

eVolve Your Models to Fabrication

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V.P., Design & Fabrication

Class Summary

Share and discuss 15 year struggle and success in making BIM a *Value Add*

Direct and indirect effects of **eVolve** on Corbins Electric

Key Learning Objectives

At the end of this class, you will be able to:

- Improve your experience using Revit for electrical fabrication
- Understand **eVolve**'s unique modeling tools and content
- Understand **eVolve**'s Spool/Sheet creation for fabricating
- Learn how Corbins Electric improved their processes

Why eVolve?

Add value to our BIM process

- BIM was an additional cost
- Took too long to get from BIM to PF
 1. Lack of electrical components in Revit out of the box
 2. Functionality of the families

Byproduct of eVolve

Elimination of “**WASTE**”

- Inventory control (i.e. stocking material)
- Waiting for long-lead items
- Over-Processing (i.e. over-ordering from field)

Manpower...



Current Issues in Construction

- 143,000 vacant construction positions nationwide
- 69 percent delays in completing projects
- More people left industry than are coming in
- Younger workers are not considering construction as career
- Ideological changes in Family and Educational system
- Older workers are retiring

Combating Current Issues in Construction

Prefabrication

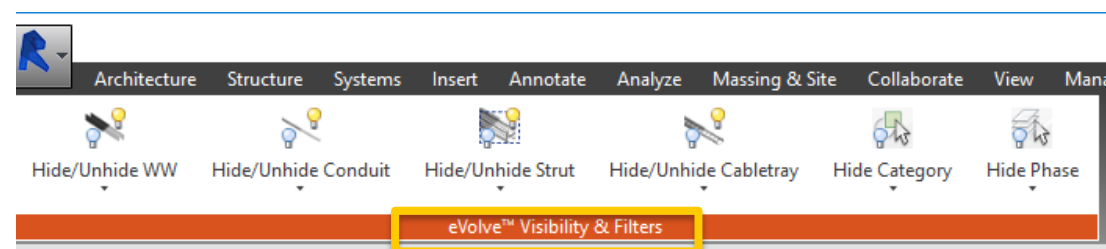
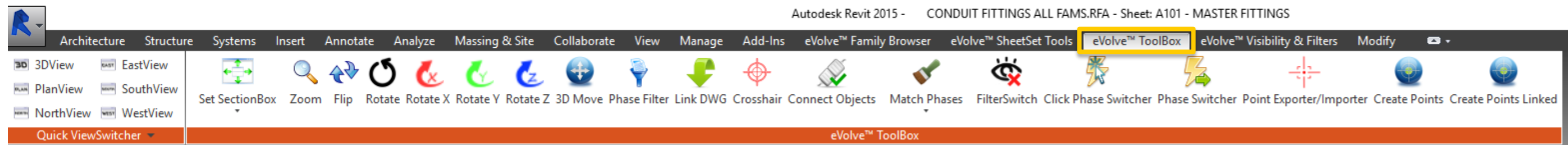
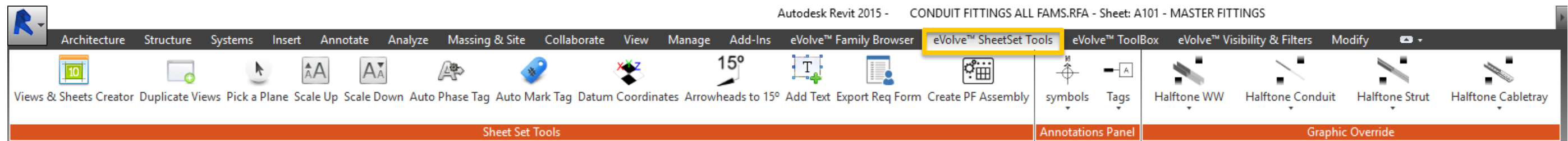
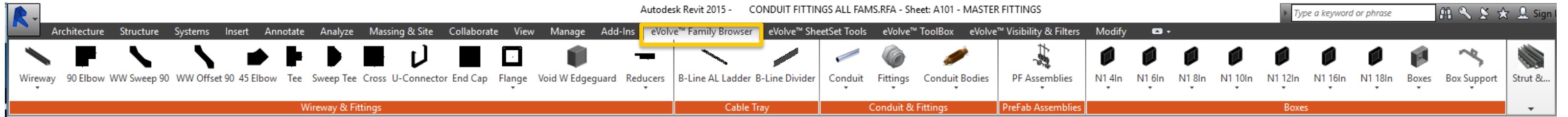
- Train entry level workers
- QAQC Product
- Reduce Lost or Stolen Tools/Equipment
- Safety

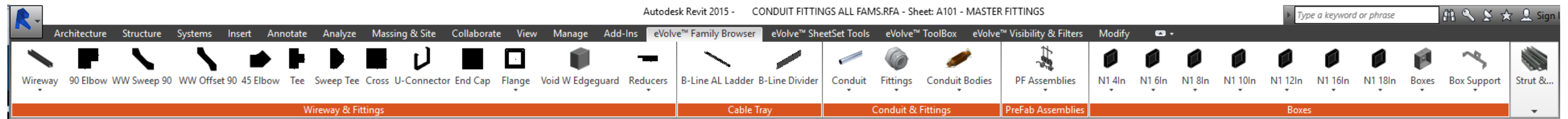




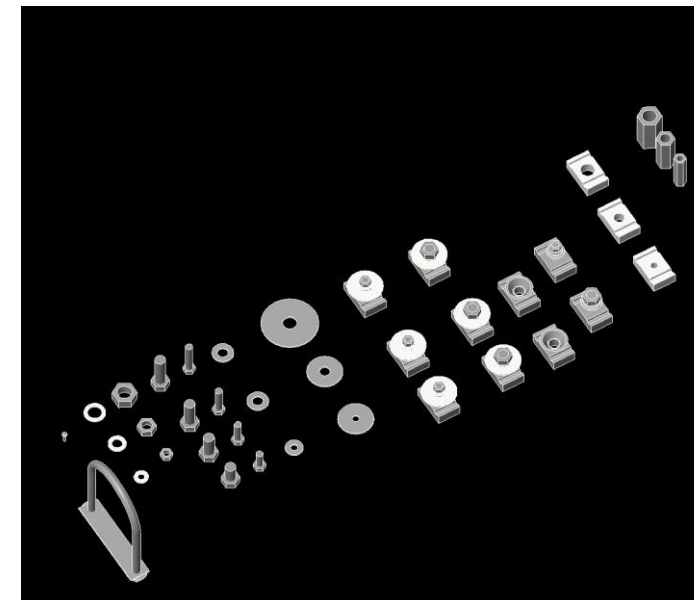
- 3d Modeling – Content
- Accurate Bill of Materials to Excel
- Total Station Point creation and validation
- Spool Drawing generator
- Supports 2015,2016 ,and 2017

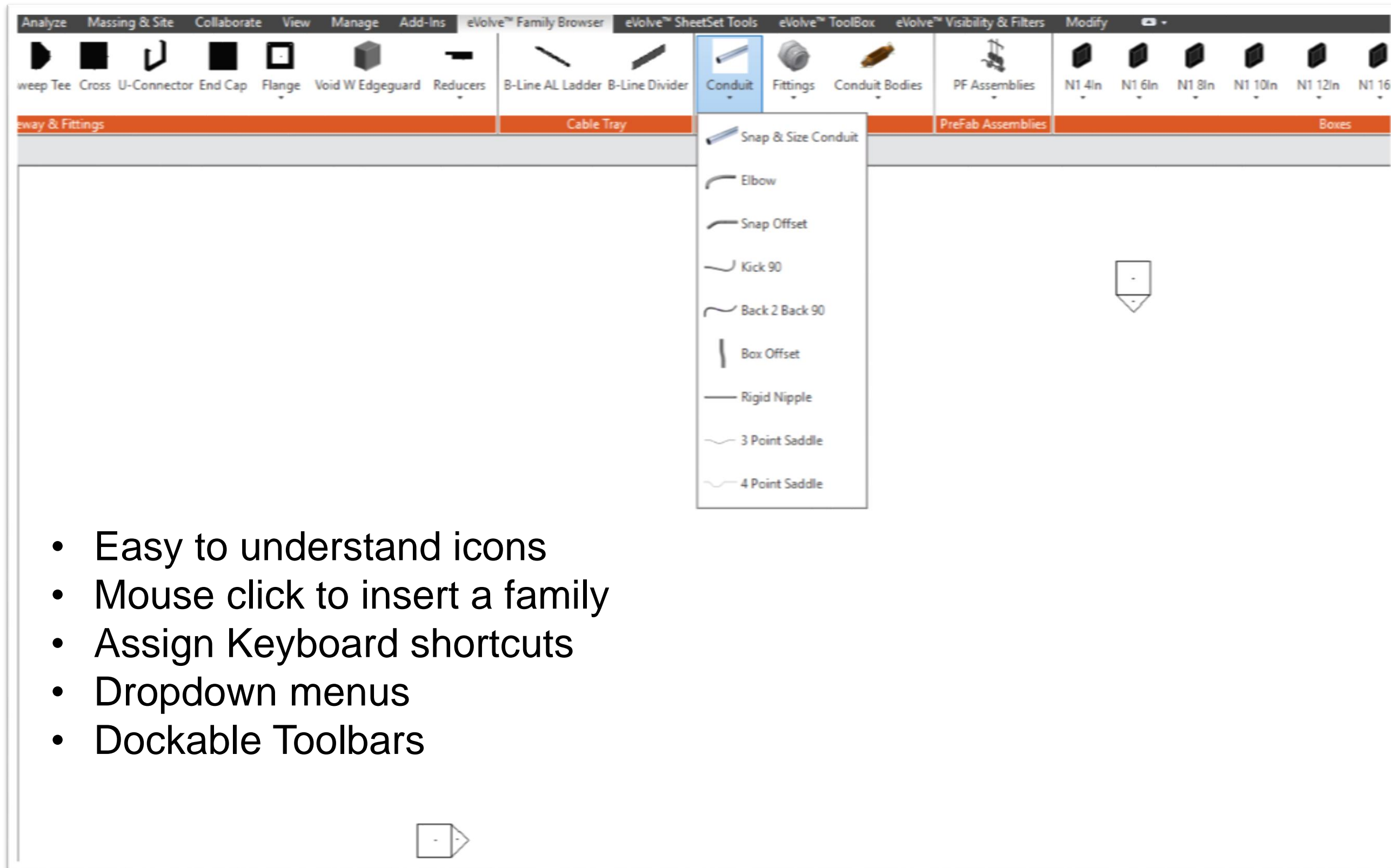
4 Ribbons





- Wire-way
- Cable Tray
- Conduit
- Prefab
- Boxes
- Supports
- Strut







Application

Designed to protect electrical wiring in applications where dust, dirt, oil, and water are not serious problems. All sections and fittings are completely open on one side so wires and cables can be laid in along wireway run. No pulling through of wires or cables prevents damage to insulation that often occurs in a pull-through wiring system. Flat cover design allows for mounting flush with walls or ceilings. Keyhole screw slots on flat covers provide easy access.

An extensive selection of sections and fittings is available in six cross-sectional sizes:

2.50 x 2.50 inch (64 x 64mm)
 3.00 x 3.00 inch (76 x 76mm)
 4.00 x 4.00 inch (102 x 102mm)
 6.00 x 6.00 inch (152 x 152mm)
 8.00 x 8.00 inch (203 x 203mm)
 10.00 x 10.00 inch (254 x 254mm)
 12.00 x 12.00 inch (305 x 305mm)

Most cross-sections are available in eight lengths from 12 inches to 120 inches.

Features

- Flat cover design
- Open top assembly

Construction

- 16 and 14 gauge pre-painted steel covers and bodies
- Available with or without knockouts
- Keyhole screw slots on flat covers

Finish

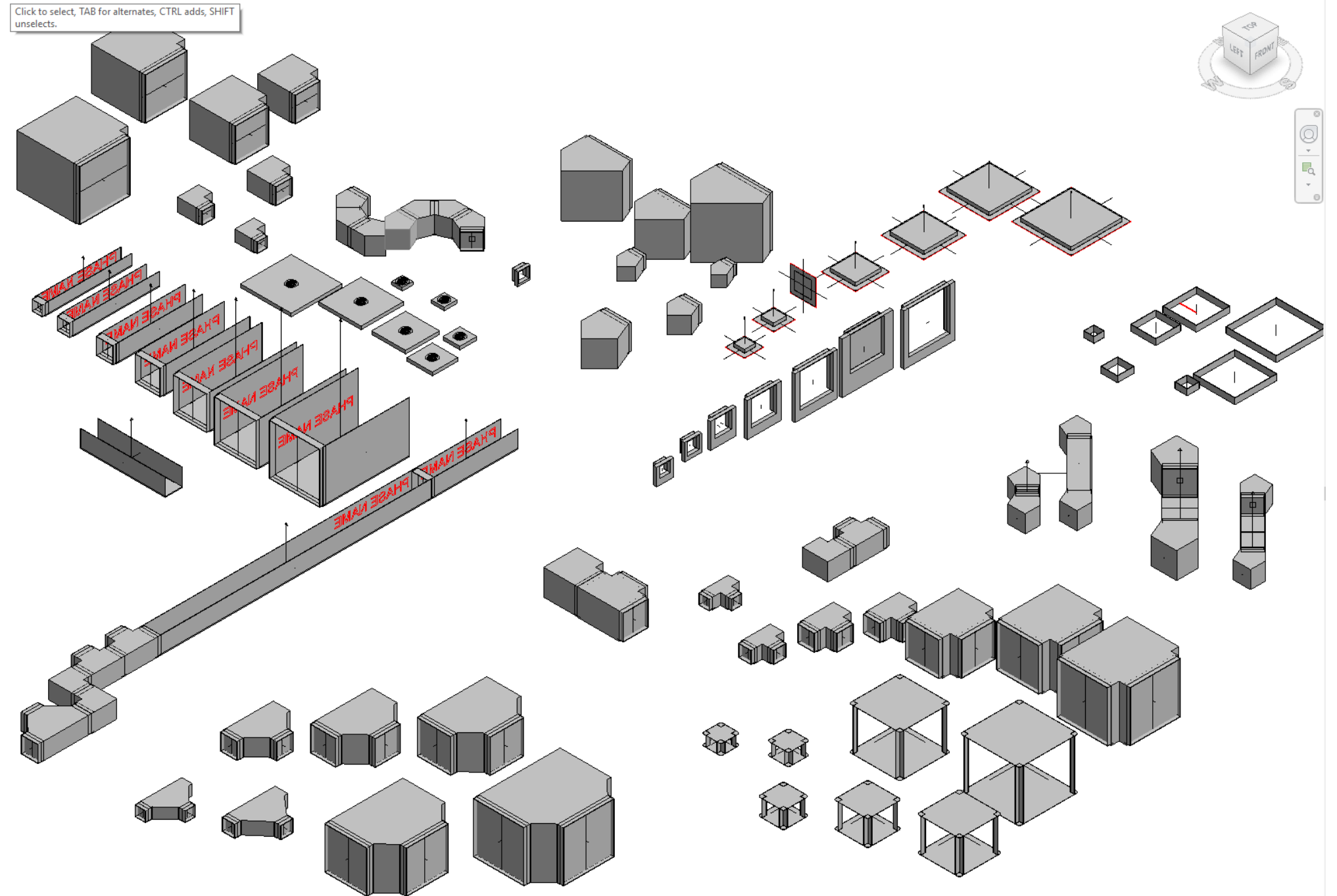
ANSI 61 gray polyester powder paint finish inside and out.

Industry Standards


UL 870, File No. E27524
 NEMA/EEMAC Type I
 cUL CSA C22.2 No. 26, File No. E27524: Type I
 IEC 60529




A Pentair Company



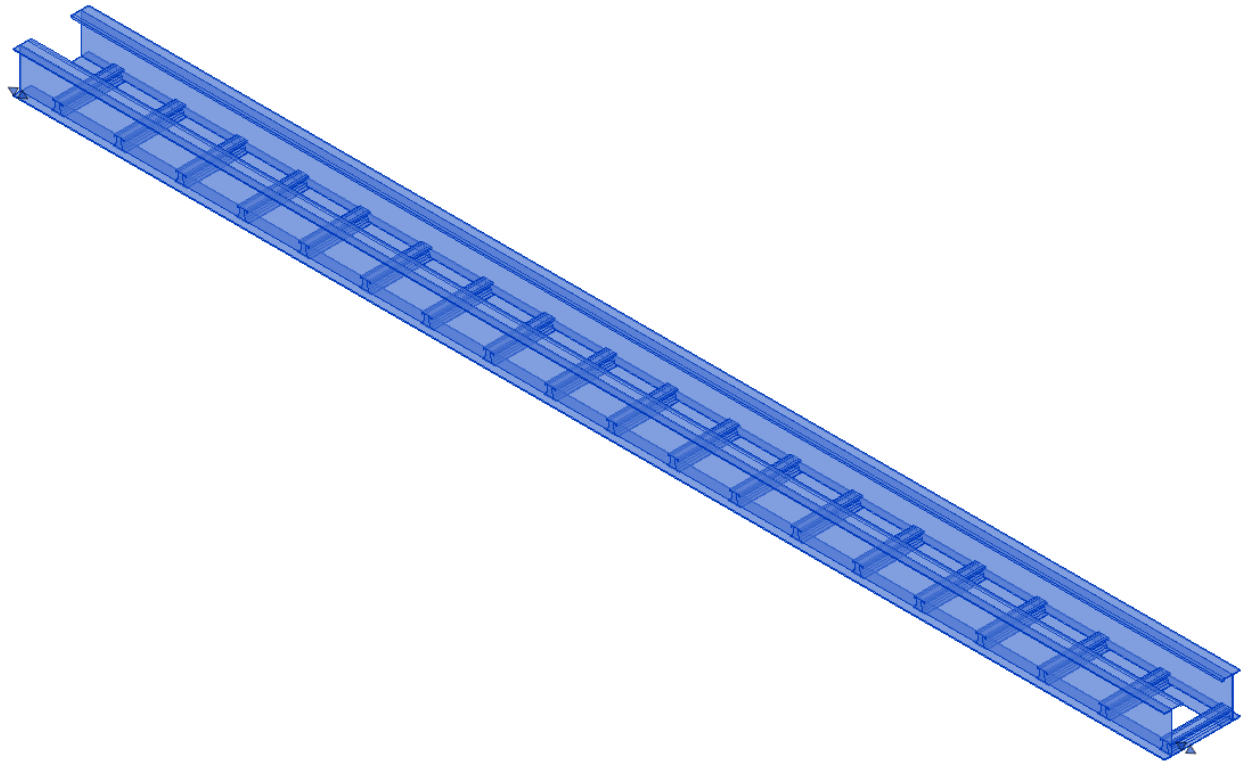
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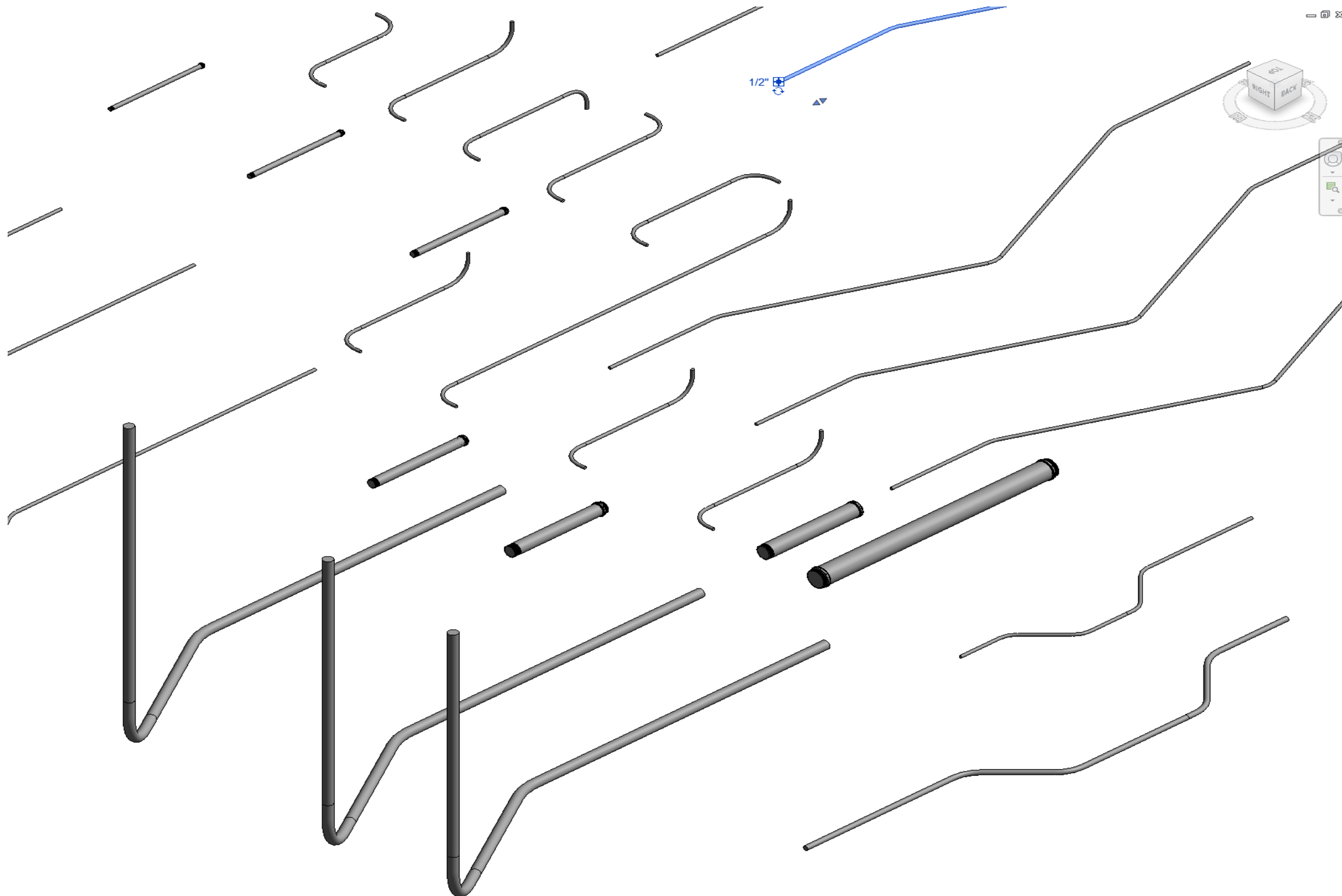
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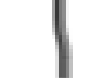



Cable Tray Fittings (1)  Edit Type

Constraints

ADD A RUNG	<input type="checkbox"/>
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TRAY WIDTH 09 INCH	<input type="checkbox"/>
TRAY WIDTH 12 INCH	<input type="checkbox"/>
TRAY WIDTH 18 INCH	<input type="checkbox"/>
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TRAY WIDTH 30 INCH	<input type="checkbox"/>
TRAY WIDTH 36 INCH	<input type="checkbox"/>





-  Snap & Size Conduit
-  Elbow
-  Snap Offset
-  Kick 90
-  Back 2 Back 90
-  Box Offset
-  Rigid Nipple
-  3 Point Saddle
-  4 Point Saddle

CONDUIT SNAP-SIZE

EMT

W/ CONNECTOR

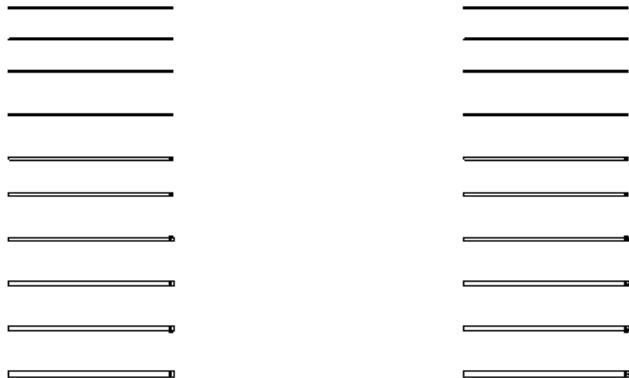


W/ COUPLING



Sheet 1 of 2 - 09/09/2016 1:04:00		
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W/ COUPLING



Conduit Straight Piece Family			
um	Count	_LENGTH	Description_
EA	1		1 1/2 INCH EMT CONNECTOR COMP
EA	1		1 1/2 INCH EMT CONNECTOR SS
EA	1		1 1/4 INCH EMT CONNECTOR COMP
EA	1		1 1/4 INCH EMT CONNECTOR SS
EA	1		1 INCH EMT CONNECTOR COMP
EA	1		1 INCH EMT CONNECTOR SS
EA	1		1 INCH-EMT COUPLING COMPRESSION
EA	1		1 INCH-EMT COUPLING SET SCREW
EA	1		1-1/2 INCH-EMT COUPLING COMPRESSION
EA	1		1-1/2 INCH-EMT COUPLING SET SCREW
EA	1		1-1/4 INCH-EMT COUPLING COMPRESSION
EA	1		1-1/4 INCH-EMT COUPLING SET SCREW
EA	1		1/2 INCH EMT CONNECTOR COMP
EA	1		1/2 INCH EMT CONNECTOR SS
EA	1		1/2 INCH-EMT COUPLING COMPRESSION
EA	1		1/2 INCH-EMT COUPLING SET SCREW
EA	1		2 1/2 INCH EMT CONNECTOR COMP
EA	1		2 1/2 INCH EMT CONNECTOR SS
EA	1		2 INCH EMT CONNECTOR COMP
EA	1		2 INCH EMT CONNECTOR SS
EA	1		2 INCH-EMT COUPLING COMPRESSION
EA	1		2 INCH-EMT COUPLING SET SCREW
EA	1		2-1/2 INCH EMT COUPLING COMPRESSION
EA	1		2-1/2 INCH EMT COUPLING SET SCREW
EA	1		3 1/2 INCH EMT CONNECTOR COMP
EA	1		3 1/2 INCH EMT CONNECTOR SS
EA	1		3 1/2 INCH-EMT COUPLING COMPRESSION
EA	1		3 1/2 INCH-EMT COUPLING SET SCREW
EA	1		3 INCH EMT CONNECTOR COMP
EA	1		3 INCH EMT CONNECTOR SS
EA	1		3 INCH-EMT COUPLING COMPRESSION
EA	1		3 INCH-EMT COUPLING SET SCREW
EA	1		3/4 INCH EMT CONNECTOR COMP
EA	1		3/4 INCH EMT CONNECTOR SS
EA	1		3/4 INCH-EMT COUPLING COMPRESSION
EA	1		3/4 INCH-EMT COUPLING SET SCREW
EA	1		4 INCH EMT CONNECTOR COMP
EA	1		4 INCH EMT CONNECTOR SS
EA	1		4 INCH-EMT COUPLING COMPRESSION
EA	1		4 INCH-EMT COUPLING SET SCREW
LF		40' - 0"	1 1/2 INCH-EMT
LF		40' - 0"	1 1/4 INCH-EMT
LF		40' - 0"	1 INCH-EMT
LF		40' - 0"	1/2 INCH-EMT
LF		40' - 0"	2 1/2 INCH-EMT
LF		40' - 0"	2 INCH-EMT
LF		40' - 0"	3 1/2 INCH-EMT
LF		40' - 0"	3 INCH-EMT
LF		40' - 0"	3/4 INCH-EMT
LF		40' - 0"	4 INCH-EMT

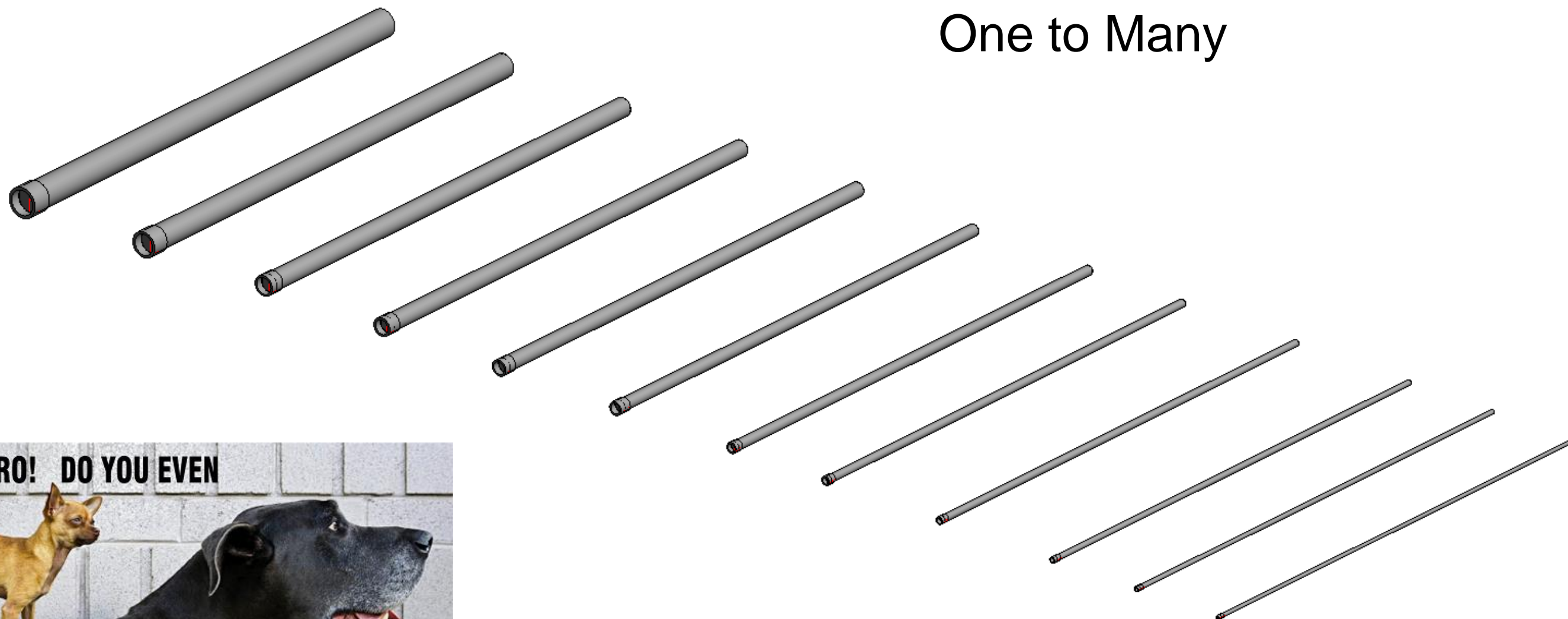
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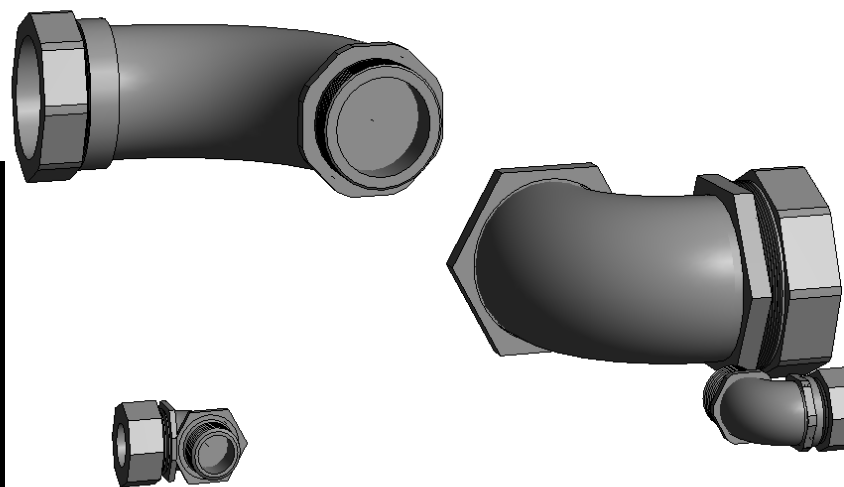
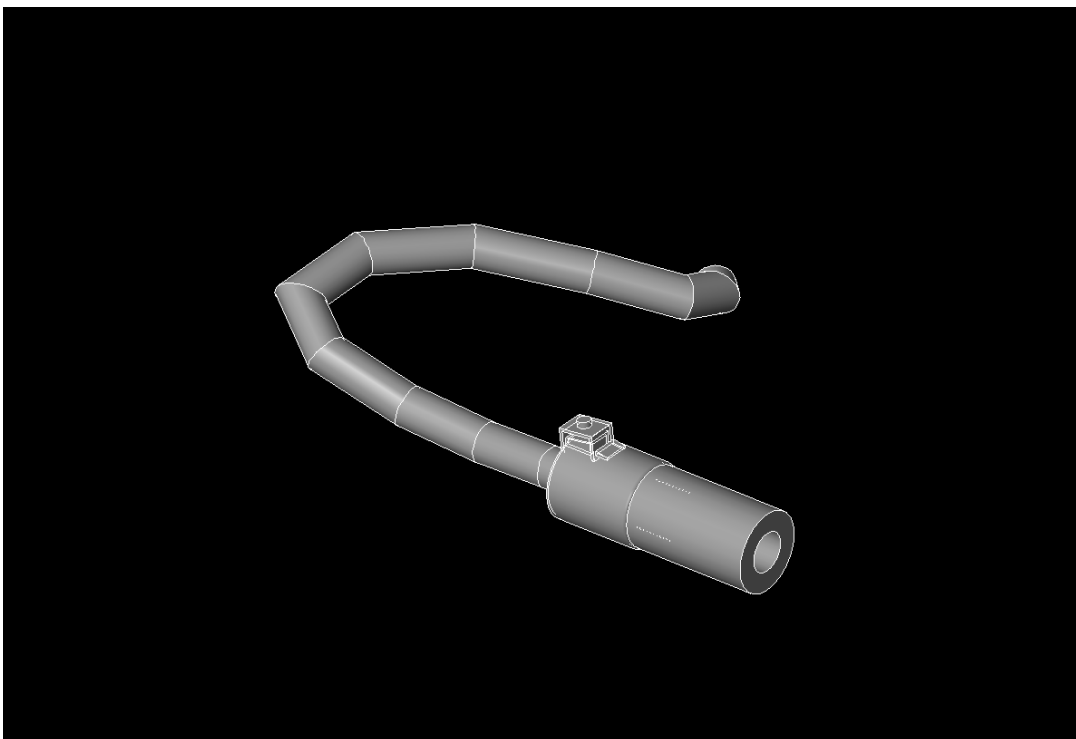
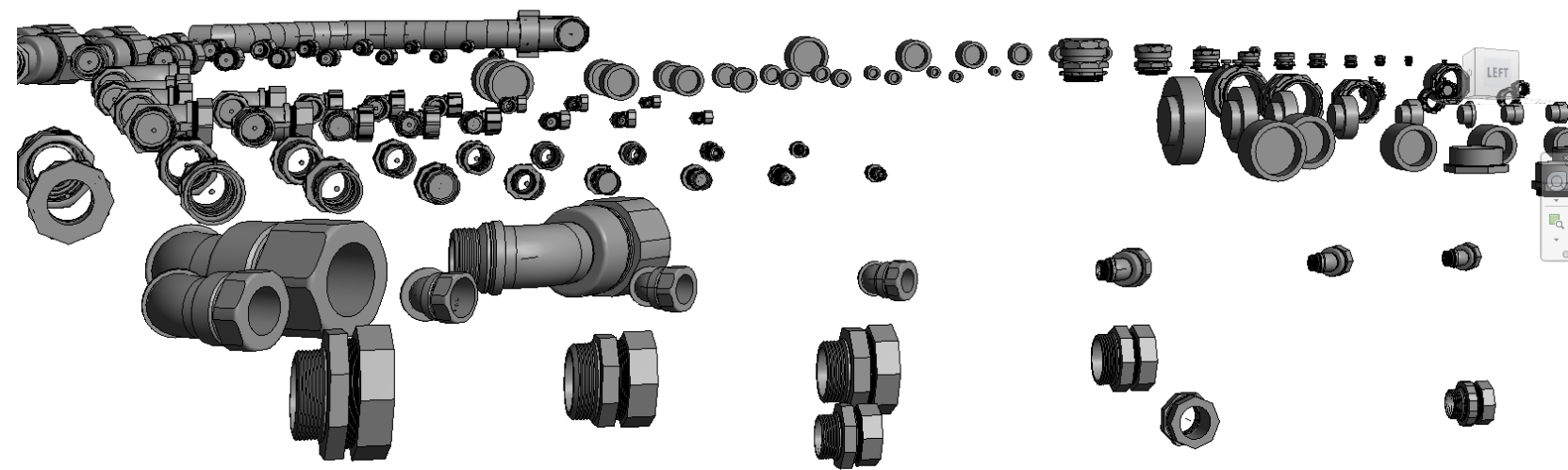
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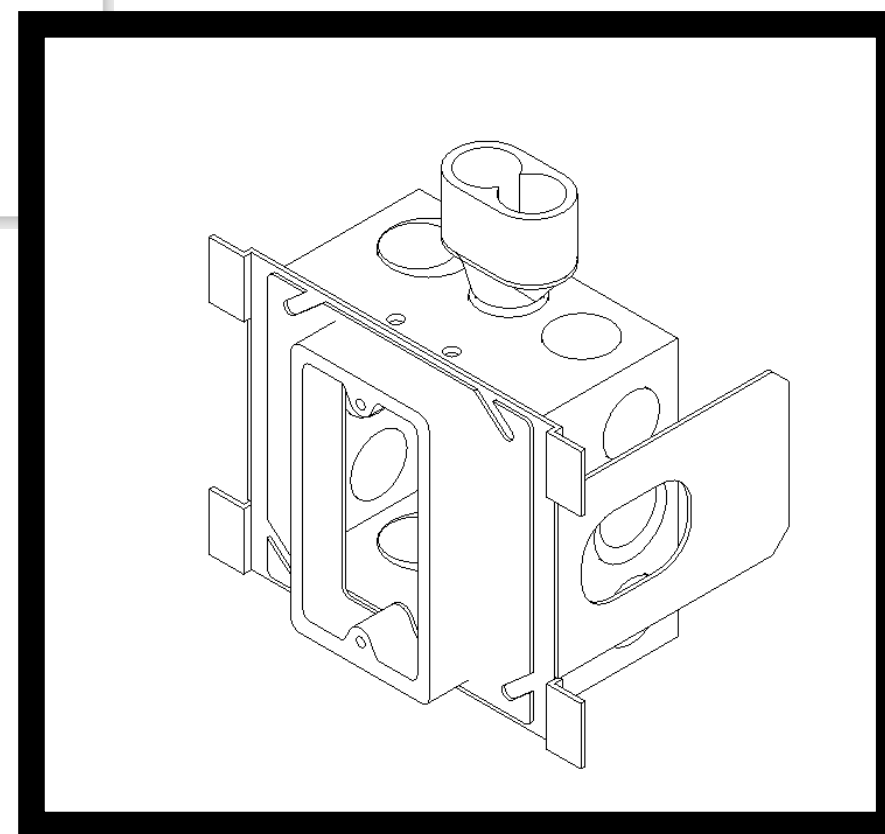
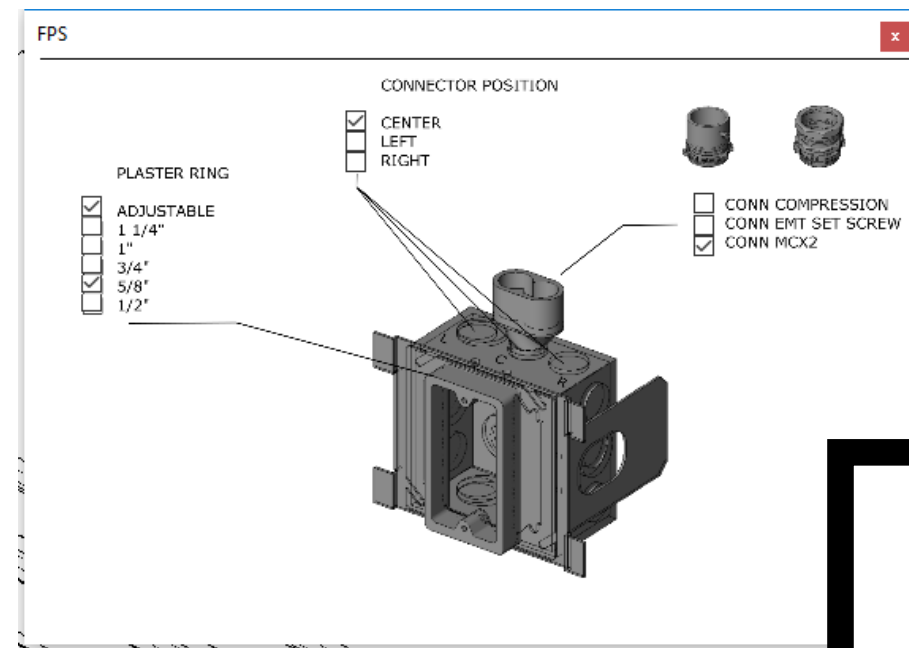
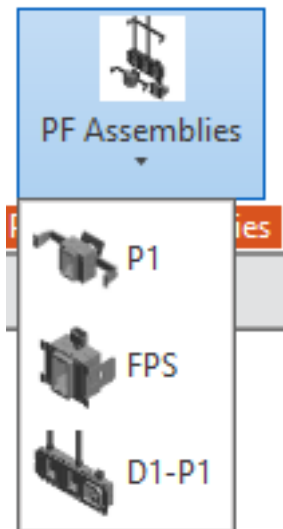


One to Many





-  FB Conduit Conn-Draw Conduit
-  Conduit Connector
-  Conduit Coupling
-  Rigid Coupling & Reducer
-  Bond Bushing
-  T&B Meyers Hub
-  Chase Nipple
-  PVC Male Adapter
-  PVC Bell End
-  Lock Ring
-  Pulling L
-  T&B Steel Flex Conn
-  T&B Steel Flex Conn 90
-  T&B Sealtite Conn
-  T&B Sealtite Conn 45
-  T&B Sealtite Conn 90
-  3PC EMT-LFMC ASM
-  1Pc EMT-LFMC 3QTR-1



3 Prefab Families =

Over
100,000
variations

BILL OF MATERIAL				
PEC_FPS_ASSY 53				
QTY	Manufacturer	Description	Length	Catalog#
1	BRIDGEPORT	DUPLEX MC CONNECTOR		3838ASP
1	CADDY	DOUBLE SIDED BOX SUPPORT "H"BRACKET 2 1/4-6"STUDS		MEB-1
1	RACO	4 SQUARE 2 1/8" D COMBO K.O.		403
1	RACO	4X4_ADJUSTABLE SINGLE GANG PLASTER RING		TBD

QTY:	JOB No:	FLOOR/AREA:	DATE REQUIRED:
1			

ASSEMBLY:	DESCRIPTION:

- 4SQ Box Ext
- 4SQ Deep 3-QTR In KO
- 4SQ Deep Special
- 4SQ Shlw Special
- 4SQ Extension Ring
- 4SQ Deep 1 In KO
- 411 SQ Deep Special
- PL Ring-4SQ Box Ext Asm
- WP Sng Gang 5H 3-QTR
- WP Sng Gang Data Asm
- WP Sng Gang Fiber Asm
- 4SQ Dbl Gang PL Ring Multi
- 4SQ Sng Gang PL Ring Multi
- Raco 165 Octagon Box
- RD WP Dbl Gang 5H 3-QTR
- RD WP Dbl Gang 5H 1 In
- RD WP Sng Gang 5H 3-QTR
- RD WP Sng Gang 3H 3-QTR
- RD WP Sng Gang 3H 1 In
- Handy Box
- Ground Pigtail



N1 4In

N1 6In

N1 8In

N1 10In

N1 12In

N1 16In

N1 18In

Boxes

Boxes

6X6X4

8X8X4

10X10X4

12X12X4

16X12X4

18X12X4

18X18X4

24X24X4

30X30X4

36X36X4

Properties

BX_CE_HOFFMAN_8_DEEP
36X24X8

BX_CE_4SQUARE_DP_SPECIAL

BX_CE_4SQUARE_DP_SPECIAL

BX_CE_HOFFMAN_8_DEEP

8X8X8_LONG_LEAD

10X10X8_LONG_LEAD

12X12X8

16X16X8_LONG_LEAD

18X18X8

24X24X8

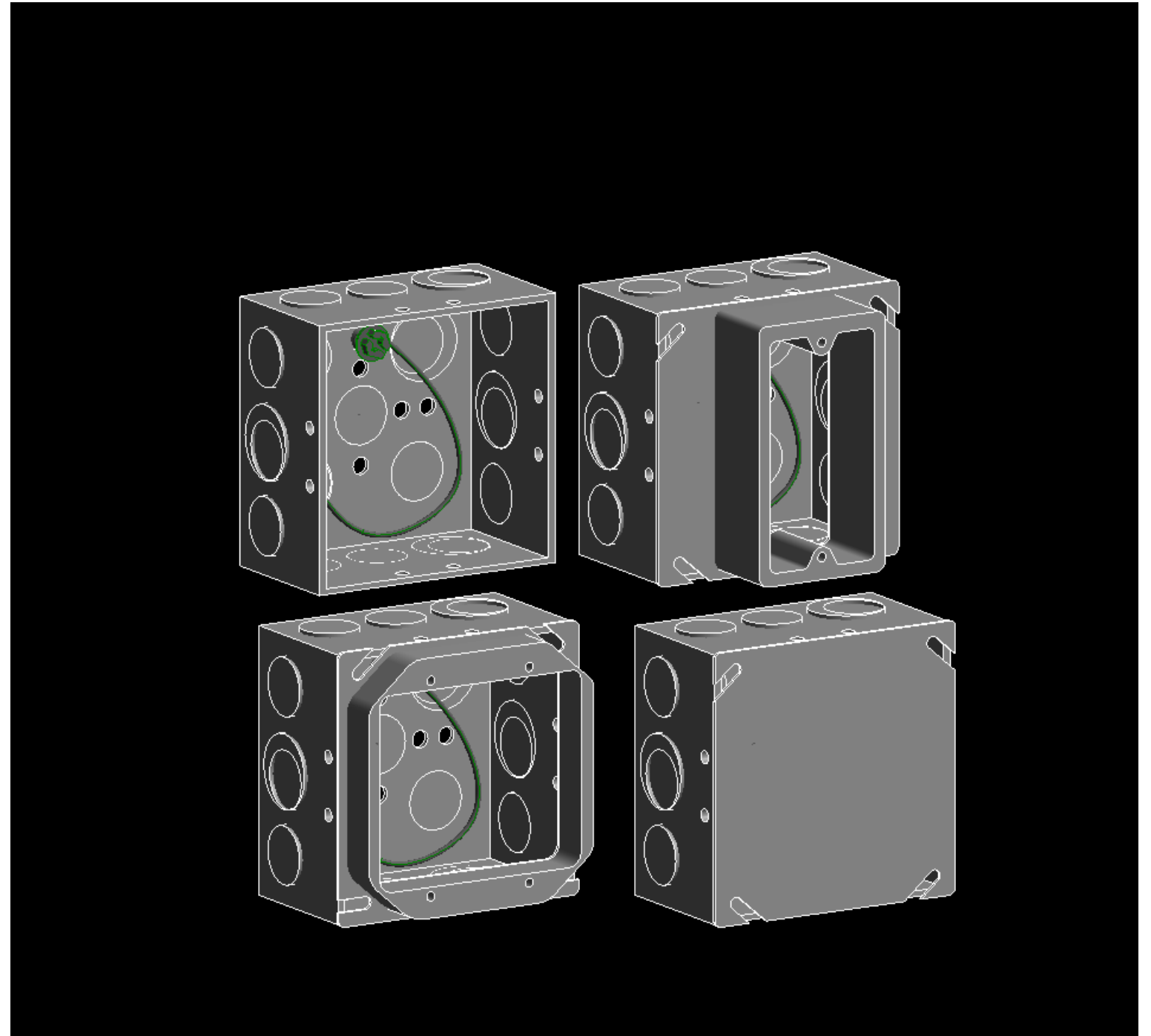
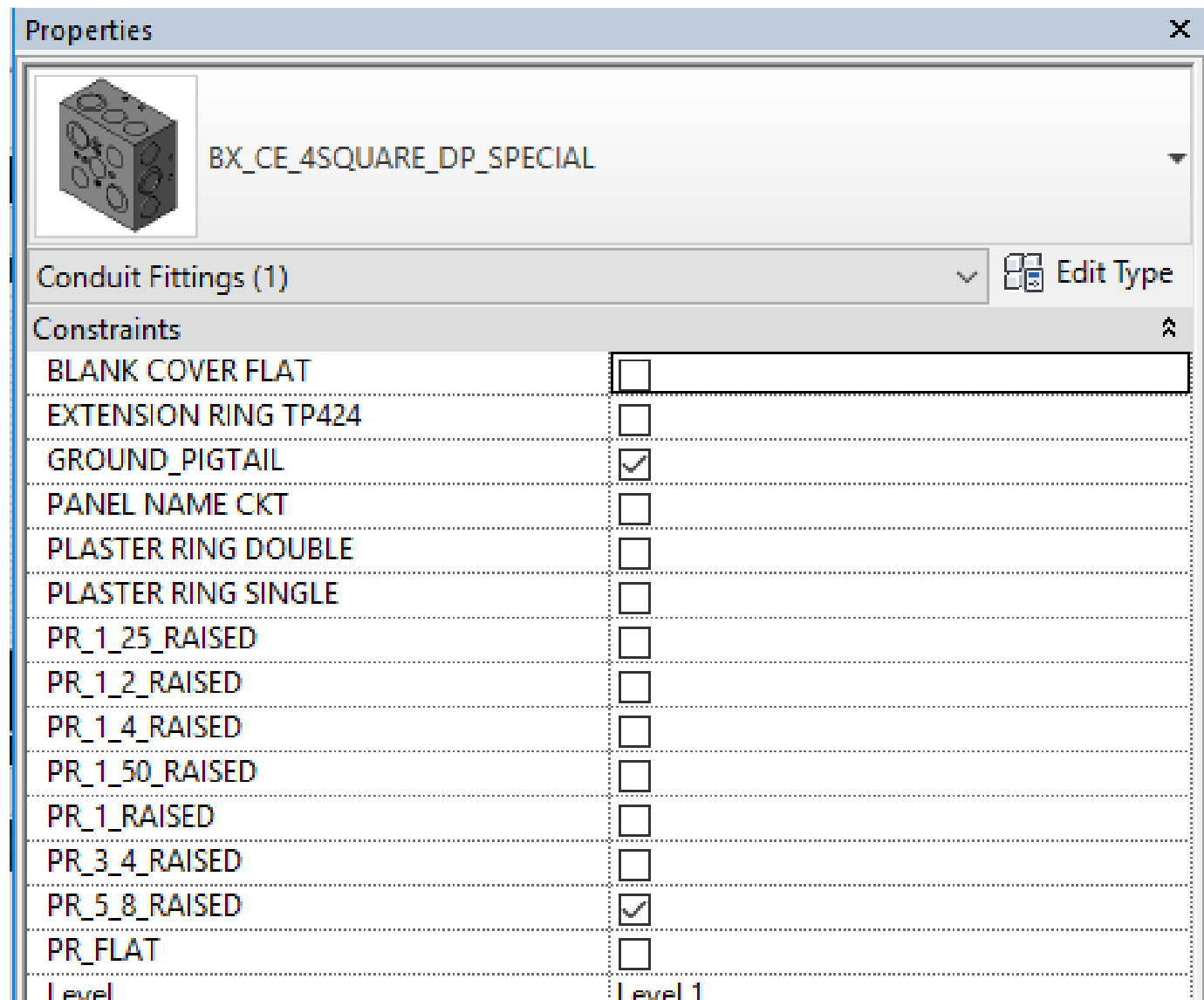
30X24X8_LONG_LEAD

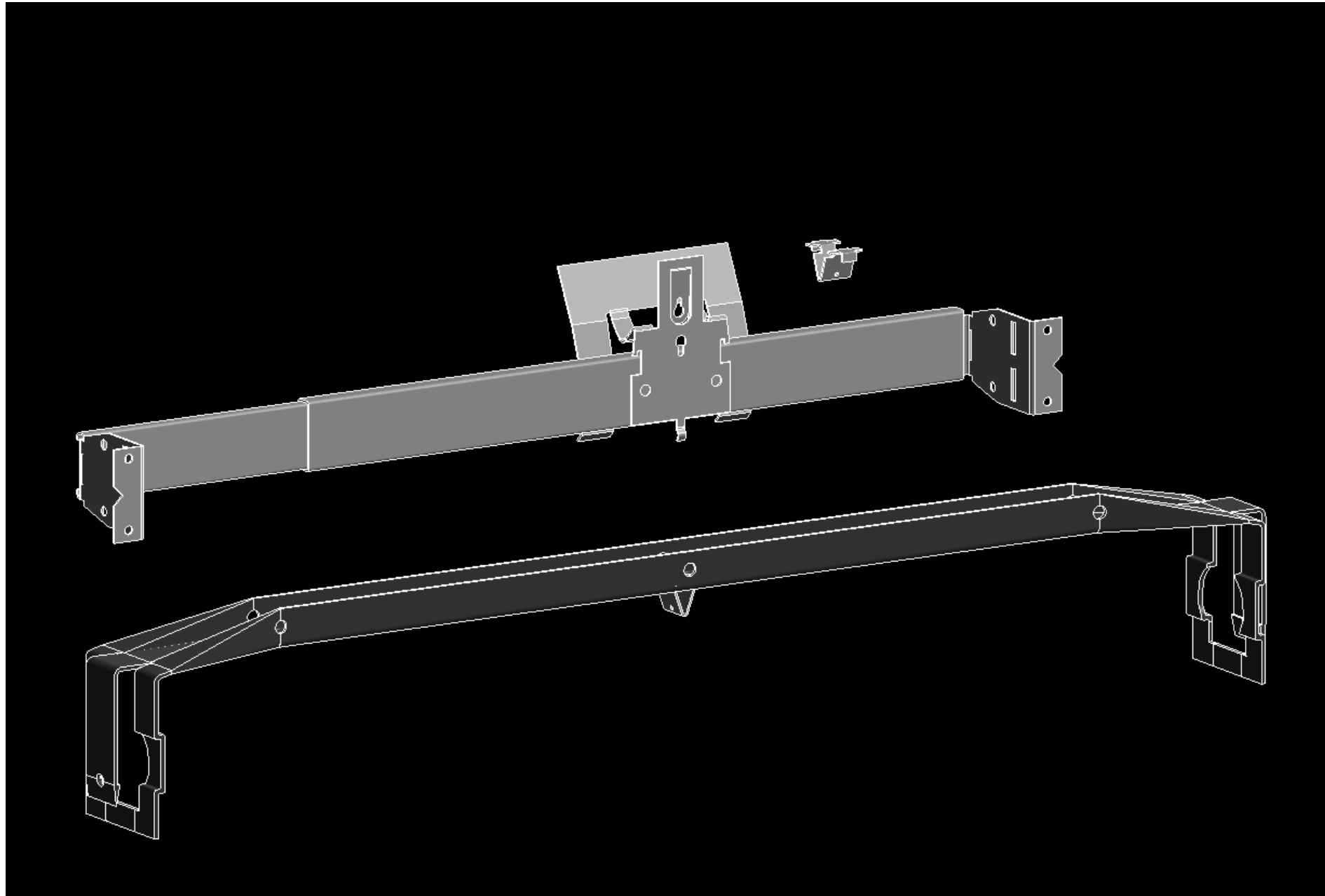
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36X24X8

36X36X8



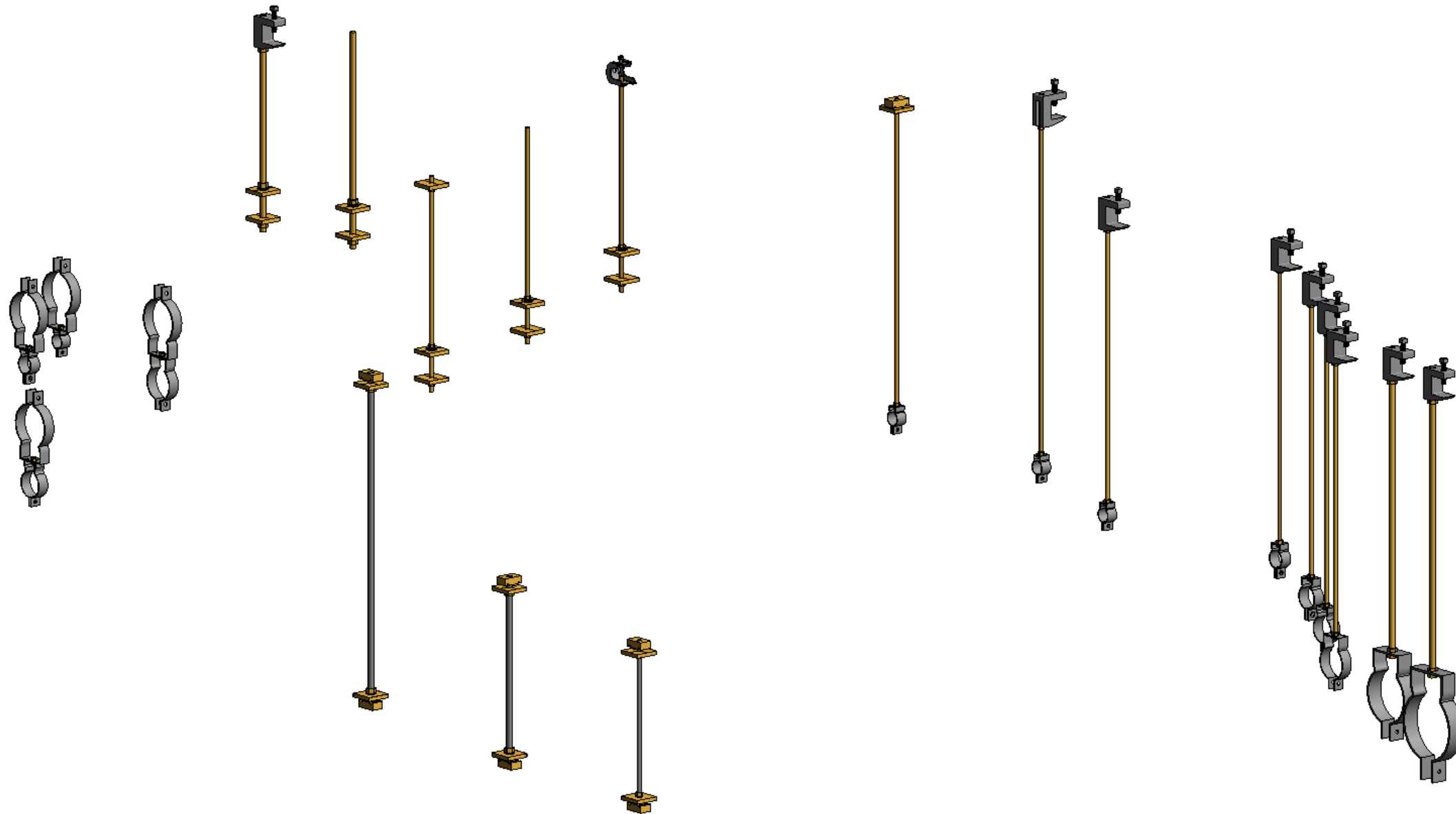




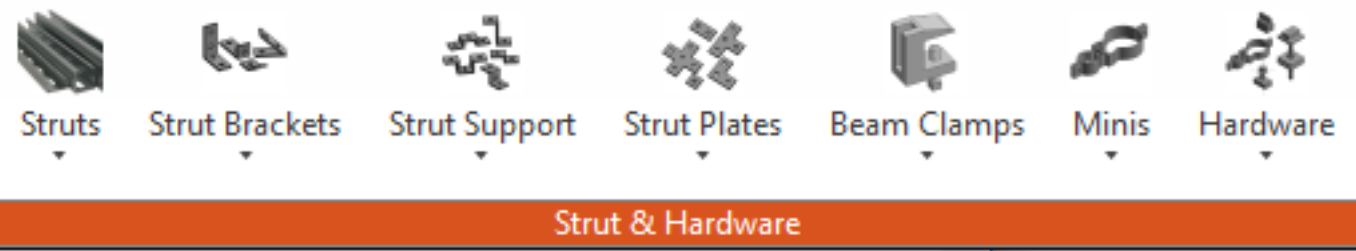
ERICO®



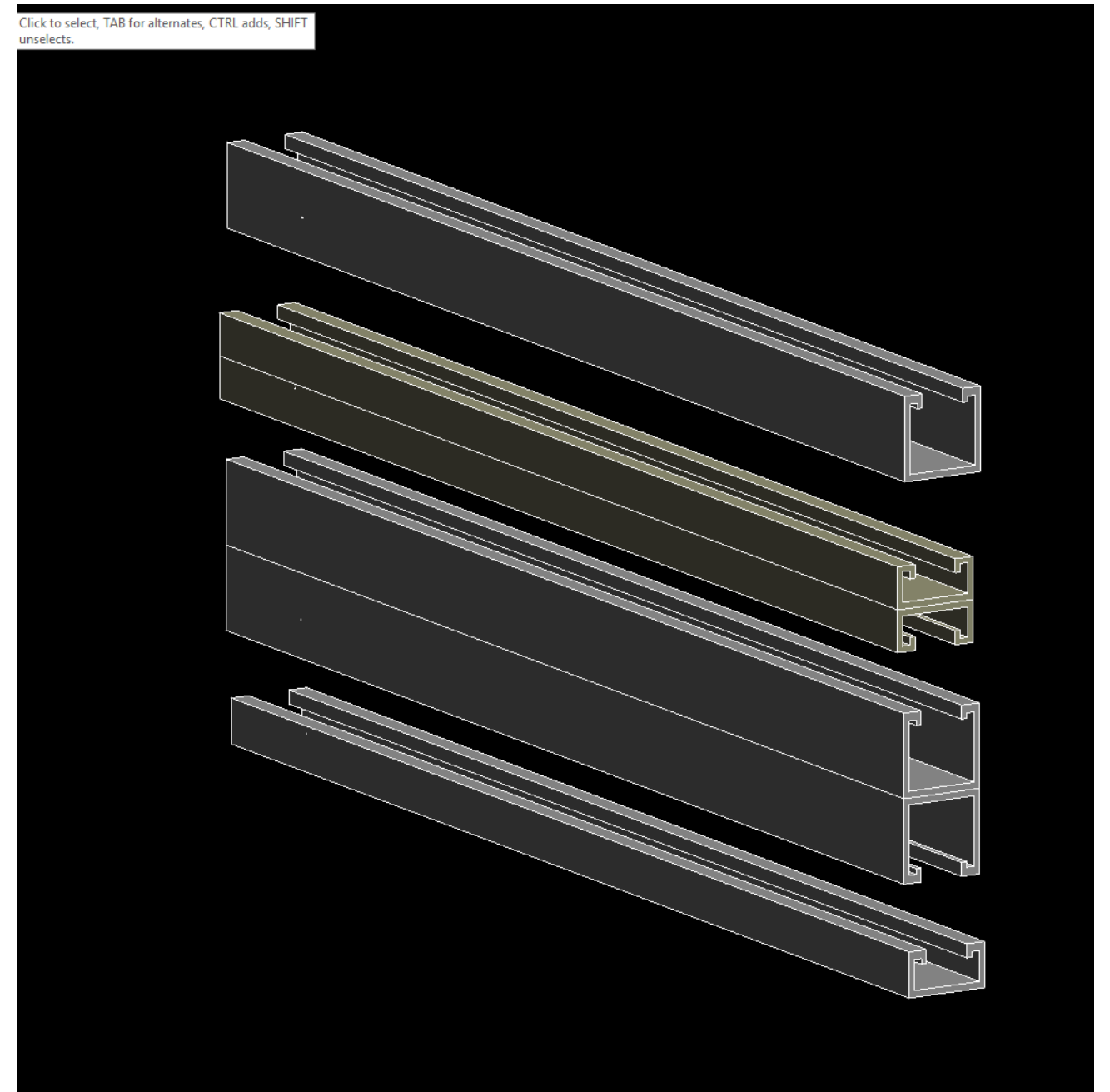
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.

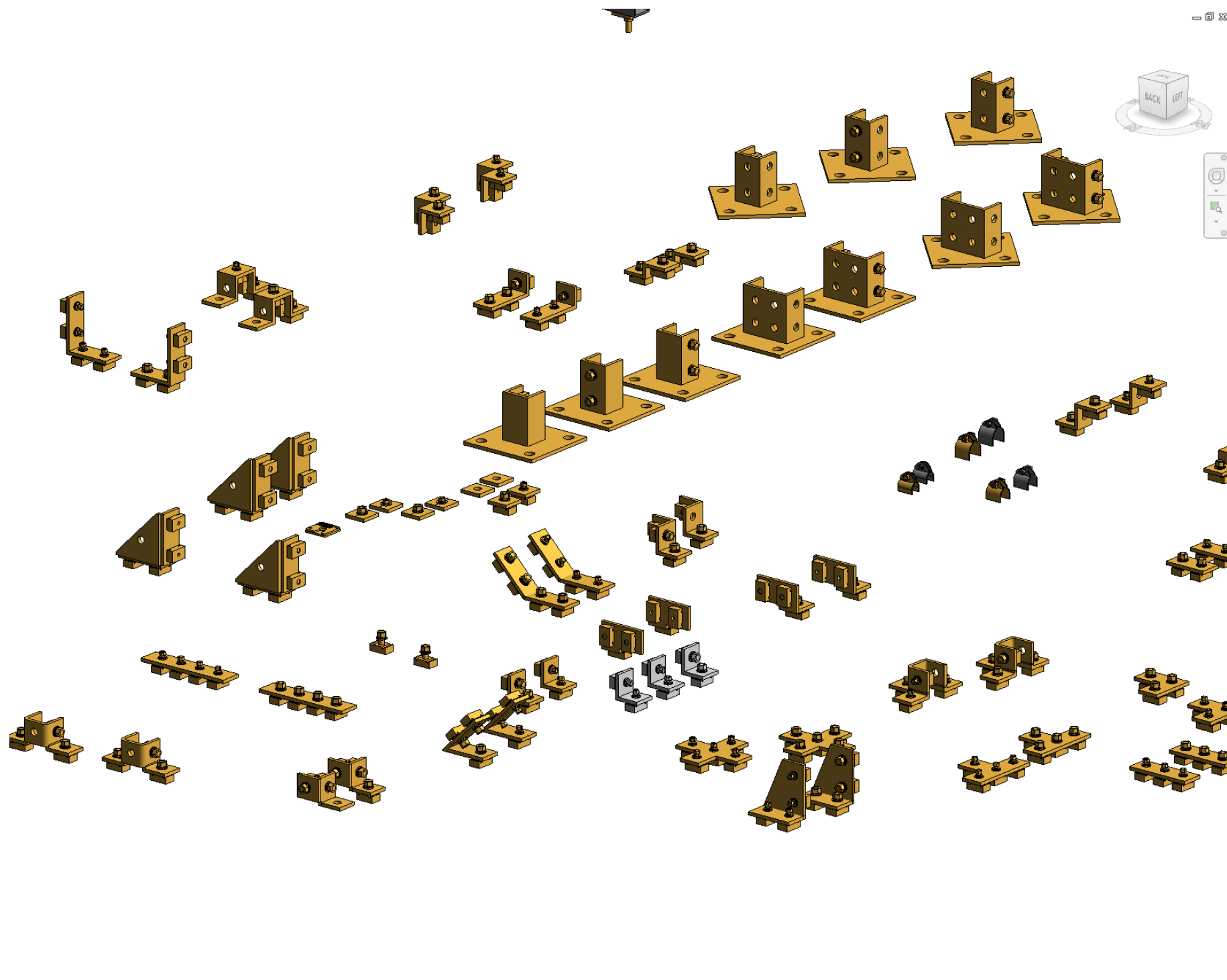


Click to select, TAB for alternates, CTRL adds, SHIFT unselects.





Click to select, TAB for alternates, CTRL adds, SHIFT unselects.





Properties

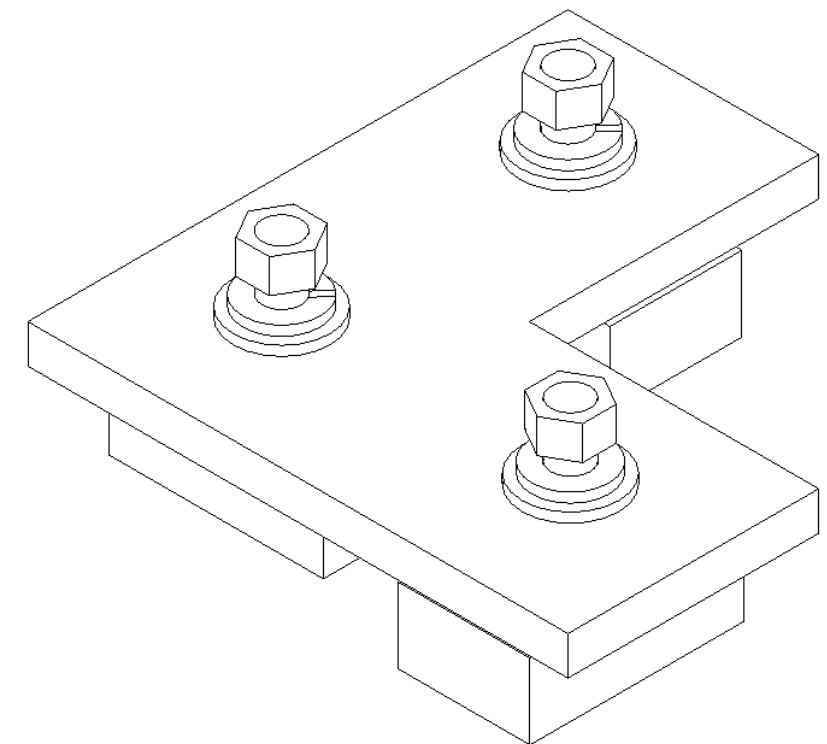
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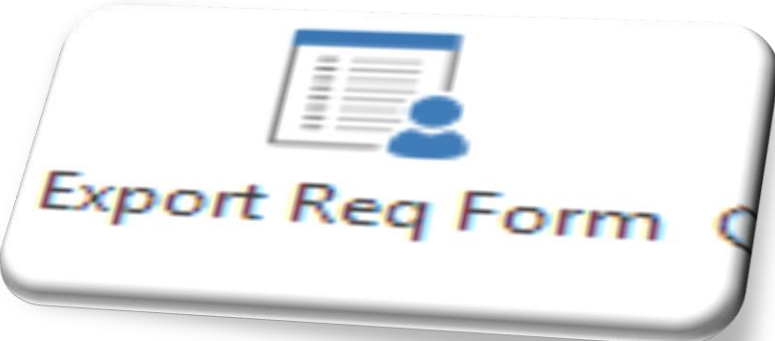
Conduit Fittings (1)  Edit Type

Constraints

HARDWARE 1	<input checked="" type="checkbox"/>
HARDWARE 2	<input checked="" type="checkbox"/>
HARDWARE 3	<input checked="" type="checkbox"/>
HW_1_4	<input type="checkbox"/>
HW_3_8	<input checked="" type="checkbox"/>

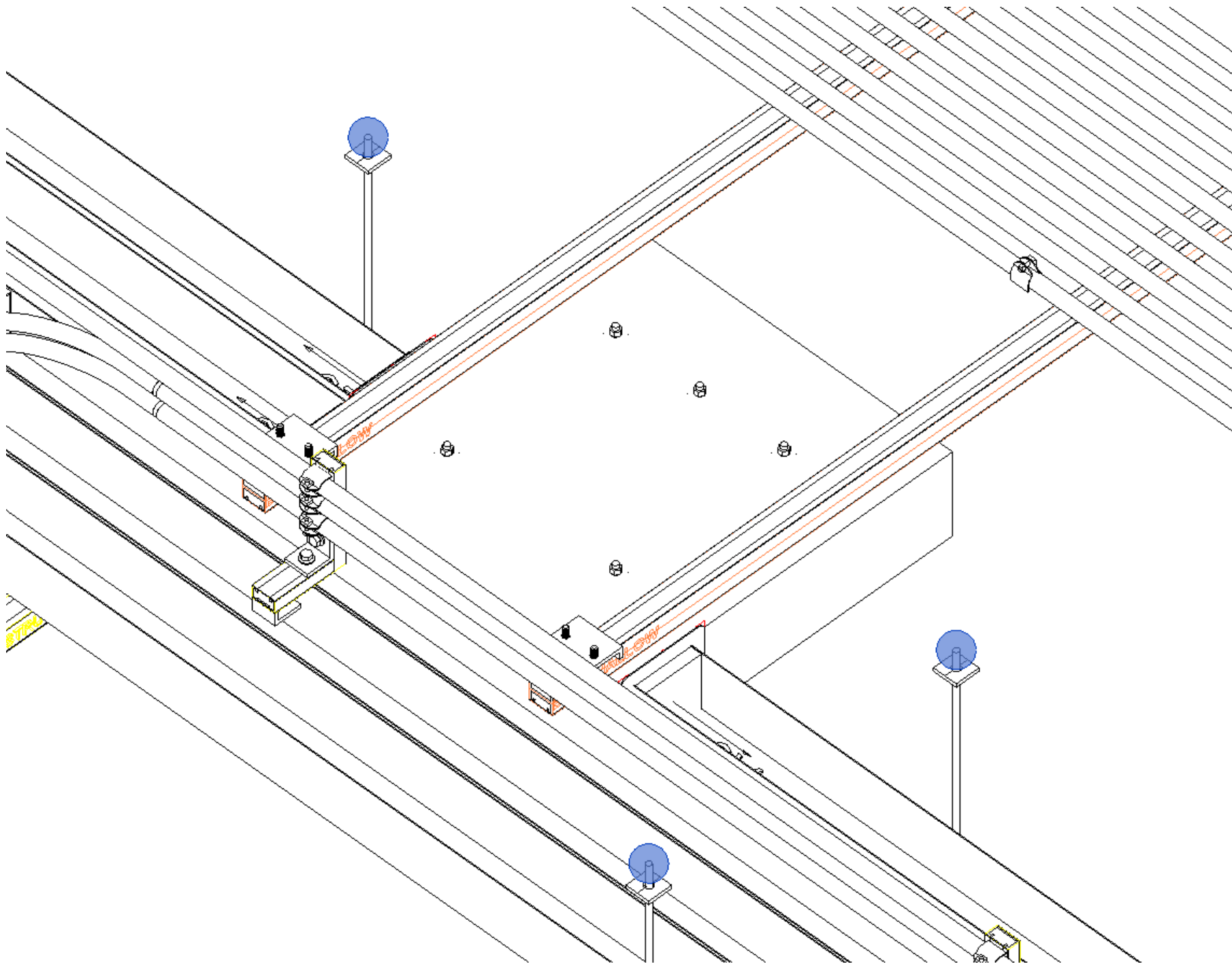
Click to select, TAB for alternates, CTRL adds, SHIFT unselects.





	EA	1 1/2 INCH BOND BUSHING WITH LUG
	EA	1 1/2 INCH EMT CONNECTOR SS
	EA	1 1/4 INCH BOND BUSHING WITH LUG
	EA	1 1/4 INCH EMT CONNECTOR SS
	EA	1 INCH BOND BUSHING WITH LUG
	EA	1 INCH EMT CONNECTOR SS
	EA	1 INCH PVC BELL END
	EA	1 INCH-EMT STRUT STRAP
	EA	1-1/2 INCH-EMT STRUT STRAP
	EA	1-1/4 INCH-EMT STRUT STRAP
	EA	2 INCH EMT CONNECTOR SS
	EA	2 INCH BOND BUSHING WITH LUG
	EA	2 INCH FLEX CONNECTOR
	EA	2 INCH-EMT STRUT STRAP
	EA	2 INCH-RIGID COUPLING
	EA	3/4 INCH BOND BUSHING WITH LUG
9	EA	3/4 INCH EMT CONNECTOR SS
5	EA	3/4 INCH FLEX CONNECTOR
	EA	3/4 INCH LB-STEEL
	EA	3/4 INCH T CONDULET STEEL
	EA	3/4 INCH-EMT STRUT STRAP
7	EA	875MT DC 3/4 INCH- 90 DEGREE PULL ELBOWS - ZINC DIE-EMT
	EA	BGBL-4 BURNDY 4-14 AL/CU LAY IN LUG
	EA	CGB395 1 INCH STR CGB .500-.625 DIA MALE CORD GRIP
	EA	ERROR
	EA	Gsc12-10-1/2 10 1/2 In. Insulated Stranded Wire Pigtail With Groun
	EA	LTB7545 3/4"45 DEGREE LIQUIDTITE CONNECTOR
	EA	LTB20045 2"45 DEGREE LIQUIDTITE CONNECTOR
	EA	SINGLE PORT DATA OUTLET
	EA	TP403 .4 SQUARE 2 1/8" DEEP SPECIAL- OR EQUAL
	EA	1 1/2 INCH-EMT
11'	LF	1 1/4 INCH-EMT
20'	LF	1 INCH-EMT
30'	LF	1 INCH-PVC
4'	LF	1 INCH-PVC SCHEDULE 40
31'	LF	1-1/2 INCH-EMT
3'	LF	1-1/4 INCH-EMT
2'	LF	2 INCH-EMT
52'	LF	3/4 INCH RIGID NIPPLE
0'	LF	3/4 INCH EMT





Point Exporter/Importer



Create Points

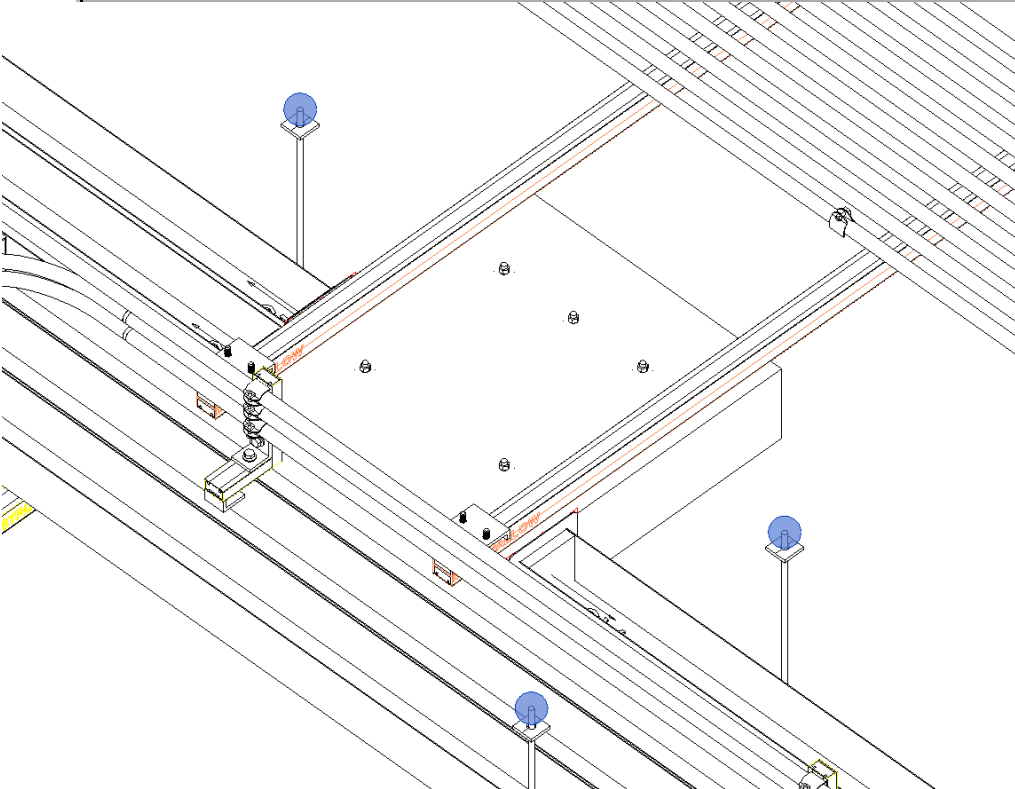



Create Points Linked



Point Exporter / Importer

	NAME	X(ft)	Y(ft)	Z(ft)	DESC
▶	1 01	11361.4551225468	1148.47080595825	109.781331084392	E-Strut-Hangers
	2 01	11361.0455254599	1144.5711813642	109.781331084392	E-Strut-Hangers
	3 01	11359.2203027673	1144.57118136419	109.804054416533	E-Strut-Hangers





Delete Selected

Delete All

Import Points

Check Points

Export to Points



- LIVE DEMO
- Questions





Bibliography

Slide 7

Posted on [Tradesmen](#) in [News](#) on November 6, 2015

Titled, *The Construction Labor Shortage: Where Did All the Skilled Labor Go?*

