

# Shaftwall & Stairwell Systems

Fire protection & sound isolation for shafts & stairwells



**PABCO® Gypsum**

what the job demands™

# Shaftwall & Stairwell Systems

## Fire protection & sound isolation systems for elevator shafts, stairwells & other shafts

Shaftwall systems are key components to multi-story buildings' safety systems; preventing fire from entering elevator shafts and provide egress through stairwells should an emergency evacuation become necessary. Though these systems are non-load bearing, they are designed to provide strength necessary to withstand lateral loads and needed fire protection. Gypsum Shaftwall & stairwell systems use a 1" thick shaftwall panel. PABCO® Gypsum produces 3 shaftwall products that can be used in these systems that allow you the flexibility to choose the type of features that the job demands.

Gypsum Shaftwall systems have replaced traditional masonry due to several advantages: lightweight assembly, thinner walls, ease and speed of installation from a single side—no need for scaffolding within the shaft, and a cost effective solution.

## PABCO® Gypsum Shaftwall Products

| Product                                                                                                                            | Thickness   | Width       | Length                                      | Edge Type      | Weight                  | Mold Resistance (ASTM D 3273) | ASTM Standard | UL Core Type |
|------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|---------------------------------------------|----------------|-------------------------|-------------------------------|---------------|--------------|
| <b>1" PABCORE® Shaftliner, Type X</b><br>         | 1" (25.4mm) | 24" (610mm) | 8' (2428mm)<br>10' (3048mm)<br>12' (3658mm) | Double Beveled | 4.1 lbs/ft <sup>2</sup> | N/A                           | C 1396        | PG-10        |
| <b>1" MOLD CURB® Plus Shaftliner, Type X</b><br> | 1" (25.4mm) | 24" (610mm) | 8' (2428mm)<br>10' (3048mm)<br>12' (3658mm) | Double Beveled | 4.1 lbs/ft <sup>2</sup> | 10 (Highest Rating)           | C 1396        | PG-10        |
| <b>1" PABCO GLASS® Shaftliner, Type X</b><br>    | 1" (25.4mm) | 24" (610mm) | 8' (2428mm)<br>12' (3658mm)                 | Double Beveled | 4.1 lbs/ft <sup>2</sup> | 10 (Highest Rating)           | C 1658        | PG-10        |

## Other PABCO® Gypsum Products used in Shaftwall Assemblies

| Product                         | Thickness     | Width       | Length                                                     | Edge Type | Weight                  | Mold Resistance (ASTM D 3273) | ASTM Standard | UL Core Type |
|---------------------------------|---------------|-------------|------------------------------------------------------------|-----------|-------------------------|-------------------------------|---------------|--------------|
| <b>1/2" FLAME CURB® Super C</b> | 1/2" (12.7mm) | 4' (1219mm) | 8' (2428mm)<br>9' (2743mm)<br>10' (3048mm)<br>12' (3658mm) | Tapered   | 2.0 lbs/ft <sup>2</sup> | N/A                           | C 1396        | PG-C         |
| <b>5/8" FLAME CURB® Type C</b>  | 5/8" (15.8mm) | 4' (1219mm) | 12' (3658mm)                                               | Tapered   | 2.4 lbs/ft <sup>2</sup> | N/A                           | C 1396        | Type C       |

## 2 Hour C-T or C-H Shaftwall and Stairwell Systems

### Installation Procedures

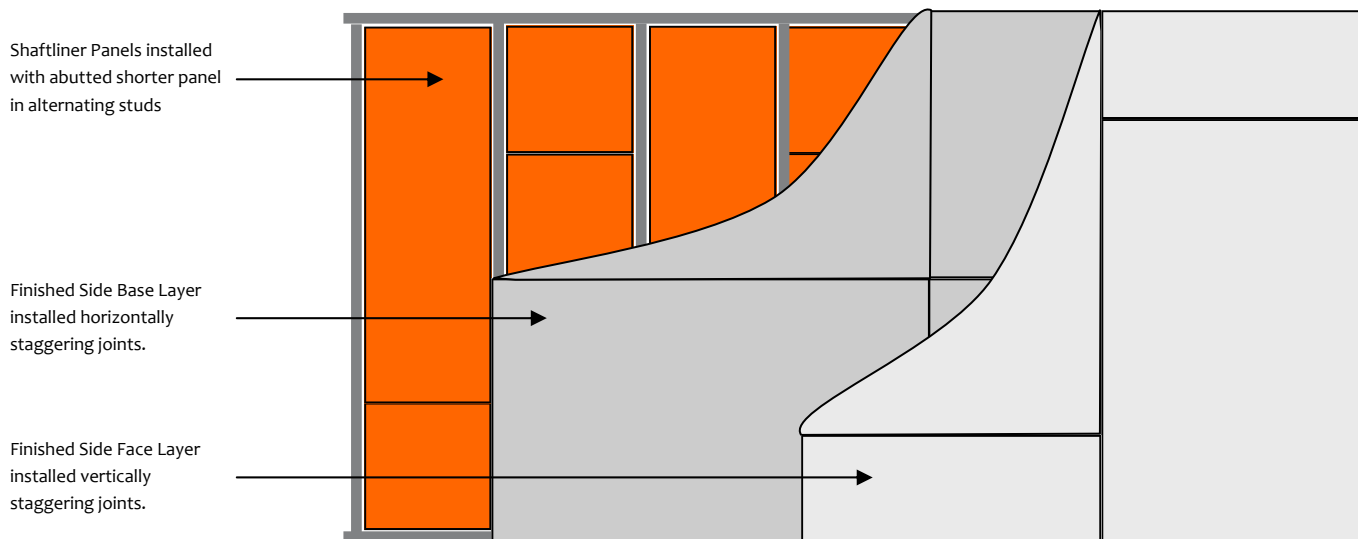


**C-T Stud &  
J-Tabbed Track**

1. Layout per construction drawings. Secure J-Track as a perimeter framing on floor, sides and ceiling; plumb to ceiling. Attach suitable fasteners 24" o.c. maximum. Apply a bead of flexible sealant to the perimeter.
2. Pre-plan the stud layout 24" o.c. and adjust the spacing at either end so that the terminal stud will not fall closer than 8" from the end.
3. Erect the first PABCORE® Shaftliner or PABCO GLASS® Shaftliner panel (cut  $\frac{3}{4}$ " to 1" less than the total height of wall) by inserting between the flanges of the top and bottom J-Track at one end of the wall. Plumb the pane against the web of the J-Track and secure panel with bent out tabs in the track or with 1-5/8" Type S screws 12" o.c. into the wide flange of the track.
4. Fit the C-T or C-H Stud (cut  $\frac{3}{4}$ " less than the overall height of the wall) to the edge of the previously installed PABCORE® or PABCO GLASS® Shaftliner panel; allow equal clearance at top and bottom.
5. Install the next Shaftliner panel inside the J-Track and within the tabs of the C-T or C-H Stud. Secure all Shaftliner panels, top and bottom with either tabs in J-Track or with 1-5/8" screws midway between studs.
6. Progressively install succeeding C-T or C-H Stud and Shaftliner panels as described above until wall section is completed. Secure the end panel to the side J-Track with Tabs of 1-5/8" screws 12" o.c.

#### Notes:

- Where wall heights exceed the available length of the PABCORE® Shaftliner or PABCO GLASS® Shaftliner panel, the panels may be cut and stacked with joints occurring within the top or bottom third of the wall. The shorter panel should be a minimum of 24" length, or sufficient to engage two stud tabs on each panel edge. Horizontal joints must be staggered alternating from top to bottom to avoid adjacent horizontal joints.
- For Doors, Ducts or other large penetrations or openings, install J-Track as perimeter framing as detailed. Use 20-gauge track with longer leg for elevator doors and block (fill) cavity with 12" wide gypsum filler strips for doors exceeding 7' 0" in height.
- Designs allow the use of J-Track or J-Tabbed Track



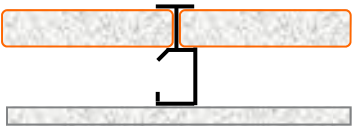
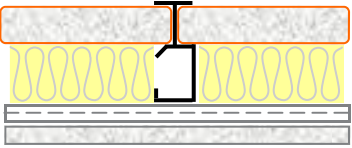
**Wall Assembly diagram of 2-Hour Shaftwall System**

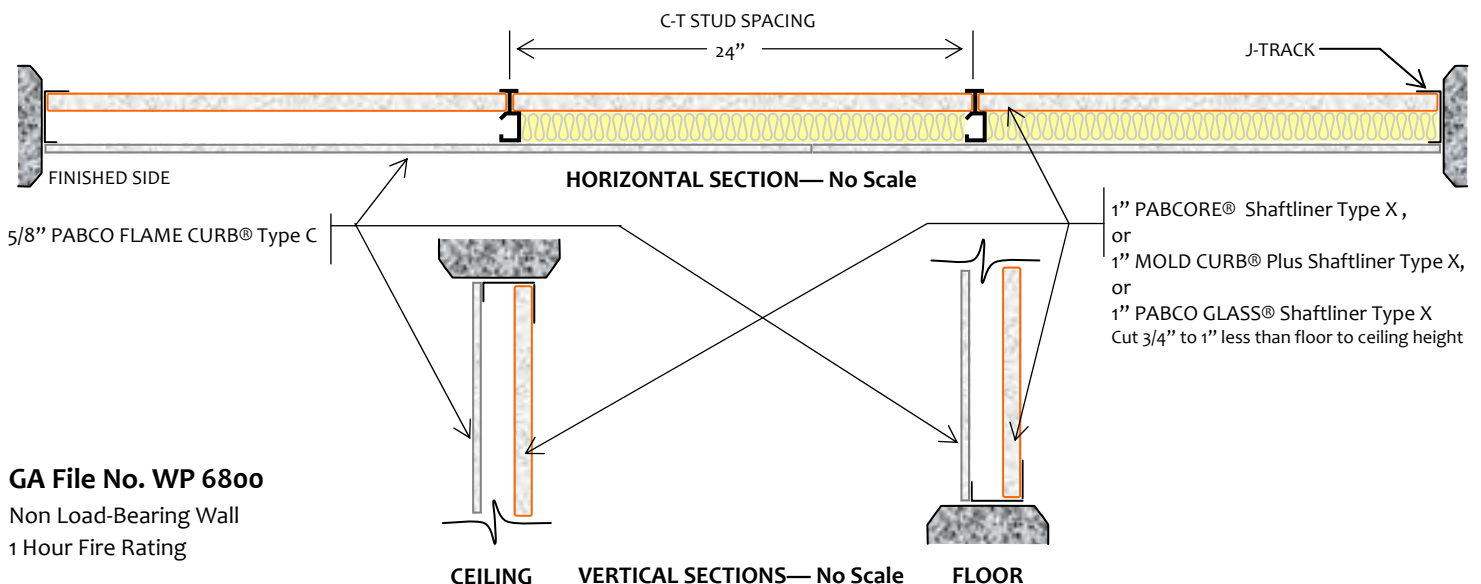
UL Design No. 428, GA WP-7051

# Shaftwall System Details

GA WP-6800

## 1-Hour C-T Stud Shaftwall Assembly—finished one side

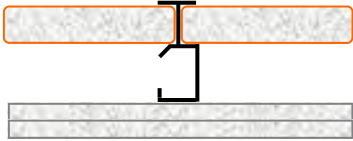
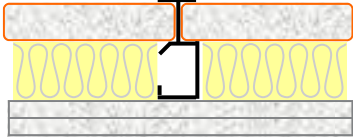
| Fire Rating | STC Rating | Construction Detail                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Test Report Numbers         |
|-------------|------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| 1HR         |            |    | <p>1-hour fire resistance, non load-bearing, noncombustible Shaftwall partition design to enclose shafts, elevators, ducts, piping, air shafts, and similar construction applications.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:<br/>           1" PABCORE® Shaftliner Type X, or<br/>           1" MOLD CURB® Plus Shaftliner Type X, or<br/>           1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between floor and ceiling J-Track on T section side of 2-1/2", 4" or 6" C-T studs.</p> <p>Opposite Side Face Layer: 5/8" FLAME CURB® Type C applied at right angles to studs with 1" Type S Screws 12" o.c.</p> <p>Face Layer joints covered with tape and a minimum of 2 coats of joint compound.</p> | Fire Tests:<br>WHI-495-1303 |
|             | 48<br>STC  |  | <p>Sound Tested Assembly per above with horizontal resilient channel spaced 24" o.c. and 2-1/2" glass fiber insulation batts friction fit in stud cavity</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Sound Test:<br>RAL TL96-28  |

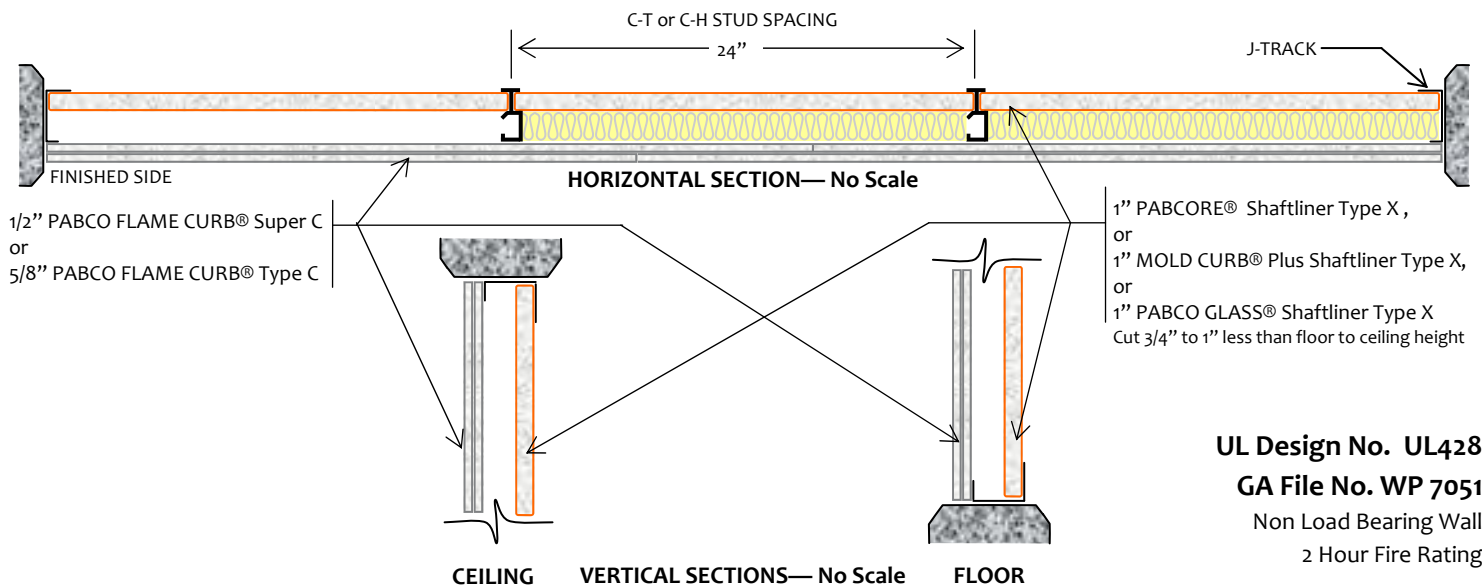


# Shaftwall System Details

U428, GA WP-7051

## 2-Hour Shaftwall Assembly—finished one side

| Fire Rating | STC Rating | Construction Detail                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Test Report Numbers                                                                                        |
|-------------|------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| 2HR         |            |    | <p>2-hour fire resistance, non load-bearing, noncombustible Shaftwall partition design to enclose shafts, elevators, ducts, piping, air shafts, and similar construction applications.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:<br/>           1" PABCORE® Shaftliner Type X, or<br/>           1" MOLD CURB® Plus Shaftliner Type X, or<br/>           1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between floor and ceiling J-Track on T section side of 2-1/2", 4" or 6" C-H or C-T studs</p> <p>Faced on opposite side with two layers of 1/2" FLAME CURB® Super C, type PG-C or 5/8" FLAME CURB® Type C, 4' wide.</p> <p>Base Layer applied horizontally to studs and side J-Track with 1" Type S Screws starting 2" from floor and ceiling runners and spaced 24" o.c. along vertical edge and field of the boards.</p> <p>Face Layer applied vertically to studs and side J-Track with 1-5/8" Type S Screws starting 3" from floor and ceiling runners and spaced 12" o.c. along vertical edge and field of the boards. Face Layer joints and screw heads finished as required on the</p> | <p>Fire Tests:</p> <p>UL R7094</p> <p>93NK8151</p> <p>UL R3660</p> <p>07NK229922</p> <p>UL Design U428</p> |
|             | 51<br>STC  |  | <p>Sound Tested Assembly per above with 1-7/8" glass fiber insulation batts in stud cavity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <p>Sound Test:</p> <p>RAL TL93-181</p>                                                                     |



**UL Design No. UL428**  
**GA File No. WP 7051**  
 Non Load Bearing Wall  
 2 Hour Fire Rating

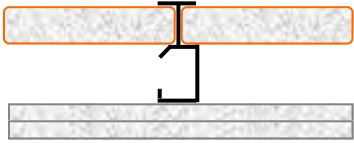
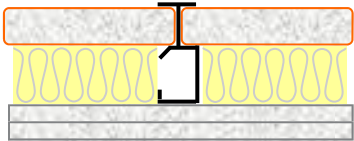


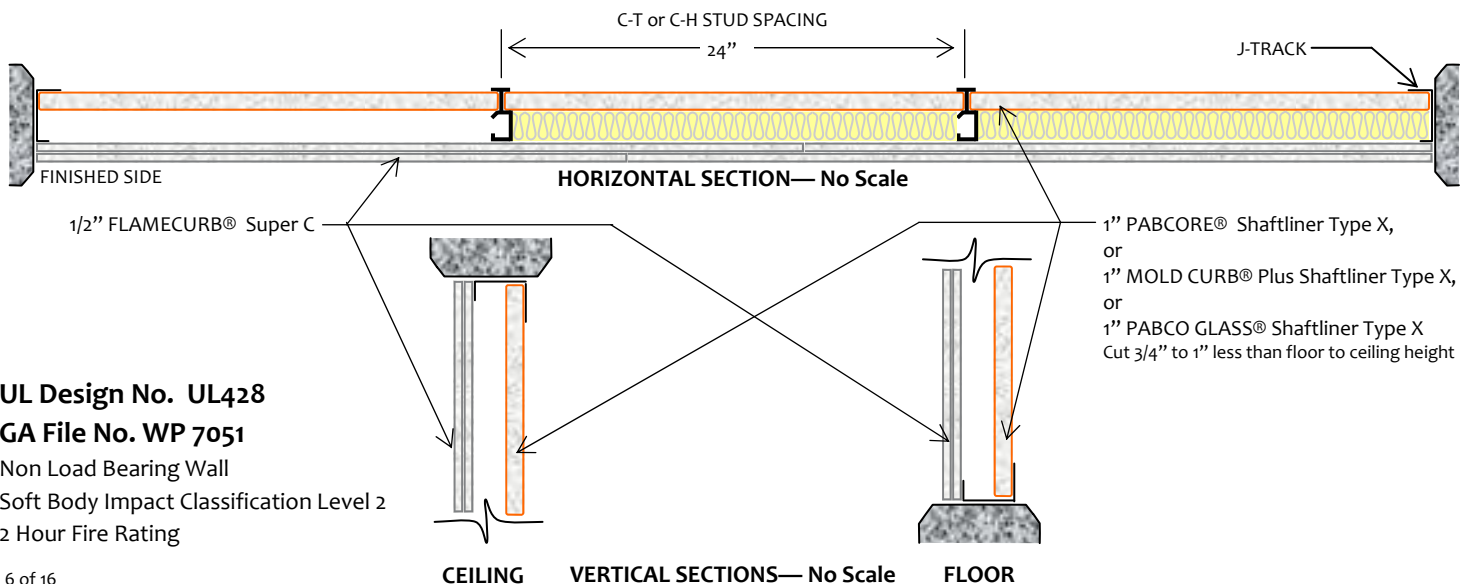
# Shaftwall System Details

U428, GA WP-7051

## 2-Hour Shaftwall Assembly—Soft Body Impact Classification Level 2—finished one side

Certification of Assembly in Conformance to IBC 403.2.3.1

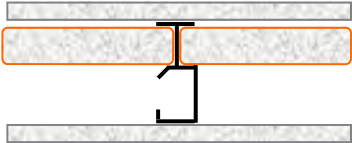
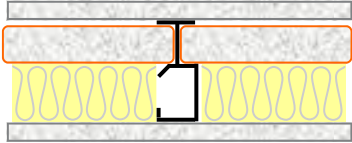
| Fire Rating | STC Rating | Construction Detail                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Test Report Numbers                                                                                                                                                |
|-------------|------------|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2HR         |            |    | <p>2-hour fire resistance, non load-bearing, noncombustible Shaftwall partition design to enclose shafts, elevators, ducts, piping, air shafts, and similar construction applications.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:</p> <p>1" PABCORE® Shaftliner Type X or<br/>1" MOLD CURB® Plus Shaftliner Type X, or<br/>1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between floor and ceiling J-Track on T section side of min. 20 gage (0.33 mil) C-T studs.</p> <p>Faced on opposite side with two layers of 1/2" FLAME CURB® Super C.</p> <p>Base Layer applied horizontally to studs and side J-Track with 1" Type S Screws starting 2" from floor and ceiling runners and spaced 24" o.c. along vertical edge and field of the boards.</p> <p>Face Layer applied vertically to studs and side J-Track with 1-5/8" Type S Screws starting 3" from floor and ceiling runners and spaced 12" o.c. along vertical edge and field of the boards. Face Layer joints and screw heads finished as required on the job (minimum level 2).</p> | <p>Fire Tests:</p> <p>UL R7094<br/>93NK8151<br/>UL R3660<br/>07NK229922<br/>UL Design U428</p> <p>Soft Body Impact:</p> <p>IBC 403.2.3.1<br/>SB-1402 (9/18/14)</p> |
|             | 51<br>STC  |  | <p>Sound Tested Assembly per above with 1-7/8" glass fiber insulation batts in stud cavity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p>Sound Test:</p> <p>RAL TL93-181</p>                                                                                                                             |

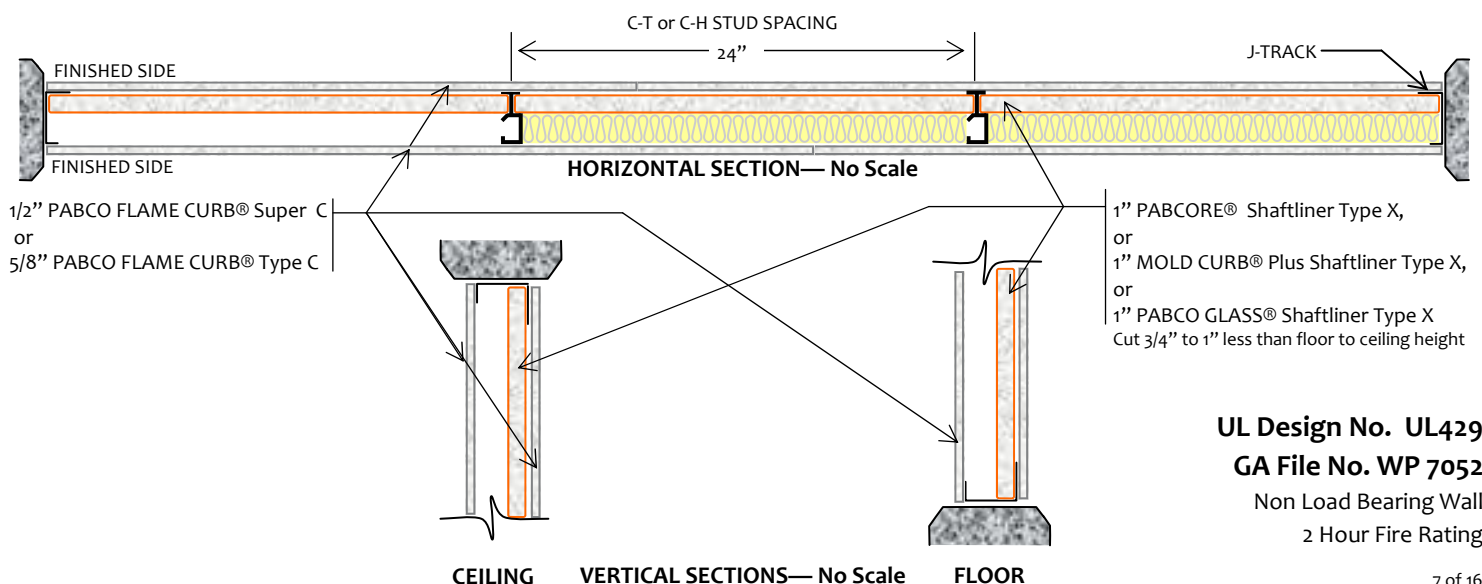


# Stairwell System Details

U429, GA WP-7052

## 2-Hour Stairwell Assembly—finished two sides

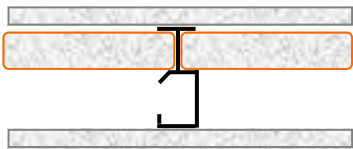
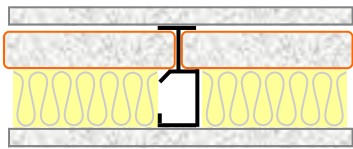
| Fire Rating | STC Rating | Construction Detail                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Test Report Numbers                                                      |
|-------------|------------|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 2HR         |            |    | <p>2-hour fire resistance, non load-bearing, noncombustible Stairwell enclosure finished both sides.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:<br/>           1" PABCORE® Shaftliner Type X or<br/>           1" MOLD CURB® Plus Shaftliner Type X, or<br/>           1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between floor and ceiling J-Track on T section side of 2-1/2", 4" or 6" C-H or C-T studs.</p> <p>Face Layers: 1/2" FLAME CURB® Super C, applied parallel to studs with vertical joints midway between studs and laminated to Shaftliner panel with 4" wide strips of taping compound at wallboard perimeter and vertical centerline. 1-1/2" type G drywall screws 24" o.c. located 1-1/2" back from wallboard edges and at vertical centerline.</p> <p>Opposite Side: 1/2" FLAME CURB® Super C, applied at right angles to studs with 1" Type S screws 24" o.c.</p> <p>UL Design U 429 allows use of 5/8" FLAME CURB® Type C, 4" wide; in place of 1/2" FLAME CURB® Super C.</p> | <p>Fire Tests:</p> <p>UL R7094</p> <p>93NK8151</p> <p>UL Design U429</p> |
|             | 51<br>STC  |  | <p>Sound Tested Assembly per above with 1-7/8" glass fiber insulation batts in stud cavity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Sound Test:</p> <p>RAL TL93-181</p>                                   |

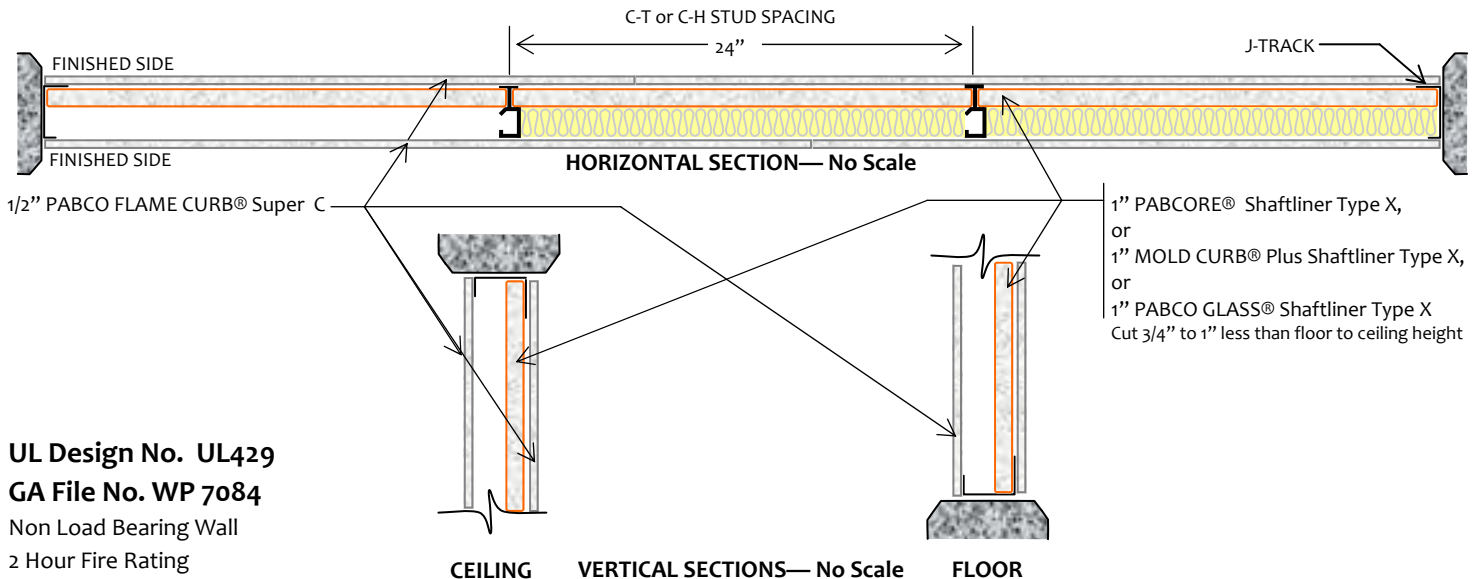


# Stairwell System Details

U429, GA WP-7084

## 2-Hour Stairwell Assembly—finished two sides

| Fire Rating | STC Rating | Construction Detail                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Test Report Numbers                                                      |
|-------------|------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------|
| 2HR         |            |    | <p>2-hour fire resistance, non load-bearing, noncombustible Stairwell enclosure finished both sides.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:<br/>           1" PABCORE® Shaftliner Type X, or<br/>           1" MOLD CURB® Plus Shaftliner Type X, or<br/>           1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between floor and ceiling J-Track on T section side of 2-1/2" C-H or C-T studs</p> <p>Face Layer: Face Layer: 1/2" FLAMECURB® Super C applied parallel to studs with 1" Type S Screws 12" o.c.</p> <p>Opposite Side: 1/2" FLAMECURB® Super C applied parallel to studs with 1" Type S Screws 12" o.c. Stagger joints each side.</p> <p>Outer Layer joints covered with tape and a minimum of 2 coats of joint compound.</p> | <p>Fire Tests:</p> <p>UL R7094</p> <p>93NK8151</p> <p>UL Design U429</p> |
|             | 51<br>STC  |  | <p>Sound Tested Assembly per above with 1-7/8" glass fiber insulation batts in stud cavity.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>Sound Test:</p> <p>RAL TL93-182</p> <p>WEAL 84-108</p>                |



UL Design No. UL429

GA File No. WP 7084

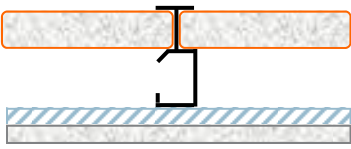
Non Load Bearing Wall

2 Hour Fire Rating

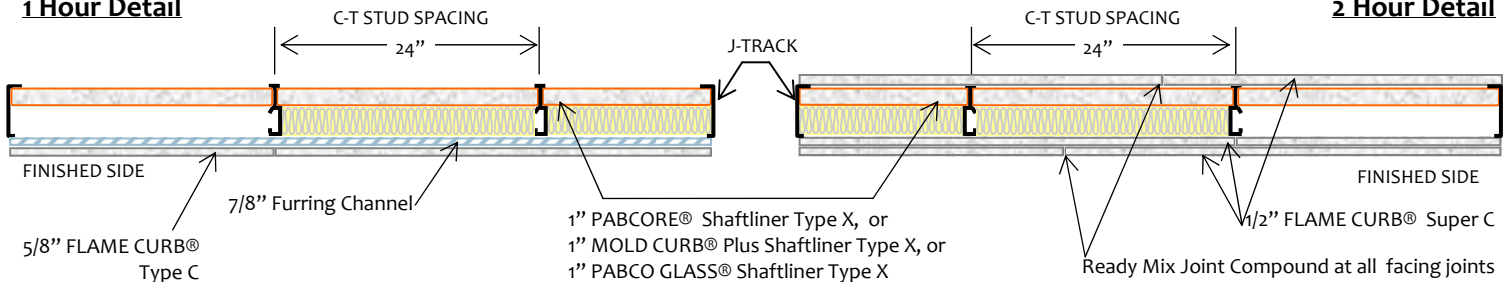


# Horizontal Corridor Systems Details

## 1-Hour Horizontal Assembly—finished one side

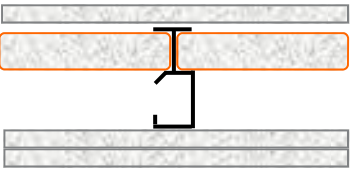
| Fire Rating | Construction Detail                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Test Report Numbers                        |
|-------------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------|
| 1HR         |  | <p>1-hour fire resistance, noncombustible horizontal corridor system finished one side.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:<br/>           1" PABCORE® Shaftliner Type X, or<br/>           1" MOLD CURB® Plus Shaftliner Type X, or<br/>           1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between J-Track on T section side of 2-1/2" C-T studs</p> <p>Attach 7/8" furring channels perpendicular to C-T studs on the cavity side with two 3/8" pan head screws at each intersection with studs; spaced 24" o.c.</p> <p>Face Layer: Face Layer: 5/8" FLAMECURB® Type C applied perpendicular to furring channels with 1" Type S Screws 12" o.c. Edge joints of 5/8" FLAMECURB® Type C offset from C-H or C-T stud line.</p> <p>Face Layer joints covered with tape and 2 coats of joint compound.</p> | <p>Fire Tests:</p> <p>WHI-495-PSH-0210</p> |

### 1 Hour Detail

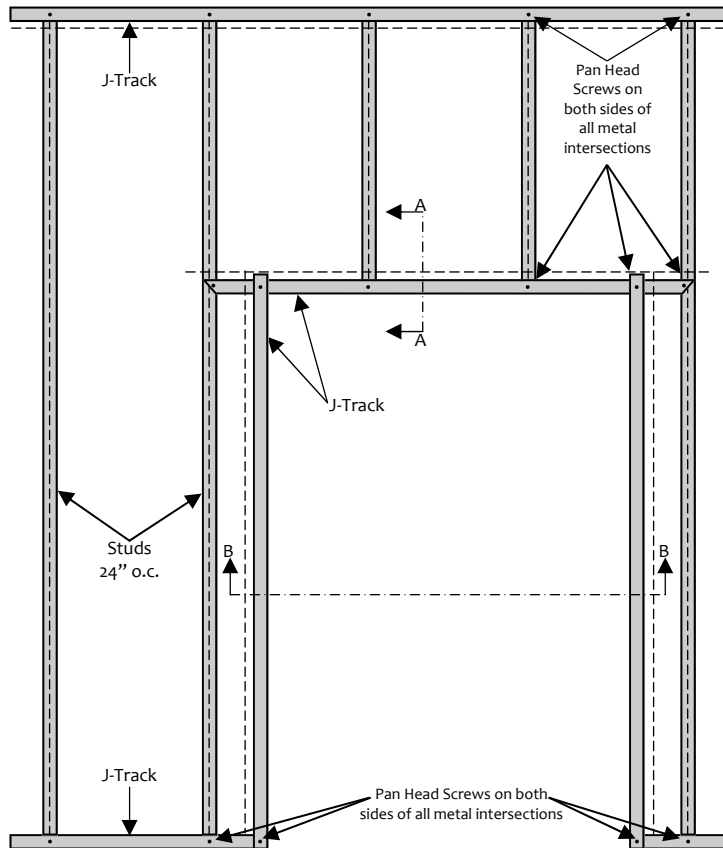


### 2 Hour Detail

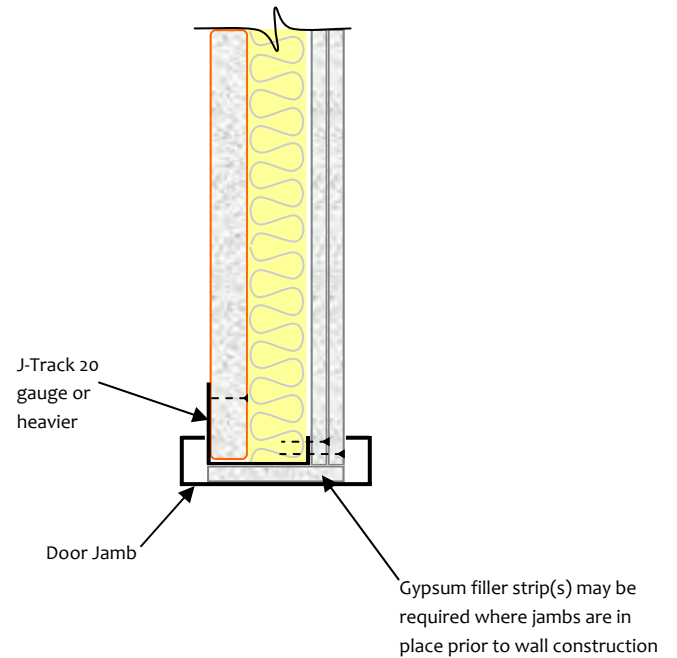
## 2-Hour Horizontal Assembly—finished one side

| Fire Rating | Construction Detail                                                                 | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Test Report Numbers                       |
|-------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|
| 2HR         |  | <p>2-hour fire resistance, noncombustible horizontal corridor system finished one side.</p> <p>CONSTRUCTION:</p> <p>1" Shaftliner Panel:<br/>           1" PABCORE® Shaftliner Type X or<br/>           1" MOLD CURB® Plus Shaftliner Type X, or<br/>           1" PABCO GLASS® Shaftliner Type X</p> <p>Inserted between J-Track on T section side of 2-1/2" C-T studs. Use 3/8" pan head screws to attach the ends C-T Stud to the 1" flange of the J Track. Secure the gypsum with 1-1/4" Type A drywall screws 12" o.c. into the 2-1/2" flange of the J-Track around the perimeter of the assembly.</p> <p>Face Layer: Face Layer: 1/2" FLAMECURB® Super C applied to 1" Shaftliner. 6" from stud centerline, with 1-1/2" Type G Screws 12" o.c.</p> <p>Opposite side: Base Layer: 1/2" FLAMECURB® Super C secured to studs with 1" Type S drywall screws 12" o.c. Face Layer: 1/2" FLAMECURB® Super C secured to studs with 1-5/8" Type S drywall screws 12" o.c. Staggering joints.</p> <p>Both sides: joints covered with tape and 2 coats of joint compound.</p> | <p>Fire Tests:</p> <p>WHI-495-PSH-055</p> |

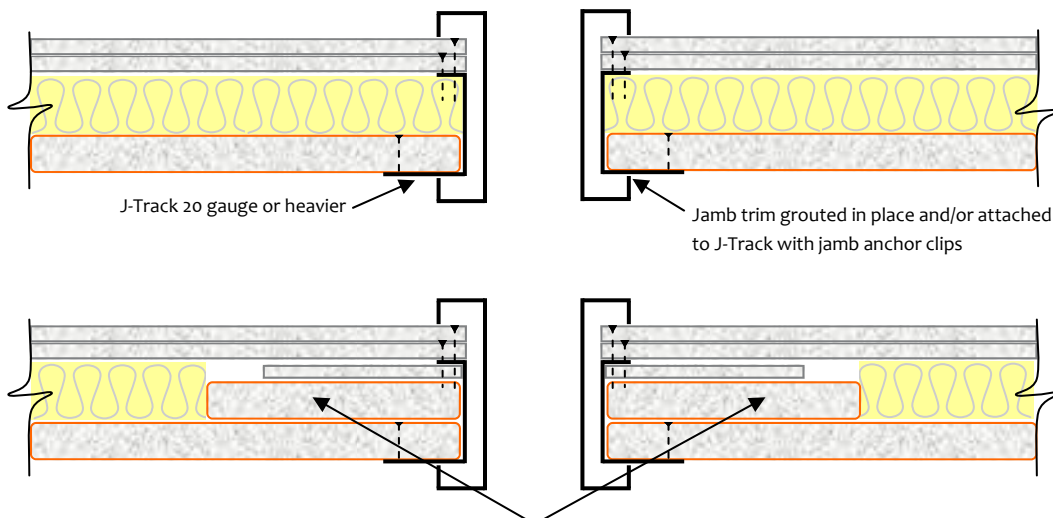
# Framing Details—Doors



HEADER DETAIL A-A

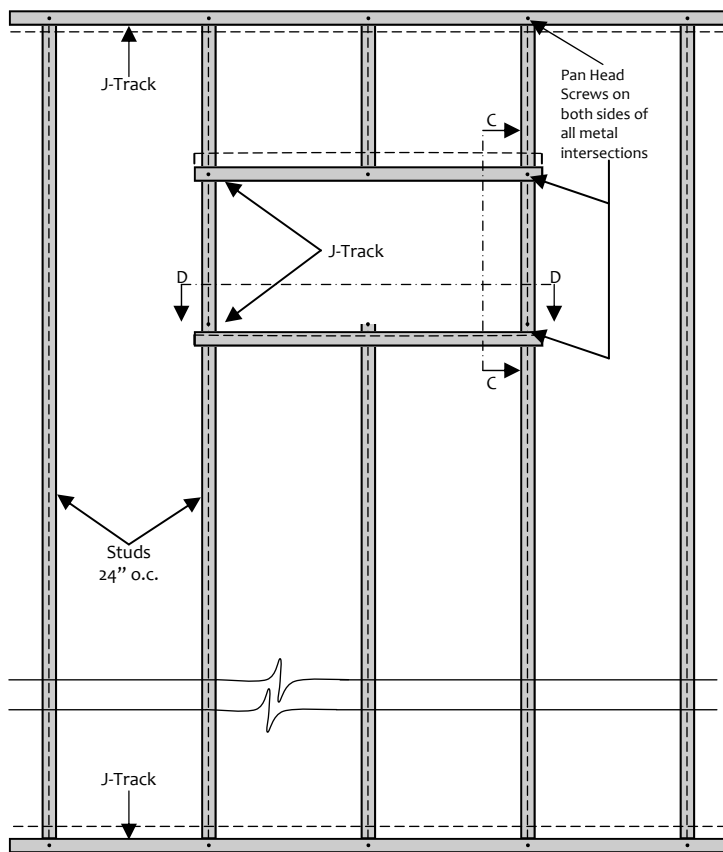


CROSS SECTION B-B

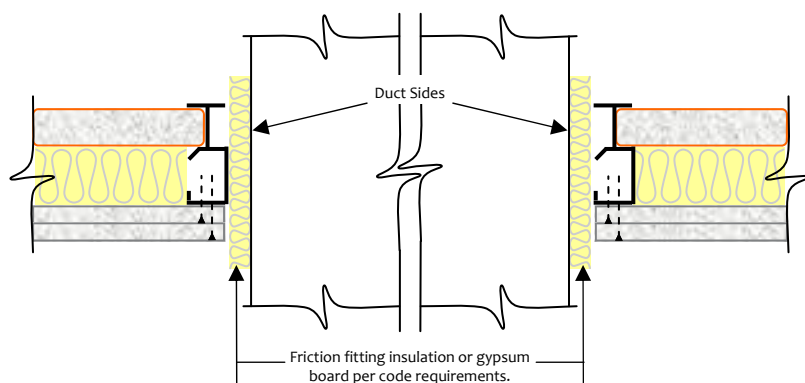


Details contained in this brochure are representative of general conditions. Specific job conditions may require modification.

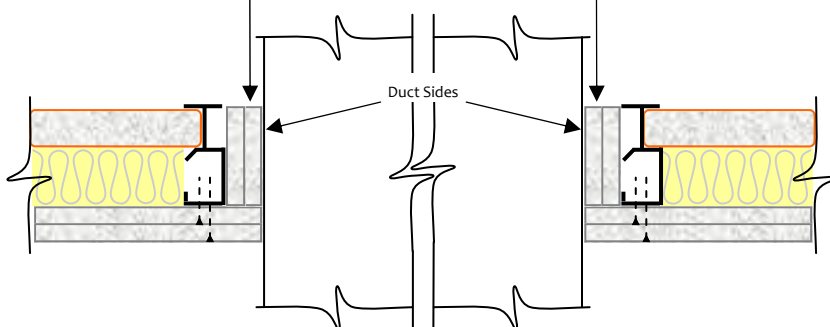
# Framing Details—Mechanical Penetrations



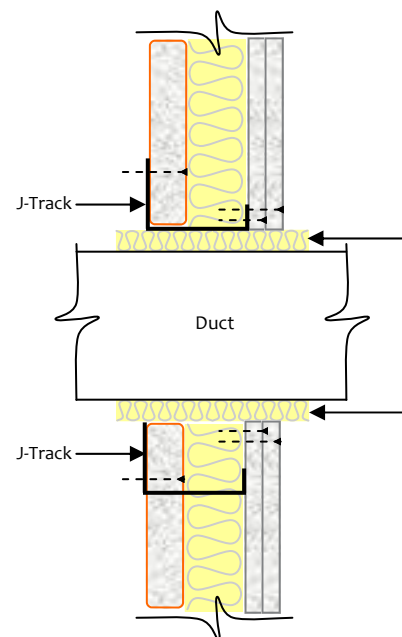
**DUCT DETAIL D-D**



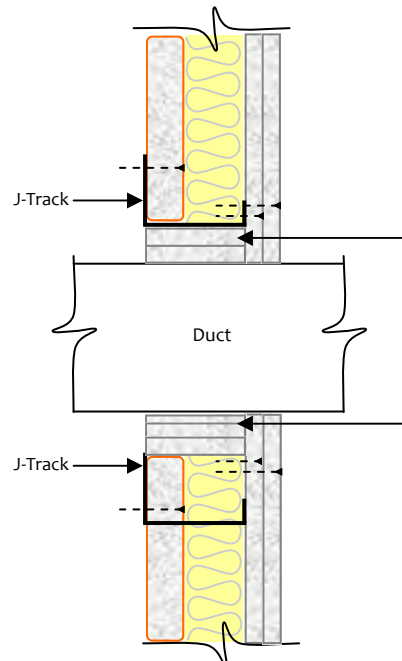
**ALTERNATE DUCT DETAIL D-D**



**DUCT DETAIL C-C**



**ALTERNATE DUCT DETAIL**



Friction fitting insulation or gypsum board per code requirements.

## ALTERNATIVE DUCT NOTES:

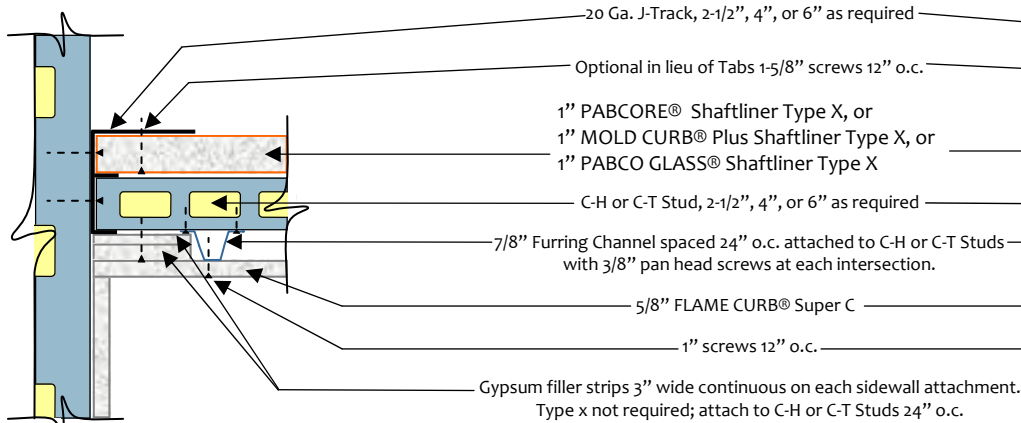
Some codes require duct penetrations to be surrounded with same wall surfacing material where rated dampers are required.

Details contained in this brochure are representative of general conditions. Specific job conditions may require modification.

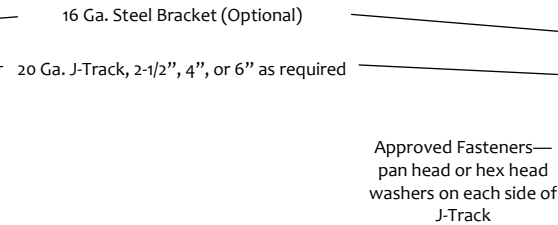
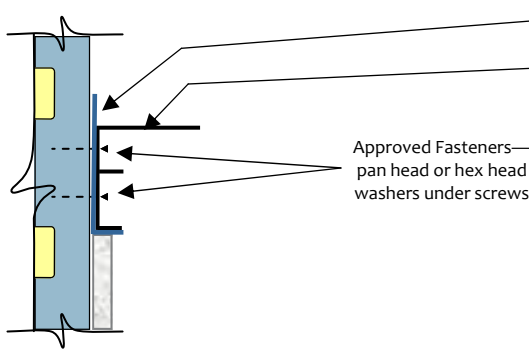
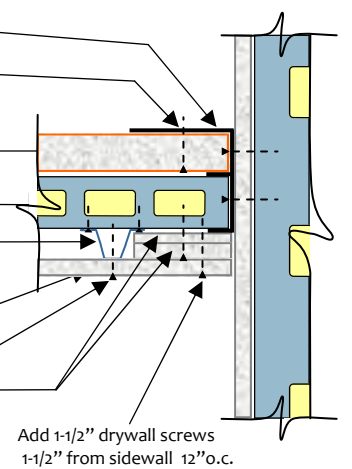
# Horizontal System Details

## ATTACHMENT DETAILS

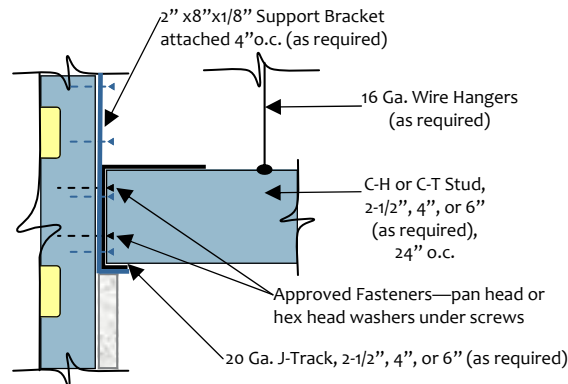
### DIRECT TO STUD—METAL TO METAL ATTACHMENT



### ATTACHMENT THROUGH GYPSUM BOARD

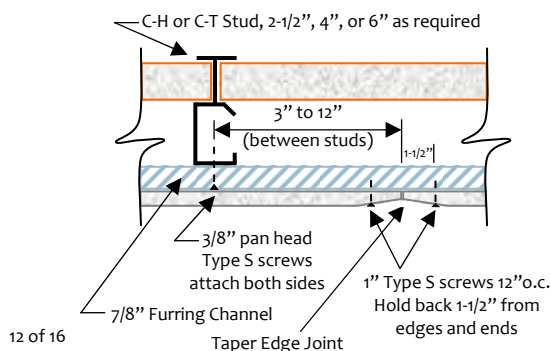


### OPTIONAL SUPPORT METHOD

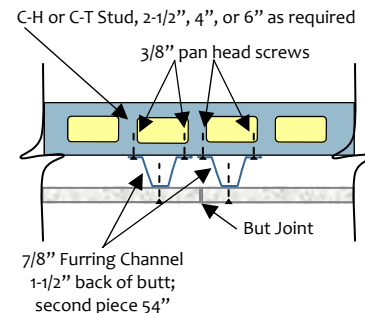


## JOINT DETAILS

### TAPERED JOINT DETAIL

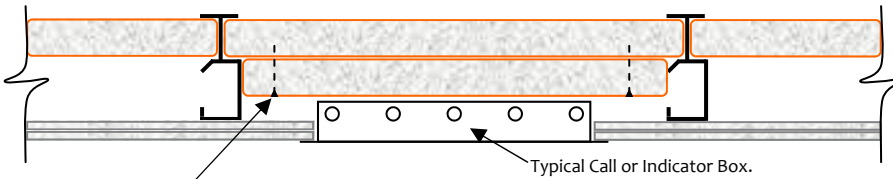


### BUTT JOINT DETAIL



# Typical Details

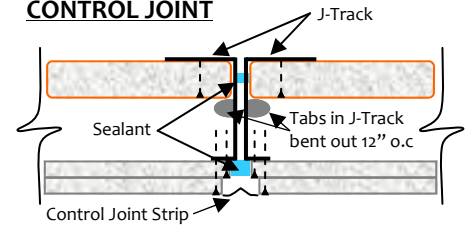
## FLOOR INDICATOR BOX SERVICE PENETRATING DETAILS (exceeding 16 sq.in. surface area)



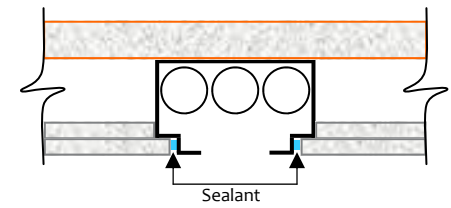
24" minimum height attach 1" PABCORE  
Shaftliner behind box to 1" PABCORE  
Shaftliner in the C-T of C-H Stud with  
Type G screw 24" o.c.

NOTE: Cavity depth requirements may vary  
according to the services being installed.

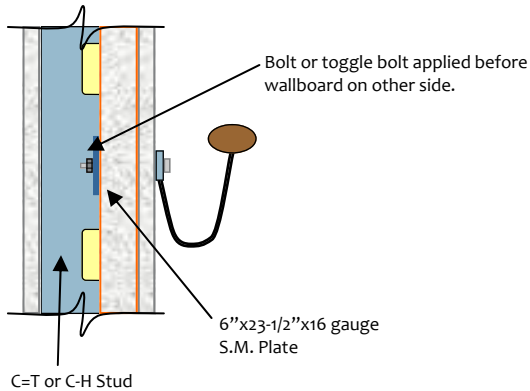
## CONTROL JOINT



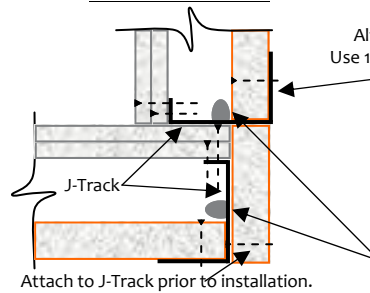
## CALL BOX ■ OUTLET BOX ■ MAIL CHUTE



## HAND RAIL ATTACHMENTS

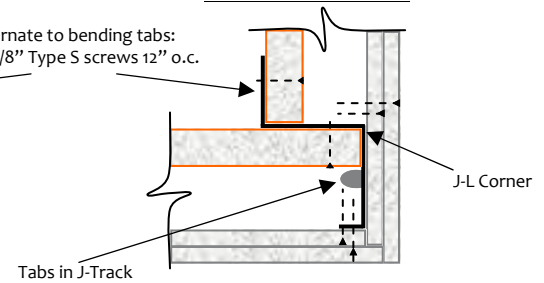


## INSIDE CORNER

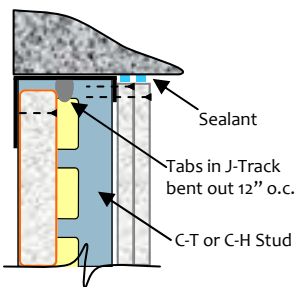


Alternate to bending tabs:  
Use 1-5/8" Type S screws 12" o.c.

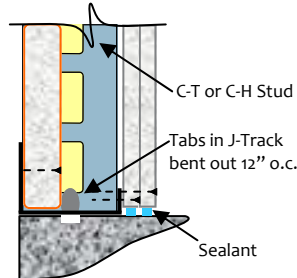
## OUTSIDE CORNER



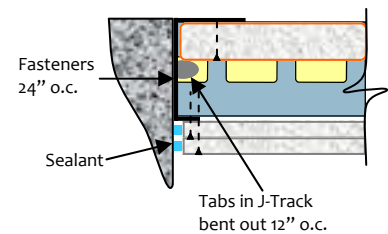
## HEAD OF WALL



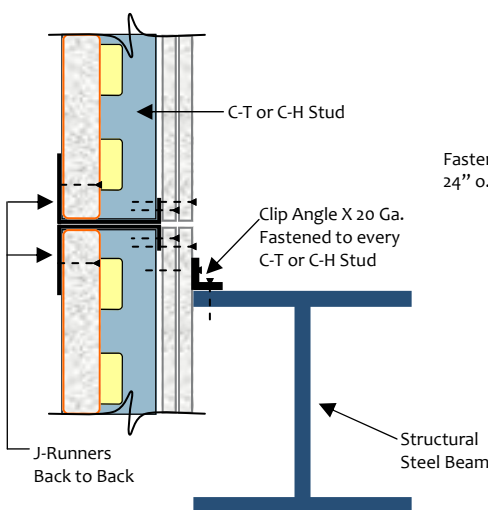
## BASE OF WALL



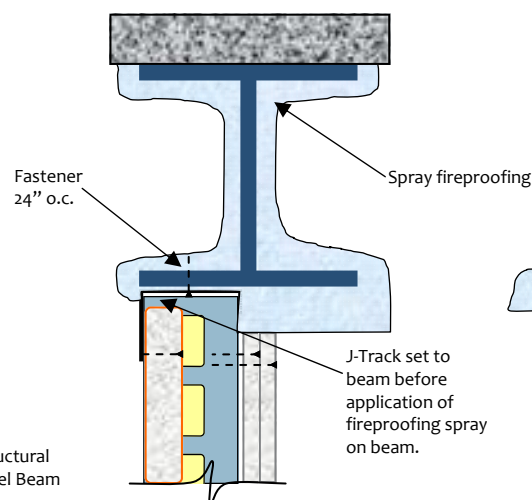
## END OF WALL



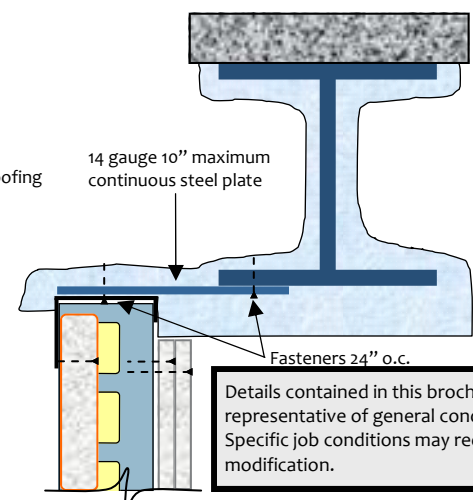
## BACK TO BACK J-TRACK



## STEEL BEAM



## STEEL BEAM OFFSET

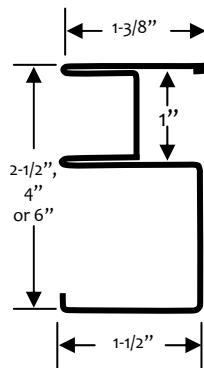


# Structural Properties

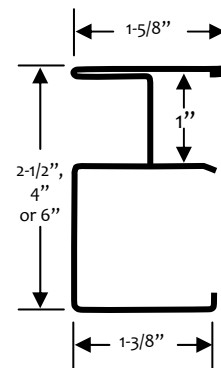
## C-T or C-H Stud Limiting Heights: per ICC-ES AC 86 1995

| Framing Depth | Minimum Steel        | Limiting Height         |                       |          |          |         |
|---------------|----------------------|-------------------------|-----------------------|----------|----------|---------|
|               |                      | Design Deflection Limit | Design Pressure (psf) |          |          |         |
|               |                      |                         | 5                     | 7.5      | 10       | 15      |
| 2-1/2"        | 0.0231"<br>33,000psi | L/120                   | 16'10"                | 13'8"    | 11'10" * | 8'6" *  |
|               |                      | L/180                   | 13'8"                 | 11'3"    | 9'10"    | 8'3"    |
|               |                      | L/240                   | 11'10"                | 9'10"    | 8'8"     | 7'3"    |
|               |                      | L/360                   | 9'10"                 | 8'3"     | 7'3"     | 6'2"    |
|               | 0.0346"<br>33,000psi | L/120                   | 16'10"                | 14'4"    | 12'11"   | 11'1"   |
|               |                      | L/180                   | 14'4"                 | 12'4"    | 11'1"    | 9'6"    |
|               |                      | L/240                   | 12'11"                | 11'1"    | 9'11"    | 8'7"    |
|               |                      | L/360                   | 11'1"                 | 9'6"     | 8'7"     | 7'5"    |
| 4"            | 0.0231"<br>33,000psi | L/120                   | 21'8"                 | 16'6" *  | 12'5" *  | 8'3" *  |
|               |                      | L/180                   | 18'1"                 | 15'3"    | 12'5" *  | 8'3" *  |
|               |                      | L/240                   | 16'0"                 | 13'7"    | 12'1"    | 8'3" *  |
|               |                      | L/360                   | 13'7"                 | 11'6"    | 10'4"    | 8'3" *  |
|               | 0.0346"<br>33,000psi | L/120                   | 23'0"                 | 21'0"    | 18'7"    | 15'5"   |
|               |                      | L/180                   | 21'0"                 | 17'9"    | 15'10"   | 13'6"   |
|               |                      | L/240                   | 18'7"                 | 15'10"   | 14'1"    | 12'1"   |
|               |                      | L/360                   | 15'10"                | 13'6"    | 12'1"    | 10'4"   |
|               | 0.0451"<br>50,000psi | L/120                   | 25'7"                 | 22'2"    | 20'0"    | 17'4"   |
|               |                      | L/180                   | 22'2"                 | 19'2"    | 17'4"    | 15'1"   |
|               |                      | L/240                   | 20'0"                 | 17'4"    | 15'8"    | 13'7"   |
|               |                      | L/360                   | 17'4"                 | 15'1"    | 13'7"    | 11'10"  |
| 6"            | 0.0346"<br>33,000psi | L/120                   | 30'3" **              | 24'9" ** | 20'6" *  | 13'8" * |
|               |                      | L/180                   | 30'3"                 | 24'9" ** | 20'6" *  | 13'8" * |
|               |                      | L/240                   | 26'6"                 | 22'2"    | 19'7"    | 13'8" * |
|               |                      | L/360                   | 22'2"                 | 18'8"    | 16'7"    | 13'8" * |
|               | 0.0451"<br>50,000psi | L/120                   | 36'5"                 | 30'8"    | 27'3"    | 23'2"   |
|               |                      | L/180                   | 30'8"                 | 26'0"    | 23'2"    | 19'9"   |
|               |                      | L/240                   | 27'3"                 | 23'2"    | 20'8"    | 17'8"   |
|               |                      | L/360                   | 23'2"                 | 19'9"    | 17'8"    | - - -   |

- \* Reduced for End Reaction Capacity.  
\*\* Reduced for Flexural Strength Capacity
- The values in this table are based on testing per ICC-ES AC86 and ASTM E72 and represent the limiting height capacity for strength using a 1.5 Safety Factor.
- Minimum base steel thickness is 95% of design thickness.
- Limiting Height values shown, were assessed from the **lowest** Flexural Strength value of Gypsum tested.



C-H Stud



C-T Stud



## Maximum Horizontal Spans for Corridor and Stairwell Soffits

| Stud Depth | Reference Gauge | Minimum Steel (psi) | Design Thickness (in) | 2 Hour<br>(2) 1/2" Type C + (1) 1" Shaftliner |       |       |        | 2 Hour<br>(2) 5/8" Type X + (1) 1" Shaftliner |       |       |        |
|------------|-----------------|---------------------|-----------------------|-----------------------------------------------|-------|-------|--------|-----------------------------------------------|-------|-------|--------|
|            |                 |                     |                       | L/120                                         | L/180 | L/240 | L/360  | L/120                                         | L/180 | L/240 | L/360  |
| 2-1/2"     | 25              | 33,000              | 0.0231"               | 8'8"                                          | 8'8"  | 8'6"  | 7'5"   | 8'2"                                          | 8'2"  | 8'2"  | 7'2"   |
|            | 20              | 33,000              | 0.0346"               | 10'6"                                         | 10'6" | 9'10" | 8'7"   | 9'11"                                         | 9'11" | 9'11" | 8'3"   |
| 4"         | 25              | 33,000              | 0.0231"               | 11'8"                                         | 11'8" | 11'8" | 10'8"  | 11'0"                                         | 11'0" | 11'0" | 10'3"  |
|            | 20              | 33,000              | 0.0346"               | 14'3"                                         | 14'3" | 14'1" | 12'4"  | 13'6"                                         | 13'6" | 13'6" | 11'10" |
|            | 18              | 50,000              | 0.0451"               | 19'1"                                         | 16'8" | 15'2" | 13'3"  | 18'5"                                         | 16'1" | 14'7" | 12'9"  |
| 6"         | 20              | 33,000              | 0.0346"               | 18'9"                                         | 18'9" | 18'9" | 16'10" | 17'9"                                         | 17'9" | 17'9" | 16'3"  |
|            | 18              | 50,000              | 0.0451"               | 22'9"                                         | 22'9" | 20'9" | 18'2"  | 20'5"                                         | 20'5" | 20'0" | 17'6"  |

1. Dead Load of assembly ONLY considered.
2. Not designed to carry any live loads, mechanical equipment, storage loads or lighting.
3. Studs must be one piece, full span.
4. Minimum base steel thickness is 95% of design thickness.

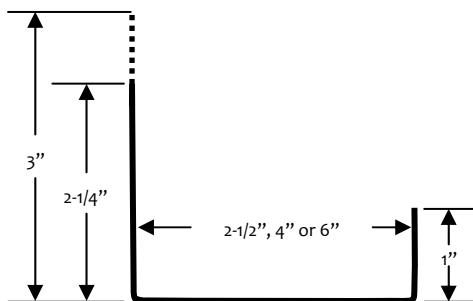
## J-Tabbed Track/J-Runner Framing Components

### C-T or C-H Framing Components

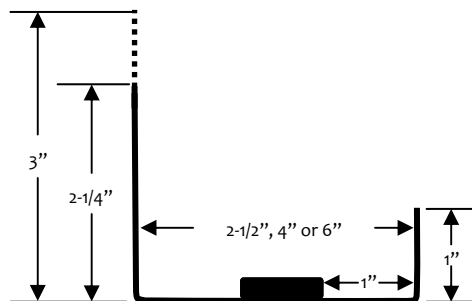
| Stud Depth | Gauge | Design Thickness (in) | Average Weight (lbs/lin ft)* | Area (Sq in) | Lx (in <sup>4</sup> ) | Sx (in <sup>3</sup> ) |
|------------|-------|-----------------------|------------------------------|--------------|-----------------------|-----------------------|
| 2-1/2"     | 25    | 0.0231"               | 0.514                        | 0.165        | 0.164                 | 0.144                 |
|            | 20    | 0.0346"               | 0.805                        | 0.248        | 0.241                 | 0.168                 |
| 4"         | 25    | 0.0231"               | 0.622                        | 0.199        | 0.480                 | 0.209                 |
|            | 20    | 0.0346"               | 0.974                        | 0.298        | 0.710                 | 0.309                 |
|            | 18    | 0.0451"               | 1.310                        | 0.386        | 0.911                 | 0.397                 |
| 6"         | 20    | 0.0346"               | 1.200                        | 0.367        | 1.858                 | 0.547                 |
|            | 18    | 0.0451"               | 1.620                        | 0.467        | 2.392                 | 0.705                 |

\* Weight based on minimum delivered thickness.

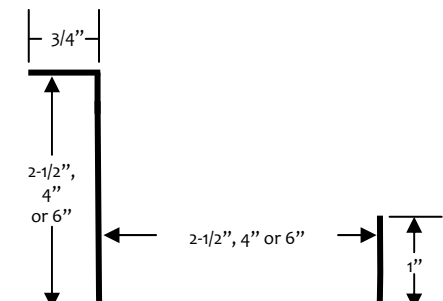
| Gauge | Mils | Minimum Thickness (in) | Design Thickness (in) | Width (in) | Length (in) |
|-------|------|------------------------|-----------------------|------------|-------------|
| 25    | 22   | 0.0219                 | 0.0231                | 2-1/2"     | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
|       |      |                        |                       | 4"         | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
|       |      |                        |                       | 6"         | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
| 20    | 33   | 0.0329                 | 0.0346                | 2-1/2"     | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
|       |      |                        |                       | 4"         | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
|       |      |                        |                       | 6"         | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
| 18    | 43   | 0.0428                 | 0.0451                | 2-1/2"     | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
|       |      |                        |                       | 4"         | 2-1/4"      |
|       |      |                        |                       |            | 3"          |
|       |      |                        |                       | 6"         | 2-1/4"      |
|       |      |                        |                       |            | 3"          |



J-Track



J-Tabbed Track



J-L Corner



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