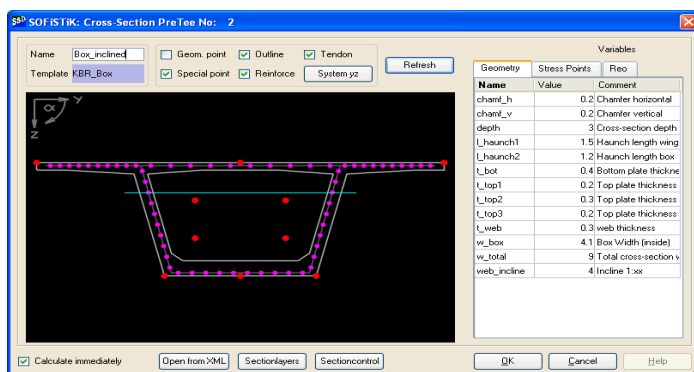
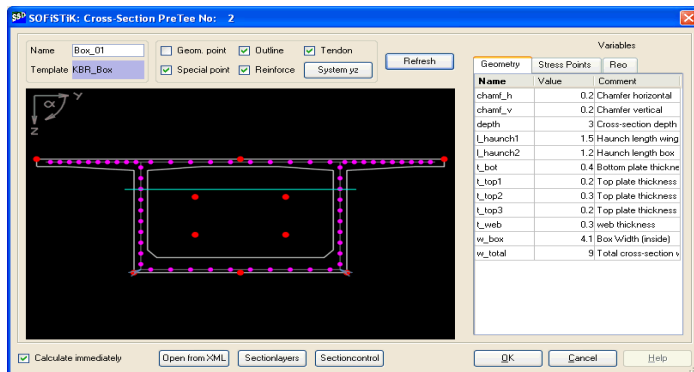
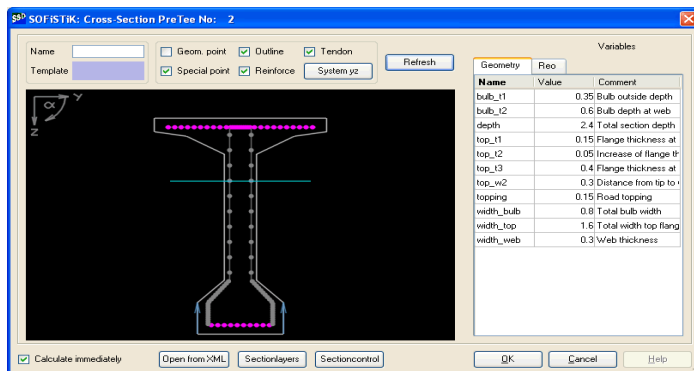
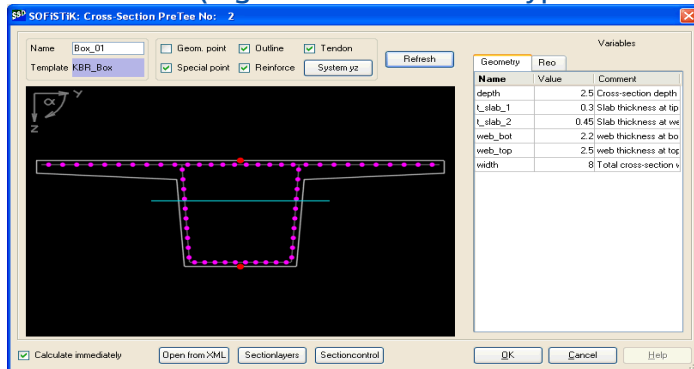


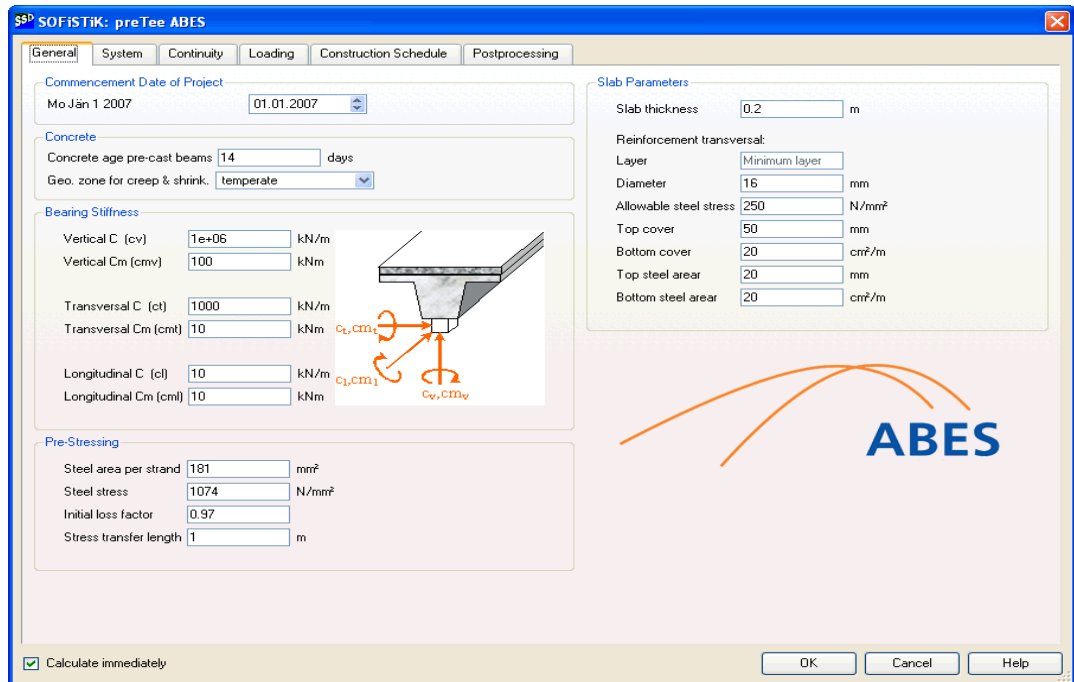
PRETEE Cross sections:

Note: all cross sections created here are also available for any other bridge type (e.g. hollow boxes for typical balanced cantilever bridges)



PRETEE Wizard input sequence:

Step 1: General definitions for the structural system such as concrete age, spring constants, pre-stressing tendons, slab thickness and position of slab reinforcement.

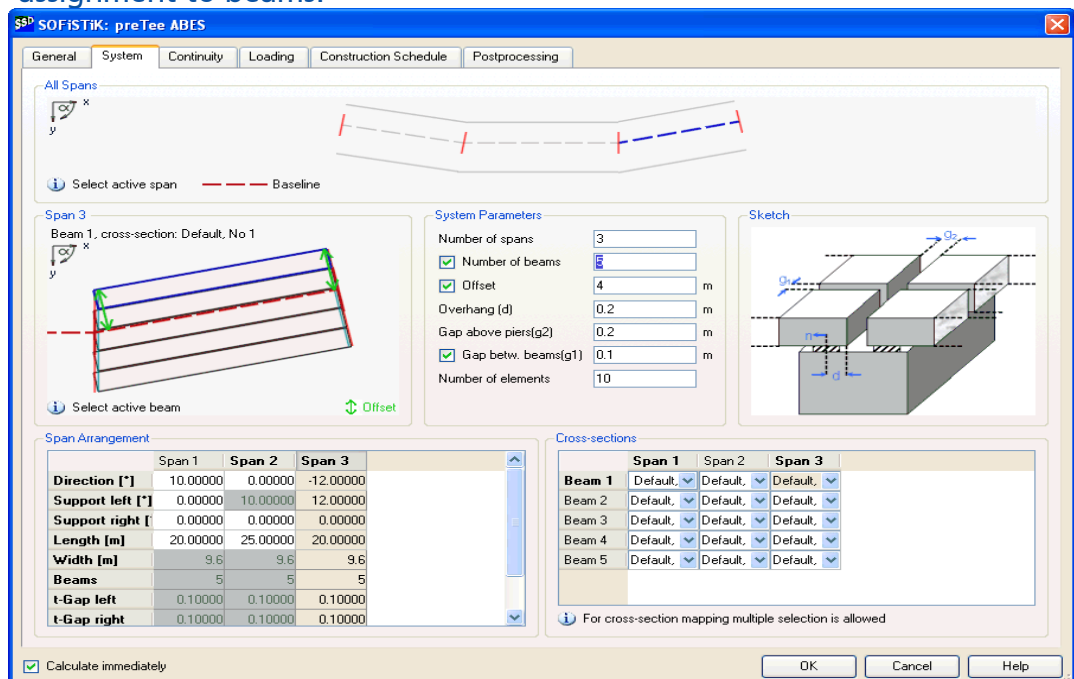


The screenshot shows the 'preTee ABES' software window with the 'General' tab selected. The interface includes several input fields and sections:

- General:** Commencement Date of Project: Mo Jän 1 2007 (01.01.2007).
- Concrete:** Concrete age pre-cast beams: 14 days; Geo. zone for creep & shrink: temperate.
- Bearing Stiffness:**
 - Vertical C (cv): 1e+06 kN/m; Vertical Cm (cmv): 100 kNm
 - Transversal C (ct): 1000 kN/m; Transversal Cm (cmt): 10 kNm
 - Longitudinal C (cl): 10 kN/m; Longitudinal Cm (cml): 10 kNm
- Pre-Stressing:** Steel area per strand: 181 mm²; Steel stress: 1074 N/mm²; Initial loss factor: 0.97; Stress transfer length: 1 m.
- Slab Parameters:** Slab thickness: 0.2 m; Reinforcement transversal: Layer (Minimum layer), Diameter (16 mm), Allowable steel stress (250 N/mm²), Top cover (50 mm), Bottom cover (20 cm²/m), Top steel area (20 mm), Bottom steel area (20 cm²/m).

A diagram of a bridge cross-section is shown with arrows indicating the directions for the stiffness parameters (Cv, Cm, Ct, Cml, Cl, Cml).

Step 2: Number of spans, span lengths, support angle, number of beams per span, splayed beams, construction joints at the supports, cross-section assignment to beams.



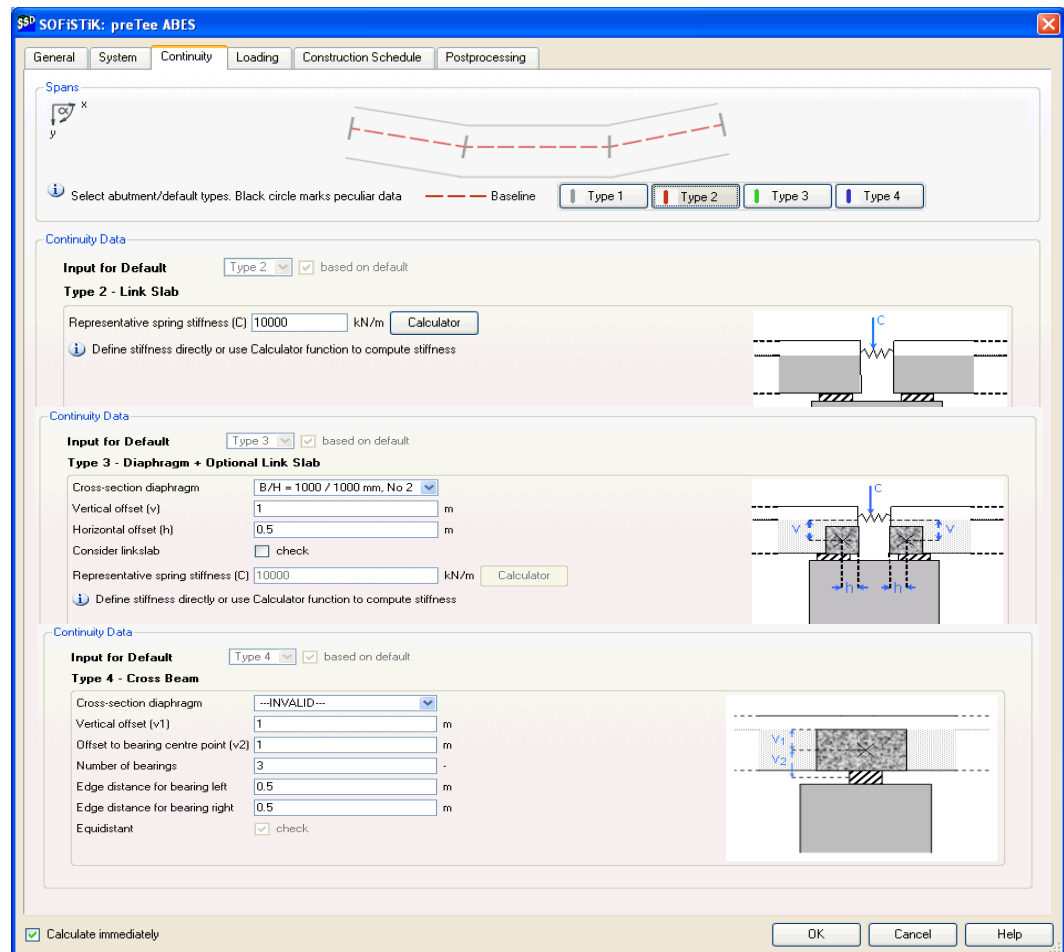
The screenshot shows the 'preTee ABES' software window with the 'System' tab selected. The interface includes several input fields and sections:

- All Spans:** A diagram showing the span arrangement with a dashed baseline and solid span lines.
- Span 3:** Beam 1, cross-section: Default, No 1. A diagram shows the beam layout with an offset.
- System Parameters:**
 - Number of spans: 3
 - Number of beams: 5
 - Offset: 4 m
 - Overhang (d): 0.2 m
 - Gap above piers(g2): 0.2 m
 - Gap betw. beams(g1): 0.1 m
 - Number of elements: 10
- Sketch:** A 3D perspective view of the bridge structure showing the spans, beams, and supports.
- Span Arrangement Table:**

	Span 1	Span 2	Span 3
Direction [°]	10.00000	0.00000	-12.00000
Support left [°]	0.00000	10.00000	12.00000
Support right [°]	0.00000	0.00000	0.00000
Length [m]	20.00000	25.00000	20.00000
Width [m]	9.6	9.6	9.6
Beams	5	5	5
t-Gap left	0.10000	0.10000	0.10000
t-Gap right	0.10000	0.10000	0.10000
- Cross-sections Table:**

	Span 1	Span 2	Span 3
Beam 1	Default	Default	Default
Beam 2	Default	Default	Default
Beam 3	Default	Default	Default
Beam 4	Default	Default	Default
Beam 5	Default	Default	Default

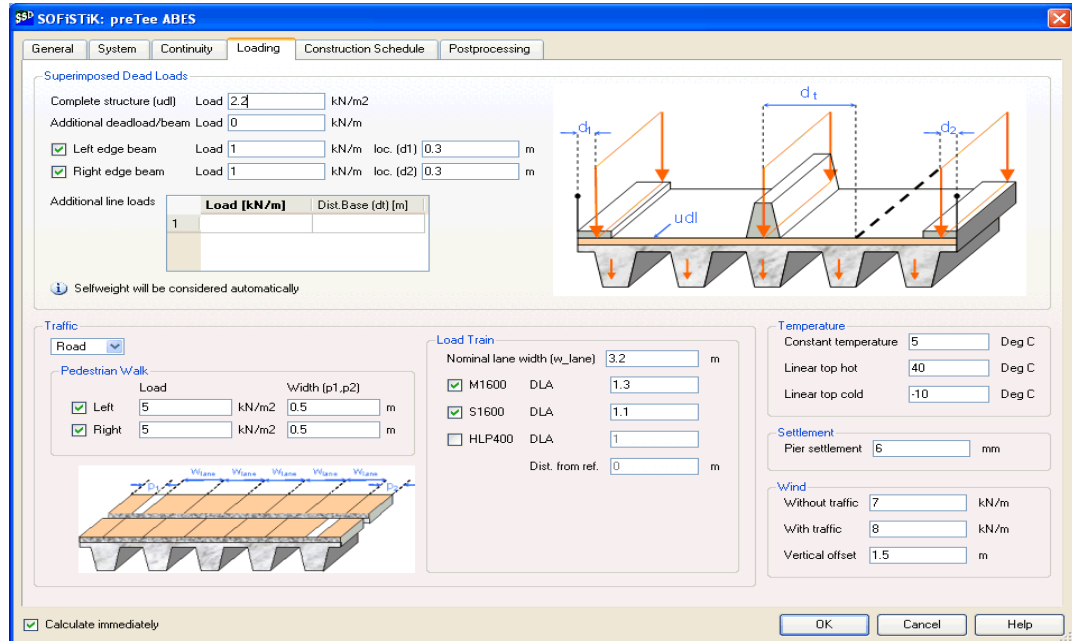
- Step 3: Definitions regarding the joint at the supports.
Individual continuity definitions can be made for every support location.
- No continuity, spans are simply supported (Type 1).
 - Spring elements simulate link slabs connecting spans. preTee assists in determining the appropriate spring constant (Type 2).
 - Link slabs can be combined with diaphragms (Type 3).
 - Rigid continuous connections established by cross-beams (Type 4).



Step 4:

Autoloader.

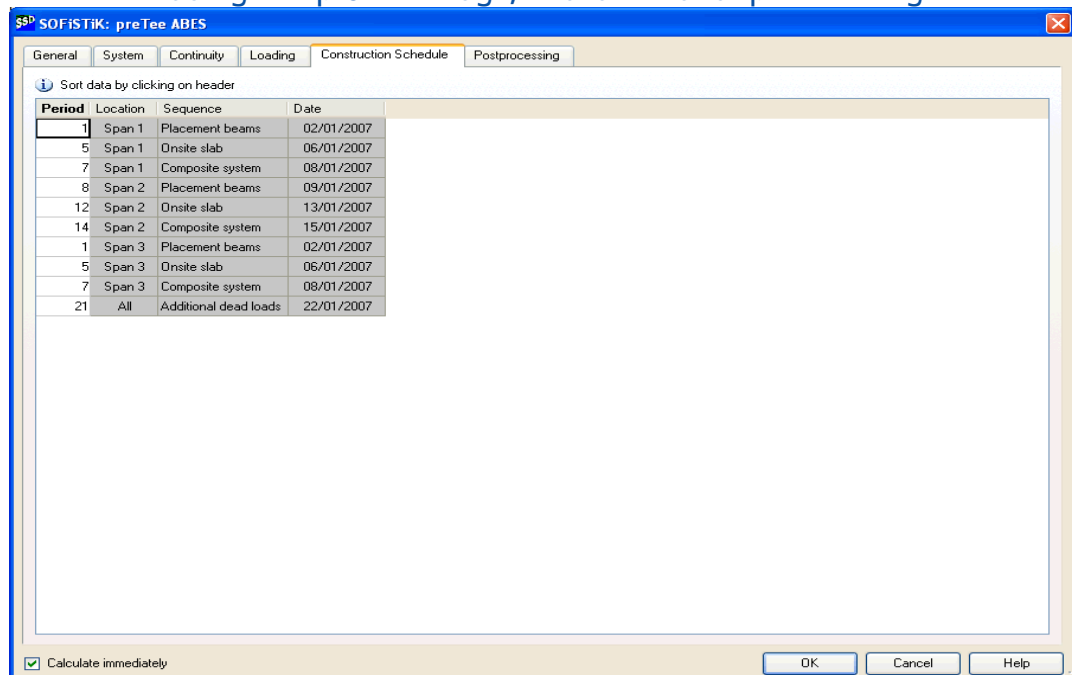
Traffic load using influence line method valid for both rail and road bridges, selection of load train and the position of the lanes on the deck, temperature load global and as gradient, settlements per support axis, wind for loaded and unloaded deck.



Step 5:

Construction sequence.

Consideration of simply-supported individual beams, wet concrete acting as dead weight, establishment of composite action, additional loading acting on composite beam-slab system. Consideration of time-dependent effects including creep & shrinkage, relaxation and pre-stressing losses.



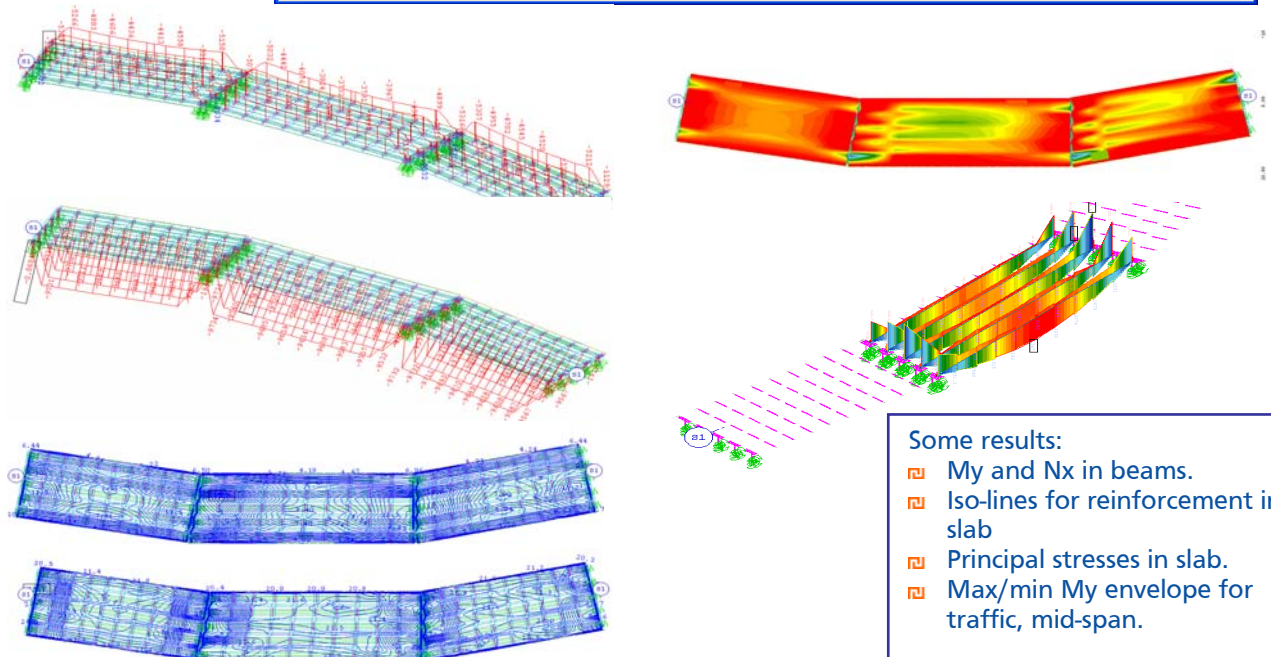
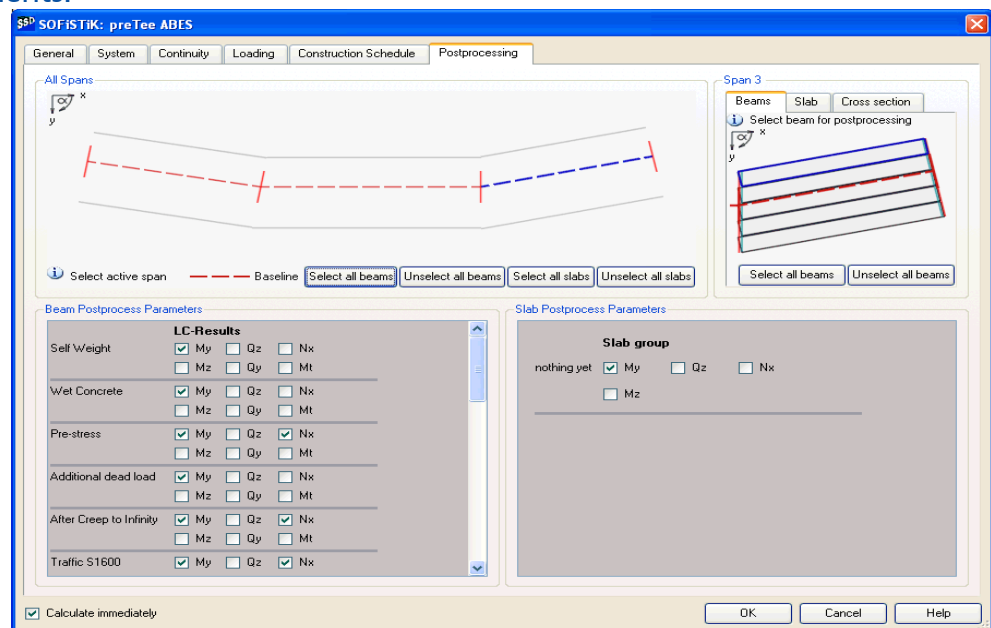
Step 6:

Post-processing:

SOFiSTiK provides automated report facilities combining numeric and graphic output in a final document. The user selects the content of the automatically generated report.

- Selection of beams relevant for report.
- Selection of relevant slab elements.
- Selection of relevant cross section(s).
- Loading cases to be included.
- Design results to be included.

SLS and ULS stress check reports are generated automatically as well as all relevant graphics showing the resulting reinforcement in beams and slab elements.



Some results:

- My and Nx in beams.
- Iso-lines for reinforcement in slab
- Principal stresses in slab.
- Max/min My envelope for traffic, mid-span.