



**Fire Retardant®  
Coatings of Texas**  
*Manufacturer and Distributor*

SECTION 06 05 00  
FIRE RETARDANT PENETRANTS

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**PART 1 GENERAL**

**1.1 SECTION INCLUDES**

- A. Fire Retardant Treatments including:
  - 1. Interior / exterior (limited) fire retardant fabric spray. (FX FabricGuard)
  - 2. Interior Fire Retardant for unfinished wood, plywood & OSB. (FX LumberGuard)
  - 3. Exterior Fire Retardant for unfinished wood, plywood & OSB. (FX LumberGuardXT)
  - 4. Interior intumescent Fire Retardant paint. (FX PaintGuard)

**1.2 RELATED SECTIONS**

- A. Section 06 05 00 - Common Work Results for Wood, Plastics, and Composites.
- B. Section 06 10 00 - Rough Carpentry.
- C. Section 06 20 00 - Finish Carpentry.
- D. Section 06 40 00 - Architectural Woodwork.
- E. Section 07 81 00 - Applied Fireproofing.
- F. Section 09 96 53 - Elastomeric Coatings.
- G. Section - .
- H. Section 12 40 00 - Furnishings and Accessories.
- I. Section 12 21 00 - Window Blinds.

**1.3 REFERENCES**

- A. International Code Council (ICC):
  - 1. 2018, 2015, 2012, 2009 & 2006 International Building Code (IBC) 803.1.
  - 2. 2018, 2015, 2012, 2009 & 2006 International Residential Code (IRC) R302.9 & R315.1 2009 & 2006.
  - 3. 2018, 2015, 2012, 2009 & 2006 International Fire Code (IFC) 803.1.1.
  - 4. 2018, 2015, 2012, 2009 & 2006 International Existing Building Code (IEBC) 1205.09.
  - 5. ICC ES ESR-3872 - ES Report for FX Lumber Guard / FX Lumber Guard XT for Fire Retardant Wood Treatment, ICC Evaluation Service.
  - 6. ICC ES ESL-1087 - ICC Certified Listing UAS.
  - 7. ICC ES ESL-1064 - ICC Certified Listing Canada.
- B. ASTM International (ASTM):

1. ASTM D2898 - Standard Practice for Accelerated Weathering of Fire-Retardant-Treated Wood for Fire Testing.
  2. ASTM D4727 - Standard Specification for Corrugated and Solid Fiberboard Sheet Stock (Container Grade) and Cut Shapes.
  3. ASTM E84 - Standard Test Method for Surface Burning Characteristics of Building Materials.
  4. ASTM E119 - Standard Test Methods for Fire Tests of Building Construction and Materials.
  5. ASTM E2768 - Standard Test Method for Extended Duration Surface Burning Characteristics of Building Materials (30 Minute Tunnel Test).
  6. ASTM D2369 - Standard Test Method for Volatile Content of Coatings (VOC).
  7. ASTM D5664-17 - Standard Method for Evaluating the effects of Fire Retardant Treatments and Elevated Temperatures on Strength Properties of Fire Retardant Treated Lumber.
  8. ASTM D5516-17 - Standard Test Method for Evaluating the Flexural Properties of Fire Retardant Treated Softwood Plywood Exposed to Elevated Temperatures.
  9. ASTM D3043-00 (2011) - Standard Test Method for Structural Panels in Flexure.
  10. ASTM D3201-13 - Standard Test Method for Hydrosopic Properties of Fire Retardant Wood and Wood Based Products.
  11. ASTM D143-14 - Standard Test Methods for small clear specimens of Timber.
  12. ASTM A90/A90M-13 - Standard Test Method for Weight (Mass) of Coating on Iron and Steel Articles with Zinc or Zinc-Alloy Coatings.
  13. ASTM D2395-17 - Standard Test Methods for Density and Specific Gravity (Relative Density) of Wood and Wood Based Materials, Method B.
- C. American Wood Protection Association (AWPA):
- D. 1. AWPA E12-08 - Standard Method of Determining Corrosion of Metal in Contact with Treated Wood.
- E. California State Fire Marshall (CSFM):
1. CSFM BML Listing 2280-2140:0100 (FX Lumber Guard / FX Lumber Guard XT)
  2. CSFM Reg. Flame Resistant Product #C-25901
  3. CSFM 1237 - Fire Resistance (Small Scale Test for Textiles).
  4. CSFM 1264.3 - Christmas Trees.
- F. Consumer Product Safety Commission (CPSC):
1. 16 CFR 1500.3 - Federal Hazardous Substances Act (FHSA).
- G. Federal Motor Vehicle Safety Standards (FMVSS):
1. FMVSS 302 - Flammability of Interior Materials (FX Fabric Guard).
- H. International Association Plumbing Mechanical Officials (IAPMO):
1. IAPMO UES ER-478 - Evaluation report for Fire Retardant Wood Treatment.
- I. Intertek:
1. Certified Listed W/N 21094 (ETL).
  2. Intertek CCRR 1044 Report.
- J. National Fire Protection Association (NFPA):
1. NFPA 255 - Standard Method of Test of Surface Burning Characteristics of Building Materials.
  2. NFPA 701 - Standard Methods of Fire Tests for Flame Propagation of Textiles and Films.
  3. NFPA 703 - Standard for Fire Retardant Impregnated Wood and Fire Retardant Coatings for Building Materials.

- K. Underwriters Laboratory (UL):
  - 1. Fire Resistance Directory.
  - 2. Green Guard Gold Certified
  - 3. UL 723 - Standard Test for Surface Burning Characteristics of Building Materials.
  
- L. Underwriters Laboratories of Canada (CAN/ULC):
  - 1. CAN/UL S101 - Fire Endurance Tests of Building Construction and Materials.
  - 2. CAN/UL S102 - Surface Burning Characteristics of Building Materials and Assemblies.
  - 3. CAL/ULC S109 - Flame Tests of Flame-Resistant Fabrics and Films.

#### 1.4 SUBMITTALS

- A. Submit in accordance with Division 01 Section "Submittal Procedures".
  
- B. Product Data:
  - 1. Submit manufacturer's technical information indicating product performance characteristics, sustainable design information, limitations, application instructions, and warranty requirements.
  - 2. Submit Material Safety Data Sheets (MSDS) including Volatile Organic Compounds (VOC).
  
- C. Test Reports: Submit published listings and test results for each product to be installed.
  
- D. Certificates: Submit manufacturer certificates for each type of fire retardant coating or spray, signed by the manufacturer, certifying that materials and substrate conditions comply with specified performance characteristics and physical properties.
  
- E. Qualifications: Submit manufacturer and installer qualifications.
  
- F. Shop Drawings: If requested, submit drawings to indicate system configurations and application procedures including the following:
  - 1. Substrates, materials, and adjacent construction.
  - 2. Installation extents, thicknesses, typical and special conditions.
  - 3. Safety requirements.
  
- G. Samples: If requested, submit samples of each exposed finish for approval of texture, color, edge treatments, or special conditions. Minimum size 12 x 12 inches (300 x 300 mm) by full thickness on each substrate to be provided.
  
- H. Closeout Submittals: Maintenance instructions and warranty.

#### 1.5 QUALITY ASSURANCE

- A. Single Source Responsibility: Products shall be manufactured as a complete system from a single manufacturer, applied to substrates and finished in accordance with manufacturer's instructions and limitations.
  
- B. Confirm each material and fire retardant requirements with current local Fire Safety Codes.
  
- C. Products shall meet or exceed specified testing requirements, shall be non-toxic, within the VOC limits of the local jurisdiction, free of Polybrominated Diphenyl Ethers (PBDEs), Brominated Flame Retardants (BFRs), Chlorine, Non-Halogenated, environment safe.
  
- D. Qualifications:
  - 1. Manufacturer Qualifications: Minimum ten (10) years' experience producing fire retardant coatings of the size and complexity of this project and with the production facilities capable of meeting the project schedule.
  - 2. Installer Qualifications: Certified by the manufacturer.

- E. Compatibility and Adhesion Testing:
  - 1. Where substrates and adjacent materials are not explicitly addressed in manufacturer's installation instructions, test for bond in accordance with UL Fire Resistance Directory for coating materials.
  - 2. Verify that manufacturer has not found substrate materials, primers or adjacent coatings to be incompatible.

## 1.6 DELIVERY, STORAGE AND HANDLING

- A. Deliver, store, and handle in accordance with the manufacturer's instructions.
- B. Deliver packaged materials in original unopened containers marked to indicate brand name, manufacturer, certification markings and classifications. Damaged or opened containers will be rejected.

## 1.7 PROJECT CONDITIONS

- A. Exterior Work: Do not install in snow, rain, fog or temperatures outside the manufacturer's limits.
- B. Interior Work: Maintain temperature and relative humidity within the manufacturer's instructions. Ensure adequate ventilation is provided for product curing and exhaust to the exterior.
- C. Coordinate application with other construction to minimize need to cut or remove installed products.

## 1.8 WARRANTY

- A. Product Warranty: Manufacturers standard limited warranty against deficiencies in materials or fabrication.
  - 1. Warranty Period: 20 years limited.

## PART 2 PRODUCTS

### 2.1 MANUFACTURERS

- A. Acceptable Manufacturer: Fire Retardant Coatings of Texas, LLC, which is located at: 1150 Blue Mound Rd. W. Unit 403; Haslet, TX 76052; Tel: 817-710-5233; Fax: 817-439-8385; Email:[request info \(david@frctexas.com\)](mailto:request info (david@frctexas.com)); Web:[www.frctexas.com](http://www.frctexas.com)

### 2.2 Interior / EXTERIOR FIRE RETARDANT FABRIC SPRAY

- A. Natural Fibers and Polyesters: Provide FX FabricGuard or approved equivalent that is clear, water-based, and anti-bacterial to meet the following standards:
  - 1. 16 CFR 1500.3.
  - 2. CSFM 1237.
  - 3. FMVSS 302.
  - 4. NFPA 701.
  - 5. CAN/ULC S109.
- B. Acceptable Substrates Include: Cotton, cotton / polyester, denim, muslin, canvas, terry cloth, artificial silk foliage, decor, tapestries, flags, banners, window and stage treatments.
  - 1. Not recommended for clothing or bedding.

### 2.3 Interior fire retardant spray for UNFINISHED WOOD

- A. Lumber and Plywood: Provide FX LumberGuard or approved equivalent transparent, water-

based products that will not change the characteristics of wood, stainable / paintable, average pH of 4.7, and to meet the following standards:

1. ICC ES ESR-3872
  2. ICC ES ESL-1087
  3. ICC ES ESL-1064
  4. IAPMO UES ER-478
  5. Intertek CCRR-1044
  6. 16 CFR 1500.3.
  7. ASTM E84:
    - a. Flame Spread Index: Less than 25.
    - b. Smoke Developed Index: Less than 100.
  8. ASTM E119.
  9. ASTM E2768.
  10. NFPA 255.
  11. NFPA 703.
  12. UL 723.
  13. CAN/ULC S101.
  14. CAN/ULC S102.
- B. Provide with manufacturer's dye to distinguish treated and untreated areas, if required.
- C. Acceptable Substrates Include: Unfinished surfaces of southern yellow pine, spruce-pine-fir, hem fir, douglas fir, cedar, redwood, OSB, MDF, particle board, reclaimed wood, engineered wood floor joists, I-Joist, PSL's, LVL's, LSL's, glulam, trim, moldings, doors, wood framing, dimensional lumber, plywood and other porous softwoods, hardwoods, and sheathings.
- D. Do not install in areas with constant relative humidity over 80%.
- E. Comply with manufacturer's instructions for cutting and re-treating.

#### 2.4 Exterior fire retardant coating for wood

- A. Exterior Lumber and Sheathing: Provide FX LumberGuardXT or approved equivalent suitable for exposure to the elements and high humidity, stainable / paintable, and to meet the following standards:
1. 16 CFR 1500.3.
  2. ASTM D2898.
  3. ASTM E84:
    - a. Flame Spread Index: Less than 25.
    - b. Smoke Developed Index: Less than 100.
  4. ASTM E119.
  5. ASTM E2768.
  6. NFPA 255.
  7. NFPA 703.
  8. UL 723.
  9. CAN/ULC S101.
  10. CAN/ULC S102.
  11. Refer to Intertek Report CCRR-1044 for more information.
  12. Approved for use in Wildland Urban Interface (WUI) regions.
- B. Acceptable Substrates Include: Preservative treated lumber and plywood (pine, cedar, oak, fir, redwood, white wood), gazebos, wood bridges, decking, fencing, cedar shake shingles and siding, trellises, arbors, sheds, cabanas, outdoor furniture, attics, under patio covers, crawl spaces, garage interiors, grilling areas.
1. Wood species that are not rot-resistant will require maintenance and re-treating in accordance with the manufacturer's instructions.
  2. Provide non-wax-based wood sealer, waterproofing sealer, stain sealers or paint

- where recommended.
3. Naturally rot-resistant woods installed in high traffic areas shall receive a sealer or top coat in accordance with the manufacturer's instructions.

## 2.5 Interior intumescent fire retardant paint

- A. Intumescent Paint: Provide FX PaintGuard or approved equivalent flat, latex water-based latex paint that is insoluble when dry, and to meet the following standards:
  1. ASTM E84, Class A.
  2. ASTM E2768.
  3. NFPA 255.
  4. UL 723.
  5. Thermal Barrier Protection: 30 minutes.
- B. Acceptable Substrates Include: Fireproofing, lumber including preservative treated lumber, plywood, cedar, redwood, oak, pine, white wood, fir, SPF, OSB, MDF, particle board, gypsum board, engineered woods, metal framing studs, hardwood flooring.
  1. Product is not compatible with waxed based products.
- C. Colors: Provide color selected by the Architect.
  1. Standard Colors: White, Gray, Tan.
  2. Special Order (Typically 2 days): Black.

## 2.6 ACCESSORIES

- A. General: Provide auxiliary materials compatible with fire retardant system and substrates, and approved by UL or other testing agency acceptable to the local building authority for use in each fire-retardant condition.
- B. Primers and Bonding Agents: Approved by the manufacturer, test in accordance with ASTM E736 where required.

## 2.7 FINISHES

- A. Sealers: Transparent drying, protective coating recommended by the manufacturer.
- B. Topcoats: Suitable for each application indicated, demonstrate finished results through samples and mock-ups as required.
  1. Color: White.
  2. Color: Gray.
  3. Color: Tan.

## PART 3 EXECUTION

### 3.1 MANUFACTURERS INSTRUCTIONS

- A. Comply with manufacturer's written recommendations including technical bulletins, handling, storage, installation, and warranty requirements.
- B. Do not dilute products or allow products to freeze.
- C. Do not use products beyond manufacturer's stated shelf life.

### 3.2 EXAMINATION

- A. Examine substrates and installation areas with installer present, for compliance with manufacturer's instructions and conditions that might affect performance of the Work. Verify the following:

1. Substrates are clean, dry, free of dirt, oil, grease, release agents, compounds, lubricants, scale, rust, incompatible primers or agents, paints, encapsulates or foreign substances capable of impairing bond under conditions of normal use or fire exposure.
  2. Objects penetrating coated areas (clips, hangers, piping, sleeves, equipment etc.) shall be securely attached and complete.
  3. Substrates to receive fire retardant products shall not be obstructed by ducts, piping, equipment or other construction that will interfere with application.
- B. Prepare written report listing conditions that will interfere with installation.
- C. Do not proceed until unacceptable conditions are corrected.

### 3.3 PREPARATION

- A. Clean and prepare substrates in accordance with manufacturer's instructions.
- B. Protect adjacent construction from overspray or unintended installation.

### 3.4 INSTALLATION

- A. Apply in accordance with the manufacturer's instructions, including substrate temperatures and relative humidity, to achieve recommended thickness and application rates to cover substrates with a monolithic coating of uniform density and texture.
- B. Interior / exterior (limited) fire retardant fabric spray (FX FabricGuard):
  1. Spray with low-pressure hand pump sprayer or sponge.
  2. Apply until damp and fabric absorbs fire retardant.
  3. Drying time 4 to 12 hours depending on fabric density and relative humidity.
- C. Interior fire retardant spray for unfinished wood (FX LumberGuard):
  1. Agitate product before and throughout application.
  2. Spray with hand-pump sprayer, high volume low-pressure system, roller or brush. Ensure manufacturer's dye (optional) is visible in completed areas.
  3. Drying time from 8 to 32 hours depending on temperature and humidity.
- D. Exterior fire retardant coating for wood (FX LumberGuard XT):
  1. Agitate product before and throughout application.
  2. Spray with hand-pump sprayer, high volume low-pressure system, roller or brush. Ensure manufacturer's dye (optional) is visible in completed areas.
  3. Drying time from 8 to 32 hours depending on temperature and humidity.
- E. Interior intumescent fire retardant paint (FX PaintGuard):
  1. Agitate or stir before and during application.
  2. Spray, roll or brush.
  3. Where more than one coat is applied, first coat will require 12 to 32 hour drying period.
- F. Extend in full thickness over entire area of each substrate to be protected. Install in a single course unless otherwise directed by the manufacturer.
- G. Do not install enclosing or concealing construction until after fire retardant products have been installed, inspected, and corrections have been made to deficient applications.
  1. Patch damage caused by testing or other trades before enclosing, or if exposed, before final inspection.

### 3.5 FIELD QUALITY CONTROL

- A. Where requested, provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of installation in accordance with the manufacturer's instructions.
- B. Where field-testing is required, observe and test in accordance with the manufacturer's instructions utilizing an independent testing agency acceptable to the local building authority, if required.

### 3.6 CLEANING

- A. Clean in accordance with the manufacturer's instructions, typically soap and water.
- B. Immediately remove fire retardant materials from other surfaces immediately after application.
- C. Remove all debris from the project site in accordance with the Owner's construction waste management requirements.

### 3.7 PROTECTION

- A. Protect from dirt, damage, and cutting caused by subsequent construction activities.

### 3.8 MAINTENANCE

- A. Clean and retreat surfaces in accordance with the manufacturer's instructions.

END OF SECTION