



## Continuous rod tie-down systems and the issue of *Elongation*

Jurisdiction or Group	Rod Limits	Max. Limits all components
Los Angeles	.200" rod only	
San Diego	.125" rod only	
San Francisco		.179" All Components
TUCC (ICC Group) *	.125" All Components	.200" All Components
ICCES 391 3.2.2.2	.125" Rod Only	.250" All Components

### Some of the many TUCC City Members

Alameda	Moraga	Cupertino	Belmont
Albany	Newark	San Jose	Santa Clara
Antioch	Oakland	Woodside	Gilroy
Benicia	Oakley	Foster City	Santa Cruz
Berkeley	Orinda	Pleasanton	Cupertino
Brentwood	Pittsburg	Burlingame	Monterey
Clayton	Pleasant Hill	San Francisco	King City
Concord	Pleasanton	Los Gatos	Seaside
Danville	Richmond	Foster City	Marina
Dublin	San Pablo	Milpitas	Salinas
El Cerrito	San Leandro	South San	Soledad
Emeryville	San Ramon	Francisco	Greenfield
Fremont	Union City	Menlo Park	Capitola
Hayward	Walnut Creek	Redwood City	
Hercules	Los Altos		
Livermore	Monte Sereno		
Martinez	Los Altos Hills		

Some Engineering firms are requiring limits as tight as .125" total system elongation.

We are happy to see this trend is growing as it will create higher performance in the shear walls and safer buildings.

Some companies still only require rod elongation, yet it is recognized that as much as half the elongation in the systems is in the components other than the rod.

Just in the Shrinkage compensator there may be .170" + of deflection when you add the load deflection to the  $\Delta r$  !

$\Delta r$  "Average travel and seating increment" (AC 316 section 1.4.7).

$\Delta r$  is independent of load and is always added in full. (AC 391 section 3.1.1).

**Why would it be mandated that these numbers be factored in if we are only going to consider the rod's elongation? Why not measure all the components with deflection in mind?**

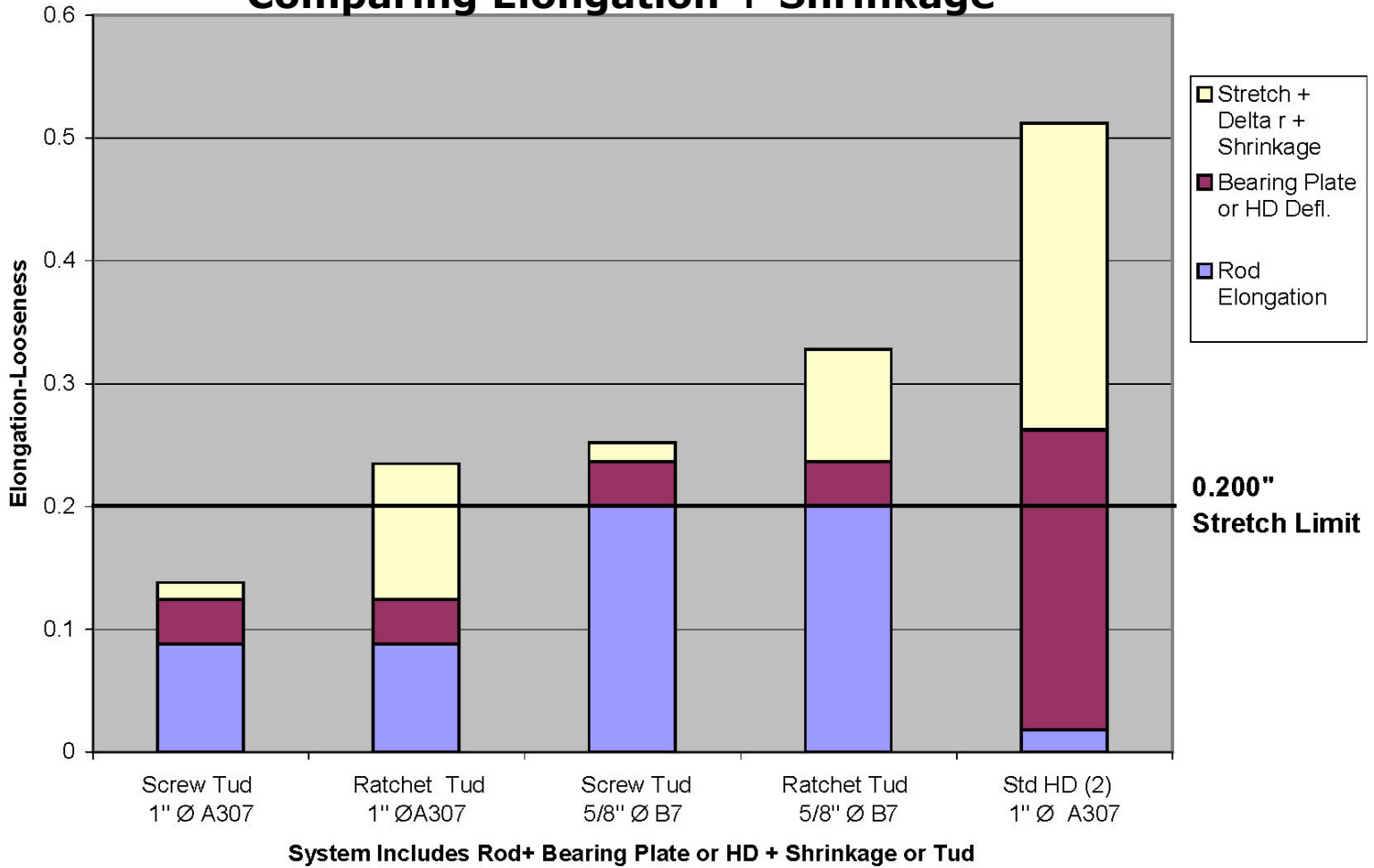
**So we are asking you—**

**What limits is your company putting on Rod Hold-down elongation?**

**Please help us with this survey by emailing us your answer.**

**Email: [mikec@comminsmfg.com](mailto:mikec@comminsmfg.com)**

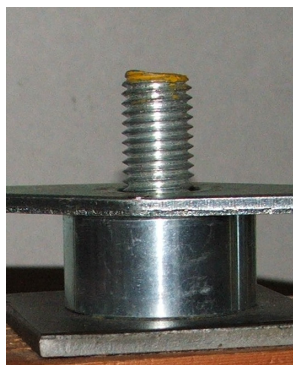
# Single Story 11 kip Systems Comparing Elongation + Shrinkage



Systems Evaluated per AC 391; AC155; and AC 316

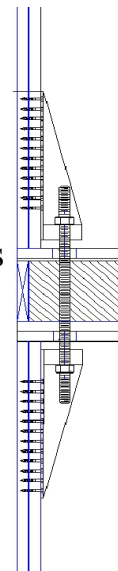


Screw TUD System



Ratchet TUD System

Standard  
Hold Downs



**See the Difference—Watch this Video**  
**Click on the link**

[CLICK HERE](#)