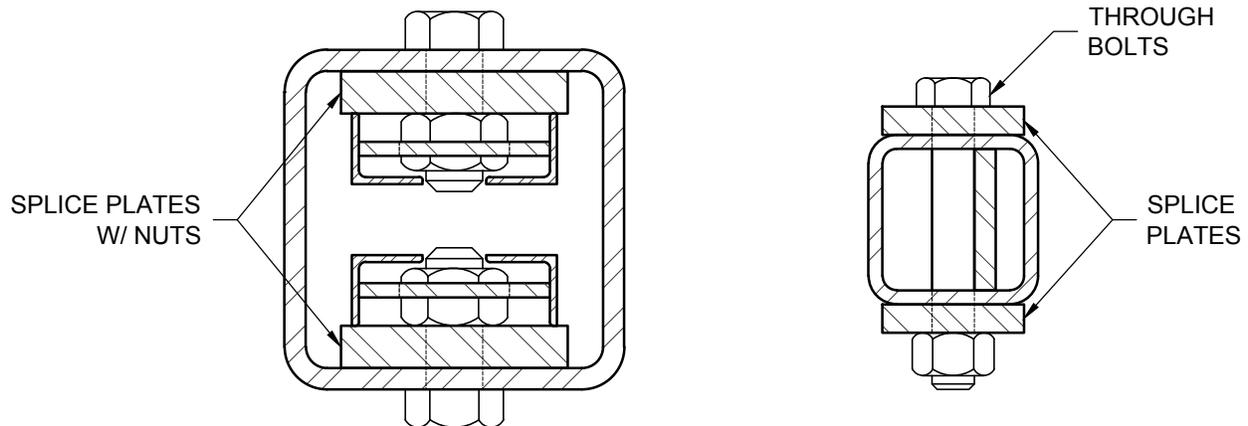
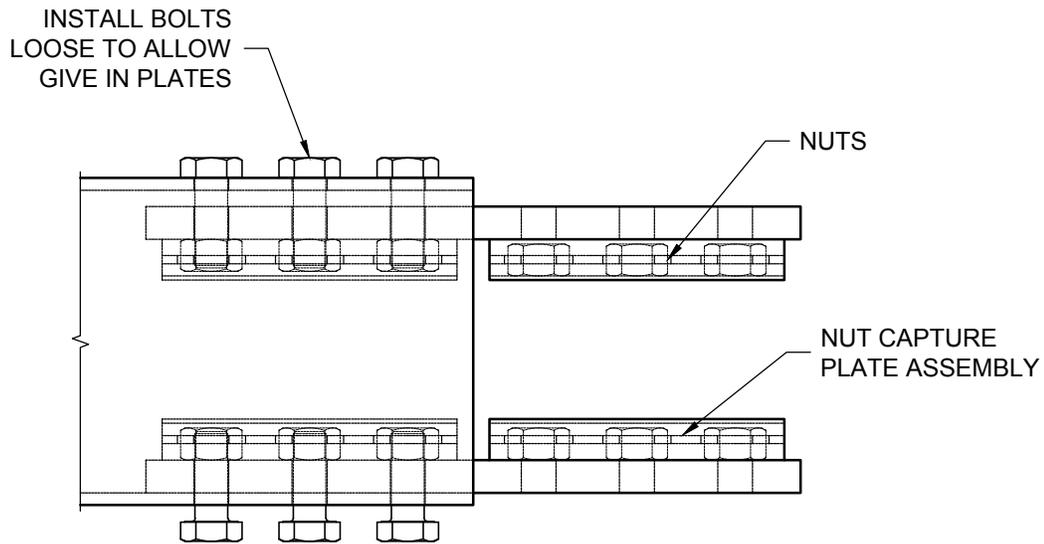


## CONTINENTAL PEDESTRIAN TRUSS BRIDGE SPLICING INSTRUCTIONS

1. There are two different types of splices used in CONTECH Pedestrian Bridges, unless detailed otherwise on submitted shop drawings. All vertical truss diagonals and horizontal truss brace diagonals will be spliced using plates on the outside of the tube members with bolts then going through the plates and the tubes. Chord splices will have loose splice plates that will be inserted into the tubes at the splice locations. Nuts are attached to these plates. The section is then bolted together by bolting through the wall of the tube and the splice plate, into the attached nut. Examples of both are shown.



2. Bridge sections will arrive at the job site with all bolts and splice plates separate. Remove and discard all auxiliary bracing that has been used to stiffen unsupported members during shipping. Bolts to be installed loose to allow play in the splice plates for splicing. This is illustrated on the next page.



CHORD SPLICE PRIOR TO SPLICING

3. The bolts used in our splices are A325 high strength structural bolts. The common bolt size for our A325 bolts are 3/4" and 1" diameter. We recommend the usage of an air impact wrench since it is not uncommon to have anywhere from 50 to 100 bolts per splice location. Socket sizes that fit these bolts are listed below.

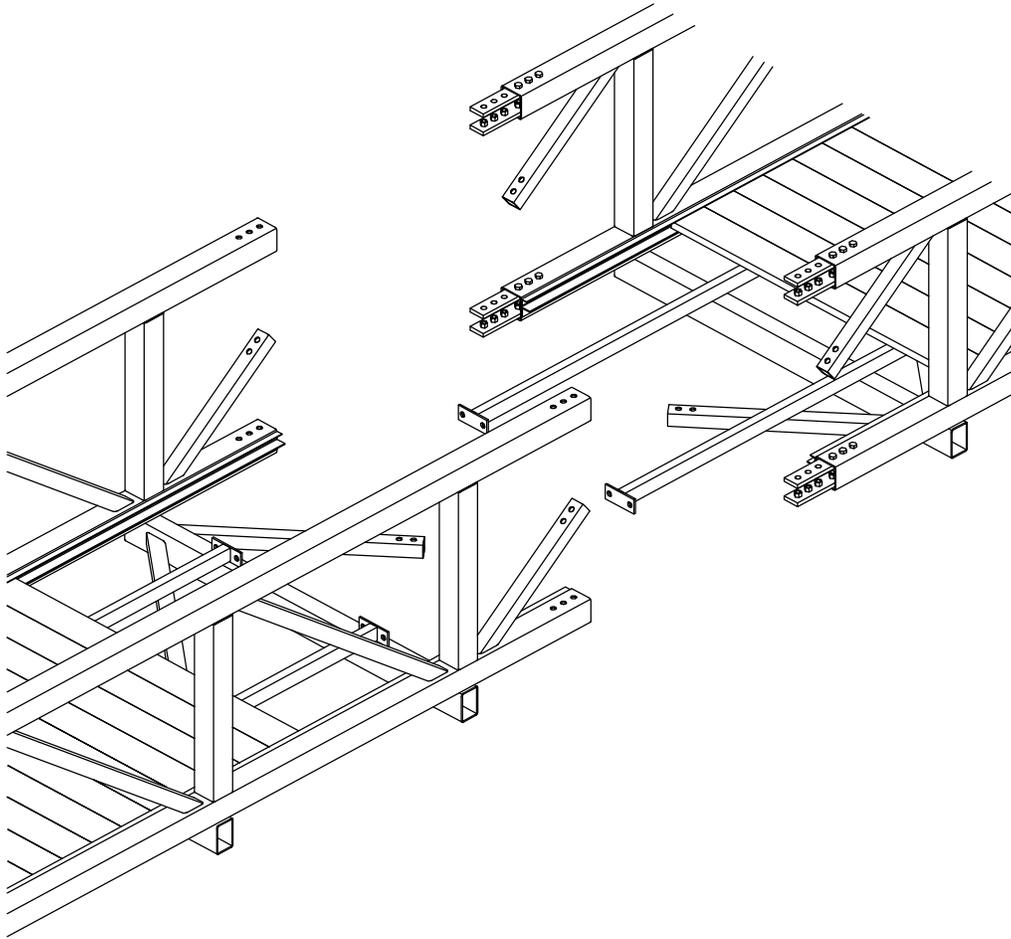
<u>Bolt Size</u>	<u>Socket Size</u>
3/4" diameter	1 1/4"
1" diameter	1 5/8"

4. There are three common procedures for splicing bridge sections together.
- A) The most popular, for bridges spliced in two sections, is to place one section stationary on a relatively flat surface and then slip the other section into the stationary section. Once totally bolted together, the entire bridge may be lifted into place. This entire process will require one crane with capacity to lift the entire bridge weight for the required reach. When the bridge has camber (arch) in it, it is best to have the end to be spliced of the stationary section cribbed up to match its intended arch. This will ease the slipping together of sections.
- B) Sections of the bridge may also be spliced in mid-air, utilizing a crane for each of the sections. It is wise to have come-a-longs available in case it becomes difficult to bring the sections together.

C) One section may be placed such that the bearing end sits on its appropriate abutment or pier, while the end to be spliced will rest on a temporary cribbing support. The section is then spliced to the first section.

NOTE: Any of the above procedures are recommended by CONTECH Engineered Solutions. Use of each is dependent upon site conditions. The procedures may be used for either simple spans or multi-continuous spans.

Lifting weights for the total bridge or individual sections will be as listed on the shop drawings or anchor bolt/reaction sheet.



5. Tightening of the bolts shall be in accordance with the Research Council on Structural Connections "Specifications for Structural Joints Using High-Strength Bolts." We recommend using the Turn-Of-Nut Procedure which is described below.

First bring all bolts to a "snug tight" condition to insure that the parts of the joint are brought into good contact with each other. Snug tight is defined as the tightness attained by a few impacts of an impact wrench or the full effort of a man using an ordinary spud wrench. Following this initial operation, all bolts shall then be tightened additionally by the applicable amount of nut rotation as specified in the table on the next page, with tightening progressing systematically from the most rigid part of the joint to its free edges. During this operation there shall be no rotation of the part not turned by the wrench.

Table 4 Nut Rotation from Snug Tight Condition

Bolt Length (as measured from underside of head to extreme end of point)	Disposition of Outer Faced of Bolted Parts		
	Both faces normal to bolt axis	One face normal to bolt axis and other face sloped not more than 1:20 (bevel washer not used)	Both faces sloped not more than 1:20 from normal to bolt axis (bevel washer not used)
Up to and including 4 diameters	1/3 turn	1/2 turn	2/3 turn
Over 4 diameters but not exceeding 8 diameters	1/2 turn	2/3 turn	5/6 turn
Over 8 diameters but not exceeding 12 diameters	2/3 turn	5/6 turn	1 turn

Nut rotation is relative to bolt, regardless of the element (nut or bolt) being turned. For bolts installed by  $\frac{1}{2}$  turn and less, the tolerance should be plus or minus 30°; for bolts installed by  $\frac{2}{3}$  turn and more, the tolerance should be plus or minus 45°.

Adapted from: "Specifications for Structural Joints Using High-Strength Bolts". Research Council on Structural Connections, December 31, 2009.

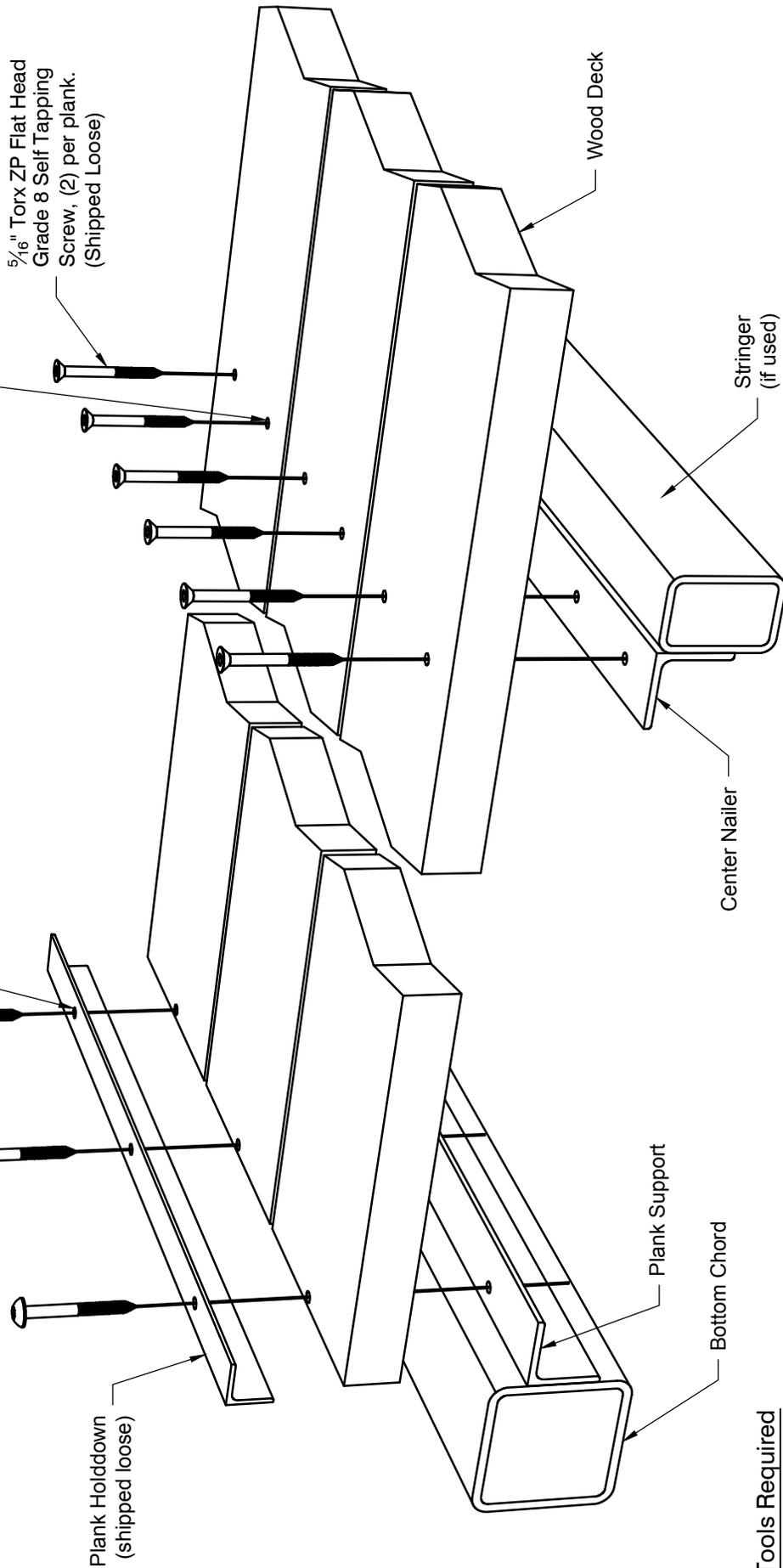
## 6. Words of Caution

- A) Splice plates may not interchangeable. If plates are match marked, they must be used in its proper location on the bridge.
- B) **DO NOT TIGHTEN** all bolts to the "snug tight" condition in all bridge splices and sections until all of the bolts have been placed and started with nuts. CONTECH has preassembled all bridge sections in the shop with bolts in place to affirm that all connections are aligned and that they can be made in the field. If all of the bolts cannot be started then the bridge sections are either misaligned or else grit has become lodged in the threads. If the latter occurs, use a blast of air to remove the grit. If the bolts still won't start, then possible tapping of the nut may be necessary. Should the bridge sections be misaligned, the sections should either be unbolted and realigned or else seek approval of the Engineer of Record to ream the connections to make way for the bolt to enter the spliced connection.

- Drill  $\frac{9}{32}$ " hole through Plank Holddown, Wood Deck and Plank Support.
- Chase Plank Holddown only with  $\frac{5}{16}$ " drill bit.
- Screw  $\frac{5}{16}$ " Torx Button Head Self Tapping Screw into place.
- Drill  $\frac{9}{32}$ " hole through Wood Deck at Center Nailer.
- Countersink hole with Countersink bit
- Screw  $\frac{5}{16}$ " Torx Flat Head Self Tapping Screw into place.

- Drill  $\frac{9}{32}$ " hole through Plank Holddown, Wood Deck and Plank Support.
- Chase Plank Holddown only with  $\frac{5}{16}$ " drill bit.
- Screw  $\frac{5}{16}$ " Torx Button Head Self Tapping Screw into place.

$\frac{5}{16}$ " Torx ZP Button Head Grade 8 Self Tapping Screw, (1) per plank. (Shipped Loose)



**Tools Required**

- Drill
- $\frac{9}{32}$ " Drill Bit
- $\frac{5}{16}$ " Drill Bit
- #40 Torx Driver
- Countersink Bit  $\frac{5}{8}$ " OD 82 Degree