organic solvents, asbestos, oils or toxic components, or any heavy metal salts. No energy is consumed in the manufacturing process since the entire process is conducted at room temperature. Any scrap or drop-off may be reground and reused in production of DragonBoard.

Dust or sawdust may be safely buried in landfills, if required. DragonBoard is free of material that would cause contamination or environmental damage to the surrounding area or nearby streams or bodies of water.

**5. Installation**

**PREPARATORY WORK**

Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact. Store materials flat and protect from exposure to harmful environmental conditions and at temperature and humidity conditions recommended by the manufacturer.

Verify that site conditions are acceptable for installation. Do not proceed with installation until unacceptable conditions are corrected.

TABLE 1 PHYSICAL CHARACTERISTICS

Flexural modulus	0.93 × 10 <sup>6</sup> psi	ASTM D6109
Flexural strength	1295 psi	ASTM D6109
Compressive strength	3000 psi	ASTM C684
Shear strength	391 psi	ASTM D6109
Flamespread	0	ASTM E84
Smoke developed	0	ASTM E84
Smoke density	None	ASTM E662 not req.
Moisture content	8%	GB/T 160-1997 (China)
Impact resistance	1.65 ft/lb-in of notch	GB/T 7019-1997 (China)
Thermal insulation	R-value - 1.2/inch	GB/T 7019-1997 (China)
Fungus/mold	Non-nutrient	ASTM G21
Smoke	Nontoxic	ASTM E662

TABLE 2 IMPACT TESTING (ASTM D5628)

Drop height	Unclamped edges	Clamped edges
12" (305 mm)	Hairline cracking	Hairline cracking
6" (152 mm)	Superficial cracking	Superficial cracking

TABLE 3 DISTRIBUTED LIVE LOADS

Deflection	Joist Spacing			
	12" (305 mm)	16" (406 mm)	19.2" (488 mm)	24" (610 mm)
L/240	924 psf	393 psf	225 psf	110 psf
L/360	609 psf	257 psf	149 psf	81 psf
L/480	462 psf	193 psf	112 psf	62 psf

TABLE 4 LOAD FOR MAXIMUM ALLOWABLE STRESS

Panel	12" (305 mm) oc	16" (406 mm) oc	24" (610 mm) oc
7/16" (11.1 mm)	1366 psf	751 psf	336 psf
9/16" (14.3 mm)	2609 psf	1470 psf	654 psf

Above recommendations based on a maximum allowable flexural stress of 1000 psi.

TABLE 5 PANEL SHEAR

7/16" (11.1 mm) panel	461/foot
9/16" (14.3 mm) panel	646/foot
3/4" (19.1 mm) panel	1200/foot

Above recommendations based on a safety factor of 4. The use of a T-shaped spline 1/2" (12.7 mm) high with 1" (25.4 mm) wings on both sides is recommended for panels 9/16" (14.3 mm) thick, or heavier, used for subflooring. Contact DragonBoard US for suggested materials.

**METHODS**

DragonBoard can be cut, trimmed, drilled or shaped using ordinary power tools. DragonBoard panels may be fastened to supporting joists using self-drilling, self-countersinking, corrosion protected cement board screws. Fasteners should be spaced at 12" (305 mm) intervals along edges. Spacing may be increased to 18" (457 mm) at intermediate joists.

The smooth side of the DragonBoard is suitable for painting with no further preparation, and the rough side is suitable for application of ceramic tile. Either solvent based oil paint or water based latex paint can be used. If the

panels are to be directly exposed to rain and weather, apply a prime coat of acrylic-siloxane waterproofing sealer, followed by oil based paint.

Where DragonBoard is to be used as a mounting surface for ceramic tile, such as in a bath or shower enclosure, a solvent based tile mastic is recommended.

DragonBoard recommended assemblies consist of exterior wall, interior wall, shaftwall, steel column, staircase, ceiling/floor and roofing. Recommended installation methods for each application are available at [www.dragonboard.us](http://www.dragonboard.us).

**PRECAUTIONS**

- Avoid handling DragonBoard panels when wet
- DragonBoard does not contain any known cancer causing materials. Use of a dust mask is recommended during cutting and sanding operations
- Use of gloves is suggested to reduce the possibility of abrasion injuries
- Fasteners should not be closer than 2" (51 mm) from a corner, with the adjoining screw not less than 4" (102 mm) from the same corner
- Do not install screws on 45 degree angles at corners
- Board ends must be supported by joists

- Fasteners must always be installed over supporting structure
- Do not install surface coverings by driving screw fasteners, except over supporting structure
- Cantilever overhangs are not recommended. Fasteners should not be closer than 3/4" (19.1 mm) from any edge
- Do not fasten coverings directly to DragonBoard with mechanical fasteners (nails, screws, staples, etc.)

#### BUILDING CODES

Installation must comply with the requirements of all applicable local, state and federal code jurisdictions.

### 6. Availability & Cost

#### AVAILABILITY

Products are available from certified distributors. Contact manufacturer for information on local availability.

#### COST

Budget installed cost information may be obtained from the manufacturer.

### 7. Warranty

Complete warranty terms and conditions are available from the manufacturer. For details, consult DragonBoard US.

### 8. Maintenance

None required.

### 9. Technical Services

Technical assistance, including more detailed information, product literature, test results and project lists, is available by contacting DragonBoard US.

### 10. Filing Systems

- Reed First Source®
- MANU-SPEC®
- Additional product information is available from the manufacturer upon request.