O-Calc® Pro 8.0

User Guide

©2025 Osmose Utilities Services, Inc.

Osmose O-Calc® Pro 8.0 User Guide

October 2025

Copyright

© 2002-2025 Osmose Utilities Services, Inc. All rights reserved.

The contents of this publication are intended for distribution to and use by the licensed owner of the related software, and copies and reproductions of the document may be made solely for use by the owner. Licensee agrees to reproduce and incorporate Osmose Utilities Services Inc.'s copyright notice in any copy or partial copy. The publication may not be distributed, transmitted, sold, published, or otherwise provided, in paper, electronic, or any other format, to any third party without the prior written permission of Osmose Utilities Services, Inc. Licensee shall not modify, translate, decompile, disassemble, or create derivative works based on the contents of this publication. Information in this document is subject to change without notice. Some screens and functions depicted here may differ from those you see in the interface.

Trademarks

Osmose is a registered trademark of Osmose, Inc.

O-Calc® Pro is a registered trademark of Osmose Utilities Services, Inc.

Microsoft Windows is a registered trademark of Microsoft Corporation. Any other trademarks mentioned are the property of their respective owners.

Osmose Utilities Services, Inc.
191 Peachtree Street NE Suite 500
Atlanta, GA 30303
1-770-632-6700
www.Osmose.com

Table of Contents

Osmose O-Calc® Pro Overview 14
Understanding the O-Calc® Pro Workspace 15
Workspace Panel Descriptions 15
Menu Functionality 16
Working in the Inventory 17
Inventory Toolbar Menu 17
New Pole Using This Pole as Template 21
Add New Version of Pole 21
Set Active Version 22
File Menu Overview 23
Methods for Adding a Pole 24
Equipment Catalog Types 26
Setting Depth of Pole 27
Delete Equipment 29
Rotating Insulators 30
Edit Equipment Description 31
Modify the Spans Default Rated Strength % 32
Add Equipment to the Pole 34
Equipment Menus 38
Pole Loading Regulations – Load Cases 41
Setting a Default Load Case 42
Removing a Default Load Case 43
Working with Sealed Load Cases 43
Unsealing a Load Case 44
Re-Sealing a Load Case 45
Working with Pole Substitutions 45
Height Adjustments 46
Using the Pole Solver 48
Substituting Equipment 49
Working with Equipment Catalogs 50
Catalog Menu 51
Query the Catalog 51
Attribute Values 52

©2025 Osmose Utilities Services, Inc.

Edit Icon Descriptions 53
Working in Top View 54
Top View Icon Descriptions 54
Zoom Level 55
Gang Editor “G” 55
Line of Lead 59
End/Drop Rise 61
Working with Guying 61
Stub Poles for Span Guys 61
Stub Pole as a New Pole 62
Stub Pole as Version 63
Stub Pole Menu Options 64
Enabling Stub Pole Options 65
Communication Span Bundles 65
Working with the Bundle Editor 68
Span Bundle Editor Toolbar 70
Add a Span 71
Span Bundle Layout 72
Edit Spans 73
Delete Spans 73
Understanding Wire Tension 74
Sag Table 74
Sag to Tension 75
Slack 75
Static 75
Table 75
Tens to Sag Table 75
Tension to Sag 75
Wire Tension Categories 77
Creating Table Tension 77
Edit Menu Overview 80
Bulk Updated Owners 80
Element 82
Set Height 83

©2025 Osmose Utilities Services, Inc.

Relative Height 84
Reference Origin 85
Pole Images 87
Select Images 87
Add Images 87
Add Image URL 88
Remove Images 89
Current Image as Primary 90
Pole Coordinates Geolocation 91
Set Convention Lat Lon Format 91
Set Convention Elevation Format 92
Reposition Pole 93
Constrain All Elements 94
Re-Calculate Sag 94
Digital Measurement Technology (DMT) 95
Working with Calibrated Visual Target (CVT) 95
Set Default Target Type 96
Image Menu 98
View Menu 99
Measure Tool Bar Menu 100
Image Navigation 101
Measure Modes 101
Height 101
Calibrating the CVT 102
Edit Measure Labels 104
Change the Current Image Target Type 106
Height Measurement 107
Arbitrary Measurement 108
Conductor Diameter Measurement 109
Angle Measurement 110
Add Measurements to a Note 113
Calibrating the Camera Lens 116
Enabling the Lens Calibration Tool 116
Lens Calibration Chart 117

©2025 Osmose Utilities Services, Inc.

Tools Menu Overview 122
Scripting 122
Batch Pole Report 124
Custom Pole Reports 125
Export Batch Pole Info 125
Heights 126
Working with Clearance Analysis 126
Step 1- Clearance Rules/Violations 127
Step 2- Define Clearance Groups 129
Step 3- Categorize Spans 131
Clearance Attributes Descriptions 132
Create Clearance Analysis Profile 133
Setting up Vectors 133
Step 4 – Run Clearance Analysis Report 138
Clearance Report Menu Options 139
Clearance Rules Maintenance 139
Export Clearance Rules 139
Import Clearance Rules 140
Load Case Defaults and Comparison 140
Load Case Comparison Menu 142
Remove a Default Load Case 142
Strength Reduction Calculator 143
Sag Tension Calculator 144
Calculator Reference Menu 147
Working with Sag Tension Table Generator 147
Step 1- Load Case(s) 148
Step 2- Spans 149
Step 3- Create Table(s) Report 150
Soil Data Lookup (NRCS) 152
Finite Element Model 153
Catalog Maintenance 154
Add a Catalog 155
Edit a Catalog 156
Remove a Catalog 156

©2025 Osmose Utilities Services, Inc.

Download a Catalog 157
Maintenance (Bulk Edit) Mode 157
Newer Catalog Version Check 157
User Access Levels 158
View Color Legend 158
Utilities – Standalone Tools 158
View Menu Overview 161
Theme 162
3D View 162
Save 3D View to 162
Update Capacity Summary (Alt+U) 162
Docking Layout 163
Refresh All Views 163
Reset All Filters 163
Options Menu Overview 164
Capacity Display 164
Capacity Meter Display 165
Capacity Numeric Display 165
Factor of Safety Display 165
Command Bar (Alt+ C) 166
Shortcut Keys 166
Visualization and Color Scheme 167
Edit Render Colors 168
Options in 3D View 168
Camera 168
Labels 169
Display Direction Arrow > Wind 170
Display Angles 171
Display Heights / Ruler 171
Show Messenger Only for Bundles 172
Visualization 173
Animate Selected Object (Flash) 176
Info Tips and Data 177
Inventory Info Tips 177

©2025 Osmose Utilities Services, Inc.

Component Load Info Tips 177
Catalog Info Tips 178
Show All Attributes in Data Entry Panel 180
Units Convention 181
Enable / Disable Prompts 182
Manage Available Reports 182
Misc. Options – see Appendix D 182
Manage Plugins 183
Help Menu Overview 184
O-Calc® Pro Help 184
About 184
More Information 185
Enter or Change Product Key 185
Folders 185
Key Word and Calculation Shortcuts 186
Reposition Objects in 3D View 186
Units, Heights, Rot., Circ., Comput. Exp. 186
Adding Damage and Decay to Wood Pole 189
Damage and Decay Group Object 190
Modeling a Multi-Pole Structure 191
Node Junction 194
Lattice Section 195
Add Material to a Lattice Section 196
Add Beams to a Lattice Section 197
Add a Lattice Group to a Lattice Section 199
Add Nodes to a Lattice Group 200
Adding Annotation (Notes) 201
Edit a Note 202
Change a Note Type 203
Note Type Icons 204
View or Print a Note 205
Change the Description of a Note 206
Delete a Note 207
Substitute a Note 208

©2025 Osmose Utilities Services, Inc.

Add a Calculation to a Pole or Equipment 208
Add an Item Attribute to the Calculation 209
Manually Enter a Formula in Note Calculations 210
Add a URI to a Pole Model 211
Edit a URI 211
Set the URI Viewer 213
Change the Description of URI 213
Open a URI Link 214
Delete a URI 215
Working in the File menu 215
Save Pole 215
Save Pole As 215
Close Pole 216
Preview Mode 216
Preview to New Pole 218
Preview Menu 218
Preview to New Version 218
Open Previewed Pole 219
Pole Reviewer 219
Set a Default File Name 221
Master Catalogs 223
Setting a Default Load Case 223
User Catalogs 224
Add a Subfolder 224
Remove a Subfolder 224
Rename a Subfolder 225
Add Equipment to a Subfolder 226
Edit Attributes in a Subfolder 228
Delete Equipment in a Subfolder 228
Change the Display Description 229
Working in 3D View 230
Mouse Controls 230
Filter Options 231
Pole Attribute Edits 232

Setting Depth of a Pole 232
Set the Above Ground Length in Feet of a Pole 232
Set the Length in Feet of a Pole 233
Add Equipment to a Pole 234
Working with Jumper Cables 236
Creating a Jumper on a Double Dead-end 236
Using the Split and Jumper Option 237
Mirror Spans 238
Working with Guying Systems 239
Auto-Guy 239
Extra Guy 241
Guy Type Descriptions 242
Mirror Guys 243
Guy Wire Tension 244
Merge Like Struts (Compression) 245
Calculated vs. Manual Guy Brace Tension 246
Working in the 3D View 246
Save the 3D View 247
Print the 3D View 247
Filter the 3D View 247
Understanding Pole Loading Capacity 248
Auto Capacity Summary 248
Capacity Meter Display 249
Numeric Display 250
Factor of Safety Display 251
Capacity Meter Thresholds 251
Capacity Menu Copy Options 252
Working in the Data Entry 253
Editing Attributes 253
Expand All Attributes 254
Display Multiple Attributes 255
Display Multiple Corresponding Attributes 255
Creating a Custom Filter 256
Delete a Custom Filter 258

©2025 Osmose Utilities Services, Inc.

Working in the Schematic View 259
Schematic Menu Options 259
Display Above GL Portion Only 260
Display Draft Pole Break 260
Change Equipment Height 260
Charts 263
Chart Menu 263
Chart Options 264
Chart Menu 265
Interpreting the Chart 266
Analysis Reports 267
Report Menu Options 267
Reports Toolbar Options 269
Viewing Reports 269
Batch Pole Report Menu 271
Create a Batch Report 272
Exporting Batch Pole Info 276
Working with the Strength Reduction Calculator 278
Create a Strength Reduction Calculation 279
Remove a Damage Record in Strength Reduction Calculator 281
Edit a Damage Record in Strength Reduction Calculator 281
Appendix A – Installing Osmose O-Calc® Pro 282
System Requirements 282
Registering Osmose O-Calc® Pro 286
O-Calc® Pro User Level Definitions 287
Administrative User Level 287
Using the Administrative Settings Feature 288
Development Information 291
Retrieving Reference Information 291
Creating Custom Loading Districts 291
Locating O-Calc® Pro Folders 293
Working with Catalog Backups 293
Catalog Maintenance Mode 294
Appendix B – Creating a Customized View 299

Repositioning Panels 299
Save a Named View 301
Delete a Named View 301
Return to the Default Docking Layout 302
Refresh All Views 302
Appendix C – Misc. Tools 303
Install Plugins and Reports 303
Data 304
Working with Bulk Edits 308
Bulk Owner Edit 308
Bulk Description Operations 309
Calculator 310
Modulus of Elasticity Calculator 310
Ruling Span Calculator 312
AWG to Diameter Conversion 313
Concrete Pole Class List 314
Working with Soil and Overturn 315
Soil Class List 315
RUS-based Overturn Moment Calculation 316
Deactivate Overturn Moment 319
Pole Section Evaluation 320
Clean Temp Folder 320
Save Pole Versions as Individual 321
Photo Measure Advanced Tools 322
Appendix D – Misc. Options 325
Display “Pole Saved” Confirmation 325
Divide Add Menu Items by Category 326
Show Text and Images in Inventory Menu 326
User Interface Conventions 326
Save Pole History Archive 327
Auto Save 329
Idle Time Interval 329
Assemblies Shown in New and Subst Trees 330
Set Height After Assembly Drop 330

©2025 Osmose Utilities Services, Inc.

Double Buffer in Image Measurement 331
Warn on Keyboard Delete 331
Automatic Copy to Clipboard on Item Click 332
Shortcut and Function Keys 333
Stub Pole Options - See 'Working with Guying'. 333
Show Error Tab Automatically 333
Move Pole Segments Together 333
Label Images From Current Height 334
Top View Merge Thresholds 334
Override Auto Setting of Wind Drag Coefficient 334
Appendix E – 3D Navigation Enhancements 336
Default Control Scheme 336
Camera Look Point 336
Alt Key Controls 338
Alt and Shift Key Controls 340
Alternate Control Scheme 342
Default Controls Set 342
Alternate Controls Set 343

Osmose O-Calc® Pro Overview

O-Calc® Pro Pole Loading Analysis

Osmose O-Calc® Pro automates the calculation of structural loading on new and existing utility poles. Major applications of this innovative software are line design, pole replacement, and joint use loading issues.

In many cases, non-structural personnel at a utility must decide whether more cables can be added, or larger conductors can be used on existing pole lines without overloading the pole or structure. O-Calc® Pro was developed to help technical and non-technical staff alike perform structural load analysis in a simple, straightforward manner. The calculations within O-Calc® Pro are complex, but the operator interface is designed for simplicity of use. In addition to technical load calculations and statistics, the application provides a configurable, three-dimensional visual rendering of each structure's load conditions.

O-Calc® Pro can be used to evaluate whether any structure within a line is already overloaded. O-Calc® Pro can quickly assess the impact of re-conductoring for upgrading line performance. The O-Calc® Pro analysis of stress along the length of a pole can be used to consider cost-effective alternatives to replacing overloaded poles.

O-Calc® Pro is a valuable resource in evaluating structural load for joint use, safety, network reliability, and network planning purposes.

O-Calc® Pro Equipment Catalogs

Osmose O-Calc® Pro allows you to model a utility structure (wood, steel, concrete, composite, fiberglass pole, or multi-pole structure) by defining the components of the structure using the Inventory panel or interactively constructing the structure through the 3D View. Both methods can be used simultaneously. The model of the structure is created by adding equipment you manually define or by utilizing predefined components from within the Master or User Catalogs.

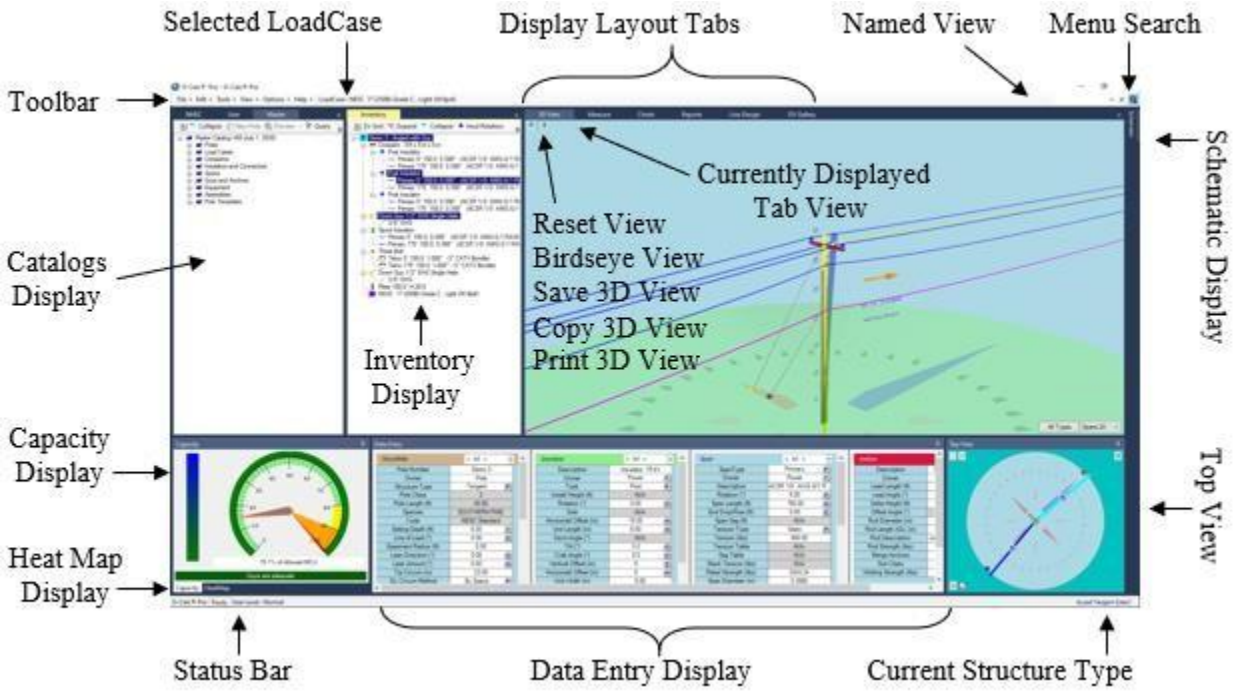
The Osmose Master Catalog is installed with the O-Calc® Pro application. It contains a predefined list of common poles, structures, and equipment which are utilized in the field. Master Catalogs contain a list of all available Load Cases, used to add the applicable pole loading safety regulations to the model.

Also included, is the User Catalog which offer the ability to compile your own storehouse of poles and equipment you have created in O-Calc® Pro. The customized User Catalog is helpful for modeling future structures from templates you have stored into customized folders for easy access and repeat use. Users can add up to eight equipment catalogs for use in pole modeling.

©2025 Osmose Utilities Services, Inc.

Understanding the O-Calc® Pro Workspace

O-Calc® Pro provides you with a variety of options enabling you to view and interact with new or existing pole data. Each display panel can be moved to various monitors or docked within the same screen view. Multiple docking layouts can be named and saved for instant retrieval.



Workspace Panel Descriptions

Panel	*Description*
Catalogs	Displays the available equipment and assemblies to add to the pole model. In addition to entire pole templates. Catalogs are the primary method used to add items to the pole inventory. Users can add up to eight different catalogs.
Inventory	Displays the inventory of the structure as you construct it. Additionally, the inventory offers functionality using basic windows commands, including the drag and drop method for substitution and copying.
3D View Display	Displays a 3D view of the structure and the surroundings.
Measure	Allows the measurement of pole attachments from an image. This process is referred to as Digital Measurement Technology (DMT).

©2025 Osmose Utilities Services, Inc.

Charts	A predefined list of charts which can be used to help complete a structural analysis.
Reports	A list of reports available to help complete a structural analysis.
Line Design	The ability to model, analyze loading data on an entire line of poles. Global edits are possible on multiple poles. See the “Line Design User Guide” for details.
Schematic	Displays the attachment heights of major equipment on the structure in an elevation view.
Capacity	Displays the selected pole models loading capacity results based on the construction and load case added. Displays messages to alert user of loading thresholds.
Data Entry	Displays the selected equipment’s attribute details for the user to edit.
Top View	Displays the pole model view from the top and provides access to the Gang Editor tool.

Menu Functionality

Menu	*Description*
Toolbar	Provides the File, Edit, Tools, View, Options, and Help menus to interact with the pole model(s) and get access to the User Guides, Videos and WIKI articles.
Selected Load Case	Displays the Load Cases that are currently added to the pole in the Inventory. Multiple load cases can be added, but only one can be active at a time.
Named View	Enables switching to different docking layouts based on work tasks and/or user preferences. These may include the Catalogs, 3D View, Measure, Charts, Reports, Line Design, Schematic View, Capacity, Data Entry, and Top View windows. Previously saved layouts can be recalled for one screen or multiple screen layouts.
Menu Search	Easily find and execute menu commands.
Capacity Heat Map	Located within the Capacity panel. Provides a color-coded two-dimensional representation of specific load values for the selected pole.
Status Bar	Displays the path information to the currently loaded PPLX file, the calculation status and the user’s access level.

©2025 Osmose Utilities Services, Inc.

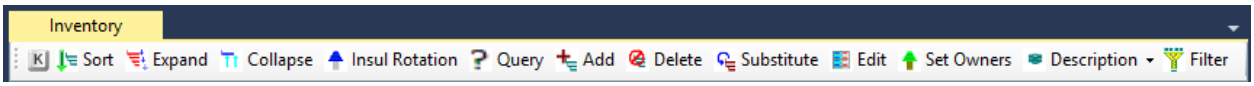
"R" Reset "B" Birdseye View	Located in the 3D View area, these tools allow you to quickly reset the selected pole to the center of the ground line compass. Or to toggle to/from the Birdseye view of the top of the structure.
Save Copy Print 3D View	The grey button between the Reset (R) and Birdseye (B) buttons provides access to save, copy, and print capability for the 3D View panel.

Working in the Inventory

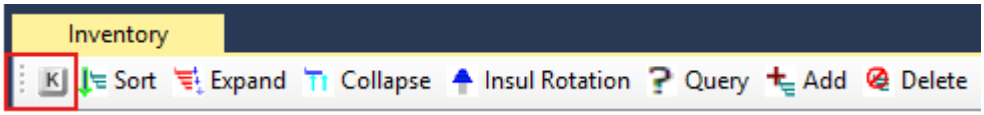
The O-Calc® Pro Inventory panel provides the ability to view and interact with the pole and its equipment. The pole Inventory includes the type of pole(s), equipment attached, plus the load case(s) for applying pole loading regulations for wind, ice, and safety factors.

Inventory Toolbar Menu

The Inventory toolbar menu provides a variety of tools described below.

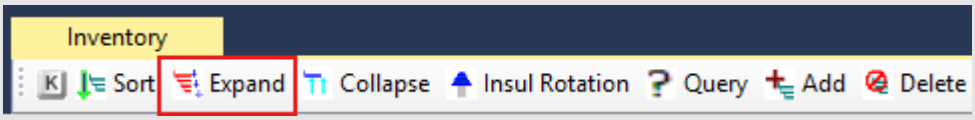


K offers additional ways to access the various functionalities in the tool bar menu.

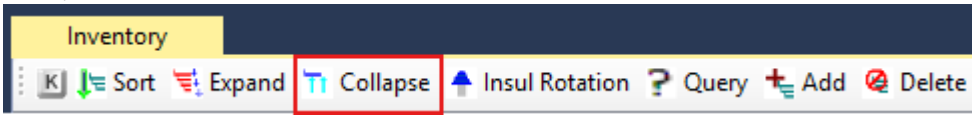


Sort the equipment in the inventory to match how it's attached to the pole from top to bottom.

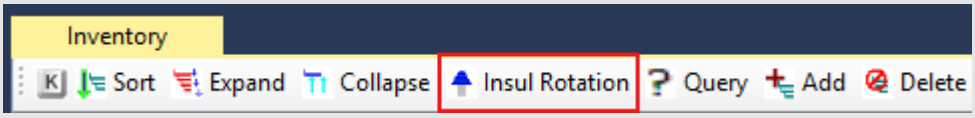
Expand all the plus sign nodes for the equipment in the Inventory panel tree view to quickly see each piece of equipment attached.



Collapse all the plus sign nodes for the equipment in the Inventory panel tree view to see only the pole.

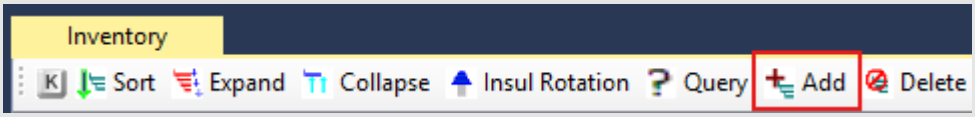


Insulator Rotation is used to align insulators to the same angle as their attached conductor.



Query the Inventory equipment list.

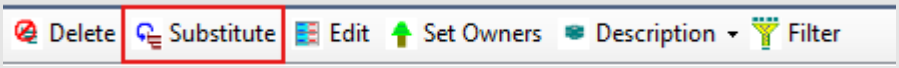
Add (Insert key) attachments to selected equipment.



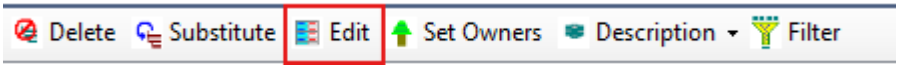
Note: *When using the keyboard shortcut keys for Delete, Add and Substitute the* ***Edit > Undo*** *option can be used to undo any changes that have been made using these shortcut keys.*

Delete selected equipment. Multiple pieces of identical equipment can be deleted simultaneously. Two other delete options are: the Delete key on the keyboard or the right-click Delete option.

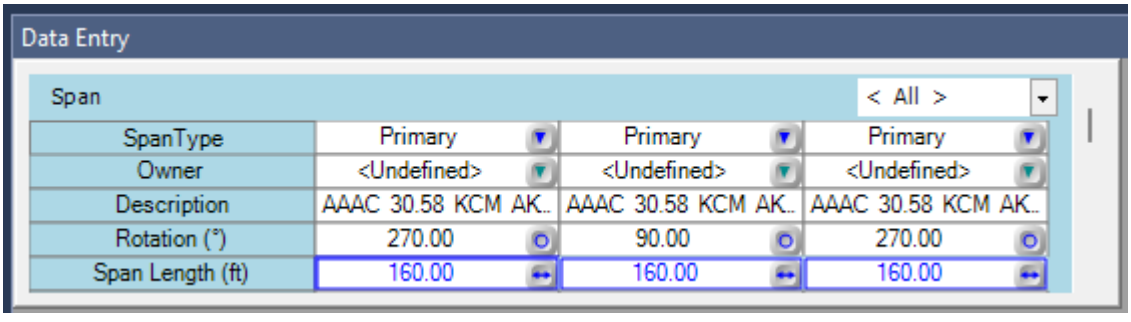
Substitute (Alt + Insert key) selected equipment. Multiple pieces of identical equipment can be substituted simultaneously.



Edit selected equipment attributes.

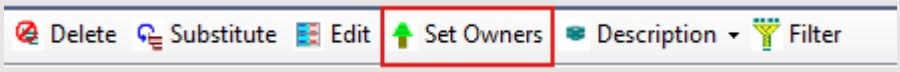


Note: *Multiple pieces of identical equipment can be selected for editing simultaneously using the Data Entry panel. After all items are selected, use the Shift-Click option in any column to highlight an entire row of data. When the blue box surrounds the object attributes (as shown below) any edit made in a single column affects the entire row of data. When the blue box is presented, you need only to type in a value.*

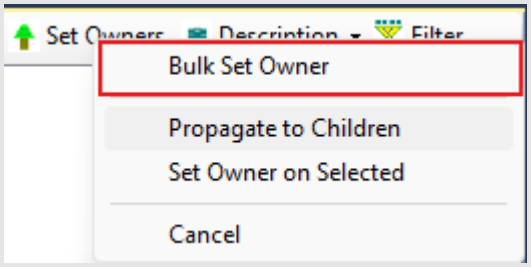


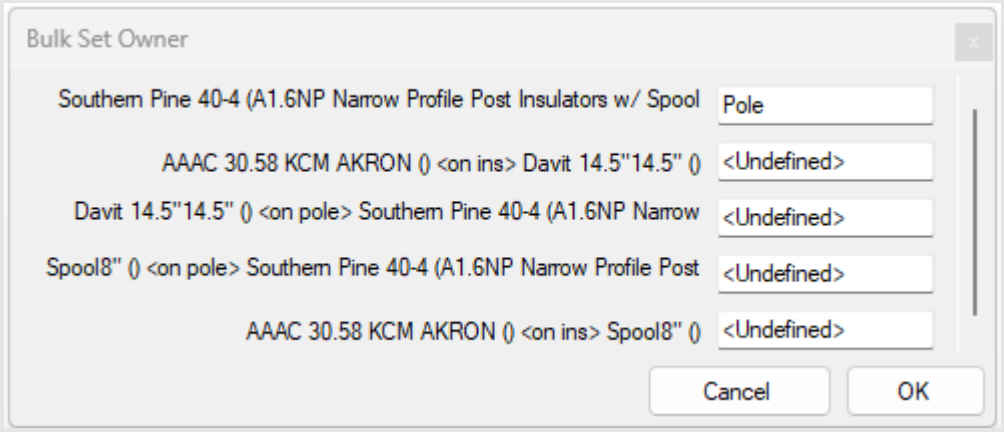
©2025 Osmose Utilities Services, Inc.

Set Owners is used to assign equipment ownership.

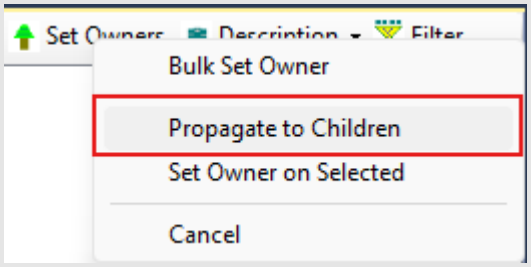


Bulk Set Owner is used to assign ownership to all the equipment. Enter the Owner name in the box that contains the <undefined> name and click OK.

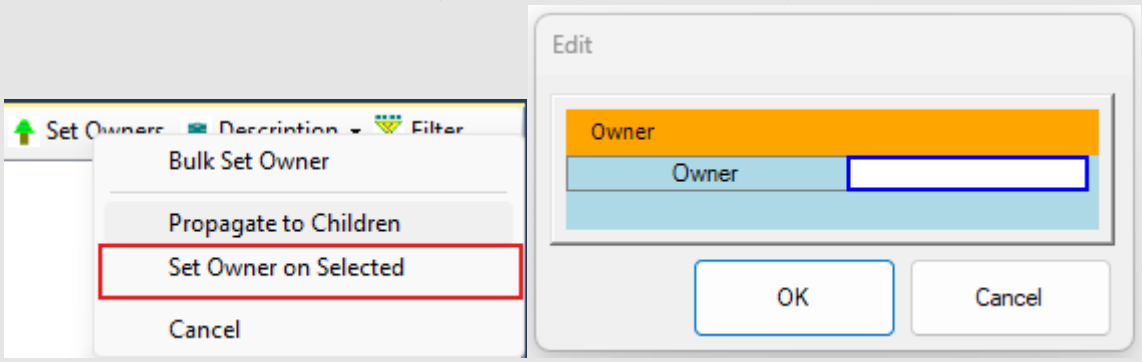




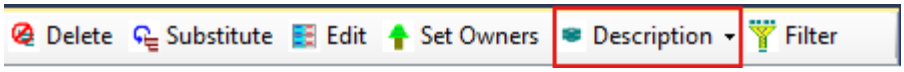
Propagate to Children applies the assigned Owner to only those child objects associated (attached to) the parent object. First enter the Owner name in the Data Entry, then click Propagate to Children.



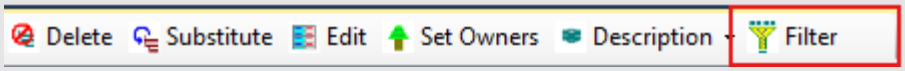
Set Owner on Selected is used to assign ownership to a selected object only.



Description is used to edit an object description, or to clear the selected or all descriptions.

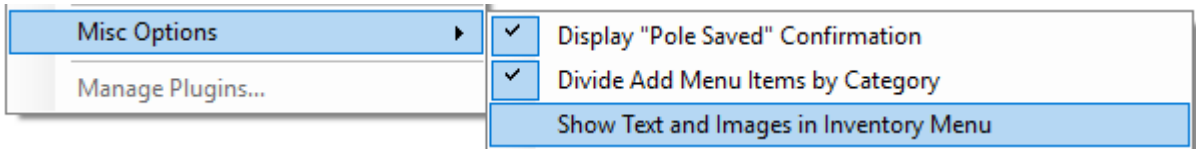


Filter to display only the expanded inventory objects in the 3D View.



Note: *The sunglasses icon in the upper right corner of the 3D View indicates a filter is active.*

To disable the Inventory toolbar menu icon text go to the Options menu and select Misc. Options, click on the Show Text and Images in Inventory Menu. This option is enabled (check mark present) by default so you can see the names of the menu items next to the menu icons.



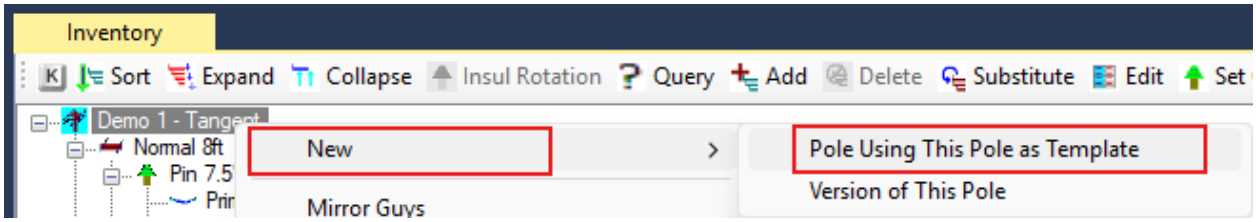
©2025 Osmose Utilities Services, Inc.

New Pole Using This Pole as Template

This option in O-Calc® Pro puts the user in editing mode on the 'new' pole without affecting the already saved PPLX file. It works like opening an existing PPLX and then doing a "Save Pole as..." task. Or within Windows, making a copy of the existing PPLX file and opening the copied file.

To create a new pole as template in the Inventory, complete these steps:

1. Open a pole from an existing .pplx file that is like the pole you now want to model.
2. Right click on the **pole** in the **Inventory** or the 3D View and select the **New** option, click on **Pole Using This Pole as Template**.

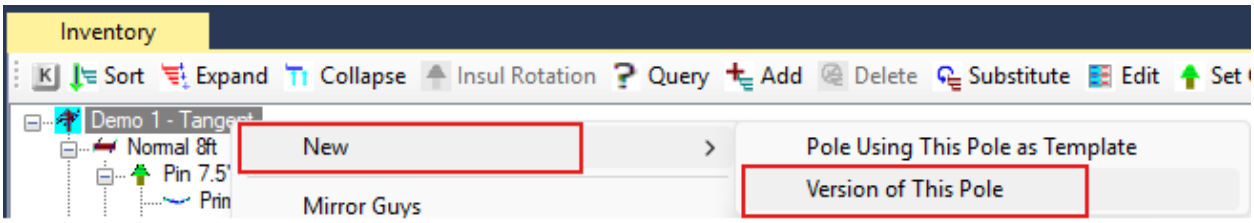


Add New Version of Pole

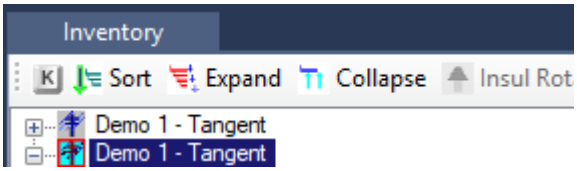
While working with a pole in the Inventory it may be beneficial to compare multiple pole versions for different scenarios. O-Calc® Pro provides the ability to create multiple versions of a pole with in the same .pplx file for convenience and to produce Make Ready engineering reports. For example you may want an existing pole model and a proposed design model.

To create a new version of an existing pole in the Inventory panel, complete these steps:

1. Right-click on the **pole** in the **Inventory**, select **New**, **Version of This Pole**.



2. The new version is displayed in the Inventory.

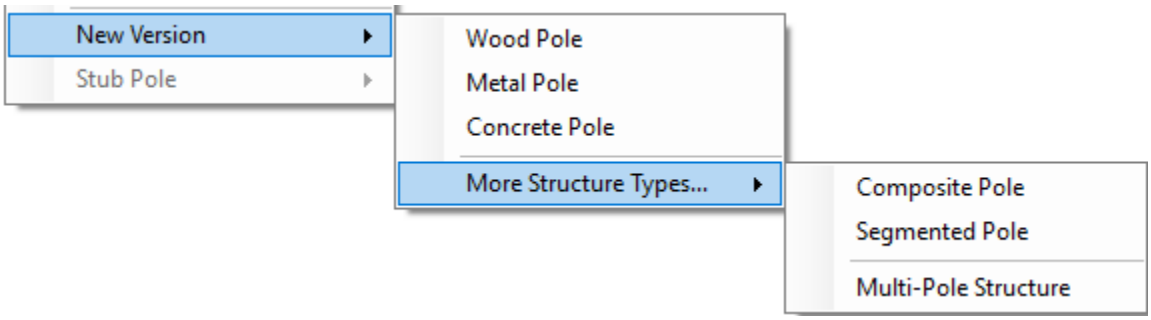


Note: *To remove the new version, select* ***Edit > Undo****.*

The 'New' version automatically becomes the active version in the Inventory panel. The active version is identified with the pole icon outlined in red and highlighted cyan to easily identify which pole's loading results are being displayed in the Capacity panel. The Data Entry panel always displays the currently selected pole attributes. When saving a pole, all versions of the pole will be saved.

Note: *When creating a new version of the existing pole any images that are associated with the existing pole will not be copied to the new version.*

To create a new version of a pole without any attachments, go to the **Edit** menu, select **New Version**, select the various pole type available.



To add a new version of the pole from the Inventory window using the current pole in the 3D View, complete these steps:

1. Right click the **pole** in the 3D View and select **New > Version of This Pole**.

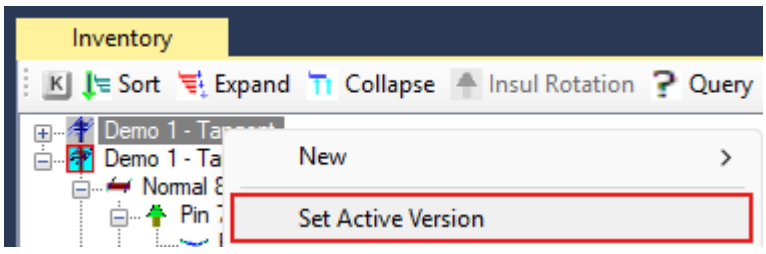
Note: *The pole is automatically highlighted in yellow once selected. Undo is not available.*

Set Active Version

To identify which pole is the "active" pole version, a red outline surrounds the pole icon in the Inventory along with the cyan blue background for the icon. The O-Calc® Pro calculation engine automatically recalculates and updates to reflect the active versions loading results.

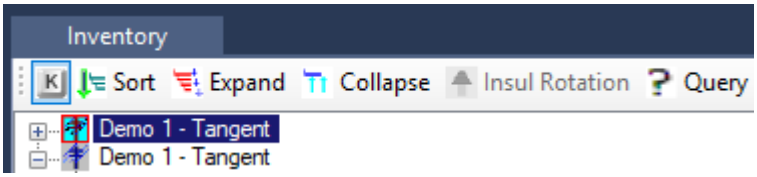
To set which pole is the "active" version, complete these steps:

1. Right-click on the **pole** in the Inventory and select the **Set Active Version** option.



©2025 Osmose Utilities Services, Inc.

2. The red ring and cyan highlighting is now on the active pole. The Data Entry panel always displays the currently selected pole.

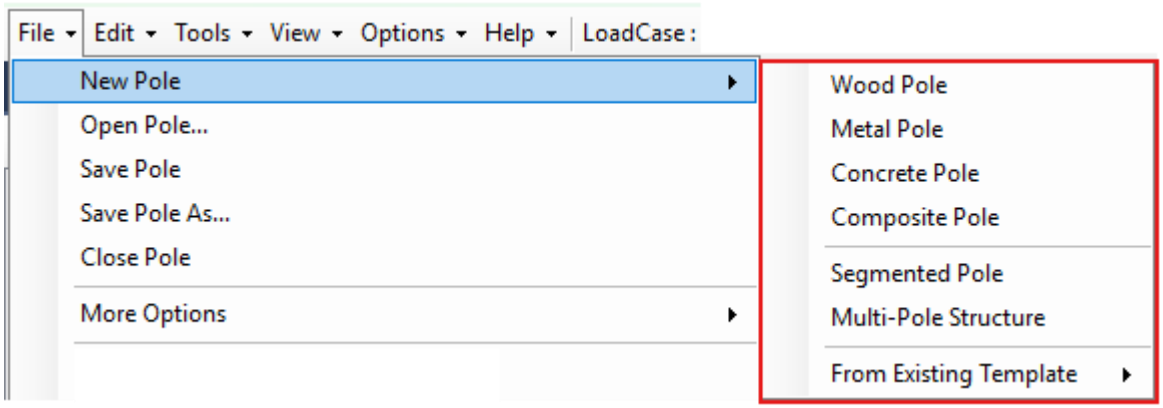


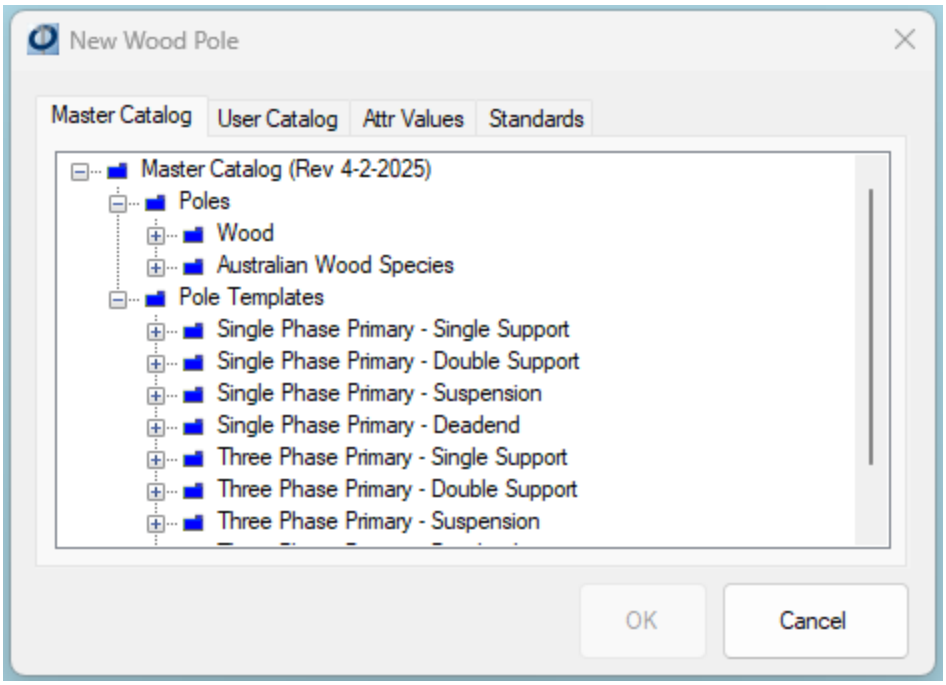
File Menu Overview

Add a New Pole

The O-Calc® Pro New Wood Pole submenus are dependent upon the corresponding structure types in your equipment catalog(s). To model a new Wood, Steel, Concrete, Composite or Segmented Fiberglass pole in the Inventory panel, complete these steps:

1. Select the structure type from the **File > New Pole >** select the pole type **Wood Pole**.

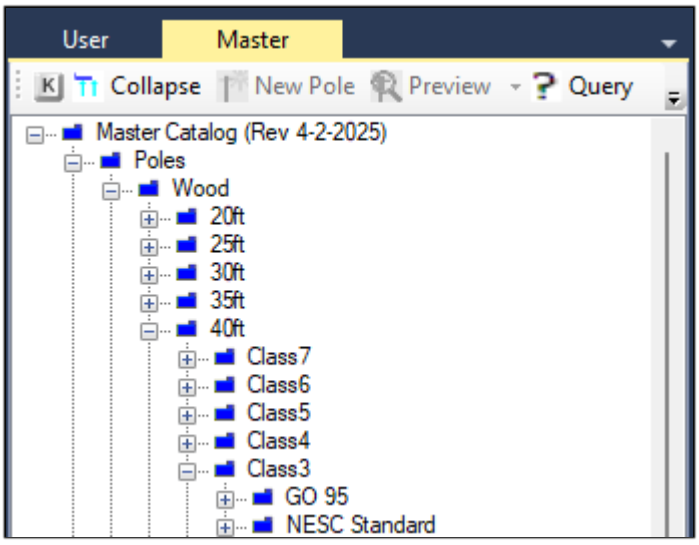




Methods for Adding a Pole

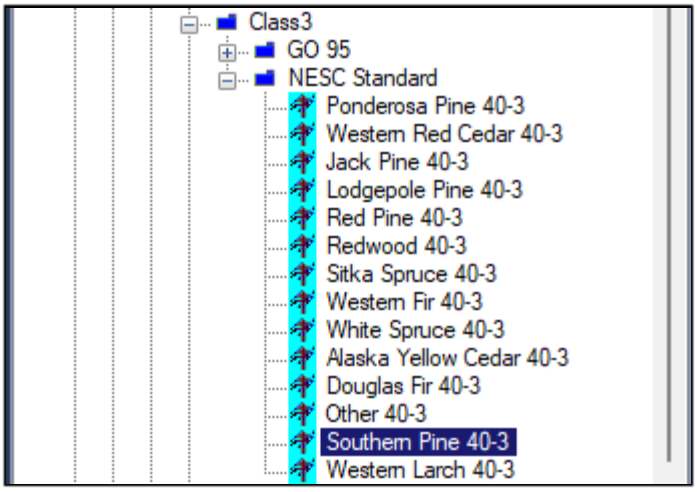
Add a new pole from any O-Calc® Pro Catalog to the Inventory using the 'drag and drop' method. Poles can be added to the Inventory using a Master or User Catalog. To add a pole using the drag and drop method, complete these steps:

1. Expand the **Poles** folder and subfolders until the pole is displayed.

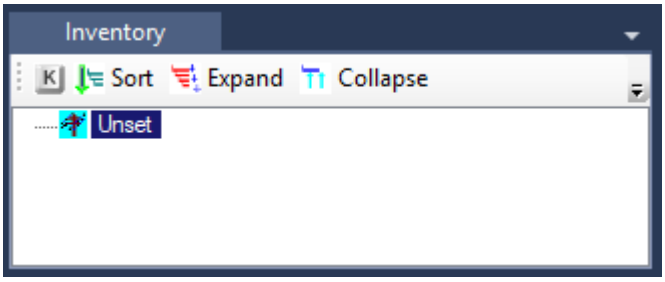


2. Drag and drop the **pole** into the Inventory panel.

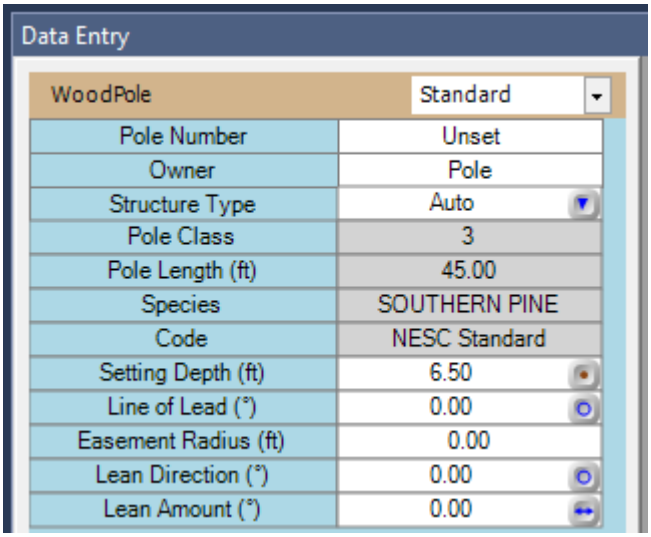
©2025 Osmose Utilities Services, Inc.



3. The pole is added to the Inventory panel.



4. The Pole attributes are automatically displayed in the Data Entry panel.



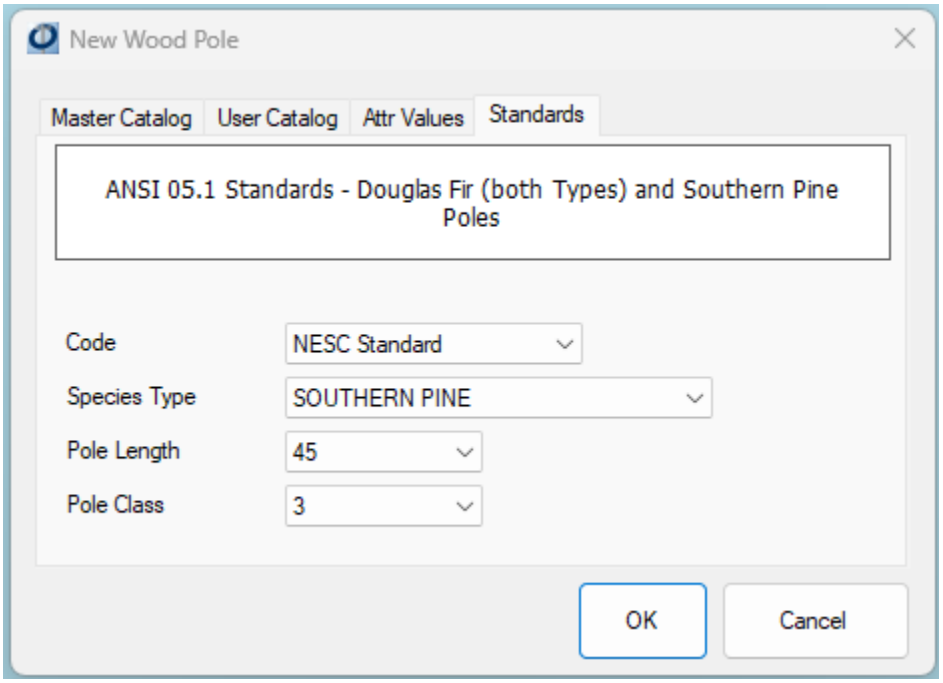
Note: *Undo is not available when a pole is added. It is not possible to Delete a pole in the inventory. Use File > Close Pole to remove the pole. Or use the drag and drop method from a Catalog, to substitute for a different pole.*

Equipment Catalog Types

Master Catalog	Displays a list of folders that contain structure types which coincide with the new pole type that you have selected.
User Catalog	Displays a list of folders that contain structure types which coincide with the new pole type that you have selected.
Attr Values	Displays an editable list of all the attribute values for the selected poles. After a pole is added to the Inventory panel these same attributes are available to edit in the Data Entry panel.
Standards	Provides a quick way to manually select the species, length, and class of the pole based on the ANSI 05.1 Standards.

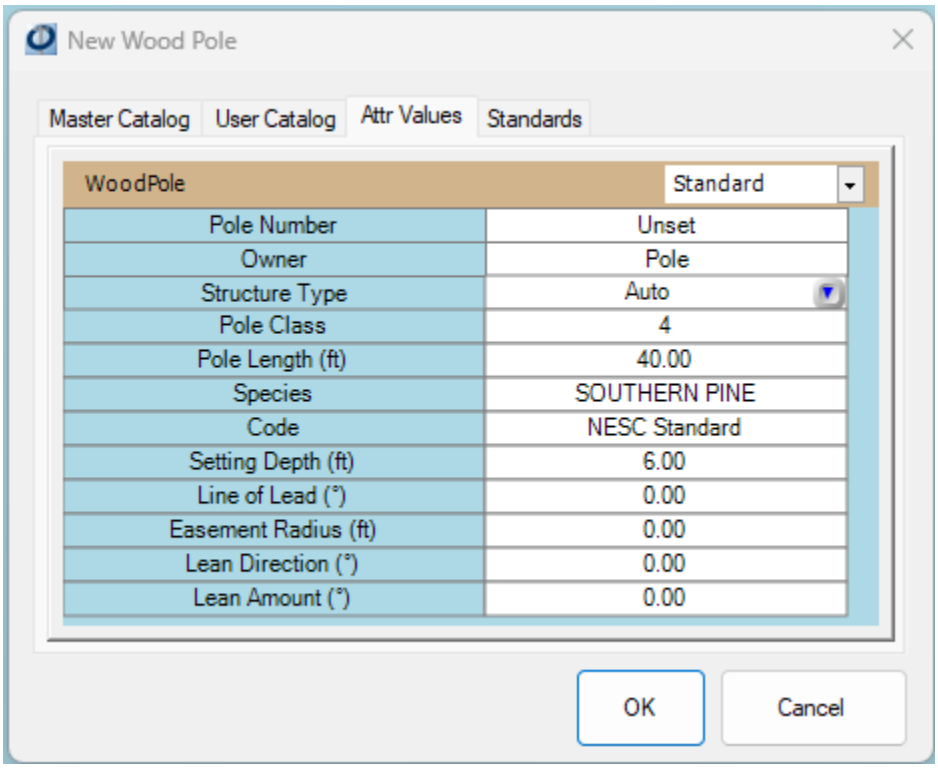
Standards Catalog for ANSI 05.1

The Standards tab for wood pole types contains the full complement of wood poles according to ANSI 05.1 Standards. This O-Calc® Pro catalog offers drop-down menus for the various categories: Code, Species Type, Pole length, Pole Class.



©2025 Osmose Utilities Services, Inc.

2. Select a **pole** from Master Catalog, User Catalog or the Standards tab.

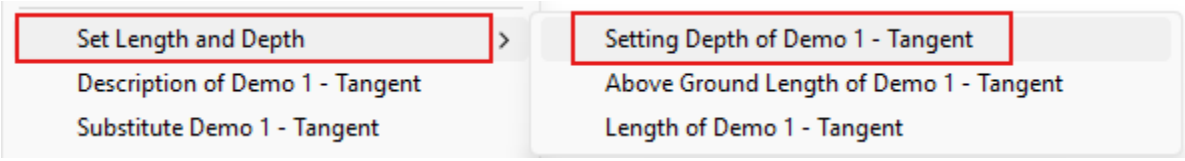


3. Select the **Attr Values tab** to modify the selected poles attribute values and click **OK**.

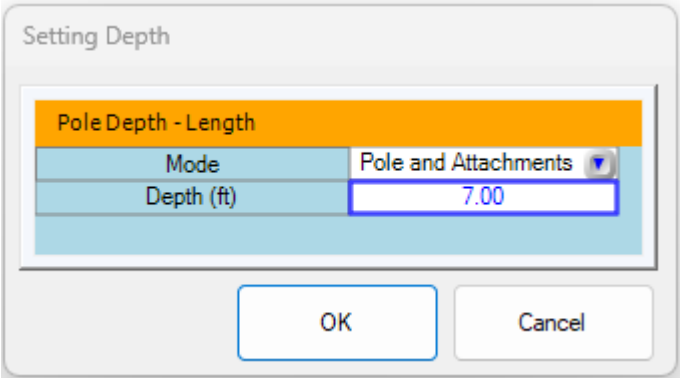
Setting Depth of Pole

The Depth (ft) value automatically displays the default pole set depth when initially opened. In O-Calc® Pro the poles are generally set using the common 10 percent plus 2 formula for pole set depths. Use the You can choose to move the pole and its attachments to a new set depth or just the pole, keeping the attachments at the same height above groundline. To set the depth of a pole, complete these steps:

1. **Right-click** on the **Pole**, select the **Set Length and Depth** option.
2. **C**lick the **Setting Depth of** Unset (or *Pole Number displays*).



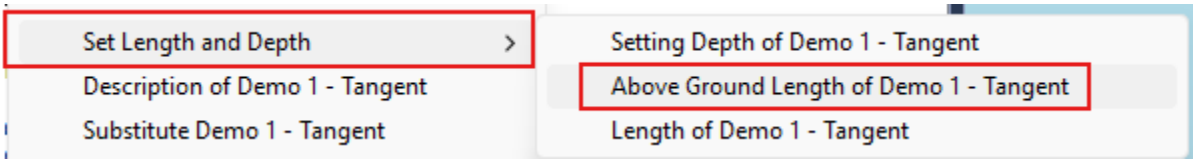
3. In the Setting Depth window, select the **Mode** from the drop-down list and enter the **Depth in Feet**, and click **OK**.



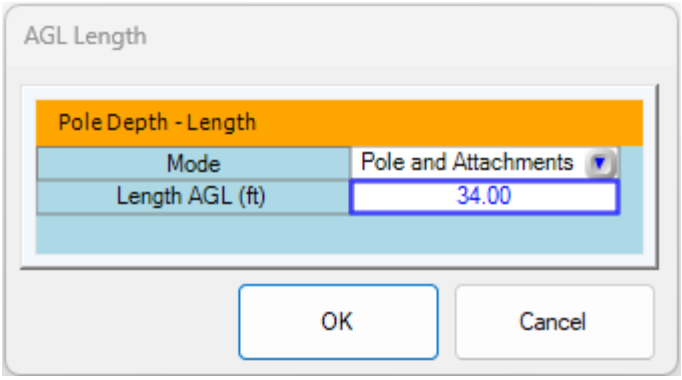
Above Ground Length of Pole

To set the length of a pole above the groundline, complete these steps:

1. Right click on the Pole you want to set the length for.
2. Select Set Length and Depth > **Above Ground Length of** Unset (*Pole name)*.



3. Select the **Mode** from the drop-down list and enter the **AGL in Feet**, click OK.

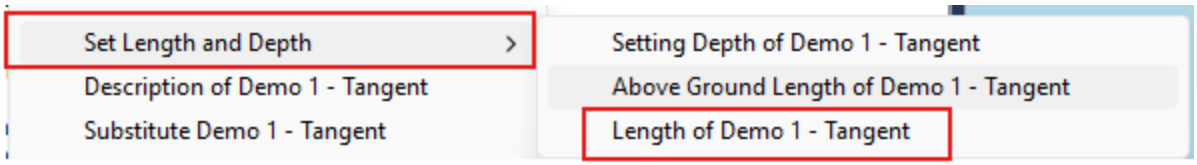


Length of Pole

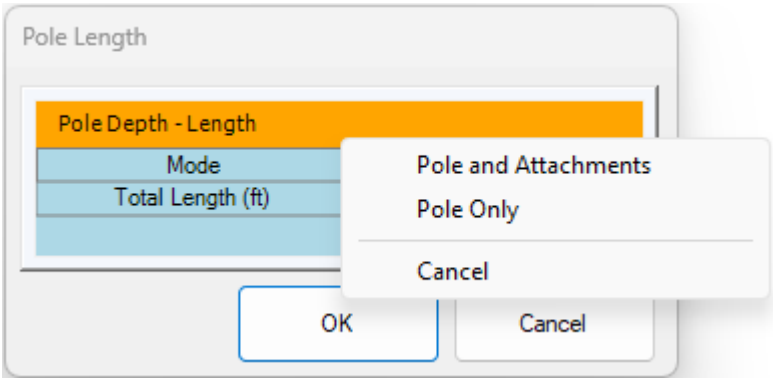
If a wood pole is "topped" (a section at the top of the pole has been cut off) in the field, it's important to model the original manufactured length of the pole since it is tapered. Only the length is changed circumference and taper remain unchanged. Set the length of a pole using these steps:

1. Right click on the pole, select Set Length and Depth > **Length of** Unset (or ***Pole number displays)***.

©2025 Osmose Utilities Services, Inc.



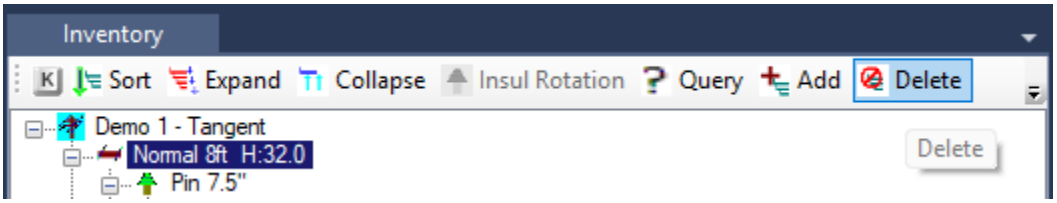
2. Select the **Mode** from the drop-down list and enter the **Length in Feet**. **OK.**



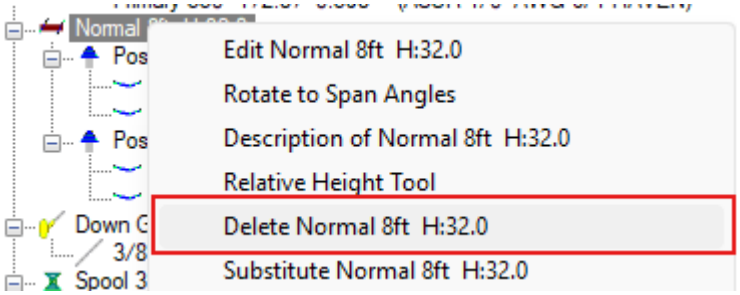
Delete Equipment

There are three ways to delete equipment attached to a pole in O-Calc® Pro: Use the delete key on your keyboard, the Delete button in the Inventory tool bar, or the right-click Delete option. To use the Delete button option, complete these steps:

1. **Select the equipment** to be deleted in the Inventory or 3D View.
2. Click the **Delete** button in the tool bar.



3. To use the right-click option, right-click on the object to delete and select the **Delete** option.

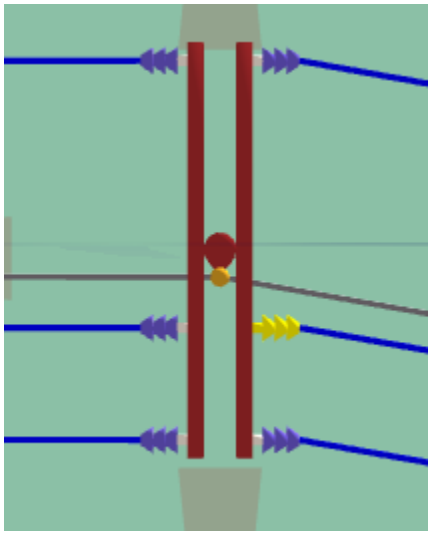


4. To use the **Delete** key on your keyboard option, select the object to delete and press the Delete key on the keyboard.

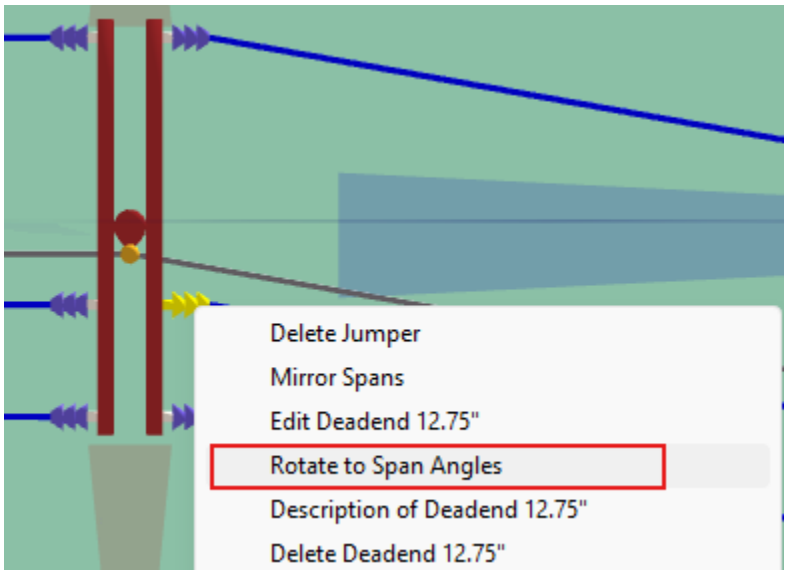
Rotating Insulators

To rotate an insulator to be aligned to match a span angle that has been edited, complete these steps:

1. Select the insulator you want to rotate.

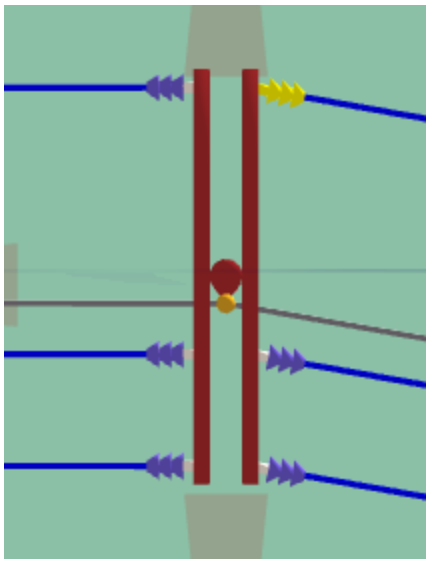


2. Right-click the insulator and select the **Rotate to Span Angles** option. The selected insulator is automatically rotated to match the angle of the conductor. To undo the rotation, select Edit > Undo.



3. Only one can be rotated at a time. Repeat for the other insulators.

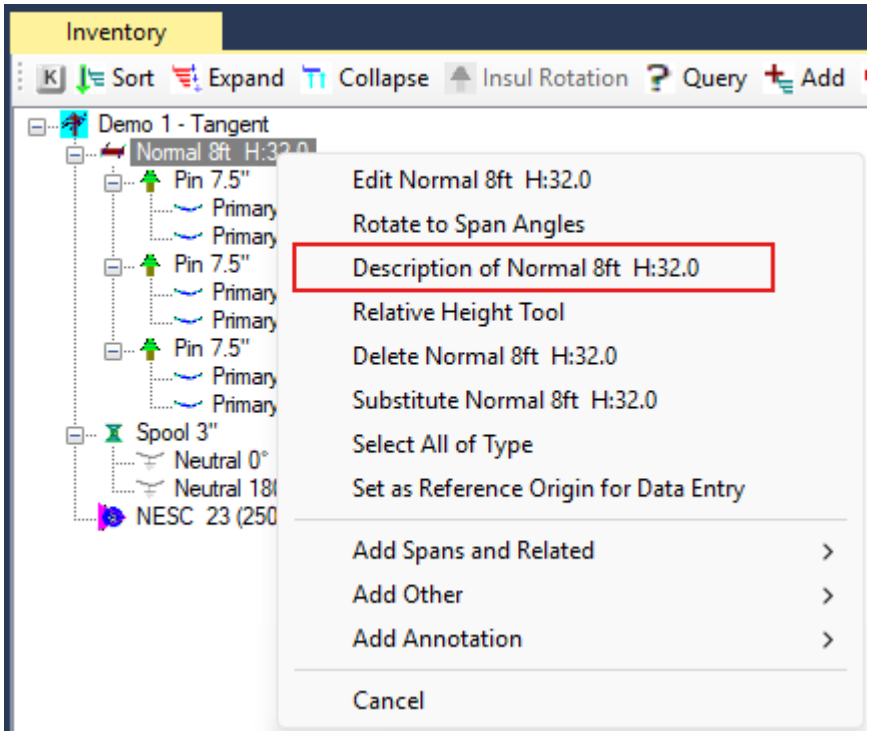
©2025 Osmose Utilities Services, Inc.



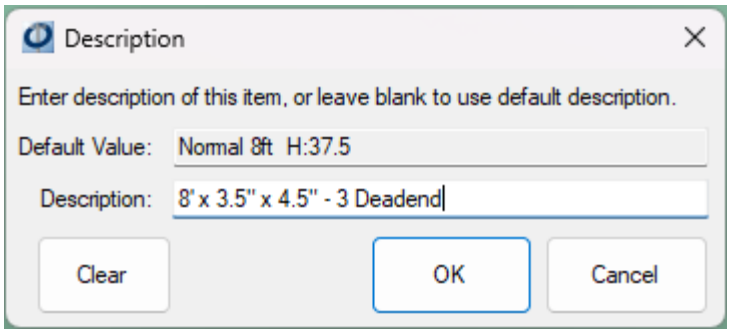
Edit Equipment Description

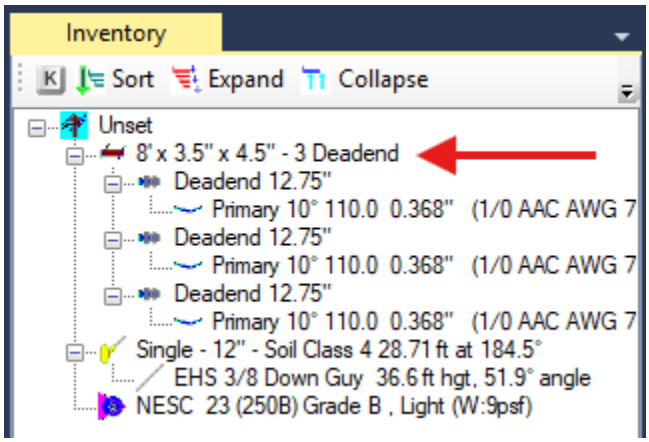
To change the description that displays next to a pole or attached equipment's icon in the Inventory panel, complete these steps:

1. Right click on the **equipment** you want to change the display description of.
2. Select **Description of** (*pole or equipment display name*).



3. Enter the **Description** you would like to be displayed. Or click Clear to accept the Default Value description. Click **OK**.





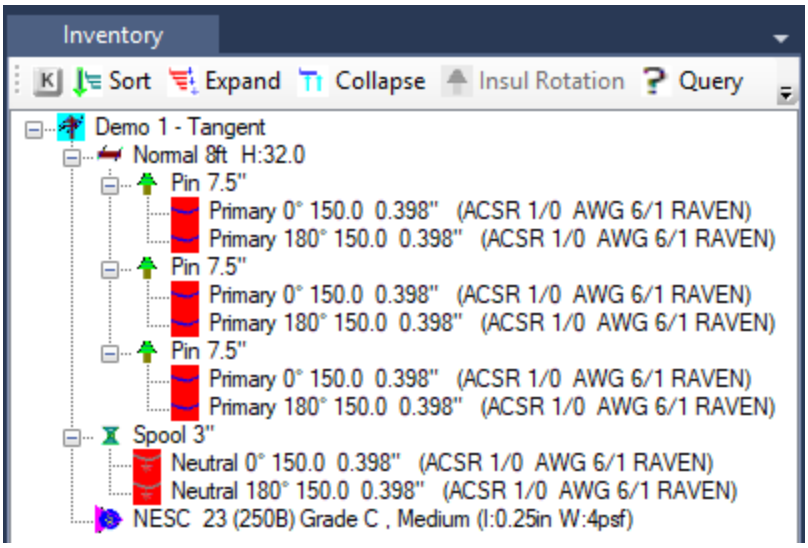
Modify the Spans Default Rated Strength %

When a span is added from the O-Calc® Pro Master Catalog where the tension mode is “Static”, a default percentage of a spans rated strength is used to calculate the span’s tension. The default percentage for each type of span can be changed at any time. Tension values are not applied if the span is a subcomponent of complex assembly.

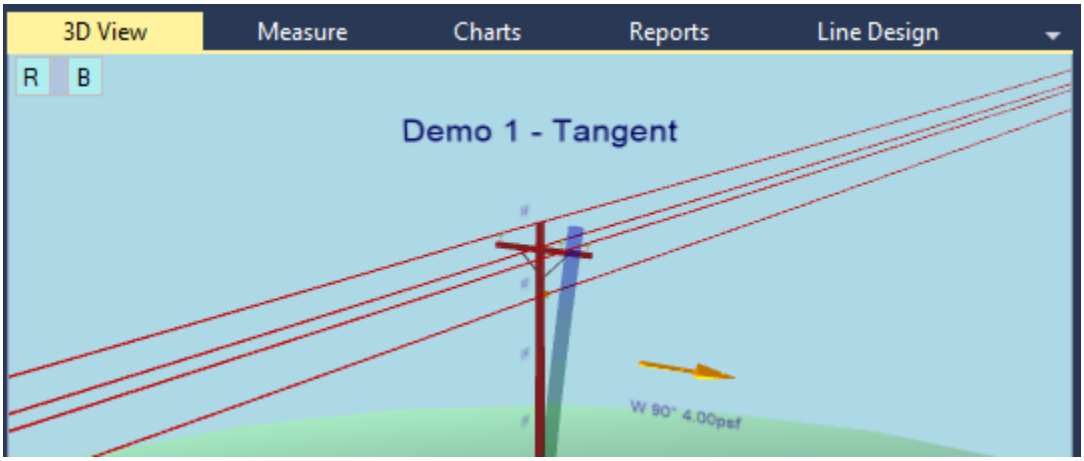
The amount of tension used in Static mode is a “User Defined” setting, based on a percent of the wire manufacturer stated rated strength value. You’ll need to modify the settings to values common in the industry for electrical and communication wire tension. This is because the default tension values are set to the NESC maximum tension threshold of 60% which causes spans to turn red in O-Calc® Pro in the 3D View and the Inventory indicating they are in violation of overloading.

See the example below of overloading the spans and the reaction in the Inventory intended to alert the user of the overloaded spans issue.

©2025 Osmose Utilities Services, Inc.



See the example below of overloading the spans and the reaction in the 3D View intended to alert the user of the overloaded spans issue.



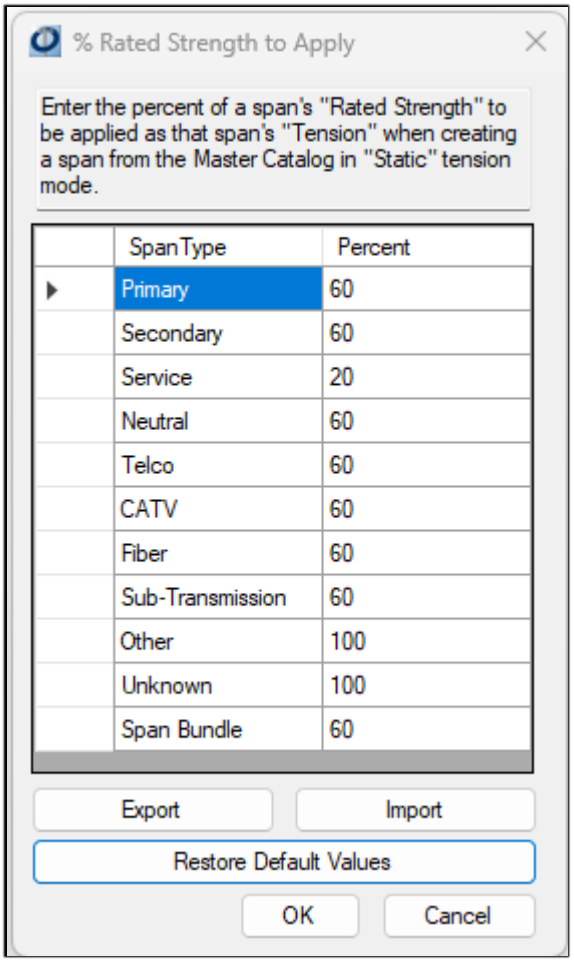
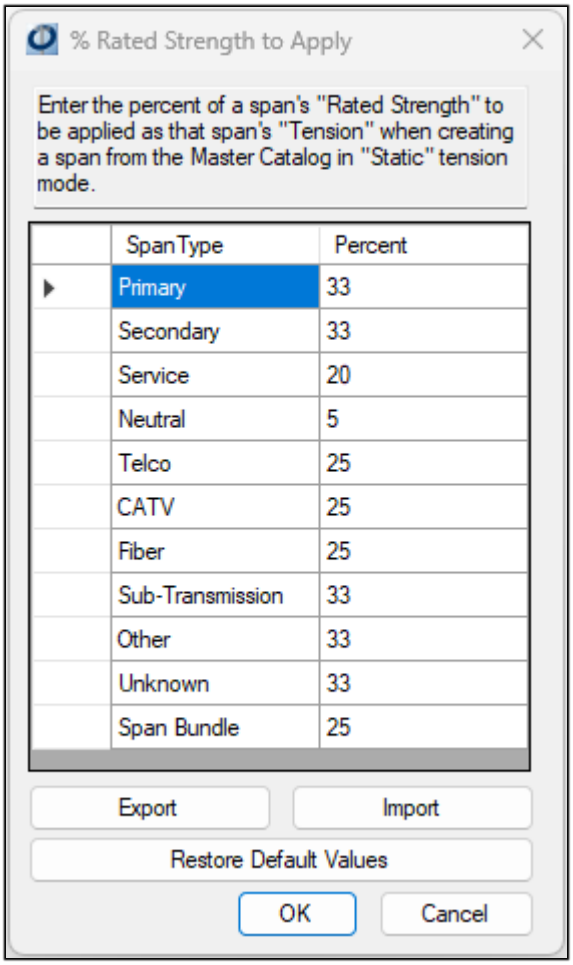
Users can choose from different tension modes in O-Calc® Pro. Static Tension mode is the most used tension type. This is due to it being difficult to obtain exact wire tension amount values unless you are perhaps the pole owner and know the tension values used at the time the wires were strung.

Below are the default setting values in the O-Calc® Pro application for Static Tension mode as well as an example of commonly used Static Tension values based on the percentage of rated strength for the different wire types.

Follow these steps to edit the percent of span rated strength for Static Tension mode:

1. Go to the **Options** menu, select **Misc. Options**, click on the **Percent of Span Rated Strength to Apply as Tension** option.
2. Click in each of the rows in the **Percent** column to enter the common static tension values shown below, or enter your own values, and click **OK.**

©2025 Osmose Utilities Services, Inc.

Default Static Tension Values	Common Static Tension Values
	

3. Select the **Export** button to save the currently displayed set of percent of tensions value to a file.
4. Select the **Import** button and browse to the location of the file to load a previously saved Percent of Tension set.

Note: *To revert the entire listing of span percentages of Rated Strength back to their default values select Restore Default Values.*

Note: *The default percent of maximum span tension in Static Tension Mode to be applied to conductors when they are selected from the Master Catalog.*

Add Equipment to the Pole

O-Calc® Pro requires a connection point for all equipment on the pole; these connection points facilitate the calculation results. Only the pole can be added to the Inventory by itself, any additional equipment must connect to the pole or its attached equipment. The dotted lines in the Inventory help to illustrate how the equipment is attached. Only one piece of equipment can be added at a time.

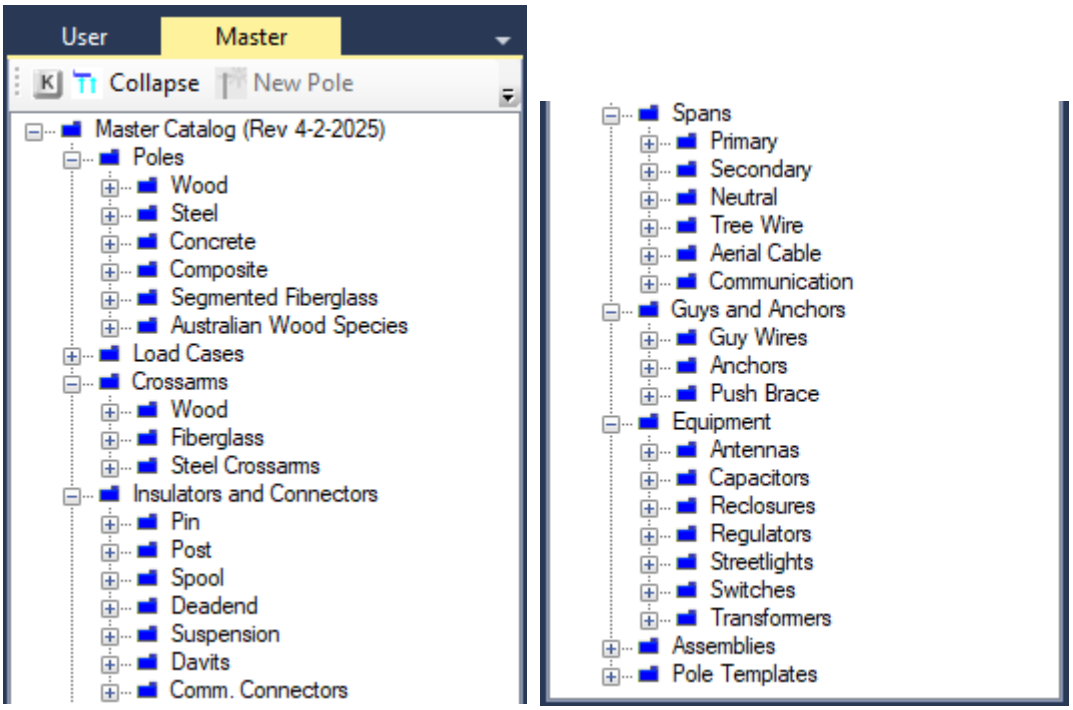
Equipment can be added to the pole using any of these 4 methods:

©2025 Osmose Utilities Services, Inc.

- Drag and Drop from a Catalog
- Add button in the Inventory tool bar
- Right-clicking on an object in the Inventory or 3D View
- Dragging any equipment from the Inventory or 3D View back to the pole or its attachments

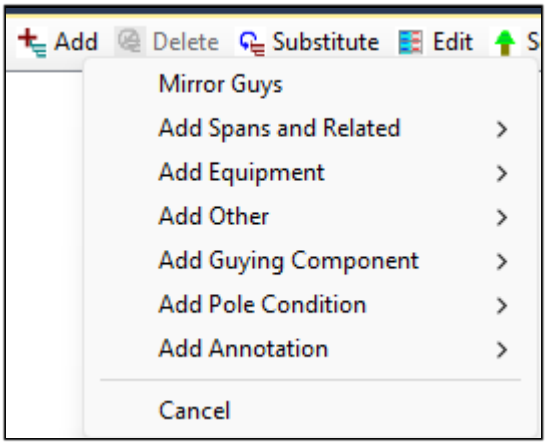
To add equipment to the pole using the **Drag and Drop method** from a Catalog, complete these steps:

1. Expand (click the plus sign by the folder) the **Master Catalog** folders containing the equipment you want to add.
2. **Select the object**, hold down the mouse button and **drag and drop** the selected equipment to the pole in the Inventory or 3D View panel.
3. Use the **Collapse** button to quickly navigate back to the subfolders list.

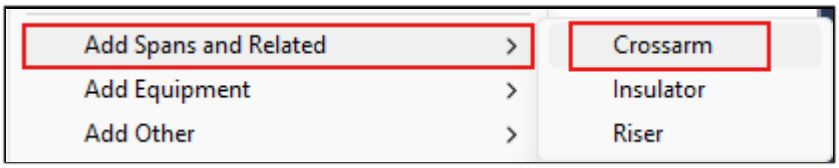


Note: *While dragging the selected equipment to the Inventory panel the cursor changes to an invalid cursor* ⃠ *.icon unless the equipment is placed over the pole, then the cursor changes to indicate a valid move* . *. To undo the equipment you've added, select* ***Edit > Undo****.*

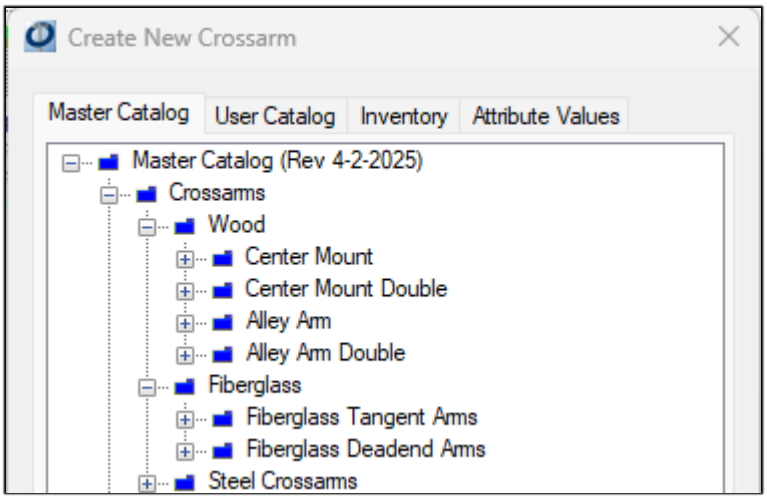
- To add equipment to the pole using the **Add button method** complete these steps:
    1. Select the **Pole** you want to add equipment to.
    2. In the **Inventory** tool bar menu, select the **Add** button.



3. Select the **Add Spans and Related** menu option.

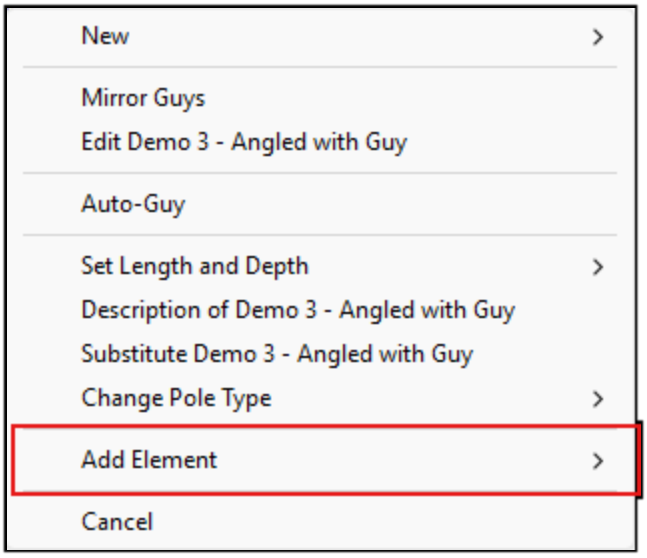


4. Select any **crossarm** from the Catalog folders.

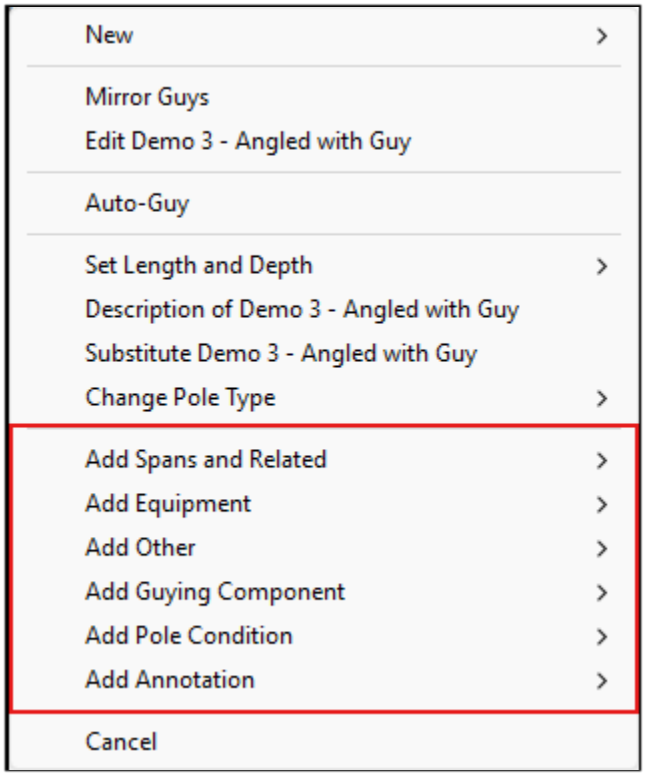


Note: *If the* ***Divide Add Menu Items by Category*** *option is unchecked in* ***Misc Options****, the resulting menu items appear (as shown below) when right-clicking on the pole.*

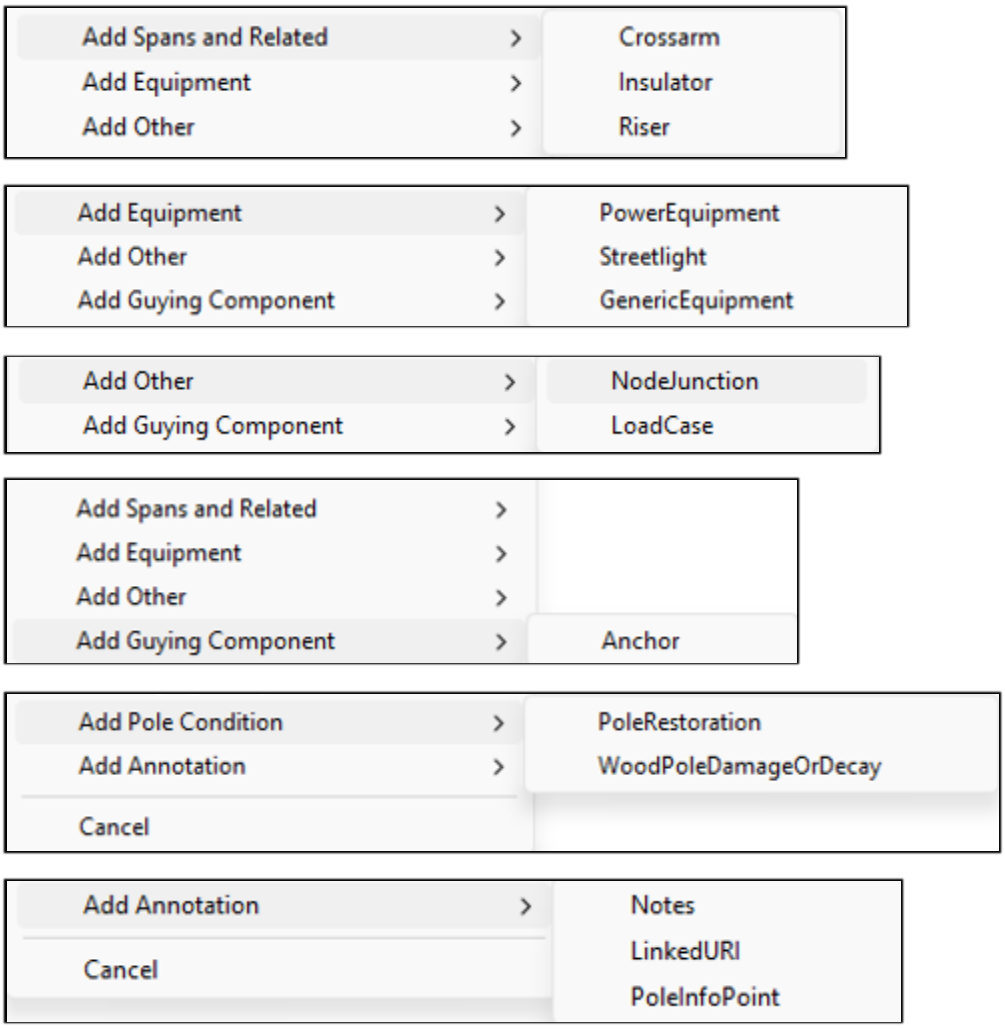
©2025 Osmose Utilities Services, Inc.



Note: *If the* ***Divide Add Menu Items by Category*** *option is checked in* ***Misc Options****, the resulting menu items appear by category (as shown below) when right-clicking on the pole.*



Equipment Menus



Note: *Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory panel.*

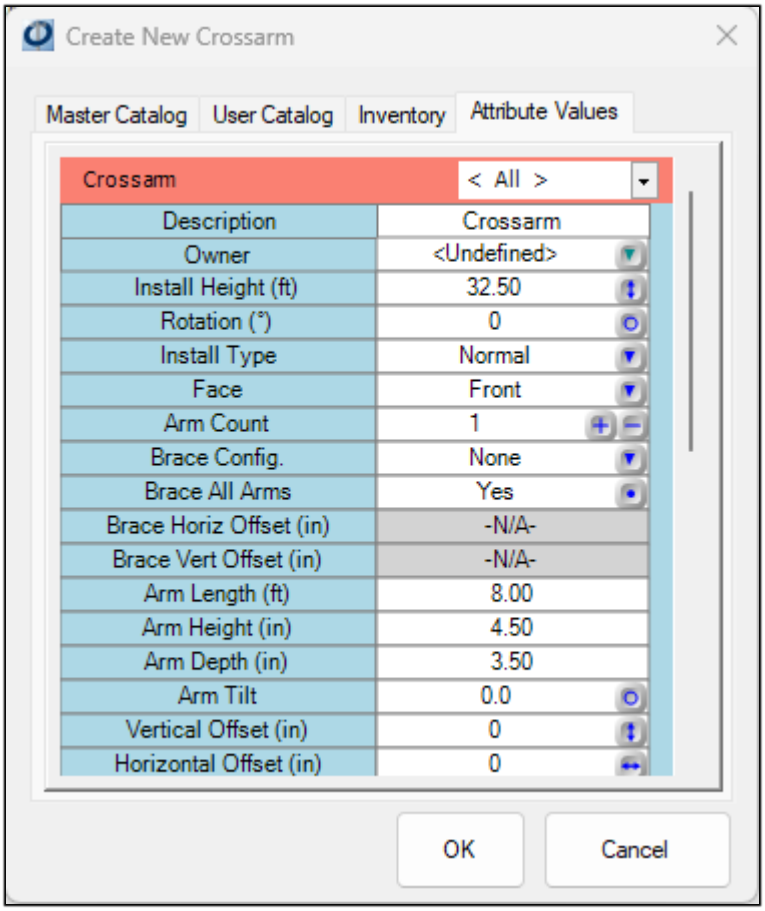
When utilizing the right-click method to add equipment to the pole, a window appears containing an Attribute Values tab which allows you to make attribute modifications. The attribute values tab displays the all the information available in the Data Entry panel when selecting an object.

To add equipment to the pole using the **Right-Click method** and any Catalog, complete these steps:

1. **Right-click** on the **pole**, select the **Crossarm** category.

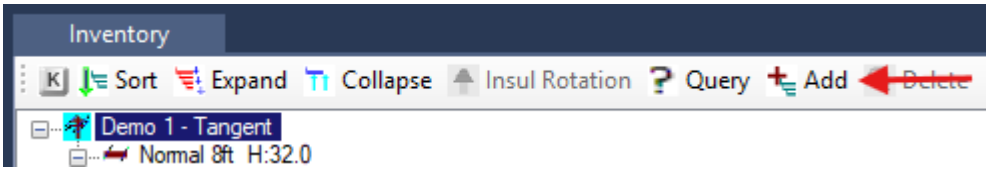
©2025 Osmose Utilities Services, Inc.

2. In the example below we see the "Create New Crossarm" window containing the Attribute Values tab. Select the **Attribute Values** tab to modify any of the crossarm's attributes prior to adding it to the pole.



3. Make any attribute edits and click **OK**.

Note: *Attribute edits can be made at anytime for any object in the Inventory or 3D View. Simply select the object and see the attributes displayed in the Data Entry panel.*

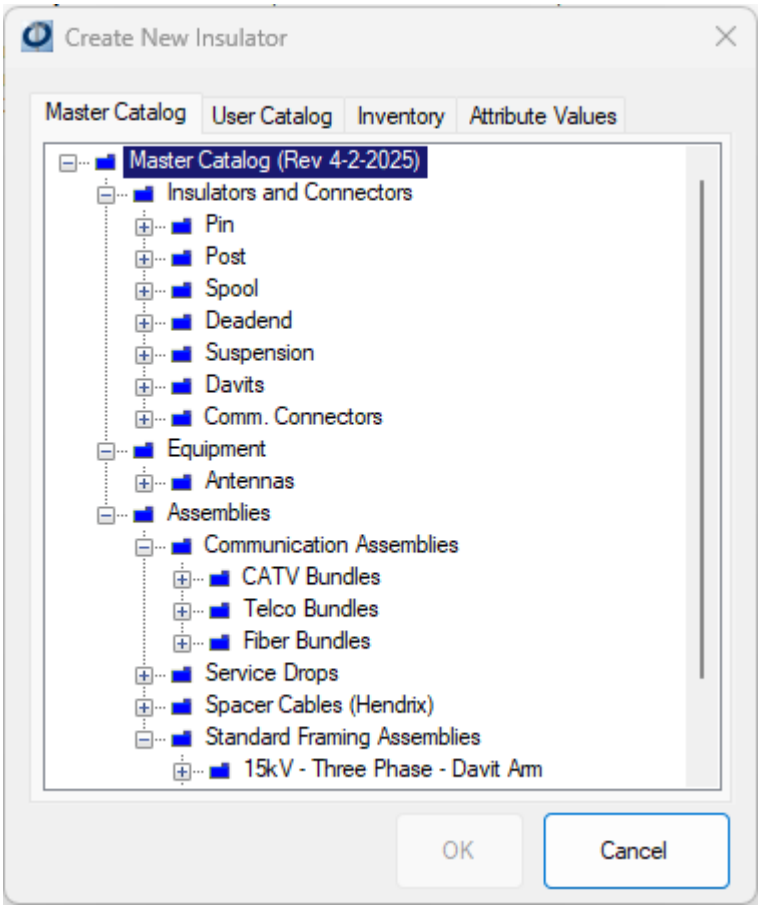


Different types of equipment can have additional attachments (Example: A crossarm can have insulators and spans attached to it). To add additional attachments to equipment, complete these steps:

4. Select the **equipment** in the Inventory panel you want to add additional equipment on.

5. Select the **Add** button and select the **equipment** to be added from the equipment list.

Note: *The list of available equipment can also be accessed by-right clicking on the equipment you would like to add additional equipment to. When multiple pieces of equipment are displayed in the list only one piece of equipment can be selected at a time.*



Note: *Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory panel.*

6. To add an **insulator** from one of the catalog tabs or the Inventory tab select the appropriate tab and select the insulator you want to add, select OK.
7. Select the **Attribute Values** tab to modify any attribute values click **OK**.

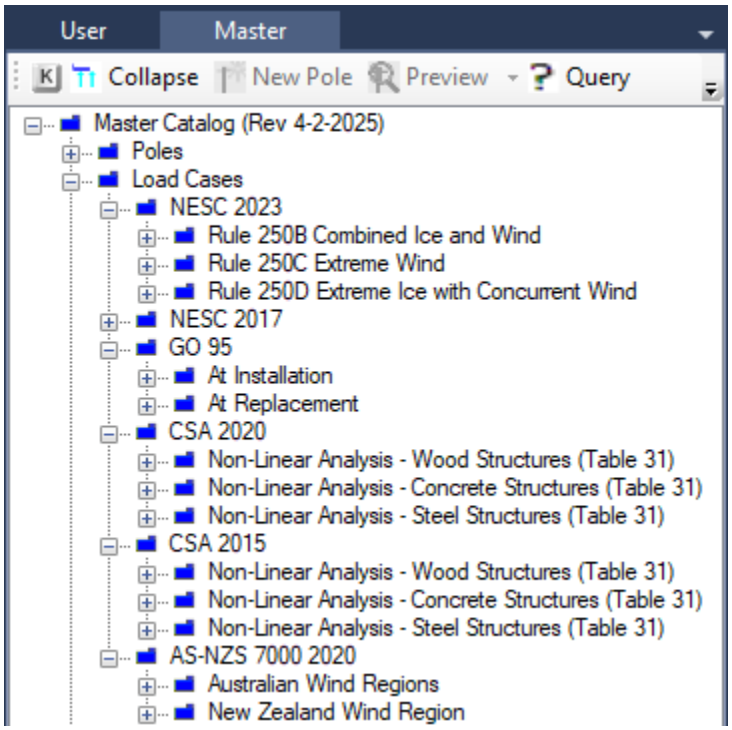
©2025 Osmose Utilities Services, Inc.

Pole Loading Regulations – Load Cases

Pole loading regulations are applied to the pole/structure based on the location/scenario. Regulations include Ice, Wind, and Safety requirements necessary for accurate pole loading results. The load case is required for the O-Calc® Pro pole loading calculation to produce results. A load case can be pre-set as a default for each pole type from within the Load Cases folder or any location inside of a Catalog (.pplc) file.

To add a Load Case(s) to the pole in the Inventory panel using the Load Cases folder in the Master Catalog, complete these steps:

1. Expand the Catalog **Load Cases** folder to display the regulations you need.



2. Select the Load Case to be added to the pole and **drag and drop** it to the **pole** in the Inventory or 3D View panel. To undo the Load Case you added, select Edit > Undo.

Note: *When using the drag and drop method to add equipment to the Inventory panel the cursor changes to the invalid ⃠ cursor icon when the equipment is dragged over the white space in the Inventory. Once the cursor is dragged over the pole in the Inventory panel, the cursor changes to a plus sign indicating the ability to add the object ⊞. to the pole.*

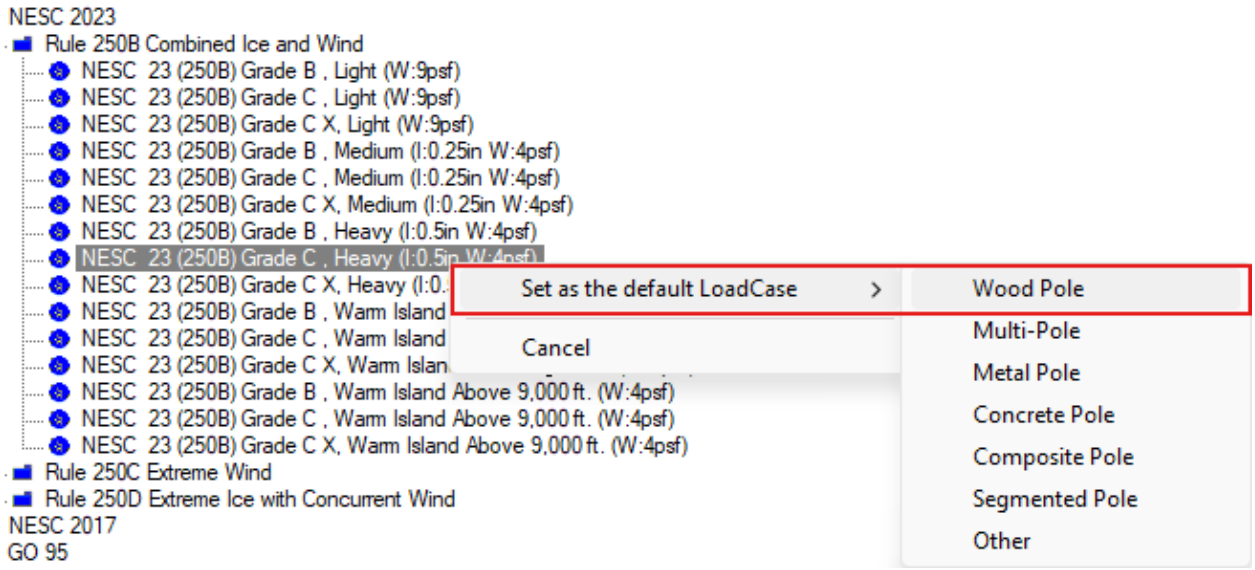
©2025 Osmose Utilities Services, Inc.

Setting a Default Load Case

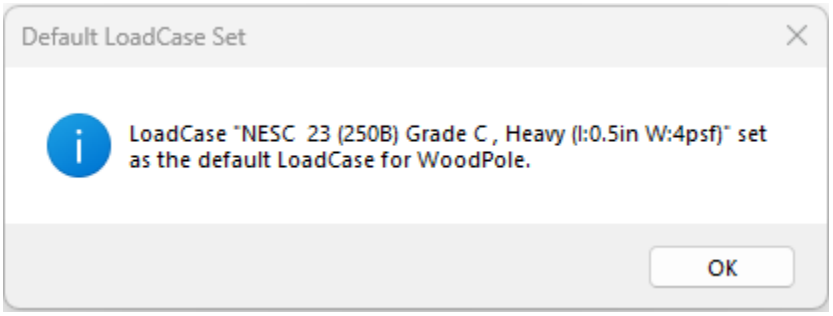
Default load cases can be set for each pole type: Wood, Multi-Pole, Metal, Concrete, Composite, Segmented. Defaults are set up one at a time.

With the load cases folder open follow these steps using the “Set as the default Load Case” command to set up a default load case for all wood poles.

1. **Right-click** on the desired load case in the Catalog, select the **Set as the default Load Case** option, click **Wood Pole**.



2. View the confirmation message and click **OK**.



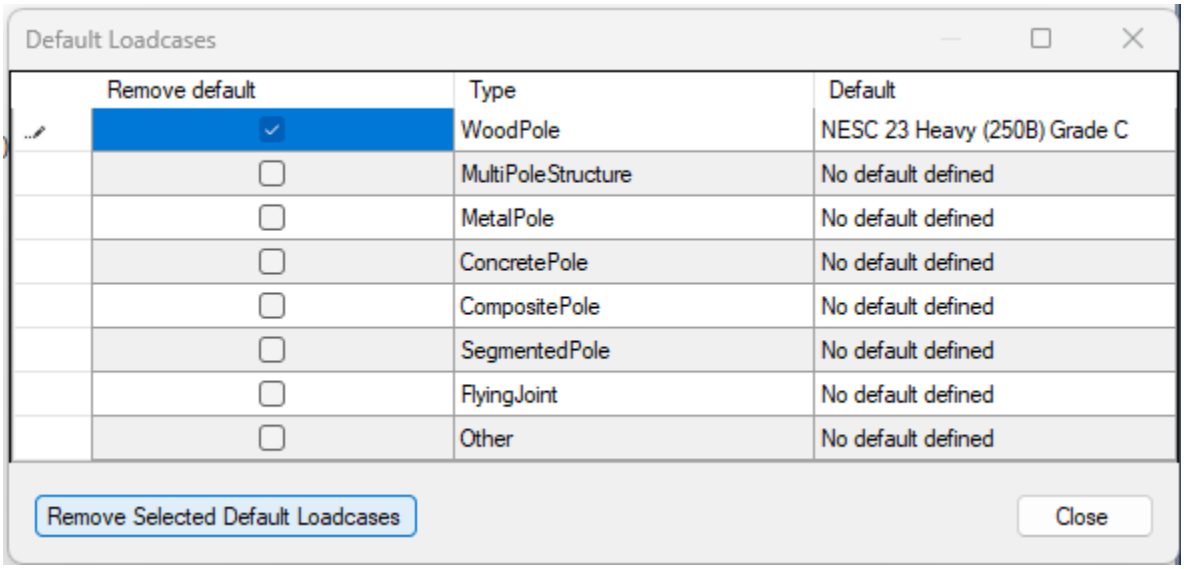
3. Repeat the above steps to set a default load case for as many pole types as you need.

©2025 Osmose Utilities Services, Inc.

Removing a Default Load Case

A default Load Case can be set for each Load Case category. In addition, one extra Load Case is allowed to be set. This extra Load Case is the "Other" Load Case. Any Load Case set as the default can be changed or deleted at any time in Tools > Load Case > Defaults. Once a default load case is set it can be removed. Follow these steps:

1. Go to the **Tools** menu, select the **Load Case** option, click on **Defaults**.



2. Check the box in the **Remove default** column for any default load cases you need to remove.
3. Click the **Remove Selected Default Load cases** button.

Working with Sealed Load Cases

The O-Calc® Pro Load Case element contains the environmental and convention parameters required to codify such things as the standards body being used, the local wind and ice conditions, overload factors to be applied in different conditions, and to different element types, etc. Arguably the Load Case is the most critical element in O-Calc® Pro, and the one that must be controlled and manipulated with the most care, and by the most qualified personnel. For this reason, O-Calc® Pro adds an extra layer of protection to Load Case elements referred to as Load Case Sealing.

O-Calc® Pro provides a set of sealed Load Cases pre-shipped in the Master Catalog that contain the correct parameters for all commonly encountered NESC and GO95 conditions, including extreme wind and extreme load. These Load Cases cannot be modified by any user regardless of their user level. They are "Sealed" against modification.

©2025 Osmose Utilities Services, Inc.

A user of "Normal" or higher level can unseal a COPY of a sealed Load Case and make modifications to that copy. The resulting custom Load Case can be placed in the User Catalog for future use or modification.

A user of "Administrative" level can additionally re-seal a Load Case and place the newly sealed Load Case back into the Master Catalog for use by any other user(s). Such a user may also re-seal a Load Case that is in the Catalog in an unsealed form.

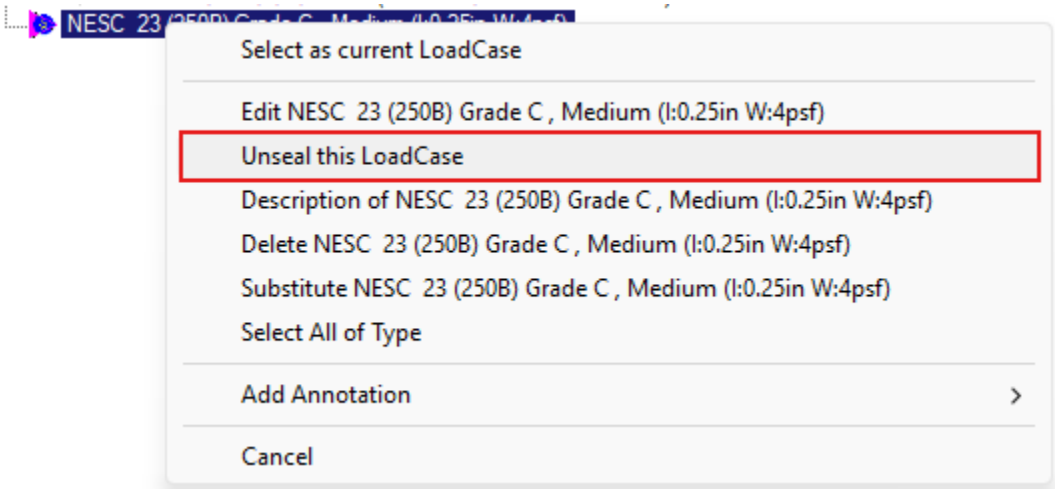
The remainder of this section details the steps involved in unsealing or re-sealing Load Cases.

Unsealing a Load Case

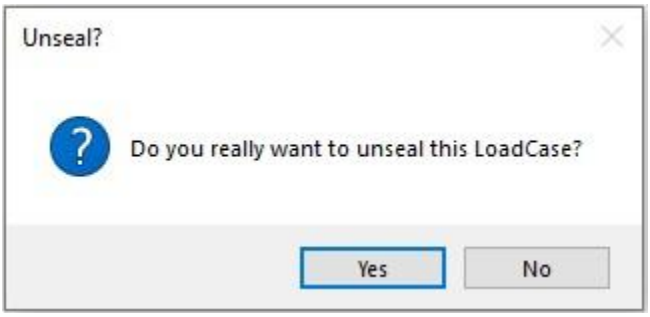
To unseal a Load Case in the O-Calc® Pro Inventory panel for modifications, complete the following steps:

Note: *Load Cases should only be unsealed and modified with* ***extreme caution****. Modifying Load Case attributes will affect O-Calc® Pro calculations. Load Cases cannot be unsealed in the Master Catalog.*

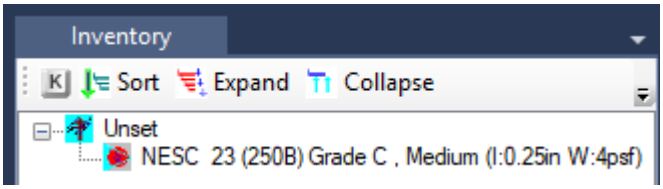
1. Right click on the Load Case to be unsealed in the Inventory panel and select **Unseal this Load Case**.



2. Select **Yes** to the confirmation message.

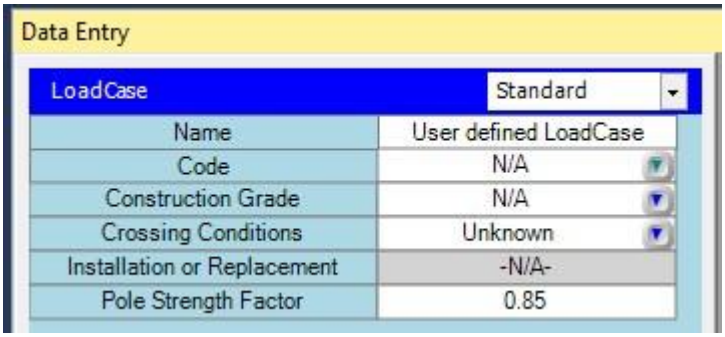


3. The load case was displaying the sealed load case icon color of Blue, but now that it is unsealed, the icon color is changed to Red.



©2025 Osmose Utilities Services, Inc.

4. In the Data Entry the Load Case displays with the **Name** attribute **User Defined Load Case**.



Note: *To undo the unsealing of the Load Case, select* ***Edit > Undo****.*

5. Select **File > Save**.

Once the Load Case is unsealed you can modify the Load Case attributes using the Edit option in the Inventory menu or in the Data Entry panel.

If you need to use the unsealed Load Case for future use or modifications copy the Load Case to a specific User Catalog folder. To copy the unsealed Load Case to a User Catalog folder, click on the Load Case in the Inventory Window and drag it to a specific User Catalog folder.

Re-Sealing a Load Case

Only users with **Administrative privileges** in O-Calc® Pro can re-seal an unsealed Load Case. To re-seal and prevent additional modification to the Load Case, complete these steps:

1. Switch your User Level from Normal to Administrative in tool bar menu below the Capacity panel. You may not have this user privilege.
2. Right click on the Load Case to be re-sealed in the Inventory Window and select **Reseal this Load Case**.
3. Select **File > Save**.

Working with Pole Substitutions

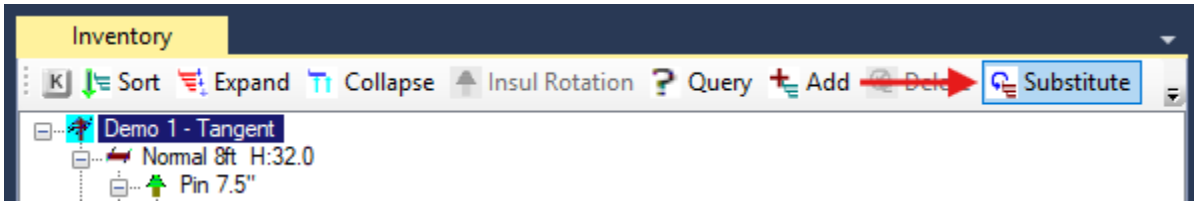
To substitute a pole is to replace the one currently in the Inventory and 3D View with a different one. Poles cannot be deleted in the Inventory or Data Entry panels. You can remove a pole from the Inventory only by closing the .pplx file. To “substitute” a pole or its equipment in O-Calc® Pro you are offered a few different methods, as described below.

- **Manually** - From any Catalog **drag and drop** a pole over the top of the current pole in the Inventory or 3D View.
- **Right Click** - By right-clicking on a pole or its equipment in the Inventory or 3D View you can select the **Substitute** option from the menu options displayed.
- **Catalog** - Select the pole and click the **Substitute** button in the Inventory tool bar to select a pole from any of the Catalog options displayed.

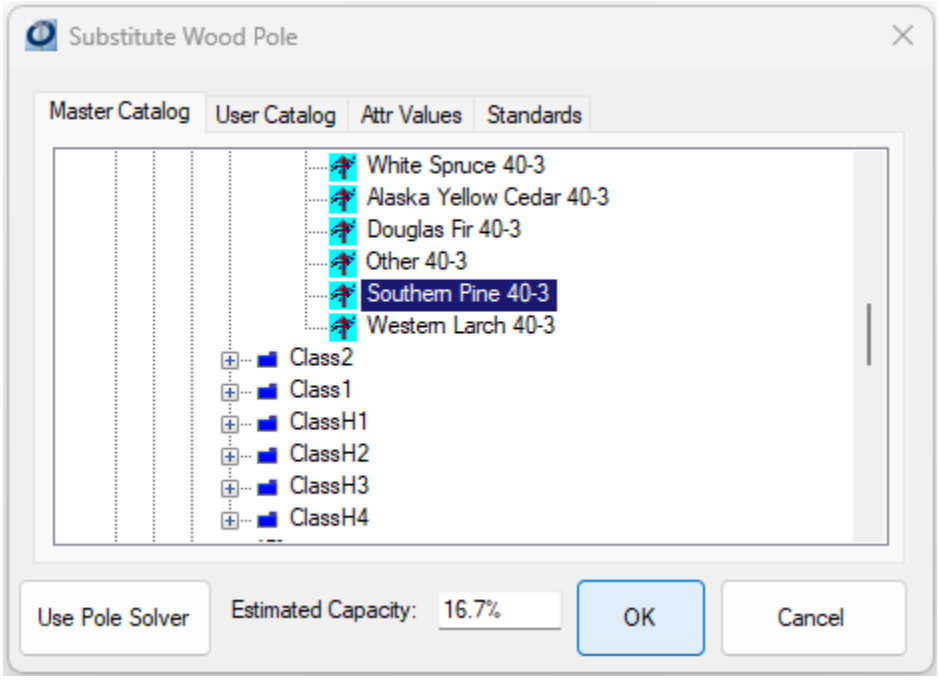
- **Use Pole Solver** - Select the pole and click the Substitute button. In the Substitute Wood Pole window, click the **Use Pole Solver** button. A pole is instantly selected that meets the minimum pole class requirements for the current pole model along with the estimated capacity results.

To substitute the current pole using the **Substitute** button method, complete these steps:

1. **Select the pole** in the Inventory or 3D View and click the **Substitute** button in the Inventory tool bar menu. You must first select the pole or the option to substitute is greyed out.



2. Select a pole from any Catalog (Master, User, Standards) displayed in the **Substitute Wood Pole** window, the estimated capacity is automatically displayed, click **OK**.



Note: *The Substitute option can also be accessed by right clicking on the pole and selecting the* ***Substitute*** *(Pole's display name) button.*

Height Adjustments

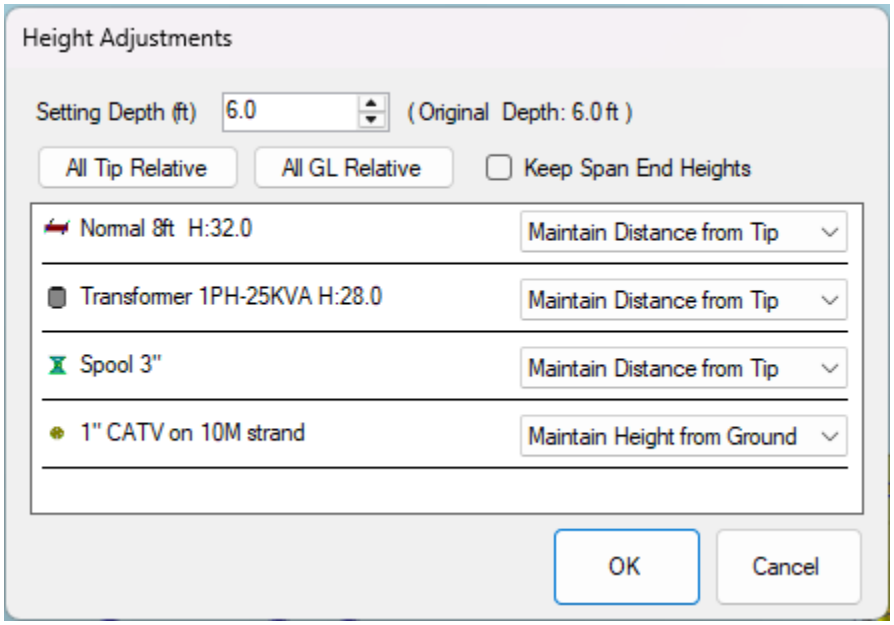
Height adjustments can be made for the pole or the attached equipment. When a pole is substituted (changed out/replaced) and it has equipment attached, the Height Adjustments window automatically displays with options to adjust the new poles depth and the height of any attachments.

Attachments can be adjusted relative to the poles tip or groundline, the choices are: **Maintain Distance from Tip** (the default) and **Maintain Height from Ground**.

©2025 Osmose Utilities Services, Inc.

To make height and setting depth adjustments complete these steps:

1. Perform a pole **Substitution** operation (shown above) on a pole that already has equipment attached.
2. In the **Height Adjustments** window modify the **Pole Setting Depth (ft)** as needed.
3. Select from each **Maintain Distance from Tip** (default) drop-down menu to change current attachment heights or click the **All Tip Relative** or **All GL Relative** button, click **OK**.

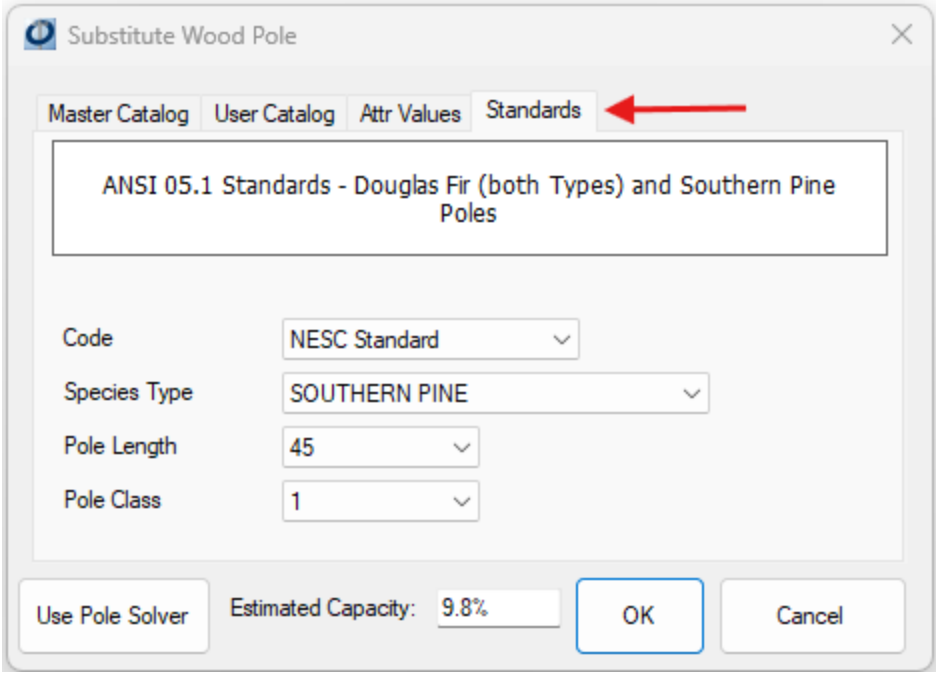


Note: *To undo the substitution change, select* ***Edit > Undo****.*

Standards Catalog

To substitute the current pole using the **Standards Catalog** tab, complete these steps:

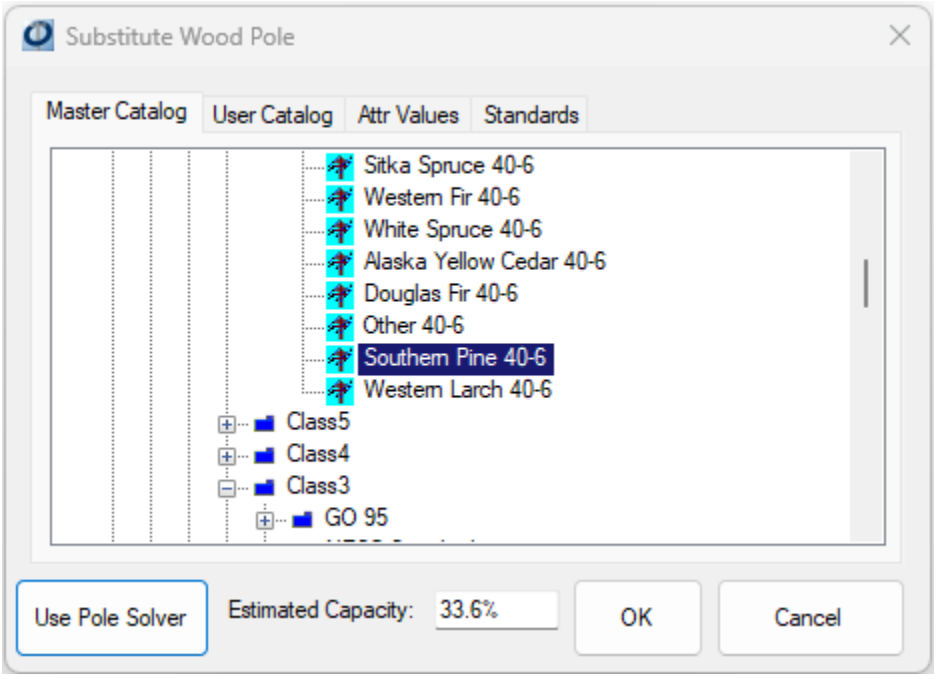
1. Select a pole from the **Standards** tab in the **Substitute Wood Pole** window. Use the drop-down menus to select a pole, the Estimated Capacity is automatically displayed, click **OK**.



Using the Pole Solver

To substitute the current pole using the **Use Pole Solver** button, complete these steps:

4. Select the current **pole** in the Inventory, click the **Substitute** button.
5. Click the **Use Pole Solver** button, click **OK**.

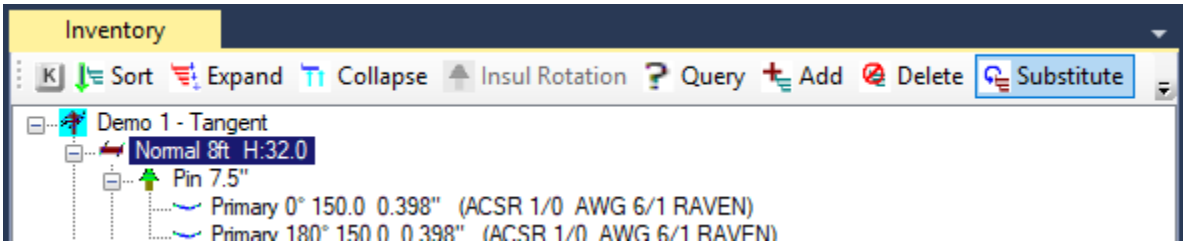


©2025 Osmose Utilities Services, Inc.

Substituting Equipment

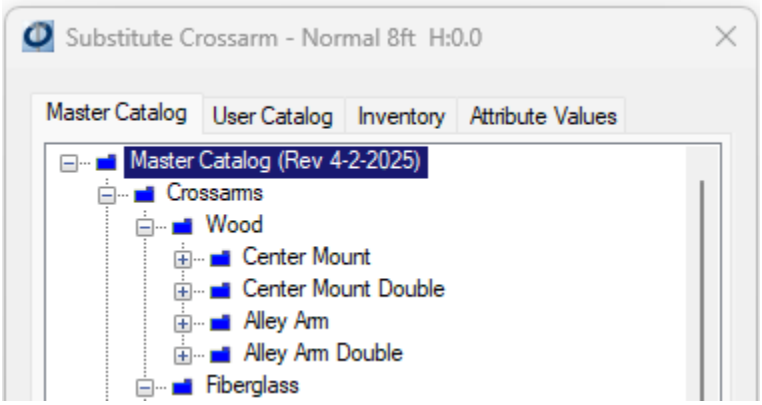
To replace equipment attached to the pole in the Inventory using the Substitute button, complete these steps:

1. **Select the equipment** to be substituted in the Inventory or 3D View.
2. Click the **Substitute** button in the tool bar.

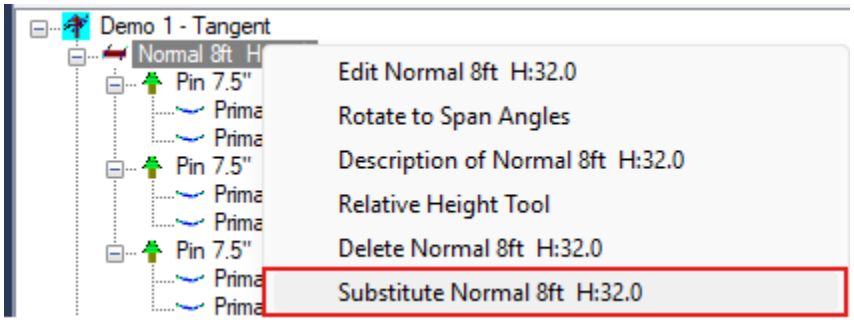


Note: *Multiple pieces of equipment can be substituted concurrently if they are all the same type of equipment. Hold down the Ctrl key to select more than one piece of equipment at random within the Inventory list.*

3. The substitute window appears with various Catalog options to choose from.

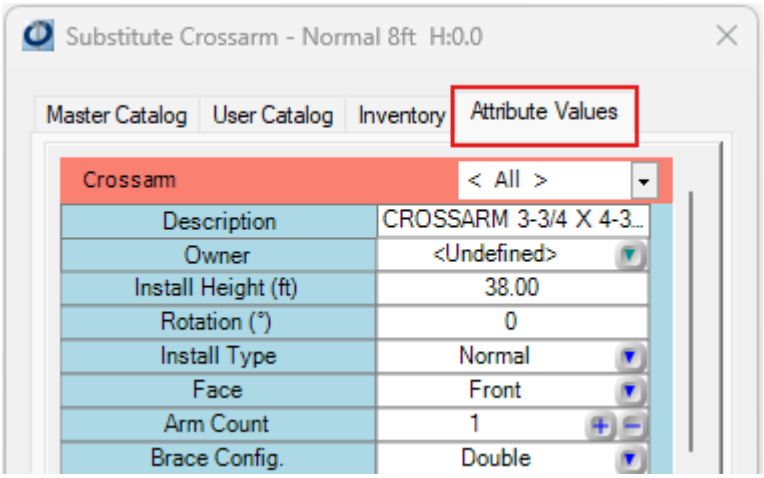


4. To use the right-click option, right-click on the object in the Inventory or 3D View window and select the **Substitute** option from the list.



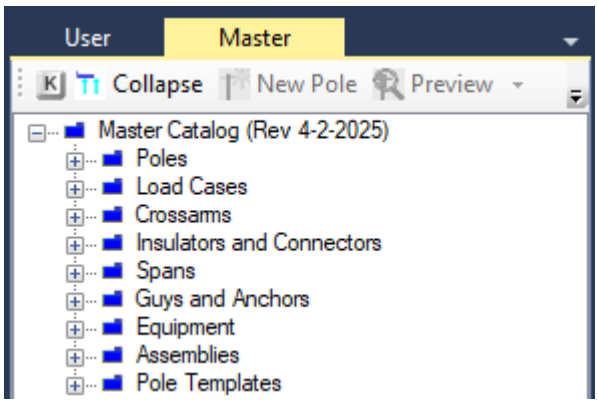
Note: *Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory window. To undo the substitution change, select* ***Edit > Undo.***

5. To **substitute** equipment from the Catalogs or the Inventory tab, select the appropriate tab in the Substitute window and select the equipment you want to use as a substitution.
6. Select the **Attribute values tab** to modify the equipment's attributes.



Working with Equipment Catalogs

The Catalog panel provides the ability to efficiently assemble a pole and its equipment in the Inventory panel from ready made parts. The Master Catalog contains a list of common poles, assemblies and equipment that are commonly constructed in the field. It also contains a complete listing of all the available Load Cases which are used to add the applicable pole loading regulations to the pole to apply the correct amount of wind, ice, and safety factors. The User Catalog contains your own storehouse of poles and equipment for you to use again in the future.



Note: *Edits can only be made in the Master Catalog (has blue folders) by an Administrative User User Catalog (has yellow folders) are available to edit at will. To make changes in the Load Case folder, the load case must be unsealed and cannot be resealed. Sealed load cases display a blue icon. Unsealed load cases display a red icon.*

©2025 Osmose Utilities Services, Inc.

Catalog Menu

The Catalog panel toolbar provides a variety of menu options.

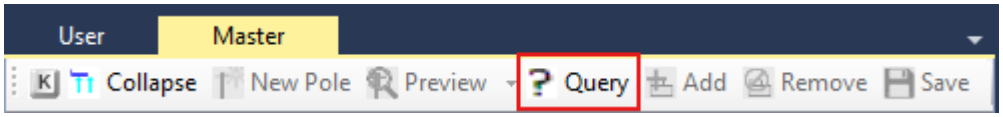
Collapse	Use to collapse all the objects in the current Catalog panel.
New Pole	Use to create a new pole in the Inventory panel from the selected catalog.
Preview	Use to view a pole or pole template in the Inventory panel from the Master or User Catalog.
Query	Use to search for the data within the current catalog.
Add	Use to add a sub folder to a User Catalog folder.
Remove	Use to remove a selected folder or object within the User Catalog.

Query the Catalog

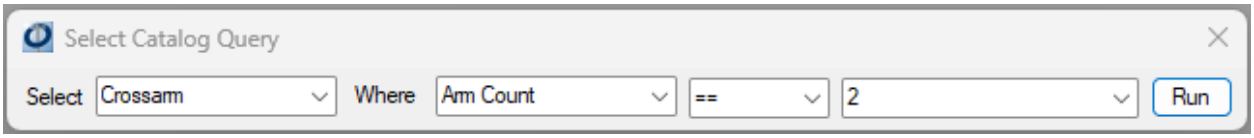
Perform a query within any Master or User Catalog to quickly locate equipment. Running a query performs a search through all folders in the catalog and highlights them found item(s) in blue.

To use the Query complete these steps:

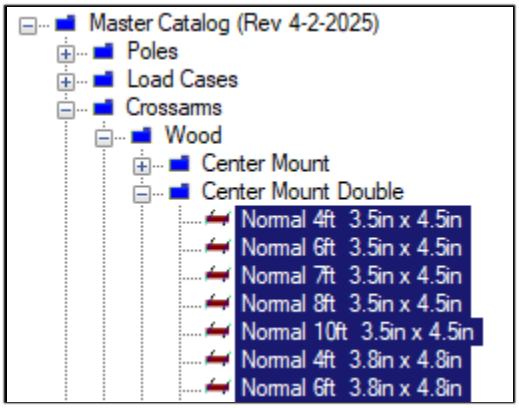
1. From the Catalog panel, click the **Query** button in the menu tool bar.



2. In the **Select Catalog Query** window enter the information for the query using the drop-down menus and click the **Run** button.



3. View the highlighted items found in the Catalog.



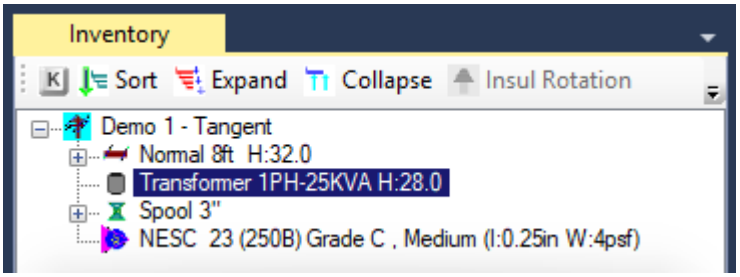
4. Select any highlighted item and drag and drop it to the pole in the Inventory or 3D View.

Note: *Upon clicking the Query button the information from the last query is retained, until the User navigates away from the Query tool, at which time the query is cleared of any past information.*

Attribute Values

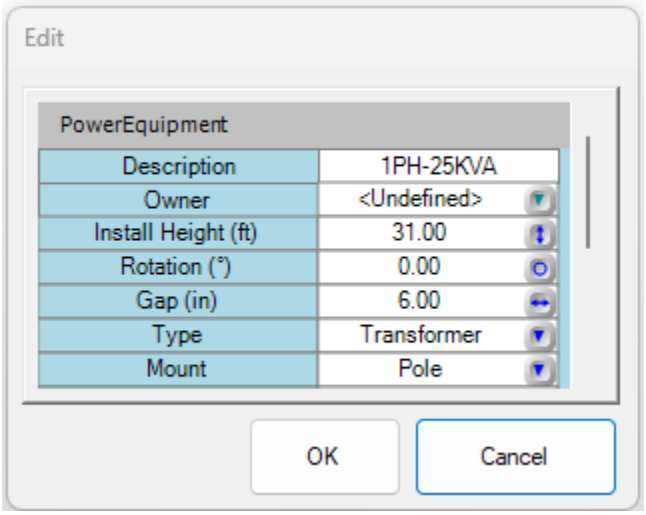
Each piece of equipment in Master Catalog includes a unique set of attribute values. These values are used to define an object in detail and identify any manufacturer specifications which may be considered relevant to pole loading calculation results. Each attribute available for editing have white input fields, those which cannot be edited are greyed out. To edit equipment attribute(s), complete these steps:

1. Select the **equipment** whose attribute you want to edit.



2. Select the **Edit** button.

Note: *The Edit option can also be accessed by right-clicking on the equipment whose attributes need to be edited and selecting* ***Edit (Pole or equipment display name)****.*



Note*: By selecting an object in the Inventory or 3D View areas, attributes can be easily edited in Data Entry panel.*

©2025 Osmose Utilities Services, Inc.

Edit Icon Descriptions

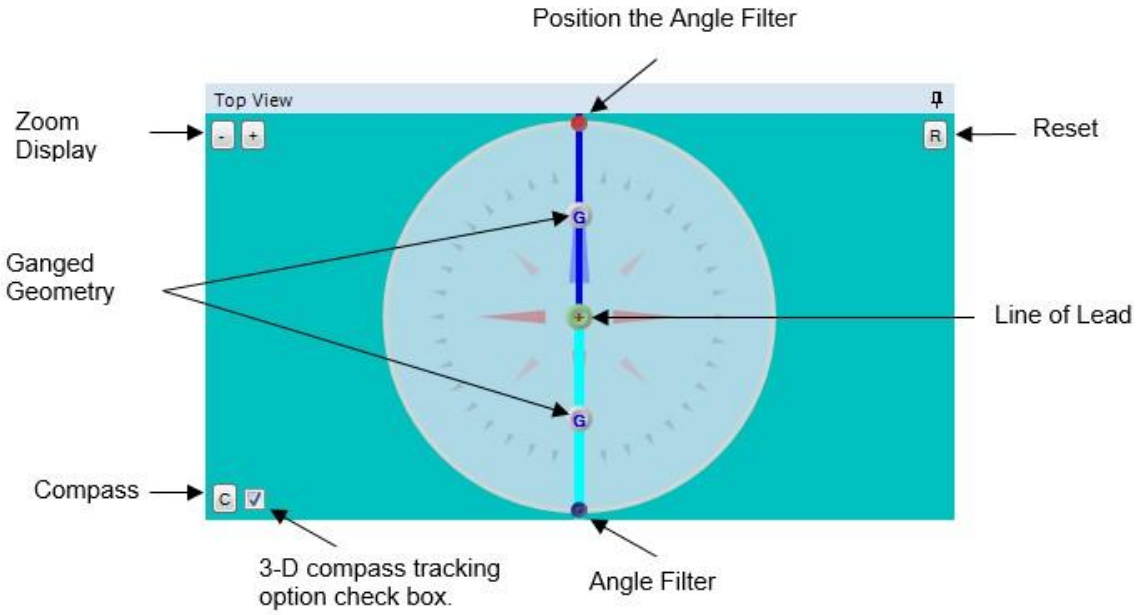
Edit Icon	*Description*
	Use to select a value or extend the default list.
	Use to change the vertical value based on mouse movement.
	Use to increase or decrease the rotation value based on mouse movement.
	Use to select a value from a predefined list.
	Use to increase or decrease the value.
	Use to toggle the value to Yes or No.

Other Editable Icons that are available when different attachments are selected:

Editable Icon	*Description*
	Allows you to change the horizontal value based on mouse movement.
	Found within a Note attachment. When selected a calendar option is enabled, allowing you to select a specific date for a selected attribute.
	Found within a Note attachment. When selected the selected Note is displayed in edit mode.
	Allows you to select the color.
	Allows you to open a table and change values within the table. (Example: When a pole's Moment Cap attribute table icon is selected it provides a table allowing you to change the values of the Moment Capacity vs. Height)

Working in Top View

The O-Calc® Pro Top View panel displays a polar (North/South orientation) view of the pole with span angles. Changing the Gang Editor "G" icon or the Line of Lead can automatically change all the spans.



Top View Icon Descriptions

The Top View provides a variety of operations and options.

Functionality Icons	*Description*
	Zoom-Out. Click the plus sign icon to zoom the display out. **Zoom-In.** Click the minus sign icon to zoom the display in.
	Gang Editor. Click the "G" button to set of spans in a single direction to edit. This also automatically select all the spans in the given direction.
	3D Compass. Click the "C" button to cause the Top View panel and the 3D View panel to track in concert with one another. The permanently enable simply check the 3D Compass box.
	Reset. Check the Reset option to undo any display options that were selected. *Note: This does not undo any changes completed in the Ganged Geometry Editor or to the Line of Lead.*

©2025 Osmose Utilities Services, Inc.

	Line of Lead. Click the Line of Lead option to change the line of lead by rotating the entire pole.
	Angle Filter. Click and drag the Angle Filter button to set the area to be filtered.
	Position the Angle Filter. Click and drag the Position Angle Filter button to reposition the Angle Filter.

Zoom Level

To change the zoom level in the Top View display, which is helpful in expanding/contracting the space between the "G" buttons, complete the following steps:

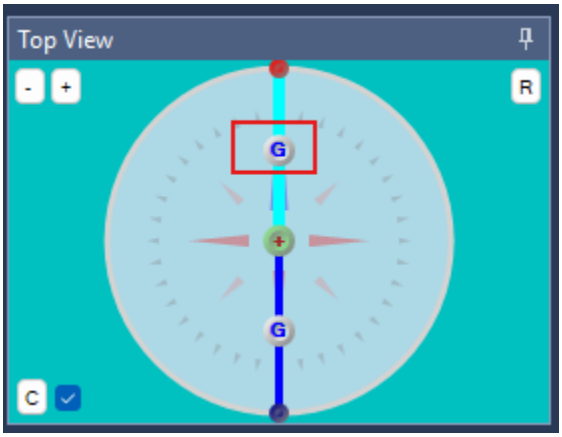
1. Click the **Zoom In** button to zoom in the view of the spans. Click the **Zoom Out** button to zoom out the view of the spans.

Note: *To remove the zoomed display level select the Reset button .*

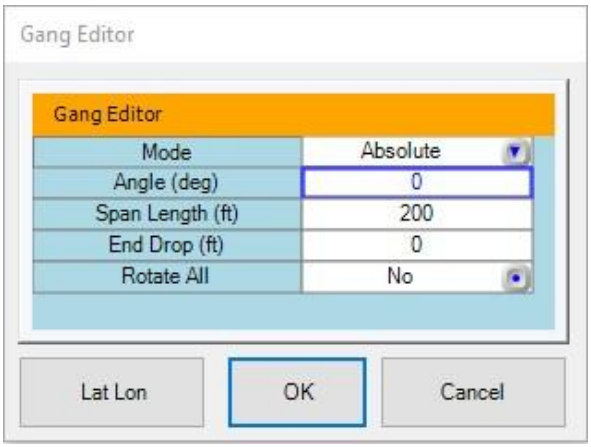
Gang Editor "G"

To edit the attributes for set of spans in a single direction, complete these steps in the Top View panel for the spans you want to edit.

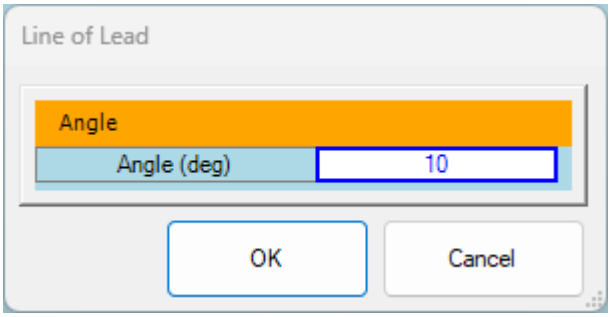
1. Select one of the "**G**" icons in the Top View.



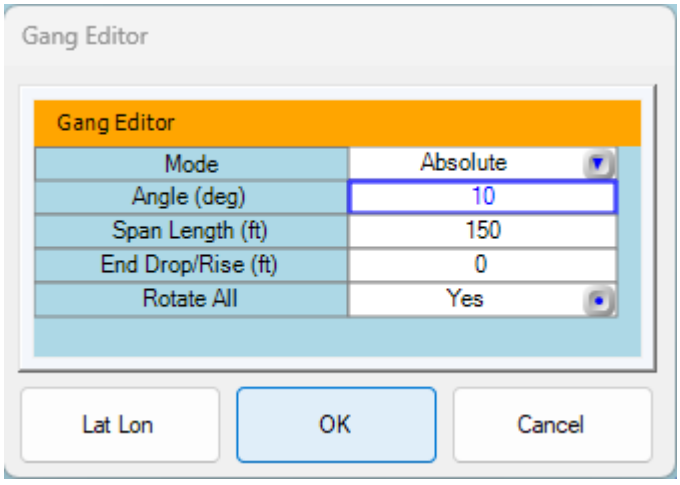
2. In the **Gang Editor** window, use the default **Absolute Mode**, or select the Relative mode option from the drop-down list.



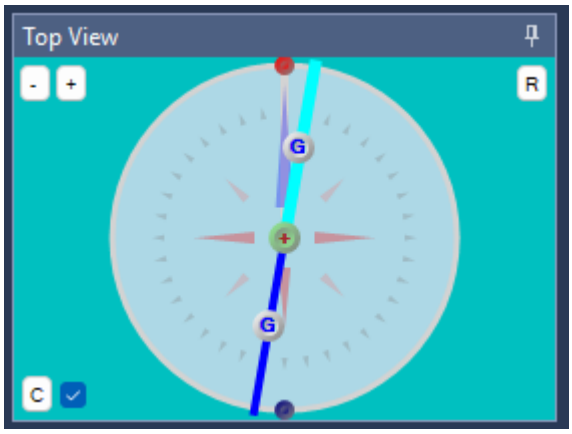
3. Modify the **Angle**, **Span Length**, **End Drop** value.
4. Modify the **Rotate All** option by changing the **No** radio button to **Yes** and enter a value in the **Angle** attribute or select the "+" sign at the center of Top View and input a LOL value.



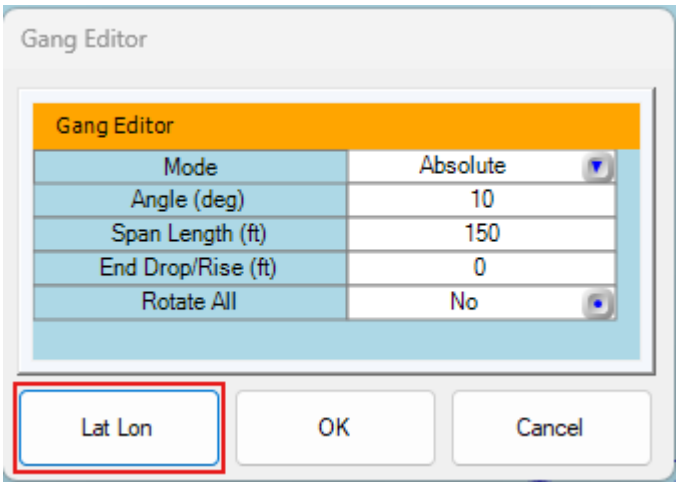
5. Click **OK**. Resulting in the entire structure being rotated to reflect the new Line Of Lead (LOL) value entered.



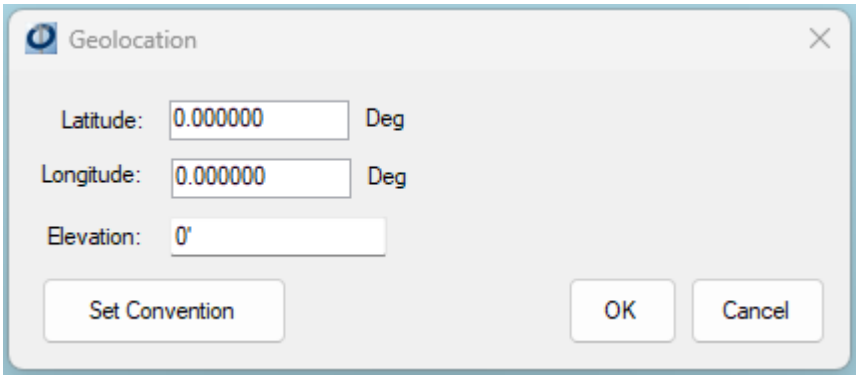
©2025 Osmose Utilities Services, Inc.



6. Click the **Lat Lon** button for a shortcut to the **Geolocation** information for the pole.



Note: *To undo the Gang Editor change, select* ***Edit > Undo****.*

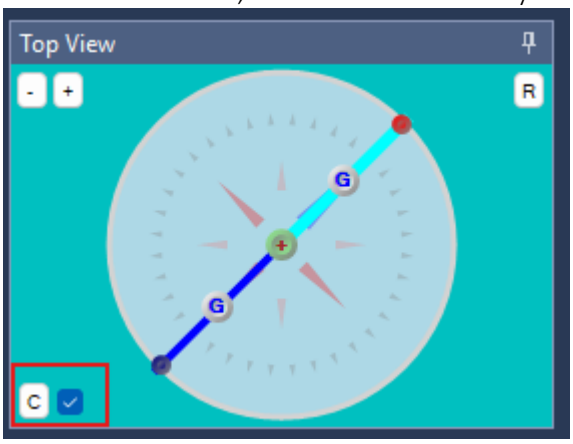


7. Enter the **Latitude** and **Longitude** information and click **OK**.

Top View Display

Click the "C" button to cause the Top View panel and the 3D View panel to track in concert with one another. The permanently enable tracking, simply check the box next to the "C" button. Complete these steps:

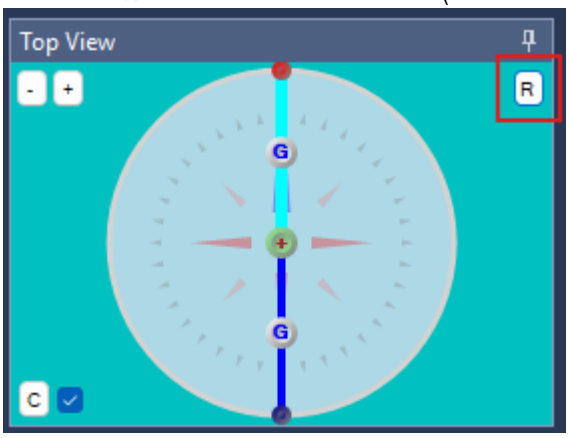
1. Click the "C" button, the LOL is automatically rotated to match the 3D View.



Reset Top View Display

To undo any changes to the Top View display, complete these steps:

1. Click the "**R"** button to Reset the LOL (Line Of Lead).

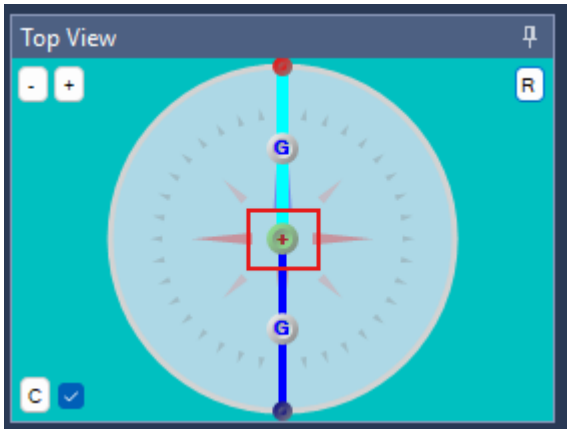


Note: *Resetting the Top View display does not undo any changes that have been completed in the Gang Editor or Line of Lead.*

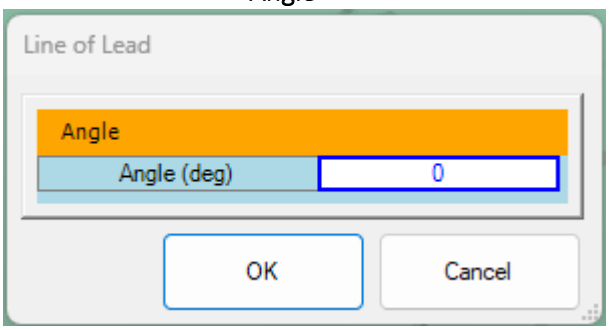
©2025 Osmose Utilities Services, Inc.

Line of Lead

To change the line of lead, complete these steps:



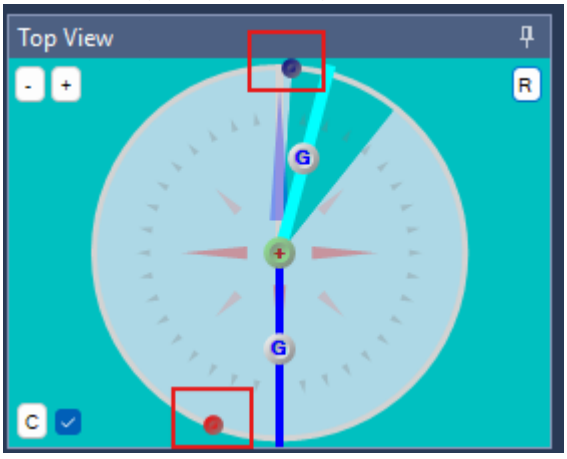
2. Enter a value for the **Angle** which will rotate the entire pole. Click **OK**.



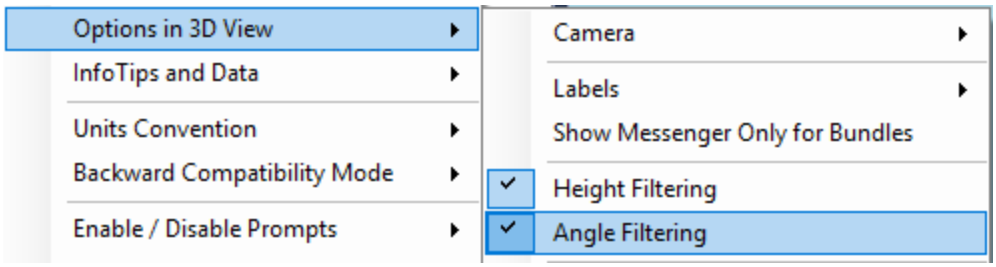
Angle Filters

When working with a pole that has numerous spans attached at different angles, it may be beneficial to narrow the scope of the data displayed. The Angle Filter allows you to set a filter so that only spans in a specific area are displayed.

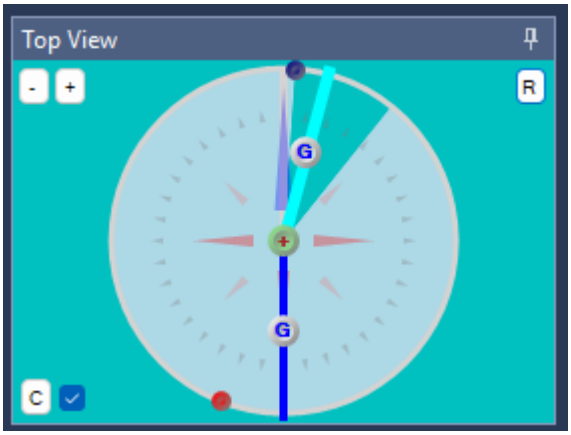
Using the red and purple buttons complete these steps:



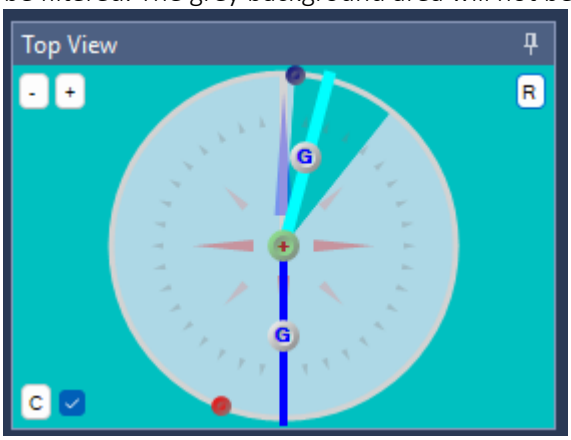
1. Complete the following steps to enable the **Angle Filter**, select **Options > Options in 3D View > Angle Filtering**.



2. Click and drag the purple **Angle Filter** icon to set the position of the filter. Blue background area will be filtered.



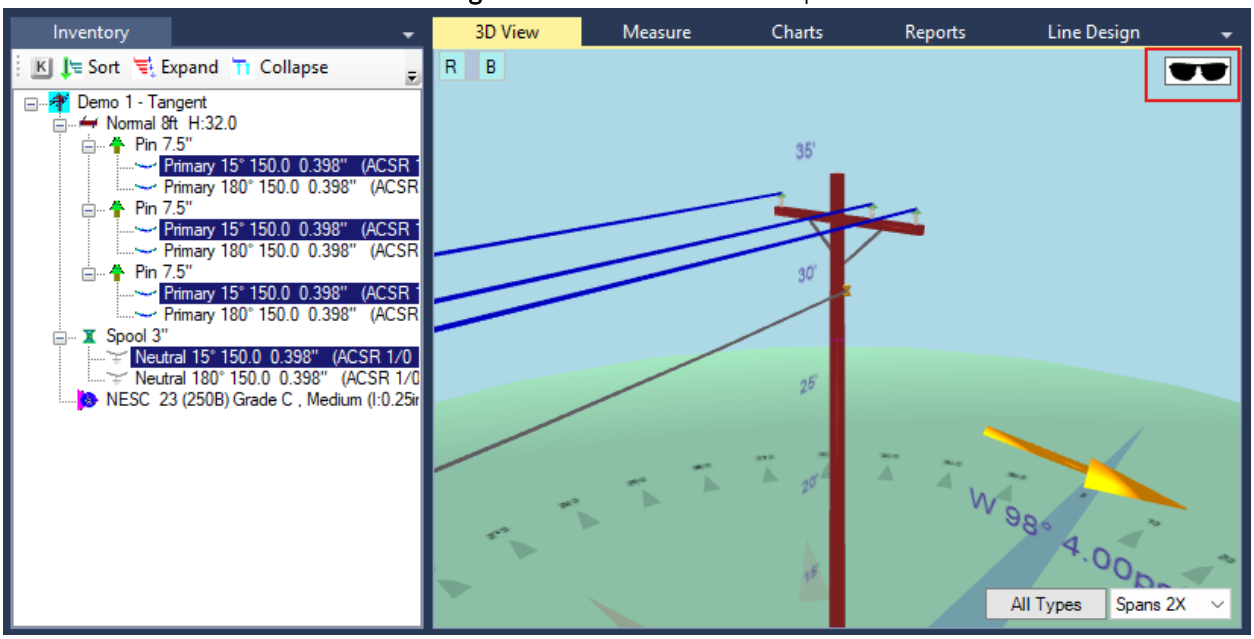
3. Click and drag the red **Position the Angle Filter** icon to set the amount of area to be filtered. The grey background area will not be filtered.



4. To reset the filter area click the "**R**" button.

©2025 Osmose Utilities Services, Inc.

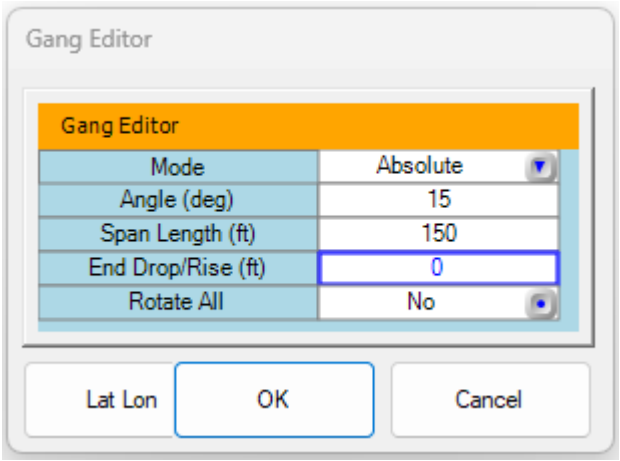
5. Click the "**Sunglasses**" icon in the 3D View panel to remove all filters.



End/Drop Rise

To modify the drop or rise of span(s) on an adjacent pole, complete these steps:

1. Click one of the "**G**" buttons in Top View.
2. In the **Gang Editor** window **End Drop/Rise (Ft)** attribute, enter a value proceeded by a minus sign "**-**" to make the spans **Drop** down at the adjacent pole. Without the minus sign the value is a **Rise** value.



Working with Guying

Stub Poles for Span Guys

While working with a pole in O-Calc® Pro that has a span/head guy going to a stub pole attachment it is often the case that you may want to perform analysis on the stub pole as well. O-Calc® Pro provides a convenient method to perform stub pole analysis. You can either create the

stub pole as a completely new pole analysis, or you can create the new pole as a version within the same pole analysis.

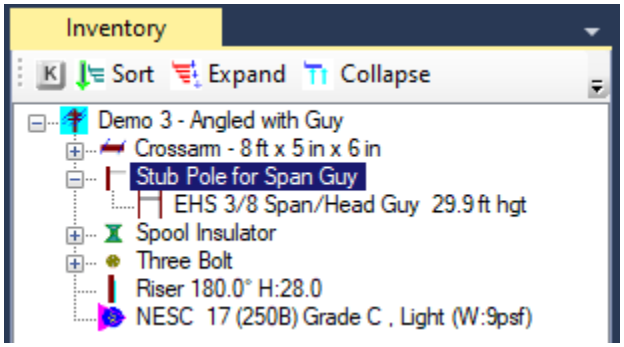
Keep in mind interchangeable terms commonly used for the Stub Pole object are Stub Pole for Span Guy; Span/Head Termination; Anchor. Terms commonly used for the Span/Head Guy object are Guy Brace; Span/Head; Guy Wire; Span Guy.

Stub Pole as a New Pole

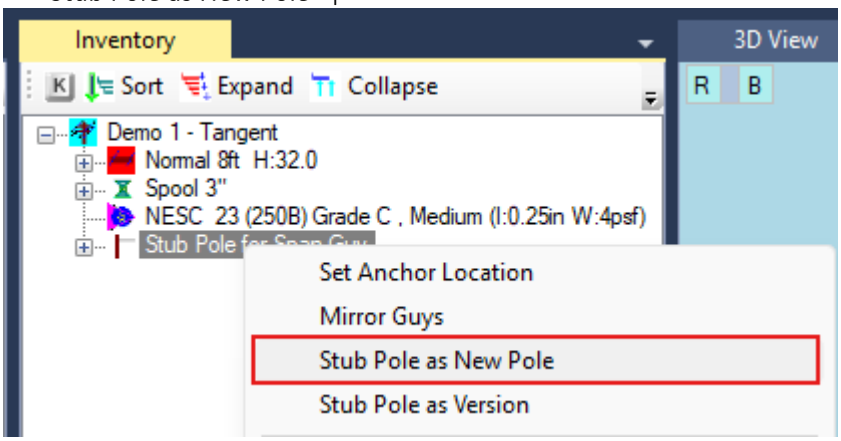
This functionality creates a separate .pplx pole file for the New Stub Pole which will be automatically guyed using the same guying used on the current Stub pole.

Begin with a pole that already has a Stub Pole for Span Guy (see Catalog Assemblies > Guy and Anchor Assemblies folder) attached to the pole. To add a stub pole as a new pole within the Inventory panel, complete these steps:

1. Left click to select the **pole** you would like to use as the **Stub Pole for Span Guy** pole in the **Inventory**.

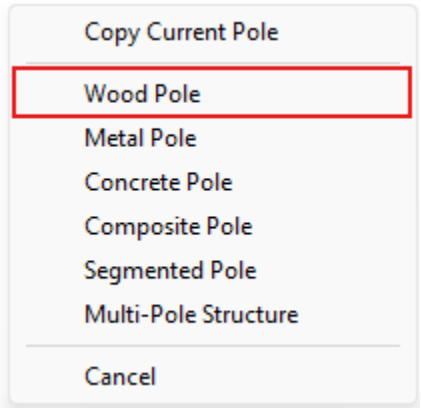


2. With the stub pole now selected, **right-click on the stub pole** and select the **Stub Pole as New Pole** option.

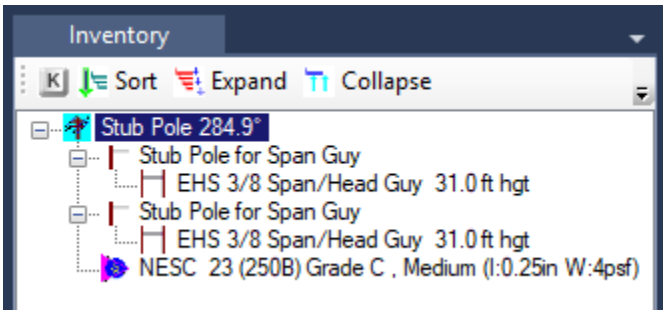


3. Select a pole from the pole menus or select the **Copy Current Pole** option.

©2025 Osmose Utilities Services, Inc.



4. The New Stub Pole is guyed automatically, if a default Auto-guy assembly has been set.

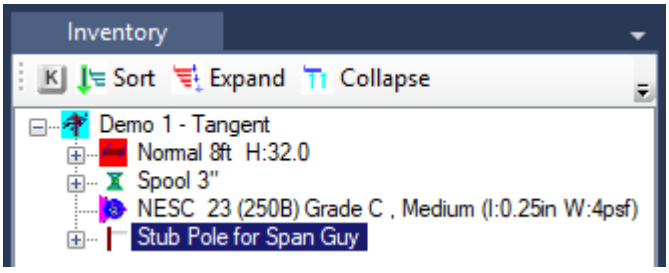


Note: *Undo is not available for this operation. To disable the automatic guying of the new stub pole, see the Create as New Pole Enabled option below.*

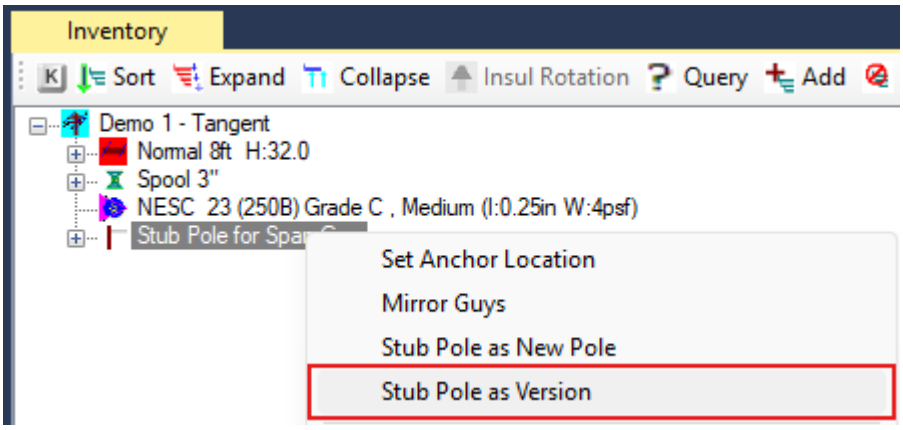
Stub Pole as Version

A stub pole version can also be added by right-clicking on the Span/Head Termination and selecting the Stub Pole as Version option. To add a stub pole as a version to the Inventory within the same .pplx file complete these steps:

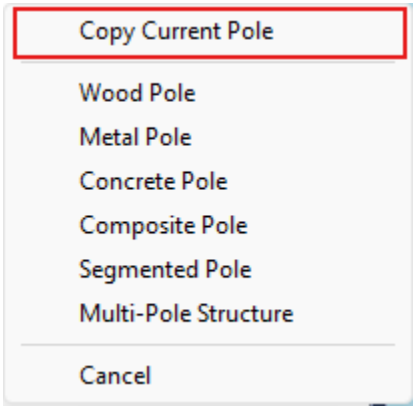
1. Left click to select the **pole** you would like to use to create a new version.



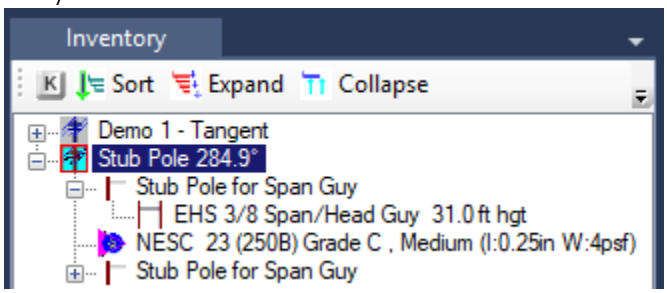
2. With the stub pole now selected, **right-click on the stub pole** and select the **Stub Pole as Version** option.



3. Select a pole from the pole menus or select the **Copy Current Pole** option.



4. The added Stub Pole Version is guyed automatically, if a default Auto-guy assembly has been set.



Note: *While dragging the selected pole to the Inventory panel the cursor will change to an invalid cursor* ⃠ *. As the equipment is placed over the Span/Head Termination object in the Inventory panel the cursor will change to indicate a valid move* ⊞.

Stub Pole Menu Options

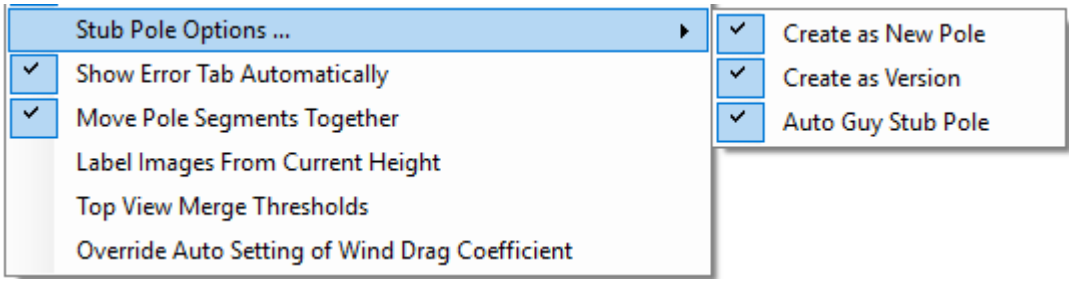
While performing an O-Calc® Pro analysis on stub poles several options are automatically enabled. O-Calc ® Pro allows you to adjust which of these options you would like enabled or disabled.

©2025 Osmose Utilities Services, Inc.

Enabling Stub Pole Options

At least one of the Stub Pole "Create" options needs to be enabled. When the' Create as New Pole' option is enabled a check mark will display next to the menu option. When the option is disabled no check mark displays. To enable/disable complete these steps:

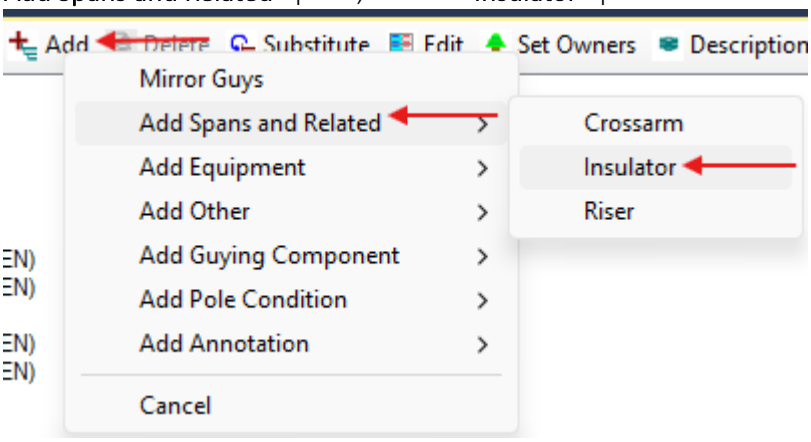
1. Go to the **Options** menu, select **Misc. Options**, select **Stub Pole Options**, click the **Create as New Pole, Create as Version, Auto Guy Stub Pole** options to enable them.



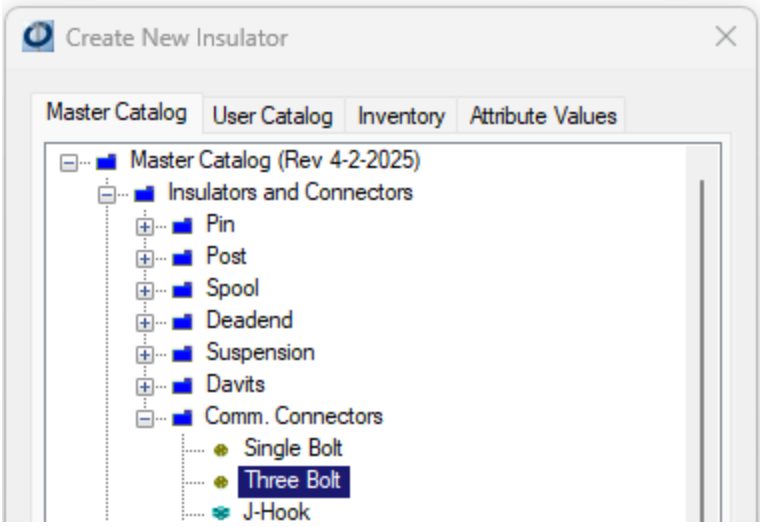
Communication Span Bundles

A communication span bundle typically includes a messenger strand with additional communication wires lashed to it, attached to the pole by a bolt (insulator) object. A cross-sectional configuration of the lashing is visible within the Bundle Editor option. The Span Bundle object represents the messenger strand as the object under tension. Bundles can be pre-assembled, to easily add to the pole, or they can be custom made (built from scratch) at any time. To add a span bundle to an attached insulator you first need to add the insulator, then the messenger wire. To create a span bundle, complete these steps:

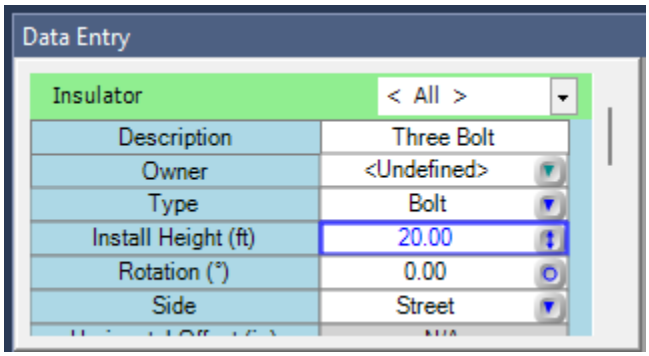
1. With the pole selected, click the **Add** button in the Inventory panel, select the **Add Spans and Related** option, click the **Insulator** option.



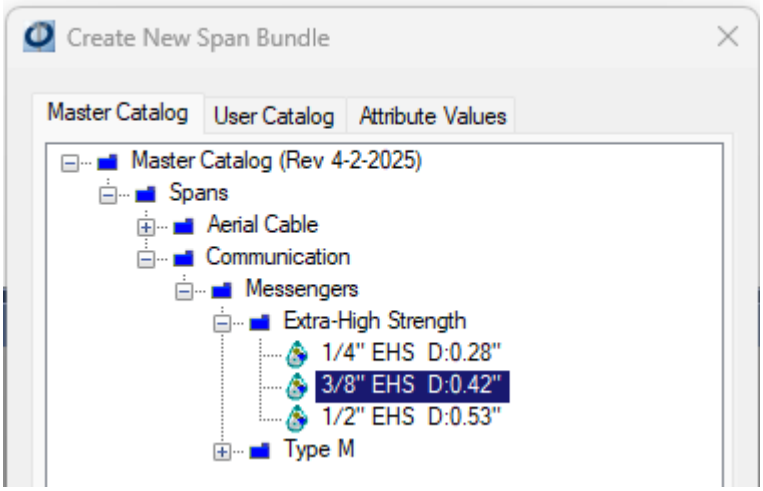
2. From the **Create New Insulator** window, go to the **Comm. Connectors** folder and select the **Three Bolt**, click **OK.**



3. In the Data Entry panel, enter the **Install Height** for the Insulator.



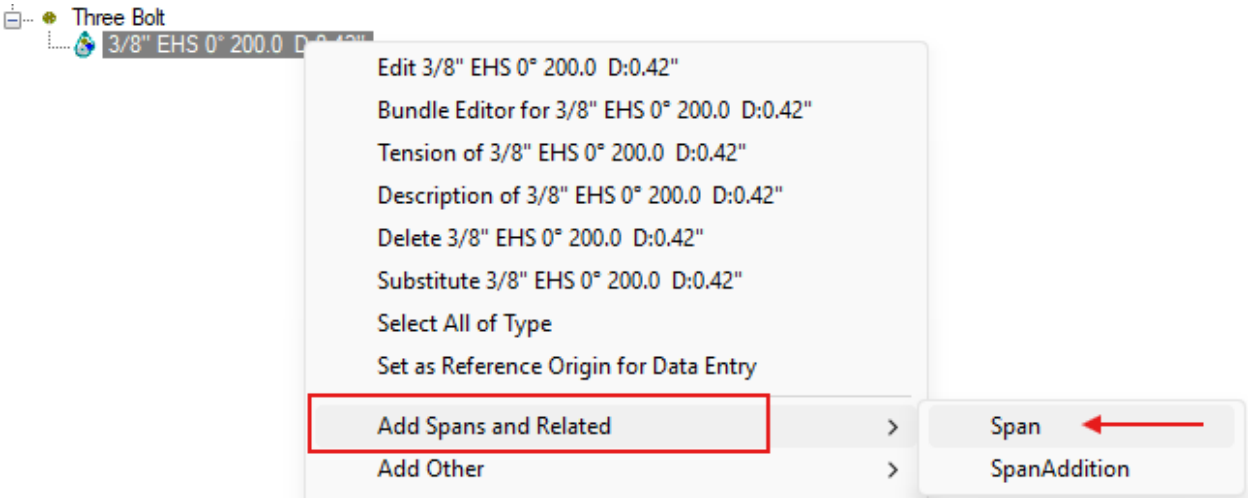
4. Right-click on the Three Bolt and select **Add Spans and Related** > **Span Bundle.**
5. Add the **Messenger** strand of your choice from the Catalog, click **OK**.



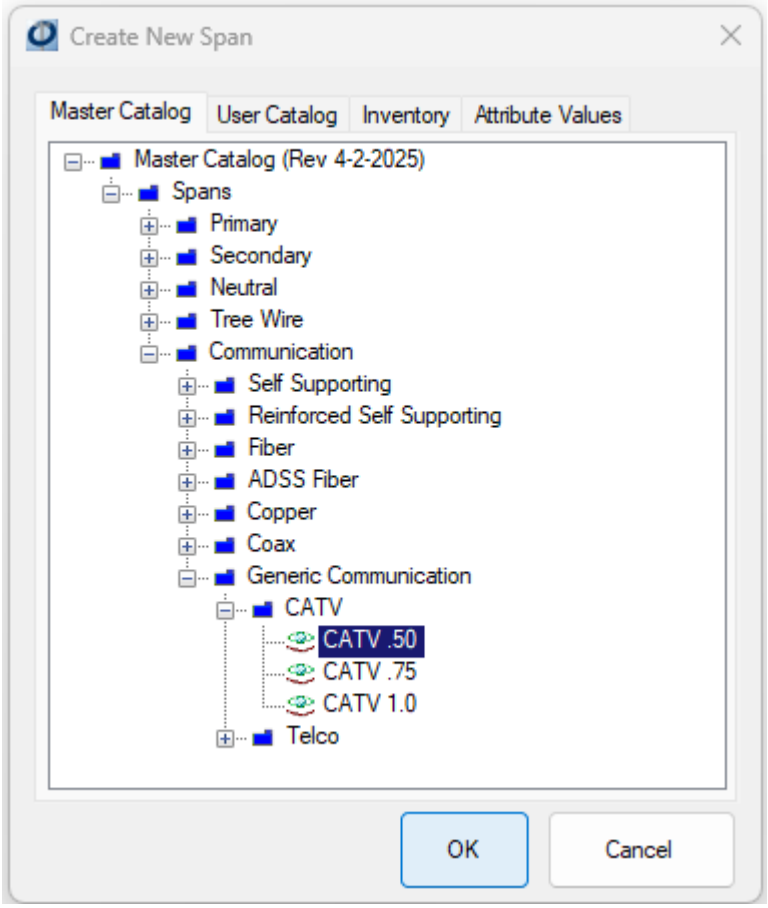
©2025 Osmose Utilities Services, Inc.

Once the messenger strand has been added you need to add the spans. Complete these steps to add spans to the messenger:

6. Right-click the **Messenger** strand in the Inventory, select **Add Spans and Related**, click on the **Span** option.



7. Expand the **Generic Communication** folder, expand the **CATV** folder, click on the **CATV .50** option, click **OK**. To add additional spans repeat the steps above or drag and drop the span to the messenger in the Inventory panel.

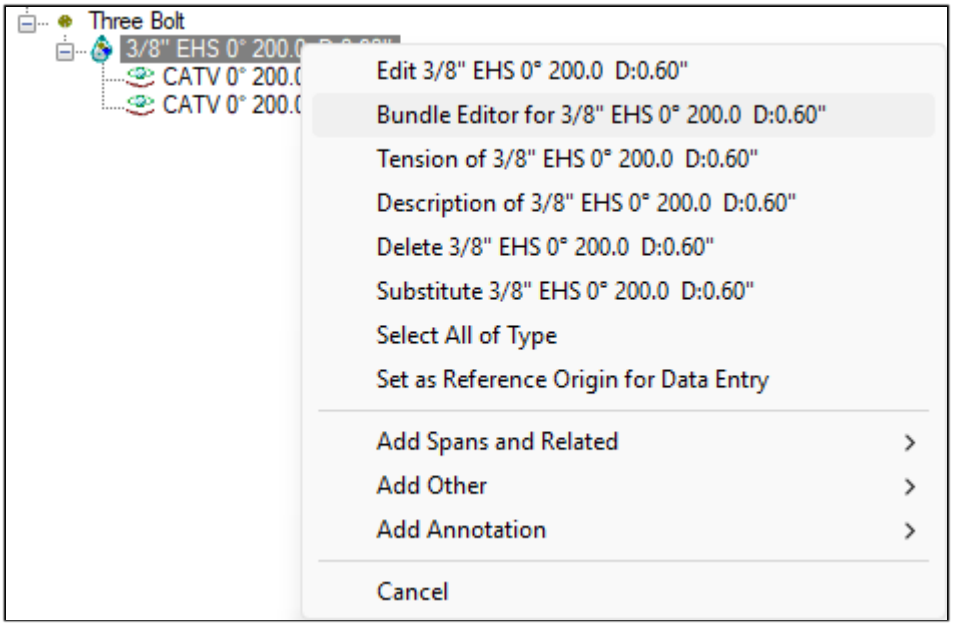


Note: *Only one Span can be added at a time.*

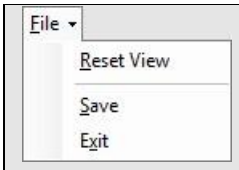
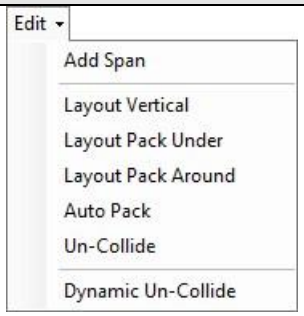
Working with the Bundle Editor

Use the Bundle Editor to edit the spans positions quickly and efficiently or to add additional spans to a span bundle. The diameter value for a communication bundle is displayed in the description information of the messenger wire. To open the Span Bundle Editor, complete these steps:

1. Right click on the **Messenger** strand you want to edit.
2. Select **Bundle Editor for** (*bundle display name*) option.

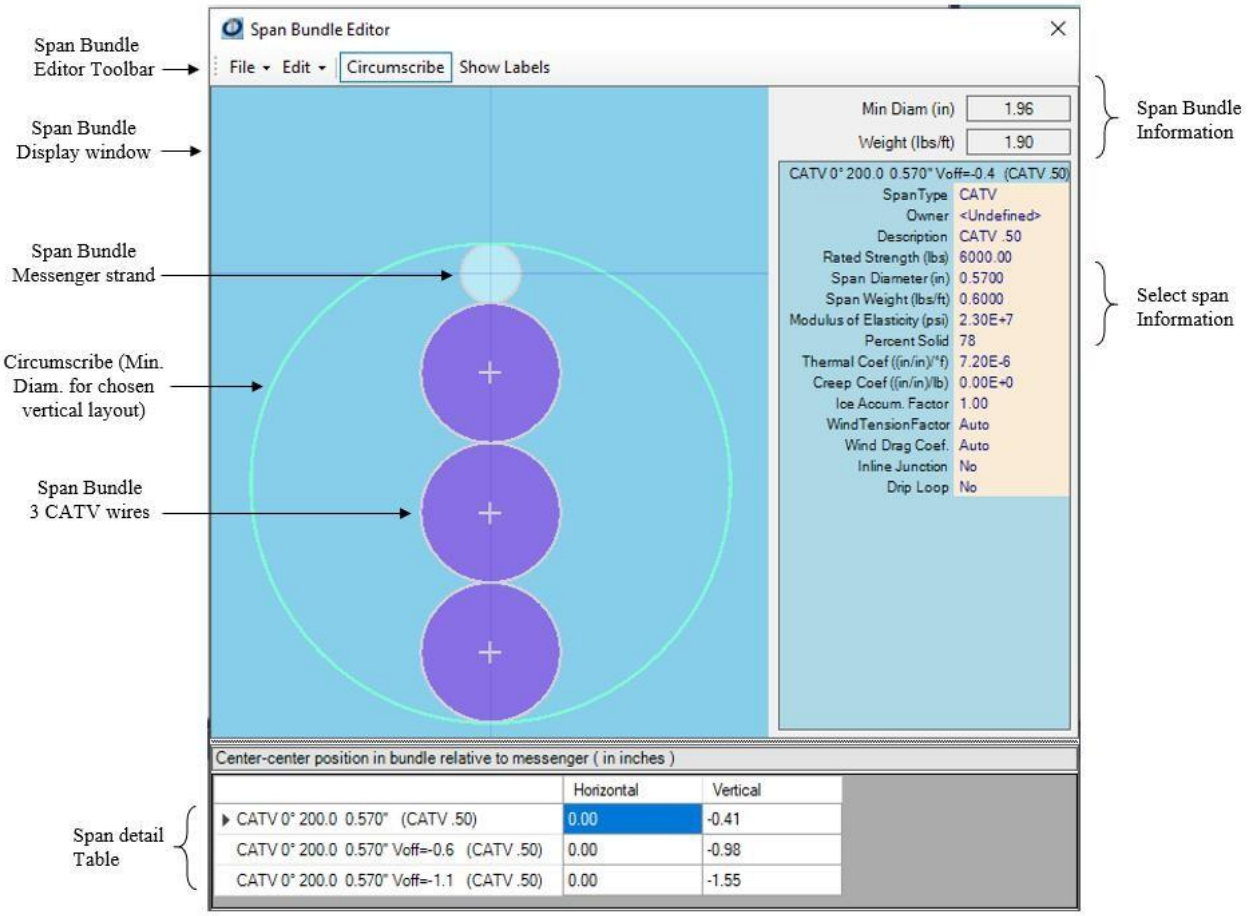


©2025 Osmose Utilities Services, Inc.

	**File**. The following options are available from the File menu: **Reset View**. Select the Reset View option to set the Span Bundle editor back to the default view. **Save**. Select the Save option to save any changes or additions. This is a test.
	Exit. Select the Exit option to close the Span Bundle Editor.
	**Edit**. The following options are available from the Edit menu: **Add Span**. Select the Add Span option to add a span to the span bundle. **Layout Vertical**. Select the Layout Vertical option to automatically reposition all the spans vertically under the messenger wire. **Layout Pack Under**. Select the Layout Pack Under option to automatically reposition all the spans under the messenger wire. **Layout Pack Around**. Select the Layout Pack Around option to automatically reposition all the spans around the messenger wire. **Auto Pack**. Select the Auto Pack option to have the spans packed as close as possible given their size and layout. **Un-Collide**. Select the Un-Collide option to position the spans so they are not overlaid. **Dynamic Un-Collide**. Select the Dynamic Un-Collide option to automatically un-collide the spans while you're dragging them into position.

©2025 Osmose Utilities Services, Inc.

Circumscribe	**Circumscribe**. Selecting the Circumscribe option tells you what the minimum circle would be that all the spans and messenger wire could fit into.
Show Labels	**Show Labels**. Select the Show Labels option to display the spans descriptions next to each span in the bundle.



Span Bundle Editor Toolbar

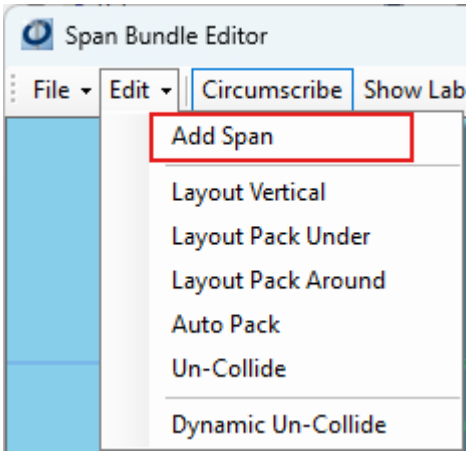
The Bundle Editor toolbar menu provides you with a variety of operations and options.

©2025 Osmose Utilities Services, Inc.

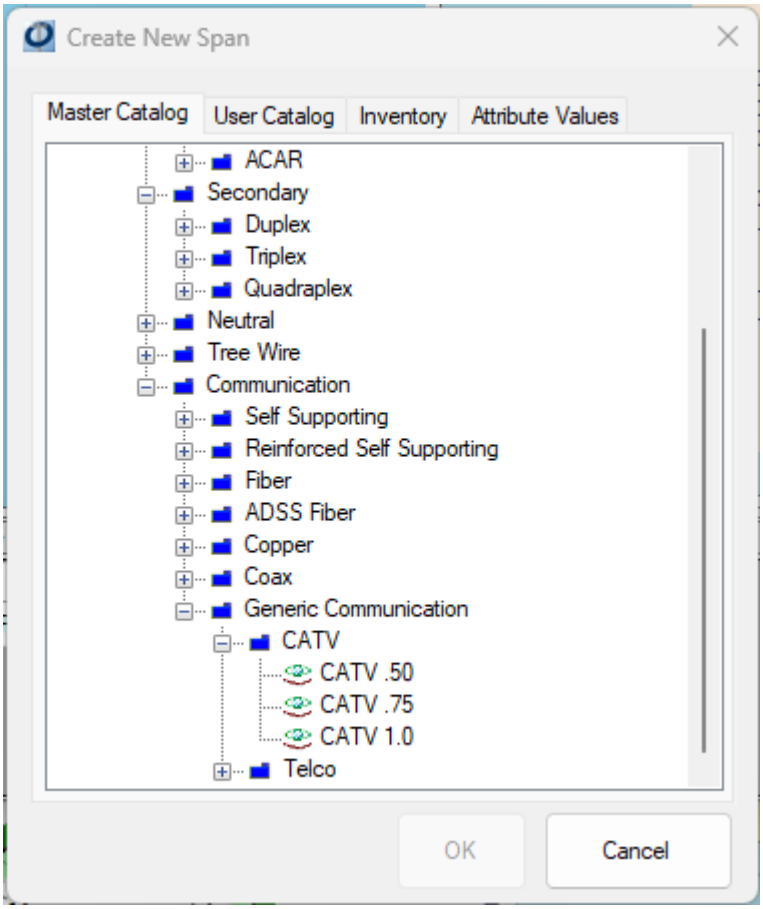
Add a Span

To add a span to the Span Bundle using the Span Bundle Editor, complete these steps:

1. Open the **Edit** dropdown menu and click the **Add Span** option.



2. In the **Create New Span** window add a **span** from the Master Catalog or the User Catalog select the appropriate tab and select the span you want to add.



Note: *Only one span can be added at a time. Available tabs are dependent on corresponding spans displayed in your catalogs or Inventory panel.*

3. Select the **Attribute Values tab** to modify any Span attributes.
4. Select **OK**, then **File** > **Save**.

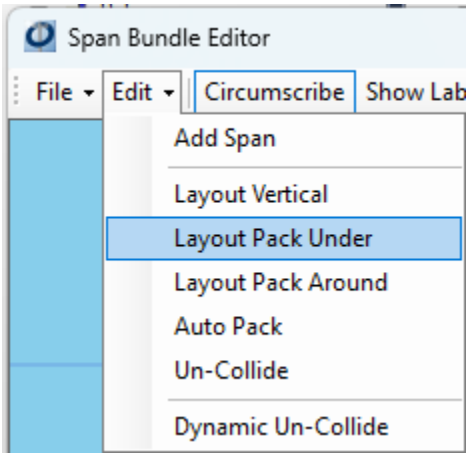
Note: *The span is automatically added to the span bundle and is displayed in the Span Bundle Editor. There is* ***no Undo*** *option available.*

Span Bundle Layout

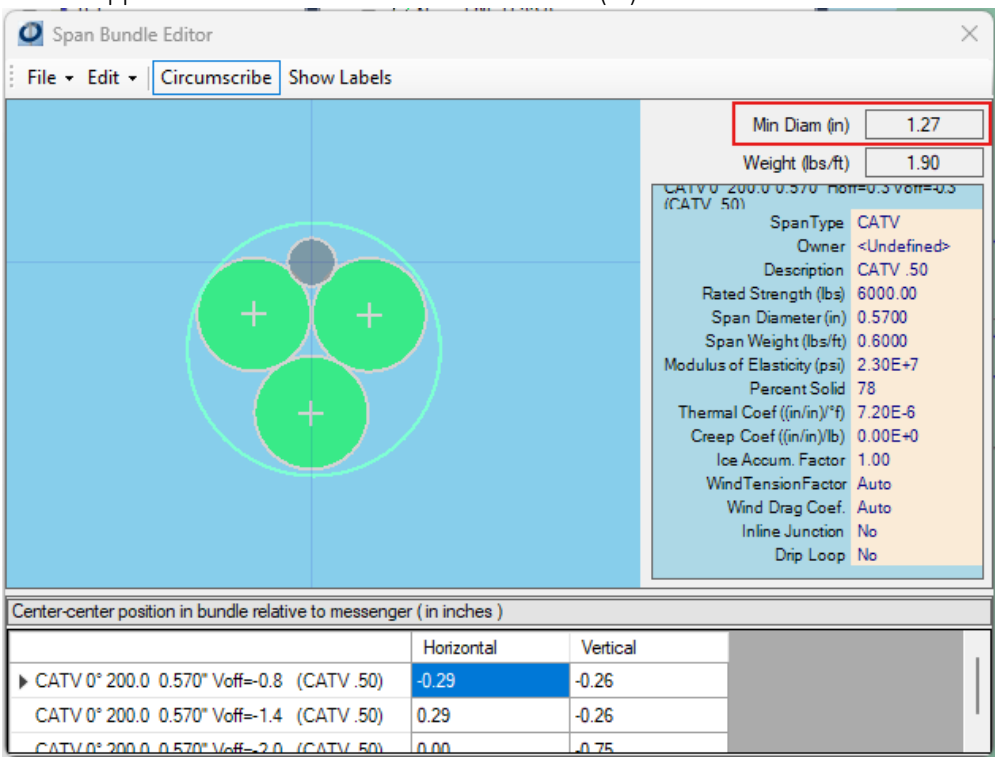
The Bundle Editor offers three layouts to reposition how the spans are configured within the bundle: Layout Vertical, Layout Pack Uder, Layout Pack Around.

The bundle layout can affect the overall diameter of the bundle. To change the Span Layout in the Span Bundle Editor use one of the following options:

1. In the Span Bundle Editor window, open the **Edit** menu, select **Layout Pack Under**.



2. Results appear in the Bundle Editor. The Min Diam (in) has an overall diameter.

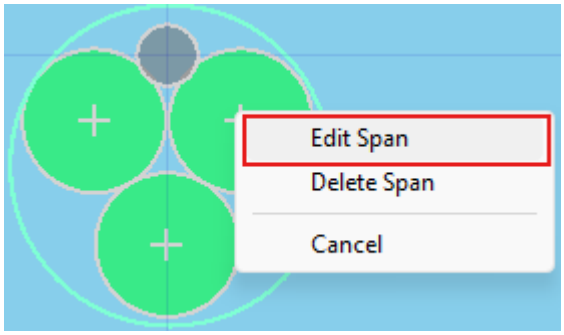


©2025 Osmose Utilities Services, Inc.

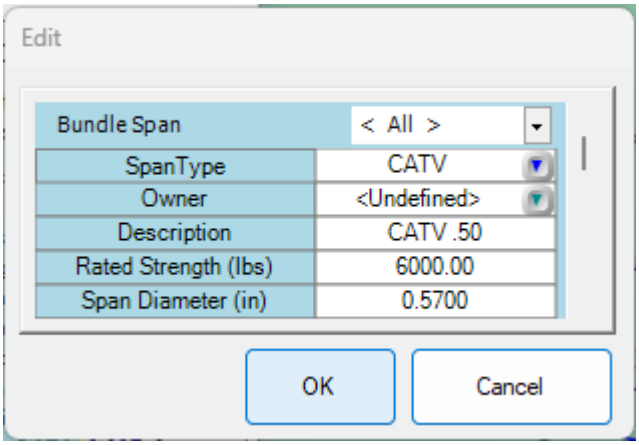
Edit Spans

To edit span attributes from within the Span Bundle Editor, complete these steps:

1. Right click on the span, select the **Edit Span** option.
2. Select **Edit Span** from the drop-down menu.

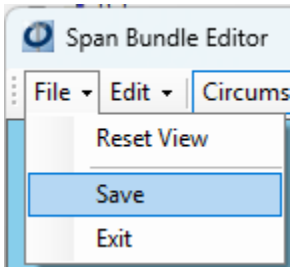


3. In the Edit window, enter changes to the Span Bundle attributes, click **OK**.



Note: *There is* ***no Undo*** *option available.*

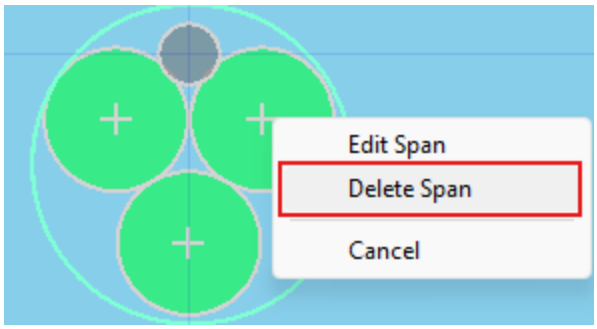
4. Select **File > Save**.



Delete Spans

To delete a span within the Span Bundle Editor, complete these steps:

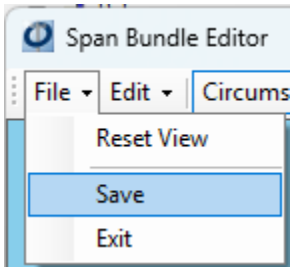
1. Right click on the span in the Span Bundle Display window.
2. Select **Delete Span** from the drop-down menu.



3. Select **Yes** to the confirmation message: Do you really want to delete the span?

Note: *There is* ***no Undo*** *option available.*

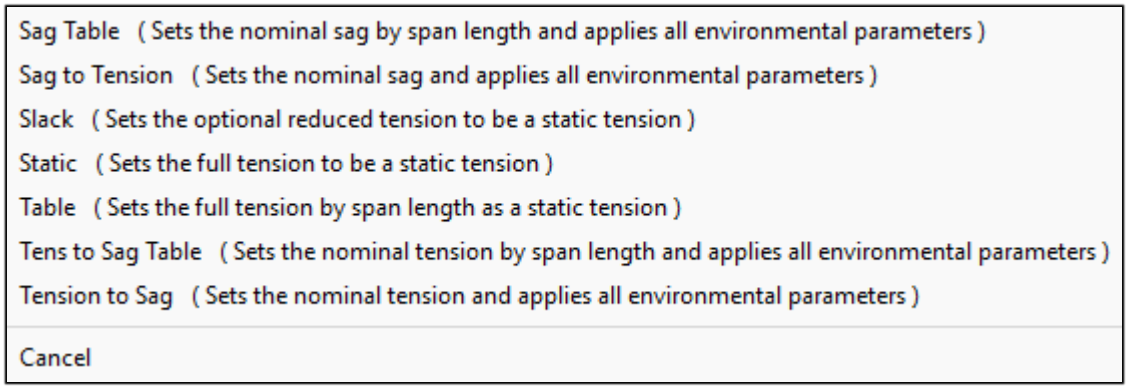
4. Select **File > Save**.



Understanding Wire Tension

O-Calc® Pro considers the change in conductor length (elongation) based on several physical parameters such as temperature changes, ice build-up on the conductors, and horizontal wind pressure blowing on the wires. This change in conductor length affects the tension of the conductor, which in turn affects the amount of sag. How O-Calc® Pro handles these various environmental effects on the conductor depends on what tension 'mode' the conductor is in.

O-Calc® Pro has seven different mode options for calculating the tension and sags on each cable:



Sag Table

Means that the tension is calculated based on the measured sag (height difference between attachment height on the pole and span height AGL (Above Ground Level), cable weight, and loading (temperature,

©2025 Osmose Utilities Services, Inc.

wind, and/or ice) on the cable; span sag in inches is plotted against span length in feet. This method enables users to model “sag to tension” mode for various span lengths.

Sag to Tension

It is where the user selects the initial (unloaded) mid-span sag amount, and the program determines the final (loaded) tension and final mid-span sag of the cable. This method is typically used when the mid-span sags are being measured in the field at a nominal temperature.

Slack

Is the same as “Static” mode. Users can enter any value for slack tension, then easily change between static and slack mode. Note, despite the name “Slack” any tension value can be entered, including a value larger than the “Static Tension” value.

Static

Means that the tensions are statically determined based on a user defined percentage of the related strength of the cable. O-Calc® Pro has an option that enables the user to set the static tension percentages based on the cable type.

Table

This means that the tensions are determined by a user-created graph, wherein tension in pounds is plotted against span length in feet. The user can determine the number of points in the graph, as well as the tension to be applied at each increment of span length. The tensions between any two points on the graph are linearly interpolated between the values on the graph. O-Calc® Pro will then apply a static tension value as determined by the span length and table values.

Tens to Sag Table

It means that the tensions are determined by a user-created graph, wherein the initial tension in pounds is plotted against span length in feet. The user can determine the number of points in the graph, as well as the tension to be applied at each increment of span length, like Table mode. However instead of calculating a single static tension, various initial (unloaded) tensions are calculated against environmental loading parameters to determine the final mid-span sag of the cable. The final tension value is derived from the final mid-span sags along with cable weight and loading (temperature, wind, and/or ice) on the cable.

Tension to Sag

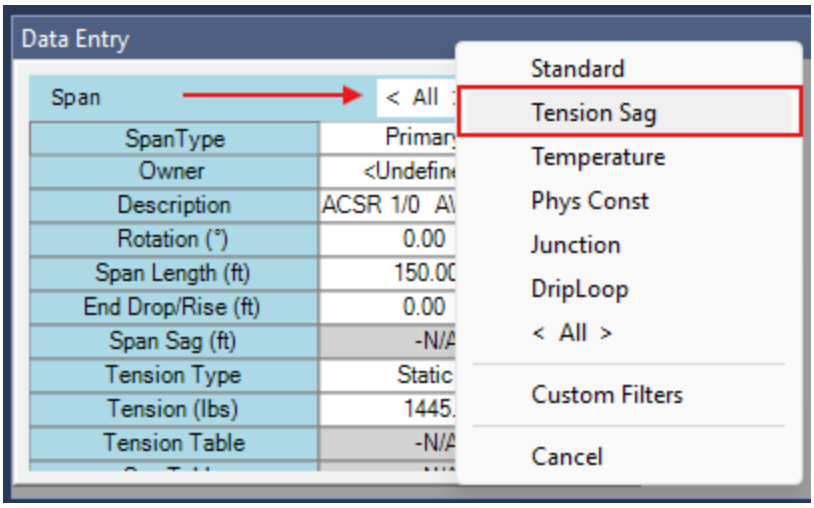
It is where the user selects the initial (unloaded) tension on the cable and the program determines the mid-span final loaded tension and sag based on the cable length, tension, and loading parameters. This method when they know what the original stringing tensions were.

To access all the wire tension types complete these steps:

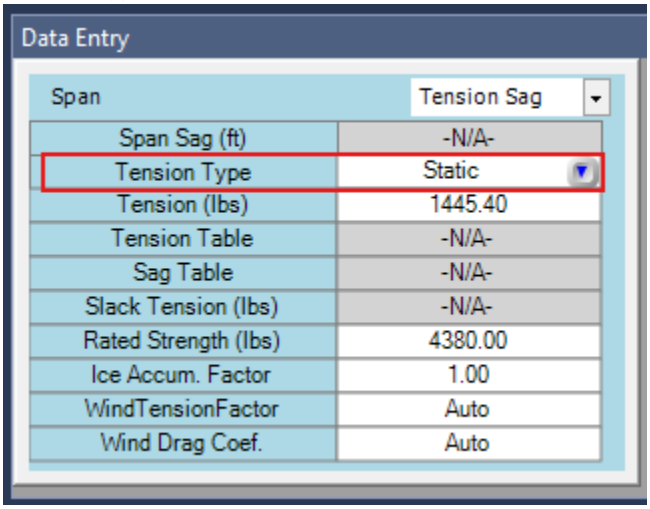
1. Select any conductor or messenger strand (wire under tension) attached to the pole in the Inventory or the 3D View.

2. In the Data Entry, change the **Span** filter drop-down to **Tension Sag**.

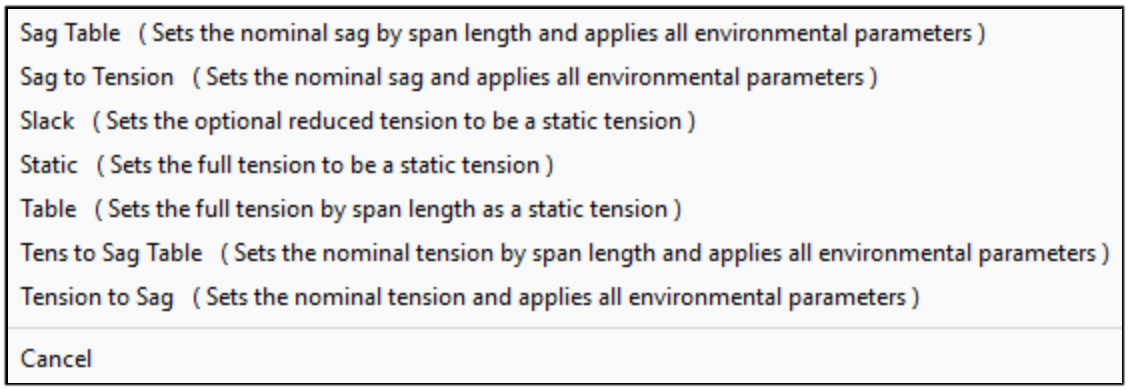
©2025 Osmose Utilities Services, Inc.



3. Open the **Tension Type** attribute drop-down to view and/or select any wire tension type. The default tension in O-Calc® Pro is Static tension.



4. The seven different tension types are displayed.



©2025 Osmose Utilities Services, Inc.

Wire Tension Categories

Wire tension type is relevant to the amount of sag results for conductors and communication messenger strands (the wire under tension) which can affect clearance analysis. To explore the tension types further it is helpful to note they fall into these three tension mode categories: Static, Table, and User.

Tension type is dependent upon how the pole owner wants wire tension to be accounted for. For example, Static type is commonly used with a set Slack percentage value in the Catalog. Table Tension mode is the second most common, it does require setting up. Sag to Tension mode is less common, it requires the Span Sag in feet value to be entered.

Pole owners can exceed code requirements, which are minimum pole loading requirements. Pole owners may have tension or sag tables which offer a closer estimate of actual field tension.

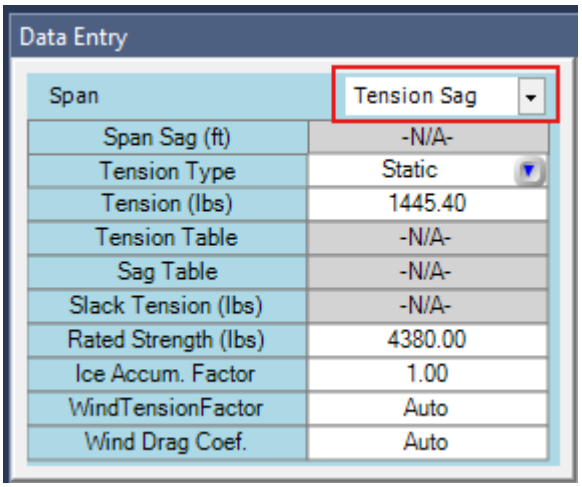
Listed below are the tension type modes by category available in O-Calc® Pro:

Static Mode	
Slack Static Table	**Slack** mode is based on User defined settings or as set in the Master Catalog. **Static** mode is based on User defined settings. **Table** is based on User defined input at various length increments per wire type.
Table Mode	
Tens to Sag Table Sag Table	**Tens to Sag Table** mode is based on User supplied table and the load case. **Sag Table** mode is based on the amount of sag at a given length, wire weight, and the load case. Both are based on the nominal values and the load case.
User Mode	
Sag to Tension Tension to Sag	**Sag to Tension** mode is used when the User measures the mid-span sag amount at nominal temperature. **Tension to Sag** mode is used when the User knows what the original (initial tension at the time of installation) stringing tension value is/was.

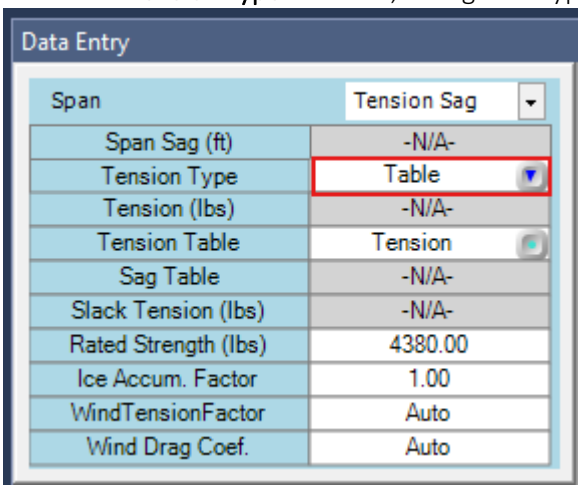
Creating Table Tension

To create a custom table with tension values for a specified span length, complete the following:

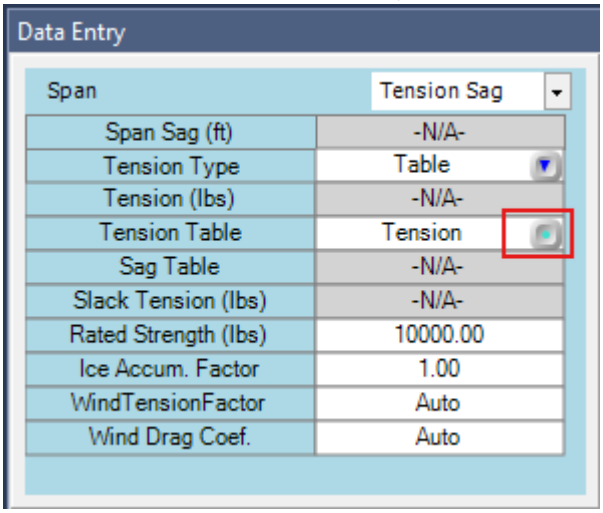
1. Select the span for which you are creating a custom tension table.
2. In the **Data Entry** panel, change the filter to **Tension Sag**.



3. Under the **Tension Type** attribute, change the type to **Table**.

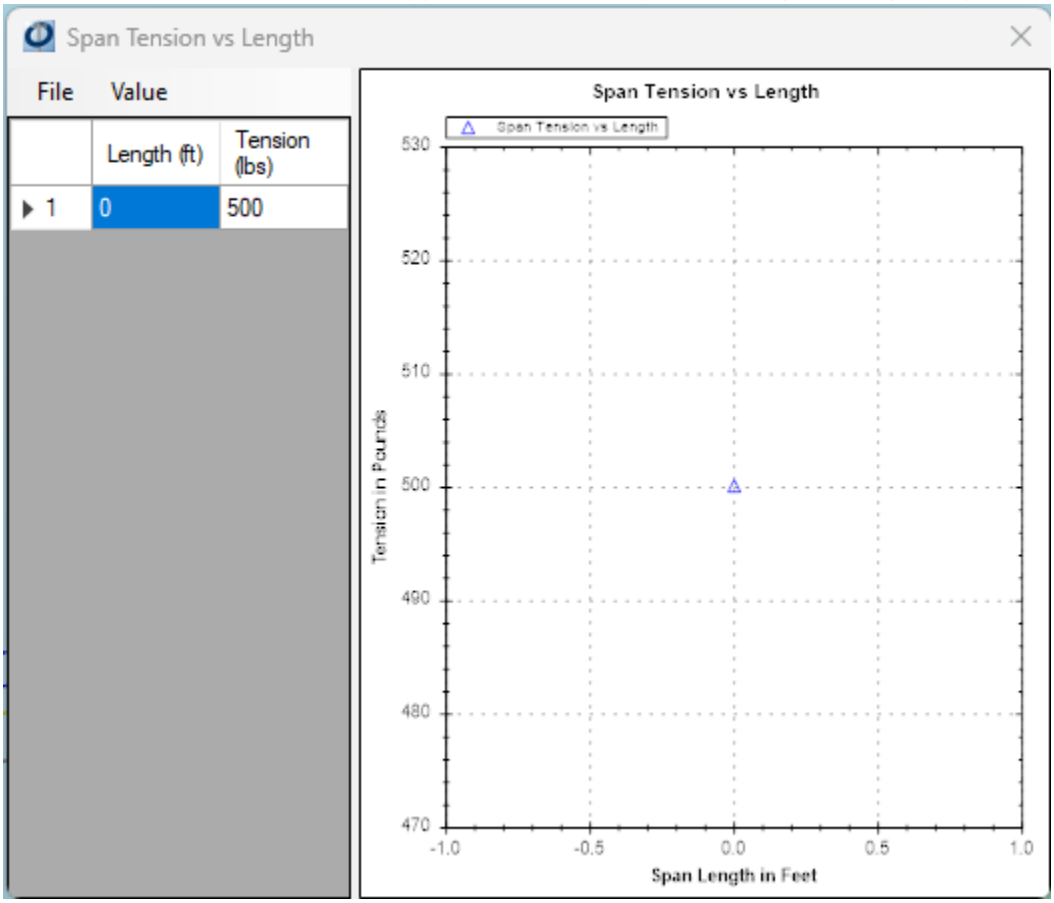


4. Under the **Table Tension** attribute, click the **radio button**.

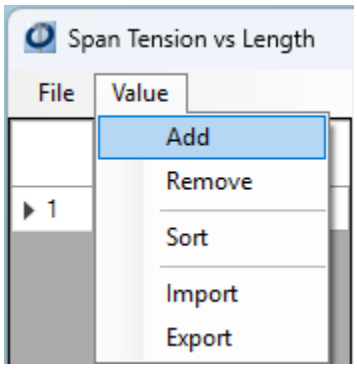


©2025 Osmose Utilities Services, Inc.

5. In the **Span Tension vs Length** window, the graph displays the outcome of the entered information. Namely span length (ft) and tension (lbs) values which are associated with an applied tension at a specified lengths along the span.



5. Use the **Value** menu to Add or Remove values. Additionally, values can be Sorted, Exported for use by other users or Imported from another source.

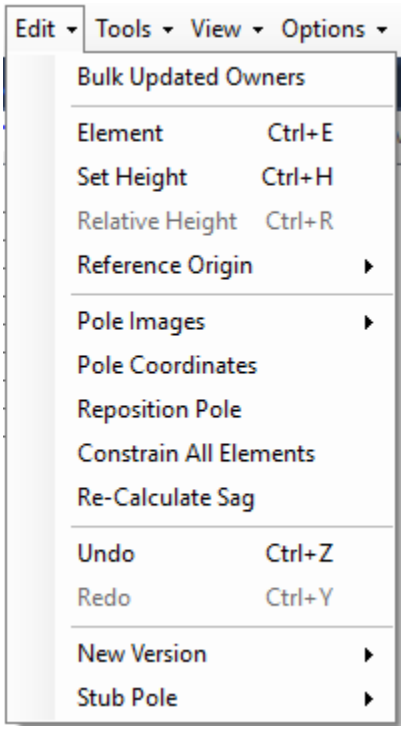


6. Once a list of lengths is created and the tension values are entered, the table can be saved using the **File** > **Save** option.

Note: *Tension tables must be saved each time they are adjusted to apply changes in tension.*

Edit Menu Overview

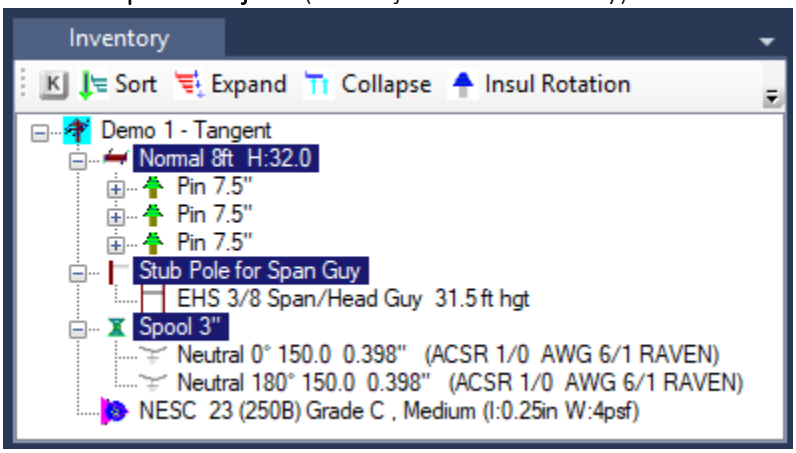
The Edit menu offer a variety of tools to efficiently assign equipment ownership, add images for use with the Digital Measurement Technology (DMT) and add Geolocation (GIS) coordinates for each pole and more. Complete the steps below to explore these features.



Bulk Updated Owners

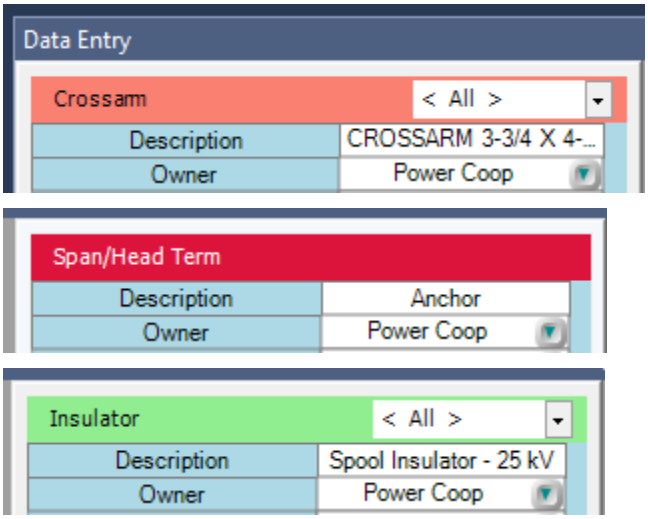
The O-Calc® Pro Bulk Updated Owners feature allows for streamlined ownership assignments. You only need to assign ownership to the parent objects on the pole, see the tree control in the Inventory panel. Once the parent objects within each assembly have a designated owner, all the child objects inherit the parent ownership. Options are available to set the owners for a selected (only one) pole or an entire line design of poles. To set owners for the selected pole, complete these steps:

1. Select the **parent objects** (first object of an assembly) in the Inventory.

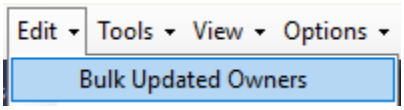


©2025 Osmose Utilities Services, Inc.

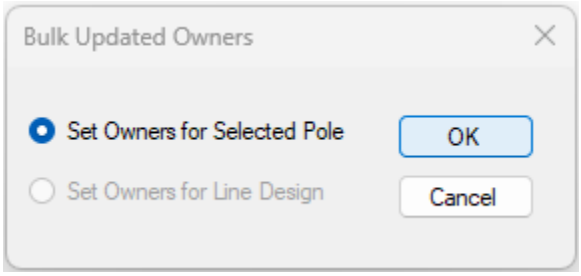
2. In the **Data Entry** panel **enter the name** of the **Owner**. Once an owner's name is entered, it becomes an available choice within the drop down list.



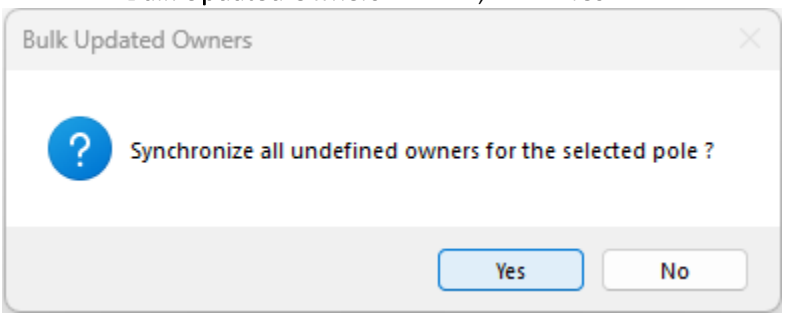
3. Go to the **Edit** menu, click on the **Bulk Updated Owners** option.



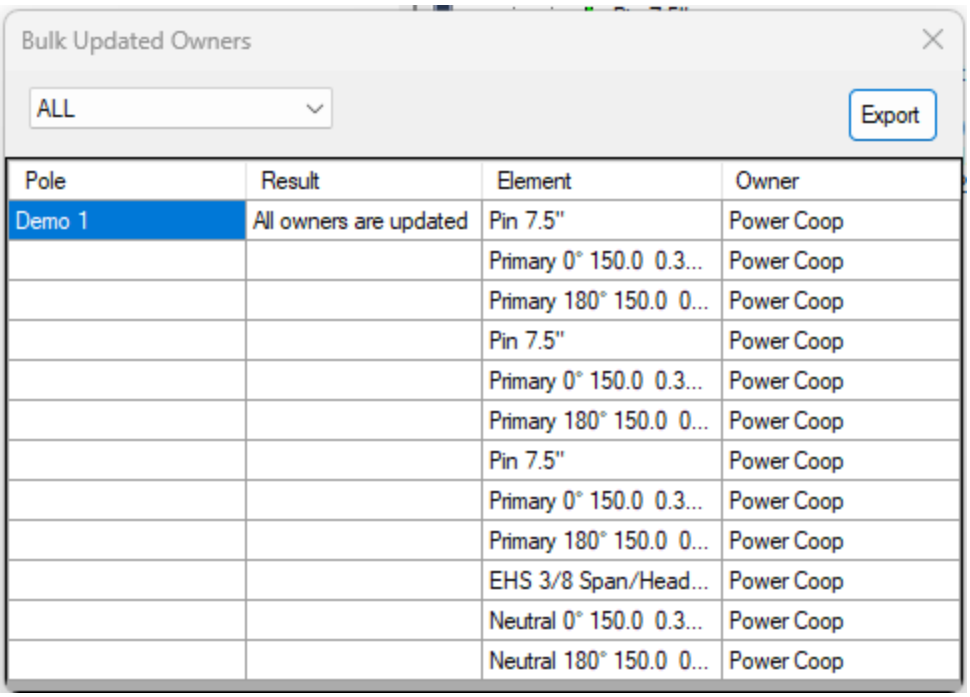
4. In the **Bulk Updated Owners** window, the default selection is the **Set Owners for Selected Poles** option, click **OK**.



5. In the **Bulk Updated Owners** window, select **Yes**.



6. When all the Owners are defined, the **Bulk Updated Owners** window displays the results. Use the **Export** button to export the results to a .csv file.



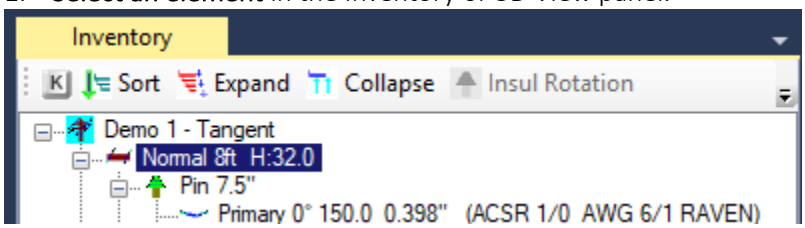
Pole	Result	Element	Owner
Demo 1	All owners are updated	Pin 7.5"	Power Coop
		Primary 0° 150.0 0.3...	Power Coop
		Primary 180° 150.0 0...	Power Coop
		Pin 7.5"	Power Coop
		Primary 0° 150.0 0.3...	Power Coop
		Primary 180° 150.0 0...	Power Coop
		Pin 7.5"	Power Coop
		Primary 0° 150.0 0.3...	Power Coop
		Primary 180° 150.0 0...	Power Coop
		EHS 3/8 Span/Head...	Power Coop
		Neutral 0° 150.0 0.3...	Power Coop
		Neutral 180° 150.0 0...	Power Coop

7. Click the **"X"** in the upper right corner to **Close** the window.

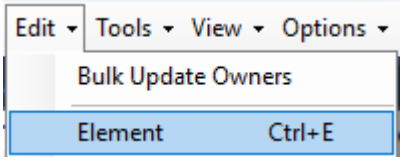
Element

Each menu option displayed for editing corresponds to the element you select. The first step is to select an element in the Inventory or 3D View panels. To view all elements, complete these steps:

1. **Select an element** in the Inventory or 3D View panel.

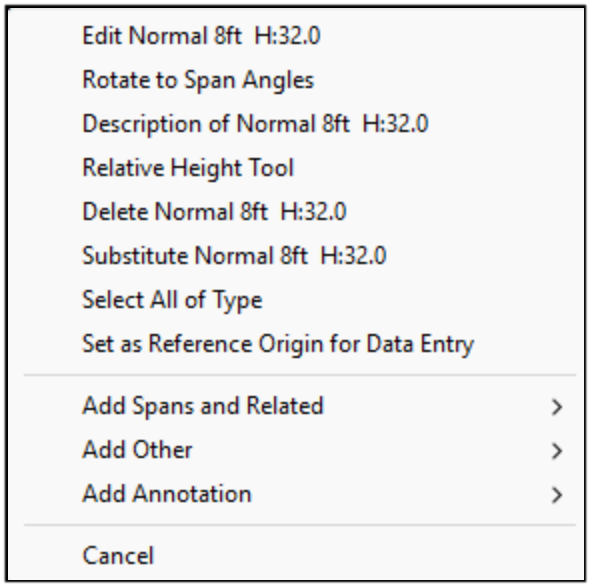


2. Select the **Edit** menu, click the **Element** option.



3. The menu appears with all the options available for editing.

©2025 Osmose Utilities Services, Inc.

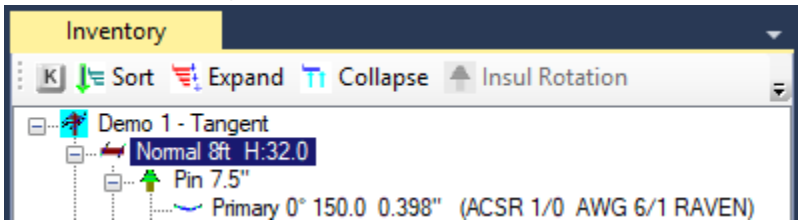


4. Select any element to edit within the list.

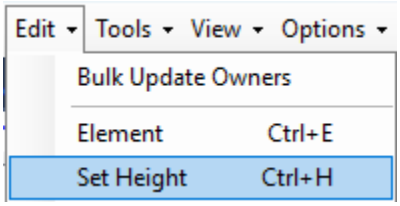
Set Height

To use the Set Height feature for an object on the pole, complete these steps:

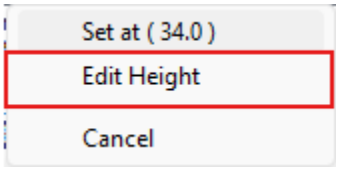
1. In the Inventory or 3D View select the piece of equipment attached to the pole you want to set the height for.



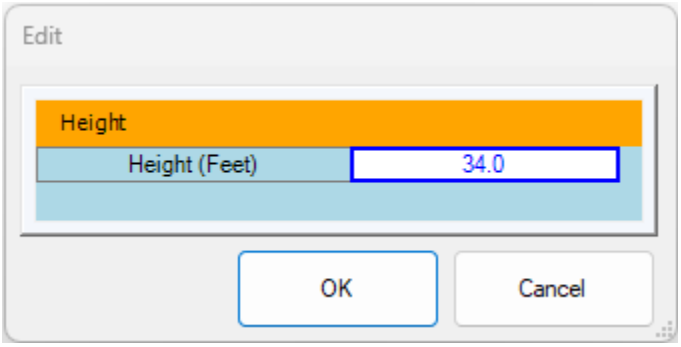
2. Select the **Edit** menu and click the **Set Height** attribute.



3. Select the **Set at** default option or select the **Edit Height** option.



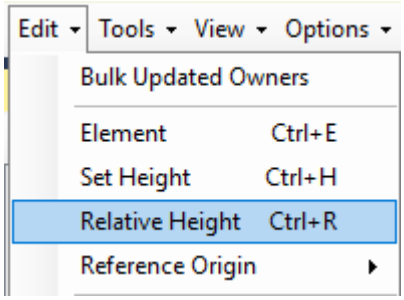
4. Enter the Height (ft) above groundline (GL), click **OK**.



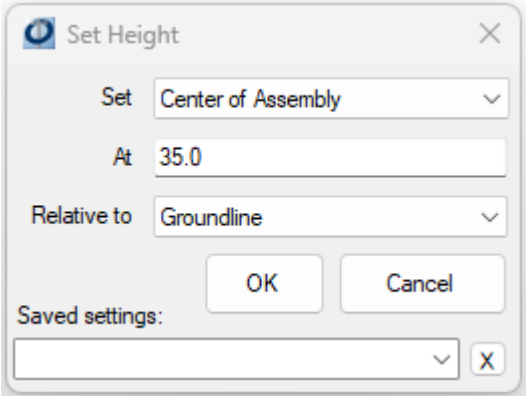
Relative Height

To use the Relative Height feature for an object on the pole, complete these steps:

1. Select the object to set the relative height for on the pole.
2. Select the **Edit** menu, click the **Relative Height** option.



3. The **Set Height** window offers these parameters, make edits as needed, click **OK**.
   a. **Set-** choose what part of the object to set at the relative height, the Center, Top, or Bottom of the object
   b. **At-** enter the value for the offset
   c. **Relative to-** choose the height or offset relative to; Groundline, Tip of Pole, Top Power, Bottom Power, Top Comm, Bottom Comm
   d. **Saved settings-** users can save the settings by entering a name to be used again in the future



©2025 Osmose Utilities Services, Inc.

Reference Origin

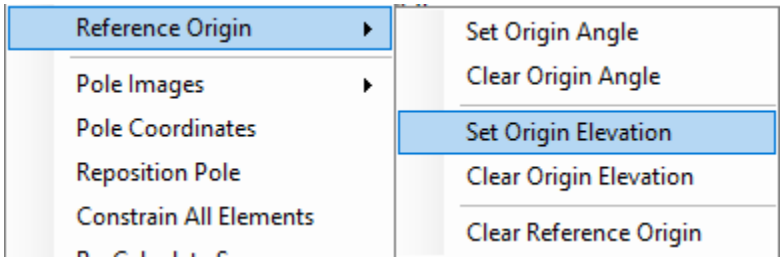
Use this tool to set an object as a reference point in relationship to another object at the pole. Reference origins can be set at pole elevations or angles around the pole.

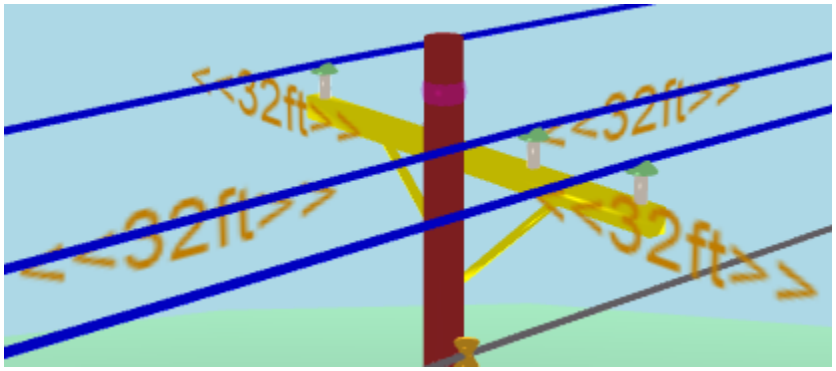
When setting the **Origin Elevation** option, the reference object is highlighted yellow. Orange colored chevron markers are added around the reference object along with the height above groundline value, for elevation reference.

Set Origin Elevation

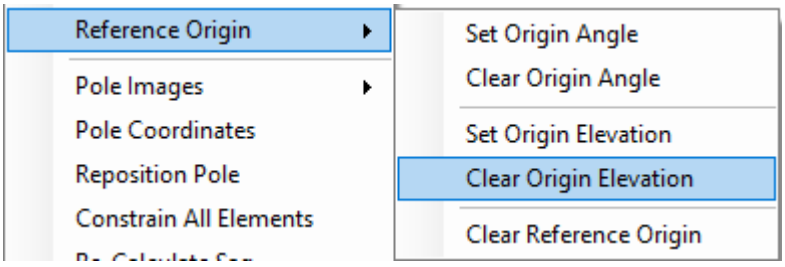
To use the **Set Origin Elevation** tool for a crossarm attached to a pole complete these steps:

1. First select the crossarm you want to use as the reference origin.
2. Select **Edit** > **Reference Origin** > **Set Origin Elevation**.





3. To clear a reference origin select the **Clear Origin Elevation** option from the **Edit** > **Refence Origin** menu.

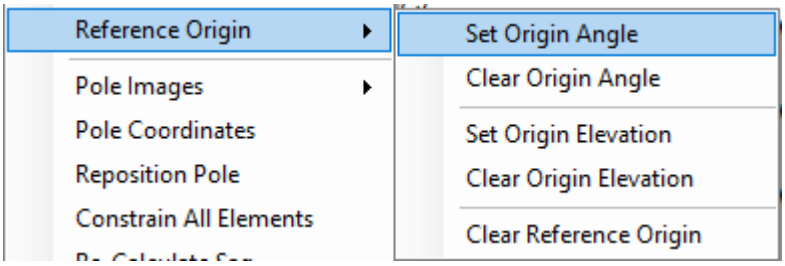


Set Origin Angle

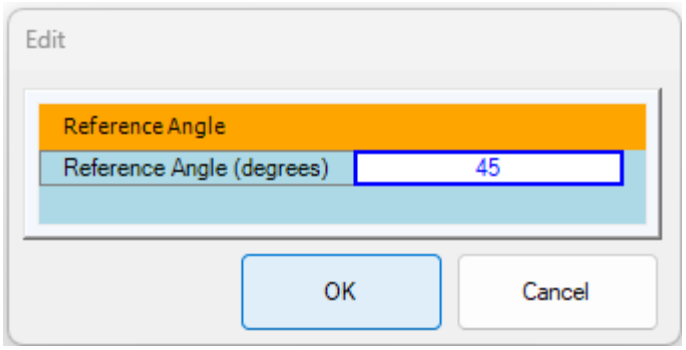
When setting the **Origin Angle** option, the reference object is highlighted yellow. An orange arrow is displayed at the ground line compass in the 3-D view to specify the location of the angle reference around the pole. You are required to input the angle value.

To us the **Set Origin Angle** tool for the pole complete these steps:

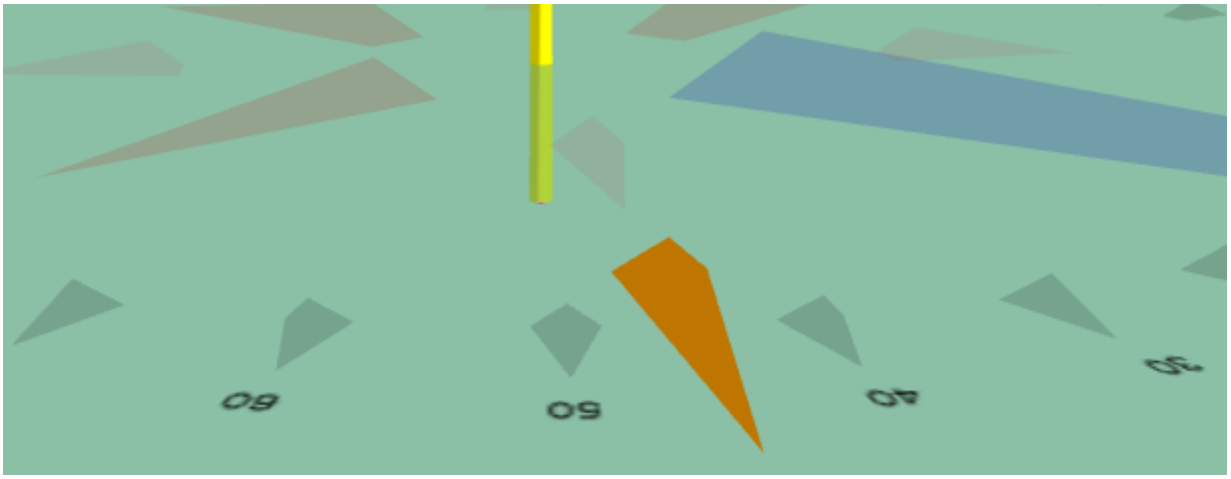
1. First select the pole, then select **Edit** > **Reference Origin** > **Set Origin Angle**.



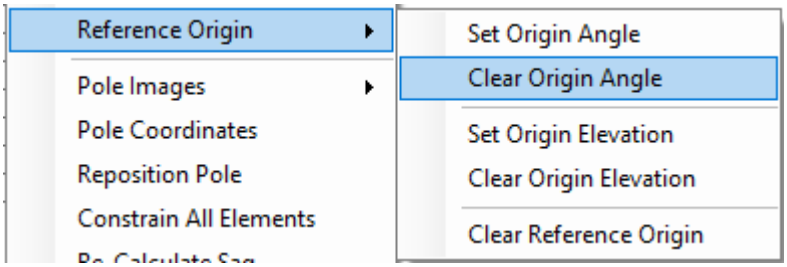
2. In the **Edit** window **input the angle** value needed, click **OK**.



4. The **orange arrow** is displayed at the groundline at the angle specified.



3. To clear a reference origin select the **Clear Origin Angle** option from the **Edit** > **Refence Origin** menu.



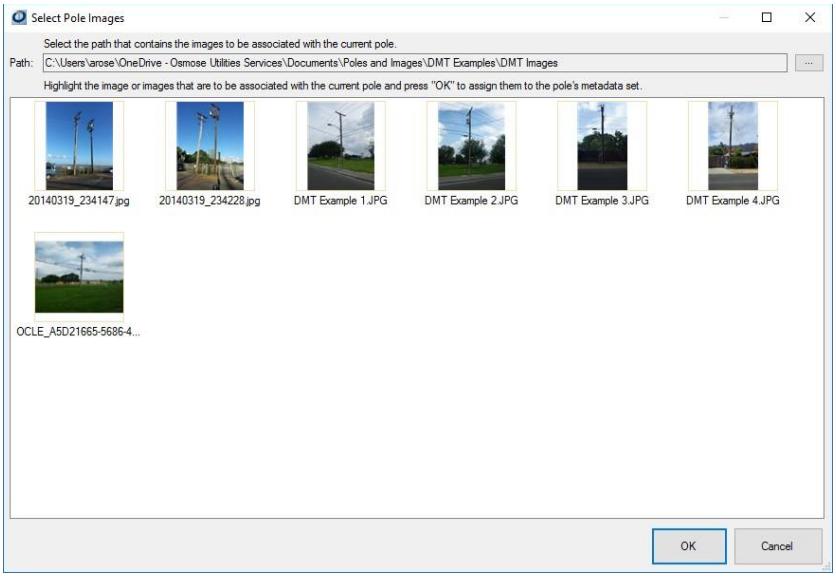
©2025 Osmose Utilities Services, Inc.

Pole Images

Select Images

To select the image needed to complete measurements, complete these steps:

1. Select **Edit > Pole Images > Select Images**.
2. Select the image path by clicking the ellipsis button and browse to the location of images for the current pole.
3. In the Select Folder window, select the folder that contains the images you want. Click the **Select Folder** button, the images will load in the Select Pole Images window.



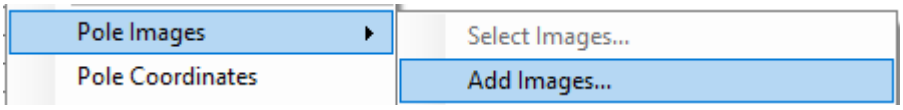
4. Select the **images** to be associated with the current pole. Click **OK**.

Note: *Hold down the ctrl key to select more than one image out of sequence. Hold down the shift key to select a range of images that are next to each other.*

Add Images

More images can be added to the current pole at any time. To select additional images to be added after the initial images are already in the Measure panel, complete these steps:

1. Select **Edit > Pole Images > Add Images**.

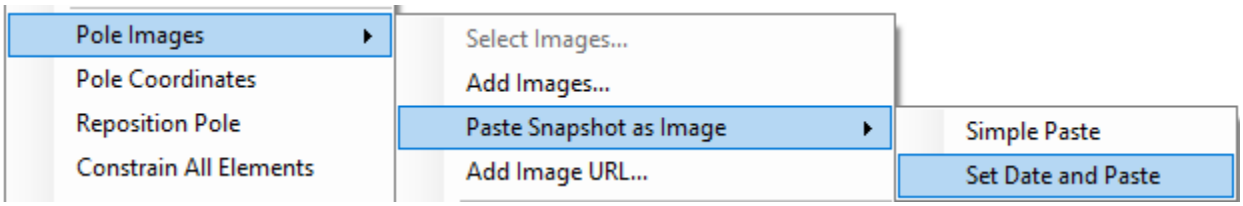


2. Select additional images from the current Path or click the **Ellipsis** button to browse to a new location for images and click the **Select Folder** button.
3. In the Select Pole Images window, select the **images** you want, click **OK**.

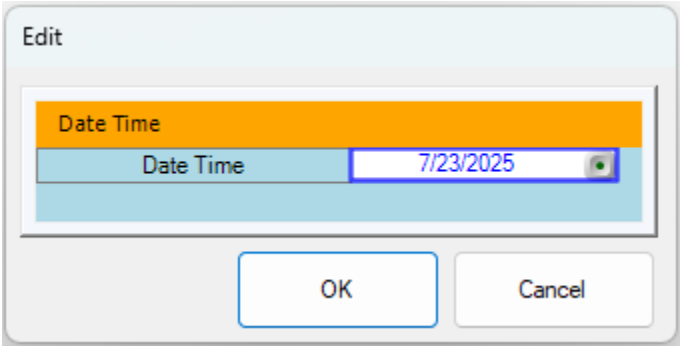
Paste Snapshot as Image

Images can be embedded with the .pplx file or can be standalone files. You can paste images into the Measure panel as snapshots and save them as standalone files. To paste a snapshot as an image, complete these steps:

1. Take a snapshot of an image and paste it to the clipboard; this can be done using a snipping or screen capture tool.
2. Select the **Edit** menu, select **Pole Images > Paste Snapshot as Image**
3. Select the **Set Date and Paste** option to save the images with a date stamp.



4. Browse to the file location, select it and then enter the date in the **Edit** window. Click the radio button to utilize the calendar option.

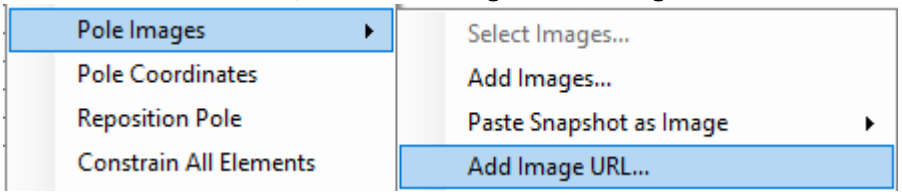


5. Click **OK**. The image becomes available to use in the Measure panel.

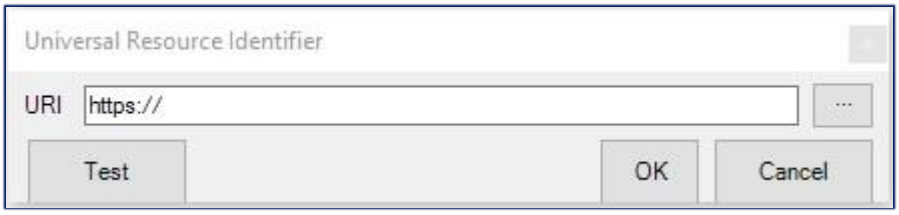
Add Image URL

To add an image URL (Universal Resource Identifier), complete these steps:

1. Select the **Edit** menu, select **Pole Images** > **Add Image URL**



2. Optional: Select the **Test** button to test that the URL was entered correctly.
3. In the **Universal Resource Identifier** window, enter the **URI** address, click **OK**.

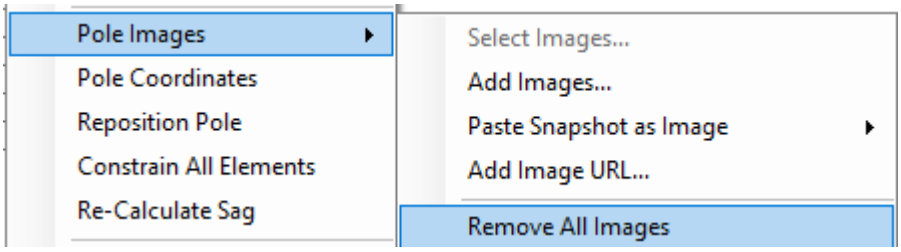


©2025 Osmose Utilities Services, Inc.

Remove Images

To remove all the images that are displayed in the Measure panel for the current pole, complete these steps:

1. Select **Edit > Pole Images > Remove All Images**.

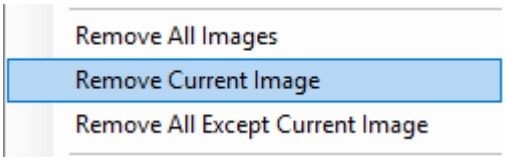


2. Select **Yes** to the confirmation message. To undo select Edit > Undo.

Remove Current Image

To remove the current image that is displayed in the Measure panel for the current pole, complete these steps:

1. Select **Edit > Pole Images > Remove Current Image**.

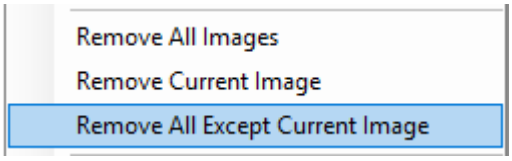


2. Select **Yes** to the confirmation message.

Remove All Except Current Image

To remove all the images except for the currently selected image that is displayed in the Measure panel, complete these steps:

1. Select **Edit > Pole Images > Remove All Except Current Image**.

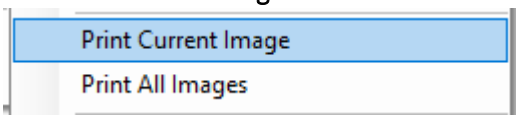


2. Select **Yes** to the confirmation message.

Print Current Image

To print the currently displayed image in the Measure panel as a .pdf, complete these steps:

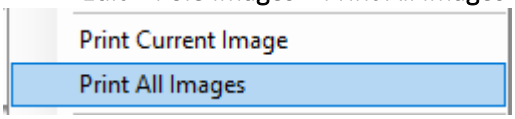
1. Select **Edit > Pole Images > Print Current Image**.



Print All Images

To print all the images that are displayed in the Measure panel as a .pdf, complete these steps:

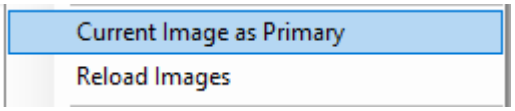
1. Select **Edit > Pole Images > Print All Images**.



Current Image as Primary

The primary image appears on the first page of the Analysis Report. It is the thumbnail image in the top right corner of the Measure panel. To make another image the primary image, select it and complete these steps:

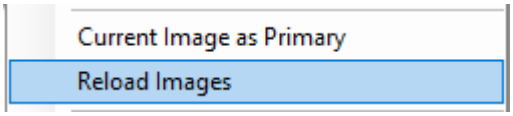
1. **Select** the thumb nail image you want to be the Primary Image.
2. Select **Edit > Pole Images > Current Image as Primary**.



Reload Images

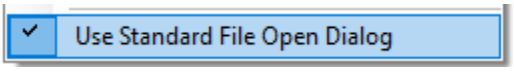
To reload the images that are displayed in the Measure panel, complete these steps:

1. Select **Edit > Pole Images > Reload Images**. Or click the button on the far right within the Measure tool bar.



Use Standard File Open Dialog

Check this option to display the file details window showing the image(s) location on your device.



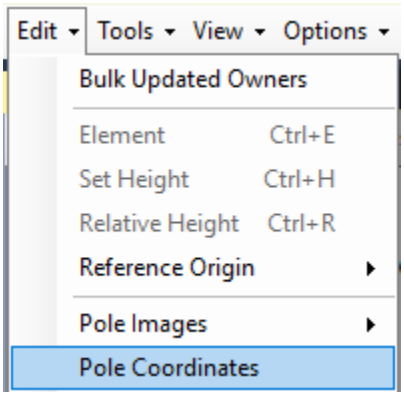
©2025 Osmose Utilities Services, Inc.

Pole Coordinates Geolocation

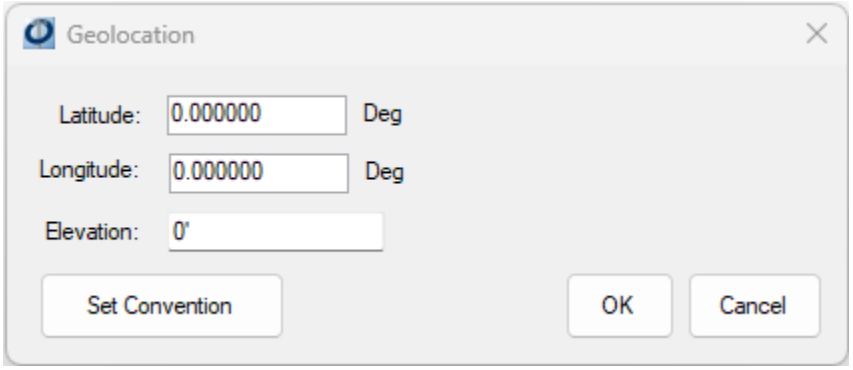
O-Calc® Pro provides a variety of options for entering the pole coordinates. Pole coordinate information is used by additional functionality in O-Calc® Pro. For example pole coordinates are needed to view a 3D rendering of the pole model on Google Earth, locate pole elevation and soil data. These unique tasks are possible with the use of custom built O-Calc® Pro Plugins.

To manually enter longitude and latitude coordinates to the pole in the Inventory, complete these steps:

1. Go to the **Edit** menu, select the **Pole Coordinates** option.



2. In the Geolocation window enter the **Latitude**, **Longitude**, **Elevation** and click **OK**.

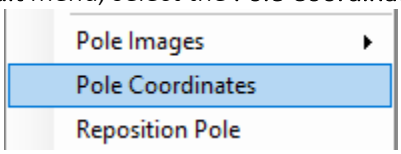


Set Convention Lat Lon Format

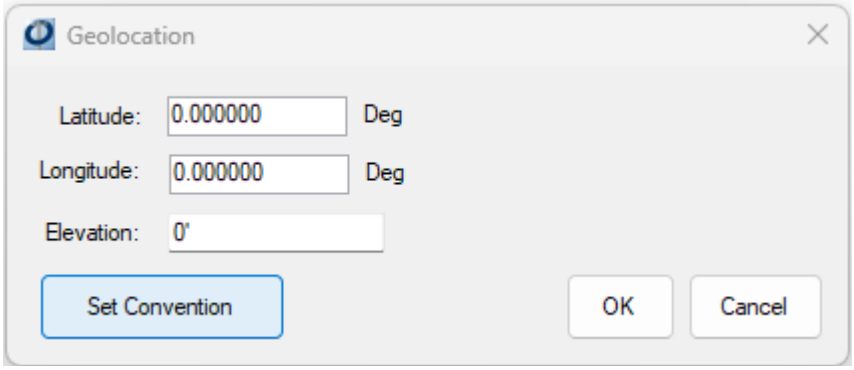
Enter and save the pole coordinates first as shown above, then you can use the **Set Convention** button to change the format in which the Geolocation coordinates are entered.

Available Latitude Longitude formats are Signed Degrees, Degrees, Degrees and Minutes, Degrees Minutes Seconds. To edit the Latitude Longitude format complete these steps:

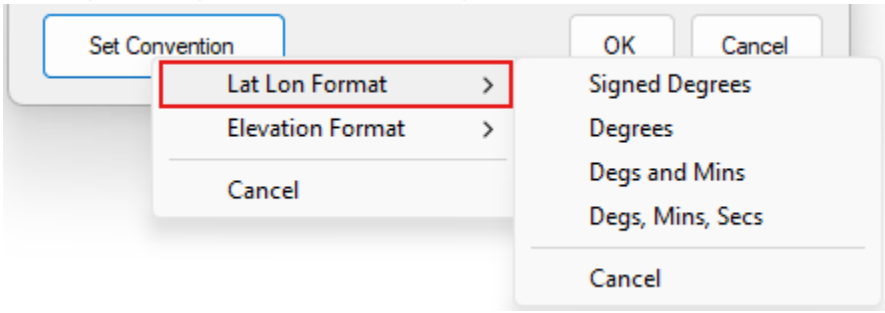
1. Go to the **Edit** menu, select the **Pole Coordinates** option.



2. In the Geolocation window, click the **Set Convention** button.



3. Select the **Lat Lon Format** option and select the needed format: Signed Degrees, Degrees, Degrees and Minutes, Degrees Minutes Seconds.



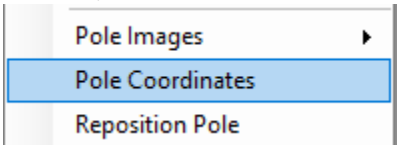
4. Enter the data and click **OK**.

Note: *Select the* ***Cancel*** *option to close the Geolocation window without saving the changes.*

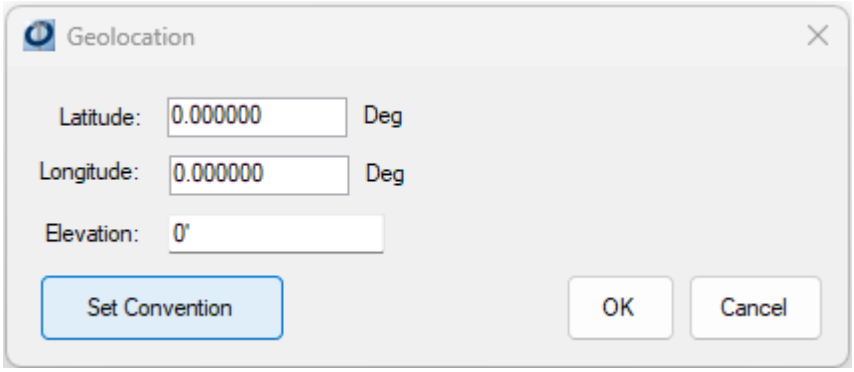
Set Convention Elevation Format

Enter the pole coordinates first as shown above, use the **Set Convention** button to change the format in which the Geolocation coordinates are entered. Available Elevation formats are Meters, Decimal Feet, Feet and Decimal Inches, Feet and Inch Fraction. To change the format complete these steps:

1. Go to the **Edit** menu, select the **Pole Coordinates** option.

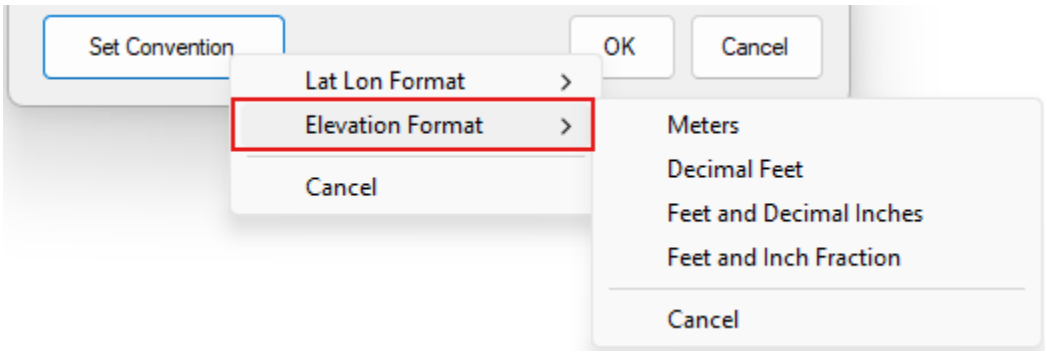


2. In the Geolocation window, click the **Set Convention** button.



3. Select the **Elevation Format** option and select the needed format from the list.

©2025 Osmose Utilities Services, Inc.



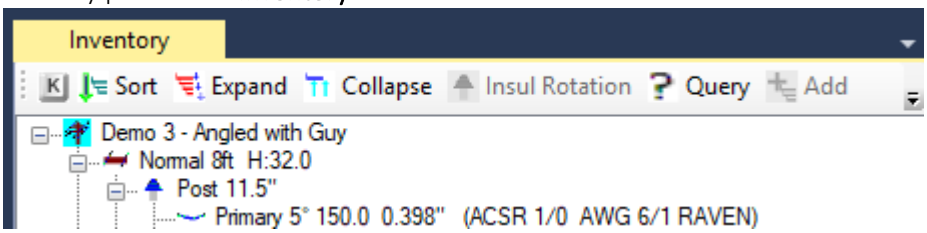
4. Enter the data and click **OK**.

Note: *An additional way to access the pole coordinate information click the "G" button in the Top View panel and click on the Lat Lon button to access the Geolocation window.*

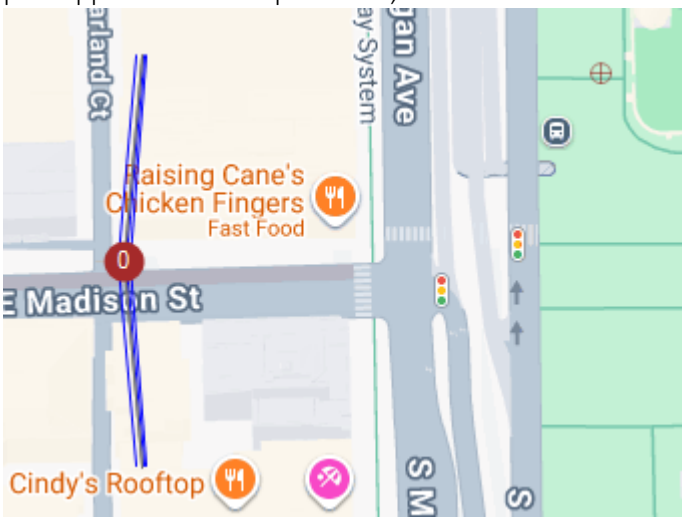
Reposition Pole

This tool is used to reposition (move) the pole using distance and bearing values, with the option to move any guying as well. When the pole is repositioned (moved) the ends of the spans (to the adjacent pole(s) will not be moved. To begin you need to add a pole to the Inventory and enter its coordinates or select a location on the map to automatically load them. To use Reposition Pole feature, complete these steps:

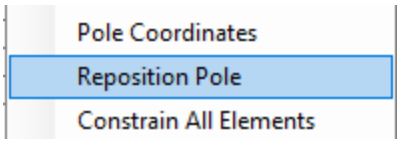
1. Add any pole in the **Inventory** and select it.



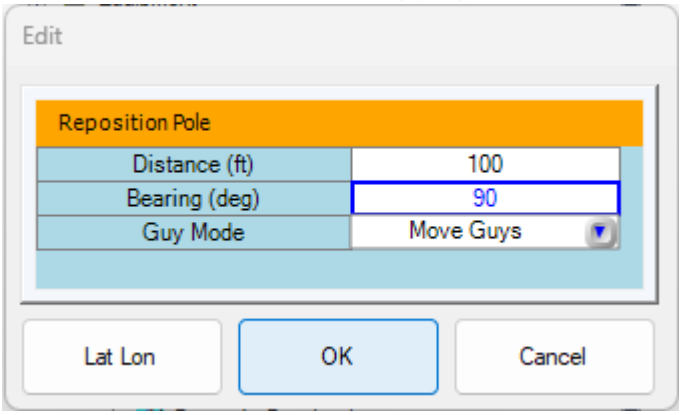
2. Go to the Map area in **Line Design** and **click on the Map** to capture the latitude and longitude data or enter the pole location manually in **Edit** > **Pole Coordinates**. The pole appears at the map location, as shown below.



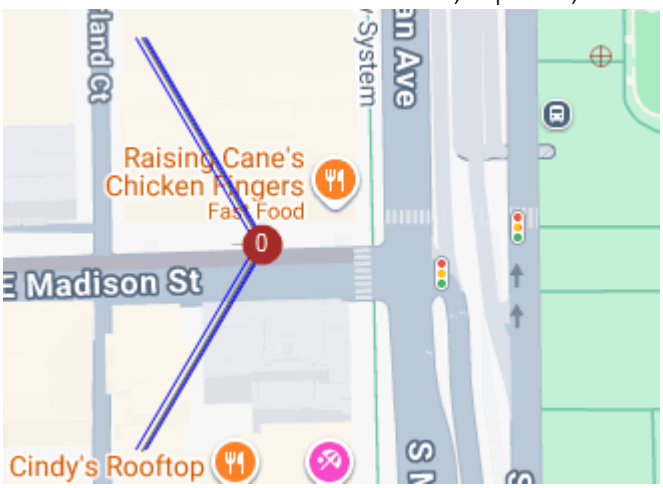
3. Go to the **Edit** menu, select the **Reposition Pole** option.



4. In the **Edit** window enter a Bearing (deg) of 65, click **OK**.

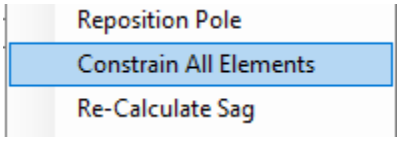


5. The results can be seen in the 3D View, Top View, and it the Inventory.



Constrain All Elements

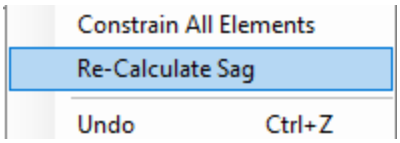
This feature is used to constrain element movement, i.e. prohibit a Pin insulator from moving horizontally beyond the physical limitations of the crossarm length or prohibit a Post insulator from moving off the top of the pole.



Re-Calculate Sag

This feature is used to initiate a recalculation for any wire attached to the pole for the purpose of sag information.

©2025 Osmose Utilities Services, Inc.



Digital Measurement Technology (DMT)

Working with Calibrated Visual Target (CVT)

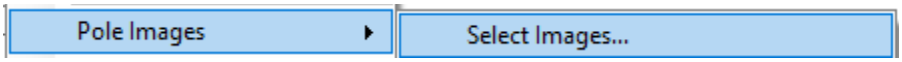
The O-Calc® Pro Measure panel allows you to take measurements from an image using Digital Measurement Technology (DMT) and the CVT (Calibrated Visual Target). You can efficiently measure the pole height above groundline (and the resulting setting depth), all equipment attachment heights, arbitrary lengths, conductor diameters, and many angles.

Before any measurements are taken from an image, the camera lens must be calibrated. Performing the lens calibration is a onetime task, then going forward the camera lens file will be found successfully. As each image measurement is completed, options are available to automatically update the measured value in the Inventory, 3D View, and Data Entry panels. Labels can also be placed on the image. Images can only be added to the O-Calc® Pro Measure panel after a pole has been added.

Workflow Steps:

1. Calibrate your Camera Lens (onetime task) for instructions go to **Tools** > **Misc.** > **Photo Measurement** > **Lens Calibration** and follow the 4 step process.

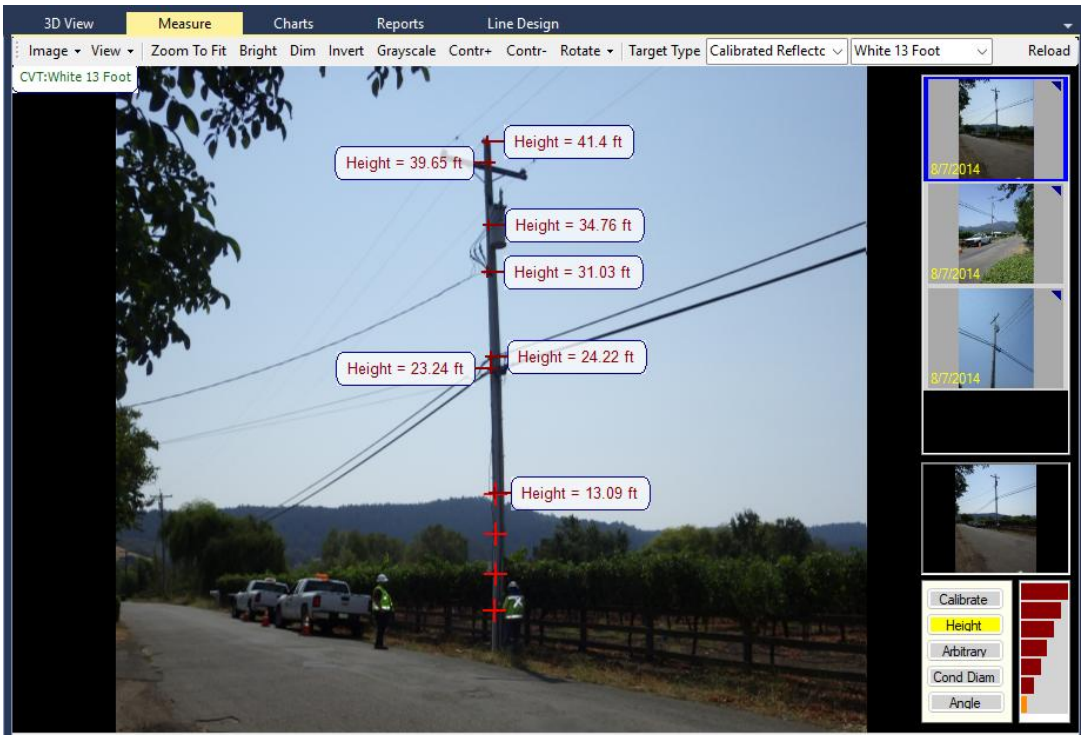
2. Attach the CVT to the pole (lean the CVT with the pole lean if any) with the Velcro strap.
3. Take the image (see tips below) including the tip and groundline of the pole.
4. In the O-Calc® Pro Inventory panel, add the pole.
5. Add the CVT/pole image to the Measure panel for instructions go to **Edit** > **Pole Images** > **Select Images**.



6. Calibrate the CVT image for instructions see '**Calibrating the CVT**' content in this O-Calc® Pro User Guide.

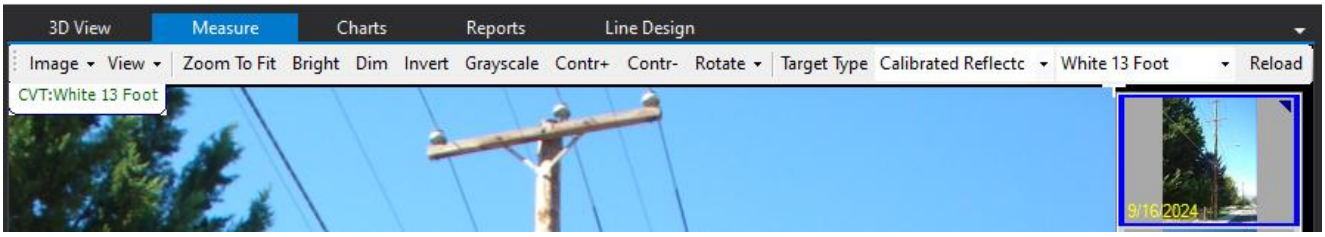
CVT Image Tips:

1. Step back from the pole approximately the length of the pole above ground for the best image.
2. Stand at 45 degrees off the line of lead when taking the image for the best details.
3. Hold the camera plum and in portrait mode (not landscape) for the best accuracy.
4. Stand at the same elevation as the base of the pole for the best accuracy.
5. Photograph the side of the pole that has the most attachments for the best details.
6. Only one image can be calibrated at a time, choose your best image of the CVT.



Set Default Target Type

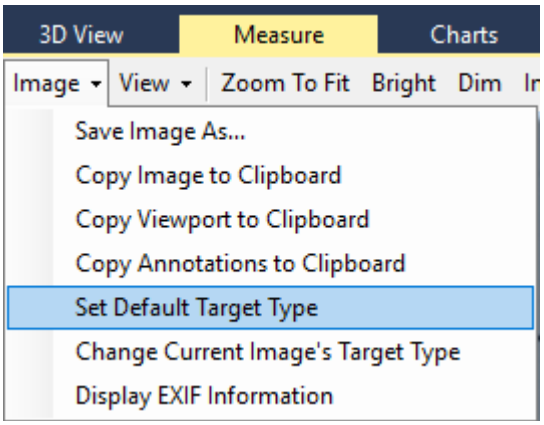
Initially, when the Measure panel is opened Target Type default is set to **CVT: White 13 Foot**, displayed in the upper left corner of the Measure panel. The target type represents which Calibrated Visual Target (CVT) or Range (survey) Pole that was used when the image was taken.



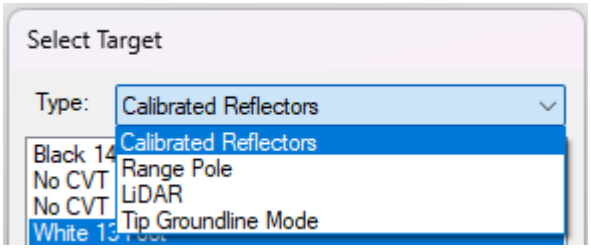
To change the default target type, complete these steps:

1. Under the **Image** drop-down menu, select the **Set Default Target Type** option

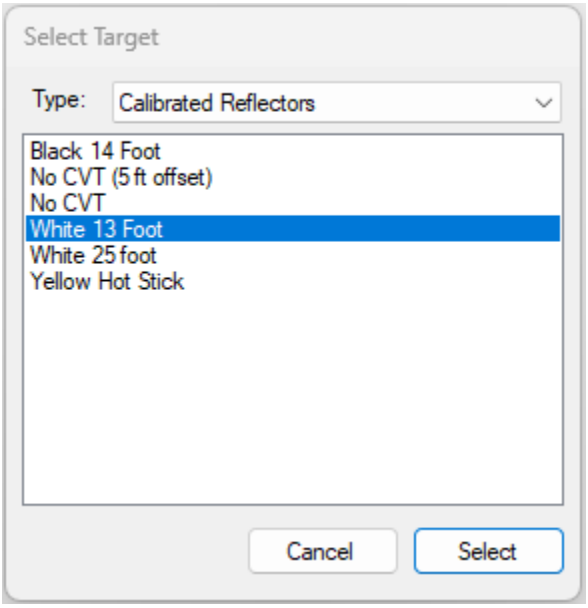
©2025 Osmose Utilities Services, Inc.

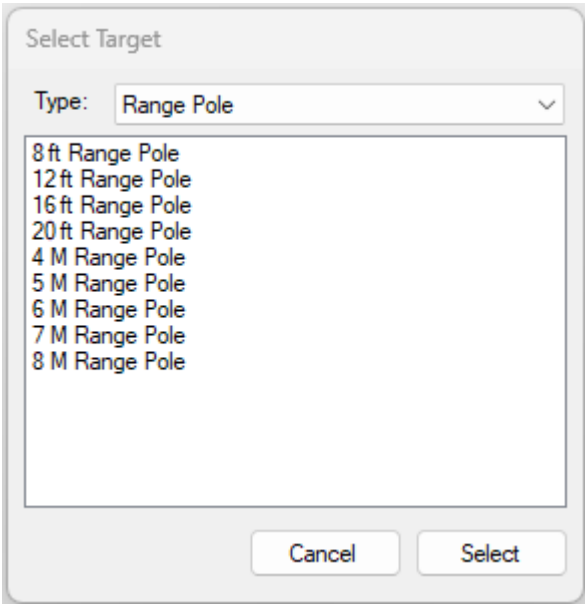


2. Open the **Type** drop-down menu; select from one of the categories: **Calibrated Reflectors, Range Pole, LiDAR** or **Tip Groundline Mode**.

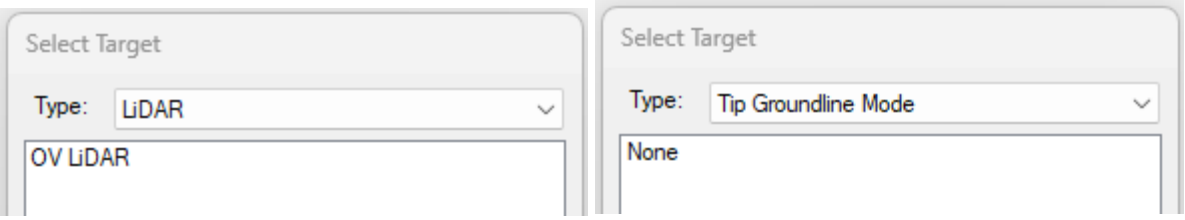


3. Within the **Type** category select the specific target from the choices available and click **Select**.





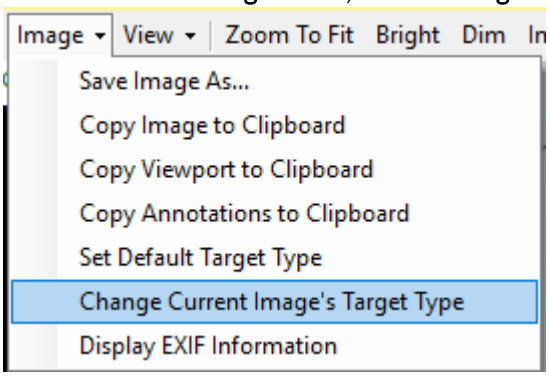
©2025 Osmose Utilities Services, Inc.



Change Current Image Target Type

To change the target type for only the current image in the Measure panel, complete these steps:

1. From the **Image** menu, select **Change Current Image's Target Type.**



2. Select the **Type** of target to use for the current image, click **Select**.

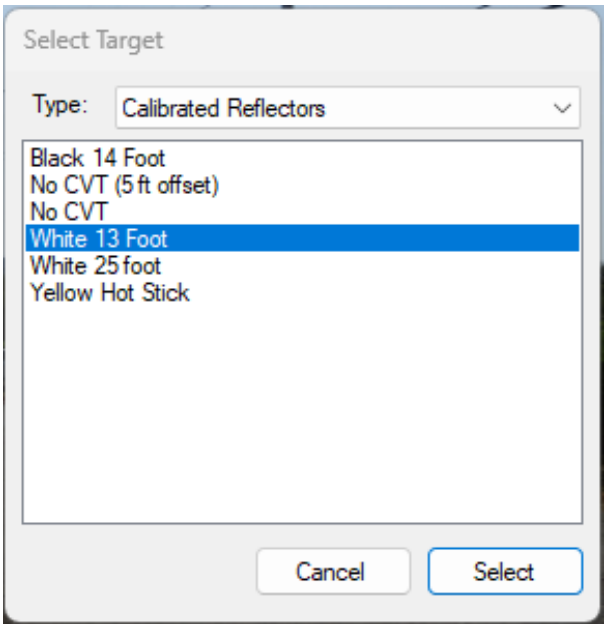


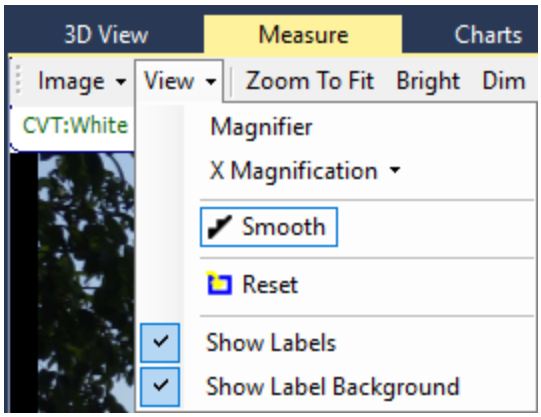
Image Menu

The following options are available in the **Image** menu inside the **Measure** panel.

©2025 Osmose Utilities Services, Inc.

Save Image As…	Select 'Save Image As' to save the current image as a variety of file types (JPEG, BMP, GIF or PNG).
Copy Image to Clipboard	Select 'Copy Image to Clipboard' to copy an image to the clipboard and paste it directly to other applications such as Microsoft Word, E-mail, etc.
Copy Viewport to Clipboard	Select 'Copy Viewport to Clipboard' to copy the selected image as it is currently displayed to the clipboard. The copied image can then be pasted directly to other applications such as Microsoft Word, E-mail, etc.
Copy Annotations to Clipboard	Select 'Copy Annotations to Clipboard' to copy measure labels from the image. The copied annotations can then be pasted directly to other applications such as Microsoft Word, etc.
Set Default Target Type	Select 'Set Default Target Type' to select the Calibrated Visual Target (CVT) used to get accurate measurements.
Change Current Image's Target Type	Select 'Change Current Image's Target Type' to change the currently selected (displayed) images target type.
Display EXIF Information	Select 'Display EXIF Information' to display the metadata in the image.
Photo Edit	Used to display other applications with which to view/edit the image.

View Menu

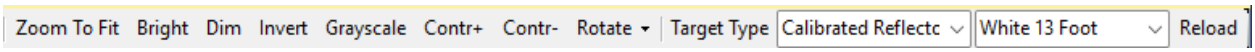


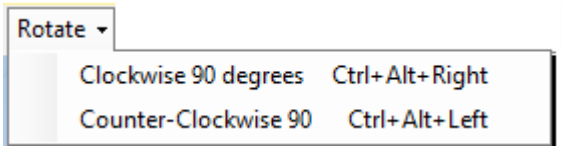
The following options are available inside the **View** menu in the **Measure** panel.

Magnifier	Used to show or hide the magnification window. With the magnification window displayed, move the mouse anywhere in the image to view that area in the magnification window.
X Magnification	Set the magnification level used in the Magnification window.
Smooth	Enabled by default to smooth hard edges of the image
Reset	Use Reset to undo display/enhancement options selected.
Show Labels	Enabled by default to show the results of the measured values.
Show Label Background	Enabled by default to show a white background to enhance label visibility.

Measure Tool Bar Menu

The following tools are available on the **Measure** tool bar.

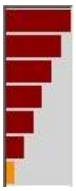


Zoom to Fit	Click this option to fill the image frame to the maximum size.
Bright	Select this option to increase the brightness in the image.
Dim	Select this option to lessen the brightness in the image.
Invert	This option changes the image appearance to monochromatic.
Greyscale	This option changes the image appearance to black and white.
Contr+	This option allows the image contrast to increase.
Contr-	This option allows a decrease in image contrast.
Rotate	Choose which direction to rotate the image: 
Target Type	Displays the currently selected Target type category.
Reload	Initiate reloading of any images that are already added.

©2025 Osmose Utilities Services, Inc.

Image Navigation

The following image navigation tools are available within the **Measure** panel to assist in the Digital Measurement Technology (DMT) process.

Mouse Wheel	To zoom in or out move the mouse wheel to scroll forwards or backwards. To pan right click.
Added Images	All images associated with the selected pole are displayed as thumbnails on the upper right side of the Measure panel. Select any thumbnail to enlarge the image and display it in the main window area.
Navigation Pane	Clicking a point in the Navigation Pane will center the image on that point in the Image View window.
Zoom Scale Tool 	Click various levels on the scale to zoom-in or zoom-out on an image or use the roller wheel on your mouse.

Measure Modes

To complete measurements you need to select the corresponding measure mode. Each mode uses a different visual tool to help you complete the measurements.

Mode	Click any Measure mode to activate the measurement capability. ***Note:*** *The image must be calibrated first, then the other measure tools are available for use.*
Calibrate	The Calibrate tool the cursor looks like a measurement sight for an accurate measurement.
Height	In the Height tool the cursor changes to crosshairs for an accurate measurement of height relative to groundline.
Arbitrary	The Arbitrary tool cursor looks like crosshairs for an accurate measurement between two points in the plane of the target. Left click and drag the red line to the point to measure, release the click. Select Yes.

Cond Diam	In the Cond Dia tool draw a line to accurately determine the conductor size by left click (1) and drag the yellow expanding band along any object (conductor) to be measured and release click. Select Yes.
Angle	The Angle tool cursor looks like crosshairs to accurately calculate angles. Left click (1) on the object and drag gold line to the desired angle midpoint and click (2), continue to drag cursor to the final angle point and click (3). Select Yes.

Note: *If a mode is selected that does not have any associated task an error message will be displayed.*

Calibrating the CVT

When the Measure panel is opened, the Calibrate mode tool is selected by default. The CVT (Calibrated Visual Target) in the image must be calibrated first, then all the measure tools become available. Four calibration points are needed, estimating one calibration point is permitted. The number of targets to be placed can vary based on the Target Type selected.

An obstruction may be due to vegetation, or an obstacle limiting your view of the red reflective bands. To place an estimated target, hold the Shift key and click to place a white target. Since the White CVT calibration points are known points in O-Calc® Pro, DMT accurately locates the estimated target point.

If you need to redo the calibration process at any time, select the Calibrate tool and repeat the calibrating steps. There is no cancel or undo option for the Calibration process. If you need to redo the calibration process it does not affect any measurements already completed.

To perform the Calibration process, complete these steps:

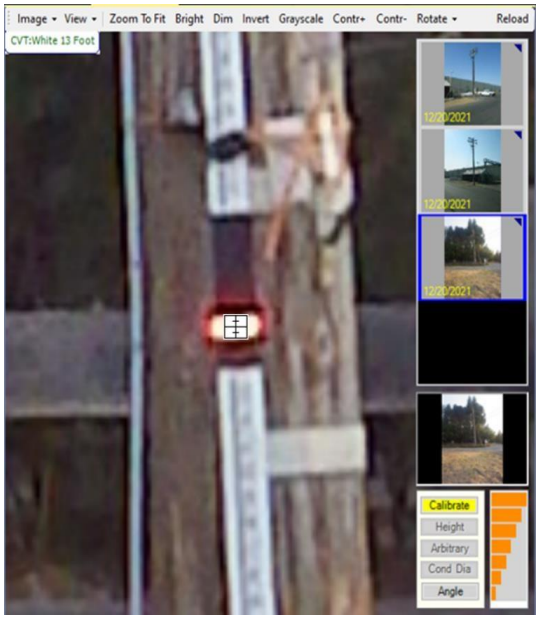
1. Select the **image** you want to calibrate.
2. Place the mouse cursor box over the red reflective band and click to place a target, any order is permitted.

Note: *When setting the calibration, the cursor will change to a box* *enabling you to get a precise measurement.*

3. Place the mouse cursor box over the red reflective band and click to place a target, any order is permitted.
4. Zoom in using your mouse wheel. Zoom in so close that the red reflective band and cursor box are the same size on the top and bottom. Zooming in this close increases measurement accuracy.

©2025 Osmose Utilities Services, Inc.

5. Using the **cursor box** continue placing the remaining calibration targets at the same zoom level. Pan up or down the CVT in the image and click to place targets at each red reflective band.



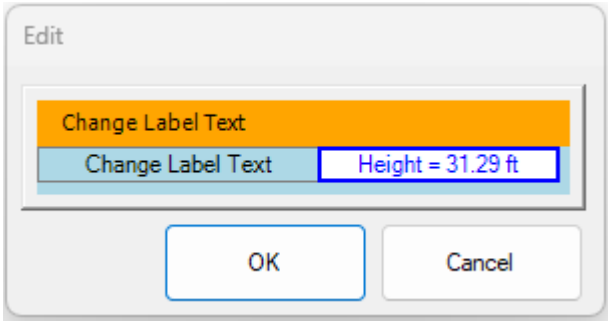
6. After the **Calibrate** process is complete the **Height** mode tool is automatically selected. Click on the image to begin placing height labels or select any of the other measure tools.

Note: *When using* ***IKE Images*** *the Calibrate Mode is automatically changed to Select GL. This mode only requires one point on the image before additional measurements can be taken. If the ground line is not visible in the image an offset value can be entered by selecting File > Groundline Offset after the initial, Select GL point has been added.*

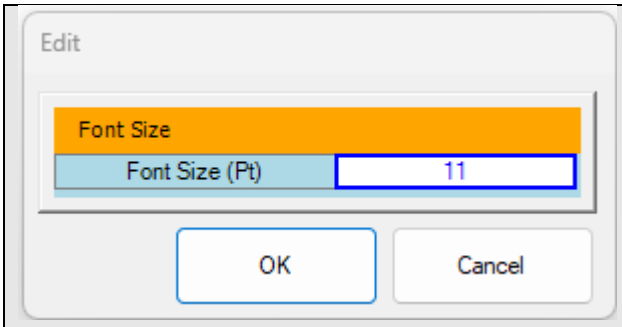
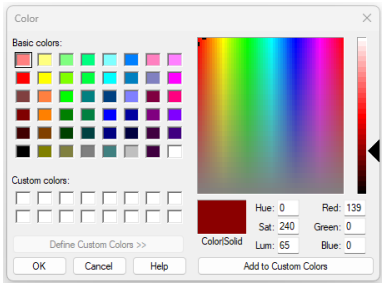
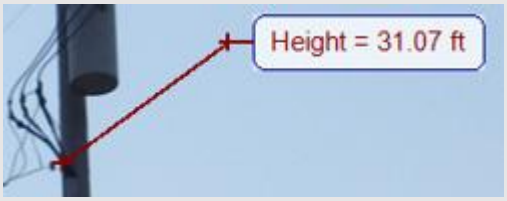
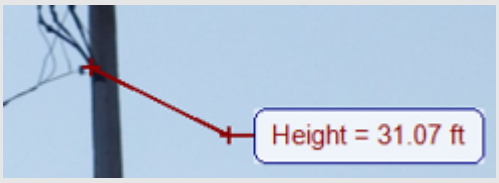
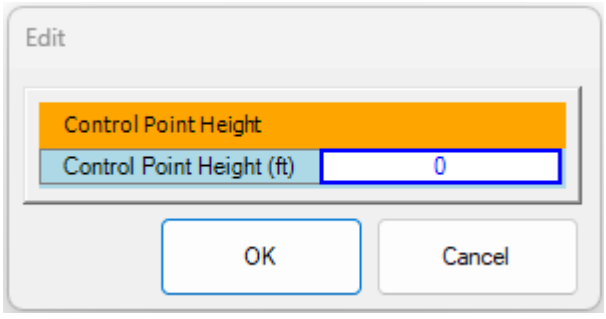
Edit Measure Labels

Once the height labels are placed, right click on the label to open a menu for edits.

Each image label type is described and shown below:

Edit Text 	Use to edit the **Label Text**.
Change Font Size	Use to change **Font Size**.

©2025 Osmose Utilities Services, Inc.

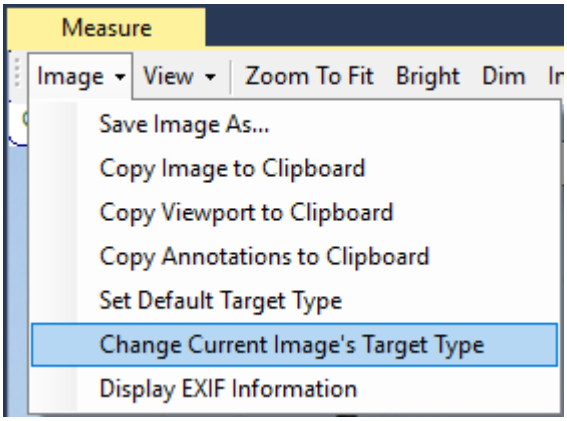
	
Change Color 	Use to open a color pallet. Select a color and click OK to change the color of the label.
Reposition  	Use to drag the label on the image to a new location.
Set as Control Point 	Use to add a **Control Point Height** measurement. This is the point where calibration begins to measure attachments on the pole in the image. Control points can be any known location such as the ground line or the height of the lowest communication attachment.
Delete	Use to remove **This Label** (the one selected) or **ALL Labels**.

©2025 Osmose Utilities Services, Inc.

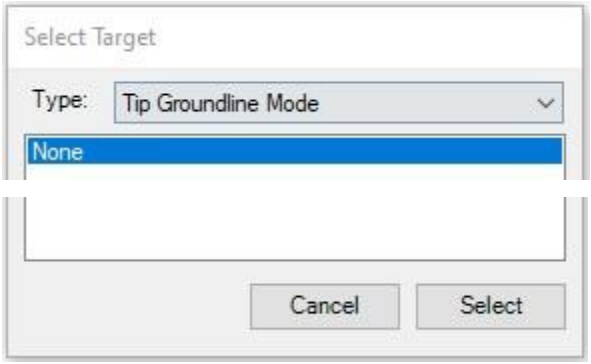
Change the Current Image Target Type

When there is no CVT stick (CVT: White 13 foot) or Range Pole in the images, measurements can be made using Control Points set in the image. First you need to set the Target Type to 'No CVT'. Only one control point can be used at a time. Control points ensure greater accuracy of attachment heights near the control point, when no CVT or Range pole is available in the image. Deselect the pole before using this method, because it only works if the pole is not selected (pole highlighted yellow) in the Inventory panel or 3D View. To begin using Control Points complete these steps:

1. In the **Measure** panel, select the **Image** menu, click the **Change Current Image's Target Type** option.



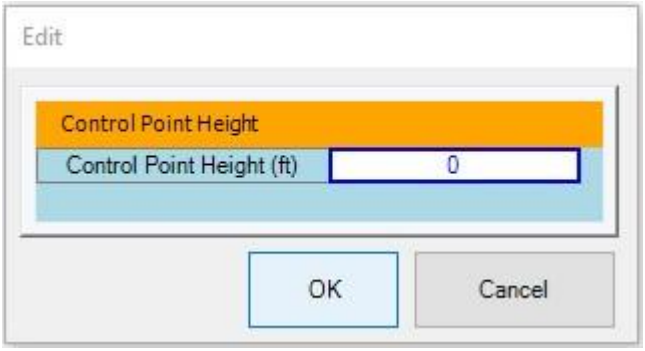
2. Select the **Type: Tip Groundline Mode**. The default choice is **None**, click the **Select** button.

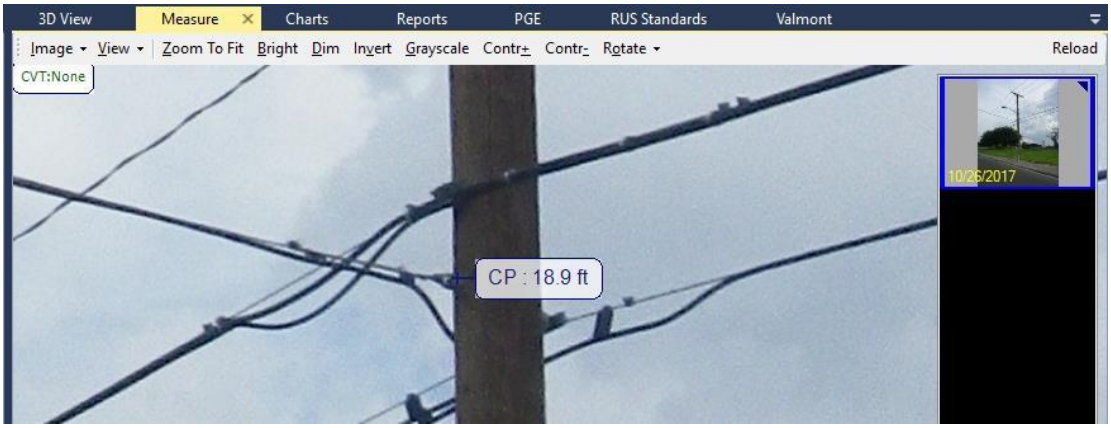


3. Using the **Calibrate** mode, click to place a red target at the **base** of the pole.
4. Using the **Calibrate** mode, click to place a red target at the **top** of the pole.
5. Using the **Height** tool, hold down the **Ctrl** key, and click a point on the pole that is a known height, such as the lowest communication span.

©2025 Osmose Utilities Services, Inc.

6. In the **Edit** window enter the control point height value that is known, click **OK**.



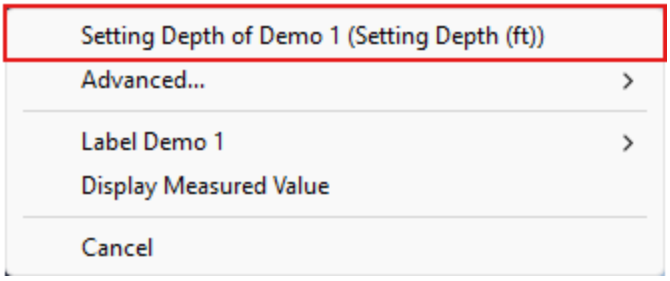


Height Measurement

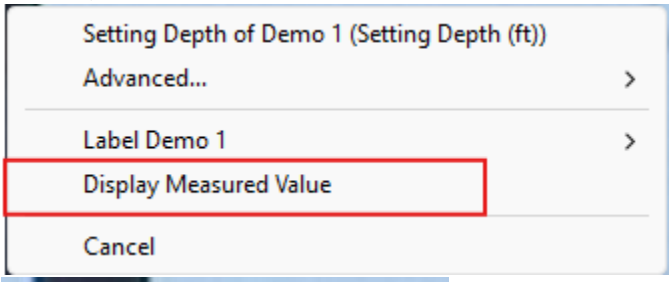
To complete a Height measurement on the image, you must first calibrate the image following the step above in "Calibrating the CVT" to be in Height mode. Before taking any other measurement, first take the height of the pole above groundline measurement.

To take a height measurements complete these steps:

1. Select the pole first, so it is highlighted in yellow, and the Data Entry panel displays the pole attributes.
2. In the image **click on the top of the pole**, select the **Setting Depth of**...option.



3. The result may be a change in the pole **Setting Depth** based on the image data. This information is automatically populated in the Setting Depth attribute because the pole was selected.
4. Next **click the Crossarm** height in the image, and select the **Display Measured Value** option.



5. Continue to repeat this process until all the height label needed are added to the image.

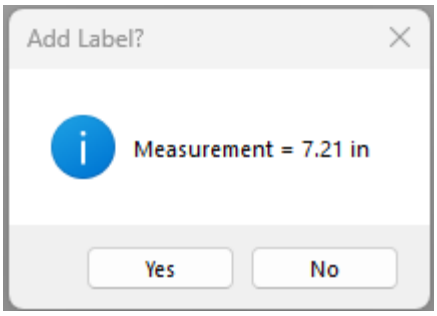
Arbitrary Measurement

To complete an Arbitrary measurement between two points on the image, you must first calibrate the image, then complete these steps:

1. Select the **Arbitrary** tool.

2. Click the point you want the Arbitrary measurement to start, hold and drag to draw a line to where the Arbitrary measurement ends.
3. Select **Yes** to add a label on the image. No to cancel.

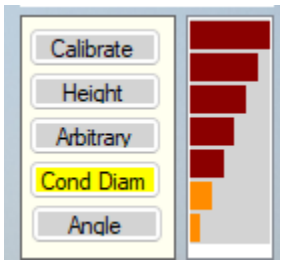
©2025 Osmose Utilities Services, Inc.



Conductor Diameter Measurement

To complete a Cond Diam (conductor diameter) measurement between two points on the image, you must first calibrate the image, then complete these steps:

1. Select the **Cond Diam** tool.



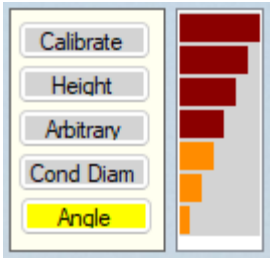
2. Place the cursor in the middle of the conductor to measure. Hold and drag along the wire to **draw a yellow ribbon** stop when it reaches the same width as the wire. Release the click point when the desired width is achieved.

3. Select **Yes** to add a label on the image. No to cancel.

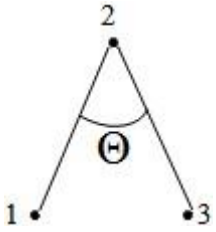
Angle Measurement

The Angle measurement is a three-point process. After the Angle measurement is complete the Angle measurement is displayed for reference purposes only. Angle measurements need to be entered into O-Calc® Pro manually. To assist you in measuring an Angle, complete these steps:

1. Select the **equipment** in the Inventory panel that you want to measure the angle of.
2. Select the **Angle Mode**.



3. Place the **crosshairs** at the point you want the Angle measurement to start.
4. Click the left mouse button and draw your first line, click the left mouse button again and draw your second line.



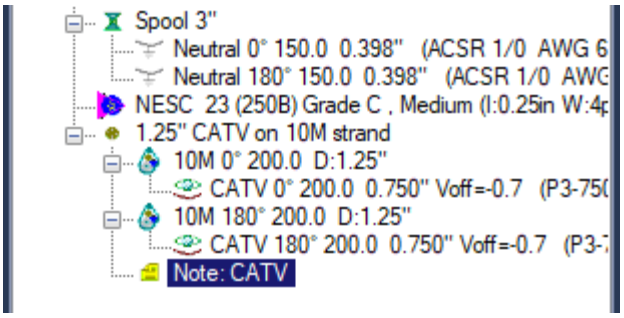
5. Left click and the Angle measurement is **automatically displayed** for reference purposes.

Adding to an Existing Note

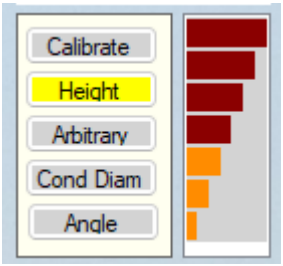
To add measurement information to an existing note, complete these steps:

1. Select a **note** object in the Inventory panel.

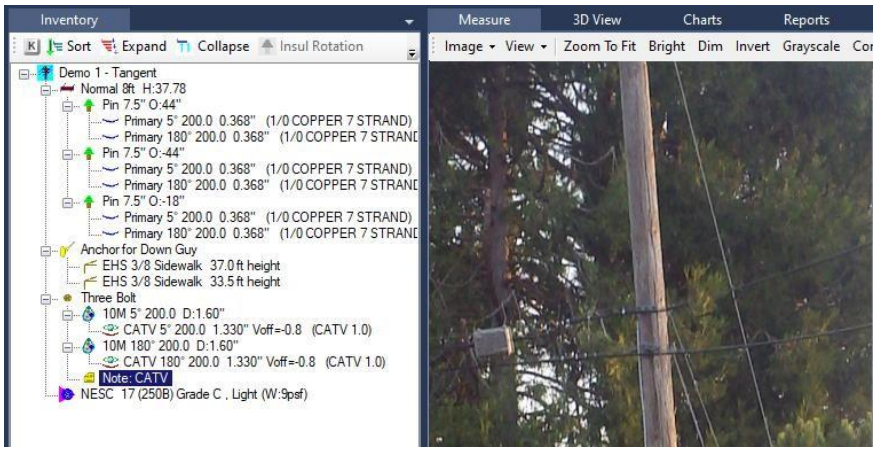
©2025 Osmose Utilities Services, Inc.



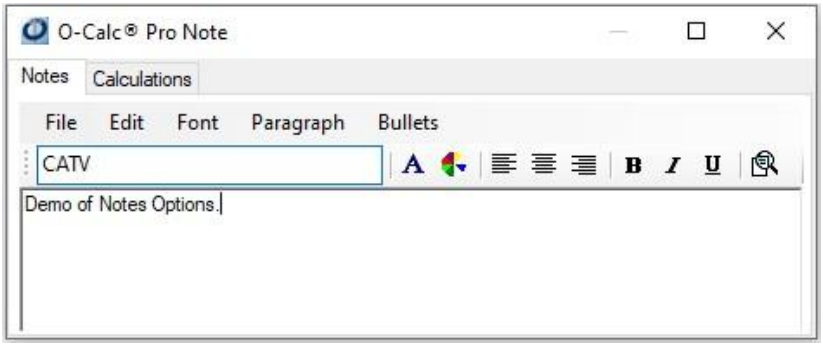
2. Select the **Mode** you would like to use for the measurement.



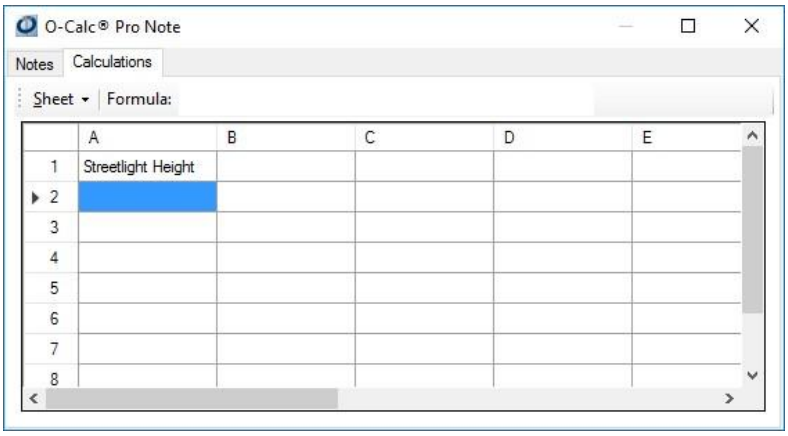
3. Place the **crosshairs** at the point you want the measurement to be taken at and click the left mouse button. You may want to use the Scale Tool or the mouse wheel to zoom into a specific area in the image.



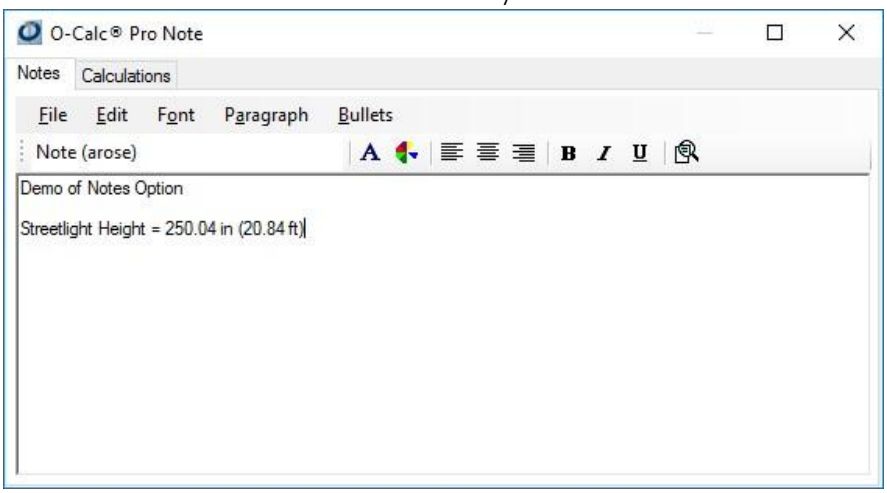
4. The selected **note** in the Inventory panel automatically is displayed.



5. Complete any **edits** to the note description, content or spreadsheet.



6. Select **Edit > Paste** to incorporate the measurement into the note content area. The selected measurement is automatically inserted into the selected note.

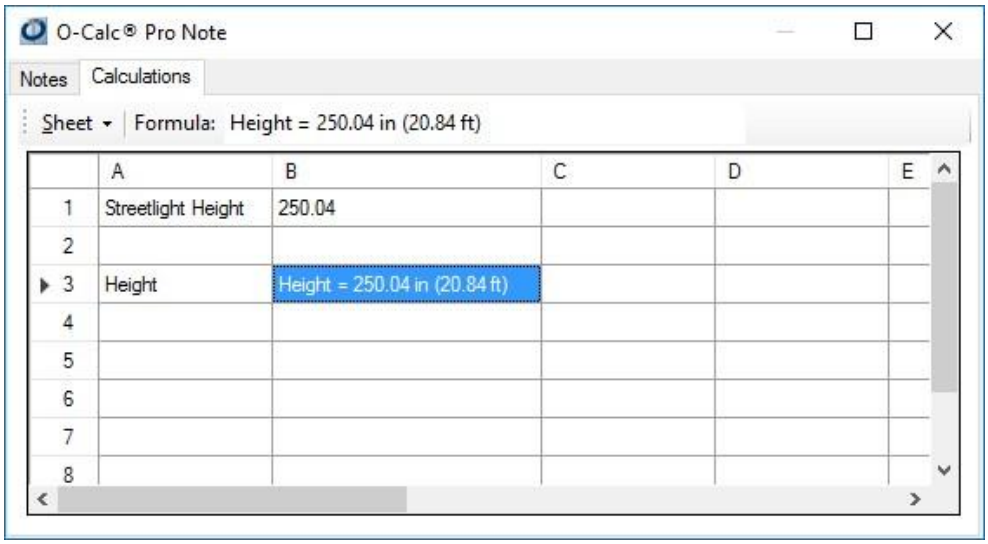


7. Click the **Calculations** tab to have the measurement automatically paste into the Data Grid View. Select the cell you want to paste the measurement into and select one of the following options from the **Sheet** menu:

Sheet > Paste > Value Only- Excludes the measurement text and only paste the measurement value into the spreadsheet.

Sheet > Paste > All Text- Pastes the complete measurement into the spreadsheet with nothing excluded.

©2025 Osmose Utilities Services, Inc.



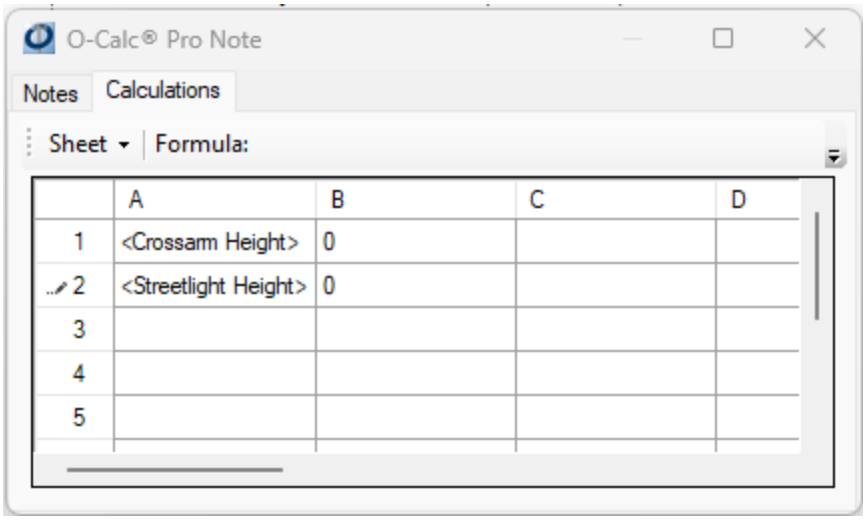
8. Select **File > Save**.

Add Measurements to a Note

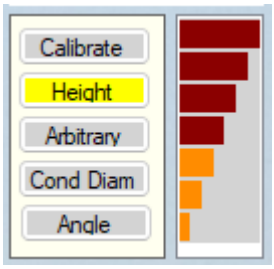
To add measurements to the Data Grid View while working in the Measure panel you can create custom Measurement Labels in the Note Calculations sheet. These measurement labels display each time the note is selected while completing a measurement. To create a measurement label in a note and use them to paste measurements directly into the selected note, complete the following steps:

1. Create a **new note** by right-clicking on any object in the Inventory, select **Add Annotation > Notes**.
2. Enter a **Description** and the note **Contents**.
3. Select a cell in the Data Grid View (Calculations tab) and enter a Measurement Label, select **File** > **Save**.

There is no limit to the number of Measurement Labels you can enter. The only exception is that the measurement label needs to be entered with brackets around it, i.e. <Measurement Label>. As there is no measurement value enter place holder values of zero in place of the measurement value to be entered. Also, enter calculation formulas if they are needed.



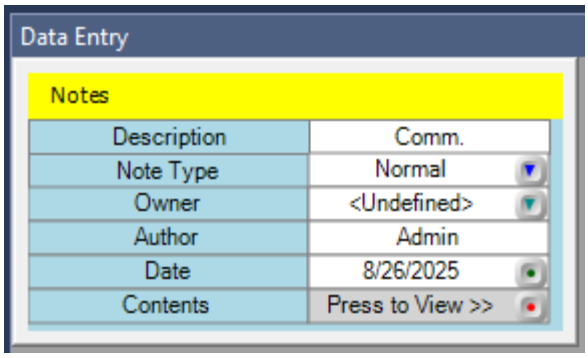
4. Select the **Note** object in the Inventory panel, and make sure you are in the **Height** Mode in the Measure panel.



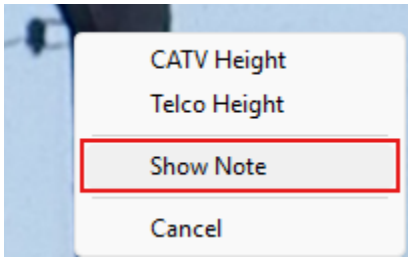
5. Click the left mouse button where you would like each measurement taken from on the image and select the appropriate Measurement Label.

6. To return to the **Note** object select it in the Inventory, and in the **Dat Entry** panel click the **Contents** attribute **Press to View** radio button.

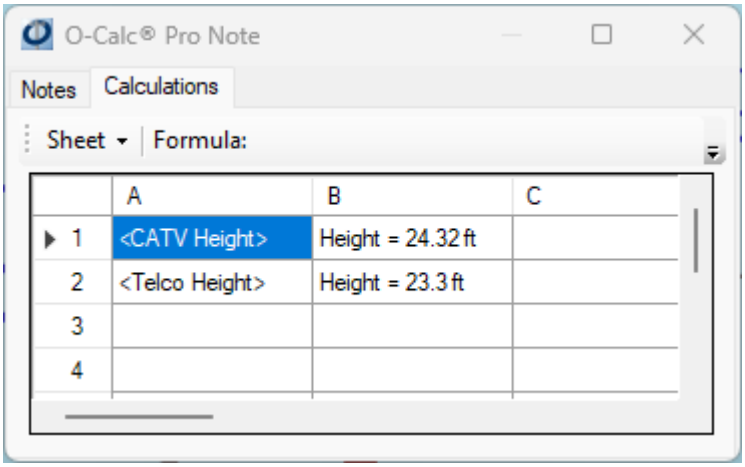
©2025 Osmose Utilities Services, Inc.



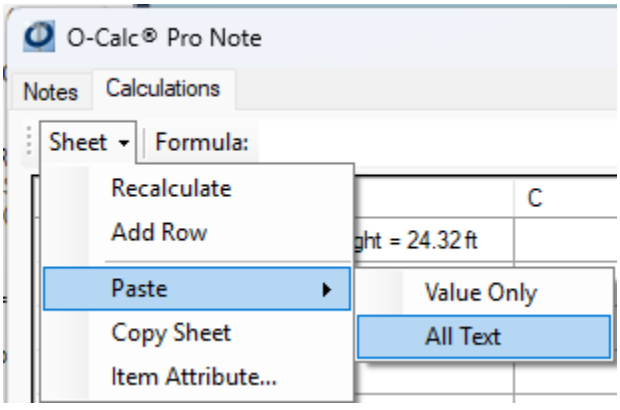
7. Or right click at any height on the image and select the **Show Note** option.

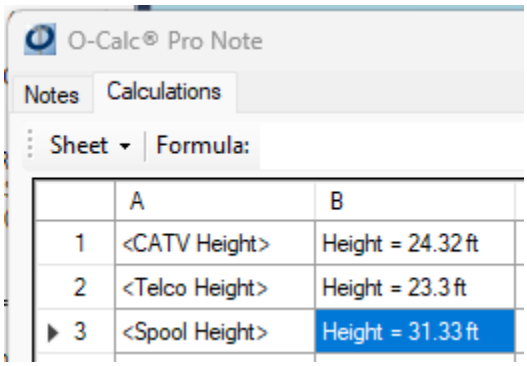


8. Open the **Note** (click Press to View) click the **Calculations** tab. Select the column and paste the value.



9. Continue to repeat these steps until all the needed measurements are recorded.





Note: *Additions and modifications can be made to any area of the note at any time. The note can also be copied to your User Catalog to be used as a template in the future.*

Note: *If measurements have been incorporated into the Data Grid using Measurement Labels and the Units Convention (English or Metric Convention) is changed the measurements that are displayed in the Notes Data Grid will not change.*

Calibrating the Camera Lens

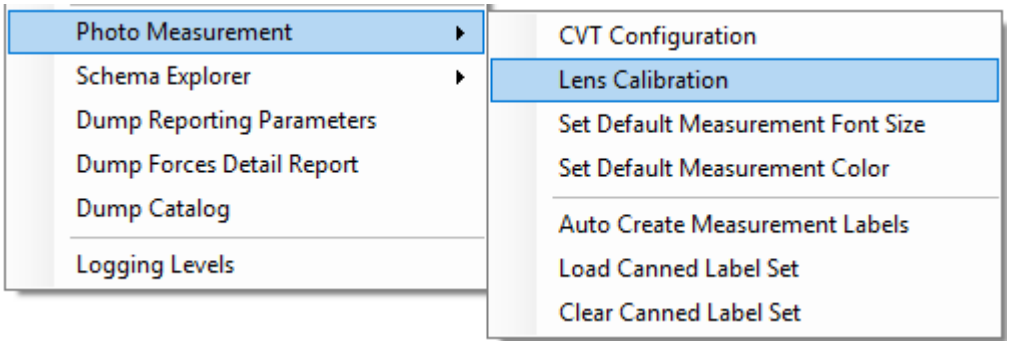
The Lens Calibration Tool is used to determine the barrel / pin cushion distortion present for a particular brand of camera prior to its use in the Digital Measurement Technology (DMT) process.

Enabling the Lens Calibration Tool

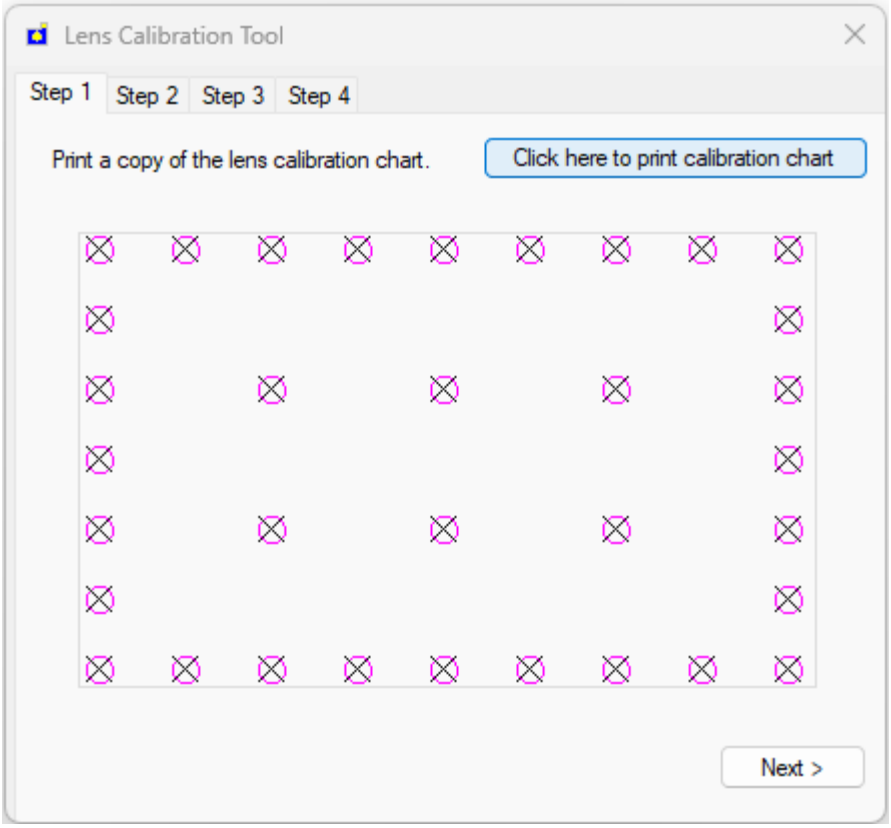
To properly calibrate your camera lens, follow the 4-step process outlined in the Lens Calibration Tool.

To enable the Lens Calibration Tool, complete the following steps:

1. Select **Tools > Misc > Photo Measurement > Lens Calibration**.



©2025 Osmose Utilities Services, Inc.



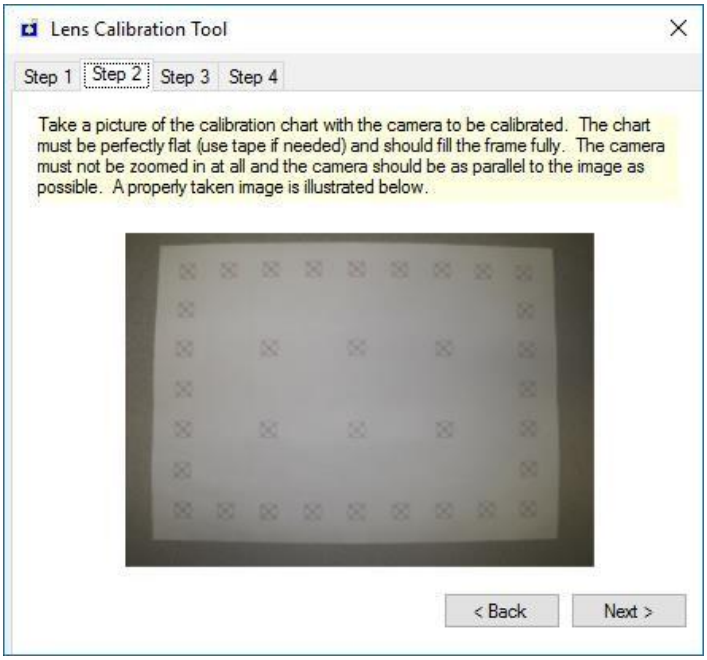
Lens Calibration Chart

To begin the Lens Calibration process, complete these steps:

1. The **Step 1** tab is selected by default, click the **Click here to print calibration chart** button and print the calibration chart.

Note: *You can use a printer or save it to a file. You'll need the printed calibration chart, and the camera whose lens you plan to calibrate to proceed to the next step.*

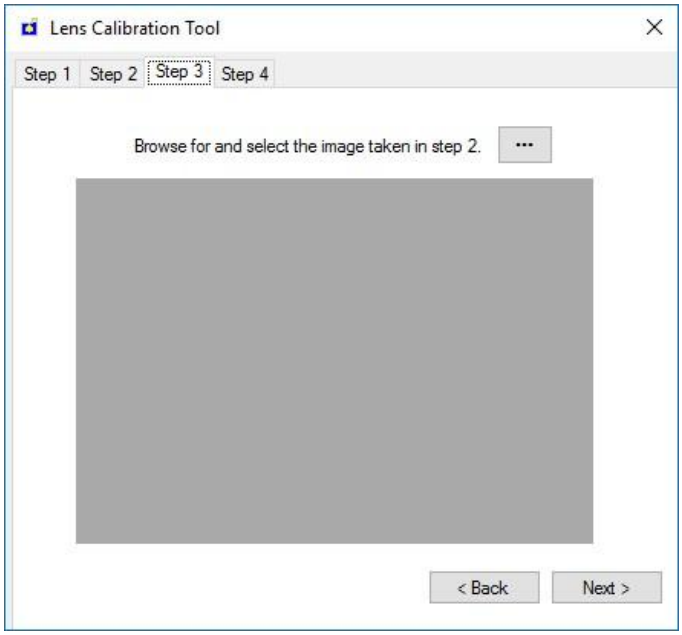
2. Click the **Next** button or select the **Step 2** tab.



3. Using the camera that needs to be calibrated **take a picture** of the calibration chart that you printed out on the Step 1 tab.

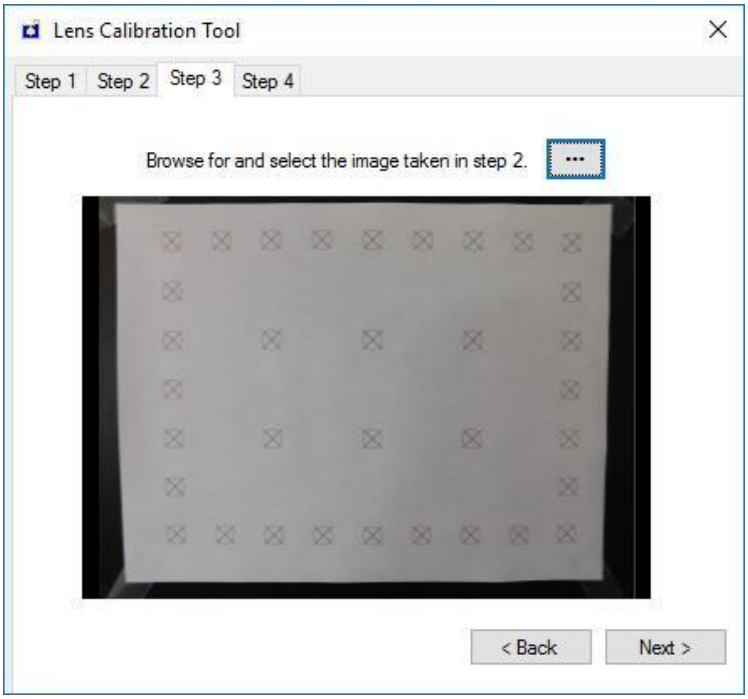
Note: *Make sure the document is lying flat, tape the corners down. Use the detailed directions provided on the Step 2 tab to get the best possible image. Incorrectly taken images of the calibration chart will result in an incorrect lens calibration.*

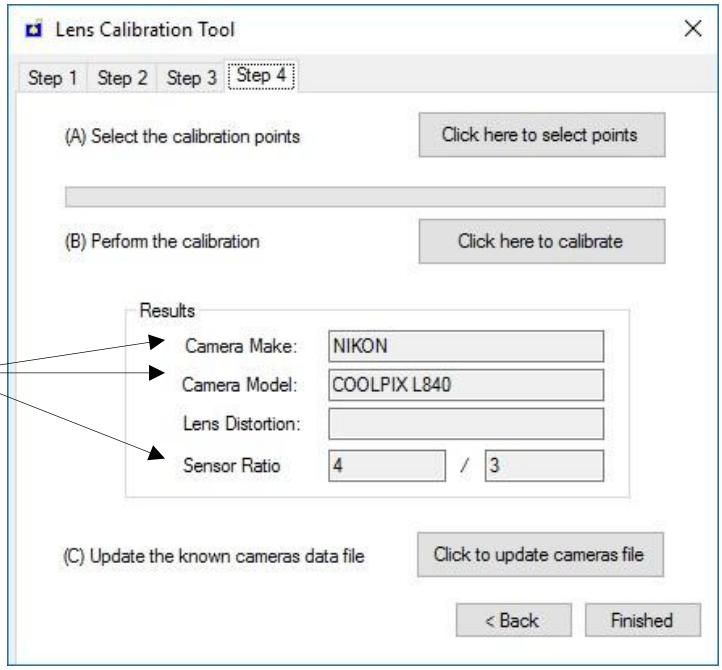
4. Save the image you took of the calibration chart.
5. Click the **Next** button or select the **Step 3** tab.



6. Click the **browse button** ... and navigate to and select the image you took of the calibration chart and click **Open**.
7. Your image should display in the Step 3 tab.

©2025 Osmose Utilities Services, Inc.



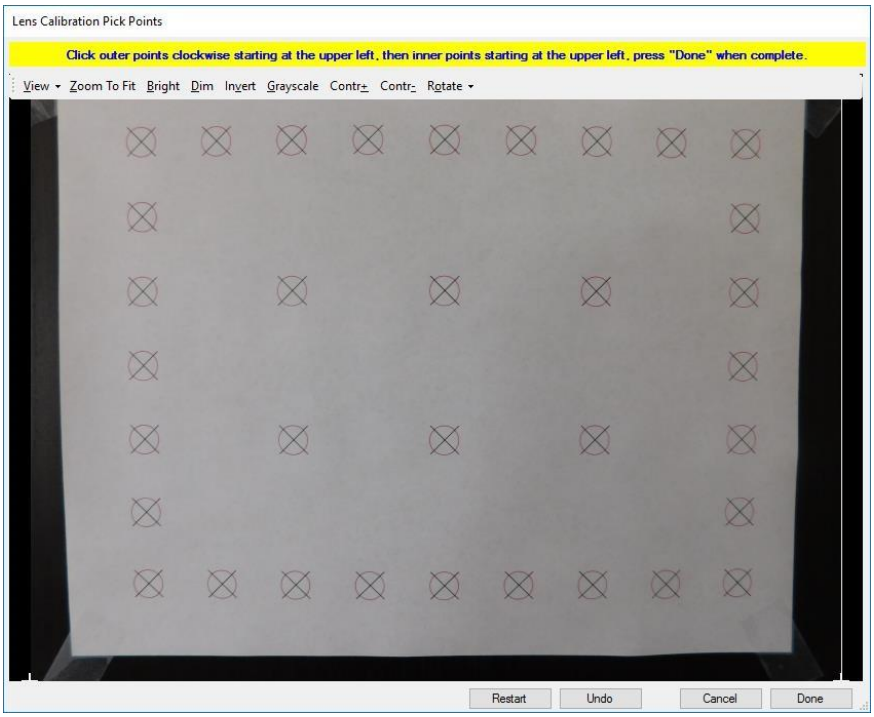


The Camera Make, Model and Sensor Ratio are automatically populated.

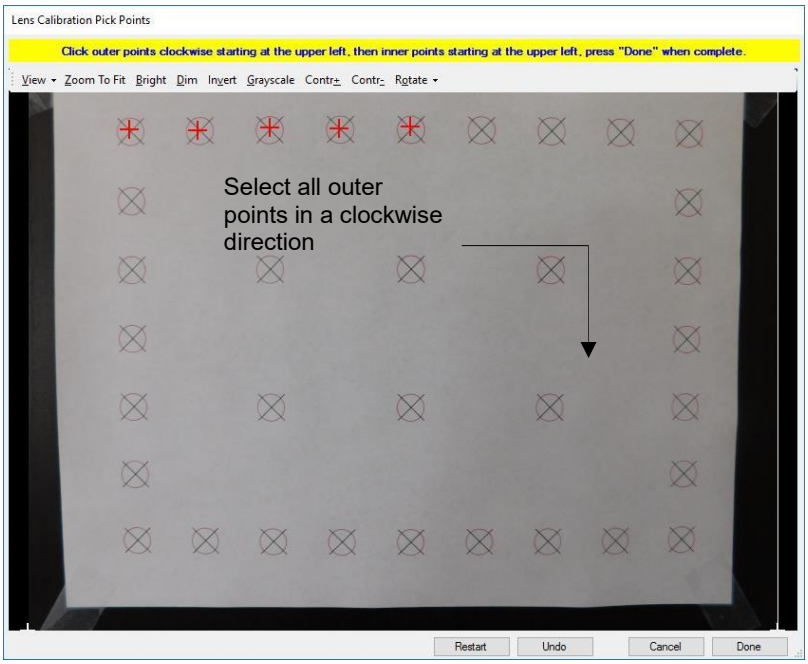
8. Click the **Next** button or select the **Step 4** tab.

Note: *Verify the Camera Make and Camera Model being displayed are correct for your camera.*

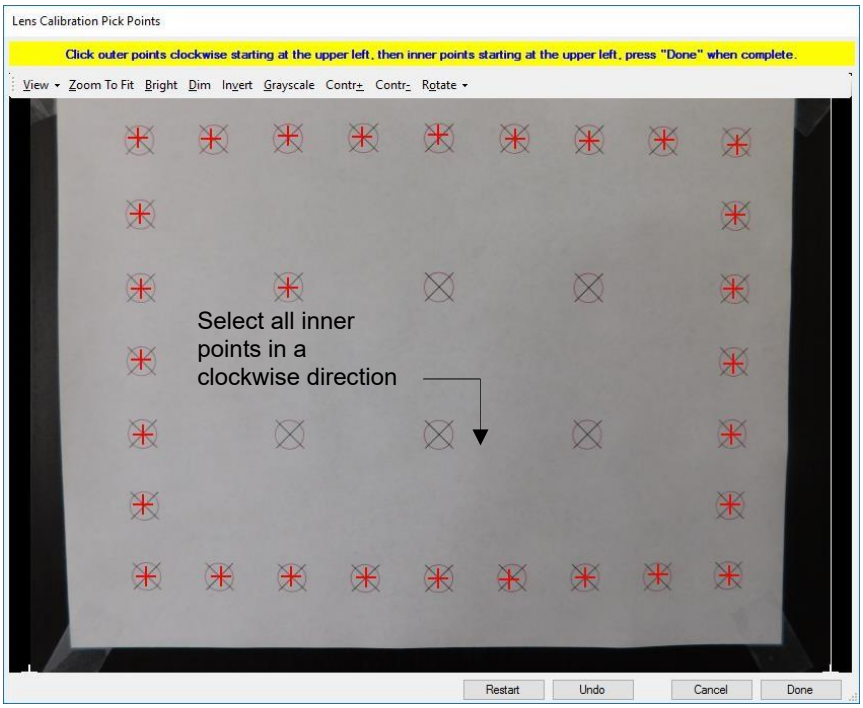
9. Click the **Click here to select points** button. The **Lens Calibration Pick Points** window displays.



Begin with the outside row of points in a clockwise direction, zooming in close to place each pick point precisely. Using the detailed directions provided **select each point** until all points are selected on the chart in order.

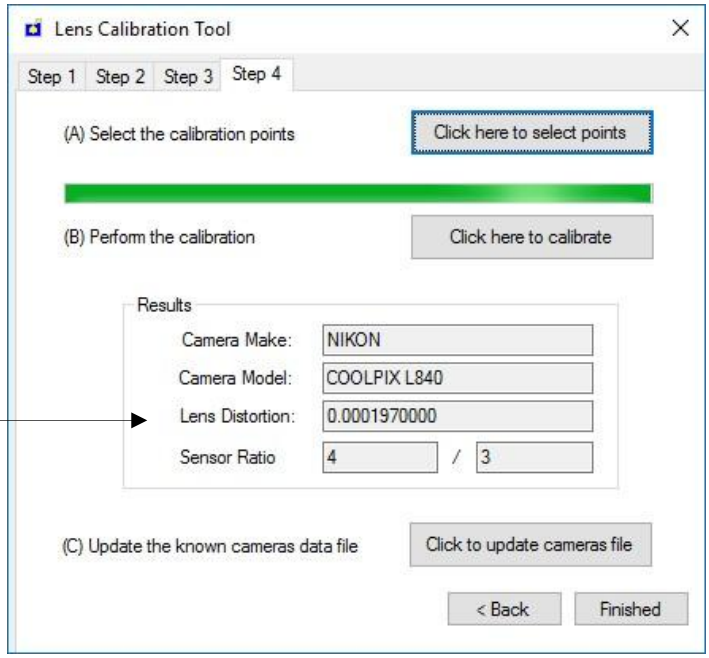


©2025 Osmose Utilities Services, Inc.



10. When all points are selected, click the **Done** button.
11. Click the **Click here to calibrate** button. The calibration status bar displays the lens calibration progress.

When the lens calibration is complete the Lens Distortion field will automatically be populated.



Lens Distortion is automatically populated once the calibration is completed.

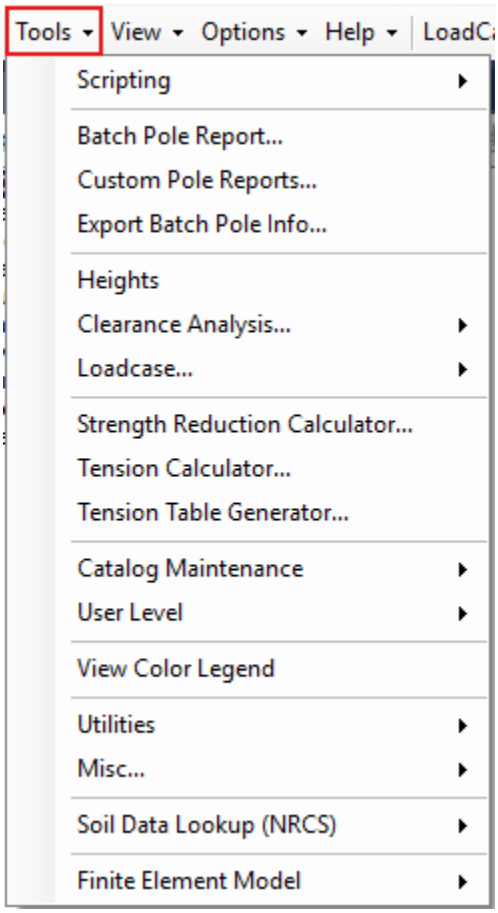
12. Click the **Click to update cameras file** button.

13. Select **OK** to the verification message that the camera has been added to the supported camera database.

14. Select **Finished** to close the Lens Calibration Tool.

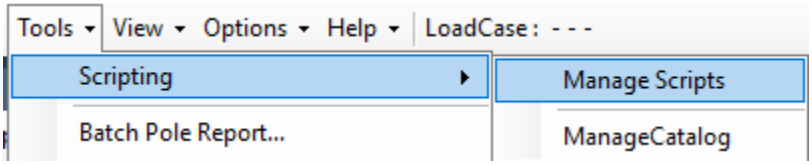
Tools Menu Overview

Several advanced design tools are provided within the O-Calc® Pro Tools menu. Each option available in the Tools menu is described below.

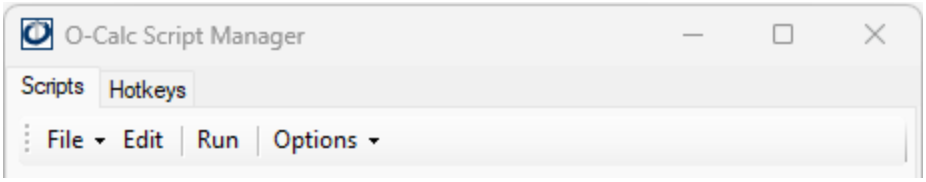


Scripting

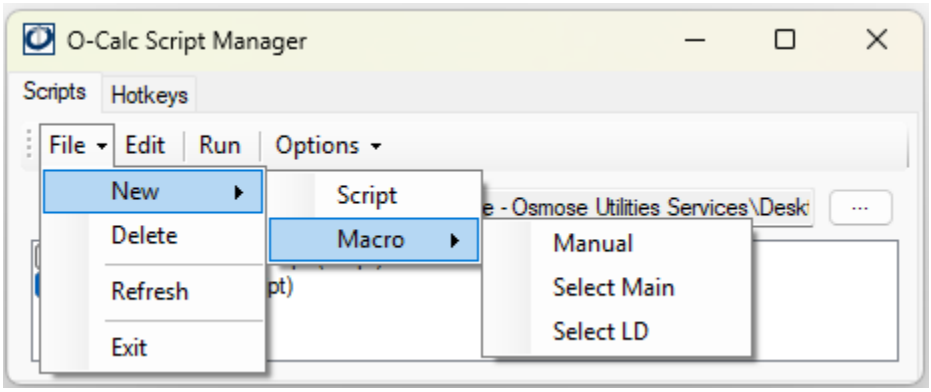
Provides the ability to add, edit and run scripts and macros, plus access to various controls for hotkeys. Includes the option to manage catalogs.

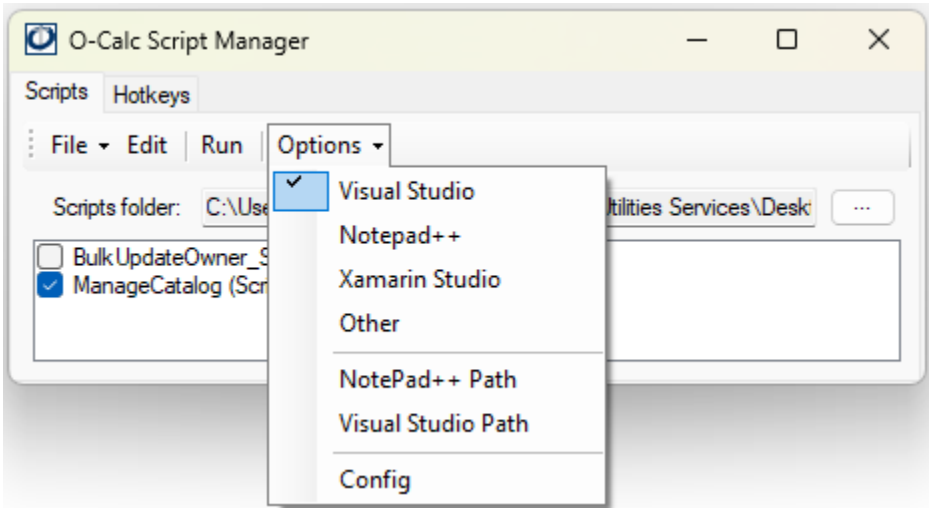


©2025 Osmose Utilities Services, Inc.

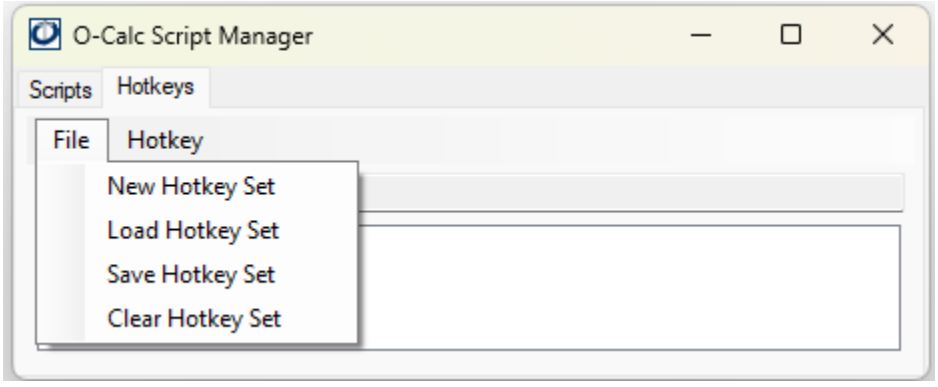


Script Manager

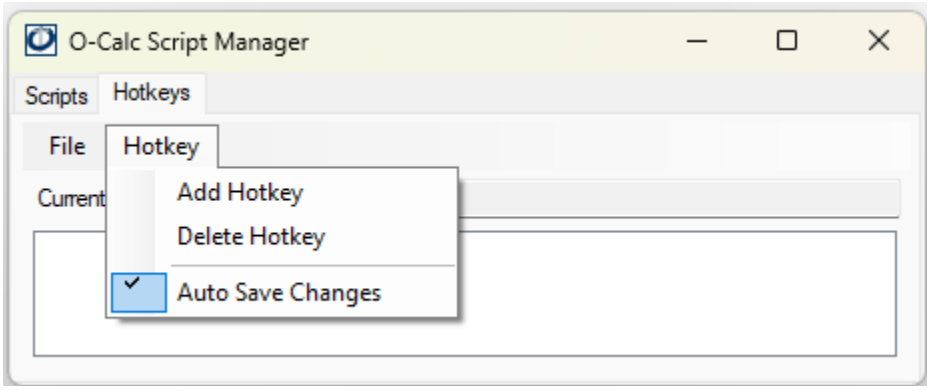




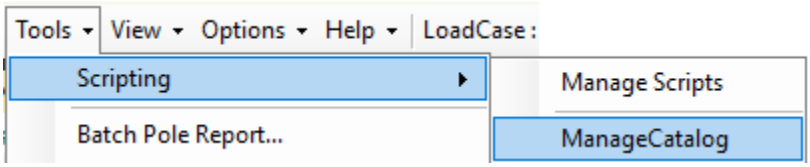
Hotkeys

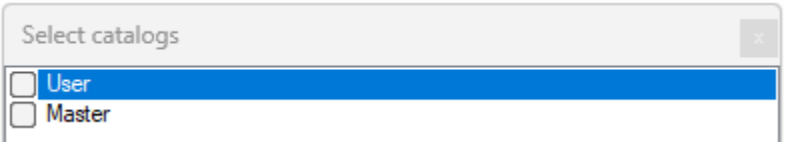


©2025 Osmose Utilities Services, Inc.



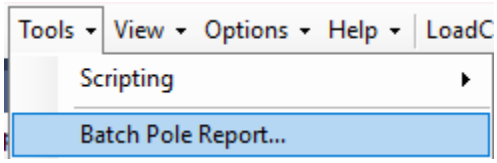
Scripting Manage Catalogs



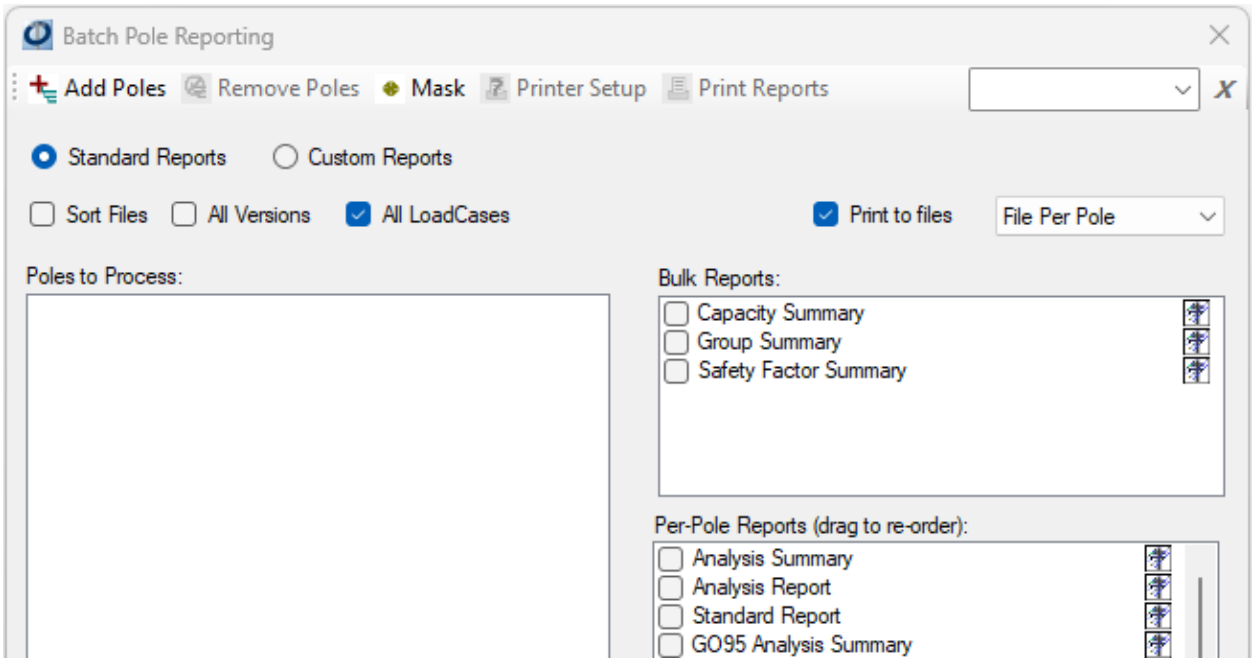


Batch Pole Report

Provides access to all the reports available in O-Calc® Pro. After the pole(s) have been added in the Poles to Process window, select the check boxes for the desired reports and click the Print Reports button.

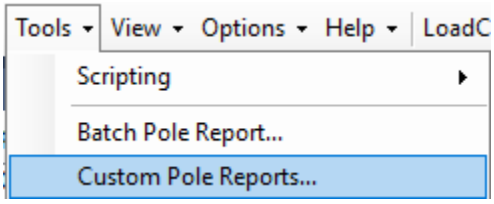


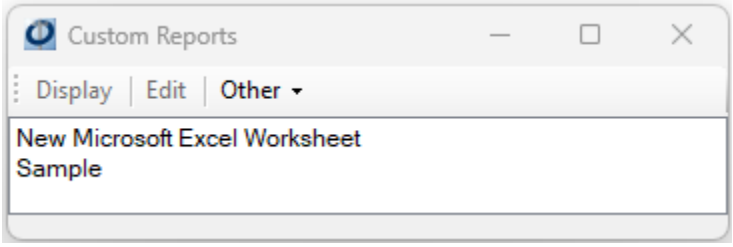
©2025 Osmose Utilities Services, Inc.



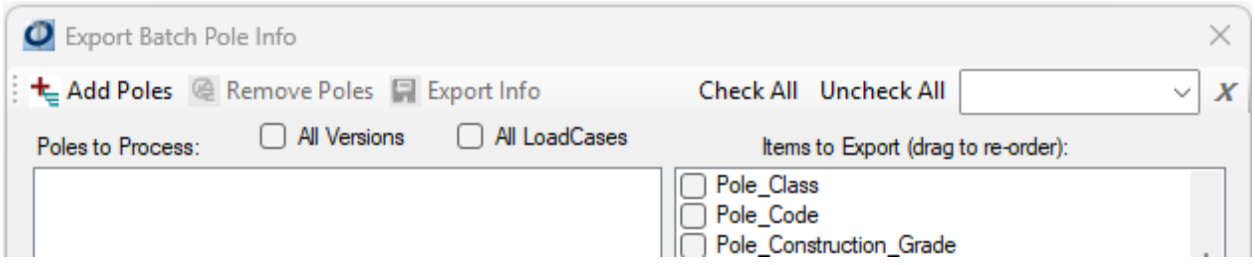
Custom Pole Reports

Provides the option to create, edit, and display your own report using a .xlsx file. A list of available tokens is provided in the **Custom Reports** window, open the **Other** drop-down menu. From the Help menu in



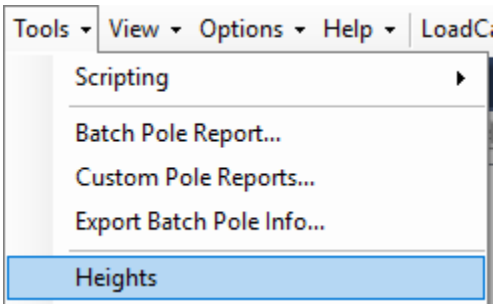


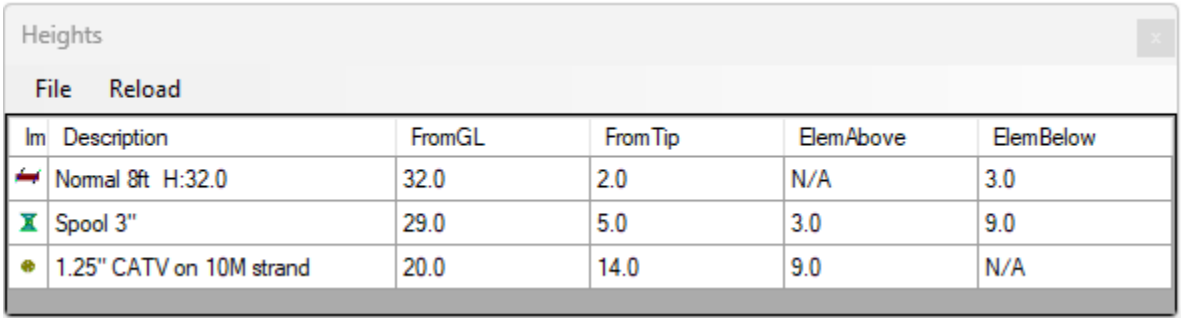
Export Batch Pole Info



Heights

Provides quick access to pole attachment height information.





Working with Clearance Analysis

The O-Calc® Pro Clearance Analysis tool provides the ability to model actual field conditions accurately and to quickly check against clearance violations for attachments and groundline obstructions based on rules you create. Along with the ability to define elements attached under or interfering with the spans attached to a pole to evaluate any clearance violations.

Examples of clearance requirements that can be added and violations that could be found are:

- Spans of different types (power to comm. for example)
- Spans and structures or vehicles
- Spans and surfaces
- Spans and foliage

Creating a Clearance Analysis allows you to consider the existing or proposed field conditions such as surfaces (terrain), structures, foliage and wires. The Clearance Analysis tool creates a 2D model of the spans and field conditions you input. The Clearance Analysis Report is also available to easily detect any clearance issues. Creating a Clearance Analysis is a four-step process:

1. Add the Clearance Rules and Violations definitions using the Clearance Rules Editor.
2. Define the Clearance Groups for objects on specific spans to identify the category or categories that a span falls into.
3. Recording the actual field conditions surrounding the pole (surfaces, structures and foliage).

©2025 Osmose Utilities Services, Inc.

4. Run the Clearance Analysis Report.

Note: *Videos are available to help walk you through the Clearance Analysis Tool setup process. Find these in the Help menu under More Information, View Informational Videos.*

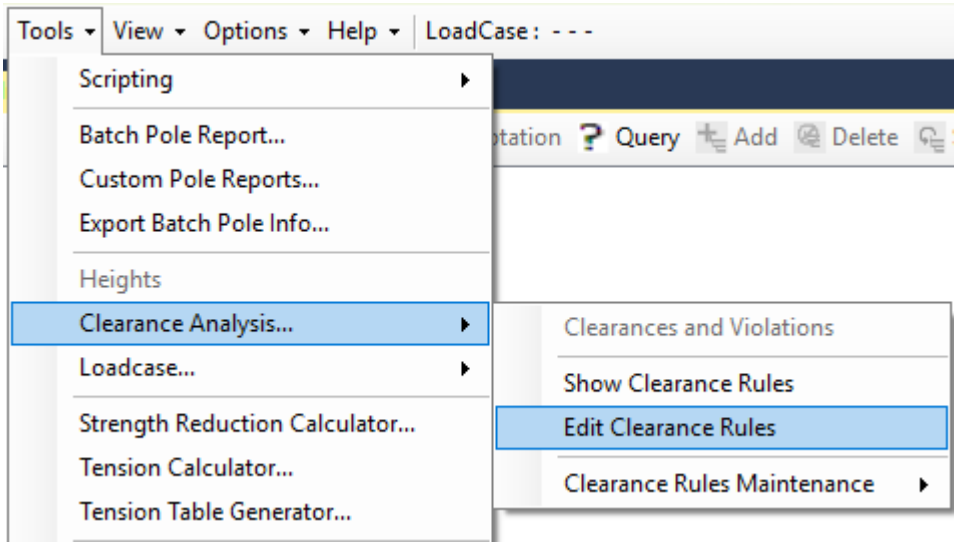
Step 1- Clearance Rules/Violations

Before any Clearance Analysis can be completed, the Clearance Rules and Violations need to be set up. Creating these Clearance Rules and Violations is typically only done once for any power company or division.

Once the Clearance Rules or Violations have been established *extreme caution* is advised when removing or editing them after Clearance Analysis is configured. Removing or editing existing Clearance Rules or Violations may invalidate existing clearance elements or rules.

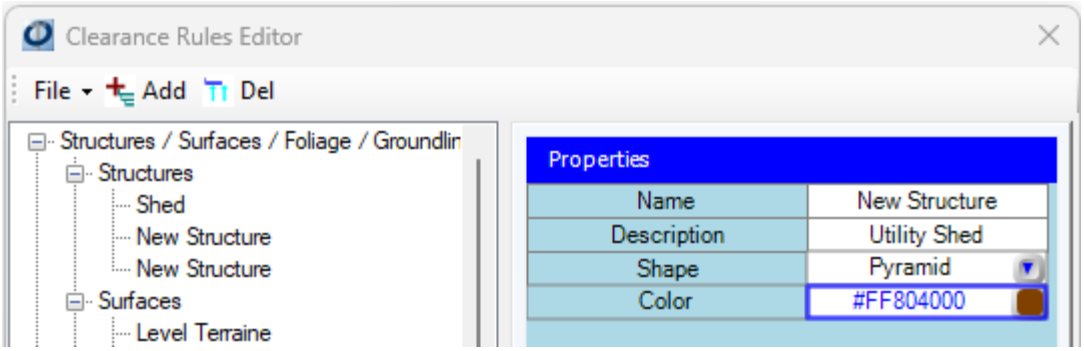
To create Clearance Rules and Violations, complete these steps:

1. Select **Tools > Clearance Analysis > Edit Clearances Rules**.



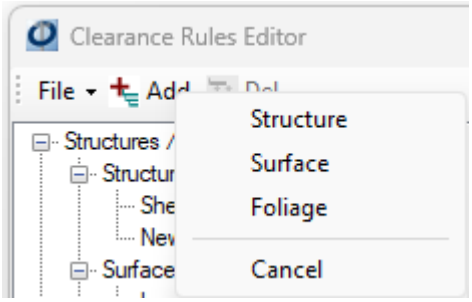
2. Editing or setting up the Clearance rules means you need to add any new Structure, Surface or Foliage element. To accomplish this you must first select one of the categories in the list: **Structure**, **Surface** or **Foliage.** Now when you click the **Add** button the element you create is added to that category.
3. Select **File** > **Save**.

Note: *Only the Structure area allows you to define a Shape.*

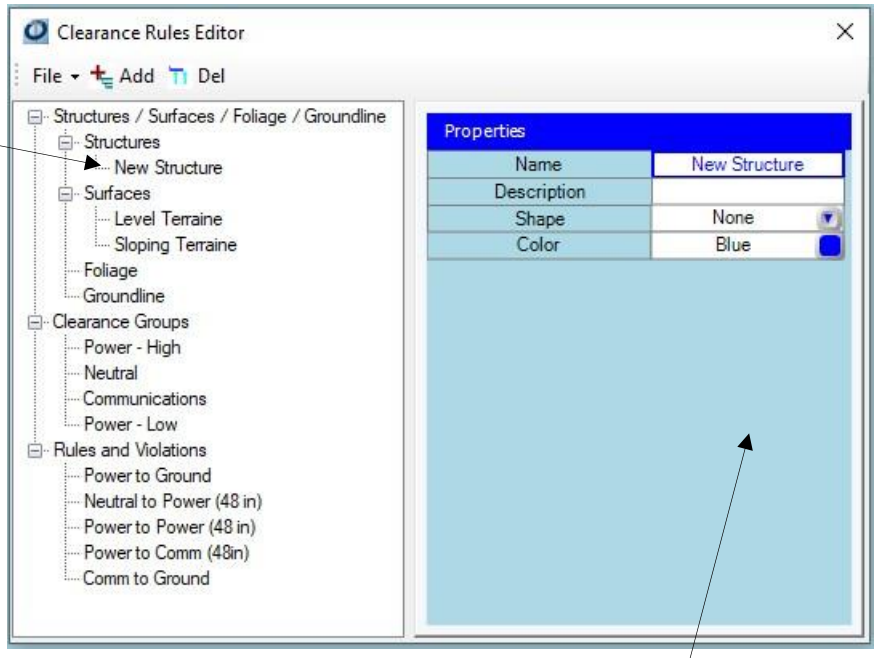


Note: *When adding a Surface element, a* ***Default*** *surface attribute is available if you'd like to have a specific surface added by default when creating Clearance Analysis. The default surface area can be changed at any time.*

4. Clearance Groups depict what categories spans can be a part of. To add a Clearance Group right-click on **Clearance Groups** or select **Add** from the menu.

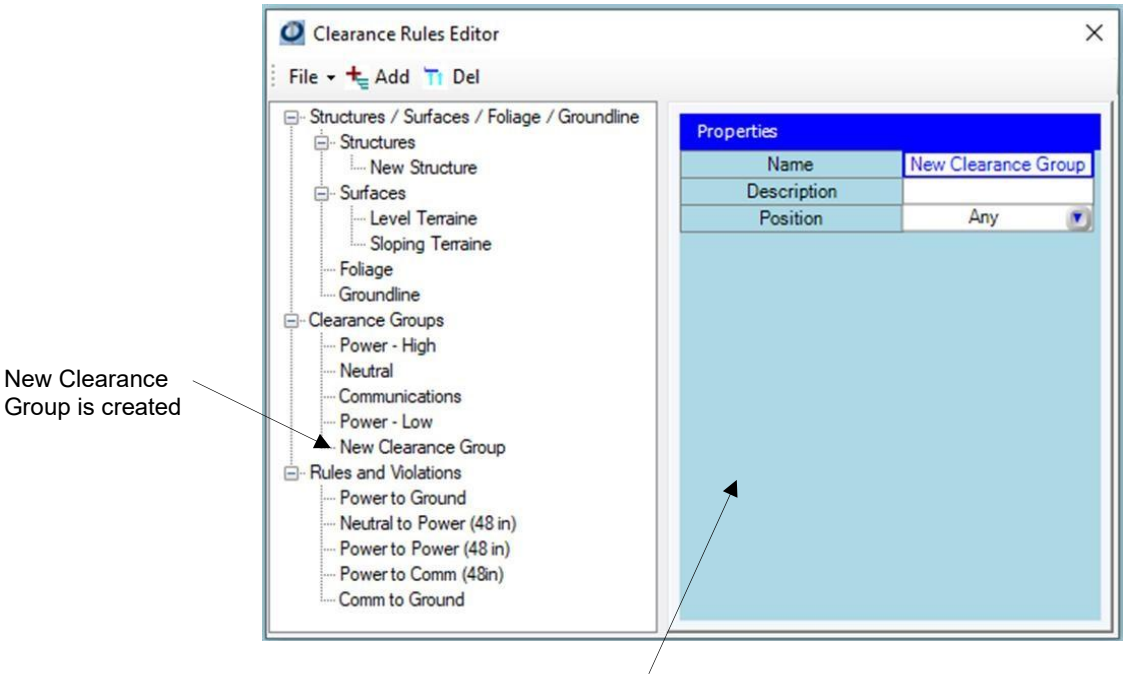


New Structure element is created



Note: *There is no undo for this operation. To remove an element, select the Structure, Surface or Foliage and select the* ***Delete*** *button.*

©2025 Osmose Utilities Services, Inc.



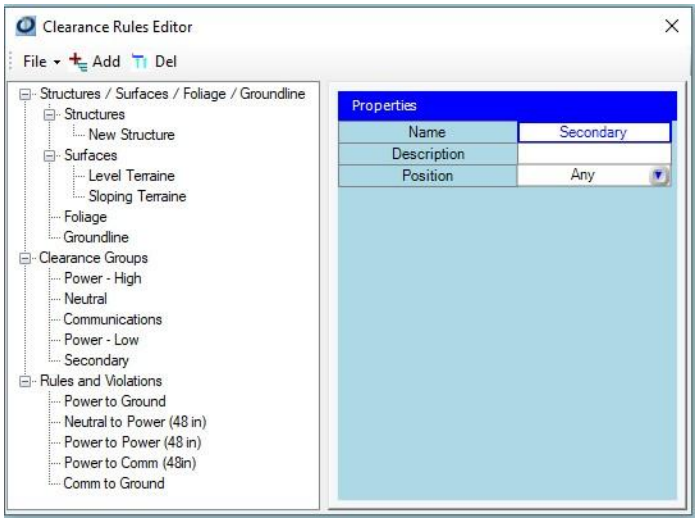
or

Left click **Clearance Groups** and select the **Add** button

Step 2- Define Clearance Groups

A comprehensive listing of all the current Clearance Rules is available by selecting File > Show Clearance Rules. The O-Calc® Pro Clearance Analysis Rules report will display and is available for printing.

5. Enter the new **Clearance Group attributes**.

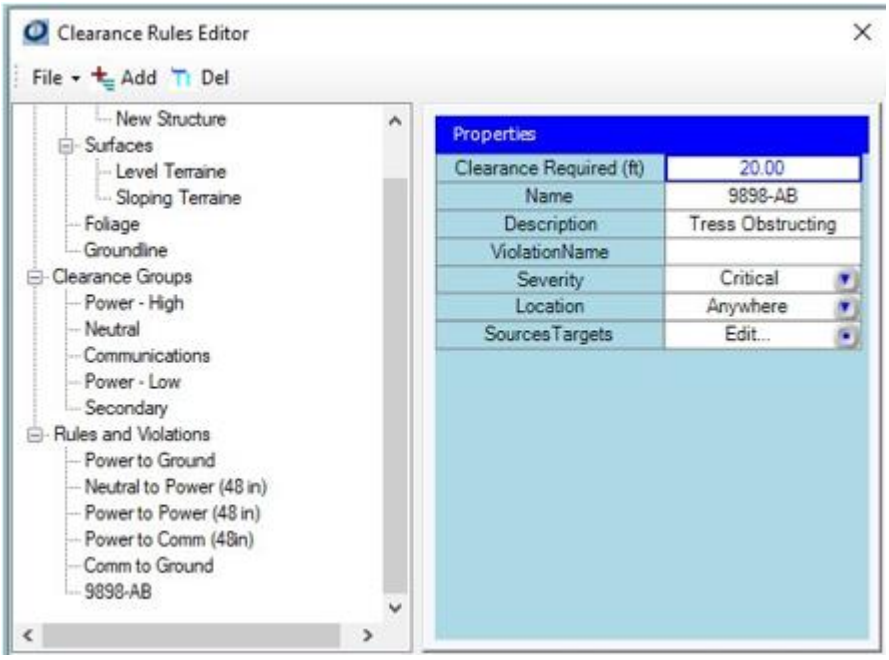


5. Select **File > Save**.

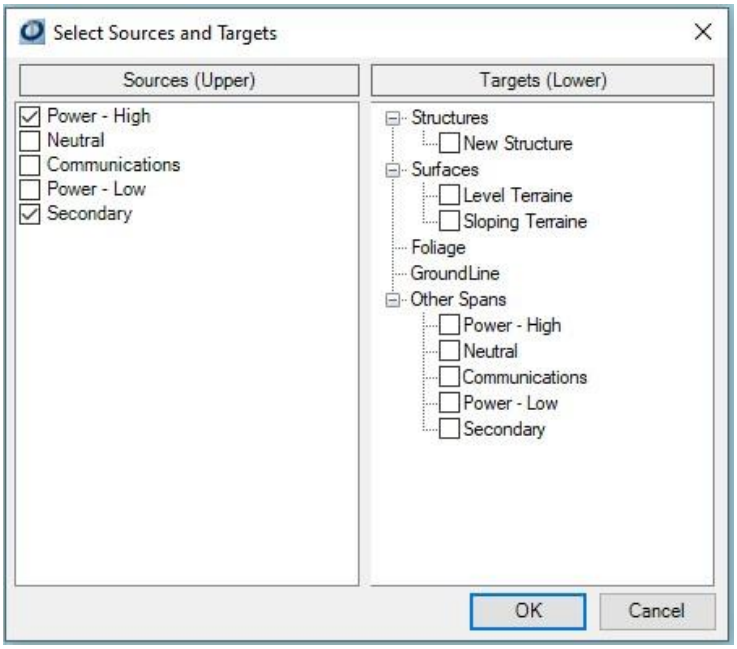
Note: *Complete the steps above to create additional Clearance Group rules.*

Note: *There is no undo for this operation. To remove a Clearance Group rule, select the Clearance Group to be removed and select the* ***Delete*** *button.*

6. Define the rules and violations that will be used when completing a Clearance Analysis. Add a Rule or Violation by right-clicking on **Rules and Violations** and select **Add** from the menu or left click **Rules and Violations** and select **Add**.
7. Define the Rule or Violation attributes, enter the new **Rules or Violations** attributes.
8. To set the **Sources Targets** attribute select the radio button.



9. Check the boxes of the **Sources** and **Targets** to be used. Click **OK**.



Note: *Multiple Sources and Targets can be selected. The only exception being that you cannot select the identical Source and Target.*

©2025 Osmose Utilities Services, Inc.

10. Select **File > Save**.

Note: *There is no undo for this operation. To remove a rule, select the Rule and Violation item and select the* ***Delete*** *button.*

Step 3- Categorize Spans

Once the rules are in place you need to categorize the actual spans on the current pole. To identify which spans, go into specific categories you will need to place a Clearance object on each span. To place the Clearance Object on a span, complete these steps:

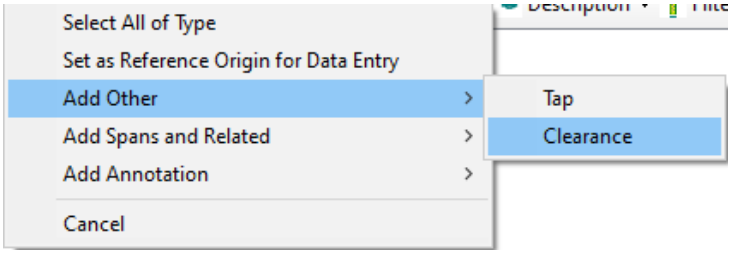
1. Select the **Span** to add a Clearance Object to.

Note: *Spans can be selected from the Inventory panel, the 3D View or the User Catalog. If a span is selected from the 3D View or the User Catalog use the right click menu to add a clearance object.*

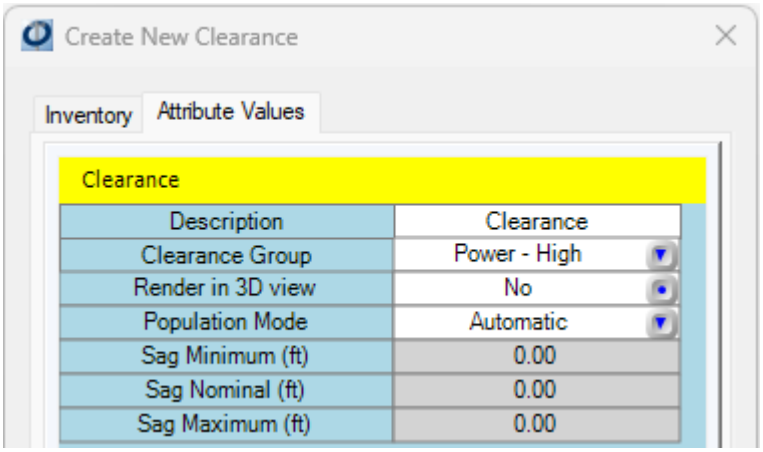
2. Select the **Add** button.

Note: *The Add Element > Clearance option can also be accessed by right clicking on the span you need to add the Clearance Object to.*

3. Select the **Clearance** option.



Note: *Only one Clearance Object can be added at a time.*

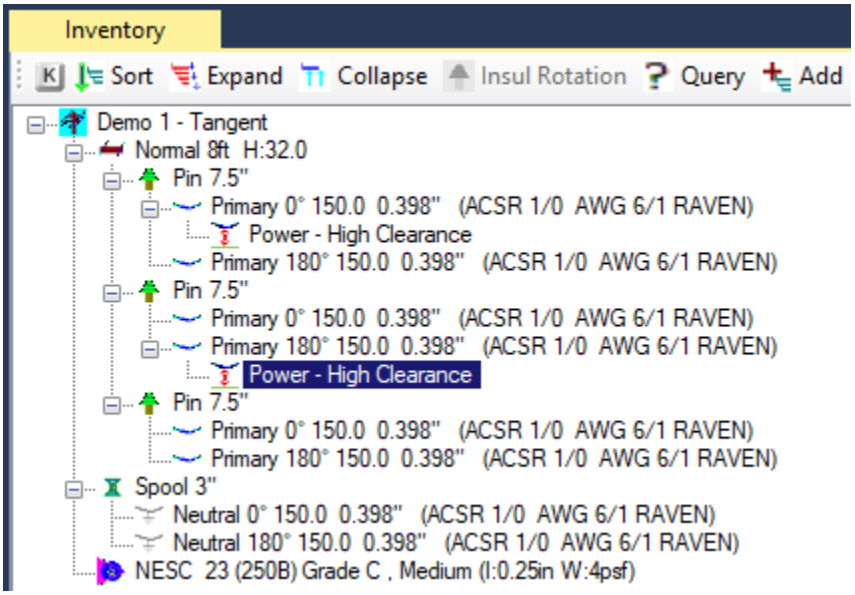


Note: *Available tabs are dependent on corresponding equipment displayed in your Catalogs or Inventory panel.*

4. To add a **Clearance Object** from a catalog or the Inventory, select the clearance object you want to add.
5. Select the **Attribute Value tab** to modify the clearance object attribute values, click **OK**.

Clearance Attributes Descriptions

Description	A general description of the Clearance Object.
Clearance Group	The name of the Clearance Group.
Render in 3D View	A visualization of the vertical clearances.
Population Mode	Determines the method by which the midspan sag values are populated. **Manual:** Sag values are entered by the operator. **Automatic:** Sag values are populated automatically. **External:** An external process populates the values
Sag Minimum	Enter the minimum sag allowed at midspan.
Sag Nominal	Enter the nominal sag allowed at midspan.
Sag Maximum	Enter the maximum sag allowed at midspan.



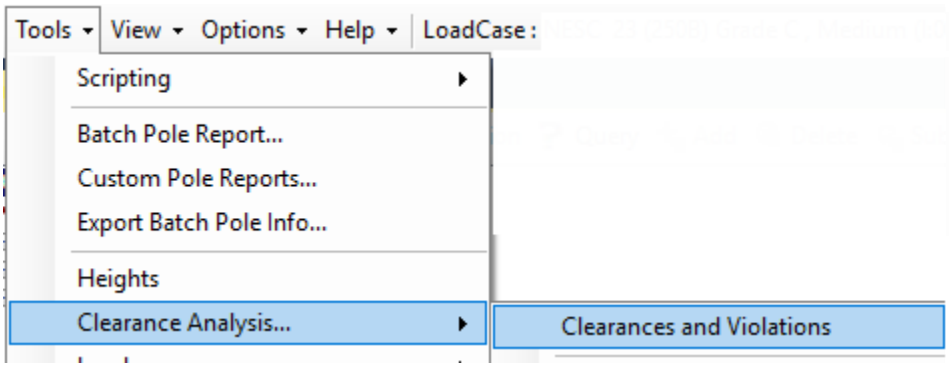
Note: *To undo the addition of the Clearance Object, select* ***Edit > Undo****.*

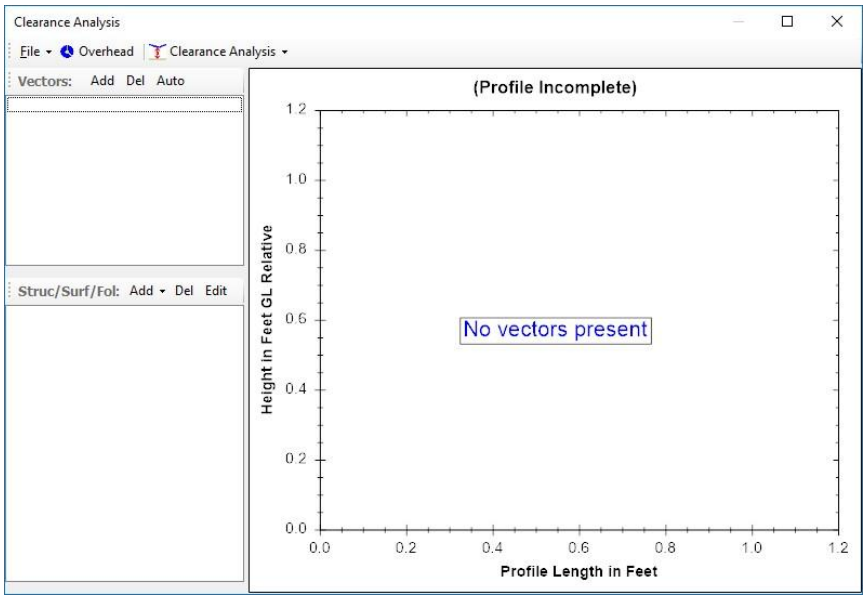
©2025 Osmose Utilities Services, Inc.

Create Clearance Analysis Profile

To model the actual field conditions surrounding the pole in you need to create an O-Calc® Pro Clearance Analysis Profile. As you are creating the field conditions a 2D representation of the model will be displayed as a visual reference. To create a Clearance Analysis Profile, complete these steps:

1. Select **Tools > Clearance Analysis > Clearances and Violations**.

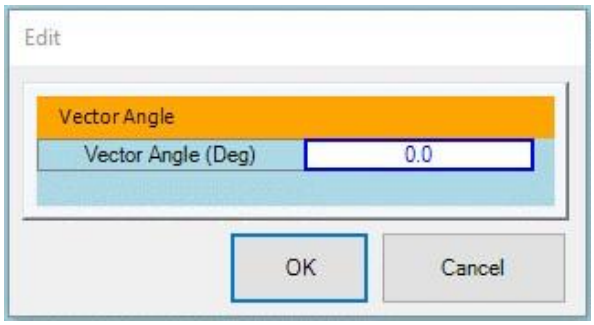




Setting up Vectors

The first step to modeling the actual field conditions is to set the vectors. Vectors are notional lines that extend outward from the pole at given angles, and which describe the type and elevation changes of the surface under the pole. Vectors may contain instances of structures and foliage that fall along that line. Typically, these vectors have a close correspondence with the spans attached to the pole, but this is not a requirement. ***Note:*** *To automatically create a vector at each span angle select the Auto button.*

1. To set the Vectors select the **Add Vectors** button from the Vectors toolbar.



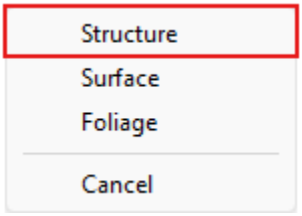
2. Enter a **Vector Angle**, click **OK**.

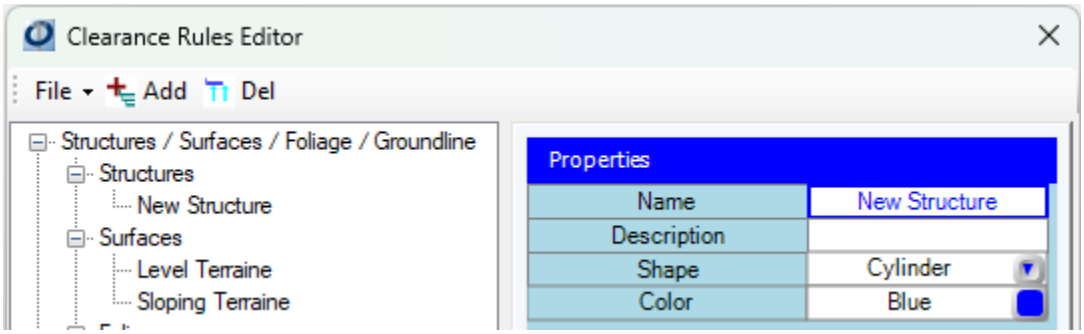
Note: *The overhead view of a pole with all the span angles is available by selecting the* ***Overhead*** *button* Overhead *. The Overhead window utilizes some of the same features as the Top View window.*

Note: *There is no undo or edit for this operation. To remove a Vector Angle, select the Vector Angle to be removed and either select the* ***Delete*** *button from the Vector toolbar or right click the Vector Angle and select* ***Delete****.*

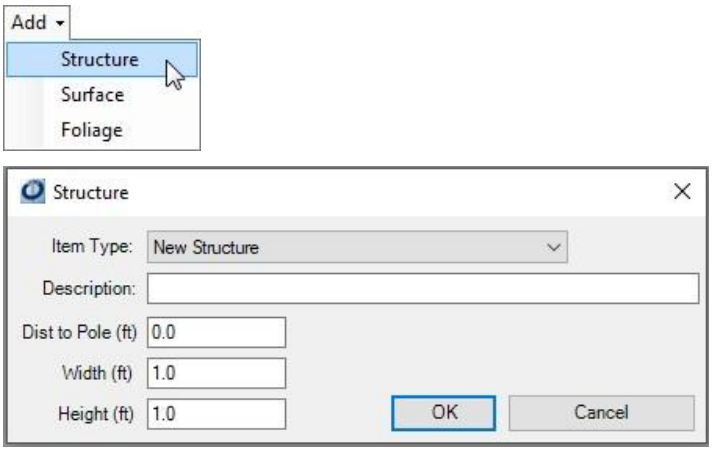
3. To create a structure at a specific vector, **select the vector** you want to add a structure object to.

4. Select the **Add Structures / Surfaces / Foliage** drop down menu and select **Structure**.

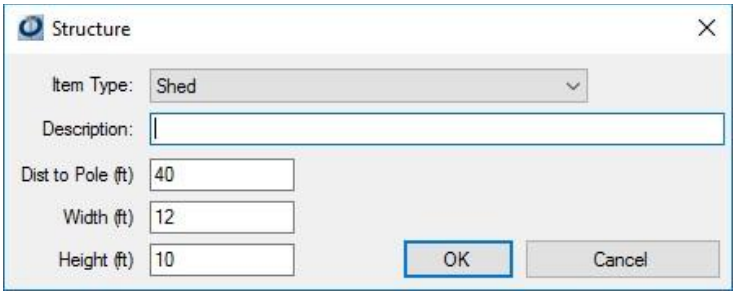




©2025 Osmose Utilities Services, Inc.



5. Enter the structures attributes.

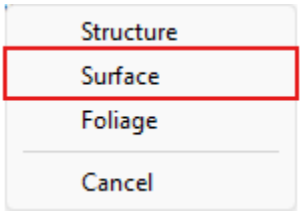


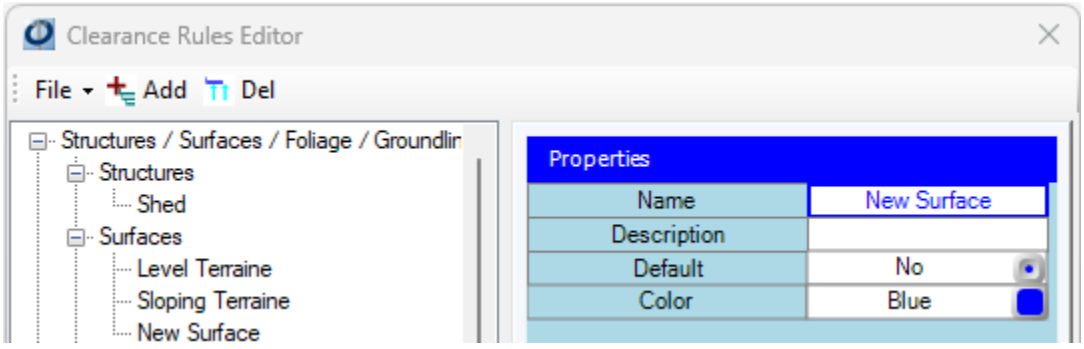
6. Select **OK**.

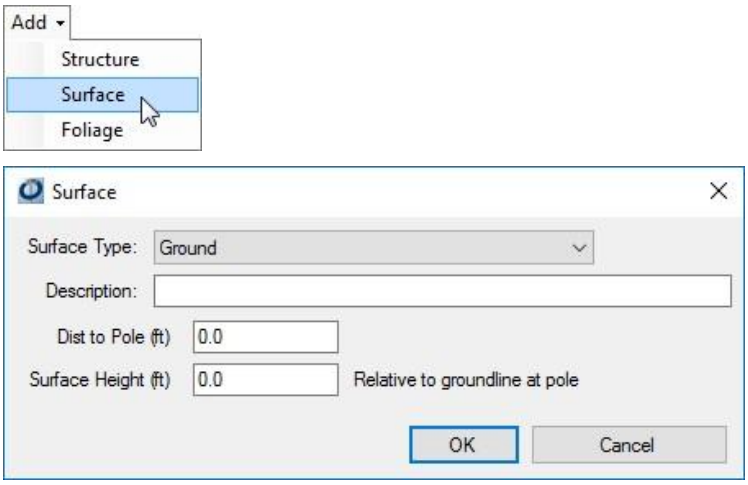
Note: *There is no undo for this operation. To remove a structure select the* ***Delete*** *button.*

7. To set the surface at a specific vector **select the vector** you want to add a surface object to.

8. Select the **Add Structures / Surfaces / Foliage** drop down menu and select **Surface**.







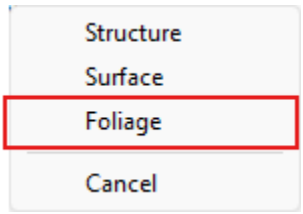
9. Enter the **surface attributes**.

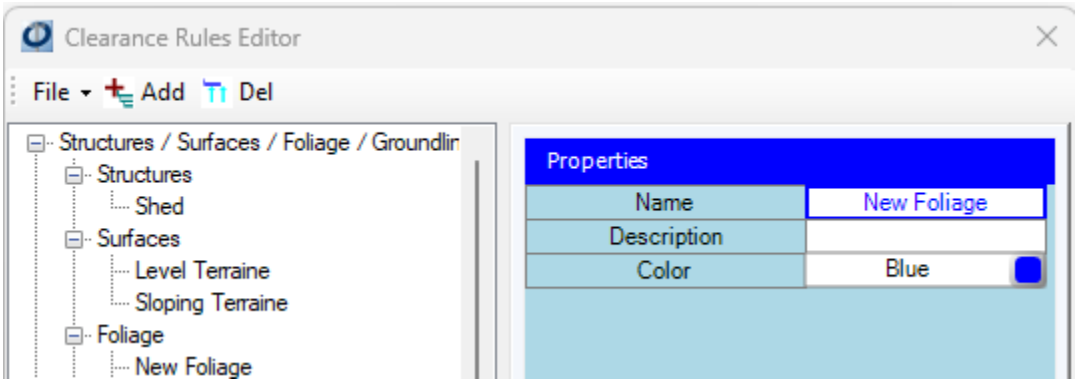
10. Select **OK**.

Note: *There is no undo for this operation. To remove a surface item, select* ***Delete.***

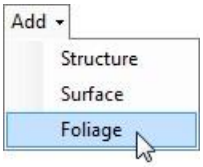
11. To create the foliage at a specific vector, **select the vector** you want to add a foliage object to.

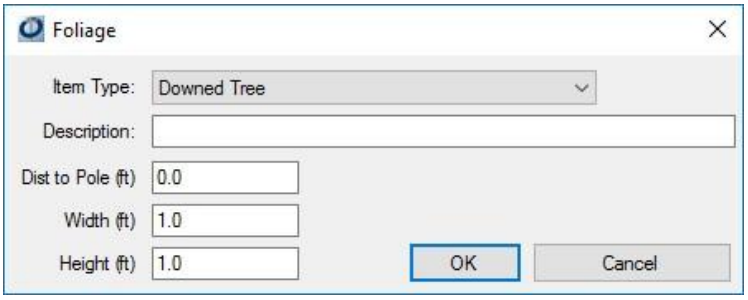
12. Select the **Structures / Surfaces / Foliage Add** drop-down menu and select **Foliage**.



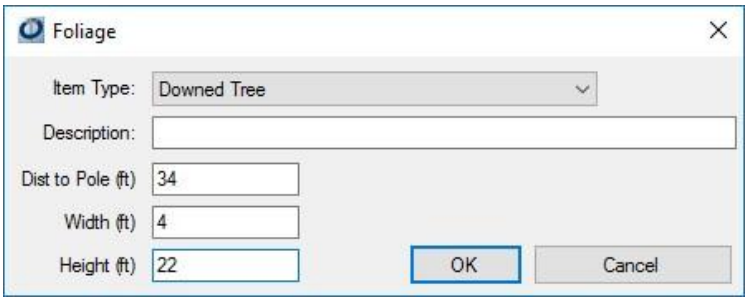


©2025 Osmose Utilities Services, Inc.



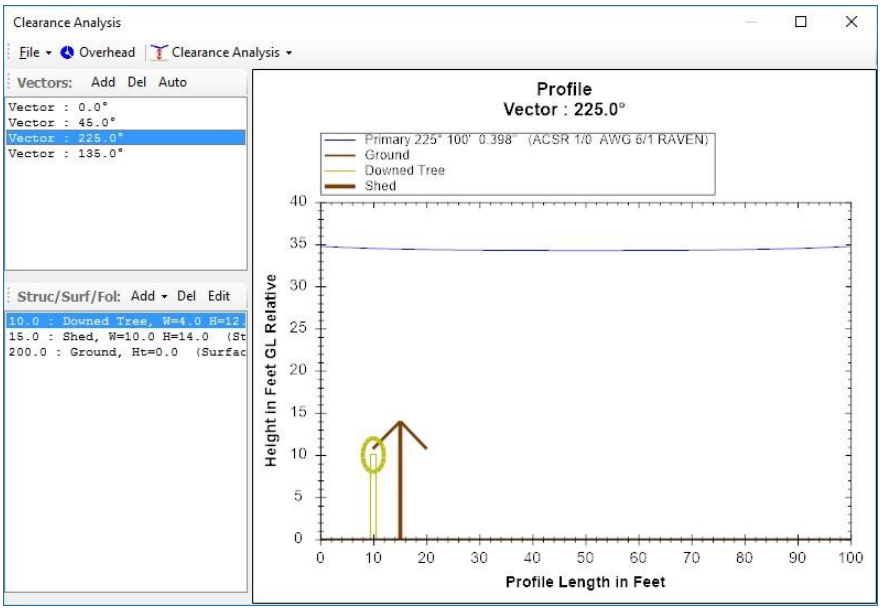


13. Enter the foliage attributes.



14. Select **OK**.

Note: *Complete the steps above to establish additional foliage at a specific vector. There is no undo for this operation. To remove foliage, select* ***Delete.***



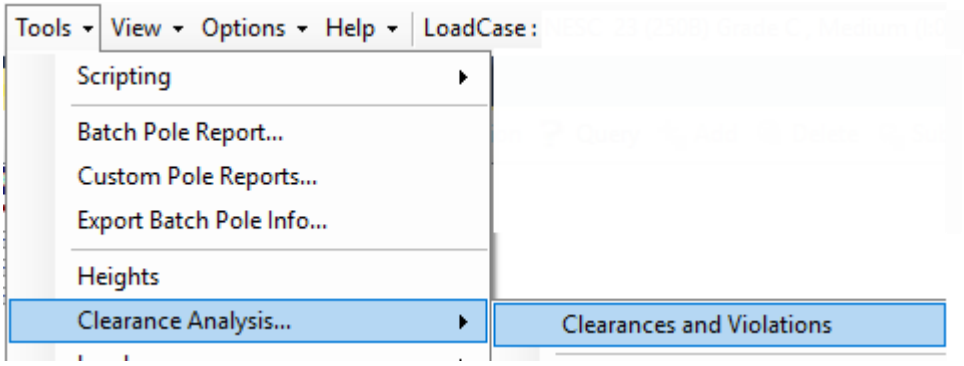
Note: *Structures, Surfaces and Foliage can be edited at any time by selecting the object and either selecting the* ***Edit*** *button from the toolbar or right clicking on the object and selecting* ***Edit****.*

15. To Save the Clearance Analysis Profile select **File > Exit**. Then in the O-Calc® Pro main window select **File > Save Pole**.

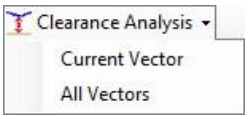
Step 4 – Run Clearance Analysis Report

The O-Calc® Pro Clearance Analysis report displays any clearance violations along the spans you modeled. A Clearance Analysis report can be run against all the vectors you've specified or just one vector. To run the Clearance Analysis report, complete these steps:

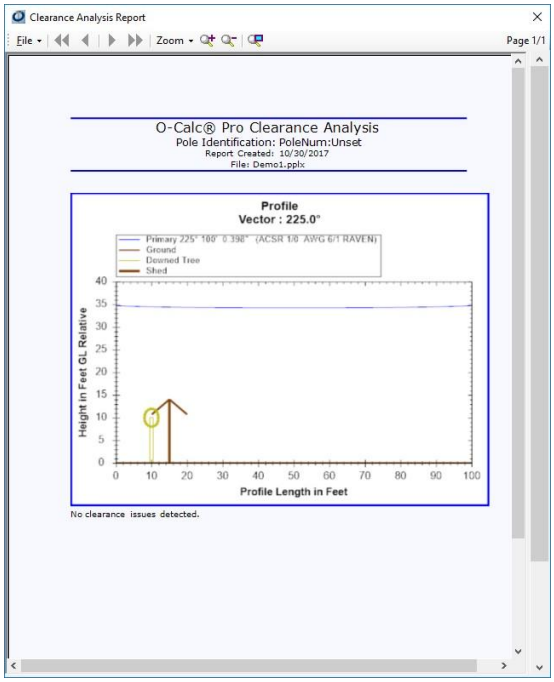
1. Select **Tools > Clearance Analysis > Clearances and Violations.**



2. Select the **Clearance Analysis** drop down menu.



- **Current Vector** – Creates a Clearance Analysis report on the currently select vector in the Clearance Analysis window.

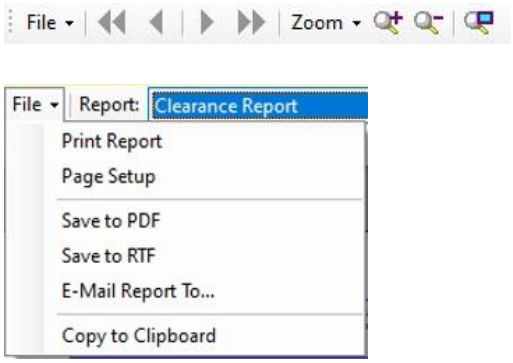


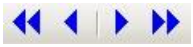
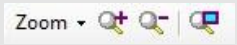
- **All Vectors** – Creates a Clearance Analysis report on all the currently listed vectors in the Clearance Analysis window.

©2025 Osmose Utilities Services, Inc.

Clearance Report Menu Options

Once the Clearance Analysis report is displayed the toolbar menu provides you with a variety of options. The following options are available from the **File** menu:

File 	**Print Report** Use to print the Clearance Analysis. **Page Setup** Use to configure how the Clearance Analysis will be printed. **Save to PDF** Use to save the Clearance Analysis as a PDF file. **Save to RTF** Use to save the Clearance Analysis as an RTF file. **E-Mail Report To** Use to E-Mail the Clearance Analysis. **Copy to Clipboard** Use to copy the Clearance Analysis to the clipboard to paste it into other applications.

Navigation Controls 	Click the arrow buttons to easily navigate through the document pages.
Zoom Controls 	Use to change the documents magnification level.

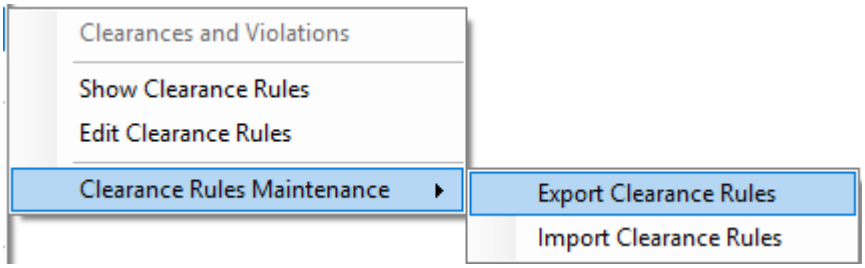
Clearance Rules Maintenance

The O-Calc® Pro Clearance Analysis rules can be exported for use by other O-Calc® Pro users, preventing the need to develop a new set of Clearance Analysis rules. The export process makes a copy of the current Clearance Analysis rules and saves them in a location you specify. The saved Clearance Analysis rules can then be exported to be imported by another O-Calc® Pro user and modified as needed.

Export Clearance Rules

To export the Clearance Rules, complete these steps:

1. Select **Tools > Clearance Analysis > Clearance Rules Maintenance > Export Clearance Rules**.

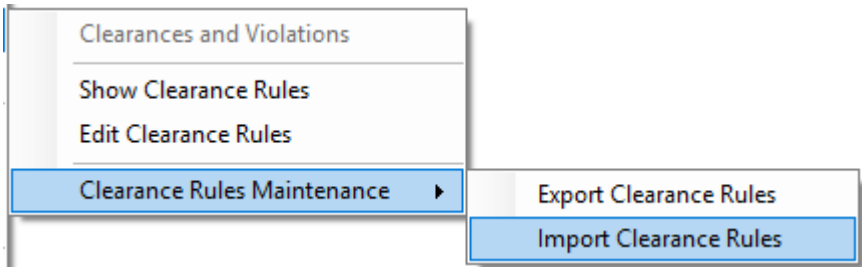


2. Browse to the location to save the Clearance Rules and click **Save**, click **OK**.

Import Clearance Rules

To import the Clearance Rules, complete these steps:

1. Select **Tools > Clearance Analysis > Clearance Rules Maintenance > Import Clearance Rules**.

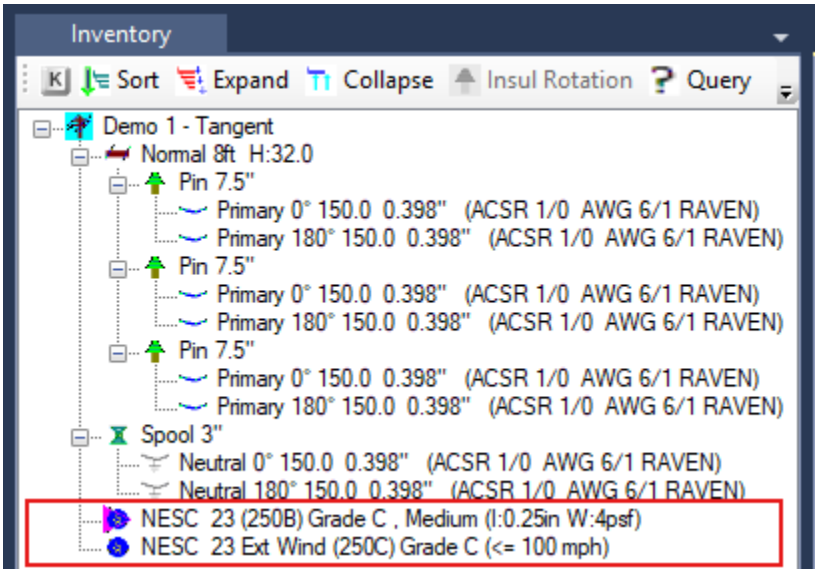


2. Browse to the location of the Clearance Rules file you want to import and select the (Clearance Rules name).crx file, click **Open**.
3. Select **OK** to the import confirmation message.

Load Case Defaults and Comparison

When several Load Cases are attached to a pole in the Inventory panel O-Calc® Pro provides a Load Case Comparison report. The Load Case Comparison provides detailed calculations for each Load Case and identifies and displays the Worst Load Case in the comparison. The report can be saved, emailed, copied or printed. To compare load cases you must have more than one load case added to the pole.

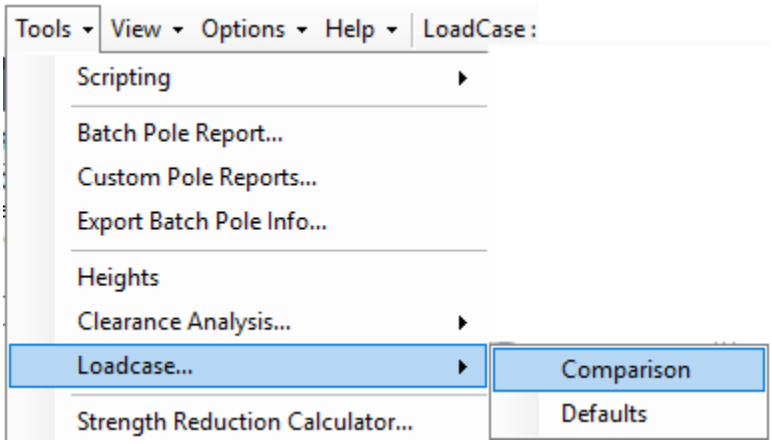
To compare Load Cases you must add more than one Load Case to the pole. The Load Cases appear in the Inventory. Only one of the Load Case icons below is highlighted with a pink triangle. The pink triangle indicates the currently calculated Load Case. Although more than one Load Case is added to the pole, only one can be calculated at a time, the results are displayed in the Capacity panel.



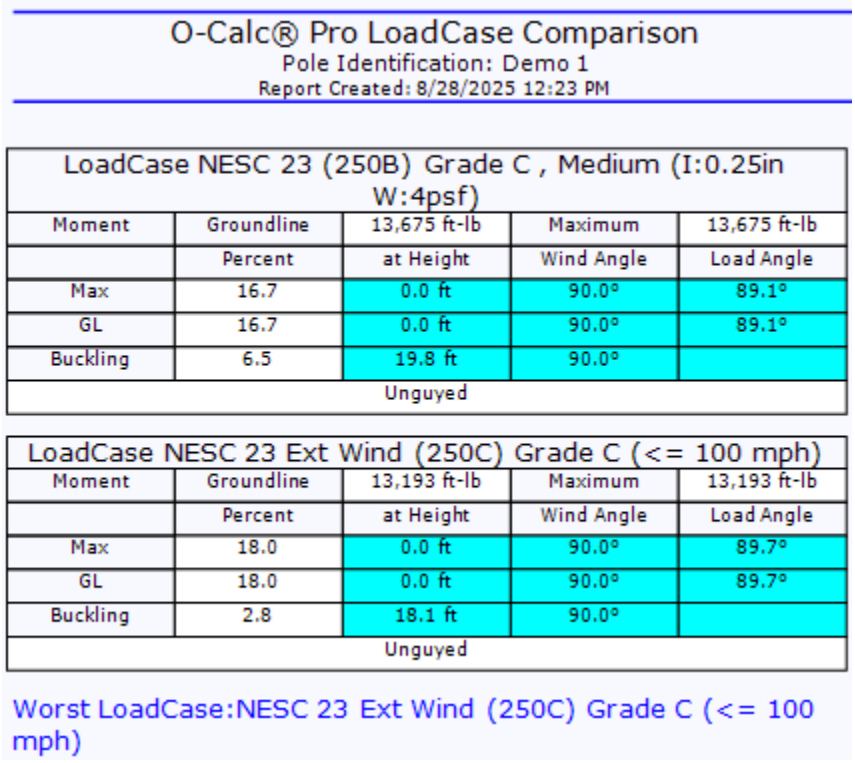
©2025 Osmose Utilities Services, Inc.

To create a Load Case Comparison, complete these steps:

1. First add a pole to the Inventory and add two different load cases from the Catalog to the pole.
2. Go to the **Tools** menu, select **Load case**, and click on **Comparison**.



3. The report appears with the information about both load cases along with identifying the Worst Load Case at the bottom of the Report.



O-Calc® Pro LoadCase Comparison

Pole Identification: Demo 1

Report Created: 8/28/2025 12:23 PM

LoadCase NESC 23 (250B) Grade C , Medium (I:0.25in W:4psf)				
Moment	Groundline	13,675 ft-lb	Maximum	13,675 ft-lb
	Percent	at Height	Wind Angle	Load Angle
Max	16.7	0.0 ft	90.0°	89.1°
GL	16.7	0.0 ft	90.0°	89.1°
Buckling	6.5	19.8 ft	90.0°	
Unguyed				

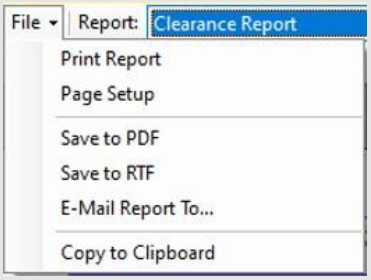
LoadCase NESC 23 Ext Wind (250C) Grade C (<= 100 mph)				
Moment	Groundline	13,193 ft-lb	Maximum	13,193 ft-lb
	Percent	at Height	Wind Angle	Load Angle
Max	18.0	0.0 ft	90.0°	89.7°
GL	18.0	0.0 ft	90.0°	89.7°
Buckling	2.8	18.1 ft	90.0°	
Unguyed				

Worst LoadCase:NESC 23 Ext Wind (250C) Grade C (<= 100 mph)

Note: *The pole calculations needs to be completed, if the Auto Capacity Summary is disabled the calculations cannot be performed and the Load Case Comparison is disabled.*

Load Case Comparison Menu

Once the O-Calc® Pro Load Case Comparison is displayed the toolbar menu provides a variety of options described below.

File Menu 	**Print Report**. Select the Print Report option to print the Load Case Comparison. **Page Setup**. Select the Page Setup option to configure how the Load Case Comparison will be printed. **Save to PDF**. Select the Save to PDF option to save the Load Case Comparison as a PDF file. **Save to RTF**. Select the Save to RTF option to save the Load Case Comparison in RTF format. **E-Mail Report To**. Select the E-Mail Report To option to Email the Load Case Comparison. **Copy to Clipboard**. Select the Copy to Clipboard option to copy the Load Case Comparison to the clipboard so that it can be pasted directly into other applications.
Navigation Controls 	Click the arrow buttons to easily navigate through the document pages.
Zoom Controls 	Use to change the documents magnification level.

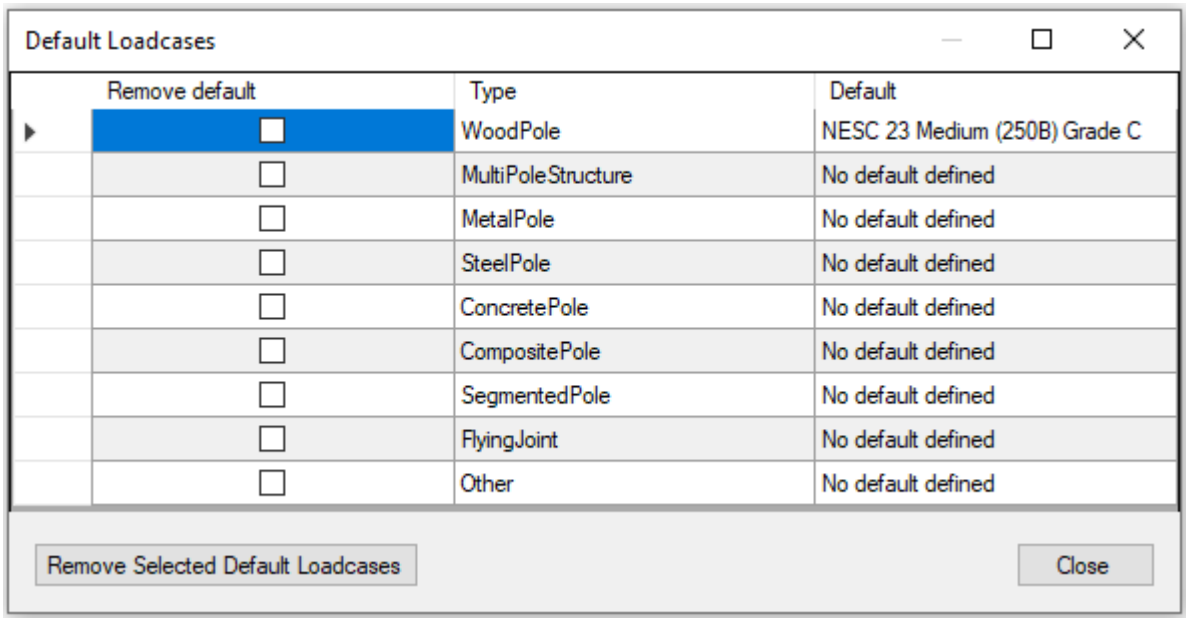
Remove a Default Load Case

To remove any default Load Case, complete these steps:

1. Select **Tools > Load Case... > Defaults**.

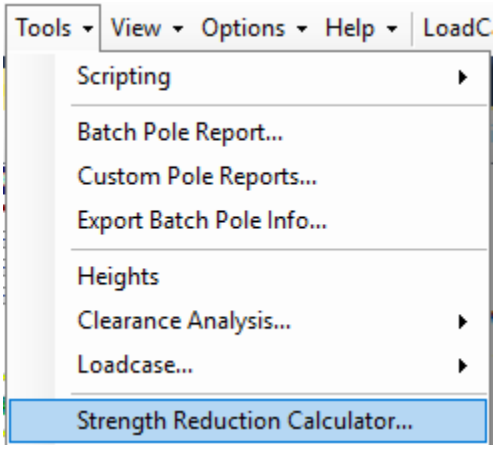
©2025 Osmose Utilities Services, Inc.

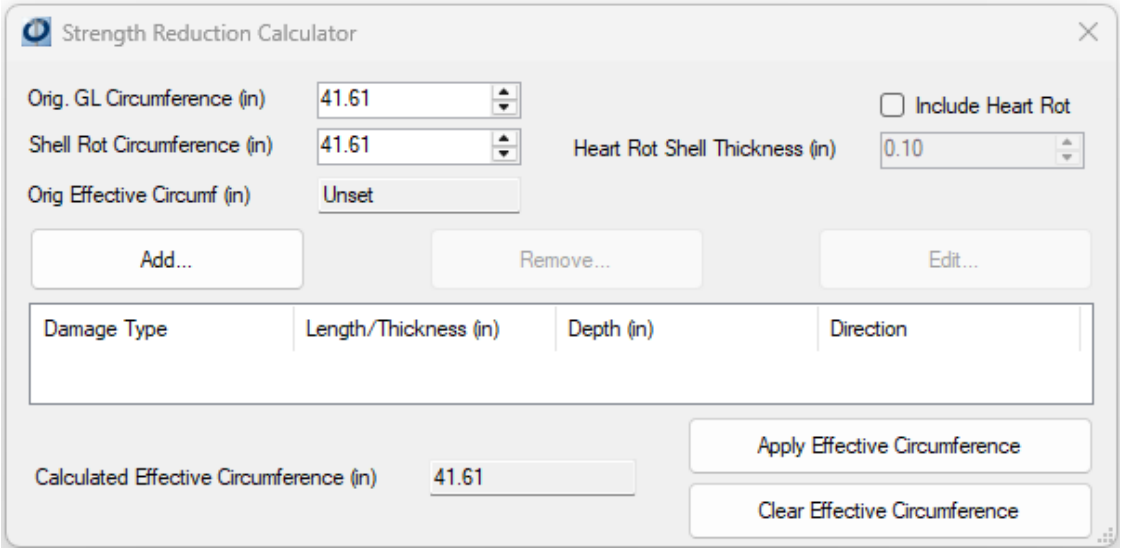
2. In the Default Load cases window, **check the box(s)** for the load case(s) you want to remove.
3. Click the **Remove Selected Default Load cases** button.
4. Click the **Close** button.



Strength Reduction Calculator

The O-Calc® Pro Strength Reduction Calculator offers the ability to add pole damage to the pole analysis based on the damage size and type. Any damage entered is applied to the groundline of the pole and considered in the pole loading results, providing a worst case scenario for the damage.



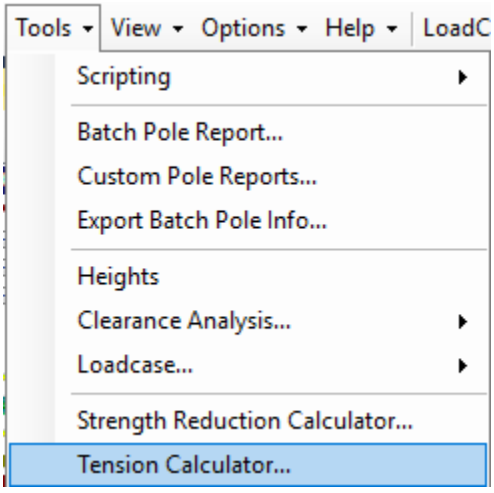


Sag Tension Calculator

The O-Calc® Pro Tension Calculator displays a Span Profile view calculator which can be used to input conductor attribute values to examine different scenarios for amounts of wire sag. Another way to automatically see the results for a given span is to right-click on the span in the Inventory or 3D View and select the Tension of… option, the Sag Tension Calculator displays with the current results for the wire you selected.

The O-Calc® Pro Sag Tension Calculator allows you to calculate and apply a Sag Tension to a span whose Tension Type is set to Static. The Sag Tension Calculator can also be used for reference purposes without applying a sag tension calculation. When working with a span that has a Tension Type of Static, complete these steps to set the sag tension using the Sag Tension Calculator:

1. Go to the **Tools** menu, select the **Tension Calculator** option.

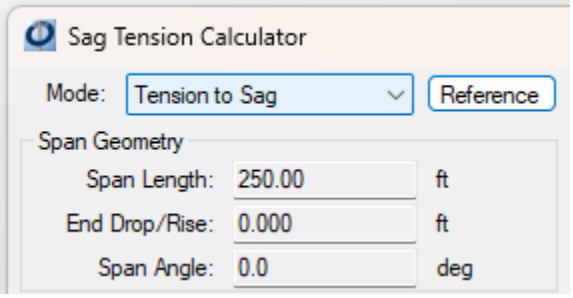


2. Input the values to examine different scenarios for amounts of wire sag in any open window (not greyed out) and the O-Calc® Pro Sag Tension

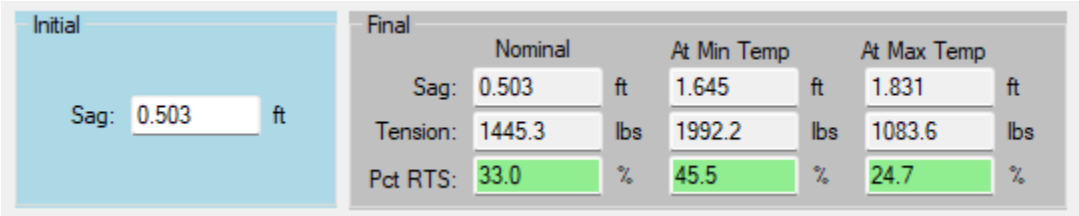
©2025 Osmose Utilities Services, Inc.

Calculator updates to display the results in the chart for your information. These edits do not affect the pole in the Inventory.

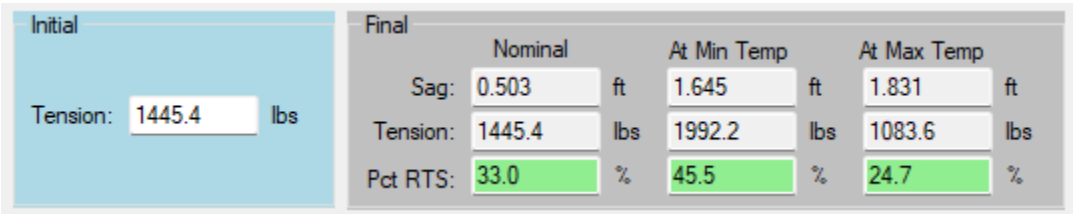
3. Open the **Mode** drop down menu to change the display to Sag in feet (**Sag to Tension**) or Tension (**Tension to Sag**) in pounds.



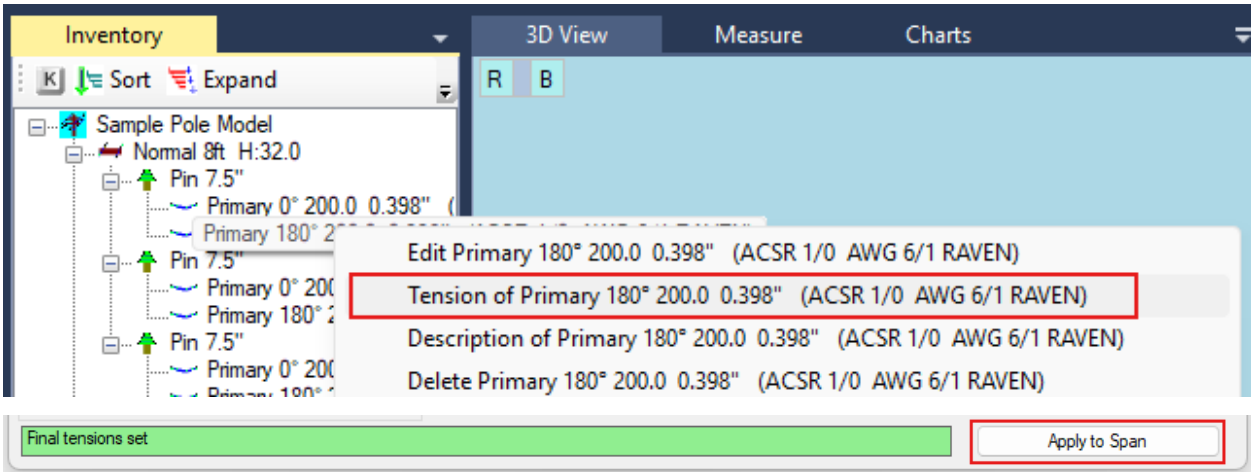
Sag to Tension Mode



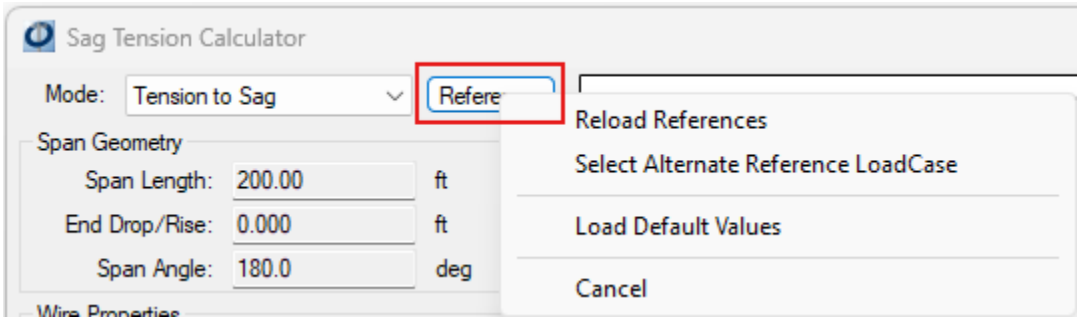
Tension to Sag Mode

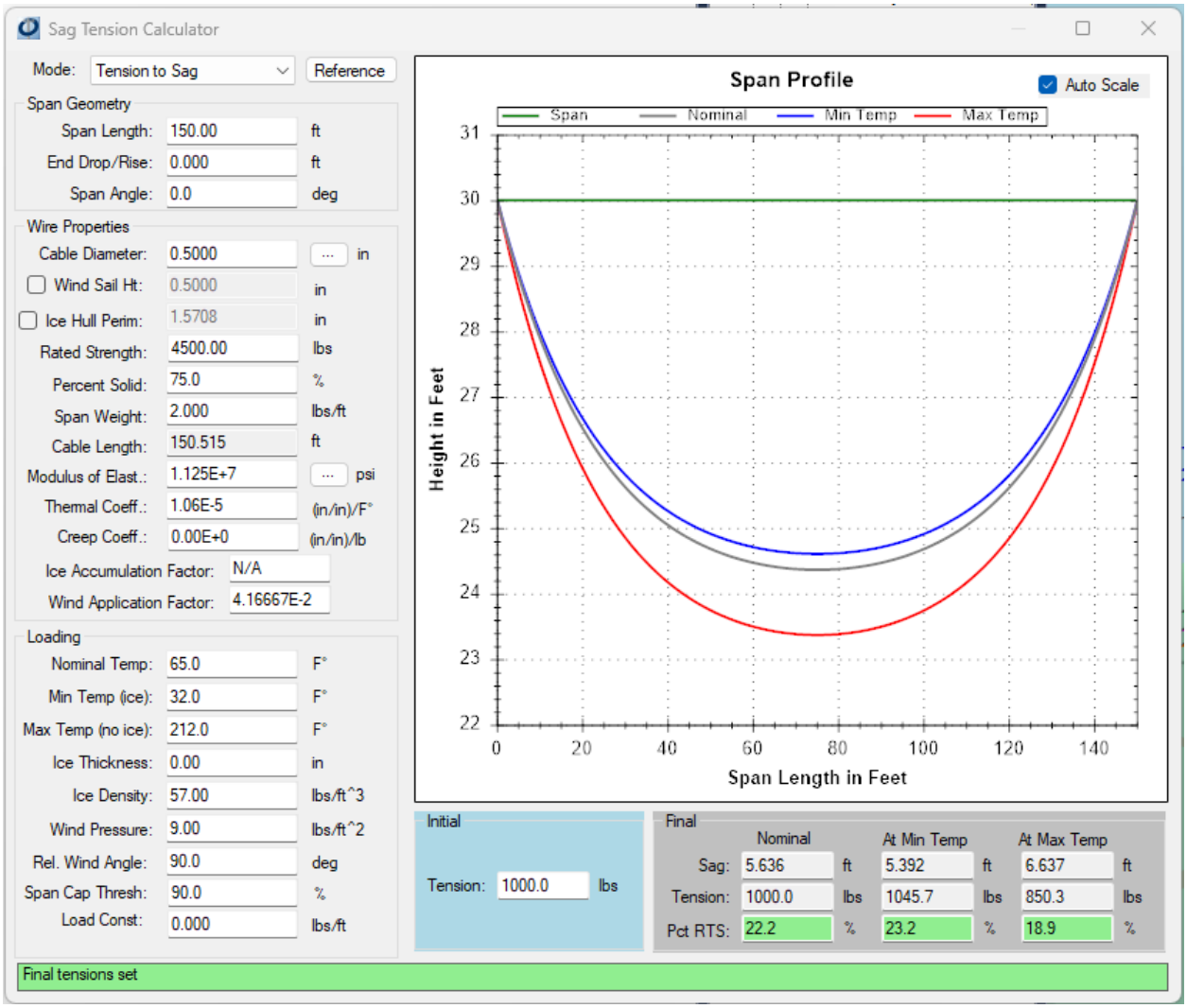


When the O-Calc® Pro Sag Tension Calculator is initially opened some of the fields are pre-populated with information from the pole. When opening the Sag Tension Calculator by selecting Tools > Tension Calculator the **Apply to Span** button is not displayed, you must right-click on a span in the Inventory or 3D View panel to have the Apply to Span option shown below.



Use the **Reference** button to: Reload References, Select Alternate Reference Load Case or Load Default Values.

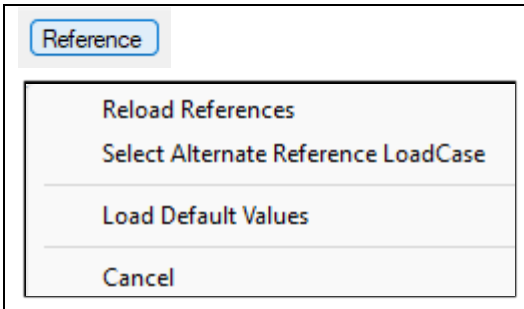
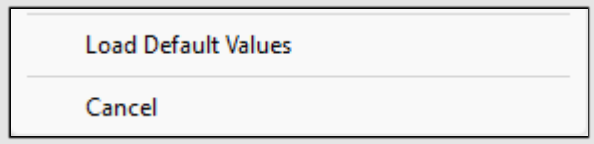
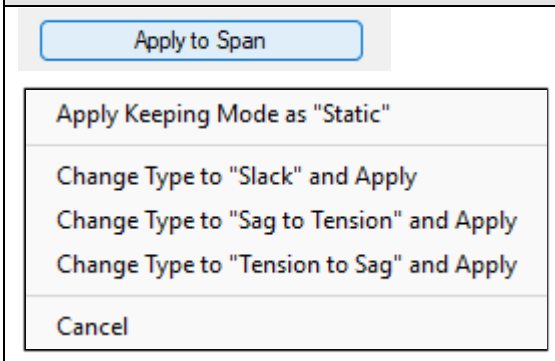




©2025 Osmose Utilities Services, Inc.

Calculator Reference Menu

The Sag Tension Calculator provides a variety of operations and options from the Reference menu:

	**Reload References.** Select the Reload References option to reload the pertinent values from the selected LC. **Select Alternate Reference Load Case**. Select this option to select a different load case to reference.
	**Load Default Values**. Select this option to load a set of nominal load parameters. **Cancel**. Select this option to close the Reference menu option without taking any action.
	**Apply to Span**. The Apply to Span options transfers selected attributes back to the original span and optionally changes the tension mode. The menu items will reflect the tension mode of the original seed span **Cancel**. Select the Cancel option to close without taking any action.

3. Complete any **attribute modifications**.
4. Enter the **Initial Sag** measurement.
5. Click **Apply to Span** to transfer selected attributes back to the original span and optionally change the tension mode.

Working with Sag Tension Table Generator

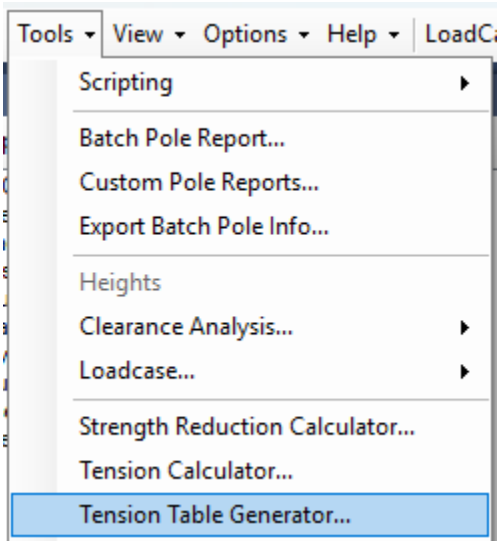
The O-Calc® Pro Sag Tension Table Generator is a versatile tool for analyzing conductor behavior under various conditions. Whether you're working from known sag or tension values, this tool provides a structured, repeatable way to generate tables showing sag values for different span lengths, load cases, and temperatures.

The O-Calc® Pro Sag Tension Table Generator complements the O-Calc® Pro Sag Tension Calculator. It allows you to view the amount of sag occurring for a given span type and load case at various span lengths across a range of temperatures.

O-Calc® Pro provides several tension types for modeling and analysis. For detailed information on these tension types, refer to the O-Calc® Pro Wiki article: Tension Types and Sag Explained, which can be accessed through the Help menu.

To utilize the **Tension Table Generator** complete these steps:

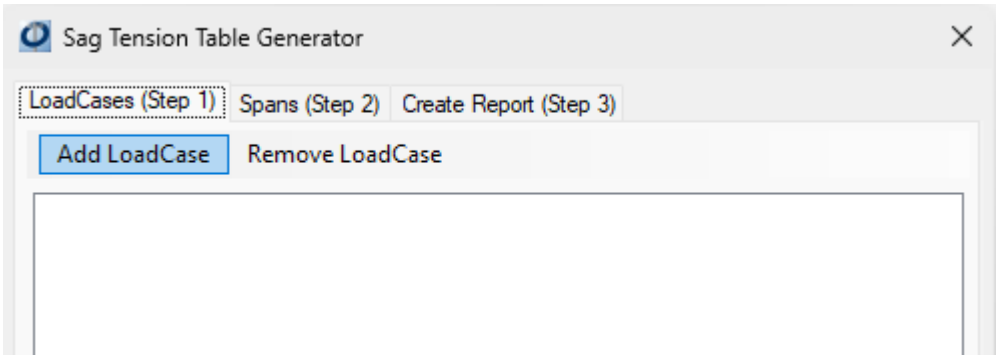
1. Select **Tools** > **Tension Table Generator…**



Step 1- Load Case(s)

The **Tension Table Generator** is a 3-step process that produces sag results. In **Step 1** add the Load Case(s). To begin to create the Sag Tension Table Generator information complete this three step process:

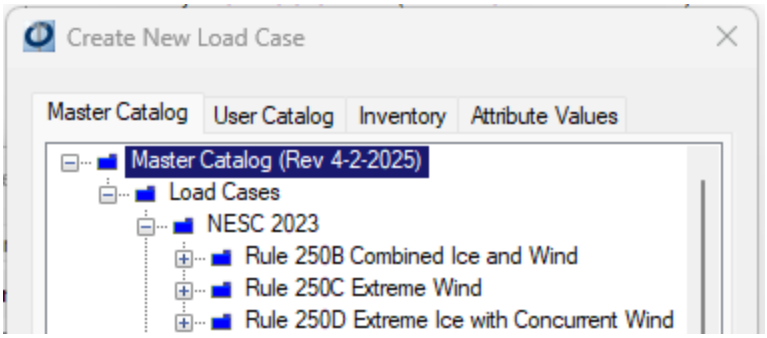
1. In the **Load Cases (Step 1)** tab, click the **Add Load Case** button.



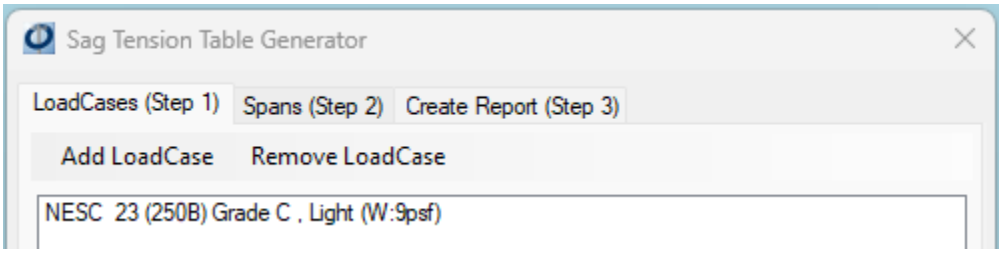
2. The **Create New Load Case** window opens. Choose one Load Case at a time from the Catalog and click **OK**. Only one Load Case can be added at a time.

Note: *If multiple Load Cases are needed, the tool can run multiple scenarios for each of the Load Case parameters. Repeat the Add Load Case process above if you need to add additional Load Cases.*

©2025 Osmose Utilities Services, Inc.



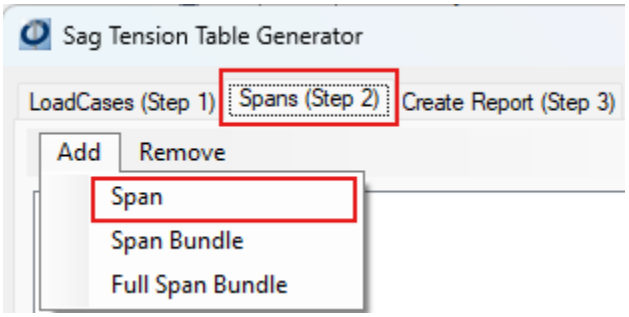
3. The Load Case(s) is added to the list.



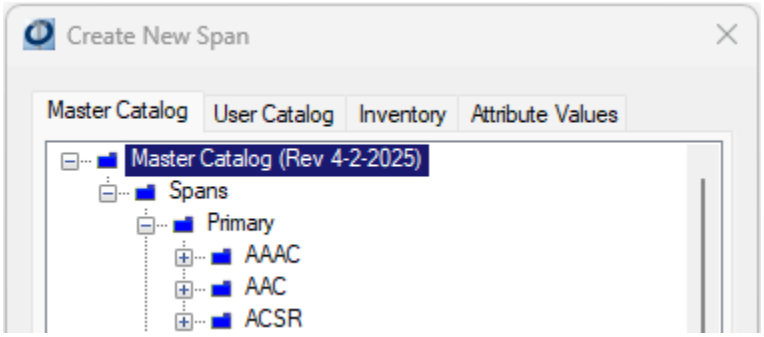
Step 2- Spans

Select the span (normal span) or span bundle (messenger cable) or full span bundle (Hendrix cable) to the considered in the generated table and click **OK**. Follow these steps to add spans:

1. Click **Spans (Step 2)** tab, click the **Add** menu and select **Span** from the available options: Span, Span Bundle, Full Span Bundle.

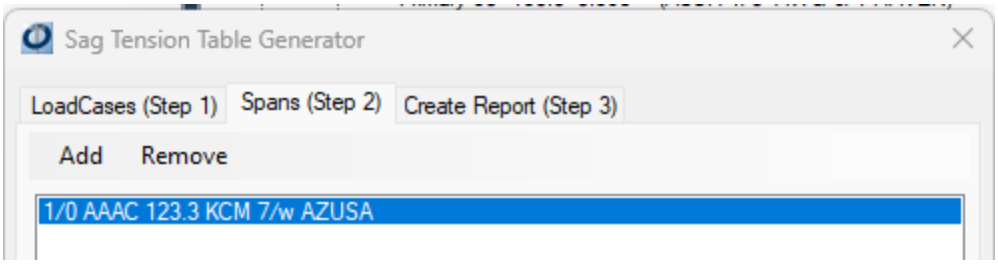


2. The **Create New Span** window opens with a filtered version of the catalog that shows spans which correspond to the type that was selected.



3. Select any conductor, the conductor is added successfully.

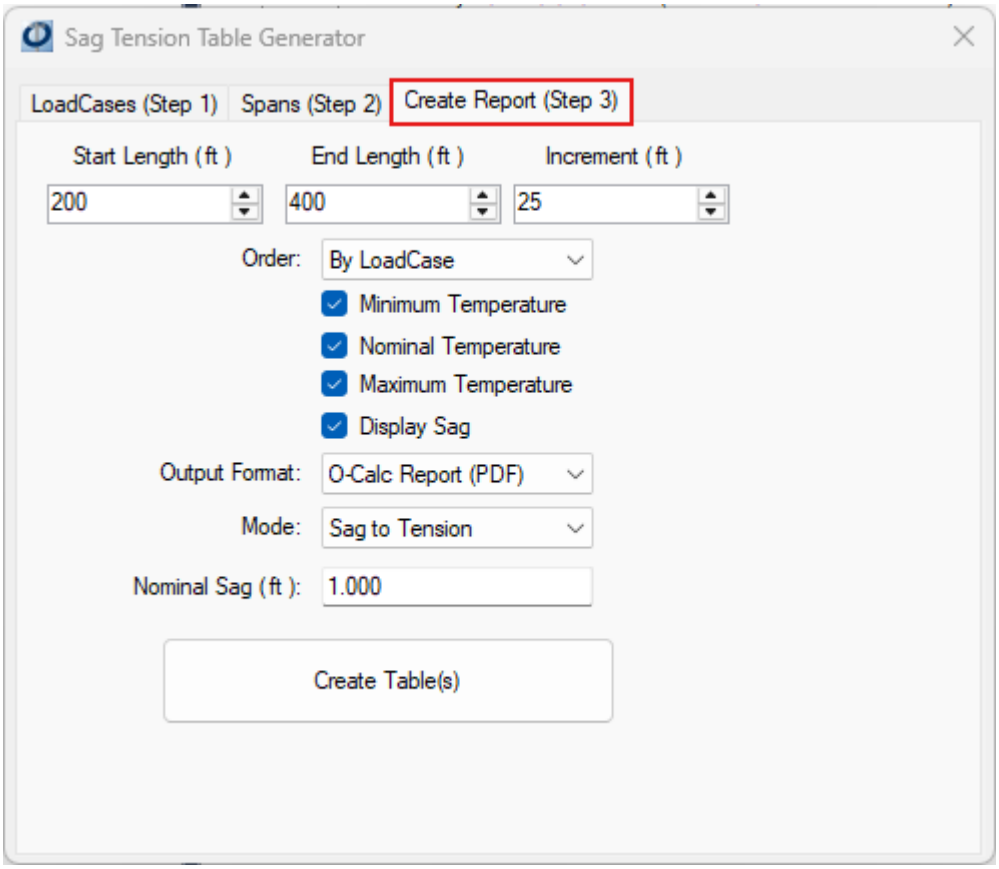
©2025 Osmose Utilities Services, Inc.



Step 3- Create Table(s) Report

Enter a Start and End Length and Increment in feet. Along with other parameters. If the unit convention is set to metric the values display in meters. To complete step 3 follow these steps:

1. Click the **Create Report (Step 3)** tab



2. Modify the **Report** values displays for these options:
    a. **Start Length** the distance from the pole a user would like to have a sag value calculated.
    b. **End Length** how long the spans are.
    c. **Increment** the amount of feet between each point of sag calculation
    d. **Order** determines how the results are sorted in the report and has two options:

©2025 Osmose Utilities Services, Inc.

- **By Load Case** splits the report up by a Load Case, with each selected span run together.
- **By Span** separates the report by the span type selected, with each type of span showing all Load Cases selected grouped together.

e. **Minimum Temperature** based on the Load Case selected

f. **Nominal Temperature** based on the Load Case selected

g. **Maximum Temperature** based on the Load Case selected

h. **Display Sag**

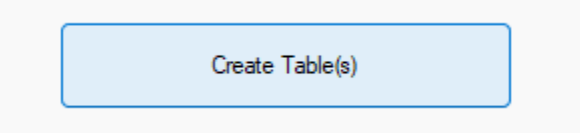
i. **Output Format** options: **PDF** or **CSV**.

j. Choose the **Mode** option:

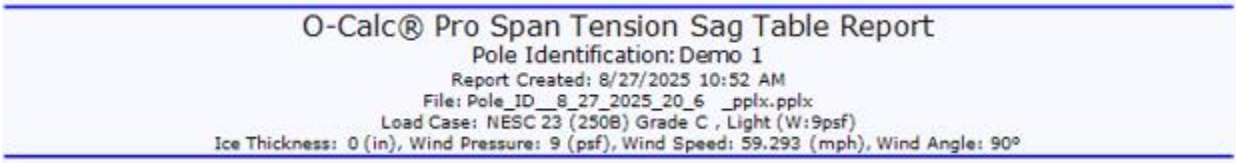
- **Sag to Tension** user to set the nominal sag for the conductor and have the tool calculate the amount of tension.
- **Tension to Sag** user to input the tension and have the tool calculate the amount of sag.

k. **Nominal Sag** in feet or keep the 1ft default value.

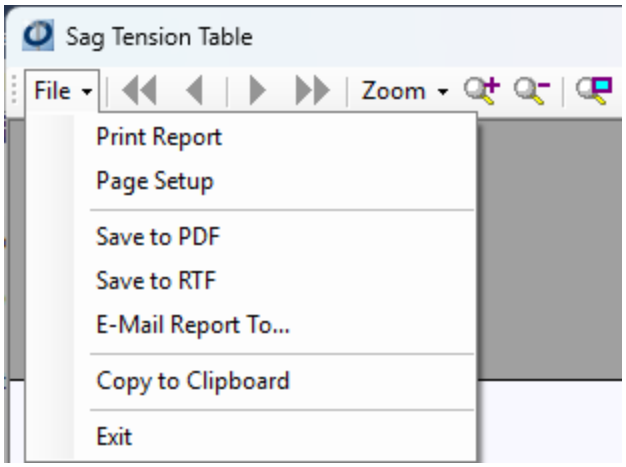
l. Click the **Create Table(s)** button. The report is generated depending on the order selected, there are either separate pages for each Load Case, or for each span type. The header information indicates what Load Case, or span is being considered.



The Report is generated depending on the order selected, there are either separate pages for each Load Case, or for each span type. The header information indicates what Load Case, or span is being considered:



The **File** menu contains various options to print, save, email, and copy the report:



By Load Case order, the header information indicates the load case being considered, the ice and wind factors, and the table content is separated by the span type.

By Span order, the header information provided relates to the span, and the table itself is separated by load case being considered.

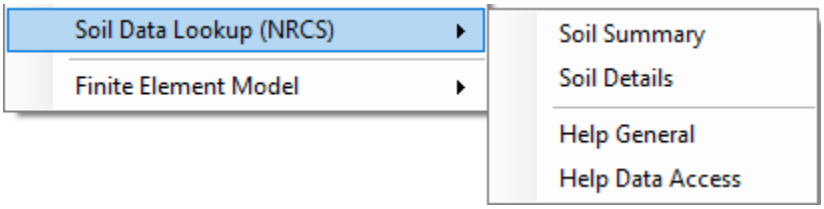
O-Calc® Pro Span Tension Sag Table Report
Pole Identification: Demo 1
Report Created: 8/27/2025 10:52 AM
File: Pole_ID__8_27_2025_20_6 _pplx.pplx
Load Case: NESC 23 (250B) Grade C , Light (W:9psf)
Ice Thickness: 0 (in), Wind Pressure: 9 (psf), Wind Speed: 59.293 (mph), Wind Angle: 90°

Span: 1/0 AAAC 123.3 KCM 7/w AZUSA
Span Diameter: 0.398 (in), Thermal Coef: 1.28E-05 ((in/in)f), Span Weight: 0.115 (lbs/ft), MOE: 1.00E+7 (psi), Rated Strength: 4270 (lbs)

	Temp. Min. 30 (F)		Temp. Nominal 60 (F)		Temp. Max. 120 (F)	
Span Length(ft)	*Tension(lb)*	*Sag(ft)*	*Tension(lb)*	*Sag(ft)*	*Tension(lb)*	*Sag(ft)*
200	991.3	1.866	574.4	1	538.6	3.435
225	1145.6	2.043	727	1	640.2	3.657
250	1314	2.199	897.6	1	756.6	3.82
275	1498	2.334	1086.1	1	891	3.925
300	1698.8	2.449	1292.5	1	1046.1	3.978
325	1916.7	2.548	1516.9	1	1223.8	3.991
350	2152.7	2.631	1759.3	1	1425.4	3.974
375	2407.4	2.701	2019.7	1	1651.5	3.937
400	2680.4	2.76	2298	1	1901.1	3.891

Soil Data Lookup (NRCS)

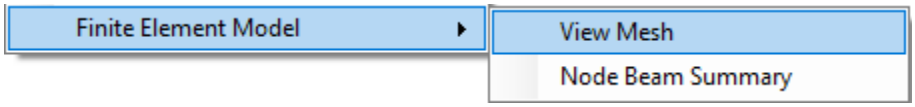
Provides soil data based on the information at the U.S. Natural Resources Conservation Service website for the latitude and longitude of the pole.

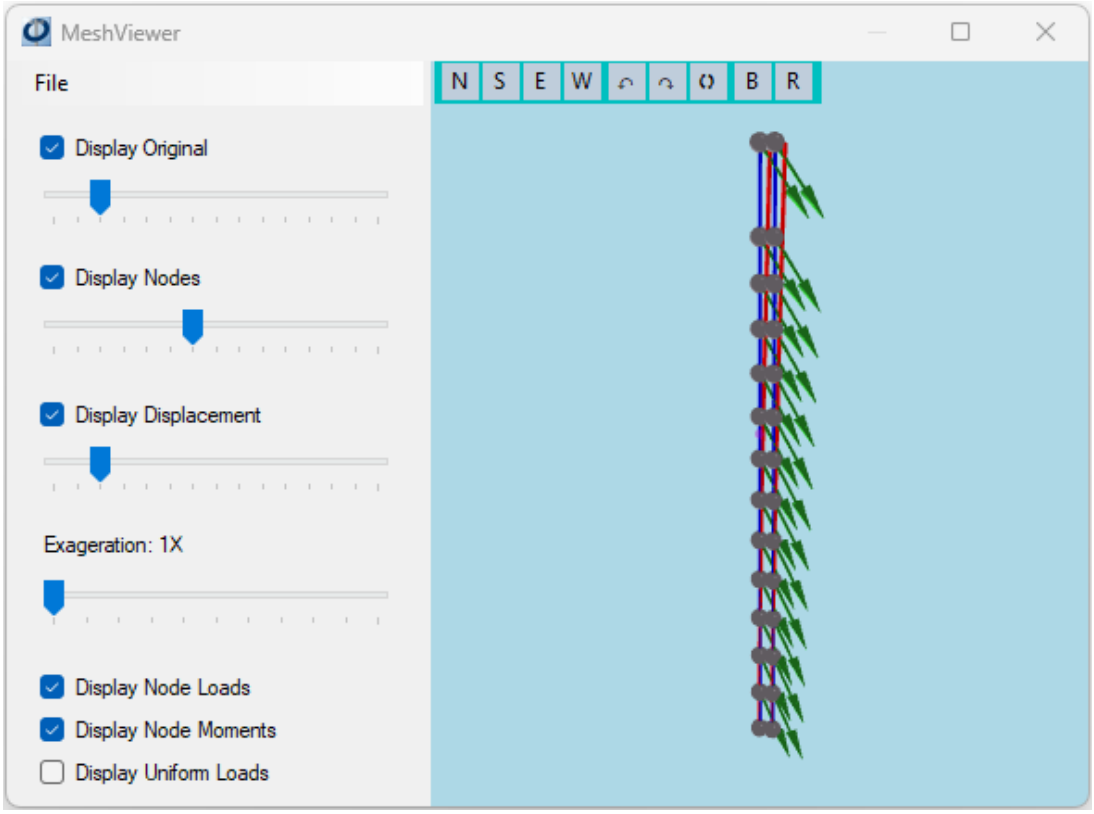


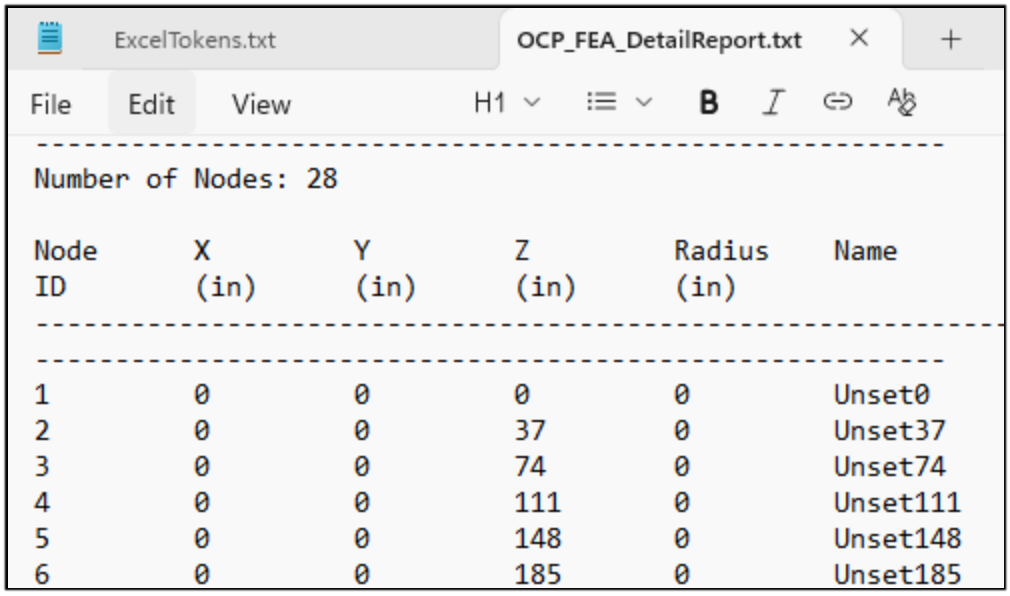
©2025 Osmose Utilities Services, Inc.

Finite Element Model

Provides a mesh view of the pole model and a finite element analysis of the node beam summary in a text file.

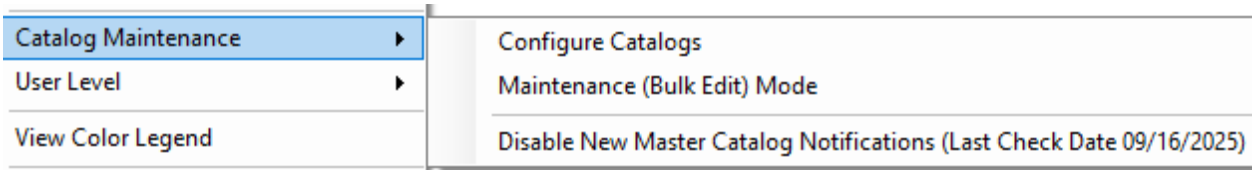






Catalog Maintenance

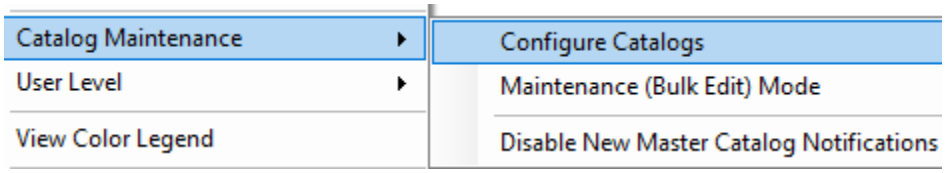
Within the O-Calc® Pro Catalog Maintenance options are provided to add, remove, edit and download multiple Master and User Catalogs. Each catalog configuration displays independently within O-Calc® Pro.



Configure Catalogs

To open the catalog configuration window, complete these steps:

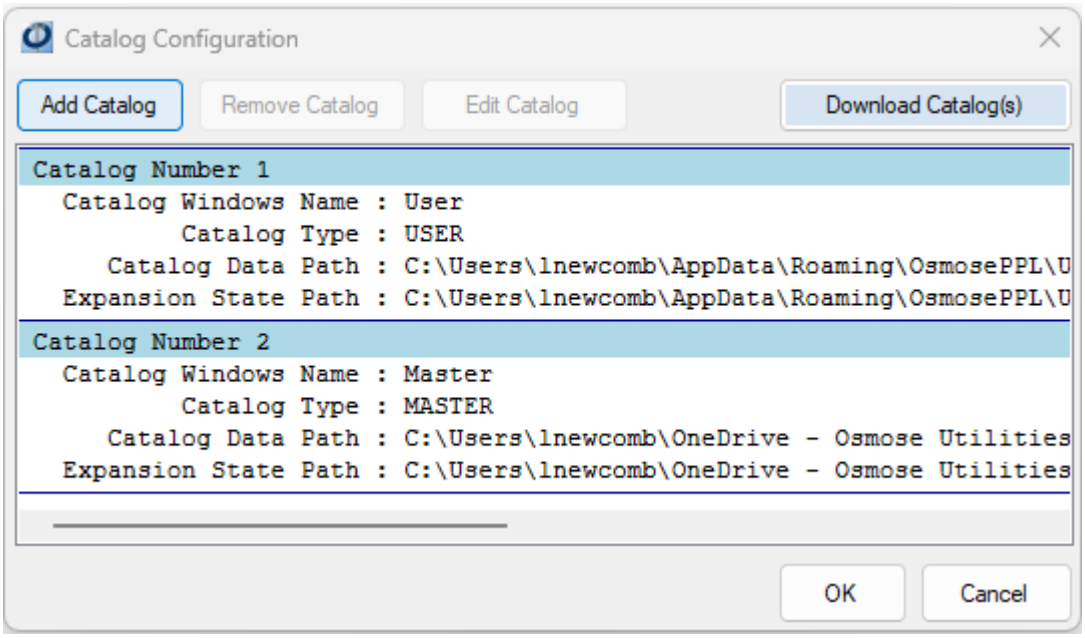
1. Select the **Tools** menu, select **Catalog Maintenance**, click on **Configure Catalogs**.



2. In the Catalog Configuration window click the **Add Catalog** button.

©2025 Osmose Utilities Services, Inc.

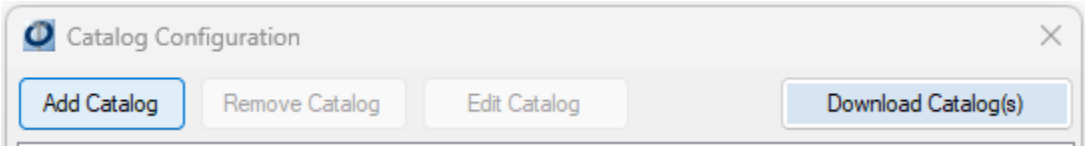
Note: *A default Master and User Catalog are provided upon installation of O-Calc® Pro. To download additional Catalogs click the Download button. To Add, Remove and Edit Catalog you must first select the Catalog from those displayed by clicking on it.*



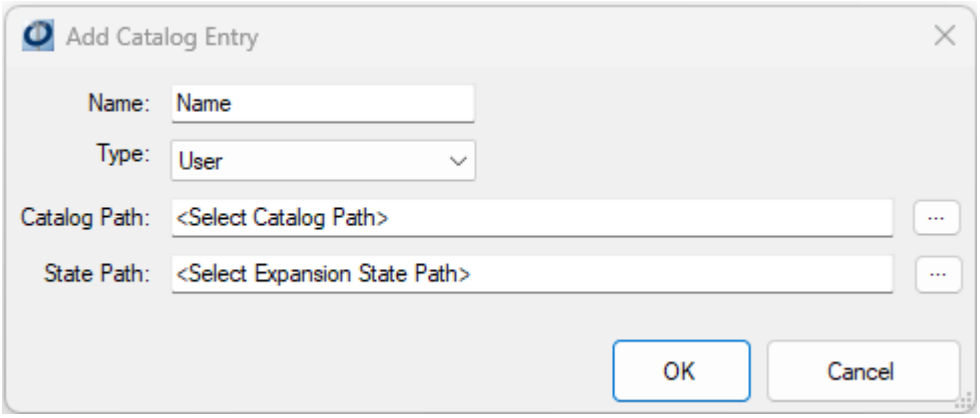
Add a Catalog

To add a catalog, complete these steps:

1. Select the **Add Catalog** button.



2. Enter the catalog **Name**.



3. Select the catalog **Type** from the drop-down list.

Note: *Master Catalogs have blue folders and cannot be edited, User Catalogs have yellow folders and can be edited.*

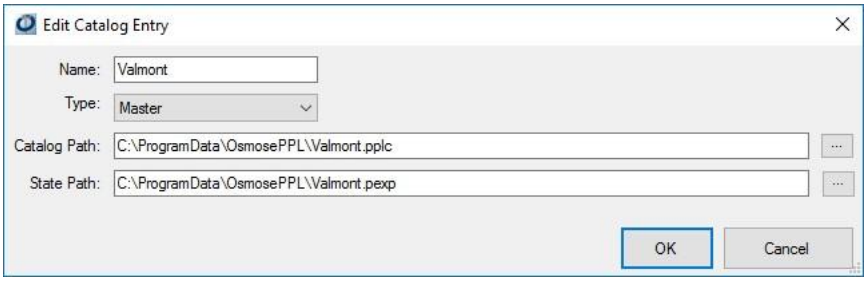
4. Select the **Catalog Path** browse button ... to browse to and select the catalog file and click the **Open** button.
5. The **State Path** is automatically populated. Or you can use the browse button ... to browse to and select the catalog expansion file you would like to use and click **Open**.
6. In the Catalog Configuration window, click **OK** to close.

Note: *There is no undo for this operation.*

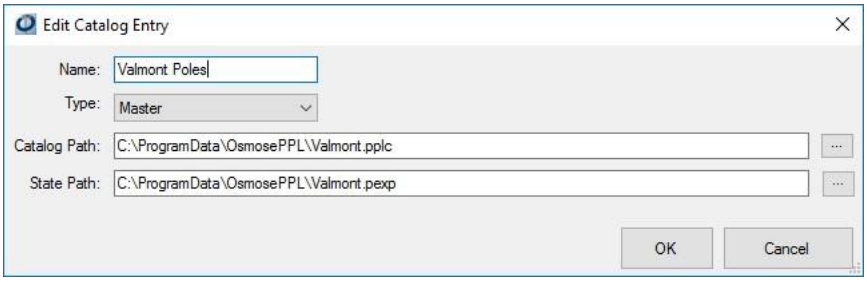
Edit a Catalog

To edit a catalog configuration, complete these steps:

1. Select **Tools > Catalog Maintenance > Configure Catalogs**.
2. Select the Catalog you would like to edit.
3. Select the **Edit Catalog** button Edit Catalog.



4. Complete any modifications to the catalog configuration.



5. Click **OK** to close the **Add Catalog Entry** window.

   Note: *There is no undo for this operation.*
6. Click **OK** to close the Catalog Configuration window.
7. Click **OK** to the **Restart Required** message.

Remove a Catalog

To remove a catalog configuration, complete these steps:

1. Select **Tools > Catalog Maintenance > Configure Catalogs**.

©2025 Osmose Utilities Services, Inc.

2. Select the Catalog you would like to delete.
3. Select the **Remove Catalog** button

.
4. Select **Yes** to the remove confirmation message.

Note: *There is no undo for this operation. These customizations can only be restored by reverting to a previously saved backup of the Master Catalog.*

Note: *Backup versions of the Master Catalog can be obtained by selecting* ***Help > Folders > User Root Folder > Catalog Backup****.*

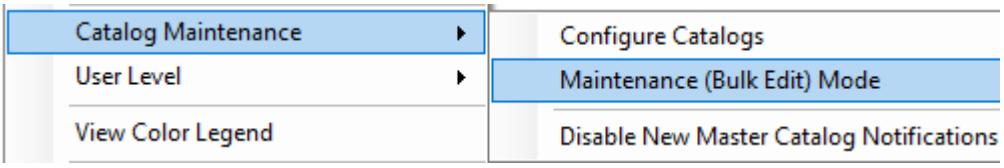
Download a Catalog

To download the latest version of an O-Calc® Pro catalog, complete these steps:

1. Select **Tools > Catalog Maintenance > Configure Catalogs**.
2. In the Catalog Configuration window, select the **Download Catalog(s)** button.
3. You are navigated to https://www.osmose.com/o-calc/catalogs
4. Select a catalog to download – clicking on it will begin the download, close web browser when the download completes.
5. You are prompted to choose a save location.
    - If saving in same location as older versions of a catalog, this action overwrites the older version.
6. In O-Calc, select **Tools > Catalog Maintenance > Configure Catalogs**
7. Use the **Add Catalog** button.

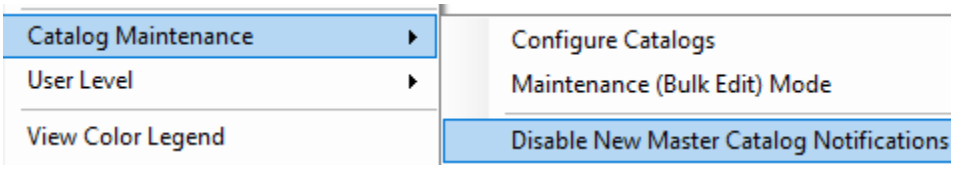
Maintenance (Bulk Edit) Mode

The Maintenance (Bulk Edit) Mode feature allows users with Administrative access to perform bulk edits.



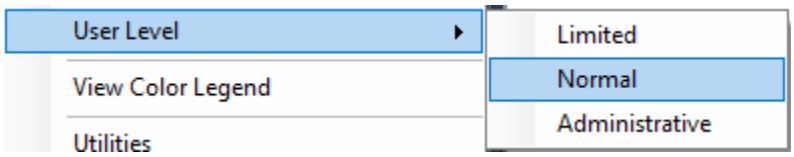
Newer Catalog Version Check

The Disable New Master Catalog Notifications feature alerts you when a newer Osmose Master Catalog version is available to download, simply click it to disable this feature. By default each time you log into O-Calc® Pro this feature checks if a newer version of the Osmose Master Catalog is available to download.



User Access Levels

Used to allows permission to access additional features within O-Calc® Pro. Typical user access is the 'Normal' option which is set by default. The User Level can also be updated by left clicking on the User Level in the Status Bar and selecting the preferred User Level. The current User Level will automatically be updated at the bottom of the Status Bar. To change your access permission, complete these steps:

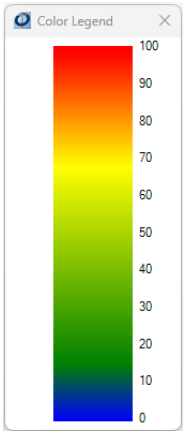


1. Go to the Tools menu, select User Level, and select the level needed.
2. Select **OK** to the confirmation message.

Note: *Changes to the User Level are per O-Calc® Pro session. No changes to the User Level are permanent. For additional information on O-Calc® Pro Security Level, see* *O-Calc ® Pro Security Administration*.

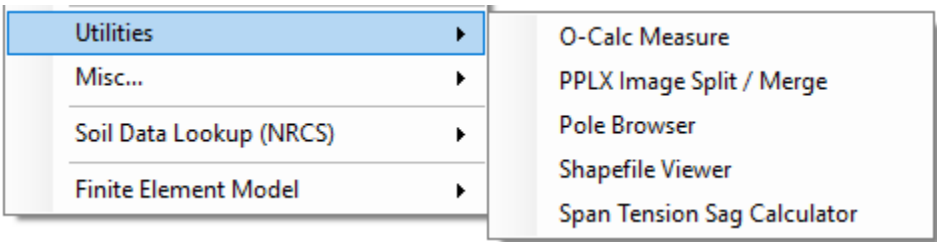
View Color Legend

O-Calc® Pro reveals the Color Legend in a vertical display with increments of ten and the corresponding color changes associated with the amount of stress on the pole.



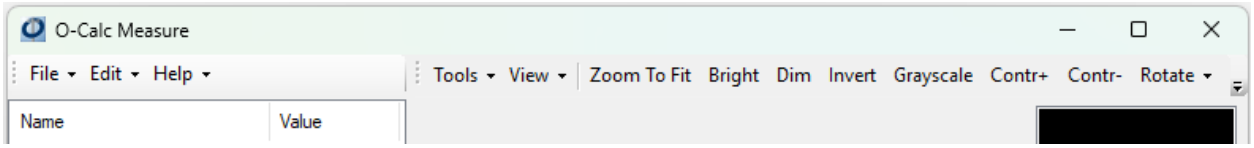
Utilities – Standalone Tools

Provides several standalone application tools that operate independently, without needing an internet connection, other programs, or external systems to function. These applications are self-contained, can store data locally, and perform their main functions on their own.

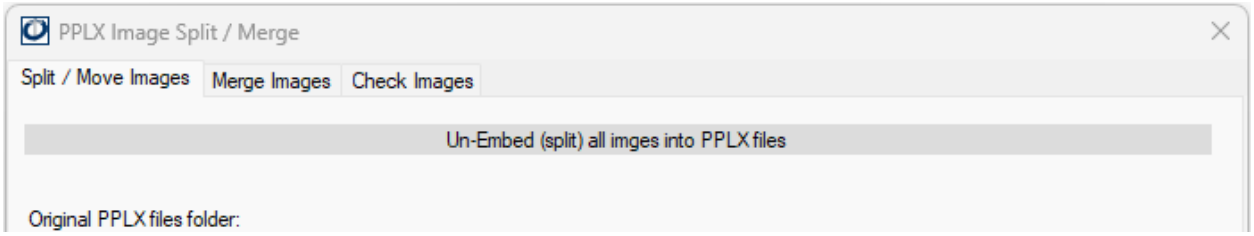


©2025 Osmose Utilities Services, Inc.

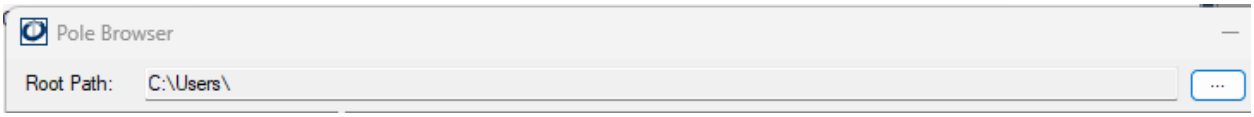
O-Calc Measure provides the Measure panel for access to image functionality.



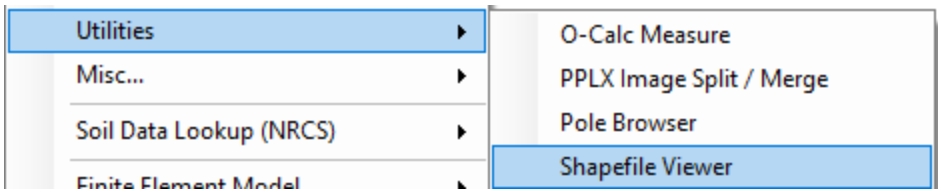
PPLX Image Split / Merge provides access to additional image functionality.

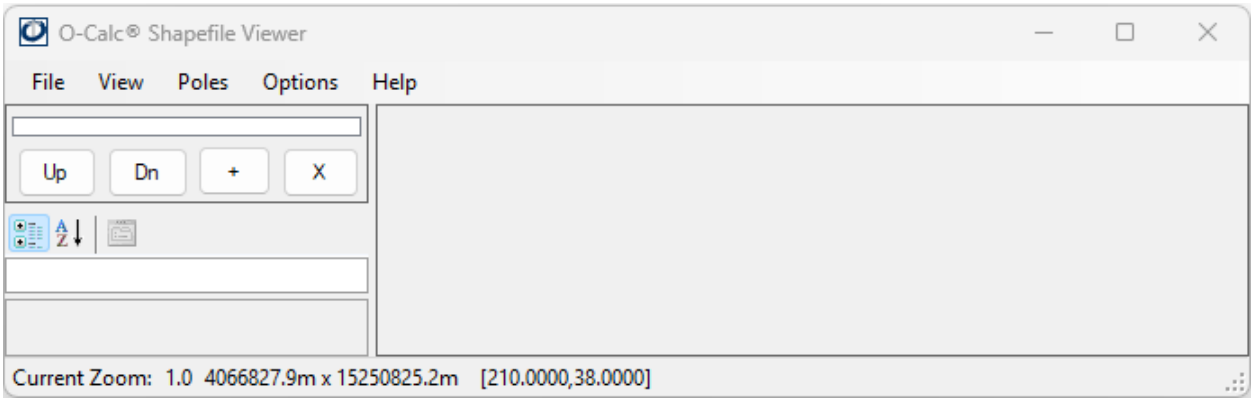


Pole Browser provides access to pole files.

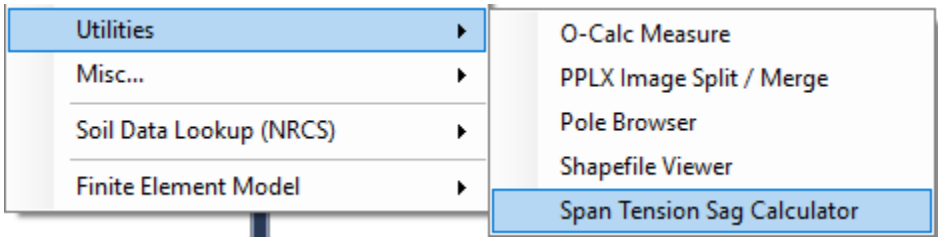


Shapefile Viewer provides access to view Shapefiles.

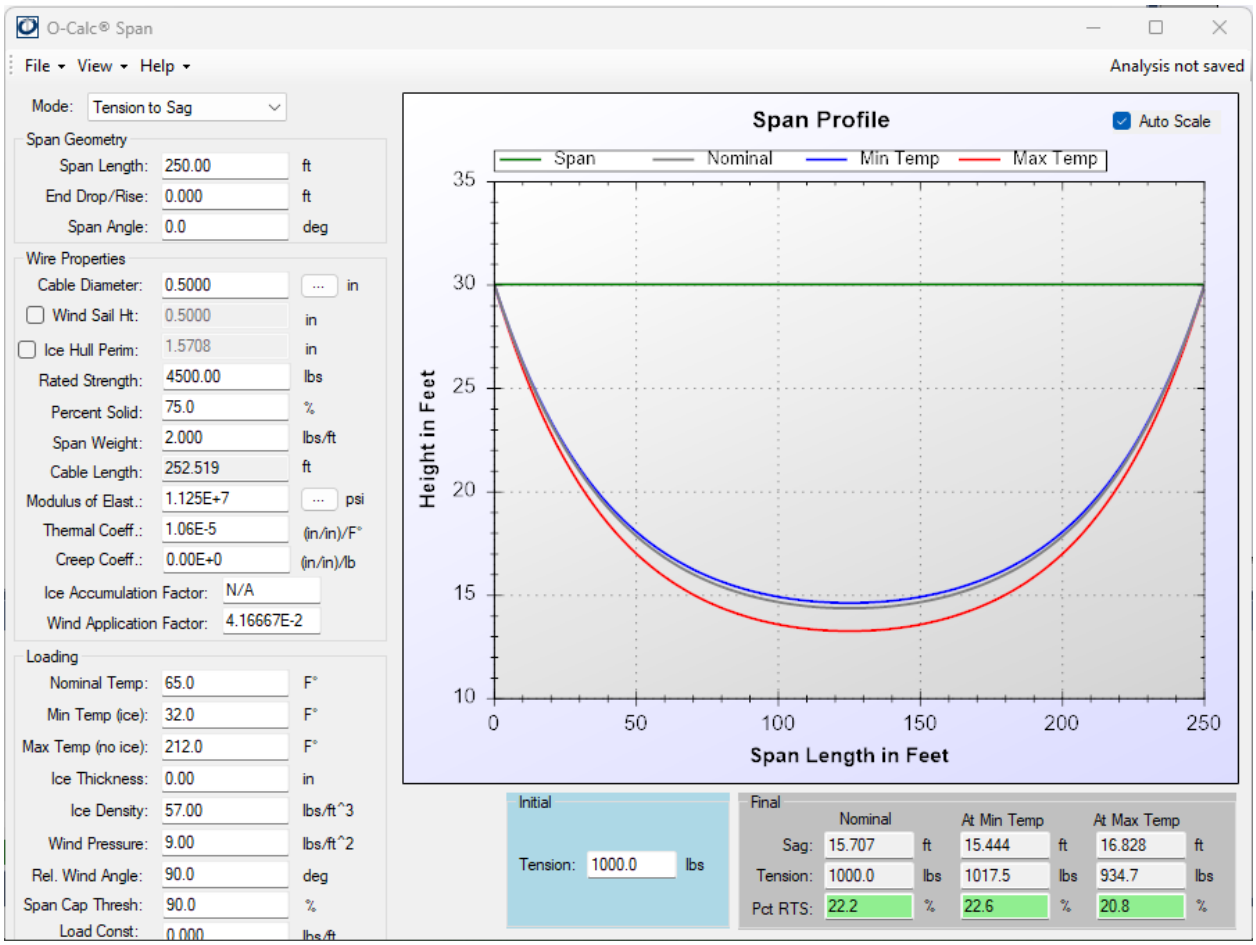




Span Tension Sag Calculator tool is used to examine conductor sag scenarios.

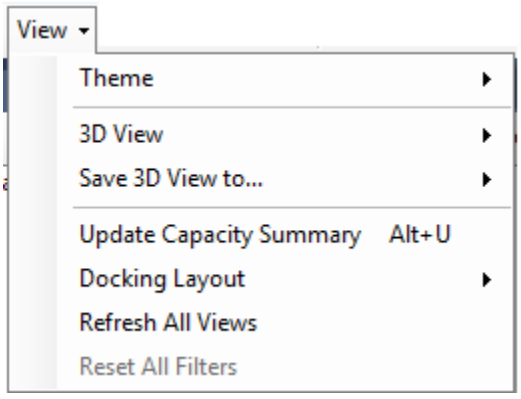


©2025 Osmose Utilities Services, Inc.



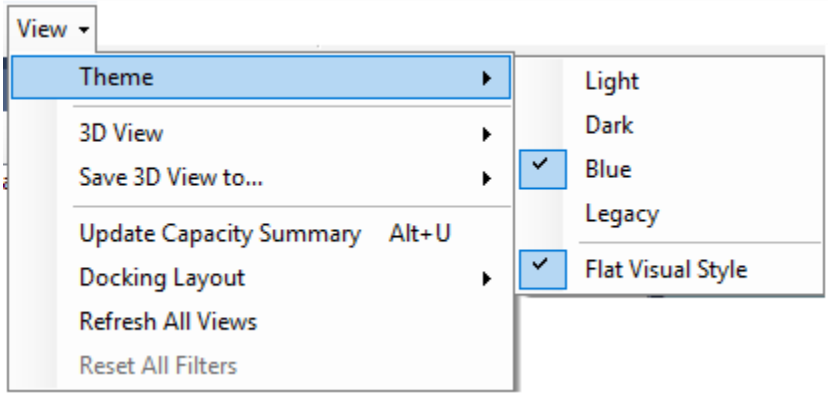
View Menu Overview

The View menu provides a variety of options based on user preference, many of them affect how O-Calc® Pro is displayed. In some instances these commands are enabled or disabled by clicking on them. A check mark indicates the option is enabled.



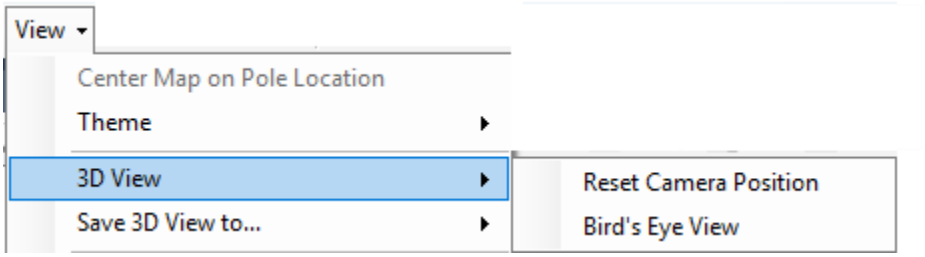
Theme

Theme provides the ability to change the theme of your O-Calc® Pro display. Select Light, Dark, Blue or Legacy and restart the application for the changes to take effect.



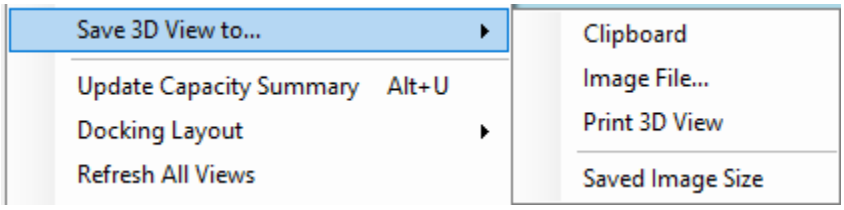
3D View

View the pole model in the 3D View, which includes all the equipment listed in the Inventory. To return the view of the pole to an isometric view use the **Reset Camera Position** option. To view the pole from the top down, use the Bird's Eye View option.



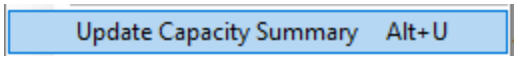
Save 3D View to

Provides the ability to save the 3D View screen capture to a clipboard, or as an image file, plus print and save options for the 3D View.



Update Capacity Summary (Alt+U)

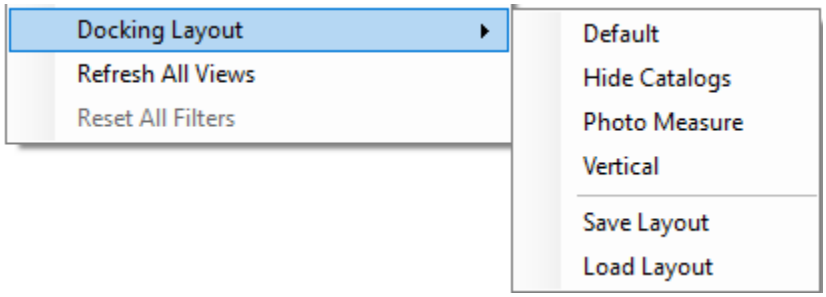
Provides the ability to initiate the calculation to produce results in the Capacity display area.



©2025 Osmose Utilities Services, Inc.

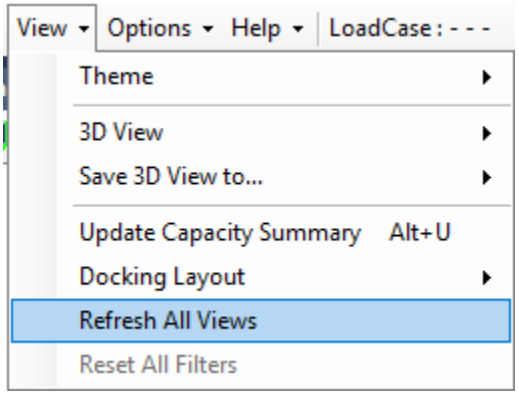
Docking Layout

The default docking layout view maximizes the 3D View space. You can return to this default view at any time by selecting the View menu, Docking Layout > Default.



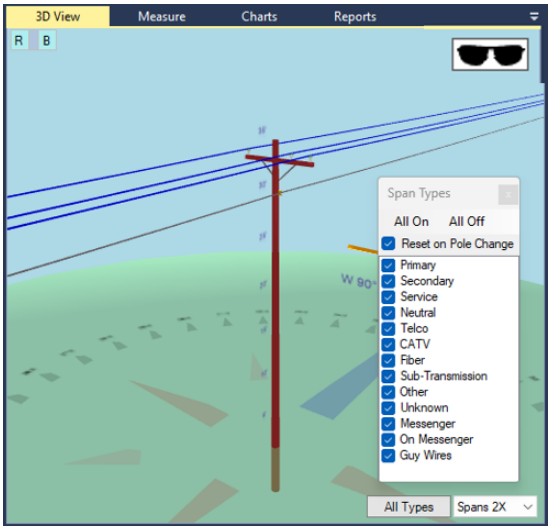
Refresh All Views

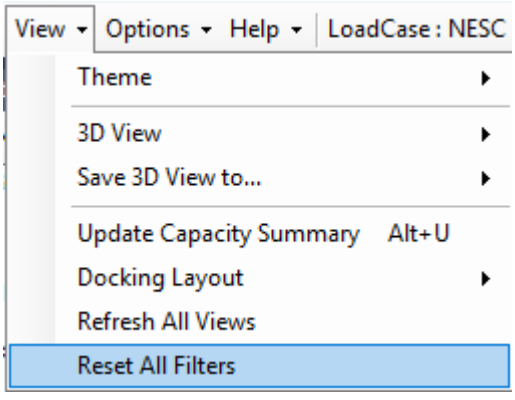
A refresh of all views causes a redraw of the 3D View area and the Inventory to recover any graphics.



Reset All Filters

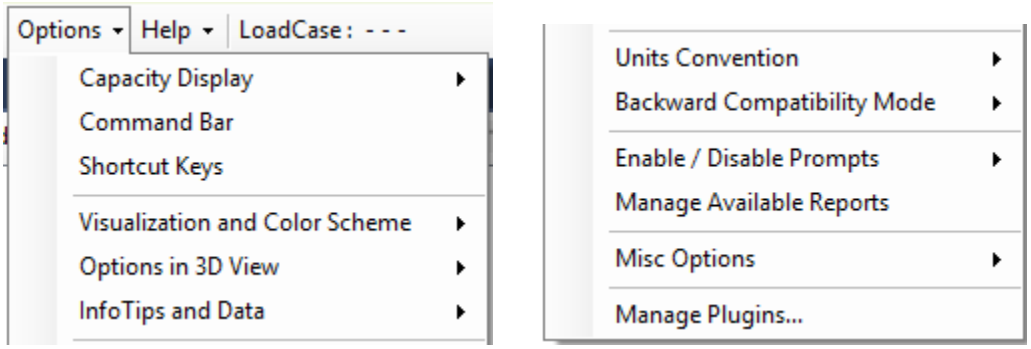
Options are available in 3D View to filter out or limit the scope of the data displayed in the 3D View. When a filter is not active the command is unavailable (greyed out). When a filter is active the sunglasses icon is displayed in the upper right corner. If a filter is active, the **Reset All Filters** option clears any filters.





Options Menu Overview

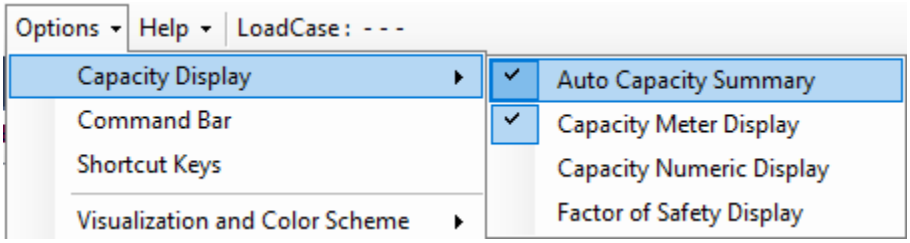
The Options menu offers choices in how menu data is displayed and accessed, which is based on user preference. This overview includes a brief description of each menu item. Most commands are enabled (check mark is displayed) or disabled (no check mark) by clicking on them. An arrow icon next to the name of a menu item indicates a submenu is available with additional options.



Capacity Display

The Capacity panel displays the pole loading calculation results as a percentage value for the allowed MCU (Maximum Capacity Utilization) for the pole.

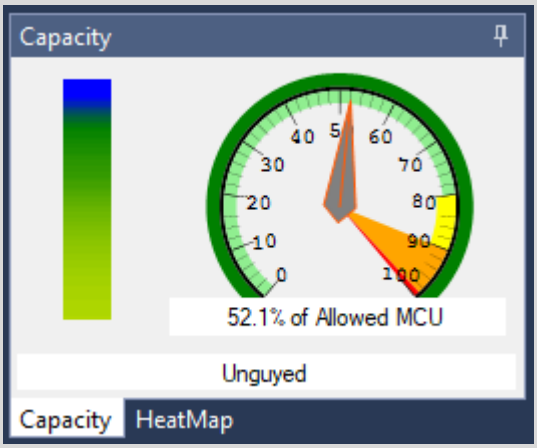
When the **Auto Capacity Summary** is enabled (see check mark) the pole loading calculation engine is effectively "On" and producing results automatically whenever changes are made to the pole model. This is the preferred method for instantly displaying pole loading calculation results, it's enabled by default.



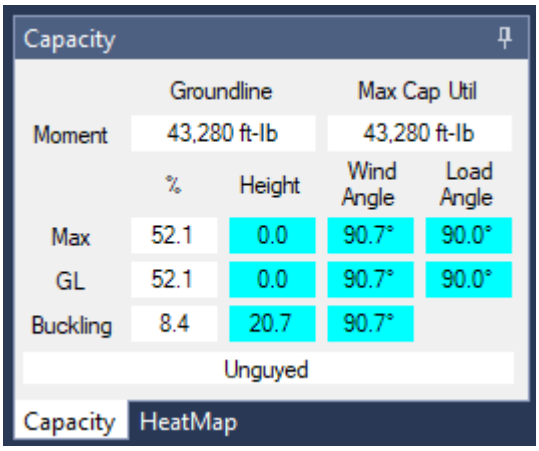
The three MCU results display options available are: Capacity Meter Display, Capacity Numeric Display, Factor of Safety Display. Only one can be displayed at a time, but you can change displays at any time. These MCU results options are based on user preference each one is described below.

©2025 Osmose Utilities Services, Inc.

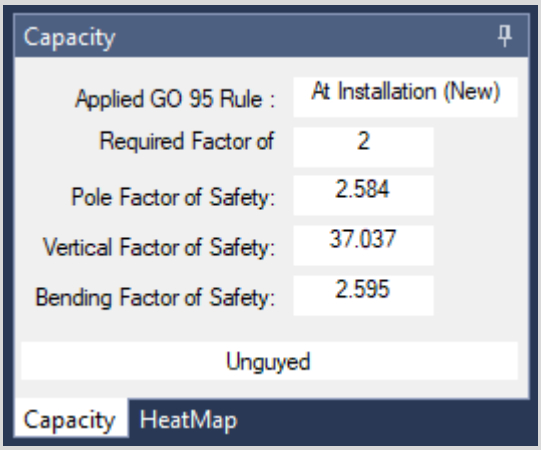
Capacity Meter Display	Displays the percentage of allowed maximum capacity utilization (MCU) for the pole loading results in a metered format.



Capacity Numeric Display	Displays the percentage of allowed maximum capacity utilization (MCU) for the pole loading results in a numeric format. Including details for the groundline and maximum capacity utilization for moment values.



Factor of Safety Display	Displays the Pole Factor of Safety values and active load case for GO95 Rules in effect for the state of California



Command Bar (Alt+ C)

The Command Bar displays in the Data Entry panel. Click the "?" for help.

Shortcut Keys

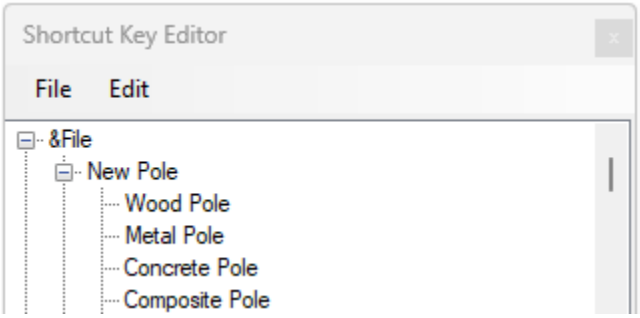
Use existing shortcut and function keys to replace menu commands or create new ones. Import and export options are also available. The Edit menu provides an option to reset the default shortcut keys shown below:

F1	Press F1 to switch to the 3D View.
F2	Press F2 to switch to the Charts View.
F3	Press F3 to switch to the Data Entry panel.
F4	Press F4 to switch to the Measure panel.
F5	Press F5 to switch to the Reports.
F6	Press F6 to switch to the Inventory panel.
F7	Press F7 to switch to the Heat Map.
CTRL + F7	Press CTRL + F7 to switch to the Capacity panel.
F8	Press F8 to switch to the Schematic panel.
F9	Press F9 to switch to the Top View panel.
F11	Press F11 to save the current changes.
F12	Press F12 to switch the 3D View to a Bird's Eye View.
Insert	Pressing the Insert button while an object is selected in the Inventory window will display a shortened list of convenient features. (Example: Add objects, select multiple objects and add notes)
CTRL + Insert	Press CTRL + Insert to modify an insert.
CTRL + ?	Press CTRL + ? to switch to the Find Menu Item Window.
Delete	Press the Delete button to delete objects in the Inventory panel.

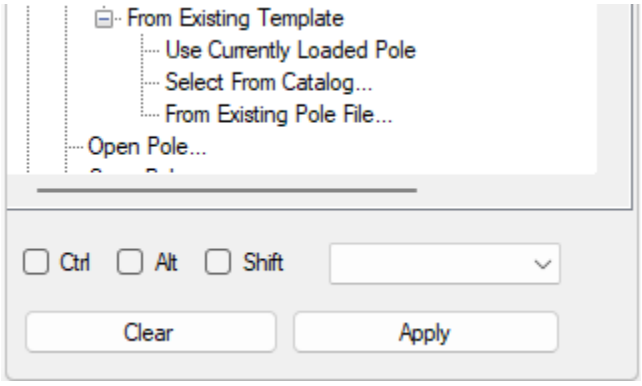
©2025 Osmose Utilities Services, Inc.

To create new shortcut keys complete these steps:

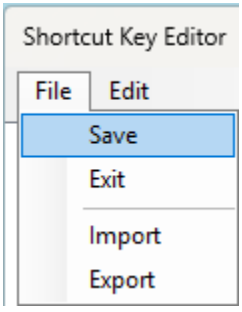
1. Select the **Options** menu, click the **Shortcuts** keys option.
2. In the **Shortcut Key Editor** window, select any command within the menu list.



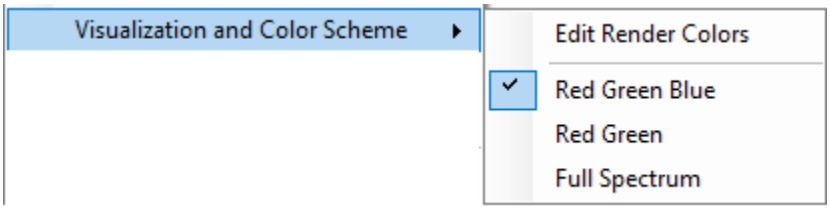
3. Check the box for the desired keyboard option: **Ctrl, Alt, or Shift**.



4. Select a character from the dropdown menu: **A-Z, 1- 9 or F1-F12**.
5. Click **Apply**, the menu item is now highlighted in yellow.
6. Click **File** menu and click **Save**.

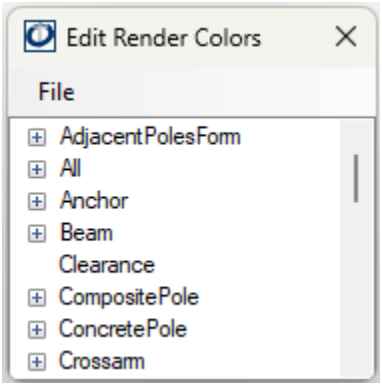


Visualization and Color Scheme



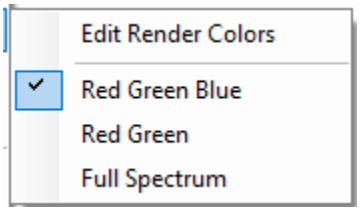
Edit Render Colors

Provides the ability to change the color of the equipment displayed in the 3D View. Import or export your selections and reset to the default colors.



Red Green Blue, Red Green, Full Spectrum

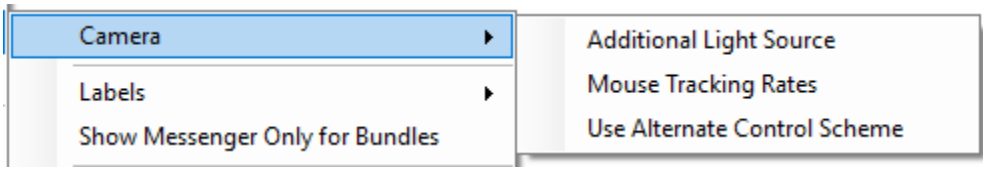
Provides options to change the display colors throughout the application.



Options in 3D View

Camera

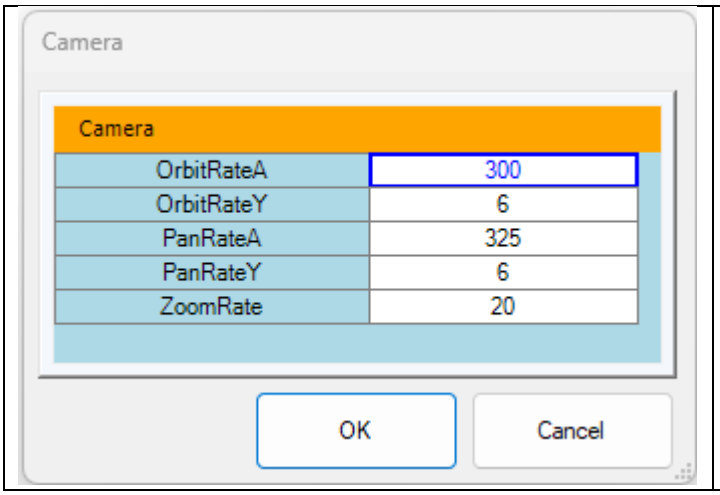
The Camera option provides access to helpful tools based on user preferences to increase lighting and provide greater mouse control.



Additional Light Source	Provides the ability to brighten the 3D View display area.

Mouse Tracking Rates	Allows for greater control of mouse movements. Since mouse response rates can differ, use these controls to slow down or increase the mouse tracking rates. The higher the number the slower the movement.

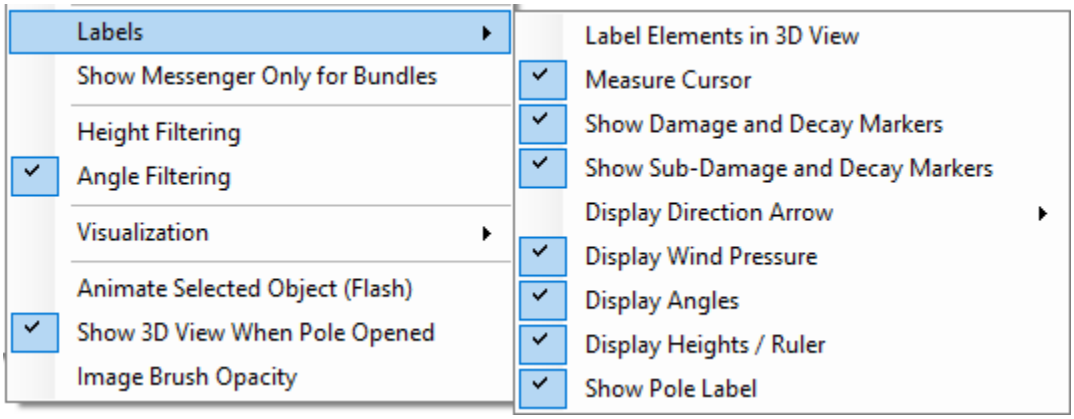
©2025 Osmose Utilities Services, Inc.



Alternate Control Scheme	The Alternate Control Scheme enables enhanced navigation from pole to pole in the 3D View for use with the Line Design functionality. The enhanced navigation differs from the default mode of cylindrical orbit controls used for single pole navigation in the 3D View.

Labels

Allows users to control the display options available in the 3D View panel. Check to enable, uncheck to disable any option.



Label Elements in 3D View

Displays equipment names (yellow font) for each object added to the pole.

Measure Cursor

A display of the current height value when moving the mouse cursor up or down the pole in 3D View.

Show Damage and Decay Markers

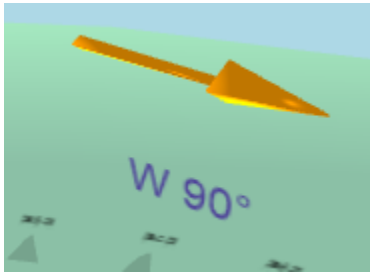
Displays damage and decay markers in the 3D View.

Show Sub-Damage and Decay Markers

Displays sub-damage and decay markers in the 3D View.

Display Direction Arrow > Wind

Displays a gold arrow pointing to the worst possible wind angle or load angle for the pole.

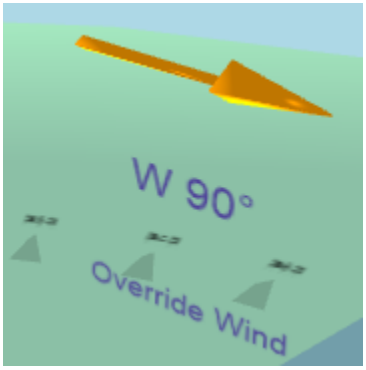


Override Wind

By default the override wind attribute is set to No. To override the worst wind direction, click the radio button to change to Yes and enter the direction the wind is coming from.

Override Wind	No
Override Wind Angle (°)	-N/A-

Override Wind	Yes
Override Wind Angle (°)	90.00

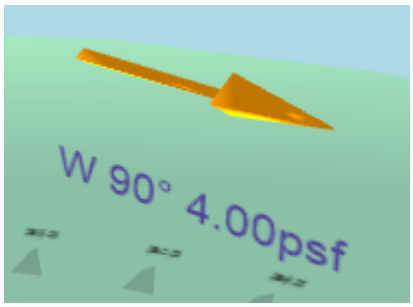


Note: *You can override the results for the worst wind direction by selecting the Load Case on the pole and changing the Override Wind attribute from No to Yes and entering a value for the Override Wind Angle.*

Display Wind Pressure

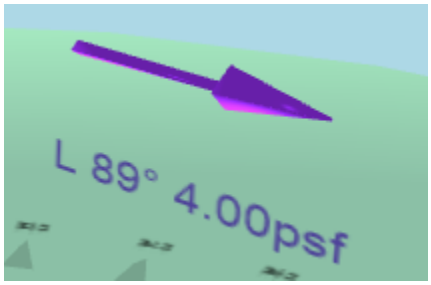
Displays the gold arrow for the worst wind angle derived from the selected load case.

©2025 Osmose Utilities Services, Inc.



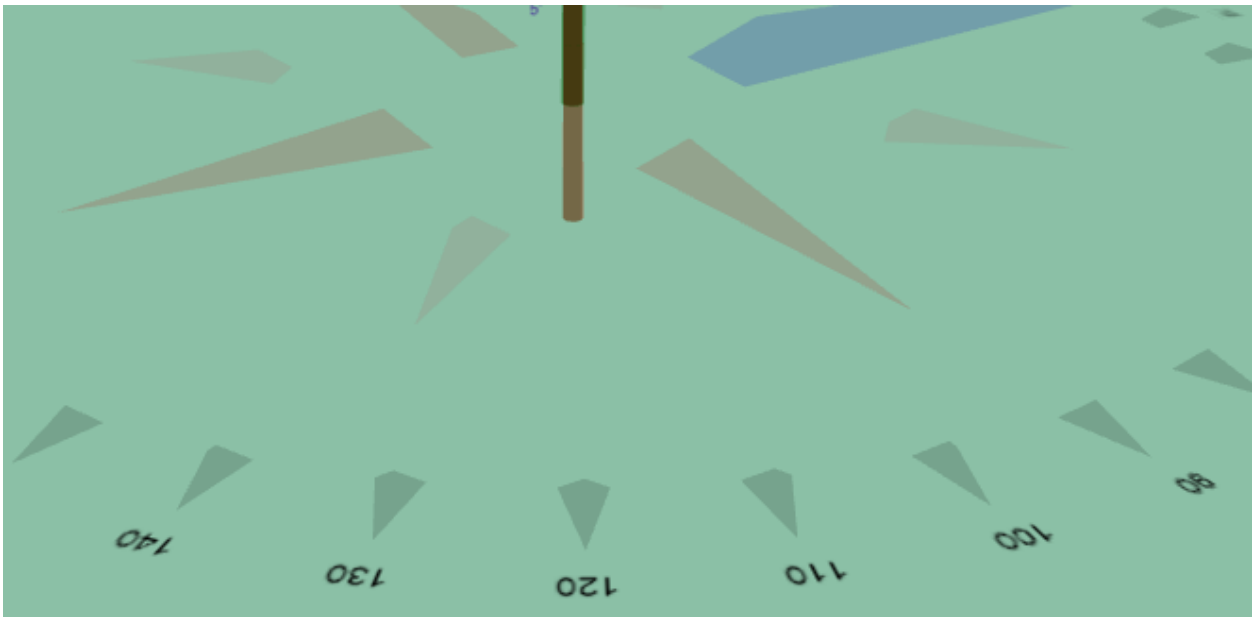
Display Direction Arrow > Load

Displays the purple arrow for the worst load angle derived from the selected load case.



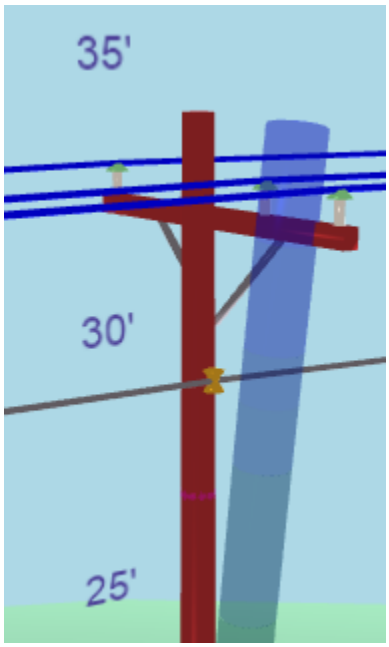
Display Angles

Displays numeric values in 10 degree increments around the base of the pole in the groundline above the compass marks.



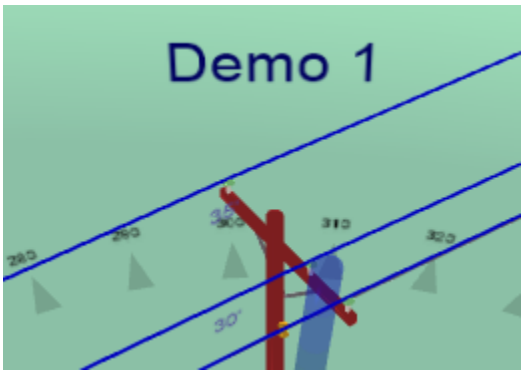
Display Heights / Ruler

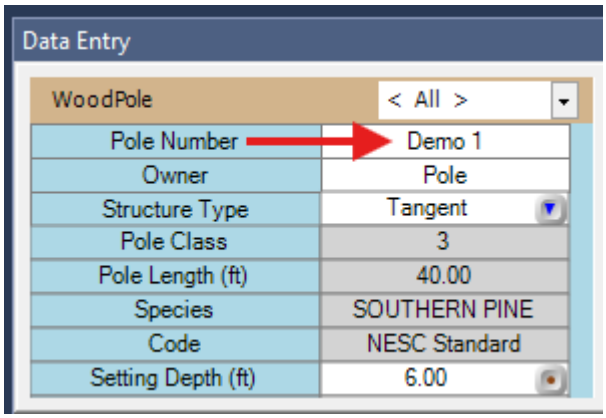
Displays a vertical ruler next to the pole in 3D View at 5-foot increments from the ground up.



Show Pole Label

Displays the Pole Number attribute at the top of the pole in the 3D View. The default is Unset, change the Pole Number in the Data Entry panel.

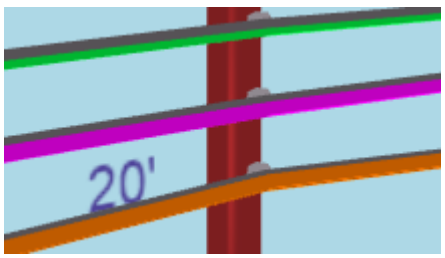




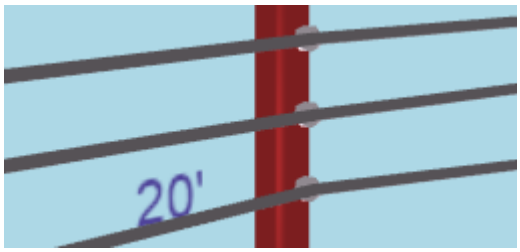
Show Messenger Only for Bundles

Prevents communication wires (part of a bundle) from appearing in 3D View displays only the messenger.

Disabled



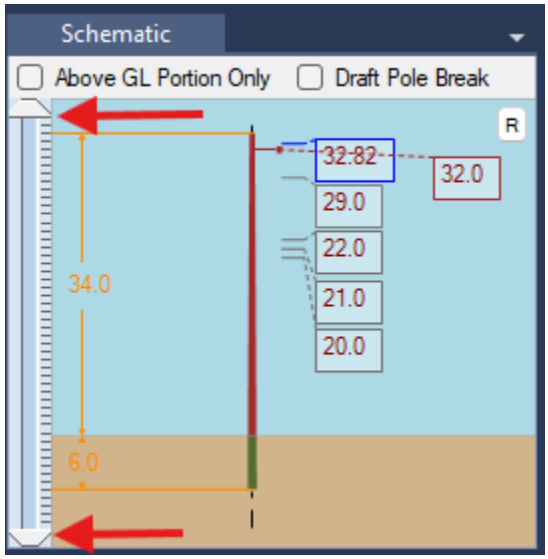
Enabled



©2025 Osmose Utilities Services, Inc.

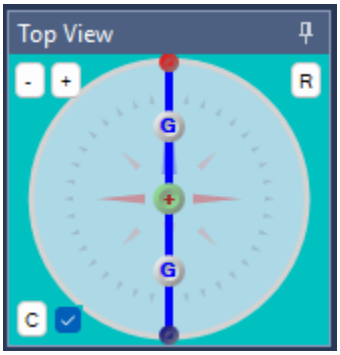
Height Filtering

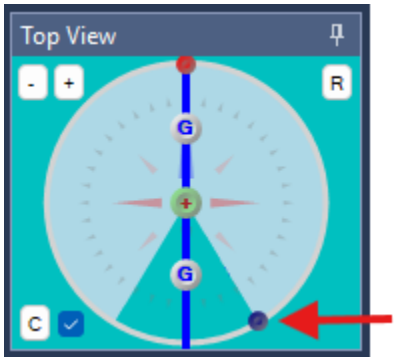
Provides the ability to filter out the graphics displayed in the Schematic panel when enabled, by sliding the scale buttons up or down.



Angle Filtering

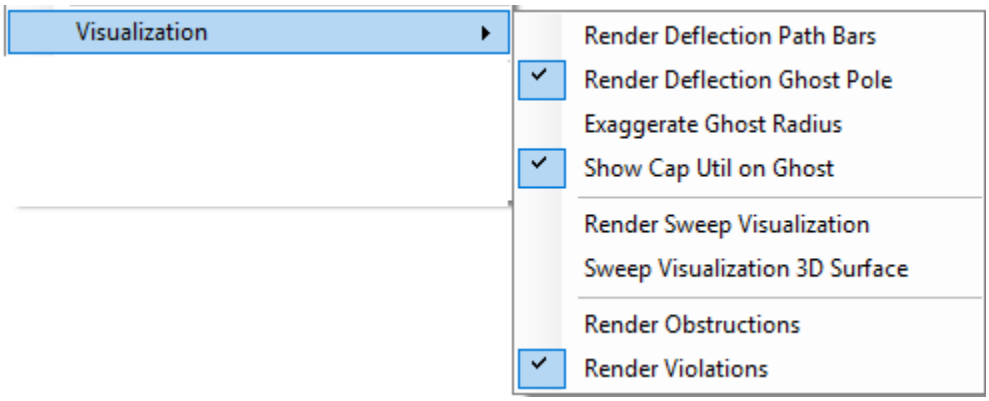
Provides the ability to filter out the graphics displayed in the 3D View by adjusting the angle of the filter in Top View. When enabled click and hold on the grey dot icon to move the cursor left or right until the filtered area is achieved.



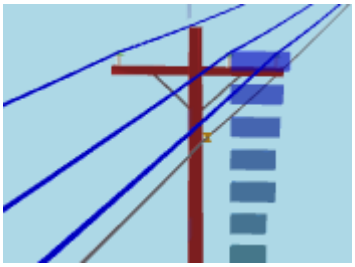


Visualization

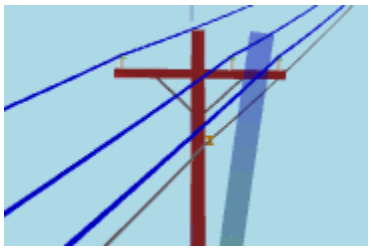
Based on user preference you can limit or expand the scope of pole loading data displayed in the 3D View.



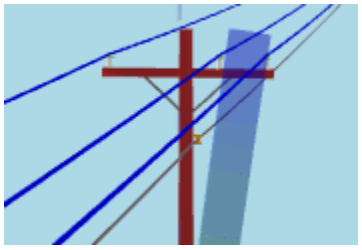
Render Deflection Path Bars - Displays the amount of pole deflection by rendering rectangular bars.



Render Deflection Ghost Pole - Displays the amount of pole deflection by rendering a shadow.

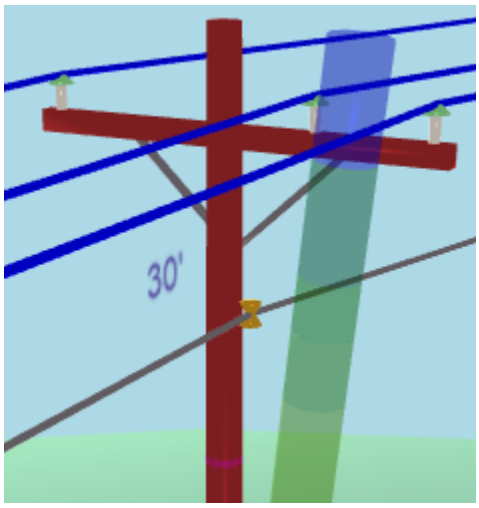


Exaggerate Ghost Radius - Displays the amount of pole deflection by rendering a larger diameter shadow.

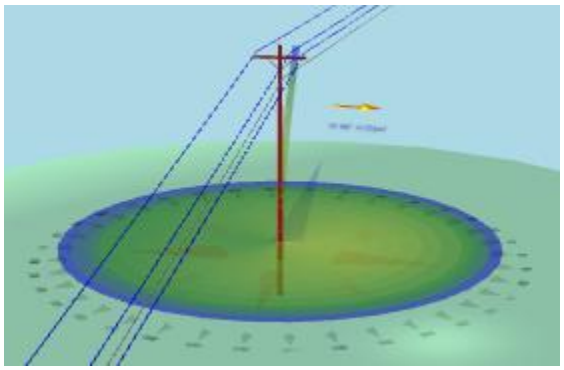


Show Cap Util on Ghost - Displays the capacity utilization within the Ghost shadow that includes the colors that coincide with the vertical Heat Map in the Capacity display area.

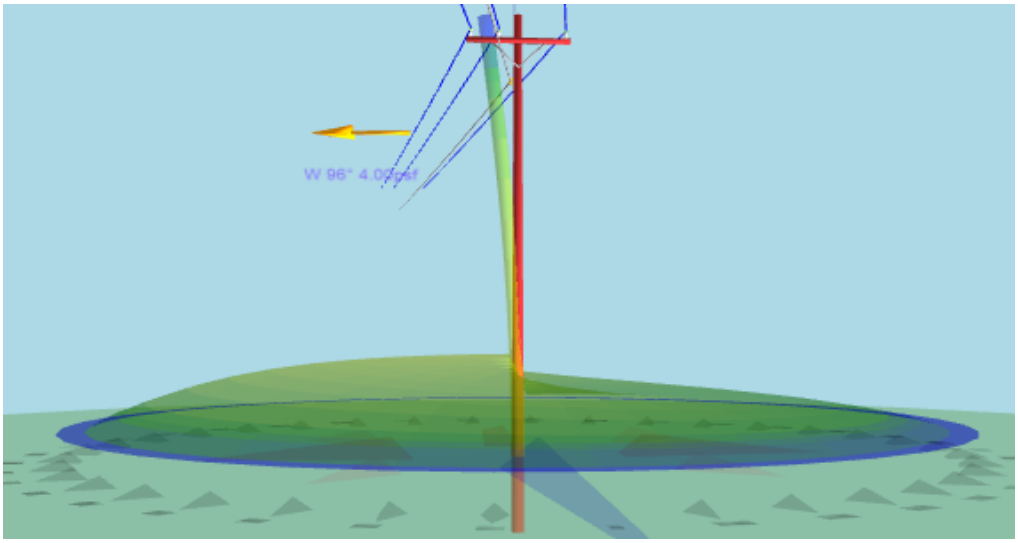
©2025 Osmose Utilities Services, Inc.



Render Sweep Visualization - Displays is a flat visual representation of data that involves a "sweeping" action, used to represent spatial or temporal changes.



Sweep Visualization 3D Surface - Displays is a raised visual representation of data that involves a "sweeping" action, used to represent spatial or temporal changes.

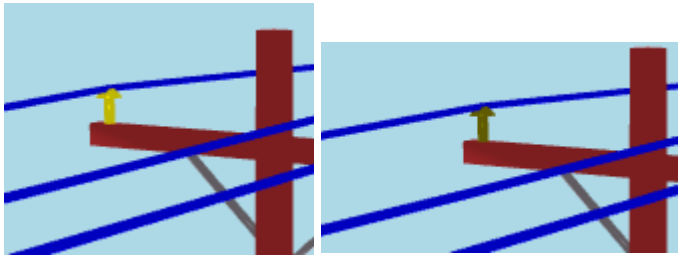


Render Obstructions - Displays the obstructions as defined in the Clearance Analysis Tool.

Render Violations - Displays the violations as defined in the Clearance Analysis Tool.

Animate Selected Object (Flash)

Requires advanced device drivers to display this flashing graphics feature, which causes the selected item (insulator in this example) to continuously flash in yellow and grey.



Show 3D View When Pole Opened - Displays the pole model in the 3D View when opening any .pplx file type.

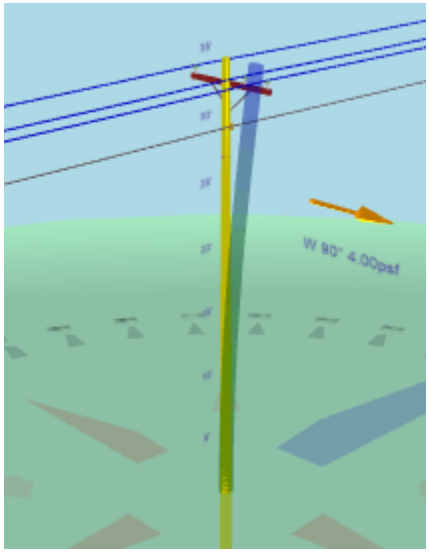
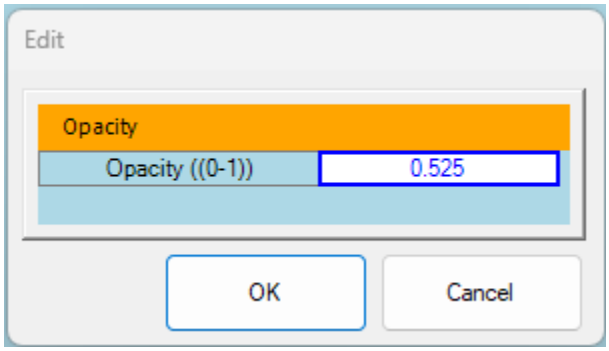


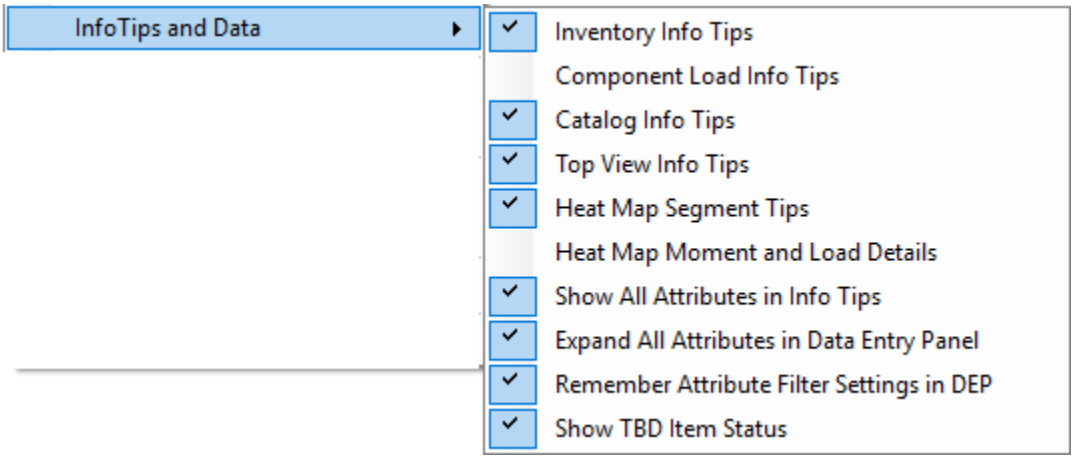
Image Brush Opacity - Controls the opacity based on a scale of 0-1. Brush opacity determines the transparency of brushstroke, controlling how much the underlying image or color shows through.



©2025 Osmose Utilities Services, Inc.

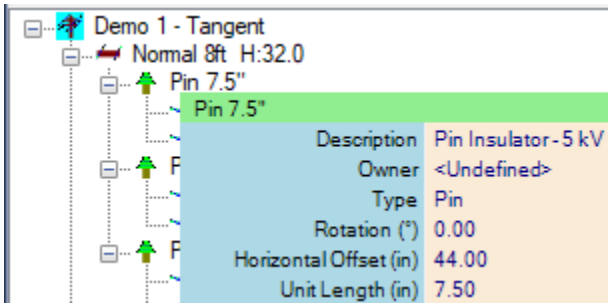
Info Tips and Data

Based on user preference you can limit or expand the scope of pole loading tips and data displayed in the Catalog, Inventory and the 3D View.



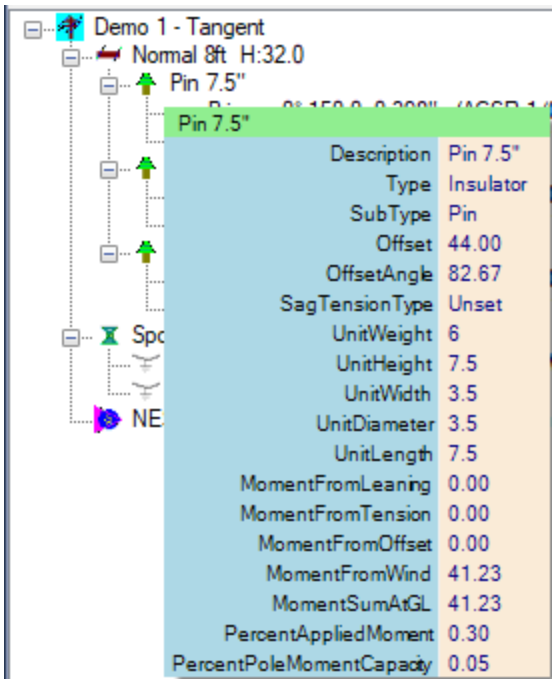
Inventory Info Tips

Displays a list of equipment attributes when you hover over the object's icon in the Inventory panel.
Note: *The Inventory Info Tips and Component Load Info Tips cannot display simultaneously, choose one or the other.*



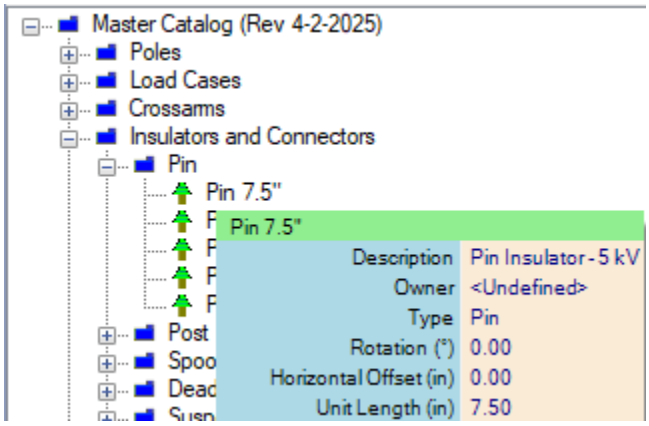
Component Load Info Tips

Displays the percent of pole capacity that is consumed by the equipment on the pole when you hover over the object's icon in the Inventory panel.



Catalog Info Tips

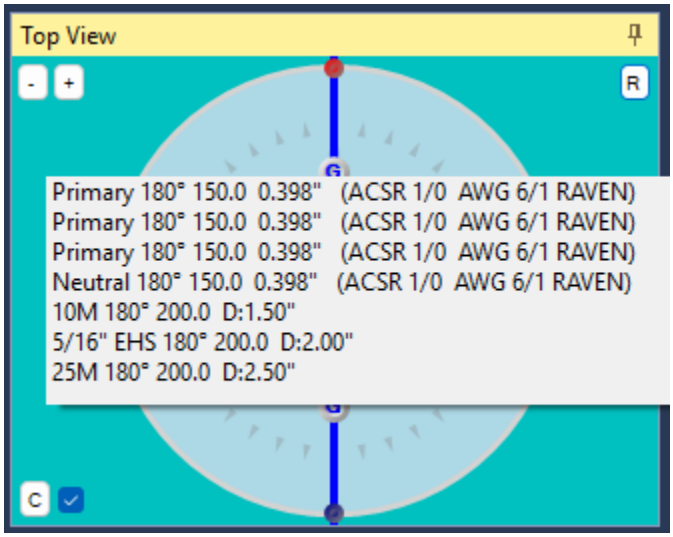
Displays the equipment attributes when you hover over the object's icon in the Catalog panel.



©2025 Osmose Utilities Services, Inc.

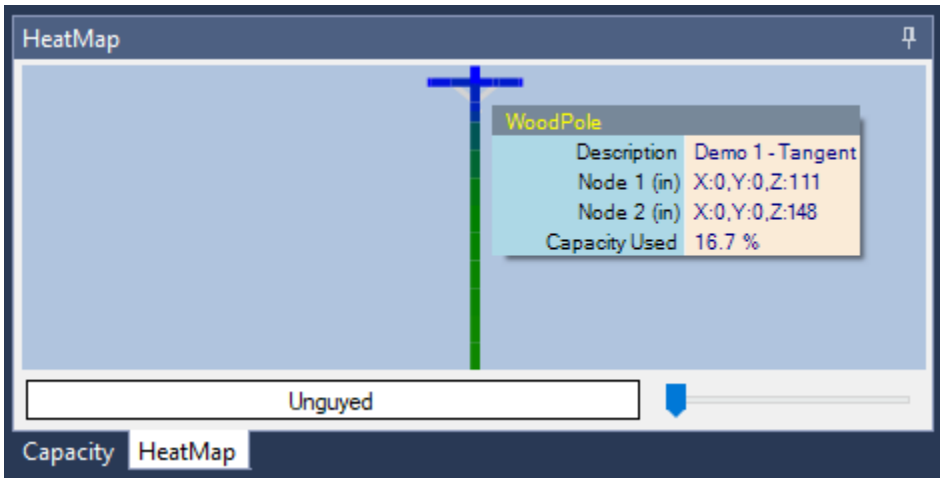
Top View Info Tips

Displays the span attributes when you hover over a "G" icon in the *Top View panel*.



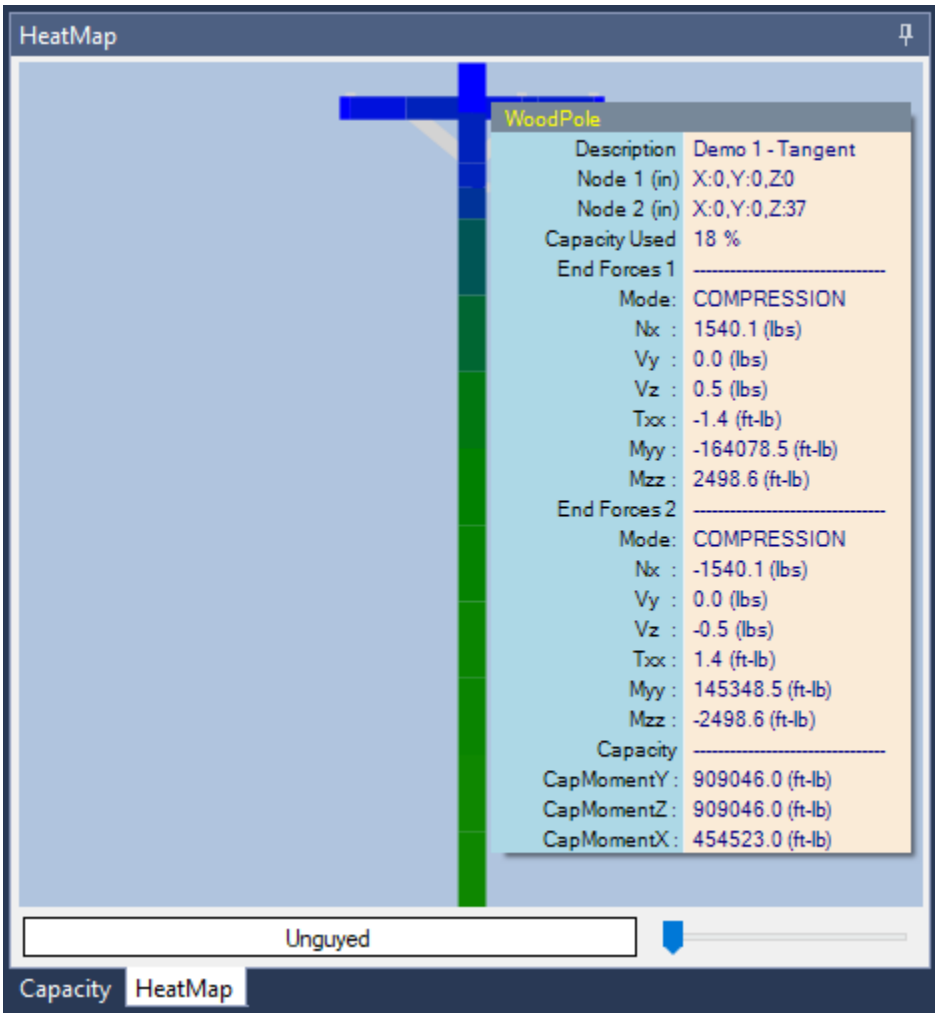
Heat Map Segment Tips

Displays a subset of an object's attributes. The tip will display as you hover over an object in the Heat Map panel.



Heat Map Moment and Load Details

Displays the full loading details for each element in the Heat map when the courser is hovered over the element.

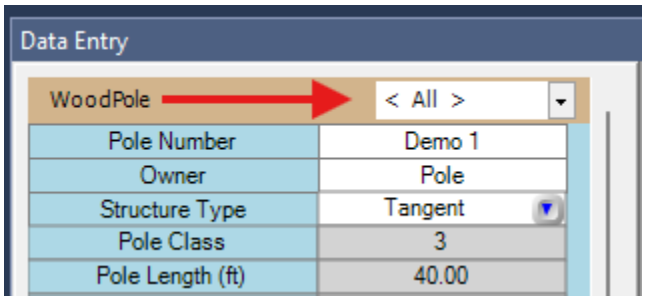


Show All Attributes in Info Tips

Displays an object's editable attributes when you hover over the object's icon in the Inventory panel.

Show All Attributes in Data Entry Panel

Displays all the equipment attributes in the Data Entry panel for the selected object.



©2025 Osmose Utilities Services, Inc.

Remember Attributes Filter Settings in DEP

Allows you to always use the last filter selected in the DEP (Data Entry Panel) when selecting another object.

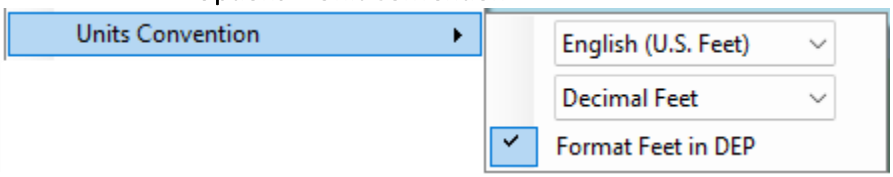
Show TBD Item Status

Use to indicate the TBD items in the Inventory panel.

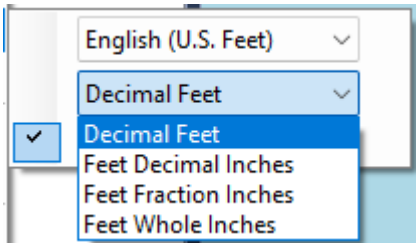
Units Convention

English is the default unit convention when the application is initially installed. To change the unit convention and select from feet or metric convention complete these steps:

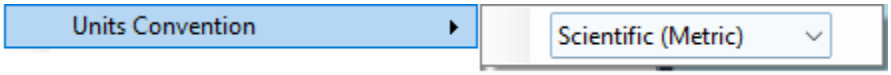
1. Select **Options > Unit Convention**.



2. The English option offers different formats in which to display values: Decimal Feet, Feet Decimal Inches, Feet Fraction Inches, Feet Whole Inches. Select one.

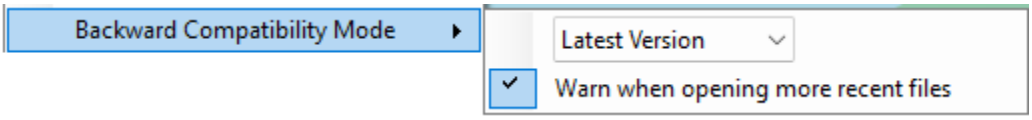


3. To select the Metric system option, open the drop-down for the English (U.S. Feet) option and select Scientific (Metric).



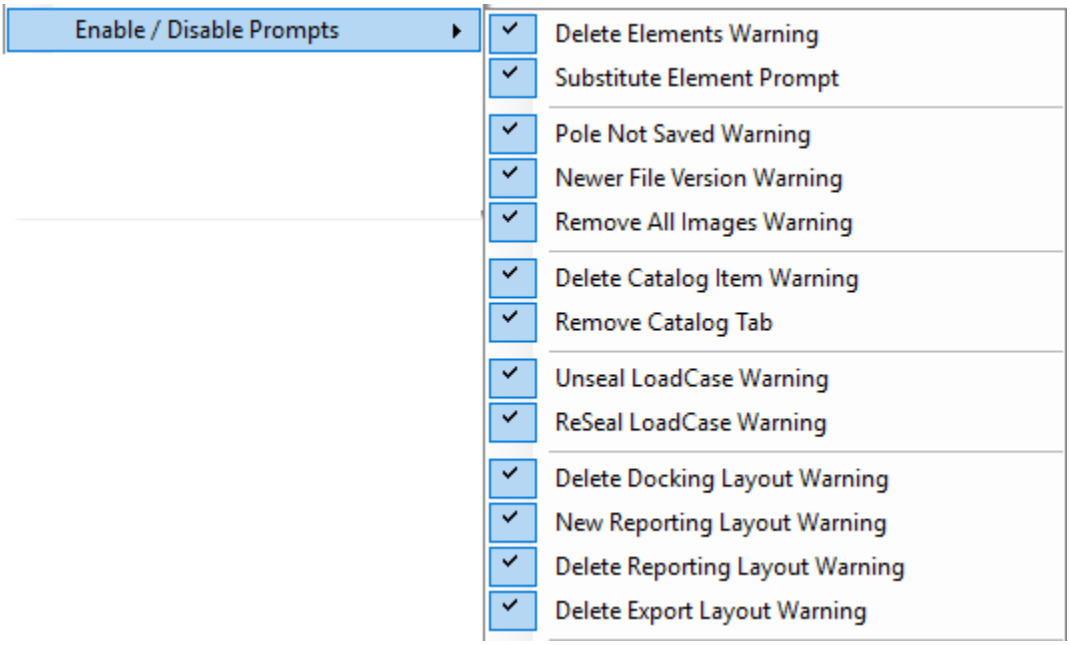
Backward Compatibility Mode

Use to save PPLX files in a format from a previous version of O-Calc® Pro. The Backward Compatibility Mode also allows a person to use a newer version of O-Calc® Pro to create a PPLX that can be accessed by a user with an older version of O-Calc® Pro.



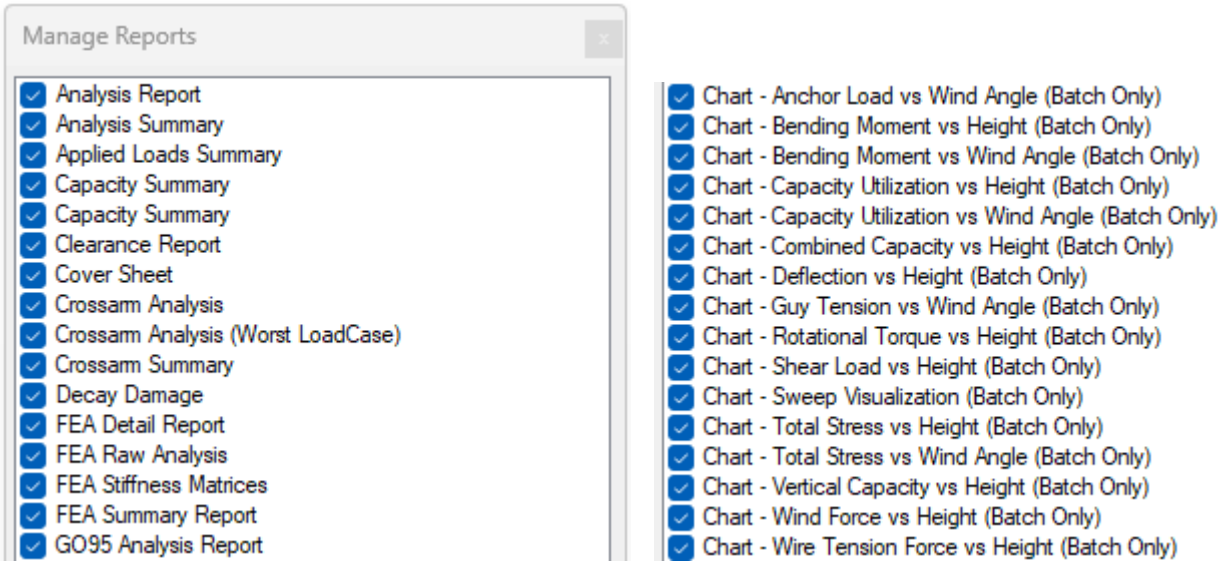
Enable / Disable Prompts

Provides a list of 20+ various warning prompts and the ability to enable/disable them individually based on user preference. Check mark indicates the option is currently enabled, click to disable.



Manage Available Reports

Used to enable/disable 35+ load analysis Reports and 15+ diagnostic Charts on a user-by user basis.



Misc. Options – see Appendix D

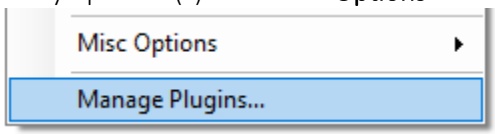
Use to enable/disable 20+ feature control options.

©2025 Osmose Utilities Services, Inc.

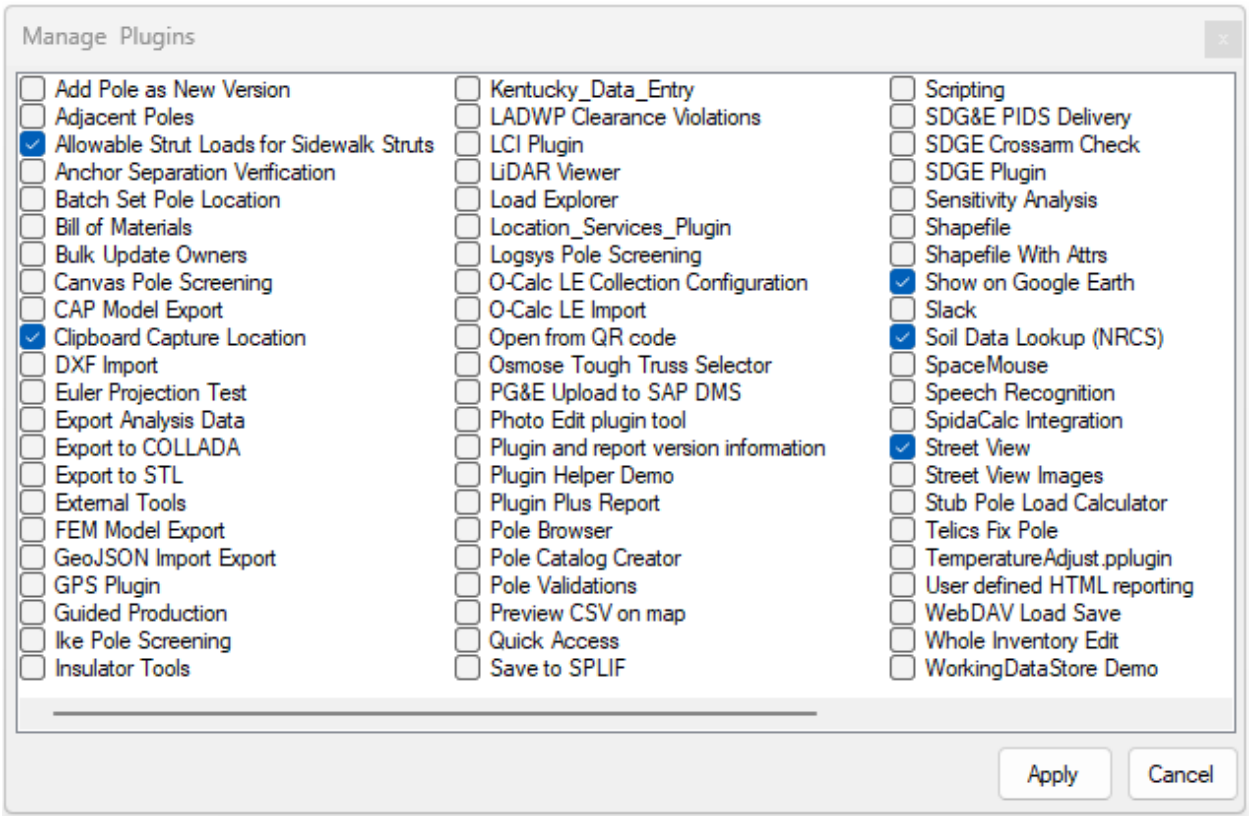
Manage Plugins

Used to enable or disable 60+ various plugins on a user-by user basis. Activating plugins requires you restart O-Calc® Pro for the changes to take effect. Some plugins require the input of a license key and expiration token. If a pole file is open (.pplx or .pplld) it will need to be closed first before the Manage Plugins window become accessible. To manage plugins complete the steps below:

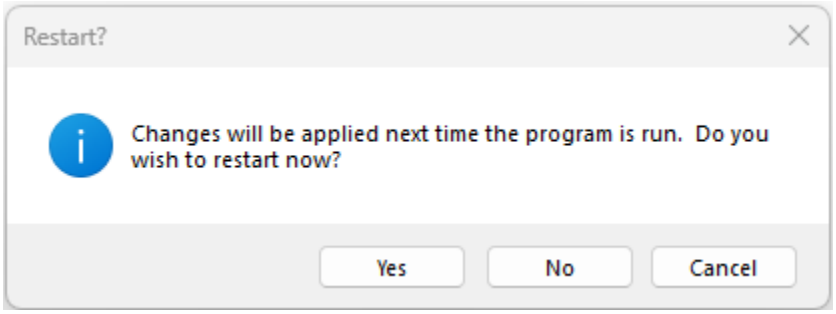
1. Close any open file(s). Go to the **Options** menu, select the **Manage Plugins** option.



2. In the **Manage Plugins** window select the check boxes for the Plugins you need and click the **Apply** button



3. In the **Restart?** message, click **Yes** to restart now.



4. When O-Calc® Pro has restarted, the Plugins you activated are now available from various menus within the O-Calc® Pro menus.

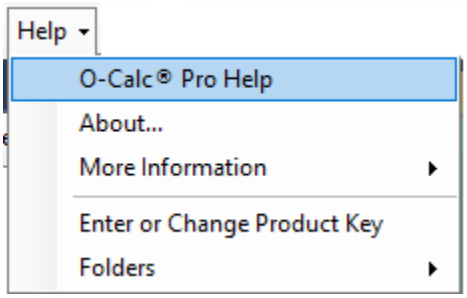
Plugin Name	Menu Location
Allowable Strut Loads for Sidewalk Struts	This plugin works automatically in the background. The strut diameter attribute value can be input in the Data Entry panel.
Clipboard Capture Location	This plugin works automatically in the background. You access this functionality inside the Google Earth application by holding the shift and control keys and clicking on the map to "capture" the pole location. This information is then transferred back into O-Calc® Pro.
Show on Google Earth	File menu.
Soil Data Lookup (NRCS)	Tools menu.
Street View	This plugin works automatically in the background.

Help Menu Overview

The Help menu provides helpful resources in the form of User Guides, Videos, Wiki articles, Technical Support Requests, and application version information.

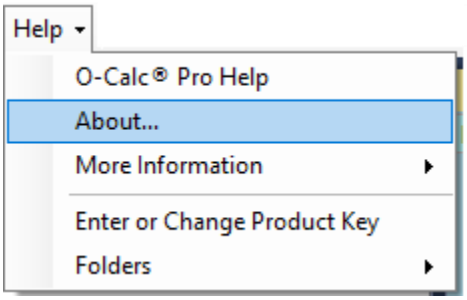
O-Calc® Pro Help

Directs you to the Osmose website for User Guides and helpful information related to O-Calc® Pro.



About

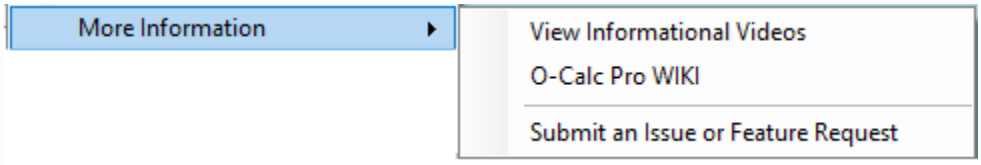
Displays the version of the O-Calc® Pro application that you are currently using.



©2025 Osmose Utilities Services, Inc.

More Information

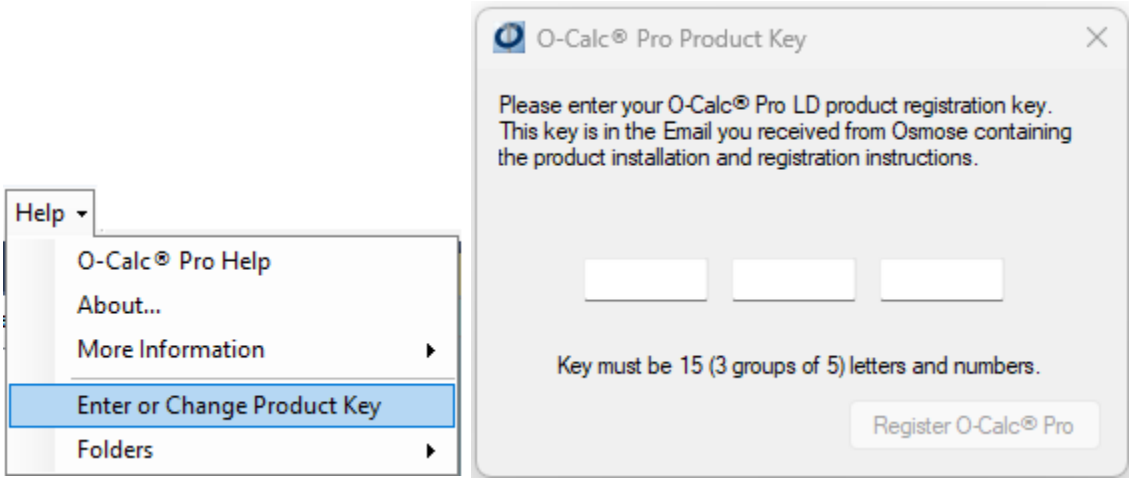
Provides access to internet links for O-Calc® Pro videos and wiki articles. Use the Submit Issue or Feature Request option to access the O-Calc® Pro Support Page where you can submit an issue, technical question, or enhancement suggestion.



Note: *Additional information on how to use Plugins, Reports and many other topics can be found at the O-Calc® Pro Wiki site. Go to the Help menu, select More Information, click on the O-Calc® Pro Wiki option.*

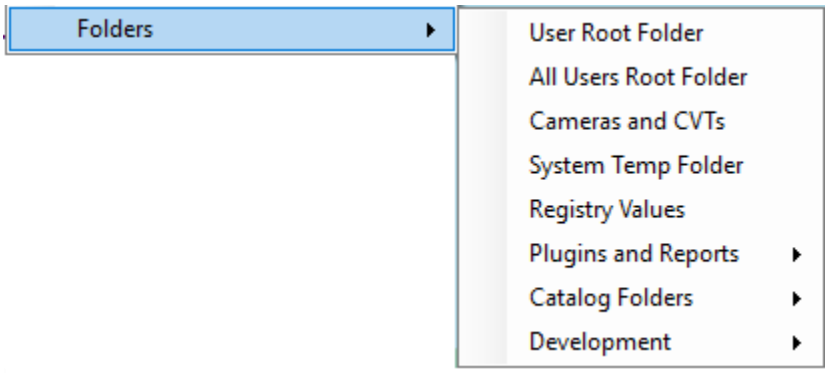
Enter or Change Product Key

Used to enter the 15 character O-Calc® Pro product registration key.



Folders

Provides access to internal O-Calc® Pro files and helpful information.



Key Word and Calculation Shortcuts

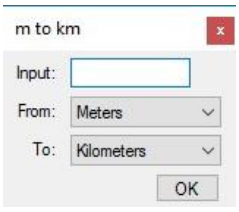
Reposition Objects in 3D View

Objects can be repositioned from within the 3D View by selecting the object to be repositioned and using the following shortcut keys.

Angle "A"	Holding down the "A" key and selecting an object allows you use the mouse to rotate the object to reposition it.
Vertical "V"	Holding down the "V" key and selecting an object allows you to use the mouse to reposition the object up or down.
Horizontal "H"	Holding down the "H" key and selecting an object allows you to use the mouse to reposition the object to the left or the right. (Use the "G" key option if the front of the object is facing you).
Reverse Horizontal "G"	Holding down the "G" key and selecting an object allows you to use the mouse to reposition the object to the left or the right. (Use the "H" key if the back of the object is facing you)

Units, Heights, Rot., Circ., Comput. Exp.

When entering data in the Data Entry panel, use any of the helpful key words and calculation shortcuts shown below. Shortcuts are not case sensitive.

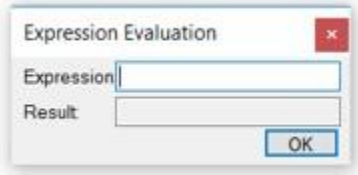
UNITS FFF'II CTRL+U	Unit Shortcuts: FFF'II enters values in feet and inches instead of decimal feet. (Example: Crossarm>Initial Height attribute enter 40'6) CTRL+U enables a conversion tool that allows you to easily convert an input value.  Enter an Input value, select the convert From/To options in drop-down menu. Select OK.

©2025 Osmose Utilities Services, Inc.

HEIGHTS TIP-NNN (T-NNN)	Height Shortcuts: **Tip** adds an object at the tip of the pole. **tip-**nnn allows you to enter feet down from pole tip. (Example: tip-3 or t-3 adds an object 3 feet down from the tip of the pole)
HAGL=NNN HA=NNN	**hagl=**nnn changes the end drop and rise of a span based on the height above ground line at another pole. Entering 'sag' values as measured from height above ground line. (Example: hagl-38 or ha-38)
REF=+NNN REF =-NNN	**ref=**(+/-)nnn adjusts 'height of attachment' of an object relative to another object by entering a height value. ***Note:*** *You must enter either a (+/-) sign before the number to move the object either above or below the reference object.*
T@NNN	**t@**nnn sets the 'height of attachment' or 'Install Height' value to correspond to the top of an object.

C@NNN	**c@**nnn sets the 'height of attachment' or 'Install Height' value to correspond to the center point of an object.
B@NNN	**b@**nnn sets the 'height of attachment' or 'Install Height' value to correspond to the bottom of an object.

ROTATIONS ABS=NNN AB=NNN	Rotation Shortcuts: abs=nnn sets absolute rotation (compass coordinates) to the entered value. (example: abs=90 or ab=90)
ABS=~NNN AB=~NNN	abs=~nnn adds 180 degrees to the entered value. (Example: abs=~90 or ab=~90)
IND=NNN	ind=nnn independently rotates an object without effecting the rotation of any attached objects.
REF=+NNN REF=-NNN	ref=(+/-)nnn adjusts the 'rotation' of an object in reference to (relative to) another object by entering a rotation value. ***Note:*** *You must enter either a (+/-) sign before the angle to rotate the object in a given direction from the reference origin angle.*

WIRES MOE= AWG=NNN	Wire Shortcuts: moe= enables the Modulus of Elasticity Calculator. The MOE value can be adjusted in the calculator and populated into the Data Entry panel. Note: For additional information on working with the Modulus of Elasticity Calculator go to Tools > Misc. awg=nnn populates the standard diameter from the AWG Table. (Example: awg=10 will automatically populate the AWG Gauge 10 conductor diameter)
CIRCUMFERENCES DIAM=NNN D=NNN	Circumference Shortcuts: diam=nn enters the diameter which is then automatically converted to a circumference value.
RADIUS=NNN R=NNN	(Example: diam=12.5 or d=12.5 will automatically be converted to circumference value) radius=nnn enters the radius which is then automatically multiplied by two. (Example: radius=12.5 or r=12)
EXPRESSIONS CTRL+E	Expressions Shortcut: ctrl+e enables the Expression Evaluation which allows you to enter expression values, the results are automatically populated into the Data Entry panel.  Enter the Expression and select OK.

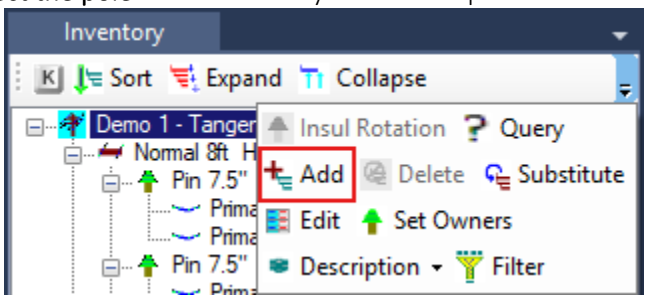
©2025 Osmose Utilities Services, Inc.

CALCULATOR CTRL+F	Calculator Shortcut: ctrl+f enables the Calculator which allows you to enter calculations that are then automatically populated into the Data Entry panel. Enter a calculation and select **OK**.

Adding Damage and Decay to Wood Pole

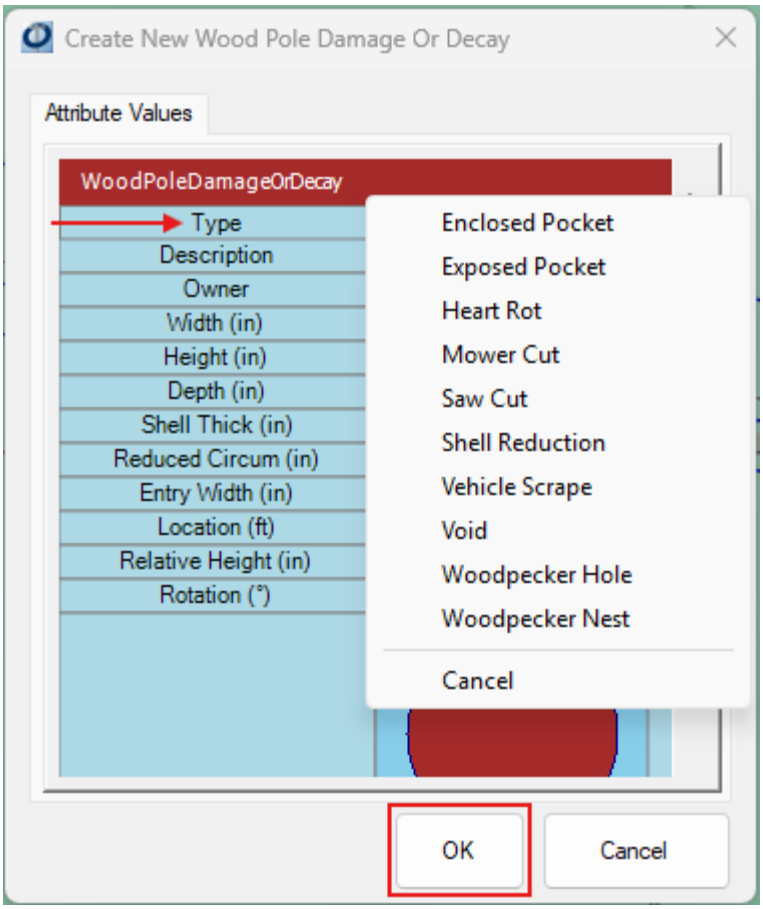
Poles that are not new may have damage or decay. The **Wood Pole Damage Or Decay** functionality is used to reduce the overall strength of the pole at the groundline, based on any damage or decay on the pole. To add damage or decay to a pole, complete these steps:

1. **Select the pole** in the Inventory or 3D View panels and click the **Add** button.

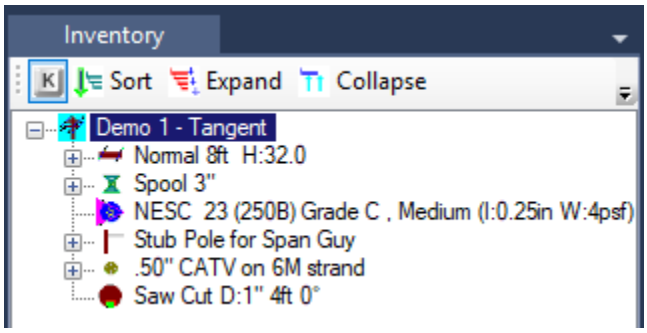


2. Or the Wood Pole Damage or Decay option can be accessed by right-clicking on the pole in the Inventory panel. Only one piece of damage or decay can be added at a time.

3. In the **Create New Wood Pole Damage or Decay** window open the **Type** attribute dropdown and select a Type from the list. Enter any other known damage information, click **OK**.



Note: *To undo additions, select* ***Edit > Undo.***



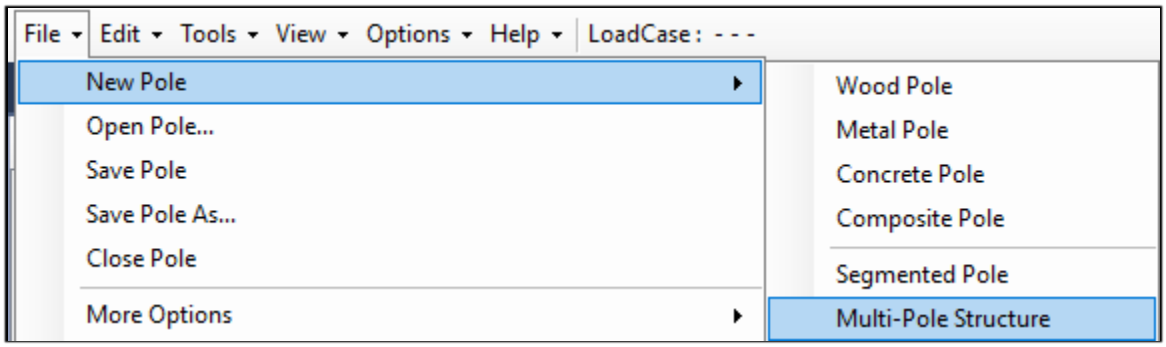
Damage and Decay Group Object

Damage or Decay objects can also be grouped together. Create a damage or decay object using the process documented above, and simply duplicate the damage or decay object, with the original decay object as the parent, and each subsequent damage or decay object as a child item. This will prevent a long list of damage and decay items in the Inventory List.

©2025 Osmose Utilities Services, Inc.

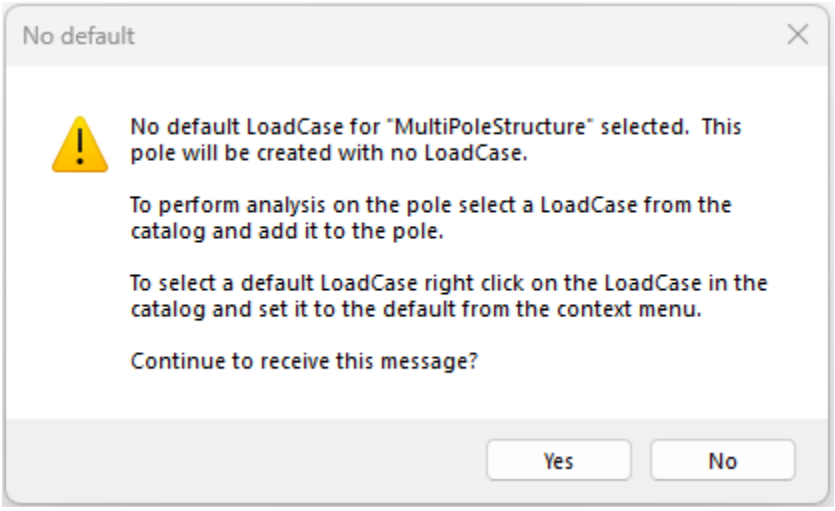
Modeling a Multi-Pole Structure

Begin at the File menu to model a new Wood, Steel, Concrete, Composite or Segmented Fiberglass multi-pole structure, complete these steps:



1. Select the structure type from the **File > New Pole >** select the **Multi-Pole Structure.**

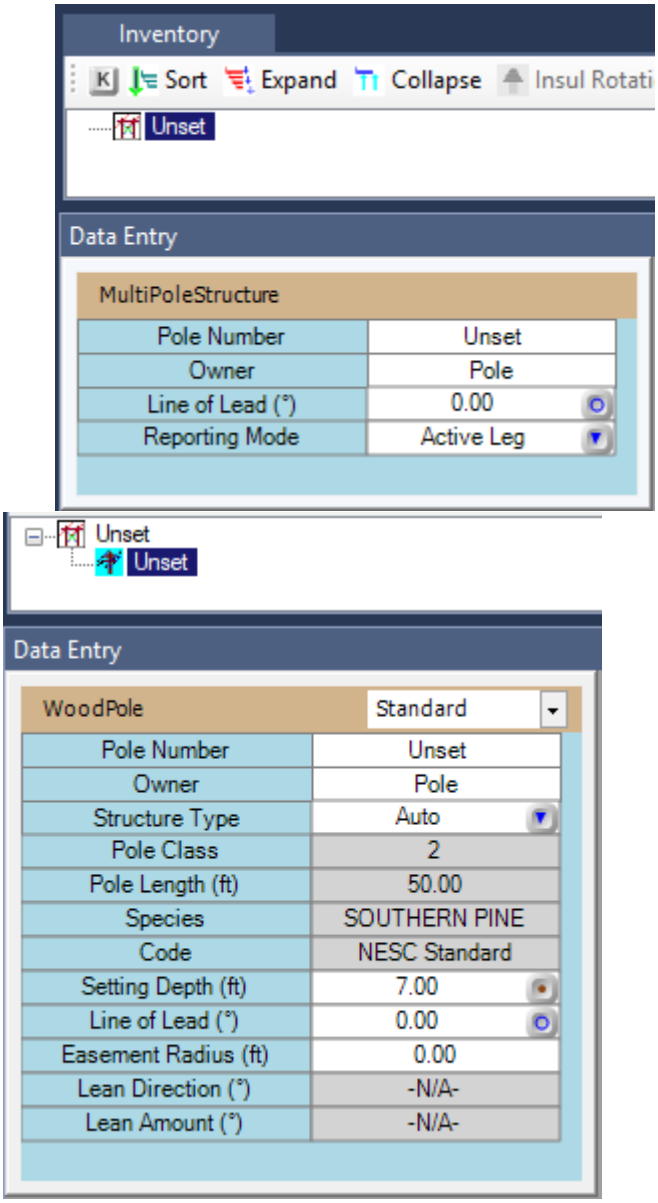
Note: *If there is no default Load case set for the Multi-Pole structure a No default message reminds you that a load case must be added to the container object. The calculation for pole loading cannot generate results without a load case.*



Note: *If a default Load Case has been set it displays automatically in the Inventory panel when the structure is created.*

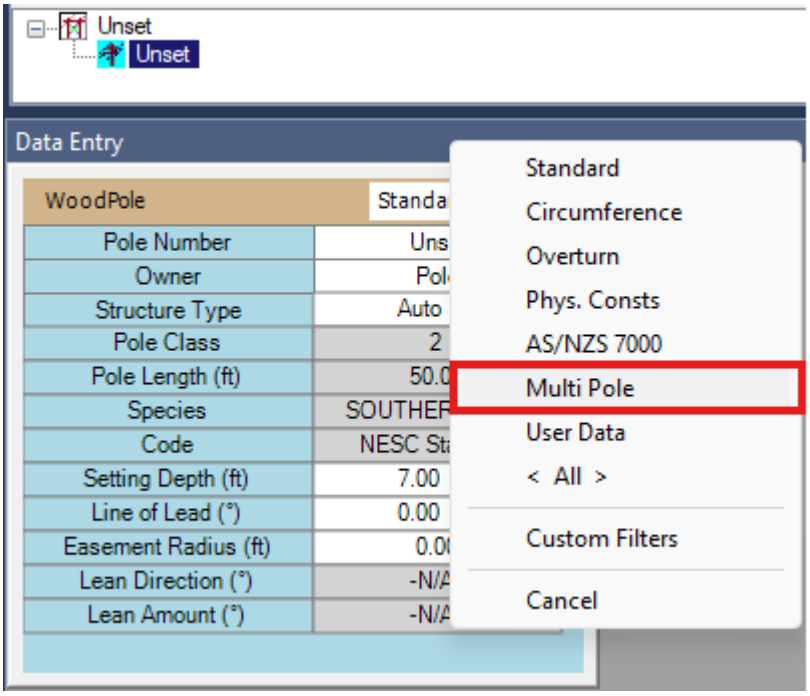
The container object for the multi-pole structure is added to the Inventory, as shown below.

2. Add one pole of your choice to the container object from the Catalog.

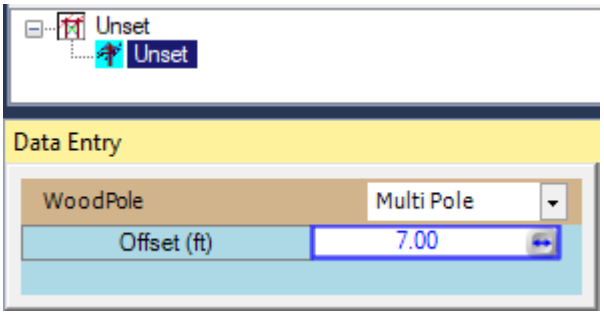


©2025 Osmose Utilities Services, Inc.

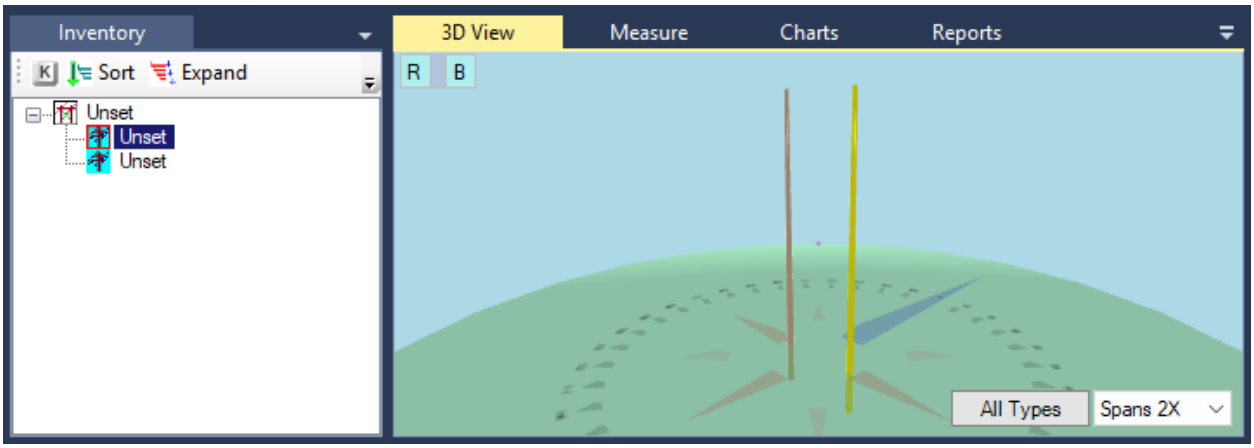
3. Open the **Wood Pole** filter and select the **Multi Pole** option.



4. Enter the **Offset** value for the distance between the poles from center.



5. Select the pole and drag and drop it to the container object to add the second pole.

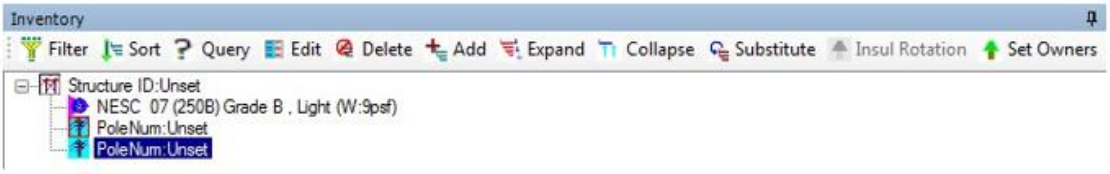


Note: *When adding a platform between a multi-pole structure it must be added to the container object instead of the poles.*

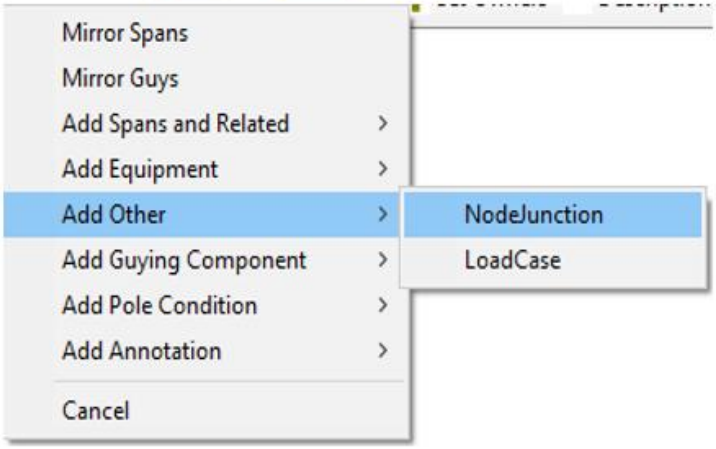
Node Junction

The Node Junction in an object that helps facilitates connecting Lattice Sections to either individual poles or crossarms. To add a Node Junction to complete these steps:

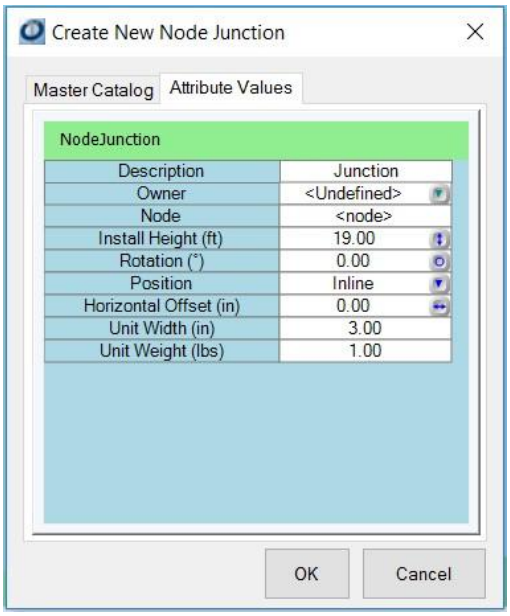
1. Select the **pole** you want to add a **Node Junction** to.



2. Select the **Add** button Add and select **Node Junction**.



Note: *The Node Junction can also be accessed by-right clicking on the pole in the Inventory panel.*

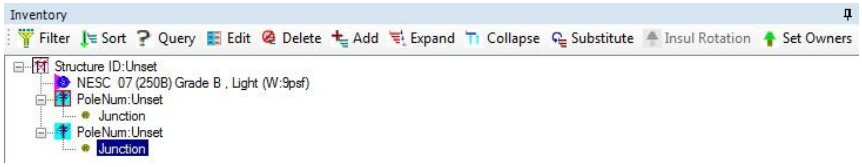


Note: *Available tabs are dependent on the corresponding node junction displayed in your catalogs or Inventory panel.*

©2025 Osmose Utilities Services, Inc.

3. To add a **Node Junction** from one of the Catalogs, select the appropriate tab and select the Node Junction you want to add.
4. Select the **Attribute Values tab** to modify the Node Junction attribute values.
5. Select **OK**.

Note: *To add additional Node Junctions complete steps 1 – 5.*

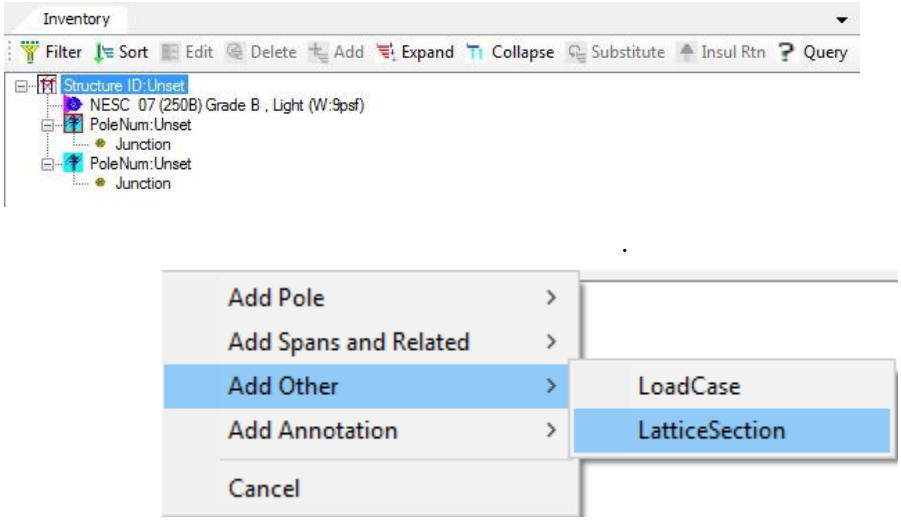


Note: *To undo additions, select* ***Edit > Undo****.*

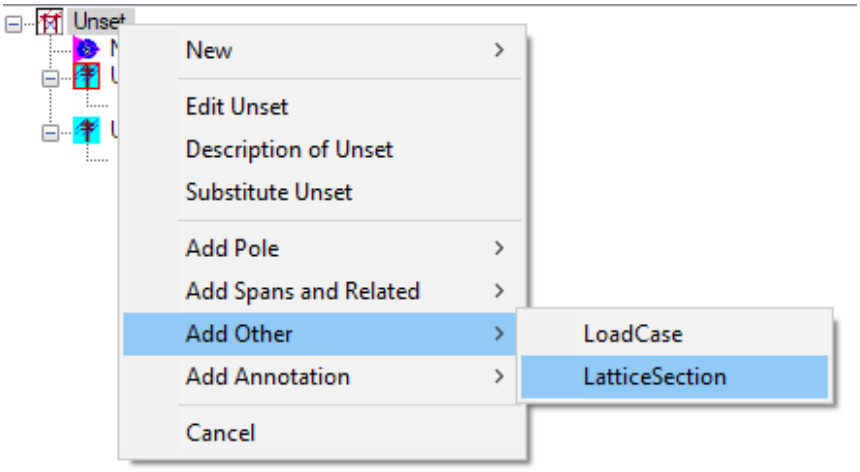
Lattice Section

To add a lattice section to a multi-pole structure in the Inventory panel, complete these steps:

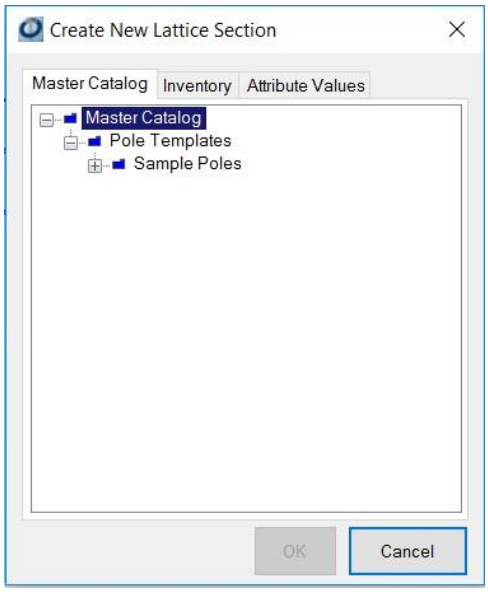
1. Select the **structure** you want to add a **Lattice Section** to and click the **Add** button, select **Lattice Section**.



Note: *The Lattice Section option can also be accessed by right clicking in the Inventory panel.*

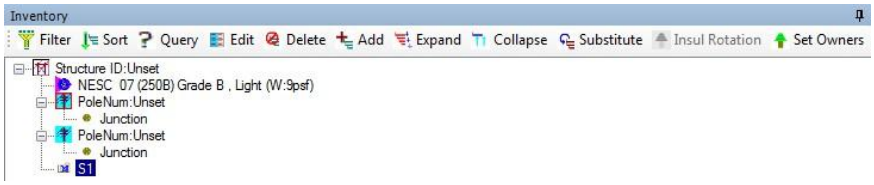


Note: *Available tabs are dependent on corresponding Lattice Section(s) displayed in your catalogs.*



3. To add a **Lattice Section** from one of the Catalogs, select the appropriate tab and select the Lattice Section you want to add.
4. Select the **Attribute Values tab** to modify the Lattice Section attribute values.
5. Select **OK**.

Note: *To add additional Lattice Sections complete steps 1 – 5.* ***Note:*** *To undo additions, select* ***Edit > Undo****.*

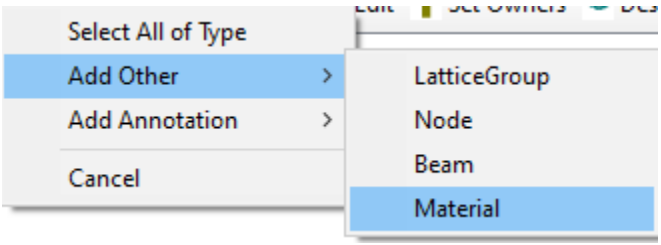


Add Material to a Lattice Section

To add material to a lattice section in the Inventory panel, complete these steps:

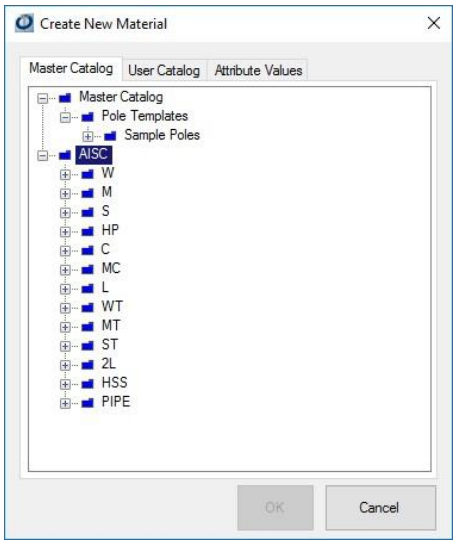
1. Select the **lattice section** you want to add **material** to.
2. Select the **Add** button

and select **Material**.



©2025 Osmose Utilities Services, Inc.

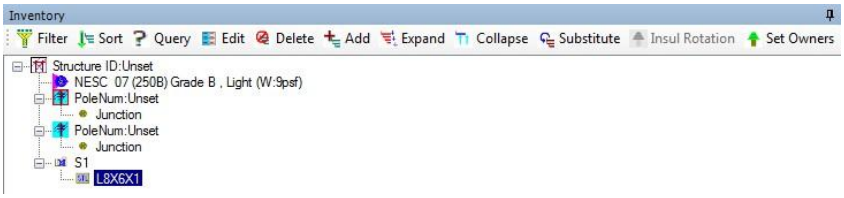
Note: *Materials can also be added by-right clicking on the lattice section in the Inventory panel.*



Note: *Available tabs are dependent on corresponding materials displayed in your catalogs.*

3. To add **Material** from one of the Catalogs, select the appropriate tab and select the Material you want to add.
4. Select the **Attribute Values tab** to modify the Material's attribute values.
5. Select **OK**.

Note: *To add additional beams complete steps 1 – 5.*

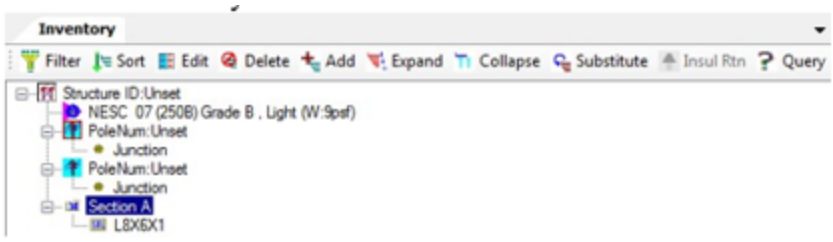


Note: *To undo additions, select* ***Edit > Undo****.*

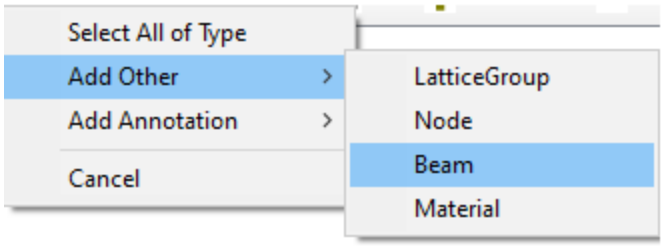
Add Beams to a Lattice Section

To add beams to a lattice section in the Inventory panel, complete these steps:

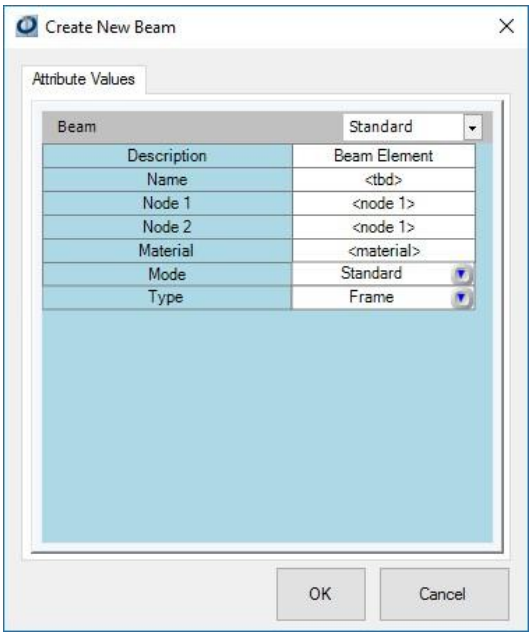
1. Select the **lattice section** you want to add a **beam** to.



2. Select the **Add** button Add and select **Beam**.



Note: *Beams can also be added by-right clicking on the lattice section in the Inventory panel.*

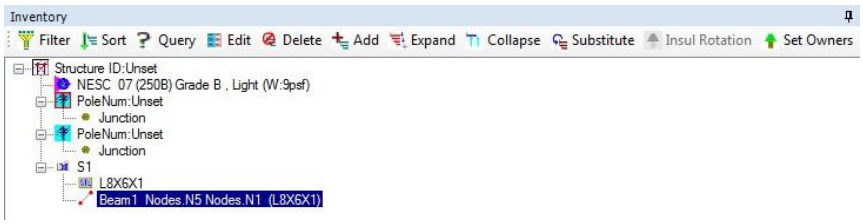


Note: *Available tabs are dependent on the corresponding beam displayed in your catalogs.*

3. To add a **Beam** from one of the Catalogs, select the appropriate tab and select the Beam you want to add.
4. Select the **Attribute Values tab** to modify the Beam's attribute values, click **OK**.

Note: *To add additional beams complete steps 1 – 4.*

©2025 Osmose Utilities Services, Inc.

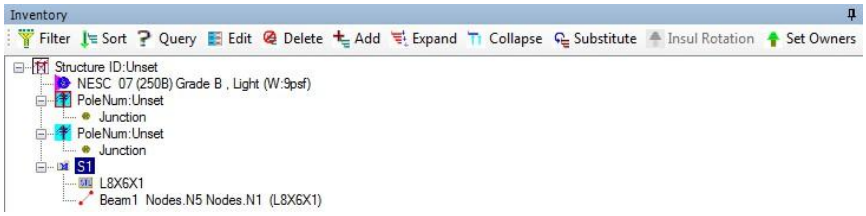


Note: *To undo additions, select* ***Edit > Undo****.*

Add a Lattice Group to a Lattice Section

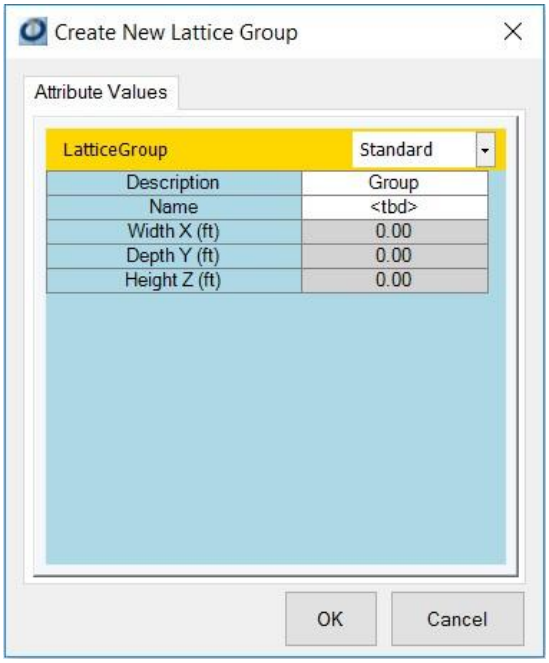
To add a lattice group to a lattice section in the Inventory panel, complete these steps:

1. Select the **lattice section** you want to add **a lattice group** to.



2. Select the **Add** button and select **Lattice Group**.

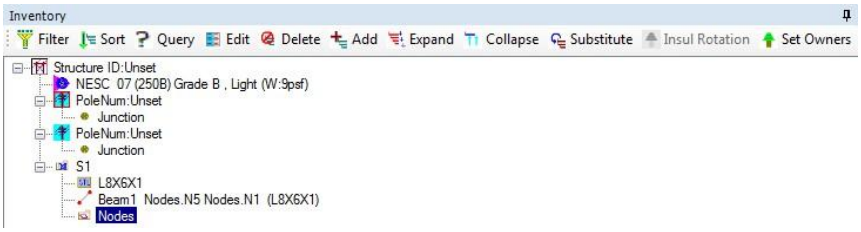
Note: *Lattice groups can also be added by-right clicking on the lattice section in the Inventory panel.*



Note: *Available tabs are dependent on corresponding lattice groups displayed in your catalogs.*

3. To add a **Lattice Group** from one of the Catalogs, select the appropriate tab and select the Lattice Group you want to add.
4. Select the **Attribute Values tab** to modify the Lattice Group's attribute values, click **OK**.

Note: *To add additional lattice groups complete steps 1 – 4.*

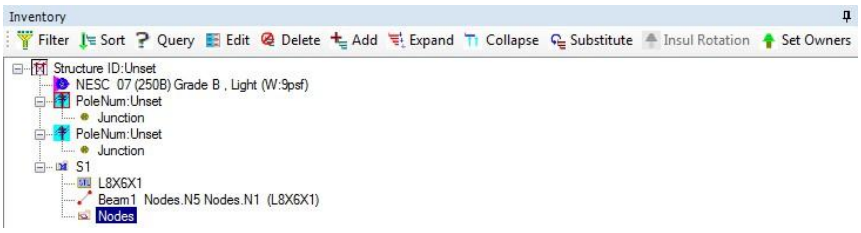


Note: *To undo additions, select* ***Edit > Undo****.*

Add Nodes to a Lattice Group

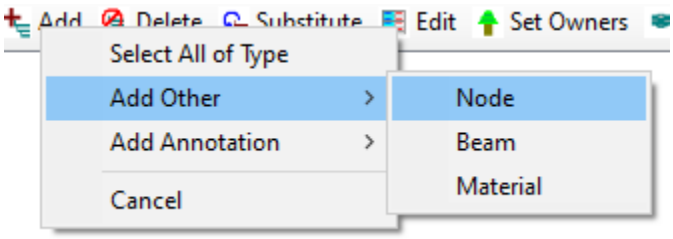
To add node(s) to a lattice group in the Inventory panel, complete these steps:

1. Select the **Lattice Group** you want to add a **Node** to.

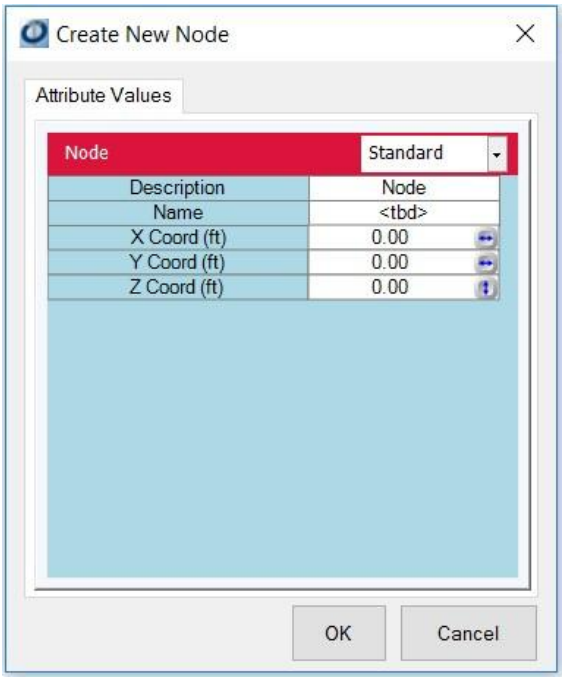


2. Select the **Add** button, select **Add Other**, click **Node**.

©2025 Osmose Utilities Services, Inc.



Note: *Nodes can also be added by right clicking on the lattice group in the Inventory panel.*



Note: *Available tabs are dependent on corresponding nodes displayed in your catalogs.*

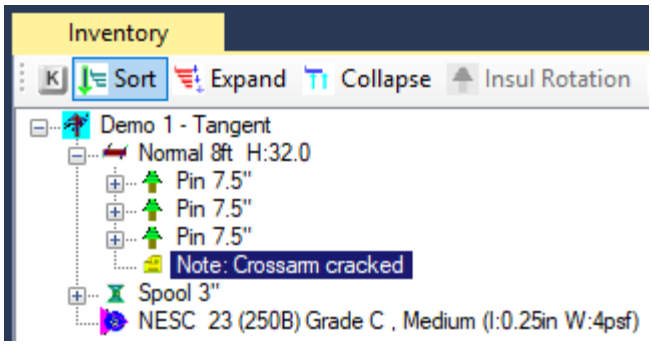
3. To add a **Node** from one of the Catalogs, select the appropriate tab and select the Node you want to add.
4. Select the **Attribute Values tab** to modify the Node's attribute values.
5. Select **OK**.

Note: *To undo additions, select* ***Edit > Undo****.*

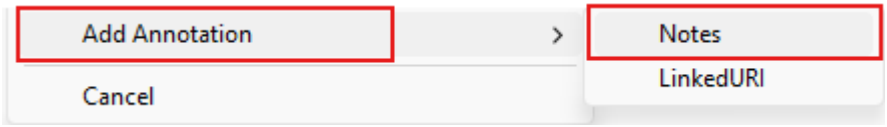
Adding Annotation (Notes)

To add a note and/or calculations to a pole or attached equipment in the Inventory panel, complete these steps:

1. Select the **Pole** or pole attachment such as the **Crossarm**.

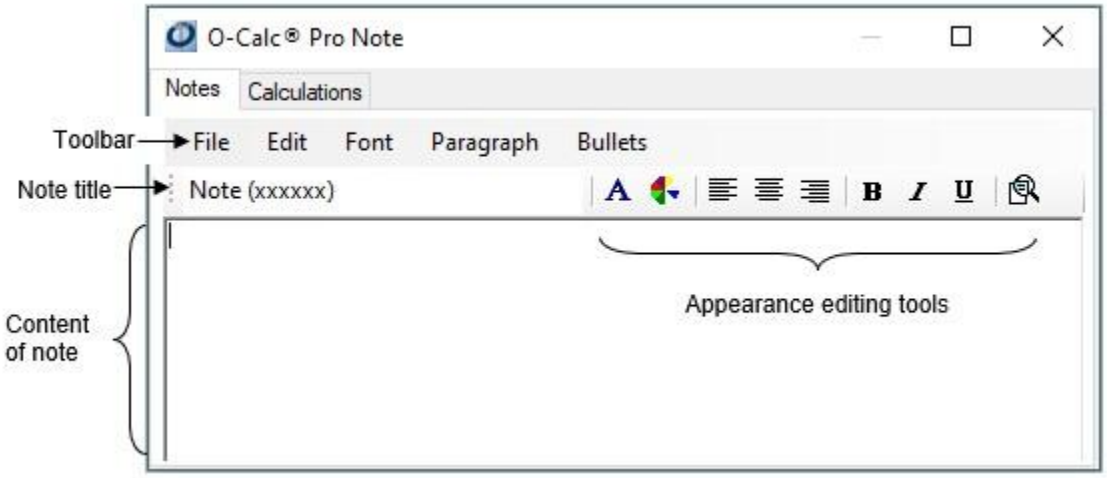


2. **Right-click** the equipment you want to add a note to, select add **Annotation**, click on **Notes**.



Note: *The* ***Notes*** *option can also be accessed by right-clicking on any equipment to add a note.*

3. Enter a note **Title**, and the note **Content**.



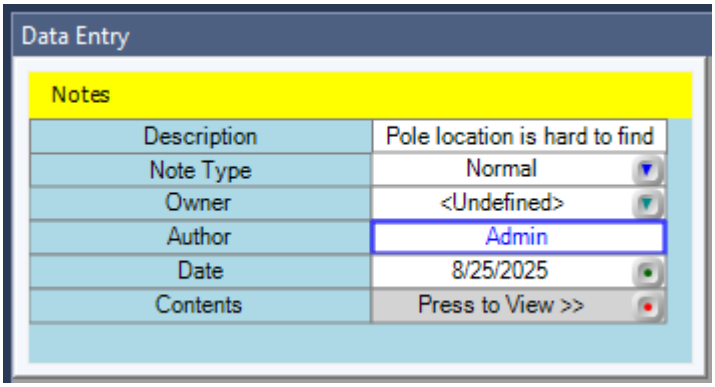
Edit a Note

The edit option for a note can also be accessed by right-clicking on a note and either selecting Edit Note, Edit Note Contents or View/Print Note. Basic changes to a Notes Description, Note Type, Owner, Author or Date can be made right from the Data Entry panel. Content changes to a Note or Calculations need to be completed from within the Note window. To begin to edit a note or the calculations tab from the **Inventory**, complete these steps:

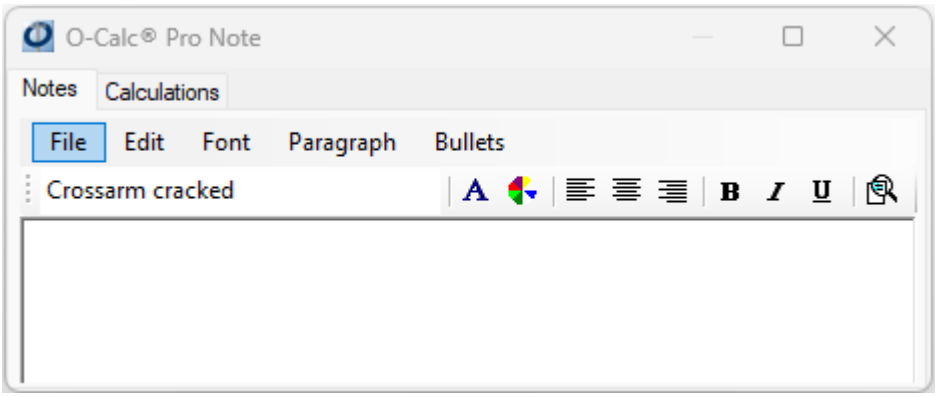
1. Select the **note** you want to edit and click the **Edit** button.

2. In the **Data Entry** click the Contents attribute **Press to View** radio button.

©2025 Osmose Utilities Services, Inc.



3. Complete your edits to the note contents or the calculations, click **File**, **Save**.

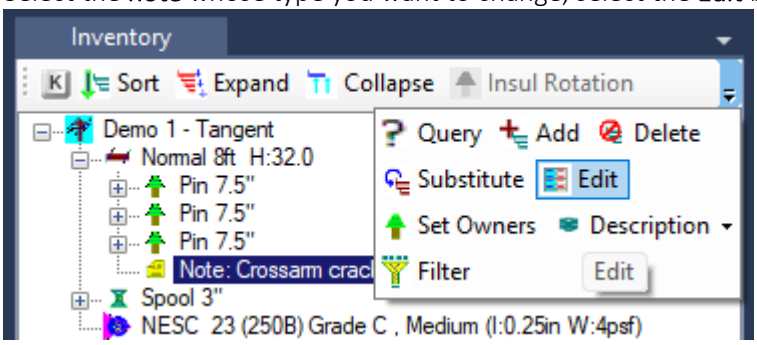


Note: *To undo the addition of the Note, select* ***Edit > Undo*** *from the main toolbar.*

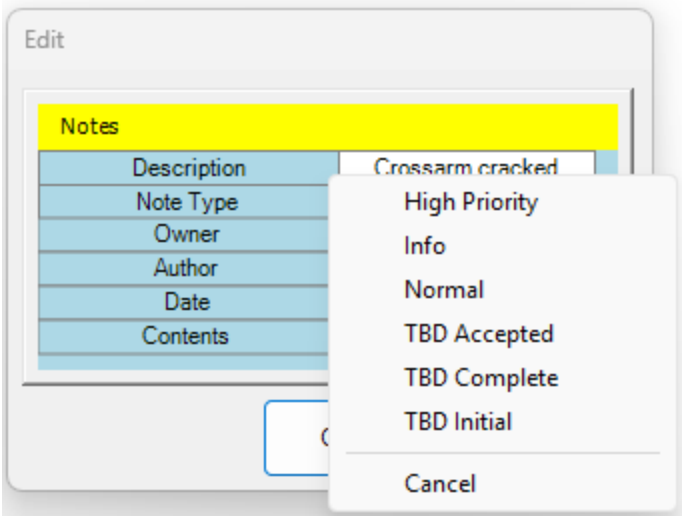
Change a Note Type

The note type field allows you to easily flag a structure as needing additional interaction. You can also edit a note by right clicking on a note and selecting the Edit Note option. To change the note type, complete these steps:

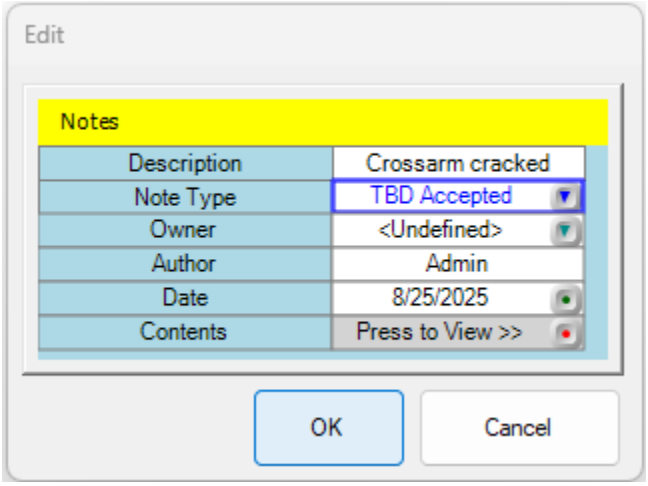
1. Select the **note** whose type you want to change, select the **Edit** button.



2. Select the Note Type from the drop-down list of choices.



Note: *To have TBD Notes highlighted in the Inventory panel, enable the option in* ***Options > Info tips and Data > Show TBD Item Status****.*



Note Type Icons

The Note icon in the Inventory panel will vary depending on what Note Type is selected.

Note Type Icons	*Description*
	Normal or Info
	High Priority
	TBD Initial *Note: The note, the pole, and the object that the note is attached to will highlighted red be if Show TBD Item Status is enabled.*

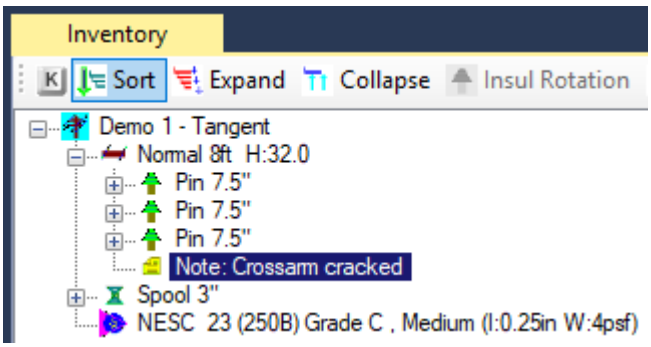
©2025 Osmose Utilities Services, Inc.

	TBD Complete *Note: The note, the pole, and the object that the note is attached to will be highlighted yellow if Show TBD Item Status is enabled.*
	TBD Accepted *Note: The note, the pole, and the object that the note is attached to will be highlighted green if Show TBD Item Status is enabled.*

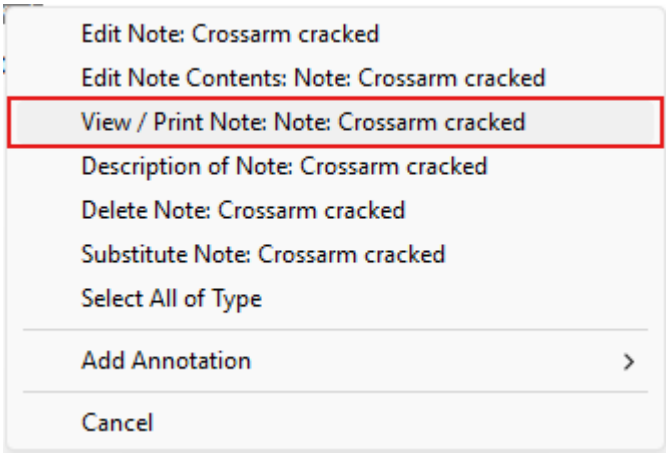
View or Print a Note

To view or print a note, complete these steps:

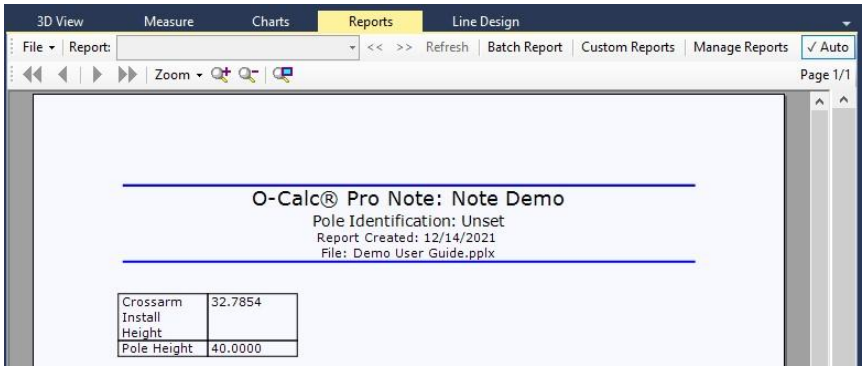
1. Right click on the **note** you view or print.



2. Select **View / Print Note** (*note display name*).



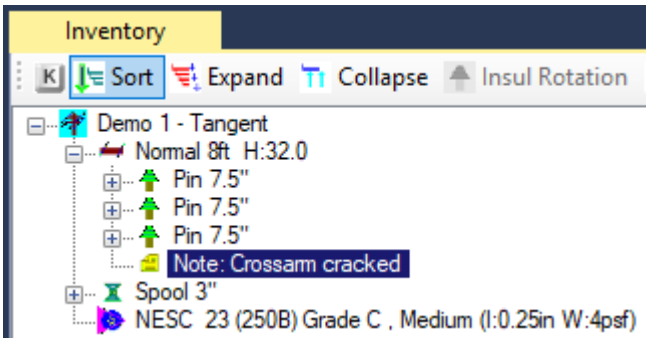
The selected note will automatically display in the **Reports** panel.



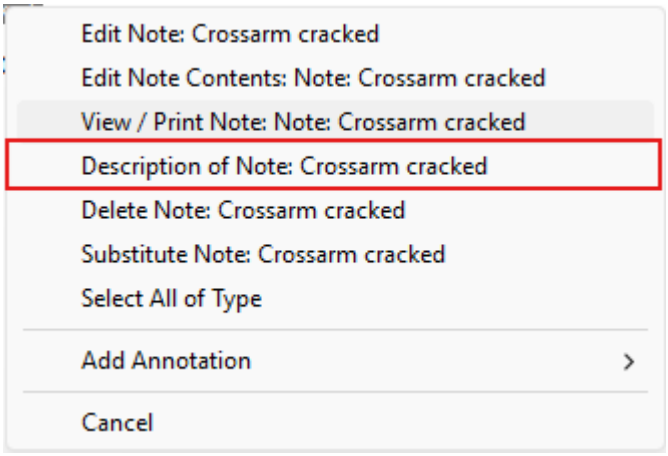
Change the Description of a Note

To change the description that is displayed next to a note icon in the Inventory panel, complete these steps:

1. Right click on the **note** you want to change the display description for.

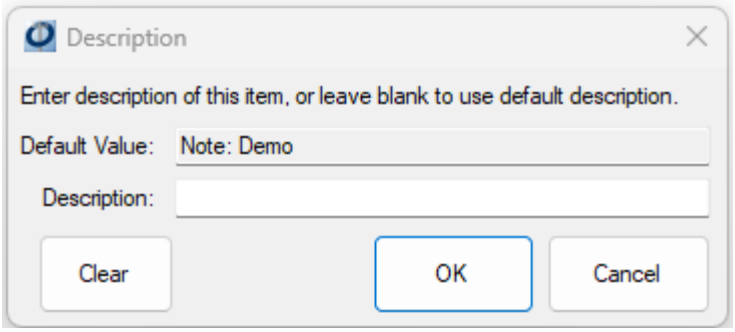


2. Select **Description of (*note display name*)**.



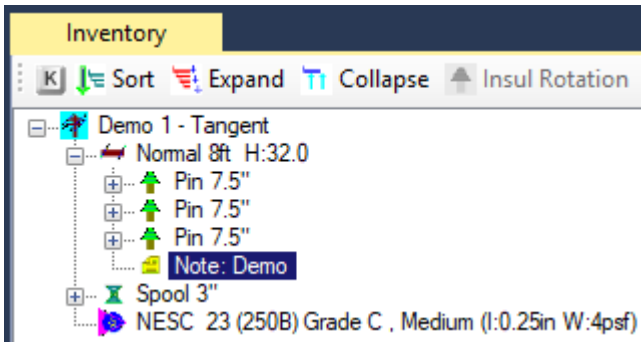
3. Enter the **Description** you would like to be displayed.

©2025 Osmose Utilities Services, Inc.



Note: *Select* ***Clear*** *to clear the description field and use the default value.*

4. Select **OK**.

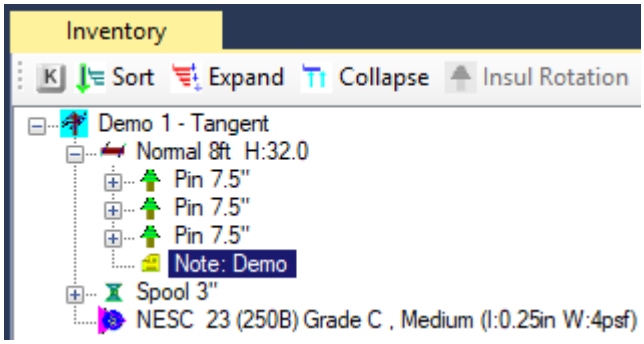


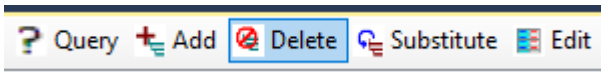
Note: *To undo the display description change, select* ***Edit > Undo****.*

Delete a Note

To delete a note, complete these steps:

1. Select the **Note** to be deleted, click the **Delete** button, or right-click to select the Delete option.



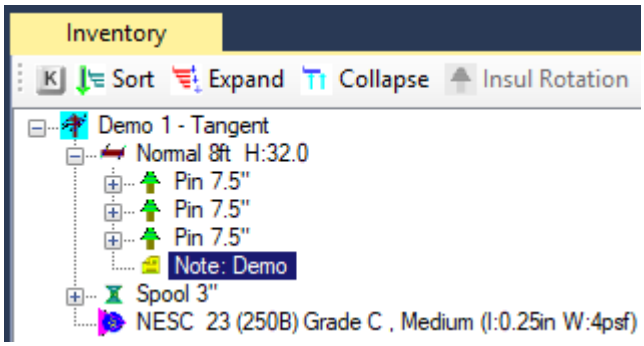


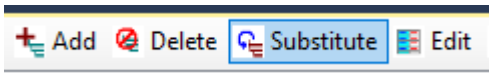
Note: *Notes can also be deleted by right clicking on the note to be deleted and selecting* ***Delete (note display name)****. To undo a deletion, select* ***Edit > Undo****.*

Substitute a Note

To substitute a note, complete the following steps:

1. Select the **note** you would like to substitute click the Substitute button.



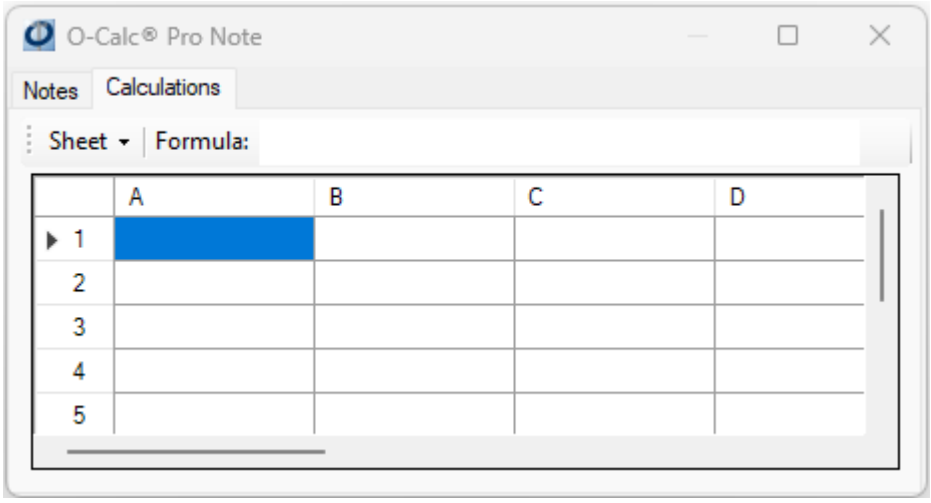


Note: *The Substitute option can also be accessed by right clicking on the note that needs to be substituted and selecting* ***Substitute (Note display name)****.*

Add a Calculation to a Pole or Equipment

From the **Note** window, the **Calculations** tab provides a lightweight spreadsheet that allows you to enter values such as numeric and string variables, but it also allows you to enter basic calculations. Numeric values can also be obtained from the selected equipment's attributes or the selected equipment's parent objects. To add a Calculation to the Note, complete these steps:

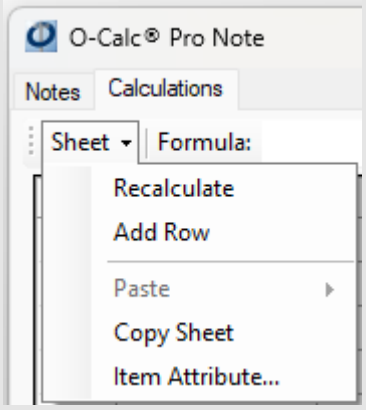
1. Select the **Add** button and select the **Notes** option.
2. Select the **Calculations** tab.



Note: *When working with the Measure panel numeric values can also be obtained from taking actual image measurements.*

©2025 Osmose Utilities Services, Inc.

In addition to the basic **Notes** menu options, the **Calculations** tab also provides the following menu options:



Recalculate. Select the Recalculate option to update any formula calculations in the spreadsheet.

Add Row. Select the Add Row option to add a row to the spreadsheet.

Paste. Select the Paste option to paste values only or complete text from the Office Clipboard directly into the spreadsheet.

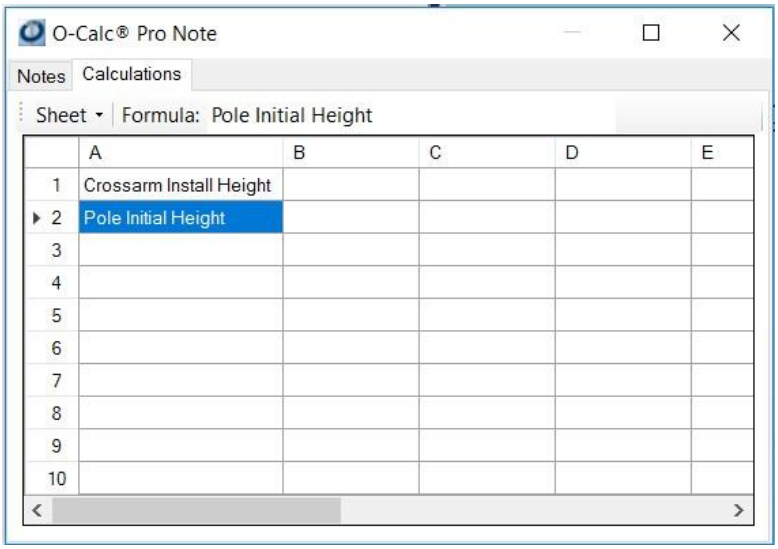
Copy Sheet. Select the Copy Sheet option to place the sheet on the Office Clipboard for use in other applications.

Item Attributes. Select the Item Attribute option to incorporate other values into the spreadsheet from the select equipment or a parent's attributes.

Formula Bar. Use the Formula Bar to make it easier to view and edit a long formula or large amount of text in a cell.

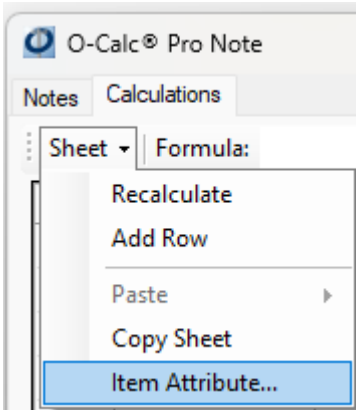
4. Enter **data or calculations** into the spreadsheet.

String values entered in the spreadsheet

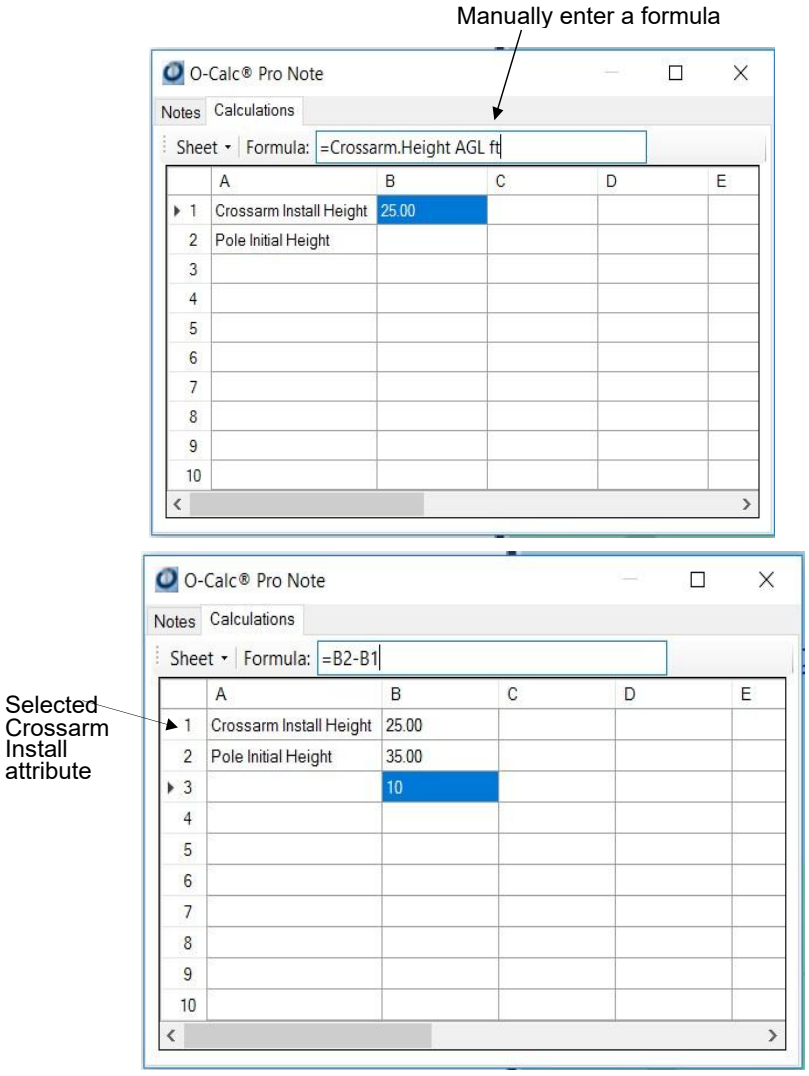


Add an Item Attribute to the Calculation

To incorporate attribute value from the equipment the note is attached to or from a parent item, perform the following steps. Select the field you want the value populated into. From the menu select **Sheet > Item Attribute** and choose the items whose attribute value you need displayed in the spreadsheet.



Manually Enter a Formula in Note Calculations



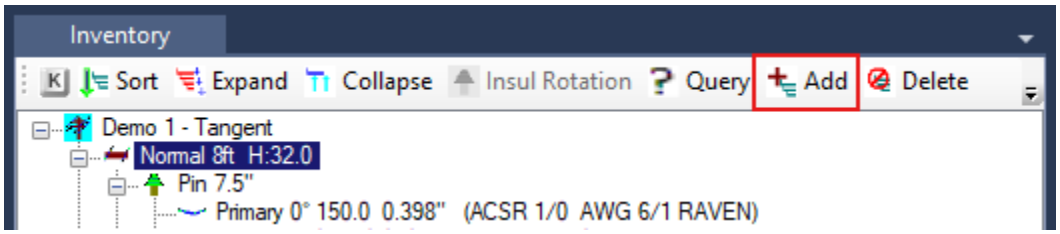
5. From the main menu select **File > Save**.

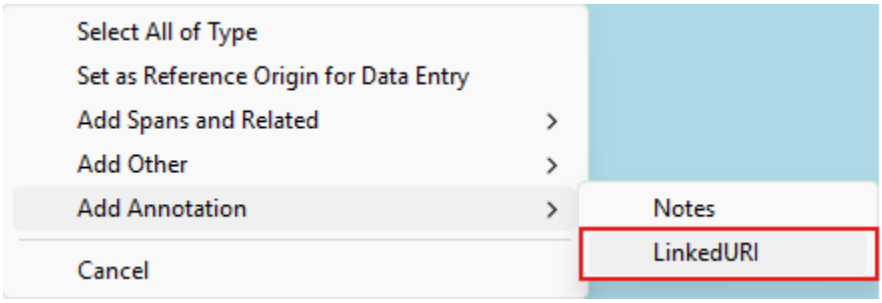
©2025 Osmose Utilities Services, Inc.

Add a URI to a Pole Model

To add a Universal Resource Identifier (URI) to a pole or attached equipment in the Inventory panal, complete these steps:

1. Select the **pole** or pole attachment.
2. Select the **Add** button and select the Linked URI option.



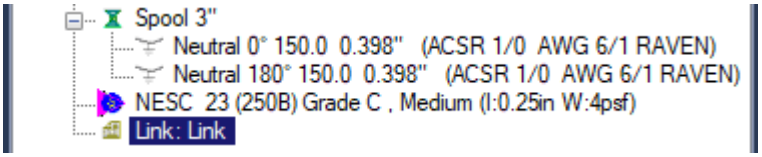


Note: *The **Linked URI** option can also be accessed by right-clicking on the equipment you need to add a linked URI to. To undo the addition of the URI, select **Edit > Undo** from the main toolbar.*

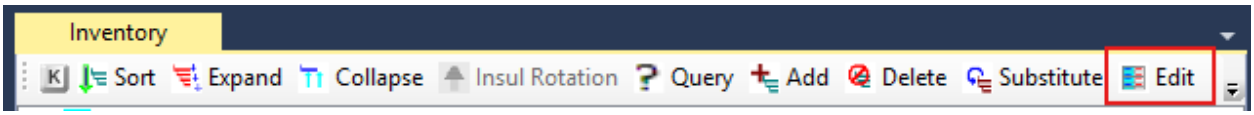
Edit a URI

The URI Description, Owner or Viewer attributes can be changed in the Edit window. To edit content changes to a URI within the URI window complete these steps:

1. Select the **URI** you want to edit.

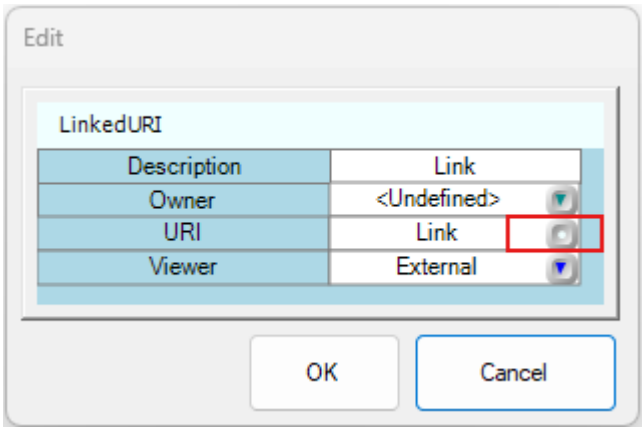


2. Select the **Edit** button in the Inventory tool bar.

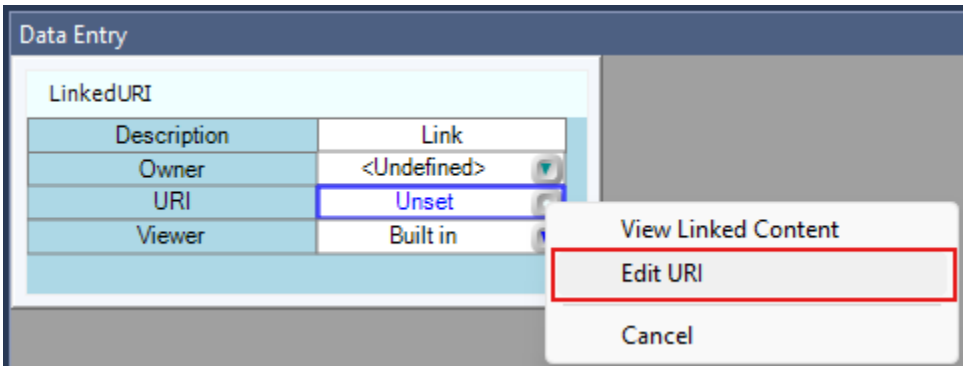


Note: *The edit option for a URI can also be accessed by right-clicking on a URI and selecting the **Edit URI** link.*

3. Select the **URI** radio button for the URI attribute.



4. Select the **Edit URI** option.



5. In the **Universal Resources Identifier** window, enter the URI you would like to use.

6. Select the **Test** button to verify the entered URI is correct, then click **OK**.

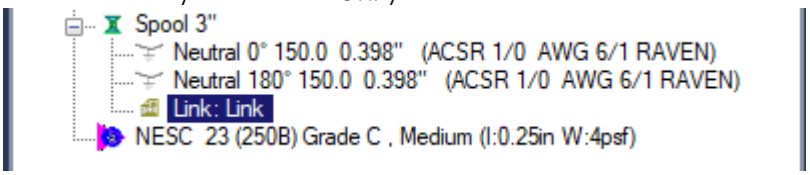
Note: *To cancel the current URI, select the* ***Cancel*** *option. The URI change can also be done by selecting* ***Edit > Undo*** *from the main toolbar.*

©2025 Osmose Utilities Services, Inc.

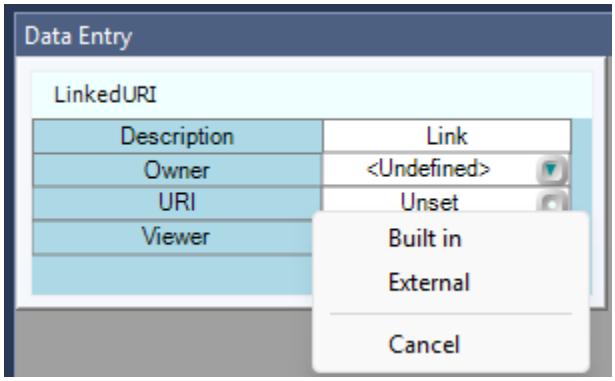
Set the URI Viewer

The edit option for a URI can also be accessed by right clicking on a URI and selecting Edit Link. To set the viewer you want the URI to open in, complete these steps:

1. In the Inventory click on the **URI** you want to select a viewer for.



2. In the Data Entry select the **Viewer** attribute arrow.

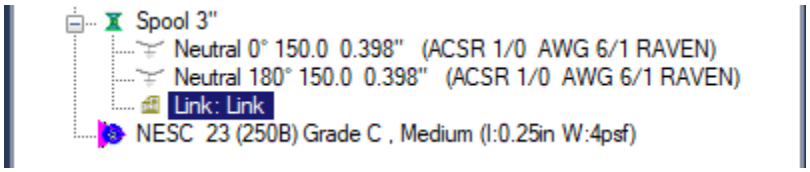


3. Select the **Viewer** button, and select **Built in** to have the URI link open within the application as a separate tab. Select **External** to have the URI link open in a separate window outside of the application.

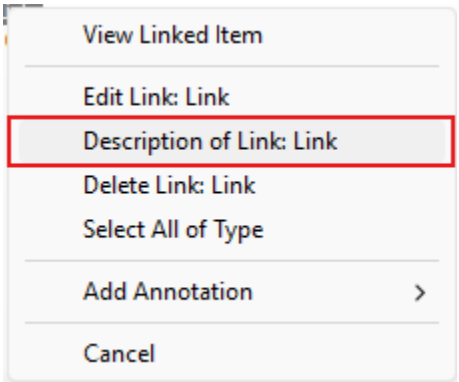
Change the Description of URI

To change the description which will display next to the URI icon in the Inventory panel, complete these steps:

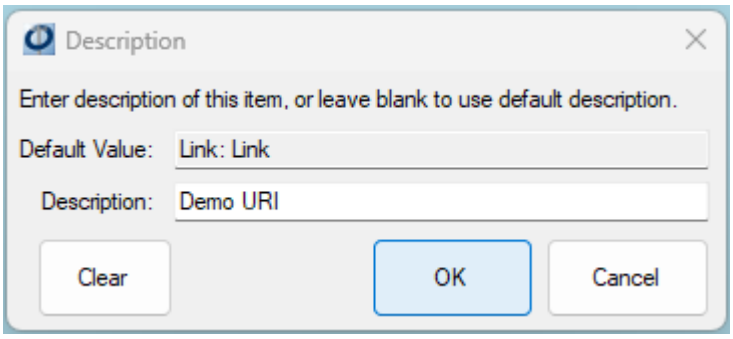
1. Right click on the URI to change the display description.



2. Select **Description of** (URI display name) option.



3. Enter the **Description** you would like to be displayed.

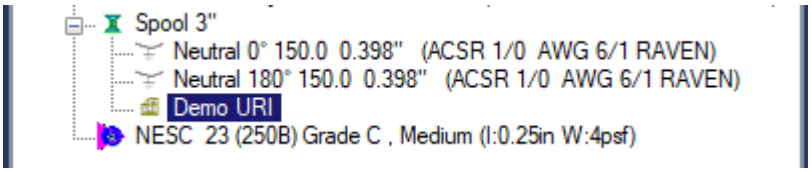


Note: *Select* ***Clear*** *to clear the description field and use the default value.*

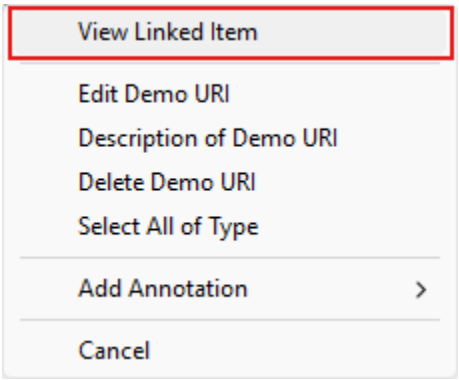
Open a URI Link

To open a URI Link, complete these steps:

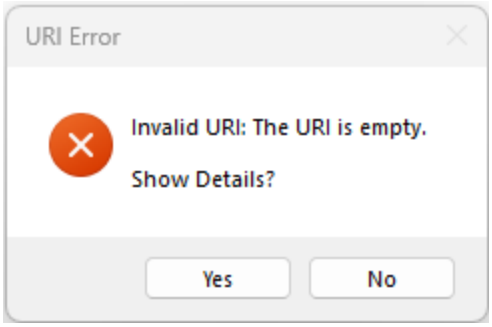
1. Right click on the URI you want to open.



2. Select **View Linked Item** to be redirected to the URI location.



3. The URI should take you to the correct location, unless the URI in Invalid or empty then the **URI Error** message displays.

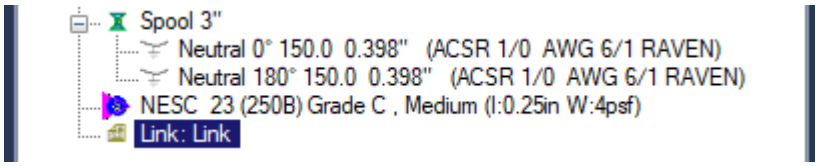


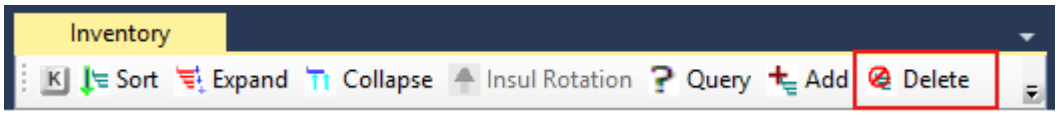
©2025 Osmose Utilities Services, Inc.

Delete a URI

To delete a URI, complete these steps:

1. Select the **URI** to be deleted and click the **Delete** button.



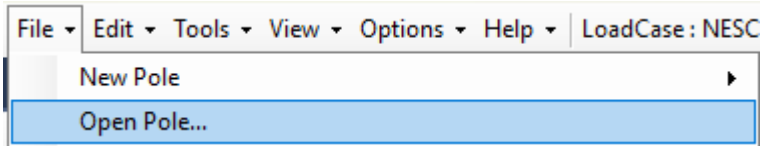


Note: *URIs can also be deleted by right clicking on the URI to be deleted and selecting* ***Delete (URI display name)****.*

Working in the File menu

To open an existing pole in the Inventory panel, complete these steps:

1. Select **File > Open Pole**...

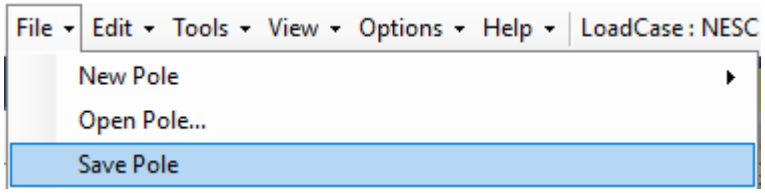


2. Browse the location of the pole to open, select the .pplx file and click **Open**.

Save Pole

To save the pole in the Inventory panel, complete these steps:

1. Select **File > Save Pole**.

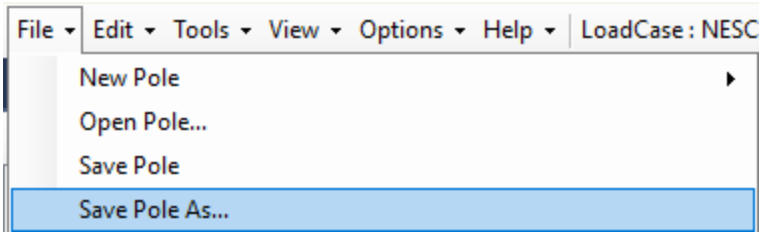


2. Browse to the location to save the pole and click **Save**.

Save Pole As

To save a pole as a different file name, format or location, complete these steps:

1. Select **File > Save Pole As**...

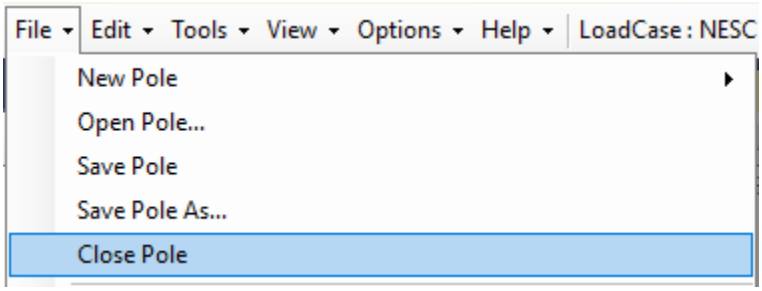


2. Browse to the location where you will save the pole and click **Save**.

Close Pole

To close the current pole in the Inventory panel, complete these steps:

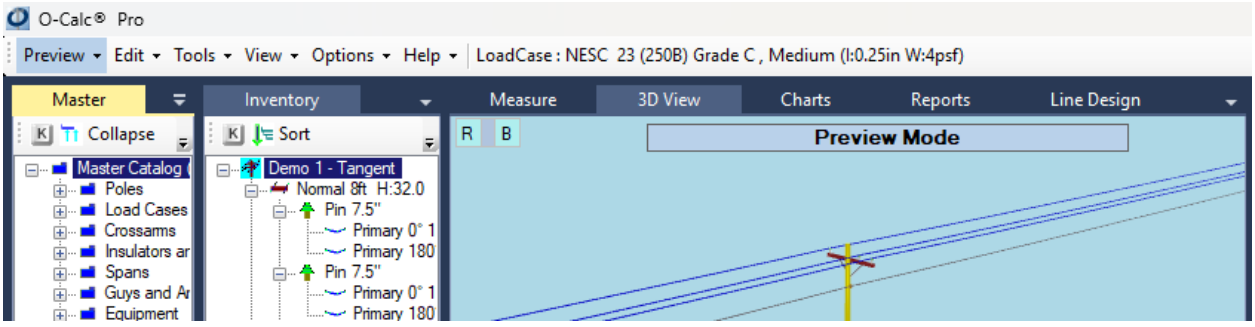
1. Select **File > Close Pole**.



Note: *If any changes have been made to the current pole you will be prompted to save your changes before closing the pole.*

Preview Mode

Preview mode is used to quickly review any existing pole template without having to open and close the .pplx file. Work cannot be saved while in Preview mode, think of it as a 'view only' tool. To begin work on a pole from Preview mode select the Preview menu and click the 'Preview to New Pole' option, you can now work and save your changes.



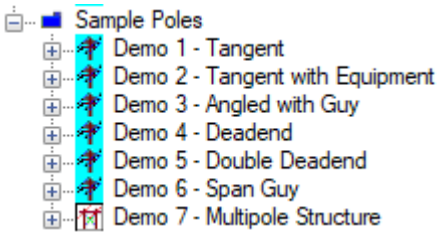
The pole is automatically displayed in Preview mode within O-Calc® Pro. While previewing a pole the O-Calc® Pro typical functionality is limited to a 'read only' type of view, meaning no work can be saved until you exit the preview mode. The Preview menu offers options to exit the mode and save your work. Preview mode ensures you can quickly display any pole template available without having to open/close the pole files.

©2025 Osmose Utilities Services, Inc.

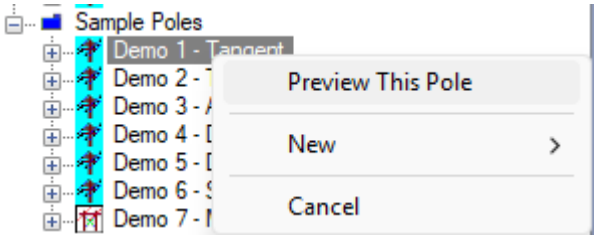
Note: *If you have an unsaved pole loaded in the Inventory panel you will be prompted to save your changes before the pole file is closed. Equipment assemblies cannot be viewed in preview mode by themselves, they must first be attached to a pole.*

To enter the Preview mode through a Catalog, complete these steps:

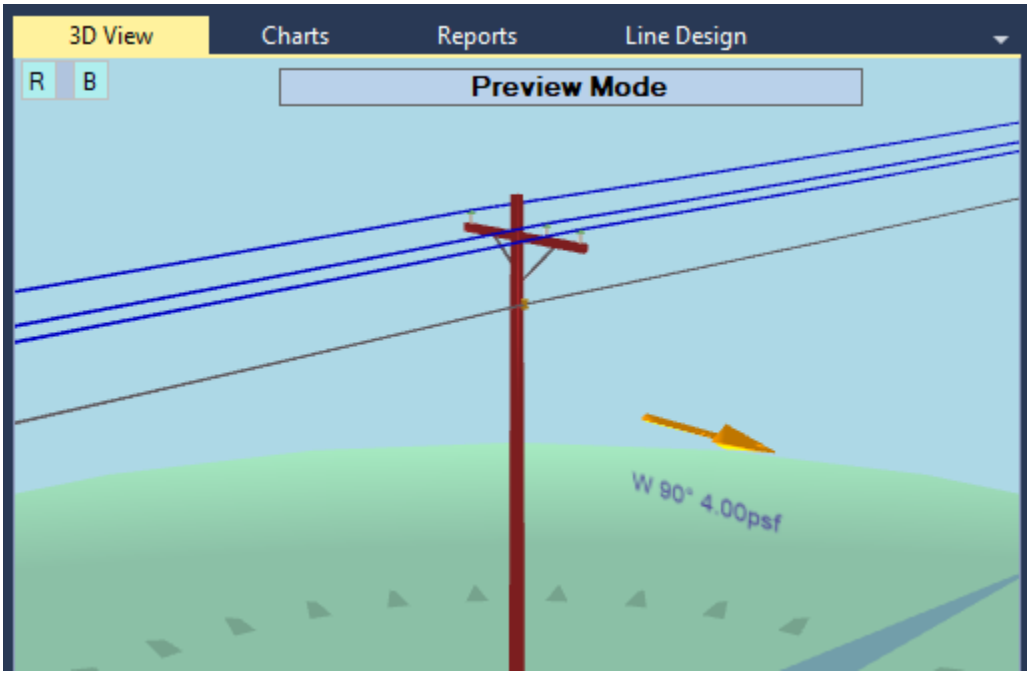
1. Locate any pole template from the Catalog of your choice to preview. Only complete poles can be displayed in the Preview mode from a Catalog, complete poles display the pole icon shown below.



2. Right-click on the pole of your choice in the Catalog, select **Preview This Pole**.



3. The pole appears I the 3D View under the Preview Mode banner.

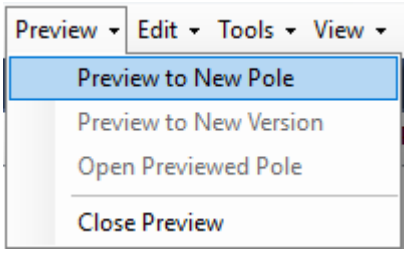


4. To exit Preview mode, go to the File menu location (next to the Edit menu shown below), it currently displays the **Preview** menu. Select the **Close Preview** option.

Preview to New Pole

Use **Preview to New Pole** to begin work on the pole with the ability to save your work. No work can be saved in Preview Mode. Or select the Preview to New Version to add a new pole version to an existing .pplx file. To create a new pole from the pole you are currently previewing, complete these steps:

1. Select **Preview > Preview to New Pole**.

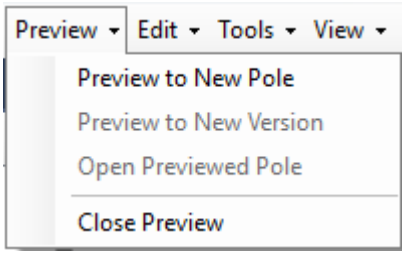


Note: *Once Preview to New Pole is selected the Preview Mode is automatically closed.*

2. Complete any modifications to the new pole.
3. Select **File > Save** to save the new pole.

Preview Menu

The Preview menu provides a variety of options:



Preview to New Pole. Select the Preview to New Pole option to convert the currently previewed pole to a new pole.

Preview to New Version. Select the Preview to New Version option to convert the currently previewed pole to a new version.

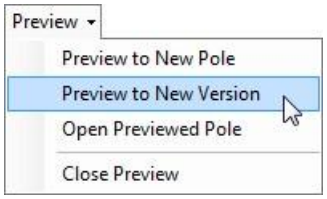
Open Previewed Pole. Select the Open Previewed Pole option to open the currently displayed preview pole and exit preview mode.

Close Preview. To close the pole, you are previewing and exit Preview Mode

Preview to New Version

To create a new version from the pole you are currently previewing, complete these steps:

1. Select **Preview > Preview to New Version**.



Note: *Once Preview to New Version is selected the Preview Mode is automatically closed*

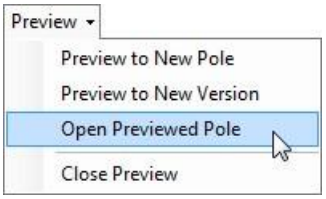
©2025 Osmose Utilities Services, Inc.

2. Complete any modifications to the new version.
3. Select **File > Save** to save the new version.

Open Previewed Pole

To open the pole you are currently reviewing, complete these steps:

1. Select **Preview > Open Previewed Pole**.

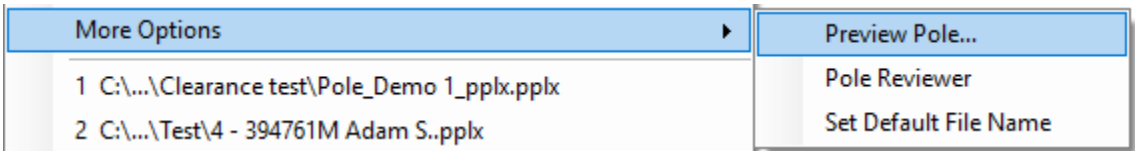


Note: *Once Open Previewed Pole is selected the Preview Mode is automatically closed.*

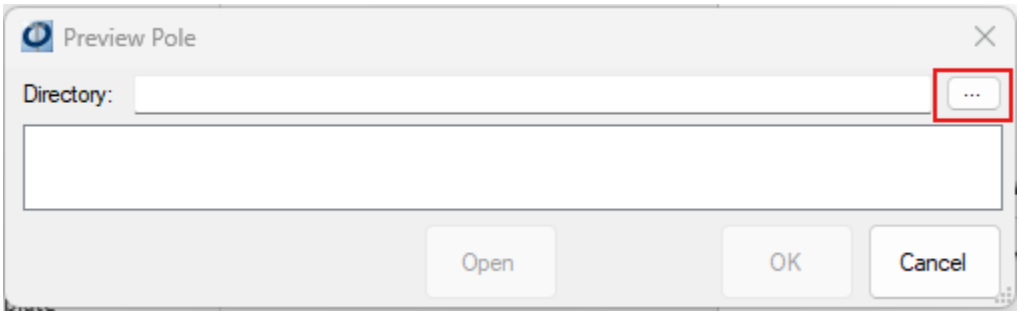
2. Complete any modifications to the pole, select **File > Save**.

Additionally, Preview mode can be accessed through File Explorer using the File menu. To access Preview Mode from the File menu complete these steps:

1. Select the **File** menu, select **More Options**, and click **Preview Pole**.



2. Select the **Browse** button and navigate to the .pplx file(s) you would like to preview, click **OK**.



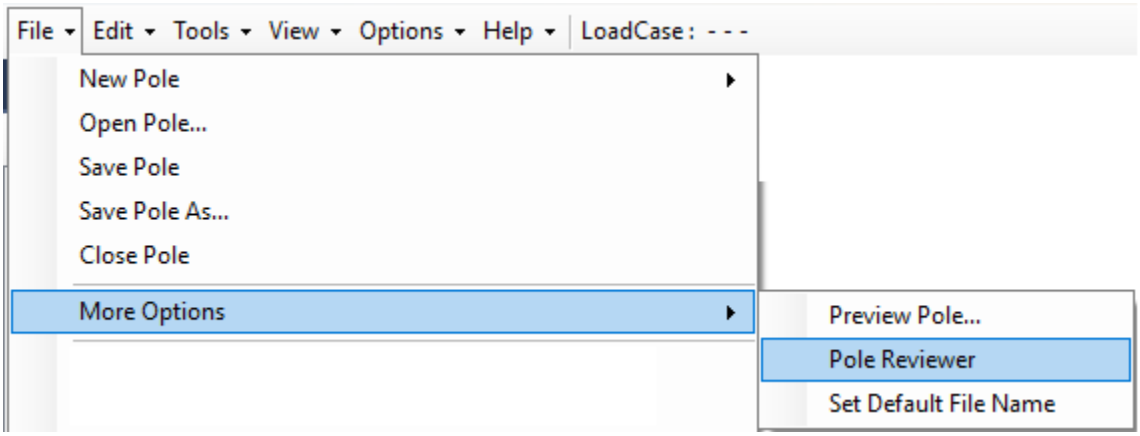
3. Select the **.pplx file** you would like to preview. Select **OK**.

Note: *Select **Open** to open the selected .pplx file in edit mode instead of Preview Mode. Select **Cancel** to close the Preview Pole window.*

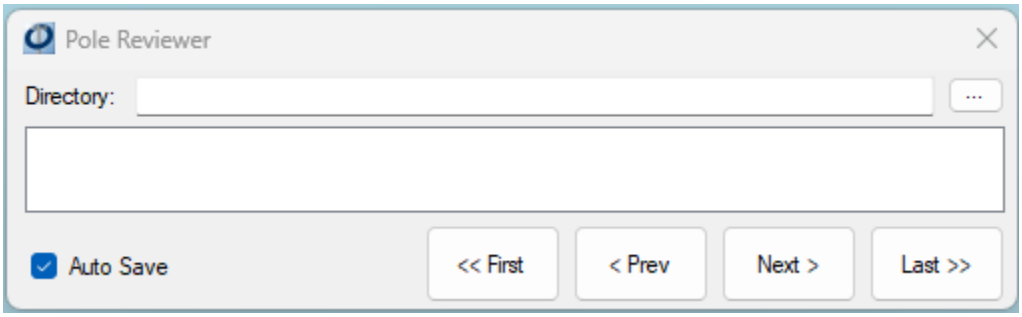
Pole Reviewer

The Pole Reviewer allows you to quickly locate pole files (.pplx) within a directory. You can work through a list of poles, quickly load them, make edits, save your work automatically, and move along to the next pole in your list to edit. Complete these steps to use the Pole Reviewer:

1. Select the **File** menu, select **More Options** > **Pole Reviewer**.

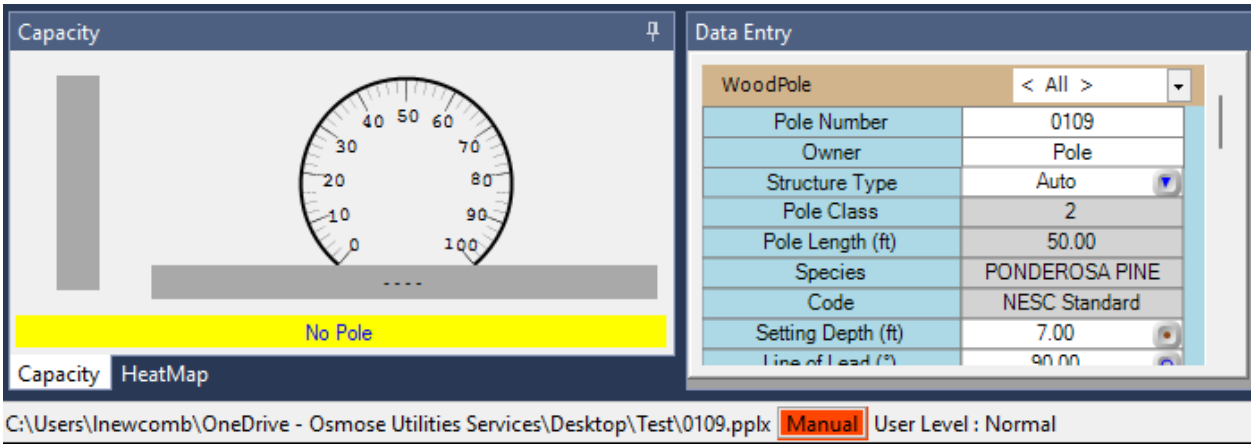


2. Click the **Browse** button and browse to the **Directory** that has the .pplx files, click **OK**.



3. The first pole in the list automatically displays. Complete any modifications to the pole and select **Next** to load the next .pplx file in the Inventory panel. The changes made are saved automatically when the **Auto Save** check box is selected.

4. To obtain the updated loading **Capacity** results for your changes click the red **Manual** button at the bottom of the screen.



Note: *If the **Auto Save** option is deselected you will be prompted to save the changes to each .pplx file you change.*

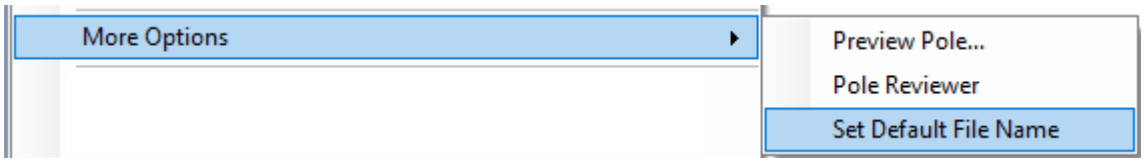
5. To close the **Pole Reviewer** click the red "**X**" in the upper right-hand corner.

©2025 Osmose Utilities Services, Inc.

Set a Default File Name

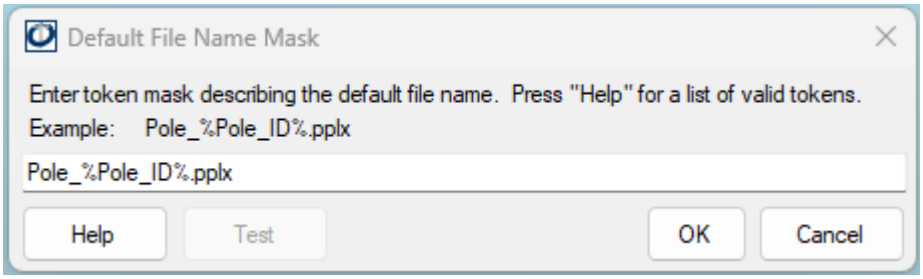
The Default File Name Mask provides the ability to use a reporting token to create a default file name to match a specific naming convention. A token can be copied and posted from the valid token list into the Default File Name field. To set a default file name, complete these steps:

1. Select **File >More Options > Set Default File Name**.

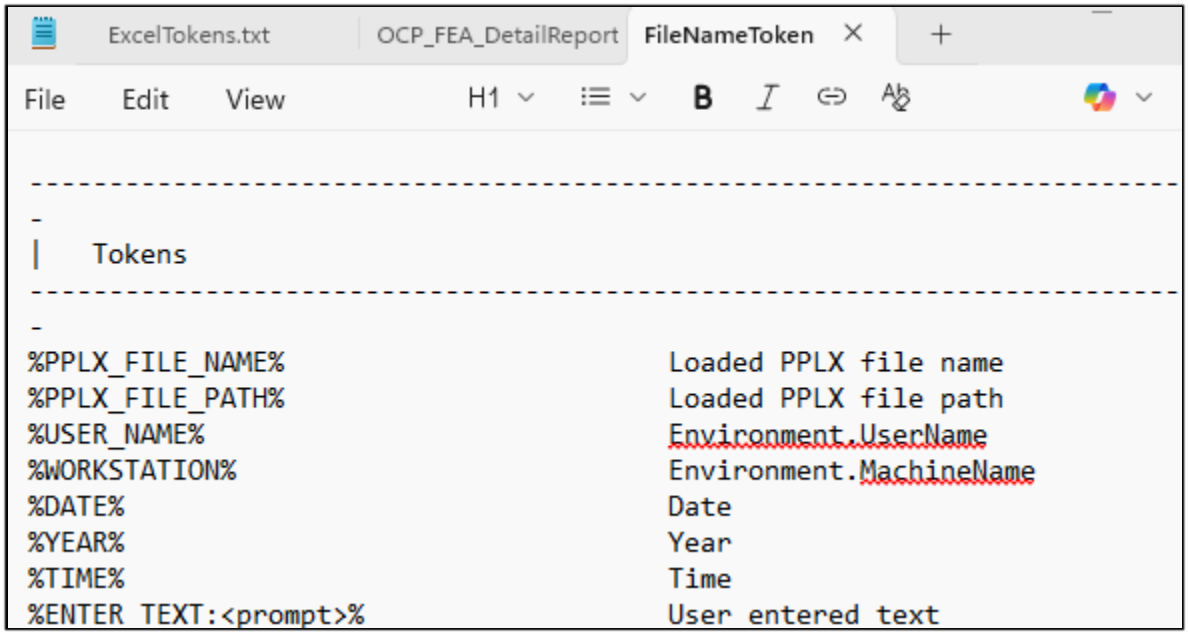


Note: *A pole does not need to be open to set a default file name.*

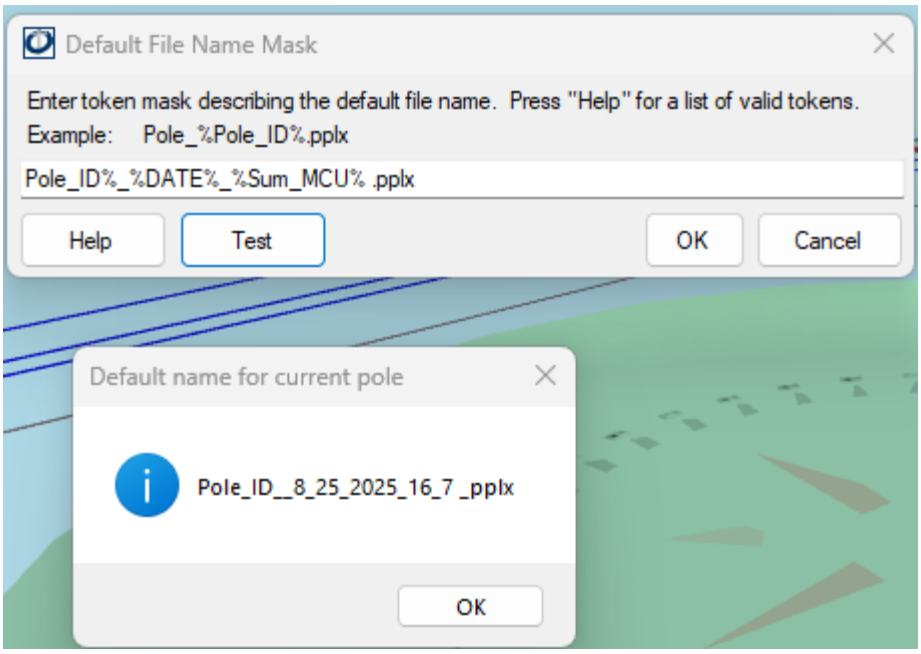
2. Enter the file name token you would like to use.



3. Select the **Help** button in the **Default File Name Mask window** to view a list of tokens:



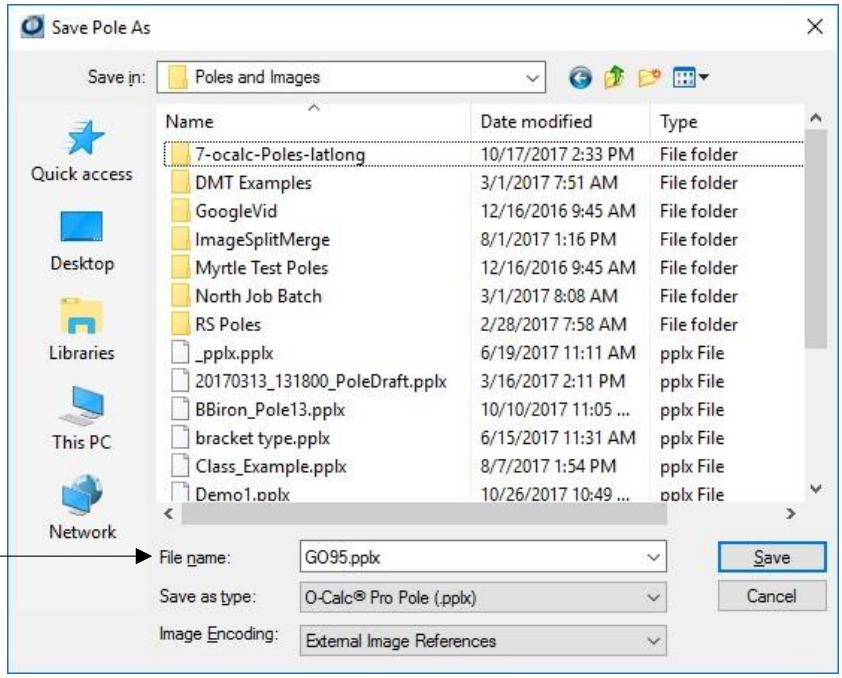
4. Select **Test** to preview a display of the default file name, click **OK**.



Note: *To cancel the current Default File Name, select the* ***Cancel*** *Option.*

After you set the Default File Name, the first time you save a pole the default file name token automatically displays in the file name. Once the pole has been saved with a specified name, it will not update the file name default File Name, unless a save Pole As…action is performed.

Default file name token



©2025 Osmose Utilities Services, Inc.

Master Catalogs

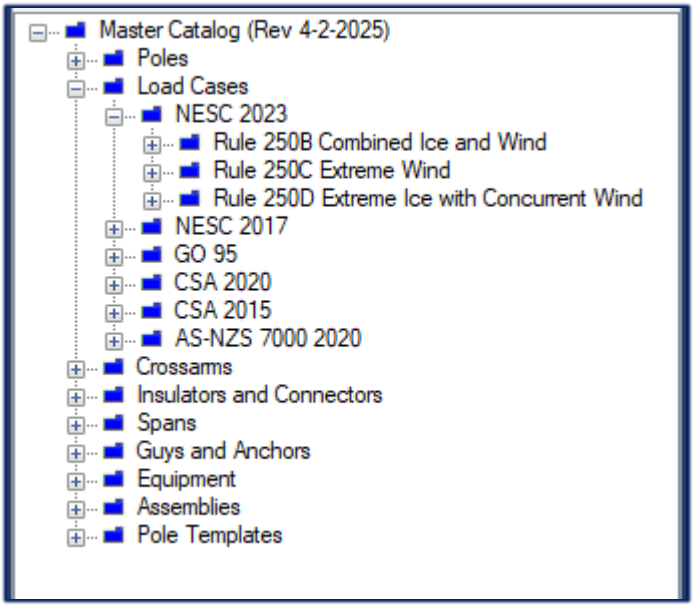
Setting a Default Load Case

Load cases are used to group a series of loads, boundaries and safety conditions into loading district environments. The Master Catalog provides a dynamic listing of load cases broken down into categories.

For each category, a default load case can be specified dependent on pole type. This can aid in ensuring the correct load case is applied each time a pole of that category/type is created.

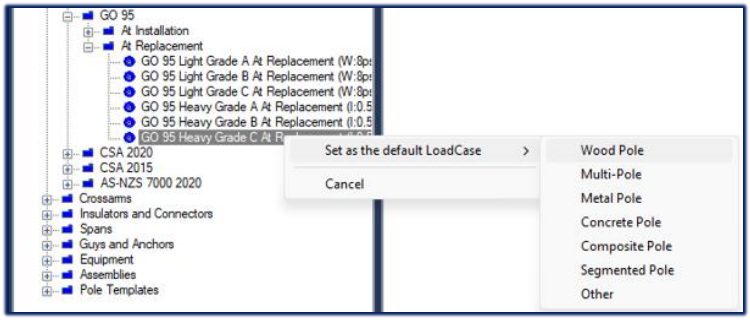
Use the following steps to set a default load case for each pole category:

1. Expand the **Master Catalog** folder.
2. Expand the **Load Cases folder** until the catalog list you need is displayed.

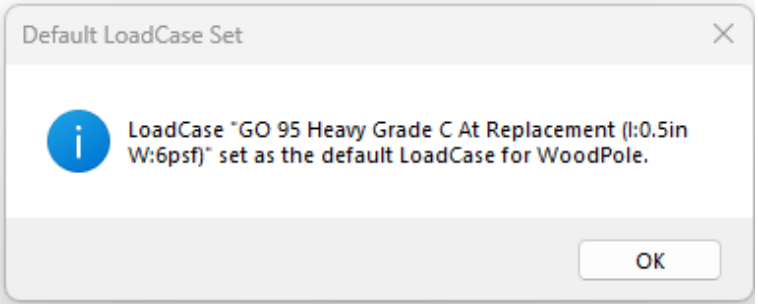


Note: *A default Load Case can only be selected from the Master Catalog.*

3. Right click on the **Load Case** you want to set as the default.
4. Select **Set as the default Load Case** and select the pole type.



5. Select **OK** to the verification message.

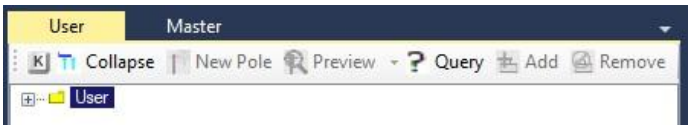


User Catalogs

Add a Subfolder

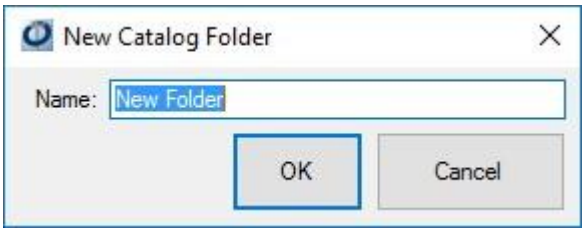
To add a subfolder to the User Catalog, complete the following steps:

1. Right click on the **User Catalog folder** you want to create a subfolder for.

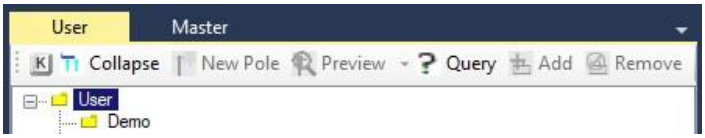


2. Select **Add Subfolder**.

3. Enter the Name for the subfolder.



4. Click **OK.**



Note: *Undo is not available.*

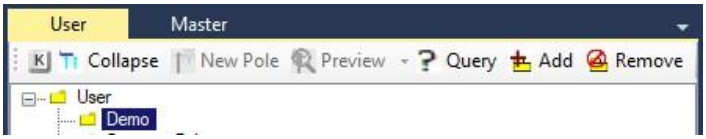
Note: *Once a subfolder has been added to the User Catalog, additional folders can be added to that subfolder by selecting the Add button* Add *or by right clicking on the subfolder and selecting Add Subfolder.*

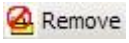
Remove a Subfolder

To remove a User Catalog subfolder, complete the following steps:

1. Select the **User Catalog folder** to be removed.

©2025 Osmose Utilities Services, Inc.



2. Select the **Remove** button 

.

Note: *The selected User Catalog folder can also be removed by right-clicking on the folder and selecting* ***Remove (name of the folder)****.*

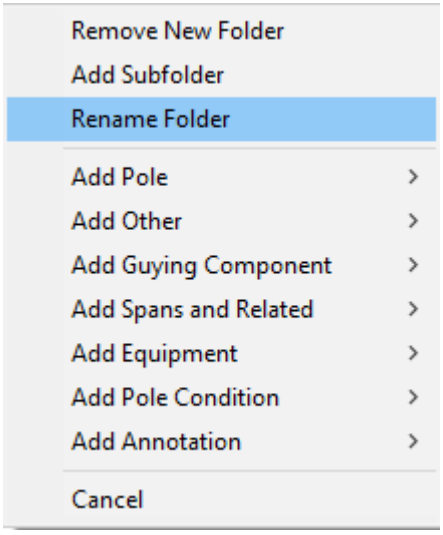
3. Select **Yes** to permanently remove the selected folder.

Note: *There is no undo for this operation.*

Rename a Subfolder

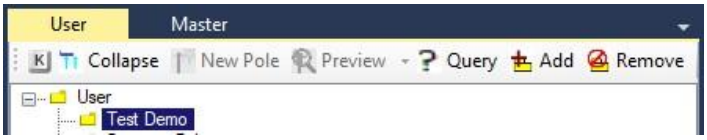
To rename a User Catalog subfolder, complete the following steps:

1. Right click on the **User Catalog folder** to be renamed.
2. Select **Rename Folder**.



3. **Name** the selected folder.

4. Select **OK**.

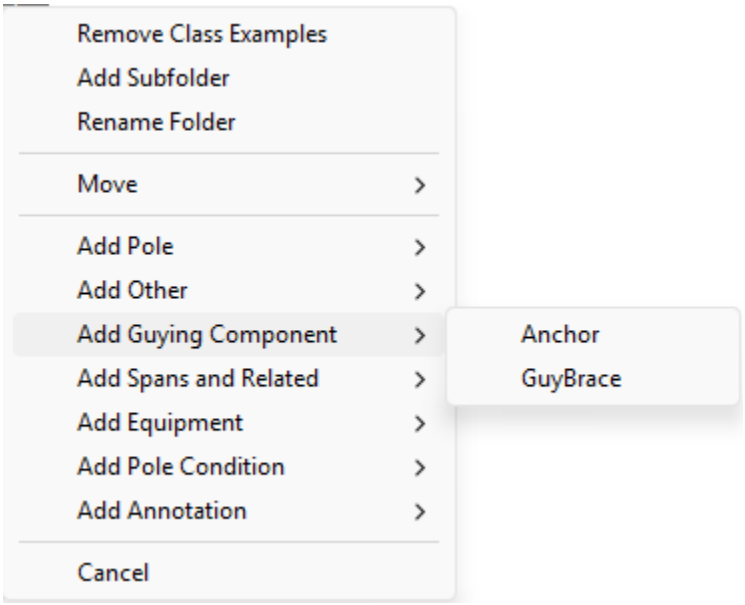


Note: *There is no undo for this operation.*

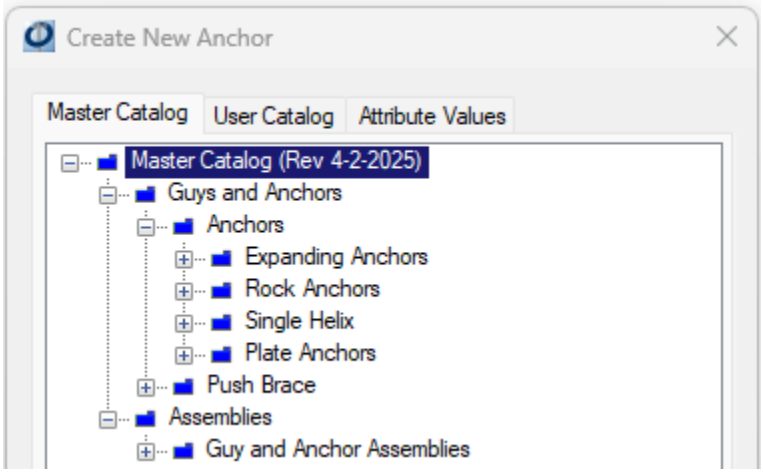
Add Equipment to a Subfolder

Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory panel. To add equipment to a User Catalog subfolder, complete the following steps:

1. Right click on the **User Catalog subfolder** that equipment will be added to.
2. Then select the equipment to be added from the equipment list.
   Note: *Only one piece of equipment can be selected at a time.*

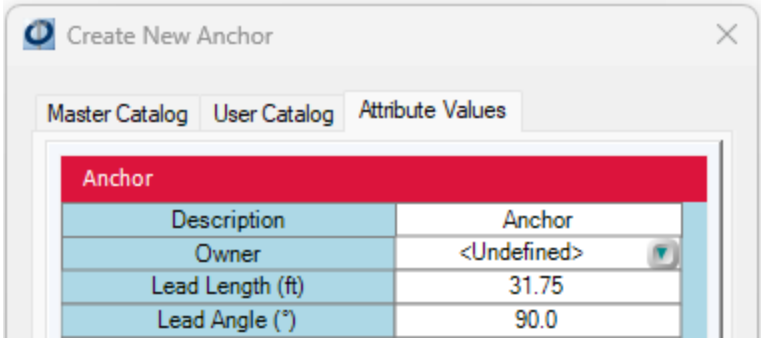


3. To add **equipment** from one of the Catalog tabs or the Inventory tab select the appropriate tab and select the equipment you want to add.



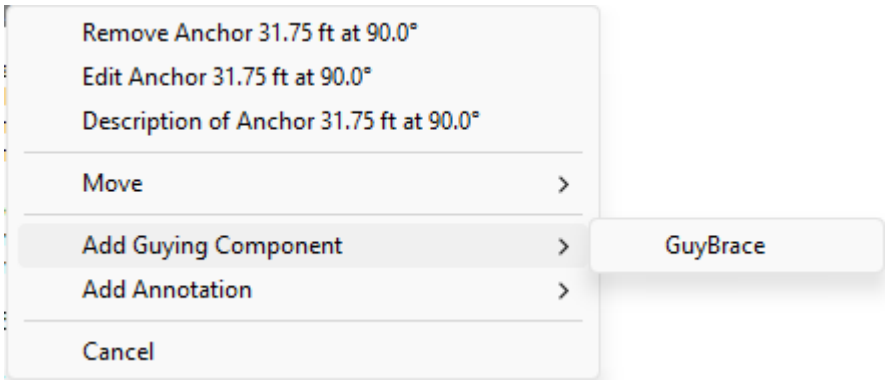
4. Select the **Attribute Values tab** to modify any attribute values. Click **OK.**

©2025 Osmose Utilities Services, Inc.

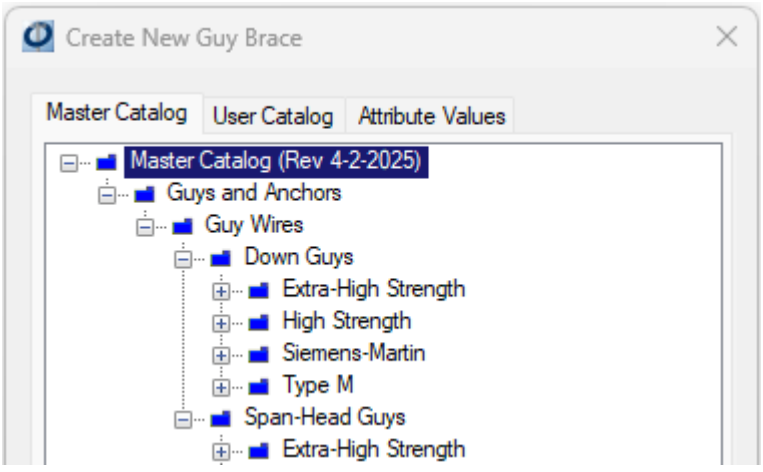


Equipment can have attachments (Example: A crossarm can have insulators and spans attached to it). To add additional attachments to equipment, complete the following steps:

5. Right click on the **equipment** you want to add additional equipment to.
6. Select the equipment to be added from the equipment list.



Note: *If multiple pieces of equipment are displayed in the list, only one piece of equipment can be selected at a time.*



Note: *Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory panel.*

7. Add **additional equipment** from one of the Catalog tabs, i.e. within the 'Create New Guy Brace' window (shown above) or use the Inventory and select the equipment you want to add.

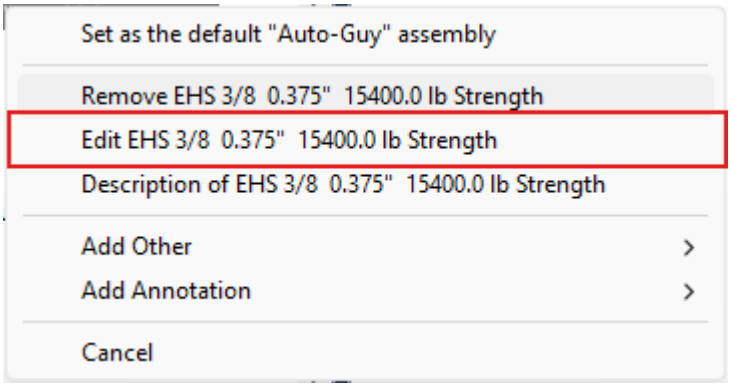
8. Select the **Attribute Values tab** to modify the equipment's attribute values, click **OK**.

Note: *There is no undo for this operation.*

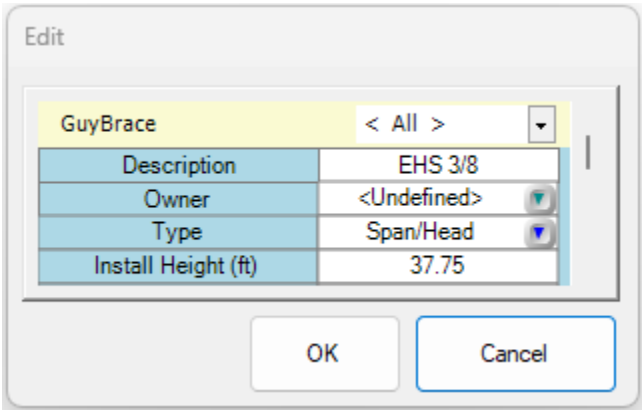
Edit Attributes in a Subfolder

To edit equipment attribute(s) in a User Catalog subfolder, complete the following steps:

1. Right click on the **equipment** whose attribute(s) you want to edit.
2. Select **Edit** (*equipment display name*).



3. Complete your edits to the equipment attributes. Click **OK**.



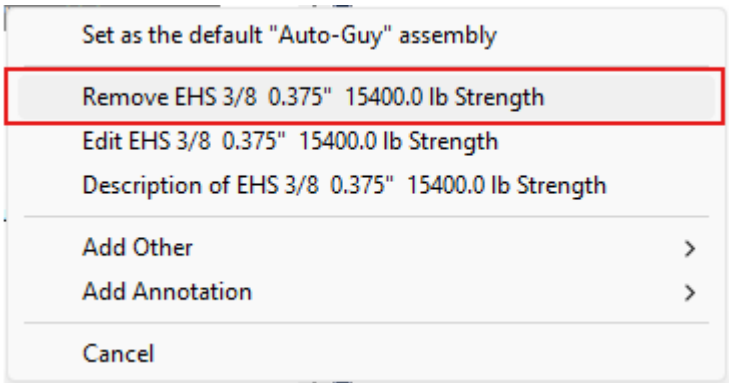
Note: *Certain attributes are only editable in Administrative User Mode.*

Delete Equipment in a Subfolder

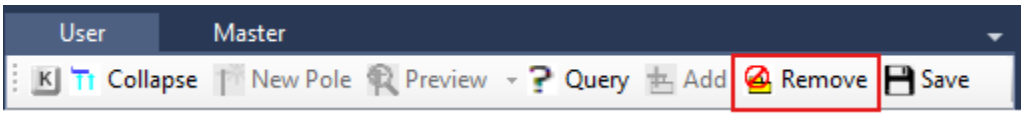
To delete equipment in a User Catalog subfolder, complete the following steps:

1. Right-click the **equipment** to be deleted, select the **Remove** option.

©2025 Osmose Utilities Services, Inc.



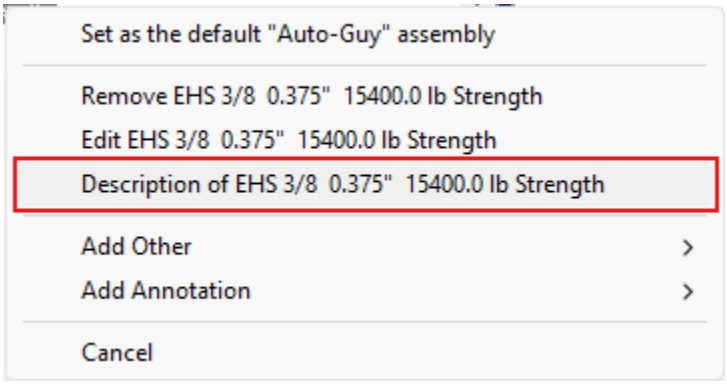
2. Or select an item and click the **Remove** button in the tool bar menu.



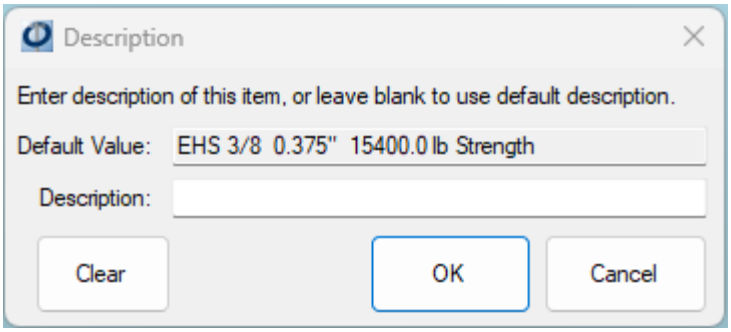
Change the Display Description

To change the description that is displayed next to the equipment icon in a User Catalog subfolder, complete the following steps:

1. Right click on the **equipment** you want to change the display description of.
2. Select **Description of** (*equipment display name*).



3. Enter the **Description** you would like to be displayed, click **OK**.

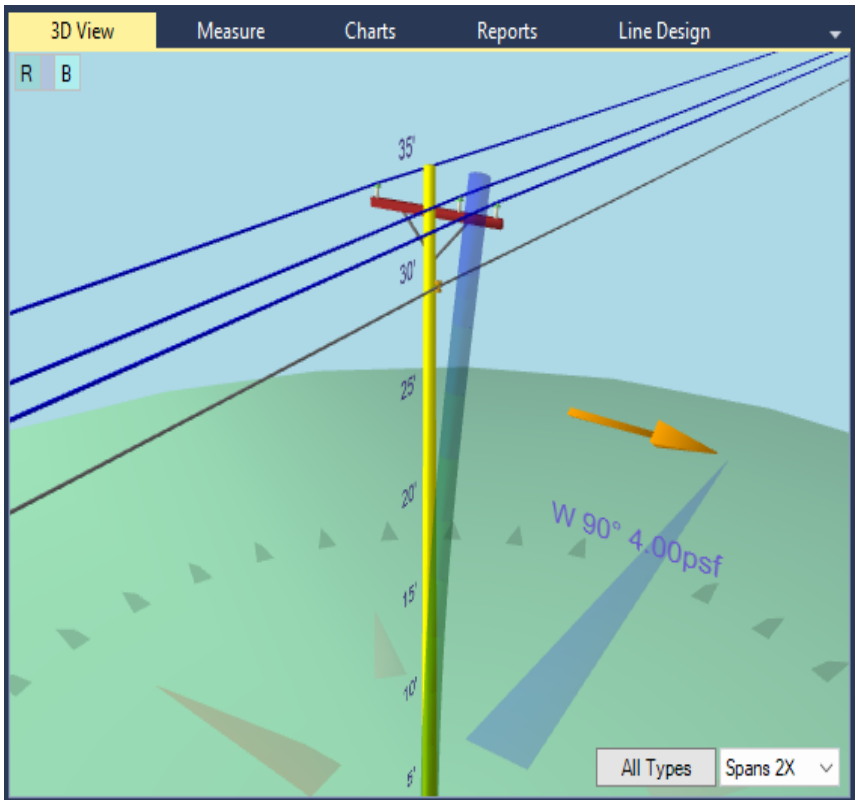


Note: *Select* ***Clear*** *to clear the Description field and reset it to the default value.*

Working in 3D View

The 3D View is a three-dimensional interactive image of the Inventory panel. As equipment is added to the pole in the Inventory the 3D View is automatically updated with those changes.
Structures can also be created or edited in the 3D View and automatically added in the Inventory.

Note: *Any selected object in the Inventory is rendered in the 3D View in yellow.*

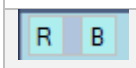
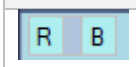
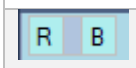


Mouse Controls

The 3D View provides several ways to reposition the 3D View to better analyze the pole and the objects attached to the pole. You can use the mouse wheel to interact with the 3D View.

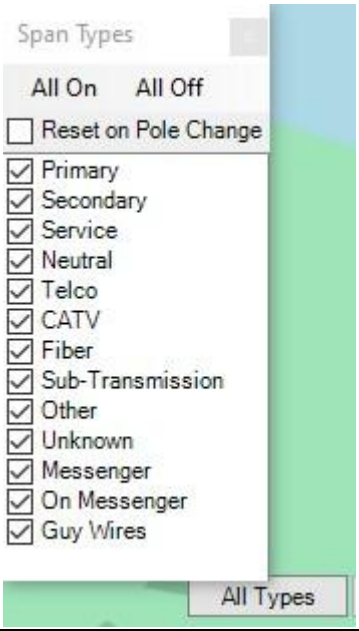
Mouse Wheel	To zoom in or out scroll the mouse wheel forward or backward.
Right Mouse Click	Click and hold down the right mouse button to pan the 3D View to the left, right, up or down, and orbit around the camera look point.
Left Mouse Click	Click and hold down the left mouse button to either rotate the 3D View or move the 3D View vertically up and down. Left mouse button click and moving mouse left-right will rotate the image. Left mouse button click and moving the mouse up or down will vertically move the viewing perspective of the 3D View down or up.
Invert Mouse Wheel	Inverting the mouse wheel changes the zoom in/out movement of the mouse wheel.

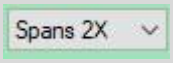
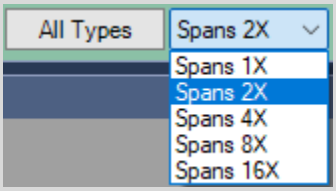
©2025 Osmose Utilities Services, Inc.

	To invert the mouse wheel, go to Options > Misc. Options > User Interface Conventions > Invert Mouse Wheel.
Invert Left Mouse in 3D X or 3D Y	To invert these movements, go to Options > Misc. Options > User Interface Conventions.
Invert Right Mouse in 3D X or 3D Y	To invert these movements, go to Options > Misc. Options > User Interface Conventions.
Menus Right to Left	To change the menu orientation
	Click the R button to return to the isometric view
	Click the B button to return to the Birdseye view
	Click the grey space between the R and B buttons to access 3D View options to save, copy, or print.

Filter Options

The 3D View offers tools to review and interact with the 3D image. Options can be enabled or disabled by clicking on them (toggle on/off). Options displaying a check mark icon are enabled.

	All Types of spans can be toggled off/on individually or All On/All Off, to narrow the scope of data being displayed. 

	Used to edit the span render size. You can display various thicknesses used to enhance the 3D View of spans; 1X, 2X, 4X, 8X, 16X. 

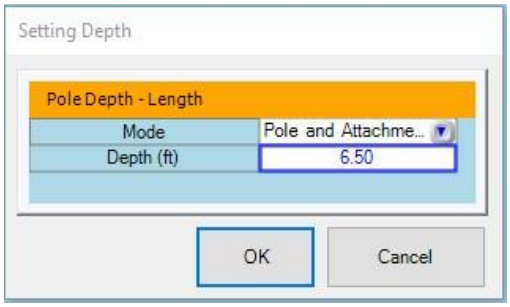
Pole Attribute Edits

Setting Depth of a Pole

To set the depth of a pole, complete these steps:

1. Right click the **pole** in the 3D View.
2. Select the **Setting Depth of (*Pole display name*)**.

3. Select the **Mode** from the drop-down list and enter the **Depth in feet**. Click **OK**.



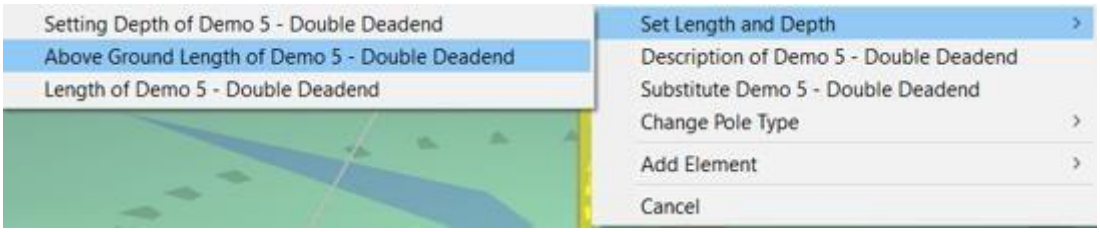
Note: *The Depth in Feet field will automatically display the default pole depth when initially opened.*

Set the Above Ground Length in Feet of a Pole

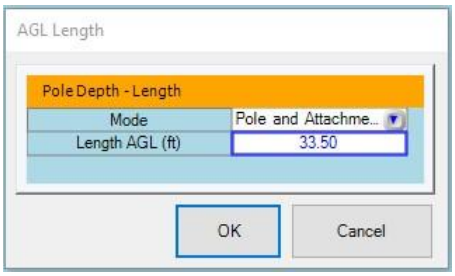
To set the length of a pole, complete these steps:

1. Right click on the **Pole** you want to set the length for.
2. Select the Set **Length and Depth** option.
3. Select **Above Ground Length of (*Pole display name)***.

©2025 Osmose Utilities Services, Inc.



4. Select the **Mode** from the drop-down list and enter the **AGL in Feet**.



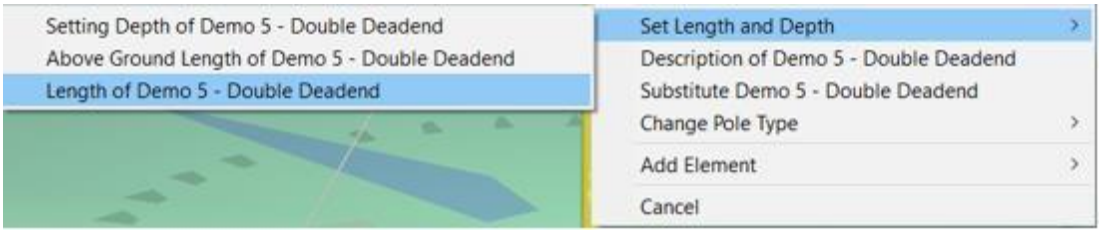
5. Select **OK**.

Note: *To undo the AGL Length change, select* ***Edit > Undo****.*

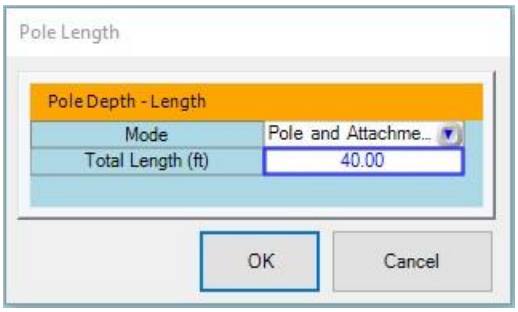
Set the Length in Feet of a Pole

To set the length of a pole, complete these steps:

1. Right click on the **Pole** you want to set the length for.
2. Select the Set **Length and Depth** option.
3. Select **Length of (*Pole display name)***.



4. Select the **Mode** from the drop-down list and enter the **Length in Feet**.



5. Select **OK**.

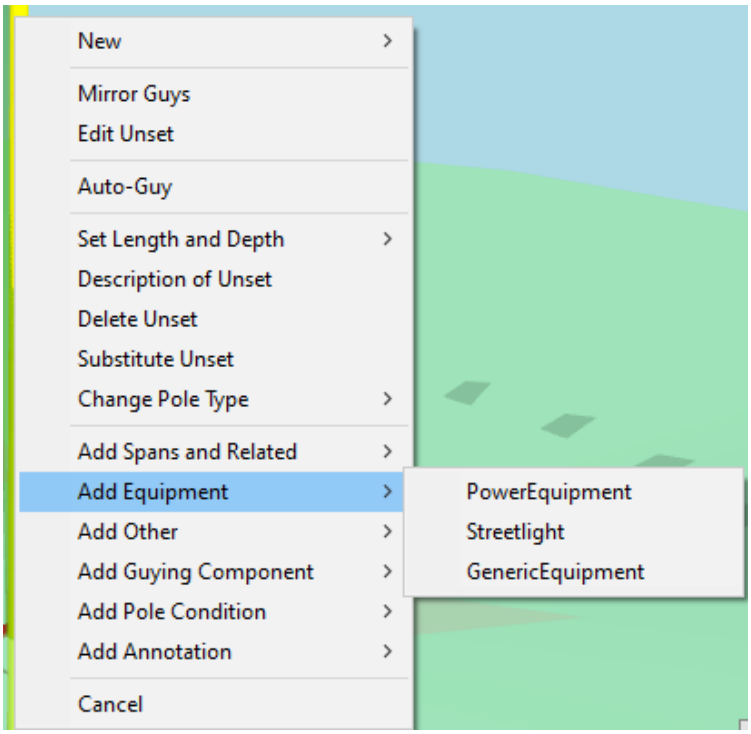
Note: *To undo the Length change, select* ***Edit>Undo****.*

Add Equipment to a Pole

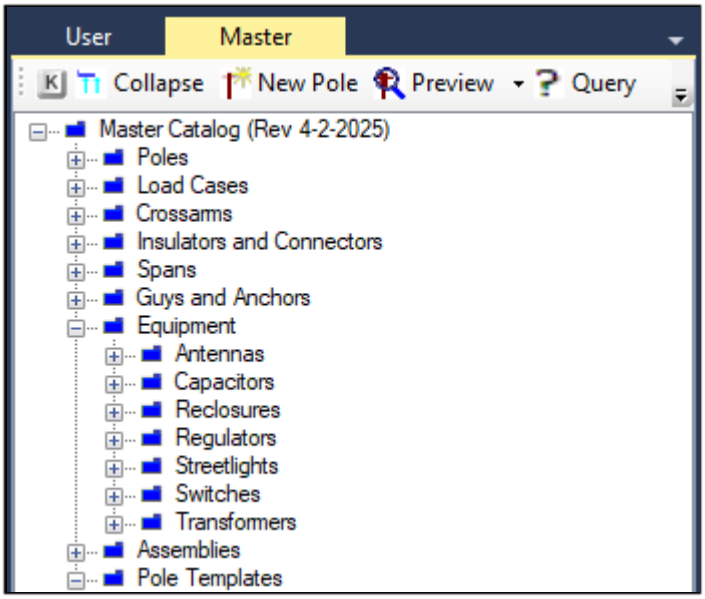
To add equipment to a pole in the 3D View, complete these steps:

1. Right click the **pole** in the 3D View.
2. Select the **Add Element** option.
3. Select one piece of equipment from the list of available choices.

Note: *Only the equipment which can be added to a pole appears in the list of choices.*



Note: *Only one piece of equipment can be added at a time.*



©2025 Osmose Utilities Services, Inc.

Note: *Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory panel.*

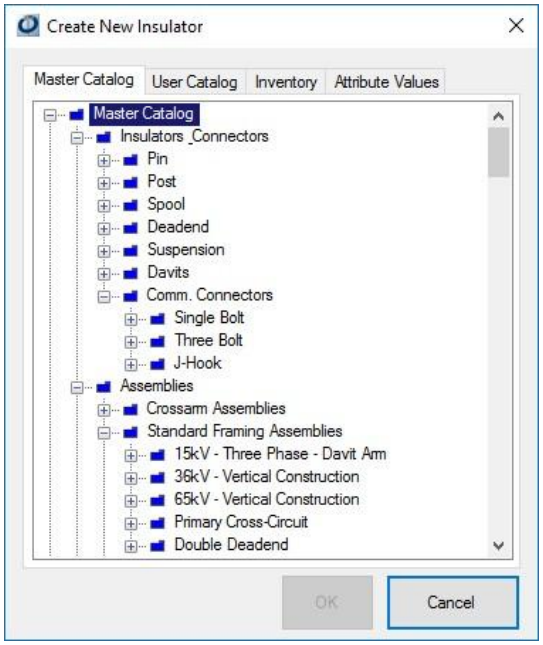
4. To add a **crossarm** from the Catalog tabs or the Inventory tab select the appropriate tab and select the crossarm you want to add.
5. Select the **Attribute Values tab** to modify the crossarm's attribute values.
6. Click **OK**.

Note: *To remove the added equipment, select **Edit > Undo**.*

Equipment can have attachments (Example: A crossarm can have insulators and spans attached to it). To add additional attachments to equipment, complete these steps:

7. Right click on the **equipment** in the 3D View that you want to add any additional equipment for.
8. Select Add Element or **Add Spans and Related** and select the equipment to be added from the equipment list.

Note: *Only one piece of equipment can be selected at a time.*



Note: *Available tabs are dependent on the corresponding equipment displayed in your catalogs or Inventory panel.*

9. To add an **insulator** from one of the catalog tabs or the Inventory tab select the appropriate tab and select the insulator you want to add.
10. Select the **Attribute Values tab** to modify the insulator's attribute values, click **OK**.

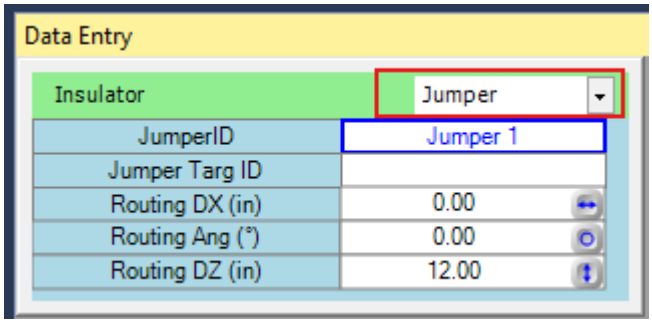
Working with Jumper Cables

Jumper cables can be generated between two insulators on a pole, or between an insulator and a terminal point. To add the Jumpers where you designate them to begin and end, completed the steps below.

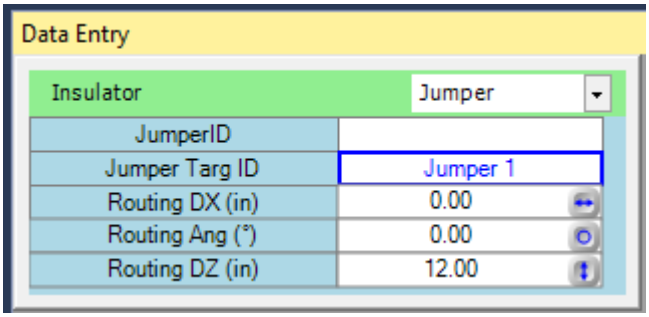
Creating a Jumper on a Double Dead-end

To Jumper between two dead-end insulators follow the following steps:

1. Select the first dead-end insulator.
2. In the Data Entry panel, filter the view to '**Jumper**' to see only the relevant information on jumpers and enter the name for the **Jumper ID** attribute in the first row.

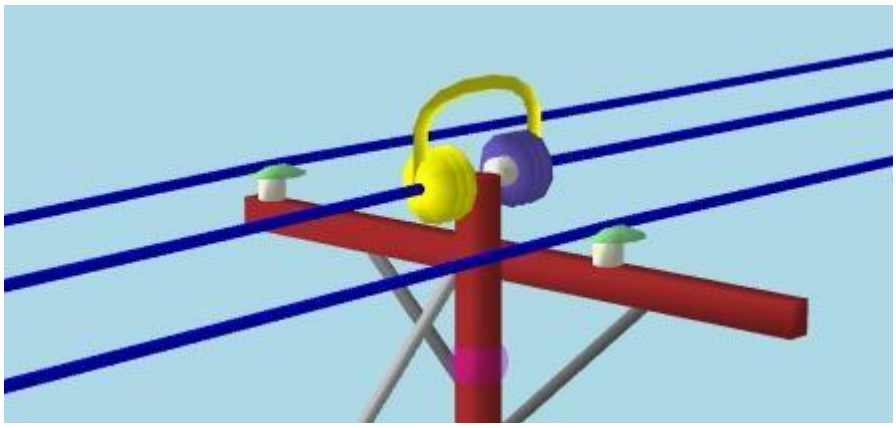


3. Select the second dead-end insulator. This dead-end insulator is the Jumper Target dead-end for the jumper cable, enter the name for the **Jumper ID** attribute in the second row.



4. The jumper is automatically added to the designated insulators.

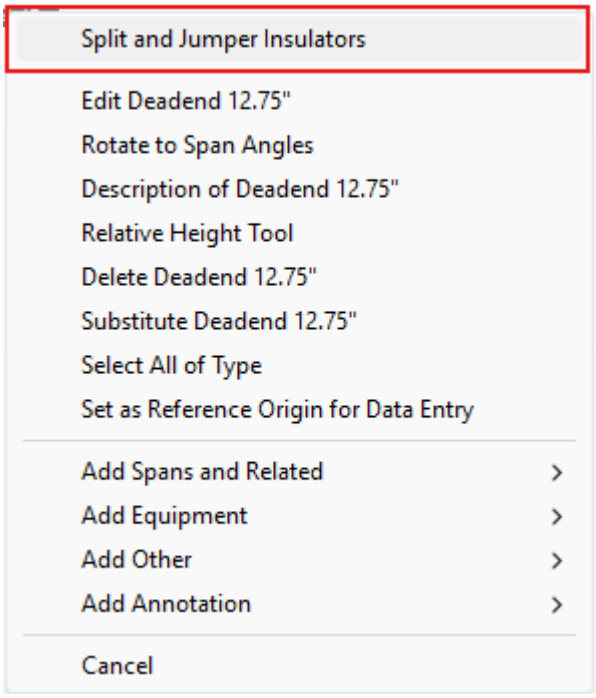
©2025 Osmose Utilities Services, Inc.



Using the Split and Jumper Option

Instead of creating a jumper through the data entry panel as described above, the user can instead use the split and jumper method. For this tool the following conditions need to be met.

1. There is only one dead-end insulator required
2. That dead-end insulator has two spans attached to it, in opposite directions To use this method, right-click on the dead-end insulator and select **Split and Jumper Insulators** option.

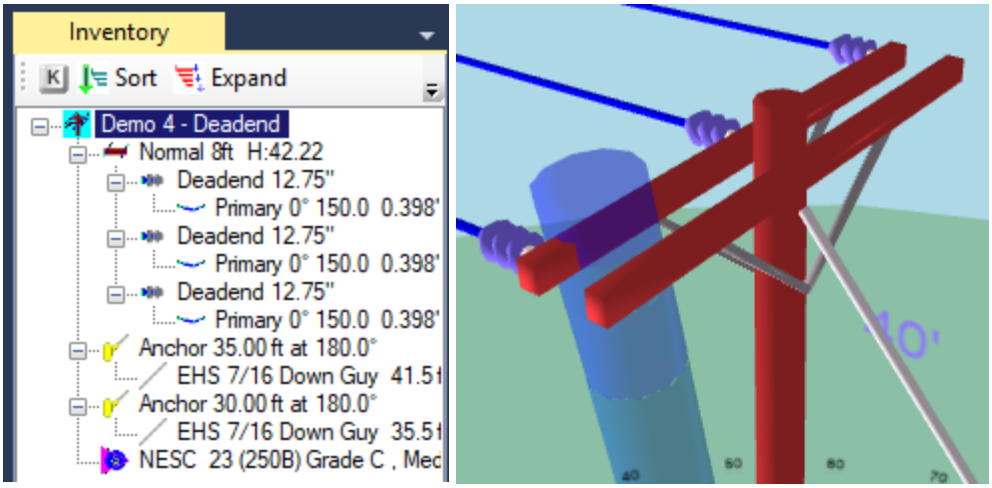


Mirror Spans

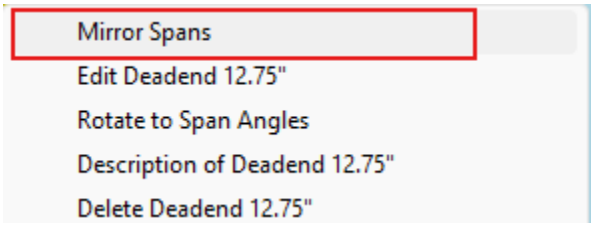
The automated option for adding Jumpers is to use Mirror Spans. Mirror Spans adds the insulator, conductor and the jumper all at the same time.

To use the Mirror Spans operation complete these steps:

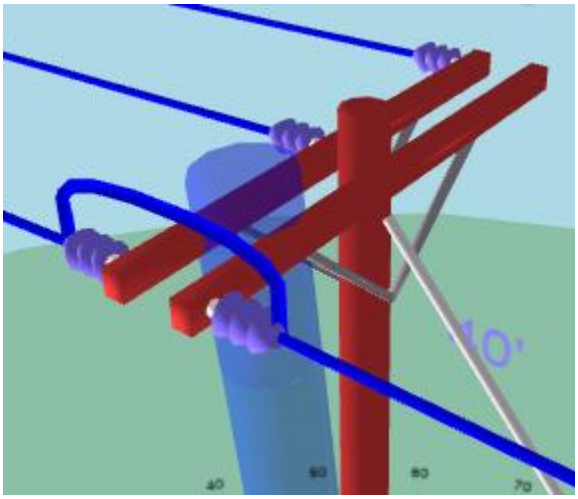
1. Begin with a Dead End pole model.



2. Right-click one of the Insulators in the 3D View or the Inventory panel and select the **Mirror Spans** option.

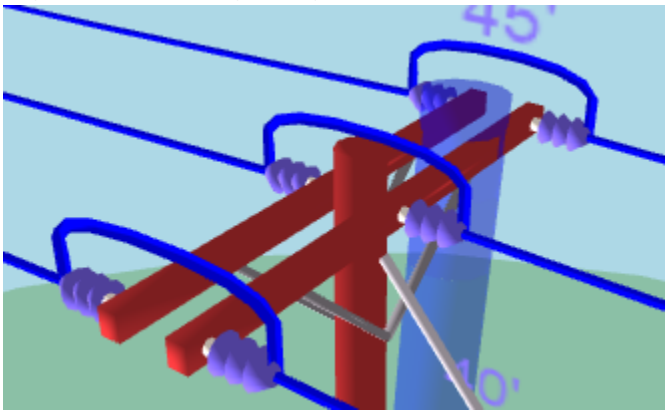


3. The Jumper, Insulator and Span are added. Repeat to add more.



©2025 Osmose Utilities Services, Inc.

4. Repeat the Mirror Spans operation to add more.



Working with Guying Systems

Auto-Guy

To properly guy a structure in O-Calc® Pro use the Auto-Guy automated guying functionality. The Auto-Guy uses the worst wind direction calculation to determine the lead angle placement of the anchor. And the pole deflection is used to determine the lead length of the Anchor. The goal of the Auto-Guy is to lower the Maximum Capacity Utilization (%MCU) as much as possible and best support the pole.

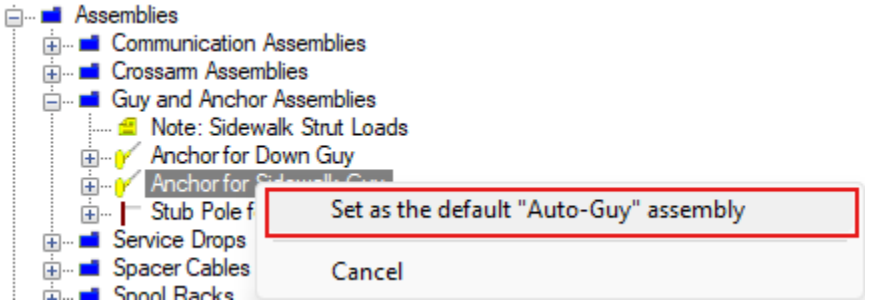
To use Auto-Guy, you must first select an anchor and guy assembly to be the default auto-guy assembly. If multiple guys are attached to the default anchor/guy assembly the topmost attachment height is used in the 'Set height at' (shown below) window. Additional guy wires are then attached below the highest one at two foot intervals.

An Auto-Guy default can also be set from a User Catalog and can contain up to three attached guy wires per anchor/guy assembly.

To set up a default auto-guy assembly, complete these steps:

1. From the Master Catalog **right-click on a guy and anchor assembly**: Anchor for Down Guy, Anchor for Sidewalk Guy, Stub Pole for Span Guy.

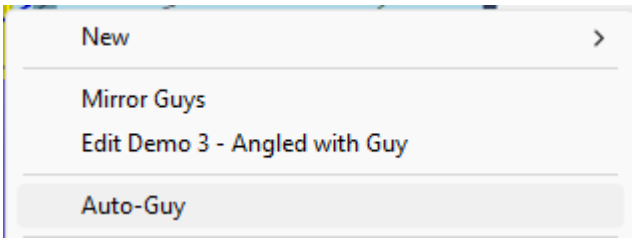
2. Select the **Set as the default "Auto-Guy" assembly** option. You can change the Auto-Guy at any time by selecting another assembly.



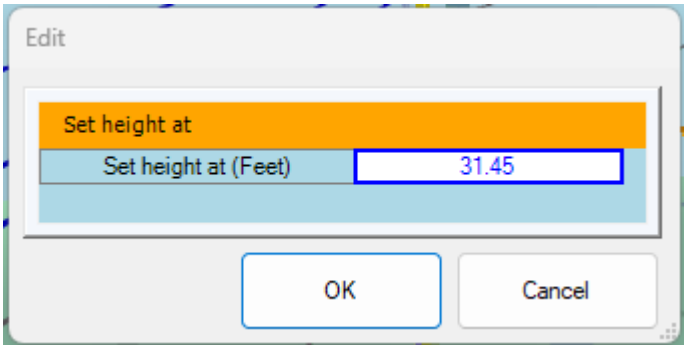
The O-Calc® Pro Auto-Guy functionality allows you to manually change Anchor and/or Guy attributes. Edits can be made to the anchor lead angle and lead length, plus the guy wire attachment height to ensure the structure is guyed properly based on scenarios unique to the pole.

To use the Auto-Guy function in the 3D View or in the Inventory, complete these steps:

1. **Right-click** in the Inventory or the 3D View on the approximate location on the **pole** where you want the Down Guy Install Height placed.
2. Select the **Auto-Guy** option.

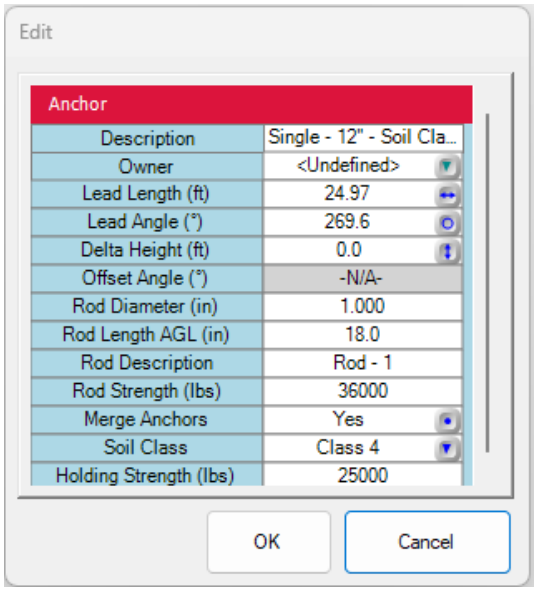


3. The point at which you right-click on the pole enters the **Install Height** for the guy in the **Edit** window, accept it or enter your own value, click **OK**.

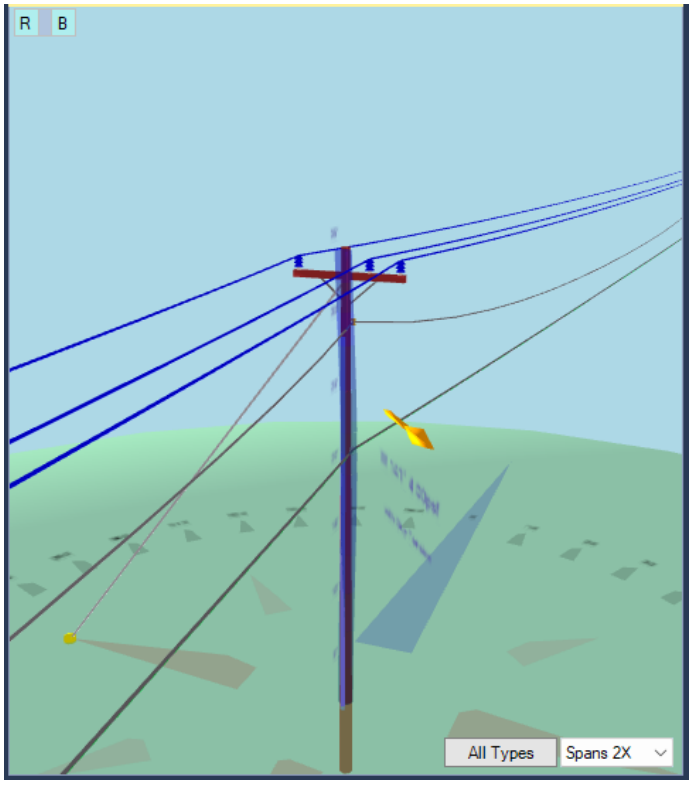


4. Verify and edit any **Anchor** attributes. Select **OK**.

Note: *The maximum numbers of guy wires in an Auto-Guy assembly is three.*



©2025 Osmose Utilities Services, Inc.



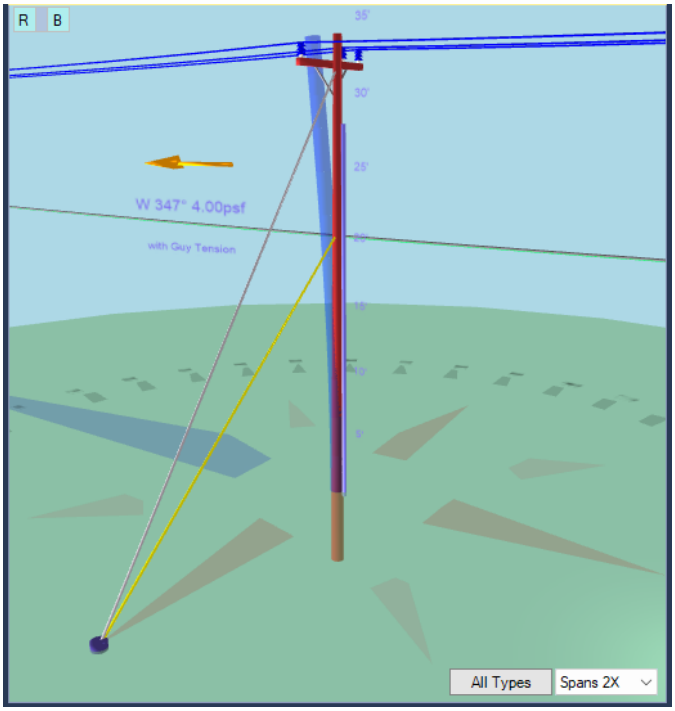
Note: *The deflection of the pole was used to set the lead length. The anchor and guy wire are automatically added to the pole based on the default Auto-Guy you set. The lead angle is determined based off the worst wind angle for the pole before the anchor/guy assembly was added.*

Extra Guy

To automatically add extra down guys to an anchor already displayed in the 3D View, complete these steps:

1. Select the **Anchor** that you want to add an additional down guy to in the 3D View.
2. Right click the area on the **pole** where you want the additional down guy placed, select the **Extra-Guy** option.

3. The Extra-Guy operation is completed as shown in the 3D View below.

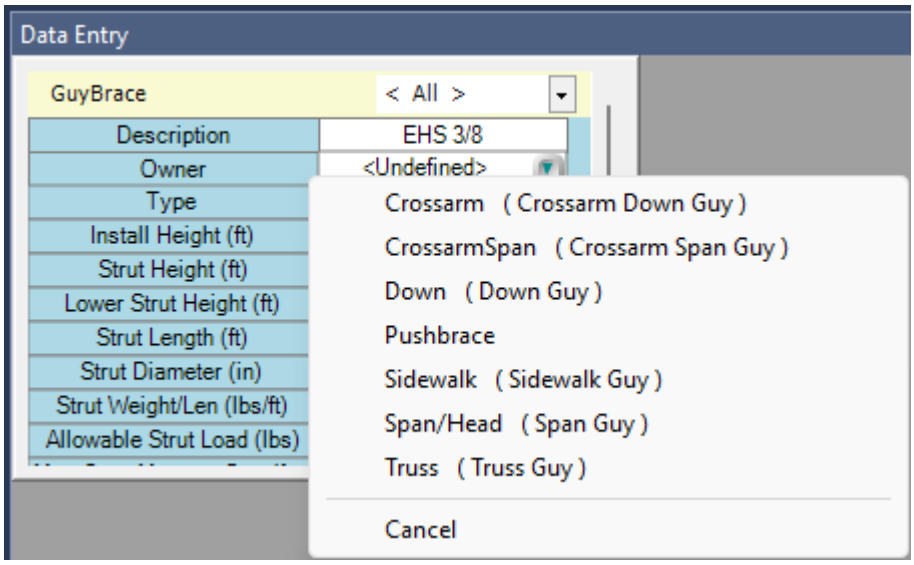


Note: *Extra guy wires can be added to existing anchors as needed, you must select the anchor first.*

Guy Type Descriptions

The **Type** attribute gives users the ability to change the guy type. Guy wires may be pretensioned to a desired value before environmental loads are applied. To change a down guy into another type of guy, complete these steps:

1. Select the **Guy Wire** in the Inventory or 3D View panels.
2. In the Data Entry, select the drop-down arrow next to the "**Type**" Attribute.



3. Select the **Guy Type** from the list to suit the pole design.

©2025 Osmose Utilities Services, Inc.

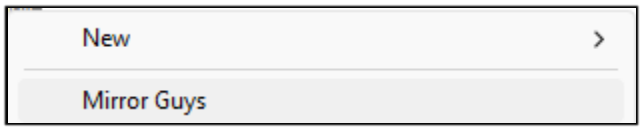
The **Type** attribute offers several options for the type of guying being utilized. See those choices below.

Guy Type	Description
Crossarm (Crossarm Down Guy)	Use to model a standard down guy, with the ability to make the attachment point a crossarm instead of the pole.
Crossarm Span (Crossarm Span Guy)	Use to model a standard span/head guy, with the ability to attach the guy wire to a crossarm instead of the pole.
Down (Down Guy)	Use to model as an anchor set at a given distance and angle away from the pole, with one or more attached guy wires.
Pushbrace	A pushbrace is a pole that supports the structure being modeled, rather than using an anchor/guy wire combination. ***Note:*** *The pole height and class of the pushbrace pole cannot be set.*
Sidewalk (Sidewalk Guy)	A sidewalk guy models an anchor set at a given distance and angle away from the pole with one or more attached guy wires connected to one or more struts. Use of this type creates a new filter option in the data entry panel called **Sidewalk**.
Span/Head (Span Guy)	A span guy, also called a stub guy, or a guy to a stub pole, models a blue “stub pole” and one or more associated guy wires.
Truss (Truss Guy)	A truss guy models a guy wire with several attachment points on the pole, rather than an attachment point connected to an anchor on the ground. This model also includes two struts.

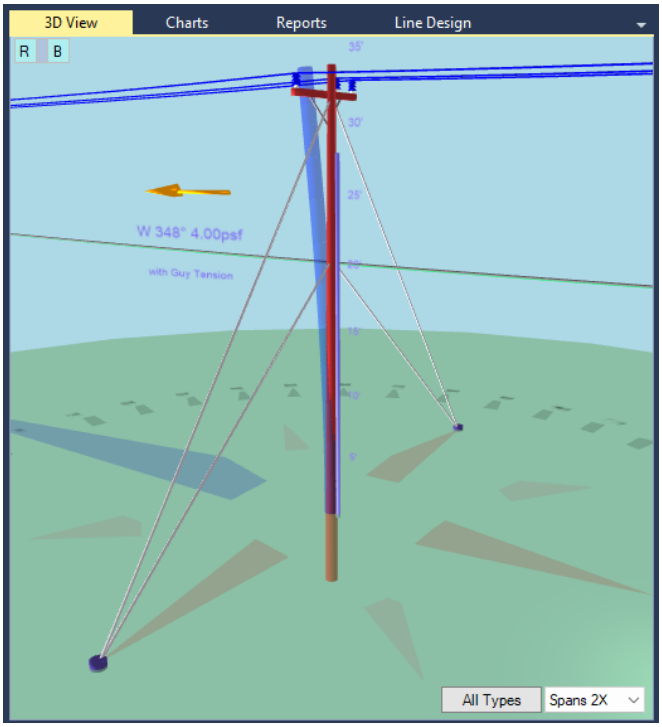
Mirror Guys

The Mirror Guys option is used to easily copy, in the opposite (mirror) direction, any guy object in the Inventory that is attached to the pole. To perform the Mirror Guys operation complete these steps:

1. Right-click on the pole, anchor, or guy wire in the Inventory panel, and select the **Mirror Guys** option.



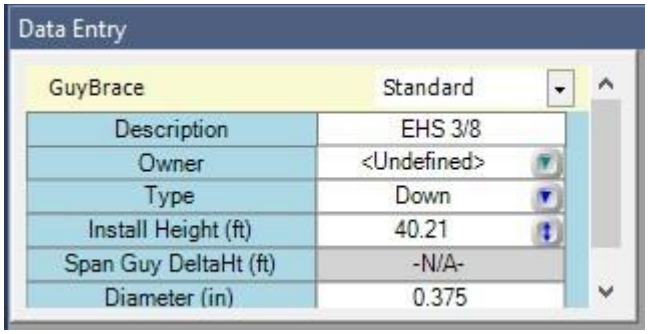
2. The operation is completed as shown in the 3D View below.



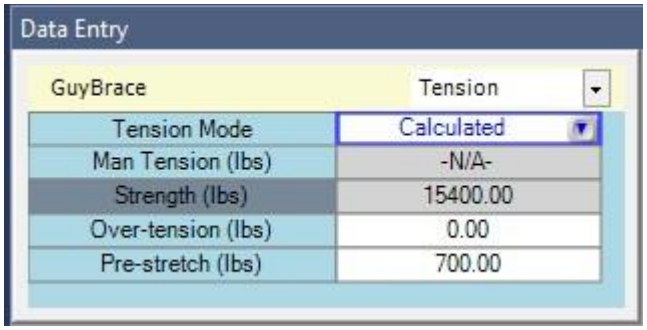
Guy Wire Tension

Guy wires may be pre-tensioned to a desired value before environmental loads are applied.

1. Select the Guy Wire you want to change the Tension value for.
2. In the Data Entry change the filter from Standard to Tension.



3. Change the Tension Mode attribute drop-down menu from Calculated to Manual.



4. Enter the Man Tension (Manual vs. Calculated) attribute value as desired.

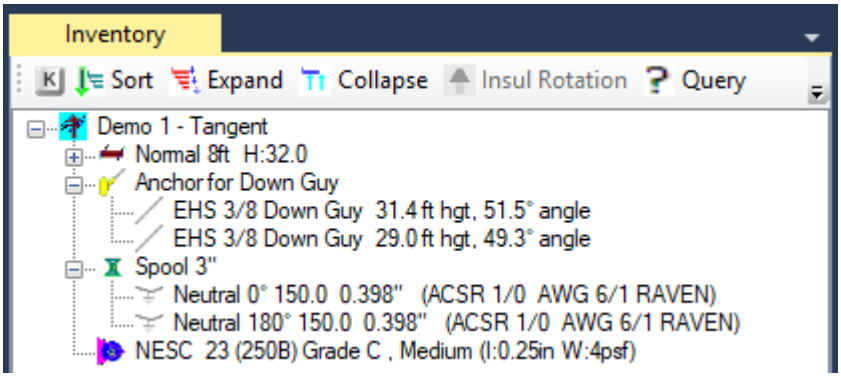
©2025 Osmose Utilities Services, Inc.

Merge Like Struts (Compression)

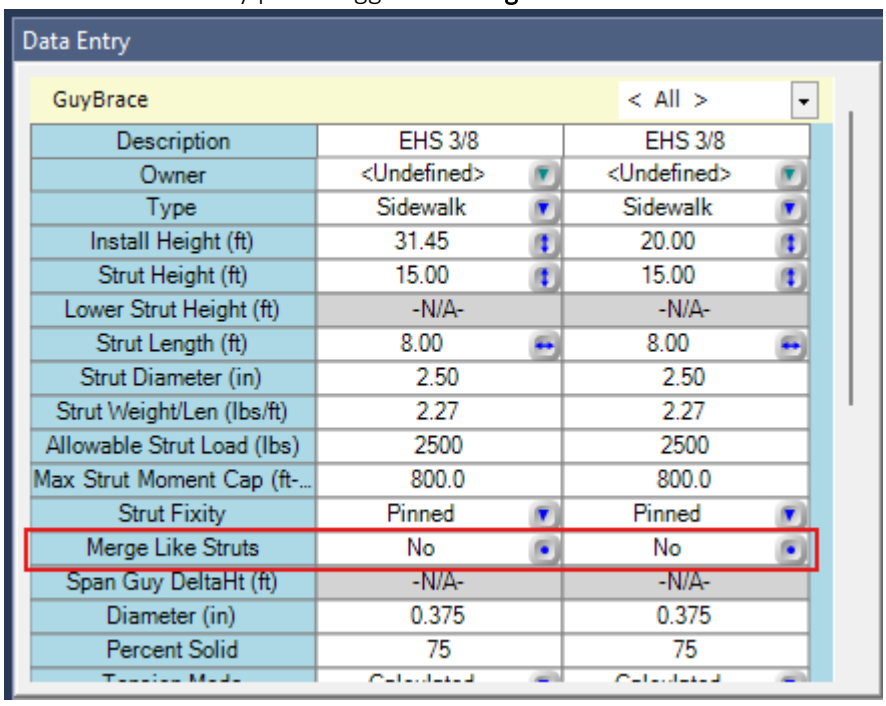
Combine comparable struts into one strut for analysis as a single entity. The struts need to be placed on the pole on the same anchor and at the same height, angle, and length before they can be merged. Struts are combined automatically with the **Merge Like Struts** attribute set to **Yes** (which is the default) setting. To unmerge (separate) the comparable struts, complete these steps:

1. Select the guys you would like to unmerge in the Inventory panel.

Note: *Multiple guys can be selected concurrently by holding down the ctrl key. If the guys are displayed next to each other hold down the shift key to select a range of items.*



2. In the Data Entry panel toggle the **Merge Like Struts** attribute to **No**.



Note: *All results in O-Calc® Pro are automatically recalculated and updated to reflect the attribute selection.*

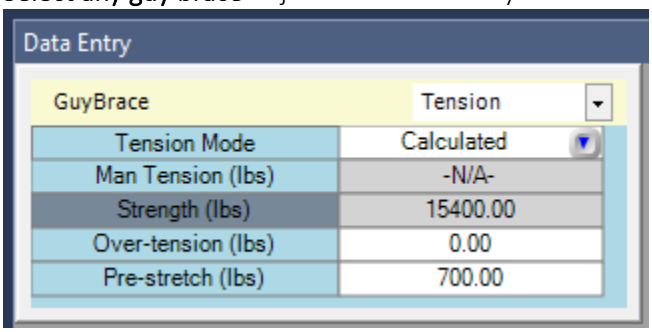
Note: *O-Calc ® Pro provides a Strut Evaluation Summary so you can easily evaluate the load applied to a sidewalk guy strut arm by the guy or guys impinging upon it.*

©2025 Osmose Utilities Services, Inc.

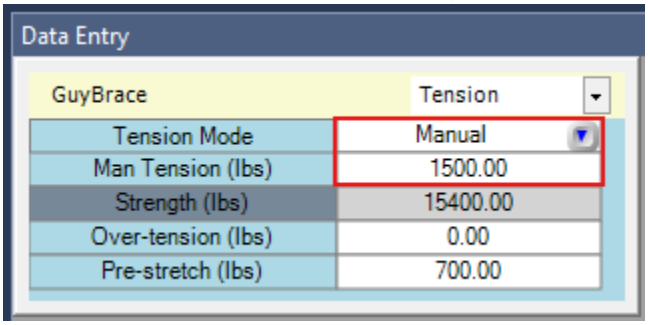
Calculated vs. Manual Guy Brace Tension

O-Calc ® Pro offers the ability to set a minimum tension on a guy brace regardless of the environmental loading. This Over-tension attribute is found on the Guy Brace object. This field does not apply any tension to the guy if the regular pole loading is greater than the value the user sets. If the pole loading doesn't apply greater tension than the Over-tension value, the Over-tension value is applied. To edit the Calculated tension and enter a Manual Tension value completed these steps:

1. **Select any guy brace** object in the Inventory or 3D View panels.



2. Select the **Tension Mode** attribute drop-down menu, click on the **Manual** option.



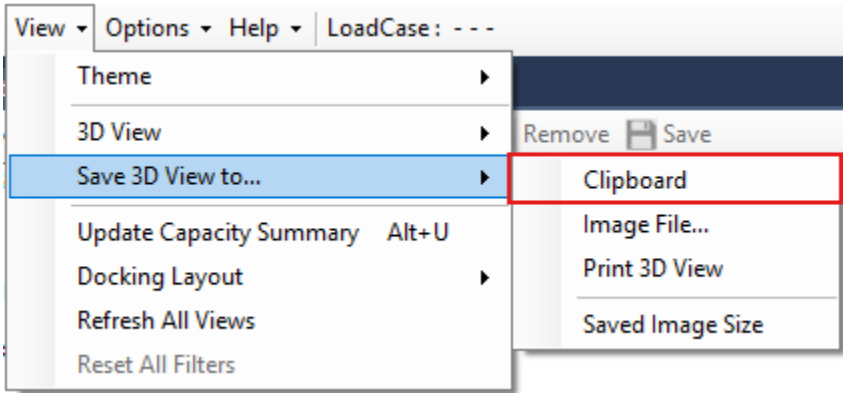
3. Enter a value in the **Man Tension** attribute. The calculation results are updated.

Working in the 3D View

Place the 3D View on the Clipboard

You can save the current 3D View to a .png file or place it on a clipboard, to use later. To place your current 3D View on the clipboard, complete these steps:

1. Select **View > Save 3D View to > Clipboard**.



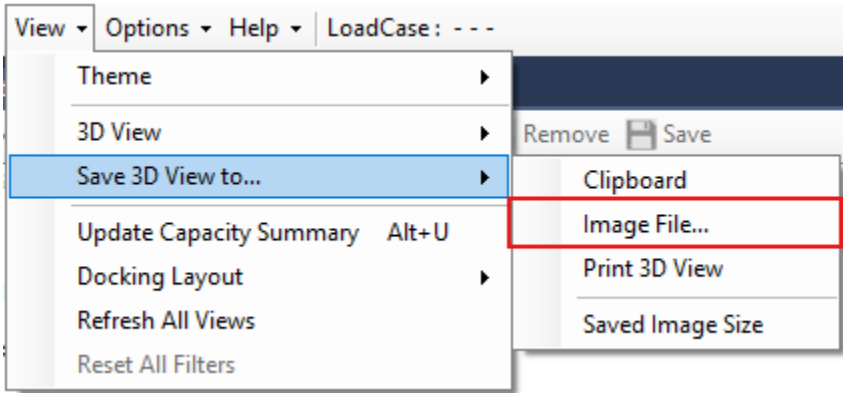
©2025 Osmose Utilities Services, Inc.

Note: *A* ***Copy 3D View to Clipboard*** *option is also available by holding down the ctrl key and right clicking on the 3D View background display.*

Save the 3D View

To save your current 3D View to a .png file, complete these steps:

1. Select **View > Save 3D View to > Image File**.



Note: *To adjust the size of the 3D View image being saved select* ***Saved Image Size****.*

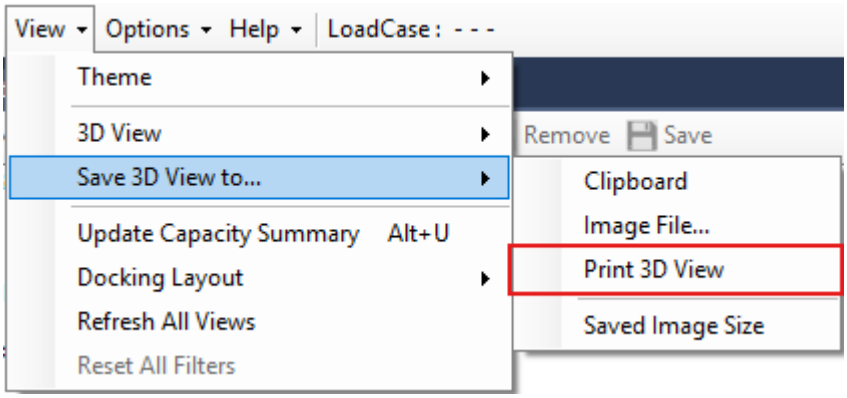
Note: *The* ***Save 3D View to File*** *option can also be accessed by holding down the ctrl key and right clicking on the 3D View background display.*

2. Navigate to where you want to save the 3D View .png file and select **Save**.
3. Select **OK** to the confirmation message.

Print the 3D View

To print the current 3D View, complete these steps:

1. Select **View > Save 3D View to > Print 3D View** (or Ctrl + right click on 3D View background).

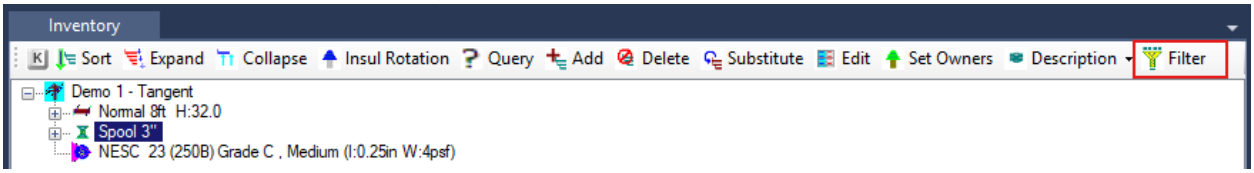


Filter the 3D View

Use the Filter button to affect the display in the 3D View. Only the objects that are expanded in the Inventory panel will display in the 3D View, complete these steps:

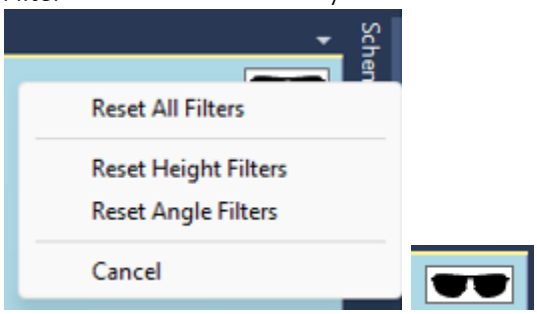
These objects are collapsed in the Inventory panel but are displayed in the 3D View.

1. Collapse any objects with attachments (assemblies) in the **Inventory** by clicking on the minus sign. Clicking the plus sign in the Inventory expands the assembly.

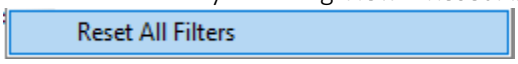


2. In the **Inventory** panel, click the **Filter** button. All the objects that were collapsed in the Inventory panel are not displayed in the 3D View.

3. To reset the filtered display in the 3D View click the **Sunglasses** icon or click the **Filter** button in the Inventory.



4. Or turn the filter off by selecting **View** > **Reset All Filters**.



Understanding Pole Loading Capacity

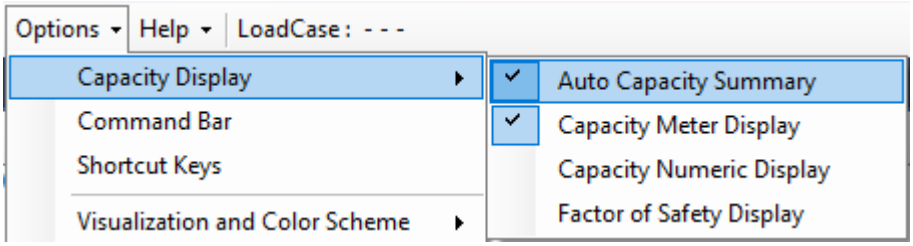
The Capacity panel has three options for viewing pole loading results: Meter, Numeric, and Factor of Safety Display. The Capacity panel displays the **MCU** (% of allowed **M**aximum **C**apacity **U**tilization) pole loading results achieved by the O-Calc® Pro calculation engine.

Auto Capacity Summary

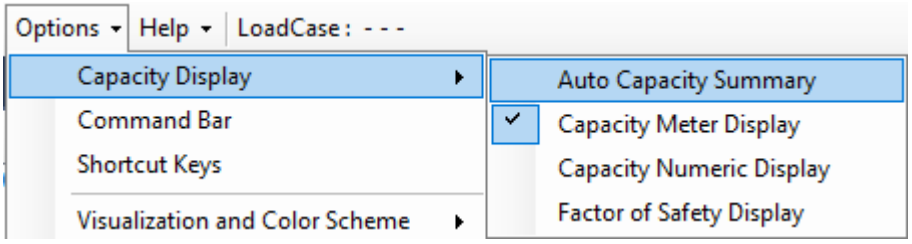
If the Auto Capacity Summary is enabled a recalculation automatically occurs anytime an edit is made to a pole model. This feature is enabled by default, but it can be disabled (turned off) if necessary.

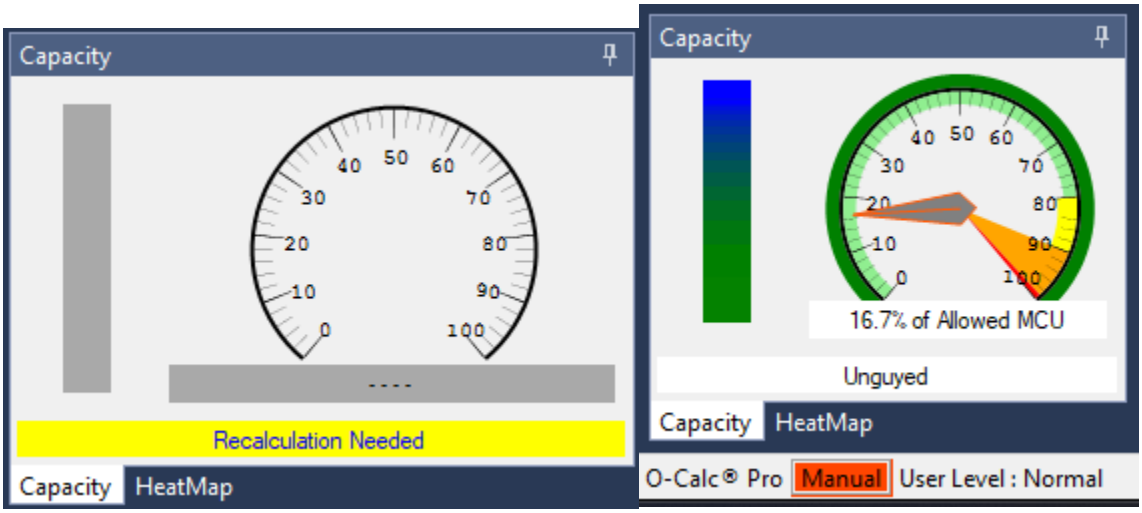
©2025 Osmose Utilities Services, Inc.

1. The **Auto Capacity Summary** is enabled (see check mark) by default.



2. When the Auto Capacity Summary is disabled, you must click the red **Ready** button located in the tool bar below the meter to initiate the O-Calc® Pro calculation engine to obtain pole loading results. This "manual" process is required each time an edit to initiate the pole loading results. The yellow **Recalculation Needed** message indicates the **Auto Capacity Summary** is currently disabled.



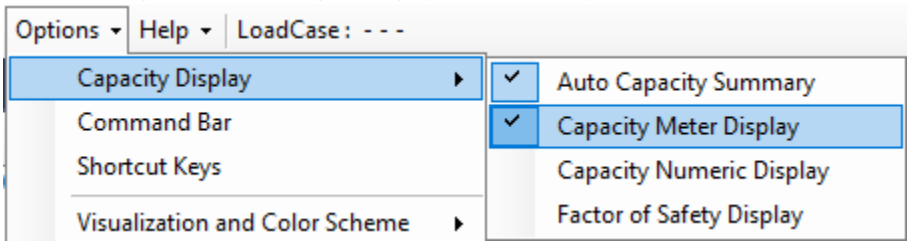


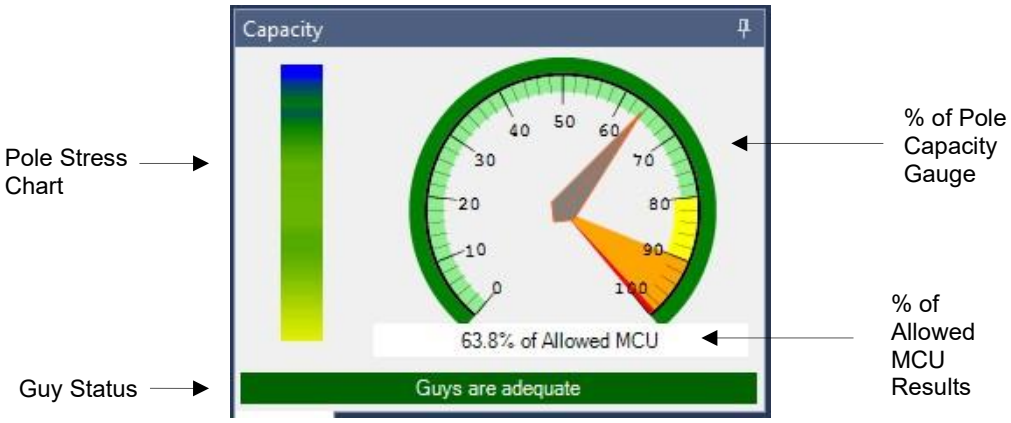
Note: *An additional way to manually update the Capacity results can be found in the* ***View*** *menu by clicking on the* ***Update Capacity Summary*** *option.*

Capacity Meter Display

The O-Calc® Pro Capacity panel is automatically updated each time a change is made to the selected pole, by default. There are three different options available to display the pole loading results: Meter, Numeric, and Factor of Safety. Only one option can be displayed at a time.

In addition to the meter (gauge) display a color coded vertical stress chart indicates the stress on pole. Below the meter, color coded horizontal banners call out MCU status messages to alert the user concerning pole overloading or overturning, and guy/anchor adequacies or insufficiencies.



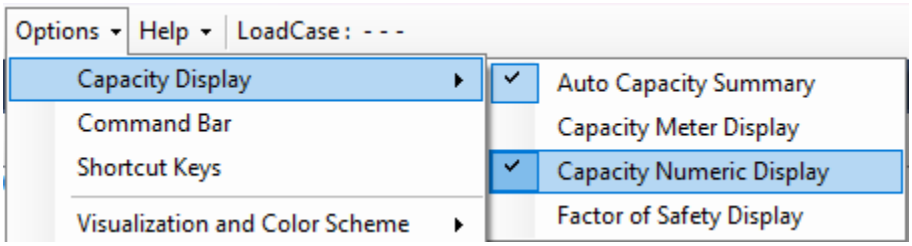


Numeric Display

The Numeric Capacity Display shows the loading calculation details for maximum and groundline moment, capacity utilization results, wind direction and anchor/guy adequacies. Options can be enabled/disabled by clicking (toggle on/off) on them. The check mark means enabled.

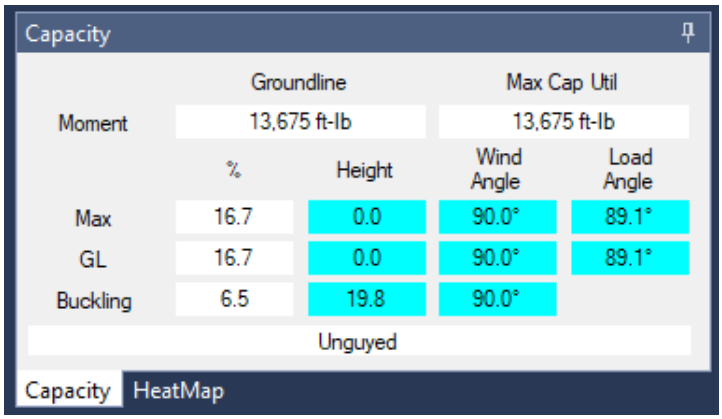
To enable the Capacity Numeric Display, complete these steps:

1. Select the **Capacity Numeric Display** option to enable it.



2. The pole loading results are displayed for Groundline and Maximum Capacity Utilization Moment. % MCU results by Max, GL, Buckling sorted by Height, Wind Angle and Load Angle categories.

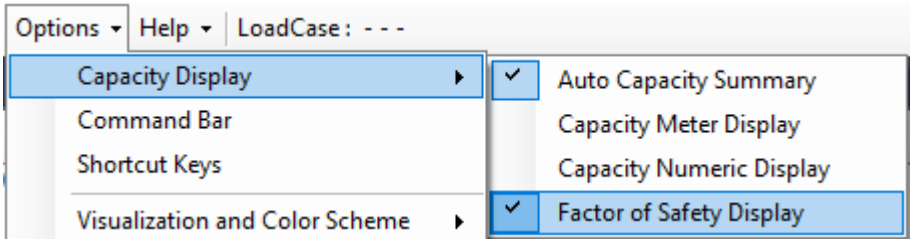
©2025 Osmose Utilities Services, Inc.

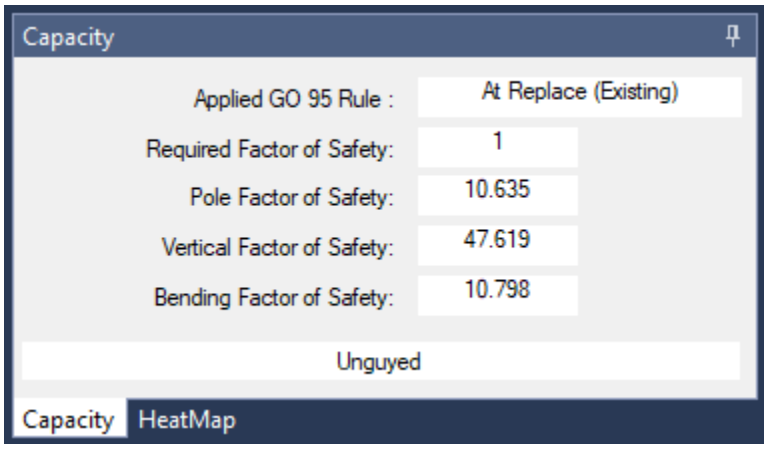


Factor of Safety Display

The O-Calc® Pro Factor of Safety Display provides the pole loading results displayed within categories unique to the GO95 regulations for the State of California. To enable the Factor of Safety Display, complete these steps:

1. The **Factor of Safety Display** option is enabled by clicking on it as evidence of the check mark.



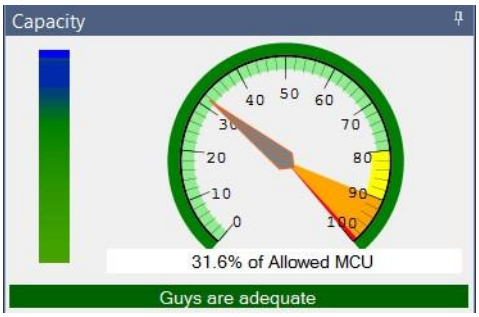


Capacity Meter Thresholds

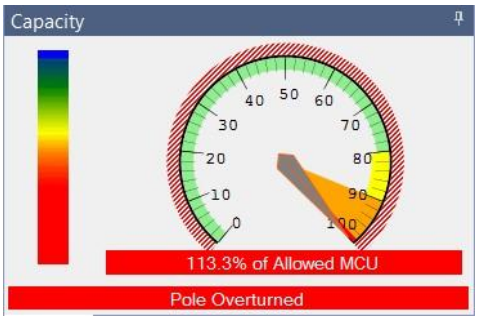
The following tables describe the default color representations in the Pole Stress Chart and the Percent of Pole Capacity Gauge. Color Legend is also available from the **Tools > View Color Legend**. The Capacity Meter display color schema can be changed by selecting a color schema from **the Options > Visualization Color Scheme** menu.

Display Color	*Description*	*Display Color*	*MCU Thresholds*	*Description*
Blue	0% Pole Stress	Green	< 80%	Acceptable Capacity
Green	…	Yellow	80% to 89.9%	Near Capacity
Yellow	50% Pole Stress	Orange	90% to 99.4%	Near Capacity
Orange	…	Red	99.5% or above	At or Over Capacity
Red	100% + Pole Stress			

Acceptable Pole Capacity Example

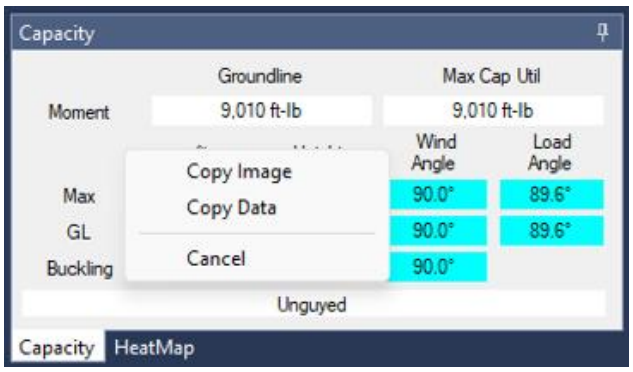


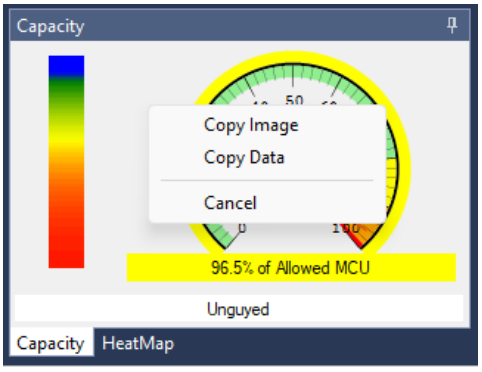
Failed Pole Capacity Example



Capacity Menu Copy Options

Right clicking on a Capacity panel background provides **Copy Image** and **Copy Data** options.





Copy Image. Select the Copy Image option to copy the current Capacity panel as an image to the clipboard so that the image of the Capacity panel can be pasted directly into other applications such as Microsoft Word, E-Mail, and Notepad etc.

©2025 Osmose Utilities Services, Inc.

Groundline Moment = 9,010 ft-lb Maximum Moment = 9,010 ft-lb Maximum Capacity Utilization --- Percent = 9.4 Height = 0.0 ft Wind Angle = 90.0° Load Angle = 89.6° Groundline --- Percent = 9.4 Height = 0.0 ft Wind Angle = 90.0° Load Angle = 89.6° Buckling --- Percent = 2.1 Column Height = 18.1 ft Wind Angle = 90.0°	**Copy Data**. Select the Copy Data option to copy the Capacity panel data to the clipboard so that the Capacity panel data can be pasted directly into other applications such as Microsoft Word, E-Mail, etc.
Cancel. Select the Cancel option to close and take no action.	

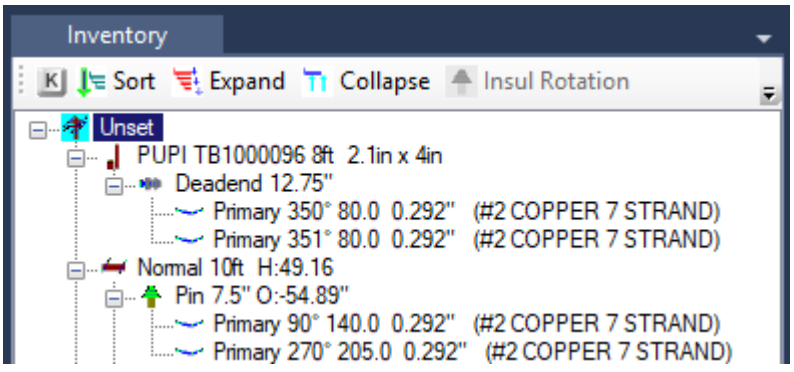
Working in the Data Entry

The O-Calc® Pro Data Entry panel works in conjunction with the Inventory panel. When selecting an object(s) in the Inventory panel the object's attributes are displayed in the Data Entry panel. This provides a comprehensive way to review or make changes to editable attributes.

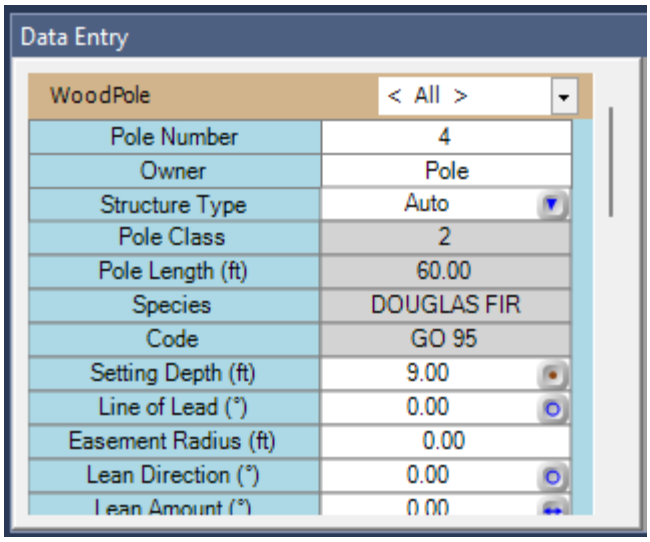
Editing Attributes

Certain attributes are only editable in Administrative User Mode. If you are not in Administrative User Mode, the attribute will be grayed and not changeable. If additional attributes are available a drop-down menu will display next to the selected object's name in the Data Entry panel. Select the drop-down menu to display additional attributes. To edit an attribute, complete these steps:

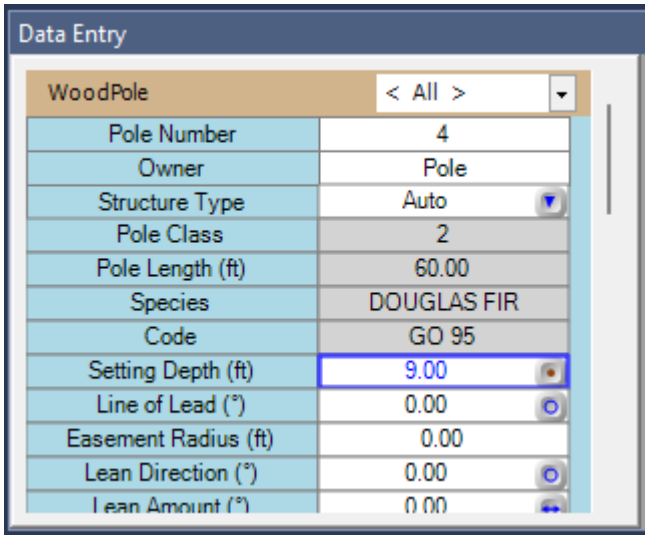
1. Select an object in the **Inventory** panel.



2. The selected **object** displays in the Data Entry panel.



3. Select an **attribute** to be edited, enter the value.



Note: *For a complete list of the editable icon's descriptions Editing Equipment Attributes.*

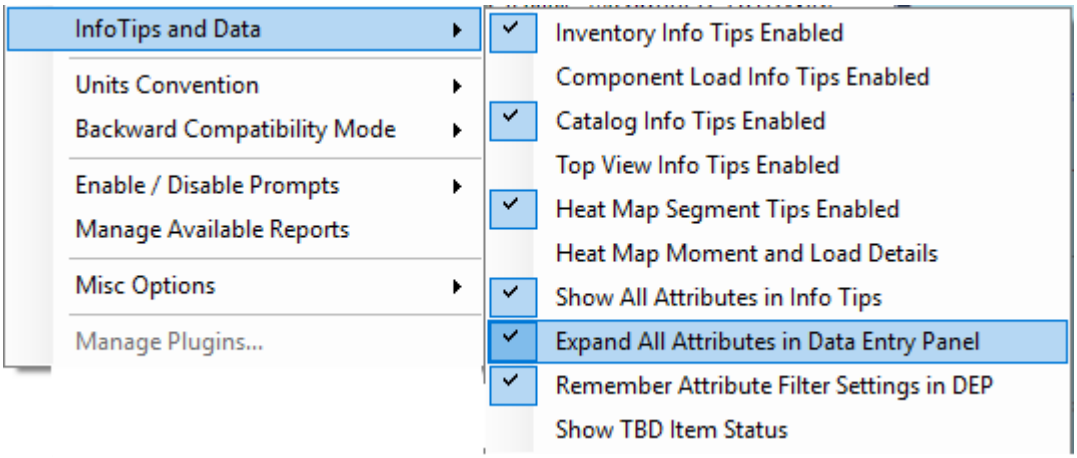
Expand All Attributes

By default, the Standard list of attributes is initially displayed in the Data Entry panel when an object is selected in the Inventory panel. To change the default setting so that all the selected object's attributes are displayed, complete the following steps:

1. Select **Options > Info Tips and Data >** click the **Expand all Attributes in Data Entry Panel** option.

Note*: All options can be enabled/disabled by simply clicking on them (toggle on/off) again. Any enabled option displays the check mark symbol indicating it is on.*

©2025 Osmose Utilities Services, Inc.



Display Multiple Attributes

When multiple objects are displayed in the Data Entry panel all like objects are automatically grouped together. To display multiple objects for review or editing from the Inventory panel, hold down the ctrl key to select more than one object out of sequence. Hold down the shift key to select a range of objects next to each other in the Inventory list. Complete these steps:

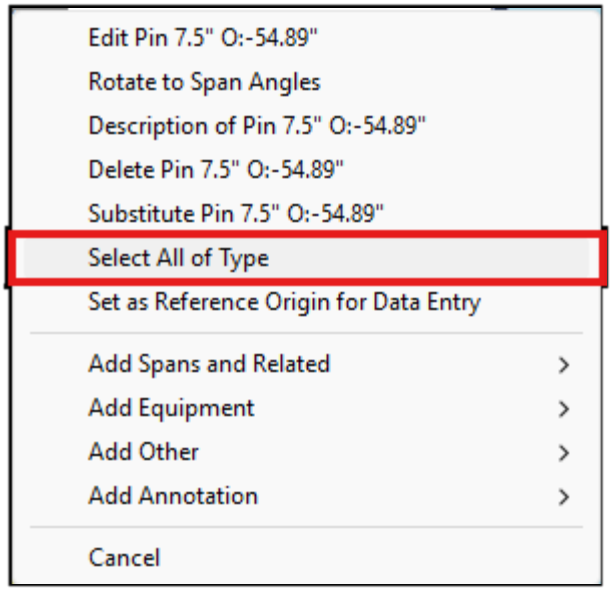
1. Select any **objects** in the Inventory panel.

2. The selected **objects** are displayed in the Data Entry panel.

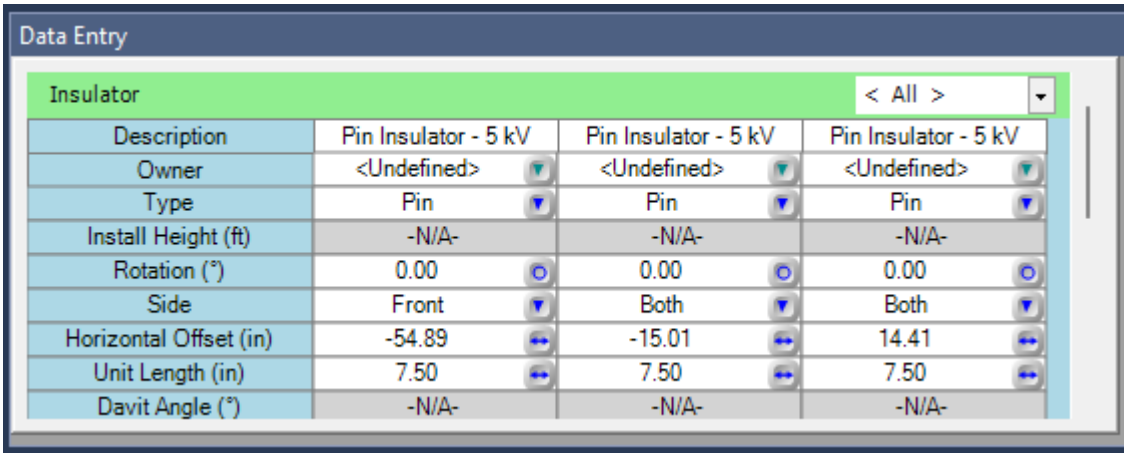
Display Multiple Corresponding Attributes

It is easy to display multiple objects that are of a specific type on the same hierarchy level, for review or editing from the Inventory panel. Hierarchy levels (parent-child relationships) indicate how objects are connected. A visual indicator of hierarchy levels is the dotted lines in the Inventory which show the connections between objects. Complete these steps:

1. Right click on any **object** in the Inventory panel.
2. Select the **Select All of Type** option.



3. The selected **object** and any like objects within that hierarchy level are displayed in the Data Entry panel.

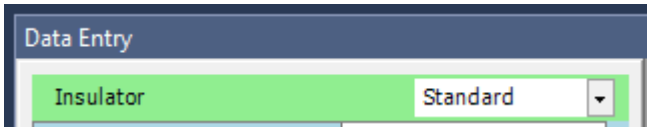


Description	Pin Insulator - 5 kV	Pin Insulator - 5 kV	Pin Insulator - 5 kV
Owner	<Undefined>	<Undefined>	<Undefined>
Type	Pin	Pin	Pin
Install Height (ft)	-N/A-	-N/A-	-N/A-
Rotation (°)	0.00	0.00	0.00
Side	Front	Both	Both
Horizontal Offset (in)	-54.89	-15.01	14.41
Unit Length (in)	7.50	7.50	7.50
Davit Angle (°)	-N/A-	-N/A-	-N/A-

Creating a Custom Filter

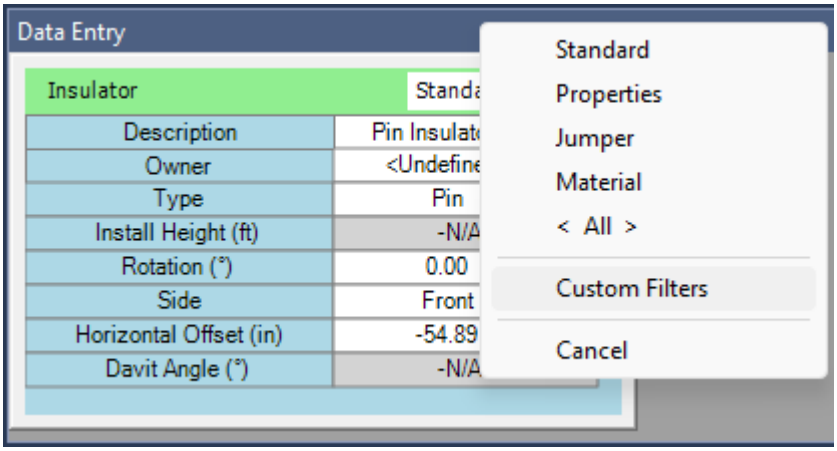
To create a Custom Filter containing a list of attributes to view in the Data Entry panel. A Custom Filter listed can be deleted in the Custom Filter Editor window. If the custom filter is displayed in the Data Entry, it cannot be deleted. To delete, first deselect the customer filter, then you can delete it in the Custom Filter Editor window. Complete the following steps:

1. Select an object in the **Inventory** panel. In the **Data Entry** panel, select the attributes filter drop-down menu arrow.

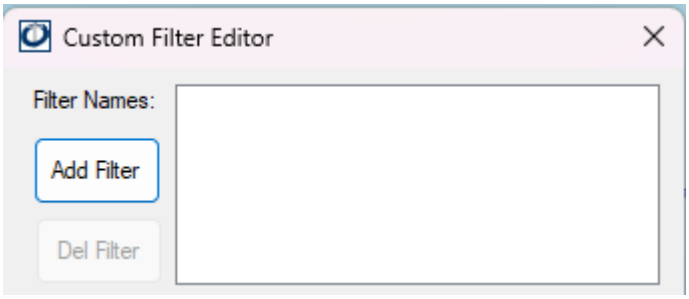


©2025 Osmose Utilities Services, Inc.

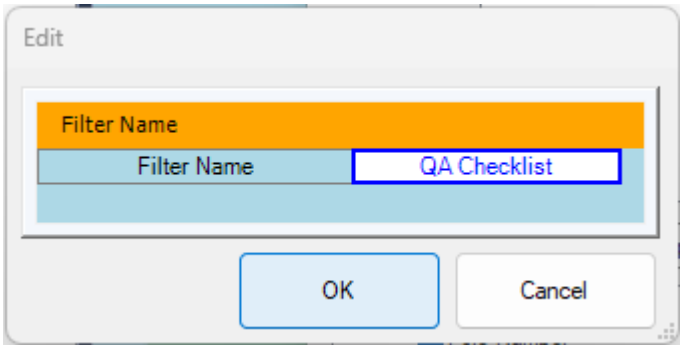
2. Select the **Custom Filters** option.



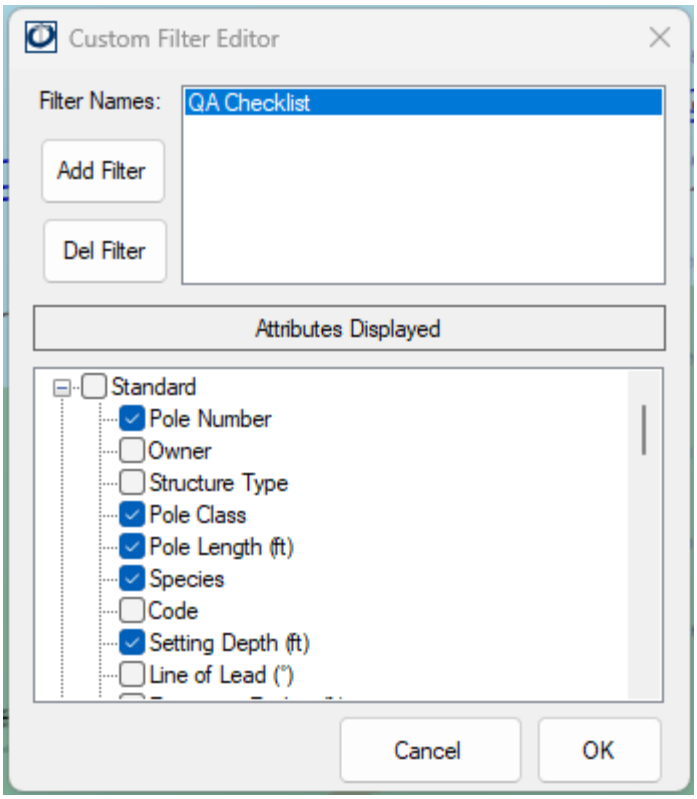
3. The **Custom Filter Editor** window opens; click the **Add Filter** button.



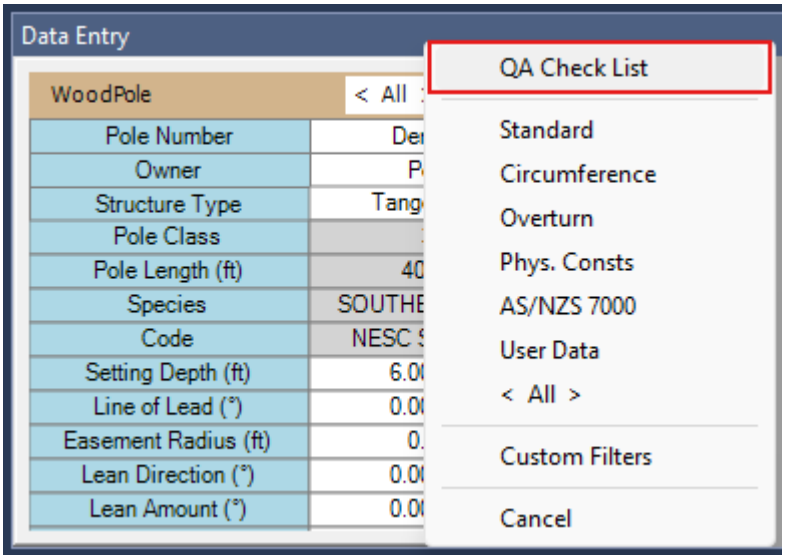
4. Enter a **name** for the new Custom Filter, click **OK**.



5. **Check the boxes** for the attributes you want included in the custom filter and click **OK**.



6. In the Data Entry, open the filter and the new **Filter Name** is displayed at the top.

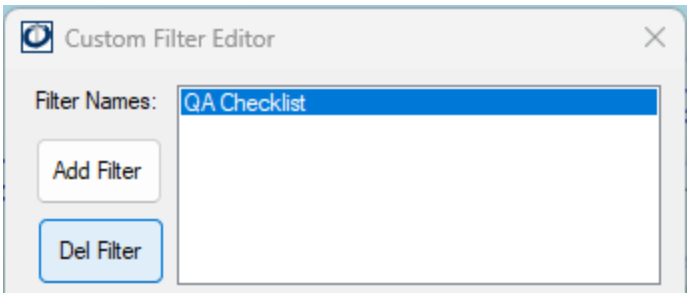


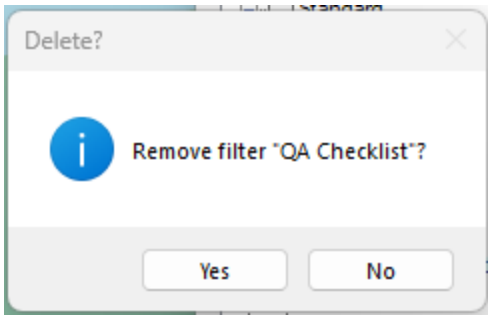
Delete a Custom Filter

To delete the Custom Filter complete these steps:

1. Click the **Del Filter** button.

©2025 Osmose Utilities Services, Inc.

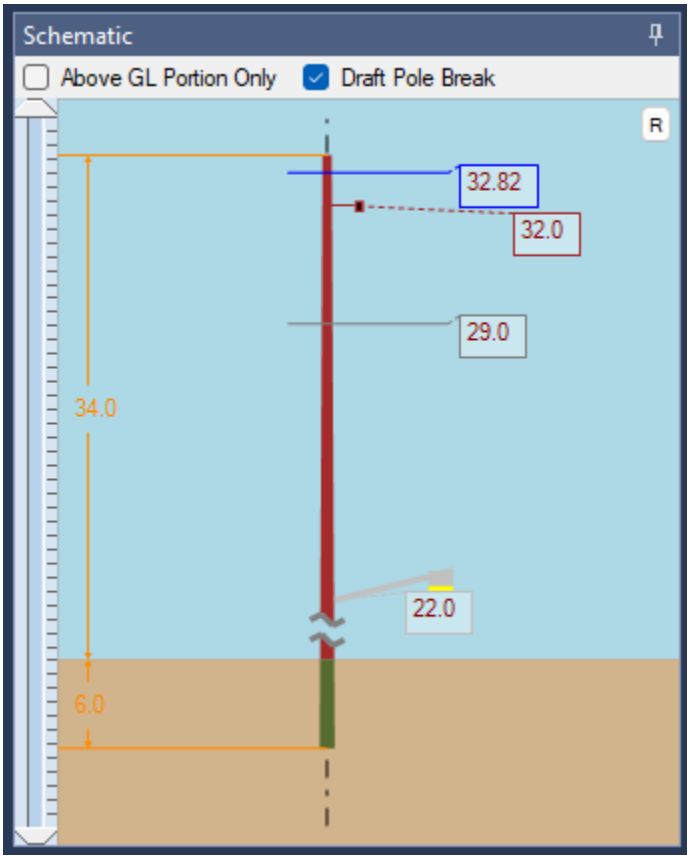




2. In the **Delete?** window, click the **Yes** button.
3. Then click **OK** to close the **Custom Filter Editor** window.

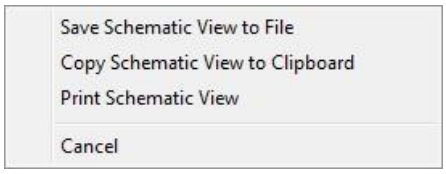
Working in the Schematic View

The O-Calc® Pro Schematic panel displays a side elevation view of the major equipment on the pole. Within the Schematic panel you can change the height of the equipment, view basic information about the equipment, or filter the scope of the data displayed.



Schematic Menu Options

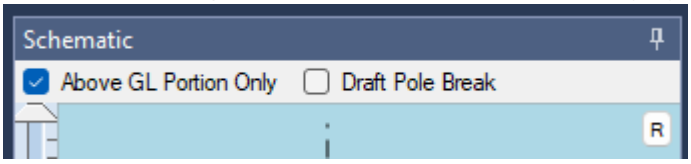
Right clicking on the Schematic panel background provides several options.

	**Save Schematic View to File**. This option saves the current Schematic View as a variety of file types (JPEG, BMP, GIF or PNG) **Copy Schematic View to Clipboard**. This option copies the current Schematic View to the clipboard so that the Schematic View can be pasted directly into other applications such as Microsoft Word, E-Mail, etc. **Print Schematic View**. This option prints the currently displayed Schematic View. **Cancel**. This option closes the available Schematic View options without taking any action.

Display Above GL Portion Only

To display only the portion of the pole above the groundline (GL), complete these steps:

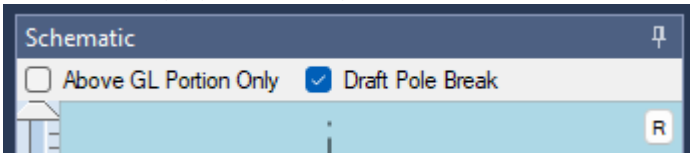
1. Check the **Above GL Portion Only** box to display only the portion of the pole that is above the groundline. Un-check the box to display the complete pole.



Display Draft Pole Break

To replace a portion of the pole with no attachments with a drafting break, complete these steps:

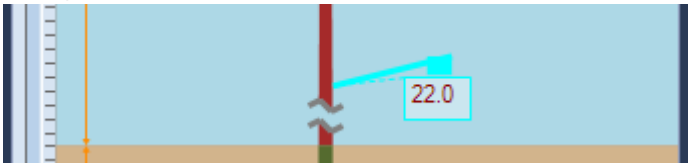
1. Check the **Draft Pole Break** box to insert a temporary drafting break. Un-check the box to display the entire pole.



Change Equipment Height

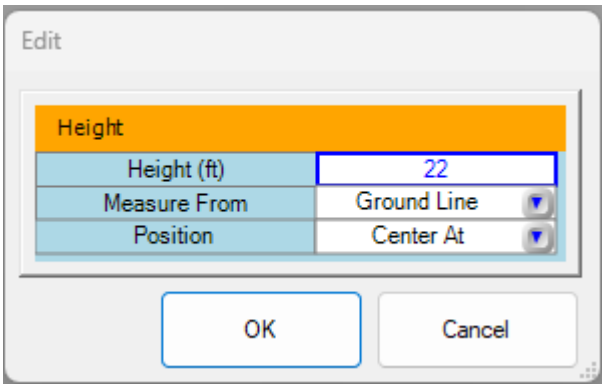
To edit the equipment height, complete these steps:

1. In the Schematic View, click on the **equipment height** label you would like to change.



©2025 Osmose Utilities Services, Inc.

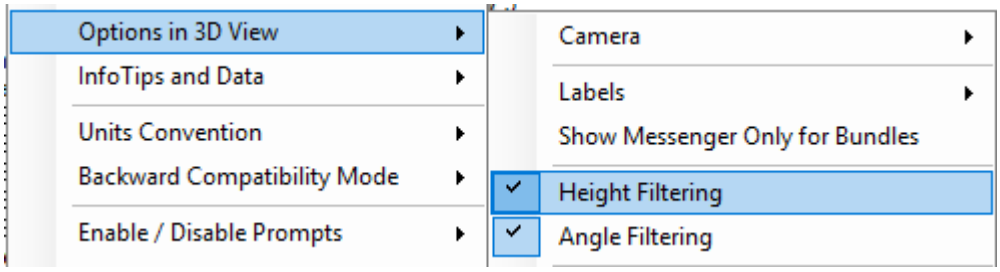
2. In the **Edit** window enter a new height for the equipment. Click **OK**.



Note: *To undo a height modification, select* ***Edit > Undo****.*

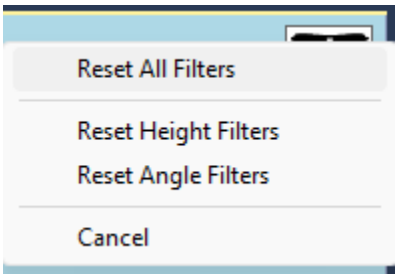
To filter the spans on the pole according to height, complete these steps:

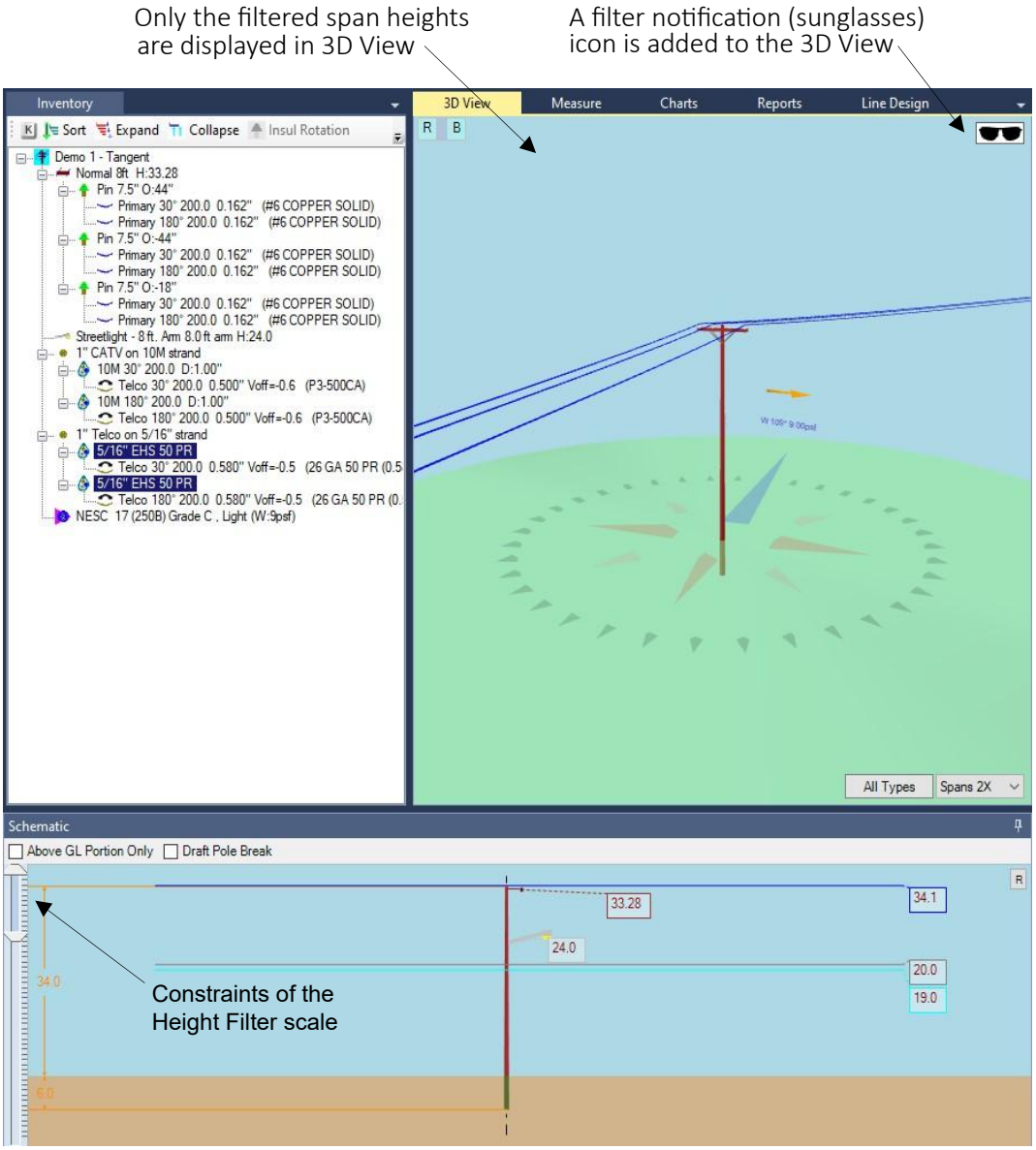
1. Go to the **Options** menu, select **Options in 3D View**, select **Height Filtering**.



2. Slide the button(s) up/down to use the **Height Filtering**. Click the **R** to remove.

Note: *If you have multiple filters set you can remove just one or all the filters by right clicking on the* ***Sunglasses*** *button and select one of the* ***Reset Filter*** *options: All, Height, Angle.*

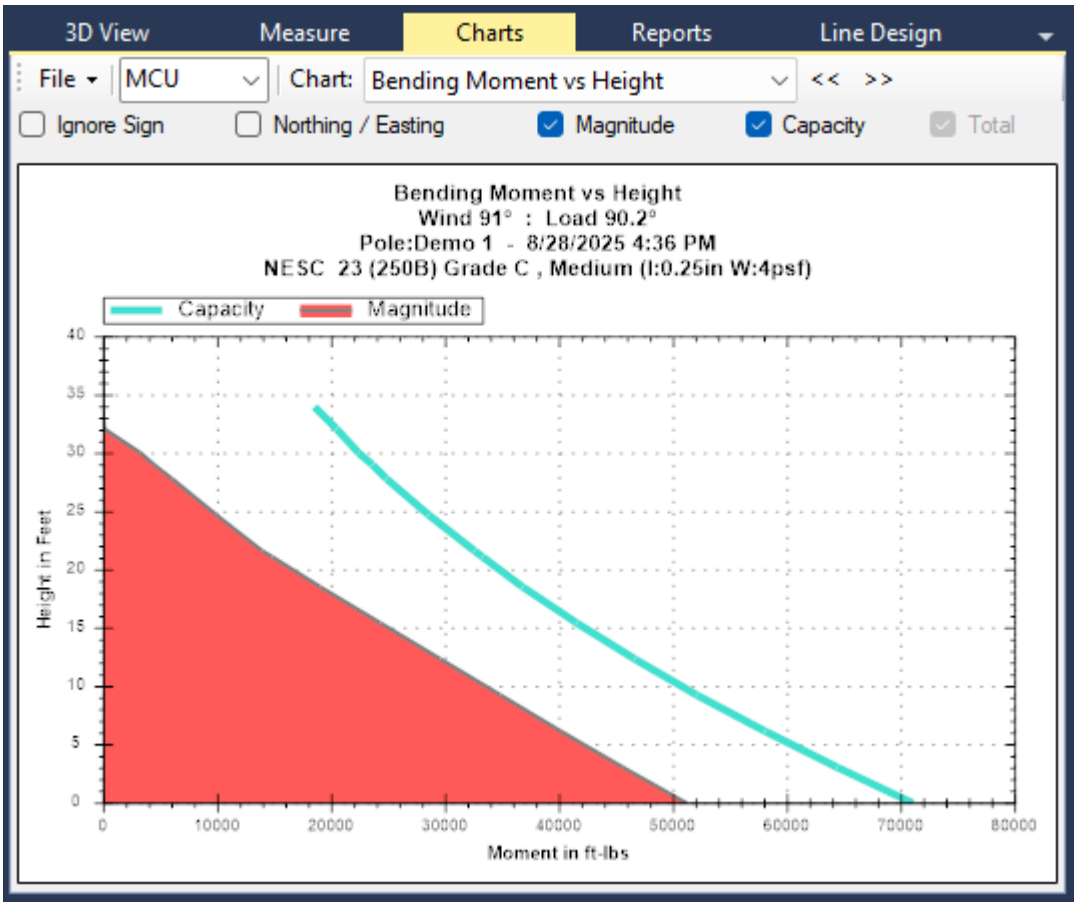




©2025 Osmose Utilities Services, Inc.

Charts

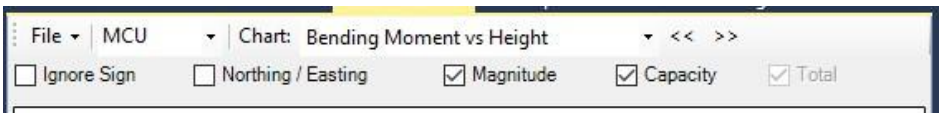
Once a pole is completed in the Inventory in O-Calc® Pro you may want to perform additional analysis by consulting several predefined charts.

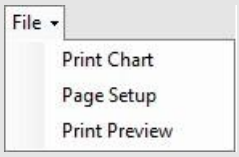
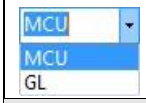
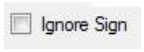
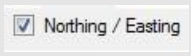
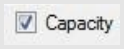


Note: *A pole needs to be displayed in the Inventory panel for data to display in the Charts.*

Chart Menu

The O-Calc® Pro Charts toolbar menu provides you with a variety of operations and options.



	**File**. The following options are available from the File menu: **Print Chart**. Select the Print Chart option to print the currently displayed chart. **Page Setup**. Select the Page Setup option to configure how the chart will be printed. **Print Preview**. Select the Print Preview option to preview the currently displayed chart exactly as it will be printed.
	**Condition Selector**. Select MCU to see data at maximum capacity utilization or select GL to see data at groundline.
	Chart. Select the desired Chart to display from the drop-down menu.
	**Ignore Sign.** Check the Ignore Sign option to ignore the Trans/Long values.
	**Northing / Easting.** Check the Northing / Easting option to plot the individual component vector lines in the selected chart.
	Magnitude. Check this option to plot the Magnitude line in the selected chart.
	**Capacity.** Check this option to plot the Capacity line in the selected chart.
	Total. Check this option to plot the sum of the individual components in the selected chart.
	Left\ Right arrows. Select the left\ right arrows to scroll through and display the various charts without having to use the chart drop down menu.

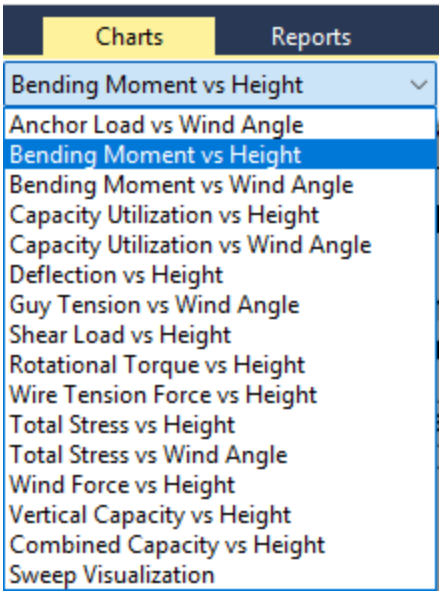
Note: *Available plotting options are dependent on the selected chart.*

Chart Options

As soon as the Chart has been selected from the list it automatically displays in the Charts panel. The chart uses the currently selected Load Case when calculating and displaying a chart. To view any Chart, complete these steps:

1. Load a **pole** that has a Load Case in the Inventory panel.
2. Select a **Chart** to be displayed from the available Charts drop down list.

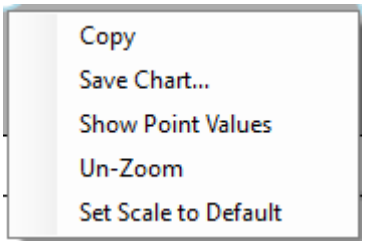
©2025 Osmose Utilities Services, Inc.



Note: *Use the mouse wheel to zoom in and out on a specific area on the chart. To set the chart back to the default scale right-click anywhere on the Chart, select Set Scale to Default.*

Chart Menu

In addition to the basic menu options that are available, once a chart is displayed additional chart options are available by right clicking on the chart.



Copy. Use to copy the current chart to the clipboard so that the chart can be pasted into other applications such as Microsoft Word, E-Mail, etc.

Save Chart. Use to save the current chart as a variety of file types (JPEG, BMP, GIF, etc.).

Show Point Values. Use to display floating point values when hovering in a chart.

Un-Zoom. Use to undo a previous zoom operation.

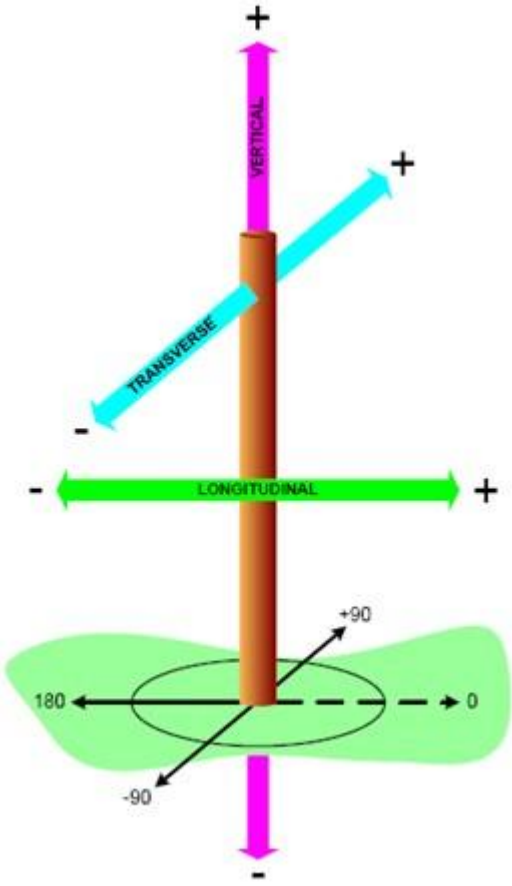
Set Scale to Default. Use to set the chart back to the default scale.

©2025 Osmose Utilities Services, Inc.

Interpreting the Chart

Each O-Calc® Pro Chart value is plotted using lines as identified by color in the chart legends.

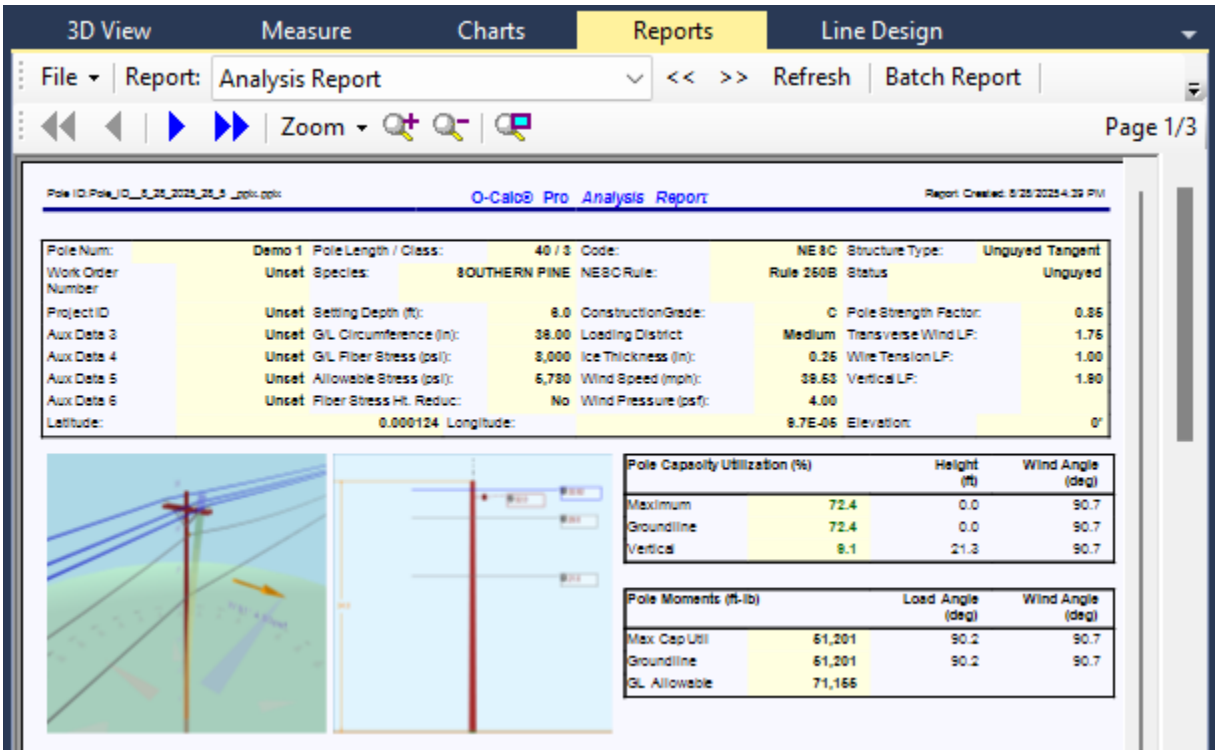
Capacity (Gray)	**Definitions** The Pole Fiber Stress X Strength Factor is plotted on Moment and Stress Charts. ***Example:*** *For a yellow southern pine (8,000 psi) under NESC Grade C (.85 strength factor) criteria, the pole's allowable stress is plotted at 6,600 psi on a Total Stress chart.*
Easting (Blue)	These values are perpendicular to the frame of reference and represent results in the 90°/270° direction. Easting values are plotted on all charts.
Northing (Green)	These values are those in the direction of the northing value and represent results in the 0°/180° direction. Northing values are plotted on all charts.
Magnitude (Red)	A non-directional value representing the summary of forces along the length of the pole. This line is critical because it represents a combined value of the Easting and Northing directions. This line represents the summary of forces acting on the pole.



©2025 Osmose Utilities Services, Inc.

Analysis Reports

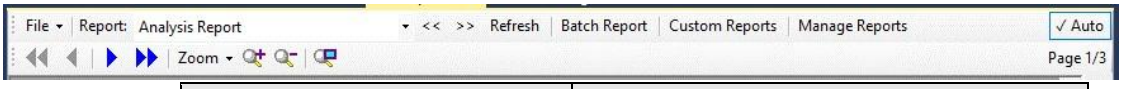
Once the pole is completed in the Inventory panel you may want to generate a variety of reports. The O-Calc ® Pro Analysis Report is provided to help you inspect the analysis results.

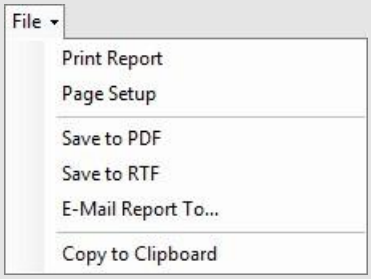


Note: *A pole needs to display in the Inventory panel to enable the Reports option.*

Report Menu Options

The report's toolbar menu provides you with a variety of operations and options.





File. The following options are available from the File menu:

Print Report. Select Print Report to print the current report.

Page Setup. Select the Page Setup option and configure how the report should be printed.

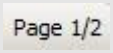
Save to PDF. Select Save to PDF to save the current report to edit an existing report template.

	Save to RTF. Select the Edit Report Template to edit an existing report template.
E-Mail Report To	Use this option to e-mail the currently viewed report.
Report:	**Report.** Select the desired Report to display the from the drop-down menu.
<< >>	**Left\ Right arrows.** Select the left\ right arrows to scroll through and display the various Reports without having to use the chart drop down menu.
Refresh	**Refresh.** Select to refresh the Report panel.
Batch Report	**Batch Report.** Select to open and work with the Batch Pole Reporting tool.
Custom Reports	**Custom Reports.** Select to create Custom Reports.
Manage Reports	**Manage Reports.** Select to manage which reports display in the Report drop- down list. ***Note**: Manage Report configurations are carried over to Bulk Reports*
Auto	**Auto.** Select to automatically reload the currently displayed report after calculations have been performed.

©2025 Osmose Utilities Services, Inc.

Reports Toolbar Options

Once a Report is displayed the report's toolbar menu provides you with a variety of operation and options.

Navigation Controls	**Navigation Controls.** Click the arrows to navigate through the document. Double arrows navigate to the first or last page. Single arrows navigate to one page at a time.
	Zoom. Select the Zoom drop-down list to change the report magnification level.
	Zoom In/Zoom Out. Click the zoom in or zoom out buttons to manually zoom within the currently selected report.
	Zoom to Fit. Click the Zoom to Fit option to automatically have the report fill the space provided.
	**Page Count**. Displays the current page/the total pages in the report.

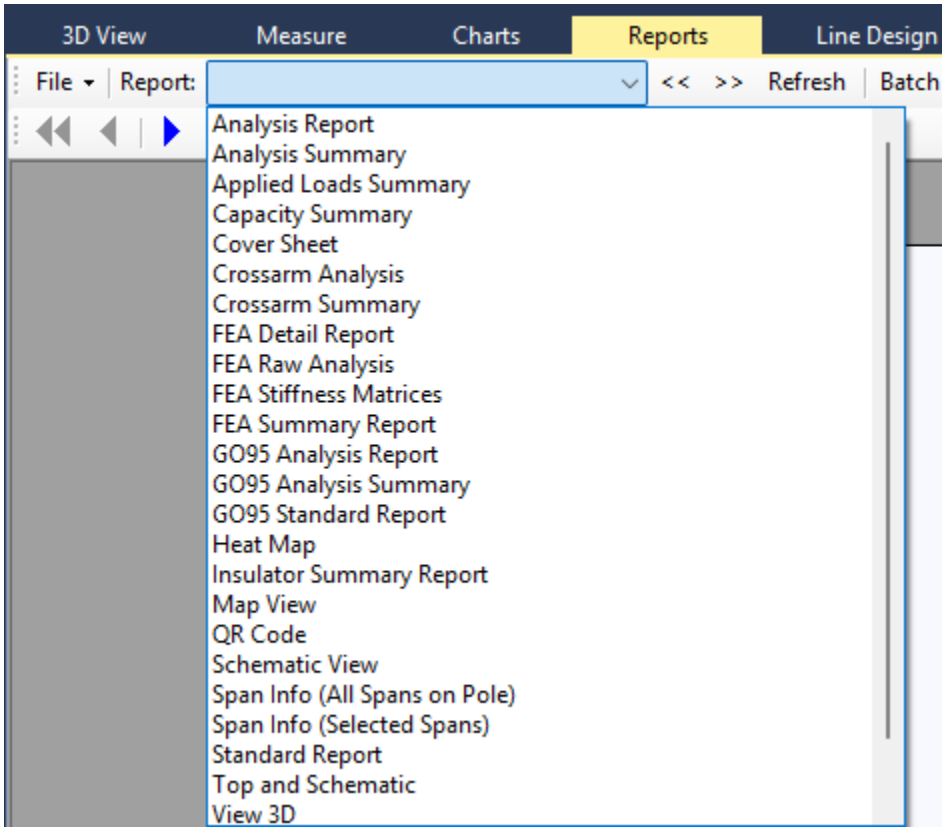
Viewing Reports

The list of available reports is dependent on which reports are selected under Manage Report. The list of available reports also corresponds with the currently loaded pole. (Example: The crossarm reports will not be displayed in the report list if there are no crossarms on the currently loaded pole). Once a report has been selected the Report will automatically be loaded, this may take a moment depending on how many reports are displayed. The selected report uses the currently selected Load Case when calculating and displaying a report.

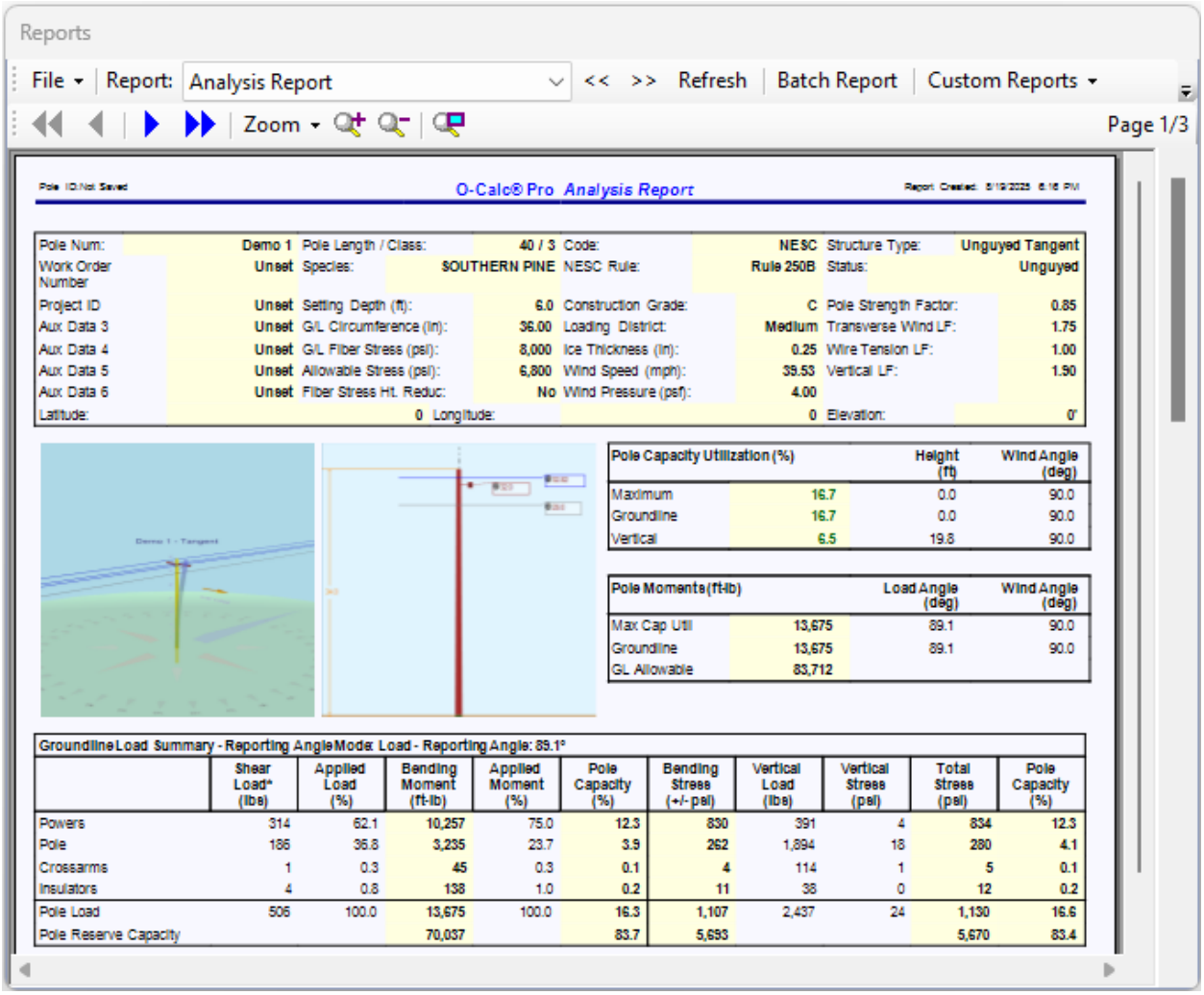
To view an existing report, complete these steps:

1. Open a **pole** with a Load Case in the Inventory panel.

2. In the **Reports** tool bar select a report from the drop down list.



©2025 Osmose Utilities Services, Inc.



Batch Pole Report Menu

The Batch Pole Report allows you to print report(s) against specific poles that you select.

Toolbar Menu Options	**Add Poles**. Select the Add Poles option to add poles that will be processed in the Batch Reports. **Remove Poles**. Select the Remove Poles option to remove poles that have been to the Poles to Process list. **Printer Setup**. Select the Printer Setup option to configure the printer that the Bulk Reports will utilize. **Print Reports**. Select the Print Reports option to print the currently selected batch reports.

Named View	Enables the ability to save and name commonly retrieved sets of reports.

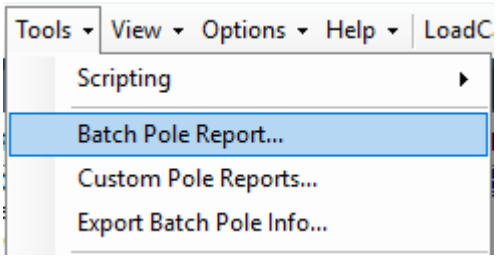
Sort Files	Use to sort the PPLX files in alphabetical order when they are printed to files.
All Versions	Use to create a print to file report for each version within the selected PPLX files.
All Load Cases	Select this option to create a separate print to file report for each load case attached to a PPLX file.
Print to files	Select the Print to files option to print the currently selected batch reports into file format. ***File Per Report:*** Select the File Per Report option to create an individual file for each report selected. ***File Per Pole:*** Select the File Per Pole option to create one file per each processed pole. ***Single File:*** Select the Single File option to create a single file that includes all the selected Per-Pole Reports.
Poles to Process	Displays the poles that will be processed in the selected Batch Reports. The order of the poles can be changed by using the drag-and-drop option.
Bulk Reports	Displays the list of available Bulk Reports. These reports print separate from the Per-Pole Reports.
Per-Pole Reports	Displays the list of available Per-Pole Reports. The order in which the reports will be printed can be changed by using the drag-and-drop option.

Create a Batch Report

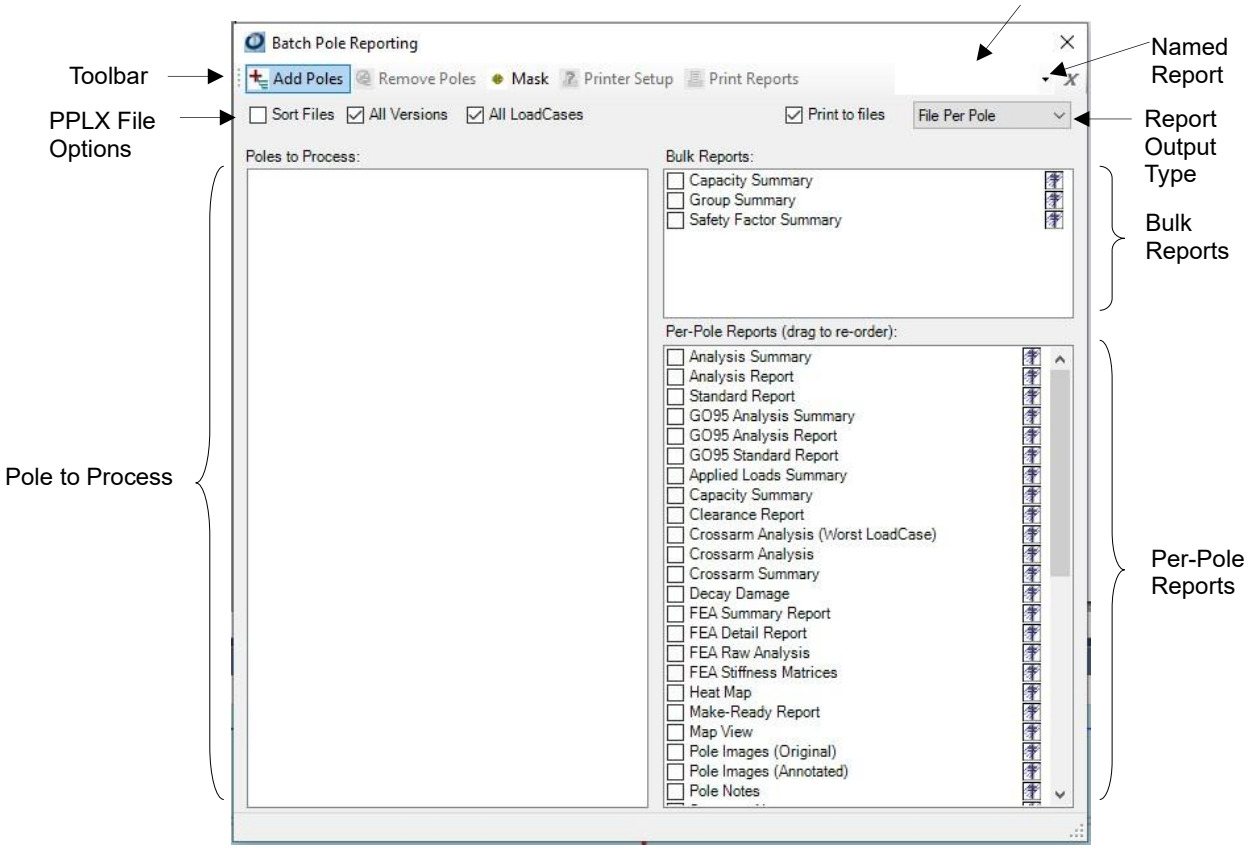
To create a Batch Pole Report, complete these steps:

1. Select **Tools > Batch Pole Report**.

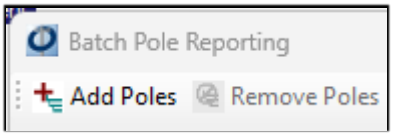
Note: *The Batch Pole Report can also be accessed by selecting* ***Batch Report*** *in the Reports panel.*



©2025 Osmose Utilities Services, Inc.

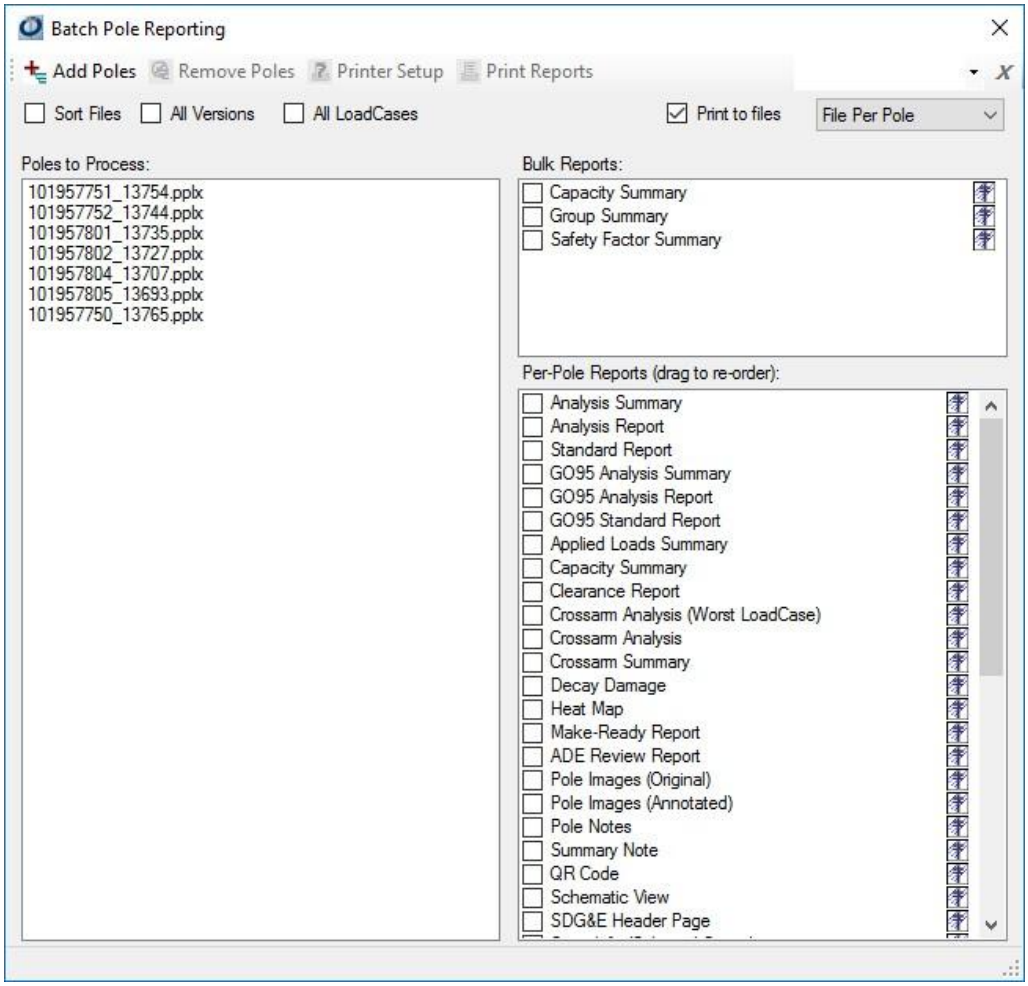


2. Select the **Add Poles** button.



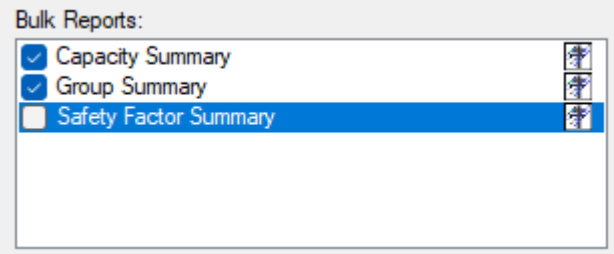
3. **Browse** to the location of the **pole(s)** you wish to add to the Batch Report process and select the (*pole name*).pplx file and click **Open**.

Note: *Hold down the ctrl key to select more than one pole out of sequence. Hold down the shift key to select a range of poles next to each other.*



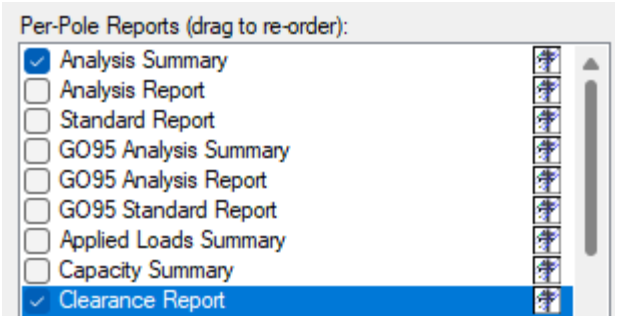
Note: *To remove selected poles from Poles to Process area select the pole then select the* ***Remove Poles*** *button*

4. To change the **order** in which the (*pole name*).pplx file(s) will be printed click and drag the .pplx file.
5. Select the **Bulk Report(s)** to be included.

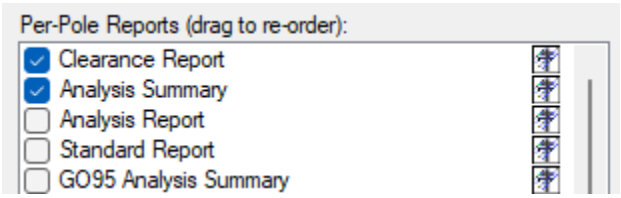


6. Select the **Per-Pole Report(s)** to be included.

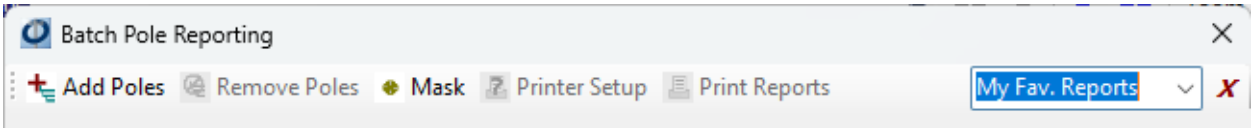
©2025 Osmose Utilities Services, Inc.



7. To change the **order** in which the Per-Pole Report(s) will be printed click and drag the report.

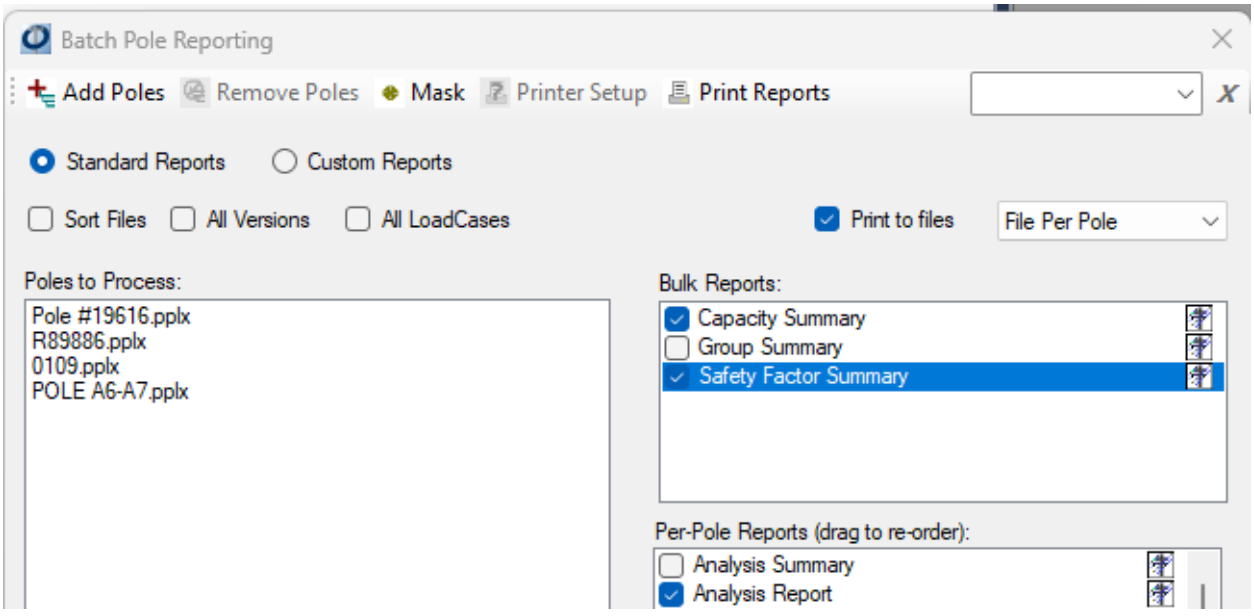


8. To save the changed layout of the batch Report, enter a name in the Named View box and click the Enter. The name is name saved for future use.



9. Check **Sort Files** to place the PPLX files in alphabetical order when printed.
10. Check **All Versions** to create a report for each version within the selected files.
11. Check the **All Load Cases** to create a report for each load case within the files.
12. Select the **Print Reports** button to print the Batch Reports to a printer.

    To print the Batch Reports to a different printer, select the **Printer Setup** button and select your printer of choice.



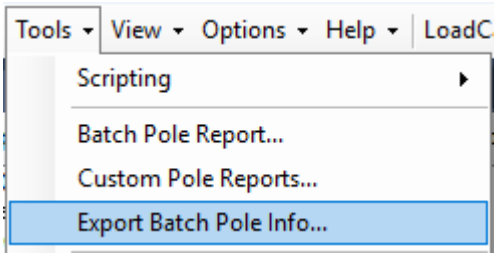
Additionally, you can check the **Print to files** option, select the **Report Output Type** then navigate to and select where you want the Batch Report files saved.

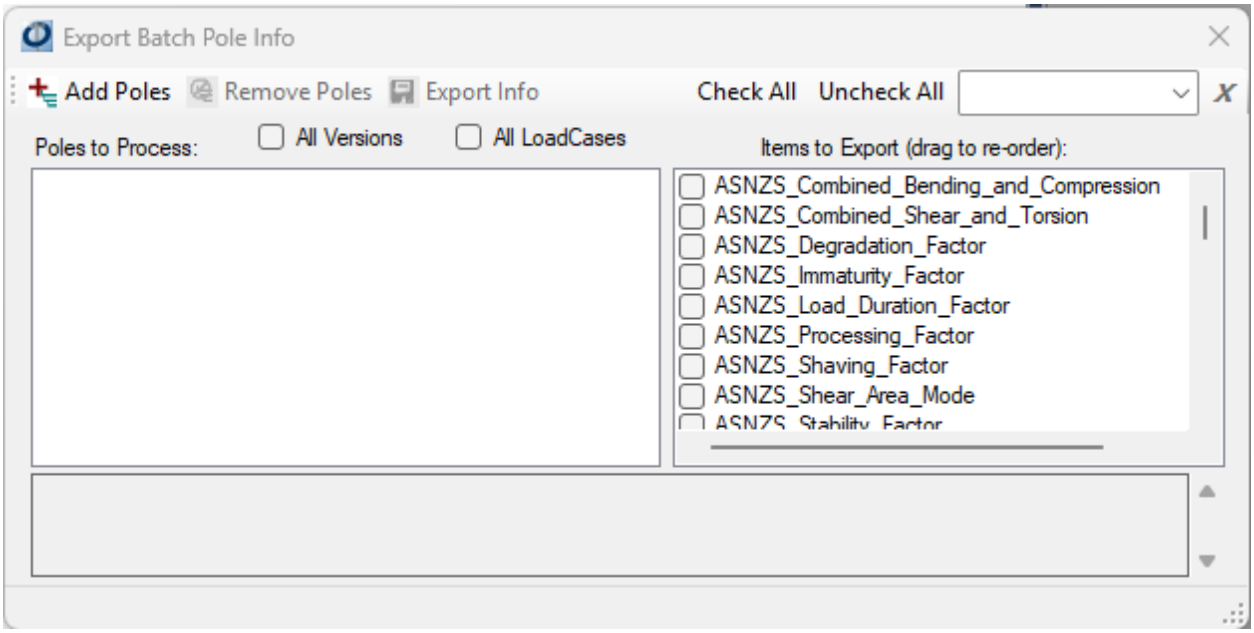
> ***Note:*** *Only the primary pole image is included in the Batch Report. Subsequent images that are attached to the./pplx file will be printed or saved as individual PDF files as 'pplx file name_image#'.*

Exporting Batch Pole Info

The Export Batch Pole Information Report allows you to export specific pole attributes and calculation results to a .CSV file. To export Batch Pole Information, complete these steps:

1. Select the **Tools** menu, click the **Export Batch Pole Report Info** option.





©2025 Osmose Utilities Services, Inc.

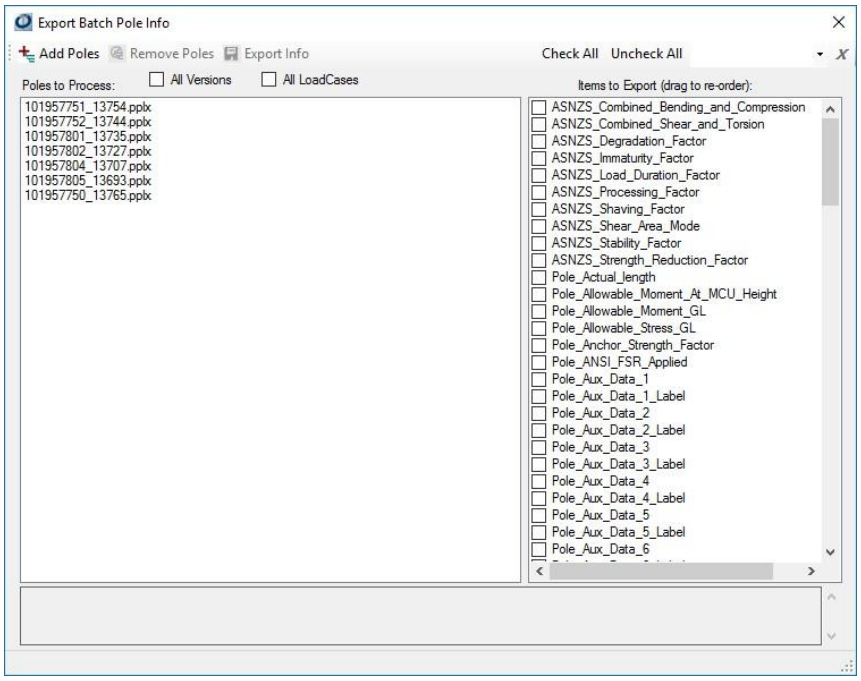
Export Batch Pole Info tool bar menu offers these options:

Add Poles Remove Poles Export Info	Select the Add Poles option to add poles that will be processed in the export. Select the Remove Poles option to remove poles that are listed in the Poles to Process list. Select the Export Info option to export the selected items and calculations to a .CSV file.
Check All	To select the entire Items to Export list.
Uncheck All	To uncheck the entire Items to Export list.
Display Layout	Enables you to swiftly switch between different screen layouts.
All Versions	Used to create a separate entry for each item and calculation based on each version within the selected PPLX files.
All Load Cases	Used to create a separate entry for each item and calculation based on the load case(s) attached to a PPLX file.
Poles to Process	Displays the poles that will be processed in the exported batch pole .CSV file. (The order of the poles can be changed by using the drag-and-drop option)
Items to Export	Displays a list of available items (attributes) that can be exported. (The order of the items can be changed by using the drag-and-drop option)
Selected Items	Displays a complete list of all the selected Items to Export.

2. Select the **Add Poles** button.

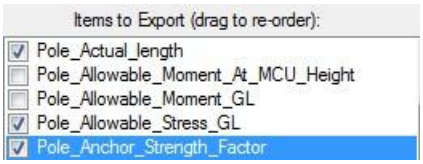
3. **Browse** to the location of the **pole(s)** you wish to add to the Batch Pole Information Export process and select the (*pole name*).pplx file and click **Open**.

Note: *Hold down the ctrl key to select more than one pole out of sequence. Hold down the shift key to select a group of poles that are next to each other.*

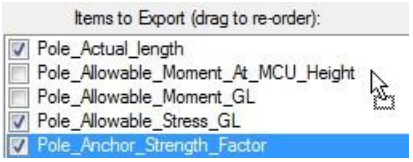


Note: *To remove selected poles from Poles to Process area select the pole then select the* ***Remove Poles*** *button. Hold down the ctrl key to select more than one pole out of sequence. Hold down the shift key to select a group of poles that are next to each other.*

4. Select the **Items to Export** from the available list.



5. To change the **order** in which the Items to Export will be displayed in the .CSV file click and drag an item to arrange the items placement.



6. Select the **Export Info** button. Browse to the location where you want the Batch Pole Information Export saved and enter a file name.
7. Click **OK** in the Export confirmation message.

Note: *When an item is being dragged to a new location the cursor will change to indicate a valid move* .

Working with the Strength Reduction Calculator

The Strength Reduction Calculator allows you to calculate and apply the effective groundline circumference using the Osmose industry accepted strength calculations. When the Strength Reduction

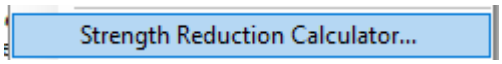
©2025 Osmose Utilities Services, Inc.

Calculator is initially opened some of the fields will already be prepopulated with information from the pole.

Create a Strength Reduction Calculation

To create a Strength Reduction Calculation, complete the following steps:

1. Select **Tools > Strength Reduction Calculator**.



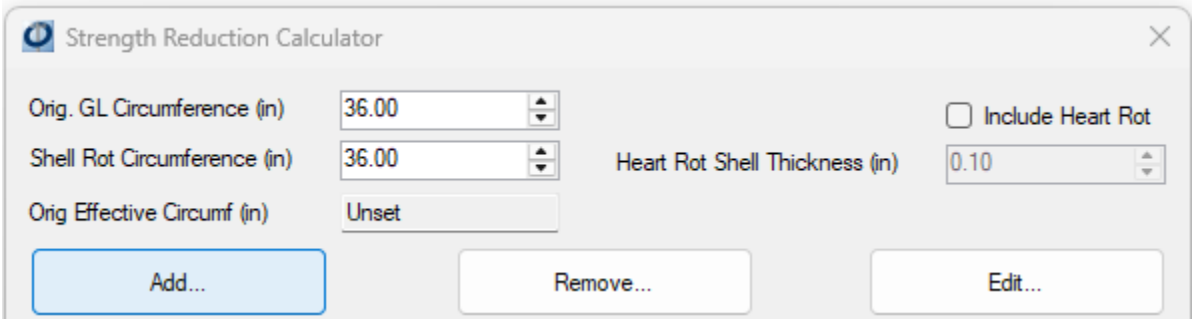
Select any attributes you want to modify in the **Strength Reduction Calculator** window.

3. Adjust the **Orig. GL** and **Shell Rot Circumference** (if needed).

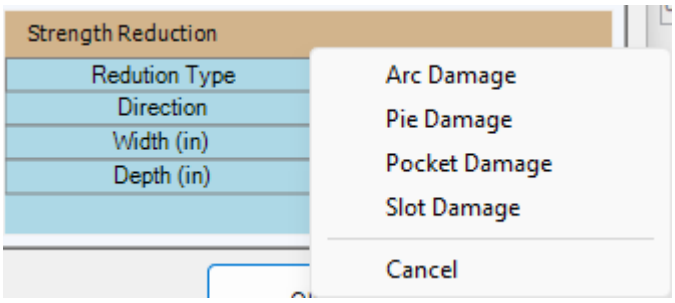
4. To include heart rot, check the **Include Heart Rot** box, and enter a value.
5. For each instance of decay or damage repeat the steps above.

To **Add** a **Strength Reduction** due to a particular type of damage, complete these steps:

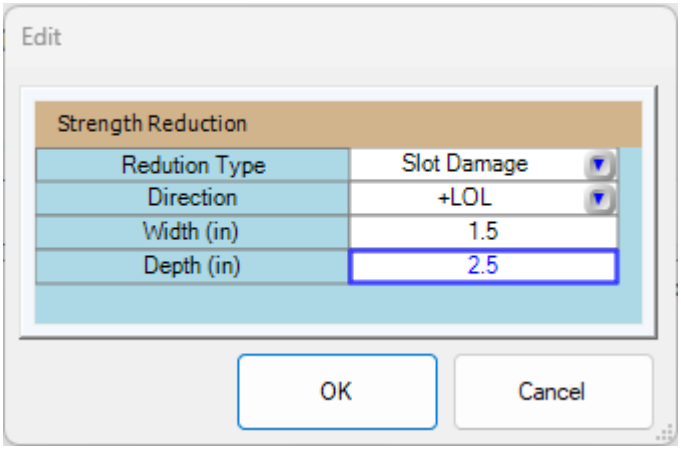
1. In the **Strength Reduction Calculator** window, click the **Add** button.



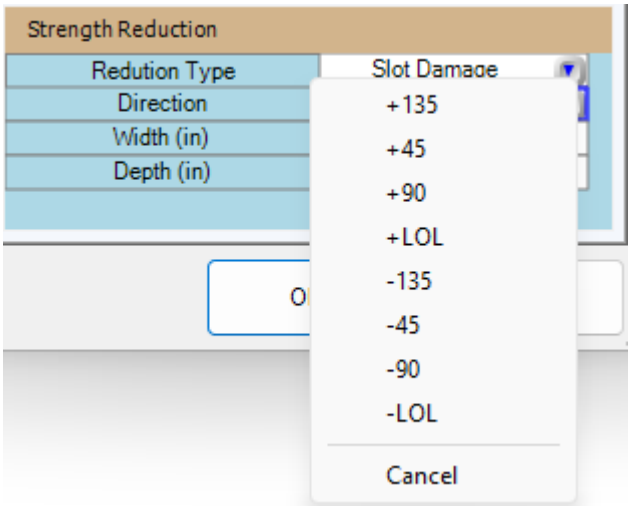
2. In the Edit window, select a **Reduction Type** from the drop-down list.



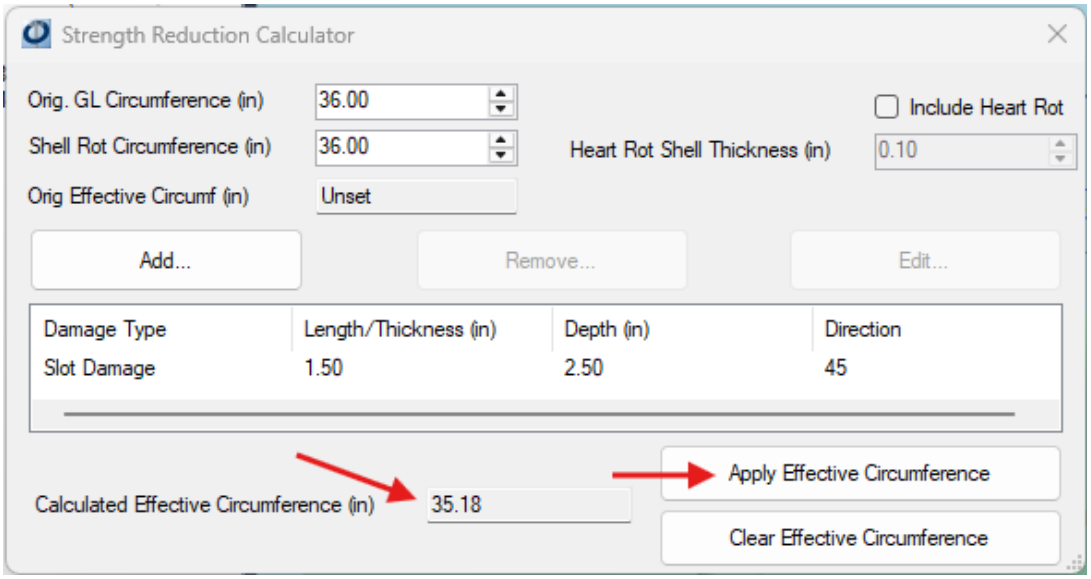
3. Enter the **Width or Thickness** and **Depth** value.



4. Enter the damage **Direction** value from the drop-down list, click **OK**.



5. Select the **Apply Effective Circumference** button.



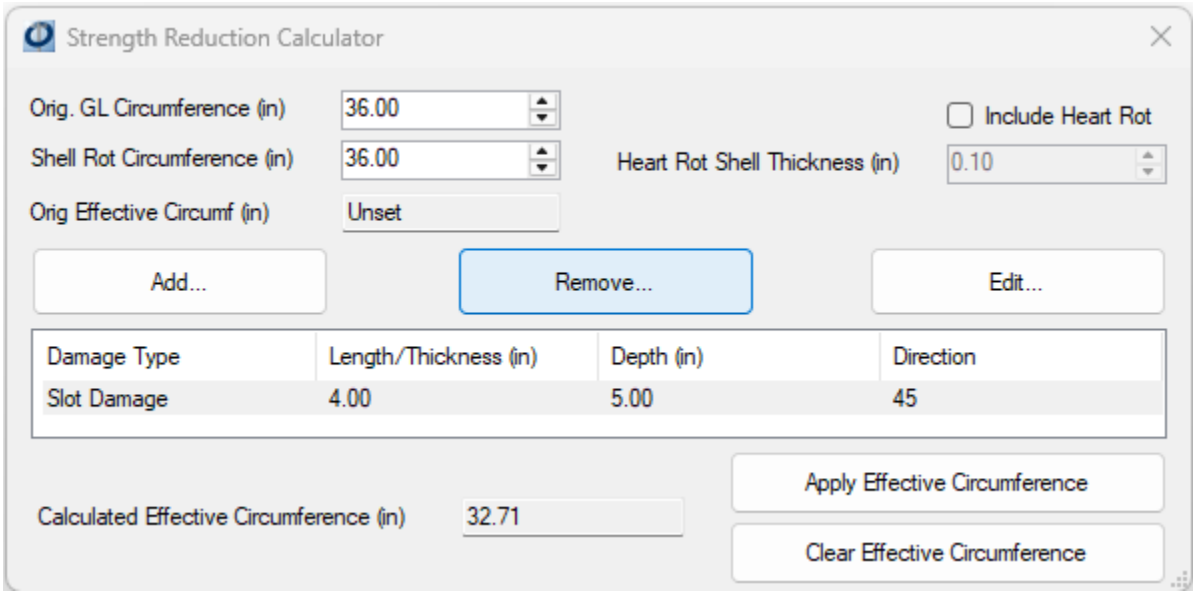
©2025 Osmose Utilities Services, Inc.

6. Click **Yes** to the Apply Effective Circumference informational message.

Once a Strength Reduction Calculation has been added the Calculated Effective Circumference automatically updates. This is the value to be used in calculating the groundline capacity. The Orig. Effective Circumf field is automatically updated to reflect the Applied Effective Circumference. To set the Applied Effective Circumference back to the default value select the **Clear Effective Circumference** button.

Remove a Damage Record in Strength Reduction Calculator

To remove damage records from the Strength Reduction Calculation click the **Remove** button.



Edit a Damage Record in Strength Reduction Calculator

To edit damage records in the Strength Reduction Calculation, complete these steps:

1. Click on the **damage record** to be edited and click the **Edit** button.

Note: *Double clicking on the damage record will also open the damage record in edit mode.*

2. Complete any edits in the **Edit** window and click **OK**.

Appendix A – Installing Osmose O-Calc® Pro

System Requirements

The system requirements for Osmose O-Calc® Pro include the following:

- Supported Operating Systems: Windows 10 & 11 (64-bit version)
- 16 GB System memory
- 1-2 GB min. available Storage Space
- DirectX11 compatible Graphics Subsystem, hardware accelerated 3D graphics (dedicated/separate)
- Microsoft .Net Framework version 4.7.1 or later
- PDF Reader Software

Note: *Surface laptop with integrated graphics card not recommended.*

Installing O-Calc Pro

This page: http://www.o-calcpro.com/LineDesign/ allows registered users of O-Calc® Pro to install and run their software. O-Calc® Pro uses Microsoft Click Once deployment. This technology simplifies the deployment of Windows-based applications, allowing them to be installed and updated automatically.

You will need the following items:

1. A valid and up-to-date O-Calc® Pro license key.
2. An Expiration Token.

If you need a key or token contact Osmose email ocalc@osmose.com before proceeding.

To install/download the software at https://O-CalcPro/LineDesign/setup.exe and run it.

Note: *It is strongly recommended that you uninstall previous versions of O-Calc before proceeding.*

You may receive a message that windows has prevented the application from running.

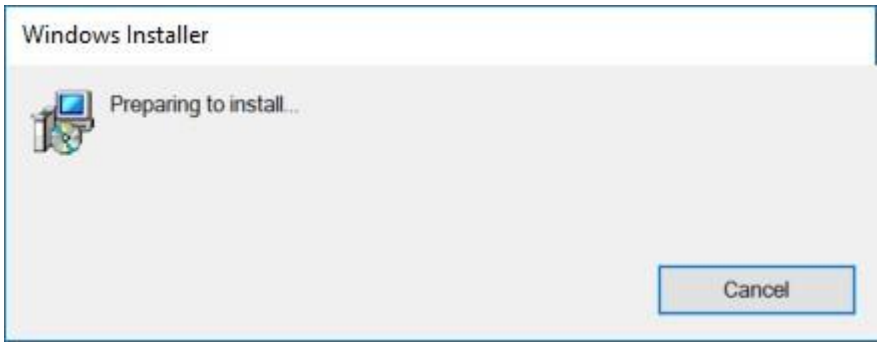
If this happens simply click "Advanced" or "More Info" and select "Run Anyway". This software is fully vetted and digitally signed.

Use the following procedure to install O-Calc® Pro:

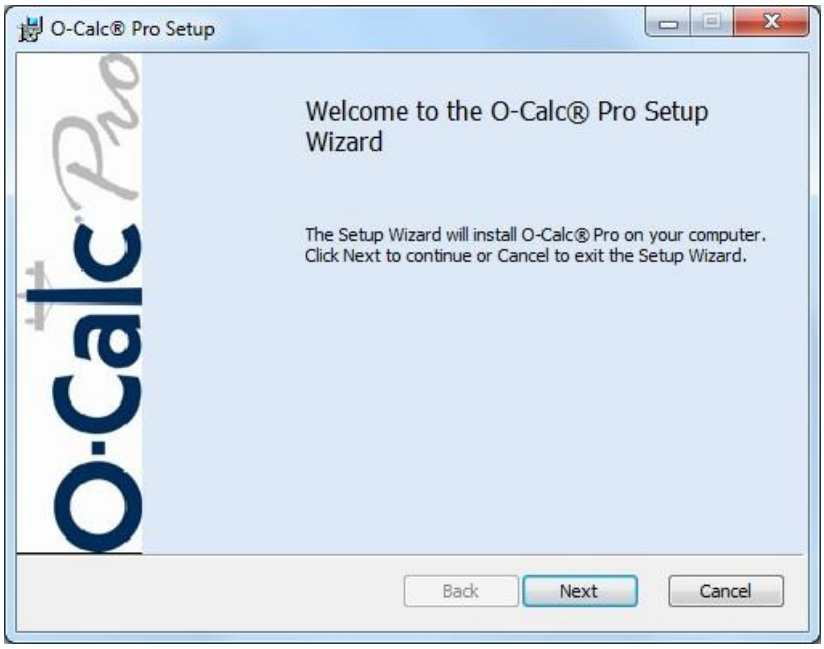
1. Go to the download page at http://www.o-calcpro.com/LineDesign/
2. Click this install download link shown at the site:

©2025 Osmose Utilities Services, Inc.

To install download https://O-CalcPro/LineDesign/setup.exe and run it.



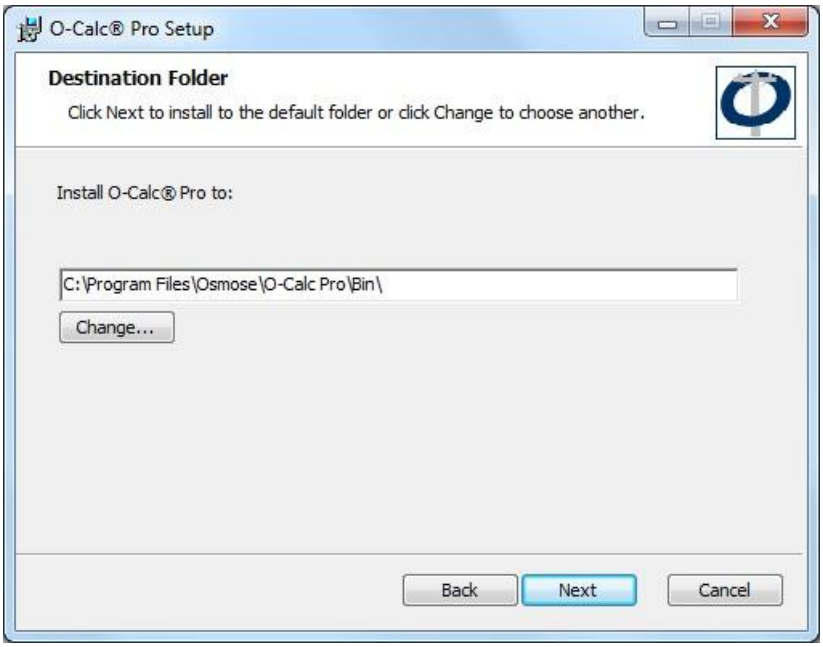
3. When the installer **Welcome** screen appears, click **Next**.



4. **Review and check** the "I accept the terms in the License Agreement".

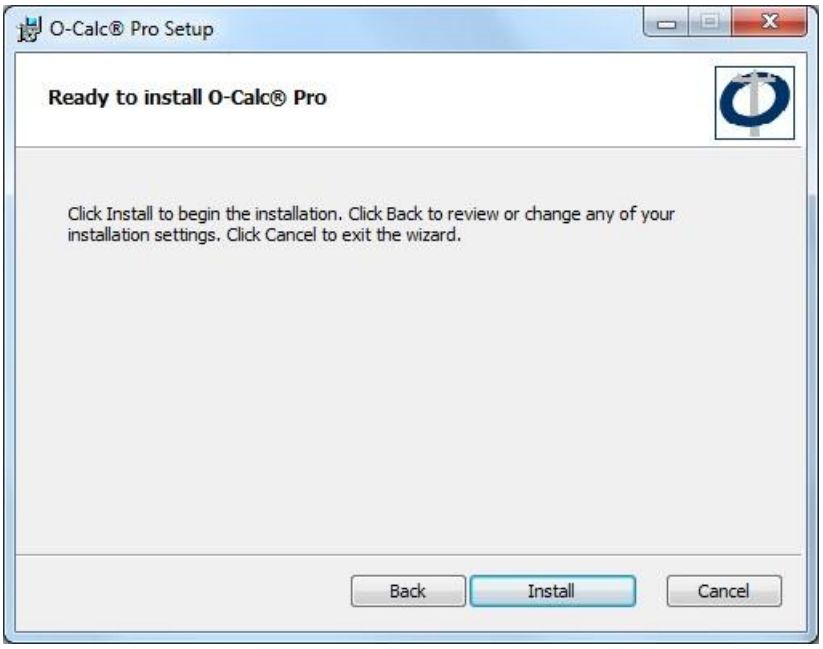
License Agreement check box

5. Click **Next** to use the default Destination Folder or click **Change** to browse to a different Destination Folder then click **Next**.

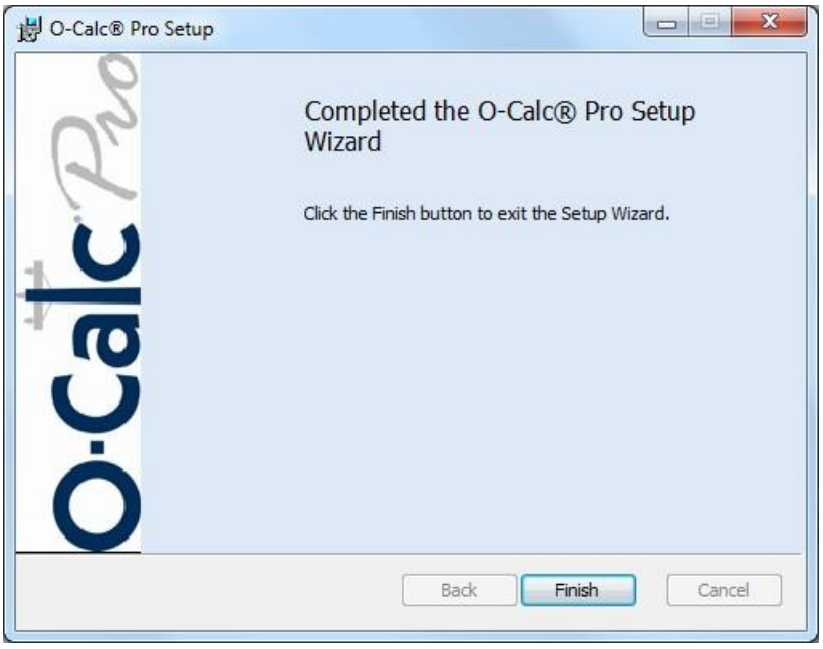


©2025 Osmose Utilities Services, Inc.

6. Click **Install** to begin the installation process.



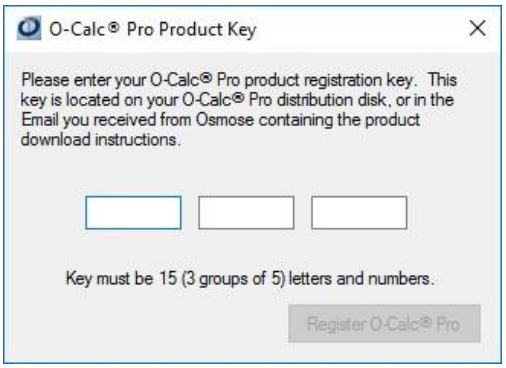
7. When the installation is complete, click **Finish** to acknowledge the completed installation.



Registering Osmose O-Calc® Pro

Once you have installed the Osmose O-Calc® Pro application you will need to enter a Product Registration Key to register the application and accept the License Agreement. To register the Osmose O-Calc® Pro application, complete these steps:

1. Open O-Calc ® Pro. The O-Calc® Pro Product Key window is displayed.



2. Enter the **Registration Key Code** that was provided in the email you received from Osmose. ***Note:*** *The Registration Key Code is not case sensitive.*

Note: *If you have questions about the type of Product key needed for your installation, contact* O-Calc® Pro *product and sales support* at *ocalc@osmose.com*.

3. Click the **Register O-Calc® Pro** button.

Note: *You can cancel the registration by clicking the 'X' in the upper right corner. However, you will not be able to use the Osmose O-Calc® Pro application until it's been successfully registered.*

4. When the O-Calc® Pro License Agreement window displays, scroll to the bottom of the license agreement while reading it carefully and check the "**I have read and accept all of the terms of this agreement**".

Note: *You must scroll to the bottom of the license text window to make the check box and the Accept button active.*

5. Click the I accept the terms in the licensing agreement box.

©2025 Osmose Utilities Services, Inc.

Security Administration

O-Calc® Pro limits what user levels are available based on the Windows User Group a person is in. The following table lists what user levels are available to each Windows User Group. Users can select any User level with an asterisk * in it. The default level is also indicated.

	Access Level	Windows User Groups		
		O-Calc Administrators	All Others	O-Calc Limited
O-Calc Pro User Access Levels	Limited	*	*	* (default)
	Normal	* (default)	* (default)	*
	Administrative	*		

O-Calc Administrators and *O-Calc Limited* are the names of the actual Windows User Groups that need to be created to grant or limit privileges. When placing users into specific security groups they need to log off and then log back onto their computers to ensure the proper security group settings are enabled.

O-Calc® Pro User Level Definitions

O-Calc® Pro offers three different user levels: normal, limited and administrative. These levels allow companies to grant or restrict access to individual features within O-Calc® Pro. Below is a brief description of each user level.

- ***Limited*** – Restricts access to certain attributes and operations that if changed could gravely affect the data within O-Calc® Pro. Placing a user at the Limited level is intended to support training, inexperienced users and untrained data entry personnel.
- ***Normal*** – This is the default user level. All attributes except those in sealed Load Cases can be edited at this level. At this level the user can also unseal Load Cases and manipulate the Catalog items. The user will not be able to manipulate the Master Catalog directly.
- ***Administrative*** – Users at this level have access to all the features within O-Calc® Pro including the option to manipulate Catalogs, re-seal Load Cases and edit read only attributes.

Note: *If a user is in both* ***O-Calc Administrators*** *and* ***O-Calc Limited*** *groups, they will be considered a member of the O-Calc Administrators group.*

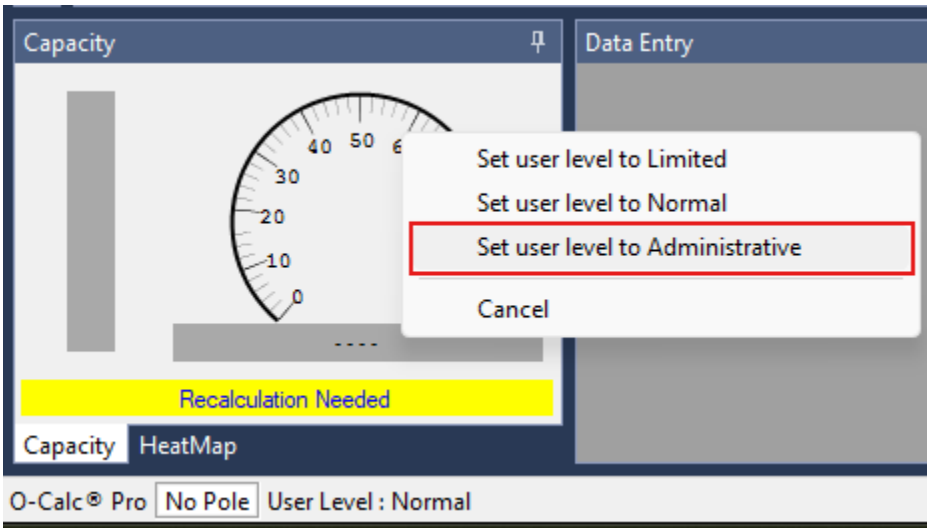
Administrative User Level

This tool allows the user to control certain O-Calc® Pro settings only accessible to advanced O-Calc® Pro users with administrative privileges. Below are the steps to activate administrative mode for qualified users.

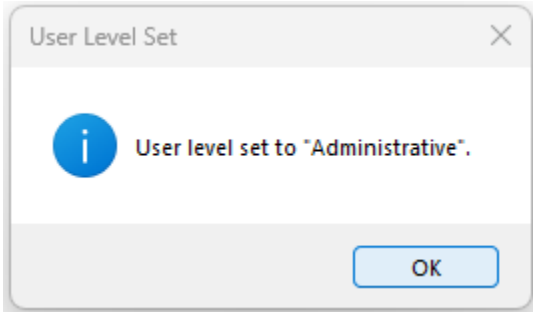
©2025 Osmose Utilities Services, Inc.

With the user level set to Administrative you can see the Administrative Settings menu option under the Tools menu otherwise it is not displayed.

1. In the lower left of the O-Calc® Pro application is the user level designation, typically set to 'Normal', **click** on the **User Level: Normal** button. In the Set user level menu click the **Set user level to Administrative** option.



2. In the **User Level Set** informational message window, click **OK**.

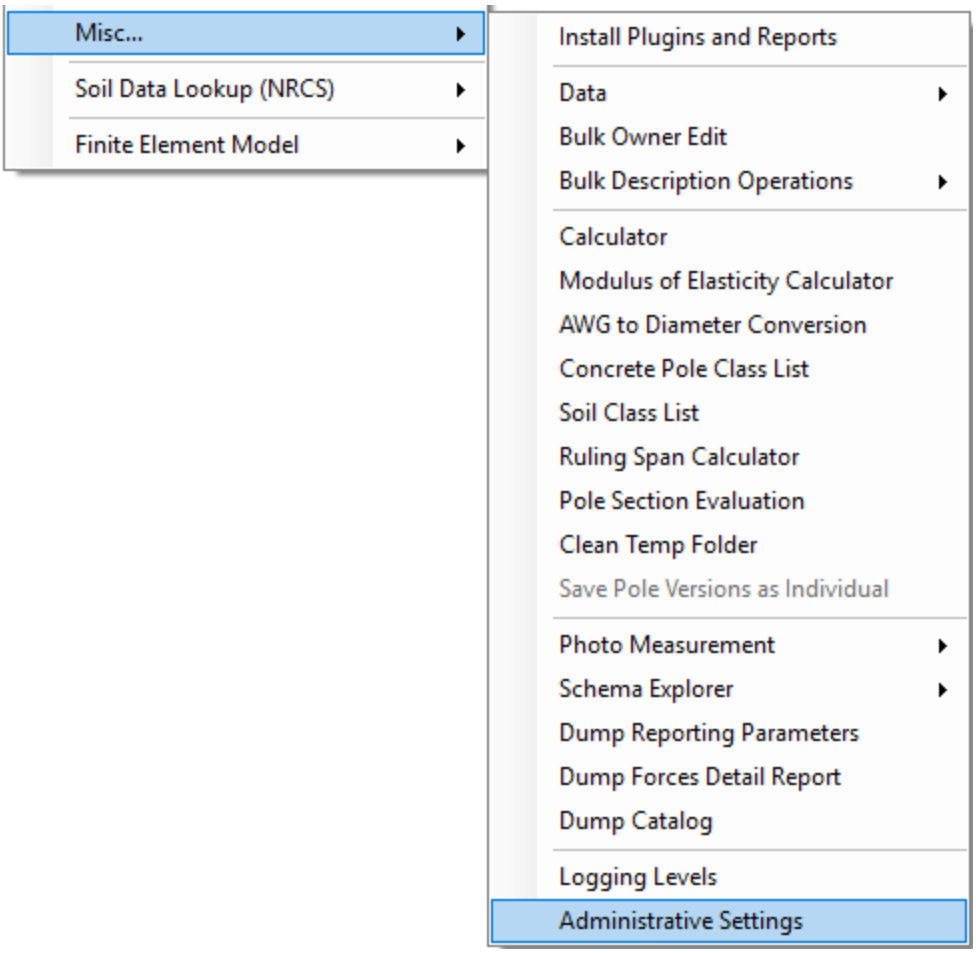


3. In the lower left of the O-Calc® Pro application see **User Level: Administrative**.

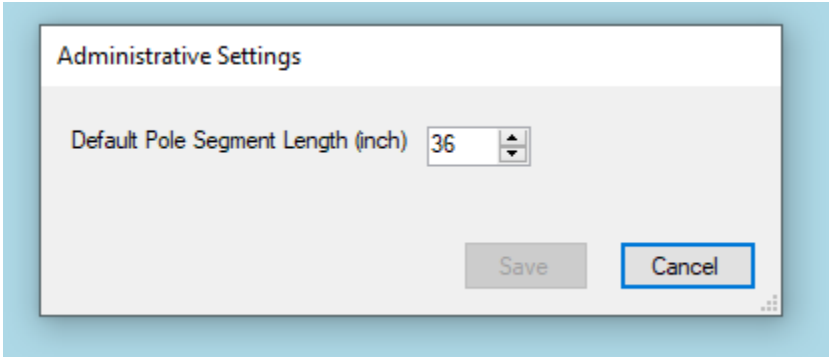
Using the Administrative Settings Feature

To access Administrative Settings go to Tools>Misc> Administrative Settings from the main toolbar at the top left of the application.

©2025 Osmose Utilities Services, Inc.

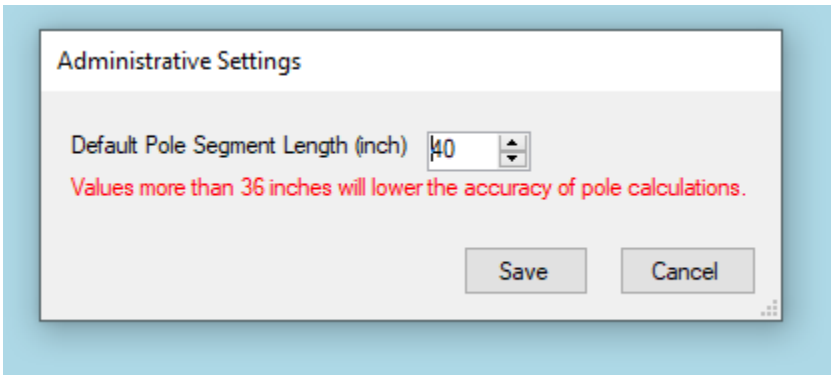


The **Administrative Settings** window opens with the option to select a Default Pole Segment Length (inch).

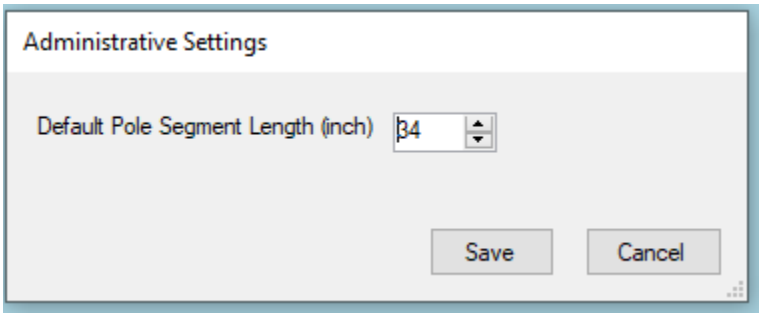


You can change the Default Pole Segment Length used by the O-Calc® Pro finite element analysis calculations. You may want to increase or decrease this value to adjust the resolution of the finite element model of the pole being calculated.

©2025 Osmose Utilities Services, Inc.

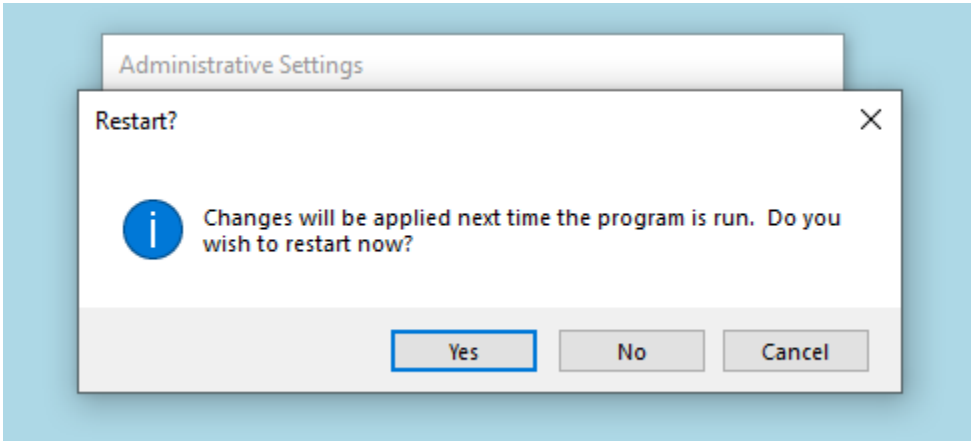


Increasing the value decreases the number of elements used per model, thus lowering the definition of the analysis and potentially lowering the accuracy of the analysis, with the tradeoff being a quicker calculation time.



Decreasing the value in the dialog has the opposite effect, increasing the number of elements in the analysis. This results in a higher resolution calculation which may be more accurate at the cost of being less time performant.

To save any changes to the Administrative Settings O-Calc® Pro will have to be restarted.



©2025 Osmose Utilities Services, Inc.

Development Information

Retrieving Reference Information

O-Calc® Pro contains several reports containing reference information. Catalog and schema information is provided for developers. Details of the values available to the reporting system are available for custom report authors. Raw reports of data and calculated forces are all available to assist in the understanding of pole loading.

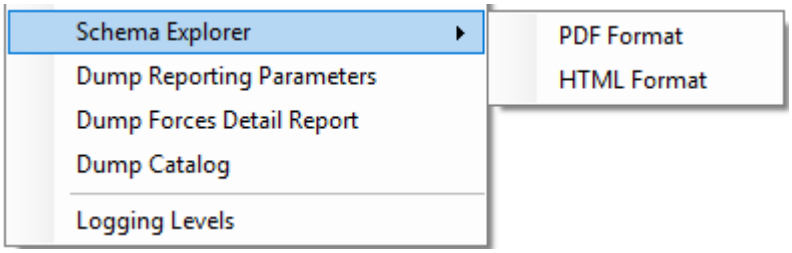
These utilities are intended for software and report architects and as such they are of limited use to general users.

To access the reference information, complete the following steps:

1. Select **Tools > Misc**.

   There are four reference reports available:

   - Schema Explorer (PDF or HTML Format)
   - Dump Reporting Parameters
   - Dump Forces Detail Report
   - Dump Catalog



2. Select the reference report you would like to run.

Note: *These schemas can be enabled by setting the 'SchemaAndForces' value to try in the registry. The registry path is HKEY_CURRENT_USER>Software>PPL>Dump.*

Creating Custom Loading Districts

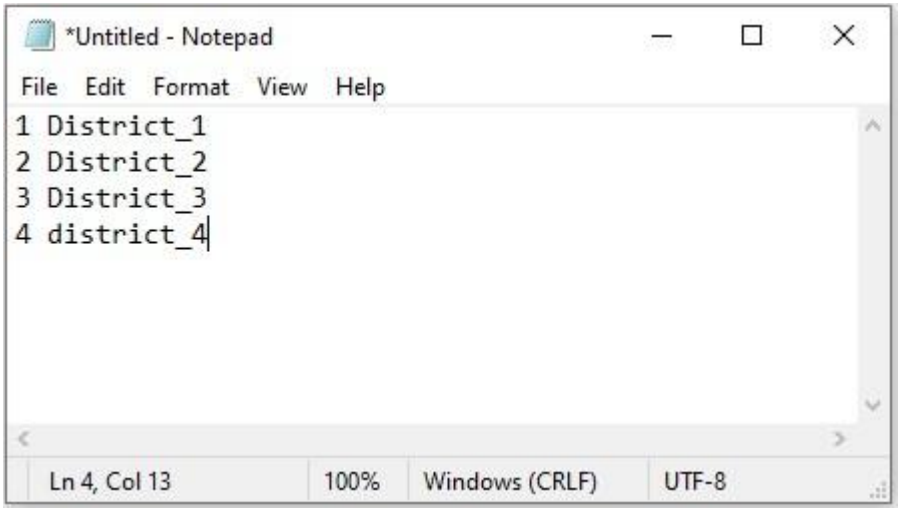
In certain situations, it may be necessary to use custom loading districts within the O-Calc® Pro application. Creating a custom loading district file replaces the O-Calc® Pro default loading district values. If you need any of the default loading district values, you must manually add them to your custom loading district file.

Load Cases that are currently used in the O-Calc® Pro default loading districts cannot be overwritten when a custom loading district file is created. If you need pre-existing loading districts changed you must manually edit these Load Cases. A Load Case district can only be changed in an unsealed Load Case.

To create a custom loading district file, complete the following steps:

1. Open **Notepad**.

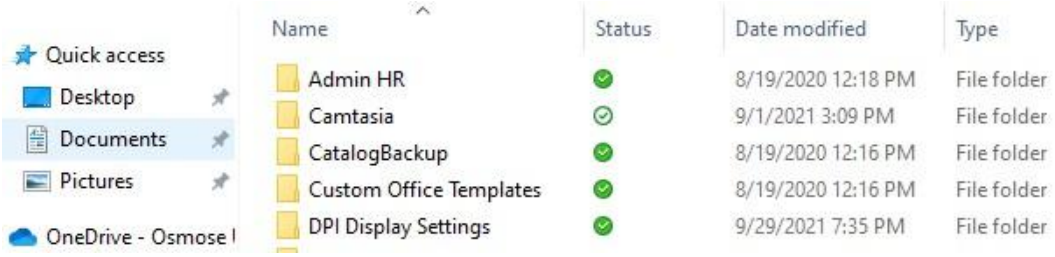
2. **Create a list** within Notepad of the custom loading districts.



3. Select **File > Save**.
4. **Save in** \Documents and Settings\All Users\Application Data\OsmosePPL.

Note: *Read and write permission will be needed to the OsmosePPL directory. This directory can also be accessed by selecting Help>Folders>All Users Root Folder from within O-Calc® Pro.*

5. Enter the **File name** as "***customloadingdistricts.txt***".



Note: *Once the customloadingdistricts.txt file has been created and saved to the correct location the OCalc® Pro application will automatically utilize this file. O-Calc® Pro will need to be restarted for the changes to take effect.*

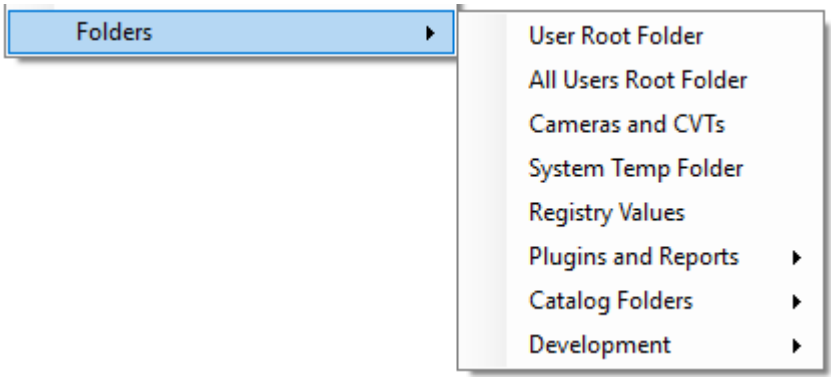
Note: *To restore the default loading district values simply remove the customloadingdistricts.txt file from the OsmosePPL directory. O-Calc® Pro will need to be restarted for the changes to take effect.*

©2025 Osmose Utilities Services, Inc.

Locating O-Calc® Pro Folders

To easily access O-Calc ® Pro user and common folders, complete these steps:

1. Go to the **Help** menu, select the **Folders** option, **click on the folder** you need.



Working with Catalog Backups

Each time changes are made to a catalog a backup of the catalog is automatically created when the current session is closed. O-Calc ® Pro retains up to 10 backups of each catalog, automatically deleting the oldest as new ones are created. By retaining a backup of each time, the catalog(s) are changed by session it allows you to revert to a previous catalog in case a change was done in error.

Backups of the catalogs are easily accessible from within the O-Calc ® Pro application. The backups are in a **Catalog Backup** folder wherever catalog files are located.

Some of your catalog backup files can quickly be located using the links under the **Help > Folders** > **User Root Folder**.

Each catalog backup file provides the date and time that the backup file was created right in the file name.

(Catalog Name).pplc.02_12_2016_08_03_18.Backup

Catalog Name Date Time

To revert to a previous version of a catalog, complete the following steps:

Note: *The steps below are for reverting to a previous catalog.*

1. Open the **catalog folder** that has the catalog that you need to revert.
2. Open the **Catalog Backup** folder.
3. Select and **copy the backup file** you need to revert to.
4. Edit (open) the **Catalog Data Path** that your current catalog resides in (the one you want to replace).

Note: *The Catalog's Data Path is in the Catalog Configuration window. The Catalog Configuration window can be accessed by opening* ***Tools > Catalog Maintenance > Configure Catalogs****.*

5. **Rename** the catalog that resides in this folder.

6. **Copy** the Catalog Backup file you copies in step 4.
7. **Edit** the catalogs name by removing the Date, Time and the word Backup.
8. O-Calc® Pro application will need to be **closed and reopened** before the change will take effect.

Catalog Maintenance Mode

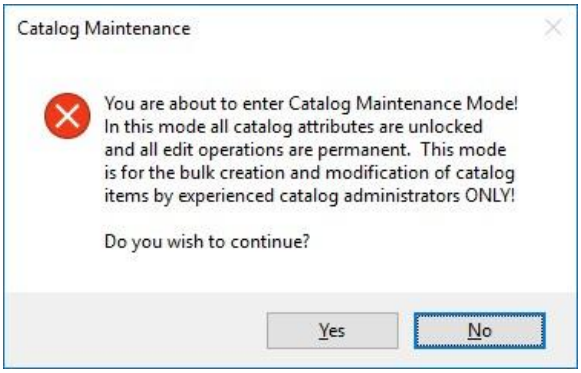
O-Calc® Pro provides a Catalog Maintenance Mode that enables administrators to complete modifications within a catalog. The Catalog Maintenance Mode allows anyone with administrative privileges to have full editing capabilities to all catalogs. All attributes included attributes that are normally un-editable can be edited in this mode. This mode should only be accessed by the most qualified personnel as all changes are permanent once they are saved. When the Catalog Maintenance Mode is activated, only modifications within the Catalog panel are permitted. All options within O-Calc ® Pro that do not pertain to the Catalog panel are disabled until you have exited the Catalog Maintenance Mode.

To use the Catalog Maintenance Mode, complete the following steps:

Note: *Only a person with* ***Administrative privileges*** *can access the Catalog Maintenance Mode.*

1. Close any pole that is opened in the Inventory panel **File > Close Pole**.
2. Select **Tools > Catalog Maintenance > Maintenance (Bulk Edit) Mode**.

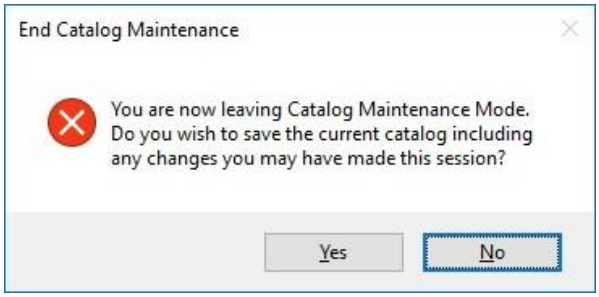
Note: *When the Maintenance Mode is enabled a check mark will display next to the menu option.*



3. Select **Yes** to continue in Catalog Maintenance Mode.

Note: *The Status Bar will turn yellow and clearly indicate that the Catalog Maintenance Mode is active.*

4. Complete your modifications to the catalogs.
5. Deselect the **Tools > Catalog Maintenance > Maintenance Mode** option.



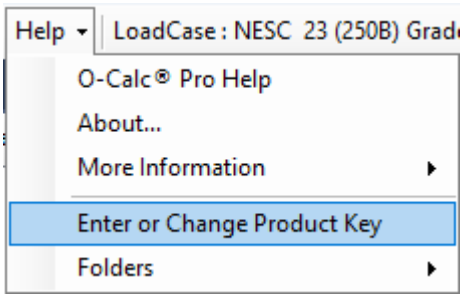
6. Select **Yes** to save your changes.

©2025 Osmose Utilities Services, Inc.

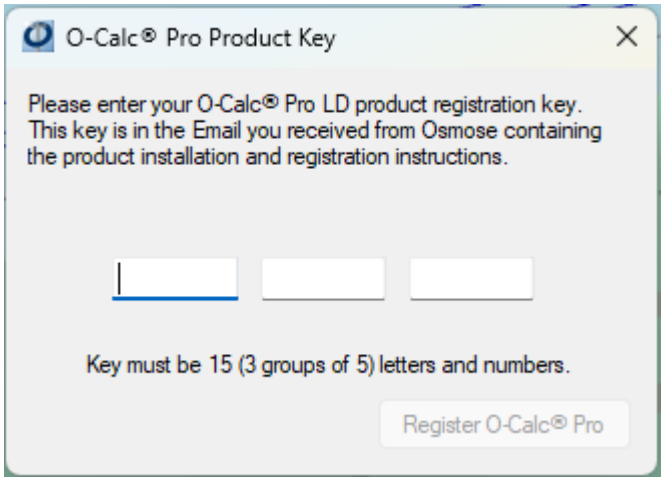
Changing the Product Key

To change the initial Product Registration Key entry, complete the following steps:

1. Open O-Calc ® Pro.
2. Select **Help > Enter or Change Product Key**.



The O-Calc® Pro Product Key window is displayed.

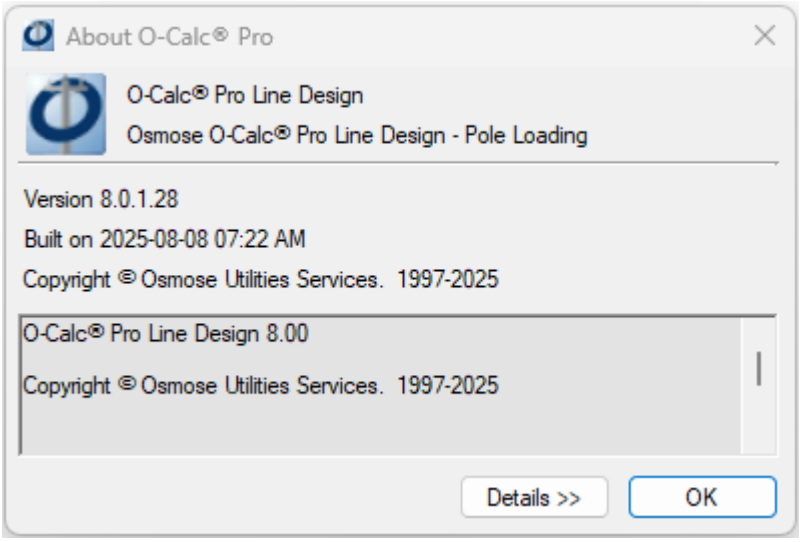


3. Enter or change the **Registration Key Code**. ***Note:*** *The Registration Key Code is not case sensitive.* Click the **Register O-Calc® Pro** button.

To verify the O-Calc® Pro software version and key information installed on your device, complete these steps:

1. Click to open the **Help** menu drop-down list.

2. Select **Help** > click the **About** option.

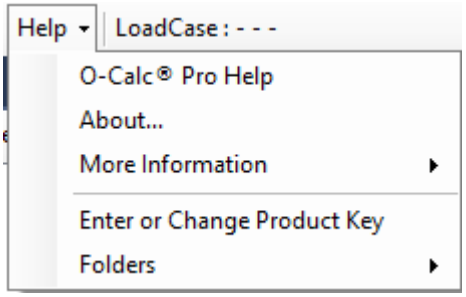


3. Click the **Details >>** button to view the user details or **System Info**.
4. Click **OK** to close the **About O-Calc® Pro** window.

Help Resources

Various resources contain additional information about O-Calc® Pro. These resources can be easily accessed by following these steps:

1. Go to the **Help** menu drop-down list.



2. Select **O-Calc® Pro Help** to access helpful documents and User Manuals at osmose.com/o-calc/help

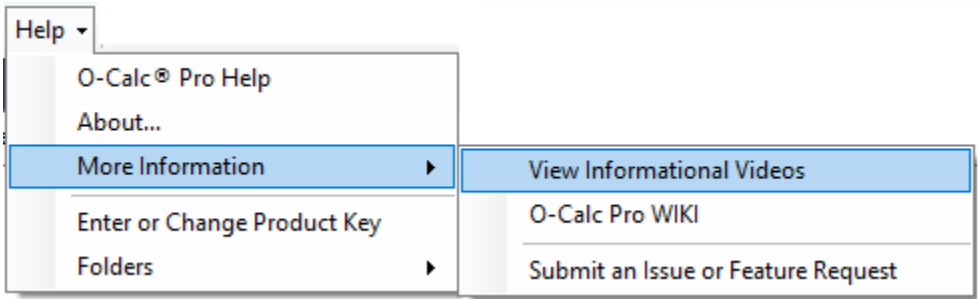
Help Resources available at the site are:

- O-Calc® Pro **8.0 Line Design User Guide** (use for Line Design functionality)
- O-Calc® Pro **Command Bar** (use for help with Command features)
- O-Calc® Pro **8.0 User Guide** (use for O-Calc® Pro functionality, except Line Design)
- **Intro to Custom Reports with Excel** (use to create custom reports with Excel)
- **Html Tags Chart** (use for a list of Html tags with examples)

©2025 Osmose Utilities Services, Inc.

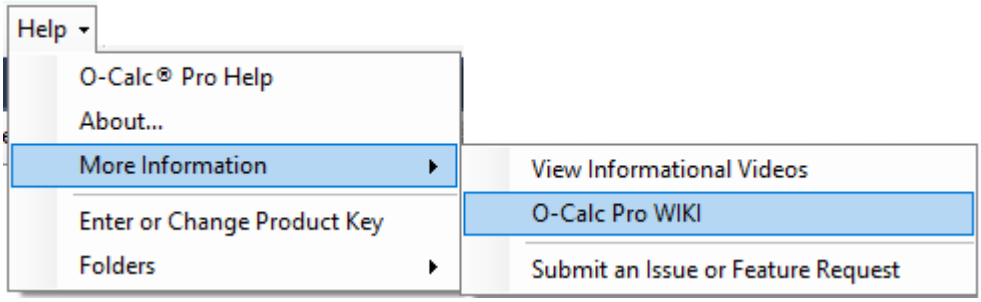
To navigate to 'topic specific' instructional YouTube videos on osmose.com/o-calc/video, complete these steps:

1. Select **Help > More Information** > **View Informational Videos.**



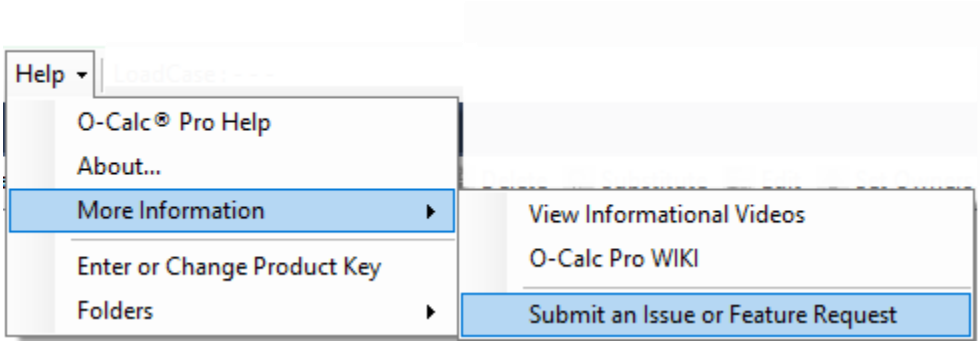
To navigate to 'topic specific' instructional articles on osmose.com/o-calc/wiki, complete these steps:

1. Select **Help** > **More Information** > **O-Calc® Pro WIKI**.



For help with submitting an issue or feature request, complete these steps:

1. Select **Help** > **More Information** > **Submit an Issue or Feature Request**.



3. Complete the online form and click the Submit Request button. Be sure to enter all the applicable information and attach any images, screen shots, and pole (.pplx) files.

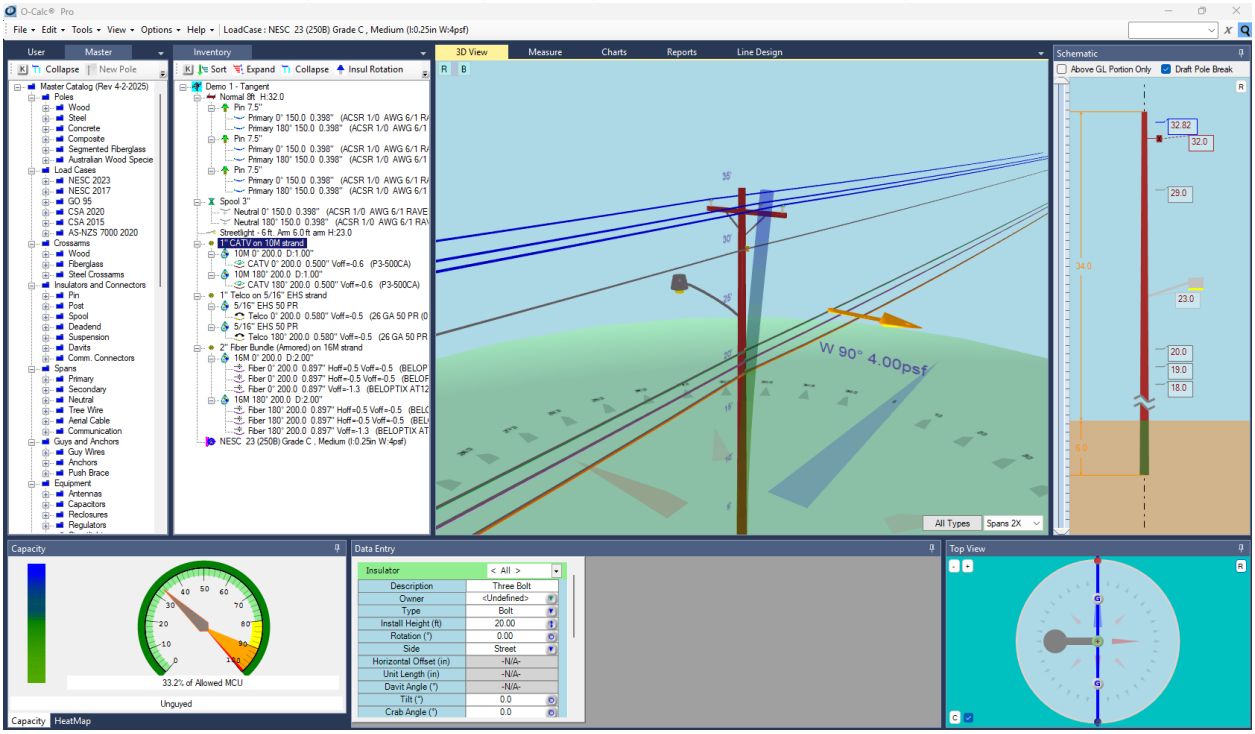
©2025 Osmose Utilities Services, Inc.

Appendix B – Creating a Customized View

Understanding the Default View

Within O-Calc® Pro the default location of the windows can be changed at any time. This allows users to create unlimited screen layouts, which can be saved for future use in the **Named View** dropdown list in the right corner of the Tool Bar menu.

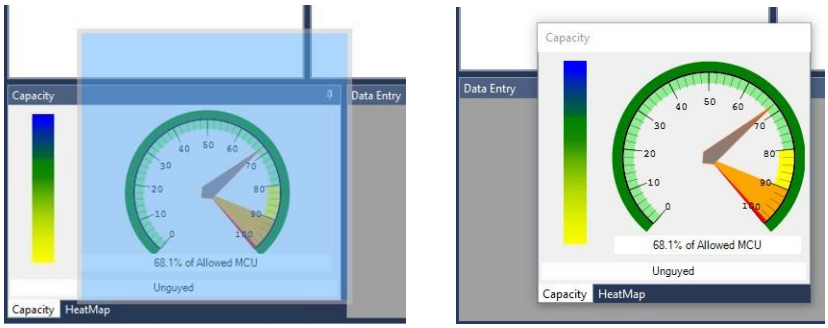
The O-Calc® Pro home page is broken into six panels. Any of the windows within O-Calc® Pro can be moved into any of the six panels based upon user preference. See the seven panels below:



Repositioning Panels

To create a separate window, complete these steps:

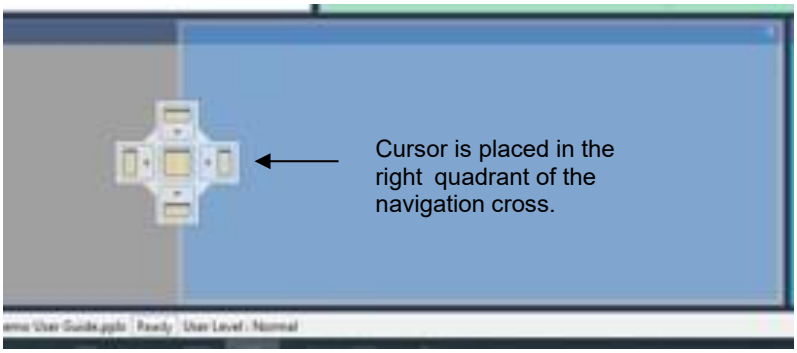
1. Left click on the panel heading, hold and drag the overlaid blue window to the new location (a second monitor or layout location) or release it.



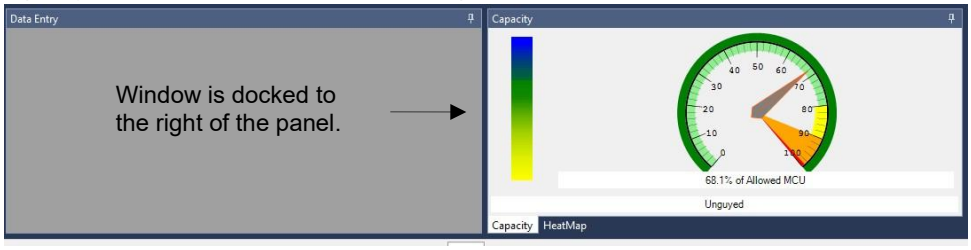
Note: *The separate window can be dragged and dropped on to a second monitor if desired.*

To change the location of any panel, complete these steps:

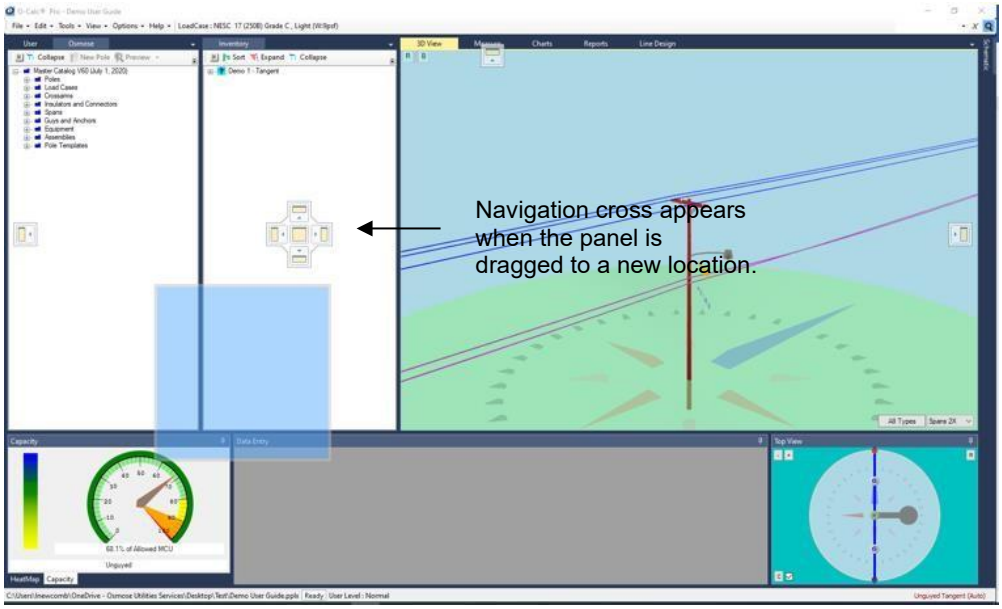
1. Click on the Capacity panel blue ribbon, hold and drag the window (an overlaid blue window appears, and navigation cross appears) to the new location.
2. Place your mouse cursor in the desired docking location within the yellow and white navigation cross and release. The right quadrate docks the Capacity panel to the right, the left docks on the left, the upper docks at the top, and the lower docks at the bottom of the window.



3. Below is the resulting the docking placement within the panel based on the right quadrant location within the navigation cross:



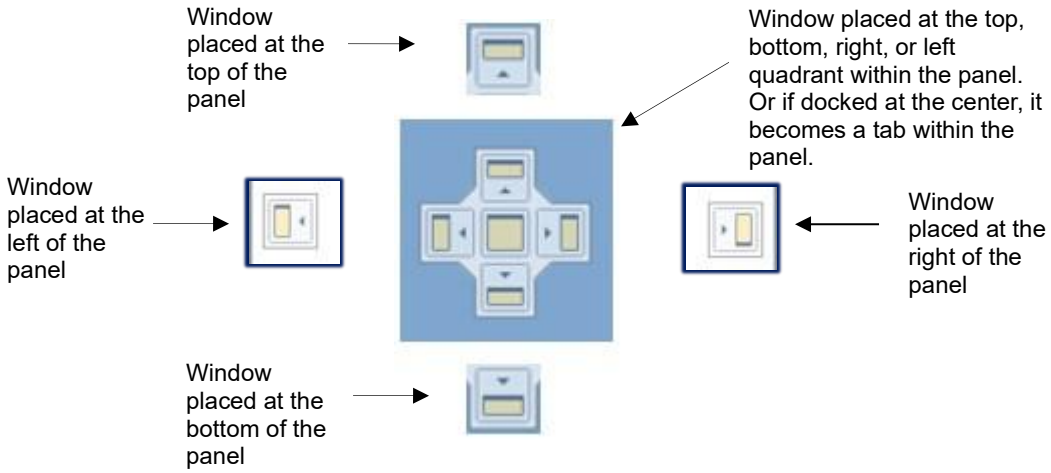
Once the blue overlay window is near the center of a panel or the edge of a panel, the yellow and white navigation cross automatically displays to provide you with the docking options.



©2025 Osmose Utilities Services, Inc.

Note: *Undo is not available. To reset to the Docking Layout to the default view, go to View > Docking Layout > Default.*

These docking placement options using the navigational cross for all quadrants and the center:



Drag the blue overlay window over the navigational cross quadrant that best interprets where you would like the window docked.

When dragging a window over a navigational cross quadrant or center, the blue overlay window will display where the window is be docked within the panel.

Note: *Undo is not available. To reset to the Docking Layout to the default view, go to View > Docking Layout > Default.*

Save a Named View

To save the view that you've created and add it to the Named View list, complete these steps:

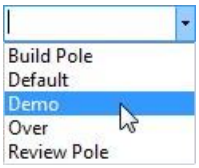
1. Click in the Named View box.
2. Enter a **name**.

3. Press the **Enter** key to save your Named View.
4. The view is automatically added to the list, viewable in the drop-down list.

Delete a Named View

To delete a Named View, complete these steps:

1. Select the view to be deleted from the **Named View** drop-down list.



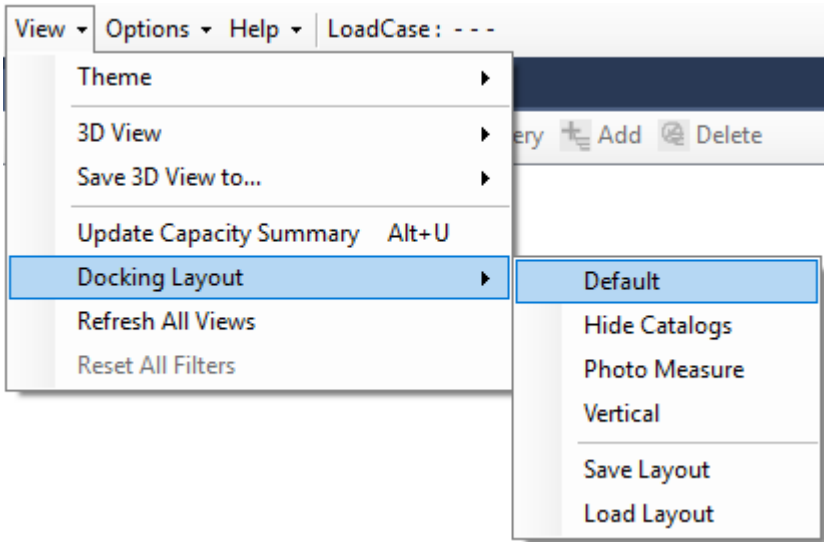
2. Select the **Delete** button next to the **Named View** box.
3. Select **Yes** to the **Delete?** confirmation message.

   Note: *Undo is not available for this operation.*

Return to the Default Docking Layout

To return to the O-Calc® Pro default docking layout, complete these steps:

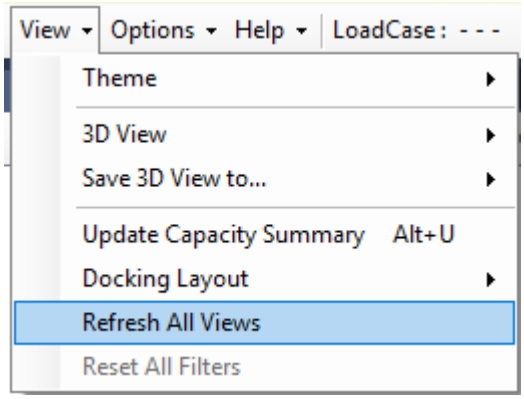
1. Select **View > Docking Layout** > **Default**.



Refresh All Views

To refresh all views, complete these steps:

1. Select **View > Refresh All Views**.

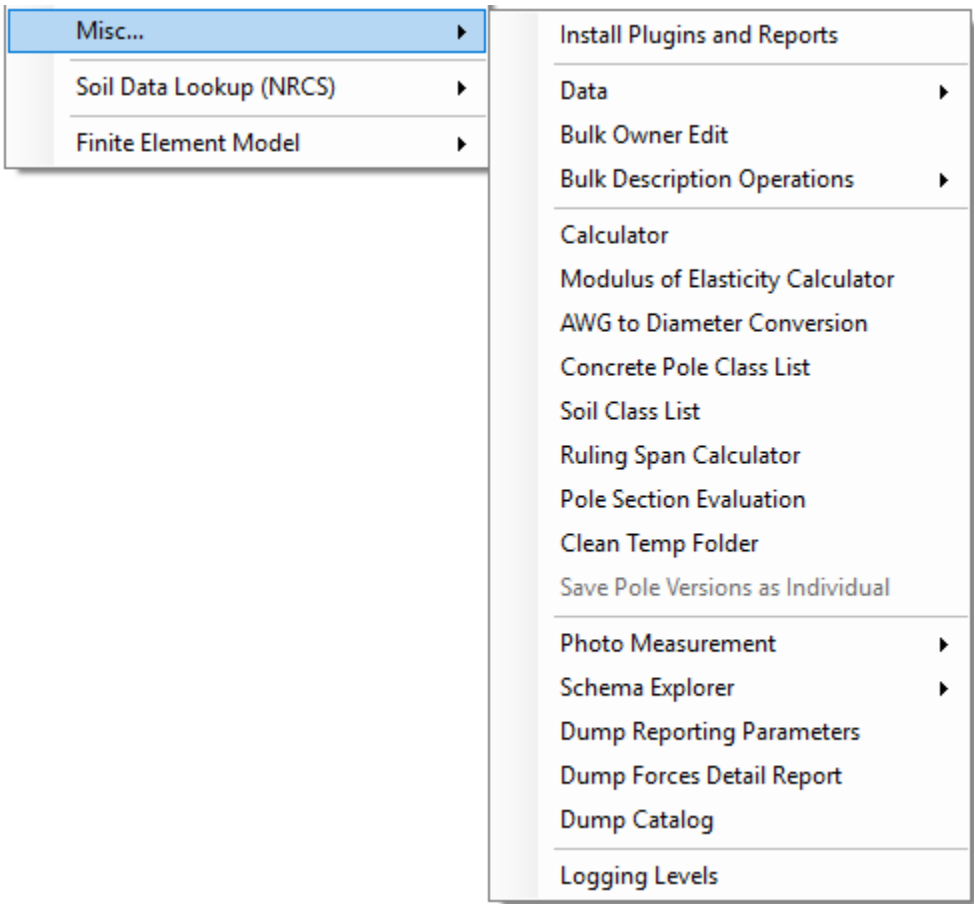


©2025 Osmose Utilities Services, Inc.

Appendix C – Misc. Tools

Within O-Calc® Pro the Tools menu there are additional Misc. Tools available; some tools may be considered advanced user functionality.

Below is the list of Misc. Tools available:

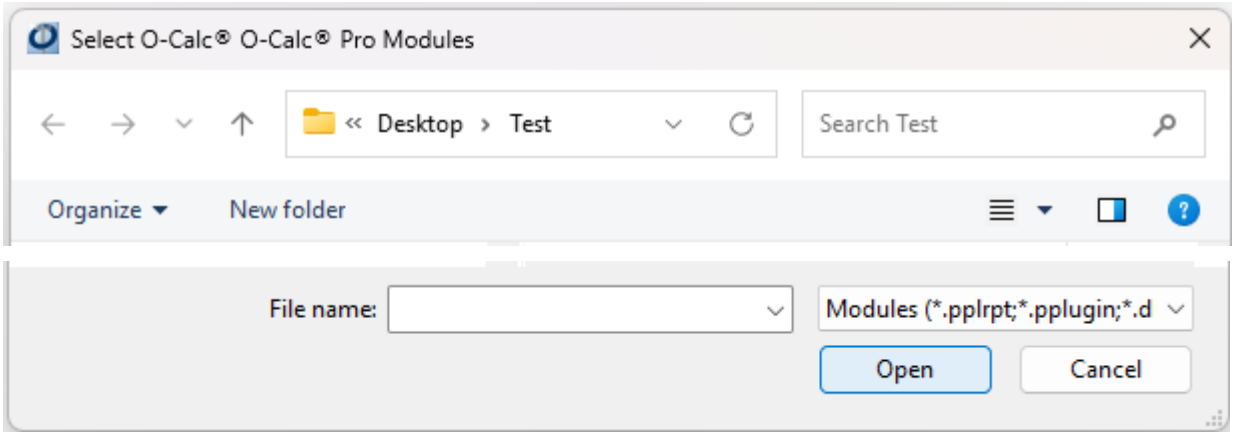


Install Plugins and Reports

To initiate owner edits for O-Calc ® Pro Plugins and Reports within a single window, complete these steps:

1. Go to the **Tools** menu, select **Misc.**, click the **Install Plugins and Reports** option.

2. In the **Select O-Calc® Pro Modules** window navigate to the location of the file you need to add, **select the file** and click the **Open** button.

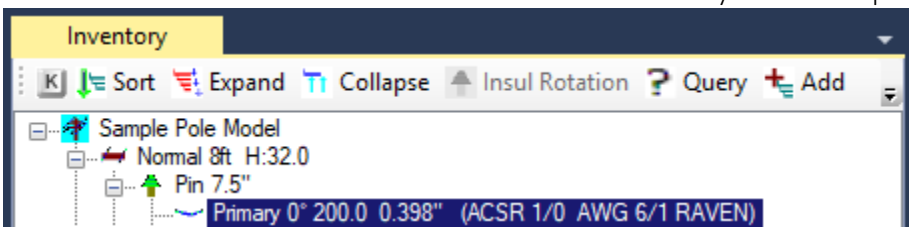


Data

Force Summary of Selection

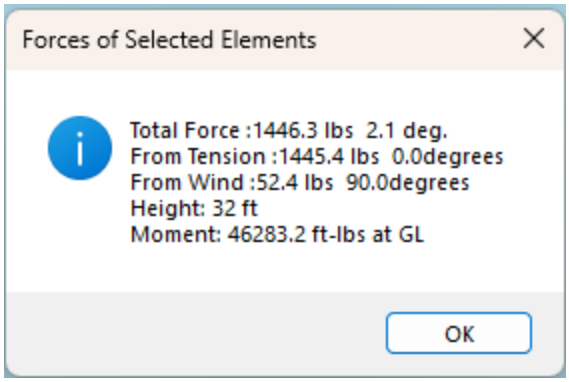
To obtain the **Forces of Selected Elements** data for the selected wire, complete these steps:

1. First select a conductor or wire under tension in the Inventory or 3D View panel.



2. Go to the **Tools** menu, select **Misc**, select **Data**, click the **Force Summary of Selection** option.

3. The **Forces of Selected Elements** window appears with the data, click **OK**.



Fill Moment Table

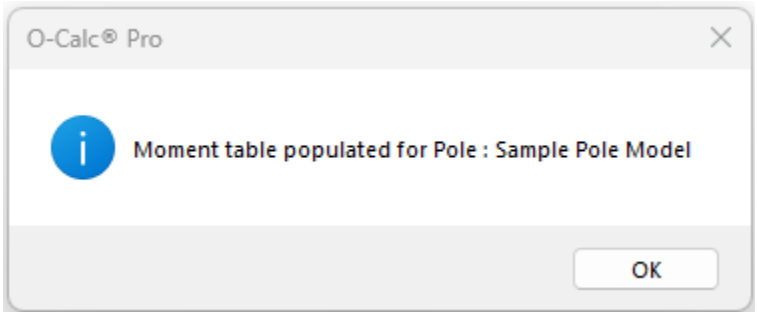
To obtain the **Fill Moment Table** data for the selected pole, complete these steps:

1. First **select the pole** in the Inventory or 3D View panel.

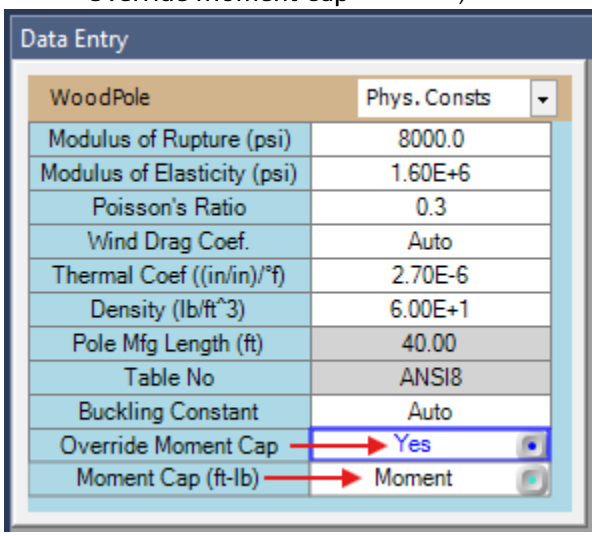
©2025 Osmose Utilities Services, Inc.

2. Go to the **Tools** menu, select **Misc**, select **Data**, and click the **Fill Moment Table** option.

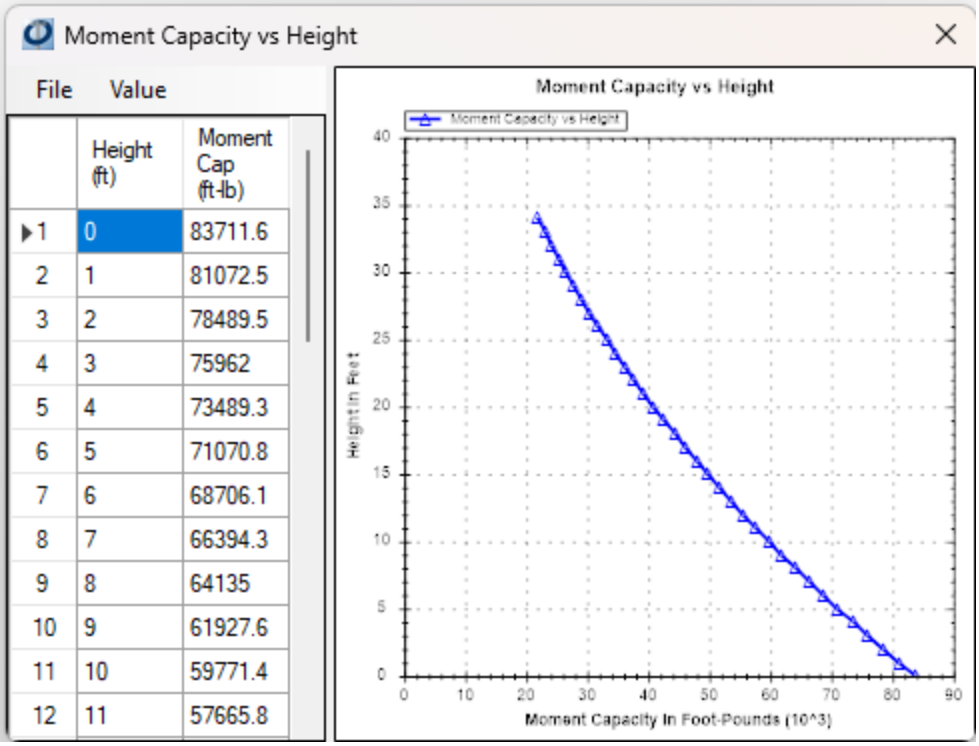
3. The O-Calc® Pro informational message tells you the moment table is populated. Now you can view the **Moment Table** data from the **Data Entry** panel.



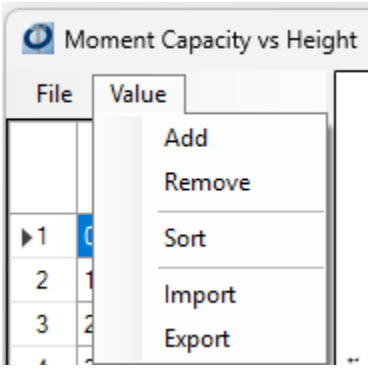
4. Locate the **Override Moment Cap** attribute, click the radio button from No to **Yes**.



5. Click the **Moment Cap (ft-lb)** attribute to view the table.



6. You can click the **File** > **Save** option or click the **Value** tab to **Add, Remove, Sort, Import** and **Export** the **Moment Capacity vs. Height** table.



Working Data Store

The Working Data Store is a digital repository that stores and safeguards the information.

Export Selected Element

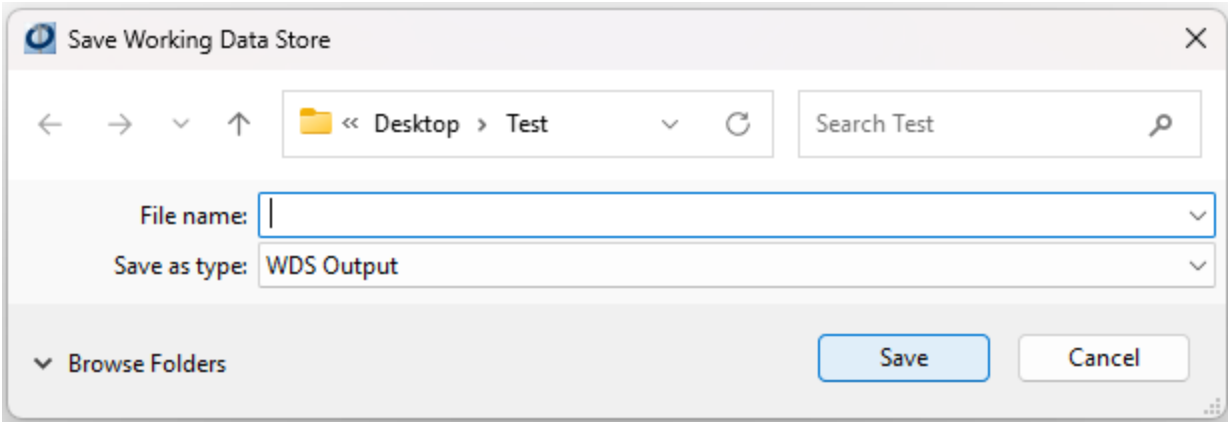
To initiate various data handling operations such as exporting all or selected or elements or deleting working data, complete these steps:

First select the elements in the Inventory or 3D View panel you want to export and complete these steps:

1. Go to the **Tools** menu, select **Misc**, select **Data**, select **Working Data Store**, click the **Export Selected Element** option.

©2025 Osmose Utilities Services, Inc.

2. In the **Save Working Data Store** window, **navigate** to the location you want to export the selected elements to, and click **Save.**

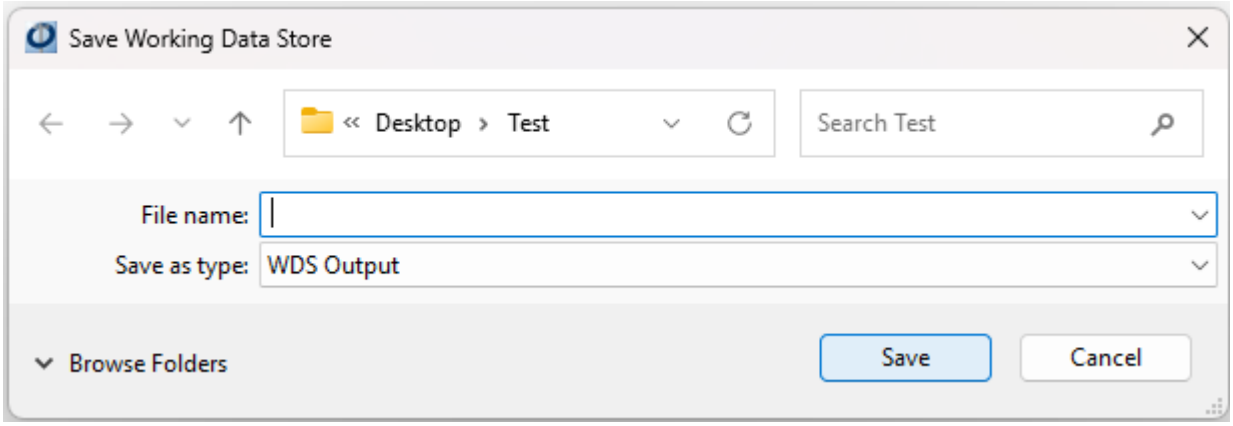


Export All Elements

First select the elements in the Inventory or 3D View panel you want to export and complete these steps:

1. Go to the **Tools** menu, select **Misc**, select **Data**, select **Working Data Store**, click the **Export All Elements** option.

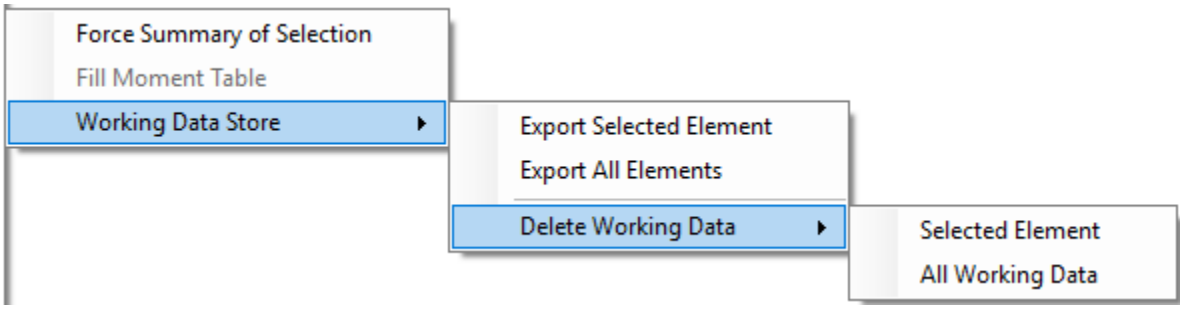
2. In the **Save Working Data Store** window, **navigate** to the location you want to export the selected elements to, and click **Save.**



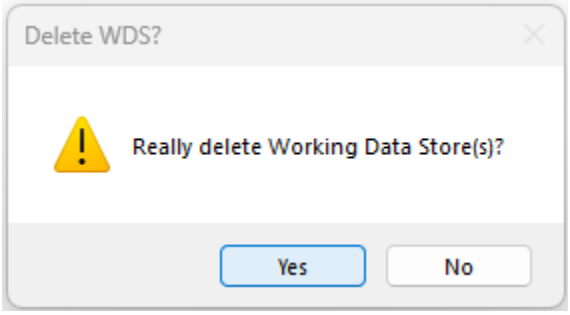
Delete Working Data

First select the elements in the Inventory or 3D View panel you want to delete and complete these steps:

1. Go to the **Tools** menu, select **Misc**, select **Data**, select **Working Data Store**, select **Delete Working Data**, click the **Selected Element** or **All Working Data** option.



2. Click **Yes** to delete the data, there is no undo for this operation.

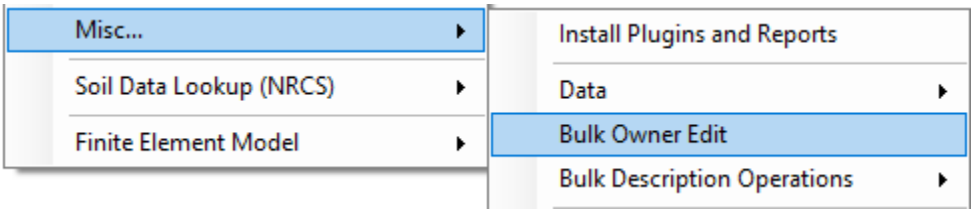


Working with Bulk Edits

Bulk Owner Edit

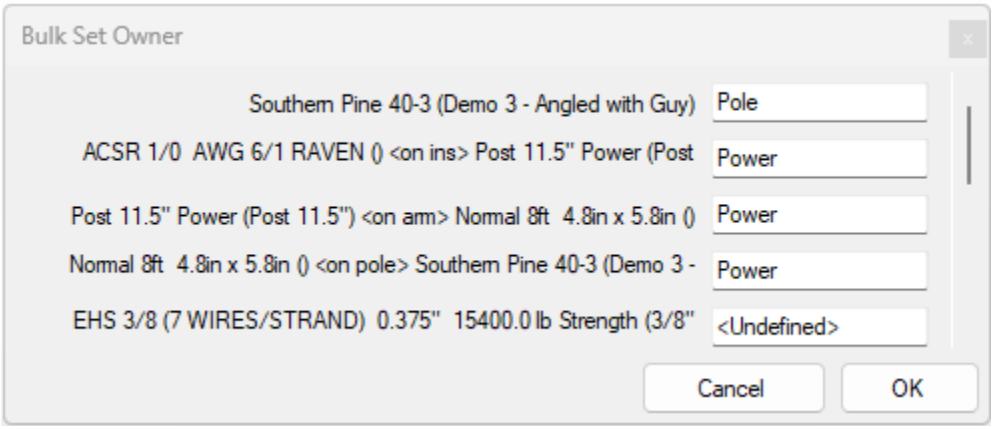
To initiate owner edits for attachments easily within one window, complete these steps:

3. Go to the **Tools** menu, select **Misc.**, click on **Bulk Owner Edit**.



4. In the **Bulk Set Owner** window, enter the needed changes, click **OK**.

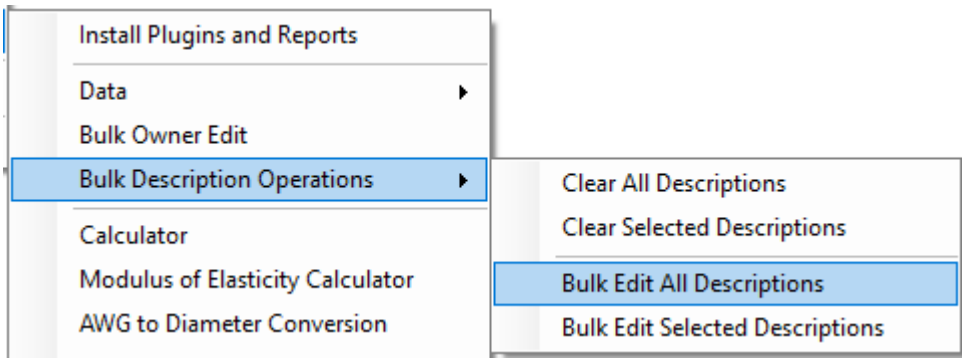
©2025 Osmose Utilities Services, Inc.



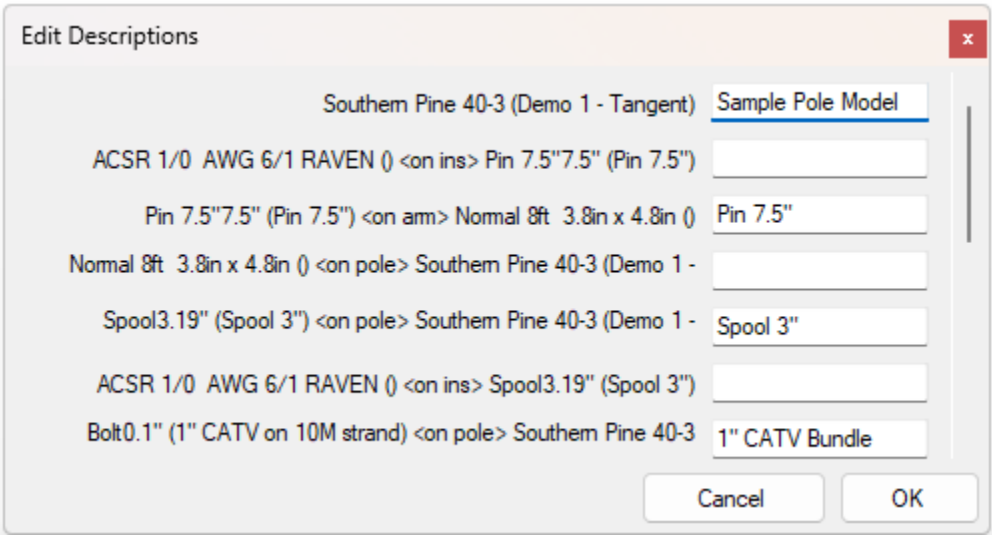
Bulk Description Operations

To initiate description edits for attachments easily within one window, complete these steps:

1. Go to the **Tools** menu, select **Misc.**, select **Bulk Description Operations,** click on the **Bulk Edit All Descriptions** option.



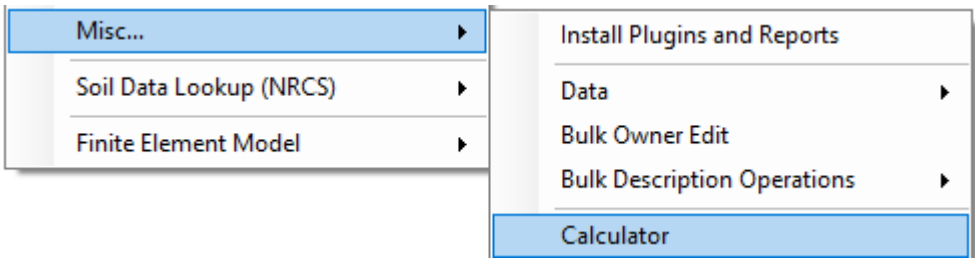
2. In the **Edit Descriptions** window, enter the needed changes, click **OK**.

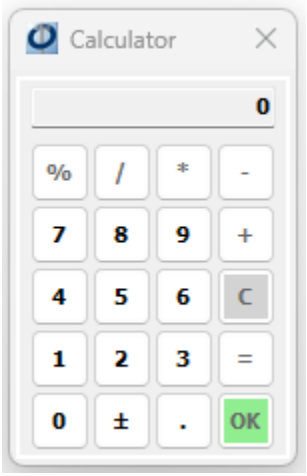


Calculator

A basic calculator is provided to help with simple calculations or conversions. To access the calculator, complete these steps:

1. Go to the **Tools** menu, select **Misc.,** click the **Calculator** option.

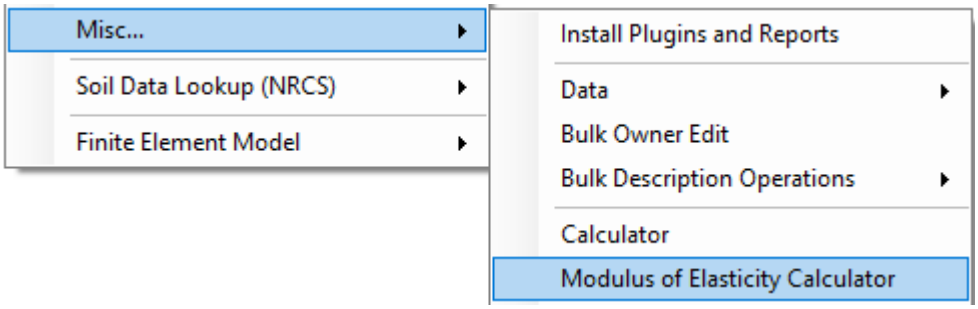




Modulus of Elasticity Calculator

To create a Modulus of Elasticity (MOE) calculation for reference only, complete these steps:

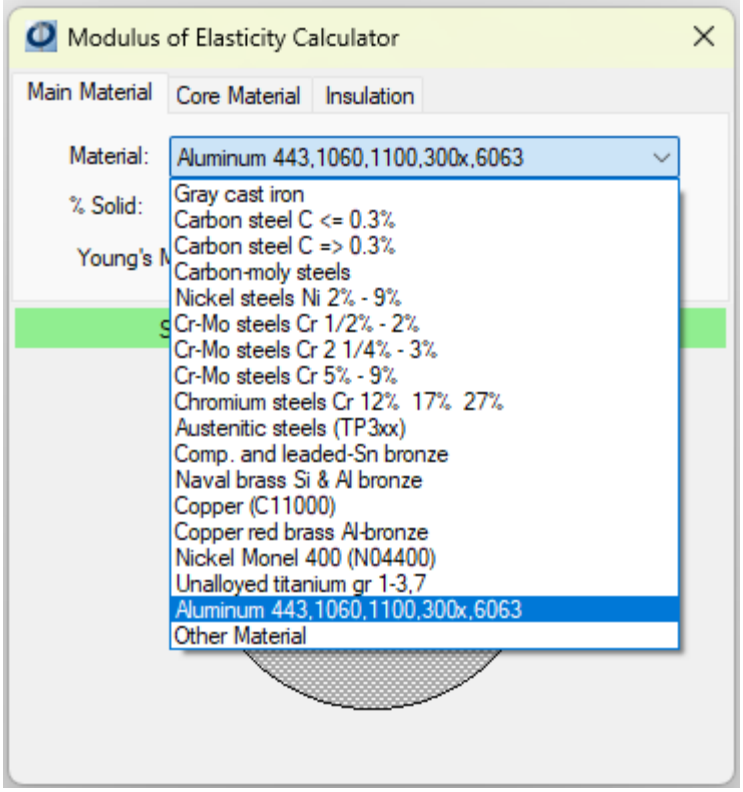
1. Select **Tools >Misc. > Modulus of Elasticity Calculator**.



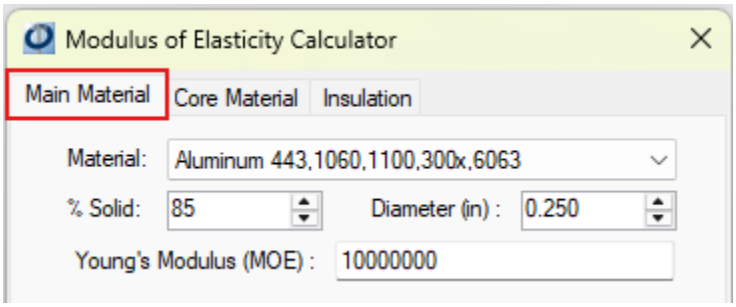
Note: *A pole does not need to be added to the Inventory panel to use the Modulus of Elasticity Calculator.*

2. In the **Main Material** Tab, Select the **Material** from the drop-down list.

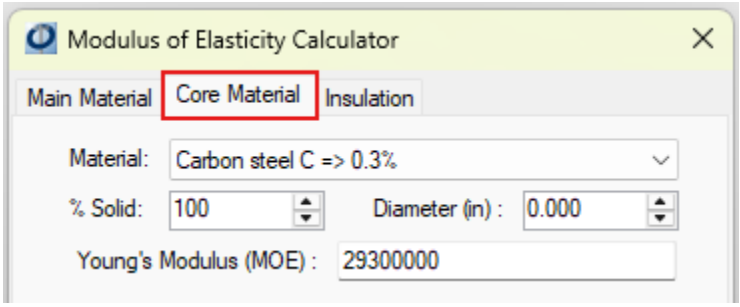
©2025 Osmose Utilities Services, Inc.



3. Enter a value for % Solid, Diameter, and Young's Modulus.



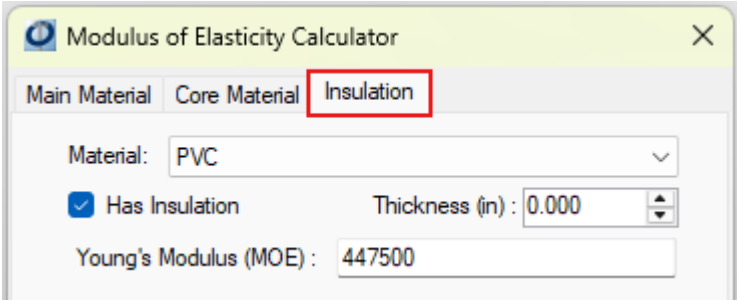
4. In the Core Material tab, enter a value for % Solid, Diameter, and Young's Modulus (MOE).



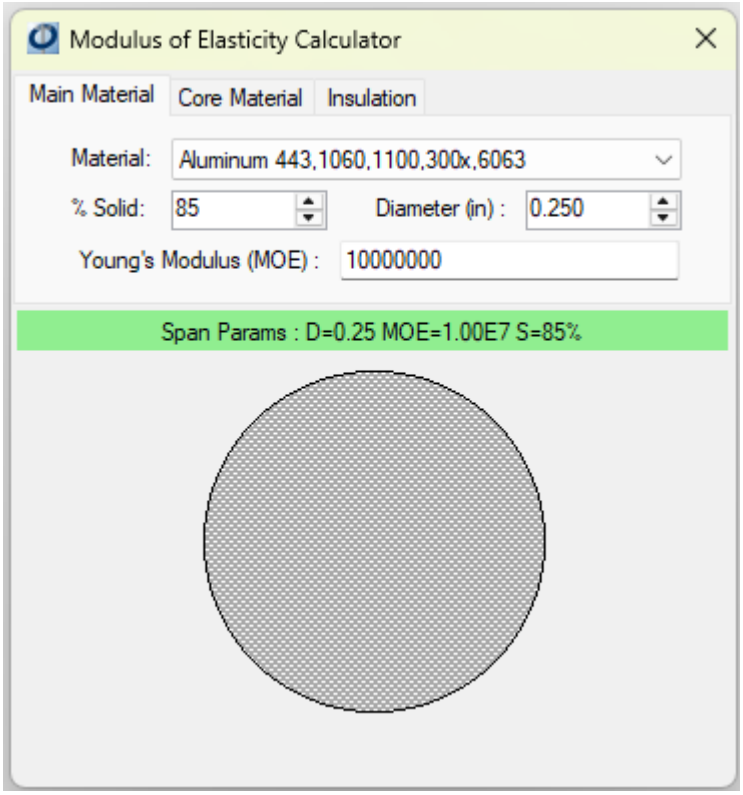
5. In the **Insulation** Tab, Select the **Material** from the drop-down list.

   - Enter a value for Thickness, Young's Modulus

- Check the box if Insulation is present



Results: Modulus of Elasticity (MOE) Calculator is automatically calculated. Select the 'X' to close.



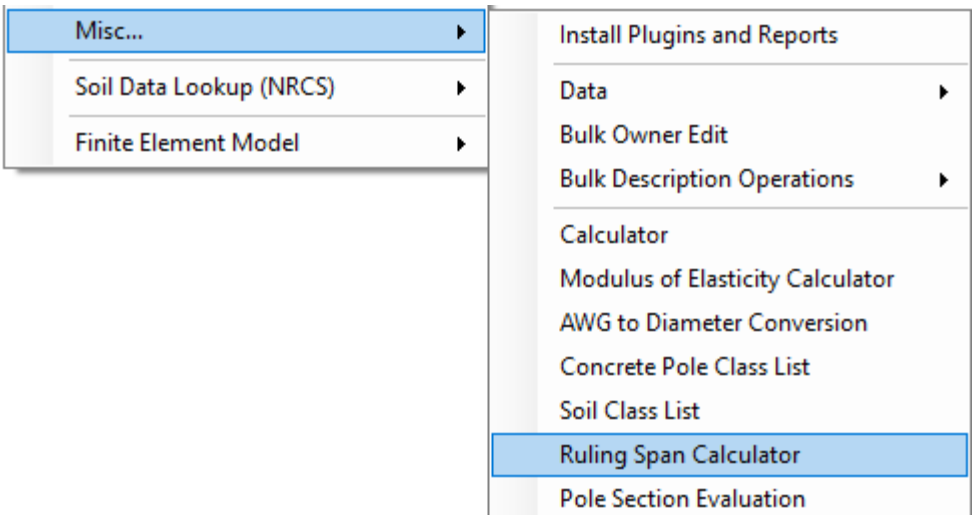
Note: *The Modulus of Elasticity Calculation cannot be applied to a currently loaded pole. This calculation is for reference only.*

Ruling Span Calculator

To calculate the ruling span for reference only, complete these steps:

1. Select more than one span in the Inventory panel or 3D View.
2. Select **Tools > Misc. > Ruling Span Calculator**.

©2025 Osmose Utilities Services, Inc.



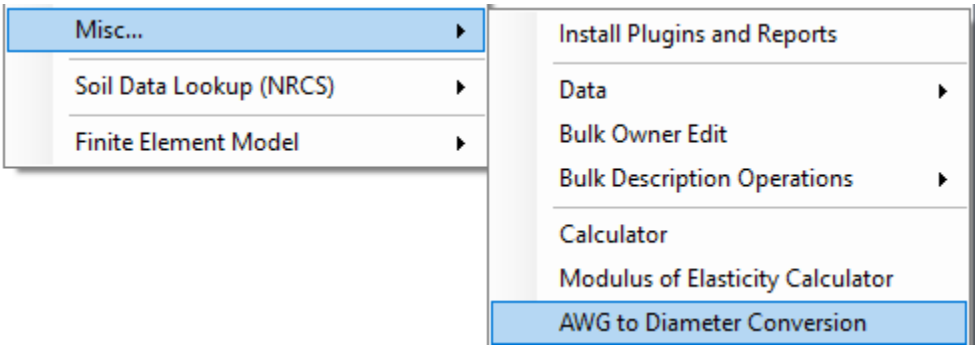
Note: *The Ruling Span Calculation cannot be applied to the currently loaded pole. This calculation is for reference only.*

3. Select **OK** to close the window.

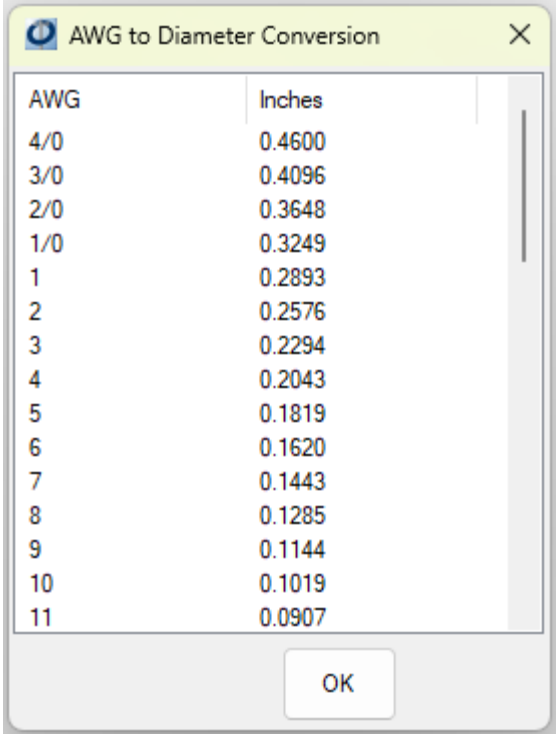
AWG to Diameter Conversion

To display the AWG to Diameter conversions, complete these steps:

1. Select **Tools > Misc. > AWG to Diameter Conversion**.



Note: *A pole does not need to be added to the Inventory panel to display the AWG to Diameter Conversion window.*

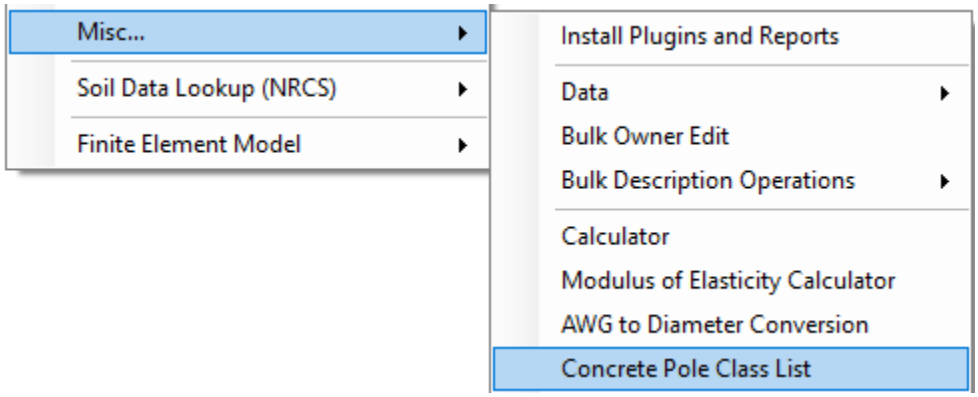


2. Select **OK** to close the window.

Concrete Pole Class List

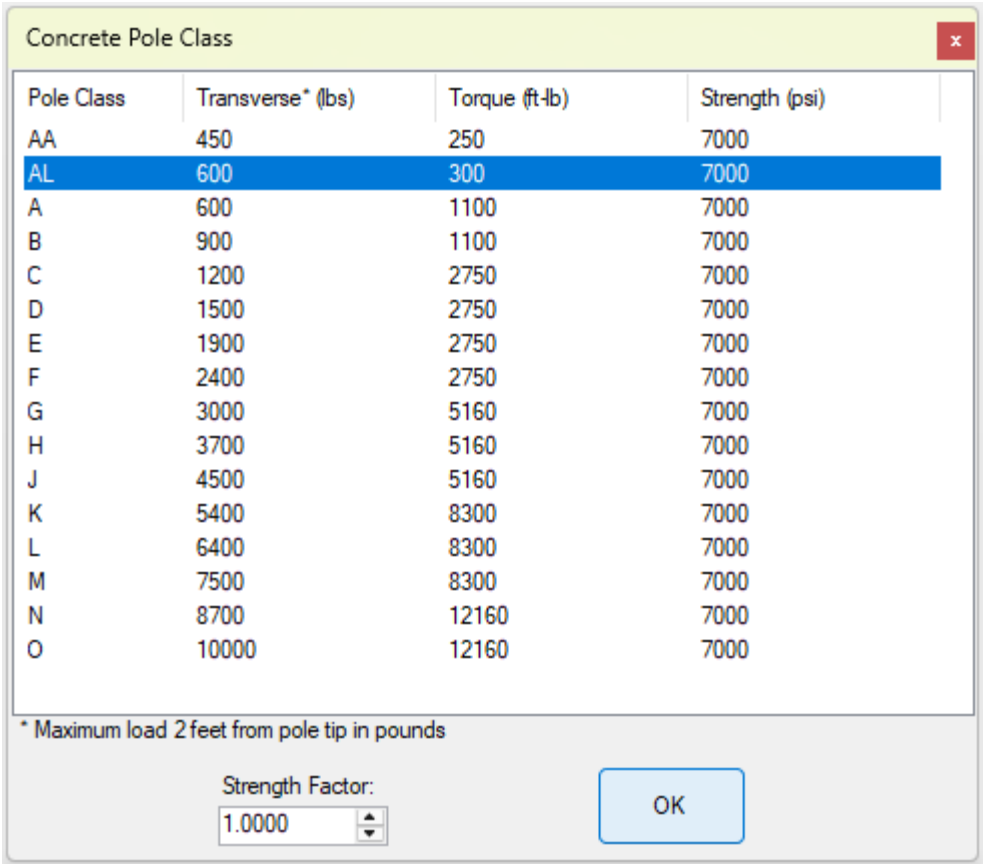
To view the list of Concrete Pole Classes, for reference only, complete these steps:

1. Go to the **Tools** menu, select **Misc.**, click on **Concrete Pole Class List**.



2. Adjust the **Strength Factor**, click **OK**, close the window using the '**X**' in upper right corner.

©2025 Osmose Utilities Services, Inc.



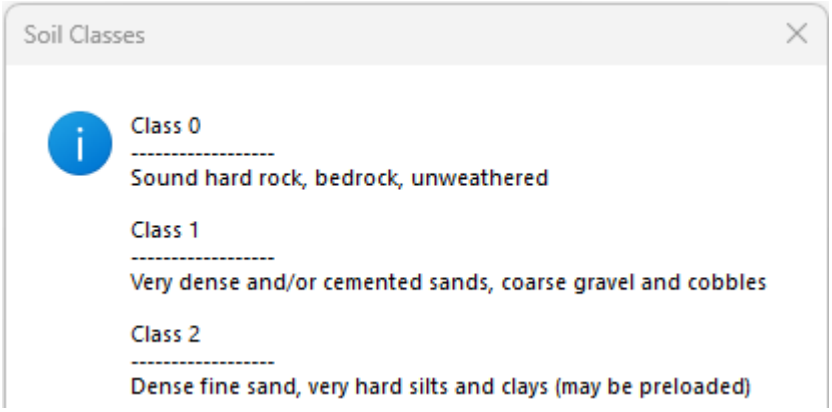
Note: *A pole does not need to be loaded in the Inventory panel to display the Concrete Pole Class List window.*

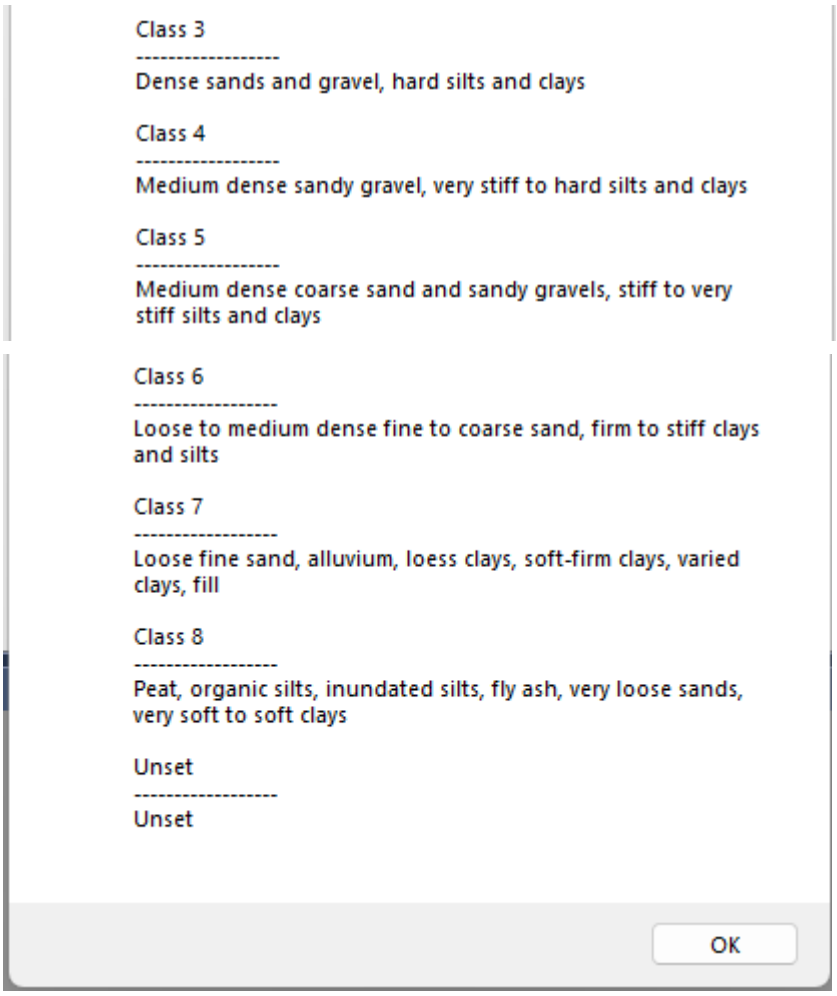
Working with Soil and Overturn

Soil Class List

To view the list of Soil Classes, for reference only, complete these steps:

1. Go to the **Tools** menu, select **Misc.**, click on **Soil Class List**.





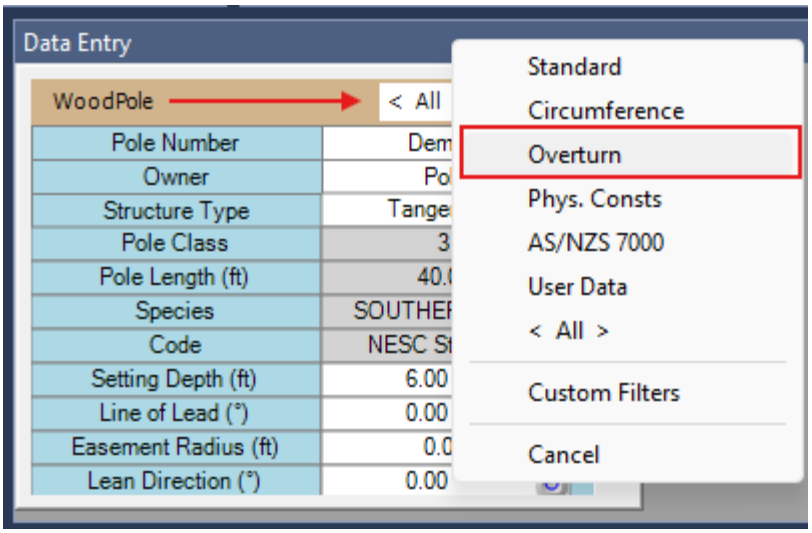
RUS-based Overturn Moment Calculation

The RUS method (RUS Bulletin 1724E-200) will take into consideration pole length, setting depth, and soil type. The user will have the option to change the soil classification based on local known conditions and/or field data. The tool will automatically fill in the overturn moment value and the O-Calc® Pro calculation engine will flag the pole if overturn is a limiting factor for the pole model. This functionality is in support of the CPUC GO95 Rule 94.11 (pole overturning calculation).

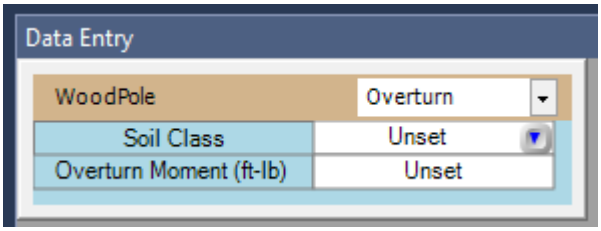
To enable the RUS-based overturn moment feature, complete these steps:

1. Select the pole from your 3D view or Inventory panel.
2. In the **Data Entry** panel, change the filter to the **Overturn** option.

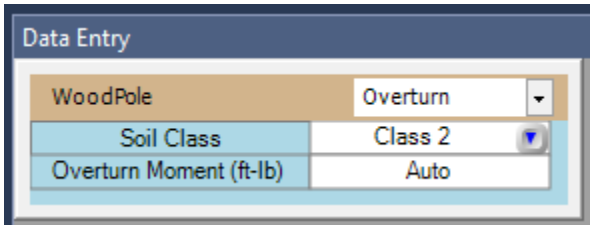
©2025 Osmose Utilities Services, Inc.

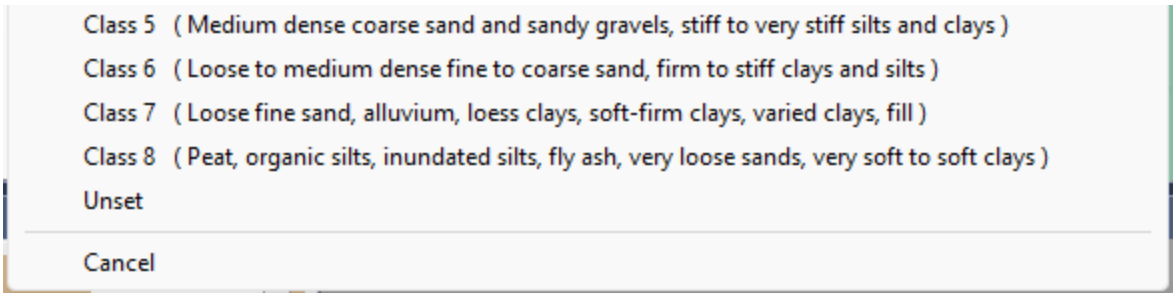


3. The **Overturn** filter displays the **Soil Class** and Overturn Moment (ft-lb) value, after you select a soil class. No overturn moment value is calculated for the **Unset** default option. Unset means that O-Calc® Pro considers the pole as 'rigidly constrained' at groundline.



4. Select a **Soil Class** from the list (shown below) the **Overturn Moment** changes from **Unset** to **Auto.** To view the Overturn Moment value go to page 1 of the Analysis Report.





Below are the nine Soil Classes (0-8), their Descriptions, and Soil Constants as listed by the NRCS (Natural Resources Conservation Service). The soil class number corresponds to a value for the Overturn Moment, referenced in the O-Calc® Pro Analysis Report below.

Class	*Description*	*Soil Constant*
0	Sound hard rock; bedrock; unweathered	140
1	Very dense and/or cemented sands; coarse gravel and cobbles	140
2	Dense fine sand; very hard silts and clays (maybe preloaded)	140
3	Dense sands and gravel; hard silts and clays	70
4	Medium dense sandy gravel; very stiff to hard silts and clays	70
5	Medium dense coarse sand and sandy gravels; stiff to very stiff silts and clays	70
6	Loose to medium dense fine to coarse sand; firm to stiff clays and silts	35
7	Loose fine sand; alluvium; loess clays; soft-firm clays; varied clays; fill	35
8	Peat; organic silts; inundated silts; fly ash; very loose sands; very soft to soft clays	35

1. Verify the Overturn Moment is displayed on page 1 of the **O-Calc® Pro Analysis Report**.

©2025 Osmose Utilities Services, Inc.

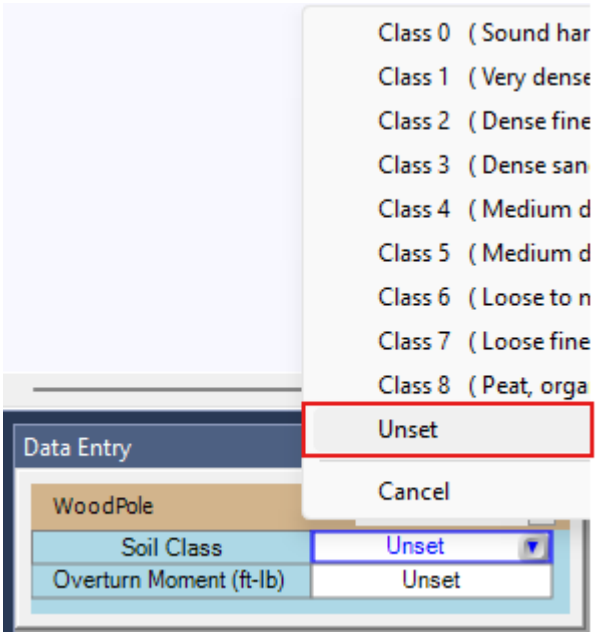
Pole Capacity Utilization (%)		Height (ft)	Wind Angle (deg)
Maximum	24.2	0.0	90.7
Groundline	24.2	0.0	90.7
Vertical	17.4	4.0	90.7

Pole Moments (ft-lb)		Load Angle (deg)	Wind Angle (deg)
Max Cap Util	19,902	90.6	90.7
Groundline	19,902	90.6	90.7
GL Allowable	83,712		
Overturn	109,021		

Deactivate Overturn Moment

To disable the RUS-based overturn moment feature, complete these steps:

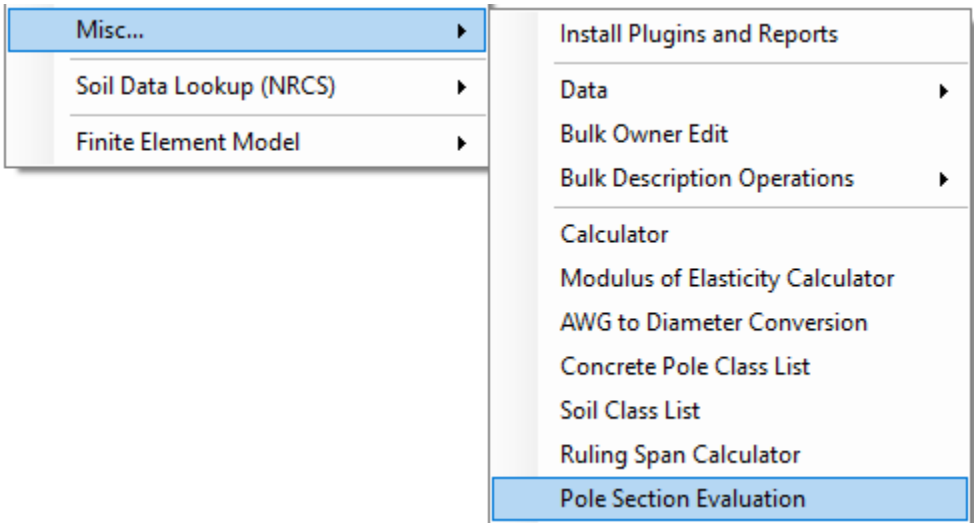
1. Select the pole from your 3D View or Inventory panel.
2. In the Data Entry panel, set the filter to Overturn Moment.
3. Open the Soil Class drop down menu and select the Unset option.



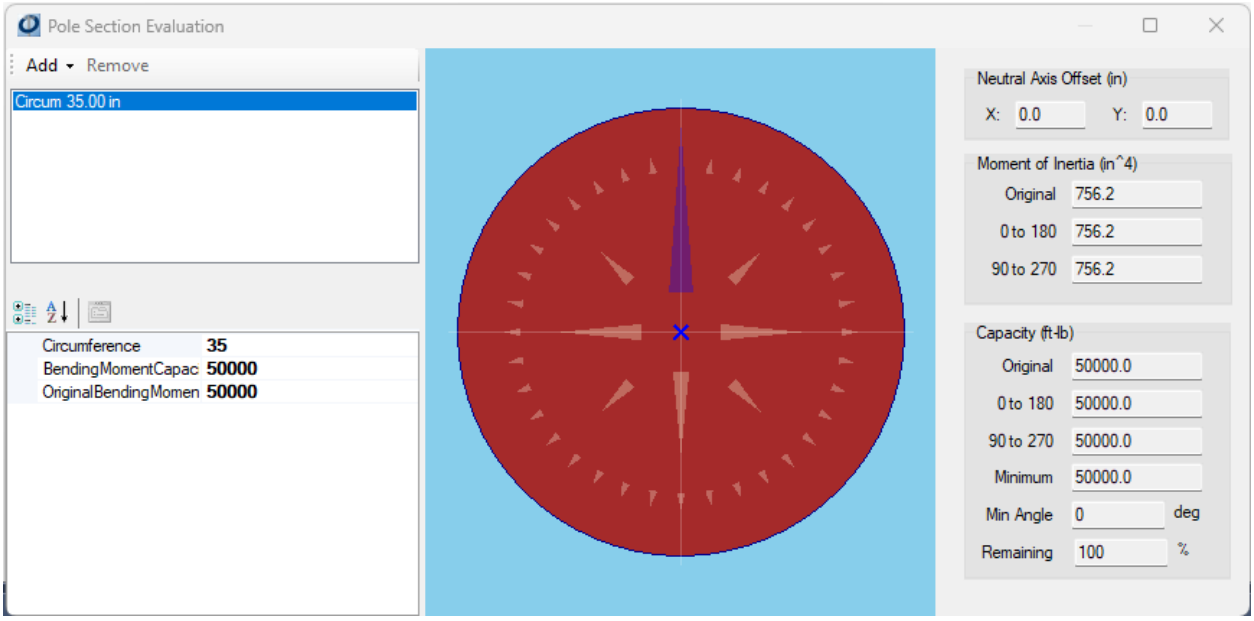
Pole Section Evaluation

The Pole Section Evaluation calculations are updated automatically and cannot be edited once saved. To evaluate pole damage and decay, complete these steps:

1. Go to the **Tools** menu, select **Misc.**, click the **Pole Section Evaluation** option.



2. Select **Add** and select a damage or decay item from drop down list. Modify the damage or decay **attributes**.



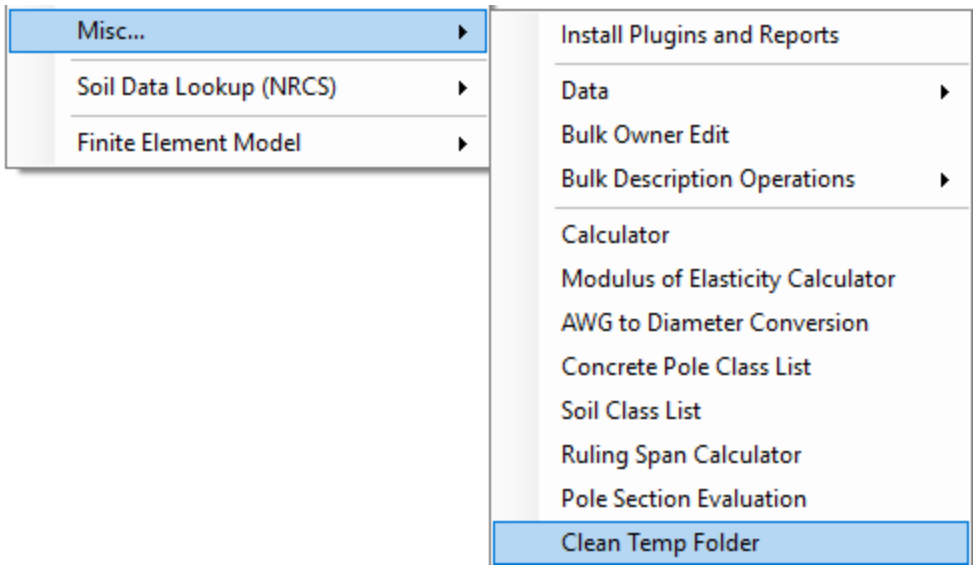
3. To remove a damage or decay item from your list **select the item** and click the **Remove** button in the **Pole Section Evaluation** window.

Clean Temp Folder

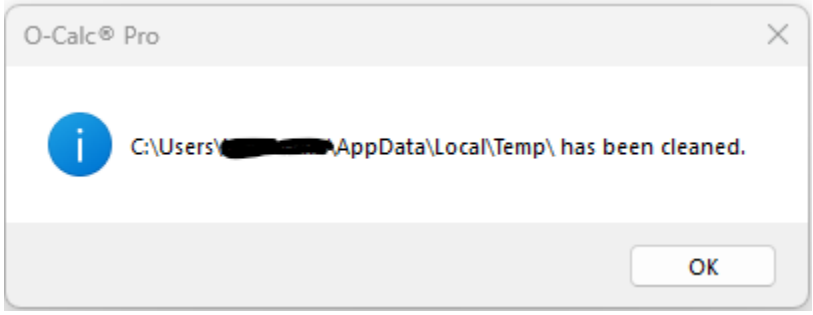
To clean the Temp Folder, close any open pole file and complete these steps:

4. Go to the **Tools** menu, select **Misc.**, click the **Clean Temp Folder** option.

©2025 Osmose Utilities Services, Inc.



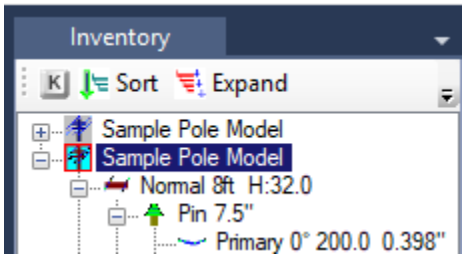
5. Select **OK** to the informational message.



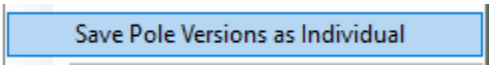
Save Pole Versions as Individual

To cause a Version of a New Pole to save separately from the originating .pplx complete these steps:

1. First you must have two versions of the same pole in the Inventory panel.



2. Go to the **Tools** menu, select **Misc.**, click the **Save Pole Versions as Individual** option.



3. In the **Select Folder** window you need to **navigate** to the folder you want to save the pole Version to, and **select it** then click the **Select Folder** button.

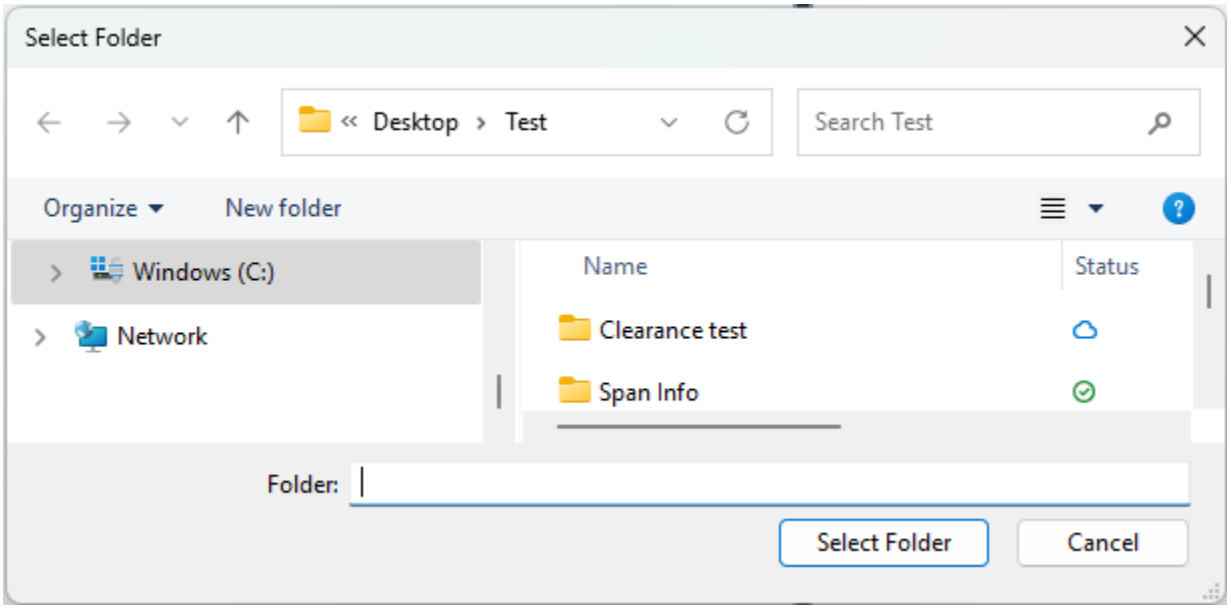
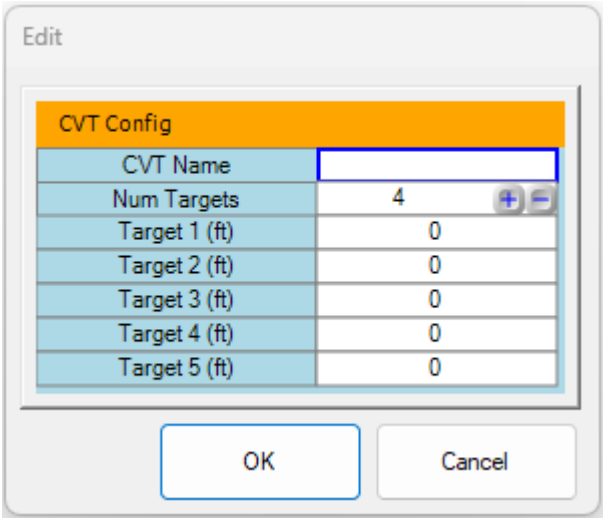
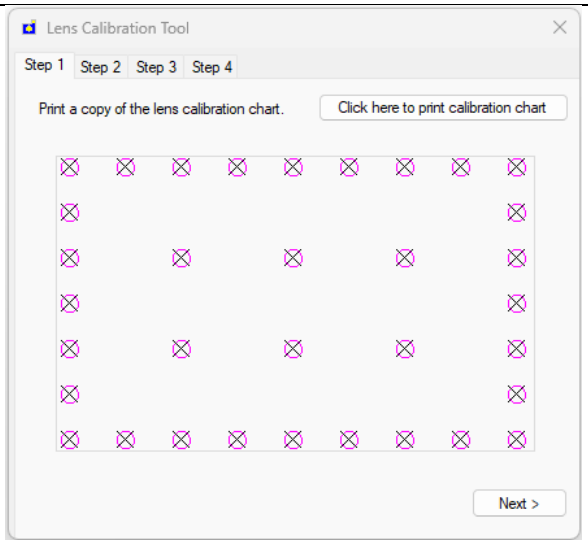
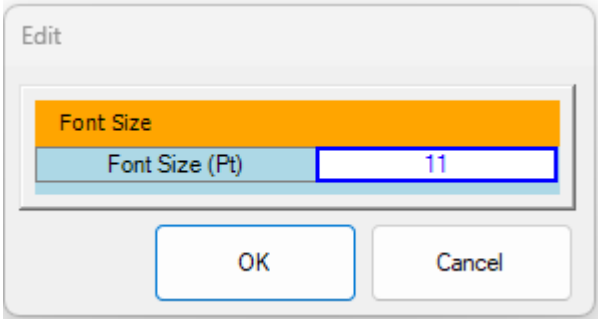
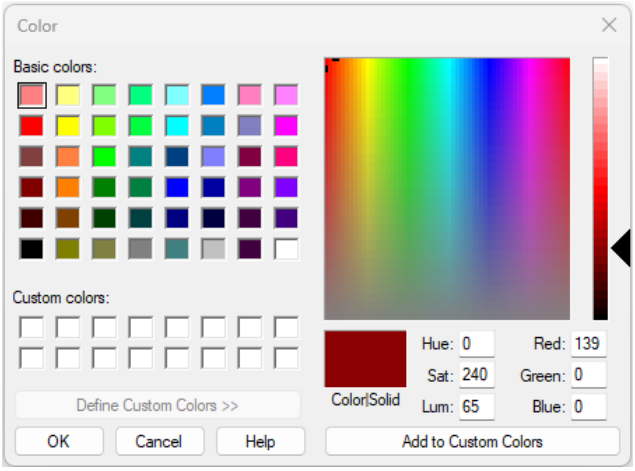


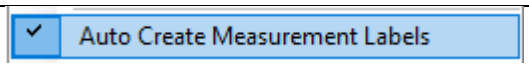
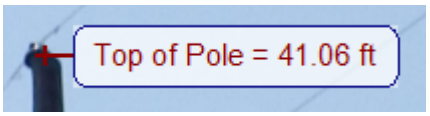
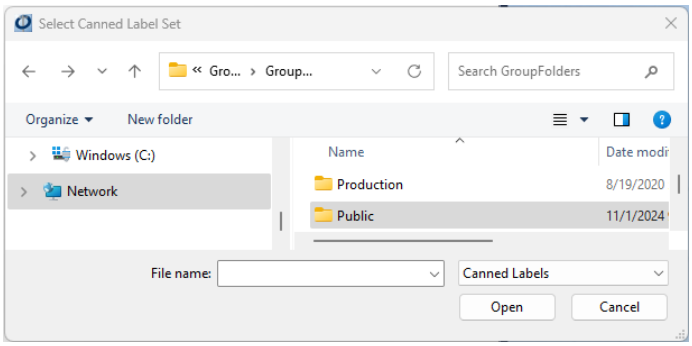
Photo Measure Advanced Tools

Advanced image measurement options are available as described below.

Misc. Photo Measurement Tool	Description
CVT Configuration	Use to edit the CVT Configuration attributes. Enter the values you need and click OK. 
Lens Calibration	Use the 4-step process to calibrate your camera lens.

©2025 Osmose Utilities Services, Inc.

	
Set Default Measurement Font Size	Use to edit the font size displayed on the images in the Measure panel, click OK to save. 
Set Default Measurement Color	Use to edit the measurement color displayed on the images in the Measure panel, click OK to save. 

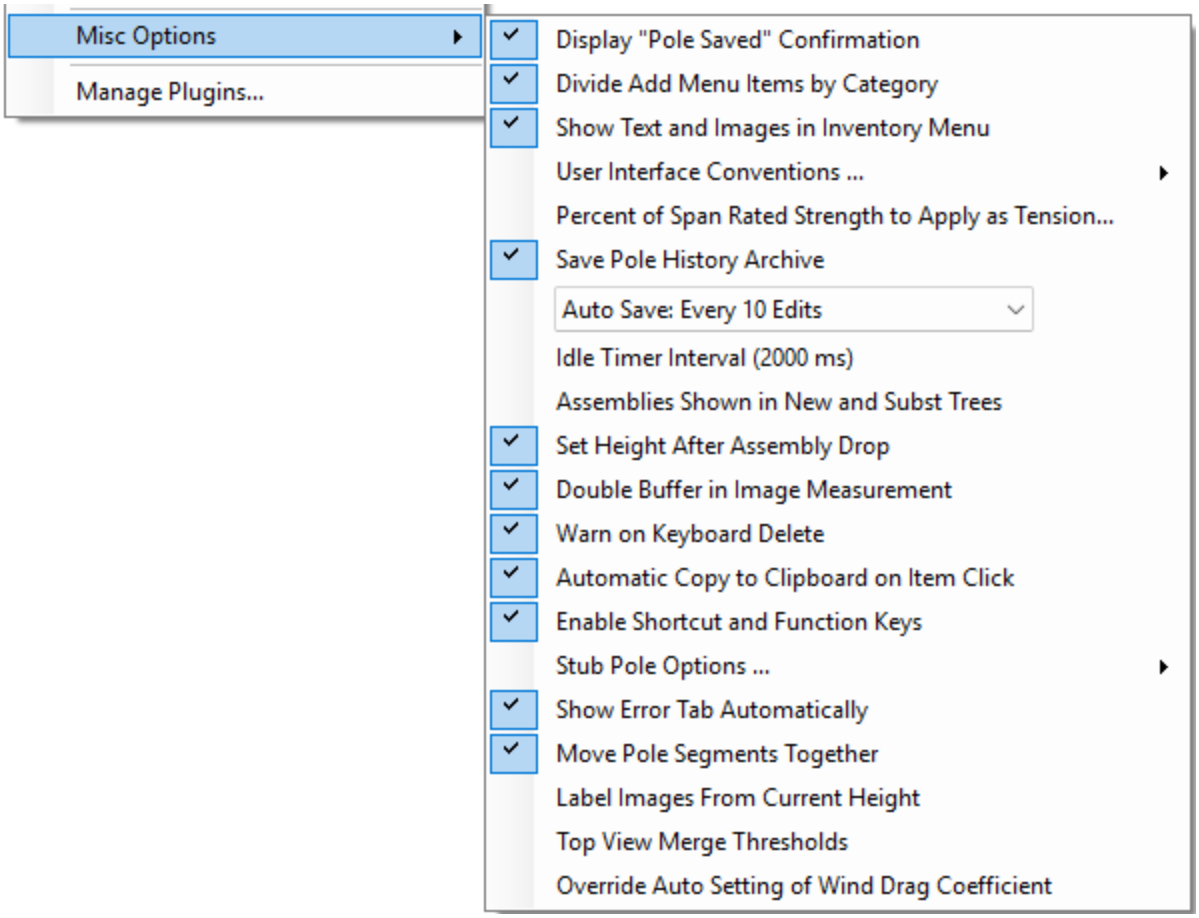
Auto Create Measurement Labels	 Use this option to enter a description that proceeds the height value. 
Load Canned Label Set	Use the Select Canned Label Set window and browse to the location of the file you need to add that contains a set of canned labels already prepared, click Open. 
Clear Canned Label Set	Use to clear the Select Canned Label Set.

©2025 Osmose Utilities Services, Inc.

Appendix D – Misc. Options

Within the O-Calc® Pro Options menu there are additional Misc. Options available; some options may be considered advanced user functionality.

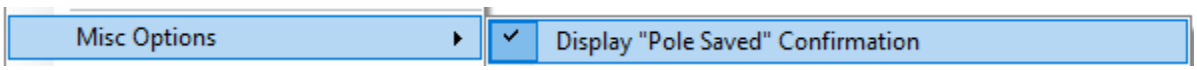
Below is the list of Misc. Options:



Display “Pole Saved” Confirmation

All options are enabled when a check mark is displayed next to the menu option. No check mark displayed indicates the option is disabled. The option below is enabled by default. To disable the “Pole Saved” confirmation message from displaying, complete these steps:

1. To enable\disable the Pole Saved confirmation message option, select **Options,** select**, Misc. Options**, click on **Display “Pole Saved” Confirmation**.

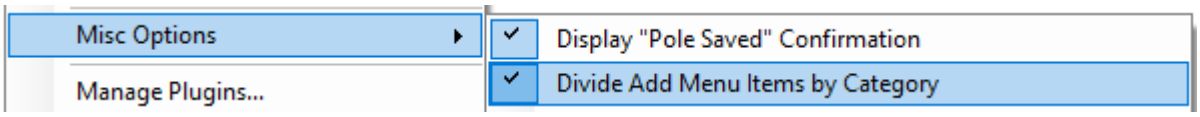


Divide Add Menu Items by Category

To change how the “Add Element” menu is displayed, complete these steps:

1. To enable\disable the Divide Add Menu Items by category option, select **Options > Misc. Options > Divide Add Menu Items by Category**

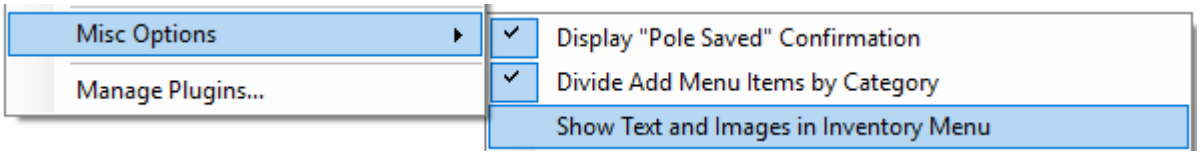
Note: *Disabling the divide add menu option displays all elements to be added to an item in one list.*



Show Text and Images in Inventory Menu

This option is enabled by default offering the menu option name alongside the corresponding menu icon. To disable the names of the menu icons in the Inventory toolbar, complete these steps:

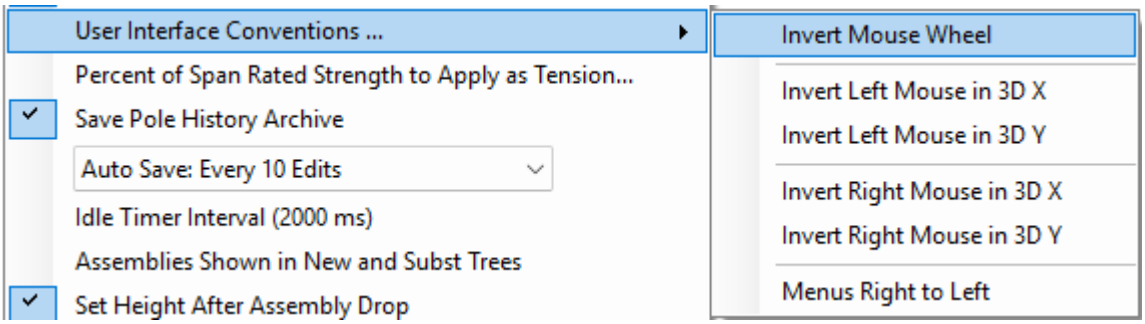
1. Go to the **Options** menu, select **Misc. Options**, click the **Show Text and Images in Inventory Menu** option to disable (no check mark) it.



User Interface Conventions

The Invert Mouse Wheel function affects the 3D View, Bird’s Eye View, Perspective Camera and Top View only. Option are available to Invert the Left and Right Mouse buttons in the 3D X and Y. Additionally, menus can be arranged in a right to left layout. To invert (reverse) the mouse wheel direction, complete these steps:

1. Select the **Options** menu, select the **Misc. Options**, select the **User Interface Conventions** option, click on **Invert Mouse Wheel**.

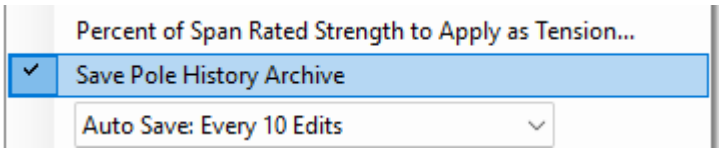


©2025 Osmose Utilities Services, Inc.

Save Pole History Archive

The Pole History Archive provides an audit record of the changes made at each save point. When the Pole History Archive option is enabled, each time you save changes to a pole a snapshot of that pole is created and stored as a history record. Each history entry records who made the changes and when they were made. By retaining a history of each time, a pole has been saved, you are able to review previous revisions to a pole and even revert to a pole's previous revision. To enable the Pole History Archive, complete the following steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Save Pole History Archive**.

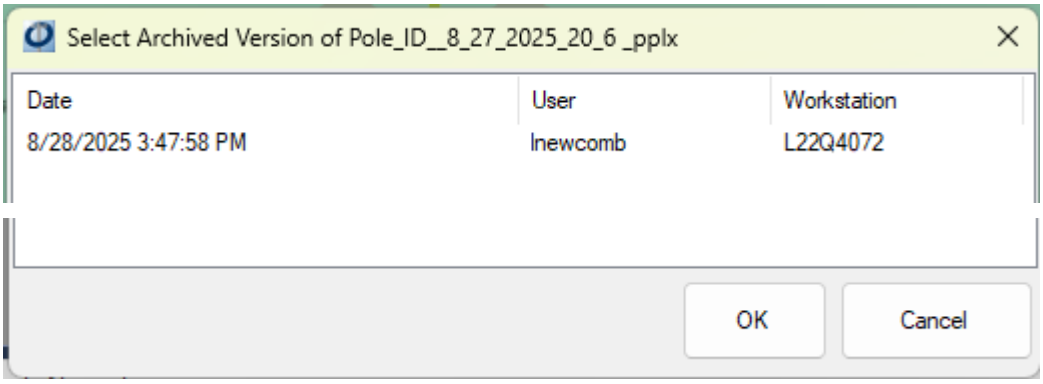


Note: *When the Save Pole History Archive option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

2. Create a new pole in the Inventory panel and save the pole using the **File > Save Pole** option.

The first time the pole is saved a Pole History Archive file is created containing the Date, User, and Workstation record.

3. To view the pole's history archive, go to the **File** menu, select **More Options**, click **Open Archived Pole**. Browse to the location of the saved pole and select the (pole name).pplx file.

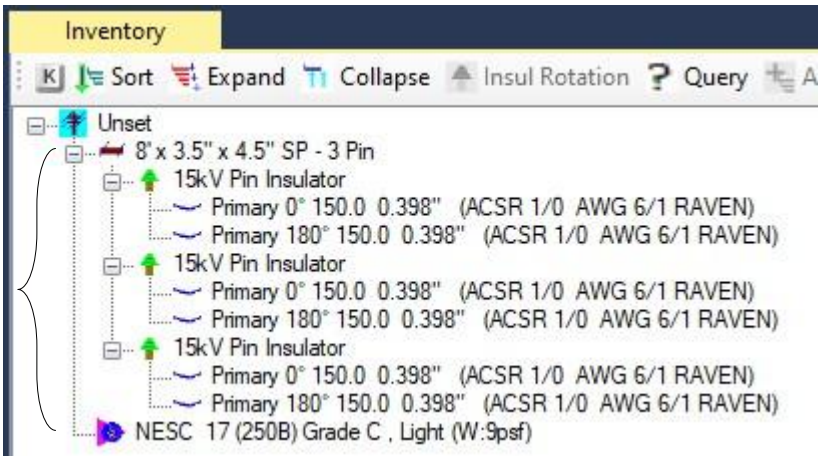


Note: *The Open Archived Pole option is only visible when the Save Pole History Archive option is enabled. To enable it in Options > Misc. Options > Save Pole Archive History.*

4. Select the archived version of the pole from the list that you need to open, click **OK**.
5. Complete modifications to the current pole in the Inventory panel and save the pole using the **File > Save Pole** option.

©2025 Osmose Utilities Services, Inc.

Active pole with attachments added

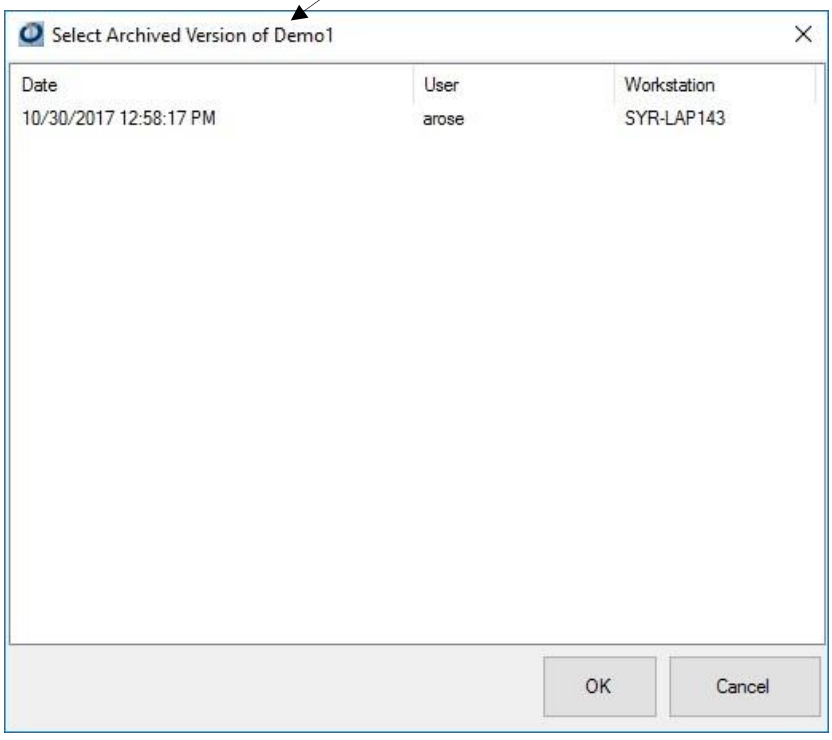


The Revision History area is automatically updated.

6. To review previous revision to a pole or to revert a pole to a previous version, select **File > Open Archived Pole**. Browse to the location of the pole you wish to work with and select the (pole name) .pplx file. Select the Revision History record you need.

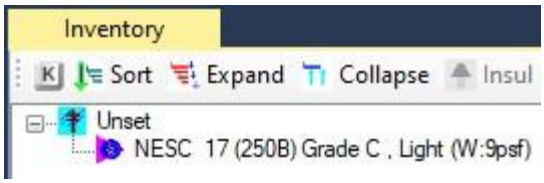
Select the (pole name).pplx file

Select the revision history file



7. Select **Open Archived Version**.

©2025 Osmose Utilities Services, Inc.

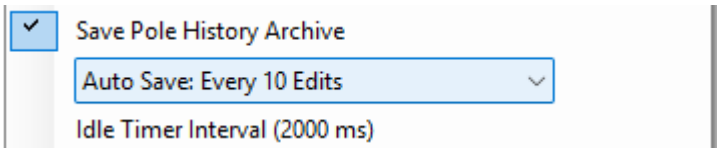


The selected Revision History snapshot is loaded in the Inventory panel and can be reviewed. The pole is completely editable at this time, and it can be modified and saved. If the revision is saved, it will then become the active version of that pole and replace the .pplx file. For safety, a new revision history record will be added at that time that stores a snapshot of the previously saved version of the pole.

Auto Save

By default, the Auto Save option is set to **Never**, to select an auto save interval based upon the number of edits (5, 10, 15, 20, or 25) you make, complete these steps:

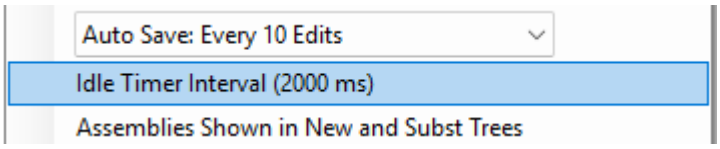
1. Go to the **Options** menu, select **Misc. Options**, open the **Auto Save: Never** drop down menu, select an available option.



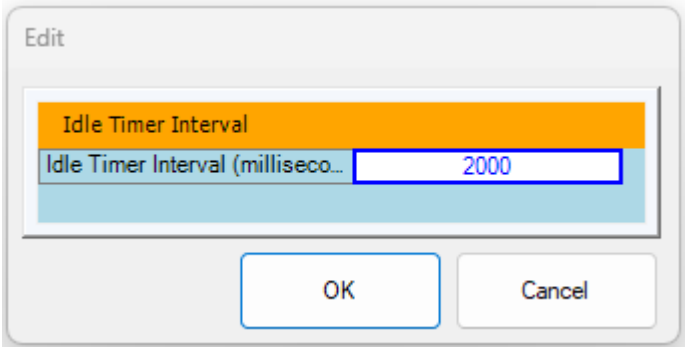
Idle Time Interval

The Idle Time Interval can be set to a minimum 1000 milliseconds and a maximum of 5000 milliseconds The Auto Capacity Summary option needs to be enabled for the Idle Timer to activate. To set the idle time before calculations are calculated, complete these steps:

2. Go to the **Options** menu, select **Misc. Options**, click **Idle Timer Interval** (*currently set time*).



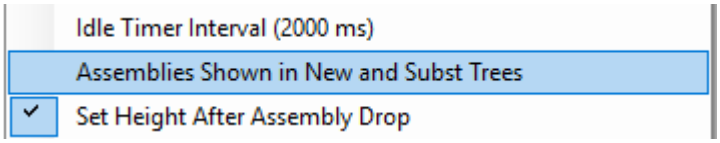
3. Enter the **Idle Timer Interval** in milliseconds, click **OK**.



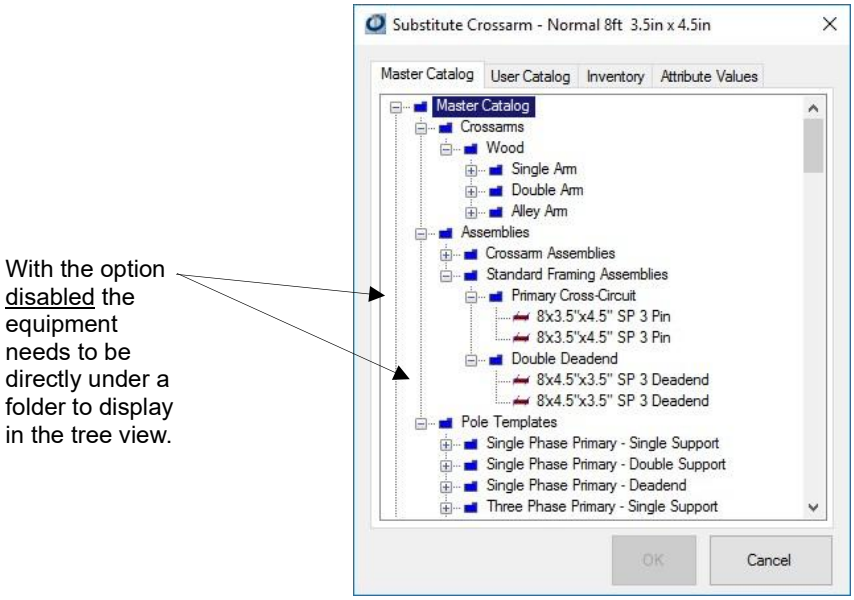
Assemblies Shown in New and Subst Trees

In the Catalog by default, equipment assemblies are not displayed in the tree view, unless they are directly under a folder. To display assemblies without regard to where they display in the tree view, complete these steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Assemblies Shown in New and Subst Trees**.



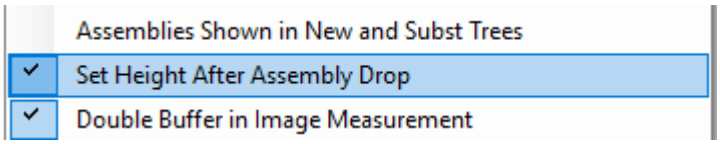
2. With the option disabled the equipment needs to be directly under a folder to display in the tree view.



Set Height After Assembly Drop

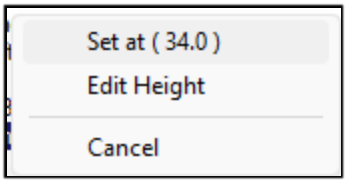
To set the height of equipment or an assembly being dragged onto the current pole from a catalog, complete the following steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Set Height After Assembly Drop**.

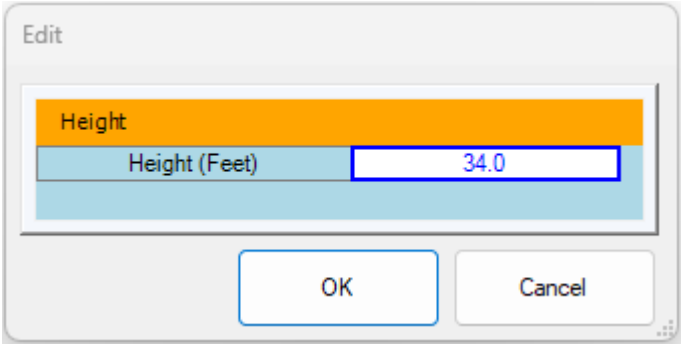


2. Select the **Set at** automatic height recommendation.

©2025 Osmose Utilities Services, Inc.



3. Or select the **Edit Height** option, and in the **Edit** window enter a **Height** value. Click **OK**.

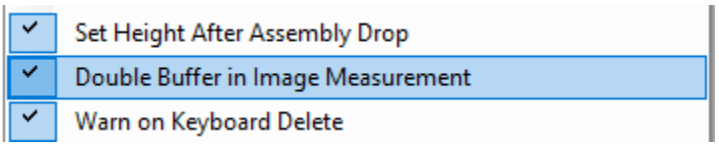


Note: *When the Set Height After Assembly Drop is selected the height adjustment window will display each time a drag-and-drop operation occurs from a catalog. The height value displayed is the pole attachment height of the topmost item of the assembly. All other items will be adjusted relative to the topmost attachment height.*

Double Buffer in Image Measurement

O-Calc ® Pro uses an off-screen bitmap buffer to reduce redraws flicker of the photo measurement screen. This option requires a large amount of system memory. On computers where memory levels or CPU performance do not meet the stated O-Calc ® Pro requirements, this option may be enabled to reduce memory consumption and increase performance at the expense of increased image flickering. To enable double buffering in the Measurement panel, complete the following steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Double Buffer in Image Measurement**.



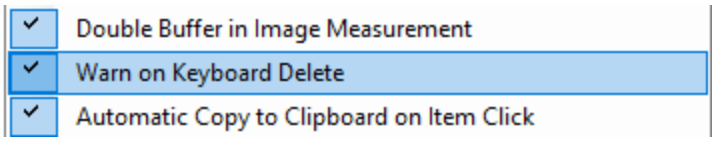
Note: *When the Double Buffer in Image Measurement option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Note: *To review a complete list of O-Calc ® Pro system requirements, see Appendix A.*

Warn on Keyboard Delete

When deleting objects in the Inventory panel using the delete button on your keyboard a delete confirmation message is displayed. This message is enabled by default. To change if the delete confirmation message displays, complete the following steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Warn on Keyboard Delete**.

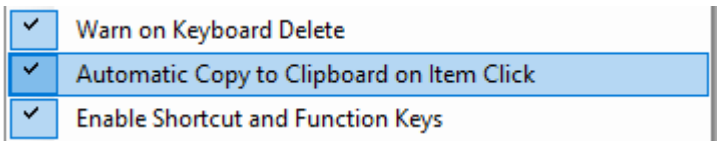


Note: *When the Warn on Keyboard Delete option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Automatic Copy to Clipboard on Item Click

The copy value feature allows you to easily copy values or value sets from the Data Entry panel onto the clipboard. To use this feature, complete these steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Automatic Copy to Clipboard on Item Click**.



2. In the **Data Entry** select any attribute value to copy, right click to paste to clipboard.

Note: *Only <u>one</u> attribute per copy. To copy both the header and attribute, select the header.*

3. If the **Automatic Copy to Clipboard on Item Chick** is disabled, you can use the **Ctrl + C** to copy any attribute value or data entry header, **Ctrl + V** to paste to clipboard.

Data Entry Header	Selecting the Data Entry Header then selecting Ctrl + C will copy all the objects and attribute values within the *selected category* to the clipboard.
Object	Selecting an object then selecting Ctrl + C will copy the object value and the objects attribute value to the clipboard.

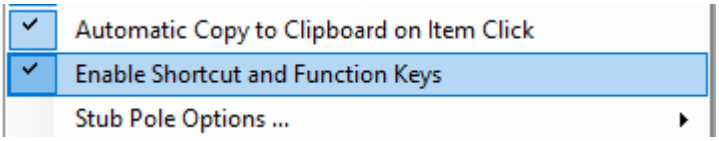
©2025 Osmose Utilities Services, Inc.

Attribute	Selecting an attribute then selecting Ctrl + C will copy the attribute value to the clipboard.

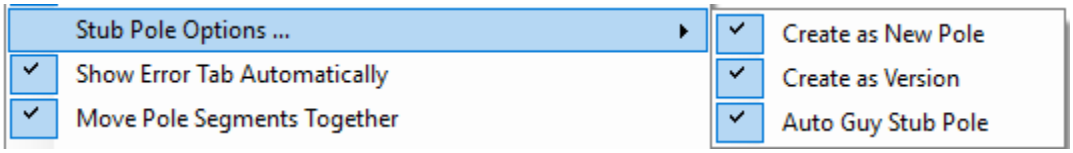
Shortcut and Function Keys

To easily switch between the O-Calc ® Pro views keyboard shortcuts and function keys have been enabled. To work with these features, complete the following steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Enable Shortcut and Function Keys**.



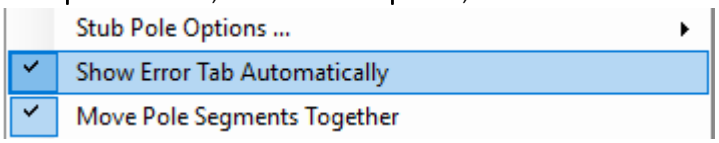
Stub Pole Options - See 'Working with Guying'.



Show Error Tab Automatically

To display any error(s) in a separate tab, that causes the calculation engine not to complete, complete these steps:

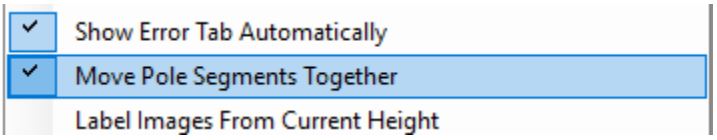
1. Go to the **Options** menu, select **Misc. Options**, click **Show Error Tab Automatically**.



Move Pole Segments Together

To Move Pole Segments Together complete these steps:

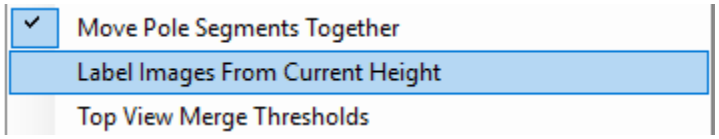
1. Go to the **Options** menu, select **Misc. Options**, click **Move Pole Segment Together.**



Label Images From Current Height

To Label Images From Current Height completed these steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Label Images From Current Height**.

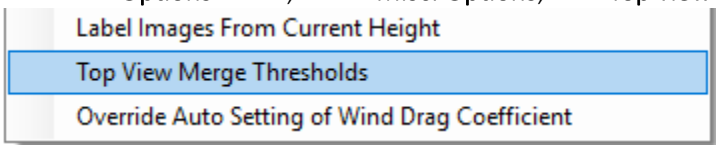


Top View Merge Thresholds

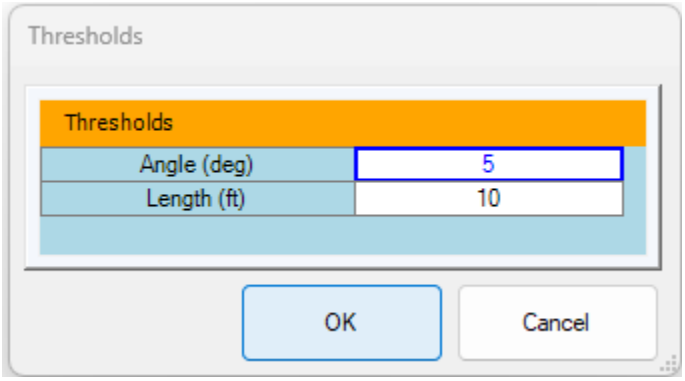
When using the Gang "G" Editor in the Top View you can automatically merge spans within specified thresholds for Angle and Length.

To merge the Top View Thresholds complete these steps:

1. Go to the **Options** menu, select **Misc. Options**, click **Top view Merge Thresholds**.



2. Enter the threshold values you need for merging spans.100



Override Auto Setting of Wind Drag Coefficient

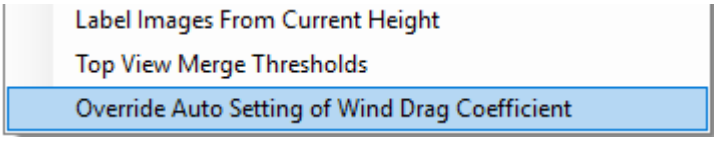
The Override Auto Setting of Wind Drag Coefficient option enables users to override wind drag coefficient values. By default this option is disabled. Entering a value of zero in the Data Entry returns the option to the default mode of 'Auto'.

The O-Calc® Pro application automatically adjusts the Wind Drag Coefficient based on the shape of the equipment to a value of 1 for cylindrical objects and a value of 1.6 for cubic objects.

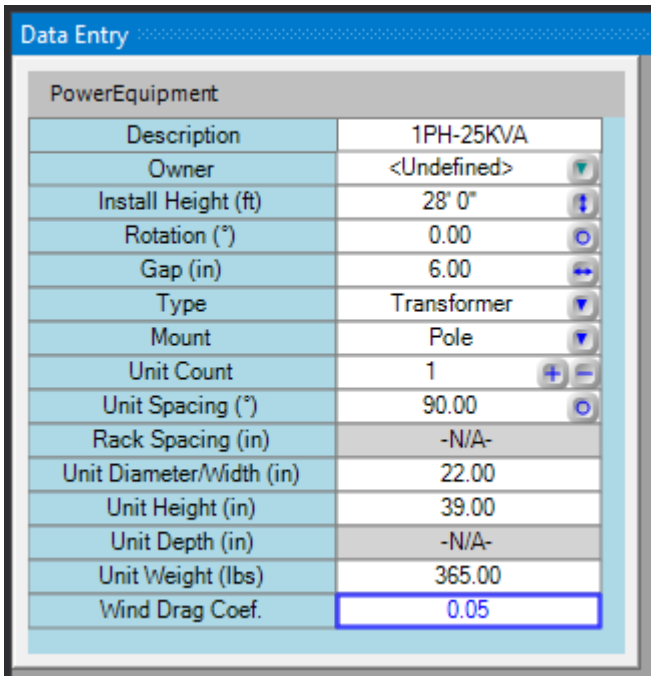
©2025 Osmose Utilities Services, Inc.

To override the default wind, drag coefficient, complete these steps:

1. Select **Options** > **Misc. Options** > **Override Auto Setting of Wind Drag Coefficient**.



2. Select an object in the 3D View or Inventory panel, in the **Data Entry** change the **Wind Drag Coef.** Attribute, input a number between 0 and 1.



©2025 Osmose Utilities Services, Inc.

Appendix E – 3D Navigation Enhancements

Default Control Scheme

Previous 3D View Controls included in our older versions of O-Calc® Pro, restricted the camera to a cylindrical orbit 20,000 inches away from the centerline of the pole. Traditionally, the camera could move to a point on that cylinder only, and zooming was accomplished by changing the camera's field of view. Panning was only possible along a vertical axis. But depending on field of vision (FOV) this made the ability to visualize other locations, i.e. adjacent poles, limited and hard to understand.

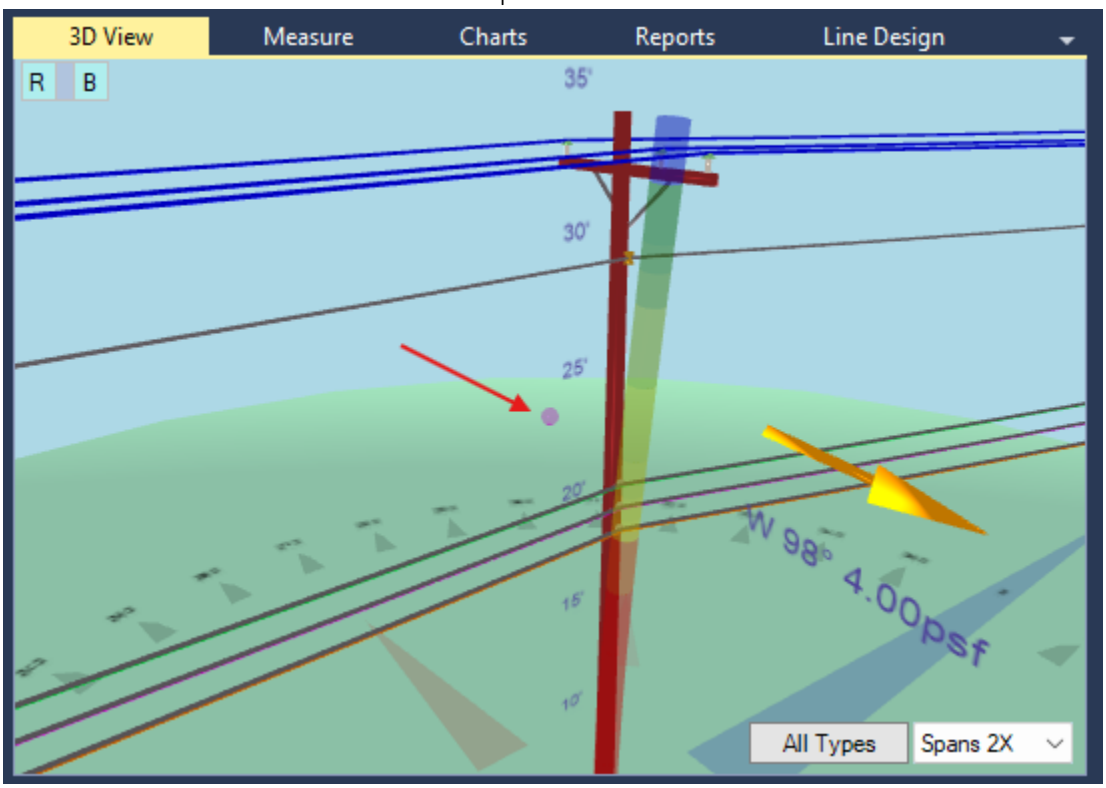
In the 7.0.1 version of O-Calc® Pro we have added 2 new control sets; Default and Alternate, which should make 3D navigation much more intuitive for users.

To accompany these new control sets, new filters and a Camera Look Point icon has been added in the form of a pink ball at the center of the 3D View panel.

Camera Look Point

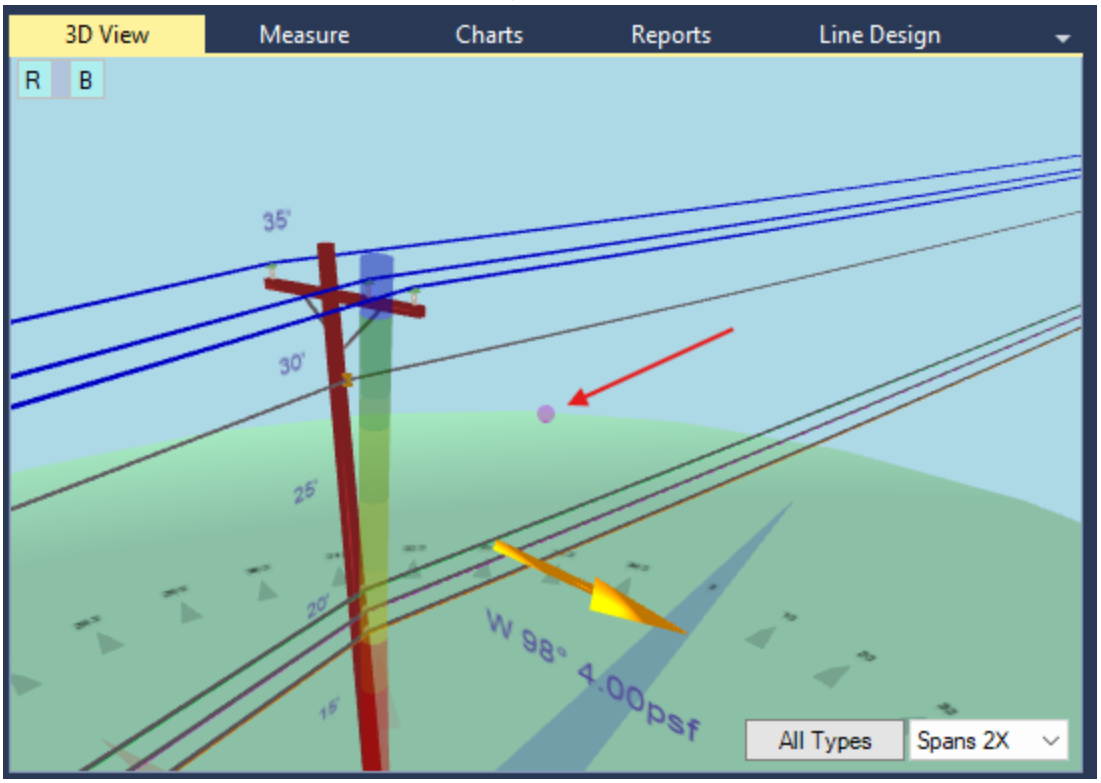
The pink "ball" icon represents the camera "look point". The ball icon is displayed in the center of the 3D View. To locate the **Camera Look Point** (hidden from view behind the pole) complete these steps:

1. Right-click in the 3D View and drag the mouse left or right to reveal the ball icon hidden behind the pole.

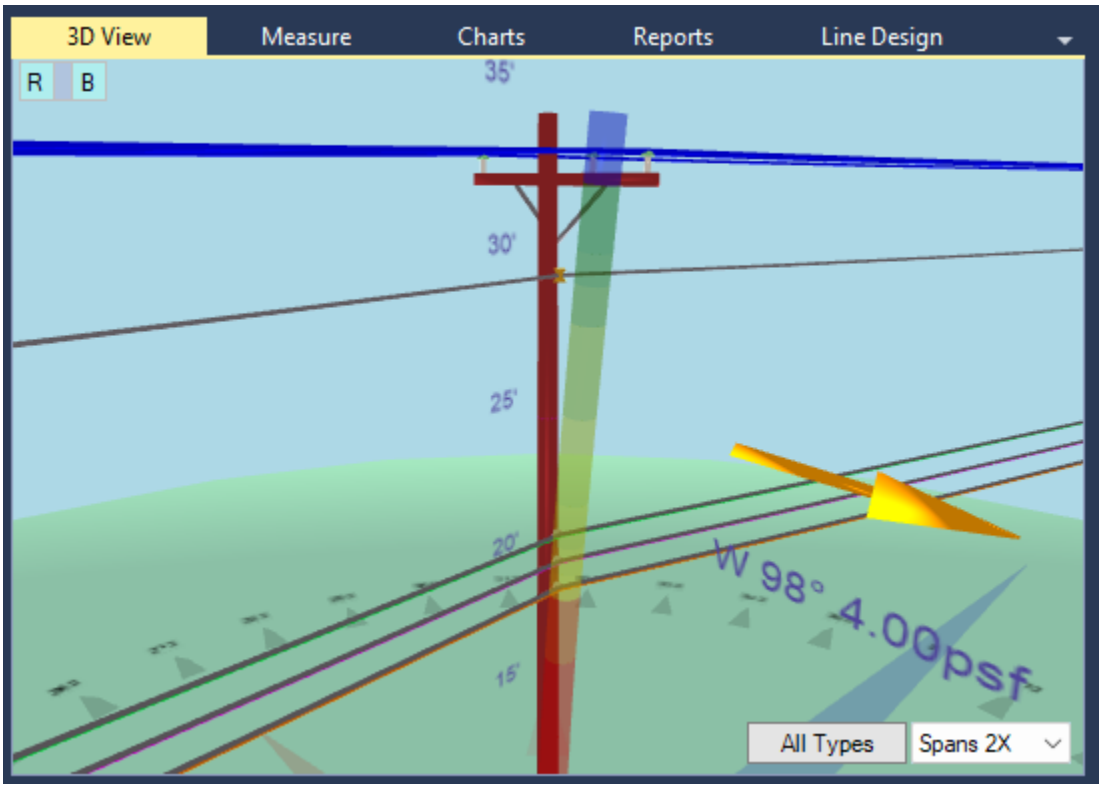


©2025 Osmose Utilities Services, Inc.

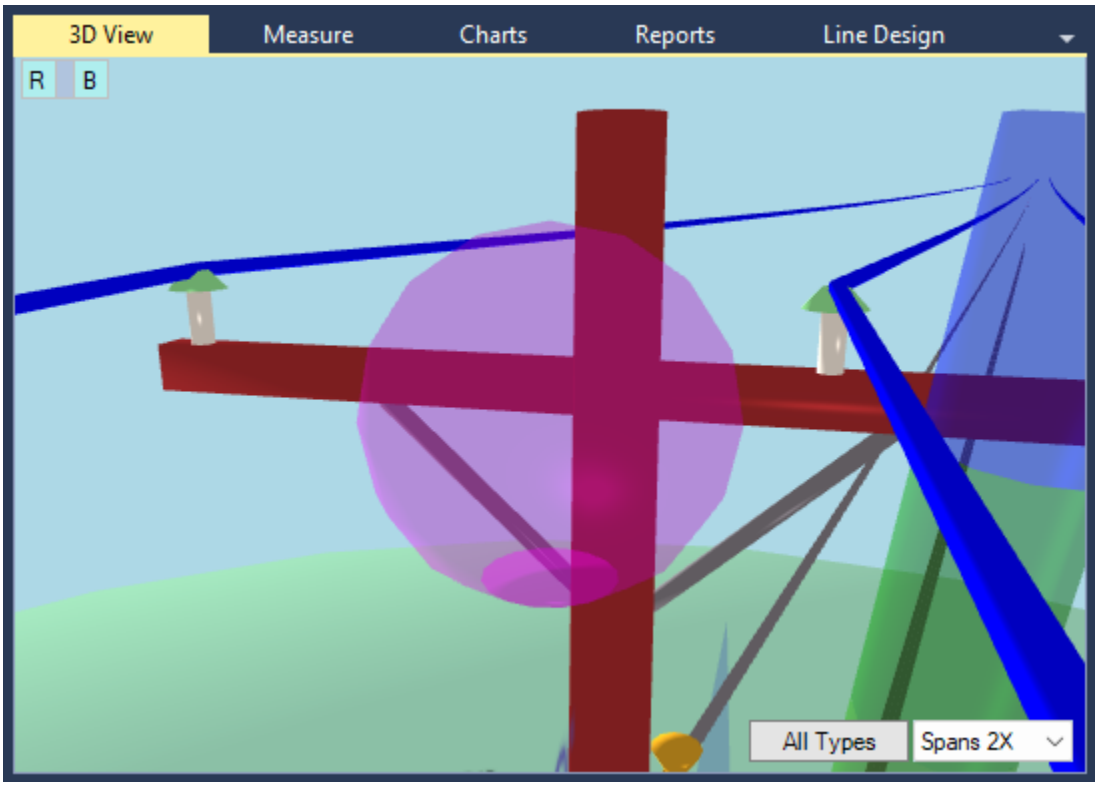
2. To orbit around the **Camera Look Point** right-click your mouse and drag the 3D View in a circular motion, around the Camera Look Point.



3. To return the pole to the center of the 3D View, click the **R** (Reset) button.



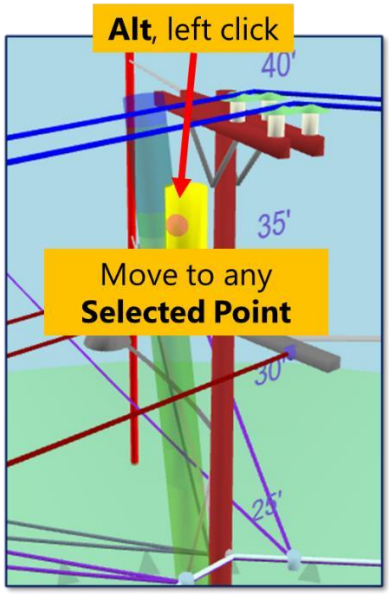
4. If when hovering the mouse over the camera look point and zooming in, the camera look point ball becomes enlarged. Simply click the “R” Reset button to restore the ball icon to its original size.



Alt Key Controls

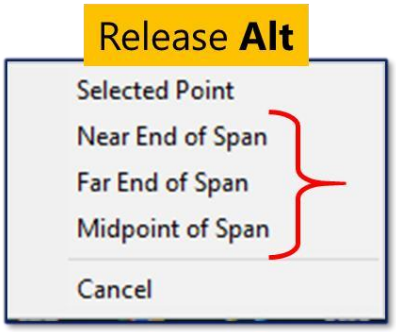
The use of additional key controls allows users a greater range of motion capabilities within the 3D View. To try the movements, follow these steps:

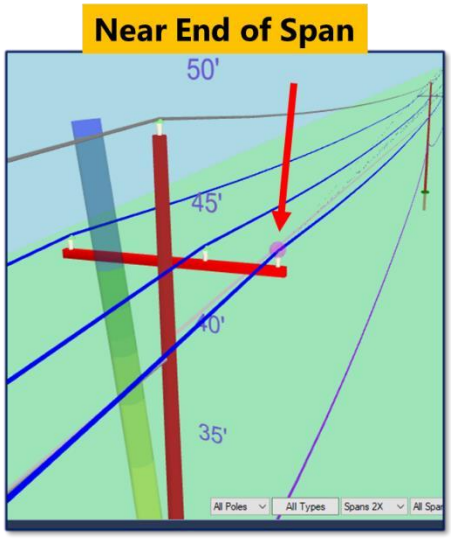
1. Hold the **Alt** key and left click mouse on any object to move to that selected point.



©2025 Osmose Utilities Services, Inc.

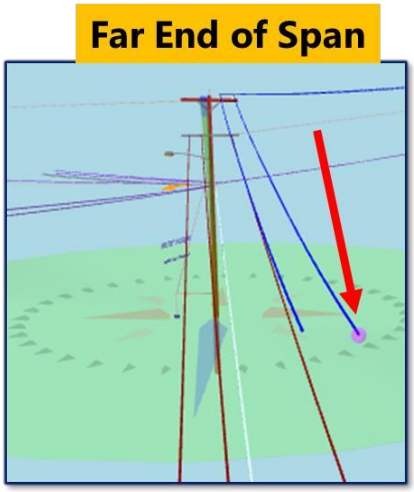
2. Release the **Alt** key to view the additional move options.



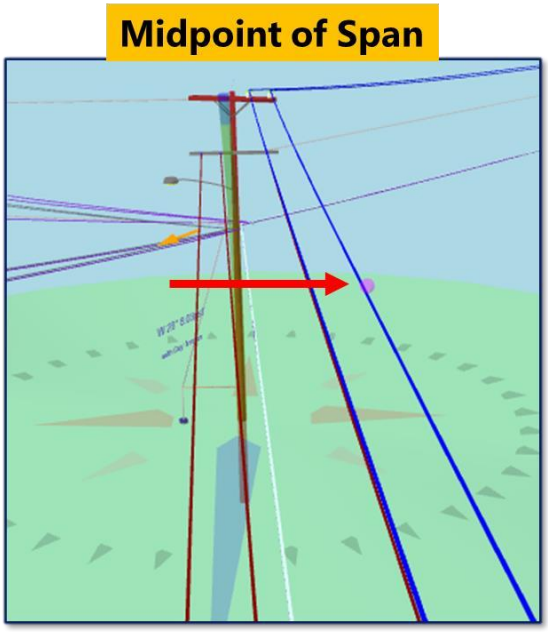


3. Select the **Near End of Span** option.

4. Select the **Far End of Span** option.



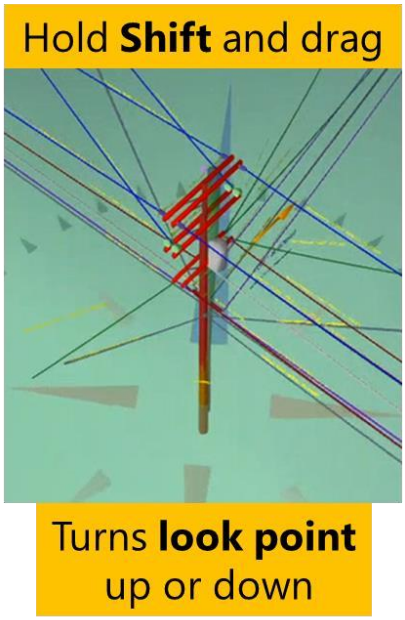
5. Select the **Midpoint of Span** option.



Alt and Shift Key Controls

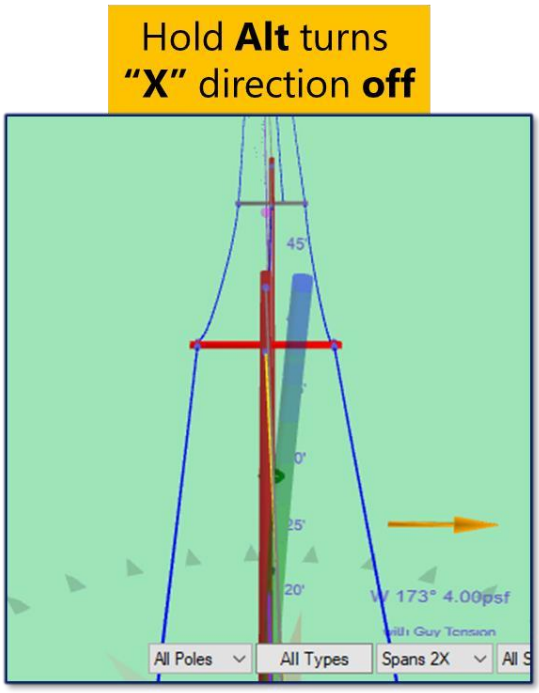
By using a left click you can move the camera, a right click action moves the camera look point. To try these actions, follow these steps:

1. Hold the **Shift** key and drag the cursor to turn the look point up or down.

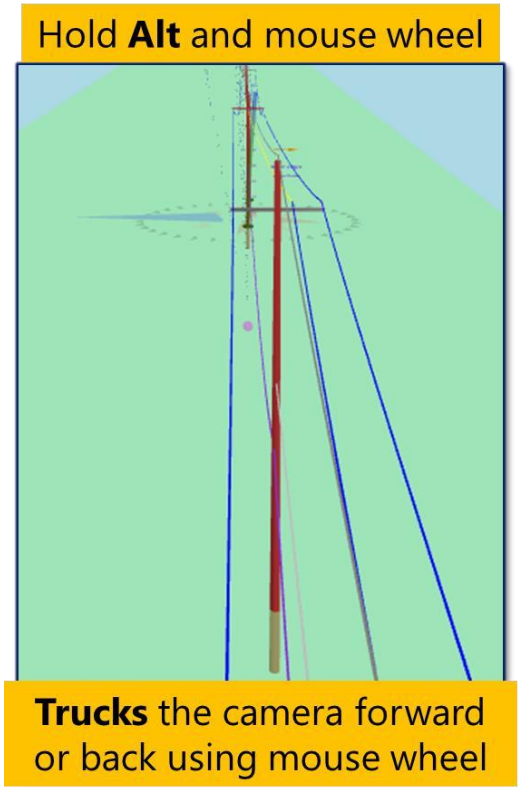


2. Hold the **Alt** key turns the "X" direction off.

©2025 Osmose Utilities Services, Inc.



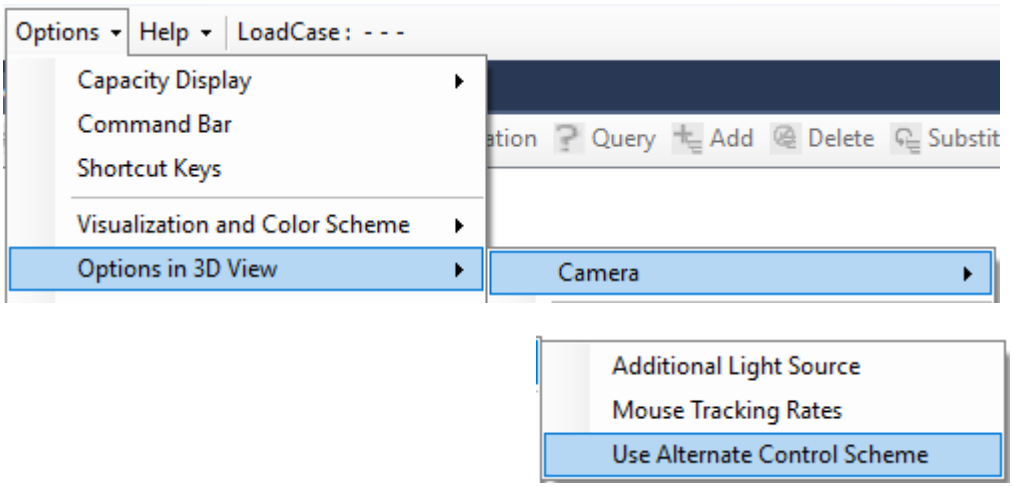
3. Hold the **Alt** and **mouse wheel** casing a "trucking" motion which brings the camera forward or backward. This motion is especially useful when navigating in Line Design through a long line of poles.



Alternate Control Scheme

The Alternate Control Scheme was developed to make navigating in Line Design to multiple poles easier for users. These controls are based on 3D Modeling Industry standards. The controls are divided into two sets; the Default Control set and Alternate Control set. To activate the Use Alternate Control Scheme option, follow these steps:

1. From the **Options** menu, select **Options in 3D View**, select **Camera**, and click the **Use Alternate Control Scheme** option.



Note: *Deselect (uncheck) the* ***Use Alternate Control Scheme*** *option to return to the Default Control set of controls.*

Default Controls Set

Press the **left** mouse button and drag in the following directions:

Mouse Direction	Resulting Effect in 3D View
Left or Right	Movement turns the camera look point around in cylindrical rotation
Up or Down	Moves the camera AND look point up or down equally
Holding "Alt" key down	Left and Right movement does nothing Up Down movement works as expected
Holding "Shift" key down	Left and Right movement works as expected Up and Down moves ONLY the camera (tilt)
Holding "Shift" and "Alt" keys down simultaneously	Move the mouse to cause a rocking motion in 360 degrees

Press the **right** mouse button and drag in the following directions:

©2025 Osmose Utilities Services, Inc.

Mouse Direction	Resulting Effect in 3D View
Left or Right	Orbits the camera look point around the camera (pan)
Up or Down	Moves the camera AND look point up or down equally
Holding "Alt" key down	Left and Right movement does nothing Up Down movement works as expected
Holding "Shift" key down	Left and Right movement works as expected Up and Down moves ONLY the look point (reverse tilt)
Holding "Shift" and "Alt" keys down simultaneously	Move the mouse to cause a forward and backward motion in 360 degrees

Press the **mouse wheel** button and drag in the following directions:

Mouse Direction	Resulting Effect in 3D View
Forward	Moves the camera towards the look point (zoom in)
Backward	Moves the camera away from the look point (zoom out)
Holding "Alt" key down	Forward - moves camera AND look point in look directions (dolly)
	Backward – moves camera AND look point away from look direction (reverse dolly)
Left Click Left click and Alt key	Moves up, down, left, right, orbits around 360 degrees Moves look point to element clicked (if any)
Right Click	Moves up, down, left, right, orbits around 360 degrees

Alternate Controls Set

Although the alternate control set is based on current 3D modeling standards, it was a significant deviation from traditional O-Calc® Pro controls, therefore it was decided against being the default control set.

Press the **left** mouse button and drag in the following directions:

Modifier Keys	Resulting Effect in 3D View
None	X = Orbits Camera around the Look Point Y = Raises and Lowers the Camera Look Point

Alt Key	X = Orbits Camera around Look Point Y = Raises and Lowers Camera only but NOT Look Point
Shift Key	X = Orbits Look Point around Camera Y = Raises and Lowers Camera only but NOT Look Point
Holding "Shift" and "Alt" keys down simultaneously	X = Orbits Camera around Look Point Y = Raises and Lowers Look Point but NOT Camera

Press the **right** mouse button and drag in the following directions:

Modifier Keys	Resulting Effect in 3D View
None	= Moves Camera and Look Point Perpendicular to Look Direction = Moves Camera and Look Point Parallel to Look Direction
Shift Key	X = No action Y = Moves Camera Towards or Away from Look Point (Zoom)

Press the **mouse wheel** button and **key** below to drag in the following directions:

Modifier Keys	Resulting Effect in 3D View
None	Moves Camera Towards or Away form Look Point (Zoom)
Shift Key	Raises and Lowers Camera and Look Point
Alt Key	Raises and Lowers Look Point but NOT Camera
Shift and Alt Key	Raises and Lowers camera only but NOT Look Point

©2025 Osmose Utilities Services, Inc.