

# SECTION 03 54 00 – Cast Underlayment

# SECTION 09 80 00 – Acoustic Treatment

## Guide Specification for GSL M3.4

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### PART I – GENERAL

#### 1.01 SUMMARY

- A. Description: This section includes underlayment for interior finish flooring and is not limited to the following:
1. Application on Keene Building Products' GSL M3.4 gypsum-based poured underlayment.
  2. Division 3 Section-Concrete: "Cast Underlayment" and "Gypsum Cement Underlayment"
  3. Division 9 Section-Finishes: "Acoustic Treatment"

#### 1.02 SUBMITTALS

- A. Product Data: Submit product data sheets GSL M3.4 floor underlayment, Quiet Qurl sound mat and installation instructions with project materials clearly identified for each required product or system.
- B. UL Directory Fire Resistance Volume 1 (Choose from Listing)
1. L501, L502, L503, L505, L506, L508, L509, L511, L512, L513, L514, L515, L516, L518, L519, L522, L523, L524, L525, L526, L528, L529, L530, L536, L541, L543, L546, L547, L550, L551, L552, L556, L557, L558, L560, L563, L564, L565, L574, L576, L579, L581, L583, L585, L587, L588, L592, M500, M503, M504, M508, M511, M512, M514, M515, M517, M518, M528
  2. For more info please see UL Certification Database ([ul.com/database](http://ul.com/database))
- C. Acoustical Data: Submit sound tests according to IBC code criteria ASTM E492 (IIC) and ASTM E90 (STC) or ASTM E1007 (F-IIC) and E336 (F-IIC). Contact Keene Building Products for Specifics.
- D. Code Approvals: See <https://keenebuilding.com> for the current list of code approvals.

#### 1.03 SYSTEM REQUIREMENTS

- A. Performance Requirements:
1. GSL M3.4 floor underlayment
    - i) Compressive strength 3,200 to 4,500 psi
    - ii) Dry Density 110-130 pounds per cubic foot

Potential USGBC LEED Credit Contribution:

1. MR Credit 3: Building Product Disclosure and Optimization - Sourcing Raw Material
  2. EQ Credit 2: Low Emitting Materials.
- Contact Keene Building Products for specific details.

2. Sound Control – 2009 International Building Code: Section 1207.2 & .3
  - i) Minimum Sound Transmission Class, 50 STC (45 if field tested) – Section 1207.2
    - (1) ASTM E90 and E336
  - ii) Minimum Impact Insulation Class, 50 IIC (45 if field tested) – Section 1207.3
    - (1) ASTM E492 and E1007

#### 1.04 QUALITY ASSURANCE

- A. Performance Standards:
- Contractor shall be knowledgeable and well trained in the use of floor underlayment material.
1. Underlayment mix shall be tested for slump using a 2" (i.d.) x 4" (50 mm x 101 mm) cylinder resulting in a patty size of 9" (228 mm) plus or minus a 1-inch (25 mm) diameter.

2. Compressive strength tested in accordance with Modified ASTM C472.

## 1.05 DELIVERY, STORAGE AND HANDLING

- A. Comply with manufacturer's instructions. Deliver in original, unopened packaging. Store in dry conditions and protect from direct sun exposure, freezing, and extreme heat (greater than 105°F (41°C)).

## 1.06 PROJECT CONDITIONS

- A. Before, during and after installation of product, building interior shall be enclosed, with adequate ventilation and heat maintained at a temperature above 50°F (10°C) to allow for drying of product.

## PART 2 – PRODUCTS

### 2.01 PRODUCTS AND MANUFACTURERS

- A. GSL M3.4: Keene Building Products, Cleveland, OH. Phone (877) 514-5336.
- B. Quiet Qurl Sound Mat: Keene Building Products, Cleveland, OH. Phone (877) 514-5336.

### 2.02 MATERIALS

- A. Proprietary products/systems: Poured flooring underlayment and topping products, including the following:
  1. GSL M3.4 Floor Underlayment
- B. Proprietary products/systems: Optional Sound Control that does not negate the fire rating and is specified in UL design. Acoustical performance is dependent on system design and construction. Please consult Keene Building Products for recommendation if needed.
  1. Quiet Qurl® 013 MC, RF, or MT Sound Mat
  2. Quiet Qurl® 025 MC, RF, or MT Sound Mat
  3. Quiet Qurl® 040 MC, RF, or MT Sound Mat
  4. Quiet Qurl® 075 MC, RF, or MT Sound Mat
- C. Keene Building Products Floor Primer:
  1. Material Standard: Comply with specifications outlined in manufacturer's Design and Installation Guide for wood subfloors.
- D. Mix Water:
  1. Material Standard: Potable, free from impurities and from a domestic source.
- E. Sand Aggregate:
  1. Sand shall meet Keene Building Products Sand Specification 101.
- F. Keene Building Products GSL All Purpose Sealer:
  1. Seal all areas that receive glue down floor goods with Keene Building Products GSL All Purpose Sealer according to manufacturer's specifications.
- G. Keene Building Products Reinforcement Mat (Optional):
  1. Quiet Qurl RWT 040
    - i) Install approved reinforcement as per manufacturer recommendations.

## PART 3 – EXECUTION

### 3.01 EXAMINATION

- A. Site Verification of Conditions:
  1. Building must be fully enclosed including windows and roof.
  2. Interior ambient temperature must be 50°F and rising at least one day before installation and maintained at "a minimum of" 50°F temperature for a minimum of 5 to 7 days after installation or until dry.

3. Subfloor must be dry, a minimum of L/360 and broom swept with all excess wall board mud removed, all holes patched.
4. Wood construction must be with tongue and groove subfloor (OSB or plywood).
5. Adequate ventilation must be maintained until the moisture in the gypsum has been allowed to evaporate. This requirement is typically a minimum of 5 to 7 days but may be longer depending on temperature and humidity conditions in the local environment.
6. For installation on concrete substrates the subfloor must be fully cured (typically 28 days). Moisture tests should be performed to assure proper hydration using ASTM F1869 to assure MVE level is less than 3.0 lb. per 1000 square feet.
7. For on grade, below grade or applications over a crawl space, vapor barriers must be applied.

### 3.02 REQUIREMENTS

- A. Surface Preparation:
  1. Subfloor must be properly primed.
  2. Use Keene Building Products' GSL PRIMER on all surfaces.
  3. All supporting surfaces shall be dry, structurally sound, solid, free of movement and well bonded. They shall be free of dust, oil, grease, tar or other contaminants that may act as a bond breaker.
  4. Deflection cannot exceed L/360.
- B. Priming:
  1. Dilute GSL PRIMER before application. Dilute 1-part GSL PRIMER concentrate to 4-parts potable water (1:4).
  2. Using a long handle roller, soft bristle broom, brush or sprayer, apply GSL PRIMER at a coverage rate of 270-320 sq. ft. per gallon of primer solution.
  3. Ensure a complete and uniform coverage.
  4. Allowed to become very tacky or dry (about 1 hour).

### 3.03 GENERAL INSTALLATION REQUIREMENTS

- A. Mixing Proportions:
  1. General Requirements: Mix proportions and methods shall be in strict accordance with product manufacturer recommendations.
- B. Application:
  1. (Optional) Quiet Qurl Installations: Install Quiet Qurl following manufacturer's recommendations and specifications.
  2. Pour floor topping to recommended thickness. Immediately spread and screed product to a smooth surface. Expansion joints in all types of work shall be brought through the underlayment.
    - i) Keene Building Products Minimum Underlayment Depth:

<b>Mat Thickness 0.125 Inches / 3.0 mm</b>			
<b>Quiet Qurl 013 MC</b>	0.75 inch	150 ft.	600 sq. ft.
<b>Quiet Qurl 013 MC MT</b>	0.875 inch	100 ft.	400 sq. ft.
<b>Quiet Qurl 013 RF</b>	0.75 inch	150 ft.	600 sq. ft.
<b>Quiet Qurl 013 RF MT</b>	0.75 inch	100 ft.	400 sq. ft.
<b>Mat Thickness 0.25 Inches / 6.0 mm</b>			
<b>Quiet Qurl 025 FT</b>	1.0 inch	100 ft.	400 sq. ft.
<b>Quiet Qurl 025 MC</b>	1.0 inch	100 ft.	400 sq. ft.
<b>Quiet Qurl 025 MC MT</b>	1.0 inch	50 ft.	200 sq. ft.
<b>Quiet Qurl 025 RF</b>	0.75 inch	100 ft.	400 sq. ft.
<b>Quiet Qurl 025 RF MT</b>	1.0 inch	50 ft.	200 sq. ft.
<b>Mat Thickness 0.40 Inches / 10.0 mm</b>			
<b>Quiet Qurl 040 MC</b>	1.0 inch	100 ft.	400 sq. ft.
<b>Quiet Qurl 040 MC MT</b>	1.25 inch	50 ft.	200 sq. ft.
<b>Quiet Qurl 040 RF</b>	1.0 inch	100 ft.	400 sq. ft.
<b>Quiet Qurl 040 RF MT</b>	1.0 inch	50 ft.	400 sq. ft.
<b>Mat Thickness 0.75 Inches / 19.0 mm</b>			
<b>Quiet Qurl 075 MC</b>	1.5 inch	50 ft.	200 sq. ft.

<b>Quiet Qurl 075 N MT</b>	1.5 inch	50 ft.	200 sq. ft.
<b>Quiet Qurl 075 N RF</b>	1.5 inch	50 ft.	200 sq. ft.
<b>Quiet Qurl 075 RF MT</b>	1.5 inch	50 ft.	200 sq. ft.

**\*\*\*Unless otherwise specified in written notice by Keene Building Products\*\*\***

- C. Drying:
1. The general contractor must provide and maintain correct environmental conditions to keep the building clean and dry and protect against infestation of moisture from a variety of potential sources. The general contractor must supply mechanical ventilation and heat if necessary to remove moisture from the area until the GSL M3.4 is dry.
  2. Protection from Heavy Loads: During construction, place temporary wood planking over GSL M3.4 wherever it will be subject to heavy wheeled or concentrated loads.

### 3.04 PREPARATION FOR INSTALLATION OF GLUE DOWN FLOOR GOODS

- A. Sealing:
1. Seal all areas that receive glue down floor goods with GSL All Purpose Sealer or Dependable, LLC Primer MF as per specifications. Any floor areas where the surface has been damaged shall be cleaned and sealed regardless of floor covering to be used. Where floor goods manufacturers require special adhesive or installation systems, their requirements supersede these recommendations.
- B. Moisture Testing:
1. Follow the respective floor goods manufacturers' recommendations for relative humidity ... requirements (Reference ASTM F2419).
- C. Finished Floor Goods:
1. There are many reference standards for the installation procedures and recommendations for finished flooring applications over gypsum underlayments. These include instructions of the manufacturers of the finished flooring, adhesives and thin-set as well as national agency reference standards. The national standards are listed below:

Flooring Type	Reference Standard
Resilient	ASTM F2419
Ceramic Tile	TCNA F180
Wood	NWFA Instructions

### 3.05 PRECAUTIONS AND LIMITATIONS

- A. Do not use in exterior applications. For Interior use only.
- B. **Do not use:**
1. Where hydrostatic pressure (water) is present or moisture emissions exceeds level permitted for installed floor covering.
  2. Where surface or ambient temperature falls to or below 50°F 72 hours before or after installation.
  3. As a trowelled patch or at less than natural minimum flow thickness.
  4. Exterior, exposed applications or as a wear surface.
- C. GSL is not a wear surface and must be covered with a finished floor covering.
- D. Do not install without tongue and groove subfloor unless utilizing back bracing.
- E. Check joist deflection and assure performance greater than L/360
- F. Assure building is completely enclosed, including windows and roof.
- G. Installation temperature must be 50°F and rising.
- H. Provide necessary ventilation and heat before and after placement of GSL gypsum underlayment.

END OF SECTION