

# Rapid Floor® Systems

## 1. Product Name

Rapid Floor® Systems Floor Underlayments

- Rapid Floor®
- Rapid Floor® Plus
- Rapid Floor® Ultra
- Rapid Radiant®
- Commercial Topping®

## 2. Manufacturer

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## 3. Product Description

### BASIC USE

Rapid Floor® underlayments are installed over rough, uneven and warped surfaces to create smooth, flat floors that are ready for finished floor goods installation. Rapid Floor fills cracks in the subfloor and seals perimeter joints to significantly reduce sound leaks and control sound transmission between rooms and between floors. Its high density helps to both stiffen the floor and to eliminate squeaks and nail pops prevalent in wood frame assemblies.

Rapid Floor also installs quickly, adding sound control and fire resistance features to commercial and residential structures in new construction and renovation applications. High-volume application equipment can pump 1000 - 40,000 ft<sup>2</sup> (93 m<sup>2</sup> - 3716 m<sup>2</sup>) of product in one workday. The underlayment is poured in place and then smoothed, quickly transforming into a hard, even surface that can accept foot traffic within 90 minutes.

Rapid Floor underlayments are ideal for a variety of uses in a range of diverse applications:

- Over wood and concrete subfloors in multifamily construction
- Over corrugated steel decking for steel frame construction
- Over wood subfloors in single family resi-



Rapid Floor® Underlayments fill cracks in the subfloor and seal perimeter joints, significantly reducing sound leaks.

- dential and light commercial construction
- To smooth concrete slabs or precast planks in new or renovation projects
- To cover old floor goods, including vinyl asbestos tile
- To cap rough, pitted, cracked and uneven concrete
- As a thermal mass for radiant floor heating systems

### COMPOSITION & MATERIALS

Rapid Floor underlayments consist of a formulated gypsum cement mixed with sand and water. Maxxon gypsum underlayments are inorganic and provide no source of nutrients to sustain mold growth.

### TYPES

#### Rapid Floor®

Creates a smooth, joint-free surface and offers an alternative to double wood floor construction in new multifamily residential projects.

#### Rapid Floor® Plus

Provides the extra strength needed for applications requiring tougher, more durable surfaces. Formulated to deliver compressive strengths to 3200 psi (22 MPa), Rapid Floor Plus provides an increased surface hardness that is critical when renovating commercial and single family residential structures. Rapid Floor Plus is now always made with pre-consumer recycled content and is considered a "green" building material.

#### Rapid Radiant®

Pours over hot water tubes or electric heating cables in radiant heat applications, maximizing radiant heat performance while withstanding temperature fluctuations. Rapid Radiant is now always made with pre-consumer recycled content and is considered a "green" building material.

#### Rapid Floor® Ultra

Designed for commercial applications, Rapid Floor Ultra provides compressive strengths from 2500 - 4000 psi (17.2 - 27 MPa) and offers an economical underlayment alternative in new and renovation projects. Rapid Floor Ultra is now always made with pre-consumer recycled content and is considered a "green" building material.

#### Commercial Topping®

Commercial Topping creates a strong, smooth finish over precast, wood frame and old cracked lightweight concrete in new construction or renovation projects. Poured from a featheredge to 3" (76 mm), Commercial Topping achieves compressive strengths of 4000 - 4500 psi (27.6 - 31 MPa) and pours over VAT, VCT, terrazzo or ceramic with no shot-blasting required. It is fast drying and is an ideal underlayment to meet ASTM F710 requirements. Commercial Topping is now always made with pre-consumer recycled

content and is considered a "green" building material.

**BENEFITS**

- Quickly transforms rough or uneven flooring into a smooth surface ready for finished floor goods
- Preblended and equally well-suited for large projects or small repair jobs
- No special prepping, removal of old floor goods or hand finishing required
- Quick setting and ready for foot traffic within 90 minutes
- Achieves compressive strengths to 4500 psi (31 MPa)
- May contribute points toward LEED® project certification

**LIMITATIONS**

- Rapid Floor underlayments are not for use as wear surfaces and require floor coverings
- Rapid Floor underlayments are not to be used on or below grade, except over well-

drained structural substrates as determined by the general contractor

- Rapid Floor underlayments should not be used in areas that have prolonged contact with water - concrete moisture or vapor emission must be eliminated prior to application over below-grade, on-grade or suspended slabs
- Rapid Floor underlayments cannot resist stresses caused by sudden structural movement
- Expansion joints in all types of work must be brought through the underlayment

**ACOUSTICAL PERFORMANCE**

Many sound tests have been performed on Rapid Floor products by recognized testing agencies, each over a wide variety of floor/ceiling assemblies. All tests had sound ratings above the minimum values accepted by major housing codes. Visit [www.rapidfloor.com](http://www.rapidfloor.com) for Rapid Floor product sound ratings.

**ENVIRONMENTAL CONSIDERATIONS**

- Now always a "green" building material

- May contribute points toward LEED® project certification
- Meets GREENGUARD requirements and certifications according to product - See Tables 1 and 3

**4. Technical Data**

**APPLICABLE STANDARDS**

**ASTM International**

- ASTM C109 Standard Test Method for Compressive Strength of Hydraulic Cement Mortars (Using 2-in. or (50-mm) Cube Specimens)
- ASTM C190 Standard Method of Test for Tensile Strength of Hydraulic Cement Mortars
- ASTM C348 Standard Test Method for Flexural Strength of Hydraulic-Cement Mortars
- ASTM C666 Standard Test Method for Resistance of Concrete to Rapid Freezing and Thawing
- ASTM C882 Standard Test Method for Bond Strength of Epoxy-Resin Systems Used With

**TABLE 1 PHYSICAL PROPERTIES AND PERFORMANCE CHARACTERISTICS**

Product	Rapid Floor	Rapid Floor Plus	Rapid Radiant	Rapid Floor Ultra	Commercial Topping
Compressive strength range	To 2000 psi (14 MPa)	To 3200 psi (22.1 MPa)	2000 - 3000 psi (14 - 21 MPa)	2500 - 4000 psi (17.2 - 27 MPa)	4000 - 4500 psi (28 - 31 MPa)
Installed weight	At 3/4" = 6.9 psf (At 19 mm = 31.8 kg/m2)	At 3/4" = 6.9 psf (At 19 mm = 31.8 kg/m2)	At 1 1/4" = 12.7 psf (At 32 mm = 58.7 kg/m2)	At 3/8" = 3.5 psf (At 10 mm = 15.9 kg/m2) At 1" = 9.2 psf (At 25 mm = 42.4 kg/m2)	At 1/2" = < 5.3 psf (At 12.7 mm = 25.9 kg/m2)
Environmental considerations	Now always a "green" building material; GREENGUARD Indoor Air Quality Certified	Now always a "green" building material; GREENGUARD Indoor Air Quality Certified	Now always a "green" building material; GREENGUARD Indoor Air Quality Certified	Now always a "green" building material; GREENGUARD Children & Schools certified	Now always a "green" building material; GREENGUARD Children & Schools certified
Dry density	100 pcf (1600 kg/m3)	Typical 115 pcf (1840 kg/m3)	115 pcf (1840 kg/m3)	115 - 120 pcf (1840 - 1900 kg/m3)	125 pcf (2000 kg/m3)
Coefficient of conductivity (K-factor)	4.3 Btu-inch/hour x °F x ft2 (0.68 W/(m x °C))	4.3 Btu-inch/hour x °F x ft2 (0.68 W/(m x °C))	4.96 Btu-inch/hour x °F x ft2 (0.7142 W/(m x °C))	5.2 Btu-inch/hour x °F x ft2 (0.74 W/(m x °C))	-
Specific heat	0.25 Btu/lb x °F (0.94 kJ (kg x °C))	0.25 Btu/lb x °F at 85° (0.94 kJ (kg x °C at 29.44 °C))	0.224 Btu/lb x °F at 85° (0.9385 kJ (kg x °C at 29.44 °C))	0.25 Btu/lb x °F (0.94 kJ (kg x °C))	-
Flexural strength (ASTM C348)	-	-	-	-	1660 psi after 28 days (11.4 MPa)
Tensile strength (ASTM C190)	-	-	-	-	460 psi after 28 days (3.2 MPa)
Surface burning characteristics (ASTM E84)					
Flamespread	0	0	0	0	0
Fuel contributed	0	0	0	0	0
Smoke density	0	0	0	0	0
Point loading		Typical to 2500 lb (1134 kg) on a 1" (25.4 mm) dia disk	Typical to 2500 lb (1134 kg) on a 1" (25.4 mm) dia disk @ 0.007" max. indentation	Typical to 3500 lb (1590 kg) on a 1" (25.4 mm) dia disk @ 0.007" max. indentation	Typical to 3500 lb (1589 kg) on a 1" (25.4 mm) dia disk @ 0.007" max. indentation



Concrete By Slant Shear

- ASTM E84 Standard Test Method for Surface Burning Characteristics of Building Materials
- ASTM F710 Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

APPROVALS

- City of New York
- City of Los Angeles RR 25186
- HUD Materials Release No. 1286b
- ICC Evaluation Service, Inc. (ICC-ES) Reports No. 93-60, No. 4950 and ESR-2540
- Underwriters Laboratories Inc. (UL)

PHYSICAL PROPERTIES

See Table 1 for information concerning physical properties and performance characteristics of Rapid Floor gypsum underlayments.

FIRE PERFORMANCE

Rapid Floor Systems underlayments create a flame barrier between wood and other flammable materials, retarding the spread of flame and smoke. When applied over precast concrete, they can increase the UL rating by 2 hours. Rapid Floor Systems underlayments are rated 0 for flamespread, fuel contribution and smoke density by Underwriters Laboratories Inc. (UL). See Table 2 for a list of UL approved fire resistive designs.

**5. Installation**

Installation of Rapid Floor gypsum cementitious floor underlayment and topping products must be completed by a manufacturer-authorized technician using approved mixing and pumping equipment. Generic instructions for installation are detailed below.

Instructions for installation in the following specific applications are available from the manufacturer at [www.rapidfloor.com](http://www.rapidfloor.com):

- Multifamily housing
- Topping old hardwood floors
- Over extruded or expanded polystyrene foam
- Over Acousti-Mat II sound deadening mat in single family homes
- Over Acousti-Mat II sound deadening mat in multifamily housing hard surface area applications
- Topping concrete floors
- Over precast concrete slabs
- Over vinyl asbestos tile
- As the heat mass for radiant flooring
- Over wooden subfloors
- As "green" floor underlayments
- Topping corrugated steel deck over light-gauge steel framing

PREPARATORY WORK

Deliver products in manufacturer's original, unopened, undamaged containers with identification labels intact. Store materials protected from exposure to harmful environmental conditions and at temperature and humidity levels recommended by the manufacturer. Remove any damaged or deteriorated material from the jobsite.

Before, during and after Rapid Floor gypsum cementitious underlayment installation, the building interior must be enclosed and maintained at 50 degrees F (10 degrees C) in accordance with specific application requirements. Do not begin floor underlayment application until the building is completely enclosed by roof, windows, doors and other fenestration. Install floor underlayment after drywall installation unless the finish requirements call for partition installation after pouring underlayment.

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



Rapid Floor® Underlayments cap uneven, rough, cracked or spalled concrete.

Ensure that the subfloor is structurally sound. Clean the subfloor to remove mud, oil, grease and other contaminants before applying underlayment. Fill cracks and voids with a quick-setting caulk or patching material where product leakage could occur. Prime the concrete subfloor using a manufacturer-approved primer. Apply multiple coats of primer as necessary according to the porosity of the concrete. Allow joints to continue through the Rapid Floor at the same width.

METHODS

Rapid Floor mix proportions and methods

TABLE 2 APPROVED DESIGN NUMBERS

UL Design Numbers											
G524	G560	G561	G563	G566	G574	J917	J919	J920	J924	J927	J931
J957	J958	J966	J994	L004	L005	L006	L201	L202	L206	L208	L209
L210	L211	L212	L501	L502	L503	L504	L505	L506	L507	L508	L509
L510	L511	L512	L513	L514	L515	L516	L517	L518	L519	L520	L522
L523	L524	L525	L526	L527	L528	L529	L530	L533	L534	L535	L536
L537	L538	L539	L540	L541	L542	L543	L544	L545	L546	L547	L548
L549	L551	L552	L555	L556	L557	L558	L559	L560	L562	L563	L564
L569	L573	L574	L579	L581	L583	L585	L588	L589	L592	L593	L594
L599	M500										
ULC Design Numbers											
L003	L201	L511	L512	M500	M501	M503	M513	M514	M517		





Rapid Radiant® is an ideal thermal mass for installation over radiant heat tubing or electric cables.

must be in strict accordance with manufacturer recommendations. Mix water must be potable and free from impurities.

Install the underlayment to the required depth, based on the product and application, and in accordance with manufacturer recommendations. Spread to achieve a smooth surface.

Provide continuous ventilation and adequate heat to remove moisture from the area until the underlayment sets. Provide mechanical ventilation as necessary to enhance the drying process.

Maxxon offers an installation brochure for flooring materials. Refer to these guidelines for more information. The procedures described are to be used as guidelines only and do not constitute a warranty. Where floor goods manufacturers require special adhesive or

installation systems, their requirements supersede these requirements.

**PRECAUTIONS**

During construction, place temporary wood planking over the underlayment if it will be subject to heavy wheeled or concentrated loads. Protect installed products until the project is complete.

**BUILDING CODES**

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

**6. Availability & Cost**

**AVAILABILITY**

Rapid Floor products are available from certified dealers and regional representatives. Contact Maxxon Corporation for availability information in specific localities.

**COST**

Cost information may be obtained from Rapid Floor dealers.

**7. Warranty**

Complete warranty terms and conditions are available from the manufacturer. For details, consult Maxxon Corporation.

**8. Maintenance**

None required.

**9. Technical Services**

Technical assistance, including more detailed information, product literature, test results, project lists, assistance in preparing project specifications and arrangements for application supervision, is available by contacting Maxxon Corporation.

**10. Filing Systems**

- SmartBuilding Index (SBI)
- ARCAT®
- Sweet's Catalog Files
- GREENGUARD Environmental Institute
- Additional product information is available from the manufacturer upon request.

TABLE 3 ENVIRONMENTAL CONSIDERATIONS			
USGBC LEED	Category	Credit	
Materials & Resources	Construction Waste Management	MR 2.1, MR 2.2	
Materials & Resources	Recycled Content	MR 4.1, MR 4.2	Pre-consumer: Fly Ash
Materials & Resources	Regional Materials	MR 5.1, MR 5.2	Blue Rapids, KS 66411 Camden, NJ 08103 Brunswick, GA 31521 Las Vegas, NV 89124 Jobsite manufactured with local sand and water
Indoor Environmental Quality	Air Quality Before Occupancy	EQ 3.2	GREENGUARD Children and Schools Certified
Indoor Environmental Quality	Low Emitting Materials: Floor System	EQ 4.3	GREENGUARD Children and Schools Certified
Innovation & Design	Sound Control	ID 1.1	