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STANDARDS FOR USE WITH X30 CRITERIA

Chapter 5: Annotation

Introduction

Annotation, as it pertains to this chapter, includes both text and dimensions. This chapter will outline the text styles and dimension styles in use at CFLHD, as well as some of the key settings associated with these styles.

Text

MicroStation supports and recommends TrueType fonts since version V8 (2004), and thus is continued for use in V8i versions. Additionally, and AutoCAD **.shx** fonts are accepted. MicroStation will automatically find true type fonts installed on each computer in the operating system \fonts directory, and will find AutoCAD **.shx** file in the AutoCAD system \fonts directory. The original MicroStation fonts are still available for use.

Text Styles are customized sets of attributes for text, including: fonts, width, height, etc. This allows for easier automation and placement of "standardized" text. With the use of text styles, the user no longer needs to set text parameters such as text font, height, width, etc. each time text is needed. Each of these settings is saved within a text style. Styles are created and stored within DGN Libraries (.dgnlib).
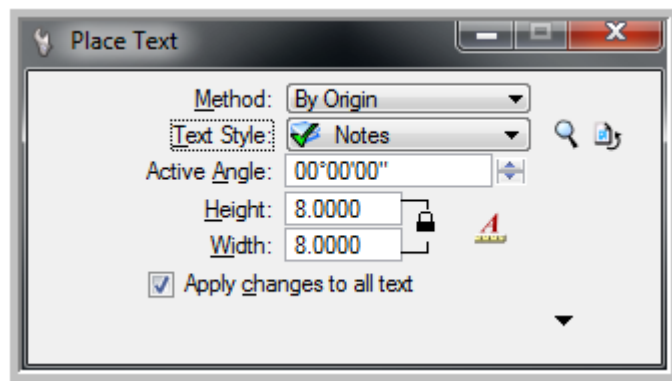

Figure 5-1: Place Text

In the example above, the user has selected "Notes" as the text style and all of the parameters stored with this style will be active.

FLH & CFLHD Text Styles

CFL, in collaboration with the WFL and EFL division offices of FLH, have revised and updated the Text Styles in use for V8i. There are a total of 11 styles. The former V8 styles used at CFL have been continued into this new set, but have been renamed. All text styles are stored in the DGN Library, FLH_Text-Dimensions.dgnlib, which is located at: \V8i_resource\FLH_Common\MicroStation\Library_Files\.

Text Style attributes such as text height, width, and line spacing, have been established for a scale of 1"=100' for U.S. Customary and 1:1000 for Metric, and the font. CFLHD uses the Verdana true type font for most text on CFLHD projects.
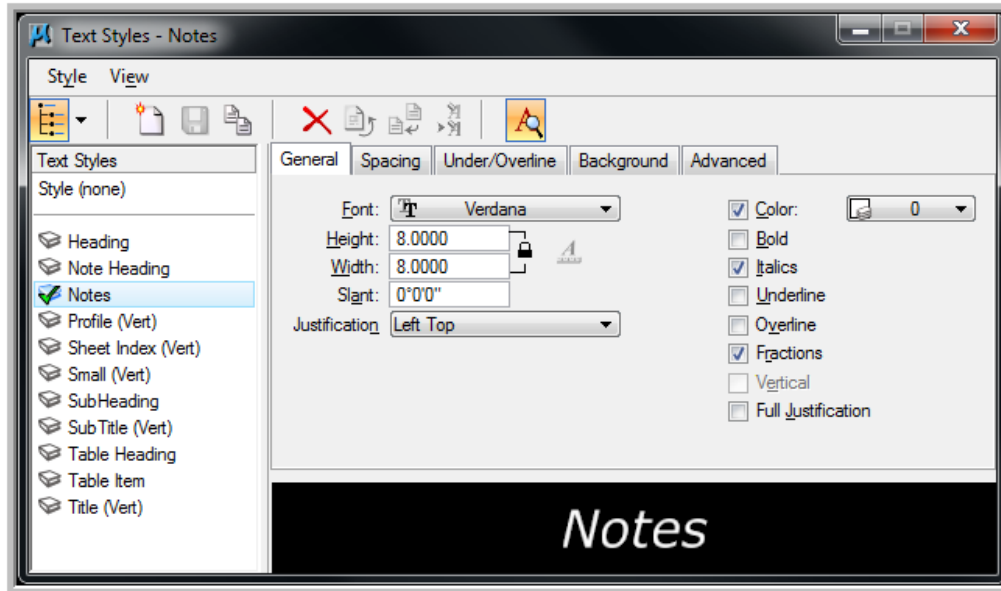

Figure 5-2: CFLHD Text Styles

CFLHD text styles are to be used in CFLHD plan packages. Each style has specific purposes. Examples of these uses can be found in the FLH Standard Plans, the CFLHD Sample Plans and the list below:

Text Styles

Style	Size	Justification	Other	Usage
Small (Vert)	0.06" [1.5 mm]	Center Center	Vertical (non-italicized) text	Sheet number blocks and miscellaneous mapping text
Notes	0.08" [2 mm]	Left Top		Typical FLH italicized text
Sheet Index (Vert)	0.08" [2 mm]	Left Top	Vertical text	Used on title sheet Sheet Index and other vertical text
Profile (Vert)	0.08" [2 mm]	Center Center	Vertical text	Station and elevation text on profile sheets
Table Heading	0.08" [2 mm]	Center Center		Plan sheet table column headings
Table Item	0.08" [2 mm]	Center Top	Line spacing equals size	Plan sheet table items
Note Heading	0.12" [3 mm]	Left Top		Note and footnote (WFLHD) heading
Heading	0.12" [3 mm]	Center Center	Bold text	Plan sheet headings
SubHeading	0.10" [2.5 mm]	Center Center		Plan sheet subheadings
Title (Vert)	0.12" [3 mm]	Center Center	Vertical, bold text	Sheet title in title block
SubTitle (Vert)	0.10" [2.5 mm]	Center Center	Vertical text	Sheet subtitle in title block

Figure 5-3: FLH Text Styles

This information can also be viewed on the FLH public webpage: http://flh.fhwa.dot.gov/resources/pse/cadd/styles.htm

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Dimensions

Once a drawing's objects have been established at the proper size, scale, and orientation, annotation generally begins. Adding dimensions, symbols, and notes to a drawing (sometimes referred to as detailing) conveys intent. A dimension is a label in a design showing a linear, angular, or radial measurement.

MicroStation has many dimensioning tools. For example, the Dimension Element tool can be used to quickly dimension most elements.

Also available in MicroStation V8i Edition, is the inclusion of Dimension Styles. This is a beneficial feature for users of the dimensioning tools in MicroStation creating efficiency and standardization.

FLH & CFLHD Dimension Styles

Simultaneously with the development of V8i Text Styles, the divisional offices of FLH coordinated updates to the Dimension Styles used for FLH projects. CFLHD has adopted these defined dimension styles for use on CFLHD project plans. Dimension Styles are contained in a DGN Library that will be attached automatically for CFLHD employees, and will be attached through a project configuration variable for consultants working on CFLHD projects. The FLH_Text-Dimensions.dgnlib, is located at:
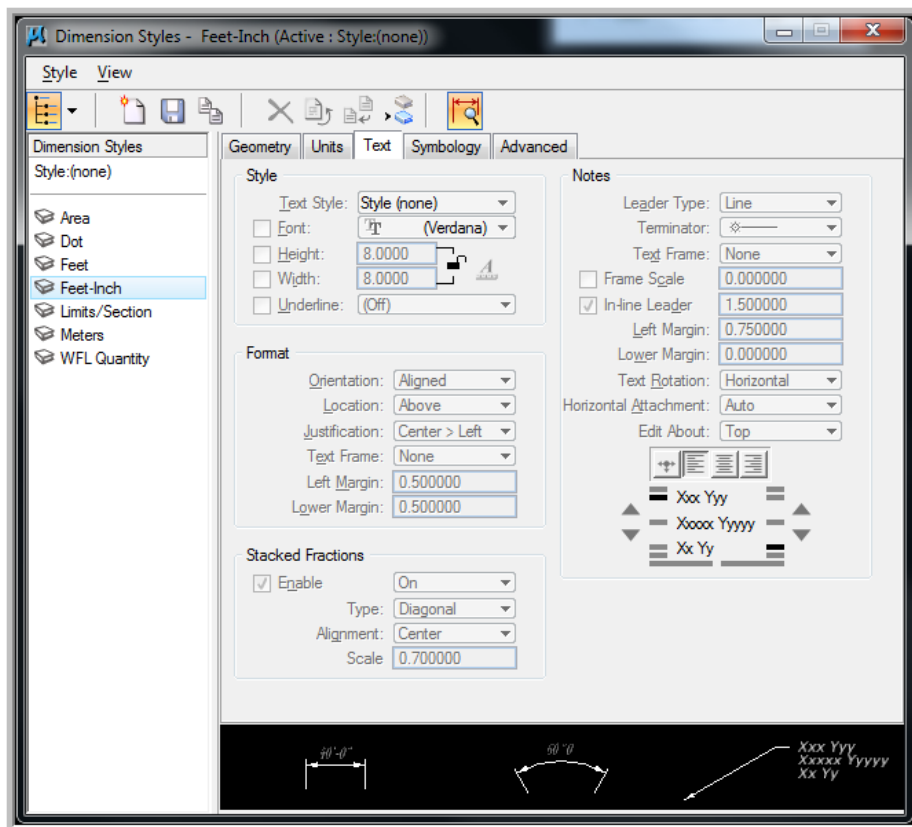\V8i_resource\FLH_Common\MicroStation\Library_Files\.

Figure 5-4: Dimension Settings dialog box

As with text, dimension styles also use the Annotation scale to control the size of dimension text. Currently there are 7 dimension styles used for dimensioning in each Metric and U.S. Customary units. A description of each style is shown below:

Dimension Styles

Name	Use w/Place Note	Use w/Place Dimension	Usage
Area	Yes	Rarely	To denote a large area with a tilde arrowhead
Dot	Yes	Rarely	To denote a small area with a dot arrowhead
Feet	Yes	Yes	Basic note and dimension (0.1 MU) style. Automatic dimensioning optimized for US Customary units.
Feet-Inch	Yes	Yes	Basic note and dimension (MU-SU) style. Automatic dimensioning optimized for US Customary units.
Limits/Section	Yes	Rarely	Project limits and section lines
Meters	Yes	Yes	Basic note and dimension (0.001 MU) style. Automatic dimensioning optimized for Metric units.
WFL_Quantity	Rarely	Yes	In WFLHD used for excavation and embankment quantities in profile view

Figure 5-5: FLH Dimension Style Descriptions

This information can also be viewed on the FLH public webpage:
http://flh.fhwa.dot.gov/resources/pse/cadd/styles.htm#dimension

These dimension styles use the correct levels and text styles for CFLHD work. As with text, simply select the dimension tool, then from the Element Dimensioning dialog box, select the correct dimension style, as shown below.
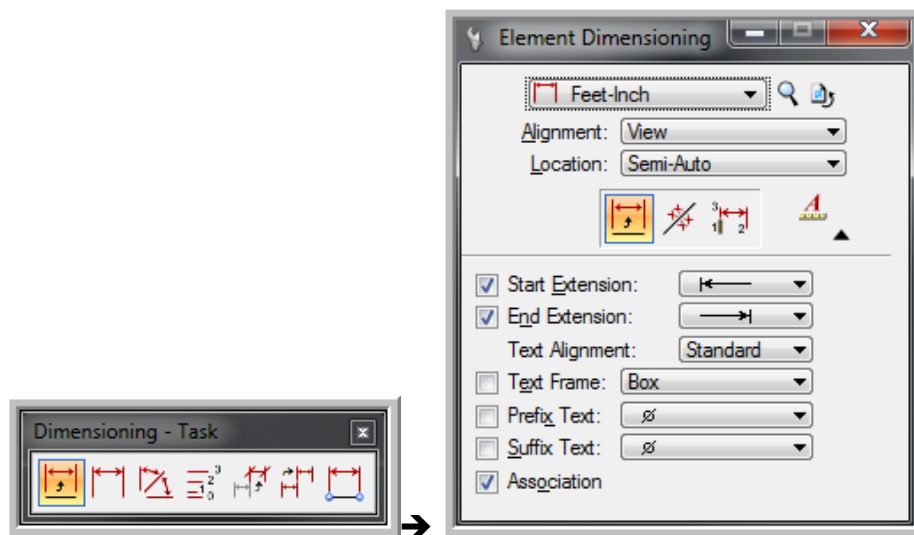

Figure 5-6: Dimensioning dialog boxes

CFLHD text styles and dimension styles are contained in one DGN Library called **FLH_Text-Dimensions.dgnlib**, which is located at: \V8i_resource\FLH_Common\MicroStation\Library_Files\.

For consultants, FLH\CFLHD style libraries are available through the **V8i_Resource.zip** download.

DGN Libraries are the containers for 4 important features in MicroStation V8. These include: Levels, Level Filters, Text Styles & Dimension Styles, and Print Styles. With the DGN library attached each of these will be available to the user. For CFLHD employees, DGN Libraries are automatically attached while opening a design file using the Project Configuration (*.pcf). For CFLHD consultants, using the Project Configuration (*.pcf) files provided with the **V8i_Resource.zip** download will automatically attach the dgn libraries.

Workflow 1: Manually attaching the CFLHD DGN Library

To access this workflow, follow this link:

http://www.cflhd.gov/resources/CADD/documents/Workflow_5.1_Annotation_ManuallyattachingCFLHDDGNLibrary_x30.pdf

Annotation Scale

The practice of using **annotation scale** is continued and strongly encouraged in MicroStation V8i. Annotation scale allows the user to set an annotation scale for the current model allowing text to be scaled to fit the desired output. With this tool, the drawing elements are at a 1:1 scale, but the text will be placed to fit the final scale of the drawing. This also allows CFLHD to have 1 text style for each type of text; title, standard, italic, non-italic, etc., rather than 1 for each type and each scale within each type. For consultants, Annotation scale definition files are available through the **V8i_Resource.zip** download. Annotation scale definitions are set within for U.S. Customary and Metric units within the file **FLH_Scales.def**, which can be found on the CFLHD network at:

N:\V8i_resource\FLH_Common\MicroStation\Custom_Definitions\

Each model may be renamed and an annotation scale may be set from the model properties dialog box, as shown in Workflow 2.

Workflow 2: Setting the Annotation Scale in the Model Properties

To access this workflow, follow this link:

http://www.cflhd.gov/resources/CADD/documents/Workflow_5.2_Annotation_SettingtheAnnotationScaleinModel%20Properties_x30.pdf

Workflow 3: Annotation Scale, Setting Annotation Lock and Placing Text

To access this workflow, follow this link:

http://www.cflhd.gov/resources/CADD/documents/Workflow_5.3_Annotation_SettingAnnotationScaleLockandPlacingText_x30.pdf

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Text Sizes

The following tables outline the text sizes to be used on CFLHD plans. These text sizes have been incorporated into the use of annotation scale.

Metric Text sizes									
11x17 Sheet size	**Scale n:1**								
Description	50	100	200	250	300	400	500	1000	2000
Standard Text	0.1	0.2	0.4	0.5	0.6	0.8	1	2	4
Text Spacing	0.05	0.1	0.2	0.25	0.3	0.4	0.5	1	2
Title/Heading Text	.015	0.3	0.6	0.75	0.9	1.2	1.5	3	6
Title Sub-Heading Text	.125	.25	.5	.625	.75	1	1.25	2.5	5
Sheet Layout Information									
Meters per plan sheet	17.5	35	70	75	100	140	175	350	700
Major tick spacing	2.5	5	10	25	25	25	25	50	100
Minor tick spacing	0.5	1	2	5	5	5	5	10	20

Figure 5-7: Metric Text Sizes

English Text sizes							
11x17 Sheet size	**Scale ft/in**						
Description	10	20	40	50	100	200	500
Standard Text	0.8	1.6	3.2	4	8	16	40
Text Spacing	0.4	0.8	1.6	2	4	8	20
Title/Heading Text	1.2	2.4	4.8	6	12	24	60
Title Sub-Heading Text	1	2	4	5	10	20	50
Sheet Layout Information							
Feet per plan sheet	140	280	560	700	1400	2800	7000
Major tick spacing	50	100	100	100	500	1000	1000
Minor tick spacing	10	25	50	50	100	100	500

Figure 5-8: English Text Sizes

Standard text height for Metric drawings is calculated as: Scale x 0.002. The standard text height for English drawings is calculated as: Scale x 0.08. Text width will always = text height. Text spacing = text height x .5