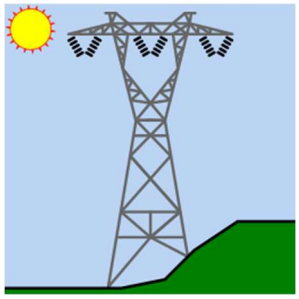

2024 PLS-CADD Advanced Training and User Group Meeting
What's New in TOWER™

Summary of changes since June 2022 User Group.
Covers versions 17.50 – 20.00.

Projects saved in version 20.00 are readable in versions 18.01 and newer unless:

- Version 18.04 and newer if using Capacity Comment Strings in **Geometry/Members/Capacities and Overrides...**.
- Version 18.11 and newer when using Notes or Keywords in Attachment Manager.
- Version 18.12 and newer for LIC and LCA files when using EN50341-2-15:2019 (Netherlands NNA).
- Version 19.12 and newer when using hatch filled annotations.
- Version 19.13 and newer when using lambda, double pin, or double suspension insulators.
- Insulator Library files with lambda, double pin, or double suspension properties require version v19.05 or newer.

New Commands

1. Context menu commands, "Rotate" and "Move Anchor Point", when snapping to guys to graphically position the guy anchor.
2. Added support for three new insulator types:
   2.1 Lambda (Inverted V)
   2.2 Double Pin
   2.3 Double Suspension

Engineering & Reports

1. Allow Post Interaction Capacity Diagram inputs to have up to four fractional digits so very dense computer-generated data doesn't have rounding induced concavities.
2. Now only check RDIS component of rupture capacity for spacing when have more than two bolts for angles connected on both legs (previously checked when had 2 bolts).

3. Modified rupture capacity calculation equation ENC12-75 for EN50341-1:2012 EN93 (and 2015, 2017 UK NNA's) to only use alternative formulation when the literal one produces obviously incorrect results. Previously always used alternative formulation.
4. When EN50341-2-8:2017 is selected for the connection check now assume that double cruciform members have two bearing/shear areas instead of only one as per French fabrication practices.
5. Rupture capacity for the EN50341-2012 EN93 variant and derived codes (2015 UK, 2017 UK, 2017 NL) now calculates Av as the net area in shear rather than the gross area as per EN1993-1-8:2005.
6. Belgian climbing load checks (EN50341-3-2:2001 Belgium, EN50341-2-2:2019ECCS, EN50341-2-2:2019EN93) now respect **Geometry/Members/Capacities and Overrides** climbing load override.
7. Now issue an error when 222-G seismic loads are used with a self-supporting tower that has a zero base width since this prevents calculating W1 for the f1 calculation in 2.7.11.1.
8. Can now track guy wire and structure cable lengths in bill of material reports if those properties use a part stock number using the new "Quantity From Cable Length" rule.
9. Added optional Capacity Comment String to **Geometry/Members/Capacities and Overrides...**. This is a user input note, to document why overriding the capacity of a member, that we preserve and print wherever we print the details of the member.
10. **Model/Create Group Summary Super Set** can now report Family Manager's Body and Leg Extension instead of deformed geometry names for the various "Controlling Model" columns.
11. When Family Manager is engaged, now give "Summary of Joint Support Reactions For All Load Cases and Configurations" and "Summary of Joint Support Reactions For All Load Cases and Configurations in Direction of Leg" which includes the leg extension name and position for each joint.
12. Added "Aggregate" command to **Model/Results** and the right click "Results" menu in deformed geometry that aggregates a user selected schema over load cases and then over all open deformed geometry views (i.e. configurations from Family Manager).
13. Now issue a warning when have short post insulators that are chained to other posts as this can cause convergence problems.
14. Made **Model/Check** errors suppressible.

Standards and Codes

1. Added “IS802:2015 NFW” Structure Wind/Ice Loading Method (NFW = Narrow Front Wind)
2. Added "EN50341-2-18:2016" Normal and Extreme Swedish NNA Wind/Ice Loading Methods.
3. Added "EN50341-2-15:2019 (Netherlands NNA)" Wind/Ice Loading Method.

General Additions

1. Added four options to 3D Controls Load Vectors combo box "PLS-CADD Wires", "PLS-CADD Wires and Labels", "PLS-CADD Survey Data", "PLS-CADD Wires and Survey Data", in addition to "PLS-CADD Wires, Labels and Survey Data".
2. Added Notes and Keywords columns to **Lines/Reference Manager** file list.
3. Added Notes and Keywords columns to **Drafting/Attachments (Raster and Vector)/Attachment Manager...**. Can add Notes or Keywords to any attached file using the Table button or context menu command.
4. Mini-pref "Prompt for permission before saving projects in new version" now results in a Yes, No, Always dialog so user can avoid being prompted multiple times during Batch Modify without having to change the mini-pref first.
5. Open **File/Preferences...** when the units status bar indicator pane is double-clicked.
6. Now persist **View/Entity Info Snap Settings...** when closing and opening PLS-POLE.
7. Added **File/Preferences...** option to save backup files with a .PLSBAK extension.
8. Notify user when saving files to an updated file format version, what software versions can read those files, and what feature requires that new version.
9. No longer save files compatible with software versions earlier than v17.50.
10. No longer support Windows 7 or Windows 8. See https://www.powerlinesystems.com/windows for officially supported versions of Windows.
11. Added preference setting to reverse direction of zoom with scroll wheel.
12. Now warn about potential unsaved changes whenever you hit the ESC key in a dialog containing a table with changes.
13. Persist the state of the "Lock to label load case" checkbox in the **View/Display Options/Set Rotation, Color and Label Options...** dialog.
14. Usability improvements to the list control in **Drafting/Attachments (Raster and Vector)/Attachment Manager...**
15. Improved performance of DXF hatch support and added a **File/Preferences** option to set the maximum number of hatch lines before aborting draw.
16. Added custom hatch support to polygon and ellipse annotations.

Performance

1. Implemented a binary cache for DXF and SHP files to greatly speed up loading those files if they have not changed (can be over 100x faster depending on file).

Drafting and Graphics

1. Added custom member label options: %RLX, %RLY, %RLZ, %Eccentricity, and %Restraint.
2. Added "Use Dark Mode for Reports" option in **File/Preferences...** to display reports as white text on black background.
3. Support dark mode for images inserted into reports.
4. Improved annotations to support multiple annotation copy/paste and ability to move 2D dimension annotations.
5. Improved arc size calculations for cloud annotations on sheet views.
6. New enhanced graphics including high DPI improvements.
7. Added 'Digits of precision to use for Dimension Annotations" option to **File/Preferences...** to change the default precision.
8. Now support hatches and splines in DXF attachments.

Interface

1. Added **General/Output Option** warning suppression for "w/t for member exceeds ASCE 10 section 3.7.1 limit of 25".
2. Can now display and snap to survey data points when opened from PLS-CADD by using the "PLS-CADD Wires and Survey Data" option for Load Vectors in 3D Controls dialog (**View/Display Options/Set Rotation, Color and Label Options...**).
3. Graphical "Move" and "Rotate" commands can now snap to annotation and survey data points imported from PLS-CADD.
4. Support sending full schema table reports to PLS-CADD so can right click to view them as a table, export to XML, etc.
5. File selection dialogs now show "Property Notes" for component files.
6. Added "Wait for post processor to finish" option to **General/Post Processor Options**.
7. **Geometry/Groups/Interactive Sizing** now remembers last user selection of "Calculate # of bolts required for bearing and shear".

8. Added **General/Output Options** "Print Pedantic Group Summary Output" to produce a Group Summary that has 10 additional result columns.
9. Added setting to **File/Preferences...** for "Minimum number of lines displayed for status bar text".
10. The Angle Members editing table reached via **Geometry/Members/Table Edit** now has an "Overrides" button that jumps to the row of the current member in the "Member Capacities and Overrides" table.
11. Added "Exclude attachments" option to **File/Export/DXF...**
12. Added ability to drag lower right corner of table cell to do copy/fill or, if applicable, a pattern fill of the selected range.
13. **General/Reference Manager** now stores file checksum, size, and last write time so can alert you when a referenced file has changed.
14. Updated text in **Geometry/Sections/Move** to indicate that symmetry is removed for all operations.

Family Manager & Optimum Body and Leg Extension Selection

1. Family Manager single extension editor now detects attempt to apply a non-compatible extension and aborts out of editing without allowing user to corrupt their model.
2. Family Manager now prints the upper and lower interface extents for each extension when **General/Output Options** "Print extended diagnostic output" is enabled.
3. Family Manager now warns when "The top of extension '___' is not aligned in the horizontal plane with the bottom of the previous extension '___'. ?? ".
4. The Family Manager Export command now offers option to export DXF files in addition to XML and TOWER models.
5. **Structures/Automatic Spotting/Optimum Body and Leg Extension Selection** in PLS-CADD now allows you to enter the number of sub-optimal solutions to report on for each structure location. Sub-optimals have acceptable reveal but are not the lightest solution. Factors outside of PLS-CADD such as scheduling, or material availability may make a sub-optimal solution more desirable.
6. **Structures/Automatic Spotting/Optimum Body and Leg Extension Selection** in PLS-CADD now completely ignores configurations with errors even if they are the only way to get leg coordinates for an unequal leg configuration. Now set weight of invalid configurations to zero to make it obvious that it is invalid.

Web, Components, & Examples

1) New Videos
    a. TOWER Wind Loading Methods - https://www.youtube.com/watch?v=Fk8Km3nhMCU
    b. LiDAR Survey Data in PLS-POLE & TOWER Models - https://www.youtube.com/watch?v=8JBkqxtYFdU
2) Technical Notes
    a. Checking Post Insulators with Interaction Curves - https://www.powline.com/technotes/post-curves.pdf
    b. Application of NESC Insulator Requirements - https://www.powline.com/technotes/NESC_Insulators.pdf