

# Surface Preparation Requirements



**North American**  
**ADHESIVES®**

## Floor Covering Installations

### 1. GENERAL

1.1 All substrates must be structurally sound, dry, solid and stable. The substrate should be clean and free of dust, dirt, oil, grease, paint, curing compounds, concrete sealers, loosely bonded toppings, old adhesive residues (unless otherwise recommended by NAA) and any other substance that may prevent or reduce adhesion. If the substrate contains these substances, they must be mechanically removed.

WARNING: Do not sand or remove any existing resilient floors or cutback adhesive that contains asbestos fibers or crystalline silica. For removal instructions, refer to the Resilient Floor Covering Institute's Recommended Work Practices. Follow all local, state and federal regulations and industry standards when mechanical removal is required.

WARNING: Certain paints may contain lead. Exposure to excessive amounts of lead dust presents a health hazard. Refer to applicable federal, state, provincial and local laws and Lead-Based Paint Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing (Sept. 1990) or subsequent editions published by the U.S. Department of Housing and Urban Development regarding (1) appropriate methods for identifying lead-based paint and removing such paint; and (2) any licensing, certification and training requirements for persons performing lead abatement work.

1.2 All substrates must be plumb and flat to a tolerance in plane of 1/8" (3 mm) in 10' (3,05 m) for floors and 1/8" (3 mm) in 8' (2,44 m) for walls. Refer to the flooring and/or wall-base manufacturer's guidelines.

1.3 Imperfections and irregularities (holes, voids, bumps, cracks, depressions, etc.) must be corrected, and surfaces must be smooth and even before the application of NAA adhesives. See Section 9, "NAA Surface Preparation Products," for options and consult NAA's Technical Services Department for product recommendations.

1.4 Turn off all forced ventilation and floor-heating systems before installation, and protect work against drafts during installation and for a period of at least 48 hours after completion to prevent damage to substrates, installation products and flooring materials. Use indirect auxiliary heaters to maintain the temperature in the area at the recommended workable level. Vent temporary heaters to the building's exterior to prevent carbonation.

1.5 Always refer to the flooring and/or wall-base manufacturer's guidelines and the correlating industry standard(s) regarding site conditions, surface preparation requirements, acceptable underlayments and proper conditioning of flooring material.

### 2. CONCRETE

2.1 The specific composition of the concrete should be in accordance with the guidelines and practices of American Concrete Institute (ACI) standards. The concrete should have a density of at least 100 lbs. per cu. ft. (1 600 kg per m<sup>3</sup>).

2.2 All concrete substrates must be fully cured and free of any hydrostatic and/or moisture problems. The moisture-vapor emission from a concrete slab must not exceed 3 lbs. per 1,000 sq. ft. (1,36 kg per 92,9 m<sup>2</sup>) per 24

hours as measured by the anhydrous calcium chloride test kit, based upon test method ASTM F1869. Use an NAA moisture-vapor emission reduction product to treat concrete slabs with moisture issues. Consult NAA's Technical Services Department for product recommendations. Refer to Technical Data Sheets for instructions.

2.3 Do not install where a moisture problem is expected. A vapor barrier with a permeance of less than 0,2 metric perms as measured by the ASTM-96 standard must be present under concrete slabs that are on or below grade. This barrier must be resistant to deterioration as well as to puncture during construction, and must remain intact and continuous.

2.4 Perform two pH alkalinity tests for every calcium chloride test; pH levels between 5 and 9 are satisfactory according to industry standards. Correct areas that are below or above the range. Consult NAA's Technical Services Department for recommendations on correcting pH levels outside the range.

2.5 On a floor-heated slab, turn off heating at least 48 hours before installation and turn it back no sooner than 48 hours after work completion.

2.6 Due to the varying porosity of steel-troweled concrete, a bond test should be performed to ensure adequate bond. If an adequate bond is not achieved, the concrete floor should be scarified.

2.7 Consult ASTM F710 for more information about standard practice for preparing concrete floors to receive resilient flooring.

### 3. PLYWOOD

3.1 All wood underlayments must be recommended and guaranteed by either the wood underlayment manufacturer or the floor-covering manufacturer. Such underlayments include APA-rated Group 1 exterior-grade plywood, CC-plugged or better conforming to U.S. Product Standard PS 1-95 or COFI-classified SELECT or (SEL-TF) exterior-grade plywood conforming to CSA-0121 Standard for Douglas fir.

3.2 Stripwood subfloors, presswood, chipboard, flakeboard and similar types of dimensionally unstable materials are not acceptable substrates for the installation of NAA's surface preparation products and adhesives. Underlayment-grade particleboard and oriented strand board (OSB) may be used under specific conditions when specified by NAA and when approved by the floor-covering manufacturer. Follow the floor-covering manufacturer's recommendations regarding acceptable wood underlayments.

3.3 Plywood surfaces must be installed with the smooth side facing up.

3.4 Plywood subfloors should be double-layered. The base layer should be plywood at least 5/8" (16 mm) thick over joist 16" (41 cm) on center. Follow the plywood manufacturer's recommendations regarding proper application. A second layer, a wood underlayment at least 1/4" (6 mm) thick, is required for all resilient sheet vinyl flooring (thicker boards may be required for commercial applications). For details, refer to applicable standards, such as:

- "Recommended installation specification for sheet vinyl flooring, installed flat, fully adhered to the substrate" published by the Resilient Floor Covering Institute.

- The National Floor Covering Association's floor-covering specifications manual.

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- Section 7.5 in CRI 104 “Standard for Installation Specification of Commercial Carpet” published by the Carpet and Rug Institute.

- 3.5 The adjacent edges of the plywood sheets should not be more than 1/32" (1 mm) out of plane.
- 3.6 Do not install over a subfloor that is in direct contact with the ground. The plywood must have at least 18" (46 cm) of cross-ventilated air space between the underside of the subfloor and the ground. Cover the ground surface of crawl spaces with a suitable vapor barrier.
- 3.7 Under no circumstances should any floor material be laid over wood underlayment or subfloors that are subject to conditions that might cause buckling or rotting of wood. Always replace wood subfloors or underlayments that have been subject to water damage.
- 3.8 In any floor-covering installation, the plywood should be dry and the moisture content should not exceed the moisture content recommended by the wood and/or flooring manufacturer, generally 6% to 12% when measured with a quality wood moisture meter.

## 4. GYPSUM WALLBOARD (wall-base installations)

- 4.1 Gypsum wallboard must be undamaged with paper intact.
- 4.2 Nonporous paints, wallpaper, vinyl wall coverings, laminates and similar nonporous surfaces must be removed. Carefully sand latex paint surfaces in order to remove as much of the paint as possible, without causing damage.  
**WARNING:** Certain paints may contain lead. Exposure to excessive amounts of lead dust presents a health hazard. Refer to applicable federal, state, provincial and local laws and Lead-Based Paint Interim Guidelines for Hazard Identification and Abatement in Public and Indian Housing (Sept. 1990) or subsequent editions published by the U.S. Department of Housing and Urban Development regarding (1) appropriate methods for identifying lead-based paint and removing such paint; and (2) any licensing, certification and training requirements for persons performing lead abatement work.
- 4.3 Replace gypsum wallboards if they are damaged, if the gypsum core is exposed or if the paint is not latex-based.

## 5. STEEL

- 5.1 Steel may be used under specific conditions: when recommended for use as a substrate by NAA with specific NAA adhesives, and when approved by the floor-covering manufacturer.
- 5.2 Steel substrates must be rigid, solidly fixed in place and made free from paint primer, oil or corrosion.
- 5.3 Consult NAA's Technical Services Department for adhesive recommendations over steel. Refer to Technical Data Sheets for details.

## 6. HEATED FLOORS

- 6.1 Electric and hydronic radiant-heat systems must be installed and encapsulated with the proper thickness of cement-based leveler or repair product, according to the guidelines of the radiant-heat system manufacturer. Consult NAA's Technical Services Department for product recommendations.
- 6.2 To avoid damage to the installation products and floor covering, the operating temperature of the heated floor must not exceed 85°F (29°C).
- 6.3 Consult the floor-covering manufacturer for approval before installation over heated floors.
- 6.4 Consult NAA's Technical Services Department for adhesive recommendations over heated floors.

## 7. EXISTING FLOOR COVERINGS

- 7.1 Existing noncushioned sheet vinyl, vinyl asbestos tile (VAT), vinyl composition tile (VCT), ceramic tile and cement terrazzo must be firmly bonded, clean, and free of dust, dirt, oil, grease, paint, wax, sealer, soap and any other substance that may prevent or reduce adhesion.

**WARNING:** Do not sand or remove any existing resilient floors or cutback adhesive that contains asbestos fibers or crystalline silica.

For removal instructions, refer to the Resilient Floor Covering Institute's Recommended Work Practices. Follow all local, state and federal regulations and industry standards when mechanical removal is required.

- 7.2 In cases where the existing floor covering has any type of texture (such as raised patterned sheet vinyl and tile/grout lines in ceramic), all indentations must be completely leveled. In addition, the area must be thoroughly covered with an approved NAA surface preparation product to prevent telegraphing. For product recommendations, see Section 9 of this document (“NAA Surface Preparation Products”) and consult NAA's Technical Services Department.
- 7.3 Noncushioned sheet vinyl with a vinyl or urethane wear layer must be fully adhered (not perimeter-glued) and limited to one layer only. New vinyl and vinyl with a urethane wear layer must be slightly roughened to dull the finish (60-grit sandpaper is recommended). The wear layer must remain intact, and the underlying sheet-vinyl paper should not become exposed. The area must then be vacuumed, mopped and allowed to dry completely.
- 7.4 VAT and VCT must be limited to one layer only. A commercial-grade wax stripper must be used to remove any dirt, oil, grease, wax or sealer. The area must be neutralized, rinsed well with clean water and allowed to dry completely.
- 7.5 Ceramic tile and cement terrazzo must be roughened by sanding or shotblasting. The area must then be vacuumed, mopped and allowed to dry completely.
- 7.6 Existing floor coverings not acceptable for the installation of NAA surface preparation products and adhesives include the following: self-stick tile, glass tile, linoleum, laminate, fiberglass, poured epoxy floors, and other dimensionally unstable and/or nonporous materials.
- 7.7 Consult the floor-covering manufacturer for approval before installation over existing flooring.
- 7.8 Consult NAA's Technical Services Department for recommendations for embossing levelers and/or adhesives over existing flooring.
- 7.9 Refer to product Technical Data Sheets for details.

## 8. CUTBACK ADHESIVE RESIDUE

- 8.1 Cutback adhesive must be scraped with a razor scraper to remove the ridges and loose areas. Only the residue (the black stain embedded in the surface of the concrete) should remain. The area must then be vacuumed, mopped and allowed to dry completely.

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- 8.2 Do not use chemical solvents to remove cutback adhesive or even to soften it to aid in the removal.
- 8.3 Consult NAA's Technical Services Department for adhesive recommendations over cutback adhesive residue.
- 8.4 Refer to product Technical Data Sheets for details.

## 9. NAA SURFACE PREPARATION PRODUCTS

- 9.1 Using a total NAA installation system, including recommended NAA surface preparation products, sets the foundation for a successful installation.
- 9.2 Use a NAA moisture-vapor emission reduction product to treat concrete slabs with moisture issues. Consult NAA's Technical Services Department for product recommendations. Refer to product Technical Data Sheets for details.

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- 9.3 Use NAA patching compounds to fill holes, voids, cracks and depressions in concrete and approved wood underlayments. Refer to product Technical Data Sheets for details.
- 9.4 Use NAA patching compounds in conjunction with NAA patching compound additives to cover over properly prepared and firmly bonded noncushioned sheet vinyl (vinyl or urethane wear layers, one layer only and not perimeter-glued), VAT/VCT (one layer only), ceramic tile, cement terrazzo and cutback adhesive residue. Refer to product Technical Data Sheets for details.
- 9.5 Use NAA skim-coating compounds to smooth out rough-textured surfaces and correct irregularities in concrete and approved wood underlayments. Refer to product Technical Data Sheets for details.
- 9.6 Use NAA self-leveling underlayments with the appropriate NAA primer(s) to level large areas over concrete and approved wood underlayments. Refer to product Technical Data Sheets for primer recommendations, installation instructions and details.
- 9.7 Use NAA repair products for building up surfaces or for thick repair applications. Refer to product Technical Data Sheets for details.
- 9.8 Use NAA exterior concrete repair products to correct imperfections in exterior concrete surfaces before the application of outdoor carpet and outdoor rubber flooring. Refer to product Technical Data Sheets for details.
- 9.9 Do not use NAA cement-based products directly over gypsum-based surfaces, gypsum-based floor patches, gypsum-based levelers, nor any existing unapproved patching compounds or unapproved leveling materials.

*Contact NAA's Technical Services Department regarding installation of NAA adhesives and/or NAA surface preparation products over special substrates or membranes, or for conditions not listed*

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