June 2008 | INDUCTA Engineering | Ph: +612-9267 0114

Volume 1, Issue 2

E-Newsletter

SLABS4.0 is released

After over one year's development and a lengthy period of beta testing, we have officially launched the new version of our ever popular SLABS program, SLABS4.

Besides the much awaited user interface improvements, we strive to provide users with better tools to assist their daily design job...

RC Building, PT3D, PanelsPlus updates

A look at the updates made to our other structural design software packages in the past six months…

REVIT Structural 2008 link and more…

Internal development is close to a beta release of REVIT Structural 2008 link to R/C Building and SLABS4…

Frequency analysis in SLABS4.0

SLABS4.0 can be used to determine the natural frequency of the free vibrations of the slab. Here is a brief introduction to this feature…

Foreword

As technology advancement has given engineers more powerful computers to work with, it has also enabled us as a software developer to produce better programs. You will notice a considerable difference from the recently released SLABS4 and the upcoming REVIT-INDUCTA link programs.

You will also find some useful information regarding updates made to our other major software. As always, we are willing to hear from you for feedback and suggestions.

Contents

SLABS4.0; it will increase productivity and enable engineers to design more efficient and safer structures.

What can I expect when upgrading to SLABS4.0?

- New User Interface with easy to use modelling tools
- Feature-rich tools including flooded colour contouring
- Support of wider range of AutoCAD drawing files, including DWG and different versions of DXF.
- Easy to use **Dynamic Task Bar** for working with models and examining results
- Improved model library preview and 3d view
- Similar look and feel with our R/C Building and PT3D programs
- Upcoming Undo, Redo functions.
- Inclusion of Advanced Area method for calculating reactions
- Improved element property table
- Improved slab on ground design
- Improved punching shear design that now includes check of columns above
- New data file extensions, easy to recognize SLABS4 files
- Seamless export/import with R/C Building program
- New element **Wide Beam**
- And much more…

SLABS4.0 is released!

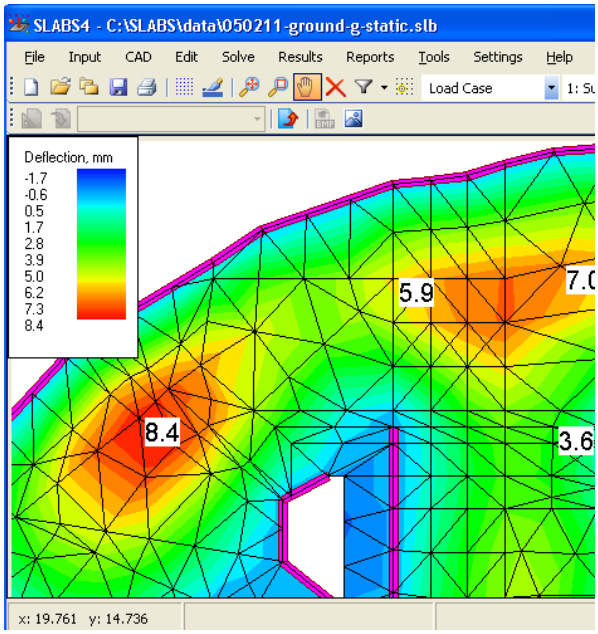
The much anticipated SLABS4.0 has officially been released.

According to our users who have started using the new program, it is simply 'fantastic' or 'ten times better than the old one'. We certainly wouldn't dismiss the older version just like that, but we are thrilled to see the high acceptance rate from the users and the enormous positive feedback.

Continuous development and correcting bugs has ensured the successful migration from the older version. Users can even run SLABS version 3.5 and version 4 simultaneously as a comparison.

All the new features as mentioned in last issue of the E-newsletter, can now be found on our new website for SLABS4.0 http://www.inducta.com.au/slabs4.htm

If you are a supported SLABS user, please don't hesitate to give us a call or send us an email to organize your free upgrade to SLABS4.



RC Building, PT3D, PanelsPlus updates

Below is a summary of the inclusions made to our other major software packages during the past six months (Jan 2008 – Jun 2008).

- R/C BUILDING
  - Exclude pinned walls and columns in shear centroid calculations
  - Fix bitmap saving errors
  - Fix bugs in exporting to SLABS4
  - New feature: import SLABS4 models into R/C Building
  - Improve CAD importing. Now CAD formats include DWG as well as DXF
  - Increase or decrease font size dynamically
  - Include three alternative methods for Spectral and Frequency analysis
  - Punching shear check: Column critical perimeter check improve, option to use 0.75*d from column face

- PT3D
  - Improved tendon profile window, zoom in/out now with mouse scroll wheel, and font size can be dynamically adjusted
  - Import from SLABS4 including user defined wide beams
  - The user can choose to exclude certain slab types from the tendon design sections
  - Flexible screen size
  - Introduced buttons to increase or decrease font size dynamically
  - Fix bug in curve tendon profile, auto-balancing (low point)

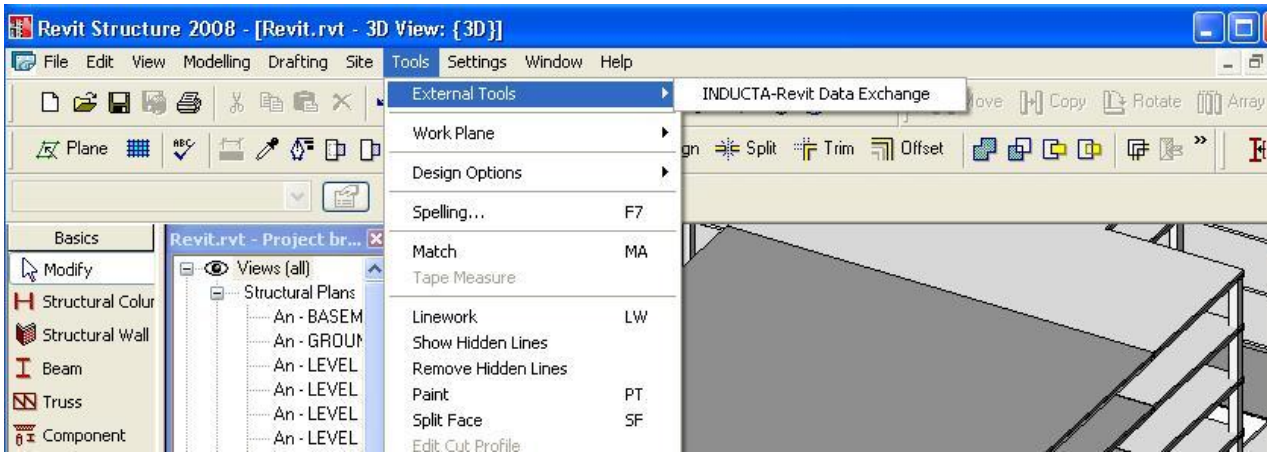
- PanelsPlus
  - Limit max bar spacing (user defined) on the steel results screen
  - Improved ‘Get Angle’ function
  - Included negative recess importing
  - Included the display of C.G. dimension of panel on exported DXF file
  - Removed error message when imported recess area greater than 10% of panel area.
  - Fixed bug in the reaction report for face lifters

Upcoming REVIT Structural 2008 link

Internal development is close to a beta release of the link between REVIT Structural 2008 and R/C Building & SLABS4. An official announcement will be made in the next couple of months.

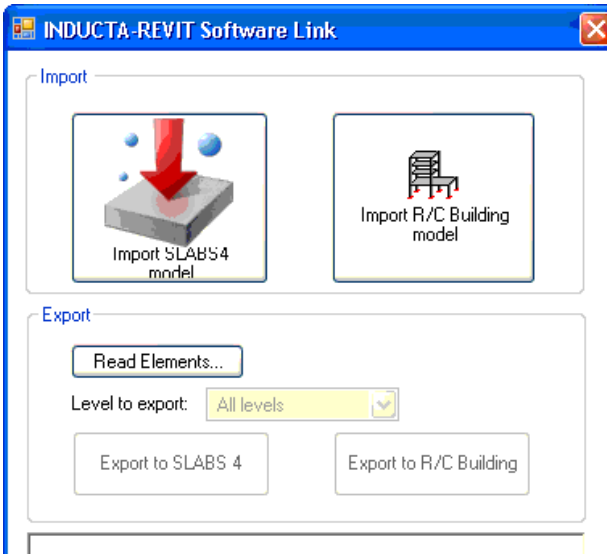
This Link provides a powerful way to exchange data between Revit® Structure 2008 and INDUCTA software. Models created in either program can be easily visualized, updated, and opened in the other program, utilizing the respective features and functions in either the area of modelling or structural analyzing.

The Revit Structure 2008 Link to INDUCTA Software will be inserted into the Revit® Structure 2008 menu bar (under " Tools | External Tools | Inducta-Revit Link ").



Both the importing and exporting functions will be done through a user interface (screen shot - right). Currently the link supports the following data during exchange:

- Slabs
- Beams
- Columns
- Walls
- Area loads
- Line Loads
- Point Loads
- Load Cases
- Load Combinations



Frequency Analysis in SLABS4

SLABS4 can be used to determine the first natural frequency of the free vibrations of a floor structure. The natural frequency of a structure is a function of mass and stiffness. The mass is evaluated by the program based on the load combination used for the frequency analysis and the stiffness depends on the slab geometry and the modulus of elasticity.

A job from OPTIMA CONSULTING, Wollongong is used to illustrate some aspects of the frequency analysis. The structure in the figure below is a suspended concrete floor supported by columns. The floor will be used as a gymnasium. Concrete panels sit along the top and bottom edges of the slab. In the SLABS4 model these walls are shown as line loads.

The Load Combination used to determine the "mass" is 1.0DL (dead load only), as the live load is assumed to be very light, and in the frequency analysis would not be significant. The "mass" for the frequency analyses is the most likely un-factored service load. In this example we used 100% of the dead load, and no live load.

Using the frequency analysis option in SLABS4, we have evaluated the dominant natural frequency of the floor as 5.7Hz. The mode shape is shown in Figure 1.

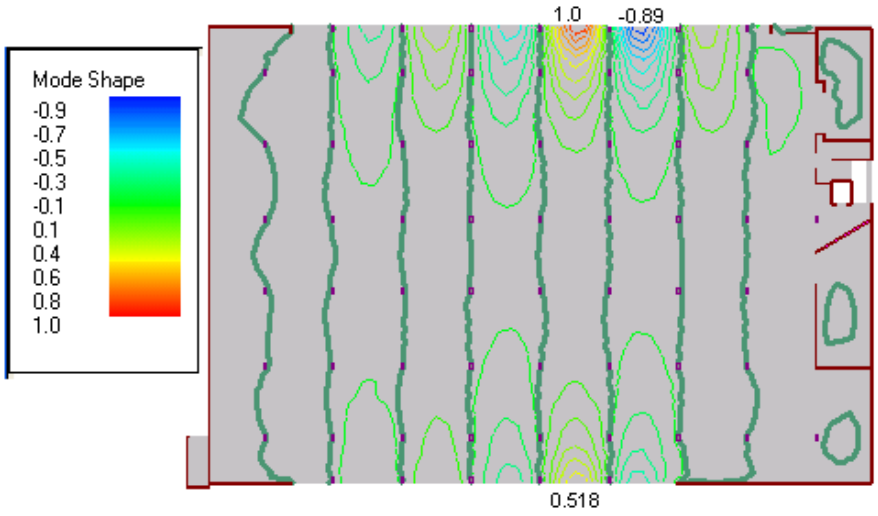


Figure 1, Mode Shapes, f=5.7Hz *(without concrete panels)*

It can be seen in Figure 1 that the highest amplitudes of the free vibrations are along the top edge. This is because the free edge of the slab is the most flexible, and it will vibrate with the highest amplitude. However, along the slab edges there are concrete wall panels, which will stiffen-up the slab edges. In Figure 2 (page 6) we have included these walls as supporting walls, and we have performed the frequency analysis again.

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Structural Design Software

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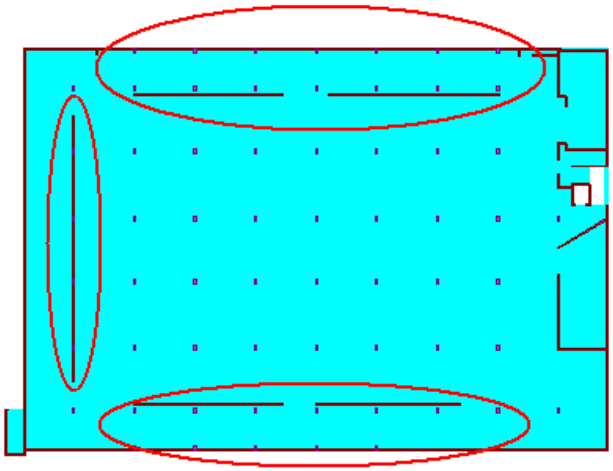

Figure 2, Concrete panels added to the model

The additional walls will increase the stiffness along the edges and will prevent vibrations of the slab edges, and consequently it will increase the natural frequency of the entire floor from 5.7Hz to 8.2Hz (see Figure 3). We can now see that the central part of the floor is vibrating with the highest amplitude. Since only the central part of the floor will be subjected to impact load due to the sports activities, we are interested only in the frequency of the central area. We may observe that the second model is suitable to evaluate the vibrations of the central part of the floor. Also, if we use the long term modulus of elasticity, which is 10% to 30% larger than the short term modulus of elasticity used in the analysis, the frequency will increase even further. If the frequency is greater than 10Hz, we can then be certain that the floor vibrations will be within an acceptable level.

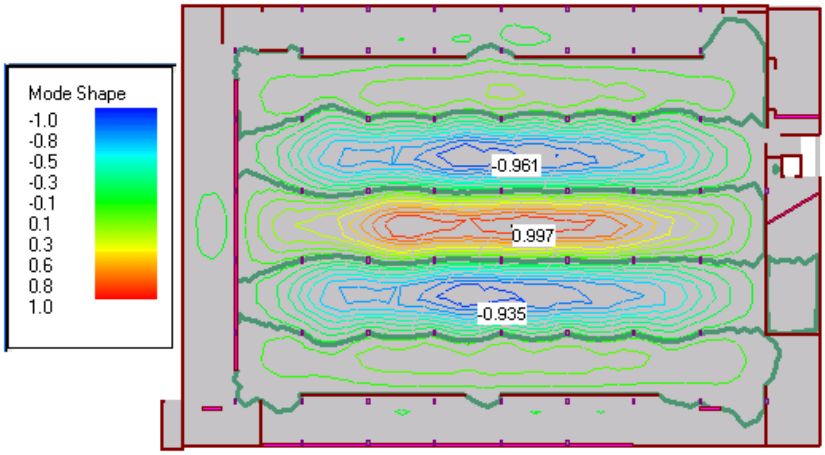

Figure 3, Mode Shapes, f=8.2Hz (with concrete panels)