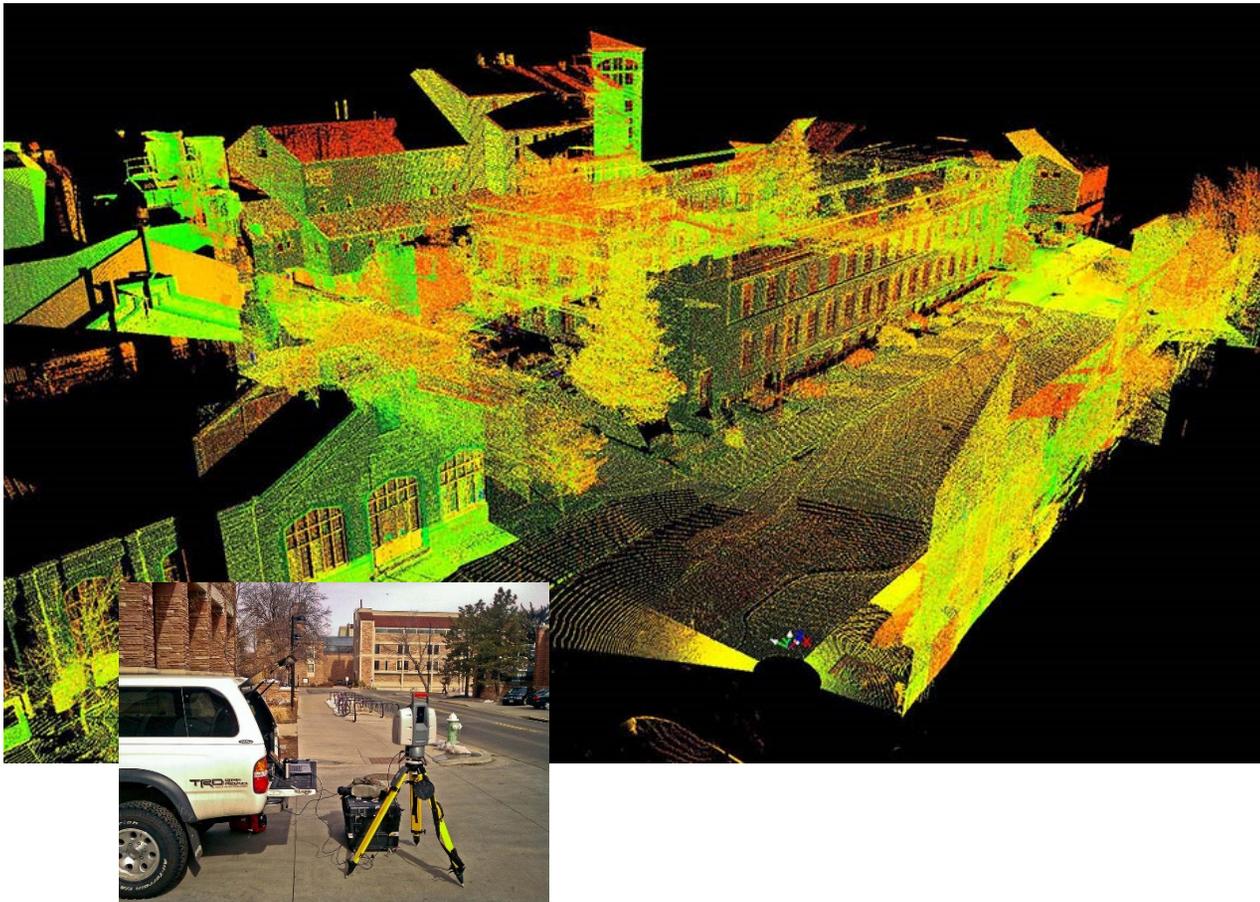


Earl Stages – Site information

Site information can be gathered from aerial drones and terrestrial scans to a high degree of precision and converted into a point cloud of information that can be directly injected into the base information data within a BIM model.

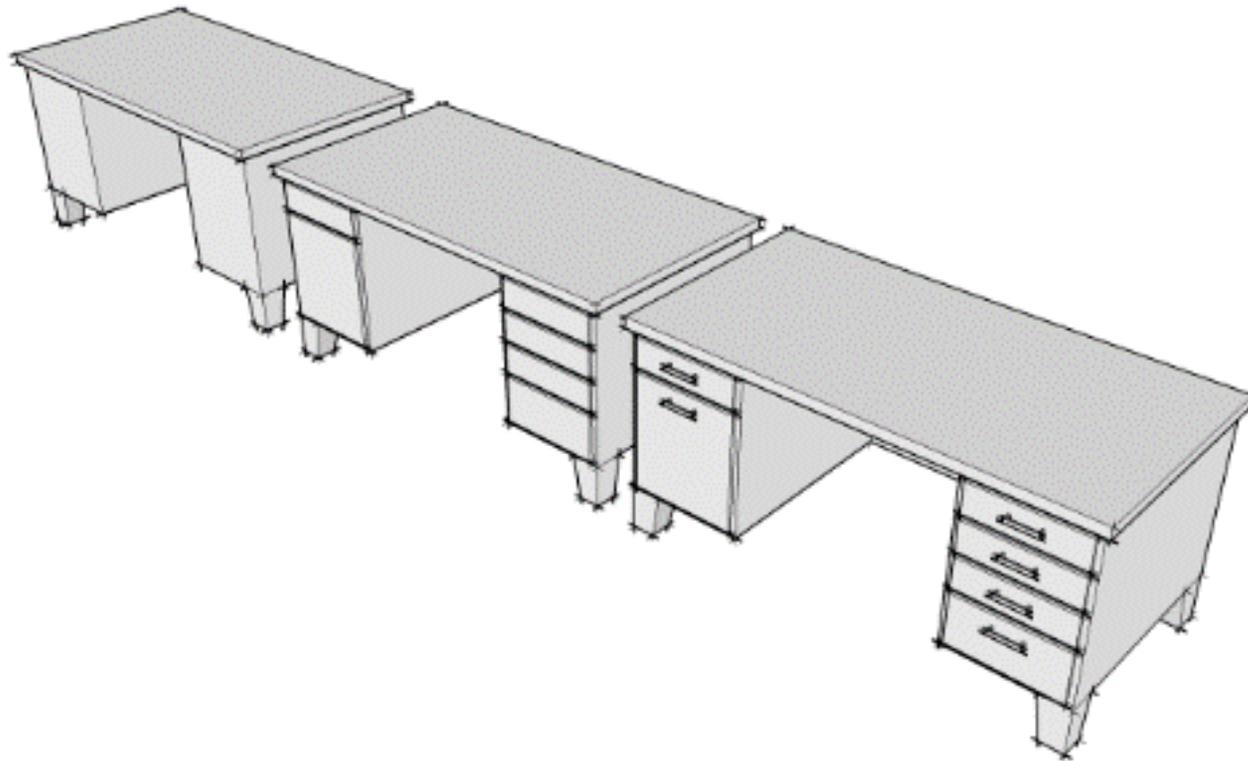


Scanning provides a point cloud, in which a series of points (thousands to billions) represent the built environment digitally. From this data it is possible to produce accurate 3D models in a variety of applications (Cloudworx, AutoCAD, Revit, rhino, etc.)

BIM – Level of Detail

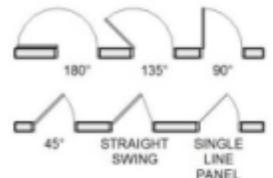
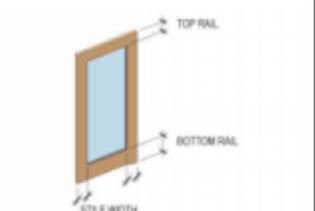
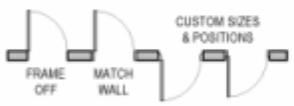
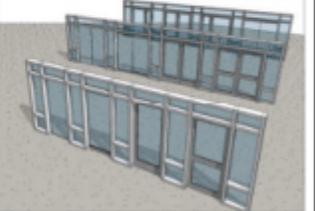
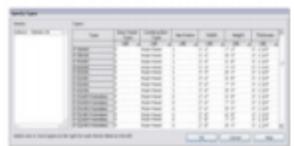
Schematic planning can be done accurately and reviewed by the design team.

Additional detail can be added at subsequent stages to refine specifics



3D Components in all Flavours

Components can be designed to allow for customization and integration with both geometry of the model and the database- in an almost infinite level of detail. The draw back here is that someone has to build in all the information and the variation and the report back method.

<p>CONTROLLABLE SWING DISPLAY</p>  	<p>INTERCHANGEABLE DOOR PANELS</p>  <p>Flush, Full Glass, Half Glass, Narrow Lite, Storefront, etc.</p>	<p>CUSTOMIZABLE DOOR PANELS</p>  
<p>FRAME OPTIONS</p>  <p>Turn frame on/off, Adjustable frame size and position.</p>	<p>SIDLIGHTS AND TRANSOMS</p> 	<p>Curtain Wall Families</p> 
<p>TYPE CATALOGS</p>  <p>Easy to select from Hundreds of Variations.</p>	<p>CONSISTENT SCHEDULING ACROSS FAMILIES</p>  <p>Schedule width of each panel in double doors!</p>	

 <p>Bevel Sofa Group Chaise</p> <ul style="list-style-type: none"> ✗ Sds Max file (1009 KB) ✗ AutoCAD 3D file (114 KB) ✗ SketchUp file (2299 KB) ✗ Revit file (490 KB) 	 <p>Bevel Sofa Group Club Chair</p> <ul style="list-style-type: none"> ✗ Sds Max file (1814 KB) ✗ AutoCAD 3D file (129 KB) ✗ SketchUp file (1725 KB) ✗ Revit file (786 KB) 	 <p>Bevel Sofa Group Corner</p> <ul style="list-style-type: none"> ✗ Sds Max file (1806 KB) ✗ AutoCAD 3D file (112 KB) ✗ SketchUp file (2002 KB) ✗ Revit file (721 KB) 	 <p>Bevel Sofa Group Inside Curve Settee</p> <ul style="list-style-type: none"> ✗ Sds Max file (27 KB) ✗ AutoCAD 3D file (169 KB) ✗ SketchUp file (1148 KB) ✗ Revit file (2421 KB)
 <p>Bevel Sofa Group Ottoman</p> <ul style="list-style-type: none"> ✗ Sds Max file (1002 KB) ✗ AutoCAD 3D file (82 KB) ✗ SketchUp file (1366 KB) ✗ Revit file (612 KB) 	 <p>Bevel Sofa Group Outside Curve Settee</p> <ul style="list-style-type: none"> ✗ Sds Max file (27 KB) ✗ AutoCAD 3D file (167 KB) ✗ SketchUp file (1142 KB) ✗ Revit file (2421 KB) 	 <p>Bevel Sofa Group Rounded Ottoman</p> <ul style="list-style-type: none"> ✗ Sds Max file (16 KB) ✗ AutoCAD 3D file (109 KB) ✗ SketchUp file (978 KB) ✗ Revit file (2135 KB) 	 <p>Bevel Sofa Group Settee</p> <ul style="list-style-type: none"> ✗ Sds Max file (1620 KB) ✗ AutoCAD 3D file (169 KB) ✗ SketchUp file (7482 KB) ✗ Revit file (558 KB)
 <p>Bolster Sofa Group Single Seat</p>	 <p>Bolster Sofa Group Sofa</p>	 <p>Bolster Sofa Group Chaise</p>	 <p>Bolster Sofa Group Club Chair</p>

Manufacturers are on board, but build in their own critical data.

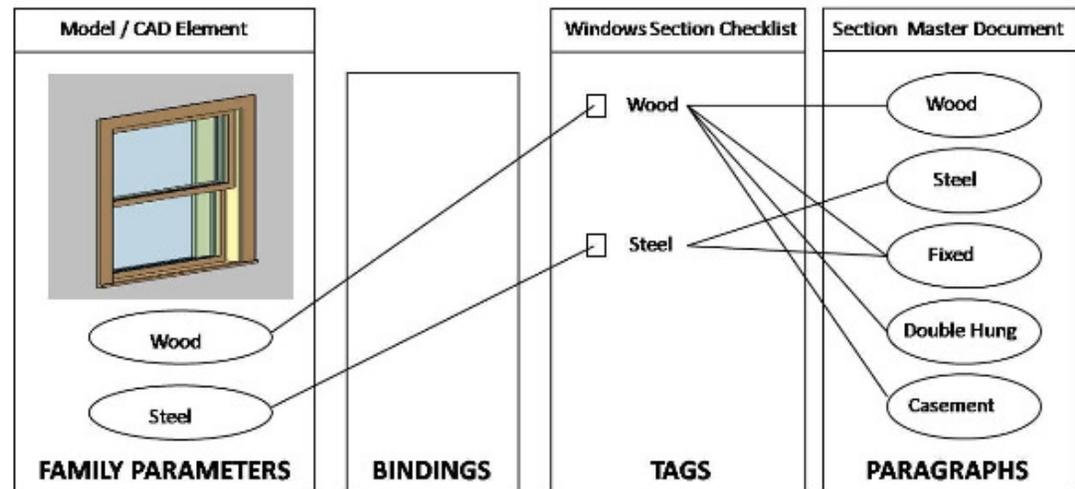
BIM – Specifications

What is a BIM model? Is it geometry? Is it

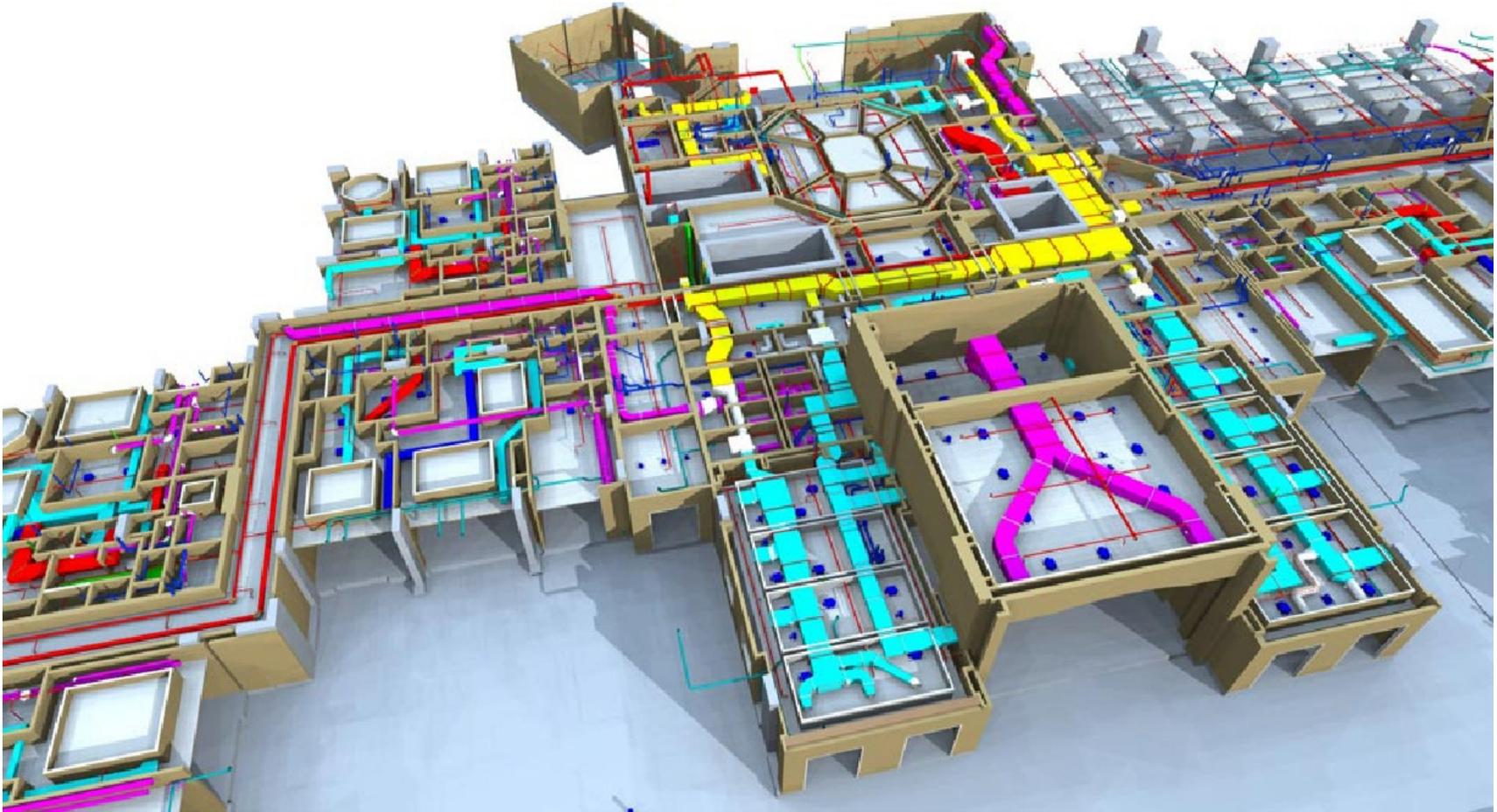
It is actually an information model – a database- but a intricately detailed database integrated with the geometry of a system of vector and point data.

Specifications can be increasingly connected to the information model/database.

Uptake is slow on this one as the cost in time to coordinate and input the information into the database generally is not attached to a viable revenue stream

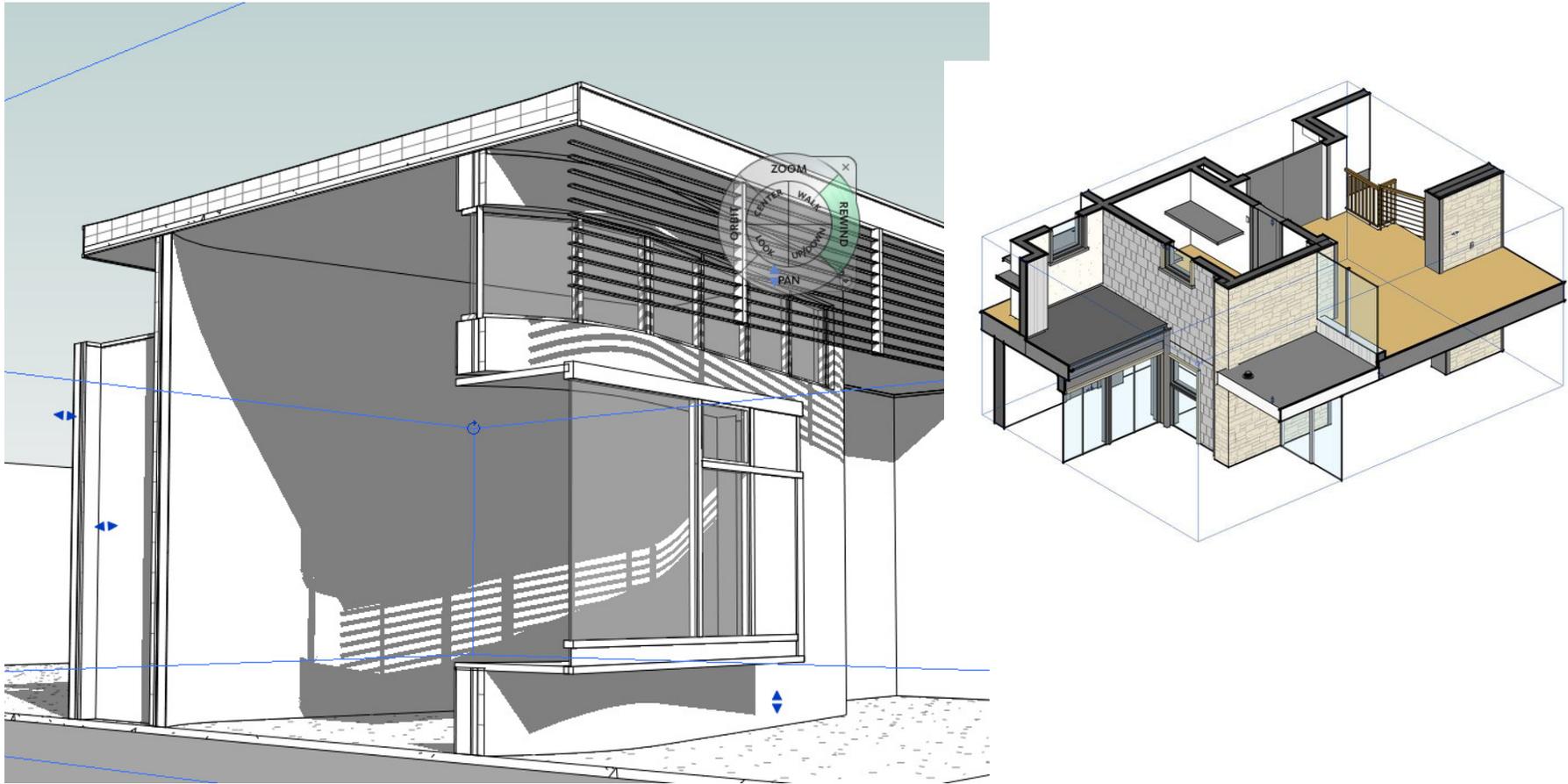


3D MEGAPIC



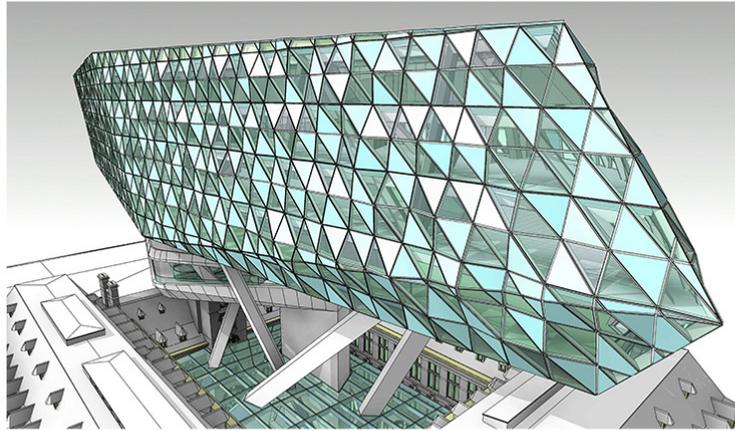
3D images allow for more accurate coordination earlier- as long as everyone builds their pieces and shares.

3D aesthetics and Hold In your hand understanding



Digital model and the flexibility of the infinite section box.

Digital Geometric Permutations



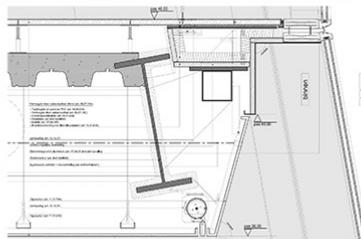
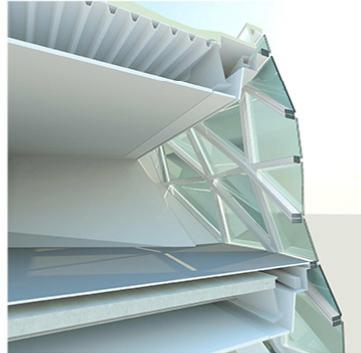
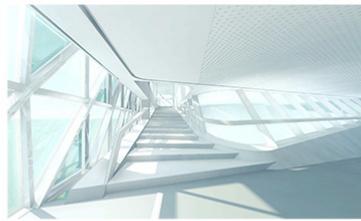
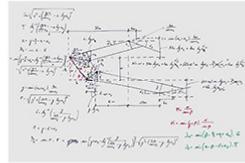
PROJECTSYNTHESE

In het spectaculaire ontwerp van de Britse Iraakse architecte Zaha Hadid voor het Antwerpse havenhuis, speelt de gevel een cruciale rol. Het uitzicht van dit volledig holografische nieuwbouwwerk vindt zijn inspiratie in de diamant. Zo is de gevel opgebouwd uit driehoeken die ten opzichte van elkaar geroteerd staan. Bij weersling van de lichtinval of het standpunt van de toeschouwer ontstaat het ontweergelijke het forasterende effect van een diamant die schittert in de zon.

Om het gevelontwerp van Zaha Hadid Architect te kunnen realiseren, droeg een diepgaande studie van de geometrie zich op. Deze studie van Bureau Bouwtechniek, een rationalisering van de complexe geometrische vorm van de architecte met respect voor haar esthetiek, leed tot een realiseerbare gevel. Het was de ontwerper van Zaha Hadid Architect om een driehoekige rasteropbouw doorheen het nieuwbouwwerk van het havenhuis te programmeren. Bovendien manipuleerden ze het gewicht en de steunpunten van het gewicht naar buiten te duwen. Dit laatste gebouwd op gebouwd van aan het raast naar raast, aan de laatste resultaten dit is een volkomen vlakke gevel, aan de voorzijde in een bijzonder complexe, gecoördineerde gevel.

Bureau Bouwtechniek onderzocht hoe dit chaos element in de gevel kon gerealiseerd worden met toepassing van standaard maten voor de manipulatie van het raast met het oog op het reduceren van het aantal unieke elementen.

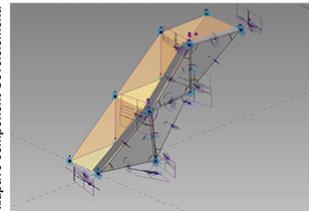
Bureau Bouwtechniek ontwikkelde vervolgens een BIM model dat de synthese vormde van het deegang geometrisch onderzoek. De gevelcomponenten werden opgebouwd als 'adaptive component' die gemanipuleerd werden door 12 plaatsingspunten die de geometrie van elk element onafhankelijk bepalen. Uit dit BIM model konden vervolgens op vrij eenvoudige wijze de verschillende versies, afmetingen van glaspanelen etc. ontrend worden in de vorm van meettabellen.



Meestant Adaptive components Gevel (Fragment)

Panel	1	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	43	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	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
Panel	1	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	43	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	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100

Adaptive component Gevelement:



Nieuw Havenhuis
ANTWERPEN

Architect: **BB** Architectuur
Engineer: **BB** Bouwtechniek

SOUWHEER
GEBEEDTELLA HANDELSHUIS
Bouwniveau 1
BBB Bouwtechniek

ARCHITECT
ANTWERPEN
Dona-1000-ARCHITECTS
10 Broedersplein
2018-2020 Antwerpen - België

ARCHITECT
ANTWERPEN
BB ARCHITECTUUR
Bouwniveau 1
BBB Bouwtechniek

INGENIEUR
STABILITEIT
Ingénieur
Bouwniveau 1
BBB Bouwtechniek

INGENIEUR
TECHNIEN
Ingénieur
Bouwniveau 1
BBB Bouwtechniek

Nieuw Havenhuis
Presentatieblad tav Architect@Work

UITVOERING
ARCHITECTUUR
M O O A PPR 001

Voorafbeelding: Datum: 03-04-2015
Gepresenteerd door: Schaal: 1:50
Gepresenteerd door: Formaat: A1
Gepresenteerd door: Opp. 0,5 m²

And there is this...

Drawing Referencing

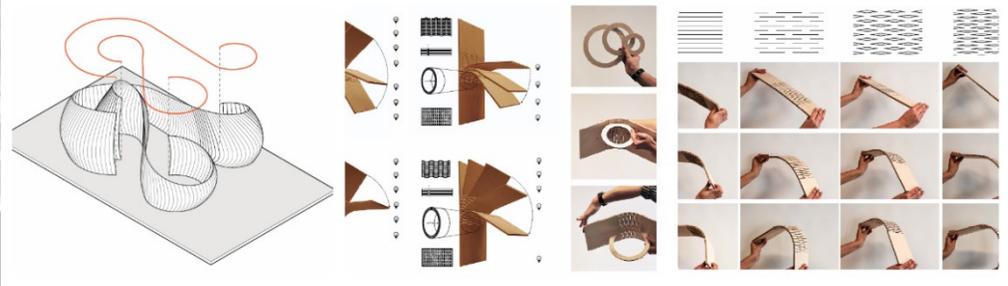
As the model is actually a database- information is relatively effortless to keep referenced.

The image shows a Revit software interface with several views and a tool palette. The top view is a 'Drafting View: Pier Detail (3/A501)' showing a cross-section of a pier with dimensions like 4'-0" and 1'-7 1/2". A callout box labeled '3 Pier Detail 1" = 1'-0"' is attached to this view. Below it is an 'Elevation: W-E' view showing a grid of columns and rows, with a red circle highlighting a specific location. To the left is another 'Drafting View: Detail @ SUNSCRE...' showing a detail of a window or door. The 'Modify | Views' tool palette is visible, with the 'Reference' button highlighted. A red box around the 'Reference' button has arrows pointing to the 'Detail View: DETAIL @ SUNSCRE...' and the 'Elevation: W-E' views. A blue circle labeled '3 A501' is also visible in the top view, with an arrow pointing to the 'Reference' button. A table on the right side of the image contains the following information:

No.	Description
AU2006	Detailing in R Building
	Details
	A501

PAPERLESS!!!!??

There is still the dream that information remains digital – and the day of the drawing roll is numbered. Tablets and email are changing things dramatically.



Fabrication



3d additive plotting on larger and larger scales is more accurate and able to be done in more and more materials. This process is less intensive in materials and allows for an intricacy in form previously more labour intensive to achieve.

Mobile Application – Overview

Autodesk® BIM 360™ Field is collaborative, field information management software that combines construction site mobile technologies with cloud-based storage and reporting.



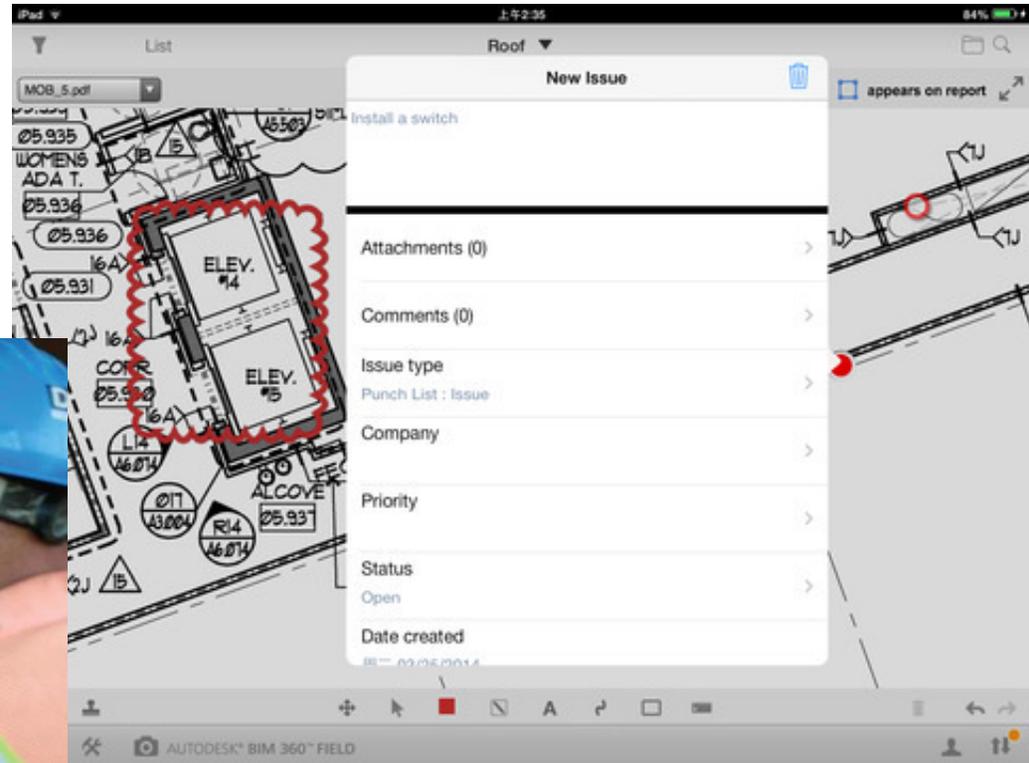
iPad and iPhone mobile app

Common platform for communicating field issues

Create and update issues; reference and run checklists from virtually anywhere on the job site—online or offline

staff can spend more time managing critical project matters and less time managing C.A. project documentation

Mobile Application – Field Reporting



Utilize pushpin markers to communicate location, status, ownership and description of issues.

SYNC to update database and notify contractor and sub-trade of an issue to be addressed

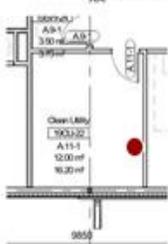
PDF - Field Report

0600387 - Swift Current Long Term Care Centre Issue List by Location 

A>A.11-1-Clean Utility (1 Issues)

Issue	Author	Description	Location Detail	Status	Company	Type	Date	Due Date
003525	terry.evert@stantec.com	White board		Open	Shanahan's	A - Owner/Consultant List	18 Feb 2016	25 Feb 2016

Comments
 Terry Evert (terry.evert@stantec.com) 19 Feb 2016 7:58 AM Replace damaged whiteboard.



A2.04 - Rev 3.pdf

● Draft
 ● Open
 ● Work Completed
 ● Ready to Inspect
 ● Closed
 ● Not Approved
 ● In Dispute



IMG_c1a7019-c59f-4a15-84ab-99aa3fcd0d1d.jpg

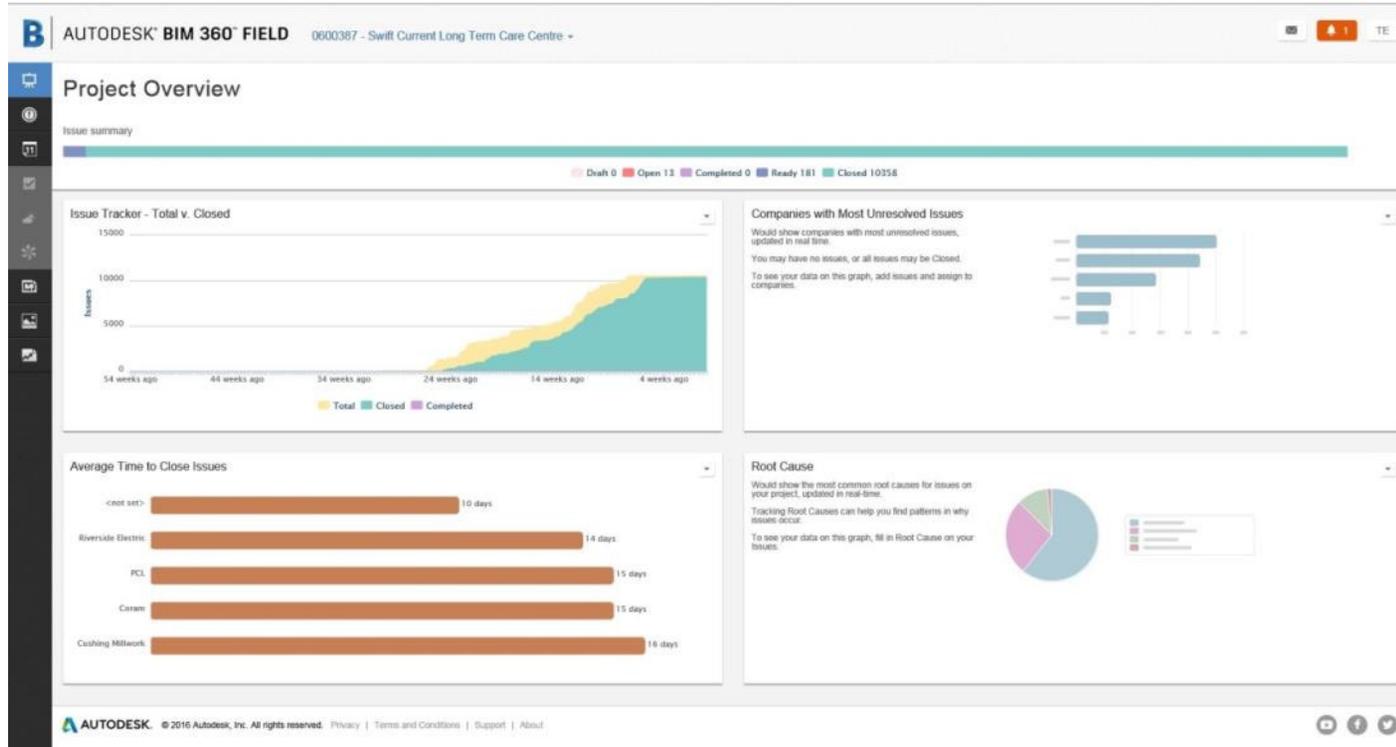
End of 003525 images

Consistent project reporting through the entire team

Sort issues by status, author, company, or location

Clearly communicates location, status, ownership and description of issues

Screen Shot – Project Overview



Track construction quality using easy-to-use and customizable templates. This provides a proactive approach to identifying deficiency trends, allowing the project team the foresight to mitigate issues before they arise. The result is better quality control.