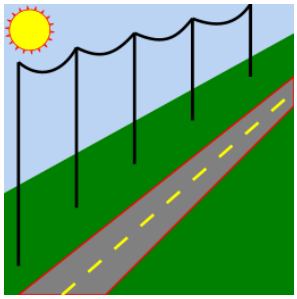

# 2026 PLS-CADD Advanced Training and User Group Meeting
# **What's New in PLS-CADD™**

## Summary of changes since June 2024 User Group
## Covers changes in Versions 20.01 – 21.15

Projects saved in version 21.15 are readable in versions 20.01 and newer unless:

- Version 20.04 and newer when using Separator Cable Length Change.
- Version 20.07 and newer when Batch Thermal Calculator uses a Radial Thermal Conductivity < 0.5 or a Radiation Percentage Increase < 7 (or 13 for altitudes above 1000m).
- Version 20.08 and newer when using weather case clearance overrides in the feature code table.
- Version 20.11 and newer when TIN files with names other than '<project name>.tin' or saved to a different directory than the '.DON' file.
- Version 20.14 and newer when using lambda insulators with a non-zero compression capacity for Method 1 Structures.
- Version 20.16 and newer when using section groups.
- Version 20.16 and newer when using multiple surface TINs, attaching TIN files that are external to the project.
- Version 20.17 and newer when using set numbers greater than 60.
- Version 21.04 and newer when displaying survey points within the specified elevation range.
- Version 21.07 and newer when using multiple cable types or files with section groups.
- Version 21.08 and newer when using section comments, multiple ground TINs, or an inset report view linked to a CSV file.
- Version 21.09 and newer when using any of the following new features:
  - Notes in the "Feature Code Data"
  - Specifying ruling span ranges for "Section Groups..."
  - Specifying section groups in "Survey Point Clearance and Danger Tree Locator..."
  - Using discontiguous Set numbers or filtering by insulator type in "Structure Group Rules"
  - Using exempt section groups in "Automatic Sagging..."
  - Using any new configuration options in "Structure Overview Report Configuration"
  - Using the new "Show Other Fictitious Members" display option

- Version 21.11 and newer when using isosceles triangle bundles or new structure overview report options for the usage heat map legend, dimension lines, or section labels.
- Version 21.12 and newer when using Section Groups with **Terrain/Clearance Line**.
- Version 21.13 and newer when using station range specific scale factors for Plan and Profile Sheets or new view options for Structure Overview Reports.

## ATUG 2024 Requested Features

1. Added 'Staking Table' button to **Structures/Modify** and context menu command when snapping to structures.
2. Added buttons and context commands to hide or unhide selected TINs in **Terrain/TIN/TIN Manager**.
3. Added read-only 'Circuit Label' column to **Sections/Table...** and an option to sort by circuit label.
4. Added 'Edit Circuit Label' button to **Sections/Table...** which opens the "Circuit and Phase Definitions and Labels" dialog and jumps to selected section.
5. Added sorting options to **Sections/Electric/Define Circuits and Phases/Table**.
6. Added an option to **Sections/Autosag All...** to skip clipped sections.
7. Added structure selection to **Structures/Automatic Spotting/Optimum Body and Leg Extension Selection...**
8. Added command **Structures/Available Structure List/Backup Structures** to backup selected structures from the available structure list.
9. In PLS-CADD/LITE, added sorting options to **Line/Setup**.
10. Added new annotation view type of 'Sheet Range' to **Drafting/Lines and Annotation/Table Edit...** which displays annotations on a user selected subset of sheet pages.
11. Added new command **Drafting/Display Options/Ghost Nonselected Lines** which de-emphasizes visible, but unselected line models.
12. Added new snap option for **Terrain/Alignment/Move P.I.** which moves PI along line defined by an alignment segment. There are options to follow segment Ahead, Back, or auto detect based on mouse position.

## Importing, Exporting, and Coordinate System

1. Improved exported DXF files to support solid fill hatches.
2. **File/Export/LAS/LAZ...** which exports project survey data to a LAS or LAZ file with support for color and

feature code to ASPRS classification mapping.

3. When exporting to KML/KMZ, added a check-box option 'Adjust for EGM96 Geoid Height (iTwin/Cesium)', which adjusts for the elevation difference between the current geoid and the WGS 84 ellipsoid used by iTwin and Cesium Ion.
4. Updated the coordinate system projection library to support GeoTIFF grid/projection files and support automatically downloading missing/required GeoTIFF grid/projection files. This can be controlled through two new **File/Preferences...** settings: 'Allow PROJ to automatically download missing/required projection files.' and 'PROJ CDN URL used to automatically download missing/required projection files. Leave blank to use PLS default.'
5. In **Terrain/Edit/Merge Points from External File/Create XYZ or PFL Points from DXF or SHP Attachment...** added the option 'User specified feature code layer' to create points with feature codes based on the DXF layer name.
6. In **Terrain/Edit/Merge Points from External File/Create XYZ or PFL Points from DXF or SHP Attachment...**, the 'User specified feature code by layer' settings can now be saved and restored in an RPS file using the icons in the upper right of the dialog.
7. Now correctly detect compound coordinate systems when defined in a .prj file (i.e. coordinate system definitions that have both a horizontal and vertical component).

## Alignment & Terrain

1. Added support for snapping to multiple surface TINs if they are displayed.
2. Added the ability to specify a color for the 'Color, intensity by incidence' render option in the "TIN Display Options" dialogs which is stored with each separate TIN.
3. The Wire Clearance Volume TINs, created by **Lines/Reports/Survey Point Clearances...**, now show up as distinct TIN types in **Terrain/TIN/TIN Manager**.
4. Several updates to **Terrain/TIN/TIN Manager** to make it look and behave more like the 'Attachment Manager' and 'Reference Manager' dialogs and support multiple surface TINs.
5. Now support multiple Ground TINs in **Terrain/TIN/TIN Manager**. Any Ground TIN can be displayed, but currently only the default (first) Ground TIN is used for calculations. The "Set as Default Ground TIN" context menu command selects which one is the default.
6. Added the ability to assign unique Feature Codes for clearances to each Surface TIN in **Terrain/TIN/TIN Manager**.
7. Added an option to **Terrain/TIN/Create Surface TIN...** which will create a horizontal planar TIN surface at

a specified elevation.

8. Improved **Terrain/Automatic Model Builder (AMBER)...** accuracy and expanded to support any combination wire and attachment classifications and the option to assign a specific cable file to each set.
9. In **Terrain/Automatic Model Builder (AMBER)...** allow user to specify multiple Feature Codes for the wire attachments within a given set.
10. Improved the accuracy of wire point clustering in **Terrain/Automatic Model Builder (AMBER)...**
11. Added an option to **Terrain/Automatic Model Builder (AMBER)...** to enable/disable looking for skip-span connections since that can slow down AMBER's processing.
12. **Terrain/Automatic Model Builder (AMBER)...** now works with a user defined alignment.
13. Updated **Terrain/Automatic Model Builder (AMBER)...** to work on projects with existing alignments, structures, or sections.
14. Added support for strain insulators to **Terrain/Automatic Model Builder (AMBER)...**
15. Improved **Terrain/Automatic Model Builder (AMBER)...** to support detecting suspension insulators, allowing the user to select separate weather cases/cable conditions for each defined circuit, and specifying sagging condition, sagging temperature, survey weather case and cable condition for graphical sagging.
16. Added support for weather case clearance overrides to **Terrain/Feature Code Data/Edit...** using the 'Override Clearances' column. These overrides affect results in 'Survey Point Clearances', 'Danger Tree', and 'Clearance to TIN' reports.
17. In **Terrain/Feature Code Data/Edit...**, added the option 'Use Rectangular Bundle Clearance Method for Vertical and Horizontal Calculations' for bundled conductor clearance calculations which evaluates the sub-conductor positions independently for horizontal and vertical checks.
18. Added 'Notes' field to **Terrain/Feature Code Data/Edit...** with an option to include those notes in the Feature Code Report and Survey Data Report.
19. Moved 'Required Clearance Voltages' dialog to **Terrain/Feature Code Data/Set Voltages...** and **Terrain/Feature Code Data/Edit...** now directly opens the 'Feature Code Data Edit' dialog.
20. Added support for drawing feature code symbols when using "Add as Annotation to Inset View" command on a table with them, such as **Terrain/Feature Code Data/Report...**
21. Added 'Limit to Wires with Section Group' column to **Terrain/Clearance Line...**
22. Added support for 'Line Specific Alignments' to **Terrain/Alignment/Table Edit Alignment**.
23. Added a new snap option for **Terrain/Alignment/Move P.I.**, which moves PI along line defined by an alignment segment. There are options to follow segment Ahead, Back, or auto detect based on mouse

position.

24. For **Terrain/Alignment/Add P.I.**, "Move P.I." and "Delete P.I.", added the ability to <TAB> through a list of collocated PIs.
25. Now respect Survey Point Snap mode "Snap along alignment" during Add PI graphical command.
26. Updated **Terrain/Edit/Delete Duplicate XYZ points...** with an option to ignore description and comments so any points with matching XYZH would be considered duplicates.
27. Added an option in **Terrain/Survey Data Display Options** to show survey data within a specified elevation range.
28. Improved Line-Specific Alignment so that when a user clicks the button to copy a line, they are given an option to copy the alignments specific to that line as well.
29. Warn and fix problems with single PI alignments when opening a project.
30. Updated **Terrain/TIN/Create Ground TIN...** to allow the user to select which ground Feature Codes they want to include in their Ground TIN.

## Criteria, Codes, and Structure Loads

1. Added support for Section Groups to **Criteria/Automatic Sagging...**, **Drafting/Structure and Section Labeling/Sheet Profile View...**, and **Criteria/Cable Tensions...**
2. Added the button 'Replace Cable Tension Table Rows' to **Criteria/Automatic Sagging...** which completely replaces the contents of **Criteria/Cable Tensions...** with the Automatic Sagging criteria table.
3. Added 'Exempt Groups' button to **Criteria/Automatic Sagging...** to specify which Section Groups should be excluded from the **Sections/Autosag All...** command.
4. In **Criteria/SAPS Finite Element Sag-Tension...** added a new option 'Include concentrated loads in FE sag-tension model' which defaults to 'On'. This can be unchecked to exclude the concentrated loads from the model without deleting them, similar to the jumpers option in that dialog.
5. Added ruling span ranges to the automatic membership options in **Criteria/Section Groups...**
6. **Criteria/Section Groups** which defines section groups that function similar to structure groups but for sections. Users can define automatic group criteria in this table or manually assign sections to groups using **Sections/Table...**
7. Section Groups now allow multiple cable types and cable files.
8. Made it possible to edit Section Groups from the "Select Section Groups" dialog.
9. Now allow discontiguous set selection in the 'Attachment Types' options in the "Structure Groups Rule" dialog.

10. Added an 'Insulator Types' filter option to the "Structure Groups Rule" dialog.
11. Added 'Select All' and 'Select None' buttons to all Structure Groups dialogs.
12. Updated the "Structure Groups Rule" dialog with a Select Groups button and 'Rectangular' and 'Round' concrete pole shape filters.
13. Wind load on insulator as per EN50341-2-22:2016 (Polish NNA) now include drag coefficient of 1.2 and peak wind pressure factor. Previous interpretation was that Gins = 1 meant we could skip this, but that omitted Cins=1.2 and Qpk factors.
14. Updated the text in **Criteria/Code-Specific Wind and Terrain Parameters/AS/NZS 7000...** to clarify that Climate Change Multiplier (Mc) has to be handled by the user and is not automatically calculated or applied.
15. Added 'Applicable Section Groups' to both tables in **Criteria/Survey Point Clearance and Danger Tree Locator...**
16. Updated **Criteria/Report...** to include missing weather case references from 'Structure Attachment Coordinates Report Settings' and 'Feature Code Clearance Overrides'.

## Structures

1. **Structures/Available Structure List/Backup Structures** which backs up selected structures from the available structure list.
2. Now support insulator set numbers up to 999 and up to 100 separate insulator sets per structure.
3. Now allow lambda insulators to have a non-zero compression capacity.
4. Add a 'Staking Table' button to **Structures/Modify** and context menu command when snapping to structures.
5. **Structures/Alignment/Batch Swap Structure Alignment...** which swaps the alignment for multiple structures at once.
6. Added structure selection to **Structures/Automatic Spotting/Optimum Body and Leg Extension Selection...**
7. **Structures/Batch Assign Structure Groups...** which assigns groups to multiple structures at once.
8. Added the **Make Site Specific Copy** command to the context menu when snapping to a structure.
9. Context menu command **Rotate Structure** to graphically change the 'Bearing of Transverse Axis'.

## Electrical and Thermal Calculations

1. In **Sections/Electric/3D EMF Calculator...** added the 'Survey Point Report' option which lists EMF magnitude and survey point comments at specified feature codes.
2. Added 'Override Currents' option to **Sections/Electric/3D EMF Calculator...** dialog to specify section currents different from the currents in **Sections/Table...**
3. Updated **Sections/Electric/3D EMF Calculator...** reports to include Centerline Distance and Offset columns.
4. Added an 'Aggregate Results' option to **Sections/Electric/3D EMF Calculator** to display results from all selected spans in a single table.
5. Updated **Sections/Electric/3D EMF Along Line** to provide the user more control over the generated contours.
6. Added **Sections/Electric/3D EMF Along Right of Way** to calculate EMF along the project's defined right of way.
7. Added options to **Sections/Electric/Audible Noise Calculator...** to build L5 and L50 contour line TINs.
8. Add keyboard commands PgUp / PgDown to **Sections/Electric/Define Circuits and Phases/Graphical** which jump to the beginning or end of a section.
9. In **Sections/Electric/Lightning Protection Calculator...** added an option to markerize start and end points for exposed wire and added start and end station values to the report.
10. 'Fixed Angle' option added to **Sections/Electric/Lightning Protection Calculator...** as an alternative to the rolling sphere method.
11. In **Sections/Thermal Calculations (IEEE, CIGRE and TNSP)/Batch Thermal Calculator...** when importing current from the section table, convert from current per phase to current per subconductor.
12. In the **Sections/Thermal Calculations (IEEE, CIGRE and TNSP)/** commands, allow values less than 0.5 for 'Radial Thermal Conductivity' where 0 completely disables its effect in thermal ratings. RTC was made an option in the IEEE-738 2023 standard.
13. In the **Sections/Thermal Calculations (IEEE, CIGRE and TNSP)/** commands, lowered the minimum direct solar radiation increase 'Percentage' to 0 for all altitudes when using the 'CIGRE Brochure 207 August 2002' method.
14. In **View/Entity Info Snap Settings...** added '3D Electric Field TIN' and '3D Magnetic Field TIN' options to view the field strengths at specific vertices in the status bar.

## Sections

1. Added support for an Isosceles triangle bundle shape which consists of a flat top and two shorter sides pointed down. The spacing determines the long edge length and the ratio of long side to short sides is 25:18:18. Clearance calculations will use a circumcircle about the centroid that intersects the two upper vertexes and extends slightly beyond the lower vertex.
2. Added an 'Edit Circuit Label' button to **Sections/Table...**, which opens the 'Circuit and Phase Definitions and Labels' dialog and jumps to the selected section.
3. Added 20 Section Comment columns to **Sections/Table...** which function similar to Structure Comment columns. These Section Comment fields can be used for Section Labels in **Drafting/Structure and Section Labeling/Sheet Profile View...** and **Drafting/Structure and Section Labeling/Grid View...**
4. Enabled counterweights for lambda and double suspension insulators where the weight is divided equally between both sides.
5. Added 'Separator Cable Length Change' column to 'Wire Lengths, Temperatures and Attachment Stiffness' table in **Sections/Modify** to allow changing the separator cable length between lambda or double suspension insulators.
6. Add ability to assign Section Groups from the **Sections/Modify** dialog.
7. Added the ability to view and edit Section Comments to **Sections/Modify**.
8. In **Sections/Modify** & **Sections/Table...** added a 'Sag Relative to Section' command to sag a section as a percentage relative to another section at a given condition and weather case.
9. Added **AutoSag Section** command to the context menu when snapped to a wire.

## Materials

1. Added 'Decomposed Assemblies Parts Table' option to **Lines/Reports/Bill of Material...** and **Lines/Reports/Bill of Material by Structure Location...** which provides part counts per assembly used.

## Reports

1. Allow user to edit Section Stringing Chart schema by using **View/Edit Customizations/Tables...** and selecting 'Section Stringing Chart (Template)'.
2. Improved how **Structures/Available Structure List/Component File Report** reports duplicates so it is easier to identify all the component files that are the same and added summary listing 'Number of unique component files of each type'.

3. Added 'Configure Geometry Details' option to Structure Overview Report Configuration dialog to specify additional options for how the structure model is drawn, including whether it should be drawn larger or on a separate page.
4. Added 'General Data' and 'Structure Label' to the "Structure Overview Report Configuration" options.
5. Now use the 'Annotation Profile Text Height' from the **Drafting/Text Size, Line Width, Style, Color and Layer...** for generated dimension lines in Structure Overview Reports.
6. In **Sections/Stringing Chart/Multiple Sections...** the Section Stringing Charts now have schema so they can be viewed as tables, added as inset views to sheets, and exported to XML or JSON.
7. Improved support for GAP conductors to **Sections/Stringing Chart** to report on more than one temperature at once by automatically setting sagging temp and automatically adjusting the catenary at each temperature to match the design sag at the given weather case.
8. Made the **Sections/Offset Clipping/Winkelman...** temperature specific offset clipping tables compatible with "Aggregate" right click report command.
9. Added a note to the Automatic Sagging Report, from **Sections/Modify** to explain why the % capacity values might seem different when the user has FE set to L3 or L4, but follows the recommendation to switch to L2, for purposes of determining automatic sagging tension.
10. Added 'Structure Loads Analysis Level' column to the Structure Usage report for PLS-POLE and TOWER models which reports the level of analysis used (e.g. 'RS', 'FE L2', or 'RS+FE L2').
11. Added text indicating which 'SAPS Analysis Level' is being used for PLS-POLE and TOWER models when using finite element analysis to 'Structure Overview Report' and the 'Structure Loads Report' when extended diagnostics is enabled.
12. Added the Framing Connectivity table as an option for the Structure Overview Report. Requires PLS-POLE v21.07
13. Added options to the Structure Overview Report including: 'Show Usage Heat Map Legend', 'Show Dimension Lines', and 'Section Labels'.
14. Added new options to directly control the scale and orientation of the inset structure view in the Structure Overview Report.
15. Added support to check clearances to multiple surface TINs to **Lines/Reports/Survey Point Clearances...** and **Lines/Reports/Thermal Rating Report...**
16. Added 'Enable radial wire envelope markers' option to Report and Markers tab of **Lines/Reports/Survey Point Clearances...** and **Lines/Reports/Danger Tree Locator...** to graphically display 3D markers of the clearance envelope around blown out wires.

17. Replaced the radial clearance markers with a 'wire volume' surface tin, showing the 3D space occupied by a wire and its required radial clearance for each weather case.
18. Added support for checking against multiple Ground TINs to **Lines/Reports/Survey Point Clearances...** and **Lines/Reports/Thermal Rating Report...**
19. Added 'Feature code for violation points' option to Report and Markers tab in **Lines/Reports/Danger Tree Locator..**. which creates new survey points for violations with the specified feature code.
20. Added option to **Lines/Reports/Wire Clearances...** for horizontal clearances to only consider wires within a vertical offset and also disable clearance checks for parallel, one or two different structures if the entered clearance for them is 0.
21. Added 'Loop over all weather cases for Target Wire' option to **Lines/Reports/Wire Clearances...**
22. When running **Lines/Reports/Wire Clearances...** with mid-span check only and ice jumping turned on, consider it a violation if clearance is not met at any point along the line from the source wire's mid span at the ice loaded position to the source wire's mid span at the ice jumped position even if these two points otherwise meet clearance.
23. Added the option 'Include suspension insulator energized zones in check' to **Lines/Reports/Structure Clearances...**
24. Added 'Sep. Cable Adjustment' column to 'Wire Lengths in each Span' schema table, from **Lines/Reports/Summary...**, so that separator cable adjustments are reported separately rather than subtracted from unstressed length.
25. Added new columns for 'Insulator Stock Number' and 'Property Label' to 'Structure Attachment Coordinates' table in **Lines/Reports/Summary**. This only works for structures saved in the updated file version.
26. For 'Structure Attachment Coordinates' in **Lines/Reports/Summary**, made sure the 'Phase Label' column will always display the label for each row.
27. Added the JSON file format to schema report "Export" options as an alternative to XML.
28. "Export" added to context menu in report windows to provide the available export options for all schemas in the report in one dialog.
29. Added 'Assigned Section Groups' column to the 'Sections Evaluated' table in **Lines/Reports/Section Usage...**
30. **Lines/Reports/Structure Input Echo Report...** which provides the structure program 'Input Echo' report for multiple structures. These tables are also available in **File/Export/XML...**
31. Added 'Vertical' to the 'Type of clearance requirement' options in the **Lines/Reports/Thermal Rating**

**Report...**

32. In **Lines/Reports/Thermal Rating Report...** when using rectangular clearance checks, if the horizontal clearance value is 0 for a feature code, provide a warning and an option to use the vertical clearance value of that feature code as the horizontal clearance.
33. Added a warning to **Lines/Reports/Thermal Rating Report...** output if there are undefined clearances.
34. Added 'Applicable Section Groups' column to the 'Automatic Sagging Report', 'Check Section Report', and 'Check Section Summary'.
35. Added an 'Inside Right of Way' check to **Lines/Reports/Construction Staking Report...** and **Lines/Reports/Blowout and Departure Angle Report...**
36. Added a warning message and blue highlighting to rows with foundation footprints outside the right of way in **Lines/Reports/Construction Staking Report...**
37. Added a warning to the Required Clearances table in **Lines/Reports/Survey Point Clearances...** and **Lines/Reports/Danger Tree Locator...** when an override weather case clearance value is specified in the Feature Code table, but the clearance report is not checking that weather case.
38. Updated **Lines/File Reference Check** to find missing references in component libraries, such as the Framing Library, that were not reported before.

## Merging Projects

1. Added 'Graphical Merge' option to **Lines/Merge...** which gives the user the ability to select features to merge with area selection on each line design.
2. Added a 'Structure Model Differences' button to 'Merge Structures' dialog when merging line models, which uses PLS-POLE or TOWER to generate a full differences report for the selected structures.
3. On 'Add All' in Merge Structures dialog of **Lines/Merge...**, show a message indicating when some structures were already added to the list, rather than silently skipping them.
4. When attempting to merge projects with different coordinate systems, added information in error message to point out how to modify these settings so the projects are compatible.
5. In **Lines/Merge Projects...**, when multi-selecting PIs for add, try to preserve original alignment gaps.

## Drafting and Attachments

1. Now support GPS tag information in TIFF attachments.
2. Improved graphics for dash and dot line styles when using larger pen widths.

3. Added warning when adding an ECW file to Attachment Manager if file has no units or scaling defined.
4. Added 'Disable image collar detection' option to the Bitmap Options dialog to fix drawing artifacts from images that are mistakenly interpreted to include a collar.
5. Added 'catenary' and 'horizontal tension' options to the Wire Labels for **Drafting/Structure and Section Labeling/Profile View...** and **Drafting/Structure and Section Labeling/Sheet Profile View...**
6. Added new annotation view type of 'Sheet Range' to **Drafting/Lines and Annotation/Table Edit...** which displays annotations on a user selected subset of sheet pages.
7. **Drafting/Lines and Annotation/Add/Dimension Angle...** now supports arbitrary 3D angle and works in Cross Section View.
8. For several of the **Drafting/Lines and Annotation/Add/** and **Drafting/Lines and Annotation/Move** commands, changed the behavior of the <ctrl> and <space> keys to be toggles instead of requiring the user to hold them down. This addresses some slow drawing performance.
9. Added graphical layout preview when in Sheets View with **Drafting/Plan & Profile Sheet Configuration/Page Layout...**
10. Added an option to **Drafting/Plan & Profile Sheet Configuration/Pages and Station Range...** to specify different vertical and horizontal scales for each station range.
11. For Structure Inset Views (**Drafting/Inset Views/Table Edit/Inset Structure Views...**), added a new 'Show Embedded Portion' option to display the portion of the structure below ground.
12. Added new command, **Drafting/Inset Views/Build Inset Report View/Link CSV File...** which adds the specified CSV to the Reference Manager and builds an inset report view with the contents of that CSV which can update as the CSV file is updated.
13. Renamed **Drafting/Inset Views/Build Inset Report View...** to **Drafting/Inset Views/Build Inset Report View/Build Manually...**
14. Changed **Drafting/Display Options/Show Embedded Portions of Structures** to only show embedded portions of structures, and the new command, **Drafting/Display Options/Show Other Fictitious Members** will show any other fictitious members of structures. Enable both to reproduce previous behavior.
15. Added **Drafting/Display Options/Show Strain Energized Zones** to graphically render the energized zone defined in **Components/Insulators/Strain Properties...** of PLS-POLE and TOWER models.
16. Updated the following commands to support the new foundation footprint option for PLS-POLE and TOWER: **Lines/Reports/Construction Staking Report...**, **Structures/Add/Along Alignment**, **Structures/Move/Freehand**, **Structures/Automatic Spotting/Spotting Constraints/Report...**, line

constants calculations and other spotting constraint checks.

17. **Drafting/Display Options/Ghost Nonselected Lines** which de-emphasizes visible, but unselected line models.

## PLS-CADD/Lite

1. Added **File/Export/XML...** to PLS-CADD/LITE.

## User Interface

1. Added a **File/Preferences...** setting 'Automatically set rotation origin', which sets the origin at the closest entity to the mouse before we begin rotating.
2. Added new context menu commands, 'Hide Column(s)' and 'Customize Column Visibility' to hide and show columns in dialog tables.
3. Improved 'Digital Ink' drawing (accessed through 'F2' key) to support different line widths, colors, and shapes.
4. Improve the UI for the 'Structure and Insulator Colors' controls in the **Sections/Display Options...** dialog 'Structure' tab.
5. Improved the Set selection control in several dialogs to support using <ctrl>+'A' to select all the Sets.
6. Updated the Set selection control in several dialogs to only show available Set numbers. Right click on the control to see all possible Set numbers or specify a custom range. In **File/Preferences...** change the 'List only active Sets.' setting to false to always see all possible Set numbers.

## Miscellaneous

1. Added **Help/Upload Backup to PLS Technical Support...** which automates sending a backup file of the current project to PLS.
2. Improved the warning when a user tries to use a command that depends on PLS-POLE, but they don't have the required license for certain material that PLS-POLE model uses.
3. Added a warning icon to title bar in table dialogs if any columns have been hidden. You can click on the icon to restore any hidden columns.
4. Updated clipboard information to include colors and text style when doing a Copy of any table so it can be pasted, with color, into a different program such as Excel.
5. Bitmap images embedded in reports now use the full color palette instead of an 8-bit palette to ensure

colors are represented correctly. This can be controlled through **File/Preferences** setting: "Enable full 24-bit color bitmaps when adding to reports. If off will use legacy 8-bit colors for bitmaps, which may have some color artifacting".

6. Added **File/Preferences** setting "Use system default PDF reader to fill help requests instead of Adobe Acrobat".

## Reliability, Usability, & Performance

1. Now save and restore Cross Section Views when closing and re-opening projects.
2. Improved the performance of certain types of calculations. Provides up to 20% speedup in overall L4 FE sag-tension analysis.
3. Improved robustness of file writes when writing multiple files simultaneously.
4. Updated software components for improved security.

## Web & Examples

1. New and Updated Videos
    a. PLS-GRID Sync iTwin
    b. PLS-CADD/LITE Graphical Commands
    c. PLS-GRID to GID Integration Using Web Feature Services (WFS)
    d. PLS-CADD Automatic Model Builder (AMBER)
    e. Section Groups
    f. Feature Code Groups
    g. Checking Wire Clearance Between Phases in PLS-CADD
    h. Checking Wire Clearances Between Circuits in PLS-CADD

2. New and Updated Technical Notes
    a. Connection and Anchor Elements (CAN) in PLS-POLE and TOWER
    b. Modifying Lines Without Changing Existing Wire Lengths
    c. Creating Bundled Cables in PLS-CADD and PLS-CADD/Lite
    d. Modeling ADSS Cables in PLS-CADD and PLS-CADD/Lite
    e. Making the Wire System Match "As-Built" Survey Points
    f. The Structural Advantage of Using V-String Insulators

g. Why is Creep ALWAYS a Factor?

h. Clearance to a crossing wire in PLS-CADD

i. Using the Automatic Pole Selector in PLS-CADD