

## **Brief Summary of Expected New Features in GTSTRUDL 26**

Among other new features and error corrections, GTSTRUDL 26 will include the following important, powerful, and cost saving features:

- Reaction envelopes (i.e., most positive and most negative values) may be output
- Expanded data error checking including checks on the existence of supports, BETA angle magnitudes, large differences in member properties of members incident on common joints, etc.
- Additional utility programs that can be used to access GTSTRUDL's Data Base Exchange ("DBX") data files in a far more powerful and selective manner for post-processing purposes (e.g., specific DBX data values in any order may be retrieved, and DBX data may be exported to a spreadsheet)
  
- Additional dialogs and menu options in the GTSTRUDL text output window such as:
  - Dialog History ("dh") menu button which will store sequences of previous menu picks, and which can be used to cause such sequences to be repeated automatically with a single menu pick
  - Improved editing of load combination specifications using menus
  - An improved facility for automatic load combination creation (especially useful for combining moving loads with static loads)
  - Dialogs and graphical display of nonlinear spring properties
  - Improved dialogs and graphics for Store Response Spectrum and Store Time History
  - Additional graphical display of dynamic loading data
  - Expanded data sheets including a new finite element data sheet, new steel code check result data sheet, new data sorting options, and the ability to copy data from a spreadsheet and paste into the data sheet (column-by-column or by groups of columns)
  - Macros now permit requests for a "list dialog" to be displayed from which member, finite element, and load names may be selected when needed by commands in the macro
  - Expanded "list dialog" in which an initial facility was added to make graphical selections of member, finite element, and load names
  - Add new table BARS and RBAR names into the Datasheet
  - Create an Indian Standard Table Selection in the Datasheet profile browser
  - Add British Standard single and double angles tables to the European tables of the profile browser
  - Create a new CONCRETE table entry in the Datasheet profile browser and move the concrete tables CONCIR and CONRECT into it
  
- Additional GTMenu features including:
  - "Inquire" button and hot keys for inquire functions used to graphically inquire about information related to joints, members, and finite elements
  - Graphical display of user selected support reaction components, including the option to specify a range of reaction values to be displayed
  - Planar reference systems for finite elements can now be displayed
  - Expanded view creation using the cursor to create a window on the screen from which a new view can be created and named for future display
  - Views will be saved in a file called GTMenu\_Views.txt which stores predefined views for future use
  - The total number of views that can be created in a single job was increased from 100 to 1000
  - Automatic split member upon user request when a newly created member intersects an existing member
  - Motion animation of moving loads and corresponding structure deformations
  - The "Shift" key can be used to select a range of loads for force/moment envelope and moving load displays

- Additional Steel Design features including:
  - Member deflection check and redesign
  - Several enhancements have been implemented in the CAN97 and EC3 code
  - Store the parameter value of 'n' for summary (CAN97 code)
  - Additional steel rolled shapes that can be designed by the European EC3 code:
    - , Solid Round Bars under axial force and biaxial bending
    - , Single Angles under tension/compression force only.
    - , Double Angles under tension/compression force only
  - Long names for Table BARS (solid square and round bars), and Table RBAR (solid rectangular bars), and Table TEESM (Metric Tees Table)
  - Bypass Rigid Body elements in connection with the Select and Check commands
  - If the force values from the code check or design are very small, print 0.0 instead of a small value in E (exponential form) format
  - Always compute Self Weight for ALL ACTIVE MEMBERS or ALL ACTIVE JOINTS option
  - Print default parameter values when PRINT PARAMETER DICTIONARY, PRINT DESIGN DATA, or PRINT DATA is used
  - A new option where a user can delete Summary data
  - A Steel Takeoff feature to order output based on the common profile shape
  - The Indian Standard IS800 allowable stress steel design code
    - , The following steel rolled shapes considered by the IS800 Code:
 

T I-shapes	Channels	Solid Rectangular Bars
T Single and Double Angles	Tees	Solid Round Bars
T Pipes	Structural Tubing	Solid Square Bars
    - , IS800 Code, Section 3.5.2 (effective cross-section computation) for both code check and select for:
      - T I-shapes
    - , IS800 Code, Section 3.5.2 (effective cross-section computation) code check only for the following cross-sections:
 

T Channels	Tees
T Single and Double Angles	Structural Tubing
    - , The following new Indian Standard Steel Rolled Shape Tables for the IS800 code:
 

T ISBEAMS	-	Beam cross-sections from Tables 2.1, 2.2, and 3.1 of IS808 document
T ISCOLUMN	-	Column cross-sections from Table 3.1 of IS808 document
T ISCHAN	-	Channels from Table 4.1 of IS808 document
T ISCHAMCP	-	Channels from Table 4.2 of IS808 document
  - Expanded Steel Design Dialogs including:
    - , Add a check box to indicate if the first analysis has already been performed. If this check mark is set, bypass the first analysis and go to the code check or select
    - , In the Steel Design Wizard check for the existence of Load Combinations. If Load Combinations exist, set the Load Combination option in the Design Load Step
    - , Add a new design option called "Check and Design" which is useful for the automatic iterative design feature for steel design of large frame structures. Such large structures will be code checked and designed only for the members that failed the code check.
    - , Add IS800 parameters into the Parameters dialog
    - , Add the new Indian Standard Tables for the parameter TBLNAM
    - , Add the IS800 code into the Steel Design Wizard
    - , Add British Standard single and double angle tables, and AISC angle tables, to the EC3 TBLNAM parameter.
  - Some Future Steel Design Enhancements:
    - , Add Tees and Channels to the AISC LRFD2 code check.
    - , User requested code check or design based on maximum forces
    - , Expand automatic effective length factor (k-factor) computation where the user need not specify the Column Line command
- Other very useful and powerful features