QUALITY LIGHT STEEL FRAMING CONNECTIONS AND MEMBERS

LIGHT STEEL FRAMING CONNECTIONS

INTERIOR · EXTERIOR · VERTICAL DEFLECTION · DRIFT

The Steel Network

STEELNETWORK.COM
1.888.474.4876

Light Steel Framing Connections

Table of Contents

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

General Product Information

Introduction

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

The Steel Network provides solutions for all standard light steel framing configurations. Substantial effort has been made by the industry to standardize construction practices to ensure the positive connections of light steel framing components. Toward this end, TSN products have undergone extensive field and laboratory testing to achieve complete solutions for both designers and installers.

- Attachment of connections to the primary structure should be engineered by a design professional. Listed allowable loads are based on tests with full attachment to primary structure through all guide holes where applicable.
- Prying action on the attachment to the structure should be considered where eccentricity exists between the fastener and the load.
- Test reports are available through The Steel Network, Inc. Contact TSN at (888) 474-4876 for more information.
- The Steel Network, Inc. offers all products and services through local authorized distributors.
- Products are manufactured from recycled steel.
- The installation contractor is responsible for installing products in accordance with the instructions listed in this catalog and included with the shipped product, in addition to any relevant specifications and building codes. Install connectors prior to loading.
- Custom products are available upon request. Prior approval must be obtained and the order shall be submitted with a signed engineered drawing.
- Allowable loads and material data listed in this catalog supersede all information in all earlier publications.
- Self-drilling screws should be installed perpendicular to the work surface. #8 and #10 self-drilling screws should be installed with a screw gun limited to no more than 2,500 rpm. #12 self-drilling screws should be installed with a screw gun limited to no more than 1,800 rpm.
- The screw gun must also feature a torque limiting nose piece to avoid over-driving the screw. Over-driving can damage the fastener by stripping the threads or shearing the fastener head and may cause failure even when not visually detected.
- Allowable loads have not been increased for wind, seismic, or other factors.
- Loads are determined using “Allowable Stress Design” (ASD) method. When LRFD (Load and Resistance Factor Design) is utilized, contact TSN for appropriate resistance values.
- Products are tested according to the guidelines listed in the AISI S100 Specification for the Design of Cold Formed Steel Structures, Section K, and ICC Criteria AC261, where applicable.
- Allowable loads are based on the lesser of: (a) Average test ultimate load divided by the appropriate factor of safety, (b) Load producing deflection value of 0.125" for vertical deflection products and 0.1875” or drift products, or (c) Fastener/screw allowable load between the clip & stud.
- Allowable loads are the result of static testing by either independent testing facilities or in-house testing and calculations.
- Allowable loads are the maximum forces resisted in one direction only. When multiple loads effect a connection: Designer of record is responsible for checking the interaction of multiple loads acting on a connection.
- Screw connection allowable loads are based on AISI-S100 design specification, Sec. J4, and are limited by these allowable loads: 717 lbs for #12 Shear, 548 lbs for #10 Shear, 400 lbs for #8 Shear, 494 lbs for #12 Pullout, 435 lbs for #10 Pullout, 375 lbs for #8 Pullout.
- Where screw torsion is considered, it is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud, unless stated otherwise.

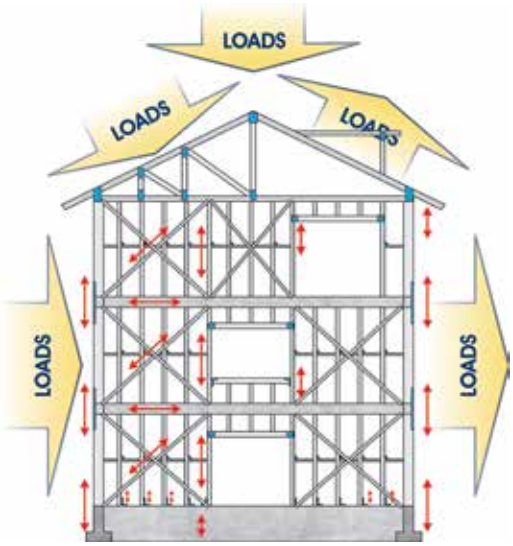
Building Load Paths

Introduction

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Background

There are two types of light steel framing connections, fixed and movement-allowing. Fixed connections of framing members are found in many types of assemblies, including axial-load-bearing walls, curtain walls, trusses, roofs, and floors. As light steel framing (LSF) assemblies are only as strong as their weakest component, The Steel Network has developed products to provide designers and installers with tested, certified, and traceable materials for light steel framing assemblies.



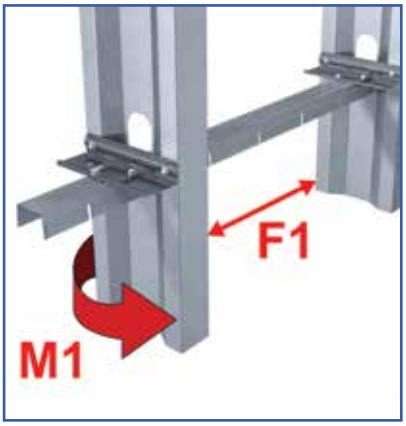
Tracing a consistent load and movement path from the roof to the foundation is much simpler through use of The Steel Network's connectors. TSN products are engineered to provide the most efficient load transfer path for the designer while adding economic value for the contractor.

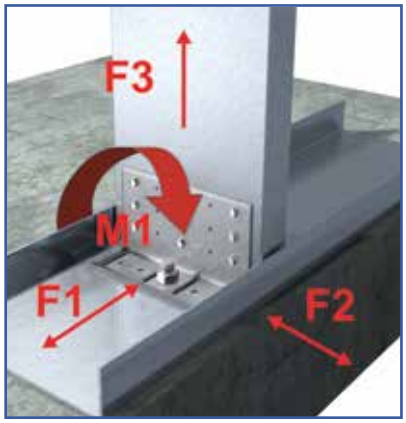
When considering safety and liability, connections should not be the weakest part of the assembly. Use of generic material raises questions about performance. Is the steel material traceable? Is the material sufficiently galvanized? Has the material been structurally load tested? These questions should not go unanswered in today's construction practice. The Steel Network provides mill certified and tested steel, galvanized with coating meeting or exceeding industry standards. TSN products have undergone extensive field and laboratory testing to achieve complete solutions for both designers and installers, enabling them to trace the most efficient load and movement paths through the structure. When it comes to connections and members, TSN is setting the industry standard.

Load Directions

Connection loads have been determined through structural testing based on guidelines set forth by the AISI Specification. A diagram of load directions for each clip is located with the respective product load tables. Load direction nomenclature is consistent throughout this catalog. The diagrams at right illustrate examples of load directions used in this catalog.

F1 = Lateral (In the plane of the wall), lbs
F2 = Horizontal Load (Out of the plane of the wall), lbs
F3 = Vertical Load (or Uplift), lbs
M1 = Moment-Carrying (or Rotational), in-lbs





In addition, connectors are available to resist axial tension and compression in a flat plane.

Industry Improvements

The Steel Network's series of connectors utilizes tested, mechanical configurations to resist many different types of load (gravity, in-plane, out-of-plane, moment-carrying, axial tension and compression in a flat plane). Each is available in a wide range of sizes and applications to meet all standard construction needs. Additionally, custom clips may be designed and produced for specific applications.

The Steel Network delivers a comprehensive improvement to the industry by:

- Providing simple, labor-saving solutions for all steel framing attachments to primary frames.
- Placing pre-drilled guide holes for quick and accurate fastener placement.
- Producing connections tested under AISI guidelines.
- Manufacturing from ASTM A1003 steel with hot-dipped galvanized G90 coating guaranteeing longterm durability and performance.
- Eliminating use of untested, untraceable, steel for connections.

Stiffened Plate Elements

Most TSN connection products are manufactured with stiffeners, as bending forces are present when loads are transferred from the framing member to the structure. Stiffeners increase the capacity of flat elements to resist bending, thus maximizing material efficiency.

Movement-Allowing Connectors

Introduction

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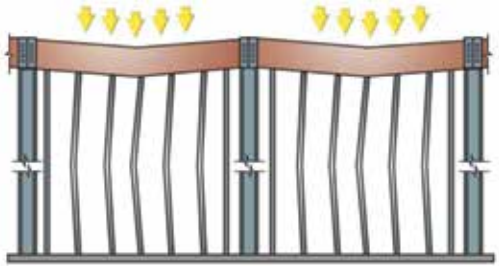
Primary Structural Deflection

All structures deflect vertically. To prevent non-axial-load-bearing studs from carrying the weight of the structure and to protect finishes, vertical deflection connections should be incorporated at the earliest possible moment of project design. The load-carrying capacity of a steel stud in bending is reduced significantly when adding an axial force propagated by the bending of a primary beam or slab. VertiClip® products were developed to prevent the crushing effect on non-axial-load-bearing wall studs. Non-axial-load-bearing wall studs include exterior curtain wall and interior wall assemblies. When project conditions dictate, lateral drift and vertical deflection may be accommodated through utilization of TSN's DriftClip® and DriftTrak® lines of connectors.



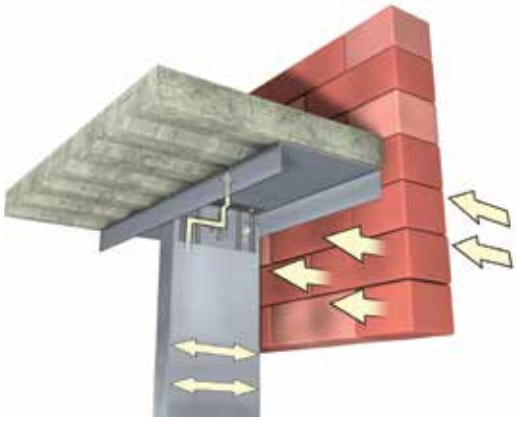
Finished walls frequently experience cracking, buckling, or crushing due to improper isolation of building movement. The movement of the primary building structure is largely accounted for in horizontal member live loading. In addition to live loads, wind, seismic forces, moisture content in materials, and temperature cycles all contribute to movement. The incorporation of vertical deflection connections during the working drawing phase will eliminate the liability of failures and added costs associated with wall system installation.

Specifying Deflection Distances

Deflection distances are determined from movement of the primary frame, roof, and floor slab. Designers of non-axial-load-bearing framing typically allow for a minimum of ½" (13mm) of vertical deflection. When specifying vertical deflection distances, consider the following example -- the deflection distance may be derived using a column spacing of 20 feet on center and a maximum deflection of L/480, thereby resulting in a vertical deflection value equal to .5". Deflection distances may range from 0.125" in very heavy rigid structures to 6" in lightweight open frames.

Step Bushing Technology®

Innovation



Shear Transfer

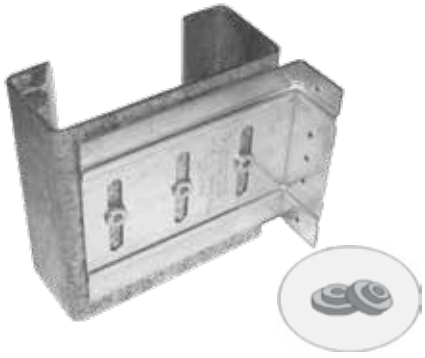
Non-axial-load-bearing walls are not designed to carry the structure, but horizontal loads from wind and seismic forces are transferred from the exterior finishes through wall framing to the primary structure. VertiClip and DriftClip effectively transfer the shear load from the stud to the primary member by connecting to the stud web.

The image on the right illustrates the horizontal load path. The load transitions into shear at the VertiClip to stud web attachment. VertiClip prevents the track flange from bending and stiffens the stud web.

Step Bushing Technology®

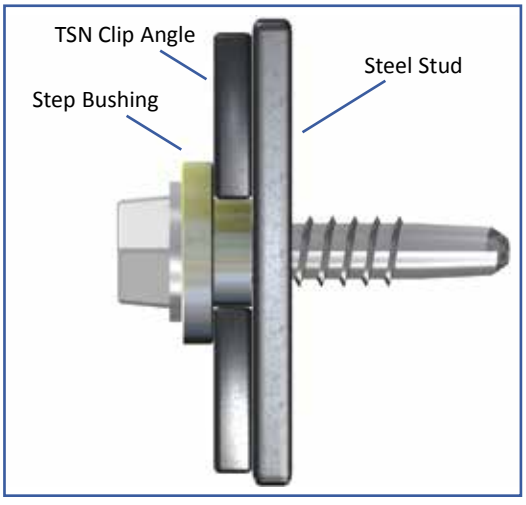
Step Bushing Technology provides a solid and simple solution for accommodating vertical deflections in the primary structural components of a building. Step bushings are pre-installed at the center of elongated slots in the connectors to allow for this vertical movement. A VertiClip or DriftClip attaches mechanically to the stud web through the Step Bushings with self-drilling screws provided with each clips.

The Step Bushing allows horizontal loads to transfer from the stud web into the structure through a positive, mechanical attachment, while simultaneously allowing friction-free vertical movement. TSN's solutions replace friction-held configurations and flange gripping devices, further reducing liability concerns.



VertiClip SLB showing Step Bushings, which are pre-installed at the center of each slot and placed in position at the factory for quality assurance and ease of installation.

Step Bushings transfer the shear load at the stud web through connector into the primary structure.



Step Bushings are seated inside slots of the VertiClips. Since Step Bushings are slightly thicker than the steel material, they provide a positive mechanical attachment to the stud web and allow for deflection movement.

VertiTrack® VTD

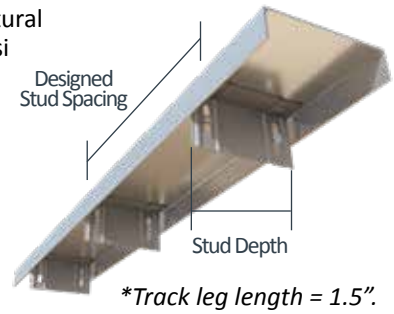
Interior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

Track Material: ASTM A1003/A1003M Structural Grade 33 (230) Type H, ST33H (ST230H): 33ksi (230MPa) minimum yield strength, 45ksi (310MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.



**Track leg length = 1.5".*

US Patents #5,467,566 & #5,906,080

The attachment of VertiTrack VTD to the primary structure may be made with PAFs or screw/bolt anchors and is dependent upon the base material (steel or concrete) and the design configuration.

VertiTrack VTD Allowable (Unfactored) Loads[1]

VertiTrack® VTD, Recommended Allowable Load (lbs): F2 (VertiClip® SLD Loads)				
	F2 - Deflection Connection			
	VTD250	VTD362/400	VTD600	VTD800
Screw Patterns with #8 Screws	w/2 #8 screws	w/2 #8 screws	w/2 #8 screws	w/2 #8 screws
18mil (25ga), 33ksi Stud	132	132	132	132
27mil (22ga), 33ksi Stud	159	242	242	242
30mil (20ga-Drywall), 33ksi Stud	159	322	322	322
33mil (20ga-Structural), 33ksi Stud	159	328	328	328
33mil (20ga), 50ksi Stud	159	359	405	474
43mil (18ga), 33ksi Stud	159	359	405	488
43mil (18ga), 50ksi Stud	159	359	405	664
54mil (16ga), 33ksi Stud	159	359	405	664
54mil (16ga), 50ksi Stud	159	359	405	664
Maximum Allowable Clip Load	**159**	**359**	**405**	**682**

Load Direction

Notes:

1. VertiTrack VTD loads are the same as VertiClip SLD.
2. VertiTrack VTD is assembled with the VertiClip SLD pre-attached at 16" o.c. or 24" o.c.
3. VertiTrack VTD is designed to support horizontal loads, and should not be used in axial load-bearing walls.
4. Allowable loads have not been increased for wind, seismic, or other factors.
5. Strengthening ribs are present in 3-5/8" and 6" sizes.
6. #8 screws are provided with each step bushing for attachment to the stud web.
7. Fasten through each Verticlip SLD to structure.
8. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
9. Total vertical deflection of up to 1-1/2" (3/4" up and 3/4" down). Deflection requirements greater than 3/4" (up and down) are available. Custom spacing is also available.
10. For LRFD strengths contact TSN technical services.

Nomenclature

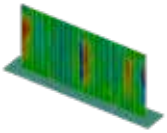
VertiTrack VTD is manufactured in 12 ft. lengths. VertiTrack is designated by type (VTD), followed by stud depth in inches multiplied by 100 and the stud spacing.

Example: *6" deep stud, 16" on center*
Designate: *VertiTrack® VTD600-16*

UL®-Classified Head of Wall Assemblies
HW-D-0003, HW-D-0024, HW-D-0025, HW-D-0036, HW-D-0042, HW-D-0043, HW-D-0044, HW-D-0045, HW-D-0046, HW-D-0047, HW-D-0048, HW-D-0049, HW-D-0054, HW-D-0062, HW-D-0063, HW-D-0066, HW-D-0067, HW-D-0068, HW-D-0069, HW-D-0071, HW-D-0072, HW-D-0073, HW-D-0076, HW-D-0077, HW-D-0082, HW-D-0083, HW-D-0084, HW-D-0085, HW-D-0087, HW-D-0089, HW-D-0091, HW-D-0102, HW-D-0106, HW-D-0152, HW-D-0154, HW-D-0160, HW-D-0162, HW-D-0167, HW-D-0184, HW-D-0185, HW-D-0186, HW-D-0190, HW-D-0193, HW-D-0209, HW-D-0218, HW-D-0246, HW-D-0256, HW-D-0259, HW-D-0263, HW-D-0271, HW-D-0272, HW-D-0275, HW-D-0277, HW-D-0278, HW-D-0280, HW-D-0293, HW-D-0299, HW-D-0310, HW-D-0313, HW-D-0321, HW-D-0322, HW-D-0324, HW-D-0341, HW-D-0342, HW-D-0353, HW-D-0356, HW-D-0357, HW-D-0358, HW-D-0363, HW-D-0365, HW-D-0368, HW-D-0370, HW-D-0371, HW-D-0401, HW-D-0404, HW-D-0420, HW-D-0421, HW-D-0453, HW-D-0455, HW-D-0460, HW-D-0461, HW-D-0462, HW-D-0463, HW-D-0466, HW-D-0468, HW-D-0470, HW-D-0475, HW-D-0477, HW-D-0483, HW-D-0491, HW-D-0526, HW-D-0527, HW-D-0532, HW-D-0545, HW-D-0639, HW-D-0642, HW-D-0644, HW-D-0645, HW-D-0646, HW-D-0687, HW-D-0689, HW-D-0695, HW-D-0696

VertiClip SLD600
ICC-ESR-2049
www.icc-es.org

Meets criteria for New York MEA 326-06-M



VertiClip SLD Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiTrack® VTX

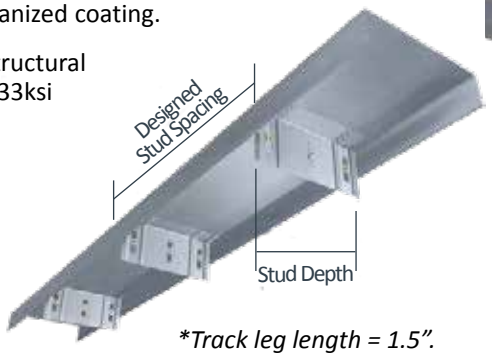
Exterior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

Track Material: ASTM A1003/A1003M Structural Grade 33 (230) Type H, ST33H (ST230H): 33ksi (230MPa) minimum yield strength, 45ksi (310MPa) minimum tensile strength, 43mil minimum thickness (18 gauge, 0.0451" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.



**Track leg length = 1.5".*

US Patents #5,467,566 & #5,906,080

The attachment of VertiTrack VTX to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.

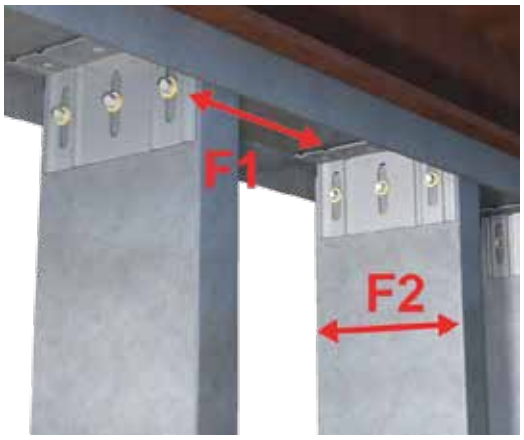
VertiTrack VTX Allowable (Unfactored) Loads[1]

VertiTrack® VTX, Recommended Allowable Load (lbs): F1 & F2 (VertiClip® SL Loads)												
	F1 Load Direction						F2 Load Direction					
	VTX362	VTX400	VTX600		VTX800		VTX362	VTX400	VTX600		VTX800	
Screw Patterns with #12 Screws	w/2 #12 screws	w/2 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/2 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws
33mil (20ga), 33ksi Stud	190	190	190	285	190	285	376	376	376	564	376	564
33mil (20ga), 50ksi Stud	248	199	276	368	276	362	544	544	544	816	544	816
43mil (18ga), 33ksi Stud	248	199	248	368	248	362	560	560	560	840	560	840
43mil (18ga), 50ksi Stud	248	199	358	368	358	362	787	810	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	248	199	312	368	312	362	787	788	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	248	199	368	368	362	362	787	1,136	1,138	1,680	1,138	1,707
68mil (14ga), 50ksi Stud	248	199	368	368	362	362	787	1,136	1,434	1,680	1,434	1,870
97mil (12ga), 50ksi Stud	248	199	368	368	362	362	787	1,136	1,434	1,680	1,434	1,870
Max Allowable Clip Load	**248**	**199**	**368**		**362**		**787**	**1,136**	**1,680**		**1,870**	

Notes:

1. VertiTrack VTX loads are the same as VertiClip SL.
2. VertiTrack VTX is assembled with the VertiClip SL pre-attached at 16" o.c. or 24" o.c.
3. VertiTrack VTX is designed to support horizontal loads, and should not be used in axial load-bearing walls.
4. Allowable loads have not been increased for wind, seismic, or other factors.
5. Strengthening ribs are present in 3-5/8" and 6" sizes.
6. #12 screws are provided with each step bushing for attachment to the stud web.
7. Fasten through each Verticlip SL to structure.
8. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
9. Total vertical deflection of up to 1-1/2" (3/4" up and 3/4" down). Deflection requirements greater than 3/4" (up and down) are available. Custom spacing is also available.
10. Allowable load tables incorporate eccentric loading of fasteners. Values with welded connection may increase.
11. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

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Example: *6" deep stud, 16" on center*
Designate: *VertiTrack® VTX600-16*

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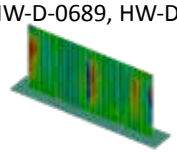
VertiClip SL362, SL600 & SL800
ICC-ESR-2049
www.icc-es.org



VertiClip SL Series
Blast and Seismic Design Data
www.steelnetwork.com

** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiClip® SLD

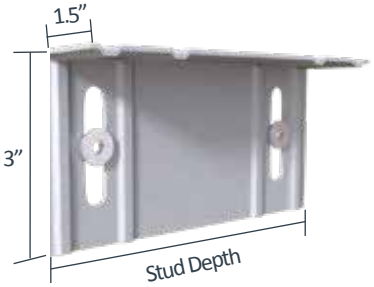
Interior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

The attachment of VertiClip SLD to the primary structure may be made with PAFs or screw/bolt anchors and is dependent upon the base material (steel or concrete) and the design configuration.



US Patents #5,467,566 & #5,906,080

VertiClip SLD Allowable (Unfactored) Loads[1]

VertiClip® SLD, Recommended Allowable Load (lbs): F2					
	F2 - Deflection Connection				
	SLD150	SLD250	SLD362/400	SLD600	SLD800
Screw Patterns with #8 Screws	w/1 #8 screw	w/2 #8 screws	w/2 #8 screws	w/2 #8 screws	w/2 #8 screws
18mil (25ga), 33ksi Stud	51	132	132	132	132
27mil (22ga), 33ksi Stud	51	159	242	242	242
30mil (20ga-Drywall), 33ksi Stud	51	159	322	322	322
33mil (20ga-Structural), 33ksi Stud	51	159	328	328	328
33mil (20ga), 50ksi Stud	51	159	359	405	474
43mil (18ga), 33ksi Stud	51	159	359	405	488
43mil (18ga), 50ksi Stud	51	159	359	405	664
54mil (16ga), 33ksi Stud	51	159	359	405	664
54mil (16ga), 50ksi Stud	51	159	359	405	664
Maximum Allowable Clip Load	**51**	**159**	**359**	**405**	**682**

Load Direction

Notes:

1. VertiClip SLD is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Strengthening ribs are present in 3-5/8" and 6" sizes.
4. #8 screws are provided with each step bushing for attachment to the stud web.
5. Guide holes for attachment to structure are 0.141" diameter for SLD362/400 and SLD600. Guideholes are not standard for other clip sizes.
6. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
7. Total vertical deflection of up to 1-1/2" (3/4" up and 3/4" down). Deflection requirements greater than 3/4" (up and down) are available
8. For LRFD strengths contact TSN technical services.

Nomenclature

VertiClip SLD is designated by type (SLD), followed by stud depth in inches multiplied by 100.

Example: *6" stud*
Designate: *VertiClip® SLD600*

Shaft Wall

VertiClip SLD may be used in shaft wall assemblies to provide a positive attachment at the top of wall. Sizes include VertiClip SLD150, SLD250, and SLD362 for 2.5", 4", and 6" shaft wall stud depths.

UL2079 & UL®-Classified WR Grace shaft wall assembly HW-D-0401.

SLD150
2 ½" Stud

SLD250
4" Stud

SLD362/400
6" Stud

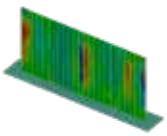
When to Use VertiClip SLD and VertiClip SL

When to Use VertiClip® SLD and VertiClip® SL																	
Wind Pressure			20 psf				25 psf				30 psf				40 psf			
Deflection Limit			L/360		L/600		L/360		L/600		L/360		L/600		L/360		L/600	
Stud Spacing			16" o.c.	24" o.c.	16" o.c.	24" o.c.	16" o.c.	24" o.c.	16" o.c.	24" o.c.	16" o.c.	24" o.c.	16" o.c.	24" o.c.	12" o.c.	16" o.c.	12" o.c.	16" o.c.
362/400 Stud Depth	Wall Height (ft)	9'	SLD	SLD	SLD	SL	SLD	SLD	SLD	SL	SLD	SLD	SL	SL*	SLD	SLD	SL	SL
		10'	SLD	SLD	SL	SL	SLD	SL	SL	SL*	SLD	SL	SL	SL*	SLD	SL	SL	SL*
		12'	SL	SL*	SL*	SL*	SL	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*
		15'	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*
600 Stud Depth	Wall Height (ft)	9'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD
		10'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD
		12'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SL	SLD	SLD	SLD	SL
		15'	SLD	SLD	SL	SL	SLD	SL	SL	SL	SLD	SL	SL	SL*	SLD	SL	SL	SL*
		18'	SL	SL	SL	SL*	SL	SL	SL*	SL*	SL	SL*	SL*	SL*	SL	SL*	SL*	SL*
		21'	SL	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*	SL*
800 Stud Depth	Wall Height (ft)	9'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD
		10'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD
		12'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD
		15'	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SLD	SL	SLD	SL	SLD	SLD	SLD	SL
		18'	SLD	SLD	SLD	SL	SLD	SL	SL	SL	SLD	SL	SL	SL	SLD	SL	SL	SL
		21'	SLD	SL	SL	SL*	SL	SL	SL	SL*	SL	SL	SL*	SL*	SL	SL	SL*	SL*
		24'	SL	SL	SL*	SL*	SL	SL*	SL*	SL*	SL	SL*	SL*	SL*	SL	SL*	SL*	SL*

Table Notes:

- SLD considered for use on 43 mil or thinner sections
- A load factor of 0.7 is used for deflection determination
- SL* means a single standard stud will not work. A wider flange wall stud (2" or 2.5" flange) is needed
- All connections can be made with use of 2 screws

UL2079 & UL®-Classified WR Grace shaft wall assembly HW-D-0401.



VertiClip SLD Series
Blast and Seismic Design Data
www.steelnetwork.com

VertiClip SLD600
ICC-ESR-2049
www.icc-es.org

Meets criteria for New York MEA 326-06-M

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiClip® SL

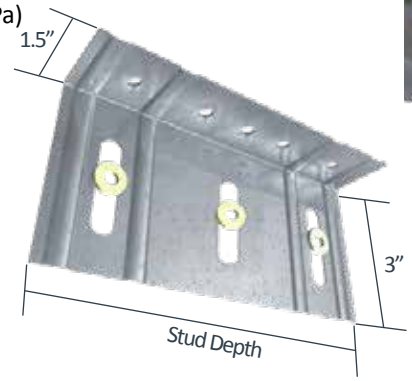
Exterior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SL to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.



US Patents #5,467,566 & #5,906,080

VertiClip SL Allowable (Unfactored) Loads[1]

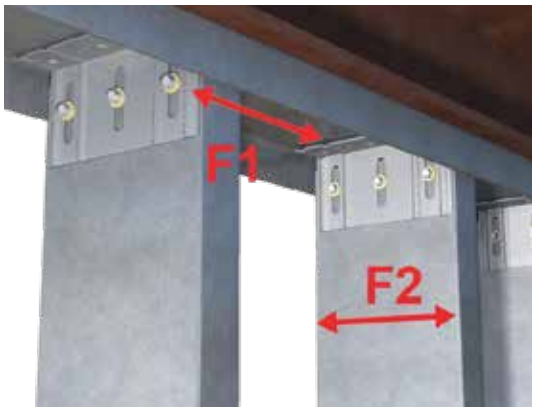
VertiClip® SL, Recommended Allowable Load (lbs): F1										
	F1- Load Direction									
	SL362	SL400	SL600		SL800		SL1000		SL1200	
Screw Patterns with #12 Screws	w/2 #12 screws	w/2 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws
33mil (20ga), 33ksi Stud	190	190	190	285	190	285	190	285	190	285
33mil (20ga), 50ksi Stud	248	199	276	368	276	362	276	414	276	382
43mil (18ga), 33ksi Stud	248	199	248	368	248	362	248	372	248	372
43mil (18ga), 50ksi Stud	248	199	358	368	358	362	358	415	358	382
54mil (16ga), 33ksi Stud	248	199	312	368	312	362	312	415	312	382
54mil (16ga), 50ksi Stud	248	199	368	368	362	362	415	415	382	382
68mil (14ga), 50ksi Stud	248	199	368	368	362	362	415	415	382	382
97mil (12ga), 50ksi Stud	248	199	368	368	362	362	415	415	382	382
Maximum Allowable Clip Load	**248**	**199**	**368**		**362**		**415**		**382**	

VertiClip® SL, Recommended Allowable Load (lbs): F2										
	SL362	SL400	SL600		SL800		SL1000		SL1200	
Screw Patterns with #12 Screws	w/2 #12 screws	w/2 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws
33mil (20ga), 33ksi Stud	376	376	376	564	376	564	376	564	376	564
33mil (20ga), 50ksi Stud	544	544	544	816	544	816	544	816	544	816
43mil (18ga), 33ksi Stud	560	560	560	840	560	840	560	840	560	840
43mil (18ga), 50ksi Stud	790	810	810	1,215	810	1,215	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	790	788	788	1,182	788	1,182	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	790	1,136	1,138	1,680	1,138	1,707	1,138	1,577	1,138	1,707
68mil (14ga), 50ksi Stud	790	1,136	1,434	1,680	1,434	1,870	1,434	1,577	1,434	1,791
97mil (12ga), 50ksi Stud	790	1,136	1,434	1,680	1,434	1,870	1,434	1,577	1,434	1,791
Maximum Allowable Clip Load	**790**	**1,136**	**1,680**		**1,870**		**1,577**		**1,791**	

Notes:

1. VertiClip SL is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Strengthening ribs are present in 3-5/8" and 6" sizes.
4. #12 screws are provided with each step bushing for attachment to the stud web.
5. Guide holes for attachment to structure are 0.141" diameter for SL362/400 and SL600. Guideholes are not standard for other clip sizes.
6. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
7. Total vertical deflection of up to 1-1/2" (3/4" up and 3/4" down). Deflection requirements greater than 3/4" (up and down) are available.
8. Allowable load tables incorporate eccentric loading of fasteners. Values with welded connection may increase.
9. For LRFD strengths contact TSN technical services.

Load Direction

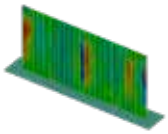


Nomenclature

VertiClip SL is designated by type (SL), followed by stud depth in inches multiplied by 100.

Example: *6" stud*
Designate: *VertiClip® SL600*

VertiClip SL362, SL600 & SL800
ICC-ESR-2049
www.icc-es.org



VertiClip SL Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiClip® SLD w/ 3” Slots

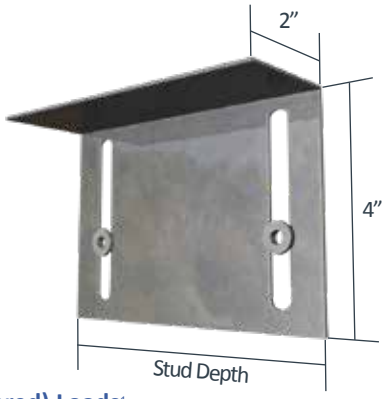
Interior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346” design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

The attachment of VertiClip SLD w/ 3" slots to the primary structure may be made with PAFs or screw/bolt anchors and is dependent up the base material (steel or concrete) and the design configuration.



US Patents #5,467,566 & #5,906,080

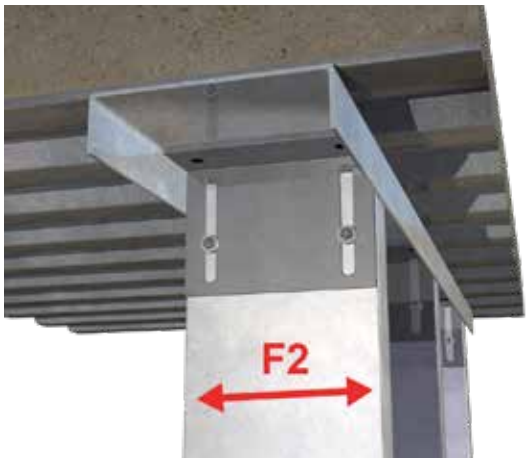
VertiClip SLD w/ 3" Deflection Allowable (Unfactored) Loads[1]

VertiClip® SLD w/ 3” Deflection, Recommended Allowable Load (lbs): F2			
	F2 -Load Direction		
	SLD362, s3lg,b2d	SLD600, s3lg,b2d	SLD800, s3lg,b2d
Screw Patterns with #8 Screws	w/ 2 #8 Screws	w/ 2 #8 Screws	w/ 2 #8 Screws
18mil (25ga), 33ksi Stud	132	132	132
27mil (22ga), 33ksi Stud	185	242	242
30mil (20ga-Drywall), 33ksi Stud	185	242	251
33mil (20ga-Structural), 33ksi Stud	185	242	251
33mil (20ga), 50ksi Stud	185	242	251
43mil (18ga), 33ksi Stud	185	242	251
43mil (18ga), 50ksi Stud	185	242	251
54mil (16ga), 33ksi Stud	185	242	251
54mil (16ga), 50ksi Stud	185	242	251
Maximum Allowable Clip Load	**185**	**242**	**251**

Notes:

1. VertiClip SLD s3lg, b2d is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Meets IBC criteria for light steel framing. Factor of Safety calculated according to ICC-ES AC261 and Chapter K of AISI S100.
4. Tests performed with with bushings centered in the 3" slots.
5. The standard bushing placement is 2" from the top of the slot an allows the structure to settle ½" prior to typical service.
6. Total vertical deflection of up to 3" (2" up and 1" down).
7. #8 screws are provided with each step bushing for attachment to the stud web.
8. Fasten within ¾" of the angle heel (centerline of the 1 ½" leg) to minimize eccentric load transfer.
9. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

VertiClip SLD with 3" deflection is is designated by type (SLD), followed by stud depth in inches multiplied by 100, slot length (s "length in inches" lg), and bushing placement (b "distance from top slot in inches" d).

Example: *6” deep stud, 3" slot, bushings 2" down from top of slot*
Designate: *VertiClip® SLD600,s3lg,b2d*

VertiClip® SL w/ 3” Slots

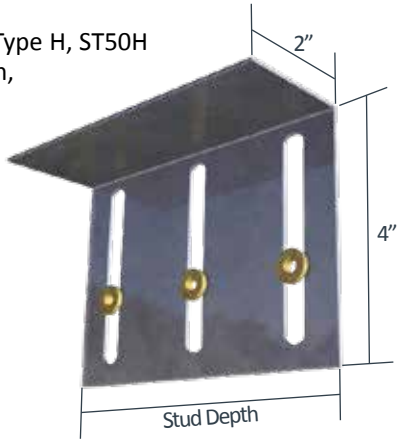
Exterior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713” design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SL w/ 3" slots to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent up the base material (steel or concrete) and the design configuration.



US Patents #5,467,566 & #5,906,080

VertiClip SL w/ 3" Deflection Allowable (Unfactored) Loads[1]

VertiClip® SL w/ 3” Deflection, Recommended Allowable Load (lbs): F1 & F2							
	F1 Load Direction		F2 Load Direction				
	SL600, s3lg,b2d		SL362, s3lg,b2d	SL600, s3lg,b2d		SL800, s3lg,b2d	
Screw Patterns with #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws
33mil (20ga), 33ksi Stud	190	277	376	376	564	376	564
33mil (20ga), 50ksi Stud	276	277	544	544	816	544	816
43mil (18ga), 33ksi Stud	248	277	560	560	840	560	840
43mil (18ga), 50ksi Stud	277	277	617	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	277	277	617	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	277	277	617	1,138	1,571	1,138	1,707
68mil (14ga), 50ksi Stud	277	277	617	1,434	1,571	1,434	1,915
97mil (12ga), 50ksi Stud	277	277	617	1,434	1,571	1,434	1,915
Max Allowable Clip Load	**277**		**617**	**1,571**		**1,915**	

Notes:

1. VertiClip SL s3lg, b2d is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Meets IBC criteria for light steel framing. Factor of Safety calculated according to ICC-ES AC261 and Chapter K of AISI S100.
4. Tests performed with with bushings centered in the 3" slots.
5. The standard bushing placement is 2" from the top of the slot an allows the structure to settle ½" prior to typical service.
6. Total vertical deflection of up to 3" (2" up and 1" down).
7. #12 screws are provided with each step bushing for attachment to the stud web.
8. Fasten within ¾" of the angle heel (centerline of the 1 ½" leg) to minimize eccentric load transfer.
9. For LRFD strengths contact TSN technical services.

Load Direction

Nomenclature

VertiClip SL with 3" deflection is is designated by type (SL), followed by stud depth in inches multiplied by 100, slot length (s "length in inches" lg), and bushing placement (b "distance from top slot in inches" d).

Example: *6” deep stud, 3" slot, bushings 2" down from top of slot*
Designate: *VertiClip® SL600,s3lg,b2d*

VertiClip® SLS

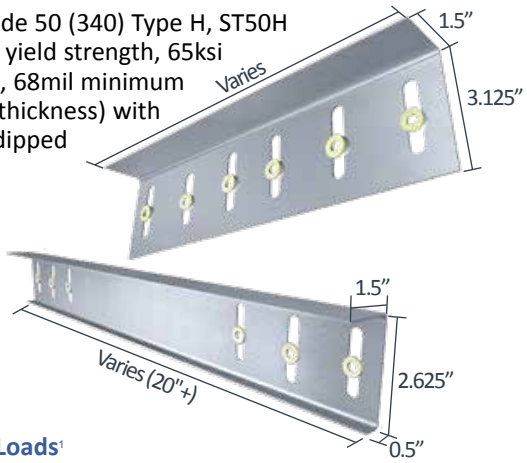
Bypass Structure

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340 MPa) minimum yield strength, 65ksi (450 MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SLS to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.



US Patents #5,467,566 & #5,906,080

VertiClip SLS Allowable (Unfactored) Loads[1]

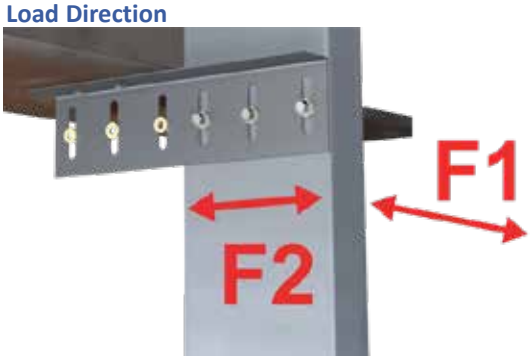
VertiClip® SLS, Recommended Allowable Load (lbs): F1											
	SLS362/400-9, -12	SLS600-12		SLS600-15, -18, -20		SLS600-24		SLS800-12		SLS800-15, 18, -20	
Screw Patterns with #12 Screws	w/2 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws
33mil (20ga), 33ksi Stud	95	95	95	95	95	95	95	95	95	95	95
33mil (20ga), 50ksi Stud	124	138	138	130	130	100	100	138	138	125	125
43mil (18ga), 33ksi Stud	124	124	124	124	124	100	100	124	124	124	124
43mil (18ga), 50ksi Stud	124	164	165	130	130	100	100	141	141	125	125
54mil (16ga), 33ksi Stud	124	156	156	130	130	100	100	141	141	125	125
54mil (16ga), 50ksi Stud	124	164	164	130	130	100	100	141	141	125	125
68mil (14ga), 50ksi Stud	124	164	164	130	130	100	100	141	141	125	125
97mil (12ga), 50ksi Stud	124	164	164	130	130	100	100	141	141	125	125
Max Allowable Clip Load	**124**	**164**		**130**		**100**		**141**		**125**	

VertiClip® SLS, Recommended Allowable Load (lbs): F2											
	SLS362/400-9, -12	SLS600-12		SLS600-15, -18, -20		SLS600-24		SLS800-12		SLS800-15, 18, -20	
Screw Patterns with #12 Screws	w/2 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws	w/2 #12 screws	w/3 #12 screws
33mil (20ga), 33ksi Stud	376	376	564	376	564	376	564	376	564	376	564
33mil (20ga), 50ksi Stud	544	544	816	544	816	544	816	544	816	544	816
43mil (18ga), 33ksi Stud	560	560	840	560	840	560	840	560	840	560	840
43mil (18ga), 50ksi Stud	810	810	1,215	810	1,215	810	1,215	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	788	788	1,182	788	1,182	788	1,182	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	1,138	1,138	1,707	1,138	1,707	1,138	1,707	1,138	1,707	1,138	1,707
68mil (14ga), 50ksi Stud	1,245	1,434	2,070	1,434	2,122	1,434	1,896	1,434	1,816	1,434	1,816
97mil (12ga), 50ksi Stud	1,245	1,434	2,070	1,434	2,122	1,434	1,896	1,434	1,816	1,434	1,816
Max Allowable Clip Load	**1,245**	**2,070**		**2,122**		**1,896**		**1,816**		**1,816**	

Notes:

1. VertiClip SLS is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Return lip added for clips longer than 20".
4. #12 screws are provided with each step bushing for attachment to the stud web.
5. Minimum 3" of SLS required for attachment to steel structure and minimum 5-1/2" for attachment to concrete structure.
6. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
7. Total vertical deflection of up to 1-1/2" (3/4" up and 3/4" down). Deflection requirements greater than 3/4" (up and down) are available.
8. Allowable load tables incorporate eccentric loading of fasteners. Values with welded connection may increase.
9. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

VertiClip SLS is designated by stud depth and clip length required. Clip length includes a minimum of 3" for steel (5.5" for concrete) of clip material for attachment to structure added to stud depth, plus the distance of the stud from the structure.

Example: *6" stud, 6" tolerance, 3" to structure*
Designate: *VertiClip® SLS600-15*

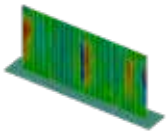
** Use of strengthening ribs and return bends varies with each clip.*

Example Details

Return lip added for clips longer than 20" (up to 36")

VertiClip SLS at jamb (studs facing each other).

VertiClip SLS600-12
ICC-ESR-2049
www.icc-es.org



VertiClip SLS Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiClip® SLB

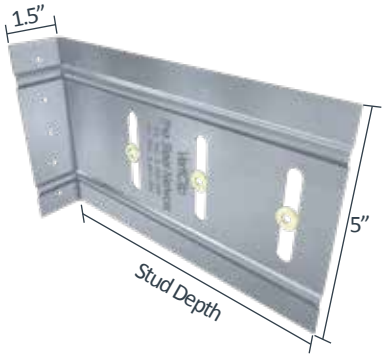
Bypass Slab

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SLB to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.



US Patents #5,467,566 & #5,906,080

VertiClip SLB Allowable (Unfactored) Loads[1]

VertiClip® SLB, Recommended Allowable Load (lbs): F1 & F2										
	F1 Load Direction					F2 Load Direction				
	SLB250 & SLB362/400	SLB600		SLB800		SLB250 & SLB362/400	SLB600 & SLB800		SLBxxx-10, SLBxxx-12, SLB1000 & SLB1200	
Screw Patterns with #12 Screws	w/2 #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws
33mil (20ga), 33ksi Stud	95	95	95	95	95	376	376	564	376	564
33mil (20ga), 50ksi Stud	138	138	138	118	118	544	544	816	544	816
43mil (18ga), 33ksi Stud	124	124	124	118	118	560	560	840	560	840
43mil (18ga), 50ksi Stud	179	179	179	118	118	810	810	1,215	810	933
54mil (16ga), 33ksi Stud	156	156	156	118	118	788	788	1,182	788	933
54mil (16ga), 50ksi Stud	225	225	225	118	118	1,138	1,138	1,600	933	933
68mil (14ga), 50ksi Stud	226	226	226	118	118	1,434	1,434	1,600	933	933
97mil (12ga), 50ksi Stud	226	226	226	118	118	1,434	1,434	1,600	933	933
Max Allowable Clip Load	**226**	**226**	**226**	**118**	**118**	**1,600**	**1,600**		**933**	

Notes:

1. VertiClip SLB is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Use of strengthening ribs and return bends vary with each clip.
4. #12 screws are provided with each step bushing for attachment to the stud web. Load requirements do not always justify the use of a third screw.
5. Guide holes for attachment to structure are 0.172" diameter for SLB250, SLB362/400, SLBXXX-10, SLBXXX-12, SLB1000, and SLB1200. Guideholes are 0.141" diameter for SLB600 and SLB800.
6. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
7. Total vertical deflection of up to 2" (1" up and 1" down). Deflection requirements greater than 1" (up and down) are available.
8. Allowable load tables incorporate eccentric loading of fasteners. Values with welded connection may increase.
9. Fasteners attaching clip to structure should be installed symmetrically around the center line of the clip. The allowable load of the clip may be reduced if fasteners are not installed symmetrically.
10. Three slots are standard in 6" and higher web depths to accommodate construction tolerances. Use of a thrid screw and bushing is dependent upon load configuration. 250 and 362/400 sizes have only two slots and two screws.
11. For LRFD strengths contact TSN technical services.

Load Direction

Nomenclature

VertiClip SLB is designated by multiplying stud depth by 100.

Example: *6" stud.*
Designate: *VertiClip® SLB600*

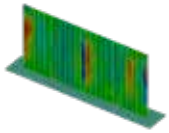
** Use of strengthening ribs and return bends varies with each clip.*
*** The VertiClip SLB600-10 and 600-12 accommodate an even greater construction tolerance of studs from structure. The VertiClip SLB600-10 is 10" in depth and the VertiClip SLB600-12 is 12" in depth with slot spacings designed for a 6" stud*

Example Details

Standard offset of a stud from the heel of a clip should not exceed 1.0". Step bushings and screws may be installed in the middle and outer slots of SLB600 or 800 to accommodate greater building tolerances. Note that this may affect the F1 and F2 allowable load capacity and may require a row of bridging at a maximum distance of 12" of the connection to resist stud torsional effects. Call TSN Tech Support for test data and recommendations.

The VertiClip SLB600-10 and 600-12 accommodate an even greater construction tolerance of studs from structure and are now standard products. The VertiClip SLB600-10 is 10" in depth with slot spacing designed for a 6" stud, and the VertiClip SLB600-12 is 12" in depth with slot spacing designed for a 6" stud.

VertiClip SLB600
ICC-ESR-2049
www.icc-es.org



VertiClip SLB Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiClip® SLB-HD

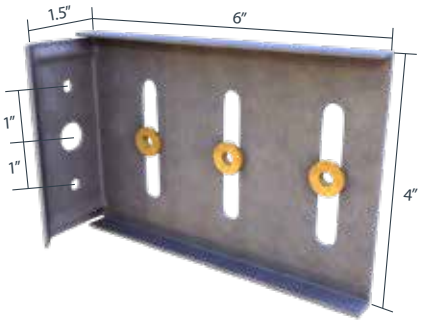
Bypass Slab for Seismic Conditions

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340 MPa) minimum yield strength, 65ksi minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SLB-HD to the primary structure may be made with screw/bolt anchors or weld and is dependent up the base material (steel or concrete) and the design configuration.



US Patent # 5,906,080

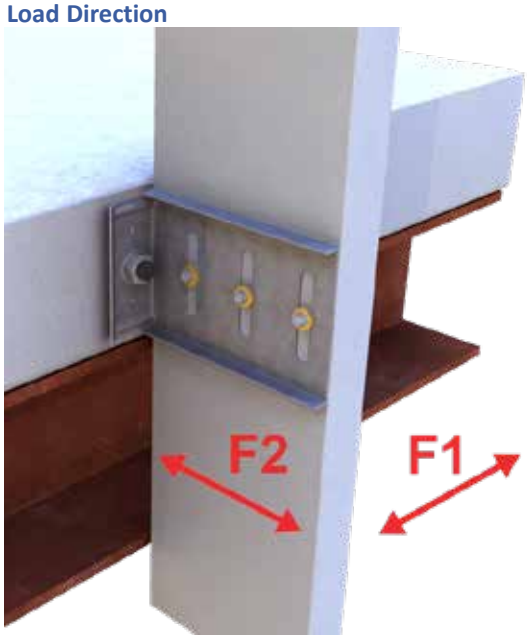
VertiClip SLB-HD Allowable (Unfactored) Loads[1]

VertiClip® SLB-HD, Recommended Allowable Load (lbs): F1 & F2						
	F1 - Load Direction		F2 - Load Direction with (2) 1/4" Concrete Anchors		F2 - Load Direction with (1) 1/2" Concrete Anchor	
Screw Patterns with #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws
33mil (20ga), 33ksi Stud	95	95	376	564	376	564
43mil (18ga), 33ksi Stud	124	124	560	840	560	840
54mil (16ga), 33ksi Stud	156	156	788	1,182	788	1,003
54mil (16ga), 50ksi Stud	225	225	1,138	1,187	1,003	1,003
68mil (14ga), 50ksi Stud	234	234	1,187	1,187	1,003	1,003
97mil (12ga), 50ksi Stud	234	234	1,187	1,187	1,003	1,003
Maximum Allowable Clip Load	**234**	**234**	**1,187**		**1,003**	

Notes:

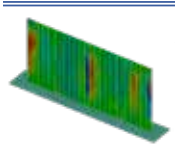
1. VertiClip SLB600-HD is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. #12 screws are provided with each step bushing for attachment to the stud web. Load requirements do not always justify the use of a third screw.
4. Guide holes for attachment to structure are 0.375" diameter for (2) 1/4" concrete screws, and 0.625" diameter for (1) 1/2" concrete anchor.
5. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
6. Total vertical deflection of up to 2" (1" up and 1" down).
7. Loads listed reflect force in a single direction. When multiple loads act on the connection, it is the responsibility of the designer to check the interaction of the forces.
8. The recommended allowable load is for the clip and attachment to the stud only. The design professional must design the attachment to the primary structure.
9. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

VertiClip SLB-HD is designed to be used with 6" studs and is designated *VertiClip® SLB600-HD*



VertiClip SLB-HD Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

VertiClip® SLF

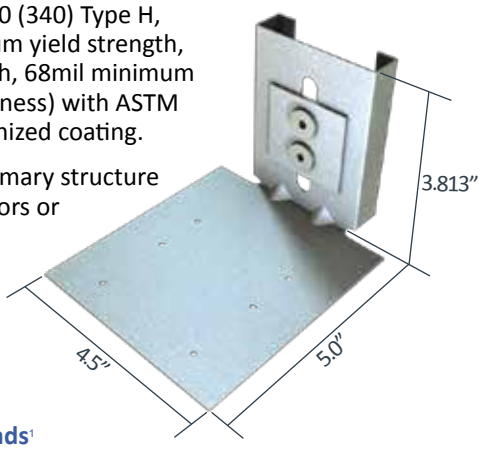
Bypass Top of Slab

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340 MPa) minimum yield strength, 65ksi (450 MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SLF to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.



US Patent # 8,511,032

VertiClip SLF Allowable (Unfactored) Loads[1]

VertiClip® SLF, Recommended Allowable Load (lbs): F2	
	F2 - Load Direction
Screw Patterns with #12 Screws	w/2 #12 screws
43mil (18ga), 33ksi Stud	281
43mil (18ga), 50ksi Stud	326
54mil (16ga), 33ksi Stud	401
54mil (16ga), 50ksi Stud	465
68mil (14ga), 50ksi Stud	632
97mil (12ga), 50ksi Stud	632
Maximum Allowable Clip Load	632

Load Direction

Notes:

1. VertiClip SLF is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. #12 screws are provided with each step bushing for attachment to the stud web.
4. Total vertical deflection of up to 1-1/2" (3/4" up and 3/4" down).
5. Align rows of wall bridging so that one row of bridging falls within 12" from VertiClip SLF OR use one flat strap brace on outer flange of studs to resist torsional effects.
6. Stud web crippling should be checked. Use 3-1/2" bearing length and use the "Interior One Flange Reaction, Condition 2, scenario for web crippling calculations. If justified, using the "End One Flange Reaction, Condition 1, scenario is acceptable.
7. For LRFD strengths contact TSN technical services.

Nomenclature

VertiClip SLF is available in one size for all stud depths with 1 5/8" flanges and is designated *VertiClip® SLF162*

** VertiClip SLF for use with 2" stud flanges can be made as a custom part.*

Example Details

VertiClip SLF used with TSN's BridgeBar® & BridgeClip® installed within 12" from the clip.

VertiClip SLF used with one flat strap brace on the outer flange of studs to resist torsional effects.

VertiClip® SLT

Structure/Slab Bypass

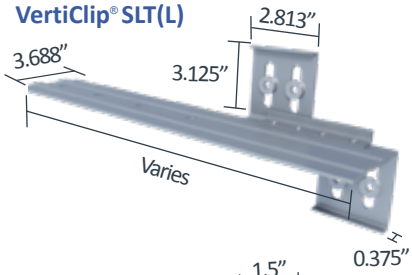
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

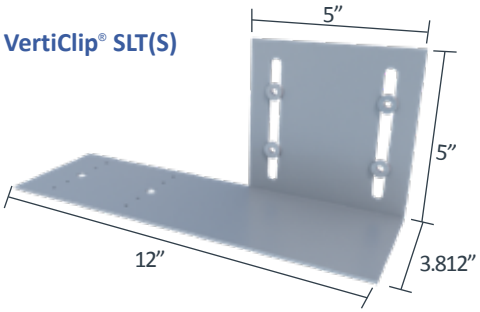
ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip SLT to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent up the base material (steel or concrete) and the design configuration.

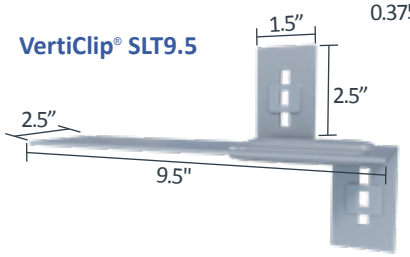
VertiClip® SLT(L)



VertiClip® SLT(S)



VertiClip® SLT9.5



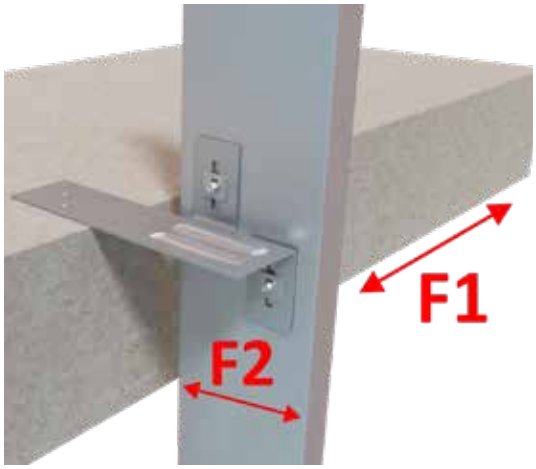
US Patents #5,467,566 & #5,906,080

VertiClip SLT Allowable (Unfactored) Loads[1]

VertiClip® SLT & SLT(L), Recommended Allowable Load (lbs): F1 & F2										
	F1 Load Direction			F2 Load Direction						
	SLT9.5	SLT(L)12, SLT(L)15 & SLT(L)18		SLT-9.5	SLT(L)-12		SLT(L)-15		SLT(L)-18	
Screw Patterns with #12 Screws	w/2 #12 screws	w/2 #12 screws	w/4 #12 screws	w/2 #12 screws	w/2 #12 screws	w/4 #12 screws	w/2 #12 screws	w/4 #12 screws	w/2 #12 screws	w/4 #12 screws
33mil (20ga), 33ksi Stud	190	190	380	376	376	752	376	744	376	700
33mil (20ga), 50ksi Stud	276	276	452	510	544	903	544	744	544	700
43mil (18ga), 33ksi Stud	248	248	452	510	560	903	560	744	560	700
43mil (18ga), 50ksi Stud	341	358	452	510	810	903	744	744	700	700
54mil (16ga), 33ksi Stud	312	312	452	510	788	903	744	744	700	700
54mil (16ga), 50ksi Stud	341	450	452	510	903	903	744	744	700	700
68mil (14ga), 50ksi Stud	341	452	452	510	903	903	744	744	700	700
97mil (12ga), 50ksi Stud	341	452	452	510	903	903	744	744	700	700
Max Allowable Clip Load	**341**	**452**		**510**	**903**		**744**		**700**	

VertiClip® SLT(S), Recommended Allowable Load (lbs): F1 & F2				
	F1 Load Direction		F2 Load Direction	
	Back Fasteners	Front Fasteners	Back Fasteners	Front Fasteners
Thickness Mils (ga)	w/4 #12 screws	w/4 #12 screws	w/4 #12 screws	w/4 #12 screws
33mil (20ga), 33ksi Stud	190	190	379	379
33mil (20ga), 50ksi Stud	276	276	548	548
43mil (18ga), 33ksi Stud	248	248	564	564
43mil (18ga), 50ksi Stud	330	282	816	816
54mil (16ga), 33ksi Stud	312	282	794	794
54mil (16ga), 50ksi Stud	330	282	890	917
68mil (14ga), 50ksi Stud	330	282	890	917
97mil (12ga), 50ksi Stud	330	282	890	917
Max Allowable Clip Load	**330**	**282**	**890**	**917**

Load Direction



Important notes for VertiClip SLT Allowable Load tables continued on next page.

Table Notes:

1. VertiClip SLT is designed to support horizontal loads, and should not be used in axial load-bearing walls.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. #12 screws are provided with each step bushing for attachment to the stud web.
4. VertiClip SLT9.5 and SLT(S) allow up to 2" of vertical deflection (1" up and 1" down).
5. VertiClip SLT(L) allows up to 1-7/8" of vertical deflection (15/16" up and 15/16" down).
6. VertiClip SLT(S) Recommended Allowable Loads are based on (4) #12 screws at the stud attachment and either front or rear fastener attachment to the structure, respectively.
7. Torsional effects are considered on the screw group for F2 Allowable Loads. All torsion is attributed to the screws, none is attributed to the clip connection to the structure.
8. For attachment of VertiClip SLT to structure, it is recommended that fasteners to steel have a 1/2" minimum edge distance and that fasteners to concrete have a 2-1/4" minimum edge distance.
9. For LRFD strengths contact TSN technical services.

Nomenclature

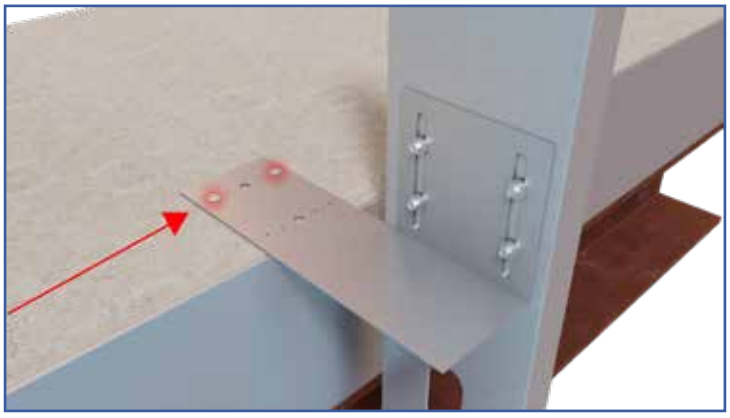
VertiClip SLT9.5 is available in a length of 9 ½". VertiClip SLT(S) is available in a length of 12". VertiClip SLT(L) is available in lengths of 12", 15", and 18". Determine length by adding stud + offset + 3" for steel (5.5" for concrete) and selecting the next largest size.

Example: *6" stud, 4" offset + 3"*
Designate: *VertiClip® SLT(L)15*

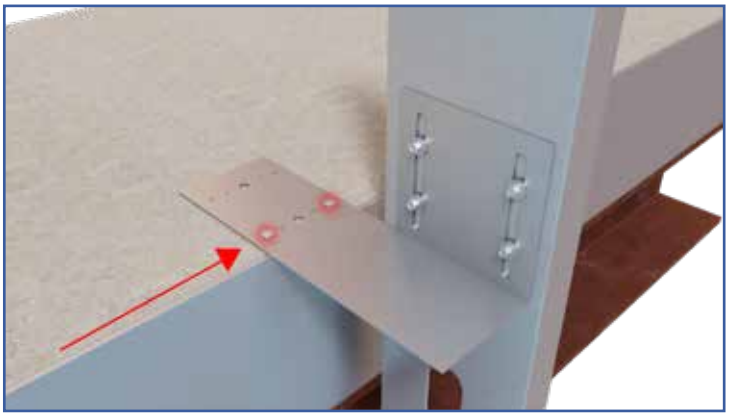
Example Details

VertiClip SLT9.5 attached to the underside of wide flange beam.

VertiClip SLT(S) Fastener Patterns

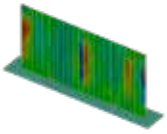


Back Fasteners Attachment to Structure



Front Fasteners Attachment to Structure

VertiClip SLT 9.5 & SLT(L)-18
ICC-ESR-2049
www.icc-es.org



VertiClip SLT Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

MasterClip® VLB

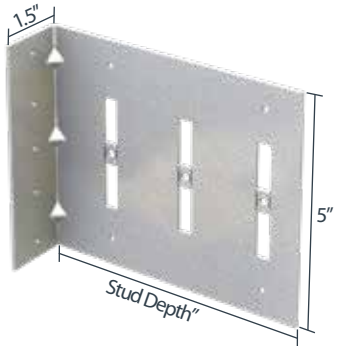
Bypass Slab

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of MasterClip VLB to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent up the base material (steel or concrete) and the design configuration.



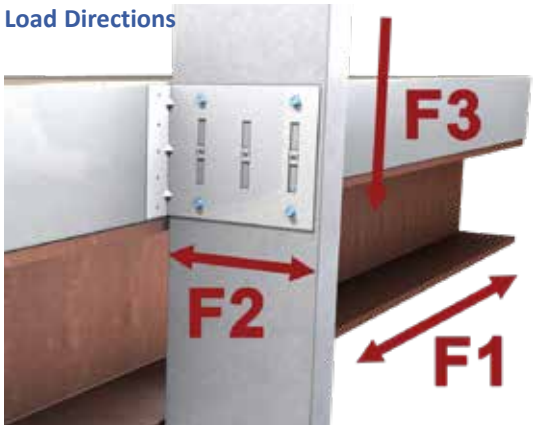
US Patents #8,181,419, #8,683,770 & #10,132,341

MasterClip VLB Allowable Loads

Rigid Connection: F1, F2, & F3 Load Directions														
Screw Patterns with #12 Screws	F1 - Load Direction						F2 - Load Direction			F3 - Load Direction				
	VLB600			VLB800			VLB600 / VLB800			VLB600			VLB800	
	2 Screws	3 Screws	4 Screws	2 Screws	3 Screws	4 Screws	2 Screws	3 Screws	4 Screws	2 Screws	3 Screws	4 Screws	3 Screws	4 Screws
33mil (20ga), 33ksi stud	95	190		95	182		376	444	752	250	363	502	310	440
33mil (20ga), 50ksi stud	138	276		138	182		544	642	1,088	362	525	726	449	636
43mil (18ga), 33ksi stud	124	248		124	182		560	661	1,120	372	540	748	462	655
43mil (18ga), 50ksi stud	179	358		179	182		810	956	1,620	539	782	1,081	668	948
54mil (16ga), 33ksi stud	156	312		156	182		788	930	1,576	524	760	1,052	650	922
54mil (16ga), 50ksi stud	225	450		182	182		1,138	1,343	1,811	757	1,098	1,519	939	1,269
68mil (14ga), 50ksi stud	284	536		182	182		1,434	1,692	1,811	954	1,384	1,792	1,183	1,269
97mil (12ga), 50ksi stud	405	536		182	182		1,434	1,692	1,811	954	1,384	1,792	1,183	1,269
Max Allowable Clip Load	536			182			1,811			1,792			1,269	

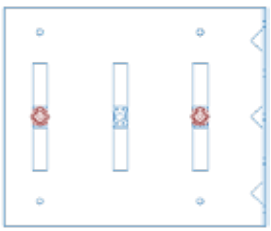
Vertical Deflection: F1 & F2 Load Directions						
	F1 - Load Direction				F2 - Load Direction	
	VLB600		VLB800		VLB600 & VLB800	
Screw Patterns with #12 Screws	2 Screws	3 Screws	2 Screws	3 Screws	2 Screws	3 Screws
33mil (20ga), 33ksi stud	95		95		376	564
33mil (20ga), 50ksi stud	138		107		544	816
43mil (18ga), 33ksi stud	124		107		560	840
43mil (18ga), 50ksi stud	179		107		810	1,215
54mil (16ga), 33ksi stud	156		107		788	1,182
54mil (16ga), 50ksi stud	225		107		1,138	1,567
68mil (14ga), 50ksi stud	259		107		1,434	1,567
97mil (12ga), 50ksi stud	259		107		1,434	1,567
Max Allowable Clip Load	259		107		1,567	

Load Directions

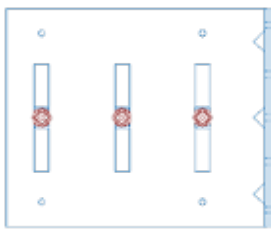


Important notes for MasterClip VLB Allowable Load tables continued on next page.

Vertical Deflection Screw Patterns

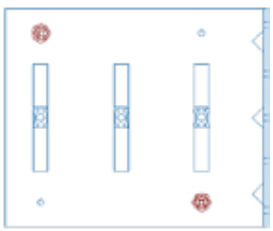


Pattern 1
2 Screws



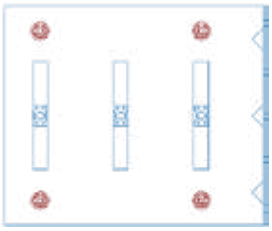
Pattern 2
3 Screws

Rigid Connection Screw Patterns



Pattern 3
2 Screws

Pattern 4
3 Screws



Pattern 5
4 Screws

Notes:

1. MasterClip VLB resists in plane of wall (F1), horizontal (F2), and vertical (F3) loads when used as a rigid connector.
2. MasterClip VLB resists in plane of wall (F1) and horizontal (F2) loads when used as a deflection connector.
3. Allowable loads have not been increased for wind, seismic, or other factors.
4. Design loads consider loads on the clip and #12 screw fasteners to the stud web.
5. Three #12 screws are provided with each connector (based on number of integrated breakaway step bushings). Load requirements don't always require the use of all screws provided.
6. Three slots are standard in 6" and higher web depths to accommodate construction tolerances. Use of a 3rd screw and bushing is dependent upon load requirements.
7. Total vertical deflection up to 2" (1" up and 1" down).
8. Guide holes in the 1-1/2" leg measure 0.141" in diameter.
9. Fasten within 3/4" of the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
10. Fasteners attaching clips to structure should be installed symmetrically around the center line of the clip. The allowable load of the clip may be reduced if fasteners are not installed symmetrically.
11. Allowable load tables incorporate eccentric loading of fasteners. Values with a welded connection may increase.
12. Torsional effects are considered on the screw group for F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the screw connection to the stud.
13. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
14. For LRFD strengths contact TSN technical services.

Nomenclature

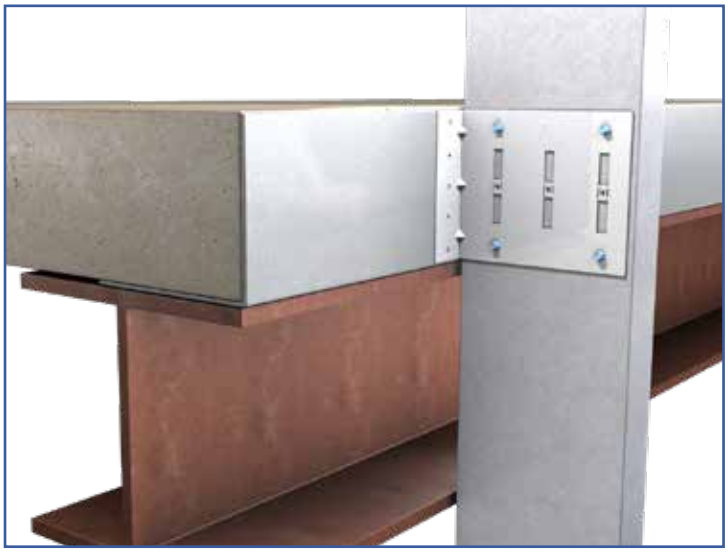
MasterClip VLB is designated by type (VLB), followed by stud depth in inches multiplied by 100.

Example: *6" stud.*
Designate: *MasterClip® VLB600*

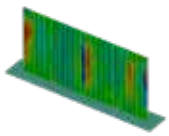
Example Details

The attachment of MasterClip to the primary structure may be made with PAFs, screw/bolt anchors or welds and is dependent upon the base material (steel, concrete or CMU) and the design configuration.

MasterClip® VLB used for Vertical Deflection



MasterClip® VLB used as a Rigid Connection



MasterClip VLB Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at*
http://www.steelnetwork.com/light-steel-framing-design-resources

DriftClip® DSLB

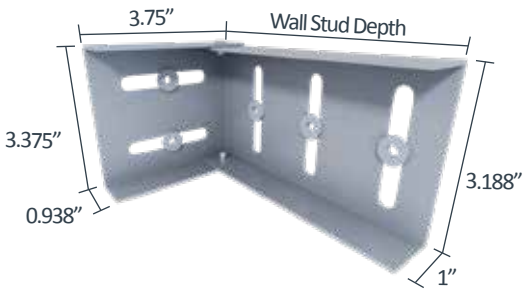
Bypass Slab

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of DriftClip DSLB to the primary structure may be made with PAFs, screws, or bolt anchors depending on the base material (steel or concrete) and the design configuration. The step bushings used for attachment to structure are designed for use with ¼" maximum diameter fasteners. Designing this connection is the responsibility of the Structural Engineer of Record, and a minimum of two fasteners must be used.



US Patent #6,612,087

DriftClip DSLB Allowable Loads

Rigid Connection: F1, F2, & F3 Load Directions						
Screw Patterns with #12 Screws	Fastener Pattern 1			Fastener Pattern 2		
	DSLB362	DSLB600 and DSLB800		DSLB362	DSLB600 and DSLB800	
	2 Screws	2 Screws	3 Screws	2 Screws	2 Screws	3 Screws
33mil (20ga), 33ksi stud	376	376	564	377	377	565
33mil (20ga), 50ksi stud	544	544	816	544	544	572
43mil (18ga), 33ksi stud	560	560	840	561	561	572
43mil (18ga), 50ksi stud	810	810	917	572	572	572
54mil (16ga), 33ksi stud	788	788	917	572	572	572
54mil (16ga), 50ksi stud	917	917	917	572	572	572
68mil (14ga), 50ksi stud	917	917	917	572	572	572
97mil (12ga), 50ksi stud	917	917	917	572	572	572
Max Allowable Clip Load	917			572		

Table Notes:

1. Design loads are for attachment of DriftClip DSLB to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. DriftClip DSLB allows up to 2" of vertical deflection (1" up and 1" down), and 2" of lateral drift (1" left and 1" right) in plane. Deflection requirements greater than 2" of lateral drift are available.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements do not always require the use of a third screw.
5. Attachment of structure to be engineered by others. As a design reference for the structure attachment, reference AISI S100 or screw manufacturers published data for allowable loads for screw fasteners of 1/4"-20 size with various plate thicknesses.
6. One row of bridging is recommended at a maximum distance of 18" from DriftClip to resist torsional effects.
7. For LRFD strengths contact TSN technical services.

Nomenclature

DriftClip DSLB is classified by multiplying stud depth by 100.*

Example: *6" stud depth*
Designate: *DriftClip® DSLB600*

** Parts with the designation "-CA" on the end of the part name includes a special bushing available to allow connection to the side of the concrete slab using two ¼" concrete screw anchors.*

*** If more than 2" lateral drift is required, contact TSN engineering.*

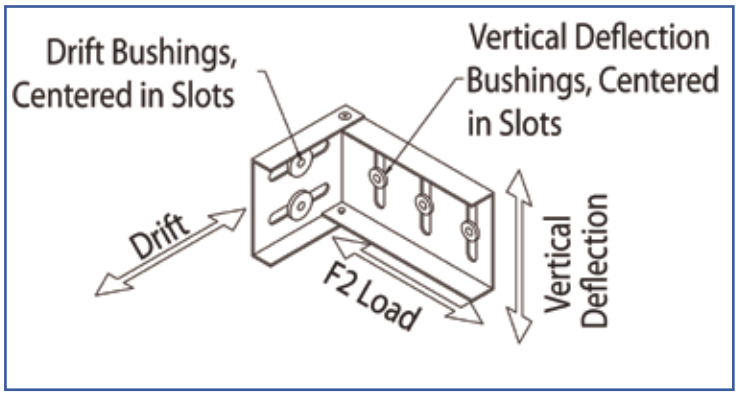
Allowable Screw Pullout

Section Thickness	Pullout ¼" - 20 Screws*
0.0566"	261 lbs
0.0713"	328 lbs
0.1017"	468 lbs
⅛"	514 lbs
3/16"	770 lbs
¼"	1,027 lbs
5/16"	1,284 lbs

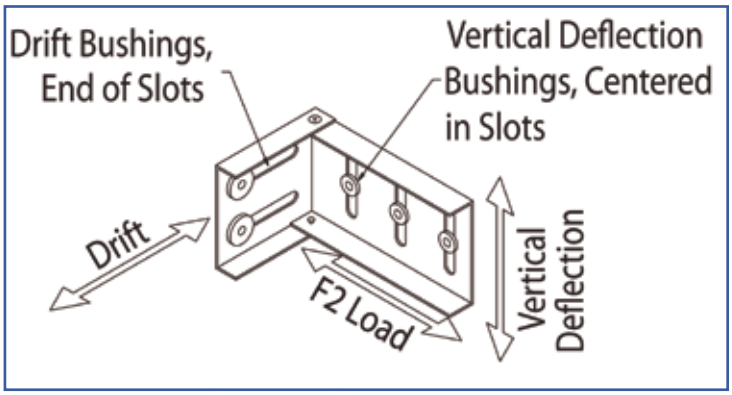
1. Limited by the allowable F2 loads shown in the table on the left
2. 0.0566", 0.0713", and 0.1017" thick sections assumed to have ultimate tensile strength equal to 65 ksi.
3. 1/8", 3/16", 1/4", and 5/16" thick sections assumed to have ultimate tensile strength equal to 58 ksi.
4. Allowable screw pullout strengths calculated in accordance with AISI S100.

Load Direction

Fastener Patterns



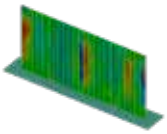
Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection or in-plane drift.



Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with or without full vertical live load deflection and full in-plane drift.

ICC ES

DriftClip DSLB362/400,
DSLB600 & DSLB800
ICC-ESR-2049
www.icc-es.org



DriftClip DSLB Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

DriftClip® DSLS

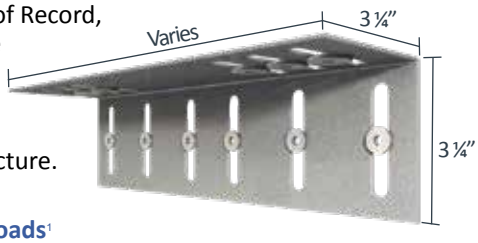
Bypass Structure

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of DriftClip DSLS to the primary structure may be made with PAFs, screws, or bolt anchors depending on the base material (steel or concrete) and the design configuration. The step bushings used for attachment to structure are designed for use with ¼" maximum diameter fasteners. Designing this connection is the responsibility of the Structural Engineer of Record, and a minimum of two fasteners must be used. A minimum of 3.5" of DSLS is required for attachment to steel structure and a minimum of 6" is required for attachment to concrete structure.



US Patent #6,612,087

DriftClip DSLS Allowable (Unfactored) Loads[1]

F2 Load Direction - Fastener Pattern 1								
	DSLS362/400-9	DSLS362/400-12	DSLS600-10		DSLS600-12		DSLS600-15	
Screw Patterns with #12 Screws	w/2 Screws	w/2 Screws	w/2 Screws	w/3 #12 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws
33mil (20ga), 33ksi Stud	376	376	376	564	376	564	376	564
33mil (20ga), 50ksi Stud	544	544	544	816	544	816	544	816
43mil (18ga), 33ksi Stud	560	560	560	840	560	840	560	840
43mil (18ga), 50ksi Stud	810	810	810	1,204	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	788	788	788	1,182	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	961	1,138	1,138	1,204	1,138	1,707	1,138	1,707
68mil (14ga), 50ksi Stud	961	1,237	1,204	1,204	1,434	1,862	1,434	1,903
97mil (12ga), 50ksi Stud	961	1,237	1,204	1,204	1,434	1,862	1,434	1,903
Max Allowable Clip Load	**961**	**1,237**	**1,204**		**1,862**		**1,903**	

DriftClip® DSLS, Recommended Allowable Load (lbs): F2 - Fastener Pattern 1								
	DSLS600-20		DSLS800-12		DSLS800-15		DSLS800-20	
Screw Patterns with #12 Screws	w/2 Screws	w/3 Screws	w/2 #12 Screws	w/3 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws
33mil (20ga), 33ksi Stud	376	564	376	564	376	564	376	564
33mil (20ga), 50ksi Stud	544	816	544	816	544	816	544	816
43mil (18ga), 33ksi Stud	560	840	560	840	560	840	560	840
43mil (18ga), 50ksi Stud	810	1,215	810	1,164	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	788	1,182	788	1,164	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	1,138	1,707	1,138	1,164	1,138	1,707	1,138	1,707
68mil (14ga), 50ksi Stud	1,434	2,151	1,164	1,164	1,434	1,894	1,434	1,822
97mil (12ga), 50ksi Stud	1,434	2,151	1,164	1,164	1,434	1,894	1,434	1,822
Max Allowable Clip Load	**2,151**		**1,164**		**1,894**		**1,822**	

DriftClip® DSLS, Recommended Allowable Load (lbs): F2 - Fastener Pattern 2								
	DSLS362/400-9	DSLS362/400-12	DSLS600-10		DSLS600-12		DSLS600-15	
Screw Patterns with #12 Screws	w/2 Screws	w/2 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws
33mil (20ga), 33ksi Stud	376	376	376	564	376	564	376	564
33mil (20ga), 50ksi Stud	544	544	544	816	544	816	544	816
43mil (18ga), 33ksi Stud	560	560	560	840	560	840	560	840
43mil (18ga), 50ksi Stud	810	810	810	1,018	810	1,215	810	1,215
54mil (16ga), 33ksi Stud	788	788	788	1,018	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	943	1,078	1,018	1,018	1,138	1,707	1,138	1,707
68mil (14ga), 50ksi Stud	943	1,078	1,018	1,018	1,434	1,742	1,434	1,903
97mil (12ga), 50ksi Stud	943	1,078	1,018	1,018	1,434	1,742	1,434	1,903
Max Allowable Clip Load	**943**	**1,078**	**1,018**		**1,742**		**1,903**	

DriftClip DSLS Allowable Load tables and important notes continued on next page.

DriftClip® DSLS, Recommended Allowable Load (lbs): F2 - Fastener Pattern 2								
	DSLS600-20		DSLS800-12		DSLS800-15		DSLS800-20	
Screw Patterns with #12 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws	w/2 Screws	w/3 Screws
33mil (20ga), 33ksi Stud	376	564	376	564	376	564	376	564
33mil (20ga), 50ksi Stud	544	816	544	816	544	816	544	816
43mil (18ga), 33ksi Stud	560	840	560	840	560	840	560	840
43mil (18ga), 50ksi Stud	810	1,215	810	1,158	810	1,198	810	1,215
54mil (16ga), 33ksi Stud	788	1,182	788	1,158	788	1,182	788	1,182
54mil (16ga), 50ksi Stud	1,138	1,663	1,138	1,158	1,138	1,198	1,138	1,246
68mil (14ga), 50ksi Stud	1,434	1,663	1,158	1,158	1,198	1,198	1,246	1,246
97mil (12ga), 50ksi Stud	1,434	1,663	1,158	1,158	1,198	1,198	1,246	1,246
Max Allowable Clip Load	1,663		1,158		1,198		1,246	

Notes:

1. Design loads are for attachment of DriftClip DSLS to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. DriftClip DSLS allows up to 2" of vertical deflection (1" up and 1" down), and 2" of lateral drift (1" left and 1" right) in plane. Deflection requirements greater than 2" of lateral drift are available.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements do not always require the use of a third screw.
5. Attachment of structure to be engineered by others. As a design reference for the structure attachment, reference AISI S100 or screw manufacturers published data for allowable loads for screw fasteners of 1/4"-20 size with various plate thicknesses.
6. One row of bridging is recommended at a maximum distance of 18" from DriftClip to resist torsional effects.
7. Return lip added for clips longer than 20".
8. For LRFD strengths contact TSN technical services.

Load Direction

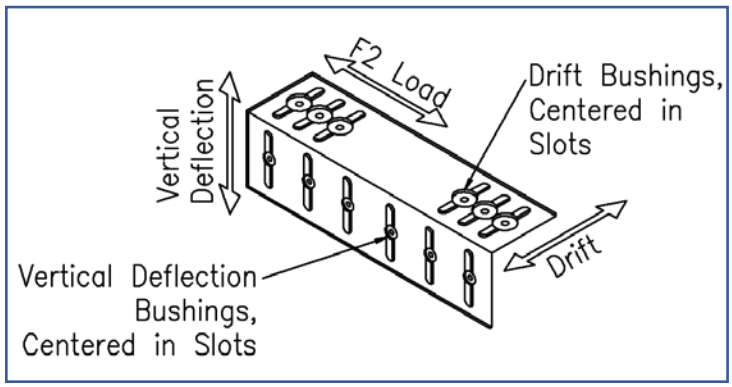
Nomenclature

DriftClip DSLS is classified by multiplying stud depth by 100, followed by length.

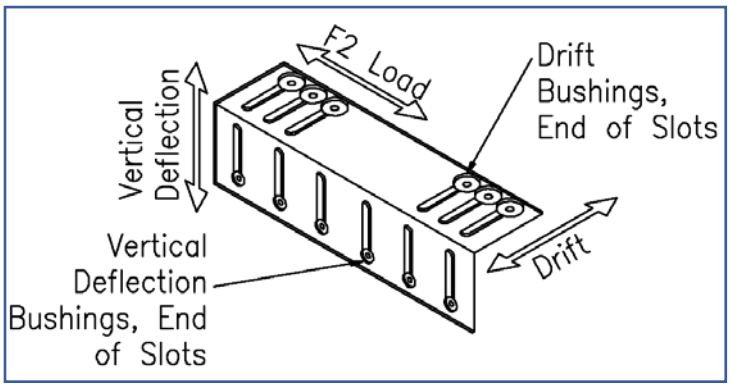
Example: *6" stud depth, 15" length*
Designate: *DriftClip® DSLS600-15*

** If more than 2" lateral drift is required, contact TSN engineering.*

Fastener Patterns

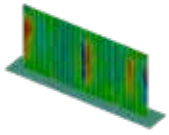


Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection or in-plane drift.



Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with full vertical live load deflection and full in-plane drift.

ICC ES DriftClip DSLS600-12 & DSLS600-15
ICC-ESR-2049
www.icc-es.org



DriftClip DSLS Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

DriftClip® DSLD

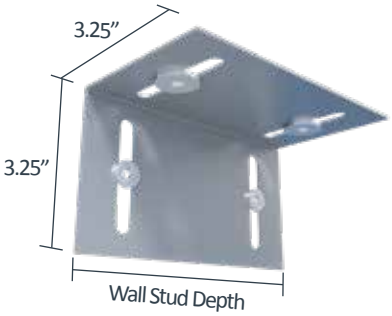
Interior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

The attachment of DriftClip DSLD to the primary structure utilizes step bushings designed for #8 (0.164") screws. Designing this connection is the responsibility of the Structural Engineer of Record, and a minimum of two fasteners must be used.



US Patent #6,612,087

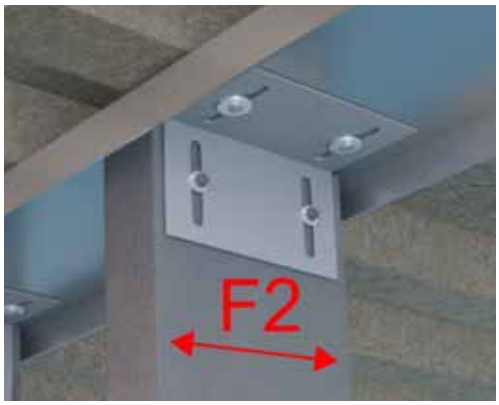
DriftClip DSLD Allowable (Unfactored) Loads[1]

DriftClip® DSLD, Recommended Allowable Load (lbs): F2							
Stud		Fastener Pattern 1			Fastener Pattern 2		
Thickness Mils (ga)	Yield Strength (ksi)	DSLD362 w/2 #8 Screws	DSLD600 w/2 #8 Screws	DSLD800 w/2 #8 Screws	DSLD362 w/2 #8 Screws	DSLD600 w/2 #8 Screws	DSLD800 w/2 #8 Screws
18 (25)	33	70	132	132	27	107	132
27 (22)	33	70	178	199	27	107	183
33 (20)	33	70	178	199	27	107	183
33 (20)	50	70	178	199	27	107	183
43 (18)	33	70	178	199	27	107	183
43 (18)	50	70	178	199	27	107	183
54 (16)	33	70	178	199	27	107	183
54 (16)	50	70	178	199	27	107	183
Maximum Allowable Clip Load		**70**	**178**	**199**	**27**	**107**	**183**

Notes:

1. Design loads are for attachment of DriftClip DSLD to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. DriftClip DSLD allows up to 2" of vertical deflection (1" up and 1" down), and 2" of lateral drift (1" left and 1" right) in plane. Deflection requirements greater than 2" of lateral drift are available.
4. #8 screws are provided for each step bushing attachment to studs.
5. Attachment of structure to be engineered by others.
6. For LRFD strengths contact TSN technical services.

Load Direction

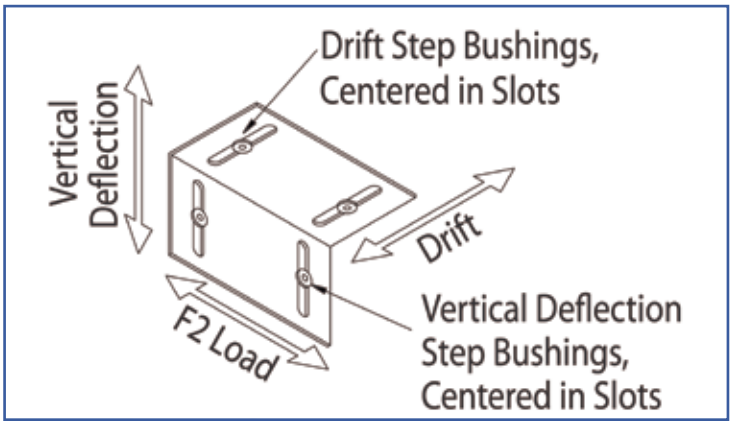


Nomenclature

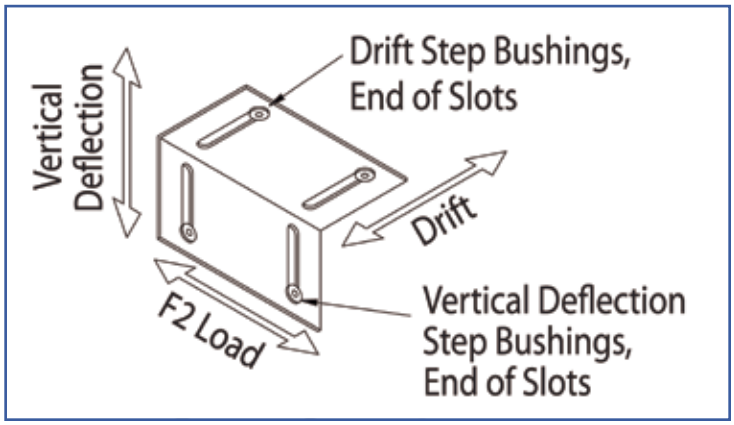
DriftClip DSLD is classified by multiplying stud depth by 100.

Example: *6" stud depth*
Designate: *DriftClip® DSLD600*

Fastener Patterns



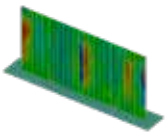
Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection or in-plane drift.



Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with full vertical live load deflection and full in-plane drift.

UL2079 Head of Wall Assemblies

DriftClip DSLD362/400, DSLS600 & DSLD800
ICC-ESR-2049
www.icc-es.org



DriftClip DSLD Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of each of these reports, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

DriftClip® DSL

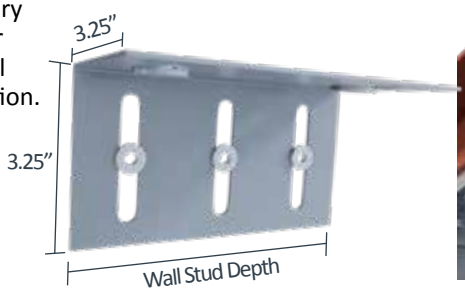
Exterior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of DriftClip DSL to the primary structure may be made with PAFs, screws, or bolt anchors depending on the base material (steel or concrete) and the design configuration. The step bushings used for attachment to structure are designed for use with ¼" maximum diameter fasteners. Designing this connection is the responsibility of the Structural Engineer of Record, and a minimum of two fasteners must be used.



US Patent #6,612,087

DriftClip DSL Allowable (Unfactored) Loads[1]

DriftClip® DSL, Recommended Allowable Load (lbs): F2											
Stud		Fastener Pattern 1					Fastener Pattern 2				
Thickness Mils (ga)	Yield Strength (ksi)	DSL362 w/2 #12 Screws	DSL600 w/2 #12 Screws	DSL600 w/3 #12 Screws	DSL800 w/2 #12 Screws	DSL800 w/3 #12 Screws	DSL362 w/2 #12 Screws	DSL600 w/2 #12 Screws	DSL600 w/3 #12 Screws	DSL800 w/2 #12 Screws	DSL800 w/3 #12 Screws
33 (20)	33	357	376	56	376	564	129	376	418	376	564
33 (20)	50	357	544	776	544	816	129	418	418	544	816
43 (18)	33	357	560	776	560	840	129	418	418	560	840
43 (18)	50	357	776	776	810	1,041	129	418	418	810	1,041
54 (16)	33	357	776	776	788	1,041	129	418	418	788	1,041
54 (16)	50	357	776	776	1,041	1,041	129	418	418	1,041	1,041
68 (14)	50	357	776	776	1,041	1,041	129	418	418	1,041	1,041
97 (12)	50	357	776	776	1,041	1,041	129	418	418	1,041	1,041
Max Allowable Clip Load		357	776		1,041		129	418		1,041	

Notes:

1. Design loads are for attachment of DriftClip DSL to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. DriftClip DSL allows up to 2" of vertical deflection (1" up and 1" down), and 2" of lateral drift (1" left and 1" right) in plane. Deflection requirements greater than 2" of lateral drift are available.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements do not always require the use of a third screw.
5. Attachment of structure to be engineered by others. As a design reference for the structure attachment, reference AISI S100 or screw manufacturers published data for allowable loads for screw fasteners of 1/4"-20 size with various plate thicknesses.

-6. One row of bridging is recommended at a maximum distance of 18" from DriftClip to resist torsional effects.

7. For LRFD strengths contact TSN technical services.

Load Direction

Nomenclature

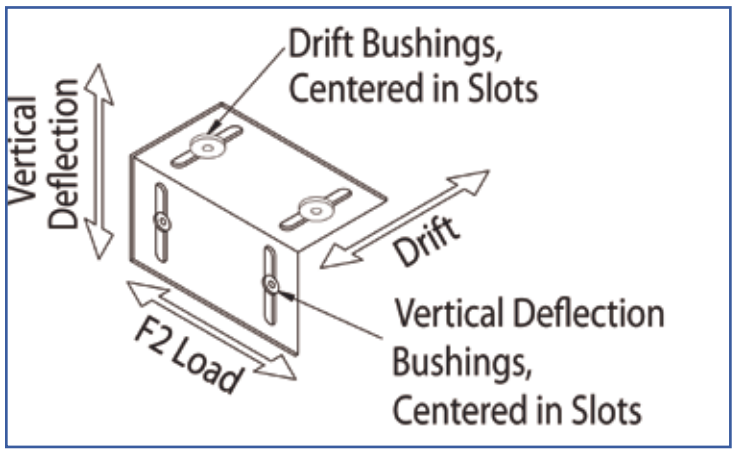
DriftClip DSL is classified by multiplying stud depth by 100.*

Example: *6" stud depth*
Designate: *DriftClip® DSL600*

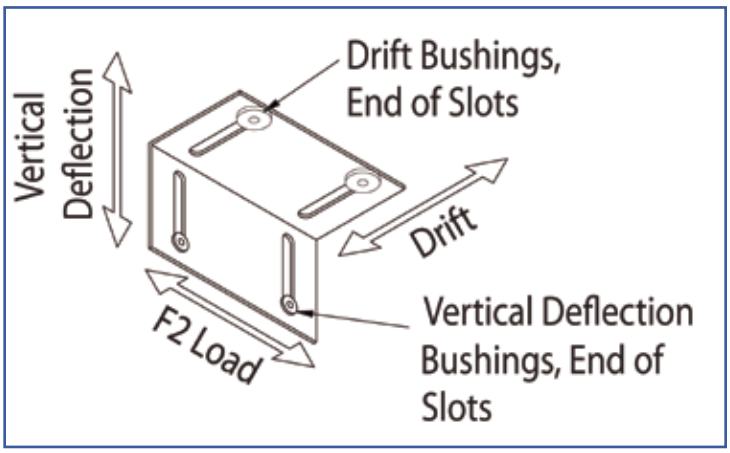
** Parts with the designation "-CA" on the end of the part name includes a special bushing available to allow connection to the side of the concrete slab using two ¼" concrete screw anchors*

*** If more than 2" lateral drift is required, contact TSN engineering.*

Fastener Patterns



Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection or in-plane drift.



Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with full vertical live load deflection and full in-plane drift.

DriftClip DSL362/400,
DSL600 & DSL800
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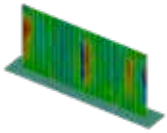

DriftClip DSL Series
Blast and Seismic Design Data
www.steelnetwork.com

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DriftTrak® DT w/DTSL

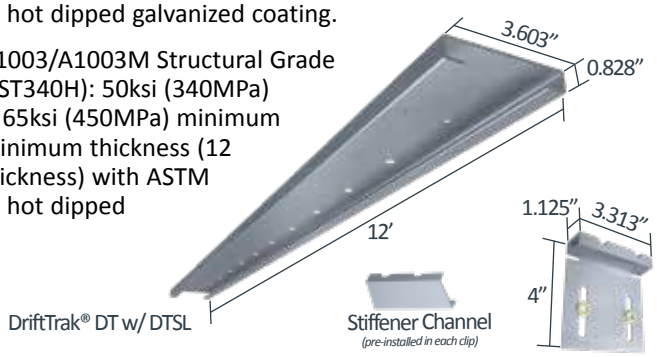
Exterior Head of Wall

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

DTSL Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.



US Patent #7,503,150

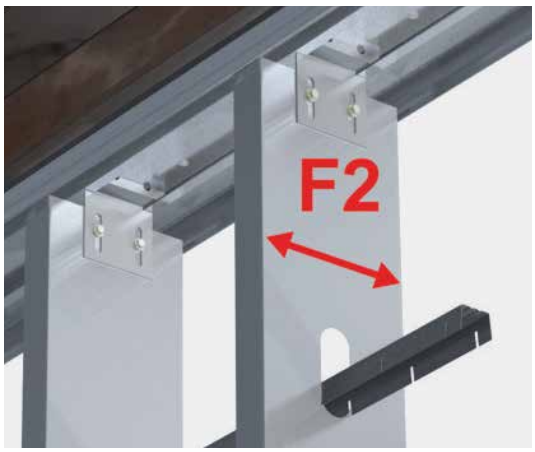
DriftTrak DT w/ DTSL Allowable (Unfactored) Loads

DriftTrak® DT w/ DTSL, Recommended Allowable Load (lbs): F2					
Stud		8" Fastener Spacing in Track to Structure (or welded on both sides)		16" Fastener Spacing in Track to Structure (or welded on both sides)	
		Fastener Pattern 1	Fastener Pattern 2	Fastener Pattern 1	Fastener Pattern 2
Thickness Mils (ga)	Yield Strength (ksi)	w/2 #12 Screws	w/2 #12 Screws	w/2 #12 Screws	w/2 #12 Screws
33 (20)	33	376	376	376	449
33 (20)	50	544	482	544	449
43 (18)	33	560	482	560	449
43 (18)	50	625	482	625	449
54 (16)	33	625	482	625	449
54 (16)	50	625	482	625	449
68 (14)	50	625	482	625	449
97 (12)	50	625	482	625	449
Maximum Allowable Clip Load		**625**	**482**	**625**	**449**

Notes:

1. Design loads are for attachment of DriftTrak DT w/ DTSL to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DT. DriftTrak DT w/ DTSL allows up to 2" of vertical deflection (1" up and 1" down), and free lateral movement of the structure.
4. #12 screws are provided for each step bushing attachment to studs.
5. Attachment of structure to be engineered by others.
6. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DT w/ DTSL to resist torsional effects.
7. DriftTrak DT w/ DTSL does not provide wall closure. A top track will be required for closure of the wall assembly.
8. Allow a minimum of 7/8" from the structure to the top of the stud to allow for the attachment of the DriftTrak DT inside the standard track.
9. For LRFD strengths contact TSN technical services.

Load Direction



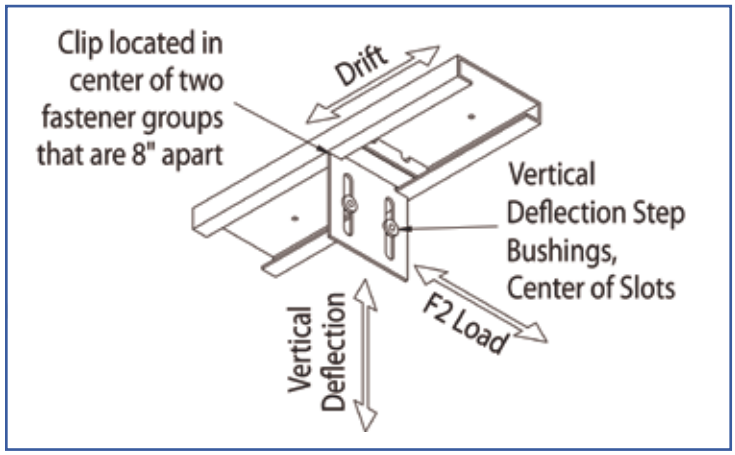
Nomenclature

DriftTrak® DT w/ DTSL is available in one size for all stud depths over 3 5/8".

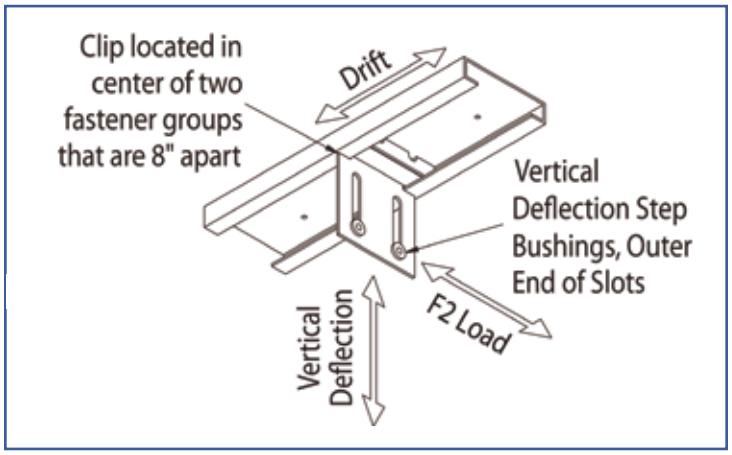
Example: *6" stud depth*
Designate: DriftTrak® DT w/ DTSL

DriftTrak DT is available in 10' and 12' lengths, and is designated:
DriftTrak® DT-10' or DT-12'
*** A top track is required for closure of the wall assembly.*
**** Clips and track sold separately.*

Fastener Patterns



Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection and full in-plane drift.



Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with full vertical live load deflection and full in-plane drift.

DriftTrak DT w/DTSL
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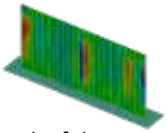

DriftTrak DT w/ DTSL Series
Blast and Seismic Design Data
www.steelnetwork.com

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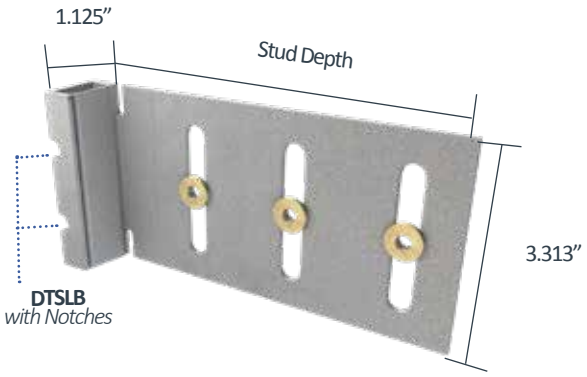
DriftTrak® DT w/DTSLB

Bypass Slab

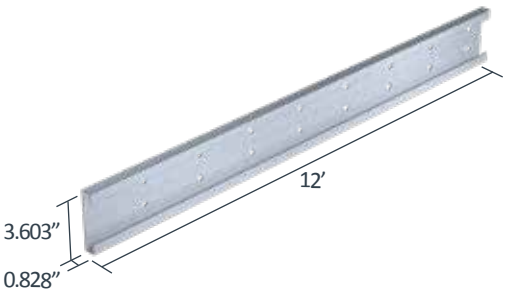
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

DTSLB Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



US Patent #7,503,150



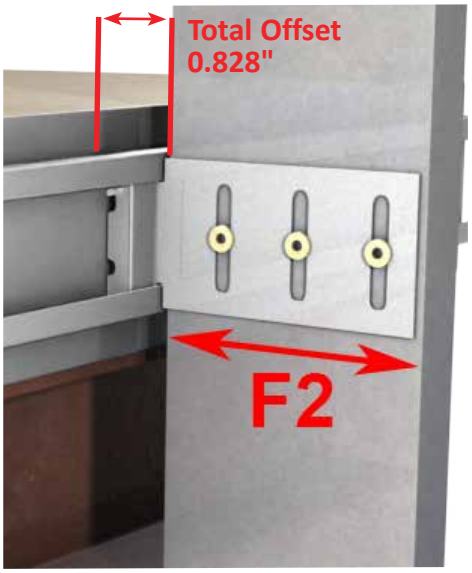
DriftTrak DT w/DTSLB Allowable (Unfactored) Loads[1]

DriftTrak® DT w/ DTSLB, Recommended Allowable Load (lbs): F2					
Stud		DTSLB			
		8" Fastener Spacing in Track to Structure *(or welded on each side)*		16" Fastener Spacing in Track to Structure *(or welded on each side)*	
Thickness Mils (ga)	Yield Strength (ksi)	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws
33 (20)	33	376	564	376	564
33 (20)	50	544	808	544	753
43 (18)	33	560	808	560	753
43 (18)	50	808	808	753	753
54 (16)	33	788	808	753	753
54 (16)	50	808	808	753	753
68 (14)	50	808	808	753	753
97 (12)	50	808	808	753	753
Maximum Allowable Clip Load		808		753	

Notes:

1. Design loads are for attachment of DriftTrak DT w/ DTSLB to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DT. DriftTrak DT w/ DTSLB allows up to 2" of vertical deflection (1" up and 1" down), and free lateral movement of the structure.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements don't always justify use of a third screw.
5. Attachment to structure at 8" or 16" spacing to be engineered by others.
6. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DT w/ DTSLB to resist torsional effects.
7. Notches are standard in DTSLB clips. For greater F2 load capacities, use DTSLB-HD clips without notches. Refer to allowable load tables.
8. Allow a minimum of 7/8" from the structure to the inside flange of the bypassing stud to allow for track attachment.
9. Total offset of stud from the edge of slab should not exceed 2" for DriftTrak DT w/ DTSLB362/400 or DTSLB600 clips.
10. Total offset of stud from the edge of slab should not exceed 3-1/4" for DriftTrak DT w/ DTSLB800 clips.
11. Total offset is measured from the edge of slab to the inside face of the stud.
12. For LRFD strengths contact TSN technical services.

Load Direction

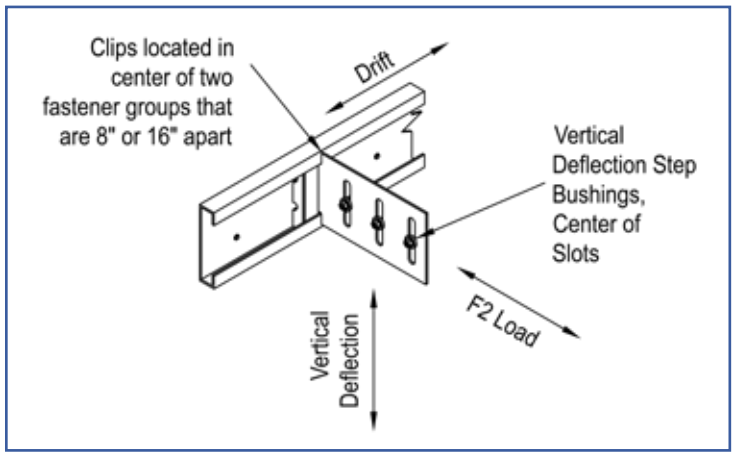


Nomenclature

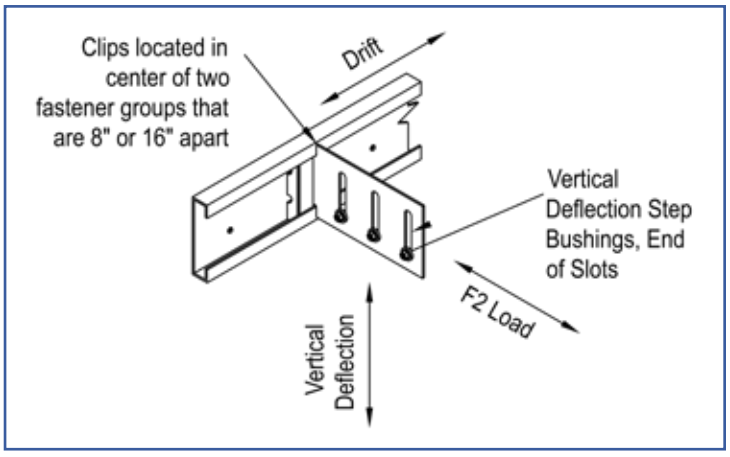
DriftTrak DT w/ DTSLB is specified by designating the track section and the clip size by multiplying the stud depth by 100.

Example: *Track fastened at 8" or 16", 6" stud depth, with an outward load (F2) of 1,000 lbs*
Designate: *DriftTrak®* DT w/ *DTSLB600*

Fastener Patterns

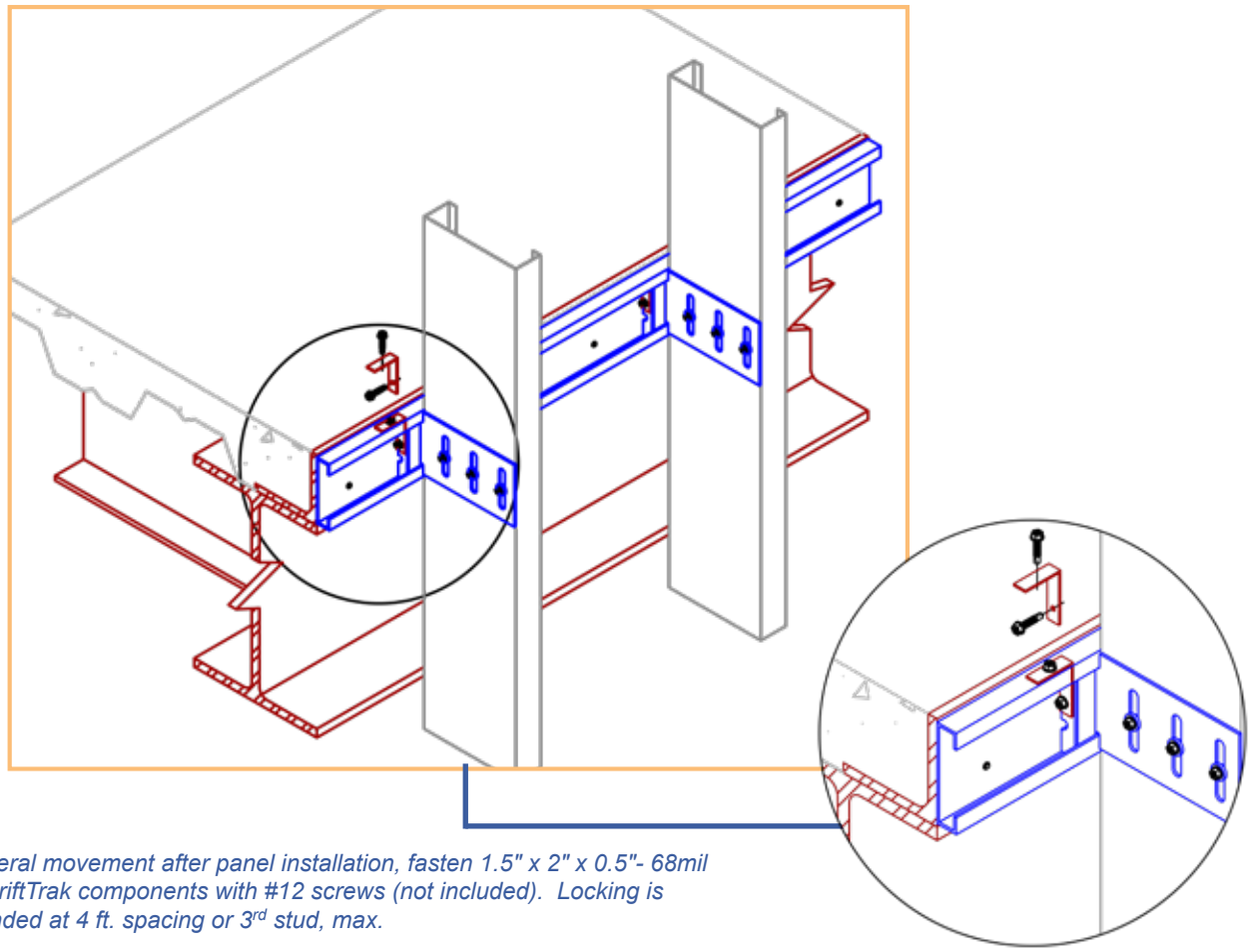


Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection and full in-plane drift.



Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with full vertical live load deflection and full in-plane drift.

Locking of Lateral Movement After Panel Installation



To lock lateral movement after panel installation, fasten 1.5" x 2" x 0.5"- 68mil angle to DriftTrak components with #12 screws (not included). Locking is recommended at 4 ft. spacing or 3rd stud, max.

DriftTrak DT w/ DTSLB362/400, DTSLB600 & DTSLB800
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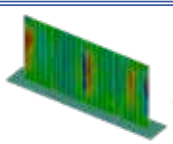

DriftTrak DT w/ DTSLB Series
Blast and Seismic Design Data
www.steelnetwork.com

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DriftTrak® DT w/DTSLB-HD

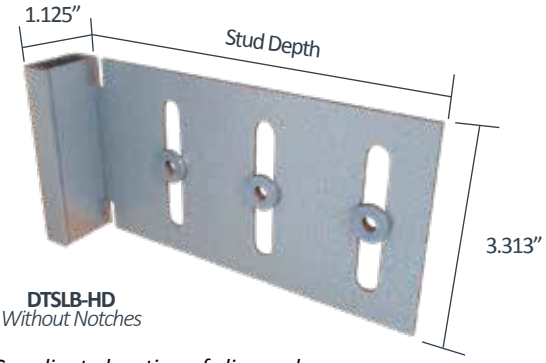
Bypass Slab

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

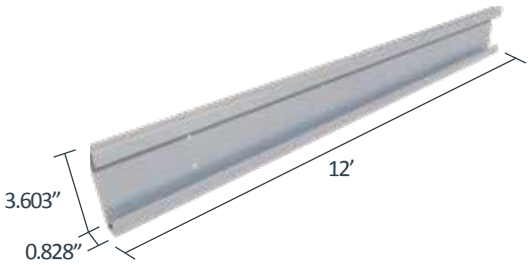
DTSLB-HD Clip and Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

US Patent #7,503,150



DTSLB-HD
Without Notches

Coordinate location of clips and studs with locations of anchors.



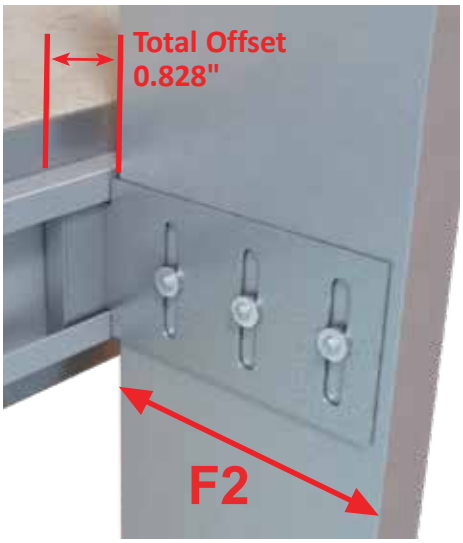
DriftTrak DT w/ DTSLB-HD Allowable (Unfactored) Loads[1]

DriftTrak® DT w/ DTSLB-HD, Recommended Allowable Load (lbs): F2					
Stud		DTSLB-HD			
		8" Fastener Spacing in Track to Structure *(or welded on each side)*		16" Fastener Spacing in Track to Structure *(or welded on each side)*	
Thickness Mils (ga)	Yield Strength (ksi)	w/2 #12 Screws	w/3 #12 Screws	w/2 #12 Screws	w/3 #12 Screws
33 (20)	33	376	564	376	564
33 (20)	50	544	816	544	816
43 (18)	33	560	840	560	840
43 (18)	50	810	1,215	753	953
54 (16)	33	788	1,182	753	953
54 (16)	50	1,138	1,618	753	953
68 (14)	50	1,434	1,618	753	953
97 (12)	50	1,434	1,618	753	953
Maximum Allowable Clip Load		1,618		953	

Notes:

1. Design loads are for attachment of DriftTrak DT w/ DTSLB-HD to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DT. DriftTrak DT w/ DTSLB-HD allows up to 2" of vertical deflection (1" up and 1" down), and free lateral movement of the structure.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements don't always justify use of a third screw.
5. Attachment to structure at 8" or 16" spacing to be engineered by others.
6. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DT w/ DTSLB-HD to resist torsional effects.
7. Allow a minimum of 7/8" from the structure to the inside flange of the bypassing stud to allow for track attachment.
8. Total offset of stud from the edge of slab should not exceed 2" for DriftTrak DT w/ DTSLB362/400-HD or DTSLB600-HD clips.
9. Total offset of stud from the edge of slab should not exceed 3-1/4" for DriftTrak DT w/ DTSLB800-HD clips.
10. Total offset is measured from the edge of slab to the inside face of the stud.
11. For LRFD strengths contact TSN technical services.

Load Direction

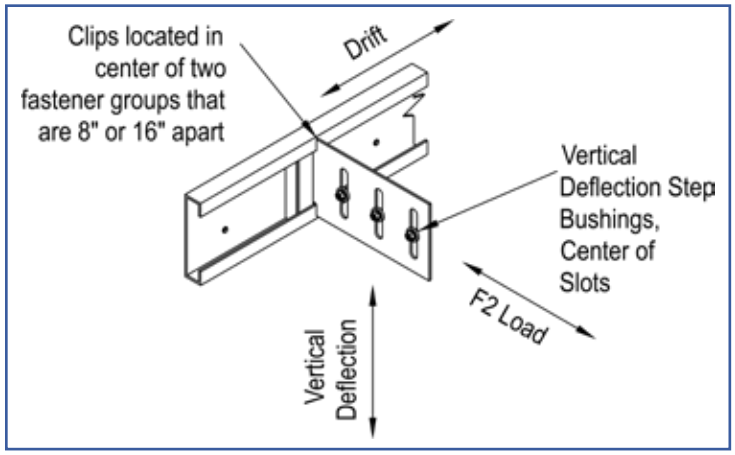


Nomenclature

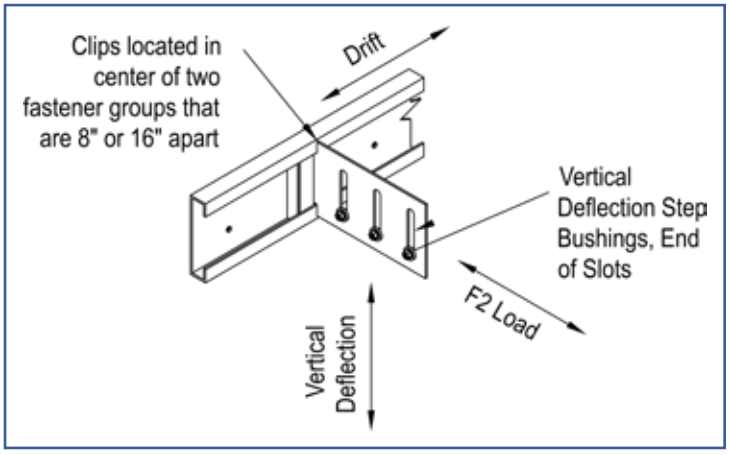
DriftTrak DT w/ DTSLB-HD is specified by designating the track section and the clip size by multiplying the stud depth by 100.

Example: *Track fastened at 8" or 16", 6" stud depth, with an outward load (F2) of 1,000 lbs*
Designate: *DriftTrak® DTSLB600*

Fastener Patterns

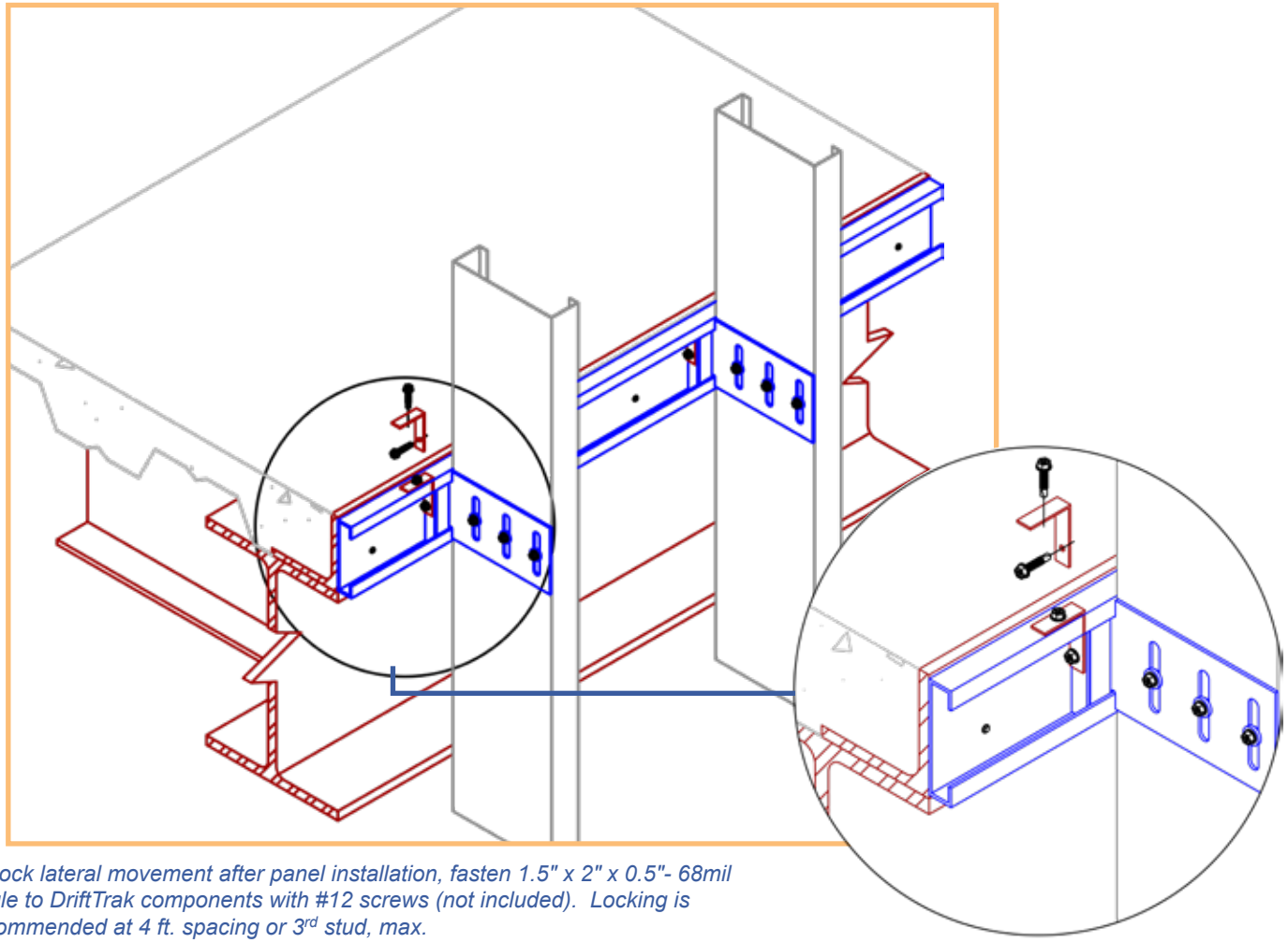


Fastener Pattern 1 replicates a condition of out-of-plane wind or seismic force with no vertical live load deflection and full in-plane drift.



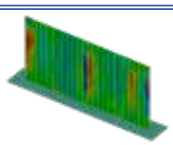
Fastener Pattern 2 replicates a condition of out-of-plane wind or seismic force with full vertical live load deflection and full in-plane drift.

Locking of Lateral Movement After Panel Installation



To lock lateral movement after panel installation, fasten 1.5" x 2" x 0.5"- 68mil angle to DriftTrak components with #12 screws (not included). Locking is recommended at 4 ft. spacing or 3rd stud, max.

DriftTrak DT w/ DTSLB-HD362/400, DTSLB600 & DTSLB800
ICC-ESR-2049
www.icc-es.org



DriftTrak DT w/ DTSLB-HD Series
Blast and Seismic Design Data
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DriftTrak® DT w/DTLB

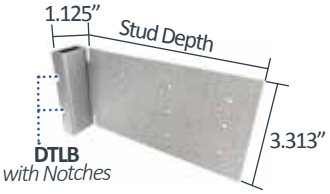
Bypass Slab

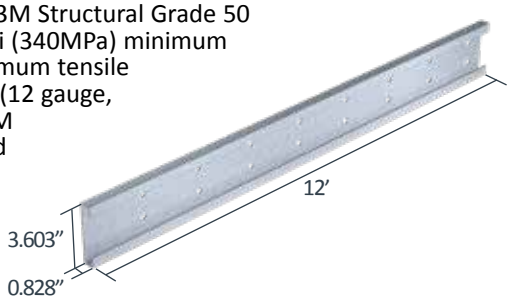
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.





US Patent #7,503,150

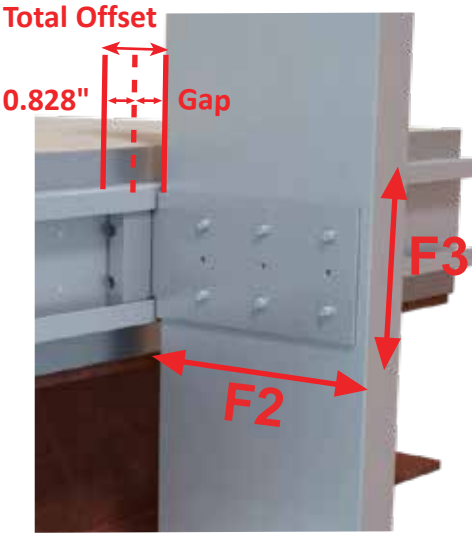
DriftTrak DT w/ DTLB Allowable (Unfactored) Loads

DriftTrak® DT w/ DTLB, Recommended Allowable Load (lbs): F2 & F3													
Screw Patterns with #12 Screws	F2 Load Direction					F3 Load Direction							
	DTLB362/400 *Max Offset = 1"*		DTLB600 & DTLB800 *Max. Offset = 1" for DTLB600 Max. Offset = 1" for DTLB800 w/ 8" Studs Max. Offset = 3" for DTLB800 w/ 6" Studs*			DTLB362/400 *Max. Offset = 1"*		DTLB600 *Max Offset = 1" Max. Offset = 1" for DTLB800 w/ 8" Studs Max. Offset = 3" for DTLB800 w/ 6" Studs*			DTLB800 *Max. Offset = 1" for DTLB800 w/ 8" Studs Max. Offset = 3" for DTLB800 w/ 6" Studs*		
	4 Screws	6 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws
33mil (20ga), 33ksi stud	752	1,009	752	1,128	1,197	228	309	258	309	433	226	264	375
33mil (20ga), 50ksi stud	1,009	1,009	1,088	1,197	1,197	330	448	373	447	627	327	382	543
43mil (18ga), 33ksi stud	1,009	1,009	1,120	1,197	1,197	340	461	384	460	645	337	393	559
43mil (18ga), 50ksi stud	1,009	1,009	1,197	1,197	1,197	492	667	555	666	933	487	568	809
54mil (16ga), 33ksi stud	1,009	1,009	1,197	1,197	1,197	478	649	540	648	908	474	553	787
54mil (16ga), 50ksi stud	1,009	1,009	1,197	1,197	1,197	691	937	780	936	1,312	685	799	1,136
68mil (14ga), 50ksi stud	1,009	1,009	1,197	1,197	1,197	870	1,163	982	1,179	1,653	863	1,006	1,272
97mil (12ga), 50ksi stud	1,009	1,009	1,197	1,197	1,197	870	1,163	982	1,179	1,653	863	1,006	1,272
Max Allowable Clip Load	1,009		1,197			1,163		1,750			1,272		

Notes:

1. Design loads are for attachment of DriftTrak DT w/ DTLB to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DT. DriftTrak DT w/ DTLB provides a rigid connection to the stud while allowing free lateral movement of the structure.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that all of the torsional moment is taken by the connection to the stud.
5. Loads listed reflect force in a single direction. When multiple loads act on the connection, it is the responsibility of the designer to check the interaction of forces.
6. Attachment to structure at 8" spacing to be engineered by others.
7. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DT w/ DTLB if no other stud lateral restraint is present.
8. Notches are standard in DTLB clips. For greater F2 load capacities, use DTLB-HD clips without notches. Refer to allowable load tables.
9. Allow a minimum of 7/8" from the structure to the inside flange of the bypassing stud to allow for track attachment.
10. Maximum total offset of stud from the edge of slab should not exceed 1" for DriftTrak DT w/ DTLB362/400 or DTLB600 clips.
11. Maximum total offset of stud from the edge of slab should not exceed 1" for DriftTrak DT w/ DTLB800 clips with 8" studs and 3" for DriftTrak DT w/ DTLB800 clips with 6" studs.
12. Maximum total offset is measured as track flange plus the gap from the open face of the track to the inside face of the stud.
13. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

DriftTrak DT w/ DTLB is specified by designating the track section and the clip size by multiplying the stud depth by 100.

Example: *Track fastened at 8", 6" stud depth, with an outward load (F2) of 1,000 lbs and a gravity load (F3) of 400 lbs*

Designate: *DriftTrak® DT w/ DTLB600*

DTLB362 Fastener Patterns

4 Hole Fastener Pattern

6 Hole Fastener Pattern

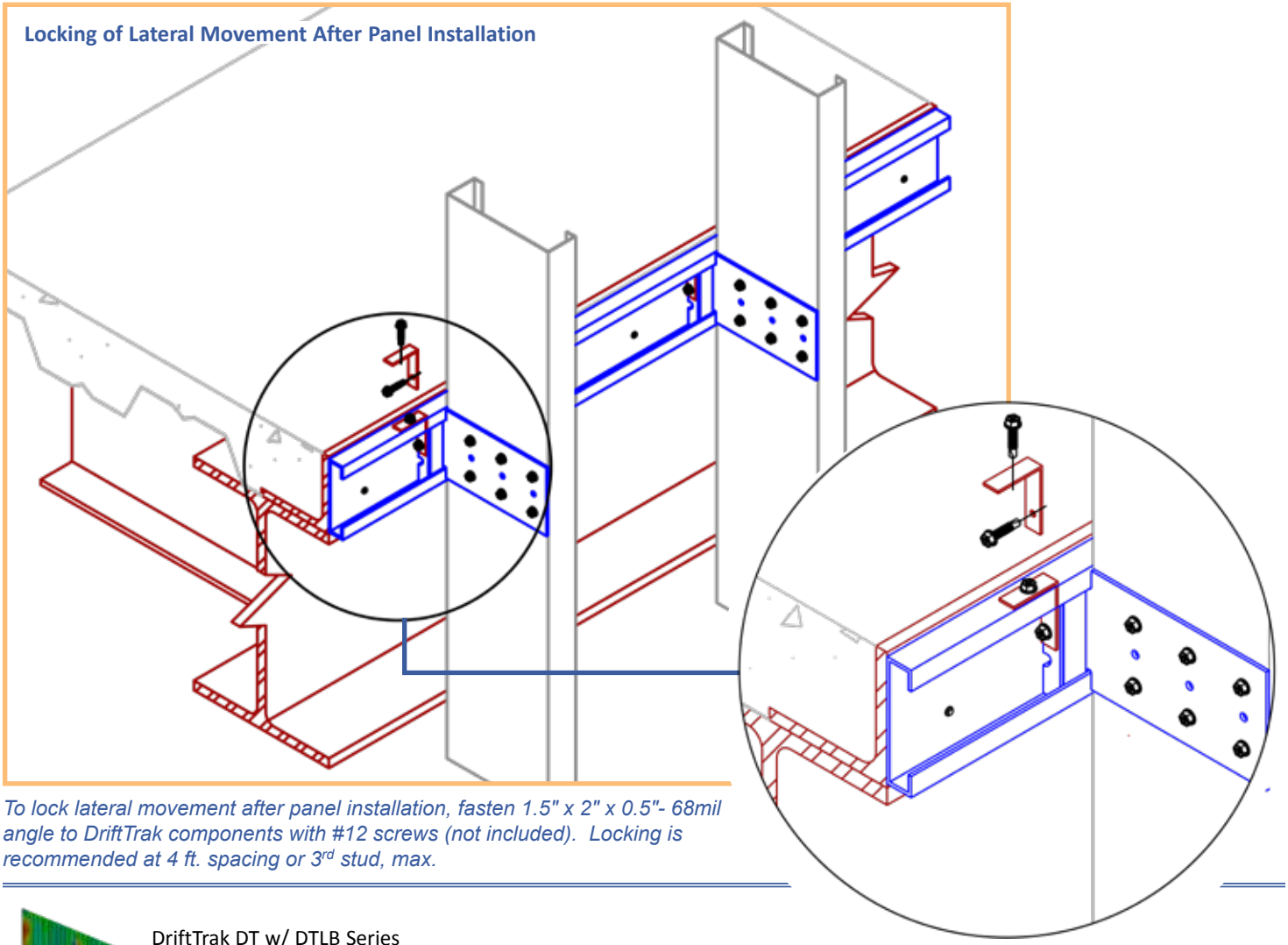
DTLB600 and DTLB800 Fastener Patterns

4 Hole Fastener Pattern

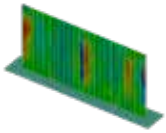
6 Hole Fastener Pattern

9 Hole Fastener Pattern

Locking of Lateral Movement After Panel Installation



To lock lateral movement after panel installation, fasten 1.5" x 2" x 0.5"- 68mil angle to DriftTrak components with #12 screws (not included). Locking is recommended at 4 ft. spacing or 3rd stud, max.



DriftTrak DT w/ DTLB Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

DriftTrak® DT w/DTLB-HD

Bypass Slab

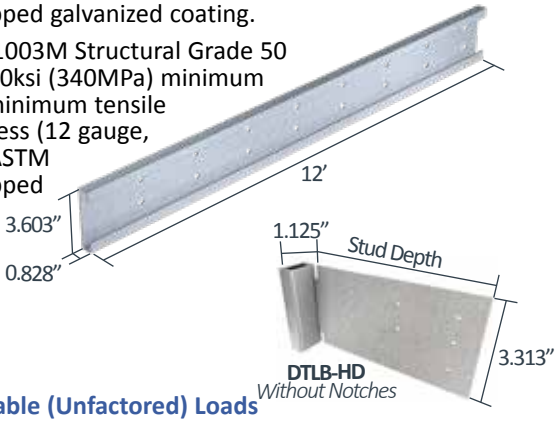
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

Coordinate location of clips and studs with locations of anchors.

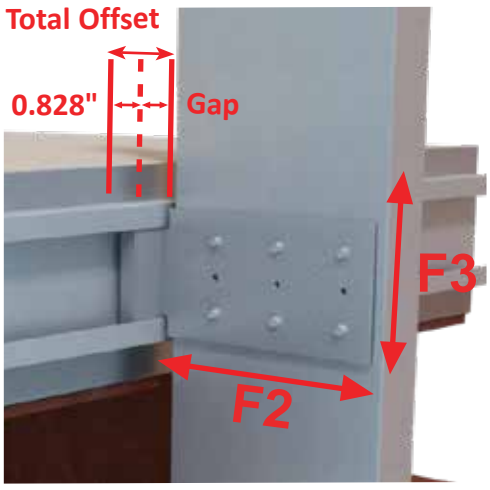


US Patent #7,503,150

DriftTrak DT w/ DTLB-HD Allowable (Unfactored) Loads

DriftTrak® DT w/ DTLB-HD, Recommended Allowable Load (lbs): F2 & F3													
Screw Patterns with #12 Screws	F2 Load Direction							F3 Load Direction					
	DTLB362/400-HD *Max. Offset = 1" for DTLB362/400-HD*		DTLB600-HD or DTLB800-HD *Max. Offset = 1" for DTLB600-HD* *Max. Offset = 1" for DTLB800-HD w/ 8" Studs* *Max. Offset = 3" for DTLB800-HD w/ 6" Studs*			DTLB362/400-HD *Max. Offset = 1" for DTLB362/400-HD*		DTLB600-HD *Max. Offset = 1" for DTLB600-HD*			DTLB800-HD *Max. Offset = 1" for DTLB800- HD w/ 8" Studs* *Max. Offset = 3" for DTLB800-HD w/ 6" Studs*		
	4 Screws	6 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws
33mil (20ga), 33ksi stud	752	1,128	752	1,128	1,692	228	309	258	309	433	226	264	375
33mil (20ga), 50ksi stud	1,088	1,316	1,088	1,632	1,749	330	448	373	447	627	327	382	543
43mil (18ga), 33ksi stud	1,120	1,316	1,120	1,680	1,749	340	461	384	460	645	337	393	559
43mil (18ga), 50ksi stud	1,316	1,316	1,620	1,749	1,749	492	667	555	666	933	487	568	809
54mil (16ga), 33ksi stud	1,316	1,316	1,576	1,749	1,749	478	649	540	648	908	474	553	787
54mil (16ga), 50ksi stud	1,316	1,316	1,749	1,749	1,749	691	937	780	936	1,312	685	799	1,136
68mil (14ga), 50ksi stud	1,316	1,316	1,749	1,749	1,749	870	1,163	982	1,179	1,653	863	1,006	1,272
97mil (12ga), 50ksi stud	1,316	1,316	1,749	1,749	1,749	870	1,163	982	1,179	1,653	863	1,006	1,272
Max Allowable Clip Load	**1,316**		**1,749**			**1,163**		**1,750**			**1,272**		

Load Direction



Notes:

1. Design loads are for attachment of DriftTrak DT w/ DTLB-HD to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DT. DriftTrak DT w/ DTLB-HD provides a rigid connection to the stud while allowing free lateral movement of the structure.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that all of the torsional moment is taken by the connection to the stud.
5. Loads listed reflect force in a single direction. When multiple loads act on the connection, it is the responsibility of the designer to check the interaction of forces.
5. Attachment to structure at 8" spacing to be engineered by others.
6. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DT w/ DTLB-HD if no other stud lateral restraint is present.
8. Allow a minimum of 7/8" from the structure to the inside flange of the bypassing stud to allow for track attachment.
9. Maximum total offset of stud from the edge of slab should not exceed 1" for DriftTrak DT w/ DTLB362/400-HD or DTLB600-HD clips.
10. Maximum total offset of stud from the edge of slab should not exceed 1" for DriftTrak DT w/ DTLB800-HD clips with 8" studs and 3" for DriftTrak DT w/ DTLB800-HD clips with 6" studs.
11. Maximum total offset is measured as track flange plus the gap from the open face of the track to the inside face of the stud.
12. For LRFD strengths contact TSN technical services.

Nomenclature

DriftTrak DT w/ DTLB600-HD is classified by multiplying stud depth by 100, followed by "HD," based on F2 strength required. Refer to load tables.

Example: *Track fastened at 8", 6" stud depth, with an outward load (F2) of 1,000 lbs and a gravity load (F3) of 400 lbs*
Designate: *DriftTrak DT w/ DTLB600-HD*

DTLB362-HD Fastener Patterns

4 Hole Fastener Pattern

6 Hole Fastener Pattern

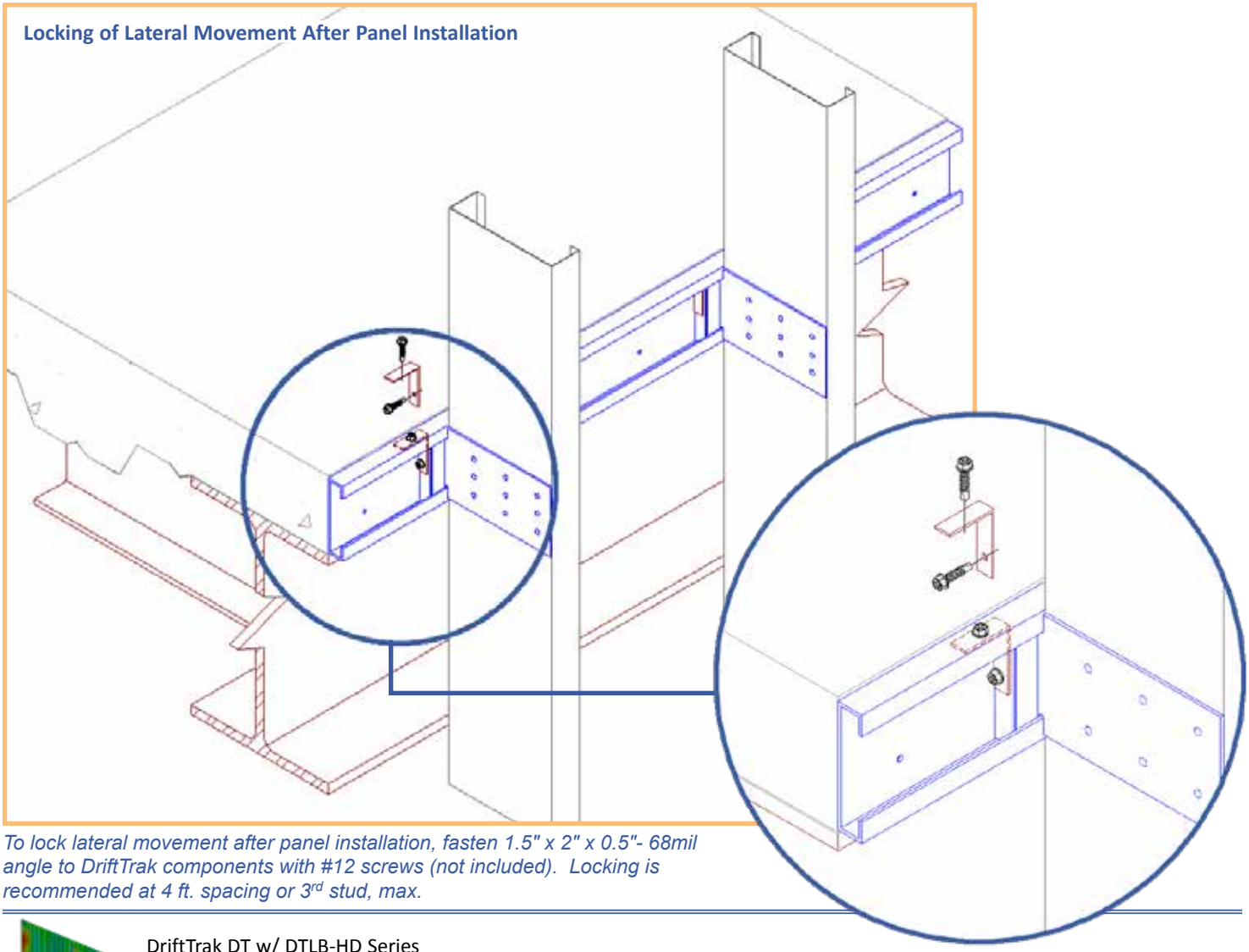
DTLB600-HD and DTLB800-HD Fastener Patterns

4 Hole Fastener Pattern

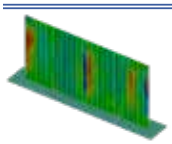
6 Hole Fastener Pattern

9 Hole Fastener Pattern

Locking of Lateral Movement After Panel Installation



To lock lateral movement after panel installation, fasten 1.5" x 2" x 0.5"- 68mil angle to DriftTrak components with #12 screws (not included). Locking is recommended at 4 ft. spacing or 3rd stud, max.



DriftTrak DT w/ DTLB-HD Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at*
http://www.steelnetwork.com/light-steel-framing-design-resources

DriftTrak® DTH w/ DTSLB-HD

Slab Integrated Bypass

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Description

DriftTrak® DTH (Headed Stud) w/ DTSLB-HD saves the time and expense of installing DriftTrak after the concrete slab has been poured, by integrating it directly into the slab before pouring. The headed studs come preinstalled to the DriftTrak DTH and function as the attachment to the post-tensioned slab instead of welding to the pour stop angle or use of PAF's or anchors. Once concrete is poured, the DriftTrak DTH is ready to support exterior steel framing using DTSLB-HD bypass clips to accommodate vertical deflection and lateral drift requirements.

US Patent #7,503,150 & Patent Pending

Material Composition

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

Headed Stud Material: ASTM A29/A108, Grades 1010 through 1020 or equivalent, 45ksi (310MPa) minimum yield strength, 55ksi (380MPa) minimum tensile strength, ⅜" diam. x 3 ⅛" length with ¾" head diameter.

Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

DriftTrak DTH w/ DTSLB-HD Allowable Loads

DriftTrak® DTH w/ DTSLB-HD, Recommended Allowable Load (lbs): F2			
Screw Patterns with #12 Screws	F2 Load Direction		
	DTSLB362/400-HD *Max. Offset = 1-1/4" for DTSLB362/400-HD*	DTSLB600-HD & DTSLB800-HD *Max. Offset = 1-1/4" for DTSLB600-HD Max. Offset = 2-1/2" for DTSLB800-HD*	
	2 Screws	2 Screws	3 Screws
33mil (20ga), 33ksi stud	376	376	564
33mil (20ga), 50ksi stud	544	544	816
43mil (18ga), 33ksi stud	560	560	840
43mil (18ga), 50ksi stud	810	810	1,215
54mil (16ga), 33ksi stud	788	788	1,182
54mil (16ga), 50ksi stud	1,138	1,138	1,657
68mil (14ga), 50ksi stud	1,434	1,434	1,657
97mil (12ga), 50ksi stud	1,434	1,434	1,657
Max Allowable Clip Load	1,657		

Load Direction

Notes:

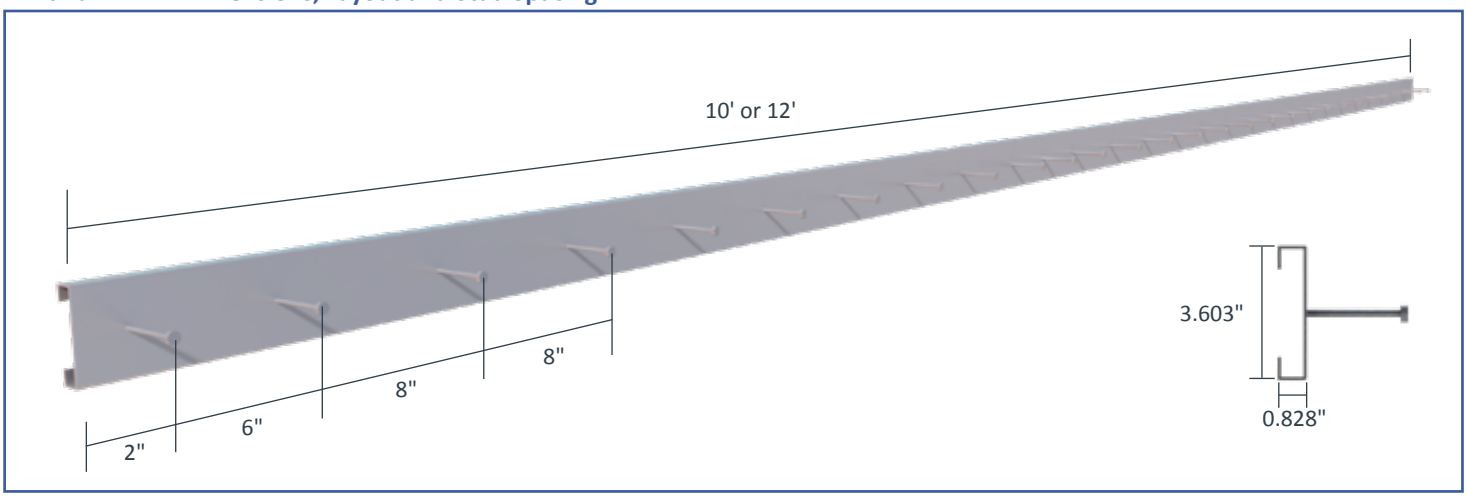
1. Design loads are for attachment of DriftTrak DTH w/ DTSLB-HD to stud and stud weld to track only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DTH. DriftTrak DTH w/ DTSLB-HD allows up to 2" of vertical deflection (1" up and 1" down), and free lateral movement of the structure.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements don't always justify use of a third screw.
5. Maximum tension on a single anchor should not exceed 1,600 lbs ASD. In tension, the strength of the anchor itself should be considered. The weld does not need to be considered in tension as the load table and 1,600 lbs ASD maximum tension value are inclusive of the strength of the welds.
6. Designers must check headed stud tension anchorage capacity into concrete per ACI 318 based on the actual headed stud edge distance an concrete compressive strength. For more information, call TSN Technical Suppot.
7. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DTH w/ DTSLB-HD to resist torsional effects.
8. Standard offset of stud from the open face of the track should not exceed 1-1/4" for DriftTrak DTH w/ DTSLB362/400-HD or DTSLB600-HD clips.
9. Standard offset of stud from the open face of the track should not exceed 2-1/2" for DriftTrak DTH w/ DTSLB800-HD clips.
10. Offset is measured from the open face of the track to the inside face of the stud.
11. For LRFD strengths contact TSN technical services.

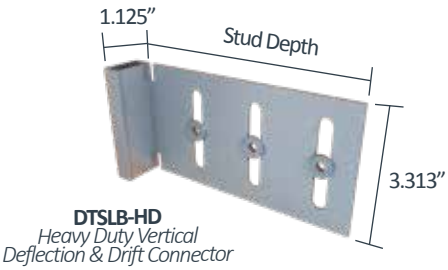
Nomenclature

DriftTrak DTH is manufactured in 10' or 12' lengths, with headed studs in a single centered row (See DriftTrak® DTH: Dimensions, Layout, and Stud Spacing figure. To specify DriftTrak DTH for a vertical deflection specify DriftTrak DTH and the clip size by multiplying the stud depth by 100.

Example: *Headed stud track, 6" stud depth, with an outward load (F2) of 1,000 lbs*
Designate: *DriftTrak DTH w/ DTSLB600-HD*

DriftTrak® DTH: Dimensions, Layout and Stud Spacing

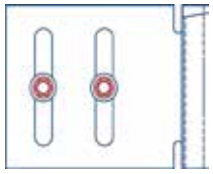




DTSLB-HD
Heavy Duty Vertical Deflection & Drift Connector

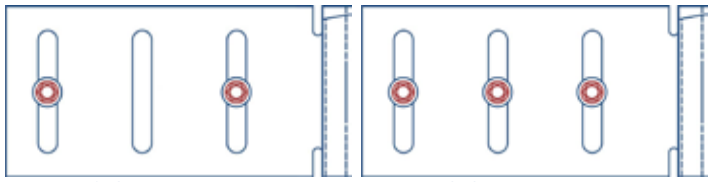
Fastener Patterns

DTSLB362/400-HD



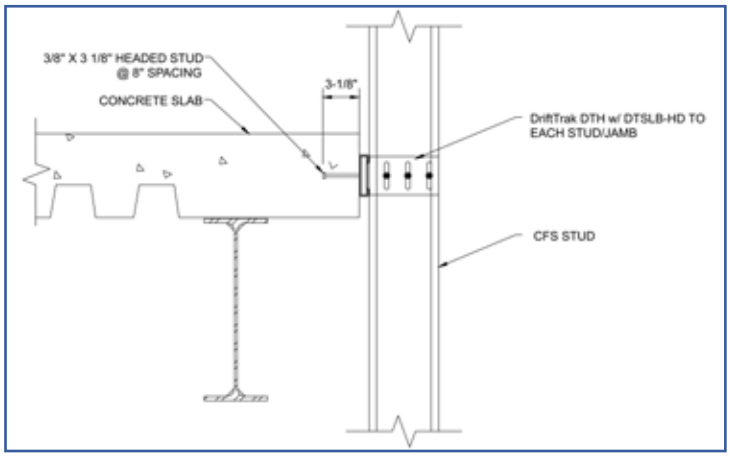
2-Screw Pattern

DTSLB600-HD and DTSLB800-HD



2-Screw Pattern 3-Screw Pattern

Example Details



DriftTrak® DTH w/ DTSLB-HD
Attachment to Slab on Metal Deck

DriftTrak® DTH w/ DTLB-HD

Slab Integrated Bypass

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Description

DriftTrak® DTH (Headed Stud) w/ DTLB-HD saves the time and expense of installing DriftTrak after the concrete slab has been poured, by integrating it directly into the slab before pouring. The headed studs come preinstalled to the DriftTrak DTH and function as the attachment to the post-tensioned slab instead of welding to the pour stop angle or use of PAF's or anchors. Once concrete is poured, the DriftTrak DTH is ready to support exterior steel framing to accommodate vertical deflection and lateral drift requirements using DTLB-HD bypass clips to provide a rigid attachment and accommodate lateral drift requirements.

US Patent #7,503,150 & Patent Pending

Material Composition

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

Headed Stud Material: ASTM A29/A108, Grades 1010 through 1020 or equivalent, 45ksi (310MPa) minimum yield strength, 55ksi (380MPa) minimum tensile strength, ⅜" diam. x 3 ⅛" length with ¾" head diameter.

Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

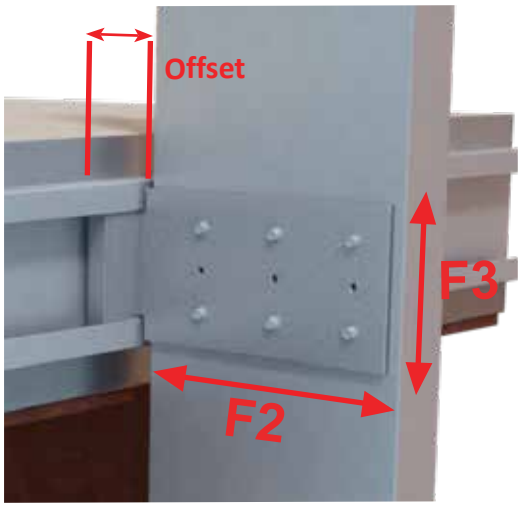
DriftTrak Headed Stud Allowable Loads

DriftTrak® Headed Studs with DTLB-HD, Recommended Allowable Load (lbs): F2 & F3													
	F2 Load Direction					F3 Load Direction							
	DTLB362/400-HD *Max. Offset = 1" for DTLB362/400-HD*		DTLB600-HD or DTLB800-HD *Max. Offset = 1" for DTLB600-HD Max. Offset = 1" for DTLB800-HD*			DTLB362/400-HD *Max. Offset = 1" for DTLB362/400-HD*		DTLB600-HD *Max. Offset = 1" for DTLB600-HD*			DTLB800-HD *Max. Offset = 1" for DTLB800-HD*		
Screw Patterns with #12 Screws	4 Screws	6 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws
33mil (20ga), 33ksi stud	752	1,128	752	1,128	1,657	228	309	258	309	433	226	264	375
33mil (20ga), 50ksi stud	1,088	1,632	1,088	1,632	1,657	330	448	373	447	627	327	382	543
43mil (18ga), 33ksi stud	1,120	1,657	1,120	1,657	1,657	340	461	384	460	645	337	393	559
43mil (18ga), 50ksi stud	1,620	1,657	1,620	1,657	1,657	492	667	555	666	933	487	568	809
54mil (16ga), 33ksi stud	1,576	1,657	1,576	1,657	1,657	478	649	540	648	908	474	553	787
54mil (16ga), 50ksi stud	1,657	1,657	1,657	1,657	1,657	691	937	780	936	1,312	685	799	1,136
68mil (14ga), 50ksi stud	1,657	1,657	1,657	1,657	1,657	870	1,163	1,065	1,278	1,791	863	1,006	1,272
97mil (12ga), 50ksi stud	1,657	1,657	1,657	1,657	1,657	870	1,163	1,065	1,278	1,791	863	1,006	1,272
Max Allowable Clip Load	1,657		1,657			1,163		1,908			1,272		

Notes:

1. Design loads are for attachment of DriftTrak DTH w/ DTLB-HD to stud only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak DTH. DriftTrak DTH w/ DTLB-HD provides a rigid connection to the stud while allowing free lateral movement of the structure.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that all of the torsional moment is taken by the connection to the stud.
5. Loads listed reflect force in a single direction. When multiple loads act on the connection, it is the responsibility of the designer to check the interaction of forces.
6. Maximum tension on a single anchor should not exceed 1,600 lbs ASD. In tension, the strength of the anchor itself should be considered. The weld does not need to be considered in tension as the load table and 1,600 lbs ASD maximum tension value are inclusive of the strength of the welds.
7. Designers must check headed stud tension anchorage capacity into concrete per ACI 318 based on the actual headed stud edge distance an concrete compressive strength. For more information, call TSN Technical Suppot.
8. One row of bridging is recommended at a maximum distance of 18" from DriftTrak DTH w/ DTLB-HD if no other stud lateral restraint is present.
9. Standard offset of stud from the open face of the track should not exceed 1" for DriftTrak DTH w/ DTLB362/400-HD, DTLB600-HD, or DTLB800-HD clips.
10. Offset is measured from the open face of the track to the inside face of the stud.
11. For LRFD strengths contact TSN technical services.

Load Direction

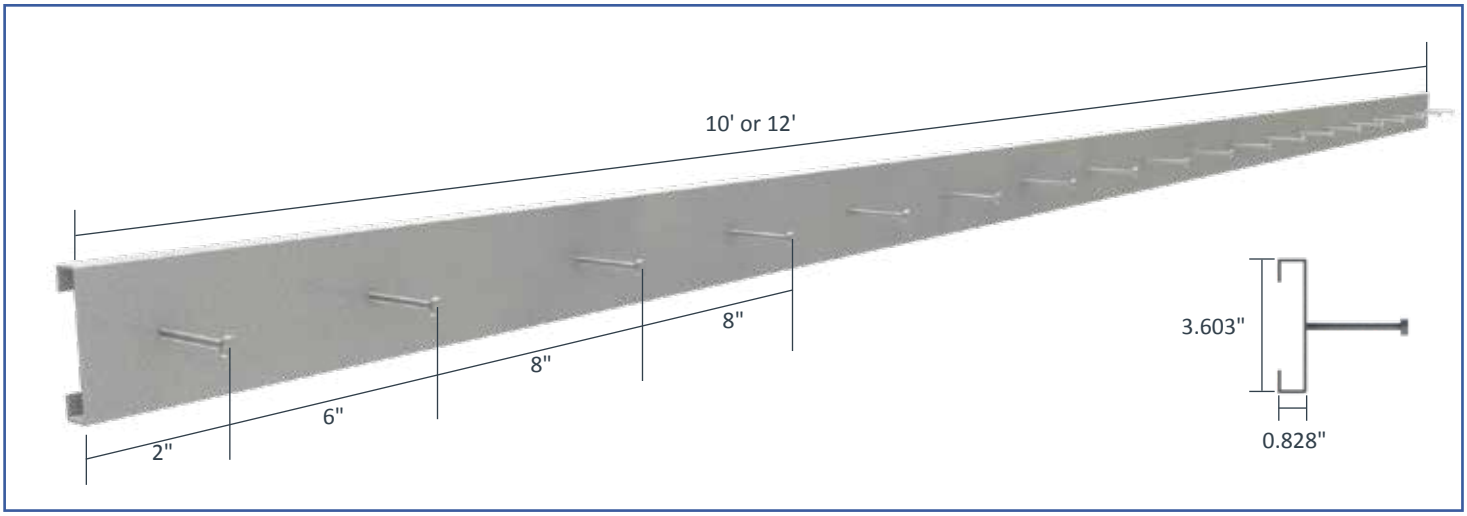


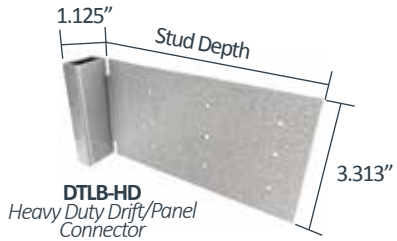
Nomenclature

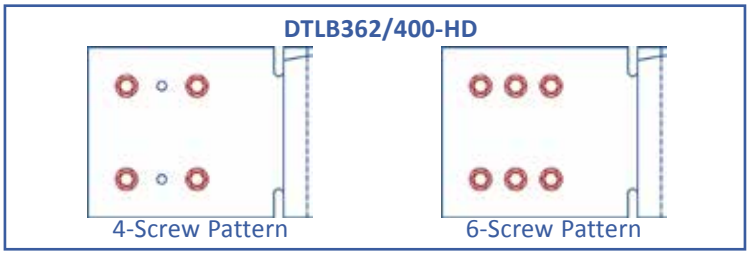
DriftTrak DTH is manufactured in 10' or 12' lengths, with headed studs in a single centered row (See DriftTrak® DTH: Dimensions, Layout, and Stud Spacing figure. To specify DriftTrak DTH for rigid connections specify DriftTrak DTH and the clip size by multiplying the stud depth by 100.

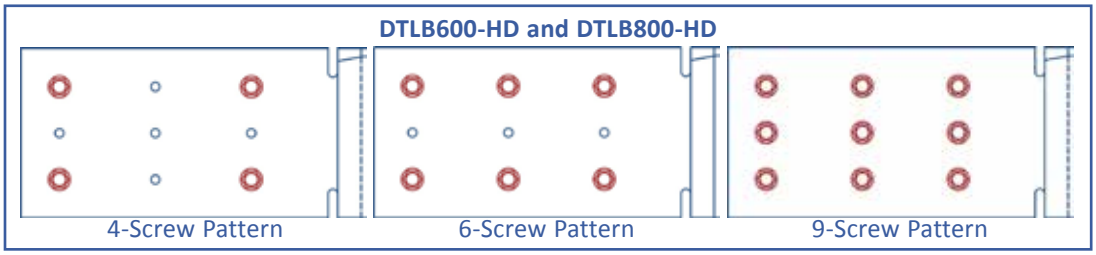
Example: *Track fastened at 8", 6" stud depth, with an outward load (F2) of 1,000 lbs and a gravity load (F3) of 400 lbs*
Designate: *DriftTrak DT w/ DTLB600-HD*

DriftTrak® DTH: Dimensions, Layout and Stud Spacing

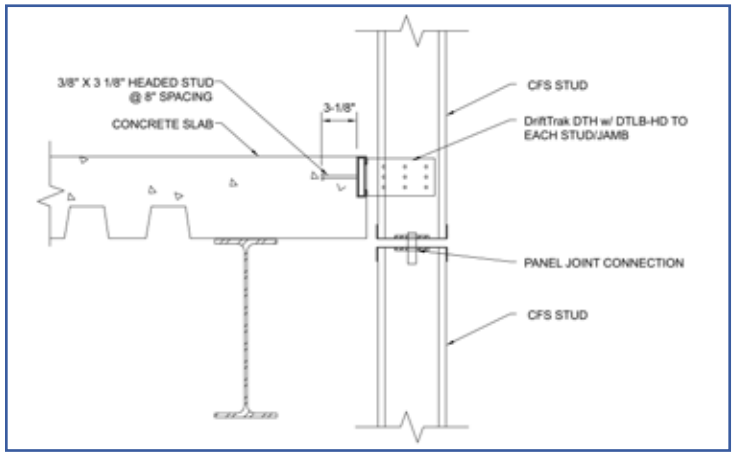








Example Details



DriftTrak® DTH w/ DTLB-HD
Top Attachment - Slab Insert

DriftTrak® PTS w/ DTSLB-PTS

Slab Integrated Bypass - Post Tensioned Concrete Slabs

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Description

DriftTrak® PTS saves the time and expense of installing DriftTrak after the Post-Tensioned Concrete Slab (PTS) has been poured by integrating it directly into the slab before pouring. The headed studs come preinstalled to the DriftTrak PTS and function as the embedded anchorage to the post-tensioned slab instead of anchoring to a steel edge angle or post-installing concrete anchors. The DriftTrak PTS is sized to fit above or below the high-strength tendon reinforcing at edges of slabs. Once concrete is poured, the DriftTrak PTS is ready to support exterior steel framing using DTSLB-PTS bypass clips to accommodate vertical deflection and lateral drift requirements.

US Patent #7,503,150 & Patent Pending

Material Composition

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

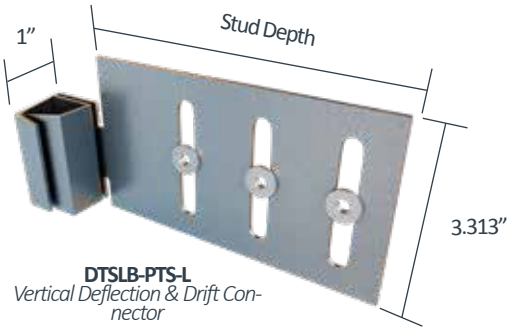
Headed Stud Material: ASTM A29/A108, Grades 1010 through 1020 or equivalent, 49ksi (340MPa) minimum yield strength, 61ksi (420MPa) minimum tensile strength, ⅜" diam. x 3 ⅛" length with ¾" head diameter.

DTSLB-PTS Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

DrifTrak PTS & DTSLB-PTS Connector Nomenclature

DriftTrak® PTS is manufactured in 10' or 12' lengths, with headed studs welded in a single row (see drawing below). DTSLB-PTS clip connectors are inserted and rotated into place inside the DriftTrak PTS to better facilitate panel installation while accommodating vertical deflection and lateral drift requirements in floor slab bypass conditions. Connectors are sold separately, and paired with DriftTrak PTS to support 6" and 8" stud framing. The connectors are classified by multiplying the stud depth by 100, followed by "PTS", then "-L" for a Left version or "-R" for a Right version.

Example: *Vertical Deflection required, left version required for installation with 6" stud*
Designate: *DriftTrak® PTS w/ DTSLB600-PTS-L*

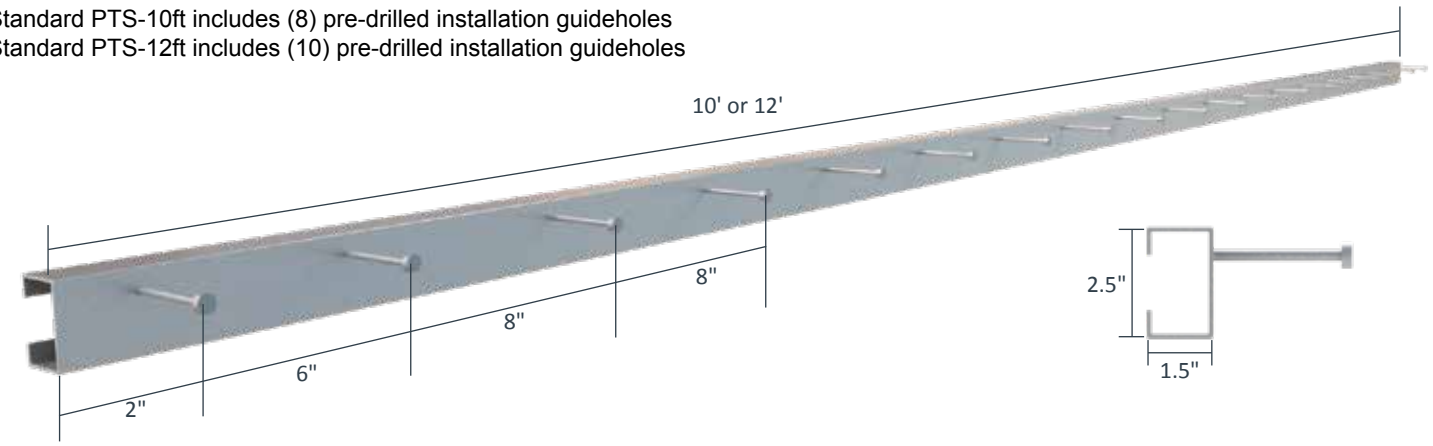


DTSLB-PTS-L
Vertical Deflection & Drift Connector

** Clip shown is left version of DTSLB-PTS.*
Right side version is available for order as standard parts.
*** Clips and track sold separately.*

DriftTrak® PTS: Dimensions, Layout and Stud Spacing

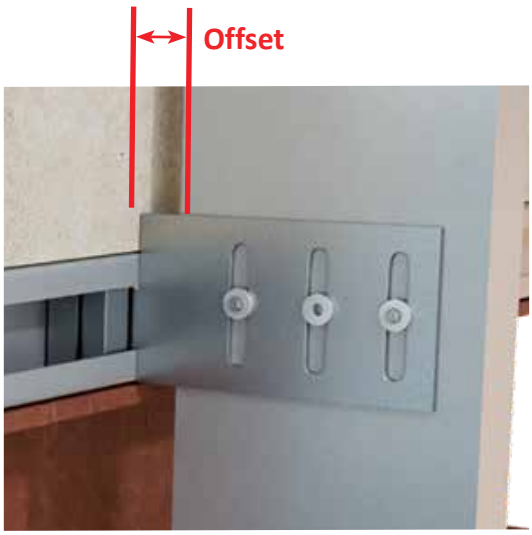
Standard PTS-10ft includes (8) pre-drilled installation guideholes
Standard PTS-12ft includes (10) pre-drilled installation guideholes



DriftTrak® PTS w/ DTSLB-PTS Allowable Loads

Screw Patterns with #12 Screws	F2 Load Direction DTSLB600-PTS & DTSLB800-PTS *Max. Offset = 1-7/8" for DTSLB600-PTS* *Max. Offset = 2-1/2" for DTSLB800-PTS*			
	Bottom of Slab		Top of Slab	
	2 Screws	3 Screws	2 Screws	3 Screws
33mil (20ga), 33ksi stud	376	564	376	564
33mil (20ga), 50ksi stud	544	816	544	816
43mil (18ga), 33ksi stud	560	840	560	840
43mil (18ga), 50ksi stud	810	1,080	810	1,215
54mil (16ga), 33ksi stud	788	1,080	788	1,182
54mil (16ga), 50ksi stud	1,080	1,080	1,138	1,595
68mil (14ga), 50ksi stud	1,080	1,080	1,434	1,595
97mil (12ga), 50ksi stud	1,080	1,080	1,434	1,595
Max Allowable Clip Load	**1,080**		**1,595**	

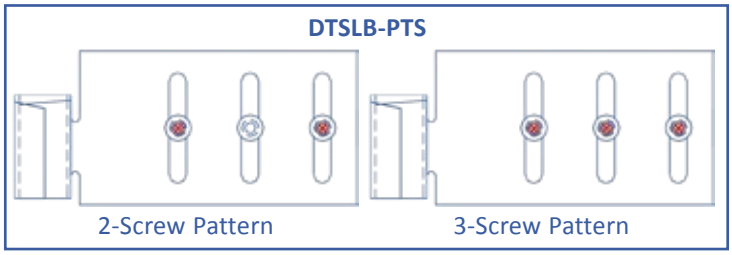
Load Direction



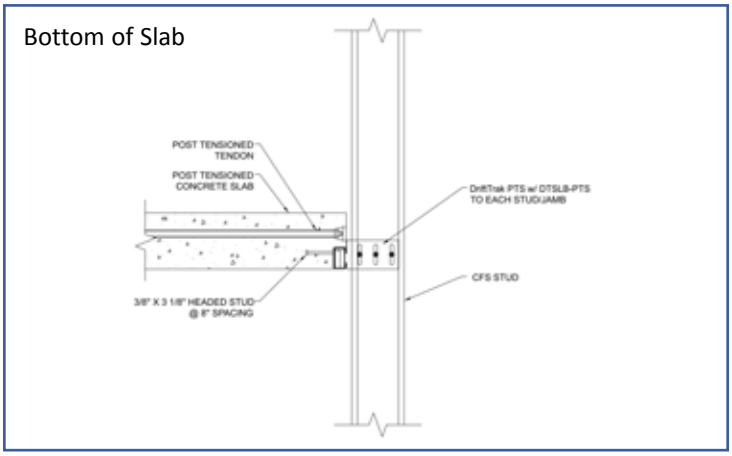
Notes:

1. Design loads are for attachment of DriftTrak PTS w/ DTSLB-PTS to stud and stud weld to track only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak PTS. DriftTrak PTS w/ DTSLB-PTS allows up to 2" of vertical deflection (1" up and 1" down), and free lateral movement of the structure.
4. #12 screws are provided for each step bushing attachment to studs. Load requirements don't always justify use of a third screw.
5. Maximum tension on a single anchor should not exceed 1,600 lbs ASD. In tension, the strength of the anchor itself should be considered. The weld does not need to be considered in tension as the load table and 1,600 lbs ASD maximum tension value are inclusive of the strength of the welds.
6. Designers must check headed stud tension anchorage capacity into concrete per ACI 318 based on the actual headed stud edge distance an concrete compressive strength. For more information, call TSN Technical Suppot.
7. One row of bridging is recommended at a maximum distance of 18" from DriftTrak PTS w/ DTSLB-PTS to resist torsional effects.
8. Standard offset of stud from the open face of the track should not exceed 1-7/8" for DriftTrak PTS w/ DTSLB600-PTS clips.
9. Standard offset of stud from the open face of the track should not exceed 2-1/2" for DriftTrak PTS w/ DTSLB800-PTS clips.
10. Offset is measured from the open face of the track to the inside face of the stud.
11. For LRFD strengths contact TSN technical services.

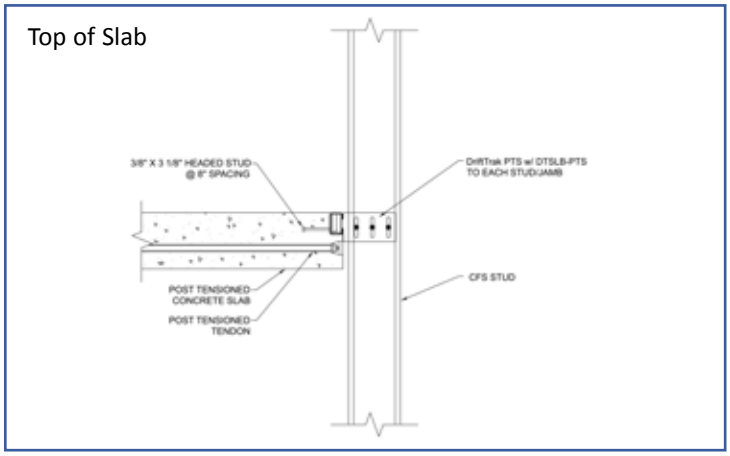
Fastener Patterns



Example Details



DriftTrak® PTS w/ DTSLB-PTS:
Attachment to Post-Tensioned Concrete Slab



DriftTrak® PTS w/ DTSLB-PTS:
Attachment to Post-Tensioned Concrete Slab

DriftTrak® PTS w/ DTLB-PTS

Slab Integrated Bypass - Post Tensioned Concrete Slabs

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Description

DriftTrak® PTS saves the time and expense of installing DriftTrak after the Post-Tensioned Concrete Slab (PTS) has been poured by integrating it directly into the slab before pouring. The headed studs come preinstalled to the DriftTrak PTS and function as the embedded anchorage to the post-tensioned slab instead of anchoring to a steel edge angle or post-installing concrete anchors. The DriftTrak PTS is sized to fit above or below the high-strength tendon reinforcing at edges of slabs. Once concrete is poured, the DriftTrak PTS is ready to support exterior steel framing using DTLB-PTS bypass clips to accommodate vertical deflection, accommodate lateral drift requirements, and provide a rigid attachment to the floor slab.

US Patent #7,503,150 & Patent Pending

Material Composition

Track Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

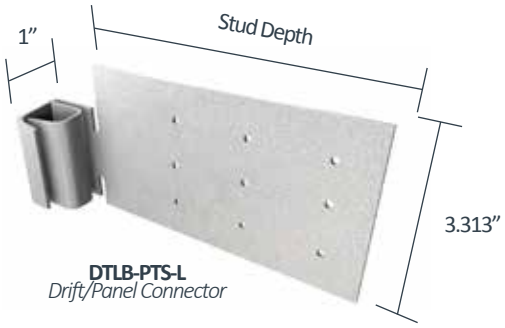
Headed Stud Material: ASTM A29/A108, Grades 1010 through 1020 or equivalent, 49ksi (340MPa) minimum yield strength, 61ksi (420MPa) minimum tensile strength, ⅜" diam. x 3 ⅛" length with ¾" head diameter.

DTLB-PTS Clip Material: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

DrifTrak PTS & DTLB-PTS Connector Nomenclature

DriftTrak® PTS is manufactured in 10' or 12' lengths, with headed studs welded in a single row (see drawing below). DTLB-PTS clip connectors are inserted and rotated into place inside the DriftTrak PTS to better facilitate panel installation while accommodating vertical deflection, accomodating lateral drift requirements, and providing a rigid attachment to the floor slab in bypass conditions. Connectors are sold separately, and paired with DriftTrak PTS to support 6" and 8" stud framing. The connectors are classified by multiplying the stud depth by 100, followed by "PTS", then "-L" for a Left version or "-R" for a Right version.

Example: *Rigid connection required, left version required for installation with 6" stud*
Designate: *DriftTrak® PTS w/ DTLB600-PTS-L*

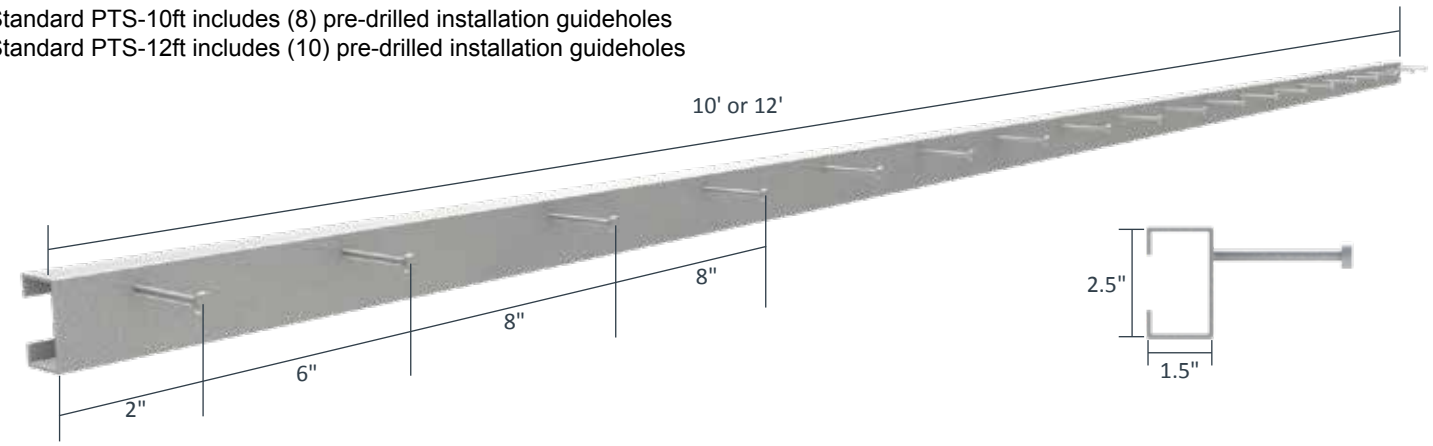


DTLB-PTS-L
Drift/Panel Connector

** Clip shown is left version of DTLB-PTS.*
Right side version is available for order as standard parts.
*** Clips and track sold separately.*

DriftTrak® PTS: Dimensions, Layout and Stud Spacing

Standard PTS-10ft includes (8) pre-drilled installation guideholes
Standard PTS-12ft includes (10) pre-drilled installation guideholes

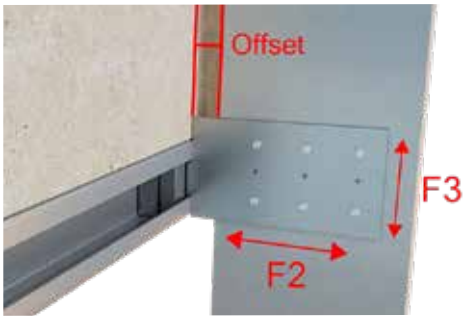


DriftTrak® PTS w/ DTLB-PTS Allowable Loads

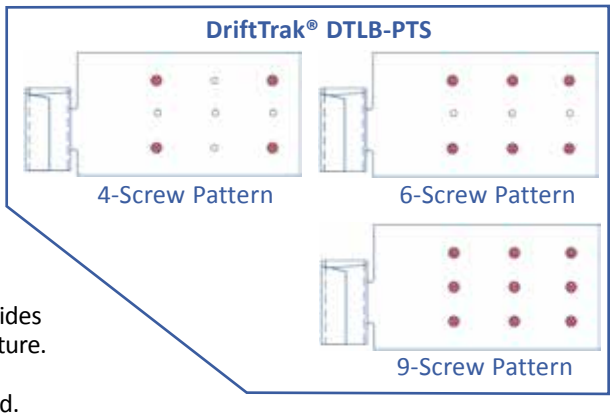
Screw Patterns with #12 Screws	F2 Direction											
	Bottom of Slab Installation						Top of Slab Installation					
	DTLB600-PTS *Max. Offset = 1-7/8"*			DTLB800-PTS *Max. Offset = 2-1/2"*			DTLB600-PTS *Max. Offset = 1-7/8"*			DTLB800-PTS *Max. Offset = 2-1/2"*		
	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws
33mil (20ga), 33ksi stud	665	956	1,136	700	1,017	1,110	665	956	1,354	700	1,017	1,326
33mil (20ga), 50ksi stud	963	1,136	1,136	1,013	1,110	1,110	963	1,354	1,354	1,013	1,326	1,326
43mil (18ga), 33ksi stud	991	1,136	1,136	1,043	1,110	1,110	991	1,354	1,354	1,043	1,326	1,326
43mil (18ga), 50ksi stud	1,136	1,136	1,136	1,110	1,110	1,110	1,354	1,354	1,354	1,326	1,326	1,326
54mil (16ga), 33ksi stud	1,136	1,136	1,136	1,110	1,110	1,110	1,354	1,354	1,354	1,326	1,326	1,326
54mil (16ga), 50ksi stud	1,136	1,136	1,136	1,110	1,110	1,110	1,354	1,354	1,354	1,326	1,326	1,326
68mil (14ga), 50ksi stud	1,136	1,136	1,136	1,110	1,110	1,110	1,354	1,354	1,354	1,326	1,326	1,326
97mil (12ga), 50ksi stud	1,136	1,136	1,136	1,110	1,110	1,110	1,354	1,354	1,354	1,326	1,326	1,326
Max Allowable Clip Load	**1,136**			**1,110**			**1,354**			**1,326**		

Screw Patterns with #12 Screws	F3 Direction					
	Bottom and Top of Slab Installation					
	DTLB600-PTS *Max. Offset = 1-7/8"*			DTLB800-PTS *Max. Offset = 2-1/2"*		
	4 Screws	6 Screws	9 Screws	4 Screws	6 Screws	9 Screws
33mil (20ga), 33ksi stud	202	243	331	210	243	345
33mil (20ga), 50ksi stud	293	351	479	303	352	500
43mil (18ga), 33ksi stud	301	362	493	312	362	514
43mil (18ga), 50ksi stud	436	523	713	452	523	744
54mil (16ga), 33ksi stud	424	509	693	439	509	724
54mil (16ga), 50ksi stud	613	735	1,001	635	735	1,000
68mil (14ga), 50ksi stud	772	926	1,064	800	927	1,000
97mil (12ga), 50ksi stud	772	926	1,064	800	927	1,000
Max Allowable Clip Load	**1,064**			**1,000**		

Load Direction



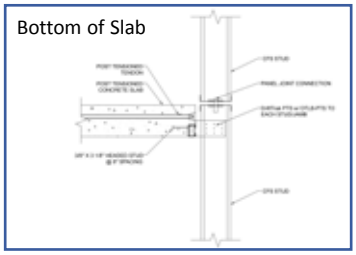
Fastener Patterns



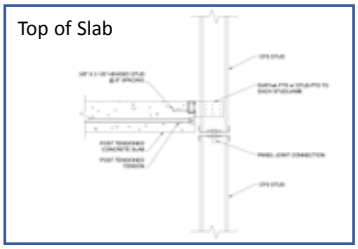
Notes:

1. Design loads are for attachment of DriftTrak PTS w/ DTLB-PTS to stud and stud weld to track only.
2. Allowable loads have not been increased for wind, seismic, or other factors.
3. Clips are manufactured to fit into DriftTrak PTS. DriftTrak PTS w/ DTLB-PTS provides a rigid connection to the stud while allowing free lateral movement of the structure.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that all of the torsional moment is taken by the connection to the stud.
5. Loads listed reflect force in a single direction. When multiple loads act on the connection, it is the responsibility of the designer to check the interaction of forces.
6. Maximum tension on a single anchor should not exceed 1,600 lbs ASD. In tension, the strength of the anchor itself should be considered. The weld does not need to be considered in tension as the load table and 1,600 lbs ASD maximum tension value are inclusive of the strength of the welds.
7. Designers must check headed stud tension anchorage capacity into concrete per ACI 318 based on the actual headed stud edge distance an concrete compressive strength. For more information, call TSN Technical Suppot.
8. One row of bridging is recommended at a maximum distance of 18" from DriftTrak PTS w/ DTLB-PTS if no other stud lateral restraint is present.
9. Standard offset of stud from the open face of the track should not exceed 1-7/8" for DriftTrak PTS w/ DTLB600-PTS clips.
10. Standard offset of stud from the open face of the track should not exceed 2-1/2" for DriftTrak PTS w/ DTLB800-PTS clips.
11. Offset is measured from the open face of the track to the inside face of the stud.
12. For LRFD strengths contact TSN technical services.

Example Details



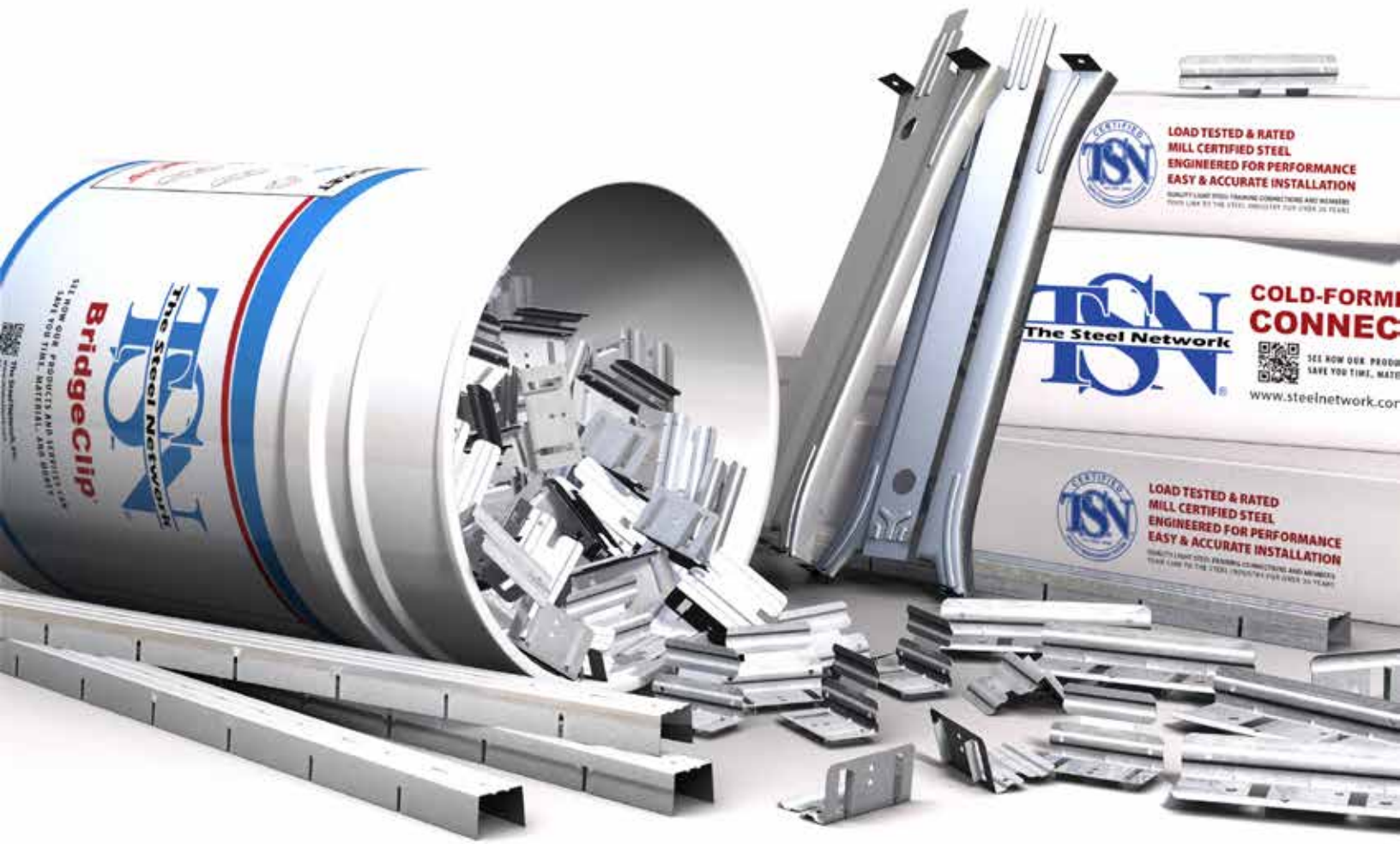
DriftTrak® DTLB-PTS with Headed Studs: Attachment to Post-Tensioned Concrete Slab



DriftTrak® DTLB-PTS with Headed Studs: Attachment to Post-Tensioned Concrete Slab

BRIDGING THE GAP
Between Quality & Speed

with **TSN's** Bridging Connections & Members



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The Steel Network

Wall Bridging

Background

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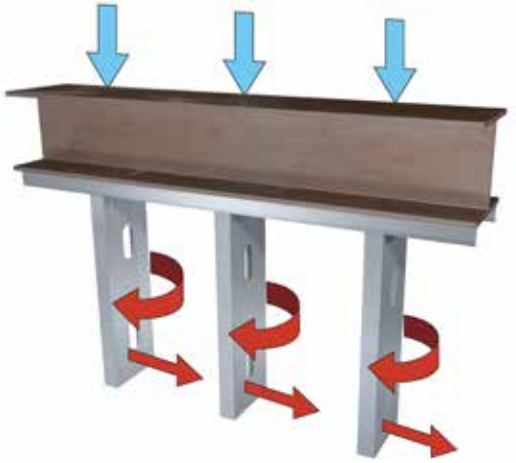
Bridging Background

Bridging for load bearing and curtain wall studs is needed to resist the following forces:

1 - Weak axis buckling induced by axial compression load.
2 - Torsion induced by wind load.



As axial compression and lateral wind loads are applied, wall studs react with weak axis buckling and torsional rotation. To offset these forces, a form of bridging is incorporated into the wall system. Bridging loads accumulate over the run of the wall, requiring transfer of lateral forces in bridging at columns or to the floor slab into the structural load path to the foundation.

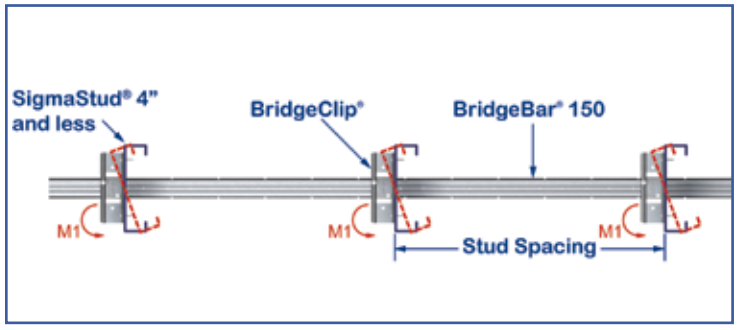
AISI S100 (Specification) and AISI S240 (Standard For Structural Framing) provide the load and stiffness requirements for bracing members due to the effects of axial compression load and wind load as given in the table below. Contact TSN Technical Support if further information is needed regarding wall bridging design.

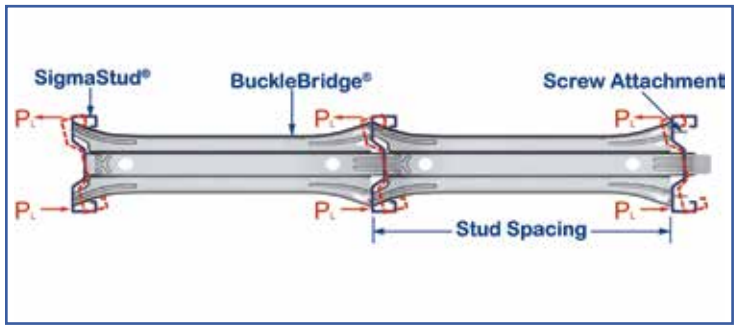
Bridging Requirements

	AISI S240 (Standard For Structural Framing)	AISI Specification (S100)
Stud Axial Compression	**Load Capacity:** Bracing Load P_{Brace}* = 0.02 x Stud Compression Load (P_{Stud}) x # of studs braced.	**Load Capacity:** Bracing Load P_{Brace}* = 0.01 x Stud Allowable Compression (P_{a_stud}) x # of studs braced.
		Stiffness Capacity: Lateral Stiffness β_{Brace} = 4 x Stud Nominal Axial Strength / Unbraced Length (for one row of bridging). Lateral Stiffness β_{Brace} = 6 x Stud Nominal Axial Strength / Unbraced Length (for two rows of bridging).
Wind	**Load Capacity:** Twist Load P_L = 1.5 x Wind Load x Bridging Spacing x Stud Spacing x m(Shear Center Distance) / Stud Depth. Twist Moment M_1 = P_L x Stud Depth.	

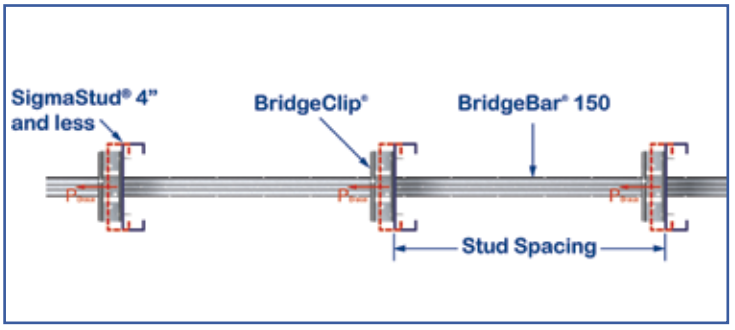
* Bracing forces accumulate over the run of the wall until anchored.

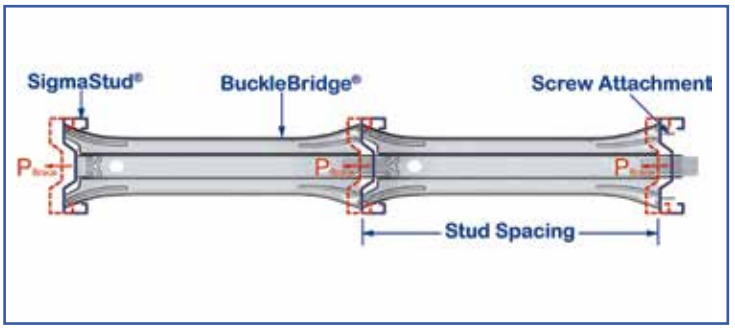
Bridging Load Bearing Studs Against Torsion By Wind





Bridging Load Bearing Studs Against Weak Axis Buckling





Curtain Wall Bridging Chart

Quick Reference

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Bridging Clip Chart: Design Wind Pressure, Stud Spacing and Maximum Bridging Spacing															
Section	10 psf			20 psf						25 psf					
	24" o.c.			16" o.c.			24" o.c.			16" o.c.			24" o.c.		
	5'	6'	7'	5'	6'	7'	5'	6'	7'	5'	6'	7'	5'	6'	7'
600S162-33, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	N/A
600S162-43, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
600S162-54, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
600S162-68, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
600S162-97, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
600S200-33, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 3	BC-33, 3	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 3	BC-43, 3	BC-43, 3
600S200-43, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1
600S200-54, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 3
600S200-68, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
600S200-97, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
800S162-33, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-43, 1
800S162-43, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1
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800S162-68, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800
800S162-97, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800
800S200-33, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-43, 1	BC-33, 3	BC-33, 1	BC-43, 1	BC-43, 1	BC-43, 1	BC-33, 3	BC-43, 3
800S200-43, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-43, 1	BC-33, 3
800S200-54, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-43, 1
800S200-68, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800
800S200-97, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800

Bridging Clip Chart: Design Wind Pressure, Stud Spacing and Maximum Bridging Spacing															
Section	30 psf						40 psf						50 psf		
	16" o.c.			24" o.c.			16" o.c.			24" o.c.			16" o.c.		
	5'	6'	7'	5'	6'	7'	5'	6'	7'	5'	6'	7'	5'	6'	7'
600S162-33, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 3	N/A	BC-33, 1	BC-33, 3	N/A	BC-43, 3	N/A	N/A	BC-33, 3	BC-43, 3	N/A
600S162-43, 33 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	N/A	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	N/A	BC-33, 1	BC-33, 1	N/A
600S162-54, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	N/A	BC-33, 1	BC-33, 1	BC-33, 3
600S162-68, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-33, 1	BC-33, 1	BC-33, 1
600S162-97, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1
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600S200-97, 50 ksi	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-33, 1	BC-43, 1	BC-33, 1	BC-33, 1	BC-33, 1
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800S162-68, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800
800S162-97, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800
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800S200-68, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800
800S200-97, 50 ksi	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800	BC800

Important table notes on next page.

BuckleBridge® Bridging Chart: Design Wind Pressure and Maximum Bridging Spacing															
Section	20 psf			25 psf			30 psf			40 psf			50 psf		
	5'	6'	7'	5'	6'	7'	5'	6'	7'	5'	6'	7'	5'	6'	7'
600S162-33, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	N/A	BKB	BKB	N/A
600S162-43, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	N/A
600S162-54, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
600S162-68, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
600S162-97, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
600S200-33, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	N/A
600S200-43, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
600S200-54, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
600S200-68, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
600S200-97, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S162-33, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	N/A
800S162-43, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S162-54, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S162-68, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S162-97, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S200-33, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S200-43, 33 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S200-54, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S200-68, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB
800S200-97, 50 ksi	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB	BKB

Notes:

- Listed wind pressures represent calculated design wind pressure (0.6W based on IBC 2021).
- Allowable pressures are limited by published test data allowable torsional moments for bridging elements.
- Torsional moment acting on bridging elements is calculated as:

M = 1.5 x Wind Pressure x Bridging Spacing x Stud Spacing x m (distance from stud web to shear center).

- Wall height is assumed twice the bridging spacing.
- BuckleBridge® stud spacing is fixed at 16".
- Stud design is limited by its flexural strength calculated with torsional bracing assumed at the bridging spacing and $k_\phi = 0$ and deflection limit of L/360.
- 20 psf and higher wind pressures have been multiplied by 0.7 for deflection determination, in accordance with footnote “f” of IBC table 1604.3. The 10 psf pressure has not been reduced for deflection checks.

Nomenclature:

- **BC-33, 1 -** BridgeClip BC-33 with (1) #10 screw fastener into bridging member.
- **BC-33, 3 -** BridgeClip BC-33 with (1) #10 screw fastener into bridging member and (2) #10 screw fasteners into the web of the stud.
- **BC-43, 1 -** BridgeClip BC-43 with (1) #10 screw fastener into bridging member.
- **BC-43, 3 -** BridgeClip BC-43 with (1) #10 screw fastener into bridging member and (2) #10 screw fasteners into the web of the stud.
- **BC600 -** BridgeClip BC600 with (2) #10 screw fasteners into bridging member and (2) #10 screw fasteners into the web of the stud.
- **BC800 -** BridgeClip BC800 with (2) #10 screw fasteners into bridging member and (2) #10 screw fasteners into the web of the stud.
- **BKB -** BuckleBridge with (1) #10 screw on alternate sides of the BuckleBridge at 3rd stud (48" o.c.) Use (2) #10 screws at end of wall run.

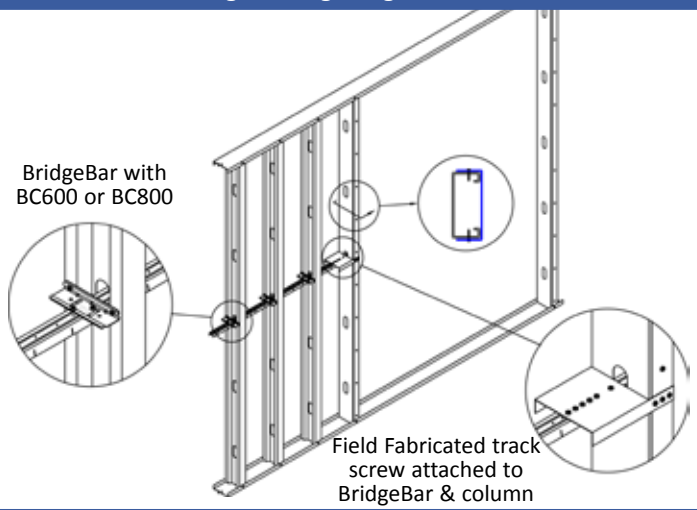
Wall Bridging Anchorage

Quick Reference

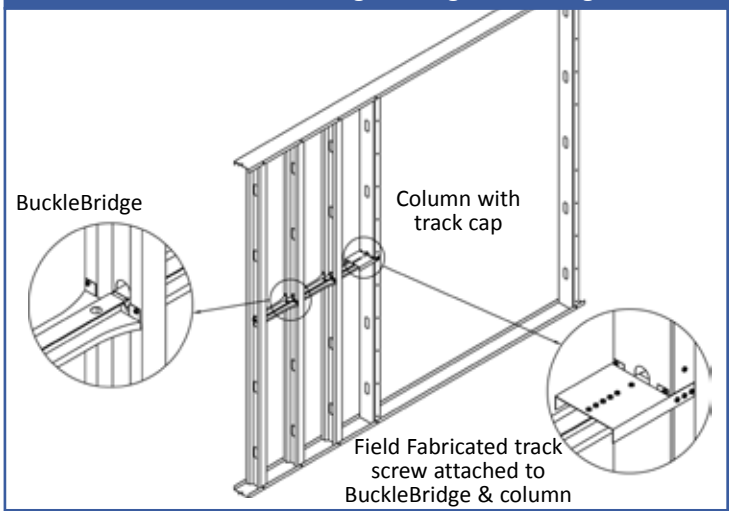
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Anchorage of Lateral Bracing (Bridging) Forces

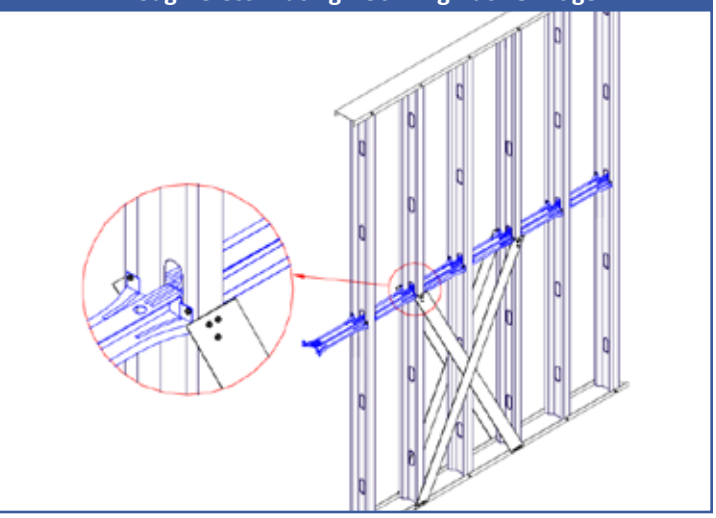
Load Bearing Wall Bridging Row Anchored to Jamb Stud or End Column - Track Bracing Utilizing BridgeBar® 150 with BC600/BC800



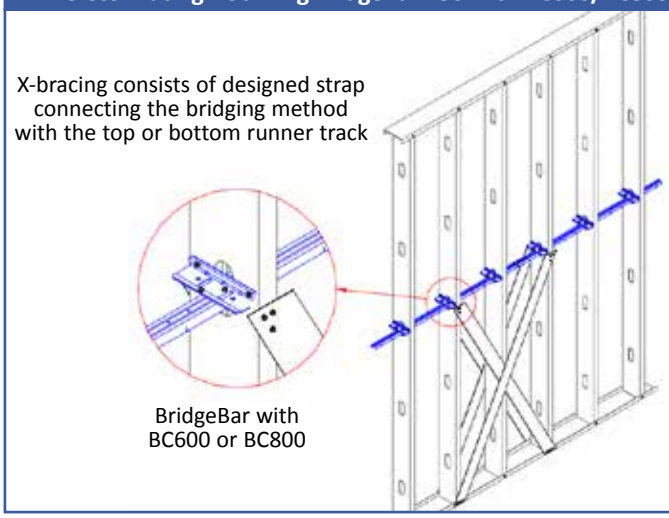
Load Bearing Wall Bridging Row Anchored to Jamb Stud or End Column - Track Bracing Utilizing BuckleBridge®



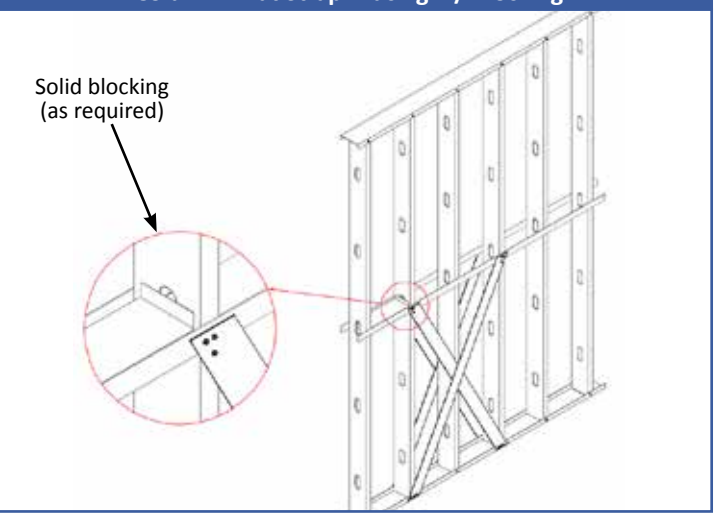
Load Bearing Wall Bridging Row Anchored to Floor System Through Cross Bracing - Utilizing BuckleBridge



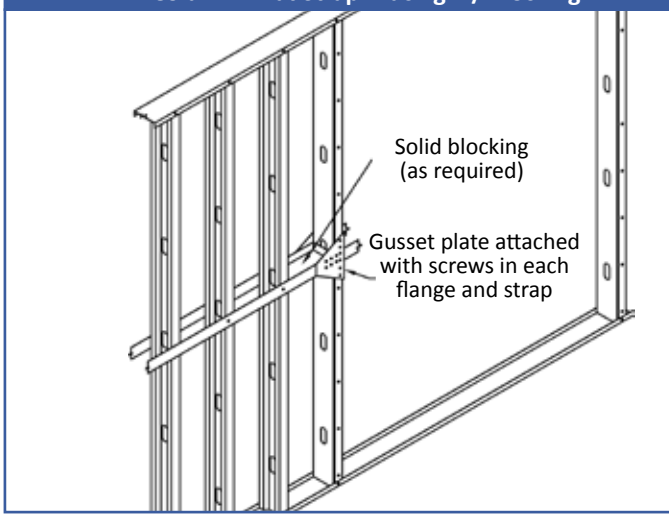
Load Bearing Wall Bridging Row Anchored to Floor System Through Cross Bracing - Utilizing BridgeBar 150 with BC600/BC800



Load Bearing Wall Bridging Row Anchored to Jamb Stud or End Column - Flat Strap Bracing w/ Blocking



Load Bearing Wall Bridging Row Anchored to Jamb Stud or End Column - Flat Strap Bracing w/ Blocking



BridgeClip®

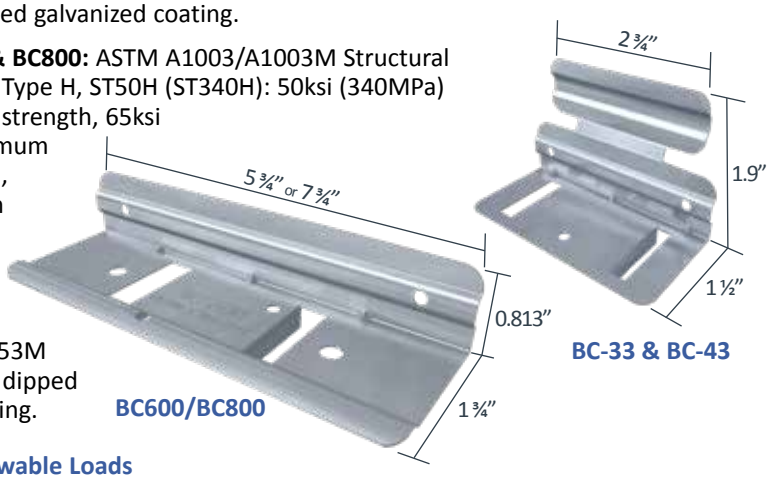
Secures Channel to Stud

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

BC-33: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

BC-43, BC600 & BC800: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 43mil minimum thickness (18 gauge, 0.0451" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



US Patent #5,904,023

BridgeClip Allowable Loads

BridgeClip	Stud Depth	Stud Thickness (mils) (ga)	Axially Loaded Stud, Allowable Brace Strength F1 (lbs)	Laterally Loaded Stud, Allowable Torsional Moment M1 (in.lbs)
BC-33, 1	3.625/4	33 (20)	75	132
		43 (18)		143
		54 (16)		156
BC-43, 1	3.625/4	33 (20)	112	168
		43 (18)		179
		54 (16)		192
BC-33, 3	3.625/4	33 (20)	360	192
		43 (18)		221
		54 (16)		252
BC-43, 3	3.625/4	33 (20)	433	240
		43 (18)		297
		54 (16)		360
BC-33, 1	6	33 (20)	75	192
		43 (18)		252
		54 (16)		264
		68 (14)		307
		97 (12)		396
BC-43, 1	6	33 (20)	112	240
		43 (18)		372
		54 (16)		324
		68 (14)		371
		97 (12)		468
BC-33, 3	6	33 (20)	360	228
		43 (18)		254
		54 (16)		288
		68 (14)		324
		97 (12)		408
BC-43, 3	6	33 (20)	433	324
		43 (18)		384
		54 (16)		372
		68 (14)		407
		97 (12)		480
BC600	6	33 (20)	170	684
		43 (18)	218	792
		54 (16)	360	864
		68 (14)		887
		97 (12)		936
BC-33, 1	8	33 (20)	75	144
		43 (18)		178
		54 (16)		216
BC-43, 1	8	33 (20)	112	192
		43 (18)		232
		54 (16)		276
BC-33, 3	8	33 (20)	360	240
		43 (18)		280
		54 (16)		324
BC-43, 3	8	33 (20)	433	288
		43 (18)		339
		54 (16)		396
BC800	8	33 (20)	170	756
		43 (18)	218	790
		54 (16)	360	828
		68 (14)		851
		97 (12)		900

Load Direction

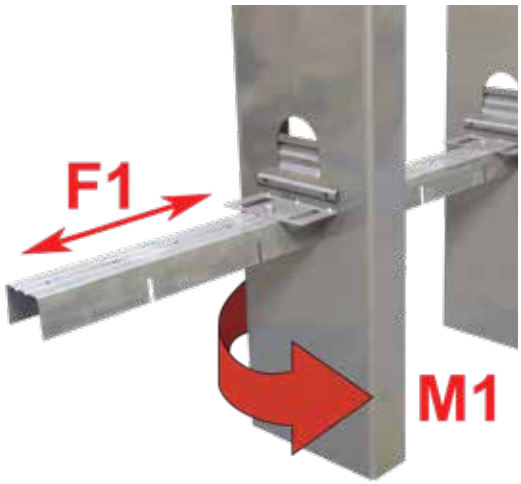


Table Notes:

- Listed ASD allowable loads are based on ultimate test data divided by a factor of safety.
- Listed ASD allowable loads are limited by screw shear or pullout at stud web.

Table Nomenclature	Clip	Qty # 10 Screws into Bridging	Qty # 10 Screws into Stud
BC-33, 1	BC-33	1	0
BC-33, 3	BC-33	1	2
BC-43, 1	BC-43	1	0
BC-43, 3	BC-43	1	2
BC600	BC600	2	2
BC800	BC800	2	2

Nomenclature

BridgeClip is designated by the type BC.

BridgeBar®

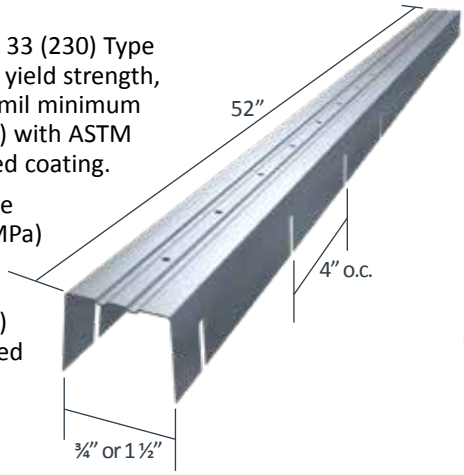
Bridging Channel

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

BB75: ASTM A1003/A1003M Structural Grade 33 (230) Type H, ST33H (ST230H): 33ksi (230MPa) minimum yield strength, 45ksi (310MPa) minimum tensile strength, 28mil minimum thickness (22 gauge, 0.0295" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

BB150: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



US Patent #6,701,689

Material Analysis

Section	Minimum Thickness (in)	Design Thickness (in)	Yield Strength (ksi)	Effective Section Properties[1]						Effective Section Properties and Allowable Loads[2], [3], [4]							
										S_{xe}	M_a (X-axis)	12" o.c.		16" o.c.		24" o.c.	
				Area	I_x	S_x	R_x	I_y	R_y			A_e	P_a	A_e	P_a	A_e	P_a
				(in^2)	(in^4)	(in^3)	(in)	(in^4)	(in)	(in^3)	in-kips (ft-lb)	(in^2)	(lbs)	(in^2)	(lbs)	(in^2)	(lbs)
BB75	0.0280	0.0295	33	0.031	0.0021	0.006	0.261	0.0002	0.073	0.006	0.11 (9.3)	N/A	N/A	N/A	N/A	N/A	N/A
BB150	0.0329	0.0346	50	0.068	0.0174	0.023	0.506	0.0007	0.104	0.023	0.69 (57.9)	0.079	1,459	0.081	1,172	0.081	566

Notes:

- Use BridgeClip® for a quick & easy method of securing BridgeBar to stud when required
- Resists compressive loads through the plane of the wall
- Use through ¾" and 1½" stud punchouts.

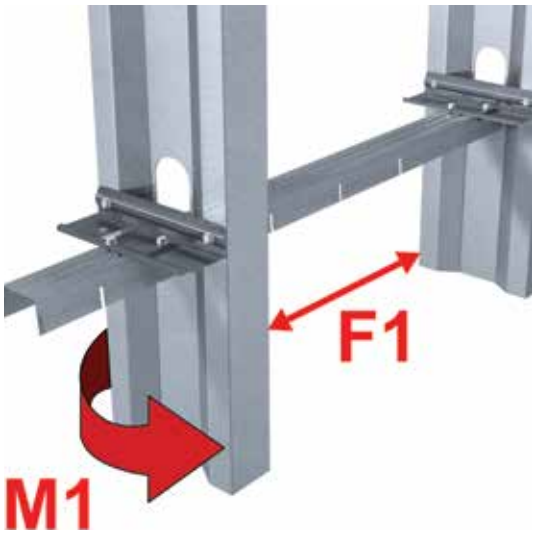
[1] Gross section properties are calculated based on the minimum dimensions of the cross section.

[2] Effective section properties and allowable loads for BridgeBar are calculated based on AISI S100-2016 Specification.

[3] Effective section modulus (S_{xe}) is calculated based on the minimum dimensions of the cross section.

[4] Effective area (A_e) and allowable axial load (P_a) are calculated based on the average dimensions of the cross section.

Load Direction



Securing Bar to Stud

When loads require attachment of BridgeBar to stud, consider the screw shear allowables below for connection of BridgeClip to stud and BridgeBar.

Section	Design Thickness (in)	Yield Strength (ksi)	Allowable Shear/Screw	
			#8 Screw (lbs)	#10 Screw (lbs)
BB150	0.0346	50	237	255

Nomenclature

BridgeBar is available in ¾" and 1½" widths. Designations are BB75 and BB150.

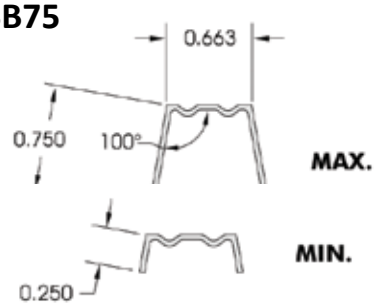
Example: *Stud with ¾"* knockout
Designate: *BB75*

Lap Joint

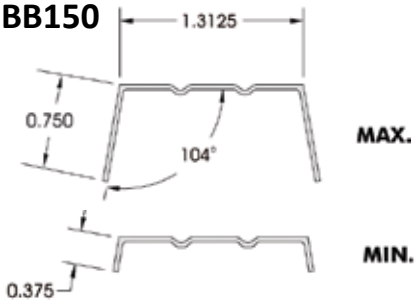
BridgeBar's 52" length allows for a 4" overlap at joints. Simply fit one end over the other and line up the guide holes for quick & easy placement of screw(s). Joint locations maintain stud spacing as designed through length of the wall system.

Cross Sections

BB75



BB150



Lap Joint

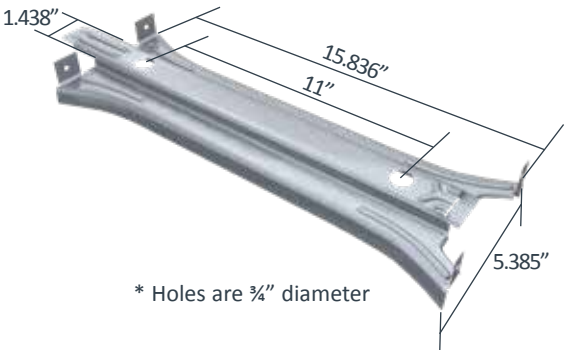
BuckleBridge®

Bridging System

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



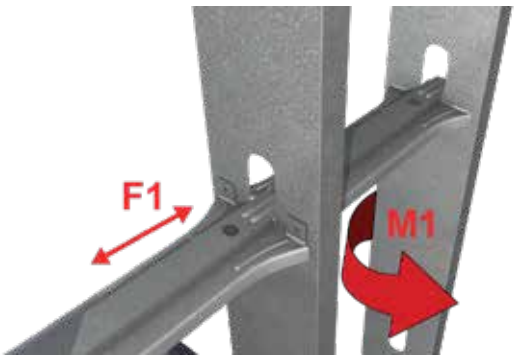
* Holes are ¾" diameter

US Patents #7,596,921, #7,836,657 & #8,205,402

BuckleBridge Allowable Loads

BuckleBridge® Allowable Loads						
Studs 16" o.c.	Axially Loaded Studs				Laterally Loaded Studs	
	Compression Brace		Tension Brace		6" Studs	8" Studs
	F1 (lbs)	Stiffness (lbs/in)	F1 (lbs)	Stiffness (lbs/in)	M1 (in-lb)	M1 (in-lb)
	2,400	31,000	440	2,560	1,290	967

Load Direction

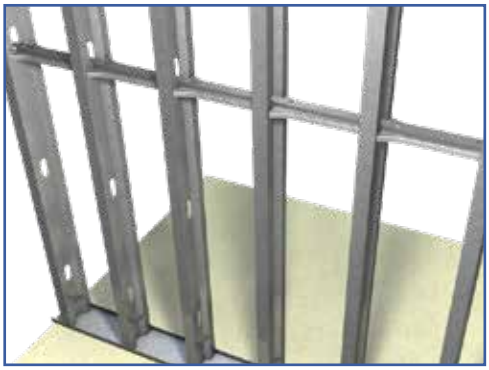


Nomenclature

BuckleBridge comes in one size and is designated *BuckleBridge®*. It is used with 16" o.c. member spacing.

Example Details

When using BuckleBridge in curtain walls with standard "cee" studs, one screw is only needed every 3rd stud.*



BuckleBridge used in load bearing walls with TSN's SigmaStud

BuckleBridge works just as easily with back-to-back studs.

Notes:

- Resists weak axis buckling and torsional rotation of members.
- Spaces studs automatically at 16" o.c. Suitable for 6" & 8" walls.
- Elongated tabs in one end of BuckleBridge lock into a slot at the other end through the stud knockout.

* Use (1) #10 screw on alternate sides of the BuckleBridge at 3rd stud (48" o.c.) Use (2) #10 screws at end of wall run.

StiffClip® LB

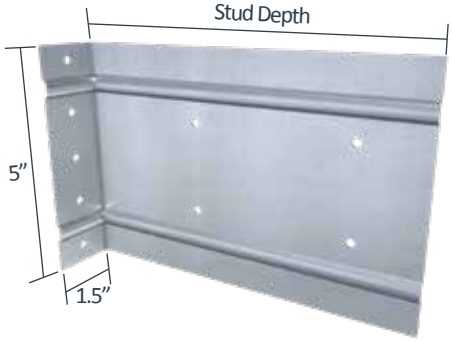
Spandrel Wall Bypass

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of StiffClip LB to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.



StiffClip LB Allowable Loads

StiffClip® LB, Recommended Allowable Load (lbs):													
Screw Patterns with #12 Screws	F1 Load Direction												
	LB362			LB600			LB800 (Standard 2" Offset)			LB1000 (Standard 2" Offset) LB1200 (Standard 2" Offset)			LB1000 (4" Offset)
	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	Pattern 9: 2 Screws	Pattern 10: 3 Screws	Pattern 11: 4 Screws	Pattern 12: 4 Screws
33mil (20ga), 33ksi Stud	376	190	190	95	190	190	95	190	190	95	190	190	190
33mil (20ga), 50ksi Stud	544	276	276	138	276	276	138	276	276	138	276	276	276
43mil (18ga), 33ksi Stud	560	248	248	124	248	248	124	248	248	124	248	248	248
43mil (18ga), 50ksi Stud	810	358	358	179	358	358	179	322	322	179	358	358	358
54mil (16ga), 33ksi Stud	788	312	312	156	312	312	156	312	312	156	312	312	312
54mil (16ga), 50ksi Stud	1,138	450	450	225	450	450	225	322	322	225	450	450	450
68mil (14ga), 50ksi Stud	1,434	568	568	284	568	568	284	322	322	284	532	532	532
97mil (12ga), 50ksi Stud	1,434	741	741	405	768	768	322	322	322	405	532	532	532
Maximum Allowable Clip Load	**741**			**768**			**322**			**532**			**532**

StiffClip® LB, Recommended Allowable Load (lbs):						
Screw Patterns with #12 Screws	F2 Load Direction					
	LB362, LB600, and LB800			LB1000 (Standard 2" & 4" Offset) | LB1200 (Standard 2" Offset)		
	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	Pattern 9: 2 Screws	Pattern 10: 3 Screws	Pattern 11: 4 Screws
33mil (20ga), 33ksi Stud	376	411	752	376	549	752
33mil (20ga), 50ksi Stud	544	594	1,088	544	794	1,062
43mil (18ga), 33ksi Stud	560	612	1,120	560	818	1,062
43mil (18ga), 50ksi Stud	810	885	1,620	810	1,062	1,062
54mil (16ga), 33ksi Stud	788	860	1,576	788	1,062	1,062
54mil (16ga), 50ksi Stud	1,138	1,243	1,954	1,062	1,062	1,062
68mil (14ga), 50ksi Stud	1,434	1,566	1,954	1,062	1,062	1,062
97mil (12ga), 50ksi Stud	1,434	1,566	1,954	1,062	1,062	1,062
Maximum Allowable Clip Load	**1,954**			**1,062**		

StiffClip® LB, Recommended Allowable Load (lbs):											
Screw Patterns with #12 Screws	F3 Load Direction										
	LB362			LB600			LB800 (Standard 2" Offset)				
	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	"Pattern 1: 2 Screws"	"Pattern 2: 3 Screws"	"Pattern 3: 4 Screws"	"Pattern 4: 6 Screws"	"Pattern 5: 10 Screws"
33mil (20ga), 33ksi Stud	235	340	468	216	301	431	186	248	399	534	793
33mil (20ga), 50ksi Stud	340	492	677	313	435	623	269	359	577	772	1,148
43mil (18ga), 33ksi Stud	350	507	697	322	448	641	277	370	594	795	1,182
43mil (18ga), 50ksi Stud	506	733	1,008	466	648	927	401	535	859	1,150	1,709
54mil (16ga), 33ksi Stud	493	713	981	453	630	902	390	520	835	1,119	1,663
54mil (16ga), 50ksi Stud	711	1,030	1,417	654	910	1,303	563	751	1,206	1,616	2,401
68mil (14ga), 50ksi Stud	896	1,298	1,785	825	1,147	1,642	710	946	1,520	2,036	3,026
97mil (12ga), 50ksi Stud	896	1,298	1,785	825	1,147	1,642	710	946	1,520	2,036	3,026
Maximum Allowable Clip Load	**2,662**			**1,923**			**1,895**			**3,870**	

StiffClip LB Allowable Load tables and important notes continued on next page.

Nomenclature

StiffClip LB is available for various stud depths. To specify, multiply stud depth by 100.

Example: *6" stud depth*
Designate: *StiffClip® LB600*

StiffClip® LB, Recommended Allowable Load (lbs):												
Screw Patterns with #12 Screws	F3 Load Direction											
	LB800 (4" Offset)			LB1000 (Standard 2" Offset)			LB1000 (4" Offset)			LB1200 (STANDARD 2" OFFSET)		
	Pattern 6: 4 Screws	Pattern 7: 6 Screws	Pattern 8: 8 Screws	Pattern 1: 2 Screws	Pattern 2: 3 Screws	Pattern 3: 4 Screws	Pattern 12: 4 Screws	Pattern 13: 6 Screws	Pattern 14: 10 Screws	Pattern 9: 2 Screws	Pattern 10: 3 Screws	Pattern 11: 4 Screws
33mil (20ga), 33ksi Stud	259	331	417	216	301	431	290	410	602	211	291	421
33mil (20ga), 50ksi Stud	375	479	604	313	435	623	419	593	870	305	422	609
43mil (18ga), 33ksi Stud	386	493	622	322	448	641	431	610	896	314	434	627
43mil (18ga), 50ksi Stud	559	713	899	466	648	927	624	883	1,192	454	628	907
54mil (16ga), 33ksi Stud	544	693	875	453	630	902	607	859	1,192	441	611	883
54mil (16ga), 50ksi Stud	785	1,001	1,263	654	910	1,303	876	1,192	1,192	637	882	1,275
68mil (14ga), 50ksi Stud	989	1,262	1,561	825	1,147	1,642	1,104	1,192	1,192	803	1,111	1,606
97mil (12ga), 50ksi Stud	989	1,262	1,561	825	1,147	1,642	1,104	1,192	1,192	803	1,111	1,606
Maximum Allowable Clip Load	1,561			1,923			1,192			1,902		

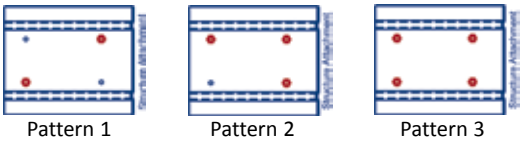
Load Table Notes:

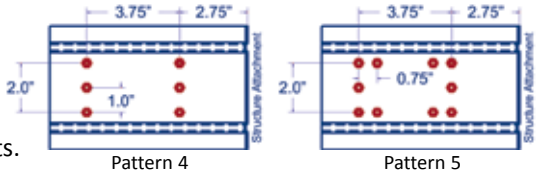
1. Design loads are for attachment of StiffClip LB to stud only. Load tables reflect in plane of wall loads (F1), horizontal loads (F2) and vertical loads (F3).
2. Design loads consider loads on the clip and #12 screw fasteners to the stud web.
3. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud.
5. Attachment to structure engineered by others.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. Allowable load tables incorporate eccentric loading of fasteners. Values with a welded connection may increase.
8. Fasten within 3/4" from the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
9. Strengthening ribs are present in 3-5/8", 6", and 8" clip sizes. 10" and 12" clip sizes contain 1/2" return lips on the top and bottom of the leg attaching to the stud for increased stiffness.
10. For LRFD strengths contact TSN technical services.

Load Direction

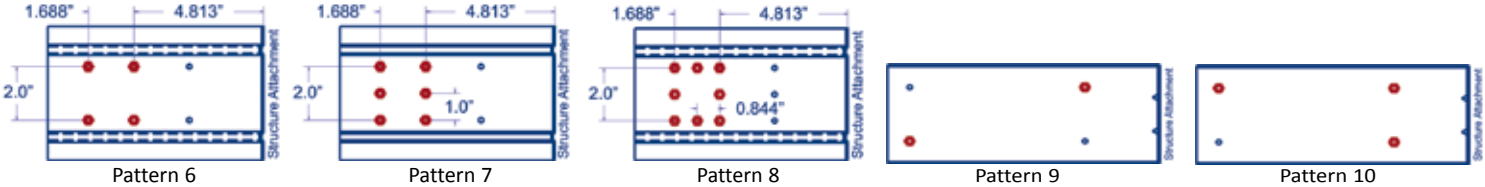
Screw Pattern Notes:

**Important Consideration: Pattern diagrams indicate fastener placement only. Standard StiffClip LB products come with 4 predrilled guide holes as depicted in Pattern 3 for LB362, LB600, and LB800 and depicted in Pattern 13 for LB1000 and LB1200. Alternate patterns can be utilized in the field or be accommodated as a TSN special part request. Contact TSN Sales for information regarding special part requests.

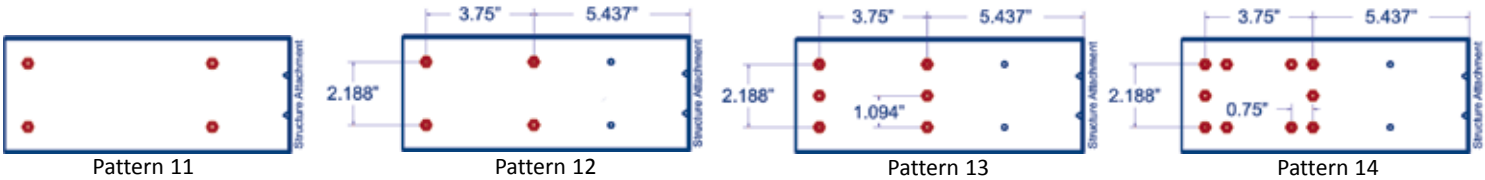

Pattern 1 Pattern 2 Pattern 3



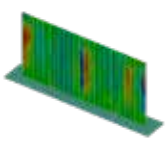
Pattern 4 Pattern 5



Pattern 6 Pattern 7 Pattern 8 Pattern 9 Pattern 10



Pattern 11 Pattern 12 Pattern 13 Pattern 14



StiffClip LB Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

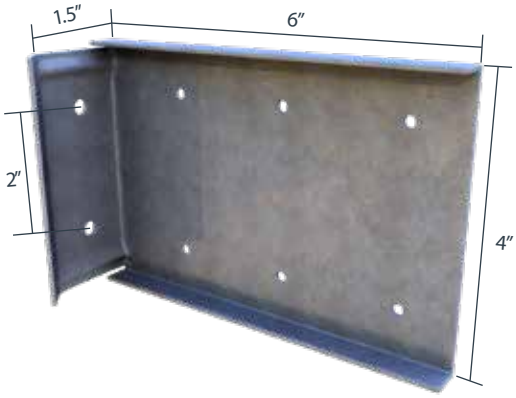
StiffClip® LB-HD

Spandrel Wall Bypass for Seismic Conditions

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340 MPa) minimum yield strength, 65ksi minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/653M G90 (Z275) hot dipped galvanized coating.



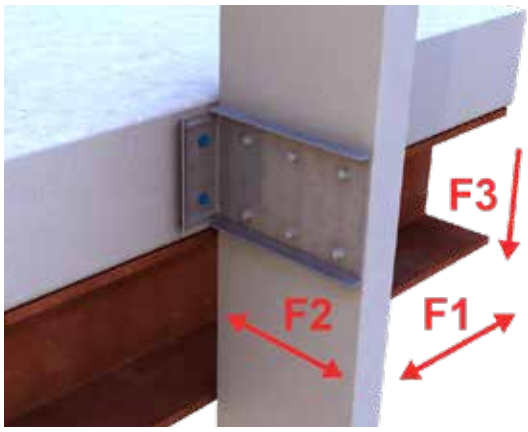
StiffClip LB-HD Allowable Loads

StiffClip® LB-HD, Recommended Allowable Load (lbs): F1, F2 & F3									
Screw Patterns with #12 Screws	F1 Load Direction			F2 Load Direction			F3 Load Direction		
	LB600-HD			LB600-HD			LB600-HD		
	3 Screws	4 Screws	6 Screws	3 Screws	4 Screws	6 Screws	3 Screws	4 Screws	6 Screws
33mil (20ga), 33ksi Stud	190	190	190	522	752	1,128	317	449	598
33mil (20ga), 50ksi Stud	276	276	276	755	1,088	1,130	459	650	865
43mil (18ga), 33ksi Stud	248	248	248	777	1,120	1,130	472	669	891
43mil (18ga), 50ksi Stud	358	358	358	1,124	1,130	1,130	683	967	1,289
54mil (16ga), 33ksi Stud	312	312	312	1,094	1,130	1,130	664	941	1,254
54mil (16ga), 50ksi Stud	450	450	450	1,130	1,130	1,130	959	1,359	1,810
68mil (14ga), 50ksi Stud	568	568	568	1,130	1,130	1,130	1,209	1,712	1,966
97mil (12ga), 50ksi Stud	810	810	810	1,130	1,130	1,130	1,209	1,712	1,966
Maximum Allowable Clip Load	857			1,130			1,966		

Load Table Notes:

1. Design loads are for attachment of StiffClip LB-HD to stud only. Load tables reflect in plane of wall loads (F1), horizontal loads (F2) and vertical loads (F3).
2. Design loads consider loads on the clip and #12 screw fasteners to the stud web.
3. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud.
5. Attachment to structure engineered by others.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. Guideholes for stud connection are 0.172" diameter for #12 screws. Guideholes for structure connection are 3/8" diameter for (2) 1/4" diameter anchors.
8. Fasten within 3/4" from the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
9. For LRFD strengths contact TSN technical services.

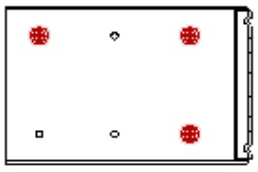
Load Direction

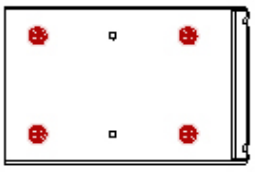


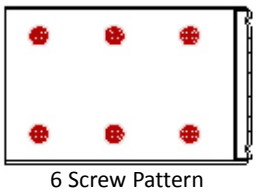
Nomenclature

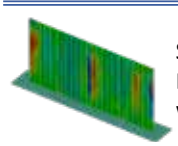
StiffClip LB-HD is designed to be used with 6" studs and is designated *StiffClip® LB600-HD*

Screw Patterns


3 Screw Pattern


4 Screw Pattern


6 Screw Pattern



StiffClip LB-HD Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at*
http://www.steelnetwork.com/light-steel-framing-design-resources

VertiClip® Splice

Multi-Stud Bypass

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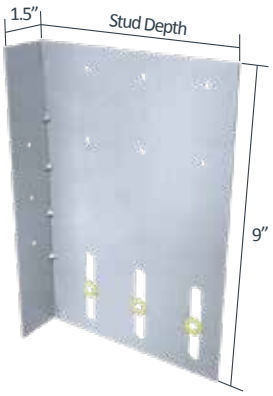


US Patent # 5,906,080

Material Composition

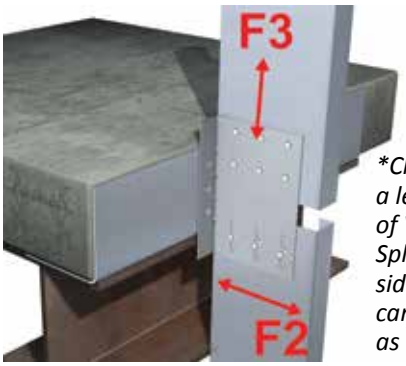
ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of VertiClip to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.

VertiClip Splice Allowable Loads

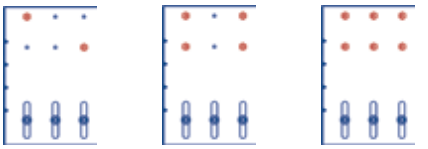
VertiClip® Splice, Recommended Allowable Load (lbs): F2 & F3						
Screw Patterns with #12 Screws	F2 Load Direction					
	Splice600 & Splice800					
	2 Screws / 2 Screws	4 Screws / 2 Screws	4 Screws / 3 Screws	6 Screws / 2 Screws	2 Screws / 2 Screws	6 Screws / 3 Screws
33mil (20ga),33ksi Stud	752	1,040	1,228	1,040	1,228	468
33mil (20ga), 50ksi Stud	1,088	1,208	1,328	1,208	1,328	677
43mil (18ga), 33ksi Stud	1,120	1,224	1,328	1,224	1,328	697
43mil (18ga), 50ksi Stud	1,328	1,328	1,328	1,328	1,328	1,008
54mil (16ga), 33ksi Stud	1,328	1,328	1,328	1,328	1,328	981
54mil (16ga), 50ksi Stud	1,328	1,328	1,328	1,328	1,328	1,417
68mil (14ga), 33ksi Stud	1,328	1,328	1,328	1,328	1,328	1,387
68mil (14ga), 50ksi Stud	1,328	1,328	1,328	1,328	1,328	1,785
97mil (12ga), 33ksi Stud	1,328	1,328	1,328	1,328	1,328	1,785
97mil (12ga), 50ksi Stud	1,328	1,328	1,328	1,328	1,328	1,785
118mil (10ga), 50ksi Stud	1,328	1,328	1,328	1,328	1,328	1,785
Maximum Allowable Clip Load	1,328					

Load Direction



**Clip shown is a left version of VertiClip Splice. Right side versions can be made as a custom part.*

Screw Patterns



2 Screw Pattern | 4 Screw Pattern | 6 Screw Pattern

VertiClip® Splice, Recommended Allowable Load (lbs): F2 & F3						
Screw Patterns with #12 Screws	F3 Load Direction					
	Splice600			Splice800 (up to 2" offset for 6" Studs)		
	2 Screws in Upper Half	4 Screws in Upper Half	6 Screws in Upper Half	2 Screws in Upper Half	4 Screws in Upper Half	6 Screws in Upper Half
33mil (20ga),33ksi Stud	216	432	562	171	340	427
33mil (20ga), 50ksi Stud	313	626	813	248	492	617
43mil (18ga), 33ksi Stud	322	644	837	255	507	636
43mil (18ga), 50ksi Stud	466	932	1,211	369	733	919
54mil (16ga), 33ksi Stud	455	911	1,184	359	713	894
54mil (16ga), 50ksi Stud	654	1,309	1,701	518	1,030	1,292
68mil (14ga), 33ksi Stud	641	1,281	1,665	507	1,008	1,264
68mil (14ga), 50ksi Stud	825	1,649	2,144	652	1,298	1,628
97mil (12ga), 33ksi Stud	825	1,649	2,144	652	1,298	1,628
97mil (12ga), 50ksi Stud	825	1,649	2,144	652	1,298	1,628
118mil (10ga), 50ksi Stud	825	1,649	2,144	652	1,298	1,628
Maximum Allowable Clip Load	2,432			2,272		

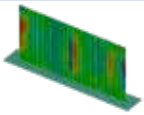
Load Table Notes:

1. Design loads are for attachment of VertiClip Splice to stud only. Load tables reflect horizontal loads (F2) and vertical loads (F3).
2. Design loads consider loads on the clip and #12 screw fasteners to the stud web.
3. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud.
5. Attachment to structure engineered by others.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. Total vertical deflection of up to 2" (1" up and 1" down). Deflection requirements greater than 1" up and down are available.
8. Fasten withn 3/4" from the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
9. For LRFD strengths contact TSN technical services.

Nomenclature

VertiClip Splice is designated by multiplying stud depth by 100.

Example: *6" stud.* ***Designate:*** *VertiClip® Splice600*



VertiClip Splice Series
Blast and Seismic Design Data
www.steelnetwork.com**

*** For more information or to review a copy of this report, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

StiffClip® CL

Floor Tie

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

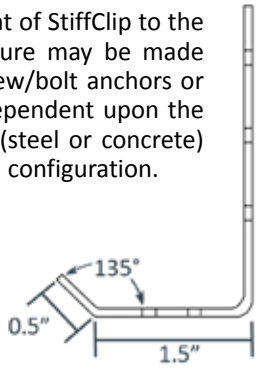
Material Composition

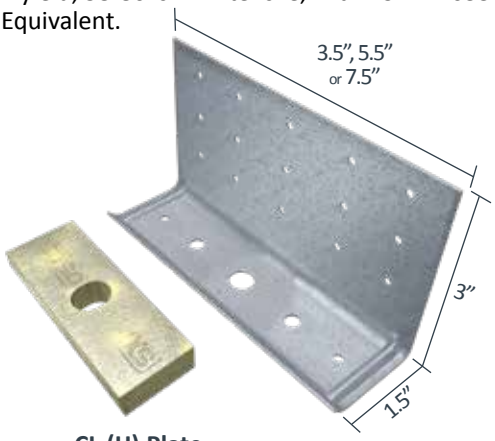
68mil Clip: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

118mil Clip: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 118mil minimum thickness (10 gauge, 0.1242" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

"H" Plate: ½" steel, ASTM A36, 36ksi min yield, 58-80ksi min tensile, with ASTM B633 Type II Yellow Zinc Coating, or Paint, or Equivalent.

The attachment of StiffClip to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.





CL (H) Plate

US Patent #7,533,508

StiffClip CL Allowable Loads

StiffClip® CL362/400, Recommended Allowable Load (lbs and inches): F1, F2, F3, M1 & Stiffness										
Screw Patterns with #12 Screws	CL362/400-68 Pattern 1: 4 Screws					CL362/400-118 Pattern 1: 4 Screws				
	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness
33mil (20ga), 33ksi Stud	190	535	752	1,096		190	535	752	1,096	
33mil (20ga), 50ksi Stud	276	774	1,088	1,586		276	774	1,088	1,586	
43mil (18ga), 33ksi Stud	248	796	1,120	1,633		248	796	1,120	1,633	
43mil (18ga), 50ksi Stud	358	1,152	1,151	1,804		358	1,152	1,620	2,362	
54mil (16ga), 33ksi Stud	312	1,121	1,151	1,804		312	1,121	1,576	2,297	
54mil (16ga), 50ksi Stud	450	1,618	1,151	1,804	108,054	450	1,618	2,225	3,318	297,794
68mil (14ga), 33ksi Stud	392	1,584	1,151	1,804		392	1,584	2,225	3,248	
68mil (14ga), 50ksi Stud	568	1,917	1,151	1,804		568	2,039	2,225	3,936	
97mil (12ga), 33ksi Stud	560	1,917	1,151	1,804		560	2,039	2,225	3,936	
97mil (12ga), 50ksi Stud	810	1,917	1,151	1,804		810	2,039	2,225	3,936	
118mil (10ga), 50ksi Stud	988	1,917	1,151	1,804		988	2,039	2,225	3,936	
Max Allowable Clip Load	**1,416**	**1,917**	**1,151**	**1,804**		**2,423**	**4,107**	**2,225**	**3,936**	

StiffClip® CL362/400, Recommended Allowable Load (lbs and inches): F1, F2, F3, M1 & Stiffness					
Screw Patterns with #12 Screws	CL362/400-118 (H) Pattern 2: 9 Screws				
	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness
33mil (20ga), 33ksi Stud	285	1,023	1,692	1,644	
33mil (20ga), 50ksi Stud	414	1,480	2,448	2,379	
43mil (18ga), 33ksi Stud	372	1,523	2,520	2,449	
43mil (18ga), 50ksi Stud	537	2,203	3,645	3,542	
54mil (16ga), 33ksi Stud	468	2,143	3,546	3,446	
54mil (16ga), 50ksi Stud	675	3,095	5,121	4,147	457,277
68mil (14ga), 33ksi Stud	588	3,030	5,013	4,147	
68mil (14ga), 50ksi Stud	852	3,900	5,713	4,147	
97mil (12ga), 33ksi Stud	840	3,900	5,713	4,147	
97mil (12ga), 50ksi Stud	1,215	3,900	5,713	4,147	
118mil (10ga), 50ksi Stud	1,482	3,900	5,713	4,147	
Max Allowable Clip Load	**1,482**	**4,978**	**5,713**	**4,147**	

StiffClip CL Allowable Load tables and important notes continued on next page.

StiffClip® CL600, Recommended Allowable Load (lbs and inches): F1, F2, F3, M1 & Stiffness										
Screw Patterns with #12 Screws	CL600-68					CL600-118				
	Pattern 3: 6 Screws					Pattern 3: 6 Screws				
	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness
33mil (20ga), 33ksi Stud	285	872	1,067	1,788		285	872	1,128	1,788	
33mil (20ga), 50ksi Stud	414	1,262	1,067	2,435		414	1,262	1,632	2,588	
43mil (18ga), 33ksi Stud	372	1,299	1,067	2,435		372	1,299	1,680	2,664	
43mil (18ga), 50ksi Stud	537	1,879	1,067	2,435		537	1,879	2,225	3,853	
54mil (16ga), 33ksi Stud	468	1,828	1,067	2,435		468	1,828	2,225	3,748	
54mil (16ga), 50ksi Stud	675	2,510	1,067	2,435	160,215	675	2,640	2,225	5,413	354,427
68mil (14ga), 33ksi Stud	588	2,510	1,067	2,435		588	2,584	2,225	5,299	
68mil (14ga), 50ksi Stud	852	2,510	1,067	2,435		852	3,327	2,225	5,702	
97mil (12ga), 33ksi Stud	840	2,510	1,067	2,435		840	3,327	2,225	5,702	
97mil (12ga), 50ksi Stud	1,215	2,510	1,067	2,435		1,215	3,327	2,225	5,702	
118mil (10ga), 50ksi Stud	1,421	2,510	1,067	2,435		1,482	3,327	2,225	5,702	
Max Allowable Clip Load	**1,421**	**2,510**	**1,067**	**2,435**		**2,583**	**4,107**	**2,225**	**5,702**	

StiffClip® CL600, Recommended Allowable Load (lbs and inches): F1, F2, F3, M1 & Stiffness					
Screw Patterns with #12 Screws	CL600-118 (H)				
	Pattern 4: 10 Screws				
	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness
33mil (20ga), 33ksi Stud	380	1,478	1,880	3,157	
33mil (20ga), 50ksi Stud	552	2,138	2,720	4,568	
43mil (18ga), 33ksi Stud	496	2,201	2,800	4,702	
43mil (18ga), 50ksi Stud	716	3,184	4,050	6,801	
54mil (16ga), 33ksi Stud	624	3,097	3,940	6,617	
54mil (16ga), 50ksi Stud	900	4,473	5,690	7,306	525,127
68mil (14ga), 33ksi Stud	784	4,379	5,570	7,306	
68mil (14ga), 50ksi Stud	1,136	5,636	6,007	7,306	
97mil (12ga), 33ksi Stud	1,120	5,636	6,007	7,306	
97mil (12ga), 50ksi Stud	1,620	5,636	6,007	7,306	
118mil (10ga), 50ksi Stud	1,976	5,636	6,007	7,306	
Max Allowable Clip Load	**4,158**	**6,455**	**6,007**	**7,306**	

StiffClip® CL800, Recommended Allowable Load (lbs and inches): F1, F2, F3, M1 & Stiffness										
Screw Patterns with #12 Screws	CL800-68					CL800-118				
	Pattern 3: 6 Screws					Pattern 3: 6 Screws				
	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness
33mil (20ga), 33ksi Stud	285	973	1,077	2,483		285	973	1,128	2,483	
33mil (20ga), 50ksi Stud	414	1,408	1,077	2,860		414	1,408	1,632	3,592	
43mil (18ga), 33ksi Stud	372	1,449	1,077	2,860		372	1,449	1,680	3,697	
43mil (18ga), 50ksi Stud	537	2,096	1,077	2,860		537	2,096	2,430	5,348	
54mil (16ga), 33ksi Stud	468	2,039	1,077	2,860		468	2,039	2,364	5,203	
54mil (16ga), 50ksi Stud	675	2,662	1,077	2,860	190,670	675	2,945	2,666	7,514	548,677
68mil (14ga), 33ksi Stud	588	2,662	1,077	2,860		588	2,883	2,666	7,355	
68mil (14ga), 50ksi Stud	852	2,662	1,077	2,860		852	3,711	2,666	8,229	
97mil (12ga), 33ksi Stud	840	2,662	1,077	2,860		840	3,711	2,666	8,229	
97mil (12ga), 50ksi Stud	1,215	2,662	1,077	2,860		1,215	3,711	2,666	8,229	
118mil (10ga), 50ksi Stud	1,435	2,662	1,077	2,860		1,482	3,711	2,666	8,229	
Max Allowable Clip Load	**1,435**	**2,662**	**1,077**	**2,860**		**3,356**	**6,410**	**2,666**	**8,229**	

StiffClip CL Allowable Load tables and important notes continued on next page.

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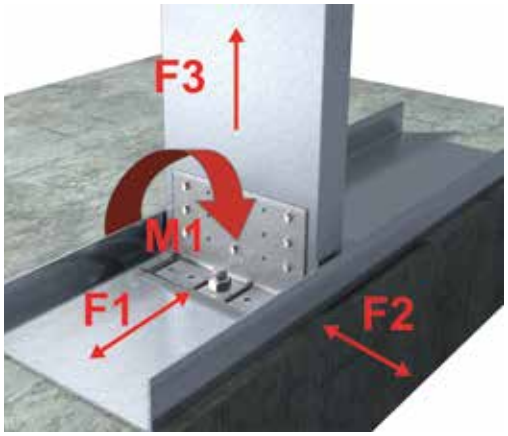
StiffClip® CL800, Recommended Allowable Load (lbs and inches): F1, F2, F3, M1 & Stiffness					
Screw Patterns with #12 Screws	CL800-118 (H)				
	Pattern 4: 10 Screws				
	F1 Load Direction	F2 Load Direction	F3 Load Direction	M1 Load Direction	M1 Stiffness
33mil (20ga), 33ksi Stud	380	1,661	1,880	4,748	
33mil (20ga), 50ksi Stud	552	2,402	2,720	6,869	
43mil (18ga), 33ksi Stud	496	2,473	2,800	7,071	
43mil (18ga), 50ksi Stud	716	3,577	4,050	10,227	
54mil (16ga), 33ksi Stud	624	3,480	3,940	9,950	
54mil (16ga), 50ksi Stud	900	5,026	5,690	11,143	696,515
68mil (14ga), 33ksi Stud	784	4,920	5,570	11,143	
68mil (14ga), 50ksi Stud	1,136	6,333	7,170	11,143	
97mil (12ga), 33ksi Stud	1,120	6,333	7,170	11,143	
97mil (12ga), 50ksi Stud	1,620	6,333	7,170	11,143	
118mil (10ga), 50ksi Stud	1,976	6,333	7,170	11,143	
Max Allowable Clip Load	**4,816**	**8,274**	**7,446**	**11,143**	

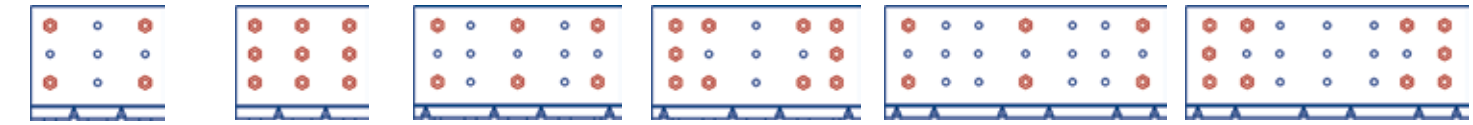
Load Direction



Load Table Notes:

1. Design loads are for attachment of StiffClip CL to stud only. Load tables reflect in plane of wall loads (F1), horizontal loads (F2), vertical loads (F3), and overturning loads (M1).
2. M1 loads are reported as Max. Load divided by a Factor of Safety. M1 loads may be limited by the Serviceability Load calculated as Clip Stiffness times the Serviceability Limit in radian.
3. Stiffness is the Allowable Clip Moment divided by the clip rotation measured at half of the Max Allowable Clip Moment.
4. Design loads consider loads on the clip and #12 screw fasteners to the stud web.
5. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
6. Torsional effects are considered on screw group for F2 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud.
7. Attachment to structure engineered by others.
8. Allowable loads have not been increased for wind, seismic, or other factors.
9. Allowable load tables incorporate eccentric loading of fasteners. Values with a welded connection may increase.
10. Guide holes are in place for fastener installation efficiency. All guide holes may not require fasteners. Fastener amount determined by the designer. Screw fastener should be symmmetrically placed in guide holes. Refer to screw pattern diagrams below for placement.
11. Fasten within 3/4" from the angle heel (centerline of the 1-1/2" leg) to minimize eccentric load transfer.
12. Center guide hole is 9/16" in diameter for 1/2" anchors. Middle guide holes are 5/16" in diameter for 3/8" anchors. Outer guide holes and guide holes in 3" leg are 0.141" in diameter.
13. For LRFD strengths contact TSN technical services.

Screw Patterns



4 Screws, Pattern 1 | 9 Screws, Pattern 2 | 6 Screws, Pattern 3 | 10 Screws, Pattern 4 | 6 Screws, Pattern 5 | 10 Screws, Pattern 6

Nomenclature

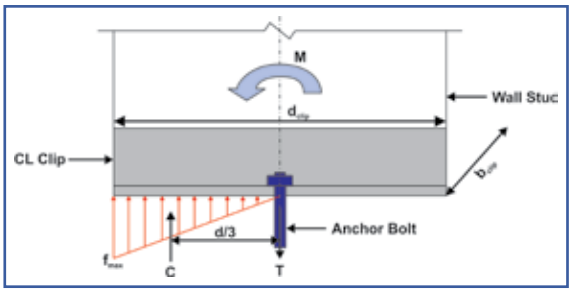
To specify StiffClip CL on drawings, multiply stud depth by 100, followed by the appropriate material thickness, based on strength required (see load tables). The StiffClip CL118(H) utilizes a plate in the 1½" leg (shown on page 1).

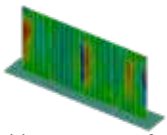
Example: *6" stud, uplift load of 650lbs*
Designate: *StiffClip® CL600-68*

Anchor Bolt Design

The following equation for tension force in the anchor is derived using the assumed bearing stress distribution shown in the figure to the right. This assumed stress distribution provides a conservative anchor force approximation.

$$T = \frac{M}{(2/3)(d_{clip}/2)} = \frac{3M}{d_{clip}}$$





StiffClip CL Series
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MidWall™

Partial Wall Framing

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

MidWall: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H), 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, G90 (Z275) hot-dipped galvanized coating. Material Thickness = 118mil (10 gauge, 0.1242" design thickness) for 250MW and 362MW. Material Thickness = 97mil (12 gauge, 0.1017" design thickness) for 600 MW.

MidWall Plate: ASTM A36/A36M: 36ksi (250MPa) minimum yield strength, 58-80ksi (400-550MPa) tensile strength, ½" minimum thickness.

US Patent #8,387,321

MidWall Allowable Loads

Wall Width (in)	MidWall™ Member	Maximum Point Load @ 48" (ASD), lbs	Maximum Base Moment, lbs-in
2 ½	250MW	128	6,150
3 5/8"	362MW	332	15,940
6	600MW	407	19,540

Notes

- MidWall is designed to support out-of-plane loading in cantilevered partial wall systems that are unsupported at the top track.
- Out-of-plane loads are transferred to the floor system through plate nested in the flanges of the member with two 3/8" diameter fasteners (or one ½" diameter fastener for 250MW) used for the connection.
- MidWall may be used in place of standard framing members, or in conjunction with them to frame the wall.

Nomenclature

MidWall is currently available in two heights and three depths. Product nomenclature lists the member depth first followed by the height in inches

Example: *6" web depth, 24" tall MidWall*
Designate: *600MW-24*

Example Details

MidWall™ 24" Assembly Example

MidWall 24" is generally used in interior half walls of less than 48" in height. Attach MidWall 24" to a 54mil stud with #12 screws through all pre-drilled guide holes. Other studs in the walls are typical infill studs. Maximum spacing between MidWall connectors is 36" o.c. (see table on following page). Contact TSN Technical Services at (888) 474-4876 for design recommendations.

MidWall™ 48" Assembly Example

MidWall 48" is used in interior half walls equal to or more than 48" in height. Use one MidWall 48" as a substitute for a stud at the specified spacing, or attach to a 54mil stud with #12 screws through all pre-drilled guide holes. Maximum spacing between MidWall connectors is 36" o.c.

Design Information

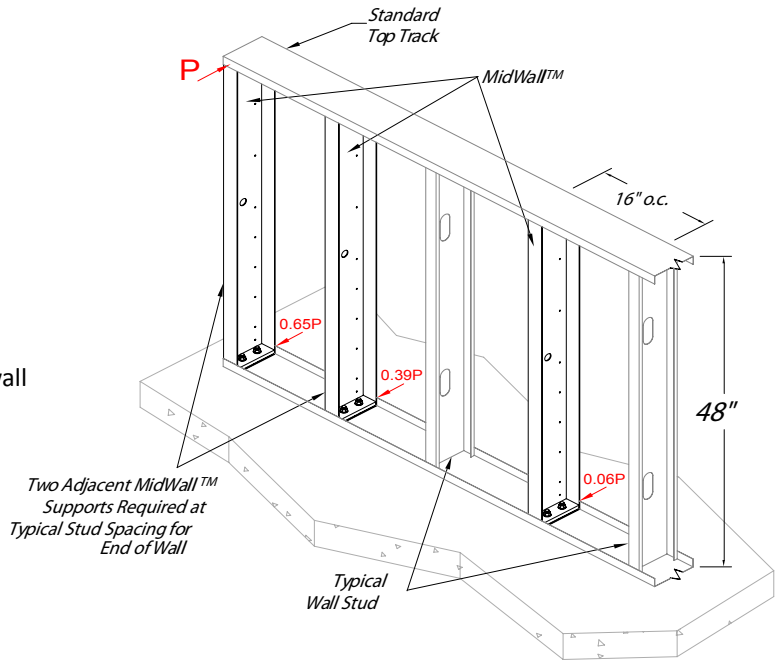
Criteria:
IBC 2021
Refer to Section 1607.9.1

Applications:
- Handrails and Guards
- Interior Half Walls
- Parapets
- Ribbon Windows

Handrails and Guards:
- 50 lb/ft applied in any direction at the top of wall
- 200 lbs applied in any direction at any point at the top of the wall

Parapets & Ribbon Windows:
- Design Wind Pressure

Interior Half Walls:
- Design internal pressure



Design Procedure

The top track spanning between MidWall members acts as a load distribution member capable of distributing localized loads to multiple MidWall members. It is recommended to design the track in these applications. Refer to the diagram above for an example of the distribution of the point load, P, to adjacent MidWall supports. At the end of the wall, MidWall is required at adjacent stud spacings. Designed spacing begins after two adjacent end supports.

Max Applied Tension (T_u) on One Anchor (lbs)(LRFD)	250 MidWall™ ½" Anchorage Options (4,000 psi Minimum Normal Weight Cracked Concrete)
900	½" Screw-Bolt+, 2 ½" Nominal Embedment (Dewalt)
	½" Kwik HUS-EZ, 2 ¼" Nominal Embedment (Hilti)
1,200	½" Screw-Bolt+, 2 ½" Nominal Embedment (Dewalt)
	½" Kwik HUS-EZ, 2 ¼" Nominal Embedment (Hilti)
1,600	½" Screw-Bolt+, 3" Nominal Embedment (Dewalt)
	½" Kwik HUS-EZ, 3" Nominal Embedment (Hilti)

Max Applied Tension (T_u) on One Anchor (lbs)(LRFD)	362/600 MidWall™ 3/8" Anchorage Options (4,000 psi Minimum Normal Weight Cracked Concrete)
1,800	(2) ⅜" Screw-Bolt+, 3 ¼" Nominal Embedment (Dewalt)
	(2) ⅜" Kwik Bolt TZ2 - CS, 3" Nominal Embedment (Hilti)
2,200	(2) ⅜" Screw-Bolt+, 3 ¼" Nominal Embedment (Dewalt)
	(2) ⅜" Kwik Bolt TZ2 - CS, 3" Nominal Embedment (Hilti)
2,400	(2) ⅜" HAS-E Threaded Rod w/ HIT-HY 200 V3 Epoxy, 3" Effective Embedment (Hilti)
3,200	(2) ⅜" HAS-E Threaded Rods w/ HIT-HY 200 V3 Epoxy, 4" Effective Embedment (Hilti)

StiffClip® TD

Uplift Connector

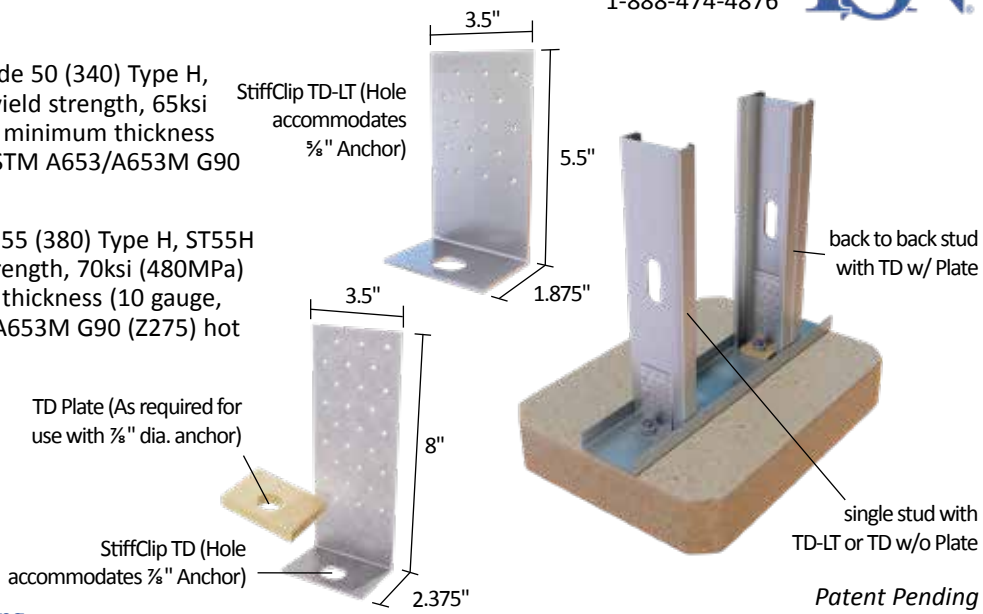
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

TD-LT: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 118mil minimum thickness (10 gauge, 0.1242" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

TD: ASTM A1003/A1003M Structural Grade 55 (380) Type H, ST55H (ST380H): 55ksi (380MPa) minimum yield strength, 70ksi (480MPa) minimum tensile strength, 118mil minimum thickness (10 gauge, 0.1242" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

TD Plate: ASTM A36/A36M: 36ksi (250MPa) minimum yield strength, 58-80ksi (400-550MPa) minimum tensile strength, with ASTM B633 Type II Yellow Zinc Coating, Paint, Powder Coating, or E-Coating, or approved equivalent.



Patent Pending

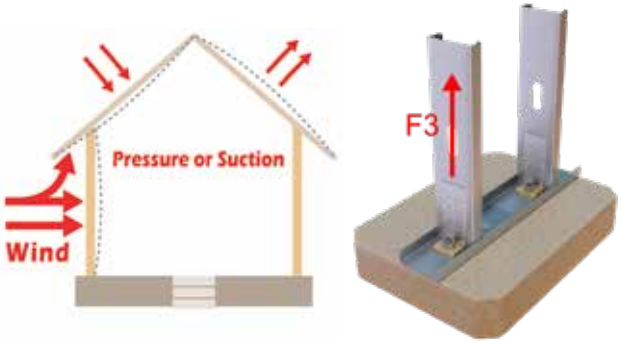
StiffClip TD Allowable Loads for Steel Framing

StiffClip® TD, Recommended Allowable Loads for Steel Framing (lbs): F3 Load Direction									
	TD-LT			TD w/o Plate			TD w/ Plate		
Screw Patterns with #12 Screws	4 Screws	6 Screws	8 Screws	6 Screws	8 Screws	12 Screws	12 Screws	18 Screws	27 Screws
33mil (20ga), 33ksi Stud	752	1,128	1,504	1,128	1,504	2,256	2,256	3,384	5,076
33mil (20ga), 50ksi Stud	1,088	1,632	2,176	1,632	2,176	3,264	3,264	4,896	7,344
43mil (18ga), 33ksi Stud	1,120	1,680	2,240	1,680	2,240	3,360	3,360	5,040	7,560
43mil (18ga), 50ksi Stud	1,620	2,430	3,240	2,430	3,240	4,412	4,860	7,290	9,826
54mil (16ga), 33ksi Stud	1,576	2,364	3,152	2,364	3,152	4,412	4,728	7,092	9,826
54mil (16ga), 50ksi Stud	2,276	3,414	3,764	3,414	4,412	4,412	6,828	9,826	9,826
68mil (14ga), 50ksi Stud	2,868	3,764	3,764	4,302	4,412	4,412	8,604	9,826	9,826
97mil (12ga), 50ksi Stud	2,868	3,764	3,764	4,302	4,412	4,412	8,604	9,826	9,826
Maximum Allowable Clip Load	3,764			4,412			9,826		

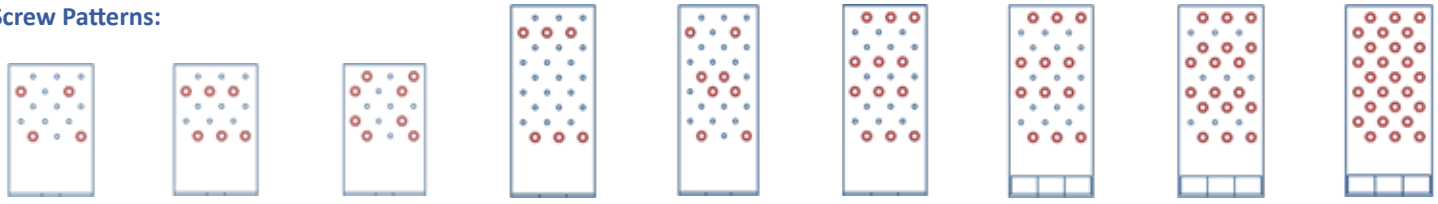
Table Notes:

1. Design loads are for attachment of StiffClip TD to stud only. Load tables reflect vertical loads (F3).
2. Design loads consider loads on the clip and #12 screw fasteners to the stud web for steel framing.
3. Attachment to structure engineered by others.
4. Allowable loads have not been increased for wind, seismic, or other factors.
5. Fasten within 1-1/4" from the heel angle using the existing anchor hole.
6. Guide holes are in place for fastener installation efficiency. The number of fasteners are determined by the designer.
7. Attachment to stud is made with up to 27 #12 screws, symmetrically place.
8. For LRFD strengths contact TSN technical services.

Load Directions:



Screw Patterns:



TD-LT Plate *4 Screws* | **TD-LT Plate** *6 Screws* | **TD-LT Plate** *8 Screws* | **TD w/o Plate** *6 Screws* | **TD w/o Plate** *8 Screws* | **TD w/o Plate** *12 Screws* | **TD w/ Plate** *12 Screws* | **TD w/ Plate** *18 Screws* | **TD w/ Plate** *27 Screws*

StiffClip TD Allowable Loads

StiffClip® TD-LT, Recommended Allowable Loads for Wood Framing (lbs): F3						
Screw/Nail Patterns	Douglas Fir / Southern Yellow Pine			Spruce Pine-Fir / Hem-Fir		
	8 Fasteners	12 Fasteners	18 Fasteners	8 Fasteners	12 Fasteners	18 Fasteners
10d Nails	1,830	2,746	3,764	1,472	2,208	3,312
16d Nails	2,125	3,187	3,764	1,715	2,573	3,764
#12 Wood Screw	2,227	3,764	3,764	1,792	2,688	3,764
Maximum Allowable Clip Load	**3,764**			**3,764**		

StiffClip® TD w/o Plate, Recommended Allowable Loads for Wood Framing (lbs): F3						
Screw/Nail Patterns	Douglas Fir / Southern Yellow Pine			Spruce Pine-Fir / Hem-Fir		
	8 Fasteners	12 Fasteners	18 Fasteners	8 Fasteners	12 Fasteners	18 Fasteners
10d Nails	1,830	2,746	4,118	1,472	2,208	3,312
16d Nails	2,125	3,187	4,412	1,715	2,573	3,859
#12 Wood Screw	2,227	3,341	4,412	1,792	2,688	4,032
Maximum Allowable Clip Load	**4,412**			**4,412**		

StiffClip® TD w/ Plate, Recommended Allowable Loads for Wood Framing (lbs): F3						
Screw/Nail Patterns	Douglas Fir / Southern Yellow Pine			Spruce Pine-Fir / Hem-Fir		
	8 Fasteners	12 Fasteners	18 Fasteners	8 Fasteners	12 Fasteners	18 Fasteners
10d Nails	2,746	4,118	6,178	2,208	3,312	4,968
16d Nails	3,187	4,781	7,171	2,573	3,859	5,789
#12 Wood Screw	3,341	5,011	7,517	2,688	4,032	6,048
Maximum Allowable Clip Load	**9,826**			**9,826**		

Table Notes:

1. Design loads are for attachment of StiffClip TD to stud only. Load tables reflect vertical loads (F3).
2. Design loads consider loads on the clip and listed fasteners to the stud web for wood framing.
3. Attachment to structure engineered by others.
4. Allowable shear for nails and screws is increased 60% for wind and seismic loads in wood framing.
5. Fasten within 1-1/4" from the heel angle using the existing anchor hole.
6. Guide holes are in place for fastener installation efficiency. The number of fasteners are determined by the designer.
7. Attachment to stud is made with up to 27 #12 screws, symmetrically place.
8. For wood with moisture content > 19%, consult The Steel Network, Inc. for reduction in values.
9. For LRFD strengths contact TSN technical services.

Nomenclature

StiffClip TD-LT is available in one size without the use of the 'TD Plate'. Contact TSN about installation with alternate anchor sizes.

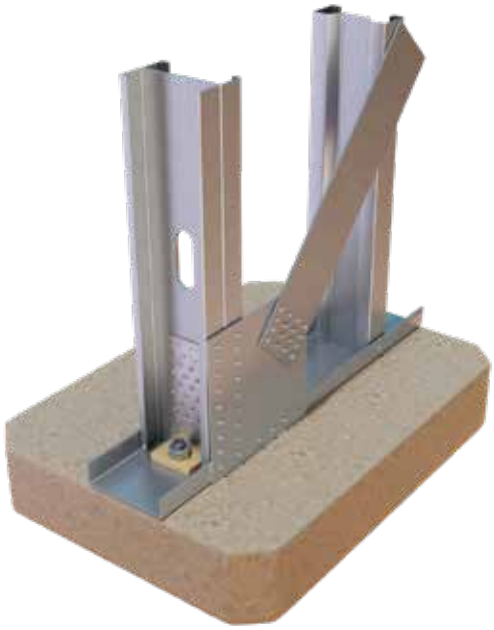
StiffClip TD is available in one size and can be used with or without a ¾" plate on top of the 2 ⅜" leg. Anchor hole accommodates ⅞" diameter anchor.

Example: 6" stud, ⅝" dia. anchor to concrete, holddown without plate
Designate: StiffClip® TD-LT

Example: 8" stud, ⅞" dia. anchor to concrete, holddown with plate
Designate: StiffClip® TD w/ Plate

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Steel Example Details

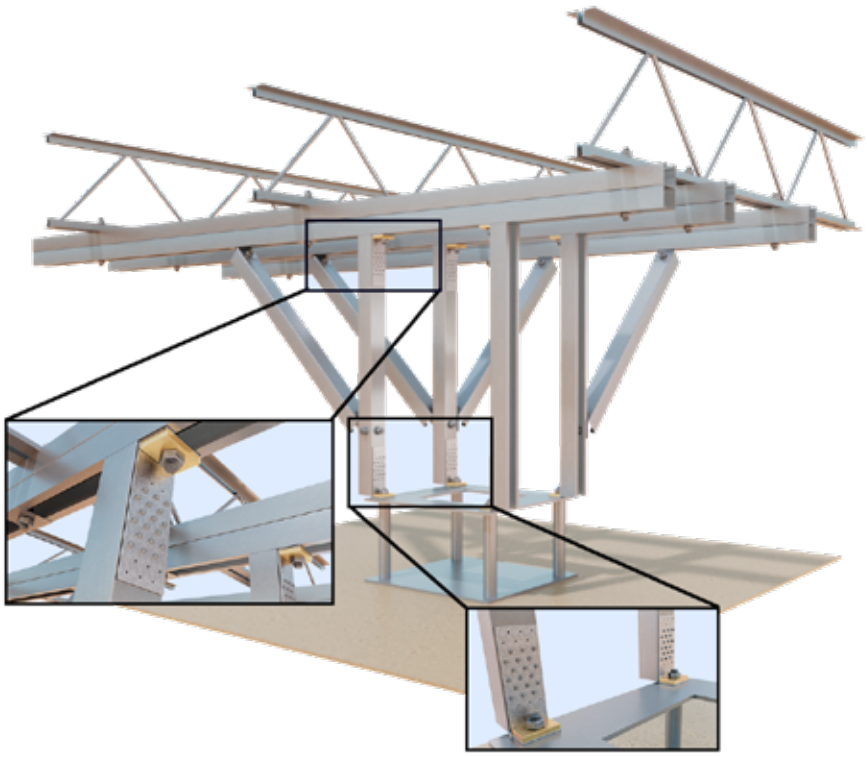
Stud Tie Down	X-Brace Shear Wall Column Anchor
	

Wood Example Details

Wood Stud Tie Down	Shear Wall Column Anchor (Wood Framing)
	

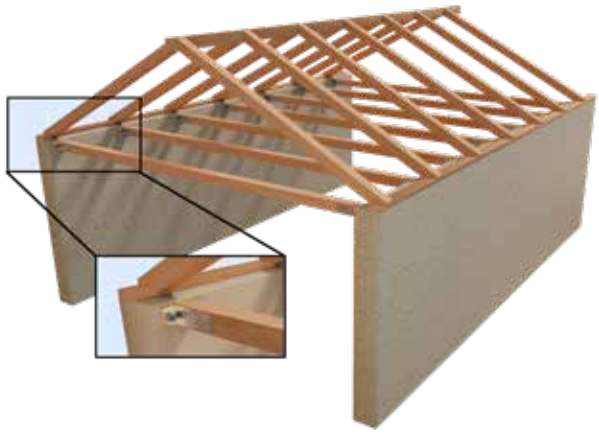
Other Example Details

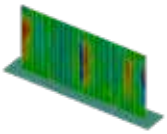
Medical Equipment Anchor



Joist/Truss Top Chord Anchor

Tension Tie Anchor





StiffClip TD Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at*
http://www.steelnetwork.com/light-steel-framing-design-resources

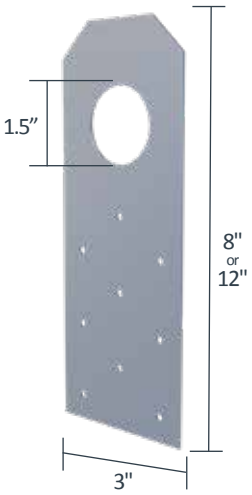
StiffClip® PLC

Panel Lift Clip

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 97mil minimum thickness (12 gauge, 0.1017" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



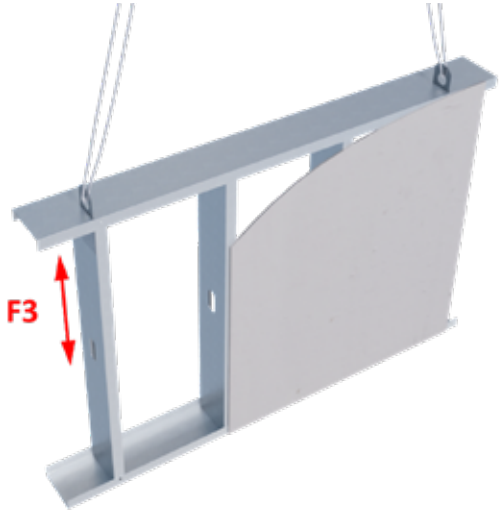
StiffClip PLC Allowable Loads

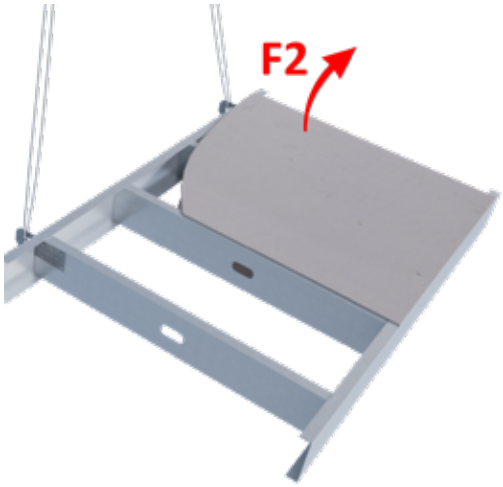
StiffClip® PLC, Recommended Allowable Load for Steel Framing (lbs): F3 & F2												
Screw Patterns with #10 Screws	F2 Load Direction						F3 Load Direction					
	PLC-8-97			PLC-12-97			PLC-8-97			PLC-12-97		
	3 Screws	6 Screws	9 Screws	5 Screws	9 Screws	15 Screws	3 Screws	6 Screws	9 Screws	5 Screws	9 Screws	15 Screws
33mil (20ga), 33ksi Stud	106	306	373	166	237	517	531	1,062	1,361	885	1,361	1,361
33mil (20ga), 50ksi Stud	153	441	537	239	341	745	765	1,361	1,361	1,275	1,361	1,361
43mil (18ga), 33ksi Stud	158	455	554	247	352	768	789	1,361	1,361	1,315	1,361	1,361
43mil (18ga), 50ksi Stud	228	658	800	356	509	1,110	1,140	1,361	1,361	1,361	1,361	1,361
54mil (16ga), 33ksi Stud	222	641	779	347	495	1,081	1,110	1,361	1,361	1,361	1,361	1,361
54mil (16ga), 50ksi Stud	320	924	1,125	501	715	1,156	1,361	1,361	1,361	1,361	1,361	1,361
68mil (14ga), 50ksi Stud	329	949	1,154	514	734	1,156	1,361	1,361	1,361	1,361	1,361	1,361
97mil (12ga), 50ksi Stud	329	949	1,154	514	734	1,156	1,361	1,361	1,361	1,361	1,361	1,361
118mil (10ga), 50ksi Stud	329	949	1,154	514	734	1,156	1,361	1,361	1,361	1,361	1,361	1,361
Maximum Allowable Clip Load	1,156						1,361					

Load Table Notes:

1. Design loads consider loads on the clip and #10 screw fasteners to steel framing.
2. Spacing between clips to be controlled by the weight of panel and presence of a spreader bar or a load distribution member
3. For screw patterns other than standard patterns shown, contact TSN technical services.
4. For LRFD strengths contact TSN technical services.

Load Direction



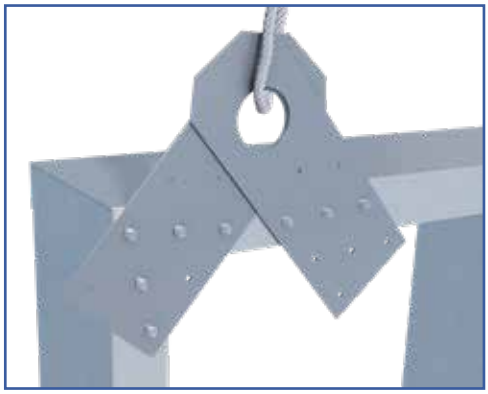


Nomenclature

StiffClip PLC is available in two sizes and is designated by the length of the clip, followed by mil thickness (-97)

Example: *8" Connector*
Designate: *StiffClip® PLC-8-97*

Example Details



Double Attachment to Wall at End Stud

Attachment to Wall at Intermediate Stud

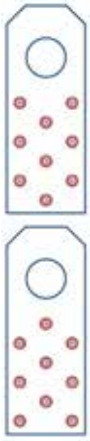
Attachment to Stud Web

Screw Patterns for StiffClip® PLC

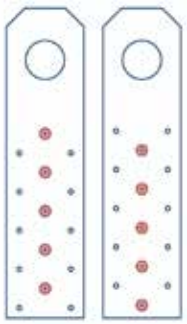
3 Screw Pattern

6 Screw Pattern

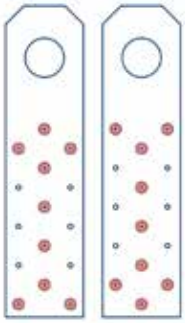
9 Screw Pattern



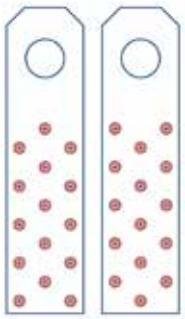
5 Screw Pattern



9 Screw Pattern



15 Screw Pattern



StiffClip® HE

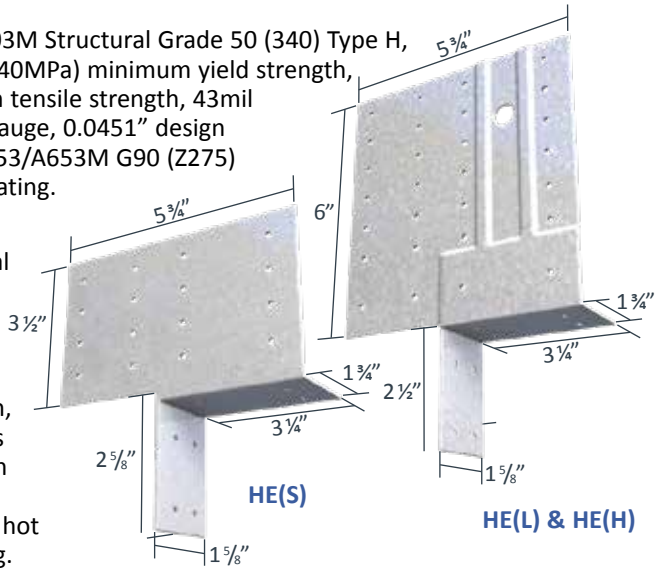
Header Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

HE(L): ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 43mil minimum thickness (18 gauge, 0.0451" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

HE(H) & HE(S): ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



US Patent #7,634,889

StiffClip HE Allowable Loads for a Single Clip: Screw Fasteners

StiffClip® HE(L), HE(H) & HE(S): F2 Load Direction - Screws						
Screw Patterns with #10 Screws	HE(L)			HE(H) & HE(S)		
	8 screws	12 screws	16 screws	8 screws	12 screws	16 screws
33mil (20ga), 33ksi Stud	199	299	399	199	299	399
33mil (20ga), 50ksi Stud	287	431	574	287	431	574
43mil (18ga), 33ksi Stud	296	444	592	296	444	592
43mil (18ga), 50ksi Stud	428	627	627	428	642	856
54mil (16ga), 33ksi Stud	429	627	627	417	625	833
54mil (16ga), 50ksi Stud	564	627	627	601	902	1,088
68mil (14ga), 50ksi Stud	564	627	627	617	925	1,088
97mil (12ga), 50ksi Stud	564	627	627	617	925	1,088
Max Allowable Clip Load	627			1,088		

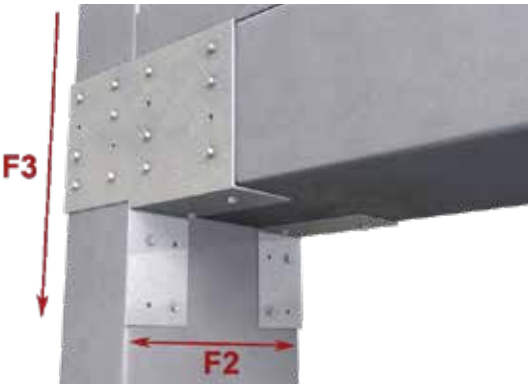
StiffClip® HE(L): F3 Load Direction - Screws						
Screw Patterns with #10 Screws	HE(L)					
	8 screws	12 screws	16 screws	20 screws	24 screws	28 screws
33mil (20ga), 33ksi stud	536	708	873	1,090	1,239	1,340
33mil (20ga), 50ksi stud	773	1,020	1,257	1,571	1,785	1,930
43mil (18ga), 33ksi stud	797	1,052	1,297	1,620	1,841	1,991
43mil (18ga), 50ksi stud	1,151	1,520	1,873	2,341	2,660	2,877
54mil (16ga), 33ksi stud	1,154	1,524	1,878	2,347	2,667	2,884
54mil (16ga), 50ksi stud	1,518	2,004	2,470	3,066	3,066	3,066
68mil (14ga), 50ksi stud	1,518	2,004	2,470	3,066	3,066	3,066
97mil (12ga), 50ksi stud	1,518	2,004	2,470	3,066	3,066	3,066
Max Allowable Clip Load	3,066					

StiffClip® HE(H) & HE(S): F2 Load Direction (lbs)									
Screw Patterns with #10 Screws	HE(H)						HE(S)		
	8 Screws	12 Screws	16 Screws	20 Screws	24 Screws	24 Screws	8 Screws	12 Screws	16 Screws
33mil (20ga), 33ksi Stud	536	708	873	1,090	1,239	1,340	382	501	611
33mil (20ga), 50ksi Stud	773	1,020	1,257	1,571	1,785	1,930	551	722	880
43mil (18ga), 33ksi Stud	797	1,052	1,297	1,620	1,841	1,991	568	744	907
43mil (18ga), 50ksi Stud	1,151	1,520	1,873	2,341	2,660	2,877	821	1,075	1,311
54mil (16ga), 33ksi Stud	1,121	1,480	1,824	2,279	2,590	2,801	799	1,047	1,277
54mil (16ga), 50ksi Stud	1,618	2,136	2,633	3,289	3,738	4,042	1,153	1,511	1,842
68mil (14ga), 50ksi Stud	1,660	2,192	2,702	3,376	3,836	4,148	1,184	1,551	1,891
97mil (12ga), 50ksi Stud	1,660	2,192	2,702	3,376	3,836	4,148	1,184	1,551	1,891
Max Allowable Clip Load	5,545						2,968		

Load Table Notes:

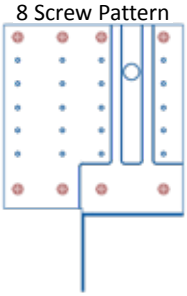
1. Torsional effects are considered on screw group for F2 & F3 allowable loads. It is assumed that half of the torsional moment is taken by the connetion on one side and half is taken by the connection on the other side of the clip.
2. Attachment to stud is made with screws symmetrically placed. All guide holes may not require fasteners. Fastener amount determined by designer.
3. Allowable loads have not been increased for wind, seismic, or other factors.
4. The minimum combination of steel thickness and yield strength must be used when determining the maximum design load.
5. Design loads listed consider both loads on the clip and the #10 screws fastened to the jamb and header members.
6. Refer to screw patterns on the following page.
7. For LRFD strengths contact TSN technical services.

Load Direction

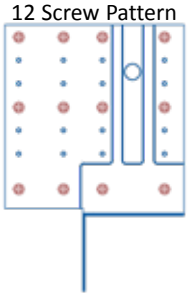


Screw Patterns for HE(L) & HE(H) F3 Load Tables

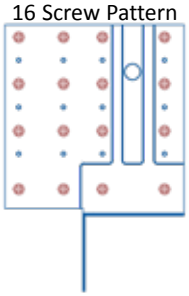
8 Screw Pattern



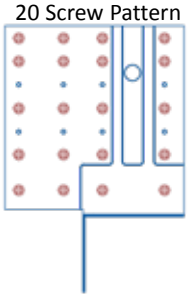
12 Screw Pattern



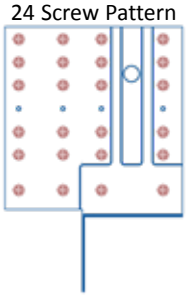
16 Screw Pattern



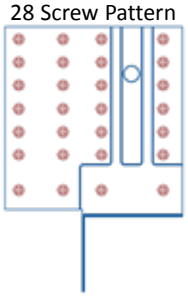
20 Screw Pattern



24 Screw Pattern

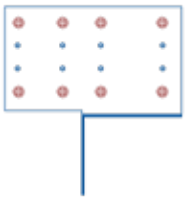


28 Screw Pattern

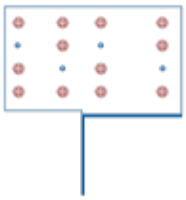


Screw Patterns for HE(S) F3 Load Tables

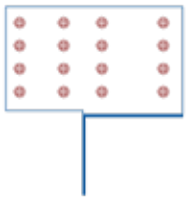
8 Screw Pattern



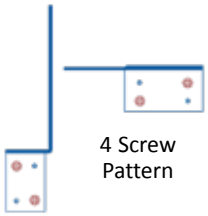
12 Screw Pattern



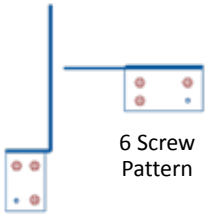
16 Screw Pattern



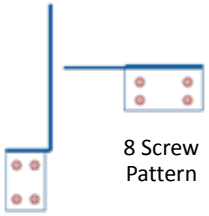
Screw Patterns for F2 Load Tables



4 Screw Pattern



6 Screw Pattern

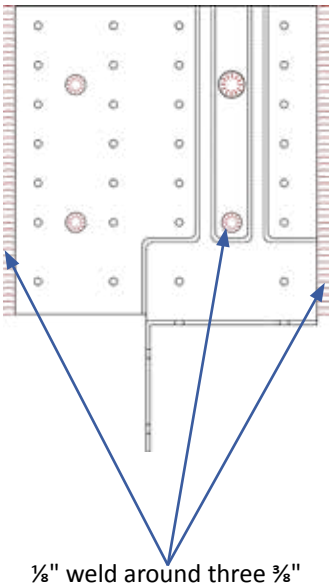


8 Screw Pattern

Allowable Loads: Welded Connection

StiffClip® HE(H): F3 Load Direction - Welded	
HE(H)	
54mil (16ga), 50ksi Stud (And Thicker)	4,177

Weld Diagram



⅛" weld around three ⅜" diameter holes, one ½" diameter hole, with ⅛" welds along each side.

Notes:

1. The standard StiffClip HE(H) clip does not include all four large holes in the web of the clip. Special orders for these clips can be made by request.
2. Allowable F3 welded values do not apply for the 43mil (18ga) StiffClip (HE(L).
3. StiffClip HE(H) allowable F3 welded values are applicable to clips with welds around the perimeter of the single 1/2" diameter hole, three 3/8" diameter holes, and along each side of the clip. Weld size is not to exceed double the material thickness of the header or jamb, or 1/8". Care should be taken to not burn through the material.

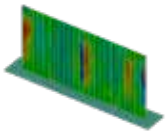
Nomenclature

StiffClip HE is available in two thicknesses. The StiffClip HE(L) is 43mil (18ga), and the StiffClip HE(H) & HE(S) are both 68mil (14ga).

** Clips are packaged as pairs. Four StiffClip HE clips are used at each opening: two left-hand and two right-hand clips attach the complete header to the jamb.*

HE(S)

HE(L) & HE(H)



StiffClip HE Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at http://www.steelnetwork.com/light-steel-framing-design-resources*

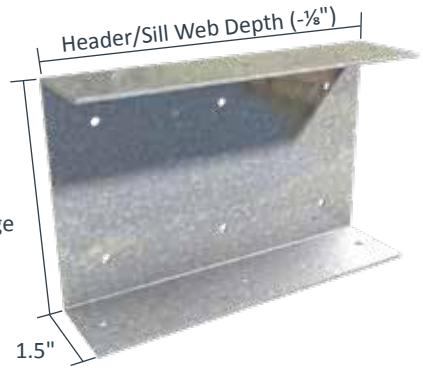
StiffClip® HS

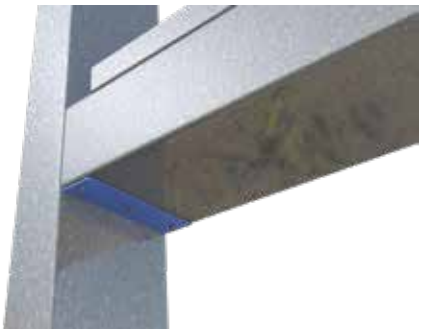
Jamb Stud Header and Sill Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003 ST50H, Grade 50 (340MPa) minimum yield strength, 65 ksi (450 Mpa) minimum tensile strength, material thickness = 68mil (14gauge, 0.0713" design thickness)
G-90 (Z275) hot-dipped galvanized coating.

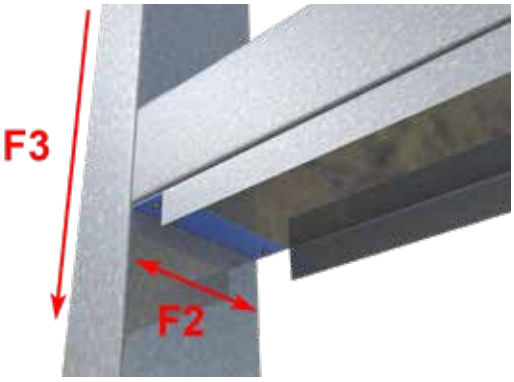




StiffClip HS Allowable Loads

StiffClip® HS Recommended Allowable Load (lbs): F2 & F3 Load Direction						
Screw Patterns with #12 Screws	F2 Allowable Loads			F3 Allowable Loads		
	HS362	HS600	HS800	HS362	HS600	HS800
	4 Screws	6 Screws	6 Screws	4 Screws	6 Screws	6 Screws
33mil (20ga), 33ksi Stud	303	559	664	743	1,109	1,128
33mil (20ga), 50ksi Stud	439	810	962	829	1,195	1,489
43mil (18ga), 33ksi Stud	416	777	935	801	1,167	1,461
43mil (18ga), 50ksi Stud	601	1,123	1,351	911	1,277	1,571
54mil (16ga), 33ksi Stud	545	1,028	1,250	865	1,231	1,525
54mil (16ga), 50ksi Stud	786	1,484	1,804	1,003	1,369	1,663
68mil (14ga), 50ksi Stud	991	1,872	2,275	1,121	1,487	1,781
97mil (12ga), 50ksi Stud	1,232	2,252	2,648	1,363	1,729	2,023

Load Direction



Notes:

1. Design loads are for attachment of StiffClip HS to the jamb. Use minimum (4) #12 screws for the attachment of the clip to the header or sill. Load tables reflect horizontal loads (F2) and vertical loads (F3).
2. Design loads consider loads on the clip and #12 screw fasteners to the jamb web.
3. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
4. Up to 1/4" gap is allowed between the jamb and the end of the header/sill member.
5. Allowable loads apply to 250, 300, and 350 flange sizes.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. For LRFD strengths contact TSN technical services.

Nomenclature

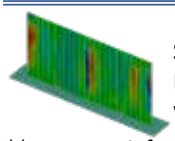
StiffClip HS is available for attachment to 3 ⅝", 6", or 8" jambs, and for use with JamStuds with 2 ½", 3" or 3 ½" flanges. To specify, multiply jamb width and header flange width by 100.

Example: *6" jamb and a header flange width of 2 ½"*
Designate: *StiffClip® HS600-250*

Example Details


StiffClip® HS used with Header


StiffClip® HS used with Sill



StiffClip HS Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at*
http://www.steelnetwork.com/light-steel-framing-design-resources

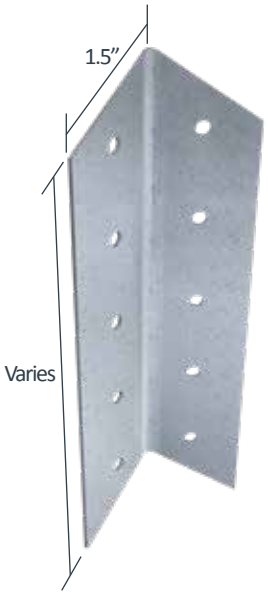
StiffClip® HC

Hip Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



StiffClip HC Allowable Loads

StiffClip® HC Recommended Allowable Load for a Single Clip (lbs): F3 Load Direction								
Screw Patterns with #12 Screws	HC362/400-43	HC362/400-68	HC600-43	HC600-68	HC800-43	HC800-68	HC1000-68	
	2 Screws	2 Screws	4 Screws	4 Screws	5 Screws	5 Screws	4 Screws	6 Screws
33mil (20ga), 33ksi Stud	337	336	720	720	909	909	N / A	N / A
33mil (20ga), 50ksi Stud	487	487	1,042	1,042	1,315	1,315	N / A	N / A
43mil (18ga), 33ksi Stud	501	501	1,073	1,073	1,353	1,353	1,100	1,643
43mil (18ga), 50ksi Stud	725	724	1,552	1,552	1,958	1,958	1,591	2,376
54mil (16ga), 33ksi Stud	736	705	1,575	1,510	1,987	1,904	1,548	2,312
54mil (16ga), 50ksi Stud	864	1,018	2,158	2,180	2,714	2,750	2,235	3,338
68mil (14ga), 50ksi Stud	864	1,283	2,158	2,747	2,714	3,466	2,816	4,207
97mil (12ga), 50ksi Stud	864	1,283	2,158	2,747	2,714	3,466	2,816	4,207
Max Allowable Clip Load	**864**	**1,392**	**2,158**	**3,639**	**2,714**	**5,062**	**5,062**	

Screw Patterns with #12 Screws	HC1200-68		HC1400-68		HC1600-68	
	6 Screws	8 Screws	5 Screws	9 Screws	6 Screws	10 Screws
54mil (16ga), 33ksi Stud	2,341	3,109	1,955	3,507	2,345	3,904
54mil (16ga), 50ksi Stud	3,381	4,490	2,823	4,560	3,387	4,560
68mil (14ga), 50ksi Stud	4,260	4,560	3,557	4,560	4,560	4,560
97mil (12ga), 50ksi Stud	4,260	4,560	3,557	4,560	4,560	4,560
Max Allowable Clip Load	**4,560**		**4,560**		**4,560**	

Notes:

1. Design loads are for attachment of StiffClip HC to cold formed framing only. Load tables reflect vertical loads (F3).
2. Design loads consider loads on the clip and #12 screw fasteners in each leg.
3. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that half of the torsional moment is taken by screw group in each leg of clip .
4. Allowable loads have not been increased for wind, seismic, or other factors.
5. For LRFD strengths contact TSN technical services.

Load Direction

Nomenclature

StiffClip HC is designated by multiplying rafter depth by 100, then listing material thickness.

Example: *6" rafter depth, 68mil steel thickness*
Designate: *StiffClip® HC600-68*

***Standard angle bend is 135°. Other bend angles are available.*

StiffClip® RT

Roof Tie

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

33 mil & 43 mil thicknesses: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.

54 mil thickness: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

RT650

RT1300


StiffClip® RT650


StiffClip® RT1300

StiffClip RT Allowable Loads

StiffClip® RT, Recommended Allowable Load (lbs): F1 Load Direction						
Screw Patterns with #12 Screws	RT650-33 & RT1300-33		RT650-43 & RT1300-43		RT650-54 & RT1300-54	
	w/2 #12 Screws	w/4 #12 Screws	w/2 #12 Screws	w/4 #12 Screws	w/2 #12 Screws	w/4 #12 Screws
33mil (20ga), 33ksi Stud	93	165	93	177	93	177
33mil (20ga), 50ksi Stud	135	165	135	184	135	256
43mil (18ga), 33ksi Stud	124	165	124	184	124	248
43mil (18ga), 50ksi Stud	165	165	179	184	179	342
54mil (16ga), 33ksi Stud	153	165	156	184	156	312
54mil (16ga), 50ksi Stud	165	165	184	184	225	342
68mil (14ga), 50ksi Stud	165	165	184	184	284	342
97mil (12ga), 50ksi Stud	165	165	184	184	342	342
Max Allowable Clip Load	**165**		**184**		**342**	

StiffClip® RT, Recommended Allowable Load (lbs): F2 Lod Direction									
Screw Patterns with #12 Screws	RT650-33	RT650-33 & RT1300-33		RT650-43	RT650-43 & RT1300-43		RT650-54	RT650-54 & RT1300-54	
	5 Screws in Short Leg	2 Screws	4 Screws	5 Screws in Short Leg	2 Screws	4 Screws	5 Screws in Short Leg	2 Screws	4 Screws
33mil (20ga), 33ksi Stud	163	95	101	163	95	126	163	95	190
33mil (20ga), 50ksi Stud	236	101	101	236	126	126	236	138	276
43mil (18ga), 33ksi Stud	239	101	101	243	124	126	243	124	248
43mil (18ga), 50ksi Stud	239	101	101	329	126	126	351	179	327
54mil (16ga), 33ksi Stud	239	101	101	312	126	126	312	156	312
54mil (16ga), 50ksi Stud	239	101	101	329	126	126	450	225	327
68mil (14ga), 50ksi Stud	239	101	101	329	126	126	568	284	327
97mil (12ga), 50ksi Stud	239	101	101	329	126	126	614	327	327
Max Allowable Clip Load	**239**	**101**		**329**	**126**		**614**	**327**	

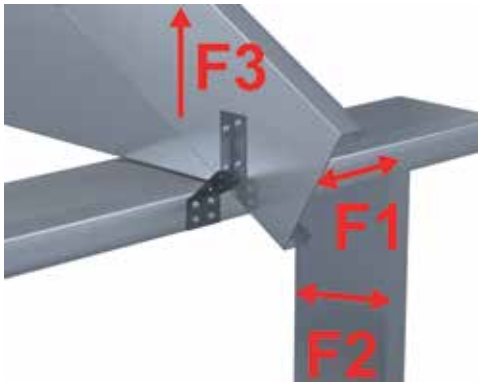
StiffClip RT Allowable Load tables and important notes continued on next page.

StiffClip® RT, Recommended Allowable Load (lbs): F3						
Screw Patterns with #12 Screws	RT650-33 & RT1300-33		RT650-43 & RT1300-43		RT650-54 & RT1300-54	
	2 Screws	4 Screws	2 Screws	4 Screws	2 Screws	4 Screws
33mil (20ga), 33ksi Stud	198	358	198	383	198	383
33mil (20ga), 50ksi Stud	286	358	286	386	286	554
43mil (18ga), 33ksi Stud	320	358	295	386	295	570
43mil (18ga), 50ksi Stud	358	358	386	386	426	809
54mil (16ga), 33ksi Stud	358	358	386	386	415	802
54mil (16ga), 50ksi Stud	358	358	386	386	599	809
68mil (14ga), 50ksi Stud	358	358	386	386	753	809
97mil (12ga), 50ksi Stud	358	358	386	386	753	809
Maximum Allowable Clip Load	358		386		809	

Notes:

1. Design loads are for attachment of StiffClip RT to light gauge framing members only. Load tables reflect in plane of wall loads (F1), horizontal loads (F2) and vertical uplift loads (F3).
2. Number of screws designated represent the amount of #12 screws required in each leg of clips.
3. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
4. Torsional effects are considered on screw groups for F1, F2, and F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection to the structure and half is taken by the connection to the stud.
5. Allowable loads have not been increased for wind, seismic, or other factors.
6. StiffClip RT650 is available in a Left version and Right version. Contact TSN for ordering assistance.
7. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

StiffClip RT650 is 6½" long, and may be used when wall studs do not align with roof framing member. The RT1300 is 13" long, and is used when wall studs align with roof framing member. Clips are designated by length, followed by thickness and number of screws used in each leg (determined by load requirements - refer to load tables).

Example: *Stud aligns with roof framing member (see application image)*
Designate: *StiffClip® 1300*

** StiffClip RT650 are packaged in pairs.*

RT650*

StiffClip® WC

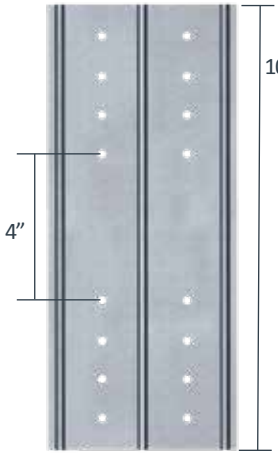
Web Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

54mil: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 54mil minimum thickness (16 gauge, 0.0566" design thickness) with ASTM A653/ A653M G90 (Z275) hot dipped galvanized coating.

118mil: ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 118mil minimum thickness (10 gauge, 0.1242" design thickness) with ASTM A653/ A653M G90 (Z275) hot dipped galvanized coating.



Tension / Compression Load Direction												
Screw Patterns with #12 Screw	WC350-54, 10" Length				WC350-118, 10" Length				WC550-54, 13" Length			
	2 Screws	4 Screws	6 Screws	8 Screws	2 Screws	4 Screws	6 Screws	8 Screws	4 Screws	6 Screws	8 Screws	10 Screws
33mil (20ga), 33ksi stud	104	153	248	1,300	376	752	1,128	1,504	118	184	327	737
33mil (20ga), 50ksi stud	104	153	248	1,300	544	1,088	1,632	2,176	118	184	327	737
43mil (18ga), 33ksi stud	104	153	248	1,300	560	1,120	1,680	2,240	118	184	327	737
43mil (18ga), 50ksi stud	104	153	248	1,300	810	1,618	2,430	3,240	118	184	327	737
54mil (16ga), 33ksi stud	104	153	248	1,300	788	1,576	2,364	3,152	118	184	327	737
54mil (16ga), 50ksi stud	104	153	248	1,300	1,097	1,618	2,620	4,552	118	184	327	737
68mil (14ga), 50ksi stud	104	153	248	1,300	1,097	1,618	2,620	4,936	118	184	327	737
97mil (12ga), 50ksi stud	104	153	248	1,300	1,097	1,618	2,620	4,936	118	184	327	737
Max Allowable Clip Load	1,300*				4,936**				737**			

Screw Patterns with #12 Screw	WC550-118, 13" Length				WC750-54, 16" Length					WC750-118, 16" Length				
	4 Screws	6 Screws	8 Screws	10 Screws	4 Screws	6 Screws	8 Screws	10 Screws	12 Screws	4 Screws	6 Screws	8 Screws	10 Screws	12 Screws
33mil (20ga), 33ksi stud	752	1,128	1,504	1,880	112	161	251	447	1,005	752	1,128	1,504	1,880	2,256
33mil (20ga), 50ksi stud	1,088	1,632	2,176	2,720	112	161	251	447	1,005	1,088	1,632	2,176	2,720	3,264
43mil (18ga), 33ksi stud	1,120	1,680	2,240	2,800	112	161	251	447	1,005	1,120	1,680	2,240	2,800	3,360
43mil (18ga), 50ksi stud	1,246	1,946	3,240	4,050	112	161	251	447	1,005	1,180	1,699	2,654	4,050	4,860
54mil (16ga), 33ksi stud	1,246	1,946	3,152	3,940	112	161	251	447	1,005	1,180	1,699	2,654	3,940	4,728
54mil (16ga), 50ksi stud	1,246	1,946	3,460	5,690	112	161	251	447	1,005	1,180	1,699	2,654	4,718	6,828
68mil (14ga), 50ksi stud	1,246	1,946	3,460	7,756	112	161	251	447	1,005	1,180	1,699	2,654	4,718	9,324
97mil (12ga), 50ksi stud	1,246	1,946	3,460	7,756	112	161	251	447	1,005	1,180	1,699	2,654	4,718	9,324
Max Allowable Clip Load	7,756**				1,005**					10,576**				

Table Notes:

1. Design loads are for attachment of StiffClip WC to light gauge framing members only. Allowable load tables apply to tension and compression on StiffClip WC utilizing the fastener patterns shown on the next page.
2. All guide holes may not require fasteners. Number and size of fasteners used is based on fastener manufacturer's allowable load data, and is to be verified by the designer.
3. Allowable loads have not been increased for wind, seismic, or other factors.
4. For LRFD strengths contact TSN technical services.

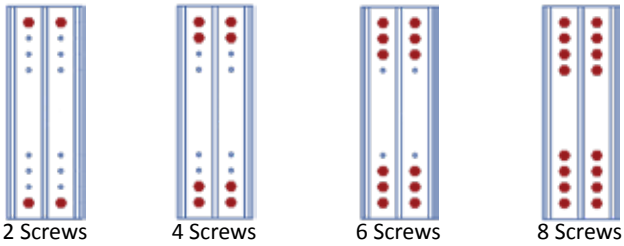
* Maximum allowable load is based on structural testing.
** Maximum allowable load is based on calculations.

Load Direction

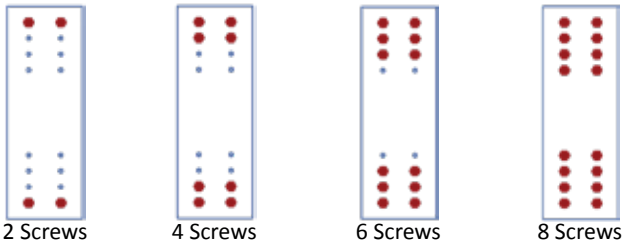
******StiffClip WC Screw Patterns are shown on next page.***

Screw Patterns

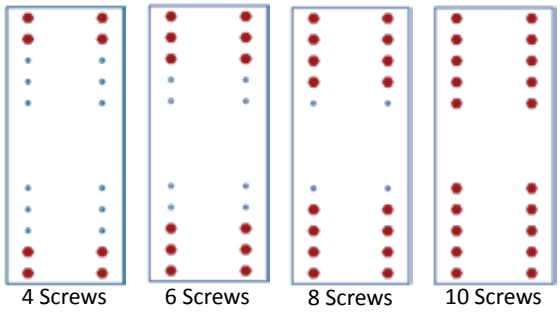
WC350-54



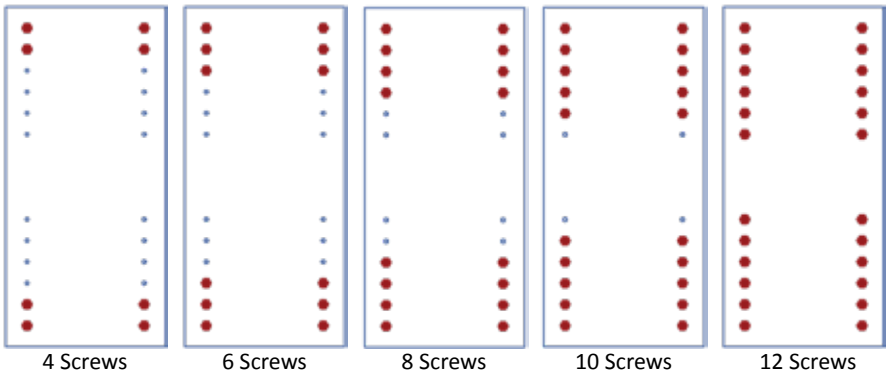
WC350-118



WC550-XX



WC750-XX



Nomenclature

StiffClip WC is designated by multiplying truss web stud depth in inches by 100, then listing material, thickness and length.

Example: *3½" truss web stud depth, 54mil steel thickness, 10" long*
Designate: *StiffClip® WC350-54 10"*

Example Details

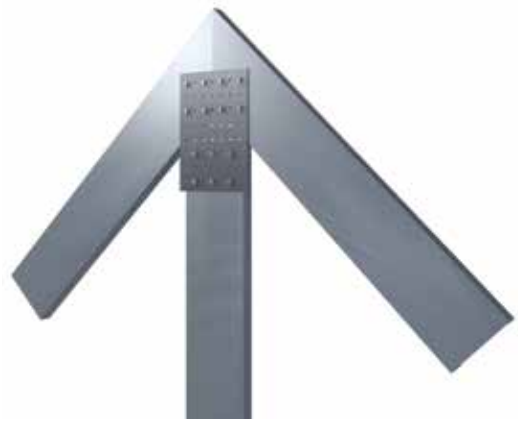
StiffClip® PL

Truss Plate Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



StiffClip PL Allowable Loads

Plates used to connect framing are generally considered as pinned joints. Load transfers through screw or welded connections between members.

Notes:

- All guide holes may not require fasteners. Number and size of fasteners used is based on fastener manufacturer's allowable load data, and is to be verified by designer.
- Guide holes are 0.172" in diameter unless specified.
- Guide holes have ½" minimum edge distance and 1" minimum spacing. Spacing will vary based on plate size and specified project requirements.

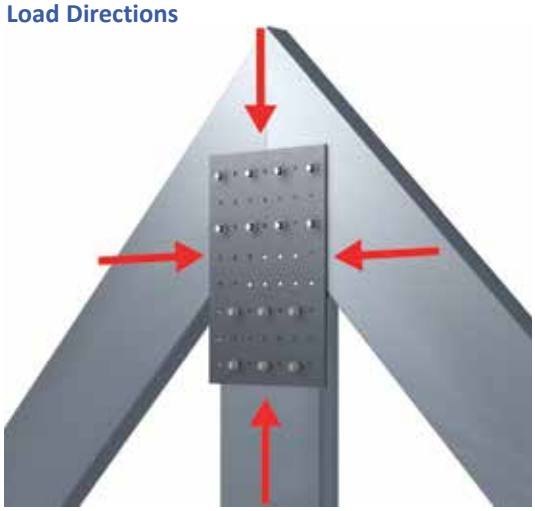
Nomenclature

StiffClip PL is available in many different shapes and is designated as width x length - material thickness.

Example: *10" wide x 24" long with 68 mil thickness*
Designate: *StiffClip® PL10x24-68*

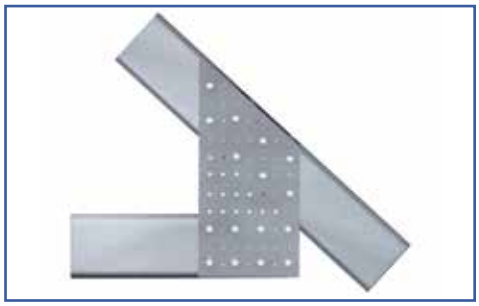
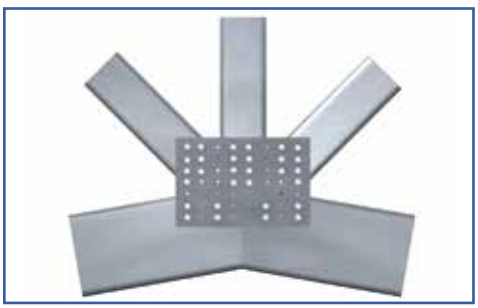
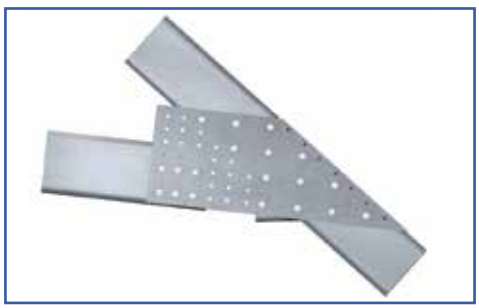
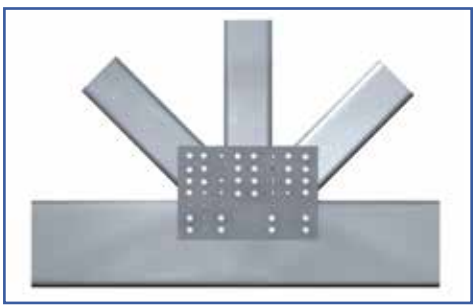
** Plate sizes vary within each application*
***StiffClip PL are typically made to order per project specifications.*

Load Directions



Example Details



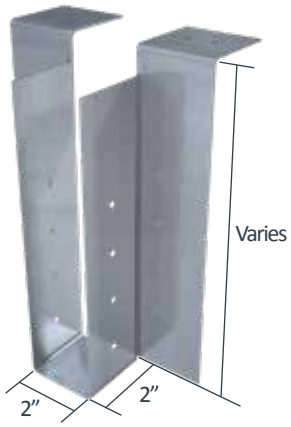
StiffClip® JH

Joist Hanger

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



StiffClip JH Allowable Loads

StiffClip® JH Recommended Allowable Load (lbs): F3 Load Direction						
Screw Patterns with #12 Screws	JH600-68	JH800-68	JH1000-68	JH1000-97	JH1200-68	JH1200-97
	2 Screws	3 Screws	4 Screws	4 Screws	5 Screws	5 Screws
33mil (20ga), 33ksi Stud	638	474	377	377	313	313
33mil (20ga), 50ksi Stud	638	474	377	377	313	313
43mil (18ga), 33ksi Stud	1,416	1,051	836	836	694	694
43mil (18ga), 50ksi Stud	1,416	1,051	836	836	694	694
54mil (16ga), 33ksi Stud	2,575	2,091	1,661	1,661	1,377	1,377
54mil (16ga), 50ksi Stud	2,575	2,091	1,661	1,661	1,377	1,377
68mil (14ga), 33ksi Stud	2,575	2,575	2,575	3,345	2,575	2,771
68mil (14ga), 50ksi Stud	2,575	2,575	2,575	3,345	2,575	2,771
97mil (12ga), 33ksi Stud	2,575	2,575	2,575	4,167	2,575	4,167
97mil (12ga), 50ksi Stud	2,575	2,575	2,575	4,167	2,575	4,167
118mil (10ga), 50ksi Stud	2,575	2,575	2,575	4,167	2,575	4,167
Max Allowable Clip Load	**2,575**	**2,575**	**2,575**	**4,167**	**2,575**	**4,167**

Notes:

1. Design loads are for attachment of StiffClip JH to joist only. Load tables reflect vertical loads (F3).
2. StiffClip JH resists vertical loads and web crippling.
3. Design loads are based on clip capacity and allowable shear of joist section.
4. Screw size and quantity shown is required for StiffClip JH to serve as a joist web stiffener.
5. If joist web is larger than clip height then use blocking behind clip for support.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. Screws, powder actuated fasteners, or weld attachment may be used to oconnect StiffClip JH to steel headers or beams. StiffClip JH-68 and heavier can be welded to a supporting steel beam. Powder actuated fasteners into steel are recommended to be 0.157" diameter, and are limited to a maximum of 3/4" subtrate thickness.
8. For LRFD strengths contact TSN technical services.

Load Direction

Nomenclature

StiffClip JH is designated by listing the joist depth in inches, followed by the inside flange dimension in inches x 100 (2” flange is standard, and will also service 1 5/8” flange), and the required clip thickness in mils that will accommodate anticipated loads. (see load tables)

Example: *6” joist, 2” flange, 2,250 lbs. load*
Designate: *StiffClip® JH600x200-68*

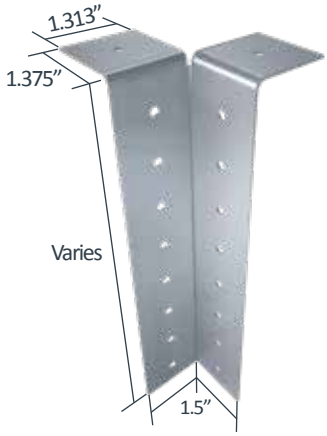
StiffClip® JC

Joist Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



StiffClip JC Allowable Loads

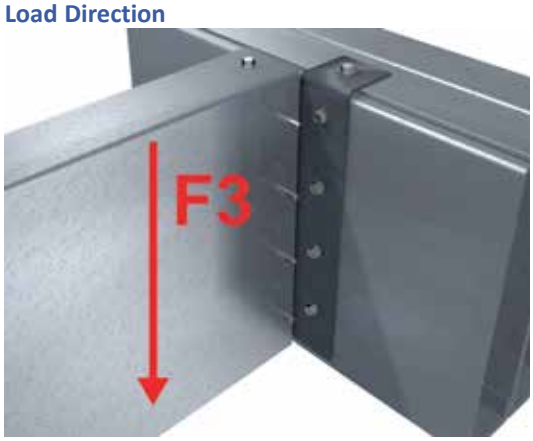
StiffClip® JC Recommended Allowable Load (lbs): F3 Load Direction												
Screw Patterns with #12 Screws	JC362/400-43	JC362/400-68	JC600-43		JC600-68		JC800-43		JC800-68		JC1000-68	
	3 Screws	3 Screws	3 Screws	5 Screws	3 Screws	5 Screws	4 Screws	7 Screws	4 Screws	7 Screws	5 Screws	9 Screws
33mil (20ga), 33ksi Stud	564	564	543	880	543	880	734	1,267	734	1,267	924	1,651
33mil (20ga), 50ksi Stud	816	816	786	1,273	786	1,273	1,061	1,833	1,061	1,833	1,337	2,388
43mil (18ga), 33ksi Stud	836	840	809	1,311	809	1,311	1,093	1,887	1,093	1,887	1,376	2,459
43mil (18ga), 50ksi Stud	836	1,215	1,170	1,896	1,170	1,896	1,580	2,729	1,580	2,729	1,990	3,556
54mil (16ga), 33ksi Stud	836	1,182	1,187	1,924	1,138	1,845	1,604	2,770	1,538	2,655	1,936	3,460
54mil (16ga), 50ksi Stud	836	1,482	1,646	2,158	1,643	2,664	2,224	3,220	2,220	3,834	2,796	4,996
68mil (14ga), 50ksi Stud	836	1,482	1,646	2,158	2,071	3,357	2,224	3,220	2,798	4,617	3,524	5,062
97mil (12ga), 50ksi Stud	836	1,482	1,646	2,158	2,071	3,357	2,224	3,220	2,798	4,617	3,524	5,062
Max Allowable Clip Load	**836**	**1,482**	**2,158**		**3,639**		**3,220**		**4,617**		**5,062**	

StiffClip® JC Recommended Allowable Load (lbs): F3 Load Direction						
Screw Patterns with #12 Screws	JC1200-68		JC1400-68		JC1600-68	
	w/6 #12 screws	w/11 #12 screws	w/7 #12 screws	w/13 #12 screws	w/8 #12 screws	w/15 #12 screws
54mil (16ga), 33ksi Stud	2,334	4,260	2,731	5,057	3,128	5,649
54mil (16ga), 50ksi Stud	3,371	5,649	3,944	5,649	4,517	5,649
68mil (14ga), 50ksi Stud	4,247	5,649	4,970	5,649	5,649	5,649
97mil (12ga), 50ksi Stud	4,247	5,649	4,970	5,649	5,649	5,649
Max Allowable Clip Load	**5,649**		**5,649**		**5,649**	

Notes:

1. Design loads are for attachment of StiffClip JC to joist only. Load tables reflect vertical loads (F3).
2. Design loads consider clip capacity and screw connection to the joist only.
3. All guide holes may not require fasteners. Fastener size and quantity determined by designer.
4. Torsional effects are considered on screw group for F3 allowable loads. It is assumed that half of the torsional moment is resisted by the connection to the structure and half is resisted by the connection to the joist.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. StiffClip JC attachment to the beam or structure must be designed to be greather than or equivalent to the joist attachment.
8. For LRFD strengths contact TSN technical services.

Load Direction



Nomenclature

StiffClip JC is designated by listing the joist depth in inches, followed by the required clip thickness in mils that will accommodate anticipated loads. (see load tables above)

Example: *6" joist, 3,000 lbs. load*
Designate: *StiffClip® JC600-68*

StiffClip® FS

Floor Strap

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

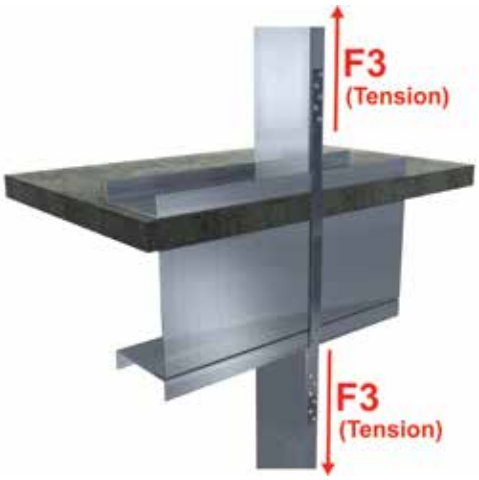
Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

StiffClip FS Allowable Loads

StiffClip® FS Recommended Allowable Load (lbs): F3 Tension Load Direction	
Designation	**Load**
FS125-33	1,163
FS125-43	1,516
FS125-54	1,902
FS125-68	2,396
FS125-97	3,418
FS275-33	2,849
FS275-43	3,713
FS275-54	4,660
FS275-68	5,871
FS275-97	8,374

Load Direction



Notes:

1. Design loads are based on strap capacity only. StiffClip FS resists tension forces only.
2. Number of fasteners used is based on fastener manufacturer's allowable load data.
3. Guide holes are located 1/2" from each end, with 3/8" edge distance at 2" o.c. staggered for FS125 and 3/4" edge distance at 2" o.c. staggered for FS275.
4. Allowable loads have not been increased for wind, seismic, or other factors.
5. For LRFD strengths contact TSN technical services.

Nomenclature

StiffClip FS is designated by the width of the strap in inches followed by strap thickness in mils.

Example: *16ga, 2¾" strap, 24" long*
Designate: *StiffClip® FS275-54-24*

** Additional guide holes for fasteners available upon request.*
***StiffClip FS are typically made to order per project specifications.*

StiffClip® AL

Multi-Directional Load Resistant Angle

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of StiffClip to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.

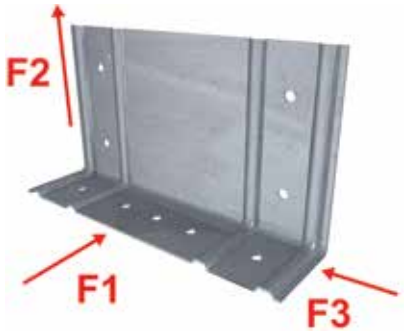
AL362 & AL600

AL800

StiffClip AL Allowable Loads

StiffClip® AL, Recommended Allowable Load (lbs): F1 Load Directions									
Screw Patterns with #12 Screws	AL362			AL600			AL800		
	2 Screws	3 Screws	4 Screws	2 Screws	3 Screws	4 Screws	2 Screws	4 Screws	6 Screws
33mil (20ga), 33ksi Stud	95	190	190	95	190	190	95	190	285
33mil (20ga), 50ksi Stud	138	276	276	138	276	276	138	276	414
43mil (18ga), 33ksi Stud	124	248	248	124	248	248	124	248	372
43mil (18ga), 50ksi Stud	179	358	358	179	358	358	179	358	537
54mil (16ga), 33ksi Stud	156	312	312	156	312	312	156	312	468
54mil (16ga), 50ksi Stud	225	450	450	225	450	450	225	450	675
68mil (14ga), 50ksi Stud	284	568	568	284	568	568	284	568	852
97mil (12ga), 50ksi Stud	405	810	810	405	810	810	405	810	1,215
118mil (10ga), 50ksi Stud	494	975	975	494	866	866	494	988	1,482
Max Allowable Clip Load	**975**			**866**			**1,768**		

Load Direction



StiffClip® AL, Recommended Allowable Load (lbs): F2 Load Directions									
Screw Patterns with #12 Screws	AL362			AL600			AL800		
	2 Screws	3 Screws	4 Screws	2 Screws	3 Screws	4 Screws	2 Screws	4 Screws	6 Screws
33mil (20ga), 33ksi Stud	376	516	752	376	530	752	376	752	1,128
33mil (20ga), 50ksi Stud	544	747	1,088	544	767	1,088	544	1,088	1,632
43mil (18ga), 33ksi Stud	560	769	1,120	560	789	1,120	560	1,120	1,680
43mil (18ga), 50ksi Stud	810	1,112	1,470	810	1,142	1,620	810	1,620	2,430
54mil (16ga), 33ksi Stud	788	1,082	1,470	788	1,111	1,576	788	1,576	2,364
54mil (16ga), 50ksi Stud	1,138	1,470	1,470	1,138	1,604	2,091	1,138	2,276	2,516
68mil (14ga), 50ksi Stud	1,434	1,470	1,470	1,434	2,021	2,091	1,434	2,516	2,516
97mil (12ga), 50ksi Stud	1,434	1,470	1,470	1,434	2,021	2,091	1,434	2,516	2,516
118mil (10ga), 50ksi Stud	1,434	1,470	1,470	1,434	2,021	2,091	1,434	2,516	2,516
Max Allowable Clip Load	**1,470**			**2,091**			**2,516**		

StiffClip® AL, Recommended Allowable Load (lbs): F3 Load Directions									
Screw Patterns with #12 Screws	AL362			AL600			AL800		
	2 Screws	3 Screws	4 Screws	2 Screws	3 Screws	4 Screws	2 Screws	4 Screws	6 Screws
33mil (20ga), 33ksi Stud	255	407	510	324	495	648	345	690	985
33mil (20ga), 50ksi Stud	369	589	738	469	716	938	499	999	1,425
43mil (18ga), 33ksi Stud	380	606	760	483	737	965	514	1,028	1,467
43mil (18ga), 50ksi Stud	550	877	1,100	698	1,066	1,396	743	1,487	2,122
54mil (16ga), 33ksi Stud	535	853	1,070	679	1,037	1,358	723	1,446	2,064
54mil (16ga), 50ksi Stud	772	1,232	1,545	981	1,498	1,961	1,044	2,089	2,981
68mil (14ga), 50ksi Stud	973	1,553	1,947	1,236	1,888	2,471	1,316	2,632	3,756
97mil (12ga), 50ksi Stud	973	1,553	1,947	1,236	1,888	2,471	1,316	2,632	3,756
118mil (10ga), 50ksi Stud	973	1,553	1,947	1,236	1,888	2,471	1,316	2,632	3,756
Max Allowable Clip Load	**2,458**			**3,015**			**6,128**		

Important notes for StiffClip AL Allowable Load tables continued on next page.

Notes:

1. StiffClip AL is tested to resist loads in horizontal, vertical, and lateral directions.
2. Allowable load tables incorporate eccentric loading of fasteners attached 3/4" from the heel of the clip. Values with welded connection may increase.
3. Allowable loads are for attachment through 3" leg only. Attachment through 1-1/2" leg should be engineered. Reference Material Composition above for calculation purposes.
4. Loads listed reflect force in a single direction. When multiple loads react on the connection, it is the responsibility of the designer to check the interaction of forces.
5. Torsional effects are considered on screw group for F2 and F3 allowable loads. It is assumed that half of the torsional moment is taken by the connection in the short leg and half is taken by the connection in the long leg of StiffClip AL.
6. Allowable loads have not been increased for wind, seismic, or other factors.
7. All guide holes may not require fasteners. Number of fasteneres used is to be determined by designer.
8. Stiffening ribs are not present in StiffClip AL800.
9. For LRFD strengths contact TSN technical services.

Screw Patterns

AL362/600

2 Screw Pattern | 3 Screw Pattern | 4 Screw Pattern

AL800

2 Screw Pattern | 4 Screw Pattern | 6 Screw Pattern

Nomenclature

StiffClip AL is available for various stud depths. To specify, multiply stud depth by 100.*

Example: *6" stud depth*
Designate: *StiffClip® AL600*

** The AL362 fits 3 5/8" and 4" member depths*
*** Stiffening ribs are not present in the AL800.*

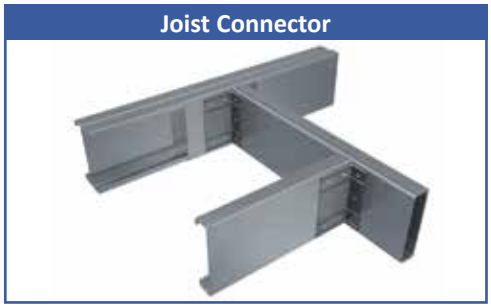
Example Details

Load Bearing Top of Wall

Mansard Truss - Section

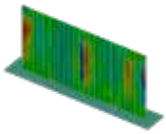
Header Angle Connection

Joist Connector



90° Hip Connector at Roof Ridge

Shed Roof Rafter Tie-Down



StiffClip HE Series
Blast and Seismic Design Data
www.steelnetwork.com

*** For more information or to review a copy of this report, please visit our website at*
http://www.steelnetwork.com/light-steel-framing-design-resources

StiffClip® LS

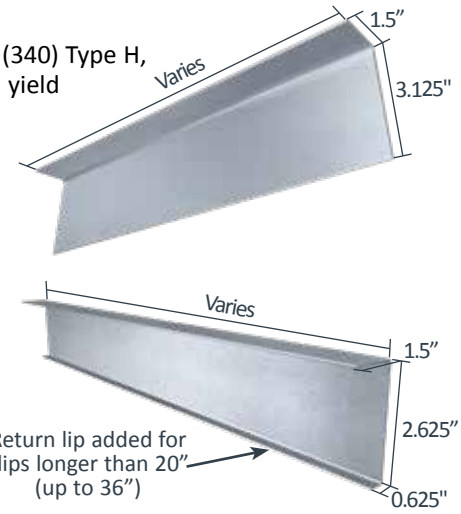
Spandrel/Multi-Purpose

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 68mil minimum thickness (14 gauge, 0.0713" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.

The attachment of StiffClip to the primary structure may be made with PAFs, screw/bolt anchors or weld and is dependent upon the base material (steel or concrete) and the design configuration.



Material Analysis

StiffClip® LS Section Properties							
Designation	Area (in^2)	I_x (in^4)	I_y (in^4)	R_x (in)*	R_y (in)**	S_x (in^3)	S_y (in^3)
StiffClip® LS < 20" Length	0.322	0.341	0.057	1.029	0.419	0.168	0.046
StiffClip® LS > 20" Length	0.323	0.308	0.055	0.978	0.413	0.198	0.046

Notes:

1. StiffClip LS resists axial tension and ocmpression loads.
2. Allowable design loads may be calculated based on the section properties shown above.
3. Lengths greater than 20" incorporate a stiffening lip to increase compressive strength.
4. For powder actuated fasteners, fasten within 3/4" from the angle heel centerline of the 1-1/2" leg.

* Rx = Radius of Gyration about x-x axis.
** Ry = Radius of Gyration about y-y axis.

Nomenclature

StiffClip LS is available in various lengths. To calculate length for spandrel wall connectors, add stud depth, 3" for attachment to steel (5.5" for attachment to concrete), and the distance of construction tolerance. For other applications, simply designate length (in.) multiplied by 100.

Example: *6" stud depth, 4" attachment to structure, 2" tolerance (6+4+2=12)*
Designate: *StiffClip® LS1200*

Example Details

Mansard Truss Connection

Roof Ridge Connection

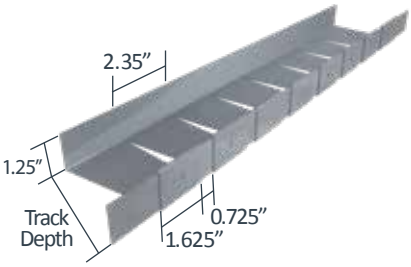
CircleTrak®

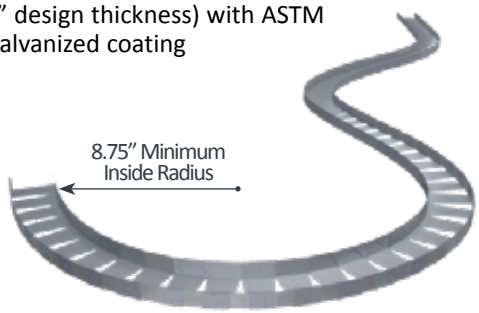
Curved Wall Track

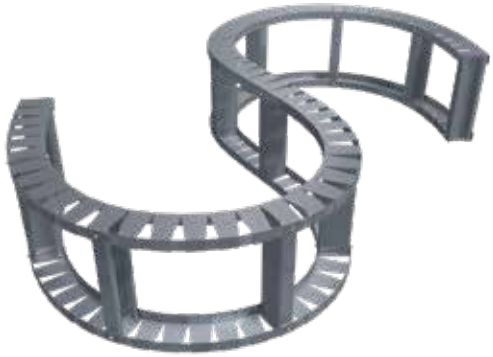
The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 33 (230) Type H, ST33H (ST230H): 33ksi (230MPa) minimum yield strength, 45ksi (310MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating







Product Designation	Thickness			
	Mils	Gauge	Design Thickness	
			in	mm
CircleTrak®	33	20	0.0346	0.878

Nomenclature

CircleTrak is available in 10' lengths and is designated by inside web depth x 100, then style (CT), followed by leg length and then material thickness in mils. Circletrak comes in standard 2.5, 3.5, 3.63, 5.5 and 6" web depths.

Example: *6" inside web depth*
Designate: *600CT125-33*

Example Details

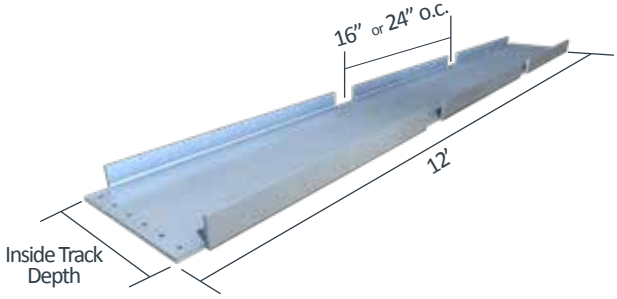
NotchTrak® NT

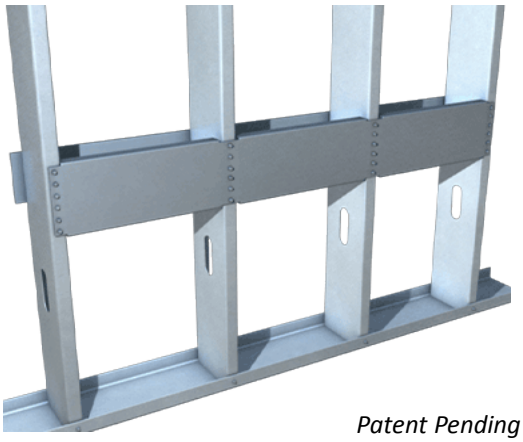
Rigid Wall Backing & Bridging Alternative

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating, or equivalent.





Patent Pending

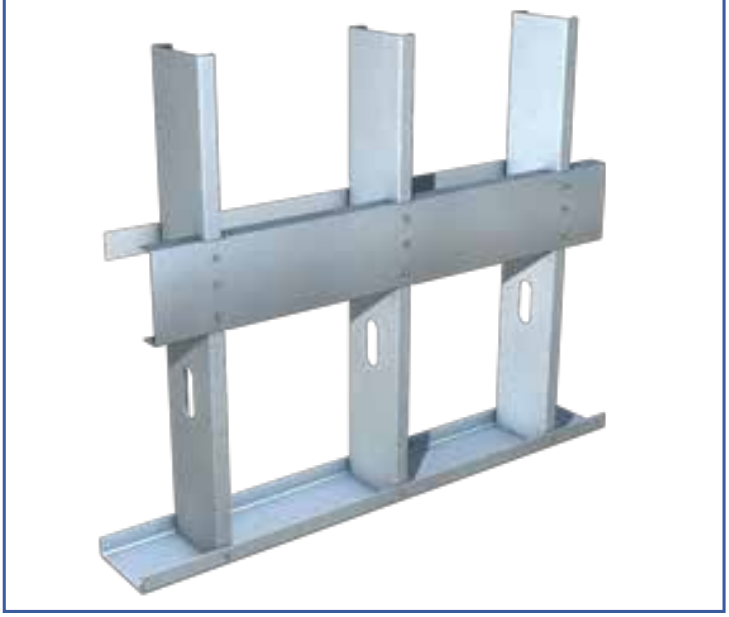
Material Analysis

NotchTrak® NT Section Properties																		
Designation	Gross Properties													Effective Properties 50 ksi				
	Area (Full)	Area (Notch)	I_x	S_x	R_x	I_y	R_y	$Jx10^3$	C_w	R_o	X_o	m	β	A_e (Full)	I_x^1	S_x	M_{xa}	V_a
	(in^2)	(in^2)	(in^4)	(in^3)	(in)	(in^4)	(in)	(in^4)	(in^6)	(in)	(in)	(in)		(in^2)	(in^4)	(in^3)	(lbs-in)	(lbs)
600NT125-43	0.383	0.262	1.861	0.604	2.205	0.044	0.337	0.260	0.307	2.289	-0.513	0.335	0.950	0.159	1.745	0.403	12,060	1,380
600NT125-54	0.480	0.329	2.345	0.757	2.209	0.054	0.335	0.513	0.384	2.292	-0.508	0.332	0.951	0.243	2.300	0.593	17,760	2,730
600NT125-68	0.605	0.414	2.971	0.951	2.216	0.067	0.332	1.025	0.483	2.296	-0.503	0.329	0.952	0.370	2.971	0.859	25,730	5,350
800NT125-43	0.473	0.352	3.773	0.925	2.824	0.046	0.311	0.321	0.589	2.874	-0.436	0.292	0.977	0.162	3.402	0.553	16,550	1,030
800NT125-54	0.594	0.442	4.747	1.158	2.828	0.057	0.309	0.634	0.735	2.877	-0.432	0.289	0.977	0.248	4.617	0.824	24,680	2,040
800NT125-68	0.748	0.557	6.001	1.455	2.833	0.070	0.307	1.267	0.920	2.882	-0.427	0.286	0.978	0.381	6.001	1.217	36,430	4,090

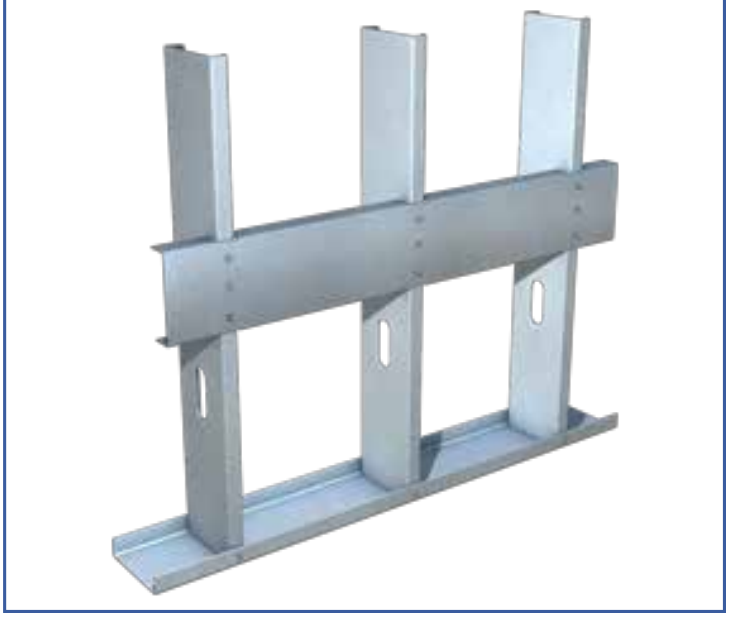
[1]Effective moment of inertia, I_x, is calculated at a stress level equal to 0.6 F_y (service load level).

Example Details

NotchTrak® Used For Wall Bridging[1, 2]



NotchTrak® Used For Wall Backing



[1] Use NotchTrak in conjunction with flat strap and blocking where applicable
[2] Design screw connection of track to stud for actual design load

NotchTrak® allowable load tables continued on next page.

Nomenclature

NotchTrak is manufactured in 12 ft. lengths. NotchTrak is designated by track depth in inches multiplied by 100, followed by type (NT), leg size, mil thickness and notch spacing.

Example:

600	NT	125	-	43	-	16oc
(Inside Track Dimension)	(NotchTrak)	(Leg)		(Thickness)		(Notch Spacing)

** Special lengths available by request.*

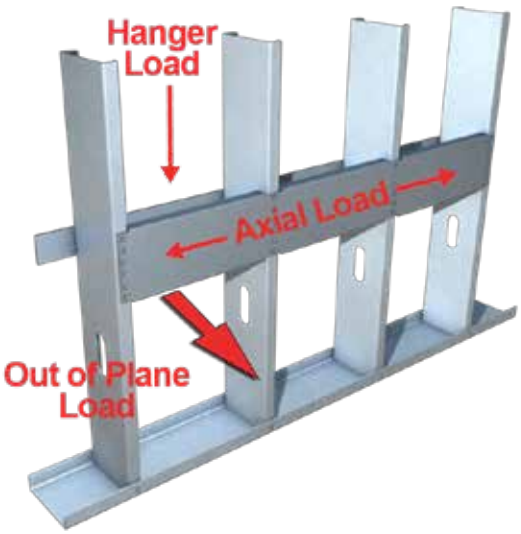
NotchTrak NT Allowable Loads

NotchTrak® NT, Recommended Allowable Load (lbs): Hanger Load Direction												
Screw Patterns with #12 Screws	16" O.C. Stud Spacing						24" O.C. Stud Spacing					
	NT43		NT54		NT68		NT43		NT54		NT68	
	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws
33mil (20ga), 33ksi Stud	1,319	1,030	1,319	1,884	1,319	1,884	1,319	1,030	1,319	1,884	1,319	1,884
33mil (20ga), 50ksi Stud	1,377	1,030	1,905	2,039	1,905	2,722	1,377	1,030	1,905	2,039	1,905	2,722
43mil (18ga), 33ksi Stud	1,377	1,030	1,963	2,039	1,963	2,804	1,377	1,030	1,963	2,039	1,963	2,804
43mil (18ga), 50ksi Stud	1,377	1,030	2,728	2,039	2,836	4,051	1,377	1,030	2,728	2,039	2,836	4,051
54mil (16ga), 33ksi Stud	1,377	1,030	2,728	2,039	2,760	3,943	1,377	1,030	2,728	2,039	2,760	3,943
54mil (16ga), 50ksi Stud	1,377	1,030	2,728	2,039	3,986	4,087	1,377	1,030	2,728	2,039	3,986	4,087
68mil (14ga), 50ksi Stud	1,377	1,030	2,728	2,039	5,019	4,087	1,377	1,030	2,728	2,039	4,135	4,087
97mil (12ga), 50ksi Stud	1,377	1,030	2,728	2,039	5,019	4,087	1,377	1,030	2,728	2,039	4,135	4,087
Max Allowable Member Load	**1,377**	**1,030**	**2,728**	**2,039**	**5,019**	**4,087**	**1,377**	**1,030**	**2,728**	**2,039**	**4,135**	**4,087**

NotchTrak® NT, Recommended Allowable Load (lbs): Axial Load Direction						
Screw Patterns with #12 Screws	16" & 24" O.C. Stud Spacing					
	NT43		NT54		NT68	
	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws	6" w/ 7 Screws	8" w/ 10 Screws
33mil (20ga), 33ksi Stud	1,319	1,884	1,319	1,884	1,319	1,884
33mil (20ga), 50ksi Stud	1,529	2,064	1,905	2,722	1,905	2,722
43mil (18ga), 33ksi Stud	1,529	2,064	1,963	2,804	1,963	2,804
43mil (18ga), 50ksi Stud	1,529	2,064	2,836	4,051	2,836	4,051
54mil (16ga), 33ksi Stud	1,529	2,064	2,760	3,943	2,760	3,943
54mil (16ga), 50ksi Stud	1,529	2,064	3,022	4,080	3,986	5,695
68mil (14ga), 50ksi Stud	1,529	2,064	3,022	4,080	5,019	7,170
97mil (12ga), 50ksi Stud	1,529	2,064	3,022	4,080	5,019	7,170
Maximum Allowable Member Load	**1,529**	**2,064**	**3,022**	**4,080**	**5,019**	**7,170**

NotchTrak® NT, Recommended Allowable Out of Plane Load (lbs): Lateral Load Direction						
Screw Patterns with #12 Screws	16" O.C. Stud Spacing			24" O.C. Stud Spacing		
	NT43	NT54	NT68	NT43	NT54	NT68
33mil (20ga), 33ksi Stud	73	155	324	48	104	219
33mil (20ga), 50ksi Stud	73	155	324	48	104	219
43mil (18ga), 33ksi Stud	73	155	324	48	104	219
43mil (18ga), 50ksi Stud	73	155	324	48	104	219
54mil (16ga), 33ksi Stud	73	155	324	48	104	219
54mil (16ga), 50ksi Stud	73	155	324	48	104	219
68mil (14ga), 50ksi Stud	73	155	324	48	104	219
97mil (12ga), 50ksi Stud	73	155	324	48	104	219
Max Allowable Member Load	**73**	**155**	**324**	**48**	**104**	**219**

Load Direction



Notes:

1. NotchTrak NT resists weak axis buckling and torsional rotation of members.
2. Table data is based on 1-1/4" track leg, but other leg sizes are available to obtain higher capacities.
3. Meets OSHA and IBC load requirements.
4. Meets OSHPD 2013 CBC Standard Backing Details for Cabinets and Grab Bars (Details ST5.00 and ST5.03).
5. For LRFD strengths contact TSN technical services.

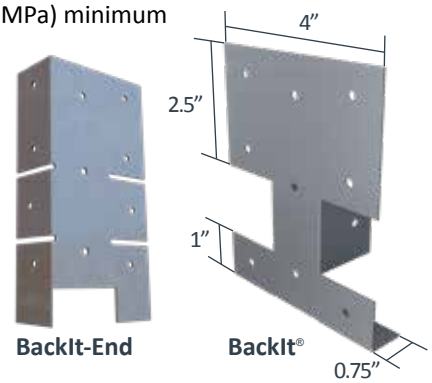
BackIt®

Rigid Wall Backing

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (340) Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 43mil minimum thickness (18 gauge, 0.0451" design thickness) with ASTM A653/A653M G60 (Z180) hot dipped galvanized coating.



BackIt-End BackIt®

US Patent #7,559,519

BackIt Allowable Loads

BackIt®, Recommended Allowable Load (lbs) (in-lbs or in-lbs/rad): F2 & F3 & M1 Load Direction						
Screw Patterns with #12 Screws	F2 Load Direction (lbs)		F3 Load Direction (lbs)		M1 Load Direction	
	2 Screws	3 Screws	2 Screws	3 Screws	Moment 3 Screws	Stiffness up to 0.02 rad
18mil (25ga), 33ksi Stud	-	156*	-	225	221	16,800
27mil (22ga), 33ksi Stud	-	234	278	417	332	
30mil (20ga-Drywall), 33ksi Stud	-	258	322	483	366	
33mil (20ga-Structural), 33ksi Stud	-	285	376	564	404	
33mil (20ga), 50ksi Stud	276	391	544	816	587	
43mil (18ga), 33ksi Stud	248	372	560	840	527	
43mil (18ga), 50ksi Stud	358	391	810	1,215	761	
54mil (16ga), 33ksi Stud	312	391	822	1,233	663	
54mil (16ga), 50ksi Stud	391	391	1,140	1,388	956	
68mil (14ga), 50ksi Stud	391	391	1,140	1,388	967	
97mil (12ga), 50ksi Stud	391	391	1,140	1,388	967	
Maximum Allowable Clip Load	**391**		**1,388**		**967**	

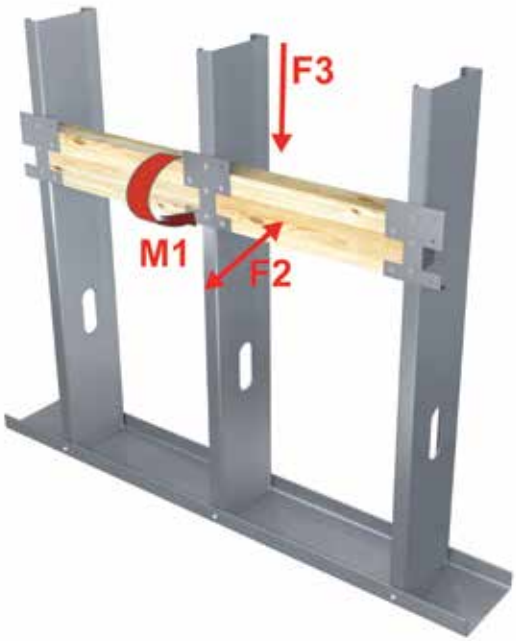
Notes:

1. The recommended allowable loads and moments reported in this table are for the clip and attachment to the stud only. The attachment to the backing material must be designed by a design professional.
2. For LRFD strengths contact TSN technical services.

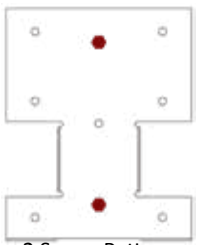
*Additional screws may be added to increase the allowable load. F2 value with (4) #12 screws is 207 lbs.

IBC (International Building Code) and OSHA (Occupational Safety and Health Administration) load requirements include the ability of wall backing to resist a minimum of 200 lbs of concentrated load, or 50 lbs per linear foot in any direction. BackIt satisfies the load requirements in vertical (F3) and horizontal (F2) directions. Extra testing has been done in the rotational (M1) direction. Product test reports are available upon request. Contact TSN Technical Support at (888) 474-4876 for more information.

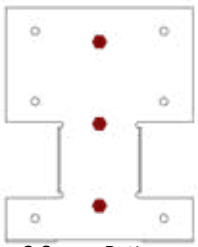
Load Direction



Screw Patterns



2 Screw Pattern



3 Screw Pattern

Nomenclature

BackIt is designed to be used with studs having flanges up to 1 5/8" wide*, and is designated *BackIt®*.

** Custom clips are available by request for use with studs having flanges greater than 1 5/8"*

***Also Available by Request: End-of-Run BackIt® to finish walls with a flat angle*

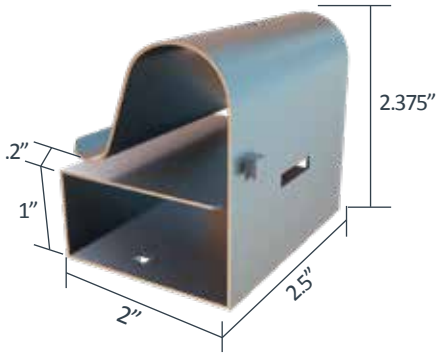
GripClip®

Column/Beam Connector

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50, Type H, ST50H (ST340H): 50ksi (340MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, 33mil minimum thickness (20 gauge, 0.0346" design thickness) with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating.



Column Fire Resistance Design Numbers:

(1) Hour Rating is GC001.
(1-1/2) Hour Rating is GC001.5.
See Design Number downloads on TSN GripClip product page.
Contact TSN Sales and Engineering for performance evaluation reports.

Nomenclature

Standard GripClip is shown above with maximum 'grip' of 7/8".
Contact TSN Sales and Engineering for increased 'grip' sizes.

Patent # 8,132,383

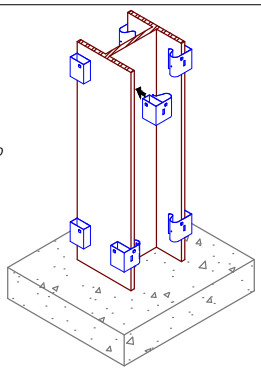
Example Details

Drywall GripClip® Installation Instructions
For the Attachment of Gypsum Wallboard to Steel Columns and Beams

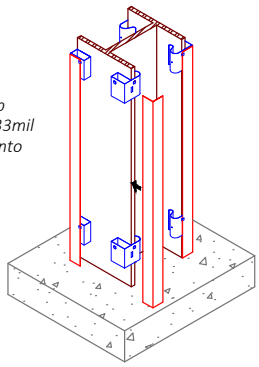
GripClip®

Slide GripClip® onto the flanges of the column or beam at the specified spacing.

Face the box shaped portion of GripClip® to the outside of the flanges.

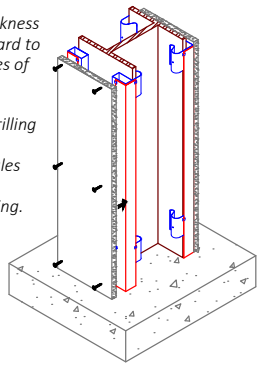


If required, snap 1-1/2"x1-1/2"-33mil or other angle into GripClip® tabs.



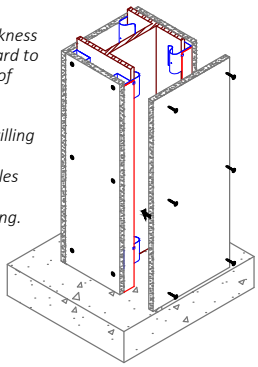
Trim specified thickness of gypsum wallboard to size for flange sides of column or beam.

Attach with self drilling screws through 1-1/2"x1-1/2" angles and GripClip® at the specified spacing.

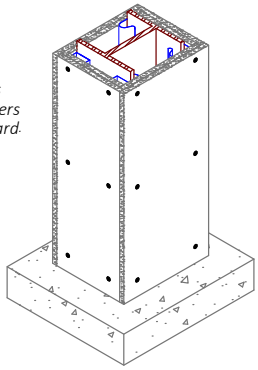


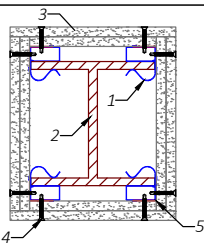
Trim specified thickness of gypsum wallboard to size for web sides of column or beam.

Attach with self drilling screws through 1-1/2"x1-1/2" angles and GripClip® at the specified spacing.



Finish with the specified thickness and number of layers of gypsum wallboard.





Cross-Section of Finished Assembly:

Item	Description
1.	GripClip®
2.	Column or beam
3.	Gypsum wallboard (Thickness and number of layers as specified)
4.	Self-drilling screws
5.	1-1/2"x1-1/2" Angle

For Installation, Technical, or Submittal questions, contact TSN at (888) 474-4876 or email us at support@steelnetwork.com

Visit www.steelnetwork.com and discover the value of each TSN solution.

US Patent #8,132,383
Rev 3 - 2-10-25

Products in these instructions are designed and manufactured for the specific purposes shown, and should not be used in other applications unless approved by a qualified design professional. All modifications to products or changes in installation procedures should be made by a qualified design professional. The performance of such modified products or altered installation procedures is the sole responsibility of the design professional or installation contractor. The installation contractor is responsible for installing all products in accordance with relevant specifications and building codes.

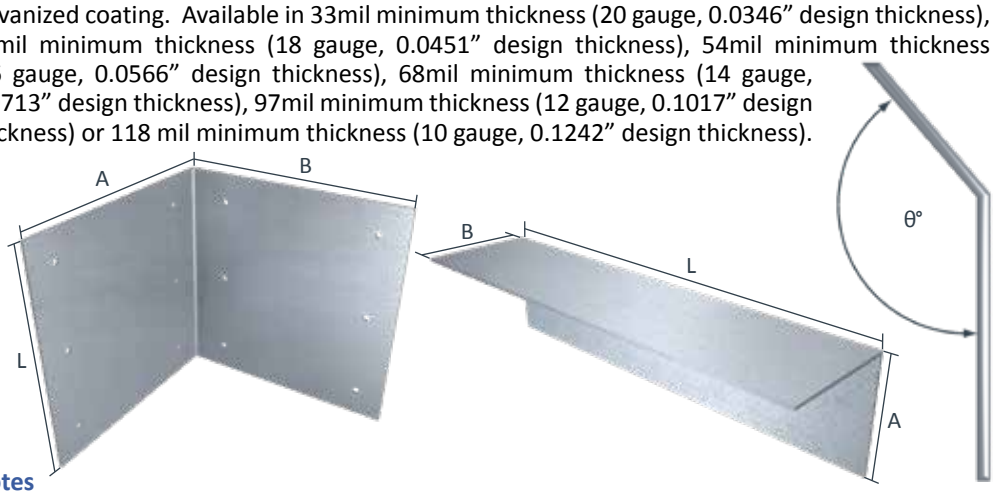
Common Clip Angle

Common Angle For All Applications

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (345) 50ksi (345MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating. Available in 33mil minimum thickness (20 gauge, 0.0346" design thickness), 43mil minimum thickness (18 gauge, 0.0451" design thickness), 54mil minimum thickness (16 gauge, 0.0566" design thickness), 68mil minimum thickness (14 gauge, 0.0713" design thickness), 97mil minimum thickness (12 gauge, 0.1017" design thickness) or 118 mil minimum thickness (10 gauge, 0.1242" design thickness).



Notes

- The Steel Network is equipped to manufacture cold-formed steel connections of any size and shape. Some examples of common clip angle manufactured and stocked are shown below.
- Most common stocked angles come pre-punched for easier installation, although holes are not required.
- Contact TSN Sales for range of custom clip bend angles and for assistance designing custom products for special applications or requirements. Please allow reasonable time for production of all custom parts.
- Any thickness up to & including 10ga (118mil)
- Structural testing is available upon request.

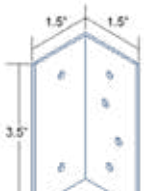
Nomenclature

Clip angle can be manufactured to any specifications, however TSN stocks some more common sizes. Angle is classified with the letter "L" followed by (Leg A) x (Leg B) x length (inches), then mil thickness.

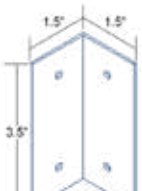
Example: *Leg A = 3", Leg B = 3", Length = 5 ½", 54 mil material*
Designate: *L3x3x5.5-54*

** Special product drawings are required for all non-standard products.*

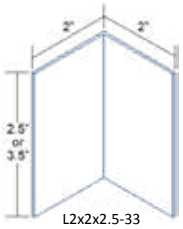
Example Standard Common Clip Angle Details



L1.5x1.5x3.5-54
L1.5x1.5x3.5-68



L1.5x1.5x3.5-97



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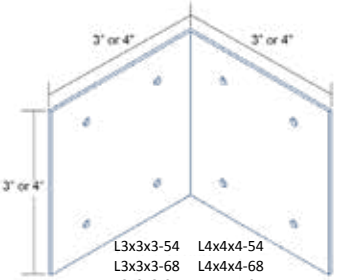
L2x2x3.5-33



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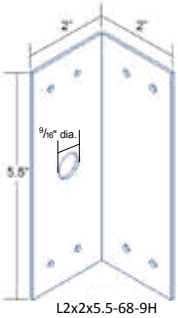
L3x3x3-68 L4x4x4-68
L3x3x3-97 L4x4x4-97

L1.5x1.5x5.5-54
L1.5x1.5x5.5-68
L2x2x5.5-54
L2x2x5.5-68

L1.5x1.5x5.5-97
L2x2x5.5-97



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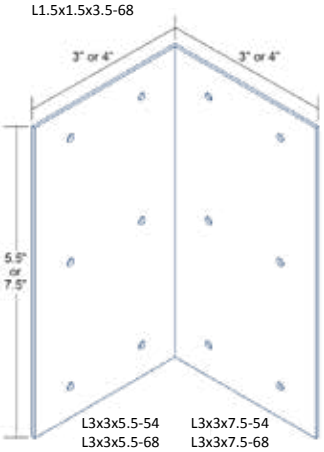

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L3x3x5.5-68 L3x3x7.5-68
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L4x4x5.5-54 L4x4x7.5-54
L4x4x5.5-68 L4x4x7.5-68
L4x4x5.5-97 L4x4x7.5-97

L1.5x1.5x7.5-54
L1.5x1.5x7.5-68
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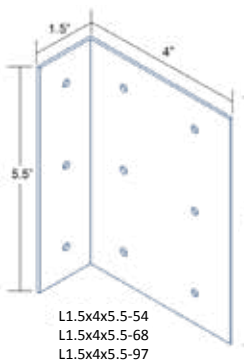
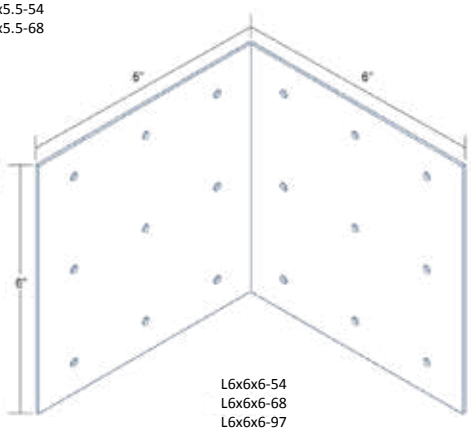
L2x2x7.5-97



L1.5x4x5.5-54
L1.5x4x5.5-68
L1.5x4x5.5-97



L6x6x6-54
L6x6x6-68
L6x6x6-97

Custom Connectors

Specialized Products For All Applications

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

Material Composition

ASTM A1003/A1003M Structural Grade 50 (345) 50ksi (345MPa) minimum yield strength, 65ksi (450MPa) minimum tensile strength, with ASTM A653/A653M G90 (Z275) hot dipped galvanized coating. Available in 33mil minimum thickness (20 gauge, 0.0346" design thickness), 43mil minimum thickness (18 gauge, 0.0451" design thickness), 54mil minimum thickness (16 gauge, 0.0566" design thickness), 68mil minimum thickness (14 gauge, 0.0713" design thickness), 97mil minimum thickness (12 gauge, 0.1017" design thickness) or 118 mil minimum thickness (10 gauge, 0.1242" design thickness).

Notes

- The Steel Network is equipped to manufacture cold-formed steel connections of any size and shape. Some examples of custom products manufactured are shown and described below.
- Please allow reasonable time for production of all custom parts.
- Structural testing is available upon request.
- Contact TSN for assistance designing custom products for special applications or requirements.

Nomenclature

Contact TSN with product requirements

** Special product drawing is required for all non-standard products.*

Example Details

Custom VertiClip® SLB

Unique condition brought to TSN by Specialty Engineer. TSN helped design a solution and test & fabricate clips.

Custom VertiClip® Splice (Notched)

Unique condition brought to TSN by Specialty Engineer. TSN helped design a solution and test & fabricate clips.

Custom VertiClip® Splice (Angled)

Unique condition brought to TSN by Specialty Engineer. TSN helped design a solution and test & fabricate clips.

Custom VertiClip® Splice

Connector for parallel wall studs. One stud rigidly attached to wall stud. The other stud accommodates vertical deflection of the primary structural frame.

Custom VertiClip® SLS (extra long)

Retrofit situation where a stud does not run full height, creating a situation where a modified VertiClip SLS was lengthened to bridge a large gap from the structure of 26".

Custom VertiTrak® VTD (VertiClip® SLD with Elongated Slots)

VertiTrack VTD modified to accommodate 4" slots in VertiClip SLD provides an effective, efficient solution for large demising walls typically seen in retail stores and theaters.

Blast & Seismic Design

Load Tables

The Steel Network, Inc.
www.steelnetwork.com
1-888-474-4876

VertiClip® Series (lbs)				
Connector	Load Direction	LRFD Design Strength (lbs)	Nominal Strength (lbs)	Ultimate Strength (lbs)
SL362	F1	397	441	721
	F2	1,700	1,889	2,680
SL400	F1	318	353	600
	F2	1,817	2,019	3,074
SL600	F1	588	653	1,068
	F2	2,690	2,989	4,251
SL800	F1	579	643	1,052
	F2	2,990	3,322	4,730
SL1000	F1	664	738	1,206
	F2	2,521	2,801	4,266
SL1200	F1	611	679	1,110
	F2	2,863	3,182	4,845
SLD150	F2	82	91	139
SLD250	F2	254	282	430
SLD362/400	F2	575	639	973
SLD600	F2	650	722	1,302
SLD800	F2	1,091	1,212	1,844
SLB250	F1	362	402	612
	F2	2,509	2,788	4,245
SLB362	F1	362	402	612
	F2	2,560	2,788	4,245
SLB600	F1	362	402	612
	F2	2,560	2,844	4,245
SLB600-HD (2) ¼" Anchor	F1	374	416	679
	F2	1,901	2,112	3,216
SLB600-HD (1) ½" Anchor	F1	375	417	673
	F2	1,606	1,785	2,718
SLB800	F1	440	489	745
	F2	2,509	2,788	4,254
SLB1000	F2	2,430	2,700	4,112
SLB1200	F2	2,430	2,700	4,112
SLBxxx-10, -12	F2	2,430	2,700	4,112
SLS362/400-9, -12	F2	1,991	2,212	3,821
SLS600-12	F2	3,315	3,683	5,237
SLS600-15, -18, -20	F2	3,398	3,577	5,750
SLS600-24	F2	3,036	3,373	5,137
SLS800-12, -15, -18, -20	F2	2,909	3,232	4,922
SLT9.5	F1	546	607	991
	F2	820	911	1,492
SLT(L)-12	F1	784	871	1,422
	F2	1,446	1,606	2,446
SLT(L)-15	F1	784	871	1,422
	F2	1,191	1,324	2,016
SLT(L)-18	F1	784	871	1,422
	F2	1,120	1,244	2,026
SLT(S)	F1 (Back Fasteners)	451	501	814
	F2 (Back Fasteners)	1,469	1,632	2,485
	F1 (Back Fasteners)	631	701	1,068
	F2 (Back Fasteners)	1,425	1,584	2,412
Splice600	F2	2,126	2,363	3,598
	F3	3,888	4,320	6,578
Splice800	F2	2,126	2,363	3,598
	F3	3,639	4,044	6,158

Notes:

LStrength values provided are those of the clip only (One clip). Attachment to stud framing and to structure must be evaluated independently.

Nominal Strength is calculated as LRFD Strength divided by an average resistance factor of 0.9.

Ultimate Strength is the average maximum load obtained from tests. When dynamic analysis is used for blast design, the Nominal Strength may be allowed to be increased by a Static Increase Factor (SIF) and a Dynamic Increase Factor (DIF).

Background

Various specifications and design standards allow the use of nominal strength of material when calculating resistance values of components for special blast or seismic design. Beyond the use of nominal strength, some design codes allow the use of an increased nominal strength or an increased expected strength. The Steel Network has developed the following tables to present the LRFD design strength, nominal strength, and ultimate strength for each connector manufactured which can be used in special seismic and blast design and are compatible with the Static and Dynamic Strength Increase factors.

For additional information the full tech note, Strength Tables for Special Seismic and Blast Design of Cold Formed Steel Connections is available at **www.steelnetwork.com/Site/TechnicalNotes**

MasterClip® Series (lbs)				
Connector (Application)	Load Direction	LRFD Design Strength	Nominal Strength	Ultimate Strength
VLB600 (Vertical Deflection)	F1	362	402	661
	F2	2,509	2,788	4,245
VLB600 (Rigid Connection)	F1	1,481	1,646	2,506
	F2	3,297	3,664	5,579
	F3	2,869	3,188	4,855
VLB800 (Vertical Deflection)	F1	440	489	745
	F2	2,509	2,788	4,245
VLB800 (Rigid Connection)	F1	1,576	1,751	2,667
	F2	3,586	3,984	6,067
	F3	2,032	2,258	3,438

DriftClip® Series (lbs)					
Connector	Load Direction	Fastener Pattern	LRFD Design Strength (lbs)	Nominal Strength (lbs)	Ultimate Strength (lbs)
DSLB362, 600, 800	F2	1	1,467	1,630	2,317
		2	916	1,018	1,663
DSLS362/400-9	F2	1	1,536	1,707	2,787
		2	1,507	1,674	2,735
DSLS362/400-12	F2	1	1,977	2,197	3,588
		2	1,722	1,913	3,126
DSLS600-10	F2	1	1,924	2,138	3,864
		2	1,627	1,808	2,952
DSLS600-12	F2	1	2,980	3,311	4,707
		2	2,787	3,097	4,405
DSLS600-15[1]	F2	1	3,044	3,382	4,811
		2	3,044	3,382	4,811
DSLS600-20[1]	F2	1	3,582	3,980	4,811
		2	2,664	2,960	4,507
DSLS800-12	F2	1	1,859	2,066	3,374
		2	1,850	2,056	3,358
DSLS800-15	F2	1	3,026	3,362	5,492
		2	1,915	2,128	3,475
DSLS800-20	F2	1	2,917	3,241	5,492
		2	1,991	2,212	4,123
DSLD362	F2	1	186	207	317
		2	85	94	141
DSLD600[1]	F2	1	285	317	481
		2	285	317	481
DSLD800	F2	1	318	354	578
		2	294	327	858
DSL362	F2	1	796	884	1,320
		2	397	441	720
DSL600[1]	F2	1	1,241	1,379	2,254
		2	1,665	1,850	3,023
DSL800[1]	F2	1	1,665	1,850	3,023
		2	1,467	1,630	2,317

Visit **www.steelnetwork.com/Site/TechnicalNotes** to view the full technical note on Blast and Seismic Design.

DriftClip® Series (lbs)					
Connector	**Load Direction**	**Fastener Pattern**	**LRFD Strength (lbs)**	**Nominal Strength (lbs)**	**Ultimat Strength (lbs)**
DT w/ DTSL	F2	8" Fastener Spacing - Pattern 1	1,001	1,112	1,807
		8" Fastener Spacing - Pattern 2	771	857	1,303
		16" Fastener Spacing - Pattern 2	1,001	1,112	1,807
		16" Fastener Spacing - Pattern 2	774	860	1,309
DT w/ DTSLB362/400, DTSLB600, DTSLB800	F2	8" Fastener Spacing - Pattern 2	1,293	1,437	2,186
		16" Fastener Spacing - Pattern 2	1,206	1,340	2,040
DT w/ DTSLB362/400-HD, DTSLB600-HD, DTSLB800-HD,	F2	8" Fastener Spacing - Pattern 1 & 2	2,591	2,879	4,384
		16" Fastener Spacing - Pattern 1 & 2	1,640	1,822	2,775
DT w/ DTLB362/400	F2	8" Fastener Spacing	1,613	1,792	2,729
	F3		1,859	2,065	3,145
DT w/ DTLB600	F2	8" Fastener Spacing	1,914	2,126	2,935
	F3		2,803	3,115	4,743
DT w/ DTLB800	F2	8" Fastener Spacing	1,914	2,126	2,935
	F3		2,037	2,264	3,447
DT w/ DTLB362/400-HD	F2	8" Fastener Spacing	2,104	2,338	3,560
	F3		1,859	2,065	3,145
DT w/ DTLB600-HD	F2	8" Fastener Spacing	2,796	3,106	4,288
	F3		2,803	3,115	4,743
DT w/ DTLB800-HD	F2	8" Fastener Spacing	2,796	3,106	4,288
	F3		2,037	2,264	3,447
DTH w/ DTSLB362/400-HD, DTSLB600-HD, DTSLB800-HD,	F2	Headed Stud	2,649	2,943	4,063
DTH w/ DTLB362/400-HD	F2	Headed Stud	2,649	2,943	4,063
	F3		1,859	2,065	3,145
DTH w/ DTLB600-HD	F2	Headed Stud	2,649	2,943	4,063
	F3		3,047	3,386	4,674
DTH w/ DTLB800-HD	F2	Headed Stud	2,649	2,943	4,063
	F3		2,037	2,264	3,447
PTS w/ DTSLB600-PTS, DTSLB800-PTS	F2 Bottom of Slab Installation	Headed Stud – PTS	1,726	1,918	2,701
	F2 Top of Slab Installation		1,856	2,062	3,912
PTS w/ DTLB600-PTS	F2 Bottom of Slab Installation	Headed Stud – PTS	1,815	2,017	2,784
	F2 Top of Slab Instal-lation		2,165	2,406	3,321
	F3		1,856	2,062	2,846
PTS w/ DTLB800-PTS	F2 Bottom of Slab Installation	Headed Stud – PTS	1,775	1,973	2,723
	F2 Top of Slab Installation		2,120	2,355	3,251
	F3		1,599	1,777	2,453

Notes:

1 Strength values limited by corresponding 8” fastener spacing.
2. Strength values provided are those of the clip only (One clip). Attachment to stud framing and to structure must be evaluated independently.
3. Nominal Strength is calculated as the LRFD Strength divided by an average resistance factor of 0.9.
4. Ultimate Strength is maximum load obtained from tests.
5. When dynamic analysis is used for blast design, the Nominal Strength may be allowed to be increased by a Static Increase Factor (SIF) and a Dynamic Increase Factor (DIF).

StiffClip® Series (lbs or in-lbs)				
Connector	Load Direction	LRFD Design Strength	Nominal Strength	Ultimate Strength
AL362	F1	1,562	1,736	2,643
	F2	2,354	2,616	3,983
	F3	3,937	4,374	6,661
AL600	F1	1,388	1,542	2,348
	F2	3,493	3,882	5,911
	F3	4,830	5,366	8172
AL800	F1	2,827	3,141	4,784
	F2	4,022	4,469	6,806
	F3	9,798	10,887	16,579
LB362	F1	1,641	1,823	2,776
	F2	3,297	3,664	5,579
	F3	4,256	4,729	7,202
LB600	F1	1,481	1,646	2,506
	F2	3,297	3,664	5,579
	F3	3,080	3,423	5,212
LB800	F1	1,576	1,751	2,667
	F2	3,297	3,664	5,579
	F3 (4 #12 Screws Max.)	2,032	2,258	3,438
	F3 (10 #12 Screws Max.)	6,188	6,875	10,470
LB800-4" Offset	F1	1,993	2,214	3,617
	F2	3,297	3,664	5,579
	F3	2,496	2,773	4,223
LB1000	F1	1,465	1,627	2,658
	F2	2,270	2,522	4,120
	F3	2,872	3,191	4,859
LB1000 - 4" Offset	F1	1,465	1,627	2,658
	F2	2,270	2,522	4,120
	F3	2,506	2,784	4,240
LB1200	F1	1,465	1,627	2,658
	F2	2,270	2,522	4,120
	F3	3,041	3,379	5,146
LB600-HD, (2) ¼" Screws	F1	1,764	1,959	2,984
	F2	1,810	2,011	3,062
	F3	3,149	3,499	5,328
HE(L)	F2	1,003	1,114	1,696
	F3	4,901	5,446	8,293
HE(H)	F2	1,739	1,932	2,943
	F3	8,880	9,867	15,026
HE(S)	F2	1,739	1,932	2,943
	F3	4,753	5,281	8,043
HS362*	F2*	4,420	8,840	11,492
	F3	1,773	1,970	3,000
HS600*	F2*	6,630	13,260	17,238
	F3	2,943	3,270	4,980
HS800*	F2*	6,630	13,260	17,238
	F3	3,885	4,317	6,574

StiffClip® Series (lbs or in-lbs)				
Connector	Load Direction	LRFD Design Strength	Nominal Strength	Ultimate Strength
CL362/400-118	F1	2,267	2,519	4,122
	F2	3,071	3,412	4851
	F3	1,842	2,047	3,349
	M1 (in-lbs)	2,888	3,209	5,251
CL362/400-118	F1	3,880	4,311	6,129
	F2	7,090	7,878	11,201
	F3	3,611	4,012	6,565
	M1 (in-lbs)	6,299	6,999	11,453
CL362/400-118H	F1	4,160	4,622	6,572
	F2	7,973	8,858	12,595
	F3	9,150	10,167	14,455
	M1 (in-lbs)	10,750	11,944	19,545
CL600-68	F1	2,275	2,528	3,594
	F2	4,020	4,467	6,351
	F3	1,932	2,147	3,513
	M1 (in-lbs)	4,978	5,531	9,050
CL600-118	F1	4,131	4,590	7,147
	F2	6,578	7,308	10,391
	F3	3,561	3,956	6,474
	M1 (in-lbs)	9,126	10,140	16,592
CL600-118H	F1	6,659	7,399	10,520
	F2	10,337	11,485	16,330
	F3	9,620	10,689	15,197
	M1 (in-lbs)	9,958	11,065	18,106
CL800-68	F1	2,298	2,553	3,630
	F2	4,263	4,736	6,734
	F3	1,724	1,916	3,135
	M1 (in-lbs)	4,578	5,086	8,323
CL800-118	F1	5,375	5,972	8,491
	F2	1z	11,406	16,217
	F3	4,270	4,744	8,291
	M1 (in-lbs)	13,170	14,634	23,946
CL800-118H	F1	7,713	8,570	12,185
	F2	13,251	14,723	20,933
	F3	11,925	13,250	18,839
	M1 (in-lbs)	17,834	19,815	32,425
TD	F3	15,722	17,469	19,127

Notes:

* Clip connectors and load directions have their LRFD, nominal, and ultimate strength values all calculated using AISI S100-16 provisions.

1. Strength values provided are those of the clip only (One clip). Attachment to stud framing and to structure must be evaluated independently.
2. Nominal Strength is calculated as LRFD Strength divided by an average resistance factor of 0.9.
3. Ultimate Strength is the average maximum load obtained from tests.
4. When dynamic analysis is used for blast design, the Nominal Strength may be allowed to be increased by a Static Increase Factor (SIF) and a Dynamic Increase Factor (DIF).

MidWall® Series (lbs)				
Connector	Load Direction	LRFD Design Strength	Nominal Strength	Ultimate Strength
250MW	M1 (in-lbs)	9,855	10,950	12,288
362MW	M1 (in-lbs)	25,567	28,408	31,104
600MW	M1 (in-lbs)	31,328	34,809	38,112

Notes:

1. Strength values provided are those of the clip only (One clip). Attachment to stud framing and to structure must be evaluated independently.
2. Nominal Strength is calculated as LRFD Strength divided by an average resistance factor of 0.9.
3. Ultimate Strength is the average maximum load obtained from tests.
4. When dynamic analysis is used for blast design, the Nominal Strength may be allowed to be increased by a Static Increase Factor (SIF) and a Dynamic Increase Factor (DIF).

Building Codes & Fire Ratings

Building Code Reference

ICC-ES

The Steel Network assisted the ICC-ES in the development of AC261, "Acceptance Criteria for Connectors Used with Cold-Formed Steel Structural Members," which establishes test protocols and requirements for connections used in cold-formed steel assemblies. TSN provides structural test reports for each connector product which are in compliance with the listed criteria.

2021 IBC (Section 715.2):

Installation: A fire-resistant joint system shall be securely installed in accordance with the manufacturer's installation instructions and the listing criteria in or on the joint for its entire length so as not to impair its ability to accommodate expect building movements and to resist the passage of fire and hot gases.

2021 IBC (Section 715.3.1):

Fire test criteria: Fire-resistant joint systems shall be tested in accordance with the requirements of either ASTM E1966 or UL 2079.

ICC-ES Evaluation Reports for select VertiClip®, DriftClip® & DriftTrak® products are available. Refer to ICC-ES ESR-2049 at www.icc-es.org or at www.steelnetwork.com

A New York MEA Acceptance for VertiClip SLD & VertiTrack® VTD is available. Refer to MEA-326-06-M.

Fire Rating Criteria

Full-height interior partitions are often required to be fire-rated. Fire-resistive joint systems require movement capabilities at head of wall. UL 2079 is a test standard for fire-resistive joint systems and includes requirements for the system's ability to allow building movement. Since the runner track or deflection channel in UL HW-D (Head of Wall-Dynamic) fire-resistive joint system assemblies provide closure to the assembly and must be fire tested for each assembly, the clip components of the assembly must only satisfy the criteria for cyclic movement. The Steel Network's VertiClip® SLD and DriftClip® DSLD series clips both satisfy the criteria for cyclic movement and are classified for use in all UL 2079 rated assemblies with a 1 or 2 hour ratings and up to 1-1/2" of deflection for SLD and 2" of deflection for DSLD. The Steel Network's VertiTrack® VTD, VTX and VT are also classified for use in certain UL HW-D fire-resistive joint system assemblies as listed below.

UL®-Classified Assemblies

VertiClip® SLD150, SLD250, SLD362, SLD400, SLD600 and SLD800 installed with standard ceiling runners or generic deflection channels are classified for use in all UL 2079 rated Head of Wall-Dynamic joint systems rated for 1 or 2 hours with maximum movement capabilities of ¾" compression and ¾" extension.

DriftClip® DSLD362/400, DSLD600 and DSLD800 installed with standard ceiling runners or generic deflection channels are classified for use in all UL 2079 rated Head of Wall-Dynamic joint systems rated for 1 or 2 hours with maximum movement capabilities of 1" compression and 1" extension.

VertiTrack VTD or VTX, Series 250, 362, 400, 600 and 800 consist of VertiClip SLD and SL clips pre-attached to a standard top track. VertiTrack VTD and VTX both allow maximum movement capabilities of ¾" compression and ¾" extension and are classified for use in the following UL HW-D joint system details:

HW-D-0003, HW-D-0024, HW-D-0025, HW-D-0036, HW-D-0042, HW-D-0043, HW-D-0044, HW-D-0045, HW-D-0046, HW-D-0047, HW-D-0048, HW-D-0049, HW-D-0054, HW-D-0062, HW-D-0063, HW-D-0066, HW-D-0067, HW-D-0068, HW-D-0069, HW-D-0071, HW-D-0072, HW-D-0073, HW-D-0076, HW-D-0077, HW-D-0082, HW-D-0083, HW-D-0084, HW-D-0085, HW-D-0087, HW-D-0089, HW-D-0091, HW-D-0102, HW-D-0106, HW-D-0152, HW-D-0154, HW-D-0160, HW-D-0162, HW-D-0167, HW-D-0184, HW-D-0185, HW-D-0186, HW-D-0190, HW-D-0193, HW-D-0209, HW-D-0218, HW-D-0246, HW-D-0256, HW-D-0259, HW-D-0263, HW-D-0271, HW-D-0272, HW-D-0275, HW-D-0277, HW-D-0278, HW-D-0280, HW-D-0293, HW-D-0299, HW-D-0310, HW-D-0313, HW-D-0321, HW-D-0322, HW-D-0324, HW-D-0341, HW-D-0342*, HW-D-0353, HW-D-0356, HW-D-0357, HW-D-0358, HW-D-0363, HW-D-0365, HW-D-0368, HW-D-0370, HW-D-0371, HW-D-0401*, HW-D-0404, HW-D-0420, HW-D-0421, HW-D-0453, HW-D-0455, HW-D-0460, HW-D-0461, HW-D-0462, HW-D-0463, HW-D-0466, HW-D-0468, HW-D-0470, HW-D-0475, HW-D-0477, HW-D-0483, HW-D-0491, HW-D-0526, HW-D-0527, HW-D-0532, HW-D-0545, HW-D-0639, HW-D-0642*, HW-D-0644*, HW-D-0645*, HW-D-0646*, HW-D-0687, HW-D-0689, HW-D-0695, HW-D-0696

The list is updated as UL classifies new assemblies. Please visit www.portal.steelnetwork.com/light-steel-framing-fire-rated-details and click on the UL link for a complete list of VertiTrack HW-D classified fire rated construction systems.

* Shaft wall assemblies

Terms, Conditions & Limited Warranty

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This Warranty is expressly in lieu of all other warranties, expressed or implied, including any warranties of merchantability or fitness for a particular purpose, all such other warranties being hereby expressly excluded.

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