

## **1. TRUSS COMPONENT DOCUMENT**

A Truss Component Document is defined herein as being composed of a cover letter, this set of general notes, individual truss design drawings, and applicable details. The cover letter lists the contents of the Truss Component Document. Each sheet of this Truss Component Document is an integral part of the whole, and shall be used only for the specific job name listed on the cover letter. THE DETAILS INCLUDED WITH THIS DOCUMENT ARE NOT "STANDARD" DETAILS.

## **2. COMPONENT DESIGN**

This design is for an individual building component and has been based on information provided by the client. The truss designer disclaims any responsibility for damages as a result of faulty or incorrect information, specifications, and/or designs furnished to the truss designer by the client and the correctness or accuracy of this information as it may relate to a specific project. The truss designer accepts no responsibility and exercises no control with regard to fabrication, handling, shipment, and installation of trusses. The truss has been designed as an individual building component in accordance with the AISI Truss Design Guide and the AISI Cold Formed Steel Design Manual. This component shall be incorporated as part of the building design by a Building Designer (registered architect or professional engineer, as applicable). The Building Designer shall review the design loading, truss geometry, and all other aspects of the component design shown to ensure that the data shown are in agreement with the local building codes, local climatic records for snow or wind loads, project specifications, or special applied loads.

## **3. FABRICATION NOTES**

Prior to fabrication, the fabricator shall review this drawing to verify that this drawing is in conformance with the fabricator's plans and to realize a continuing responsibility for such verification. Fabrication of trusses shall not proceed until the fabricator has certified drawings in hand.

## **4. PRECAUTIONARY NOTES**

Trusses are to be handled with particular care during banding, bundling, and delivery and installation to avoid damage. Temporary and permanent bracing for holding trusses in a straight and plumb position and for resisting lateral forces shall be designed and installed by others. Careful handling is essential and erection bracing is always required. Normal precautionary action for trusses requires such temporary bracing during installation between trusses to avoid toppling and dominoing. The supervision of erection of trusses shall be under the control of persons experienced in the installation of trusses. Professional advice shall be sought if needed. Concentration of construction loads greater than the design loads shall not be applied to the trusses at any time. No loads other than the weight of the erectors shall be applied to trusses until after all fastening and bracing is completed.

## ***STEEL CON TRUSS SHAPES***

### **5. MATERIAL AND MEMBER SPECIFICATION**

22ga chords shall conform to ASTM A 653 SQ Grade 33 (minimum Fy 33 KSI)

20, 18, and 16 gauge chords shall conform to ASTM A 653 SQ Grade 50 (minimum Fy = 50 KSI).

20 and 18 gauge "CEE" webs and tube webs 1½" square shall conform to ASTM A 653 SQ Grade 50 (minimum Fy = 50 KSI).

20, 18 and 16 gauge tube webs 1½" square shall conform to ASTM A 653 SQ Grade 50 (minimum Fy = 50 KSI).

22, 20 and 18 gauges "CEE" stud and track shall conform to ASTM A 653 SQ Grade 33 (minimum Fy = 33 KSI).

16 gauge "CEE" stud and track shall conform to ASTM A 653 SQ Grade 50 (minimum Fy = 50 KSI).

18 and 16 gauges 1½" x 3½" rectangular tube webs shall conform to ASTM A 500 Grade 45 (minimum Fy=45 KSI)

18 and 16 gauges 1½" x 3" rectangular tube webs shall conform to ASTM A 653 Grade 50 (minimum Fy=50 KSI)

All material shall be galvanized with a minimum of G60 coating.

Material design thickness shall be as follows:

22 gauge: .0283 inch

20 gauge: .0346 inch

18 gauge: .0451 inch

16 gauge: .0566 inch

Minimum delivered thickness of base metal shall be as follows:

22 gauge: .027 inch

20 gauge: .033 inch

18 gauge: .043 inch

16 gauge: .054 inch

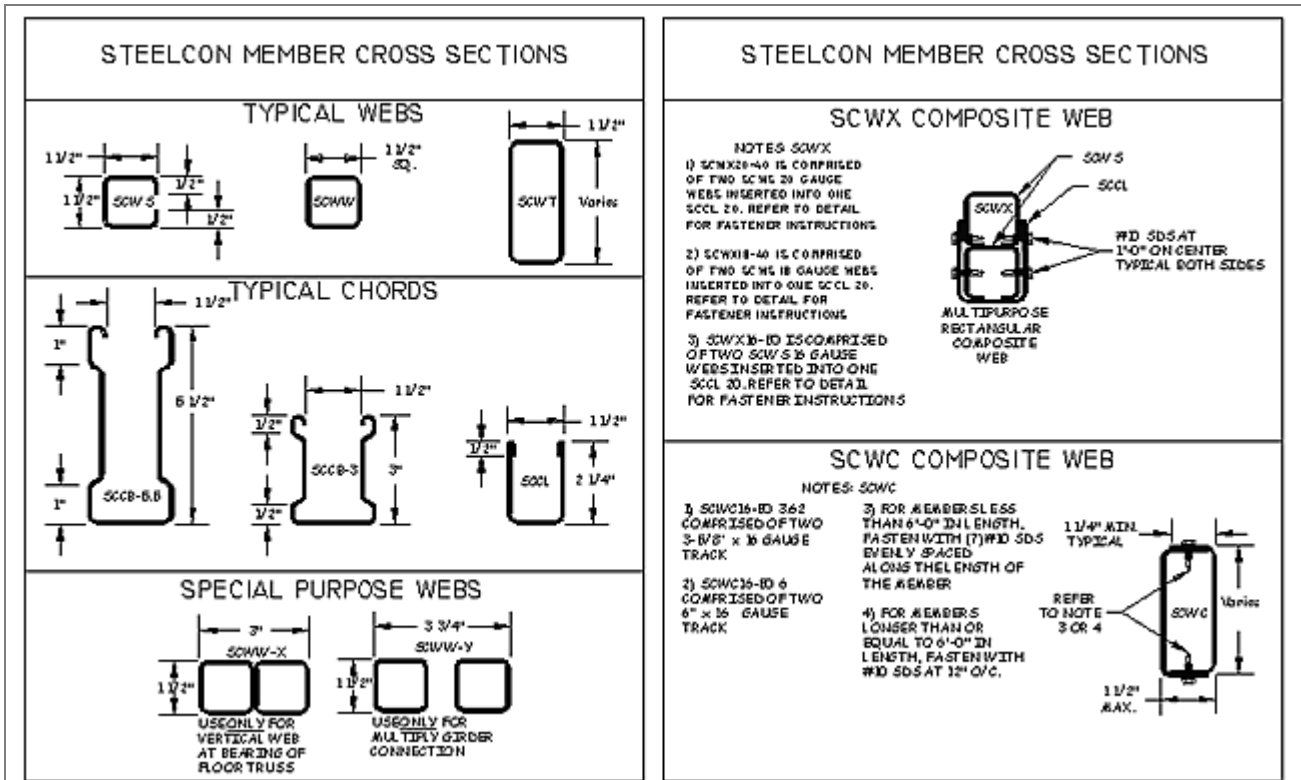
*MEMBER DESIGNATION KEY*

*SC1233-44-555*

**SC = Steel**

**Con**

1 = Member Type	C (for chord) W (for web)
2 = Member Designation	B (for Bethlehem / Steel Con chord) L (for Light Duty chord) S (for open "CEE" section web and studs) W (for welded square tube) T (for wide welded rectangular tube) C (for wide webs compositely formed from two channels)
33 = Gauge	22, 20, 18, and 16 (for chord) 20, 18, and 16 (for welded square tube web) 22 and 20 for open "CEE" shaped web) 22, 20, 18, and 16 (for "CEE" stud and track)
44 = Material Grade	50 (for 16 gauge web material, 16 gauge "CEE" stud and track, and for all chord shapes) 33 (for 22 gauge chords and 22 gauge "CEE" webs) 50 (for 20 and 18 gauge webs) 33 (for 22, 20, and 18 gauge "CEE" stud and track)
555 = Member Depth	2.25 (for Light Duty chords) 3.0 or 5.5 (for all other chord shapes) 1.5, 3.0, 3.5, 3.727, 3.75, or 3.787 (for webs)



**6. BRACING NOTES**

The bracing conditions for the top and bottom chords are stated on the face of the drawing, and the bracing shall be installed exactly where indicated.

**CHORD BRACING WITH PURLIN**

When "PURLIN" are called for, the chord shall be braced laterally and against twisting at an on center spacing no greater than the purlin spacing indicated. Chords that are specified to receive purlins may receive sheathing.

**SPARSE CHORD BRACING**

When the bracing is called "SPARSE", the chord shall be braced laterally at each panel point that sees chord compression in any load case. If a series of panel points see only tension, then alternate panel point may be braced provided that the distance between two braces does not exceed 120 inches. Braces at panel points shall be installed within 6 inches of the panel point, attached to either the chord or a web.

Chord braces shall be so installed as to prevent lateral displacement of all of the trusses as a unit. Each bearing point shall be designed to provide lateral support for the truss perpendicular to the plane of the truss. Bracing shown on this drawing is not erection bracing, wind bracing, portal bracing, or similar bracing which is part of the building design and which shall be considered by the Building Designer. Bracing shown is for the lateral support of truss members only to reduce buckling length of the individual truss member. The design of the individual truss member brace and the anchorage of the brace shall be considered by the building designer. Additional bracing of the overall structure may be required. For specific truss bracing requirements, contact the Building designer.

**7. SPLICES**

No splicing of truss members shall be permitted without a certified splicing detail for the specific truss showing the exact method and location of splicing.

## **8. MODIFICATION OF TRUSS MEMBERS**

No truss member shall be cut or otherwise modified without the specific written permission of the Truss Designer.

## **9. TRUSS TO TRUSS CONNECTION DESIGN**

Truss to truss connection information is included with this component truss design. The truss-to-truss connection design is based on a review of the individual truss component designs and not on a review of the architectural or structural drawings. The Building Designer shall review the truss-to-truss connections to ensure that the connection design solutions shown are appropriate for the end application. In the case that truss-to-truss information shown herein is found to be incomplete, the erection of the trusses shall not proceed until the connections have been reviewed by the Truss Designer. No changes to the truss-to-truss connection design shall be permitted without the express written permission of the Truss Designer.

## **10. TRUSSES TO STRUCTURE CONNECTION DESIGN**

The design of connections between the truss component and other elements of the overall structure is not provided with this component truss design

## **11. FASTENER DESIGN INFORMATION**

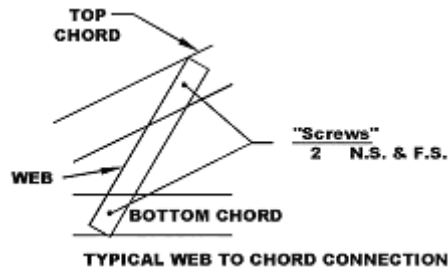
Fasteners shall be either #10, #12, or ¼" self-drilling screws (SDS) as manufactured by Grabber per ICBO Evaluation Report Number ER-5280. The fastener size shall be as noted on the face of the drawing, and shall be installed in accordance with the AISI design recommendations.

Each fastener shall be installed with a minimum spacing as listed on the face of the drawing, and a minimum edge margin as listed on the face of the drawing. No other requirement concerning the configuration of the fastener pattern shall be required beyond the above stated fastener-to-fastener spacing and edge margin requirements. This means, for example, that a pattern of four screws would be equally acceptable as a square pattern, diamond pattern, or some other random pattern as long as the edge margin and spacing requirements for each individual fastener are satisfied.

Note that the screw shall penetrate the last ply in the connection, including gussets as applicable, and at least three threads shall be visible beyond the last ply.

## **SCREW COUNTING ISSUES**

The required number of fasteners listed in the "SCREWS" column of the truss design drawing is calculated by dividing the maximum force in the member by the allowable capacity of the fastener. This number is then rounded up to the nearest even number. When considering webs, the allowable capacity of the fastener is assumed to be the capacity of the fastener in the thinnest material in the joint, in single lap shear, considering both the chord member(s) and the web. Note that since only one quantity of screws is listed for any one web, the number of fasteners reported is the worst case for the connection of the web to either the top or the bottom chord. When considering chords, the allowable capacity of the fastener is assumed to be the capacity of the fastener in the thinnest of the chord materials, in single lap shear. The Steel Con Truss system requires fasteners both on the front side of the joint as well as the backside. Therefore, when considering the attachment of a given web to a given chord, the number of fasteners listed in the "SCREWS" column shall be divided into two equal halves. The first half shall connect the chord to the web on the near side of the joint. The second half shall connect the chord to the web on the far side of the joint.



## 12. PONDING WARNING

This truss has not been investigated for the effects of ponding. The Building Designer shall ensure that adequate drainage has been provided, and that the roof system as a whole is not susceptible to ponding.

## 13. POINT LOADS

Point loads other than those specifically shown on the truss design drawings shall be limited to 70 pounds, and shall not be located closer together along a chord member than 4 feet. Do not attach any point load to the truss webs. Any such point load shall be attached in such a way as to minimize twisting of the chord. Any such point load shall be attached as close as possible to a chord panel point. Such miscellaneous point loads are not additional allowed loading on the truss, and instead shall be accounted for as part of the Dead or Live design loads shown on the Truss Design Drawing. Point loads larger than those described above shall require the specific written permission of the truss designer.

## 14. TYPICAL WEB TO CHORD CONNECTION

At all panel points where more than one web is attached to a chord, the two webs shall be either touching or separated by no more than 1/2 inch. All webs shall be installed in such a fashion that some portion of the web extends to within 1/2" of the outer profile of the truss. Additionally, for compression webs at bearings, the web shall extend into the chord as far as practicable, with the resulting gap between the end of the web and the inside face of the chord no larger than 1/8". All webs shall be square cut at their ends, unless noted otherwise.

## 15. TYPICAL GUSSET PLATE REQUIREMENTS

When gusset plates are specified, they shall be installed on both the near side and the far side of the joint. When gusset plates are called for on the face of the drawings, the dimensions of the gusset plates shall as a minimum be as required to accommodate all of the required fasteners at each joint, with due regard for fastener edge margin and spacing. The dimensions listed in the gusset plate schedule shall be used only if all fasteners can be placed with due regard for fastener edge margin and spacing. If a gusset design requires a re-entrant corner, the radius of the fillet shall be a minimum of 3/16". Any joint which cannot accommodate the correct number of fasteners with due regard to fastener edge margin and spacing shall receive a gusset plate whether a gusset plate is called for on the face of the drawing or not. If the installer cannot install the fasteners with due regard for fastener edge margin and spacing at a specific joint, he shall contact the truss designer for clarification before proceeding with truss fabrication. Unless noted otherwise, the thickness of gusset plates shall be 16-gauge.

## 16. HORIZONTAL TRUSS DEFLECTION

The building designer shall consider the effects of horizontal deflection of the truss on the entire structure. The building designer shall either design the truss to structure connection to allow the truss to move horizontally at one support, or design the truss to structure connection and the entire structure to resist the horizontal thrust resulting from a restrained bearing condition. All restrained bearing conditions shall be reported to the truss designer to allow for proper analysis of the truss for this condition.

## 17. DEFINITION OF LOADS

The truss is designed solely for the design loadings explicitly listed on the design drawing. "Standard Loadings" and "Distributed Loadings" are in pounds per square foot. "Standard Loading" is applied to the entire chord, unless replaced by a "Distributed Load". The self-weight of the truss is not automatically considered, and shall instead be included by the user in the dead loading applied to the truss. Wind load

is not automatically considered. Unless specifically noted otherwise, end webs of trusses are not designed to resist the effects of wind loading.

Under standard loading, the load direction is always vertical. Distributed loads REPLACE standard loading for the members noted, and are NOT additive to standard loading. Distributed live loads may be either vertical, horizontal, or normal to the member. Distributed dead loads are always oriented vertically. Note that standard loading and distributed loads, both dead and live, are applied on the horizontal projection of the member.

#### **18. WOOD TAILS**

Wood tails, when required, shall be installed per detail SMO1, unless noted otherwise.

#### **19. WIND LOADS**

The building system is enclosed and the roof type is either gabled, hip roof or mono slope roof. Unless noted otherwise, the following conditions apply to wind loads:

The term "FBC01 (1606.2) Vxxx (y) zz' Ixx- stands for a certain wind load with regard to wind design, in which, FBC01 stands for Florida Building Code 2001; Vxxx represents the minimum basic wind speed in mile per hour. (y) is the exposure category as defined in Section 1606.2 of FBC 2001; zz' is the mean roof height of roof system in feet. The wind load is based on an effective wind tributary area of 100 ft<sup>2</sup> for all truss span of 15' and bigger, and tributary area of 10 ft<sup>2</sup> for truss span less than 15'. Ixx is the importance factor from Table 1606 of FBC 2001.

The term "ASCE 798 xxxMPH, Y(II, III/IV) zz' H/G or Mono- stands for a certain wind load with regard to wind design, in which, ASCE798 stands for ASCE 7-1998, Minimum Design Loads for Buildings and Other Structures; xxxMPH represents the 3-second gust speed at 33ft above the ground in mile per hour; Y represents an exposure category "y" as defined in Section 6.5.6.1 of ASCE 7-98; (II OR III/IV) is the category based on Table 1.1. zz' is the mean roof height of building; The wind load is based on an effective wind tributary area of 10 ft<sup>2</sup> for truss span 15' or less; and an effective wind tributary area of 100 ft<sup>2</sup> for truss span 15ft and bigger. H/G represents hips or gable roof and Mono is for Monoslope roof.

The term "SBC-97 xxxMPH zz'-stands for a certain wind load with regard to wind design, in which, SBC-97 stands for Standard Building Code 1997; xxxMPH represents the fastest mile speed in mile per hour; zz' is the mean height of roof above ground. The wind load is based on an effective wind tributary area of 10 ft<sup>2</sup> for truss span of up to 17'; and an effective wind tributary area of 100 ft<sup>2</sup> for truss span bigger than 17ft.

The term "ASCE 7-93 xxxMPH EXP\_y zz'- stands for a certain wind load with regard to wind design, in which, ASCE 7-93 stands for ASCE 7-1993, Minimum Design Loads for Buildings and Other