Post-tensioning

POST-TEN is a STRAP module which enables the engineer to design post-tensioned pre-stressed concrete beams or slabs for virtually any type of structure including buildings and bridges.

Unlike other pre-stressed concrete programs, POST-TEN is fully integrated with STRAP, giving a one-step solution. By retrieving the analysis results from STRAP, POST-TEN not only designs the concrete section, it also calculates the effect of the pre-stressing forces on the model and combines all results to calculate the overall effects.

Section Design

POST-TEN features a number of tools to help the engineer quickly achieve a feasible and efficient arrangement of cables. A useful Magnel diagram indicates feasible combinations of cable forces and eccentricities. Built-in tools help the user to graphically generate cable profiles which lie within the feasible range over the entire span.

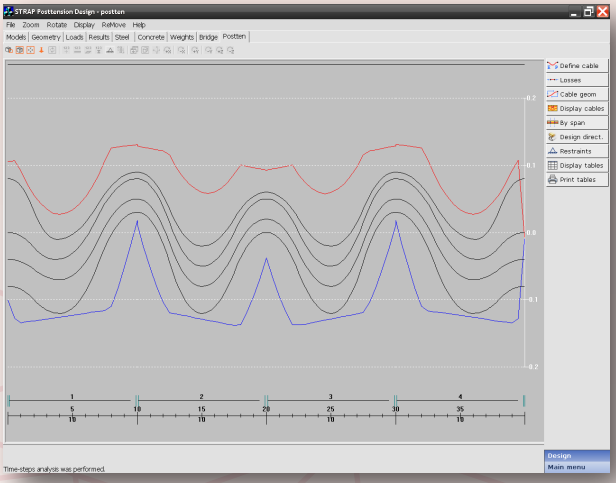
Losses

Losses are calculated accurately using the time-step method. The user may define different times and levels of post-tensioning for different components of a model or for different cables. The program accounts for the cumulative effects of partial post-tensioning on the losses of all cables in the model.

Ayalon Highway 20/5 Bridge
Structural Design: LEVIATHAN ENGINEERS

Composite Beams

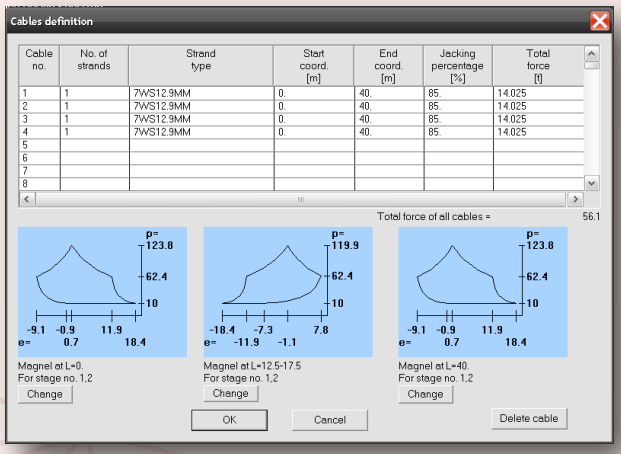
The program also designs post-tensioned composite beams and accounts for the additional moments that are caused by differential shrinkage and creep.



Results

The program displays the calculated losses, stresses, ultimate moments and a shear check at sections along the beam or slab at any requested time.

The post-tensioning forces are added as a loading case to the STRAP model and the results may be viewed and combined with other loading cases to obtain overall effects.



Construction in Stages

The user may assign different construction times, different degrees of completion and temporary support conditions. The program uses this data when calculating the stresses and losses.