

# STRAP 2008 - List of Enhancements

## Highlights

### **New** Submodels:

The model may now be defined from a large number of submodels. These submodels are now separate entities saved by the program and **each one** may be defined with the maximum number of nodes and/or elements:

- the size of the final model is now unlimited.
- the solution time for a model defined with submodels is significantly reduced.
- multiple 'instances' of a submodel may be added to the model; revising the geometry of a submodel (e.g. a typical floor) automatically revises all of the instances.
- refer to "Detailed list of Enhancements" for more details.

### **New** Magnifying glass:

A 'magnifying glass' option has been added: the program opens a small window that displays the area around the cursor magnified several times. The user can check numbering, etc. without zooming in.

### **New** Solve selected load cases:

The program may now be instructed to retain the existing solution for selected load cases when solving the model

## Detailed List of Enhancements:

### Submodels:

The model may now be defined from a large number of submodels attached to the 'Main model'. These submodels are now separate entities saved by the program and **each one** may be defined with the maximum number of nodes and/or elements (32,000):

- the total size of the model (main model + submodels) is now unlimited.
- the solution time for a model defined with submodels is significantly reduced. Slabs may be defined with more refined meshes without a significant increase in the solution time.
- multiple 'instances' of a submodel may be added to the model; revising the geometry of a submodel (e.g. a typical floor) automatically revises all of the instances.
- the node and element numbering is independent in each submodel.
- the submodels may be defined using any of the following methods:
  - use an existing model (e.g. a floor that was defined and solved independently)
  - select part of the current model
  - copy and revise another submodel
  - use a Model wizard
  - create the submodel using the regular *STRAP* geometry commands
- 'Instances' of each submodel are then attached to the Main model at 'attachment points' (nodes in the Main model); the connections may be fixed or pinned.
- Each submodel may be displayed separately without saving them as individual 'Views'.
- Loads may be defined either on the submodel (applied to all instances) or on a selected instance of the submodel. If applied to the submodel, any change to the loads is applied to all of the instances.

- Concrete design:
  - identical detailing of reinforcement may be requested for the same beam in all instances of a submodel; the program calculates a result envelope from the results of the individual beams.
  - identical detailing may also be requested for all instances of the same slab.
- Steel design: similar to Concrete design.

### **General:**

- A 'magnifying glass' option has been added: the program opens a small window that displays the area around the cursor magnified several times. The user can check numbering, etc. without zooming in.
- 'Find models': a new option that searches all folders on the disk for models whose title contains a user-defined 'string'.
- [F3] now displays 'Full drawing'
- 'Restore model list' now automatically recreates the list file (the user does not have to rename it manually).
- A 'Draw walls' option is now available in addition to the 'Draw columns' option (this option draws wall and column sections that are perpendicular to the screen on the geometry).
- Setup: an option has to added to automatically save the geometry at timed intervals.
  - five hatching patterns may can be defined for global area loads.
- Help: Help screens are now displayed in HTML format, including a Table-of-Contents' window for easier navigation.
- Wizard: 'Portal frames' (with haunches) may now be defined.

### **Geometry:**

- Wall sections not in use may now be erased.
- Copy: the program now checks whether walls are copied onto existing walls (the wall is not copied when an existing one is found).
- Tapered section: the material of the section is now automatically updated when the material is revised in one of the sections at the ends of the tapered beam.

### **Loads:**

- The order of load cases may now be rearranged
- Stages: the stage at which a load case is applied is now displayed in the "Display list of loads" table.
- Deactivate: Two options are now available: "Inactive" and "Existing solution". The program retains the existing results for all load cases where "Existing solution" is selected. This is the default option for load cases generated by the Dynamic, Bridge and *POSTTEN* modules.

### **Results:**

- Options for selecting result type, load case/combination, submodel and some display parameters for graphic results are now displayed at the bottom of the screen. The user can display the results for a different load case with a single click.
- The result parameters are now saved when a "View" is created in results, i.e. when the View is displayed again the same result diagram will also be displayed.

- Grid lines may now be displayed in Results.
- "Draw columns" and "Draw walls" options are now available in Results (identical to the option in Geometry, Steel, etc)
- Slabs: rectangles for reduced moment calculations may now be defined at any location on a slab.
- "Write beam results": the maximum and minimum results may now be displayed simultaneously.
- 'Right click' for beam results: moments are now displayed in addition to the forces.
- Graphic results: units now displayed in title at bottom of display.
- The user can select any point on a beam or element and see the results at this point in the "magnifying glass' window.

### **Concrete:**

- Beam names are now generated according to Grid line names (and not beam numbers) in models where Grid lines have been defined.
- The "Specify reinforcement" option has been added for walls.
- Draw columns:
  - the main reinforcement may now be drawn with a single bar
  - link dimension line may be added
- Column table:
  - the main reinforcement may now be drawn with a single bar
  - link dimension line may be added
  - Grid lines may be added to the section
  - the title location may now be specified.