



July 18, 2016

Release Notes for tnxTower Version 7.0

This document describes Version 7.0 of tnxTower. If you have not received your update instructions, please contact TNX Support at support@towernx.com.

New Features and Bug Fixes

v. 7.0.7

1. Corrected values of the Wind Load With Ice and Ice Thickness Importance Factors used with the “ASCE-7-10 wind speeds” and “Use TIA load combinations” options selected. Previously, in some scenarios, the values of the factors defaulted to zero.
2. Added the ability to define ice loads when “ASCE-7-10 wind speeds” and “Risk Category I” are selected.
3. Excluded hip members from the calculation of the projected area of structural components.
4. Corrected the calculation of the effective slenderness ratios for schifflerized angle and 60 deg. bent plate leg members with staggered bracing patterns. Previously, the kl/r ratios for the X, Y, and Z axes were not applied correctly.
5. Corrected the display of bolt connection strength on the Leg Compression screen to be consistent with the location of the bolt at the top/bottom of the section. Previously, the diagram showed bolt capacity at the top of the section, regardless of the bolt position setting.

v. 7.0.6

1. Corrected a bug in version 7.0 that affected the calculation of the Lu for tower leg members. The Lu, and consequently member capacity values, were reported incorrectly in some models for leg members with more than 11 panel points.



2. Changed the Importance Factor values, used with wind speeds converted from ASCE 7-10 values to nominal values (for use with TIA-222-G load combinations), to 1.0. Previously, the converted wind speeds were used with TIA-222-G Importance Factors.
3. Corrected calculation of supporting member forces for horizontals in K-Up/Down bracing schemes.

v. 7.0.5

1. Corrected the calculation of the C_a coefficient for Discrete Loads under TIA-222-G. Previously the K_z and K_{zt} values were based on the location of the center of the tower section, rather than the center of the appurtenance.
2. Corrected the calculation of the C_a coefficient for round appurtenances with the aspect ratio lower than 7. Previously the C_a was taken as 0.6.
3. Corrected the calculation of the aspect ratio for round appurtenances with ice, as part of the calculation of the force coefficient C_a (Table 2-8, TIA-222-G).
4. Corrected the calculation of supporting member forces for secondary horizontals of x-braced sections (4.4.1 of TIA-222-G). Previously, the values (calculated in post-processing) were not accurate for some models and loading scenarios.
5. Corrected the calculation of the reduction of the member unsupported length L_u due to bolted connections.
6. Ineffectiveness of non-triangulated plan bracing is now enforced. This pertains to bracing schemes with more than one intermediate node in horizontal members (e.g., K2A Down).
7. Corrected the calculation of the EPAs for some appurtenances when using the metric system.
8. Fixed a glitch that resulted in a "Division by 0" error message.
9. Adjusted data entry fields on the Geometry page to eliminate superfluous columns for some bracing patterns.

v. 7.0.3

1. Corrected an issue which affected parsing of some input files saved by earlier versions of the program.



2. Corrected a problem that prevented the direct opening of model files.

v. 7.0.2

1. Changed the protection and licensing management system to an Internet-based solution (SafeNet Sentinel Cloud). The new system does not require hardware keys and allows a more flexible access to the program on machines with and without the Internet connectivity.
2. Discrete Loads' EPAs under TIA-222-G are now recalculated at the analysis time to reflect the requirements of Table 2-8 for round appurtenances. In addition, the EPA for flat panels is calculated for the full range of aspect ratios.
3. PiRod solid round sleeve connections, including the net tension area, are now calculated in a way that more accurately reflects the connection configuration. The diameter of the leg in the section below the current section is used for the calculation of bottom end splices.
4. Expanded the range of modeling options for hip members. The program will now enforce the triangulation requirements for hip members.
5. Added new bracing pattern - K3A M Down, for towers with single hip horizontals and diagonals.
6. Stitch bolt location input for diagonals, horizontals, and redundants has been enhanced by addition of mid-point, third-point, and numeric value options.
7. Gage Distance input has been added on the Advanced page. Previously, AISC usual gage distances were assumed.
8. There are now separate settings on the Options page of the program for solid round bracing members' cut ends and concentric placement.
9. Application of the user-provided effective length factors for diagonals of K-braced sections has been simplified. The input values, as entered by the user, are now applied to the unsupported lengths of the diagonals.
10. Secondary Horizontals in the X Brace bracing scheme are now connected to the diagonals at the cross-over point.
11. Bracing Resistance Exemption (TIA-222-G, 15.6 b) has been added. This option applies to redundant members in existing structures.
12. Corrected the pairing of leg segment forces and leg segment strengths, used in the calculation of the member utilization ratios. Previously, in some instances, the ratio



was calculated using the maximum load effect within a member, rather than the one in the member segment under consideration.

13. For single and double angles on the Advanced page, the effective length factor K_z is now an assumed value equal to the user-provided K_x or K_y , as follows: If $(K_x * L_x) < (K_y * L_y)$, $K_z = K_x$, otherwise $K_z = K_y$.
14. Corrected the calculation of the leg effective slenderness ratios for certain bracing schemes in conjunction with the determination of the minimum bracing resistance (TIA-222-G, 4.4.1).
15. Changed M_n calculation for solid round members from $1.5 * S * F_y$ to $Z * F_y$, as per Rev. G 4.7.1.
16. The equivalent round members' R_r calculations for truss-leg members has been changed to use subcritical flow, as per 2.6.9.1.1.1. Previously, the assumed flow depended on the C value in all cases.
17. Fixed auto-calculation of torque arm areas for CSA S37 analyses.
18. Service wind speed value defaults to 50 mph on the Code page for TIA/EIA-222-F analyses.
19. Added the ability to specify custom Classification Categories in the tnxtower.ini file for use on the Feed Line, Discrete Loads, and Dishes input pages. Previously, the Categories were limited to a predefined list.
20. Removed the read-only attribute from some of the database files provided with the program.
21. Improved handling of some instances of corrupted databases.