

◆ Installation ◆

No floor covering is better than the subfloor over which it is installed. The finished appearance and performance of any floor covering will be affected by the condition of the subfloor.

Before you begin the installation, inspect the flooring material for any obvious defects.

If you notice a defect, do not begin the installation. Ensure you have the correct color, pattern, quantity, and that all the material is of the same production run. (Production run numbers appear on end closure flap of box or the roll label)

Beginning the installation means that you have accepted the job site and material conditions.

It is essential that all subfloors are rigid, smooth, flat, level, permanently dry, and free of all foreign materials. For fully adhered products, dust, paint, grease, oils, solvents, curing and hardening compounds, sealers, asphalt and old adhesive residue must be removed. Subfloor preparation should be done with the permanent HVAC set at a minimum of 65°F (18°C) and a maximum of 85°F (29°C).

Vacuuming the subfloor with a commercial shop vacuum is the preferred method of removing dirt and dust. A clean subfloor is essential for proper bond between the subfloor and the floor covering.

Wherever trade names, trademarks, product names, or company names are mentioned; they are used only as a reference to establish a comparative standard of quality. It should not be assumed that the products named are the only products for the suggested use. Products named differently of similar or equal quality may also be suitable.

Referenced Documents

ASTM F-710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring

ASTM F-1869, Moisture Vapor Emission Rate of Concrete Subfloor

ASTM F-2170, Determining Relative Humidity in Concrete Floor Slabs using *In-Situ* Probes

ASTM F-1700, Standard Specification for Solid Vinyl Floor Tile

ASTM F-1482, Standard Practices for Installation and Preparation of Panel Type Underlayments to Receive Resilient Flooring

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Material Handling

Flooring shall be stored in a clean, dry environment, protected from the elements. Storage temperature should be between 65°F (18°C) and 85°F (29°C).

Plank/Tile Flooring

Store cartons on a smooth and level surface. Stack cartons squarely. Do not stack more than 10 cartons high. Do not store tiles and planks on their edges. Do not drop cartons. Do not double stack pallets. Storing tile at high temperatures and on uneven surfaces may cause a permanent distortion of the material.

Jobsite Conditions

All areas should be fully enclosed, weather-tight with the permanent HVAC system in operation. The temperature should be maintained at a minimum of 65°F (18°C) and a maximum of 85°F (29°C) for 48 hours prior to, during, and 48 hours after installation. Thereafter, maintain a room temperature between 55°F (13°C) and 100°F (38°C).

GRADE LEVELS

- 1. On Grade** – A location for a finished floor with no portion below ground level, and with the floor and the ground in contact or separated by less than 18 inches of well-ventilated space between the bottom of the lowest horizontal structural member and the ground at any point.
- 2. Above Grade** – A location for a finished floor where the floor is not in contact with the ground and which provides at least 18 inches of well-ventilated space between the bottom of the lowest horizontal structural member and the ground at any point.
- 3. Below Grade** – A location for a floor structure, which is in contact with the ground or with less than 18 inches of well-ventilated space between the bottom of the lowest horizontal structural member and the ground, at any point or the entire floor is below ground level.

DEFINITIONS

- 1. Subfloor** – That structural layer intended to provide support for design loadings. The subfloor is the substrate for the underlayment.
- 2. Underlayment** – The layer of material installed on or over the subfloor to provide a smooth, clean surface to receive the resilient floor covering.
- 3. Subfloor-Underlayment combination**- Designed to meet the structural requirements and provide a smooth surface to receive the floor covering.

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Wood floors should be double construction with a minimum thickness of 1". The floor must be rigid, free from movement and have at least 18" of well-ventilated air space below. Harbor Point should not be installed over wooden subfloors built on sleepers over, on grade, or below grade concrete floors unless specific design has been undertaken to eliminate the chance of failure due to the excessive moisture vapor emissions from the concrete.

Underlayment

Underlayment panels are used to correct deficiencies in the subfloor and to provide a smooth, sound surface on which to adhere the resilient flooring. APA underlayment grade plywood, minimum ¼" thickness, with fully sanded face is the preferred panel. Underlayment panels such as Multiply, Tee-Ply and Ulay are acceptable. The underlayment must be free of any foreign material that may cause staining, such as patching compounds, sealers, inks, solvents, etc.

The underlayment should be installed with dispersion type staples placed every 4 to 6 inches in the field and every 2 to 3 inches along the seams. Sanding is a preferred method for smoothing joints.

The American Plywood Association offers other acceptable guidelines for proper wooden subfloor installation. The above mentioned is not considered the only procedure for a successful installation. Always install and fasten underlayment panels according to the manufacturers' recommendations.

There are certain types of subfloors and underlayment that have been proven by experience to be prone to failure and are therefore NOT recommended for fully adhered floor coverings:

- Particle board/chip board
- OSB board
- tempered hardboard
- Luan board *
- Pressure Treated or Fire-Retardant wood*

*In some cases, permanent staining has occurred from chemicals used in the construction of Luan board and in pressure treated or fire-retardant wood.

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Regardless of which underlayment is used, failures in the performance of the floorings due to the underlayment are not covered by the warranty.

Strip Wood/Plank Flooring

Due to expansion and contraction of the boards during seasonal changes, it is recommended to use underlayment panels ¼" or thicker be installed over these types of floors.

Concrete Floors

Concrete floors should be prepared according to ASTM F-710, Standard Practice for Preparing Concrete Floors to Receive Resilient Flooring.

It is essential that a permanent, effective moisture vapor retarder with a permeance of 0.1y, be installed under all on- or below-grade concrete floors. The water vapor retarder (vapor barrier) should be installed directly below the slab.

Floors shall be smooth, rigid, flat, level, permanently dry, clean and free of all foreign material such as dust, paint, grease, oils, and solvents, curing and hardening compounds, sealers, bond breakers, asphalt and old adhesive residue.

Imperfections such as chips, spalls, cracks and/or corrective leveling shall be repaired with cementitious based patching and/or underlayment materials. The surface of the concrete must be flat to within 3/16 in. in 10 feet.

It may be difficult to determine if any curing or hardening compounds and/or sealers have been used. An adhesive bond test should be conducted (and passed) prior to beginning the installation.

Expansion joints, saw cuts, control joints

Expansion joints in the concrete are designed to allow for the expansion and contraction of the concrete.

If the floor coverings are installed over the expansion joints, it more than likely will cause adhesive bond failure and bubbling or buckling of the flooring material. Therefore, flooring products should not be installed over expansion joints, an expansion joint cover designed for use with resilient floorings should be used.

Isolation, construction and control (saw cut) joints may be successfully patched once the concrete is thoroughly cured, dry and climatized. If any movement occurs in the concrete, it may also cause the patching material to telegraph.

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Moisture Testing

It is essential that moisture tests be taken on **all** concrete floors regardless of age or grade level with a minimum of three tests for the first 1000 square feet. The test should be conducted according to ASTM F1869, Calcium Chloride Moisture Emission Test, and ASTM F2170, In-Situ Relative Humidity of the Concrete. One test should be conducted for every 1000 square feet of flooring. The test should be conducted around the perimeter of the room, near columns and where moisture may be evident.

The results of F1869 Calcium Chloride moisture vapor emissions from the concrete shall not exceed 5.0 lbs. per 1000 sq. ft. in 24 hours for all installations. For the most accurate results, the weight of the calcium chloride dish should be made on the job site at the start and end of each test. The results of F2170 In-Situ Relative Humidity shall not exceed 85%. A diagram of the area showing the location and results of each test should be submitted to the architect, general contractor or end user. If the test results exceed the limitations, the installation **should not** proceed until the problem has been corrected.

Note: It may not be the floor installer's responsibility to conduct the test. It is, however, the floor covering installer's responsibility to make sure these tests have been conducted and that the results are acceptable prior to installing the floor covering.

When moisture tests are conducted it indicates the conditions only at the time of the test. The flooring contractor cannot be held responsible if moisture appears in the future.

Patching Materials

There are many brands available but basically there are two types of patching materials for the use of smoothing and patching subfloor irregularities. One type is referred to as calcium sulfate/plaster/gypsum base compound. This type of patch may harbor and promote mildew growth, have low indentation resistance and poor bond and adhesion strength. The use of these compounds is not recommended.

The second type is a cement-based compound usually with polymer additive. This type of patch will not promote mildew growth; have much higher psi strength and better adhesion properties to the subfloor. Harbor Point recommends only the use of cementitious base patching and leveling compounds.

Only use the highest quality materials. Many failures have been directly attributed to the use of gypsum-based toppings, leveling and patching compounds because of poor indentation resistance, poor resistance to mold and mildew and separation of the product within itself.

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Regardless of which patching or leveling compound is used, any failures in the performance of the compound or Harbor Point tiles due to the compound is the responsibility of the compound manufacturer and installer, not with Chesapeake.

Old Adhesive Residue

If a residue is asphaltic (cut-back) or other type of adhesive is present, it must be dealt with in one of two ways:

1. It may be mechanically removed such as: bead blasting or diamond grinding.
2. A self-leveling cementitious underlayment may be applied over it. Check with the underlayment manufacturer for suitability, application instructions and warranties.

Never use solvents or citrus adhesive removers to remove old adhesive residue. Residue left within the subfloor will affect the new adhesive and the new floor covering.

WARNING!

Warning regarding complete adhesive removal: some solvent based 'cut-back' Asphaltic adhesives may contain asbestos fibers that are not readily identifiable. Do not use power devices, which create asbestos dust in removing these adhesives. The inhalation of asbestos dust may cause asbestosis or other serious bodily harm. Smoking greatly increases the risk of serious bodily harm.

Existing Resilient Floors

Adore floors may be installed over a single layer of non-cushioned goods such as VAT & VCT. All waxes and finishes must be removed and rinsed with clean water and a pH test should be conducted to assure stripper residues have been removed.

Note: The responsibility of determining if the existing flooring or subfloor is suitable to be installed over rests solely with the installer and flooring contractor. Installations over existing resilient flooring may be more susceptible to indentation, moisture vapor emission problems and there is always a possibility the existing flooring may telegraph through. Remember, you are no better than what you go over.

Poured Floors

(Epoxy, Polymeric, Seamless)

Harbor Point tiles may be installed over most poured floors provided they meet the following conditions:

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1. Concrete floors that are on, above and below grade – Conduct moisture tests according to ASTM F-1869, Calcium Chloride Moisture Vapor Emission and ASTM F-2170, In-Situ Relative Humidity of the Concrete.

Conduct one test for every 1000 sq. ft. of flooring.

The test results should not exceed 5 pounds per 1000 square feet per 24 hours for the calcium chloride test and 85% for the in-situ relative humidity.

The existing flooring and adhesive must be removed where the test is conducted.

2. It must be totally cured and well bonded to the concrete.
3. It must be free of any residual solvents and petroleum derivatives.
4. Loose, damaged areas and irregularities must be repaired with a cementitious based patching compound
5. The texture must be smooth. Sand or wet stone the surface to remove any grit and texture.
6. All waxes and finishes must be removed and rinsed with clean water and a pH test should be conducted to assure stripper residues have been removed.
7. After area has been properly prepared, adhesive bond tests must be conducted (and passed) with the flooring and adhesive that will be used on the job.

The responsibility of determining if the existing flooring is suitable to be installed over rests solely with the installer and the flooring contractor.

WARNING!

Do not sand, dry sweep, dry scrape, saw, bead-blast or mechanically chip or pulverize existing resilient flooring, backing, lining felt or asphaltic 'cut-back' adhesives. These products may contain either asbestos fibers or crystalline silica. Avoid creating dust. Inhalation of such dust is a cancer and respiratory tract hazard. Smoking by individuals exposed to asbestos fibers greatly increases the risk of serious bodily harm. Unless positively certain that the product is a non-asbestos containing material, you must presume it contains asbestos. Regulations may require that the material be tested to determine asbestos content. The RFCI'S *Recommended work practices for removal of resilient floor coverings* are a defined set of instructions which should be followed if you must remove existing resilient floor covering structures.

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Radiant Heated Floors

Harbor Point may be installed over radiant heated floors provided the operating temperature does not exceed 85°F (29°C). To allow proper adhesion of the adhesive to the subfloor, the radiant heating system should be lowered, or turned off for at least 48 hours prior to installation of the flooring material. The room temperature must be maintained at a minimum of 65°F (18°C) for 48 hours prior to, during and after installation, after which the temperature of the radiant heating system can be increased. When raising the floor temperature, do so gradually so that the substrate and the flooring material can adapt to the temperature change together. A rapid change could result in bonding problems. For more information, contact Chesapeake Technical Services.

Porous and Non-Porous Surfaces

Adhesive Bond Test - In several locations throughout the area to receive the flooring, glue down 1 piece of tile, plank or 3' x 3' of sheet material with the recommended adhesive. Bond tests give the installer the opportunity to evaluate the porosity of the subfloor and determine the correct timing for application of the flooring material. The floor should be smooth, dry and allowed to set for 72 hours before attempting to remove. It is also a good practice to place your bond test over some areas where a patching compound has been used in order to check the bond strength of the patching compound.

When removing the test floor check for looseness around the edges of the material. A proper bond test should show no signs of moisture and it will restrict all movement of the material. When pulling up the tile you should see proper transfer of adhesive between the subfloor, and the flooring.

On porous subfloors, primers can improve bond strength. They eliminate moisture from the adhesive being absorbed too fast and improve working time. Check with the manufacturer of these products for proper application guidelines and warranties.

Non-porous substrates such as metal, terrazzo, ceramic tile, or marble can be installed over. However, the same guidelines as mentioned for installing over concrete or existing floor coverings should be followed. **A bond test is essential!**

TILE INSTALLATION

General

- Ensure that moisture tests have been conducted and that the results do not exceed 5.0 lbs. per 1000 sq. ft. in 24 hours as per ASTM F-1869 and 85% In-Situ relative humidity when tested according to ASTM F-2170.
- A bond test is conducted and passed.

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- The permanent HVAC system is turned on and set to a minimum of 65°F (18°C) for a minimum of 48 hours prior to, during and after installation. Thereafter, maintain a room temperature between 55°F (13°C) and 100°F (38°C).
- Flooring material has been climatized to the installation area for a minimum of 48 hours prior to installation. It is possible to crack the tile during routine handling if they have not been climatized as recommended. The bulk shipping container should be broken down into a series of piles, no more than 3 cartons high, scattered around the room with care for warming.
- Fully adhered products use a 1/32" x 1/16" x 1/32" u-notch trowel.
- Material should always be visually inspected prior to installation. Labor costs will not be considered on any material installed with visual defects.
- Tiles should be installed with directional arrows ¼ turned to each other; planks should be installed with arrows pointing in the same direction.
- **Make sure all material is from the same production number.** Ensure that all recommendations for subfloor and jobsite conditions are met prior to beginning the installation. Once the installation is started, you have accepted those conditions.

Layout and Installation

Harbor Point is installed using conventional tile installation techniques. It is customary to start from the center of the room. In corridors and small spaces, it may be simpler to work lengthwise from one end, using the center line as a guide.

The center line is drawn as follows: a chalk line is snapped from center of wall A – B (=E) to the center of wall C – D (=F). The center of line E – F is found (M). Draw a perpendicular line through M using the 3:4:5 method to establish G – H

Starting at center point M, measure out lengthwise and widthwise to the walls to make sure you will have at least a half of a tile at the border. Adjust lines E – F and G H if necessary.

Adhesive

1. Use only Chesapeake recommended adhesive and a 1/32" x 1/16" x 1/32" u-notch trowel. Follow the directions on the adhesive label.
2. In most cases, the tile should be placed immediately into the adhesive, before the adhesive has had an opportunity to dry. Good transfer of adhesive to the backing of the tile is essential for proper bond. The installer must understand, however, that subfloor porosity and room environment (temperature, humidity, air circulation, etc.) may affect the working characteristics of the adhesive (open time and working time). When installing over non-porous substrates a short open time may be appropriate, but under no circumstances should the adhesive be allowed to dry before placing the tile into the adhesive.

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3. Immediately after placing the material into the adhesive, roll in both directions with a minimum 100 lb roller.

Installation process

1. Begin laying tile at the center point, ensuring that the tile is laid exactly on the chalk lines. If the first few tiles are not installed correctly, it will affect the entire installation.
2. Because tile must be installed into wet adhesive, do not spread adhesive in an area larger than tile can be installed while the adhesive is still wet. Follow adhesive label instructions.
3. Since it takes time to scribe and cut the border tiles, it is advisable to first spread adhesive only where full tiles will be laid. When the field is complete, scribe and cut the border tiles before the adhesive is spread. When fitting is complete, adhesive can be spread in the border area and border pieces can be installed and rolled while the adhesive is still wet.