



Insight 360: Energy Analysis...for Architects?

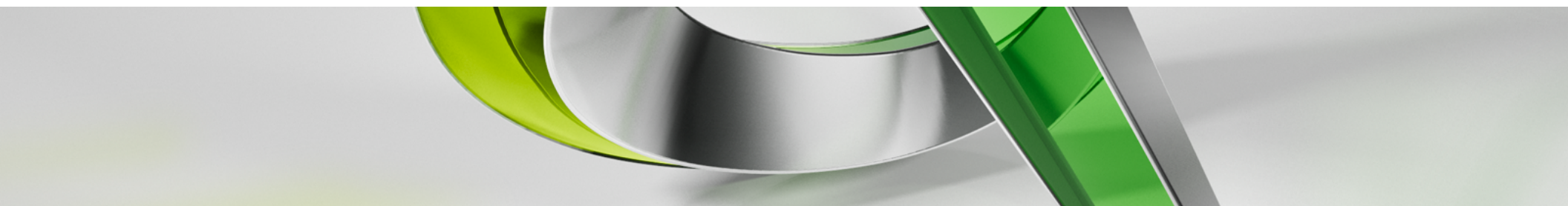
Kimberly Fuhrman

LEED AP BD+C, Assoc. AIA, BIM Manager – LSC Design, Inc.

@FuhrmanKimberly

Dennis McNeal

BIM Manager - AECOM



About the Speaker

- Kimberly Fuhrman, LEED AP BD+C, Assoc. AIA
BIM Manager – LSC Design, Inc.
- Market Leadership Advisory Board –
USGBC-Central Pennsylvania
- Autodesk Developer Network & “Inside the Factory”
Participant
- AUGIWorld Revit Structure Content Manager
- Contributor – cadpanacea.com



About the Speaker

- Dennis McNeal, AIA
Licensed Architect/BIM Manager – AECOM
- Former Autodesk Software Quality Analyst and Product Owner focusing on Energy Analysis for Architects



Class summary

In this session, we will investigate the tools available within Insight 360 and the benefits of running energy analysis early in project design. We'll discuss the fine line between energy “modeling” and energy “analysis”, as well as workflow implementation and documentation.

Key learning objectives

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

- Understand the features of Insight 360.
- See the benefits of early Energy Analysis (not Energy Modeling)
- Integrate Energy Analysis into typical production.
- Understand output and documentation.

What is Energy Analysis?

Energy Analysis 101

“...the process of analyzing a building’s energy performance by calculating how well the integration of that building’s form, systems, and envelope perform under the surrounding environmental conditions.

-Perkins+Will 2014 Study for the American Council for an Energy Efficient Economy

What is the Best Case Scenario?

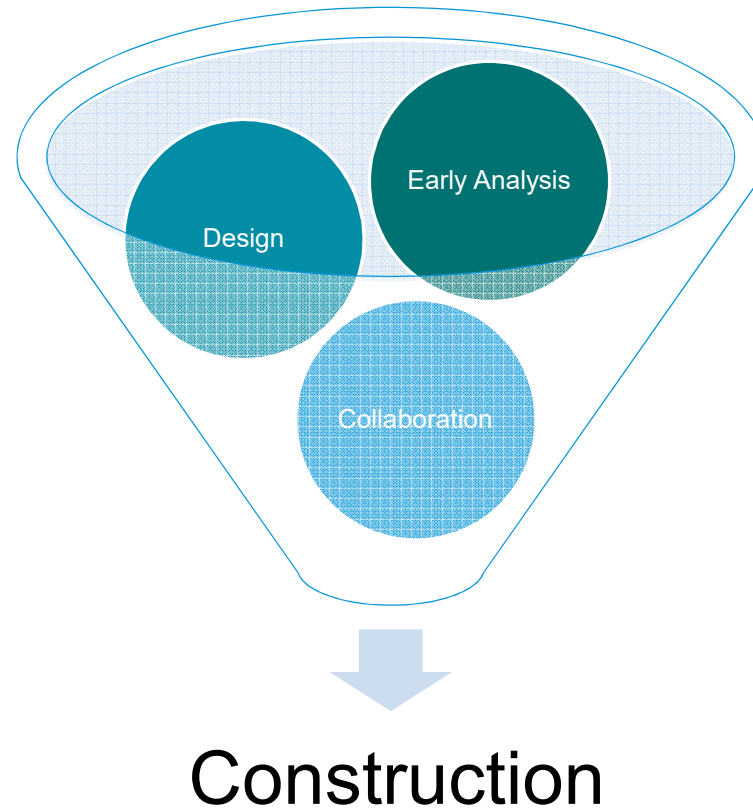
Benefits of Early Energy Analysis

Better Buildings = Happy Clients



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Another Change Order??



Construction



Codes and Certifications



FOR USE IN YORK COUNTY

2019 IECC - MINIMUM INSULATION VALUES - NO-N-RESIDENTIAL				
ZONE 4	R-VALUE	U-VALUE	CITATIO	REMARKS
FLAT ROOFS	25.0	0.04	R602.2	
RETAL BUILDING ROOFS	17.0	0.06	R602.2	
ATTICS	30.0	0.03	R602.2	
MASSWY WALLS	13.0	0.07	R602.2	
CEILING STUD WALLS	13.0	0.07	R602.2	
WOOD STUD WALLS	13.0	0.07	R602.2	
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CEILING FLOORS	13.0	0.07	R602.2	
GLASS ON GLAZES	NR	0.09	R602.2	FOR 2" MINIMUM GLASS
DOOR DOORS	0.76	0.07	R602.2	
OVERHEAD DOORS	0.76	0.07	R602.2	
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STAIRWELL GLAZING	0.76	0.07	R602.2	

FOR USE IN COUNTIES SURROUNDING YORK

2019 IECC - MINIMUM INSULATION VALUES - NO-N-RESIDENTIAL				
ZONE 5	R-VALUE	U-VALUE	CITATIO	REMARKS
FLAT ROOFS	25.0	0.04	R602.2	
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FOR USE IN YORK COUNTY

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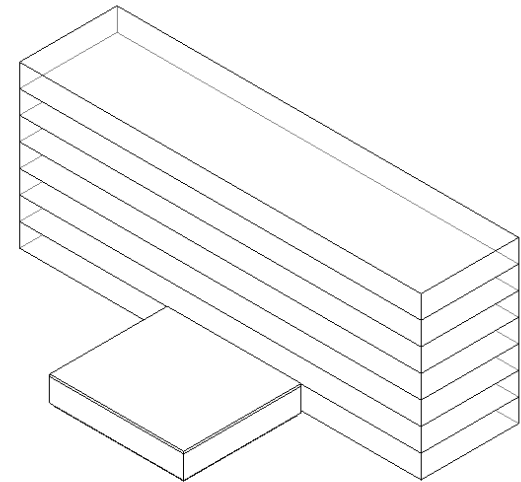
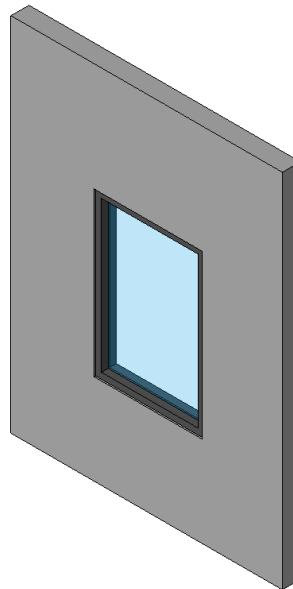
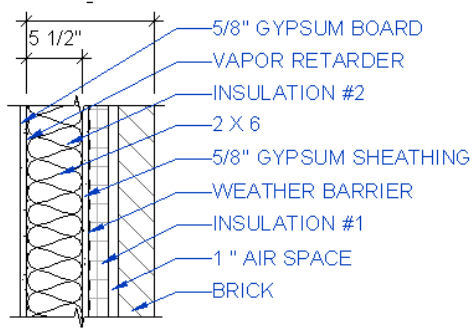
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FOR USE IN MARYLAND

2019 IECC - MINIMUM INSULATION VALUES - NO-N-RESIDENTIAL				
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But, I'm the Architect!

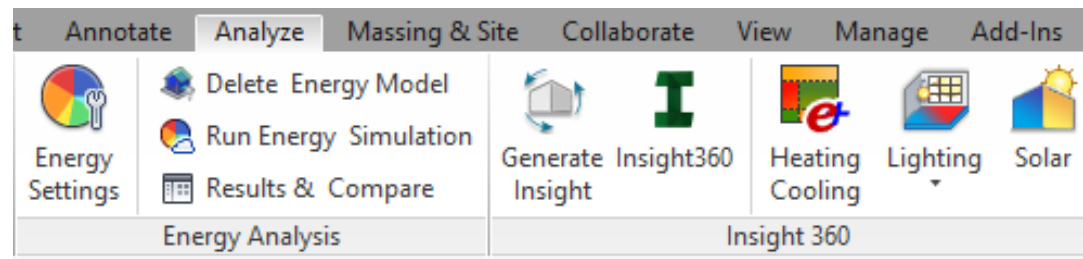


Autodesk Insight 360

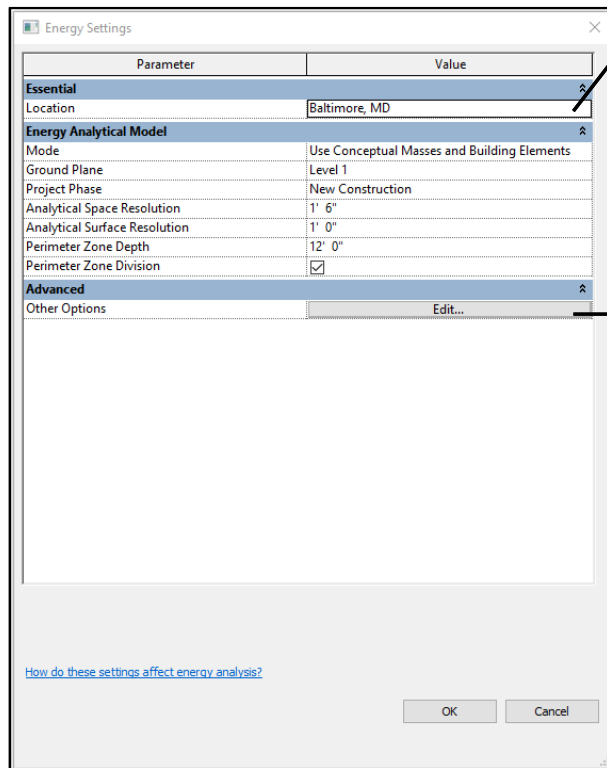


Insight 360*

*Fine Print: The Insight 360 add-in for Revit is a subscription-only or Industry Collection feature.



Energy Settings

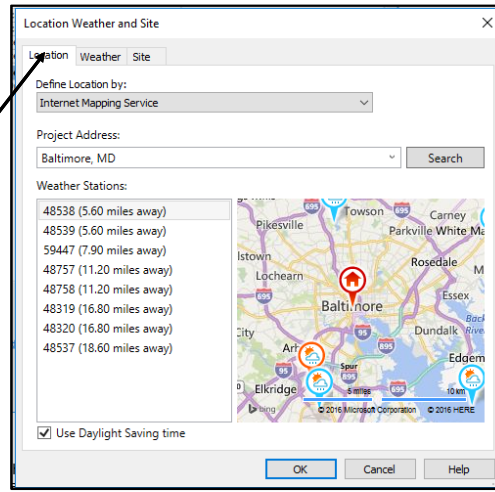


The Energy Settings dialog box is divided into three sections: Essential, Energy Analytical Model, and Advanced. The Essential section includes Location (Baltimore, MD). The Energy Analytical Model section includes Mode (Use Conceptual Masses and Building Elements), Ground Plane (Level 1), Project Phase (New Construction), Analytical Space Resolution (1' 6"), Analytical Surface Resolution (1' 0"), Perimeter Zone Depth (12' 0"), and Perimeter Zone Division (checked). The Advanced section includes Other Options (Edit...).

Parameter	Value
Essential	
Location	Baltimore, MD
Energy Analytical Model	
Mode	Use Conceptual Masses and Building Elements
Ground Plane	Level 1
Project Phase	New Construction
Analytical Space Resolution	1' 6"
Analytical Surface Resolution	1' 0"
Perimeter Zone Depth	12' 0"
Perimeter Zone Division	<input checked="" type="checkbox"/>
Advanced	
Other Options	Edit...

[How do these settings affect energy analysis?](#)

OK Cancel

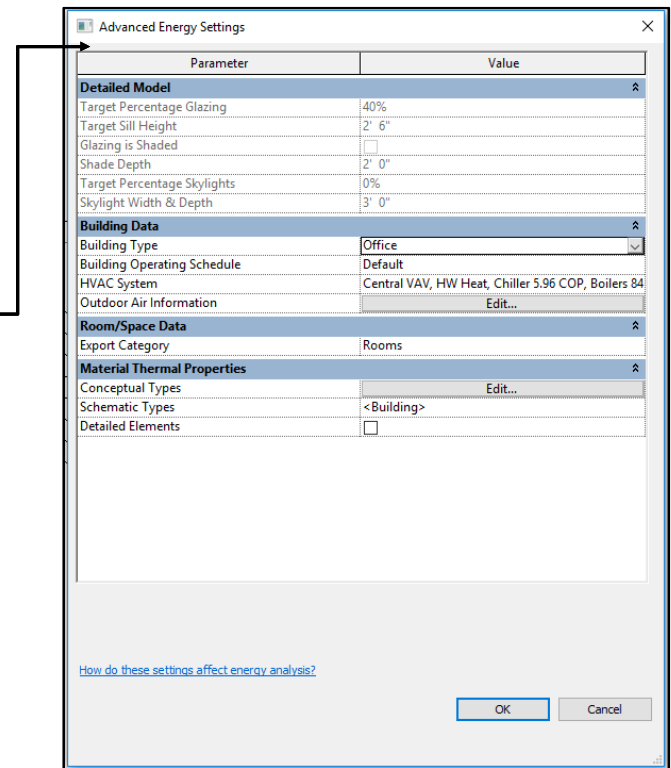


The Location Weather and Site dialog box has three tabs: Location, Weather, and Site. The Location tab is active, showing the Define Location by: Internet Mapping Service. The Project Address is Baltimore, MD. A map shows the location of Baltimore, MD. Weather Stations are listed with distances from Baltimore, MD.

Weather Station	Distance from Baltimore, MD
48538	5.60 miles away
48539	5.60 miles away
59447	7.90 miles away
48757	11.20 miles away
48758	11.20 miles away
48319	16.80 miles away
48320	16.80 miles away
48537	18.60 miles away

☒ Use Daylight Saving time

OK Cancel Help



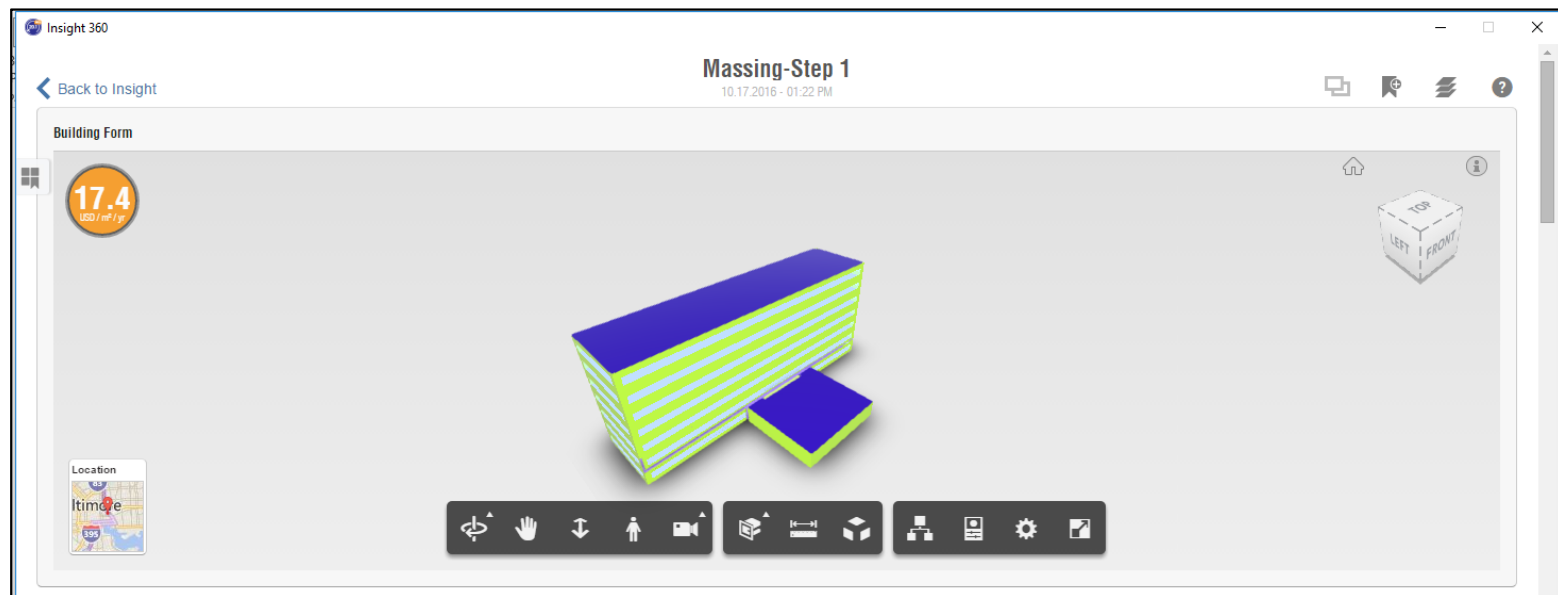
The Advanced Energy Settings dialog box is divided into several sections: Detailed Model, Building Data, Room/Space Data, and Material Thermal Properties. The Detailed Model section includes Target Percentage Glazing (40%), Target Sill Height (2' 6"), Glazing is Shaded (unchecked), Shade Depth (2' 0"), Target Percentage Skylights (0%), and Skylight Width & Depth (3' 0"). The Building Data section includes Building Type (Office), Building Operating Schedule (Default), HVAC System (Central VAV, HW Heat, Chiller 5.96 COP, Boilers 84), and Outdoor Air Information (Edit...). The Room/Space Data section includes Export Category (Rooms). The Material Thermal Properties section includes Conceptual Types (Edit...), Schematic Types (<Building>), and Detailed Elements (unchecked).

Parameter	Value
Detailed Model	
Target Percentage Glazing	40%
Target Sill Height	2' 6"
Glazing is Shaded	<input type="checkbox"/>
Shade Depth	2' 0"
Target Percentage Skylights	0%
Skylight Width & Depth	3' 0"
Building Data	
Building Type	Office
Building Operating Schedule	Default
HVAC System	Central VAV, HW Heat, Chiller 5.96 COP, Boilers 84
Outdoor Air Information	Edit...
Room/Space Data	
Export Category	Rooms
Material Thermal Properties	
Conceptual Types	Edit...
Schematic Types	<Building>
Detailed Elements	<input type="checkbox"/>

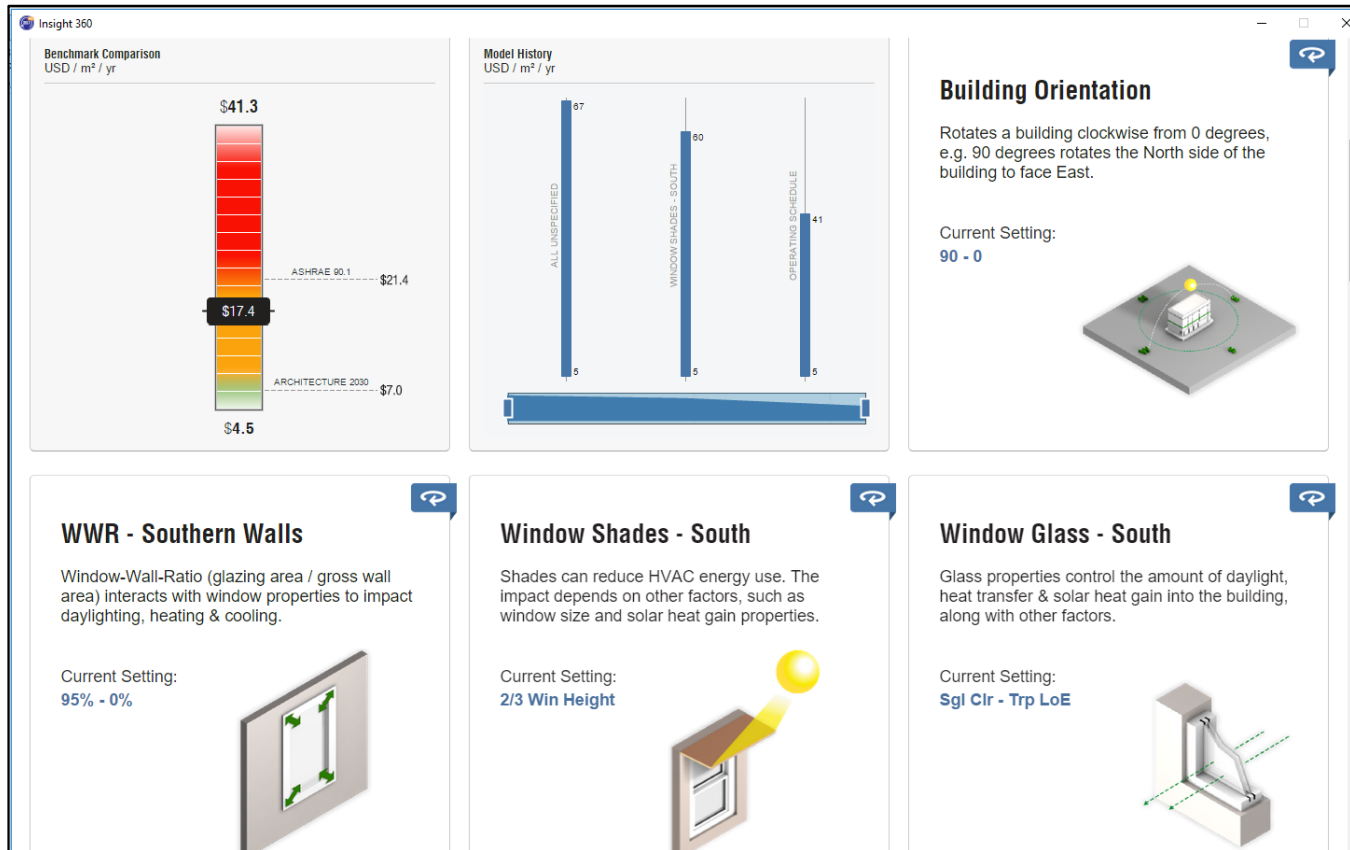
[How do these settings affect energy analysis?](#)

OK Cancel

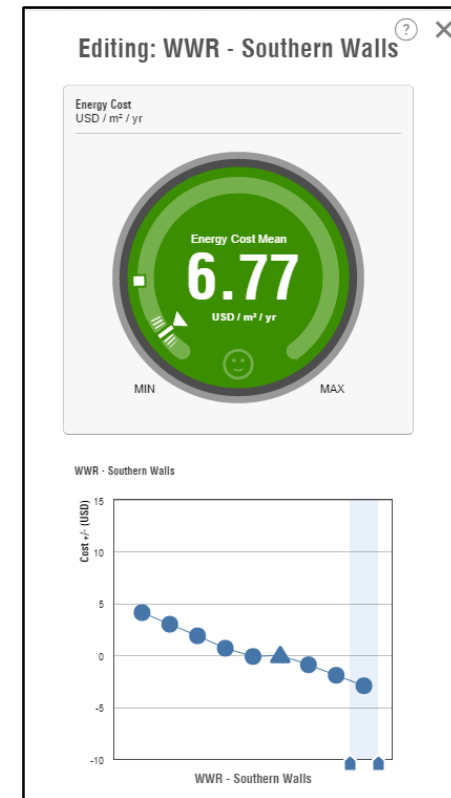
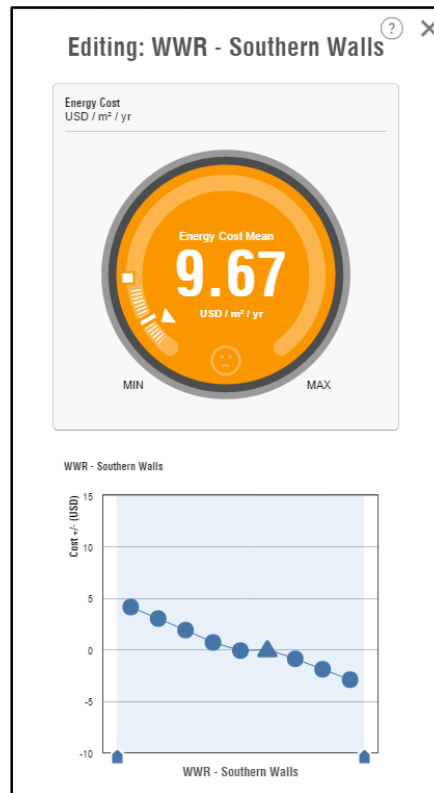
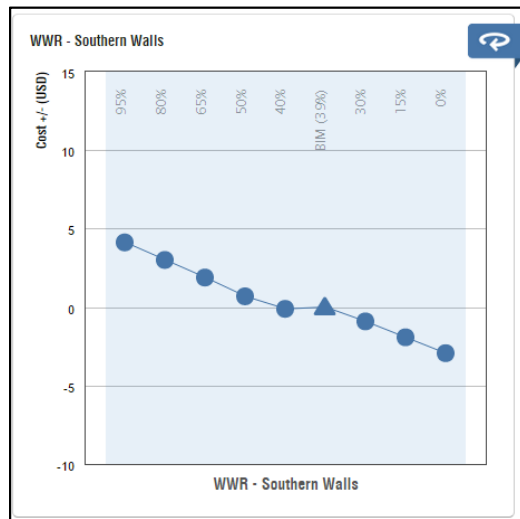
Insight 360 Dashboard



Insight 360 Dashboard



Insight 360 Dashboard



Building Form

17.4
USD / m² / yr

Location
Itimoe

Insight 360

4.39
USD / m² / yr

Location
Itimoe

Benchmark Comparison
USD / m² / yr

\$41.3

\$17.4

\$4.5

ASHRAE 90.1 \$21.4

ARCHITECTURE 2030 \$7.0

Benchmark Comparison
USD / m² / yr

\$6.29

\$4.39

\$2.21

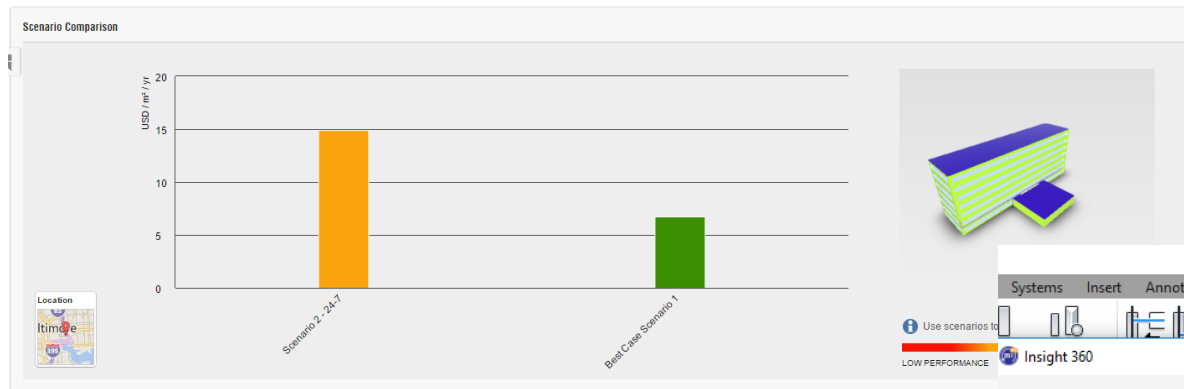
ARCH 2030 (\$7.00)

ASHRAE 90.1 (\$21.41)

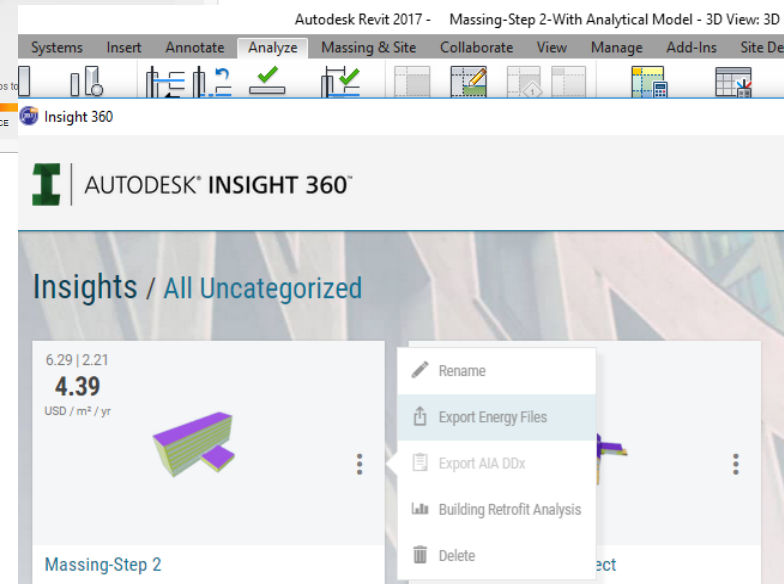


Output & Documentation

Output & Documentation



- Charts & Graphs
- gbXML



EA Workflow Process

Energy Analysis Process

How?

When?

Who?

Now What?

Output & Documentation

Resources

<https://insight360.autodesk.com/oneenergy>

Getting Started Guide

http://forums.autodesk.com/autodesk/attachments/autodesk/19/366/1/Insight%20GSG_0306.pdf

<http://blogs.autodesk.com/insight360/>

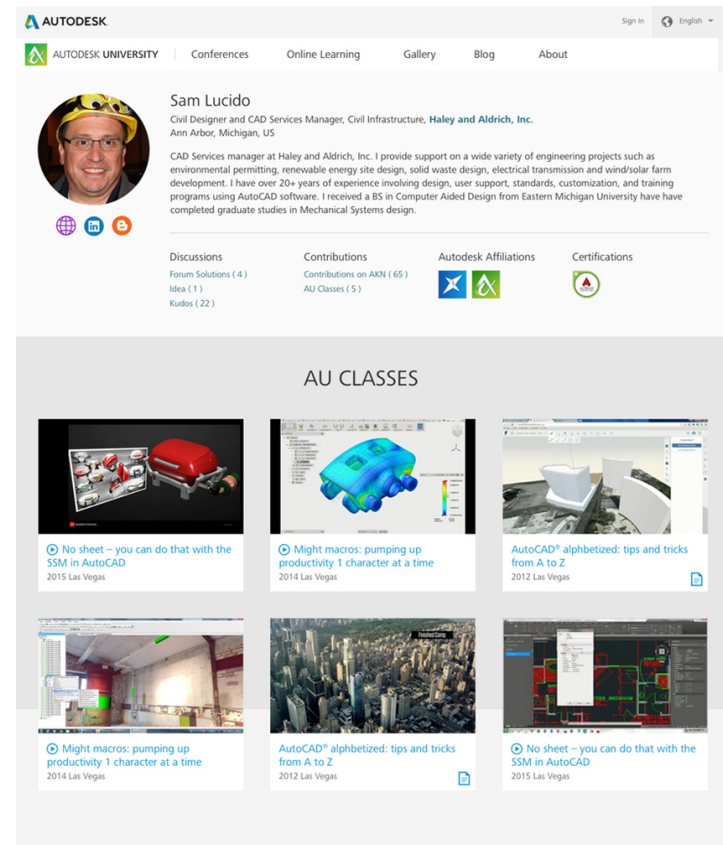
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- Your class feedback is critical. Fill out a **class survey** now.
- Use the AU mobile app or fill out a class survey online.
- Give feedback after each session.
- AU speakers will get feedback in real-time.
- **Your feedback results in better classes and a better AU experience.**



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- Complete your profile while at AU Las Vegas and Autodesk will make a donation on your behalf.



The screenshot shows the Autodesk University profile page for Sam Lucido. The page header includes the Autodesk logo and navigation links for Conferences, Online Learning, Gallery, Blog, and About. The profile section features a photo of Sam Lucido, his name, and his title: Civil Designer and CAD Services Manager, Civil Infrastructure, Haley and Aldrich, Inc., Ann Arbor, Michigan, US. Below the photo are social media icons for LinkedIn, Facebook, and Twitter. The profile also lists contributions: Forum Solutions (4), Idea (1), Kudos (22), Contributions on AKN (65), and AU Classes (5). There are also links for Autodesk Affiliations and Certifications. The main section is titled 'AU CLASSES' and displays a grid of six class thumbnails. Each thumbnail includes a title, a brief description, and the year of the conference where it was presented.

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Sam Lucido
Civil Designer and CAD Services Manager, Civil Infrastructure, **Haley and Aldrich, Inc.**
Ann Arbor, Michigan, US

CAD Services manager at Haley and Aldrich, Inc. I provide support on a wide variety of engineering projects such as environmental permitting, renewable energy site design, solid waste design, electrical transmission and wind/solar farm development. I have over 20+ years of experience involving design, user support, standards, customization, and training programs using AutoCAD software. I received a BS in Computer Aided Design from Eastern Michigan University have have completed graduate studies in Mechanical Systems design.

Discussions
Forum Solutions (4)
Idea (1)
Kudos (22)

Contributions
Contributions on AKN (65)
AU Classes (5)

Autodesk Affiliations
Certifications

AU CLASSES

- No sheet – you can do that with the SSM in AutoCAD
2015 Las Vegas
- Might macros: pumping up productivity 1 character at a time
2014 Las Vegas
- AutoCAD® alphabetized: tips and tricks from A to Z
2012 Las Vegas
- Might macros: pumping up productivity 1 character at a time
2014 Las Vegas
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