

PLC4

BYPASS DEFLECTION CLIP



**BEST DEFLECTION CLIP
IN THE INDUSTRY**

 **SCAFCO**
Steel Stud Company

IAPMO
UNIFORM
ER 0494

Tested by

STR

STRUCTURAL TESTING AND RESEARCH INC.

www.SCAFCO.com

PLC4 BYPASS CLIP

The **PLC4 Bypass Clip** is a premium option for bypass curtain wall connections. The PLC4's advanced design provides secure attachment to the main building structure while allowing seamless vertical deflection. The bypass clip has multiple features specifically designed to improve the user experience, as detailed on page 3.

SCAFCO's PLC4 Bypass Clip was professionally tested by Structural Testing and Research Inc. (STAR), one of the leading testing laboratories in North America. Structural capacity tests for both compression and tension proved the PLC4's ability to handle the most extreme exterior wind loads.

» Premium Product

- Quicker installation (custom screws)
- Safer material handling (chamfered corners)
- Increased load capacity

» Clip Composition

- 68 mil (14 ga.) steel thickness
 - 57 ksi yield strength
 - 65 ksi tensile strength
 - G90 galvanized coating
- ASTM A653/A653M

» Custom Screw Composition

- ASTM C1513
- C 1022 case hardened steel
- Zinc plated coating
 - 1000 hours salt spray life
 - Exceeds standard screw life by over 10X

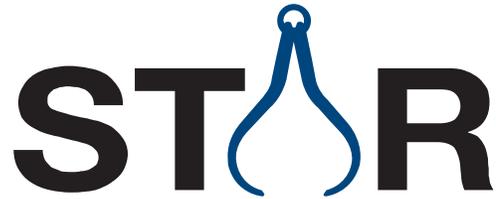


TESTING

Structural Testing and Research Inc.

Structural Testing and Research Inc. (STAR) is an ISO 17025 testing laboratory accredited by International Accreditation Service, Inc. for a range of test procedures including ICC AC261 acceptance criteria for connectors used with cold-formed steel structural members.

The PLC4 Bypass Clips are mounted on traditional cold formed steel framing members then loaded for failure with both compression and tension forces. The material composition is verified and tested by Star Labs to meet ASTM and AISI standards.



STRUCTURAL TESTING AND RESEARCH INC.

CERTIFICATION

IAPMO Uniform Evaluation Services

IAPMO Uniform Evaluation Services provide assurance for yourself, end users and building regulators that the code which sets the bar for building component acceptability has been satisfied. IAPMO is a leader in the industry and a foremost source of uniform codes and standards.

IAPMO Uniform reviews the third-party testing to meet all applicable codes and standards. After reviewing the testing report and application of the product multiple licensed engineering professionals have certified the PLC4 and its load capacities to be code compliant.



Profile Features

The PLC4 Bypass Clip has been engineered to provide the greatest allowable loads in the industry. The clip was designed with contractor input to be user-friendly and save labor. The following features help make this product the leader in the industry.

MOVEMENT

» Deflection Slots

- 2 1/4" slots (allows for 2" of total deflection)
- 3 slots for multiple screw configurations

» Proprietary Screws

- Shouldered screws are provided and are easy to install

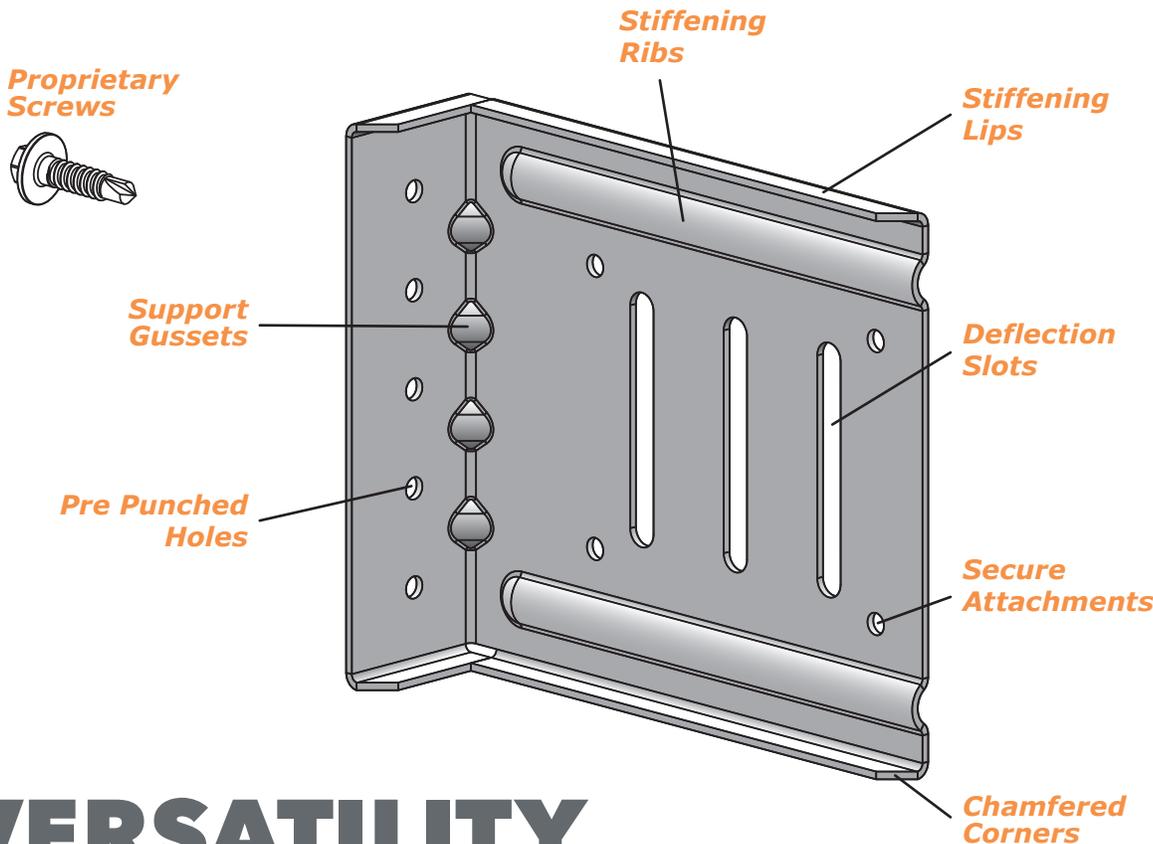
STRENGTH

» Stiffening Lips and Ribs

- Increased compression strength for high wind loads
- Stiffened clip face allows for ease of installation

» Support Gussets

- Support gussets help transfer the tension forces from connection through the supporting structure



VERSATILITY

» Secure Attachment

- 4 pre-drilled holes are available for optional secure attachment
- One clip for multiple uses saves labor on the job site

» Pre Punched Holes

- Pre-punched holes allows for multiple attachment methods to structure

SAFETY

» Chamfered Corners

- Reduces sharp corners and possibility of field injury
- Safer product, brings savings to the building owner

Product Data

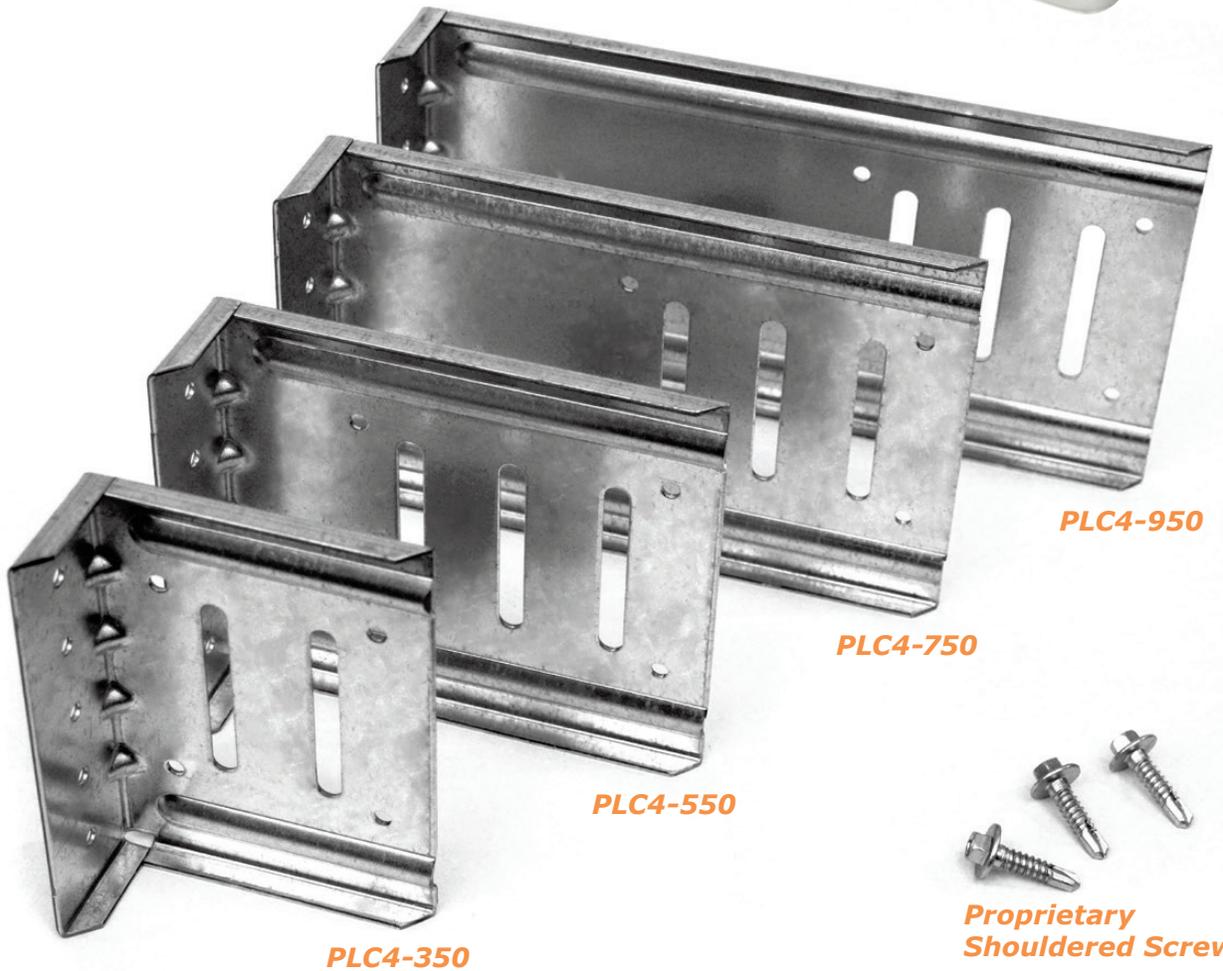
Material Properties

| Member Thickness Designation | Minimum Thickness (in) | Design Thickness (in) | Yield Stress (ksi) | Tensile Strength (ksi) | Minimum Galvanized Coating |
|------------------------------|------------------------|-----------------------|--------------------|------------------------|----------------------------|
| 68 mil (14ga.) | 0.0677 | 0.0713 | 57 | 65 | G90 |

Quantity / Order Information

| Part No. | Width | Qty / Bucket | Lbs / Bucket |
|----------|--------|--------------|--------------|
| PLC4-350 | 3 1/2" | 35 | 19 |
| PLC4-550 | 5 1/2" | 35 | 26 |
| PLC4-750 | 7 1/2" | 35 | 34 |
| PLC4-950 | 9 1/2" | 25 | 30 |

All PLC4 clips include shouldered screws. Additional lengths available upon request.



Load Information Deflection Connection

Allowable Loads

| Part No. | Length | Allowable Loads (lbs) F1-Direction (See Illustration Below) | | | | |
|-------------|--------|---|-------|----------|---------------|-------------------|
| | | Stud Properties | | | 2 #14 Screws | |
| | | Thickness (mil) | Gauge | Fy (ksi) | Tension (lbs) | Compression (lbs) |
| PLC4 350 | 3-1/2" | 33EQS | 20 | 57 | 485 | 510 |
| | | 33 | 20 | 33 | 485 | 510 |
| | | 43EQS | 18 | 57 | 601 | 621 |
| | | 43 | 18 | 33 | 601 | 621 |
| | | 54 | 16 | 50 | 928 | 935 |
| | | 68 | 14 | 50 | 1242 | 1086 |
| | | 97 | 12 | 50 | 1242 | 1086 |
| | | 118 | 10 | 50 | 1242 | 1086 |

Maximum Allowable Clip Capacity - Max F1 = 1242 lbs (Tension)

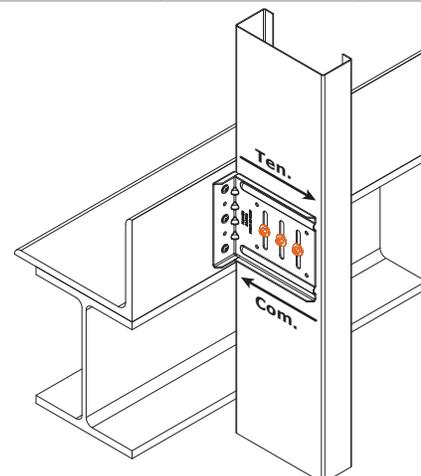
| Part No. | Length | Allowable Loads (lbs) F1-Direction (See Illustration Below) | | | | | | |
|-------------|--------|---|-------|----------|---------------|-------------------|---------------|-------------------|
| | | Stud Properties | | | 2 #14 Screws | | 3 #14 Screws | |
| | | Thickness (mil) | Gauge | Fy (ksi) | Tension (lbs) | Compression (lbs) | Tension (lbs) | Compression (lbs) |
| PLC4 550 | 5-1/2" | 33EQS | 20 | 57 | 485 | 510 | 738 | 784 |
| | | 33 | 20 | 33 | 485 | 510 | 738 | 784 |
| | | 43EQS | 18 | 57 | 601 | 621 | 950 | 1006 |
| | | 43 | 18 | 33 | 601 | 621 | 950 | 1006 |
| | | 54 | 16 | 50 | 928 | 935 | 1367 | 1411 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1480 | 1986 |
| PLC4 750 | 7-1/2" | 33EQS | 20 | 57 | 485 | 510 | 738 | 784 |
| | | 33 | 20 | 33 | 485 | 510 | 738 | 784 |
| | | 43EQS | 18 | 57 | 601 | 621 | 950 | 1006 |
| | | 43 | 18 | 33 | 601 | 621 | 950 | 1006 |
| | | 54 | 16 | 50 | 928 | 935 | 1367 | 1411 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1480 | 1986 |
| PLC4 950 | 9-1/2" | 33EQS | 20 | 57 | 485 | 510 | 738 | 784 |
| | | 33 | 20 | 33 | 485 | 510 | 738 | 784 |
| | | 43EQS | 18 | 57 | 601 | 621 | 950 | 1006 |
| | | 43 | 18 | 33 | 601 | 621 | 950 | 1006 |
| | | 54 | 16 | 50 | 928 | 935 | 1367 | 1411 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1480 | 1986 |

Maximum Allowable Clip Capacity - Max F1 = 1986 lbs (Compression)

For SI: 1 mil = 0.0254 mm, 1 inch = 25.4 mm, 1 lb = 4.45N

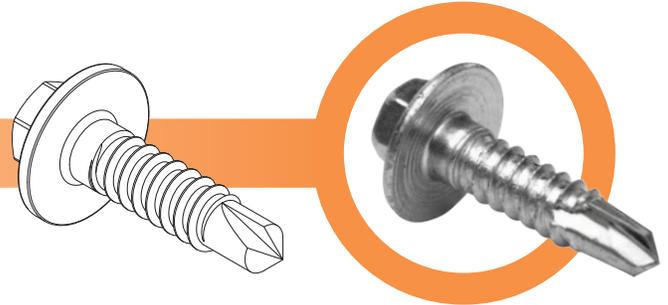
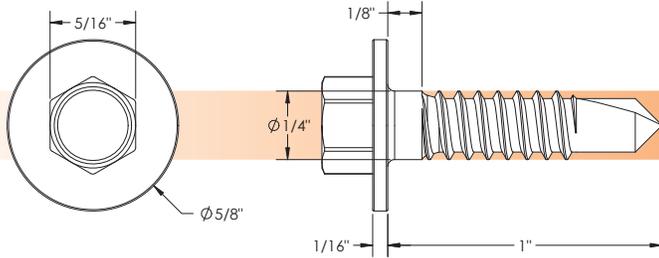
Table Notes

1. SCAFCO proprietary #14 shouldered screws described in section 3.2.2 of IAPMO ER 0494 must be used for allowable loads.
2. Allowable loads are minimum of: ASD Allowable loads from testing, and 1/8" relative deflection service limit.
3. Reference figure to the right for F1 Load direction and definition.
4. Number of screws shall be designated by design professional to meet loading conditions.



Shouldered Screws

Material Properties



Custom Screw Composition

- ASTM C1513
- C 1022 Case hardened steel
- Zinc plated coating
 - 1000 hours salt spray life
 - Exceeds standard screw life by over 10X

North American Steel

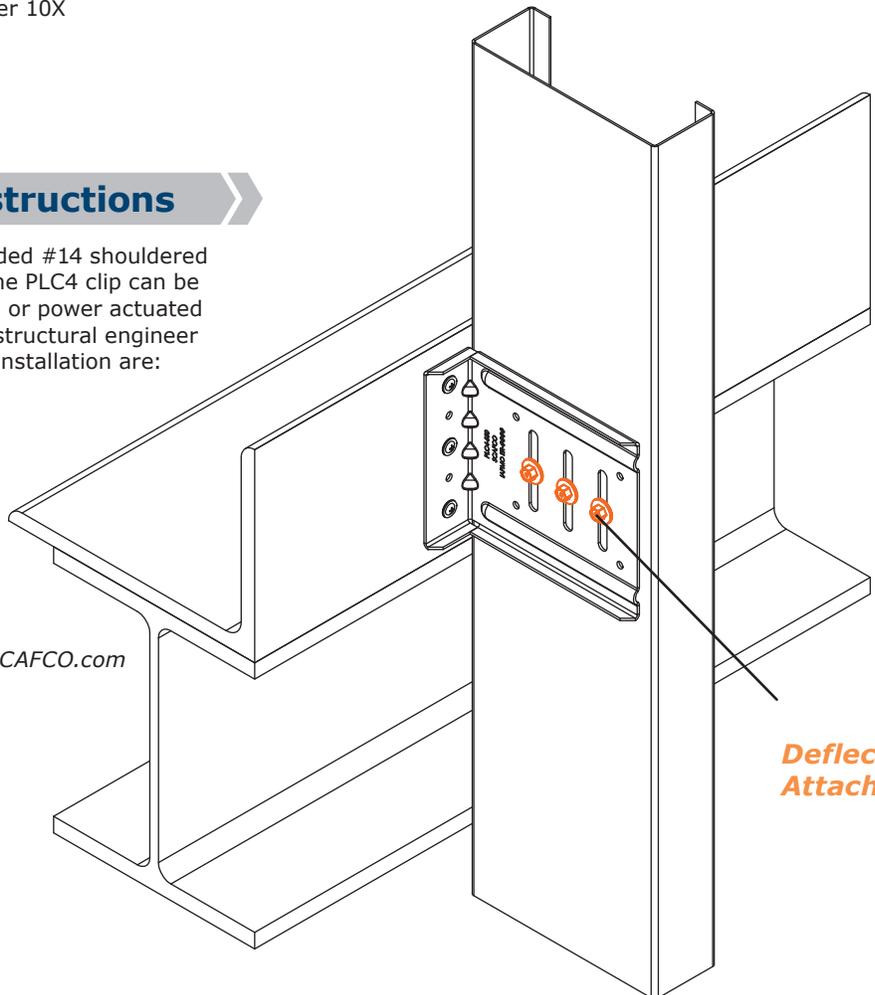
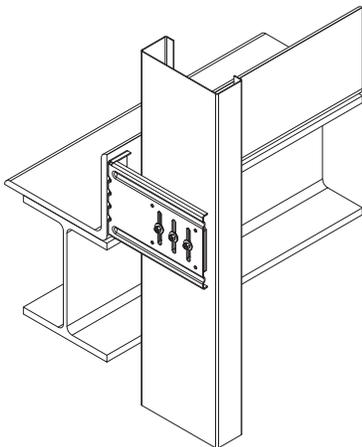
All components are made using only North American steel and North American labor for products you can trust to perform better. You can depend on our products for performance and long-life results.

Deflection Installation Instructions

The **PLC4 Clips** are designed to use the provided #14 shouldered screws for the Clip to wall stud attachment. The PLC4 clip can be attached to the structure using screws, welds, or power actuated fasteners, which is typically called out by the structural engineer of record. Some important considerations for installation are:

- Ensure the structural face that the PLC4 will be attaching to is square and free of debris
- Pre-punched holes in the short leg are designed for #10 fasteners
- Ensure the clip is attached so that the slots are oriented vertically
- Attach to the stud through the slots using the provided #14 shouldered screws

**For complex installation contact Technical@SCAFCO.com
See detail below*



Deflection Attachment

Secure Attachments

Secure Attachment Allowable Loads

| Part No. | Length | Allowable Loads (lbs) F1-Direction (See Illustration Below) | | | | | | |
|-------------|--------|---|-------|----------|---------------|-------------------|---------------|-------------------|
| | | Stud Properties | | | 2 #10 Screws | | 4 #10 Screws | |
| | | Thickness (mil) | Gauge | Fy (ksi) | Tension (lbs) | Compression (lbs) | Tension (lbs) | Compression (lbs) |
| PLC4 350 | 3-1/2" | 33EQS | 20 | 57 | 353 | 353 | 485 | 510 |
| | | 33 | 20 | 33 | 353 | 353 | 707 | 707 |
| | | 43EQS | 18 | 57 | 526 | 526 | 601 | 621 |
| | | 43 | 18 | 33 | 526 | 526 | 601 | 621 |
| | | 54 | 16 | 50 | 928 | 935 | 928 | 935 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1242 | 1086 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1242 | 1086 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1242 | 1086 |
| PLC4 550 | 5-1/2" | 33EQS | 20 | 57 | 353 | 353 | 707 | 707 |
| | | 33 | 20 | 33 | 353 | 353 | 707 | 707 |
| | | 43EQS | 18 | 57 | 526 | 526 | 950 | 1006 |
| | | 43 | 18 | 33 | 526 | 526 | 950 | 1006 |
| | | 54 | 16 | 50 | 928 | 935 | 1367 | 1411 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1480 | 1986 |
| PLC4 750 | 7-1/2" | 33EQS | 20 | 57 | 353 | 353 | 707 | 707 |
| | | 33 | 20 | 33 | 353 | 353 | 707 | 707 |
| | | 43EQS | 18 | 57 | 526 | 526 | 950 | 1006 |
| | | 43 | 18 | 33 | 526 | 526 | 950 | 1006 |
| | | 54 | 16 | 50 | 928 | 935 | 1367 | 1411 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1480 | 1986 |
| PLC4 950 | 9-1/2" | 33EQS | 20 | 57 | 353 | 353 | 707 | 707 |
| | | 33 | 20 | 33 | 353 | 353 | 707 | 707 |
| | | 43EQS | 18 | 57 | 526 | 526 | 950 | 1006 |
| | | 43 | 18 | 33 | 526 | 526 | 950 | 1006 |
| | | 54 | 16 | 50 | 928 | 935 | 1367 | 1411 |
| | | 68 | 14 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 97 | 12 | 50 | 1242 | 1086 | 1480 | 1986 |
| | | 118 | 10 | 50 | 1242 | 1086 | 1480 | 1986 |

For SI: 1 mil = 0.0254 mm, 1 inch = 25.4 mm, 1 lb = 4.45N

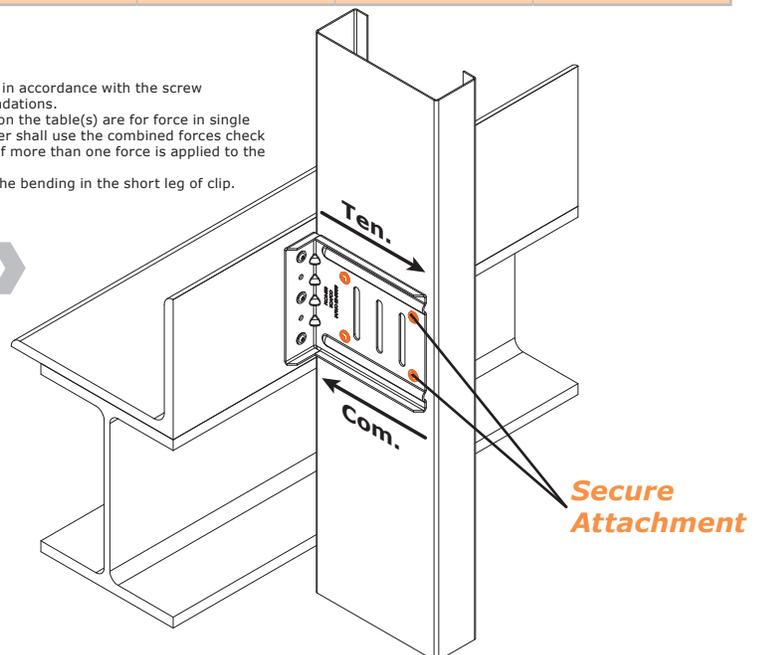
Table Notes

1. Allowable loads have not been increased for wind, seismic activity, or other factors.
2. The allowable loads are based on the lesser of the screw capacities, per AISI S100, and those published in IAPMO ER 0494.
3. Anchorage to the supporting structure shall be analyzed by a design professional.
4. Install and tighten screws in accordance with the screw manufacturer's recommendations.
5. Allowable loads indicated on the table(s) are for force in single direction only. The designer shall use the combined forces check as required by AISI S100 if more than one force is applied to the connection.
6. The designer shall check the bending in the short leg of clip.

Secure Installation Instructions

The **PLC4 Clips** are multi-functional and have both deflection and secure attachment capabilities for bypass framing. The Clips come pre-punched with 4 secure connection holes. Some important considerations for installation are:

- Ensure the structural face that the PLC4 will be attaching to is square and free of debris
- Pre-punched holes in the short leg are designed for size #10 fasteners
- Attach the stud through the pre-punched holes with #10 self-tapping screws



SCAFCO Steel Framing

With 60 years of manufacturing experience, SCAFCO has gained a worldwide reputation for high-quality products, great customer service, and strong corporate ethics. Our comprehensive team of engineers, administrative and office staff, and craftsmen, focus on providing customer driven products. We currently have manufacturing facilities in Spokane, WA and Stockton, CA. We also feature press brakes and shears capable of making on demand, custom parts up to 24' in length.

Engineering Services

For assistance with ordering or questions on your project, utilize SCAFCO Engineering Services:

Call: 509-789-8669

Email: Technical@SCAFCO.com

MANUFACTURING LOCATIONS



www.SCAFCO.com



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