

2013 PLS-CADD Advanced Training and User Group meeting
July 16-18, 2013
Monona Terrace Convention Center, Madison, WI

What's New in PLS-CADD

Interface

- 1) Added the Quick Search Toolbar which can be used to search the menus, help, technical notes and videos. Also acts as a calculator (try typing " $=10*\sin(45)$ ").
- 2) Added support for up to 4 custom toolbars. Toolbars now support both text and icon buttons (over 100 icons added).
- 3) File dialogs now show the PLS-CADD project, structure and cable directories in the Places List (Windows 7) or Favorite Links (Windows Vista) and File/Open has a "Read-Only" option.
- 4) File/Preferences now allows selection of a project specific SMA file.
- 5) Use of gray vs black text to indicate items that have been customized or changed from defaults (File/Preferences/Settings, View/Edit Customizations)
- 6) Feature code multiple select list boxes now draw unused feature codes in gray so can tell them apart from feature codes that are being used.
- 7) Status bar now right justifies text which is too long to fit in it.
- 8) Added "View this location in Bing Maps" option to the "view" menu that appears when middle clicking or pressing Enter in Entity Info mode.
- 9) Added "Lines/Edit Project notes" for project related notes. These are printed in the "Lines/Reports/Summary".
- 10) Tables now highlight the row number and column title for active cell and emulate Excel keyboard commands Control-Apostrophe to copy cell above and F2 to toggle between edit and cursor move mode.
- 11) Message boxes for numerous recurring error messages can be redirected to an "Error Log" window so only have to ok them once per session.

Drafting

- 1) Annotation polygons can now be drawn with a "cloud" line style (for revision cloud).
- 2) Annotation can now be line specific.
- 3) Annotation now supports "%R" keyword for display of lines of text from project notes (similar to the "%C" keyword for criteria notes).
- 4) "Terrain/Alignment/Display options for PI, Alignment & Right of Way" now lets you define ROW width for each segment and provides control over color for each segments PI symbol, ROW lines and alignment line.
- 5) Custom symbols can now be drawn at Structure Center, Pole Bases, Tower Leg Bases and Guy Anchor locations. Different sets of symbols can be used in the Plan, Profile, 3D, Sheet Plan, Sheet Profile and Sheet Inset views. Symbols are selected in the new "Structure" tab within the "Sections/Display Options" dialog box.

- 6) "Drafting/Text Size, Line Width, Style, Color and Layer" modified for more control over alignment, PI and structure symbols (now have separate entries for structures, structure labels, alignment, pi symbols...).
- 7) "Drafting/Structure & Section Labeling" dialog replaces and greatly expands upon capability formerly in "View/Display options/Profile View Structure & Section Labels".
 - a) Program now maintains different settings for plan, profile, sheet profile, and sheet plan views.
 - b) Order in which items (station, offset, structure number...) are displayed is now user controllable.
 - c) Prefix and Suffix associated with each item can be changed by double clicking on the item. One can for example revise the default "Sta=" prefix on station labels or remove the default newline suffix to get multiple items on a single line.
 - d) Wind and weight spans, including left and right side contributions, can now be labeled. This is done by right clicking in the Prefix or Suffix edit boxes and selecting the option to be labeled from the pop up menu (warning: display of wind or weight spans may cause noticeable redraw delays if using FE sag-tension).
 - e) "Inset View" tab has check boxes for "Draw structure geometry" (Geometry defined in PLS-POLE or TOWER) and "Draw Structure Imagery" (photos attached to PLS-POLE or TOWER structures).
- 8) Drafting/Structure Text Position commands now allow editing of position of structure labels in plan part of P&P sheet.
- 9) Context menu has "Structure Label" submenu when snapping to structures which provides options for showing/hiding individual labels and changing text orientation in plan view.
- 10) "Drafting/Plan & Profile Sheet Configuration/Scales" has two new long axis plot settings to let you control if PI and structure labels are shown on one side of the long axis gap or both sides of the gap.
- 11) 'Drafting/Plan & Profile Sheet Configuration/Scales' now has 'Angle Labels' radio buttons with options for "Deg Min Sec", "Decimal deg. 2 digits after decimal" and "Decimal deg. 4 digits after decimal".
- 12) Lots of tweaks for structure and PI labeling for better looking drawing, elimination of long axis duplicates and drawing of stuff that was missing.
- 13) "View/Edit customizations/Schema Report Strings" now lets you customize the plan & profile sheet text like "Horiz. Scale", "Vert. Scale" and some custom long axis text.
- 14) "Edit/Copy" of graphics view now gives option of saving the image as a .TIFF or .BMP. Plan view images saved from PLS-CADD will contain georeferencing information.
- 15) Modified DXF read routine to be more memory efficient and to solve error in some recent versions that could cause out of memory errors on files that used to be readable.
- 16) Tweaked background image memory management to reduce odds of running out of memory on 32 bit machines and to use extra memory if available on x64 machines.
- 17) Switched to new ECW/JPEG 2000 image library that is more tolerant of corrupt images, loads images 2-7 times faster and provides more reliable JPEG2000 support.
- 18) Upgraded to new version of TIFF library and added support for JPEG compressed TIFF files.
- 19) Drafting/Attachments/Attachment Manager now works with images in JPEG format. You can do anything with a ".jpg" file that you could with a ".tif" file. See updated photos technical note for details:
<http://www.powline.com/products/photos.html>
- 20) "Structure/Modify" dialog box "View" button and middle click context menu equivalent now provide access to images attached to PLS-POLE and TOWER structure files in addition to those in structure comments.
- 21 Imagery/DXF attached to PLS-POLE and TOWER structure files can be displayed in profile and sheet profile views ("Drafting/Structure and Section Labeling/Inset Views")

22) Added "F1/Display Features/Toggle display of structure view attachments (DXF+SHP+imagery)" allowing display of GPS camera imagery in the 3D view. Images viewed in the 3D view are visible when viewed from the front but displayed as a rectangular outline when viewed from behind.

23) "Drafting/Attachments/Associate Structure Photos" reads GPS coordinates out of "*.jpg" files and place a reference to that JPG in a structure comment for the closest structure.

24) "Drafting/Attachments/Attachment Manager" now supports a "Plan view vertical plane" image attachment mode for locating GPS camera images in the plan coordinate system. Program will automatically extract image coordinates and azimuth angle from GPS camera (including iPhone) EXIF data when present.

25) "Drafting/Attachments/Attachment Manager" dialog box "Options" button now allows batch application of settings across multiple images. This is especially useful when attaching many GPS camera photos.

Reports / XML / KML

1) Complete overhaul of "Lines/Reports/Construction Staking Report":

a) Better control over reference hubs to display (centerline, structure, foundation joints, guy anchors, PI)

b) Option to include graphic views (plan, transverse, longitudinal and isometric views) with user control over hubs, display of wires, set/phase labels, imagery...

c) Option to include separate "PI Staking Report", "Staking Data by Structure Report" and "Material List".

d) Optional column showing connection and property information (change required structure file format change and property information only available if structure file saved in PLS-POLE or TOWER 12.18 or newer).

e) Above settings are now saved to PPS file.

2) "Terrain/Alignment/Display Options..." and PI report now have columns showing "Closest Structure" and "Stationing to Closest Structure" to help situate the PI relative to structures and facilitate location of structures that aren't at PIs.

3) "Terrain/Alignment/PI Report" now has optional columns for line angle, bearing, longitude and latitude displayed in degrees, minutes and seconds.

4) Lines/Reports/Summary "Structure Attachment Coordinates" now reports slack, horizontal projection and vertical projection columns (use View/Edit Customizations/Tables to enable display of these optional columns).

5) Lines/Reports/Summary now gives details for concentrated loads, namely horizontal distance to next marker ball or from wire attachment, as well as corresponding distances along wire.

6) "Lines/Reports/Thermal Rating Report" settings now saved to CRI file and a new control is provided for selection of desired feature codes (earlier versions did all feature codes)

7) All 20+ reports that support KML export now also support ESRI Shapefile (.SHP) export.

8) Added F1/Custom / Under Development/"Multiple Project XML Export..." command.

9) KML export link to PLS-CADD project modified to make it work with new syntax Google changed to for local file references.

10) XML output now includes a version attribute for the table tag which can be used to detect changes in the schema of that table.

11) Now line <rowtext> and <titledetail> tags up with other columns output in XML table in effort to make them more human readable.

12) Added File/Preferences/Settings "Include full path name of files in XML export and when copying tables" that defaults to off in order to match output from 11.00 (turn it on to get full file paths).

13) XML output now includes a <rowtext> tag with any text that was printed before or after the row. This is often a " NG " after the row when usage exceeds 100%.

Structures

- 1) "Structure/Customize Structure/Move Attachment Point/Snap to Survey Point & Freehand" now lets you toggle snapping between the wire attachment point ("W" key) and the insulator attachment point ("I" key).
- 2) Added Structures/Customize Structure/Move Pole/Lean to fit Survey Point command which can be used to match surveyed position of pole tip.
- 3) Structure interaction diagrams and wind and weight span strength definitions can now have limit on percent of maximum wind span, percent of maximum weight span and minimum weight span from a single side. Single side limits are accessible "Edit Single Side Limits" in the dialog boxes used to set wind and weight span limits and interaction diagrams.
- 4) "Lines/Reports/Wind-Weight Span Report" has a new "Wind / Weight Spans By Side" section that shows the total weight span and the portion of that coming from the back and ahead sides.
- 5) Added "Structures/Available Structure List/Batch Modify of Single Side Wind & Weight Span Limits" function to allow rapid application of single side limits to existing structures.
- 6) Structures/Automatic Spotting/Optimum Spotting dialog now has a "Vertical clearance buffer" input. Also added a "Show Advanced and Exotic options" control to hide rarely used options. Language in reports also fine tuned to make it more clear what went wrong when unable to produce a working design due to span, swing, clearance or prohibited zone constraints.
- 7) Optimum spotting "Show Advanced and Exotic Options" displays option that allows the optimizer to consider a range of different insulator hold down weights when solving swing problems.
- 8) Structure weight spans are now adjusted to account for insulator counter weights. Impacts weight spans displayed in "Lines/Reports/Structure Usage" and "Lines/Reports/Wind & Weight Span Report" both of which now have additional comment column that will alert you when a counter weight impacts the weight span.
- 9) Added 'F1/Custom+Under Development/Compatibility Options/Include insulator counterweight in weight span (version 12.10 and earlier did not)...' for customers who do not want counterweights to impact weight span.
- 10) New Structure Groups feature that allows application of load cases to a specific set of structures. This replaces and extends what could be done with the earlier "Struct. Types on Which To Apply" feature. Groups are defined by hitting the "Structure Groups" button in the Criteria/Structure Loads dialog and load cases are applied to groups using the "Structure Groups On Which To Apply" button. A group can be either manual or automatic. For a structure to be part of a manual group you need to make it part of that group using the "Structure Groups" buttons in Structure/Modify or Lines/Reports/Staking Table. Structures become members of automatic groups automatically if they meet the rule for inclusion in the group. This rule can include a combination of structure type, attachment type, line angle, station, height, elevation...
- 11) Increased maximum number of load cases from 256 to 1000.
- 12) "Criteria/Structure Loads/Wind Direction" now has a "MAX: Global wind direction producing maximum structure usage for M4 structures and maximum base moment for M1/M2/M3 structures". Requires use of new PLS-POLE and TOWER 12.22 for M4 structures.
- 13) Structure specific material dialog box now display structure weights (wood, steel, concrete).
- 14) Added a notes input field in each tab of the Project Estimator.
- 15) "Structures/Material/Parts & Assemblies File/Setup" now has a "Define Custom Units" button allowing you to set up your own units of measure (boxes, crates, reels, pints, packages...)

Wires

- 1) Added surveyed temperature for each span feature accessible in "Sections/Modify". It is also set automatically when using "Sections/Thermal Calculations./Batch Thermal Calculator". "Section/Modify", "Sections/Global Display" and "Sections/Table" allow selection of "*** Surveyed Wire Temp. ***" as the display WC to display sections at their surveyed wire temperatures. "*** Surveyed Wire Temp. ***" weather case is also supported by "Sections/Sag-Tension", "Lines/Reports/Summary/Structure Attachment Coordinates", and "Sections/Graphical Sag" (both via menu and Sections/Table). Surveyed temperature can be displayed on drawings using "Drafting/Structure & Section Labels/Wire Labels/Label wires with their surveyed temperature".
- 2) "Sections/Table" now has "Clear length adjust" (clear unstressed length adjustment for all spans in section), "Merge length adjust" (merge unstressed length adjustment into unstressed length), "Set Surveyed Temp." (Set surveyed temperature for all spans in section to temperature for 'Display Weather Case') and "Find Surveyed Temp." (Set surveyed temperature for each span in section to temperature extracted from XYZ points) commands.
- 3) "Sections/Cables & Concentrated Loads/Edit Cable Data" now has a default color and "Sections/Display Options" Section tab has a "Draw each section with the color specified in cable file" option.
- 4) "Sections/Cables & Concentrated Loads/Edit Cable Data" dialog has new options for deriving a creep polynomial from test results.
- 5) "Sections/Thermal Calculations" now supports IEEE Standard 738-2012 which can result in core strand temperature hotter than outer strands. It also allows optional override of emissivity and absorptivity values from cable file. Resistance calculations for IEEE 738-2012 and CIGRE now provide for input of radial thermal coefficient and use average of core and outer strand temperatures when calculating resistance.
- 6) "File/Preferences" setting "Weather cases with input of different temperatures for core and outer wire strands" lets one experiment with different core and outer strand temperatures. It causes "Criteria/Weather Cases" table to show separate "Core Strands Wire Temp." and "Outer Strands Wire Temp." columns instead of a single "Wire Temp." column. (this feature defaults to off as we anticipate most clients will not use it).
- 7) "File/Preferences/Enable Pretensioning of sections" makes sag-tension of pretensioned conductor easy (no more tricks with dummy ice and after load). Causes "Pretension" input to appear in "Sections/Table", "Sections/Modify" and PLS-CADD/Lite "Line/Setup".
- 8) New "Include chained insulators in L2 and L3 models" option under "Criteria/SAPS Finite Element Sag-Tension" allows modeling of insulators supported by other insulators. Earlier versions only included the insulators supporting wires in the L2-L3 FE model. Modeling the supporting insulators allows more accurate modeling of situations involving swing brackets modeled as 2-part insulators and floating dead-ends (strain on end of a suspension or 2-part). Changes to the information passed back and forth between PLS-CADD, PLS-POLE and TOWER require the use of PLS-POLE and TOWER 12.16 or later.
- 9) Can now put concentrated loads at start of span (partial span icing can start at beginning of span instead of some small bit ahead of that). Also increased maximum number of marker balls per span from 20 to 60.
- 10) "Lines/Reports/Structure Longitude, Latitude and Height" now has an option to flag structures exceeding a certain height above ground.
- 11) Added "Sections/Concentrated Loads Automatic Placement" feature for reporting on wires exceeding a specified height above ground or automatically placing marker balls on them. Options are provided to control spacing, staggering between different wires, alternating between different colors...
- 12) New codes: AS/NZS 7000:2010, NESC 2012 (spacer cable choice, warnings if don't use ANSI 05.1 2008 for wood pole checks), EN50341-1:2012 (Cenelec), REE Spain RD 223/2008, IS 802 1995 (India), CSA C22.3 No. 60826-10 (variation on IEC for Canada), IEC option for wind on structure ice, EN 50341-3-9 UKNNA corrigenda
- 13) PLS-CADD/Lite "Lines/Setup" dialog ruling span column now supports calculation of ruling span from entered span lengths. Use "=RSC(HorizProj1,HorizProj2...)" for the classical ruling span formula or "=RSI(HorizProj1,Chord1,HorizProj2,Chord2...)" for one more accurate with unequal end elevations.

14) PLS-CADD/Lite now has a voltage column to support "IS 802 1995" and "CSA" code provisions that single out ground wires for special drag coefficient and ice treatment.

Terrain

- 1) "Terrain/Edit/Delete, Deactivate, or Export Survey Points" commands can now operate on either "selected" or "unselected" (can operate on points outside a fence).
- 2) "Terrain/Edit/Merge Points from External File/Create XYZ or PFL points from DXF attachment" now has an option to create survey points at regular intervals along DXF edges and across planar surfaces. Includes new option to recurse through entities in blocks.
- 3) Reports that can be exported to KML or SHP now have a "Import in Project as XYZ Points" right click menu option. Use of this feature causes creation of an XYZ point with a feature code of your choosing for each row in the report.
- 4) "Terrain/Survey Data Report" maximum length for point descriptor increased from 20 to 256 characters.
- 5) "Terrain/TIN/Display Options" now has "Color by Slope" and "Color by Averaged Slope" to make it easier to visualize slope of ground.
- 6) "Terrain/TIN/Display Options" now has opacity setting so can control translucency of TIN surface.
- 7) "Terrain/TIN/Display Options" now has a "Z value adjustment" allowing one to shift the TIN up or down. Shifting the TIN up can provide a graphical way to determine areas where wires exceed a certain height above ground and may need marker balls.

Web

- 1) Web site now has a "User Contributed" sub-section in the Videos section of the news page. First video is from Norconsult with beautiful fjord crossings. We encourage submission of additional videos.
- 2) Posted "Wind Loading: Uncertainties and Honesty Suggest Simplification" paper on Web site at http://www.powline.com/files/Peyrot_Wind.pdf
- 3) Uploaded new video "Introduction to the QuickSearch Toolbar" (<http://youtu.be/DwYgf5e9lOk>) to our Web site.
- 4) Criteria Files Web page updated to include new NESC 2012 criteria files (<http://www.powline.com/files/criteria.html>).
- 5) "Importing and Exporting Data to and from PLS Software" technote updated with new information concerning JPEG, TIFF attachments and SHP, KML report export (<http://www.powline.com/products/data.html>).

Current Projects

- 1) Improved alignment editing including rubber band lines to show what alignment will look like after PI add/move/delete is done. Also added option to heave ahead/back structures should stay anchored to current position or move with alignment.
- 2) Improved structure integration. Working on more sophisticated method of communicating between PLS-CADD and PLS-POLE or TOWER that enables much faster and intelligent integration.
- 3) Structure spotting and wire stringing without alignment or station constraints.