

SECTION 09 64 16**ELASTOMERIC WOOD FLOORING ADHESIVE**

***** This product guide specification section can be used to specify Titebond 741 Ultimate Advanced Cure Flooring Adhesive, aa elastomeric, one-part, non-slumping, trowel-applied, moisture-cure, polyether adhesive for installing all types of solid and engineered wood strip, plank, and parquet flooring. This adhesive is moisture-resistant, mold and mildew resistant, non-slumping, has superior initial adhesion (green grab), does not contain water, and has 95 percent solids. The elastomeric characteristics of Titebond 741 allow the adhesive to move with the wood flooring as it expands and contracts. Titebond 741 must be installed using the "wet lay" method. With the "wet lay" method the wood is applied immediately after troweling the adhesive. The superior initial adhesion (green grab) and strength development of Titebond 741 make this adhesive easy to use compared with other adhesives with poor initial adhesion causing the wood strips to slip or slide after placement. Titebond 741 is a non-slump formulation causing the troweled ridges to stand up and hold their shape. These ridges bridge normal gaps between a piece of wood flooring and the subfloor. The non-slump adhesive eliminates hollow spots, popping spots, and squeaks related to subfloor unevenness. However, Titebond 741 is not intended to be used as a leveling course.

Titebond 741 can be specified as a stand-alone specification section (SECTION 09 64 16 - ELASTOMERIC WOOD FLOORING ADHESIVE) covering the adhesive product and its use to install wood flooring. The product specification for the wood flooring would be in 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 floor products, adhesive and other accessories, and the installation of all components. In this case, the various paragraphs of this guide section will need to be inserted into the appropriate locations in 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 741 can also be used to install ceramic tile, marble, stone, and other types of flooring. Contact Franklin International for information regarding these applications. This guide can be easily 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: One-part, trowel-applied, elastomeric, non-slumping, moisture-cure, moisture-resistant, polyether adhesive for installing [[solid] [engineered]] [[hardwood] [bamboo]] [[strip] [plank] [parquet]] 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 wood flooring.
2. Section 03 31 16 - Lightweight Structural Concrete: Lightweight concrete slab to receive wood flooring.
3. Section 03 54 14 - Gypsum Concrete Underlayment: Gypsum concrete leveler and underlayment to receive wood flooring.
4. Section 06 10 00 - Rough Carpentry: Wood subfloor to receive wood flooring.

***** **Titebond 741** is recommended for installing these types and thicknesses of wood flooring:

Engineered wood flooring with 5/8 inch (16 mm) maximum thickness.

Solid hardwood flooring with 3/4 inch (19 mm) maximum thickness.

3/4 inch (19 mm) thick hardwood flooring in 24 inch (610 mm) maximum lengths.

Engineered parquet flooring.

Solid parquet flooring with 3/4 inch (19 mm) maximum thickness.

3/4 inch thick plywood in 48 by 48 inches (1219 by 1219 mm) sections.

Bamboo flooring with 1/2 inch (13 mm) maximum thickness.

Edit the following paragraph to reflect project conditions. *****

5. Section 09 64 00 - Wood Flooring: [[Solid] [Engineered]] [[hardwood] [bamboo]] [[strip] [parquet] [plank] [_____]] flooring installed with adhesive as part of this Section.
6. Section 09 64 11 - Moisture Control System for Wood Flooring: Roller-applied, epoxy, moisture control system applied to concrete slab to receive adhesive applied wood flooring.
7. Section 09 64 12 - Sound and Moisture Control System for Wood Flooring: Trowel-applied, urethane, sound and moisture control system applied to concrete slab to receive adhesive applied wood flooring.

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:
 1. Product data for wood flooring adhesive 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 741 meets the volatile organic compound (VOC) limits of the California South Coast Air Quality Management District (SCAQMD) Rule No. 1168. Therefore Titebond 741 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 wood flooring adhesive 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: Containers shall be clearly labeled as to contents, manufacturer's name, and date of manufacture. 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 in tightly closed container: 1 year.

1.5 ENVIRONMENTAL REQUIREMENTS

- A. Do not install wood flooring until wet construction work and majority of overhead work is completed.
- B. Provide permanent heat, light, and ventilation prior to installation.
- C. Maintain room temperature and relative humidity at normal building conditions for 3 days prior to delivery of materials, during installation, and after installation.
- D. Do not apply adhesive when temperature is below [65 degrees F] [18 degrees C] or when temperature exceeds [100 degrees F] [38 degrees C].

1.6 WARRANTY

- A. Provide in accordance with Section 01 78 00 - Closeout Submittals: Manufacturer's 1 year materials and workmanship warranty.

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 WOOD FLOORING ADHESIVE

- A. Type: One-part, trowel-applied, elastomeric, non-slumping, moisture-cure, moisture-resistant, polyether adhesive for installing all types of solid and engineered wood strip, plank, and parquet flooring; Titebond 741 Ultimate Advanced Cure Flooring Adhesive as manufactured by Franklin International.
- B. Physical properties:
 - 1. Weight: [11.2 pounds per gallon] [19.2 kilograms per liter].
 - 2. Solids content: 100 percent.
 - 3. Viscosity: 125,000 cps (centipoise).
 - 4. Calculated VOC content: 35 grams per liter during curing and 0 grams per liter after curing.
 - 5. Color: Light tan.
 - 6. Flash point: [200 degrees F] [93 degrees C] minimum.
 - 7. Elastomeric.
 - 8. Non-slumping.
 - 9. Does not contain water or solvent.
 - 10. Moisture-resistant.
 - 11. Mold and mildew resistant.
 - 12. Superior initial adhesion.
 - 13. High bond strength.
 - 14. Not affected by freezing.

15. Rapid cure rate.

PART 3 - EXECUTION

******* Titebond 741 can be used to adhere wood flooring to a variety of substrates including new and existing concrete, properly treated lightweight concrete, radiant heated slabs, plywood, oriented strand board (OSB), clean and unwaxed vinyl, and cork. Titebond 741 adhesive can also be applied over sound and moisture control systems such as Titebond 531 and Titebond 571. Another application for Titebond 741 is to adhere a plywood substrate to a concrete slab to serve as a nailing base for wood flooring or other purposes. Edit Part 3 of the specification guide to reflect specific project application. *******

3.1 PREPARATION

- A. Allow wood flooring materials to become acclimated to finished building heat and humidity before installing.
- B. Prepare substrate and apply adhered wood flooring in accordance with Drawings, reviewed shop drawings, and manufacturer's instructions.

******* Include the following paragraph if wood flooring is installed over wood substrate. *******

- C. Coordinate installation of wood flooring with construction of wood subfloor specified in Section 06 10 00 - Rough Carpentry. Ensure that framing members are rigid and subfloor is level, smooth, and securely attached with ends over firm bearing.

******* Include the following three paragraphs if wood flooring is installed over concrete substrate. *******

- D. Coordinate installation of wood flooring with construction of concrete substrate specified in [Section 03 30 00 - Cast-in-Place Concrete] [Section 03 31 16 - Lightweight Structural Concrete] [Section 03 54 14 - Gypsum Concrete Underlayment] [_____].

******* Include the following paragraph if concrete slab is recessed so that wood flooring is flush with adjacent floor finishes. *******

- E. Coordinate required depth of recess with installation of concrete subfloor so that wood flooring is flush with adjacent floor finishes.

- F. Inspection and correction: Prior to installation, inspect concrete substrate to determine existence of moisture, and other deficiencies which might adversely affect installation and bonding of adhesive. Ensure:
1. Concrete is completely cured 30 days minimum. Verify moisture content does not exceed [3 pounds per 1000 square feet] [1.46 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 flooring installation until resolution.
- G. Vacuum or broom clean floor surfaces.

******* If wood flooring 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. *******

- H. Primer: Apply primer recommended by adhesive 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 continuing installation of wood flooring.

******* Include the following paragraph to specify application of moisture control system below wood flooring. *******

- I. Trowel apply moisture control system over concrete slab to receive wood flooring as specified in [Section 09 64 11 - Moisture Control System for Wood Flooring]
[Section 09 64 12 - Sound and Moisture Control System for Wood Flooring]
 1. Allow to cure.
 2. 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.
 - a. Thickness: [1/8 inch] [3 mm] minimum.
 - b. Compressive strength: [3,500 PSI] [246 kilograms per square cm].
minimum.
 - c. Allow to cure.

3.2 PLYWOOD SUBSTRATE INSTALLATION

******* Include this article if Titebond 741 adhesive is being used to adhere plywood to concrete slab as a substrate for adhered wood flooring or as a nailing base for mechanically fastened wood flooring. *******

- A. Use adhesive to apply a plywood substrate to concrete floor slab to receive [adhered]
[mechanically fastened] wood flooring in accordance with Drawings and reviewed shop drawings.

******* In order for the plywood substrate to conform tightly to the contours of the concrete slab and to prevent warping or curling, the plywood sheets should be scored on the back side. *******

1. Cut [3/4 inch] [19 mm] thick exterior grade plywood into [48 by 48 inches]
[1219 by 1219 mm] pieces. Score backside of plywood at [8 inch] [203 mm]
centers. Use circular saw set to cut one half the thickness of the plywood.
2. Use [1/4 by 1/4 inch] [6 by 6 mm] square notched trowel to apply 100 percent
urethane adhesive.
3. Set plywood pieces into wet adhesive. Use weights to hold in place.
4. Allow adhesive to fully cure before installing wood flooring.

3.3 WOOD FLOORING INSTALLATION

******* Include the following paragraph if wood flooring is to be installed with mechanical fasteners to plywood substrate specified in Paragraph 3.2. Delete remaining paragraphs in this article. *******

- A. Install flooring to plywood nailing base substrate specified in Paragraph [3.2] [_____]. Blind staple or nail flooring to plywood with power driver in accordance with Section 09 64 00 - Wood Flooring.

******* Edit and include the following paragraph if wood flooring is to be installed with Titebond 741 Ultimate Advanced Cure Flooring Adhesive on prepared concrete floor slab specified in Paragraph 3.1 or on plywood substrate specified in Paragraph 3.2. Delete above. *******

- B. Install flooring as specified in Section 09 64 00 - Wood Flooring with urethane adhesive specified in this Section and in accordance with manufacturer's instructions and reviewed shop drawings. Install on [prepared concrete slab specified in Paragraph [3.1] [_____]] [plywood substrate specified in Paragraph [3.2] [_____]].

******* With Titebond 741 wood flooring must be installed using "wet lay" method. With the "wet lay" method, the wood is applied immediately after troweling the adhesive. Due to the rapid cure rate of Titebond 741, wood flooring must be installed within 30 minutes of troweling adhesive. *******

- C. Install flooring using wet lay method by installing wood strips immediately after troweling adhesive on substrate. Do not trowel more adhesive than can be covered within 30 minutes.

******* Recommended trowel size and adhesive coverage rate varies with type of wood flooring as follows:**

Parquet flooring less than 1/2 inch (13 mm): 1/8 by 1/8 by 1/8 inch (3 by 3 by 3 mm) square-notch trowel at rate of 65 square feet per gallon (22.9 square meters per liter).

Engineered wood flooring: 3/16 by 1/4 by 11/16 inch (5 by 6 by 17 mm) V-notch trowel at rate of 65 square feet per gallon (22.9 square meters per liter).

Solid wood flooring with 3 inches (76 mm) maximum width and 1/2 inch (13 mm) maximum thickness: 3/16 by 1/4 by 1/2 inch (5 by 6 by 13 mm) V-notch trowel at rate of 50 square feet per gallon (17.6 square meters per liter).

Solid wood flooring with 3 inches (76 mm) minimum width and 1/2 inch (13 mm) maximum thickness: 3/16 by 3/16 by 3/16 inch (5 by 5 by 5 mm) square-notch trowel at rate of 35 square feet per gallon (12.3 square meters per liter).

Bamboo flooring: 3/16 by 3/16 by 3/16 inch (5 by 5 by 5 mm) square-notch trowel at rate of 35 square feet per gallon (12.3 square meters per liter).

- D. Spread adhesive with [[_size_]] [square-] [V-] notched trowel at rate of [_____] [square feet per gallon] [square meters per liter]] [trowel size and at rate of coverage as recommended by adhesive manufacturer].
- E. Frequently clean trowel to prevent adhesive build-up.
- F. Spread only enough adhesive to permit installation of flooring within 90 minutes. Do not leave adhesive container uncovered for more than 90 minutes.
- G. Intermingle board lengths.
- H. Stagger board ends 3 times board width or [6 inches] [152 mm] minimum.
- I. Select wood boards from several cartons to ensure good color and shade mixture.
- J. Allow [3/4 inch] [19 mm] voids for expansion and movement of wood flooring at walls and permanent obstructions. [For large wood floor areas and high humidity conditions, provide center expansion gaps by inserting washers as temporary spacers in accordance with manufacturer's instructions.]
- K. Adhere wood flooring strips without cracks and voids. Ensure that each flooring strip is completely adhered to substrate. Use weights as necessary to hold down flooring.

3.4 CLEANING AND PROTECTION

- A. Immediately remove excess adhesive from surface of wood flooring.
- B. Remove unused materials and debris. Clean floor surface. Use cleaning products recommended by flooring manufacturer.
- C. Protect completed wood flooring from construction operations with heavy paper or plywood sheets installed over walkways. Take necessary precautions to eliminate damage from dropped objects.

END OF SECTION