

## TOWER Tips & Tricks

Here is a list of little known TOWER tips and tricks that can make working with TOWER both more efficient and more enjoyable.

### User Interface

Use the built in calculator: Most numeric input fields have a built in calculator that will evaluate arithmetic expressions for you. You start an expression with an equals sign and TOWER will evaluate the expression when you tab out of the input field or OK the dialog. In addition to supporting the standard arithmetic operators +, -, \*, / the calculator also handles *sin*, *cos*, *tan*, *sqrt* and ^ (power) functions. For example typing " $=10*\sin(45)$ " would yield 7.07 in your input field. Finally, you can convert a quantity into the current unit system with the *cvt* function. Entering " $=cvt(1)$ " in a length input field while using US units would result in 3.28 ft.

Dynamic pan and zoom: If you hold down the shift key while moving the mouse, you can fly over your TOWER model. Click with the left mouse button to zoom in and the right mouse button to zoom out. If you hold the Ctrl key instead of the shift key you can rotate the model with the mouse (left click to set a new rotation origin).

Use the *View/Find Member* and *View/Find Group* commands to hilite a member or group in the current graphics view.

### Mastering Multiple Models

The *File/Analyze Multiple Models* command can be used to analyze all the TOWER models you select in a single batch. After analyzing each model, TOWER will leave its Deformed Geometry view open so you can manually inspect the results. Alternately, you can use the *Model/Create Group Summary Super Set* and *Model/Create Foundation Reactions Super Set* commands to aggregate the results from many models into a single set of results that can be used to select group member sizes or design foundations across a family of structures. After designing your groups you can use the *File/Apply Angle Groups* command to take the angle groups definition from the current model and apply it to all of the models you select. You can use the *File/Apply Insulator Configuration* command to do the same thing for insulators. This can be used to rapidly change the PLS-CADD insulator link, insulator type, swing limits, library, or other properties for a structure family.

### Miscellaneous

Make sure to check the *General/General Data/Automatic Project Revision Tracking* option so you can track changes made to your models. This is particularly helpful when multiple people are working on a set of models or if a consultant is modifying an existing tower. Every change made to the structure will be listed as well as the time, date, user and computer on which the change was made. For example, changing a strain insulator from a "ST-EX1" to a "ST-EX2" would result in the following change report being saved with the model in your Project Report:

```
Project saved to "c:\pls\tower\examples\ex1.tow" on 11:01:22 1/2/2004 by User on Computer
Revisions:
  Strain "S1-A": Property Set (ST-EX2, ST-EX1)
  Strain "S1-B": Property Set (ST-EX2, ST-EX1)
Total of 2 changes
```

You can use the following F1 menu commands to modify joints: *F1/Factor Joint Coordinates* (can be used to correct coordinate values if entered in the wrong coordinate system), *F1/Change All References to a Joint* (used to rename joints), *F1/Convert All Secondary Joints to Primary* (useful when you want to edit all joints in the Primary Joints table or use *Sections/Paste*), and *F1/Convert Primary Joint to Secondary*.

The *Model/Interactive Member Sizing* command allows you to select a group in the deformed geometry view and have TOWER suggest the most economical member type and size to use for that group. The *Model/Auto-Fix Angles* command will automatically select the most economical member type and size for all groups with a usage greater than 100%. The *Model/Optimize* command will select the most economical member for all groups, not just the over used groups.