Welcome BPMs into the BIM Party: Building Product Manufacturers in the BIM Workflow

Jim Conger

BIM / Specification Specialist www.linkedin.com/in/BIMJim

Rosanne Siegal, LEED AP

Sweets Northeast Territory Manager www.linkedin.com/in/rosiethereviter

Justin James (JJ)

CEO – REACH Consulting Ltd.

www.linkedin.com/in/jjamesreach





Introductions



Class summary

BIM, or Building Information Modeling, has become the norm in building design and as we get better at building these models, we are starting to add more of the "I" into our models to achieve the true vision of the BIM Theory. We will discuss methods/tools for including the product experts into our workflow and the benefits of including this "I"nformation.



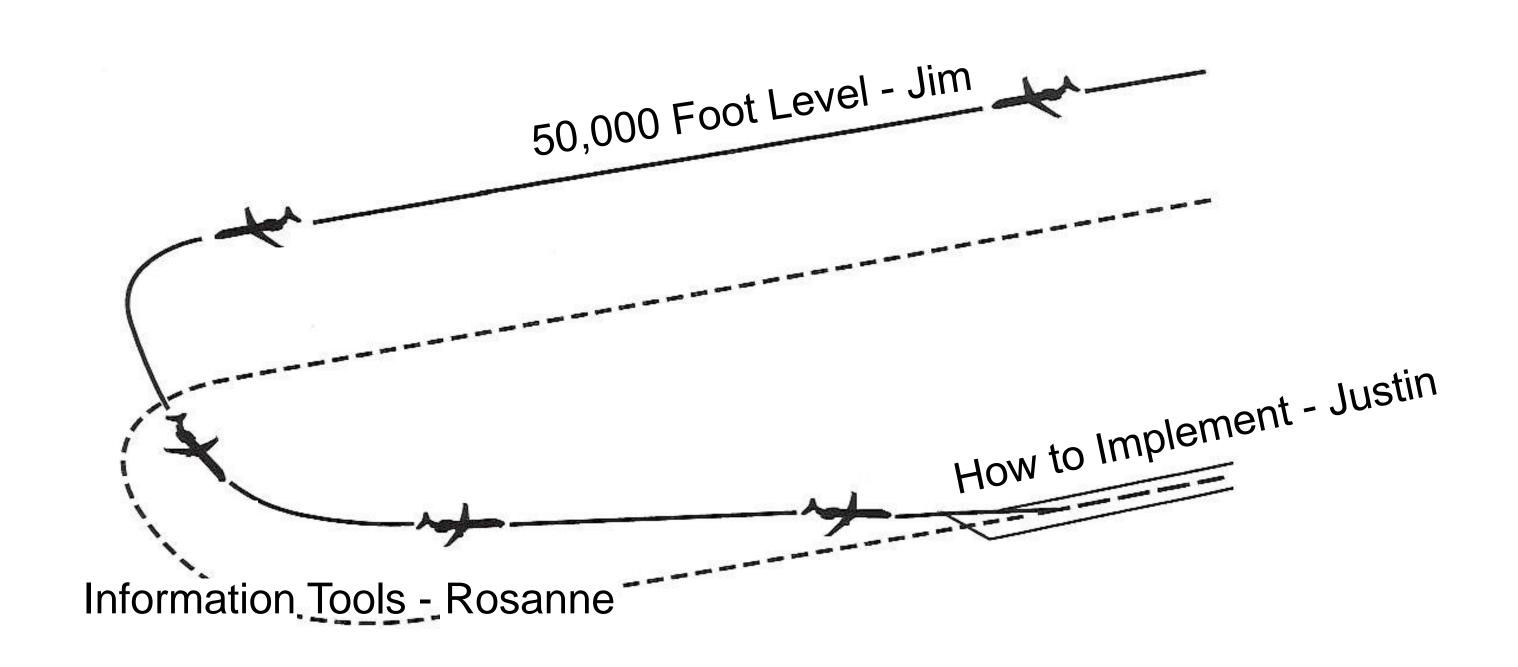
Key learning objectives

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

- Understand the importance of "I"nformation in BIM.
- Effectively present your products to the design build team.
- Incorporate specific manufacturer information into virtual design while staying efficient.
- Determine when to incorporate BPM data into the project model.
- Aid communications between the design team and the product experts.
- Increase the chances that your design intent makes it to the jobsite.



Class structure and flow







BIM and Revit... WHY?

BIM Theory & BIM

 Building Information Modeling Theory is a workflow methodology that helps us take ideas that we have in our heads and turn them into the structures and facilities that we live and work in.







BIM, at its most basic level...

- How do we get from point A (idea) to B (building)?
- Revit in its simplest form is just a communication device.
- It allows us to communicate our design intent.

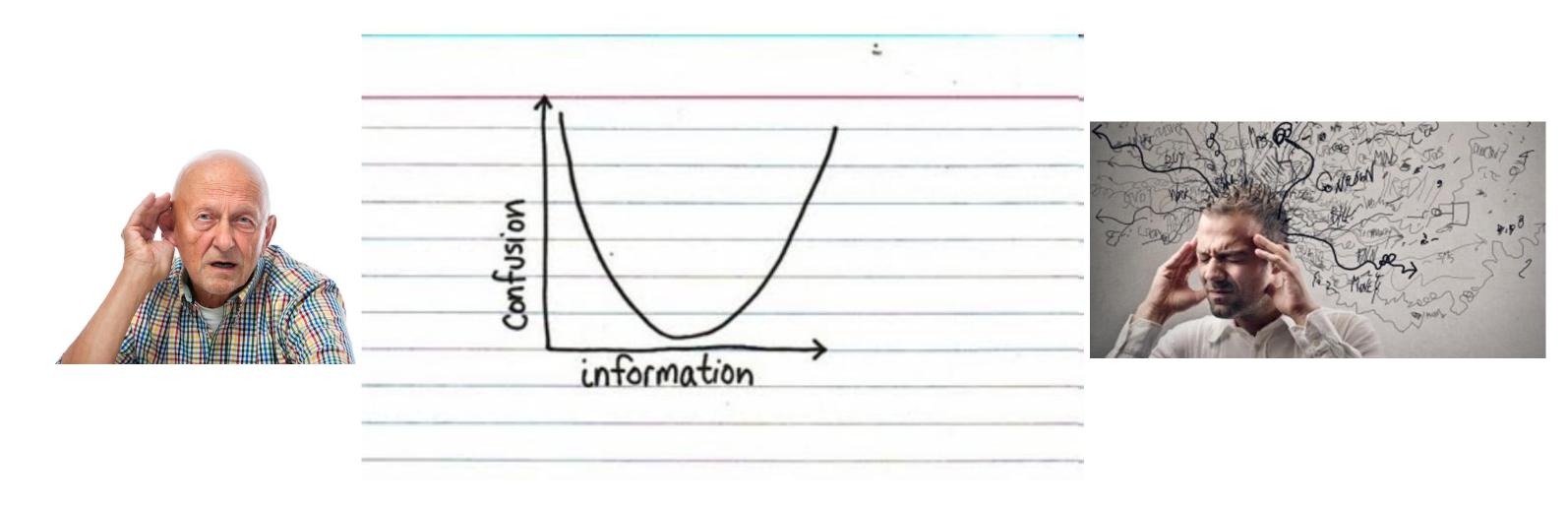






BIM, as an effective communication tool...

- In order for us to communicate effectively, we must balance the amount of information we transmit...
 - too much information and the data becomes confusing...
 - too little and our intent of the design isn't clearly conveyed.





What we can communicate via BIM

- Design Intent
- Demolition Instruction
- Construction Instruction
- Building Product Information
- Installation Information
- Operation Information
- Maintenance Information
- End of Life Information
- And more!

Five Top-Rated Positive Impacts of BIM

(According to the Percentage of High or Very High Impact Ratings by Type of Respondent)

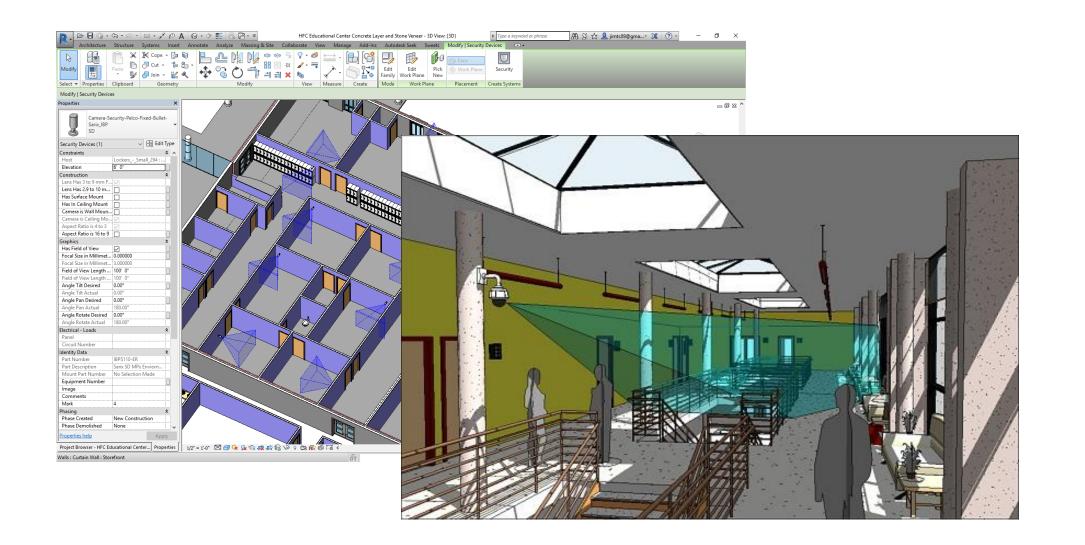
Dodge Data & Analytics, 2015

	Respondent Type	% Rating High or Very High
Improved Constructability of Final Design	Contractors	74%
Increased Owners' Understanding of Proposed Design Solutions	0wners	73%
Improved Quality/ Function of Final Design	Engineers	71%
Generated Better Construction Documents	0wners	70%
Improved Ability to Plan Construction Phasing and Logistics	0wners	70%



But really, why BIM?

The more information we have, the better decisions we can make.



BIM Impact on Unplanned Changes, Rework and Out-of-Sequence Work (According to Owners and Contractors)

Dodge Data & Analytics, 2015



Increased Predictability/Fewer Unplanned Changes

Owners

23%	35%	25%	83%

Contractors

Reduced Rework

0wners

20%	33%	23%	76%
Contractors			

Contractors

Reduced Amount of Out-of-Sequence Work Due to Earlier Problems

Owners

18%	30%	30%	78%			
Contractors						
9% 36	5%	38%	83%			



What are the Models being are being utilized for...

- Schematic Planning
- Design and Construction Documents
- Construction Detailing
- Predictive Building Analysis
- Renderings / Visualization
- Material Take-offs / Element Quantities / Bidding
- Fabrication / Pre-Fabrication
- Construction Time-lining
- Construction (Clash) Coordination
- Installation Coordination
- Facilities Maintenance

How does **BIM purpose** or **Intent of Use** affect how much "I" we put into our models?





Increased "I"nformation enables:

SCRATCH POINT RESEARCH -EXISTING CONDITIONS -REGULATIONS -WEATHER SIMULATIONS

IMPLEMENTATION

-CONSULTING -BIM EXECUTION PLAN -SERVER REPOSITORY -SOFTWARE

SUN ORIENTATION -FUNCTIONAL PROGRAM

CONCEPT DESIGN

-STRATEGIES -AREA ESTIMATION -COST ESTIMATION GENERAL VOLUMETRY -ACCESIBILITY -VIABILITY

VECTOR



PRODUCTION

2D DRAWINGS DOCUMENTATION VIEWS AND PLANS

IMPLEMENTATION

PROGRAMMING -PARAMETERIZATION FILE MANAGEMENT COMMUNICATIONS

DS DEVELOPMENT

-ROOM DATA SHEETS -LIST OF DELIVERABLES -SCOPE DEFINITION -MATERIALS STRUCTURAL LOADS **ENERGY LOADS**

SUSTAINABILITY -LIFE CYCLE ESTIMATION CONSTRUCTION SOLUTIONS PRIMARY MEP SYSTEMS ENERGY PRODUCTION CERTIFICATION STRATEGIES

SHAPE



REPRESENTATION

RENDERINGS WALKTHROUGHS LASER SCANNING

IMPLEMENTATION

BIM OBJECT CREATION VISUAL PROGRAMMING CLASH DETECTION MODELCHECKER

FINAL DOCS

DETAILED DESIGN ASSEMBLIES STRUCTURAL DESIGN MEP DESIGN -SPECIFICATIONS

SUSTAINABILITY INSOLATION VALUES

SUN PROTECTION -DAYLIGHT REQUIREMENTS

TIME



PRODUCTION

-MODEL FEDERATION -VIRTUAL CONSTRUCTION -SCHEDULING PROJECT PHASING -CONSTRUCTION PLANNING -EQUIPMENT DELIVERIES -VIBUAL VALIDATION

SYSTEMS

PREFABRICATION STRUCTURAL CONSTRUCTION MEP CONSTRUCTION

SIMULATIONS

-LIFE CYCLE SIMULATION
-SUN SIMULATIONS
-WIND SIMULATIONS
-ENERGY SIMULATIONS
-CERTIFICATION CHECK



PRODUCTION

-QUANTITY EXTRACTIONS -DETAILED BILL OF QUANTITIES FABRICATION MODELS

CONTRACTS

-FEES COMPARISON TRADE SELECTION -LOGISTICS

SUSTAINABILITY CERTIFICATION EVALUATION

-LIFE CYCLE COST COMPARATIVE STUDY

PERFORMANCE



RESULTS

KNOWN ALTERNATIVES CERTIFICATION AUDITED BIM MODEL PERFORMANCE REPORT

VALUE

ENGINEERING SIMULATIONS

ENERGY PERFORMANCE SYSTEMS PERFORMCE ARCHITECTURAL PERFORMANCE CONSTRUCTION PERFORMOE

SAVE ESTIMATION

COMPARATIVE COST CONSTRUCTION BENEFITS RETURN ON INVESTIMENT TIMING RISK SELECTED ITEMS TO BE OPTIMIZED

RE-DESIGN CERTIFIED BIM MODEL

Facilities Maintenance

IMAGE COURTESY OF BIM6D.ES

Audience questions: (ponder deeply...)

- To what level are you "I"nformation enabling your BIM Models?
- How much of your "I"nformation relies on accurate data?
- Do you consider product data critical to enabling an intelligent BIM model?
- If you don't have product data, to what extent can you achieve 4D, 5D, 6D, 7D?



Audience realization: (ponder deeply...)

 By now it's probably clicking that we're encouraging you to use BIM to capture, carry and communicate Product Data...

And you're thinking, no way, too much work...

WE GET IT!



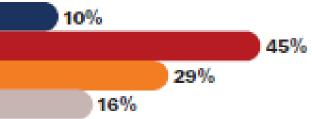
But remember all the cool Benefits of BIM?

- Improved constructability of the final design
 - 74% contractors
 - 68% owners
 - 64% architects
- Owner Benefits
 - 73% better ability to understand the design
 - 70% better construction documents
 - 70% improved plan construction, phasing, logistics
- Additional Benefits
 - 74% AEC/O see at least a 5% reduction in RFIs, with 44% reporting 10%
 - 41% contractors say BIM reduced final construction costs by at least 5%
 - 87% of O/C report a percentage of improved labor productivity

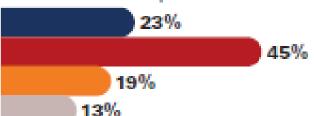
Metrics for the Impact of BIM on Cost, Schedule, RFIs and Safety (Among Those Rating Medium or Higher BIM Impact on These Outcomes) Dodge Data & Analytics, 2015



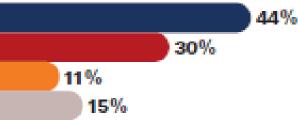




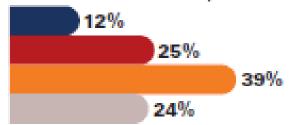








Reduction in Number of Reportable Safety Incidents







You're not alone...

What is the right amount of information, at what stage, for which party?



IMAGE COURTESY OF Autodesk Seek

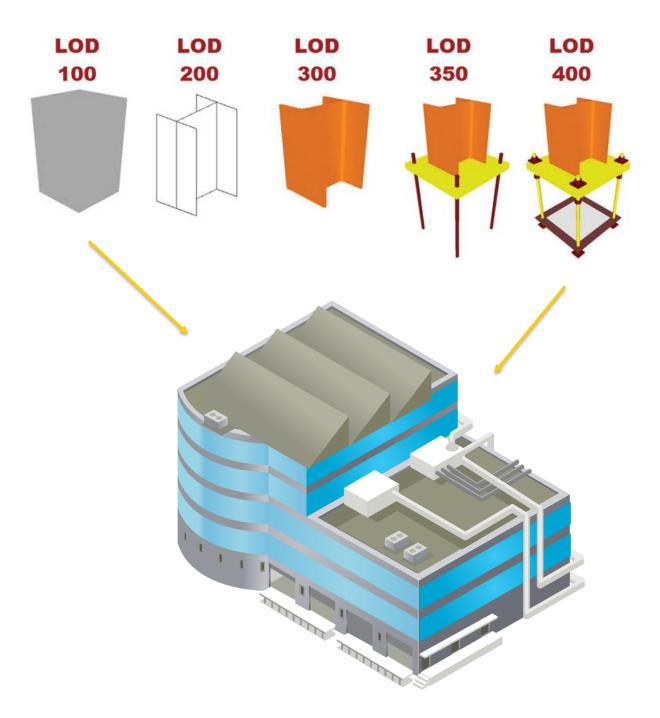




"I"nformation in practice...

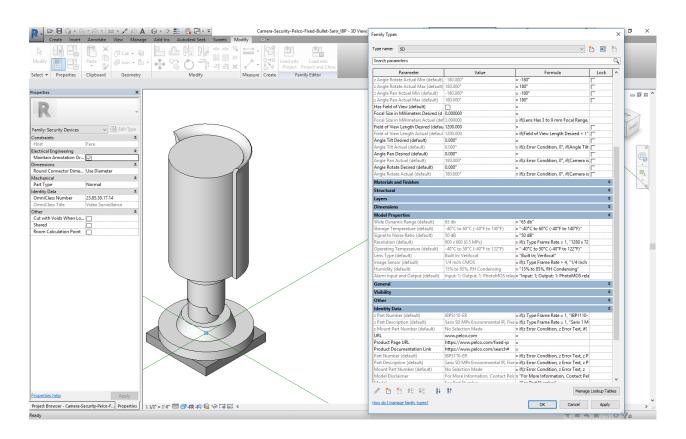
ACHIEVING the right amount of information, at each stage, for each party.

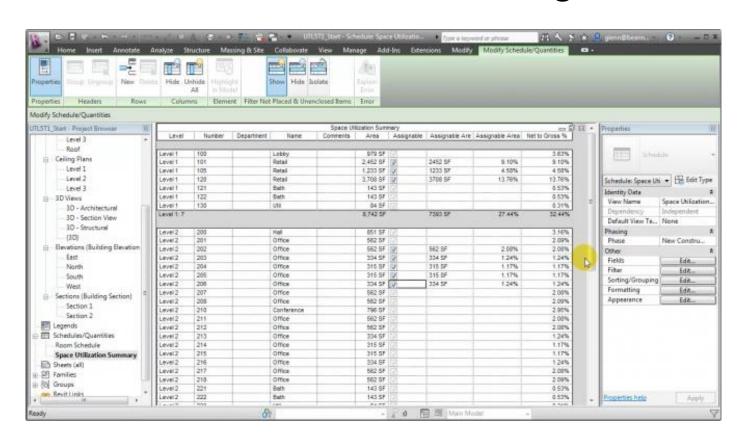
- Building Content Summit bringing together the foremost thinking BIM Managers and Building Product Manufacturers to solve the problem:
 - How much BIM, When, Who, How
- Architects, Engineers, BIM Managers BIM Goals:
 - Keep models lightweight
 - Keep graphic standards in sync
 - Zero to little learning curve
 - Request: increase LOD in Revit family as the project design progresses
- Building Product Manufacturer (BPM) Goals:
 - Get away from selling and instead, provide a design service and be a partner in design
 - Speed up delivery timeframes, and product accuracy



BIM - Better, Faster, Easier

- Adding information to our models takes time and effort.
- We are at a stage of BIM adoption where efficiency tools are becoming vital.
- Top manufactures understand that their design customers need help and are creating families and tools to make it easier for us to build meaningful models.







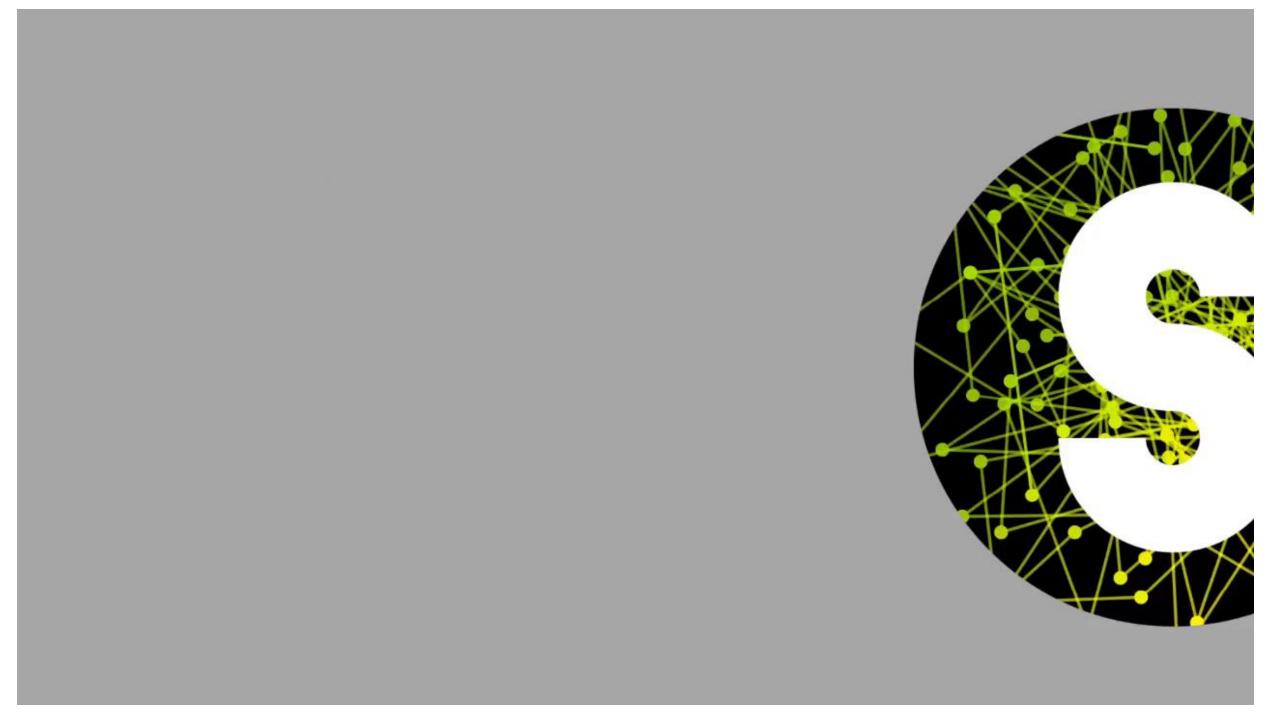
Revit Apps for Efficiency

- Basis of Design Design Intent
- General Building Product Family Platforms
- Product Configurators
- Manufacturer Revit Apps

"I"nformation in BIM means <u>so much more</u> than simply using a Manufacturer's Revit family.



Basis of Design: Sweets app for Revit





Family Sources: Autodesk Seek and the Autodesk Seek app for Revit









Building Product Manufacturer Apps:

ASSA ABLOY Opening Studio



NuBIM Vulcraft Add-in



SPECIFYING JOIST AND DECK IS EASIER THAN EVER

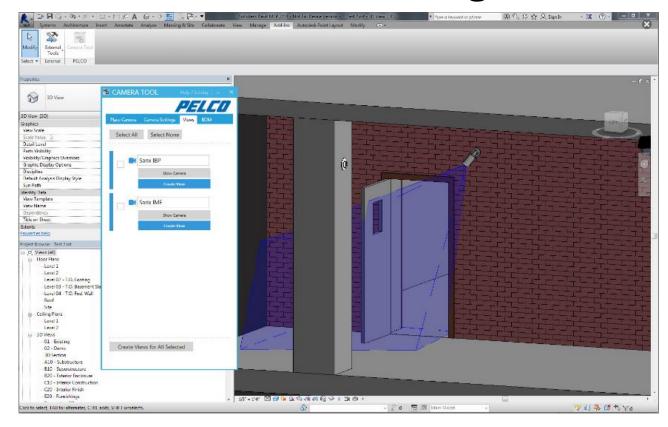
NUBIM® VULCRAFT ADD-IN FOR REVIT® SOFTWARE

AVAILABLE ONLY FROM VULCRAFT

VULCRAFT/VERCO GROUP'S NUBIM® ADD-IN FOR REVIT® 2017 IS NOW AVAILABLE.

The new version available exclusively from Vulcraft/Verco Group includes improved joist and deck families with added functionality. An improved user interface to aid in specifying joists and deck to a BIM Level of Development (LOD) of 300, thus keeping the model and drawings more in sync.

Pelco or Axis Camera Plugin for Revit



RSVP to the BIM Party

- BPMs want to make your work/life in BIM easier, while facilitating valuable conversations and saving you money and time.
- Think about your everyday workflow, and what could improve if a manufacturer provided BIM content to you, or created an app that helps you avoid hours of manual labor.
- Reach out to a BPM or to us, we'll help facilitate those conversations while helping you achieve the I in BIM easier, faster. All you have to do is ask.







Clean and Lean content:

Smaller model size = decrease in sync times = increase to production speed = Leverage!









Leverage TIME = MONEY









Leverage TIME = MONEY







Leverage TIME = MONEY





How did we do?

- 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.







More Questions? Contact Me

Jim Conger Jim.Conger@Construction.com 949-228-2129 www.linkedin.com/in/BIMJim

Justin James

jjames@reach-consulting.ca

780-993-4580

www.linkedin.com/in/jjamesreach

Rosanne Siegal Rosanne.Siegal@Construction.com

www.linkedin.com/in/rosiethereviter









Autodesk is a registered trademark of Autodesk, Inc., and/or its subsidiaries and/or affiliates in the USA and/or other countries. All other brand names, or trademarks belong to their respective holders. Autodesk reserves the right to alter product and services offerings, and specifications and pricing at any time without notice, and is not responsible for typographical or graphical errors that may appear in this document. © 2016 Autodesk, Inc. All rights reserved.