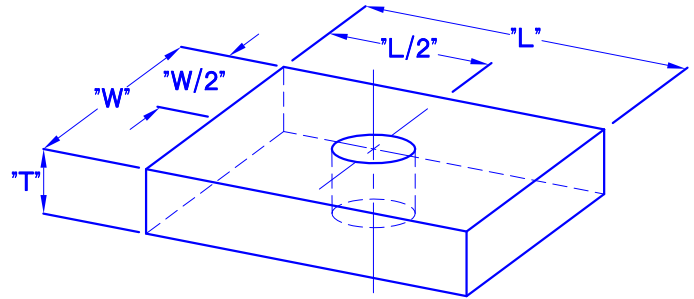




### Bearing Plates

Bearing plates distribute compression loads into the structure at reaction points. AutoTight plates exceed 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 deflect 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 a maximum deformation of 0.040" at rated the capacity.

To select:

1. Determine the reaction load.
2. Select the smallest plate that can carry the reaction load.  
Check for: Bearing Capacity, Width (wall fit 4X or 6X Wall) and rod fit.
3. The wood deformation at the actual load is linear.  
With the load-deformation at the design load =  $0.040" * \text{design load} / \text{rated load}$ .

#### Example:

Reaction is 11,000 pounds on Douglas Fir. Rod is  $1\text{-}\frac{1}{8}" \text{ } \emptyset$ .  
Select an S11- $1\text{-}\frac{1}{4}"$  bearing plate with a rated capacity of 11,948 pounds.

Actual deformation (per AC 391, section 3.2.1.2 ) is  $0.040 * 11,000 / 11,948 = 0.037"$   
For system deformation add the 0.037 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- $1\text{-}\frac{1}{4}"$  plate is selected, the plate deformation will be as follows:

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

Changing the bearing plate is one method 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 [AutoTight Software](#) allows for a fast, easy change of rod, bearing plates or shrinkage compensators to achieve the the required system deflection.



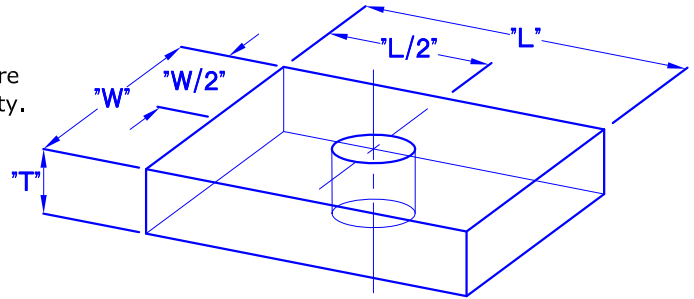
### Bearing Plates

Bearing Plates load the structure at reaction points. Bearing loads are limited by wood crushing at the NDS allowable wood bearing capacity.

**Material:** Complies with ASTM A36

**Identification:** Plates or boxes marked with Part #.

Efficiency tip: Minimize the number of sizes used on any single job, i.e. Keep it Simple.



Wall Thickness	Typical Use	Bearing Plates								
		Model No.	Best Sizes	T x W x L	Max Rod Ø	Allowable Load (Cross Grain Crushing)				
						DFL @ 625	SYP @ 565	HF @ 425	SPF @ 405	
Fit 4x & 6X walls	AT 75 and AT 6A	S5 -5/8"		1/4" x 3" x 3"	5/8	5,964	5,391	4,055	3,864	
		S5 -3/4"	***	1/4" x 3" x 3"	3/4	5,964	5,391	4,055	3,864	
		For 1/2" through 1" Rod								
		S7 -1"	***	3/8" x 3-1/2" x 3-1/2"	1"	7,863	7,108	5,347	5,095	
		S10 -1"	***	1/2" x 3-1/4" x 5"		10,322	9,331	7,019	6,689	
		S11 -1"	***	1/2" x 3-1/2" x 5-1/2"		11,948	10,801	8,125	7,742	
	S14 -1"		3/4" x 3-1/4" x 7"	13,665		12,353	9,292	8,855		
	S16 -1"		1" x 3-1/4" x 8"	15,696	14,189	10,673	10,171			
	AT 100 & 125	For 3/4"- 1-1/4" Rod								
		S7 -1-1/4"	***	3/8" x 3-1/2" x 3-1/2"	1-1/4"	7,540	6,816	5,127	4,886	
		S10 -1-1/4"	***	1/2" x 3-1/4" x 5"		10,009	9,048	6,806	6,486	
		S11 -1-1/4"	***	1/2" x 3-1/2" x 5-1/2"		11,948	10,801	8,125	7,742	
S14 -1-1/4"			3/4" x 3-1/4" x 7"	13,373		12,089	9,094	8,666		
S16 -1-1/4"			1" x 3-1/4" x 8"	15,404		13,926	10,475	9,982		
Fit 6x and larger wallwalls	AT125 & AT 100	L18 -1-1/4"	***	1/2" x 5.5" x 5.5"		1-1/4"	19,292	17,440	13,119	12,501
		L20 -1-1/4"	***	5/8" x 5-1/2" x 6"	21,016		18,998	14,291	13,618	
		L25 -1-1/4"		3/4" x 5-1/2" x 7-1/2"	24,936		22,542	16,956	16,158	
		L30 -1-1/4"		1" x 5-1/2" x 9"	30,092		27,203	20,462	19,500	
		L33 -1-1/4"		1-1/8" x 5-1/2" x 10"	33,529		30,311	22,800	21,727	
		L37 -1-1/4"		1-1/4" x 5-1/2" x 11"	36,967		33,418	25,137	23,955	
	AT 200 Only	For 1-3/8", 1-1/2", 1-3/4" and 2" Rod								
		L18 -2"	***	1/2" x 5.5" x 5.5"	2"	17,965	16,240	12,216	11,641	
		L20 -2"	***	5/8" x 5-1/2" x 6"		19,695	17,805	13,393	12,763	
		L25 -2"		3/4" x 5-1/2" x 7-1/2"		23,693	21,419	16,111	15,353	
		L30 -2"		1" x 5-1/2" x 9"		28,849	26,080	19,618	18,694	
		L33 -2"		1-1/8" x 5-1/2" x 10"		32,287	29,187	21,955	20,922	
L37 -2"		1-1/4" x 5-1/2" x 11"	35,724	32,295		24,293	23,149			

**Notes:** Plate ID includes maximum rod diameter. Holes are 1/16" oversize.

Bearing Plate bending based on ASTM A36 Steel, Fy = 36 ksi. per AISC 13th ed.

Bearing Capacity per NDS 2005: DFL = 625, SP = 565, HF = 405, SPF = 425 psi.

Bearing area factor, Cb, included in listed capacities.

Allowable bearing capacity is not limited by plate bending. Deflection is 0.040" at Allowable Load.

Allowable Capacity = (Fc perp) \* Bearing Area \* Bearing Factor (per AC 391 3.2.1.2 May 2012)

S5, S7, S10 and L18 plates may be used on the first floor mudsill for end of wall connection.

Finish: S5, S7, L11 and L18 plates are HDG. All other are black iron except as noted.