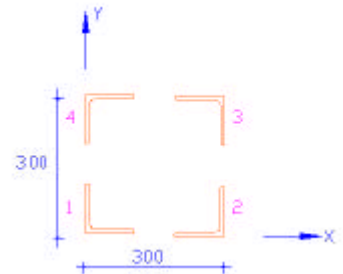# STRUCTURAL STEEL DESIGN

STEEL-MASTER software is useful for Design of Steel Trusses, Steel Beams, Built-Up Columns, and Portal Frames etc. It consists of following programs:
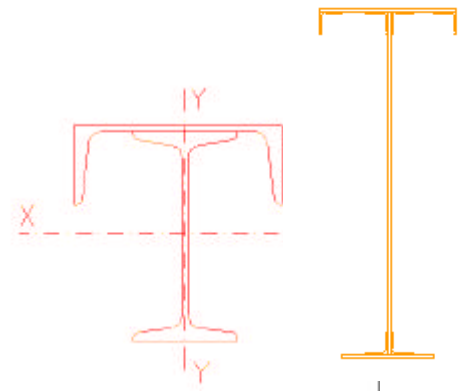
COLUMN DESIGN

- Column section subjected to axial load and biaxial moments can be designed with this program. A suitable section is automatically selected from library file.
- A built-up section can also be formed graphically using 7 types of Standard Rolled Sections namely I-beam, Channel., Angle, Plate, T-Beam, Box or Tube.
- Effective length of column can be different about X and Y-axis. Stress increase factor for wind and earthquake loads can be specified.
- Actual and permissible stresses for each load combination are printed in the output along with its sketch.
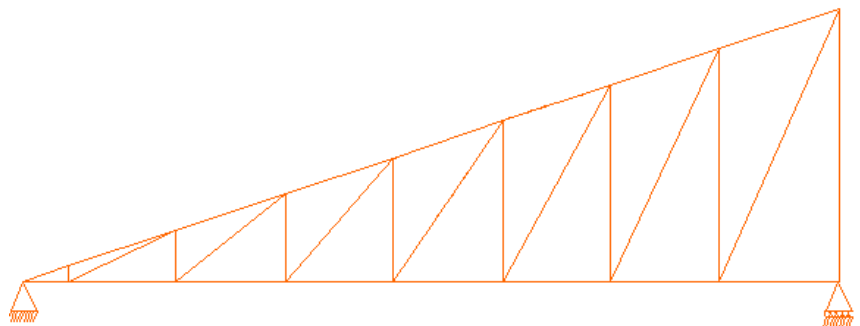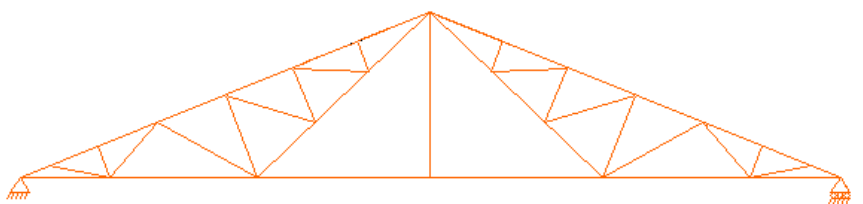- Section drawing can also be stored in AutoCAD compatible DXF file.

BEAM DESIGN

- Steel Beams subjected to shear force and biaxial moments can be designed. Section can be checked for multiple load cases.
- Built-up section can have up-to 15 components as in plate girders.
- Beam Section need not be symmetrical about horizontal axis. Unequal top and bottom-flanged sections can also be designed.
- Top Flange of beam can be designed for full horizontal thrust as required in gantry girders.
- Stresses at four extreme points are calculated for each load combination. Weight of built-up section is calculated and printed.
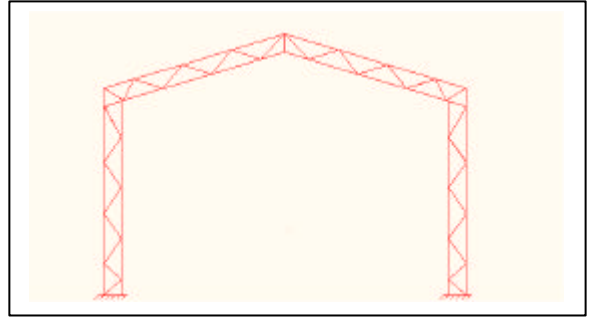
TRUSS DESIGN

- Truss geometry can be defined in three ways, namely,
  1) Using standard shape from 15 pre-defined truss shapes,
  2) Entering the data numerically with in-built editor and
  3) Drawing the truss geometry in a CAD package and preparing the data file using the conversion program.

- Program calculates the nodal loads for Dead, Live and Wind Load cases.
- It carries out analysis using stiffness matrix method. Member end forces and nodal displacements are included in output.
- Program designs the suitable section for each member using single or double angles / channels as well as circular / hollow rectangular tubes.
- Section wise as well as total weight of the truss is printed.

FRAME DESIGN

- Portal Frames and Industrial Structures can be analyzed and designed using this program.
- Crane loads and wind loads can be included in the analysis.
- Program generates the Deflection, Bending Moment and Shear Force diagrams graphically.
- Member sections are designed by selecting the single or double sections of I-beam, Channel or Angle.
- Section wise quantities are also printed in the output.
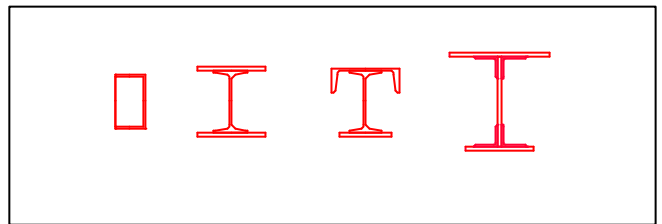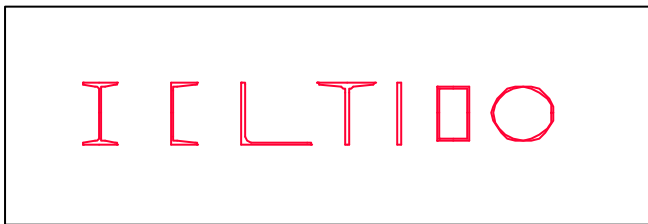- Three dimensional space structures can be analyzed.

WELDED JOINT DESIGN

- This program designs a welded junction subjected to Axial force, Shear force and Bending moments.
- Any weld group configuration can be defined graphically using straight lines and inclined lines.
- Program calculates the minimum thickness of weld required for that joint.

BUILT-UP SECTION EDITOR

STEEL-MASTER software comes with this unique program for creating a built-up compound section library using the standard steel rolled sections. I beams, Channels, Angles, T sections, Box sections, Tubes and plates can be used to form a built-up section. Sketch of the section is displayed on screen while it is being built, for visual data checking. Built-up section C.G. and compound properties are calculated and stored in the library file.

Program uses MS-Access compatible database files at back-end for storing the sections for easy data retrieval. Various files can be created storing different types of frequently used sections. Program comes with ready to use library files, like Two I Beams, Two Channels Back-to-Back or Face-to-Face, Four Angels or I Beam with channel etc. These Built-up sections can be called in the order of weight or depth during the design of a column or beam.

About ENSOFT

ENSOFT Consultants are specialized in the development of Civil Engineering Softwares. **ENSOFT** launched their well known package **Build-Master** in the year 1990, for RCC Design, Drawing and Estimation of Buildings. Over the years they introduced a series of softwares like, **Rate-Anly** for Rate Analysis of Construction Items, **Draft-Aid** for Drafting works, **Road-Master** for Earthwork Calculations of Road and Land Survey Works.

These softwares are in regular use in more than 1000 design offices all over **INDIA**. Thanks to the enormous popularity enjoyed by these softwares, it is now possible to offer them at a competitive price.

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