HIGH-PERFORMING FIRESTOP SYSTEMS

Fire-rated wall, floor and ceiling assemblies provide the much-needed barriers to create compartmentalization during a fire. However, these assemblies alone cannot provide total protection. As such, effective firestopping measures that limit flame and smoke spread through penetrations in a fire barrier offer the additional needed protection to keep the structure safe and its occupants safer. For over 100 years, USG has been a leader in developing new products and systems that deliver greater performance, enabling you to create the safe spaces where people live, work and play.

USER’S GUIDE

THIS GUIDE EXPLAINS:
- Where joint and penetration systems are used
- The firestop products offered by USG
- How to select and specify the appropriate firestop system

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OVERVIEW

The intersection where two fire-resistant assemblies meet (for example, a wall to a floor/ceiling assembly) creates a joint through which fire and smoke can spread. To prevent this, fire-resistant construction joint assemblies are installed at these intersections. USG Sheetrock® Brand firestop products can be used at these intersections in many different applications.

While joint tape, joint treatment products, and mortar-type materials may be used in tight, large and static joints where expansion and contraction is not expected, USG Sheetrock® Brand fire- and smoke-resistant caulk-type materials are required for dynamic joints to allow for expansion and contraction.

USG Joint Systems have been evaluated in accordance with ASTM E1966 (UL 2079).

Penetrations occur in building construction, and it is sometimes necessary to pass these penetrants through fire-resistant assemblies. Typically, openings are cut or drilled through the floor or wall, and then the penetrants are installed.

However, this leaves an opening, or annular space, through which fire and smoke can spread. USG Sheetrock® Brand firestop products can be installed within the openings and around the penetrants to prevent the passage of flames and hot gases through a fire-resistant assembly.

USG Through Penetration Systems have been evaluated in accordance with ASTM E814 (UL 1479) and ULC-S115.

These materials are applied wet over the forming materials (where applicable). They then set or harden to form a tough, durable seal. Typically used in static joint systems and around metallic pipe penetrants where strength and economy are required.

These materials are applied from a caulking gun and either dry or cure to form a flexible seal to maintain acoustical control, provide a smoke barrier at the joint, and contribute to the overall fire performance of the assembly. These products are typically used in dynamic joints systems and around metallic penetrants where movement is anticipated and flexibility is a requirement.
USG Firestop Systems consist of special sealants that are caulked, trowelled or poured at joints where assemblies intersect or around a penetrant (for example, pipe or conduit). The sealant maintains the fire-resistant and acoustical rating at the joint of intersecting assemblies and prevents the passage of flame and smoke around penetrants.

**Conventional Wall: Dynamic Head of Wall Joint System**

**Shaft Wall: Dynamic Head of Wall System**

**Conventional Wall: Through Penetration System**
USG Firestop Systems have been comprehensively tested for fire resistance and acoustical ratings. The ratings only apply when all of the specified system components are used together. Substitutions of any of the components are not recommended and are not supported by USG. Refer to the appropriate product safety data sheet for complete health and safety information.

**USG Sheetrock® Brand Firecode® Compound - UL Type FC**
- Provides a strong, durable firestop with exceptional economy
- A dry powder product that is mixed with water at the job site and applied in wet form, and allowed to set or harden
- Mix only what is needed for the application at hand
- Fresh compound bonds to cured compound, simplifying repairs due to construction damage or changes to penetrating items
- Mixes quickly and easily with water at job site
- Once mixed, sets in 2-3 hours and bonds to concrete, metals, wood and cable jacketing without the use of primers
- Dries to a red color easily seen and identified by fire marshals
- Refer to submittal sheet J1521 for more information

**USG Sheetrock® Brand Acoustical Sealant - UL Type AS**
- Reduces sound transmission in partition systems to maintain specified STC values
- Seals spaces at perimeters of partitions or around cutouts
- Easily applied on vertical and horizontal surfaces
- Off-white color, remains flexible when dry
- Maximizes sound attenuation with complete perimeter seal of both faces
- Acrylic water-based caulking material
- Refer to submittal sheet J678 for more information

**USG Sheetrock® Brand Firecode® Smoke-Sound Sealant - UL Type AS**
- Protects against the spread of flame and smoke
- Meets ASTM C834 and fire caulk classified by Underwriters Laboratories LLC (UL)
- Reduces sound transmission in partition systems to maintain specified STC values
- Seals spaces at perimeters of partitions or around cutouts
- Easily applied on vertical and horizontal surfaces
- Red color, remains flexible when dry
- Maximizes sound attenuation with complete perimeter seal of both faces
- Acrylic water-based caulking material
- Refer to submittal sheet J2042 for more information
When you specify USG Firestop Systems, you are selecting one of the most important elements in the building. For that reason, you should choose the system that ensures superior safety and performance.

USG Firestop Systems result from a program of extensive testing and continuous improvements, backed by over 100 years of experience in the building materials industry.

All USG products and systems undergo exhaustive testing to ensure that they meet applicable standards. USG products are classified as to fire resistance and surface flammability. As part of this protocol, UL, an independent organization that has tested products for public safety for over a century, periodically audits production of these materials to ensure compliance with necessary properties.

USG products are also manufactured and tested in accordance with ASTM standards. ASTM International is one of the largest voluntary standards development organizations in the world, and is a trusted source for technical standards for materials, products, systems and services.

USG Firestop Systems are tested in accordance with the following standards:

- **ASTM E84 (UL 723):** Surface Burning Characteristics
- **ASTM E814 (UL 1479) and ULC-S115:** Standard Test Method for Fire Tests of Through-Penetration Fire Stops
- **ASTM E90:** Standard Test Method for Laboratory Measurement of Airborne Sound Transmission Loss of Building Partitions and Elements

### Fire Resistance Test Standard

<table>
<thead>
<tr>
<th>Fire Resistance Test Standard</th>
<th>USG Sheetrock® Brand Firecode® Compound - UL Type FC*</th>
<th>USG Sheetrock® Brand Firecode® Smoke-Sound Sealant - UL Type AS</th>
<th>USG Sheetrock® Brand Acoustical Sealant - UL Type AS</th>
</tr>
</thead>
<tbody>
<tr>
<td>ASTME84 Flame Spread</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ASTME84 Smoke Developed</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>ASTME814</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ASTM E1966</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>ASTM E90</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Note:  
(a) Approved by NYC (MEA 341-92-M) and LA City (RR#25212). Recognized by ICBO (ER-5050). Rated nontoxic in accordance with the sixth draft of the University of Pittsburgh test method and the LC50, calculated using the Weil method.
## UNDERSTAND YOUR SYSTEM

### PERFORMANCE TESTING

**Code Requirements**

U.S. model building codes require that the gap at the slab edge/curtain wall interface be treated to maintain the same fire integrity as the floor/ceiling. The life-safety fire containment systems have been tested (UL Systems CW-S-1001, CW-S-2001 and CW-S-2002) and accepted or recognized (ICBO ER-2331, California State Fire Marshal, OSHPD) as preventing the passage of flame at the interface for the classification period. See Performance Selector in this guide for more information on fire resistance.

### Framing Type

<table>
<thead>
<tr>
<th>Framing Type</th>
<th>Exterior Finish</th>
<th>Owens Corning ThermalFiber® FireSpan® 90 Mineral Wool Insulation Thickness</th>
<th>USG Sheetrock® Brand Firecode® Compound Thickness</th>
<th>Maximum Linear Opening Width</th>
<th>Integrity Rating Hr.</th>
<th>Insulation Rating Hr.</th>
<th>UL System Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel Studs</td>
<td>Conventional Exterior Finish</td>
<td>3&quot;</td>
<td>4&quot;</td>
<td>1&quot;</td>
<td>2-1/2&quot;</td>
<td>2</td>
<td>45 min.</td>
</tr>
<tr>
<td>Aluminum Mullions</td>
<td>Spandrel Glass</td>
<td>2&quot;</td>
<td>4&quot;</td>
<td>1&quot;</td>
<td>8&quot;</td>
<td>2</td>
<td>45 min.</td>
</tr>
<tr>
<td>Aluminum Mullions</td>
<td>Spandrel Aluminum</td>
<td>2&quot;</td>
<td>4&quot;</td>
<td>1&quot;</td>
<td>8&quot;</td>
<td>2</td>
<td>45 min.</td>
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</tbody>
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### Approximate Coverage Rates

**USG Sheetrock® Brand Firecode® Compound**

<table>
<thead>
<tr>
<th>Dry Powder Compound (lb.)</th>
<th>Approx. Water Additions (pt.)</th>
<th>Approx. Volume of Applied Firestop (cu. in.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5</td>
<td>33.6</td>
</tr>
<tr>
<td>5</td>
<td>2.5</td>
<td>172.5</td>
</tr>
<tr>
<td>7.5</td>
<td>3.8</td>
<td>257.6</td>
</tr>
<tr>
<td>10</td>
<td>5.0</td>
<td>344.9</td>
</tr>
<tr>
<td>15</td>
<td>7.5</td>
<td>517.4</td>
</tr>
</tbody>
</table>

**USG Sheetrock® Brand Acoustical Sealant, USG Sheetrock® Brand Firecode® Smoke-Sound Sealant**

<table>
<thead>
<tr>
<th>Gallon</th>
<th>29 oz. Cartridge</th>
</tr>
</thead>
<tbody>
<tr>
<td>1/4&quot; bead</td>
<td>3/8&quot; bead</td>
</tr>
<tr>
<td>392 ft.</td>
<td>174 ft.</td>
</tr>
<tr>
<td>1/2&quot; bead</td>
<td>1/2&quot; bead</td>
</tr>
<tr>
<td>98 ft.</td>
<td>89 ft.</td>
</tr>
<tr>
<td>1/4&quot; bead</td>
<td>3/8&quot; bead</td>
</tr>
<tr>
<td>40 ft.</td>
<td>22 ft.</td>
</tr>
</tbody>
</table>

**Note**

(b) Based on approximately 7.5 pints of water per 15 lb. bag for wall penetrations. For floor penetrations, approximately 8.3 pints of water per 15 lb. bag is recommended and yields approximately 537 cu. in. of applied firestop.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

1-HR HEAD OF WALL UL HW-S-0009

- Underside structural slab.
- Completely fill gap above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Mineral wool.
- Ceiling head and relief track.
- 5/8" Type X Gypsum Panels, Cut 1/2" Max. from top of partition, thickness per architect.

2-HR HEAD OF WALL UL HW-S-0032 PERPENDICULAR TO DECK FLUTES

- Underside of structural slab.
- Completely fill gap above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Track stud.
- 5/8" Type X Gypsum Panels, Cut 1/2" Max. from top of partition, thickness per architect.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR HEAD OF WALL UL HW-S-0001 PERPENDICULAR TO DECK FLUTES

- Underside of composite structural slab.
- USG Sheetrock® Brand Firecode® Compound min. 1/2" (12.5) thick.
- Mineral wool.
- Track stud.
- 5/8" Type X gypsum panels, butt tight to underside of steel deck, thickness per architect.

2-HR HEAD OF WALL UL HW-S-0010

- Underside structural slab.
- Completely fill gap above gypsum panels with USG Sheetrock® Brand Acoustical or Smoke-Sound Sealant.
- Mineral wool.
- Ceiling head and relief track.
- 5/8" Type X gypsum panels, cut 1/2" max. from top of partition, thickness per architect.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR HEAD OF WALL UL HW-S-0035 PERPENDICULAR TO DECK FLUTES

- Underside of Composite Structural Slab
- Completely fill gap above gypsum panels with USG Sheetrock® Brand Acoustical or Smoke-Sound sealant
- Mineral wool
- Track stud

5/8" Type X Gypsum panels, cut 1/2" max. from top of partition. Thickness per architect.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

1-HR HEAD OF WALL UL HW-D-0001 PERPENDICULAR TO DECK FLUTES

- MIN. 1/2" [13] THICK USG SHEETROCK® BRAND FIRECODE® BRAND COMPOUND.
- MINERAL WOOL.
- RESTRaining ANGLE LINED WITH GYPSUM BOARD, MATCHING PARTITION BELOW.
- FASTENERS TO BE SET FLUSH ON DRYWALL SIDE.
- TRACK STuD.
- 5/8" TYPE X GYPSUM PANELS, REFERENCE UL HW-D-0001 FOR JOINT WIDTH INFORMATION.

2-HR HEAD OF WALL UL HW-D-0002 PERPENDICULAR TO DECK FLUTES

- MIN 1/2 IN. [13] THK. USG SHEETROCK® BRAND FIRECODE® COMpOUND.
- MINERAL WOOL.
- RESTRaining ANGLE LINED WITH GYPSUM BOARD MATCHING PARTITION BELOW.
- FASTENERS TO BE SET FLUSH ON DRYWALL SIDE.
- TRACK STuD.
- 5/8" TYPE X GYPSUM PANELS, REFERENCE UL HW-D-0002 FOR JOINT WIDTH INFORMATION.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

### 1-HR HEAD OF WALL UL HW-D-0001 PARALLEL TO DECK FLUTES

- Mineral Wool
- Perforated metal plate, span between flutes, reference HW-D-0001 for more information.
- Restraining angle lined with gypsum board, matching partition below.
- Fasteners to be set flush on drywall side.
- Track stud.
- 5/8” Type X gypsum panels, reference UL HW-D-0001 for joint width information.

### 2-HR HEAD OF WALL UL HW-D-0002 PARALLEL TO DECK FLUTES

- Mineral Wool
- Perforated metal plate, span between flutes, reference HW-D-0001 for more information.
- Restraining angle lined with gypsum board matching partition below.
- Fasteners to be set flush on drywall side.
- Track stud.
- 5/8” Type X gypsum panels, reference UL HW-D-0002 for joint width information.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

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2-HR HEAD OF WALL UL HW-D-0262 PARALLEL TO DECK FLUTES

- Underside of structural slab.
- Completely fill gap above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Mineral wool firmly packed into the flutes of the steel deck.
- Track stud.
- 5/8" type X gypsum panels, cut 5/8" max. from top of partition.

---

2-HR HEAD OF WALL UL HW-D-0262 PERPENDICULAR TO DECK FLUTES

- Underside of structural slab.
- Completely fill gap above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Track stud.
- 5/8" type X gypsum panels, cut 5/8" from top of partition max.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR HEAD OF WALL UL HW-D-0626

- STRUCTURAL SLAB.
- STEEL BEAM WITH FIREPROOFING.
- Z-CLIPS.
- COMPLETELY FILL GAP ABOVE GYPSUM PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.
- TRACK STUD.
- 5/8" TYPE X GYPSUM PANELS, CUT 5/8" MAX. FROM TOP OF PARTITION.

2-HR HEAD OF WALL UL HW-D-0627

- STRUCTURAL SLAB.
- STEEL BEAM WITH FIREPROOFING.
- COMPLETELY FILL GAP ABOVE GYPSUM PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.
- TRACK STUD.
- 5/8" TYPE X GYPSUM PANELS, CUT 5/8" MAX. FROM TOP OF PARTITION.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR HEAD OF WALL UL HW-D-0628

STEEL PLATE, EXTEND FIRE PROOFING FROM STEEL BEAM ONTO PLATE.

STRUCTURAL SLAB.

STEEL BEAM WITH FIREPROOFING REFERENCE STRUCTURAL DRAWINGS FOR BEAM SIZE AND FIREPROOFING THICKNESS.

COMPLETELY FILL GAP ABOVE GYPSUM PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.

LAP SEALANT 1/2" BELOW TOP OF GYPSUM PANELS (BOTH SIDES), TRACK STUD.

5/8" TYPE X GYPSUM PANELS, CUT 5/8" MAX. FROM UNDERSIDE OF PROTECTED STEEL PLATE.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR HEAD OF WALL UL HW-D-0603

1" GYPSUM LINER PANEL.

5/8" TYPE X GYPSUM PANELS, THICKNESS PER ARCHITECT.

COMpletely fill gap at gypsum panels with usg sheetrock® brand acoustical or smoke-sound sealant.

structural slab.

1/2" [13] MAX.

1" [25] MAX.

5/8" [16] MAX.

completely fill gap above liner panels and above gypsum panels with usg sheetrock® brand acoustical or smoke-sound sealant.

j-runner.

5/8" type x gypsum panels, cut 5/8" from top of partition max., thickness per architect.

1" gypsum liner panel, cut top of panel 1" less than floor-to-ceiling height, typical.

2-HR HEAD OF WALL UL HW-D-0613

mineral wool

steel strap 2".

5/8" type x gypsum panel.

j-runner.

5/8" [16] MAX.

underside of composite structural slab.

completely fill 5/8" gap with usg sheetrock® brand acoustical or smoke-sound sealant.

completely fill 1" gap above liner panels with usg sheetrock® brand acoustical or smoke-sound sealant.

1" gypsum liner panel, cut top of panel 1" max. less than floor-to-ceiling height.

5/8" type x gypsum panels, cut 5/8" from top of partition max.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

**HEAD OF WALL UL HW-D-0609 (1-HR AND 2-HR)**

- Structural slab.
- Steel beam with fireproofing.
- Z-clips.
- Completely fill gap above liner panels and above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- J-runner.
- 1" gypsum liner panel, cut top of panel 1" less than floor-to-ceiling height, typical.
- 5/8" Type X gypsum panels, cut 5/8" from top of partition max. thickness per architect.

**HEAD OF WALL UL HW-D-0610 (1-HR AND 2-HR)**

- Structural slab.
- Steel beam with fireproofing.
- Completely fill 1" gap above liner panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Completely fill 5/8" gap with USG Sheetrock® brand acoustical or smoke-sound sealant.
- J-runner.
- 1" gypsum liner panel, cut top of panel 1" less than floor-to-ceiling height.
- 5/8" Type X gypsum panels, cut 5/8" from top of partition.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

HEAD OF WALL UL HW-D-0611 (1-HR AND 2-HR)

STEEL PLATE, EXTEND FIRE PROOFING FROM STEEL BEAM ONTO PLATE.

STRUCTURAL SLAB.

STEEL BEAM WITH FIREPROOFING REFERENCE STRUCTURAL DRAWINGS FOR BEAM SIZE AND FIREPROOFING THICKNESS.

J-RUNNER.

COMPLETELY FILL 5/8" GAP WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.

COMPLETELY FILL 1" GAP ABOVE LINER PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.

T" GYPSUM LINER PANEL, CUT TOP OF PANEL 1" LESS THAN UNDERSIDE OF PROTECTED STEEL PLATE.

5/8" TYPE X GYPSUM PANELS, CUT 5/8" FROM UNDERSIDE OF PROTECTED STEEL PLATE.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR HEAD OF WALL ADJACENT TO BEAM

- Complete fill gap above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Cut drywall short of structural deck by 5/8”.
- Track stud.
- 5/8” Type X gypsum panels, cut 5/8” max. from top of partition.
- Underside of structural slab.
- Fill cavity with mineral wool.
- Steel beam with fire proofing.
- Continuous 20-gauge angle, fasten to studs.
- 5/8” Type X gypsum panels, cut 5/8” max. from top of partition.

2-HR HEAD OF WALL AT BEAM

- Complete fill gap above gypsum panels with USG Sheetrock® brand acoustical or smoke-sound sealant.
- Track stud.
- Mineral wool.
- 5/8” Type X gypsum panels, cut 5/8” max. from top of partition.

SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

2-HR SHAFTWALL AT BEAM

1" GYPSUM LINER PANEL.

5/8" TYPE X GYPSUM PANELS.

STRUCTURAL SLAB.

COMPLETELY FILL GAP ABOVE LINER PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE- SOUND SEALANT.

J-RUNNER.

1" GYPSUM LINER PANEL, CUT TOP OF PANEL 1" LESS THAN FLOOR-TO-CEILING HEIGHT.

5/8" TYPE X GYPSUM PANELS, INSTALL FLUSH TO UNDERSIDE OF STRUCTURAL SLAB.

6" [150] MAX.

CONTINUOUS 20-GAUGE ANGLE, FASTEN TO STUDS.

MINERAL WOOL.

STEEL BEAM & FIREPROOFING.

2-HR SHAFTWALL ADJACENT TO BEAM

UNDERSIDE OF STRUCTURAL SLAB.

COMPLETELY FILL GAP ABOVE GYPSUM PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.

J-RUNNER.

1" [25] MAX.

COMPLETELY FILL GAP ABOVE LINER PANELS WITH USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT.

1" GYPSUM LINER PANEL, CUT TOP OF PANEL 1" LESS THAN FLOOR-TO-CEILING HEIGHT, TYPICAL.

MINERAL WOOL.

5/8" TYPE X GYPSUM PANELS.

5/8" [16] MAX.

5/8" TYPE X GYPSUM PANELS, CUT 5/8" MAX. LESS FLOOR-TO-BEAM HEIGHT.

5/8" TYPE X GYPSUM PANELS.
# PENETRATION FIRESTOP SYSTEMS

## PERFORMANCE SELECTOR

### STEEL/IRON METALLIC

<table>
<thead>
<tr>
<th>Penetrating Item and Diameter</th>
<th>Floor, Roof or Wall Type</th>
<th>Firestopping Material Min. Depth</th>
<th>Forming Material</th>
<th>Annular Space</th>
<th>Rating</th>
<th>UL System Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Steel or iron pipe up to 6&quot;</td>
<td>CW, CF</td>
<td>1&quot; Type AS</td>
<td>3-1/2&quot;, min. 4 pcf</td>
<td>3/8&quot;</td>
<td>3/4&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Steel or iron pipe up to 6&quot;</td>
<td>CW, CF</td>
<td>2&quot; Type AS</td>
<td>2-1/2&quot;, min. 4 pcf</td>
<td>3/8&quot;</td>
<td>3/4&quot;</td>
<td>3</td>
</tr>
<tr>
<td>Steel or iron pipe up to 24&quot;</td>
<td>CW, CF</td>
<td>1&quot; Type FC</td>
<td>3&quot;, min. 4 pcf</td>
<td>1/4&quot;</td>
<td>1-15/16&quot;</td>
<td>3</td>
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<tr>
<td>Steel or iron pipe up to 4&quot;</td>
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<tr>
<td>Steel or iron pipe up to 4&quot;</td>
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<th>Penetrating Item and Diameter</th>
<th>Floor, Roof or Wall Type</th>
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<th>UL System Number</th>
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<td>3&quot;, min. 4 pcf</td>
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# PENETRATION FIRESTOP SYSTEMS

**PERFORMANCE SELECTOR**

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<thead>
<tr>
<th>Penetrating Item and Diameter</th>
<th>Floor, Roof or Wall Type</th>
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<th>Forming Material</th>
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<th>Rating</th>
<th>UL System Number</th>
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**Codes for Type of Floor, Roof or Wall:**
- CF—Concrete Floor
- CW—Concrete Wall
- FSD—Fluted Steel Deck
- GW—Gypsum Wall
- WF—Wood Floor

**Codes for Firestopping Material:**
- Type AS—USG Sheetrock® Brand Acoustical Sealant and USG Sheetrock® Brand Firecode® Smoke-Sound Sealant
- Type FC—USG Sheetrock® Brand Firecode® Compound
SELECT YOUR SYSTEM

PENETRATION FIRESTOP SYSTEMS

SYSTEM DETAILS

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

**WALLS**

**SYSTEM NO. W-L-1087**  F-RATING 1-HR/ T-RATING 0- AND 1-HR

- **WALL ASSEMBLY.**
- **5/8" TYPE X GYPSUM PANELS.**
- **USG SHEETROCK® BRAND FIRECODE® COMPOUND, 5/8" [16] MIN., OVERLAP DRYWALL BY 1" [25] MIN.**
- **PIPE COVERING AND THROUGH PENETRATION.**

**SYSTEM NO. W-L-1027**  F-RATING 2-HR/ T-RATING 0-HR

- **WALL ASSEMBLY.**
- **5/8" TYPE X GYPSUM PANELS.**
- **USG SHEETROCK® BRAND FIRECODE® COMPOUND, 1" [25] MIN. THICKNESS.**
- **PIPE COVERING AND THROUGH PENETRATION.**
- **MINERAL WOOL.**
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

SYSTEM NO. W-L-1039  F-RATING 1-HR/T-RATING 0- AND 1-HR

- WALL ASSEMBLY.
- 5/8" TYPE X GYPSUM PANELS.
- USG SHEETROCK® BRAND FIRECODE® COMPOUND, 1/2" (12) MIN. THICKNESS.
- PIPE COVERING AND THROUGH PENETRATION.
- MINERAL WOOL.

SYSTEM NO. W-L-1064  F-RATING 2-HR/T-RATING 0-HR

- WALL ASSEMBLY.
- 5/8" TYPE X GYPSUM PANELS.
- USG SHEETROCK® BRAND FIRECODE® COMPOUND OR USG SHEETROCK® BRAND ACOUSTICAL OR SMOKE-SOUND SEALANT, 1" (25) MIN. THICKNESS.
- PIPE COVERING AND THROUGH PENETRATION.
- MINERAL WOOL.
SELECT YOUR SYSTEM

Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

SYSTEM NO. C-AJ-1081  F-RATING 2- AND 3-HR/T-RATING 0-HR

THROUGH PENETRATION.
USG SHEETROCK® BRAND FIRECODE®
COMPOUND MIN. 1" [25] THICKNESS.

FLOOR ASSEMBLY.

METALLIC SLEEVE WHERE SPECIFIED.
MINERAL WOOL.

SYSTEM NO. C-AJ-1020  F-RATING 3-HR/T-RATING 1-HR

THROUGH PENETRATION.
USG SHEETROCK® BRAND FIRECODE®
COMPOUND MIN. THICKNESS 1" [25].

FLOOR ASSEMBLY.
MINERAL WOOL.

METALLIC SLEEVE WHERE SPECIFIED.

THROUGH PENETRATION.
USG SHEETROCK® BRAND ACOUSTICAL OR
SMOKE-REPELLENT SEALANT, MIN. THICKNESS
PER UL C-AJ-1020.

FLOOR ASSEMBLY.

METALLIC SLEEVE WHERE SPECIFIED.

THROUGH PENETRATION.
USG SHEETROCK® BRAND ACOUSTICAL OR
SMOKE-REPELLENT SEALANT, MIN. THICKNESS
PER UL C-AJ-1020.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

SYSTEM NO. C-AJ-0032  F-RATING 2-HR AND 3-HR/T-RATING 0- AND 1-HR

USG SHEETROCK® BRAND FIRECODE® COMPOUND, MIN. 1” [25] THICKNESS.
FLOOR ASSEMBLY.

METALLIC SLEEVE WHERE SPECIFIED.
MINERAL WOOL.

METALLIC SLEEVE WHERE SPECIFIED.
USG SHEETROCK® BRAND FIRECODE® COMPOUND, MIN. 1” [25] THICKNESS.
Reference the UL Online Certifications Directory at ul.com for the most up-to-date information, material designations, thicknesses and fire ratings.

**SYSTEM NO. CW-S-2001 AND CW-S-2002**

- **Building Enclosure Per Architect.**
- **2” Thick Mineral Wool, Pin to Spandrel Panel, Covering All Curtain Wall Connections.**
- **Exterior Wall Spandrel Panel (Heat Strengthened Glass CW-S-2001 or Aluminum Panels CW-S-2002).**
- **USG Sheetrock® Brand Firecode® Compound, Min. 1” [25] Thickness.**
- **Z-Clip.**
- **Spandrel Panel Support.**
- **Mineral Wool.**
- **2” Thick Mineral Wool, Pin to Spandrel Panel, Covering All Curtain Wall Connections.**
- **2” Thick Foil-Faced or Unfaced Mineral Wool, Pinned to Spandrel Angles.**

**SYSTEM NO. CW-S-1001**

- **5/8” Type X Gypsum Panels.**
- **5/8” USG Sheetrock® Brand Glass-Mat or USG Durock® Brand Cement Board Panels.**
- **Exterior Wall System.**
- **USG Sheetrock® Brand Firecode® Compound, Min. 1” [25] Thickness.**
- **Z-Clip.**
- **Mineral Wool.**
- **3” Thick Foil-Faced Owens Corning Thermafiber® Firespan® 90 Mineral Wool, Friction Fit.**
- **Steel Strut.**
- **5/8” Type X Gypsum Panels.**
- **Min. 3 5/8” 20-Gauge Steel Studs.**
GOOD DESIGN PRATICES

This section is an overview of good design, application, installation and safety concerns that should be addressed when USG products and systems are used. It outlines some major issues, but is not intended to be a comprehensive review. No attempt is made at completeness.

We recommend that architects and contractors seek the assistance of safety professionals, especially at the professional construction site, because there are many factors to consider that are not included here. For more information on safety and material handling, please refer to Chapter 13 in *The Gypsum Construction Handbook* or visit usg.com for more information.

SYSTEM PERFORMANCE
United States Gypsum Company conducts tests on products and systems to meet performance requirements of established test procedures specified by various agencies. Upon written request we will provide test certification for published fire, structural and other pertinent data covering systems designed and constructed according to our published specifications. Substitutions of any of the components are not recommended and are not endorsed by the United States Gypsum Company.

ADDITIONAL INFORMATION
For specific product information, contact your local USG representative or call USG Technical Service at 800 USG.4YOU (874-4968).

FLOOR/CEILING APPLICATIONS
USG Firestop Systems installed in floor/ceiling applications are not designed to support loads from pedestrian or vehicular traffic.

STORAGE
USG Sheetrock® Brand Acoustical Sealant and USG Sheetrock® Brand Firecode® Smoke-Sound Sealant can be stored up to one year in unopened containers in dry areas. Store sealants between temperature of 41°F (5°C) and 80°F (26.7°C). Protect from freezing.

USG Sheetrock® Brand Firecode® Compound can be stored up to nine months in unopened containers in dry areas and under good storage conditions. Protect from freezing.
APPLICATION GUIDE
SPECIFICATIONS

This guide specification is provided to assist in specification of USG Firestopping Construction Joints and Penetration Systems. If you have additional questions or would like more information regarding this or other USG products and systems, contact your local USG representative or call USG Technical Service at 800 USG.4YOU (874-4968).

PART 1: GENERAL

1. SCOPE
Specify to meet requirements.

1. QUALIFICATIONS
All materials described in this folder, manufactured by or for United States Gypsum Company, shall be installed in accordance with their printed directions.

1. DELIVERY AND STORAGE OF MATERIALS
All materials shall be delivered in their original unopened packages and stored in an enclosed shelter providing protection from damage and exposure to the elements. Damaged or deteriorated materials shall be removed from the premises.

1. ENVIRONMENTAL CONDITIONS
In cold weather, installation of firestopping products shall not begin until the building is enclosed, with permanent heating and cooling in operation. Maintain minimum temperature of 55°F within the building during and after installation for USG Sheetrock® Brand Firecode® Compound, USG Sheetrock® Brand Acoustical Sealant and USG Sheetrock® Brand Smoke-Sound Sealant.

Adequate ventilation shall be provided to carry off excess moisture. Not to be applied to moist or contaminated surfaces or areas continuously immersed in water.

All installed USG Sheetrock® Brand firestop products should not be exposed to continuous operating temperatures above 125°F.

PART 2: MATERIALS

2. MATERIALS

A. Firestopping
1. USG Sheetrock® Brand Firecode® Compound: Available in 15 lb. (6.8 kg) bag
2. USG Sheetrock® Brand Smoke-Sound Sealant: Available in 29 oz. (858 ml) cartridge
3. USG Sheetrock® Brand Acoustical Sealant: Available in 29 oz. (858 ml) cartridge and 5 gal. (20 L) pail
PART 3: EXECUTION

INSULATION APPLICATION
Ensure all surfaces are dry and clean of dirt, dust, grease, oil, efflorescence, loose material or other matter. With a serrated knife, cut nominal 4 lb./cu. ft. mineral wool insulation slightly wider than the opening. Compress and tightly fit minimum insulation thickness per system specifications.

FIRESTOPPING SEALANT APPLICATION

A. Trowel and Caulk Gun Application
For through wall penetrations where piping is installed either concentrically or eccentrically within a cylindrical sleeve, the design professional shall specify a spacer, packing material or backer rod that is compatible/nonreactive with both the cylindrical outer sleeve and the pipe material. The spacer and packing material (or backer rod) shall also serve the function of preventing the pipe from contacting the outer sleeve.

In through wall penetrations where pipe is placed within a protective sleeve and sealant is placed in the annular space between the pipe and the sleeve, the sleeve must be vented to allow proper curing of the sealant.

For all other joints, the sealant application should be specified by a design professional who should give consideration to using a backer rod or bond tape where the gap exceeds 5/8 in. In joints too shallow to accept a backer rod, use a bond breaker tape to prevent three-sided adhesion.

SEALANT LIMITATIONS
1. Not to be applied to moist areas where frost or condensation is present or in direct contact with water.
2. Protect container from freezing and extreme heat.
3. Maintain 55°F (13°C) minimum temperature within the building during and after installation.
4. Product should be stored at a temperature neither below 41°F (5°C) nor exceeding 80°F (26.7°C).
5. Not to be used in applications where the surrounding materials (partitions, floors, penetrations, etc.) will exceed sustained temperatures of 125°F.
6. Not for use with CPVC or PVC products; consult with manufacturers for compatibility.
7. Not intended to be painted. Sealant will shrink during curing process.
8. Do not apply USG Sheetrock® Brand Acoustical Sealant in areas where abuse or abrasion of the sealant is likely.
9. There may be discoloration of sealant when in contact with certain types of metal such as copper.