FCIA Webinar Series

So, You Want to Read a Firestop System Listing?

Bill McHugh, Executive Director of FCIA Rich Walke, CTI, Consultant to FCIA Mark St. Onge, UL Solutions



FCIA – Firestop Contractors International Association



Fire Exits??

- Thanks to FCIA Members
 - Firestop Contractors
 - Manufacturers, Consultants
 - Firestop Distributors, Reps, Friends

Welcome, Thanks, From FCIA.....

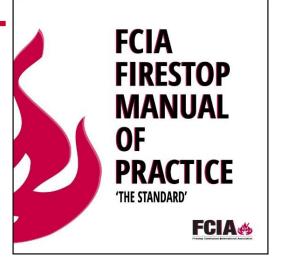
Firestop Contractors International Association FREE PDF MOP, SPECIFICATION for Code Officials, Fire Marshals,

& Specifiers with Design Firms

Life Safety Digest FREE for ALL







FCIA – Firestop Contractors International Association

- Info@FCIA.org for FREE Webinars
- Info@FCIA.org FREE Life Safety Digest
- INFO@FCIA.org FREE FCIA MOP PDF
- UL/ULC, FM 4991 Contractor Programs
- ASTM Inspection Standards
- IAS AC 291 Inspection Agency Accreditation
- FCIA Firestop Education
 - Firestop Certificate & Individual Knowledge
- Resources VISIT FCIA.org





FCIA Actions –

- NEW Education for Careers in Firestopping!!
- FCIA's Firestop Education Program (FEP)
 - 3.5 Hours Level 1 LAUNCHED
 - 16.5 Hours Level 2 LAUNCHED
 - 4.0 Hours Level 3 LAUNCHED
- 24 Hours Education...
- 30++ Hours = Education & Exams -
 - Members Unlimited Subscription
 - Non-Members Visit FCIA.org
 - SPECIFIERS, Code Officials, Fire Marshals FREE Level 1

FCIA – Firestop Contractors International Association

- Canada Symposiums, National Prescence, NBCC, NFC
- Qatar Doha FCIA Symposium; Members
- India Mumbai/Ahmadabad Fire Safe Build India IIT-G
- UAE Dubai FCIA Symposium; Civil Defence
- Saudi Arabia Riyadh BIG5 Show; UL, ICC, TBWIC
- Mexico/LATAM CONAPCI/AMRACI
- Australia/New Zealand FPA, Etc.



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FCIA – Firestop Contractors International Association

- UL/ULC, FM 4991 Contractor Programs
 - DRI's
 - Exams for Contractors, Inspection Agencies

IAS AC 291 Inspection Agency Program

- Responsible Individuals / Competence
- ASTM Inspection Standards ASTM E2174 & ASTM E2393
 - High Rise, Category III & IV, R>250 ('21), NFPA 1, NFPA 101 Appx. & in Specifications Worldwide
- Watch FCIA.org for Webinar Announcements!

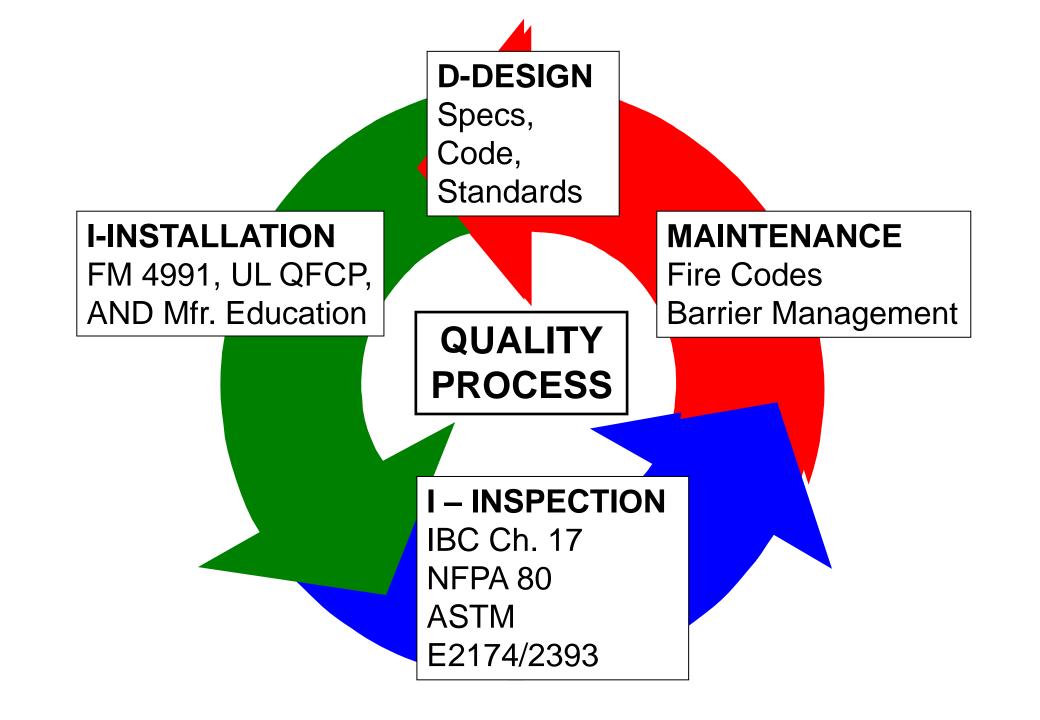
Systems & Materials....





"TOTAL FIRE PROTECTION"

- Effective Compartmentation
 - Fire Barriers, Fire Walls, Floors, Smoke Barriers
 - Firestopping, Fire Dampers, Swinging and Rolling Fire Doors,
 Fire-Rated Glazing
 - Fire-Resistive Protection for Ductwork
- Detection & Alarm Systems
- Sprinkler Suppression Systems
- Education & Egress
 - Building Owners & Managers, Building Occupants and Firefighters



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Building & Fire Code Requirements

- International Codes
 - New and Existing Buildings International Building Code Chapter 7
 - Maintenance International Fire Code Chapter 7
- NFPA Codes
 - New and Existing Buildings NFPA 5000 & 101 Chapter 8
 - Maintenance NFPA 101 & 1
- Canadian Codes
 - New and Existing Buildings National Building Code of Canada
 - Maintenance National Fire Code of Canada
- UAE Fire and Life Safety Code Chapter 1, Section 21
- Other Worldwide Codes
- Minimum requirements Construction & Maintaining Protection

US Building & Fire Code Requirements

- Fire-Resistance-Rated Barriers Defined Terms
 - Exterior Walls
 - Fire Walls
 - Fire Barriers
 - Fire Partitions (Not in NFPA)
 - Smoke Barriers
 - Smoke Partitions
 - Horizontal Assemblies (Not in NFPA)
 - Archaic Assemblies

Compartmentation Codes – IBC

- Products Become Systems Test Standards (Methods)
 - Fire & Smoke Barriers Fire Separations
 - •ASTM E119 / UL 263 / ULC-S101
 - Firestopping ASTM E814 / UL 1479 / FM 4990 / ULC-S115, ASTM E1966 / UL 2079 / ULC-S115, E2307, E2837
 - Swing/Rolling Fire Doors UL 10B/C / NFPA 252 / ULC-S104 Doors / S105 Frames / S113 for 20 minute wood doors, UL 1784
 - Fire Rated Glazing UL 9 / NFPA 257 / ULC-S106, ASTM E119 / UL 263 / ULC-S101
 - Fire/Smoke Dampers UL 555 / ULC-S112, UL 555S / ULC-S112.1, UL 555C / ULC-S112.2
- SYSTEM Testing = Suitability Statement

Code Requirements for Penetrations of Wall Assemblies – IBC Section 714 Cont.

- 714.4.1 Through penetrations shall be protected by one of the following:
 - As tested as part of the entire wall assembly
 - As tested to UL 1479 / ASTM E814
 - Exceptions:
 - Concrete, grout or mortar
 - Annular space protection material
- 714.4.1.2 When tested to UL 1479 / ASTM E814, through penetrations shall have an F Rating of not less than the required rating of wall penetrated

Code Requirements for Penetrations of Wall Assemblies – IBC Section 714 Cont.

- 714.4.2 Membrane penetration shall be protected as follows:
 - As specified in 714.4.1 (i.e. through penetrations)
 - Recessed fixtures shall be installed so as not to reduce the required fire resistance
 - •Exceptions:
 - Multiple exceptions for electrical boxes and other recess boxes
 - Annular space created by fire sprinklers

Code Requirements for Penetrations of Horizontal Assemblies – IBC Section 714

- 714.5.1 Through penetration shall be protected by one of the following:
 - As tested as part of the entire horizontal assembly
 - As tested to UL 1479 / ASTM E814
 - •Exceptions:
 - Annular space protection material
 - Concrete, grout or mortar
 - Listed electrical boxes of any material installed per listing (i.e. pokethroughs)

Code Requirements for Penetrations of Horizontal Assemblies – IBC Section 714 Cont.

- 714.5.1.2 When tested to UL 1479 / ASTM E814, through penetrations shall have F and T Ratings of not less than 1 hour but not less than required rating of assembly penetrated
 - Exception
 - Penetrations contained and located within the cavity of a wall above or below the floor do not require T Rating
 - Penetrations of floor, tub or shower drains do not require T Rating
 - •Penetrations of max 4 in. diam metal conduit or tubing into metal enclosed electrical power switchgear do not require a T Rating

Code Requirements for Penetrations of Horizontal Assemblies – IBC Section 714 Cont.

- 714.5.2 Membrane penetration shall be protected as follows:
 - As specified in 714.5.1 (i.e. through penetrations)
 - Recessed fixtures shall be installed so as not to reduce the required fire resistance
 - Exceptions:
 - If less than 100 sq in. per 100 sq ft, metallic penetrants may be either firestopped or fireblocked
 - Multiple exceptions for electrical boxes and luminaires
 - Noncombustible items cast into concrete that do not penetrate both top and bottom surfaces of the elements
 - Annular space created by fire sprinklers
 - Ceiling membrane penetrations by double wood top plate of wall assembly provided wall is sheathed with Type X gypsum board

Code Requirements for Penetrations – Miscellaneous

- 714.4.3 and 714.5.3 Noncombustible penetrants shall not be connected to combustible penetrants beyond point of firestop system
- 714.5.4 Penetrations in smoke barriers shall have an L Rating at ambient and 400°F
 - Max 5.0 CFM / sq ft of opening
 - Aggregate 50 CFM / 100 sq ft of barrier

Code Requirements for Fire-Resistant Joint Systems – Section 715

• 715.1 General. Joints installed in or between fire-resistance-rated assemblies shall be protected by an approved *fire-resistant joint system* designed to resist the passage of fire for a time period not less than the required *fire-resistance rating* of the assembly in which it is installed.

Code Requirements for Fire-Resistant Joint Systems – Section 715 Cont.

- 715.3 Fire Test Criteria. Fire-resistant joint systems shall be tested in accordance with the requirements of either ASTM E1966 or UL 2079.
- 715.6 Fire-resistant joint systems in smoke barriers. Joints in smoke barriers shall have an L Rating not in excess of 5 cfm / lineal ft of joint at 0.30 inch of water at ambient and at 400°F.

Code Requirements for Perimeter Fire Containment Systems – Sections 705 and 715

- Sections 705.8.5 and 715.4 of 2018 IBC
- 705.8.5 Vertical Separation of Openings Requires unprotected openings in exterior walls not separated horizontally by 5 ft to be:
 - Separated 3 ft minimum vertically by spandrel girder or 1 hr exterior wall, or
 - Separated 30 in. minimum horizontally by 1 hr flame barrier
 - These requirements waived if building is sprinkled and/or three stories of less
- Section 705.8.5 protects against leap-frogging

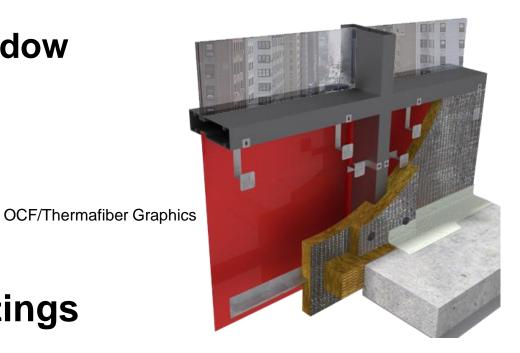
Code Requirements for Perimeter Fire Containment Systems – Section 715 Cont.

• 715.4 Exterior curtain wall/floor intersection Void at edge of rated floor shall be sealed with material which will resist interior spread of fire when tested to ASTM E2307. Requires an F rating not less than fire-resistance rating of floor.

IBC & Curtain Walls

ASTM E2307

- Prevents Fire Spread <u>Interior</u> Safing Slot
 - Interior Flame
 - Exterior Flame Plume from Window
 - Time—Temperature
 - Tested Systems....
- Leapfrog Testing
 - (ASTM E2874)
 - UL Integrity and Insulation Ratings



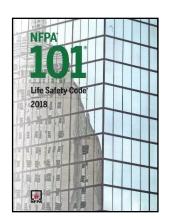
Fire Codes Require Maintenance

- NFPA 101
- NFPA 1
- International Fire Code
- National Fire Code of Canada
- UAE Fire and Life Safety Code –
 Chapter 1, Section 21
- Other Worldwide Codes
 - Minimum Requirements Stated
 - Frequency of Inspections Stated









Firestopping Penetrations for Continuity

- Products become SYSTEMS Based on Testing
- 'Field Erected Construction...Tested to...'
 - Standards UL 1479, ASTM E814, FM 4990, ULC-S115
 - US Ratings:
 - •F Rating Flame
 - •T Rating Temperature
 - •L Rating Smoke
 - •W Rating Water
 - •M Rating Movement



Firestopping Fire-Resistant Joints Systems for Continuity

- Products become SYSTEMS Based on Testing
- 'Field Erected Construction...Tested to...'
 - Standards UL 2079, ASTM E1966, ULC-S115
 - Assembly Rating Flame & Temperature
 - L Rating Smoke
 - W Rating Water



Firestopping Perimeter Fire Containment Systems for Continuity

- Products become SYSTEMS Based on Testing
- 'Field Erected Construction...Tested to...'
 - Standards ASTM E2307, ULC-S115
 - F Rating Flame
 - T Rating Temperature
 - Integrity Rating Flame
 - Insulation Rating Temperature
 - L Rating Smoke



Installation Instructions and Listings – The Keys to Code Compliance

Is there a UL Solutions requirement to follow manufacturers installation requirements? YES

XHEZ Guide Card: Materials used in the firestop systems are intended to be installed in accordance with the manufacturer's instructions provided with the materials.

Is there a codes requirement to follow manufacturer installation requirements? YES

2021 IBC:

714.2 Installation. A listed *penetration firestop* system shall be installed in accordance with the manufacturer's installation instructions and the listing criteria.

714.4.1.1 Fire-resistance-rated assemblies. *Through penetrations* shall be protected using systems installed as tested in the *approved* fire-resistance-rated assembly.

2021 NFPA 101:

8.3.4.1.3 Penetrations shall be protected by a tested system installed and maintained in accordance with the manufacturer's instructions.

Manufacturers installation instructions may vary...

Installation Instructions and Listings – What Manufacturers May Indicate

Substrate Prep:

Areas to be protected must be clean and free of oil, loose dirt, rust or scale. Installation temperature shall be between 40°F (4°C) and 95°F (35°C). Consult appropriate manufacturer's drawing for system design requirements. Forming or packing materials are required as an integral part of various system designs.

Preparatory Work: The surface of the opening and any penetrating items should be cleaned to allow for the proper adhesion of the

Ensure that the surfaces of the substrates are not wet and are frost free. Sealant can be installed with a standard caulking gun, pneumatic pumping equipment or it can be easily applied with a putty knife or trowel.

Areas to be protected must be clean and free of oil, loose dirt, rust or scale. Allow product to dry a minimum of 24 hours before exposure to moisture. Consult appropriate manufacturer's drawing for system design requirements. Forming or packing materials are required as an integral part of various system designs.

CPVC Compatibility:

- Check CPVC manufacturers' current compatibility list for firestop products before using
- Not for use with CPVC

Collars:

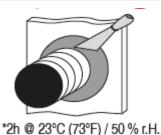
Fasten all collar anchor tabs to mounting surface using approved fasteners.

Tooling:

Install sealant to required depth. Work sealant into all areas exercising care to eliminate voids or seams. The surface of the sealant can be smoothed using a putty knife dipped in water.

Adding water to the sealant itself is not recommended.

Other:



Paintable (best results obtained after 72 hour cure)

CERTIFIED Solution Identification

WARNING	Acc bs
FIRESTOPPING INSTALLED BY UL CERTIFIED FIRESTOF CON DO NOT DISTURB. Notify building management of any damage	TRACTOR
Date of installation	
Firestopping system	(UL)
Installed by	
Location	CERTIFIED
Lot number 109	PROCESS QUALIFIED FIRESTOP CONTRACTOR
ampany and	CONTACT SPECIAL
Phonoumber	INSPECTOR TO
UL file number	VERIFY THE INSTALLATION

Where do You Find the Most Current Listings?

- Fire Rated Systems Directories
 - FM Approval Guide
 - Intertek Directory of Building Products
 - UL/ULC Product iQ Online Directory



Systems Selection & Analysis...Not as easy as it looks...





System Selection Using the UL Directories

UL Product iQ



Organization of Listing information for Fire Resistance, and Firestop, Joint & PFC Systems

- Guide information
- Designs, systems or assemblies
- Product categories (indexed by manufacturer's names)

Guide Information

- Equipment, materials or systems included in the category
- Intended use, restrictions or supplemental information that apply
- Standard(s) used to evaluate products under the category
- Listing or Classification Mark information for the category

Designs or Systems

- Each fire resistance design, firestop system, joint system and perimeter fire containment system contains specific construction features and ratings
- Many designs and systems contain various options and various ratings
- Must be followed exactly for rating to apply

Product Categories

- Each product category describes some generic family of products (e.g. Firestop Devices)
- Each product category contains manufacturers and designations of products tested for use in specific fire resistance designs, firestop systems, joint systems and perimeter fire containment systems

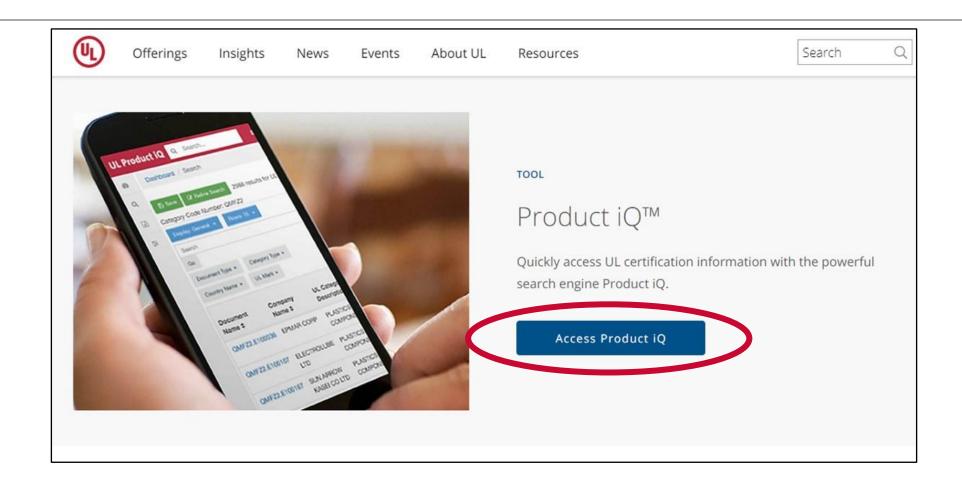
Product iQ – UL's New Online Directory

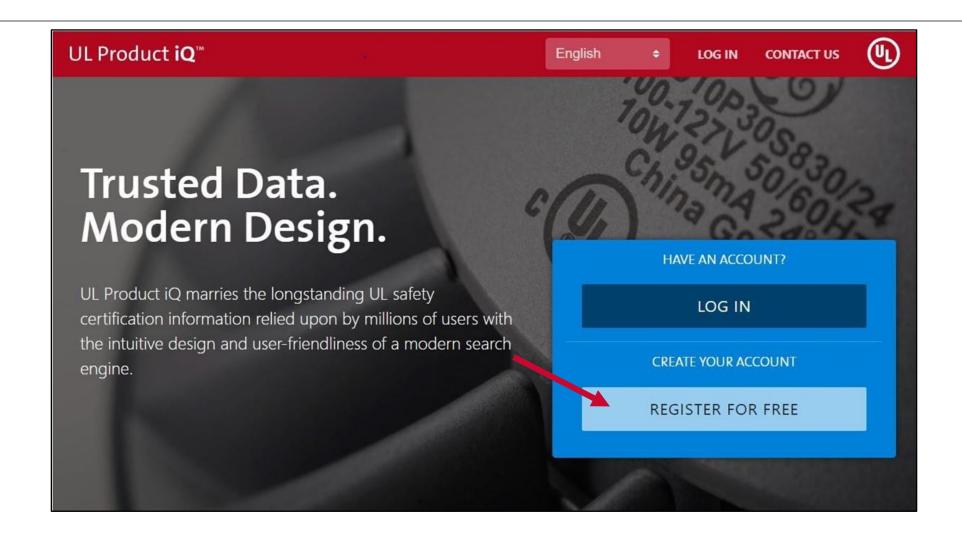
- Replaces the old Online Certifications Directory which was developed in 1999
- Identifies Certified products, designs, systems, assemblies and constructions
- Helps you achieve code compliance
- Is continuously updated
- Requires one-time registration to create user account
- Basic Service no charge for use

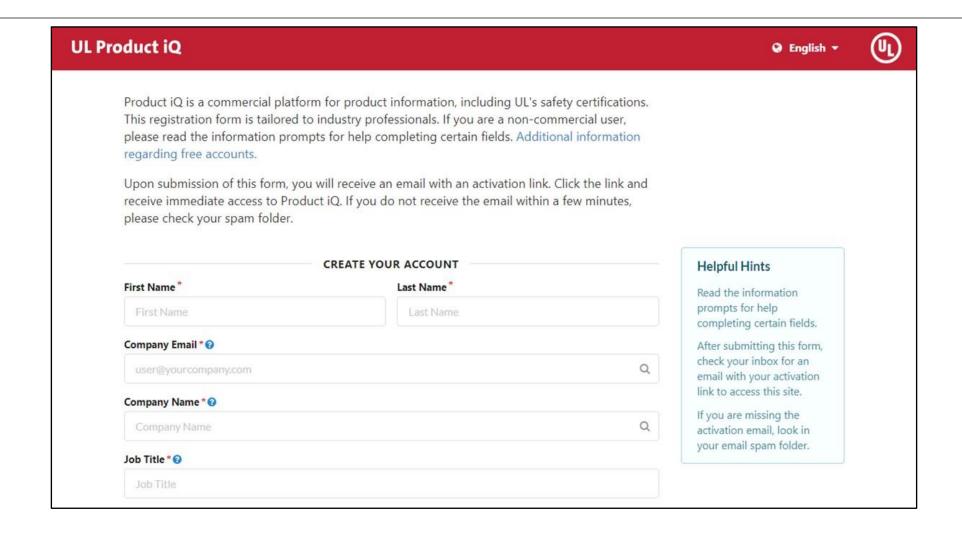
Product iQ – UL's New Online Directory

- Paid Subscription Service provides more features
 - Save Searches
 - Tags and Groups
 - Confirmation Letters
- https://iq.ulprospector.com/en/
- Vanity addresses
 - www.ProductiQ.UL.com
 - www.UL.com/ProductiQ
 - www.UL.com/PiQ

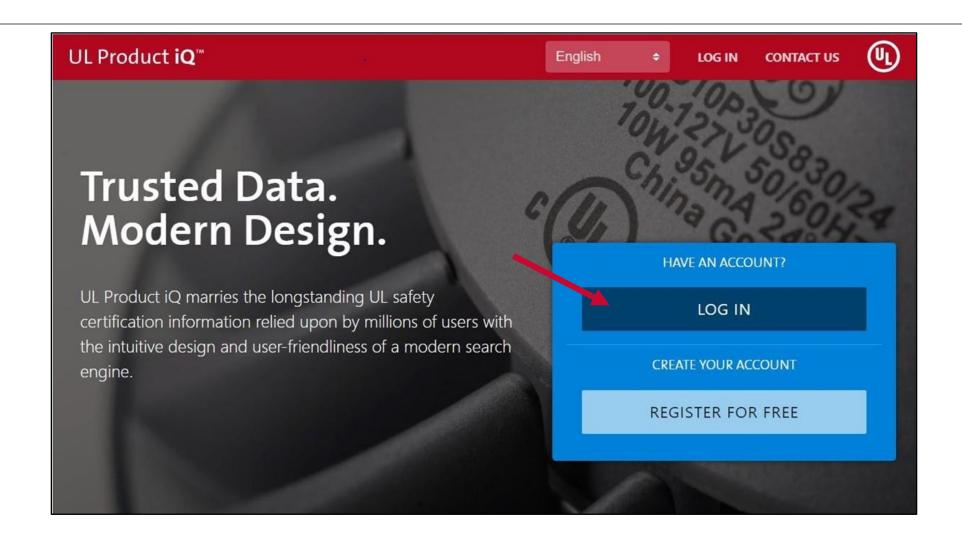
UL Product iQ – www.ul.com



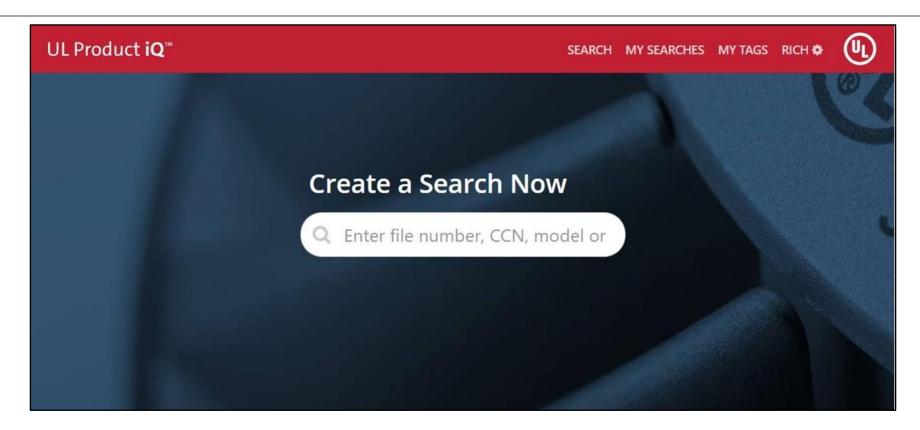




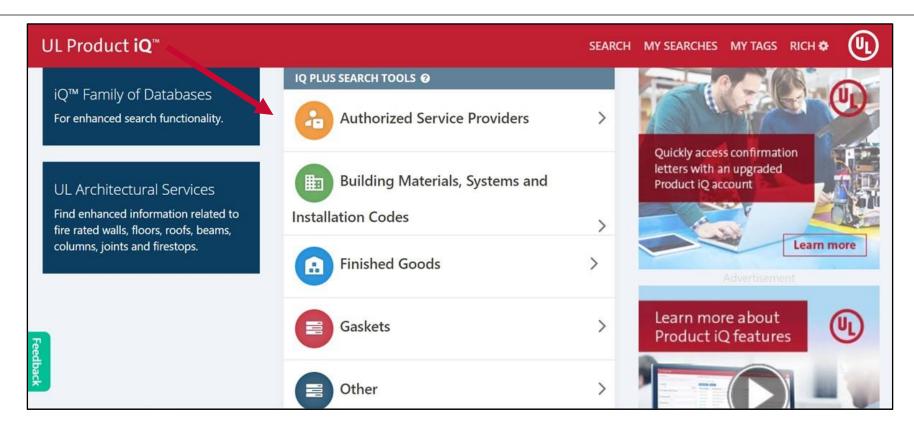




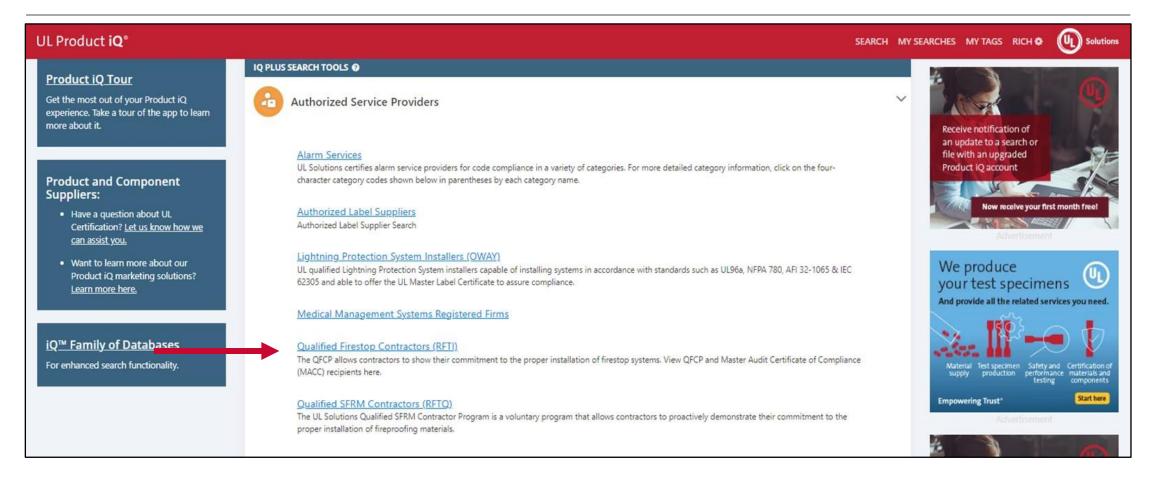
UL Product iQ Cont. Smart Search



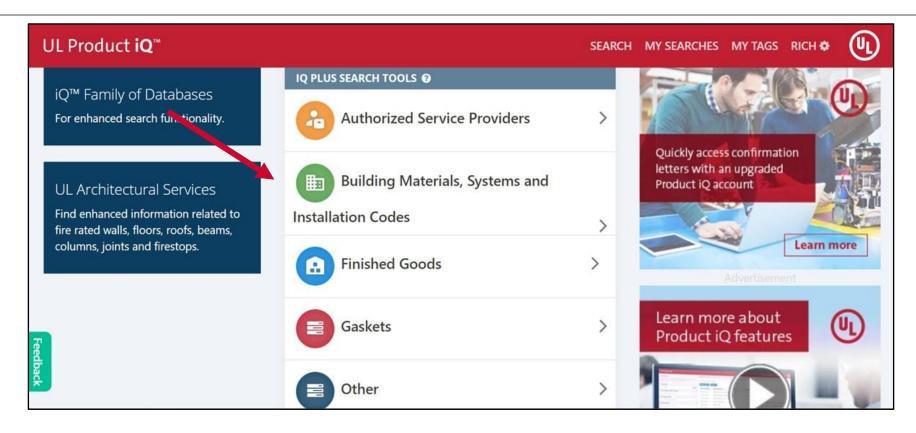
UL Product iQ Cont. iQ Plus Search

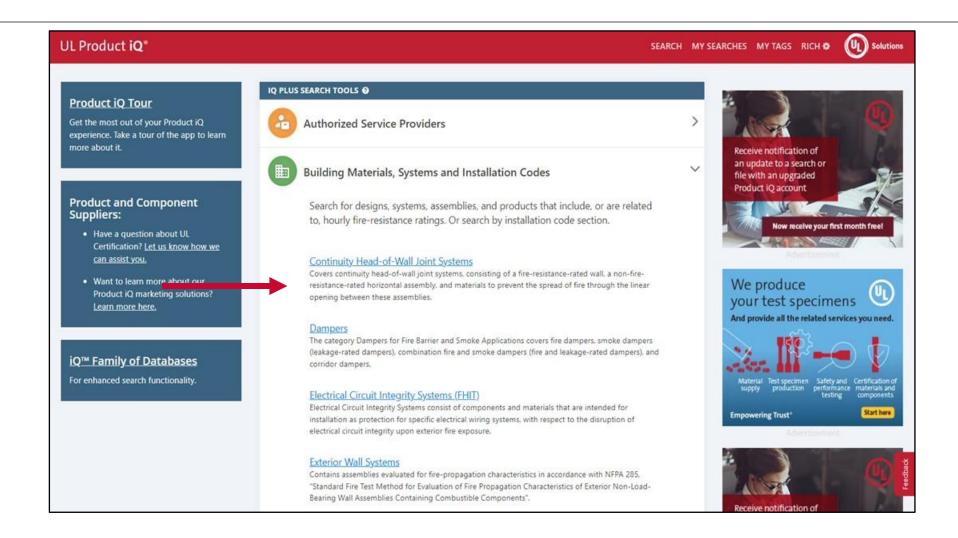


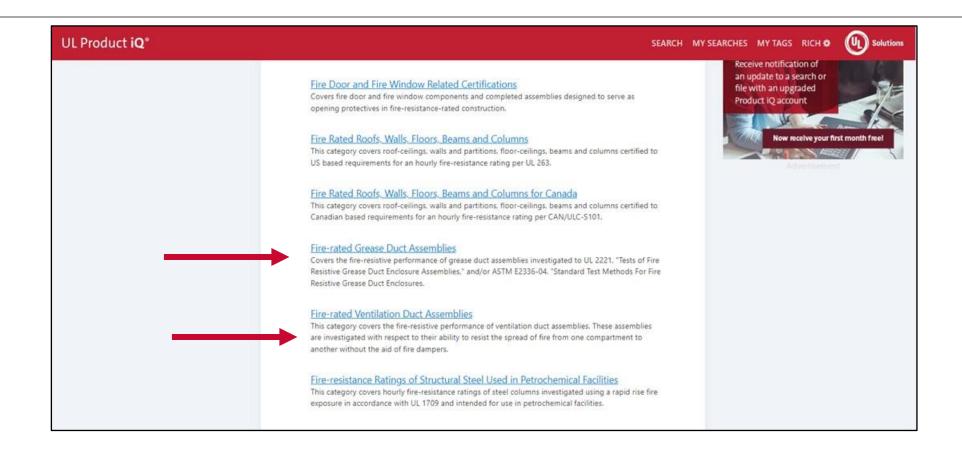
UL Product iQ Cont. iQ Plus Search

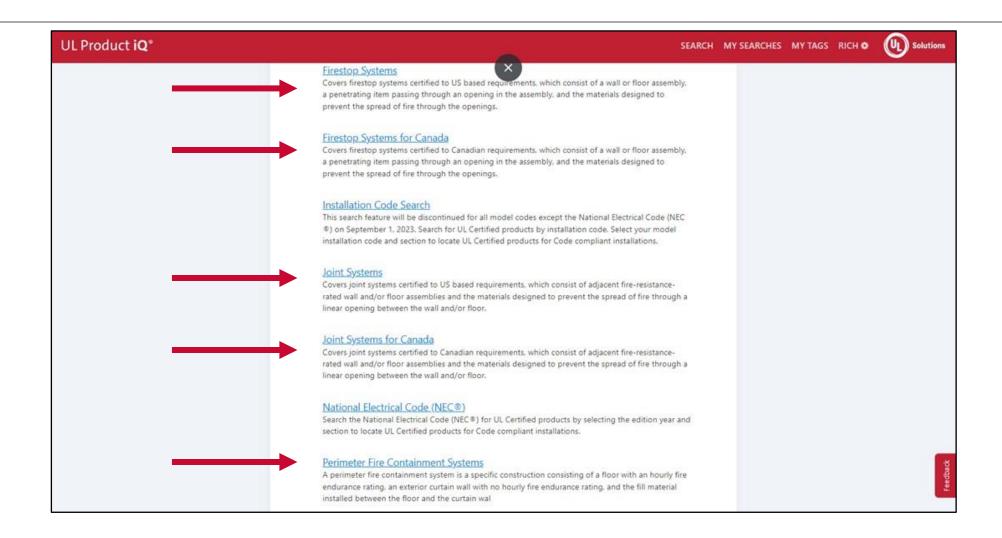


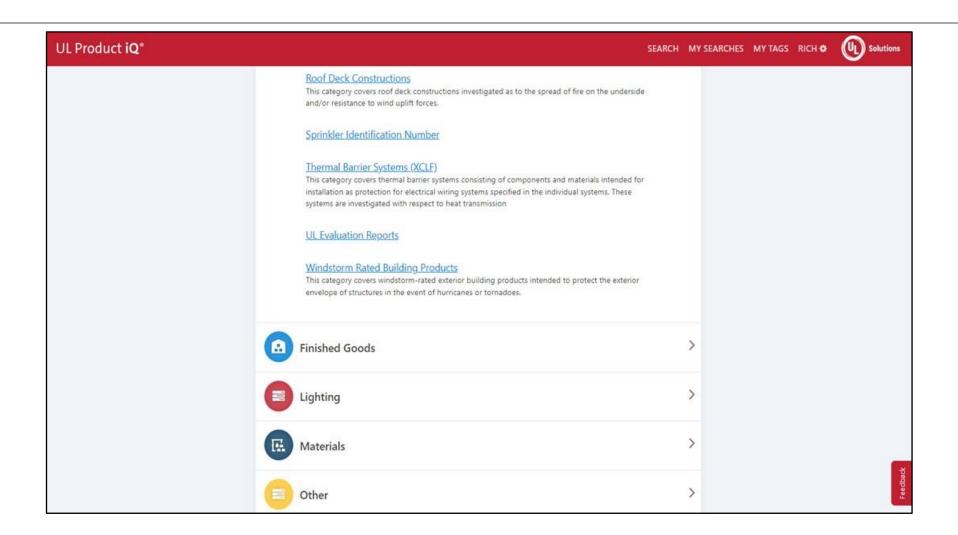
UL Product iQ Cont. iQ Plus Search











UL Product iQ Cont. Access and Reading a Firestop System

Review Live:

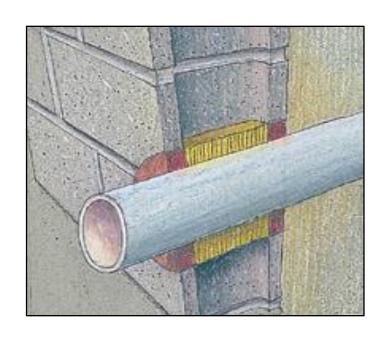
- •U410
- C-AJ-1155
- C-AJ-4036
- C-AJ-8001
- •W-L-2030
- W-L-2154
- •W-L-5001



UL Product iQ Cont. Searching for a System Based on Parameters

- Wall or Floor Construction Type, Rating
- Wall or Floor Thickness
- Penetrating Item, Coverings
- Size, Type, Thickness
- Annular Space, Joint, Breach Sizes
- Packing/Damming/Backing Materials
- Fill Material(s)





UL Product iQ Cont. Searching for a System Based on Parameters

iQ Plus Search under Building Materials and Systems for firestop systems based on specific parameters

- 4-1/2 in. concrete slab floor assembly
- 2 hour rating
- ABS plastic pipe
- Firstopping material supplied by the Specified Technologies Inc.



Live Search:

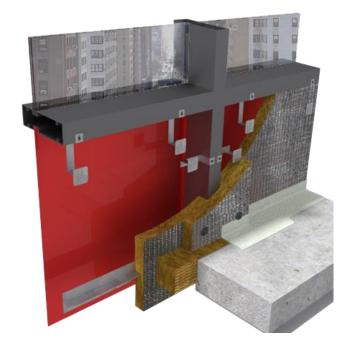
UL Product iQ Cont. Access and Reading a Joint System

- Review Live:
 - •BW-S-0002
 - •FF-D-1001
 - •HW-D-0221



UL Product iQ Cont. Access and Reading a PFC System

- Review Live:
 - •CW-D-1046



Questions??





Thanks for Attending!!!

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