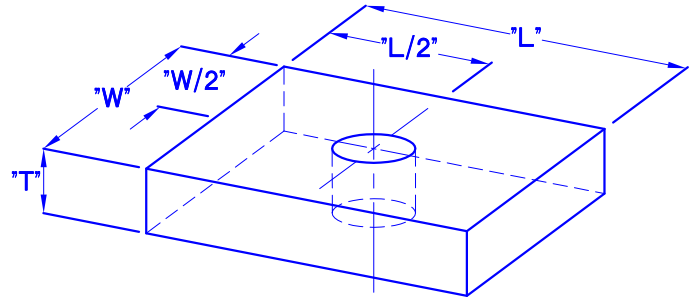




Bearing Plates

Bearing Plates carry compression loads into the structure by bearing on the wood. AutoTight plates satisfy the flexural requirements of [AISC 360](#) and the wood-bearing requirements of the 2005 NDS. ([ICC ES AC391 Sect 1.4.6](#), July 1, 2010)

Per 2005 NDS, plates assume deformation of 0.040 inch at the compressive design value with a linear load deformation. ([ICC ES AC 391 section 3.2.1.2](#)).



Determining Compression Deflection

AutoTight Bearing plates provide the minimum deformation (0.040") at rated capacity.

1. Determine the reaction load.
2. Select the smallest plate that can carry the reaction load.
3. The wood deformation at the actual load is linear.
The load deformation relationship is $0.040 * \text{design load} / \text{rated load}$.

Example:

Reaction is 11,000 pounds on Douglas Fir.
Selecting an S12 bearing plate (capacity 12,360 pounds) provides the required capacity.

Deformation (per [AC 391, section 3.2.1.2](#)) is $0.040 * 11,000 / 12,360 = 0.036"$
Add this deformation to the rod and shrinkage compensator deformation.

Minimizing Total Deformation To lower deformation increase the size of the bearing plate.

Example:

Reaction load is 11,000 pounds on Douglas Fir.
If an L20 plate is selected, the plate deformation will change as follows:

Deformation will be $0.040 * 11,000 / 21,016 = 0.021"$

Changing the bearing plate allows you to adjust the total deflection (elongation) to achieve a tight system.

This example shows how to manually adjust components to achieve a desired deflection.
The [AutoDesign Software](#) allows you to easily change rod, bearing plates or shrinkage compensators to get the required system deflection.