



# Release Notes Version 5.0

October 2018

## **Main Program:**

- Completely revised load case generation and stress check now according to any Codes (also prEN16612, Ö-Norm, NEN2608, CAN CGSB 12.20, ...)
  - o Free selectable safety and combination factors for Ultimate Limit State and Serviceability Limit State
  - o The formula can be written by the customer himself for actually not included norms (a formula interpreter allows any formula to consider)
  - o For each kind of load a separate  $k_{mod}$  can be given (no collection within load groups any longer)
  - o Combination depth can be adjusted
- New enhanced Kelvin-Voigt impact model. This is an alternative to the pendulum body and allows also to model persons, animals or other impactors like footballs, hailstones, ...
- All reaction forces and deformations of this new impactor can be shown in a curve diagram (e.g. Contact force over time)
- All load cases can in general be used together with load steps. Now also limit cases with high loads applied can be solved, where up to now convergence problems could have been arisen.
- The cord shorting (change in length by deflection) is now selectable for all kind of loads (also dynamic impact calculations).
- The shortening over time can be shown too in the curve diagram.
- Boreholes are now recognised as borders and can be considered specially by checking against reduced limit stresses. (mentioned also in the protocol)
- Climate loads now consider the full barometric pressure height formula (no further use approximation formula). By this, the pressure change by  $\Delta H$  is now valid up to 15km height.
- The „down-holder clamp“ can now also clamp inner glass packages, so that “toggle clamps“ in Insulated Glass Units are better simulated.
- The distance change in Insulated Glass Unit during impact can be recorded and shown in a diagram
- Inside pressure of IGU is written into the protocol
- Qualitative simulation of the residual load-bearing capacity and the cracking behaviour of broken panes
- Type of calculation now centrally positioned under Options
- revised languages

## **Graphics:**

- Illustration of the new Kelvin-Voigt Impact Model
- Further buttons to control the display (BACK, FIRST, GOTO)

## **Finite Element Kernel:**

- Enhanced solution speed by furthermore usage of parallel computation methods using multi core processors
- Speeding up the system