



PART I: GENERAL

1.1 Summary

- A.** This section includes underlayment for interior finish flooring.
- B.** Specify to meet project requirements. The conditions of the Contract (General, Supplementary, and other conditions) and the General Requirements (sections of Division 1) govern the provisions of this section.
- C. Related Sections:**
 - 1. Section 09 21 16 – Gypsum Board Assemblies

1.2 Referenced Standards

A. The Following Standards And Publications Are Applicable:

- 1. ASTM C472 Standard Test Methods for Physical Testing of Gypsum, Gypsum Plasters, and Gypsum Cement (compressive strength)
- 2. ASTM C33 Standard Specification for Concrete Aggregates (sand aggregate)
- 3. ASTM D4263 Standard Test Method for Indicating Moisture in Concrete by the Plastic Sheet Method
- 4. ASTM E90 Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements
- 5. ASTM E119 Standard Test Methods for Fire Tests of Building Construction and Materials
- 6. ASTM E413 Rating Classification for Rating Sound Insulation
- 7. ASTM E492 Standard Test Method for Laboratory Measurement of Impact Sound Transmission Through Floor-Ceiling Assemblies Using the Tapping Machine
- 8. ASTM F2419 Standard Practice for Installation of Thick Poured Gypsum Concrete and Preparation of the Surface to Receive Resilient Flooring
- 9. ASTM F2678 Standard Practice for Preparing Panel Underlayments, Thick Poured Gypsum Concrete Underlayments, Poured Lightweight Cellular Concrete Underlayments with Underlayment Patching Compounds to Receive Resilient Flooring
- 10. ICRI CSP 3+ International Concrete Repair Institute, Concrete Surface Profile
- 11. TCNA F 180 Tile Council of North America Installation Handbook
- 12. NWFA National Wood Flooring Association Instructions
- 13. Hacker Industries, Inc. Installation Guide
- 14. Hacker Industries, Inc. Drying Conditions Flyer
- 15. Hacker Industries, Inc. Guidelines for Installing Finished Floor Coverings
- 16. UL Fire Resistance Directory



1.3 Submittals

- A. **Product Data:** Submit manufacturer's specifications and installation instructions with project conditions and materials clearly identified or detailed for each required product or system.
- B. **Environmental Information:** Submit product data for LEED® Credits MR 4 and MR 5, Recycled Content and Regional Materials. Provide documentation indicating percentages, by weight, of post-consumer and pre-consumer recycled content. Also provide documentation substantiating Regional Materials.

1.4 Quality Assurance

- A. **Fire Resistance:** Provide materials and construction identical to those tested to ASTM E119 by an independent testing agency.
- B. **Acoustical Performance:** For STC; Provide materials and construction identical those tested in assembly indicated according to ASTM E90 and classified according to ASTM E413 by and independent testing agency. For IIC; Provide materials and construction identical to those tested in assembly according to ASTM E492.
- C. **Manufacturer:** All materials, unless otherwise indicated shall be manufactured by Hacker Industries, Inc., Newport Beach, California.
- D. **Installer:** Installation of TRUE-SCREED® CLU Hydraulic Cement Underlayment shall be by a Licensed Applicator of Hacker Industries, Inc., using mixing and pumping equipment with a water meter approved by Hacker Industries, Inc.
- E. All materials specified herein shall be approved by Hacker Industries, Inc., Newport Beach, CA. All others must receive prior approval.

1.5 Performance Requirements

- A. **Performance requirements:** Compressive strength of TRUE-SCREED® CLU Hydraulic Cement Underlayment shall be up to 6000 psi (approx. 41.4 MPa)

1.6 Delivery, Storage And Handling

- A. Materials shall be delivered in their original, unopened packages, and protected from exposure to the elements after delivery. Do not allow the bags to get wet.

1.7 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.



1.8 Warranty

- A. **Certification:** Upon completion of this portion of the work, and as a condition of its acceptance, deliver to the architect a certificate from Hacker Industries, Inc., and signed by the Licensed Applicator, stating that the material used in this work complies with the specified requirements.

PART II: PRODUCTS

2.1 Manufacturers

- A. **Acceptable Manufacturers**, subject to all the requirements contained herein.
 - 1. Hacker Industries, Inc., Newport Beach, CA

2.2 Material Description

- A. **Portland Cement-based Underlayment:** TRUE-SCREED® CLU Hydraulic Cement Underlayment, supplied by Hacker Industries, Inc.
- B. **Subfloor Primer:** TRUE-SCREED® CLU Floor Primer or approved equal
- C. **Sand:** Washed plaster or masonry sand meeting the requirements of Hacker Industries, Inc. Sand Guidelines for TRUE-SCREED® CLU Hydraulic Cement Underlayment
- D. **Water:** Potable and free from impurities
- E. **Sealer:** TRUE-SCREED® CLU Sealer, as required for glue down finished floors

PART III: EXECUTION

3.1 Preparation

- A. Shot blasting, sandblasting, scarifying or other engineer-approved, non-wet method shall be done on concrete surfaces prior to application (reference ICRI CSP 3+ standards for acceptable profile height). Note: with successful bond test, degree of preparation may vary.
- B. TRUE-SCREED® CLU Hydraulic Cement Underlayment is not an encapsulate. Consult local and Federal authorities for proper removal of asbestos.
- C. The General Contractor (GC) shall confirm that the subfloor is adequately sound (a deflection limit of L/360) and conditions are suitable for installation of floor underlayment.



- D. Thoroughly clean surface of all substances that could interfere with the bond of TRUE-SCREED® CLU Hydraulic Cement Underlayment, such as dirt, paint, tar, wax, asphalt, oil, grease, latex compounds, sealers, curing compounds, form release agents, laitance, loose toppings, foreign toppings and adhesive residue.
- E. Subfloor shall be properly prepared, sound, dimensionally stable, fully cured and at least 28 days old, and free from hydrostatic pressure.
- F. Consult floor covering manufacturer for maximum allowable Moisture Vapor Emission Rate (MVER) and retained moisture in substrate. Shall not exceed 4 lb per 1,000 ft² per 24 hours (1.81 kg per 92.9 m² per 24 hours).
- G. Ambient room temperature and concrete subfloor shall be between 50° - 90°F (10° - 32°C) before, during, and after TRUE-SCREED® CLU Hydraulic Cement Underlayment installation.
- H. Provide for expansion joints where specified, including the perimeter of the room, columns, supports, and equipment pedestals. Don't bridge joints. Ensure control joints are honored through TRUE-SCREED® CLU Hydraulic Cement Underlayment and primer. Cuts through TRUE-SCREED® CLU Hydraulic Cement Underlayment shall be a minimum of 1/4" (6 mm).
- I. All dormant cracks in the substrate greater than 1/8" (3 mm) shall be repaired to minimize telegraphing through the underlayment.
- J. **Leak Prevention:** All cracks and voids should be filled with a quick-setting patching or taping compound, or equal, where leakage may occur. Prime wood subfloors with one coat of TRUE-SCREED® CLU Floor Primer (diluted 4:1 with water) using one gallon of primer solution (approx. 3.79 L) per 500 ft² (approx. 47 m²).
- K. TRUE-SCREED® CLU Floor Primer is always required over substrates.
- L. Installation of TRUE-SCREED® CLU Hydraulic Cement Underlayment shall not begin until the building is enclosed, including roof, windows, doors, and other openings.
- M. TRUE-SCREED® CLU Hydraulic Cement Underlayment shall be installed before or after the installation of drywall, as specified.

3.2 Installation

- A. **Mixing Requirements:** 3.75 gallons (approx. 14.2 L) of water as specified per bag of TRUE-SCREED® CLU Hydraulic Cement Underlayment. Do not overwater. Water amount will change with wetness of sand. Amount of sand to vary with mix.
 - 1. TRUE-SCREED® CLU Hydraulic Cement Underlayment mix proportions, mix designs and methods shall be in strict accordance with Hacker Industries, Inc.'s recommendations.



- B. Application:** The minimum thickness of TRUE-SCREED® CLU Hydraulic Cement Underlayment varies with the type of subfloor. Over wood subfloors, a minimum of 3/4" (approx. 19 mm) with mechanically attached mesh is required. Over precast or poured-in-place concrete, a minimum of 1/2" (approx. 13 mm) is required. Can be featheredged at transitional locations. Maximum recommended thickness is 2" (51 mm).
- C.** TRUE-SCREED® CLU Hydraulic Cement Underlayment is suitable for interior applications only and must be covered by a finished floor material.
- D. Protection:** After installation, temporary wood planking shall be placed by the GC wherever the floor underlayment will be subject to wheeled or concentrated loads.
- E. Curing and Drying:** TRUE-SCREED® CLU Hydraulic Cement Underlayment is designed to self-cure. Do not use damp cure methods or sealers. Follow the following procedures for optimum performance:
1. Protect the floor from excessive heat and drafts during curing.
 2. Avoid walking on surface for 2-3 hours. (Adjust for varying temperature and humidity conditions.)
 3. Consult flooring contractor for recommended procedures to test for dryness. Reference Hacker Industries, Inc.'s Drying Conditions Flyer.
- F. Sealing:** Seal all areas that receive glue down floor goods with TRUE-SCREED® CLU Sealer according to Hacker Industries, Inc.'s specifications. Any floor areas where the surface has been damaged shall be cleaned and sealed regardless of the floor covering used. Where a floor good manufacturer requires a special adhesive or installation, their requirements supersede these specifications.
- G. Field Quality Control:**
1. **Slump Test:** TRUE-SCREED® CLU Hydraulic Cement Underlayment shall be tested for slump at the beginning of each installation in order to establish the required slump. Slump tests shall then be taken periodically during installation to verify that the required slump is maintained. Slump tests shall be conducted using a 2" by 4" (approx. 51 mm by 102 mm) cylinder.
 2. **Field Samples:** Testing shall be done in accordance with modified ASTM C109 testing procedures, using 2" (approx. 51 mm) split brass molds. Prior to independent sampling, contact Hacker Industries, Inc., to ensure that proper ASTM procedures are followed. If requested prior to installation, test results shall be available to the architect and/or contractor from the Licensed Applicator.



3.3 Preparation For Finished Floor

- A. Repair any damaged areas of underlayment prior to application of any sealers.
- B. Underlayment must be dry prior to installation of finished floor. Follow ASTM D4263 to determine dryness of underlayment.
- C. **Resilient Floor Applications:** Follow floor-covering manufacturer's guidelines for proper applications and procedures (ASTM F2419).
- D. Install wood flooring according to NWFA Instructions.
- E. Install ceramic, porcelain, granite or natural stone tiles according to TCNA recommendations.