July 24, 2013

Release Notes for tnxTower Version 6.1

This document describes Version 6.1 of tnxTower. Please install this update at your earliest convenience.

Stand Alone Installation Instructions.pdf and ***Network Installation Instructions.pdf*** files are available from the TNX licensing page.

New Features and Bug Fixes

v6.1.3

- Corrected calculations for bolts in tension with shear present. This change affects TIA-222-G tensile strength of bolts with user-defined grades.

- Fixed an export to RISA-3D issue. Previously, for input file paths with certain characteristics, RISA-3D would not start automatically when the export operation was invoked.

v6.1.2

- Added a monopole reinforcing module. The program now allows specifying additional structural members attached to the monopole shaft. The system has the following characteristics:
  - The reinforcement is assumed to be connected to the pole at discrete points.
  - True pole dimensions and properties used in the calculation of the reinforced section (round and polygonal shapes).
  - Variable number/perimeter spacing, radial offset, and vertical spacing of reinforcing elements.
  - Consideration of buckling of reinforcing elements.
  - Reactions calculated for reinforcing elements extending to the base level.

- Added the ability to set custom Equipment Classification Categories on the Feed Lines, Discrete Loads, and Dishes pages.

- Added an Equipment Load Cases run mode. In that mode it is possible to create a list of equipment classification categories indicating which equipment should be included in the analysis and design runs. Multiple lists (Load Cases) can be created and multiple cycles of analysis and design can run automatically. The full Analysis and Design Report is produced for one, user-selected, Load Case. In addition, a summary Report is generated for all defined Load Cases.

- Added application of loads based on ASCE 7-10 ultimate wind speed maps. The wind speeds entered on the Code page can now be treated as nominal or strength design level. When the ultimate wind speed designation is selected, the program will use the load and importance factors of 1.0.

- Added an option of entering ASCE 7-10 ultimate wind speeds and their automatic conversion to nominal values. When this option is selected, normal TIA-222-G load combinations are used.

- Added calculation of topographic factor Kt using the SEAW Rapid-Solutions Methodology (RSM-3).

- Added automatic generation of appurtenance loads due to the IPA over 20%.

- Fixed the calculation of the EPA of flat feed lines on monopoles for the ice condition. Previously an incorrect line width was assumed.

- Added an Exemption option for the “Minimum leg tension splice capacity” (TIA-222-G, 15.6.d).

- Corrected the calculation of Fcr for tubular members under TIA-222-G. Previously the critical stress Fcr was based on the yield stress Fy rather than the effective yield stress F’y.

- Corrected the calculation of local slenderness effects for pipe and tapered pole members. Previously the yield stress reduction provisions (for calculation of the effective yield stress F’y) were applied twice.

- Corrected the calculation of bolt forces under TIA/EIA-222-F for instances when dead load controls (no allowable stress increase).

- Corrected a bolt database error susceptibility that could result in the use of incorrect bolt properties in certain scenarios.

- Corrected the reported Lu value for built-up members where kLy/ry < kLx/rx < (kLy/ry)m. Because the Lu determination was based on the unmodified effective slenderness ratio, the program reported the Lx as the controlling Lu.

- Corrected the application of stitch bolt spacing settings for horizontal members. Previously the horizontals' setting was applied to certain types of diagonals as well.

- Changed the condition triggering a limit on the nominal flexural strength (Mn ≤ F'yS) for tubular elements under TIA-222-G to Tu/(øTTn) > 0.2, in accordance with Section 4.8.2. Previously the limit was applied when the utilization ratio due to shear and torsion exceeded 0.1.

- Changed the resistance factor for monopole base plate stiffeners from 0.85 to 0.9.

- Changed the default bolt edge distance value to 1.5 of the bolt diameter. Previously the default distance was based on the values from Chapter J of the AISC Specification (sheared edges).

- Corrected the calculation of weight for mount pipes in the Discrete Loads database input routine.

- The effective length factor K for bottom spans of guyed monopoles is now always set to 1.0. Previously it was assumed as 0.7 or 1.0, depending on how the monopole model was created. Note that the K value for guyed monopoles is currently independent of the Base Type. The Base Type selection results in different boundary conditions in the FEA model, however (rotations about horizontal axes released for Pinned Base, and all degrees of freedom fixed for Fixed Base).

- Fixed a bug that caused an unstressed guy length error. In some models the length was assumed as 0.0. The program produced a notification/error message when the solver was run.

- Corrected feed line drag coefficients values under CSA S37-01.

- Corrected block shear check calculations under CSA S37-01.

- Corrected some input and output wording for CSA S37-01 models to match CSA terminology.

- Corrected the calculation of shear values coincident with maximum uplift on the Material Take-Off page.
- Added a separate listing of shear reaction values for uplift and downward reactions on the Material Take-Off page.
- Corrected a note on the Material Take-Off page indicating the status of ice escalation under TIA-222-G. Previously the note did not match the custom ice escalation condition.
- Corrected the reported unit for F_M in the Dish Vector table series.
- Changed input limits for Weight Multiplier on the Advanced page (to 0.5) and for wind speed on the Code page (to 0.0).
- Analysis files may now be deleted at any time via the top menu Solve | Delete Solution… option.
- Replaced the *restrict.ini* file with the *tnxtower.ini* file. The *tnxtower.ini* file includes additional, user-modifiable data that control the operation of the program. Any data previously stored in *restrict.ini* can be simply copied to *tnxtower.ini*.