The Aubin Academy Master Series

AutoCAD MEP

Compatible with versions 2012, 2013 and beyond

Appendix A

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G3B • Press

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Paul F. Aubin, Darryl McClelland, LEED AP, Martin Schmid, PE, and Gregg Stanley

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Contents of The Aubin Academy Master Series: AutoCAD MEP

Preface ..... *xiii*

SECTION I—INTRODUCTION AND METHODOLOGY

Chapter 1—The User Interface *3*

Chapter 2—Conceptual Underpinnings of AutoCAD MEP *57*

Chapter 3—Project Navigator for MEP *113*

SECTION II—WORKING WITH MEP OBJECTS

Chapter 4—Energy Analysis *187*

Chapter 5—Mechanical Systems *245*

Chapter 6—Piping Systems *313*

Chapter 7—Electrical Systems Layout *399*

Chapter 8—Conduit Systems *475*

SECTION III—CONTENT AND DISPLAY

Chapter 9—Content Creation—Styles *501*

Chapter 10—Content Creation—Equipment *557*

Chapter 11—Content Creation—Parametric Fittings *593*

Chapter 12—Display System *639*

SECTION IV—DOCUMENTATION AND COORDINATION

Chapter 13—Sections *671*

Chapter 14—Managing Updates and Interference Detection *701*

Chapter 15—Annotation, Property Sets, and Schedules *723*

Index ***786***

Appendix

Preface to the Appendix

WELCOME

Thank you for downloading Appendix. This PDF accompanys *The Aubin Academy Master Series: AutoCAD MEP* and is not included in the physical book's chapters. It is only available in this digital format. This chapter is authored in the 2012 version, but you will find it compatible with previous versions as well. There is no dataset needed for this appendix.

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STYLE CONVENTIONS

Style Conventions used in this text are as follows:

Text	AutoCAD MEP
Step-by-Step Tutorials	1. Perform these steps.
Menu picks	**Application menu > Save As > AutoCAD Drawing**
Dialog box and palette input	For the length, type **10'-0"**.
Keyboard input	Type **DuctAdd** and press ENTER. Type **599** and press ENTER.
File and Directory Names	*C:\MasterMEP 2013\Chapter11B\Sample File.dwg*

UNITS

This book is written in Imperial units. Metric datasets and references are not provided.

BOOK DATASET FILES

No files are referenced in this appendix.

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Martin J. Schmid, P.E. is focused on the application of model based design tools to facilitate analysis, and the adoption of such tools around the world. Mr. Schmid has worked in various roles in a variety of architecture and engineering firms, including electrical designer, engineering coordinator, and application developer. In addition to product and industry expertise, Mr. Schmid applies the API's of Autodesk's products to automate processes and solve customer problems. Mr. Schmid has presented internally to coworkers, at Autodesk University, industry conferences, and as a consultant to design firms and 3rd party application developers.

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Appendix A

Rise Drop Styles

UNDERSTANDING RISE DROP STYLES

Rise Drop Styles provide system specific annotation of vertical duct, pipe, conduit and cable tray segments. In this section we will review how Rise Drop styles work and review the settings that makeup a Rise Drop Style.

Let's first understand how Rise Drop styles work. Rise Drops embed AutoCAD Blocks into AutoCAD MEP objects based on the definition specified in the Rise Drop Styles. A single style contains a list of each condition and associates the correct block to each condition.

There are 7 possible conditions that are defined in a Rise Drop style (see Figure A.1) per shape allowed by the host object. For Cable Tray, Conduit and Pipe, the list only contains a single shape. Duct lists 7 options for each of the 3 supported shapes (Oval, Rectangular, and Round).

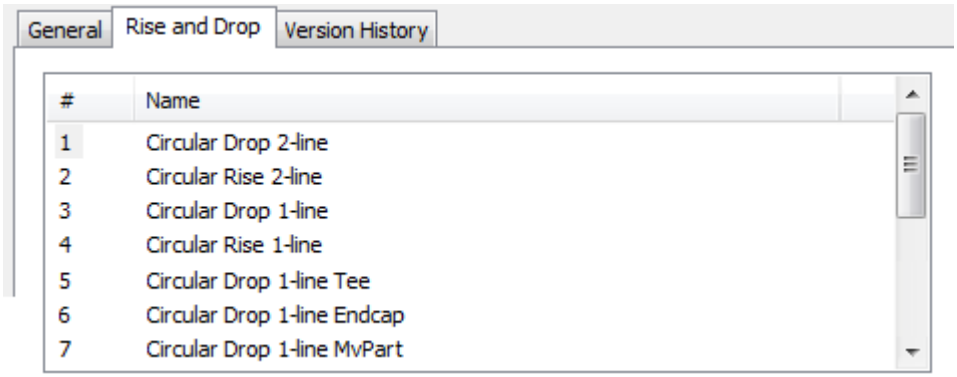

FIGURE A.1

Rise and Drop conditions defined in the Rise Drop Style

Each condition is defined by the settings in the Rise Drop Style. There are five groups of settings that need to be defined to specify a Rise Drop Style (see Figure A.2). Each will be described in a numbered heading that follows.

1. Symbol Definition
2. Shape
3. Define Rise or Drop condition
4. Override the scaling of the Rise / Drop block
5. Specify the relative scale for the Center Line block associated symbol.

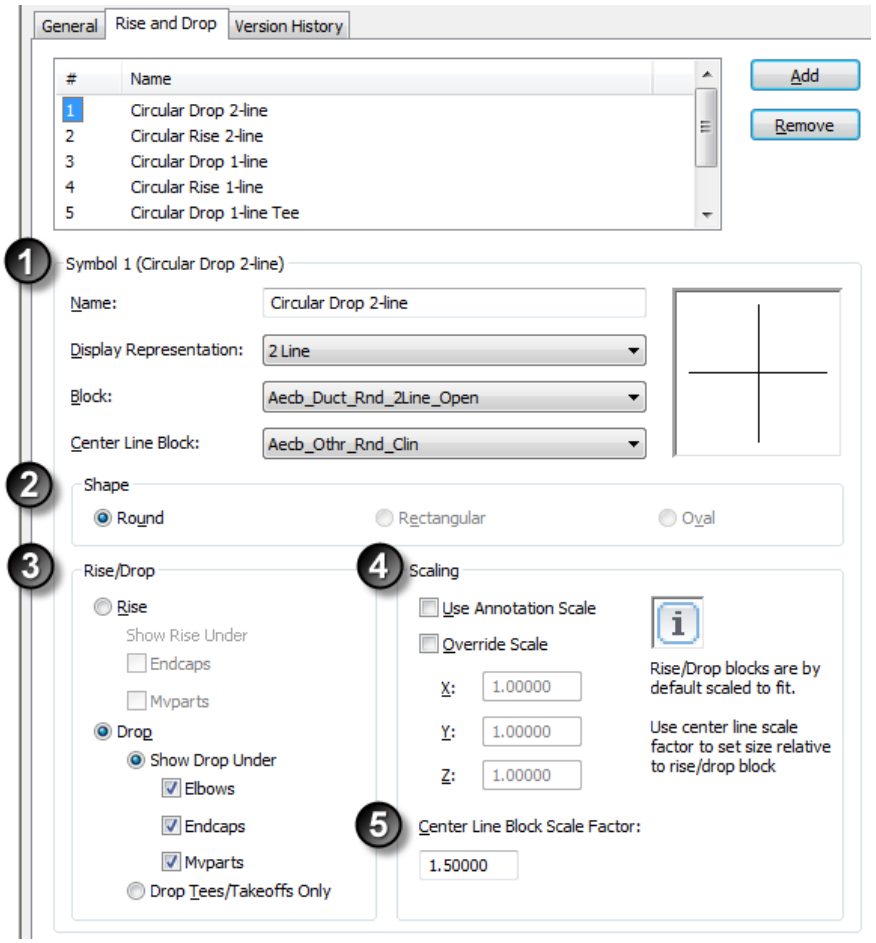

FIGURE A.2

Rise and Drop conditions defined in the Rise Drop Style

(1) SYMBOL DEFINITION

The Symbol area is where the Display Representation, AutoCAD block and the Center line block is defined for the condition selected in numbered list at the top of the style (see Figure A.3).

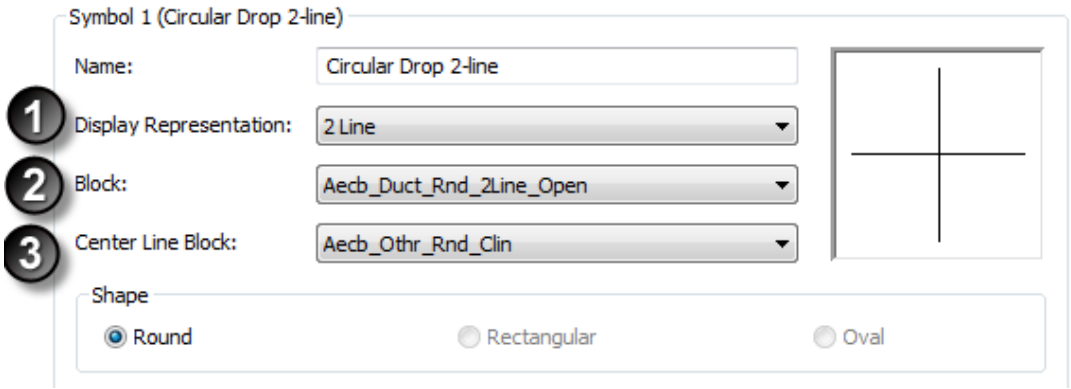

FIGURE A.3

Rise and Drop conditions defined in the Rise Drop Style

1. DISPLAY REPRESENTATION

The Display Representation drop list contains the available Display Representations for the parent object in Display Manager > Representation by Object (see Figure A.4).

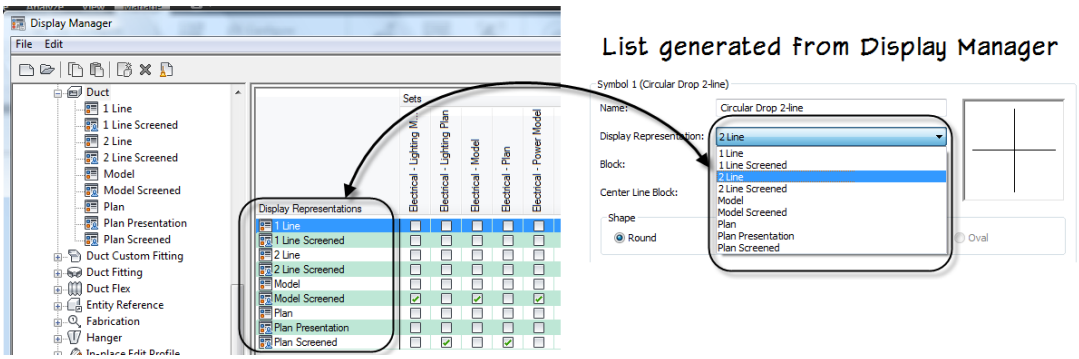

FIGURE A.4

Rise Drop Display Representation Drop list created from Display Manager

The Display Representation selected for the Circular Drop 2-line symbol is the 2 Line representation. The 2-line representation means that when the object is drawn using a 2-line

display representation and is in a drop condition (the object's connector is pointing down) this symbol will be embedded into the object.

2. BLOCK

The block drop list contains all available blocks inside the current drawing. AutoCAD MEP templates contain multiple AutoCAD blocks to be used as Rise Drop Symbols. These blocks are formatted to be identified as Rise Drop blocks. The format used is (see Figure RD.A.5): Aecb_Domain_Shape_Display Representation_System Type_Condition.

The block used in the Rise Drop style will be embedded on the object and assigned to the Rise Drop Display Component associated with the object. For more information on the Display System, please refer to Chapter 12.

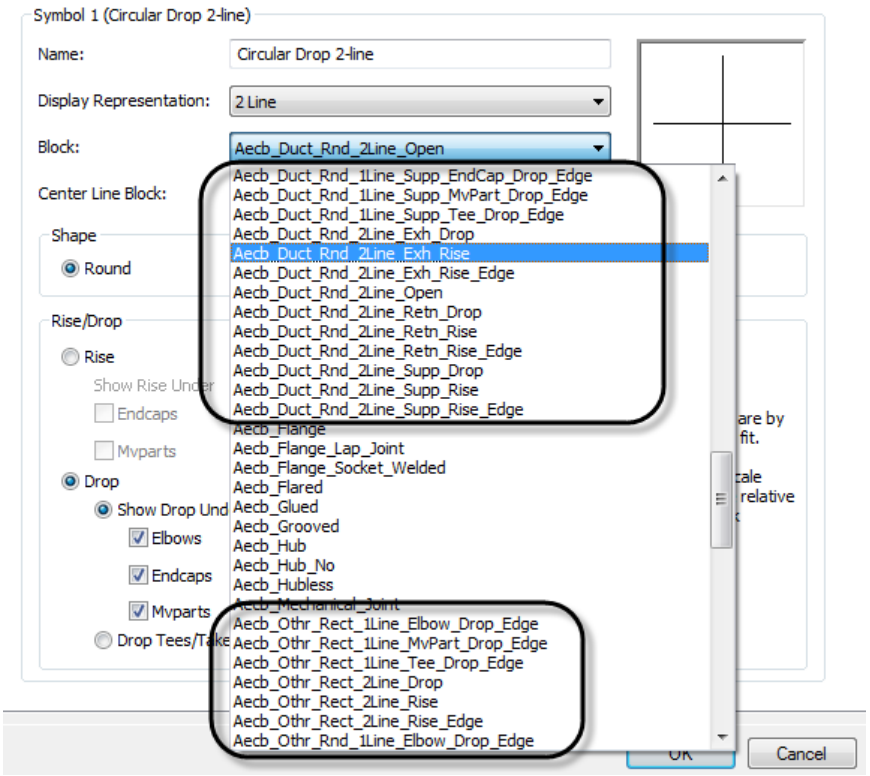

FIGURE A.5

Rise Drop blocks

The selected block will appear in the preview with the selected Center line block.

3. CENTER LINE BLOCK

The Center line block drop list is the same list of AutoCAD blocks that is used for the Block drop list. The difference is the block specified here will be scaled based on the Center line block scale factor in the Scale section (5) of the Rise Drop style. In addition the block is assigned to the Center line Display component on the host object.

The blocks specified in the Symbol section should be built relative to a single unit. For Oval Rise Drop blocks the vertical dimension should be 2 times the horizontal distance. All blocks assigned to a Rise Drop style are rescaled by the software to be equal to 1 unit and the scaled to meet the size required by the host object.

In a 2-line body the actual body dimensions are used to determine the scale of the block. In a 1-line display representation, the Nominal Diameter or size is used to determine the block's scale factor. Please note you can override the scale factors in the scale section of the Rise Drop style. Refer to the Scale section below for more information.

(2) SHAPE

The Shape control will be preselected based on the Domain you are working with, except for Duct which supports all 3 shapes. The application will check the type of Duct being added then use the Shape selection to determine which Symbol to be used.

(3) RISE OR DROP CONDITION

The Rise Drop control section determines whether the block defined in the Symbol section will be displayed in a Rise condition (Connector pointing up) or a Drop condition (connector pointing down) (see Figure A.6).

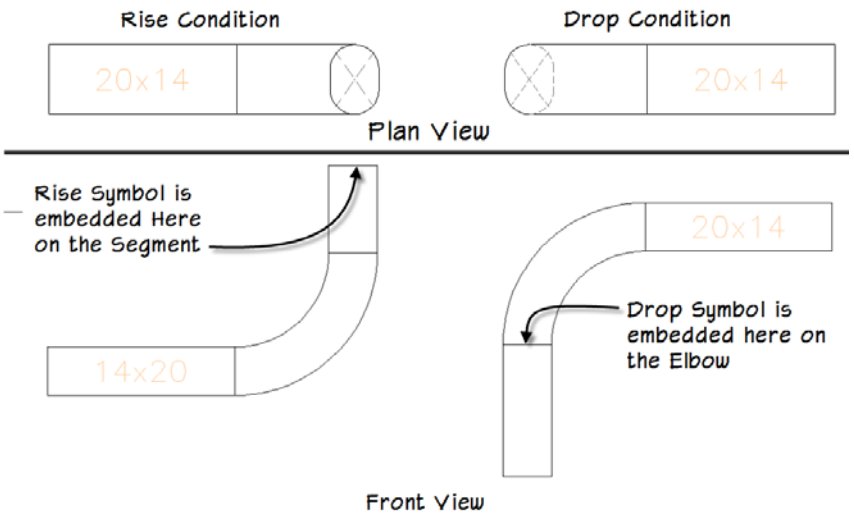

FIGURE A.6

Rise and Drop conditions defined in the Rise Drop Style

There are additional options under the Rise/Drop section depending on what you select. When you select that the Symbol will be a Rise Symbol you then have the option to set whether the same symbol shall appear under an Endcap or a Mvpart (see Figure A.7).

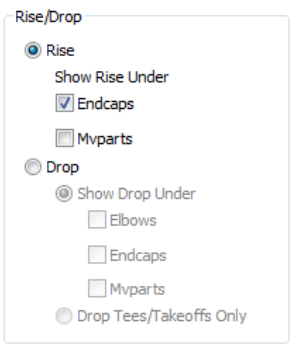

FIGURE A.7

Options for when the Rise Symbol should appear

The determination on when the Rise Symbol should appear is based on the settings within each of the symbols within the style. In Figure A.8, the show Drop under is checked off in 2 different symbols and the block used is therefore different. On the left connector, symbol 7 (Circular Drop 1-line Mvpart) is selected to show a unique block for the under an Mvpart, on the right side, the same block is used for a 1-line elbow and an Mvpart, causing the Rise Drop symbol to appear as an elbow down.

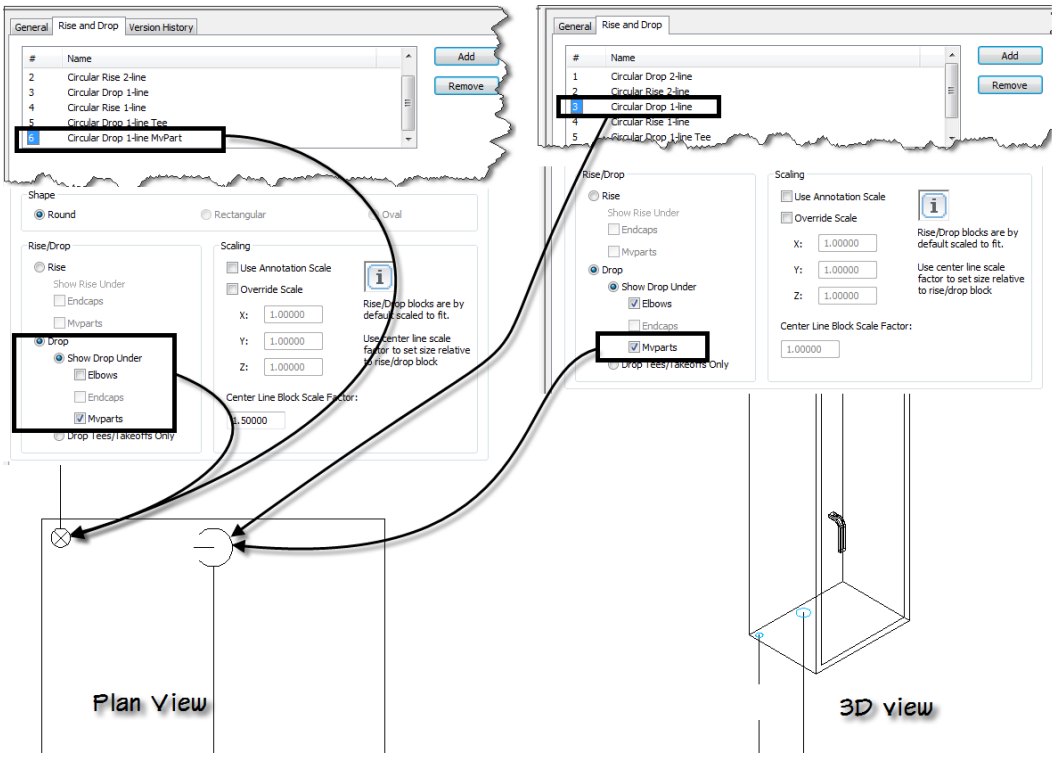

FIGURE A.8

Location of Rise Drop Symbol for Endcaps and Mvparts

The Drop controls in the Rise / Drop section allow for greater flexibility to specify which block will be used for multiple conditions.

Pay close attention when you specify a block as a Drop as shown in Figure A.8, the Rise Drop style allows you to specify multiple conditions within the same style which can cause the Rise Drop to appear incorrect. A common misapplication is when a Rise Drop Style has multiple

conditions specified for Mvpart or Endcaps, causing two or more blocks to be nested within the display of a particular Rise Drop condition.

When in a Drop condition, the definition of a drop can also be selected for Drop Tees/Takeoffs Only. The reason for this is these are unique conditions requiring different symbols. This is especially true for 1-Line displays (see Figure A.9).

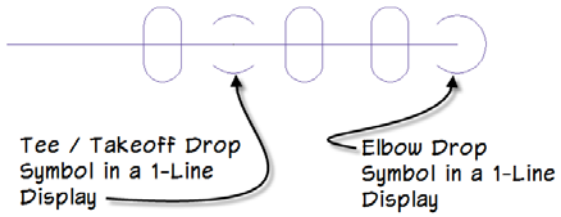

FIGURE A.9
Drop Symbols in a 1-Line Display

Unique symbols are setup to support the 1-line Tee / Takeoff condition and refer to blocks that are drawn to represent a Tee down. Elbow down blocks are drawn to appear like a single line Elbow down.

Overall, when modifying the existing Rise Drop styles or customizing the styles, draw each condition to test the any changes.

(4) SCALING OF THE RISE / DROP BLOCK

The scaling section of the Rise Drop Style allows the symbol's scale to be specified in relation to the object, as an absolute scale or using the annotation scale of the drawing (see Figure A.10).

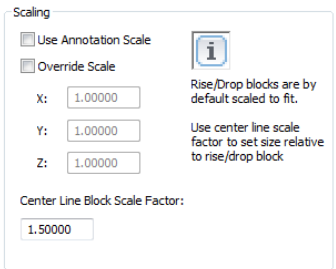

FIGURE A.10
Rise Drop Style Scaling controls

Use Annotation scale will force the symbol to be scaled based on the annotation scale of the drawing and the plot units value specified in Drawing Setup (see Figure A.11).

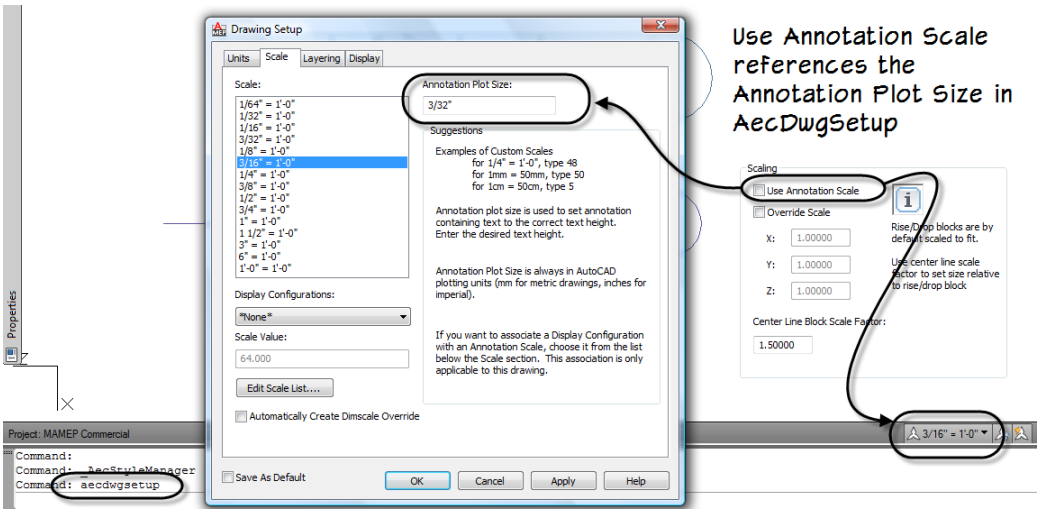

FIGURE A.11

Use Annotation Scale uses Annotation Plot Size

Remember, the symbols used in Rise Drop styles are scaled to 1 unit then rescaled based on the settings in the scaling section. So when using Annotation Scale, the Rise Drop symbol will be a plot length of 3/32" as specified in the Annotation Plot Size setting.

Using the Override Scale option will make the Rise Drop Symbol scale to the absolute size specified. Combining both the Annotation Scale and the Override Scale will force the absolute scale size to then be multiplied by the annotation scale.

(5) CENTER LINE BLOCK SCALE FACTOR

The Center Line Scale Factor setting scales the Center line Rise Drop Symbol relative to the Rise Drop symbol, This includes any annotation or override scales

SUMMARY

- ✓ Rise Drop Styles store symbol definitions for each condition
- ✓ Rise Drop symbols can be setup to display the same block in multiple conditions or a single condition
- ✓ When customizing the Rise Drop Symbols, create a test drawing to verify settings are correct for each possible condition
- ✓ Annotation Scale is supported and you can specify an Absolute Scale.