

# Metal Framing – ZI12-1316

1<sup>5</sup>/<sub>8</sub>" x 1<sup>3</sup>/<sub>16</sub>" Channel

Standard finish is Pre-Galvanized (PG).

Green Painted (GN) is made to order.

Metal thickness is 12 gauge (0.105").

## ELEMENTS OF SECTION

| CATALOG NUMBER | STOCK NUMBER | PUNCH   | LENGTH | WEIGHT | AREA OF SECTION | AXIS X-X |          |                  | AXIS Y-Y              |                       |         | BUNDLE QTY |
|----------------|--------------|---------|--------|--------|-----------------|----------|----------|------------------|-----------------------|-----------------------|---------|------------|
|                |              |         |        |        |                 | ft.      | lbs./ft. | in. <sup>2</sup> | I (in. <sup>4</sup> ) | S (in. <sup>3</sup> ) | R (in.) |            |
| ZI12-1316      | 5205310000   | Solid   | 10     | 1.27   | 0.375           | 0.032    | 0.066    | 0.291            | 0.126                 | 0.155                 | 0.577   | 500        |
|                | 5205010000   | HS      |        |        |                 |          |          |                  |                       |                       |         | 500        |
|                | 5205210000   | FS      |        |        |                 |          |          |                  |                       |                       |         | 500        |
|                | —            | P       |        |        |                 |          |          |                  |                       |                       |         | —          |
| ZI12-1316 BTB  | 5205110000   | HS/BTB* | 10     | 2.54   | 0.750           | 0.148    | 0.182    | 0.442            | 0.252                 | 0.311                 | 0.577   | 250        |
| ZI12-1316      | 5205320000   | Solid   | 20     | 1.27   | 0.375           | 0.032    | 0.066    | 0.291            | 0.126                 | 0.155                 | 0.577   | 500        |
|                | 5205020000   | HS      |        |        |                 |          |          |                  |                       |                       |         | 500        |
|                | 5205220000   | FS      |        |        |                 |          |          |                  |                       |                       |         | 500        |
|                | —            | P       |        |        |                 |          |          |                  |                       |                       |         | —          |
| ZI12-1316 BTB  | 5205120000   | HS/BTB* | 20     | 2.54   | 0.750           | 0.148    | 0.182    | 0.442            | 0.252                 | 0.311                 | 0.577   | 300        |

I: Moment of inertia

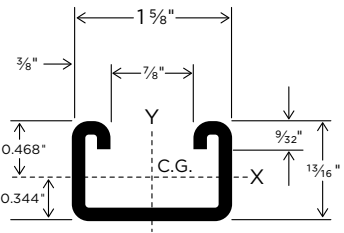
S: Section modulus

R: Radius of gyration

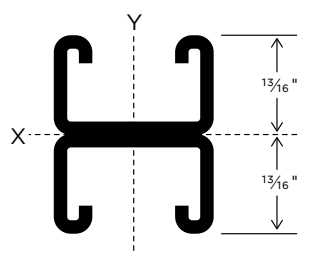
\*BTB is welded back to back

## BEAM AND COLUMN LOADS DATA

| CATALOG NUMBER | BEAM SPAN OR UNBRACED COLUMN HEIGHT | UNIFORM LOAD AT STRESS OF 25,000 PSI | DEFLECTION AT STRESS OF 25,000 PSI | UNIFORM LOAD WHEN MAXIMUM DEFLECTION = SPAN/240 | MAXIMUM ALLOWABLE LOAD OF COLUMN |
|----------------|-------------------------------------|--------------------------------------|------------------------------------|---|----------------------------------|
|                | in.                                 | lbs.                                 | in.                                | lbs.  | lbs.                             |
| ZI12-1316      | 18                                  | 760                                  | 0.058                              | 700   | 6700                             |
|                | 24                                  | 555                                  | 0.103                              | 506   | 6250                             |
|                | 30                                  | 450                                  | 0.150                              | 365   | 5300                             |
|                | 36                                  | 370                                  | 0.230                              | 240   | 4100                             |
|                | 42                                  | 320                                  | 0.300                              | 185   | 3950                             |
|                | 48                                  | 275                                  | 0.409                              | 136   | 2720                             |
|                | 60                                  | 223                                  | 0.644                              | 86  | 1950                             |
|                | 72                                  | 185                                  | 0.925                              | 58  | 910                              |
|                | 84                                  | 157                                  | 1.220                              | 43  | 665                              |
|                | 96                                  | 137                                  | 1.649                              | 34  | —                                |
|                | 120                                 | 109                                  | 2.574                              | 20  | —                                |
|                | ZI12-1316 BTB                       | 18                                   | 1270                               | 0.026   | 1270                             |
| 24             |                                     | 1270                                 | 0.051                              | 1270  | 15700                            |
| 30             |                                     | 1215                                 | 0.090                              | 1130  | 14720                            |
| 36             |                                     | 1012                                 | 0.136                              | 1013  | 13660                            |
| 42             |                                     | 870                                  | 0.180                              | 840   | 13050                            |
| 48             |                                     | 759                                  | 0.245                              | 624   | 11530                            |
| 60             |                                     | 607                                  | 0.381                              | 399   | 9450                             |
| 72             |                                     | 506                                  | 0.548                              | 278   | 6780                             |
| 84             |                                     | 432                                  | 0.743                              | 179   | 4850                             |
| 96             |                                     | 380                                  | 0.971                              | 156   | 3750                             |
| 120            |                                     | 302                                  | 1.517                              | 99  | 2450                             |



ZI12-1316



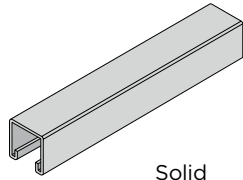
ZI12-1316 BTB

**Beam Loads:** Loads listed are uniformly distributed; for loads concentrated at center of span, multiply uniform load at table by 0.5 and multiply the deflection by 0.8. When deflection is not a factor, use stress of 25,000 psi. When deflection is a factor, use deflection of SPAN/240.

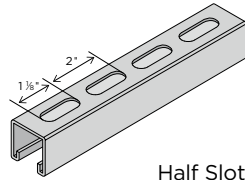
All weights and dimensions shown are subject to commercial tolerances.

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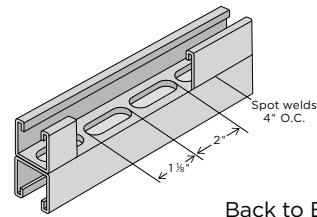
## Punching Options



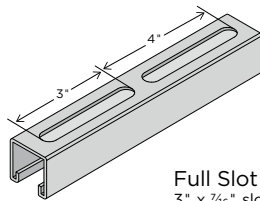
Solid



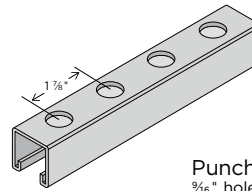
Half Slot (HS)  
1 1/4" x 3/16" slots punched  
on 2" centers



Back to Back (BTB)  
Back to back channel with  
standard half-slots



Full Slot (FS)  
3" x 3/16" slots punched  
on 4" centers



Punch (P)  
3/16" holes punched  
on 1 1/2" centers

### Material Specifications and Finishes

**Carbon Steel**— Structural grade steel sheet coil that has been melted and rolled at the steel mill to conform to ASTM A1011 SS GR 33 (Hot Rolled) and ASTM A653 SS GR 33 (Galvanized). These ASTM specifications require the mechanical properties to be a minimum of 33 ksi yield and 52 ksi tensile. Additionally, the mechanical properties of the incoming steel are further increased in the actual rollforming process. This is sometimes referred to as “work hardening.”

**Stainless Steel**— Chromium–nickel austenitic steel sheet coil that has been melted, rolled and annealed at the steel mill to conform to ASTM A240 Type 304. Generally, stainless steel has a higher yield and tensile than carbon steel produced to GR 33. The mechanical properties of the incoming steel (stainless) tend not to increase as much as carbon steel in the rollforming process. Strut produced from stainless steel offers superior protection in harsh and corrosive environments.

**PL**— Plain. Plain strut does not have any protective coating other than the residual mill oil and rolling lubricant that is applied in the rollforming process. Using bare strut in any application where it may be exposed to corrosion is not recommended.

**PG**— Pre-Galvanized, also known as Hot-Dip Mill Galvanized or Mill Galvanized, is produced at the steel mills. Coils of carbon steel weighing up to 40 tons are unwound and passed (continuously) through a vessel containing molten zinc. This vessel is commonly referred to as a “Galvanizing Pot” or “Zinc Pot.” The molten zinc alloys itself to the base metal (carbon steel) and is then cooled in a uniform manner and reformed back into a coil. The amount of zinc applied to the base metal used for manufacturing ZI-Strut meets all specifications of ASTM G90, which requires 0.9 oz. minimum per square foot of base metal. The nominal coating weight for G90 is 1.25 oz. per square foot. Prior to rewinding the pre-galvanized coil, a chromate coating (chem treat) and/or a light coating of rolling oil may be applied to prevent oxidation.

**GN**— Green Painted. Plain strut is thoroughly cleaned to remove all residual mill oils and rolling lubricants. The cleaned strut is then pre-treated with a phosphoric coating for additional corrosion resistance and improved paint adherence. From here, a high grade of polyester powder paint is electrostatically applied. The strut is then placed on an overhead conveyor and is cycled through a curing oven for 20 minutes at 400°F (204°C). Upon completion of this process, the paint is chemically bonded to the base steel.\*

Note: Specifications subject to change without notice.

\*Zekelman Industries reserves the right to substitute alternate paint systems that will be of equal or superior quality to the system described above.

## SUBMITTAL INFORMATION

PROJECT: \_\_\_\_\_

CONTRACTOR: \_\_\_\_\_

DATE: \_\_\_\_\_

ENGINEER: \_\_\_\_\_

SPECIFICATION REFERENCE: \_\_\_\_\_

SYSTEM TYPE: \_\_\_\_\_

LOCATIONS: \_\_\_\_\_

COMMENTS: \_\_\_\_\_

ZI-031924