Class A Rated
Fire Retardant Treated Wood Products

Certified and Listed with Accredited Testing Agencies

Flame Tech™ fire retardant lumber and plywood products have been tested, certified and listed with QAI Laboratories (Listing B-1093-I), Intertek Laboratories (Listing 720035) and Underwriters Laboratories (Listing BUGV.r39578 & BPVV.r39580), all of which are prominent, internationally accredited testing agencies.

Ongoing Independent Third Party Inspections

Timber Product Inspection (TPI) provides ongoing random follow-up inspections to assure compliance with AWPA standards for fire retardant treatment and the required quality control metrics for fire retardant chemical, physical treating parameters and kiln drying. This monitoring program is in addition to the QAI, UL and Intertek follow-up requirements for listing.

Building Code Compliant

All Flame Tech™ fire retardant lumber and plywood meets the requirements for FRTW listed in ICC AC66 and as such are compliant with major building codes. Flame Tech™ treated wood products are compliant with 2018, 2015, 2012 and 2009 International Building Code® (IBC).

Always check with applicable building codes to determine what specific criteria are required for any given locality or job.

American Wood Protection Association (AWPA) Compliance

Flame Tech™ Fire Retardant wood products comply with AWPA UC-1 and UCFA use category system. Flame Tech™ treatment process meets the AWPA T1 standard and Flame Tech™ chemical has been analyzed by Timber Products Inspection (TPI) to determine that the chemical components meet AWPA P-50 protocol.
Strength Testing

Flame Tech™ Fire Retardant lumber products have been tested for strength using the ASTM D-5664 standard. Flame Tech™ Fire Retardant plywood products have been tested for strength using ASTM D-5516 standard. These test results provided by Timber Products Inspection (TPI). The results of these tests have been reviewed by ICC ES, QAI Laboratories and Intertek Laboratories. The resulting strength reduction factors were determined by ASTM D-6841 for the lumber and ASTM D-6305 for the plywood.

<table>
<thead>
<tr>
<th>Test Standard</th>
<th>Performance Category</th>
<th>Untreated Span Rating</th>
<th>Flame Tech™ Treated Plywood Roof Sheathing</th>
<th>Subfloor Span (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTM D5516</td>
<td>15/32, 1/2</td>
<td>32/16</td>
<td>24, 29, 43, 60</td>
<td>16</td>
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<td>19/32, 5/8</td>
<td>40/20</td>
<td>24, 49, 73, 103</td>
<td>20</td>
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<td></td>
<td>7/8</td>
<td>60/32</td>
<td>48, 30, 63</td>
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<td>1-1/8</td>
<td>60/48</td>
<td>48, 30, 63</td>
<td>-</td>
</tr>
</tbody>
</table>

(1) Load and span ratings developed in accordance with ASTM D5516 and calculated in accordance with ADTM D6305.
(2) All loads are based on two-span condition with strength axis perpendicular to supports.
(3) Panel edge support shall be required for roof sheathing. Panel edge clips when used shall be installed as follows: one midway between supports for 24-inch and 32-inch spans, two at 1/3-points between supports for 48-inch span. Clips must be manufactured for the plywood thickness used.
(4) Fastener size and spacing shall be as required in the applicable building code for untreated plywood of the same thickness.
(5) For low-sloped or flat roofs with membrane or built-up roofing having a perm rating of less than 0.2: use rigid insulation having a minimum R-value of 4.0 between the sheathing and the roofing, or use the next thicker panel than the tabulated for the span and load. (i.e. 19/32” for 24”; 23/32” for 32”); and use a continuous ceiling air barrier and vapor retarder with a perm rating less than 0.2 on the bottom of the roof framing above the ceiling finish.
(6) Flame Tech treated plywood must not be used as roof sheathing if a radiant shield is used beneath the roof sheathing.
(7) The total allowable load is the sum of the live and dead loads at maximum span.
(8) 15/32” & 1/2” plywood limited to 4-ply, 19/32” & 5/8” plywood is limited to 4-ply & 5-ply, 23/32” & 23/32” and 3/4” plywood is limited to 5-ply & 7-ply.
(9) Uniform load deflection limitations 1/180 of span under live load plus dead load, 1/240 under live load only.
(10) Subfloor is limited to 100 psf. maximum live load.
(11) Climate Zone Definition
    a. Zone 1- Minimum design load or maximum ground snow load up to 20 psf.
    b. Zone 1A - South West Arizona, South East Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson).
    c. Zone 1B – All other qualifying areas of the Continental United States.
    d. Zone 2 – Minimum ground snow load over 20psf.
### Lumber Treatment Adjustment Factors for Temperatures up to 100°F (38°C)

<table>
<thead>
<tr>
<th>Structural Property</th>
<th>SPF</th>
<th>SYP</th>
<th>Doug Fir</th>
<th>Other Species</th>
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<tbody>
<tr>
<td>Bending MOR</td>
<td>0.96</td>
<td>0.82</td>
<td>1.00</td>
<td>0.82</td>
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<tr>
<td>Bending MOE</td>
<td>0.93</td>
<td>0.87</td>
<td>0.99</td>
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<tr>
<td>Tension Parallel to Grain</td>
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<td>0.98</td>
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<td>Shear Parallel to Grain</td>
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<tr>
<td>Compression Perpendicular to Grain</td>
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<tr>
<td>Fastener / Connectors</td>
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### Treatment Adjustment Factors for Service Temperatures < 150°F

<table>
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<th>Test Standard</th>
<th>Property</th>
<th>SPF 1A</th>
<th>SPF 1B</th>
<th>SPF 2</th>
<th>SPF 1A</th>
<th>SPF 1B</th>
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<th>SPF 1A</th>
<th>SPF 1B</th>
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<tr>
<td>ASTM D5664</td>
<td>Bending MOR</td>
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<td>0.93</td>
<td>0.95</td>
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<td>Bending MOE</td>
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<td>0.96</td>
<td>0.99</td>
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<td>0.96</td>
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<tr>
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<td>Shear Parallel to Grain</td>
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<td>0.96</td>
<td>0.99</td>
<td>0.88</td>
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<td>Compression Parallel to</td>
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<td>Compression Perpendicular to Grain</td>
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<td>Grain Fastener/connectors</td>
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</tbody>
</table>

(1) Treatment adjustment factors for test data developed in accordance with ASTM D5664 and calculated in accordance with ASTM D6841

(2) Climate Zone Definition

a. Zone 1 – Minimum design load or maximum ground snow load up to 20 psf.

b. Zone 1A – South West Arizona, South East Nevada (area bounded by Las Vegas-Yuma-Phoenix-Tucson).

c. Zone 1B – All other qualifying areas of the Continental United States.

d. Zone 2 – Minimum ground snow load over 20psf.
Use and Handling

Flame Tech™ treated FRTW products have the same workability as untreated lumber products, requiring only the same tools and precautions used with regular wood products.

Keep the following guidelines in mind when using and handling Flame Tech™ FRTW products.

- Flame Tech™ wood should not be installed where it will be exposed to precipitation, direct moisture, or regular condensation.
- Flame Tech™ wood must never be installed or used in contact with the ground.
- When storing Flame Tech™ products, the material must be kept off the ground and covered to protect it from moisture and precipitation.
- The use of galvanized fasteners is required with Flame Tech™ treated wood products.
- When painting or staining follow the paint or stain manufacturer’s recommendations. Make sure the surface is clean and dry before application.
- When using Flame Tech™ FRTW products it is important to utilize the design value adjustments listed in the guide.
- Cutting to length, drilling and diagonal cuts, as well as light sanding are allowed. Exposed areas are not required to be field coated.
- Cutting of lumber to length (cross-cutting and end cuts) are allowed. Holes and joints are also allowed.
- Ripping of lumber along the length, such as ripping a 2x4 in to a 2x2 is not allowed. The cutting of a stair stringer is not allowed to be done after the lumber is treated as the effect is similar to ripping.
- Milling of the lumber is not allowed. All milling and planing must be done before treatment.
- Cutting of plywood is allowed in any direction without restriction.
- Light sanding of lumber and plywood is allowed to remove raised grain or to prepare for finishing.
- Shaping or resurfacing must be done before treatment.
- End Coating of any approved cut is not required.

Personal Health and Safety

- Wear gloves to protect against splinters.
- Wear a dust mask to reduce the inhalation of wood dust.
- Wear appropriate eye protection.
- Wash hands with mild soap and water after working with Flame Tech™ FRTW.

Warranty: Flame Tech™ Fire Retardant plywood and lumber are covered by a limited 20 Year Warranty made available upon request.

Testing and Approvals

**ASTM International (ASTM):**

- ASTM D6305 – Standard Practice for Calculating Bending Strength Design Adjustment Factors for Fire Retardant Treated Plywood Roof Sheathing
- ASTM D6841 – Standard Practice for Calculating Treatment Adjustment Factors for Fire Retardant Treated Lumber
- ASTM 2768 – Extended Duration Surface Burning Characteristics of Building Materials
- ASTM E119 – Fire Tests of Building Construction and Materials

**American Wood-Protection Association (AWPA):**

- AWPA E12 – Standard Method of Determining the Corrosion of Metal in contact with wood
- AWPA T1 – Use Category System: Processing and Treatment Standard
- AWPA U1 – Use Category System: User Specifications for Treated Wood

**Certification Agencies**

- Intertek – ASTM E84/ASTM E2768 – Intertek SpecDirect ID - 37150
- Intertek – ASTM E119 – FRCT/FRWT 120-1, FRCT/FRWT 120-2, FRCT/FRWT 60-1, FRWT 60-2, FRCT/FRWT 60-3, and FRCT/FRWT 60-4
- QAI – ASTM E84/ASTM E2768 – B1093-1
- UL – 723 – Lumber BUGV.r39579 and Plywood BPVV.r39580

**Code Compliance Research Reports**

- CCRR-1088 (Intertek) – FlameTech™ Fire Retardant Treated Wood
- LARR 28119 (Los Angeles Research Report) – FlameTech™ Fire-Retardant – Treated Wood
- ICC ESR Report ESR - 4056

Applications for Use

- Fire Blocking
- Plywood Roof Sheathing
- Wall Framing
- Wall Sheathing
- Store Fixtures
- Underlayment
- Subfloors
- Mezzanine Floors
- Flat Roof Blocking
- Lumber Roof Decking
- Interior Roof Trusses
- Interior Floor Trusses
- Interior Millwork
- Interior Scaffold Plank
- Interior Wall Blocking
Certified Wall Assemblies

1 hr Exterior Bearing Wall
(Design No. FRCT/FRWT 60-03)
Max. Tested Load:
100% of Design Load
Fire Ratings:
• 1 hr from interior
• 1 hr from exterior

1 Layers of Type X or equivalent
(1 hr. from interior face)

Flame Tech™
Pressure-impregnated fire-retardant treated plywood (min. 15/32 in. thick)
(Tinted RED for quality control)

1 hr Exterior Bearing Wall
(Design No. FRCT/FRWT 60-04)
Max. Tested Load:
100% of Design Load
Fire Ratings:
• 1 hr from interior

1 Layer of Type X or equivalent
(1 hr. from interior face)

Flame Tech™
Pressure-impregnated fire-retardant treated lumber
(min. 2x4 studs @ 16 in. o.c.)
(Tinted RED for quality control)
2 hr Exterior Bearing Wall
(Design No. FRCT/FRWT 120-01)

Max. Tested Load:
100% of Design Load

Fire Ratings:
• 2 hr from interior

2 hr Exterior Bearing Wall
(Design No. FRCT/FRWT 120-02)

Max. Tested Load:
100% of Design Load

Fire Ratings:
• 2 hr from interior
• 1 hr from exterior
Fire Retardant Chemical Technologies, LLC
Design No. FRCT/FRWT 60-03
Fire Retardant Wood
FlameTech™ Lumber and Plywood
ASTM E119
Rating: 1 Hour Load Bearing (Interior Only, 2015 NDS - F_c 0.96 for FRWT)

1. **GYPSUM BOARD (Interior):** One layer
   Type X, complying with ASTM C1396 min. 5/8 in. thick, 4 ft. wide applied vertically, fastened to framing. Joints covered with paper tape and joint compound. Fasteners covered with joint compound. Min. #6 x1-5/8 in. long Type S or W screws, spaced max. 6 in. on center (oc).

2. **CERTIFIED MANUFACTURER:** Fire Retardant Chemical Technologies, LLC

   **CERTIFIED PRODUCT:** FlameTech™

   **2A. CERTIFIED MODEL:** FlameTech™ Lumber
   FlameTech Lumber is min. 2x4 in. nominal wood studs, spaced max. 16 in. oc, or 2x6 in. nominal wood studs spaced 24 in. oc, double top plates and single bottom plate fastened together with 16d common nails (3-1/2 in. x 0.162 in.), 16d box nails (3-1/2 in. x 0.135 in.), or 12d ring nails (3-1/4 in. x 0.135 in.).

2B. **CERTIFIED MODEL (Exterior):**
FlameTech Plywood,
FlameTech Plywood, min. 15/32 in. thick, is applied vertically over the specified framing with min. 2-3/8 in. long, 0.113 in. diameter nails, spaced max 8 in. oc around the perimeter and max. 12 in. oc in the field. Horizontal joints must be blocked.

3. **INSULATION:** Fiberglass batt insulation min. 3-1/2 in. thick R-13 friction fit between the studs. If 2x6 in. nominal wood studs are used, fiberglass batt insulation shall be minimum 5-1/2 in. thick.

4. **EXTERIOR FACINGS (Optional):** Materials installed in accordance with manufacturer’s installation instructions:
   - Masonry brick veneer or concrete
   - Portland cement or synthetic stucco systems with self-furring metal lath or adhesive base coat
   - Hardwood, wood structural panel, plywood or fiber-cement siding
   - Metal siding
   - Vinyl siding – exterior plastic
1. **GYPSUM BOARD (Interior):** One layer Type X, complying with ASTM C1396, min. 5/8 in. thick, 4 ft. wide applied vertically, fastened to framing. Joints covered with paper tape and joint compound. Fasteners covered with paper tape and joint compound. Min. #6 x 1-5/8 in. long Type S or W screws, spaced max. 6 in. on center (oc).

**CERTIFIED MANUFACTURER:** Fire Retardant Chemical Technologies, LLC

**CERTIFIED PRODUCT:** FlameTech™

**2A. CERTIFIED MODEL:** FlameTech™ Lumber

FlameTech Lumber is min. 2x4 in. nominal wood studs, spaced max. 16 in. oc, or 2x6 in. nominal wood studs spaced 24 in. oc, double top plates and single bottom plate fastened together with 16d common nails (3-1/2 in. x 0.162 in.), 16d box nails (3-1/2 in. x 0.135 in.), or 12d ring nails (3-1/4 in. x 0.135 in.).

2B. **CERTIFIED MODEL (Exterior):** FlameTech Plywood,

FlameTech Plywood, min. 15/32 in. thick, is applied vertically over the specified framing with min. 2-3/8 in. long, 0.113 in. diameter nails, spaced max 8 in. oc around the perimeter and max. 12 in. oc in the field. Horizontal joints must be blocked.

3. **INSULATION:** Fiberglass batt insulation min. 3-1/2 in. thick R-13 friction fit between the studs. If 2x6 in. nominal wood studs are used, fiberglass batt insulation shall be minimum 5-1/2 in. thick.

4. **EXTERIOR FACINGS (Optional):** Materials installed in accordance with manufacturer’s installation instructions:
   - 3/4 in. thick cement plaster (1:4 ratio of cement to sand for scratch coat and 1:5 ratio for brown coat)
   - Nominal 2.7 in. thick solid brick fastened using min. 22 GA wall ties
   - Nominal 2.3 in. thick hollow brick fastened using min. 22 GA wall ties
Fire Retardant Chemical Technologies, LLC  
Design No. FRCT/FRWT 120-01  
Fire Retardant Wood  
FlameTech™ Lumber and Plywood  
ASTM E119  
Rating: 2 Hour, Load Bearing (2015 NDS - F, 0.96 for FRWT)  
Rated from one side (Interior Side Only)

1. **GYPSUM BOARD (Interior):**  
Two layers USG Firecode® C Core complying with  
ASTM C1396, or equivalent, min. 5/8 in. thick,  
4 ft. wide applied vertically, fastened to framing.  
Face layer joints staggered with base layer and  
covered with paper tape and joint compound.

**FASTENERS: (Not Shown):**

A. FACE LAYER – Min. #6 x 2 in. long Type S or  
W screws spaced max. 8 in. oc and heads  
covered with joint compound.

B. BASE LAYER – Min. #6 x 1-5/8 in. long Type  
S or W screws, spaced max. 6 in. oc.

2. **CERTIFIED MANUFACTURER:** Fire Retardant  
Chemical Technologies, LLC  
**CERTIFIED PRODUCT:** FlameTech™

2A. **CERTIFIED MODEL:** FlameTech™ Lumber  
FlameTech Lumber is min. 2x4 in. nominal wood  
studs, spaced max. 16 in. oc, or 2x6 in. nominal  
wood studs spaced 24 in. oc, double top plates  
and single bottom plate fastened together with  
16d common nails (3-1/2 in. x 0.162 in.), 16d box  
nails (3-1/2 in. x 0.135 in.), or 12d ring nails (3-1/4  
in. x 0.135 in.).

2B. **CERTIFIED MODEL (Exterior):**  
FlameTech Plywood  
FlameTech Plywood, min. 15/32 in. thick, is applied  
vertically over the specified framing with min.  
2-3/8 in. long, 0.113 in. diameter nails, spaced  
max 8 in. oc around the perimeter and max. 12 in.  
oc in the field. Horizontal joints must be blocked.

3. **INSULATION:** Fiberglass batt insulation min.  
3-1/2 in. thick R-13 friction fit between the  
studs. If 2x6 in. nominal wood studs are used,  
fiberglass batt insulation shall be min. 5-1/2 in. thick.

4. **EXTERIOR FACINGS (Optional):** Materials  
installed in accordance with manufacturer’s  
installation instructions:  
• Masonry brick veneer or concrete  
• Portland cement or synthetic stucco systems  
  with self-furring metal lath or adhesive base coat  
• Hardboard, wood structural panel, plywood or  
  fiber-cement siding  
• Metal siding  
• Vinyl siding – exterior plastic

Date Revised: April 27, 2018  
Project No. G103482872
1. **GYPSUM BOARD (Interior):**
   Two layers USG Firecode® C Core, complying with ASTM C1396, or equivalent, min. 5/8 in. thick, 4 ft. wide applied vertically, fastened to framing. Face layer joints staggered with base layer and covered with paper tape and joint compound.

   **FASTENERS: (Not Shown):**
   
   A. **FACE LAYER** – Min. #6 x 2 in. long Type S or W screws spaced max. 8 in. on center (oc) and heads covered with joint compound.
   
   B. **BASE LAYER** – Min. #6 x 1-5/8 in. long Type S or W screws, spaced max. 6 in. oc.

2. **CERTIFIED MANUFACTURER:** Fire Retardant Chemical Technologies, LLC

   **CERTIFIED PRODUCT:** FlameTech™

   **2A. CERTIFIED MODEL:** FlameTech™ Lumber

   FlameTech Lumber is min. 2x4 in. nominal wood studs, spaced max. 16 in. oc, double top plates and single bottom plate fastened together with 16d common nails (3-1/2 in. x 0.162 in.), 16d box nails (3-1/2 in. x 0.135 in.), or 12d ring nails (3-1/4 in. x 0.135 in.).

   **2B. CERTIFIED MODEL (Exterior):**

   FlameTech Plywood

   FlameTech Plywood, min. 15/32 in. thick, is applied vertically over the specified framing with min. 2-3/8 in. long, 0.113 in. diameter nails, spaced max. 8 in. oc around the perimeter and max. 12 in. oc in the field. Horizontal joints must be blocked.

3. **INSULATION:** Fiberglass batt insulation min. 3-1/2 in. thick R-13 friction fit between the studs. If 2x6 in. nominal wood studs are used, fiberglass batt insulation shall be minimum 5-1/2 in. thick.

4. **EXTERIOR FACINGS:** Materials installed in accordance with manufacturer’s installation instructions:
   - 3/4 in. thick cement plaster (1:4 ratio of cement to sand for scratch coat and 1:5 ratio for brown coat)
   - Nominal 2.7 in. thick solid brick fastened using min. 22 GA wall ties
   - Nominal 2.3 in. thick hollow brick fastened using min. 22 GA wall ties
THE NEW STANDARD FOR FIRE RETARDANT TREATED WOOD

Fire Retardant Chemical Technologies, LLC
Innovators of high performance fire retardant products

3465 Gribble Road
Matthews, NC 28104
(980) 253-8880
www.flametechspecs.com

Standardized 3-part specification is available at ARCAT.com
Technical and design information is available at www.flametechspecs.com