

Annotation Scaling in AutoCAD: Bringing the Technology Home

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Class summary

Learn how to implement annotation scaling in your organization! Whether you would like to start with small steps or go all out, you will learn all levels of migrating these tools into your daily workflow. Learn about annotation scaling and how it works with hatching, text, linetype scale, dimensions, and all of the other options. See how you can "bring this technology home," improve your productivity, and reduce unnecessary hours spent on annotations. This class is designed to assist you in building a new workflow for annotations in your organization. This session features AutoCAD, AutoCAD LT, and AutoCAD Map 3D. AIA Approved

Key learning objectives

At the end of this class, you will be able to:

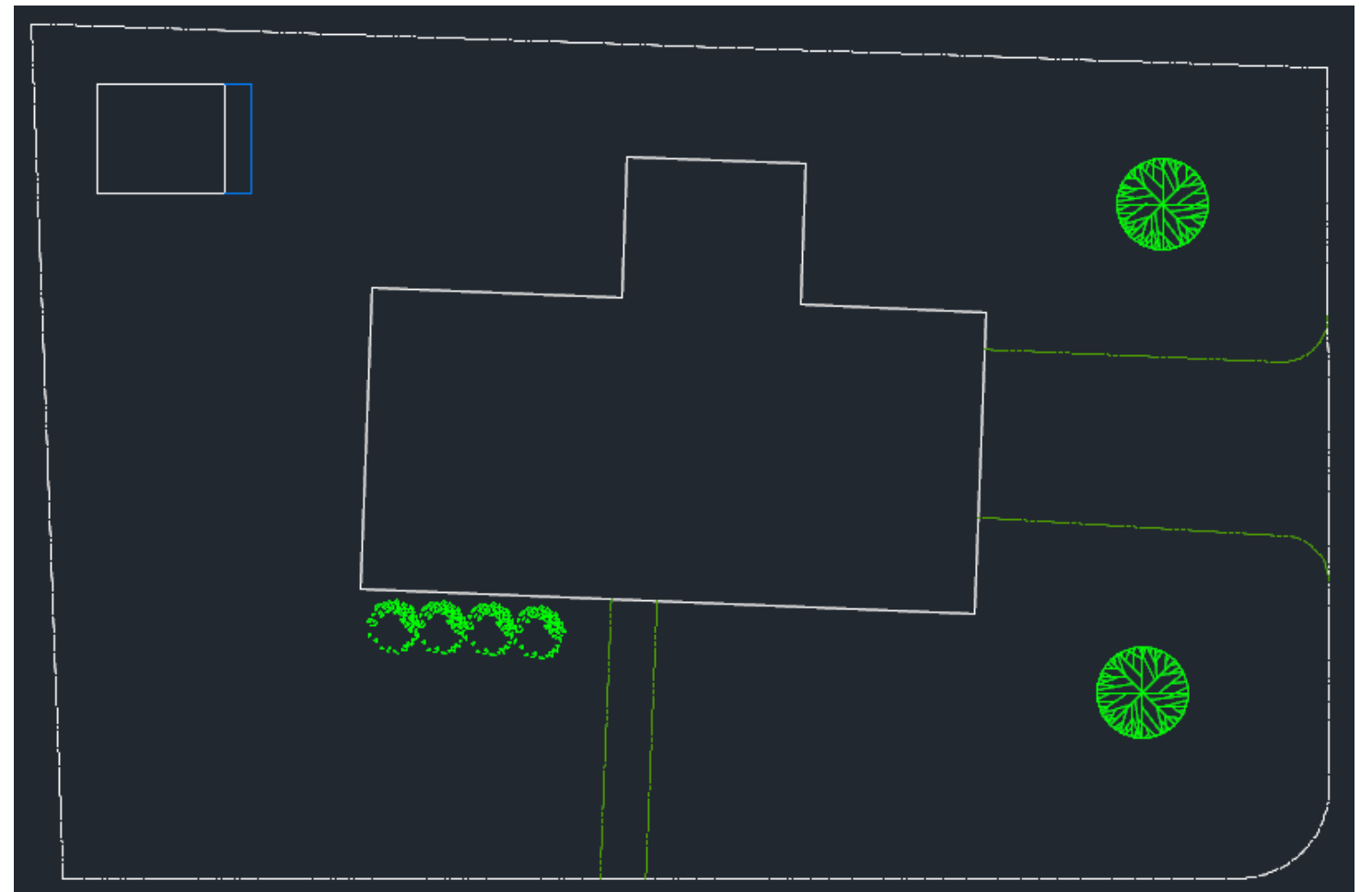
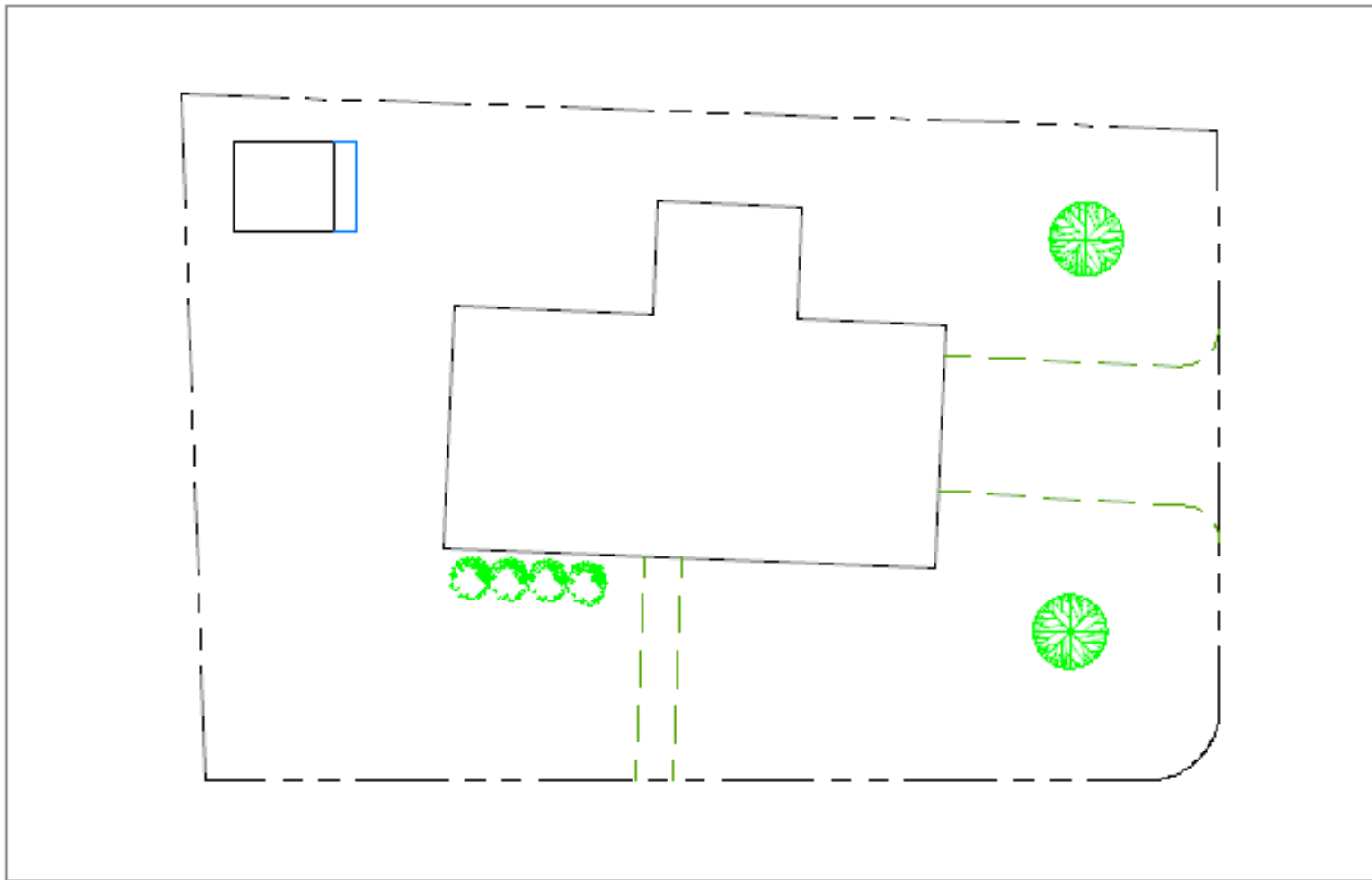
- Discover annotation scaling
- Learn how to use annotation commands, tools, and styles
- Learn how to reduce the time spent annotating drawings
- Learn how to integrate annotation scaling into your current workflow

Why Annotation Scaling is Useful

Understanding Linetype Scaling Issues

Looks good in the Layout!

What Happened in Model Space?

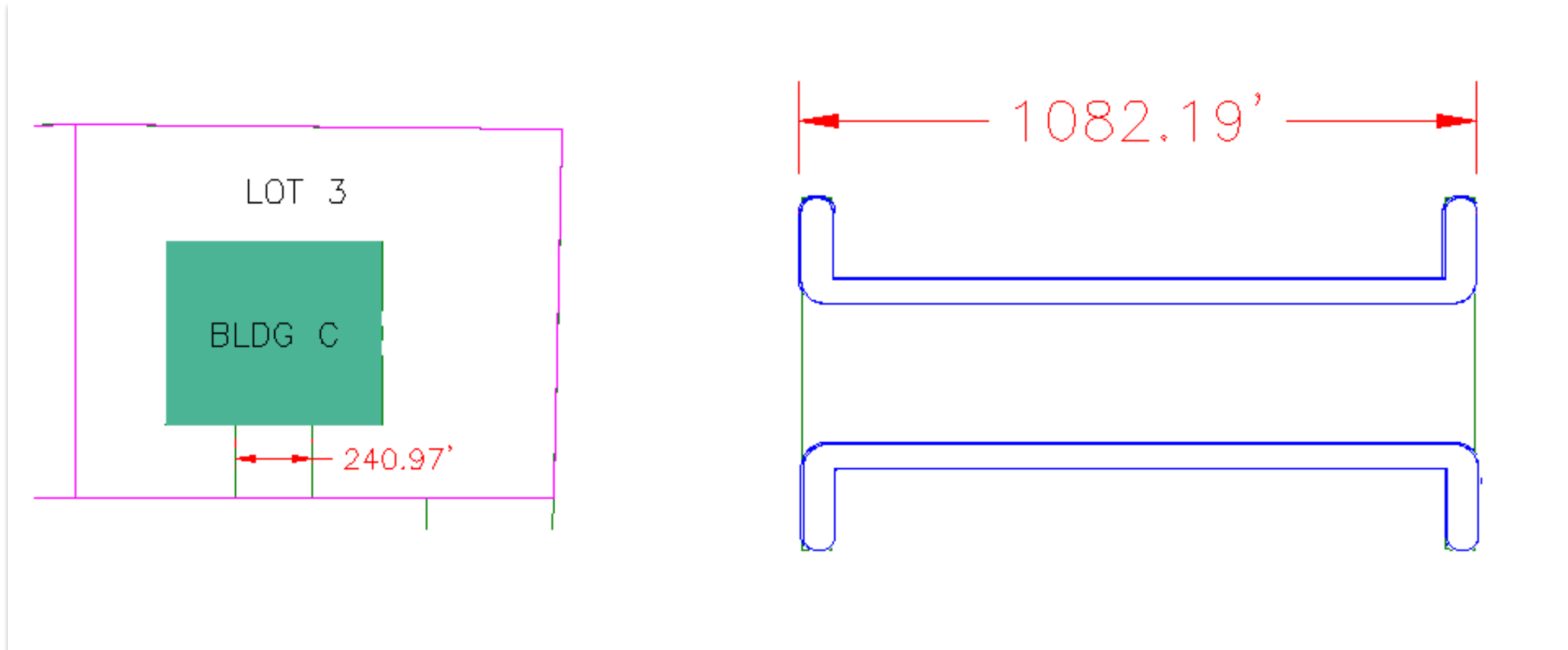


Understanding Layer Issues

- Do you have multiple dimension styles for each scale factor that you use?
- Do you have a layer for every scale factor that you use?
- Do you have to create multiple versions of the same text, dimension, etc... for each scale factor that you use?
- Do you have to freeze layers for every viewport for all of the annotation layers that you're NOT using for that viewport?

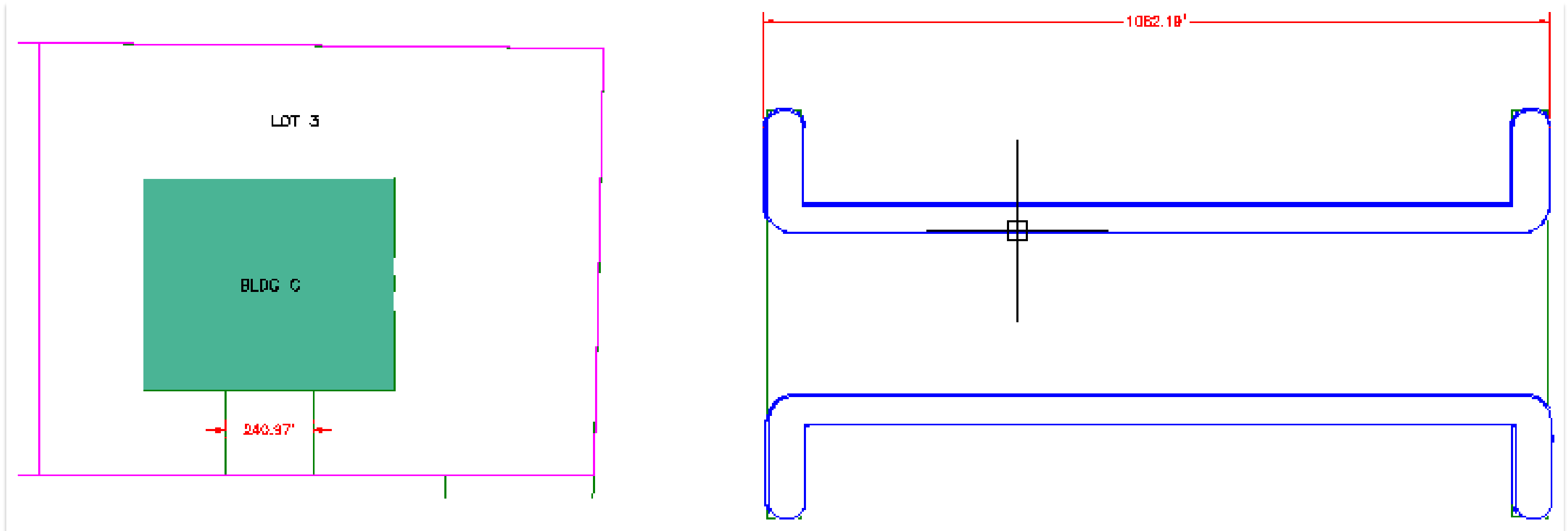
Before Annotation Scaling

**Text and Dimensions
sizes are different!**



After Annotation Scaling

Using Annotative Scaling the sizing is now the same in every viewport!



Linetypes & Annotation Scaling

Setting linetypes to be annotative is a simple transition! The variable to control your annotative linetype scaling is `MSLTSCALE` (0 or 1). Setting `MSLTSCALE` to 1 enables linetypes to read the current annotation scale that is set and use it as its scale factor.

1. Set `MSLTSCALE` to 1.
2. Set `PSLTSCALE` to 1.
3. Set your `LTSCALE` to 1 (or a slight variation).

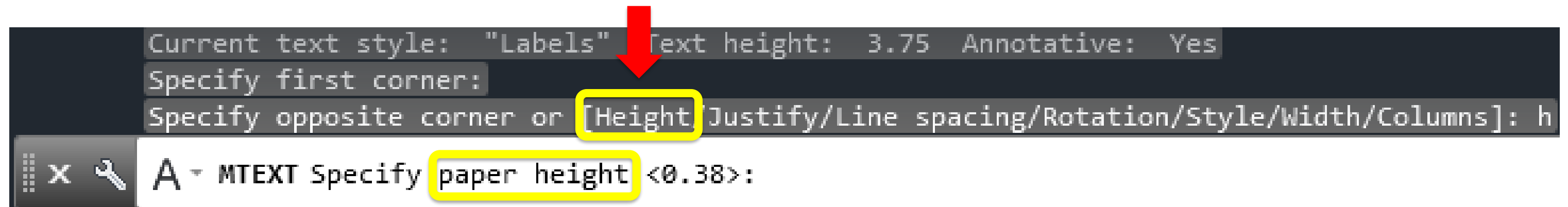
Annotative Linetype Exercise

1. Open **Landscaping Plan**.
2. Select the **Site** layout tab. Notice that the linetypes look appropriate in the layout.
3. Select the **Model** tab. Notice the linetypes are almost solid in model space.
4. Set the **Annotation Scale** to **1:10** (from the Annotation Scale fly-out in the bottom right corner of the screen).
5. Type MSLTSCALE and set it to 1.
6. Type RE (for Regen). See how the linetypes have updated?
7. Type LTS (for LTSCALE) and set it to .5.
8. Type RE (for Regen).

Text & Annotation Scaling

Key points for creating Annotative Text

- Set your Annotation Scale to the desired scale factor
- Make an Annotative text style current
- Start the text command and set a “paper height” for your text (printable height)
- Text will size itself based on the Annotation Scale



The screenshot shows the AutoCAD command line and ribbon. The command line displays the following text: "Current text style: 'Labels' Text height: 3.75 Annotative: Yes", "Specify first corner:", and "Specify opposite corner or [Height/Justify/Line spacing/Rotation/Style/Width/Columns]: h". The word "Height" in the third line is highlighted with a yellow box. A red arrow points down from the top of the image to this box. Below the command line, the ribbon shows the "A" (Annotative) tab selected, with the "MTEXT" command active. The "Specify paper height <0.38>:" option is highlighted with a yellow box, and a red arrow points up from the bottom of the image to this box.

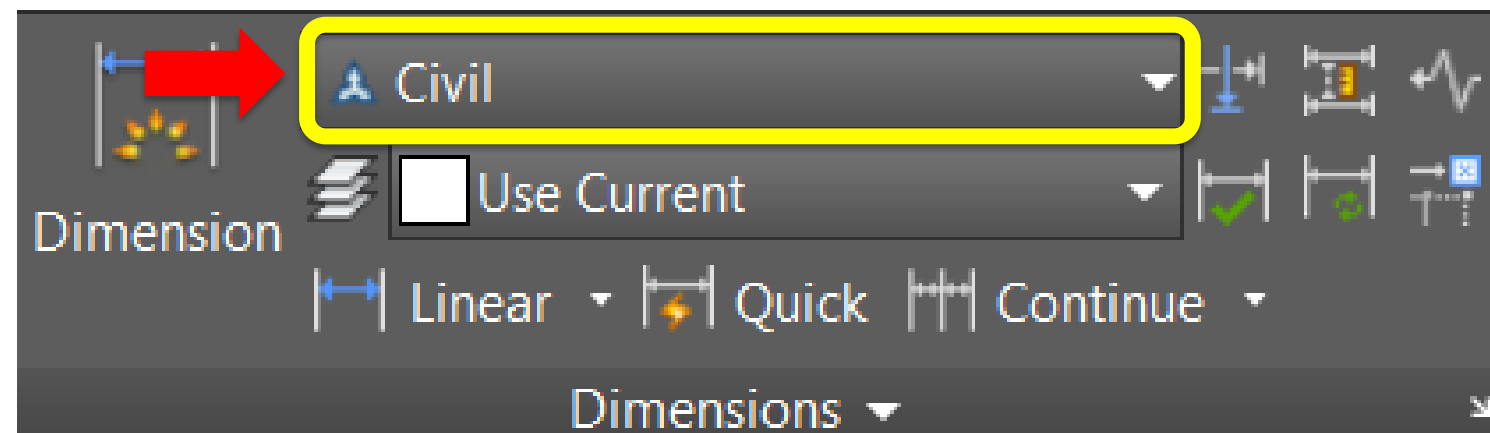
Annotative Text Exercise

1. Open the drawing **Landscaping Plan – Text**.
2. Make sure the **Annotation Scale** is set to **1:10** (from the Annotation Scale fly-out in the bottom right corner of the screen).
3. Set the current layer to **Annotation**.
4. Go to the **Annotate tab->Text** panel and select the **Labels** text style from the text style fly-out.
5. Start the **Multiline text** command by typing **T** (for MTEXT) or by selecting it from the **Annotate tab->Text panel->Multiline Text tool**.
6. Pick the first corner of the text box in the inside of the house outline.
7. Type **H** (for Height) and press enter. Type **.25** for the text height and press enter.
8. Select the opposite corner of the text box.
9. Type **HOUSE** for the label and set the justification to **Middle Center**.
10. Start the **MTEXT** command again and create a label with the text **SHED** that is inside of the shed.

Dimensions & Annotation Scaling

Key points for creating Annotative Dimensions

- Set your Annotation Scale to the desired scale factor
- Make an Annotative Dimension style current (look for the triangle symbol)
- Start any Dimension tool
- Dimension components (text, arrowheads, etc...) will size based on the Annotation Scale



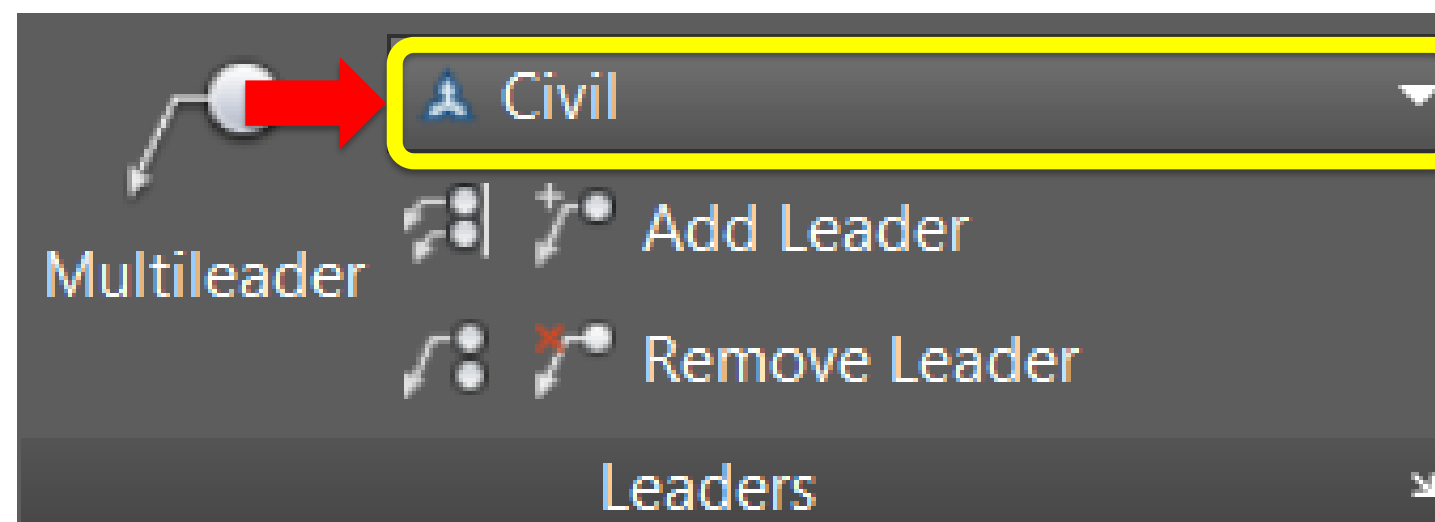
Annotative Dimension Exercise

1. Open the drawing **Landscaping Plan – Dimensions**.
2. Make sure the **Annotation Scale** is set to **1:10** (from the Annotation Scale fly-out in the bottom right corner of the screen).
3. Set the current layer to **Dimensions**.
4. Set the current dimension style to **Civil** from the Annotate tab->Dimensions panel and the dimension style fly-out.
5. Start the **Dimension** tool from the Annotate tab->Dimensions panel.
6. Dimension the two sides of the shed as shown in the exercise.

Multileaders & Annotation Scaling

Key points for creating Annotative Multileaders

- Set your Annotation Scale to the desired scale factor
- Make an Annotative Multileader style current (look for the triangle symbol)
- Start the Multileader
- Multileader components (text & arrowheads) will size based on the Annotation Scale



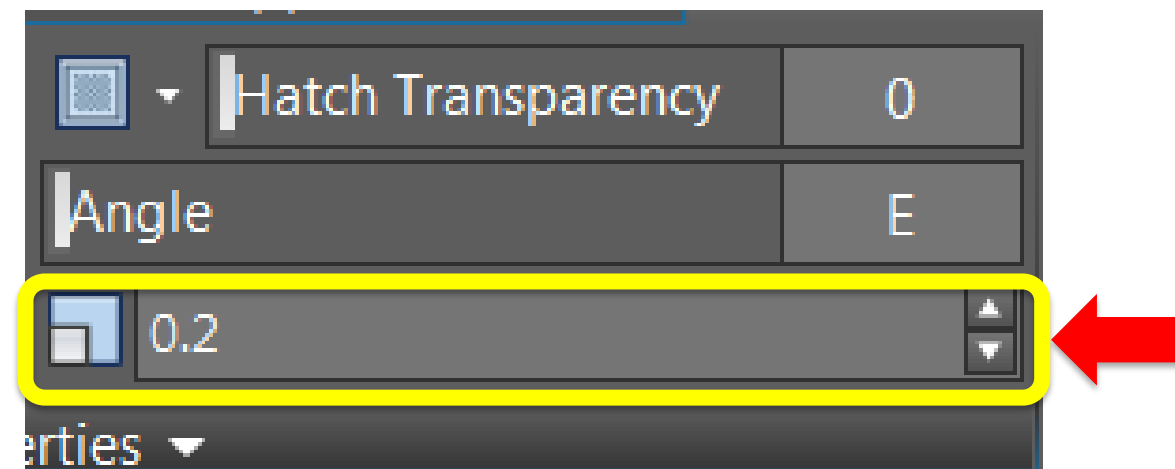
Annotative Multileader Exercise

1. Open the drawing **Landscaping Plan – Multileader**.
2. Make sure the **Annotation Scale** is set to **1:10** (from the Annotation Scale fly-out in the bottom right corner of the screen).
3. Set the current layer to **Annotation**.
4. Set the current Multileader style to **Civil** from the Annotate tab->Leaders panel and the Multileader style fly-out.
5. Select **Multileader** from the Annotate tab->Leaders panel or type **MLD** (for Multileader).
6. Create the leader as shown in the exercise and type **MINIMUM 3' CLEARANCE FROM PROPERTY LINE**, then click outside the text box to finish the leader.

Hatching & Annotation Scaling

Key points for creating Annotative Hatches

- Set your Annotation Scale to the desired scale factor
- Start the Hatch command and turn on **Annotative**
- Select the **Pattern, Rotation**, etc...
- **Remember the Scale of the Hatch pattern** will be based on the **Annotation Scale**, but you still might want or need to change the Hatch Scale by small amounts for minor adjustments



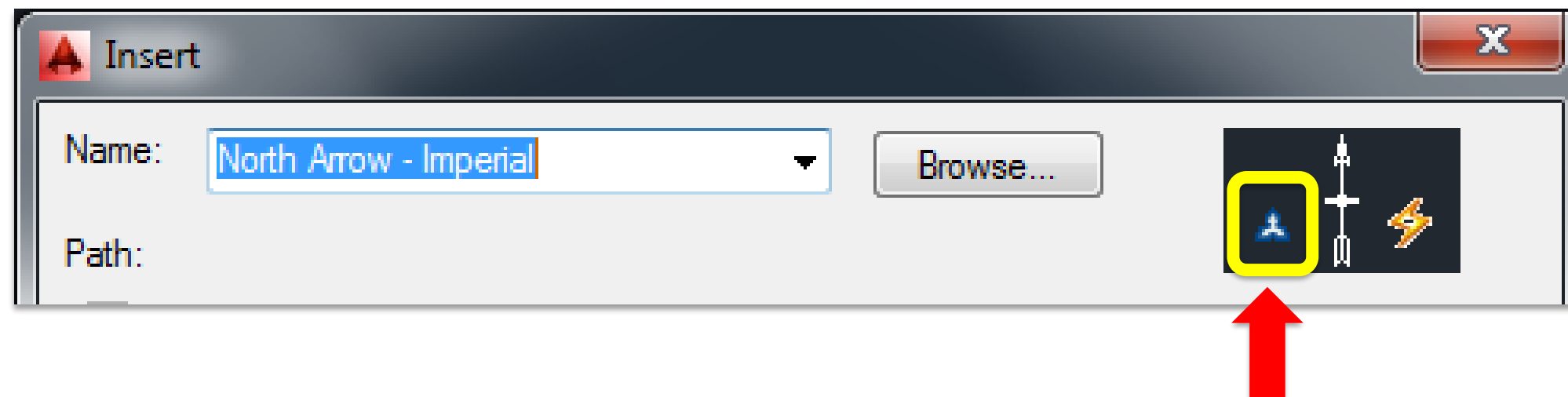
Annotative Hatch Exercise

1. Open the drawing **Landscaping Plan – Hatch**.
2. Make sure the **Annotation Scale** is set to **1:10** (from the Annotation Scale fly-out in the bottom right corner of the screen).
3. Set the current layer to **Hatching**.
4. Start the **Hatch** command from the Home tab->Draw panel->Hatch tool as shown in the handout or type **H** (for Hatch).
5. Set the hatch pattern style to **ANSI32** in the Pattern panel as shown below.
6. Set the hatch pattern **scale** to **.2** in the Properties panel as shown below.
7. Turn on **Annotative** in the Options panel as shown below.
8. Hatch the concrete pad in front of the shed.

Blocks & Annotation Scaling

Key points for using Annotative Blocks

- Set your Annotation Scale to the desired scale factor
- Insert an existing Annotative Block (type I for Insert or use a Tool Palette, etc...)
- The Block will automatically scale based on the current Annotation Scale



Annotative Block Exercise

1. Open the drawing **Landscaping Plan – Blocks**.
2. Make sure the **Annotation Scale** is set to **1:10** (from the Annotation Scale fly-out in the bottom right corner of the screen).
3. Set the current layer to **Annotation**.
4. Start the **INSERT** command by typing **I** or go to the **Insert tab->Block panel->Insert tool**.
5. Select the block with the name **North Arrow – Imperial** and place it on the left side of the drawing.
6. Start the **INSERT** command again and select the block with the name **Bubble** and place it next to the group of 4 shrubs in the front of the house. Type **1** for the attribute value.
7. Repeat the process to add 2 additional bubbles next to the other two trees with attribute values of **2** and **3**.
8. Type **B** (for BLOCK) or select it from the **Insert tab->Block Definition panel->Create Block tool**. Notice the **Annotative** check box. Hit **ESC** to exit the **Create Block** dialog box.
9. Switch to **Model Space** and select the **North Arrow**. Then right-click and select the **Block Editor** option, open the **PROPERTIES** palette (**CTRL+1**) and scroll down to the bottom of the list, notice that **Annotative** is set to **Yes**.

Annotative Attributes

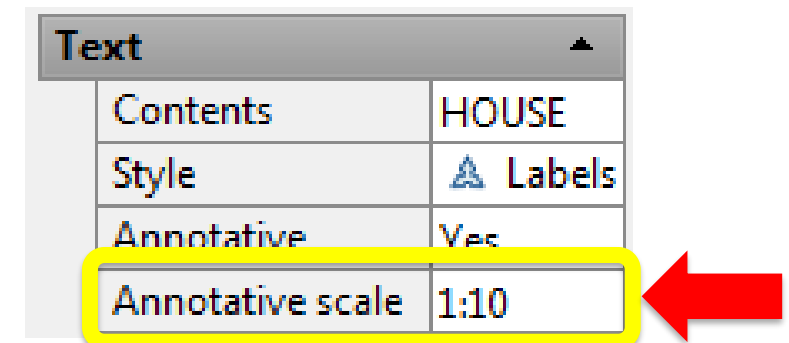
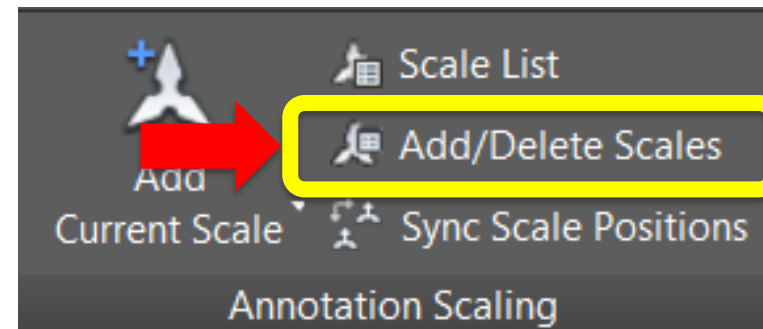
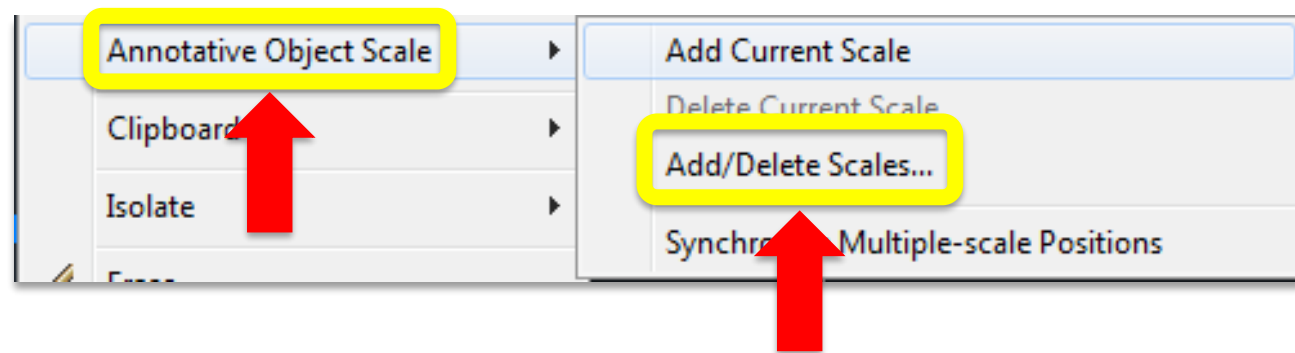
Key points for using Annotative Attributes

- While creating your attribute in the Attribute Definition dialog box under the “Text Settings” section, select the “Annotative” check box.
- Don’t place an annotative attribute in an annotative block. Because the block is already annotative, everything within the block will be annotative automatically.
- Use annotative attributes when the block should remain the same size, but text within the block should scale based on the current annotative scale.

Setting Additional Annotative Scales

There are multiple methods for adding additional scales to existing objects

- Select the object and **Right-Click**
- Use the “Add/Delete Scales” tool from the “Annotate” tab in the ribbon (or type OBJECTSCALE)
- Select the object and go to the **Properties Palette** and look for the **Annotative Scale** option



Adding Additional Scales Exercise

1. Open the drawing **Landscaping Plan – Adding Scales**.
2. Switch to the **Site** layout tab from the bottom right corner of the screen.
3. Notice that none of the text elements show up in the bottom view of the shed. This is because the viewport scale is set to 1:4 and all of our annotation elements are set to 1:10. To fix it we'll need to add the 1:4 annotation scale to the needed elements.
4. Switch to the **Model** tab from the bottom right corner of the screen.
5. Select the **Multileader**, the **Text label**, the **two Dimensions** & the **Hatch pattern**.
6. Type the **OBJECTSCALE** command or go to the **Annotate tab->Annotation Scaling panel->Add/Delete Scales tool** (far right on the ribbon) as pictured in the handout.
7. Click **Add** from the Annotation Object Scale dialog box.

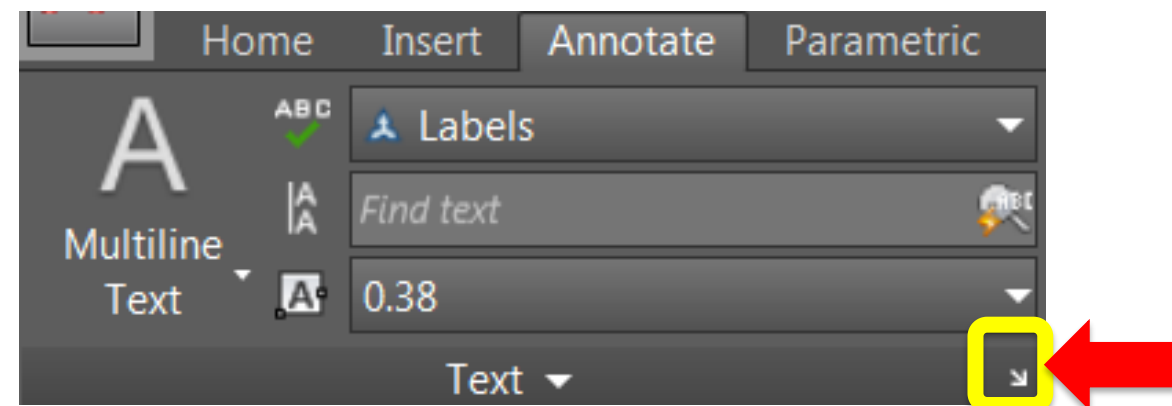
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8. Select the **1:4** scale from the **Add Scales to Object** dialog box and pick **OK**.
9. Select one of the annotative objects and notice that there is now a second version of the object that is a different size. Also if you hover over the object you will see two triangles now instead of one.
10. Hit **ESC** to deselect the objects.
11. Switch back to the **Site** layout tab.
12. Activate the lower viewport.
13. Notice how the text height is the same size as the viewport above? Also notice the scale of the hatch pattern.
14. Using only the grips **edit** the positions of the **Dimensions and the Multileader** to better fit in the viewport. Edit the size of the viewport as needed.

Creating Annotative Styles

Tips for creating Annotative Styles

- Go to the “**Annotative**” tab in the ribbon, all the styles are easily accessible there
- Access the style dialog using the **diagonal arrow** tool in the lower-right corner of each style panel (Text, Dimensions, Leaders)
- Look for the “Annotative” check box in each style dialog (you may have to change tabs depending on the dialog box)



Creating Annotative Styles Exercise

1. Open the drawing **Landscaping Plan – Annotation Styles**.
2. In the **Ribbon** switch to the **Annotate** tab.
3. Select the **Text Style** tool from the lower right corner of the Text panel or Type **ST** (for STYLE).
4. In the Text Style dialog box click **New** to create a new text style, name it whatever you want, and select any font that you would like.
5. Turn on the **Annotative check box** to make it annotative and pick OK.
6. Select the **Dimension Style** tool from the lower right corner of the Dimensions panel or Type **D** (for DIMSTYLE).
7. In the Dimension Style Manager pick **New** to create a new Dimension Style, choose the Standard style to build it from and give it any name and pick **CONTINUE**.

Continued...

8. Switch to the **Fit tab** in the Dimension Style Editor and select the **Annotative check box** then pick **OK** and **CLOSE**.
9. Select the **Multileader Style** tool from the lower right corner of the Leaders panel or type **MLS** (for MLEADERSTYLE).
10. In the Multileader Style Manager pick **New** to create a new Multileader Style, choose the Standard style to build it from and give it any name and pick **CONTINUE**.
11. Switch to the **Leader Structure** tab in the Multileader Style Editor and select the **Annotative check box** then pick **OK** and **CLOSE**.

Annotative Scaling – time savings?

Companies that are utilizing annotative scaling, that commonly have multiple viewports and different scale factors within the same drawing, have reported a reduction in time spent on documentation of 30-50% on average.

Annotative Scaling – time savings?

The amount of time saved in your organization is directly affected by several factors.

- Type of work that you perform (some types of drawings require various scale factors among multiple viewports within the same file)
- How well the annotative styles have been developed and implemented (styles and settings saved in templates, blocks, etc...)
- How well each CAD person has been trained to use annotative scaling

Changing Existing Objects to Annotative Scaling

Tips for changing existing objects to annotative

- Set your Annotation Scale to the desired scale factor
- Select the objects that need to be changed
- For easier selection of objects in large or busy drawings use Quick Select (QSELECT)!
- Use Properties to edit the style to set it to an annotative style and remember that you may need to turn “on” annotative
- For hatch patterns you will likely need to reset the scale to 1
- Use BEDIT to open blocks and then change the Annotative option in the Properties palette to Yes

Changing an Existing Drawing Exercise

1. Open the drawing **Existing Floor Plan**.
2. In the **Ribbon** switch to the **Annotate** tab.
3. Set the **Annotation Scale** to **1/2"=1'-0"** (from the Annotation Scale fly-out in the bottom right corner of the screen).
4. Type **QSELECT** or right-click and select Quick Select from the menu.
5. In the Quick Select dialog box change the **Object Type** to **Text** and the **Operator** to **Select All**, and then pick **OK**. All of the text should be selected.
6. Open the **Properties Palette** (CTRL+1). Change the **Style** to **Labels**, and check to make sure **Annotative** is set to **Yes**. At this time you could also add additional annotation scales to the text as needed. Hit **ESC** to clear the selection when you are done.

Continued...

7. Select the **three dimensions** that are in the drawing.
8. Open the **Properties Palette** (CTRL+1). Change the **Dim Style** to **ARCH\$0**, and check to make sure **Annotative** is set to **Yes**. At this time you could also add additional annotation scales to the dimensions as needed. Hit **ESC** to clear the selection when you are done.

Integrate Annotation Scaling

Integrating Annotative Scaling into your Current Workflow

- **Make an Annotative Scaling Implementation Plan!**
- What functionality do you need/want?
- **Identify your team players!**
- Update your existing template with new styles and settings
- **Create a training plan for all your AutoCAD users!**
- Sample implementation workflows on pages 26-28 of your handout

Final thoughts

I'd love to have you complete the evaluation for this session! Thank you!

Feel free to contact me:

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