

TrusSteel® Tips

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TrusSteel & ICF Walls

Bob Warner, TrusSteel Western Regional Manager

Building technology has come a long way since the pioneers cleared the forests to make log homes and stick-framed buildings. Rapid advances in building materials, combined with a heightened concern about environmental issues, have given rise to improved ways to build, ways that are strong and durable as well as cost-effective and energy-efficient.

Insulated Concrete Form (ICF) walls are becoming popular for residential framing for just these reasons. Combining the excellent sound and fire resistance of concrete with the outstanding thermal resistance of foam insulation, they also offer a form system that cuts out a lot of the labor usually associated with constructing concrete walls.

Allsteel Distribution, LLC, a TrusSteel Authorized Fabricator, has been combining TrusSteel CFS (Cold-Formed Steel) trusses and Nudura ICF walls to build a number of homes in the St. George, Utah area. New generation forming systems, such as Nudura, often use hinged bracing struts to ensure safe, damage-free delivery of the forms. The Nudura forming system arrives in large, pre-assembled units to save installation time, and it uses interlocking appendages for quick assembly. The better ICF systems are structurally strong, to better withstand the weight and fluid pressure of the concrete pour.

Once an ICF wall system has been completed, it is ready to receive TrusSteel trusses. Allsteel uses two types of connections to mate the TrusSteel trusses to the concrete wall. The first type uses steel straps that have been imbedded into the top of the wall. Simpson Strong-Tie® META straps,

installed as described in TrusSteel Standard Details TS034 (at internal bearings) and TS035 (at heels), can deliver significant uplift resistance.



The second type of connection uses the TrusSteel TSUC clips. The clips are fastened to the concrete wall with Tapcon® fasteners and to the TrusSteel trusses with #10 self-drilling tapping screws. Several sizes of TSUC clips are available, depending upon the required load transfer capability. Refer to TrusSteel Standard Details TS030 and TS031 for a description of these connections as well as a chart describing the rated uplift resistance of each application.

Although not as common with ICFs as these two connection situations, TrusSteel trusses are sometimes called to bear upon embedded steel plates or attached steel ledger angles. TrusSteel WTC clips, welded



to the steel supports and fastened to the trusses with #10 self-drilling tapping screws, can provide resistance to large uplift reactions. Refer to TrusSteel Standard Details TS027 and TS027A for installation requirements and connection capacities. (Editor's Note: You can also find this information in Section 5 of the new Truss Design Manual).

ICF systems, combined with TrusSteel trusses, can offer construction professionals a good balance of quality, speed, flexibility, cost and ease of use. These structures stand the test of time and can help a builder create a solid reputation in the marketplace.

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Metalcon is Here

Dave Goodwin, National Marketing Director

The annual Metalcon trade show begins October 3rd in Tampa, FL. Please make your plans now to visit us in the TrusSteel booth, #1531. As usual, the TrusSteel booth is located right next to the steel structure and STUD-U.

Here is the schedule for the trade show floor exhibits:

Tuesday Oct. 3: 12-6 PM

Wednesday Oct. 4: 12-6 PM

Thursday Oct. 5: 10AM - 3 PM.

On Tuesday night, from 6:30 to 8:30, TrusSteel will be hosting a cocktail party with snacks at the Marriott for all TrusSteel Authorized Fabricators. If you can join us, please RSVP to Tim Wilkinson before September 25th. You can reach Tim via his e-mail at twilkinson@TrusSteel.com or call him at 954-415-1244.

On Tuesday morning, in the 8:30 to 10:00 AM seminar slot, our own Johan Cronje will be delivering a program on Getting Specified. Good info for all of us.

If you hurry, there is still time to register online for Metalcon. Guests who register online before September 19th can obtain a free hall floor pass. It's easy, just logon to <http://www.metalcon.com>.

See you there!



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Standard Detail TS025 Revised

Julie Lowrey, TrusSteel Project Engineer

As you will see in the coming TrusSteel Standard Detail update, Standard Detail TS025 for hipjack, endjack and cornerjack connections for 45 degree corners has been revised. Although the general appearance has changed, the majority of the connection information has remained the same.

Changed for Consistency within Detail Series

The original detail for corner connections, TS025, recently became a series of details for corner connections: TS025, TS025A, TS025B and TS025C. To maintain the uniform appearance, design assumptions, and connection information throughout this new series, TS025 was revised. Many of the changes are cosmetic, intended to make the appearance of TS025 resemble the appearance of TS025A. The same reactions from the original TS025 detail are still applicable, with

the addition of an allowable reaction for a two-clip connection.

Changed for Consistency with Girder Web Placement

The major change to TS025 is the placement of the girder web in the "Cornerjack and Hipjack Connection" detail (Detail A in the revised TS025, see Figure 1). The new placement of the girder web uses the same positioning rules as the rest of the TS025 detail series.

Points to Remember

Although the cosmetic appearance of the revised TS025 is different, there are basically only two changes from the original detail that affect design and installation: the option for a two-clip connection, and the placement of the girder web in Detail A.

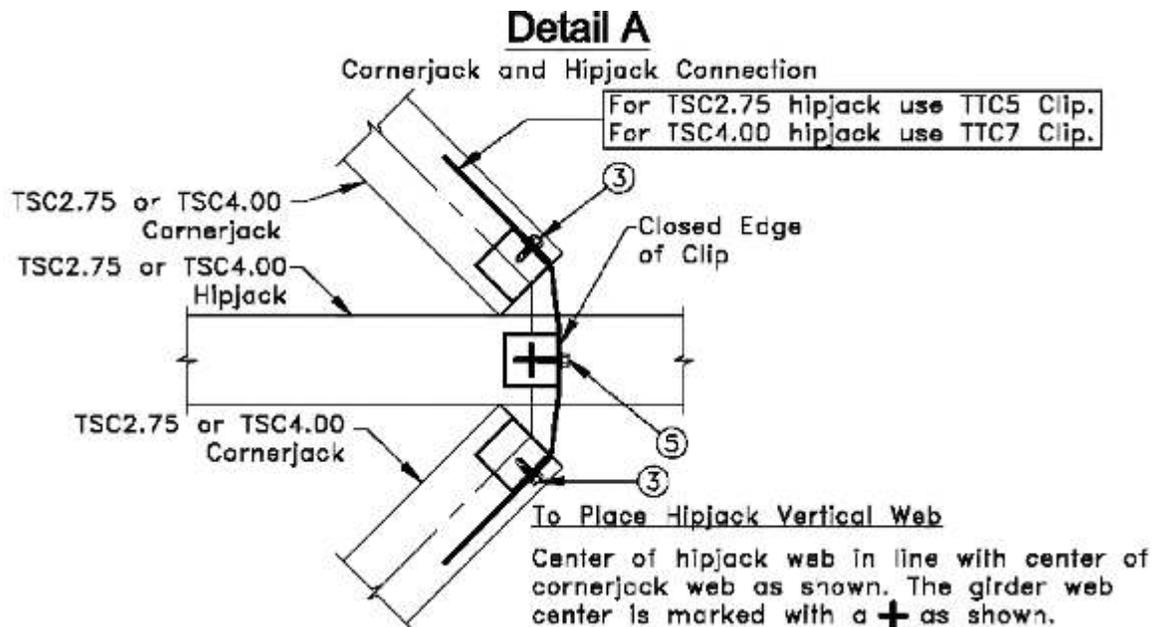


Figure 1. Revised Girder Web Placement - TS025 Detail A



Every team needs a good reliever.
Backlog growing? Lead times shrinking?
Need short-term design relief?
Put in the call to ASC.



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Introduction to New Details TS025B & TS025C

Julie Lowrey, TrusSteel Project Engineer

New details TS025B and C address the need for design information, allowable loads and connection information for 45° connections when both vertical and horizontal reactions are present and there are identical supported trusses on each face of the girder. An example of this type of connection would be the connection of two entirely cantilevered cornerjack trusses to a hipjack truss.

Clip Information

The connections in details TS025B and C are made from four 16 GA ASTM A653 SS Grade 50 Class 1 G60 steel plates that are used as two clip pairs. Two clips connected at the top of the vertical webs make up one clip pair, and two clips connected at the bottom of the vertical webs make up the other clip pair (see Figure 1). Clip dimensions are different for each connection, depending on the supported truss web to girder web combination. Technical Bulletin 06.06.28 gives an in-depth explanation and table of clip dimensions for every possible combination of supported truss web to girder web connection.

Truss Design Information

Design information for the girder web and allowable reactions are found in the top tables of these published Standard Details (see Figure 2). The first column shows acceptable girder web options from which the designer may choose. The second and third columns show the maximum allowable height of the girder web and the maximum allowable axial force in the girder web, respectively. The fourth column shows the number of screws that are required on both sides of the girder web to attach clips, and the last two columns show allowable reactions per supported truss.

Important Limitations

When using details TS025B and TS025C, the following limitations must be understood:

1. The placement of the girder web is specified in the detail. When designing the girder, the truss designer must correctly place the supporting girder web in order for the allowable reactions in the details and the clip dimensions given in Table 1 of Technical Bulletin 06.06.28 to be applicable. The concentrated load

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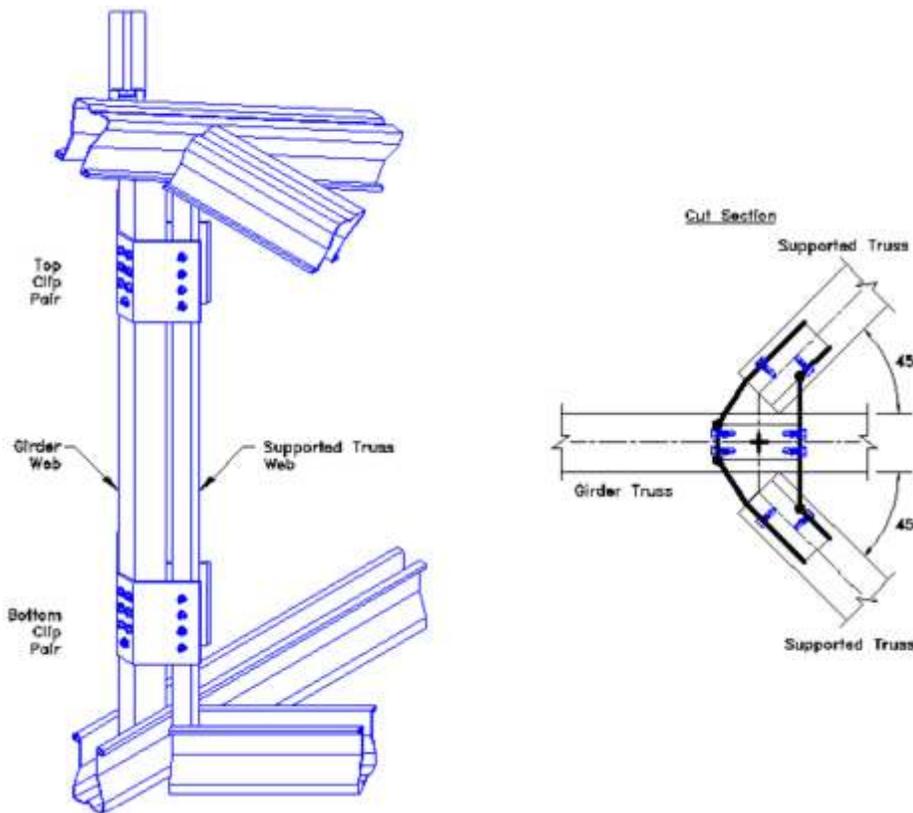


Figure 1. Two Clip Pairs used in TS025B & C with Cut Section View

1	2	3	4	5	6
Girder Web	Max Length of Girder Web in. (mm)	Allowable Axial Force in Girder Web lbs. (kN)	Number of screws req. on each side of girder web (X)	Per Supported Truss R_H Max lbs. (kN)	Per Supported Truss $R_V = U$ Max lbs. (kN)
33W1.5x1.5	56 (1422)	860 (3.83)	4	175 (0.78)	420 (1.87)
33W1.5x2.0	60 (1524)	900 (4.00)	4	280 (1.23)	420 (1.87)
47W1.5x2.5	60 (1524)	1350 (6.01)	6	570 (2.54)	680 (3.02)
63W1.5x3.5	60 (1524)	3550 (15.79)	7	950 (4.23)	1400 (6.23)

Figure 2. Table of Design and Connection Information

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Introduction to New Details TS025B & TS025C

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from the supported trusses must also be applied in-line with the correctly placed girder web in truss analysis.

2. There must be identical supported trusses on both faces of the supporting girder web.

3. The screws applied to the exterior clips (on the supported truss webs) may NOT be placed further than 1.0" from the interior edge of the supported truss. This is detailed on TS025B and TS025C. (For 1.5"X1.5" supported truss webs, this is not an issue, so normal end, edge and spacing distances apply.)

4. Two clip pairs are required for all connections. Clip pairs may not be placed further than 6-3/4" away from TSC4.00 girder chords or 5-1/4" away from TSC2.75 girder chords. This distance is measured from the open edge of the girder chords to

the closest edge of the clip pairs, and is detailed on TS025B and TS025C.

5. The 33W.75X.75 is NOT acceptable for the girder web.

6. Clip dimensions are specific for each supported truss web to girder web connection. These dimensions are given in Table 1 of Technical Bulletin 06.06.28.

7. The truss designer must verify that not only do the vertical and horizontal reactions of the supported trusses comply with the values given in the details, but also that the axial force in the supporting girder web does not exceed the values given in the details.

For any special situations not given in these details or in Technical Bulletin 06.06.28, please contact an Alpine engineer.

Close Quarters: Installing Fasteners in Tight Spaces

Donny Kirkland, TrusSteel Lead Designer

One of the challenging situations that steel framing installers often face is the need to install a fastener where there is not enough clearance for the screw gun.

There are several tools and accessories on the market to help in these situations. Milwaukee, Makita and DeWalt all make screw guns with right-angle heads that could make it easier to get into tight spaces. Some of these guns are available as cordless or air operated. Also available are various cordless screwdrivers with swiveling heads.

One of the more interesting accessories available to help in close-quarter work is the FULLER 892-1001 12" Flexextension Drill Accessory (see photo). This accessory is a flexible shaft that attaches to a drill or screw gun motor and allows the user to install fasteners in places where a regular screw gun will not fit.

If you have discovered a tool or accessory that helps you work in close-quarters, please let us know and we will share it with fabricators and installers.



Got Manual?

