

GUYMASTER Supplementary Release Note
For version 7.4.3 as of December, 2022

1. CSA-S37-18 PATCH LOADING (Annex H):

The screenshot shows the 'Project Properties' dialog box with the 'Annex H' tab selected. The 'Analysis Approach' section has three radio buttons: 'Default', 'Pattern Loading', and 'Patch Loading'. The 'Patch Loading' radio button is selected. To the right, the 'Mean Wind Factor' is set to 0.6. Below this, a text block explains the criteria for using the patch load method. Three criteria are listed, each with a calculation and a 'TRUE' result: Cantilever H = 0 < 19.5, the stiffness parameter, β_s , is less than 1.0 (0.05 < 1), and the inertial resistance parameter, Q , is less than 1.0 (0.29 < 1).

Criteria	Value	Result
Cantilever H = 0 < 19.5	0 < 19.5	TRUE
the stiffness parameter, β_s , is less than 1.0	$\beta_s = 0.05 < 1$	TRUE
the inertial resistance parameter, Q , is less than 1.0	$Q = 0.29 < 1$	TRUE

Three analysis options are available:

- a. **Default** – CSA-S37 wind gust analysis
- b. **Patch Loading** – CSA-S37 patch load method as per Annex H
- c. **Pattern Loading** – ANSI/TIA-222 pattern loading method (Proposed for the next revision of S37)

2. **TOWER ORIENTATION:** DrawTower has been updated to draw the tower plan views with true North always to the top of the page.

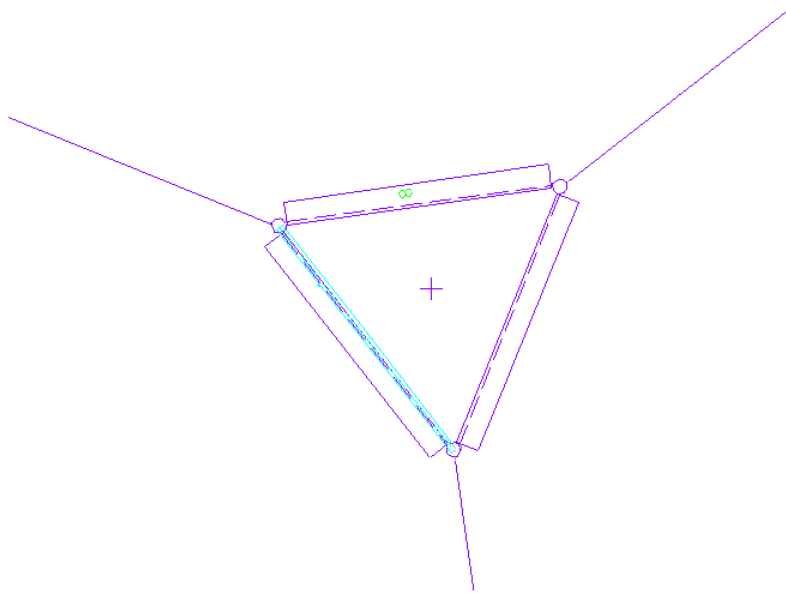
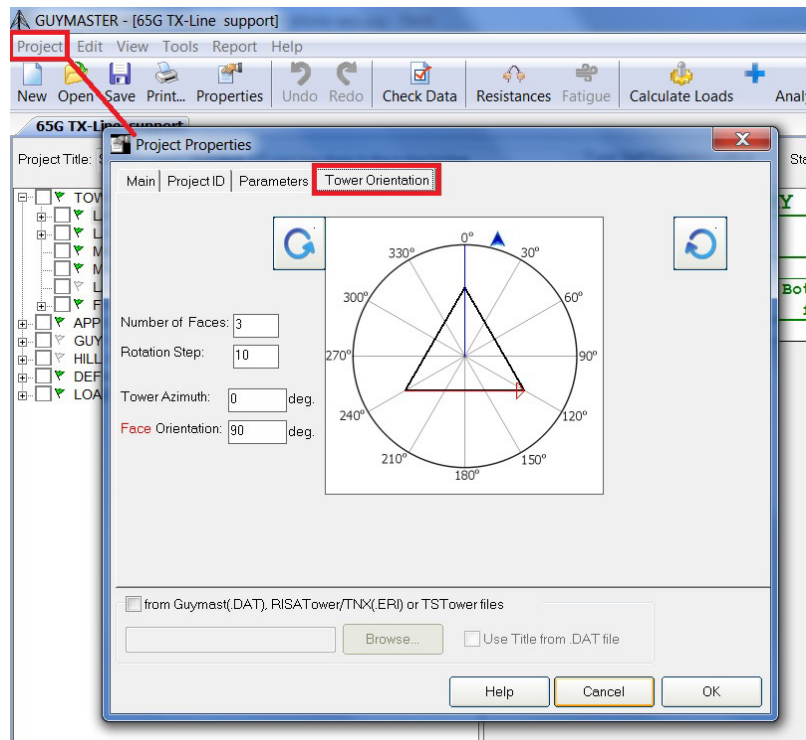


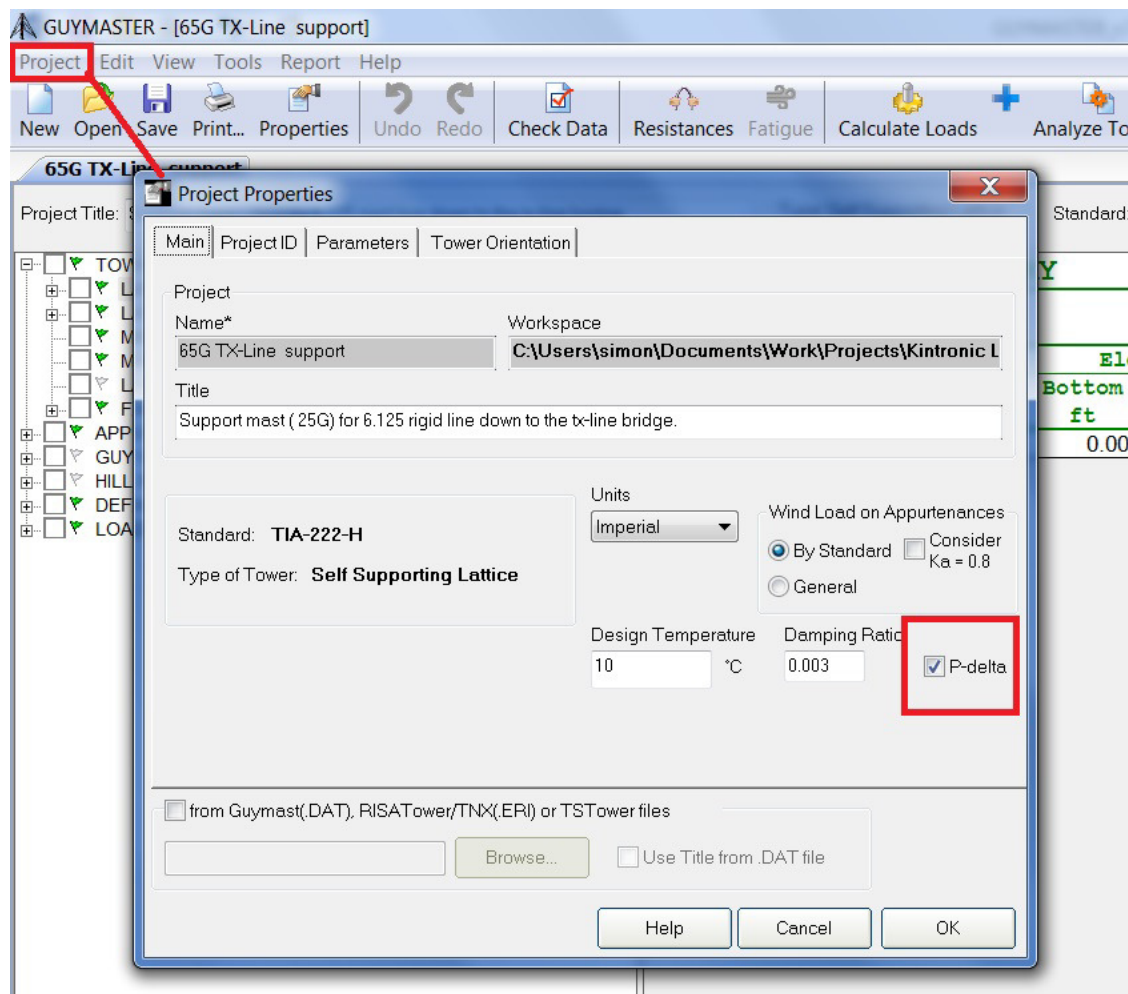
Figure 1. Tower Orientation

3. **TOWER ORIENTATION:** The analysis results reported now reflecting the tower's true orientation.



4. **P-DELTA EFFECTS:** The Self-Supporting tower analysis now will, by default, include P-Delta effects. However, this may considerably increase analysis run-time. The user may choose to disable this option by switching it off in the P-Delta check box located in the Project Properties dialog box.

When the analysis takes a considerable amount of time, it means the tower is sensitive to P-Delta effects because of its slenderness, because of high vertical loads, or because of very large displacements. The engineer needs to know this, so we have made it a default setting. The only reason for turning off the P-Delta analysis is to compare results.



5. **TENSION ONLY DIAGONALS:** GUYMASTER will now automatically detect a system of tension only diagonals and will analyze accordingly.

6. ILLUSTRATION OF TOWER COMPONENTS & CONNECTIONS:

Tower components and connections will now be drawn while the appropriate data is being entered into the tables of the GUYMASTER interface. This will give important timely feedback to the users and help them visualize the results. An example is given in Figure 2, below.

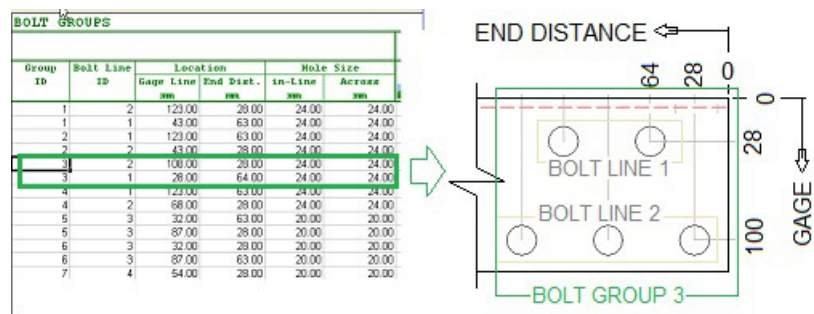


Figure 2. Bolt Grouping

7. OPTIONAL NATURAL FREQUENCY SPECIFICATION FOR A MONOPOLE:

The natural frequency of a pole is, by default, internally calculated based on the properties given for the sections and the mass of the sections and appurtenances. If the users have reason to use another frequency they can now input their preferred value in the Project Properties dialog box under the Annex N tab. When a value of zero (default value) appears in that box, GUYMASTER will calculate the natural frequency.

Project Properties

Main | Project ID | Tower Orientation | Annex N

Strouhal Num. 0.184 Damping Ratio 0.05

Natural Freq. 0 Hz