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### Tie-Down Systems Code Changes.

Recent changes in tie-down system evaluation now provide a guide for proper design. ICC Evaluation Service defines the components required in a tie-down system. These items are rod, bearing plates (or hold downs) and shrinkage compensators.

#### **System Design Step-by-Step** (Manual Method)

Tie-down systems are designed floor-by-floor between reaction points.

Step one: select components based on the required system tensile strength. Most designers select components from "lookup" tables. Commins Manufacturing Inc. provides lookup tables for rod, bearing plates and shrinkage compensators starting on page 13. Select the lightest components for the required load.

Step Two: Compute rod elongation, bearing plate deformation, TUD deflection and  $Tud \Delta r$ . Sum the results.

Step Three: Compare the sum from step 2 to the required elongation limits. Adjust the rod diameter or bearing plate size to reduce deflection to the required amount.

**Elongation Limits** vary with the jurisdiction. Some jurisdictions limit rod elongation to 0.125" while other have a rod only limit of 0.200". See page 6 for more information.

### Automatic Design

Commins Manufacturing Inc. is now offering a free automatic tie-down design package. With this software a designer can design each run in a multistory project in under one-minute. The design can be adjusted for most current US and Canadian Codes. The system allows designs for strength, stretch (elongation) and shrinkage. Stretch components may include rod only or all components.

Coupled with the design program is a Calculation Pack that provides documented review ready calculations and three drawing templates to speed detailing.

Commins Manufacturing designs systems every day. We use this same software. If you have any questions or comments please contact us.

Commins-Committed to Constant Improvement.

This catalog has a publish date of March 2011. We are continuously improving the product and the process. Please check our web site for the latest catalog and software.

Videos and [Articles](#) Most structural engineering involves static structures. Wood frame buildings are usually static except for building shrinkage/settling and movement during high wind and/or seismic events. To assist your understanding of building shrinkage and shear wall movement we offer the following videos and papers on our web site.

- [Video 1 Lateral Performance of Loose Shear Walls](#)
- [Video 2 AutoTight Squishy Block Demo Video](#)
- [Video 3 Delta R is Looseness](#)

Papers / Articles [www.structuremag.org/archives](http://www.structuremag.org/archives) and down load pdfs of the following articles:

- [Part 1, Hold Down Systems,](#) August, 2007
- [Part 2, Strap and Tie-Down Systems,](#) Nov. 2007
- [Part 3, Continuous Tie-Down Systems,](#) March, 2008
- [Part 4, Designing Rod Tie-Down Systems,](#) April, 2008
- [Part 5, Inspecting Tie-Down Systems,](#) August, 2008
- [Part 6, Evaluating Tie-Downs - a Systems Approach,](#) June, 2009

On the Web site soon:  
[Draft, Tie-Down Systems Critical Code Changes](#)  
[Part A Strength, Stretch and Shrinkage-Settling](#)  
[Part B Reliability](#)

Blue words are links.