UL Guide Information - The Rest of the Story to the Listings and More

Luke Woods
Principal Engineer
Fire Resistance and Containment – UL LLC
UL Guide Information - The Rest of the Story to the Listings and More

- Standards Activity.
- Industry Matters.
- Q & A.
UL Fire Resistance Directory & Guide Update
UL Guide Information

- General information about the product/system category (CCN).
- May include certification information.
- References standard(s) used to for certification.
- Accessible from every design.
- Public information.
- Canadian Guides _ _ _ _ 7 or _ _ _ _ C and international.
UL Fire Resistance Directory (FRD)

- Collection of information to help meet intent of the Code.
- Covers fire rated construction and fire rated assemblies.
- Online FRD contains most current information about each product and design.
- Multiple ways to obtain UL information (UL FRD, Product Spec, UL Chat)
- Be careful of Google, YouTube etc.
UL Designs

• Declaration of a group of products that comply with UL’s certification requirements.
• Guidance for design.
• Direction for installation.
• Assistance with inspection.
• Designs are to be followed to the letter.
• Deviation voids the certification and potential protection.
# UL Firestop categories (CCN’s)

<table>
<thead>
<tr>
<th>UL Category</th>
<th>Guide Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabinets</td>
<td>XHGK.GuideInfo</td>
</tr>
<tr>
<td>Duct-wrap Materials</td>
<td>XHHD.GuideInfo</td>
</tr>
<tr>
<td>Fill, Void or Cavity Materials</td>
<td>XHHW.GuideInfo</td>
</tr>
<tr>
<td>Fire-resistance Ratings - ANSI/UL 263</td>
<td>BXUV.GuideInfo</td>
</tr>
<tr>
<td>Firestop Devices</td>
<td>XHJI.GuideInfo</td>
</tr>
<tr>
<td>Forming Materials</td>
<td>XHKU.GuideInfo</td>
</tr>
<tr>
<td>Fire-resistant Pipe-protection Materials</td>
<td>HNKJM.GuideInfo</td>
</tr>
<tr>
<td>Fire-resistant Pipe-protection Systems</td>
<td>HNKJ.GuideInfo</td>
</tr>
<tr>
<td>Accessories for Perimeter-fire-containment Systems</td>
<td>XHDI.GuideInfo</td>
</tr>
<tr>
<td>Joint Systems</td>
<td>XHBEN.GuideInfo</td>
</tr>
<tr>
<td>Molded Intumescent Rings - Component</td>
<td>BICU2.GuideInfo</td>
</tr>
<tr>
<td>Through-penetration Firestop Systems</td>
<td>XHEZ.GuideInfo</td>
</tr>
<tr>
<td>Firestop Systems, Marine</td>
<td>XHJN.GuideInfo</td>
</tr>
<tr>
<td>Brazil Firestops</td>
<td>BRDX.GuideInfo</td>
</tr>
</tbody>
</table>
## UL Fire Resistance Directory Update

<table>
<thead>
<tr>
<th>CCN</th>
<th>Title</th>
<th>Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>HNKM</td>
<td>Fire-resistant Pipe-protection Materials</td>
<td>UL 1489</td>
</tr>
<tr>
<td>HNKJ</td>
<td>Fire-resistant Pipe-protection Systems</td>
<td>UL 1489</td>
</tr>
<tr>
<td>BRDX</td>
<td>Brazilian Certification Services - Miscellaneous Firestop Materials, Joint Materials and Accessories</td>
<td>UL 1479, UL 2079</td>
</tr>
<tr>
<td>XHJN</td>
<td>Firestop Systems, Marine</td>
<td>IMO FTP Code</td>
</tr>
<tr>
<td>XHDI</td>
<td>Perimeter Joint accessories</td>
<td>ASTM E2307</td>
</tr>
</tbody>
</table>
UL Guide & FRD – Summary

- UL FRD & Guide is there for everyone.
- Information is not to be interpreted.
- What more can we use the FRD & Guide for?
- What other information can we add?
Marine Firestops
Marine Firestops

- Follows Fire Test Procedure (FTP) International Maritime Organization.
- Installation in decks (floors) and bulkheads (walls).
- Similar test parameters and acceptance.
Marine Firestops
Marine Firestops

This category covers firestop systems intended for use in marine applications, and investigated to the Fire Test Procedure (FTP) Code, IMO Resolution MSC.307(88), Annex 1, Part 3, “Test for ‘A’, ‘B’ and ‘F’ Class Divisions.” The firestop systems are specific constructions consisting of a structural steel deck or bulkhead assembly, a penetrating item passing through an opening in the bulkhead or deck assembly, and the materials or devices designed and installed in a manner to prevent the spread of fire and hot gases through the openings in the steel deck or bulkhead. The specific firestop material is covered under Fill, Void or Cavity Materials (XHHW), and the specific firestop device is covered under Firestop Devices (XHU). The specifications for materials in a firestop system or firestop device and the assembly of the materials are details that directly relate to the established ratings. The fire-resistance ratings apply only to the complete systems. Individual components are designated for use in a specific system to achieve specified ratings. The individual components are not assigned ratings and are not intended to be interchanged between systems. Additionally, the substitution or elimination of components required in a system should not be made unless specifically permitted in the individual system or in these general guidelines.

IMO Resolution MSC.307(88), Annex 1, Part 3 defines the rating nomenclature for a specific configuration of materials using the combination of a letter, indicating the integrity rating of the firestop system, and a number, indicating the insulation performance of the firestop system. The rating can be further defined by the duration the assembly satisfies the integrity and insulation requirements. The ratings are defined as follows:
UL Standards Activity
## Relevant Firestop Test Standards

<table>
<thead>
<tr>
<th>Standard Scope</th>
<th>Standard Reference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Penetration Firestop Systems</td>
<td>UL 1479/ULC S115</td>
</tr>
<tr>
<td></td>
<td>ASTM E814</td>
</tr>
<tr>
<td>Firestop Joints</td>
<td>UL 2079/ULC S115</td>
</tr>
<tr>
<td></td>
<td>ASTM E1966</td>
</tr>
<tr>
<td></td>
<td>ASTM E2837</td>
</tr>
<tr>
<td>Perimeter Joint Systems</td>
<td>ASTM E2307</td>
</tr>
<tr>
<td>Severe Environmental Conditions</td>
<td>ASTM E2785</td>
</tr>
<tr>
<td>Material Shrinkage</td>
<td>ASTM C1241</td>
</tr>
<tr>
<td>Firestop Movement</td>
<td>ASTM E3037</td>
</tr>
<tr>
<td>Firestop Systems, Marine</td>
<td>IMO FTP Code</td>
</tr>
<tr>
<td>Fuel Pipe Protection</td>
<td>UL 1489</td>
</tr>
</tbody>
</table>
UL 1479 Standards Technical Panel (STP) Activity

- STP = Standards Technical Panel
- A group responsible for the development and revision of a standard or group of standards.
- Balance of interests.
- An STP serves as the consensus body for UL Standards.
- FCIA is well represented.
- Open to the public.
- Opportunity to contribute.
Membrane Penetrations Task Group

- Create small scale test method for horizontal assemblies.
Membrane Penetrations Task Group

• Working on 2 options for the STP to consider:
  
• 1. Comparative method without opening.
  
• 2. Comparative method with certified membrane penetrant (e.g. ceiling damper).
  
• STP will review and consider item(s) for ballot.
  
• Anticipated in fall of 2017.
Membrane Penetrations Task Group – Concept 1

VS.
Membrane Penetrations Task Group – Concept 2

VS.

[Diagram showing two different membrane penetration concepts]
Items for Standards Activity Consideration

- Patching
- Repairs
- Sleeved penetrants
Considerations for Standards Activity

• What are some key issues to address with a Firestop Systems?

• What is seen in the field that needs to be evaluated in the lab?

• YOU have a chance to weigh in.

UL wants you!
Standard Development Process

- Concept Discussion
- Preliminary Review
- Balloting
- Recirculation
- Further Discussion
- Formalization & Publication
- Final Voting
- Reaffirmation
Standard Balloting

**UL**
- Majority must vote.
- 2/3 to reach consensus.

**ASTM**
- Adjudicate negatives. (ASTM).
- Must be unanimous.

NFPA and ISO are similar. [http://ulstandards.ul.com/about/understanding-standards/standards-faq/](http://ulstandards.ul.com/about/understanding-standards/standards-faq/)
Standardization Value

Without standard...

... things do not go align
Firestop Movement
Firestop Movement – ASTM E3037

- Declaration of movement capability.
- Standardized test method.
- Not a fire test.
- Generic construction and test specimen.
- May be representative of field construction.
- No pass fail criteria, rather a quantification of performance.
- Fire testing is left to the request of the authority having jurisdiction.
Firestop Movement – ASTM E3037

SELECT MATERIAL → SELECT CONSTRUCTION → INSTALL AND CONDITION

CYCLE – Z DIRECTION → MEASURE AND RECORD → CYCLE – Y DIRECTION

MEASURE AND RECORD → FIRE TEST → REPORT RESULTS
Firestop Movement – UL Testing

- Design specific.
- Similar cycling to HW joints.
Firestop Movement - Design Update

<table>
<thead>
<tr>
<th>ANSI/UL1479 (ASTM E814)</th>
<th>CAN/ULC S115</th>
</tr>
</thead>
<tbody>
<tr>
<td>F Rating — 1 and 2 Hr</td>
<td>FH Rating — 1 and 2 Hr</td>
</tr>
<tr>
<td>T Rating — 0 Hr</td>
<td>FTH Rating — 0 Hr</td>
</tr>
<tr>
<td>L Rating At Ambient — &lt; 1 CFM/sq ft</td>
<td>L Rating At Ambient — &lt; 1 CFM/sq ft</td>
</tr>
<tr>
<td>ASTM E3037 – Movement</td>
<td></td>
</tr>
<tr>
<td>Y Direction</td>
<td>Class A - &gt;50 % of Annular Space</td>
</tr>
<tr>
<td>Z Direction</td>
<td>Class I - &gt;1 in.</td>
</tr>
</tbody>
</table>

![Diagram showing movement directions](https://via.placeholder.com/150)
### Firestop Movement - Guide Update

<table>
<thead>
<tr>
<th>Class</th>
<th>Y Direction (% of annular space)</th>
<th>Z Direction (in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y-I</td>
<td>≥ 50 %</td>
<td>-</td>
</tr>
<tr>
<td>Y-II</td>
<td>≥ 25 %</td>
<td>-</td>
</tr>
<tr>
<td>Y-III</td>
<td>&lt; 25 %</td>
<td>-</td>
</tr>
<tr>
<td>Z-I</td>
<td>-</td>
<td>≥ 1</td>
</tr>
<tr>
<td>Z-II</td>
<td>-</td>
<td>≥ 0.5</td>
</tr>
<tr>
<td>Z-III</td>
<td>-</td>
<td>&lt; 0.5</td>
</tr>
</tbody>
</table>
High Rise Wood Construction

- Increased trend in designing and building high rise wood buildings.
- Perceived as “greener” than non-wood construction.
- What is the impact to fire protection?
- What is impact of firestopping?
- Does firestopping need to adjust?
- Where can you add your expertise?
Cross Laminated Timber (CLT) Anatomy
UL CLT Test – Before

Floor

Wall
CLT Floor Test – UL 263

Load

CLT Floor
CLT Floor with Penetration Firestop

Load

CLT Floor

Load
UL CLT Test – After
How can UL help?

- What do firestopping contractors need?
  - Testing?
  - Education?
  - Training?
  - Research?
  - Publications?
UL Resources

UL.com (link)
UL Fire Resistance Directory (link)
UL Product Spec (link) - MOBILE
Code correlation Database (link)
Architectural Services (link)
archservices@us.ul.com
UL TSA/FSA Newsletters
UL Fire Wizard (link)
UL (+1.877.854.3577)
Summary

- UL Standards activity is always ongoing. Make sure your concerns are voiced. Open to any participants.
- Protecting high rise wood construction.
- The firestopping industry continues to develop solutions.
THANK YOU.

LUKE.WOODS@UL.COM