

SECTION 09 64 11**MOISTURE CONTROL SYSTEM FOR WOOD FLOORING**

This product guide specification section can be used to specify **Titebond 531 Epoxy Moisture Control System**, a two-component epoxy coating applied to concrete subfloors to reduce moisture vapor transmission prior to the installation of wood flooring. **Titebond 531** dries fast, has low odor, eliminates the need for bead blasting, and reduces the potential for mold and mildew growth caused by subfloor moisture. **Titebond 531** can effectively reduce 75 to 90 percent of vapor transmission from concrete subfloors to the flooring above depending on the applied thickness of the moisture control system.

Titebond 531 can be specified as a stand-alone specification section (SECTION 09 64 11 - MOISTURE CONTROL SYSTEM FOR WOOD FLOORING) covering preparation of the concrete slab to receive wood flooring specified in another section (SECTION 09 64 00 - WOOD FLOORING). As an alternative, this guide can be inserted into a single comprehensive section (SECTION 09 64 00 - WOOD FLOORING) covering substrate preparation, wood flooring materials, and accessories, and installation of all components. In this case, the various paragraphs of this guide section will need to be inserted into the appropriate locations in either Part 1, 2, and 3 of that section. This guide can also be combined with other guides to develop SECTION 09 64 10 - INSTALLATION MATERIALS AND ACCESSORIES FOR WOOD FLOORING. *****

This guide specification has been written for a wood flooring application. **Titebond 531** can be used as a moisture barrier for cork, vinyl composition tile, sheet vinyl, linoleum, ceramic tile, and other sheet and tile flooring applications. Contact Franklin International for specific requirements and instructions for using **Titebond 531** with other flooring materials. This guide can easily be modified for applications other than wood flooring.

The specification section is organized by placing information in three standard parts:

PART 1 - GENERAL - Describes administrative and procedural requirements.

PART 2 - PRODUCTS - Describes materials, products, and accessories to be incorporated into the construction project.

PART 3 - EXECUTION - Describes how the products will be installed at the construction site.

Throughout this product guide specification, references are made to other specification sections that might be contained in the project manual. These references are presented as examples and coordination reminders. For each project, these references will need to be revised to reflect actual sections being used.

Within the specification text, Imperial dimensions are presented first in brackets followed by System International Metric (SI) equivalents also in brackets. Depending on project requirements, either the Imperial or the SI metric equivalents will need to be deleted.

The specifier will need to edit this product specification for a specific project to reflect the options and applications being used. The guide section has been written so that most editing can be accomplished by deleting unnecessary requirements and options. Depending on project requirements, some additional information will need to be added by the specifier. Options are indicated by []. Notes to assist the specifier in selecting options and editing the specification guide are printed in bold and indicated with *********. For final editing, all brackets and notes will need to be deleted from the guide.

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes: Roller applied, epoxy, moisture control system applied to concrete subfloors scheduled to receive wood flooring.

B. Related sections:

******* List other specification sections dealing with work directly related to this section such as the following. *******

1. Section 03 30 00 - Cast-in-Place Concrete: Concrete slab to receive moisture control system and wood flooring.
2. Section 03 31 16 - Lightweight Structural Concrete: Lightweight concrete slab to receive moisture control system and wood flooring.
3. Section 03 54 14 - Gypsum Concrete Underlayment: Gypsum concrete leveler and underlayment to receive moisture control system and wood flooring.

******* Titebond 531 can be used with various types of wood flooring and installation methods. Edit the following paragraph to reflect project conditions. *******

4. Section 09 64 00 - Wood Flooring: [Solid] [Engineered] [hardwood] [bamboo] [strip] [parquet] [_____] flooring installed with [adhesive] [with mechanical fasteners over plywood nailing base] [_____].

1.2 REFERENCES

**** List by number and full title reference standards referred to in remainder of specification section. *****

- A. ASTM F1869 - Standard Test Method for Measuring Moisture Vapor Emission Rate of Concrete Subfloor Using Anhydrous Calcium Chloride.
- B. California Department of Health Services: South Coast Air Quality Management District (SCAQMD) Rule No. 1168.

1.3 SUBMITTALS

- A. Provide in accordance with Section 01 33 00 - Submittal Procedures: Product data and installation instructions.
 - 1. Product data for moisture control system including material safety data sheets (MSDS).
 - 2. Manufacturer's installation instructions.
 - 3. Copy of warranty required by Paragraph 1.6 for review by Architect.

***** **Titebond 531 meets the volatile organic compound (VOC) limits of the California South Coast Air Quality Management District (SCAQMD) Rule No. 1168. Therefore Titebond 531 is eligible for Indoor Environmental Quality (EQ) EQc 4.1 for project certification by the U.S. Green Building Council (USGBC) Leadership in Energy and Environmental Design (LEED) NC Green Building Rating System for New Construction and Major Renovations. Include the following paragraph if project is registered with the USGBC for obtaining LEED certification. *******

- B. LEED Submittals: Provide overall cost of materials on Worksheet furnished for LEED documentation. Provide separate cost breakout for materials that contribute to Materials and Resources credits.
 - 1. Credit EQc4.1 - Low-Emitting Materials: Provide documentation that moisture control epoxy coating has VOC content less than current VOC content limits of California's South Coast Air Quality Management District (SCAQMD) Rule No. 1168.

1.4 PRODUCT HANDLING

- A. Packaging: Provide all moisture control components in a single package.
 - 1. Components shall be provided in pre-measured portions to ensure proper mixing ratios.

2. Component containers: To prevent contamination of two-component coating materials, containers shall be sized such that Part B (hardener) of epoxy system can be site mixed into Part A (resin) container. Systems that require installer to provide a separate, clean container for mixing are not acceptable.
 3. Containers shall be clearly labeled as to contents, manufacturer's name, and date of manufacture.
 4. Mixing and installation instructions shall be printed on containers.
- B. Store materials in clean, dry area at temperatures above [60 degrees F] [16 degrees C].
- C. Shelf life: Do not use moisture control system components after 12 months from manufacturing date.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install moisture control system when temperature is below [65 degrees F] [18 degrees F] or when temperature exceeds [100 degrees F] [38 degrees C].
- B. Do not install moisture control system on below-grade floor slabs or in areas subject to hydrostatic water pressure.
- C. Extinguish all pilot lights and flames prior to mixing and applying epoxy coating.
- D. Provide positive ventilation during preparation, mixing, application, and curing.

1.6 WARRANTY

******* Franklin International provides two types of warranty for Titebond 531. The Gold Warranty applies when the coating is applied to a 4 mils wet film thickness. The Platinum Warranty applies when the coating is applied to a 6.5 mils wet film thickness. The warranty periods are 10 years for residential applications and 5 years for commercial applications. Refer to Franklin International product literature for other warranty limitations and requirements. Edit the following paragraph to reflect type of warranty required. *******

- A. Provide in accordance with Section 01 78 00 - Closeout Submittals: Manufacturer's [[Gold] [Platinum]] [[10 years residential] [5 years commercial]] warranty that:
1. Moisture control system applied to [4] [6.5] mils wet film thickness will prevent properly installed wood flooring from the following failures due to moisture from concrete subfloor:

- a. Cupping.
 - b. Buckling.
 - c. Surface discoloration.
 - d. Release from subfloor.
2. Mold and mildew will not grow on moisture control system.

PART 2 - PRODUCTS

2.1 ACCEPTABLE MANUFACTURERS

- A. Franklin International, 2020 Bruck Street, Columbus, Ohio 43207; 800-347-4583; www.titebond.com.
- B. Request to use equivalent products of other manufacturers shall be submitted in accordance with Section 01 25 13 - Product Substitution Procedures.

2.2 MOISTURE CONTROL SYSTEM

- A. Type: Two-component epoxy coating roller applied to concrete subfloors to reduce moisture vapor transmission; Titebond 531 Epoxy Moisture Control System as manufactured by Franklin International.
- B. Minimum physical properties:
 1. Part A resin:
 - a. Weight: [9.18 pounds per mixed gallon] [1.10 kilograms per mixed liter].
 - b. Viscosity 260 cps (centipoise).
 - c. VOC content: 165 grams per liter.
 - d. Color: Clear.
 - e. Flash point: [105 to 110 degrees F] [41 to 43 degrees C].
 2. Part B hardener:
 - a. Weight: [8.24 pounds per mixed gallon] [0.99 kilograms per mixed liter].
 - b. Viscosity 800 cps (centipoise).

- c. VOC content: 84 grams per liter.
 - d. Color: Amber.
 - e. Flash point: [120 degrees F] [49 degrees C].
3. Moisture control mixture:
- a. Weight: [8.59 pounds per mixed gallon] [1.03 kilograms per mixed liter].
 - b. Viscosity 340 cps (centipoise).
 - c. Calculated VOC: 132 grams per liter.
 - d. Color: Clear.
 - e. Mix ratio by volume: 100:80.
 - f. Mix ratio by weight: 100:69.
 - g. Tack free time: 4 to 6 hours at [70 degrees F] [21 degrees C].
 - h. Pot life: 45 minutes at [77 degrees F] [25 degrees C].
 - i. Storage life in closed container: 1 year.
 - j. Mold and mildew resistant.
 - k. Non-blushing: Coating is formulated such that no oily or waxy residue forms on top of applied epoxy surface. Wiping of surface with solvent is not required prior to installing wood flooring with an adhesive.

PART 3 - EXECUTION

3.1 PREPARATION

******* Titebond 531 should not be applied in areas subject to hydrostatic water pressure or to below-grade floor slabs. *******

- A. Prepare substrate and apply moisture control system in accordance with manufacturer's instructions.
- B. Coordinate application of moisture control system with construction of concrete substrates specified in [Section 03 30 00 - Cast-in-Place Concrete] [Section 03 31 16 - Lightweight Structural Concrete] [Section 03 54 14 - Gypsum Concrete Underlayment] [_____].

TITEBOND PRODUCT SPECIFICATIONS

JULY 2009

Franklin International, 2020 Bruck Street, Columbus, Ohio 43207

TEL: 800-347-4583; FAX: 800-879-4553; WEBSITE: www.titebond.com

- C. Inspection and correction: Prior to installation, inspect concrete substrate to determine existence of moisture and other deficiencies which might adversely affect installation of moisture control coating. Ensure:

******* Calcium chloride moisture testing is required if Franklin International's Gold Warranty is desired and is optional for the Platinum Warranty provided all other Platinum requirements are met. *******

1. Concrete is completely cured 30 days minimum. Verify moisture content does not exceed [12 pounds per 1000 square feet] [5.86 kilograms per 100 square meters] in 24 hours when tested in accordance with ASTM F1869 using calcium chloride test.
 2. Concrete curing agent or sealer has not been applied.
 3. Concrete slab has neutral alkalinity.
 4. Concrete surfaces are clean, dry, and free of dirt, oil, grease, paint, and other contaminants which inhibit bond. Remove such contaminants by scouring with No. 20 grit or No. 3-1/2 paper.
 5. Concrete is structurally sound without major cracks, settlement, and deterioration of concrete. Remove and replace unsound or deteriorating areas. Fill cracks, joints, holes, and other defects with Portland cement based floor filler with high compressive strength. Apply, trowel, and float filler to leave smooth, flat, hard surface. Prohibit traffic until cured.
 6. Concrete surfaces are smooth, flat, and free from irregularities. Maximum variation in any direction shall be [3/16 inch in 10 feet] [5 mm in 3 m]. If necessary, grind concrete floors to achieve acceptable surface.
 7. Report deficiencies to Architect and do not proceed with moisture control system installation until resolution.
- D. Vacuum or broom clean floor surfaces immediately before installation.

3.2 MIXING

- A. Mix pre-measured epoxy components in accordance with manufacturer's instructions using manufacturer provided containers. Do not modify or estimate quantities.
- B. Add Part B hardener into Part A resin container. Mix with power mixer such as 1/2 inch drill with paint or plaster paddle. Mix thoroughly for 2 minutes such that color is uniform. Hand mixing is not acceptable.

- C. Once epoxy coating is completely mixed, apply to concrete floor surface within 30 minutes.

3.3 APPLICATION

******* If moisture control system is applied to either lightweight concrete slab or gypsum leveler/topping, a primer is required. Acceptable primer is Titebond Concrete Primer as manufactured by Franklin International. Include the following paragraph if the substrate is either lightweight or gypsum concrete. Delete paragraph if substrate is heavy weight concrete. *******

- A. Primer: Apply primer recommended by moisture control system manufacturer to [lightweight concrete slab] [gypsum concrete leveler/topping] substrate.
1. Install in accordance with manufacturer's installation instruction and recommended rates.
 2. Allow to fully cure prior to application of moisture control coating.
- B. Moisture control coating application: Immediately after mixing, apply with [3/8 inch] [100 mm] medium nap roller.
1. Do not use excessive pressure on roller so that material is thinned.

******* For Franklin International's Gold Warranty, Titebond 531 must be applied to 4 mils wet film thickness. For the Platinum Warranty, Titebond 531 must be applied to 6.5 mils wet film thickness. Edit the following paragraph for the rate and coverage corresponding to the required type of warranty. *******

2. Minimum rate and coverage: Apply at rate of [[400 square feet per mixed gallon] [9.82 square meters per mixed liter] to achieve 4 mils wet film thickness.] [[250 square feet per mixed gallon] [6.14 square meters per mixed liter] to achieve 6.5 mils wet film thickness.]
 3. Allow to cure 4 to 6 hours at [70 degrees F] [21 degrees C] prior to installation of wood flooring.
- C. Cleaning: Clean tools and adjacent surfaces with mineral spirits. Remove excess epoxy coating from adjacent floors, base, and walls.

******* If the wood flooring is to be applied with adhesive, a layer of cementitious Portland cement leveling compound should be applied over the Titebond 531 to create a porous surface for bonding of the wood flooring adhesive. A cementitious leveling coat is not necessary if the wood flooring is to be with installed mechanical fasteners to a plywood nailing base. Include the following paragraph if the wood flooring is to be adhesive applied over Titebond 531. *******

- D. Leveling compound: After moisture control system has cured, apply layer of cementitious Portland cement leveling compound to create porous surface for bonding of wood flooring adhesive.
1. Thickness: [1/8 inch] [3 mm] minimum.
 2. Compressive strength: [3,500 PSI] [246 kilograms per square cm]. minimum.
 3. Allow to cure before applying wood flooring.

END OF SECTION