SHAFTWALL C-H STUD
FIRE RATING
ENGINEERING CATALOG

1-800-275-2279
C-H Studs & J-Track for Shaft Wall Construction

STEELER® C-H Studs can be used in the Shaft Wall construction as listed below in the following UL Design Numbers. UL Certifications are available at www.ul.com, or copies are available upon request.


<table>
<thead>
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<tbody>
<tr>
<td>U428</td>
<td>2-1/2&quot; C-H Shaped studs, 1-1/2&quot; wide</td>
<td>25 GA.</td>
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<td>U492</td>
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* - Minimum thickness depends on manufacturer of drywall.

1) Steeler C-H Studs conform to the manufacturers standard gauge (MSG), shape, and section property specifications listed in each UL/USG system design and Fire Resistance Rating and are therefore acceptable for use with listed wallboard gypsum products bearing the UL classification marking.

2) The 2 1/2” web X 1 1/2” flange dimension for C-H Studs is a minimum requirement and larger sizes, i.e.; 4” and 6” (studs) are permitted system stud sizes under any UL certification.

3) All wallboard sizes specified in each system design must bear a UL classification marking.

4) Note specific manufacturers standard gauge (MSG) and stud length (floor to ceiling) requirements in each system design.

5) Note "J" shaped floor and ceiling runners (J Track) require unequal leg lengths of 1 in. and 2 in. and manufacturers standard gauge (MSG) requirements may vary by system design.

### Steeler Part #: Stud Dimensions: Gauge:

<table>
<thead>
<tr>
<th>Steeler Part #:</th>
<th>Stud Dimensions:</th>
<th>Gauge:</th>
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<tbody>
<tr>
<td>0250H150-024</td>
<td>2 1/2&quot; x 1 1/2&quot; deep</td>
<td>EU 30</td>
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<td>0250H150-027</td>
<td>2 1/2&quot; x 1 1/2&quot; deep</td>
<td>22</td>
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<tr>
<td>0250H150-030</td>
<td>2 1/2&quot; x 1 1/2&quot; deep</td>
<td>20DW</td>
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<tr>
<td>0250H150-033</td>
<td>2 1/2&quot; x 1 1/2&quot; deep</td>
<td>20</td>
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<tr>
<td>0400H150-024</td>
<td>4&quot; x 1 1/2&quot; deep</td>
<td>EU 30</td>
</tr>
<tr>
<td>0400H150-027</td>
<td>4&quot; x 1 1/2&quot; deep</td>
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<td>4&quot; x 1 1/2&quot; deep</td>
<td>20DW</td>
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<td>0400H150-033</td>
<td>4&quot; x 1 1/2&quot; deep</td>
<td>20</td>
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<tr>
<td>0600H150-024</td>
<td>6&quot; x 1 1/2&quot; deep</td>
<td>EU 30</td>
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<tr>
<td>0600H150-027</td>
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<tr>
<td>0600H150-030</td>
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<td>0600H150-033</td>
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<td>20</td>
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</tbody>
</table>

References:

UL Technical Services, Conformity Assessment Services (CAS)
Phone Number: (847) 272-8800 ext. 42364; Fax (847) 509-6292.
http://www.ul.com/contact.html

David Jeter, Steeler Engineer.
Phone Number: (800) 275-2279; Fax (206) 725-1300.
10023 Martin Luther King Jr. Way South, Seattle, WA 98178
www.steeler.com e-mail: engineering@steeler.com
Steeler Inc.'s Engineered C-H Stud and J-Track are an economical solution to Shaft Wall Systems. Steeler C-H shaped studs are shaped by cold-formed shaping of the steel, which increases the strength of the C-H stud. Other competing Shaft Wall Systems use knock out tabs to hold the shaft liner in place, however these knock-out tabs reduce the strength of those Shaft Wall studs and reduce the limiting wall heights of such walls. Steeler C-H are safer and easier to work with because the edges (except for one lip return) are hemmed and there are no sharp knock out tabs to worry about.

Steeler J-Track is manufactured from steel meeting the requirements of ASTM C653-02a or equal, Grade 33 (fy=33KSI).

J-Track is used for top, bottom, and end of wall track in construction of Shaft Wall Systems.

Steeler J-Track is available with webs of 2 1/2", 4", and 6". The long flange is 2 1/4" and short flange (stiffener) is available with 1" and 2" flanges.

### 6" C-H Stud Diagram

### J - Track Diagram

<table>
<thead>
<tr>
<th>J-Track Part #</th>
<th>Web (A)</th>
<th>Flange (B)</th>
<th>Stiffener flange (C)</th>
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<td>2 1/2&quot;</td>
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<td>1&quot;</td>
<td>18, 27, 30, 33 mils</td>
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<tr>
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<td>2&quot;</td>
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<tr>
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<td>2 1/4&quot;</td>
<td>2&quot;</td>
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*Part # Notes: Desired thickness of J-Track is indicated by appending mil thickness to part # listed above.
**STEELER® INC. J-Track Properties**

**J-Track for Shaft Wall Construction**

1-800-275-2279

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### Allowable Moment, Shear and Effective Section Properties

<table>
<thead>
<tr>
<th>Section</th>
<th>Web A</th>
<th>Flange B</th>
<th>Stiffener C</th>
<th>Design T</th>
<th>Radius R</th>
<th>May kip-in</th>
<th>Vax kips</th>
<th>Iye in^2</th>
<th>Syle in^3</th>
<th>Ae in^2</th>
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<tbody>
<tr>
<td><strong>Web Depth 2.50” Lip 1.00”</strong></td>
<td></td>
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<tr>
<td>250 J100-18</td>
<td>2.622</td>
<td>2.25</td>
<td>1.00</td>
<td>0.0188</td>
<td>0.0843</td>
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<td>0.0796</td>
<td>1.5439</td>
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<td>0.1123</td>
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<tr>
<td>250 J100-30</td>
<td>2.641</td>
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<td>1.00</td>
<td>0.0312</td>
<td>0.0782</td>
<td>1.7646</td>
<td>0.832</td>
<td>0.1270</td>
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| **Web Depth 2.50” Lip 2.00”** |
| 250 J200-18 | 2.622  | 2.25     | 2.00        | 0.0188   | 0.0843   | 0.8674     | 0.247    | 0.0792  | 0.0439   | 0.0369 |
| 250 J200-27 | 2.636  | 2.25     | 2.00        | 0.0283   | 0.0796   | 1.7070     | 0.685    | 0.1442  | 0.0864   | 0.0765 |
| 250 J200-30 | 2.641  | 2.25     | 2.00        | 0.0312   | 0.0782   | 1.9498     | 0.832    | 0.1634  | 0.0987   | 0.0910 |
| 250 J200-33 | 2.646  | 2.25     | 2.00        | 0.0346   | 0.0764   | 2.2482     | 1.023    | 0.1866  | 0.1138   | 0.1092 |

| **Web Depth 4.00” Lip 1.00”** |
| 400 J100-18 | 4.122  | 2.25     | 1.00        | 0.0188   | 0.0843   | 1.4271     | 0.152    | 0.1807  | 0.0722   | 0.0373 |
| 400 J100-27 | 4.136  | 2.25     | 1.00        | 0.0283   | 0.0796   | 3.0404     | 0.518    | 0.3395  | 0.1539   | 0.0780 |
| 400 J100-30 | 4.141  | 2.25     | 1.00        | 0.0312   | 0.0782   | 3.4461     | 0.695    | 0.3818  | 0.1744   | 0.0930 |
| 400 J100-33 | 4.146  | 2.25     | 1.00        | 0.0346   | 0.0764   | 3.9409     | 0.948    | 0.4326  | 0.1994   | 0.1121 |

| **Web Depth 4.00” Lip 2.00”** |
| 400 J200-18 | 4.122  | 2.25     | 2.00        | 0.0188   | 0.0843   | 1.4113     | 0.152    | 0.2075  | 0.0714   | 0.0376 |
| 400 J200-27 | 4.136  | 2.25     | 2.00        | 0.0283   | 0.0796   | 3.0457     | 0.518    | 0.4004  | 0.1541   | 0.0791 |
| 400 J200-30 | 4.141  | 2.25     | 2.00        | 0.0312   | 0.0782   | 3.6946     | 0.695    | 0.4703  | 0.1870   | 0.0945 |
| 400 J200-33 | 4.146  | 2.25     | 2.00        | 0.0346   | 0.0764   | 4.3807     | 0.948    | 0.5456  | 0.2217   | 0.1140 |

| **Web Depth 6.00” Lip 1.00”** |
| 600 J100-18 | 6.122  | 2.25     | 1.00        | 0.0188   | 0.0843   | 2.1186     | 0.100    | 0.4251  | 0.1072   | 0.0377 |
| 600 J100-27 | 6.136  | 2.25     | 1.00        | 0.0283   | 0.0796   | 4.6117     | 0.342    | 0.8177  | 0.2334   | 0.0794 |
| 600 J100-30 | 6.141  | 2.25     | 1.00        | 0.0312   | 0.0782   | 5.6255     | 0.459    | 0.9610  | 0.2847   | 0.0949 |
| 600 J100-33 | 6.146  | 2.25     | 1.00        | 0.0346   | 0.0764   | 7.0098     | 0.626    | 1.1457  | 0.3547   | 0.1146 |

| **Web Depth 6.00” Lip 2.00”** |
| 600 J200-18 | 6.122  | 2.25     | 2.00        | 0.0188   | 0.0843   | 2.1381     | 0.100    | 0.4798  | 0.1082   | 0.0380 |
| 600 J200-27 | 6.136  | 2.25     | 2.00        | 0.0283   | 0.0796   | 4.5055     | 0.342    | 0.9255  | 0.2303   | 0.0805 |
| 600 J200-30 | 6.141  | 2.25     | 2.00        | 0.0312   | 0.0782   | 5.4838     | 0.459    | 1.0839  | 0.2775   | 0.0963 |
| 600 J200-33 | 6.146  | 2.25     | 2.00        | 0.0346   | 0.0764   | 6.7098     | 0.626    | 1.2830  | 0.3396   | 0.1166 |

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### SHAFT WALL STUD

#### STEELER SHAFT WALL STUD MEMBER PROPERTY TABLES

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<th>Wt, lbf</th>
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<th>Sxe, in⁴</th>
<th>Max, k-in</th>
<th>Voy, kips</th>
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#### Summary: Limiting Span Table, L, ft, Shaftwall Studs Spaced © 24” oc

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<td>18.71</td>
<td>15.96</td>
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SHAFT WALL STUD, 250H150–24 (50ksi)

Limiting Span Table, L, ft, 250H150–24 (50ksi) @ 24" oc

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
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<td>L/120</td>
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<tr>
<td>10 psf</td>
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</tr>
<tr>
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<td>7.47</td>
<td>8.31</td>
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GENERAL NOTES:

1. Design Specifications:
2. Material Properties:
   Material: ASTM A653 Grade 50
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 50 ksi
   Tensile Strength, Fu = 65 ksi
3. Fully Braced Section Properties:
   Ae = 0.1513 in²
   Wl = 0.6937 plf
   Ixe = 0.13136 in⁴
   Sxe = 0.08392 in³
   Maxo = 2.513 k-in
   Vay = 0.943 kips
4. Limiting Span Calculations:
   Bending Limits*: L = (8Maxo/w)⁰.50
   Deflection Limits: L = [384*E*Ixo]/[5*w*(120,180,240,360)]⁰.33
   Shear Limits: L = 2*Vay/w (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 9'-0"
Loading = 5 psf
Deflection = L/240

From Table Above Smaller Limit Controls
Bending = 12.94 ft
Deflection = 9.51 ft
Deflection Controls 9.51 ft >= 9.00 OK

H. DAVID JETER
REG. PROF. ENG.

EXPIRES: 07/27/2011

STEELER INC. 10023 MARTIN LUTHER KING JR. WAY SOUTH, SEATTLE, WA 98178 (206) 725-2500 • FAX (206) 725-1300 • www.steeler.com
**SHAFT WALL STUD, 250H150–27**

**Note:**
Steeleer Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
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</table>

**GENERAL NOTES:**

1. **Design Specifications:**
2. **Material Properties:**
   - Material: ASTM A653 Grade 33
   - Modulus of Elasticity, \( E = 29500 \) ksi
   - Yield Strength, \( F_y = 33 \) ksi
   - Tensile Strength, \( F_u = 45 \) ksi
3. **Fully Brooded Section Properties:**
   - \( A_e = 0.1994 \) in\(^4\)
   - \( W_t = 0.7906 \) plf
   - \( I_x = 0.1651 \) in\(^4\)
   - \( S_x = 0.1103 \) in\(^3\)
   - \( M_{xx} = 2.1789 \) k–in
   - \( V_{y} = 0.4619 \) kips
4. **Limiting Span Calculations:**
   - **Bending Limits:** \( L = \left( \frac{8 \cdot M_{xx}}{W_t} \right)^{0.50} \)
   - **Deflection Limits:** \( L = \left( \frac{384 \cdot E \cdot I_x}{5 \cdot w \cdot (120,180,240,360)} \right)^{0.33} \)
   - **Shear Limits:** \( L = 2 \cdot V_{y} / w \) (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

**EXAMPLE:**
- **Span L = 10'–0"**
- **Loading = 5 psf**
- **Deflection = L/180**

**From Table Above Smaller Limit Controls**
- Bending = 12.10 ft
- Deflection = 11.30 ft
- Deflection Controls 11.30 ft >= 10'–0" OK

**H. DAVID JETER**
Professional Engineer

**EXPIRES: 07/27/2011**
Note:
Steele Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 psf</td>
<td>12.75</td>
<td>13.38</td>
</tr>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
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<tr>
<td>7.5 psf</td>
<td>10.41</td>
<td>11.69</td>
</tr>
<tr>
<td></td>
<td>L/240</td>
<td>L/360</td>
</tr>
<tr>
<td>10 psf</td>
<td>9.02</td>
<td>10.62</td>
</tr>
<tr>
<td></td>
<td>9.28</td>
<td>8.37</td>
</tr>
<tr>
<td>15 psf</td>
<td>7.36</td>
<td>9.28</td>
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<tr>
<td></td>
<td>8.11</td>
<td>7.37</td>
</tr>
<tr>
<td></td>
<td></td>
<td>6.43</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:
2. Material Properties:
Material ASTM A653 Grade 33
Modulus of Elasticity, E = 29500 ksi
Yield Strength, Fy = 33 ksi
Tensile Strength, Fu = 45 ksi
3. Fully Broched Section Properties:
Ae = 0.2270 in^2
Wt. = 0.8678 plf
Ixe = 0.1829 in^4
Sxe = 0.1234 in^3
Maxo = 2.4388 k-in
Voy = 0.5080 kips
4. Limiting Span Calculations:
Bending Limits*: \( L = \frac{(8 \times \text{Maxo}}{w})^{0.50} \)
Deflection Limits: \( L = \frac{(384 \times E \times I_{xo})}{[5 \times w \times (120,180,240,360)]}^{0.33} \)
Shear Limits: \( L = 2 \times \text{Voy}/w \) (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 10'-0"
Loading = 5 psf
Deflection = L/240

From Table Above Smaller Limit Controls
Bending = 12.75 ft
Deflection = 10.62 ft
Deflection Controls 10.62 ft >= 10'-0" OK
SHAFT WALL STUD, 250H150–33

Note:
Steele Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
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<tbody>
<tr>
<td>5 psf</td>
<td>13.54</td>
<td>13.88</td>
</tr>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
</tr>
<tr>
<td>7.5 psf</td>
<td>11.06</td>
<td>12.13</td>
</tr>
<tr>
<td></td>
<td>L/180</td>
<td>10.59</td>
</tr>
<tr>
<td>10 psf</td>
<td>9.58</td>
<td>11.02</td>
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<tr>
<td></td>
<td>L/240</td>
<td>9.62</td>
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<tr>
<td>15 psf</td>
<td>7.82</td>
<td>8.41</td>
</tr>
<tr>
<td></td>
<td>L/360</td>
<td>7.64</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:
2. Material Properties:
   Material ASTM A653 Grade 33
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 33 ksi
   Tensile Strength, Fu = 45 ksi
3. Fully Broached Section Properties:
   Ae = 0.2576 in²
   Wt. = 0.9575 plf
   Ixx = 0.2040 in⁴
   Sxx = 0.1393 in³
   Maxo = 2.7517 k–in
   Vay = 0.5620 kips

4. Limiting Span Calculations:
   Bending Limits*: L=(8*Maxo/w)⁰.50
   Deflection Limits: L={(384*E*Ixx)/(5w*[120,180,240,360])}⁰.33
   Shear Limits: L=2*Vay/w (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
   Span L = 10’–0”
   Loading = 7.5 psf
   Deflection = L/180

   From Table Above Smaller Limit Controls
   Bending = 11.06 ft
   Deflection = 10.59 ft
   Deflection Controls 10.59 ft >= 10’–0” OK

H. DAVID JETER
PROFESSIONAL ENGINEER

EXPIRES: 07/27/2011
SHAFT WALL STUD, 400H150–24 (50ksi)

Limiting Span Table, L, ft, 400H150–24 (50ksi) @ 24" oc

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
</tr>
<tr>
<td>5 psf</td>
<td>16.16</td>
<td>16.68</td>
</tr>
<tr>
<td>7.5 psf</td>
<td>13.19</td>
<td>14.57</td>
</tr>
<tr>
<td>10 psf</td>
<td>11.43</td>
<td>13.24</td>
</tr>
<tr>
<td>15 psf</td>
<td>9.33</td>
<td>11.57</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:
2. Material Properties:
Material: ASTM A653 Grade 50
Modulus of Elasticity, E = 29500 ksi
Yield Strength, Fy = 50 ksi
Tensile Strength, Fu = 65 ksi
3. Fully Braced Section Properties:
Ae = 0.1542 in²
Wt. = 0.8197 plf
Ixe = 0.3542 in⁴
Sxe = 0.1308 in³
Maxo = 3.917 k-in
Voy = 0.595 kips
4. Limiting Span Calculations:
Bending Limits*: \( L=(8*\text{Maxo}/w)^{0.50} \)
Deflection Limits: \( L=[(384*E*Ixo)/(5*w*(120,180,240,360))]+0.33 \)
Shear Limits: \( L=2*\text{Voy}/w \) (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 16’–0
Loading = 5 psf
Deflection = L/120

From Table Above Smaller Limit Controls
Bending = 16.16 ft
Deflection = 16.68 ft
Bending Controls 16.16 ft >= 16.00 ft OK

H. DAVID JETER
PROFESSIONAL ENGINEER

EXPIRES: 07/27/2011
SHAFT WALL STUD, 400H150–27

Note:
Steeler Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U439, U459, U467, U469 and U492.

| Limiting Span Table, L, ft, 400H150–27 @ 24” oc |
|-------------------------------|-------------------|-------------------|-------------------|-------------------|
| Design Loads                  | Bending Limits, ft. | Deflection Limits, ft. |
|                               | L/120             | L/180             | L/240             | L/360             |
| 5 psf                         | 15.89             | 18.48             | 16.14             | 14.67             | 12.81             |
| 7.5 psf                       | 12.98             | 16.14             | 14.10             | 12.81             | 11.19             |
| 10 psf                        | 11.24             | 14.67             | 12.81             | 11.64             | 10.17             |
| 15 psf                        | 9.18              | 12.81             | 11.19             | 10.17             | 8.88              |

GENERAL NOTES:
1. Design Specifications:

2. Material Properties:
Material ASTM A653 Grade 33
Modulus of Elasticity, E = 29500 ksi
Yield Strength, Fy = 33 ksi
Tensile Strength, Fu = 45 ksi

3. Fully Brocled Section Properties:
Ae = 0.2059 in²
Wt. = 0.9350 plf
Ixe = 0.4812 in⁴
Sxe = 0.1917 in³
Maxo = 3.7886 k-in
Voy = 0.6848 kips

4. Limiting Span Calculations:
Bending Limits*: L=(8*Maxo/w)⁰.⁵⁰
Deflection Limits: L=\left[\left(\frac{384*E*Ixo}{5*w*(120,180,240,360)}\right)\right]⁰.₃³
Shear Limits: L=2*Voy/w (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 10’–0”
Loading = 10 psf
Deflection = L/360

From Table Above Smaller Limit Controls
Bending = 11.24 ft
Deflection = 10.17 ft
Deflection Controls 10.17 ft >= 10’–0” OK

H. DAVID JETER
PROFESSIONAL ENGINEER

EXPIRES: 07/27/2011
SHAFT WALL STUD, 400H150–30

Note:
Steeler Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
<thead>
<tr>
<th>Limiting Span Table, L, ft, 400H150–30 @ 24” oc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Loads</td>
</tr>
<tr>
<td>---------------</td>
</tr>
<tr>
<td>5 psf</td>
</tr>
<tr>
<td>7.5 psf</td>
</tr>
<tr>
<td>10 psf</td>
</tr>
<tr>
<td>15 psf</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:
2. Material Properties:
   Material ASTM A653 Grade 33
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 33 ksi
   Tensile Strength, Fu = 45 ksi
3. Fully Broached Section Properties:
   Ae = 0.2358 in²
   Wt. = 1.0270 plf
   Ixe = 0.6043 in⁴
   Sxe = 0.2256 in³
   Maxo = 4.4579 k–in
   Vay = 0.8323 kips
4. Limiting Span Calculations:
   Bending Limits: \[ L = \left(8 \times \text{Maxo} / \text{w}\right)^{0.50} \]
   Deflection Limits: \[ L = \left\{\left(384 \times E \times I_{x0}\right) / \left[5 \times w \times (120,180,240,360)\right]\right\}^{0.33} \]
   Shear Limits: \[ L = 2 \times V_{ay} / \text{w} \] (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 9’–0”
Loading = 15 psf
Deflection = L/360

From Table Above Smaller Limit Controls
Bending = 9.95 ft
Deflection = 9.30 ft
Deflection Controls 9.30 ft >= 9’–0” OK

EXPIRES: 07/27/2011

H. DAVID JETER
REGISTERED PROFESSIONAL ENGINEER

STEELER INC. 10023 MARTIN LUTHER KING JR. WAY SOUTH, SEATTLE, WA 98178 (206) 725–2500 • FAX (206) 725–1300 • www.steeler.com
SHAFT WALL STUD, 400H150–33

Note:
Steeler Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
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<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
</tr>
<tr>
<td>5 psf</td>
<td>18.55</td>
<td>20.19</td>
</tr>
<tr>
<td>7.5 psf</td>
<td>15.14</td>
<td>17.64</td>
</tr>
<tr>
<td>10 psf</td>
<td>13.11</td>
<td>16.03</td>
</tr>
<tr>
<td>15 psf</td>
<td>10.71</td>
<td>14.00</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:

2. Material Properties:
Material ASTM A653 Grade 33
Modulus of Elasticity, E = 29500 ksi
Yield Strength, Fy = 33 ksi
Tensile Strength, Fu = 45 ksi

3. Fully Brocaded Section Properties:
Ae = 0.2698 in²
Wt. = 1.1340 plf
Ixe = 0.6279 in⁴
Sxe = 0.2611 in³
Maxo = 5.1599 k–in
Voy = 1.0236 kips

4. Limiting Span Calculations:
Bending Limits: \( L = (8\times \text{Maxo}/w)^{0.50} \)
Deflection Limits: \( L = \{(384\times E\times Ixo)/(5\times w\times (120,180,240,360))\}^{0.33} \)
Shear Limits: \( L = 2\times \text{Voy}/w \) (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 9′–0″
Loading = 15 psf
Deflection = L/360
From Table Above Smaller Limit Controls
Bending = 10.71 ft
Deflection = 9.71 ft
Deflection Controls 9.71 ft >= 9′–0″ OK

H. DAVID JETER
PROFESSIONAL ENGINEER

EXPIRES: 07/27/2011
SHAFT WALL STUD, 600H150–24 (50ksi)

Limiting Span Table, L, ft, 600H150–24 (50ksi) @ 24" oc

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
</tr>
<tr>
<td>5 psf</td>
<td>20.00</td>
<td>22.36</td>
</tr>
<tr>
<td>7.5 psf</td>
<td>16.33</td>
<td>19.54</td>
</tr>
<tr>
<td>10 psf</td>
<td>14.14</td>
<td>17.75</td>
</tr>
<tr>
<td>15 psf</td>
<td>11.55</td>
<td>15.51</td>
</tr>
</tbody>
</table>

GENERAL NOTES:

1. Design Specifications:

2. Material Properties:
   Material: ASTM A653 Grade 50
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 50 ksi
   Tensile Strength, Fu = 65 ksi

3. Fully Broached Section Properties:
   \( A_e = 0.1552 \text{ in}^2 \)
   \( W_l = 0.9877 \text{ plif} \)
   \( I_{xe} = 0.853 \text{ in}^4 \)
   \( S_{xe} = 0.2903 \text{ in}^3 \)
   \( M_{xo} = 5.998 \text{ k-in} \)
   \( V_{ay} = 0.278 \text{ kips} \)

4. Limiting Span Calculations:
   Bending Limits: \( L = (8\cdot M_{xo}/w)^{0.50} \)
   Deflection Limits: \( L = \{(384\cdot E\cdot I_{xo})/[5\cdot w\cdot (120,180,240,360)]\}^{0.33} \)
   Shear Limits: \( L = 2\cdot V_{ay}/w \) (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span \( L = 20'-0" \)
Loading = 5 psf
Deflection = \( L/120 \)

From Table Above Smaller Limit Controls
Bending = 20.00 ft
Deflection = 22.36 ft
Bending Controls 20.00 ft >= 20.00 OK

H. DAVID JETER
PROFESSIONAL ENGINEER

EXPires: 07/27/2011
Note:
Steel stud walls are to be used in the assembled construction of fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
</tr>
<tr>
<td>5 psf</td>
<td>19.64</td>
<td>24.66</td>
</tr>
<tr>
<td>7.5 psf</td>
<td>16.03</td>
<td>21.54</td>
</tr>
<tr>
<td>10 psf</td>
<td>13.88</td>
<td>19.57</td>
</tr>
<tr>
<td>15 psf</td>
<td>11.34</td>
<td>17.10</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:
2. Material Properties:
   Material ASTM A653 Grade 33
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 33 ksi
   Tensile Strength, Fu = 45 ksi
3. Fully Broached Section Properties:
   Ae = 0.2083 in²
   Wt. = 1.1274 plf
   Ixe = 1.1442 in⁴
   Sxe = 0.2839 in³
   Maxo = 5.7831 k-in
   Voy = 0.4185 kips
4. Limiting Span Calculations:
   Bending Limits: \[ L = (8 \times \text{Maxo}/w)^{0.5} \]
   Deflection Limits: \[ L = \left\{ \frac{(384 \times E \times Ix)}{[5 \times w(120,180,240,360)])^{0.33} \right. \]  
   Shear Limits: \[ L = 2 \times \text{Voy}/w \] (Does not control)

*No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 13' - 0"
Loading = 10 psf
Deflection = L/360

From Table Above Smaller Limit Controls:
Bending = 13.88 ft
Deflection = 13.57 ft (Controls)
Deflection Controls 13.57 ft >= 13’-0” OK

H. DAVID JETER
PROFESSIONAL ENGINEER

Expires: 07/27/2011
SHAFT WALL STUD, 600H150–30

Note:
Steeler Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492.

<table>
<thead>
<tr>
<th>Limiting Span Table, L, ft, 600H150–30 @ 24” oc</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Loads</td>
</tr>
<tr>
<td>---------------</td>
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<tr>
<td></td>
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<tr>
<td>5 psf</td>
</tr>
<tr>
<td>7.5 psf</td>
</tr>
<tr>
<td>10 psf</td>
</tr>
<tr>
<td>15 psf</td>
</tr>
</tbody>
</table>

GENERAL NOTES:
1. Design Specifications:
2. Material Properties:
   Material ASTM A653 Grade 33
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 33 ksi
   Tensile Strength, Fu = 45 ksi
3. Fully Brocde Section Properties:
   Ae = 0.2389 in²
   Wt. = 1.2391 plf
   Ixe = 1.3023 in⁴
   Sxe = 0.3285 in³
   Maxo = 6.491 k-in
   Vay = 0.561 kips
4. Limiting Span Calculations:
   Bending Limits:  \( L = \left(8 \cdot \frac{\text{Maxo}}{w}\right)^{0.5} \)
   Deflection Limits:  \( L = \left\{\frac{384 \cdot E \cdot I_{x0}}{5 \times w \times (120,180,240,360)}\right\}^{0.33} \)
   Shear Limits:  \( L = 2 \cdot \frac{V_{ay}}{w} \) (Does not control)

   *No reduction in lateral loading for bending or deflection has been used.

EXAMPLE:
Span L = 20–0”
Loading = 5 psf
Deflection = L/240

From Table Above Smaller Limit Controls
   Bending = 20.80 ft
   Deflection = 20.44 ft
   Deflection Controls 20.44 ft >= 20’–0” OK

H. DAVID JETER
P.E.
PROFESSIONAL ENGINEER

EXPIRES: 07/27/2011
SHALE WALL STUD, 600H150–33

Steelers Shaft Wall Studs are to be used in the assembled construction for fire resistant shaft walls as shown in UL Design Numbers U428, U429, U438, U459, U467, U469 and U492. LIMITING HEIGHTS, FT.--600H150–33 @ 24" O.C.

**Limiting Span Table, L, ft, 600H150–33 @ 24" oc**

<table>
<thead>
<tr>
<th>Design Loads</th>
<th>Bending Limits, ft.</th>
<th>Deflection Limits, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>L/120</td>
<td>L/180</td>
</tr>
<tr>
<td>5. psf</td>
<td>22.57</td>
<td>26.99</td>
</tr>
<tr>
<td>7.5 psf</td>
<td>18.43</td>
<td>23.58</td>
</tr>
<tr>
<td>10 psf</td>
<td>15.96</td>
<td>21.42</td>
</tr>
<tr>
<td>15 psf</td>
<td>13.03</td>
<td>18.71</td>
</tr>
</tbody>
</table>

**GENERAL NOTES:**

1. **Design Specifications:**
   2. **Material Properties:**
   Material ASTM A653 Grade 33
   Modulus of Elasticity, E = 29500 ksi
   Yield Strength, Fy = 33 ksi
   Tensile Strength, Fu = 45 ksi
3. **Fully Brocled Section Properties:**
   Ae = 0.2742 in²
   Wt = 1.3693 plf
   Ixe = 1.4998 in⁴
   Sxe = 0.3868 in³
   Maxo = 7.643 k–in
   Vay = 0.766 kips

4. **Limiting Span Calculations:**
   Bending Limits: \( L = \left( \frac{8 \times \text{Maxo}}{w} \right)^{0.5} \)
   Deflection Limits: \( L = \left( \frac{384 \times E \times I_{x0}}{5 \times w \times (120, 180, 240, 360)} \right)^{0.33} \)
   Shear Limits: \( L = 2 \times \text{Vay} / w \) (Does not control)

*No reduction in lateral loading for bending or deflection has been used.*

**EXAMPLE:**
Span \( L = 20'–0" \)
Loading = 5 psf
Deflection = L/240

From Table Above Smaller Limit Controls
Bending = 22.57 ft
Deflection = 21.42 ft
Deflection Controls 21.42 ft >= 20’–0” OK

expires: 07/27/2011
Potential LEED® Points for Steeler Metal Framing

11 Potential Points

Steeler Inc. is stepping up to the environmental challenges of today and contributing to future generations by supporting green building with green products. Steeler Inc. framing systems and products are the environmentally responsible choice. Below is a list of LEED Credits that can apply to your project and to sustainability of the built environment. Let us help you do your part by specifying Steeler framing and products.

---

**LEED Credit MR 2**  
**Construction Waste Management (1-2 points)**  
Steeler framing products are manufactured from cold-formed steel (CFS). CFS is 100% recyclable and therefore contributes significantly to LEED Credit MR 2. The specific contribution amounts will vary depending on the project and construction decisions.

**LEED Credit MR 4**  
**Recycled Content (1-2 points)**  
Steeler framing products contain a minimum of 26% post-consumer and 7% pre-consumer recycled steel content for a minimum of 33% recyclable. Recycled content of materials contributes to LEED Credits MR 4. If notified in advance, Steeler can order steel containing higher percentages of recycled content to meet your specific project needs. Contact Steeler technical services prior to ordering so we can help support your project goals.

**LEED Credit MR 5**  
**Regional Materials (1-2 points)**  
Steeler framing products contain a large percentage of locally sourced materials and can contribute to LEED Credits MR 5. Materials contributing to these credits must be extracted, harvested, or recovered, and manufactured within a 500 mile radius OR ≤500 miles of total travel distance using a weighted mileage contribution depending on the means of travel.

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**LEED Credit ID 1**  
**Innovation in Design (1-2 points)**  
Steeler framing can contribute to LEED Credits ID 1 through Path 2 and exemplary performance for Recycled Content and/or Regional Materials. Credit for exemplary performance may require steel with a higher than average recycled content. Contact Steeler technical services prior to ordering so we can support your project goals by ordering highly recycled steel.

**LEED Credit RP 1**  
**Regional Priority (1-3 points)**  
Steeler framing can contribute to LEED Credits RP 1 by addressing geographic-specific environmental priorities. If your project area has defined any of the above LEED Credits as a regional priority, then your project qualifies for one credit per priority met. Verify your project’s regional priority credits at the U.S. Green Building Council (USGBC) website, www.usgbc.org

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Steeler Plant Locations

- Seattle, WA
- Newark, CA

Steeler Inc. supports the U.S. Green Building Council by retaining LEED knowledgeable professionals on staff. Steeler Inc. engineering services (206-760-7100) can assist you in documenting and applying LEED Certification Credits to your project. Let’s develop a more sustainable building environment together!
## Product Lines

### INTERIOR & EXTERIOR FRAMING

**Steelier Manufactured Products**
- Steel Studs & Track
- Smooth Products™
- Slotted Track
- Sound Resilient Channel
- Furring Channel
- Cold-Rolled Channel
- Angle
- Flat Stock
- Shaftwall Studs
- J Track
- Z-Furring Channel
- Custom Brake Shapes
- Steelier Slotted Studs™
- Pony Wall Supports

### FASTENERS

**Steelier Product Offerings**
- Super Steelers™
- Hi-Lo Super Steelers™
- Super Woodies™
- Super Framer*
- Super Lathers*
- Super Hex Framers*
- Super Laminating

*Denotes availability in zinc coating

### TOOLS & ACCESSORIES

**Steelier Product Offerings**
- Bit Tips & Bit Tip Holders
- Magnetic Nut Runners
- Chop Saw Blades
- DeWalt
- Empire Levels
- Kett Tool Company
- ToolPro
- Pacific Laser Systems
- Wal-Board Tools
- Ramset Fastening Systems
- 3M Construction Supplies

And more...

### INTERIOR FINISHING & DRYWALL

**Steelier Product Offerings**
- Hanger Wire
- U-Hank Tie Wire
- Engineered Slide Clips
- National Gypsum
- The Steel Network
- Knauf Insulation
- Westpac Materials
- Products from USG
- Murco Wall Products
- Award Metals Corner Beads
- Trim-Tex Drywall Products

And more...
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