
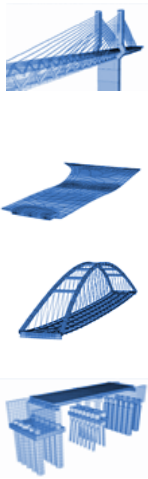
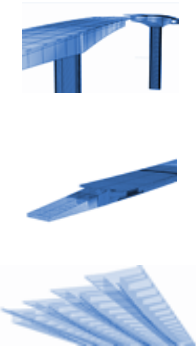
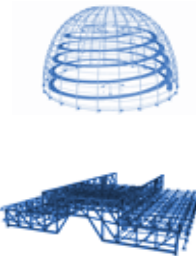
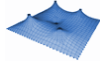
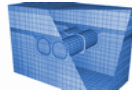
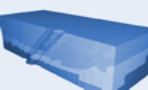
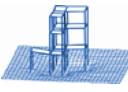




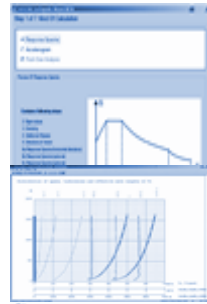





SOFiSTiK TECHNICAL CONTENT

[Date : Mar. 21st. 2006]		George Pircher, ABES Austria	
Range of Application			
Building design	Plates/Shell	2D non-linear FEA & Design.	Geometry + loading in AutoCAD
	3D Buildings	Basic 3D FEA & Design.	FE + beam, column and wall design.
	3D frames	BASIC 3D Frame and Girder Systems.	
Bridge Engineering	Geometry	3D geometry based on AutoCAD, road alignment in plan and elevation. any shape, steel, concrete, composite, thin- and thick-walled, parametric variation.	also for interactive load definitions. AutoCAD based or individual pre-processor.
	Cross-sections	3D tendons, internal, external.	Automatic patch loader for some standards. Forward, Backward. Either using code dependent macros, or individual combinations.
	Tendons	no limitation. For traffic - load stepping or influence lines/surface.	
	Loads	Built in Construction stage manager.	Automatised code dependent macros, or individual checks.
	Stages	All relevant combinations and envelopes.	
	Superposition	SLS and ULS design for several codes (concrete, PT, reinf., steel), precamber.	Full Excel/Word/PDF interface.
	Design	Standard graphics set up, automatically set up general report, individual adjustments possible.	
Results/Report			
Erection methods	Span-by-span	Level by level, layer per layer.	In general applicable for any type of structure. Specific pre-processor available.
	Incremental Launching	Temp. supports and temp. pre-stressing.	Creep&shrinkage, relaxation, elastic shortening
	Balanced cantilevers	Pre-camber, stability, int.+ext. pre-stressing.	
	Pre-cast pre- and post-tensioning	Slab + beam, concrete + concrete, steel + concrete.	Specific pre-processor available.
	Composite	All materials, any combination	Form finding feature. Stressing force and geometry optimisation.
	Suspension	Non-lin stages, stress-free lengths,	
Cable Stayed	Forward, backward calculation		
Steel design	beam and volume elements	1st, 2nd and 3rd order theory.	Connection details.
	Checks: el-el, el-pl, pl-pl	According to EC3 and DIN18800.	Elasto-plastic zones, plastic hinges.
	Elastic and plastic buckling Eigenvalues	Flexural buckling, lateral torsional buckling (physical procedure).	Buckling of shells and slabs.
	Profile optimization	Profile library, free cross-sections.	Warping stresses. STEP, AutoCAD, SOFiCAD-S
	Interfaces	FEMAP, SteelCON	

SOFiSTiK TECHNICAL CONTENT

Light weight structures	beam and volume elements	Beams, slabs, discs and shells using different materials like steel, glass, concrete and membranes.	Form finding with the FE method acc. to membrane theory.
	Orthotropic pre-stress	Form finding with inner pressure.	Considering the shear stiffness of the membrane
Tunnels	2D and 3D models	Beams, slabs, discs and shells using different materials like steel, glass, concrete and membranes.	Specific pre-processor available.
 	Elasto-plastic	Von Mises, Drucker-Prager, Mohr-Coulomb.	Gudehus, Lade
	Hypoplastic	Acc. to Duncan-Chang	Acc. to Schad
	Granular Soil	Hyperbolic consolidation accd. to Kondner, Stress-related stiffness, Load and un-loading behaviour.	Failure criteria acc. to Mohr-Coulomb, Shows the dilatance (non-associate plastic yielding).
	Swelling potential	Consideration of the stress-related swelling-strain for the finite state.	Concrete design.
Geotechnics	Excavations in 2D and 3D	Anchorage, stage wise construction.	Embankments, tunnel disks, building pits, dam walls.
   	Soil Structure Interaction	Analysis of vertical deformations in semi-infinite solids.	Ground-Soil interaction.
	Foundations	Elastically bedded beam, 2nd order theory.	Well and pile foundations.
	Potential problems	Classified as Laplace's (DH=0) or Poisson's (DH=q)	Magnetic field problems, heat conduction, groundwater flow.
	Retaining wall	Stability, analysis and design	
Dynamic & Seismic Analysis	Modal analysis and time-step method	Linear/non-lin dynamics and seismic analysis & design.	Eigenvalue Solver: concurrent.
    	Damping elements (linear and non-linear)	3D-shell elements.	3D-continuum elements.
	Response Spectra	According to EC8, DIN 4149B 4015, SIA 160, UBC,	Indian Standard 1893, Chinesische GBJ 11.89, SNIP, AASHTO, BS5400.
	Damping elements (linear and non-linear)	Groups with variable damping characteristics.	Integration of the motion equation through superpositioning of the Eigenforms (even for 3D continua).
	Vehicle-Structure-Integration	Moving loads, High-Speed trains.	3D-continuum elements, Time-history.
	Push-over analysis	2nd order, plastic hinges, stability.	
	Non-Lin Wind analysis	Wind spectra according to Karmann, Davenport, Harris, EC 1, Fichtl/McVehil, Simiu/Scanlan	