



Delivering BIM Level 2

A collaborative workflow for the entire project team

Clients, want more from BIM

- Visibility and easy access to models, get insights, but have limited Access to BIM
- Need to make the BIM process accountable, reduce RFI's and change orders, but have limited transparency
- Need for better BIM for FM and streamline the transition to building operations, but model data falls short of expectations and handover is fragmented
- A “Digital Building Manual” and a single source of truth for building data, but models delivered are not usable

Where do we start?

- A clear definition of what information is expected.
- Develop an AIR, through a collaborative process and establish a standard for all your projects.
- AIR (Asset Information Requirement) as a machine readable doc.
 - Rows represent the assets that matter
 - Columns represent the information that matter for each asset
 - Cells represent the stage at which the information must be delivered
 - Define parties responsible to deliver the information
- Make the AIR part of the contract. All parties know the expectation.

Define, Monitor, Measure, Manage

Assets		Type Properties														Instance P			
Asset	BIM Assure Type	Standard (MEQ), Cat A/B, Cat B/B	Minimum List of Properties	Type Properties														Quantity	Value
				Room Area	Room Volume	Room Height	Room Depth	Room Width	Room Length	Room Perimeter	Room Circumference	Room Surface Area	Room Volume	Room Area	Room Perimeter	Room Circumference	Room Surface Area		
Doors	Doors	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Windows	Windows	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Ceilings	Ceilings	A	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Automatic Firework & Equipment	Automatic Firework, and Equipment	B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Firework Detection Equipment	Firework Detection Equipment	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Alarm Panels	Alarm Panels	B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Fire and Smoke Detectors and Cables	Fire and Smoke Detectors	B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Detectors	Detectors	A	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Life	Life	SSC	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Ratings	Ratings and Subunits	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Panel Rooms	Panel Rooms	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
People Management Systems (locks, etc)	People Management Systems	B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Door Springs	Door Springs	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Terminals	Terminals	SSC	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Intelligent Controllers	Intelligent Controllers	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Automatic Transfer Switches	Automatic Transfer Switches	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Transformers	Transformers	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Substations	Substations	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Switchgear	Switchgear	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Distribution Panel Boards	Distribution Panel Boards	SSC / Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Power Distribution Units	Power Distribution Units	SSC / Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Controlled Power Supply (UPS) Units	Controlled Power Supply (UPS) Units	SSC / Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Lighting Fixtures	Lighting Fixtures	SSC / Cat A, Cat B	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Emergency Lighting	Emergency Lighting	SSC / Cat A, Cat B	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Fire Detection Devices	Fire Detection Devices	SSC / Cat A, Cat B	3	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Electric Car Chargers	Electric Car Chargers	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Generators	Generators	SSC / Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
General Services Accessories (separators, etc)	General Services	SSC / Cat A, Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Bus Enclosures	Bus Enclosures	SSC	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Bus Bar	Distribution Panel Boards	SSC / Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	
Bus Enclosure	Bus Enclosures	SSC / Cat A, Cat B	4	3	3	3	3	4	3	3	3	3	3	3	3	3	4	1	



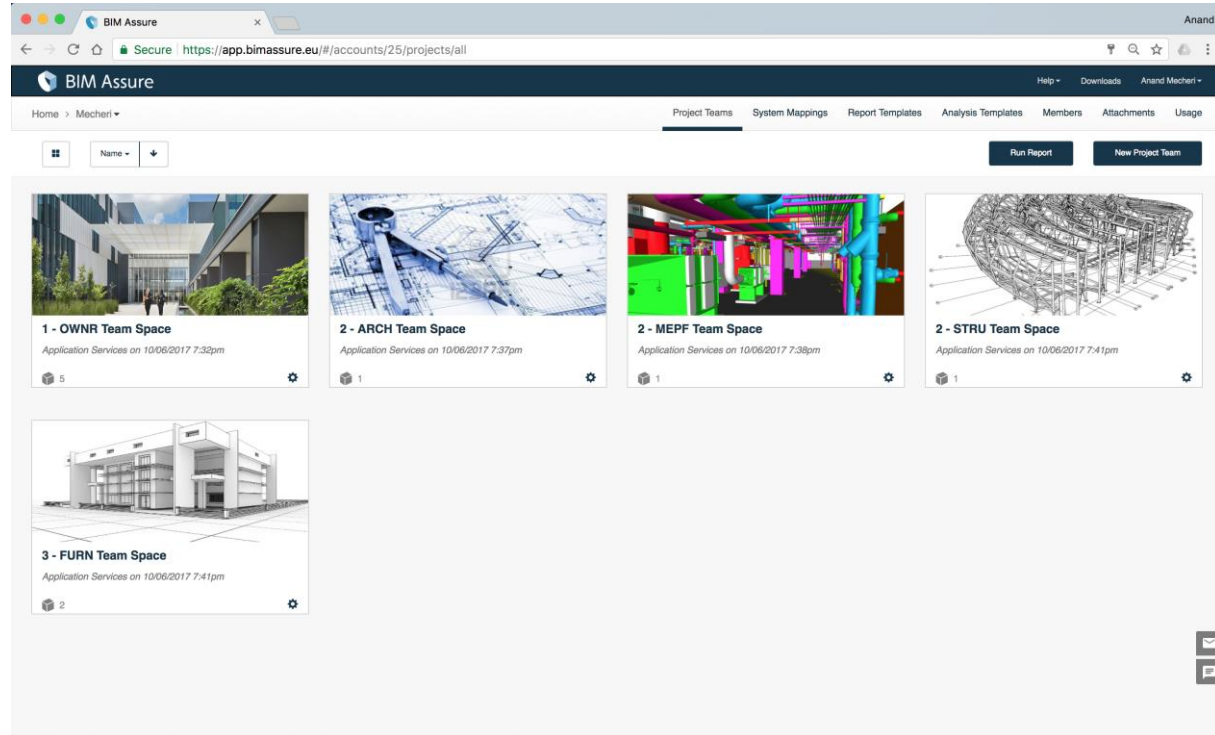
BIM Assure interface showing analysis rules for 'Analysis Example - Model Quality'. It displays 26 analyses with 14 rules loaded, including checks for ARCH elements, fire ratings, and communication equipment.

Name	Date Updated	Configured
01 - Check ARCH Elements for Assembly Code	10/06/2017 7:32pm	✓
02 - Ensure Populated ARCH Element Assembly Codes are 3 Levels Deep	10/06/2017 7:32pm	✓
03 - Check Doors for Mark Value	10/06/2017 7:32pm	✓
04 - Ensure Populated Door Mark Values are Unique	10/06/2017 7:32pm	✓
05 - Ensure Populated Door Mark Values Match DR-# pattern	10/06/2017 7:32pm	✓
06 - Check Doors for Fire Rating Value	10/06/2017 7:32pm	✓
07 - Check for Deleted Rooms	10/06/2017 7:32pm	✓
08 - Check for Unbound Rooms	10/06/2017 7:32pm	✓
09 - Check Rooms for Number Value	10/06/2017 7:32pm	✓
10 - Ensure Populated Room Numbers are Unique	10/06/2017 7:32pm	✓
11 - Check Rooms for Department Value	10/06/2017 7:32pm	✓
12 - Check Walls for GENERIC in Family or Type Name	10/06/2017 7:32pm	✓
13 - Check Walls for Type Mark Value	10/06/2017 7:32pm	✓
14 - Check Walls for Fire Rating	10/06/2017 7:32pm	✓

A platform for the entire project team

A Team Space is a sandbox that is administered by a member of the respective project team

Model deliverables at each stage is published into the respective team space for “Work in progress”

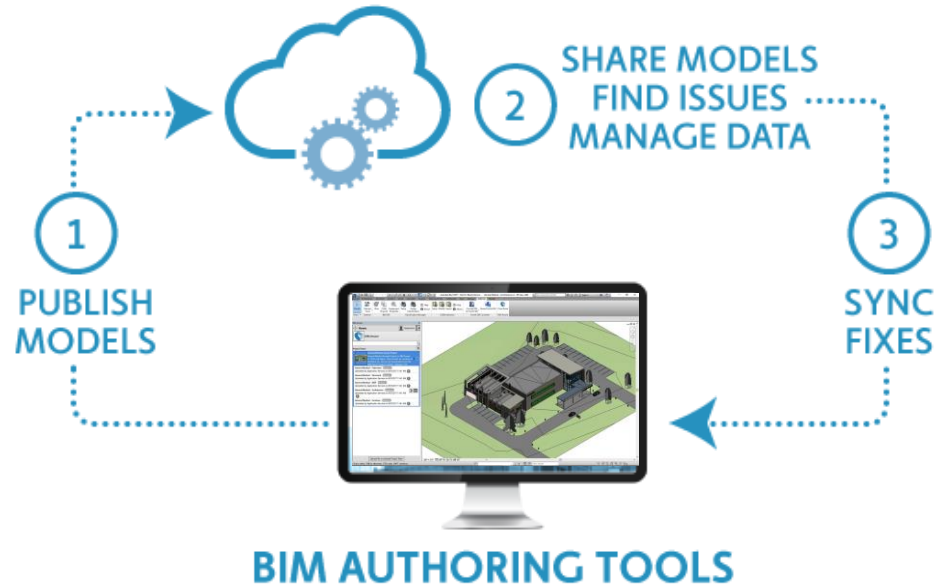


Revit Integration and Data Sync

Publish models directly from Revit

Full control over model elements published by managing visibility settings in Revit

Easily add data, find and fix issues directly in BIM Assure and Synch back (or) fix or in Revit

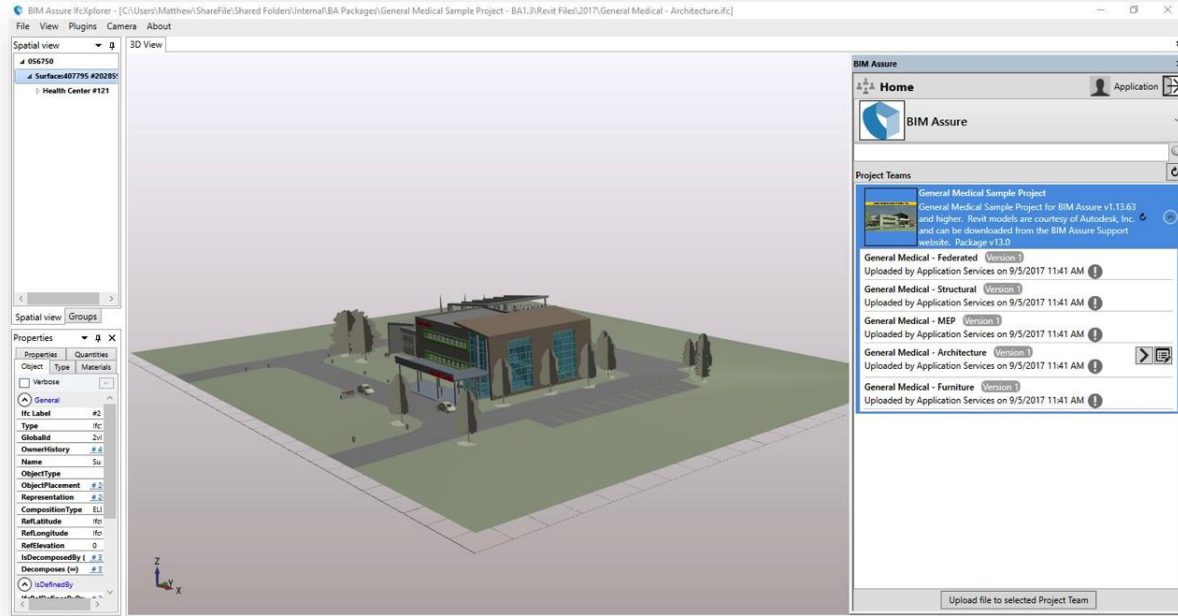


IFC Support

Check data from a wide range of tools throughout design and construction

Federate & Publish IFC files and find missing or incorrect information

Detailed issue reports from BIM Assure help modelers find and fix issues

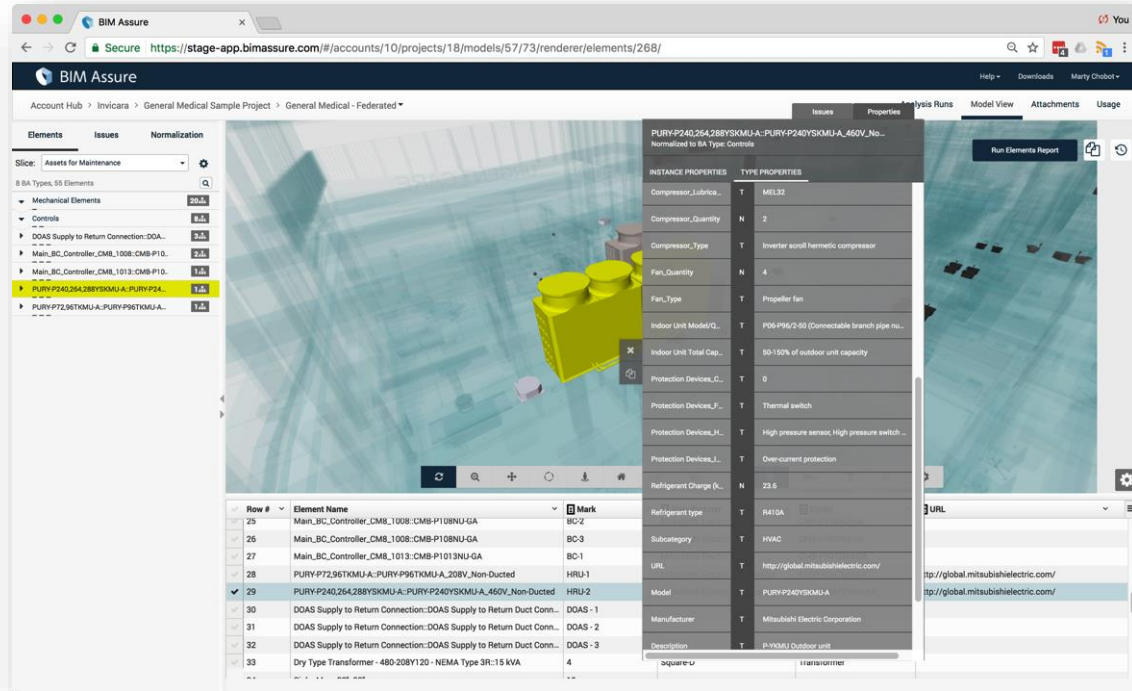


Data Viewing and Editing

Create new workflows for model data management

Decouple data management from modeling

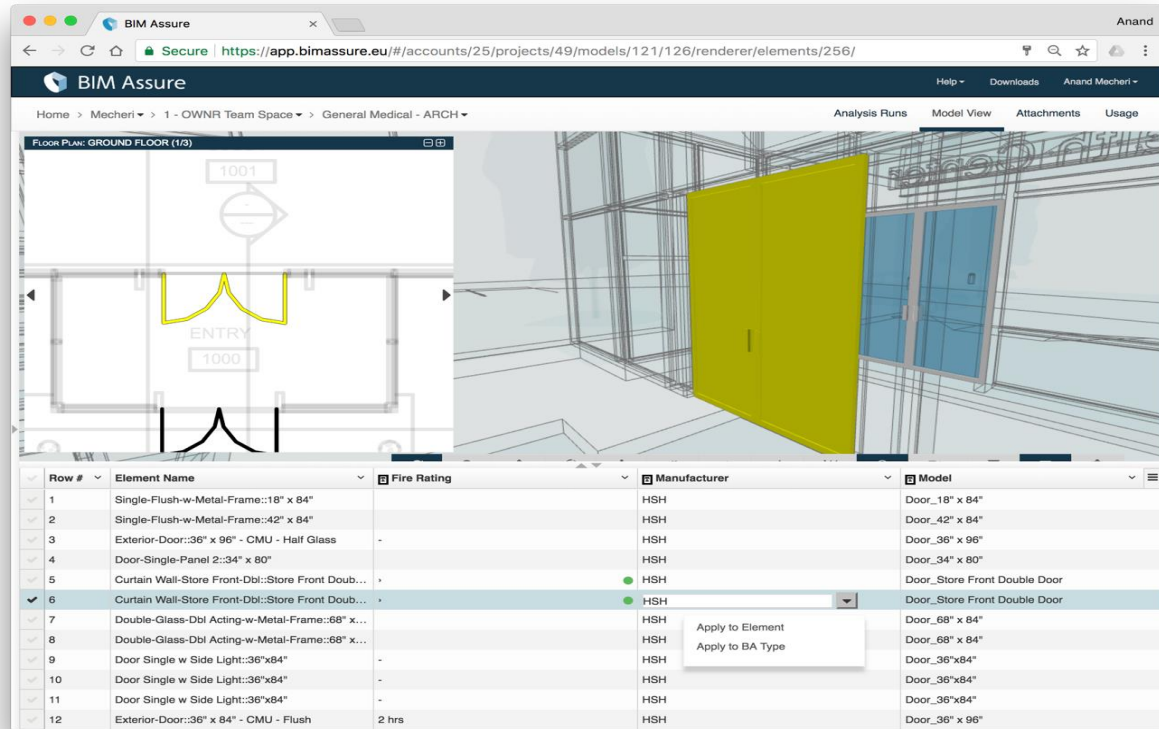
Often non-modelers are the right people to manage the data



Socialize data aggregation on models

Slice & Dice the model to focus on a collection of elements and data that matter.

Send a link to your supplier for them to easily feed data into the model



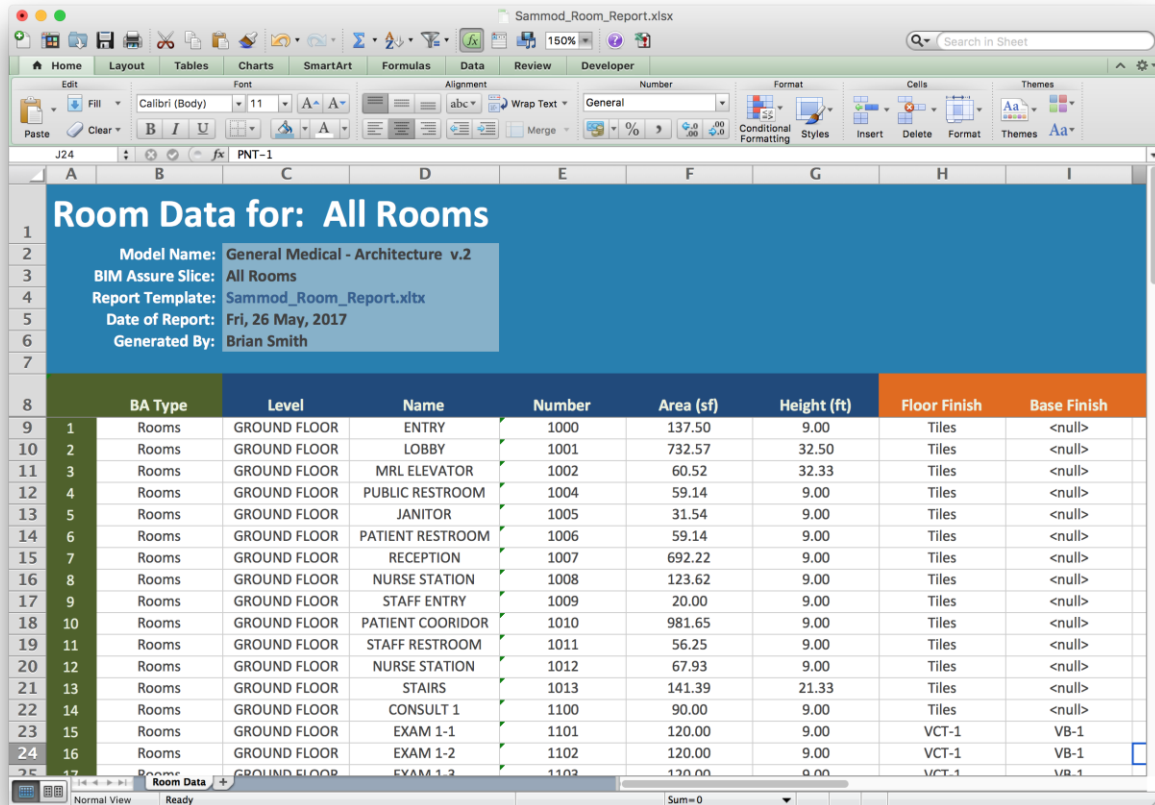
Reliable Data:
BIM Assure rules help
verify deliverables at
each milestone.

The screenshot shows the BIM Assure web application interface. The top navigation bar includes the BIM Assure logo, user name 'Marty Chobot', and options for 'Analysis Runs', 'Model View', 'Attachments', and 'Usage'. The breadcrumb trail indicates the current location: 'Account Hub > Invicara > General Medical Sample Project > General Medical - Architecture'. The main content area displays a grid of analysis cards for various rules. An orange callout box highlights the 'ACME Inc. - BIM Standards' card, which shows 12 analyses, 3874 element issues, and 2 validated analyses. Another orange callout box highlights the 'ARCH - Check Room' card, which shows 8 total rules, 0 failing rules, and 0 element issues. The interface also includes a sidebar with a 3D model of a building and a 'General Medical - Architecture' section with a 'Version 1' update and a 'Re-Normalize' button.

Analysis Name	Total Rules	Failing Rules	Element Issues	Status
ACME Inc. - BIM Standards	8	4	1055	Warning
ACME Inc. - Owner Handover	9	9	2528	Warning
ARCH - Check Doors	5	0	0	Validated
ARCH - Check Ceilings	9	5	65	Warning
ARCH - Check Floors	7	4	14	Warning
ARCH - Check Ramps	3	0	0	Warning
ARCH - Check Roofing	7	6	19	Warning
ARCH - Check Room	8	0	0	Validated

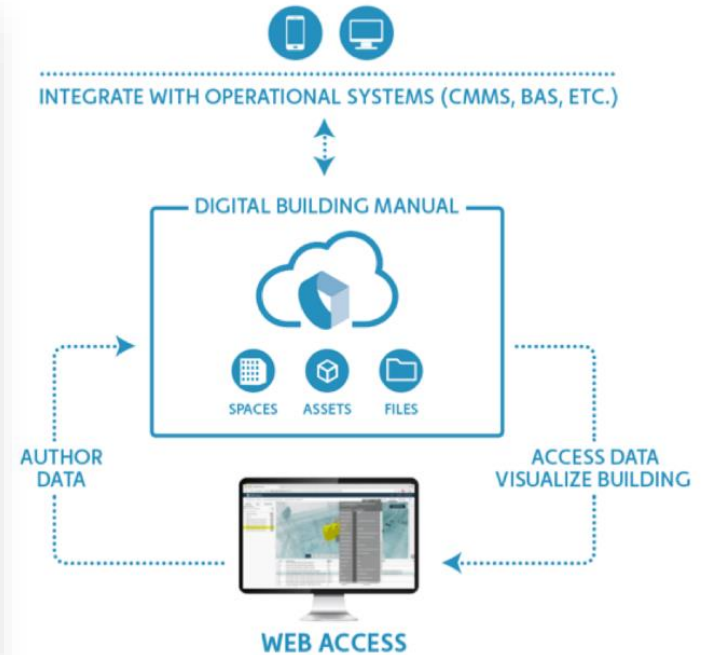
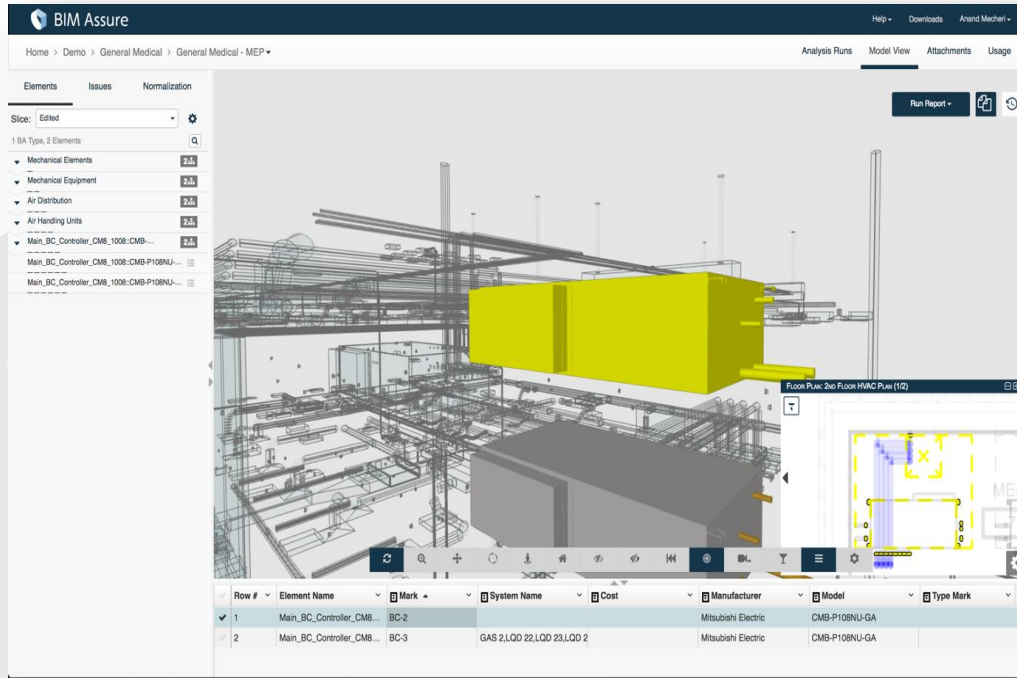
The project team publishes their models into BIM Assure and easily check and fix any missing or incorrect data at each project milestone.

Powerful reports: Easily export space and asset data to Excel for analysis, to share with other departments, and to import into other systems.



Room Data for: All Rooms								
Model Name:		General Medical - Architecture v.2						
BIM Assure Slice:		All Rooms						
Report Template:		Sammod_Room_Report.xlsx						
Date of Report:		Fri, 26 May, 2017						
Generated By:		Brian Smith						
BA Type	Level	Name	Number	Area (sf)	Height (ft)	Floor Finish	Base Finish	
1	Rooms	GROUND FLOOR	ENTRY	1000	137.50	9.00	Tiles	<null>
2	Rooms	GROUND FLOOR	LOBBY	1001	732.57	32.50	Tiles	<null>
3	Rooms	GROUND FLOOR	MRL ELEVATOR	1002	60.52	32.33	Tiles	<null>
4	Rooms	GROUND FLOOR	PUBLIC RESTROOM	1004	59.14	9.00	Tiles	<null>
5	Rooms	GROUND FLOOR	JANITOR	1005	31.54	9.00	Tiles	<null>
6	Rooms	GROUND FLOOR	PATIENT RESTROOM	1006	59.14	9.00	Tiles	<null>
7	Rooms	GROUND FLOOR	RECEPTION	1007	692.22	9.00	Tiles	<null>
8	Rooms	GROUND FLOOR	NURSE STATION	1008	123.62	9.00	Tiles	<null>
9	Rooms	GROUND FLOOR	STAFF ENTRY	1009	20.00	9.00	Tiles	<null>
10	Rooms	GROUND FLOOR	PATIENT COORIDOR	1010	981.65	9.00	Tiles	<null>
11	Rooms	GROUND FLOOR	STAFF RESTROOM	1011	56.25	9.00	Tiles	<null>
12	Rooms	GROUND FLOOR	NURSE STATION	1012	67.93	9.00	Tiles	<null>
13	Rooms	GROUND FLOOR	STAIRS	1013	141.39	21.33	Tiles	<null>
14	Rooms	GROUND FLOOR	CONSULT 1	1100	90.00	9.00	Tiles	<null>
15	Rooms	GROUND FLOOR	EXAM 1-1	1101	120.00	9.00	VCT-1	VB-1
16	Rooms	GROUND FLOOR	EXAM 1-2	1102	120.00	9.00	VCT-1	VB-1
17	Rooms	GROUND FLOOR	EXAM 1-3	1103	120.00	9.00	VCT-1	VB-1

A Digital Twin for operations



BIM Assure gives Clients more reasons to use BIM



Mr. Tom Costello
IPUT plc

“We have adopted BIM Assure at IPUT, as our platform of choice to get visibility to BIM deliverables and help us get data we need from design and construction teams to efficiently operate and maintain our buildings,” says Tom Costello, Head of Construction at IPUT, Chairman, National Pediatric Hospital Development Board.

“In addition to new construction projects, we expect BIM Assure to help us progressively digitize our estate of buildings to create a uniform standard of care across all our properties, new and existing.”

BIM Assure gives Clients confidence in their program



The GDA are delighted to partner with Invicara and use their platform BIM Assure to receive BIM information from our supply chain and validate/verify this information for completeness.

This partnership with BIM Assure is to help advance BIM, particularly in Ireland

... Robert Moore, GDA.

AEC firms are enabled to deliver data with ease



"Using BIM Assure helps us create a higher quality product at the end of the day, that provides long term benefits to clients. We now have processes in place and the tools to deliver high quality, usable data that add value."

Carl Goodiel, VDC Manager, Hensel Phelps

Extract from published case study ... "In fact, the workflow has become so efficient that Carl and Monty have taken what had previously been a week's worth of work to gather and check data for a milestone down to half a day or less."



BIM Assure

Questions?