

# Complex Selection in AutoCAD Made Easy: The Filter Command

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## About the speaker



Scott is Senior CAD Designer at Morrison Hershfield in Edmonton, Alberta, Canada. Scott has more than 25 years experience using AutoCAD, and has been using Civil 3D for 12 years. A former AutoCAD instructor, Scott cares about learning and community. Scott has recently completed 8 years on the Board of Directors, 4 years as Vice President, at Autodesk User Group International (AUGI).

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What makes CAD valuable?

# Learning Objectives

- ❑ Review object selection methods in AutoCAD, such as Fence and QSelect
- ❑ Learn how to build both simple and complex object selection filters by filtering multiple existing object properties
- ❑ Learn how to build a complex selection filter using Boolean tools (and, or, not, xor)
- ❑ Learn how to save a named filter and reuse it

# Objective 1

- ❑ Review object selection methods in AutoCAD, such as Fence and QSelect

# Mouse Selection

- Pick
- Window
- Crossing
- Window Polygon
- Crossing Polygon
- Fence
- Lasso
- Fastsel



# Keyboard selection

- All
- Previous
- Last
- [SHIFT]
- Remove
- Add
- Group

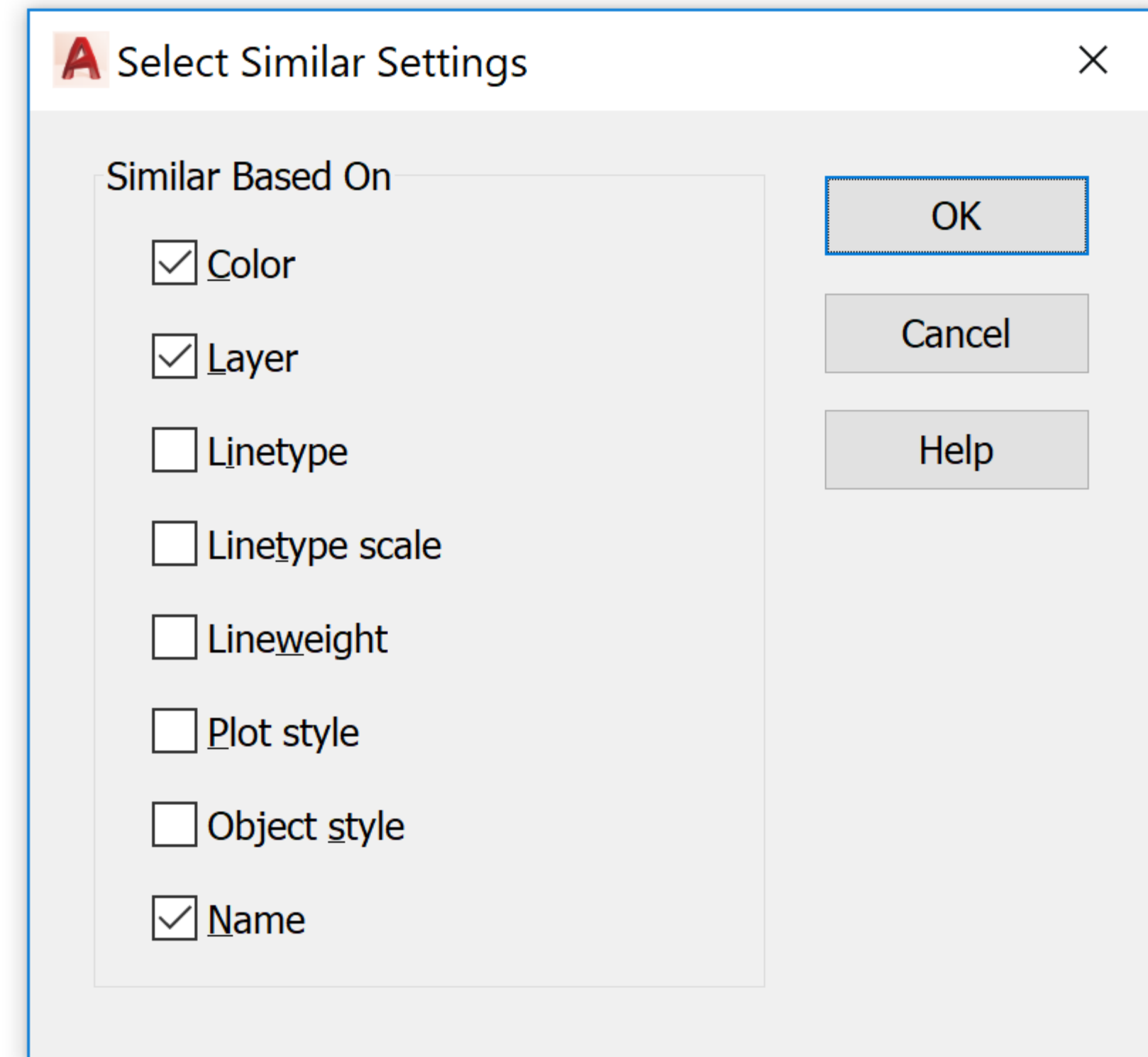


These are all great for  
small selections.

Whenever possible, let  
AutoCAD help build your  
selection sets.

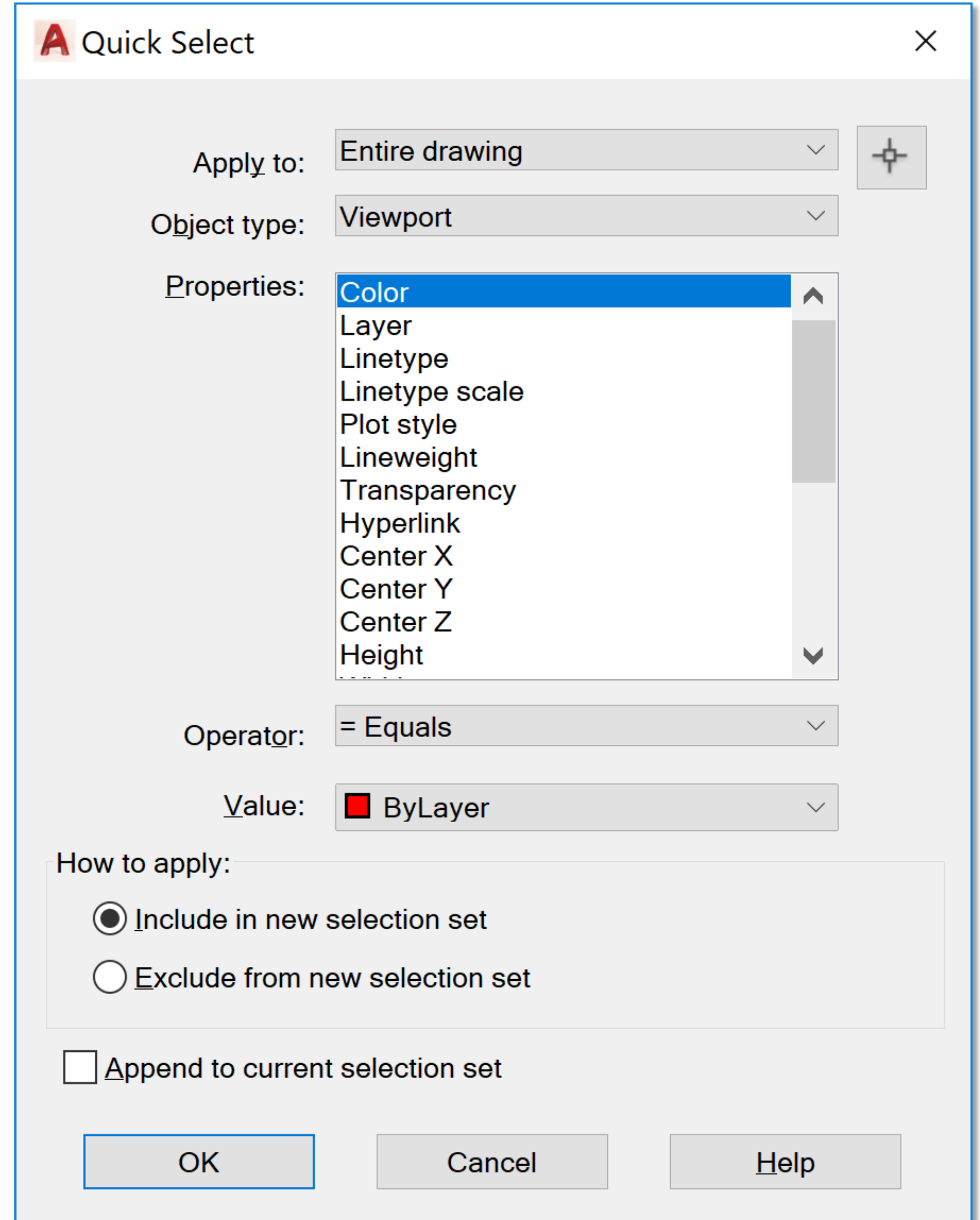
# Select Similar

- On Pop-up Menu, after an object is selected
- Match object type and properties
- Select Similar Settings



# Quick Select

- On Properties Palette
- Object type
- One property
- Logical operator
- Set a value
- New/Exclude/Append
- Apply to entire dwg or selection



The screenshot shows the 'Quick Select' dialog box with the following settings:

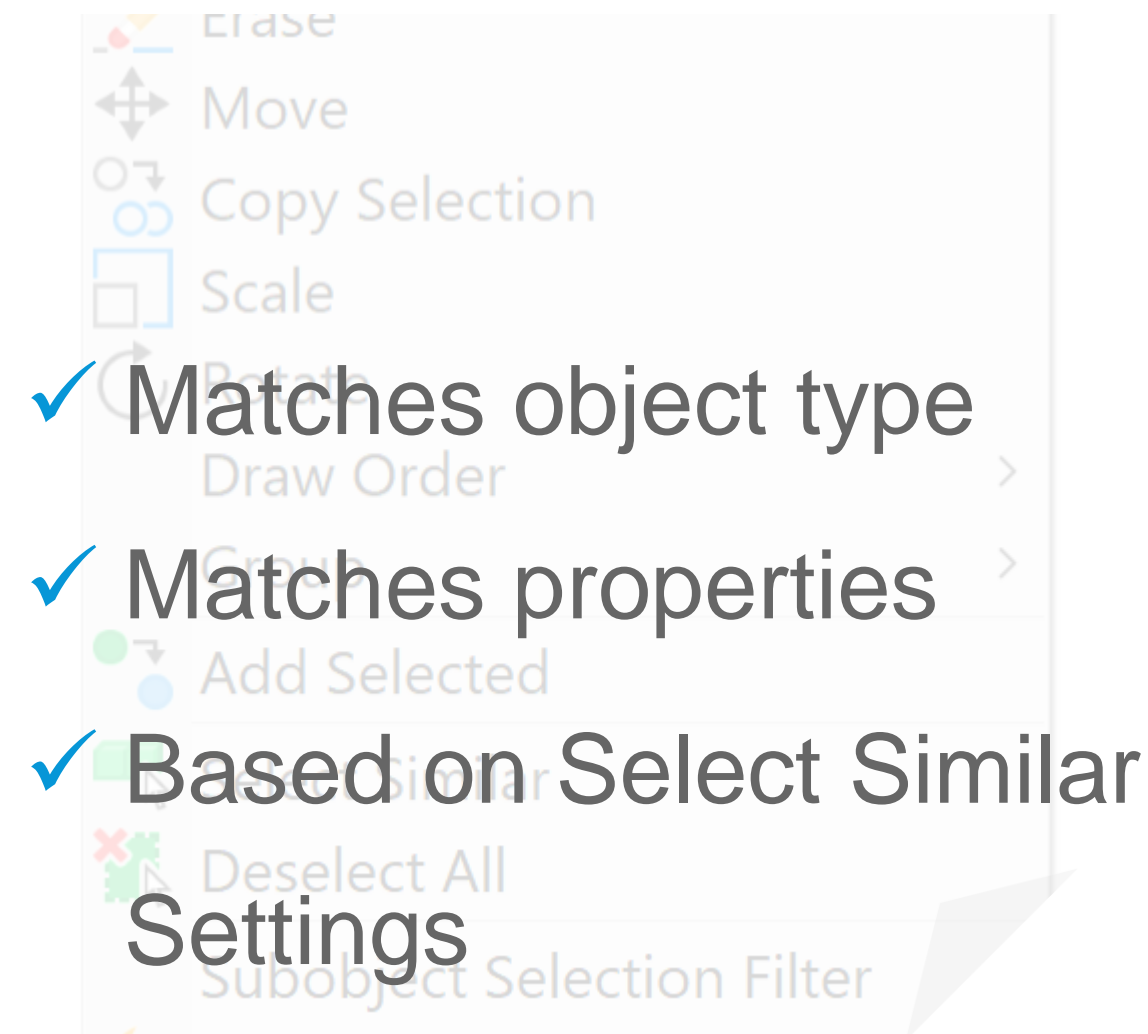
- Apply to:** Entire drawing
- Object type:** Viewport
- Properties:** Color (selected from a list including Layer, Linetype, Linetype scale, Plot style, Lineweight, Transparency, Hyperlink, Center X, Center Y, Center Z, and Height)
- Operator:** = Equals
- Value:** ByLayer (with a red color swatch)
- How to apply:**
  - ☒ Include in new selection set
  - ☐ Exclude from new selection set
  - ☐ Append to current selection set

Buttons at the bottom: OK, Cancel, Help.

## Objective 2

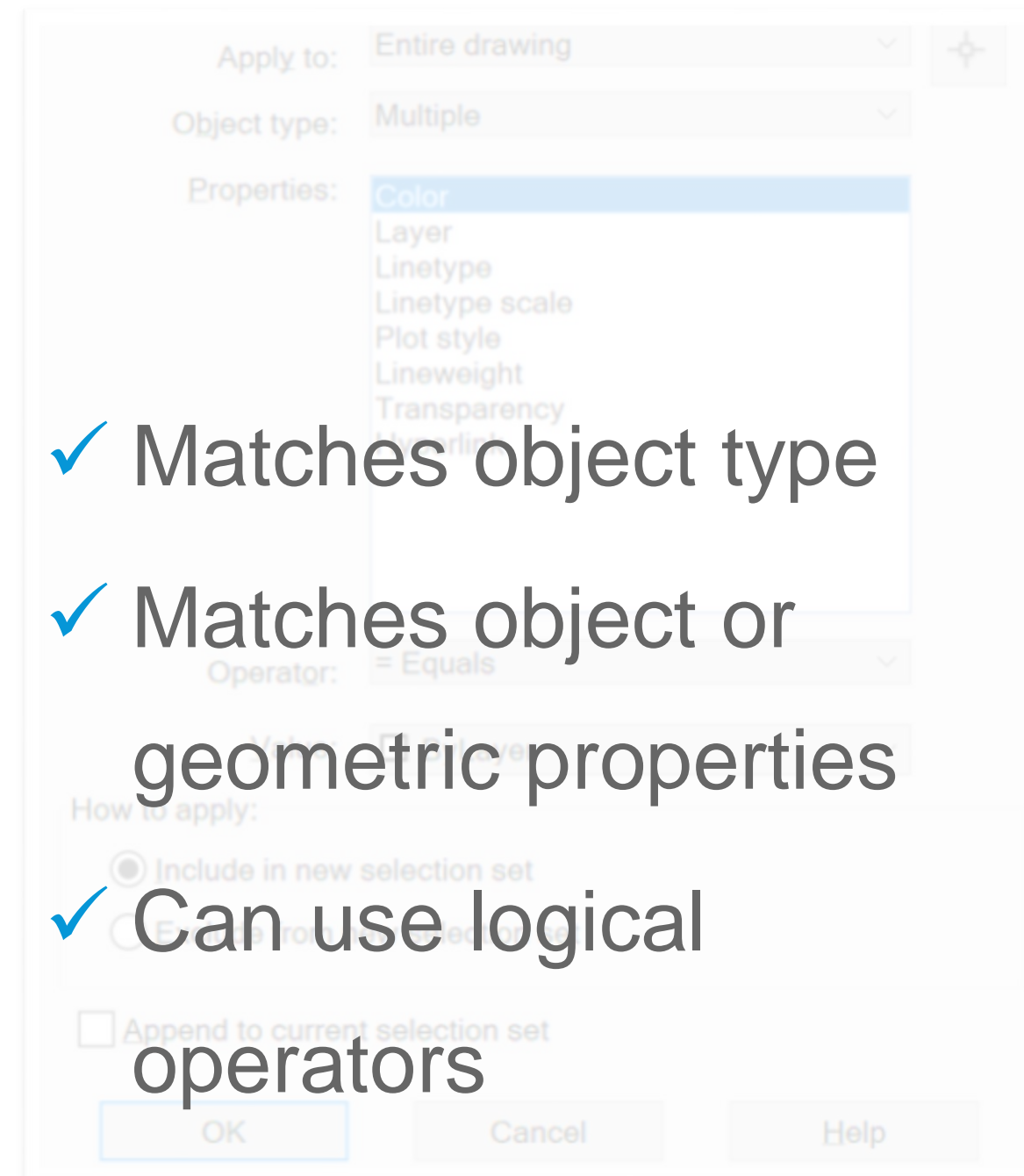
- ✓ Review object selection methods in AutoCAD, such as Fence and QSelect
- ❑ Learn how to build both simple and complex object selection filters by filtering multiple existing object properties

# Select Similar



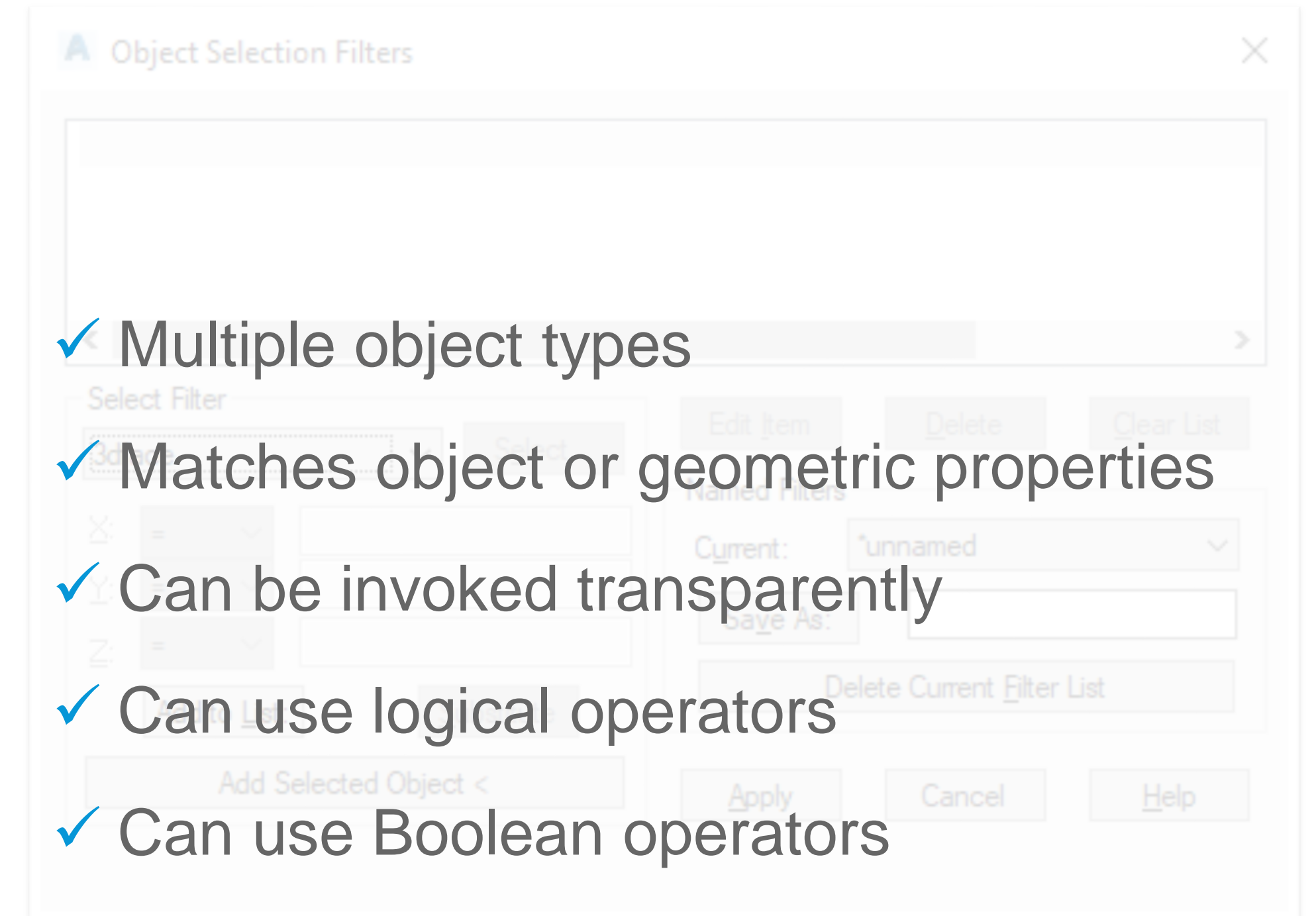
- ✓ Matches object type
- ✓ Matches properties
- ✓ Based on Select Similar Settings
- ✗ Limited to ONE object type
- ✗ No geometric properties

# Quick Select



- ✓ Matches object type
- ✓ Matches object or geometric properties
- ✓ Can use logical operators
- ✗ Limited to ONE object type per selection
- ✗ Limited customization
- ✗ No saving

# Filter

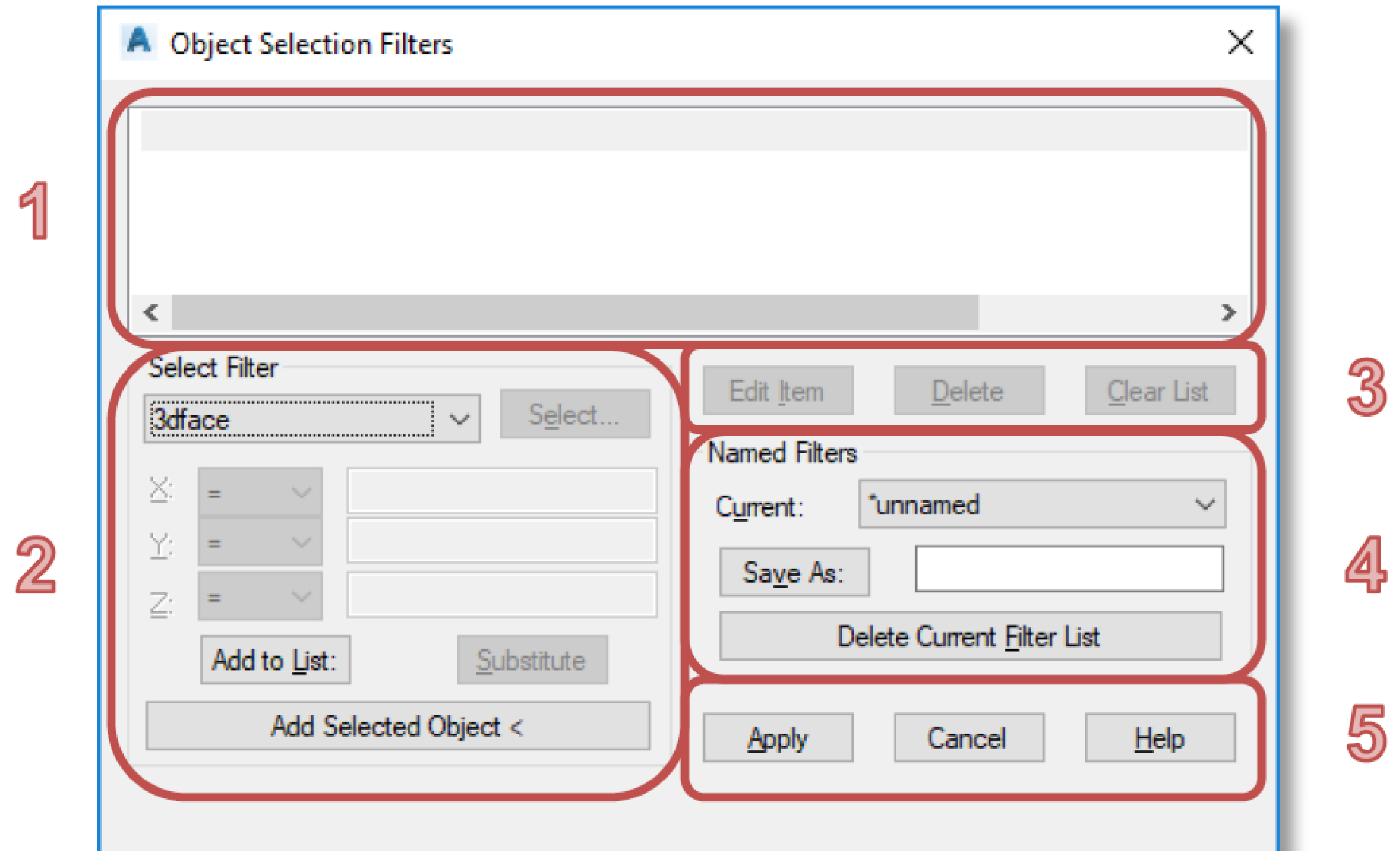


- ✓ Multiple object types
- ✓ Matches object or geometric properties
- ✓ Can be invoked transparently
- ✓ Can use logical operators
- ✓ Can use Boolean operators
- ✓ Extensive customization
- ✓ Can save and re-use in same or other drawings

# Filter Dialog

## Parts of the Object Selection Filters Dialog

1. Filter properties window
2. Select filter options
3. Edit item, Delete, Clear List buttons
4. Named filters
5. Apply, Cancel, Help buttons



Parts of the FILTER Dialog Box

# Build a Simple Selection

1. Launch FILTER
2. Select Filter:
3. Choose property
4. Set a value
5. Add to List
6. Click Apply

**Object Selection Filters**

Circle Radius = 400.000000  
Object = Circle

Select Filter: Circle Radius [Select...]

X: = 400  
Y: =  
Z: =

[Add to List:] [Substitute]

[Add Selected Object <]

[Edit Item] [Delete] [Clear List]

Named Filters  
Current: \*unnamed  
Save As: [ ]  
Delete Current Filter List

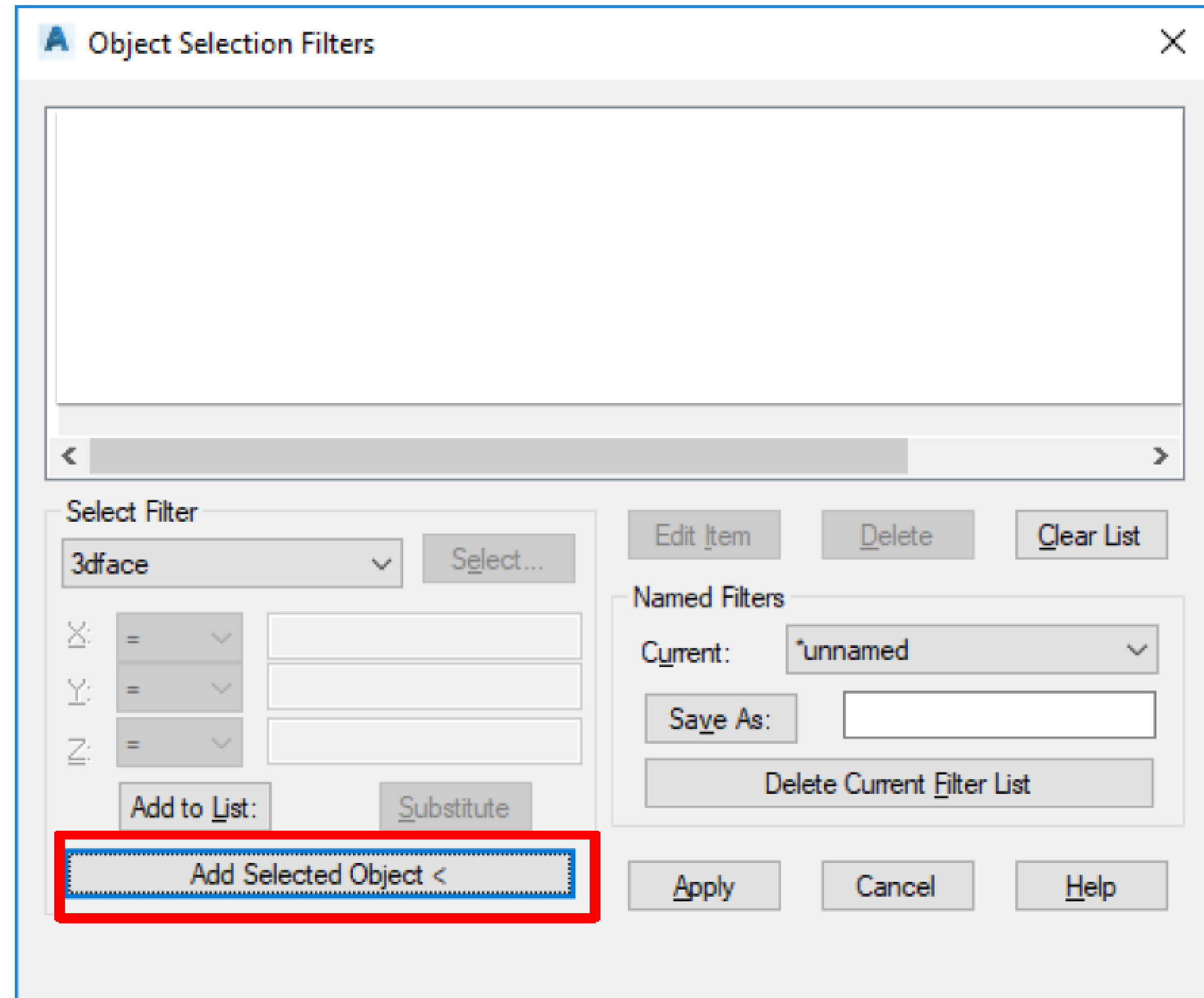
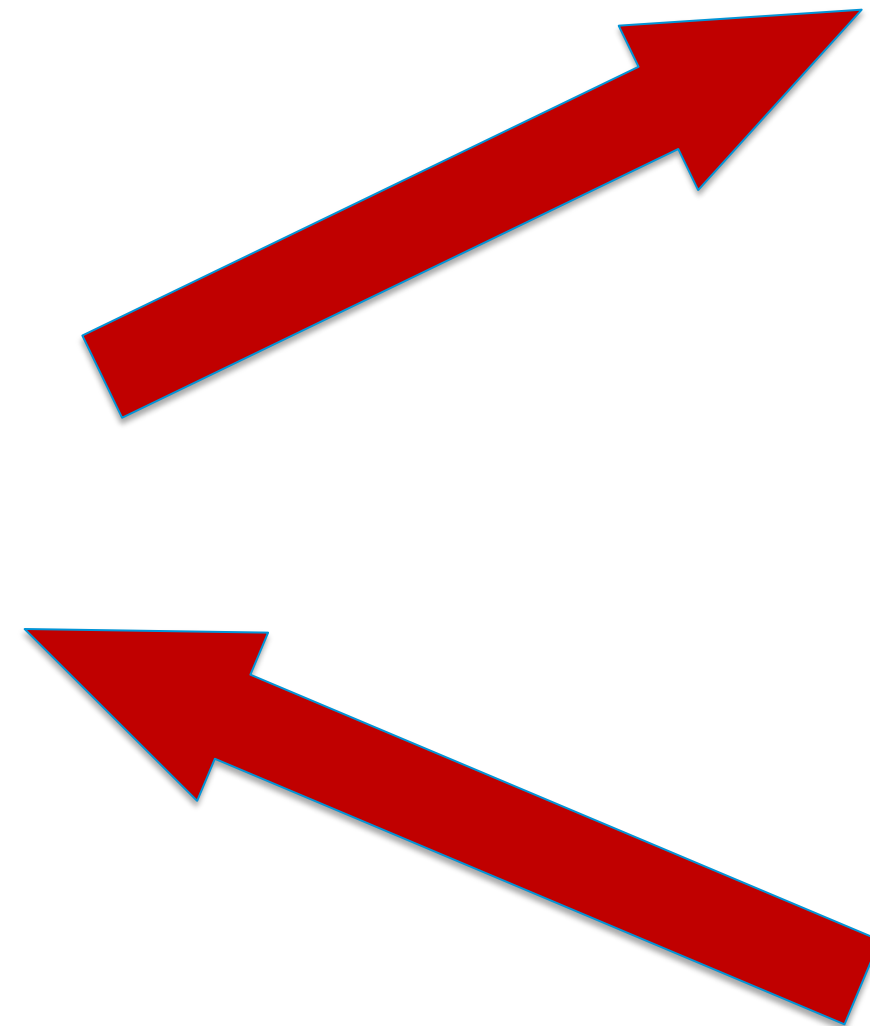
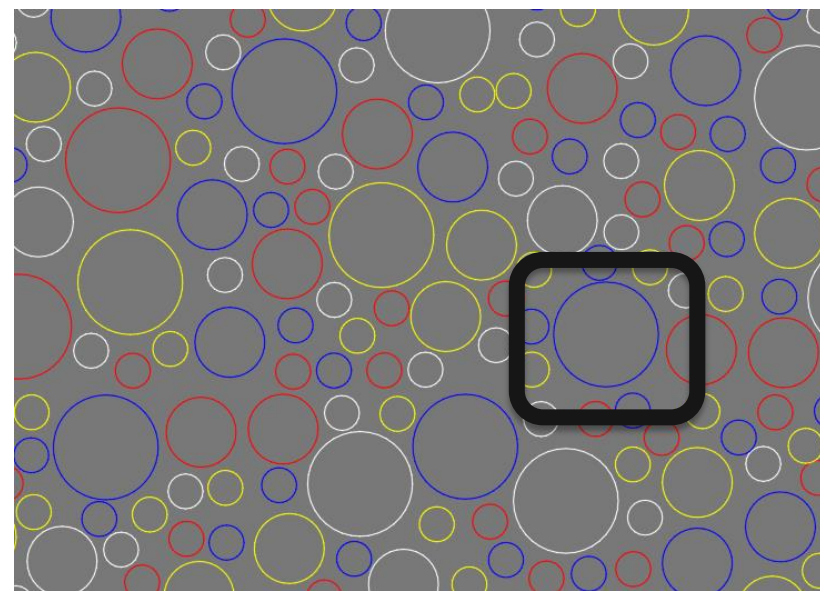
[Apply] [Cancel] [Help]

DWF Underlay  
Elevation  
Ellipse  
Ellipse Center  
Hatch  
Hatch Pattern Name  
Helix  
Image  
Image Position  
Layer  
Leader  
Light  
Line  
Line End  
Line Start  
Line Style

# Objective 2 Demo

Simple selection

# Add Selected Object



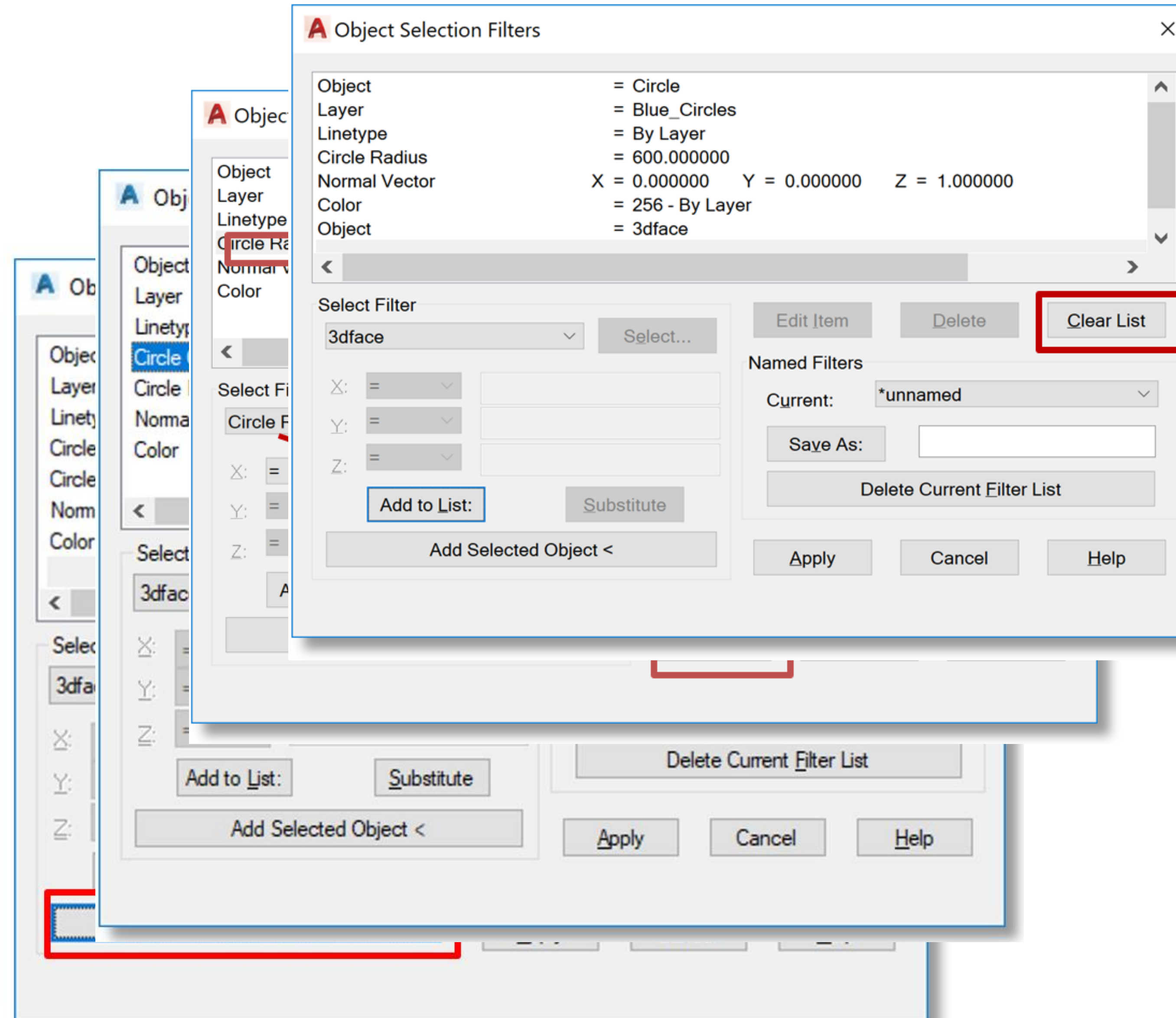
Adding a selected object to the filter list

# Objective 2 Demo

- Add Selected Object
- Complex selection

# Filter Tools

## Clear List



## Objective 3

- ✓ Review object selection methods in AutoCAD, such as Fence and QSelect
- ✓ Learn how to build both simple and complex object selection filters by filtering multiple existing object properties
- ❑ **Learn how to build a complex selection filter using Boolean tools (and, or, not, xor)**

# Logical Operators

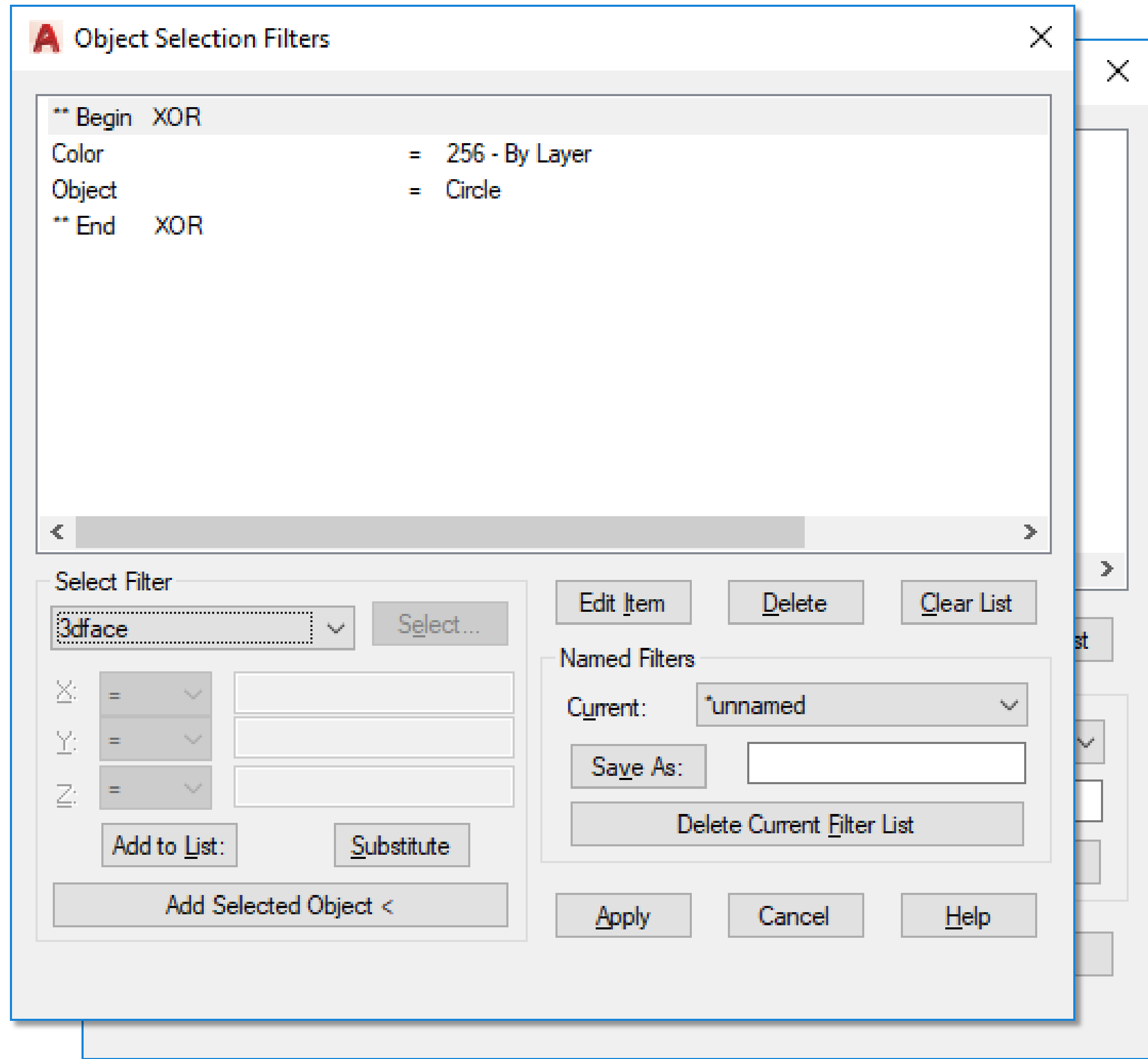
Starting operator	Ending operator
**Begin AND	**End AND
**Begin OR	**End OR
**Begin NOT	**End NOT
**Begin XOR	**End XOR

Logical Operator Begin and End markers

Operator	# of Operands	Objects Selected
AND	one or more	All Object that meet <b>every</b> criteria
OR	one or more	All objects that meet <b>any</b> criteria
NOT	one	All Objects <b>not</b> meeting the criteria
XOR	two	All objects meeting on or the other criteria, but <b>not both</b>

Logical Operator Description Table

~~ANDER~~



**\*\* Begin ~~ANDER~~**

**~~ANDER~~ Only one criterion**

**\*\* End ~~ANDER~~**

**The selection method is**

**either/or, not both**

**criteria, but not**

**both**

# Booleans in Filter

- OR: There is unrest in the forest..  
filter all the oak and maple trees
- NOT: Let go the line  
find all lines that are not linetype BYLAYER
- XOR: Out of order  
find which oak trees are on the wrong layer

**Object Selection Filters**

\*\* Begin XOR  
Block Name = TREE-OAK  
Layer = TREE-OAK  
\*\* End XOR

Select Filter  
3dface Select...

X: =  
Y: =  
Z: =

Add to List: Substitute

Add Selected Object <

Named Filters  
Current: XOR

Save As:

Delete Current Filter List

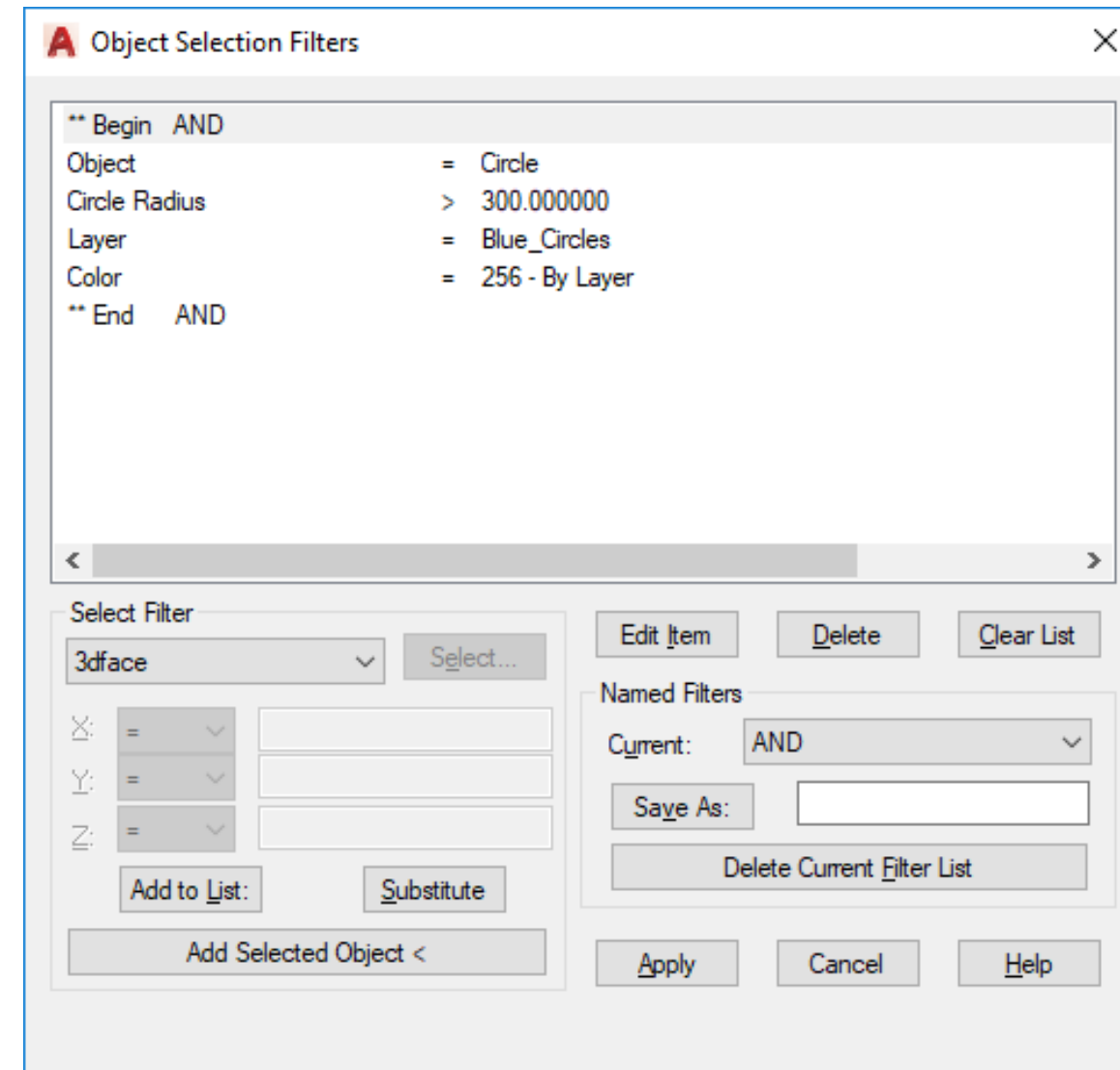
Edit Item Delete Clear List

Apply Cancel Help

# AND

\*\* Begin AND  
Any number of items  
\*\*End AND

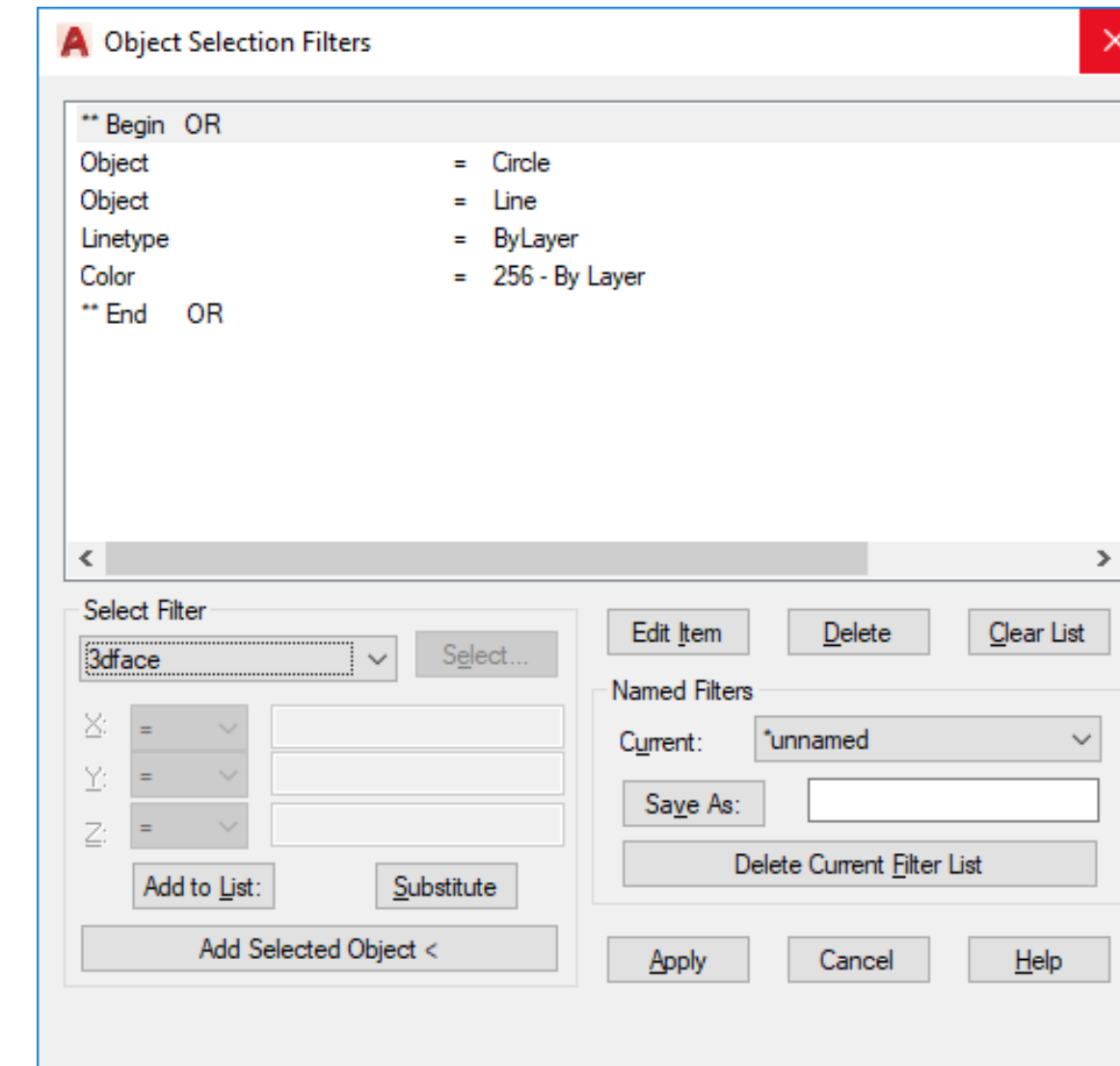
The items must meet  
**EVERY** criteria



# OR

\*\* Begin OR  
Any number of items  
\*\*End OR

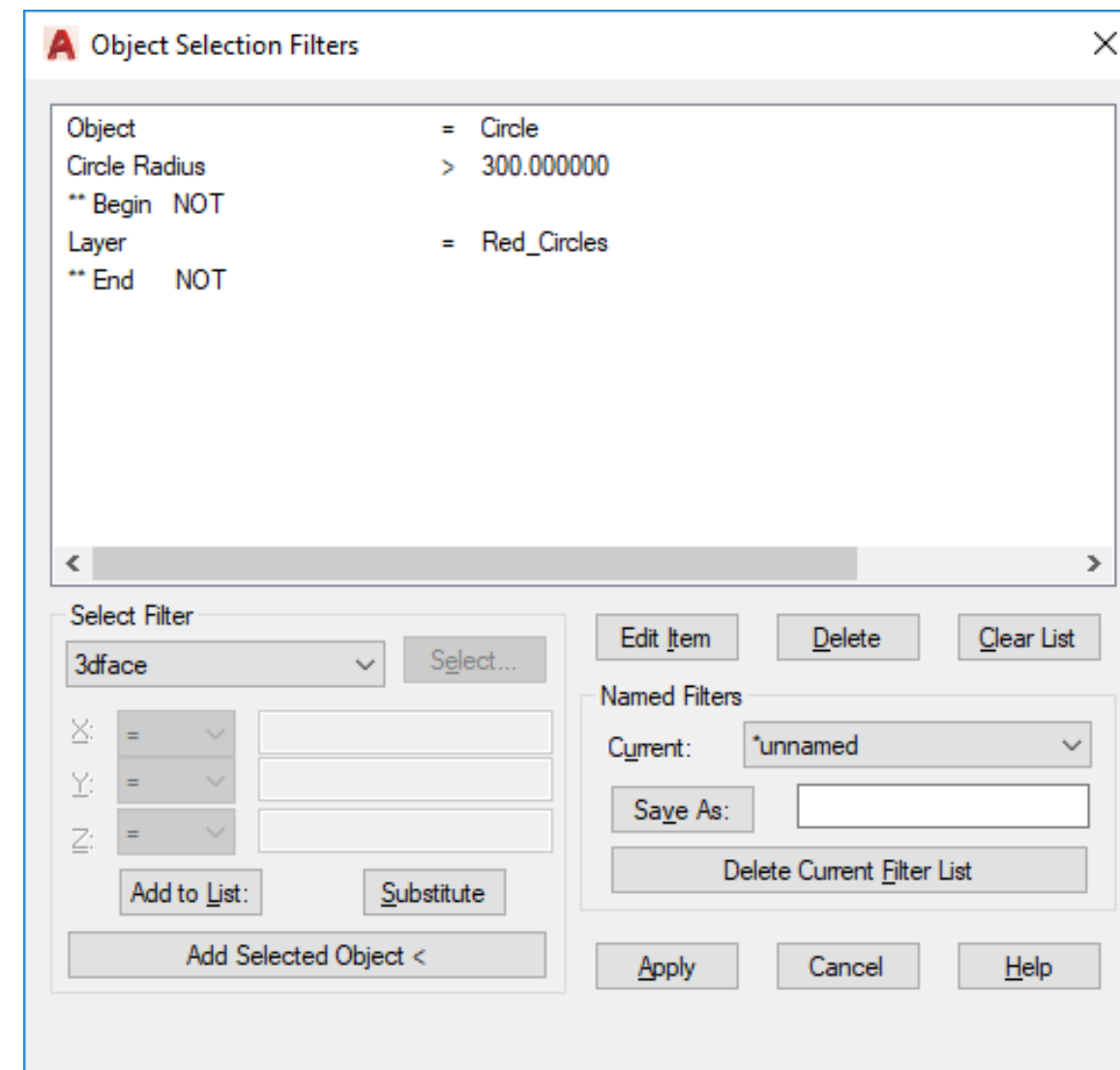
The items must meet  
**ANY** criteria



# NOT

\*\* Begin NOT  
Only one item  
\*\*End NOT

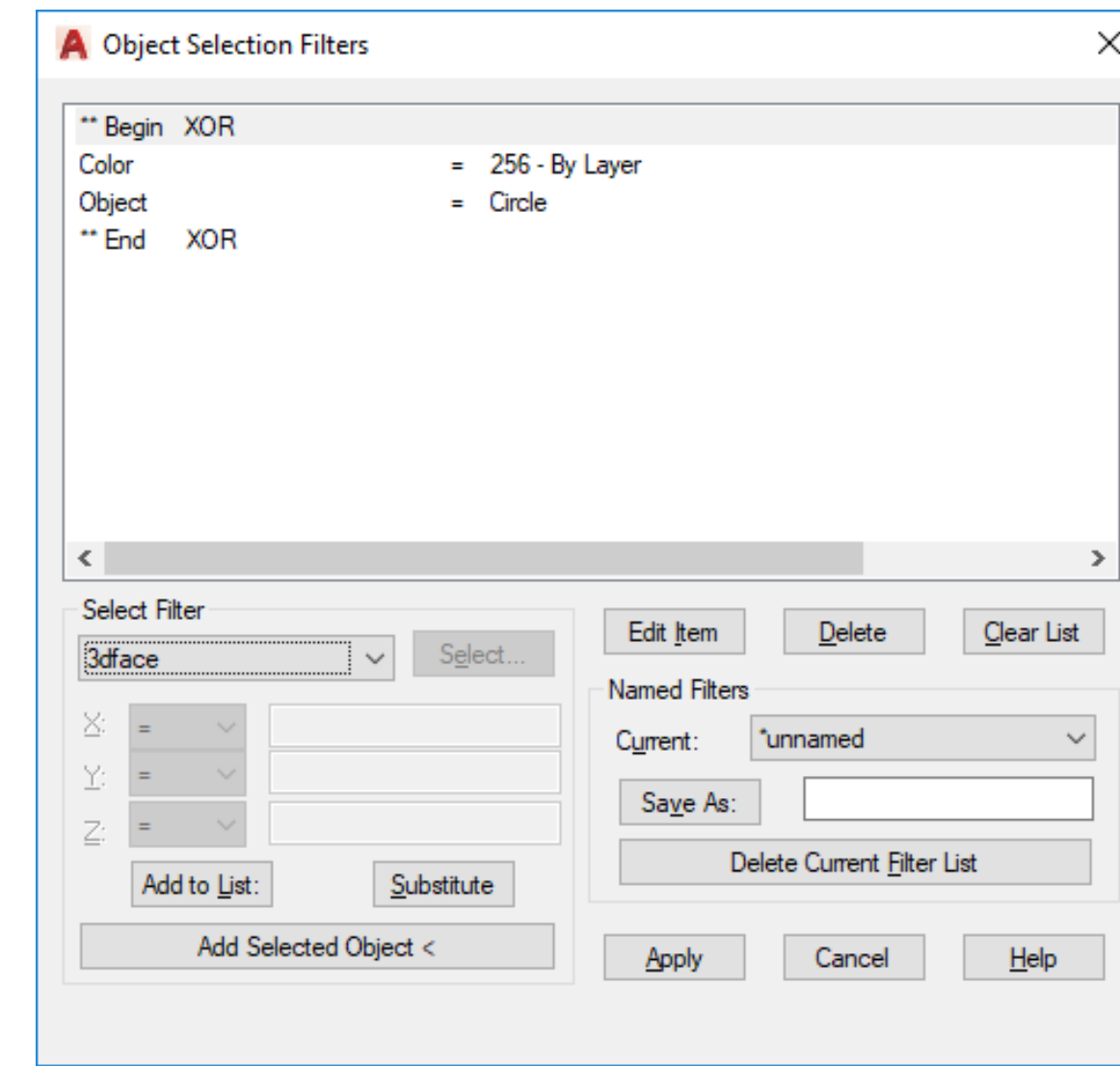
The selection will  
**EXCLUDE** items that  
meet criteria



# XOR

\*\* Begin XOR  
Operand A  
Operand B  
\*\*End XOR

Everything that either  
criteria meet, but not  
both



# Putting it all together

In a parcel mapping drawing, we need to find the following:

- All legal lines on layer  
51\_BDRY\_EXISTING\_ROW
- Some Legal plan numbers
  - All plans ending in RS, MC & NY,  
(but not plan 2127 RS)
  - All legal plan numbers starting with the digit 8
  - All legal plan numbers starting with the digit 9

Object Selection Filters

\*\* Begin OR  
\*\* Begin AND  
Object = Polyline  
Layer = 51\_BDRY\_EXISTING\_ROW  
\*\* End AND  
\*\* Begin AND  
\*\* Begin OR  
Text Value = \*MC  
Text Value = \*RS  
Text Value = \*NY  
Text Value = 8?? ????  
Text Value = 9?? ????  
\*\* End OR  
\*\* End AND  
\*\* End OR  
\*\* Begin NOT  
Text Value = 2127 RS  
\*\* End NOT

Select Filter  
3dface Select...

X: =  
Y: =  
Z: =

Add to List: Substitute

Add Selected Object <

Edit Item Delete Clear List

Named Filters  
Current: Boolean Complex  
Save As:  
Delete Current Filter List

Apply Cancel Help

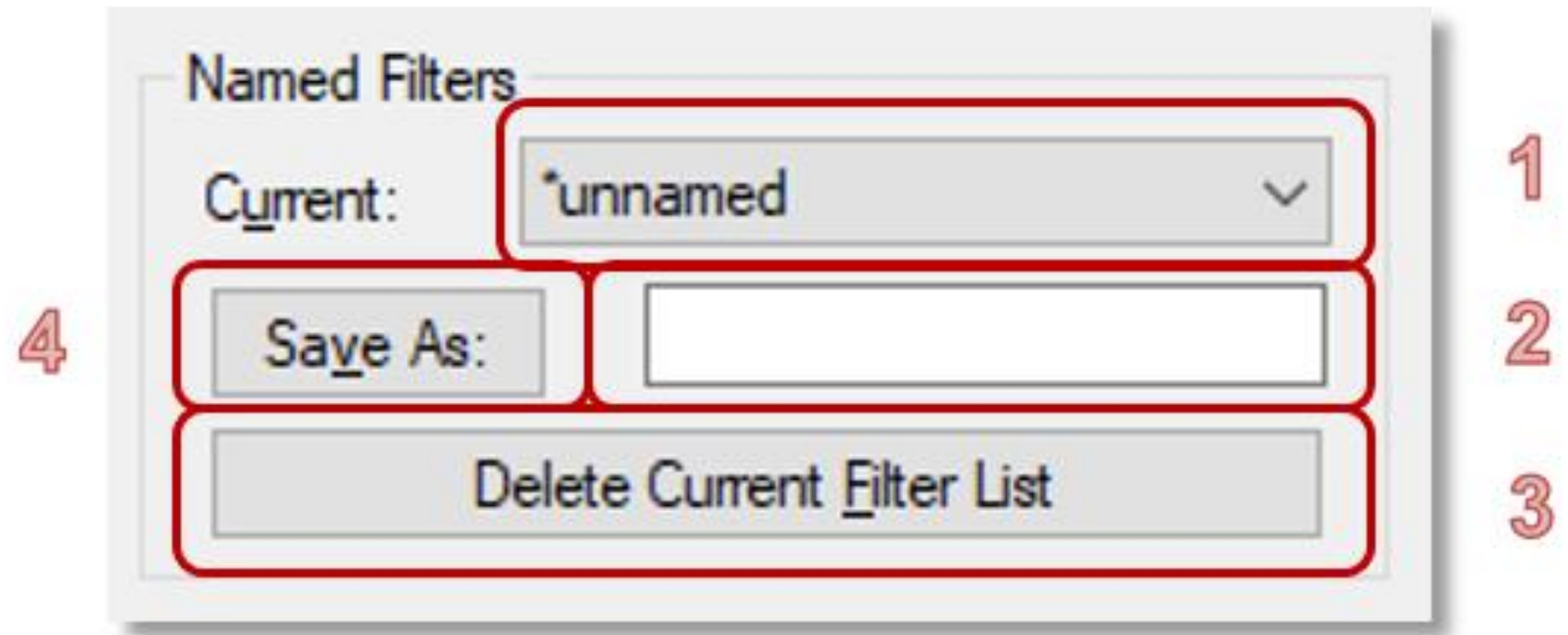
## Objective 4

- ✓ Review object selection methods in AutoCAD, such as Fence and QSelect
- ✓ Learn how to build both simple and complex object selection filters by filtering multiple existing object properties
- ✓ Learn how to build a complex selection filter using Boolean tools (and, or, not, xor)
- ❑ **Learn how to save a named filter and reuse it**

# Named Filters

## Parts of the Named Filters Dialog

1. Current Named Filter drop-down list
2. Filter Name Edit box
3. Delete current filter list button
4. Save As: button



Named Filters area of the Filter Dialog

# Fast filter file facts

- Filters are saved externally in a file called filter.nfl
- (typically here:  
C:\Users\<LOGINNAME>\AppData\Roaming\Autodesk\  
<product version>\enu\Support\filter.nfl)
- Use (findfile “filter.nfl”) to locate it!
- It doesn't have to be local! Network location for shared use!
- AutoCAD will load the first filter.nfl it finds
- For custom location, be sure to place the filter.nfl location to the top of support file search path
- Do not try to edit (corrupts easily)

# We did it!

- ❑ Review object selection methods in AutoCAD, such as Fence and QSelect
- ❑ Learn how to build both simple and complex object selection filters by filtering multiple existing object properties
- ❑ Learn how to build a complex selection filter using Boolean tools (and, or, not, xor)
- ❑ Learn how to save a named filter and reuse it

Thank you for your time!

Don't forget to complete your class survey!

You might win a free pass to the next AU!

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