MStower
Specialty Software for Steel Tower Analysis and Design

MStower is specialized software for the analysis and design of steel transmission and communication towers, such as monopoles, lattice towers, and guyed masts, to a range of international standards. A comprehensive library of panel types and ancillary equipment allow for quick creation of the structure.

**Modeling Features**
MStower offers both graphical-based and text-based definition of tower structures, including data describing panels, dimensions, sections, and ancillary equipment. Tower geometry can be defined and revised using a text-based tower data file, which can be built easily from the modeling wizard. In addition, the user defined panel geometry can be revised through the graphic interface, with commands such as move, linear copy, polar copy, rotate, mirror, stretch, member subdivide, insert node, and intersect. Panels can be defined by the user or selected from a comprehensive library of standard panel types. Standard libraries also include sections and ancillaries and can be edited by the user.

**Analysis Features**
Analysis methods in MStower include static linear and non-linear, elastic critical load, frequencies and modes of vibration, and response spectrum. Loads can be computed in accordance with a number of international standards. Wind and ice loads on members, antennas, and ancillaries are computed automatically. MStower can generate loading and application of wind gust factors to member forces. Member forces are extracted directly from the analysis results.

As with the definition of the tower geometry, tower loads can be specified with a text-based tower loading file, which can be automatically created by specifying the design code standard and basic code loading parameters.

**Member Design**
Member capacities may be checked against the requirements of the most popular international design standards. The general types of checks performed by MStower include structural configuration, slenderness and buckling checks, ultimate strength, allowable stresses, and bolt strengths. The design capabilities in MStower are an excellent solution for both new towers and in the reassessment of existing structures subjected to modified loading, such as the installation of additional ancillary equipment or conductors.

**Results and Output**
With MStower users can create reports with virtually any result – structure data, loading, static and dynamic results. MStower contains comprehensive facilities for plotting the structure, loading, and results. Analysis and member check results can be displayed graphically, used in reports, and printed as required. MStower also includes a report that gives both tower reactions and angular displacements of ancillaries under wind loading. The Query function can be used to access detailed information and results for any specific element in the structure including ancillary equipment.
MStower At-A-Glance

Modeling
• Three or four sided towers
• Graphical-based modeling commands such as move, linear copy, polar copy, rotate, mirror, stretch, member subdivide, insert node, and intersect
• Text-based input for fast and easy model and loading revision
• Library of standard panel types includes D & V, X, K, M, W, XMA, XDMA, DM, DLM, KXM, and SH
• Specification of ancillary equipment through standard libraries
• Linear ancillaries (ladders, feeders, waveguides) and large ancillaries
• Dish antennas, including consideration of diameter, mass, center of gravity, surface area, and projected area

Analysis
• Static linear and non-linear, elastic critical load, frequencies and modes of vibration, and response spectrum
• Automatic generation of dead, wind, and ice loads to the following standards:
  » BS 8100 Part 1 1986
  » BS 8100 Part 4 1995
  » AS 3995-1994
  » AS/NZS 1170.2:2011
  » Malaysian Electricity Supply Regulations 1990
  » EIA/TIA-222-F-1996
  » TIA-222-G-2005

Design
• Design checks include structural configuration, buckling lengths, slenderness ratios, ultimate member strength, and bolt strength
• Available design provisions include:
  » BS 8100 Part 3
  » BS 449
  » AS 3995-1994
  » ASCE 10-94, ASCE 10-97
  » EIA/TIA-222-F-1996
  » TIA-222-G-2005
  » BS 5950-1:2000 (for tubular poles)
  » IS 802 (Part 1 / Sec. 2) 1992

Find out about Bentley at: www.bentley.com

© 2014 Bentley Systems, Incorporated. Bentley, the “B” Bentley logo, and MStower are either registered or unregistered trademarks or service marks of Bentley Systems, Incorporated or one of its direct or indirect wholly owned subsidiaries. Other brands and product names are trademarks of their respective owners. 7898 07/14