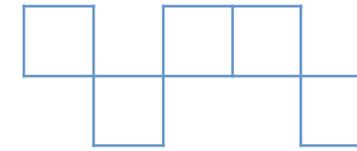




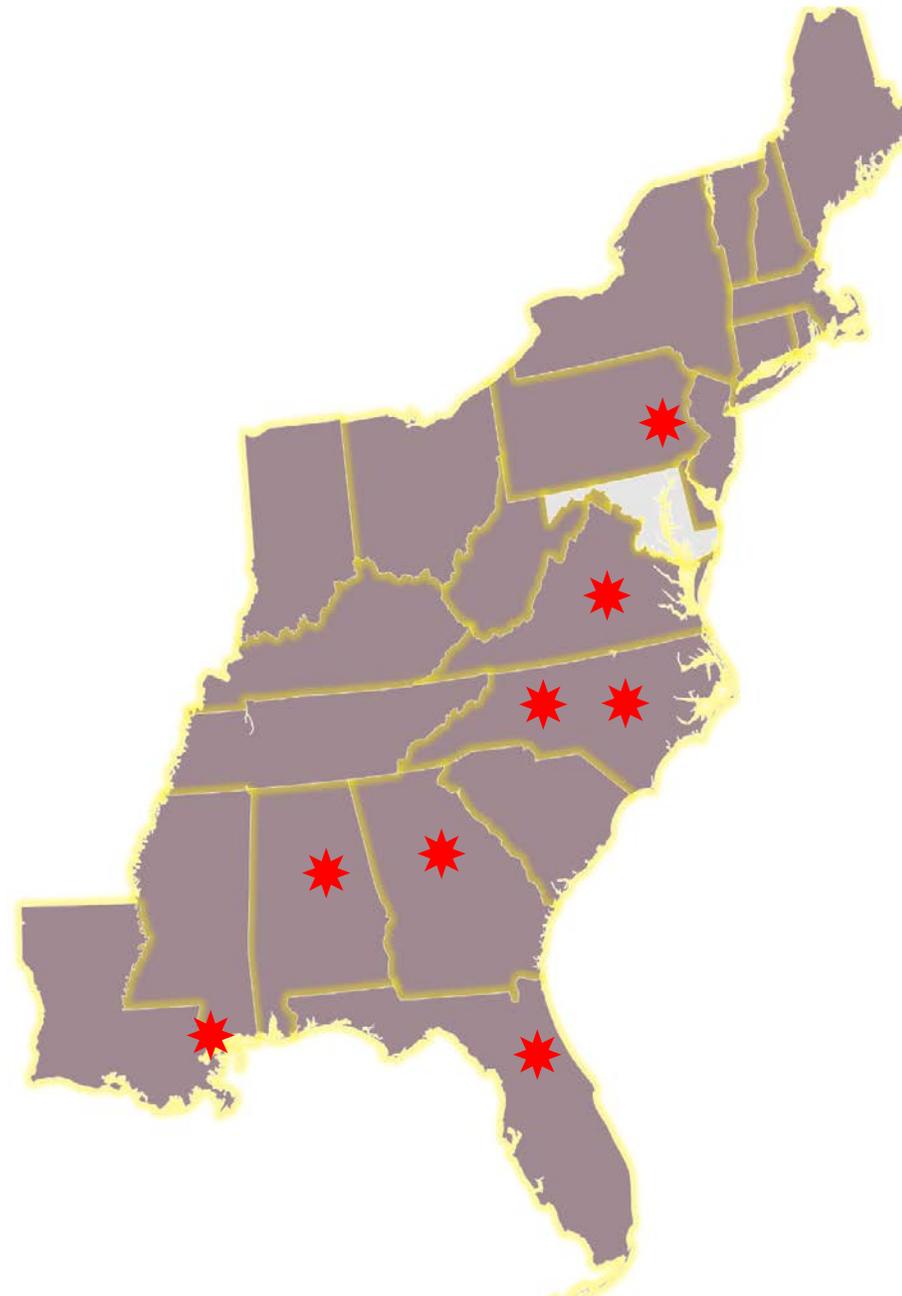
Next Gen Revit Families for Laboratory Prototyping

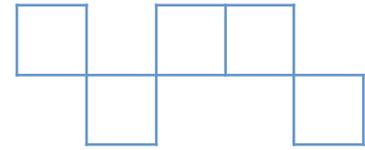




Who we are:

- ❑ Family Started Business 1983
- ❑ CEO & Founder, Jon Nystom
- ❑ 40 Years in Laboratory Casework / Millwork Market
- ❑ Construction Based Company with a Design Assist wing
- ❑ Excellent D&B Rating
- ❑ Annual Revenue: \$170 m +
- ❑ Experience Mod Factor: 0.73
- ❑ Large Bond Capacity
 - ❑ Excellent Rate: as low as 0.5



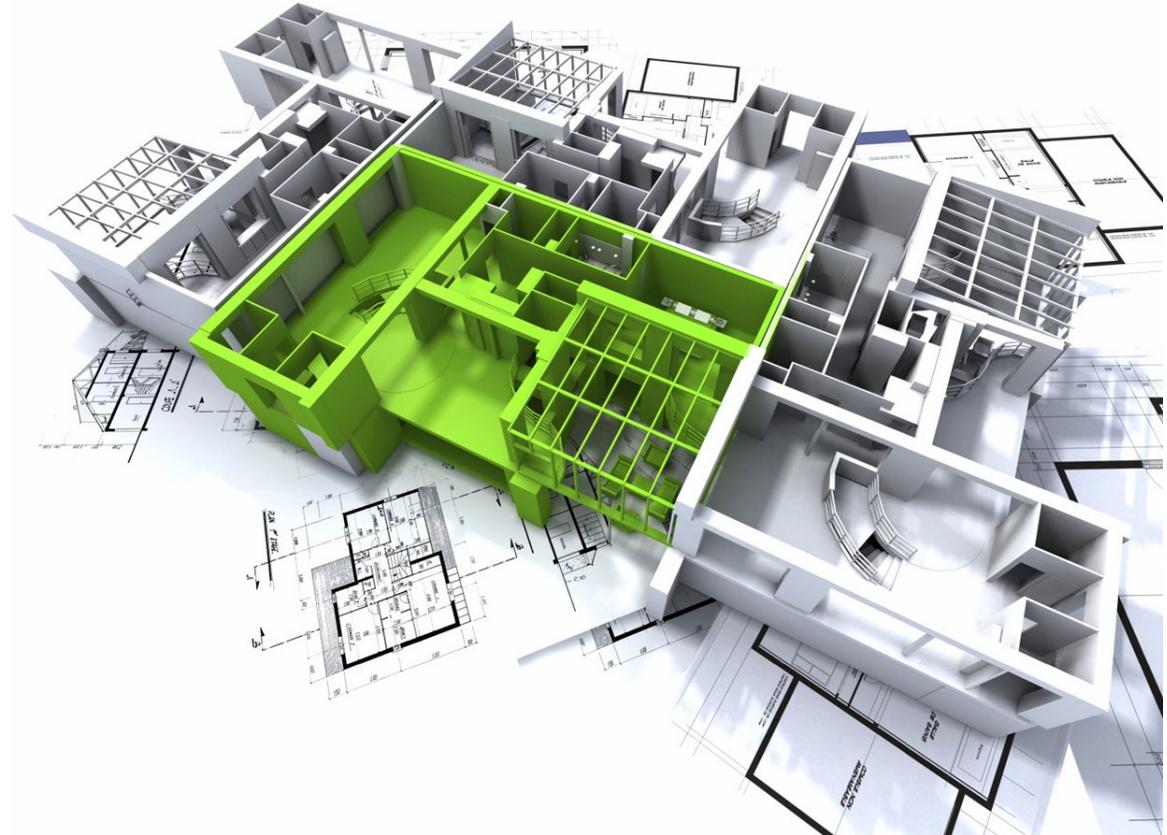


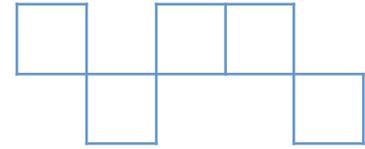
Pre-Construction aka **“SALES”**

- Computerized Budgeting
- Design & Planning
- CAD/BIM Layouts
- Value Engineering
 - Alternates & Options
- Specifications

Construction aka **“OPERATIONS”**

- In House Project Management
- Technical Support Staff
- Factory Certified Installers
- Field Operations Services
- Service Department (*post order*)





We Provide:

- ❑ Laboratory Casework
- ❑ Laboratory Equipment
- ❑ Plastic Laminate Casework
- ❑ Millwork Furnishings
- ❑ Specialties (Div 12)



Core Markets:

- ❑ Industrial
- ❑ Government
- ❑ Higher Education
- ❑ Research & Life-Science
- ❑ K-12
- ❑ Healthcare



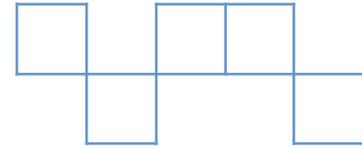
Learning Objective

- ❑ Foundations – Creating a Common Frame of BIM and Revit
- ❑ What is it? Kewaunee Lab REVIT
- ❑ How the Families are structured
- ❑ Use Cases: Clean Images and Data Exports
- ❑ Kewaunee Design System
- ❑ How it benefits you, your clients and your facilities

Foundations

- Everything has to start from a strong foundation.
- We wanted to start this presentation to you with all of us looking at Revit and BIM from the same frame.

What is REVIT/BIM



BIM = Building Information Modeling

Process of linking 3D models to create a model of a building

Used as a method of managing projects

REVIT = The software

Software to create BIM models

Creates the 3D models

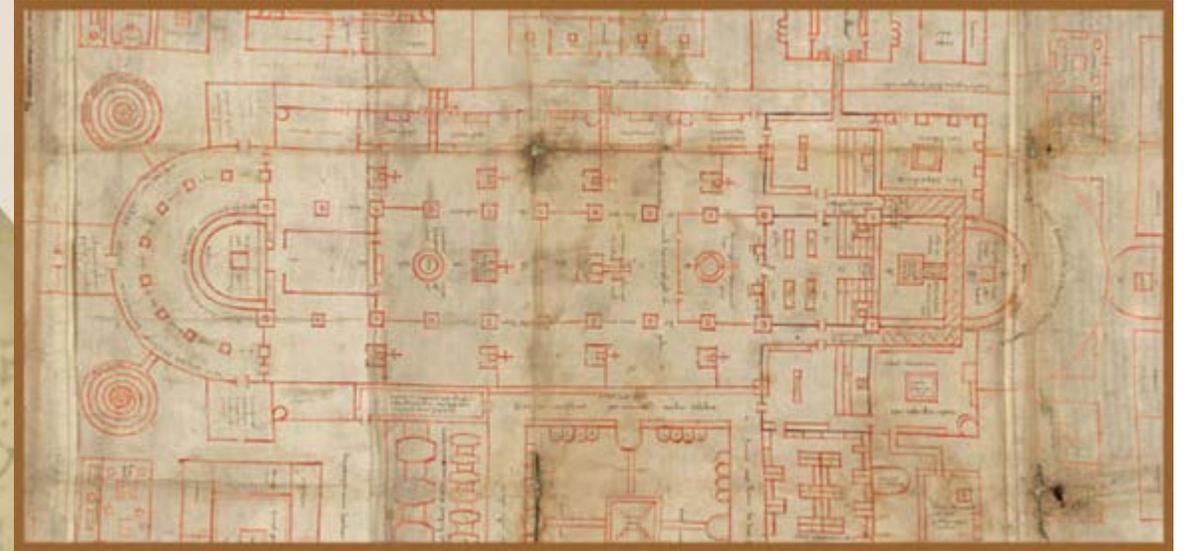
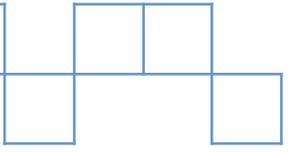


VS

BIM

BUILDING
INFORMATION
MODELING

Revit is a tool, just like a drafting table is a tool



Church of St.Gall –
Created 819 – 826 AD

Drafting the Paris Opera
House – 1861 - 1875

Technological Advancements

Ivan Sutherland – SketchPad 1963

John Walker – AutoCAD 1982

NOTE: 1000 YEARS OF TECHNOLOGICAL ADVANCEMENT AND WE WERE STILL DRAFTING THE SAME WAY



The Gods of Revit
Irwin Jungreis
Leonid Raiz

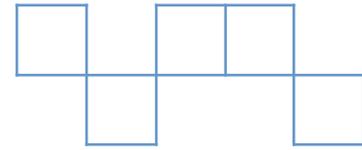
Along comes Revit

Leonid Raiz, Irwin Junfreis – Revit, 1997

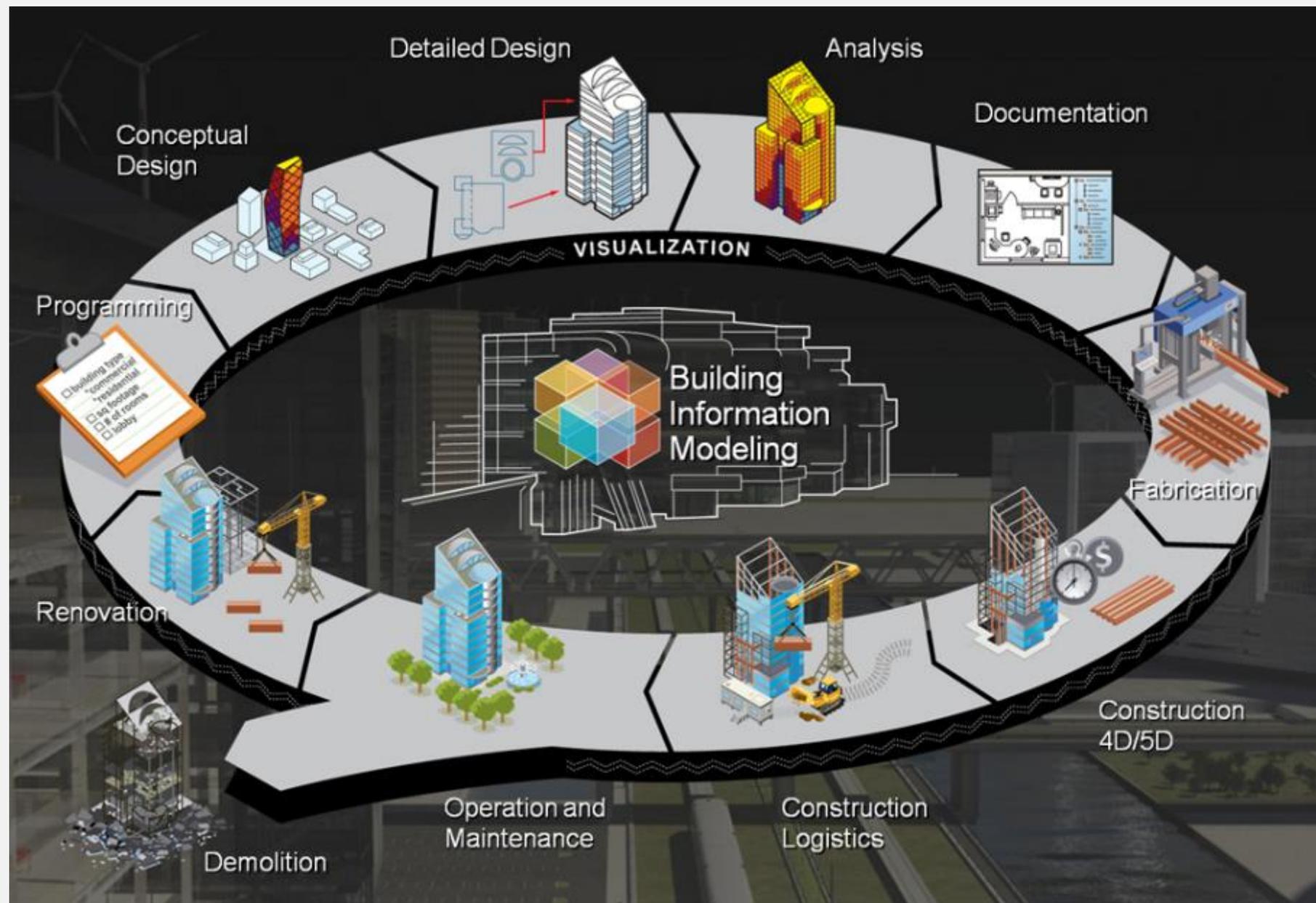
Initial Industry Families

- ❑ Too detailed
- ❑ Too large of file sizes
- ❑ Dimensional Inaccuracies
- ❑ Unreliable & many times unusable
- ❑ Required a manual to know how to use them.
- ❑ Poor families paired with the idea of front loading did a disservice to the industry.

Level of Development (LOD)



- LOD was developed by the American General Contractors to develop a means of describing the reliability of a model.
 - It is easy to tell a sketch from a hard-lined drawing, it is hard to tell the difference between a sketch model and a fabrication model.
 - LOD defines the reliability of a Family, not a project
- **LOD 100:** General Size, it's about 2'x2'
 - **LOD 200:** Refined Size, It's 2'x2' with three legs
 - **LOD 300:** Precise Geometry, it is a 1" thick 2'- 4 ¾" diameter disc with (3) 18" legs.
 - **LOD 350:** Precise Geometry that is sufficiently developed to support construction-level coordination.
 - **LOD 400:** Fabrication level Modeling, includes elements that are needed for fabrication and installation
 - **LOD 500:** Post installation, location verified, product information and maintenance data.



What are we showing you?

- A new approach to the Kewaunee Revit Family Library
- A new set of tools to support the Laboratory Design Community

Why did we invest

- ❑ Lab Industry needs it
- ❑ Kewaunee Value: Easier to do business with
- ❑ Nycom Value: Efficient processes supporting project delivery and ongoing maintenance
- ❑ The Architectural community deserves support from the manufacturers
- ❑ Need for fully assembled Lab Benches and Fume hoods Revit files
- ❑ Built for the future generation of users and their expectations

Built by



**Megan Johnson,
RA, CM-BIM**

**Architect turned BIM
Thought Leader**

**International Presenter,
Published writer,
University Professor,
experienced Architect
and BIM Manager**

← Experience

 **Director Of Technology**
NYCOM · Full-time
Oct 2020 - Present · 5 yrs 4 mos
Midlothian, Virginia, United States

- Oversaw the implementation of Revit at Nycom, developing templates and workflows for the Lab, Millwork, Plastic Laminate and Specialties product lines.
- Created Dynamo-based processes to enhance efficiency and establish a searchable database for trend analysis.
- Collaborated with Kewaunee to recreate their Revit Family Libraries, supporting Nycom's data-centric processes in the Lab Design Industry.
- Initiated the Millwork and Specialties Departments, fostering technology integration in Design Assist.

 **Owner**
DigitalBlue Design, LLC
Jun 2017 - Present · 8 yrs 8 mos
Richmond, Virginia

- Founded DigitalBlue Design, LLC to explore technology integration in architectural processes.
- Supported various organizations, including facility managers and general contractors, with BIM modeling and asset tracking.
- Provided Revit training to organizations across the region to improve their BIM efficiency.
- Transitioned focus to Nycom while ensuring continuity of service.

 **BIM Project Manager**
University of Virginia
Jun 2019 - Dec 2019 · 7 mos
Charlottesville, Virginia Area

- Structured the inaugural BIM Manager role to enhance project capabilities.
- Developed comprehensive file management and data integration processes.
- Collaborated with multidisciplinary teams to optimize BIM conditions at the University Hospital.

 **Senior Associate, Director of BIM**
Odell Architects
Aug 2013 - Jun 2019 · 5 yrs 11 mos
Richmond, VA

- Oversaw ODELL's BIM technologies, enhancing project efficiency and data management.
- Provided BIM Commissioning services and training to clients.
- Authored several BIM courses for LinkedIn Learning to reach a wider audience.

 **Adjunct Professor - Revit, AutoCAD, BIM**
Virginia Commonwealth University
Aug 2009 - Jun 2019 · 9 yrs 11 mos
Richmond, Virginia Area

Adjunct with VCU teaching a variety of courses with the Int

 **Revit Trainer / BIM Guru / BIM Manager**
Baskervill
May 2011 - Aug 2013 · 2 yrs 4 mos
Richmond, va

 **Architect**
Glave and Holmes
Aug 2006 - Mar 2011 · 4 yrs 8 mos

 **Intern**
Ligon Flynn Architects, PLLC
Aug 1999 - May 2004 · 4 yrs 10 mos

 **Intern**
DMA
2003 - 2004 · 1 yr

← Publications

Arch Exchange East 2025 -Next-Gen Revit Families for Laboratory Prototyping
Arch Exchange East - Presentation · Nov 6, 2025

[Show publication](#)

Explore how advanced, data-rich Revit families enable rapid prototyping, streamline workflows, and support prefabrication—using lab design as a case study with broadly applicable BIM strategies.

BIMForum 2015
BIM Commissioning: Collaboration in Data Management · Apr 28, 2015

International presentation focusing on the development of an effective digital life cycle by the integration of the needs of life safety management, medicare space management and BIM archival needs.

Journal of the National Institute of Building Sciences
BIM Commissioning: Collaboration in Data Management · Dec 1, 2014

[Show publication](#)

When paired with a project delivery process based on building information modeling (BIM), owners are able to utilize BIM commissioning to minimize risk by compartmentalizing the data collection aspects of BIM during construction. Using BIM commissioning agents to control and structure the data in a BIM promotes a stronger digital life cycle in a facility. The practical process is especially useful in high-renovation-prone healthcare facilities, particularly to support legacy database integration and future file reuse.

Global E Training 2014-2024 - BIM Courses
Global E Training · May 30, 2014

Worked with Global eTraining to develop their inaugural BIM training program, creating a series of courses that approached BIM from the perspectives of multiple stakeholders. In a rapidly evolving field, the courses remained relevant for over a decade.

New City Domesticity and the Tenacious Second Shift
Journal of Family Issues · Apr 1, 2008

[Show publication](#)

Despite social change, women still bear most domestic labor. The authors argue that suburban and modern urban design sustains the second shift by assuming and facilitating women's unpaid work rather than eliminating it.

BIM - Owner's Track
Central States Revit Workshop

Presented Owner's goal in BIM to Owner's, Architects, Engineers, and technologists at the Central States Revit Workshops in 2013 and asked to return in 2014 & 2015.

BIM from an Owner's Perspective
Presentation

Presentation provided to the Revit Users Group of Virginia 2013, Central States BIM Workshop 2013, Internal presentations provided to Virginia and Maryland area University level and Community College level Facility Directors 2012 - 2013

“Built with the A&E community in mind and consulted with some of the largest firms”

Open Revit

The screenshot displays the Autodesk Revit 2021 interface. The title bar indicates the file name: "Autodesk Revit 2021 - 02_Kewaunee Furne Hood Library - 3D View: 3D View of Fume Hoods". The ribbon is set to the "Modify" tab, with sub-tabs for "Select", "Properties", "Clipboard", "Geometry", "Modify", "View", "Measure", and "Create".

The Properties panel on the left shows the "3D View" settings for the current view. The "3D View: 3D View of Fume Hoods" view is selected. The "Graphics" section includes:

- View Scale: 1/8" = 1'-0"
- Scale Value: 1/86
- Detail Level: Medium
- Parts Visibility: Show Original
- Visibility/Graphics: Edit...
- Graphic Display Options: Edit...
- Discipline: Coordination
- Show Hidden Lines: By Discipline
- Default Analysis: None
- Sun Path:

The "Extents" section includes:

- Crop View:
- Crop Region Visible:
- Annotation Crop:
- Far Clip Active:
- Far Clip Offset: 1000' 0"
- Scope Box: None
- Section Box:

The "Camera" section includes:

- Rendering Settings: Edit...
- Locked Orientation:
- Projection Mode: Orthographic
- Eye Elevation: 165' 8 137/256"
- Target Elevation: 19' 2 165/256"
- Camera Position: Adjusting

The "Identity Data" section includes:

- View Template: <None>
- View Name: 3D View of Fume H...

The Project Browser on the right shows the project structure:

- Views (all)
- Floor Plans
 - 00_Fume Hood Library
 - Supreme Air Fume Hoods
 - Wenturi Fume Hoods
- 3D Views
 - 3D View of Fume Hoods**
 - Drafting Views (Detail)
 - START PAGE
- Legends
- Schedules/Quantities (all)
- Sheets (all)
- Families
 - Analytical Links
 - Annotation Symbols
 - Cable Trays
 - Casework
 - Ceilings
 - Conduits
 - Curtain Panels
 - Curtain Systems
 - Curtain Wall Mullions
 - Detail Items
 - Duct Systems
 - Ducts
 - Electrical Fixtures
 - Flex Ducts
 - Flex Pipes
 - Floors
 - Furniture
 - Generic Models
 - Pattern
 - Pipes
 - Plumbing Systems
 - Plumbing Fixtures
 - Profiles
 - Railings
 - Ramps

The main view area shows a 3D perspective view of a mechanical room layout. The room contains several fume hoods arranged in a grid. The view is rendered in a wireframe style with a light gray background. A small 3D view cube is visible in the top right corner of the view area.

The status bar at the bottom shows the current view is "3D View of Fume Hoods" and the model is "Main Model". The status bar also includes the text "Click to select, TAB for alternates, CTRL adds, SHIFT unselects." and "Editable Only".

How are the families structured?

- Tools should be simple & intuitive
- Each family system is designed on the same logic, once you understand one family you understand all the families.

Family

The screenshot displays the Revit Family Editor interface. The central 3D view shows a workstation assembly with a table, shelves, and vertical supports. The left-hand Properties panel is open to the 'Specialty Equipment' category, listing various parameters for the 'Enterprise 6in Blank Frame Service Fitting Assembly'. The right-hand Project Browser shows the current project structure, including views and families.

Open Adaptable Systems Library
Open a Revit Family

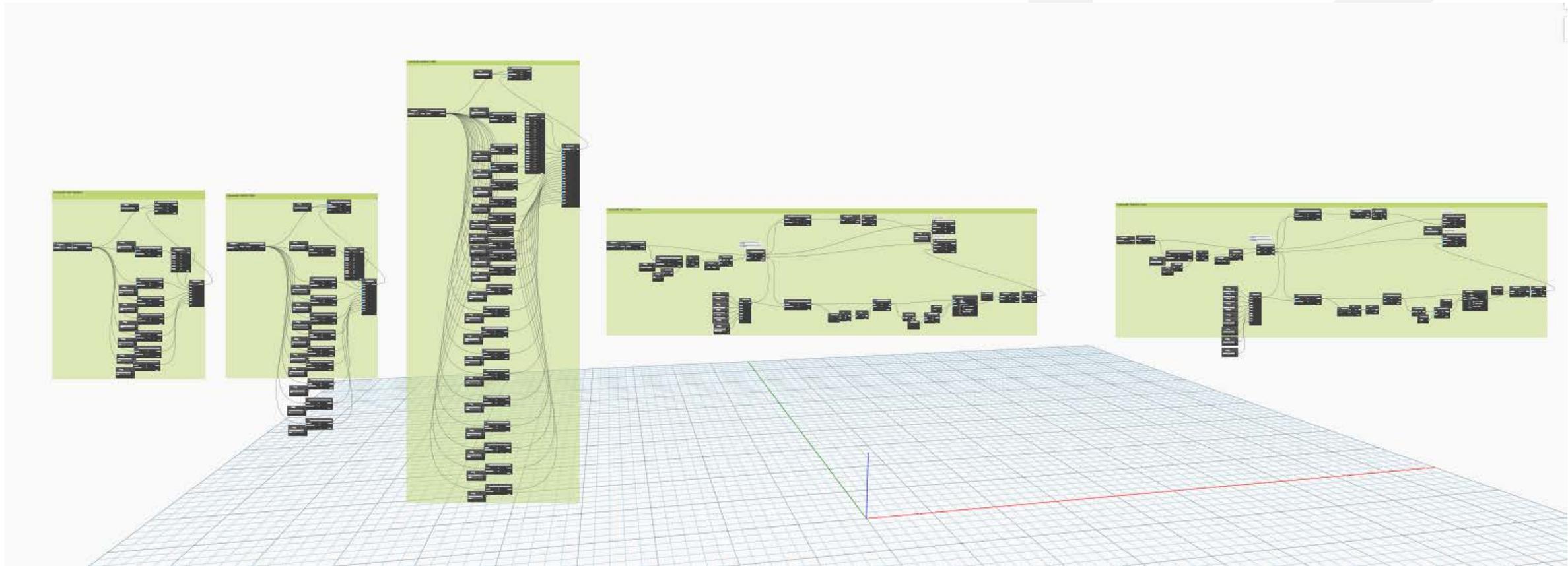
Parameter Name	Value / Status
SIDE_L_TOP HOSE VISIBILITY	Checked
Side L_Service Hose 1_PrePiped Installation	Checked
Side L_Service Hose 1_Braided Stainless Steel	Unchecked
Side L_Service Hose 1_Reinforced PVC	Checked
Side L_Service Hose 1_HColor_Black	Unchecked
Side L_Service Hose 1_HColor_Brown	Unchecked
Side L_Service Hose 1_HColor_Clear	Unchecked
Side L_Service Hose 1_HColor_Orange	Unchecked
Side L_Service Hose 1_HColor_White	Unchecked
Side L_Service Hose 1_HColor_Yellow	Checked
Side L_Top Hose_Length_03	Checked
Side L_Top Hose_Length_04	Unchecked
Side L_Top Hose_Length_05	Unchecked
Side L_Top Hose_Length_06	Unchecked
Side L_Top Hose_Length_08	Unchecked
Side L_Top_Service_Air	Checked
Side L_Top_Service_Argon	Unchecked
Side L_Top_Service_Gas	Unchecked
Side L_Top_Service_Nitrogen	Unchecked
Side L_Top_Service_Vacuum	Unchecked
Side L_Service Hose 1_OC Color_K1 Black_Helium	Unchecked
Side L_Service Hose 1_OC Color_K2 Orange_Air	Checked
Side L_Service Hose 1_OC Color_K3 Green_Water	Unchecked
Side L_Service Hose 1_OC Color_K4 Yellow_Vacuum	Unchecked
Side L_Service Hose 1_OC Color_K5 Blue_Gas	Unchecked
Side L_Service Hose 1_OC Color_K6 White	Unchecked
Side L_Service Hose 1_OC Color_K7 Purple_Argon	Unchecked
Side L_Service Hose 1_OC Color_K8 Brown_Nitrogen	Unchecked

Revit family - formulas

The image shows the Revit 2021 interface with the Family Types dialog box open. The dialog box is titled "Family Types" and shows the "Type name" as "ProAssembled Bench". It contains a table of parameters with their values and formulas. The "Hidden Line View" is visible in the background, showing a 3D model of a shelving unit with hidden lines. The Project Browser on the right shows the hierarchy of views and families.

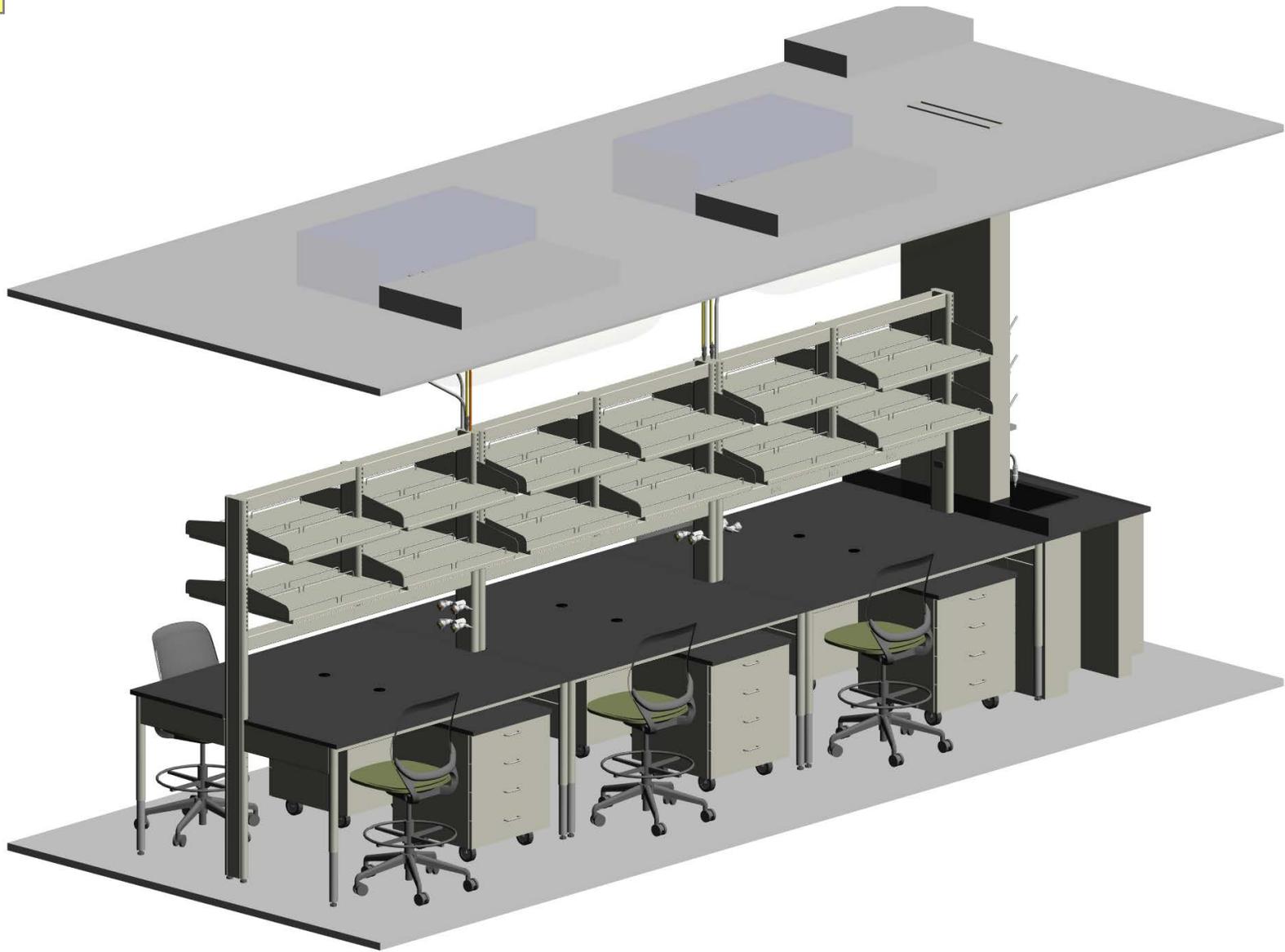
Parameter	Value	Formula	Lock
Countertop Depth_27in	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
Countertop Depth_30in	<input type="checkbox"/>	-	<input type="checkbox"/>
Countertop Depth_33in	<input type="checkbox"/>	-	<input type="checkbox"/>
Countertop Depth_36in	<input type="checkbox"/>	-	<input type="checkbox"/>
Countertop Height	36"	-	<input type="checkbox"/>
Text			
Arch_Assembly ID	ENT-BLANK-DOUB	-	<input type="checkbox"/>
Electrical			
Half Length Shelves	<input checked="" type="checkbox"/>	-	<input type="checkbox"/>
Half Length Shelf_30in	<input type="checkbox"/>	$\text{if}(\text{and}(\text{Half Length Shelves, Length}_60\text{in}, 0 < 1, 1 < 0))$	<input type="checkbox"/>
Half Length Shelf_36in	<input type="checkbox"/>	$\text{if}(\text{and}(\text{Half Length Shelves, Length}_72\text{in}, 0 < 1, 1 < 0))$	<input type="checkbox"/>
Dimensions			
Countertop Depth	27"	$\text{if}(\text{Countertop Depth}_24\text{in}, 24", \text{if}(\text{Countertop Depth}_27\text{in},$	<input type="checkbox"/>
Frame to Frame Length	57 41/64"	$\text{if}(\text{length}_42\text{in}, 59 41/64", \text{if}(\text{length}_48\text{in}, 45 41/64", \text{if}(\text{an}$	<input type="checkbox"/>
Identity Data			

Hidden Line View



Use Cases

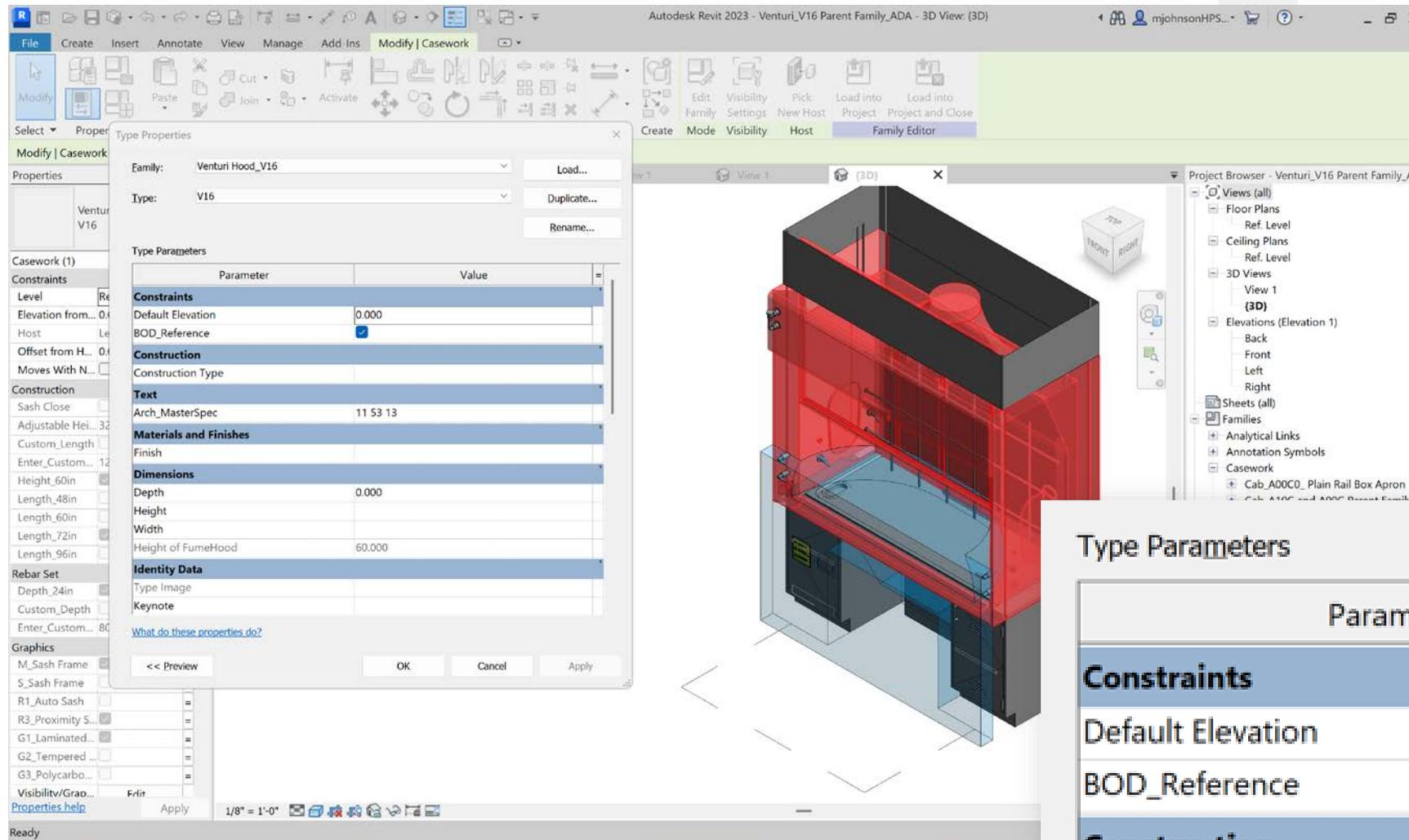
- What easy to use families can do for you
- What a clear digital structure can do for you



Beyond Drawings – Rendering, VR, 3dPDFs



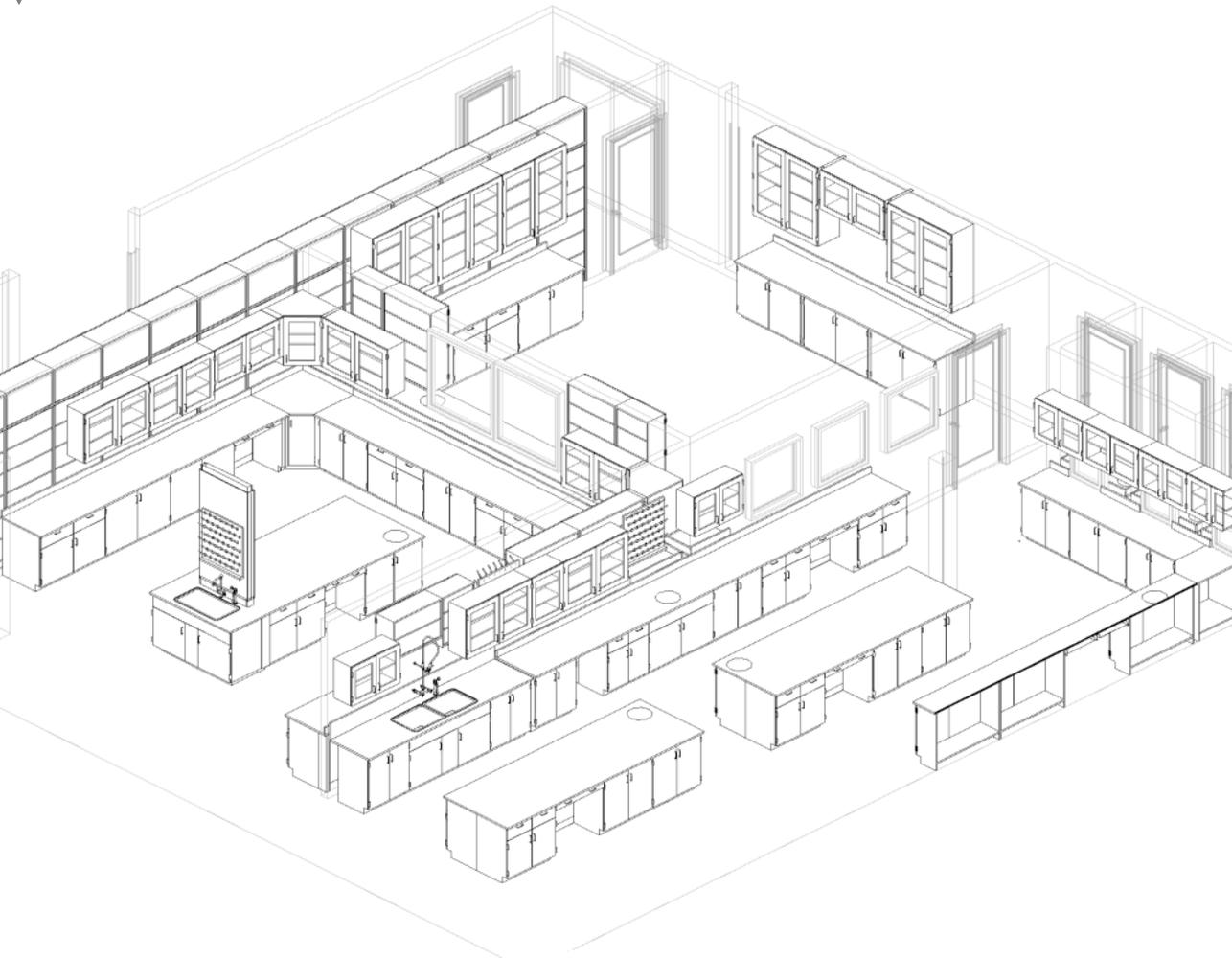
Designers – Basis of Design



Loading a manufacturer's Revit family for modeling or coordination purposes does not automatically mean you've selected that product, as long as your BOD defines functional requirements, and your documentation allows equivalent alternatives.

Type Parameters

Parameter	
Constraints	
Default Elevation	0.000
BOD_Reference	<input checked="" type="checkbox"/>
Construction	
Construction Type	

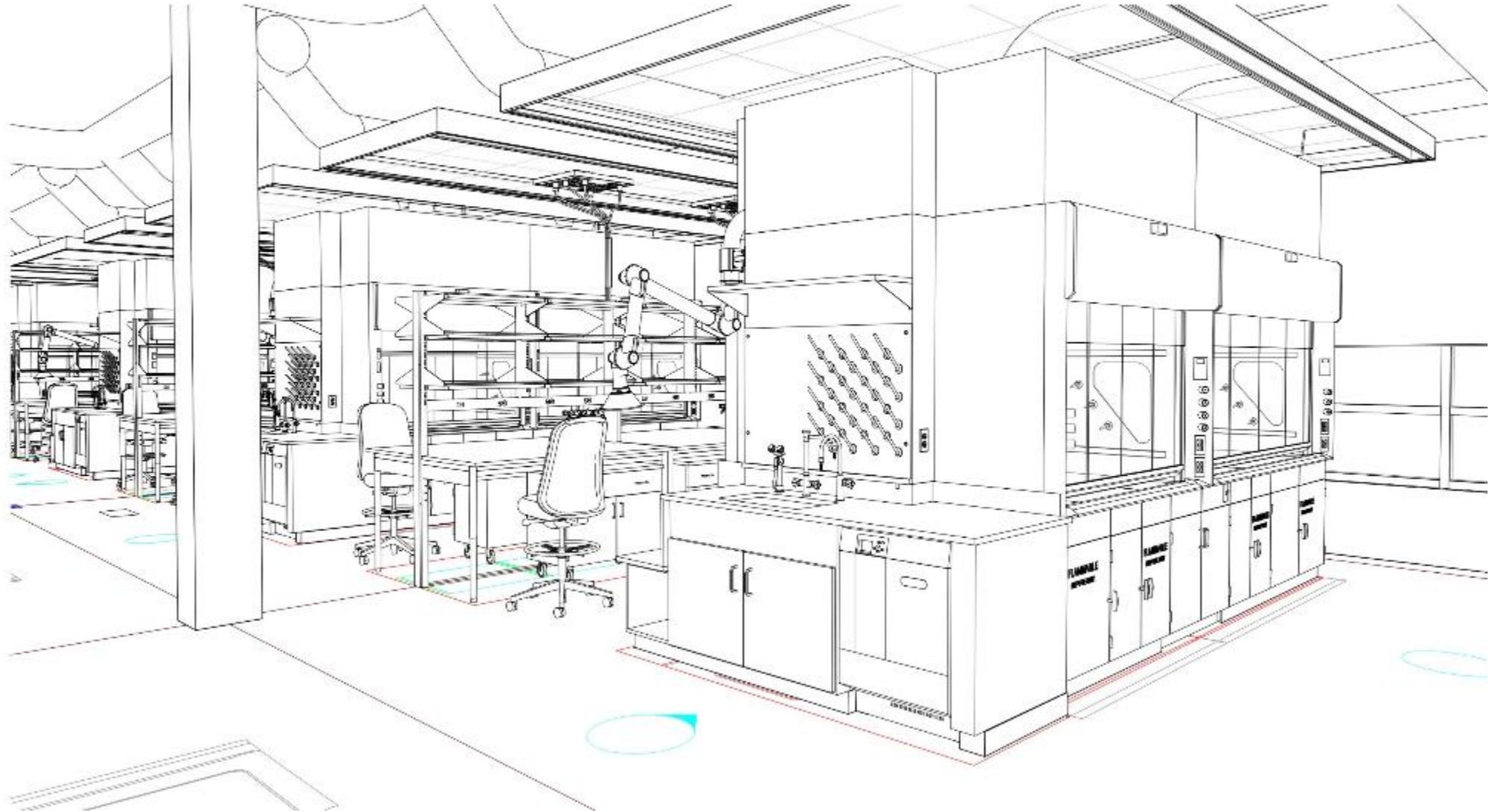
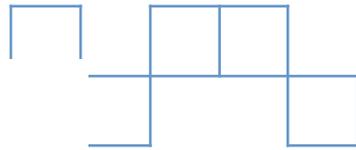


3	0061-B3-PT			RM 02/EL 01	1
1	BEAC350003N	1610		RM 02/EL 01	2
1	BESC350003N	0000		RM 02/EL 01	3
2	C03C352236D	1614		RM 02/EL 01	4
1	C03C352242D	1614		RM 02/EL 01	5
1	G14C352214R	1614		RM 02/EL 01	6
38	TKB-001		PT	RM 02/EL 01	7
1	A10C310048N	0000		RM 02/EL 02	8
1	A52C042248N	1614		RM 02/EL 02	9
1	BEAC350003N	1610		RM 02/EL 02	10
1	BESC350003N	0000		RM 02/EL 02	11
1	BRSC350006N	0000		RM 02/EL 02	12
2	C03C352248D	1614		RM 02/EL 02	13
1	G00C352248D	1614		RM 02/EL 02	14
1	RSC-UMSINK			RM 02/EL 02	15
47	TKB-001		PT	RM 02/EL 02	16
1	A10C310036N	0000		RM 02/EL 03	17
1	A51C042236N	1614		RM 02/EL 03	18
4	BRSC350006N	0000		RM 02/EL 03	19
1	C03C352230D	1614		RM 02/EL 03	20
1	C03C352236D	1614		RM 02/EL 03	21
1	E41C352230D	1614		RM 02/EL 03	22
2	E41C352236D	1614		RM 02/EL 03	23
1	G00C352248D	1614		RM 02/EL 03	24
1	RSC-UMSINK			RM 02/EL 03	25
66	TKB-001		PT	RM 02/EL 03	26
2	A10C310036N	0000		RM 02/EL 04	27
2	A51C042236N	1614		RM 02/EL 04	28
4	C03C352236D	1614		RM 02/EL 04	29
2	E41C352236D	1614		RM 02/EL 04	30
1	RSC-UMSINK			RM 02/EL 04	31
49	TKB-001		PT	RM 02/EL 04	32
2	A10C310036N	0000		RM 02/EL 05	33
1	A51C042236N	1614		RM 02/EL 05	34
1	C03C352236D	1614		RM 02/EL 05	35
1	E41C352236D	1614		RM 02/EL 05	36
1	RSC-UMSINK			RM 02/EL 05	37
1	RSC-UMSINK			RM 02/EL 05	38
1	RSC-UMSINK			RM 02/EL 06	39
1	RSC-UMSINK			RM T1/EL 07	40
1	RSC-UMSINK			RM T1/EL 07	41
1	RSC-UMSINK			RM T1/EL 07	42
1	RSC-UMSINK			RM T1/EL 07	43

Order Ready Files

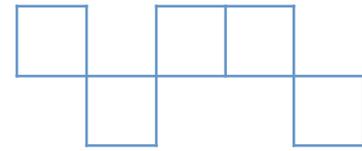


Drawing

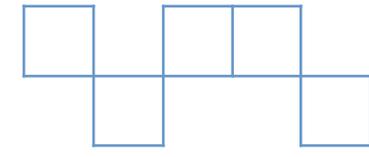




Rendering



 **R** **Actual**

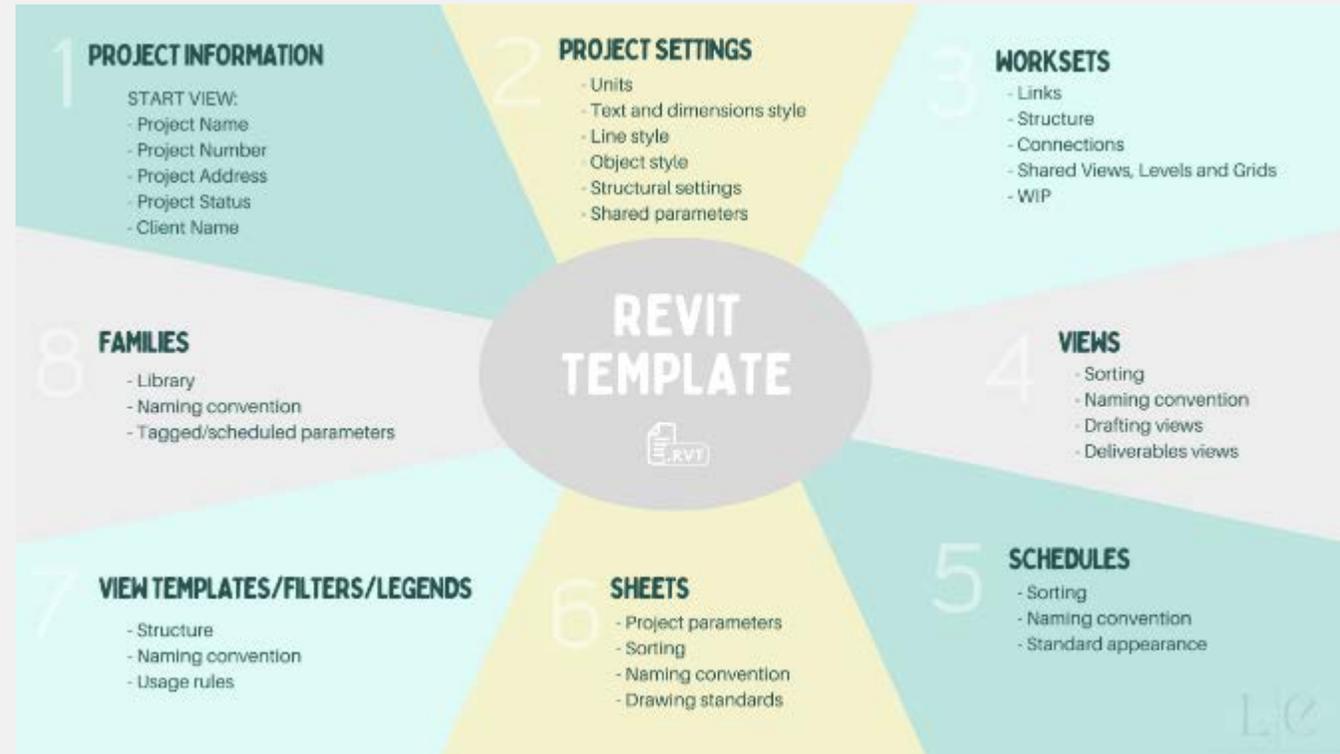


Kewanuee Design System

- How these families work to bridge design and fabrication

Kewaunee Lab Revit

- **New standard** of furniture REVIT files
- All files **work with one another** compared to combining different manufacture files
- **Order Ready** Files with KSC Lab Revit
- Integrated Kewaunee **Option Sets** represented graphically and by part number
- **Standardized Parts**

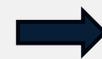


KSC Design System

Inspiration



Product Selection



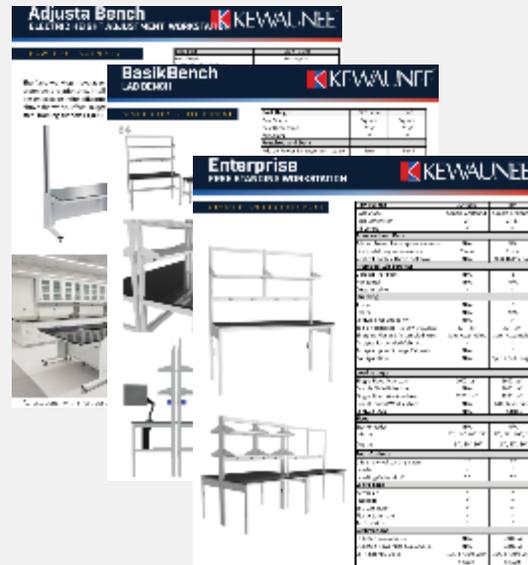
Product configuration



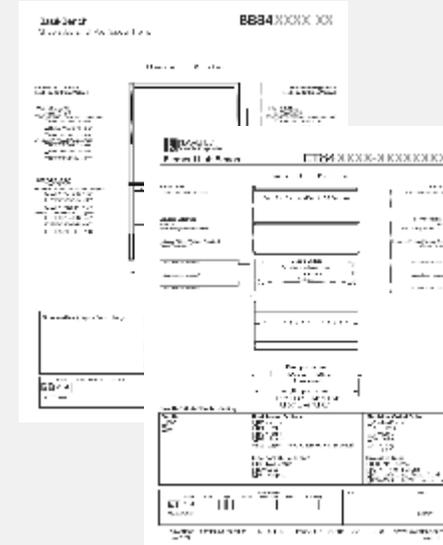
Build 3d Product



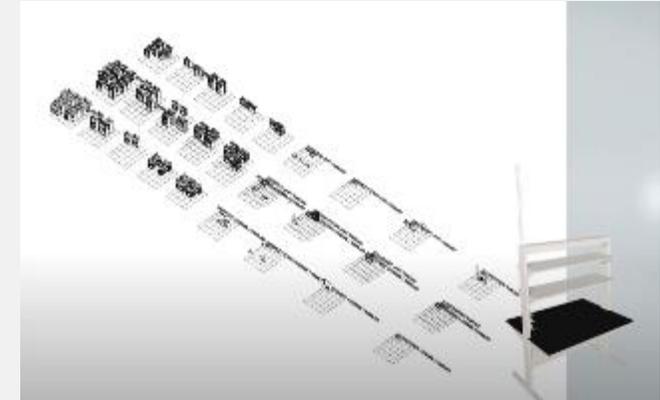
LOOKBOOK
Project photos



Product sheets
Product catalogs



Tech sheets



Kewaunee Lab Revit

How this benefits you

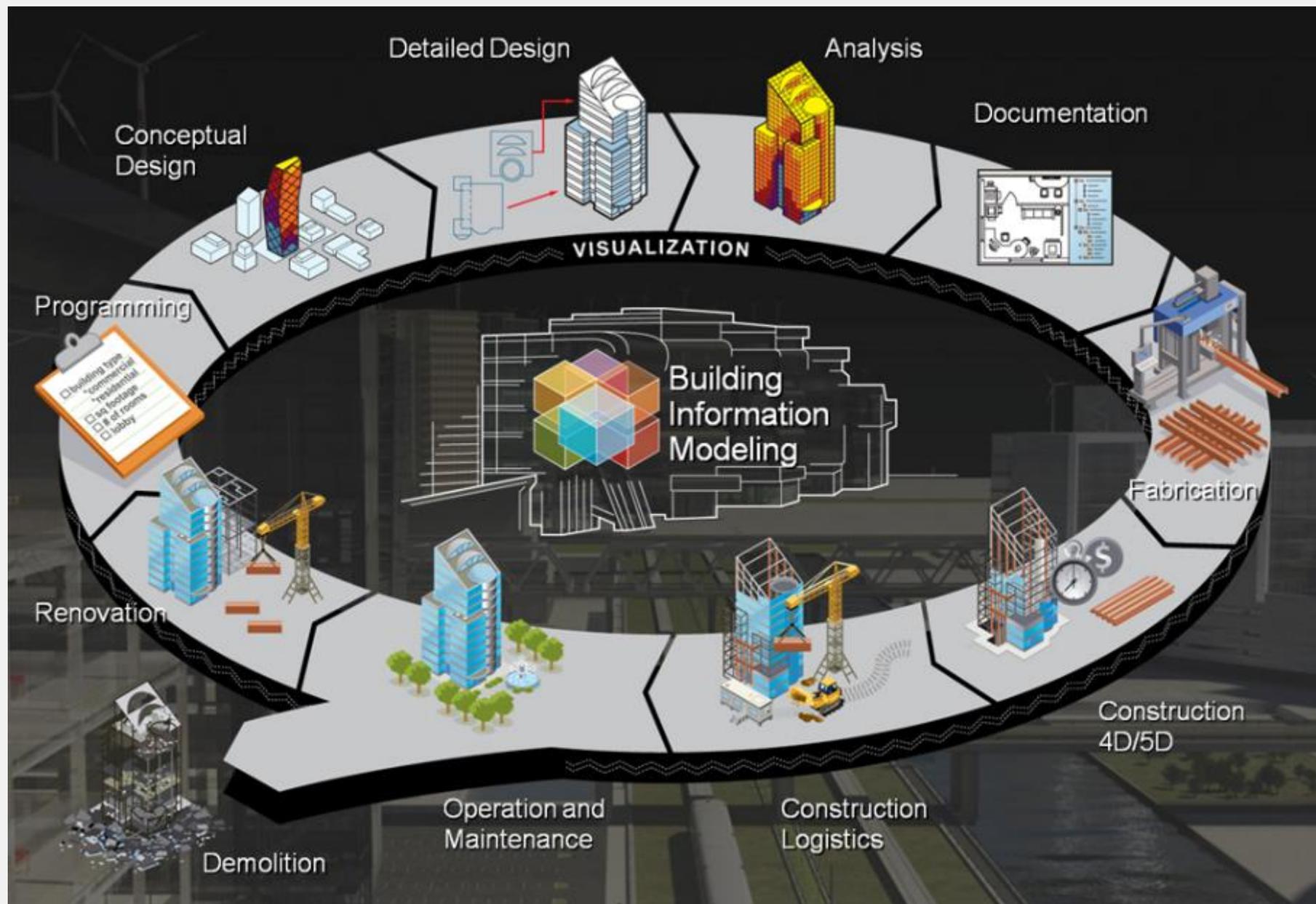
- Every stakeholder in a project uses digital files differently to support their particular goals.
- In a Revit-based BIM Environment, Families are the backbone of the process.
- Families carry data, produce images and claim space.

Architects Benefits

- Supports Rendering & VR
- Excellent graphics for drawings
- Easy placement in models
- Designed to work with one another for simplicity
- Used the natural way that Revit works – no faking
- Allows Architects to easily navigate and access files
- Easy to use & Small file size
- FAQ sheets integrated



Built with the A&E community in mind and consulted with some of the largest firms.



Owner

What do they want?

- Clean Project Timelines
- Predictable Budgets
- Easy to maintain buildings

What problems do they have?

- Large Real Estate Portfolios
- Aging Staff / Staff Turnover
- An abundance of undocumented institutional knowledge
- Data Strategies within Asset Management not integrated with Project Delivery Processes

Nycom / Kewaunee Solution

- Projects delivered with Facility Management in mind
- Clean data to integrate with CMMS systems
- 3d modeling supporting predictable timelines
- Standardized product supporting predictable budgets

Failure: Reactive maintenance, undefined existing conditions at project kickoff

Success: Controlled Deferred Maintenance, tracking work orders against easily identified assets on site and on screen

Principal

What do they want?

- Making sure the firm is profitable
- Efficiency
- Getting the next project

What problems do they have?

- Manage budgets
- Coordinate with stakeholders
- Developing new business
- Mentorship
- Establish good portfolio for prospecting

Nycom / Kewaunee Solution

- Industry leading REVIT, that has support and self learning
- Spend more time designing
- Great models for visuals for customers
- Easy to implement only 5 files

Failure: Their time in the weeds, too much back and forth resulting in stress to meet deadlines.

Success: Piece of mind in confidence with a reliable system that empowers their employees.

Project Manager

What do they want?

- Proper coordination across products and systems
- Clean drawing development
- Ensure project meets client needs

What problems do they have?

- Leading design teams
- Collaboration with other professionals

Nycom / Kewaunee Solution

- Easy to use REVIT, therefore more time can be spent designing
- Data is available to helping communication between professional groups
- All KSC products modelled the same way rather than piecemealing other manufacturers models

Failure: Bad communication between groups Errors made, frustrated customers and staff

Success: Clear communication and fast designs

Designer

What do they want?

- Rapid Prototyping
- Rendering Capabilities
- Create functional and aesthetically pleasing spaces.

What problems do they have?

- Communications between leaders and groups
- Difficult to use REVIT files
- REVIT files needs editing before use
- Combining different manufacturers REVIT files
- Adding appearances to models

Kewaunee Solution

- Easy to use REVIT, therefore more time can be spent designing
- Materials for visuals are available
- Design tools to help communicate design with customer

Failure: Bad communication between leaders
Designing and editing takes along time.

Success: Fast design speed of conversation and design tools to communicate ideas with customers including relevant visuals

General Contractor

What do they want?

- BIM Coordination
- Accuracy
- Reliability

What problems do they have?

- Lead building & contractor teams
- Collaboration with other professionals

Kewaunee Solution

- Easy to use REVIT, therefore more time can be spent designing
- Data is available to helping communication between professional groups

Failure: Gaps or bad communication between groups
Errors made, frustrated customers and staff

Success: Clear communication, avoid clash between systems, and fast designs.

FLAT

DEALER LOCATOR PRODUCTS

RESOURCES



EXPLORE IDEAS

ABOUT

LOGIN

USA

Empowering Scientific Discoveries with

UNPARALLELED LABORATORY ENVIRONMENTS

[EXPLORE OUR SOLUTIONS](#)



Access

Summary

1. Models available for KSC full line of products
 - * Pick from Pre-assembled Families identified on Product Sell Sheet
 - * Self-guided, embedded FAQ's + How-to's
2. Rapid prototyping at speed of conversation
 - * Attributes or Options selected within model to match specification
3. Lightweight models w Catalog and Library views
 - * Ease of use includes printable views for reference
4. Only (5) product line libraries
 - * *containing 1100 assemblies for project development*
5. National support and training programs provided for participating firms and organizations



mjohnson@nycominc.com