



SUBSTRATE REQUIREMENTS

For Floor Coverings

Preparing a substrate is one of the most important steps in an installation. Remember that the best installation is only as good as the substrate beneath. Taking the time to properly prepare a substrate and address job-site conditions should be a priority.

Note: Consult individual Chembond Product Data Sheets for substrate compatibility.

Substrate Requirements

1. All surfaces must be structurally sound, level and clean of all substances that can weaken the adhesive's bond to the substrate. These include, but are not limited to, concrete sealers or curing agents, dirt, wax, tar, paint and loose toppings. If the surface contains these substances, they must be mechanically removed.

Note: The use of solvents, adhesive removers or acid etching is not recommended.

2. Unless sanding or scraping a slab can expose a clean and contamination-free substrate, more aggressive methods such as grinding, shot blasting and scarification should be considered.

Note: Be sure to follow safety guidelines for the specific substrate, as well as local, state and federal regulations.

3. Substrates should be in plane to a tolerance set by the floor-covering manufacturer. They also should be free of deflection that could damage the flooring or installation materials. These industry standards are required by most floor-covering manufacturers.
4. Always check for the flooring manufacturer's approval before installing over radiant-heated

floors. If these floors are approved for installation, turn off adjacent sources of radiant heat or forced-air heat from at least 24 hours before until 48 hours following the installation. Heated floors should not exceed 30°C (86°F) to prevent damage to the flooring and installation products. If auxiliary heaters are used, proper ventilation should be maintained.

Substrate Types

1. CONCRETE:

Concrete should conform to ACI 302 standards and have a minimum density of 1,601 kg per m³ (100 lbs. per cubic ft.) and a rating greater than 24,1 MPa (3,500 psi) Resilient installations require 24,1 MPa (3,500 psi) to conform to ASTM F-710.

- a. All slabs should be fully cured to a minimum of 28 days with no more than 1,36 kg per 92,9 m² per 24 hours (3 lbs. per 1,000 ft² per 24 hours) - unless otherwise stated - of moisture vapor emission as tested according to ASTM F-1869. ASTM F-2170 is also a method of detecting moisture in a concrete slab, but this measures the relative humidity of the slab as opposed to moisture vapor emission. Though this is an accurate test, the floor-covering industry as a whole has not determined an acceptable RH percentage level. While moisture meters are useful, they typically are only used to verify moisture's presence or determine where to set calcium chloride tests.

- b. All concrete substrates should be sound, solid, stable, clean and free of any curing agents, sealers and other substances that may reduce or prevent adhesion.
- c. Safe pH levels range from 5 to 9 on the pH scale. Use distilled water and litmus paper or a pH pencil for pH identification. Excessive pH to either extreme must be neutralized. Normally, removing the salts from the surface by sanding or scrubbing with clean water will remove an alkali problem.
Note: A high-alkali slab (10 to 14 pH) can signify a moisture problem. If a pH problem is found, the slab should be tested for moisture.
- d. Concrete porosity should be noted. A smooth steel-troweled finish can reduce adhesion as well as greatly extend the set times of products. On the other hand, an excessively absorbent porous substrate can pull moisture out of products too rapidly. It is always a good practice to perform bond tests. These conditions can be remedied by surface removal or the use of *Chempatch 2101* with *Chempatch Additive 2015* as a skim coat.
Note: Chembond products should not be applied over expansion joints, control joints, cold joints or any moving joint in a substrate. These joints are designed to move to prevent damage within the slab. Consult the flooring manufacturer's recommendation for addressing all joints.

2. GYPSUM PRODUCTS:

Unless specifically approved by the Technical Services Department, the use of any product directly over gypsum underlayments is not recommended.

- a. Most gypsum underlayments are not approved for adhesives or resilient floor coverings because they do not meet the requirements set by ASTM F-710 (a minimum of 24,1 MPa or 3,500 psi).
- b. Gypsum- and Portland cement-based products are not compatible and should not come in contact with each other.

3. WOOD:

Quality wood products are typically acceptable for residential or light commercial applications in dry areas. Local building codes as well as the flooring manufacturer's guidelines should be followed for the construction of the wood substrate.

- a. APA Type 1 exterior-grade CC-plugged plywood CSA 0121 or 0151 (NIST PS 1-95) is the standard for accepted underlayment for floor coverings.
- b. Also approved as underlayments and substrates are those approved and warranted by the flooring manufacturer and/or the underlayment manufacturer for the specific type of installation.
Note: It is important to pay attention to underlayment grading. For example, Lauan is acceptable to some manufacturers, but some grades of Lauan will stain floors and resist adhesion. Ensure that your product is an approved underlayment grade.
- c. Strip wood flooring and plank wood flooring are not approved as substrates. Although adhesion is not an issue, these floors show considerable movement with moisture or humidity. Many flooring manufacturers require removal or covering with an approved underlayment.
- d. Fire-treated plywood and marine plywood are not approved because the chemicals applied may prevent or reduce proper bond.

- e. Oriented strand board (OSB) is widely used in the construction industry. Although it has its benefits, moisture resistance is still one of its weaknesses. Some OSB has edge treatments to avoid edge curling caused by moisture. But the potential for curling has caused some manufacturers to withhold approval of OSB. Follow manufacturer recommendations for OSB and observe grade recommendations.
- f. The plywood and flooring manufacturers' approved subfloor and underlayment should be properly acclimated to in-service conditions, and moisture content should be between 8 to 10% at the time of surface preparation and installation of the floor covering.

4. EXISTING RESILIENT FLOORING:

- a. Vinyl composition tile (VCT), vinyl asbestos tile (VAT) and noncushion felt-backed sheet vinyl are the only approved resilient floorings to install over. They must be properly prepared - completely clean and with slightly scuffed surfaces for good adhesion.
Note: Always follow the flooring manufacturer's guidelines for installing over existing resilient flooring.
Caution: Follow the RFCI's "Recommended Work Practices for Removal of Resilient Floor Coverings," and all local, state and federal regulations if the flooring or adhesive involved is suspected of containing asbestos fibers or crystalline silica. Do not affect the structure of this material in any way in a dry state. For best results, contact an asbestos removal specialist.
- b. Do not install over resilient floorings other than those stated above. Vinyl and rubber products can create issues with bonding, indentation and plasticizer migration.

5. EXISTING ADHESIVES:

- a. Any adhesives, including cut-back (see the "Caution" of the previous section regarding asbestos fibers and crystalline silica), from previous flooring installations should be completely removed. Normally a "razor scraper" will remove the adhesive from a substrate. An "adhesive residue" is left when the adhesive has been scraped off the substrate as much as possible without actually removing the substrate's surface. The adhesive should appear as a discoloration on the surface of the concrete. If the adhesive cannot be removed from a wood substrate, an approved wood underlayment may need to be installed. *Chempatch™ 2101* with *Chempatch Additive 2015* can be used to skim-coat and encapsulate an existing nonwater-soluble adhesive residue. "Adhesive residue" does not refer to ridges of applied adhesive, which should be scraped down rather than filled in.

Note: The use of solvents and adhesive removers is not recommended. Using a sharp scraper will remove adhesive without the risk of installation failure.

6. OTHER FLOORING TYPES:

- a. Gray cement terrazzo and ceramic tile should be completely secure, well-bonded and clean, with the surface mechanically profiled through sanding or grinding.

We proudly support the following industry organizations:



7. METAL:

- a. Metal substrates must be solid, stable and free of oxidation, oil and any substance on the surface that may reduce adhesion. A rough profile will increase bond strength. Call the Technical Services Department for details at 1-888-243-6263.

8. WALLS:

- a. Walls that will receive adhesive should be free of dirt, dust, wall coverings, paint and any substance that may prevent or reduce adhesion.
Note: Be sure to remove any vinyl wall coverings before applying adhesives.

9. ASPHALT:

- a. All asphalt should be clean, sound, solid, stable and at least 20 days old.

Note: The purpose of this guide is to assist with installing floor coverings successfully. The best way to confirm a successful installation method is to perform site tests for adhesion and compatibility. For details or regarding circumstances not listed, please call the Technical Services Department at 1-888-243-6263. Safety first!

Important Notice

Before using, user shall determine the suitability of the product for its intended use, and user alone assumes all risks and liability whatsoever in connection therewith. Any claim shall be deemed waived unless made in writing to us within fifteen (15) days from date it was, or reasonably should have been, discovered.

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PR4679 CSRD_F04Evp
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Printed in the USA