

Congoleum[®]

DuraStone[®] HPF[®]

HIGH PERFORMANCE FLOORING[®]

Installation and Product Specification Guide

DURASTONE HPF SAFETY

Safety for yourself and others on the job site is your responsibility as a professional flooring installer. Read and observe the following safety precautions.

- Read and follow the safety precautions and warnings printed on the label of the installation accessory products being used. *Obtain the appropriate MATERIAL SAFETY DATA SHEETS (MSDS) for information that may be required for products which may contain hazardous materials.* DuraStone does not have an MSDS because it is classified as an "article" and not a chemical. MSDS are available for the adhesive. You may obtain an MSDS for the adhesive products by calling or writing to your Congoleum distributor or contacting: Congoleum Corporation, Installation Dept., PO Box 3127, Mercerville, NJ 08619.
- Various safety precautions should be taken when preparing subfloors.
- **Wood and concrete:** If working on wood or concrete subfloors, use proper safety precautions when sanding or grinding. Avoid creating dust. Concrete and cementitious patching compounds contain crystalline silica, which is a known carcinogen. Wood dust is classified as a nasal carcinogen in humans. Airborne wood dust may also be an explosive hazard.
- **Resilient Flooring**

WARNING

Do not sand, dry sweep, dry scrape, drill, saw, beadblast, or mechanically chip or pulverize existing resilient flooring, backing, lining felt, asphaltic "cutback" adhesive, or other adhesive. These products may contain asbestos fibers and/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 and may govern the removal and disposal of material. Whenever possible, existing flooring should be left in place and the new floor installed over the top. If you must remove old flooring material, contact your retailer or Congoleum Corporation, Installation Department, P.O. Box 3127, Mercerville, NJ 08619, for a copy of recommended work practices for the removal of resilient floor coverings. These practices should be followed.

NOTICE

Various federal, state, and local government agencies have regulations governing the removal of in-place asbestos containing material. If you contemplate the removal of a resilient floor covering structure that contains (or is presumed to contain) asbestos, you must review and comply with all applicable regulations. Regulations outside the United States may vary.

Copies of the Resilient Floor Covering Institute (RFCI) Recommended Work Practices for the Removal of Resilient Floor Coverings are available from:

Resilient Floor Covering Institute
401 East Jefferson Street
Suite 102
Rockville, MD 20850
(301) 340-8580

Please note that the RFCI Recommended Work Practices are subject to change as new practices are incorporated. It is your responsibility to determine that the Recommended Work Practices you use are those in effect.

MOLD AND MILDEW ISSUES

Prior to removing an existing floor following the RFCI Recommended Work Practices for Removal of Resilient

Floor Coverings (unless state or local law requires other measures), if there are visible indications of mold or mildew or the presence of a strong musty odor in the area where resilient flooring is to be removed or installed, the source of the problem should be identified and corrected before proceeding with the flooring work. In virtually all situations, if there is a mold issue, there is or has been an excessive moisture issue. Visible signs of mold or mildew (such as discoloration) can indicate the presence of mold or mildew on the subfloor, on the underlayment, on the back of the flooring, and sometimes even on the floor surface. If mold or mildew is discovered during the removal or installation of resilient flooring, all flooring work should stop until the mold or mildew problem (and any related moisture problem) has been addressed.

In areas where flooding has occurred, it is recommended that damaged flooring be removed following the RFCI Recommended Work Practices for Removal of Resilient Floor Coverings (unless state or local law requires other measures). Any underlayment and subfloor should be allowed to thoroughly dry and, if necessary, cleaned, disinfected, and otherwise remediated consistent with the U.S. Environmental Protection Agency (EPA) guidelines referenced below. Any structural damage or signs of mold or mildew must be corrected before reinstalling resilient flooring. This may include for example replacement of the underlayment and/or subfloor.

For water damage caused by leaking fixtures, the source of the moisture leak must be located and corrected. Any structural damage must be repaired and any signs of mold or residual moisture must be addressed before replacing the resilient flooring in the affected area.

To deal with mold and mildew issues, you should refer to the EPA guidelines that address mold and mildew. Depending on the mold and mildew condition present, those remediation options range from cleanup measures using gloves and biocide to hiring a professional mold and mildew remediation contractor to address the condition. Remediation measures may require structural repairs such as replacing the underlayment and/or subfloor contaminated with mold and mildew as a result of prolonged exposure to moisture.

The EPA mold guidelines are contained in two publications "A Brief Guide to Mold, Moisture and Your Home" (EPA 402-K-02-003) and "Mold Remediation in Schools and Commercial Buildings" (EPA 402-K-01-001). Appendix B of the "Mold Remediation in Schools and Commercial Buildings" publication describes potential health effects from exposure to mold, such as allergic and asthma reactions and irritation to eyes, skin, nose and throat. These publications can be located on EPA's website at www.epa.gov/iaq/molds/

- Keep work areas free of obstructions, such as tools and scrap or loose tiles, and dispose of scrap materials promptly and properly to eliminate a slip or trip hazard.
- Always use the correct lifting practices.
- Use only UL® approved electrically powered tools **equipped with a dust collector**. Read and follow the safety precautions and recommended procedures for using power tools.
- Use heavy-duty extension cords and keep them in good repair.
- If using mineral spirits as suggested in this guide, **CAUTION: Mineral spirits is a flammable material. Read and follow cautionary instructions on the labels of these products.**
- Wear non-conducting rubber-soled shoes and use a ground fault interrupter (GFI) when using power equipment in damp or wet areas.
- Wear protective equipment when appropriate such as safety glasses, respirators, **NIOSH-designated** dust masks, kneepads, gloves, etc.

DURASTONE HPF

DuraStone is an upscale 16" x 16" designer-size tile with remarkable styling and surface texture that captures the beauty of nature. Congoleum uses a revolutionary new technology to suspend nano-composite nylon particles and aluminum oxide in the surface glaze. This process provides excellent performance properties, superior durability and makes it virtually stainproof.

PRODUCT DATA AND INFORMATION

Size (nominal)	16" x 16" (40.6 cm x 40.6 cm)
Gauge (nominal)	.160" (4.1 mm)
Packaging per Carton	10 pcs. (17.77 sq. ft.; 1.65 m ²)
Weight per Carton	34 lbs. (15.4 kg.)
NBS Smoke Density	Passes
Critical Radiant Flux (ASTM E648 > 0.45w/cm²)	Passes
Motor Vehicle FMVSS 302	Passes
Static Load Limit	250 psi
Slip Resistance	Meets ADA Recommendations
PEI Rating	3-4
Installation Method	Full Spread
Subfloor Application	On, above, or below-grade level
Adhesive	DS100 DuraSet Adhesive
Adhesive Sizes	1 quart; 1 gallon and 4 gallon
Adhesive Spread Rate	200 to 250 sq. ft./gallon
Recommended Trowel	1/16" w x 1/32" d x 1/32" apart
Suggested Usage	Residential and Light Commercial
Warranty	Residential - Lifelong; Commercial - 5 Year

RECOMMENDED USE

DuraStone is recommended for residential and light commercial use in dry, interior heated areas.

Residential

DuraStone is recommended for use in all areas of the home.

Light Commercial

DuraStone is recommended for use in areas receiving light commercial foot traffic.

DuraStone is not recommended for installation in exterior or unheated areas, wet areas, commercial kitchens or food processing areas or on ramps. For information on other specific applications, contact the Congoleum Installation and Technical Department at 609-584-3888.

Areas receiving more concentrated traffic and or routine spills should be protected with floor polish and a regular maintenance schedule should be followed. (See Care and Maintenance).

GENERAL INFORMATION

Install DuraStone with Congoleum DS100 DuraSet Adhesive.

Proper storage and handling is critical to ensure tiles do not become distorted prior to installation. Always store and transport cartons on a flat surface stacked no more than 10 cartons high.

The importance of proper temperature at the time of installation cannot be over-emphasized. Do not install at a

temperature higher than 85°F (29°C). The subfloor, all flooring material, and adhesive must be conditioned at a constant temperature between 65°F (18°C) and 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). **NOTE: Exposure to extreme temperature variations can cause thermal expansion or contraction resulting in edge curl or gaps between tile.**

When installing tile from two or more cartons, check the code on the side of the cartons to ensure that the pattern and shade numbers are the same. Mix tiles from several cartons to achieve the best appearance. Arrows are printed on the back of each tile. Install tile with arrows pointed in the same direction unless specifically instructed otherwise on a separate insert found in the carton. Perimeter grout lines will vary in width from tile to tile. This variation has been designed into the floor to create a more realistic visual of a hand-set tile.

TOOLS AND MATERIALS

- Congoleum DS100 DuraSet Adhesive
- Notched trowel (1/16" wide, 1/32" deep, 1/32" apart)
- 100-pound, three-section, steel roller
- 18" tile cutter - optional

SUBFLOOR REQUIREMENTS

DuraStone may be installed over dry concrete on all grade levels, suspended wood floors and qualifying old, smooth, resilient floors that are fully adhered and securely bonded.

Deviations in the flatness of the subfloor cannot exceed 1/16" in 1' or 3/16" in 10'. This is particularly important when installing over a cold concrete subfloor since the tile will be stiffer at low temperatures.

All surface imperfections should be leveled with a portland cement-based patching compound or underlayment. The use of gypsum-based latex patching compound or underlayment is not recommended by Congoleum and may result in bond failure.

Concrete subfloors must be clean, dry, and free of paint, efflorescence, curing, hardening and parting compounds, sealers, and old adhesive residue. Congoleum does not recommend the installation of DuraStone where excessive moisture, vapor emissions, hydrostatic pressure or alkali conditions exist. Installation failures resulting from these conditions are not warranted by Congoleum.

Wood subfloors must be structurally sound and free of movement with at least 18" of well-ventilated air space below. Single layer floors and stripwood floors must be covered with a 1/4" or heavier underlayment to achieve a total subfloor thickness of 1". Single layer stripwood floors should be covered with a minimum 3/8" underlayment.

Approved underlayments include APA Rated Underlayment grade plywood (specify "Fully Sanded Face"), APA C-C Plugged Exterior grade plywood. Other underlayments panels may be suitable for use. Consult your supplier for recommendations and warranty information prior to performing the installation. Fasten underlayment with 1 1/4" ring-shank nails or approved divergent staples, spaced as follows:

Underlayment Thickness	Interior	Along Edges
1/4"	4"	2"
3/8" or heavier	6"	3"

Sand underlayment joints level and fill gaps wider than 1/32".

Subfloor Construction/ Materials	Comments	Notes
Wood	<ul style="list-style-type: none"> • Double layer construction over joist or trusses on 16" centers with at least 18" of well-ventilated air space. • Install 1/4" or heavier underlayment over strip wood, single layer wood floors and APA-rated Sturd-I-Floor Systems. 	Subfloor must be solid and free of movement.
Underlayment	<ul style="list-style-type: none"> • APA underlayment grade plywood with fully sanded face. • Hardwood and veneer underlayment panels such as Multiply, HU 845 Tec-Ply and Ulay. • Luan plywood, particleboard, oriented strand board and chip-board create a higher risk for installation and adhesive failure and are not recommended unless warranted by the panel manufacturer or supplier. • Not recommended over cement backer-boards, glass mesh mortar units or acoustical cork. 	Install according to panel manufacturers' written instructions.
Concrete	<ul style="list-style-type: none"> • On, above and below-grade level. • Radiant-heated floors not to exceed 85°F (29°C). 	Moisture vapor emissions not to exceed 5 pounds.
Light Weight Concrete (Residential Application only)	<ul style="list-style-type: none"> • Minimum 100-pound density • Installation over gypsum-based acoustical toppings is not recommended. 	Confirm adequate adhesion to substrate.
Resilient Floor (See WARNING in next column)	<ul style="list-style-type: none"> • Smooth, non-cushioned sheet flooring and vinyl composition tile. • Embossed non-cushioned and thin cushioned vinyl flooring can be prepared with embossing leveler in residential applications. • Do not install over soft, heavy cushioned floors, self-adhering tile or tile installed below grade level. 	Must be single layer, fully adhered and well bonded. Remove wax or polish.
Ceramic and Stone	<ul style="list-style-type: none"> • Ceramic, marble and granite. 	Fill grout joints level.
Carpet/ Laminate	<ul style="list-style-type: none"> • Not recommended. 	Remove
Patching Compound	<ul style="list-style-type: none"> • Portland cement-based compound such as Ardex Feather Finish, Mapei Plani-Patch or equal. • Gypsum-based patching compounds are not recommended. 	Refer to manufacturers' instructions for use and applications.

EXISTING RESILIENT FLOORS

Whenever possible, it is desirable to leave the old flooring in place with the last alternative being removal (See Warning on page 1). Suitable old, resilient floors should be smooth, non-cushioned, single layer, fully adhered, securely bonded, and in good condition. All floor polish, wax, and finish should be stripped with a liquid stripping solution following label instructions.

In residential applications, DuraStone can be installed over embossed non-cushioned and thin cushioned vinyl

flooring that is covered with wood underlayment (provided the subfloor is suspended wood) or prepared with a latex-modified portland cement-based embossing leveler.

Do not install over soft, heavy cushioned floors, tile installed on concrete below grade level, or existing self-adhered flooring.

FLOOR LAYOUT

To start the layout, place a mark in the center of the floor at each end of the room. Then connect the marks by snapping a chalk line down the center of the room.

Next divide the room into equal quadrants. To do this, locate the center point of the chalk line and snap a perpendicular line, using the 3-4-5 method or a carpenter square as a guide (Figure 1).

Make a dry layout in one quadrant along the center and perpendicular chalk lines. Measure the distance between the last whole tile and the wall. If the distance in either row is less than half a tile, adjust the starting point and snap a new chalk line one-half the dimension of a full tile (8") away from the original chalk line (Figure 2). This will provide a balanced layout with larger cut tile around the perimeter.

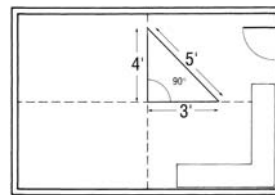


Figure 1 - Room layout.

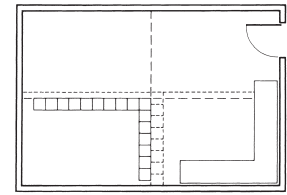


Figure 2 -Adjusting lines.

It is important to avoid positioning tile joints directly over underlayment joints or seams in existing floor coverings. If this should occur when laying out the installation, reposition the chalk lines.

ADHESIVE APPLICATION

Congoleum DS100 DuraSet Adhesive applied with a properly notched adhesive trowel is required for installing DuraStone over all approved subfloor surfaces.

The use of a high-quality, floor covering latex primer that is specifically designed to improve adhesion may be used over wood, porous concrete and patching compounds. The primer will help seal the surface and tie down dust that can interfere with the adhesive bond. Do not use paint primers.

The recommended trowel notch size, 1/16" wide, 1/32" deep, 1/32" apart must be used (Figure 3). Excessive amounts of adhesive applied with an improper trowel will delay drying time and can result in exudation (oozing up) of adhesive between tile in service. Insufficient coverage (normally caused by worn notches on adhesive trowels) will prevent proper adhesion or bond to the tile. When trowel notches become worn (occurs more frequently on concrete subfloors), they should be re-notched to the recommended size or replaced.



Figure 3 -Notched trowel.

Spread the adhesive over one-half of the subfloor and a few inches beyond the chalk line with a notched trowel.

Allow DS100 Adhesive to dry completely to a tack (approximately 45 to 60 minutes) before installing tile. Drying

time can vary depending on temperature, humidity and substrate conditions. When tacky dry, the adhesive will turn from light blue to clear. The final test is to place a finger into the tacky dry, clear adhesive and apply firm pressure. If the adhesive does not transfer to the finger when removed, it is ready for installation. Do not use fans to accelerate adhesive drying time. Fan drying will cause the top surface of the adhesive to dry prematurely, trapping residual moisture in and preventing the adhesive from fully curing. Tiles set into DS100 before it has completely dried may result in tile shifting and gapping. **Caution:** DS100 Adhesive is an eye and skin irritant. Provide adequate ventilation.

INSTALLATION

Complete one-half of the room at a time. Carefully position the first tile into the adhesive at the intersection of the chalk lines (Figure 4).

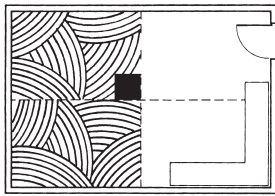


Figure 4 - Positioning tile.

Continue working toward the walls. Position the tiles at a low angle into adhesive tightly against previous tiles with corners lined up. Press tiles firmly without sliding. Spread adhesive on the second half of the floor so it can dry while you are cutting and fitting the last row of tiles along the wall.

CUTTING DURASTONE TO FIT

The last row of tiles will need to be cut to fit to walls and other vertical surfaces.

- **Straight Cuts** - Place loose tiles directly over the top of the last full row of tile making sure all edges are lined up. Using a whole tile as a measuring device, position one edge against the wall and mark the loose tile with a pencil along the opposite edge (Figure 5).

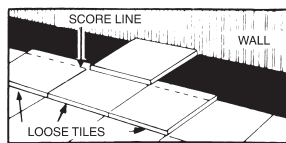


Figure 5 - Straight cuts.

Next, place the marked tile on a cutting board. Using a carpenter square as a guide, score the pencil line deeply with a sharp knife. Break or cut tile along the score mark. **Caution:** Keep fingers away from knife blade to avoid injury. Install the tile with cut edge against the wall. **Note:** If a tile cutter is used for DuraStone, it must be able to accommodate a 16" x 16" tile.

- **Irregular Shapes** - Make a pattern or template out of heavy paper or cardboard to fit to irregular shapes such as door trim,

pipes, etc. (Figure 6). Trace the pattern onto the tile and cut with a utility knife or coping saw.

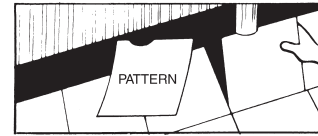


Figure 6 - Irregular cuts.

IMMEDIATELY AFTER INSTALLATION

Roll the entire floor with a 100 to 150-pound, three-section, steel roller. Roll the floor across tile joints in both directions.

Tile installed with DS100 Adhesive can be walked on immediately. Wait 48 hours before washing. Adhesive smears can be removed with mineral spirits or charcoal lighter fluid.

Caution: Solvents are hazardous materials and should be used with caution in accordance with the manufacturer's label instructions.

Replace the base moldings and return appliances and furniture to the room by rolling or sliding it over strips of hardboard.

CARE AND MAINTENANCE

DuraStone is extremely durable and easy to clean. The naturally textured surface glaze resists scratching, scuffing and staining.

GENERAL CARE AND MAINTENANCE

- Protect against indentations and furniture damage by making sure furniture legs have large surface floor protectors.
- Mobile appliances and furniture should be equipped with easily swiveling casters.
- Place mats at outside entrances to prevent dirt, grit, sand, water, snow, and ice from being tracked onto the floor.
- Vacuum or sweep the floor regularly.
- Wipe up spills promptly with a damp cloth or mop.
- Wash the floor with Congoleum Bright 'N Easy No-Rinse Cleaner or other suitable floor cleaner.
- Sealers and buffing are not required or recommended.

LIGHT COMMERCIAL MAINTENANCE

Additional protection is recommended in areas of high wear. In addition to the items listed above, the following applies to light commercial applications:

- Use plastic floor protectors under desk chairs to protect the floor.
- Use fatigue mats at hair salon workstations and similar high wear areas.
- The use of floor polish is optional. Areas that receive a high concentration of traffic or more frequent spills can be maintained with Congoleum Commercial Satin-Gloss Floor Polish (C3100) for added protection. **Do not buff the floor.**

For additional care and maintenance information, contact Congoleum's Consumer Affairs Department at 609-584-3000.

WARRANTY

RESIDENTIAL DURASTONE HPF LIFELONG LIMITED WARRANTY

The Lifelong Limited Warranty means that the floor:

- will be free of manufacturing defects
- will not wear out
- will not fade
- will not stain

The Residential DuraStone HPF Limited Warranty covers materials for the period of the warranty, and reasonable labor costs for the warranty period if professional installation was paid for when the original floor was installed.

FIVE-YEAR COMMERCIAL DURASTONE LIMITED WARRANTY

The Five-Year Commercial Limited Warranty means that the floor:

- will be free of manufacturing defects
- will not discolor from mold, mildew or alkali

The Five-Year Commercial Limited Warranty covers material for the warranty period, and reasonable labor costs during year 1 if professional installation was paid for when the original floor was installed. For years 2 through 3, covers material and 50% of reasonable labor costs if professional installation was paid for when the original floor was installed. After the third year, covers material only - labor will not be paid.

Contact Congoleum's Consumer Affairs Department at 609-584-3000 for complete warranty details.



P.O. Box 3127
Mercerville, NJ 08619
609-584-3000
www.congoleum.com

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