The following details provide several common joint configurations utilizing the Timberlinx connectors. These details are intended to provide some possible uses to meet your specific requirements. It is important to study all of these details, as some components of each may be combined into the Ultimate connection for your specific use.

The capacity of each joint configuration can vary depending on joint configuration, load durations, and material types. Some guidance as to what to look out for is provided for the standard connections. Consult with your design professional in regards to your specific application.

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<td>Beam to Post</td>
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The standard timberlinx connection where two members are directly connected.

**Joint Capacity**

- **Tension** – Allowable capacity of Timberlinx Connector
- **Compression** – Allowable bearing capacity of the post side-grain
- **Shear** – Allowable dowel bearing capacity of Timberlinx tube

| TX2      | Stub Tenoned Beam to Post |

Similar to the standard connection, but with the inclusion of a stub tenon to increase the shear capacity of the joint and provide some rotational restraint of the beam member.

**Joint Capacity**

- **Tension** – Allowable capacity of Timberlinx Connector
- **Compression** – Allowable bearing capacity of the post side-grain
- **Shear** – Minimum of:
  - Allowable bearing capacity of stub tenon side-grain
  - Allowable horizontal shear capacity of notched beam
TX3  Fully Housed Beam to Post

Similar to the standard and stub tenoned connection, but with the beam fully housed. This increases the joint shear capacity by increasing the bearing areas and eliminated a notched beam in shear. The fabrication of a fully housed beam is also simplified compared to that of a stub tenoned one.

Joint Capacity

Tension – Allowable capacity of Timberlinx Connector
Compression – Allowable bearing capacity of the post side-grain
Shear – Minimum of:
  Allowable bearing capacity of beam side-grain
  Allowable horizontal shear capacity of unnotched beam

TX4  Beam to Post w/ Threaded Rod

A threaded rod can be used in conjunction with a half Timberlinx connector. Use of this joint can reduce tension perpendicular to the grain, which is especially useful near post ends. It can also increase the allowable tension capacity and stiffness of the Timberlinx by eliminating the pin bearing on side-grain.

Joint Capacity

Tension – Minimum of:
  Allowable capacity of Timberlinx Connector
  Allowable bearing capacity of washer
Compression – Allowable bearing capacity of the post side-grain
Shear – Minimum of:
  Allowable bearing capacity of beam side-grain
  Allowable dowel bearing capacity of tube

TX5  Beam to Post w/ Threaded Rod Version 2

While a normal A475 can be set deeper to get additional end distance, use of a an A675 allows you to get a full 7 diameters of edge distance and have the tube cross through the shear plane between the connected members. This provides an increase in the shear strength over just the 7/8” diameter threaded rod.
Rather than using a time consuming scarf joint, a pair of Timberlinx can be used to connect a plate over a post. A Timberlinx provides a positive tension in the top plate to resist any drag forces caused by lateral loading. A Timberlinx also provides a very positive high capacity uplift connection of the plate to the post.

Timberlinx can be used to connect plates at corners over posts as well, which can greatly reduce joinery congestion compared the traditional mortise and tenon equivalents.

A Timberlinx installed from a post to knee brace (or other sloped member) provides a positive connection, and, higher capacity results than a standard mortise and tenon joint in tension, allowing the knee brace to be more efficient in carrying both tension in compression, especially when coupled with a housed or stub-tenon connection. Inserting the Timberlinx square to the faces allows for use of the drilling jig without making any adjustments.

When calculating Joint Capacity, make sure axial forces in the knee brace are converted to resultant shear and tension/compression forces in the Timberlinx.

Similar in function to the knee brace to post connection, this utilizes the Timberlinx tube oriented with the axial forces of the connected member. This effectively eliminates the shear component of the resultant forces, making for a much stiffer and possibly stronger connection. The capacity of the Timberlinx when loaded neither parallel to grain nor perpendicular to the grain (Such as in the rafter) can be conservatively assumed to be the perpendicular to grain capacity. A more exact approach can be determined using the Hankinson Formula.
TX10  Tension Rod to Connector

By using a threaded rod to connect two half Timberlinx, the possibilities of joint configuration are nearly endless. By adjusting the length of the threaded rod, custom length Timberlinx can be developed, from just a few inches to many feet (such as a tension rod in a truss). The use of a threaded rod also always for more leeway in connection members that are not quite true, as the Timberlinx pins do not need to be exactly parallel or perpendicular.

TX11  Post to Concrete Slab

The day of imbedded knife plates and unsightly bolt-on hold-downs are over. A half Timberlinx in conjunction with your choice of concrete anchor can result in a concealed connector that has superior uplift results. Add a shear plate to the bottom of the post, and, you can’t go wrong.

TX12  Rafter to Plate

Rather than use disagreeable looking metal hurricane straps and other formed steel brackets to provide uplift and shear resistance, a concealed Timberlinx can be used. The Timberlinx can come with the pin holes at right angles to each other, allowing for easy drilling and installation. The capacity of these right-angle pinned Timberlinx is the same as the parallel pinned versions.

TX13  Rafters Through Ridge

A set of rafters through a ridge can be securely installed with a longer Timberlinx. Increasing the shear capacity of the rafter to ridge beam can be accomplished by using a 4” diameter split ring.

TX14  Truss Heel Joint

A heel joint of a truss is always a crucial connection. Traditional heel joints are extremely strong, but require clamping action to ensure the joint stays tight. A Timberlinx is a prime candidate for this, as it provides a higher clamping force with the removal of a minimal amount of material at this critical joint.
A common sight is a king post interrupting a heavily loaded collar tie of a truss. Rather than use side plates are long hidden splines, a Timberlinx can be used to bridge this connection. This results in an extremely stiff joint as the tension load is bypassed through the kingpost.

A pair of timbers connecting into a post is a common connection in the timber world. So much so, Timberlinx has several sizes of Timberlinx available to take common post sizes into account.

Traditional four way connections in a timber structures result in a greatly reduced cross section. Not only do the timbers need housed, but the splines and tenons further reduce the post. Using a pair of Timberlinx easily replaces the use of high and low splines. The result is a stronger, more concealed joint that installed in a much shorter time.

Note that the center of the Timberlinx pin is not in the center of the pin hole drilled into the timber. The hole drilled into the timber is larger to allow for easy assembly of the joint and to make room for the patented expansion characteristics of the pin.
# TIMBERLINX STANDARD DETAILS

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Project Description: STANDARD DETAILS

Sheet No. TXO

Scale: NTS  Drawn By: JFM

Issued On: 14 SEPT 07  Checked By: NM/MP
SIDE VIEW

TOP VIEW

INFORMATION CONTAINED WITHIN OR CONDITIONS DEPICTED BY THESE DRAWINGS ARE INTENDED TO BE USED AS A GUIDE ONLY. THE BURDEN OF DETERMINING THE EXACT CONFIGURATION, CAPACITY, AND LOAD REQUIREMENTS OF A SPECIFIC APPLICATION IS THE RESPONSIBILITY OF THE DESIGN PROFESSION AND EXPLICITLY NOT THAT OF TIMBERLINX OR THEIR AGENTS.
Information contained within or conditions depicted by these drawings are intended to be used as a guide only. The burden of determining the exact configuration, capacity, and load requirements of a specific application is the responsibility of the design profession and explicitly not that of Timberlinx or their agents.
SIDE VIEW

TOP VIEW

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1 1/8" HOLE

SIDE VIEW

TIMBERLINX AO95

1/2 D
1/2 D
0

TOP VIEW

1 1/8" HOLE

TIMBERLINX AO95

1/2 B
1/2 B

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TIMBERLINX A095
(or longer as req'd by pitch and timber size)

SIDE VIEW

1 1/8" HOLE

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SIDE VIEW

1 1/8" HOLE

STAND-OFF BASE AS REQ'D

TIMBERLINX A475
7/8"Ø WEDGE ANCHOR OR EPOXI ED THREADED ROD
ANCHORAGE DESIGN BY OTHERS

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NOTE: A155 IS DESIGNED TO ALLOW FOR FLUSH JOINTS ON AN 6" MEMBER. A135 WORKS FOR A 4" MEMBER, A175 FOR 8" MEMBER.

SIDE VIEW

TOP VIEW

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NOTE: A155 is designed to allow for housed joints on an 8" post. A135 works for a 6" post, A175 for 10" post.

1 1/8" HOLE

STUB TENON

SIDE VIEW

TIMBERLINX A155

1 1/8" HOLE

STUB TENON

TOP VIEW

TIMBERLINX A155

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TIMBERLINX PIN BEARS AGAINST SIDE OF LARGER HOLE IN TIMBER

NOTE CENTER OF PIN DOES NOT LINE UP WITH CENTER OF HOLE IN TIMBER

TIMBERLINX TUBE (INSIDE)

END OF TIMBERLINX PIN

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