ODE Consultants

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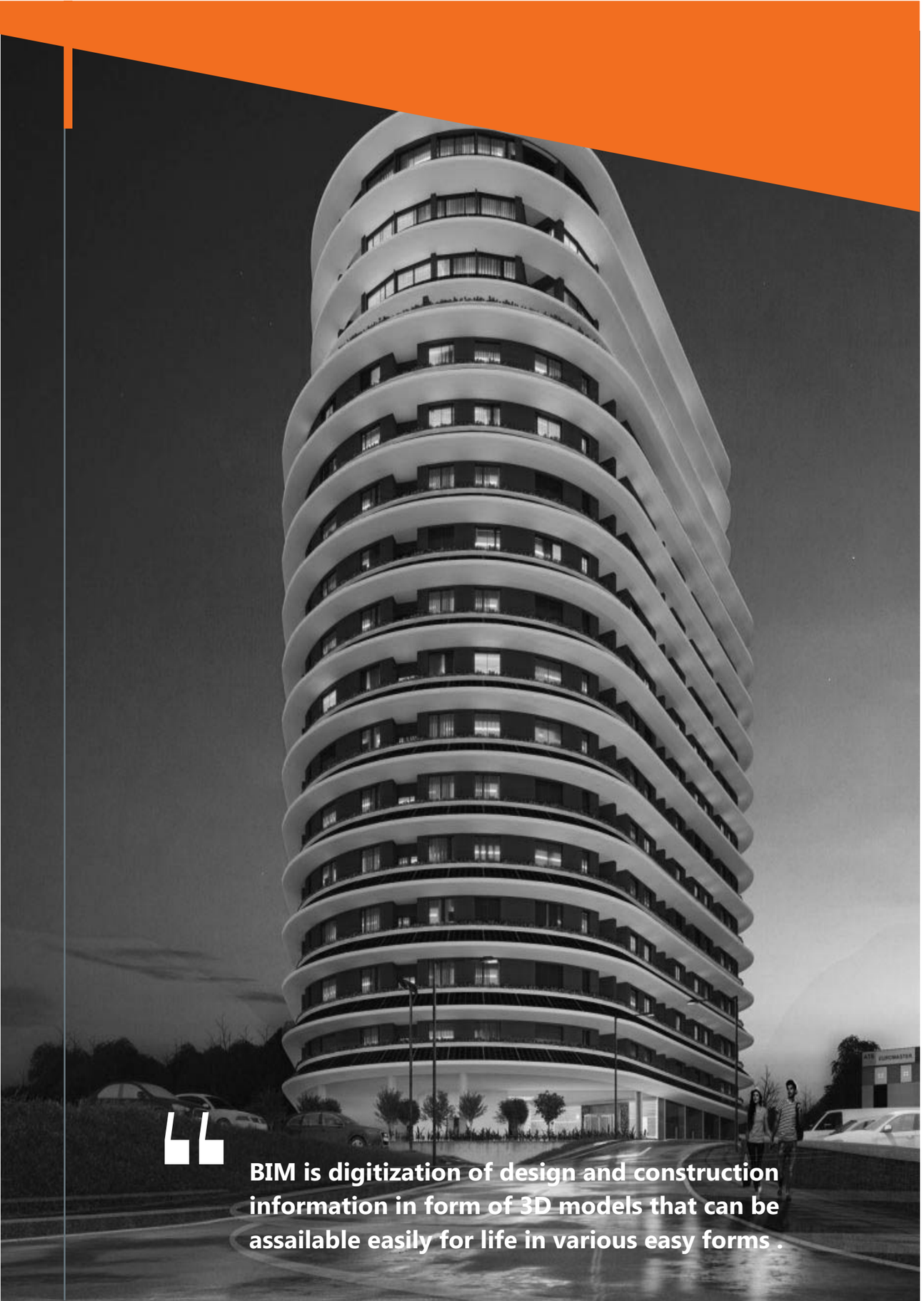
ODE Consultants

YOUR GLOBAL PARTNERS FOR **BIM**



BIM is digitization of design and construction information in form of 3D models that can be assailable easily for life in various easy forms .

ODE Consultants

Welcome

We at ODE Consultants offer solutions for working on and implementing BIM (Building Information Modeling) in construction projects. BIM is a fresh approach to Design and Documentation in construction projects, to bring about a collaborative approach to working, production of coordinated information and proposals in a mutually accessible Common Data Environment (CDE). This enables remote working from geographically distributed offices enabling access to up-to-date information, enabling decision making from a single repository of data and information.

Our expertise covers every aspect of BIM creation, from training and support to design, construction and integration.

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A.1 ODE PROFILE

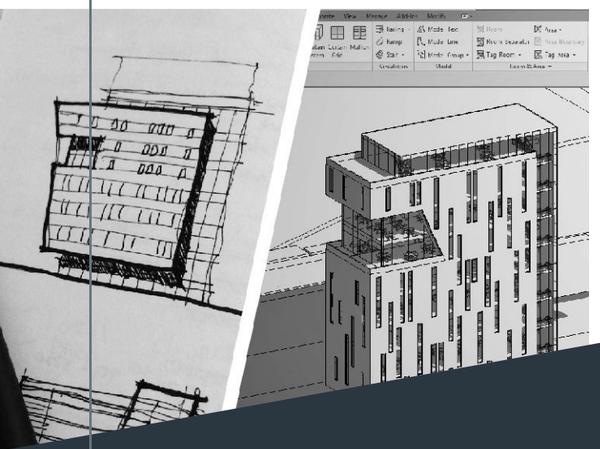
ODE Consultants

"A firm of Architects, Structural and MEP professionals proficient in BIM (Building Information Modelling). Also a solution providers to EPC projects in building services design to the international markets"

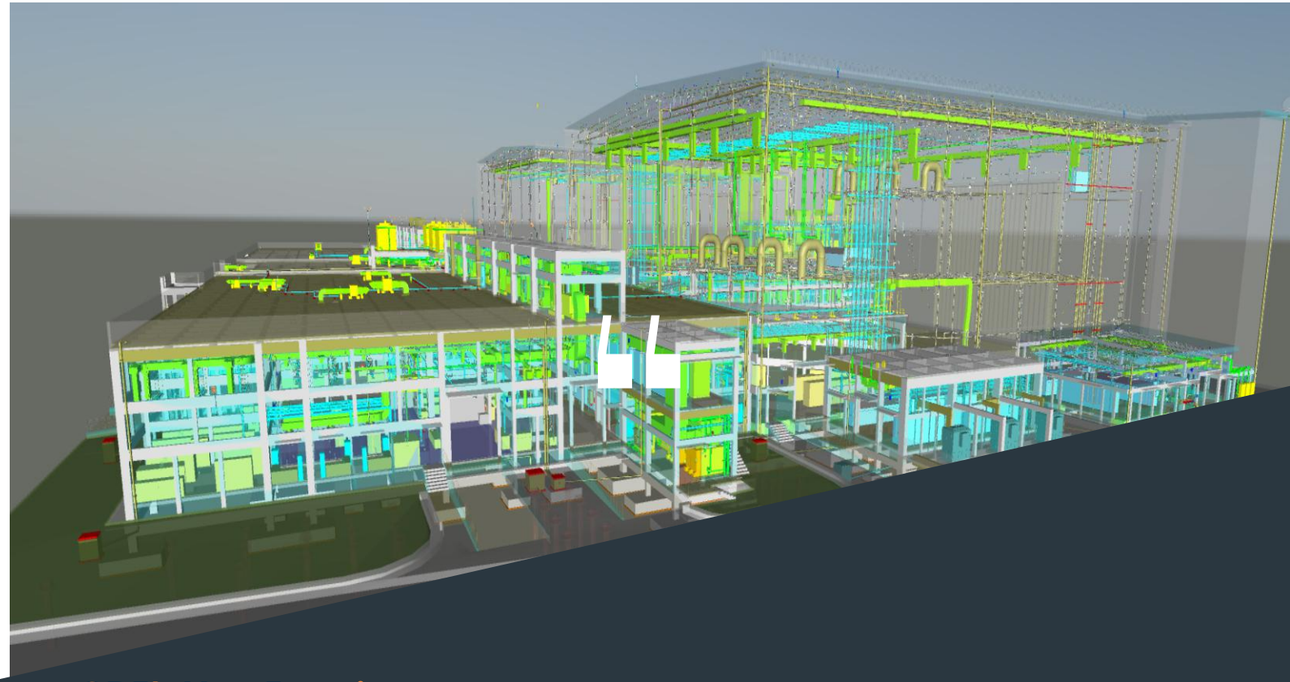
"Having Credentials, Capability and Confidence to assist you in your vision"

"Global experience and local presence. Knowledge of all codes IS, BS, CIBSE, NFPA, IBC, IPC, UPC, ASHRAE"

"Going beyond modeling by integrating domain knowledge experts related to construction industry."



"Big enough for your needs, small enough to provide individual attention."



ODE's Vast Experience- Delivered more than 150 Projects > 120 million sqft area. Delivered variety of projects including Hospitals, Rail, Hotels, Airports, Commercial, Malls, Universities and Schools.

Multi-disciplinary- ODE has all disciplines under one roof- Architectural, Structural and MEPF

ODE Offerings- ODE has been working with Architects, Contractors, Consultants and Project Management Consultants.

ODE Global Experience- ODE has global experience of working in US, UK, Middle East and Asian Countries.

Team of Engineers- ODE has 40+ Key engineering inoffice managers who take care of al your BIM requirements supported by site BIM engineers.

ODE's Extensive Data base of Standards- ODE has global database of BIM specifications, regulations and standards which helps in delivering best quality to the clients.

ODE's BIM Library- ODE has global database of BIM families and templates which helps to deliver the project industry and global standards.

INTEGRATED BIM & ENGINEERING CAPABILITIES

- Architectural, Structural and MEP- 3D BIM Modelling
- Clash Detection and Resolution
- 4D Time Line Visualization / Project Scheduling
- 5D Cost Integration in BIM/ Billing Support Using BIM
- Sheet Extraction and Ship Drawings
- COBIE, Modelling for FM integration (Facilities Management)
- As Built BIM Modelling from Laser Scan Point Cloud Data
- Digital Prefabrication and Fabrication Drawings
- Preconstruction Site Logistics using BIM
- Bill of Quantities from BIM/ Schedules from BIM
- Construction Document Management
- Constructability Review
- Design Validation for MEP Services and Design Services
- Value engineering
- BIM Strategy Formation and Architecture
- IT Infrastructure Planning
- BIM Execution Planning
- BIM Families

Global Experience

"Integrating our design and BIM capabilities to give you the best engineering solutions

WE ARE ENGINEERS

Do Right
Compliance & Ethics

SPEED SKILL SCALE

5 Years of Successful Operation
11 Countries served
25 million sqft of projects delivered
150+ Projects delivered

A.2 ODE LEADERSHIP

ODE Consultants

Manish Kumar- Director

B.Eng-Mech. (IIT Roorkee)
M.Sc.-Energy and Sustainable Buildings- (De Montfort University UK)

Manish is a Qualified Mechanical Engineer from University of Roorkee (now IIT Roorkee) with over 24 years of cross functional experience in Design and Execution of Mechanical systems in Buildings Services.

Manish has worked in various reputable Indian organisations like Voltas, L&T, ABB and in international organisations like Hilson Moran and WSP. In his past capacity as Associate Director for building services team for WSP in India, he had been pivotal in setting up and leading the BIM and building services design team over 5 years. The team successfully worked for large offshore building services projects located in the UK.

Manish has extensive experience in Indian, US, BS, ASHRAE, CIBSE codes and hands on experience on softwares like HAP, TRACE, Hevacomp and IES. He has worked on design of different applications like, Residential, Commercial, mixed use complexes, Retail, Custodial and Pharmaceutical projects.

Sondeep Yadav -Director

B.Tech- Elec.(NIT Kurukshetra)
Bachelor's Degree Science- HNB

Sondeep is a Qualified Electrical Engineer from REC Kurukshetra (now NIT) with over 23 years of cross functional experience in Design, Execution, Purchase and Project Management.

Sondeep has worked in various reputable Indian organisations like Tata Consulting Engineers, HSCC, and in international consulting organisations like Hilson Moran and WSP. In his past capacity as Associate Director for building services team located in India, Sondeep over a period of 3 years had been core member of the team that set up the offshore team and lead the team which worked for large building services projects located in the Middle East.

Sondeep has extensive experience in Indian, US, BS, CIBSE and NFPA codes, and has hands on experience on software like ETAP, Cyme, AMTECH and Hevacomp. He has worked on design of different applications like, Hospitals, Airports, Utilities, Residential, Commercial, mixed use complexes, Retail, Custodial, Pharmaceutical and Infrastructural Projects.

Hiralal Khobragade - Director

B. Arch- NIT, Nagpur

Hiralal is a professional architect from NIT, Nagpur with over 30 years of wide and diverse experience in large scale development projects which include Mega Shopping Mall, Super Speciality hospitals, mixed use & transit oriented development and commercial & residential real estate projects in India.

He has worked with few of the top corporate and real estate developers in India which includes Larsen & Toubro, Reliance Retail, K. Reheja Corp, HSCC, JP Associates & Sahara India. In his capacity as chief architect with Larsen & Toubro he has been instrumental in designing and implementing Seawoods Grand Central project from start till end through CAD & BIM systems. This is first Railway transit oriented and mixed used development in India.

He has wide & diverse experience in building and construction industry with knowledge of International and Indian building codes and expertise in using the same. He has utilised his knowledge and expertise in mega shopping malls, hospitals, commercial & residential real estate, transit oriented and large scale mixed use development projects throughout India.`

Shivendra Misra- Director Business Strategy

B.Eng-Mech. (IIT Roorkee)
PG- XLRI Jamshedpur

Shivendra Misra was part core management consulting team to program and manage the launch and roll out of Reliance Jio. Worked with Jio Devices team to set up robust internal tracking and reporting processes and formulate strategy for Devices Ecosystem. He has been an Incubation advisor to various startups in e-commerce and healthcare space.

He has been Strategy Director on Digital marketing and services startup with India's biggest b2b e-commerce platform for Small and Medium enterprises.

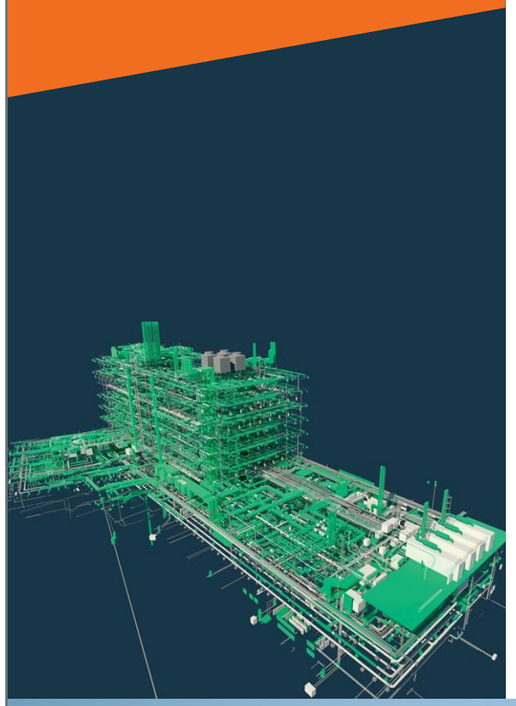
At Accenture, he helped worlds Biggest Electronic Retailer to implement and maintain a Multi Channel e-commerce deployment integrated with SAP across several geographies and develop an off-shoring model for Service management framework. He implemented Hospital Information Solutions for India's biggest Health care provider across several Hospitals.

As COO of Cysphere.com Pvt Ltd, he was responsible for building the organization in all its facets from a initial size of 10 to 100. Set up and run off shore development center for gaming company. Raised funding for a couple of internet startups.

Shivendra was part of TAS cadre with Tatas.

ODE OFFERING B.1

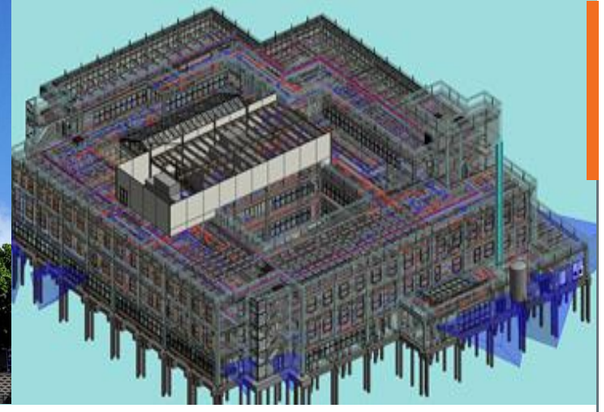
BIM FOR HOSPITALS



> The increase in cost of construction and combined complexity inherent in healthcare construction projects provides an opportunity to harness the strengths of BIM and provide much more detailed information early in the starting. These case studies present evidence of benefits of BIM upstream in the project life-cycle since programming stage.

ODE solutions in BIM helps showcase the benefits of an energy-efficient hospital.

- BIM enables developers to meet regulatory requirements.
- Stakeholders can actively participate in hospital design with BIM provided visualization of complex healthcare facilities.
- Design changes are faster and easier to make when BIM is used.
- Surgeons and healthcare providers can visualize the space allocation and equipment placement.
- Complex healthcare specific systems like Ventilation, Medical and Gas Pipes (MGPS), Pneumatic Tube System (PTS), Automatic Waste and Laundry System (AWLS) can be integrated wih other services much before actual installation.
- BIM designs can be used in the future if updates are planned.
- BIM can help secure funding and support for hospital projects.



ODE SHOWCASE HOSPITAL PROJECTS

1.1 2000 Bed AIMS Hospital, Faridabad

Location: Faridabad, India
Area: 3,700,000 Sqft.
Scope: BIM Modeling A,S,MEP

This is a + 16 Storey Hospital Complex spread over 100 acres of campus. The drawings were developed initially in 2-D AutoCAD. However looking at the complexity of the services and to rule out any constructability issue during construction stage, it was decided to implement BIM for coordination of all design elements in the project.

We did BIM for Architectural, Structural, MEP and special Medical Services. It includes Energy Centers, Drainage, Water Supply, Fire Fighting, HVAC, Chilled & Hot Water, PTS (Pneumatic Tube System), MGPS (Medical & Gas Piping), AWLS (Automatic Waste and Laundry System) and Electrical.

We also acted as MEP coordinator between Architect, PMC, Contractor and Consultants so a single drawing repository is maintained.

1.2 Community Treatment and Care Centre, UK

Location: United Kingdom
Area: 500,000 Sqft.
Stage: Detailed Design MEP Modeling RIBA Stage 3
Scope: MEP Detailed Design and BIM Modeling

We undertook MEP BIM and the electrical & mechanical design. We did the sizing and routing of all Mechanical and Electrical Systems. Flow rates were incorporated in all diffusers and radiant panels and the sizing and pressure drops for piping and ducting systems were done through Revit

We also did the lighting and electrical system design and the same were modeled in Revit. We also generated the clash free model from BIM which was eventually used for preparing individual services drawings. We had direct access to engineers in the UK designing the various systems so the model incorporates correct engineering intent.

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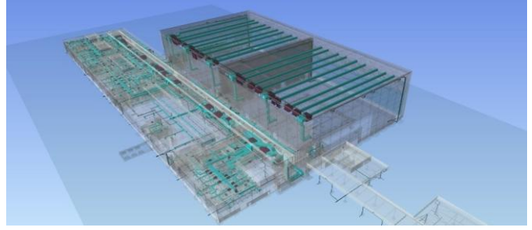
ODE OFFERING B.2

BIM FOR AIRPORTS

BIM Strategies for Cloud Collaboration and Data Management on Airport Projects. San Francisco's $2.4 billion International Airport project as an example of utilizing these strategies to enable effective collaboration between more than 200 architects, engineers, and builders



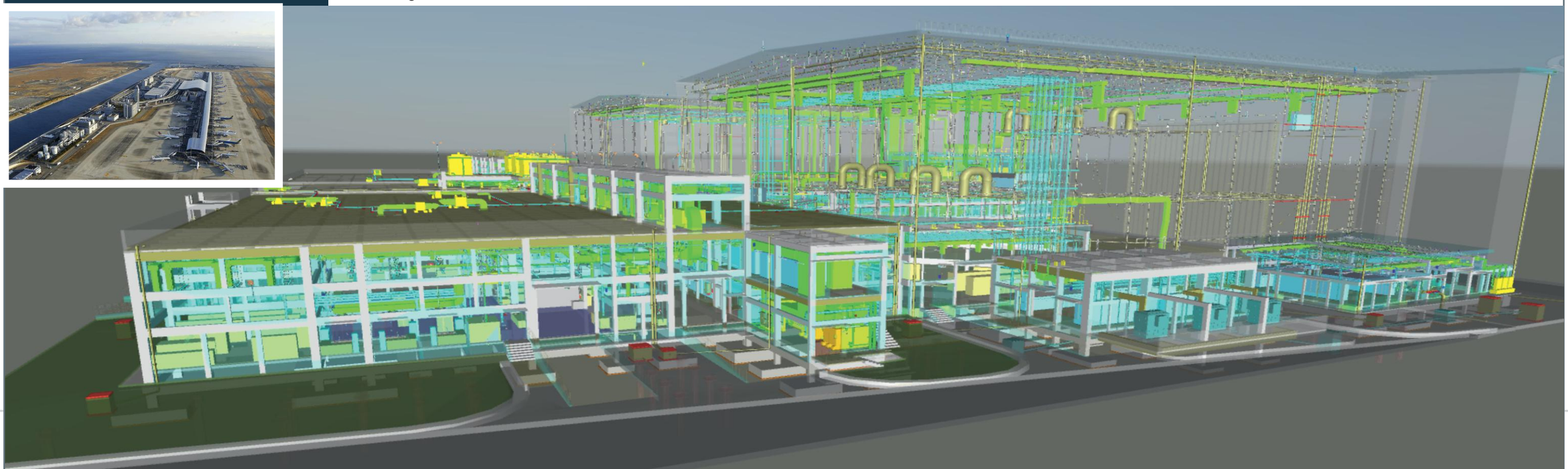
> Airport are demanding projects where multiple Architects, Services Companies, Integrators and Contractors are working together. It only asks for a working platform which is fully coordinated at any time and allows all people working on the most updated data platform. ODE works with design/ construction necessitates for collaboration between numerous teams with a wide range of skill sets generally coming from various locations. This requires well-established strategies and methodical use of tools and technologies for a successful delivery of a large-scale project.

BIM is the only tool that can be used and allows airport decision makers to understand all components of a facility, their location, and their attributes, both graphically and systematically, to minimize the total cost of owning and operating an airport facility.

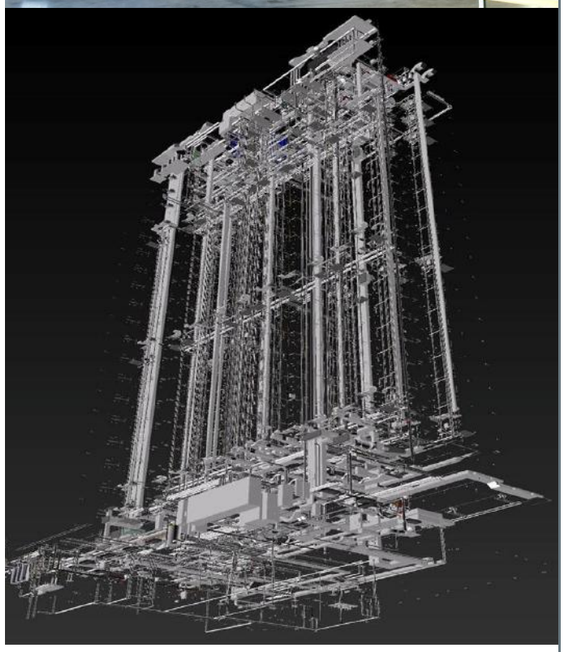
2.1 Muscat Airport- Oman

Location: Not Disclosed
Area: 700,000 Sqft.
Scope: BIM Implementation

We were involved in Muscat Airport MRO Building, Maintenance, Repair and Overhaul facility building for aircrafts. This is a two storey building. We implemented BIM for Electrical, Mechanical, Public Health and generated intelligent 3D models and clash free drawings for these services.



ODE SHOWCASE AIRPORT PROJECTS



2.2 Boeing Airbase

Location: Not Disclosed
Area: 700,000 Sqft.
Scope: BIM Implementation

We were involved in Airbsase project for BIM implementation for Electrical, Mechanical and Public Health Services. We generated intelligent 3D models and clash free Shop Drawings for these services.

The drawings developed were for construction stage including supports for services as well as for seismic protection. Physical inspection were done at site to ensure constructability of layouts.

> BIM tools are a highly valuable option to substantially improve design characteristics and have available highly important information on the airport entire life cycle.

ODE Consultants

ODE OFFERING B.3

BIM FOR RAIL PROJECTS

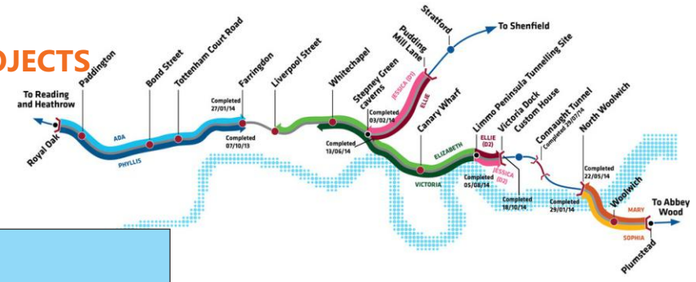
•• "BIM is Single source of truth", which is a simplified term for integrated systems and databases.

"Rail and Metro projects are the infrastructure projects this involves convergence of Computer-aided design (CAD), BIM and Geographic information system (GIS) information with other types of project information, within a digital setting. UK Government Strategy has adopted collaborative work is a core theme for these kind of specialized projects.

The key value to be gained from the adoption of BIM is the creation of a "digital Rail/ Metro" that can be built "virtually", which allows the design to be developed to improve and eventually optimize the design, construction, operation and decommissioning.

The Crossrail model would be used to support decision making, answer questions and managed to two potential uses of the M in BIM: modeling and management. The management of the model requires collaboration with all parties in the program implementation including the supply chain as well as the operators of the railway.

ODE SHOWCASE RAIL PROJECTS



3.1 Paddington Station, UK

Location: London UK
Area: 150,000 Sqft.
Scope: BIM Implementation MEP

Paddington Station is a major railway and underground station in London. The station is in central London and close to Bayswater and Marylebone. MEP BIM Implementation for clash free construction drawings for Departure road, Intermediate, Ticket hall level / Concourse and Platform level.

3.2 Tottenham Court Station, London UK

Location: London UK
Area: 120,000 Sqft.
Scope: BIM Implementation MEP

Tottenham Court Road is a London Underground and future Crossrail station in central London. It is an interchange between the Central line and the Charging Cross branch of the Northern line BIM Implementation for clash free construction drawings for different levels of Departure road, Intermediate level, Ticket hall level / Concourse level and Platform level.

BIM for Crossrail was to:

- Creation of virtual assets, not just physical ones.
- A set of processes that began some years ago, Integrates data for design, construction and operation life-cycles.
- Models the environment we want to build.
- Collaborative management of all types of data.

3.3 Farringdon Station, London

Location: London UK
Area: 130,500 Sqft.
Scope: BIM Implementation MEP

Farringdon is a London Underground and connected main line National Rail station in Clerkenwell, in the London Borough of Islington, just outside of the City of London BIM Implementation for clash free construction drawings for Levels,, Departure road Intermediate, Ticket hall, Concourse and Platform level.

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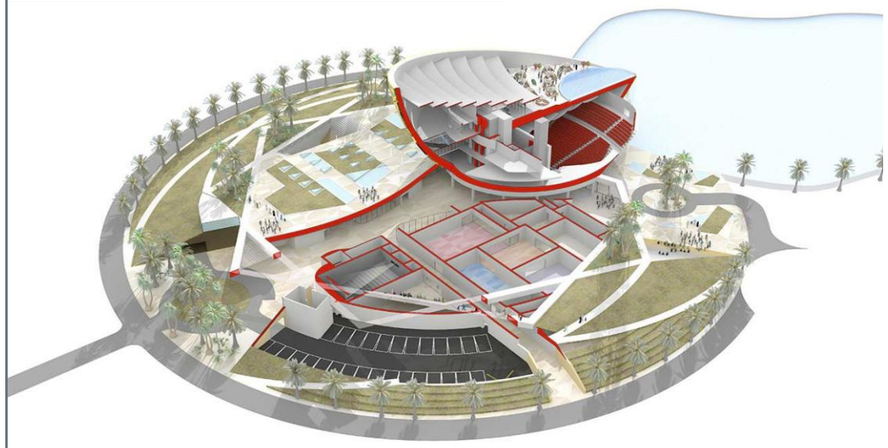
ODE OFFERING B.4

BIM FOR ICONIC PROJECTS

> An iconic design is usually a design that is 'ground breaking' and one that sets new standards in its field. It is a design that other designers and manufacturers follow, as it becomes a bench mark for other similar building. BIM brings significant advantages to projects involving iconic buildings.

Working on iconic buildings imply you cannot go wrong with any design or construction aspect, precisely which a proper BIM implementation. As an unconventional building BIM offers best updated visualizations and Architects, Consultants and Contractor can work on same platform which minimizes the errors and assist in faster and economical project delivery.



ODE SHOWCASE ICONIC PROJECTS

4.1 Prince Sultan Cultural Centre, Jeddah, Saudi Arabia

Location: Jeddah, Saudi Arabia
Area: 350,000 Sqft.
Scope: BIM Implementation, A,S,MRP

Iconic Building in Jeddah- PSCC vision responds to the needs of present and future generations through fully integrated and sustainable design, respecting cultural sensitivities, encouraging the population to adopt an active and live healthy linestyle BIM Implementation for Architecture, structure, MEP, clash free construction drawings, facilitate Construction Activities. Assist Consultants/ Designers in Designing, Selection of Services and Routing.

4.2 MINT Designer Outlet, UK

Location: London UK
Area: 420,000 Sqft.
Scope: BIM Implementation, NEP

Iconic Project in UK-204,000 sq ft. The project lies within the O2 (formerly known as the Millennium Dome) on the Greenwich Peninsula and when complete, it will give a unique 360 degree walk through experience within the dome. BIM Implementation for clash free construction drawings. Assist Consultants/ Designers in Designing,

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ODE OFFERING B.5

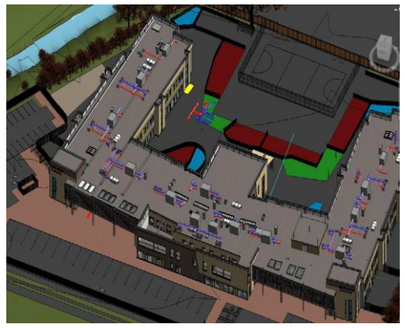
BIM FOR SCHOOLS

Using an integrated design and construction process centred around BIM, Schools demonstrates that high-quality bespoke school solutions can be procured and delivered within reduced budgets and the constrained timeframes demanded by the need for new school places.

For schools there are particular issues in today's diverse educational market that need to be addressed- who has procured the premises? Who will be operating and maintaining them? What happens to the information when it is completed? Who will ensure the information is kept up to date? How can schools make sure that staff are trained to use and understand the information they are provided with.

> "Resources are a constant problem for schools and managing building information is not a priority on most schools' lists. Efforts to provide information may not meet the schools' needs. There is a challenge of capability, usability and a learning curve for users that will need investment at all levels of the sector.

To adopt BIM for schools client teams need to understand the basic output requirements- what do the schools facilities management teams actually need, and have even if they may not know how to use it yet? How will it complement and improve on the operation and maintenance manuals they usually receive? How can schools use it for energy management to maximise comfort and minimise running costs? Lack of knowledge should not be a barrier to accessing the information. Collaboration is needed across the sector to ensure that BIM is the benefit it should be for schools.



5.1 School Buildings– Las Vegas, US

Location: Las Vegas US
Area: 110,000 Sqft.
Scope: BIM Implementation MEP

BIM Implementation for clash free construction drawings. Six Separate buildings and plant room.
Sheet Setups using the architectural coordinates. Electrical Scheduling from BIM. Complete model made clash free. Re-engineering done in many cases.

5.2 Various Schools- Wren, Legatum Primary & Secondary

Location: London UK
Area: 250,000 Sqft.
Scope: BIM Implementation MEP

From Basic Schematic Drawings and Routing Sketches. We created the complete M&PH System- Design and BIM. BIM Implementation for clash free construction drawings. Primary & Secondary Schools. Hand Markups were provided for MEP services. We were constantly in touch with the design engineers.

ODE SHOWCASE SCHOOL PROJECTS

5.3 Marjory Kinnon and Gresham-UK

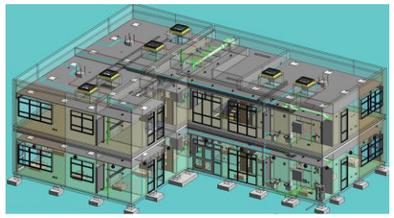
Location: London UK
Area: 135,000 Sqft.
Scope: BIM Implementation, MEP

BIM Implementation for clash free construction drawings for 2 Large schools. Electrical Design consisting of lighting, small power containment and BIM of MEP services Revit MEP 2016, Dialux

5.4 School Buildings (Various)- UK

Location: London UK
Area: 425,000 Sqft.
Scope: BIM Implementation, MEP

Designed complete MEP system using design brief. Modeled the system in Revit. Load Calculations using Hevacomp. Lighting calculations using Dialux Equipment schedule using manufacturer catalogue and online selection tools



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ODE OFFERING B.6

BIM FOR UNIVERSITIES

> BIM allows project teams to use intelligent, 3D models to explore every aspect of a design—before construction. BIM can help in design and planning process, in tendering and then detailed shop drawings can be extracted from the models. The models can be used for facility management as a key tool. Impressed by the 3D models, many universities have decided to leverage them in its facilities management solution from Facility Management.

University campuses need to be multi disciplinary environments, where academics can collaborate with entrepreneurs and industry in 'hackspaces' and labs, and start-ups and spin-outs can be incubated

As competition is in a global knowledge economy, universities are changing including attracting the best students. Academic buildings must adapt to this transformation by adding modern buildings, highest-quality modern facilities to undertake cutting-edge research and teaching in new areas of science, engineering and medicine.

ODE SHOWCASE UNIVERSITY PROJECTS

6.1 Oxford Brookes University,

Location: London UK
Area: 650,000 Sqft.
Scope: BIM Implementation, A,S,MEP

This project had Six Blocks including Auditorium and Library. ODE implemented BIM for MEP where modeling was done to suit design changes for RIBA Stage 3 to 4 changes. The design was done by Arup, however many changes needed to be done on services system to make it workable.

We also carried out sheet setups, modeling changes in continuous consultation with client.

The building was complete renovation. We got BIM model from the earlier construction. Task was to suit the new architectural modification and adress the changes in MEP services.

6.2 Sabah Al- Salem University, Kuwait

Location: Kuwait
Area: 2100,000 Sqft.
Scope: BIM Implementation A,S,MEP

We delivered Six Buildings Blocks ODE's Scope was complete Arch, Structural HVAC and Plumbing layout modeling. Coordination of all services, redesign of many areas to make system feasible including extraction of Shop Drawings.

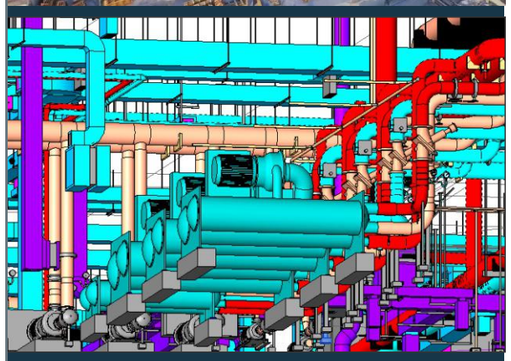
We were involved in the following buildings.

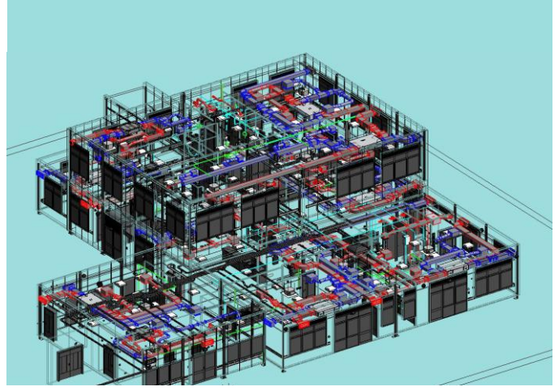
- College of Social Science-Male and Female
- College of Shari'a and Islamic Studies -Male and Female
- College of Law-Male and Female

ODE Consultants

ODE OFFERING B.7

BIM FOR MALLS





"The projects where every square is money, BIM presents accurate drawings and data with deliverable 3D views of all spaces, and it also creates opportunities for innovative new services to emerge. At a basic level, the real-time link between the 3D images the 2D construction drawings, and the organizational database for the project is key. All designers, tradesmen, estate agents, contractors and prospective purchasers understand the design completely.

-
- Full 3D design process integral to the actual construction drawings
- Create new benefits for buyers and project stakeholders
- Visualize all spaces in each individual apartment- a huge benefit for home buyers, marketers and non-expert clients
- Market each unit with customizable 3D design; BIM, when adopted by building contractors, allows ongoing design change through later construction changes. This lets the design adapt to market needs.
- Create interactive browsable "website" for each unit as design documentation evolves; this can be made available for marketing.

ODE SHOWCASE MALLS PROJECTS

7.1 New Scotland Yard Building,

Location: London UK
Area: 550,000 Sqft.
Scope: BIM Implementation A,S,MEP

BIM Implementation for Architectural, Structural and MEP for clash free construction drawings

Facilitate Construction Activities with drawings extraction Assist Consultants/ Designers in Planning and Designing.

7.2 Three Shopping Centers, Lusail, Qatar

Location: London UK
Area: 240,000 Sqft.
Scope: BIM Implementation, A,S

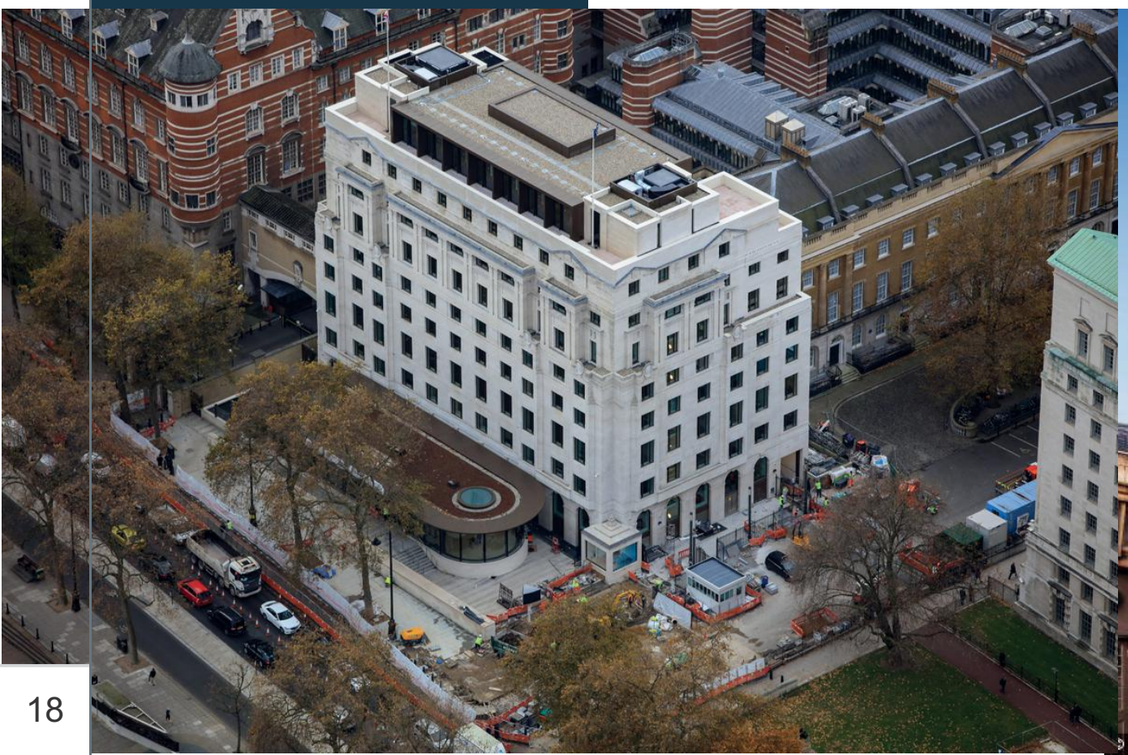
Three Buildings as Shopping Centers- Our Scope was complete Arch, Structural layout modeling from concept design onwards. This was a design development project.

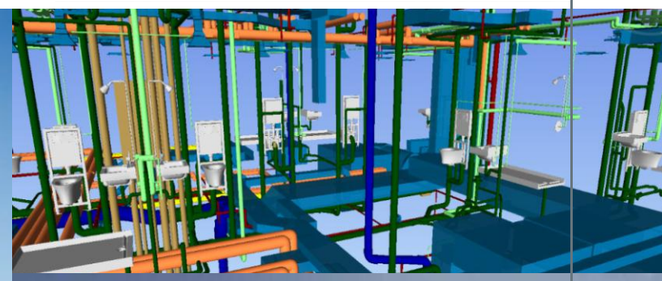
Coordination of all services Extraction of Drawings.

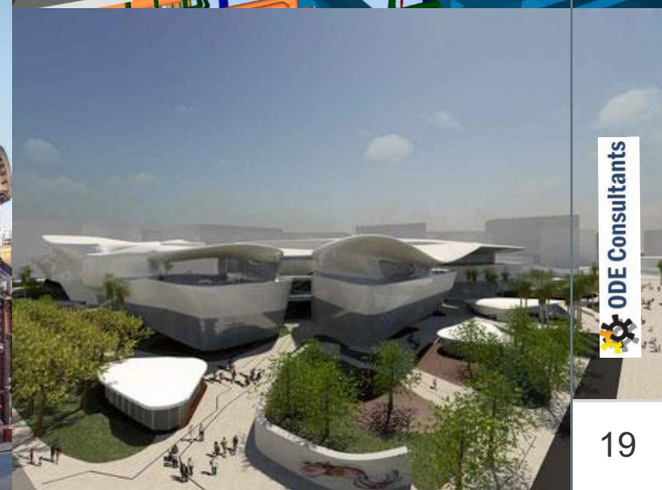
7.3 Hannover Square– UK

Location: London UK
Area: 170,000 Sqft.
Scope: BIM Implementation, MEP

7 storey Commercial Building
BIM Implementation for the commercial building in UK. Complete M&PH and clash resolutions and extraction of good for construction drawings. We were also involved into soft mechanical design like FCU & AHU selection, Duct & Pipe Sizing. As inputs only Rough Routing Sketches were provided to us.

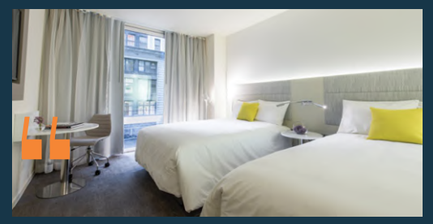






ODE OFFERING B.8

BIM FOR HOTELS



The hotel sector needs high quality facilities to service an increasingly discerning customer base who call for a wider variety of services and functionality. The challenge for facilities today is to incorporate several different services whilst maintaining an efficient building footprint.

BIM helps to meet demand for high quality and varied provisions, accommodate a number of functions within an efficient footprint area, facilitate multi-functionality with a mixture of high and low revenue potential and meet energy and carbon targets and to satisfy multiple stakeholder objectives

> BIM is at the core of the hotel construction revolution. Construction companies around the world have utilized BIM and successfully and constructed the hotel projects in lesser time and costs and are utilizing it for facility management and security purpose.

In some cases, companies are preassembling framing components, ductwork, electrical assemblies and plumbing to be shipped to the construction site. With today's BIM models and structural systems, hotels can be assembled very quickly with parts that are simply bolted together. This means the construction team requires fewer skilled laborers which effectively reduces the risk of labor shortages and related delays. Once the foundation of the building is completed, the use of BIM technology, VDC processes and preassembled components allow the installation of the steel-based structure to be completed in a matter of weeks, not months.

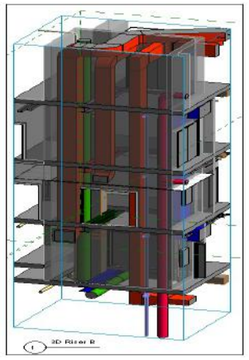
ODE SHOWCASE HOTEL PROJECTS

> "Smart hotels using new technologies to cater to guests are becoming expected and demanded by travelers. When it comes to the construction of these next-gen hotels however, an important but hidden "smart" revolution is taking place in the building process itself. Contractors in the United States are partnering with tech companies to build better, smarter hotels in less time and at a lower cost."

8.1 Innside Hotel – New York

Location: USA
Area: 1500,000 Sqft.
Scope: BIM Implementation

ODE Implemented BIM for 27 Storey building Innside Hotel in New York.. ODE did complete M&PH Redesign along with complete MEPF BIM Modeling. This included sheet extraction for construction drawings.. This was equivalent to UK Stage 'C' to 'E' development.



8.2 Al Wakra Hotel Qatar

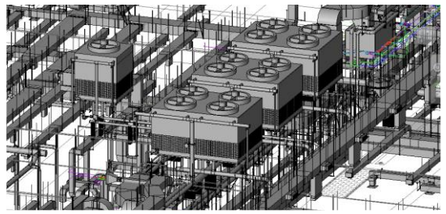
Location: Qatar
Area: 900,000 Sqft.
Scope: BIM Implementation

ODE Implementated BIM for Architectural, Structural and MEP for clash free construction drawings. Facilitate Construction Activities with drawings extraction Assist Consultants/ Designers in Designing, Selection of Services and Routing

8.3 New Scotland Yard Hotel UK

Location: London UK
Area: 1250,000 Sqft.
Scope: BIM Implementation

This was a project of Lulu Group International. ODE Implementated BIM for Architectural, Structural and MEP for clash free construction drawings. Facilitate Construction Activities with drawings extraction Assist Consultants/ Designers in Designing, Selection of Services and Routing



ODE OFFERING B.9

BIM FOR EMBASSY AND SECURE ENVIRONMENTS

> Today, designing the diplomatic facilities requires the stakeholders to engage the conceptual and physical requirements for sustainable and innovative buildings, including the ways in which to incorporate public space and civic engagement.

Architects around the world try to construct buildings called Embassies and other secure environment projects that will, in good times and bad, represent native country values while they are in host countries and are strong enough to withstand the force of bombs. For the people who build embassies, that's a difficult balance, and one that has shifted many times in the last few decades between two competing schools of thought: isolation and civic engagement. ODE did extraordinary research before executing the projects as it involved strict cultural and security concerns and requirements.

While previous designs may have once resembled fortresses and bunkers, new diplomatic buildings are created to comply with strict security standards while opening up to local programs and conditions. BIM in our projects was a useful tool in helping the designers, planners and contractors to construct the desired building as per the international embassy norms and in the budgeted cost.

ODE SHOWCASE EMBASSIES PROJECTS

9.1 The Royal Embassy of Saudi Arabia, Dhaka, Bangladesh

Location: Bangladesh
Area: 1100,000 Sqft.
Scope: BIM Implementation

The Royal Embassy of Saudi Arabia, Dhaka, comprised of Embassy Building, Ambassador Villa and Staff Housing Quarters.

Our scope was MEP Redesign including the relocation of HVAC Plant rooms and Substations. The BOQs were extracted from BIM along with all support drawings and 3D views to facilitate construction. BIM was utilized in place of 2D Drawings. The drawings were extracted from the BIM.

SCOPE

- MEP Redesign
- BIM Architectural and Landscape
- BIM for Structural
- BIM for MEP
- Extraction of Shop Drawings
- Bill of Quantities (BOQ)

9.2 The Royal Embassy of Saudi Arabia, New Delhi

Location: India
Area: 1050,000 Sqft.
Scope: BIM Implementation

The Royal Embassy of Saudi Arabia, New Delhi, comprised of Embassy Building, ambassador Villa and Support Buildings. Designed originally in 2002, the building struggled in construction as contractor was not able to cope with changes suggested by the client. There was unclear picture of the final cost once the building will be constructed and the timelines. We worked out the cost and gave the timeline for the project.

SCOPE

- Architectural and Landscape
- Structural
- MEP
- Bill of Quantities (BOQ) as per CSI Master Format directly From BIM
- Complete Project Costing and Analysis.

9.3 Various Prison Projects- UK

Secure Environment project- Information not disclosed.

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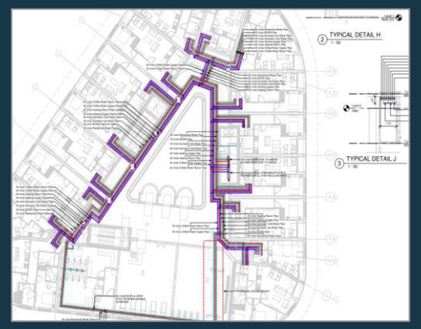
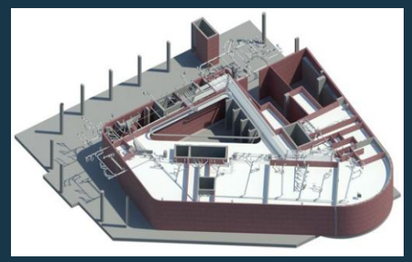
ODE OFFERING B.10

BIM FOR RESIDENTIAL PROJECTS

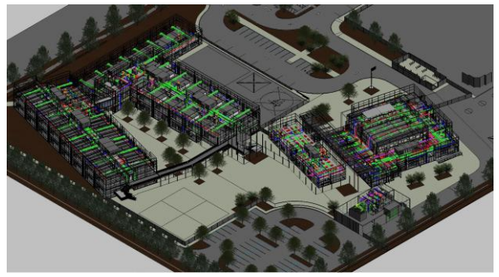




> Today's residences are giant multistoried buildings with integrated facilities and service spaces. BIM technology presents accurate, deliverable 3D views of all spaces, and it also creates opportunities for innovative new services to emerge.

At a basic level, the real-time link between the 3D images, the 2D construction drawings, and the organizational database for the project is key.

- For Large Residential Projects
- Full 3D design process integral to the actual construction drawings
- Developers who adopt BIM can avail of high tech cost efficiencies at construction stage- these reductions may be passed on to end users
- Visualize all spaces in each individual apartment a huge benefit for home buyers, marketers and non-expert clients
- Market each unit with customizable 3D design; BIM, when adopted by building contractors, allows ongoing design change through later construction changes. This lets the design adapt to market needs.
- Mass customization; make new homes more bespoke by adapting to purchasers' requirements during initial construction.



ODE SHOWCASE RESIDENTIAL PROJECTS

10.1 Lampton Road Housing Projects, UK

Location: London UK
Area: 350,000 Sqft.
Scope: BIM Implementation

The project consisted of many residential buildings. BIM was utilized for clash detection, design use and production of drawings. We implemented Architectural, Structural and MEP Modeling.

From client side, concept design was given to us and we developed this further to deliver drawings using BIM.

10.2 Beacon Multistoried Residential Building - UK

Location: London UK
Area: 300,000 Sqft.
Scope: BIM Implementation

BIM was utilized for clash detection, detail design and production of drawings. We implemented Architectural, Structural and MEP BIM Modeling.

From Client side, hand sketch of various services were provided. We rerouted many services using engineering judgement to make the system workable. The model was made clash free for which we took many engineering decisions in direct discussions with client engineers.

This building was an impressive combination of sustainable design features and technologies including: Ground source heat pumps, automatic car parking, ultra-low energy appliances, electric car sharing, vertical axis wind turbines, LED lighting, triple and quadruple glazing, internal arboretum, heat recovery, electric car and bike sharing, and reportedly the world's highest density solar farm, incorporated into the structure of the building.

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ODE VALUE PROPOSITION C.1

BIM FOR ARCHITECTS

What Architects will get from BIM

- Intelligent 3D Model- Interior, Exterior and Facade
- Drawings- Layouts and sections directly from BIM
- Fully Coordinated Model
- Quantities and Costing
- 3D Visualization/ Walkthroughs
- Time and Cost Saving

SPEED- BIM has given architects the capacity to deliver projects in massively reduced time-scales. In BIM, when you place an element say a door, you place a 3D` element automatically appearing on sections, elevations,3D views and on a door schedule with parameters already filled in.

RETENTION OF THE DESIGN- Concept architects can use BIM to monitor the design process to ensure there is no dilution during the delivery stages since the ability to review a 3D model reduces the time significantly and gives reassurance that the design is being interpreted correctly.

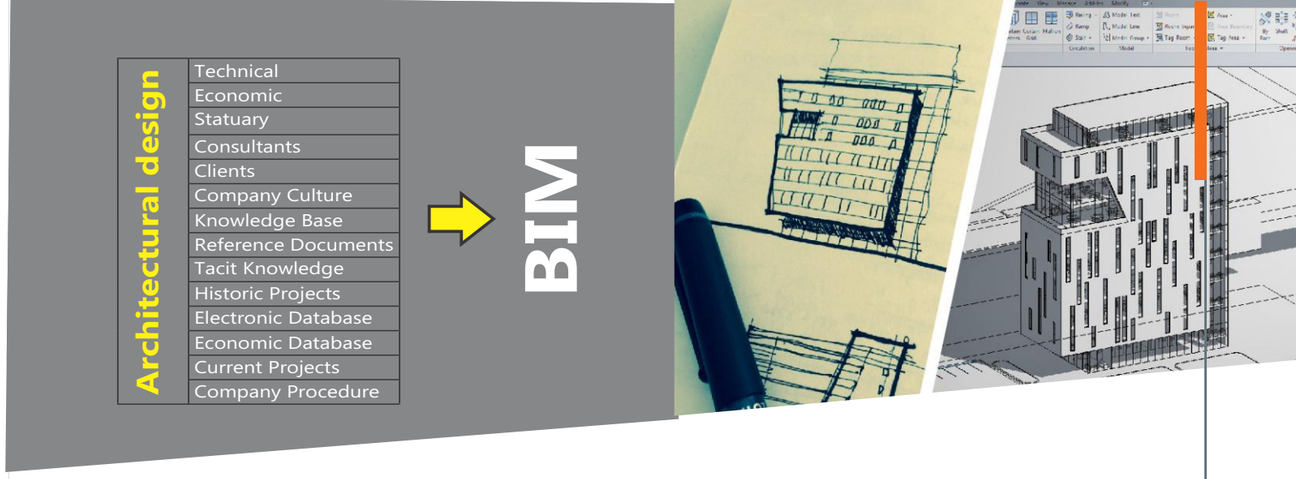
COMMUNICATING THE DESIGN- BIM software offers a number of new ways to communicate the design. It has different presentation options available within the software which helps to speed up client understanding of the design and also gives much more reassurance.

FULLY CO-ORDINATED DESIGN- BIM allows you to check that the design is fully co-ordinated in a way that traditional methods could never have allowed for.

REDUCTION OF ERRORS- Traditional QA/QC procedures are labour intensive. Checking is easier through BIM since a certain amount of information that can be much more relied upon while others can be checked much quicker.

VARIATIONS- Using BIM the variation calculation has become as easy as clicking few buttons. Any time variations can be worked out with good speed and accuracy. This helps Architects to take decisions faster and costs can be analyzed if any finishing item is substituted.

THE DETAIL - Details in BIM are created in 2D, which is similar to the traditional methods. However, BIM works with a 3D model, allowing you to underlay the 3D to produce the detailing, making the process very efficient.



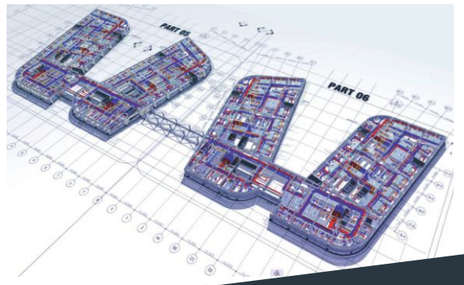
BIM Implementation for Architectural Design

Project Phases	Modeling in BIM
Scheme	Modeling of Building with basic areas showing the concepts
Design Development	Modeling of Building elements with basic areas showing the schemes using Markups, discussions and available drawings.
Construction Documentation and Bidding	Architectural Modeling of all building elements good to generate tender drawings and sections.
Contract Administration- Release of GFCs, post this Architect reviews shop drawings and answers RFIs	Architectural Modeling of all building elements good to generate construction drawings and sections.

BIM Implementation by Architects for Support Services

Project Phases	Modeling in BIM
All Phases- Architectural and Structural BIM models available	Create MEP models to workout the clash free design as per best installation practices
All Phases- Architectural and Structural BIM model not available	Generate the basic architectural and structural models along with clash free MEP models
BIM team acts as MEP coordinators/ owners engineers, liaise with MEP consultants to resolve the issues and suggest the optimum solutions	

> In 2D, when you draw a line in plan, you draw a line in plan. In BIM, when you draw a line in plan, you also draw a 3D element such as a wall, which automatically creates part of your section, part of your elevation, and a basis for construction details.



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ODE VALUE PROPOSITION C.2

BIM FOR CONTRACTORS

What Contractors will get from BIM

- 3D Model- Landscape, Civil and Buildings
- Shop Drawings with layouts and sections directly from BIM- Without using CAD
- As Built Drawings with layouts and sections directly from BIM
- Quantities
- Time Schedule link with the planned and actual construction
- Financial Planning and Billing Audit
- 3D Visualization ,Walkthroughs
- Input Drawings for CNC Machines- Prefabrication of Steel, Ducts and Pipes
- Better Health and Safety issues visualizations
- Shortened construction duration
- Create ordering lists

"BIM reduces co-ordination errors in complicated construction projects by calculating constructability and recognizing design conflicts before construction starts. Over budget, delays, rework, poor communication, cost overrun, time overrun problems can be minimized by BIM assisted financial and construction planning.

STATE OF ART COORDINATED SHOP DRAWINGS

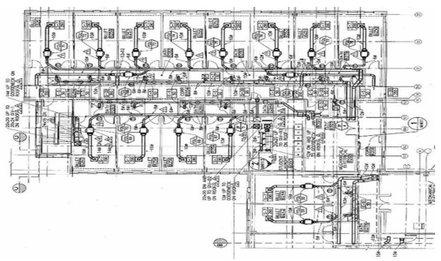
BIM enables reduced time-scales and reduced costs by delivering error free shop drawings. From beautiful coordinated supports to difficult plant rooms to landscape, everything can be extracted from the BIM in the form of very detailed drawings and 3D Views. The expenditure on implementing BIM for shop drawings is much less than keeping a CAD team and engineers at site and to generate shop drawings.

3D VISUALIZATION OF PROPOSED INSTALLATION

Information like quantities, design details, costs, project schedules and many more is available in a visual 3D format which helps engineers to visualize this construction before it is actually being constructed.

ACCURATE SCHEDULES EXTRACTION

Construction schedule information is fed into BIM and it can be visualized as a process. The materials schedules, accrued costs, the productivity of labor etc all can be evaluated in form of handy data and schedules and hence projects can be planned in a better manner.



TIME LINES - Time schedule linked to materials in 4D modeling gives project teams a better understanding of project milestones and construction plans. Can help teams identify problems well in advance when they are much easier and less costly to resolve.

ACCURATE PROJECT COSTING AND BILLING VERIFICATION - BIM can be used to extract quantity schedules and bill verification for Architectural, Civil and MEP elements. This also assist in decision-making and provide cost information about alternatives to owners early in the design phase and throughout the project life cycle. The BIM model is integrated with cost information from an estimating database, and this approach has proven to be quicker and reduces the possibility for errors and omissions.

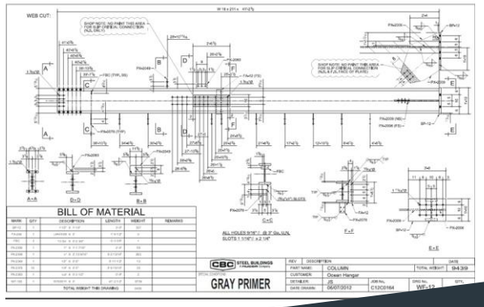
FINANCIAL AND RESOURCE PLANNING BIM allows effective and near to accurate cost estimation at every stage of construction process.

AS BUILT MODELING AND DRAWINGS Project Close-out and Maintenance often becomes a difficult for General Contractors when the information required for this inaccessible or misplaced. We build the BIM and link all design data, cut-sheet data, field changes, and other required documentation for Close-out. The BIM becomes a single source of information and a central database.

TAKE IT WITH YOU - With the model that's tied to a database, you have access to the model and project details from anywhere, on any device.

SHOP DRAWINGS AND FABRICATION DRAWINGS FROM BIM Clash free shop and fabrication drawings from BIM reduces conflicts and creates confidence in building plans. Reduces waste and the pre-assembly saves time.

Project Phases	Modeling in BIM	Inputs Required	Our Outputs
Construction	Modelling of Architectural, Structural and MEPF services	GFC drawings	3D Model, Visualization and Shop Drawings
Project Costing	Modelling of Architectural, Structural and MEPF services	Prised BOQ	Works out the actual cost of designed project.
Quantities	Modelling of Architectural, Structural and MEPF services	Unpriced BOQ	Works out the quantity schedule
Timelines	Modelling of Architectural, Structural and MEPF services	Time Schedule	Time linked 3D Model elements to visualize construction at any point of time. For comparing actual construction with planned one.
Billing	Modelling of Architectural, Structural and MEPF services	Items and Areas considered for Billing	Gets out actual Vs claimed Quantities for better billing audit.
Prefabrication	Shop drawings from BIM	GFC Drawings	CNC enabled shop drawings can be used for prefabrication of ducts and pipes
Maintenance Period	As Built BIM Modelling for FM	As Built Drawings and Asset Data	Asset Data Drops, Maintenance Schedule, Assistance in Preventive Maintenance, Embedded Catalogues, 3D Visualization to assist repair.



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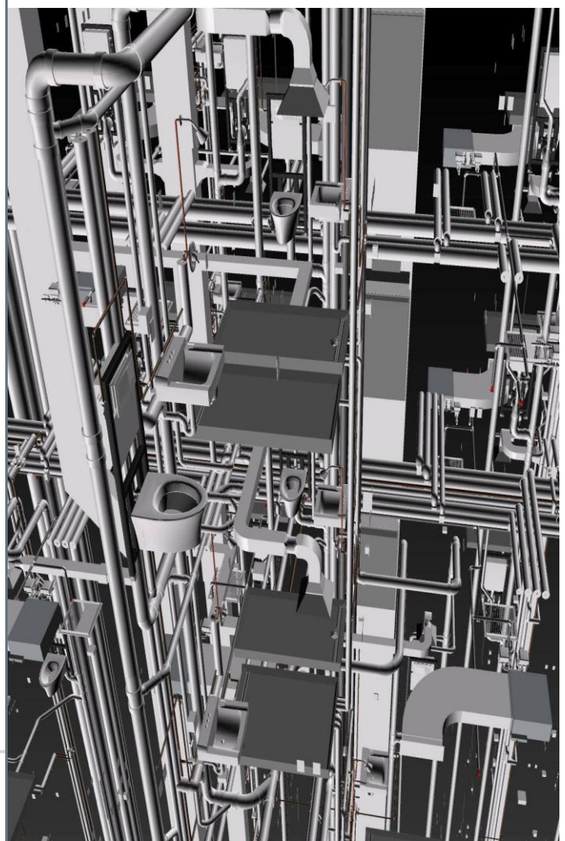
ODE VALUE PROPOSITION C.3

BIM FOR CONSULTANTS

What Contractors will get from BIM

- You design in 3Dimension
- Fully Coordinated Design Documents
- Design Support and Validation
- Automatic Schedules and Quantity Workout
- Reduced RFIs from Contractor
- Fast approval of Shop Drawings
- Drawings Quality like never before

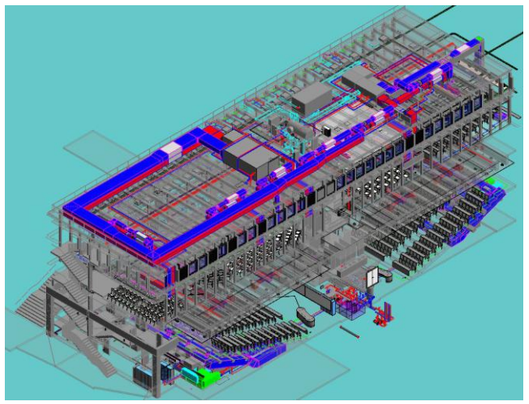


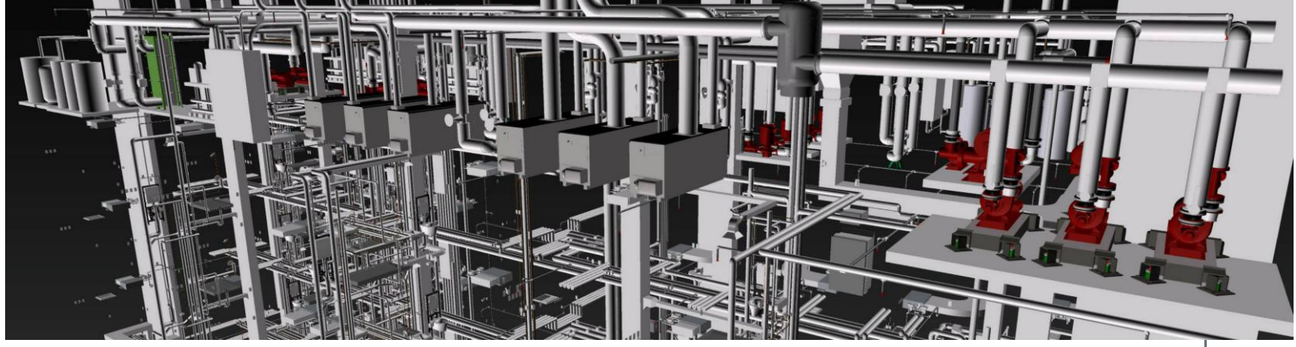
> In MEP Designs integrating the Drawings and Calculations automates any change in system parameters like change in duct size or Room area which will reflect in calculation and thus makes system perfect and error free.

Using MEP as our core strength, we have used BIM as an advanced design tool to facilitate building the MEP Systems along with validating the design.

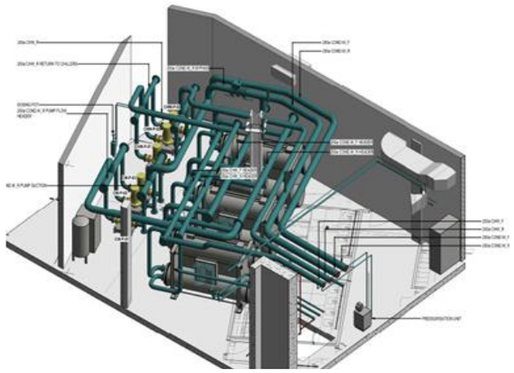
From automatic DB schedules to Lighting calculations to Duct placement and design we have helped our consultants around the world to facilitate the sustainable designs. Following are the options for the Designers.

- **3D Modeling for MEP Services**- The goal of clash detection is to eliminate the system conflicts and issuing of quality GFC Drawings.
- **Gain insight** through analysis, design and visualization
- **Collaborate effectively** for construction & design decisions
- **Create BOM (Bill of Material)**- BIM model can offer an accurate quantity take-off and cost estimate early in the design process and provide cost effects of additions and modifications with potential to have time and money and avoid budget overruns.
- **Make reliable calculations for MEP systems**- This analysis "measures how a building's performance compares to the specified design. This includes how the mechanical system operates and how much energy a building uses. Other aspects of this analysis include, but are not limited to, ventilated facade studies, lighting analysis, internal and external CFD airflow, DB scheduling, Load Calculation, occupant evacuation, and solar analysis."

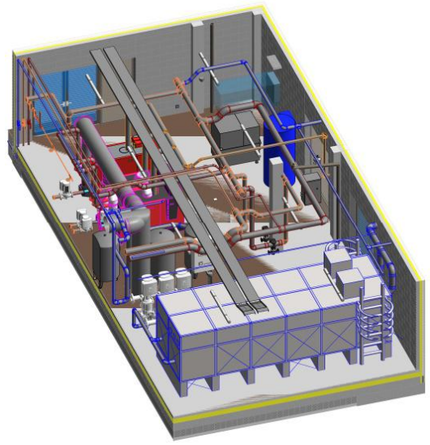


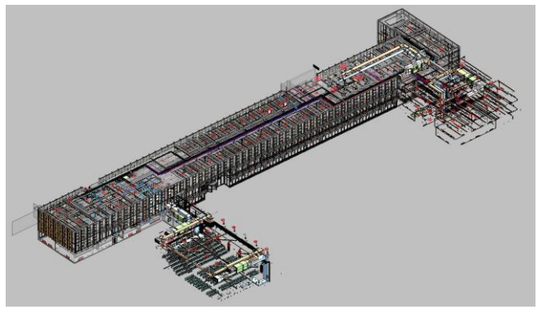


Project Phases	Modeling in BIM	Inputs Required	Our Outputs
Scheme Design	Modelling of Plant Spaces and MEP zones to better plan and understand the systems	Concept drawings / discussions	3D Model, Visualization and Concept Drawings
Detail Design	MEPF services along with the calculation assistance.	Mark-ups and Discussions	3D Model, Visualization and Clash Free Tender/ GFC Drawings, Calculation Schedules for Electrical and Mechanical
Quantities	Modelling of Architectural, Structural and MEPF services	Unpriced BOQ	Works out the quantity schedule



> It's important to have comprehensive mechanical and Electrical drawings and this will ensure that all engineers are on the same page and BIM does this effectively.





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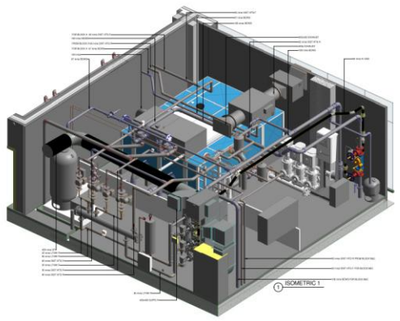
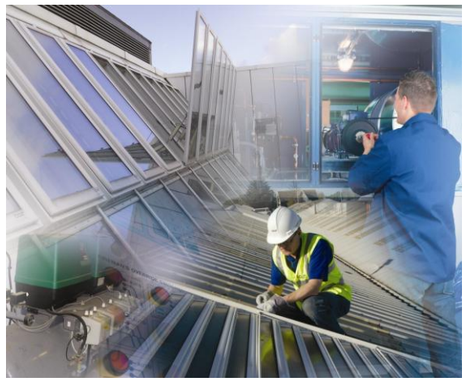
ODE VALUE PROPOSITION C.4

BIM FOR FACILITY MANAGEMENT / OWNERS

What you will get from BIM

- Availability of accurate As built drawings and 3D Model
- Save thousands of hours of data entry on facilities management
- Make more informed facilities management budgeting decisions
- Make maintenance process and procurement systems more intelligent
- Make place more secured





> In a complete building age, the construction costs are only 10%, 90% are the maintenance costs. These costs can be reduced excessively by use of BIM.

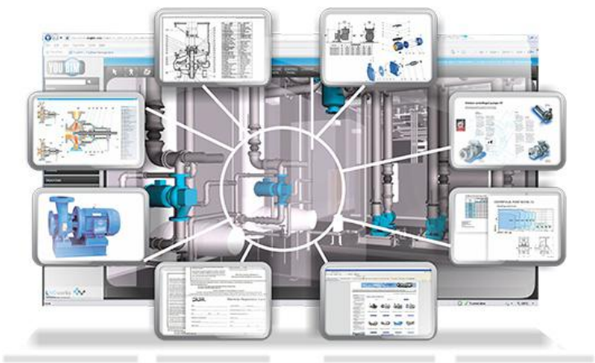
ASSET TAGGING/ASSET MANAGEMENT- All equipment and furniture can be numbered in BIM along with associating numerous details with them. We will implement Asset Tagging - Our team can add COBie or similar data parameters such as Asset Identity, Bar Codes Serial Numbers and Warranty Details, etc.

ASSISTANCE IN PREVENTIVE MAINTENANCE/MANTENANCE SCHEDULING- Elements which need maintenance and preventive maintenance will have data of parameters, maintenance schedule, catalogues etc within the model and will respond in case maintenance is required.

BUILDING SECURITY CONTROL AND ANALYSIS- BIM model helps in security emergencies and planing of digital security systems.

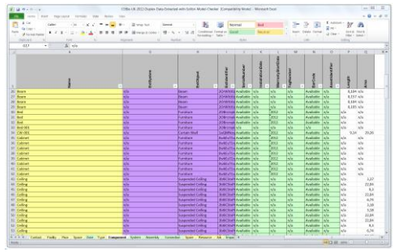
SPACE MANAGEMENT/TRACKING SPACE- A "process in which BIM is utilized to effectively allocate, manage, and track assigned workspaces and resources, helps to analyze the existing space and appropriately manage changes in clientele."

DISASTER PLANNING - The BIM would provide critical building information to the responders, improving the efficiency of the response and, minimize the safety risks. The dynamic building information provided by BIM such as floor plans and equipment schematics, residing in a BIM model can be integrated for and emergency responders.



We will help you to achieve this

- Capturing the current status of the facility and facility elements
- Extracting the Quantity of a facility element
- Monitor the performance of facility elements and systems
- Qualify facility elements' status
- Disaster Planning and Security Analysis by As-built Model
- Existing Conditions Modeling



> To manage defects within the building as and when they occur reducing investigation works

> To improve speed and accuracy of any future developments and expansions– again reducing investigation works

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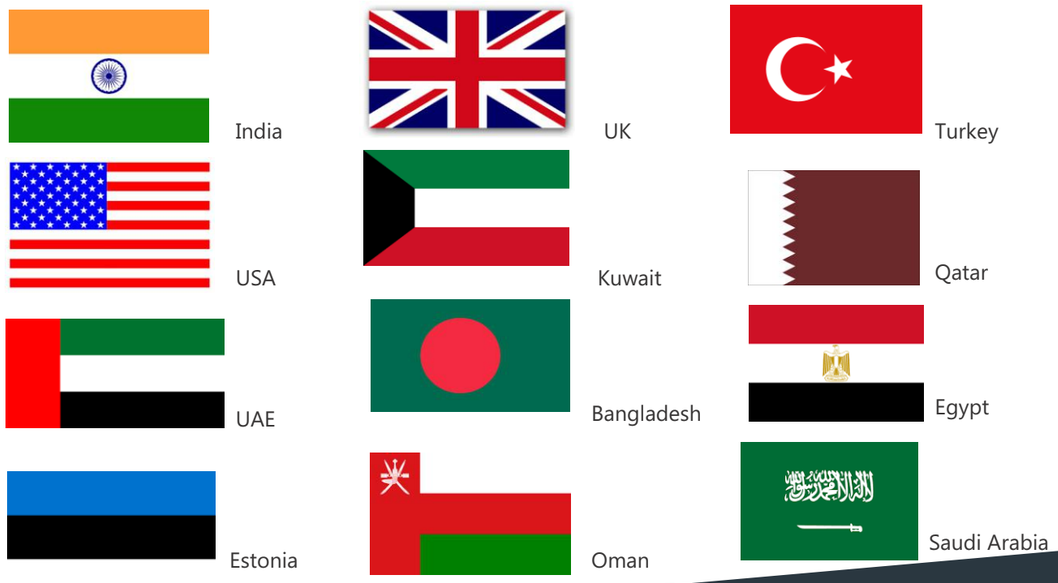
D.1 ODE GLOBAL FOOTPRINTS



ODE Consultants

CLIENTS

CIMS SAUDIA PROJECT MANAGEMENT CONSULTANCY

LARSEN & TOUBRO

Professionals For Planning Architecture & Landscape PPAL

EMEC

semple mckillop CONSULTING ENGINEERS

ROBERTSON

wsp

mza

وزارة الخارجية MINISTRY OF FOREIGN AFFAIRS

OXFORD BROOKES UNIVERSITY

D.2 APPRECIATIONS AND FEEDBACK

“ Sharp and dynamic engineering BIM firm. Very service oriented. Helped us in effective collaboration between multiple design firms and eventually in successful delivery of coordinated services drawings in the prestigious 3.7 million sqft 2000 bed AIMS hospital. Would work with them in future and happy to recommend them. - Indian Client

“ We are very happy with ODE and do not need any other support from any other company - UK Client

“ “Having worked with ODE, I have always found working with them extremely hassle-free and enjoyable. Their vast knowledge and understanding of building systems makes them a valuable member of any design team, and together with his positive attitude and approachable nature I would always recommend him and ODE with confidence.” - UK Client

“ “I have worked alongside Manish as we built an offshoring Building Services team for WSP in India between 2009 and 2014. Manish was responsible for the team in India, operationally for all technical and business support matters. The five years working together was a thoroughly engaging and enjoyable experience, a blend of hard work, dedication and learning mixed with a development of personalities and ultimately friendship.

Manish embraces business change very well and during his time with WSP was instrumental in developing our people for technical and technological advances, for example creating BIM and energy modelling and analysis teams to support the group projects.

I have every faith, now that Manish has taken the entrepreneurial step and become a Director of his business that he will be very successful as his track record proves.” - UK Client