MP1272 – Pesky Electrical Settings that Drive You Crazy

Mike Massey
Sr. AEC Application Specialist
Twitter: @mgmassey01

Presenting Today…..

Mike Massey

Senior AEC Application Specialist

Applied Software®

- 20+ Years of AEC Experience
- Repeat speaker at AU, RTC and AIA events
- A contributing author for Autodesk Official Training Courseware.
- Autodesk Revit Certified Professional
- Autodesk Revit Implementation Certified Expert
- Autodesk Consultative Methodology Certification
- Autodesk MEP Systems Engineering Specialization Certification
- Autodesk Fabrication Specialization Certification

About You

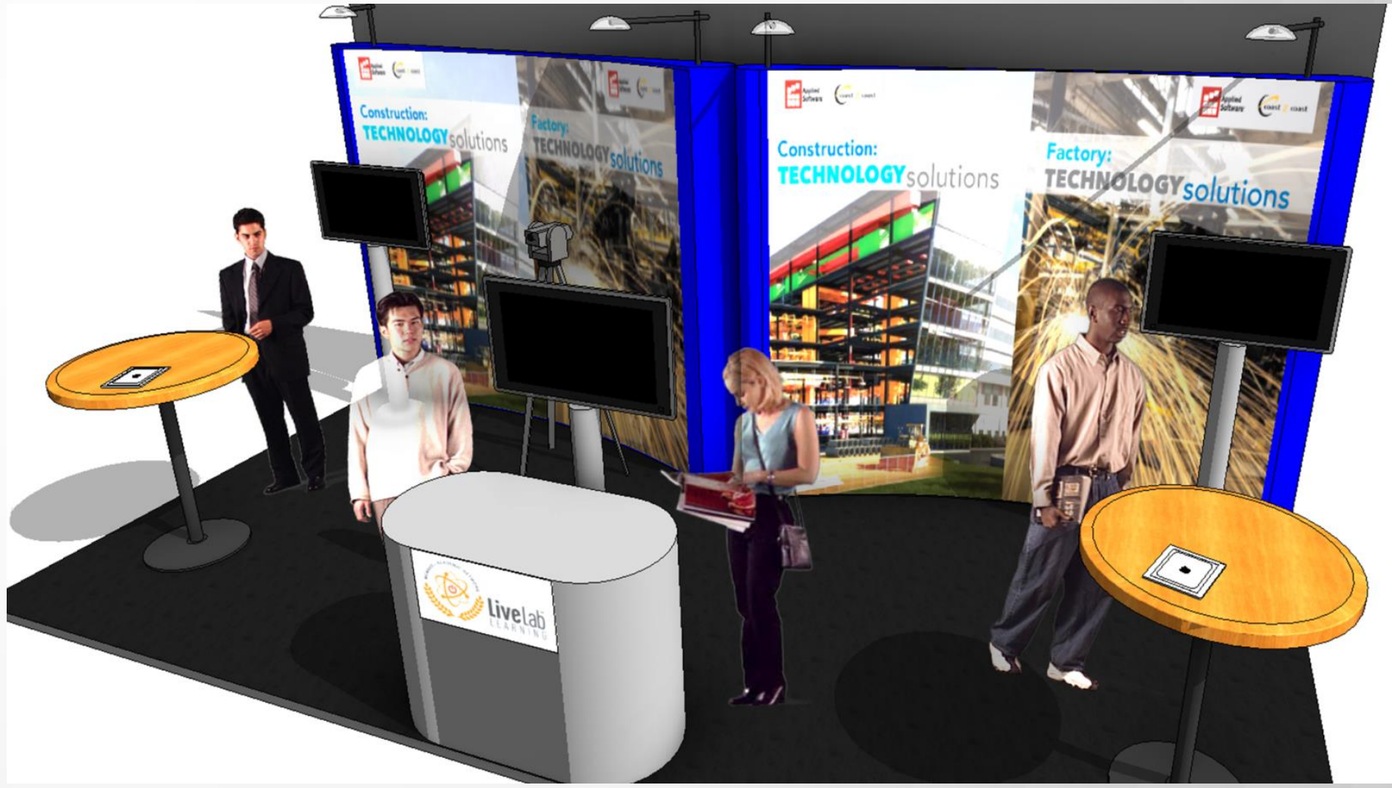
- Who is in the audience?
  - Electrical Engineers
  - Other MEP
  - Architects
  - Structural
  - BIM Managers
  - Other
- Why did you come to this class?

Thanks for spending your valuable time with me today!

Continue the Discussion at our Booth

- Booth 2422
- First 3 to mention that you attended my class will receive a prize

LiveLab™ LEARNING
www.LiveLabLearning.com
800-948-1952 | info@academiccorp.com



Class summary

Autodesk® Revit® MEP software for electrical engineering is all about coordination. Yes, it does modeling in 3D, but the biggest benefit for electrical is not that it can model 3D lights. Rather, it is that it produces a coordinated model with the insurance that everything is circuited and documented correctly. Setting up Revit MEP for Electrical can be painful. There are many pesky settings and things that just do not work the way you want them to work. Come and join me as we discuss the major items that I have discovered that keep electrical engineers up at night trying to configure Revit MEP to work the way they want it to. We tackle problems such as editing panel schedules, changing graphics of nested families, working with homeruns, working with hosted fixtures, and working with load classifications. Don’t let Revit MEP get the best of you. Learn how to fix these pesky settings before they drive you crazy!

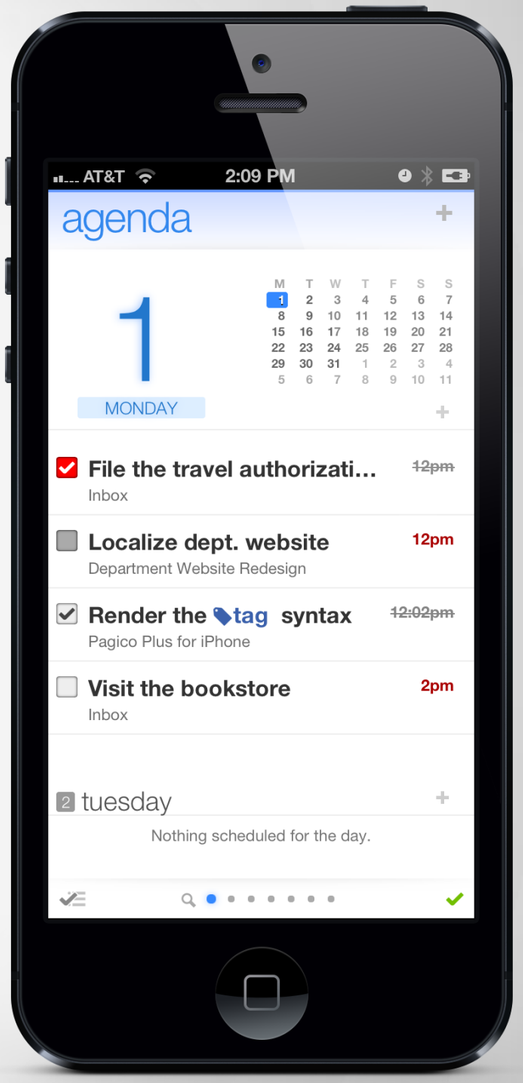
Key learning objectives

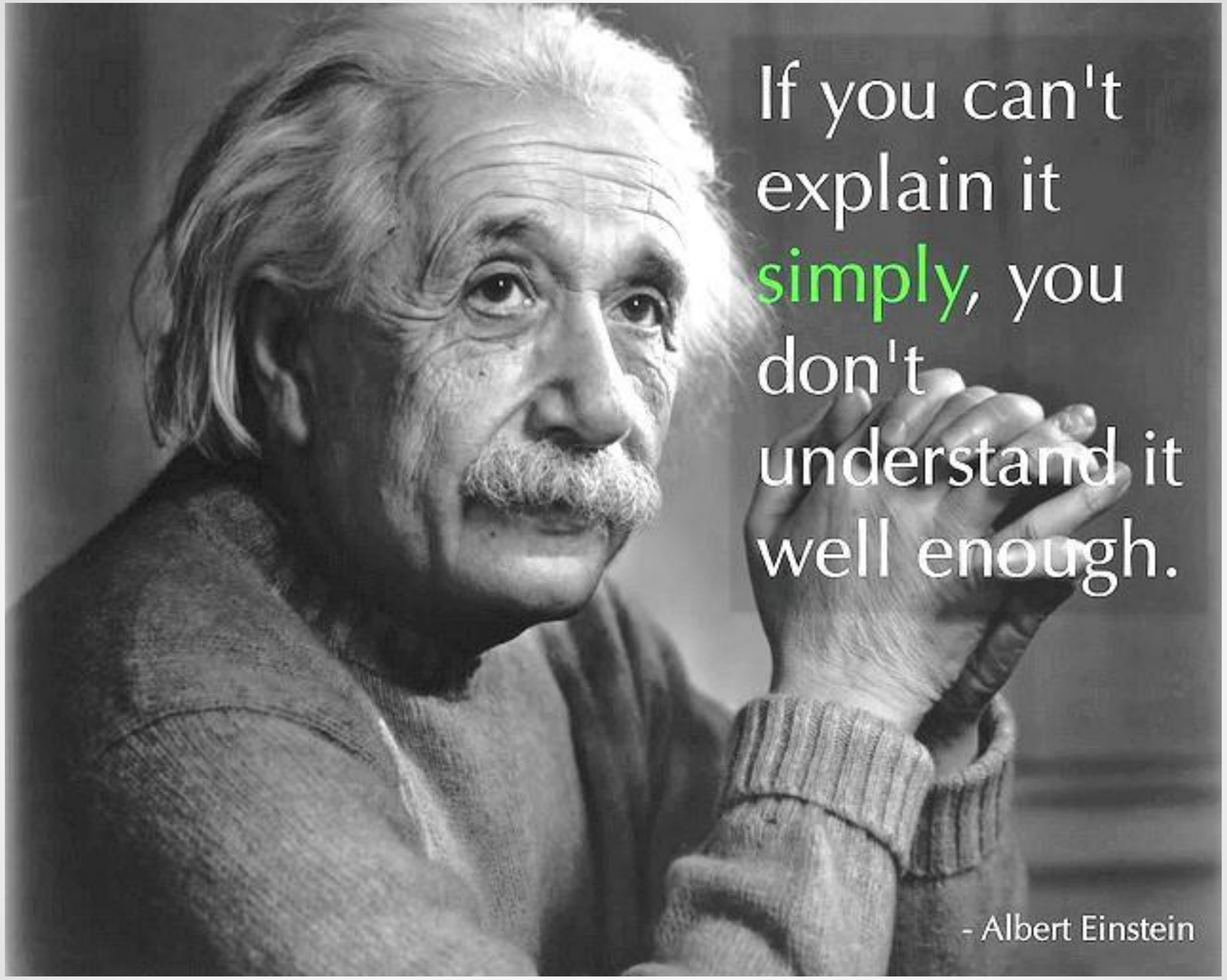
At the end of this class, you will be able to:

- Control the graphics of nested symbol families
- Apply tips and tricks when creating electrical circuits
- Work with and configure electrical panel schedules
- Explain how Load Classifications and Demand Factors are applied

Agenda

- Introductions
- Customizing Nested Families
- Working with Lights
- Creating Electrical Circuits
- Working with Panel Schedules
- Using Load Classifications and Demand Factors
- Wrap Up

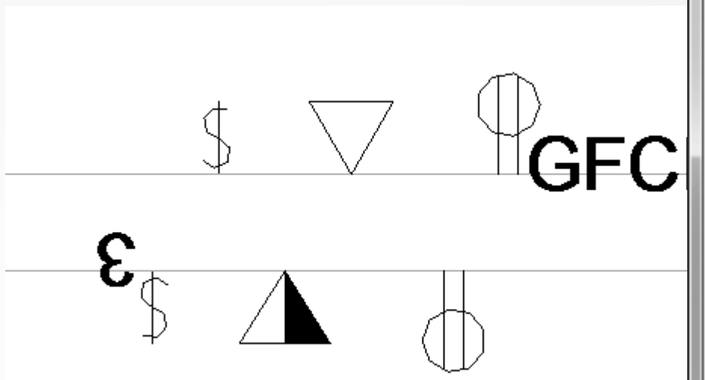


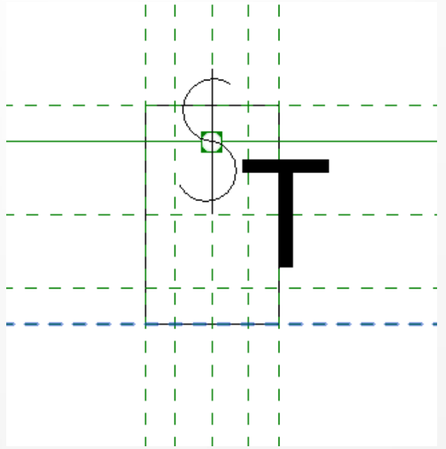

If you can't explain it simply, you don't understand it well enough.
- Albert Einstein

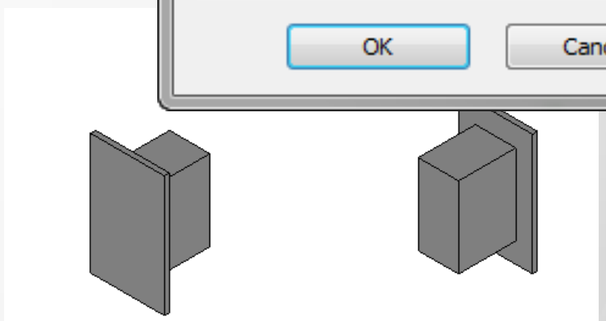
Customizing Nested Families

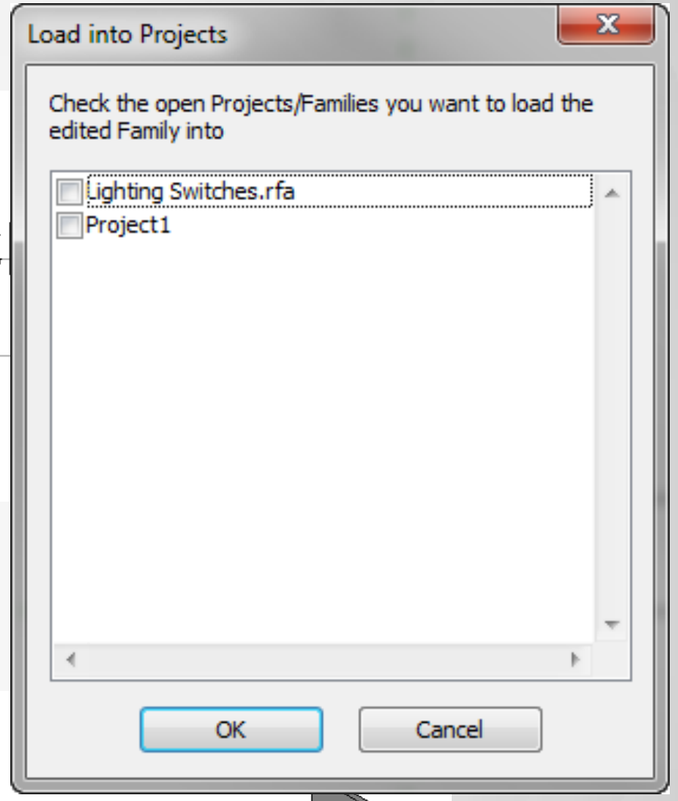
Control the Graphics of Nested Symbol Families

- Family within a Family
- Symbol Families
  - Generic Annotation Families
  - Contain 2D lines and text and/or labels
  - Scale with View Scale
  - Only show up in Plan Views



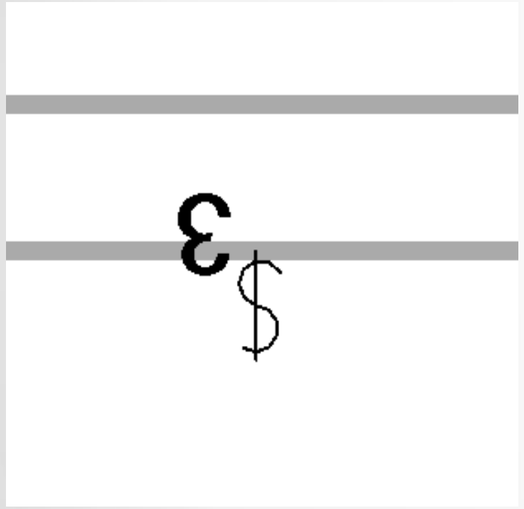


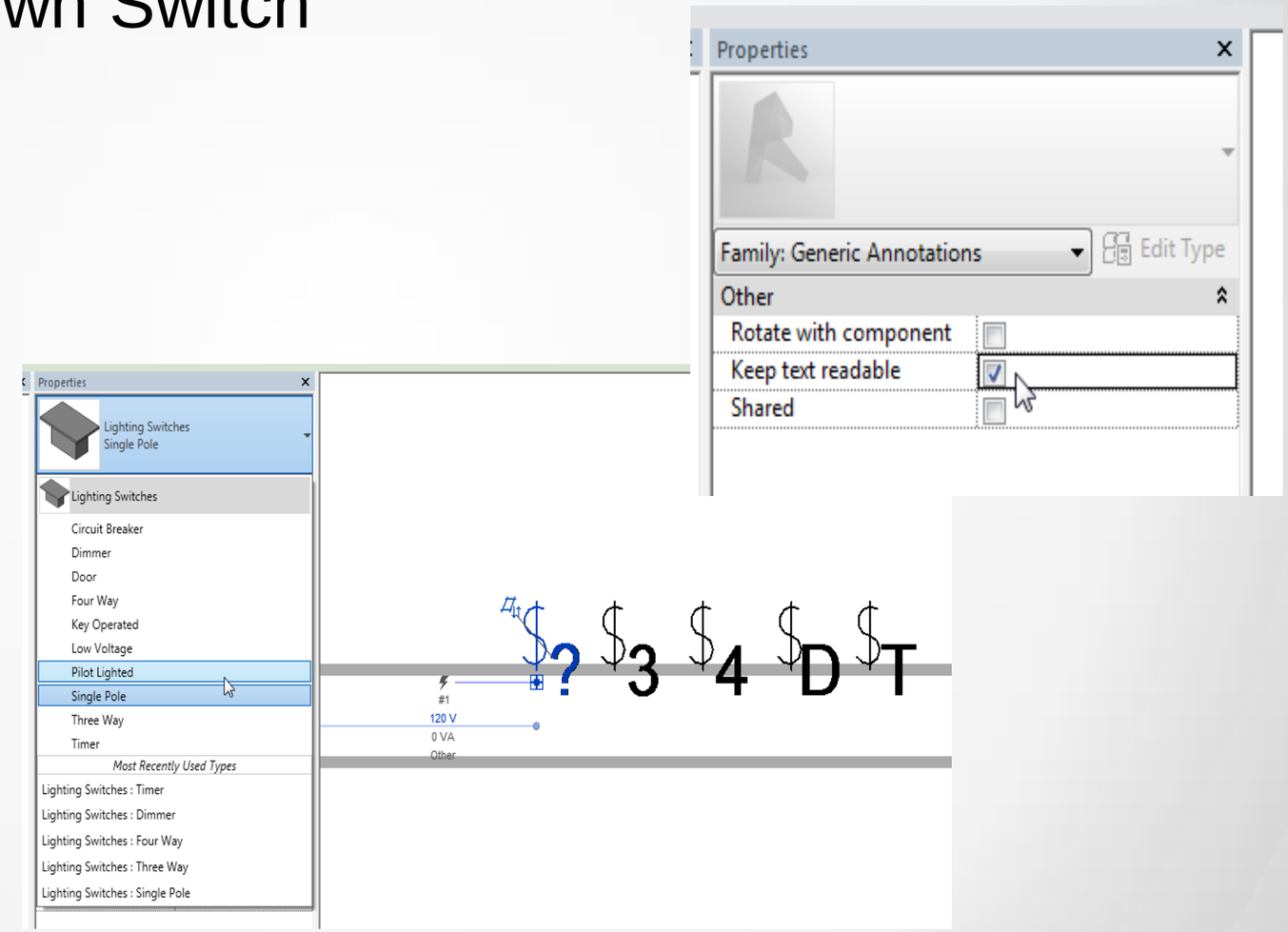




Control the Graphics of Nested Symbol Families

- Correcting Upside Down Switch Labels

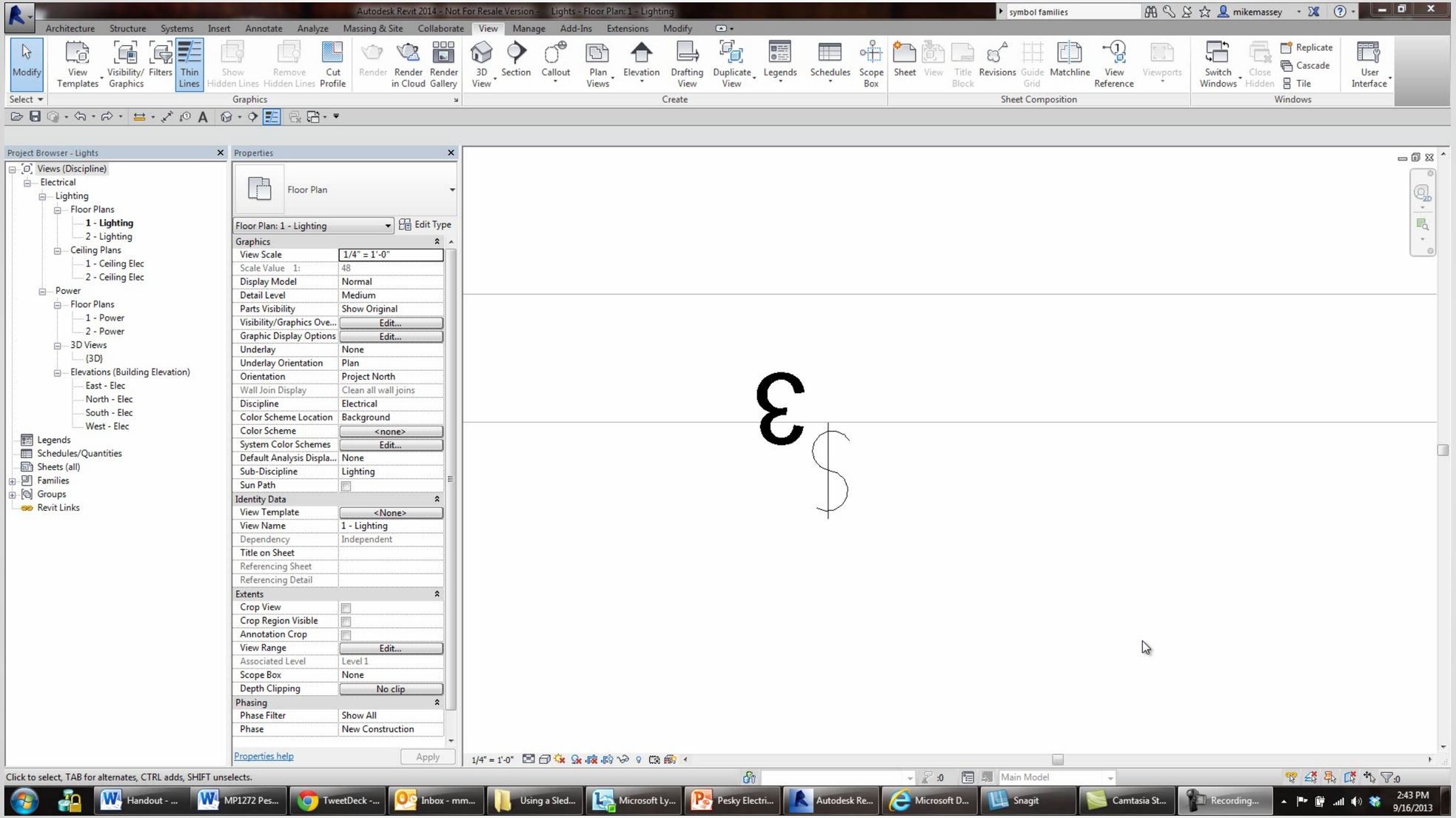




Correcting Upside Down Switch Labels

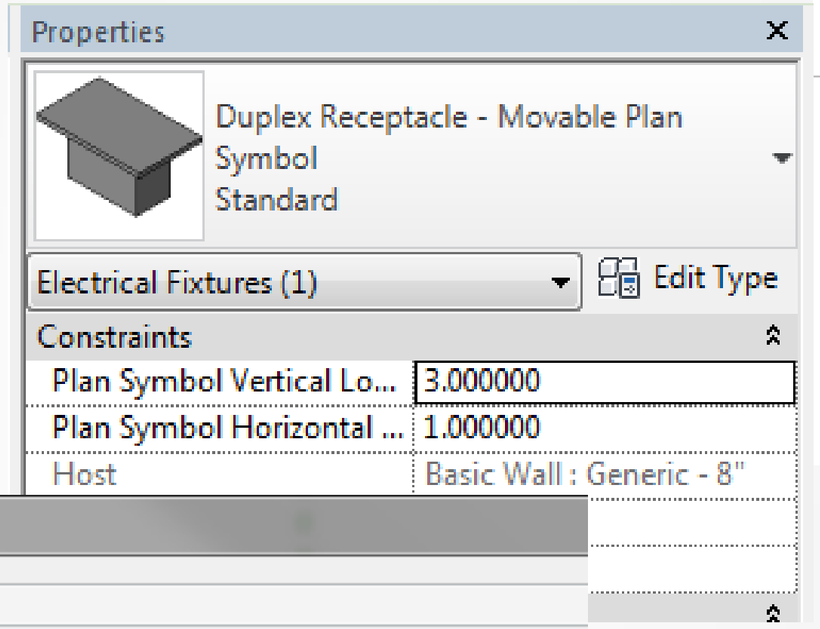
Let’s see how this works…

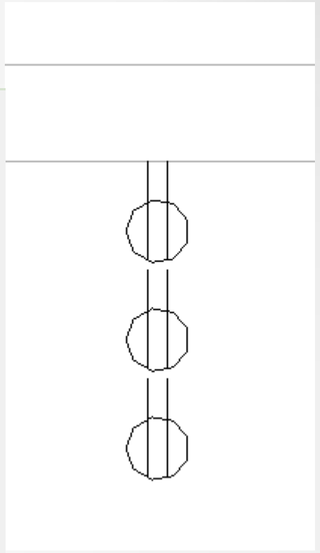
Correcting Upside Down Switch Labels

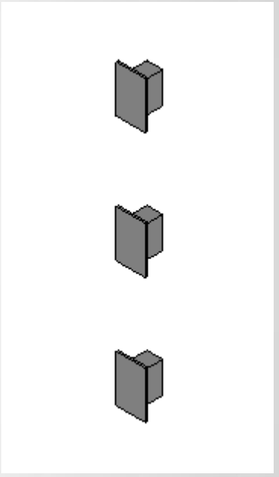


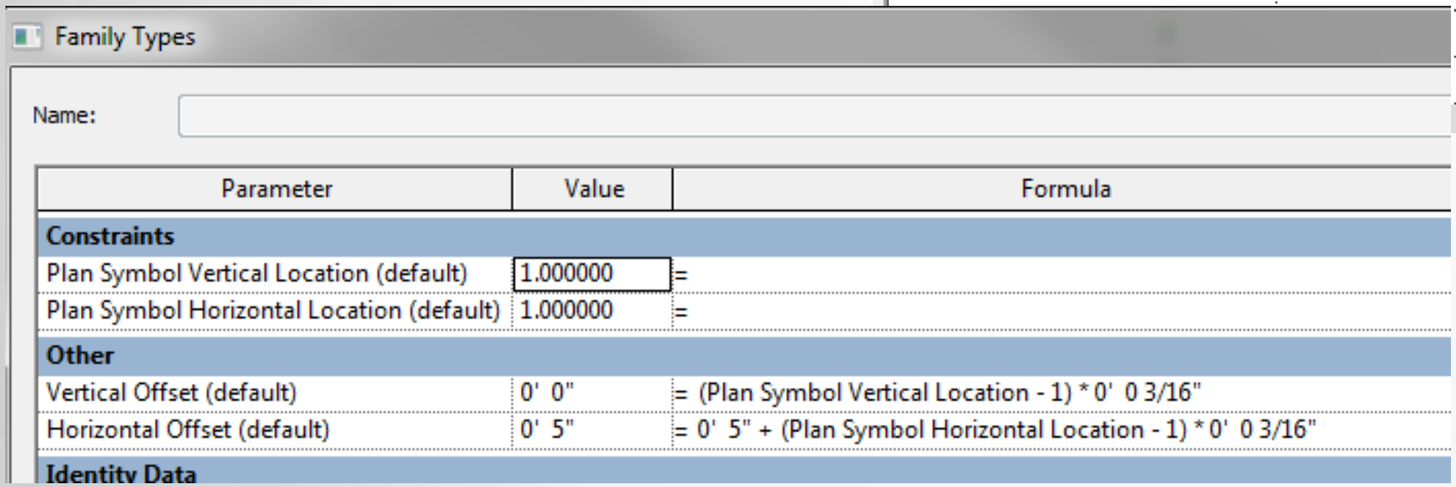
Control the Graphics of Nested Symbol Families

- Creating Stacked Devices





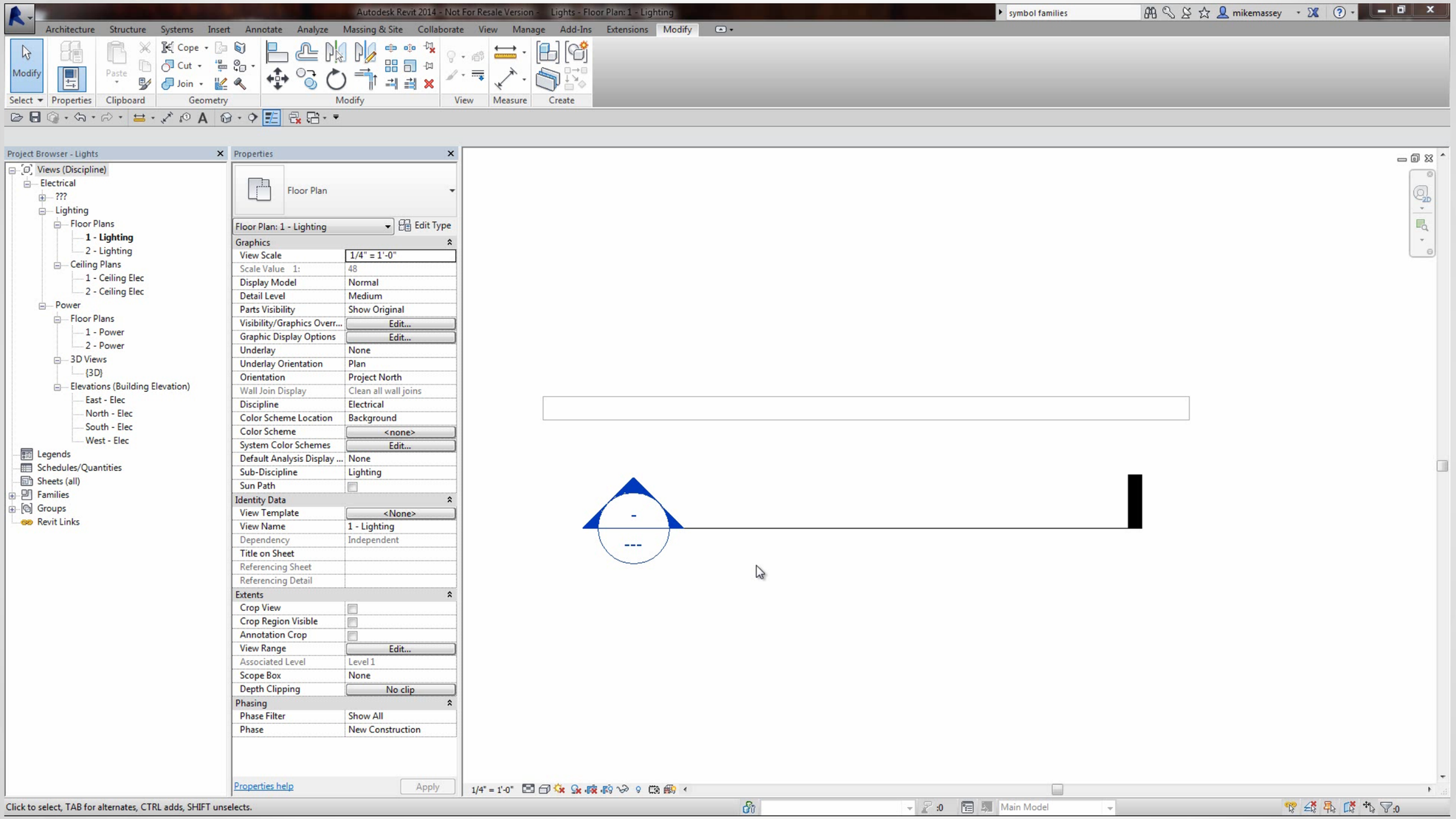




Creating Stacked Devices

Let’s see how this works…

Creating Stacked Devices

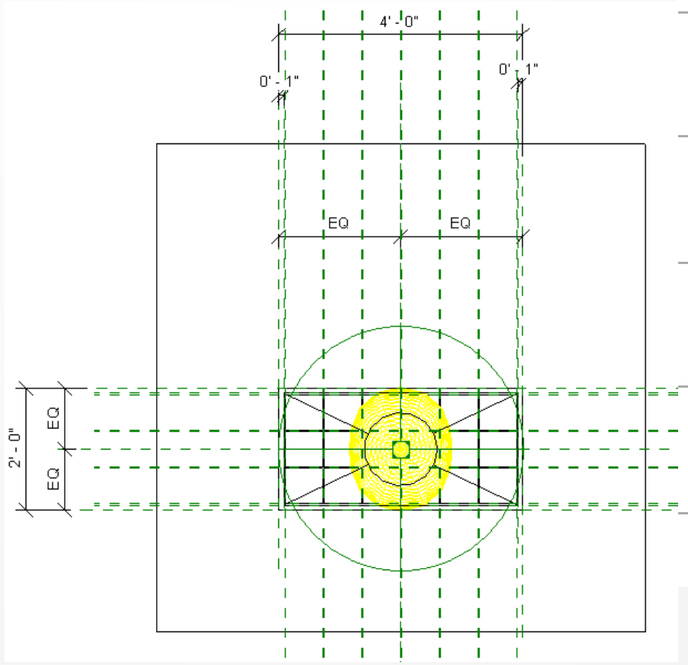


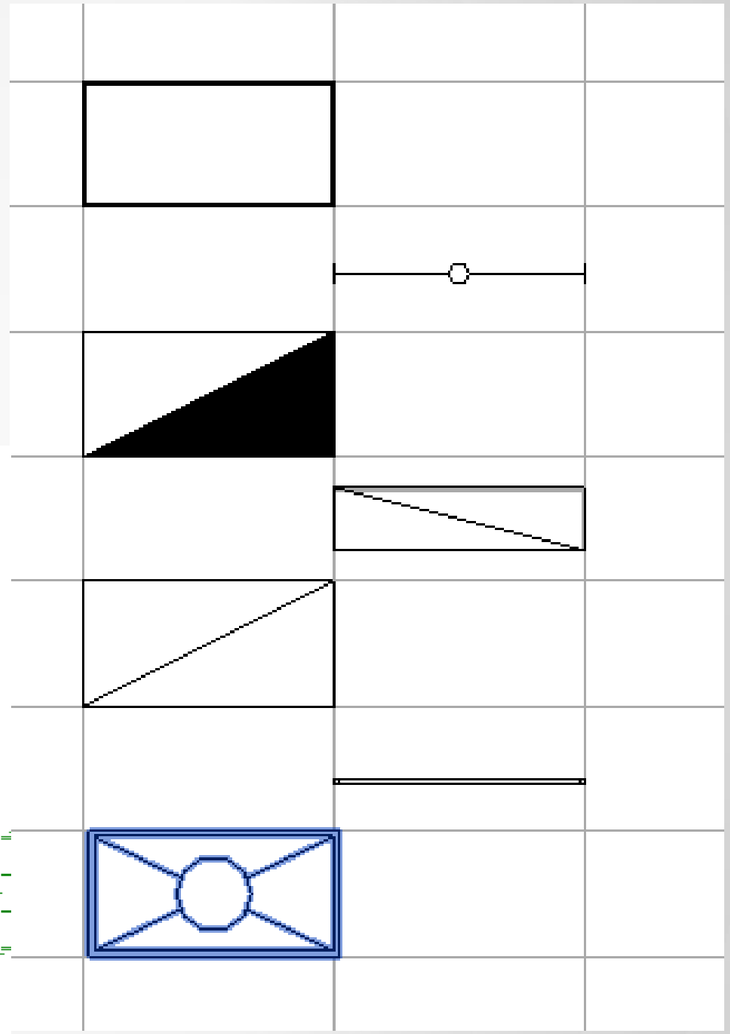
* Family is in Class Files

Working with Lights

Working with Light Fixtures

- Changing the Graphics of a Light Fixture
  - Model Lines Vs. Symbolic Lines

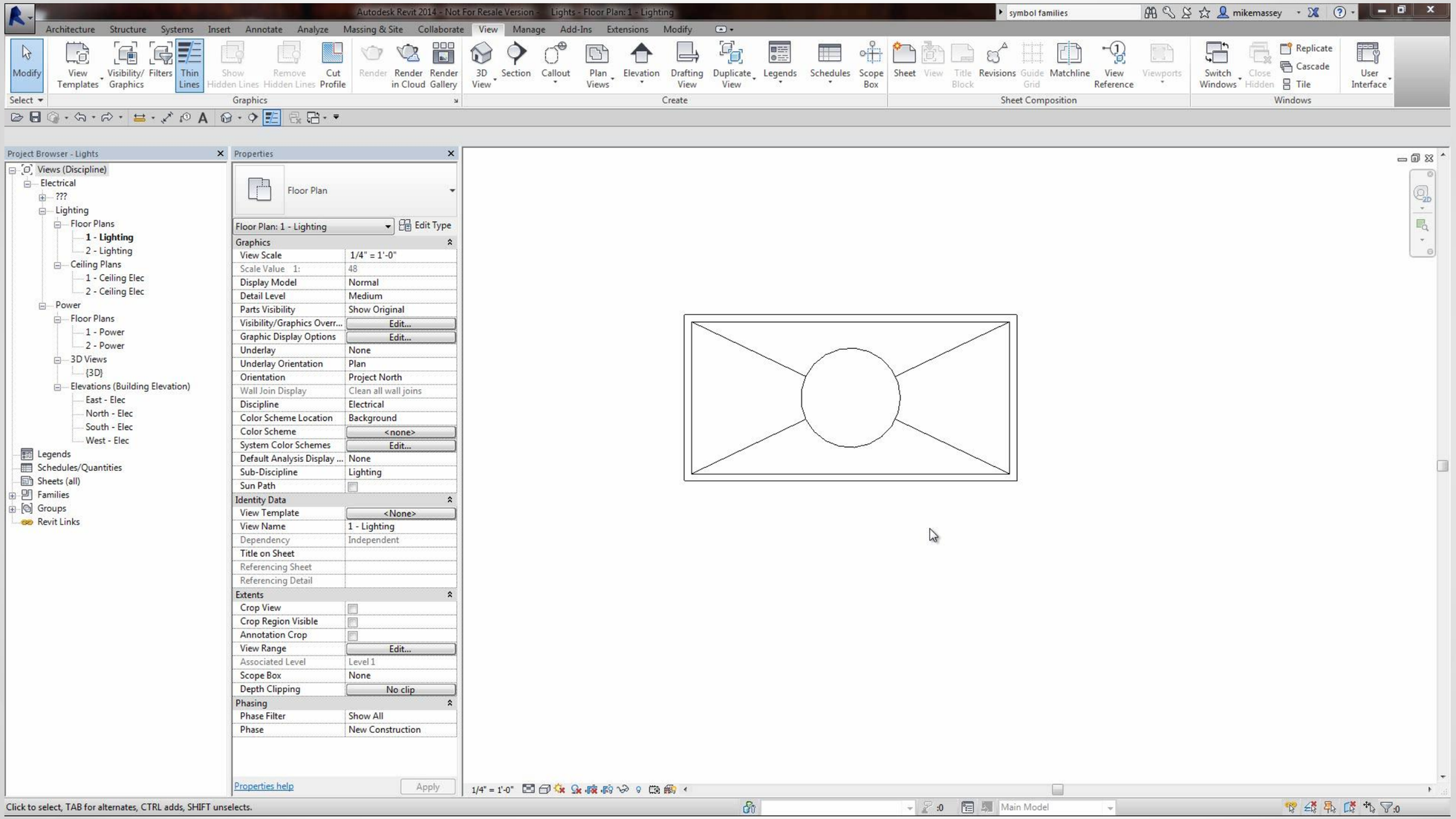




Changing the Graphics of a Light Fixture

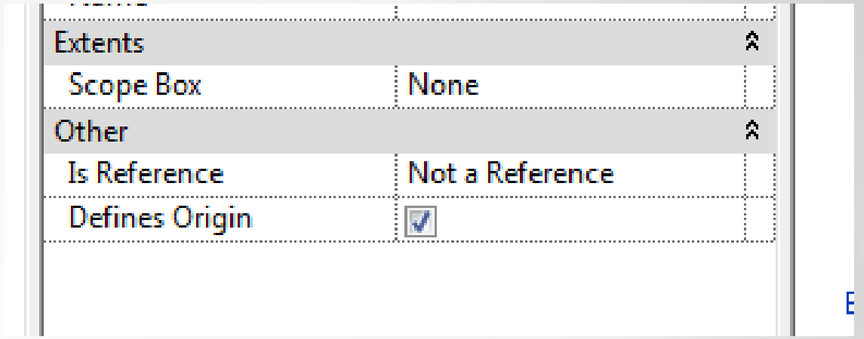
Let’s see how this works…

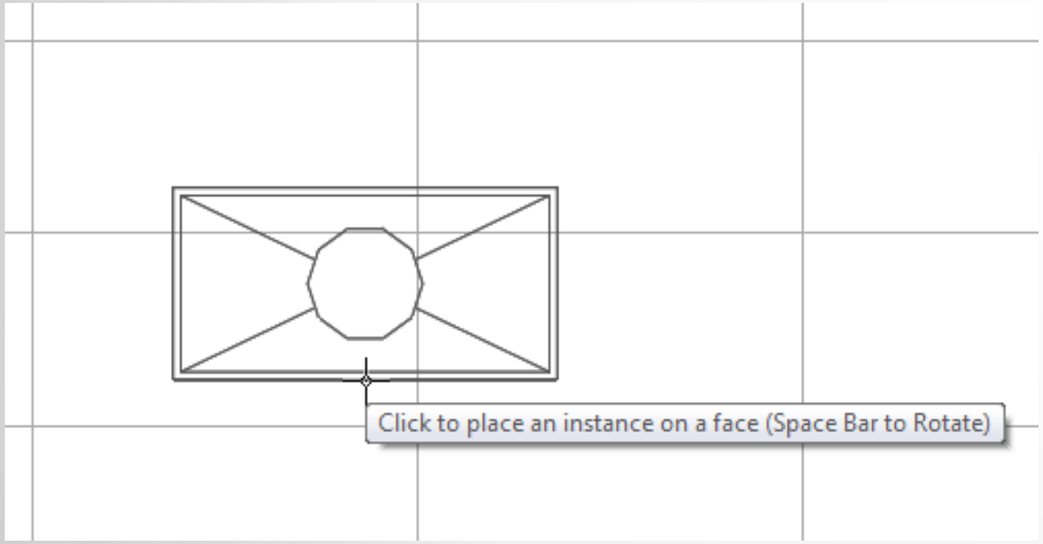
Changing the Graphics of a Light Fixture

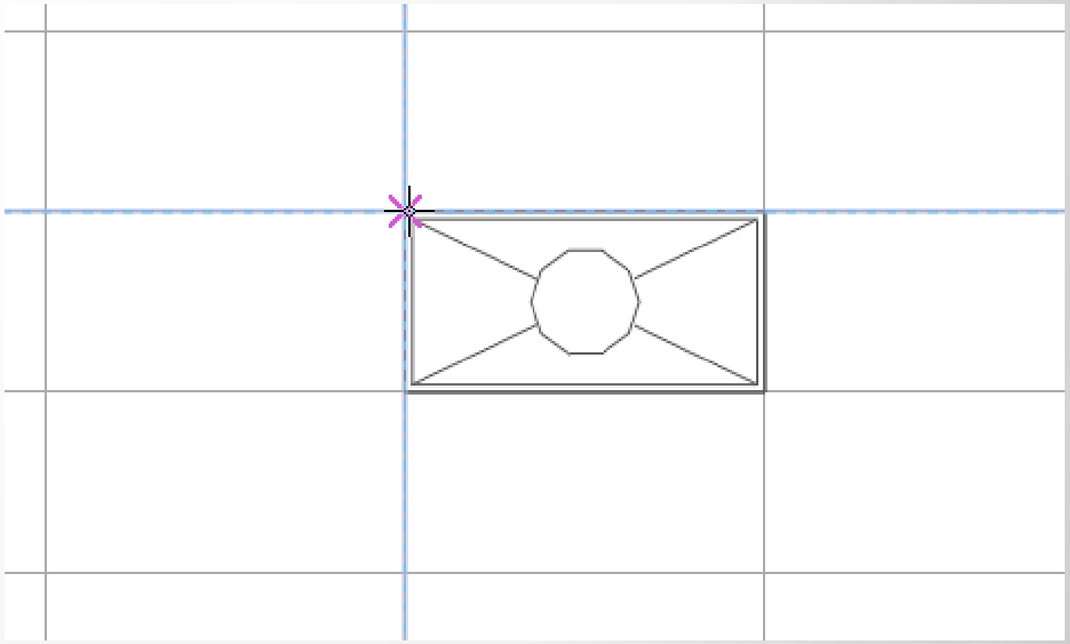


Working with Light Fixtures

- Changing the Origin of a Light Fixture



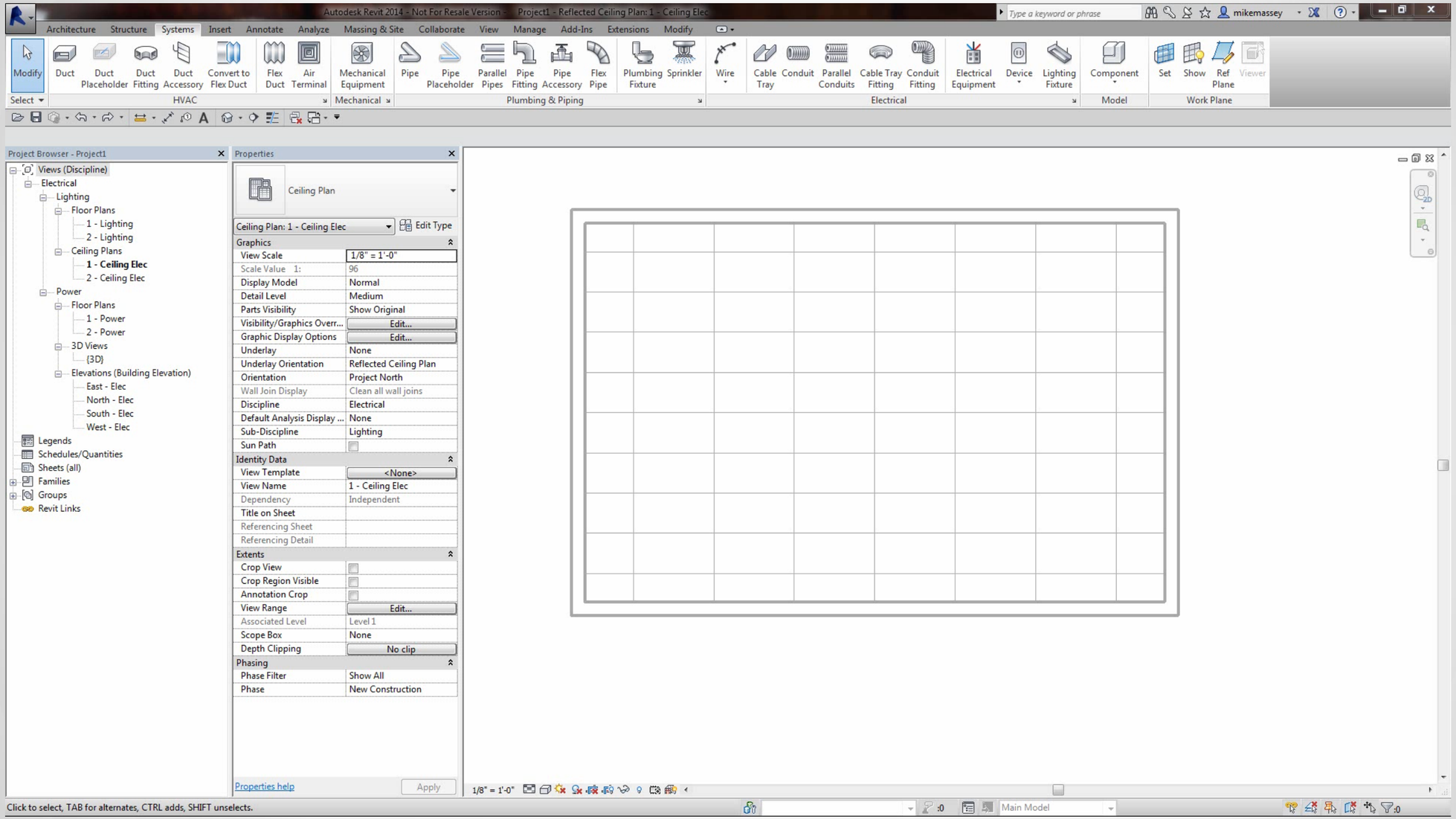




Changing the Origin of a Light Fixture

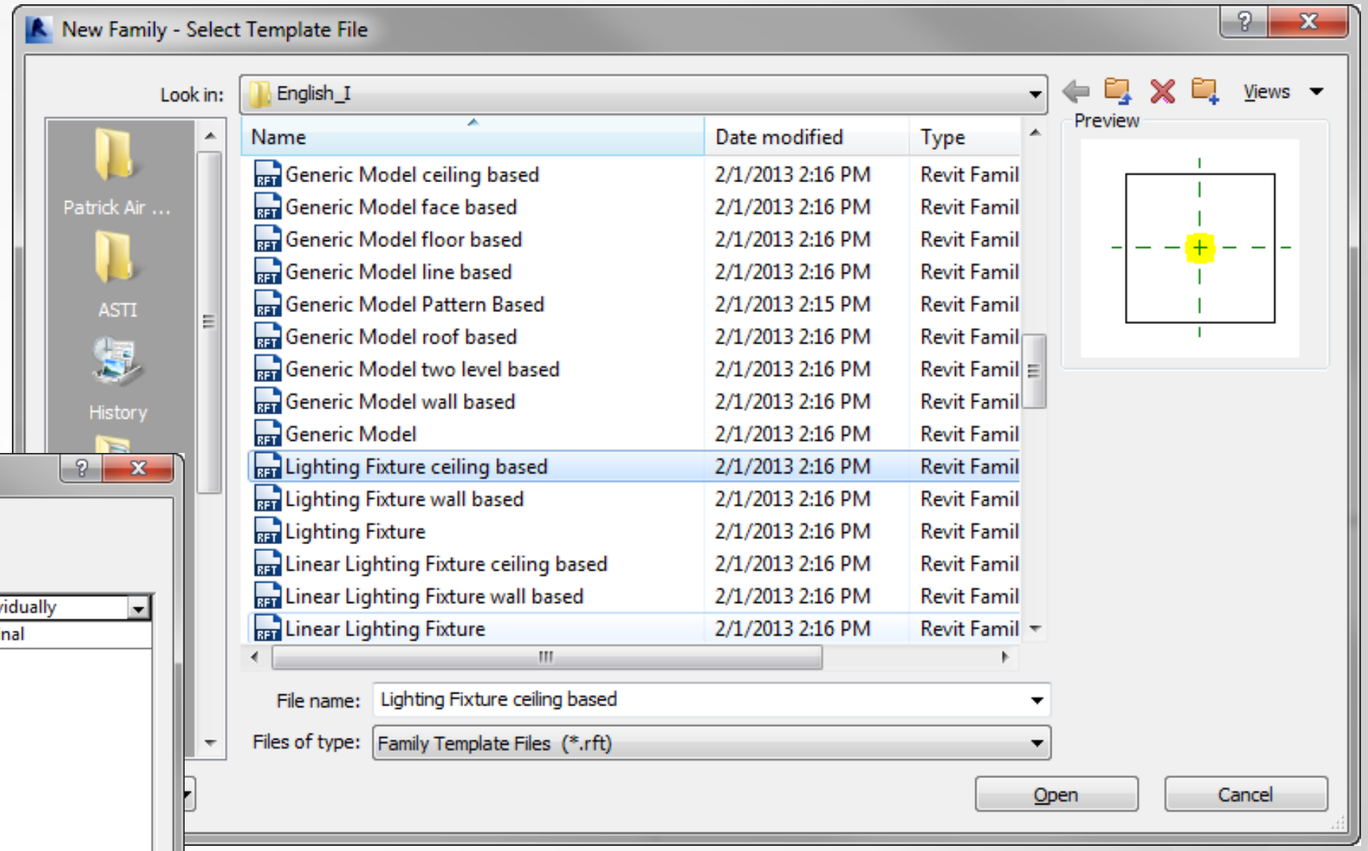
Let’s see how this works…

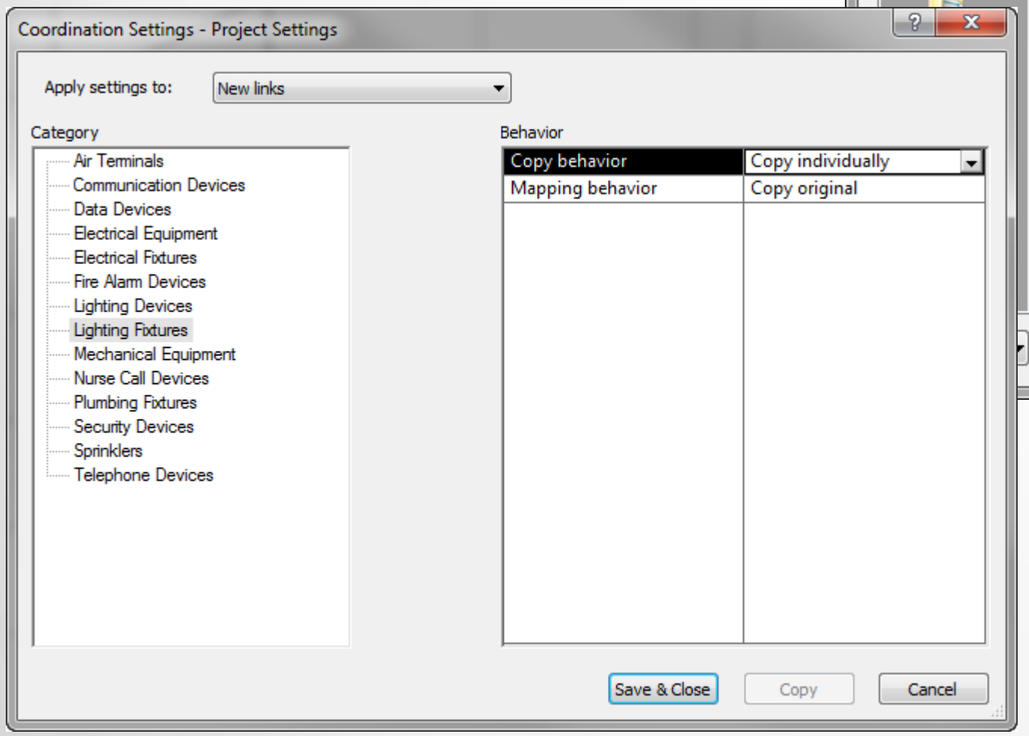
Changing the Origin of a Light Fixture



Working with Light Fixtures

- Converting a ceiling hosted family to a face hosted family

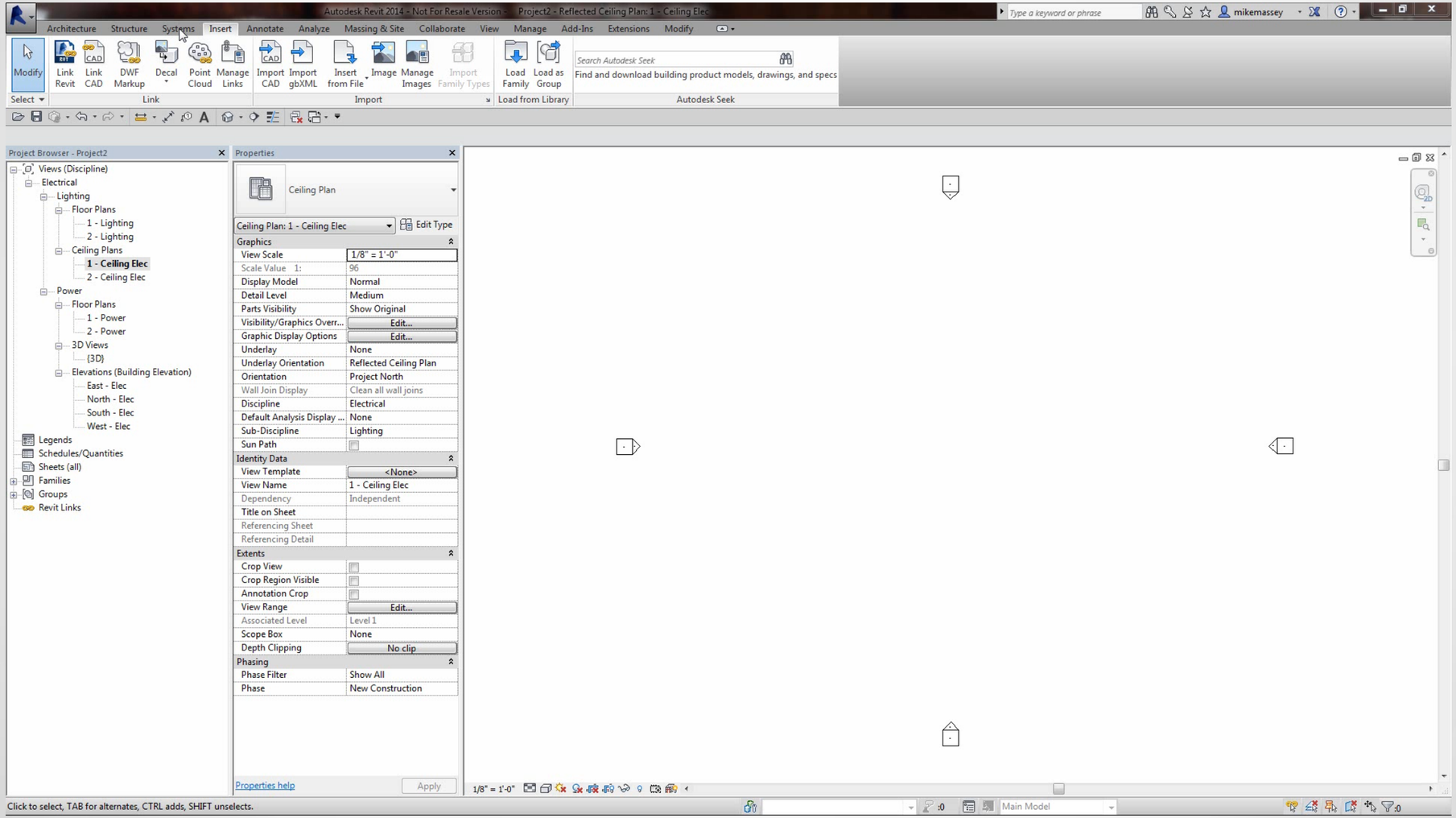




Converting a ceiling hosted family to a surface hosted family

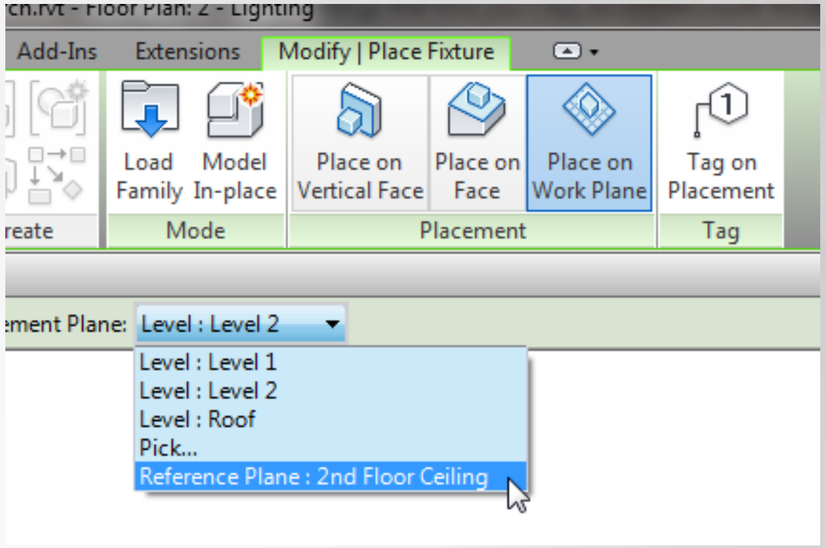
Let’s see how this works…

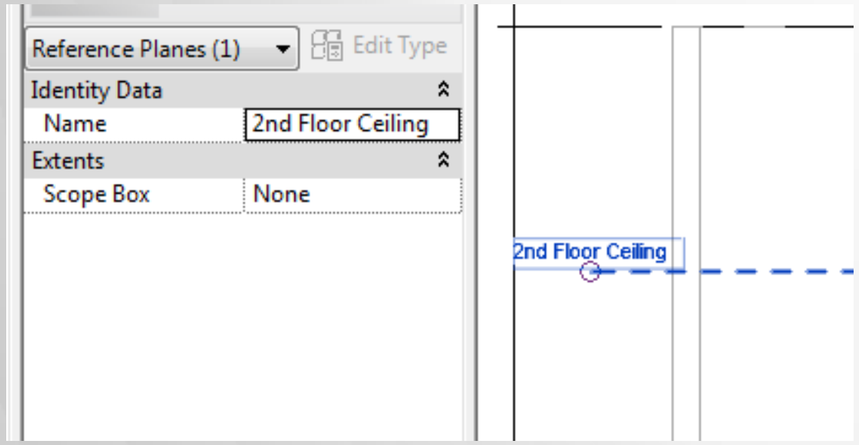
Converting a ceiling hosted family to a surface hosted family

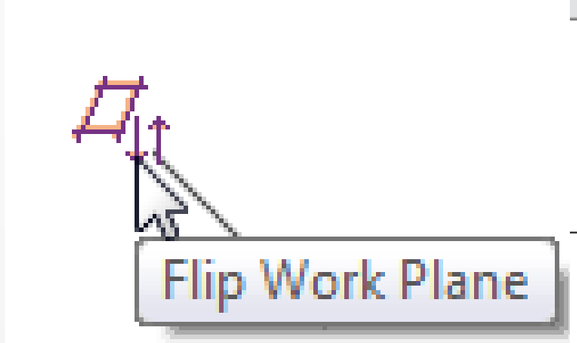


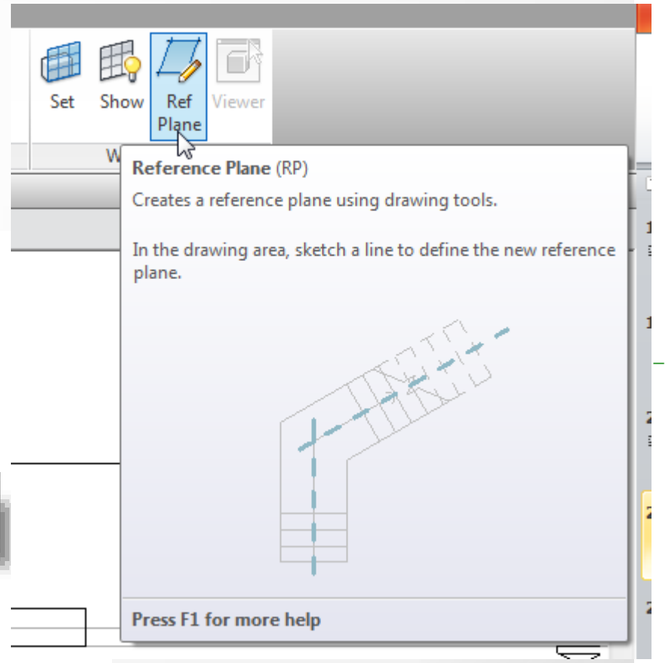
Working with Light Fixtures

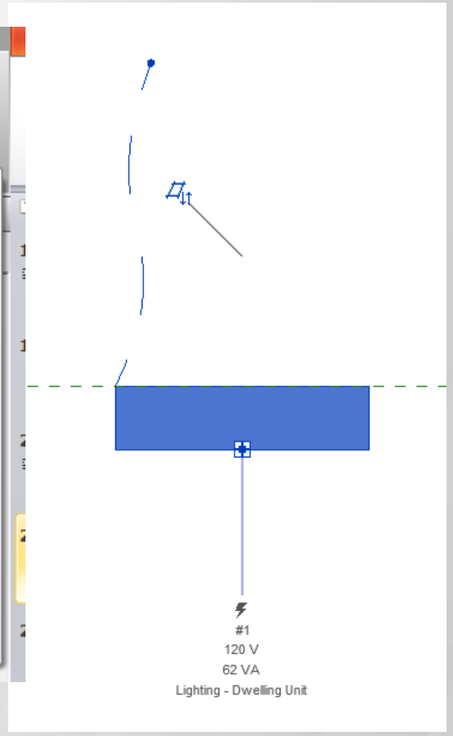
- Placing Hosted Lights without a Face (Ceiling)
  - Lights are upside down?
  - Draw Reference Plane Right to Left







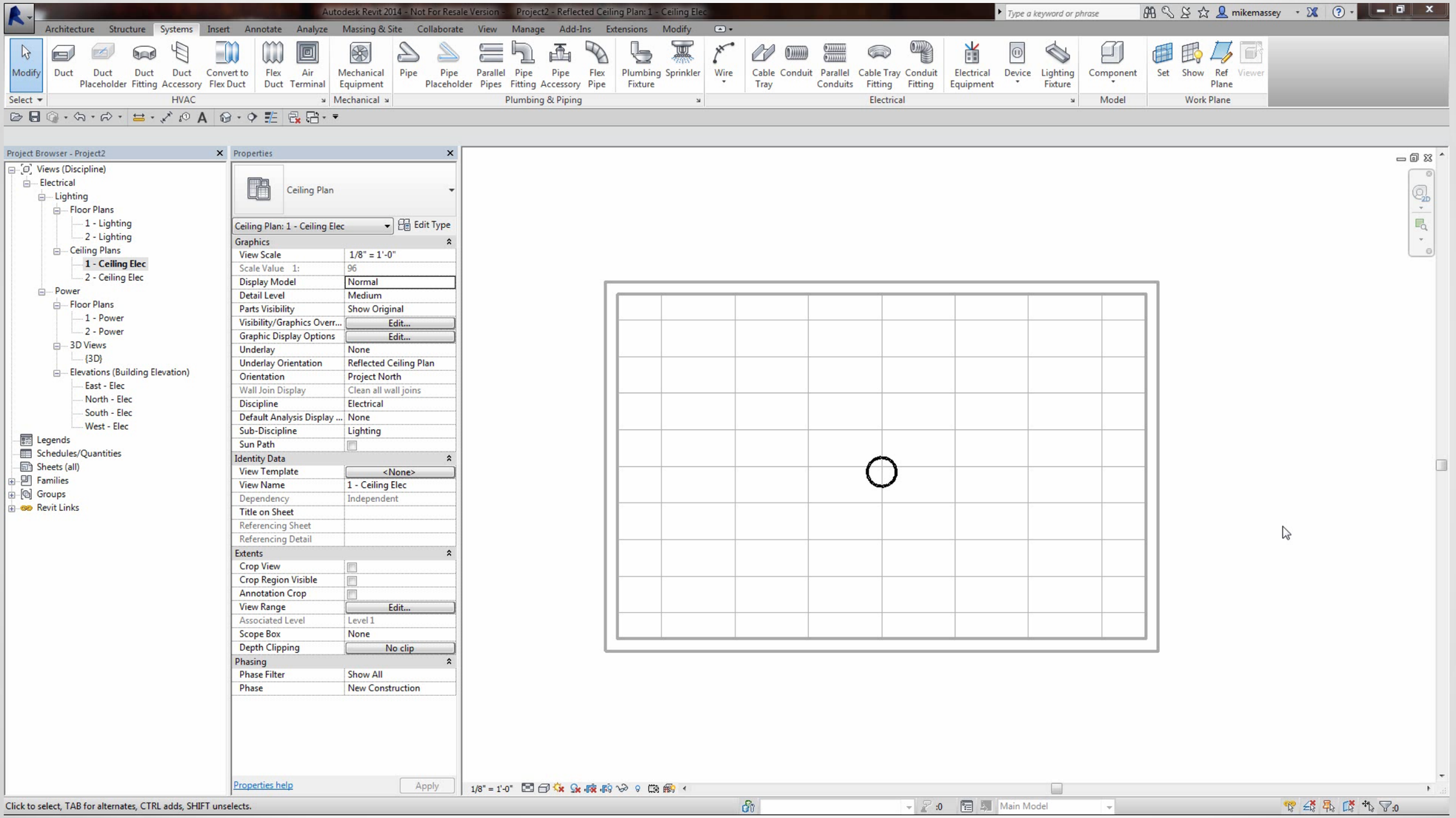




Placing Hosted Lights without a Face (Ceiling)

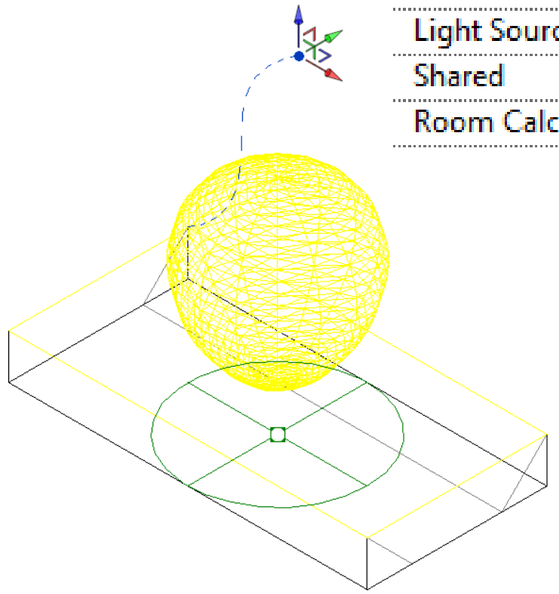
Let’s see how this works…

Placing Hosted Lights without a Face (Ceiling)



Working with Light Fixtures

- Space not Calculating Foot Candles

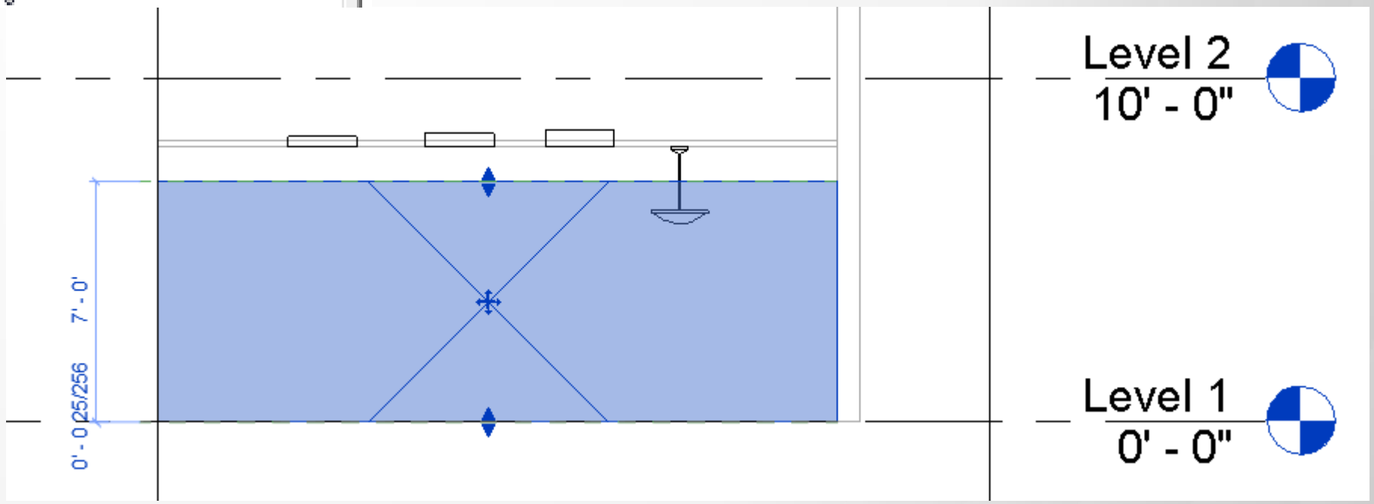


OmniClass Title	Direct/Indirect
Other	
Cut with Voids When Loaded	☐
Light Source	☑
Shared	☐
Room Calculation Point	☑

Properties

Spaces (1) — Edit Type

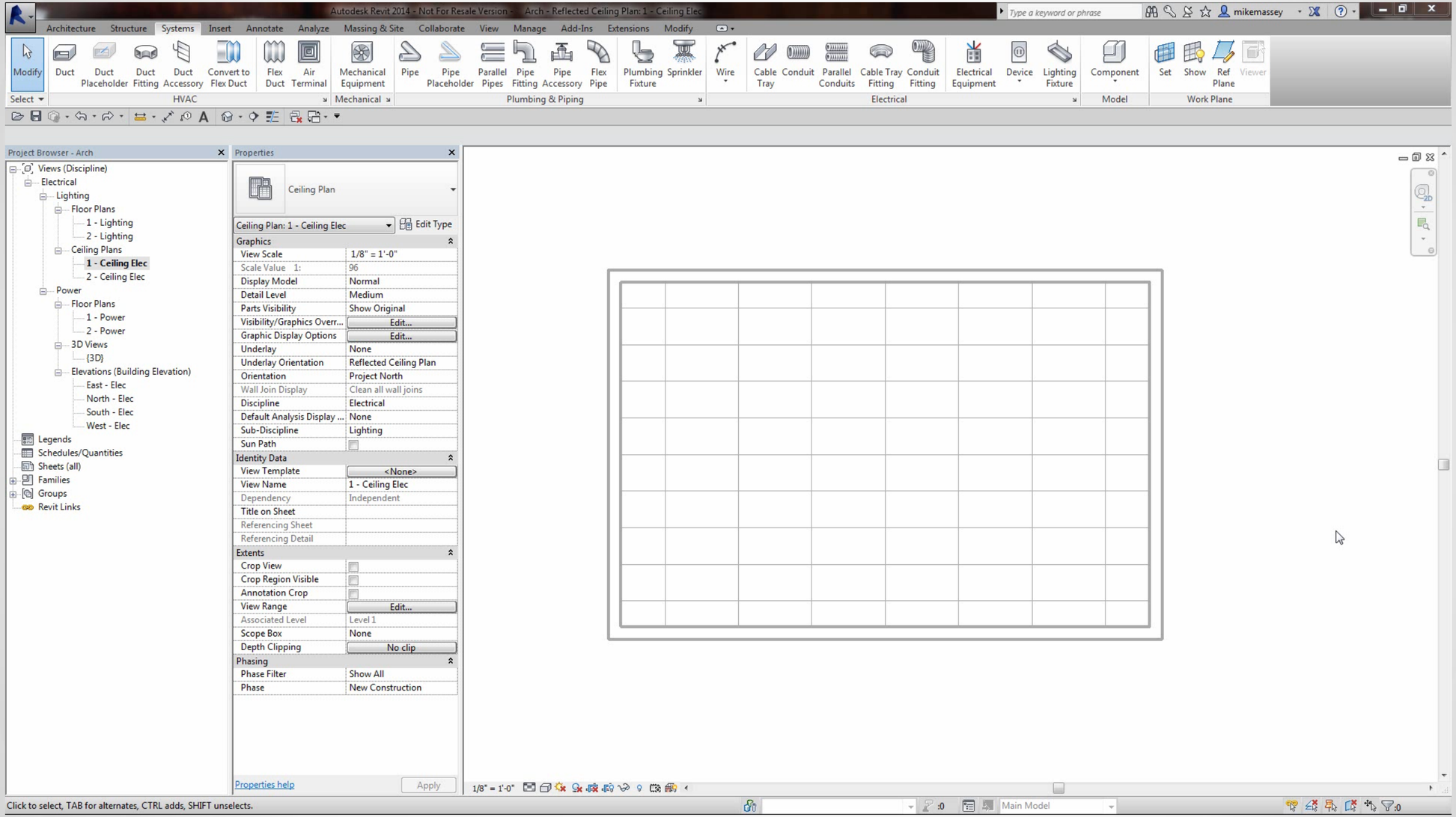
Constraints	
Level	Level 2
Upper Limit	Level 2
Limit Offset	8' 0"
Base Offset	0' 0"
Electrical - Lighting	
Average Estimated Illumination	0.00 fc
Room Cavity Ratio	0.000000
Lighting Calculation Workplane	2' 6"
Lighting Calculation Luminaire Plane	Not Computed
Ceiling Reflectance	75.0000%



Space not Calculating Foot Candles

Let’s see how this works…

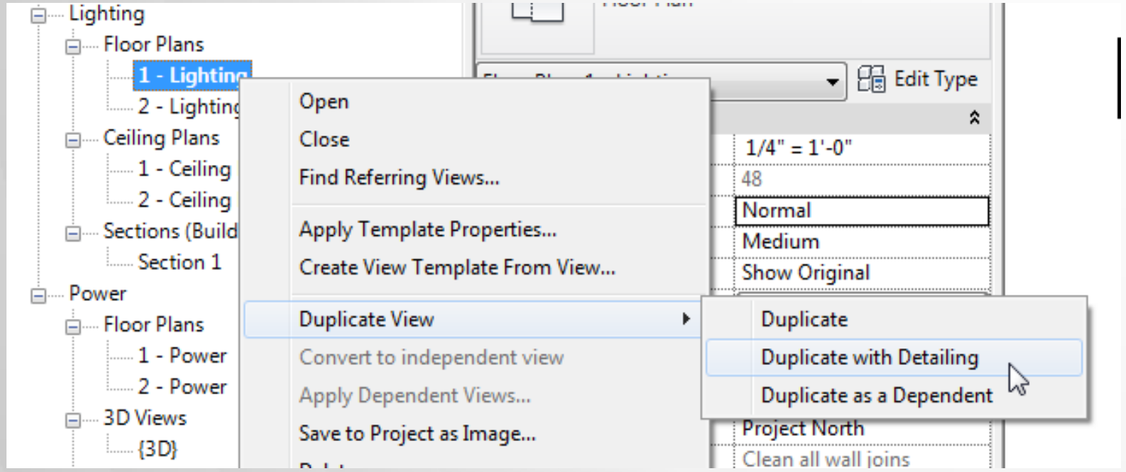
Space not Calculating Foot Candles

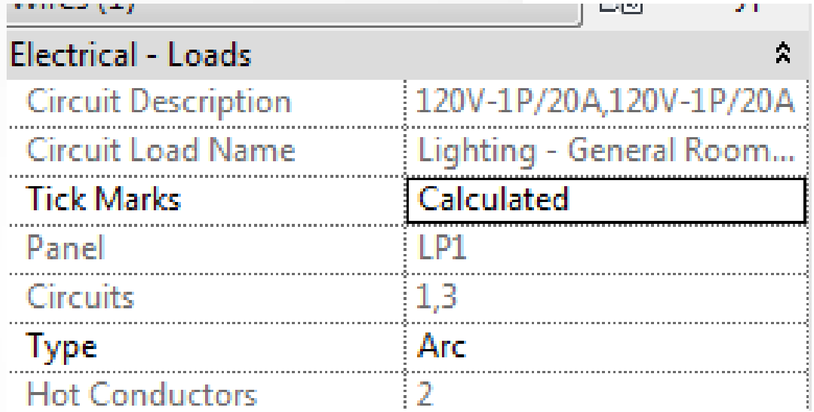


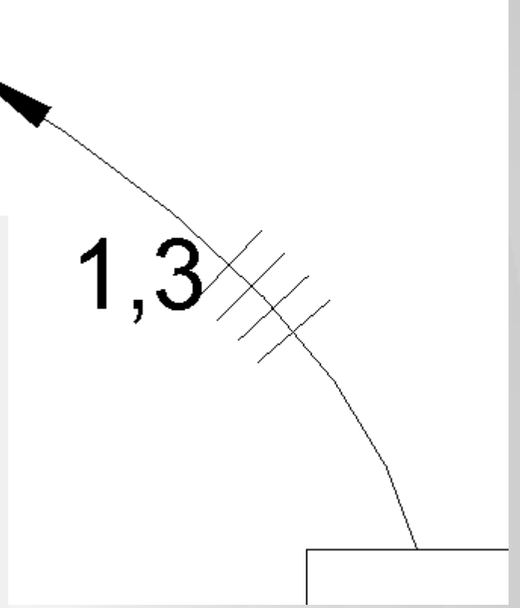
Creating Electrical Circuits

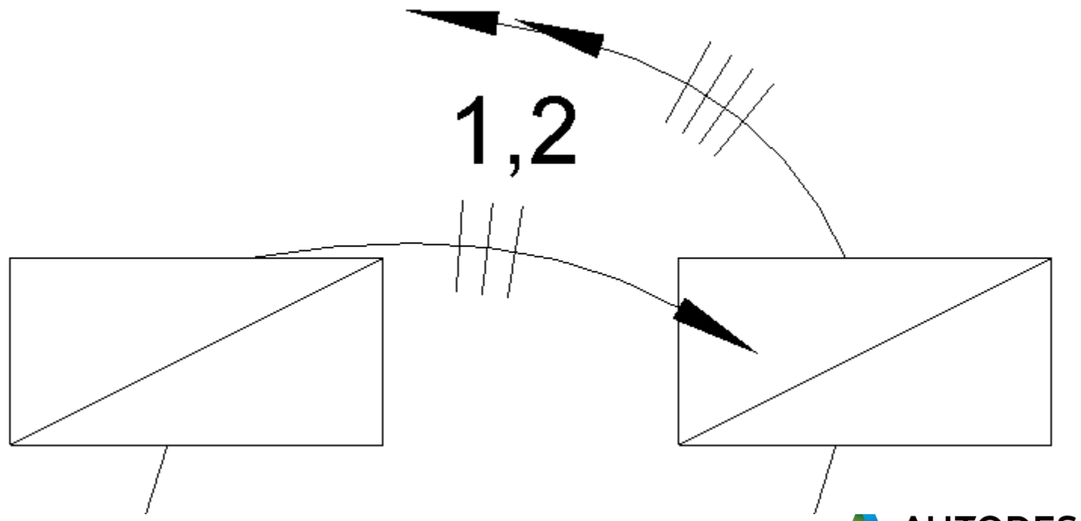
Tips and tricks when creating electrical circuits

- Double Homeruns
  - Connecting them in order
  - Eliminating Extra Arrow
    - Duplicate with Detailing
    - FIXED in 2014!





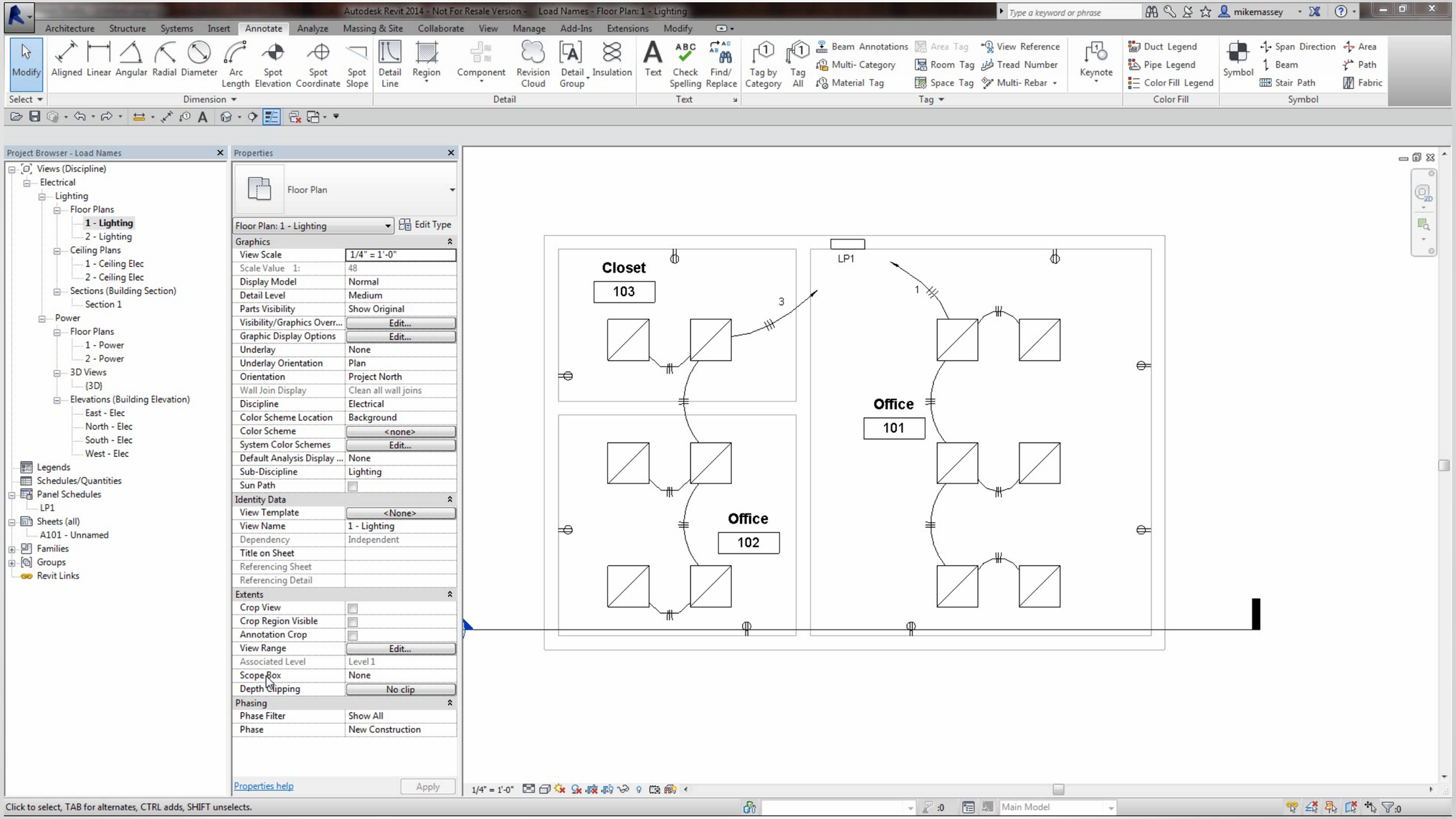




Double Homeruns

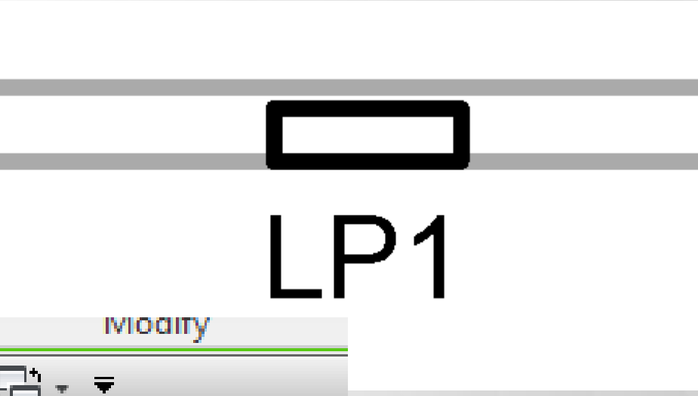
Let’s see how this works…

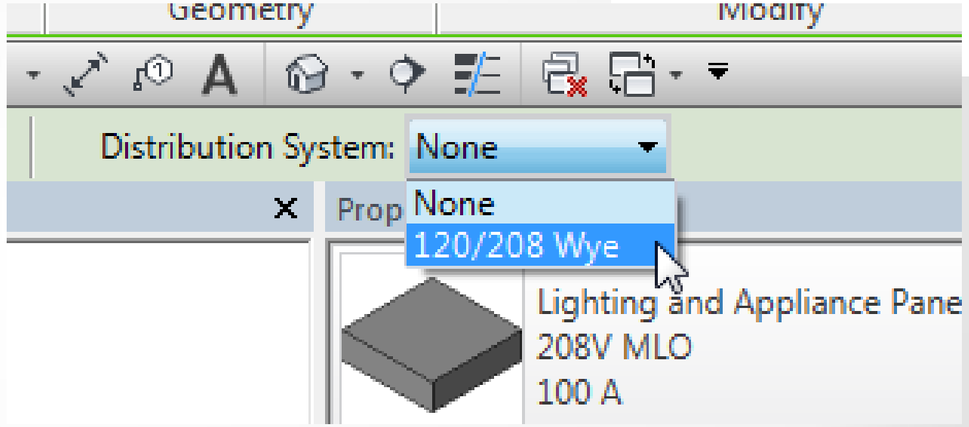
Double Homeruns



Tips and tricks when creating electrical circuits

- 3 Most Important Parameters when Inserting Panels
  - **Distribution System**
  - Panel Name
  - Max. #1 Pole Breakers





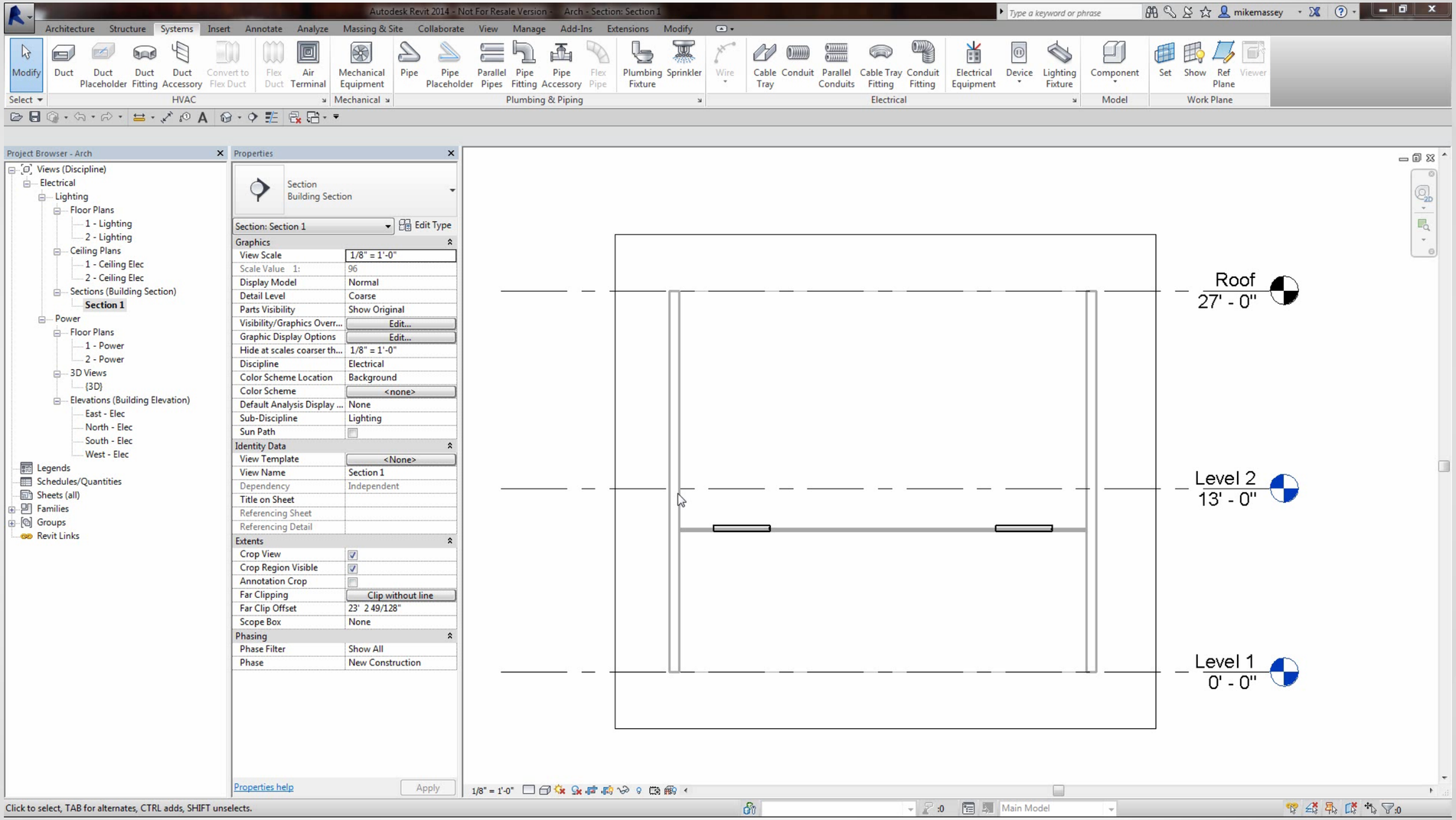
Electrical - Circuiting	
Max #1 Pole Breakers	12
Mains	100.00 A
Circuit Naming	
Circuit Prefix Separator	

Dimensions	
Width	1' 8"
Depth	0' 5 3/4"
42 Circuit Height	3' 5"
30 Circuit Height	2' 2"
24 Circuit Height	1' 11"
12 Circuit Height	1' 8"

3 Most Important Parameters when Inserting Panels

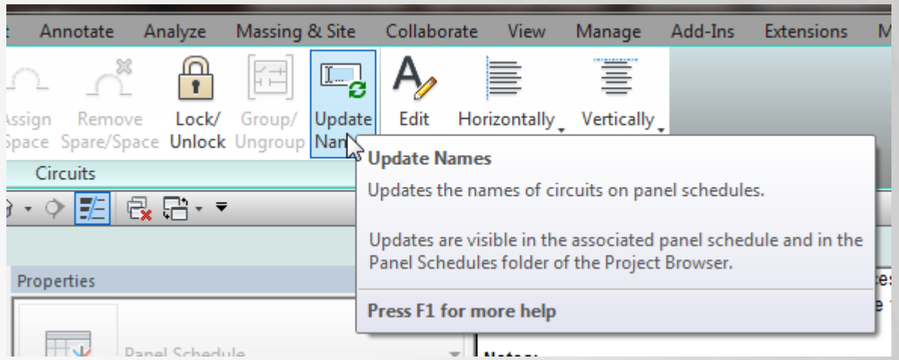
Let’s see how this works…

3 Most Important Parameters when Inserting Panels



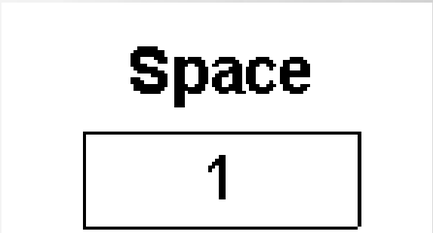
Working with Panel Schedules

Working with Panel Schedules



- Load Names in Panel Schedule
  - (Load Classification) (Space Name) (Space Number)
  - Or (Load Classification) Room (Space Numbers)

CKT	Circuit Description	Trip
1	Lighting Space 1	
3	Lighting Space 1	
5	Receptacle Space 1	
7		
9		

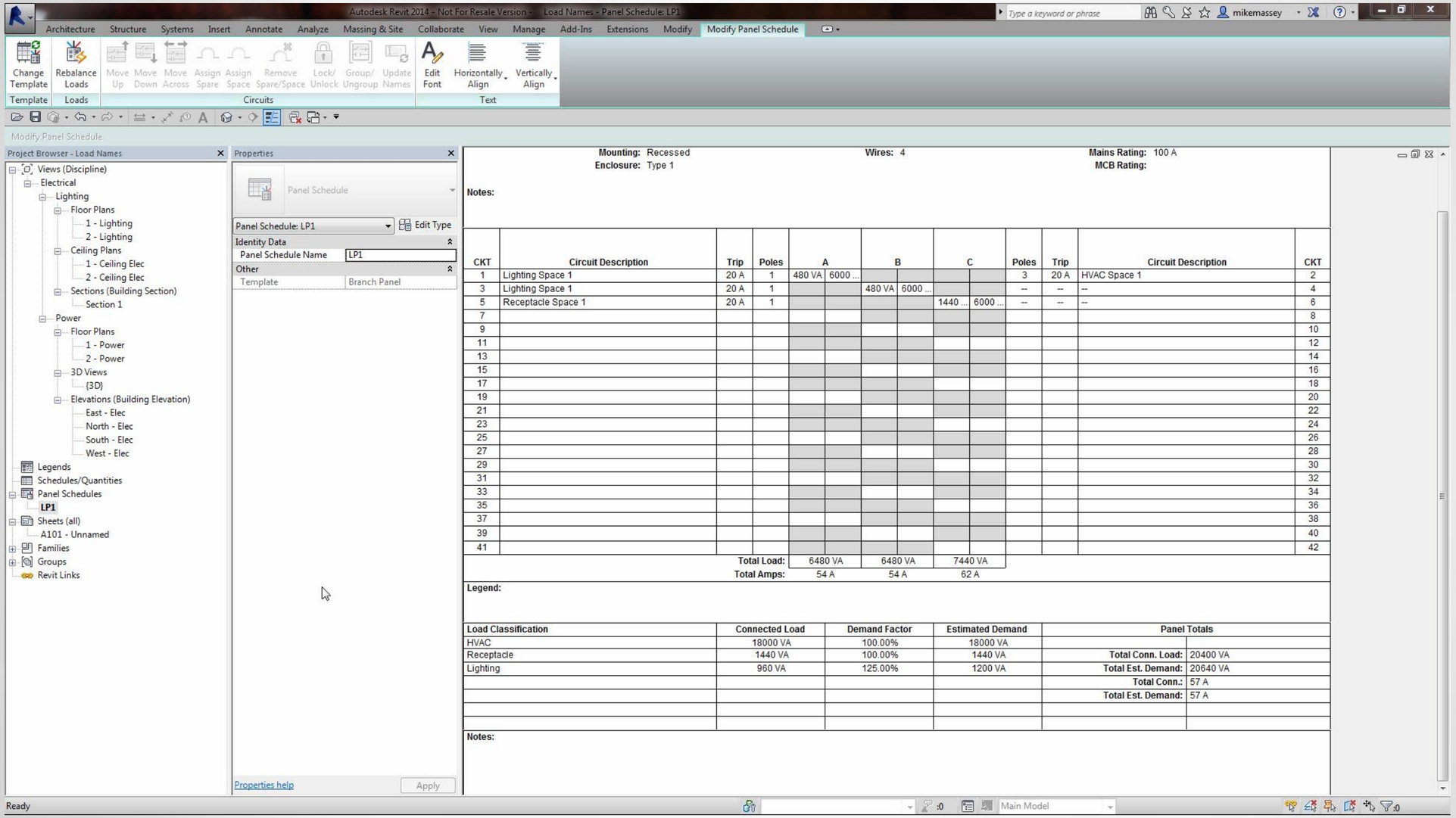


Light Box Material	<By Category>
Grid Material	<By Category>
Diffuser Material	<By Category>
Electrical	
Load Classification	Lighting - Dwelling Unit
Lamp	T5
Ballast Voltage	120.00 V
Ballast Number of Poles	1
Wattage Comments	
Electrical - Loads	
Apparent Load	80.00 VA

Load Names in Panel Schedule

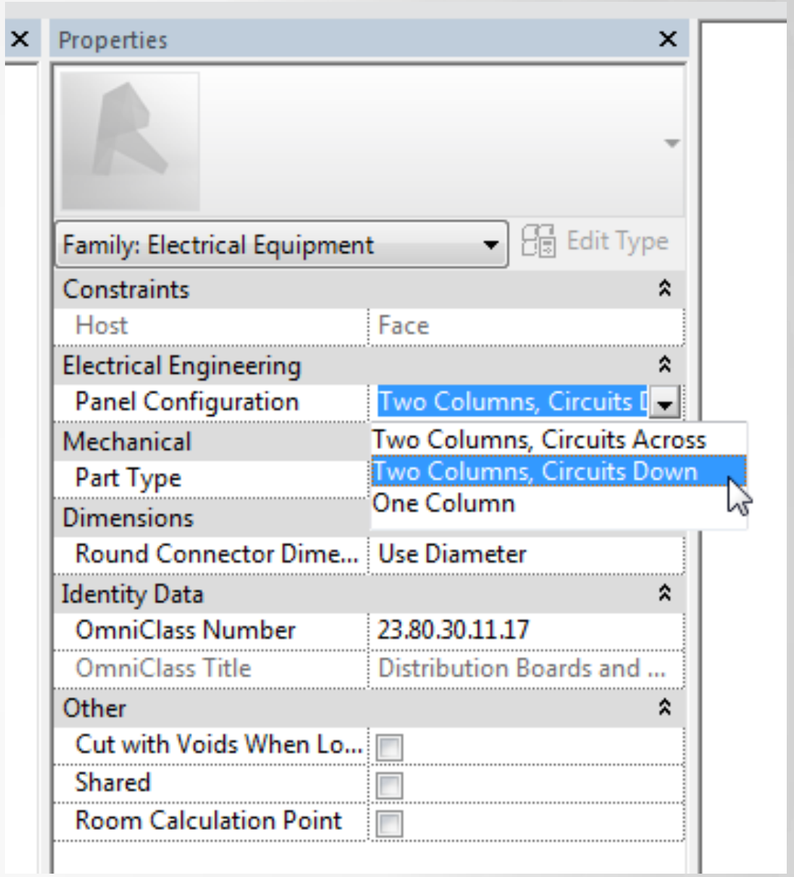
Let’s see how this works…

Load Names in Panel Schedule



Working with Panel Schedules

- Getting Panels to Number down instead of Across

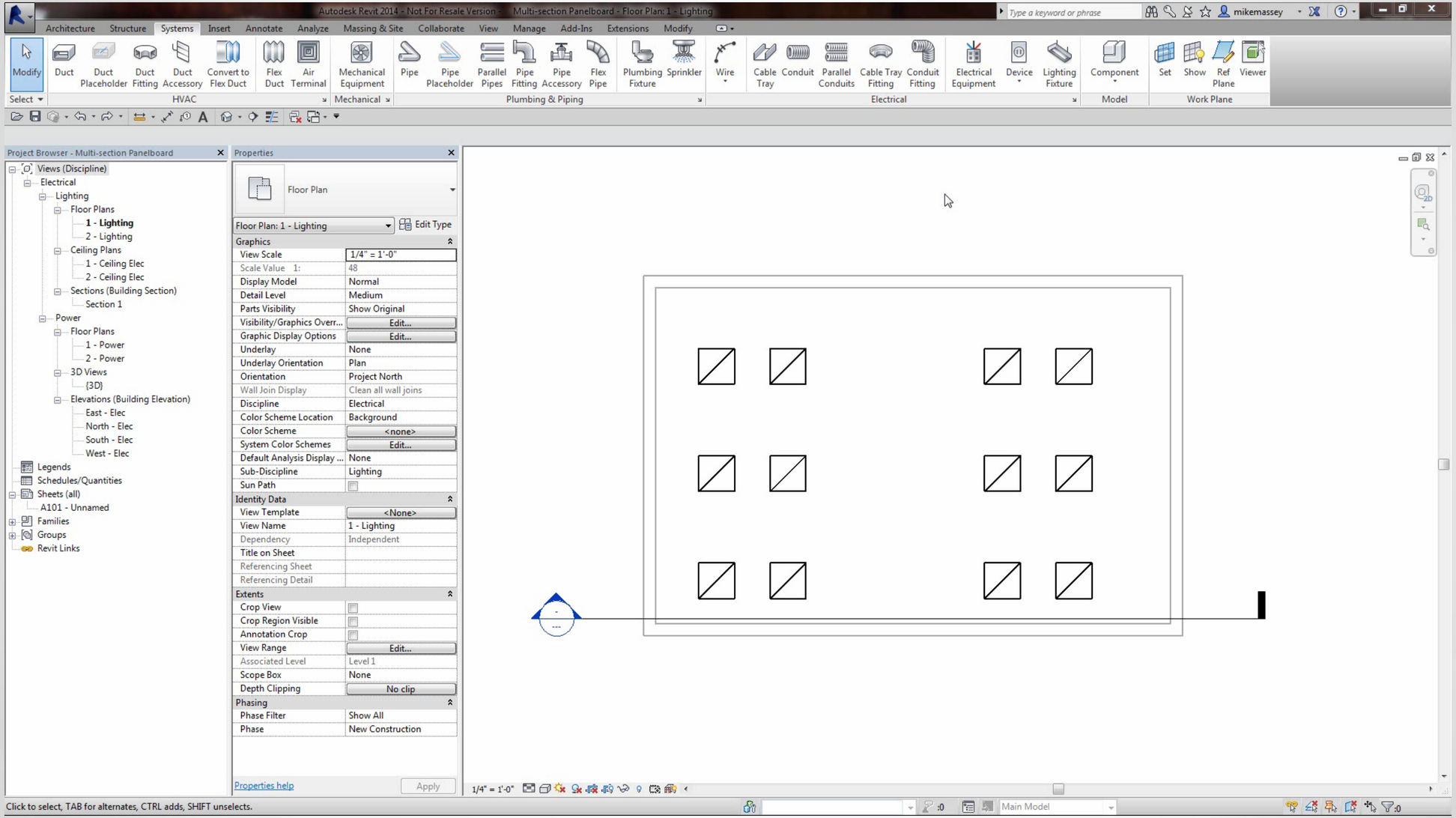


CKT	Circuit Description	Trip	Poles
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Getting Panels to Number down instead of Across

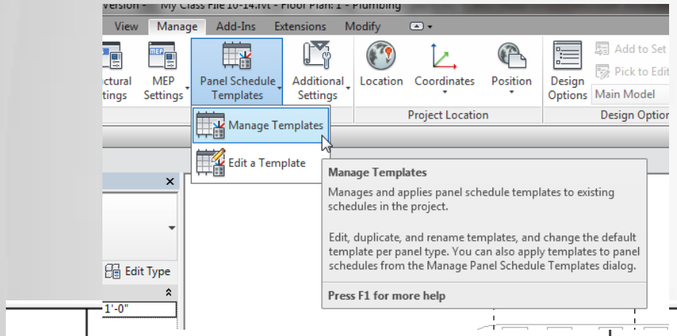
Let’s see how this works…

Getting Panels to Number down instead of Across

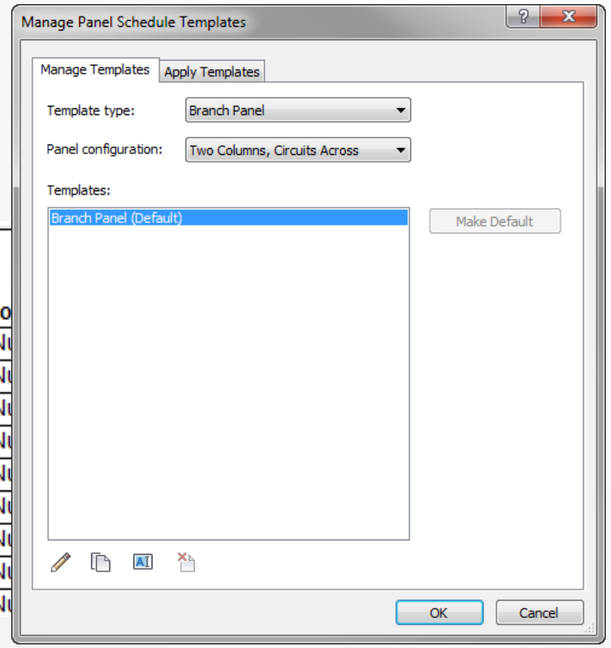


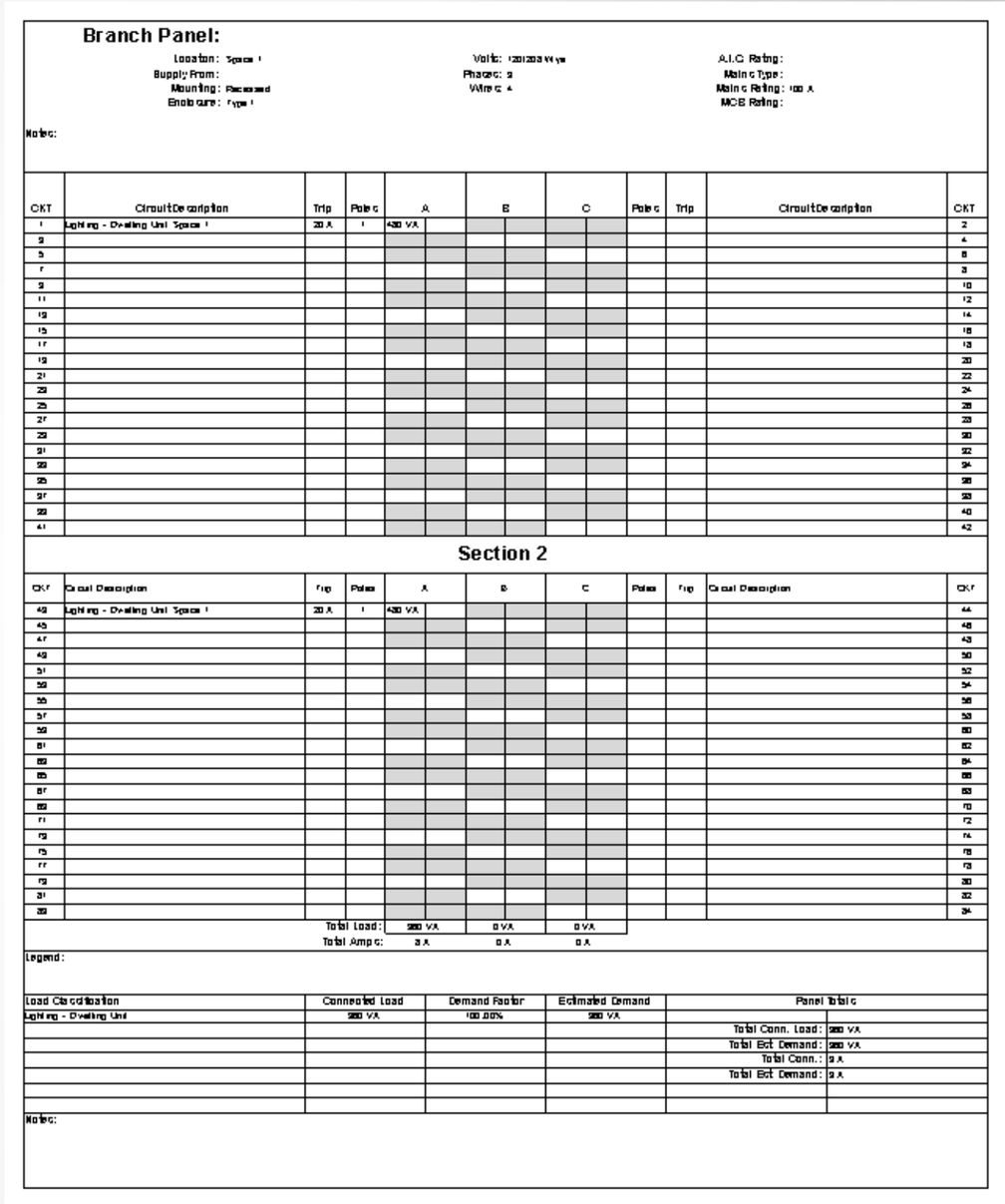
Working with Panel Schedules

- Panel Schedule Templates
  - Multi-Section Panelboard



CKT	Circuit Description	Trip	Po
1	<Load Name>	<Ratin	<Nu
3	<Load Name>	<Ratin	<Nu
5	<Load Name>	<Ratin	<Nu
7	<Load Name>	<Ratin	<Nu
9	<Load Name>	<Ratin	<Nu
11	<Load Name>	<Ratin	<Nu
13	<Load Name>	<Ratin	<Nu
15	<Load Name>	<Ratin	<Nu
17	<Load Name>	<Ratin	<Nu





Branch Panel:

Location: Space 1
Supply From:
Mounting: Recessed
Enclosure: Type 1

Volts: 120/208 V 1φ
Phases: 2
Wires: 4

A.I.C. Rating:
Main Type:
Main Rating: 100 A
MCB Rating:

Notes:

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
1	Lighting - Dwelling Unit Space 1	20 A	1	480 VA									2
3													4
5													6
7													8
9													10
11													12
13													14
15													16
17													18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
37													38
39													40
41													42

Section 2

CKT	Circuit Description	Trip	Poles	A		B		C		Poles	Trip	Circuit Description	CKT
43	Lighting - Dwelling Unit Space 1	20 A	1	480 VA									44
45													46
47													48
49													50
51													52
53													54
55													56
57													58
59													60
61													62
63													64
65													66
67													68
69													70
71													72
73													74
75													76
77													78
79													80
81													82
83													84
			Total Load:	960 VA		0 VA		0 VA					
			Total Amps:	8 A		0 A		0 A					

Legend:

Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting - Dwelling Unit	960 VA	100.00%	960 VA		
				Total Conn. Load:	960 VA
				Total Est. Demand:	960 VA
				Total Conn.:	8 A
				Total Est. Demand:	8 A

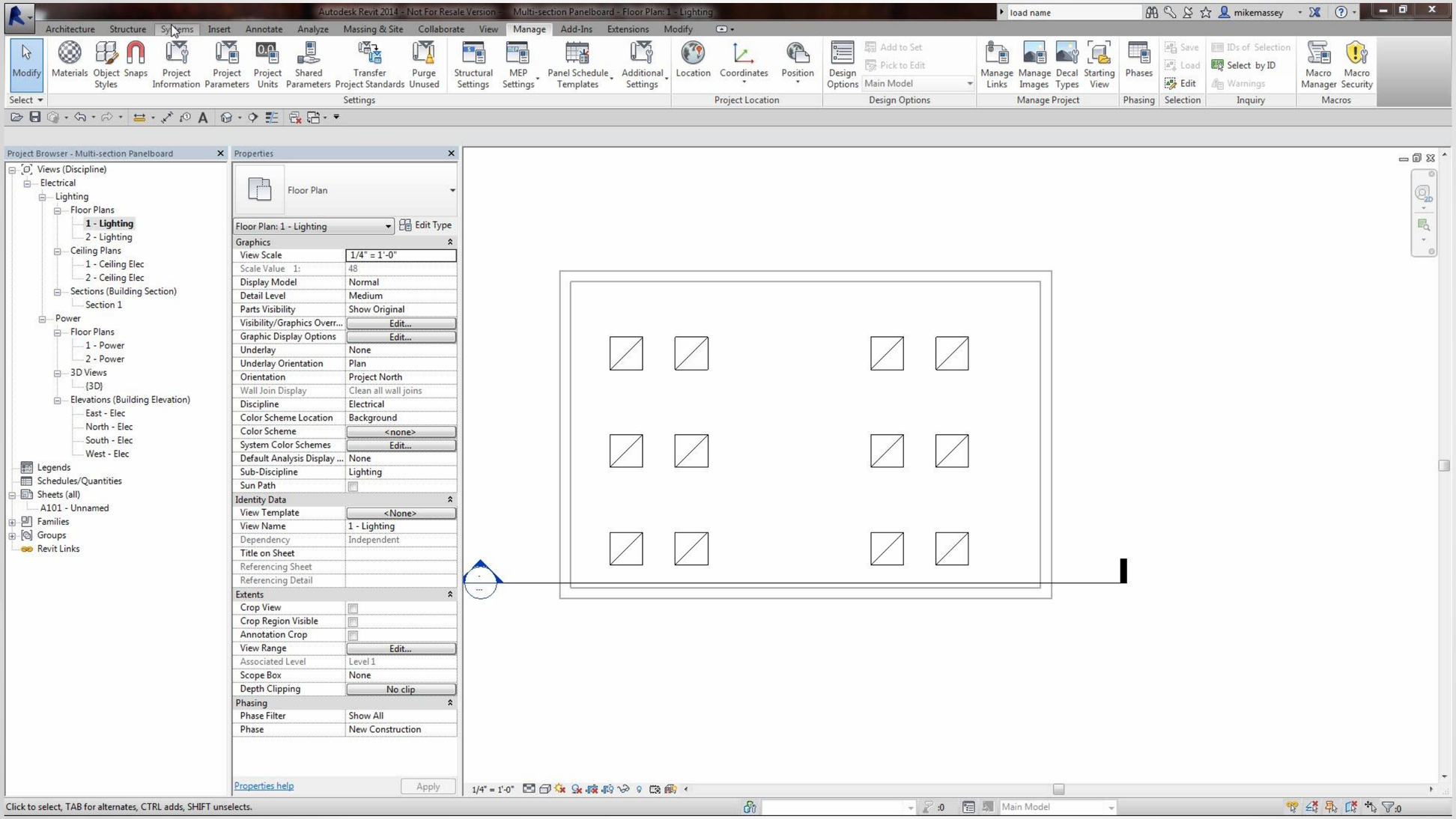
Notes:

Technique by Cory Dunn – Autodesk Discussion Groups

Panel Schedule Templates

Let’s see how this works…

Multi-Section Panel Board

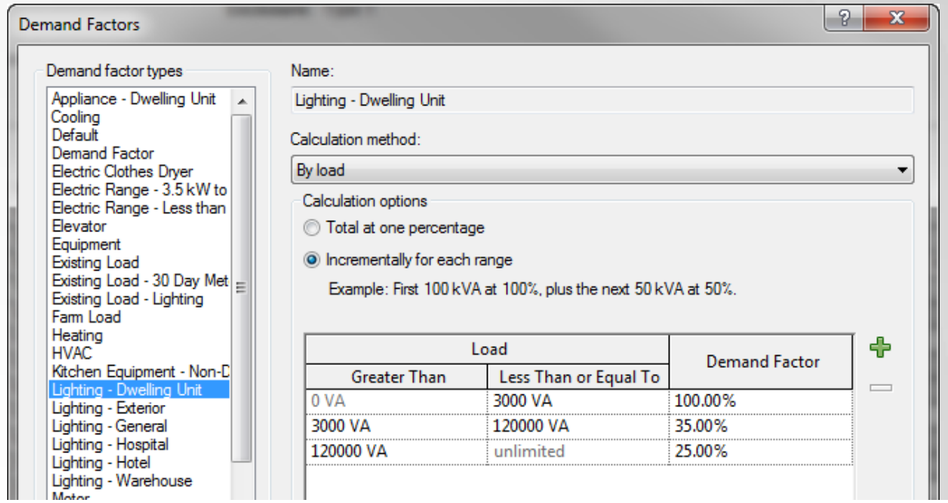


* Panel and Ghost Font are in Class Files

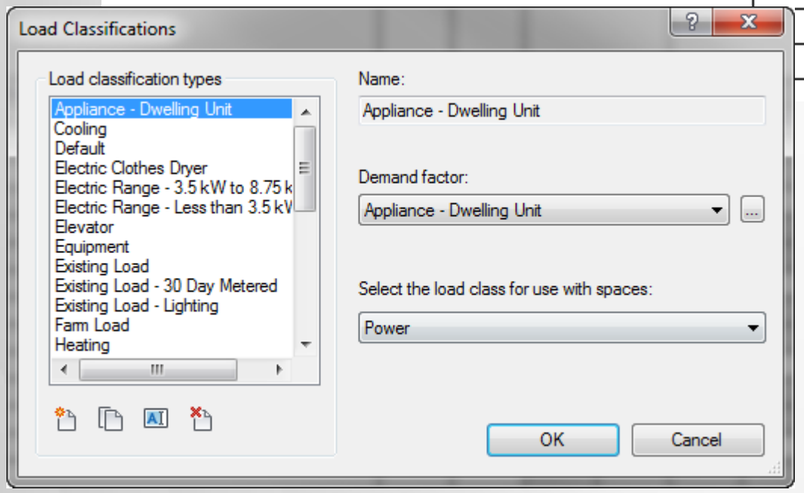
Using Load Classifications and Demand Factors

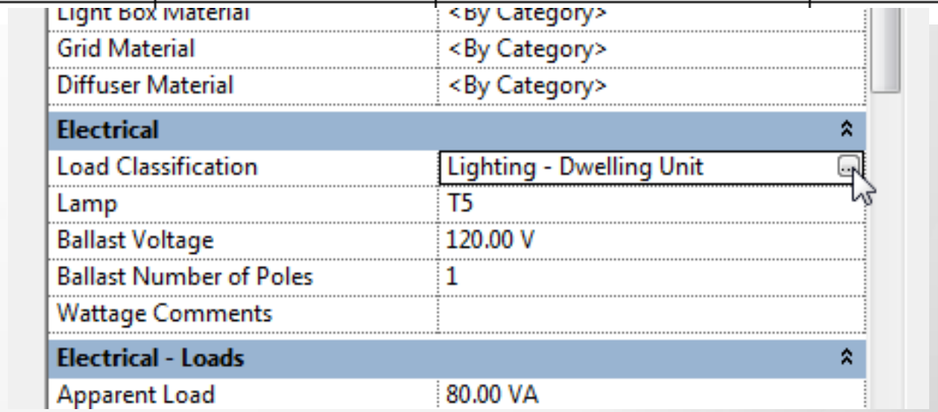
Explain how Load Classifications and Demand Factors are applied

- Demand Factors
- Load Classifications



Load Classification	Connected Load	Demand Factor	Estimated Demand	Panel Totals	
Lighting - Dwelling Unit	960 VA	100.00%	960 VA		
Receptacle	1440 VA	100.00%	1440 VA	**Total Conn. Load:**	20400 VA
Power	18000 VA	100.00%	18000 VA	**Total Est. Demand:**	20400 VA
				Total Conn.:	57 A
				Total Est. Demand:	57 A

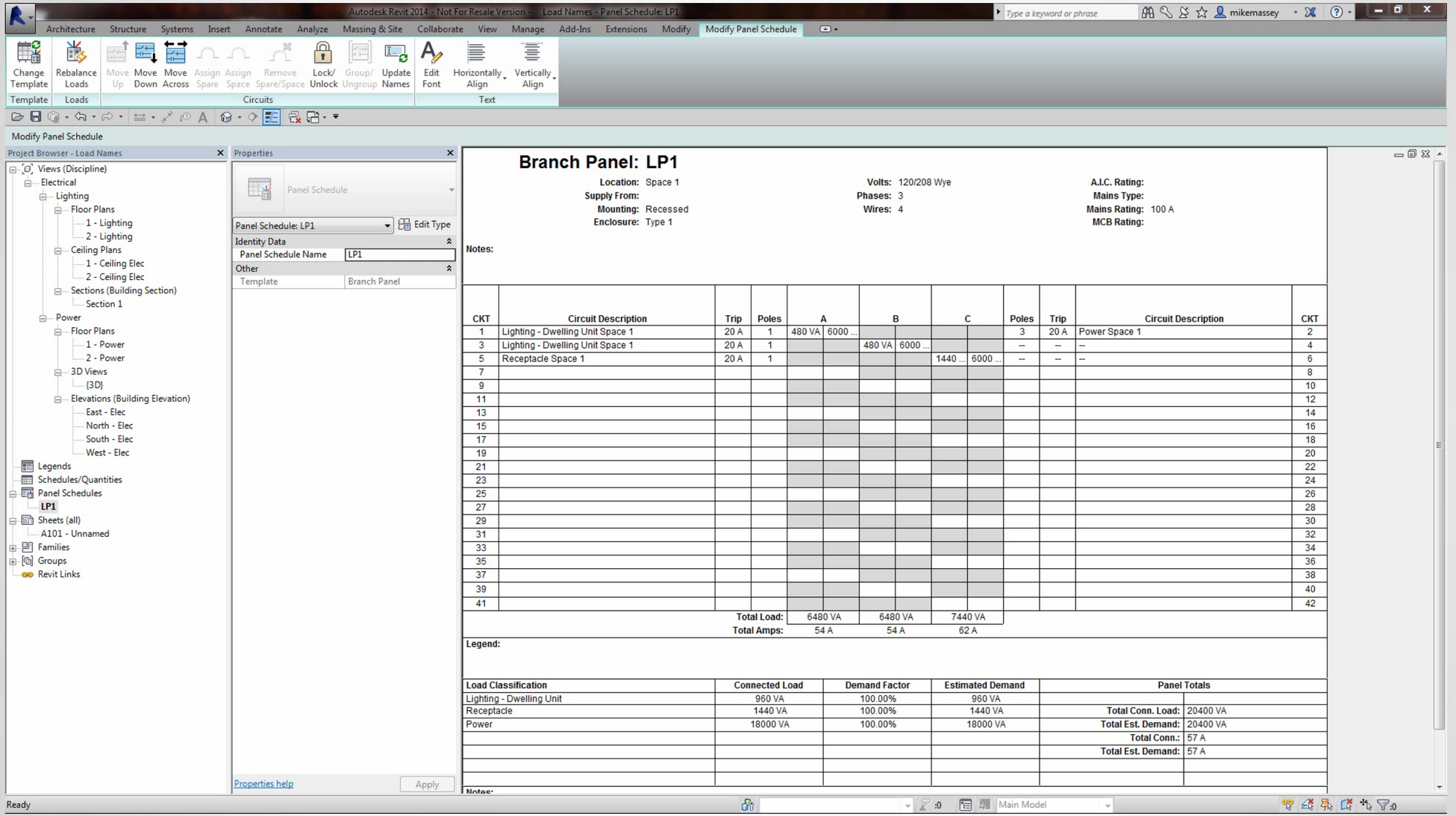




Load Classifications and Demand Factors

Let’s see how this works…

Load Classifications and Demand Factors



Autodesk University Session Feedback

Your feedback is very important to Autodesk

- ✓ Attendees can complete session survey on their mobile device, PC or at a survey station
- ✓ Each completed session survey enters attendee in that day's drawing for a free AU 2014 pass
- ✓ You can help make AU 2014 better!

Session – MP1272 – Pesky Electrical Settings that drive you Crazy

10 is the correct answer!

Wrap up

Thank you for attending!
Mike Massey

Website – www.asti.com
Email - mike.massey@asti.com
Blog - http://knowingwhatyoudontknow.blogspot.com/

Applied Software®