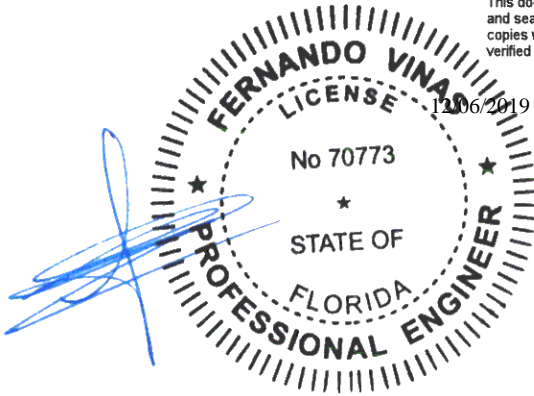


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www.alpineitw.com



COA#0-278

| Site Information: | Page 1: |
|---------------------------------------|----------------------------|
| Customer: W. B. Howland Company, Inc. | Job Number: 19 3406 REPAIR |
| Job Description: 19 3406 REPAIR | |
| Address: | |

| Job Engineering Criteria: | | | |
|---------------------------|-----------------------|--|--|
| Design Code: FBC 2017 RES | | IntelliVIEW Version: 19.02.01 | |
| | | JRef #: 1WQT2150005 | |
| Wind Standard: ASCE 7-10 | Wind Speed (mph): 130 | Roof Load (psf): 20.00-10.00- 0.00-10.00 | |
| Building Type: Closed | | Floor Load (psf): None | |

This package contains general notes pages, 1 truss drawing(s) and 2 detail(s).

| Item | Seal # | Truss |
|------|-------------------|-------|
| 1 | 340.19.1547.21443 | A01 |
| 3 | BRCLBSUB0119 | |

| Item | Seal # | Truss |
|------|--------|-------|
| 2 | 160TL | |
| | | |

General Notes

Truss Design Engineer Scope of Work, Design Assumptions and Design Responsibilities:

The design responsibilities assumed in the preparation of these design drawings are those specified in ANSI/TPI 1, Chapter 2; and the National Design Standard for Metal Plate Connected Wood Truss Construction, by the Truss Plate Institute. The truss component designs conform to the applicable provisions of ANSI/TPI 1 and NDS, the National Design Specification for Wood Construction by AF&PA. The truss component designs are based on the specified loading and dimension information furnished by others to the Truss Design Engineer. The Truss Design Engineer has no duty to independently verify the accuracy or completeness of the information provided by others and may rely on that information without liability. The responsibility for verification of that information remains with others neither employed nor controlled by the Truss Design Engineer. The Truss Design Engineer's seal and signature on the attached drawings, or cover page listing these drawings, indicates acceptance of professional engineering responsibility solely for the truss component designs and not for the technical information furnished by others which technical information and consequences thereof remain their sole responsibility.

The suitability and use of these drawings for any particular structure is the responsibility of the Building Designer in accordance with ANSI/TPI 1 Chapter 2. The Building Designer is responsible for determining that the dimensions and loads for each truss component match those required by the plans and by the actual use of the individual component, and for ascertaining that the loads shown on the drawings meet or exceed applicable building code requirements and any additional factors required in the particular application. Truss components using metal connector plates with integral teeth shall not be placed in environments that will cause the moisture content of the wood in which plates are embedded to exceed 19% and/or cause corrosion of connector plates and other metal fasteners.

The Truss Design Engineer shall not be responsible for items beyond the specific scope of the agreed contracted work set forth herein, including but not limited to: verifying the dimensions of the truss component, calculation of any of the truss component design loads, inspection of the truss components before or after installation, the design of temporary or permanent bracing and their attachment required in the roof and/or floor systems, the design of diaphragms or shear walls, the design of load transfer connections to and from diaphragms and shear walls, the design of load transfer to the foundation, the design of connections for truss components to their bearing supports, the design of the bearing supports, installation of the truss components, observation of the truss component installation process, review of truss assembly procedures, sequencing of the truss component installation, construction means and methods, site and/or worker safety in the installation of the truss components and/or its connections.

This document may be a high quality facsimile of the original engineering document which is a digitally signed electronic file with third party authentication. A wet or embossed seal copy of this engineering document is available upon request.

Temporary Lateral Restraint and Bracing:

Temporary lateral restraint and diagonal bracing shall be installed according to the provisions of BCSI chapters B1, B2, B7 and/or B10 (Building Component Safety Information, by TPI and SBCA), or as specified by the Building Designer or other Registered Design Professional. The required locations for lateral restraint and/or bracing depicted on these drawings are only for the permanent lateral support of the truss members to reduce buckling lengths, and do not apply to and may not be relied upon for the temporary stability of the truss components during their installation.

Permanent Lateral Restraint and Bracing:

The required locations for lateral restraint or bracing depicted on these drawings are for the permanent lateral support of the truss members to reduce buckling lengths. Permanent lateral support shall be installed according to the provisions of BCSI chapters B3, B7 and/or B10, or as specified by the Building Designer or other Registered Design Professional. These drawings do not depict or specify installation/erection bracing, wind bracing, portal bracing or similar building stability bracing which are parts of the overall building design to be specified, designed and detailed by the Building Designer.

Connector Plate Information:

Alpine connector plates are made of ASTM A653 or ASTM A1063 galvanized steel with the following designations, gauges and grades: W=Wave, 20ga, grade 40; H=High Strength, 20ga, grade 60; S=Super Strength, 18ga, grade 60. Information on model code compliance is contained in the ICC Evaluation Service report ESR-1118, available on-line at www.icc-es.org.

General Notes (continued)

Key to Terms:

Information provided on drawings reflects a summary of the pertinent information required for the truss design. Detailed information on load cases, reactions, member lengths, forces and members requiring permanent lateral support may be found in calculation sheets available upon written request.

BCDL = Bottom Chord standard design Dead Load in pounds per square foot.

BCLL = Bottom Chord standard design Live Load in pounds per square foot.

Des Ld = total of TCLL, TCDL, BCLL and BCDL Design Load in pounds per square foot.

HORZ(LL) = maximum Horizontal panel point deflection due to Live Load, in inches.

HORZ(TL) = maximum Horizontal panel point long term deflection in inches, due to Total Load, including creep adjustment.

HPL = additional Horizontal Load added to a truss Piece in pounds per linear foot or pounds.

L/# = user specified divisor for limiting span/deflection ratio for evaluation of actual L/defl value.

L/defl = ratio of Length between bearings, in inches, divided by the immediate vertical Deflection, in inches, at the referenced panel point. Reported as 999 if greater than or equal to 999.

Loc = Location, starting location of left end of bearing or panel point (joint) location of deflection.

Max BC CSI = Maximum bending and axial Combined Stress Index for Bottom Chords for of all load cases.

Max TC CSI = Maximum bending and axial Combined Stress Index for Top Chords for of all load cases.

Max Web CSI = Maximum bending and axial Combined Stress Index for Webs for of all load cases.

NCBCLL = Non-Concurrent Bottom Chord design Live Load in pounds per square foot.

PL = additional Load applied at a user specified angle on a truss Piece in pounds per linear foot or pounds.

PLB = additional vertical load added to a Bottom chord Piece of a truss in pounds per linear foot or pounds

PLT = additional vertical load added to a Top chord Piece of a truss in pounds per linear foot or pounds.

PP = Panel Point.

R = maximum downward design Reaction, in pounds, from all specified gravity load cases, at the indicated location (Loc).

-R = maximum upward design Reaction, in pounds, from all specified gravity load cases, at the identified location (Loc).

Rh = maximum horizontal design Reaction in either direction, in pounds, from all specified gravity load cases, at the indicated location (Loc).

RL = maximum horizontal design Reaction in either direction, in pounds, from all specified non-gravity (wind or seismic) load cases, at the indicated location (Loc).

Rw = maximum downward design Reaction, in pounds, from all specified non-gravity (wind or seismic) load cases, at the identified location (Loc).

TCDL = Top Chord standard design Dead Load in pounds per square foot.

TCLL = Top Chord standard design Live Load in pounds per square foot.

U = maximum Upward design reaction, in pounds, from all specified non-gravity (wind or seismic) load cases, at the indicated location (Loc).

VERT(CL) = maximum Vertical panel point deflection in inches due to Live Load and Creep Component of Dead Load in inches.

VERT(LL) = maximum Vertical panel point deflection in inches due to Live Load.

VERT(TL) = maximum Vertical panel point long term deflection in inches due to Total load, including creep adjustment.

W = Width of non-hanger bearing, in inches.

Refer to ASCE-7 for Wind and Seismic abbreviations.

Uppercase Acronyms not explained above are as defined in TPI 1.

References:

1. AF&PA: American Forest & Paper Association, 1111 19th Street, NW, Suite 800, Washington, DC 20036; www.afandpa.org.

2. ICC: International Code Council; www.iccsafe.org.

3. Alpine, a division of ITW Building Components Group Inc.: 13723 Riverport Drive, Suite 200, Maryland Heights, MO 63043; www.alpineitw.com.

4. TPI: Truss Plate Institute, 218 North Lee Street, Suite 312, Alexandria, VA 22314; www.tpinst.org.

5. SBCA: Wood Truss Council of America, 6300 Enterprise Lane, Madison, WI 53719; www.sbcindustry.co


| Lumber Top chord: 2x4 SP #2; Bot chord: 2x4 SP 2400f-2.0E; B3 2x6 SP #2; B4 2x4 SP #2; Webs: 2x4 SP #3; W7,W9,W13 2x6 SP #2; Lt Stub Wedge: 2x4 SP #3; | Additional Notes Refer to General Notes for additional information (G1) Gusset Plates are 3/4" APA STRUCTURAL I RATED SHEATHING, 48/24, EXP 1 Apply gusset to each face of truss and attach with evenly distributed 0.099"x2.0" Nails specified in circles. Hatched lines indicate portions on gussets protruding outside of the perimeter of the truss that may be trimmed flush with the truss profile. Minimum Nail/Screw Spacing Requirements Based on ANSI/AF&PA NDS-2001: End Distance 1-1/2" Edge Distance 1/2" Spacing Between Rows 1/2" Spacing in a Row 1-1/2" Maximum Number of Rows for Member Size: 2x4 6 Rows 2x6 9 Rows | B - C 610 - 3047 C - D 362 - 1314 | E - F 484 - 2064 F - G 547 - 2683 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--|---|--------------------------------------|--|--------|------------|--------|-------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|------------|-------|----------|-------|------------|-------|------------|-------|------------|-------|------------|-------|-----------|--|--|
| Bracing (a) Continuous lateral restraint equally spaced on member. Truss repaired to modify the BC profile as shown. Refer to drawing 220.19.1325.37540 for plates and other data not given here. Repair(s) must comply with Alpine designs and specifications. Note: Prior to and during the repair operation, this truss and any supported spans must be temporarily braced and shored. The design and positioning of this bracing and shoring to be designed by others. | | | Maximum Bot Chord Forces Per Ply (lbs) <table> <tr> <th>Chords</th><th>Tens.Comp.</th><th>Chords</th><th>Tens. Comp.</th></tr> <tr> <td>A - P</td><td>2892 - 571</td><td>L - K</td><td>1499 - 188</td></tr> <tr> <td>P - O</td><td>2925 - 566</td><td>K - J</td><td>2253 - 406</td></tr> <tr> <td>O - N</td><td>2664 - 427</td><td></td><td></td></tr> </table> | Chords | Tens.Comp. | Chords | Tens. Comp. | A - P | 2892 - 571 | L - K | 1499 - 188 | P - O | 2925 - 566 | K - J | 2253 - 406 | O - N | 2664 - 427 | | | | | | | | | | | | | | |
| Chords | Tens.Comp. | Chords | Tens. Comp. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| A - P | 2892 - 571 | L - K | 1499 - 188 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| P - O | 2925 - 566 | K - J | 2253 - 406 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O - N | 2664 - 427 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| + USE A SHARP METAL CUTTING SAW BLADE TO CAREFULLY REMOVE MATERIAL FROM THE TRUSS AS SHOWN. REMAINING PORTIONS OF TRUSS AND ALPINE PLATES MUST BE FREE FROM DAMAGE. ** (4)NEW 2x6 SP #2-13B (OR BETTER) MEMBERS, CUT TO FIT AS SHOWN WITH HATCHED MEMBER BELOW. (+)-REMOVE EXISTING MEMBER AND REPLACE WITH **. | | | Maximum Web Forces Per Ply (lbs) <table> <tr> <th>Webs</th><th>Tens.Comp.</th><th>Webs</th><th>Tens. Comp.</th></tr> <tr> <td>O - C</td><td>1686 - 261</td><td>E - K</td><td>519 - 135</td></tr> <tr> <td>C - N</td><td>402 - 1886</td><td>K - F</td><td>225 - 726</td></tr> <tr> <td>D - N</td><td>918 - 256</td><td>F - J</td><td>398 - 44</td></tr> <tr> <td>N - L</td><td>1719 - 214</td><td>J - G</td><td>2226 - 402</td></tr> <tr> <td>N - E</td><td>270 - 1303</td><td>G - H</td><td>265 - 1144</td></tr> <tr> <td>L - E</td><td>933 - 110</td><td></td><td></td></tr> </table> | Webs | Tens.Comp. | Webs | Tens. Comp. | O - C | 1686 - 261 | E - K | 519 - 135 | C - N | 402 - 1886 | K - F | 225 - 726 | D - N | 918 - 256 | F - J | 398 - 44 | N - L | 1719 - 214 | J - G | 2226 - 402 | N - E | 270 - 1303 | G - H | 265 - 1144 | L - E | 933 - 110 | | |
| Webs | Tens.Comp. | Webs | Tens. Comp. | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| O - C | 1686 - 261 | E - K | 519 - 135 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| C - N | 402 - 1886 | K - F | 225 - 726 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| D - N | 918 - 256 | F - J | 398 - 44 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N - L | 1719 - 214 | J - G | 2226 - 402 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| N - E | 270 - 1303 | G - H | 265 - 1144 | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| L - E | 933 - 110 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

****WARNING**** READ AND FOLLOW ALL NOTES ON THIS DRAWING!
****IMPORTANT**** FURNISH THIS DRAWING TO ALL CONTRACTORS INCLUDING THE INSTALLERS

Trusses require extreme care in fabricating, handling, shipping, installing and bracing. Refer to and follow the latest edition of BCSI (Building Component Safety Information, by TPI and SBCA) for safety practices prior to performing these functions. Installers shall provide temporary bracing per BCSI. Unless noted otherwise, top chord shall have properly attached structural sheathing and bottom chord shall have a properly attached rigid ceiling. Locations shown for permanent lateral restraint of webs shall have bracing installed per BCSI sections B3, B7, or B10, as applicable. Apply plates to each face of truss and position as shown above and on the Joint Details, unless noted otherwise. Refer to drawings 160A-Z for standard plate positions.

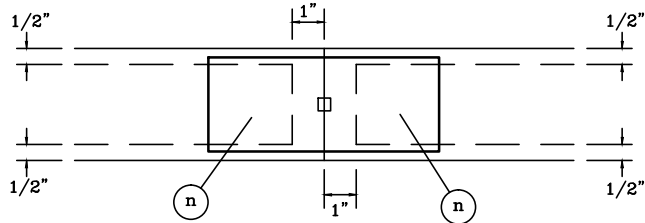
Alpine, a division of ITW Building Components Group Inc, shall not be responsible for any deviation from this drawing, any failure to build the truss in conformance with ANSI/TPI 1, or for handling, shipping, installation and bracing of trusses. **A seal on this drawing or cover page listing this drawing, indicates acceptance of professional engineering responsibility solely for the design shown. The suitability and use of this drawing for any structure is the responsibility of the Building Designer per ANSI/TPI 1 Sec.2.**

For more information see this job's general notes page and these web sites: ALPINE: www.alpineitw.com; TPI: www.tpinet.org; SBCA: www.sbcindustrv.com; ICC: www.iccsafe.org


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 Suite 305
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TRULOX INFORMATION DETAIL

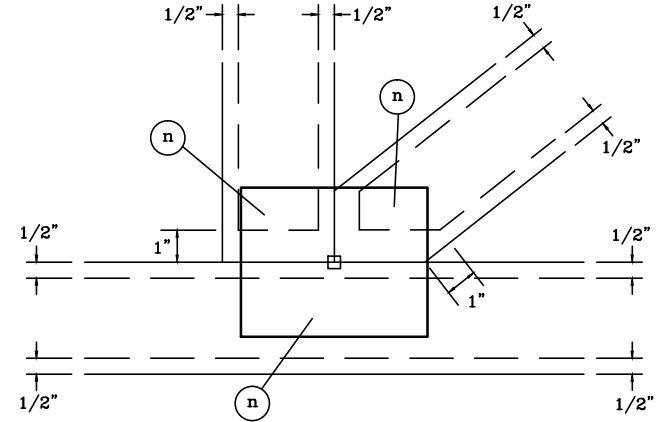
TYPICAL OFF PANEL SPLICE



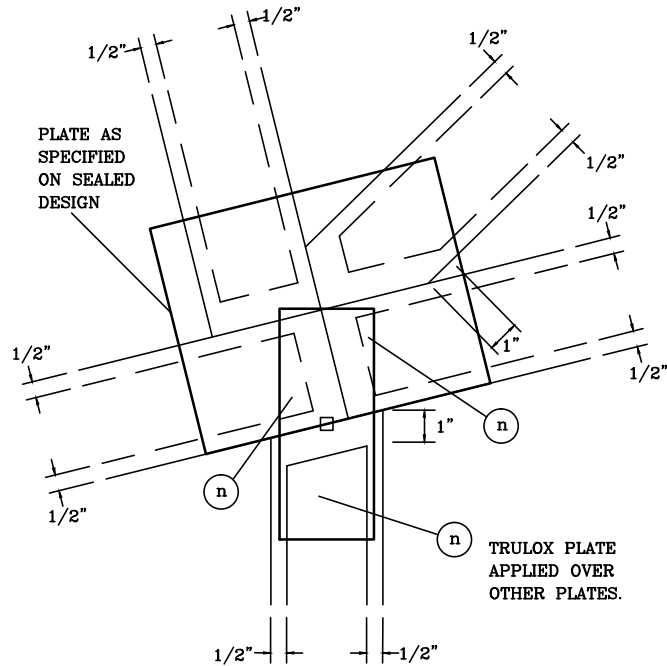
DO NOT APPLY NAILS WITHIN 1/2" OF LUMBER EDGES OR 1" OF LUMBER ENDS ON EACH FACE, AS SHOWN BY DASHED LINES.

NAILS MUST NOT SPLIT LUMBER.

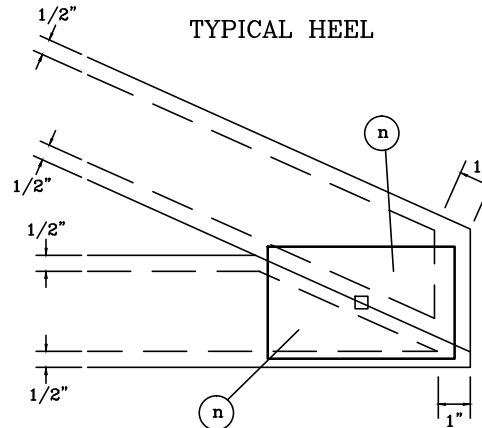
TYPICAL PANEL POINT WITHOUT SPLICE



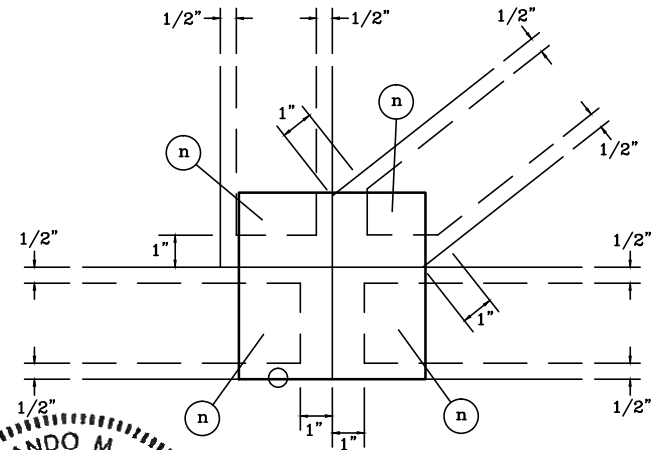
TYPICAL FILLER



TYPICAL HEEL



TYPICAL PANEL POINT SPLICE



NOTES:

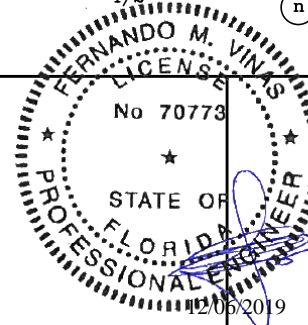
(n) IS THE REQUIRED NUMBER OF 0.120" X 1.375" NAILS, OR EQUAL, PER FACE PER PLY AS SPECIFIED ON THE SEALED DESIGN REFERENCING THIS DETAIL.

○ LOCATES PLATE CORNER OR FLUSH EDGE.

□ LOCATES PLATE CENTER.



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Maryland Heights, MO 63043



TRULOX PLATING

160
TL

PAGE 1 OF 1

DATE 10/01/14

COA#0-278

CLR Reinforcing Member Substitution

This detail is to be used when a Continuous Lateral Restraint (CLR) is specified on a truss design but an alternative web reinforcement method is desired.

Notes:

This detail is only applicable for changing the specified CLR shown on single ply sealed designs to T-reinforcement or L-reinforcement or scab reinforcement.

Alternative reinforcement specified in chart below may be conservative. For minimum alternative reinforcement, re-run design with appropriate reinforcement type.

Use scabs instead of L- or T- reinforcement on webs with intersecting truss joints, such as K-web joints, that may interfere with proper application along the narrow face of the web.

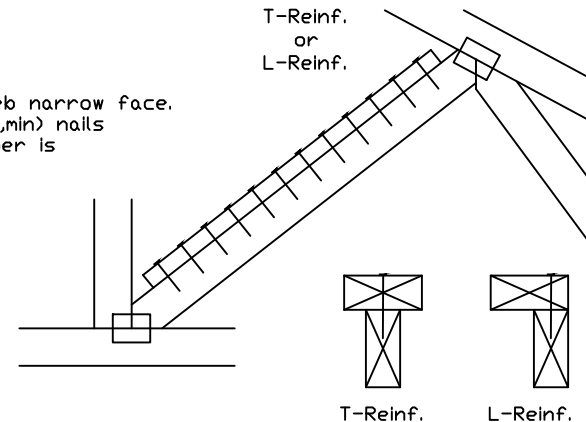
| Web Member Size | Specified CLR Restraint | Alternative Reinforcement T- or L- Reinf. | Scab Reinf. |
|-----------------|-------------------------|---|-------------|
| 2x3 or 2x4 | 1 row | 2x4 | 1-2x4 |
| 2x3 or 2x4 | 2 rows | 2x6 | 2-2x4 |
| 2x6 | 1 row | 2x4 | 1-2x6 |
| 2x6 | 2 rows | 2x6 | 2-2x4(*) |
| 2x8 | 1 row | 2x6 | 1-2x8 |
| 2x8 | 2 rows | 2x6 | 2-2x6(*) |

T-reinforcement, L-reinforcement, or scab reinforcement to be same species and grade or better than web member unless specified otherwise on Engineer's sealed design.

(*) Center scab on wide face of web. Apply (1) scab to each face of web.

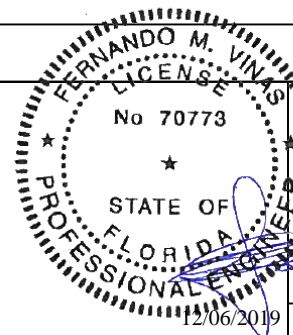
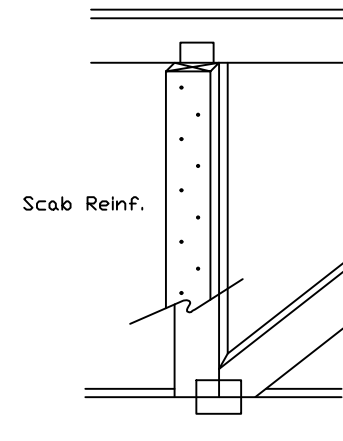
T-Reinforcement or L-Reinforcement:

Apply to either side of web narrow face. Attach with 10d (0.128"x3.0",min) nails at 6" o.c. Reinforcing member is a minimum 80% of web member length.



Scab Reinforcement:

Apply scab(s) to wide face of web. No more than (1) scab per face. Attach with 10d (0.128"x3.0",min) nails at 6" o.c. Reinforcing member is a minimum 80% of web member length.



| | | | |
|-----|-----------|------|--------------|
| PSF | LL | REF | CLR Subst. |
| PSF | DL | DATE | 01/02/19 |
| PSF | BC | DRWG | BRCLBSUB0119 |
| PSF | LL | | |
| PSF | DOT. LD. | | |
| | DUR. FAC. | | |
| | SPACING | | |



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A seal on this drawing or cover page listing this drawing, indicates acceptance of professional engineering responsibility solely for the design shown. The suitability and use of this drawing for any structure is the responsibility of the Building Designer per ANSI/TPI 1 Sec.2.
For more information see this job's general notes page and these web sites:
ALPINE: www.alpineitw.com TPI: www.tpinst.org SBCA: www.sbcindustry.org ICC: www.iccsafe.org