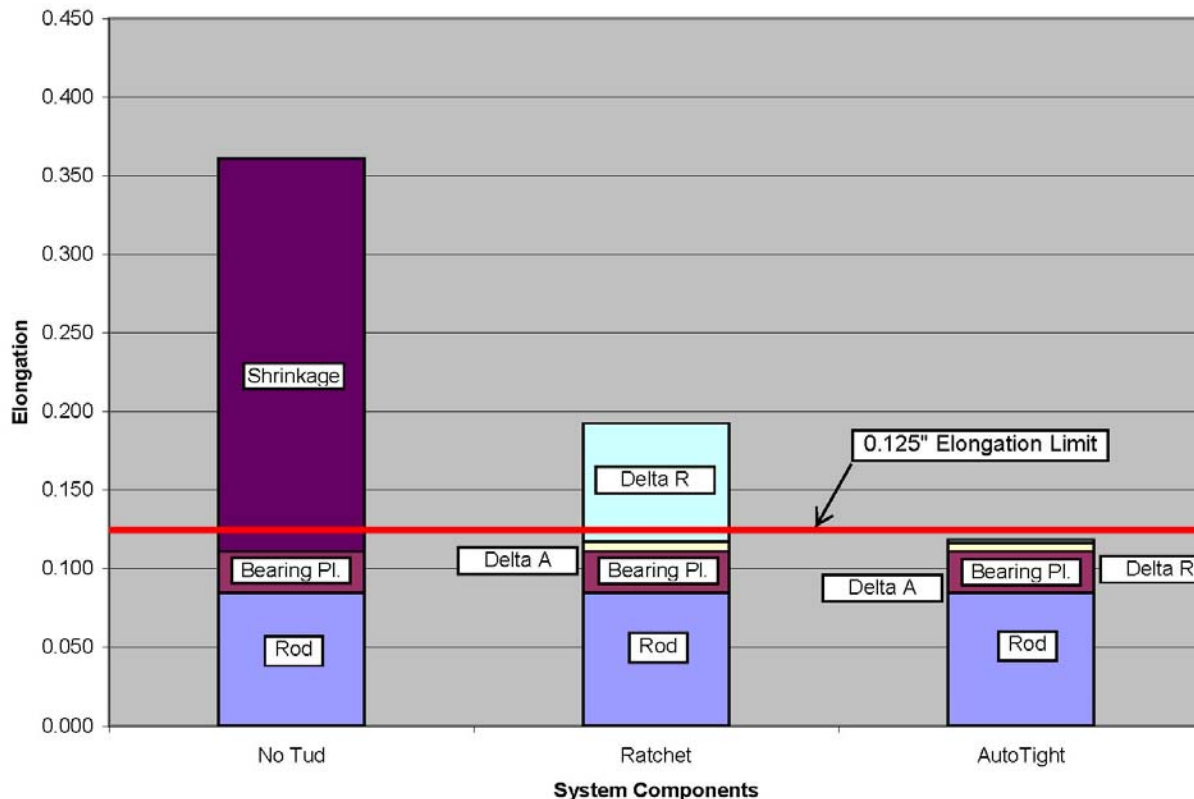


October 8, 2012

## Tie-Down with 0.125" Elongation Limit.

The ICC-ES 0.200" Elongation Limit is for standard walls, (8' or longer). Short walls (less than 8') make it more difficult to meet drift limits and may require a tighter tie-down elongation limit. The following three systems demonstrate the problem with meeting a 0.125" elongation limit. Rod, plates and shrinkage are identical but other items vary.

**Tie-Down Elongation**  
All Tension Elements with 0.125" limit



The AutoTight AT Shrinkage Compensator is the key to the tightest system. The next chart compares differences between the Ratchet and the AutoTight Device.

# AutoTight®

## Rod Holddown System

By Commins Manufacturing Inc.



TM

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Calculations for the 0.125" systems shown.

### Tie-Down System Requirements

<b>Total Load</b>	<b>20000</b>		
<b>Distributed Load</b>	<b>12000</b>	<b>pounds</b>	This floor
<b>Elongation Limit</b>	<b>0.125</b>	<b>Inches</b>	
<b>Floor Height</b>	<b>10 feet</b>	<b>120</b>	
<b>Wood</b>	<b>DF-L</b>		
<b>Shrinkage</b>	<b>1/4</b>	<b>Average</b>	

Example 1	Size	Description	Capacity		Adjusted	
			Lbs.	Elongation		
1	Rod	1-1/4" Ø A307	1-1/4" -7 NC X 120"	27,610	0.118	<b>0.085</b>
2	Bearing Plate	L18	Pl. 1/2" X 5-1/2" X 5-1/2"	18,139	0.040	<b>0.026</b>
3	Shrinkage	AT 125 Screw	Delta A	34,500	0.016	<b>0.006</b>
4	Compensator		Delta R	NA	0.002	<b>0.002</b>
5	Shrinkage		1/4"	NA	0.250	<b>0.000</b>
System Elongation						<b>0.120</b>

Example 2	Size	Description	Capacity		Adjusted	
			Lbs.	Elongation		
1	Rod	1-1/4" Ø A307	1-1/4" -7 NC X 120"	27,610	0.118	<b>0.085</b>
2	Bearing Plate	L18	Pl. 1/2" X 5-1/2" X 5-1/2"	18,139	0.040	<b>0.026</b>
3	Shrinkage	Ratchet	Delta A	55,832	0.0287	<b>0.006</b>
4	Compensator		Delta R	NA	0.0754	<b>0.075</b>
5	Shrinkage		1/4"	NA	0.250	<b>0.000</b>
System Elongation						<b>0.194</b>

Example 3	Size	Description	Capacity		Adjusted	
			Lbs.	Elongation		
1	Rod	1-1/4" Ø A307	1-1/4" -7 NC X 120"	27,610	0.118	<b>0.085</b>
2	Bearing Plate	L18	Pl. 1/2" X 5-1/2" X 5-1/2"	18,139	0.040	<b>0.026</b>
3	Shrinkage	None	Delta A	Na	0.000	<b>0.000</b>
4	Compensator		Delta R	NA	0.000	<b>0.000</b>
5	Shrinkage		1/4"	NA	0.250	<b>0.250</b>
System Elongation						<b>0.362</b>

AutoTight turnkey systems.

Elongation limits to 0.125" or less

Rod strength to 147 kips.

## AutoTight® –Always Tighter

# AutoTight®

## Rod Holddown System

By Commins Manufacturing Inc.

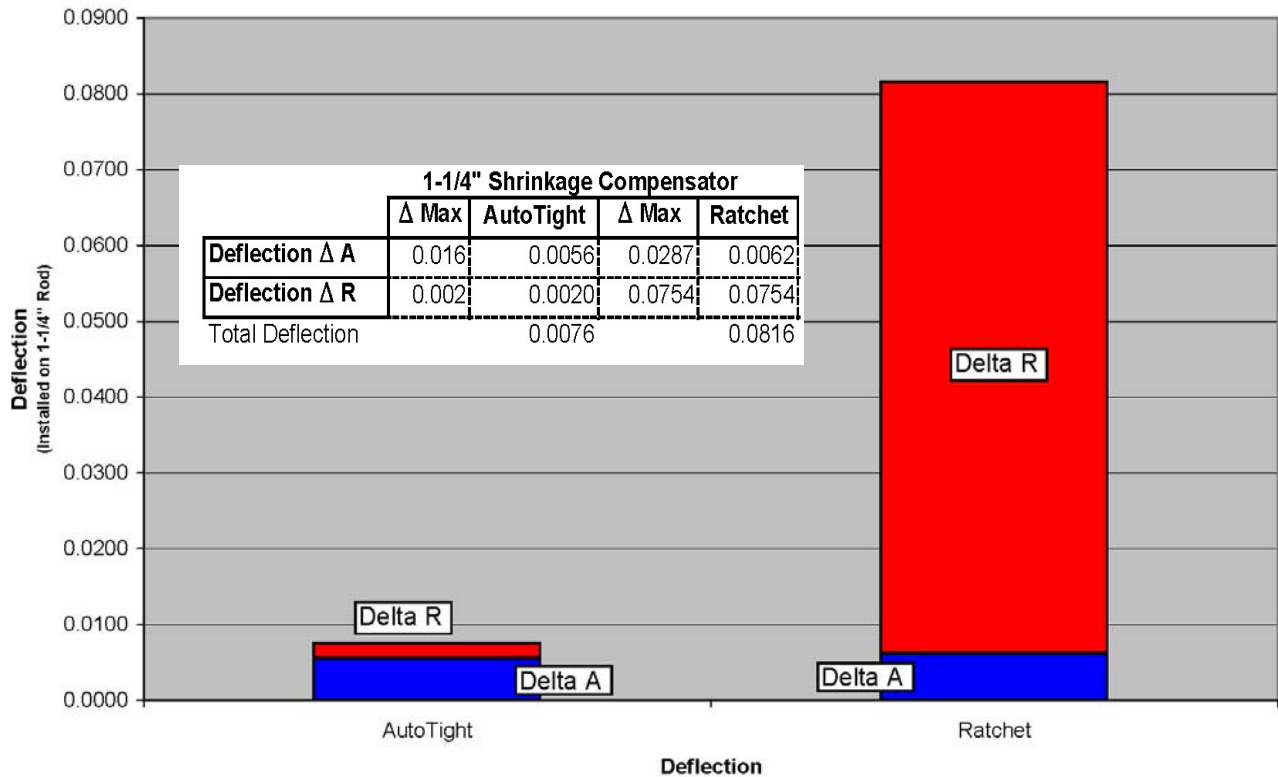


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A look at the shrinkage compensators shows the differences. Deflection under load,  $\Delta_A$ , is identical for both devices. Advancement deflection,  $\Delta_R$ , for the Screw device (AutoTight) is 0.002". The  $\Delta_R$  for the ratchet is 0.076. All systems are evaluated per AC 316 and AC391.

### Shrinkage Compensator Deflection

AutoTight Screw vs. Ratchet  
1-1/4" Dia. Product at 12 Kips



Choose Wisely

**AutoTight® -Always Tighter**

**Email: [AutoTight@Comminsmfg.com](mailto:AutoTight@Comminsmfg.com)**