

INTRODUCTION TO BUILDING INFORMATION MODELING (BIM)



TAAMAESEK
ENGINEERING CONSORTIUM | ARCHITECTS & ENGINEERS



T A A M A E S E K

ENGINEERING CONSORTIUM

ARCHITECTS & ENGINEERS

ABOUT US

Taamaesek Engineering Consortium is a professional India based architectural firm, with an enviable track record in successful and timely implementation of landmark projects in India, Dubai, Kenya, Singapore, Malaysia & East Timore Island. Its Commitment towards delivering value, expertise and innovation is evident in the various projects.

Taamaesek is now rated among the top 30 architects in India by Forbes for the year 2021 in India. Taamaesek has also won many other awards like National excellence & Best environmentally designed project award.

Taamaesek is a partnership company, founded by Vijayanandan., A graduate from NUS who partnered with Roopa Sree Ram, Architect & master graduate in Urban and regional design from USA. Taamaesek offers services like architecture, BIM, Structural, MEP, Project management & QS across the globe – a value driven one-stop-shop for clients requiring all architectural and related services.

As on date, the firm employs more than 65 professional architects and engineers with a judicious blend of youth and experience.

Track Record – Domestic and International

Taamaesek has provided entire spectrum of services to as many Information Technology, Hospitality, Healthcare, Institution, Real estate, Residential and Industrial sectors. It is now recognized as a niche player across Pan India.

By virtue of its expertise and experience in working on projects abroad, Taamaesek in a unique position to blend international architectural practices in Indian projects. Backed by the rich experience of working with Dragages et Travaux in the development of large and prestigious projects in Singapore, Taamaesek offers the best-in-class solutions to discerning customers driven by quality and value.

Taamaesek's architectural capability and competency is evident in its successful association in the development of hotels such as Fullerton Hotel, Ritz Carlton, commercial office properties such as Millennium Towers, Centennial Towers and residential projects namely Hazel Park and Flora Vale Condominiums.

Network

Taamaesek's Head Offices are located in the southern metropolis of Chennai, which is home to a thriving real estate sector in IT, hospitality, commercial and residential segments.

Collaboration

As part of its continuous efforts to offer improved range of services to clients, Taamaesek has entered into Joint Venture arrangements with leading international companies namely PBA (UK), Fujita (Japan) and Buildings (Singapore). These initiatives provide Taamaesek the cutting edge design, engineering and project management capabilities to execute large and complex projects across the entire real estate spectrum.



T A A M A E S E K

ENGINEERING CONSORTIUM

ARCHITECTS & ENGINEERS

PARTNERS



**Founder & Partner
Vijayanandan**

VIJAYANANDAN - Founder & Partner

Having worked with Dragages et Travaux on many prestigious projects in Singapore, like the Fullerton Hotels, Ritz Carlton, Hazel Park & Flora Vale condominiums, Millennia Towers & Centennial Towers, its founder, Vijayanandan brought invaluable experience and insight to the company. He also leads a motivated team of highly competent core engineering professionals, Architects and Engineers from diverse backgrounds who constitute an efficient and qualified unit focused on a value engineered design.



**Managing Partner
Roopa Sree Ram**

ROOPA SREE RAM. - Managing Partner

Roopa Sree Ram, B.Arch, M.S urban design (USA) is a skilled professional having immense strength in strategic thinking and a creative bent of mind with strong visualization skills. Roopa has intense experience in designing, planning, and overlooking the construction of versatile structures like institution, residential, commercial, healthcare and hospitality.

CONTACT US

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ARCHITECTURE IS TO MAKE US KNOW AND REMEMBER WHO WE ARE



CLIENT'S
REQUIREMENT

BIM

PROJECT MANAGEMENT

QUANTITY SURVEYING

M&E SERVICES

STRUCTURAL DESIGN

INTERIOR DESIGN

ARCHITECTURE



WHAT WE DO IS ALL WHAT YOU NEED

TEAM PROFICIENCY & SOFTWARE PROFICIENCY



Revit Suite



BIM 360



AutoCAD



Lumion



ReCapture



Navisworks Manage



Sketch Up

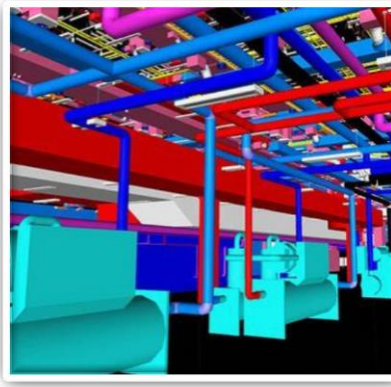


Rhino

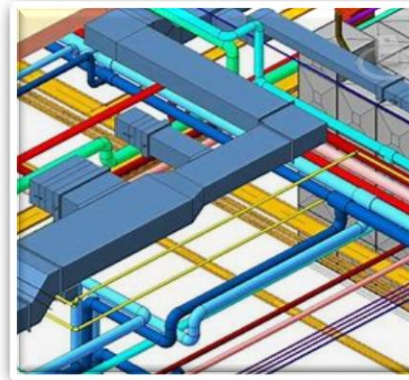
OUR ENGINEERING SERVICES



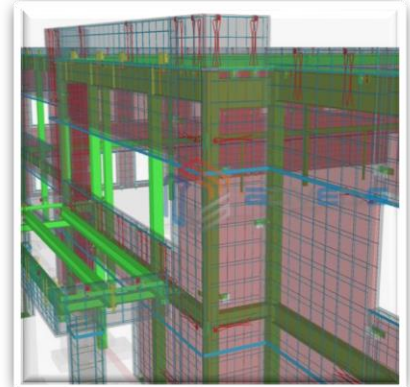
ARCHITECTURAL MODELING



**MEP
MODELING**



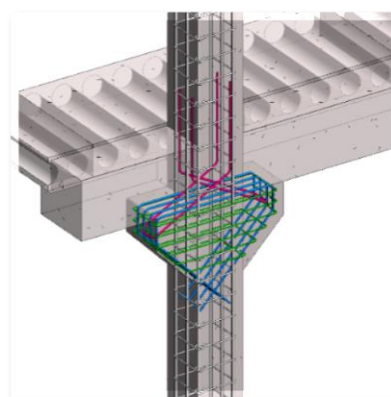
**COORDINATION &
CLASH RESOLUTION**



PRECAST DETAILING



**POINTCLOUD
MODELING**



REBAR DETAILING



BIM CONSULTING



STEEL DETAILING

1. BIM IMPLEMENTATION

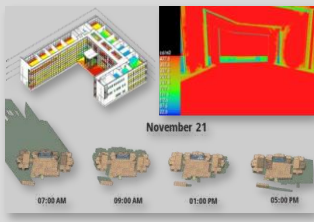
- Firm wide BIM policy & Implementation Guidelines
- Project wise Implementation
- BIM Manual for Firm
- Setting up QA/QC Manual for Company



2. SUSTAINABLE SERVICE

We practice an integrated approach & explore various opportunities at early design stages to optimize passive design measures & comfort parameters.

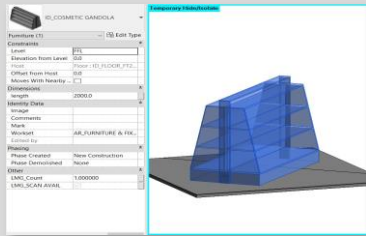
- Energy Modelling
- SunPath Analysis



3. BIM CONTENT DEVELOPMENT

To enforce company / manufacturer standards

- Custom templates to address specific needs
- Step by step parametric families
- Revit family development with Geometry and data rich attributes



4. VISUALISATION & VR

- Photo-realistic architectural and interior rendering and animation walkthroughs
- Interactive building walk through Virtual Reality



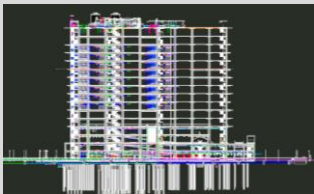
5. ARCHITECTURAL BIM

- Our goal is to provide digital design simulations to our clients so that they can effectively manage complex projects
- We resolve complex architectural facades using parametric modelling and computational design



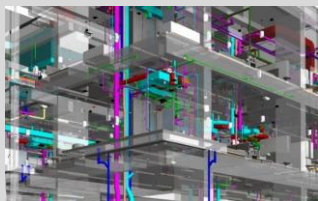
6. STRUCTURAL BIM

- We provide definitive Structural Building Information Modelling services for large scale infrastructure projects.
- We provide detail modelling for key components like columns, beams and bolts.



7. MEP BIM

- We generate models from concept stage to design development, shop drawings and as built models.
- We provide value engineering and coordination for MEP services (sizing, rerouting with to reference NFPA, UPC, ASHRAE standards).



8. 4D SCHEDULING

- Project Phasing Simulations
 - Visual Validation for payment Approval
- ### 5D Estimating
- Real time conceptual modeling and cost planning
 - Quantity extraction to support detailed cost estimates



9. AS-Built BIM

- 3D laser scanning to BIM models
- Updating/Developing the As-built information to the BIM Models

ASSET DATA & COB

- Asset tagging and scheduling
- Incorporating COB ie data and FM data as per project requirements

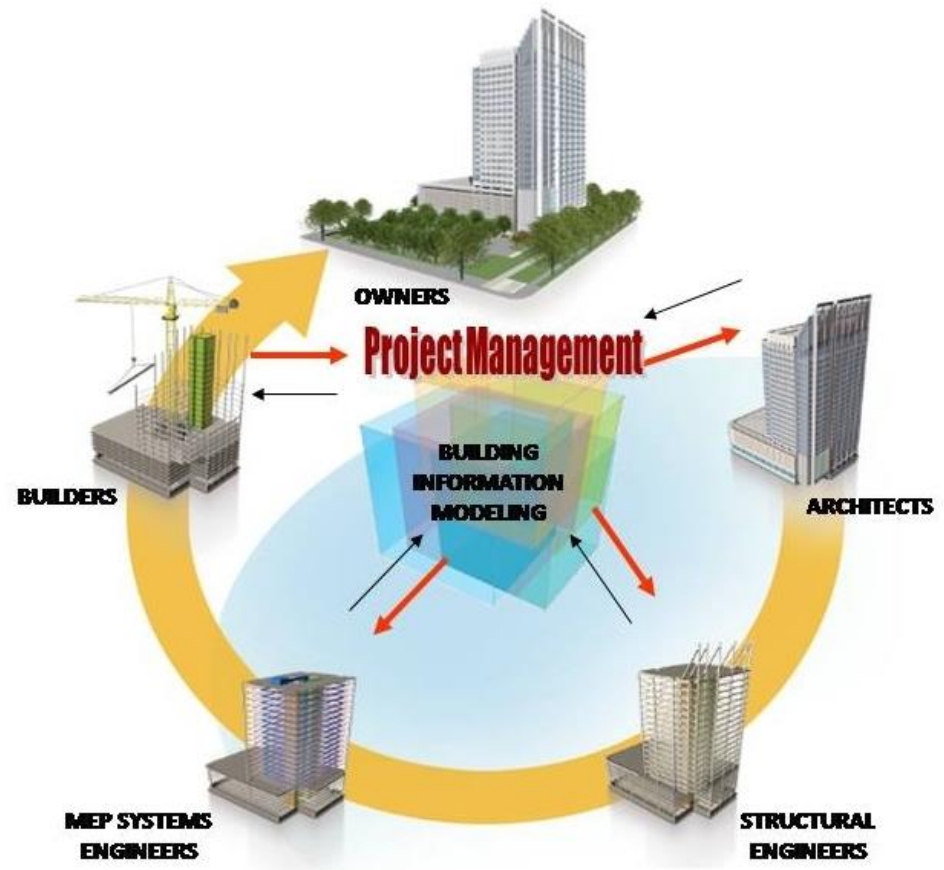


List of BIM services we provide constantly

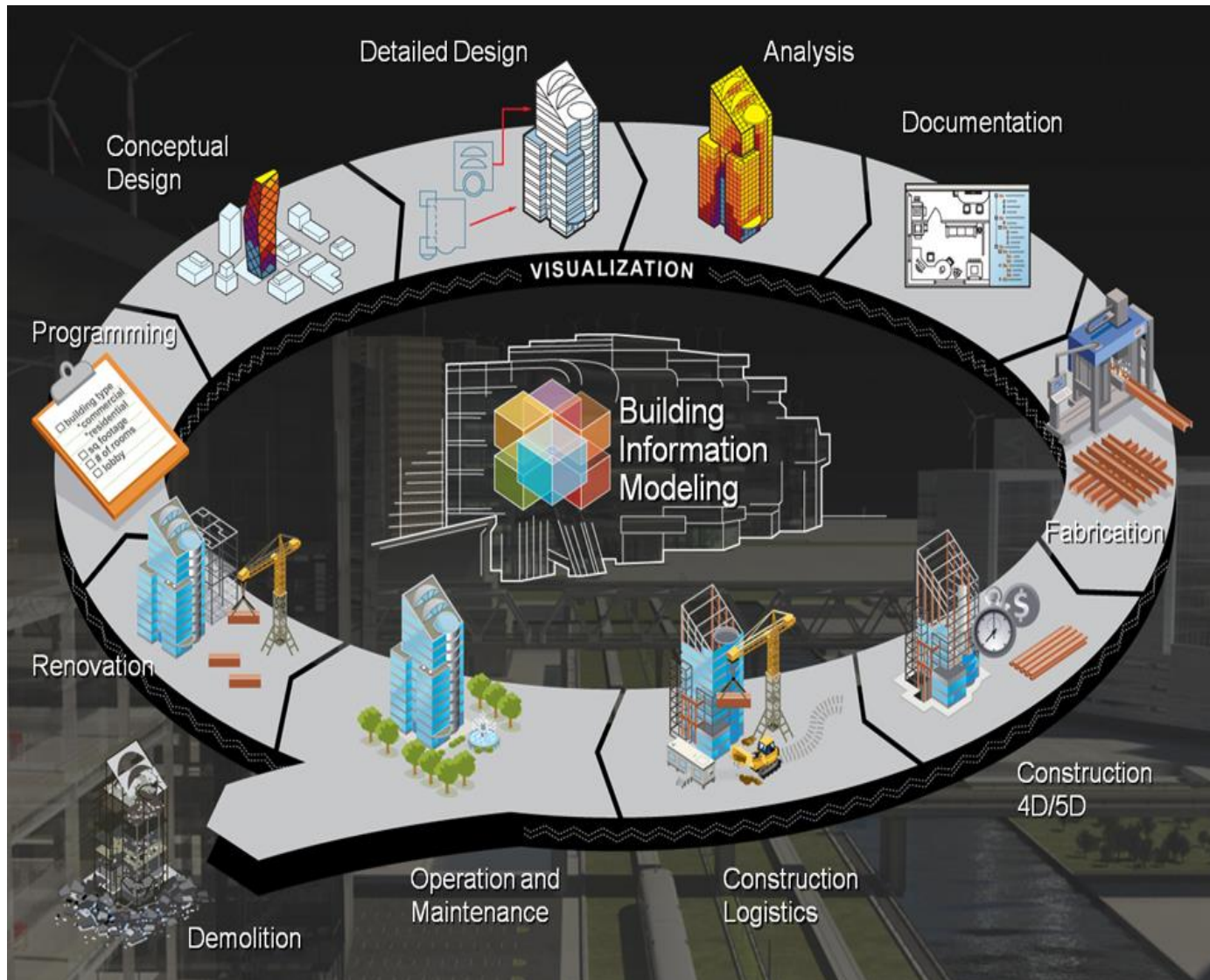
BIM SERVICES

WHAT IS BIM ?

- Building Information Modeling (BIM) is a digital representation of physical and functional characteristics of a facility. BIM is the shared knowledge resource of information. It is also the life time quality administration of any project. BIM, not only manages and model graphics, but also all information.
- This information allows automatic generation of drawings and reports with design analysis, schedule simulation, facilities management, and much more.



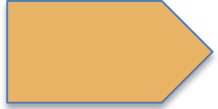
BIM-PROJECT LIFE CYCLE



Benefits of BIM



1. Better outcomes through collaboration



2. Enhanced & optimized performance



3. Optimized solutions



4. Greater predictability



5. Faster project delivery - Time savings



6. Reduced safety risk

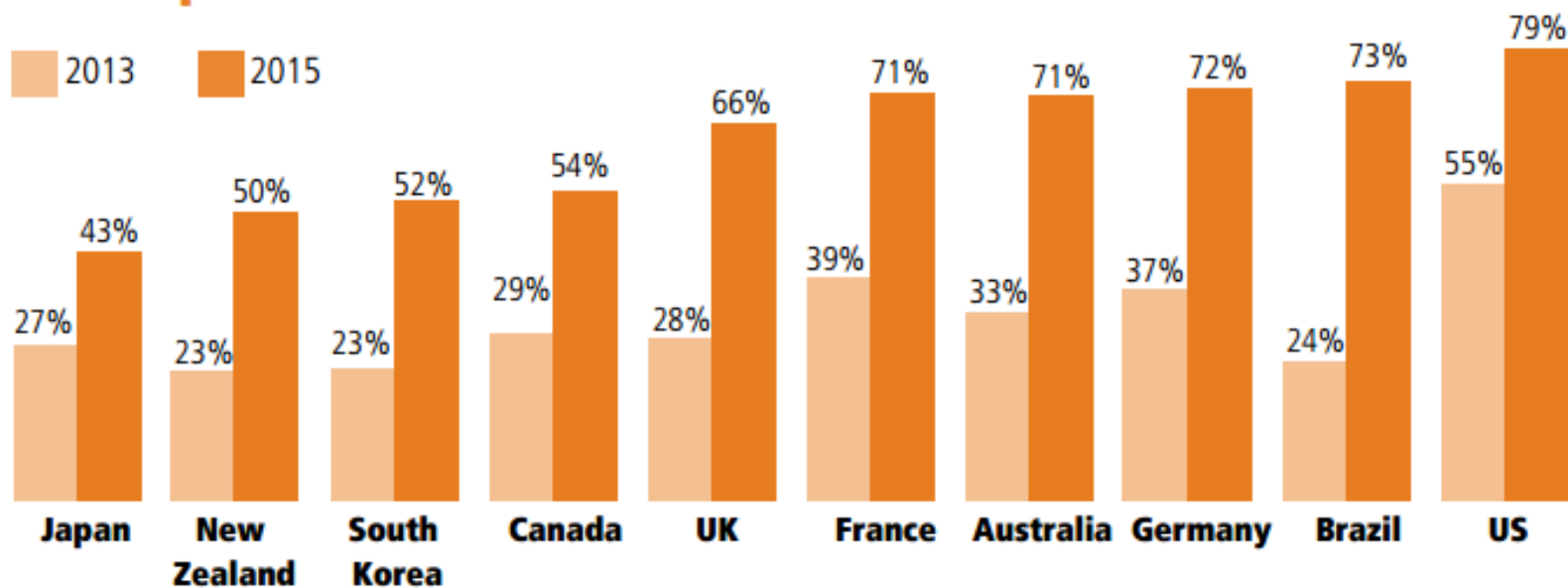


7. Fits first time



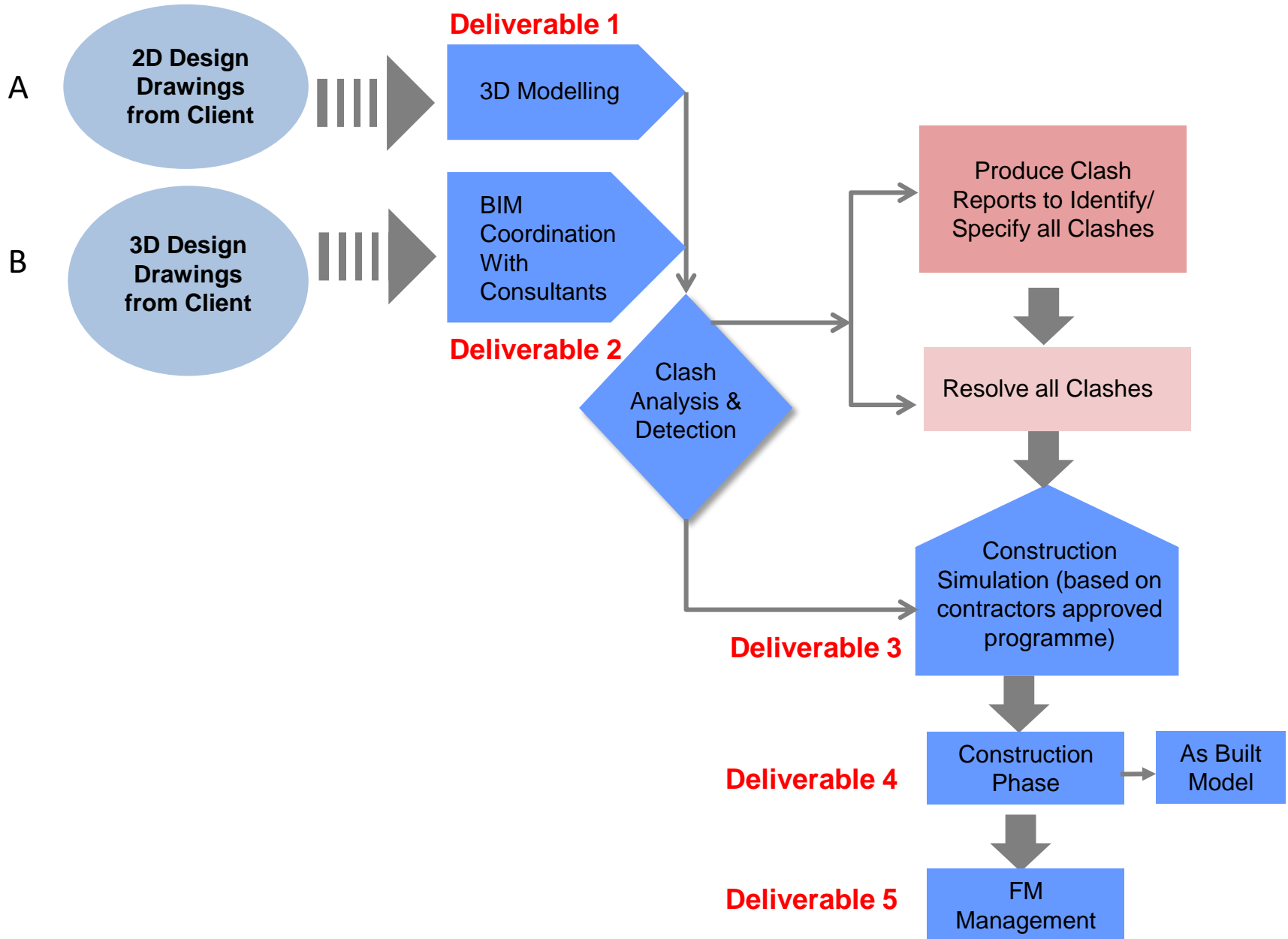
8. Reduced waste

Percentage of contractors at high/very high BIM implementation levels

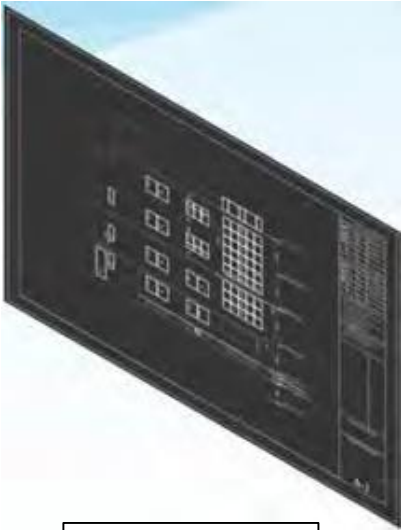


Source: McGraw Hill Construction, 2013

BIM Process Flow



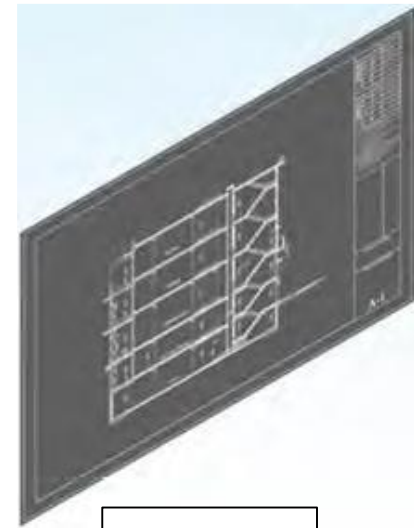
BIM - DELIVERABLES



ELEVATION



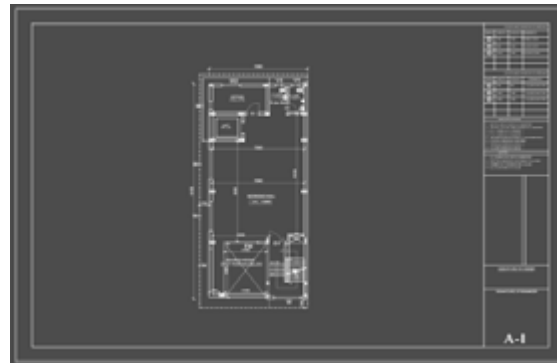
BIM MODEL



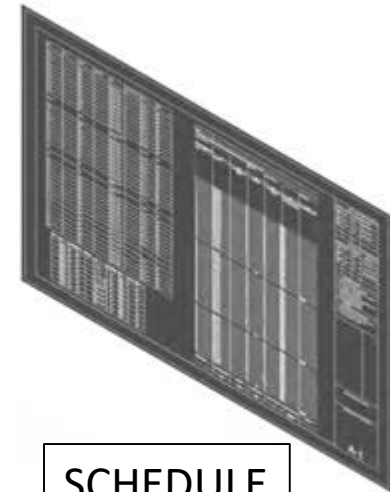
SECTION



DETIAL DRAWING



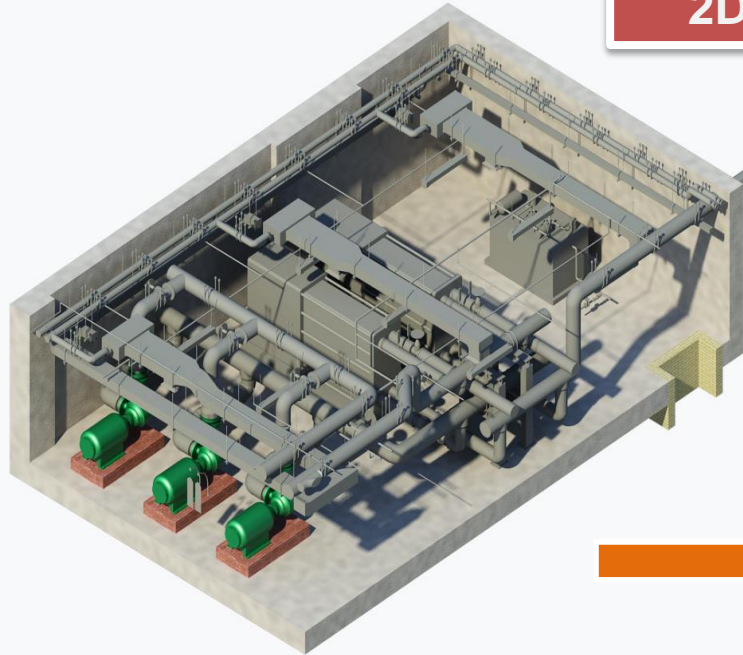
PLAN



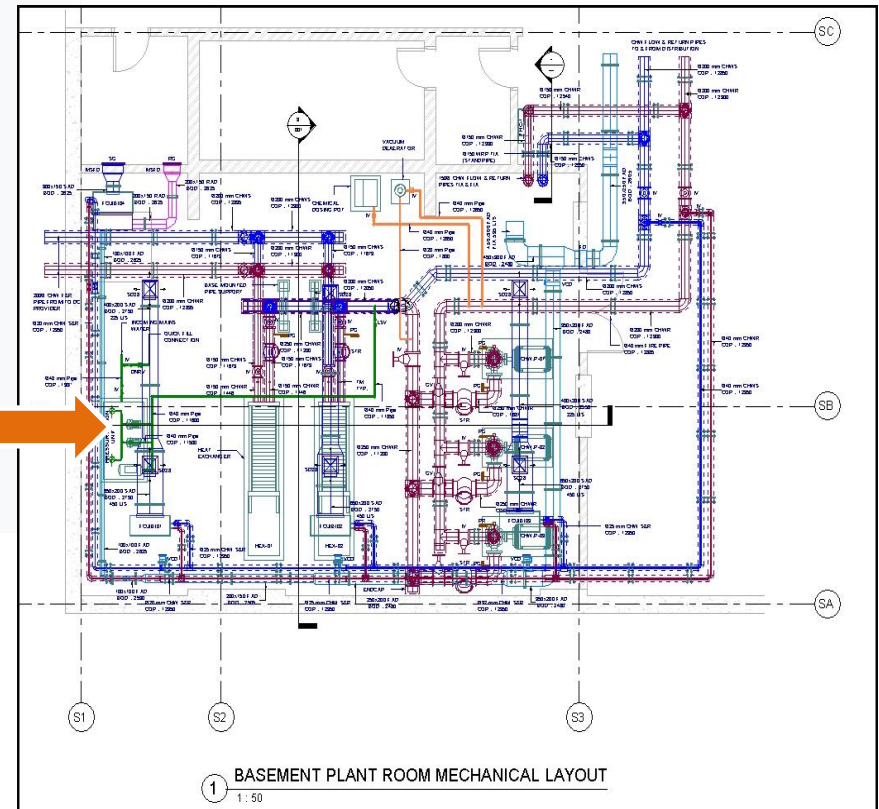
SCHEDULE

BIM - DELIVERABLES

2D EXTRACTION



3D MODEL

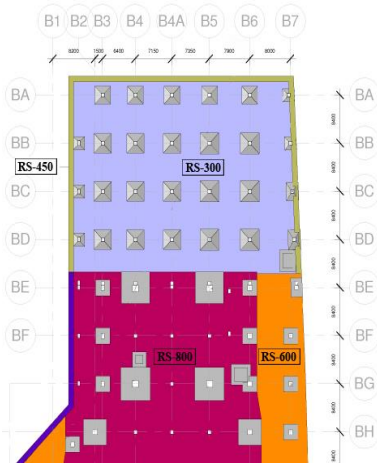


2D LAYOUT

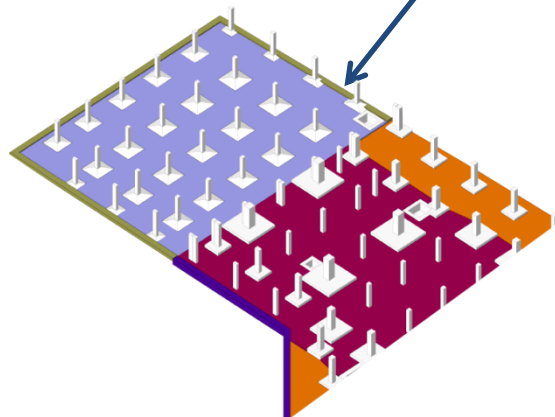
BIM - DELIVERABLES

QUANTITY TAKE-OFF

Raft Slab Concrete Quantities



CROSS REFERENCE BOQ



LEGEND:-

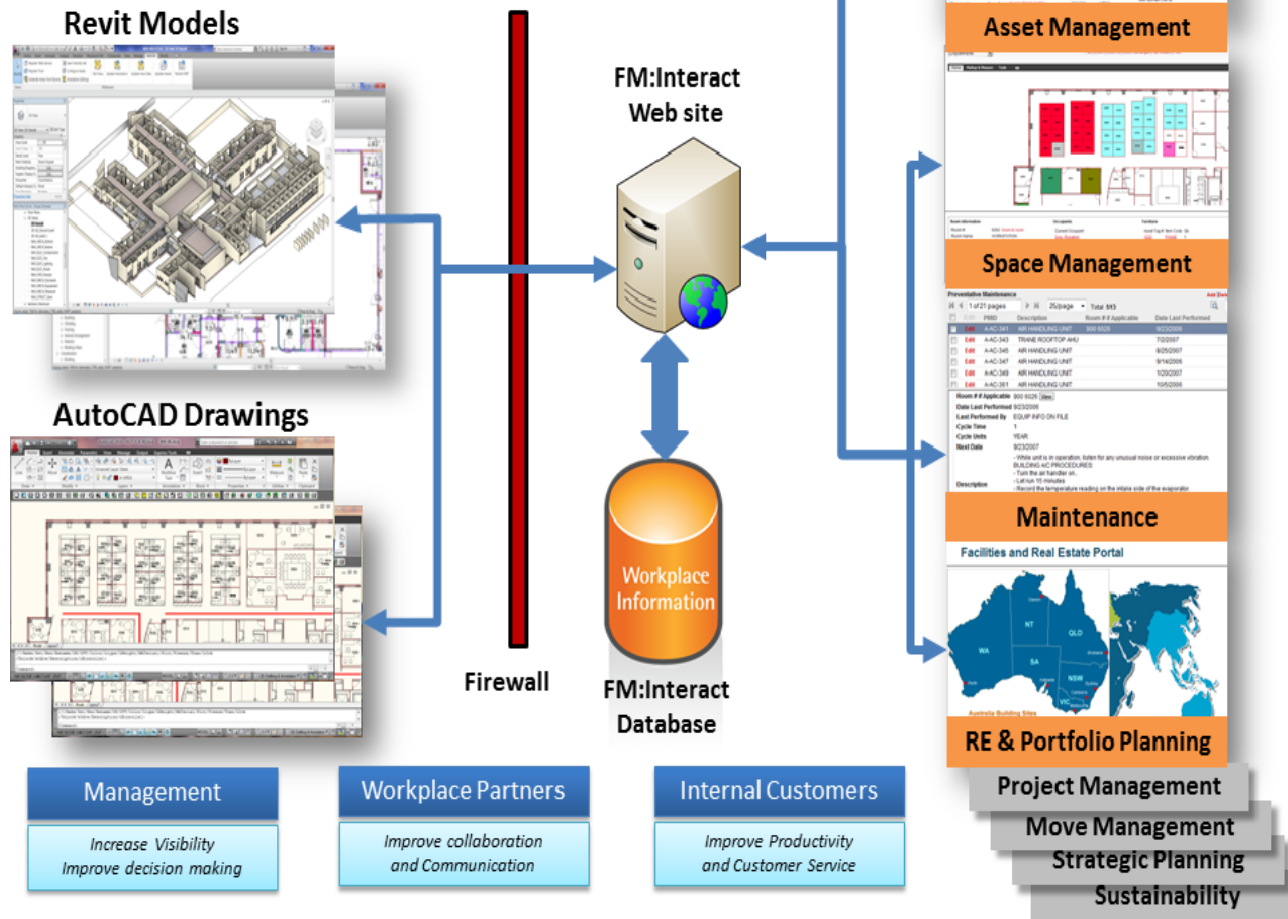
- 300mm Thk RCC SLAB
- 450mm Thk RCC SLAB
- 600mm Thk RCC SLAB
- 800mm Thk RCC SLAB
- 900mm Thk RCC SLAB

SCHEDULE OF RAFT SLAB - SECOND BASEMENT BLOCK A			
TYPE	TYPE MARK	AREA	VOLUME
600mm-RCC SLAB	RS-600	2309.474 m ²	1385.685 m ³
800mm-RCC SLAB	RS-800	3181.904 m ²	2545.523 m ³
900mm-RCC SLAB	RS-900	92.888 m ²	83.599 m ³
		5584.266 m ²	4014.807 m ³
SCHEDULE OF RAFT SLAB - SECOND BASEMENT BLOCK B			
TYPE	TYPE MARK	AREA	VOLUME
600mm-RCC SLAB	RS-600	3991.480 m ²	2394.888 m ³
800mm-RCC SLAB	RS-800	3137.848 m ²	2510.279 m ³
900mm-RCC SLAB	RS-900	83.019 m ²	74.718 m ³
		7212.348 m ²	4979.884 m ³
SCHEDULE OF RAFT SLAB - SECOND BASEMENT BLOCK C			
TYPE	TYPE MARK	AREA	VOLUME
300mm-RCC SLAB	RS-300	1145.652 m ²	343.696 m ³
450mm-RCC SLAB	RS-450	107.542 m ²	48.394 m ³
		1253.194 m ²	392.090 m ³

INTEGRATION WITH FM TOOLS

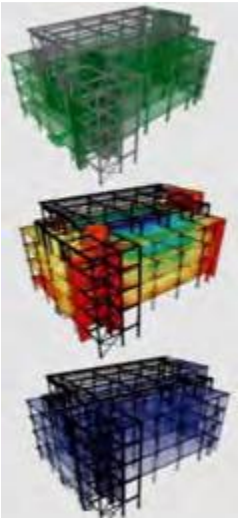
BIM - DELIVERABLES

FM:Interact Lifecycle BIM

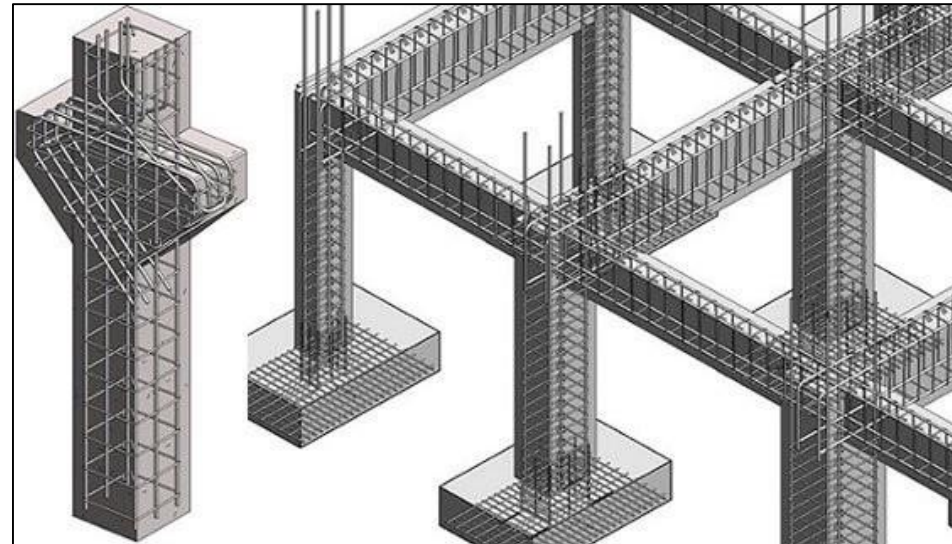


BIM - DELIVERABLES

STRUCTURAL DETAILING



Using third party structural analysis software's, design validation safety can be assured.



BAR BENDING SCHEDULE

Bar Number	Bar Details	Bar Length	Bar Weight	Bar Quantity	Bar Total Weight
Bar 1A	Face 1A, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1B	Face 1B, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1C	Face 1C, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1D	Face 1D, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1E	Face 1E, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1F	Face 1F, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1G	Face 1G, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1H	Face 1H, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1I	Face 1I, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100
Bar 1J	Face 1J, 300 x 400mm Concrete Rectangular Beam (24.00)	2.400	1.100	1	1.100

- Economical use of reinforcement
- Reduce wastage
- Accurate amount of reinforcement for procurement

Rebar modeling

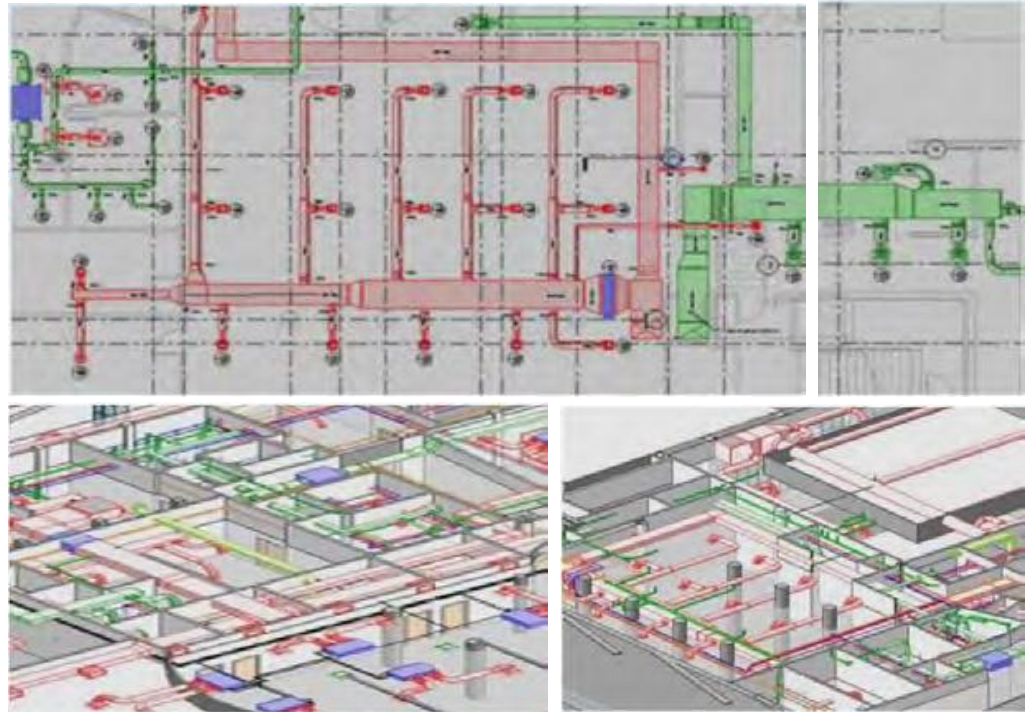
Ductile Detailing

IS : Code compliance

BIM - DELIVERABLES

SERVICE PLANNING & MEP

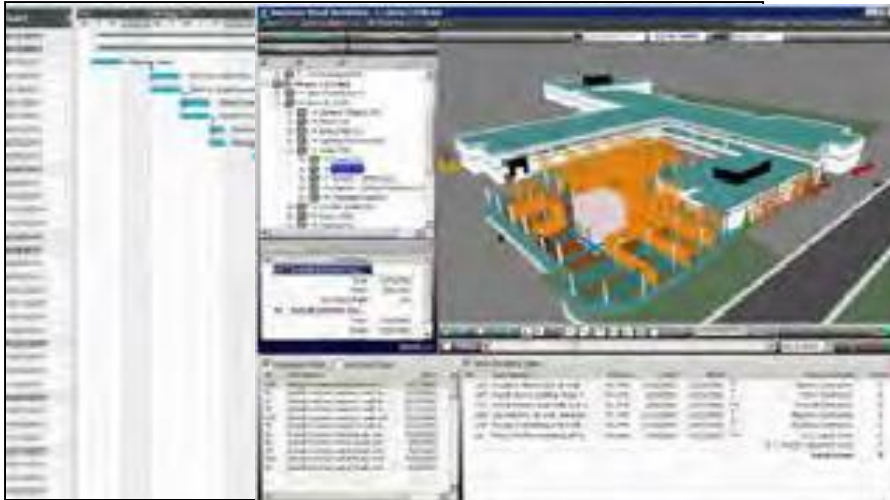
- Planning of HVAC 'S in 3D
- Flow analysis – Throw & Return
- Energy Simulation – Heat Loss & Heat Gain
- Clash Detection & co-ordination
- Electrical Load calculation
- Plumbing design
- Construction drawings
- Fabrication details to vendor



BOQ & COST ESTIMATION

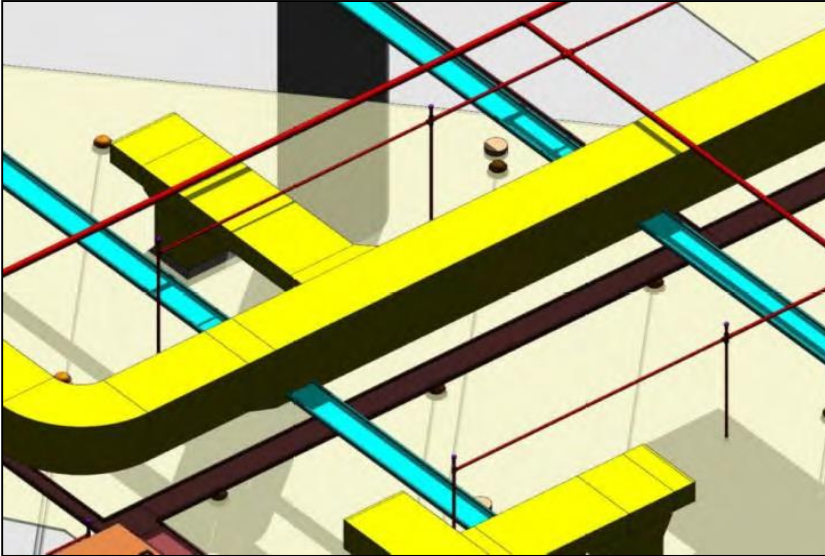
- Itemized Quantity Extraction
- Accurate Quantity Material takeoff
- No additional manipulation
- Specific compliance
- CPWD/ Other BOQ formats
- Billing

PROJECT MANAGEMENT



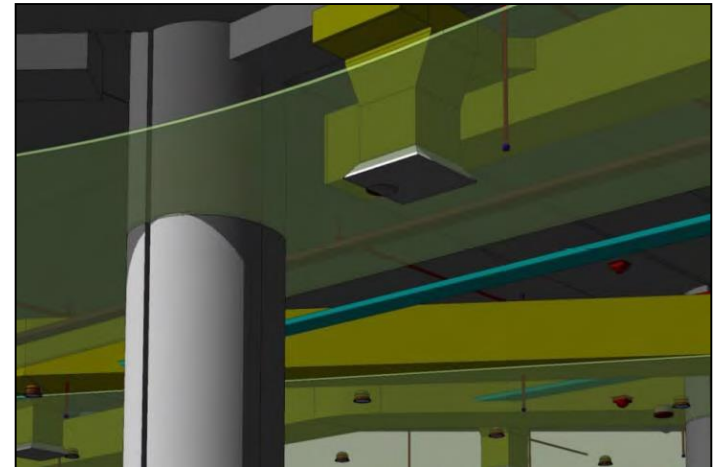
- Phasing and monitoring of volume of work
- Inventory and Store Management
- Taskforce planning & Manpower Management
- 4D Real Time Simulation
- Bill Verification

SERVICE PLANNING & 3D MODELING

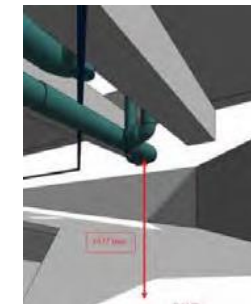
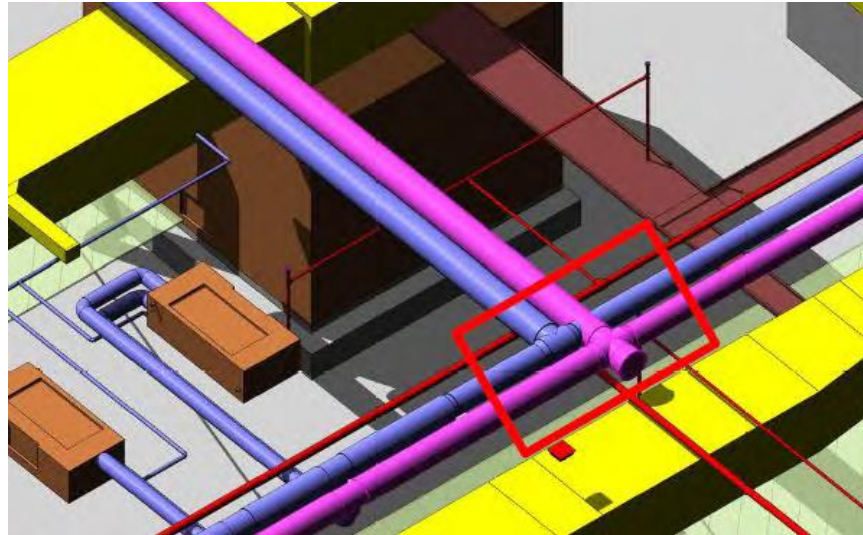
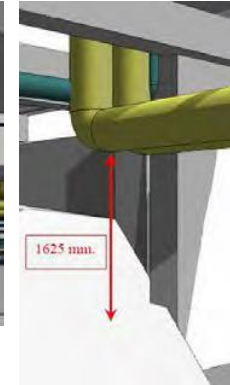
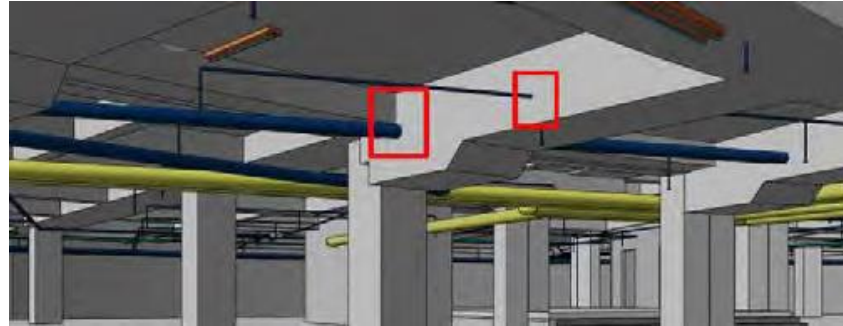
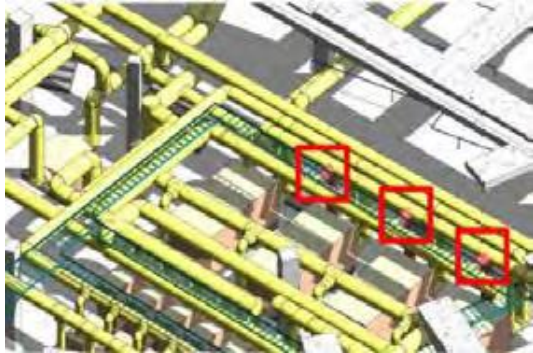


SCOPE OF WORK

- 3D Visualization
- Clash Point Checking & Solutions
- Pre-fabrication



CLASH VIEW MODELING



THANK YOU