AUTODESK UNIVERSITY

FAB22942

Hands – On Lab: Introduction to Fabrication ESTmep

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Learning Objectives

- Learn how to navigate through Fabrication ESTmep
- Learn how to create a model using on screen takeoff
- Discover pricing for MEP Jobs
- Discover how to use Reports
- Learn how to use Estimate Summary

Description

This is an introductory course for Fabrication ESTmep software. It will cover the most important concepts and common commands necessary to use Fabrication ESTmep software at a fundamental level. The objective of this course is to introduce the essential functionality of Fabrication ESTmep software so that a new user can generate accurate cost estimates from imported models and traced drawings. We will cover how to navigate through Fabrication ESTmep software, basic reporting, understanding pricing, and best practices.

Your AU Expert(s)

Lyle Janda *is a technical advisor at Applied Software for the Autodesk Fabrication products. He has extensive experiencing in installing, training and supporting Fabrication CADmep, ESTmep, CAMduct, Tracker and RemoteEntry. Lyle previously worked as a designer and drafter for an MEP contractor. He has contributed significantly towards the creation of the Applied Configuration pack for the US market and our courseware and training materials creation efforts. Lyle is also involved with Applied Software go-to-market strategy for a best known practices knowledgebase for the Autodesk Fabrication Solutions.*
http://www.asti.com/News-Events/blogs/cid/91?Category=fabrication-blog
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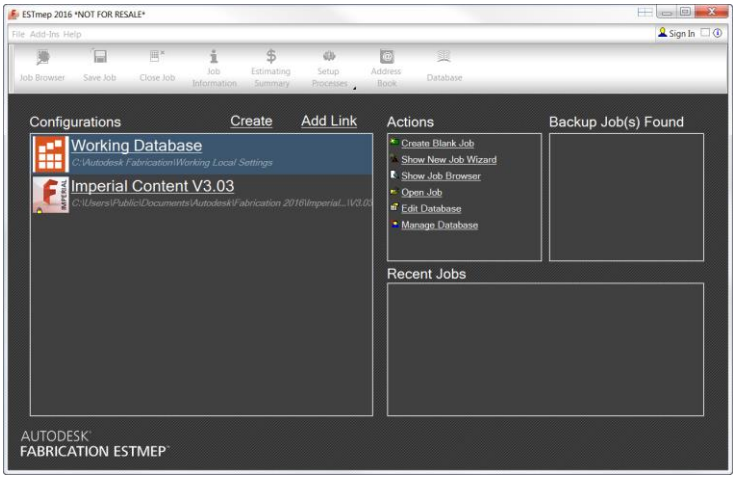
Greg Murphy *is currently working at Murphy Company, a $200m+ St. Louis, MO Design Build Mechanical Contractor, as Supervisor – BIM Technology & Support. He has over 30yrs of experience in the Mechanical Contracting Industry with extensive experience in estimating and*

detailing for mechanical piping, sheet metal and process piping. Greg has trained Autodesk Fabrication ESTmep as well as other software packages. He attended Louisburg Junior College in Louisburg, NC for computer science and also attended Wake Technical Community College in Raleigh, NC for mechanical engineering technology. Greg enjoys helping others get the most out of their Integrated Fabrication Solutions.

Learn how to navigate through Fabrication ESTmep

Starting Fabrication ESTmep
Double-click the Fabrication ESTmep desktop shortcut to launch the program.



Create Blank Job
Opens a new, empty MAJ job that must be named before it can be saved.

Show New Job Wizard
Initiates a step-by-step process for starting a new job that will be saved in the Projects folder.

Show Job Browser
Displays a global tree view of all Projects which are stored within the software's mapped Projects folder or within your Autodesk 360 cloud storage.

Open Job
Displays a file browser window to locate and open Jobs stored on the local computer, on server storage or cloud storage.

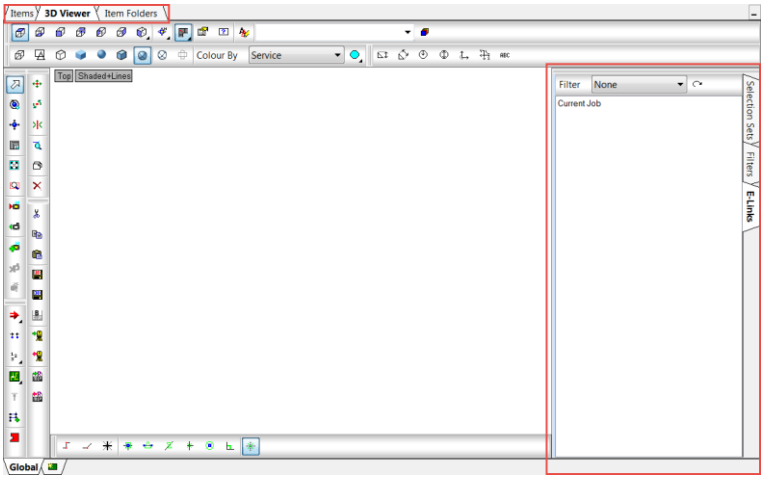
MAJ vs. ESJ
The two file types that are used within the Fabrication products.

MAJ
Automatically links to the current database. (*Start new jobs using MAJ files*)

ESJ
Or Archive Jobs saves a snapshot of the current database into the ESJ file. (*Save jobs as ESJ*)

ESTmep User Interface

The Fabrication ESTmep user interface is like that of Autodesk AutoCAD in that it uses pull down menus, toolbars, pallets, and right-click menus. But it uses a CAD engine that is somewhat different from the AutoCAD user interface. AutoCAD users will see strong similarities in the Fabrication ESTmep user interface, but anyone with some basic CAD experience will quickly acclimatize themselves to this software.



Items Tab

This displays all Items in the job in a Non-graphical list view.

3D Viewer Tab

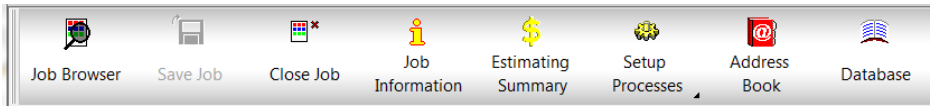
You may think of the 3D Viewer tab as a CAD system similar to the drawing window in AutoCAD. Along the right side is the Workspace Pallet.

Item Folders

This provides a tree list view of the Items in the current Configuration in the left pane with preview images of the Items in the right pane. These are Items which can be placed or inserted into the job.

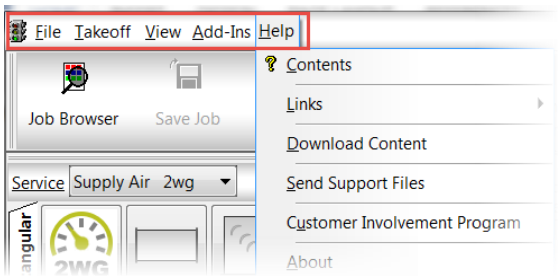
Utility Bar

This Resembles a ribbon used in other Autodesk products and can be easily customized.



Pull-down Menus

Along the top of the program window. File, Takeoff, View, Add-Ins and Help.



Center View Pane and Toolbars

The large center view pane displays graphical and non-graphical views of the Job and the Items that can be placed into the job.

Service Selection

Service Pallet

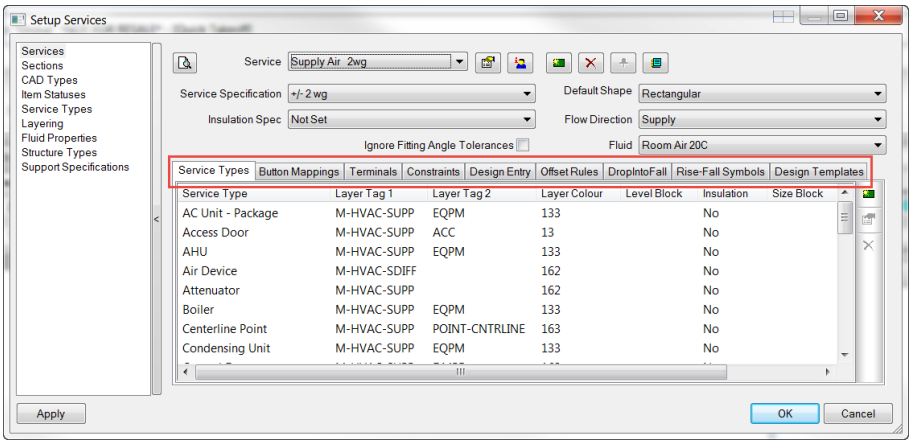
The fabrication ESTmep Service Pallet contains graphical objects, called Items which can be inserted into the Job. Items contain detailed information for pricing and fabrication purposes.

Service Tabs

The Service Pallet contents can be organized into tabs.

Setup Services

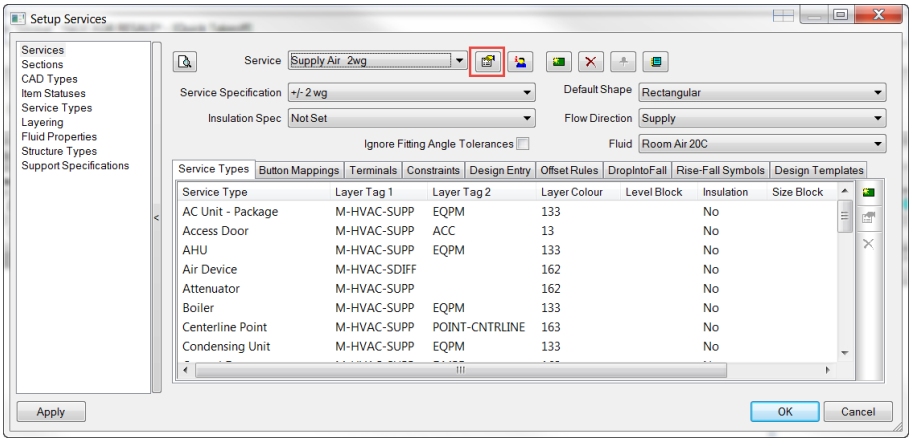
Services can be created, modified and deleted in this window.

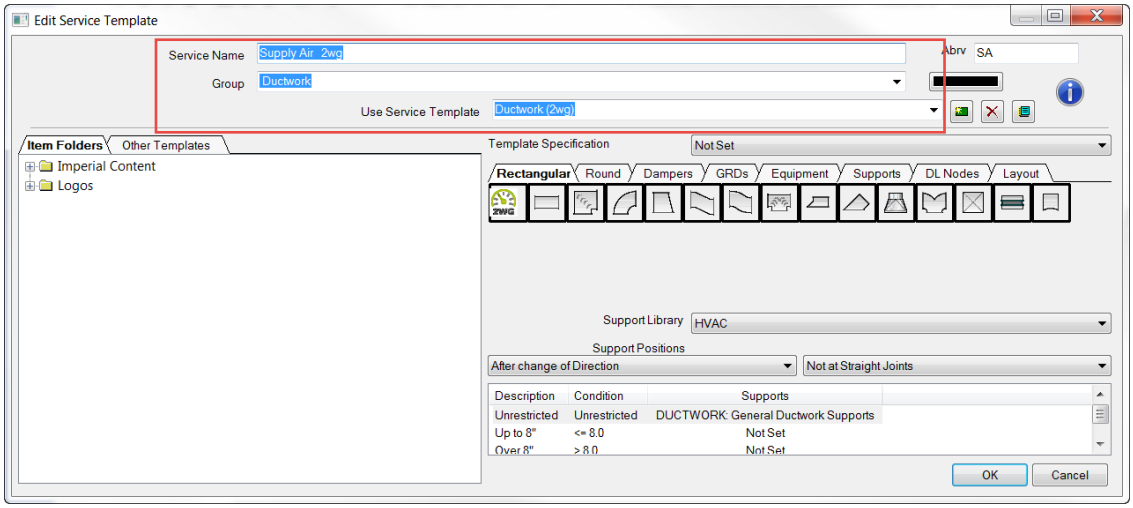


- ***Service Types***
  Displays the Layer Tags and colors that are set for each Service Type.
- ***Button Mappings***
  Fill in 3D will try the first available Alternate Button Code
- ***Terminals***
  Terminal Styles are used to automated end of line scenarios using Design Line.
- ***Constraints***
  Can be setup to automatically size the duct or pipe.
- ***Design Entry***
  Options that can be enabled or disabled for the Criteria field in Design Line.

Edit Service Template

Service Templates provide the main user interface for selecting products across Autodesk Fabrication applications. Services are linked to Service Templates and these individual templates can be used across seral services. Templates define the Products and Conditions associated with drawing a particular Service.





- ***Service Name***
  Name for the Service.
- ***Group***
  Organizes the Services when using the Service Drop Down menu.
- ***Use Service Template***
  Service Template assigned to the Service.

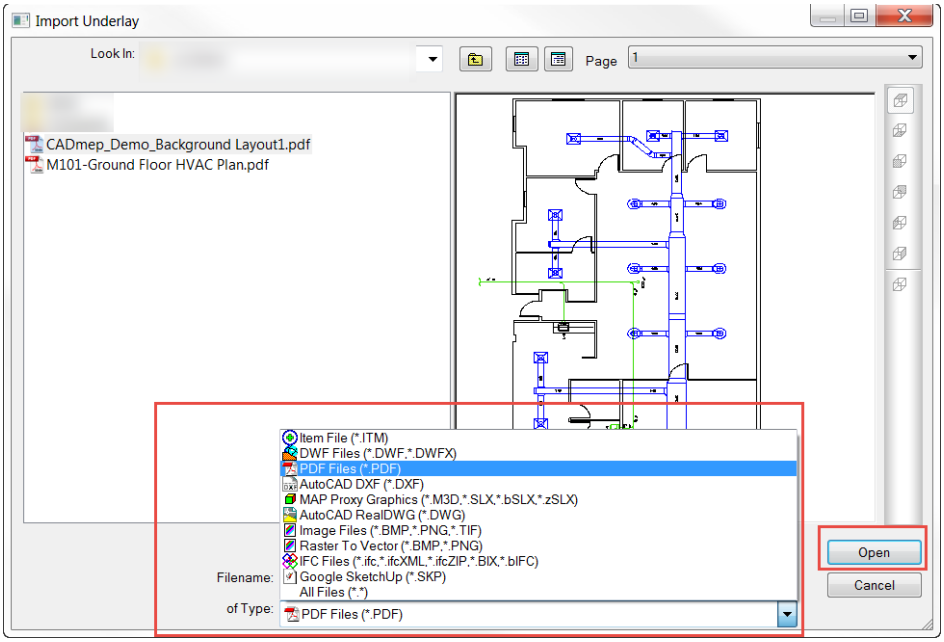
Learn how to create a model using on screen takeoff.

Import Underlay

In Fabrication ESTmep, you can import a 2D drawing, and view them in the 3D Viewer. These drawings can be traced over using Design Line tools for quick estimating. Advancements in Design Line technology allow underlays to be accurately traced.

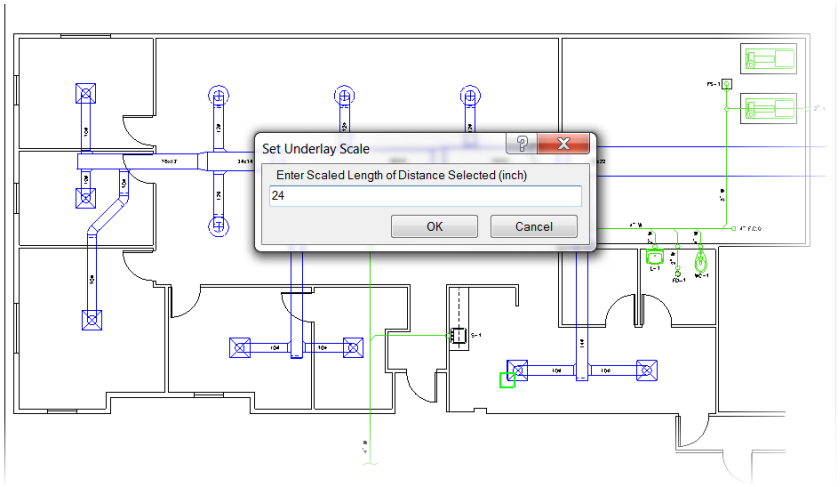
Bring in a PDF, Rotate and Move

Right Click>Import Underlay. Click Open. When bringing in the PDF, you can set the basepoint to 0,0,0.



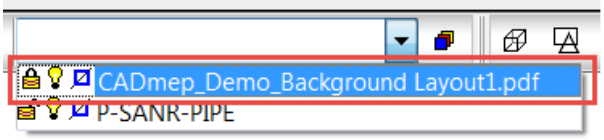
Align and Scale

The Align Scale, or AS command is used to rotate and scale the underlay.



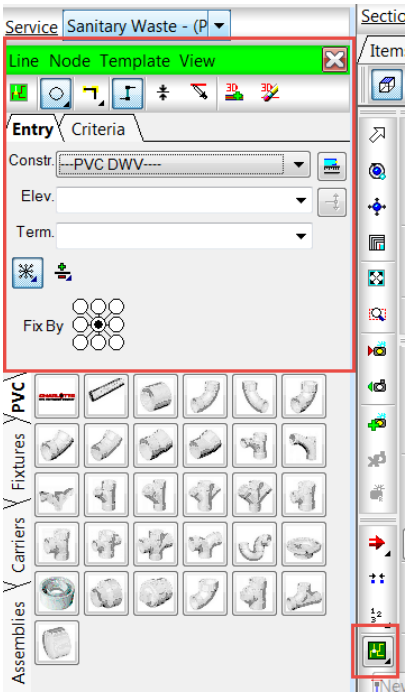
Lock Underlay

In the Layer Toolbar drop-down menu, select the PDF. Lock the PDF underlay by clicking on the lock Icon. You can also turn off snapping to this layer by clicking on the blue square icon.



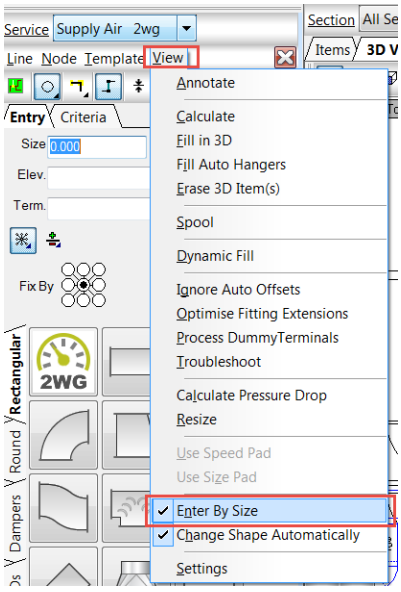
Drawing with Design Line

Design Line is one of the most powerful features of Fabrication ESTmep. The Design Line technology creates fabrication-intent models from special objects called Design Lines that are associated with a Fabrication ESTmep Service. This specification driver methodology enables for easy creation and modifications to the model.

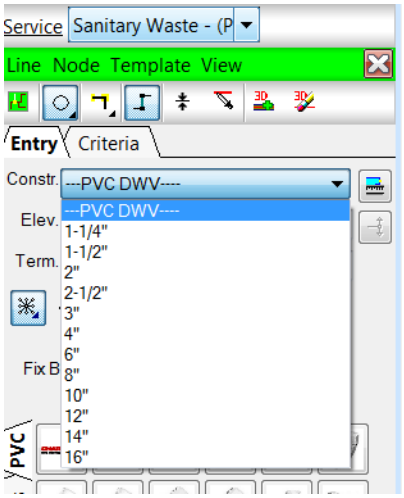


Design Line Entry Method

Depending on which service you are using, will change the Design Line Entry. For HVAC services, its recommend to use Enter by Size.

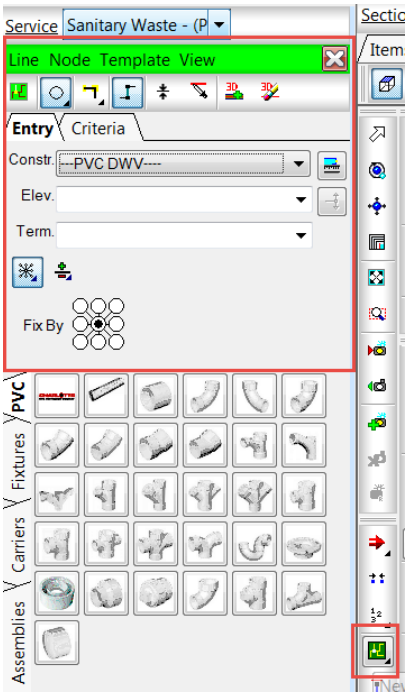


For Piping and Plumbing services, it is recommend to use Constraints.



Design Line Takeoff Menu

Once a Design Line command is selected from the Item Command Toolbar, the Service pallet changes to display commands and settings that apply to Design Line.



Design Line for Ductwork

In this exercise you will do the following:

- Understand the Design Line Takeoff Menu
- Use Design Line for an HVAC system
- Understand how Design Line Works
- Bring in a PDF, rotate and Move

Size

- Draw Rectangular
- Draw Round

Elevation

- Rectangular = 144” or 12’
- Round = 144” or 12’

Term

- Square Diffusers = 96”
- Round Diffusers = 120”

Exclude Items From Fill

Add a Node

- Terminal Styles
- Diffusers

Line Editor

- Adding Sections

- Adding Insulation
- Adjusting Elevation

Design Line for Plumbing

In this exercise you will do the following:

- Understand the Design Line Takeoff Menu
- Use Design Line for an Plumbing System
- Understand how Design Line Works

Size

- Constraints

Elevation

- -36” or -3’

Term

- Clean Out = 0”
- Floor Sink = 0”
- Floor Drain = 0”
- Vent Cap = 12”

Exclude Items From Fill

Add a Node

- Terminal Styles
- End of Line Items
- P-Trap

Line Editor

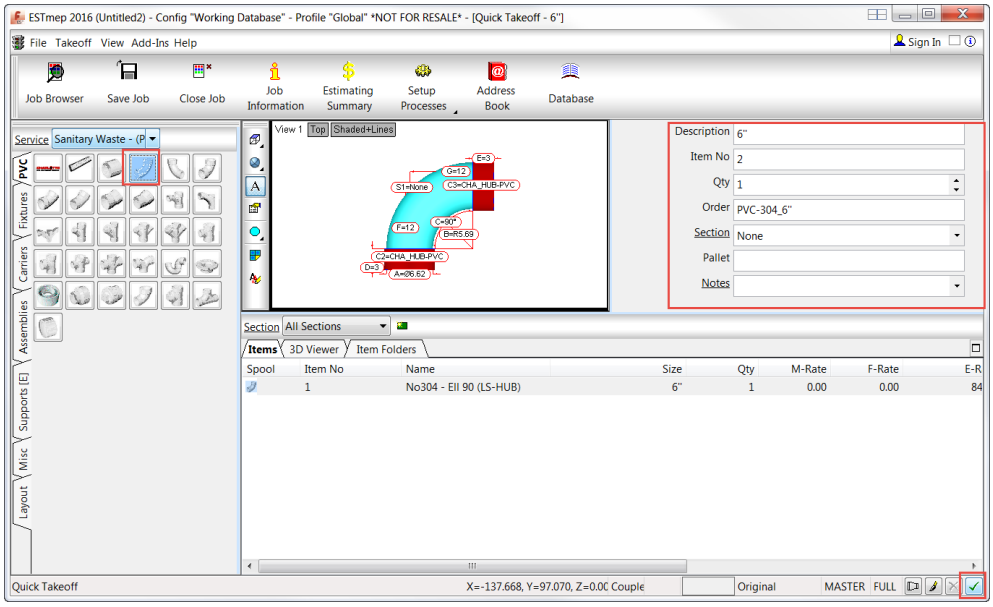
- Adding Sections
- Adding Insulation
- Adjusting Elevation
- Adding Slope

One Item Takeoff

It is sometimes preferable to use the non-graphical capabilities of Fabrication ESTmep to add Items to a Job and derive a cost estimate without regards to the physical placement of Items.

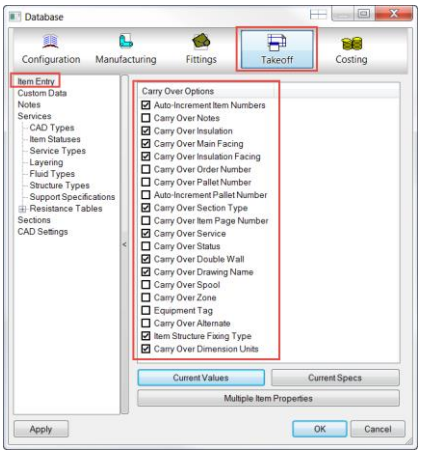
Entering Items

Accept Items into the job by selecting the Green Checkmark. You can also Press End.



Carry Over Options

Once you have placed an Item, additional Items are placed using properties that "carry over" from the previously placed item.



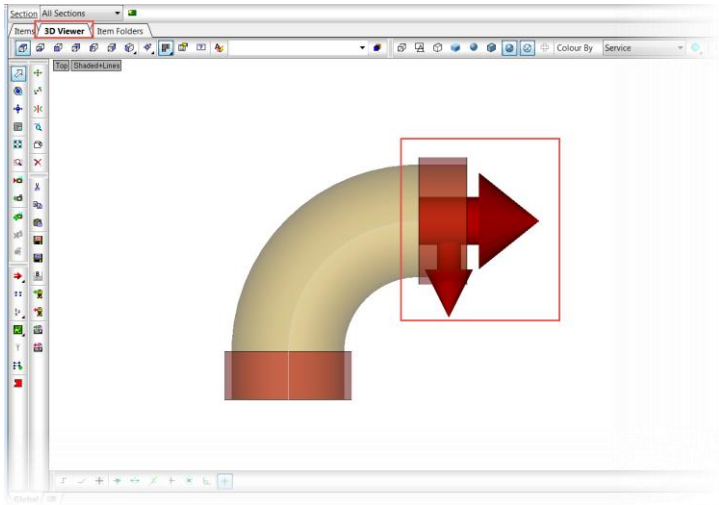
Drawing with the Attacher Arrow

The Attacher Arrow is an arrow symbol that assists with placing additional Items in the Job. Adding bends, straights, valves and other Items is a very fast process with this tool. Whether adding ductwork, pipes, or conduit, the functionality is the same when using the Attacher Arrow.

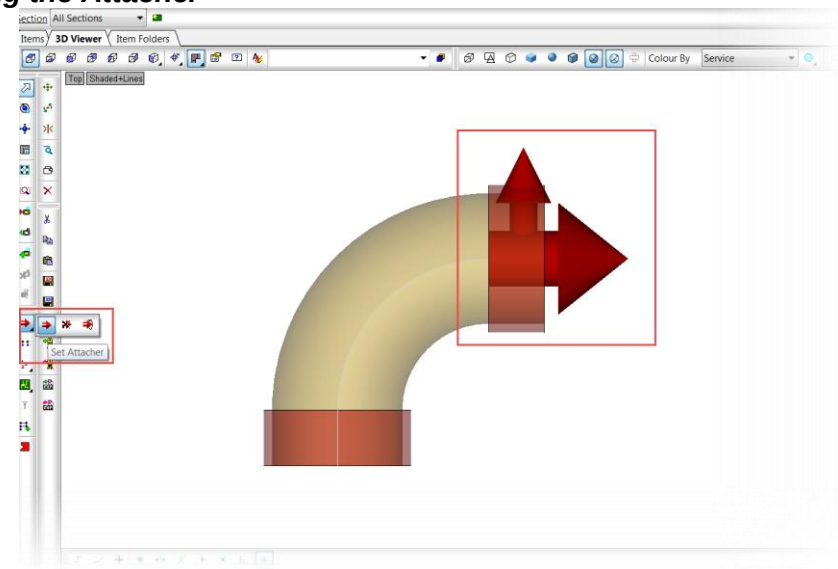
The Attacher Arrow is a visual aide which indicates a connection point for the next Item to be inserted. Attacher Arrows will appear only at valid connection points for the Item. The attached Arrow can only appear at one of the two open ends (ex. Straight or 90) where another piece of pipe or duct would be attached.

Placing items by the Attacher Arrow

This has to be done in the 3D Viewer Tab.



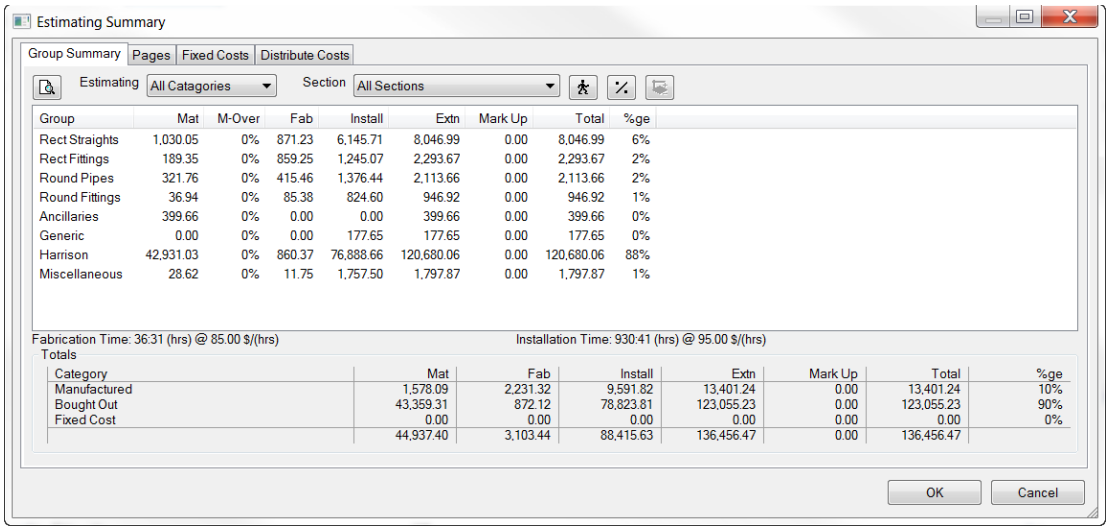
- ***Rotating the Attacher***



Discover Pricing for MEP Jobs

Estimating Summary

The Estimating Summary dialog provides a quick view of a variety of information related to estimating.



Value Engineering

Fabrication ESTmep uses the same Job files and database as the other Autodesk fabrication products so it is tightly integrated into the pre-fabrication and fabrication workflow. Changes in Fabrication CADmep or Fabrication CAMduct immediately update the costing in Fabrication ESTmep. The same is true when value engineering occurs using Fabrication ESTmep – the changes to Services and Items are shared with the other Autodesk fabrication products.

Refill with different material (Change Services)

Re-Price

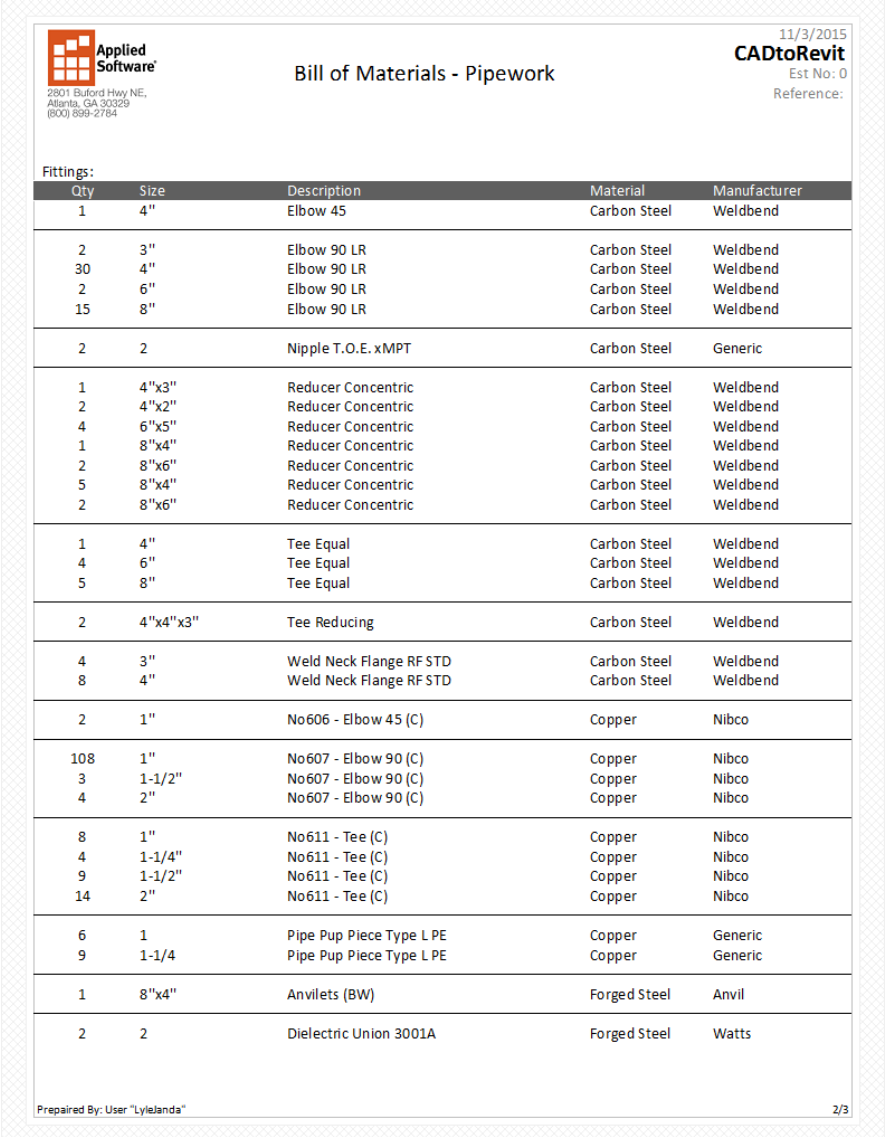
Discover how to use Reports

Reports

Fabrication ESTmep can create detailed reports of existing Items within the Job. Quickly and easily obtaining accurate and detailed information about the Items within the model is one of the most powerful features of the software.

Item Reports

Item Reports are formatted printouts of are summaries, bill of materials, bought-out items list, equipment list and much more.



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2801 Buford Hwy NE,
Atlanta, GA 30329
(800) 899-2784

Bill of Materials - Pipework

11/3/2015
CADtoRevit
Est No: 0
Reference:

Fittings:

Qty	Size	Description	Material	Manufacturer
1	4"	Elbow 45	Carbon Steel	Weldbend
2	3"	Elbow 90 LR	Carbon Steel	Weldbend
30	4"	Elbow 90 LR	Carbon Steel	Weldbend
2	6"	Elbow 90 LR	Carbon Steel	Weldbend
15	8"	Elbow 90 LR	Carbon Steel	Weldbend
2	2	Nipple T.O.E. xMPT	Carbon Steel	Generic
1	4"x3"	Reducer Concentric	Carbon Steel	Weldbend
2	4"x2"	Reducer Concentric	Carbon Steel	Weldbend
4	6"x5"	Reducer Concentric	Carbon Steel	Weldbend
1	8"x4"	Reducer Concentric	Carbon Steel	Weldbend
2	8"x6"	Reducer Concentric	Carbon Steel	Weldbend
5	8"x4"	Reducer Concentric	Carbon Steel	Weldbend
2	8"x6"	Reducer Concentric	Carbon Steel	Weldbend
1	4"	Tee Equal	Carbon Steel	Weldbend
4	6"	Tee Equal	Carbon Steel	Weldbend
5	8"	Tee Equal	Carbon Steel	Weldbend
2	4"x4"x3"	Tee Reducing	Carbon Steel	Weldbend
4	3"	Weld Neck Flange RF STD	Carbon Steel	Weldbend
8	4"	Weld Neck Flange RF STD	Carbon Steel	Weldbend
2	1"	No606 - Elbow 45 (C)	Copper	Nibco
108	1"	No607 - Elbow 90 (C)	Copper	Nibco
3	1-1/2"	No607 - Elbow 90 (C)	Copper	Nibco
4	2"	No607 - Elbow 90 (C)	Copper	Nibco
8	1"	No611 - Tee (C)	Copper	Nibco
4	1-1/4"	No611 - Tee (C)	Copper	Nibco
9	1-1/2"	No611 - Tee (C)	Copper	Nibco
14	2"	No611 - Tee (C)	Copper	Nibco
6	1	Pipe Pup Piece Type L PE	Copper	Generic
9	1-1/4	Pipe Pup Piece Type L PE	Copper	Generic
1	8"x4"	Anvilets (BW)	Forged Steel	Anvil
2	2	Dielectric Union 3001A	Forged Steel	Watts

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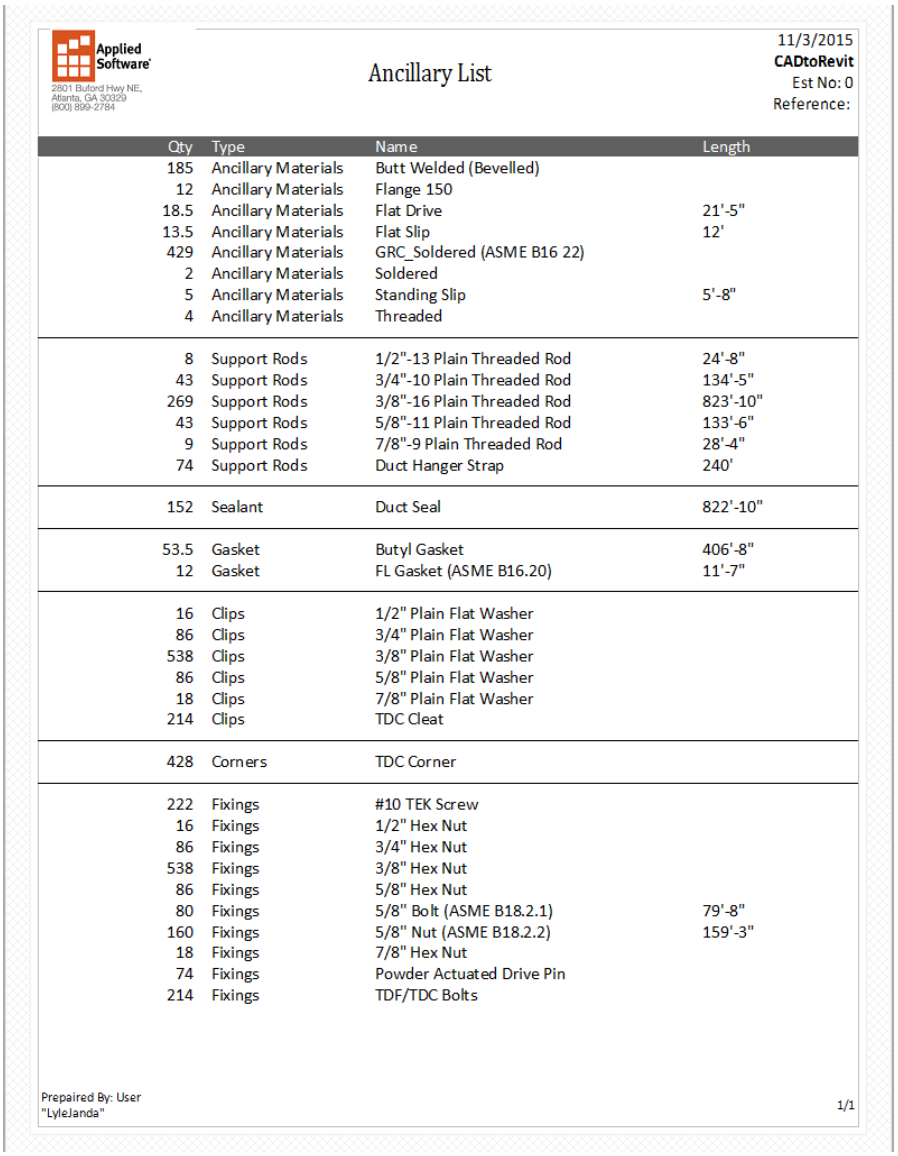
Ancillary Reports

Ancillaries are the additional items that are necessary for the fabrication and installation of an Item. These can be flange materials, channels, bolts, gaskets and other objects.



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Ancillary List

11/3/2015
CADtoRevit
Est No: 0
Reference:

Qty	Type	Name	Length
185	Ancillary Materials	Butt Welded (Bevelled)	
12	Ancillary Materials	Flange 150	
18.5	Ancillary Materials	Flat Drive	21'-5"
13.5	Ancillary Materials	Flat Slip	12'
429	Ancillary Materials	GRC_Soldered (ASME B16 22)	
2	Ancillary Materials	Soldered	
5	Ancillary Materials	Standing Slip	5'-8"
4	Ancillary Materials	Threaded	
8	Support Rods	1/2"-13 Plain Threaded Rod	24'-8"
43	Support Rods	3/4"-10 Plain Threaded Rod	134'-5"
269	Support Rods	3/8"-16 Plain Threaded Rod	823'-10"
43	Support Rods	5/8"-11 Plain Threaded Rod	133'-6"
9	Support Rods	7/8"-9 Plain Threaded Rod	28'-4"
74	Support Rods	Duct Hanger Strap	240'
152	Sealant	Duct Seal	822'-10"
53.5	Gasket	Butyl Gasket	406'-8"
12	Gasket	FL Gasket (ASME B16.20)	11'-7"
16	Clips	1/2" Plain Flat Washer	
86	Clips	3/4" Plain Flat Washer	
538	Clips	3/8" Plain Flat Washer	
86	Clips	5/8" Plain Flat Washer	
18	Clips	7/8" Plain Flat Washer	
214	Clips	TDC Cleat	
428	Corners	TDC Corner	
222	Fixings	#10 TEK Screw	
16	Fixings	1/2" Hex Nut	
86	Fixings	3/4" Hex Nut	
538	Fixings	3/8" Hex Nut	
86	Fixings	5/8" Hex Nut	
80	Fixings	5/8" Bolt (ASME B18.2.1)	79'-8"
160	Fixings	5/8" Nut (ASME B18.2.2)	159'-3"
18	Fixings	7/8" Hex Nut	
74	Fixings	Powder Actuated Drive Pin	
214	Fixings	TDF/TDC Bolts	

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"LyleJanda"

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