Osmose

O-Calc® Pro 4.10

User's Guide

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Osmose O-Calc® Pro Overview

About Osmose O-Calc® Pro

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 have to decide whether more cables can be added or larger conductors can be used on existing pole lines. 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 pole's load conditions.

O-Calc® Pro can be used to evaluate whether any poles within a line are already overloaded. It 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.

Osmose O-Calc® Pro Concepts

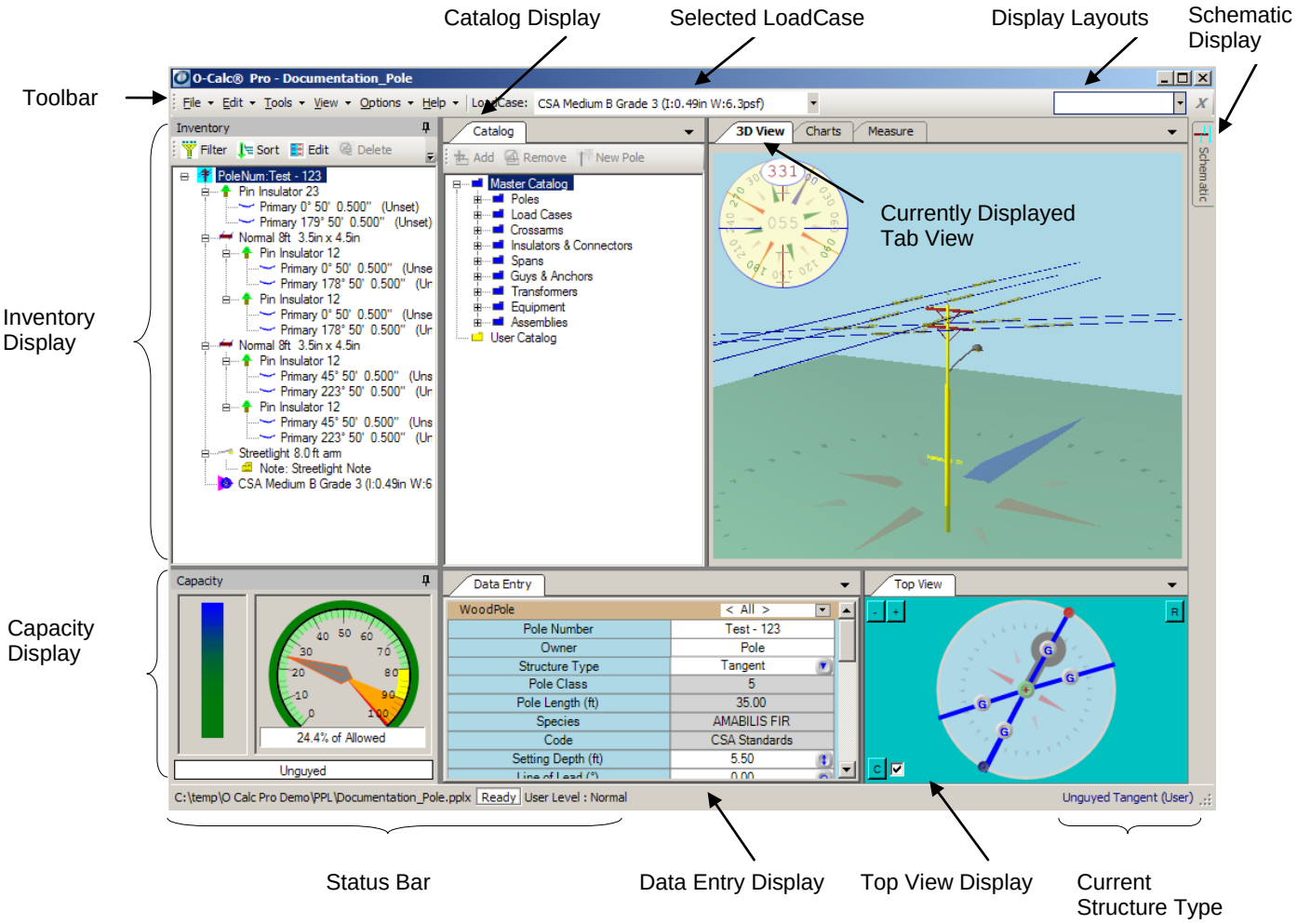
Osmose O-Calc® Pro allows you to model a utility pole by defining the components of the pole using the Inventory Window or interactively constructing the pole through the 3D View. Both methods can be used simultaneously. The pole you model is created by adding equipment you manually define or by utilizing predefined components from the Master or User Catalogs.

The Master Catalog is installed with the O-Calc® Pro application and contains a predefined compiled list of common poles and equipment that are utilized in the field. It also contains a completed listing of all the available Load Cases. The User Catalog is a folder in which you can compile your own list of poles or equipment that you've created. You can then use the data in the User Catalog to build additional poles in the Inventory Window. The Catalog Window within the O-Calc® Pro interface provides you with the tools to manage and interact with the catalogs.

Understanding the O-Calc® Pro Workspace

O-Calc® Pro Workspace

O-Calc® Pro provides you with a variety of options enabling you to interact with new data or existing data.



Workspace Windows	*Description*
Toolbar	**Toolbar.** Provides numerous options to interact with the data in O-Calc® Pro.
Selected LoadCase	**Selected LoadCase.** Displays the LoadCases that are currently loaded in the Inventory Window.
Display Layouts	**Display Layouts.** Enables you to swiftly switch between different window layouts.
Inventory Display	**Inventory Display.** Displays the inventory of the pole as you construct it.
Capacity Display	**Capacity Display.** Summarizes the pole capacity as currently loaded.
Status Bar	**Status Bar.** Display the path to the currently loaded PPLX file, the Capacity Summary Window calculation status and the user's access level.
Structure Type	**Structure Type.** Display the currently set pole's structure type.

Default Tab Windows	*Description*
Catalog	**Catalog.** Repository of equipment and assemblies available to construct inventory. The catalog is the primary way to build inventory.
3D View	**3D View**. Displays a 3D view of the pole and the surroundings.
Charts	**Charts.** Displays a predefined list of charts that can be used to help you complete a pole analysis.
Measure (Digital Measurement Technology (DMT))	**Measure.** Allows the measurement of pole features from image data.
Schematic Display	**Schematic Display.** Displays the major equipment on the pole and the elevation.
Data Entry Display	**Data Entry Display**. Allows you to enter or change equipment attributes.
Top View Display	**Top View Display.** Displays a top view of the pole with span angels.

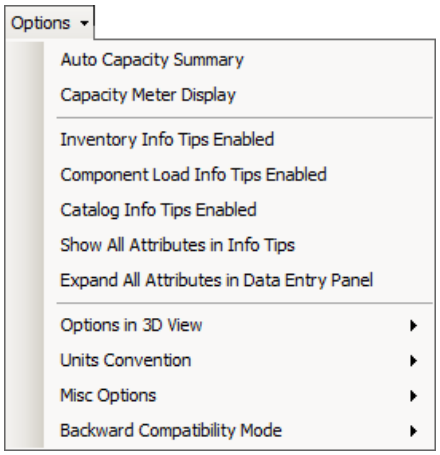
O-Calc® Display Options

Utilizing O-Calc® Pro Display Options

Several advanced displays options and tools are provided within the O-Calc ® Pro applications.

General Display Options

The Options tool bar menu provides you with a variety of display option.



Auto Capacity Summary	**Auto Capacity Summary.** Select the Auto Capacity Summary option to automatically update the Capacity Window whenever data changes.
Capacity Meter Display	**Capacity Meter Display.** Select the Capacity Meter Display option to have the Capacity Window display in a metered format.
Inventory Info Tips Enabled	**Inventory Info Tips.** Select the Inventory Info Tips option to see a subset of an object's attributes when you hover over the object's icon in the *Inventory Window*.
Component Load Info Tips Enabled	**Component Load Info Tips.** Select the Component Load Info Tips option to display what the percent of pole capacity that is consumed by the object components on the pole. The tip will display as you hover over an object in the *Inventory Window*.

Catalog Info Tips Enabled	**Catalog Info Tips.** Select the Catalog Info Tips option to see an object's attributes when you hover over the objects icon in the *Catalog Window*.
Show All Attributes in Info Tips	**Show All Attributes in Info Tips.** Select the Show All Attributes in Info Tips option to see an object's editable attributes when you hover over the object's icon in the *Inventory Window*.
Expand All Attributes in Data Entry Panel	**Expand All Attributes in Data Entry Panel.** Select the Expand All Attributes in Data Entry Panel option to display all of an object's attributes in the Data Entry Panel.
Options in 3D View	**Options in 3D View.** See 3D View Display Options.
Units Convention	**Units Convention.** See Change the Unit Convention.
Misc Options	**Misc Options.** Select Misc Options to enable or disable several display options.
Backward Compatibility Mode	**Backward Compatibility Mode.** Select the Backward Compatibility Mode option to save PPLX files in a format from a previous version of O-Calc® Pro. The Backward Compatibility Mode also allows a person using a newer version of O-Calc® Pro to create a PPLX that can be conveniently used by a user of an older version of O-Calc® Pro.

Working Within the O-Calc® Pro Workspace

Working With the Inventory Window

Inventory Window Overview

The Inventory Window provides you with the ability to construct a model of a utility pole. This model includes the structure, the equipment attached and its environment.

Toolbar Menu Options

The Inventory Window toolbar provides you with a variety of option.

Filter	**Filter**. Select the Filter option to only display the expanded inventory objects in the 3D View.
Sort	**Sort**. Select the Sort option to sort the inventory object to match how they display on the pole from the pole tip to the ground.
Edit	**Edit**. Select the Edit option to edit the selected equipment attributes.
Delete	**Delete**. Select the Delete option to delete the selected equipment. Multiple pieces of equipment can be deleted simultaneously. **Shortcut Key:** Select the Delete button on the keyboard.
Add	**Add**. Select the Add option to add attachments to the selected equipment. **Shortcut Key**: Select the Insert button on the keyboard.
Expand	**Expand**. Select the Expand option to expand the nodes in the Inventory tree.
Collapse	**Collapse**. Select the Collapse option to collapse the nodes in the Inventory tree.
Substitute	**Substitute**. Select the Substitute option to substitute the selected equipment. Multiple piece equipment can be substitute simultaneously. **Shortcut Key**: Select Alt + Insert on the keyboard.
Insul Rtn	**Insulator Rotation**. Select the Insul Rtn option to rotate an insulator to be appropriate for attached span angles.

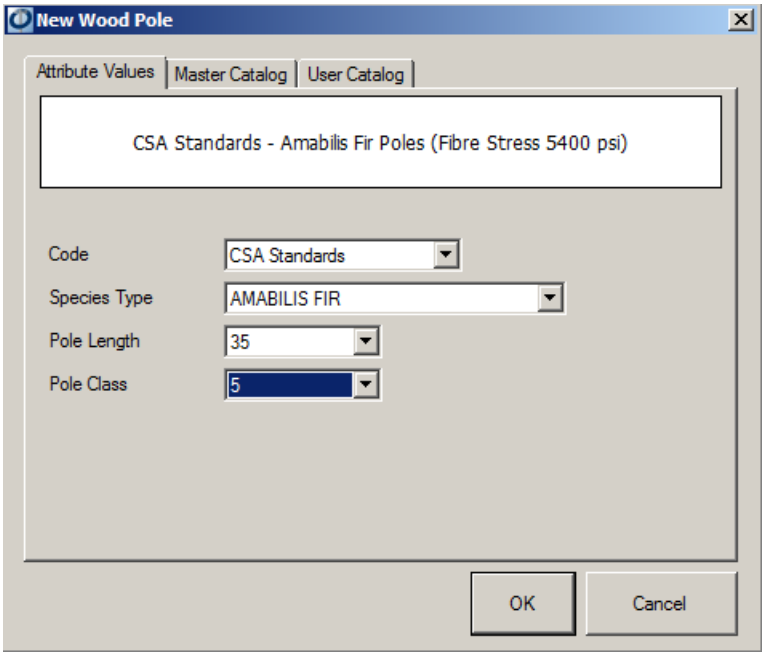
Note: *To enable/disable the text that displays next to the Inventory Window toolbar, see Change the Inventory Window Toolbar Display.*

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.*

Creating a Pole

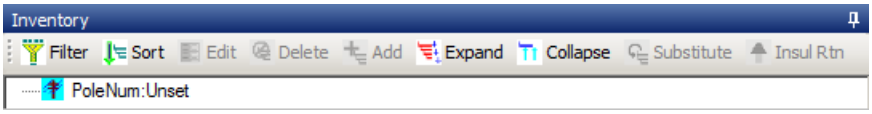
To create a new pole in the Inventory Window, complete the following steps:

1. Select **File>New Pole>Wood Pole**.



Note: *In certain situations you may want to add a pole that is listed in the Master Catalog. To add a pole from the Master Catalog tab select the Master Catalog tab and select a specific common wood pole. For additional information on the Master Catalog see Working With the Catalog Window.*

2. Select the new poles attributes from the drop down menus.
3. Click **OK.**



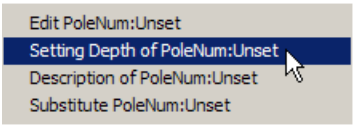
Note: *If a default LoadCase has been set it displays automatically in the Inventory Window when the pole is created. To set a Default LoadCase see Set a Default Load Case.*

Note: *Undo is not available when a pole is added.*

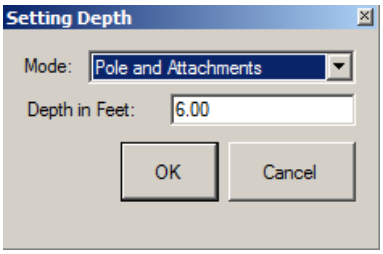
Setting the Depth of a Pole

To set the depth of a pole, complete the following steps:

1. Right click on the Pole you want to set the depth for.
2. Select the **Setting Depth of (*Pole display name*)**.



3. Select the **Mode** from the drop down list and enter the **Depth in Feet**.



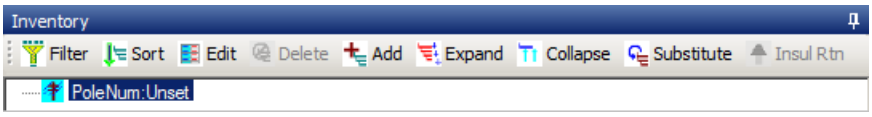
Note: *The Depth in Feet field will automatically display the default pole depth when initially opened.*

4. Select **OK**.

Adding Equipment to a Pole

To add equipment to a pole, complete the following steps:

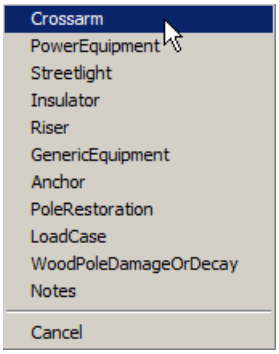
1. Select the Pole you want to add equipment to.



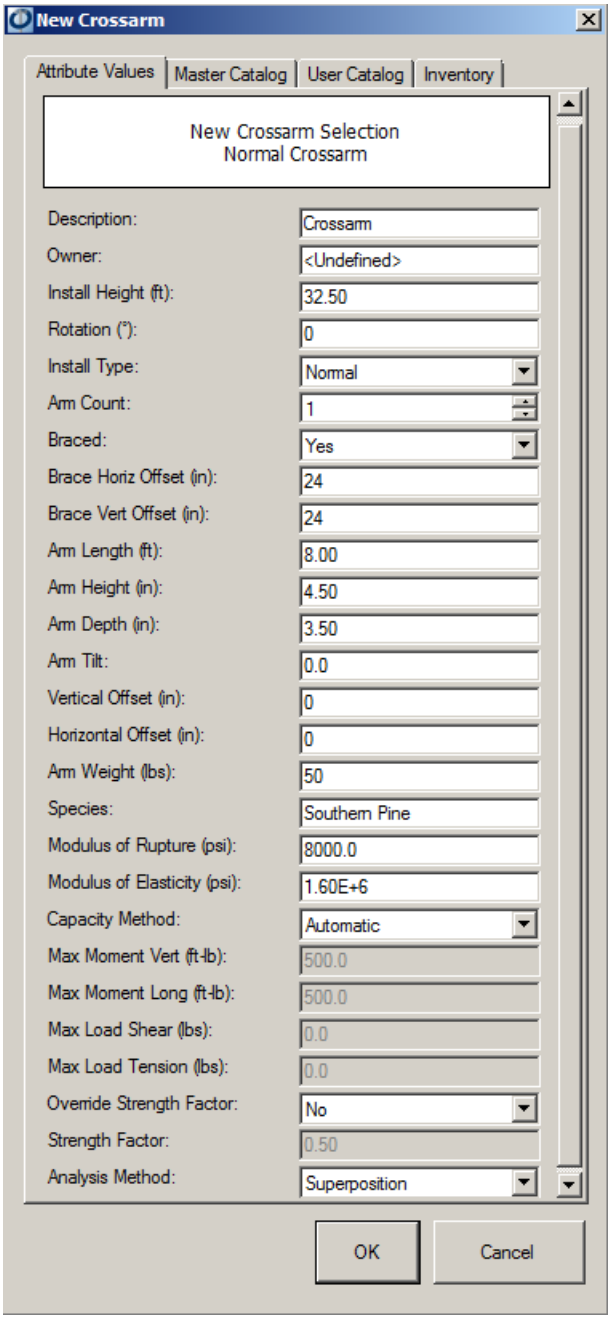
2. Select the **Add** button 

and select the equipment to be added to the pole.

Note: *The list of available equipment can also be accessed by right clicking on the pole in the Inventory Window.*



Note: *Only one piece of equipment can be added at a time.*

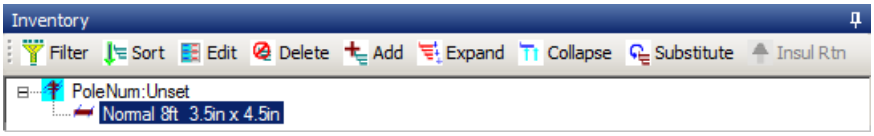


Note: *In certain situations the piece of equipment you want to add to the pole may already be listed in the Catalog Windows or in the Inventory Window. If this is the case select the appropriate tab and select the equipment you want to add to the pole from within the selected tab. For additional information on the Catalog Window see* *Working With the Catalog Window*.

3. Modify the new equipment's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

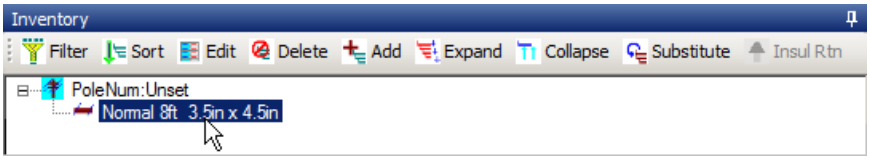
4. Click **OK**.



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

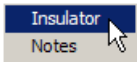
Equipment can have several attachments (Example: A crossarm can have insulators and spans attached to it). To add additional attachments to equipment, complete the following steps:

5. Select the equipment in the Inventory Window you want to add additional equipment to.

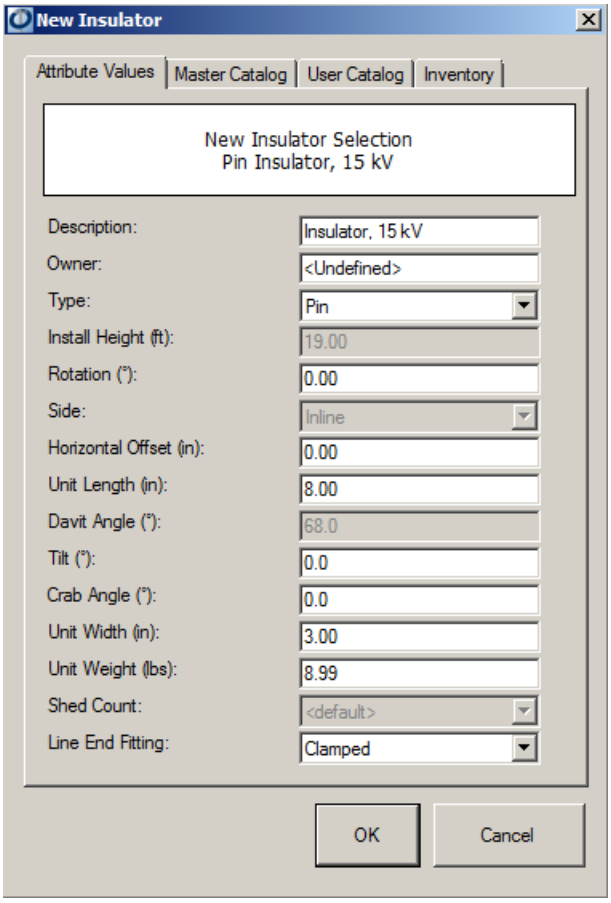


6. Select the **Add** button  and select the equipment to be added from the equipment list.

Note: *The list of available equipment can also be accessed by right clicking on the equipment you would like to add additional equipment to.*



Note: *If multiple piece of equipment are displayed in the list only one piece of equipment can be selected at a time.*

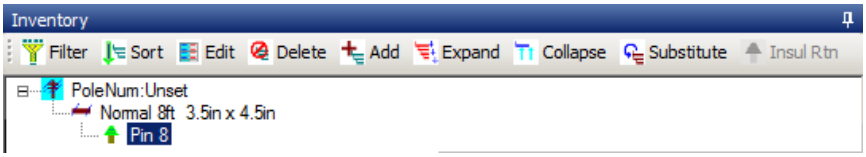


Note: *To add the equipment from the Catalog Window or in the Inventory Window select the appropriate tab and select that equipment you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

7. Modify the equipment's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

8. Select **OK**.

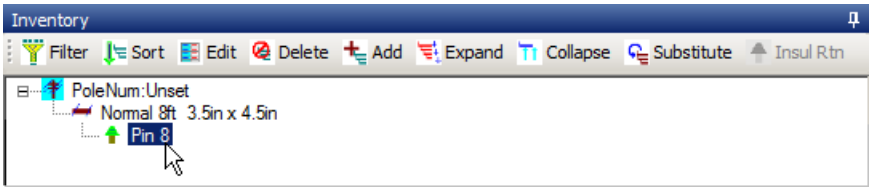


Note: *To add additional attachments to equipment complete steps 5 – 8.*

Adding a Span Bundle to a Pole

To add a span bundle to an attached insulator you first need to create the span messenger wire. To create the span messenger wire, complete the following steps:

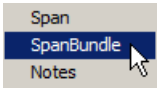
1. Select the insulator in the Inventory Window that you want to add a span bundle to.



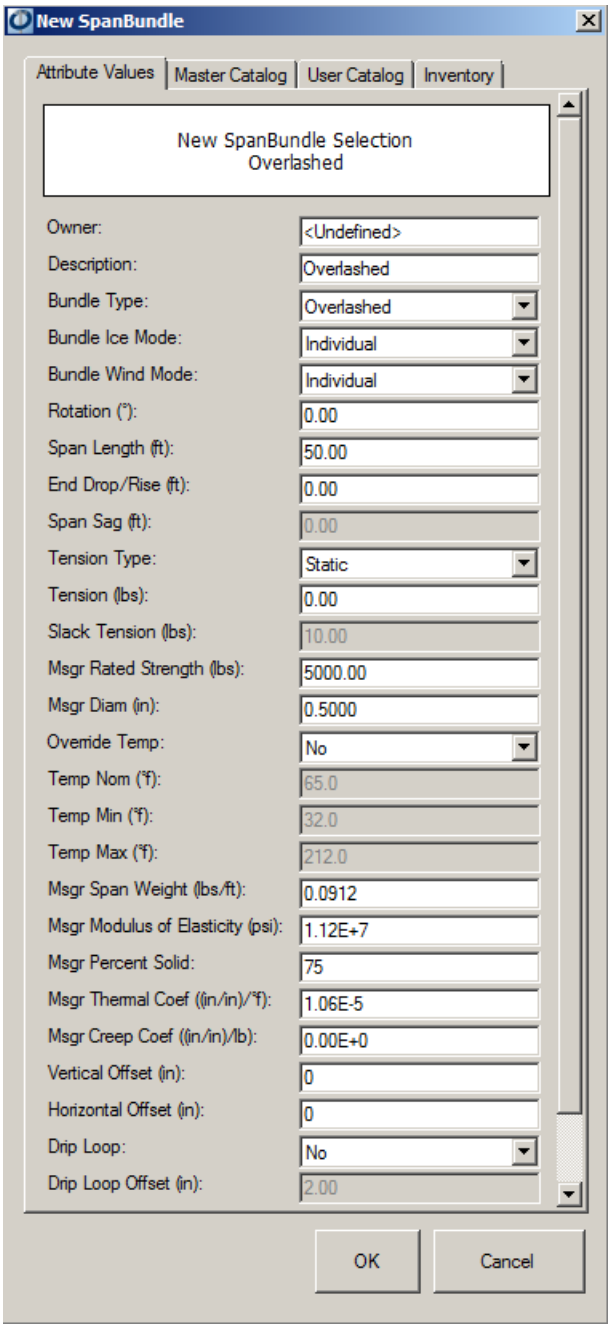
2. Select the **Add** button 

and select the **SpanBundle**.

Note: *The Span Bundle option can also be accessed by right clicking on the Insulator in the Inventory Window.*



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



Note: *To add a span bundle from the Catalog Window or in the Inventory Window select the appropriate tab and select that span bundle you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

3. Modify the Span Bundle attributes.

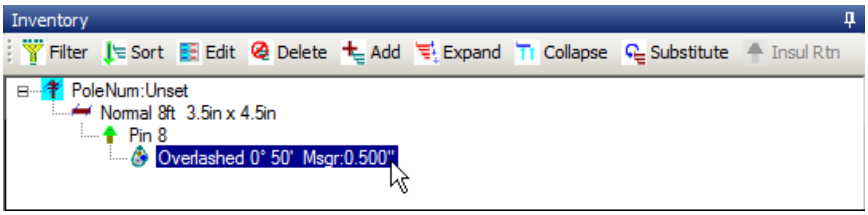
   Note: *Certain attributes are only editable in Administrative User Mode.*

4. Select **OK**.

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

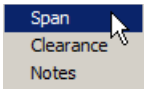
Once the span bundle messenger wire has been created you need to actually add the spans. Complete the following steps to add spans to the messenger wire:

5. Select the Span Bundle in the Inventory Window.

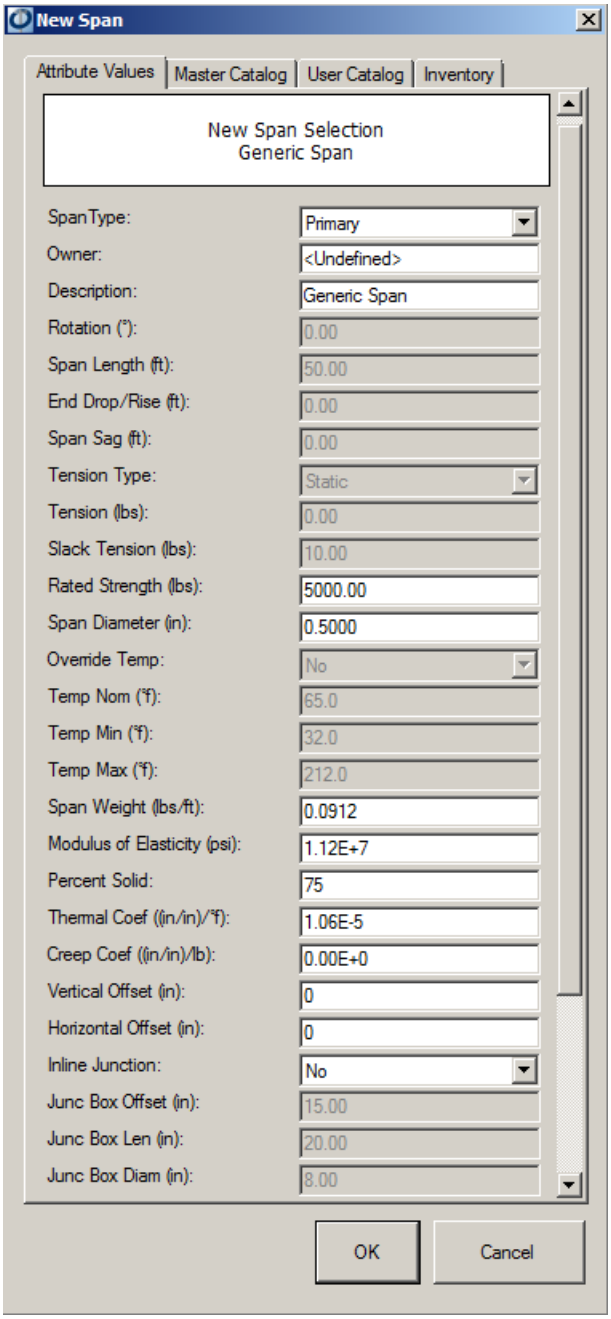


6. Select the **Add** button  and select **Span**.

Note: *The option to add spans can also be accessed by right clicking on the Span Bundle in the Inventory Window.*



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



Note: *To add a span from the Catalog Window or in the Inventory Window select the appropriate tab and select that span you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

7. Modify the Span attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

8. Select **OK**.

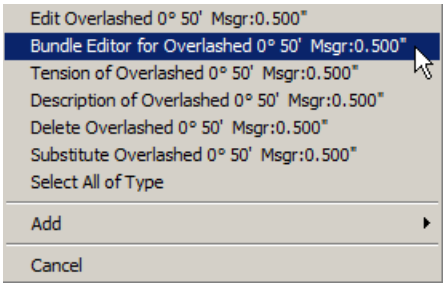
   Note: *To add additional spans to the span bundle complete steps 5 – 8.*

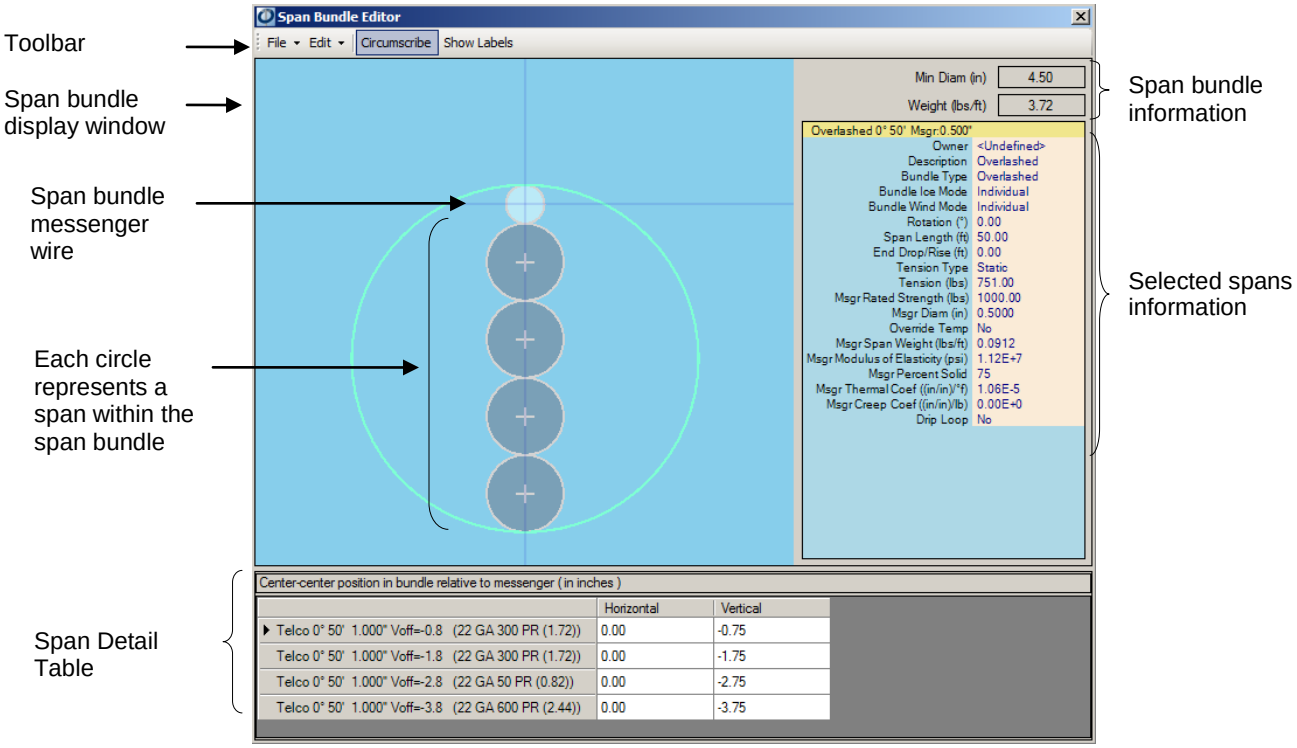
   Note: *To undo additions, select* ***Edit>Undo***.

Working with the Span Bundle Editor

Use the Span Bundle Editor to quickly and efficiently edit the spans positions or add additional spans to a span bundle. To open the Span Bundle Editor, complete the following steps:

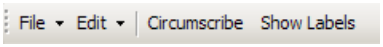
1. Right click on the Span Messenger wire you want to edit.
2. Select **Bundle Editor for (*bundle display name*)**.

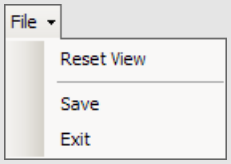
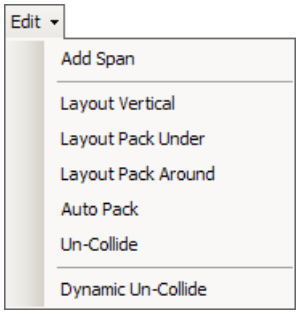




Span Bundle Editor Toolbar Options

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



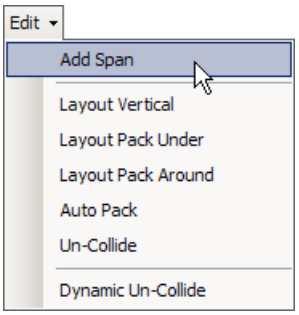
	**File.** The following options are available from the File menu: **Reset View.** Select the Reset View option to set the Span Bundle editor back to the default view. **Save.** Select the Save option to save any changes or additions. **Exit.** Select the Exit option to close the Span Bundle Editor.
	**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 as close as possible given their size.

	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.
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.

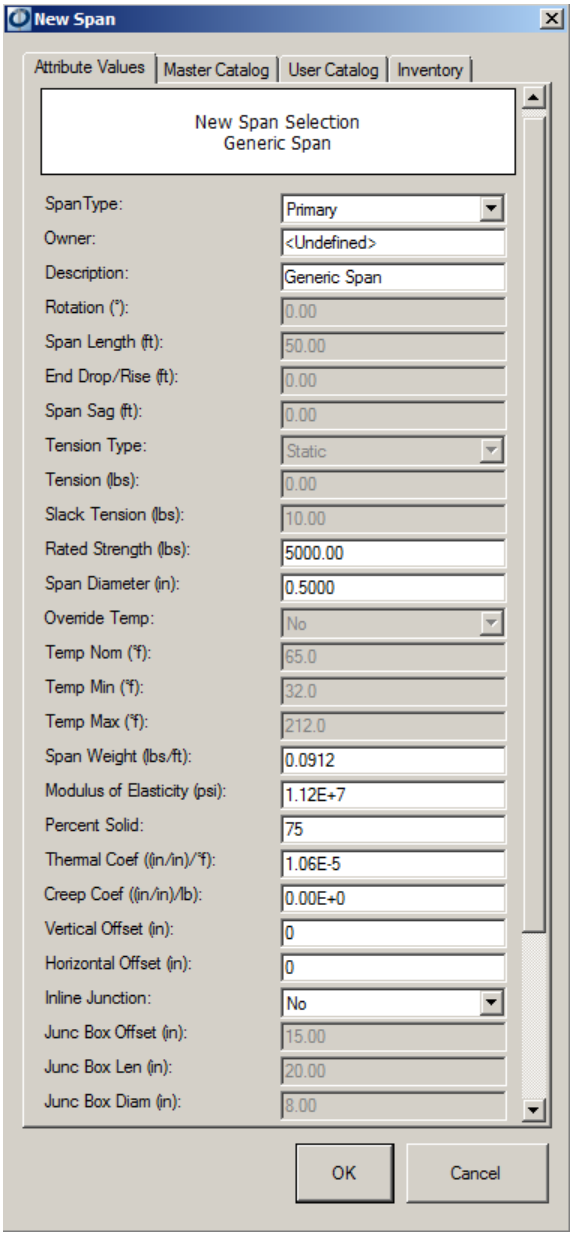
Adding a Span to a Span Bundle

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

1. Select **Edit>Add Span**.



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



Note: *To add a span from the Catalog Window or in the Inventory Window select the appropriate tab and select that span you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

2. Modify the Span attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

3. Select **OK**.

   Note: *The span is automatically add to the span bundle and is displayed in the Span Bundle Editor.*

4. Select **File>Save**.

Repositioning Spans in the Span Bundle

The Span Bundle Editor offers three ways you can repositions spans within the editor. To reposition span(s) in the span bundle using the Span Bundle Editor, use one of the following options:

A. Select **Edit** and select a layout option from the Edit menu.

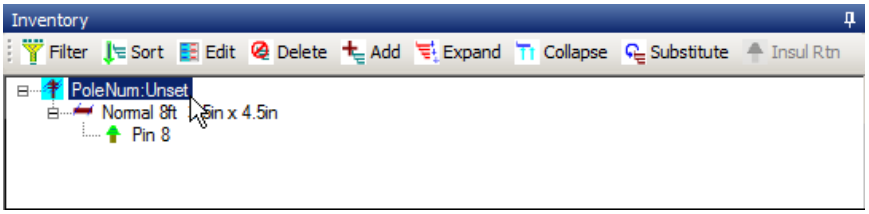
B. Left click a span in the Span Bundle Display window and **drag the span** to a new location.

C. Manually **enter a horizontal and/or vertical value** for a specific span in the Span Detail Table.

Adding Damage and Decay to a Pole

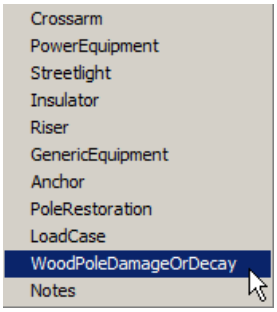
To add damage or decay to a pole, complete the following steps:

1. Select the Pole you want to add damage or decay to.

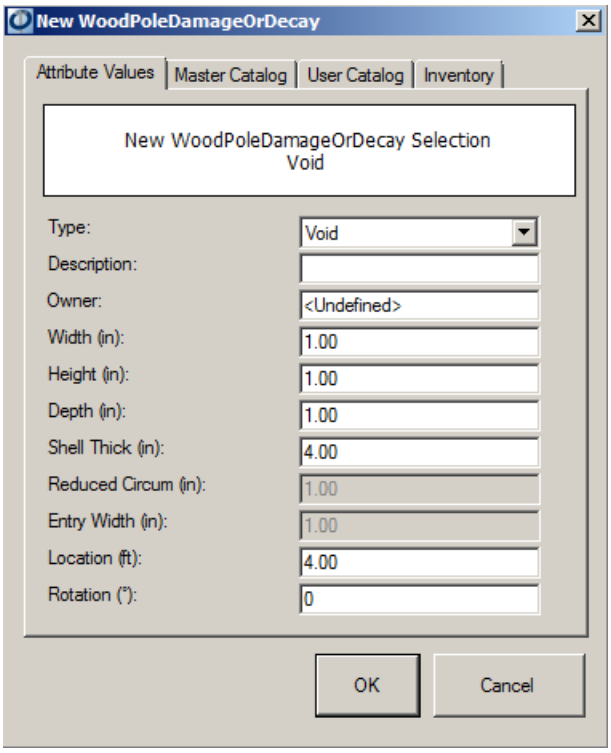


2. Select the **Add** button  and select the **WoodPoleDamageOrDecay** option.

Note: *The Wood Pole Damage or Decay option can also be accessed by right clicking on the pole in the Inventory Window.*



Note: *Only one piece of damage or decay can be added at a time.*

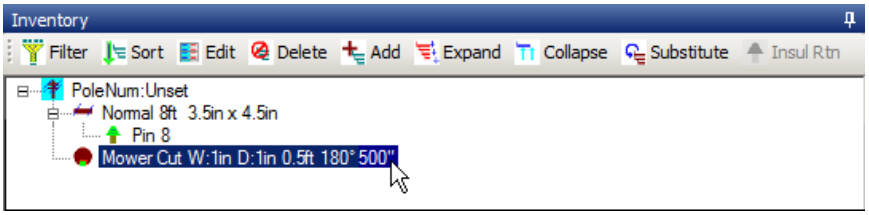


Note: *To add a damage or decay item from the Catalog Window or in the Inventory Window select the appropriate tab and select that damage or decay you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*

3. Modify the new damage or decay's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

4. Select **OK**.

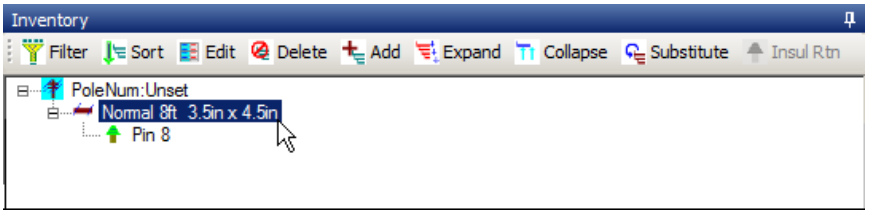


Note: *To undo additions, select* ***Edit>Undo****.*

Editing Equipment Attributes

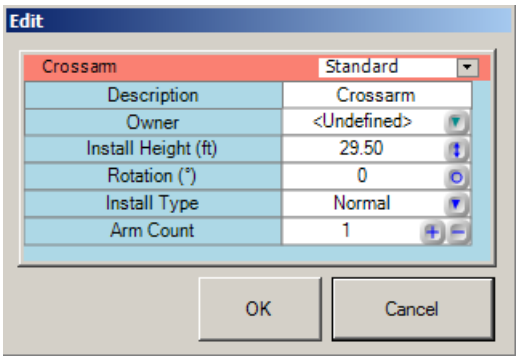
To edit equipment attribute(s), complete the following steps:

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



2. Select the **Edit** button Edit.

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)****.*



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

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

Editable Icons	*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.

3. Complete your edits to the equipment's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

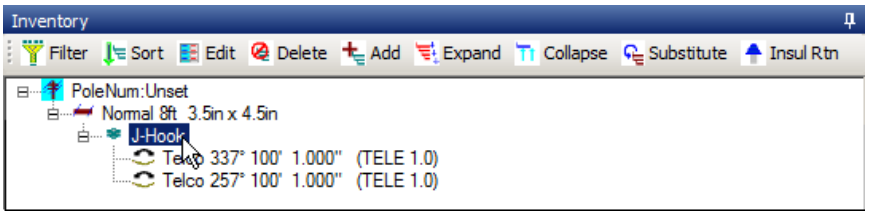
4. Select **OK**.

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

Rotating Insulators to Match Span Angles

To rotate an insulator to be appropriate for attached span angles, complete the following steps:

1. Select the insulator you want to rotate.



2. Select the **Insulator Rotation** button .

   The selected insulator is automatically rotated to the span angle.

   Note: *The Rotate to Span Angle option can also be accessed by right clicking on the insulator to be rotated and selecting* ***Rotate to Span Angle****.*

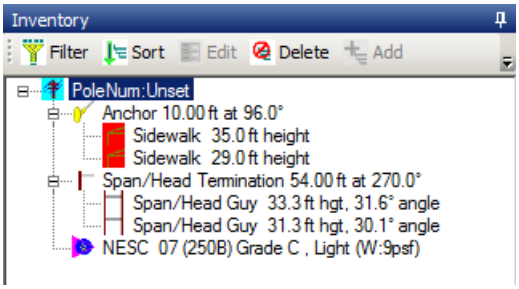
   Note: *To undo the insulator rotation change, select* ***Edit>Undo****.*

Merging Struts (Strut Compression)

O-Calc ® Pro offers the ability to combine comparable struts into one strut for analysis as a single entry. The struts need to be placed on the pole at almost the same height, angle, and length before they can be combined. Once the struts are combined the forces by multiple wires on the same strut. To combine comparable struts, complete the following steps:

1. Select the guys you would like to merge in the Inventory Window.

   Note: *Multiple guys can be selected concurrently by holding down the ctrl key to select more than one guy that is out of sequence. If the guys are next to each other hold down the shift key to select them.*



2. In the Data Entry window toggle the **Merge Like Struts** attribute to **Yes**.

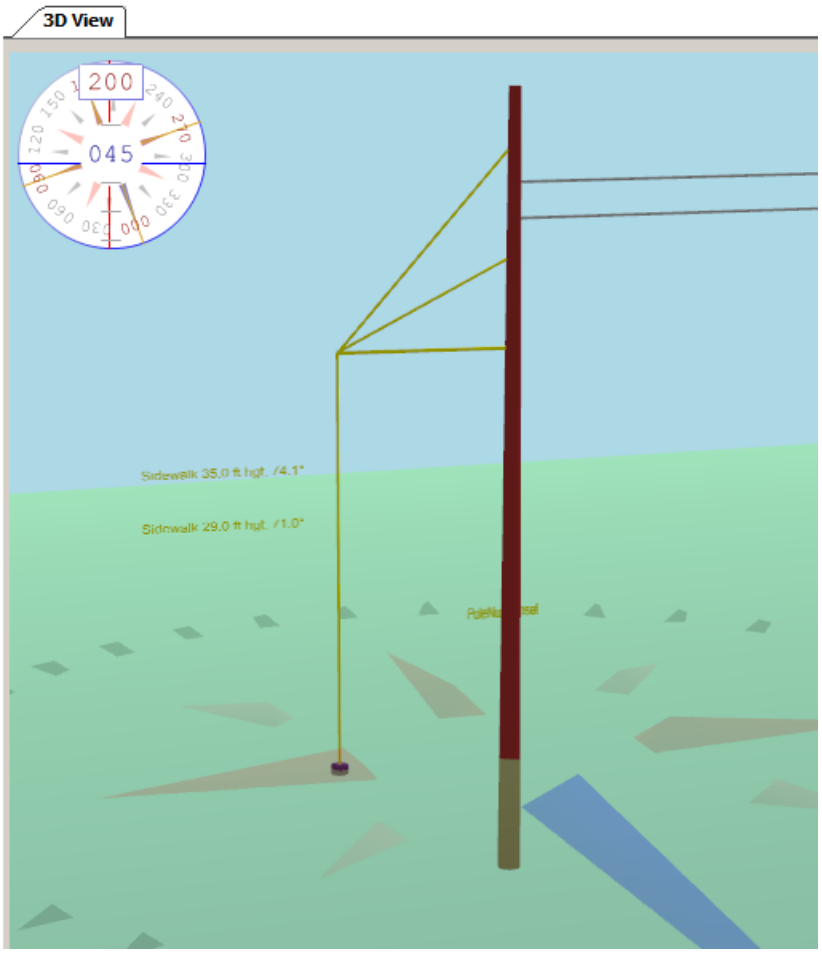
Merge Like Struts Attribute →

Data Entry

GuyBrace < All >

Description		
Owner	<Undefined>	<Undefined>
Type	Sidewalk	Sidewalk
Install Height (ft)	35.00	29.00
Strut Height (ft)	24.00	24.05
Strut Length (ft)	10.00	10.00
Strut Diameter (in)	1.25	1.25
Strut Weight/Len (lbs/ft)	2.27	2.27
Allowable Strut Load (lbs)	17000	17000
Merge Like Struts	Yes	Yes
Span Guy DeltaHt (ft)	-N/A-	-N/A-
Diameter (in)	0.500	0.500
Percent Solid	100	100
Pre-tension (lbs)	700	700
Vertical Offset (in)	0	0
Horizontal Offset (in)	0	0
Lateral Offset (in)	0	0
Tension Mode	Calculated	Calculated
Man Tension (lbs)	-N/A-	-N/A-
Strength (lbs)	26900	26900
Weight (lbs/ft)	0.4090	0.4090
Modulus of Elasticity (psi)	2.60E+7	2.60E+7

Note: *All windows within O-Calc® Pro are automatically recalculated and updated to reflect the attribute selection.*

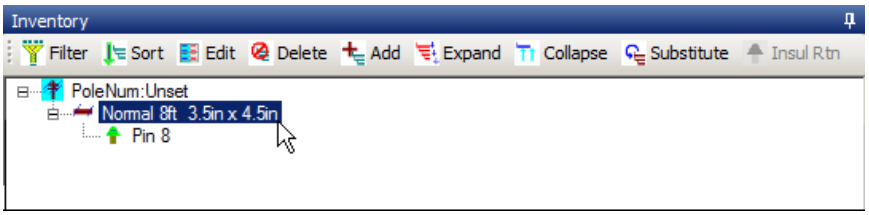


Note: *O-Calc ® Pro provides a Strut Evaluation Summary so you can easily evaluate the load applied to a sidewalk guy strut arm by the guy or guys impinging upon it. To display the Strut Evaluation Summary see* *Viewing the Strut Evaluation Summary**.*

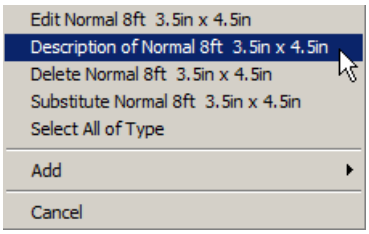
Change the Display Description

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

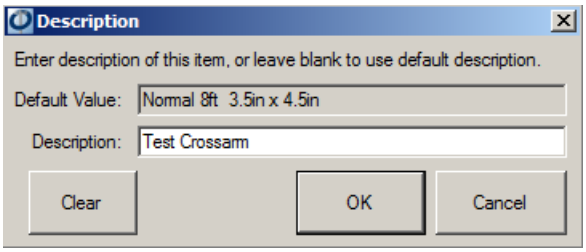
1. Right click on the pole or attached equipment you want to change the display description of.



2. Select **Description of (*pole or equipment display name*)**.

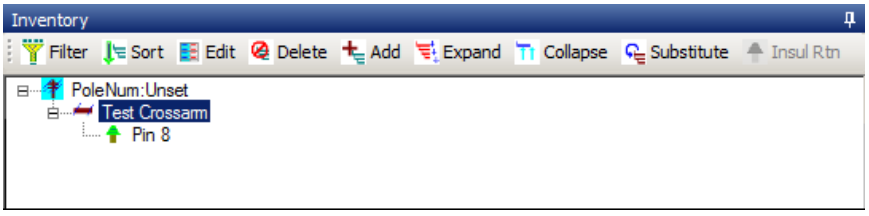


3. Enter the **Description** you would like to be displayed.



Note: *Select* ***Clear*** *to clear the description field and use the default value.*

4. Select **OK**.

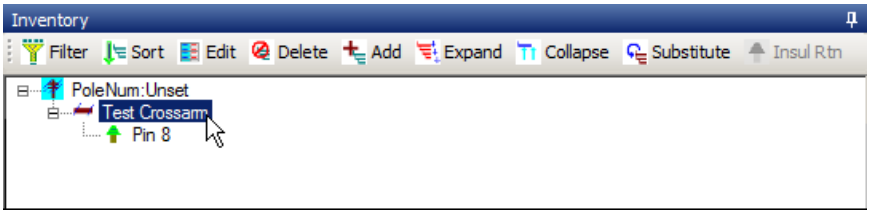


Note: *To undo the display description change, select* ***Edit>Undo***.

Deleting Attached Equipment

To delete equipment that is attached to a pole, complete the following steps:

1. Select the equipment to be deleted.

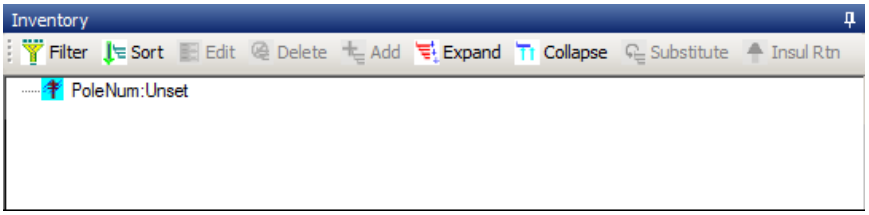


Note: *Multiple pieces of equipment can be deleted concurrently if they are all the same type of equipment. Hold down the ctrl key to select more than one piece of equipment that is out of sequence. Hold down the shift key to select several pieces of equipment that are next to each other.*

2. Select the **Delete** button 

.

Note: *Individual equipment can also be deleted by right clicking on the equipment to be deleted and selecting* ***Delete (equipment)***.

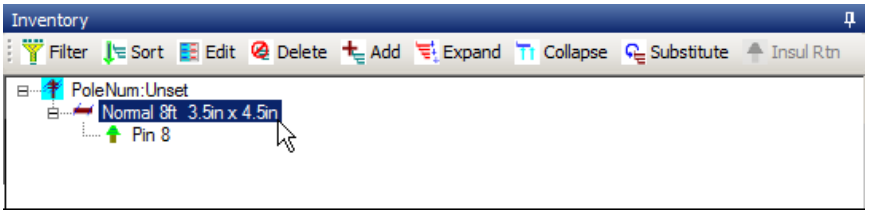


Note: *To undo a deletion, select* ***Edit>Undo****.*

Substituting Attached Equipment

To substitute attached equipment in the Inventory Window, complete the following steps:

1. Select the equipment you would like to substitute.

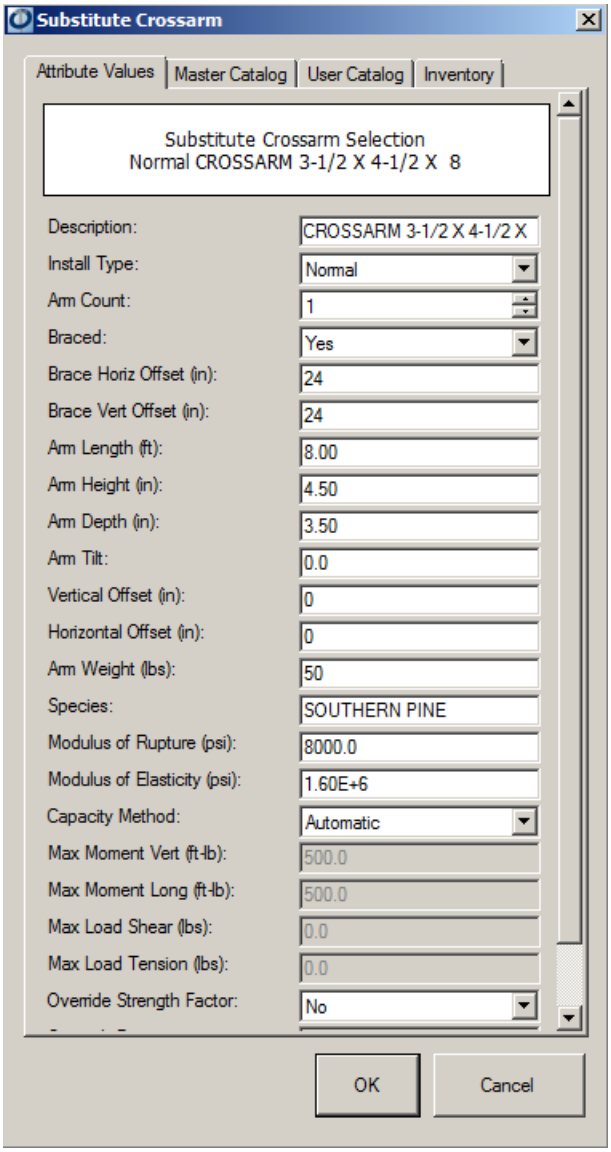


Note: *Multiple pieces of equipment can be substituted concurrently if they are all the same type of equipment. Hold down the ctrl key to select more than one piece of equipment that is out of sequence. Hold down the shift key to select several pieces of equipment that are next to each other.*

2. Select the **Substitute** button 

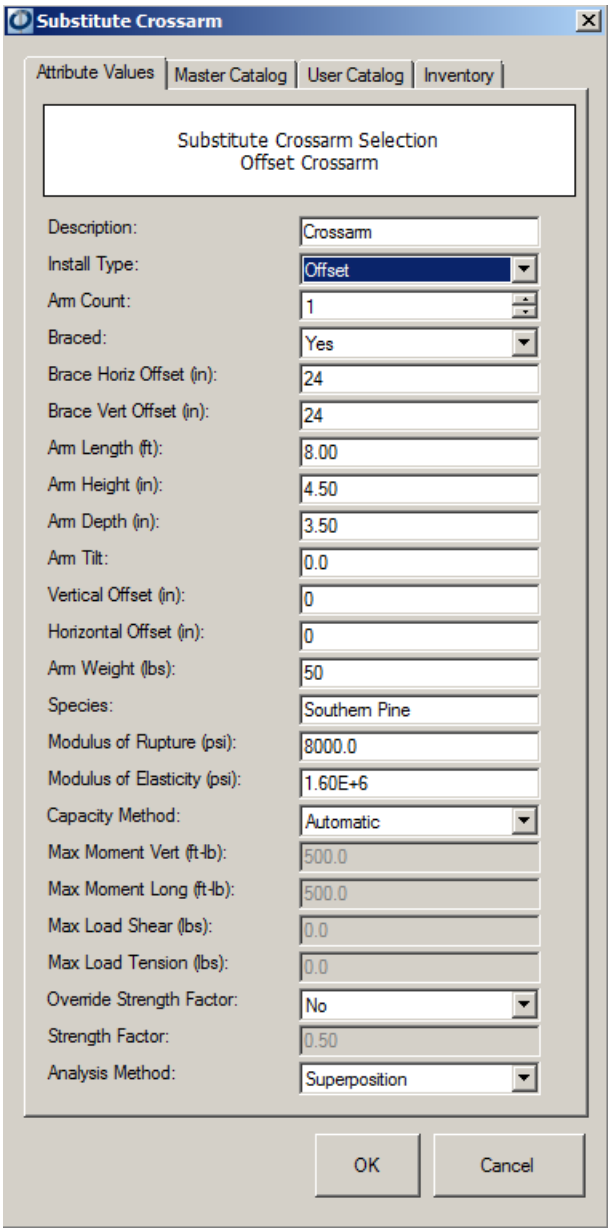
.

Note: *The Substitute option can also be accessed by right clicking on the equipment that needs to be substituted and selecting* ***Substitute (Equipment display name).***



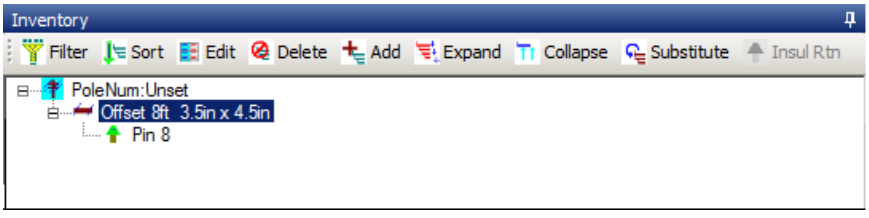
3. Modify the equipment's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*



Note: *To substitute equipment with equipment from the Catalog Window or in the Inventory Window select the appropriate tab and select the equipment you want to use as the substituted equipment. For additional information on the Catalog Window see* *Working With the Catalog Window**.*

4. Select **OK**.

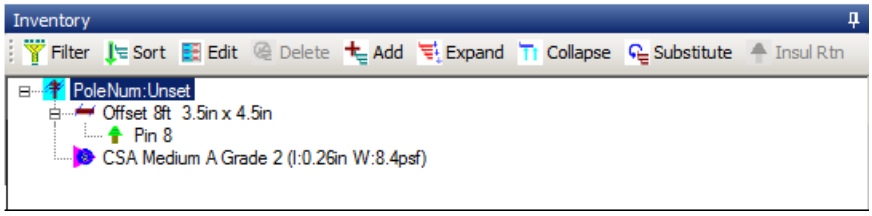


Note: *To undo the substitution change, select* ***Edit>Undo.***

Substituting a Pole

To substitute a pole in the Inventory Window O-Calc® Pro provides you with three options. You can either manually select the substitute pole, select the substitute pole from the Catalog Window or you can use the Pole Solver option to help you select the substitute pole. The pole solver option will display the minimum pole class and the estimated capacity that would be used based on the pole's current load. To substitute the current pole, complete the following steps:

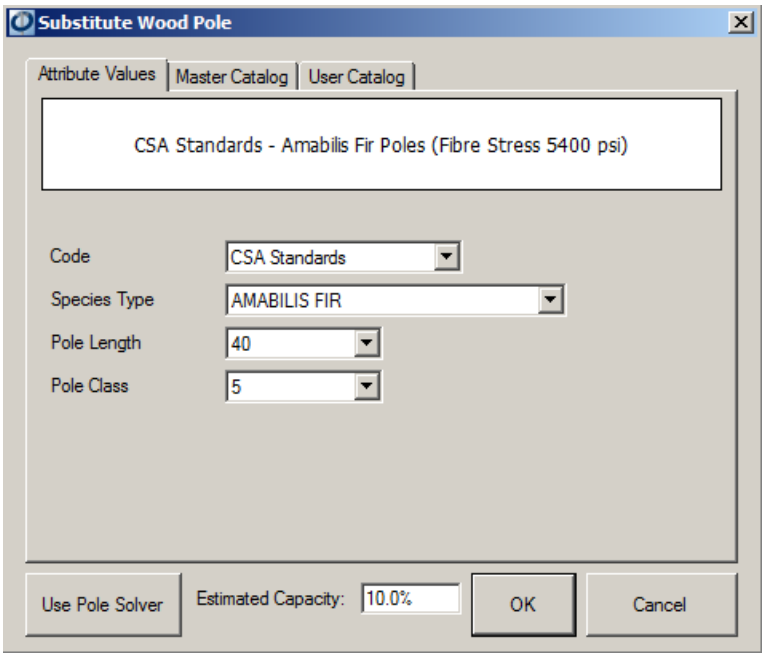
1. Select the pole you would like to substitute.



2. Select the **Substitute** button 

.

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



3. Use one of the following methods to select the substitute pole you want:

   Note: *The Estimated Capacity percentage will automatically be updated dependent on your attribute selections.*

   A. **Manually** select the substitute pole attributes.

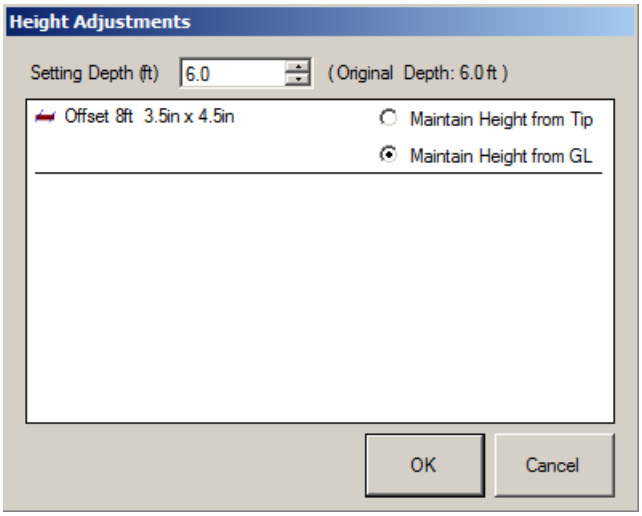
   B. Select the substitute pole from the **Master Catalog** or **User Catalog** tab. The attributes can still be modified if needed.

Note: *To substitute the current pole with a pole from the Catalog Window select the appropriate tab and select the pole you want to use as the substituted pole. For additional information on the Catalog Window see* *Working With the Catalog Window*.

C. Select the **Use Pole Solver** button Use Pole Solver to have O-Calc® Pro automatically select the minimum Pole Class that would provide you with a passing pole.

4. Select **OK**.

   If there are primary attachments already on the pole the Height Adjustment window will automatically be displayed. The Height Adjustment window allows you to adjust the substitute poles depth and the height of the primary attachments relative to groundline or the tip of the substitute pole.



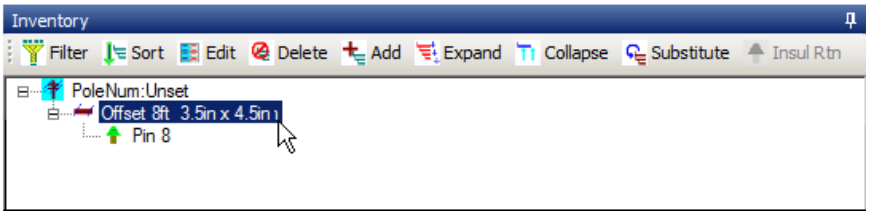
5. Modify the Pole Depth if required.
6. Verify and change each primary attachments height if required.
7. Select **OK**.

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

Adding a Note to the Pole or Attached Equipment

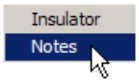
To add a note and/or calculations to a pole or attached equipment in the Inventory Window, complete the following steps:

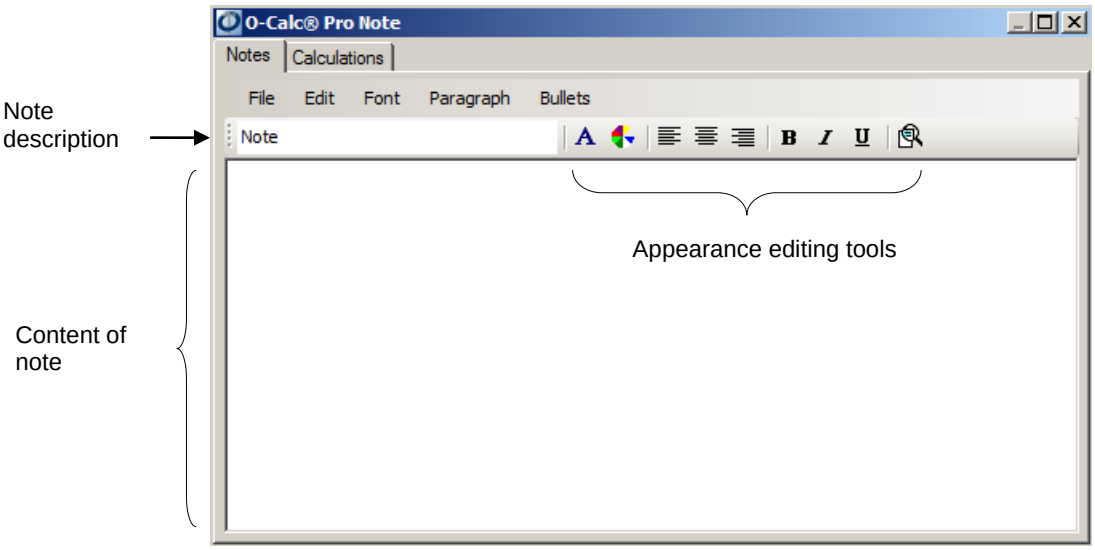
1. Select the pole or pole attachment.



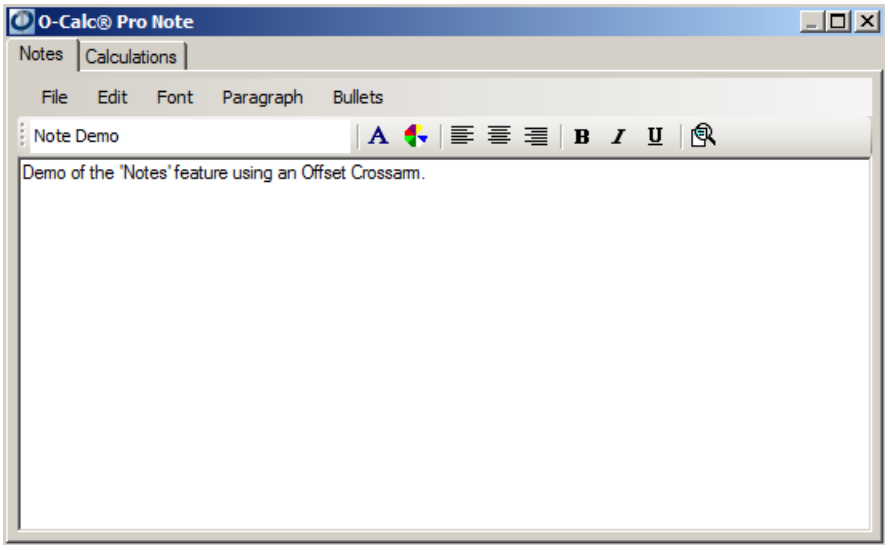
2. Select the **Add** button Add and select the **Notes** option.

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





3. Enter a description and the note context.

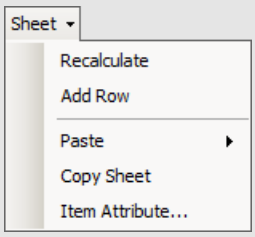


4. Select the Calculations tab.

   The Calculations tab provides a light weight spreadsheet that allows you to enter values such as numeric and string 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.

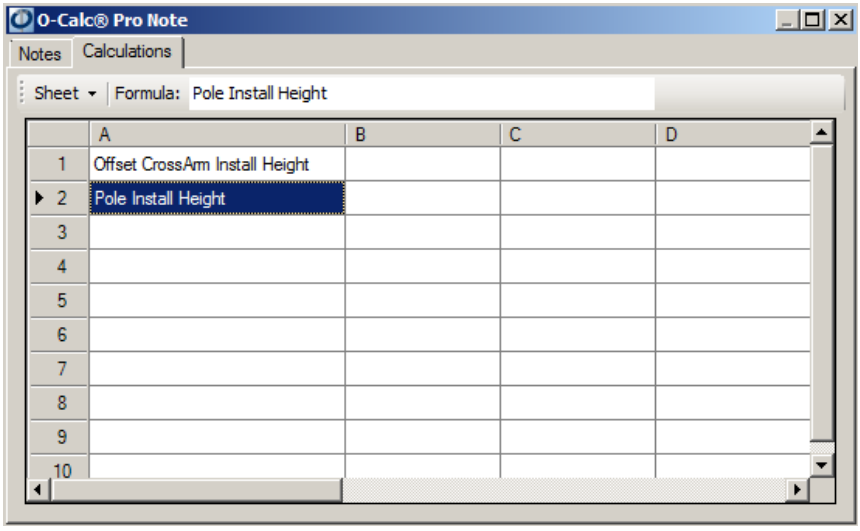
   Note: *When working with the Measure Window numeric values can also be obtained from taking actual image measurements. For additional information on this, see* *Adding Measurements Information to a Note*.

In addition to the basic notes menu options the Calculations tab provides the following menu options:

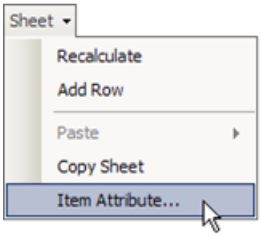
	**Recalculate.** Select the Recalculate option to update any formula calculations in the spreadsheet. **Add Row.** Select the Add Row option to add a row to the spreadsheet. **Paste**. Select the Paste option to paste values only or complete text from the Office Clipboard directly into the spreadsheet. **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.

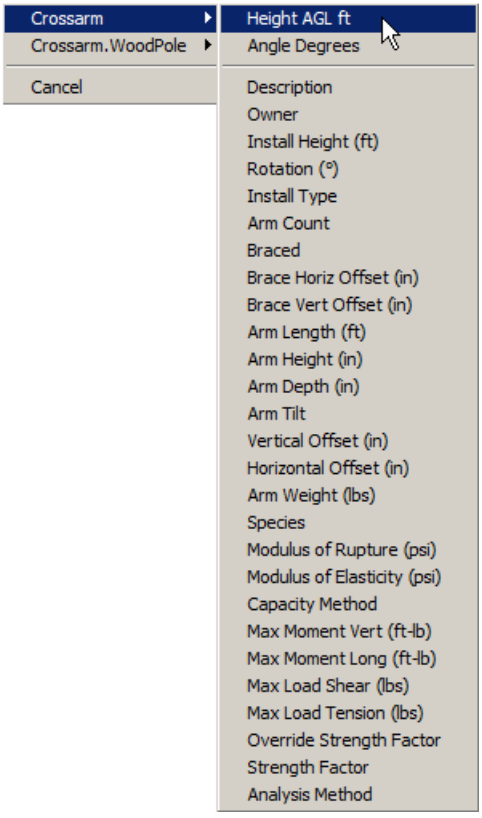
5. Enter data or calculations into the spreadsheet.

String values entered into the spreadsheet

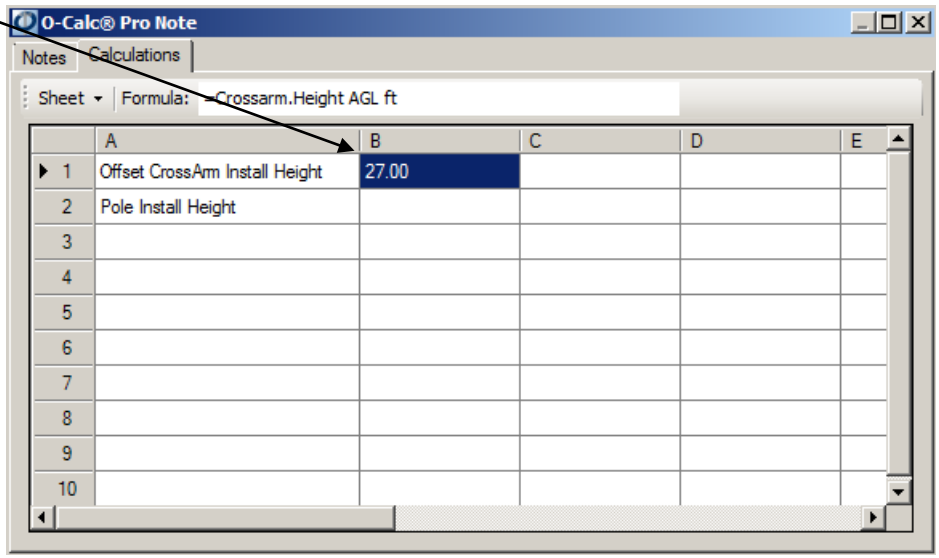


To incorporate attribute value from the equipment the note is attached to or from a parent item, perform the following steps. Select the field you want the value populated into. From the menu select **Sheet> Item Attribute** and choose the items whose attribute value you need displayed in the spreadsheet.

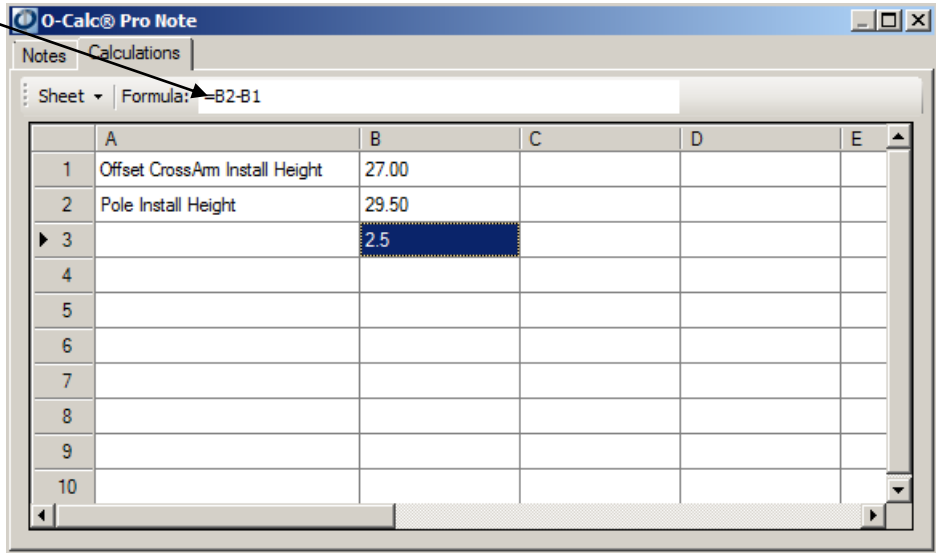




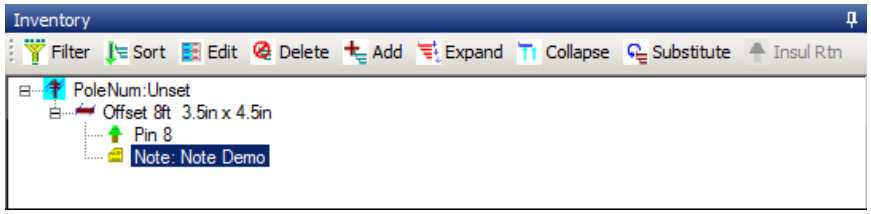
Selected Offset Crossarm Install Height attribute value



Manually entered formula



6. Select **File>Save**.

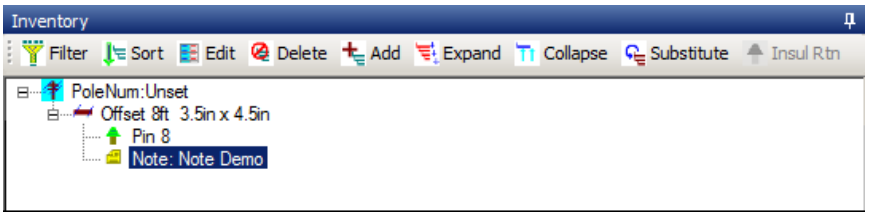


Note: *To undo the addition of the Note, select* ***Edit>Undo*** *from the main toolbar.*

Editing a Note

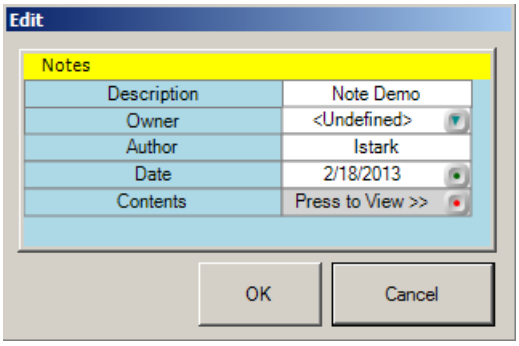
To edit a note or the calculations, complete the following steps:

1. Select the note you want to edit.



2. Select the **Edit** button Edit.

   Note: *The edit option for a note can also be accessed by right clicking on a note and either selecting* ***Edit Note*** *or* ***View / Edit Content****.*



   Note: *Basic changes to a Notes Description, Owner, Author or Date can be made right from the Edit Window. Content changes to a Note or Calculations need to be completed from within the Note Window.*

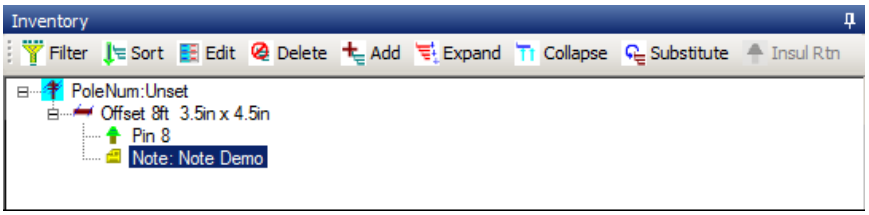
3. Select the **Contents** button .
4. Complete your edits to the note contents or the calculations.
5. Select **File>Save**.

   Note: *To undo the addition of the Note, select* ***Edit>Undo*** *from the main toolbar.*

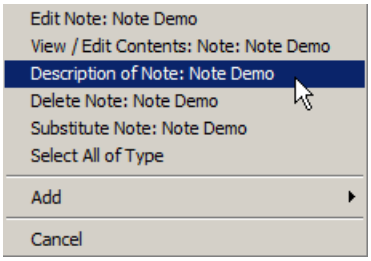
Change the Description of a Note

To change the description that displays next to a note icon in the Inventory Window, complete the following steps:

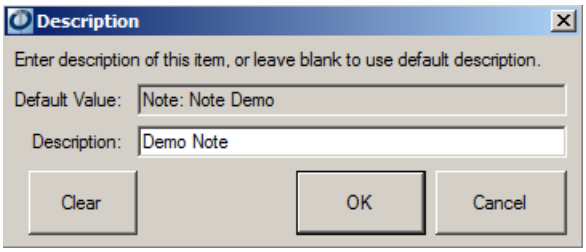
1. Right click on the note you want to change the display description of.



2. Select **Description of (*note display name*)**.

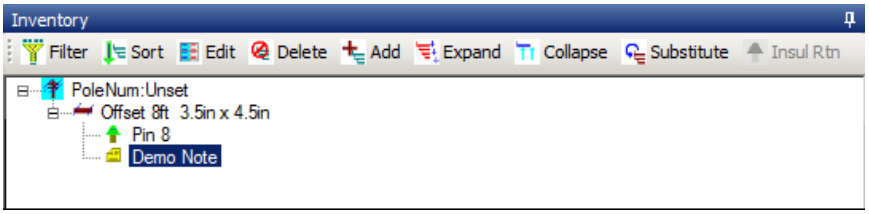


3. Enter the **Description** you would like to be displayed.



Note: *Select **Clear** to clear the description field and use the default value.*

4. Select **OK**.

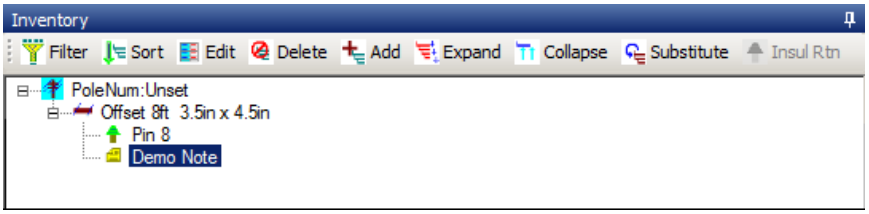


Note: *To undo the display description change, select **Edit>Undo**.*

Delete a Note

To delete a note, complete the following steps:

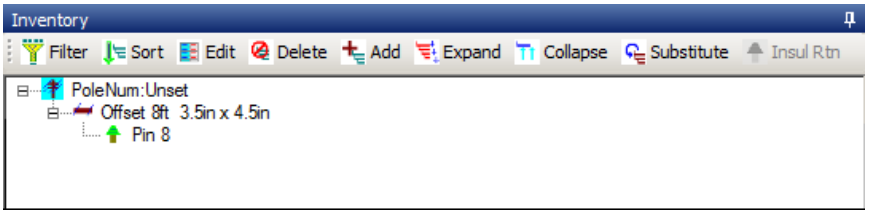
1. Select the note to be deleted.



2. Select the **Delete** button 

.

Note: *Notes can also be deleted by right clicking on the note to be deleted and selecting **Delete (note display name)**.*

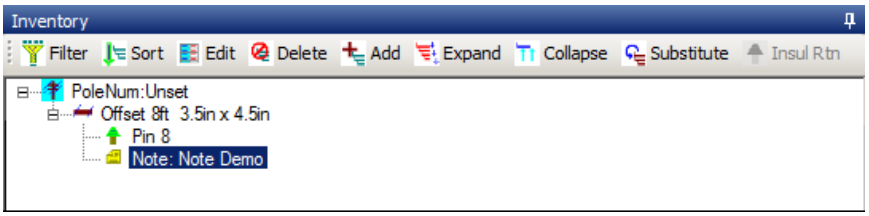


Note: *To undo a deletion, select **Edit>Undo**.*

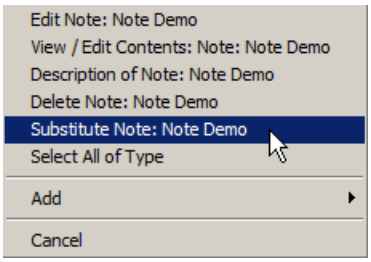
Substitute a Note

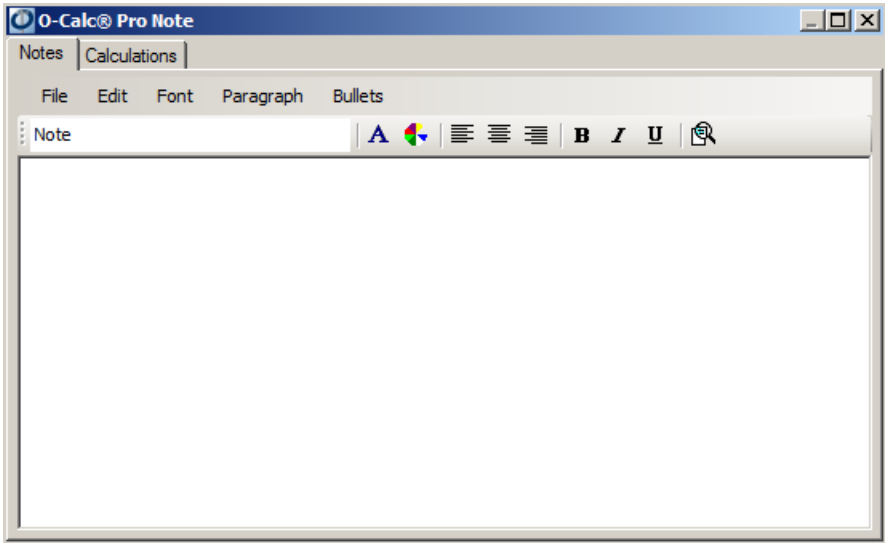
To substitute a note, complete the following steps:

1. Right click on the note you would like to substitute.

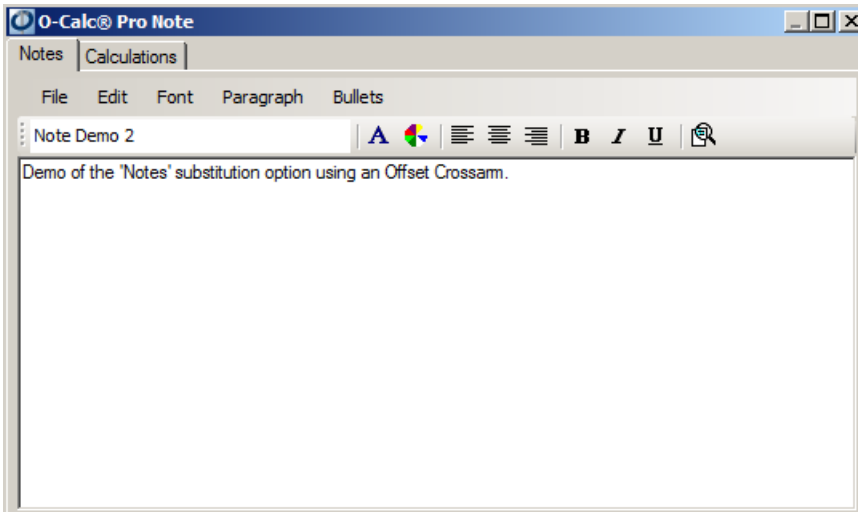


2. Select **Substitute (*note display name*)**.

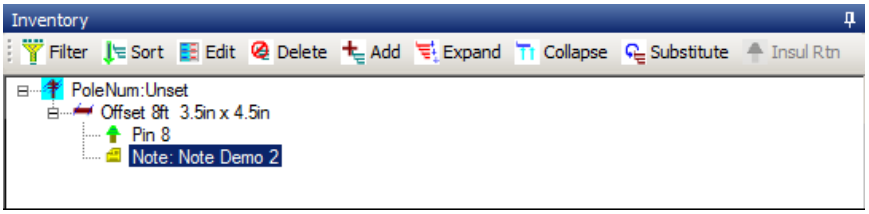




3. Enter a description, the note context and grid data.



4. Select **File>Save**.



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

Sorting the Attached Equipment

To sort the equipment in the Inventory Window so that it displays in a top down view of the pole, complete the following steps:

1. Select the **Sort** button Sort.

   Note: *To undo the sort operation, select* ***Edit>Undo****.*

Filtering the Attached Equipment

To utilize the Filtering option in the Inventory Window, see Filtering the 3D View.

Expand or Collapse the Tree View

To expand or collapse the Inventory Window tree view, complete the following steps:

1. Select the **Collapse** button Collapse to collapse the Inventory Window tree view.

   OR

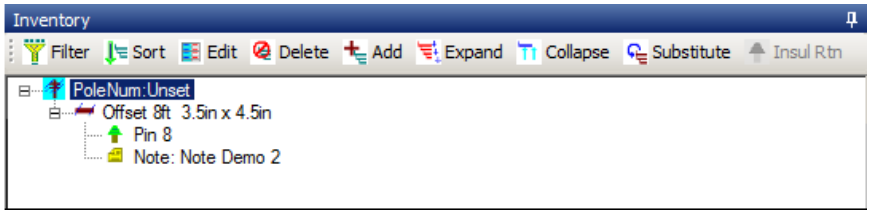
   Select the **Expand** button Expand to expand the Inventory Window tree view.

Create a New Version of the Existing Pole

While working with a pole in the Inventory Window it may be beneficial to compare multiple versions of the pole simultaneously. O-Calc® Pro provides the ability to create multiple pole versions without losing any the functionality that O-Calc® Pro is known for.

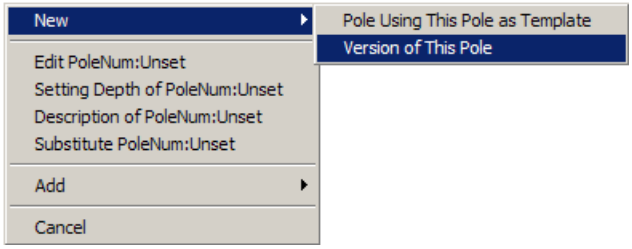
To create a new version of the existing pole in the Inventory Window, complete the following steps:

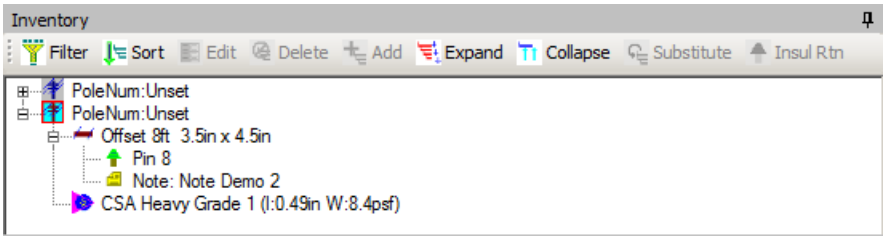
1. Right click on the Pole you would like to create another version of.



Note: *A pole needs to display in the Inventory Window to enable any of the Version options.*

2. Select **New>Version of This Pole**.





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

The new version automatically becomes the active version in the Inventory Window. The active version of a pole is always outlined in red to easily identify which pole's data is being displayed in O-Calc ® Pro. The only exception to this is the Data Entry Window which will always display the currently *selected* pole.

When saving a pole, all versions of the pole will be saved.

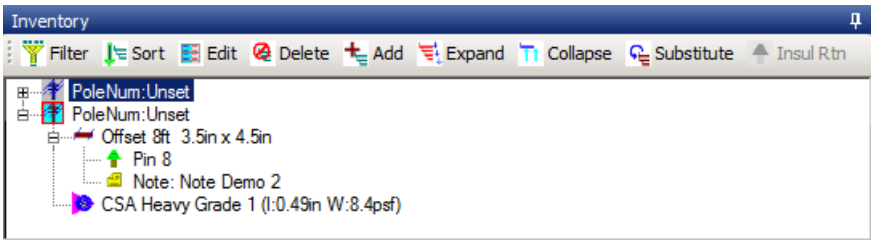
Note: *To create a version of a new base pole without any attachments in the Inventory Window, select* ***Edit>New Version>Wood Pole****.*

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

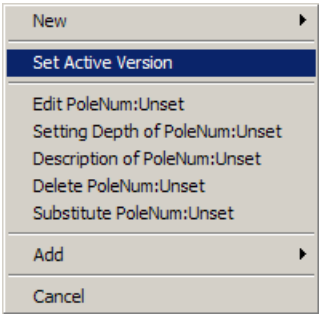
Setting the Active Version

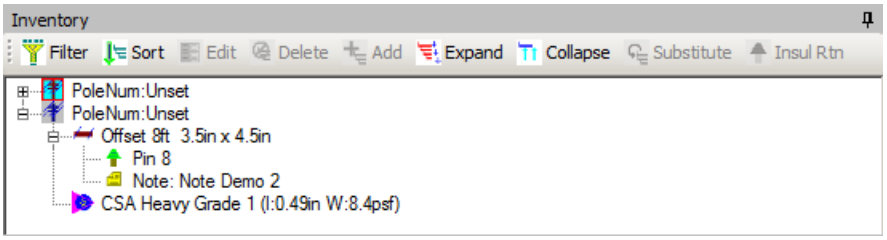
To set which pole is the active version in the Inventory Window, complete the following steps:

1. Right click on the Pole you would like to make the active version.



2. Select **Set Active Version**.





Note: *The selected pole is now outlined in red*  *indicating it's the active version. All the windows in O-Calc® Pro are automatically recalculated and updated to reflect the selected active version.*

Note: *The Data Entry Window will always display the currently selected pole.*

Working with Stub Poles

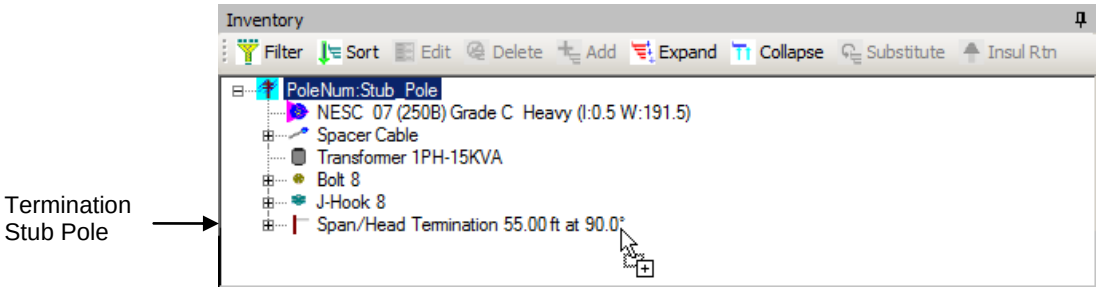
While working with a pole that has a span/head guy going to a proximal stub pole attachment in the Inventory Window it is often the case that you may want to perform analysis on the stub pole as well. O-Calc® Pro provides a convenient method to perform stub pole analysis. You can either create the stub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

Creating a New Pole Using a Stub Pole

To create the stub pole as a completely new pole within the Inventory Window, complete the following steps:

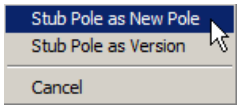
1. Left click on the pole you would like to use to create a new pole. The new pole can either be the current pole in the Inventory Window or a pole from the Catalog.
2. Hold down the mouse button and drag and drop the selected pole onto the Span/Head Termination object in the Inventory Window.

   Note: *A new stub pole can also be added by right clicking on the Span/Head Termination, selecting* ***Stub Pole as New Pole*** *then manually selecting the new pole.*



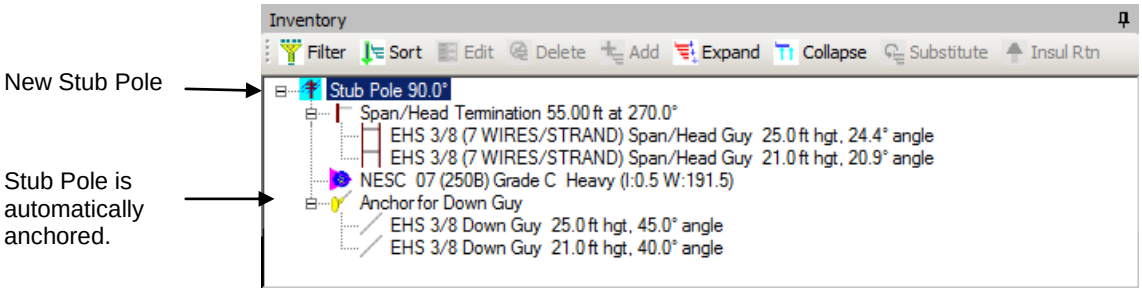
   Note: *While dragging the selected pole to the Inventory Window the cursor will change to an invalid cursor* ⃠. *As the equipment is placed over the Span/Head Termination object in the Inventory Window the cursor will change to indicate a valid move* .

3. Select **Stub Pole as New Pole**.



   Note: *A stub pole needs to be displayed in the Inventory Window to enable this feature.*

4. Select the new pole **Attribute Values**.
5. Select **OK**.



Note: *To disable the automatic guying of the new stub pole, see* *Enabling the Ability to Auto Guy a New Stub Pole*.

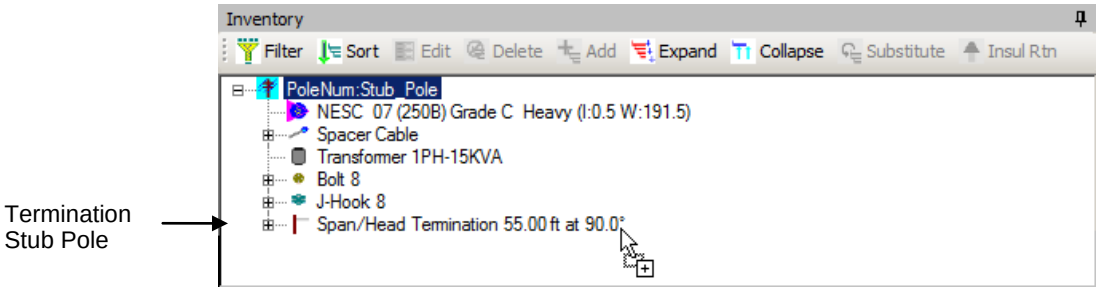
Note: *Undo is not available for this operation.*

Creating a New Version of a Stub Pole

To create a new pole as a version within the same pole within the Inventory Window, complete the following steps:

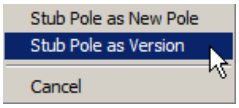
1. Left click on the pole you would like to use to create a new version. The new pole can either be the current pole in the Inventory Window or a pole from the Catalog.
2. Hold down the mouse button and drag and drop the selected pole onto the Span/Head Termination object in the Inventory Window.

Note: *A new pole version can also be added by right clicking on the Span/Head Termination and selecting* ***Stub Pole as Version***.



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

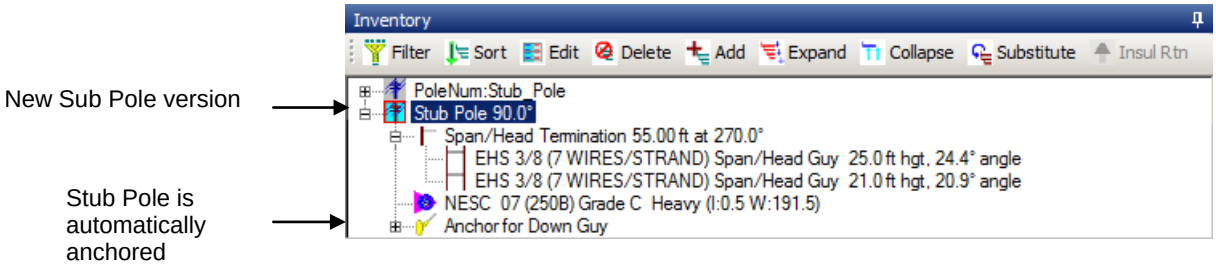
3. Select **Stub Pole as Version**.



Note: *A stub pole needs to be displayed in the Inventory Window to enable this feature.*

4. Select the new pole **Attribute Values**.

5. Select **OK**.



Note: *To disable the automatic guying of the new stub pole, see* *Enabling the Ability to Auto Guy a New Stub Pole*.

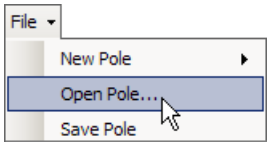
Note: *To remove the new version, select* ***Edit>Undo***.

Note: *The Data Entry Window will always display the currently selected pole.*

Opening an Existing Pole

To open an existing pole in the Inventory Window, complete the following steps:

1. Select **File>Open Pole**.

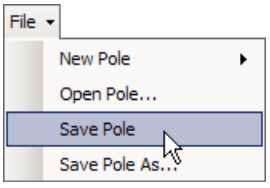


2. Browse to the location of the pole you wish to open and select the (*pole name*).pplx file and click **Open**.

Save a Pole

To save the pole in the Inventory Window, complete the following steps:

1. Select **File>Save Pole**.

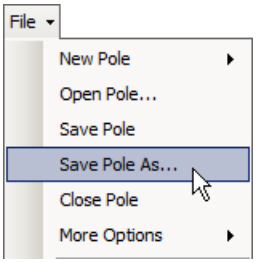


2. Browse to the location where you will save the Pole and click **Save**.

Save a Pole Using Save As

To save a pole as a different file name, format or location, complete the following steps:

1. Select **File>Save Pole As**.

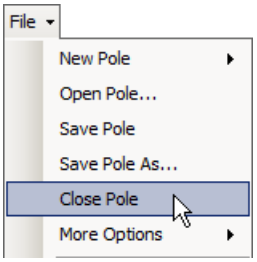


2. Browse to the location where you will save the Pole and click **Save**.

Close an Existing Pole

To close the current pole in the Inventory Window, complete the following steps:

1. Select **File>Close Pole**.

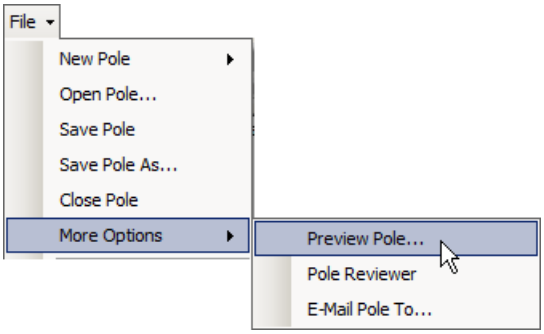


Note: *If any changes have been made to the current pole you will be prompted to save your changes before closing the pole.*

Previewing an Existing Pole

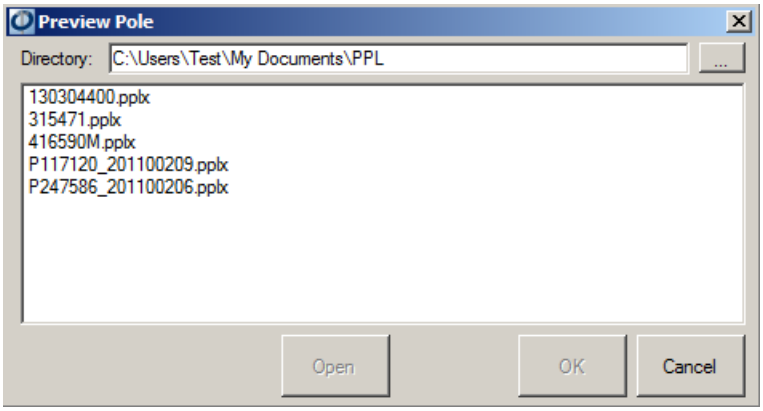
To preview an existing pole(s) without having to load each one manually, complete the following steps.

1. Select **File> More Options>Preview Pole**.



Note: *If you have an unsaved pole loaded in the Inventory Window you will be prompted to save your changes.*

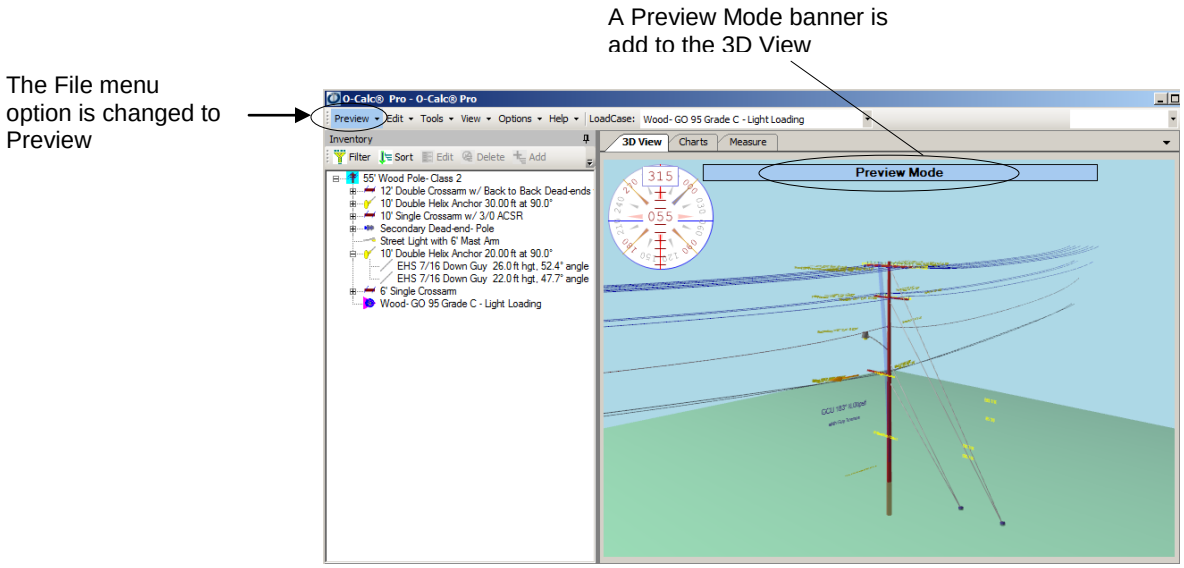
2. Select the Browse button ... and browse to the **Directory** that has the .pplx file(s) you would like to preview.
3. Select **OK**.



4. Select the .pplx file you would like to preview.

   Note: *Select* ***Open*** *to open the selected .pplx file in edit mode instead of Preview Mode. Select* ***Cancel*** *to close the Preview Pole window.*

5. Select **OK.**

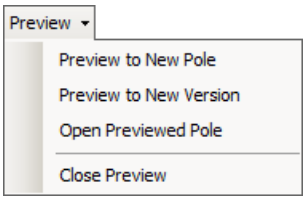


The pole is automatically displayed in Preview Mode within O-Calc Pro.

While previewing a pole in Preview Move several things are changed within O-Calc Pro to clarify that you are actually in Preview Mode. A Preview Mode banner is displayed at the top of the 3D View window. The File menu is automatically switched to Preview and offers several preview options.

Preview Toolbar Menu Options

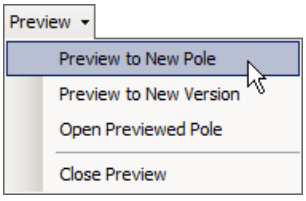
The Preview toolbar menu option provides you with a variety of options:

	**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.

Create a New Pole from a Previewed Pole

To create a new pole from the pole you are currently previewing, complete the following steps:

1. Select **Preview>Preview to New Pole**.



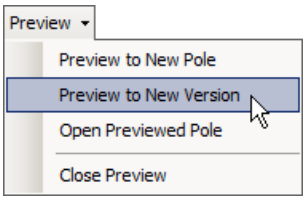
Note: *Once Preview to New Pole is selected the Preview Mode is automatically closed.*

2. Complete any modifications to the new pole.
3. Select **File>Save** to save the new pole.

Create a New Version from a Previewed Pole

To create a new version from the pole you are currently previewing, complete the following steps:

1. Select **Preview>Preview to New Version**.



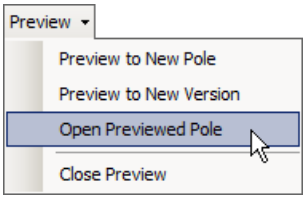
Note: *Once Preview to New Version is selected the Preview Mode is automatically closed.*

2. Complete any modifications to the new version.
3. Select **File>Save** to save the new version.

Open a Previewed Pole

To open the pole you are currently previewing, complete the following steps:

1. Select **Preview>Open Previewed Pole**.



Note: *Once Open Previewed Pole is selected the Preview Mode is automatically closed.*

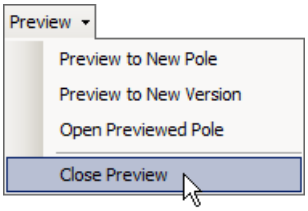
2. Complete any modifications to the pole.
3. Select **File>Save**.

Close the Preview Mode

To close the pole you are previewing and exit the Preview Mode, complete the following steps:

WARNING: *Any changes to the pole you are previewing will NOT be saved.*

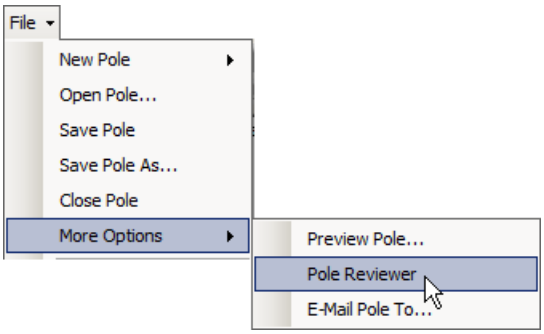
1. Select **Preview>Close Preview**.



Working with the Pole Reviewer

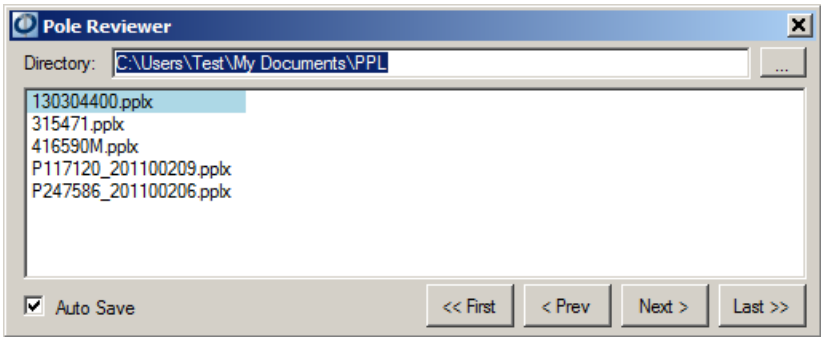
To quickly edit several poles sequentially or to locate .pplx files, complete the following steps.

1. Select **File> More Options>Pole Reviewer**.



Note: *If you have an unsaved pole loaded in the Inventory Window you will be prompted to save your changes.*

2. Select the Browse button [...] and browse to the **Directory** that has the .pplx files.
3. Select **OK**.



Note: *The first pole in the Pole Reviewer list will automatically be displayed in the Inventory Window.*

4. Complete any modifications to the currently loaded pole and select **Next** to load the next .pplx file in the Inventory Window.

   Note: *If the **Auto Save** option is deselected you will be prompted to save the changes to each .pplx file you change.*

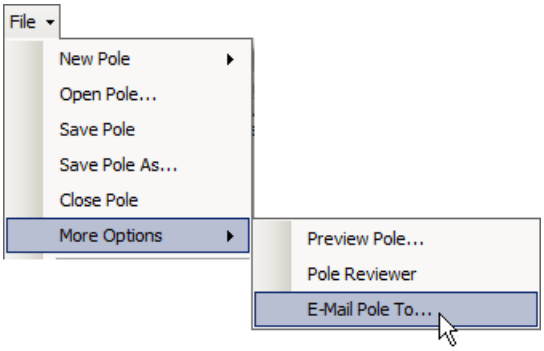
5. Select the **X** in the upper right hand corner to close the Pole Reviewer window.

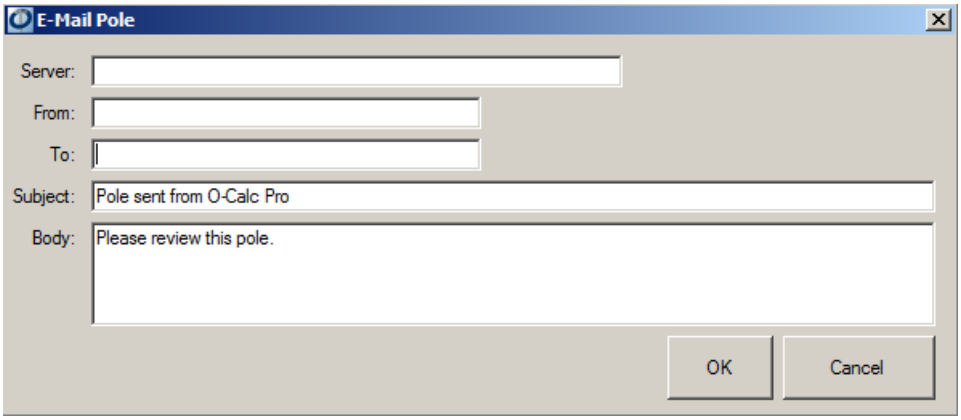
E-Mail a Pole

To send the current pole model file via e-mail to another individual, complete the following steps:

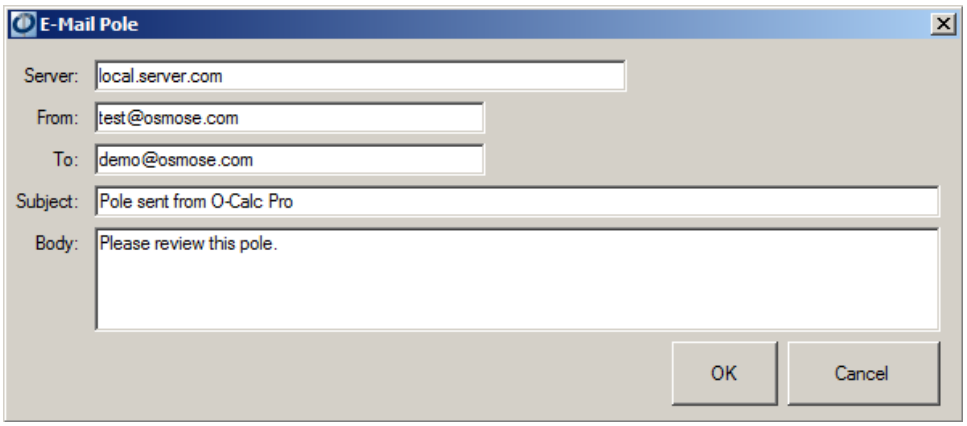
Note: *The current pole does not need to be saved in order to use the e-mail option.*

1. Select **File>More Options>E-Mail Pole To**.





2. Enter a valid **e-mail sever** (SMTP or Exchange).
3. Enter **senders e-mail** address.
4. Enter the **recipients e-mail** address.
5. Enter a **subject**.
6. Enter a **message**.



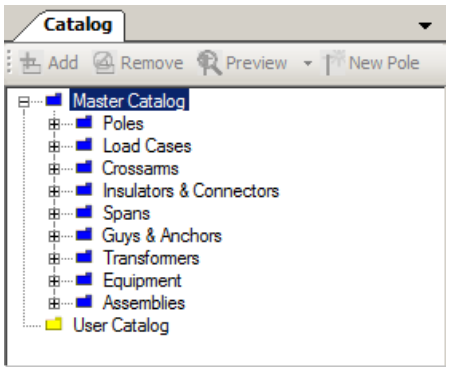
7. Select **OK**.
8. Select **OK** to the confirmation message.

Note: *E-mail connection is required.*

Working With the Catalog Window

Catalog Window Overview

The Catalog Window provides you with the ability to efficiently assemble a pole and its common equipment in the Inventory Window. The Catalog Window consists of two main areas. The Master Catalog contains a compiled list of common poles, assemblies and equipment that are utilized in the field. It also contains a complete listing of all the available Load Cases. The User Catalog is a folder in which you can compile your own list of poles or equipment that you've created. You can then use the data in the User Catalog to build additional poles in the Inventory Window.



Note: *Changes and addition can only be done in the Master Catalog when you are in Administrative User Mode. Load Cases cannot be edited in the Master Catalog.*

Catalog Window Toolbar Menu Options

The Catalog Window toolbar provides you with a variety of option.

Add	**Add.** Select the Add option to add a sub folder to a User Catalog folder.
Remove	**Remove.** Select the Remove option to remove a selected folder or object within the User Catalog.
Preview	**Preview**. Select the Preview option to preview a pole in the Inventory Window from the selected catalog pole.
New Pole	**New Pole.** Select the New Pole option to create a new pole in the Inventory Window from the selected catalog item.

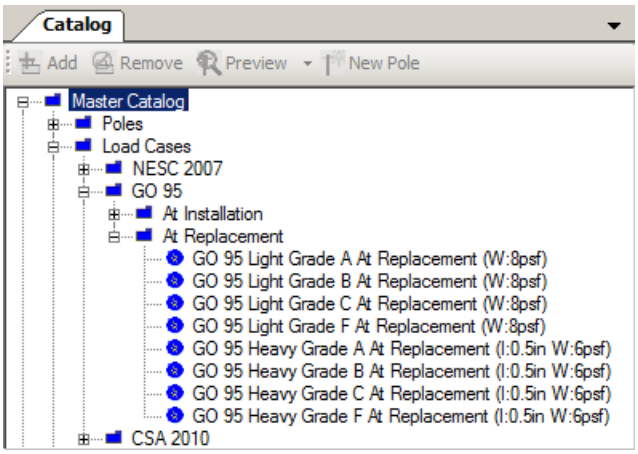
Master Catalog Functions

Set a Default Load Case

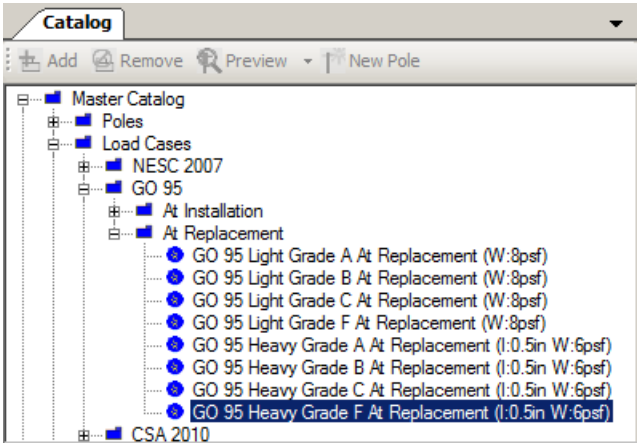
Load cases are used to group a series of loads, boundary and safety conditions into load environments. The master Catalog provides a dynamic listing of load cases broken down into categories. For each category, a default load case should be specified so that the correct one is used each time a pole of that category is created. Use the following steps to set a default load case for each category:

1. Expand the Master Catalog folder.
2. Expand the **Load Cases folder** until the catalog list you need is displayed.

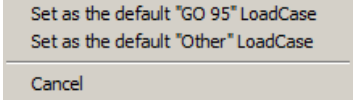
   Note: *A default Load Case can only be selected from the Master Catalog.*



3. Right click on the Load Case you want to set as the default.



4. Select **Set as the default "GO 95" LoadCase**.



5. Select **OK** to the verification message.

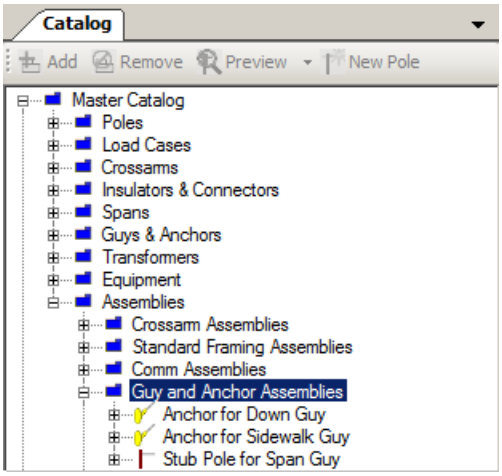
Note: *A default LoadCase can be set for each LoadCase category. In addition one extra LoadCase is allowed to be set. This extra LoadCase is the "Other" LoadCase. Complete steps 1 – 5 to set the default LoadCases for each category. The default Load Case can be changed at any time.*

Set a Default Auto-Guy Assembly

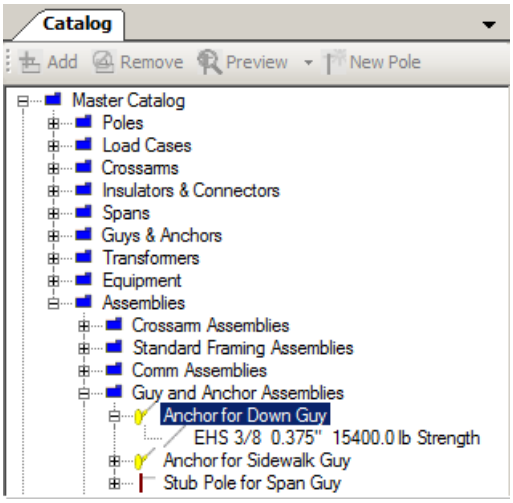
An Auto-Guy Assembly is used in the 3D View to properly guy a structure using a limited number of steps. An Auto-Guy Assembly should consist of one guy and one anchor. The Master Catalog provides a common listing of Guy and Anchor Assemblies. A default Guy and Anchor Assembly should be specified so that the correct one is used each time the Auto-Guy option is used. Use the following steps to set a default Auto-Guy assembly:

1. Expand the Master Catalog folder.
2. Expand the **Assemblies> Guy and Anchor Assemblies folder**.

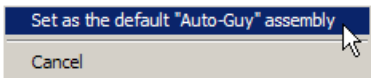
   Note: *A default Auto-Guy Assembly can be selected from the Master Catalog or the User Catalog. To be considered an Auto-Guy Assembly the assembly must consist of only one anchor and one guy.*



3. Right click on the Guy & Anchor Assembly that you want to set as the default



4. Select **Set as the default "Auto-Guy" assembly**



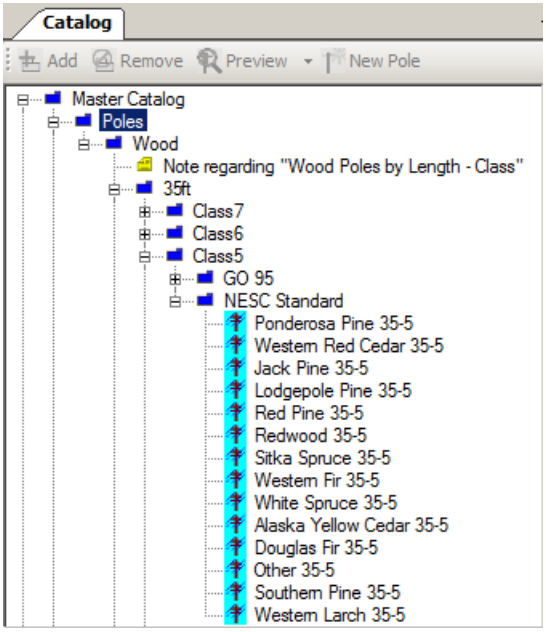
5. Select **OK** to the verification message.

   Note: *The default Auto-Guy Assembly can be changed at any time.*

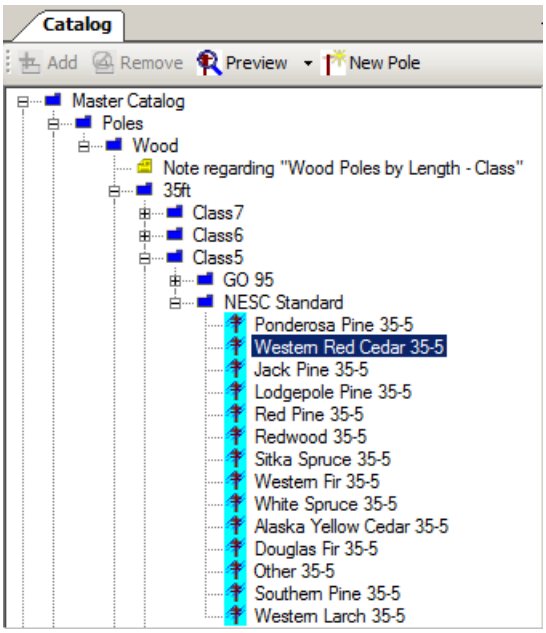
Creating a New Pole

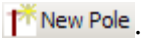
To create a new pole in the Inventory Window using a pole listed in the Master Catalog, complete the following steps:

1. Expand the Master Catalog folder.
2. Expand the **Poles folder** until the catalog list you need is displayed.



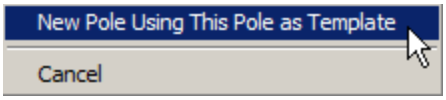
3. Select the pole to be added to the Inventory Window.



4. Select the **New Pole** button 
.

5. The selected pole is automatically added to the Inventory Window.

   Note: *The selected pole can also be added to the Inventory Window by right clicking on the selected pole and selecting* ***New Pole Using This Pole as Template****.*

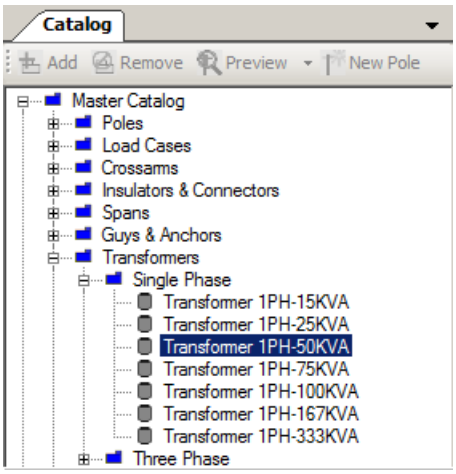


   Note: *Undo is not available when adding a pole.*

Adding Common Equipment to a Pole

To add common equipment to a pole in the Inventory Window using equipment listed in the Master Catalog, complete the following steps:

1. Expand the Master Catalog folder.
2. Expand any of the equipment folders until the catalog list you need is displayed. Select the equipment to be added to the Inventory Window.



3. Hold down the mouse button and drag and drop the select equipment onto the pole in the Inventory Window.

   Note: *While dragging the selected equipment to the Inventory Window the cursor will change to an invalid cursor* ⃠. *As the equipment is placed over the pole in the Inventory Window the cursor will change to indicate a valid move*

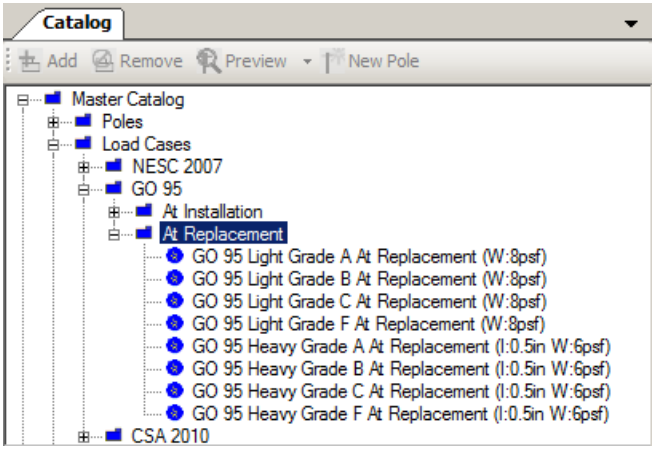
   Note: *To undo the equipment you added, select* ***Edit>Undo****.*

   Note: *To set a default percent of maximum span tension to be applied to conductors when they are selected from the Master Catalog to be used in the Inventory Window, see* *Modifying Span's Default Rated Strength Percentage**.*

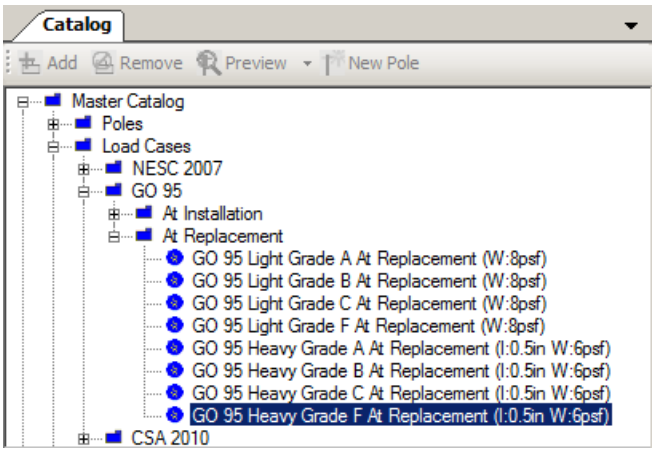
Adding Load Cases to a Pole

To add Load Cases to a pole in the Inventory Window using Load Cases listed in the Master Catalog, complete the following steps:

1. Expand the Master Catalog folder.
2. Expand the **Load Cases folder** until the catalog list you need is displayed.



3. Select the Load Case to be added to the Inventory Window.



4. Hold down the mouse button and drag and drop the selected Lad Case onto the pole in the Inventory Window.

   Note: *To undo the Load Case you added, select Edit>Undo.*

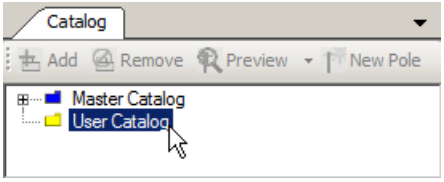
   Note: *While dragging the selected equipment to the Inventory Window the cursor will change to an invalid cursor* ⃠. *As the equipment is placed over the pole in the Inventory Window the cursor will change to indicate a valid move* .

User Catalog Functions

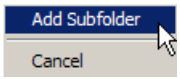
Adding a Subfolder

To add a subfolder to the User Catalog, complete the following steps:

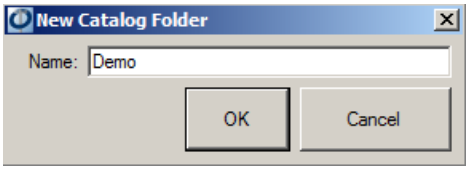
1. Right click on the User Catalog folder you want to create a subfolder for.



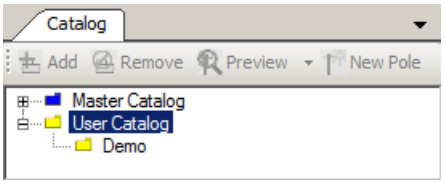
2. Select **Add Subfolder**.



3. Enter a catalog subfolder **Name**.



4. Select **OK.**



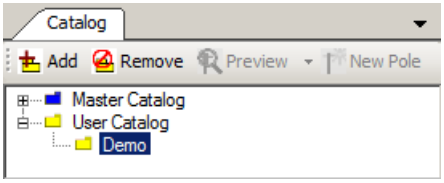
Note: *Undo is not available.*

Note: *Once a subfolder has been added to the User Catalog additional folder can be added to that subfolder by selecting the Add button* Add *or by right clicking on the subfolder and selecting Add Subfolder.*

Removing Subfolder

To remove a User Catalog subfolder, complete the following steps:

1. Select the folder to be removed.



2. Select the **Remove** button Remove.

   Note: *The selected User Catalog folder can also be removed by right clicking on the folder and selecting* ***Remove (name of the folder)****.*

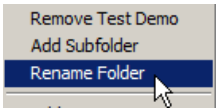
3. Select **Yes** to permanently remove the selected folder.

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

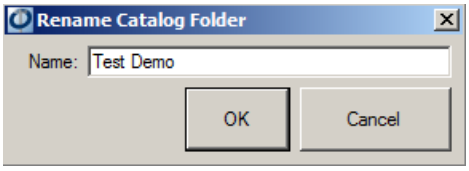
Renaming a Subfolder

To rename a User Catalog subfolder, complete the following steps:

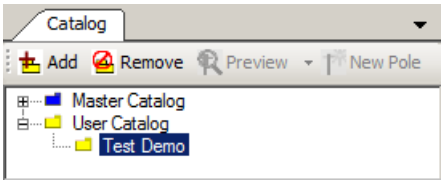
1. Right click on the folder to be renamed.
2. Select **Rename Folder**.



3. Name the selected folder.



4. Select **OK**.

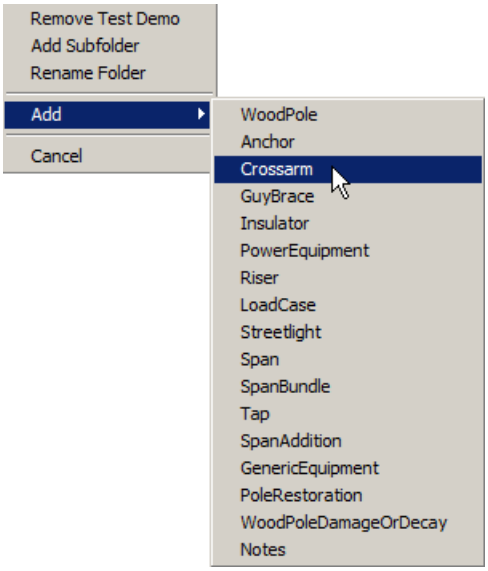


Note: *There is no undo for this operation.*

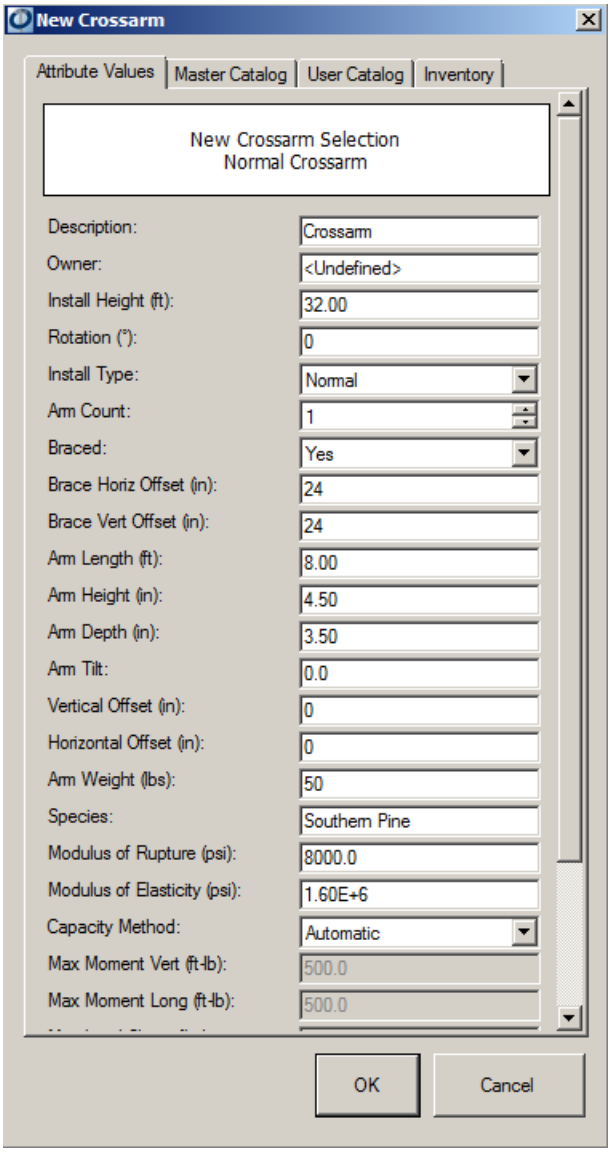
Adding Equipment to a Subfolder

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



Note: *Only one piece of equipment can be selected at a time.*

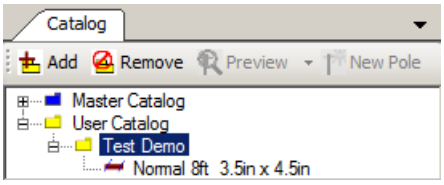


Note: *In certain situations the equipment you want to add to the subfolder may already be listed in the Catalog Window or in the Inventory Window. If this is the case select the appropriate tab and select the equipment you want to add to the subfolder from within the selected tab. For additional information on the Catalog Window or the Inventory Window see* *Working With the Catalog Window* *or* *Working With the Inventory Window*

3. Modify the new equipment attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

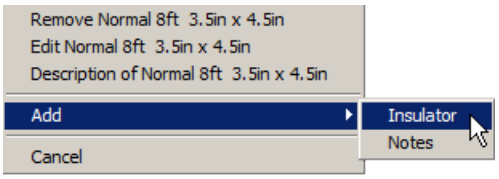
4. Select **OK**.



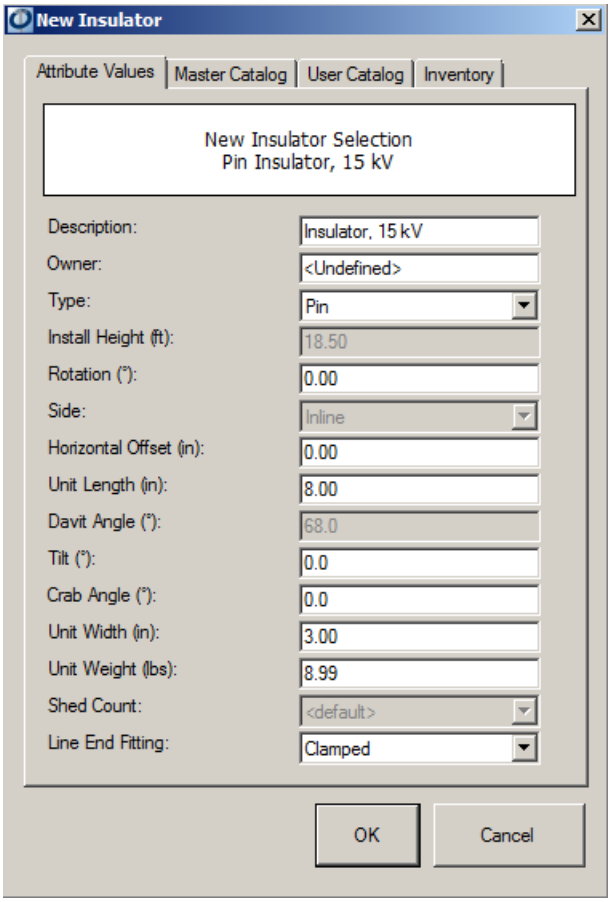
Note: *There is no undo for this operation. To delete equipment from a User Catalog folder see* *Deleting Equipment in a Subfolder*.

Equipment can have several 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 **Add** and select the equipment to be added from the equipment list.



Note: *If multiple piece of equipment are displayed in the list only one piece of equipment can be selected at a time.*

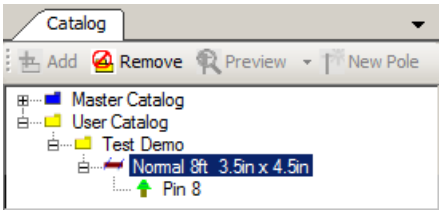


Note: *To add the equipment from the Catalog Window or in the Inventory Window select the appropriate tab and select the equipment you want to add. For additional information on the Catalog Window or the Inventory Window see Working With the Catalog Window or Working With the Inventory Window.*

7. Modify the equipment attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

8. Select **OK**.

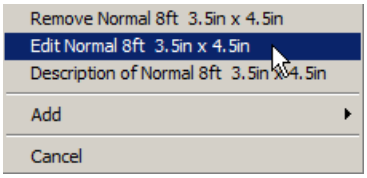


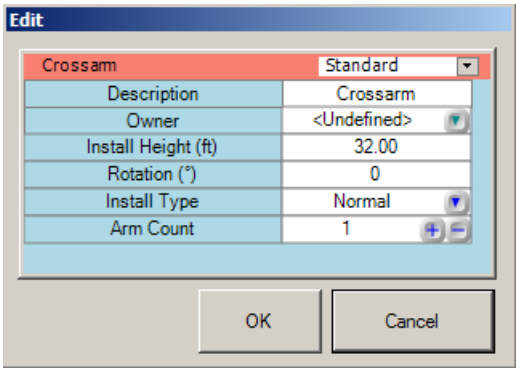
Note: *To add additional attachments to equipment complete steps 5 – 8.*

Edit Equipment 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*)**.





Note: *For a complete list of the editable icon's descriptions see Editing Equipment Attributes.*

3. Complete your edits to the equipment attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

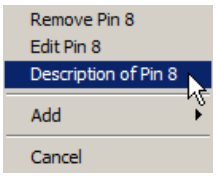
4. Select **OK**.

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

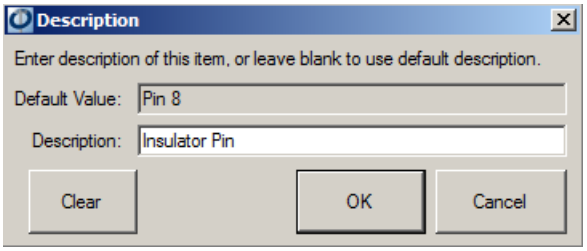
Change the Display Descriptions

To change the description that displays next to 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*)**.

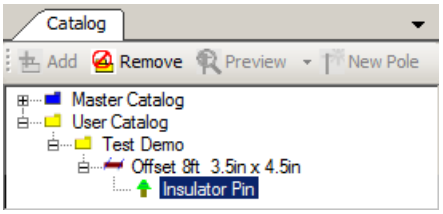


3. Enter the **Description** you would like to be displayed.



   Note: *Select **Clear** to clear the Description field and reset it to the default value.*

4. Select **OK**.

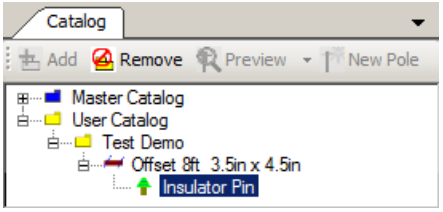


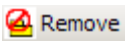
   Note: *There is no undo for this operation.*

Deleting Equipment in a Subfolder

To delete equipment in a User Catalog subfolder, complete the following steps:

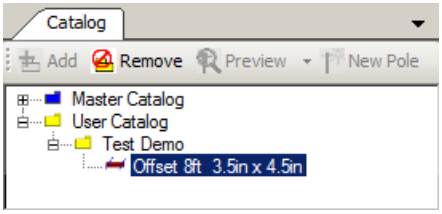
1. Select the equipment to be deleted.



2. Select the **Remove** button 

.

Note: *The selected equipment can also be removed from the subfolder by right clicking on the subfolder and selecting* ***Remove (equipment display name)****.*

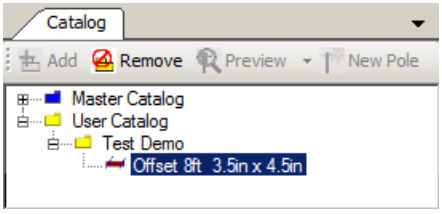


Note: *There is no undo for this operation.*

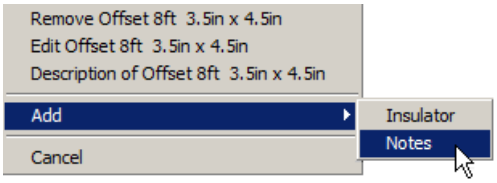
Adding a Note to the Pole or Attached Equipment

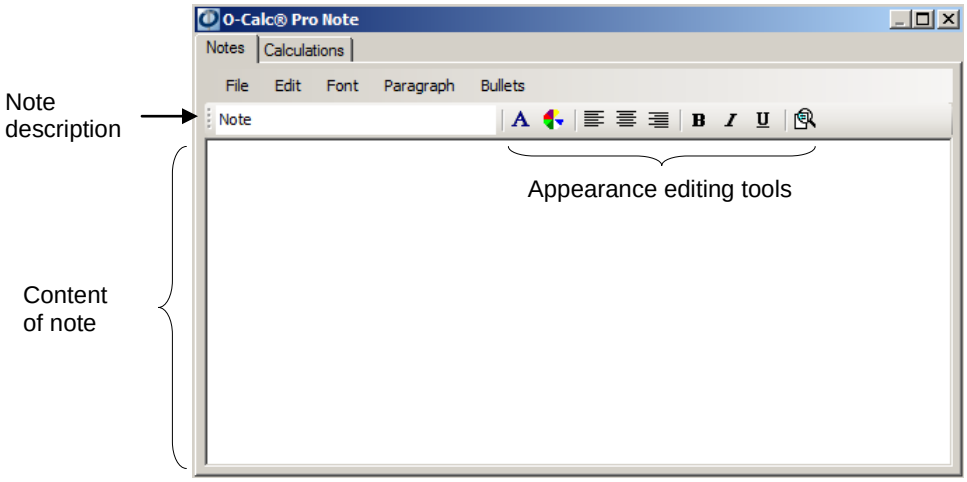
To add a note and/or calculations to the pole or attached equipment in the User Catalog, complete the following steps:

1. Right click on the equipment you want to add a note to.

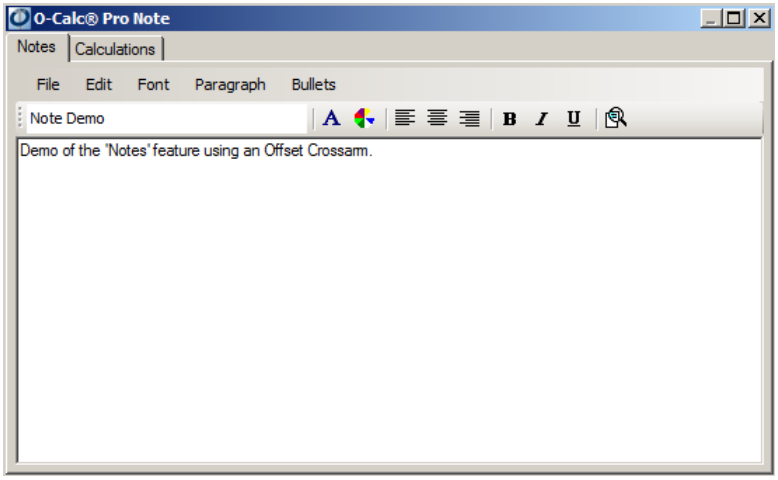


2. Select the **Add>Notes** option.





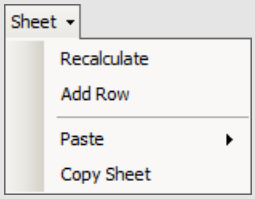
3. Enter a **description** and the **note context**.



4. Select the **Calculations** tab.

   The calculations tab is a light weight spreadsheet that allows you to enter values such as numeric and string but it also allows you to enter basic calculations.

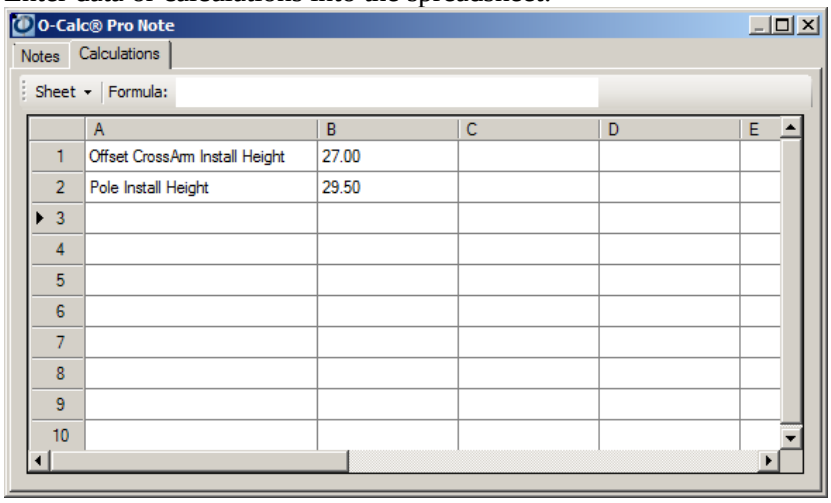
   In addition to the basic notes menu options the Calculation tab provides the following menu options:

	**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.

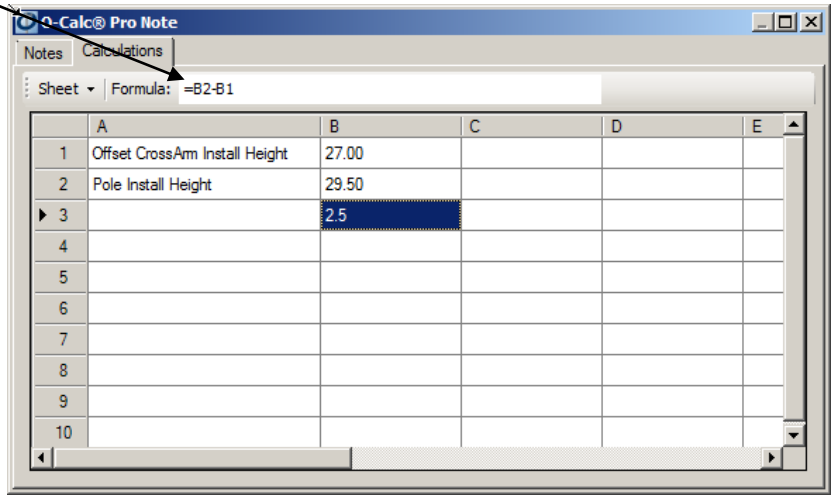
Formula:	**Formula Bar.** Use the Formula Bar to make it easier to view and edit a long formula or large amount of text in a cell.

5. Enter data or calculations into the spreadsheet.

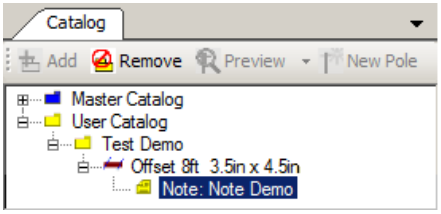
String/data values entered manually into the spreadsheet



Manually entered formula



6. Select **File>Save.**

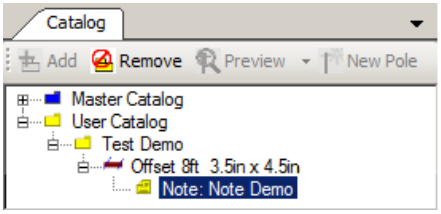


Note: *There is no undo for this operation.*

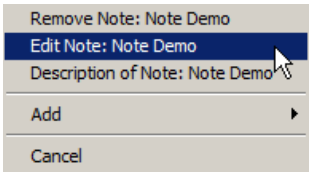
Editing a Note

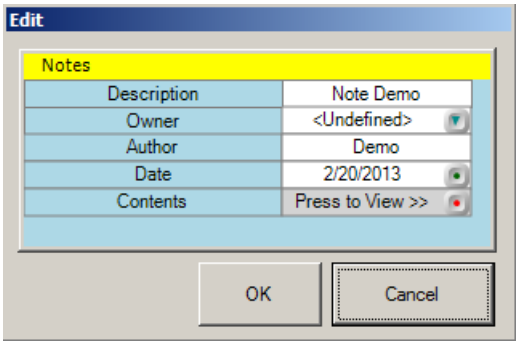
To edit a note or the calculations, complete the following steps:

1. Right click on the note you want to edit.



2. Select the **Edit (*note description*)**.





Note: *Basic changes to a Notes Description, Owner, Author or Date can be made right from the Edit Window. Content changes to a Note need to be completed from within the Note window.*

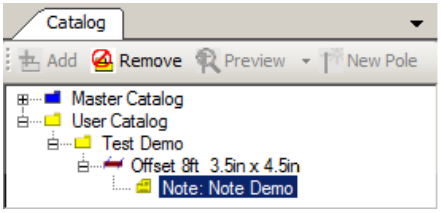
3. Select the Contents button  .
4. Complete your edits to the note contents or the data in the grid.
5. Select **File>Save**.

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

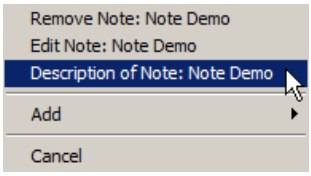
Change the Description of a Note

To change the description that displays next to a note icon in the User Catalog, complete the following steps:

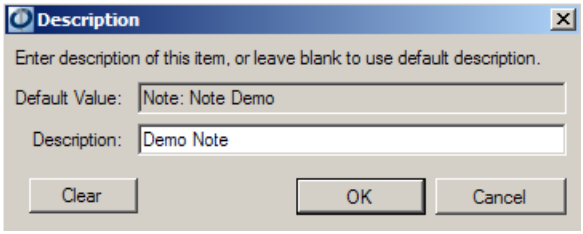
1. Right click on the note you want to change the display description of.



2. Select **Description of (*note display name*)**.

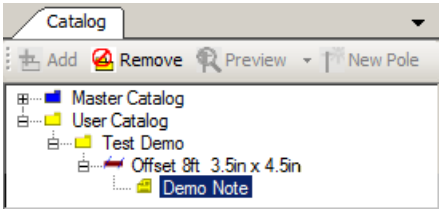


3. Enter the **Description** you would like to be displayed.



Note: *Select **Clear** to clear the Description field and reset it to the default value.*

4. Select **OK**.



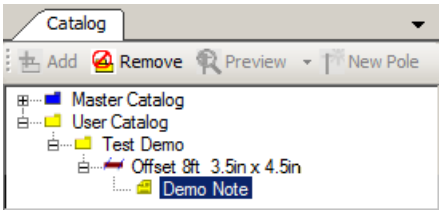
Note: *There is no undo for this operation.*

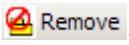
Note: *The description of the note can also be changed using the Edit Note option, see Editing a Note.*

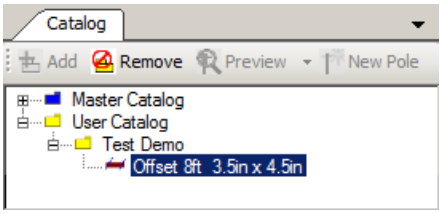
Delete a Note

To delete a note, complete the following steps:

1. Select the note to be deleted.



2. Select the **Remove** button 
.



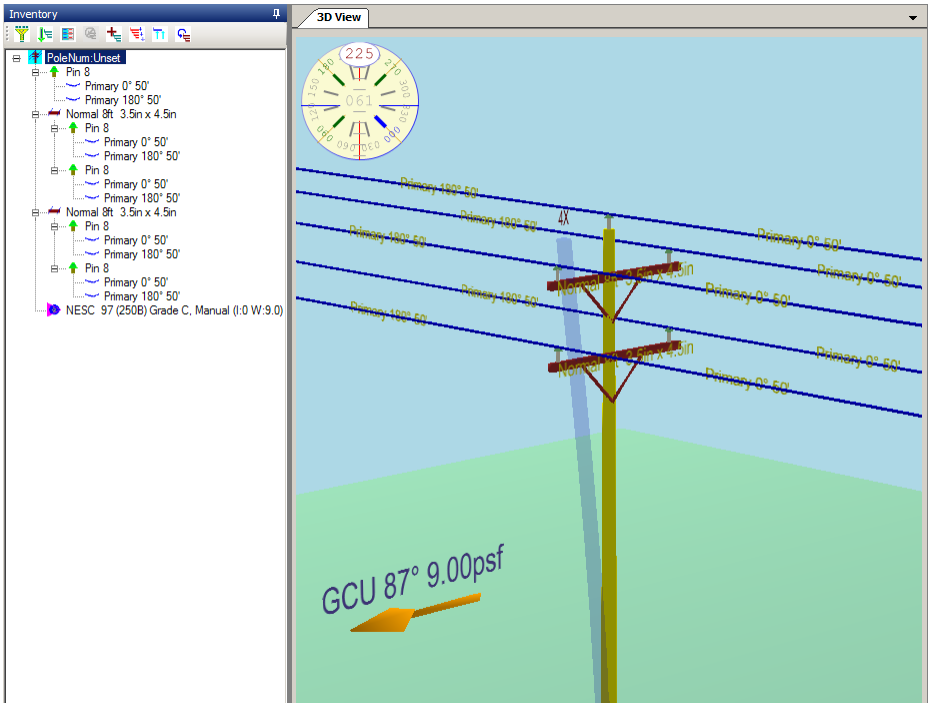
Note: *There is no undo for this operation.*

Note: *Notes can also be deleted by right clicking on the note to be deleted and selecting* ***Remove (note display name)****.*

Working With the 3D View

About 3D View

The 3D View is a three-dimensional interactive image of the Inventory Window. As structures are created or displayed in the Inventory Window the 3D View is automatically updated to reflect the changes to the Inventory Window. Structures can also be created or updated in the 3D View. Any changes or additions that are completed in the 3D View are automatically made in the Inventory Window.



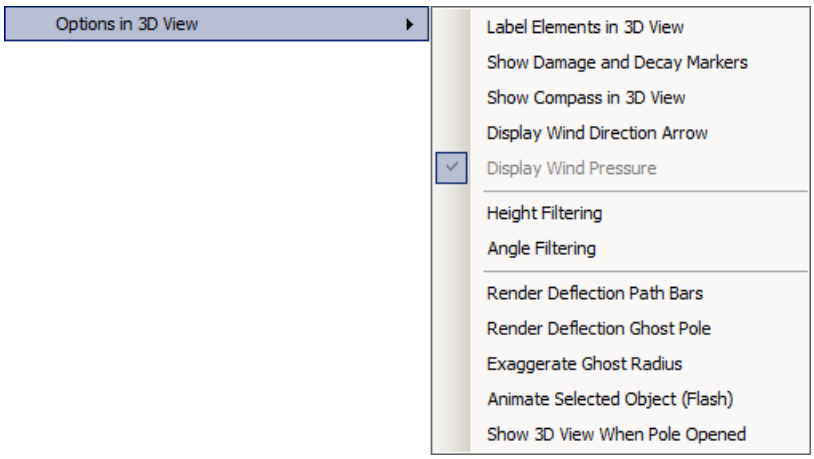
Interacting with the 3D View Display

The 3D View provides several ways to reposition the 3D View to better analyze the pole and the objects attached to the pole.

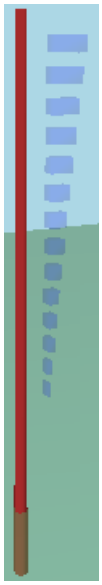
Mouse Wheel	You can use the mouse wheel to interact with the 3D View. To zoom in or out scroll the mouse wheel forwards or backwards.
Right Mouse Click	Clicking and holding down the right mouse button allows you to pan the 3D View to the left, right, up or down.
Left Mouse Click	Clicking and holding down the left mouse button allows you to rotate the 3D View.

3D View Display Options

O-Calc ® Pro provides a variety of 3D tools designed to allow the user to review and interact with the 3D image.



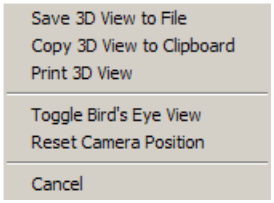
Label Elements in 3D View	**Label Elements in 3D View.** The Label Elements in 3D View option displays annotations for all the elements in the 3D View.
Show Damage and Decay Markers	**Show Damage and Decay Markers**. The Show Damage and Decay Markers option displays damage and decay markers in the 3D Veiw.
Show Compass in 3D View 	**Show Compass in 3D View.** The Show Compass in 3D View option displays a Head-Up Display (HUD). The HUD display direction is based on the user's perspective. The HUD also provides the following information: A. Direction B. Elevation C. Camera zoom level D. Pan and tilt of the camera E. Visual compass at the bottom of the pole *Note: You can change the compass angle by clicking on angle within the compass and, entering the desired compass angle.*

Display Wind Direction Arrow 	**Display Wind Direction Arrow.** The Wind Direction Arrow displays the worst possible wind angle. *Note: You can override what displays for the Wind Direction by selecting the Load Case that is attached to the pole and enabling Override Wind.*
Display Wind Pressure 	**Display Wind Pressure.** The Display Wind Pressure option displays the wind pressure on the wind direction arrow.
Height Filtering	**Height Filtering.** The Height Filtering option filters the objects that display in the 3D view according to height.
Angle Filtering	**Angle Filtering.** The Angle Filtering option filters the objects that display in the 3D view according to an angle.
Render Deflection Path Bars 	**Render Deflection Path Bars.** The Deflection Path Bars displays the amount the pole is deflecting (bending). ***Note:*** *If Render Deflection Path Bars is enabled then Render Deflection Ghost Pole cannot be enabled. Only one of these options can be enabled at a time.* ***Note:*** *If Auto Capacity Summary is disabled you will need to manually update the Capacity Summary in order to update the Render Deflection Path Bars calculation. For additional information on the Capacity Summary see Working With the Capacity Window .*

Render Deflection Ghost Pole 	**Render Deflection Ghost Pole.** The Render Deflection Ghost Pole shows the amount the pole is deflecting (bending) as a ghost of the existing pole. ***Note:*** *If Render Deflection Ghost Pole is enabled then Render Deflection Path Bars cannot be enabled. Only one of these options can be enabled at a time.* ***Note:*** *If Auto Capacity Summary is disabled you will need to manually update the Capacity Summary in order to update the Render Deflection Ghost Pole calculation. For additional information on the Capacity Summary see Working With the Capacity Window.*
Exaggerate Ghost Radius	**Exaggerate Ghost Radius.** The Exaggerated Ghost Radius exaggerates the Deflection Ghost Pole view. ***Note:*** *The Exaggerated Ghost Radius only works with the Render Deflection Ghost Pole option.*
Animate Selected Object (Flash)	**Animate Selected Object (Flash).** The Animate Selected Object option helps identify, in the 3D View, what object has been selected in the Inventory Panel. The selected object in the Inventory Panel will change color and flash in the 3D View.
Show 3D View When Pole Opened	**Show 3D View When Pole Opened.** The Show 3D View When Pole Opened option automatically displays the 3D View when a pole is opened or created.

Additional 3D View Menu Display Options

In addition to the basic menu options that are available, holding down the ctrl key and right click on the 3D View background displays additional 3D View options.



Save 3D View to File. Select the Save 3D View to File option to save the current 3D View as a variety of file types (JPEG, BMP, GIF or PNG)

Copy 3D View to Clipboard. Select the Copy 3D View to Clipboard option to copy the current 3D View to the clipboard so that the 3D View can be pasted directly into other applications such as Microsoft Word, E-Mail, etc.

Print 3D View. Select the Print 3D View option to print the currently displayed 3D View.

Toggle Bird's Eye View. Select the Toggle Bird's Eye View to toggle the 3D View to an overhead view of the pole.

Reset Camera Position. Select the Reset Camera Position to set the 3D View back to the default view.

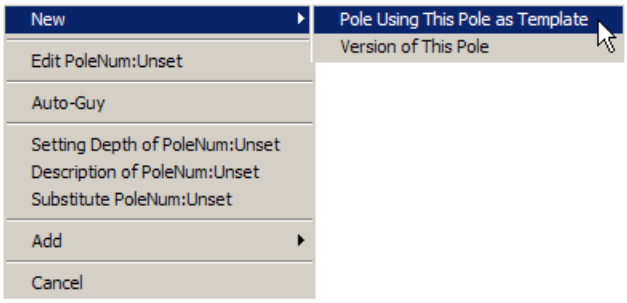
Cancel. Select the Cancel option to close the additional 3D View menu option pop-up without taking any action.

Creating a New Pole

To create a new pole in the Inventory Window using the current pole in the 3D View, complete the following steps:

1. Right click the pole in the 3D View and select **New> Pole Using This Pole as Template**.

   Note: *The pole is automatically highlighted in yellow once selected.*

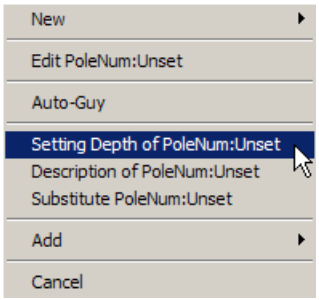


   Note: *Undo is not available when adding a pole.*

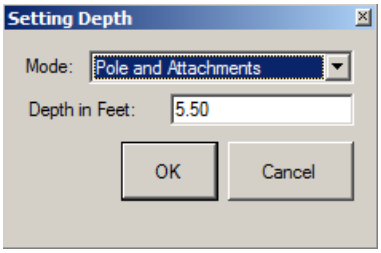
Setting the Depth of a Pole

To set the depth of a pole, complete the following 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**.



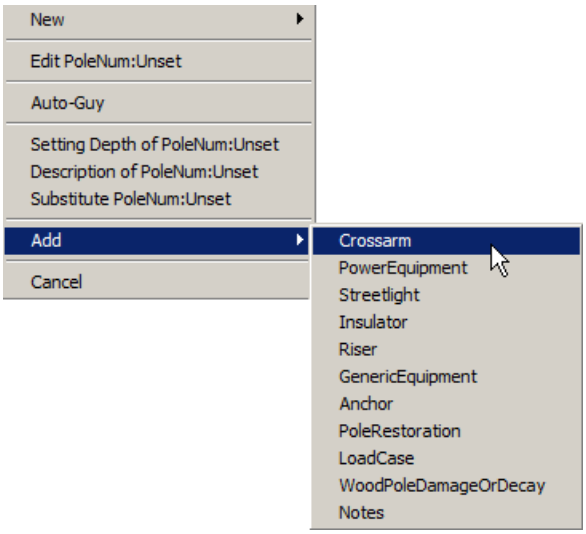
   Note: *The Depth in Feet field will automatically display the default pole depth when initially opened.*

4. Select **OK**.

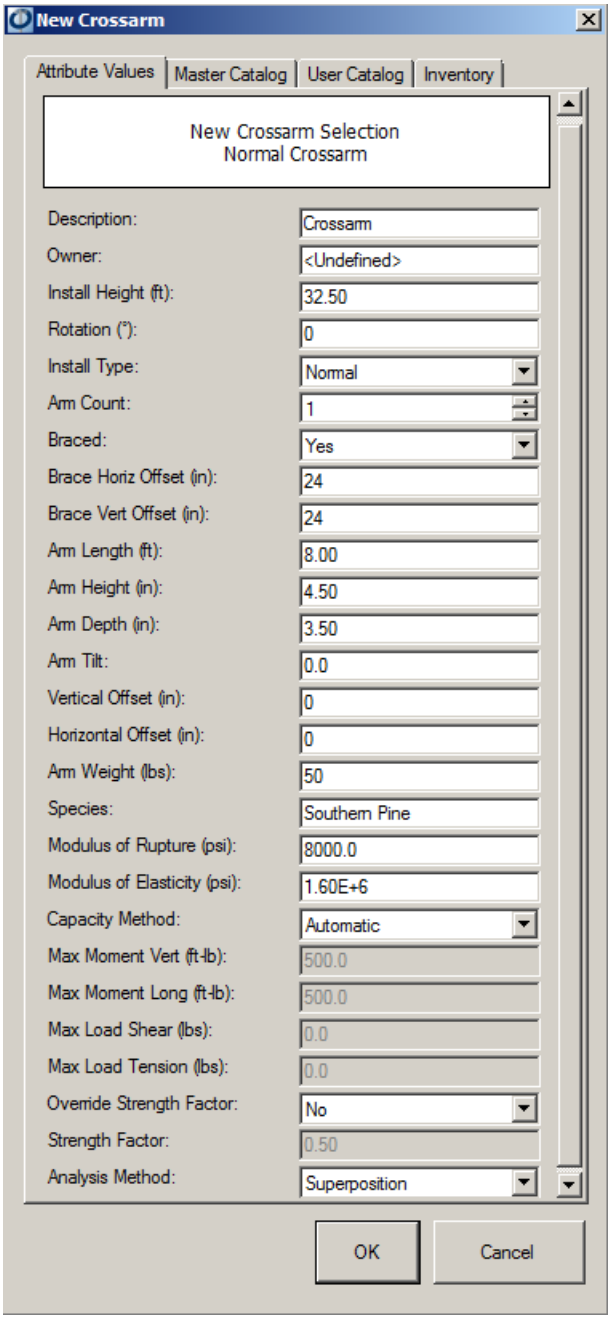
Adding Equipment to a Pole

To add equipment to a pole in the 3D View, complete the following steps:

1. Right click the pole in the 3D View, select **Add** then select the equipment to be added to the pole.



Note: *Only one piece of equipment can be added at a time.*



Note: *In certain situations the equipment you want to add to the 3D View may already be listed in the Catalog Window or in the Inventory Window. If this is the case select the appropriate tab and select the equipment you want to add to the 3D View from within the selected tab. For additional information on the Catalog Window or the Inventory Window see* *Working With the Catalog Window* *or* *Working With the Inventory Window*

2. Modify the new equipment's attributes.

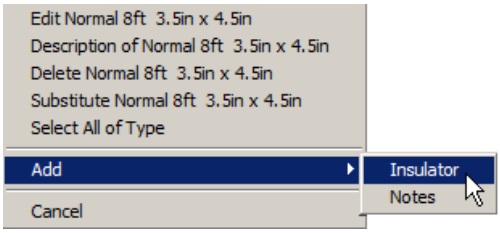
   Note: *Certain attributes are only editable in Administrative User Mode.*

3. Click **OK**.

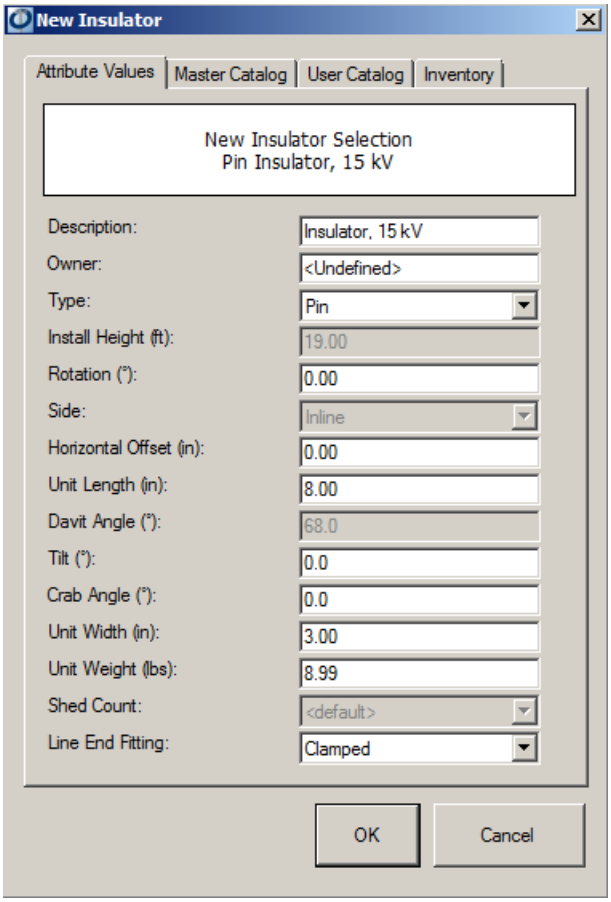
   Note: *To remove the added equipment, select* ***Edit>Undo***.

Equipment can have several attachments (Example: A crossarm can have insulators and spans attached to it). To add additional attachments to equipment, complete the following steps:

4. Right click on the equipment in the 3D View that you want to add additional equipment to.
5. Select **Add** and select the equipment to be added from the equipment list.



Note: *If multiple piece of equipment are displayed in the list only one piece of equipment can be selected at a time.*



Note: *To add the equipment from the Catalog Window or in the Inventory Window select the appropriate tab and elect the equipment you want to add. If this is the case selected the appropriate tab and selected the equipment you want to add to the pole from within the selected tab. For additional information on the Catalog Window or the Inventory Window see* *Working With the Catalog Window* *or* *Working With the Inventory Window*.

6. Modify the equipment's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

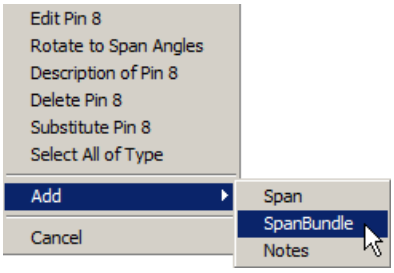
7. Select **OK**.

   Note: *To add additional attachments to equipment complete steps 4 – 7.*

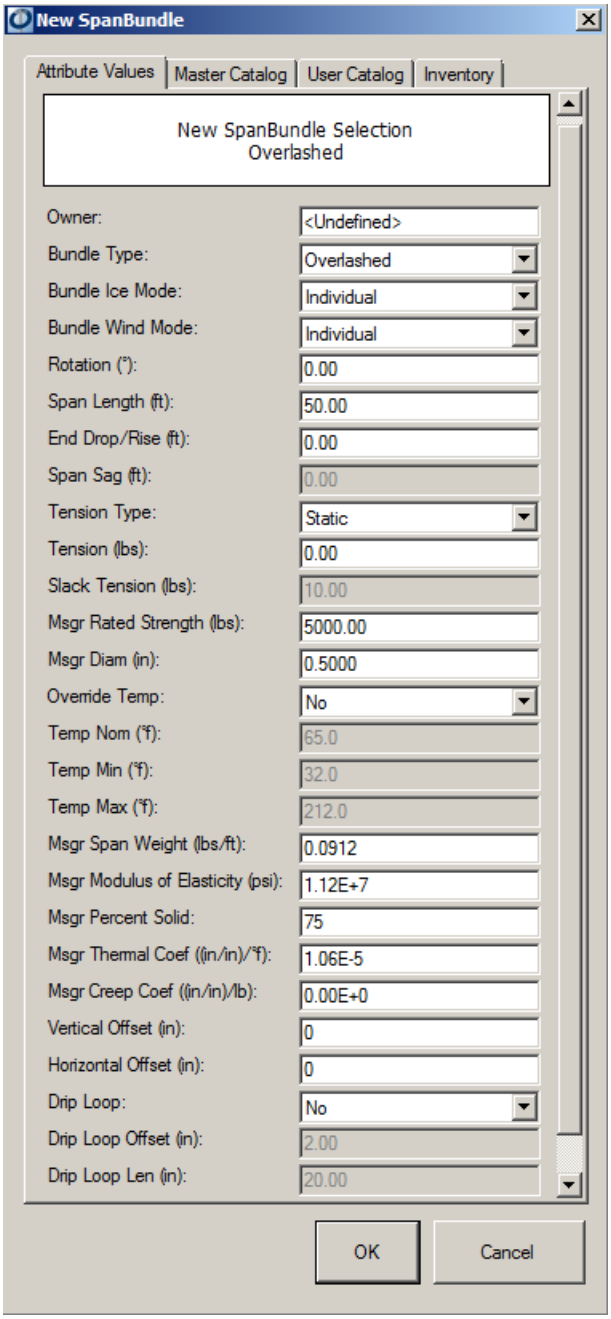
Adding a Span Bundle to a Pole

To add a span bundle to an attached insulator in the 3D View you first need to create the span messenger wire. To create the span messenger wire, complete the following steps:

1. Right click on the insulator in the 3D View that you want to add a span bundle to and select **Add>SpanBundle**.



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



Note: *To add a span bundle from the Catalog Window or in the Inventory Window select the appropriate tab and select that span bundle you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

2. Modify the Span Bundle attributes.

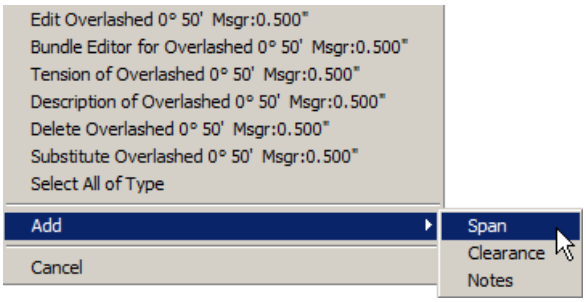
   Note: *Certain attributes are only editable in Administrative User Mode*

3. Select **OK**.

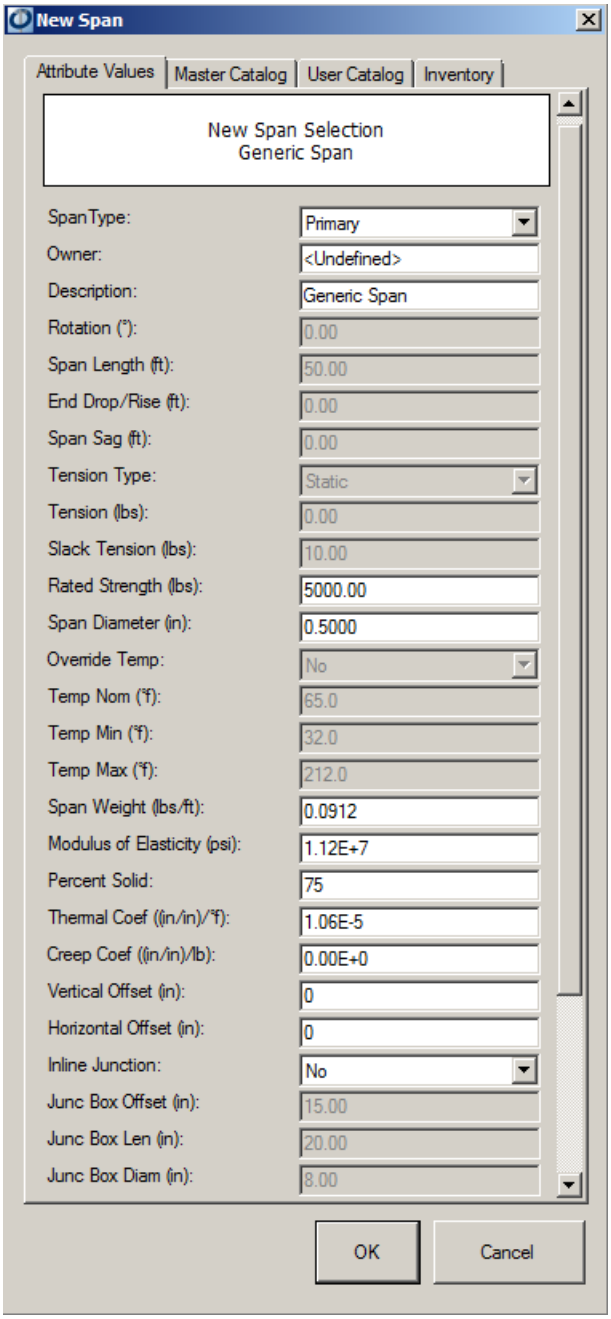
   Note: *To undo additions, select* ***Edit>Undo***.

Once the span bundle messenger wire has been created you need to actually add the spans. Complete the following steps to add spans to the messenger wire:

4. Right click on the Span Bundle in the 3D View.
5. Select **Add>Span**.



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



Note: *To add a span from the Catalog Window or in the Inventory Window select the appropriate tab and select that span you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

6. Modify the Span attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

7. Select **OK**.

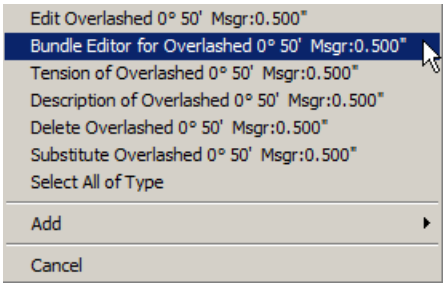
   Note: *To add additional spans to the span bundle complete steps 5 – 7*

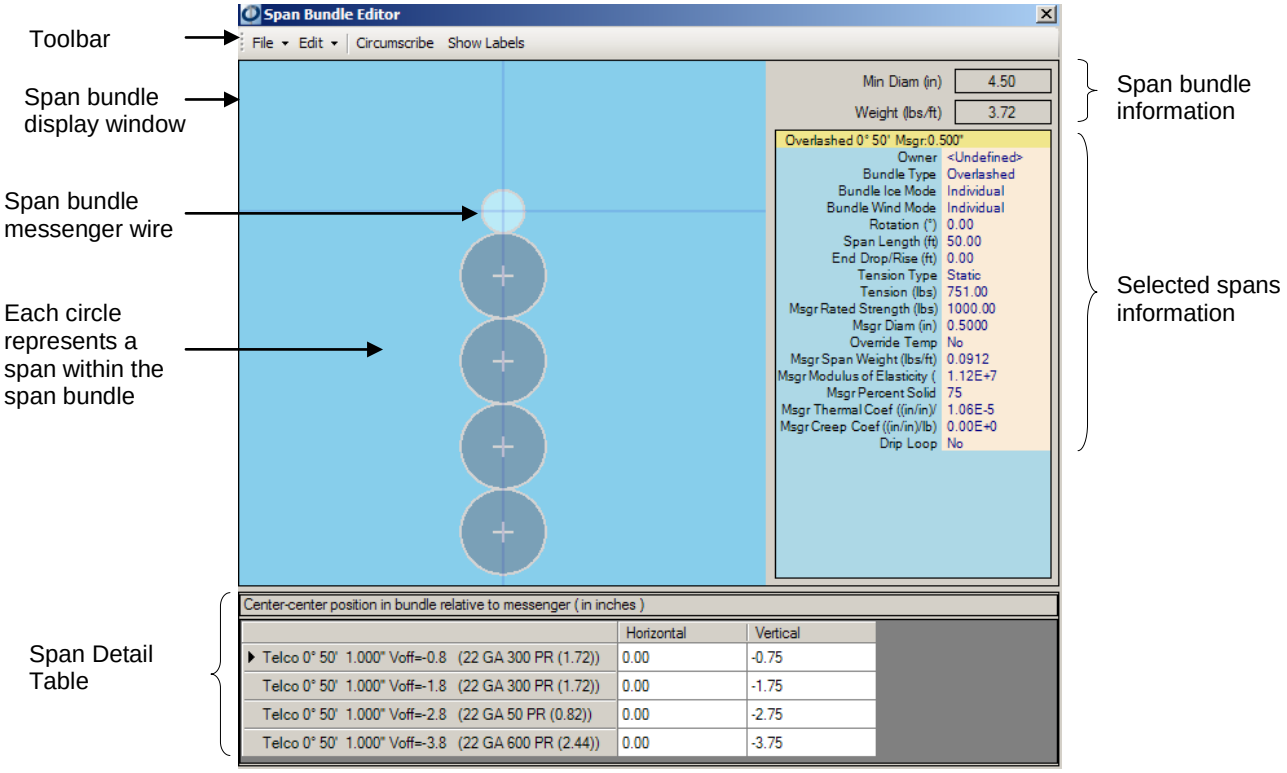
   Note: *To undo additions, select* ***Edit>Undo***.

Working with the Span Bundle Editor

To quickly and efficiently edit the spans positions or add additional spans to a span bundle use the Span Bundle Editor. To open the Span Bundle Editor, complete the following steps:

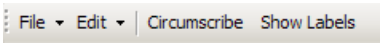
1. Right click on the Span Messenger wire you want to edit.
2. Select **Bundle Editor for (*bunde display name*)**.

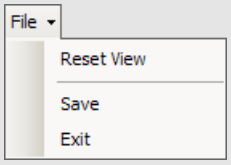
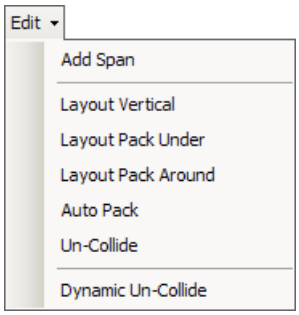




Span Bundle Editor Toolbar Options

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



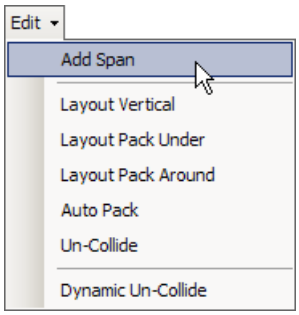
	**File**. The following options are available from the File menu: **Reset View**. Select the Reset View option to set the Span Bundle Editor back to the default view. **Save**. Select the Save option to save any changes or additions. **Exit**. Select the Exit option to close the Span Bundle Editor.
	**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 as close as possible given their size.

	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.
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.

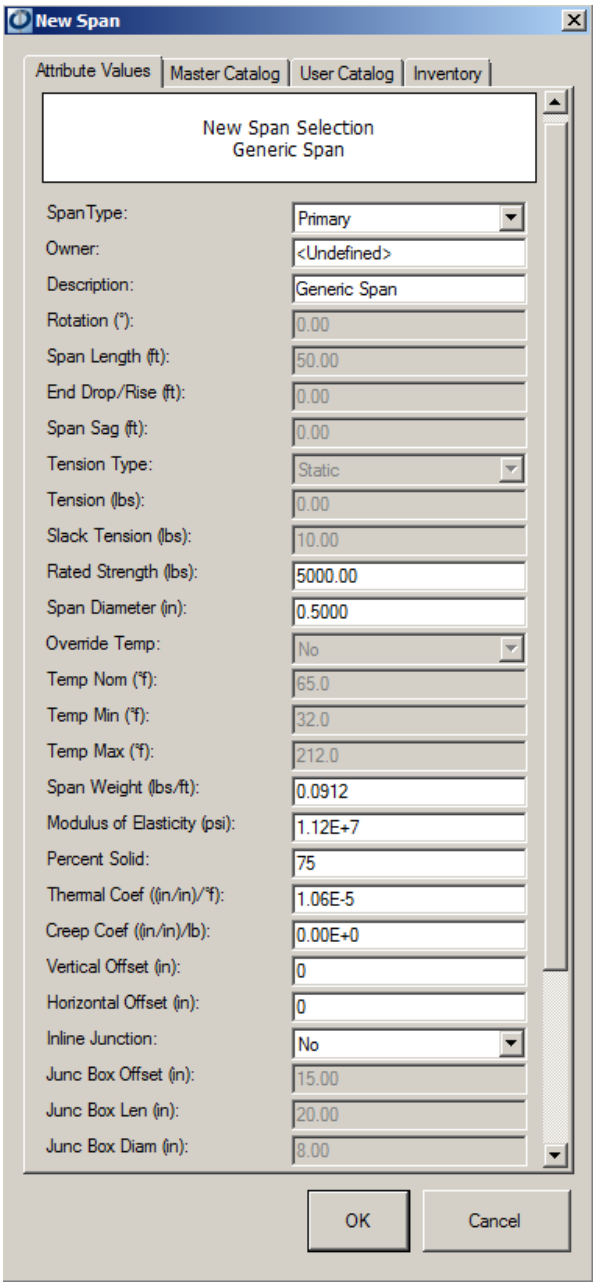
Adding a Span to a Span Bundle

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

1. Select **Edit>Add Span**.



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



Note: *To add a span from the Catalog Window or in the Inventory Window select the appropriate tab and select that span you want to add. For additional information on the Catalog Window see* *Working With the Catalog Window*.

2. Modify the Span attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

3. Select **OK**.

   Note: *The span is automatically added to the span bundle and is displayed in the Span Bundle Editor.*

4. Select **File>Save**.

Repositioning Spans in a Span Bundle

The Span Bundle Editor offers three ways you can reposition spans within the editor. To reposition span(s) in the span bundle using the Span Bundle Editor, use one of the following options:

A. Select **Edit** and select a layout option from the Edit menu.

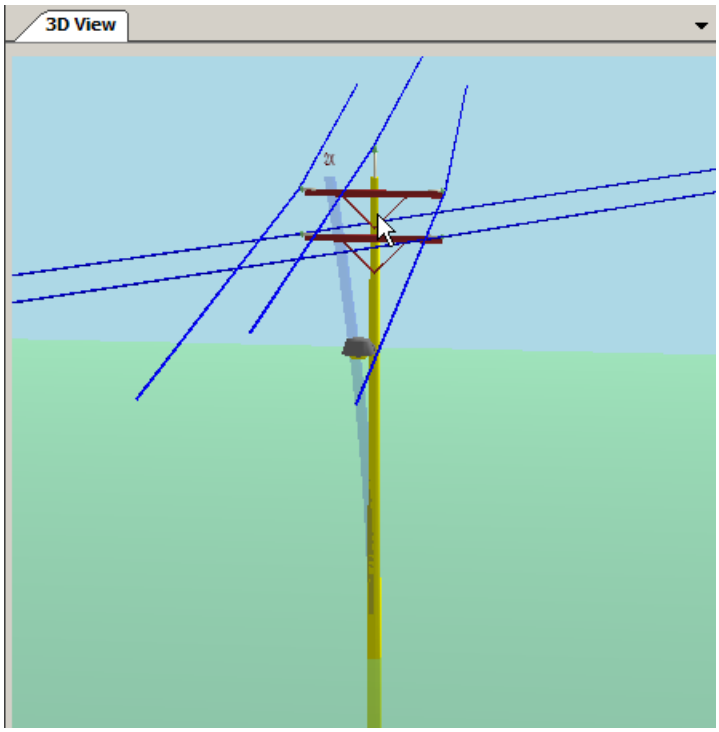
B. Left click a span in the Span Bundle Display window and **drag the span** to a new location.

C. Manually **enter a horizontal and/or vertical value** for a specific span in the Span Detail Table.

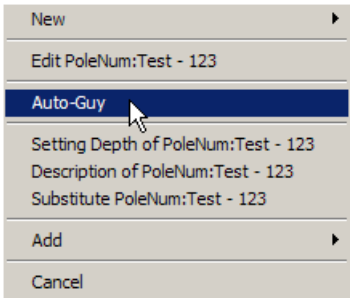
Automatically Adding a Down Guy to a Pole

To properly guy a structure in O-Calc® Pro an Auto-Guy function has been added. The Auto-Guy functionality allows you to automatically add both an anchor and a guy wire to a structure simultaneously. The Auto-Guy function also allows you to manually change Anchor attributes such as the lead angle, lead length, attachment height, etc. to ensure the structure is guyed properly. To use the Auto-Guy function in the 3D View, complete the following steps:

1. Right click the area on the pole where you want the Down Guy placed.

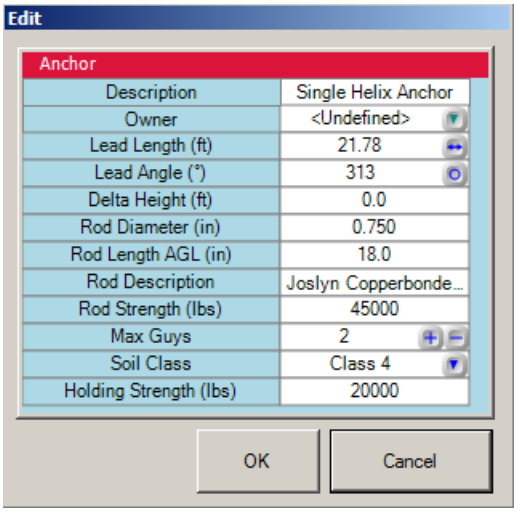


2. Select **Auto-Guy.**

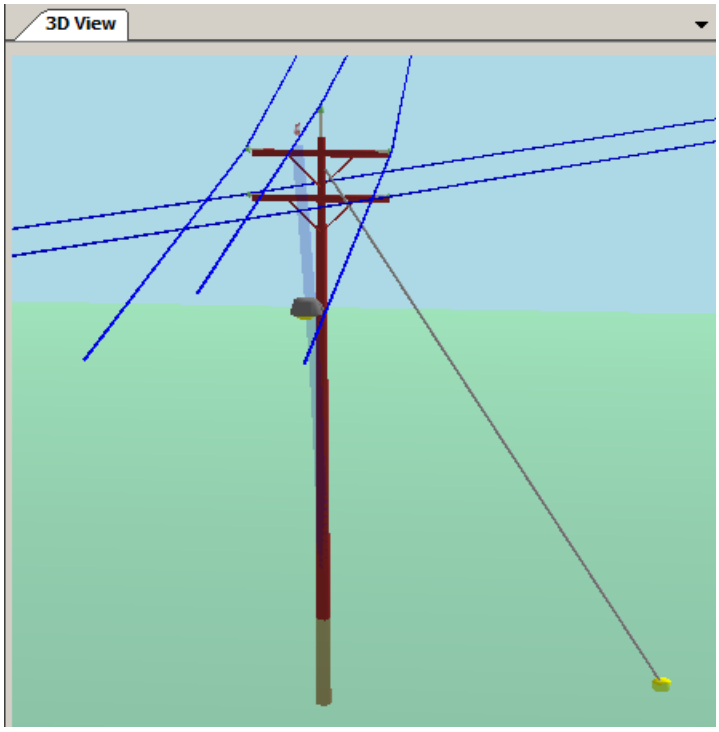


Note: *If a default Auto-Guy Assembly has not been set a warning message will display that the system will use the first assembly in the catalog. To set a default Auto-Guy Assembly see* *Set a Default Auto-Guy Assembly**.*

3. Verify and edit any Anchor attributes.



4. Select **OK.**

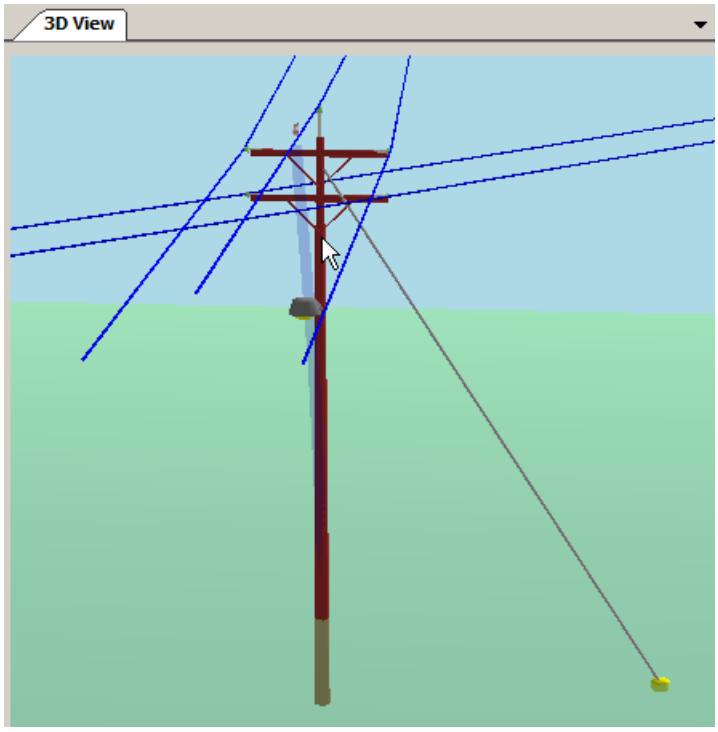


The deflection of the pole is used to set the lead length. The anchor, guy bolt and guy wire are automatically added to the pole.

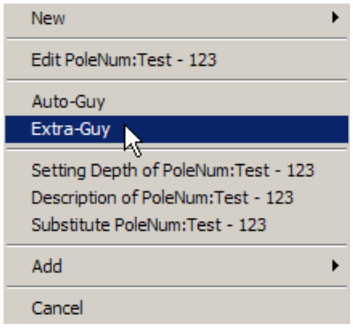
Automatically Add Extra Down Guys to an Anchor

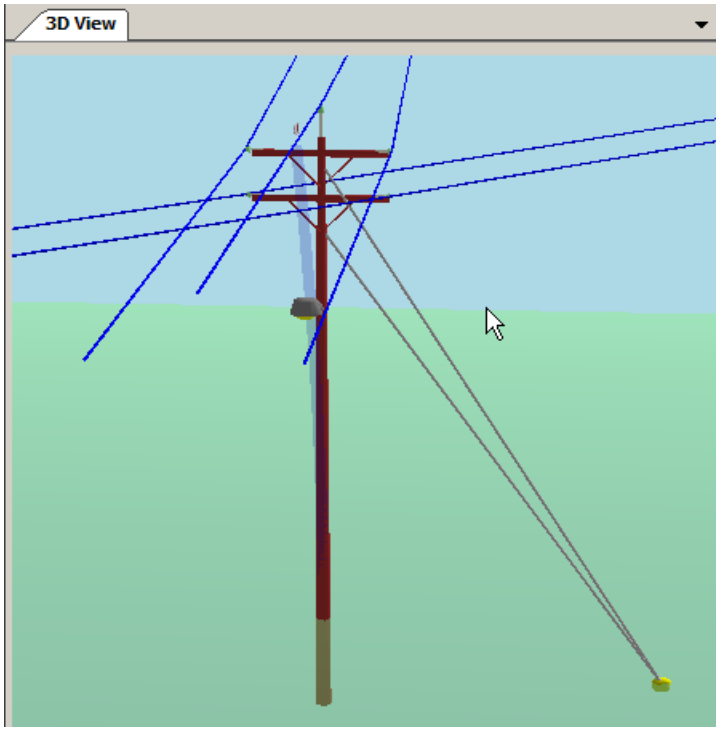
To automatically add extra down guys to an anchor already displayed in the 3D View, complete the following steps:

1. Left click on 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.



3. Select **Extra-Guy**.



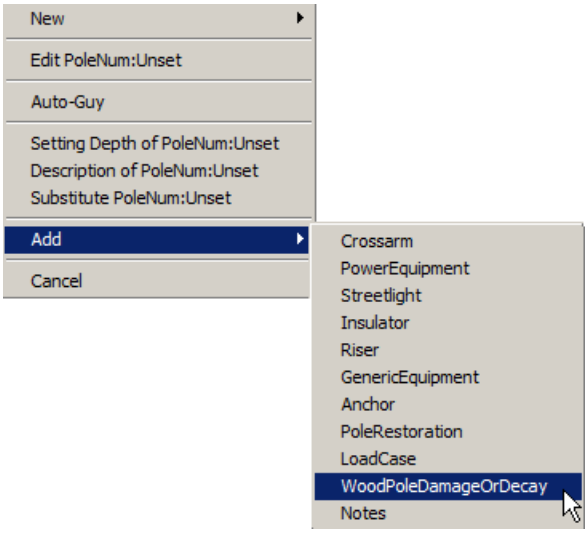


Note: *Extra guy wires can be added to the pole as they are needed.*

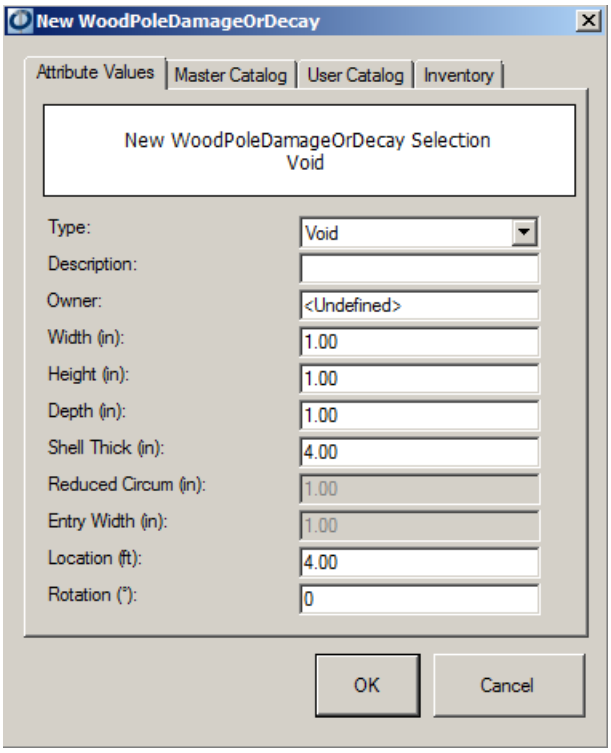
Adding Damage and Decay to a Pole

To add damage or decay to a pole in 3D View, complete the following steps:

1. Right click on the Pole in the 3D View and select **Add >WoodPoledamageOrdecay**.



Note: *Only one piece of damage or decay can be added at a time.*



Note: *In certain situations the damage or decay you want to add to the 3D view may already be listed in the Catalog Window or in the Inventory Window. If this is the case select the appropriate tab and select the damage or decay you want to add to the 3D View from within the selected tab. For additional information on the Catalog Window see* *Working With the Catalog Window.*

2. Modify the new damage or decay's attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

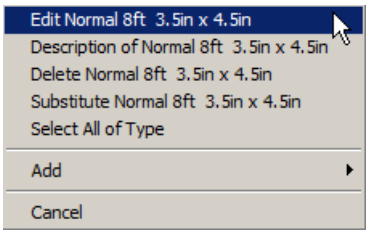
3. Select **OK**.

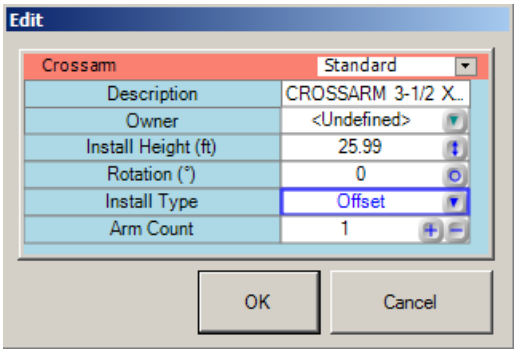
   Note: *To undo additions, select* ***Edit>Undo****.*

Editing Equipment Attributes

To edit the equipment's attribute(s) in the 3D View, complete the following steps:

1. Right click on the equipment whose attribute you want to edit.
2. Select **Edit (*equipment's display name*)**.





Note: *For a complete list of the editable icon's descriptions see Editing Equipment Attributes.*

3. Complete your edits to the equipment attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*

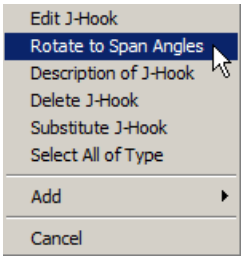
4. Select **OK**.

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

Rotating Insulators to Match Span Angles

To rotate an insulator to be appropriate for attached span angles in the 3D View, complete the following steps:

1. Right click on the insulator you would like to rotate to the current span angle.
2. Select **Rotate to Span Angles**



   The selected insulator is automatically rotated to the span angle.

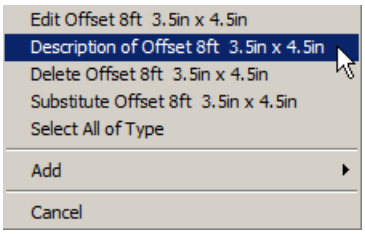
   Note: *The Rotate to Span Angle option can also be accessed by right clicking on the insulator to be rotated and selecting* ***Rotate to Span Angle****.*

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

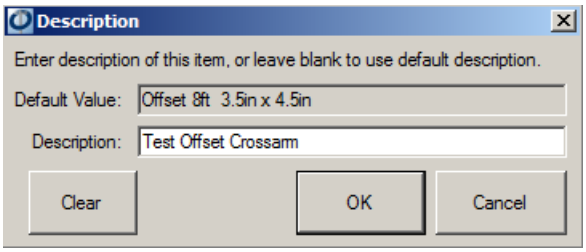
Change the Display Description

To change the description that displays next to a pole or attached equipment, complete the following steps:

1. Right click on the pole or attached 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.



Note: *Select* ***Clear*** *to clear the description field and use the default value.*

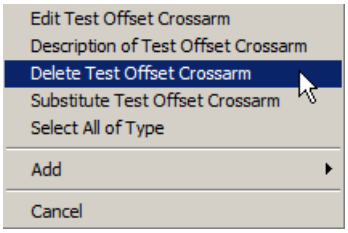
4. Select **OK**.

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

Deleting Attached Equipment

To delete equipment that is attachment to the pole in 3D View, complete the following steps:

1. Right click on the attached equipment to be deleted.
2. Select **Delete (*pole or equipment display name*)**.

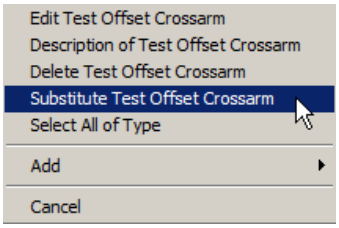


Note: *To undo the deletion, select* ***Edit>Undo***.

Substituting Attached Equipment

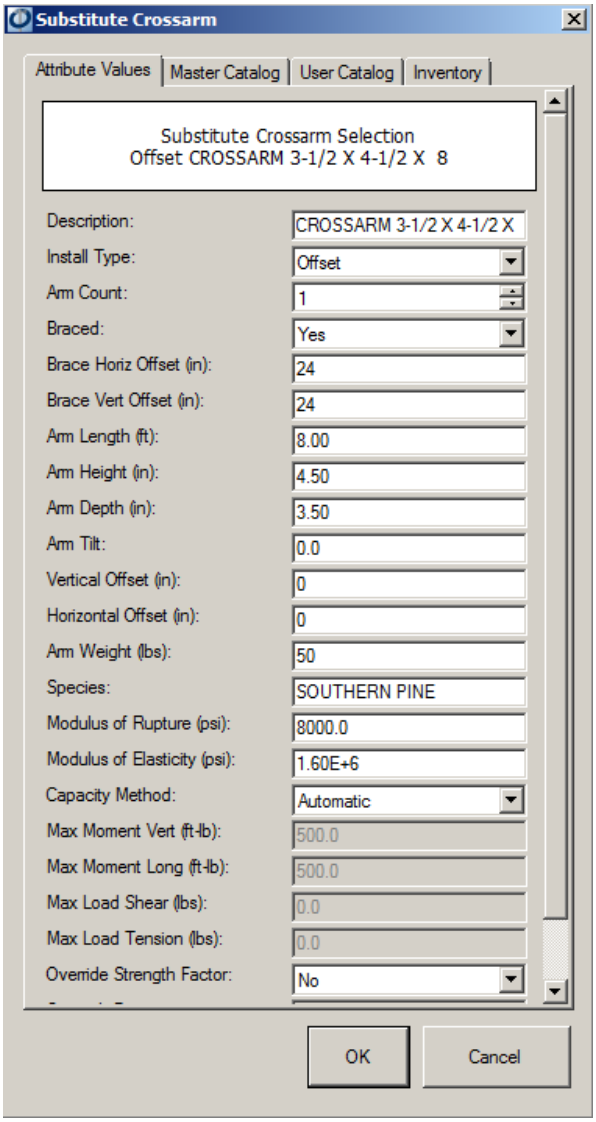
To substitute attached equipment in the 3D View, complete the following steps:

1. Right click on the attachment you would like to substitute.
2. Select **Substitute (*equipment display name*)**.



3. Modify the equipment attributes.

   Note: *Certain attributes are only editable in Administrative User Mode.*



   Note: *To substitute equipment with equipment from the Catalog Window or in the Inventory Window select the appropriate tab and select the equipment you want to use as the substituted equipment. For additional information on the Catalog Window or the Inventory Window see* *Working With the Catalog Window* *or* *Working With the Inventory Window*.

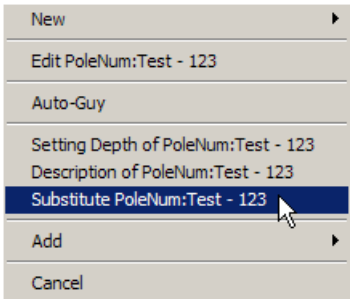
4. Select **OK**.

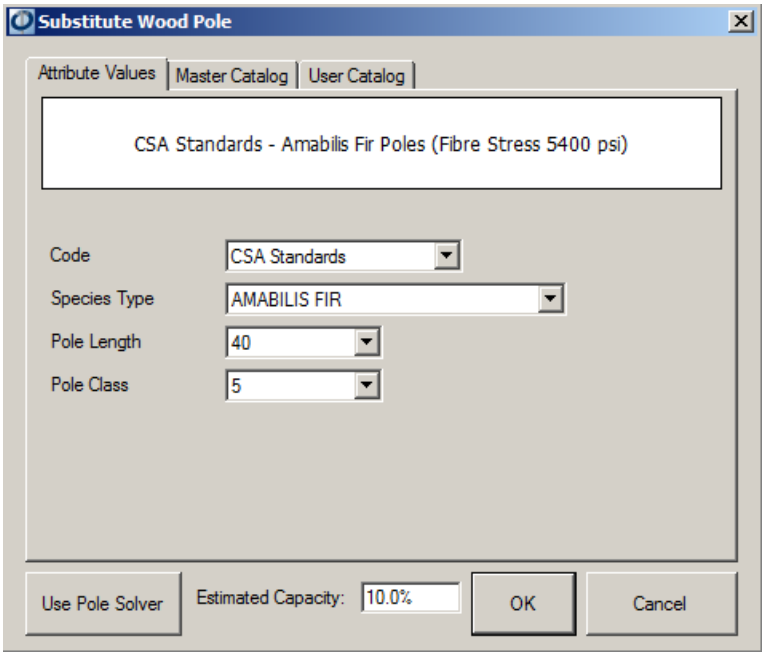
   Note: *To undo the substitution, select* ***Edit>Undo***.

Substituting a Pole

To substitute a pole in the 3D View O-Calc® Pro provides you with three options. You can either manually select the substitute pole, select the substitute pole from the Catalog Window or you can use the Pole Solver option to help you select the substitute pole. The pole solver option will display the minimum pole class and the estimated capacity that would be used based on the pole's current load. To substitute the current pole, complete the following steps:

1. Right click on the pole you would like to substitute.
2. Select **Substitute (*pole's display name*)**.





3. Use one of the following methods to select the substitute pole you want:

   Note: *The Estimated Capacity percentage will automatically be updated dependent on your attribute selections.*

   A. **Manually** select the substitute pole attributes.

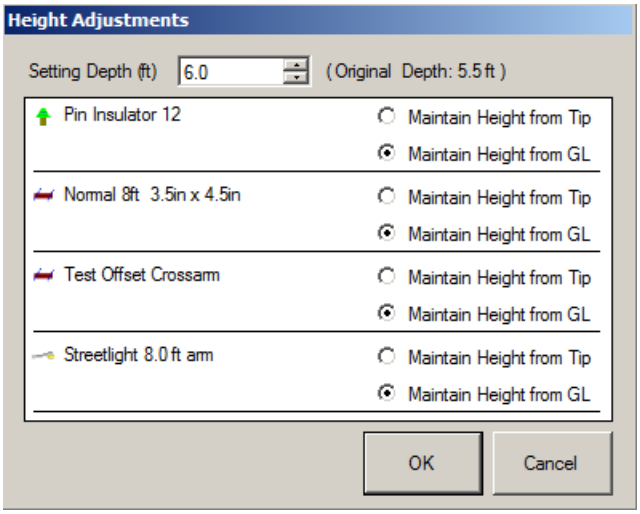
   B. Select the substitute pole from the **Master Catalog** or **User Catalog** tab. The attributes can still be modified if needed.

Note: *To substitute the current pole with a pole from the Catalog Window select the appropriate tab and select the pole you want to use as the substituted pole For additional information on the Catalog Window see Working With the Catalog Window.*

C. Select the **Use Pole Solver** button Use Pole Solver to have O-Calc® Pro automatically select the minimum Pole Class that would provide you with a passing pole.

4. Select **OK**.

   If there are primary attachments already on the pole the Height Adjustment window will automatically be displayed. The Height Adjustment window allows you to adjust the substitute poles depth and the height of the primary attachments relative to groundline or the tip of the substitute pole.



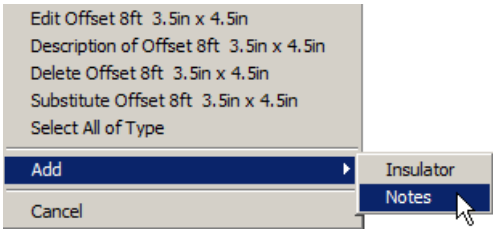
5. Modify the Pole Depth if required.
6. Verify and change each primary attachments height if required.
7. Select **OK**.

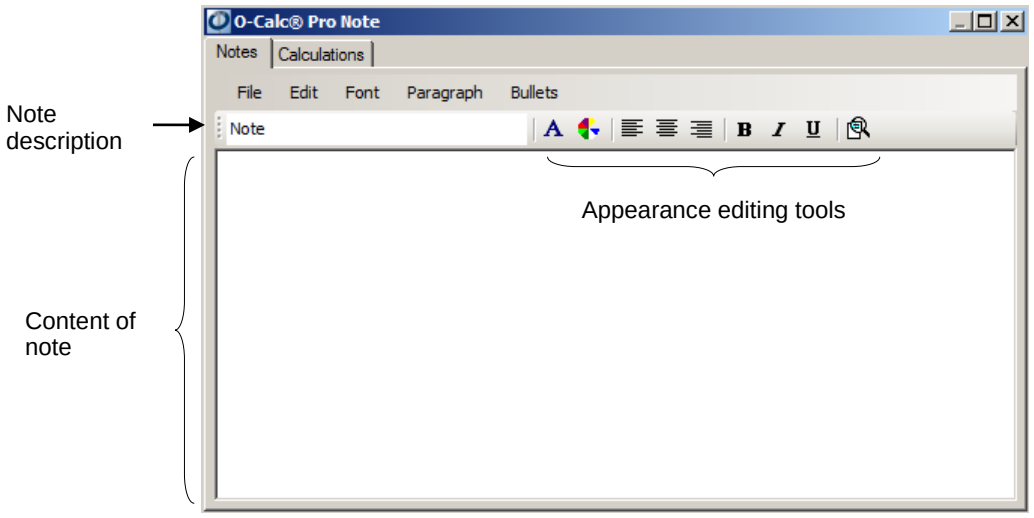
   Note: *To undo the substitution change, select* ***Edit>Undo****.*

Adding a Note to the Pole or Attached Equipment

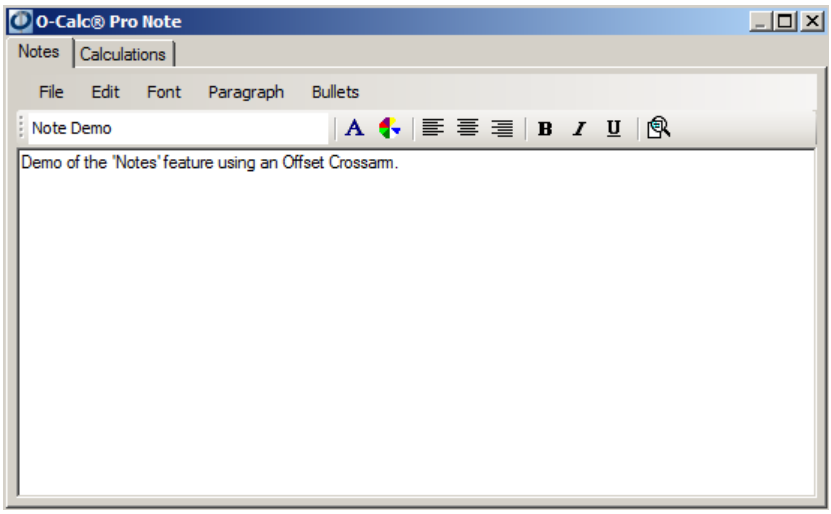
To add a note and calculations to the pole or attached equipment in the 3D View, complete the following steps:

1. Right click on the pole or attached equipment you want to add a note to.
2. Select the **Add> Notes** option.





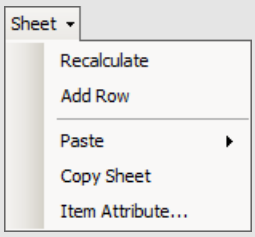
3. Enter a description and the note context.



The Calculations tab is a light weight spreadsheet that allows you to enter values such as numeric and string 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.

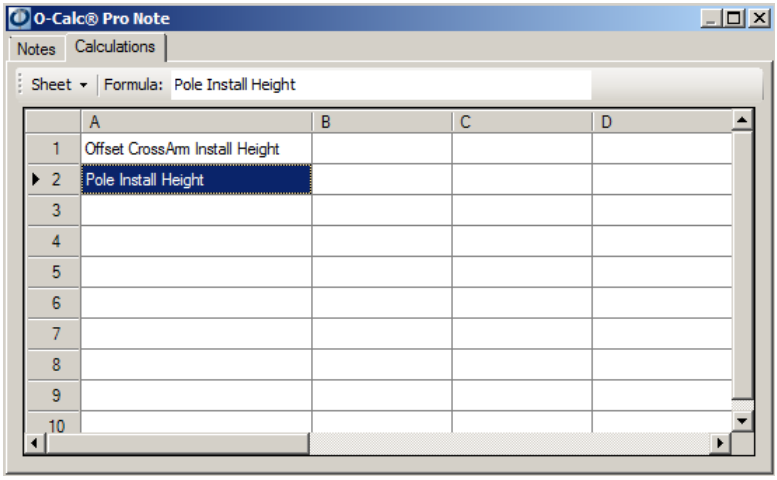
Note: *When working with the Measure Window numeric values can also be obtained from taking actual image measurements. For additional information on this, see* *Adding Measurements Information to a Note*.

In addition to the basic notes menu options the Calculations tab provides the following menu options:

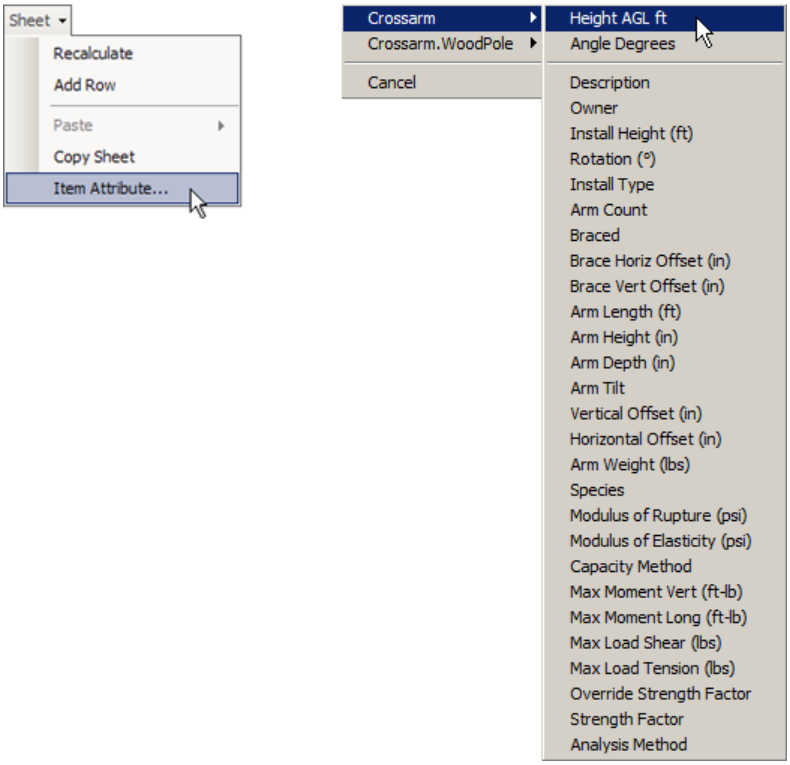
	**Recalculate.** Select the Recalculate option to update any formula calculations in the spreadsheet. **Add Row.** Select the Add Row option to add a row to the spreadsheet. **Paste**. Select the Paste option to paste values only or complete text from the Office Clipboard directly into the spreadsheet. **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 grid 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.

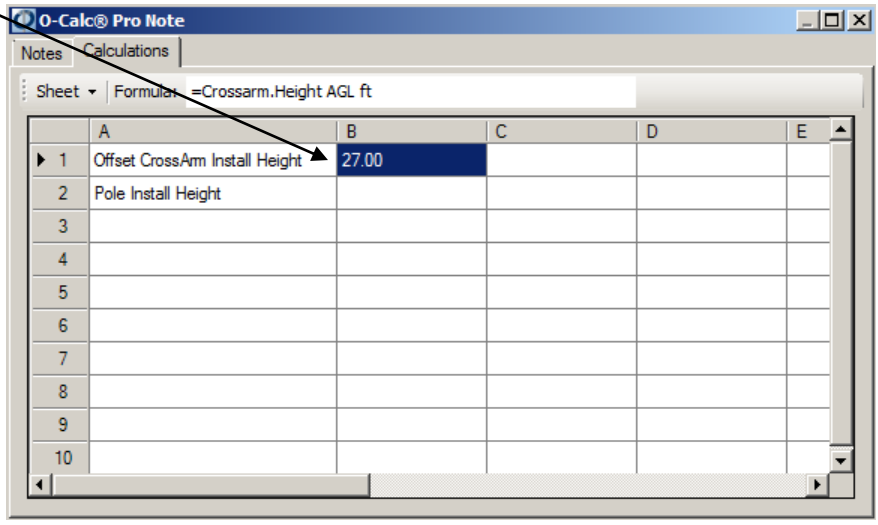
String values entered into the spreadsheet



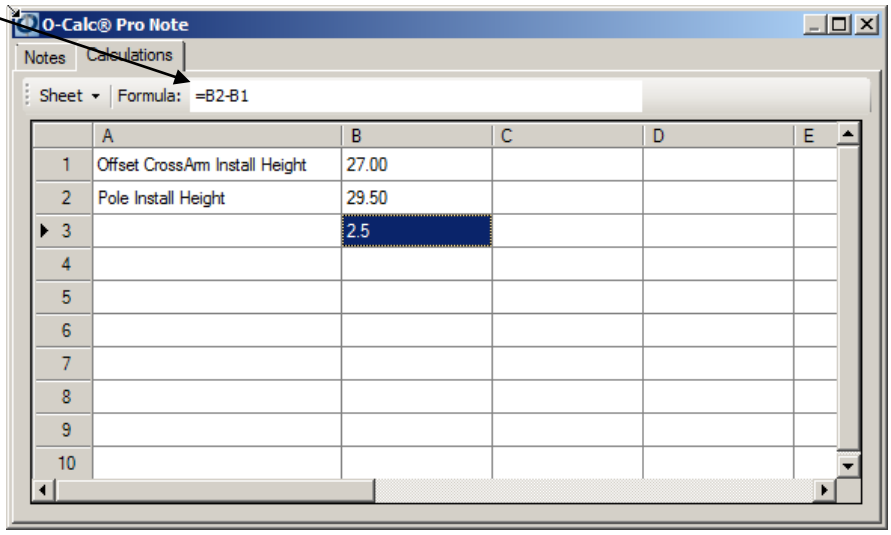
To incorporate attribute value from the equipment the note is attached to or from a parent item, perform the following steps. Select the field you want the value populated into. From the menu select **Sheet> Item Attribute** and choose the items whose attribute value you need displayed in the data grid.



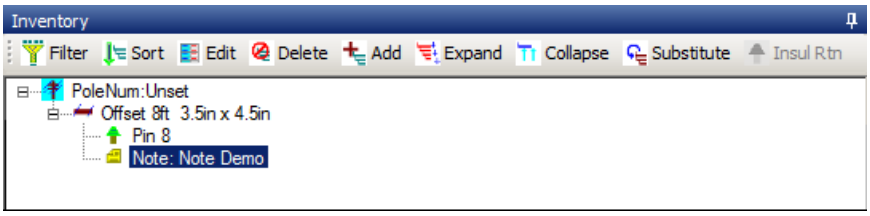
Selected Offset Crossarm Install Height attribute value



Manually entered formula



5. Select **File>Save**.



Note: *The note will automatically display in the Inventory Window. The note can be edited and removed from the Inventory Window.*

Note: *To undo the addition of the note. Select* ***Edit>Undo*** *from the main toolbar.*

Create a New Version of the Existing Pole

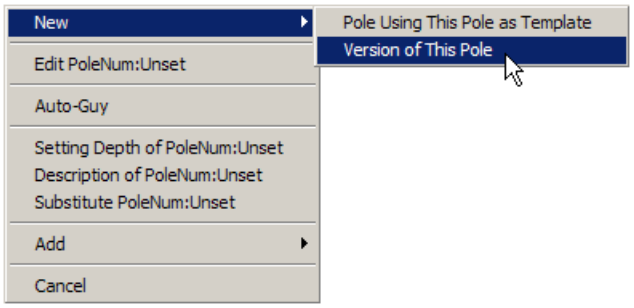
While working with a pole in the 3D View it may be beneficial to compare multiple versions of the pole simultaneously. O-Calc® Pro provides the ability to create multiple pole versions without losing any of the functionality that O-Calc® Pro is known for.

To create a new version of the existing pole in the 3D View, complete the following steps:

1. Right click on the Pole in the 3D View that you would like to create another version of.

   Note: *The pole will automatically be highlighted in yellow once selected.*

2. Select **New>Version of This Pole**.



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

The new version automatically becomes the active version in the 3D View. The active version of a pole is always outlined in red in the Inventory Window to easily identify which pole's data is being displayed in O-Calc ® Pro.

When saving a pole, all the versions of the pole will be saved at that time.

Repositioning Object in 3D View

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

Angle	**Angle.** Holding down the "A" key and selecting an object allows you use the mouse to rotate the object to reposition it.
Vertical	**Vertical.** Holding down the "V" key and selecting an object allows you to use the mouse to reposition the object up or down.
Horizontal	**Horizontal.** 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	**Reverse Horizontal.** 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" keys if the back of the object is facing you)

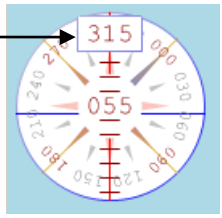
Changing the Compass Angle in 3D View

To manually change the compass angle in the 3D View and have the 3D View automatically snap to that orientation, complete the following steps:

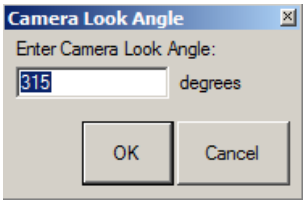
1. Click on the Angle in the 3D View Compass.

   Note: *The compass angle can also be changed by right clicking on the compass and selecting* ***Set Camera Look Angle****.*

Compass angle



2. Enter the new compass angle (camera angle).



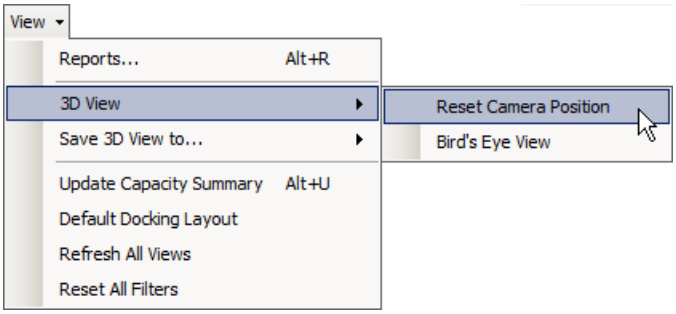
   Note: *The current angle is automatically displayed.*

3. Select **OK**.

Resetting the Camera Position in 3D View

To reset the 3D View back to the default view, complete the following steps:

1. Select **View>3D View>Reset Camera Position**.



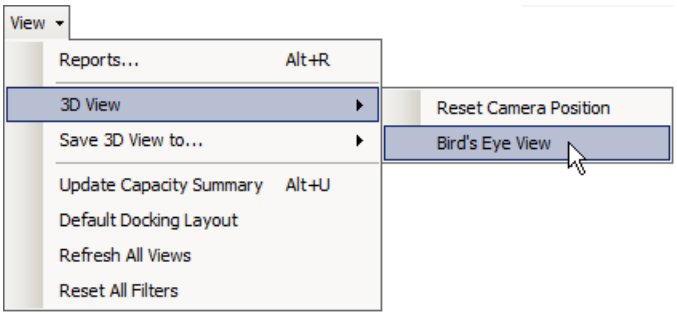
   The 3D View is automatically reset back to the default 3D view.

   Note: *The camera position can also be reset by by right clicking on the compass and selecting* ***Reset Camera*** *or holding down the ctrl key and right clicking on the 3D View background display and selecting* ***Reset Camera Position****.*

Changing to an Overhead View

To change the 3D View to an overhead view or "Bird's Eye View", complete the following steps:

1. Select **View>3D View>Bird's Eye View**.



The 3D View is automatically changed to the overhead view.

Note: *When the Bird's Eye View option is selected the compass and basic movements such as rotating and panning are disabled.*

Note: *The overhead view can also be accessed by right clicking on the compass and selecting* ***Bird's Eye View*** *or by holding down the ctrl key and right clicking on the 3D View background display and selecting* ***Bird's Eye View****.*

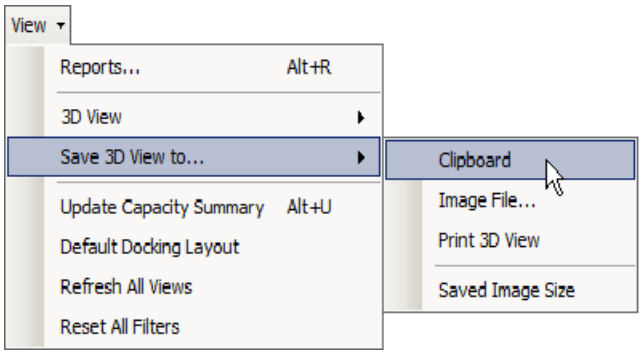
Saving the 3D View

To easily access the current 3D View at a later time you can save the current 3D View to a .png file or place the 3D View on the clipboard.

Place the 3D View on the Clipboard

To place your current 3D View on the clipboard, complete the following steps:

1. Select **View> Save 3D View to> Clipboard**.



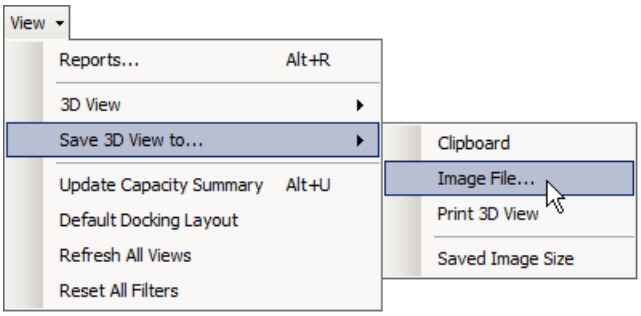
Note: *The 3D View is automatically placed on the clipboard for later use.*

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 the following 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****.*

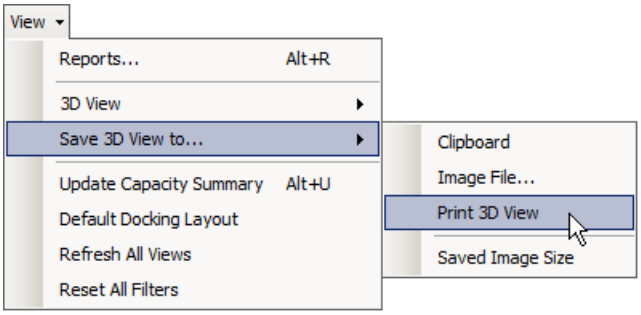
Note: *The* ***Save 3D View to File*** *option can also be accessed by holding down the ctrl key and right clicking on the 3D View background display.*

2. Browse 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 the following steps:

1. Select **View> Save 3D View to> Print 3D View**.



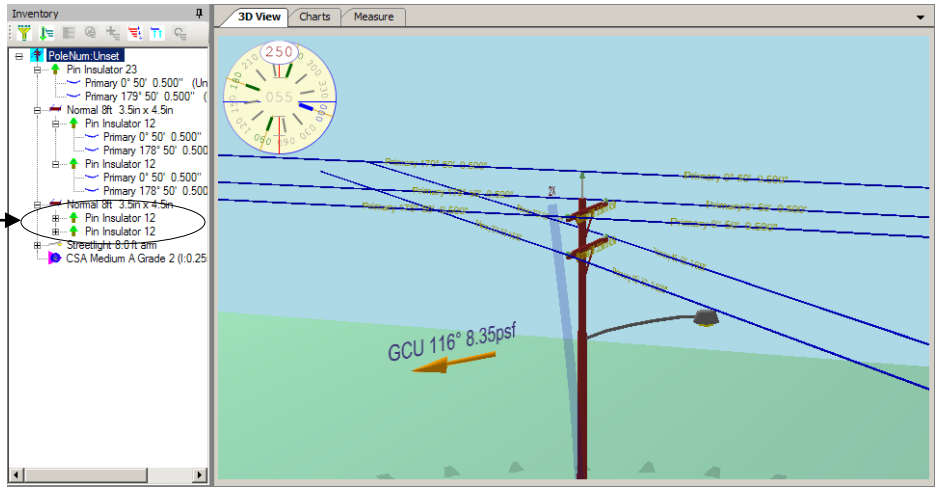
Note: *The 3D View is automatically printed to your default printer.*

Note: *The* ***Print 3D View*** *option can also be accessed by holding down the ctrl key and right clicking on the 3D View background display.*

Filtering the 3D View

To filter the 3D View so that only the objects that are expanded in the Inventory Window display in the 3D View, complete the following steps:

These two objects are collapsed in the Inventory Window but are displayed in the 3D View.

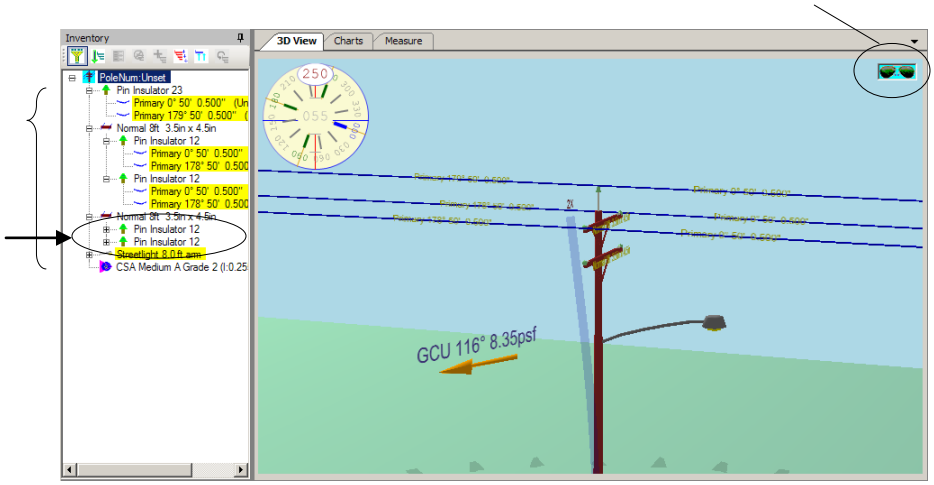


1. Select the Filter button in the Inventory Window.

A filtering notification icon is added to the 3D View.

The objects that are displayed in the 3D View are highlighted in yellow.

These two collapsed objects are now hidden in the 3D View.



2. To turn the filtering option off deselect the Filter button .

   Note: *The filtering option can also be turned off by selecting* ***View>Reset All Filters*** *or select the Filtering Notification button and selecting the* ***Reset All Filters*** *option.*

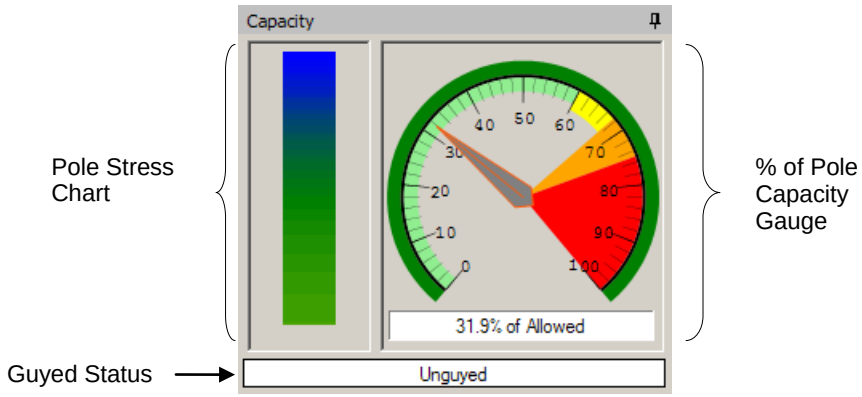
Working With the Capacity Window

Understanding the Capacity Window

The Capacity Window displays a summary of the active poles capacity. The summary provides you with a quick and easy to understand overview of the active pole capacity information. The Capacity Window can be displayed in either a metered format or in a more detailed summary view.

About the Capacity Meter Display

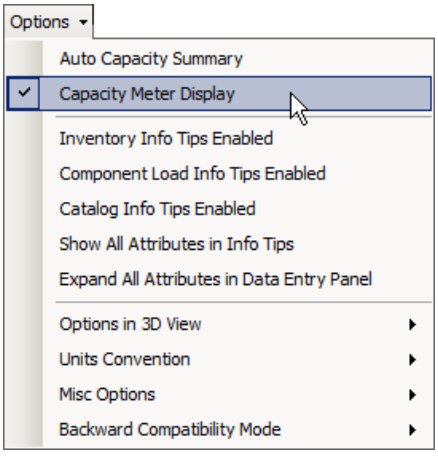
The Capacity Meter calculates the load capacity for the active pole. The meter view displays the percent of the Pole Capacity, the Pole Stress and the guying adequacies.



Enabling the Capacity Meter Display

To enable the Capacity Meter Display, complete the following steps:

1. To enable\disable the Capacity Meter Display option, select **Options>Capacity Meter Display**.



Note: *When Capacity Meter Display is enabled a check mark will display next to the menu option.*

Understanding the Capacity Meter Display

The following tables describe the color representations in the Pole Stress Chart and the Percent of Pole Capacity Gauge.

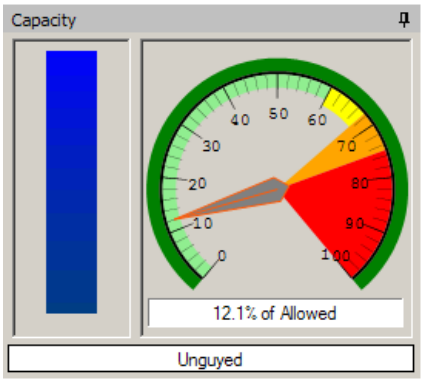
Pole Stress Chart

Display Color	*Description*
Blue	0% Pole Stress
Green	…
Yellow	50% Pole Stress
Orange	…
Red	100% + Pole Stress

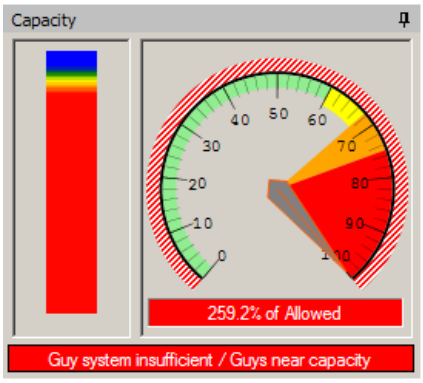
% of Pole Capacity Gauge

Display Color	*Description*
Green	Acceptable Capacity
Yellow	Near Capacity
Red	At or Over Capacity

Acceptable Pole Capacity Example

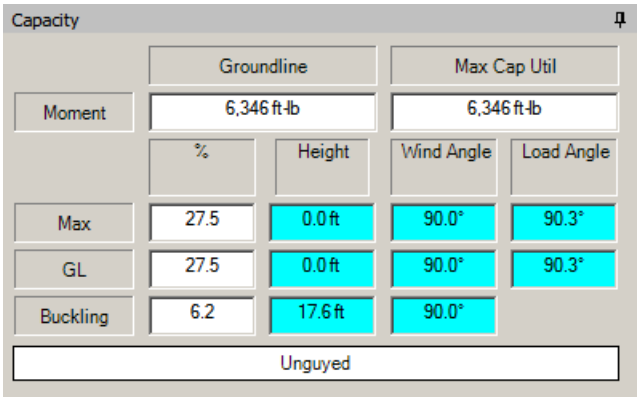


Failed Pole Capacity Example



About the Detailed Capacity Display

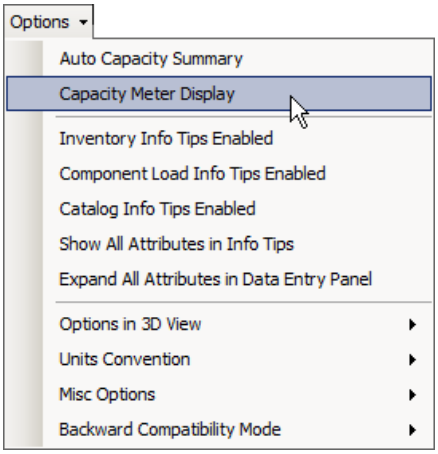
The Detailed Capacity Display calculates and displays the Maximum and Groundline moment, capacity utilizations, wind direction and guying adequacies for the active pole.



Enabling the Detailed Capacity Display

To enable the Detailed Capacity Display, complete the following steps:

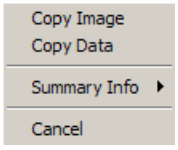
1. Deselect **Options>Capacity Meter Display**.



Note: *When the Capacity Meter Display is disabled the Detailed Capacity Display is automatically enabled.*

Capacity Window Menu Display Options

Right clicking on the Capacity Window background provides several options.

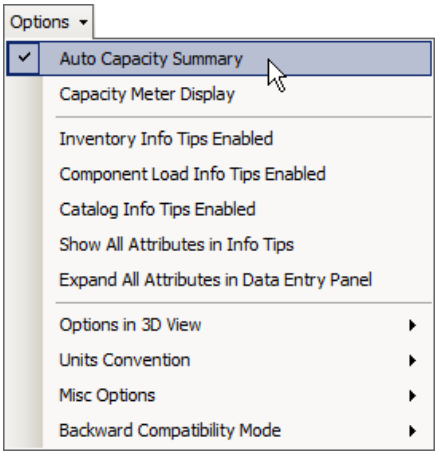
	**Copy Image.** Select the Copy Image option to copy the current Capacity Window as an image to the clipboard so that the image of the Capacity Window can be pasted directly into other applications such as Microsoft Word, E-Mail, and Notepad etc.

	Copy Data. Select the Copy Data option to copy the Capacity Window data to the clipboard so that the Capacity Window data can be pasted directly into other applications such as Microsoft Word, E-Mail, etc. **Summary Info** **View.** Select the View option to display the Capacity Window in a summary format. The Capacity Summary Information view offers additional options such as e-mail and PDF. **Print.** Select the Print option to print the currently displayed Capacity Window. **Cancel.** Select the Cancel option to close the Capacity Window menu option pop-up without taking any action.

Automatically Updating the Capacity Window

To enable the Capacity Window to automatically be updated each time a change is made to the active pole, complete the following steps:

1. To enable\disable the Auto Capacity Summary option, select **Options>Auto Capacity Summary**.



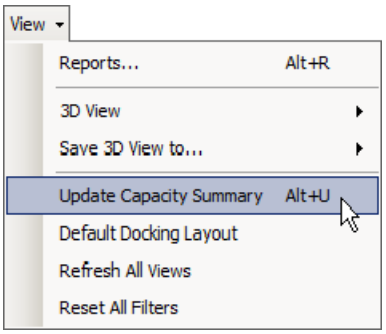
Note: *When Auto Capacity Summary is enabled a check mark will display next to the menu option.*

Note: *To change the idle time interval between updates, see* *Set the Idle Time Interval*.

Manually Updating the Capacity Window

If the Auto Capacity Summary option is disabled, you can manually update the Capacity Window by completing the following steps:

1. Select **View>Update Capacity Summary**.



Working With the Measure Window

Measure Window Overview

The Measure Window allows you to complete measurements using images that you have selected using the Osmose Digital Measurement Technology (DMT). You can efficiently create measurements on heights, arbitrary lengths, conductor diameters or angles.

Before any measurements are taken from an image the calibration needs to be set for that image. See Setting the Calibration. Once the calibration has been set measurements can be completed. As each measurement is completed the measurement is automatically updated in the Inventory Window and the Data Entry Panel.

The camera's lens calibration needs to be set before any measurements can be taken. To set a camera's lens calibration see Working with the Lens Calibration Tool.

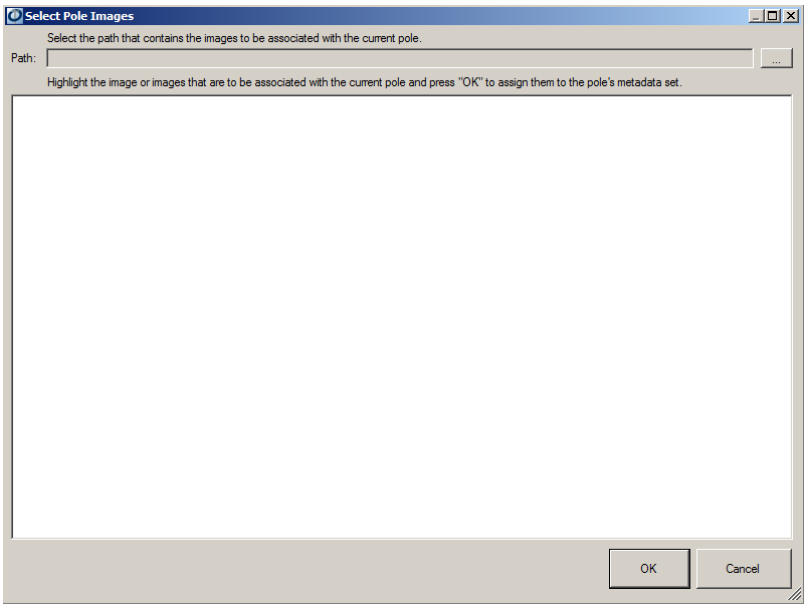
Working with Images in the Measure Window

Selecting Initial Images to Display

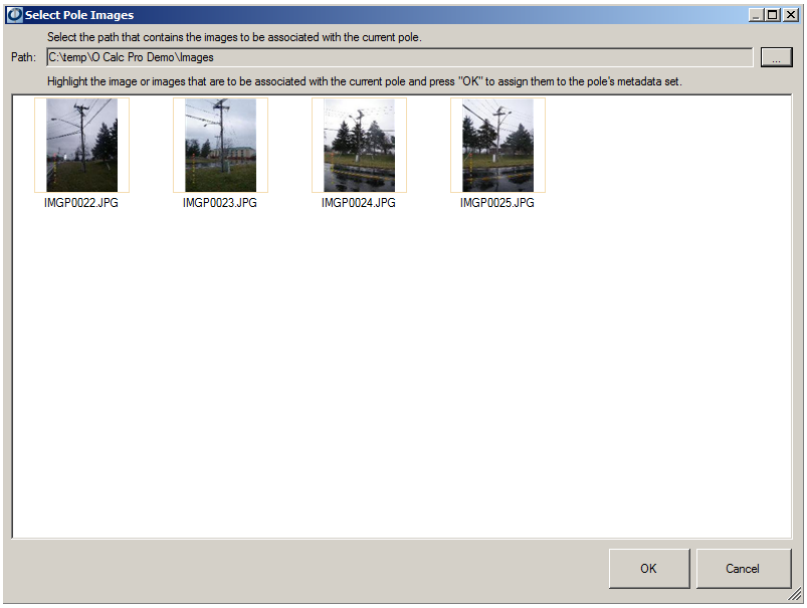
To select the initial images needed to complete measurements, complete the following:

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

   Note: *Images can only be added once a pole has been added to the Inventory Window.*



2. Select the Image Path **Browse** button ··· and navigate to the location where the images to be associated with the current pole are located and click **OK**.



3. Select the images to be associated to the current pole.

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

4. Select **OK.**

Selecting Additional Images to Display

Additional images can be associated to the current pole at any time.

To select additional images you need to complete measurements, complete the following steps:

1. Select **Edit>Pole Images>Add Images**.
2. Select additional images from the current Image Path.

   OR

   Select the Image Path **Browse** button and navigate to the location where the images to be associated with the current pole are located and click **OK**.
3. Select the images to be associated to the current pole.

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

Remove All Images

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

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

   Note: *There is no option to remove individual images.*
2. Select **Yes** to the confirmation message.

   Note: *To undo the removal of all the images, select* ***Edit>Undo***.

Print the Images that Display

To print the images that display in the Measure Window for the current pole, complete the following steps:

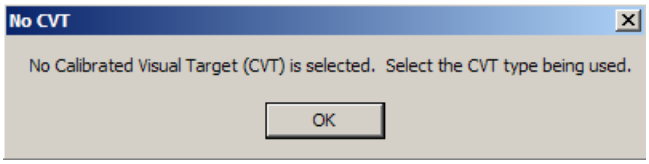
1. To print the currently selected image in the Measure Window select **Edit>Pole Images>Print Current Image**.

   OR
2. To print all the images that are displayed in the Measure Window select **Edit>Pole Images>Print All Images**.

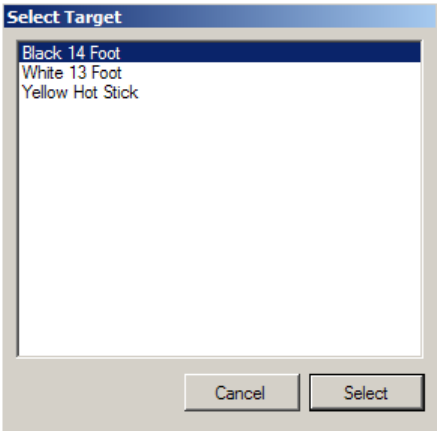
Set the Target Type

Initially when the Measure Window is opened a Target Type needs to be set and a warning message will initially display. The target type represents which Calibrated Video Target (CVT) was used when the image was captured. To set the Target Type, complete the following steps:

1. Select **OK** to the warning message.



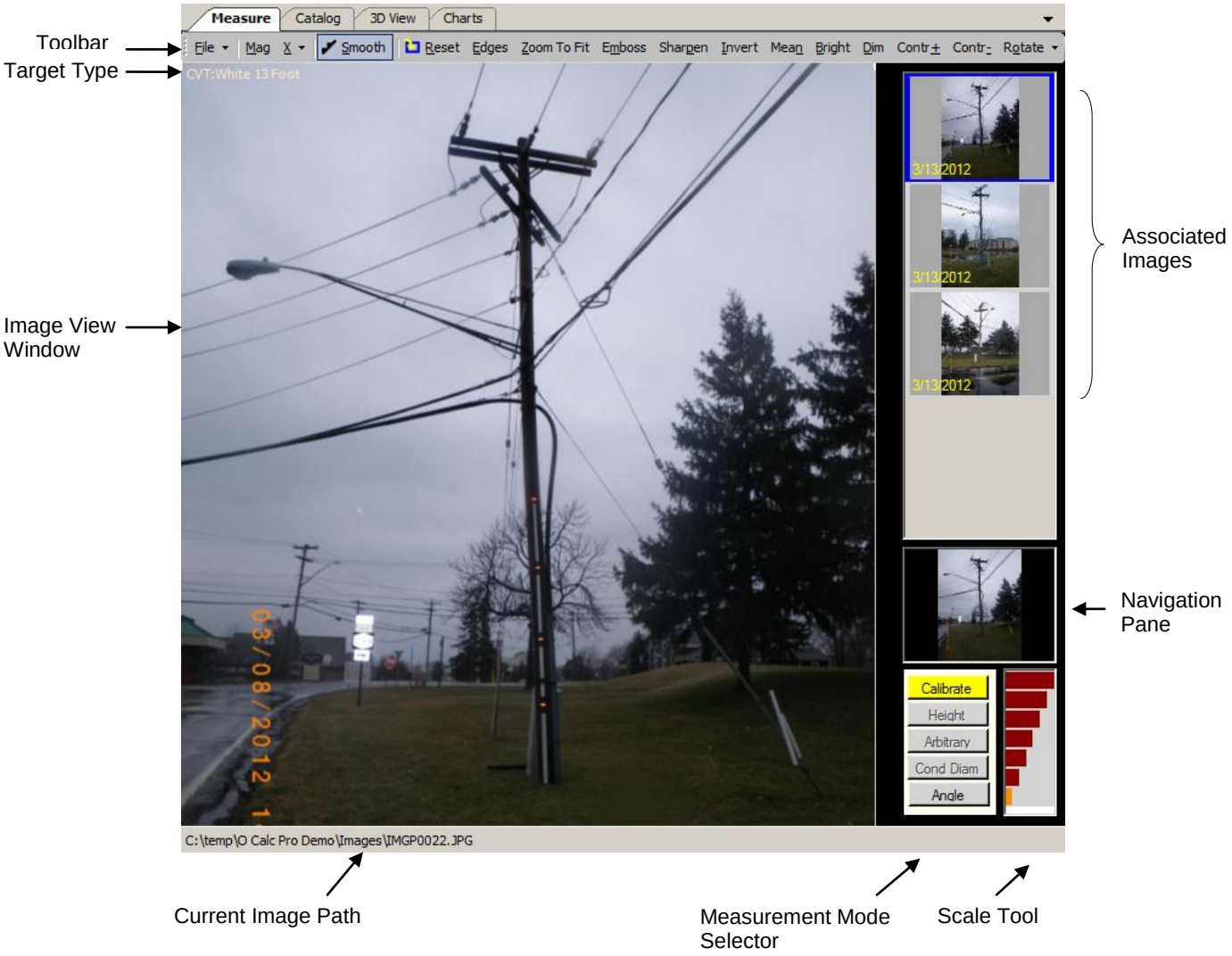
2. Select a **Target Type**.



3. Click **Select**.

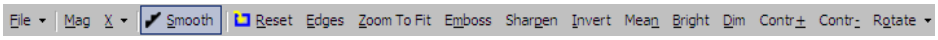
Understanding the Measure Window

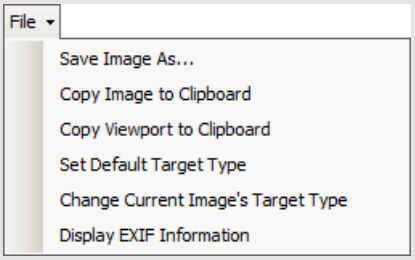
The Measure Window provides a variety of tools designed to allow the user to complete image measurements, review and enhance image data.

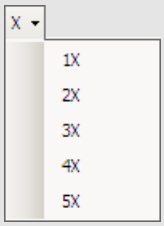
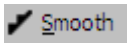
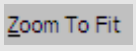
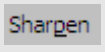


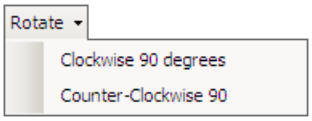
Toolbar Menu Options

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



	**File.** The following options are available from the File menu: ***Save Image As.*** Select the Save Image As option to save the current image as a variety of file types (JPEG, BMP, GIF or PNG). ***Copy Image to Clipboard***. Select the Copy Image to Clipboard option to copy the current selected image to the clipboard so that the image can be pasted directly to other applications such as Microsoft Word, E-mail, etc. ***Copy Viewport to Clipboard.*** Select the Copy Viewport to Clipboard option 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. ***Set Default Target Type***. Select the Set Default Target Type option to select the Calibrated Video Target (CVT) that was used in order to get accurate measurements. ***Change Current Image's Target Type.*** Select the Change Current Image's Target Type option to change the currently selected (displayed) images target type. ***Display EXIF Information***. Select the Display EXIF Information option to display the metadata in the image.
	**Mag.** Click the Mag option 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.** Select the magnification level to use with the Magnification Window.
	**Smooth.** Click the Smooth option to smooth hard edges of the image.
	**Reset.** Click the Reset option to undo any display/enhancement options that were selected.
	**Edges.** Click the Edges option to apply the edge enhancing filter to the current image.
	**Zoom to Fit.** Click the Zoom to Fit option to reset the image to its original size.
	**Emboss.** Click the Emboss option to make the image appear in raised relief.
	**Sharpen.** Click the Sharpen option to sharpen the image's contrasting. Example: If you had a light gray pole next to a relatively dark background, sharpening the image will cause edges where the gray meets the dark background to become more contrasted. The gray becomes whiter and the dark background becomes blacker.
	**Invert.** Click the Invert option to invert the colors of the image.
	**Mean.** Click the Mean option to automatically adjust the contrast of the image.
	**Bright.** Click the Bright option to brighten the image.
	**Dim.** Click the Dim option to darken the image.

	**Contr +** Click the Contr + option to set the contrast higher. Increasing the contrast will make dark tones darker and the light tones brighter. Using the Contrast option also affects the sharpness of the image.
	**Contr -** Click the Contr – option to set the contrast lower.
	**Rotate.** Select the Rotate option to rotate the image 90 degrees to the right or left.

The Image Viewer also provides several ways to navigate within the image by providing the following tools:

Mouse Wheel	You can use the mouse wheel to interact with the image. To zoom in or out scroll the mouse wheel forwards or backwards. To pan, click the mouse wheel down and drag the image to shift the location of the image.
Associated Images	All images that are associated or related to the selected feature are displayed as thumbnails on the upper right side of the Image View window. Select a thumbnail to change which images measurements are going to be completed on.
Navigation Pane	Clicking a point in the Navigation Pane will center the image on that point in the Image View Window.
Scale Tool 	Click different levels on the scale to zoom-in or zoom-out to see more details in an image.
Measure Mode Selector 	Click a Measure Mode to activate the measurement tool for the selected mode. Only task of the selected type will be available to measure.

Setting the Calibration

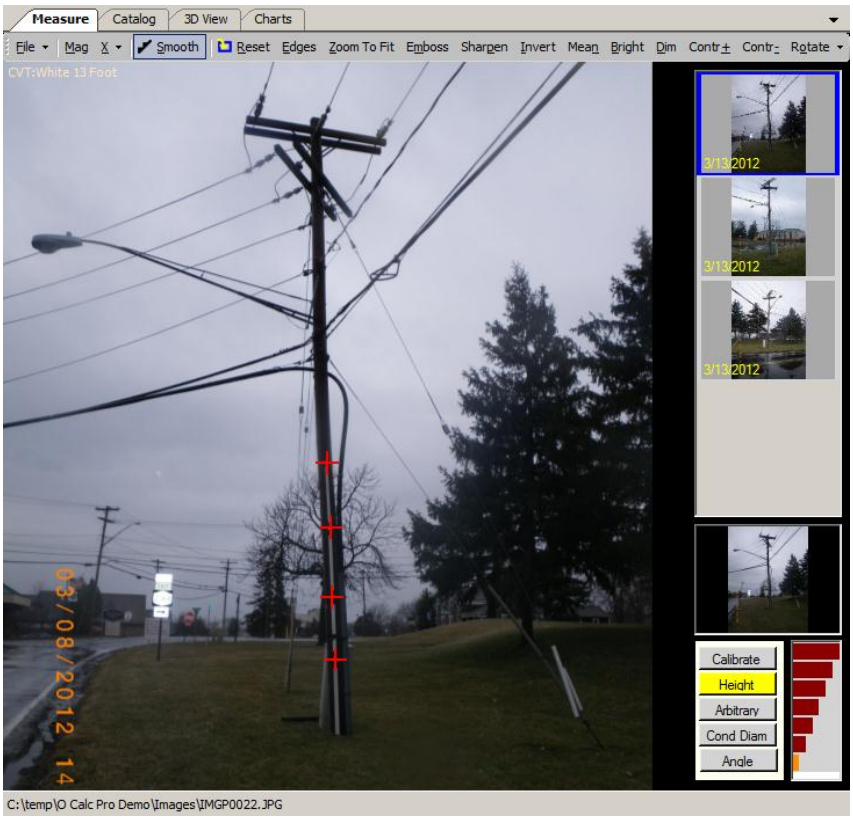
When the Measure Window is initially opened the Calibration Mode is selected by default. The Calibration measurement needs to be completed once on each image before any other measurements are taken on that image. To complete the Calibration measurement, complete the following steps:

1. Select the image you will use to set the Calibration.

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

2. The Calibration Mode requires 3 – 4 measurements, based on the target type. Place the measurement sight where the first calibration point is and click the left mouse button. A red plus sign + marks your first calibration measurement.

3. Using the measurement sight set the remaining calibration point locations.



Once all the Calibration measurements are completed the next mode will automatically be selected. At this point you can select any of the available modes to complete measurements on.

Note: *If you need to redo the calibration measurements after they have been set, select the Calibration Mode and complete steps 2 and 3 as directed above. At this time there is no cancel or undo options for the Calibration Mode.*

Note: *Changing the Calibration measurement does not affect any of the measurements that have already been completed. If you change the Calibration measurement any measurements you have completed need to be redone.*

Overview of the Measurements Mode Selector

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

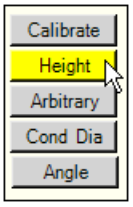
Mode Selected	*Visual Tool*
Calibrate	**Calibrate.** Click the Calibrate Mode and the cursor will change to a measurement sight for an accurate measurement.
Height Mode	**Height Mode.** Click the Height Mode and the cursor will change to crosshairs for an accurate measurement of height relative to groundline.
Arbitrary (Arbitrary Length) Mode	**Arbitrary Mode.** Click the Arbitrary Mode and the cursor will change to crosshairs for an accurate measurement between two points in the plane of the target.
Cond Dia (Conductor Diameter) Mode	**Cond Dia Mode.** Click the Cond Dia Mode and draw a line to accurately determine the conductor size.
Angle Mode	**Angle Mode.** Click the Angle Mode and the cursor will change to crosshairs to accurately calculate angles.

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

Height Mode Measurements

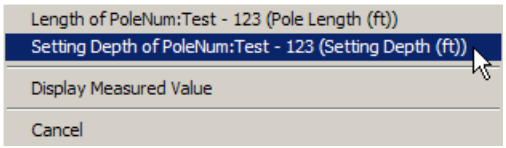
The height is relative to the groundline of the pole. To complete a Height measurement, complete the following steps:

1. Select the equipment in the Inventory Window that you want to measure the height of.
2. Select the **Height Mode**.



3. Place the crosshairs at the point you want the Height measurement to be taken at.

4. Left click, a menu listing the Height Task to be performed is displayed. Select the Height Task you would like the measurement associated with.



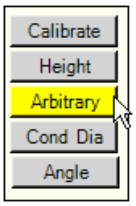
5. The Inventory and Data Entry windows will automatically be updated to reflect your measurement.

   Note: *To cancel the current Height measurement, select the* ***Cancel*** *Option. If you need to retake the measurement after it has been set, completed steps 1 thru 4 as directed above. There is no undo option available.*

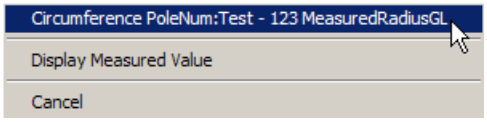
Arbitrary Mode Measurements

To complete an Arbitrary measurement between two points in the plane of the target, complete the following steps:

1. Select the equipment in the Inventory Window that you want to take an Arbitrary measurement of.
2. Select the **Arbitrary Mode**.



3. Place the crosshairs at the point you want the Arbitrary measurement to start.
4. Hold down the left mouse button and draw a line to where the Arbitrary measurement ends.
5. Left click and select the Arbitrary Task you would like the measurement associated with.



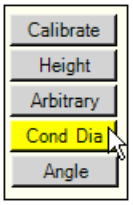
6. The Inventory and Data Entry Windows will automatically be updated to reflect your measurement.

   Note: *To cancel the current Arbitrary measurement select the* ***Cancel*** *Option. If you need to retake the measurement after it has been set, completed steps 1 thru 5 as directed above. There is no undo option available.*

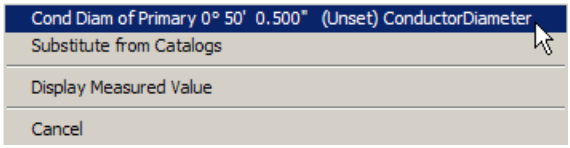
Cond Dia Mode Measurements

The Cond Dia (Conductor Diameter) is used to collect wire sizes. To complete a Conductor Diameter measurement, complete the following steps:

1. Select the equipment in the Inventory Window that you want to measure the diameter of.
2. Select the **Cond Dia Mode**.



3. Place the cursor on the middle of the Conductor whose diameter you want to measure.
4. Hold down the left mouse button and drag along the conductor until the yellow line is the same width as the conductor then release the mouse button.
5. Left click and select the Conductor Diameter Task you would like the measurement associated with.



6. The Inventory and Data Entry Windows will automatically be updated to reflect your measurement.

   Note: *To cancel the current Conductor Diameter measurement select the* ***Cancel*** *Option. If you need to retake the measurement after it has been set, completed steps 1 thru 5 as directed above. There is no undo option available.*

Angle Mode Measurements

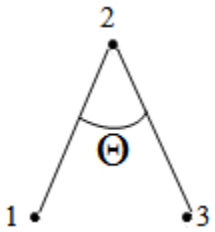
Angle measurements need be entered into O-Calc® Pro manually. To assist you in measuring an Angle, complete the following steps:

1. Select the equipment in the Inventory Window 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.

Note: *The Angle measurement is a three point process. After the Angle measurement is complete the Angel measurement is displayed for reference purposes only.*

4. Click the left mouse button and draw your first line, click the left mouse button again and draw your second line.



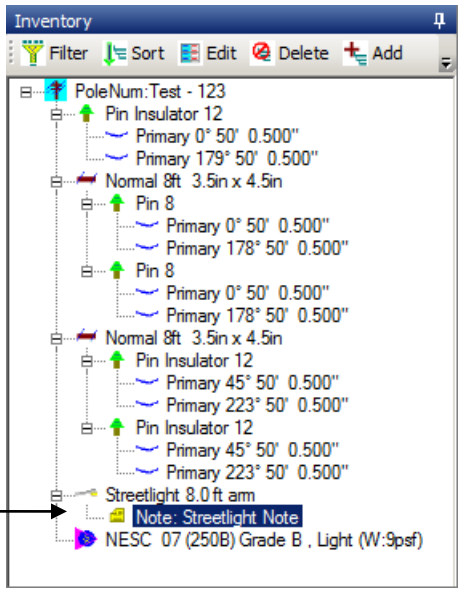
5. Left click and the Angle measurement is automatically displayed for reference purposes.

Note: *If you need to retake the measurement, completed steps 1 thru 5 as directed above. There is no undo option available.*

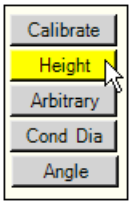
Adding Measurement Information to a Note

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

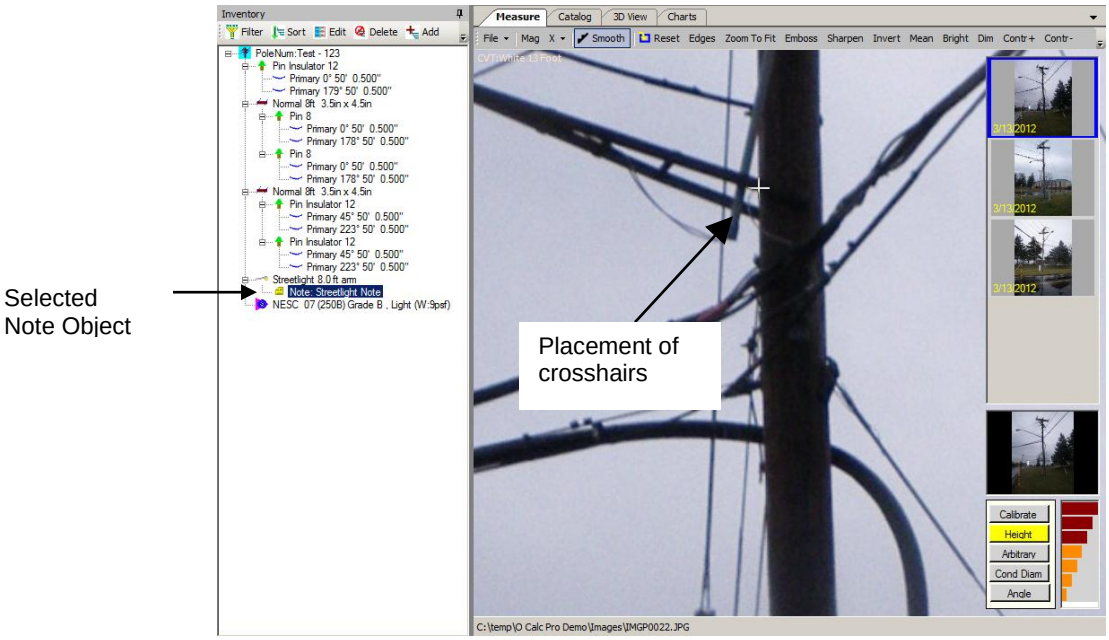
1. Select a note object in the Inventory Window.



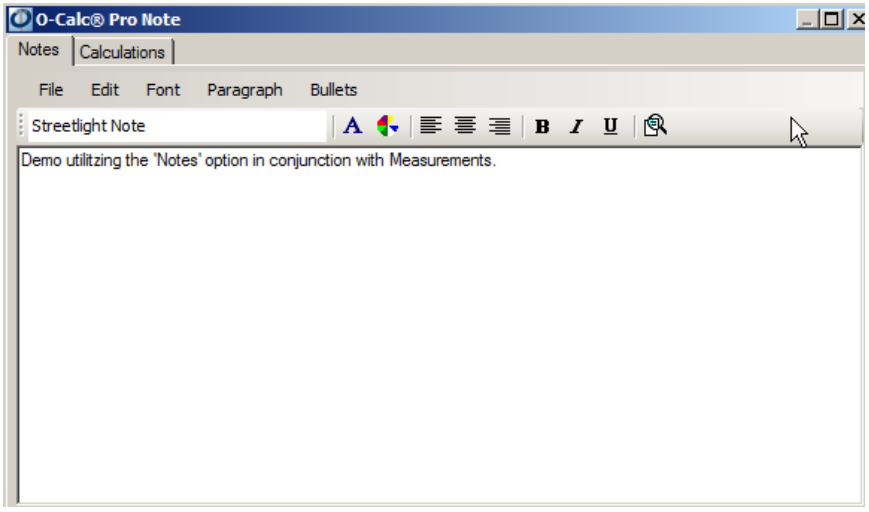
2. Select the Mode you would like to use for the measurement.



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.

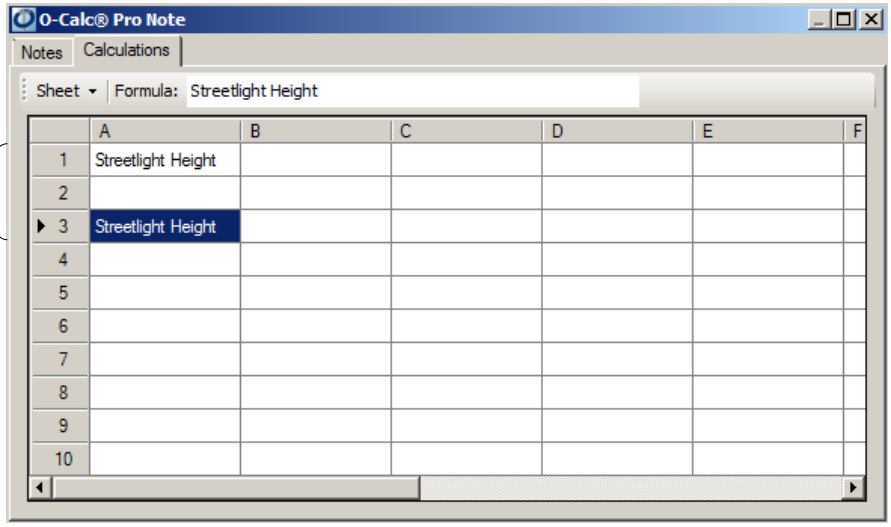


4. The selected note in the Inventory Window automatically is displayed.



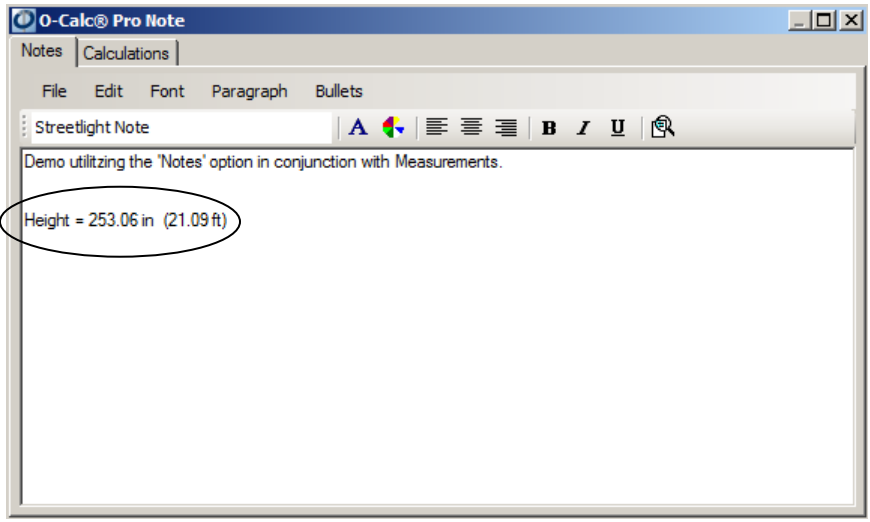
5. Complete any edits to the notes description, note context or spreadsheet.

String values entered into the spreadsheet



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

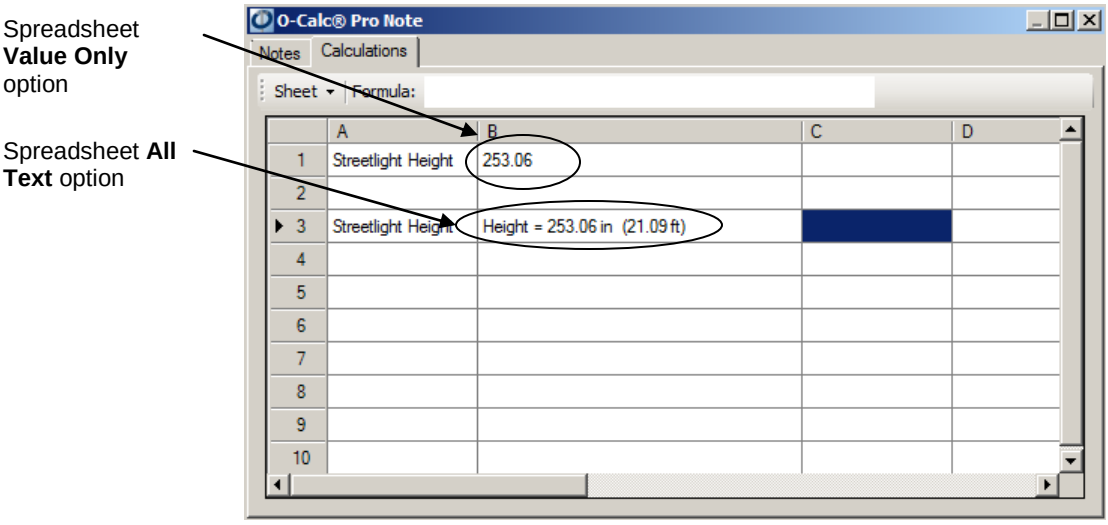
Edit>Paste option into the note content



7. To have the measurement automatically pasted into the spreadsheet, 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 - Will exclude the measurement text and only paste the measurement value into the spreadsheet.

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



8. Select **File>Save**.

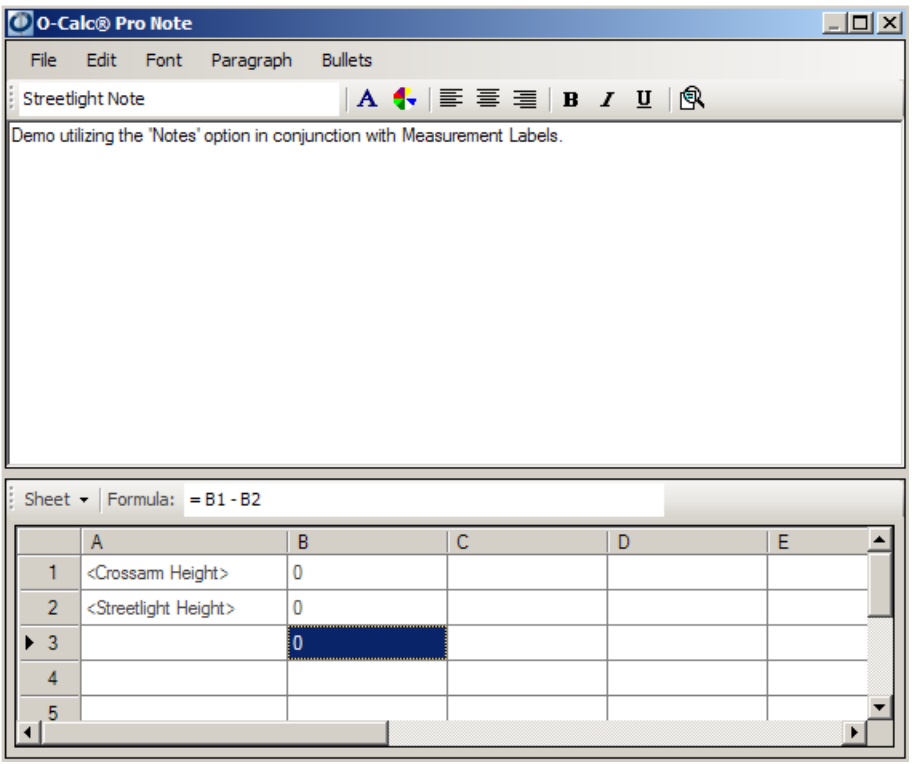
Adding Specific Measurements to the Notes Data Grid

To add specific measurements to the Data Grid while working in the Measurement Window you can create custom Measurement Labels in a Note's Data Grid. These Measurement Labels display each time the note is selected while completing measurement. To create a Measurement Label in a note and use them to paste measurements directly into the selected note, complete the following steps:

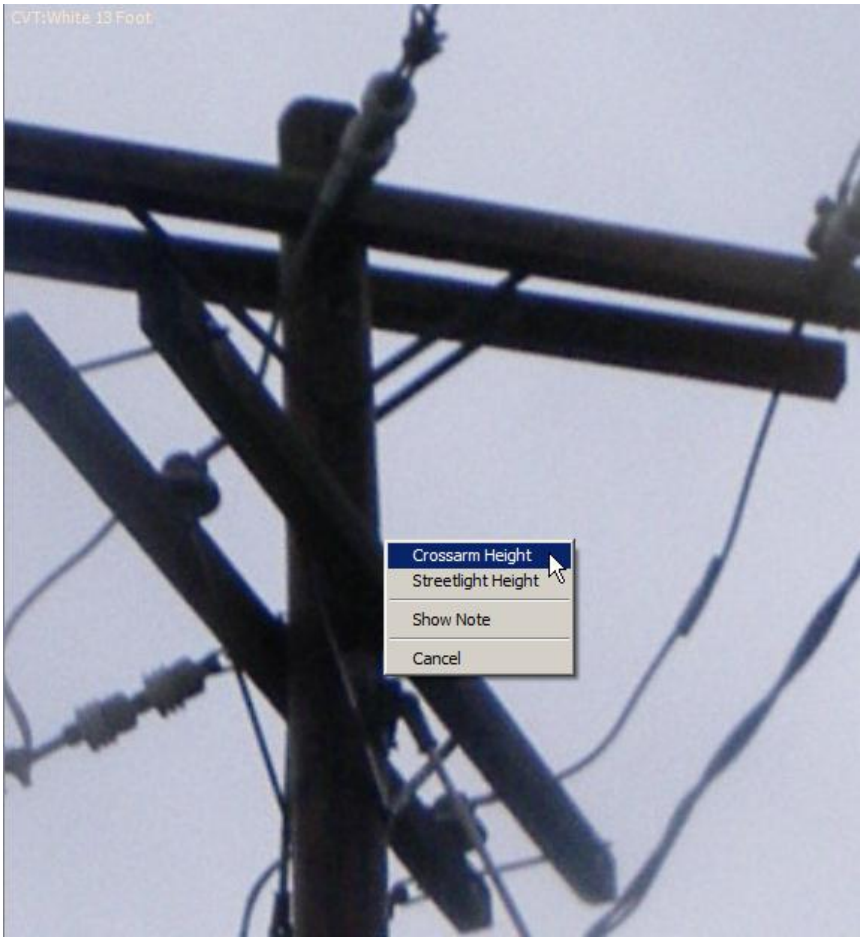
1. Create a new note object or open an existing note object in Edit Mode.
2. Enter a description and the note context.
3. Select a cell in the Data Grid View and enter a Measurement Label.

   There is not limit as 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 <Measurement Label>.

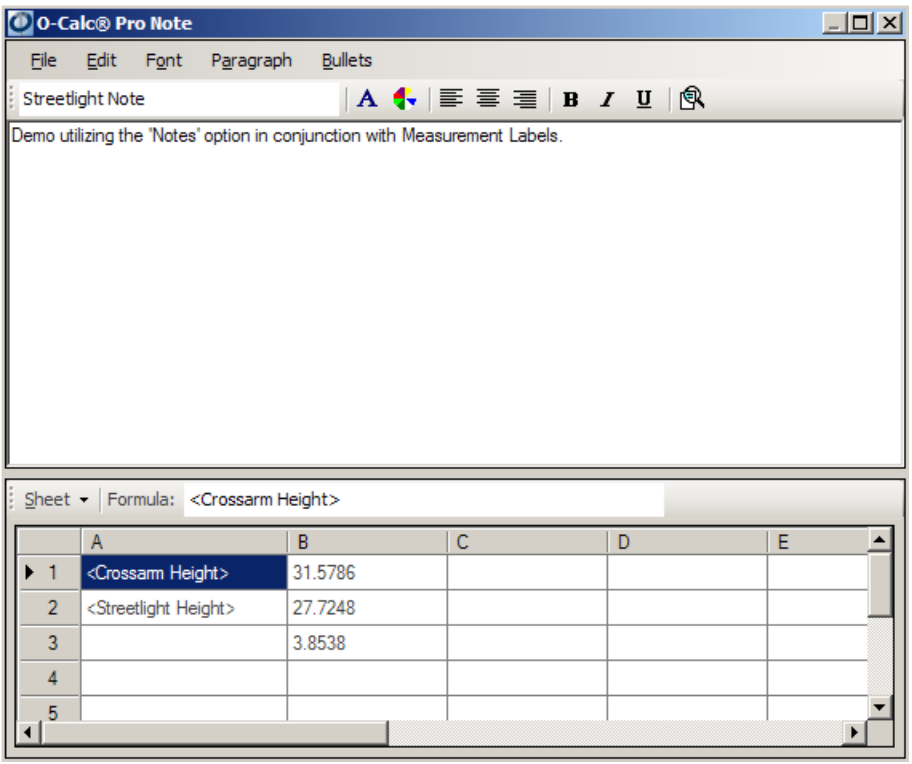
   As there is no measurement value enter place holder values of enter zero where you would like the measurement value to be entered. Also, enter calculation formulas if they are needed.



4. Select **File>Save**.
5. Select the note object in the Inventory Window.
6. Select the Measure Tab.
7. Click the left mouse button where you would like each measurement taken from and select the appropriate Measurement Label.



8. To return to the select note object left mouse click and select **Show Note**.



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

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.*

Working With the Data Entry Window

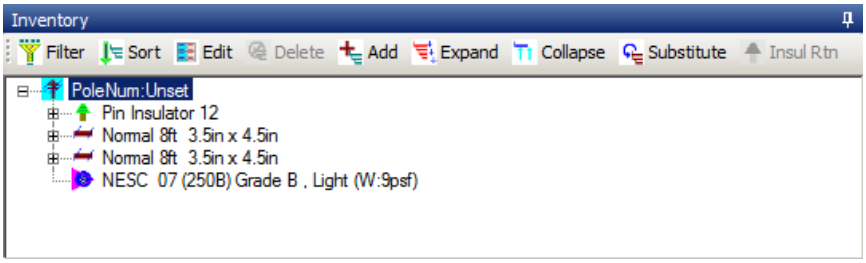
Data Entry Overview

The Data Entry Window works in conjunction with the Inventory Window. When selecting an object(s) in the Inventory Window the object's attributes are displayed in the Data Entry Window. This provides a comprehensive way to review or make changes to editable attributes.

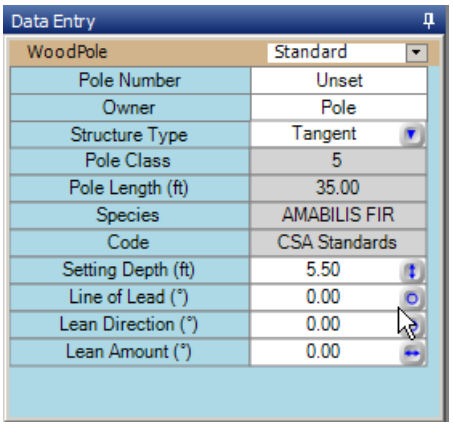
Editing Attributes

To edit an attribute, complete the following steps:

1. Select the Data Entry Window.
2. Select an object in the Inventory Window.



3. The selected object displays in the Data Entry Window.

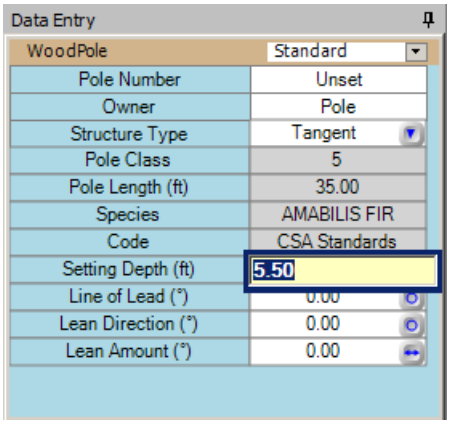


4. Select the attribute to be edited in the Data Entry Window.

   Note: *If additional attributes are available a drop down menu will display next to the selected object's name in the Data Entry Window. Select the drop down menu to display additional attributes.*

5. Press the space bar and edit the selected attribute.

   Note: *Certain attributes are only editable in Administrative User Mode.*



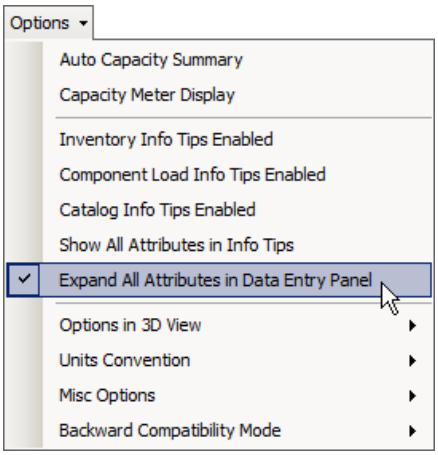
   Note: *For a complete list of the editable icon's descriptions* *Editing Equipment Attributes*.

6. Select **Enter**.

Expand All Attributes

By default a list of standard, most commonly used, attributes are initially displayed in the Data Entry Window when an object is selected in the Inventory Window. To change the default setting so that all the selected object's attributes are displayed, complete the following steps:

1. Select **Options>Expand all Attributes in Data Entry Panel**.

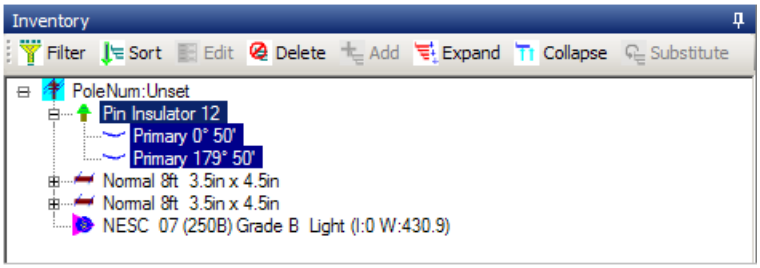


Note: *When the Expand All Attributes in Data Entry Panel option is enabled a checkmark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Display Multiple Attributes

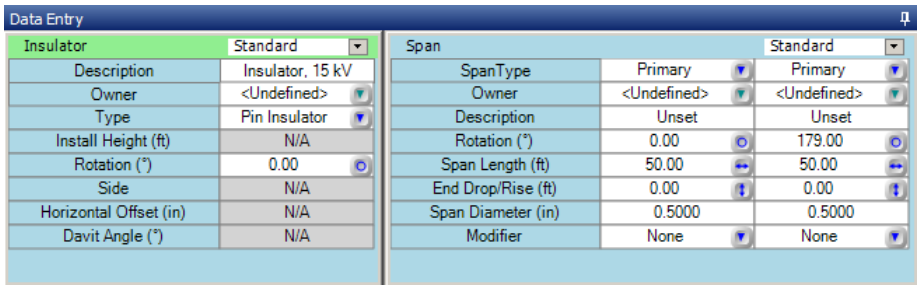
To display multiple objects for review or editing from the Inventory Window, complete the following steps:

1. Select the Data Entry Window.
2. Select several objects in the Inventory Window.



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

3. The selected objects are displayed in the Data Entry Window.

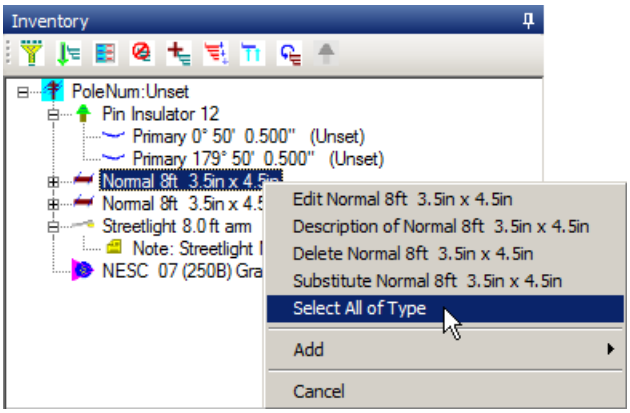


Note: *When multiple objects are displayed in the Data Entry Window all like objects are automatically grouped together.*

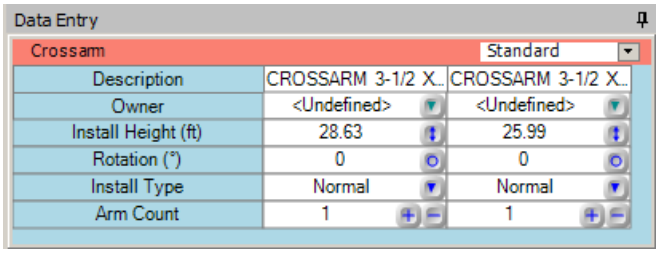
Display Multiple Corresponding Attributes

To display multiple objects that are of a specific type, that are all on the same hierarchy level, for review or editing from the Inventory Window, complete the following steps:

1. Right click on the object you want to review in the Inventory Window.
2. Select **Select All of Type**.



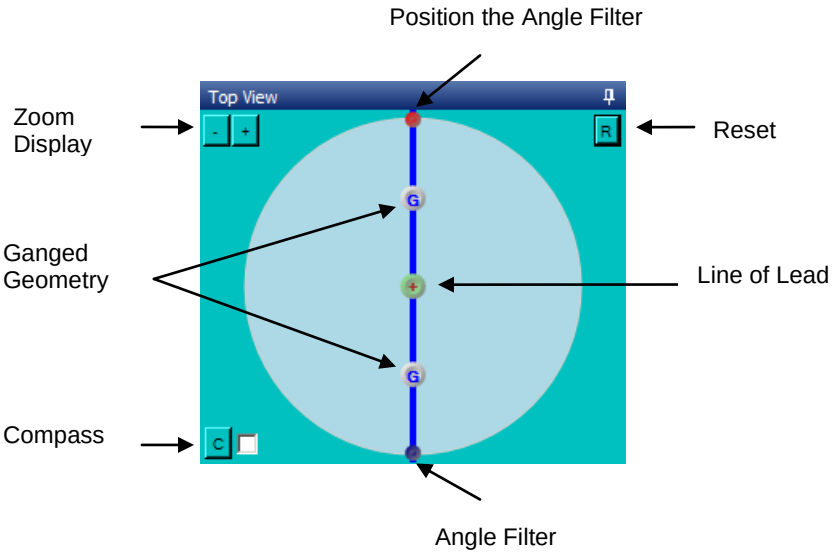
3. The selected object and any like objects within that hierarchy level are displayed in the Data Entry Window.



Working With the Top View Window

About the Top View Window

The Top View Window displays a polar view of the pole with span angles. Changing the Ganged Geometry or the Line of Lead will automatically change all the spans.



Top View Display Options

The Top View provides you with a variety of operations and options.

Functionality Icons	*Description*
-	**Zoom-Out.** Click the Zoom-Out option to zoom the display out.
+	**Zoom-In.** Click the Zoom-In option to zoom the display in.
G	**Ganged Geometry Editor.** Click the Ganged Geometry Editor option change the mode, add an offset angle or to change a span length.
C	**3D Compass.** Click the 3D Compass option to have the Top View Window track the 3D View Compass. Check the 3D Compass box if you want this option to always be enabled.

R	**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.*
	Line of Lead. Click the Line of Lead option to change the line of lead.
	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.

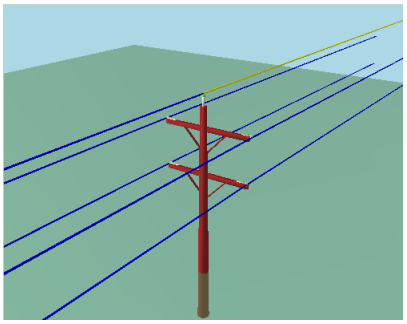
Change the Zoom Level

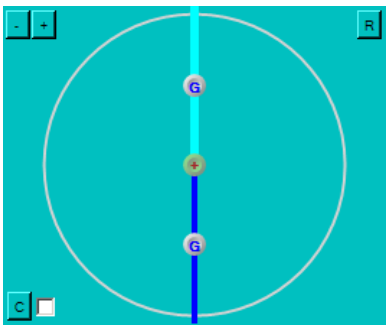
To change the zoom level of the Top View display, complete the following steps:

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 display level select the Reset button* R.

Change the Ganged Geometry

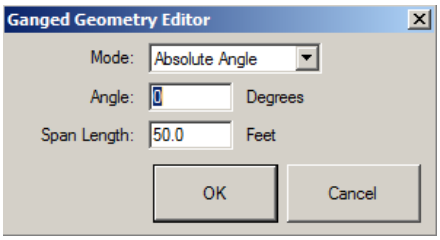




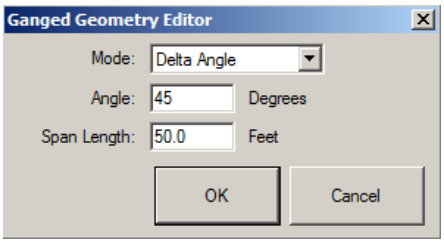
To change the Ganged Geometry, complete the following steps:

1. Select the Ganged Geometry object G to be changed.

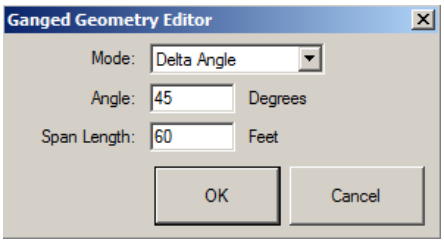
   Note: *Selecting a span in the Inventory Window will highlight the span in the Top View Window.*



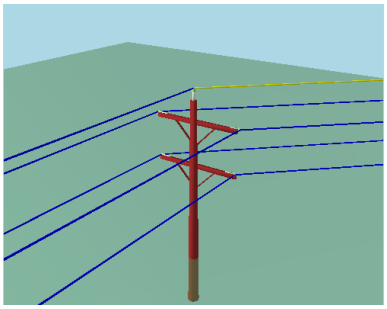
2. Select the **Mode** from the drop down list.
3. Enter an **Add Offset Angle**.

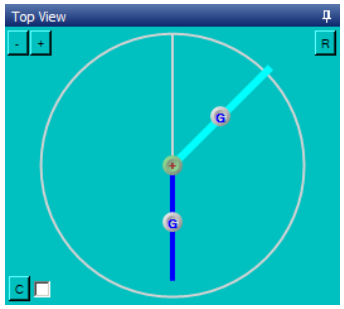


4. Enter a **Span Length**.



5. Select **OK**.





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

Incorporating the 3D Compass View

To incorporate the 3D Compass direction into the Top View, so that the spans are displayed in the Top View in the same direction as the 3D View, complete the following steps:

1. Click the 3D Compass button C. The display is automatically rotated to match the 3D View.

   Note: *To enable the 3D Compass tracking so that every time the 3D View is repositioned the Top View Window automatically tracks the change, check the 3D Compass box* C ☑*. Deselect the 3D Compass check box to disable tracking.*

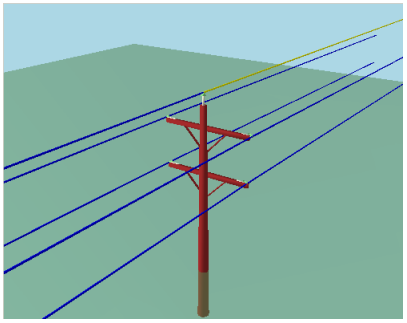
Reset the Top View Display

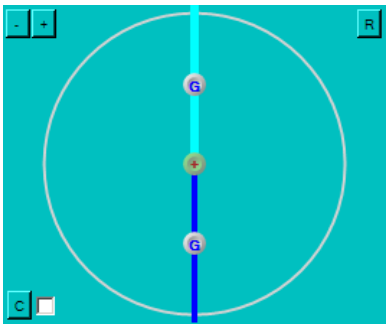
To undo any changes to the Top View display, complete the following steps:

1. Click the Reset button R.

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

Change the Line of Lead

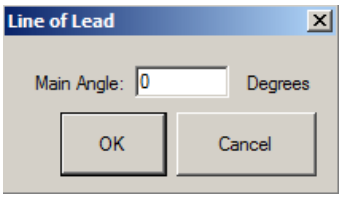




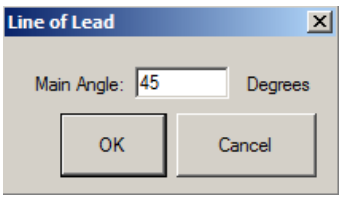
To change the line of lead, complete the following steps:

1. Select the Line of Lead object to be changed.

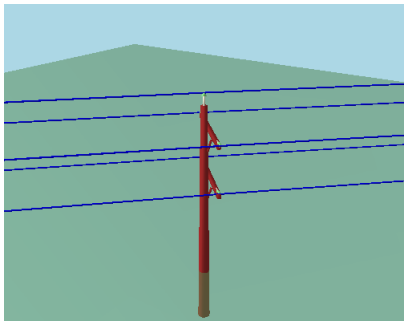
   Note: *Selecting a span in the Inventory Window will highlight the span in the Top View Window.*

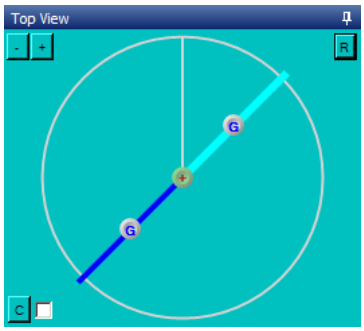


2. Enter a **Main Angle**.



3. Select **OK**.

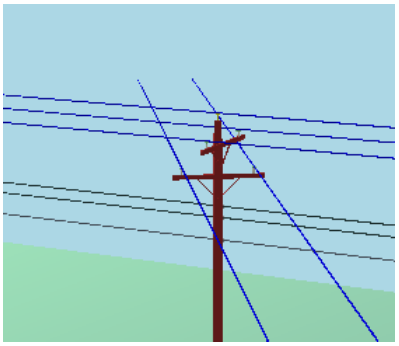


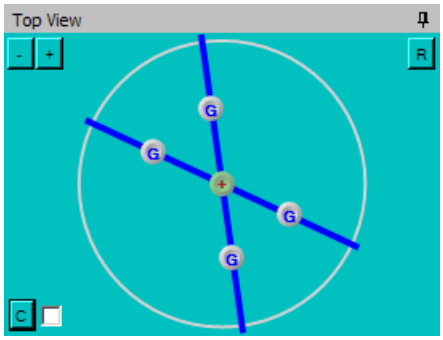


Note: *To undo the Line of Lead change, select* ***Edit>Undo****.*

Setting an Angle Filter

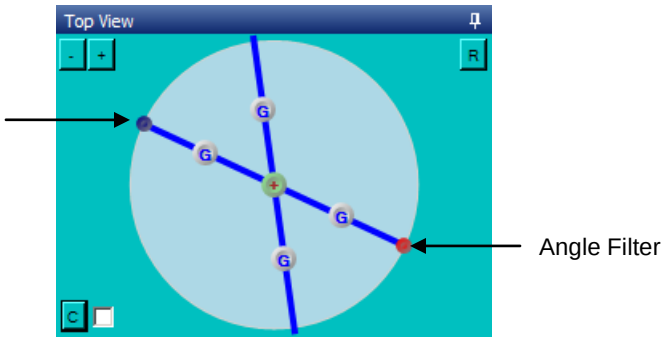
When working with a pole that has numerous spans attached it may be beneficial to set an Angle Filter. The Angle Filter allows you to set a filter so that only spans in a specific area are displayed.



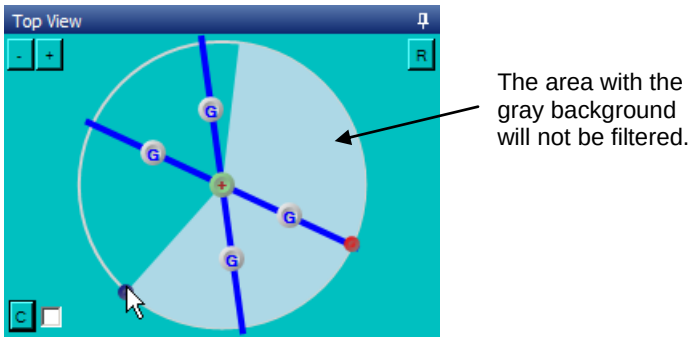


To set an Angle Filter, complete the following steps:

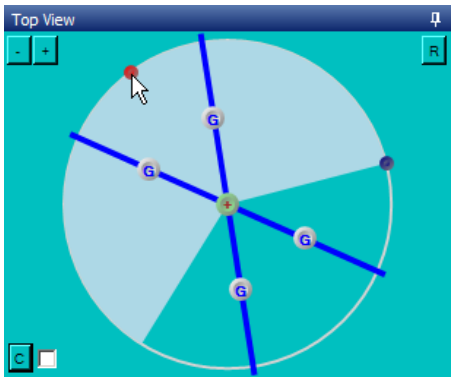
1. To enable the Angle Filtering option, select **Options>Options in 3D View>Angle Filtering**.



2. Click and drag the purple icon to set the amount of area to be filtered.



3. Click and drag the red icon to set the position of the filter.

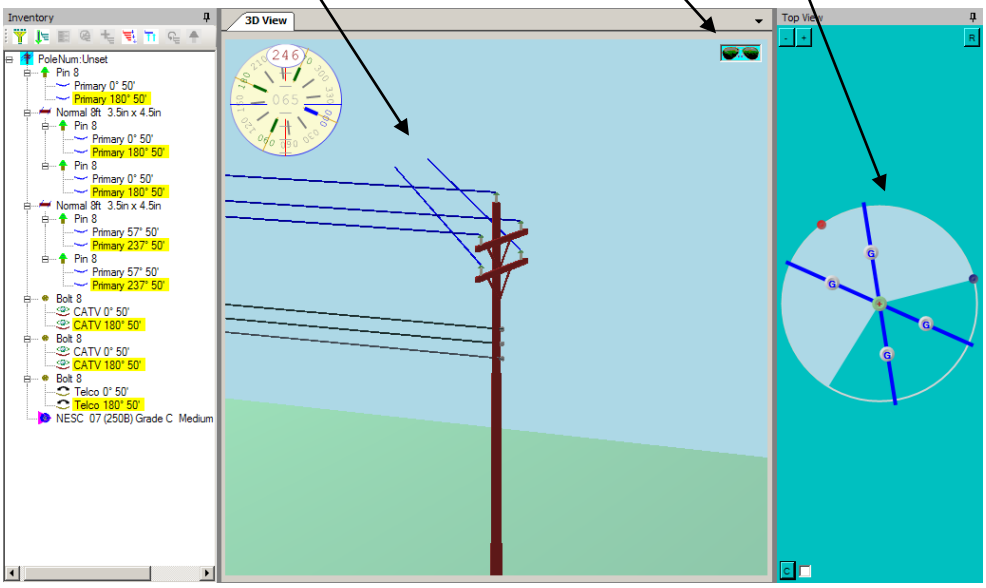


Only the filter spans are displayed in 3D View.

A filter notification icon is added to the 3D View.

Constraints of the Angle Filter.

The spans that are within the Angle Filter are highlighted in yellow.



Note: *To remove the Angle Filtering select the Rest button* R.

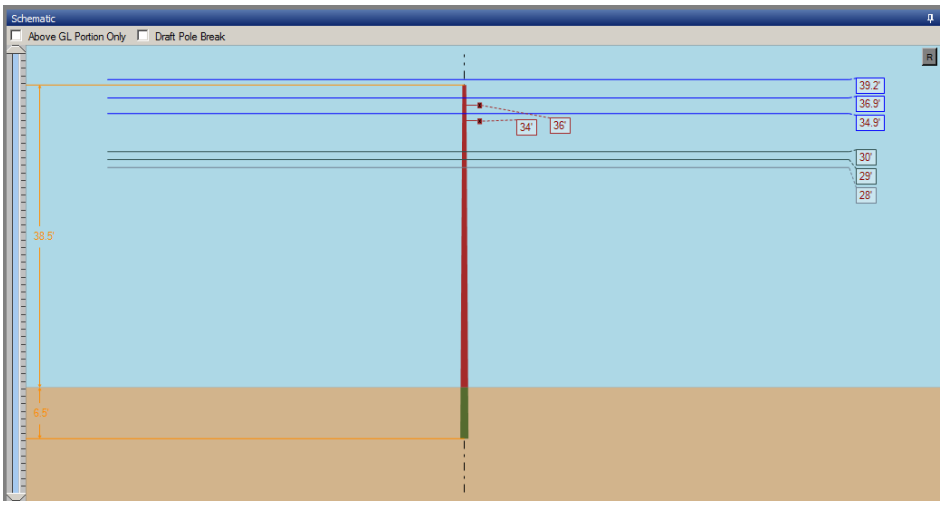
Note: *If you have multiple filters set you can remove just one or all of the filters by right clicking on the* ***Filter Notification*** *button and selecting one of the* ***Reset Filter*** *options.*

Working With the Schematic Window

About the Schematic Window

The Schematic Window displays a side elevation view of the major equipment on the pole. Within the Schematic Window you can change the height of the equipment or view basic information about the equipment.

Note: *Hovering over the equipment height will display basic information about the equipment.*



Schematic Window Menu Display Options

Right clicking on the Schematic Window background provides several options.

Save Schematic View to File Copy Schematic View to Clipboard Print Schematic View View Schematic Report Cancel	**Save Schematic View to File.** Select the Save Schematic View to File option to save the current Schematic View as a variety of file types (JPEG, BMP, GIF or PNG) **Copy Schematic View to Clipboard.** Select the Copy Schematic View to Clipboard option to copy 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.** Select the Print Schematic View option to print the currently displayed Schematic View.

	View Schematic Report. Select the View Schematic Report option to view the current Schematic View in report format. **Cancel.** Select the Cancel option to close the Schematic View menu option pop-up without taking any action.

Display Above GL Portion Only

To display only the portion of the pole above the groundline (GL), complete the following steps:

1. Check the **Above GL Portion Only** option to display only the portion of the pole that is above the groundline. Un-check the option to display the complete pole.

Display Draft Pole Break

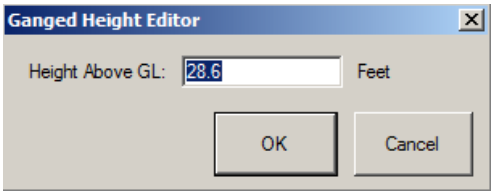
To replaces a portion of the pole with no attachments with a drafting break, complete the following steps:

1. Check the **Draft Pole Break** option to insert a temporary drafting break. Un-check the option to display the complete pole.

Changing Equipment Height

To change the equipment height, complete the following steps:

1. Click on the equipment height you would like to change.



   Note: *The current height of the equipment is automatically displayed.*

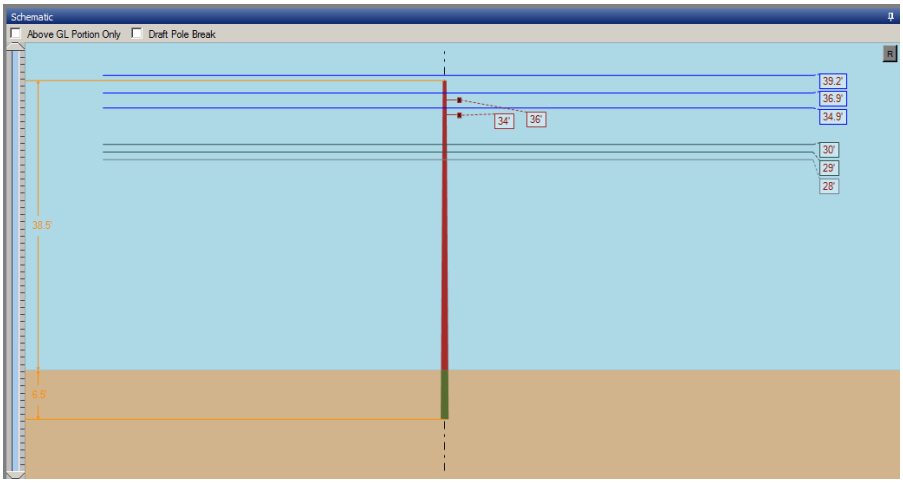
2. Enter a **new height** for the equipment.
3. Select **OK**.

   Note: *To undo a height modification, select* ***Edit>Undo****.*

Setting a Height Filter

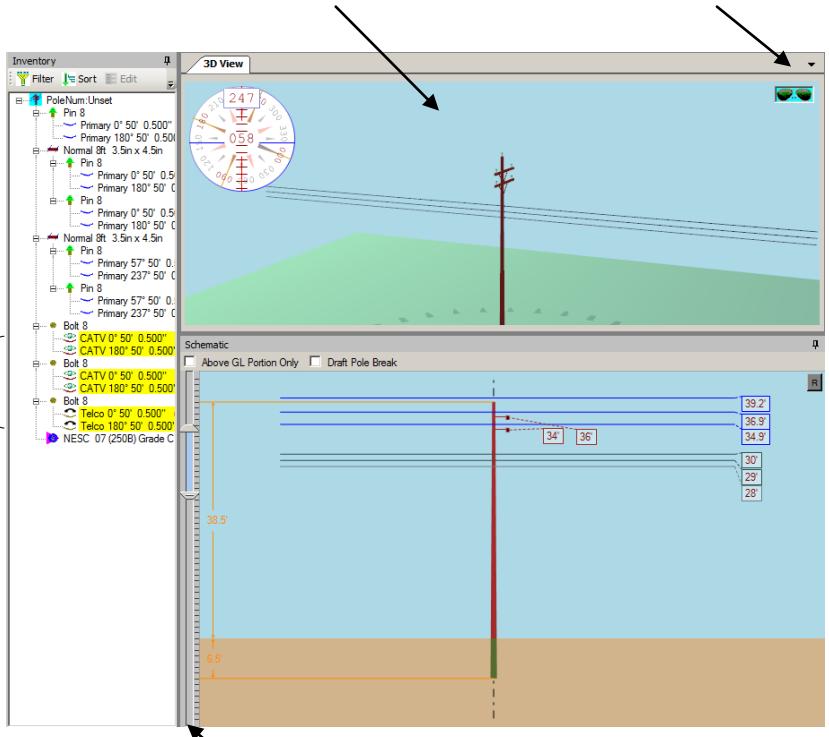
To filter the equipment on the pole according to height, complete the following steps:

1. To enable the Height Filtering option, select **Options>Options in 3D View>Height Filtering**.



Height Filtering Scale

2. Use the **slider scale** to set the filter height.



The objects that are within the set height filter are highlighted in yellow.

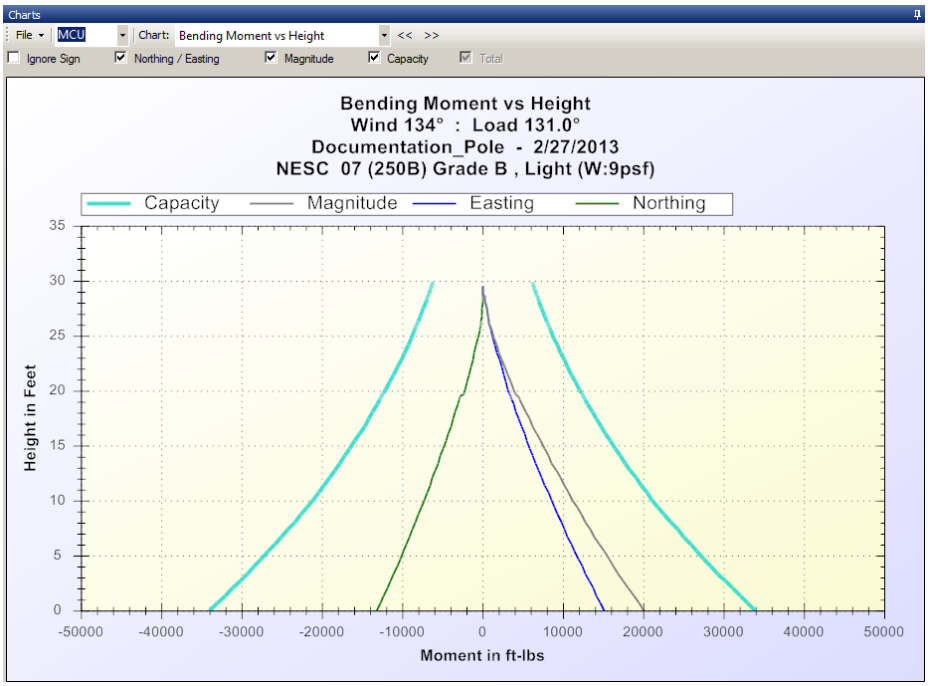
Note: *To remove the Height Filtering select the Reset button* R.

Note: *If you have multiple filters set you can remove just one or all of the filters by right clicking on the* ***Filter Notification*** *button and selecting one of the* ***Reset Filter*** *options.*

Working With the O-Calc® Pro Data

Viewing the Data in Charts

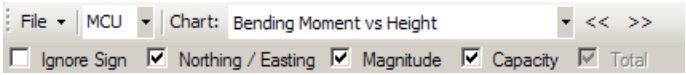
Once a pole has been built in the Inventory Window you may want to perform a pole analysis. Several predefined charts are available to help you complete a pole analysis.

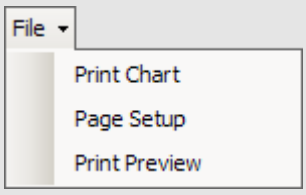


Note: *A pole needs to be displayed in the Inventory Window in order for data to display in the Charts.*

Toolbar Menu Options for Charts

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



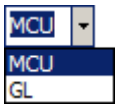


File. The following options are available from the File menu:

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.

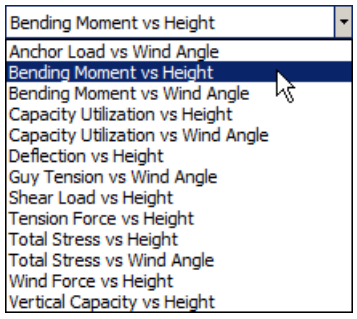
	**Condition Selector.** Select MCU to see data at maximum capacity utilization or select GL to see data at groundline.
Chart:	**Chart**. Select the appropriate Chart to display the pole analysis data in from the drop down menu.
Ignore Sign	**Ignore Sign**. Check the Ignore Sign option to ignore the Trans/Long values.
Northing / Easting	**Northing / Easting**. Check the Northing / Easting option to plot the individual component vector lines in the selected chart.
Magnitude	**Magnitude**. Check the Magnitude option to plot the Magnitude line in the selected chart.
Capacity	**Capacity**. Check the Capacity option to plot the Capacity line in the selected chart.
Total	**Total.** Check the Total option to plot the sum of the individual components in the selected chart.
<< >>	**Arrows.** Select the left\ right arrow to scroll through and display the pole analysis data in a chart without having to use the chart drop down menu.

Note: *Available plotting options are dependent on the selected chart.*

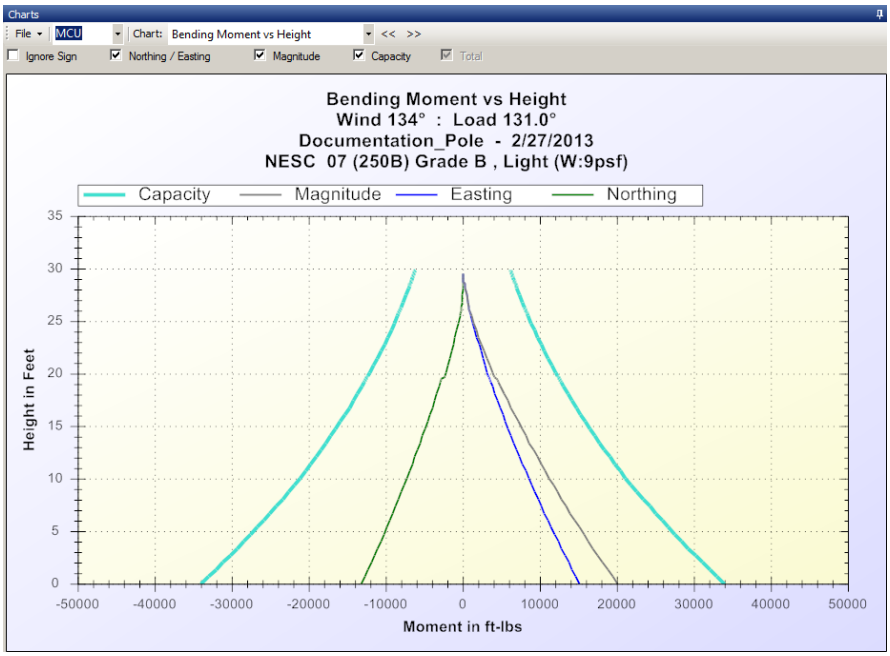
Creating Charts

To perform a pole analysis using a Chart, complete the following steps:

1. Load a pole that has a LoadCase in the Inventory Window.
2. Select a Chart to be displayed from the available Charts drop down list.



Once a Chart has been selected the Chart will automatically be loaded.

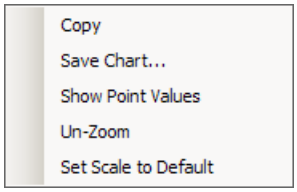


Note: *The chart uses the currently selected LoadCase when calculating and displaying a chart.*

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 view, see* *Additional Menu Options for Charts**.*

Additional Menu Options for Charts

In addition to the basic menu options that are available, once a chart is displayed additional chart options are available. Right clicking on the chart displays the additional chart options.

	**Copy.** Select the Copy option to copy the current chart to the clipboard so that the chart can be pasted directly into other applications such as Microsoft Word, E-Mail, etc. **Save Chart.** Select the Save Chart option to save the current chart as a variety of file types (JPEG, BMP, GIF, etc.). **Show Point Values.** Select the Show Point Values option to display floating point values when hovering in a chart. **Un-Zoom.** Select the Un-Zoom option to undo a previous zoom operation. **Set Scale to Default.** Select the Set Scale to Default option to set the chart back to the default scale.

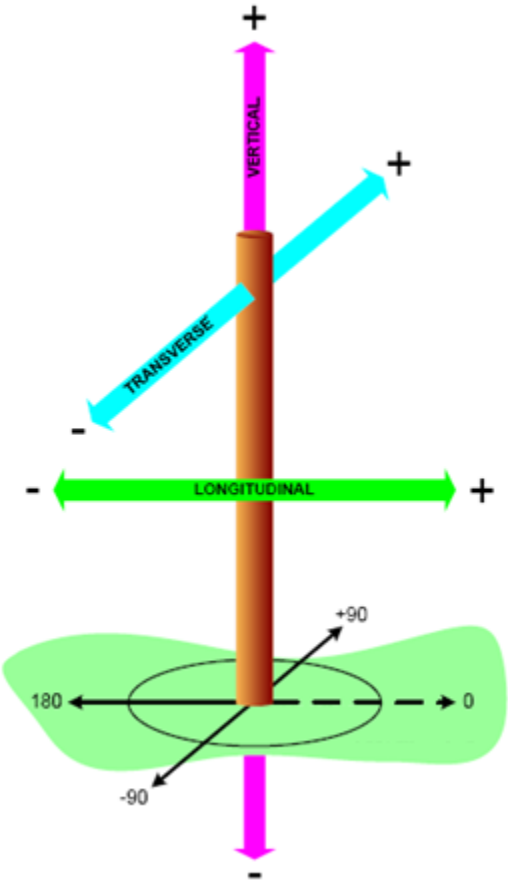
Interpreting the Chart

Each chart value is plotted using lines as identified by color in the chart legends.

The line definitions are as follows:

Capacity(Gray)	**Capacity**. The Capacity (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)	**Easting**. The Easting values are those perpendicular to the frame of reference and represent results in the 90°/270° direction. Easting values are plotted on all charts.
Northing (Green)	**Northing**. The Northing 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)	**Magnitude**. 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.



Viewing the Data in Reports

Once your pole has been built in the Inventory Window you may want to complete a pole analysis by generating a variety of reports. An O-Calc ® Pro Analysis Report is provided to help you complete a pole analysis.

Opening the Report Application

To open the report application, complete the following steps:

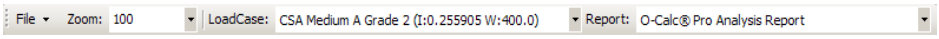
1. Select **View>Reports**.

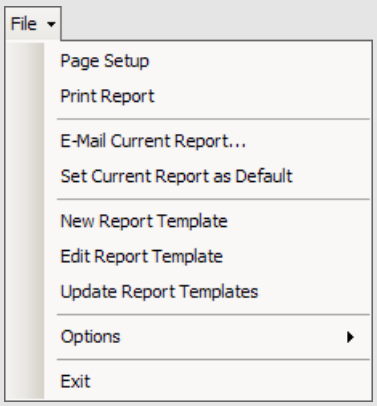
   Note: *A pole needs to display in the Inventory Window to enable the Reports option.*

   Note: *Right clicking on the word Reports in the View menu may display options pertaining to an Excel Report Editor. Please contact your O-Calc ® Pro representative for additional information.*

Toolbar Menu Options for Reports

The report's toolbar menu provides you with a variety of operations and options.





File. The following options are available from the File menu:

Page Setup. Select the Page Setup option configure how the report will be printed.

Print Report. Select Print Report to print the current report.

E-Mail Current Report. Select the E-Mail Current Report to e-mail the currently viewed report.

Set Current Report as Default. Select the Set Current Report as Default to enable the current report to initially be selected and displayed whenever the Report Window is opened.

New Report Template. Select the New Report Template to create an empty report RDLC file.

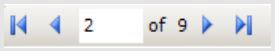
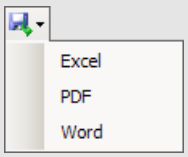
Edit Report Template. Select the Edit Report Template to edit an existing report template.

Update Report Templates. Select the Update Report Templates to update all reports to the current schema.

	Options ▸ **Select RDLC Editor**. Select the Select RDLC Editor to set the path to the third party application that you will use to edit to a report template. ***Note:*** *A default editor must be selected before a new report template can be created or an existing report template can be edited.* **Rebuild Reports List**. Refreshes the drop down list of available reports. **Exit**. Select Exit to close the Report Window.
Zoom:	**Zoom**. Select the Zoom to change the reports magnification level.
LoadCase:	**LoadCase**. Select the LoadCase from the drop down menu to be used in the pole analysis. (This is an optional feature. Select **Options>Misc Options> Select LoadCases in Reports View** to enable or disable the option.)
Report:	**Report**. Select the appropriate Report to display the pole analysis data in from the drop down menu.

Reports Toolbar Options

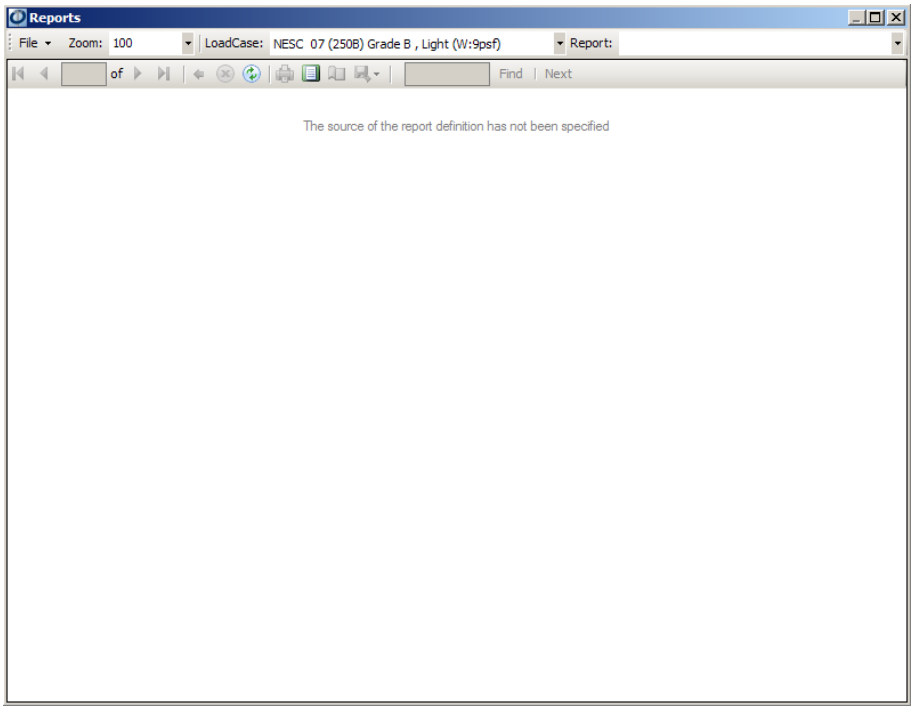
Once a Report is displayed the report's toolbar menu provides you with a variety of operation and options.

Navigation Controls 	**Navigation Controls.** Click the Navigation Controls to navigate through the document or enter a page number to jump to a specific page in the report.
	**Stop Rendering.** Click the Stop Rendering option to stop loading the selected report.
	**Refresh.** Click the Refresh option to reload the selected report.
	**Print.** Click the Print option to print the current report.
	**Page Layout.** Click the Page Layout option to see a print preview of the report before it is printed.
	**Page Setup.** Click the Page Setup option to configure how the report will be printed.
	**Export.** Select the Export option to export the report to an Excel, PDF or Word file.
	**Find Tool.** Use the Find Tool to locate a certain word or partial word within the report.

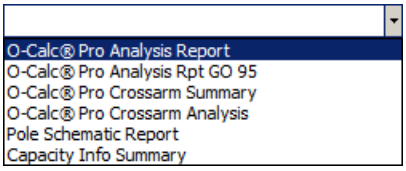
Viewing Existing Reports

To view an existing report, complete the following steps:

1. Select **View>Reports**.



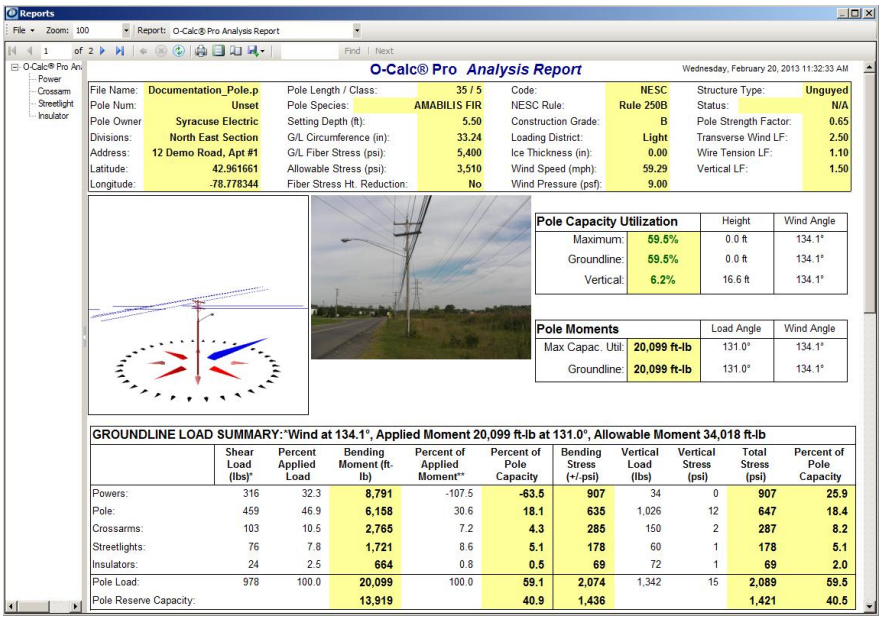
2. Select the Report to be displayed from the drop down list.



Note: *The crossarm reports will only be displayed in the drop down list when a crossarm is present on the current pole.*

Once a Report has been selected the Report will automatically be loaded.

Note: *The report may take a moment to load.*



Note: *The report uses the currently selected LoadCase when calculating and displaying a report.*

Setting a Default RDLC Editor

Before any report templates can be created or edited you must select an RDLC Editor. O-Calc® Pro does not install an RDLC Editor application. Osmose uses the Microsoft SQL Report Builder version 2.0, a free download from Microsoft. Complete the following steps to set the RDLC Editor:

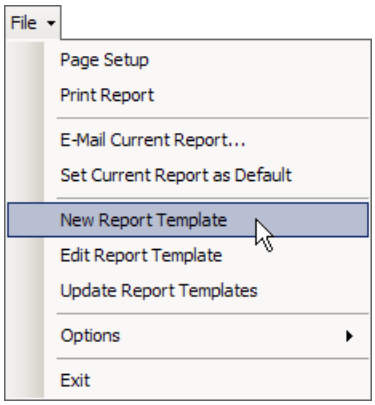
1. Select **File>Options**.
2. Select the **Select RDLC Editor** option and navigate to and select your own RDLC Editor application executable file.

   Note: *O-Calc® Pro version 4.01 – 4.03 included an embedded template editor. Starting with version 4.04 users must install their own RDLC Editor. Osmose uses and recommends Microsoft SQL Report Builder version 2.0. This application is a free tool that can be downloaded from Microsoft downloads.*

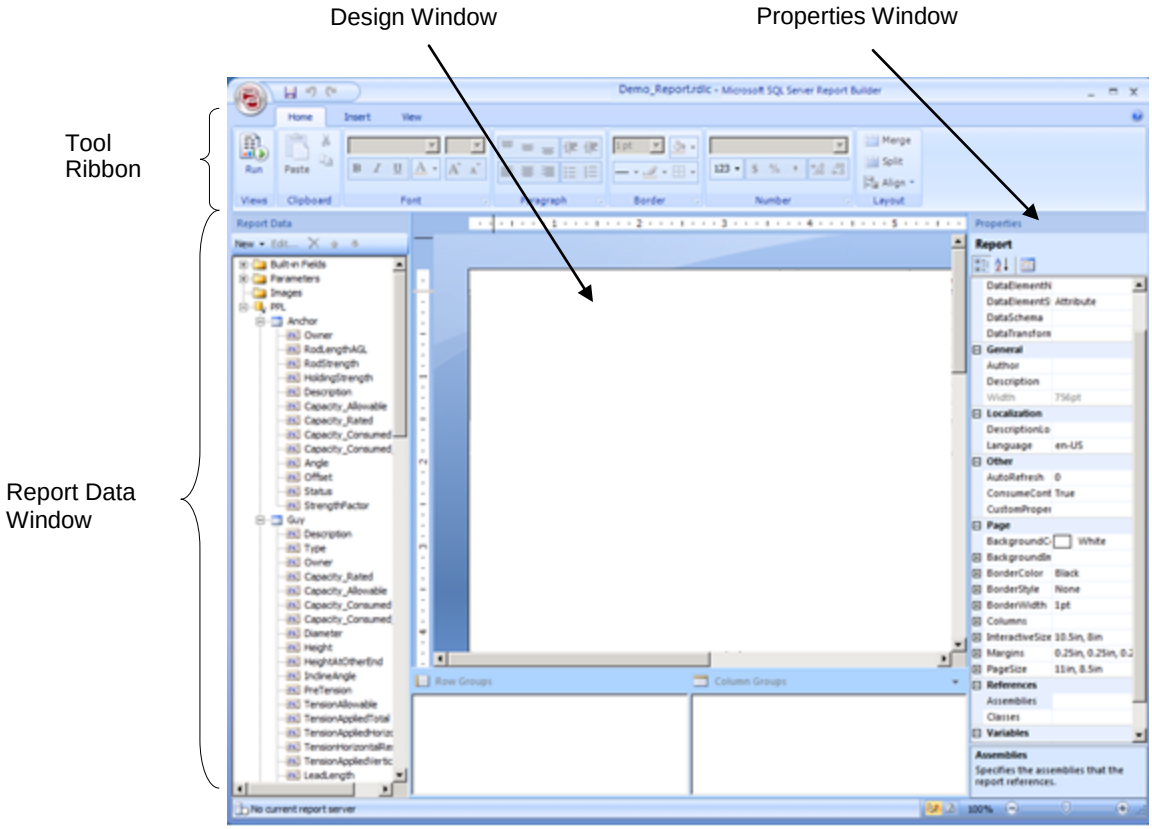
Create a New Report

To create a new report you must first create a New Report Template. To create a new report template, complete the following steps:

1. Select **File>New Reports Template**.



2. Enter the **Name** of the new report and select **Save**.
3. The RDLC Editing tool that you have selected will open to edit the new blank template. The following illustrates the view of the opening page of the Microsoft SQL Report Builder (version 2.0).



4. Add items to the report layout in the Design Window and save the document.

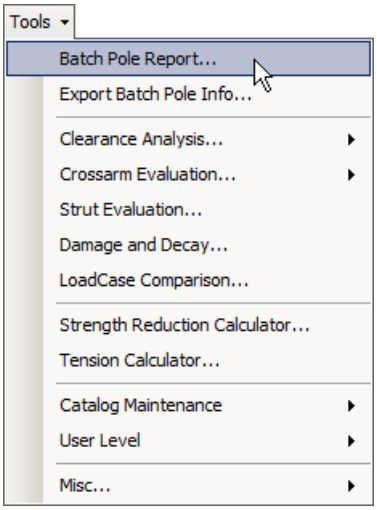
   Note: *The Report Designer User Guide, a separate document, describes the Design Window, Report Data and Properties and how they can be manipulated to create your report using the Microsoft SQL Report Builder version 2.0. You can locate this by clicking Start►Program Files►Osmose►O-Calc® Pro►Report Designer User Guide.*

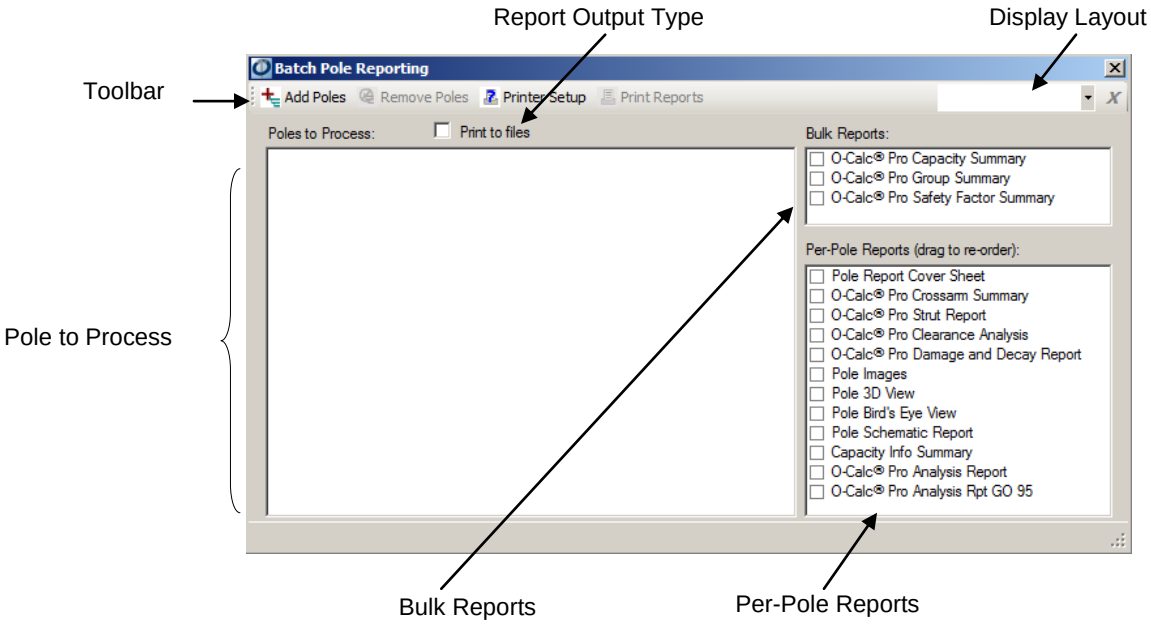
Once you have completed and saved your report design, it will be displayed in the Reports Tool Report selection list.

Creating a Batch Pole Report

The Batch Pole Report allows you to print report(s) against specific poles that you select. To create a Batch Pole Report, complete the following steps:

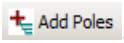
1. Select **Tools>Batch Pole Report**.





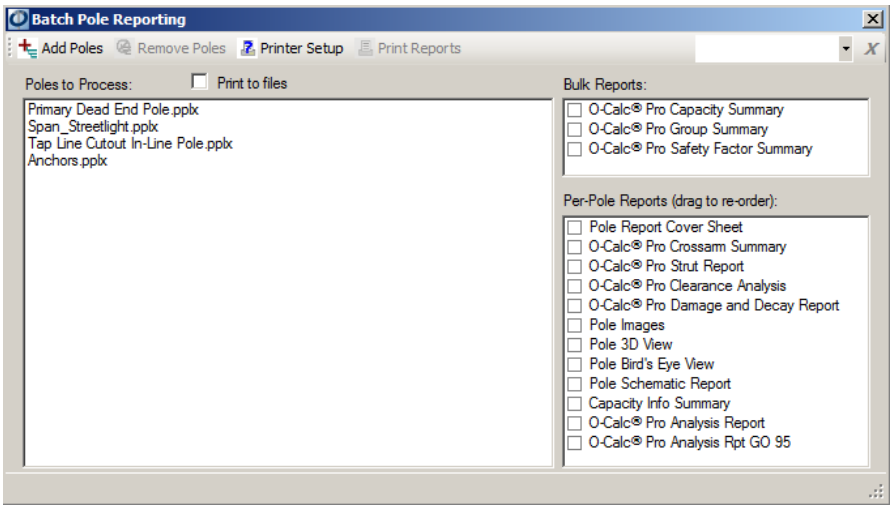
Batch Report Workspace	***Description***
Toolbar Menu Options	**Add Poles.** Select the Add Poles option to add poles that will be processed in the Batch Reports. **Remove Poles.** Select the Remove Poles option to remove poles that have been to the Poles to Process list. **Printer Setup.** Select the 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.
Display Layout	**Display Layout.** Enables you to swiftly switch between different window layouts.
Poles to Process	**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)

Print to files	**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.
Bulk Reports	**Bulk Reports.** Displays a list of available Bulk Reports. (These reports print separate from the Per-Pole Reports)
Per-Pole Reports	**Per-Pole Reports.** Displays a 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)

2. Select the **Add Poles** button 

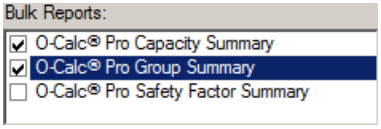
.
3. **Browse** to the location of the **pole(s)** you wish to add to the Batch Report process and select the (*pole name*).pplx file and click **Open**.

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

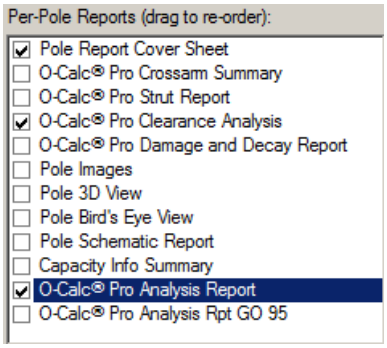


Note: *To remove selected poles from Poles to Process area select the pole then select the* ***Remove Poles*** *button* Remove Poles *. Hold down the ctrl key to select more than one pole out of sequence. Hold down the shift key to select a group of poles that are next to each other.*

4. Select the **Bulk Report(s)** to be include.

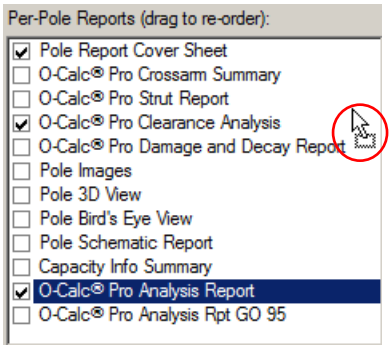


5. Select the **Per-Pole Report(s)** to be included.

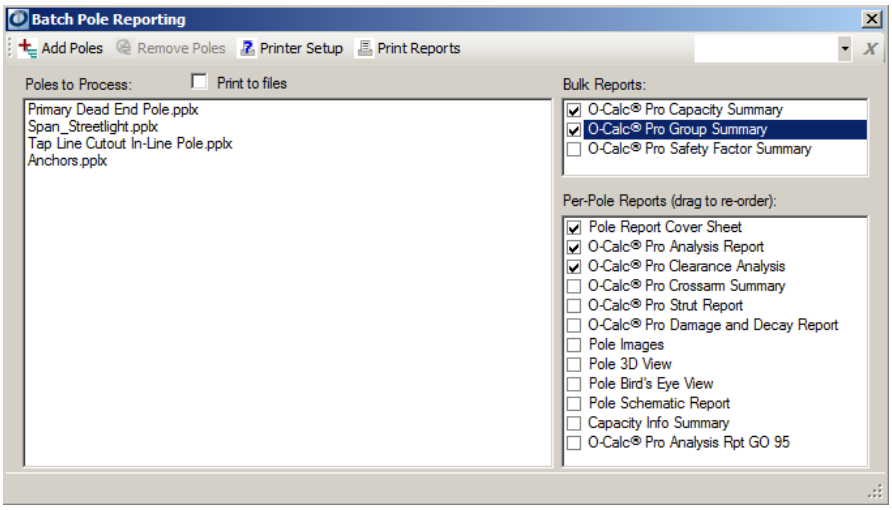


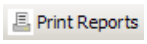
6. To change the **order** in which the Per-Pole Report(s) will be printed click and drag the report.

The O-Calc® Pro Analysis Report is repositioned to print before the O-Calc® Pro Clearance Analysis Report.



Note: *When a report is being dragged to a new location the cursor will change to indicate a valid move* . *To save the changed layout of the Batch Pole Reporting window see* *Save a Named View*.



7. Select the **Print Reports** button  to print the Batch Reports to your default printer.

   To print the Batch Reports to a different printer select the **Printer Setup** button  and select your printer of choice.

   OR

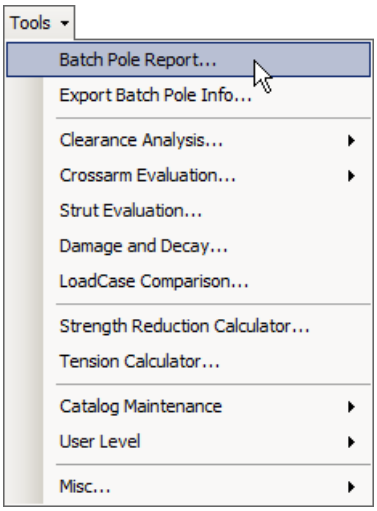
   Check the **Print to files**  option, select the Report Output Type then navigate to and select where you want the Batch Report files saved to.

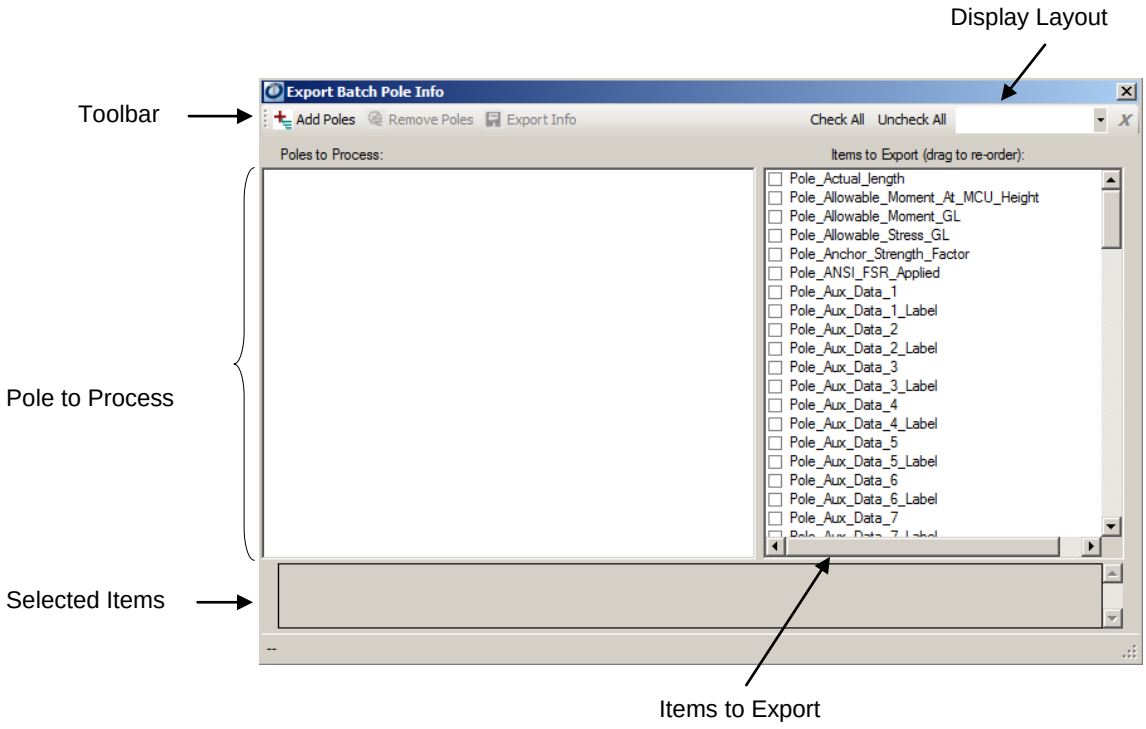
   Note: *Only the initial Pole Image will be included in the Batch Report. Subsequent images that are attached to the./pplx file will be printed or saved as individual PDF files as 'pplx file name_image#'.*

Exporting Batch Pole Information

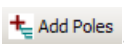
The Export Batch Pole Information Report allows you to export specific pole attributes and calculation results to a .CSV file. To export a Batch Pole Information, complete the following steps:

1. Select **Tools>Batch Pole Report**.



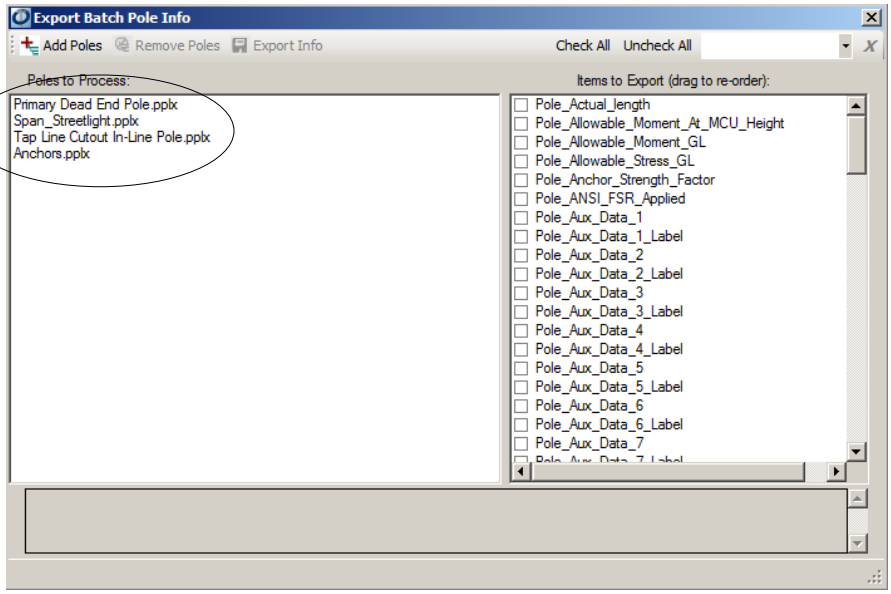


Pole Info Export Workspace	*Description*
Toolbar Menu Options	**Add Poles**. Select the Add Poles option to add poles that will be processed in the export. **Remove Poles**. Select the Remove Poles option to remove poles that are listed in the Poles to Process list. **Export Info**. Select the Export Info option to export the selected items and calculations to a .CSV file.
Check All	**Check All** .Select the Check All option to select the entire Items to Export list.
Uncheck All	**Uncheck All**. Select the Uncheck All option to uncheck the entire Items to Export list.
Display Layout	**Display Layout**. Enables you to swiftly switch between different window layouts.
Poles to Process	**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	**Bulk Reports**. 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	**Selected Items**. Displays a complete list of all the selected Items to Export.

2. Select the **Add Poles** button 

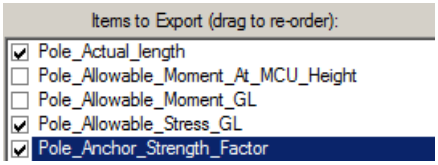
.
3. **Browse** to the location of the **pole(s)** you wish to add to the Batch Pole Information Export process and select the (*pole name*).pplx file and click **Open**.

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.*



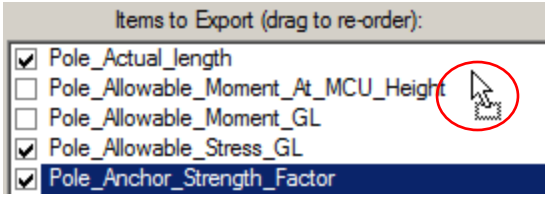
Note: *To remove selected poles from Poles to Process area select the pole then select the* ***Remove Poles*** *button* Remove Poles*. Hold down the ctrl key to select more than one pole out of sequence. Hold down the shift key to select a group of poles that are next to each other.*

4. Select the **Items to Export** from the available list.

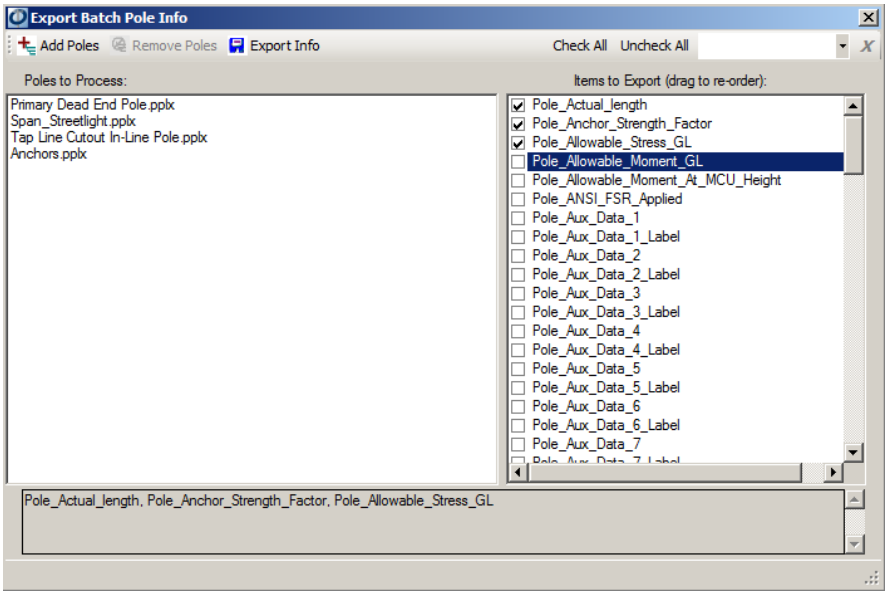


5. To change the **order** in which the Items to Export will be displayed in the .CSV file click and drag an item to arrange the items placement.

The Pole Anchor Strength Factor is repositioned to print before the Pole Allowable Stress GL.



Note: *When an item is being dragged to a new location the cursor will change to indicate a valid move* . *To save the changed layout of the Items to Export window see* *Save a Named View*.



6. Select the **Export Info** button Export Info.
7. Browse to the location you would like the Batch Pole Information Export saved to and **enter** a file name.
8. Select S**ave**.
9. Select **OK** to the export confirmation message.

Working With the Clearance Analysis Tool

The Clearance Analysis Tool allows you to evaluate and report on clearance violations along the spans emanating from a pole. Examples of clearance requirements that can be encoded and violations that might be found between them are:

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

The tool provides the ability to model actual field conditions accurately, giving you the ability to define elements arrayed under or interfering with the spans emanating from a pole.

Creating a Clearance Analysis on a new or existing (transmission) pole allows you to take into effect field conditions such as surfaces (terrain), structures, foliage and wires. The Clearance Analysis tool creates a 2D representation (model) of the spans and field conditions that you have input. A Clearance Analysis report is also available to easily detect any clearance issues.

Creating a Clearance Analysis is a four step process:

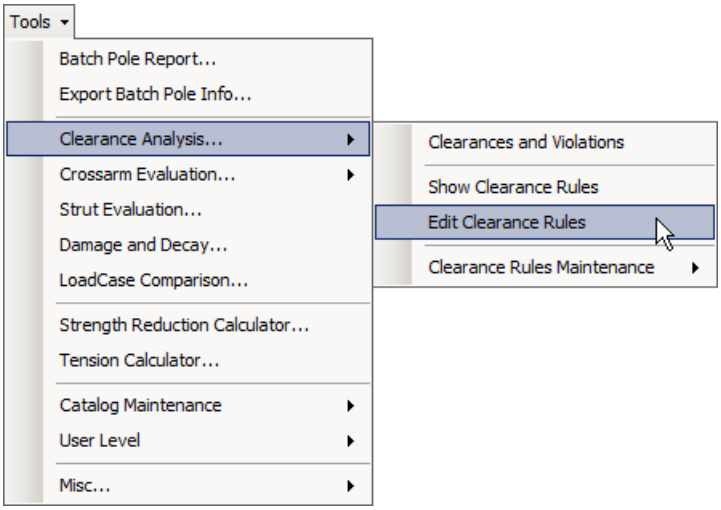
1. Create Clearance Rules and Violations definitions.
2. Using Clearance Group objects on specific spans to identify the category or categories that a span falls into.
3. Recording the actual field conditions surrounding the pole (surfaces, structures and foliage).
4. Running the Clearance Analysis report.

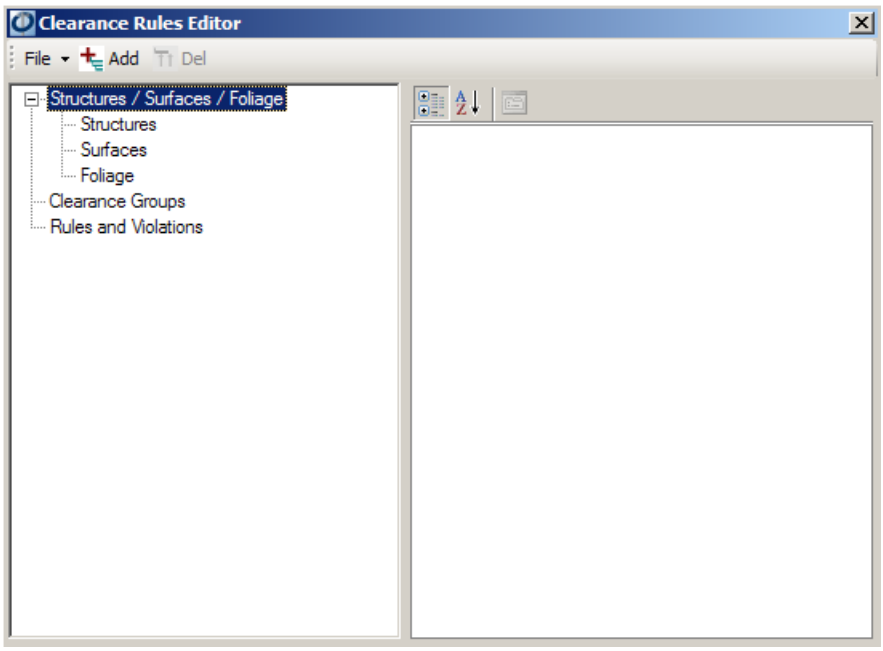
Create Clearance Rules and Violations

Before any Clearance Analysis can be completed Clearance Rules and Violations need to be set-up. Creating these Clearance Rules and Violations should typically only be 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 the following steps:

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

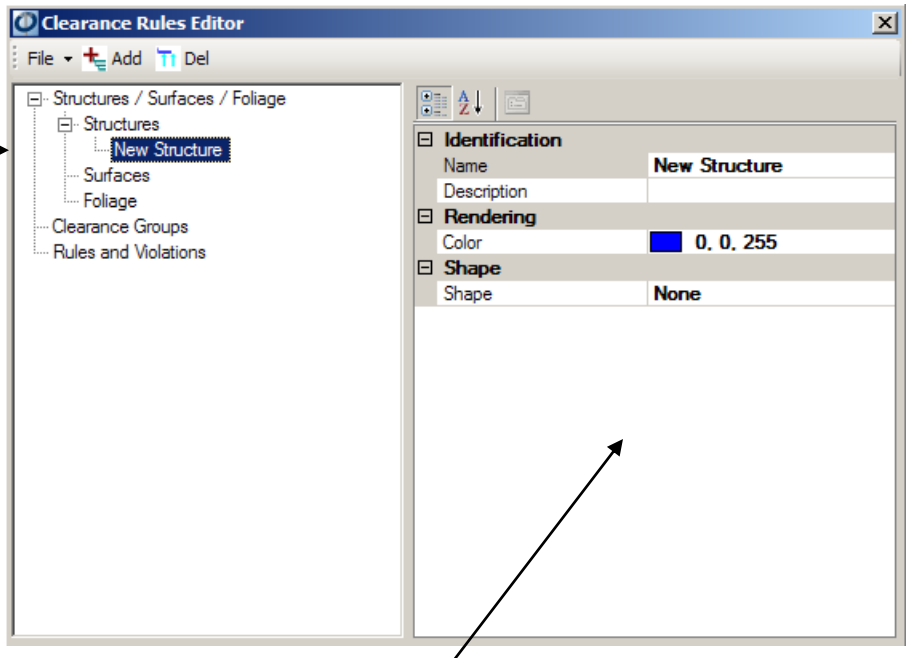




2. To add a **Structure**, **Surface** or **Foliage** element select the area you want to add an element to and either left click and select the Add button 

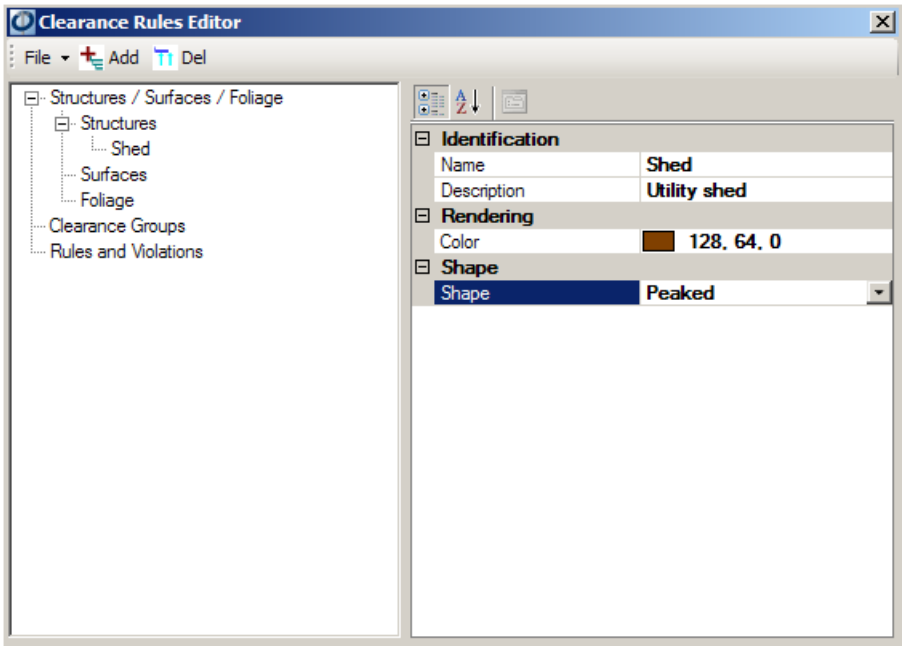
or right click and select **Add** from the popup menu.

New Structure element is created



Define the elements attributes

3. Enter the new element attributes.



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

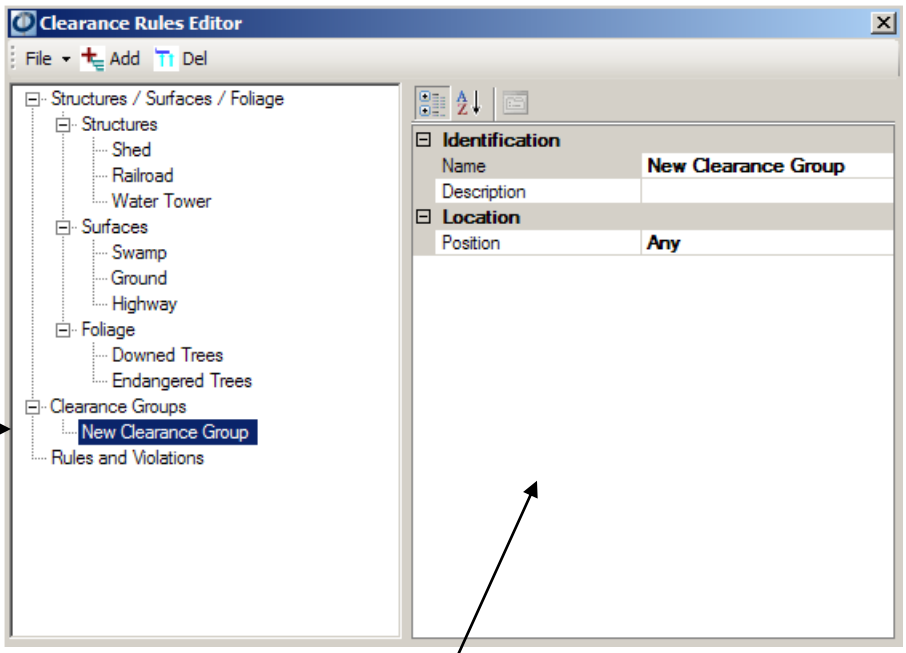
Note: *When adding a Surface element a* ***Default*** *surface attribute is available if you would like to have a specific surface added by default when creating Clearance Analysis. The default surface area can be changed at any time.*

4. Select **File>Save**.

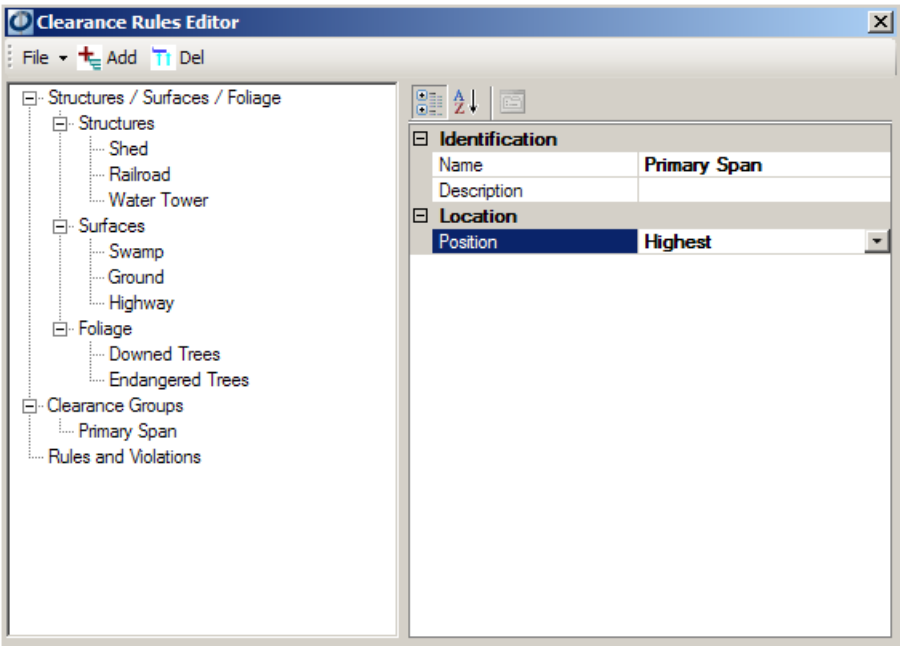
Note: *Complete steps 2 – 4 to create additional elements for Structures, Surfaces and Foliage.*

Note: *There is no undo for this operation. To remove an element select the Structure, Surface or Foliage and select the* ***Delete*** *button* Del *from the toolbar. The Delete option is also available by right clicking on the element and selecting* ***Delete****.*

5. Clearance Groups depict what categories spans can be a part of. To add a Clearance Group either right click on **Clearance Groups** and select **Add** from the popup menu or left click **Clearance Groups** and select the **Add** button Add .



6. Enter the new Clearance Group attributes.

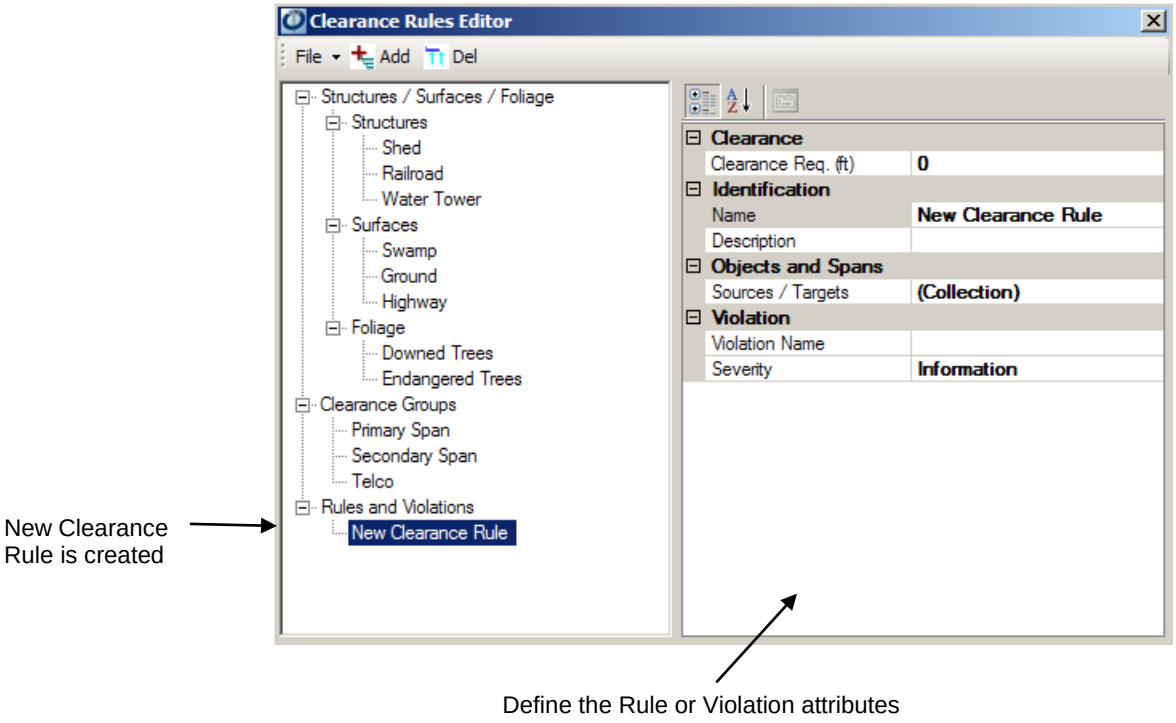


7. Select **File>Save**.

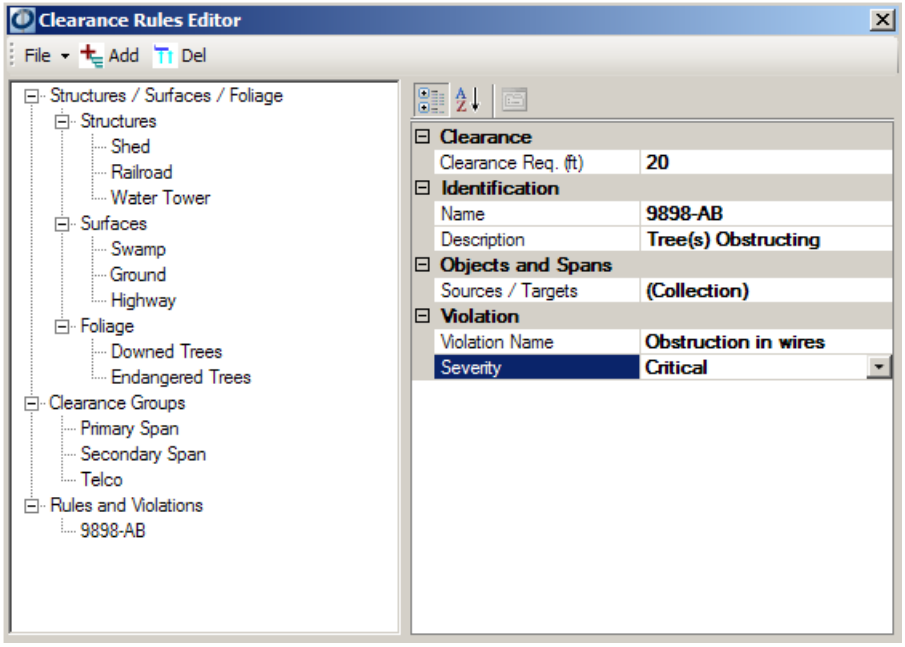
   Note: *Complete steps 5 - 7 to create additional Clearance Group rules.*

   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* Del *from the toolbar. The Delete option is also available by right clicking on the rule and selecting* ***Delete****.*

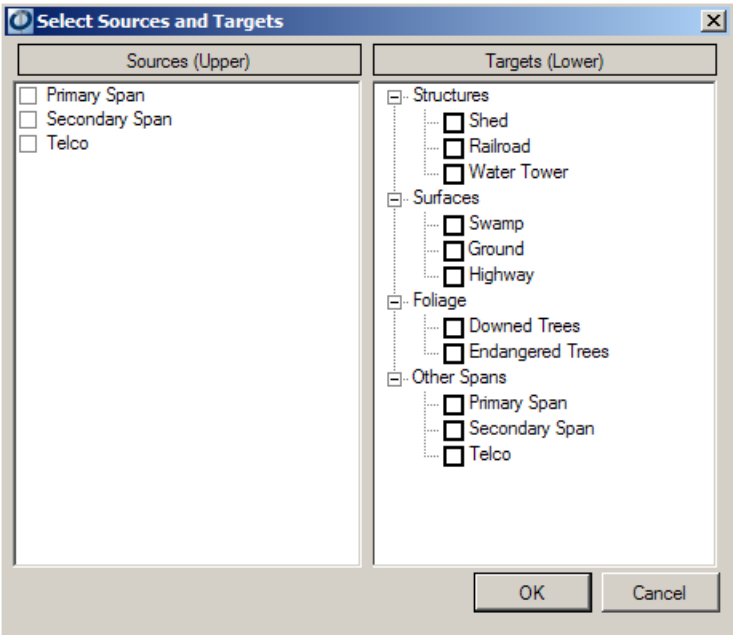
8. Rules and Violations define the rules and violations that will be used when completing a Clearance Analysis. To add a Rule or Violation either right click on **Rules and Violations** and select **Add** from the popup menu or left click **Rules and Violations** and select the **Add** button Add.



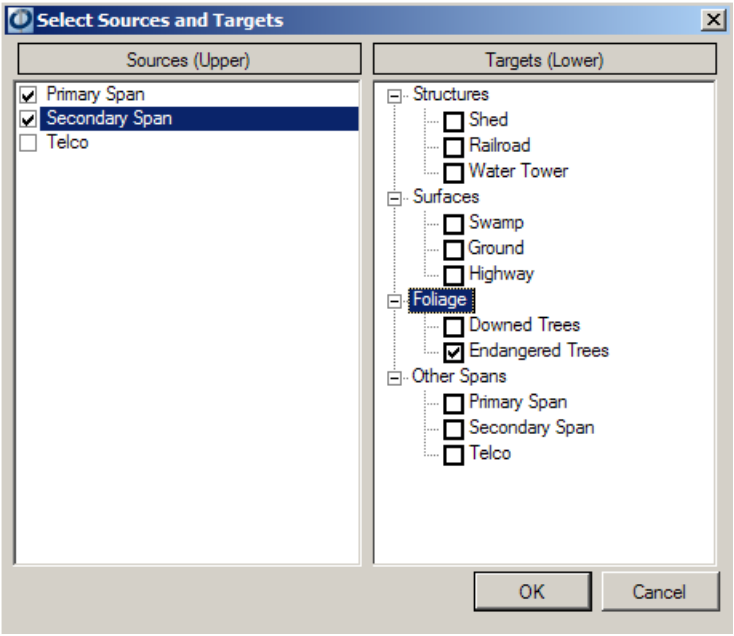
9. Enter the new Rules or Violations attributes.



10. To set the Source and Target select the **Source / Targets** button ....



11. Check the **Source(s)** to be used.
12. Check the **Target(s)** to be used.



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

13. Select **OK**.
14. Select **File>Save**.

Note: *Complete steps 8 – 14 to create additional Rules and Violations.*

Note: *There is no undo for this operation. To remove a rule select the Rule and Violation item and select the* ***Delete*** *button* Del *from the toolbar. The Delete option is also available by right clicking on the rule and selecting* ***Delete****.*

Note: *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.*

Categorizing 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 a Clearance Objects on a span, complete the following steps:

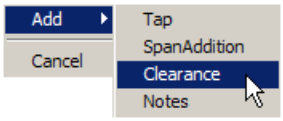
1. Select the Span to add a Clearance Object to**.**

   Note: *Spans can be selected from the Inventory Window, 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.*

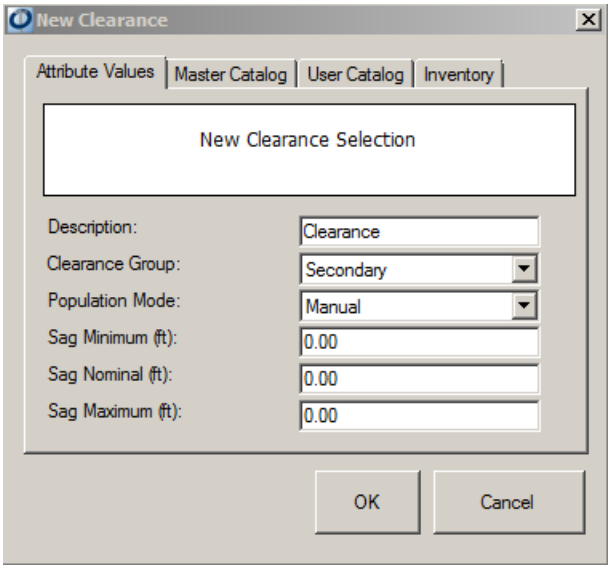
2. Select the **Add** button Add.

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

3. Select the **Add>Clearance** option.



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



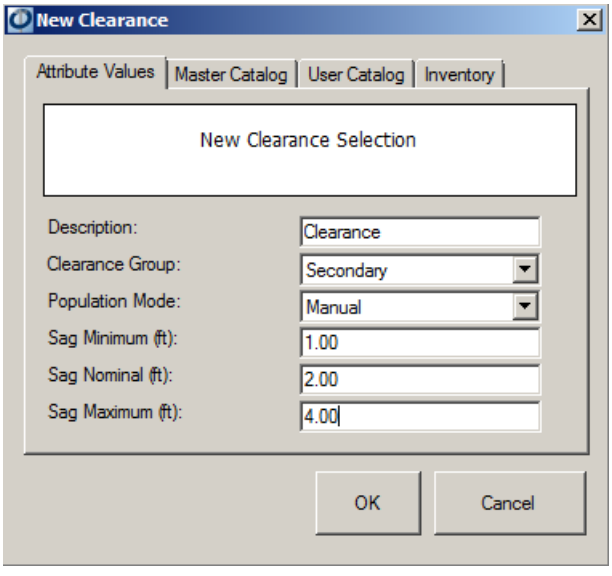
4. Modify the new clearance attributes.

   Clearance attributes descriptions:

   - **Description:** A general description of the Clearance Object.
   - **Clearance Group:** The name of the Clearance Group.
   - **Population Mode:** Determines the method by which the midspan sag values are populated.

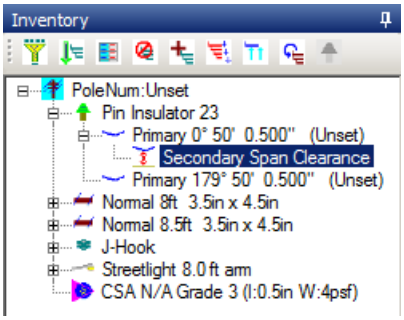
     Manual: Sag values are entered by the operator.

     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: *In certain situations the clearance object you want to add to the span may already be listed in the Catalog Window or in the Inventory Window. If this is the case select the appropriate tab and select the clearance object you want to add to the span from within the selected tab.*

5. Click **OK**.

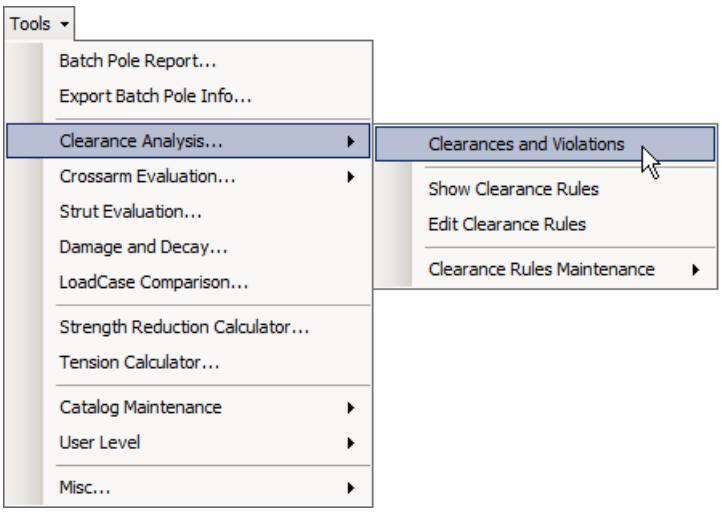


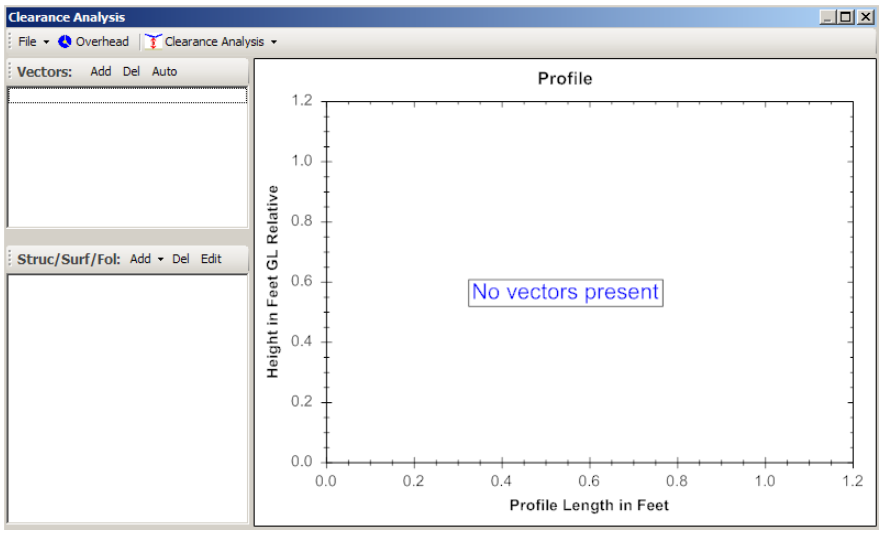
Note: *To undo the addition of the Clearance Object, select* ***Edit>Undo***.

Create a Clearance Analysis Profile

To model the actual field conditions surrounding the pole you need to create a 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 the following steps:

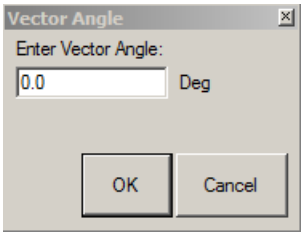
1. Select **Tools>Clearance Analysis>Clearances and Violations**.





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

   Note: *To automatically create a vector at each span angle select the* ***Auto*** *button from the Vector toolbar.*



3. Enter a **Vector Angle**.

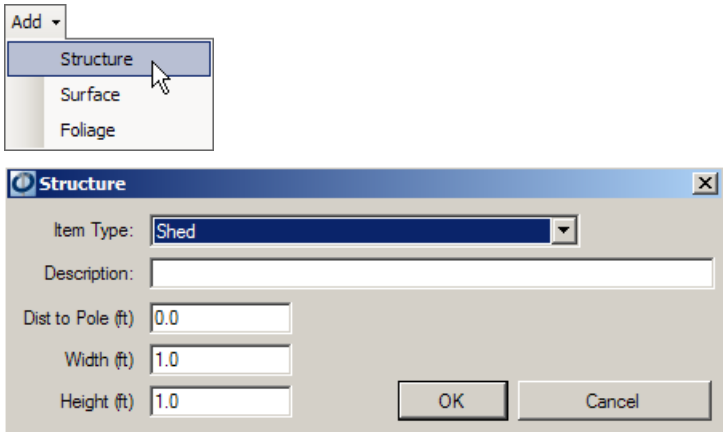
   Note: *An overhead view of the pole with all the span angles is available by selecting the* ***Overhead*** *button* Overhead *. The Overhead window utilizes some of the same features as the Top View window; see Top View Display Options for a description of these options*

4. Select **OK**.

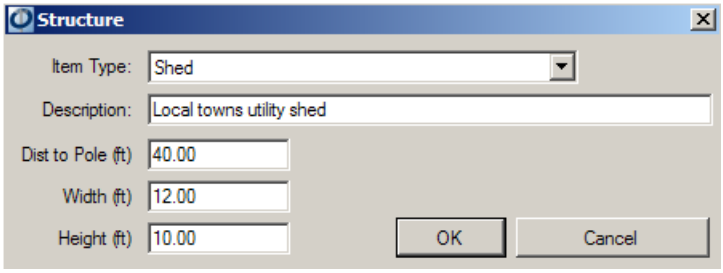
   Note: *There is no undo or edit for this operation. To remove a Vector Angle select the Vector Angle to be removed and either select the* ***Delete*** *button* Del *from the Vector toolbar or right click the Vector Angle and select* ***Delete****.*

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

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



7. Enter the structures attributes.



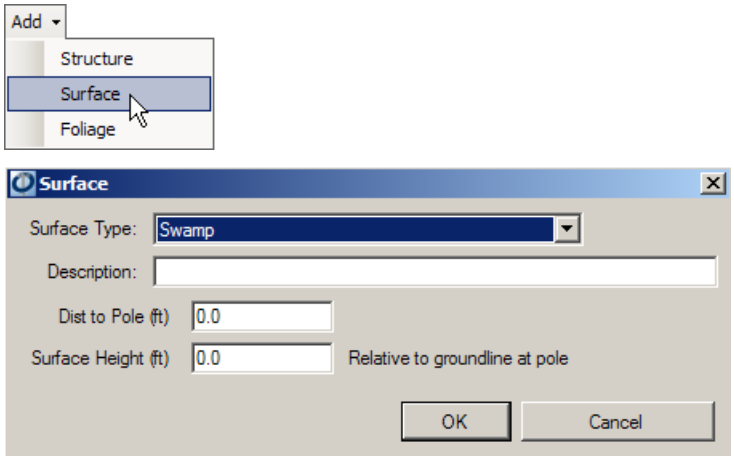
8. Select **OK**.

   Note: *Complete steps 5 – 8 to establish additional structures at a specific vector.*

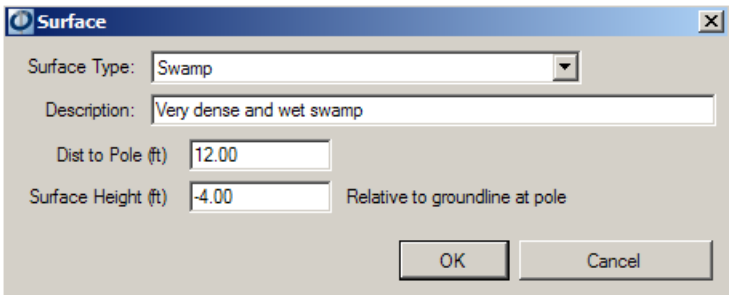
   Note: *There is no undo for this operation. To remove a Structure select the Structure to be removed and either select the* ***Delete*** *button* Del *from the toolbar or right click the Structure and select* ***Delete****.*

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

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



11. Enter the surface attributes.



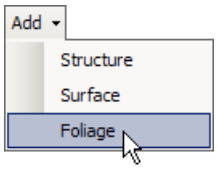
12. Select **OK**.

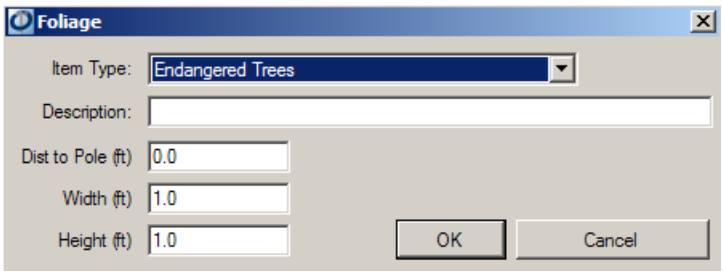
    Note: *Complete steps 9 –12 to establish additional surfaces at a specific vector.*

    Note: *There is no undo for this operation. To Remove a Surface select the Surface to be removed and either select the* ***Delete*** *button* Del *from the toolbar or right click the Surface and select* ***Delete.***

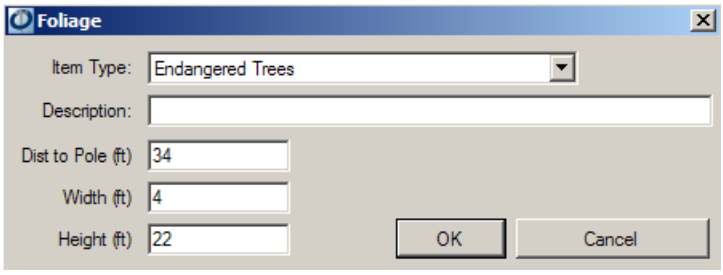
13. To create the foliage at a specific vector **select the vector** you want to add a foliage object to.

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





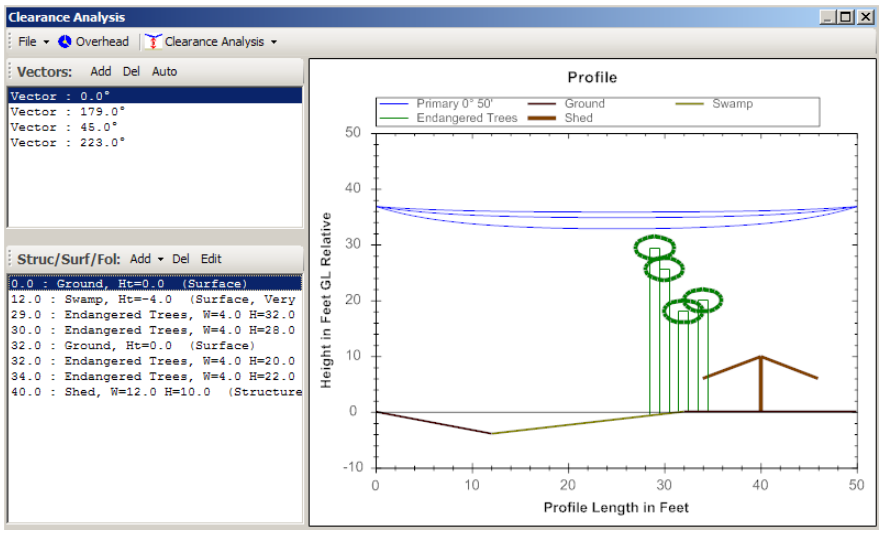
15. Enter the foliage attributes.



16. Select **OK**.

    Note: *Complete steps 13 –16 to establish additional foliage at a specific vector.*

    Note: *There is no undo for this operation. To Remove Foliage select the Foliage to be removed and either select the* ***Delete*** *button* Del *from the toolbar or right click the Foliage and select* ***Delete.***



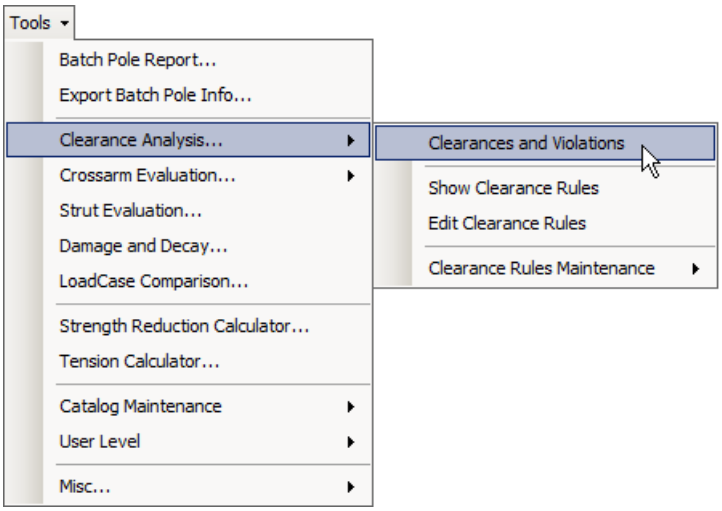
Note: *Structures, Surfaces and Foliage can be edited at any time by selecting the object and either selecting the* ***Edit*** *button from the toolbar or right clicking on the object and selecting* ***Edit.***

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

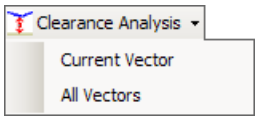
Running Clearance Analysis Reports

The 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 the following steps:

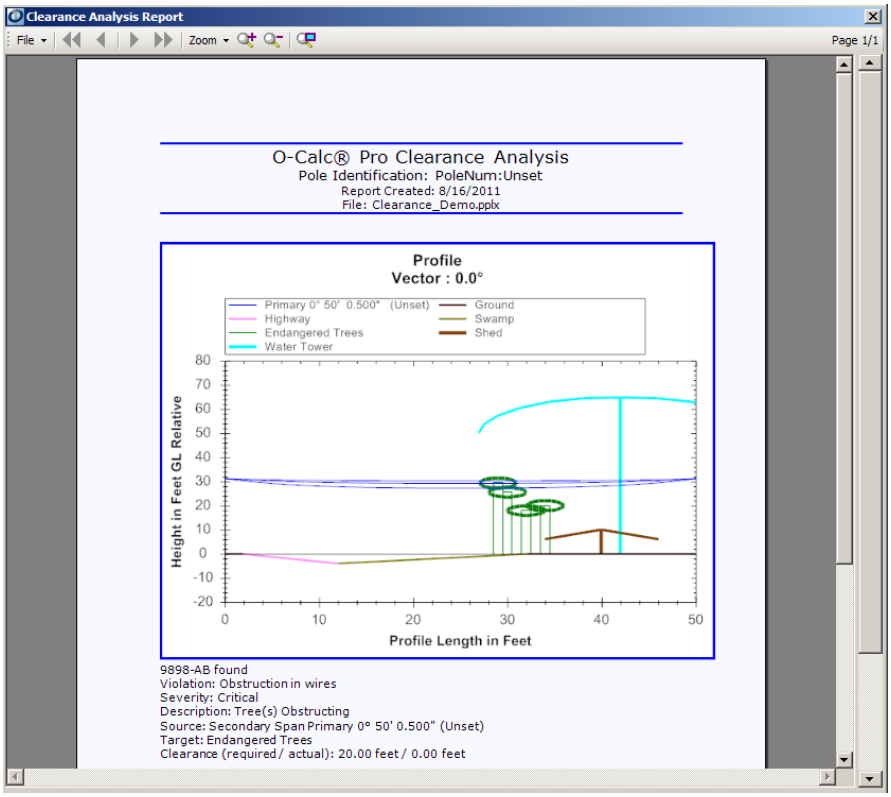
1. Select **Tools>Clearance Analysis>Clearances and Violations.**



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

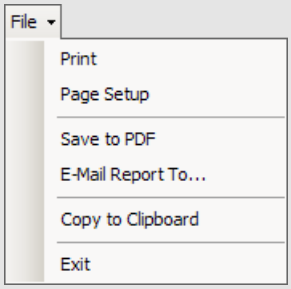


- **Current Vector** – Creates a Clearance Analysis report on the currently select vector in the Clearance Analysis window.
- **All Vectors** – Creates a Clearance Analysis report on all the currently listed vectors in the Clearance Analysis window.



Clearance Analysis Reports Toolbar Options

Once the Clearance Analysis report is displayed the toolbar menu provides you with a variety of options.

	**File.** The following options are available from the File menu: **Print.** Select the Print option to print the Clearance Analysis. **Page Setup.** Select the Page Setup option to configure how the Clearance Analysis will be printed. **Save to PDF.** Select the Save to PDF option to save the Clearance Analysis as a PDF file. **E-Mail Report To.** Select the E-Mail Report To option to E-Mail the Clearance Analysis. **Copy to Clipboard**. Select the Copy to Clipboard option to copy the Clearance Analysis to the clipboard so that it can be pasted directly into other applications. **Exit.** Select Exit to close the Clearance Analysis.
Navigation Controls 	**Navigation Controls.** Click the Navigation Controls to easily navigate through the document.
Zoom Controls 	**Zoom Controls.** Use the Zoom Controls to change the documents magnification level.

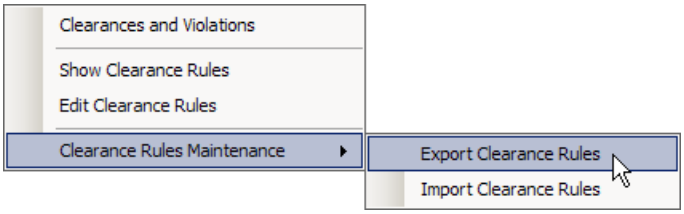
Clearance Rules Maintenance

The 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 imported into another users O-Calc® Pro application and be modified as needed.

Export Clearance Rules

To export your Clearance Rules, complete the following steps:

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

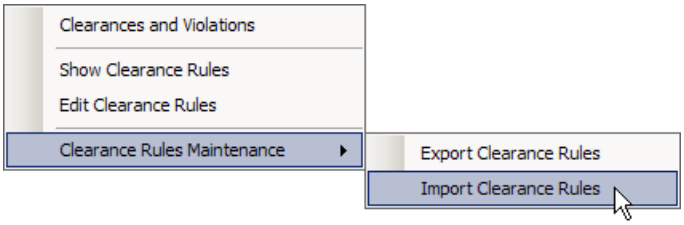


2. Browse to the location where you will save the Clearance Rules and click **Save**.
3. Select **OK** to the export confirmation message.

Import Clearance Rules

To import Clearance Rules, complete the following 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 and click **Open**.
3. Select **OK** to the import confirmation message.

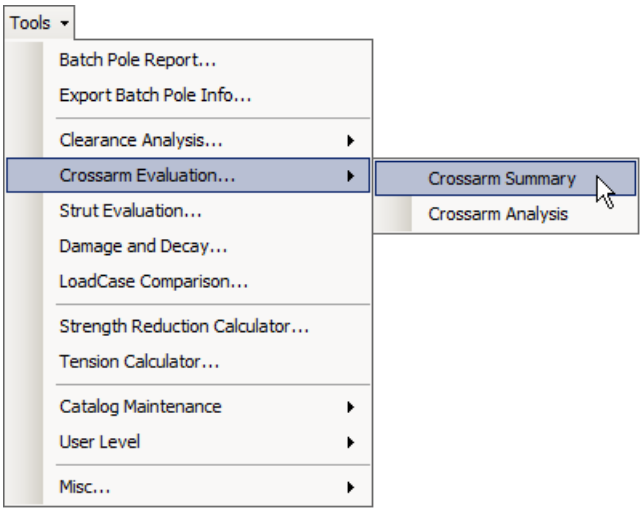
Viewing the Crossarm Summary

Once your pole has been built in the Inventory Window you may want to analyze the crossarm information separately. O-Calc® Pro provides a Crossarm Summary so you can easily see the output of forces on crossarm members for crossarm design.

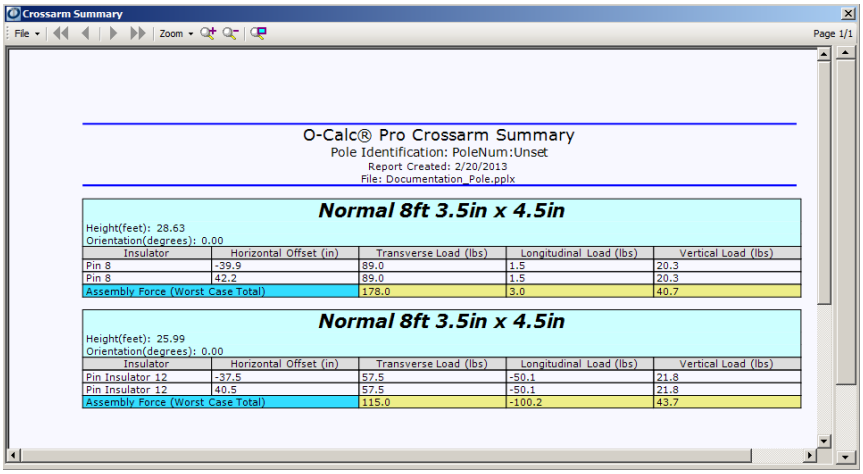
Create a Crossarm Summary

To create a Crossarm Summary, complete the following steps:

1. Select **Tools>Crossarm Evaluation>Crossarm Summary**.



Note: *A pole with crossarm(s) must be displayed in the Inventory Window to enable the Crossarm Summary option.*



Viewing the Crossarm Analysis

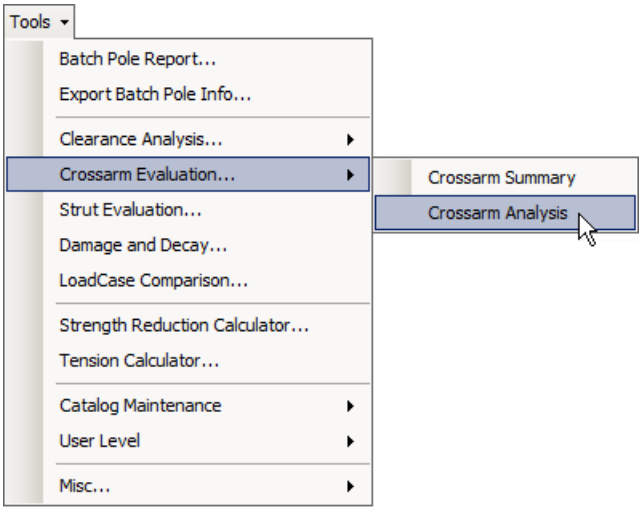
O-Calc® Pro provides a comprehensive Crossarm Analysis system that allows arm by arm analysis of the pole. The Crossarm Analysis includes:

- Wind sweep analysis on each crossarm.
- LoadCase by LoasCase analysis with worst LoadCase identification.
- Analysis of both the arm's capacity and the arm to pole connection.
- Insulator by insulator analysis.

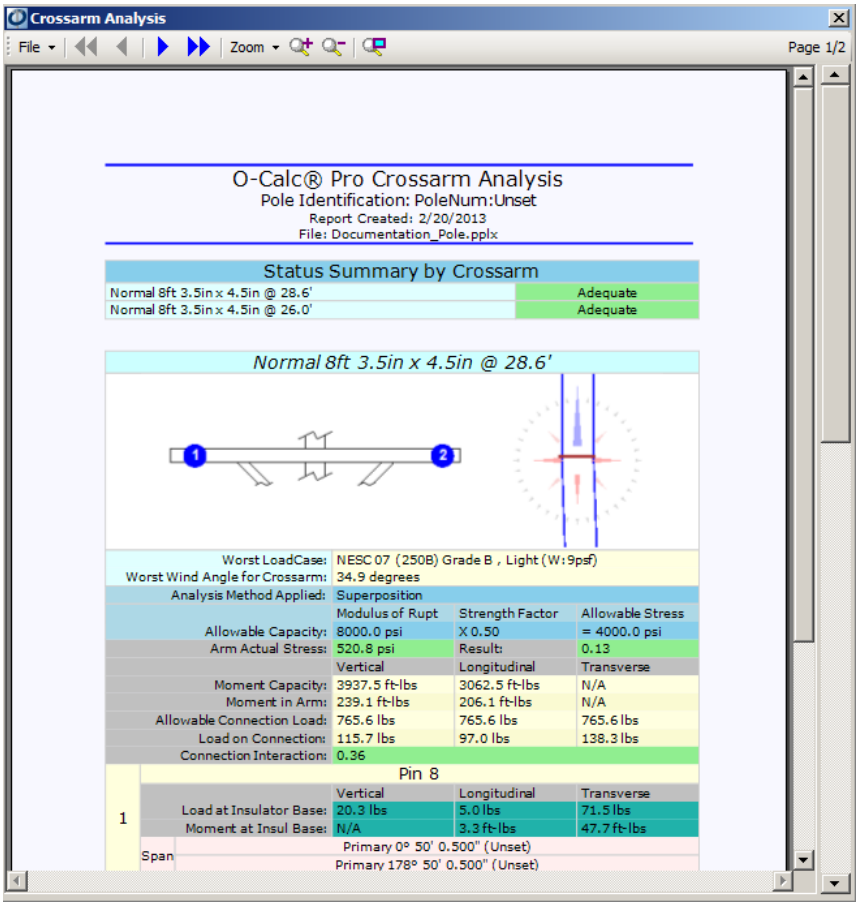
Create a Crossarm Analysis

To create a Crossarm Analysis, complete the following steps:

1. Select **Tools>Crossarm Evaluation>Crossarm Analysis**.

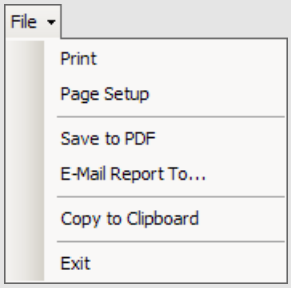


Note: *A pole with crossarm(s) must be displayed in the Inventory Window to enable the Crossarm Analysis option.*


Crossarm Analysis
File
Zoom
Page 1/2
O-Calc® Pro Crossarm Analysis
Pole Identification: PoleNum:Unset
Report Created: 2/20/2013
File: Documentation_Pole.pplx
Status Summary by Crossarm
Normal 8ft 3.5in x 4.5in @ 28.6'
Adequate
Normal 8ft 3.5in x 4.5in @ 26.0'
Adequate
Normal 8ft 3.5in x 4.5in @ 28.6'
1
2
Worst LoadCase: NESC 07 (250B) Grade B , Light (W:9psf)
Worst Wind Angle for Crossarm: 34.9 degrees
Analysis Method Applied: Superposition
Modulus of Rupt
Strength Factor
Allowable Stress
Allowable Capacity: 8000.0 psi
X 0.50
= 4000.0 psi
Arm Actual Stress: 520.8 psi
Result:
0.13
Vertical
Longitudinal
Transverse
Moment Capacity: 3937.5 ft-lbs
3062.5 ft-lbs
N/A
Moment in Arm: 239.1 ft-lbs
206.1 ft-lbs
N/A
Allowable Connection Load: 765.6 lbs
765.6 lbs
765.6 lbs
Load on Connection: 115.7 lbs
97.0 lbs
138.3 lbs
Connection Interaction: 0.36
Pin 8
1
Vertical
Longitudinal
Transverse
Load at Insulator Base: 20.3 lbs
5.0 lbs
71.5 lbs
Moment at Insul Base: N/A
3.3 ft-lbs
47.7 ft-lbs
Span
Primary 0° 50' 0.500" (Unset)
Primary 178° 50' 0.500" (Unset)

Crossarm Summary and Analysis Toolbar Options

Once the Crossarm Summary or the Crossarm Analysis is displayed the toolbar menu provides you with a variety of options.

	**File.** The following options are available from the File menu: **Print.** Select the Print option to print the document. **Page Setup.** Select the Page Setup option to configure how the document will be printed. **Save to PDF**. Select the Save to PDF option to save the document as a PDF file. **E-Mail Report To.** Select the E-Mail Report To option to E-Mail the document. **Copy to Clipboard**. Select the Copy to Clipboard option to copy the document to the clipboard so that the document can be pasted directly to other applications. (Only available for the Crossarm Summary) **Exit.** Select Exit to close the document.
Navigation Controls 	**Navigation Controls.** Click the Navigation Controls to easily navigate through the document.
Zoom Controls 	**Zoom Controls.** Use the Zoom Controls to change the documents magnification level.

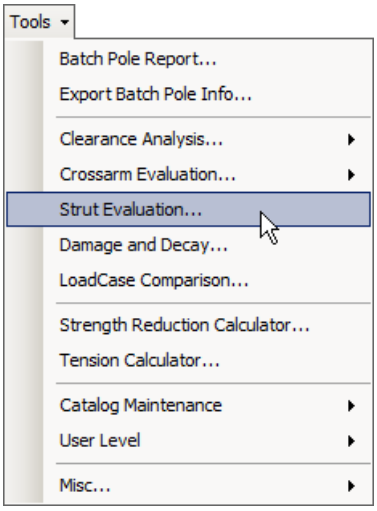
Viewing the Strut Evaluation Summary

Once your pole has been built in the Inventory Window you may want to analyze the strut information separately. 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.

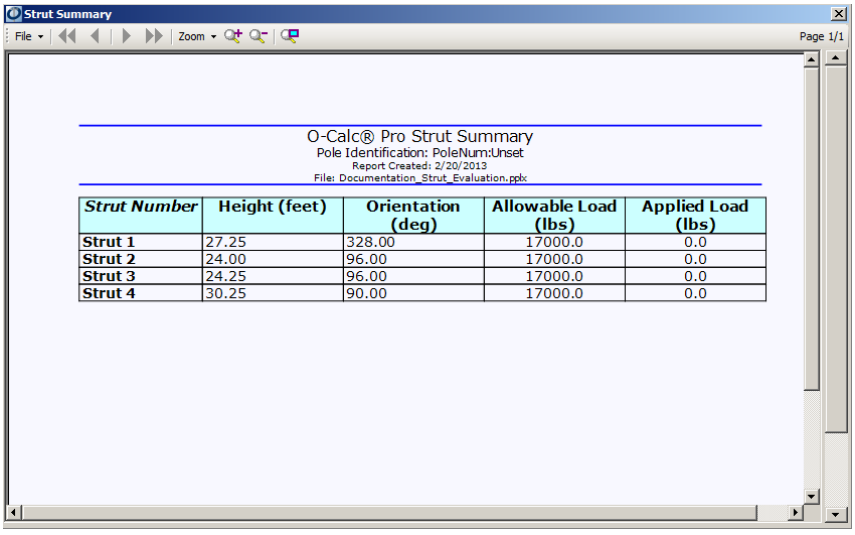
Create a Strut Evaluation Summary

To create a Strut Evaluation Summary, complete the following steps:

1. Select **Tools>Strut Evaluation**.



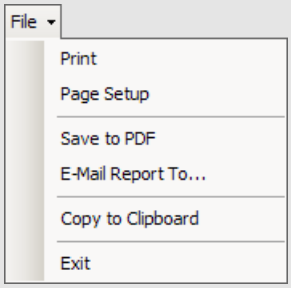
Note: *The Strut evaluation Summary option is only enabled if the currently loaded pole has struts attached and the Strut attribute "**Merge Like Struts**" is set to **Yes**.*



Strut Number	Height (feet)	Orientation (deg)	Allowable Load (lbs)	Applied Load (lbs)
Strut 1	27.25	328.00	17000.0	0.0
Strut 2	24.00	96.00	17000.0	0.0
Strut 3	24.25	96.00	17000.0	0.0
Strut 4	30.25	90.00	17000.0	0.0

Strut Evaluation Summary Toolbar Options

Once the Strut Evaluation Summary is displayed the toolbar menu provides you with a variety of options.

	**File.** The following options are available from the File menu: **Print.** Select the Print option to print the document. **Page Setup.** Select the Page Setup option to configure how the document will be printed. **Save to PDF**. Select the Save to PDF option to save the document as a PDF file. **E-Mail Report To.** Select the E-Mail Report To option to E-Mail the document. **Copy to Clipboard**. Select the Copy to Clipboard option to copy the document to the clipboard so that the document can be pasted directly to other applications. **Exit.** Select Exit to close the document.
Navigation Controls 	**Navigation Controls.** Click the Navigation Controls to easily navigate through the document.
Zoom Controls 	**Zoom Controls.** Use the Zoom Controls to change the documents magnification level.

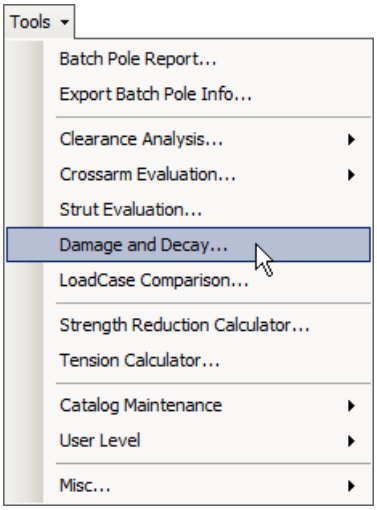
Viewing the Damage and Decay Evaluation Summary

Once your pole has been built in the Inventory Window you may want to analyze the damage and decay information separately. O-Calc® Pro provides a damage and Decay Evaluation Summary so you can easily apply damage and decay to the pole and evaluate the reduction in the pole's capacity as a result of that damage and/or decay.

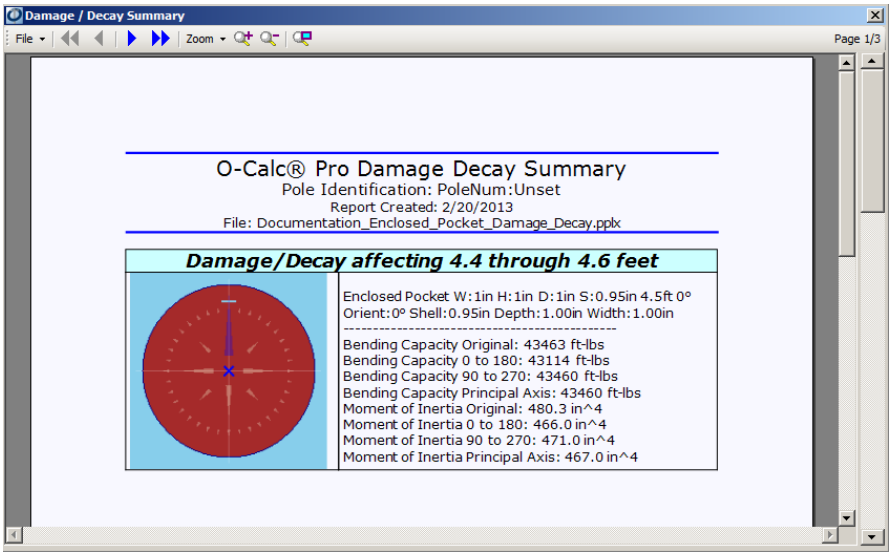
Create a Damage and Decay Evaluation Summary

To create a damage and Decay Evaluation Summary, complete the following steps:

1. Select **Tools>Damage and Decay**.

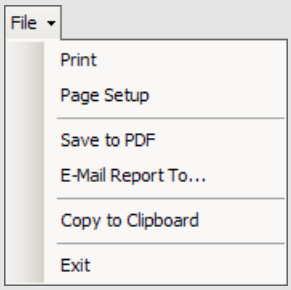


Note: *A pole with damage or decay must be displayed in the Inventory Window to enable the Damage and decay evaluation option.*



Damage and Decay Evaluation Summary Toolbar Options

Once the Damage and Decay Evaluation Summary is displayed the toolbar menu provides you with a variety of options.

	**File.** The following options are available from the File menu: **Print.** Select the Print option to print the document. **Page Setup.** Select the Page Setup option to configure how the document will be printed. **Save to PDF**. Select the Save to PDF option to save the document as a PDF file. **E-Mail Report To.** Select the E-Mail Report To option to E-Mail the document. **Copy to Clipboard**. Select the Copy to Clipboard option to copy the document to the clipboard so that the document can be pasted directly to other applications. **Exit.** Select Exit to close the document.
Navigation Controls 	**Navigation Controls.** Click the Navigation Controls to easily navigate through the document.
Zoom Controls 	**Zoom Controls.** Use the Zoom Controls to change the documents magnification level.

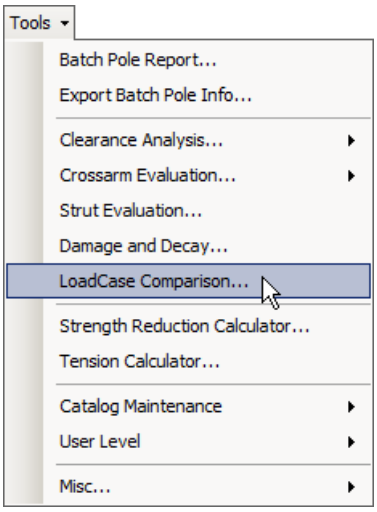
Viewing the LoadCase Comparison

When several LoadCases are attached to a pole in the Inventory Window O-Calc® Pro provides a LoadCase Comparison summary. The LoadCase Comparison provides detailed calculations for each LoadCase and identifies and displays the worst LoadCase in the comparison.

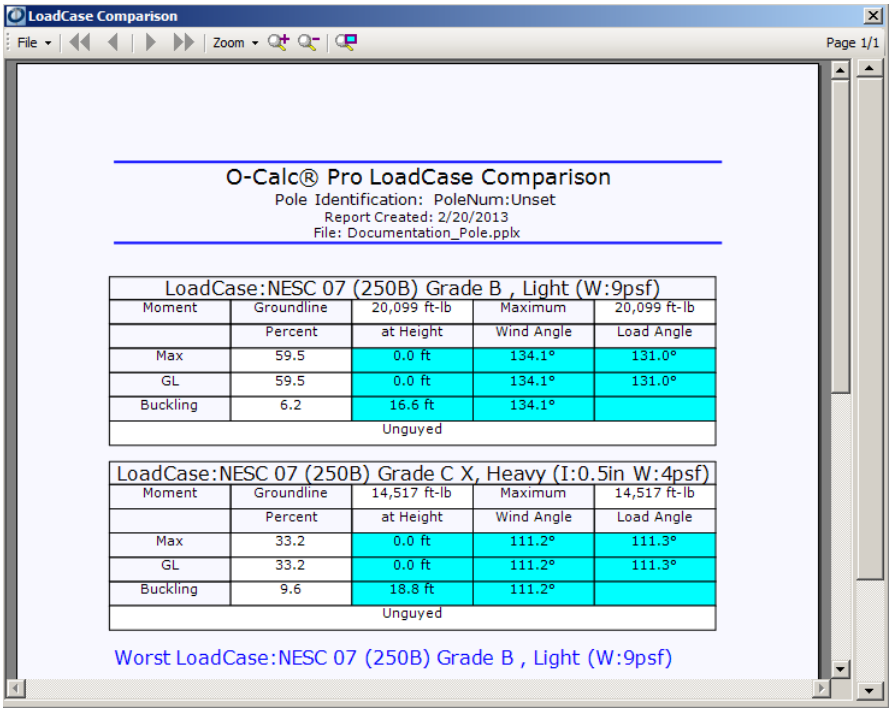
Create a LoadCase Comparison

To create a LoadCase Comparison, complete the following steps:

1. Select **Tools>LoadCase Comparison**.

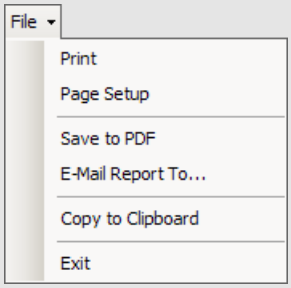


Note: *A pole with more than one LoadCase needs to be displayed in the Inventory Window to enable the LoadCase Comparison option. The pole should also have the latest calculations displaying in the Capacity Window. If the Auto Capacity Summary is disabled and calculations need to be performed the LoadCase Comparison option will be disabled. See Manually Updating the Capacity Window to manually update the calculations.*


LoadCase Comparison
File
Zoom
Page 1/1
O-Calc® Pro LoadCase Comparison
Pole Identification: PoleNum:Unset
Report Created: 2/20/2013
File: Documentation_Pole.pplx
LoadCase:NESC 07 (250B) Grade B , Light (W:9psf)
Moment | Groundline | 20,099 ft-lb | Maximum | 20,099 ft-lb
Percent | at Height | Wind Angle | Load Angle
Max | 59.5 | 0.0 ft | 134.1° | 131.0°
GL | 59.5 | 0.0 ft | 134.1° | 131.0°
Buckling | 6.2 | 16.6 ft | 134.1°
Unguyed
LoadCase:NESC 07 (250B) Grade C X, Heavy (I:0.5in W:4psf)
Moment | Groundline | 14,517 ft-lb | Maximum | 14,517 ft-lb
Percent | at Height | Wind Angle | Load Angle
Max | 33.2 | 0.0 ft | 111.2° | 111.3°
GL | 33.2 | 0.0 ft | 111.2° | 111.3°
Buckling | 9.6 | 18.8 ft | 111.2°
Unguyed
Worst LoadCase:NESC 07 (250B) Grade B , Light (W:9psf)

LoadCase Comparison Toolbar Options

Once the LoadCase Comparison is displayed the toolbar menu provides you with a variety of options.

	**File.** The following options are available from the File menu: **Print.** Select the Print option to print the LoadCase Comparison. **Page Setup.** Select the Page Setup option to configure how the LoadCase Comparison will be printed. **Save to PDF.** Select the Save to PDF option to save the LoadCase Comparison as a PDF file. **E-Mail Report To.** Select the E-Mail Report To option to E-Mail the LoadCase Comparison. **Copy to Clipboard**. Select the Copy to Clipboard option to copy the LoadCase Comparison to the clipboard so that it can be pasted directly into other applications. **Exit.** Select Exit to close the LoadCase Comparison.
Navigation Controls 	**Navigation Controls.** Click the Navigation Controls to easily navigate through the document.
Zoom Controls 	**Zoom Controls.** Use the Zoom Controls to change the documents magnification level.

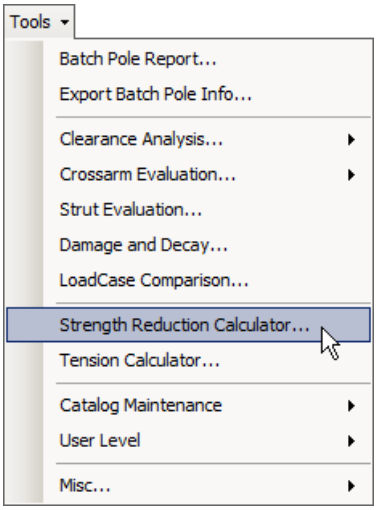
Working With the Strength Reduction Calculator

The Strength Reduction Calculator allows you calculate and apply the effective groundline circumference using the Osmose industry accepted strength calculations.

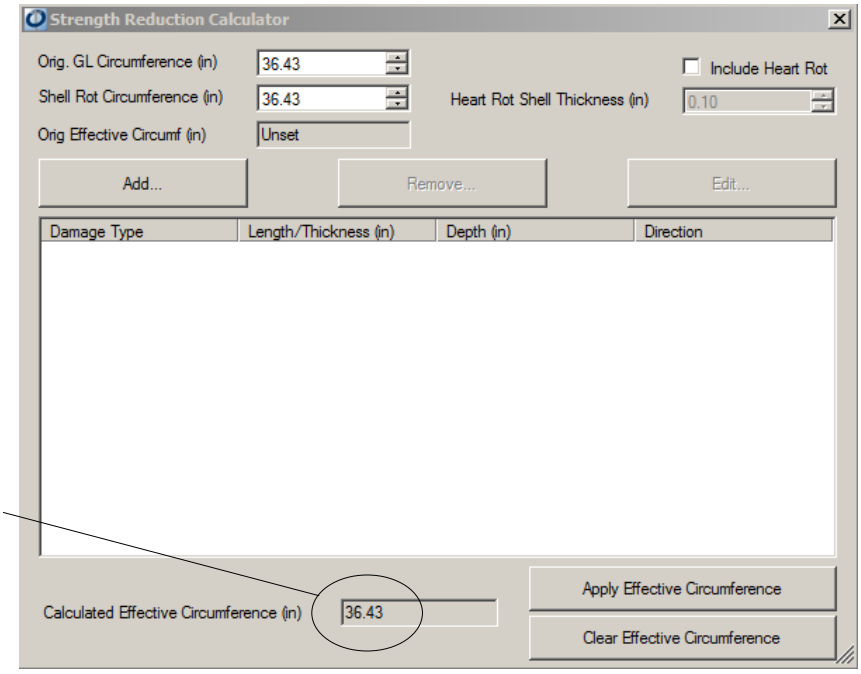
Create a Strength Reduction Calculation

To create a Strength Reduction Calculation, complete the following steps:

1. Select **Tools>Strength Reduction Calculator**.



Note: *When the Strength Reduction Calculator is initially opened some of the fields will already pre-populated with information from the pole.*



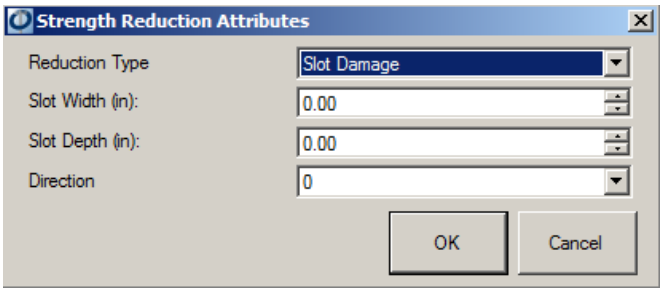
Current Effective Circumference

2. Adjust the Original GL Circumference (if necessary).
3. Adjust the Shell Rot Circumference (if necessary).
4. To include Heart Rot check Include Heart Rot.
5. Adjust the Heart Rot Shell Thickness if Include Heart Rot is checked.

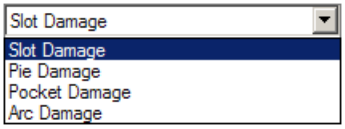
   For each instance of decay or damage perform steps 6 – 10:

6. Select the **Add** button 

.

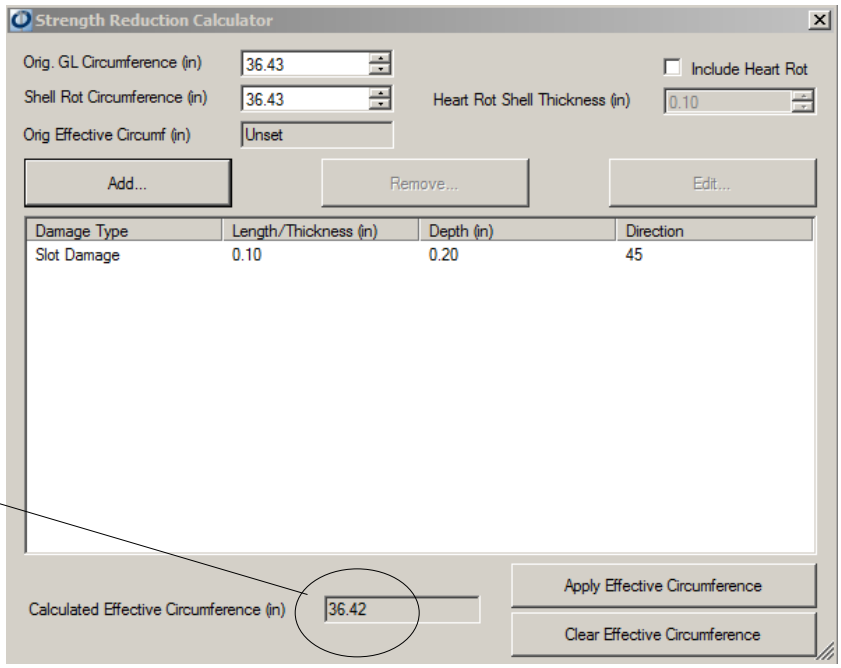


7. Select the **Reduction Type** from the drop down list.



8. Enter the **Width or Thickness**.
9. Enter the **Depth**.
10. Select the **Direction** from the drop down list.

11. Select **OK**.



Updated Effective Circumference

***Note**: Once a Strength Reduction Calculation has been added the Calculated Effective Circumference will automatically be updated. This is the value that will be used in calculating the groundline capacity.*

12. Select **Apply Effective Circumference**.

    ***Note:** 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* Clear Effective Circumference.

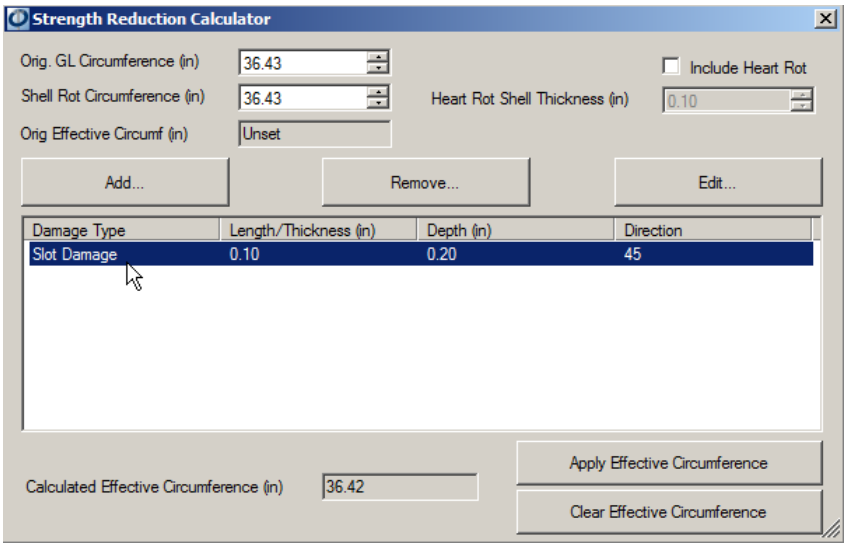
13. Select **Yes** to apply the effective circumference.

Edit a Damage Record in the Strength Reduction Calculation

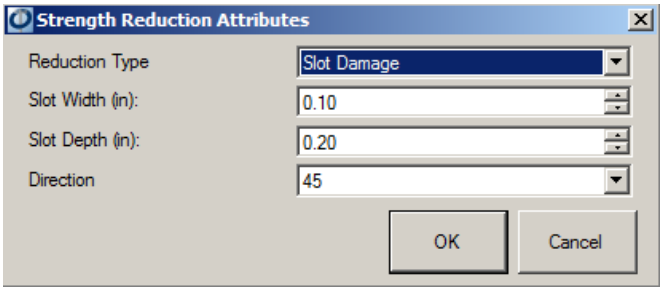
To edit a damage record in the Strength Reduction Calculation, complete the following steps:

1. Select the damage record to be edited.

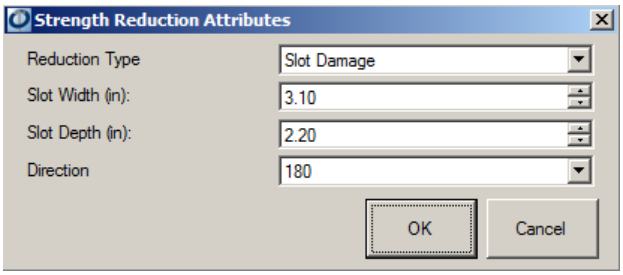
   ***Note:** Double clicking on the damage record will also open the damage record in edit mode.*



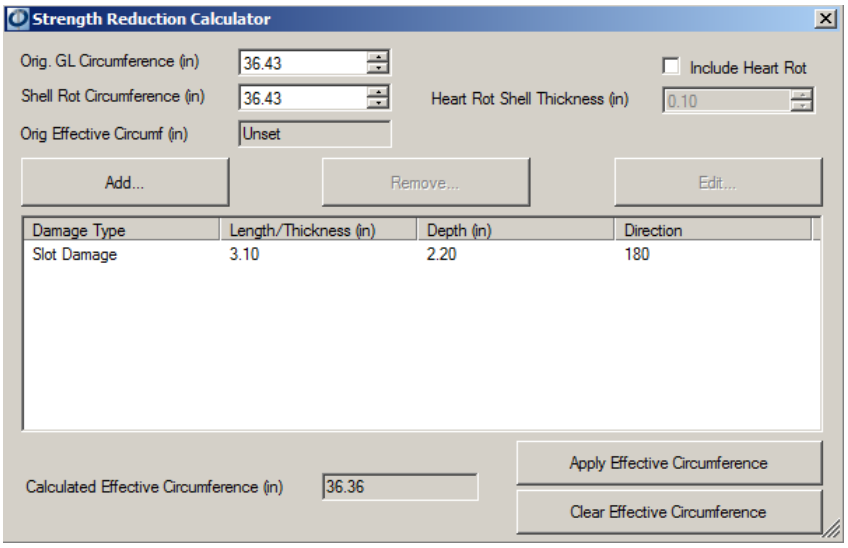
2. Select the **Edit** button 
.



3. Complete any edits that need to be made.



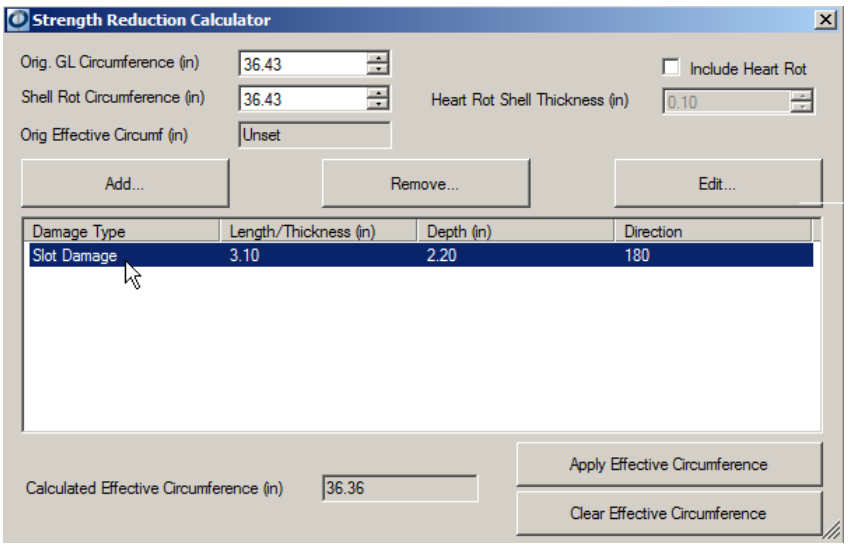
4. Select **OK**.



Remove a Damage Record from the Strength Reduction Calculation

To remove a damage record from the Strength Reduction Calculation, complete the following steps:

1. Select the damage record to be removed.



2. Select the **Remove** button 

.

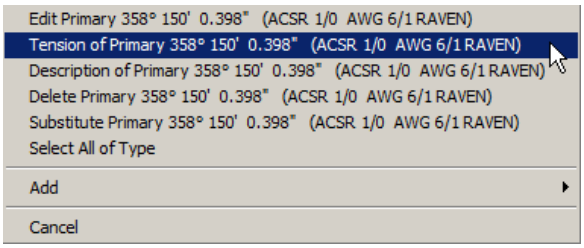
Working With the Sag Tension Calculator

The Sag Tension Calculator allows you 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.

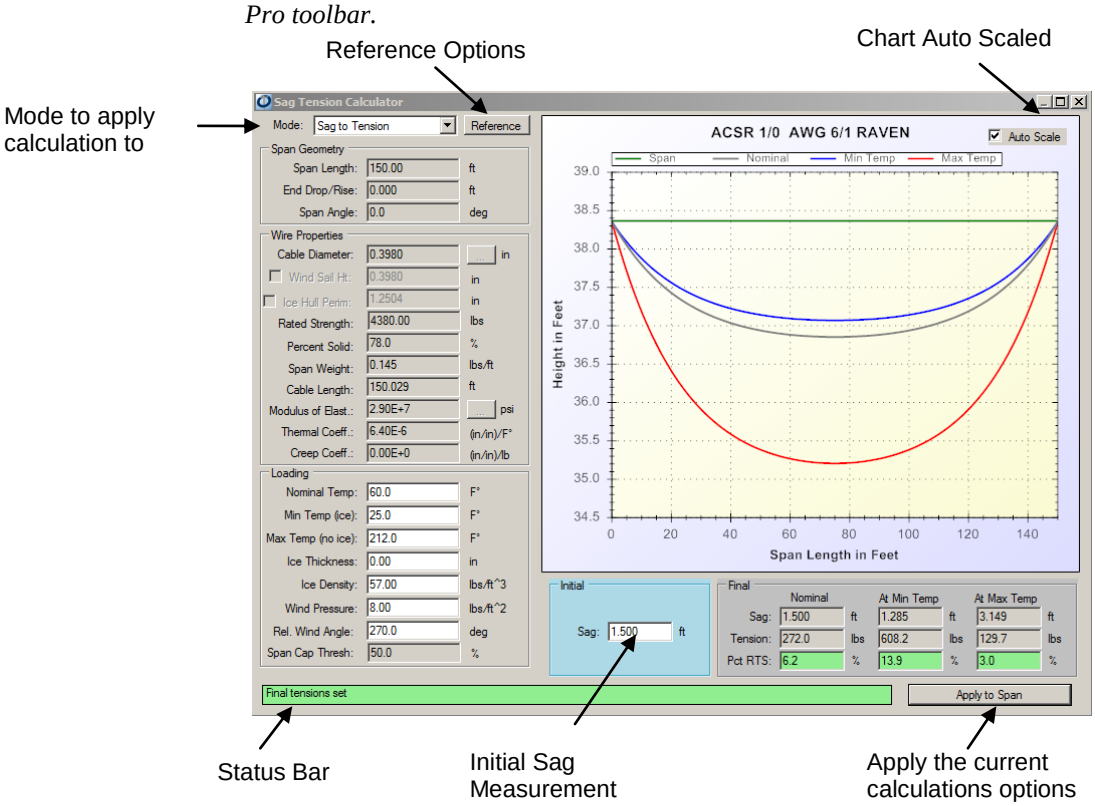
Create and Apply a Sag Tension Calculation

When working with a span that has a Tension Type of Static, complete the following steps to set the sag tension using the Sag Tension Calculator:

1. Right click on the span you would like to set the sag tension for**.**
2. Select **Tension (*span display name*)**.



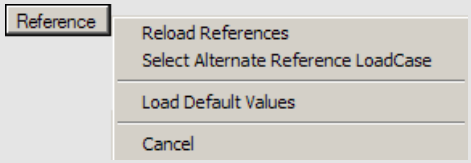
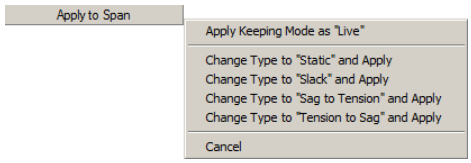
Note: *To use the Sag Tension Calculator as a visual tool to alter the calculations but <u>not apply</u> them to the currently selected span open the Sag Tension Calculator by selecting* ***Tools>Tension Calculator*** *from the O-Calc® Pro toolbar.*



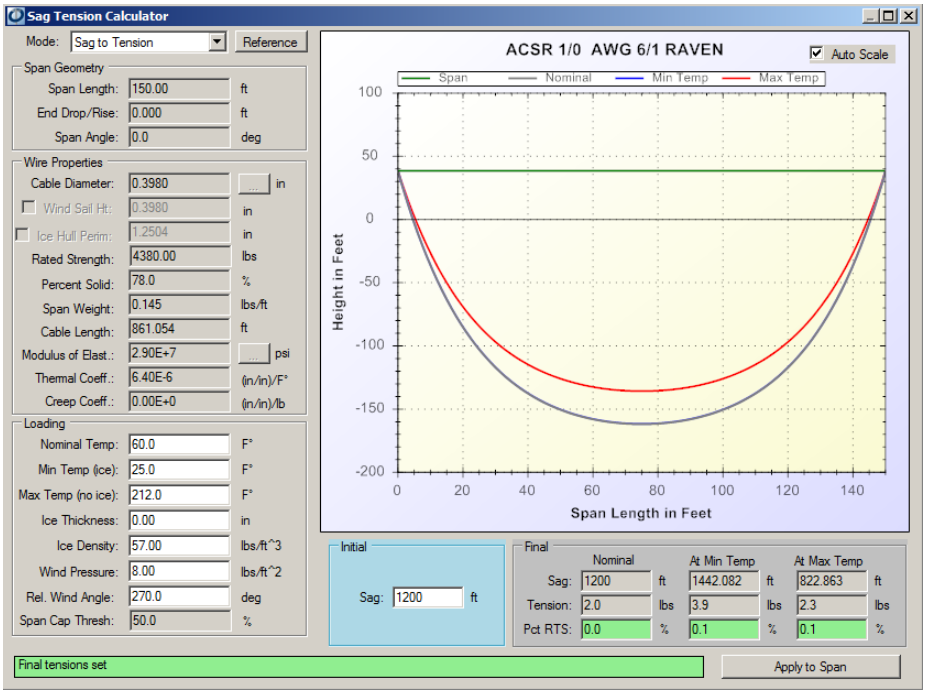
Note: *When the Sag Tension Calculator is initially opened some of the fields will already pre-populated with information from the pole.*

Sag Tension Calculator Options

The Sag Tension Calculator provides you with a variety of operations and options.

	**Reference.** The following options are available from the Reference menu: **Reload References.** Select the Reload References option to reload the pertinent values from the selected LC. **Select Alternate Reference LoadCase.** Select the Select Alternate Reference LoadCase option to select a different loadcase to reference. **Load Default Values.** Select the Load Default Values option to load a set of nominal load parameters. **Cancel.** Select the Cancel option to close the Reference menu option pop-up 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 the Apply to Span menu option pop-up without taking any action.

3. Complete your 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.

   Note: *For reference purposes the Modulus of Elasticity Calculator and the AWG to Diameter Conversions can also be accessed from the O-Calc ® Pro* ***Tools> Misc*** *toolbar menu. For additional information see Working with the Modulus of Elasticity Calculator or Viewing the AWG to Diameter Conversions.*

Appendix A – Installing Osmose O-Calc® Pro

System Requirements

System requirements for Osmose O-Calc® Pro include the following:

- Supported Operating Systems:
  - Windows XP SP2 or SP3
  - Windows Vista (Home basic, Home Premium, Business, and Ultimate, 32 and 64 bit (N))
  - Windows 7 (Starter, Home Basic, Home Premium, Professional, Enterprise, and Ultimate, 32 and 64 bit (N))
  - Windows Server 2003
  - Windows Server 2008
- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
- 4 gigabyte (GB) RAM (32-bit) or 8 GB RAM (64-bit)
- 16 GB available hard disk space (32-bit) or 20 GB (64-bit)
- DirectX 9 graphics device with WDDM 1.0 or higher driver
- Microsoft .Net Framework version 3.5 (SP1) or later
- Microsoft Report Viewer 2010
- Microsoft Office 2010 Primary Interop Assemblies
- Microsoft SQL Server 2008 Reporting Services Report Builder 2.0 (obtained from http://www.microsoft.com/downloads).
- Internet access (*optional*)
- Email access (*optional*)

Preparing to Install O-Calc® Pro

Keep the following points in mind before actually installing Osmose O-Calc® Pro:

- The person performing the installation and registration of the application must have administrator rights to the computer on which the software will be installed and registered.
- Read permissions are required to the directories that contain the media delivery.

  Note: *Write access will be needed to use O-Calc® Pro DMT (Digital Measurement Technology).*
- If you run the Osmose provided installer package, both .NET framework version 3.5 SP1, Microsoft Report Viewer 2010 and Microsoft Office 2010 Primary Interop Assemblies prerequisites will be installed

automatically. You may wish to install these prerequisites yourself before installing O-Calc® Pro. In which case:

- Install .NET Framework version 3.5 SP1. It can be obtained from http://www.microsoft.com/downloads .

  Note: *There is a known issue with .Net Framework version 3.5 (SP1) that was released prior to March 10, 2009. Locate a more recent version if you wish to install the update yourself. The explicit details about the issue can be located at http://support.microsoft.com/kb/967634* .

- Install Microsoft Report Viewer 2010. It can be obtained from http://www.microsoft.com/downloads.
- Install Microsoft Office 2010 Primary Interop Assemblies. It can be obtained from http://www.microsoft.com/downloads.

Installing Osmose O-Calc® Pro

Use the following procedure to install O-Calc® Pro:

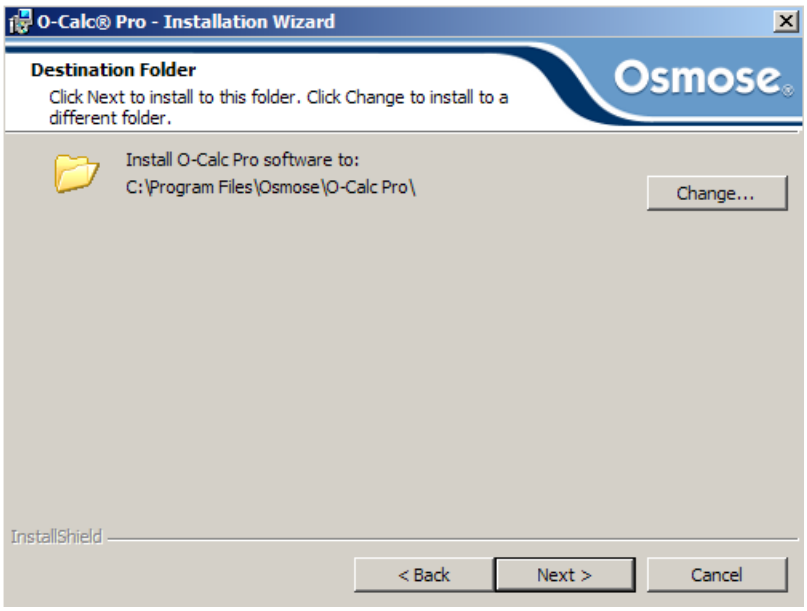
1. Double-click on OCalcPro_(version)_Setup.exe to run the installation application.

   Note: *If you are running Windows 7or Vista you will need to right click on the OCalcPro_(version)_Setup.exe and select "Run as Administrator". You must do this even if you are already logged on as administrator to ensure proper installation.*

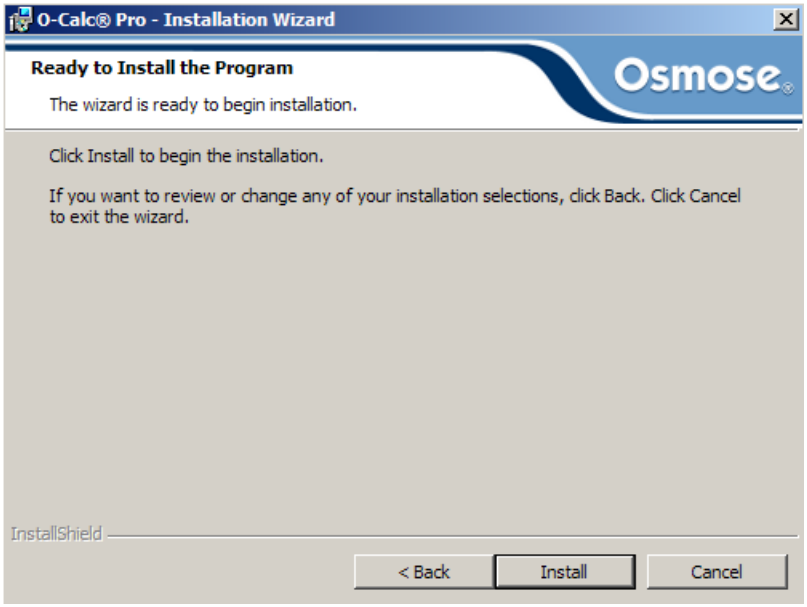
2. When the installer **Welcome** screen appears, click **Next**.

3. Click **Next** to use the default Destination Folder or click Change

to browse to a different Destination Folder then click **Next**.



4. Click **Install** to begin the installation process.



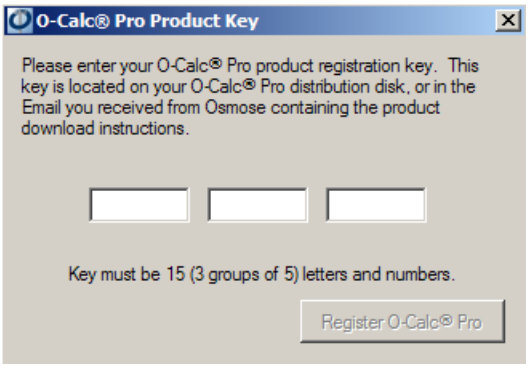
5. When the installation is complete, click **Finish** to acknowledge the completed installation.

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 the following steps:

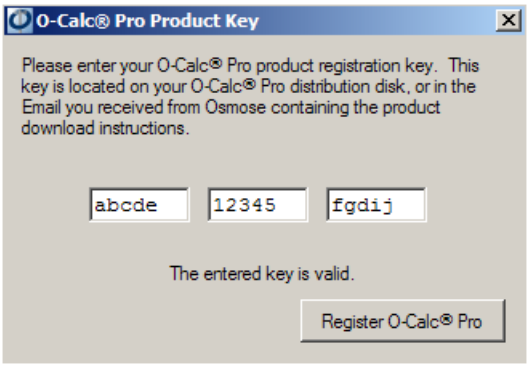
1. Open O-Calc ® Pro.

   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 Customer Support at 716-319-3747 or technicalsupport@osmose.com.*

3. Click the **Register O-Calc® Pro** button.

   Note: *You can cancel out of 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 has been successfully registered.*

   Note: *The Demo Version of O-Calc® Pro restricts you from using the save, email or print options.*

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 appropriate button:

   - **Accept** – Indicates your acceptance of the license agreement and all its terms.
   - **Decline** – Does not acknowledge acceptance of the agreement. The Osmose O-Calc® Pro application cannot be accessed if you do not accept the license agreement.

O-Calc ® Pro 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 a √ in it. The default level is also indicated.

		Windows User Groups		
		O-Calc Administrators	All Others	O-Calc Limited
O-Calc ® Pro User 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.

- *Normal* – This is the default user level. All attributes except those in sealed LoadCases can be edited at this level. At this level the user can also unseal LoadCases, manipulate the User Catalog as well as import and export the Master Catalog items. The user will not be able to manipulate the Master Catalog directly.
- *Limited* – Restricts access to certain attributes and operations that if changed could gravely effect 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.

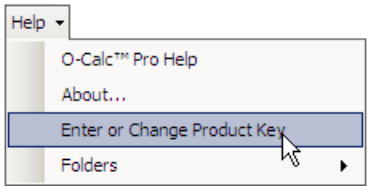
- *Administrative* – Users at this level have access to all the features within O-Calc® Pro including the option to manipulate the Master Catalog, re-seal LoadCases and edit read only attributes.

  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.*

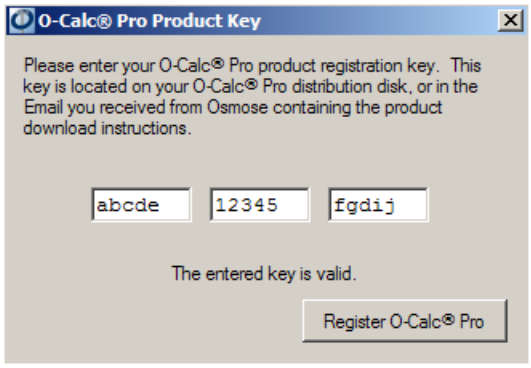
Change the Product Registration Key

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**.

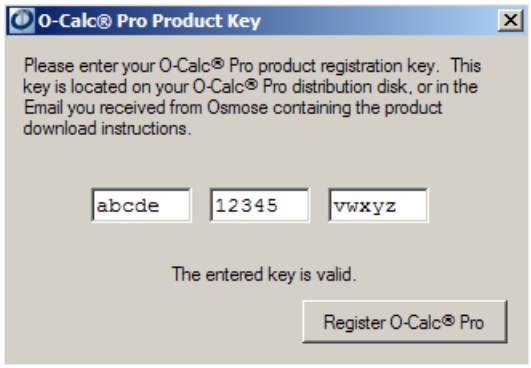


The O-Calc® Pro Product Key window is displayed.



3. Enter or change the **Registration Key Code**.

   Note: *The Registration Key Code is not case sensitive.*

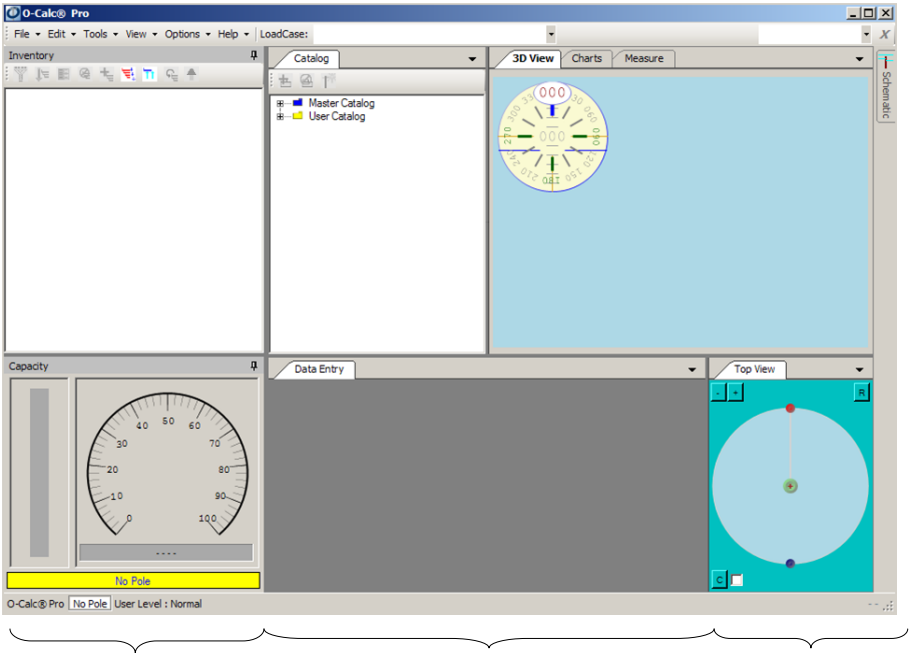


4. Click the **Register O-Calc® Pro** button.

Appendix B – Creating a Customized View

Understanding the Default View

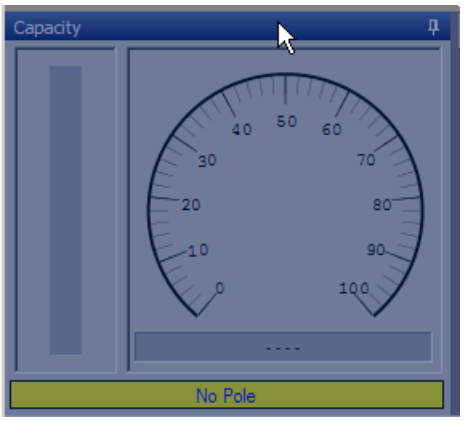
Within O-Calc® Pro the placement of where the numerous windows are located can be changed at any time. This allows you to create unlimited customer custom views that can also be saved for future use. The O-Calc® Pro main view is broken into three sections, left panel, right panel and the center panel. The windows within O-Calc® Pro can be moved into any of these sections.



Repositioning a Window

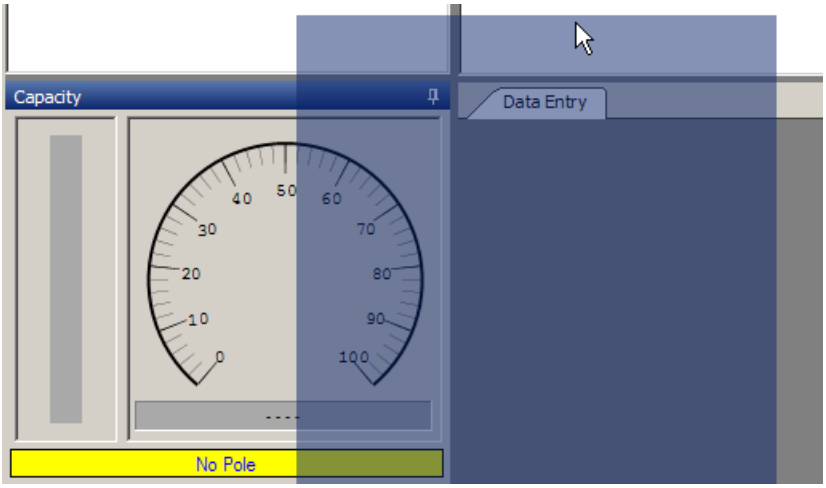
To change the location of a window, complete the following steps:

1. Left click on the windows heading.

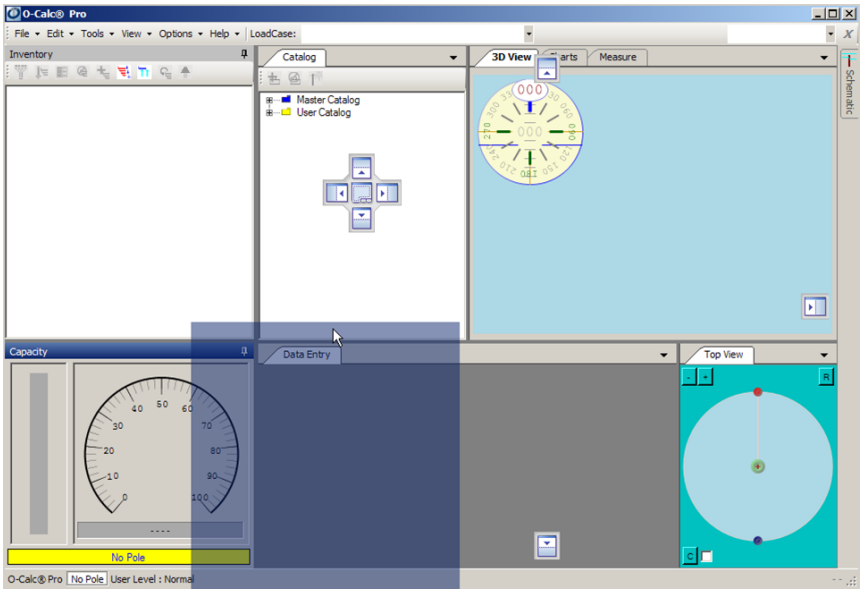


The selected window is overlaid in blue.

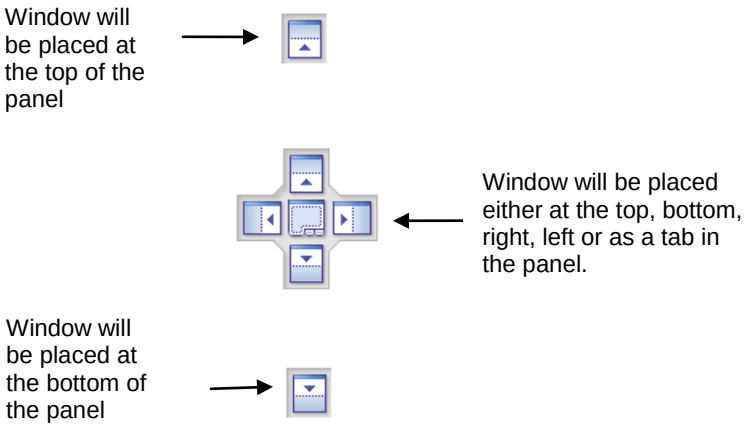
2. Hold down left mouse button and drag the blue overlaid window to the area you would like the window displayed.



The actual window that you are moving will remain in its original location until after the blue overlay window has been positioned.

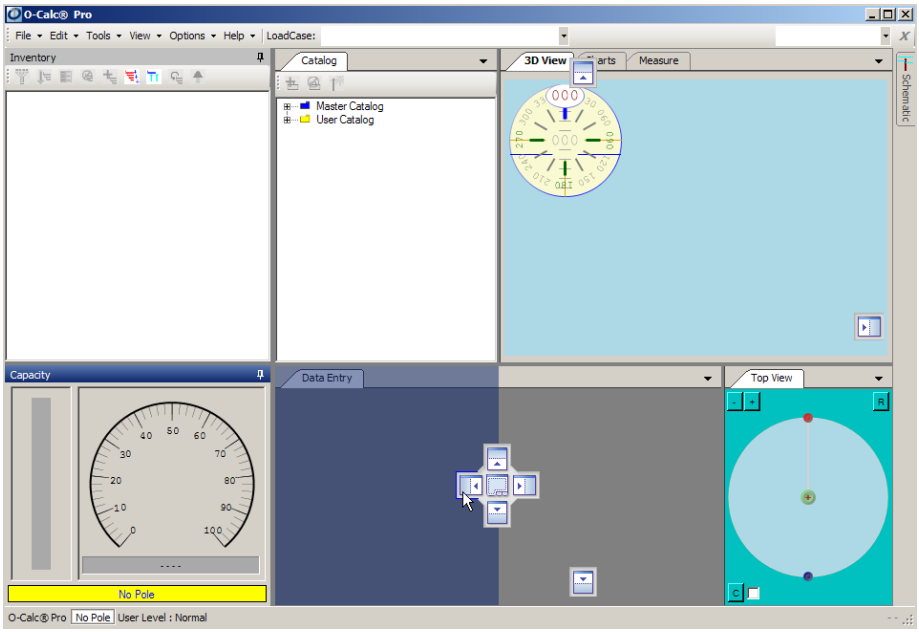


Once the blue overlay window is near the center of a panel or the edge of a panel, placement directionals will automatically be displayed.



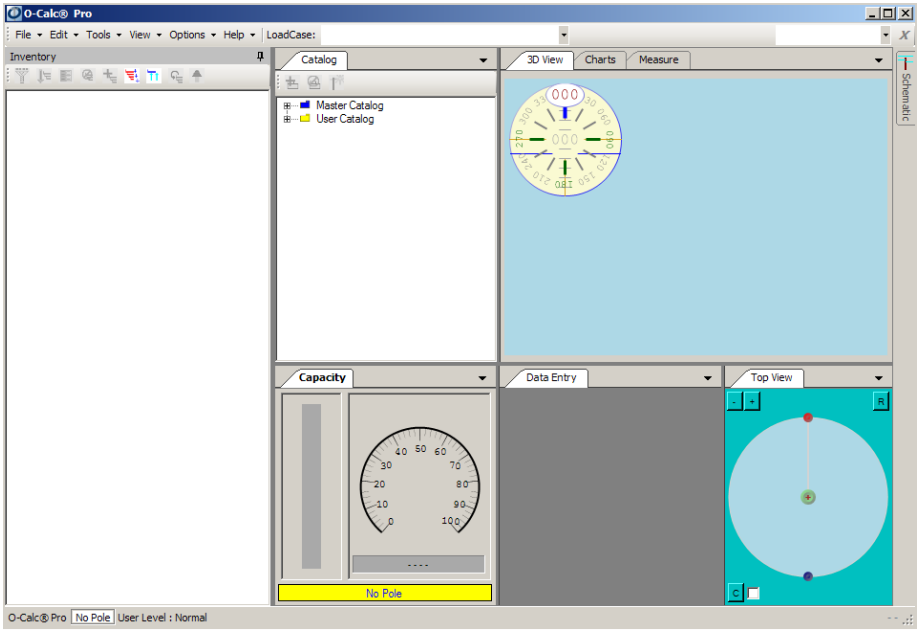
3. Drag the blue overlay window over the placement directional that best interprets where you would like the window placed.

   When placing a window over a placement directional the blue overlay window will display where the window will be placed within the panel.



\

4. While still over the placement directional release the left mouse button to place the window.



Note: *Undo is not available.*

Save a Named View

To save the view that you've created and add it to the Named View list, complete the following steps:

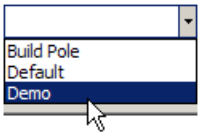
1. Enter a name in the Named View box.

2. Press the enter key to save your Named View.
3. Select **Yes** to the confirmation message.

Delete a Named View

To delete a Named View, complete the following steps:

1. Select the Named View to be deleted from the Named View drop down list.



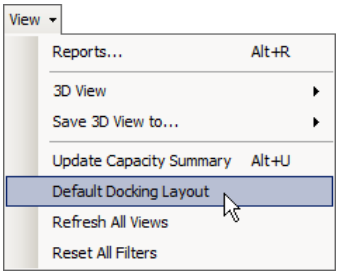
2. Select the **Delete Named View** button  .
3. Select **Yes** to the confirmation message.

   Note: *Undo is not available for this operation.*

Return to the Default Docking Layout

To return to the default docking layout, complete the following steps:

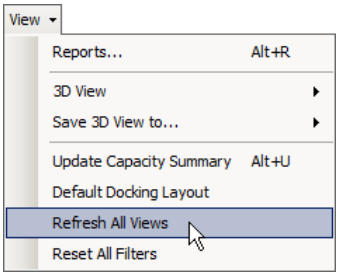
1. Select **View>Default Docking Layout**.



Refresh All Views

To refresh all views, complete the following steps:

1. Select **View>Refresh All Views**.



Appendix C – Other Tools & Functions

Working with the Wizard Tool

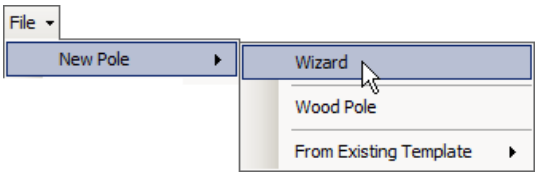
Wizard Tool Overview

The O-Calc Pro Wizard Tool guides the basic O-Calc Pro user through the uncomplicated construction of a model utility pole. The model includes the structure, the equipment attached and its environment.

Enabling the Wizard Tool

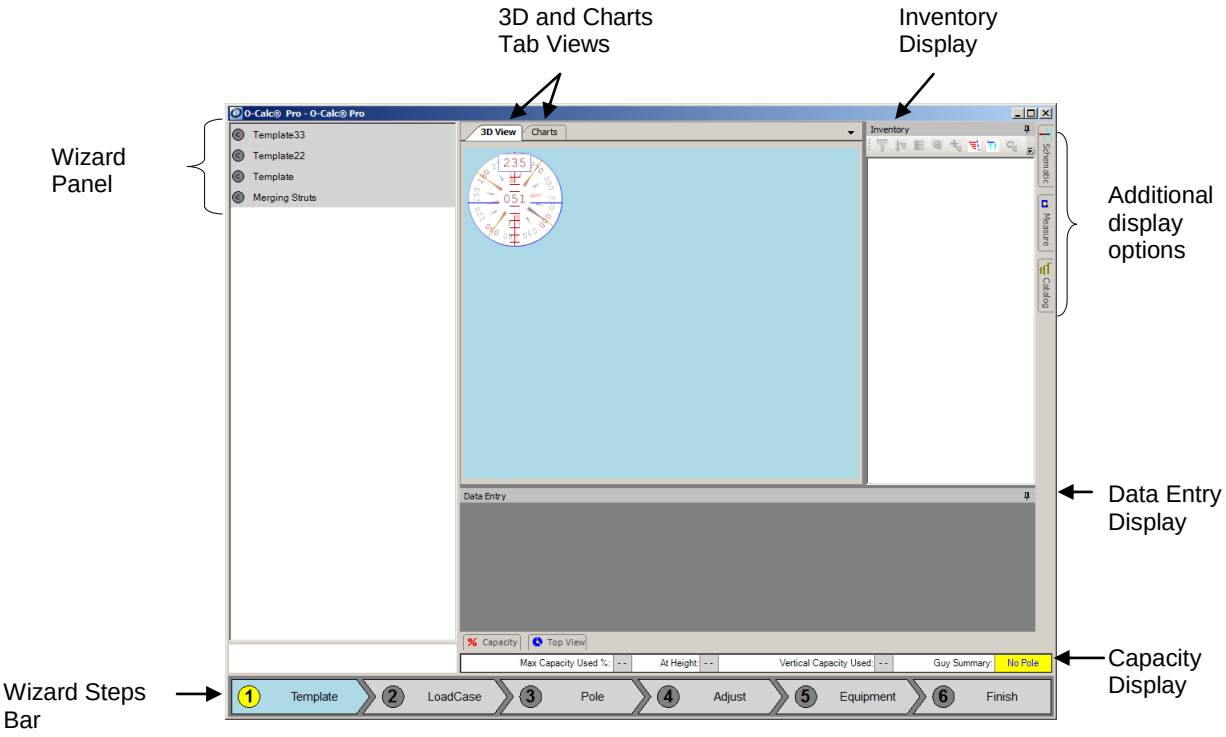
To enable the Wizard Tool, complete the following steps:

1. Select **File>New Pole>Wizard**.



Understanding the Wizard Workspace

The Wizard provides you with a variety of options enabling you to interact with the Wizard.



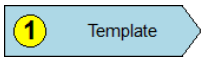
Understanding the Wizard Display

The following table describes the color representation in the Wizard Panel.

Display Color	*Description*
	Illustrates a contracted folder.
	Illustrates an expanded folder.
	Illustrates the currently selected item.

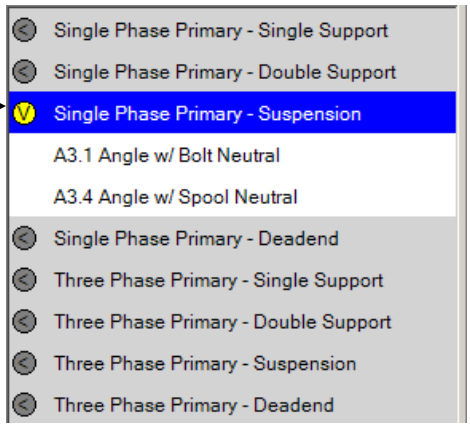
Selecting a Template

The initial step requires you to select a pole template. To select a pole template complete the following steps:

1. Select **One - Template** button 

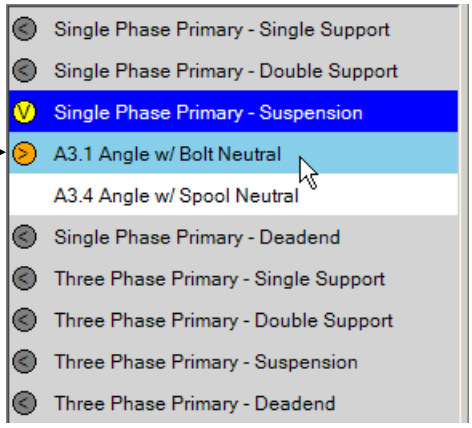
from the Wizard Steps Bar.
2. Expand a **Template folder**.

Template folder expanded →



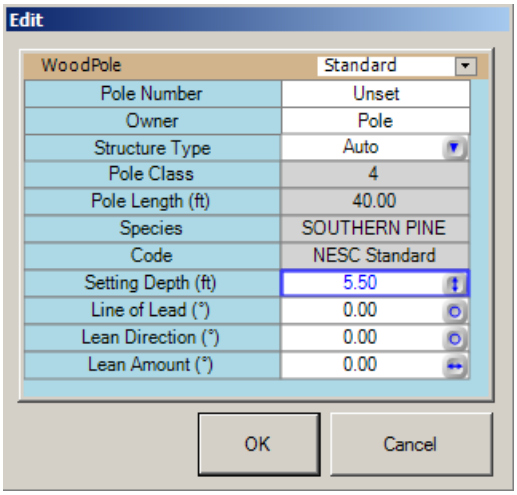
3. Select the **pole** you would like to start with.

Selected Pole →



4. Select the **Edit** button 

to modify the selected poles attributes in the Edit window.



5. Select **OK**.

Note: *To undo changes to the pole's attributes, select the* ***Undo*** *button* 

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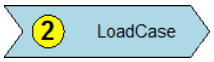
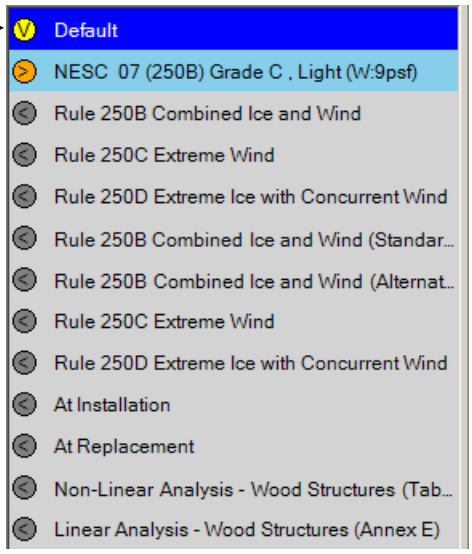
Selecting a LoadCase

To change the LoadCase that is associated with the pole, complete the following steps:

1. Select **Two – Loadcase** button 

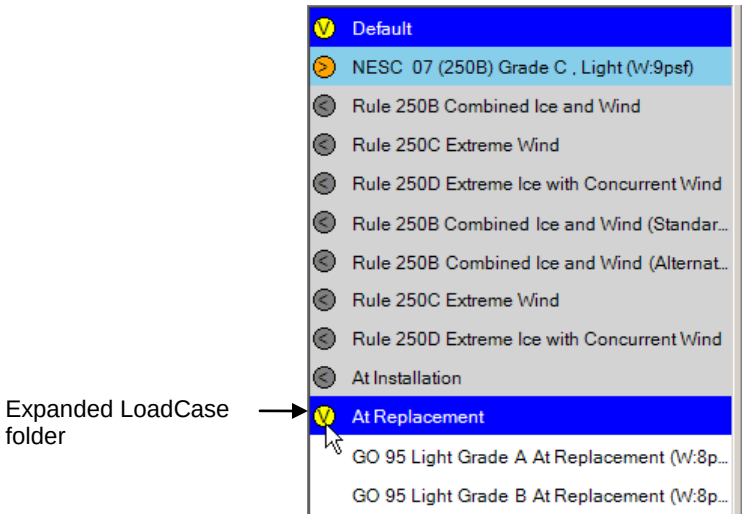
from the Wizard Steps Bar.

Default LoadCase →

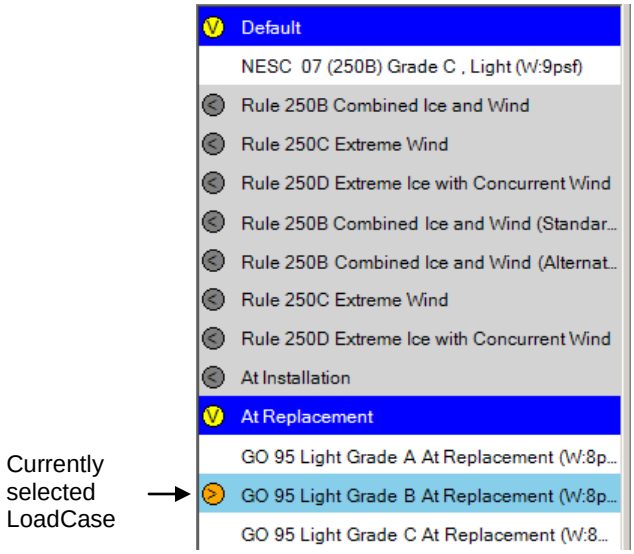


Note: *If a default LoadCase has been set it is automatically selected.*

2. Expand a **LoadCase folder**.

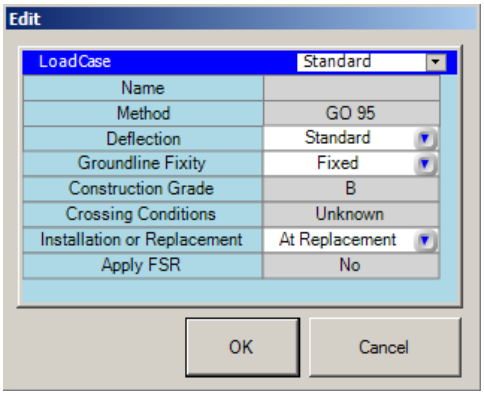


3. Select a **LoadCase**.

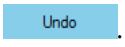


4. Select the **Edit** button 

to modify the selected LoadCase's attributes in the Edit window.



5. Select **OK**.

Note: *To undo the LoadCase modification, select the* ***Undo*** *button* 

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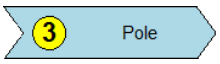
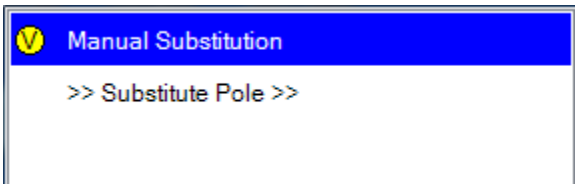
Substituting the Current Pole

To substitute the current pole with another pole, complete the following steps:

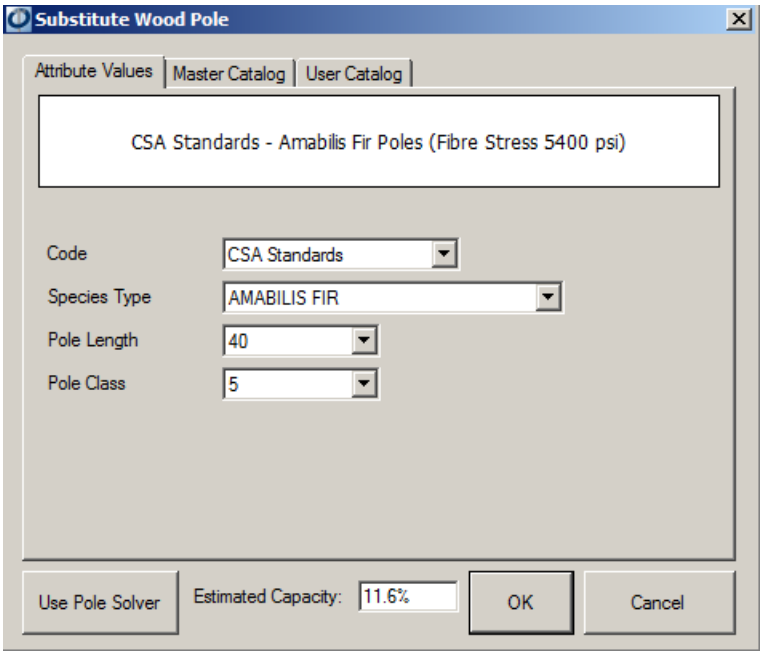
1. Select **Three - Pole** button 

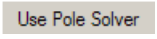
from the Wizard Steps Bar.
2. Select **Substitute Pole.**

Substitute Pole Option →



O-Calc® Pro provides you with three options when substituting a pole. You can either manually select the substitute pole, select the substitute pole from the Master or User Catalog or you can use the Pole Solver option to help you select the substitute pole. The Pole Solver option will display the minimum pole class and the estimated capacity that would be used based on the pole's current load. For additional information on substituting a pole see Substituting a Pole.

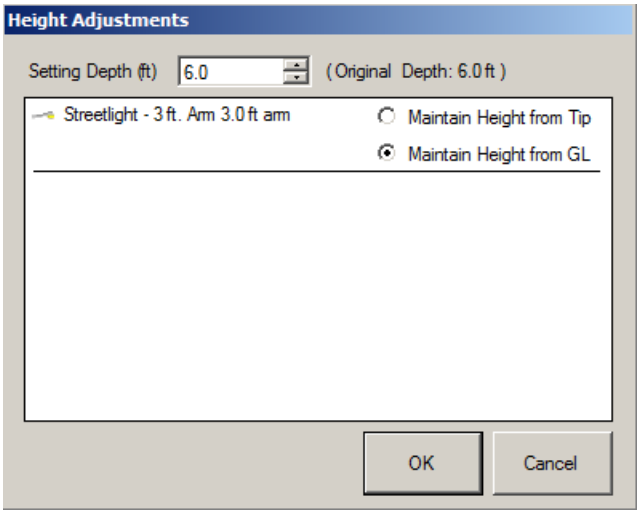


3. Use one of the following methods to select the **substitute pole** you want:
   A. **Manually** select the substitute poles attributes.
   B. Select the substitute pole from the **Master Catalog** or **User Catalog** tab. The attributes can still be modified if needed.
   C. Select the **Use Pole Solver** button 

to have O-Calc® Pro automatically select the minimum Pole Class that would provide you with a passing pole.

4. Select **OK**.

   If there are primary attachments already on the pole the Height Adjustment window will automatically be displayed. The Height Adjustment window allows you to adjust the substitute poles depth and the height of the primary attachments relative to groundline or the tip of the substitute pole.



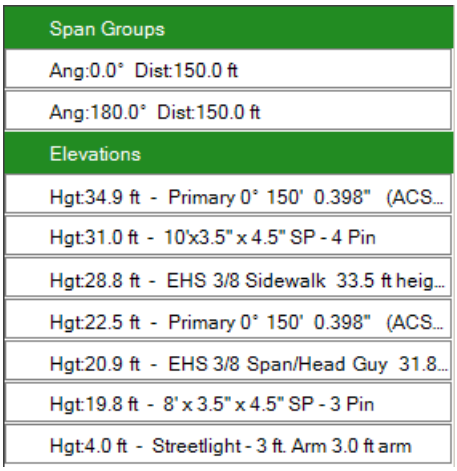
5. Modify the **Pole Depth** if required.
6. Verify and change each **primary attachments** height if required.
7. Select **OK**.

   Note: *To undo the pole substitution, select the* ***Undo*** *button* Undo.

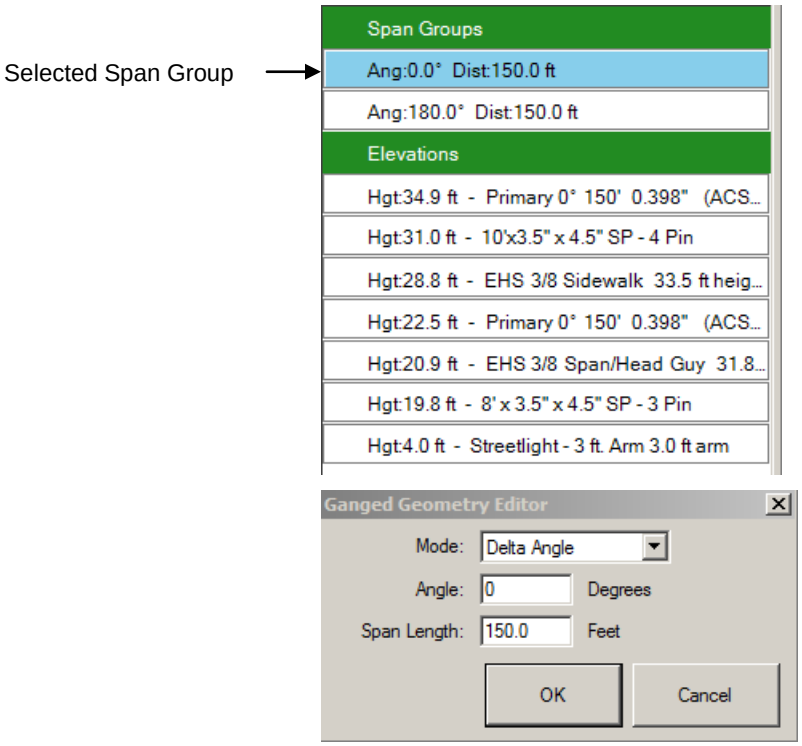
Performing Adjustments

To complete adjustments to either span angles or the elevations of attachments, complete the following steps:

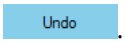
1. Select **Four - Adjust** button 4 Adjust from the Wizard Steps Bar.



2. Select the item you would like to adjust.



3. Complete any modifications.
4. Select **OK**.

   Note: *To undo any adjustments, select the* ***Undo*** *button* 

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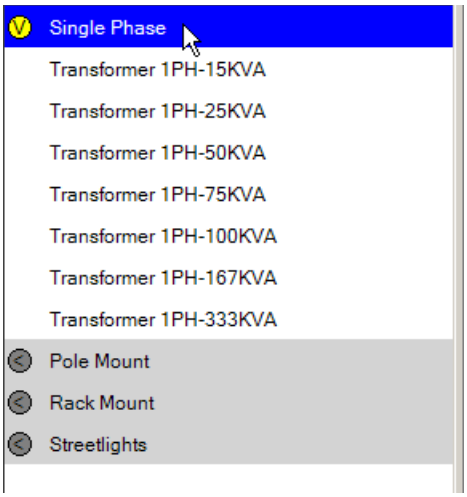
Adding Equipment

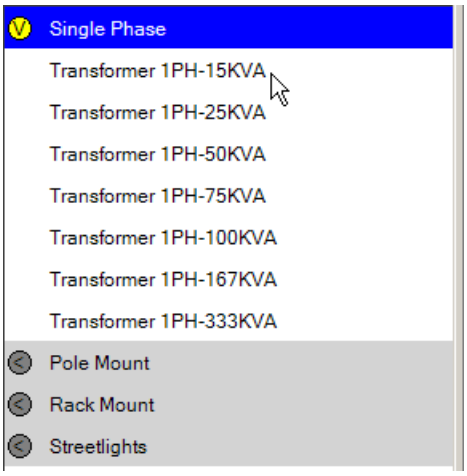
To add additional equipment to the pole, complete the following steps:

1. Select **Five - Equipment** button 

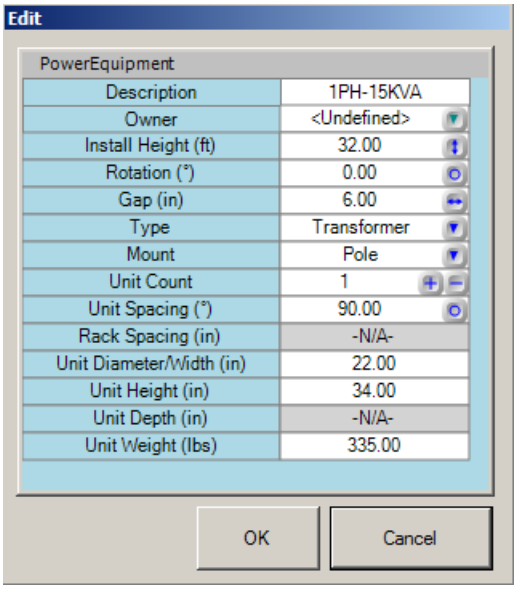
from the Wizard Steps Bar.
2. Expand an Equipment folder.



3. Select the Equipment you would like to add to the pole.



Note: *Only one piece of equipment can be added at a time.*



4. Modify the new equipment's attributes.
5. Select **OK**.

Note: *To undo the addition(s) of equipment, select the* ***Undo*** *button* 

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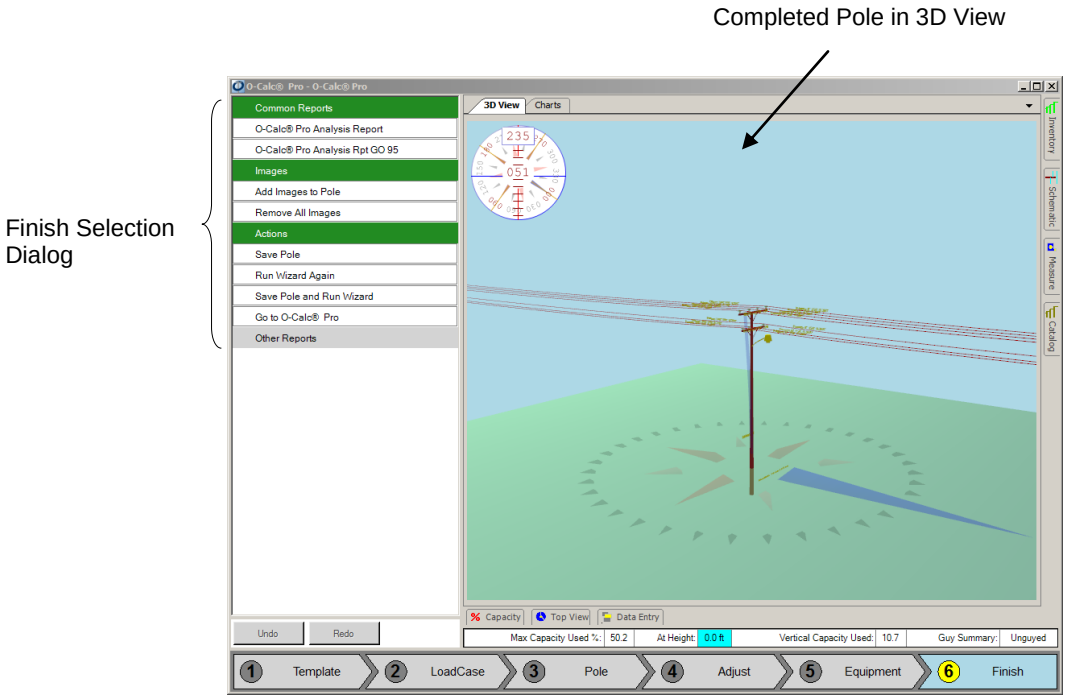
Finalizing the Wizard Tool Process

To finalize the work that has been completed in the Wizard, complete the following steps:

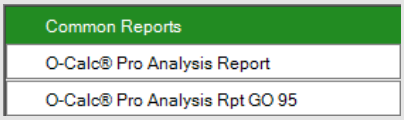
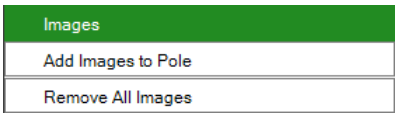
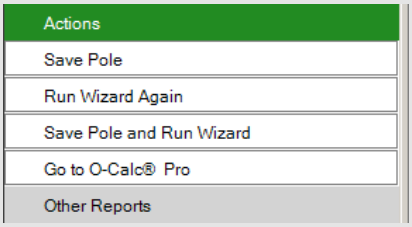
1. Select step **Six - Finish** button 

from the Wizard Steps Bar.



Options Within the Finish Step

The Finish step provides you with a variety of operation and options.

	**Common Reports**. Select a common report to complete a pole analysis.
	**Images**. The following options are available from the Images menu. **Add Images to Pole**. Select the Add Images to Pole option to add images that are associated to the current pole. **Remove All Images**. Select the Remove All Images option to remove all images that are associated to the current pole.
	**Actions**. The following options are available from the Actions menu. **Save Pole**. Select the Save Pole option to save the current pole. **Run Wizard Again**. Select the Run Wizard again option to restart the Wizard process. **Save Pole and Run Wizard**. Select the Save Pole and Run Wizard again option to save the current pole and restart the Wizard process. **Go to O-Calc® Pro**. Select the Go to O-Calc® Pro option to close the Wizard and return to O-Calc® Pro. **Other Reports**. The Other Reports menu offers specialized reports that are not normally considered common reports.

Viewing Common Reports

To view a common report in the Wizard, complete the following steps:

1. Select the report to be displayed from the **Common Reports** list.

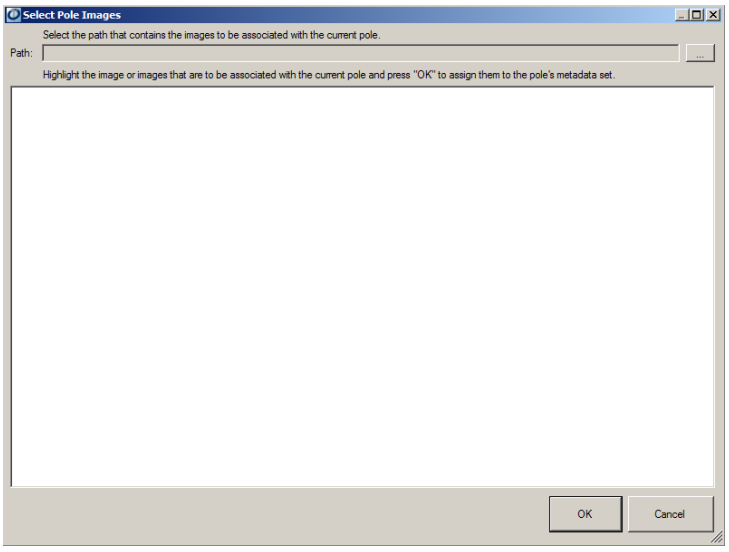
   Once a Report has been selected the report will automatically be loaded.

   Note: *The report may take a moment to load.*

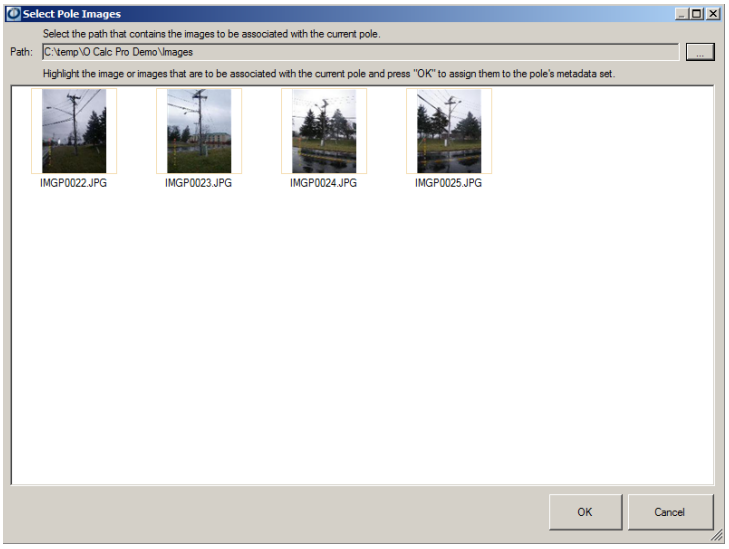
Adding Images to the Pole

To add images to the current pole in the Wizard, complete the following steps:

1. Select **Add Images to Pole**.



2. Select the Images Path **Browse** button and navigate to the location where the images to be associated with the current pole are located and click **OK**.



3. Select the images to be associated to the current pole.

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

4. Select **OK**.

   Note: *To undo the addition(s) of images, select the* ***Undo*** *button* Undo.

Removing Images From the Pole

To remove all the images that are associated to the pole in the Wizard, complete the following steps:

1. Select **Remove All Images**.

   Note: *There is no option to remove individual images.*

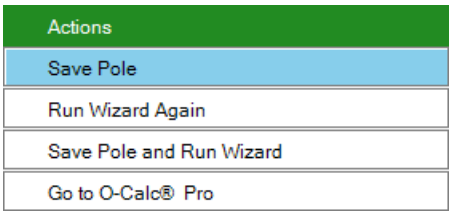
2. Select **Yes** to the confirmation message.

   Note: *To undo the removal of the images, select the* ***Undo*** *button* Undo.

Save the Pole

To save the pole in the Wizard, complete the following steps:

1. Select **Save Pole**



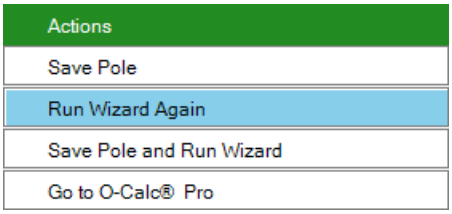
2. Browse to the location where you will save the pole and click **Save**.

3. Select **OK** to the confirmation message.

Run Wizard Again

To restart the Wizard again at step one, complete the following steps:

1. Select **Run Wizard Again**.

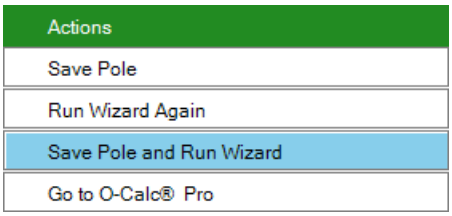


   Note: *If any changes have been made to the current pole you will be prompted to save your changes before the Wizard is restarted.*

Save the Pole and Run the Wizard Again

To save the current pole and restart the Wizard at step one, complete the following steps:

1. Select **Save Pole and Run Wizard**.



2. Browse to the location where you will save the pole and click **Save.**
3. Select **OK** to the confirmation message.

   Once the pole has been saved the Wizard will automatically be restarted.

Close the Wizard Tool

To close the Wizard and return to O-Calc® Pro, complete the following steps:

1. Select **Go to O-Calc® Pro**.

   Note: *The current pole in the Wizard will* ***not*** *be saved within the Wizard.*

Run a Specialized Report

To view a specialized report in the Wizard, complete the following steps:

1. Double click on the heading **Other Reports**.
2. Select the report to be displayed from the **Other Reports** list.

   Once a Report has been selected the report will automatically be loaded.

   Note: *The report may take a moment to load.*

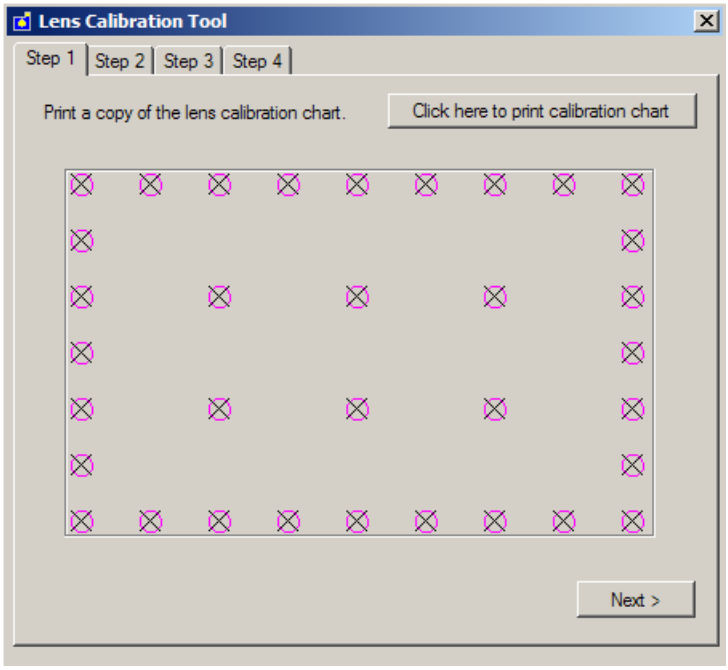
Working with the Lens Calibration Tool

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 enable the Lens Calibration Tool, complete the following steps:

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

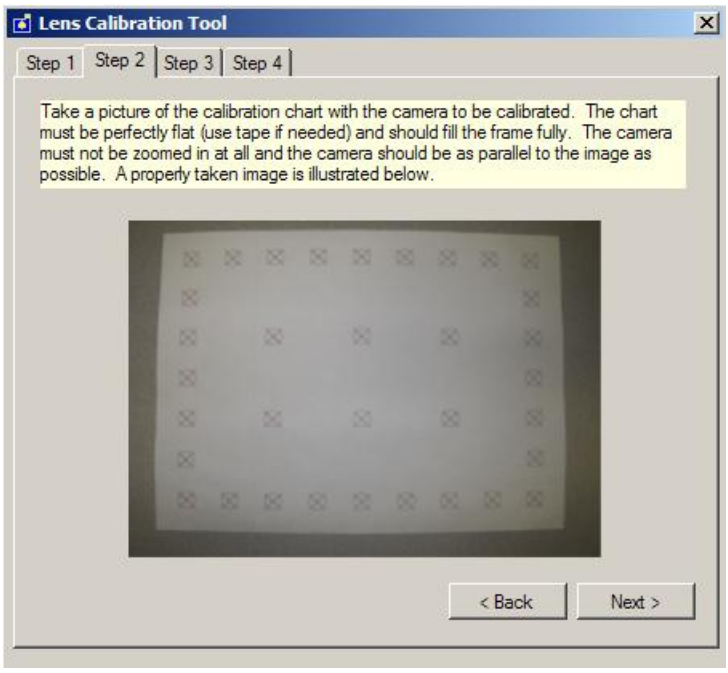


Working With the Lens Calibration Tool

Lens Calibration is a four step process. To complete the Lens Calibration process, complete the following steps:

1. Select the **Step 1** tab.
2. Click the **Click here to print calibration chart** button and print the calibration chart.

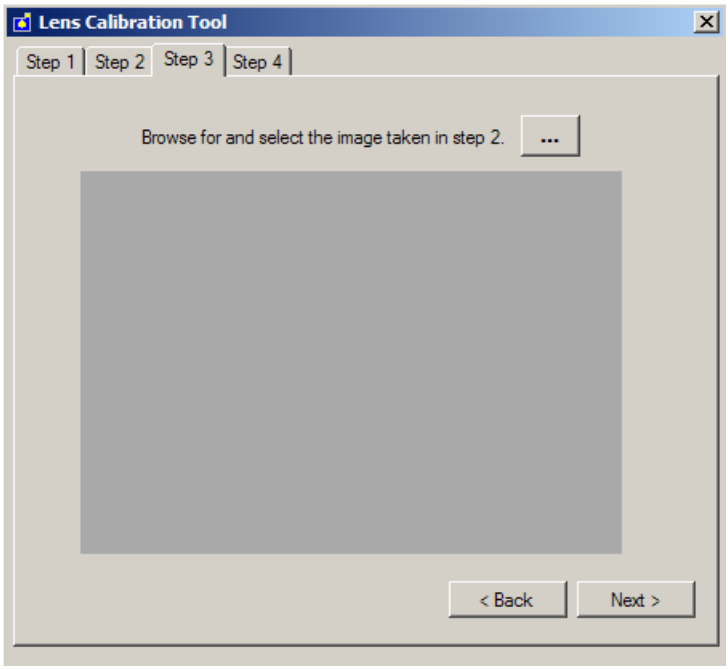
   Note: *You will need the printer calibration chart and the camera you need to calibrate to proceed to the next step.*
3. Click the **Next** button or select the **Step 2** tab.



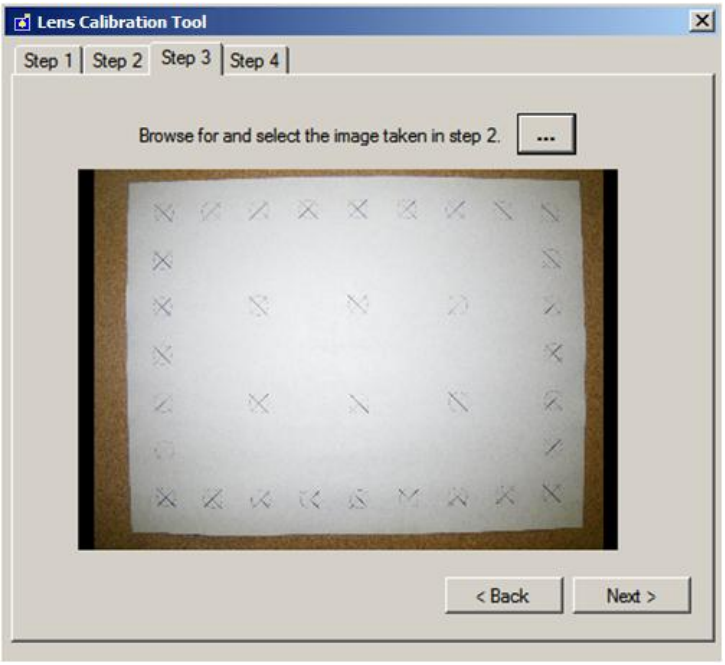
4. Using the camera that needs to be calibrated **take a picture** of the calibration chart that you printed out on the Step 1 tab.

   Note: *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 the lens calibration to be incorrect.*

5. Click the **Next** button or select the **Step 3** tab.



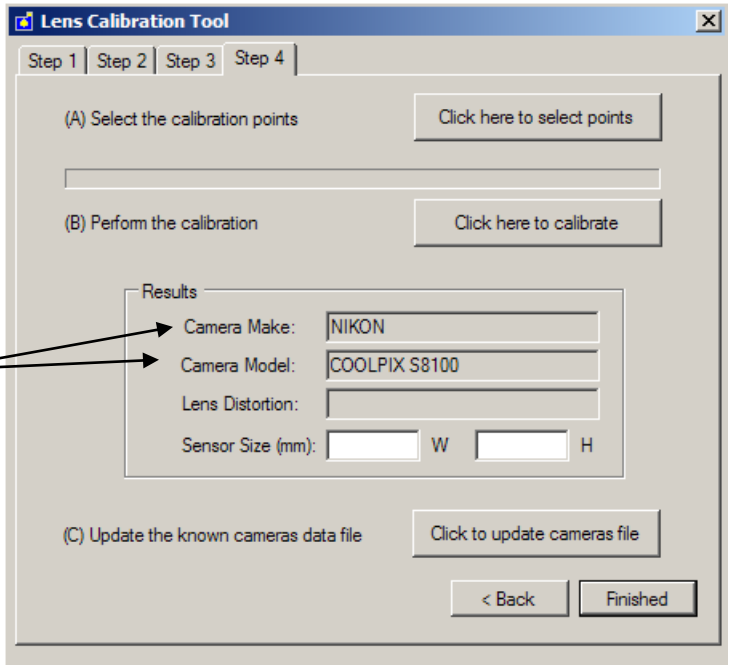
6. Click the **browse button** ··· and navigate to and select the image you tool of the calibration chart and click **Open**.
7. Your image should display in the Step 3 tab.



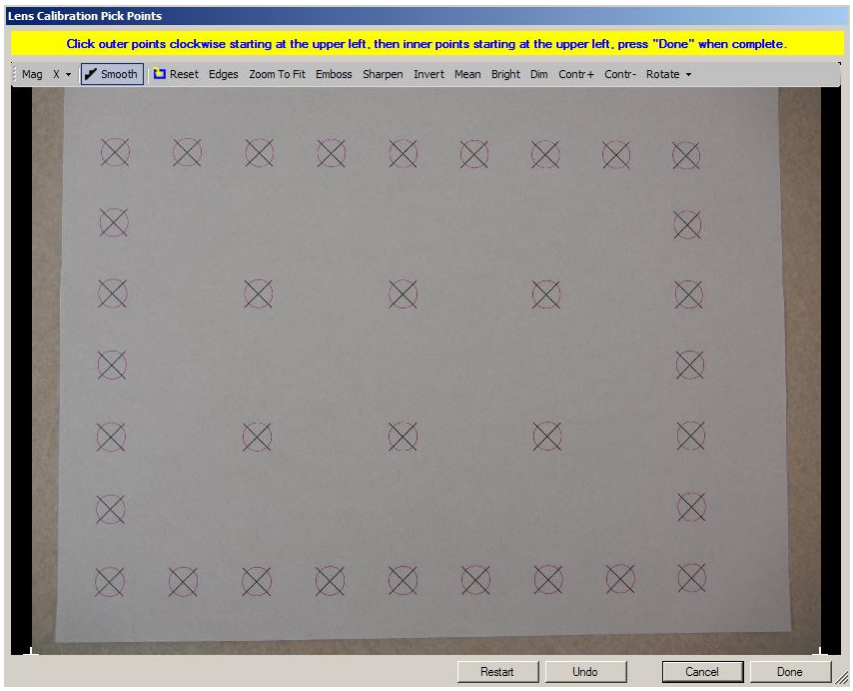
8. Click the **Next** button or select the **Step 4** tab.

Note: *Verify the Camera Make and Camera Model that display are correct.*

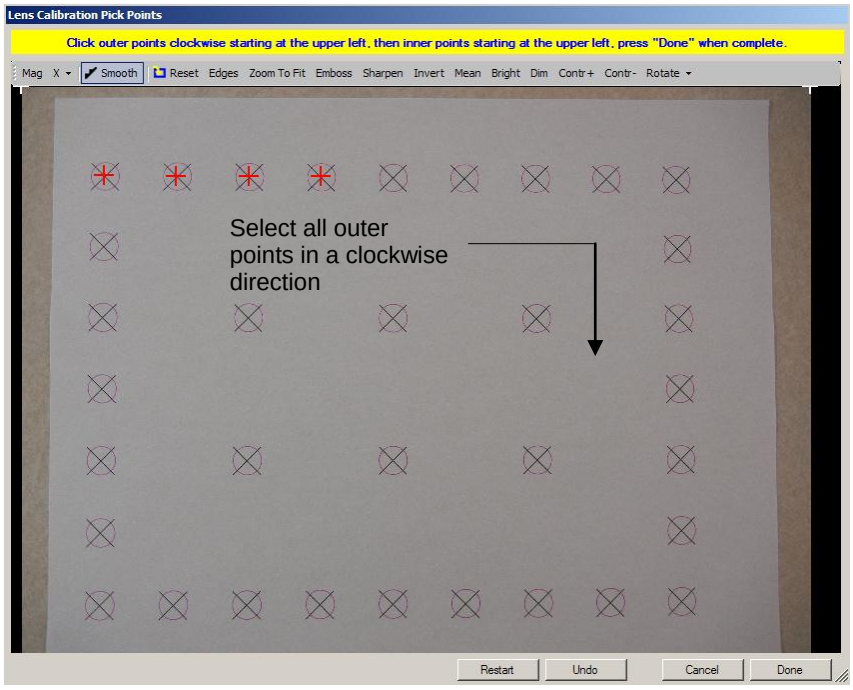
The Camera Make and Camera Model are automatically populated.

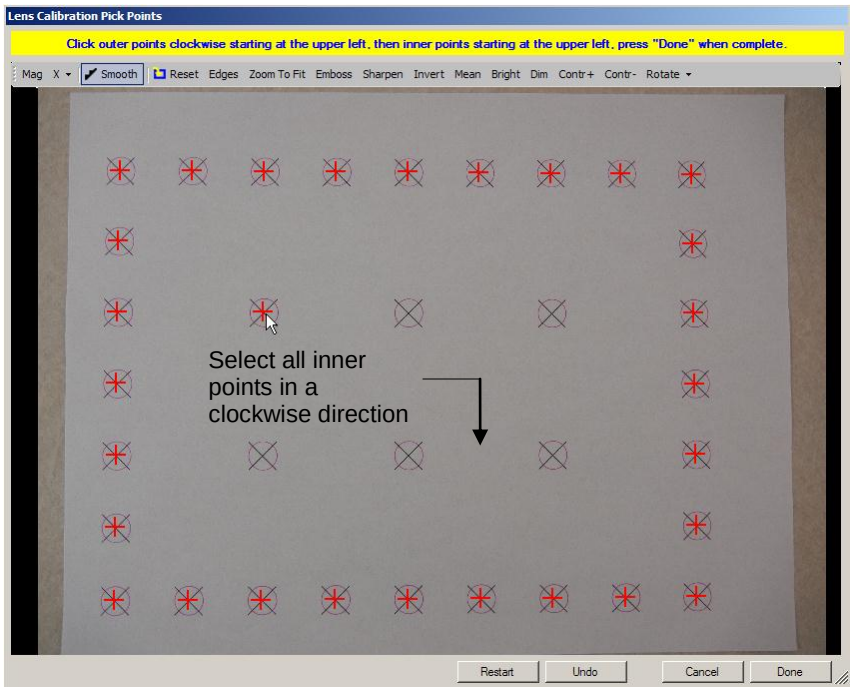


9. Click the **Click here to select points** button.

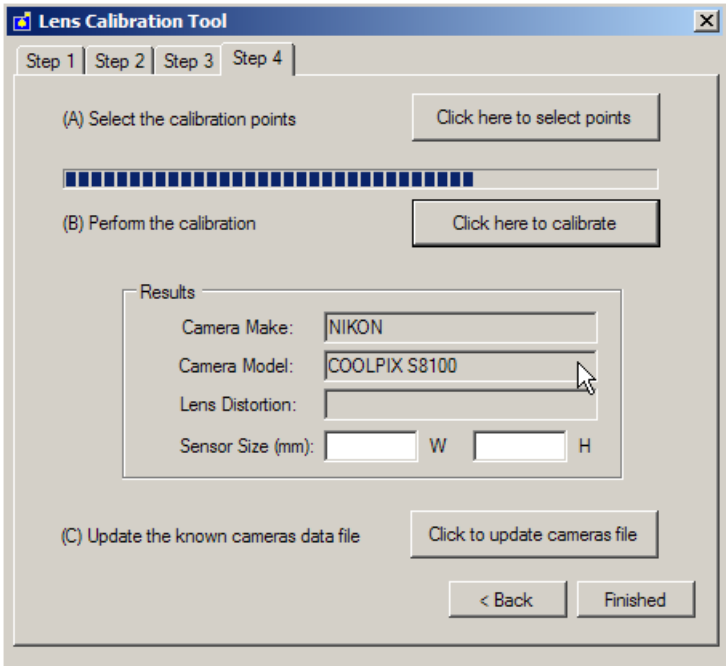


The Lens Calibration Pick Points window displays. Using the detailed directions provided **select each point** until <u>all</u> points are selected on the chart.



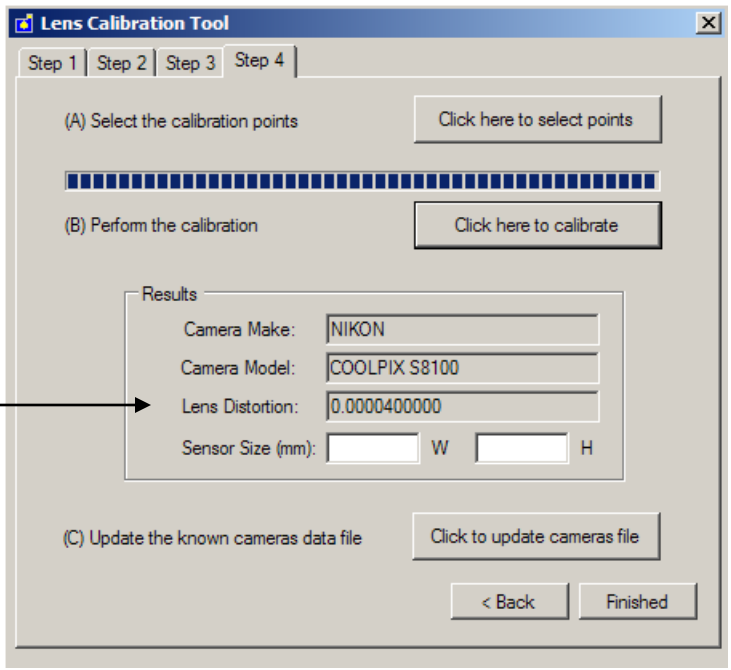


10. When all points are selected, click the **Done** button.
11. Click the **Click here to calibrate** button. The calibration status bar will display the lens calibration progress.



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

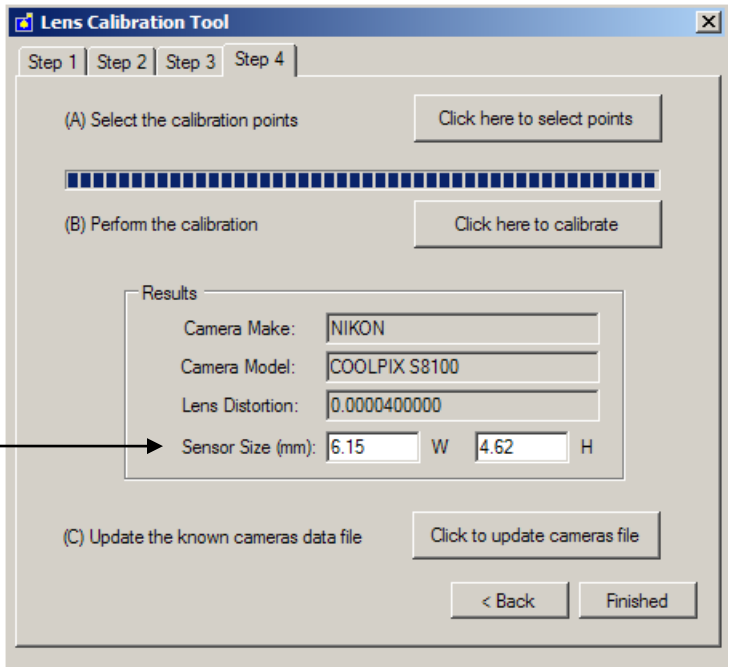
Lens Distortion is automatically populated once the calibration is complete.



12. Enter the **Sensor Size** in centimeters.

    Note: *A camera's sensor size can be found in the camera's user manual. If the user manual is not available camera sensor sizes maybe obtained on-line at* http://www.dpreview.com/reviews/specs.asp .

Manually enter the Sensor Size

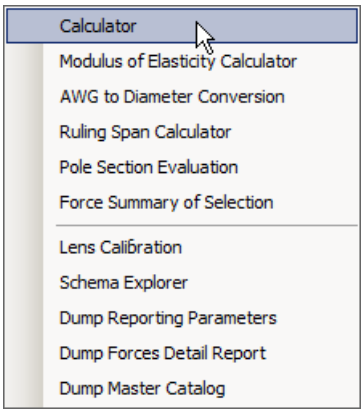


13. Click the **Click to update camera file** button.
14. Select **OK** to the verification message that the camera has been added to the supported camera database.
15. Select **Finished** to close the Lens Calibration Tool.

Working with the Calculator

A basic calculator is provided to help with simple calculation or conversions. To access the calculator, complete the following steps:

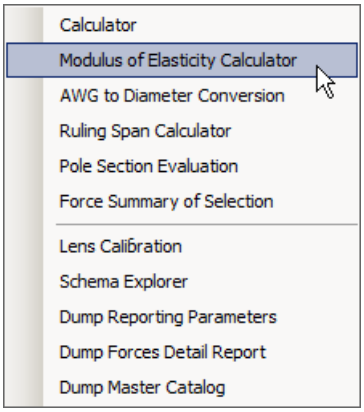
1. Select **Tools>Misc>Calculator**.



Working with the Modulus of Elasticity Calculator

To create a Modulus of Elasticity (MOE) calculation for reference only, complete the following steps:

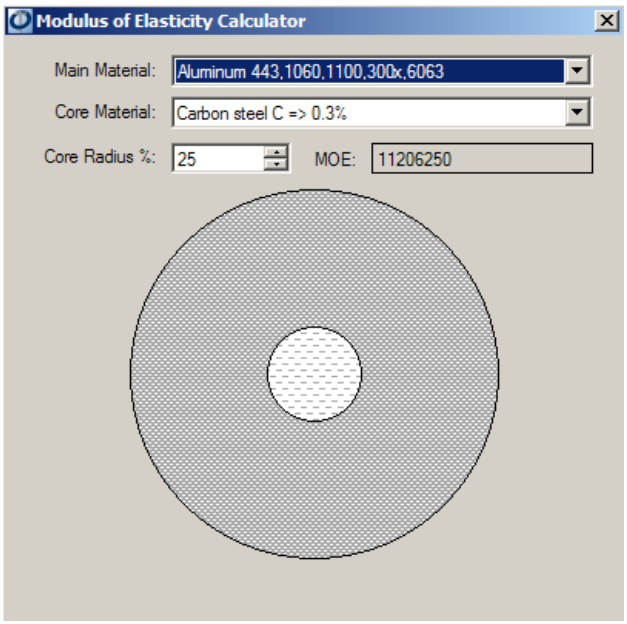
1. Select **Tools>Misc>Modulus of Elasticity Calculator**.



Note: *A pole does not need to be loaded in the Inventory Window in order to use the Modulus of Elasticity Calculator.*

2. Select the **Main Material** from the drop down list.
3. Select the **Core Material** from the drop down list.
4. Enter the **Core Radius %**.

   The Modulus of Elasticity (MOE) is automatically calculated.



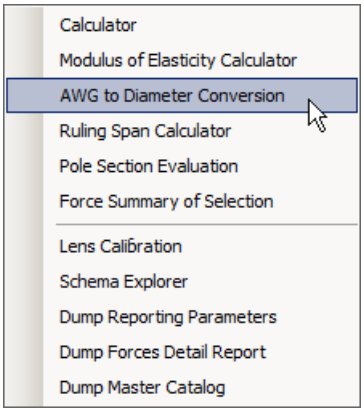
5. Select the X in the upper right corner to close the window.

   Note: *The Modulus of Elasticity Calculation cannot be applied to a currently loaded pole. This calculation is for reference only.*

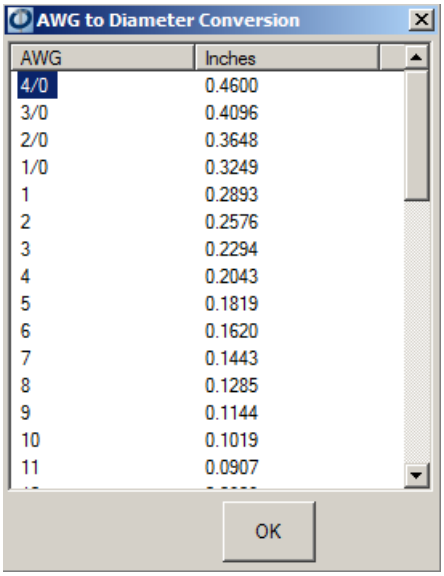
Viewing the AWG to Diameter Conversions

To display the AWG to Diameter conversions, complete the following steps:

1. Select **Tools>Misc>AWG to Diameter Conversion**.



   Note: *A pole does not need to be loaded in the Inventory Window in order to display the AWG to Diameter Conversion window.*

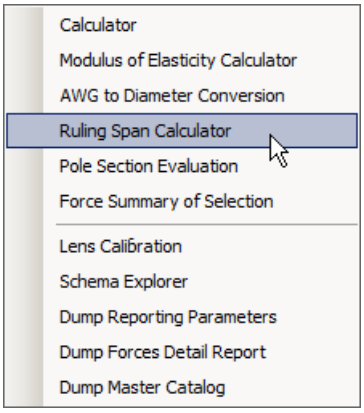


2. Select **OK** to close the window.

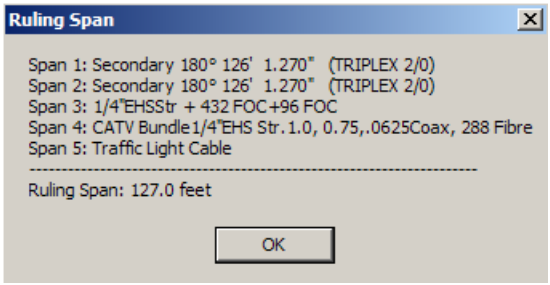
Working with the Ruling Span Calculator

To calculate the ruling span for reference only, complete the following steps:

1. Select more than one span in the Inventory Window or 3D View.
2. Select **Tools> Misc>Ruling Span Calculator**.



Note: *The Ruling Span Calculation cannot be applied to the currently loaded pole. This calculation is for reference only.*

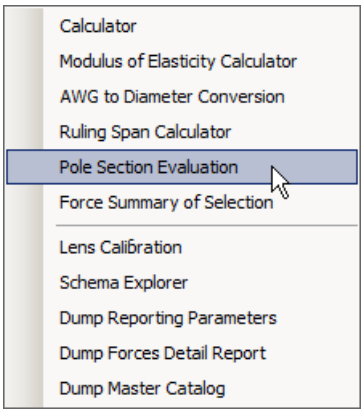


3. Select **OK** to close the window.

Working with the Pole Section Evaluation

To evaluate damage and decay on the pole for reference only, complete the following steps:

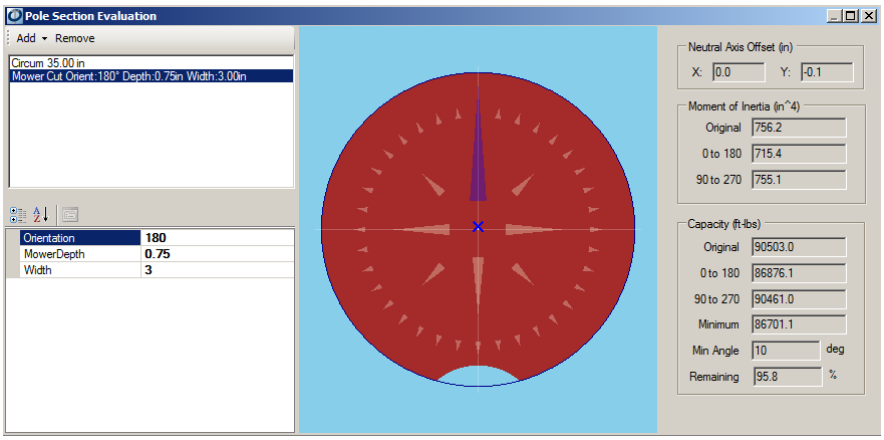
1. Select **Tools> Misc>Pole Section Evaluation**.



2. Select **Add** and select a damage or decay item from drop down list.

   Note: *To remove a damage or decay item from your list select the item to be removed and select* ***Remove*** *from the toolbar.*

3. Modify the damage or decay **attributes**.

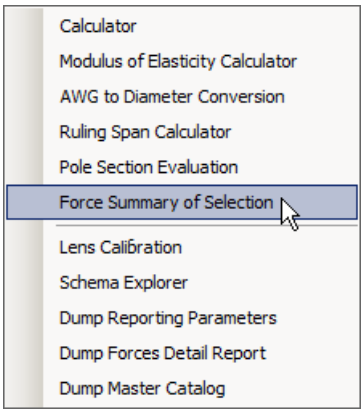


Note: *The calculations are updated automatically and are not editable.*

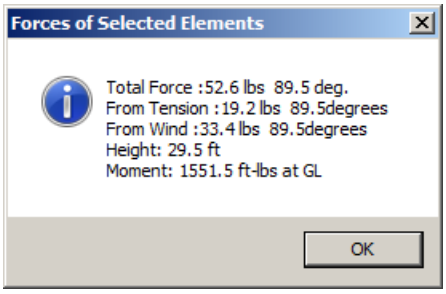
Working with the Force Summary of Selection

To display the force summary of the selected object(s) in the Inventory Window, complete the following steps:

1. Select **Tools> Misc>Force Summary of Selection**.



Note: *At least one object needs to be selected in the Inventory Window in order to display the Force Summary of Selection window.*

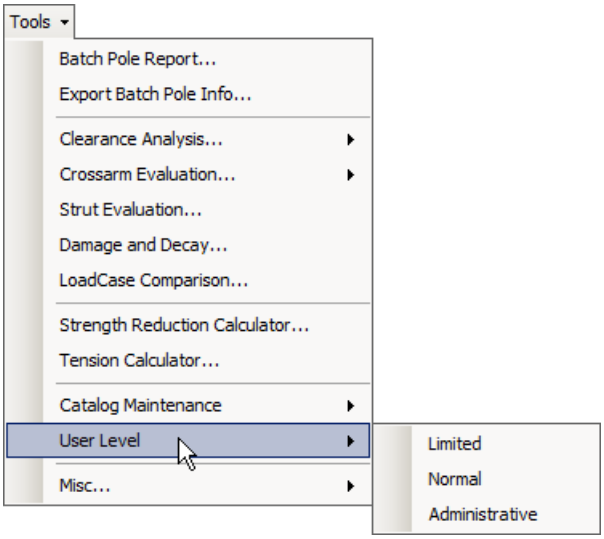


2. Select **OK** to close the window.

Changing Access Permission

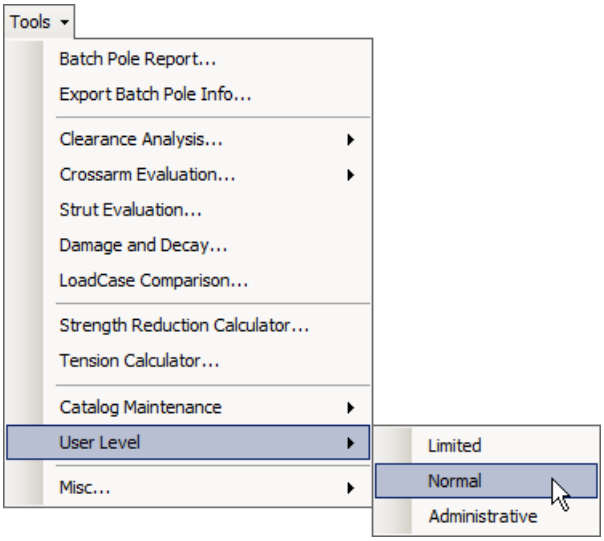
To change your access permission, complete the following steps:

1. Select **Tools>User Level**.



Note: *The User Level can also be updated by left clicking on the User Level in the Status Bar and selected the preferred User Level.*

2. Select the desired User Level.



3. Select **OK** to the confirmation message.

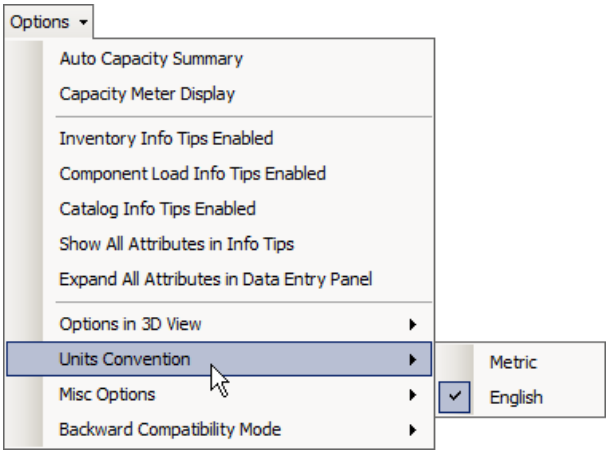
Note: *The current User Level will automatically be updated at the bottom of the Status Bar.*

Note: *Changes to the User Level are per O-Calc® Pro session. Any changes to the User Level are not permanent. For additional information on O-Calc® Pro Security Level, see* *O-Calc ® Pro Security Administration*.

Change the Unit Convention

To change the unit convention, complete the following steps:

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



Note: *English is the default unit convention when the application is initially installed.*

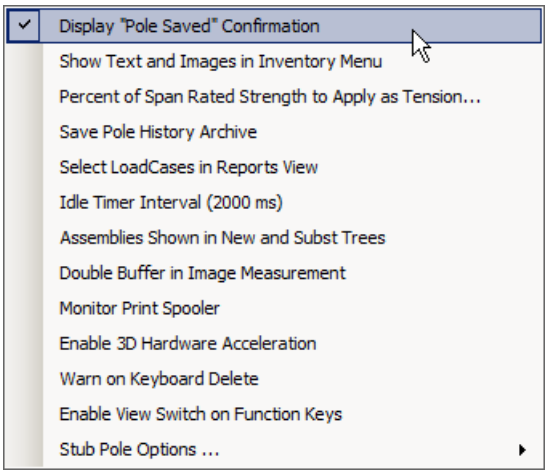
2. Select the unit convention from the options provided.

   Note: *A check mark will display next to the selected unit convention when it is enabled.*

Change the Pole Saved Confirmation Message

To change if the "Pole Saved" confirmation message displays, complete the following steps:

1. To enable\disable the Pole Saved confirmation message option, select **Options>Misc Options>Display "Pole Saved" Confirmation**.



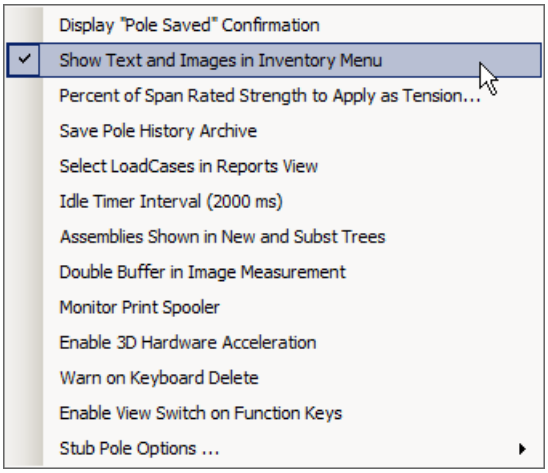
Note: *The Display "Pole Saved" Confirmation option is enabled when the application is initially installed.*

Note: *When the Display "Pole Saved" Confirmation option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Change the Inventory Window Toolbar Display

To change if the Inventory Window toolbar displays text next to each image, complete the following steps:

1. To enable\disable the text that displays next to each image in the Inventory Window toolbar, select **Options>Misc Options>Show Text and Images in Inventory Menu**.

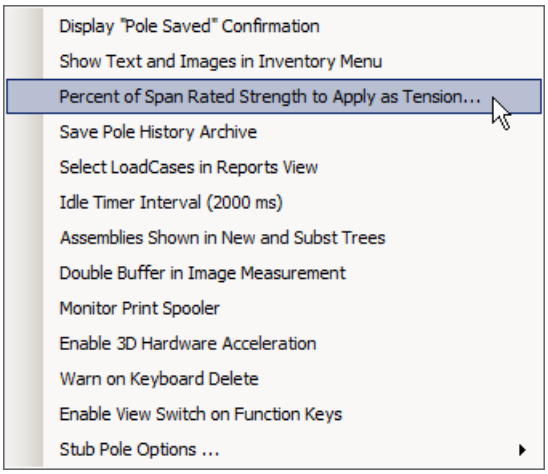


Note: *When the Show Text and Images in Inventory Menu option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Modifying Span's Default Rated Strength Percentage

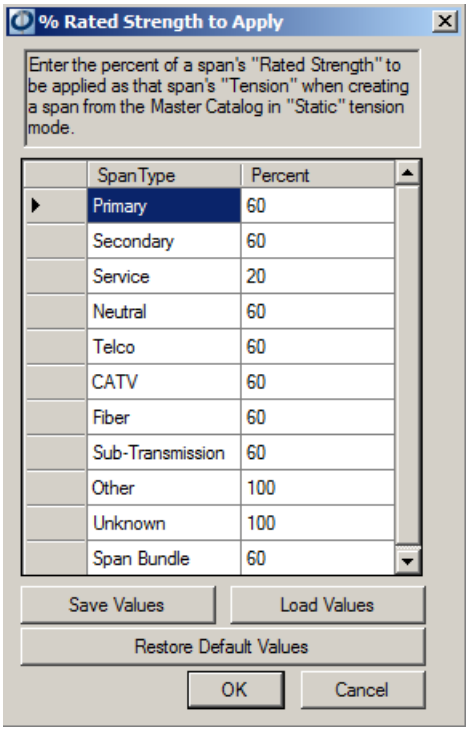
When a span is copied from the Master Catalog where the tension mode is "Static" or "Manual" a default percentage of a spans rated strength is used to calculate the span's tension. The default percentage for each type of span can be changed at any time by completing the following steps:

1. Select **Options>Misc Options>Percent of Span Rated Strength to Apply as Tension**.



2. Select the **Span's Percent** you would like to change and enter the new default percentage you would like to use for the selected span.

   Note: *To load a Save Percent of Tension Set select the* ***Load Values*** *button* Load Values *and browse to the location of the file.*



   Note: *This value will not be applied if the span is a subcomponent of complex assembly.*

3. Select the **Save Values** button Save Values to save the currently displayed percent of tensions set as a file.

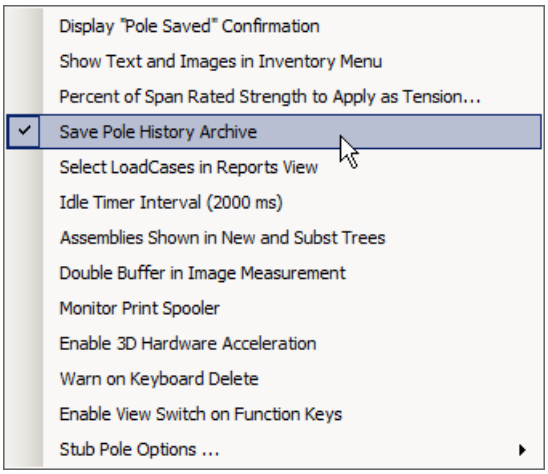
4. Select **OK**.

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

Working with Pole History Archive

The Pole History Archive provides an audit trail 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 enables you to review previous revisions to a pole and even revert to a pole's previous revision. To enable and use the Pole History Archive, complete the following steps:

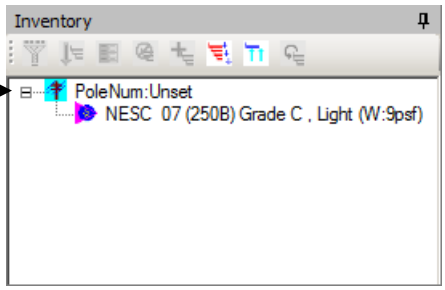
1. Select **Options>Misc Options>Save Pole History Archive**.



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 Window and save the pole using the **File>Save Pole** option.

New pole created in the Inventory Window

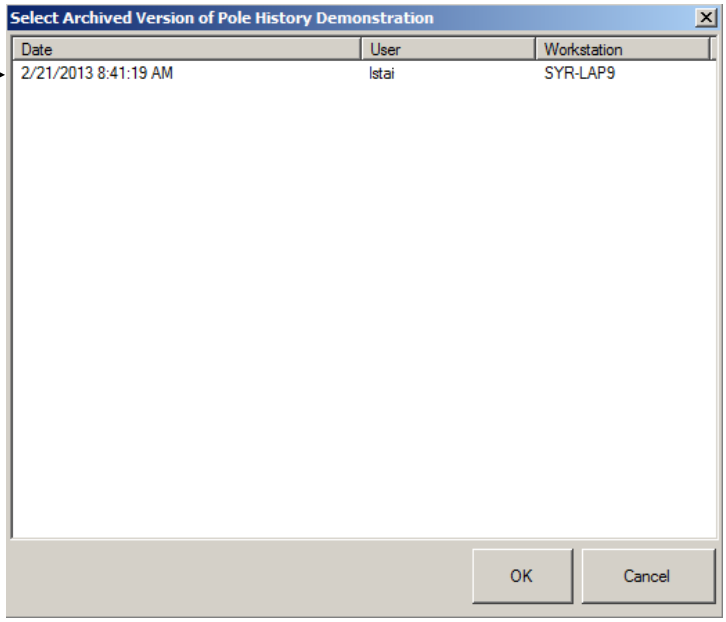


The first time the pole is saved a Pole History Archive file is created.

3. To review the pole's history archive, select **File> More Options>Open Archived Pole**. Browse to the location of the saved pole and select the (pole name).pplx file.

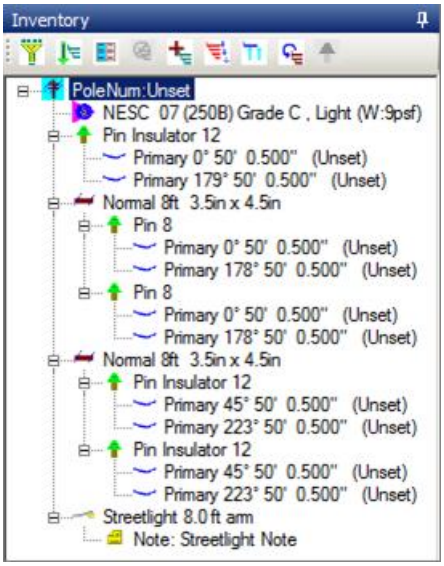
Note: *The Open Archived Pole option is only visible when the Save Pole History Archive option is enabled.*

Saved pole's initial Revision History entry



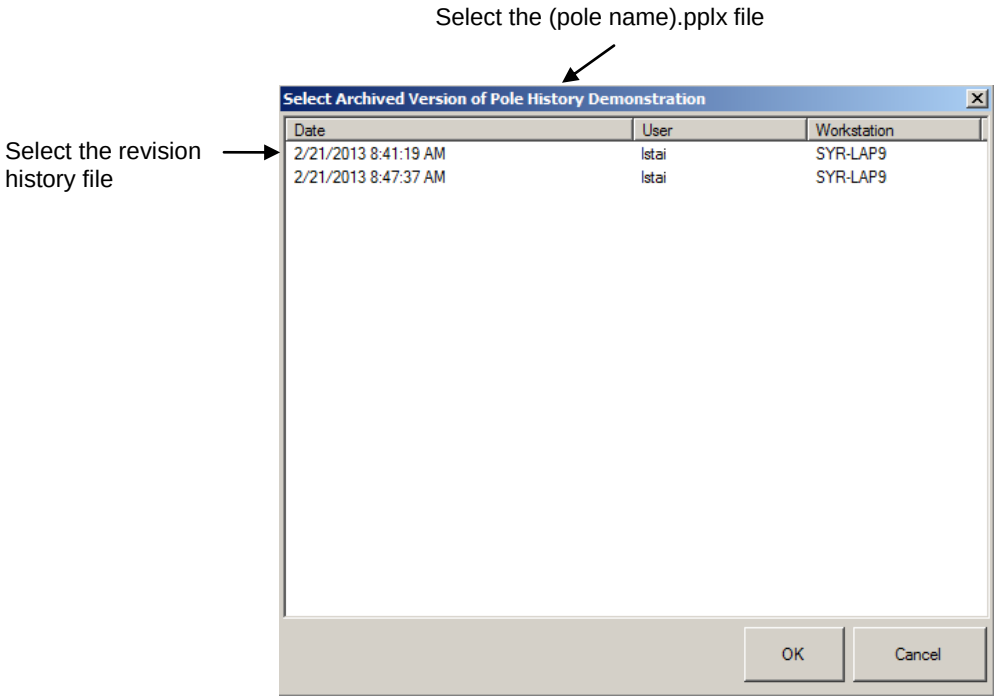
4. Complete modifications to the current pole in the Inventory Window and save the pole using the **File>Save Pole** option. Demo

Active pole with objects added

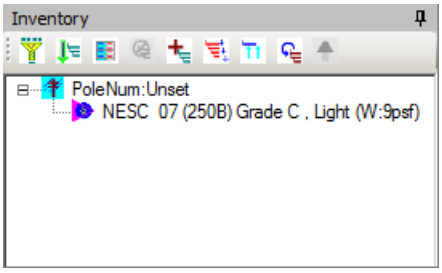


The Revision History area is automatically updated.

5. 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 would like work with.



6. Select **Open Archived Version**.

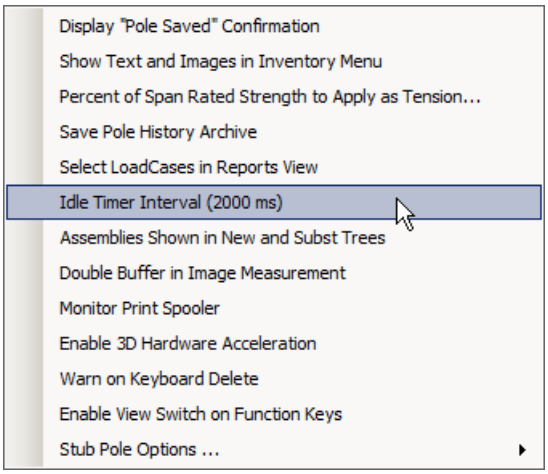


The selected Revision History snapshot is loaded in the Inventory Window and can be reviewed. The pole is completely editable at this time and it can be modified and saved. If the revision is saved, it will then become the **active version** of that pole and replace the .pplx file. For safety, a new revision history record will be added at that time that stores a snapshot of the previously saved version of the pole.

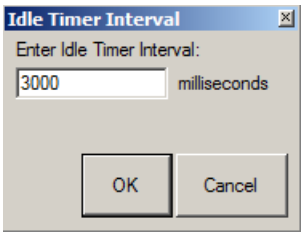
Set the Idle Time Interval

To set the idle time before calculations are calculated, complete the following steps:

1. Select **Options>Misc Options>Idle Timer Interval (*currently set time*)**.



2. Enter the **Idle Timer Interval**.



Note: *The Idle Time Interval can be set to a minimum 1000 milliseconds and a maximum of 5000 milliseconds.*

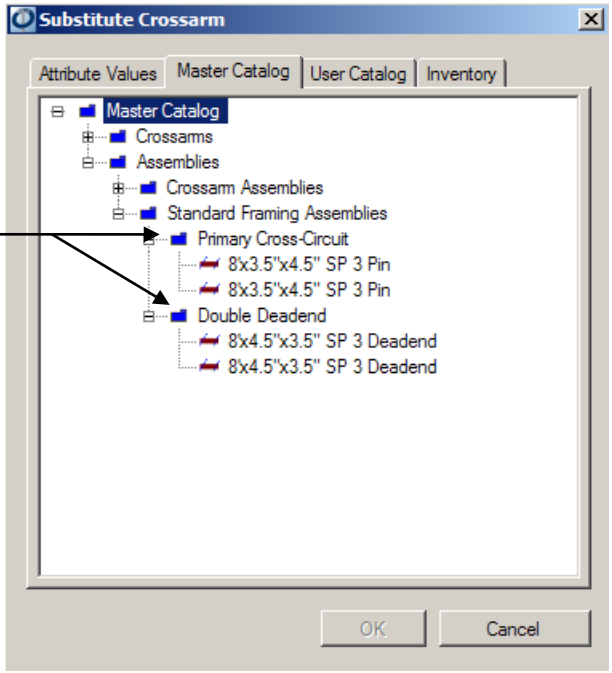
Note: *The Auto Capacity Summary option needs to be enabled in order for the Idle Timer to activate.*

3. Select **OK**.

Display Assemblies in the Tree View

By default when adding or substituting a pole or attached equipment the assemblies are not displayed in the tree view unless they display directly under a folder.

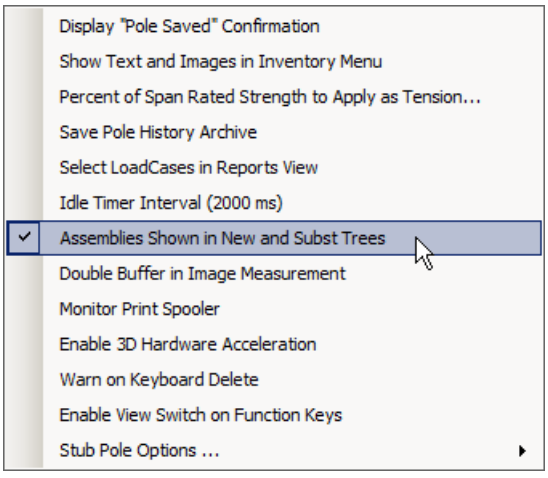
With the option by default disabled the equipment needs to be directly under a folder. If the equipment is not directly under the folder in the tree view the folder will not be displayed.



Note: *The example above displays using the Substitute option with the Display Assemblies in the Tree View by default disabled.*

To display assemblies without regard to where they display in the tree view, complete the following steps:

1. Select **Options>Misc Options>Assemblies Shown in New and Subst Trees**.

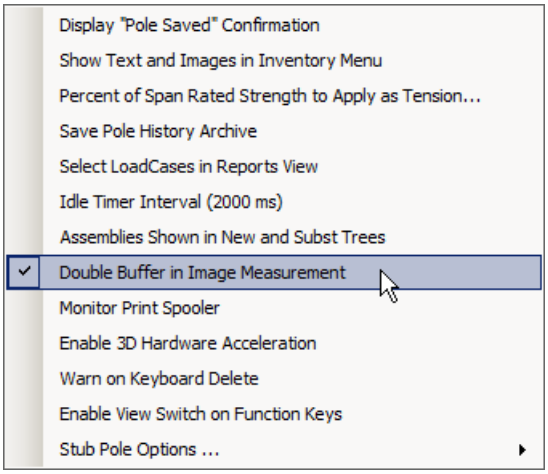


Note: *When the Assemblies Shown in New and Subst Trees option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Buffering 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 in an attempt to reduce memory consumption and increate performance at the expense of increased image flickering. To enable double buffering in the Measurement Window, complete the following steps:

1. Select **Options>Misc Options>Double Buffer in Image Measurement**.



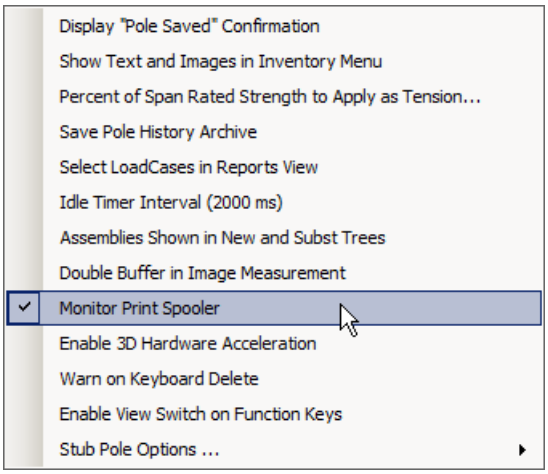
Note: *When the Double Buffer in Image Measurement option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Note: *To review a complete list of O-Calc ® Pro system requirements, see System Requirements.*

Monitor Print Spooling

When printing reports you can enable monitoring of the print spooling to ensure uninterrupted printing. With this option enabled your selected reports will not be printed until the print queue is empty. This helps ensure that reports will be printed in the order selected. To enable the monitoring of the print spooling, complete the following steps:

1. Select **Options>Misc Options>Monitor Print Spooler**.

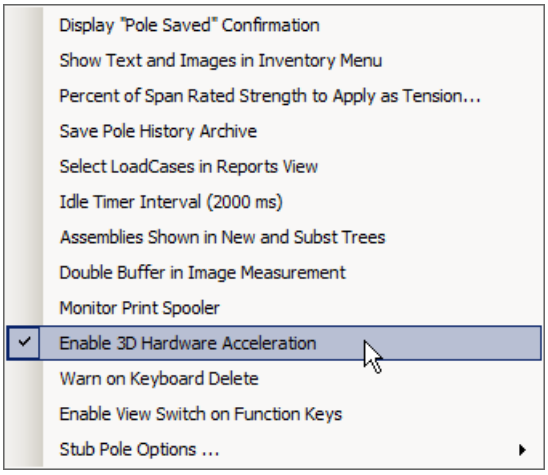


Note: *When the Monitor Print Spooler option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Enable 3D Hardware Acceleration

O-Calc ® Pro uses the advanced graphical processing unit of the graphics card to accelerate 3D rendering and processing. This feature requires that the graphics card meet WDDM 1.0 or higher and be fully Direct 3D compliant. If your graphics card does not meet those requirements you may disable the use of 3D hardware acceleration. This will result in severely reduced 3D rendering performance. To enable the 3D Hardware Acceleration, complete the following steps:

1. Select **Options>Misc Options>Enable 3D Hardware Acceleration**.

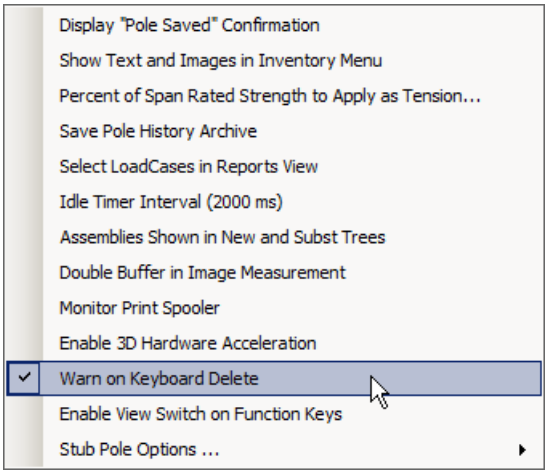


Note: *When the Enable 3D Hardware Acceleration option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Change the Keyboard Delete Confirmation Message

When deleting objects in the Inventory Window using the delete button on your keyboard a delete confirmation message is displayed. This message can be enabled or disabled according to your needs. To change if the delete confirmation message display, complete the following steps:

1. To enable/disable the Delete confirmation message option select **Options>Misc Options>Warn on Keyboard Delete**.



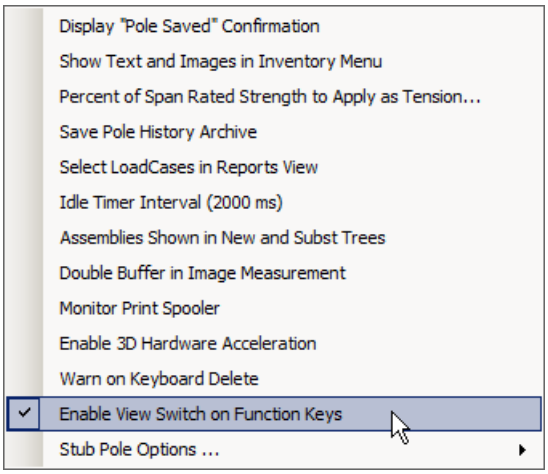
Note: *The Warn on Keyboard Delete option is enabled when the application is initially installed.*

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.*

Switching Views Using Function Keys

To easily switch between the O-Calc ® Pro views keyboard function keys have been enabled. To work with the function keys, complete the following steps:

1. To enable/disable the Enable View Switch on Function Keys option select **Options>Misc Options>Enable View Switch on Function Keys**.



Note: *When the Enable View Switch on Function Keys option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

When Function Keys are enabled the following function keys are available:

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 Window.
F4	Press F4 to switch to the Measure Window.
F5	Press F5 to switch to the Catalog Window.
F6	Press F6 to switch to the Inventory Window.
F7	Press F7 to switch to the Capacity Window.
F8	Press F8 to switch to the Schematic Window.
F9	Press F9 to switch to the Top View Window.
F12	Press F12 to switch the 3D View to the Bird's Eye View.

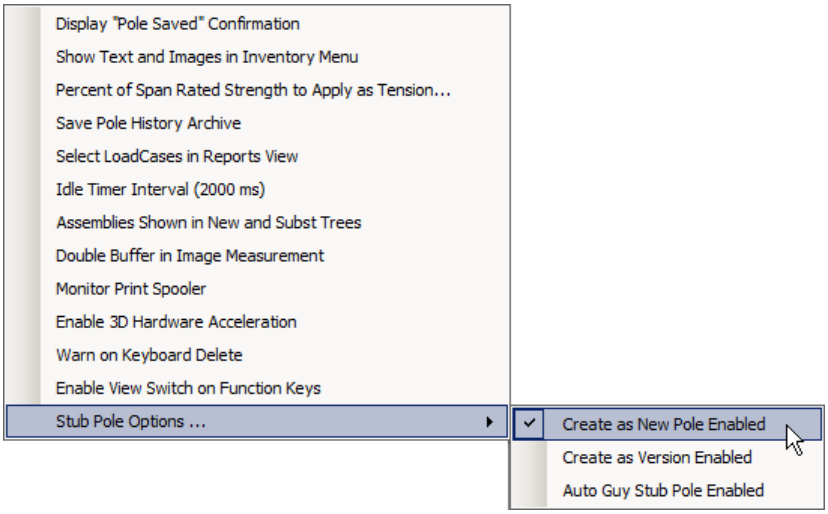
Working with the Stub Pole Menu Options

While performing 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.

Enabling the Ability to Create a New Stub Pole

To enable/disable the right click menu options to create a new stub pole as a new pole analysis, complete the following steps:

1. To enable/disable the Create as New Pole option select **Options>Misc Options>Stub Pole Options>Create as New Pole Enabled**.



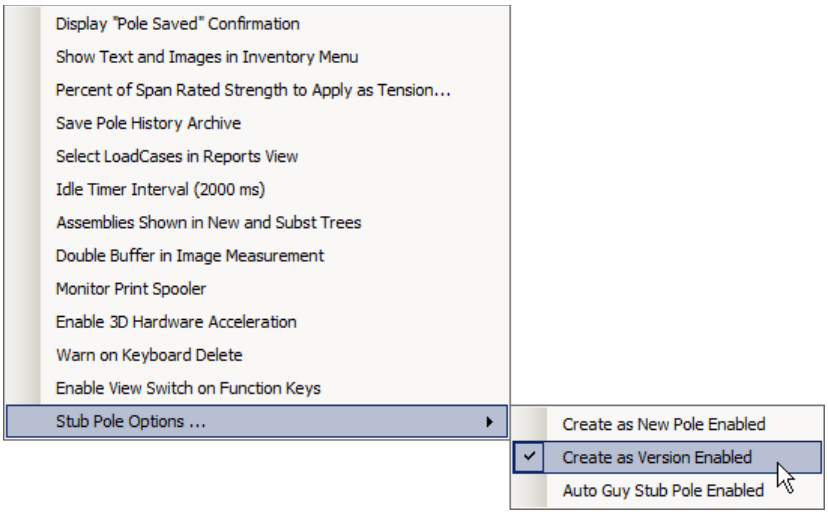
Note: *When the Create as New Pole Enabled option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Note: *At least one of the Stub Pole "Create" options needs to be enabled.*

Enabling the Ability to Create a New Version of the Stub Pole

To enable/disable the right click menu option to create a new version of the existing stub pole, complete the following steps:

1. To enable/disable the Create as Version Enabled option select **Options>Misc Options>Stub Pole Options>Create as Version Enabled**.



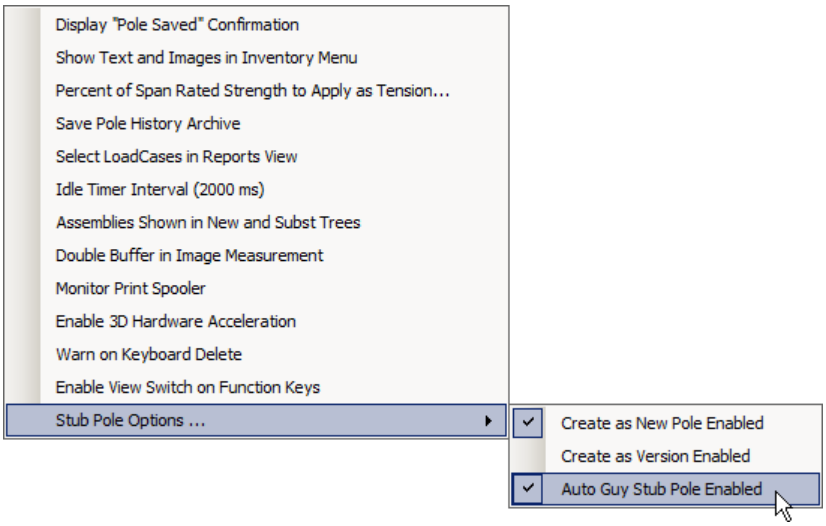
Note: *When the Create as Version Enabled option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Note: *At least one of the Stub Pole "Create" options needs to be enabled.*

Enabling the Ability to Auto Guy a New Stub Pole

To enable/disable the right click menu option to automatically auto guy a new stub pole, complete the following steps:

1. To enable/disable the Auto Guy Stub Pole option select **Options>Misc Options>Stub Pole Options>Auto Guy Stub Pole Enabled**.



Note: *When the Auto Guy Stub Pole Enabled option is enabled a check mark will display next to the menu option. When the option is disabled the check mark is not displayed.*

Working with Catalog Maintenance

O-Calc® Pro provides the ability to export and import both the Master Catalog and the User Catalog. You can export or import the entire Master Catalog or just a subfolder within the Master Catalog. When importing an entire Master Catalog it is important to note that it will completely overwrite the existing Master Catalog. When using the export and import option in the User Catalog only folders within the User Catalog can be exported or imported.

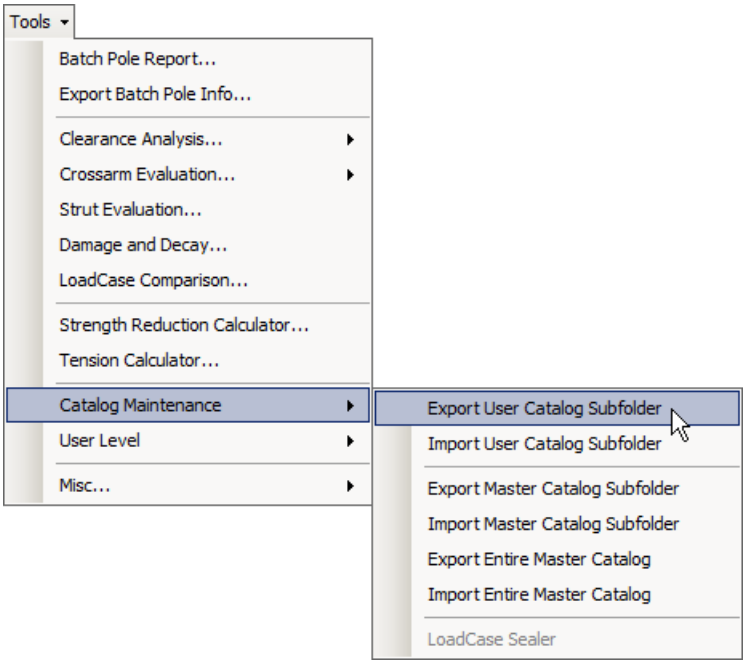
Exporting the User Catalog

To export your entire Users Catalog or just a subfolder within your User Catalog, complete the following steps:

1. Select the User Catalog folder or a subfolder within the User Catalog folder that you want to export.

   Note: *When selecting the entire User Catalog or just a subfolder of it you have to select the User Catalog to be exported at the folder level.*

2. Select **Tools> Catalog Maintenance>Export User Catalog Subfolder**.

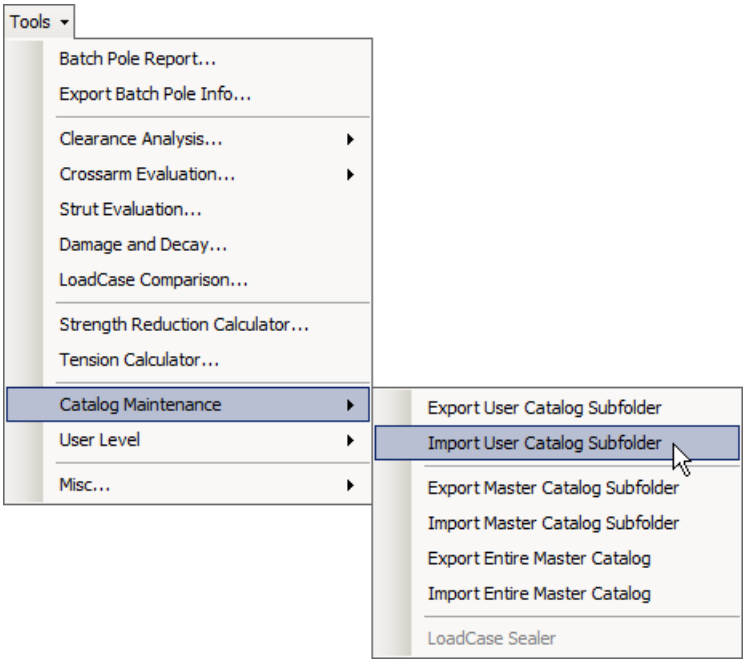


3. **Browse** to the location you would like the User Catalog saved to and **enter** a User Catalog file name.
4. Click **Save**.
5. Select **OK** to the export confirmation message.

Importing a User Catalog

To import a User's Catalog, complete the following steps:

1. Select the User Catalog folder you want to import a User Catalog into.
2. Select **Tools> Catalog Maintenance>Import User Catalog Subfolder**.



3. **Browse** to the location of the User Catalog you want to import and select the (*User Catalog name*).pplu file and click **Open**.

   The new User Catalog is automatically imported into the selected User Catalog subfolder.

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

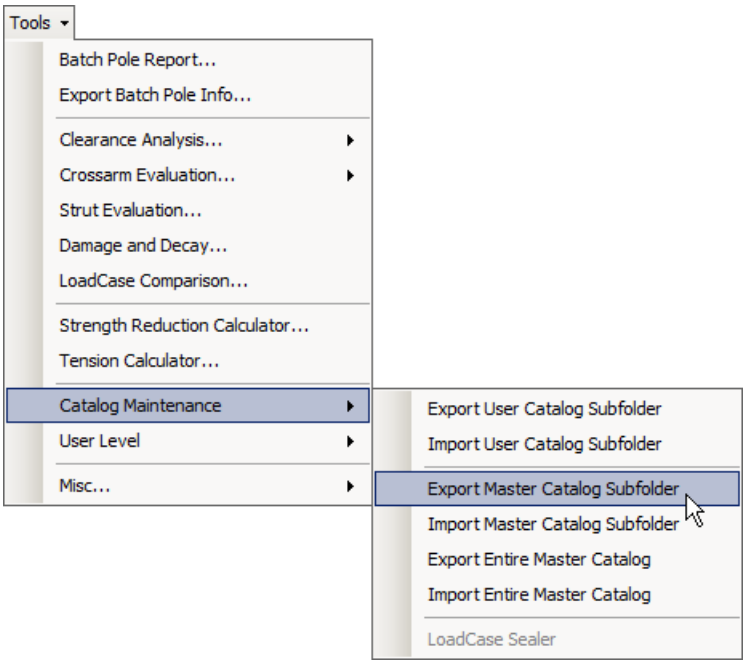
Exporting a Master Catalog Subfolder

To export a Master Catalog subfolder, complete the following steps:

1. Select the Master Catalog subfolder you want to export.

   Note: *When exporting from the Master Catalog you have to select the Master Catalog subfolder at the folder level.*

2. Select **Tools> Catalog Maintenance>Export Master Catalog Subfolder**.

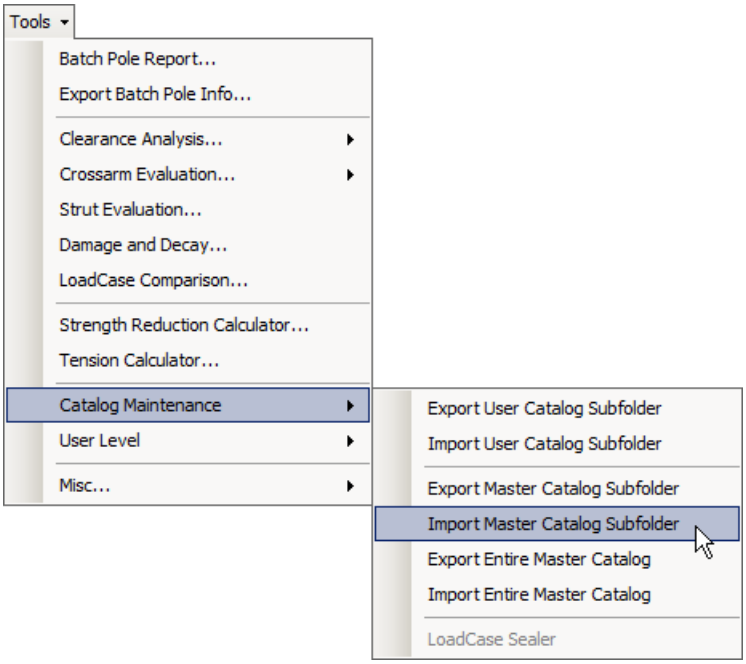


3. **Browse** to the location you would like the Master Catalog subfolder saved to and **enter** a Master Catalog subfolder file name.
4. Click **Save**.
5. Select **OK** to the export confirmation message.

Importing a Master Catalog Subfolder

To import a Master Catalog subfolder, complete the following steps:

1. Select the Master Catalog subfolder you want to import the Master Catalog subfolder into.
2. Select **Tools> Catalog Maintenance>Import Master Catalog Subfolder**.



3. **Browse** to the location of the Master Catalog you want to import and select the (*Master Catalog subfolder name*).pplm file and click **Open**.

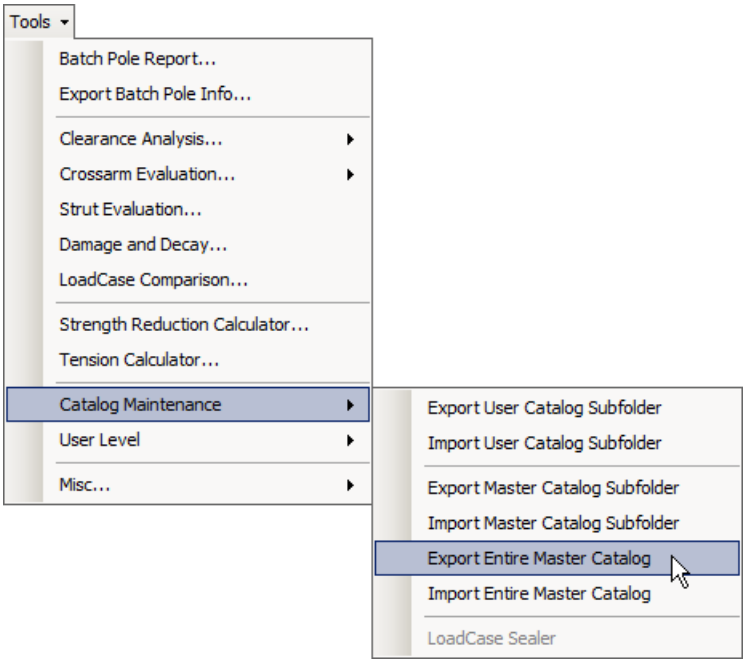
   The new Master Catalog subfolder is automatically imported into the selected Master Catalog subfolder.

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

Exporting the Master Catalog

To export your entire Master Catalog, complete the following steps:

1. Select **Tools> Catalog Maintenance>Export Entire Master Catalog**.



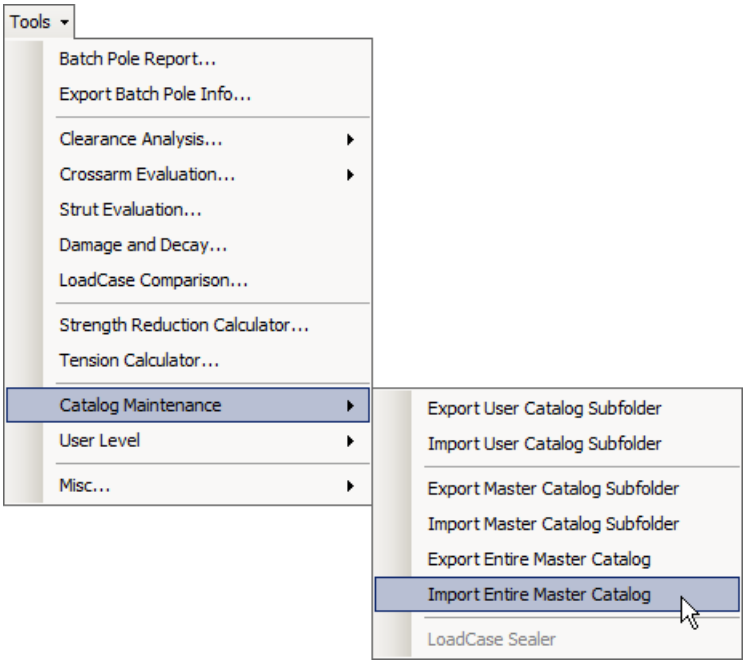
2. **Browse** to the location you would like the Master Catalog saved to and **enter** a Master Catalog file name.
3. Click **Save**.
4. Select **OK** to the export confirmation message.

Importing a Master Catalog

Importing an entire Master Catalog will replace your existing Master Catalog. Any customizations that have been completed in your current Master Catalog will be lost. A backup copy of your current Master Catalog will be created when an entire Master Catalog is imported. To import an entire Master Catalog, complete the following steps:

Note: *Extreme caution should be used when choosing to import an entire Master Catalog. There is no undo operation for this and results in the current Master Catalog being overwritten. Any customization to the Master Catalog will be lost when another Master Catalog is imported. These customizations can only be restored by reverting to a previously saved backup of the Master Catalog.*

1. Select **Tools> Catalog Maintenance>Import Entire Master Catalog**.



2. **Browse** to the location of the Master Catalog you want to import and select the (Master Catalog name).pplc file and click **Open**.
3. Select **Yes** to the confirmation message.

   The new Master Catalog is automatically loaded into the Catalog Window.

   Note: *Backup versions of the Master Catalog can be obtained by selecting* ***Help>Folders>All Users Root>CatalogBackup****. For additional information on restoring a backup version of the Master Catalog see* *Working with Catalog Backups**.*

Working with Sealed LoadCases

The LoadCase 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 LoadCase 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 LoadCase elements referred to as LoadCase Sealing.

O-Calc® Pro provides a set of sealed LoadCases 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 LoadCases cannot be modified by any user regardless of their user level. They are "Sealed" against modification.

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

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

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

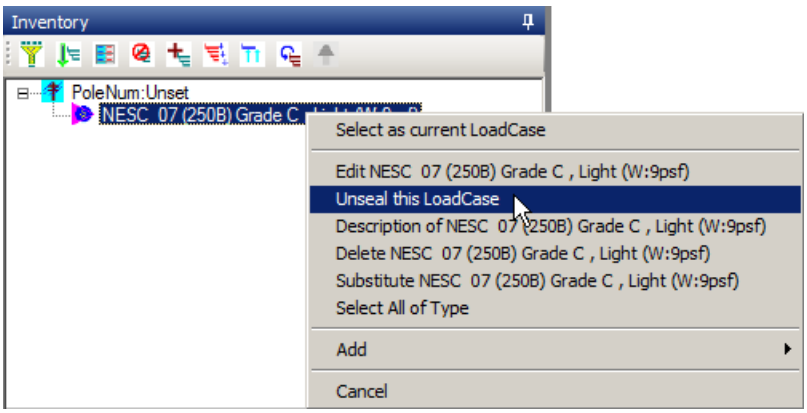
Unsealing a LoadCase

To unseal a LoadCase in the Inventory Window for modifications, complete the following steps:

> ***Note:*** *LoadCases should only be unsealed and modified with* ***extreme caution****. Modifying LoadCase attributes will affect O-Calc® Pro calculations.*

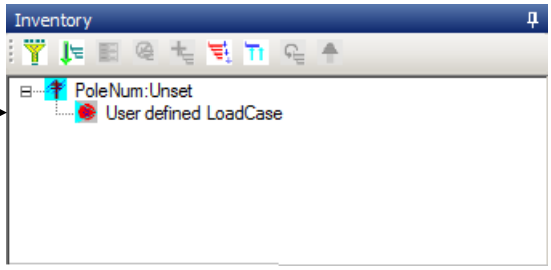
1. Right click on the LoadCase to be unsealed in the Inventory Window and select **Unseal this LoadCase**.

   Note: *LoadCases cannot be unsealed in the Master Catalog. To add a LoadCase from the Master Catalog see* *Adding Load Cases to a Pole**.*



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

The LoadCase icon and name automatically change to reflect the unsealed LoadCase



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

3. Select **File>Save**.

Once the LoadCase is unsealed you can modify the LoadCase attributes using the Edit option in the Inventory Window. For additional information on editing attributes see Editing Equipment Attributes.

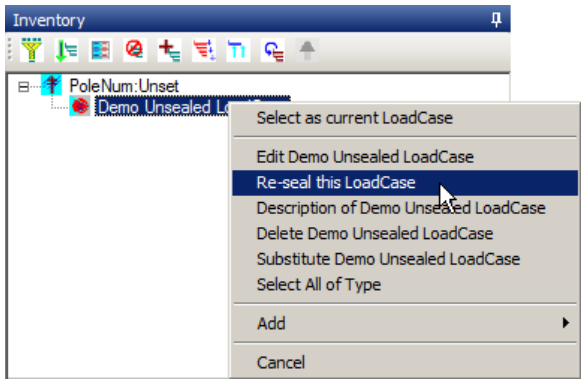
If you need to use the unsealed LoadCase for future use or modifications copy the LoadCase to a specific User Catalog folder. To copy the unsealed LoadCase to a User Catalog folder left click on the LoadCase in the Inventory Window and drag it to a specific User Catalog folder.

Re-Sealing a LoadCase

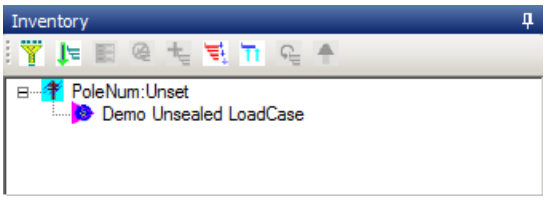
To re-seal a LoadCase to prevent additional modification to the LoadCase, complete the following steps:

Note: *Only a person with* ***Administrative privileges*** *can re-seal an unsealed LoadCase.*

1. Right click on the LoadCase to be re-sealed in the Inventory Window and select **Re-seal this LoadCase**.



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



The LoadCase icon changes to reflect the sealing of the LoadCase

Note: *To undo the sealing of the LoadCase, select* ***Edit>Undo****.*

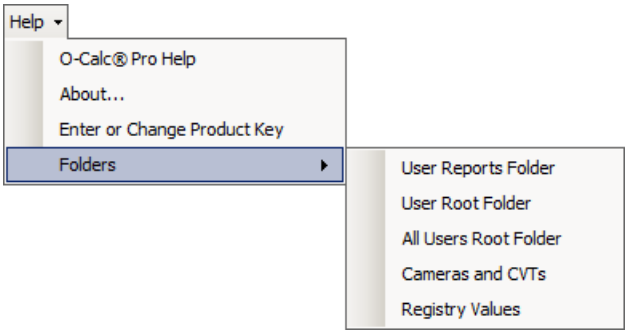
3. Select **File>Save**.

To seal a LoadCase that is unsealed in a Catalog Window select the LoadCase in the Catalog then select **Tools>Catalog Maintenance>LoadCase Sealer**.

Locating O-Calc® Pro Folders

To easily access O-Calc ® Pro user and common folders, complete the following steps:

1. Select **Help>Folders**.



2. Select the folder you need access to.

Development Information

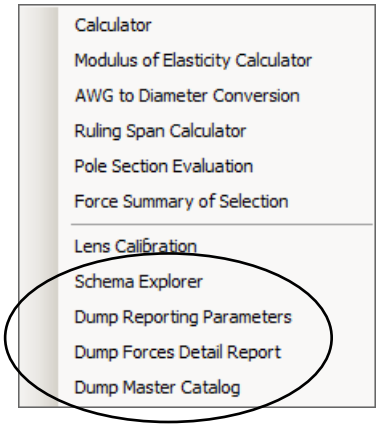
Retrieving Reference Information

O-Calc® Pro contains a number of 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
   - Dump Reporting Parameters
   - Dump Forces Detail Report
   - Dump Master 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.*

Manually Updating the Master Catalog

Performing an O-Calc® Pro software upgrade does not automatically update the Master Catalog if the user has made changes to the Master Catalog. The release notes may indicate that a new update is available and provide details on the available update. The Master Catalog can only be upgraded at this point by using the Master Catalog Creation tool. When the Master Catalog Creation tool is used to upgrade the Master Catalog any customization that has been completed in the users current Master Catalog will be lost. A backup copy of the user's current Master Catalog will be created when the Master Catalog creation tool is run.

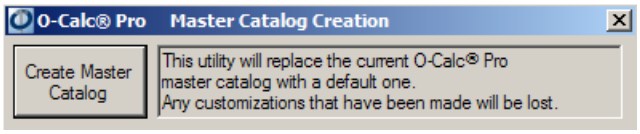
Caution: *Extreme caution should be used when choosing to manually update the Master Catalog. There is no undo operation for this and results in the current Master Catalog being overwritten. Any customization to the Master catalog will be lost when the catalog is manually updated. These customizations can only be restored by reverting to a previously saved backup of the Master Catalog.*

To manually update the Master Catalog in the O-Calc® Pro application, complete the following steps:

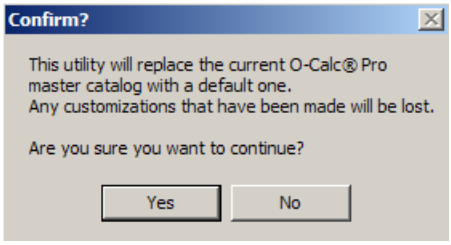
1. Browse to the location where the O-Calc® Pro application was installed.

   Note: *By default the O-Calc® Pro application is installed in c:\Program Files\Osmose\O-Calc Pro\Bin.*

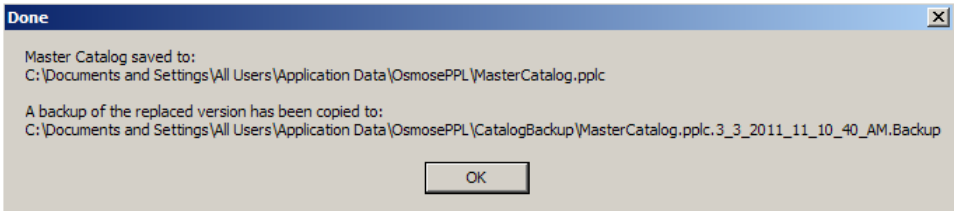
2. Double click on **MasterCatalogCreation.exe**.



3. Click the **Create Master Catalog** button.



4. Select **Yes** to the confirmation message.
5. Select **OK** to the Master Catalog replaced message.



6. Select the **X** in the upper right hand corner to close the Master Catalog Creation application.

Creating Custom Loading Districts

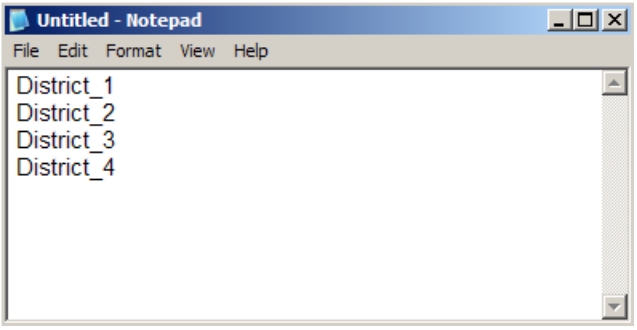
In certain situations it may be necessary to use custom loading districts within the O-Calc® Pro application. Creating a custom loading district file will replace the O-Calc® Pro default loading district values. If you need any of the default loading district values you will need to manually add them to your custom loading district file.

Any LoadCases that currently use the O-Calc® Pro default loading districts will not be overwritten when a custom loading district file is created. If you need pre-existing loading districts changed you will need to manually edit these LoadCases. A LoadCase district can only be changed in an unsealed LoadCase.

Note: *For additional information on editing unsealed LoadCases see* *Working with Sealed LoadCases**.*

To create a custom loading district file, complete the following steps:

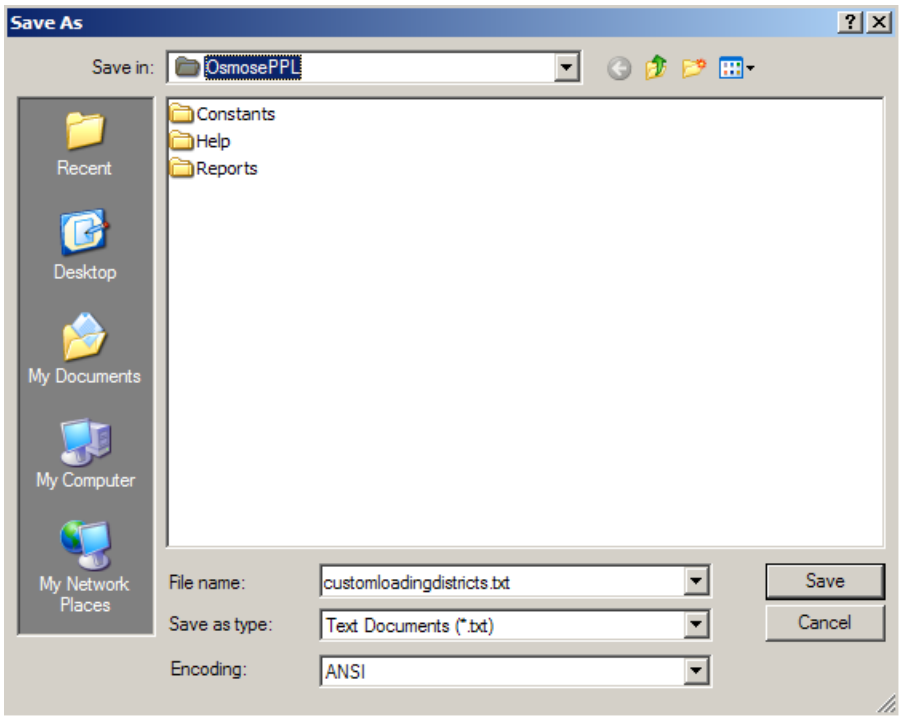
1. Open **Notepad**.
2. Create a list within Notepad of the custom loading districts.



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 O-Calc® Pro application will automatically utilize this file. O-Calc® Pro will need to be restarted for the changes to take effect.*

To restore the default loading district values simple remove the customloadingdistricts.txt file from the OsmosePPL directory. O-Calc® Pro will need to be restarted for the changes to take effect.

Working with Catalog Backups

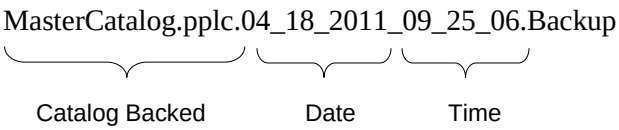
Each time changes are made to either the Master or User Catalog a backup of the catalog is automatically created when the current session is closed. O-Calc ® Pro retains up to 10 backups of each the Master and User Catalogs, automatically deleting the oldest as new ones are created. By retaining a backup 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 Master Catalog and the User Catalog are easily accessible from within the O-Calc ® Pro application.

The Master Catalog backup is located in the **Help>Folders>All Users Root>CatalogBackup** folder.

The User Catalog backup is located in the **Help>Folders>User Root>CatalogBackup** folder.

Each catalog backup file provides the date and time that the backup file was created right in the file name.



To revert to a previous version of a catalog, complete the following steps:

Note: *The steps below are for reverting to a previous Master Catalog. The same steps should be used when reverting User Catalogs as well.*

1. Select **Help>Folders>All Users Root>CatalogBackup.**
2. Select the Master Catalog that you need to revert to.
3. Copy the backup file to the following location:

   C:\Documents and Settings\All Users\Application Data\OsmosePPL
4. Rename the MasterCatalog.pplc that resides in this folder.
5. Select the Master Catalog Backup file and rename it to MasterCatalog.pplc.
6. O-Calc® Pro application will need to be closed and reopened before the change will take effect.

Catalog Maintenance Mode

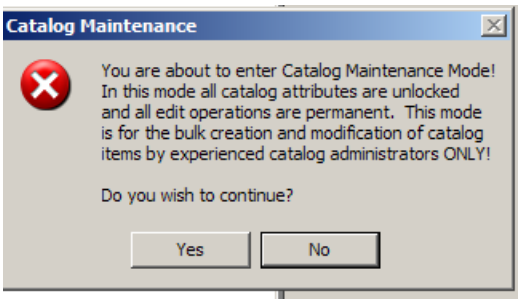
O-Calc® Pro provides a Catalog Maintenance Mode that enables administrators to complete modifications within a catalog. The Catalog Maintenance Mode allows anyone with administrative privileges to have full editing capabilities to both the Master Catalog and the User Catalog. All attributes included attributes that are normally uneditable 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 Window are permitted. All options within O-Calc ® Pro that do not pertain to the Catalog Window 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 Window **File>Close Pole**.
2. Select **Tools>Catalog Maintenance>Maintenance Mode**.

   Note: *When the Maintenance Mode is enabled a check mark will display next to the menu option.*



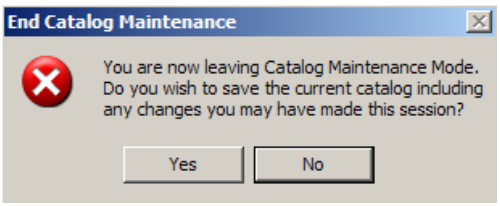
3. Select **Yes** to continue in Catalog Maintenance Mode.

   Note: *The Status Bar will turn yellow and clearly indicate that the Catalog Maintenance Mode is active.*

4. Complete your modifications to the catalogs.

   Note: *There is no undo option available.*

5. Deselect the **Tools>Catalog Maintenance>Maintenance Mode** option.



6. Select **Yes** to save your changes.

