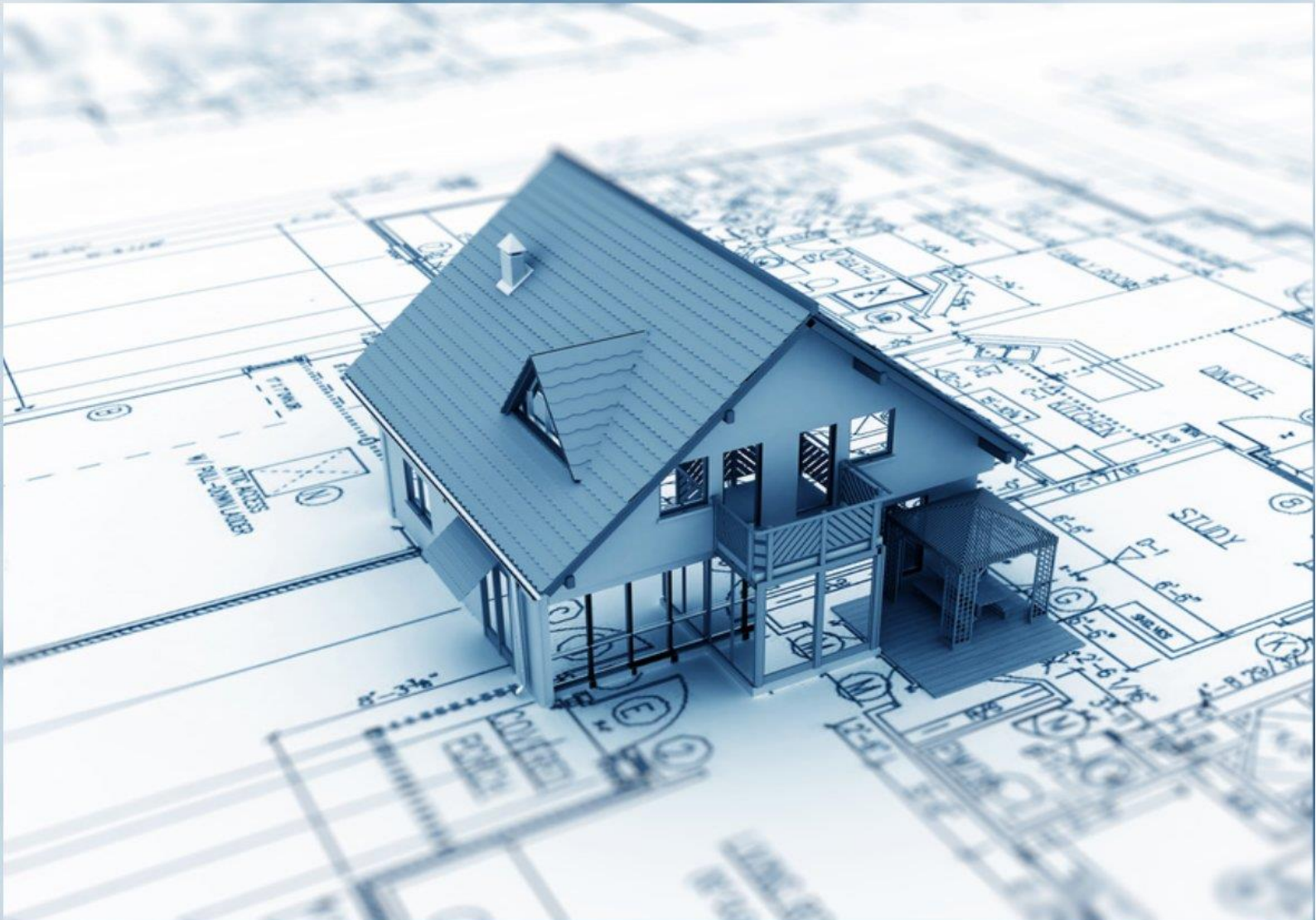


Working with AutoCAD Annotation Scaling



Edwin Prakoso

PREFACE

Autodesk introduces Annotation Scaling in AutoCAD since version 2008. It is one of many underutilized features in AutoCAD. The reason is this feature is quite complex and requires you to train the AutoCAD users in your company. Without knowing how to work with Annotation Scaling, working with the drawing can be confusing for him. It can be a disaster and disturb the project.

This e-book teaches you the Annotation Scaling concept, how it works and how to use it. It is up to you if you are going to implement it in your job or continue with the current method. However, I always think that we should give a feature a chance. If we do not like it, then don't use it. However, if we ignore it, we might lose the chance to be more productive.

I hope you can find this e-book useful. If you do, feel free to distribute this e-book to your colleague so you all can work with this feature.

Happy learning!

Edwin Prakoso

PREREQUISITE

Annotation Scaling is an AutoCAD advanced feature. You have to know AutoCAD basic features if you want to use this e-book.

You have to know how to:

- Modify Text, Multileader and Dimension Styles
- Use Text, Multileader, Dimension tools
- Use the hatch tool
- Use layout and create viewports
- Use the Properties Palette
- Create and modify a block definition

TABLE OF CONTENTS

<u>PREFACE</u>	<u>I</u>
<u>PREREQUISITE</u>	<u>II</u>
<u>TABLE OF CONTENTS</u>	<u>III</u>
<u>WHY USING ANNOTATIONS SCALING?</u>	<u>1</u>
WHAT ARE ANNOTATIONS?	1
THE PROBLEM WITH DRAWING ANNOTATIONS	1
WHEN WILL I GET THE MOST BENEFITS OF USING ANNOTATION SCALING?	2
HOW ANNOTATION SCALING WORKS	2
<u>ADDING ANNOTATIONS</u>	<u>5</u>
DIMENSION	5
MULTILEADERS	9
HATCHES	10
<u>WORKING IN LAYOUT</u>	<u>12</u>
ADD VIEWPORTS AND SETUP THE SCALE	12
SETUP ANNOTATION FOR MULTIPLE SCALES	15
MODIFYING THE ANNOTATIONS	17
ARRANGING LEADER POSITION	17
EDITING THE TEXT	18
WORKING WITH ANNOTATIVE BLOCKS	20
<u>TO SUM UP</u>	<u>22</u>
<u>MORE LEARNING MATERIALS ON CADNOTES</u>	<u>23</u>
<u>SUPPORT US TO HELP THE OTHERS</u>	<u>23</u>

ABOUT THE AUTHOR	24
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COPYRIGHT INFORMATION	25
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WHY USING ANNOTATIONS SCALING?

We often need to draw several drawings in a sheet. They often have different scales. In this situation, it can be difficult to draw the annotations. What is the text height should be in 1:10 scale? What is the hatch scale, so it is not too dense in 1:100 scale? Moreover, what is the scale in 1:5 detailed drawing?

There are workarounds AutoCAD users do over the years. The methods work, but there are some downsides. If you have the problem and are looking another way to do this, keep reading.

What are Annotations?

Annotations are the elements that are not a part of model or geometry. We add annotations in the drawing for clarity.

- We add text to give an object description.
- We add dimensions to allow engineers know the sizes quickly.
- We add hatches or patterns to describe materials or other properties.
- We draw tags to add legends or description

The Problem with Drawing Annotations

We draw objects in real measurements, 1:1 scale. However, the annotation size is relative. You need to make sure the annotation is readable when you plot your drawing. If you draw your annotations on model space, the problem is obvious. The text size on 1:10 scaled drawing is different when you need to plot it with 1:25 scale. The hatches can be too dense if you plot it with a smaller scale.

Another method is to draw the annotations on the layout. Because we always plot layout with 1:1 scale, it is easier to draw annotations. We draw text with the same size we expect to appear on the paper. If I want the text 2mm, I draw it with 2mm height on the layout.

However, drawing annotations on the layout also has downsides. When you modify the drawing in model space, you may need to check and rearrange the annotations. Hatches do not work with this method.

When Will I Get the Most Benefits of Using Annotation Scaling?

If you do not use layout, then Annotation Scaling is not for you. You can fully utilize Annotation Scaling if you use layout.

The benefits of Annotation Scaling are:

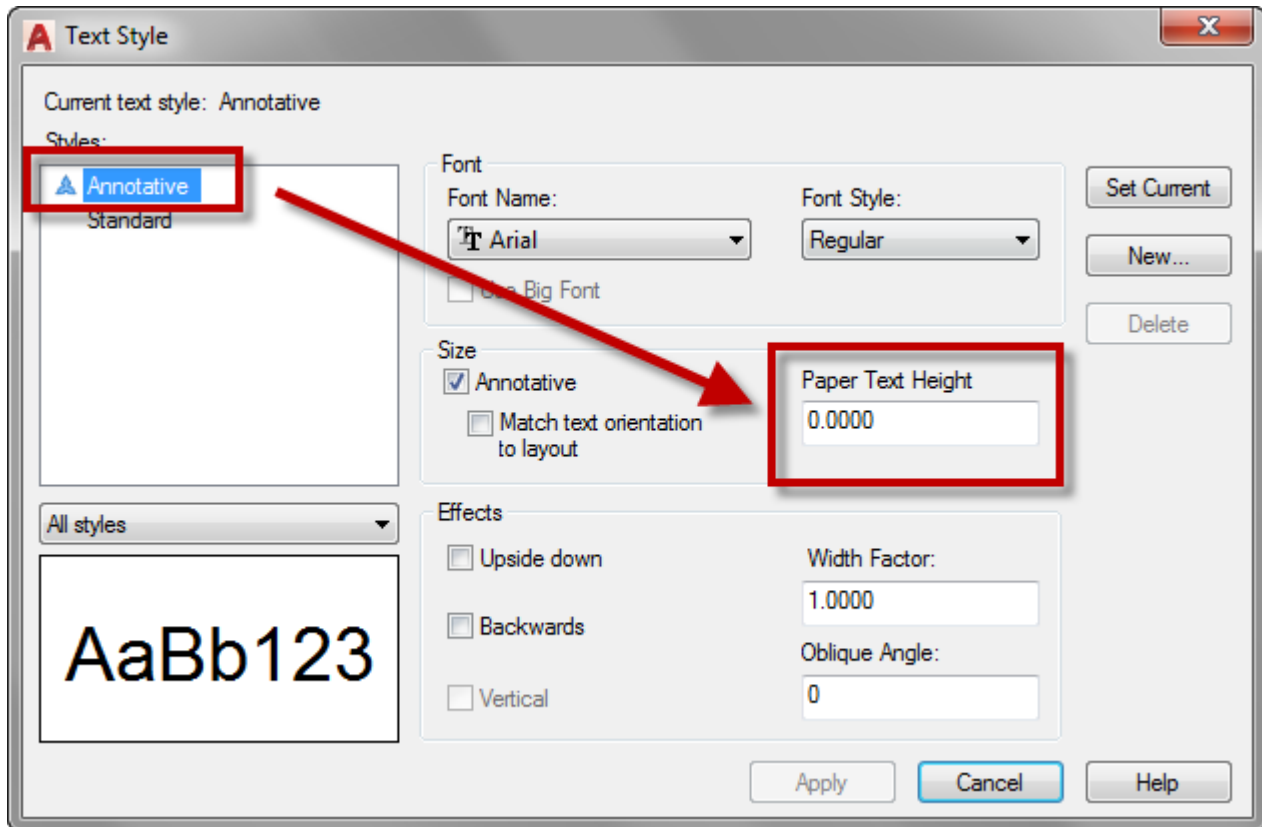
- Annotation Scaling allows you to set the annotation size easily. You only need to think the size when it is plotted.
- If you need to show it on different scales, you do not need to recreate it. It resizes automatically.
- You can show annotations on different scales, but you only need to modify it once.

We can see the benefits once we start using it in this e-book.

If you have not use layout, you might want to consider to start using it. There are at least 10 benefits of using AutoCAD layout, which you can read about it here: [10 Reasons to Use AutoCAD Layout](#).

How Annotation Scaling Works

Create a new AutoCAD drawing with a default ISO template. Open the Text Style. Select and set Annotative style as Current.



Notice that when you use annotative text, the text height is now showing Paper Text Height. It means you only need to define the text height on paper, not when you draw it. If you want the text height 2.5mm on paper, fill 2.5.

On the status bar, the scale should show 1:1.



Now draw a text.

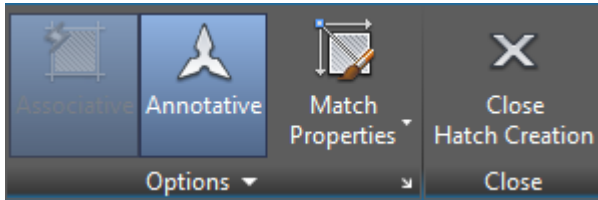
Change the scale to 1:2. Draw another text.

CADnotes
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As you can see, AutoCAD now draws the text bigger for 1:2 scale. It automatically resizes it in your drawing, so the size is 2.5 on paper.

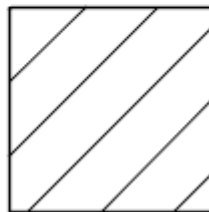
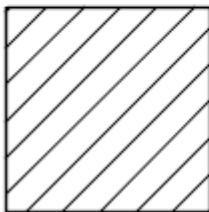
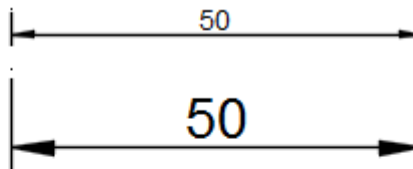
Repeat the same method with dimension.

You can also experience with hatches. Before you create the hatch, make sure the annotative button is active on the contextual ribbon tab.



Below is the example how annotative scaling works.

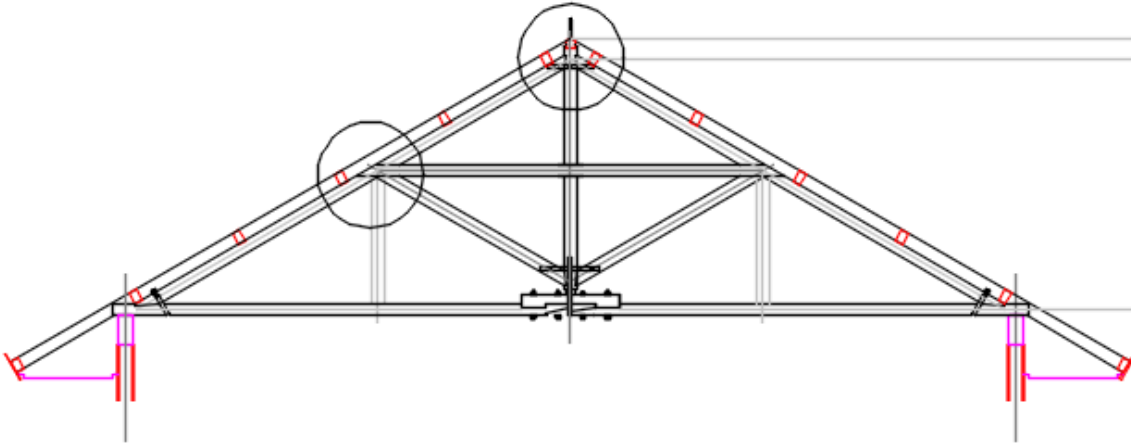
CADnotes
CADnotes



ADDING ANNOTATIONS

In this part, you learn how to use Annotation Scaling. We use text styles and dimension styles in this first part.

Open the truss.dwg file. This file is provided with the e-book.



We add annotations for this truss in this chapter.

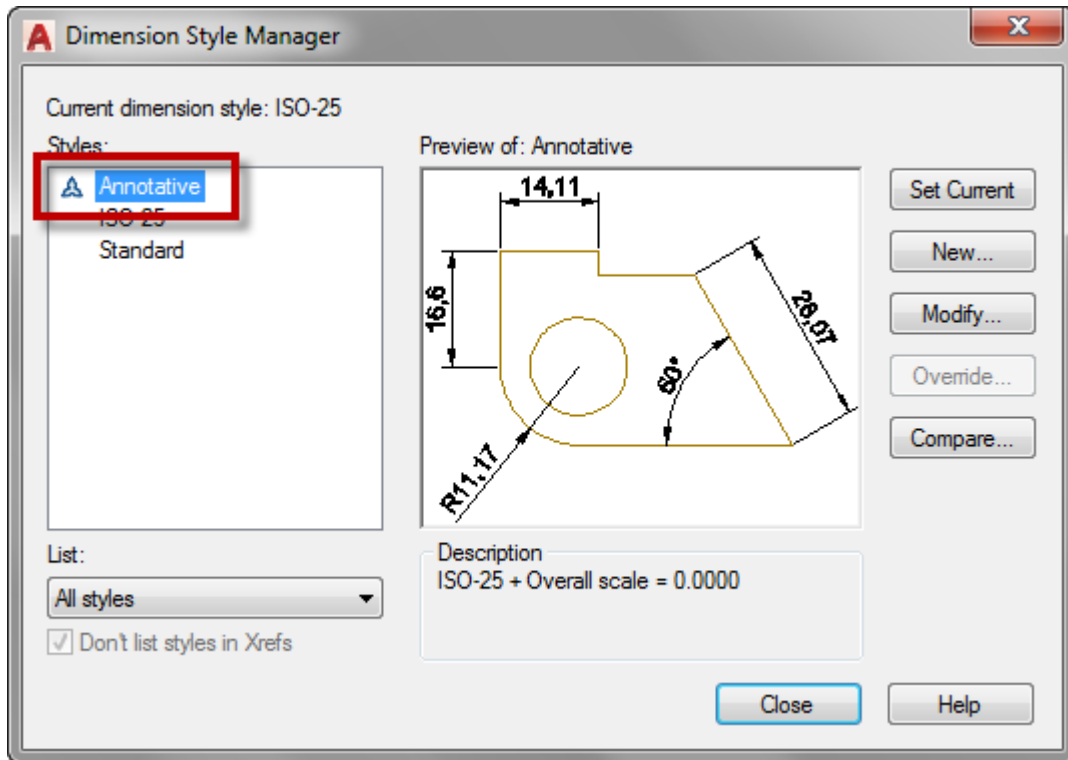
When working with Annotation Scaling, we add the annotations at the model space. Later we configure it in the layout.

Dimension

Open dimension styles. In the styles list, you can see the Annotative style. This style is a default style; you have it when you use AutoCAD out of the box template.

On the left side of the style, you can see the annotative symbol. Annotative scaling only works if you use annotative styles. Make sure you choose the right style.

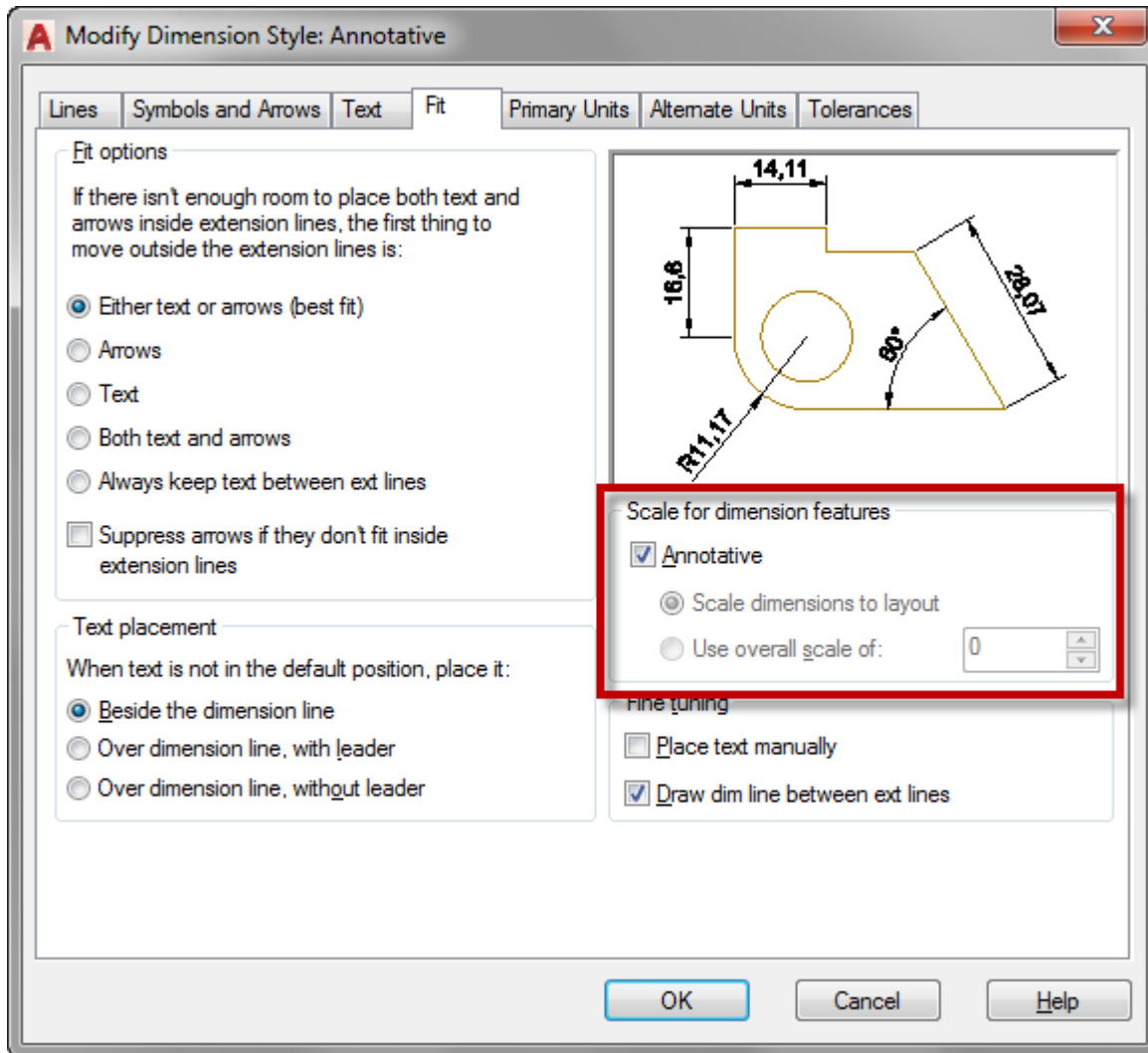
Double-click the style to make it current.



Annotative dimension style is the same regular dimension style. Click Modify to examine the style settings.

What makes a dimension style becomes annotative is the setting in the Fit tab, under Scale for dimension features. See the next image for your reference.

You can make a regular style to be annotative by checking the option.



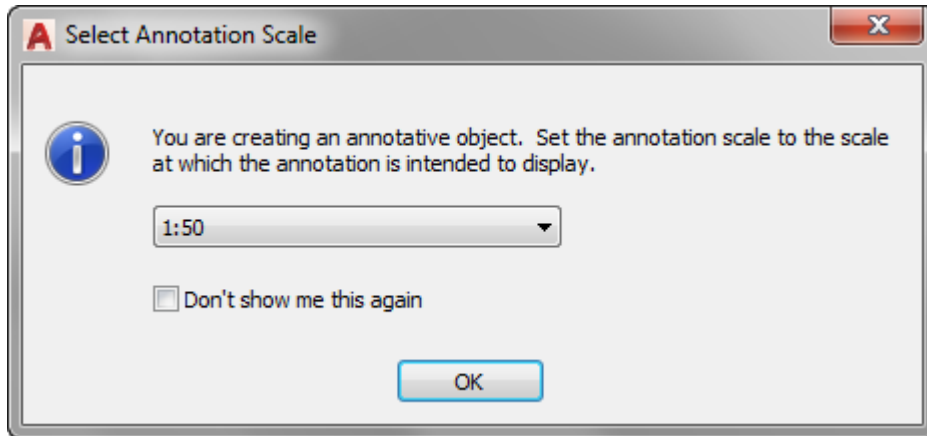
Click OK to close Modify Dimension Style. Click close to close Dimension Style Manager.

Fun fact: The annotative symbol comes from the engineering scale ruler.



Activate dimension tool. You should see this warning when you are first using Annotation Scaling.

Change the scale to 1:50 then click OK.

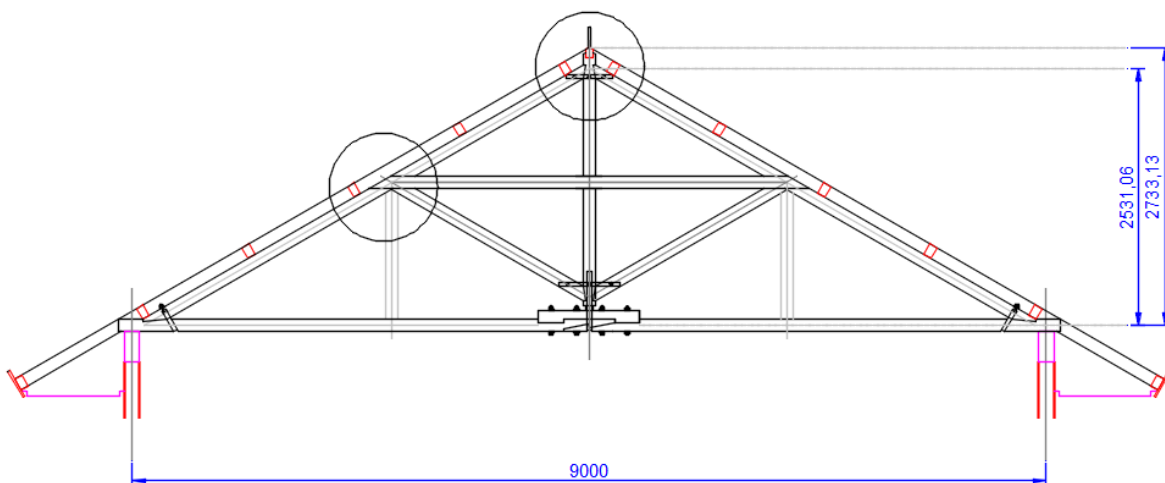


If you do not see the dialog box, you can select the scale from the status bar.



We set the scale to 1:50. When we draw a dimension, AutoCAD resizes it for 1:50 scale.

Add dimension to the drawing like below.

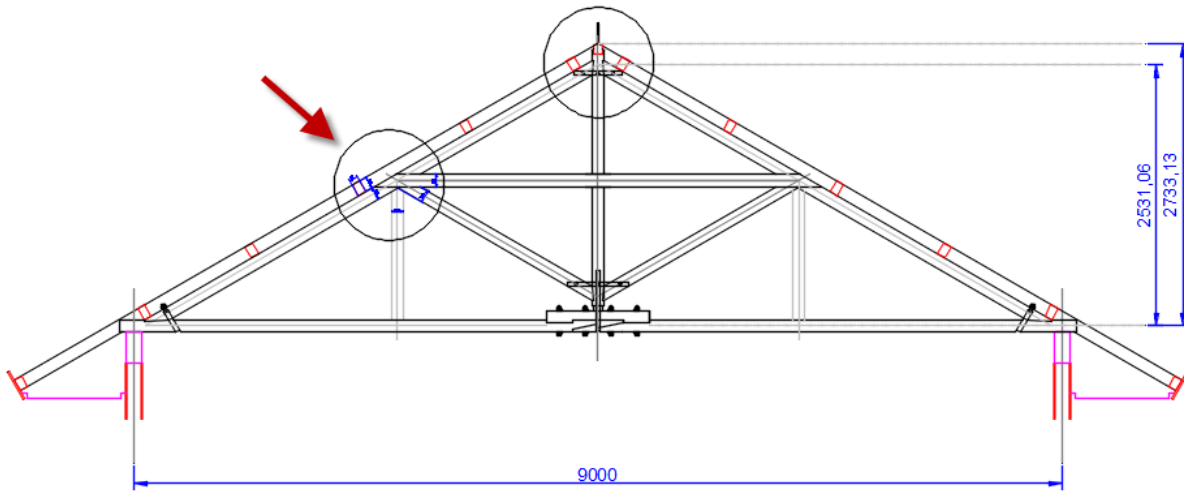


Change the annotative scale to 1:10 from the status bar.



Add more dimension in detail drawing as shown by the arrow. Which part of dimension is not important.

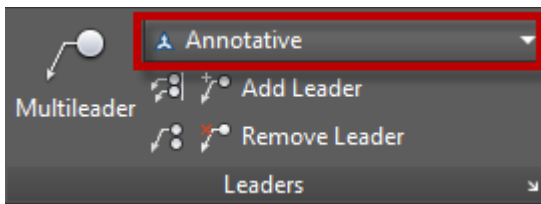
You can see now the dimension size is smaller, because it is set to 1:10 scale.



That is how Annotation Scaling works. We can see more when we work with layout.

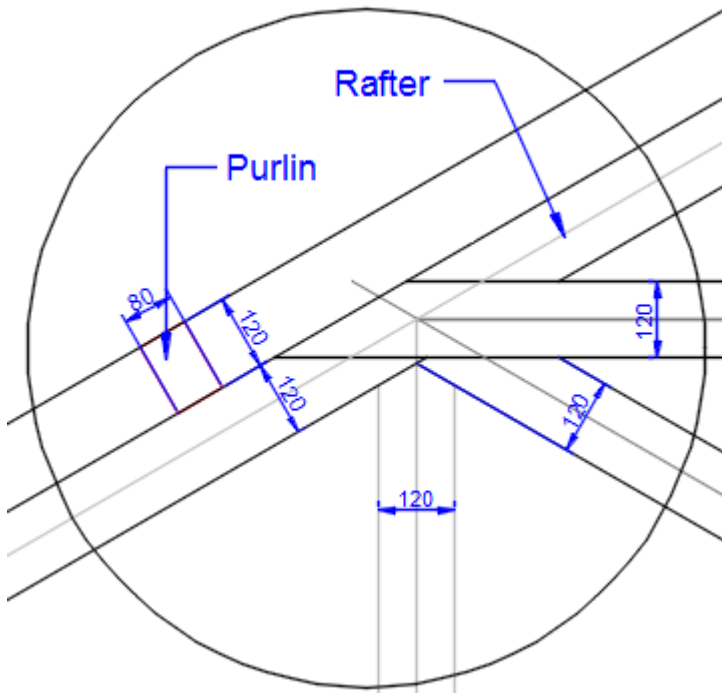
Multileaders

On AutoCAD ribbon > Annotate tab > Leaders panel change the style to Annotative.



Make sure the scale is still 1:10.

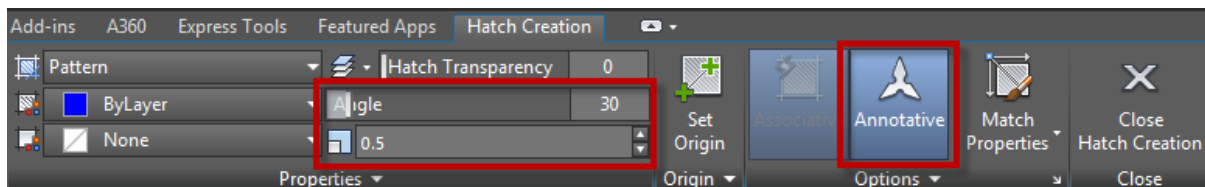
Add the multileaders in the detailed drawing like below.



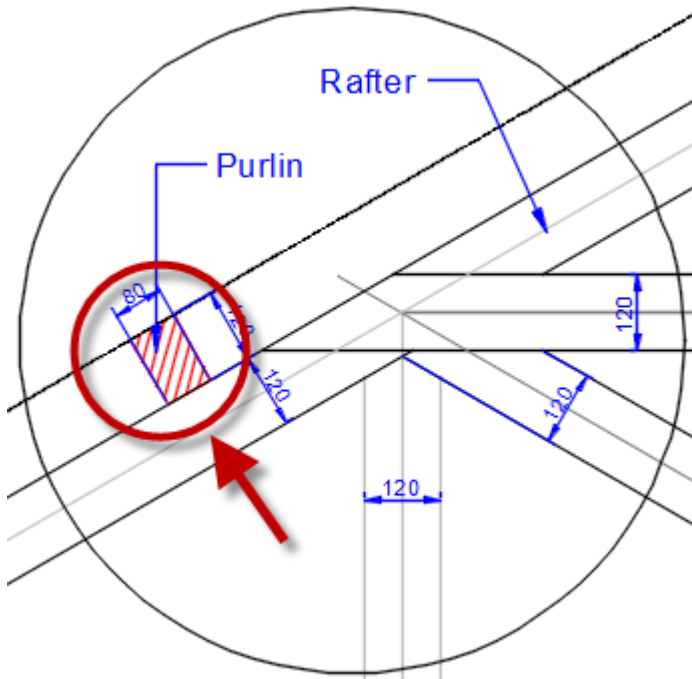
Hatches

Activate hatch command. In the contextual ribbon tab, change the angle to 30 deg and hatch scale to 0.5.

Activate Annotative.



Add a hatch for the purlin profile. Use the next image as a reference.

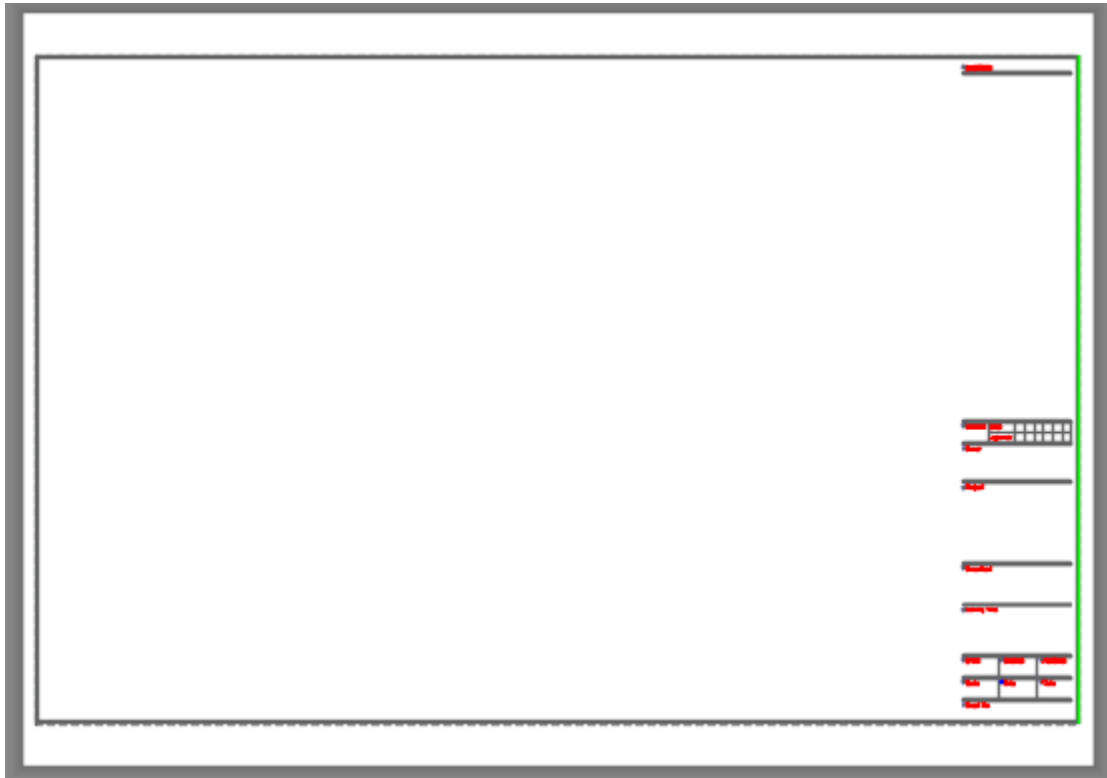


We added the basic annotations in the model space. Add more annotations as necessary for your practice.

WORKING IN LAYOUT

We arrange viewports in our layout in this part.

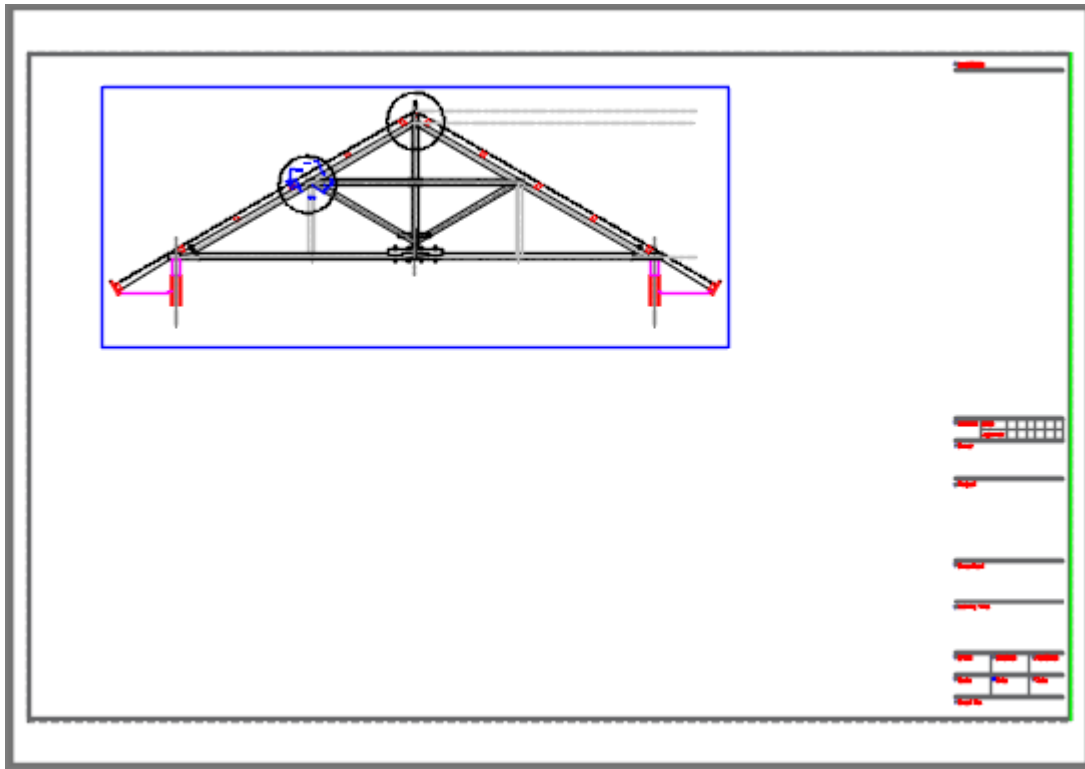
A layout is already prepared for this tutorial. Go to Truss details tab.



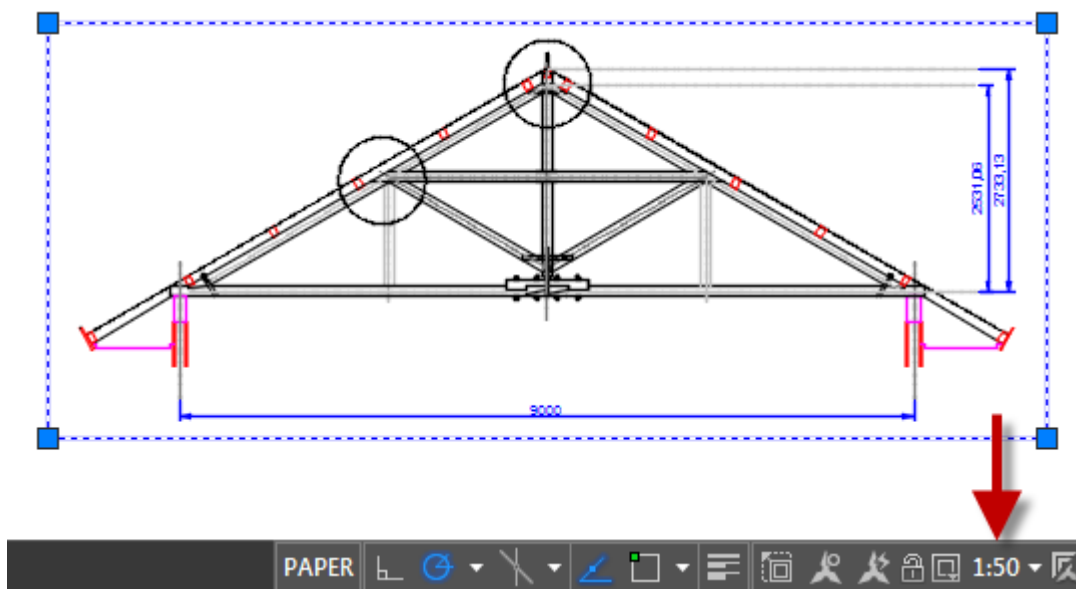
Add Viewports and Setup the Scale

Type `-VPORIS` in command line then press Enter. Remember to type `-` before `VPORIS`.

Add the viewport as shown below.

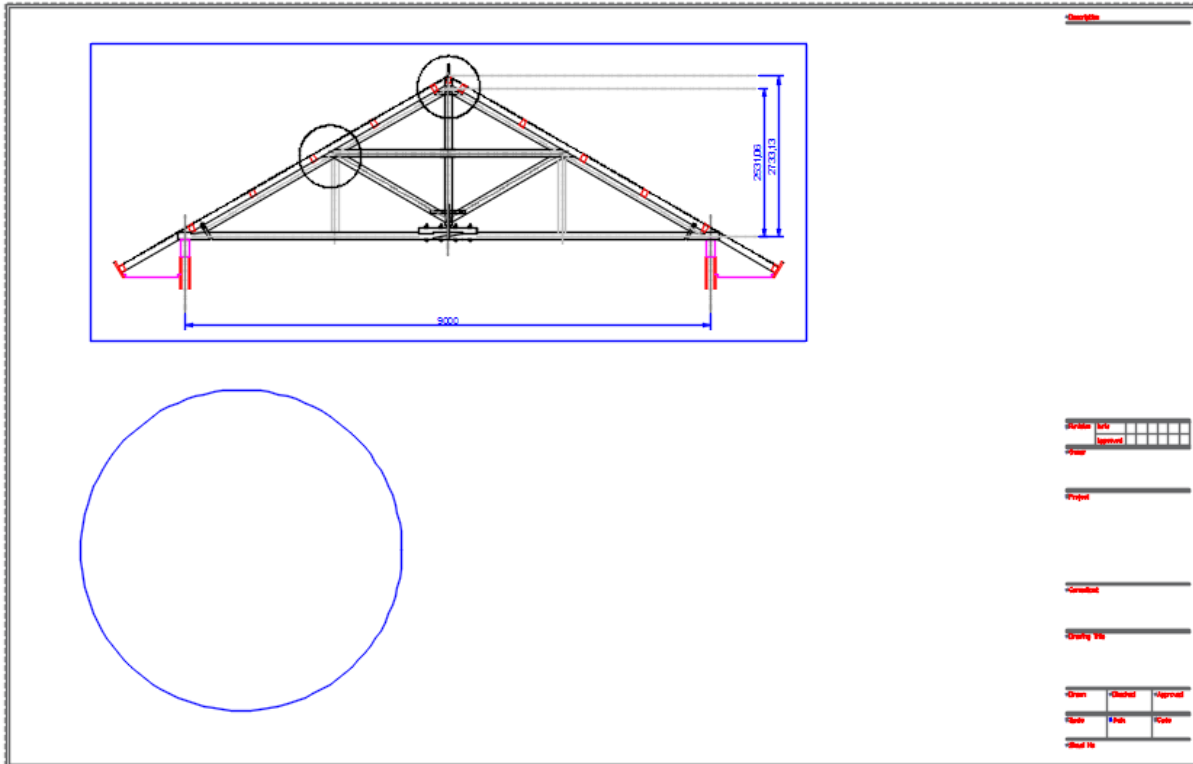


Notice that some annotations are missing. Select the viewport boundary then change the scale from the status bar. Set this viewport scale to 1:50.

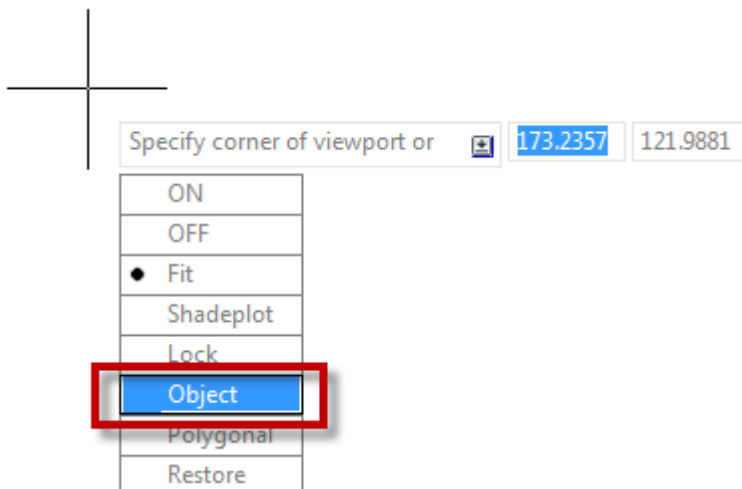


You can see all dimension for 1:50 appears.

Draw a circle for another viewport.

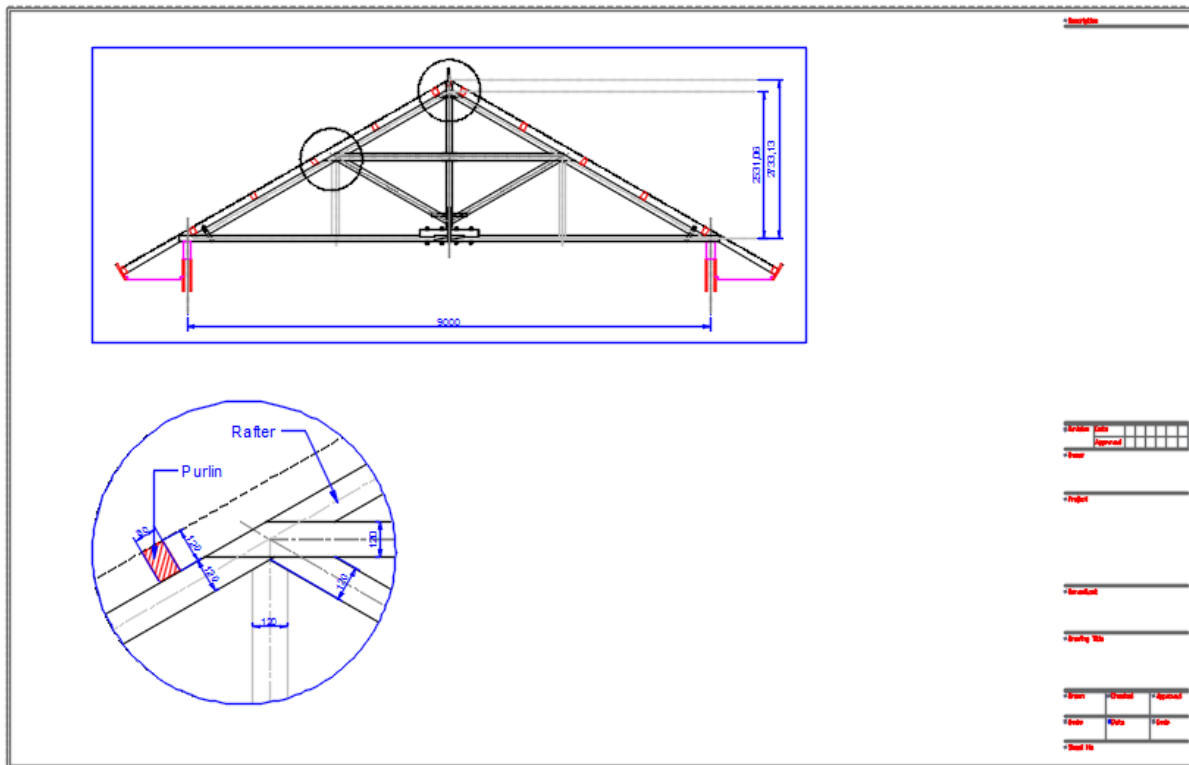


Type -VPORTS again. Change the option to Object, then select the circle.



You can select object from Dynamic Block or type O then Enter.

Set the viewport scale to 1:10. Arrange the drawing position until you can see it like below.



Notice that now you can see the 1:10 annotations in the detailed drawing. None of the annotations appear in the 1:50 truss drawing. Moreover, you can see that 1:50 annotations do not appear in the detailed drawing.

The dimensions size is different in the model space. However, you can see them have the same size in the paper space. Regardless the viewport scale.

Setup annotation for multiple scales

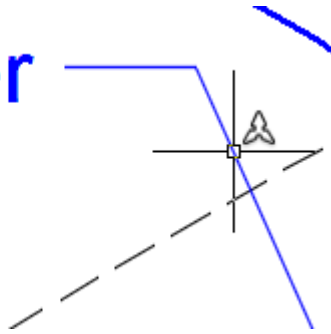
As we can see, each viewport only shows annotations that are set to a particular scale. What if we want the annotations to appear in both scales?

Double click inside the circular viewport to activate it.

You can also go to Model Space tab to do this

Move your mouse cursor over the multileader

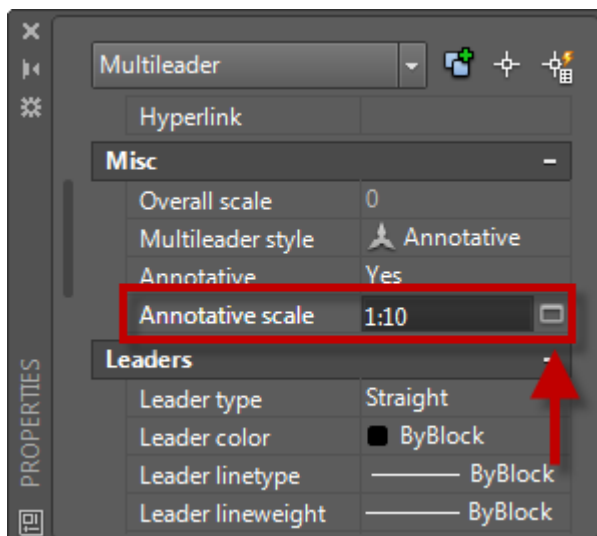
Rafter



Near the cursor, you can see the annotative symbol. The symbol only appears if the annotation uses Annotative Scaling.

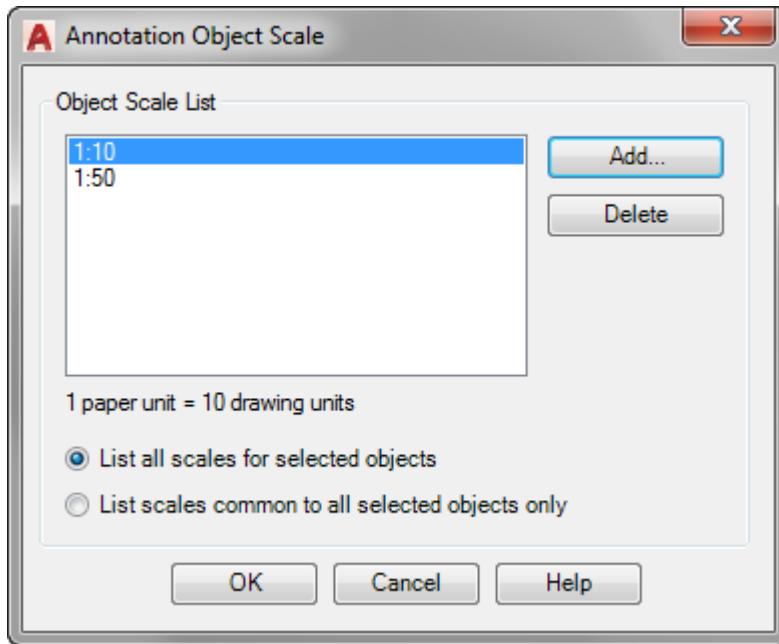
Select the Multileader. Press Ctrl + 1 to open Properties Palette if it is not opened yet.

In Properties Palette, under Misc category, click the button next to Annotative Scale.



In the Annotation Object Scale dialog, currently only 1:10 scale is listed. We want to show this leader in 1:50 drawing as well. Click Add...

Select 1:50 from the Scale List. Click OK.

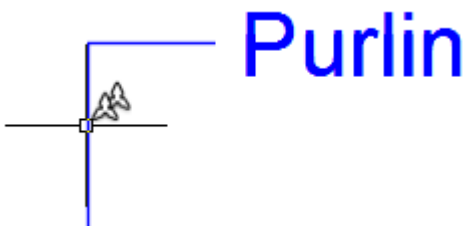


Click OK to close the dialog box.

Repeat the same procedure to the other multileader.

In real work, you can select multiple objects to add the scales.

Notice that now the cursor shows two symbols when you move the cursor above the leader.

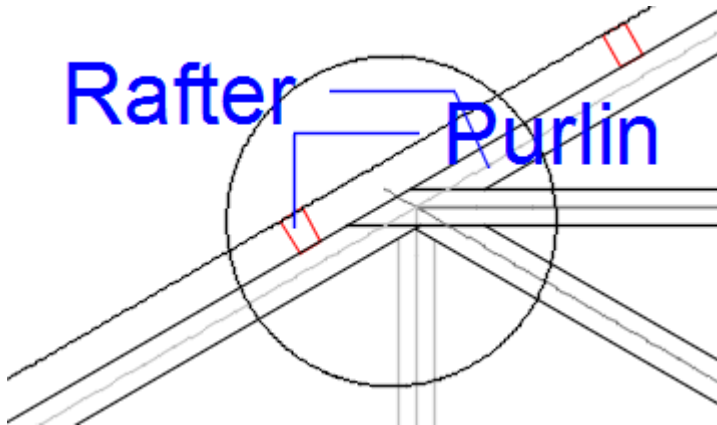


It means that the leader is now shown in multiple scales.

Modifying the Annotations

Arranging leader position

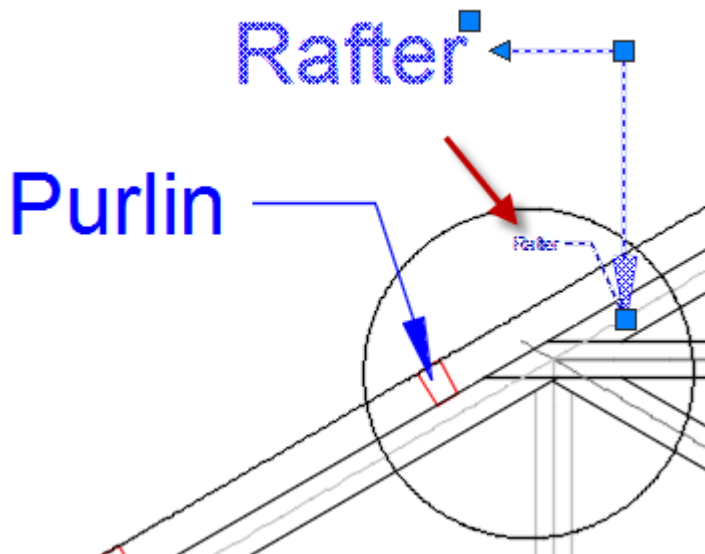
We can see the multileaders in both viewports now. However, the multileaders in the 1:50 don't look right. We need to arrange it.



Double click in the large viewport to activate it.

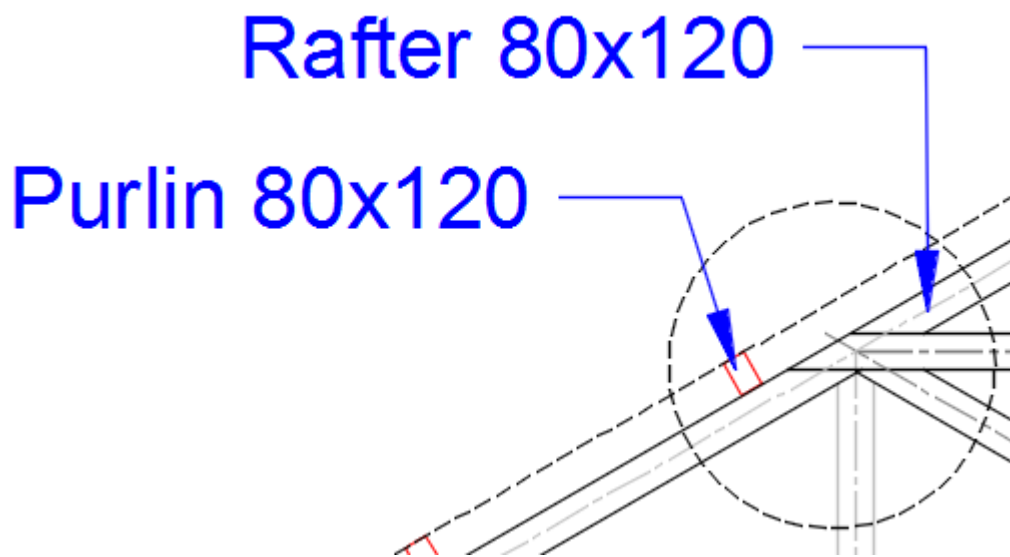
Select the multileader. Arrange the leader and text location by moving the blue grips.

When you select the leader, you can see the small leader position. That is the leader for 1:10 scale. The small leader disappears when you do not select it.



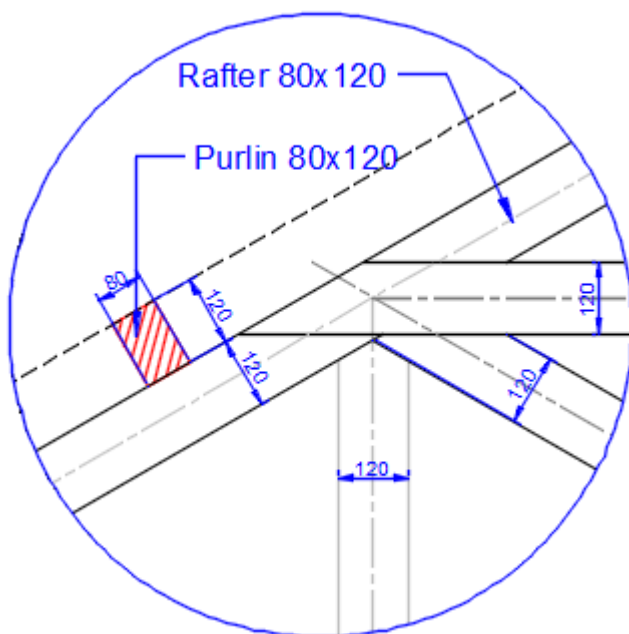
Editing the Text

With the viewport still active, double-click the leader text. Add 80x120 after the original text.



Type PS then Enter to go back to paper space.

Examine the detailed drawing.

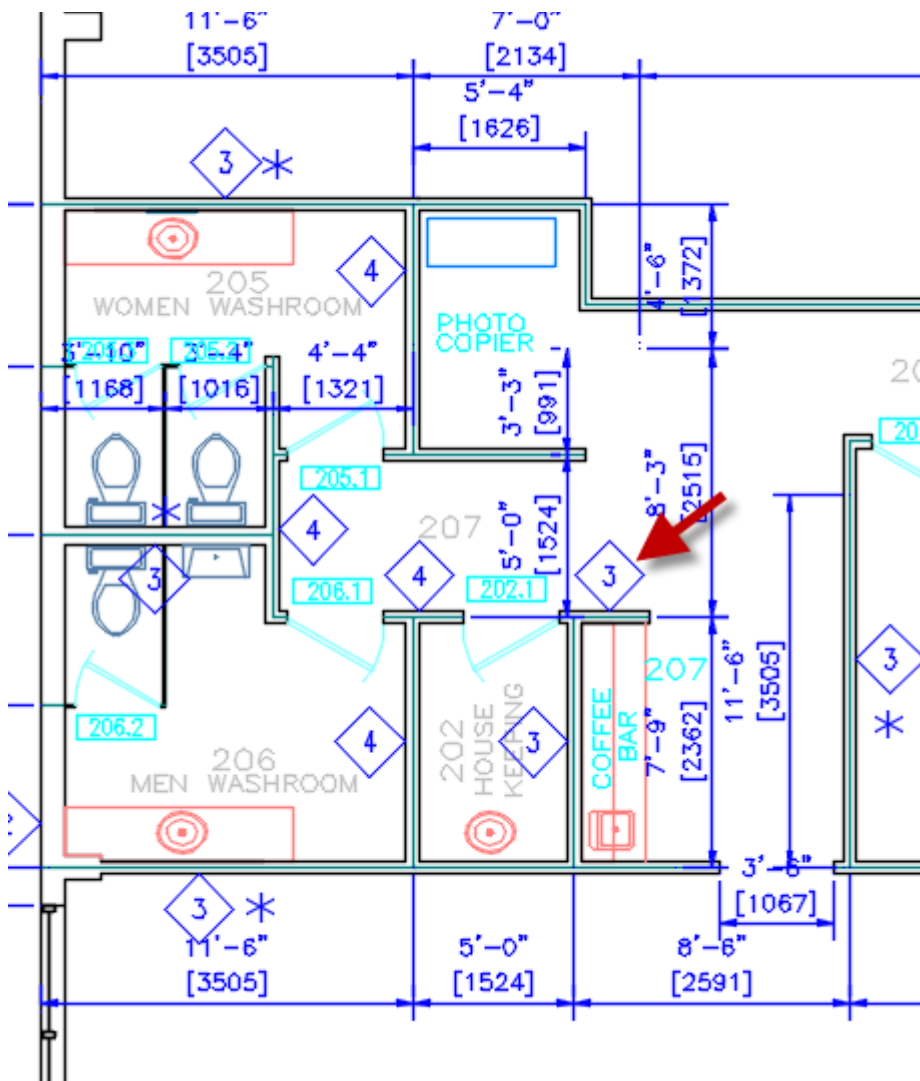


The texts in our detailed drawing are also updated. They are in different positions, but they are still linked. If you need to modify the text, it updates in all scales. It can reduce mistakes because we forget to modify it in other scales or typos error.

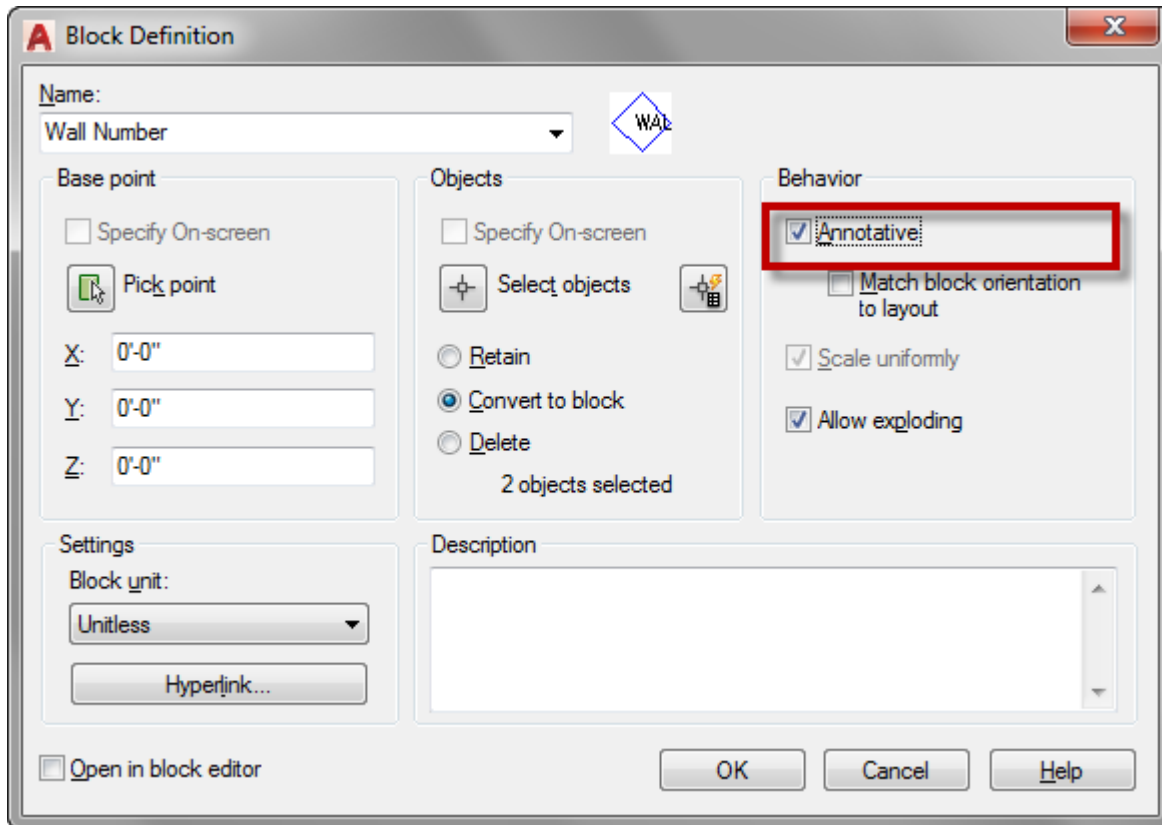
Working with Annotative Blocks

You already know how to work with Annotative Scale. The last object that we are going to cover is block. The method is the same with the others annotations. The only difference is how to create the block.

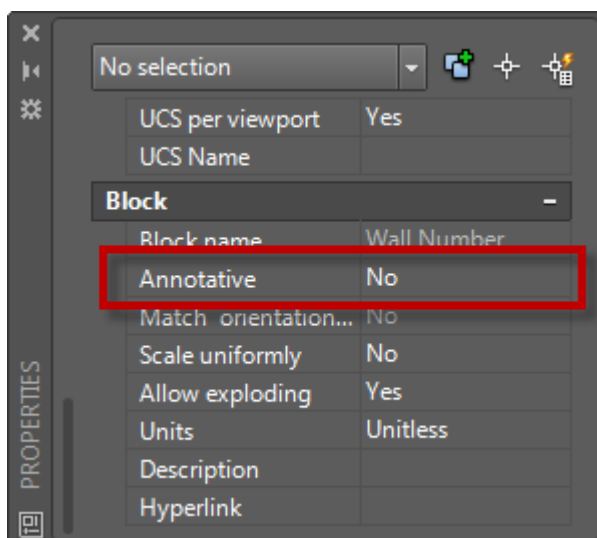
When we use the annotative block? Annotative blocks usually are tags. In the example below, you can use the block as finish material tag.



To make a block annotative, you need to check the annotative option when you create it.



You can make an existing block annotative by editing the block in Block Editor. Set the Annotative properties in the Properties Palette.



TO SUM UP

You have learned about annotative scales. As you can see, it does not give many benefits if you work in model space.

However, if you use layout you can get many benefits:

- It is easier to set the annotation sizes
- You can create the annotation for multiple scales at once
- It is faster to modify the annotation when you show it in multiple scales
- It can help to reduce errors when you need to modify the annotation

You need some time to get used to Annotation Scaling. Probably Annotation Scaling does not fit your current workflow. However, it is a way to draw annotations faster. If you like the concept, try to implement it in your drawing standards.

It is not difficult to use, but it takes some time to implement it.

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ABOUT THE AUTHOR



I use AutoCAD since AutoCAD R14. I am certified as AutoCAD 2014 Certified Professional and Revit Architecture 2014 Certified Professional. I am also recognized as Autodesk Expert Elite, the recognition from Autodesk for individuals who make great contributions to helping the customers.

I worked for an architecture firm for a year, then work in a building contractor for 2 years. In the last 12 years, I work as an application engineer for Autodesk resellers. Yes, it is plural, I have been in several resellers in this period.

I started CADnotes website in May 2009 with the intention to help fellow CAD users. There are several authors who also contribute to the website. You can also submit your article, [read the quality guidelines here](#).

Feel free to connect with me on LinkedIn [linkedin.com/in/edwinprakoso](https://www.linkedin.com/in/edwinprakoso)

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