

AEC11363

Texting Gone Wild: Advanced Annotation Tips and Tricks for Fabrication CADmep

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Learning Objectives

- Learn how to make ALL text on shop drawings the same height, no matter what viewport scale you have
- Learn how to setup ADDREPORT with CTEXT so that the text heights match and resize based on viewport scale
- Learn how to modify text in a single viewport without affecting others
- Learn how LISP can be used to automatically determine text placement location relative to the object selected

Description

Annotation of shop drawings in Fabrication CADmep software can be a time-consuming process, and if it is not done properly, it can have devastating results. This class will cover these struggles in detail, along with looking at solutions in the Fabrication CADmep 2016 software release. We will describe the best practices for getting shop drawings produced with the correct annotation sizes per viewport, as well as tips for moving text in a single viewport and NOT the others. We will also touch on best practices when using CTEXT—creating the block and report to go along with it—to ensure proper scaling within viewports. Fabrication CADmep 2016 software also has a new command for text placement location using LISP routines. We will show examples of each of these advanced tips and tricks, and we will have discussion time at the end.

Your AU Experts

***Kevin Allen** is currently working at Comfort Systems USA, Inc. (CSUSA), a premier mechanical systems installation and service provider, as director of Building Information Modeling (BIM) and productivity. CSUSA is a national organization with 23 companies, 6 Sheet Metal Fabrication Shops, and 154 users currently running the Fabrication software products on a single database. Kevin is responsible for implementing, training, and advising on best practices for these companies, developing standards within the organization, and providing technology recommendations for the future. In the past Kevin has trained Fabrication CADmep software, as well as utilized it as a 3D detailing and coordination package. Kevin enjoys helping others use the software to its fullest extent.*

William Tucker is currently working at Comfort Systems USA, a Premier Mechanical Systems Installation and Service provider, as BIM Trainer and Product Specialist. CSUSA is a national organization with 23 companies, 6 Sheet Metal Fabrication Shops and 154 users currently sharing the Autodesk Fabrication Products with one database. William is responsible for implementing, training, and advising on best practices for these companies, developing standards within the organization, and providing technology recommendations for the future. In the past, William has trained and Implemented Autodesk Fabrication CADmep, ESTmep, and CAMduct as well as utilized it as a 3D detailing and coordination package. William has been using Autodesk Products for 28 years. William enjoys helping others utilize the software to its fullest extent.

Learn how to make ALL text on shop drawings the same height, no matter what viewport scale you have

Setting up Text Styles

Text Styles should be setup with intentions of utilizing TEXTSIZE for driving your text heights. One common mistake most Admins make is setting up the text height inside the Autodesk Fabrication CADmep software to be 4" tall assuming they are plotting a 1/4" shop drawing. The problem with this is that it does not allow text sizes to change automatically based on the viewport scale. See Figure 1 and Figure 2 below for setting up the Autocad Text Styles (note Height value) and setting up the Main Database to utilize these text styles. Hint: Setup a different Autocad Text Style for each Annotation Type used in the Autodesk Fabrication CADmep database. This is not required, as you can apply the same Autocad text style for ALL CADmep text, but there is a good chance some differences will be desired later. This will apply for Number, Size, Level, Offset, Alias and Dimension styles. Be sure the defined text style exists in your model or Autodesk Fabrication CADmep will default back to the "Standard" text style.

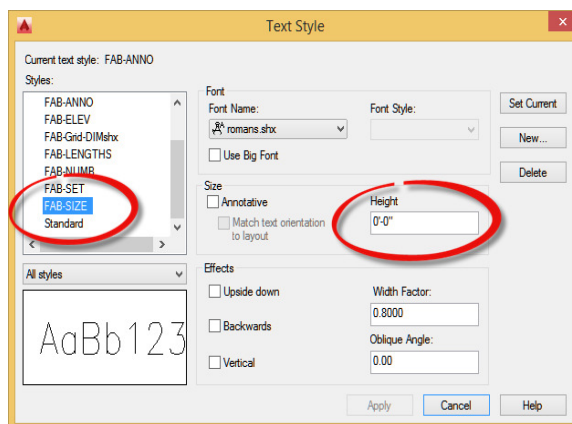


Figure 1: Autocad Text Styles

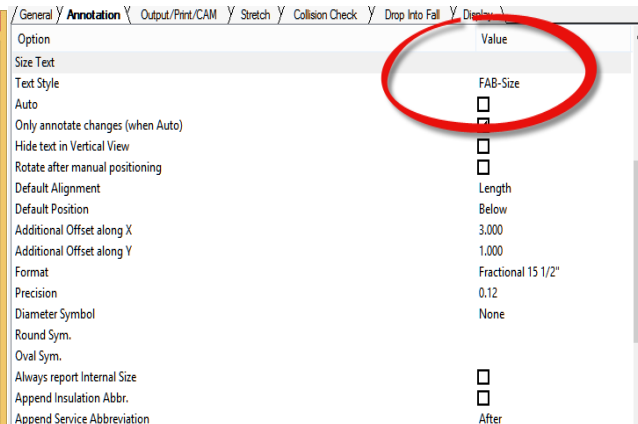


Figure 2: Main Database Size Text Style

Main Database Settings

Once Autocad text styles are created, they can then be assigned in the in the Autodesk Fabrication Main Database>Takeoff>CAD Settings>Annotation Tab. Be sure to tick the box “Only display Text in Paper Space Viewports” as shown in Figure 3 below for this to function properly and automatically size in viewports. If you choose to leave this box unticked, you need to set your Autocad TEXTSIZE variable to 4” tall text. As long as you are plotting ¼” scale drawings, all text heights will be correct.

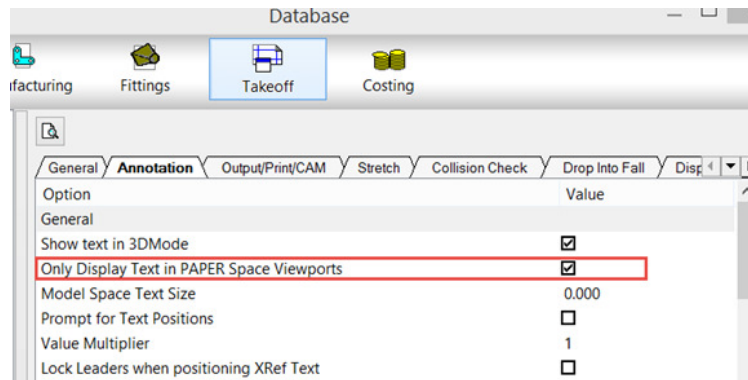


Figure 3: Database Annotation Setting

With “Only Display Text in Paper Space Viewports” ticked and your TEXTSIZE set to 3/32”, you can have one sheet with two (2) different viewports on it, one being ¼” scale and the other being ½” scale and ALL text heights will be equal. When you change a viewport scale, use REGEN to update the text height to the proper height.

There will be some who find this transition of placing text in Paper Space difficult, but once they understand the benefits, its full steam ahead!

Here are a few benefits of placing text in Paper Space instead of Model Space

- Cleaner models for sharing with subcontractors
- Correct text sizes across every shop drawing
- CTEXT blocks scale per viewport, which does not occur with any other setting

Learn how to setup ADDREPORT with CTEXT so that the text heights match and resize based on viewport scale

Setting up ADDREPORT

When setting up the ADDREPORT, you need to determine if you are annotating your model in Paper Space, Model Space or Both. If both, like most companies, you will need to duplicate ADDREPORT reports, because one is setup for Model Space Annotation and the other is setup for Paper Space Annotation. The differences are show below.

Model Space ADDREPORT

The Model Space ADDREPORT needs the following settings

1. Text Height set to 4"
2. Use a Text Style that exists in the model(ex FAB-Anno)
3. Name with MS_VAV-TAG or something similar
4. Insert Block ticked with VAV-TAG(Block Name) assigned to this report

MS_ADrect-TAG
MS_ADrnd-TAG
MS_BATCH-TAG
MS_EQ-TAG
MS_FD-TAG
MS_GRD-TAG
MS_ITEM-TAG
MS_SLEEVE
MS_SLEEVE-Rect
MS_SLEEVE-Rnd
MS_SPEC-TAG
MS_SPOOL-TAG
MS_TERM-TAG
MS_THROAT-1
MS_THROAT-2
MS_VALVE-TAG
MS_VAV-TAG

Dialog box showing the ADDREPORT setup for Model Space Annotation Tags

The screenshot shows the 'Select Report File' dialog box. It has two main sections: 'Select Format' and 'Text Style'. In the 'Select Format' section, 'Use an Existing Format' is selected, and 'MS_VAV-TAG' is chosen from the 'Select Format' dropdown. In the 'Text Style' section, 'FAB-ANNO' is selected from the 'Text Style' dropdown. The 'Text Height/Scale' is set to '4.0'. The 'Use Table - ACAD 2005 and above' checkbox is unchecked. The 'Include Headings' checkbox is unchecked. The 'Auto sort on first column' checkbox is unchecked. The 'Write Output Now' checkbox is unchecked. The 'Write Text in Paper Space' checkbox is unchecked. The 'Format Text Vertically' checkbox is unchecked. The 'Position by Top Left' checkbox is checked. The 'Insert block (with Attributes)' checkbox is checked, and 'VAV-TAG' is entered in the adjacent text field. The 'Process Blank Fields' checkbox is unchecked. At the bottom, there are buttons for '< Back', 'Next >', and 'Cancel'.

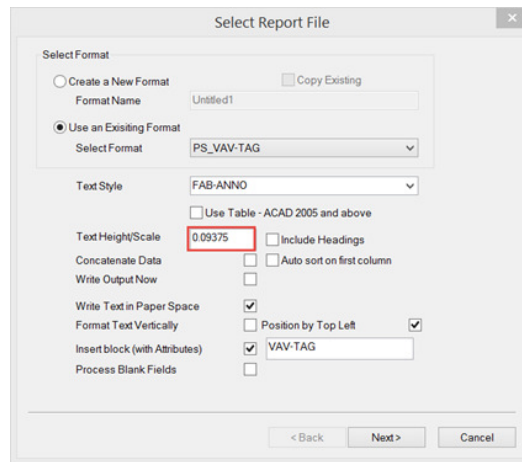
Paper Space ADDREPORT

The Paper Space ADDREPORT needs the following settings

1. Text Height set to .09375"
2. Use a Text Style that exists in the model(ex FAB-Anno)
3. Name with PS_VAV-TAG or something similar
4. Insert Block ticked with VAV-TAG(Block Name) assigned to this report
5. Tick the box for "Write Text in Paper Space"

PS_BATCH-TAG
PS_EQ-TAG
PS_FD-TAG
PS_GRD-TAG
PS_ITEM-TAG
PS_SLEEVE-Rect
PS_SLEEVE-Rnd
PS_SPEC-TAG
PS_SPOOL-TAG
PS_TERM-TAG
PS_THROAT-1
PS_THROAT-2
PS_VALVE-TAG
PS_VAV-TAG
PS-GRD-TAG

Dialog Box showing the ADDREPORT setup for Paper Space Annotation Tags



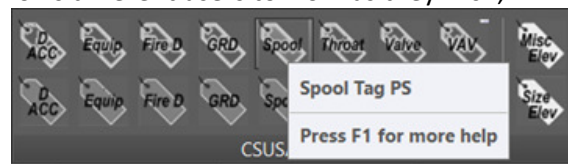
Building the CTEXT Block

When making the block, make sure your text height measures 1 unit tall. This ensures this one (1) block will work for both Model Space and Paper Space Annotation. The scale factor on the ADDREPORT will adjust the text height and block size accordingly. In this example, for a VAV-TAG block, the attribute pulls in the correct information for the VAV Number from the Item in the model. Once the block is created, and exists in the model, use the appropriate ADDREPORT whether textung in MS or PS, or use Ribbons as explained below.



Adding the Annotation Tools to the Ribbon

Create a button for each tag you will be adding to the model. As shown here, we stacked the buttons, one for Model Space, and one for Paper Space. This allows different users to work as they wish, although, there are certain benefits for each method. As shown, we have our PS button on the top row and our MS button on the bottom row. A macro can be added here to run the “ADDREPORT” command or better yet, build a LISP routine that also filters out for the items needed for the particular button used, but that could be an entire class on its own, so we will not go into detail on that here. This example shows using the ADDREPORT command but the same holds true for CTEXT command as well. Gets you started with Ribbon Buttons!



Command Property Name	
Macro	^C^C(addreport "ms_vav-tag")
Tag	

Learn how to modify text in a single viewport without affecting other viewports

Since CADmep text is “associated” to the object, moving the object, or grabbing the text with its grip and moving it, also moves the same text in a different viewport, which is not desirable. There are a couple of solutions to this common issue.

Using the Button “Move Object Text in This Viewport Only”



This method utilizes the built in Text Tools with CADmep. The button is located in the fly out for the toolbar label button. It allows you to move object text in one viewport without affecting the same text in other viewports

The command MOVETEXT can also be used for the same result.

Using ALT and the Grip

A second method to achieve the same result is to select the text within the viewport, hold down the ALT key, select its grip and move the text to the new desired location.

Using the Button “Hide Object Text in Viewport”



This method utilizes the built in Text Tools with CADmep. The button is located in the fly out for the toolbar label button. It allows you to hide object text in one viewport without affecting the same text in other viewports.

Using the Shift and the Grip

A second method to achieve the same result is to use the SHIFT while selecting the toolbar label button for Size and it will turn off the SIZE text in the current viewport, leaving the object SIZE label on in another viewport. Same applies for all other Autodesk Fabrication CADmep text.

Learn to use LISP to automatically determine text placement location relative to the object selected

addTextAtPoint

Autodesk has provided a new LISP function for CADmep users.

Command line automation to add selected object text to be displayed at a selected point on the object. The function is called AddTextAtPoint and can be called from the command line or from LISP as follows.

(AddTextAtPoint text_index ename 3dpoint Report_Name)

Text Index is as follows:

Number 1

Size 2

Level 3

Alias 4

Set Text 5

Length 6

Custom Text 7

When using the Custom Text option, you can use CTEXT, then the report name

```
(defun c:racktext()  
  (setq ent1 (car (entsel)))  
  (setq ent2 (car (entsel)))  
  (setq ent3 (car (entsel)))  
  
  (setq pnt (getpoint "\n Text Position"))  
  (setq Xcoord (car pnt))  
  (setq Ycoord (cadr pnt))  
  (setq Zcoord (caddr pnt))  
  
  (setq SPACING 5.0)  
  
  (addTextAtPoint 2 ent1 pnt)  
  (setq pnt (list Xcoord (- Ycoord SPACING) Zcoord))  
  (addTextAtPoint 2 ent2 pnt)  
  (setq pnt (list Xcoord (- Ycoord (* SPACING 2)) Zcoord))  
  (addTextAtPoint 2 ent3 pnt)  
)
```