Villa Suprême, the head office in Malmö, Sweden

StruSoft (Structural Design Software in Europe AB)
is an innovative Swedish software company with more than 30 years of experience in specialized software applications for the building industry.

IMPACT
An open database-driven system for modelling and production of concrete precast elements. Includes a reinforcement module that can be used stand-alone.

PRE-Stress
Analysis and design software for complete product life calculations of prestressed beams.

FEM-Design
An advanced modelling software for FE-analysis and design of load-bearing concrete, steel and timber structures.

WIN-Statik
A suite of powerful and easy to use applications for common design tasks such as beams, columns or frames.

VIP-Energy
A suite of software for simulation of the entire building energy balance.

Leader in engineering software systems
including analysis, design, modelling and energy

StruSoft can provide you with the right tools to solve simple design tasks as well as complex three-dimensional structures

February 2012

StruSoft
Structural Design Software

www.strusoft.com

PRE-Stress

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Life span considerations on design of prestressed beams with PRE-Stress

Prefabricated, prestressed elements have a tough life.

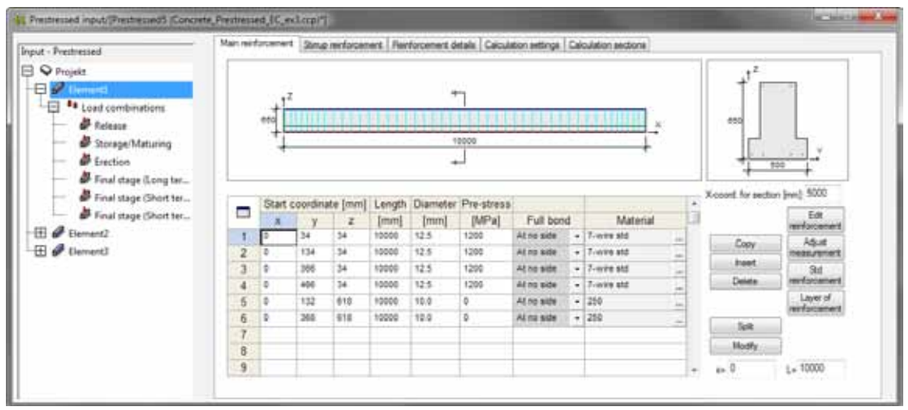
Large stresses act on the immature concrete when the strands are released, which can cause cracking. The cracks and deformations that a beam receives in this first stage of its life remain with the beam, affecting its bearing capacity and shape long after it has been erected in its intended place.

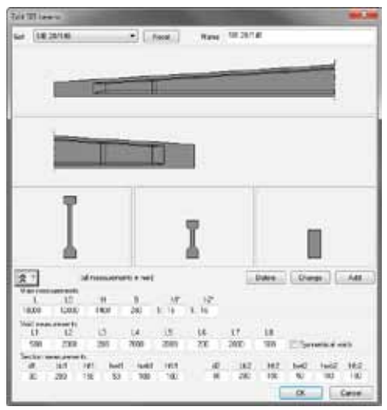
Beams are typically stored (frequently for long periods of time) in outside storage yards with drastically different supports and environmental conditions than the final placement. Transporting and erecting an element also involves different supporting conditions and accidental dynamic loads. All this affects the final stage results.

So why should you only design a beam for the final stage?

PRE-Stress takes into consideration all steps of the life span of prestressed members, whether hollow core units, beams or slabs with or without topping, T-beams or sloped I-beams. Reinforcement, both prestressing strands and non-tensioned rebar, can be added either by predefined positions or manually by adding and removing user defined bars/tendons.

The program takes into consideration all the phases of the construction, from the release of the strands in the factory, the properties of storage conditions, possibility to add loads during transport and erection and finally the long term, short term and ultimate limit states. Serviceability states like cracking and effects of the prestressing are inherited through the calculations in both analysis and design.





The results are presented either on screen or by a user defined report, showing everything a designer needs to be able to make cost-efficient designs according to Eurocode.

Users of IMPACT Precast can benefit from full integration of hollow core calculations. Loads and supports defined in the model are sent to PRE-Stress along with section data, returning key results straight into the drawing. More in-depth examination of results can be done in the accompanying PRE-Stress file.