

# Best Practice For Dimensioning 3D Models in I-DEAS Drafting

Revision History			
Rev.	Date Y-M-D	Name	Comments
-	051012	Larry Carpenter	Initial Release
A	060125	Larry Carpenter	Fixed typos. Added to Dimension Filter section.

## 1 Purpose

By taking advantage of Dimension Filters while creating dimensions on a 3D model in Drafting, you can create dimensions that are robust and less prone to losing their associativity if changes are made to the 3D model. Changes such as adding a fillet or chamfer can break associativity of a dimension if it was not properly applied as shown within this document. The trick is to use persistent trackable geometry for dimensions.

## 2 Creating Robust Associative Dimensions to 3D Models in Drafting

To make use of Dimension Filters, you can either use the dynamic selection ability or deliberately use the Dimension Filter pull down menu in the Command Options Area (COA).

### Using the dynamic selection ability

After selecting a dimension command, move your mouse cursor over the geometry to be selected. You'll notice some text that resembles the following:



The "F" prefix stands for "Face" which means that the dimension will track the face of the geometry. The "E" prefix stands for "Edge" which means that the dimension will track the edge projection of the geometry. The "V" stands for "Vertex" which means that that the dimension will track the vertex or furthest most point of the geometry.

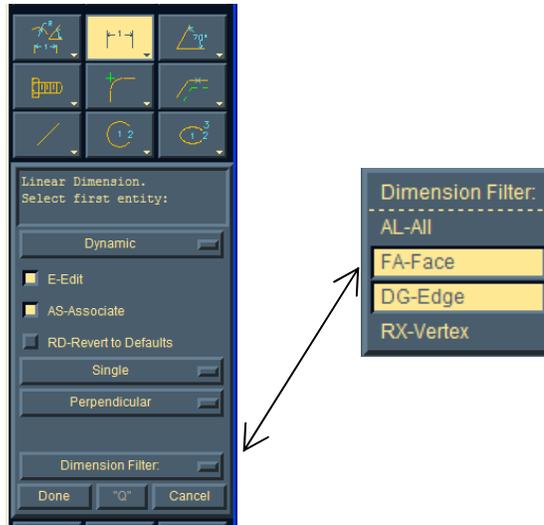
When selecting an entity to dimension, always try to select the entity in the following order of preference:

1. Face (1<sup>st</sup> preferred - Most Robust)
2. Edge (2<sup>nd</sup> preferred)
3. Vertex (Avoid if possible - Least Robust)

Vertices are a very poor choice since they can easily disappear via the addition of a simple chamfer at a corner. Edges are more robust but can also disappear (get renumbered within the software) due to 3D model changes. Faces are the least likely to change and are the best choice for dimension tracking.

### Using the Dimension Filter pull down menu

You can also force the selection of a face, edge, or vertex via the Dimension Filter pull down while creating a dimension as shown below:



This is useful if you are having difficulty getting the dynamic navigator to do what you want it to do. The Dimension Filter is cumulative which means that you can select more than one filter at the same time.

### 3 Fixing Dimension Associativity, Layer, and Color

Step 1: Restore associativity using the "ReAttach End" option within the Edit Dimension command:



Step 2: Change the dimension back to the correct layer and color:

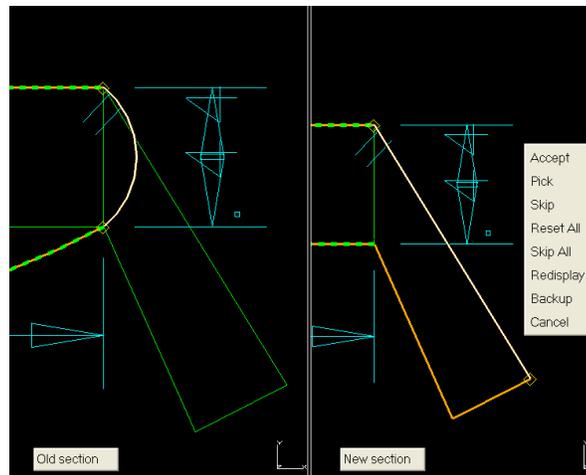
First, select the dimension(s) that you want to change. Second, select the "Graphic Attributes" icon. Third, select the desired layer and color and pick done. In the FERMI TDM Environment, the dimensions default to layer 3 and color red.



#### 4 Preventing Loss of Dimensional Associativity of 3D Models in Drafting

Every entity in Drafting that is processed from a 3D model has an internal tracking mechanism that keeps it related to the 3D model. If the 3D model geometry changes drastically (gets renumbered), then the downstream Drafting entities also get renumbered. If a dimension in Drafting was tracking an entity that became renumbered, then the dimension loses its associativity.

To help prevent this, there is a tool to remap 3D entities in Master Modeler called "Section Mapping". This gives you the ability to selectively remap section entities rather than letting the software do it. This allows you to minimize the downstream impact your changes will have on both Drafting entities and Modeling operations further up the history tree in current the part. Not only will it help to prevent the Out-of-Date sketch edge warnings in the history tree, but it will also help to keep Drafting dimensions associative. The screen shot below shows Section Mapping being used to remap entities.



For more information on Section Mapping, go to the *I-DEAS Help Library* and look for "Section Mapping" in the *Design User's Guide*.