



# ***BIM Services for Architects and Engineers***

**Basu Technology, Inc.**

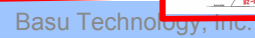
**Abhi Basu**

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**[abhibasu@basutech.com](mailto:abhibasu@basutech.com)**

# BIM Services for Architects and Engineers

- BIM Implementation Planning
- Model Development
  - From Sketches to CDs
  - 2D to 3D conversion
  - Scan to BIM
- Model Quality Assurance
- Constructability Studies
- Visualization / Logistics / 4D Scheduling
- BIM Generated Quantity Take-Offs (QTO)
- 3D Coordination



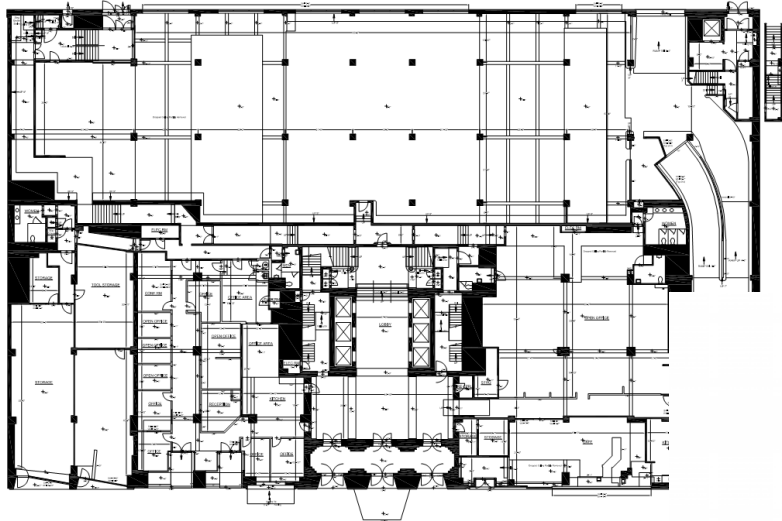
# BIM: Sketches to Construction Documents



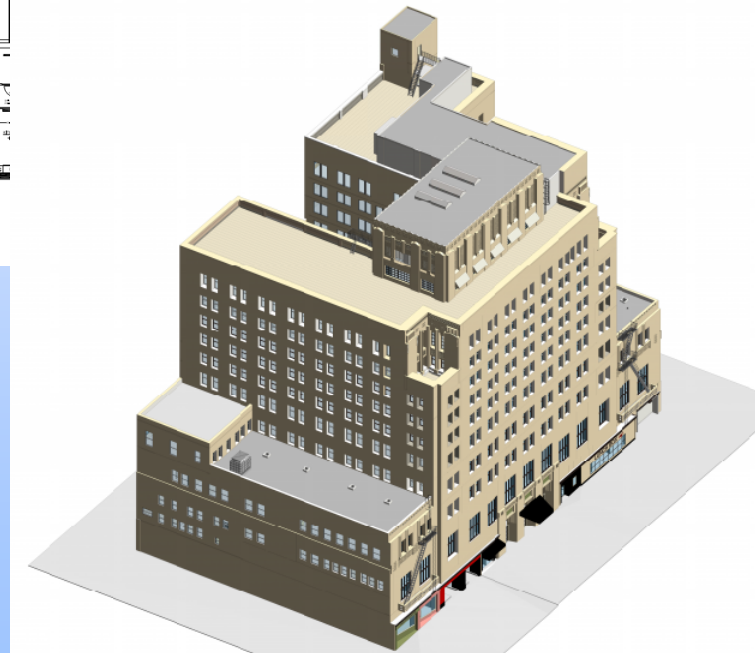
- Your own back office
- Economical & quick
- Free up your creativity
- We do the grunt work



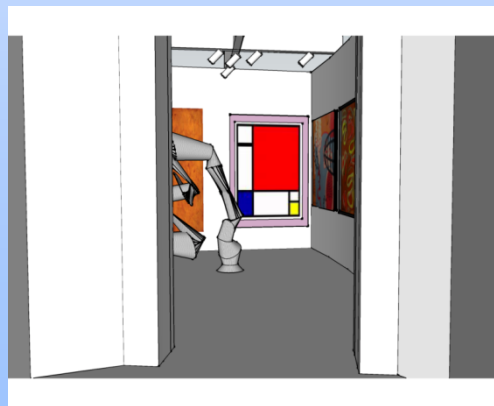
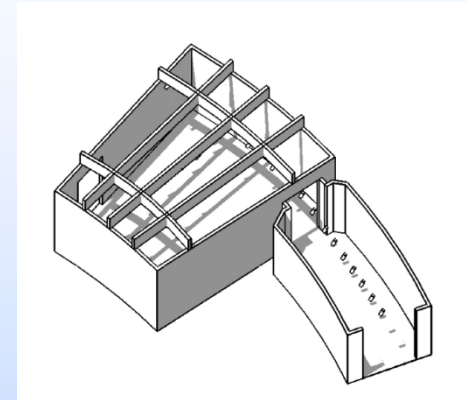
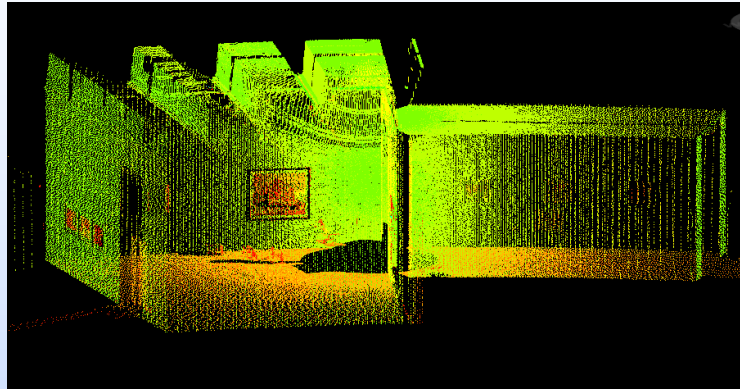
# 2D to 3D Conversions



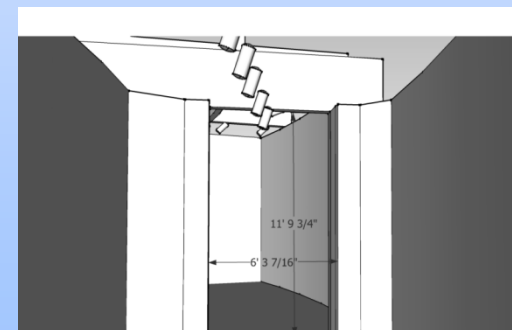
FIRST FLOOR



# Point Clouds to Models



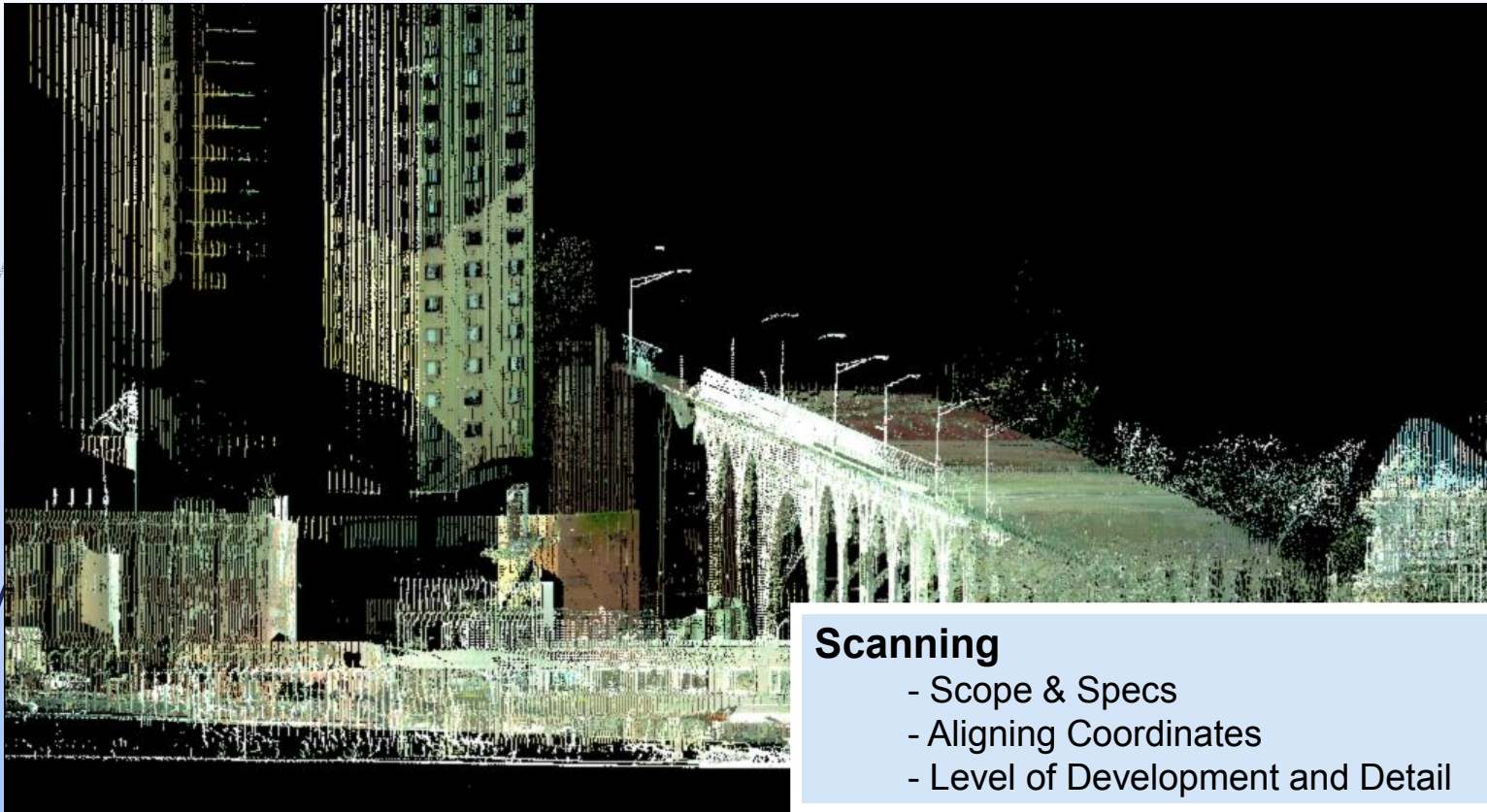
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## Model Creation

- Scope & Specs
- Aligning Coordinates
- Level of Development and Detail

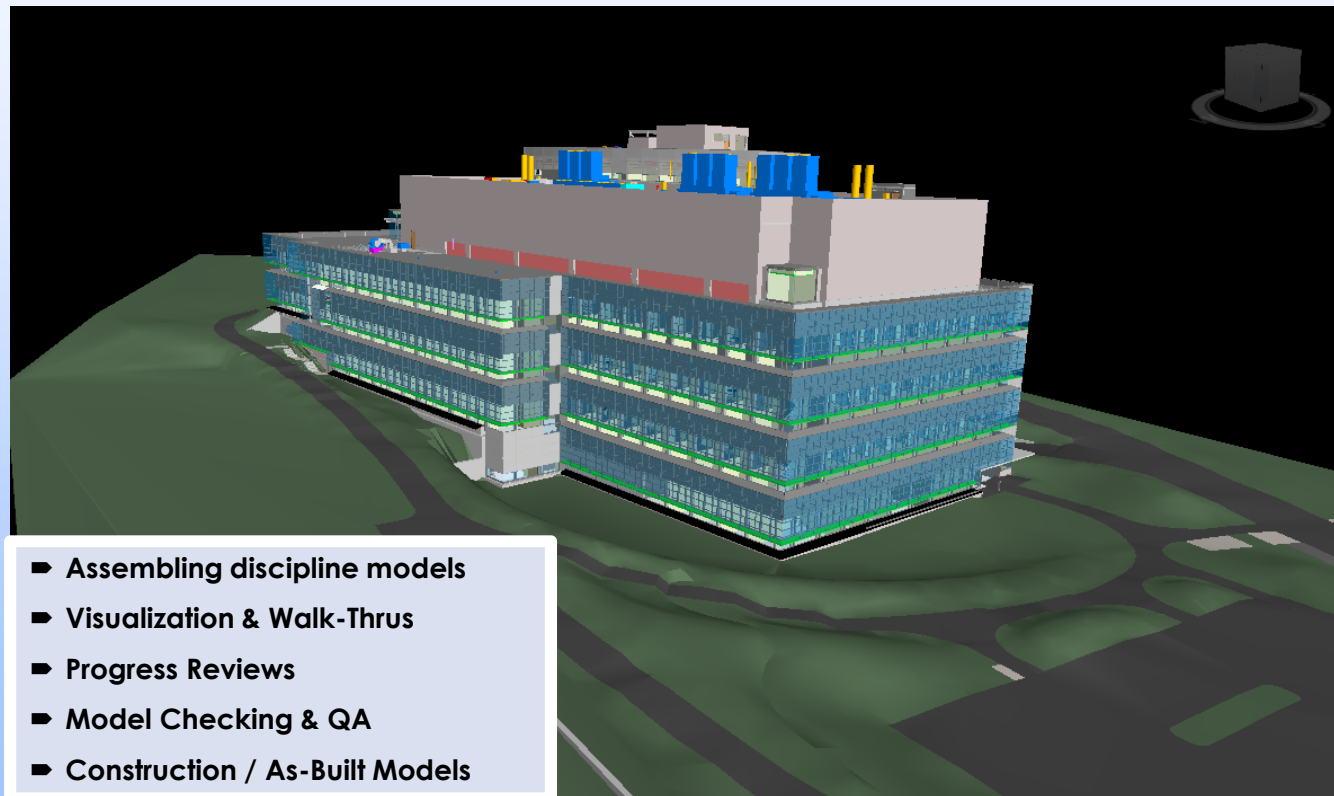
# Scanning of Existing Structures



## Scanning

- Scope & Specs
- Aligning Coordinates
- Level of Development and Detail

# Model Management through Design and Construction



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# Quantity Take-Offs

Autodesk Navisworks Manage 2014 (NOT FOR RESALE) Audubon\_Arch\_Central.nwc

Home Viewpoint Review Animation View Output Render

Append Refresh Reset File Select Save Select Select Selection Quick Find Hide Require Hide Unhide Links Quick Properties Properties Clash TimeLiner Quantification Autodesk Animator Scripter Appearance Profiler DataTools

Project Select & Search Visibility Display Tools Compare

E(-30)-20 : Level 11 (6)

Quantification Workbook

Model Takeoff Virtual Takeoff Select Hide Takeoff Show Takeoff

Items	WBS	Status	WBS	Name	Width	Thickness	Height	Area	Count
External Walls	2.5	2.6	2.6	Windows and External Doors					
Wood Panel on Metal Stud(49)	2.5.1	2.6.1	2.6.1	Curtain panel Clear Glazing	246.952 m	6.299 m	148.526 m	163.797 m²	248.000 ea
6" Curb(3)	2.5.2	2.6.1	2.6.1	Curtain panel Frit Pattern Gl	389.411 m	9.068 m	268.458 m	357.499 m²	357.000 ea
6" stud wall curb(3)	2.5.3	2.6.1	2.6.1	Curtain panel Glass Art Glaz	0.813 m	0.051 m	2.134 m	0.867 m²	2.000 ea
Brakmetal above SF(15)	2.5.4	2.6.1	2.6.1	Curtain panel infill panel Gl	9.278 m	0.279 m	0.140 m	0.118 m²	11.000 ea
Cor Ten on Metal Stud(9)	2.5.5	2.6.1	2.6.1	Curtain panel infill panel ins	17.174 m	0.635 m	14.368 m	7.341 m²	74.000 ea
Open wood slat wall(15)	2.5.6								
Wood panel cap(2)	2.5.7								
Windows and External Doors	2.6								
Curtain panel Clear Glazing(248)	2.6.1								
Curtain panel Frit Pattern Glazing(357)	2.6.1								
Curtain panel Glass Art Glazing(2)	2.6.1								
Curtain panel infill panel Glazing(11)	2.6.1								
Curtain panel infill panel insulated(25)	2.6.1								
Curtain panel interior Glazing(63)	2.6.1								
Curtain panel no vision Glazing(31)	2.6.1								

Status	WBS	Object	Width	Thickness	Height	Area	Volume	Wei
2.6.1.219	2.6.1.219	System Panel	1.236 m	0.025 m	0.432 m	0.534 m²	0.000 m³	
2.6.1.220	2.6.1.220	System Panel	1.448 m	0.025 m	0.864 m	1.250 m²	0.000 m³	
2.6.1.221	2.6.1.221	System Panel	1.238 m	0.025 m	0.864 m	1.069 m²	0.000 m³	
2.6.1.222	2.6.1.222	System Panel	1.448 m	0.025 m	2.108 m	3.052 m²	0.000 m³	
2.6.1.223	2.6.1.223	System Panel	1.238 m	0.025 m	2.108 m	2.610 m²	0.000 m³	
2.6.1.224	2.6.1.224	System Panel	0.762 m	0.025 m	0.052 m	0.039 m²	0.000 m³	
2.6.1.225	2.6.1.225	System Panel	1.473 m	0.025 m	0.052 m	0.076 m²	0.000 m³	
2.6.1.226	2.6.1.226	System Panel	1.473 m	0.025 m	0.052 m	0.076 m²	0.000 m³	

# 4D Scheduling

The screenshot displays a 4D Scheduling software interface. The top half shows a 3D model of a construction site with various structures and cranes. The bottom half shows a task schedule table. Red arrows point from labels to specific elements: 'CAD Models' points to the left sidebar, '4D Schedule' points to the 3D model, and 'Schedule Data' points to the task schedule table.

**CAD Models**

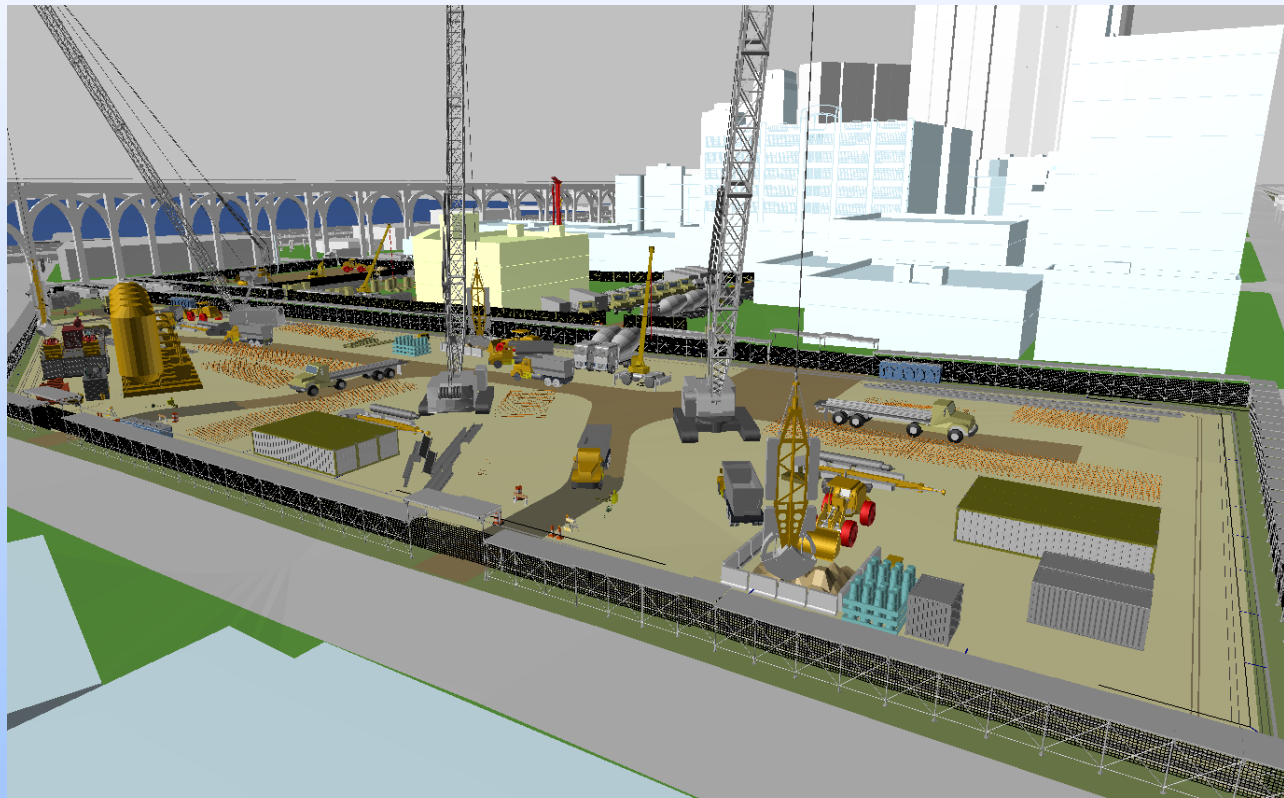
- Base Program.dwg
- Idings 3-4-5.skp
- Site Demolition Phase 1 and part phase 2.skp
- Phase 1 Underground and sewer.skp
- Equip slurry & guide walls.skp
- Equip Use Cranes.skp

**4D Schedule**

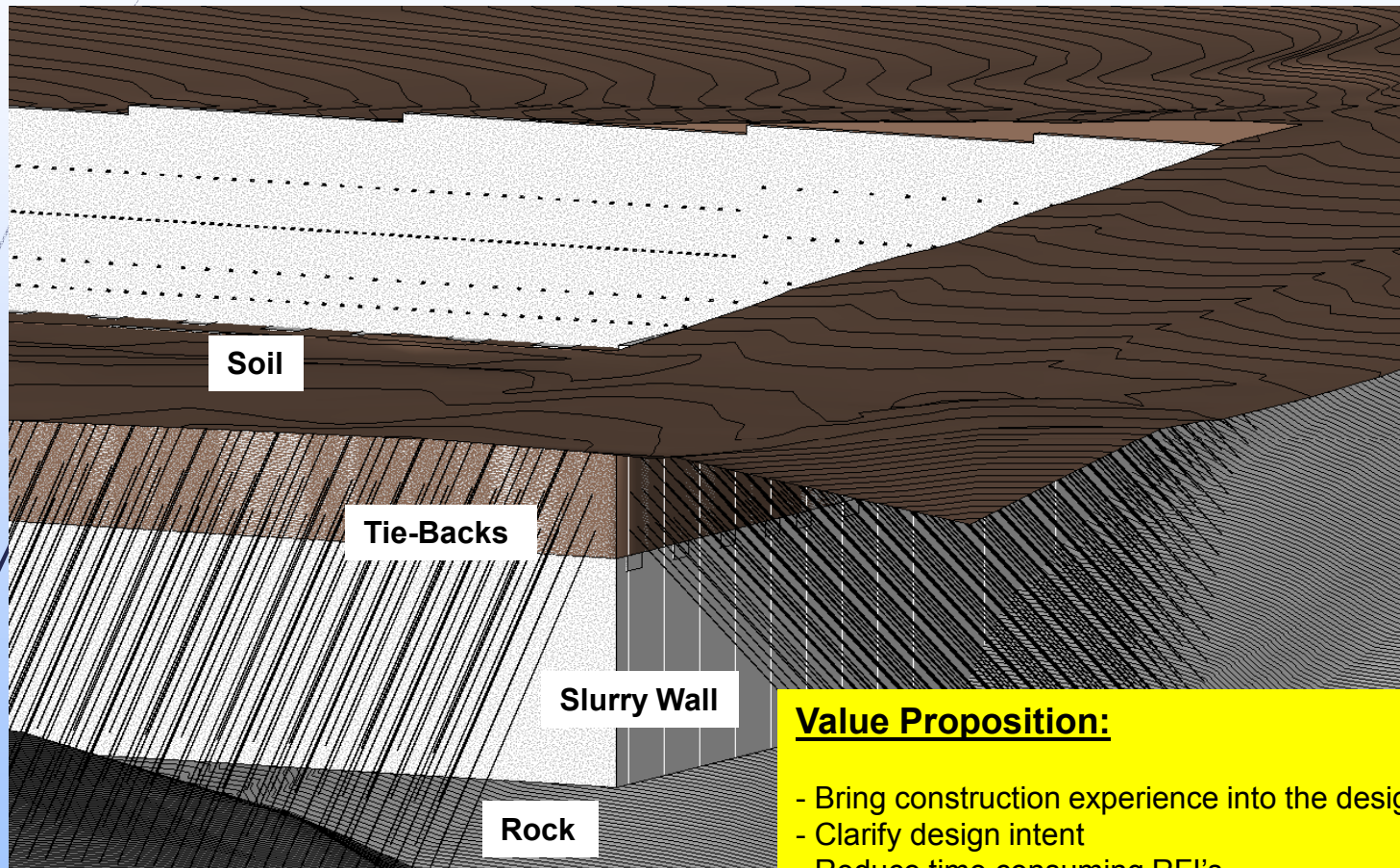
**Schedule Data**

Name	Status	Active	Start	End	Planned Start	Planned End	Task Type	Attached	Link	Index	Unique ID
New Task			12:00:00 AM 12/18/2...	12:00:00 AM 12/18/2...							
New Link									New Link		LcTLinkRoot
General									New Link		Ug000wUJRWVh...
Project Start			8:00:00 AM 1/1/2007	5:00:00 PM 1/1/2007			Background	Attached Selection	New Link	101350	J0Y4c6Nk+H4P...
Phase 1									New Link		dAAK5wNqZU2E...
Package 1 - Sewer Relocation									New Link		ZipNwY280S3g7z...
Broadway Sewer Section Excavate			8:00:00 AM 1/1/2008	5:00:00 PM 1/21/2...			Temporary	Attached Selection	New Link	100020	4a4Lham8NEmIO...
Broadway Sewer Section Lay Pipe			8:00:00 AM 1/22/2008	5:00:00 PM 3/10/2...	8:00:00 AM 1/22/2...	5:00:00 PM 3/10/2...	Construct	Attached Selection	New Link	100100	qIgZQh+vJ0G+1J...
Broadway Sewer Section Backfill			8:00:00 AM 3/11/2008	5:00:00 PM 3/31/2...	8:00:00 AM 3/11/2...	5:00:00 PM 3/31/2...	Construct	Attached Selection	New Link	101360	1BtUuAlJpKvAZ...
129th Street Sewer Section Excavate			8:00:00 AM 4/1/2008	5:00:00 PM 4/30/2...	8:00:00 AM 4/30/2...	5:00:00 PM 4/30/2...	Temporary	Attached Selection	New Link	100030	X27T00+K0GqzU...
129th Street Sewer Section Lay Pipe			8:00:00 AM 5/1/2008	5:00:00 PM 7/1/2008	8:00:00 AM 5/1/2008	5:00:00 PM 7/1/2008	Construct	Attached Selection	New Link	100040	YVP/05D50W3C...
129th Street Sewer Section Backfill			8:00:00 AM 7/2/2008	5:00:00 PM 7/31/2...	8:00:00 AM 7/2/2008	5:00:00 PM 7/31/2...	Construct	Attached Selection	New Link	101370	wUuplqEnU+Xnc...
125th Street Sewer Section Excavate			8:00:00 AM 8/1/2008	5:00:00 PM 9/11/2...	8:00:00 AM 8/1/2008	5:00:00 PM 9/11/2...	Temporary	Attached Selection	New Link	101230	DoSIGENckNCnz...

# 3D Site Logistics Plans



# Constructability Studies



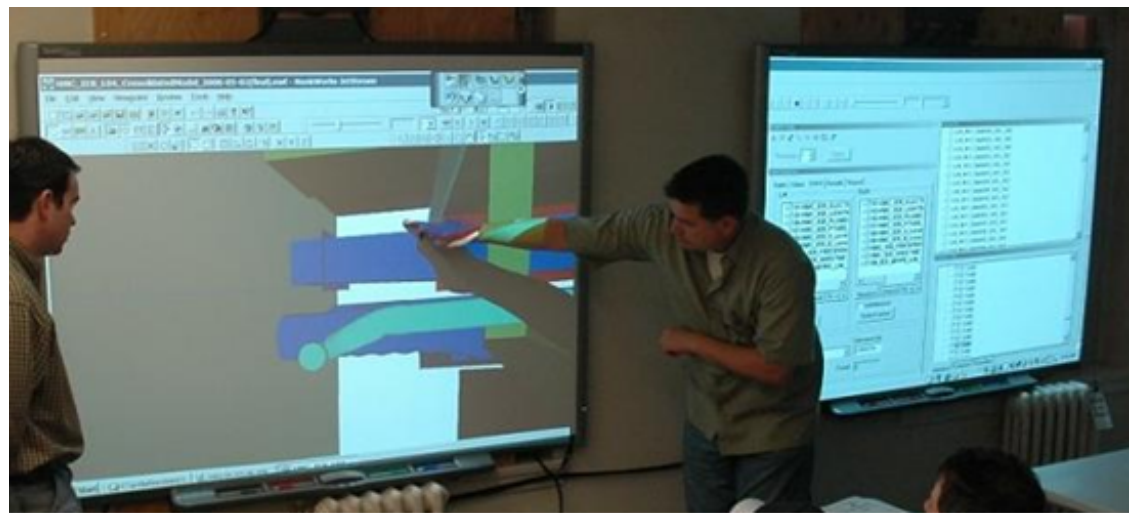
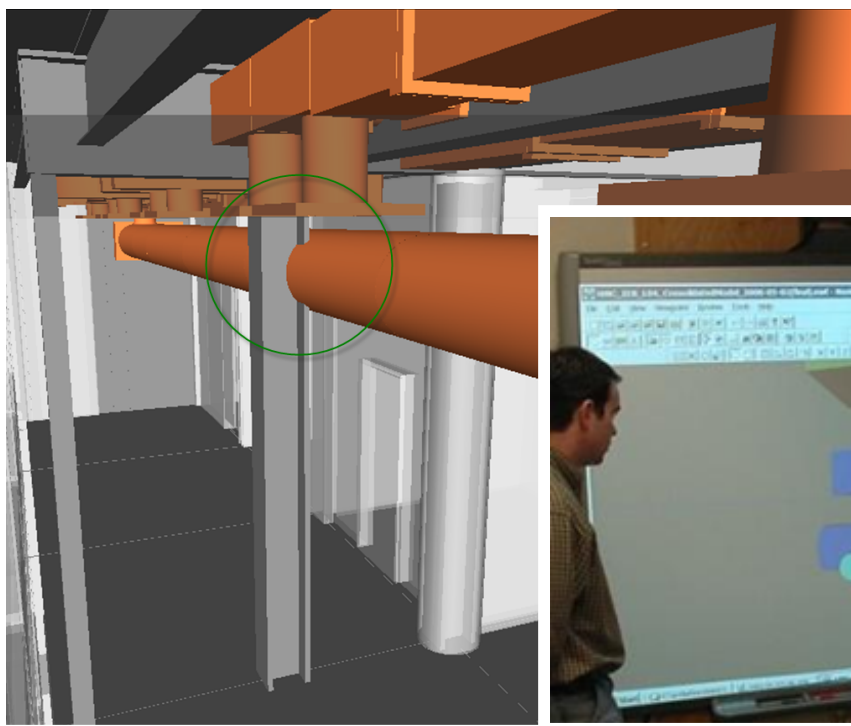
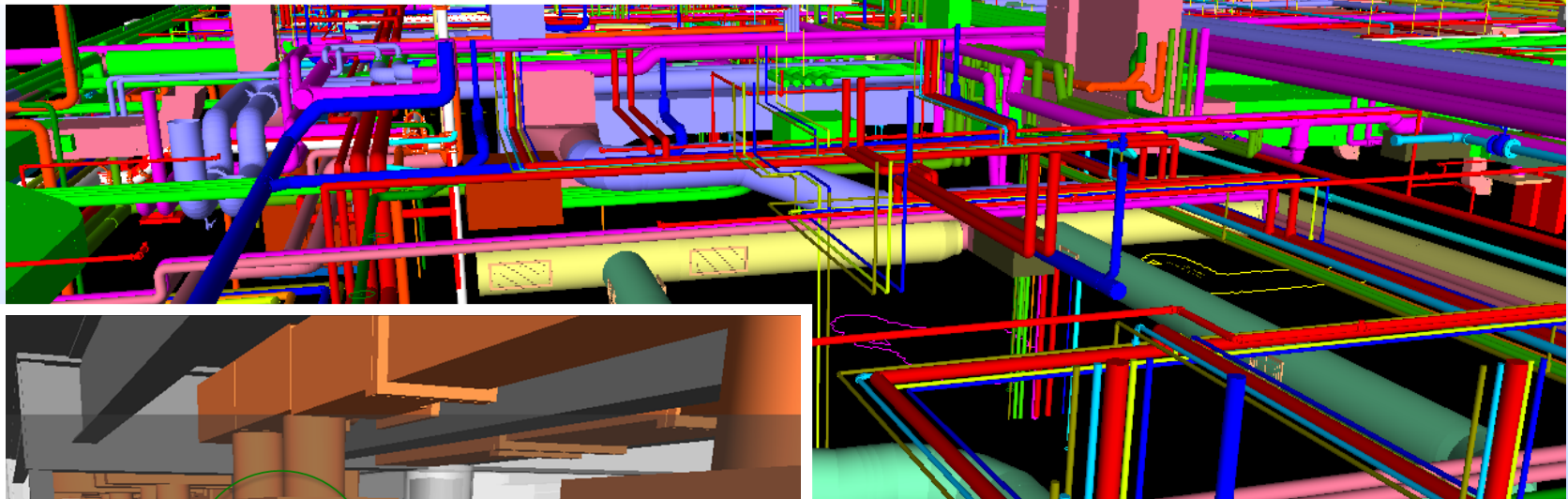
## Value Proposition:

- Bring construction experience into the design phase
- Clarify design intent
- Reduce time consuming RFI's
- Reduce schedule delays and costly change orders

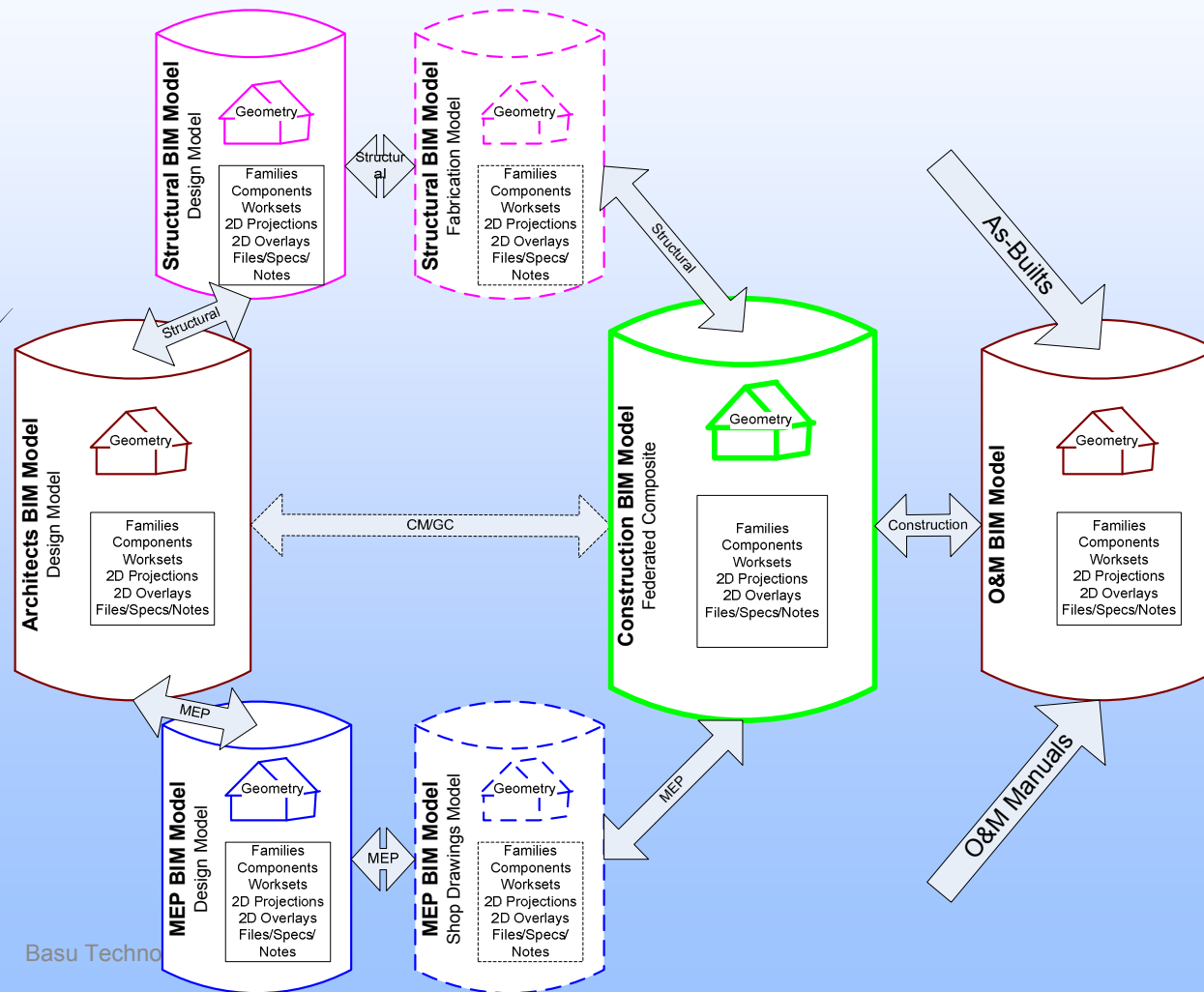


## 3D Coordination

- Scope Packaging & Specs
- Process, Procedures & Standards
- Clash Detection / MEP Coordination



# Model Data Management





# Project Experience

- Implement BIM during design for a major facilities expansion program – developing BIM contract specifications, organizing scanning and setting up guidelines and process for the design phase
- 4D Schedule for Multi Phase Construction Programs
- Set up 3D coordination for complex lab project
- 3D coordination for a data center project for a CM
- BIM Implementation Plan for a large Facilities Owner
- BIM consulting services for a teaching laboratory through design and construction to as-built model
- Modeling services to MEP sub-contractors
- BIM for enhanced project controls in multiple projects
- As-Built BIM Models
- Setting up BIM for FM

# Doing BIM since 2007

**Call us for a conversation on how we can be a part of  
your success!**

**Abhi Basu**

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**Cell Phone: 609 828 9022**

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