

PREQUALIFICATION 2023

## Mission

*Arthur Best has a dynamic, dedicated, International reach, and is 100% committed to Value Engineering across all deliverables. “The Arthur Best Promise” features advanced application of modern skill-sets, via our team of carefully selected, highly accredited specialist Engineers Architects, and Technical Experts from a collection of relevant disciplines.*

We take immense pride in collaborating closely with our Architects, Engineers, Key Staff and Company Founders – so you can enjoy interest, dedication and the utmost professionalism from our dedicated team, at each and every stage of the development process. From Design to Construction to Delivery and beyond, *we’re here to make your vision come to fruition, flawlessly.*

The Arthur Best culture values a continued commitment to premium Client Care, along with an emphasis on transparent communications for timely results that match expectations.

We’ve successfully delivered thousands of engineering jobs worldwide across every continent – and the Arthur Best difference is that each cultural context is always fully considered.

Just take a look at our impressive, modern, international Portfolio. From Cavo Tago resort to Bahai Temple, The mall of Athens to The Eye of Qatar !

## Vision

ABC vision is the heart of its people as an organic whole, something that is greater than any of us, but that would not exist without one of us. The dynamic exchange of ideas, boosts morale and quality work which is what we aspire Towards.

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# **INCORPORATION CERTIFICATES**

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**CERTIFICATE OF INCORPORATION  
OF A  
PRIVATE LIMITED COMPANY**

Company Number **10719076**

The Registrar of Companies for England and Wales, hereby certifies that

**ARTHUR BEST CONSULTING ENGINEERS LIMITED**

is this day incorporated under the Companies Act 2006 as a private company, that the company is limited by shares, and the situation of its registered office is in England and Wales.

Given at Companies House, Cardiff, on **10th April 2017**.

The above information was communicated by electronic means and authenticated by the  
Registrar of Companies under section 1115 of the Companies Act 2006



Companies House



THE OFFICIAL SEAL OF THE  
REGISTRAR OF COMPANIES

شهادة تأسيس  
CERTIFICATE OF REGISTRATION

Certificate No. DMCC42263

رقم الشهادة DMCC42263

The Registrar of Companies of the Dubai Multi Commodities Centre Authority (DMCCA) hereby certifies that:

يشهد مسجل الشركات بمركز دبي للسلع المتعددة بأن:

**ARTHUR BEST CONSULTING ENGINEERS  
DMCC**

**أرثور بست كونسالتينغ إنجينيرز م.د.م.س**

Is formed as a Company with Limited Liability this day **11-Oct-2015** and that all the Requirements under the provisions of law No.(4) of 2001 & order dated May 1st, 2002 in respect of Establishing Dubai Multi Commodities Centre Authority (DMCCA) and its amendments has been satisfied.

تأسست كشركة ذات مسؤولية محدودة في يوم **11-Oct-2015** وأن جميع متطلبات القانون رقم (4) لسنة 2001 والأمر الصادر في الأول من مايو 2002 بشأن إنشاء سلطة مركز دبي للسلع المتعددة وتعديلاته قد تم استيفائها.

Document reference no: 66232566179

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مرجع الوثيقة: 66232566179  
لقد أنشئت هذه الوثيقة إلكترونياً من قبل سلطة مركز دبي للسلع المتعددة. للتحقق من المحتوى وصحة هذه الوثيقة إذهب إلى [www.dmcc.ae/document\\_verification](http://www.dmcc.ae/document_verification) ثم أدخل الرقم الخاص لمرجع الوثيقة



## GOVERNMENT OF INDIA

### MINISTRY OF CORPORATE AFFAIRS

Registrar of Companies, Ernakulam  
1st Floor , Company Law Bhawan , BMC Road , Thrikkakara (PO)

### Certificate of Incorporation

[Pursuant to sub-section (2) of section 7 of the Companies Act, 2013 and rule 8 of the Companies (Incorporation) Rules, 2014]

I hereby certify that Arthur Best Consulting Engineers Private Limited is incorporated on this Twenty Fourth day of December Two Thousand Fourteen under the Companies Act, 2013 and that the company is limited by shares.

The CIN of the company is U74200KL2014PTC037709.

Given under my hand at Ernakulam this Twenty Fourth day of December Two Thousand Fourteen.

V M PRASANTH  
Registrar of Companies  
Kerala

Mailing Address as per record available in Registrar of Companies office:

Arthur Best Consulting Engineers Private Limited  
XXXVII/137C, WHITE HOUSE, KALOOR-KADAVANTHRA ROAD, KADAVANTHRA P O,  
COCHIN - 682020,  
Kerala, INDIA



## Locations

### Headquarters

#### **United Kingdom**

4 East Street, Crowland,  
Peterborough, PE60EN

### Branches

#### **UAE**

HDS Tower, Jumeirah Lake Towers  
Cluster F, 31st Floor, office 3102,  
P.O.Box 450676 Dubai

#### **India**

43/3626 B, Puthiya Road,  
Thammanam  
Cochin - 682032, Kerala, India

#### **Greece**

Kordeliou 2-6 Vironas  
16231 Athens



**BUREAU VERITAS**  
Certification



## **ARTHUR BEST CONSULTING ENGINEERS PVT. LTD.**



FIRST FLOOR, DOOR NO-43/3626B, PUTHIYAROAD, THAMMANAM P.O,  
PALARIVATTOM, COCHIN – 682 032, KERALA, INDIA.

*Bureau Veritas Certification Holding SAS – UK Branch certifies that the Management System of the above organization has been audited and found to be in accordance with the requirements of the Management System standard detailed below.*

*Standard*

### **ISO 9001:2015**

*Scope of certification*

#### **ENGINEERING DESIGN SERVICES FOR CONSTRUCTION INDUSTRY**

Original cycle start date: **22 July 2016**

Expiry date of previous cycle: **21 July 2019**

Recertification Audit date: **01 July 2019**

Recertification cycle start date: **05 July 2019**

Subject to the continued satisfactory operation of the organization's Management System, this certificate expires on: **21 July 2022**

Certificate No. **IND.19.10419U/Q** Version : 1

Revision date: **05 July 2019**

**Signed on behalf of BVCH SAS – UK Branch**  
**Jagdheesh N. MANIAN**  
**Head – CERTIFICATION, South Asia**  
**Commodities, Industry & Facilities Division**



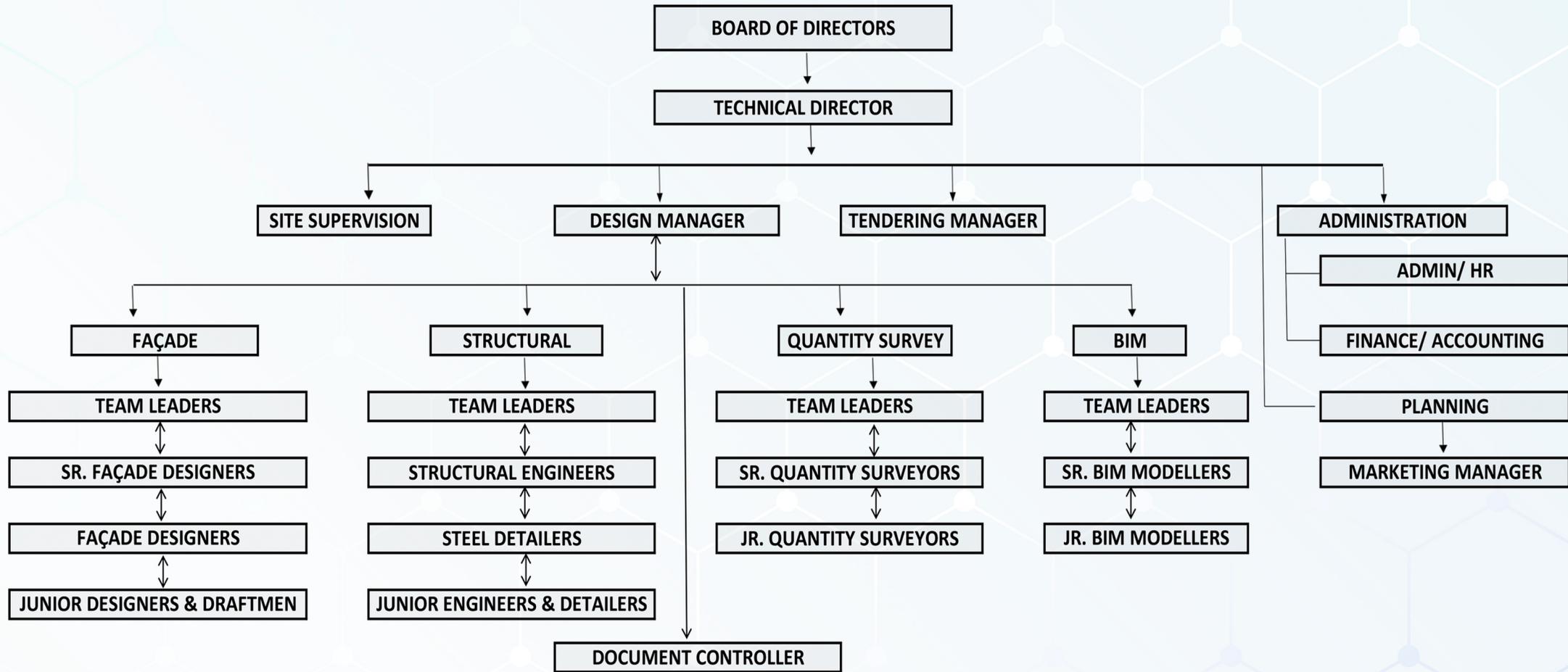
Certification body address: **5th Floor, 66 Prescott Street, London, E1 8HG, United Kingdom.**

Local office: **Bureau Veritas (India) Private Limited (Certification Business)**  
**72 Business Park, Marol Industrial Area, MIDC Cross Road "C",**  
**Andheri (East), Mumbai – 400 093, India.**

Further clarifications regarding the scope of this certificate and the applicability of the management system requirements may be obtained by consulting the organization. To check this certificate validity please call **+91 22 6274 2000**.



# ORGANIZATION CHART



Services



Façade Consultancy  
& Engineering



A well designed and engineered facade can communicate the architect's expression with green building materials, cost effective methodologies and innovative technologies.

ABC can transform a facade into a creative high performance wall which elevates occupant comfort and productivity, optimize energy use and running costs. Key steps in each project are: Understand, Innovate, Analyze, Detail, Verify and Implement.

# SERVICES

## Pre Tender Stage

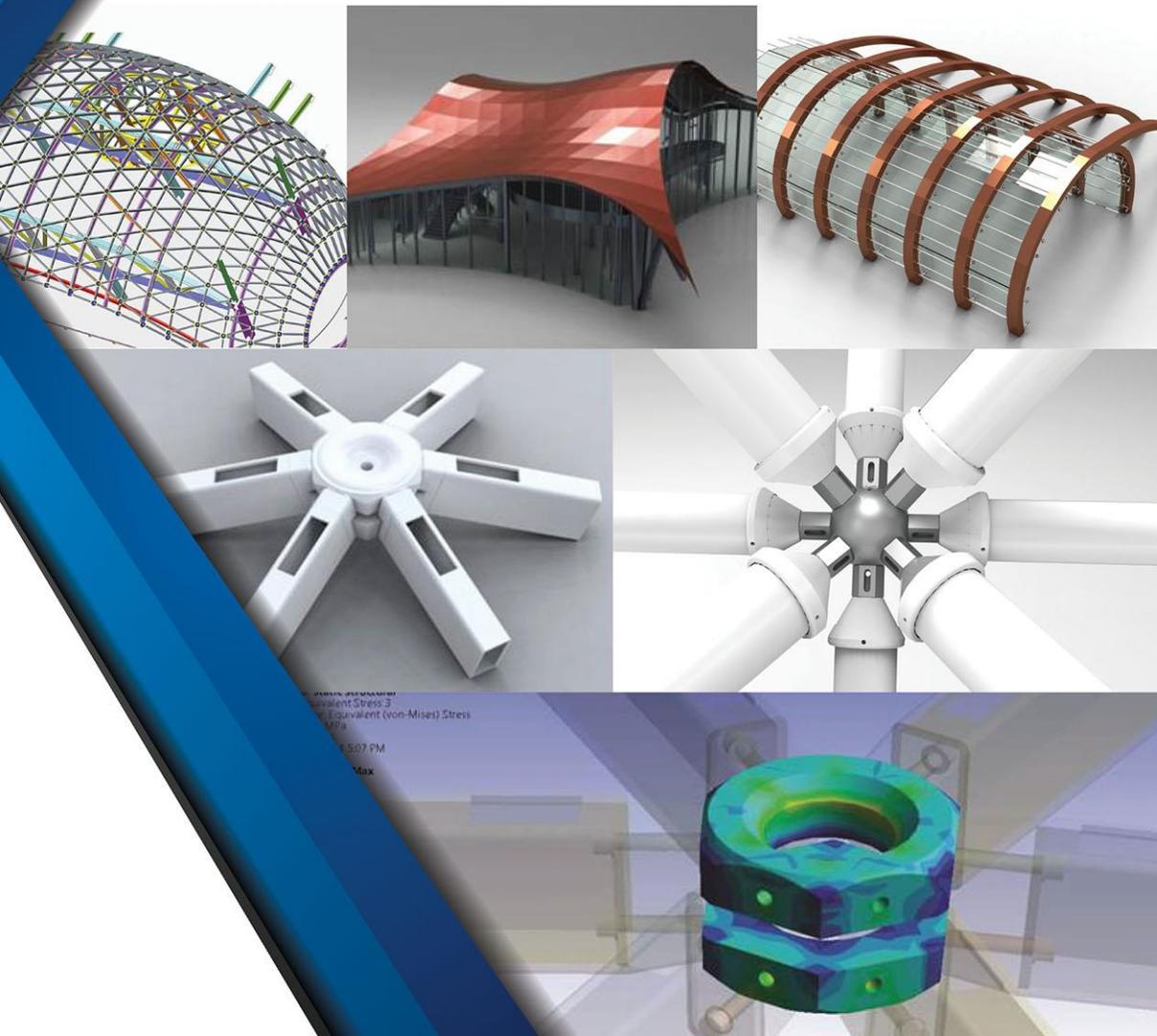
- Facade concept design
- Material selection and system selection
- Facade thermal and energy performance simulation reports
- Acoustic performance simulation reports
- Structural calculation reports
- Tender specifications
- Tender drawings
- MTO / Bill of Quantities
- BIM model preparation

## Post Tender Stage

- Facade concept design (Design Drawings)
- Material selection and specifications
- Facade thermal and energy performance simulation
- Acoustic performance simulation
- Structural calculation reports
- Shop drawings
- Mock up drawings and cut lists
- MTO / Bill of quantities
- Development of aluminum extrusion profiles and dies
- Fabrication drawings and Cut lists
- Generating CNC programs
- Erection drawings
- As build drawings
- On and Off site testing
- BIM modeling
- Construction supervision

# 3D Modeling & FEA

Use of 3d modeling software enable us to generate complex organic shapes and structural designs to support the modern architectural design. Use of 3d modeling software tools accelerate design, save time and development costs, and boost productivity. 3D solid modeling is a critical aspect for modern product development and provides the basis for design, simulation, and manufacturing of any part and assembly in the field of facade engineering and system development. 3D solid modeling speeds the creation of complex parts and large assemblies.

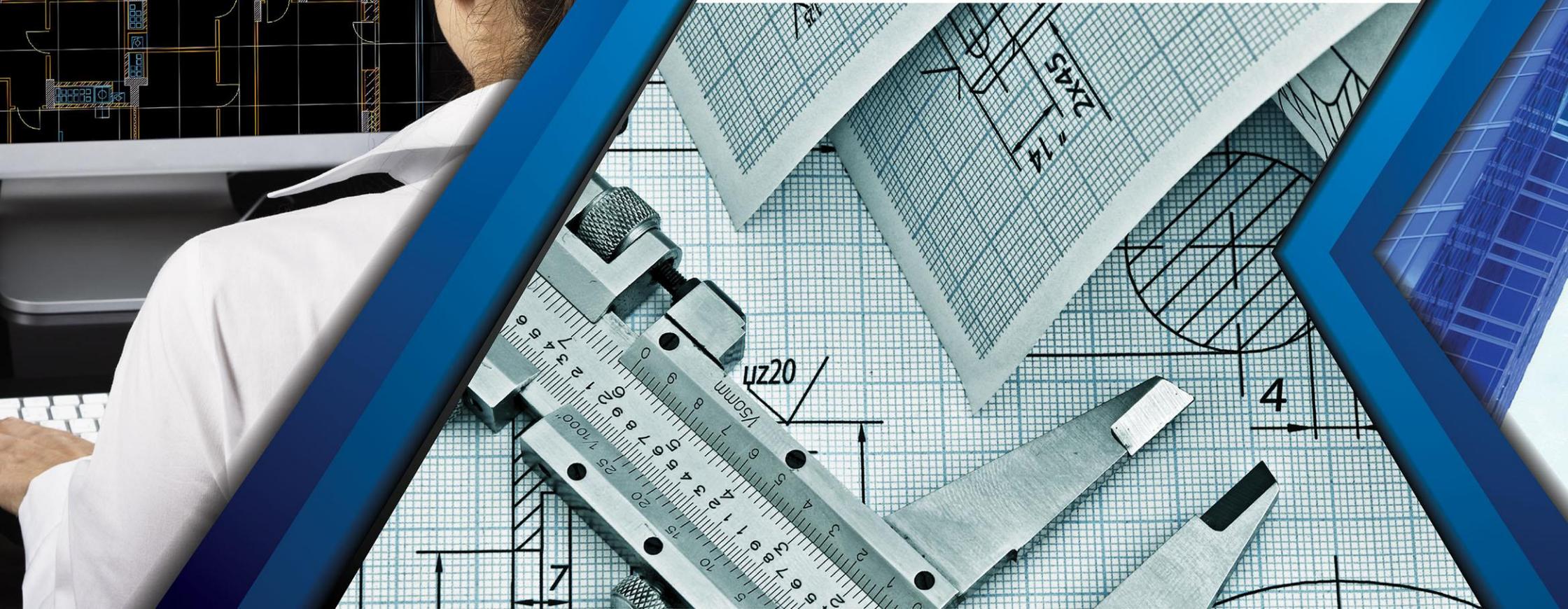
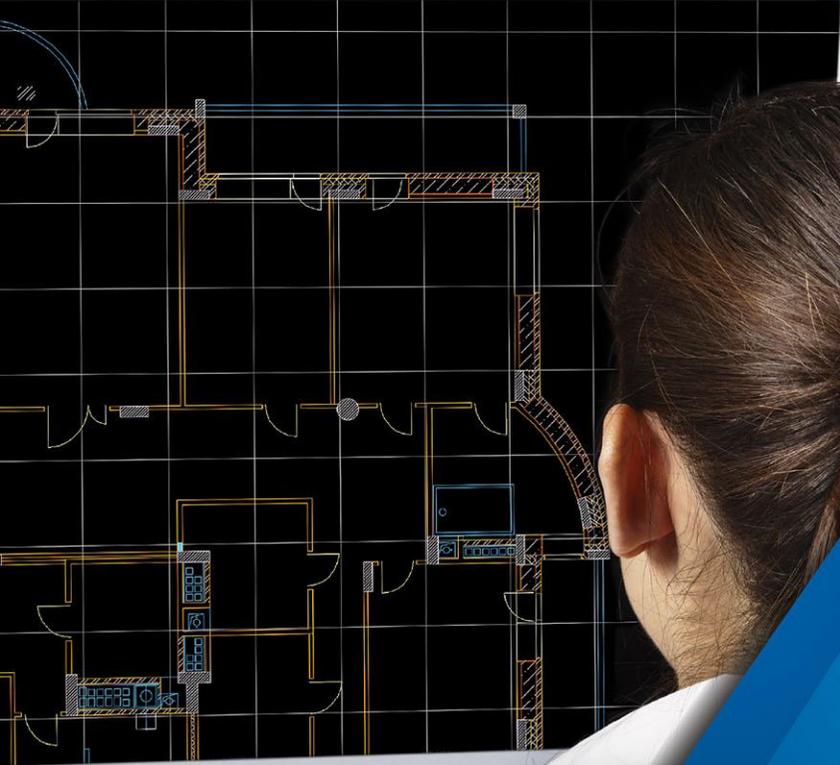


## Creating 3D solid models of designs instead of 2D drawings:

- Speeds design development and detailing
- Improves visualization and communication
- Eliminates design interference issues
- Checks design functionality and performance (without the need for physical prototypes)
- Automatically provides manufacturing with 3D solid models that are required when programming CNC machine tools and rapid prototyping equipment
- Create 3D solid models of any part and assembly, no matter how large or complex
- Keep all 3D models, 2D drawings, and other design and manufacturing documents synchronized with associatively that automatically tracks and makes updates
- Quickly make variations of your designs by controlling key design parameters
- Generate surfacing for any 3D geometry, even complex organic and stylized shapes

# DRAFTING

- Site Layouts
- Design Concepts
- Detailed Engineering Design Drafting
- Workshop Fabrication and Assembly Drawings
- Solid Modeling
- Detail Drawings
- Process & Instrumentation Diagrams (P&ID)





# Steel Design & Detailing

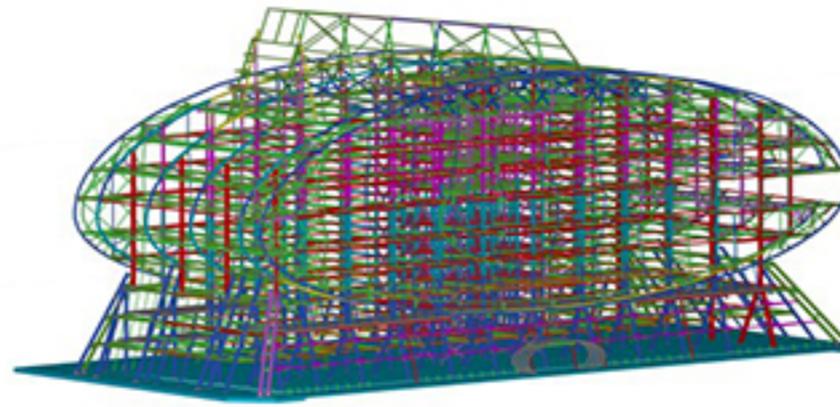
Structural Steel & RCC Design  
Structural Steel Detailing  
Rebar & BCC Detailing  
Building Information Modeling ( BIM )

[www.arthurbest.uk.com](http://www.arthurbest.uk.com)

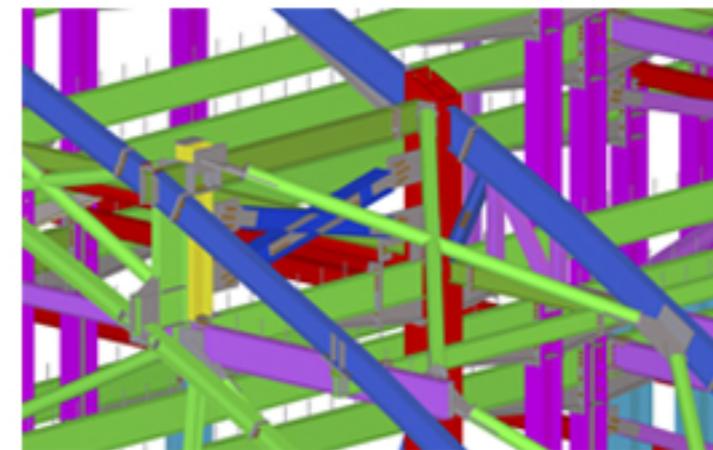
Arthur Best Consultants provides services for high quality steel design & detailing by specialists having, besides the experience in 3D modeling, the know how of production and erection of steel structures. This makes Arthur Best Consultants Your partner in steel design and detailing.

# SECTORS

RESIDENTIAL BLG.  
COMMERCIAL BLG.  
MALLS  
STADIUMS  
HIGH RISE BLG.  
AIRPORTS  
TRANSPORTATION



REFINERIES  
PETROCHEMICALS  
OIL & GAS  
POWER PLANTS  
PROCESS PLANTS  
SMELTER PLANTS  
CEMENT PLANTS  
MINING

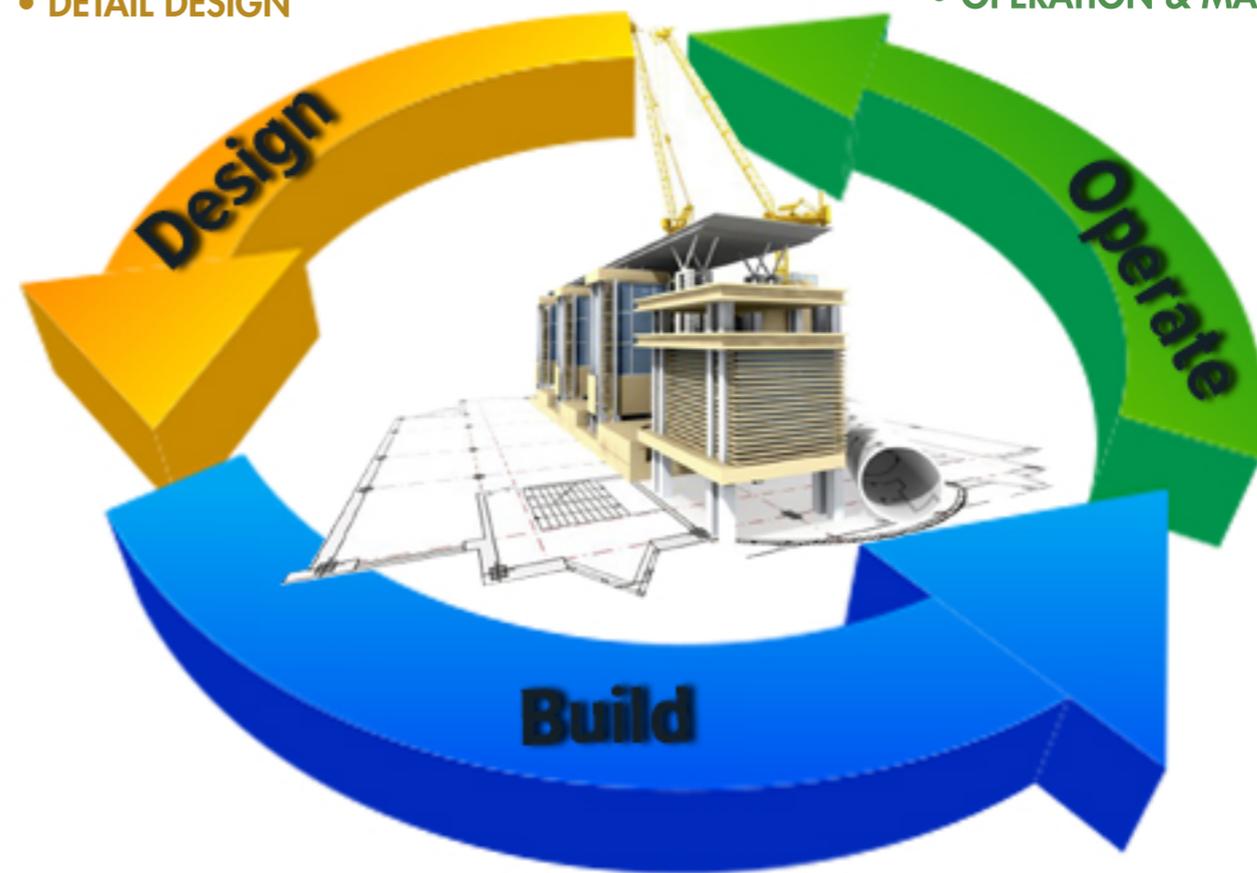


# How BIM benefits Civil Engineers

- Visualizing the Project
- Simulating Building Scenarios
- Analyzing Design Elements
- Identifying Design Conflicts
- Improving Material Estimates
- Managing Development Expenses
- Making Better Informed Decisions
- Incorporate code compliance
- Prevents problems such as delayed schedules or extensive change orders.
- Verify potential dangers of a structure or property prior to starting construction

- CONCEPTUAL DESIGN
- DOCUMENTATION
- STRUCTURAL ANALYSIS
- DETAIL DESIGN

- RENOVATION
- OPERATION & MAINTENANCE



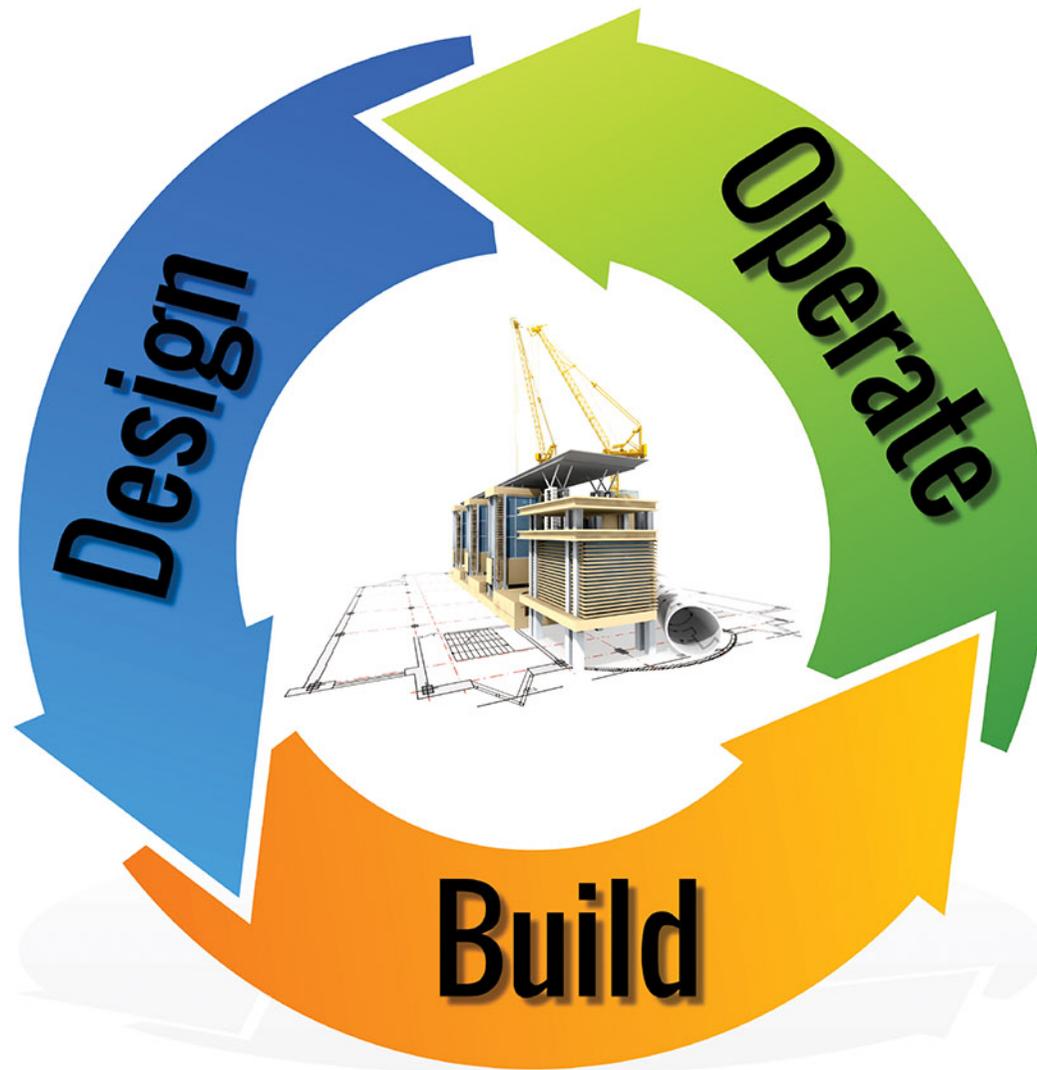
- FABRICATION
- CONSTRUCTION 4D / 5D



BIM

BUILDING INFORMATION MODELLING





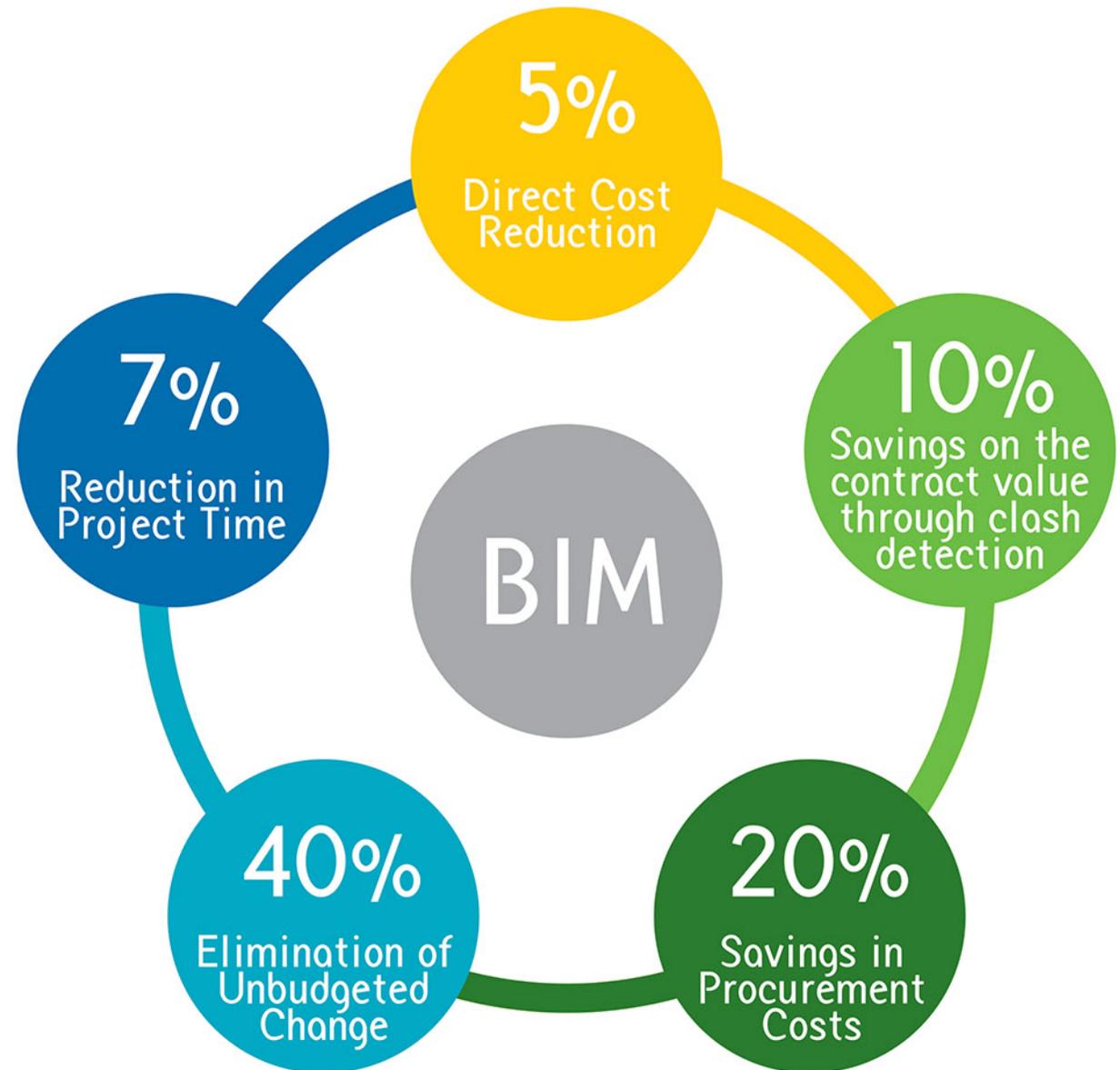
Arthur Best Consulting Engineers has been at the forefront of providing comprehensive solution for Building Information Modelling services for Architectural, Structural & MEP. Our experienced team includes BIM Coordinators, Architects, Structural Engineers, HVAC Engineers, Plumbing Engineers, Electrical Engineers and BIM Modellers. We provide professional, personalized and quality services for our projects. We are passionate about the new advancements in BIM and also love taking on new challenges in the industry.

At the heart of our success lies on the inspiring effort put in by our team from various disciplines, who come together to deliver work that is simply remarkable.

### BIM

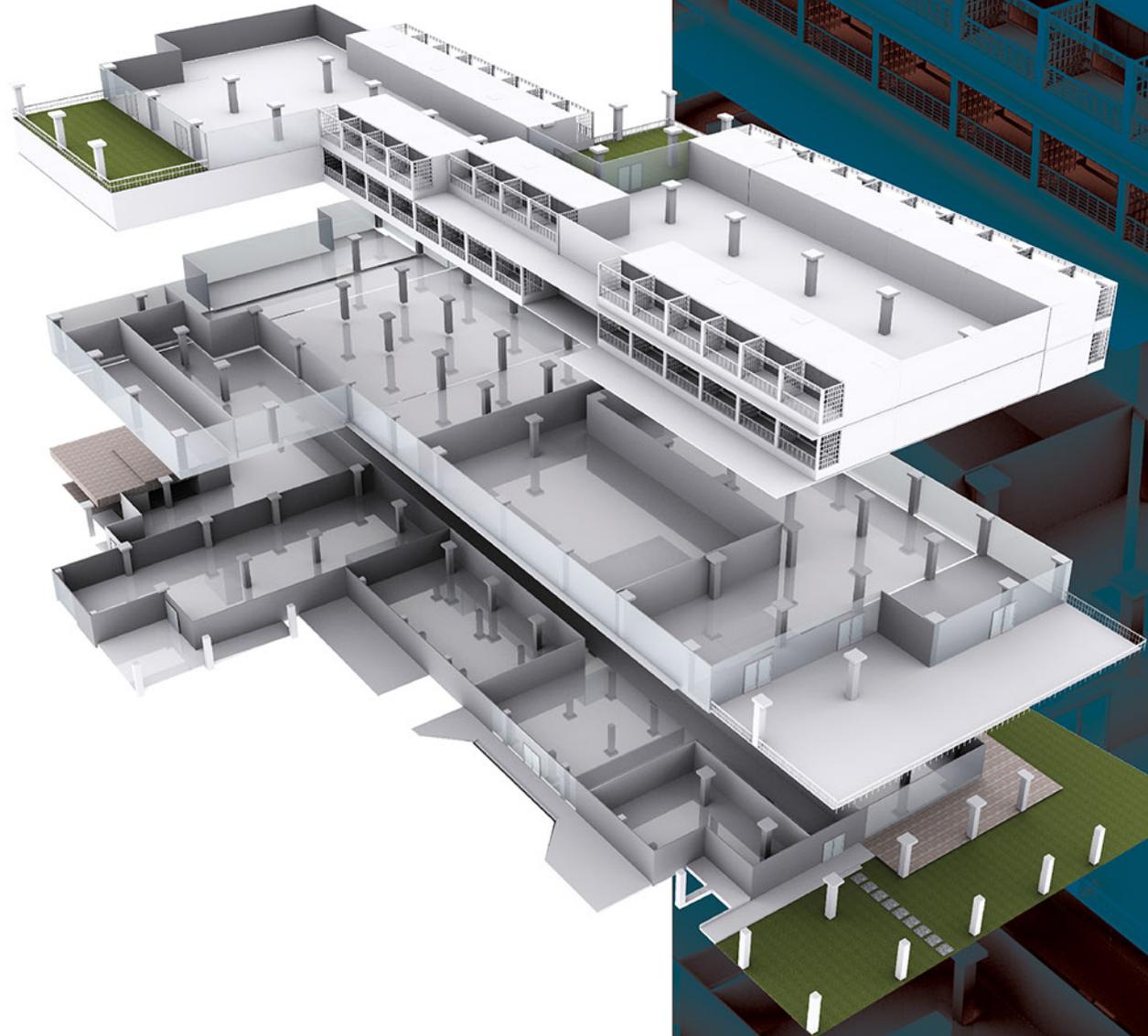
Building Information Modelling or BIM is a digital representation of physical and functional characteristics of a facility. As such, it serves as a shared knowledge resource for information about a facility, forming a reliable basis for decisions during its life-cycle; defined as existing from inception onward. The future of the construction industry is digital, and BIM is the future of design and long term facility management.

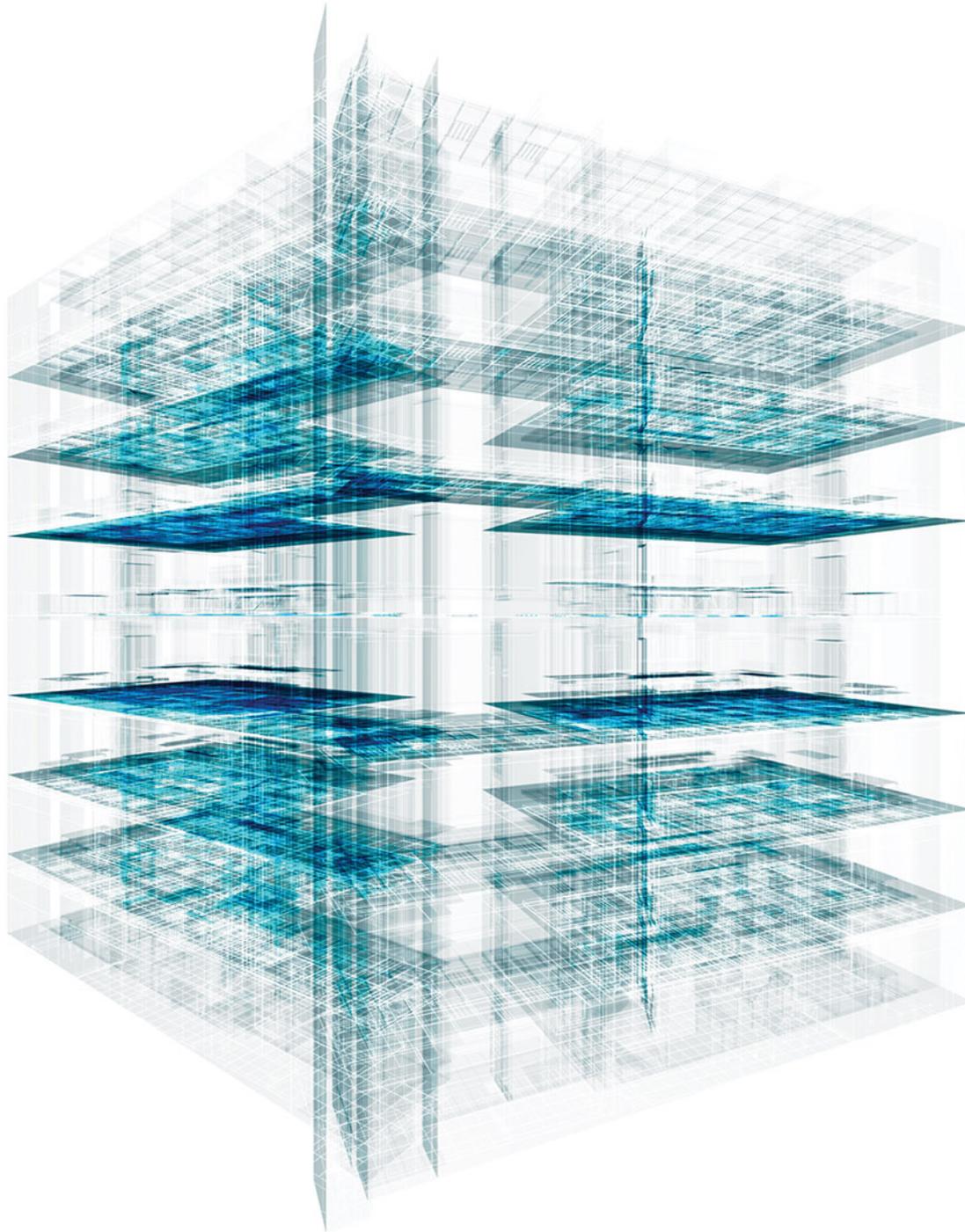
## QUANTIFYING BIM BENEFITS



## BIM MODELLING

We provide building information modelling services using Autodesk Revit platform. We have expertise in software's like Revit Architecture, Revit Structure & Revit MEP. We are able to create pre-construction planning design data for diverse projects with the same family of software. This level of interoperability provides obvious time and cost benefits; it also allows the entire project team to view the impact of their individual designs on those of others and to resolve the conflicts based on this knowledge. In addition to 3D parametric modelling, we provide 4D (time schedule) and 5D (cost) BIM services to our clients





### MEP COORDINATION

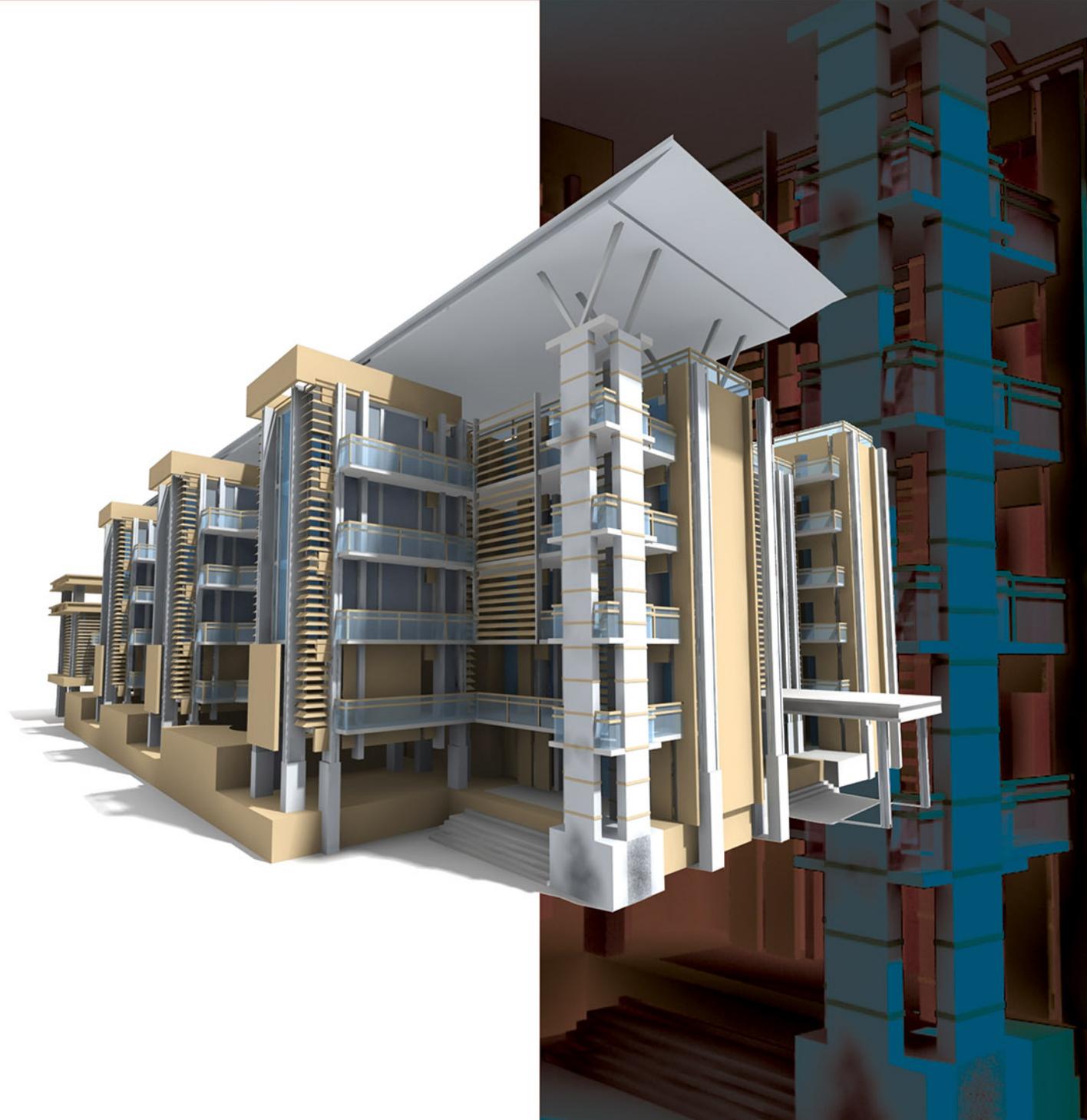
With our expertise people and most advanced tools, we coordinate all the MEP Services among each other and also with the building model, which is widely used among contractors, engineers and architects.

With our experienced BIM Coordinators we can provide the best MEP BIM Coordination services considering material savings and other stand-alone factors which makes the coordination a difficult task. Our mission is to minimize the Cost and time in-occurred during the Construction Phase. With our advanced coordination techniques we make your construction process easy.

## CONSTRUCTION MANAGEMENT

Apart from 3D modelling services, we also provide construction management services like 4D Construction Sequencing, 5D Simulation and quantity estimation services

We use Autodesk Navisworks platform to create 4D/ 5D simulations based on the planned construction process. With the generated sequence the construction planner can simulate the planned process, identifies any potential clashes, effective material planning & management, improved site utilization planning & coordination with on-going operations, supply chain management, inventory management etc.



## LOD 100 – CONCEPTUAL

“The Model Element may be graphically represented in the Model with a symbol or other generic representation, but does not satisfy the requirements for LOD 200. Information related to the Model Element (i.e. cost per square foot, tonnage of HVAC, etc.) can be derived from other Model Elements.”



### Deliverables

- Model
- Generic Volume Details
- Basic Sections and Elevations

### Users

Owner | Architect

## LOD 200 – GENERIC PLACEHOLDERS

“The Model Element is graphically represented within the Model as a generic system, object, or assembly with approximate quantities, size, shape, location, and orientation. Non-graphic information may also be attached to the Model Element.”



### Deliverables

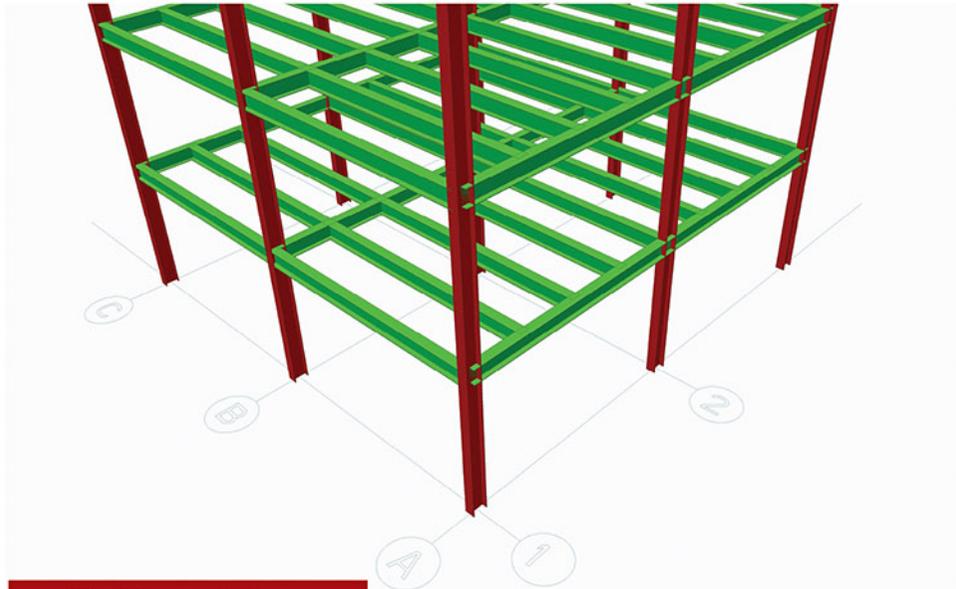
- Model
- Approximate Sections And Elevations
- Approximate Floor Plans
- Approximate Schedules of Doors, Windows, Walls etc.

### Users

Owner | Architect | Engineers

## LOD 300 – SPECIFIC ASSEMBLIES

LOD 300 “The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of quantity, size, shape, location, and orientation. Non-graphic information may also be attached to the Model element.”



### Deliverables

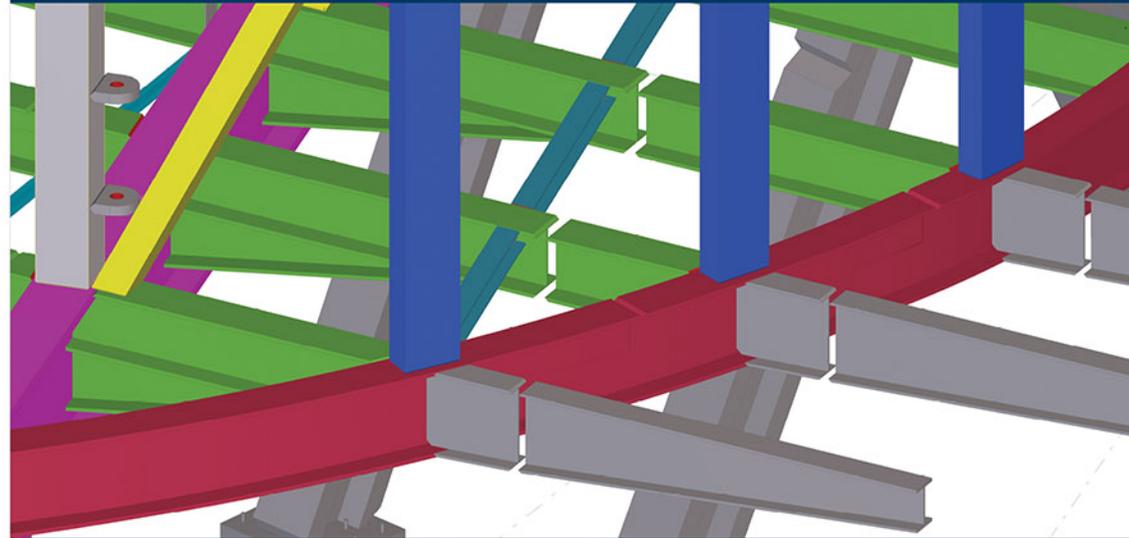
- Model
- Sections And Elevations
- Accurate Floor Plans
- Accurate Schedules of Doors, Windows, Walls etc.
- Ceiling Plans
- Accurate Structural Floor Plans, Sections, Elevations etc
- Accurate MEPF Floor Plans, Sections, Elevations etc
- Coordinated Model and Drawings issued for construction

### Users

Owner | Architect | Engineers | Contractors | Sub Contractor

## LOD 350 – HYBRID OF SPECIFIC & DETAILED ASSEMBLIES

LOD 350 model = LOD300 + interfaces. The global model is particularly suited for the use of the model to support the constructive process. It has the advantage of being easier to develop than the LOD400 but providing more useful information than LOD300



### Deliverables

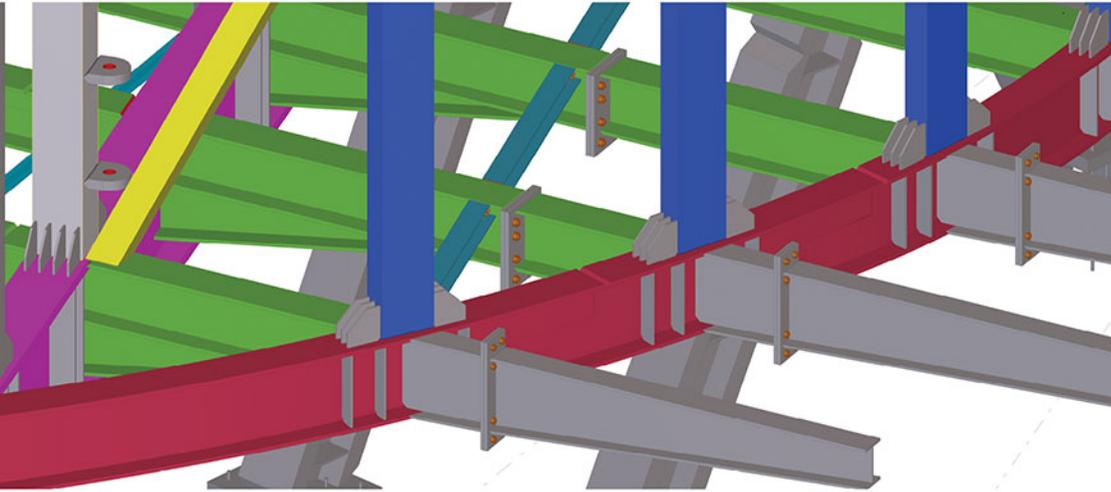
- Model
- Sections And Elevations
- Accurate Floor Plans
- Accurate Schedules of Doors, Windows, Walls etc.
- Ceiling Plans
- Accurate Structural Floor Plans, Sections, Elevations etc
- Accurate MEPF Floor Plans, Sections, Elevations etc
- Coordinated Model and Drawings issued for construction
- Interfaces

### Users

Owner | Architect | Engineers | Contractors | Sub Contractor

## LOD 400 – DETAILED ASSEMBLIES

“The Model Element is graphically represented within the Model as a specific system, object or assembly in terms of size, shape, location, quantity, and orientation with detailing, fabrication assembly, and installation information. Non-graphic information may also be attached to the Model Element.”



### Deliverables

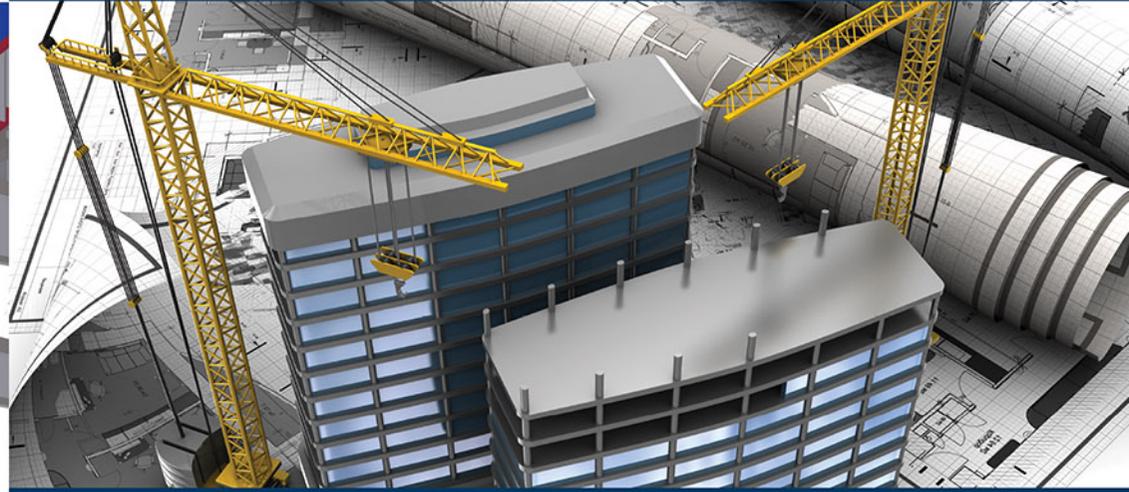
- Fabrication Model
- Sections And Elevations
- Accurate Floor Plans
- Accurate Schedules of Doors, Windows, Walls etc.
- Ceiling Plans
- Fabrication Drawings
- Accurate Structural Floor Plans, Sections, Elevations etc
- Accurate MEPF Floor Plans, Sections, Elevations etc
- Coordinated Model and Drawings issued for construction
- Interfaces

### Users

Owner | Architect | Engineers | Contractors | Sub Contractor | Fabricators

## LOD 500 – AS BUILT

“The Model Element is a field-verified representation in terms of size, shape, location, quantity, and orientation. Non-graphic information may also be attached to the Model Elements. The model is suitable for maintenance and operations of the facility”



### Deliverables

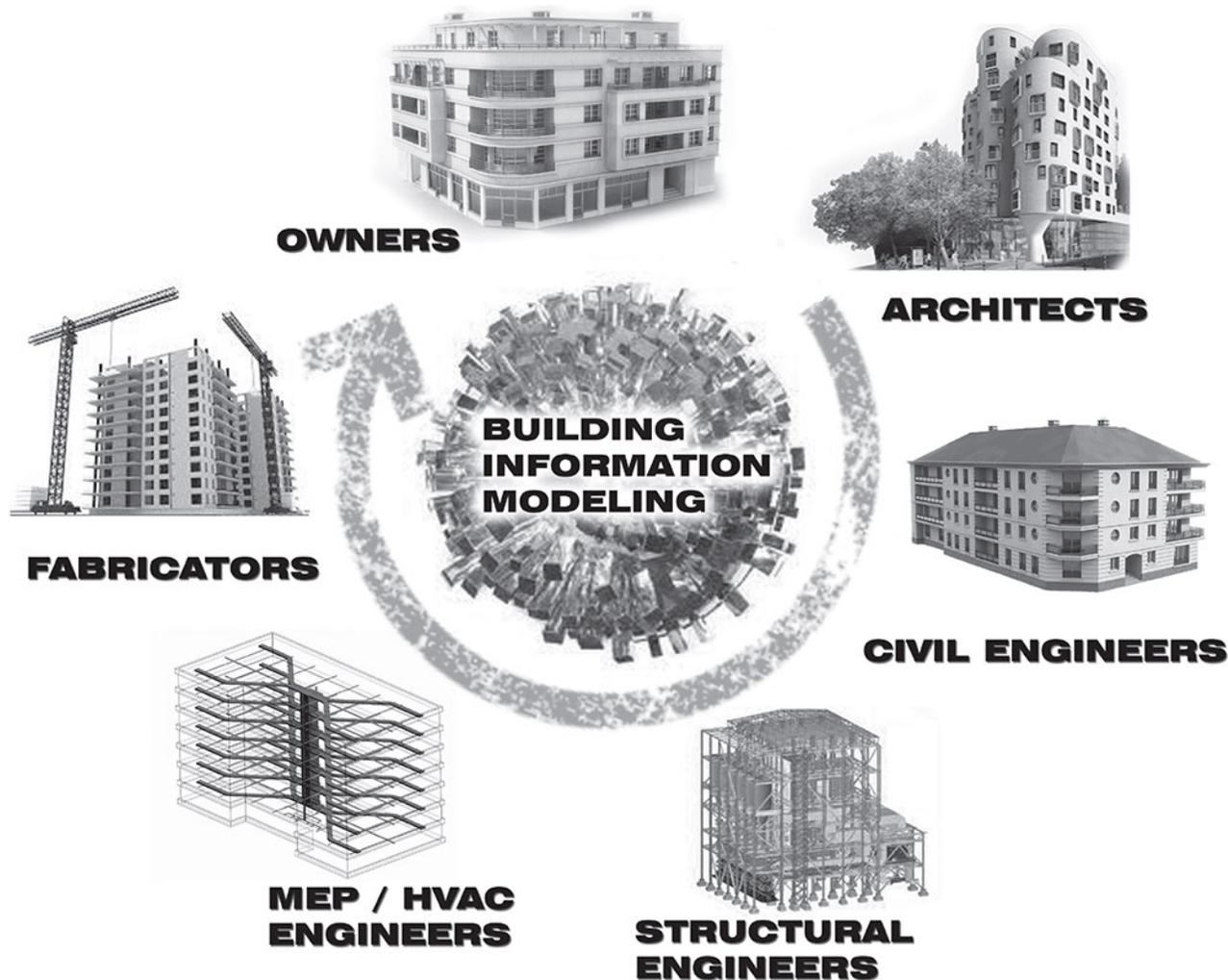
- Fabrication Model
- Sections And Elevations
- Accurate Floor Plans
- Accurate Schedules of Doors, Windows, Walls etc.
- Ceiling Plans
- Fabrication Drawings
- Accurate Structural Floor Plans, Sections, Elevations etc
- Accurate MEPF Floor Plans, Sections, Elevations etc
- Coordinated Model and Drawings issued for construction
- Interfaces

### Users

Owner | Architect | Engineers | Contractors | Sub Contractor |  
Fabricators | Facility Management | Maintenance Operations

# LEVELS OF BIM MATURITY

A building information model is intended to be an interactive single source of information for designers and constructors of buildings, and the facilities managers who will maintain them throughout their lives. It will centralise many disparate sources of information, with sections, elevations, plans, renders, 3D walkthroughs, specifications, details and technical information and materials embedded in the model.



The levels of BIM maturity are defined as:

## Level 0

Unmanaged cad, probably 2D, with paper (or electronic paper) as the most likely data exchange mechanism.

## Level 1

Managed cad in 2D or 3D format using BS1192: 2007, the British Standard concerning the management of construction information, with a collaboration tool providing a common data environment, possibly some standard data structures and formats. Commercial data managed by standalone finance and cost management packages with no integration.

## Level 2

Managed 3D environment held in separate discipline bim tools with attached data. Commercial data managed by an enterprise resource planning (ERP) system. Integration on the basis of proprietary interfaces or bespoke middleware could be regarded as "pbim" (with p standing for proprietary). The approach may use 4D programme data and 5D cost elements as well as feeding operational systems.

## Level 3

Fully open process and data integration enabled by web services compliant with emerging IFC/IFD standards, managed by a collaborative model server. Could be regarded as "ibim" or integrated bim, potentially employing concurrent engineering processes.



QS

## *Cost Planning*

Cost planning generally evolves through the life of the project, developing in detail and accuracy as more information becomes available about the nature of the design, and then actual prices are provided by specialist contractors, and suppliers. A data base is necessary where information for each project will be found.

## *Bill of Quantities (BOQ)*

Preparing a document called Bill of Quantities which means providing project specific measured quantities of the items of work identified by the drawings and specifications in the tender documentation. The quantities may be measured in number, length, area, volume, weight or time. Preparing a bill of quantities requires that the design is complete and a specification has been approved.

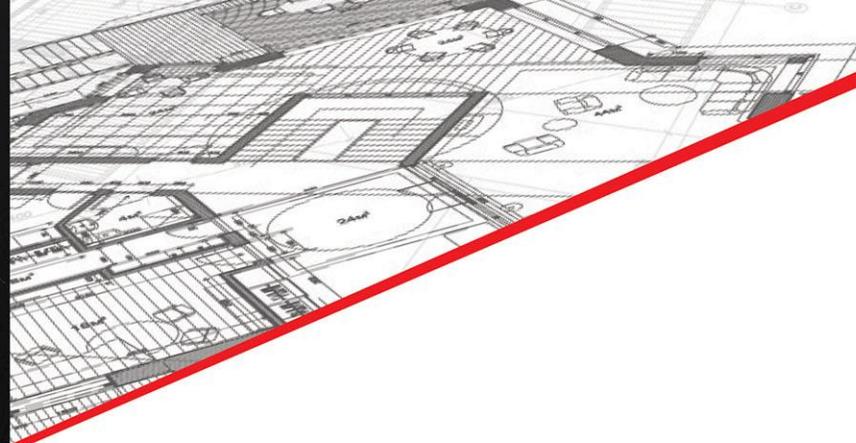
## *Taking -Off quantities and Material Take-off (MTO)*

Identifying elements of construction works that can be measured and priced. This is necessary to produce bills of quantities and requires that the design is complete and a specification has been approved by the client.

Analysis of drawings and specifications allows "Arthur Best" quantity surveyor to prepare a taking off list, which lists all of the individual elements that comprise the works.

Material Taking Off is analyzing the drawings and determining all the materials required to accomplish the design. We then use the material take-off to create bill of Materials (BOM)- if required.





## VALUATION OF WORK IN PROGRESS AND WORK COMPLETED

Estimating the work in progress by showing the percentage of completion of each work.

### *Examining and reporting on Tender documents*

Tender documents are basically based on Bill of Quantities and are prepared to seek tenders (offers). Generally, tendering refers to the suppliers required to complete construction works.

Ideally, tender documents should be broken down into a series of packages (even if there will only be one main contract) each with its own design drawings and specifications suitable to be issued by the main contractor to potential sub-contractors. This makes the tender easier to price for the contractor and easier to compare with other tenders for the client.

**The objective of the tender pricing document is to:**

- Enable like for like comparison between tenders and the cost plan (pre-tender estimate).
- Enable the cost consultant to assess where value lies within the different tenders (such as foundations or finishes) allowing assessment of value for money.
- Identify any significant differences in pricing between tenders to ensure the design has been correctly interpreted.
- Identify areas of savings that might be negotiated with tenders while still in competition.
- Form the financial basis of the tender report.

The completed tender pricing document is effectively a priced bill of quantities. It sets out the tenders rates, costs and totals and constitutes the tenders complete offer.

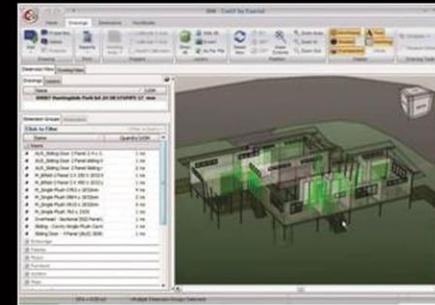


## Cost Forecasting

This constitutes part of pricing. It specifically involves forecasting the final costs of projects or work packages (individual contracts within a project). We review tender documents and contract variations and use this to calculate the final figure payable. Time spent is dependent on how many packages are involved and how accurate the forecast needs to be: a project near completion needs to be very accurate.

## Variation Assessment

Variations may arise mostly a) when the architect needs or wishes to change the design or the specification b) when a discrepancy is discovered between any two or more of the contract documents, and c) when an error in or omission from the contract bills is discovered. Therefore QS has to ascertain the extra cost derived from the variations and this has to be measured. Such measurements may be done from drawings or by measuring the substituted work on the site after it has been carried out.



Microsoft Excel - Exam case												
File Edit View Insert Format Tools Data Window Help												
Sheet1												
	A	B	C	D	E	F	G	H	I	J	K	L
1	1	2	3	4	5	6	7	8	9	10	11	12
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## Interim valuations

Preparing interim valuation is to value the amount of work which has been done since the beginning of the contract till the valuation date. Usually they take place every month ( specific ) commencing one month after the date on which the contractor takes possession of the site.

SEE WHAT



*CostX<sup>®</sup> Viewer*

We provide our clients the all- electronic platform "see what we see". With live links to CAD drawings & BIM. This interactive project estimation platform allows our clients and their co-workers complete with detailed cost breakdowns and building revisions with LIVE links to CAD & BIM. So your costing projects can be explored in real-time on screen.

### *Prolongation Claims*

Preparing claims for extension of time. When the contractor fails to complete Works on or before the Date of Completion, he becomes liable for liquidated damages. So we help the contractor ( specific ) to give prompt written notice of such actual or likely delay a) stating the cause, b) identifying the Relevant Events, c) giving details of the expected effects and d) stating the estimated extent of the delay in the completion of the Works.

### *Contractual Claim Preparation*

Preparing Contractual Claims which usually arises from a) fluctuations, b) variations and c) loss and/or expense due to matters affecting regular progress of the work.

Claims due to Fluctuations are relating to increases in the costs of labor, materials and plants.

Claims due to Variations are relating to the increases of the cost and/or time that may derive from them.

In the last case , the QS has to ascertain the amount of such loss and expense which has been or is being incurred.

# WE SEE

## *We support a variety of BIM files from:*

- Revit
- ArchiCad
- Microstation
- Tekla
- SketchUP
- All other major BIM design packages
- A wide range of 2D drawings including:  
CAD files, PDFs and scanned files as  
JPGs, GIFs or TIFs

## *Final Accounts of Lump Sum*

Producing Final Accounts is necessary in order to be able to make final payment to a contractor.

In the case of lump sum contracts, the Final Account begins with the Contract Sum, shows what amounts are deducted and what amounts are added (and for what reasons) and ends with the adjusted total sum. This sum, when agreed, is the total amount which the Employer will pay to the contractor for the work he has done.

## *Final Accounts of Measured Contracts*

In the case of measured contracts, the Final Account is built up from nil to an 'ascertain final sum', which is the aggregate of amounts for named parts of the project. This final sum is the total amount which the Employer will pay to the contractor.

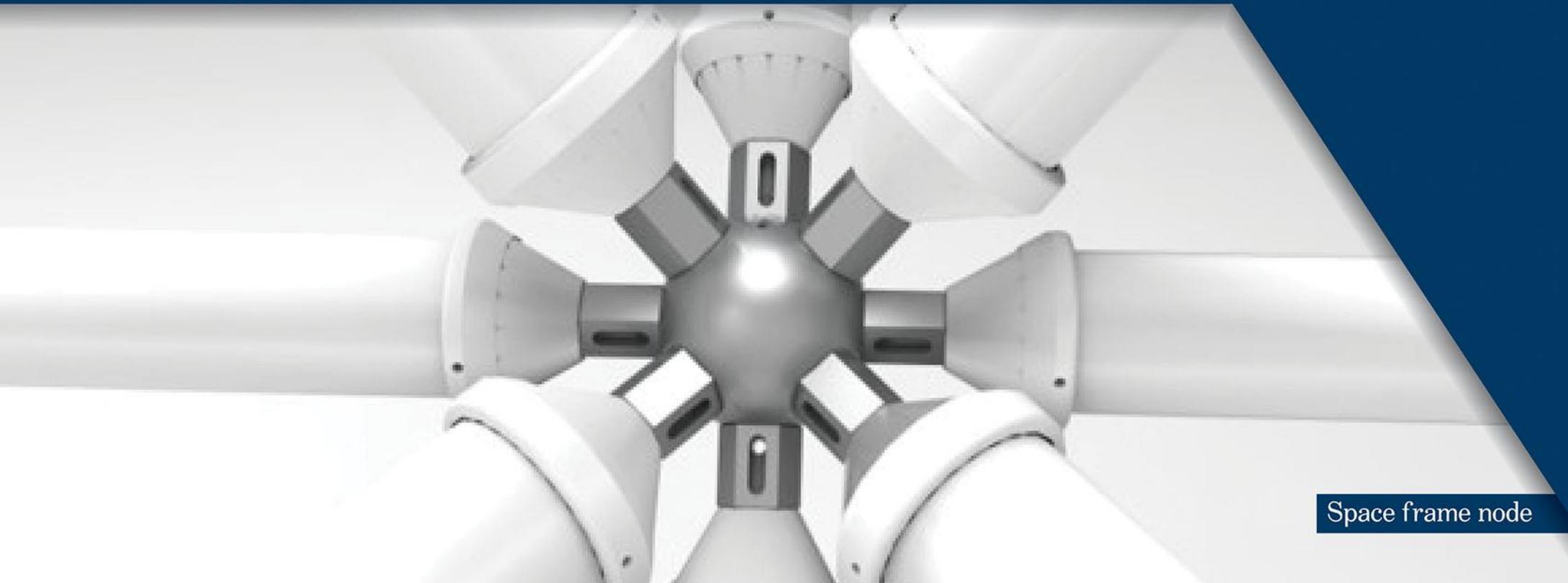
# SPECIALIZED FACADE SYSTEMS



Façade space frame node and spider glass



Single layer structure node



Space frame node

Façade mullion - transom connection



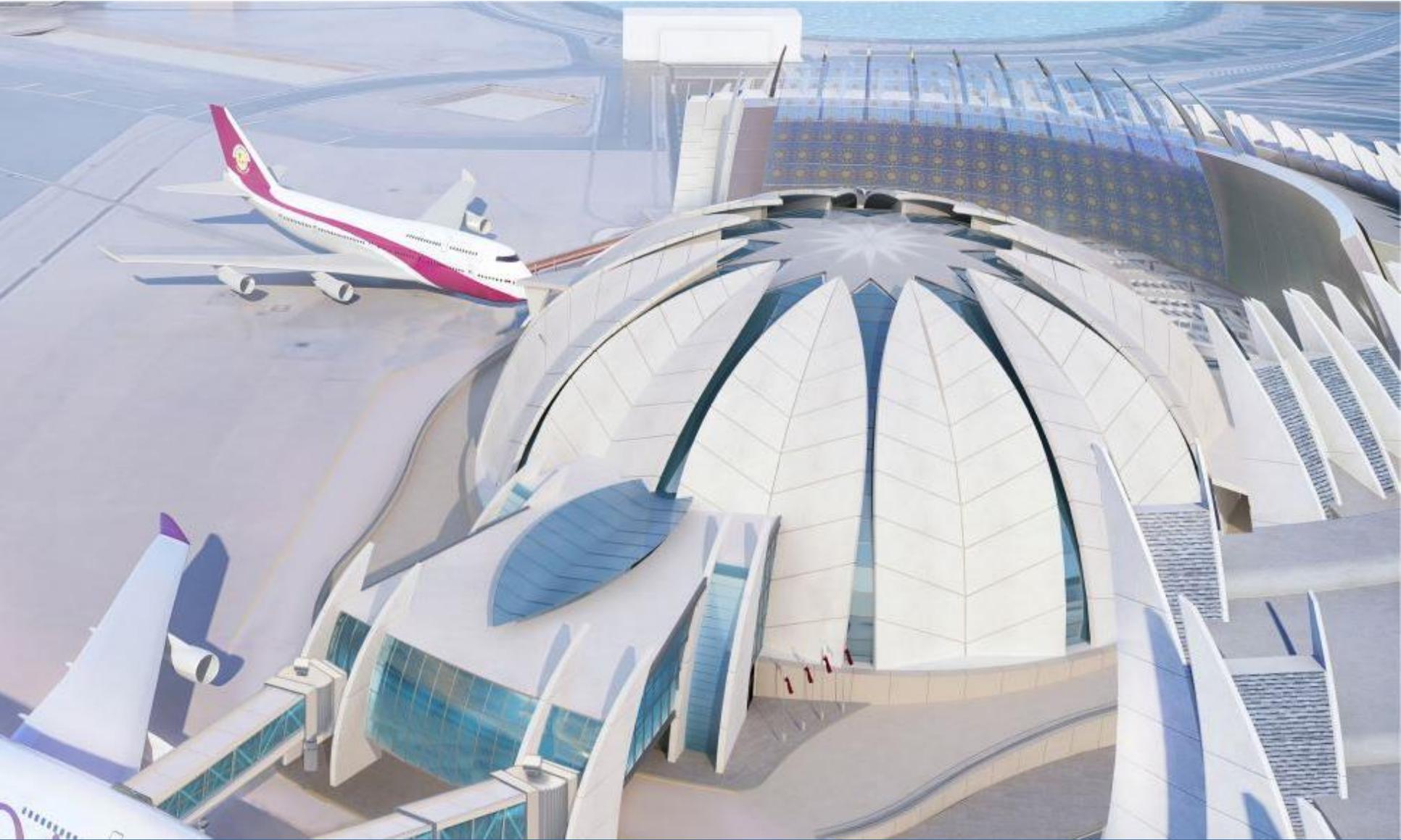
Mashrabiya Parts



Custom made free form elements







**PROJECT** *Amiri Terminal Extension*

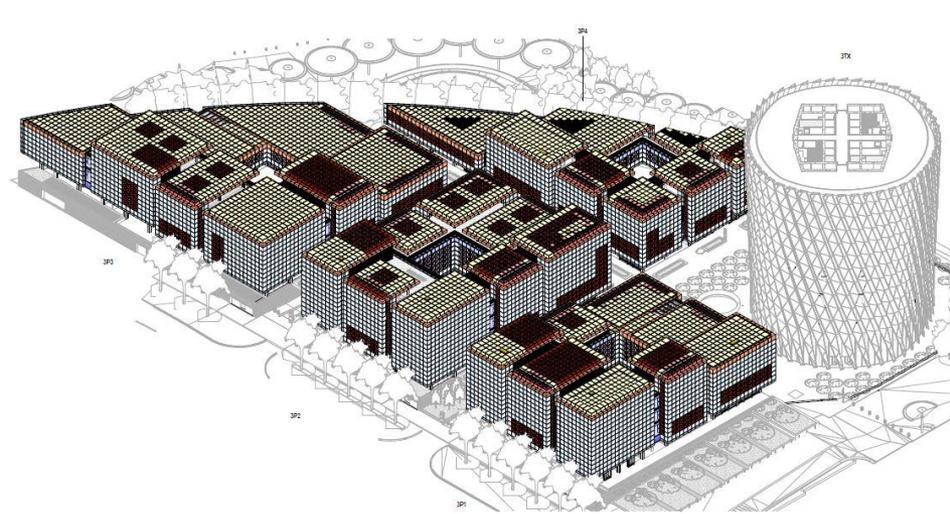
**LOCATION** *Doha Qatar*

**CLIENT** *Al Ali Engineering Co.*

**SCOPE** *Façade Engineering Glazing Package*



**PROJECT** *LRT Station CP07B Lusail Plaza Infrastructure*  
**LOCATION** *Doha Qatar*  
**CLIENT** *QD-SBG Construction*  
**SCOPE** *Façade Engineering GRC Package*



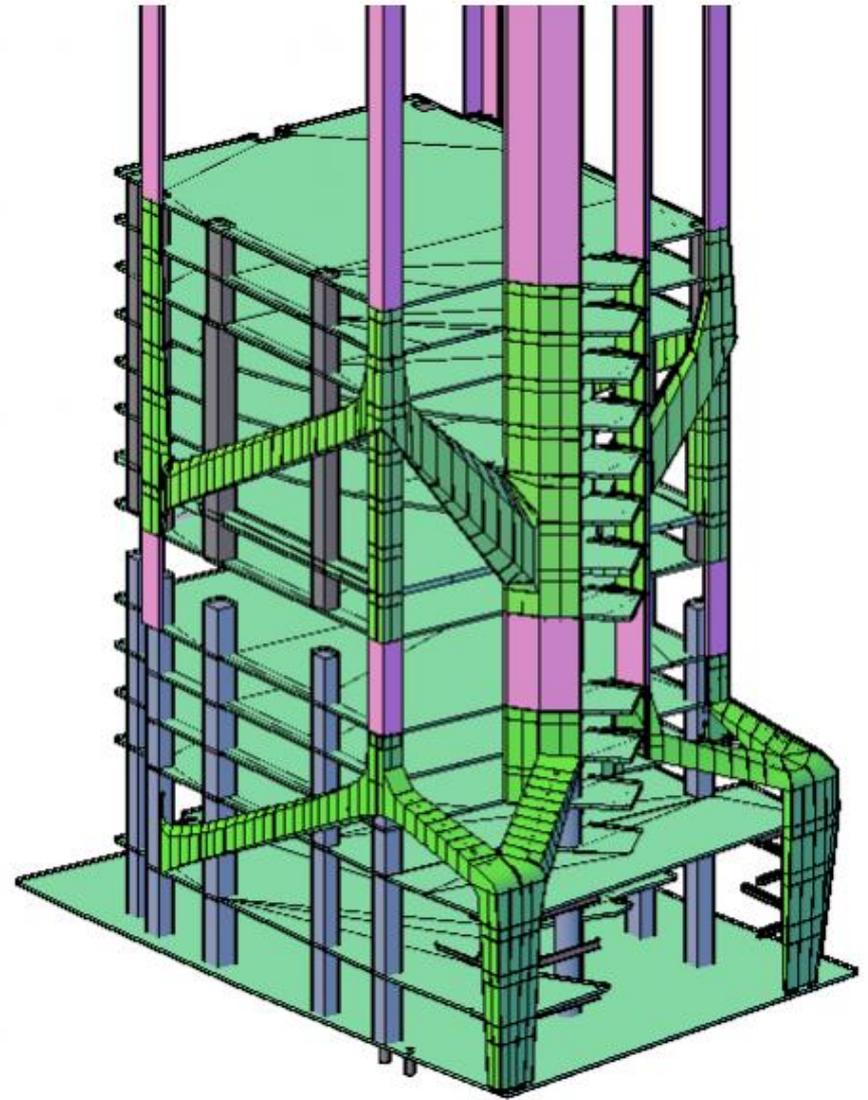
**PROJECT** Lusail Plaza Towers Plot 3& 4 Podium  
**LOCATION** Doha Qatar  
**CLIENT** Hyundai Engineering and Construction  
**SCOPE** Façade Engineering & BIM -UHPC Package



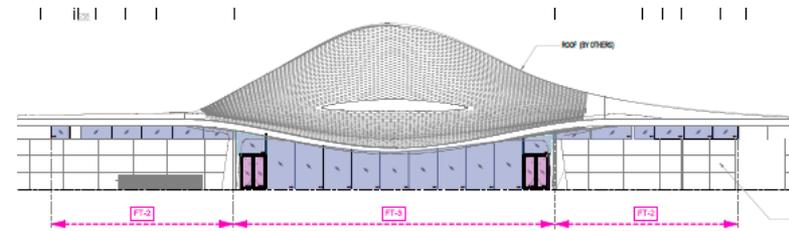
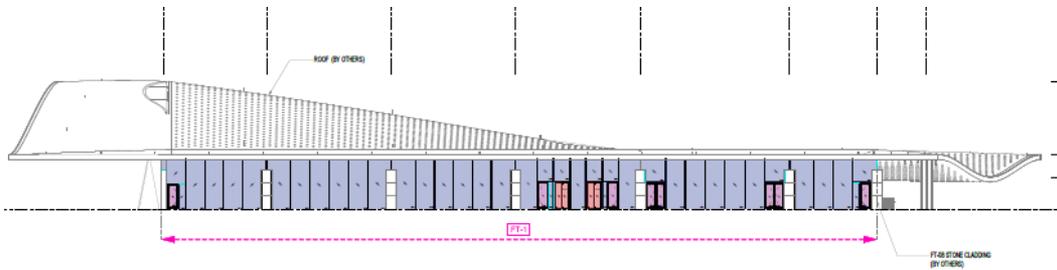
**PROJECT** *Marina mix 12D*  
**LOCATION** *Lusail Marina qatar*  
**CLIENT** *Urbacon Trading and Contracting*  
**SCOPE** *Façade Engineering*



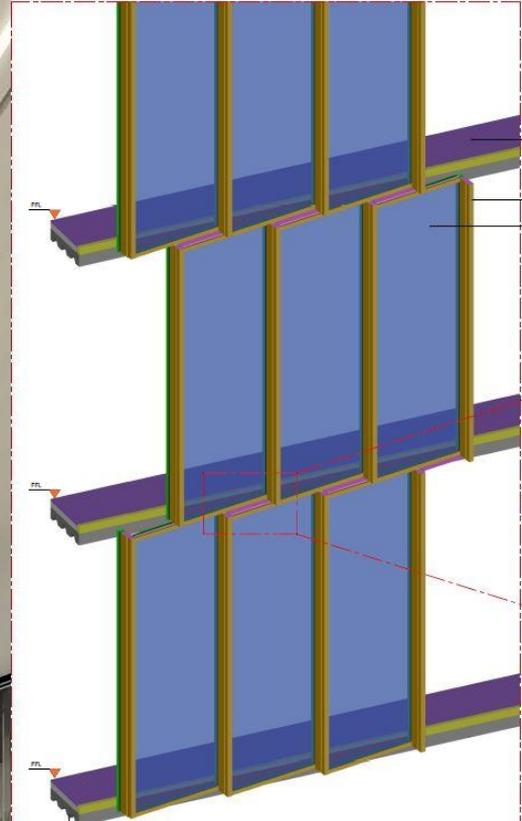
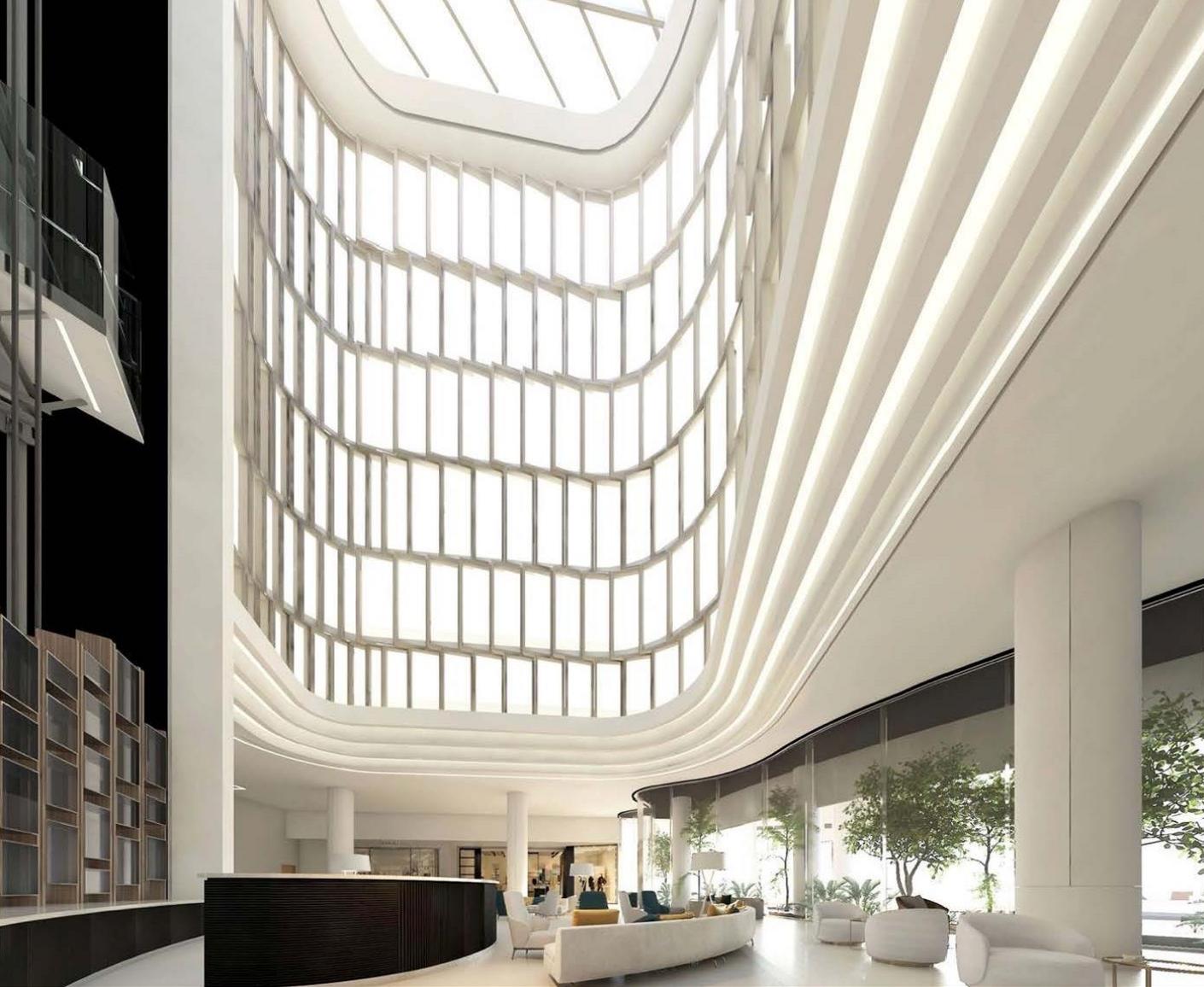
**PROJECT** *New Navel Base Project*  
**LOCATION** *Doha Qatar*  
**CLIENT** *Generic Engineering Technologies*  
**SCOPE** *Façade Engineering*



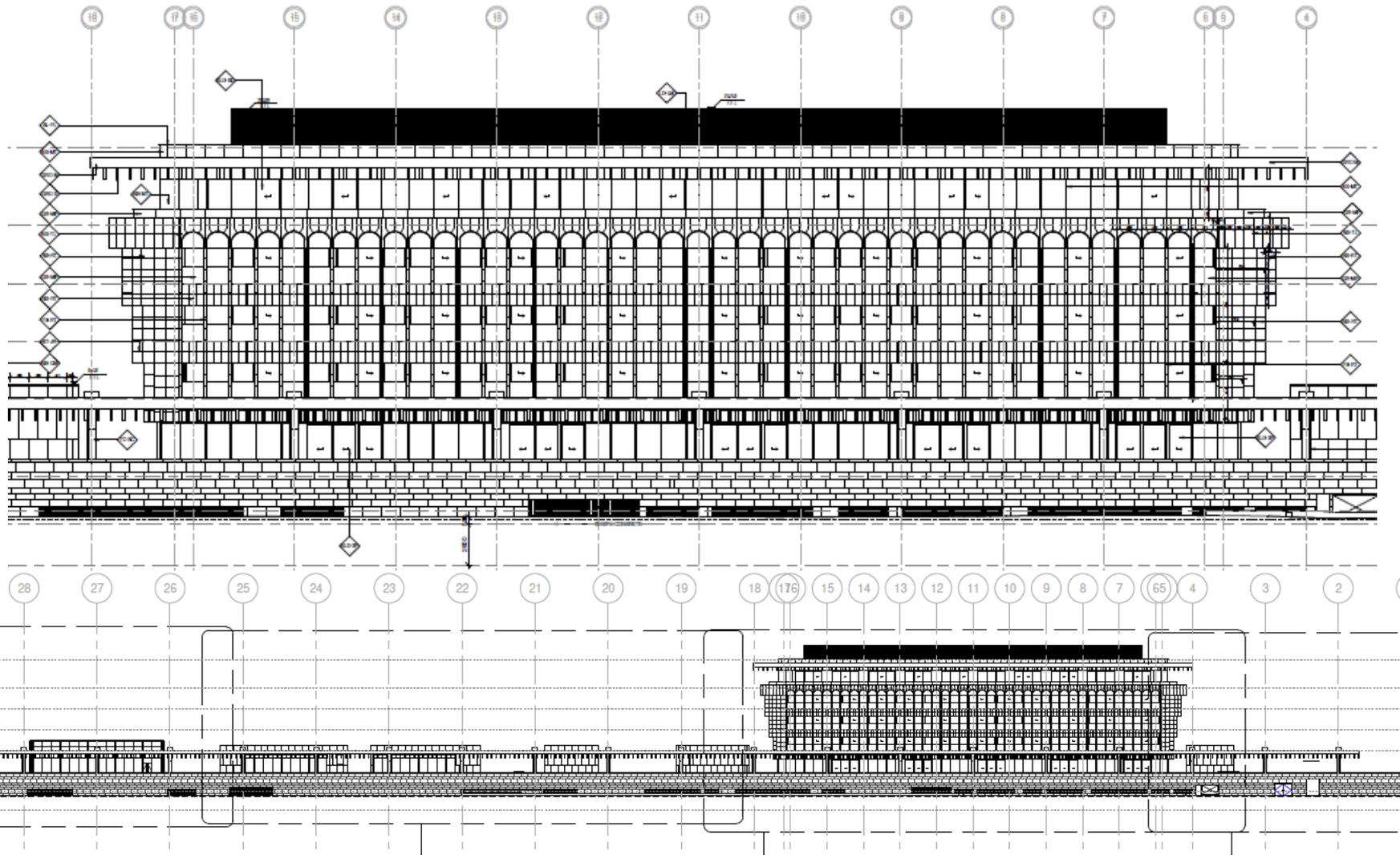
**PROJECT** *Al Baker Tower*  
**LOCATION** *Doha Qatar*  
**CLIENT** *Redco Construction almana*  
**SCOPE** *Façade Engineering – External Cadding and Steel*



**PROJECT** *Cultural Center Education City*  
**LOCATION** *Doha Qatar*  
**CLIENT** *Redco Construction almana*  
**SCOPE** *Façade Engineering*



**PROJECT** *View Hospital Atrium Facade*  
**LOCATION** *Doha Qatar*  
**CLIENT** *Urbacon Trading and Contracting*  
**SCOPE** *Façade Engineering*



**PROJECT** *The Ned Hotel*  
**LOCATION** *Doha Qatar*  
**CLIENT** *Urbacon Trading and Contracting*  
**SCOPE** *Façade Engineering*



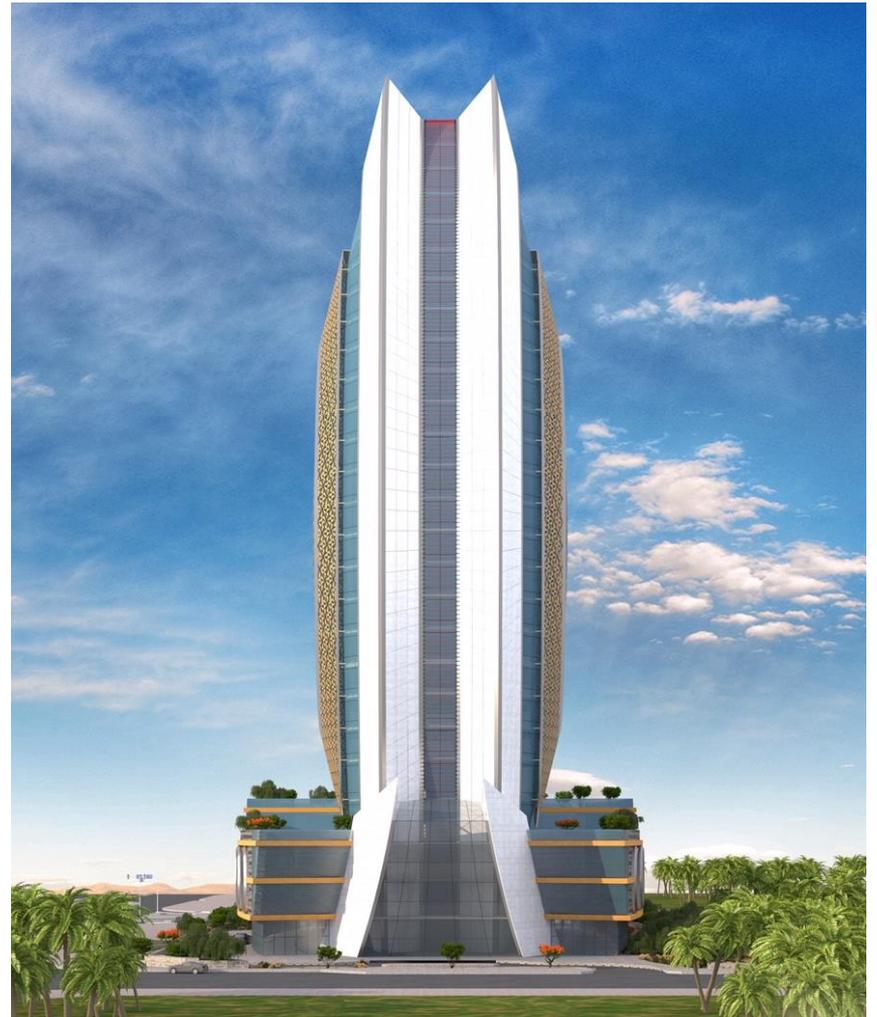
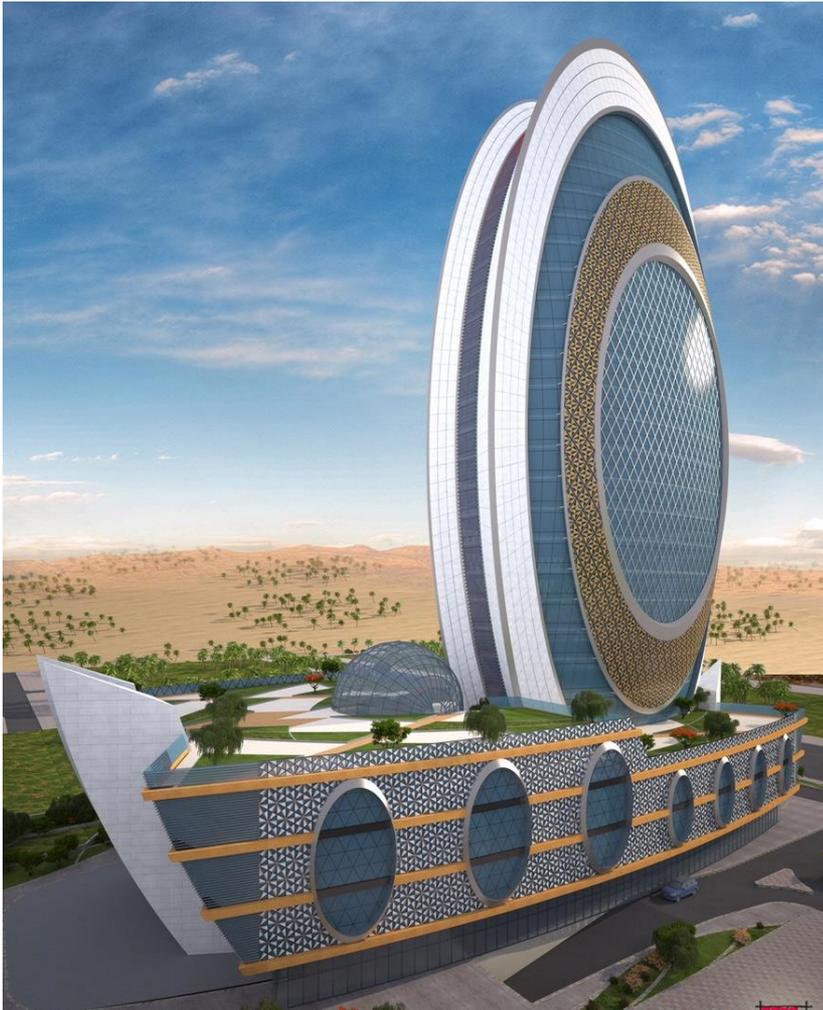
**PROJECT** *Commercial Boulevard 18 Buildings*  
**LOCATION** *Doha, Qatar*

**SCOPE** *Facade structural design ,  
Shop drawings , Fabrication drawings*



**PROJECT** *Doha Live*  
**LOCATION** *Doha, Qatar*

**SCOPE** *Facade structural design ,  
Shop drawings , Fabrication drawings*



**PROJECT** *Shell Tower*  
**LOCATION** *Lusail, Qatar*  
**CLIENT** *Redline Contracting*  
**SCOPE** *Facade Engineering*



**PROJECT** Pearl showroom  
**LOCATION** Doha, Qatar  
**SCOPE** Facade structural design ,  
Shop drawings , Fabrication drawings



**PROJECT** *KFUPM Business Park*  
**LOCATION** *Dhahran , KSA*  
**CLIENT** *KFUPM Business Park Company / WS Atkins*  
**SCOPE** *Façade Consultant*



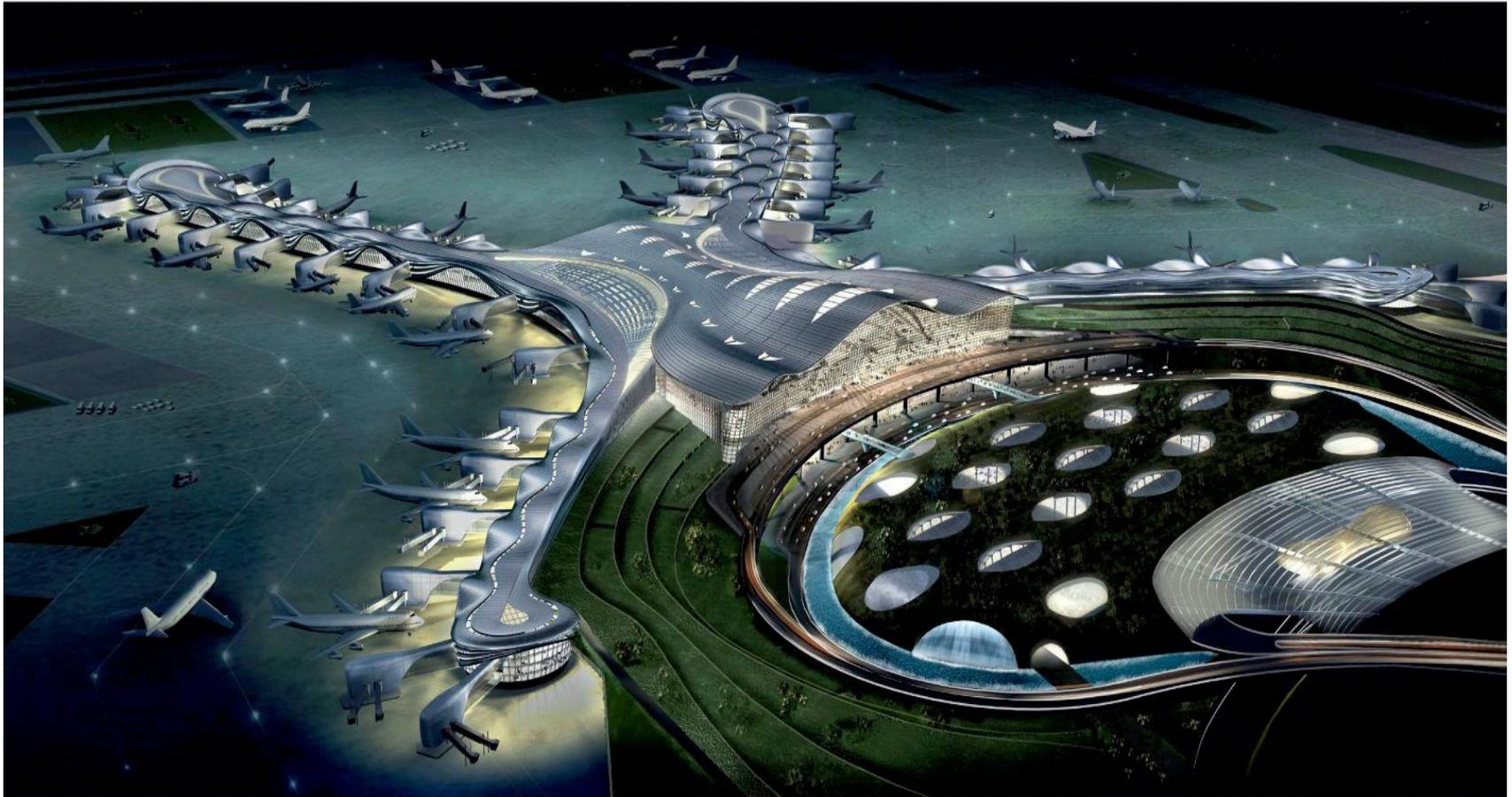
**PROJECT** *Commercial bank of Ethiopia HQ*  
**LOCATION** *Addis Ababa, Ethiopia*  
**CLIENT** *Commercial bank of Ethiopia / AAIT*  
**SCOPE** *Façade Consultant*



**PROJECT** *Dubai Expo 2020 Opportunity District Pavilions*  
**LOCATION** *Dubai, UAE*  
**SCOPE** *Facade structural design, shop drawings ,  
fabrication drawings*



**PROJECT** *Jumeirah Gate Towers*  
**LOCATION** *Dubai, UAE*  
**SCOPE** *Facade structural design, shop drawings ,*



**PROJECT** *Abu Dhabi International Airport, Midfield Terminal*  
**LOCATION** *Abu Dhabi, UAE*  
**SCOPE** *Facade structural design review*

# Al Qasimia Tower

**Location:** Al Khan , Sharjah

**Year:** 2017

**Owner:** AL Qasimia University Waqf

**Use:** Residential



# Park View Tower

**Location:** Reem island , Abu Dhabi

**Year:** 2017

**Owner:** Nahil Al ALAMAI

**Use:** Residential



# Le Mirage

**Location:** Bin Mahmoud , Doha , Qatar

**Year:** 2017

**Owner:** Gulf trading and contracting co.

**Use:** Residential



# MBRH

**Location:** Al Qouz UAE

**Year:** 2017

**Owner:** Mohammed bin rashid housing establishment

**Use:** Residential





# Aspire Sports Academy Expansion

**Year:** 2016

**Location:** Qatar

**Use:** Sport center

**Contractor:** CDC - Qatar Indo Fabs



# Doha Metro stations

**Location:** Doha Qatar

**Year:** 2017

**Owner:** Qatar Railways  
company



# Handasa Hotel

**Location:** Doha Qatar

**Year:** 2016

**Owner:** Sh. Mansour JJ Al thani

**Use:** Hotel Apartments



# Hotel Apartment 1

**Location:** Doha, Qatar

**Year:** 2017

**Owner:** Shaik Jassim M. Al Thani



# Hotel Apartment 2

**Location:** Doha, Qatar

**Year:** 2017

**Owner:** Shaik Jabor M. Al Thani





# Mall Of Qatar

**Location:** Doha Qatar  
**Year:** 2015



# Bahai Temple

**Location:** Bospo Village Cambodia  
**Year:** 2016  
**Owner:** Bahai Faith  
**Architect:** Architecture Design Intelligence





# Muhaisnah Community Housing

**Location:** Al Muhaisnah Dubai

**Year:** 2017

**Owner:** Mohammed bin rashid housing establishment

**Use:** Residential



# Endalkachew

**Location:** Addis Ababa

**Year:** 2017

**Owner:** Endalkachew

**Use:** Mixed use



# Cube's tower

2015

Project Cube's tower  
Year 2015  
Location Doha  
Use Apartments  
Architect E2 Architects Lebanon  
Cont/or Red Line



# Mansoura

2015

Project Mansoura  
Year 2015  
Location Doha  
Use Hotel  
Architect E2 Architects Lebanon  
Cont/or Red Line



# Montaza

2014

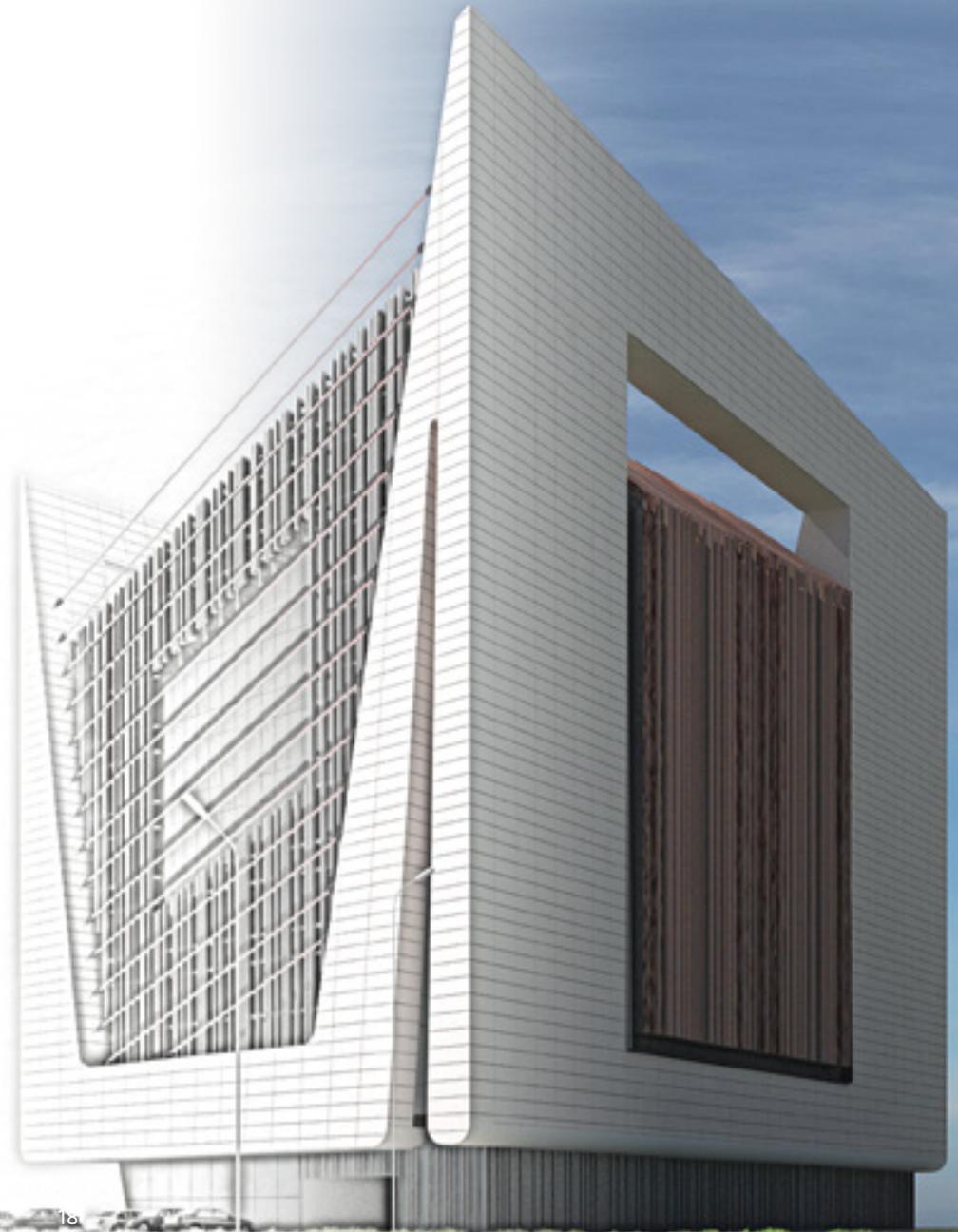
Project Montaza  
Year 2014  
Location Doha  
Use Commercial building 2B+G+4  
Architect E2 Architects Lebanon  
Cont/or Red Line



# VIP Hotel

2014

Project VIP  
Year 2014  
Location Doha  
Use Hotel 2B+G+M+7  
Architect E2 Architects Lebanon  
Cont/or Red Line



# Al Mansour Gate

2014

Project Al Mansour Gate  
Year 2014  
Location Energy city Qatar  
Use Complex  
Architect E2 Architects Lebanon  
Cont/or Red Line

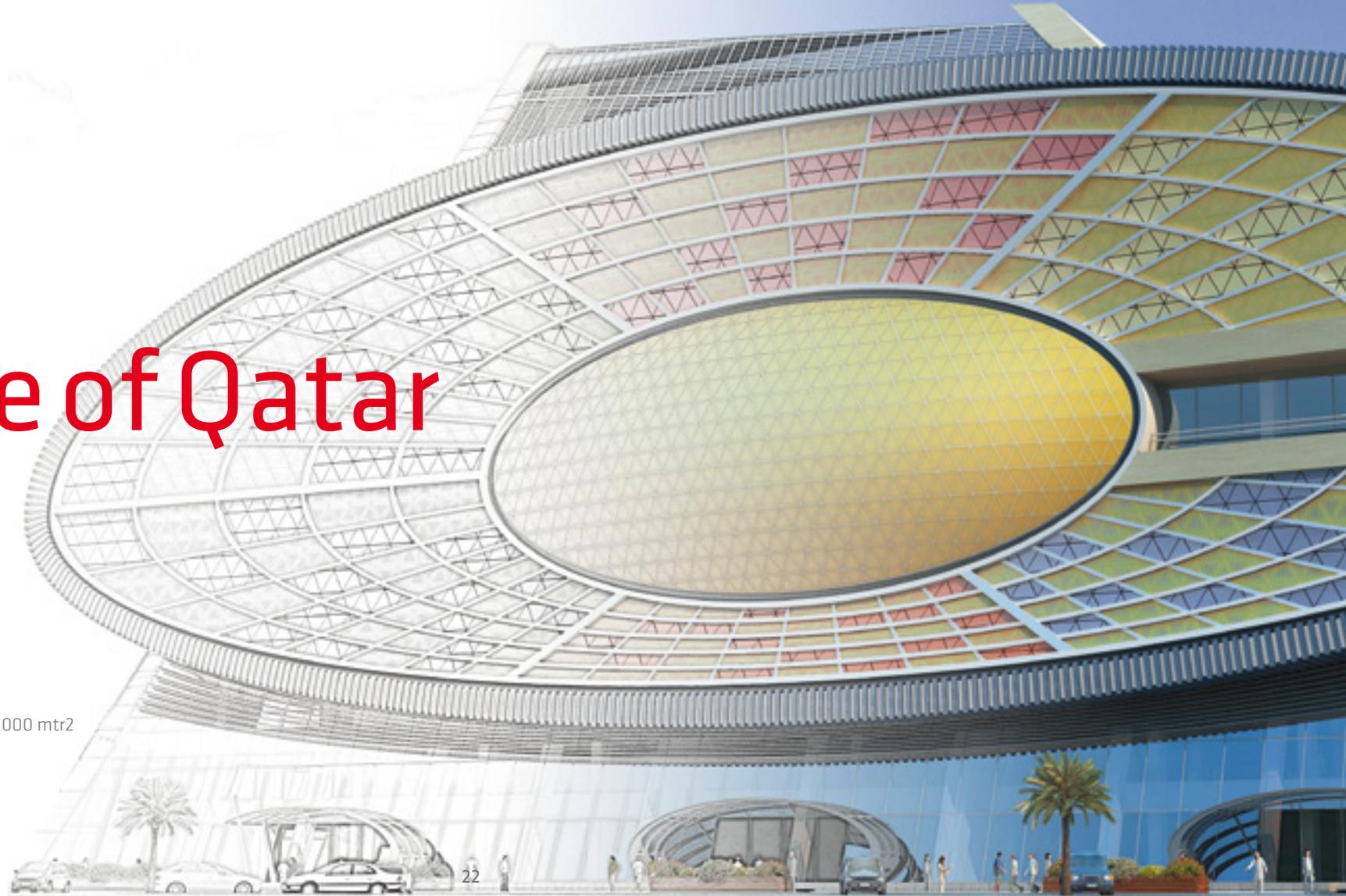


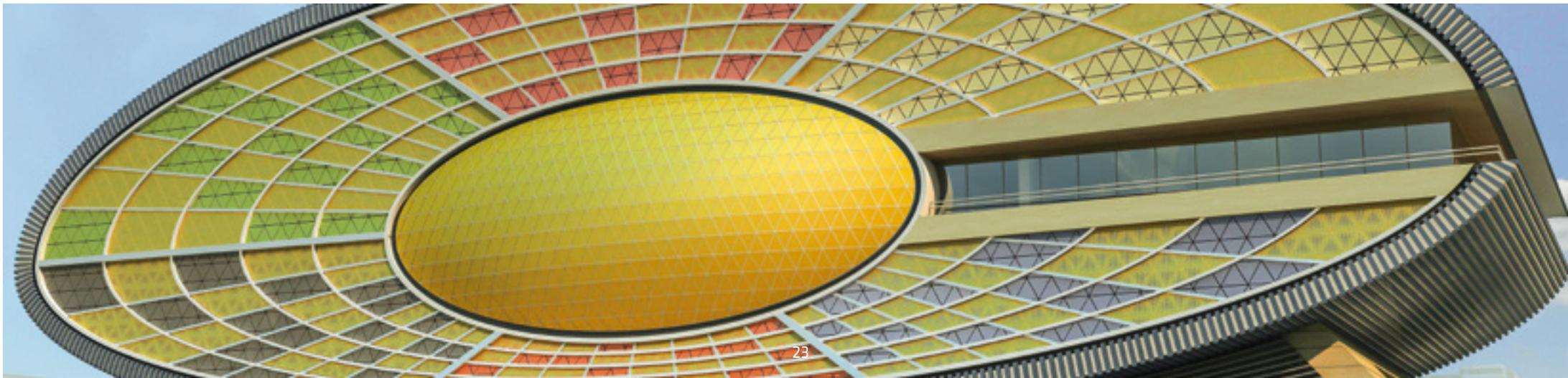


# The Eye of Qatar

2013

Project The Eye of Qatar  
Year 2013  
Location Doha  
Use Office building 2B+G+M+7, 53000 mtr2  
Architect E2 Architects Lebanon  
Cont/or Red Line



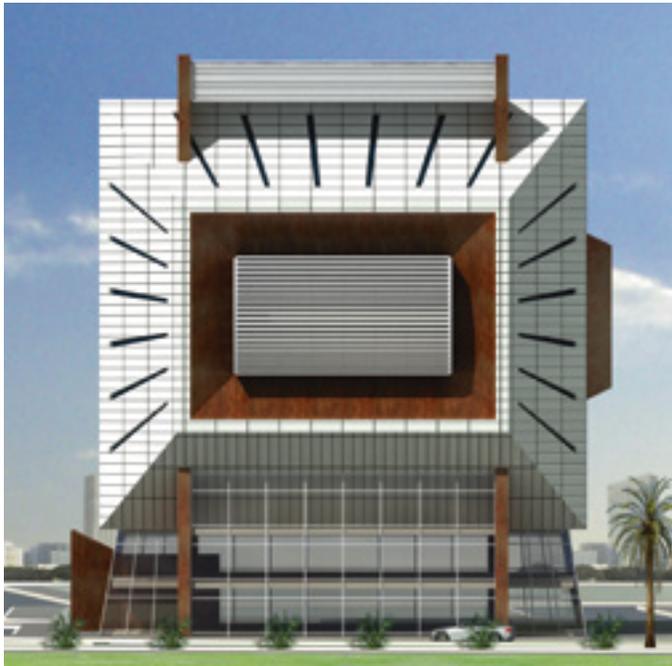


# Al Saad

2013

Project Al Saad  
Year 2013  
Location Doha  
Use Office building 2B+G+M+7 , 31800 mtr2  
Architect E2 Architects Lebanon  
Cont/or Red Line





# Lusail Marina Twin Towers

2013

Project Lusail Marina Twin Towers  
Year 2013  
Location Lusail city , Qatar  
Use Office building 3B+G+M+5P +(2x32) 98600 mtr2  
Architect E2 Architects Lebanon  
Cont/or Red Line



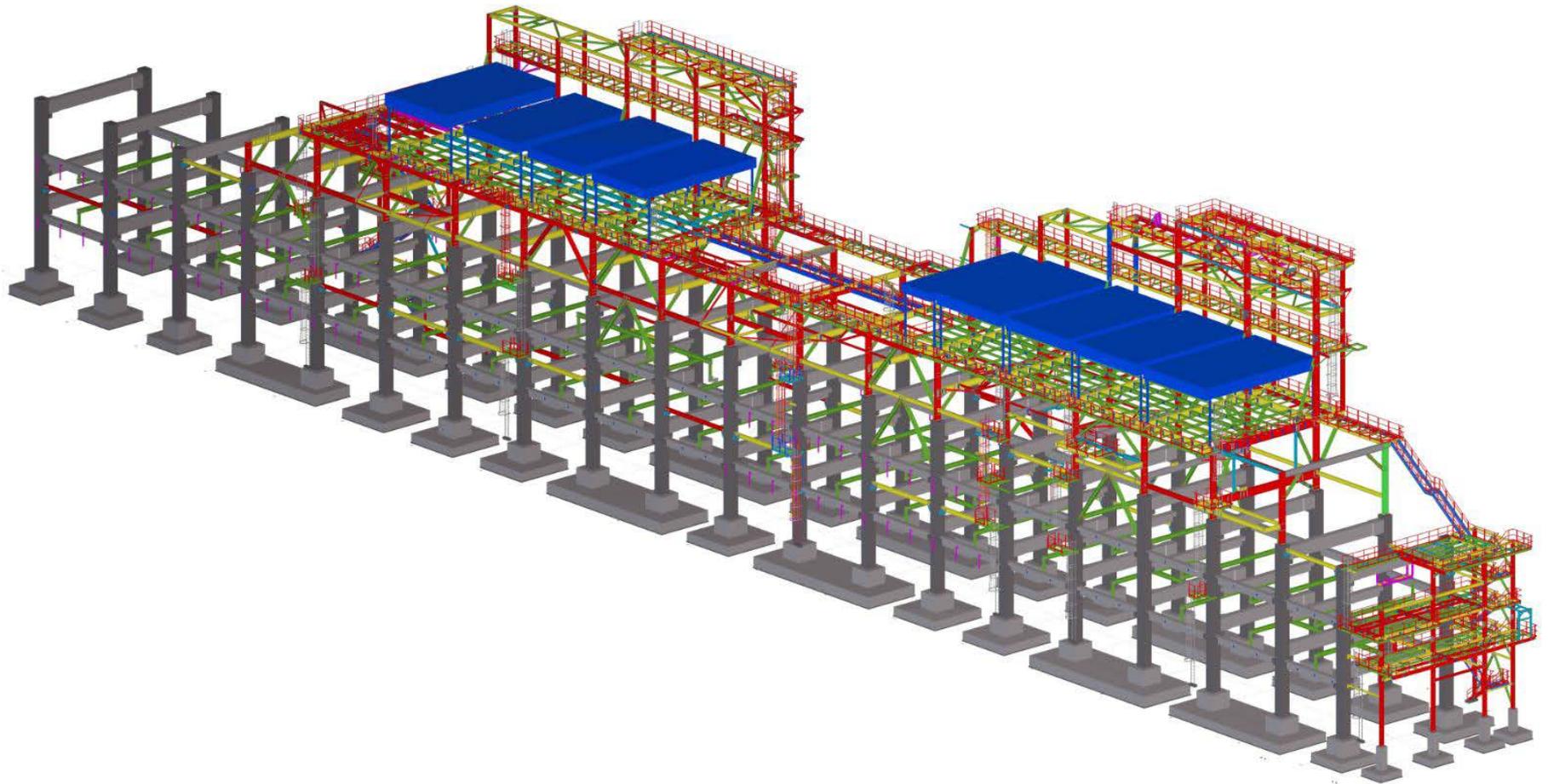


# Slata

2013

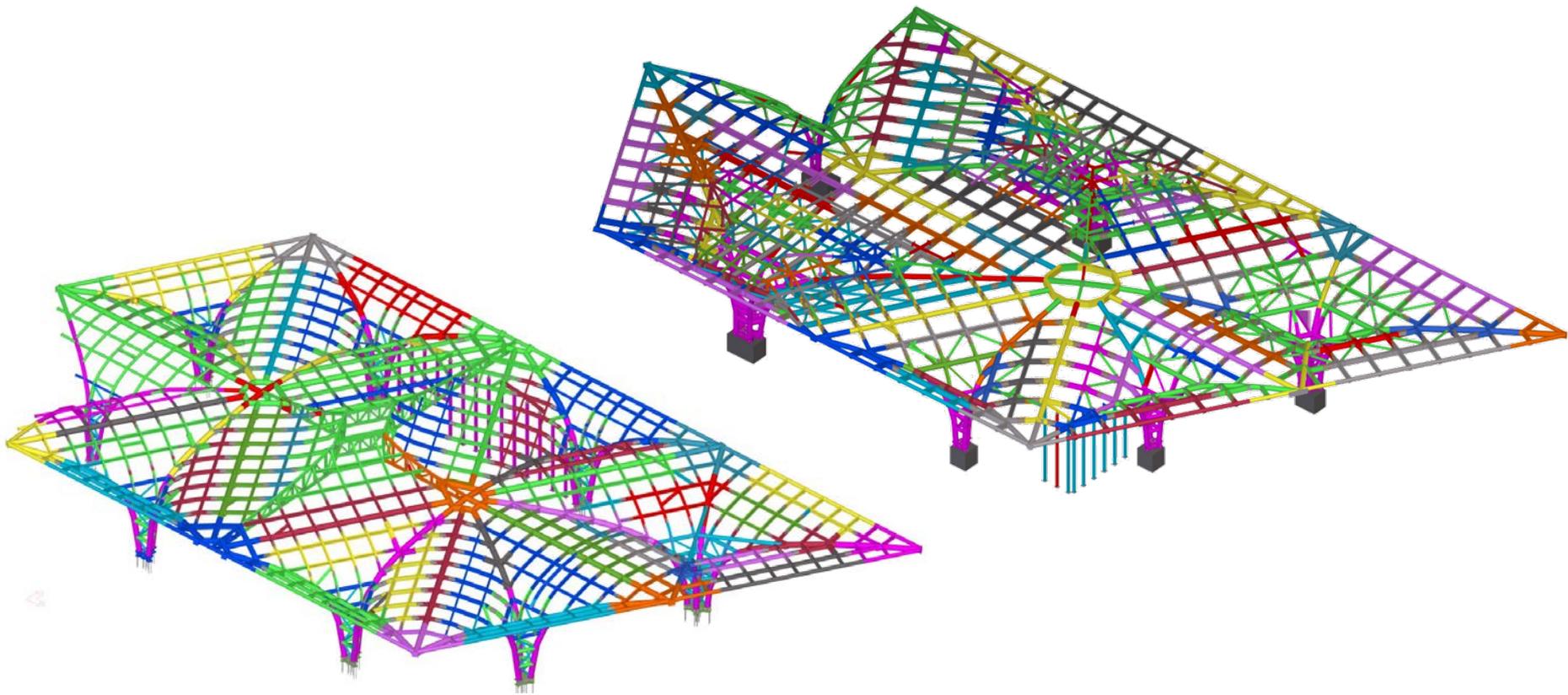
Project Slata  
Year 2013  
Location Doha  
Use Office building 3B+G+M+14 13500mtr2  
Architect E2 Architects Lebanon  
Cont/or Red Line P.T.





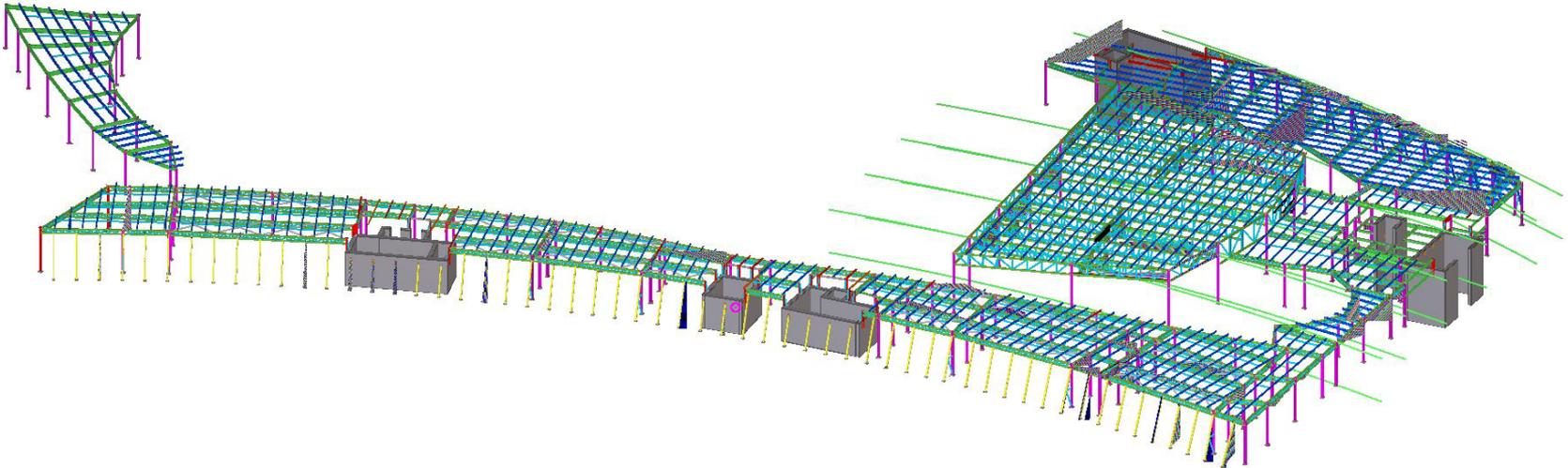
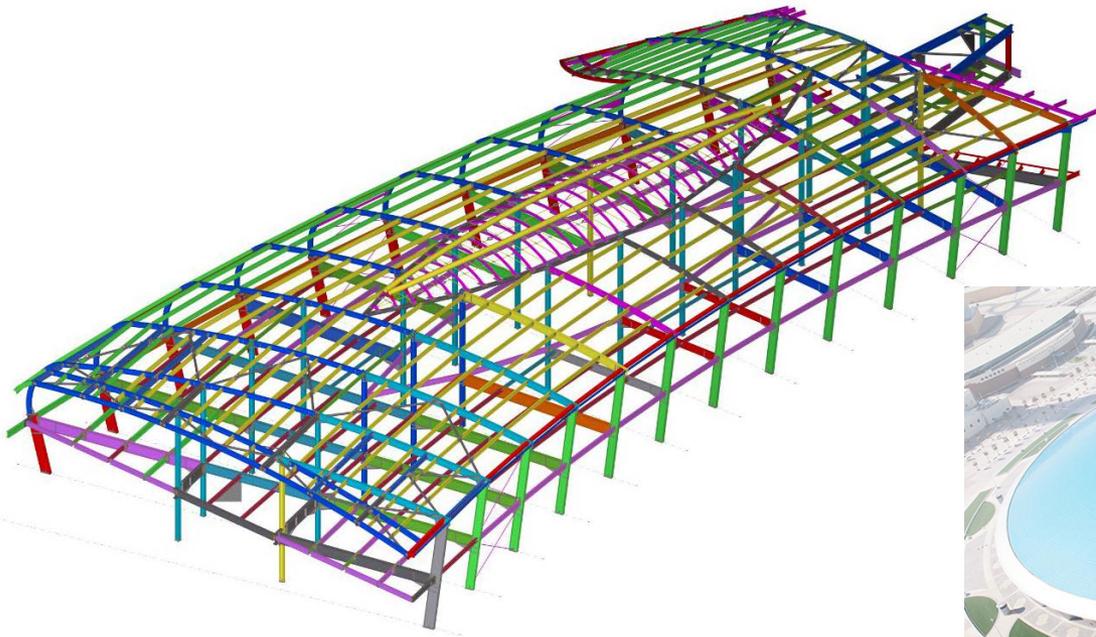
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



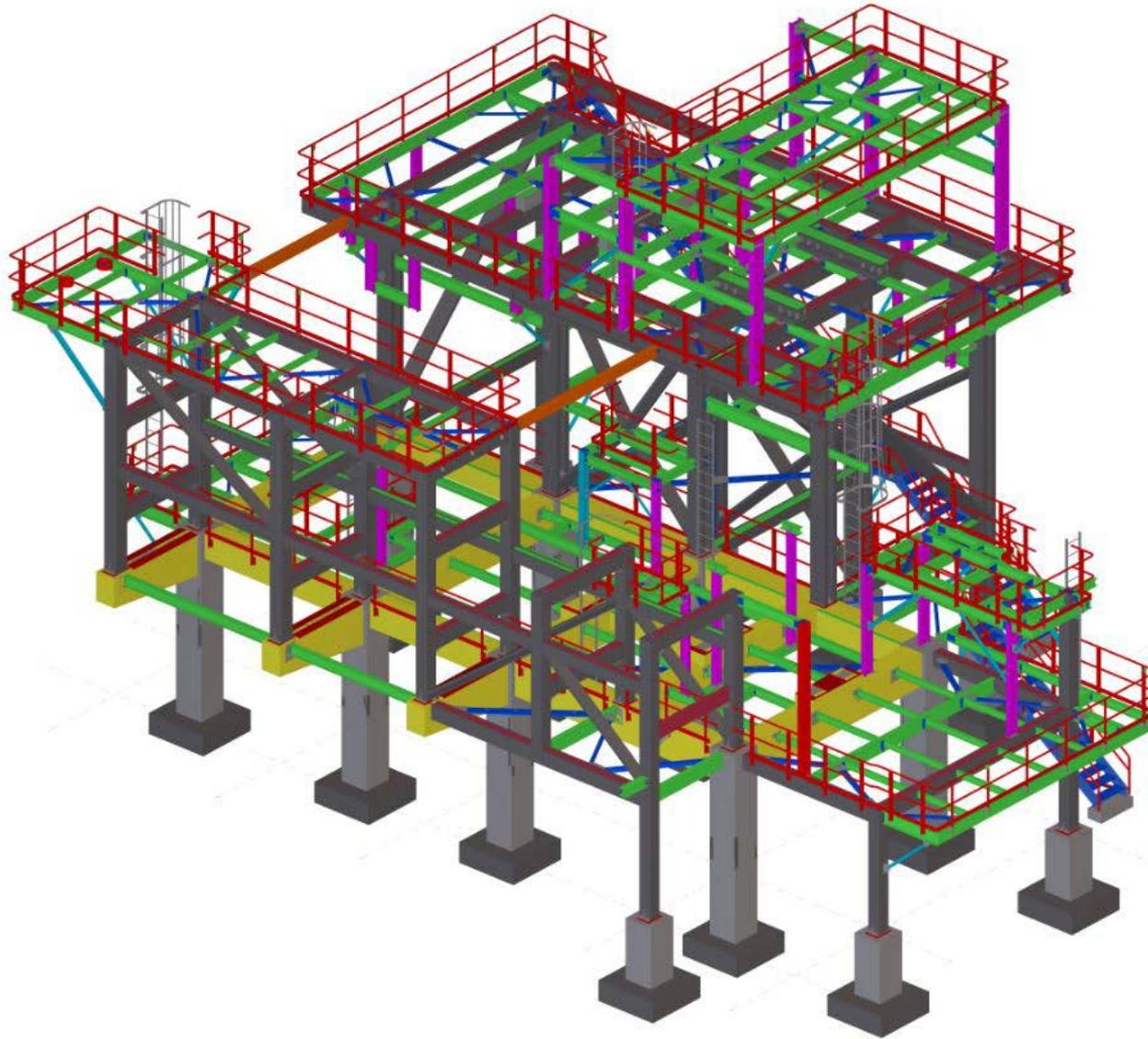
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



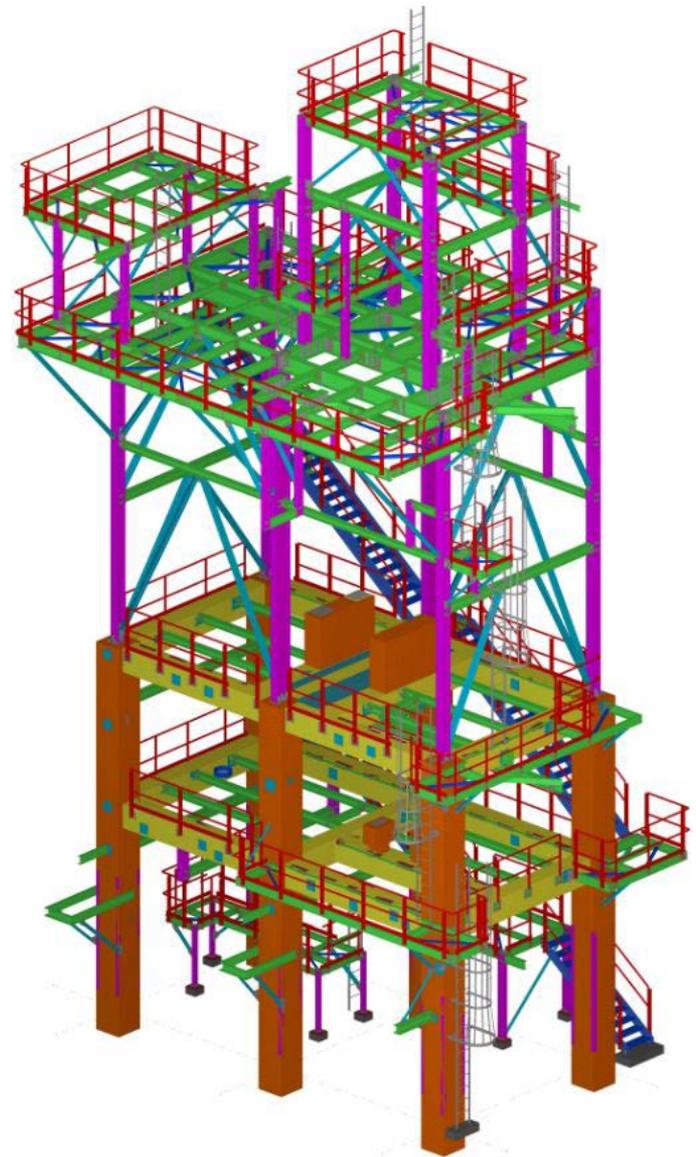
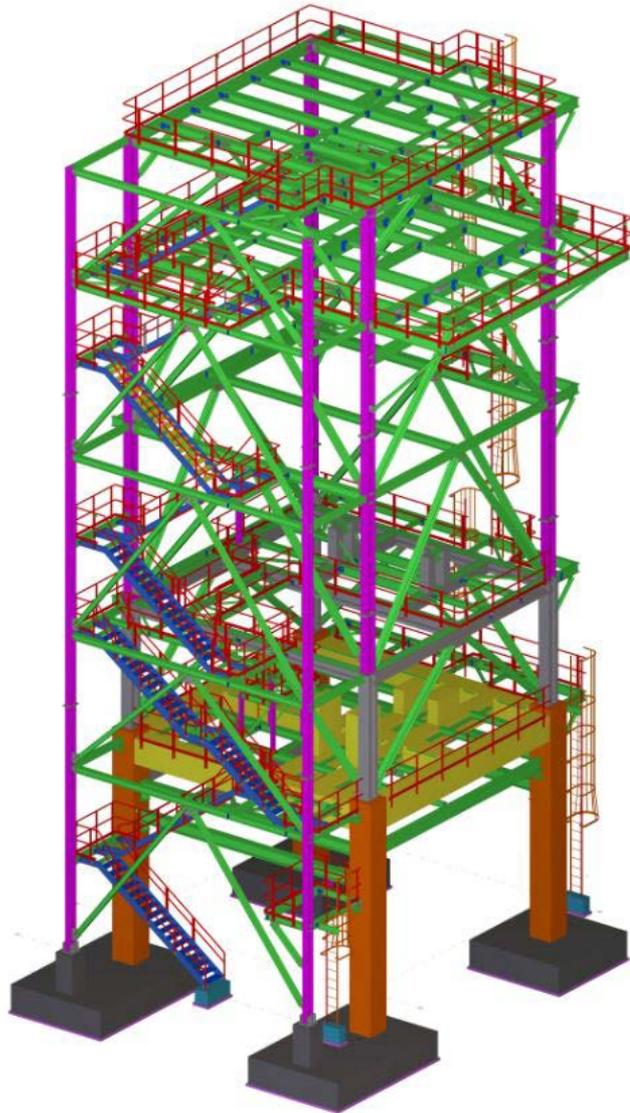
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



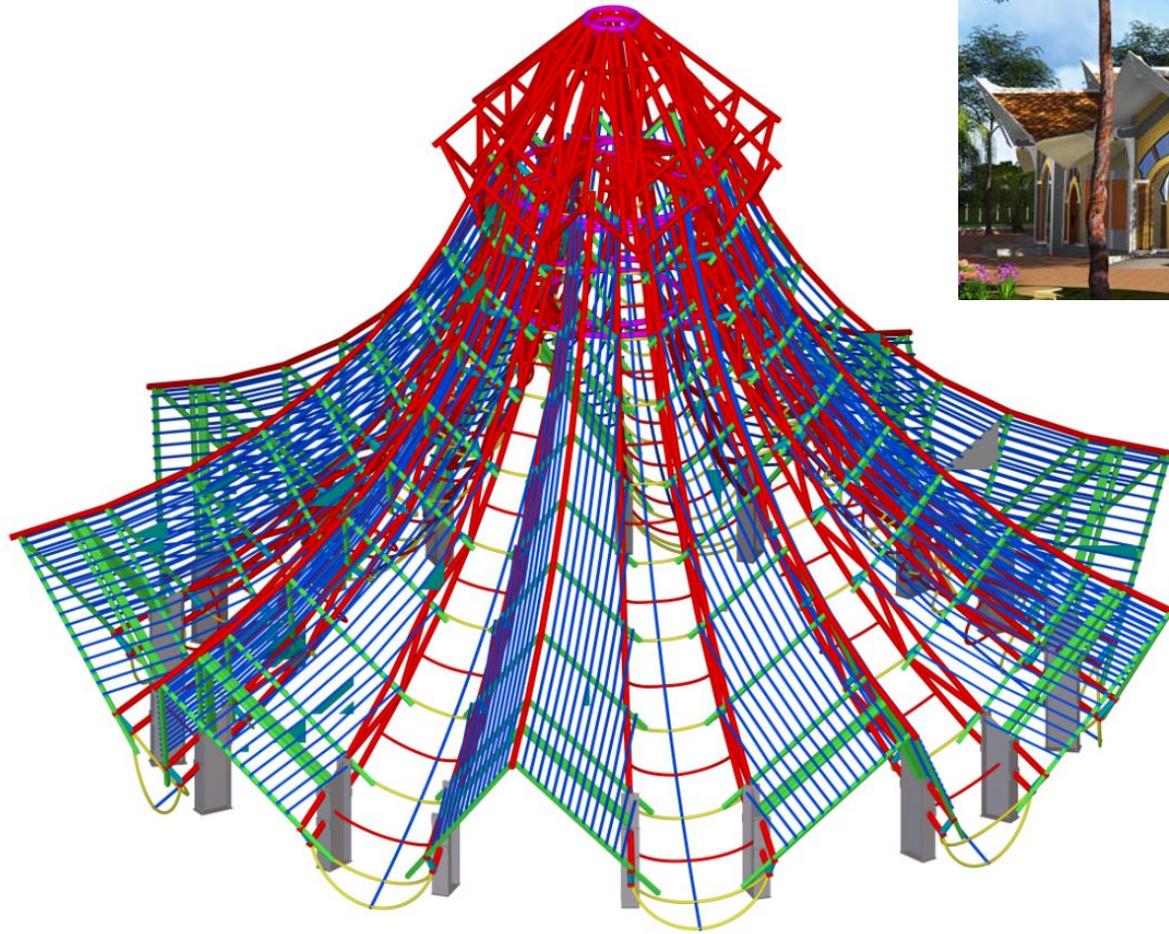
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



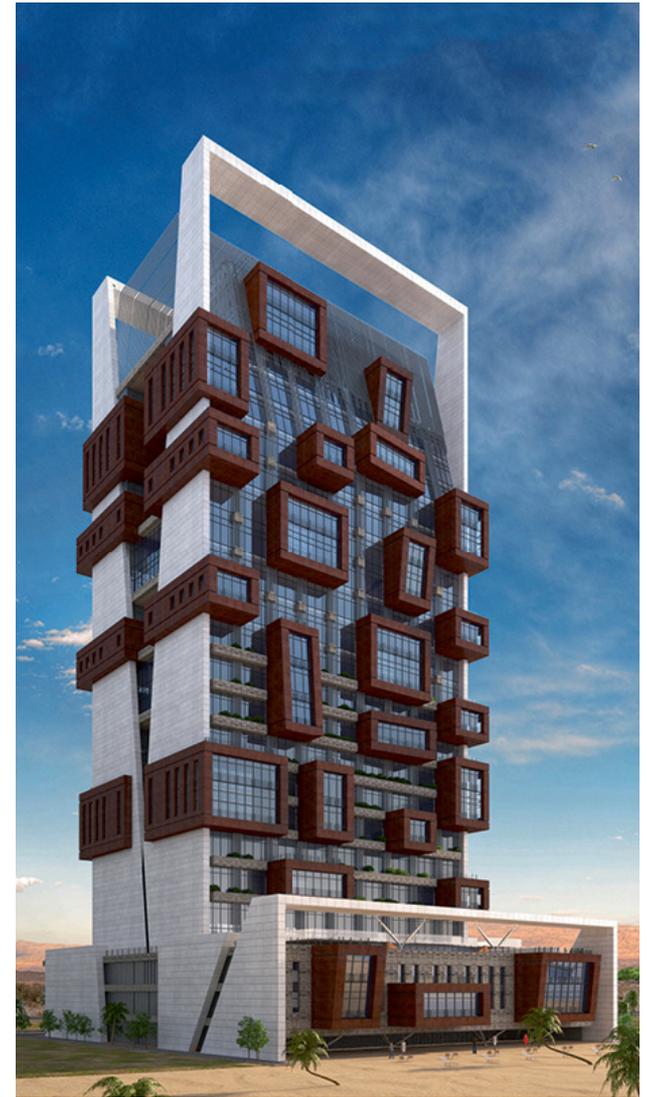
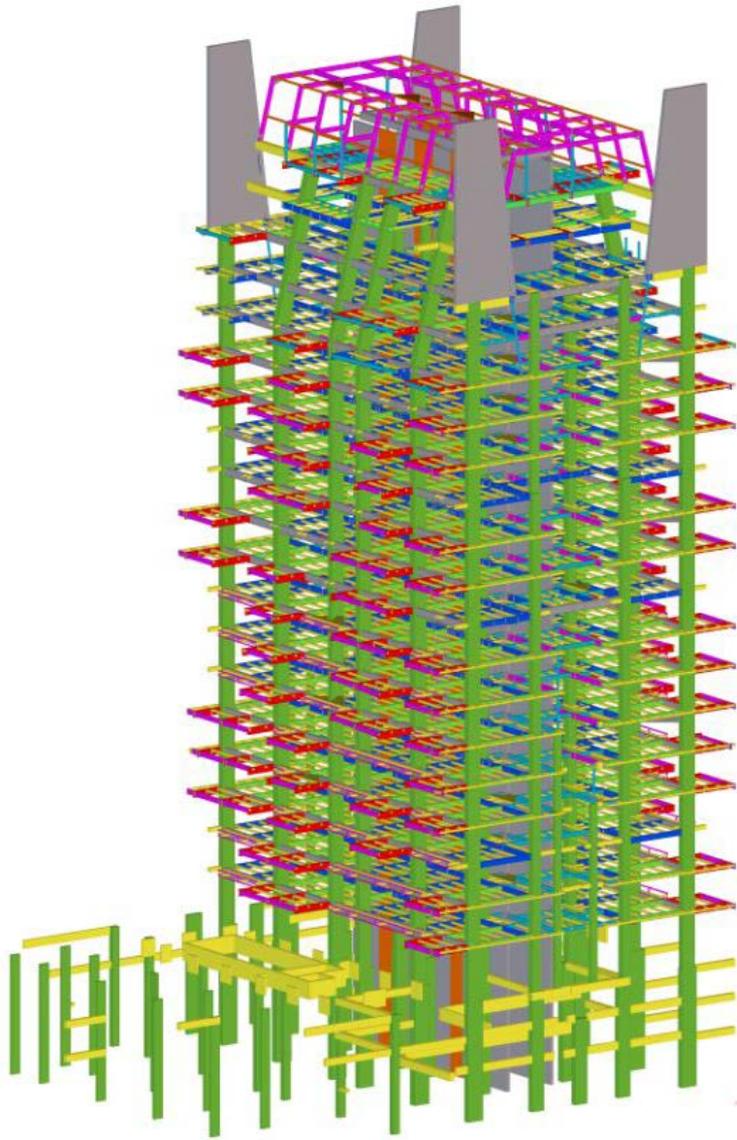
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TEKLA MODELING AND DETAILING

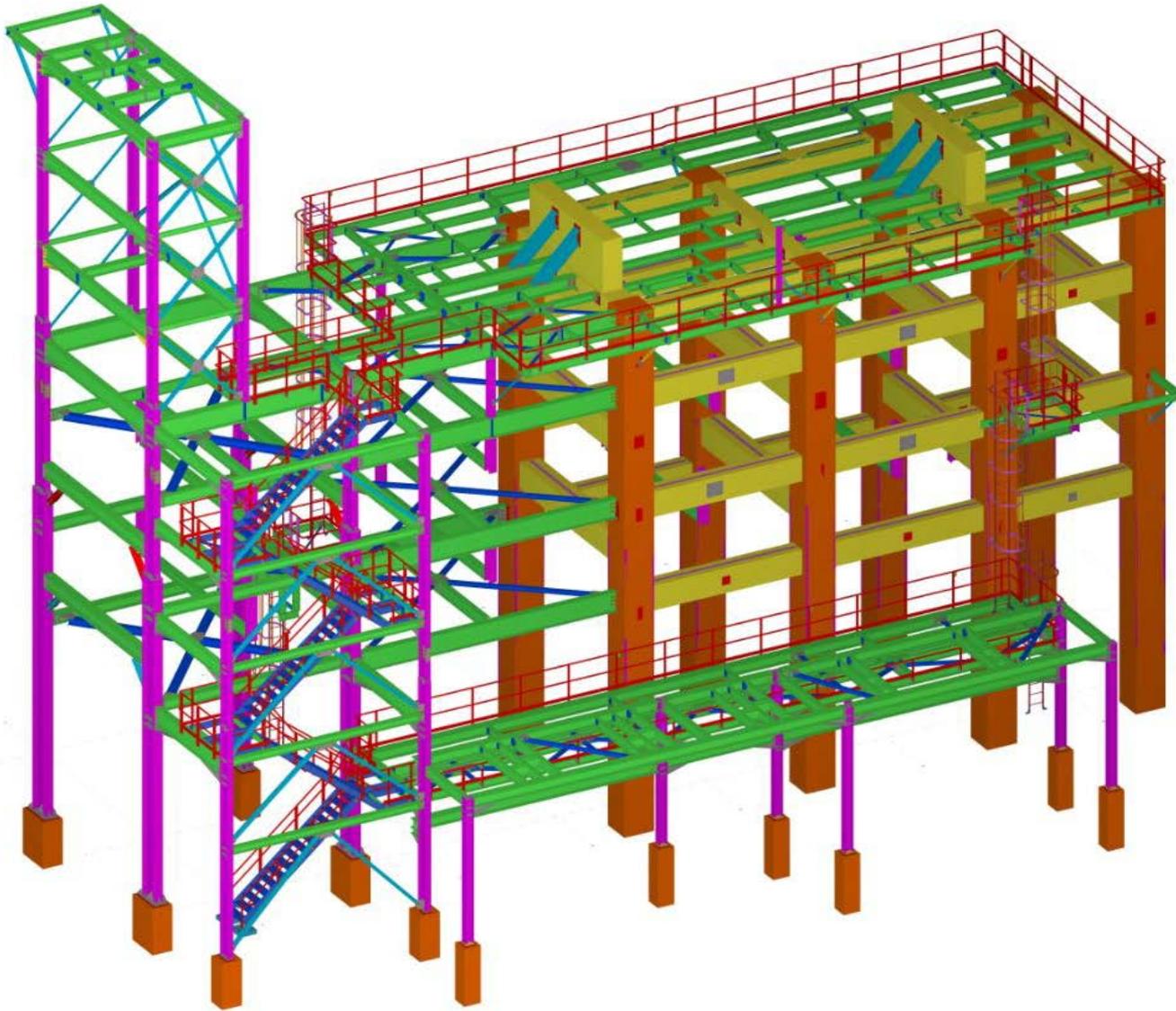
PROJECTS



STRUCTURAL DESIGN  
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

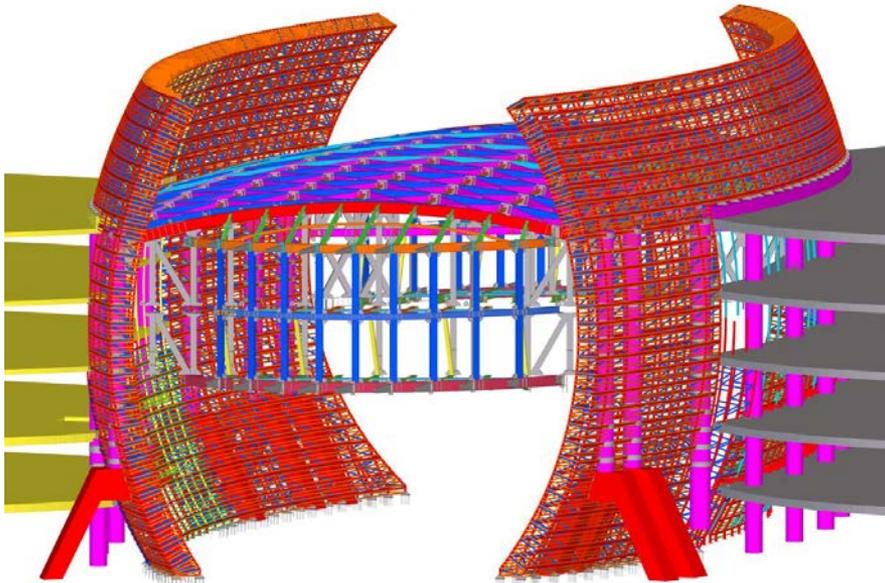
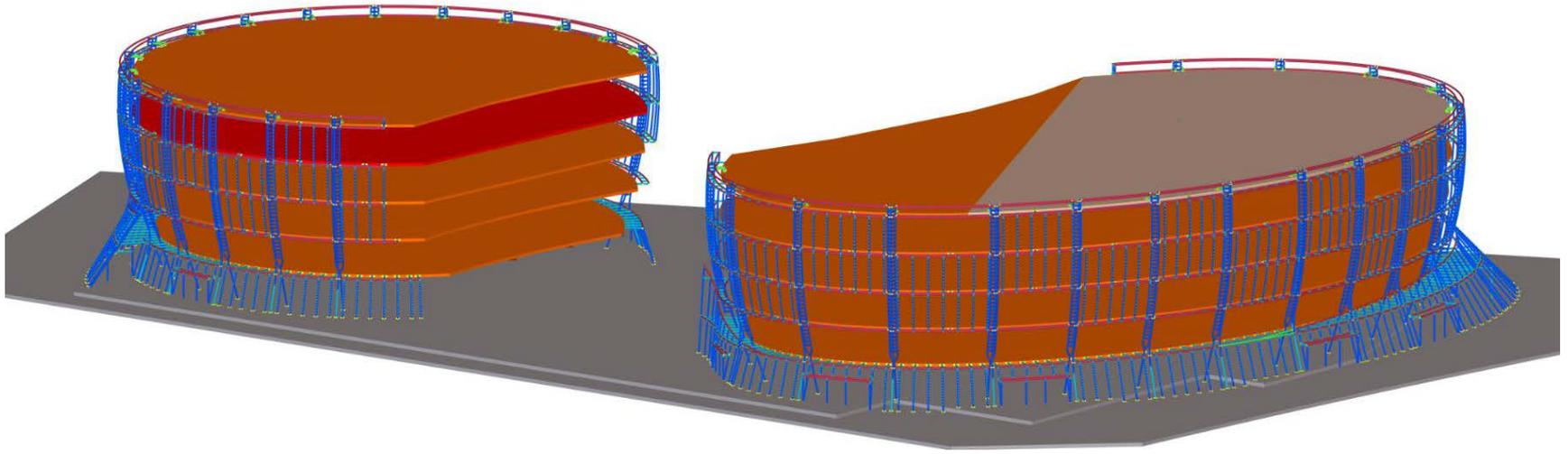
**PROJECTS**





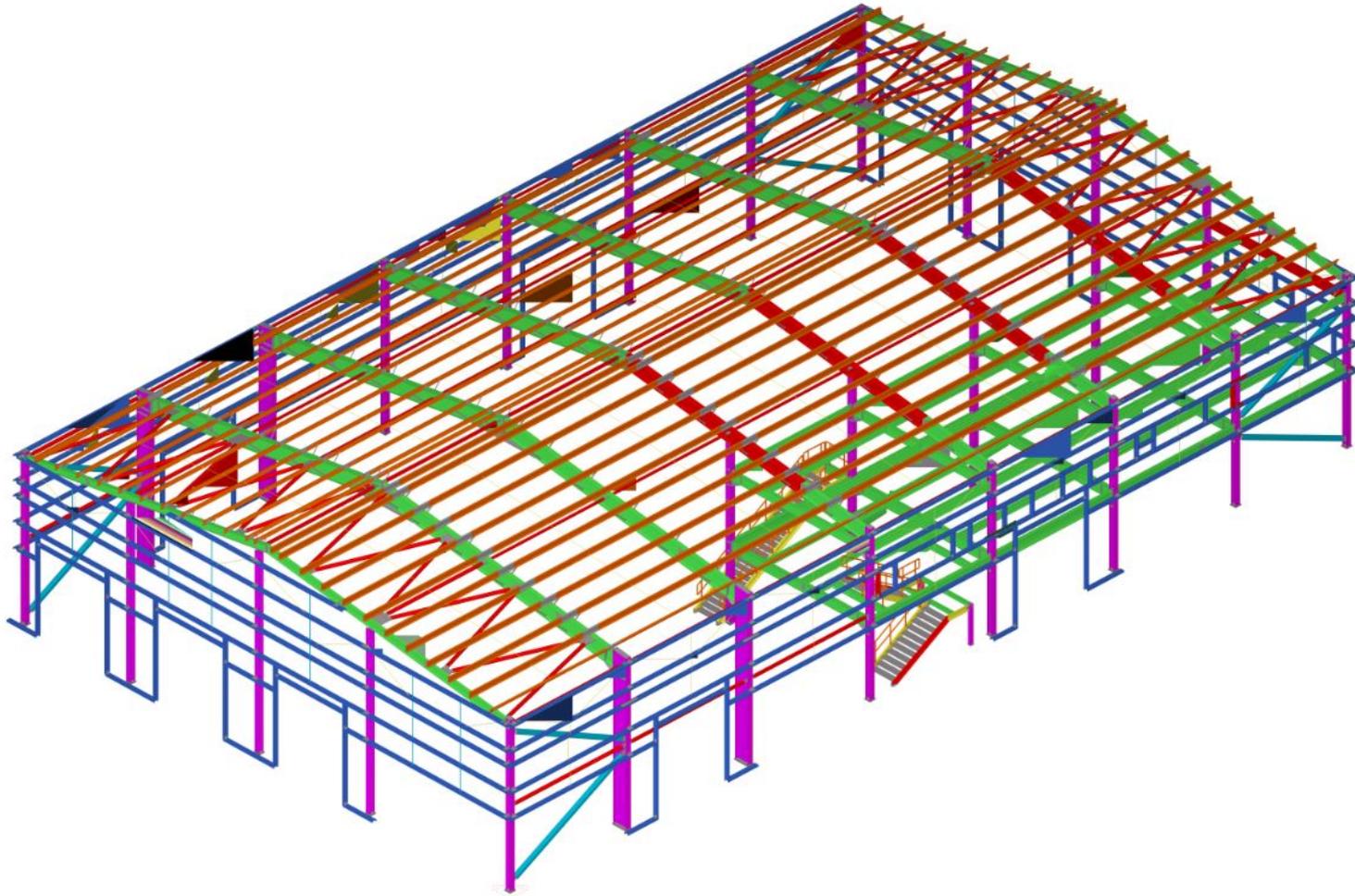
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



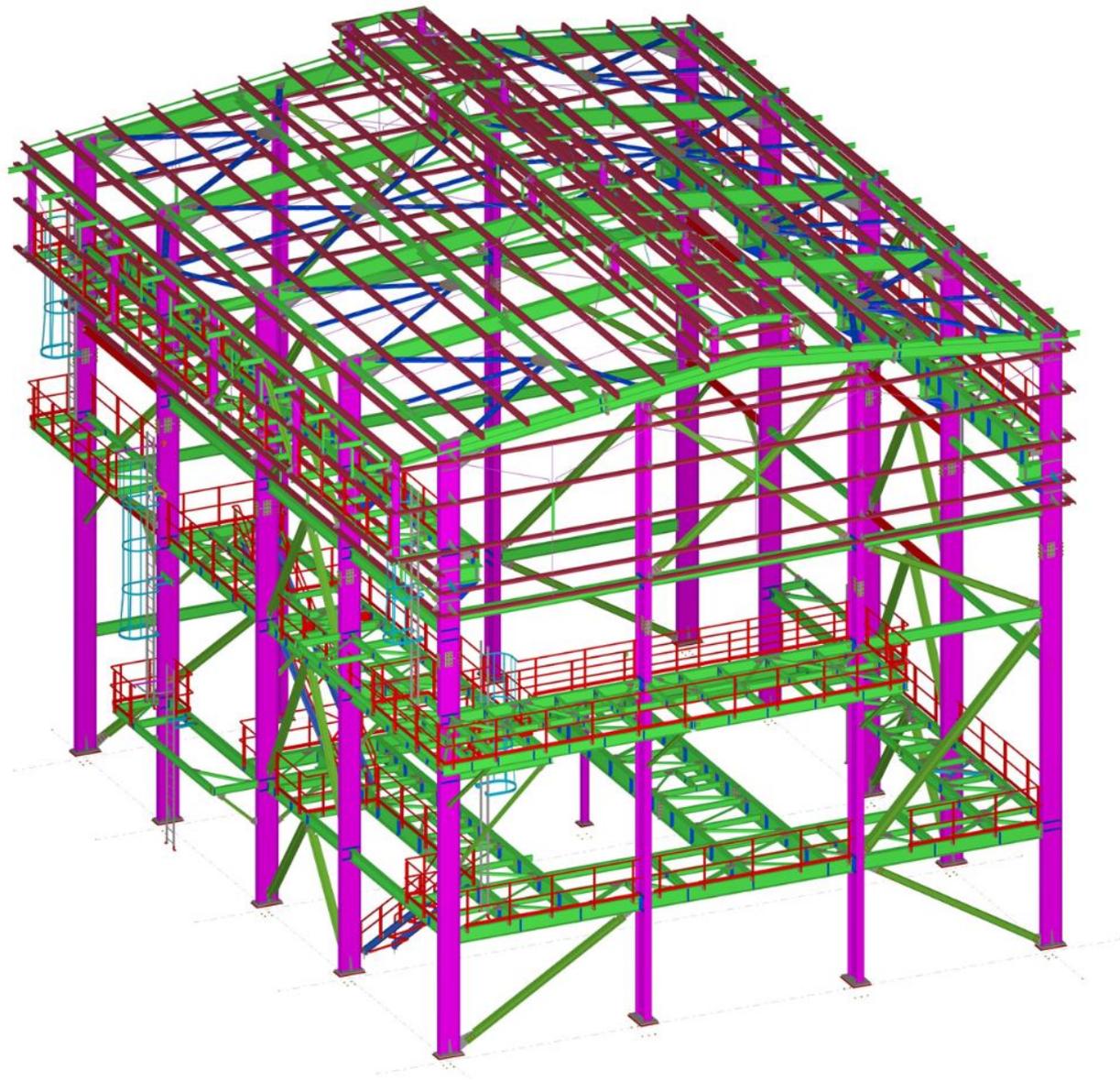
STRUCTURAL DESIGN  
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



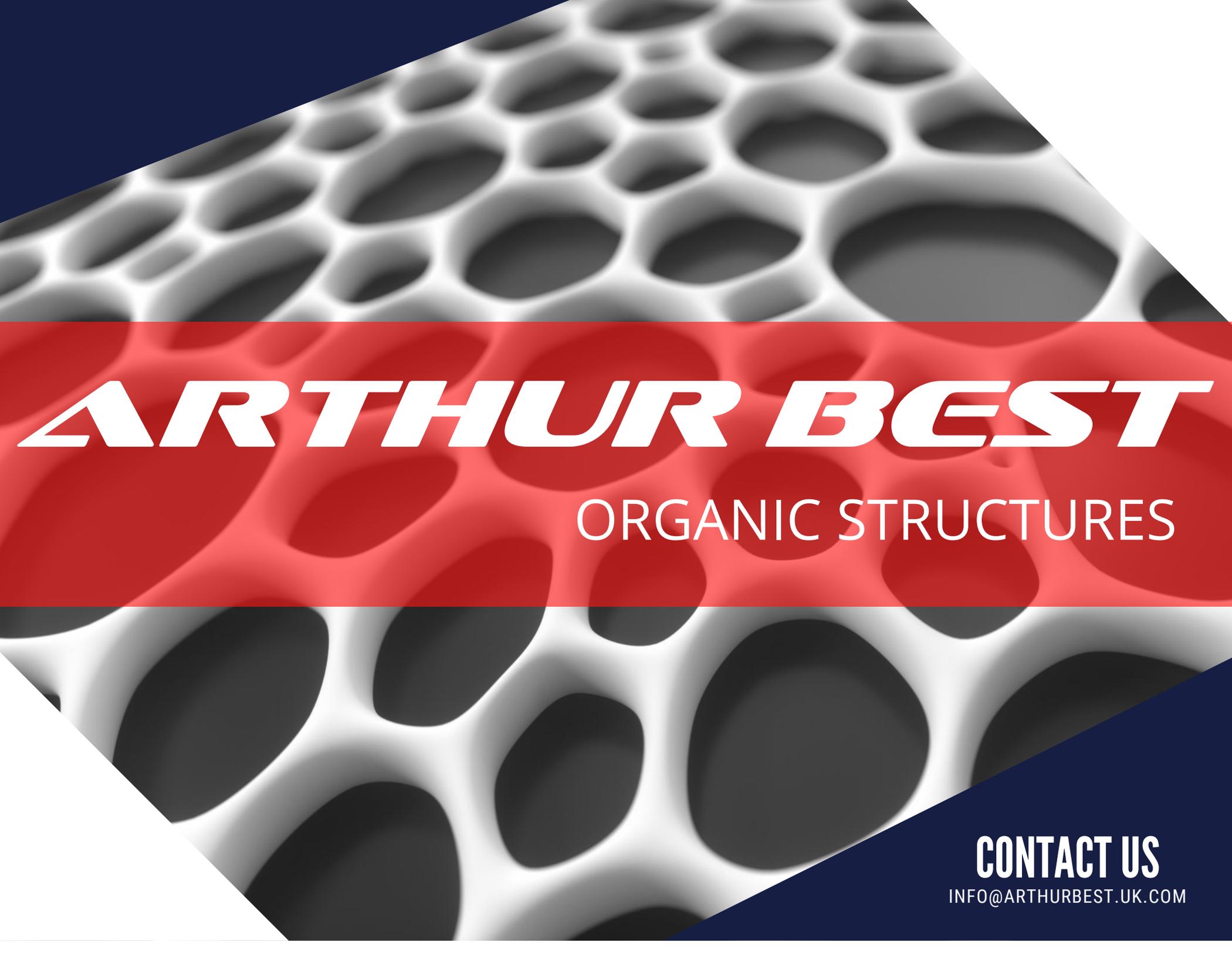
STRUCTURAL DESIGN  
CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



CONNECTION DESIGN  
TEKLA MODELING AND DETAILING

PROJECTS



***ARTHUR BEST***

ORGANIC STRUCTURES

**CONTACT US**

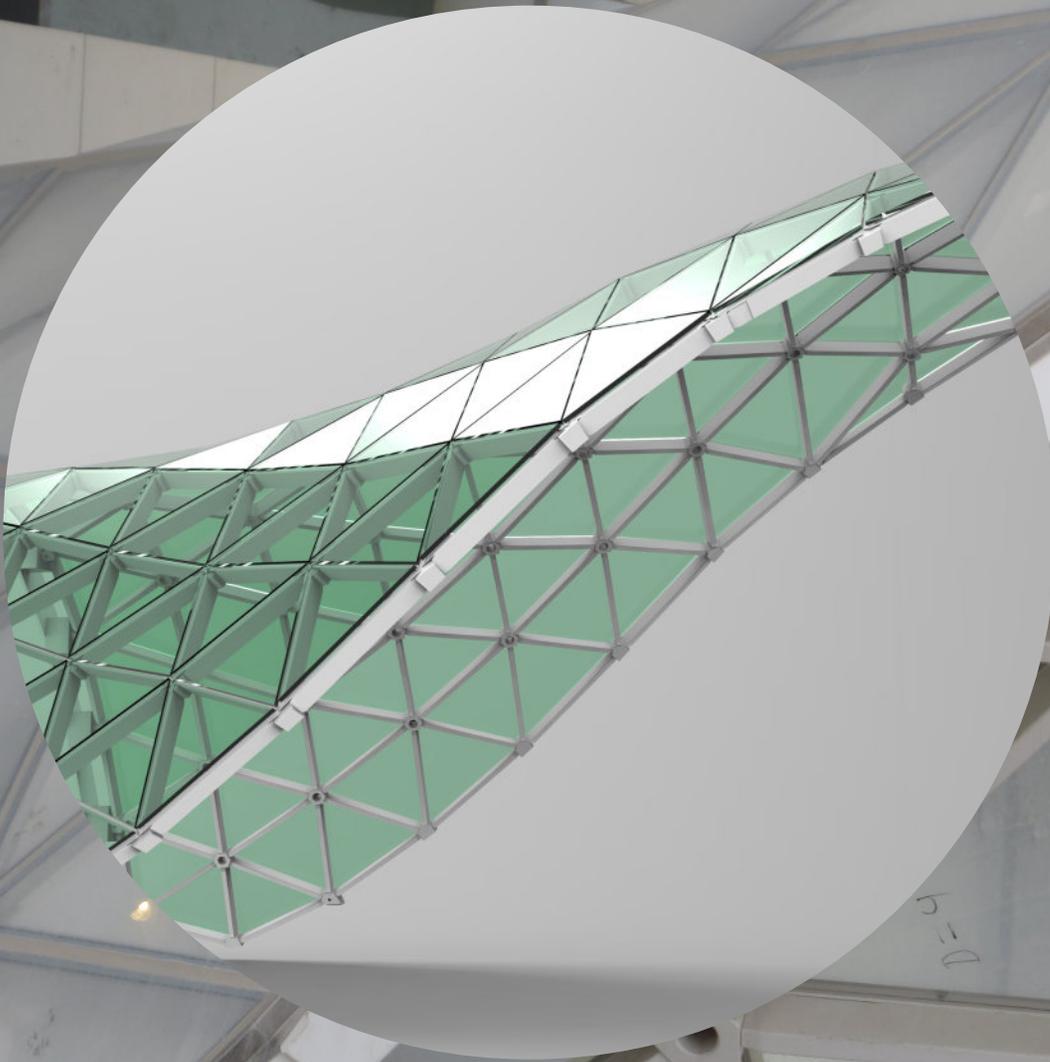
[INFO@ARTHURBEST.UK.COM](mailto:INFO@ARTHURBEST.UK.COM)

# GLASS CANOPY

## Single layer structure

Two superb canopies, one in each entrance of the Marina twin towers at Lusail city. Single-layer structure with IGU glazing and led lights in the nodes complete this cantilevered structure that explodes the tower's entrance.

Area: 170 mtr<sup>2</sup>

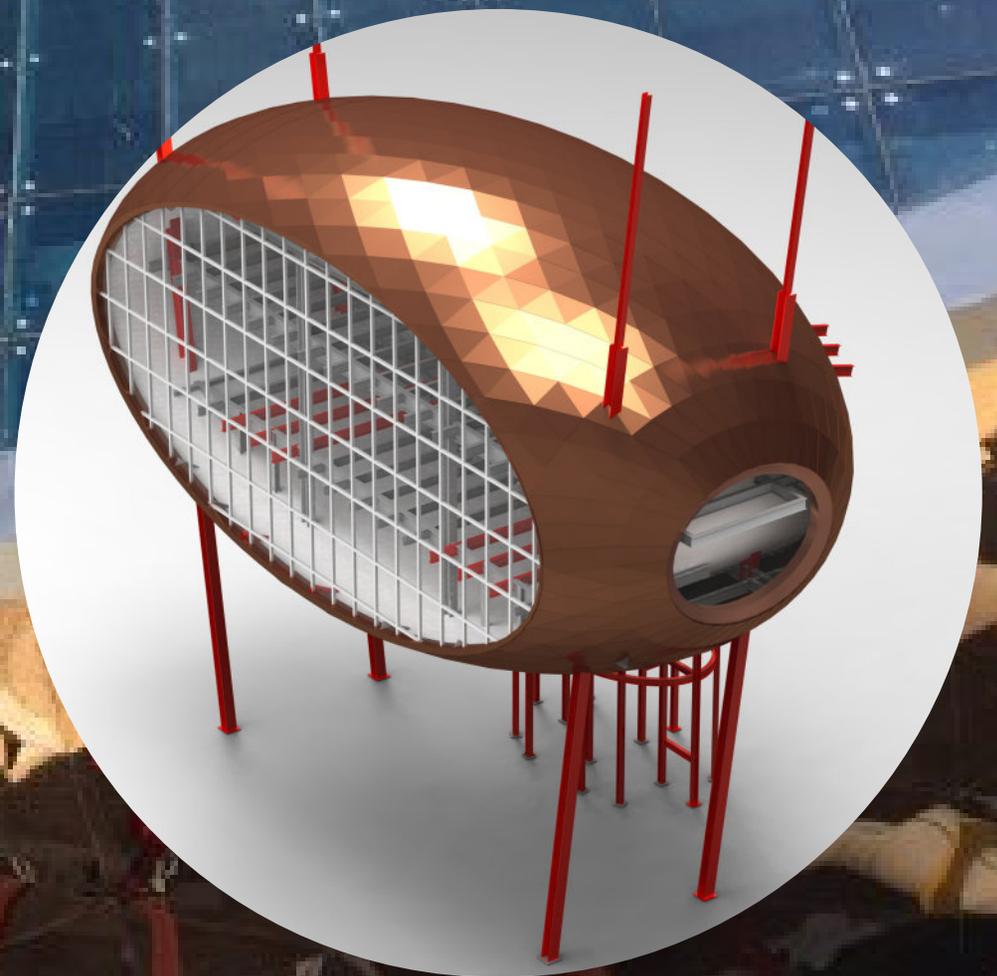


# OVAL SPHERE

## Single layer structure

This oval shape with a double curvature was designed to fit in the center of the tower's elliptical facade. It is a spaceframe structure from spheres and pipes that carry a unique designed spider system and triangulated IGU glazing.

Area: 956 mtr<sup>2</sup>

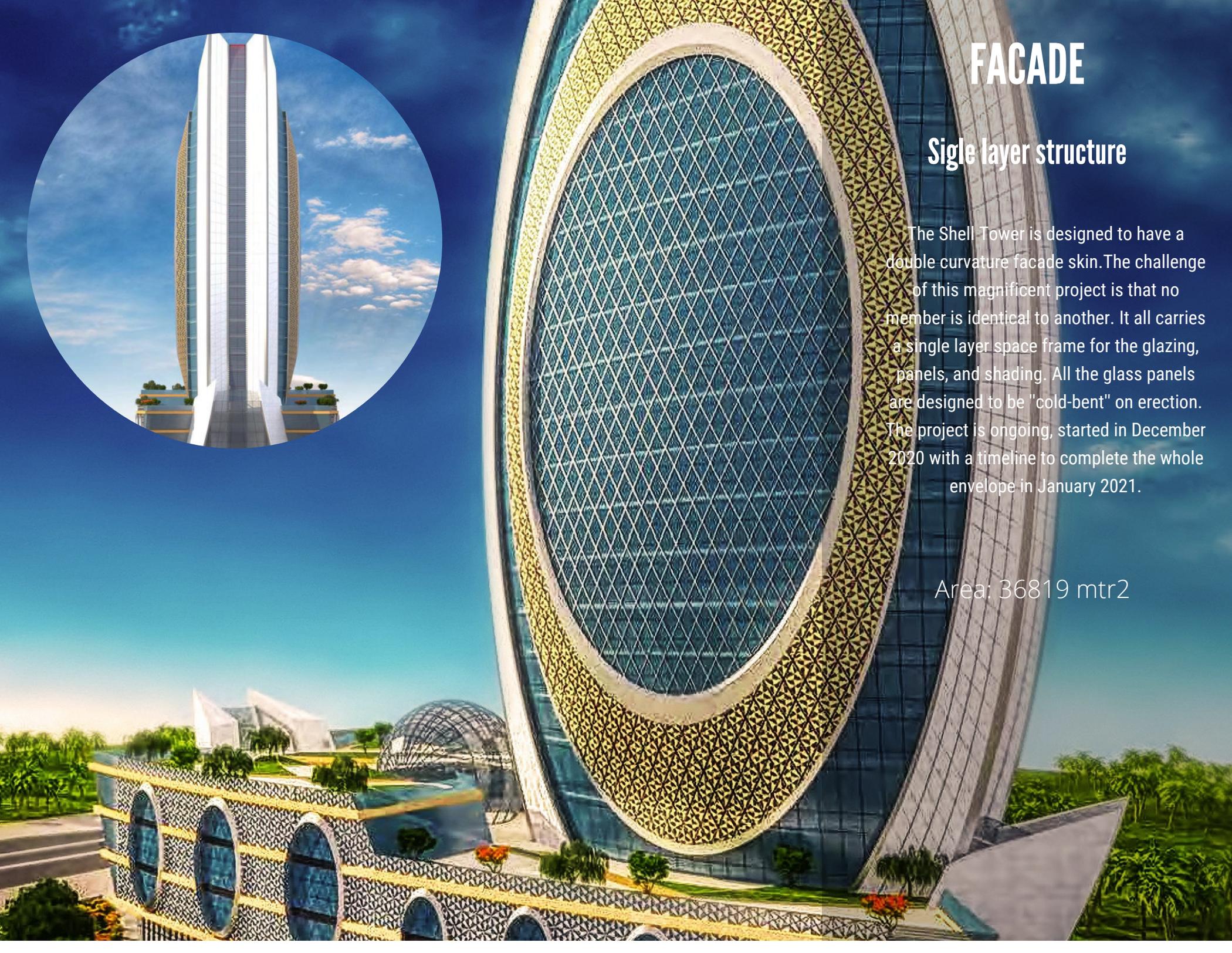


# FACADE

## Single layer structure

The Shell-Tower is designed to have a double curvature facade skin. The challenge of this magnificent project is that no member is identical to another. It all carries a single layer space frame for the glazing, panels, and shading. All the glass panels are designed to be "cold-bent" on erection. The project is ongoing, started in December 2020 with a timeline to complete the whole envelope in January 2021.

Area: 36819 mtr<sup>2</sup>

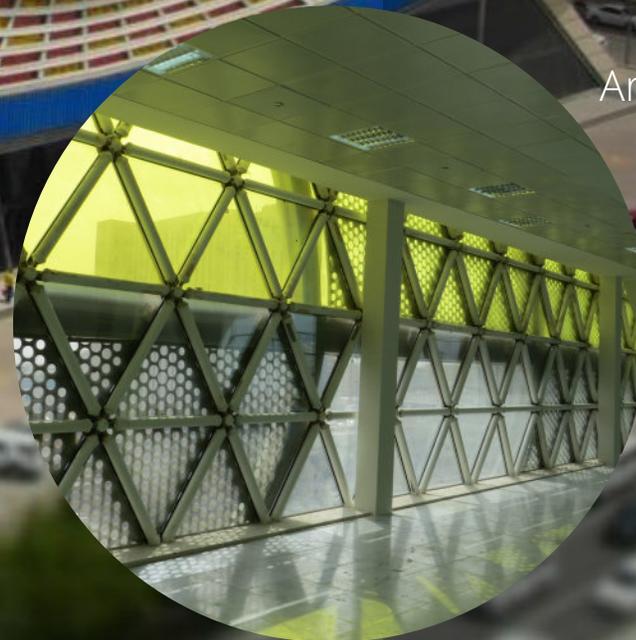
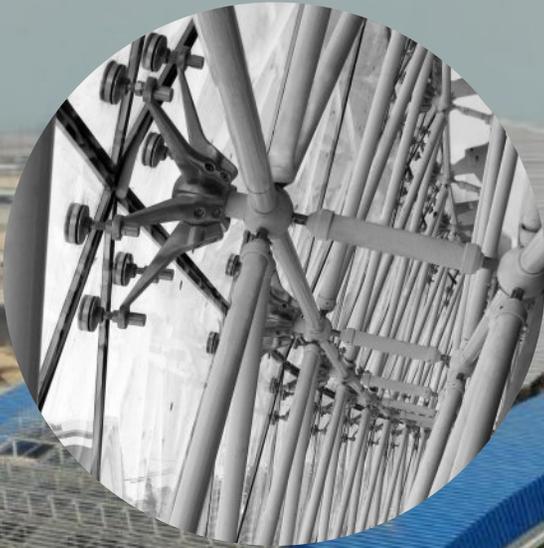


# FACADE

## Single layer structure

This unique facade is designed and constructed as a single-layer structure from spheres and circular hollow sections. It is an elliptic/double curvature skin that carries glass units, a Shading system with perforated aluminum sheets, and decorative box-shaped aluminum members. All the members and glazing are unique in dimension and shape. They were processed directly from the designed model and matched perfectly on erection.

Area: 5282 mtr<sup>2</sup>

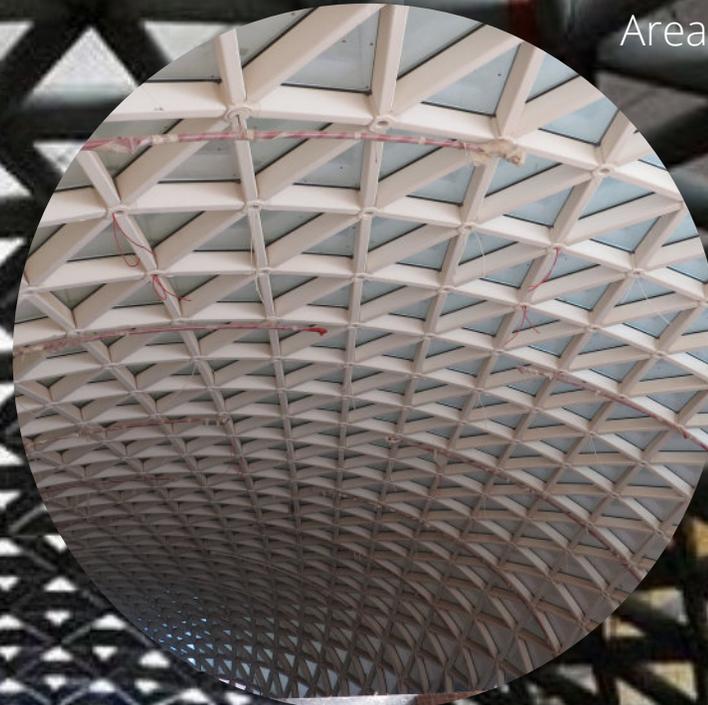


# COCOON

## Single layer structure

They named Cocoon as that what its shape resembled. It is a unique single-layer structure spanning 100 meters by 27 meters without columns. There are two identical structures, one in each sector of Energy City, that divide the twin buildings. The structures are glazed with triangulated IGU panels. The cocoons are used as VIP areas of the commercial complex of Al Mansour Gate, covering two floors in height.

Area: 5041 mtr<sup>2</sup>

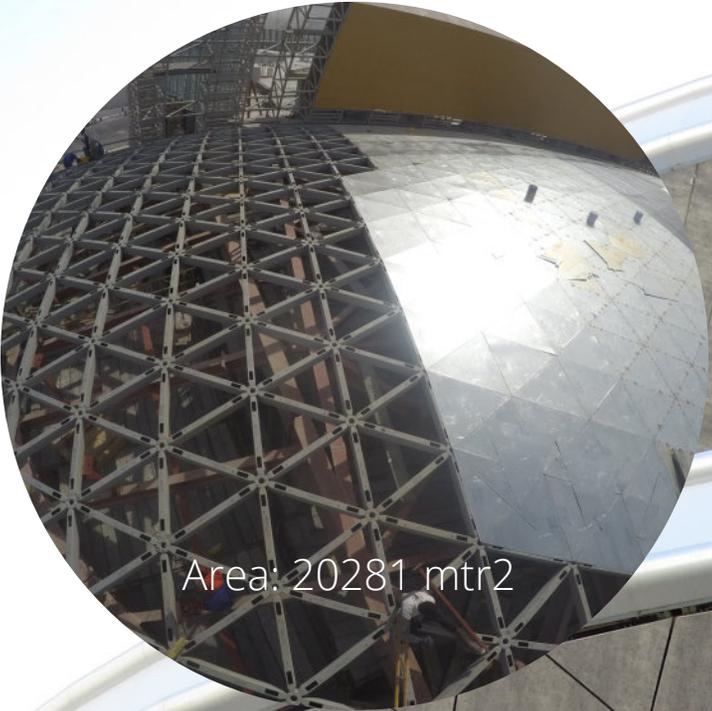


# FACADE

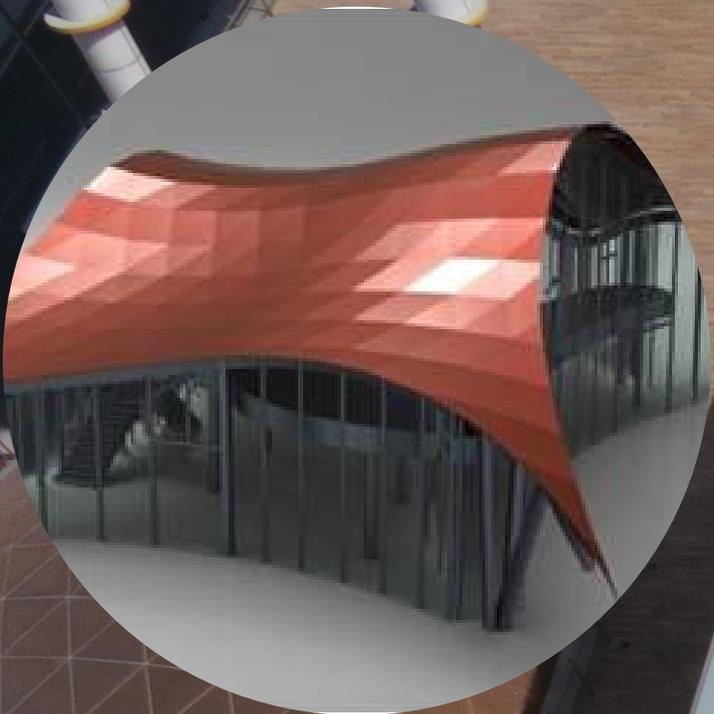
## Single layer structure

The Energy City Complex, Al Mansour gate was a challenging project as the Architect designed the facade as double curved and multi curved at its base. Arthur best did a special design to meet the architectural concept and carry the glazing and the massive shading structure of a wire rope synthesis in an also fluid shape.

Two mega steel structures are connecting the hotels and the retail spaces between the two pairs of buildings in Energy City. Their span is 200 meters by 30 meters each, with two floors acting as bridges. The roof and the ceiling above the cocoon structures are double-curved to match the building's architecture. A single layer structure was used to carry the roof synthetic ceramic tiles and the same bellow at the ceiling. The ceiling differs from the roof as all the triangulated ceramic panels can be mechanically removed to access the electromechanical, and again, they can be shut.



Area: 20281 mtr<sup>2</sup>



# GLASS TENT

**Single layer structure**

Area: 375 mtr<sup>2</sup>

The Glass tent challenge in Marina twin towers wrote a story of its own. The need to replace a fabric tent with glass was something extraordinary for Arthur best to develop. The challenge was not only the engineering to get a fluid result with glazing; it was also to meet the project's budget.



# 3D Scanning & Surveying PROJECTS

<b>PROJECT NAME</b>	<b>Country</b>	<b>Project Type</b>	<b>Client</b>
The Orchard Center	UK	Landscape	Acre Landscapes Ltd
1A Dawns Road	UK	Residential	JB Developments and construction Ltd
Maida Vale	UK	Residential	Galiford Try Partnerships Limited
Brunel Street	UK	Residential	Galiford Try Partnerships Limited
Great Eastern Quays	UK	Residential	Galiford Try Partnerships Limited
Univercity of Essex	UK	Student Accomodation	Balfour Beatty Regional Construction Ltd
Wellington College	UK	Student Accom/tion and Theater	E W Beard Ltd
Chigwell Rice	UK	Private residence	KM Developments Ltd
Hornsby House School	UK	School	Cuffe Plc
2 Lands End	UK	Private residence	RM Construction and Developments Ltd
The Mews	UK	Private residence	Iodine Ltd
Beaconsfield Services	UK	Services extention	Alcema Ltd
Royal national Orthopeadic Hospital	UK	Hospital Extention	Balfour Beatty Regional Construction Ltd
Merton Hall	UK	Church	Lengard Ltd
London Fruit Exchange	UK	Mall Renovation	Stortford Interiors Ltd
Durant Close	UK	Residential	Keller Ltd
Stone Crop	UK	Private residence	SLK Developments UK Ltd
Bow Road	UK	Residential	Quadrant Construction Services Ltd
Wheatstone House	UK	Residential	Quadrant Construction Services Ltd
Box Park(Wembley)	UK	Commercial	Bubear & Jones Blacksmiths Ltd
Three Elms Service Station	UK	Petrol Station	Broham Forecourt Developments Ltd
Maxet House	UK	Residential	Head Office 3
Brook Street Renovation	UK	Private residence	Gaysha Ltd
Cubes Tower	Qatar	Residential Tower	Red Line Contracting
Al Mansour Gate	Qatar	Complex	Red Line Contracting
Al Messila metro st	Qatar	Metro Station Green Line	Meinhardt

# Solar Farms

## **NORTH IRELAND**

Maghaberry 30 MW

Finvoy 15 MW

Gibson 15 MW

## **SCOTLAND**

Pressok 15 MW

## **ENGLAND**

Lockleaze 5 MW

Westerfield 15 MW



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# **COMPANY QUALITY PLAN & QC PROCEDURES.**

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<b>Quality Plan</b>	Issue No.1	Rev.No.4
<b>Document number: ABC/QM/01. Section No: 0.2</b>	Date: 28/04/2019	

The directors and management of Arthur Best Consultants are committed to operate every aspect of the business to the quality management system requirements mandated by the standard ISO 9001:2015 and which offer the highest possible quality of service to all clients. This is supported by a progressive management style, commitment, and effective implementation that encourage the Quality culture throughout the company.

This will be achieved through:

- Consideration of context of the organization and aligning the Quality Management System with the strategic direction of the organization
- Understanding the needs and expectations of the interested parties
- Satisfying customer and applicable statutory and regulatory requirements
- Management of the organization along with employee established quality objectives and related responsibilities

Implementation of the Quality Policy is the responsibility of every member of staff, starting with the Director who takes the policy decisions which enables the correct action to be implemented throughout the organization, and reviewed its continuing suitability.

The Quality Policy has the full support of Senior Management and, together with Quality Assurance Procedures, ensures that activities are controlled in a manner compatible with achieving required service levels and obligations effectively. The top management shall review the policy on a yearly basis in the management review meetings in order to ensure the continuing suitability of the policy for the organization.

All personnel have been made aware of the management commitment to this policy in particular and quality in general and are encouraged to demonstrate their own support to the system by continuous active participation.

<b>QC Procedures – Engineering Design Services</b>	Issue No.1	Rev.No. 3
<b>Document number: PM/ABC/ 01</b>	Date: 01/12 /2020	Sheet 1 of 9

## Objective

Objective of this process is to plan and control the process steel structural and FAÇADE engineering: To complete the design as per the customer requirements and deliver it error free.

## Inputs

- Client provided data files [like drawings in AutoCAD and pdf formats, other information relevant to Project]
- Client specifications
- Scope Highlighted in Perspective view of the Project
- BIM Models if any

## People Involved

- Directors / Manager
- Team Lead
- Structural Engineers
- Façade Designers
- Quantity Surveyors
- Steel Detailers
- Design Engineers [PRO-E]

## Structure of engineering department

Engineering department is organized as the following focus areas

- Structural engineering design - Calculation using –SCIA, STAADPRO, SJ Mepla, Ms-Office software
- Structural steel detailing & outputs– Detailing using the TEKLA, AutoCAD software
- Specialized steel [Space frame, Free form Structure etc.] detailing & Outputs – Using PRO-E, AutoCAD software
- FAÇADE Design, detailing & outputs – Using ATHENA, AutoCAD software.

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## Projects Planning

### Input data

The input files received from the customer through any means (hand delivery, email, post...) and in any medium (hard copy, soft copy, numerical data...) are recorded in the **Input register**.

The inputs for the process of Engineering [structural design, façade design, steel detailing] are the IFC (issued for construction/concept) drawings, Project specifications, scope highlighted perspective view, BIM models if any etc., received from the client. All the drawings and data are reviewed as per the **input review checklist**

Where requirements are ambiguous or incomplete **request for information, RFI**, is sent to the client and clarification is obtained. This is done till complete clarity is obtained and is done at all stages of the project as necessary.

The customer data is filed (hardcopies) or stored in the designated file folders (soft copies)

### Work planning

When a project is awarded, a kickoff meeting is arranged by Technical Manager with Team Leader wherein the team members involved are briefed about the project, specific requirements about the project and time frame for completion of the project. **Minutes of meeting** will be issued to the team by team leader.

Any additional clarifications before the start of design or during the design are obtained from the customer through **request for information**.

Projects are to be completed and delivered as per the requirements of the customer, technical and legal requirements and follows design practices provided by the customer. When the design practices are not provided by the customer a **design specification** is prepared based on the client / country requirements.

Mile stones to be achieved and action plan for the same are determined and documented as **project mile stones**. Team Leader is responsible for the work planning and progress monitoring.

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The roles and responsibilities of Engineers including design, review, and verification are determined and recorded in the **project plan**.

The interactions and communications with other projects /client / other stake holders are defined and documented in respective folder

The items are listed and resources, facilities, are identified and provided as necessary as per the **project plan**. This includes software, hardware, manpower, training etc.

## **Design control**

### **A. Structural engineering design**

Structural engineering design is done with the inputs provided by the client and the design specification for the project.

The following are prepared as part of the structural design

- Detailed design document including the following
  - Design criteria
  - Load Calculation & Analysis of model
  - Member/Element sizes of the structure considered
  - Output results like static check, Reactions, Stress check, deflection check of SCIA/STAAD
  - Connection design
  - Engineer Sketches

The drawings and documents are checked as per the **structural document checklist** and necessary corrections / modifications are made before transmittal to the customer.

### **B. FAÇADE DESIGN**

Façade design work is done based on the drawings received from the customer. The design work is done in four stages, however no. of stages also can be limited depending on the client need. The stages are **Concept design**, Detailed Design [**Shop drawing**], **fabrication/production** drawing and **As built** drawing

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During start of the project study with the input of client datum and the preliminary structural calculation, the concept design is developed by designers.

As the first step the concept design/ preliminary structural calculation is completed and sent to the customer. This is reviewed and approved before sending to the customer. Details of review are recorded in the **FACADE review checklist**.

Upon approval of the concept design by the client, detailed structural calculation and shop drawings are prepared. The shop drawings include plan, elevation, section details and part elevations. These are sent to the customer for review and approval. This is reviewed and approved before sending to the customer. Details of review are recorded in the **Shop drawing review internal check list**.

Upon approval of the shop drawing, detailed fabrication drawings (Cut list, Assembly drawings, Erection drawings etc) are prepared and approval. Site survey conditions if any supplied also forms the input to the preparation of fabrication drawings. This is reviewed and approved before sending to the customer. Details of review are recorded in the **Shop drawing review internal check list**

The final stage is Asbuilt drawings of the project for which the input is final erection drawings/ fabrication drawings, details from client stating any site modifications if any.

### **C. STEEL DETAILING**

In steel detailing also the design work is done in three stages, Modelling &Shop drawing preparation, fabrication/production drawing and Asbuilt drawing.

The steel detailer will start the shop drawing based on the client input data and structural calculation of members, connection design, Engineer sketch pertaining to the scope. The next stage Fabrication/production drawings (Cutlist, Assembly drawings, Erection drawings etc.,) will have the input as follows 1. Approved Shop drawings & structural calculation by the client 2. Site survey or conditions from client if any. The final stage is Asbuilt drawings of the project for which the input is final erection drawings/ fabrication drawings, details from client stating any site modifications if any

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The detailed steel drawings (all kinds of drawings) are generated from the model using the software facilities. Generation of these drawings is planned as tasks and assigned to specific teams.

The work is distributed among the design engineers/ Steel detailers as per the work planning sheet. The design engineers/Steel detailers complete the work as per the design guidelines.

Each drawing generated at each stages are self-checked by the engineer/detailer and then second reviewer followed by the final review. In the second and final review details are checked at random and the details are recorded in the **Structural steel shop drawing checklist.**

#### **D. QUANTITY SURVEY**

Material take off is done with the inputs provided by the client and the Approved Shop Drawings for the project. (Tentative MTO also provided upon Client request, tentative MTO is prepared based on concept drawings provided by client).

- Detailed MTO Document including the following
  - Glass MTO
  - Aluminum system, gaskets, accessories & Hardware MTO
  - Aluminum & Steel Sheets MTO
  - Screws, Bolt, Anchor & Fasteners MTO.
  - Miscellaneous Items.
  - Profile & Aluminum Sheet Weightage.
  - Optimization Sheet (Profile & Sheet).

The MTO and documents are checked as per the MTO document checklist and necessary corrections / modifications are made before transmittal to the customer.

The Quantity Surveyor will start Material take off based on the client input, approved shop drawings & a structural calculation report. After taking material quantity with the help of Ms Office /Auto Cad/ Logikal Software, all aluminum/Steel profile & sheets are optimized to standard size. If the wastage is high then that profile/sheet will be re-optimized to appropriate size, after that these quantities entered in MTO Format.

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Each MTO Prepared for each Items are self-checked by the QS Engineer and then second reviewer (Sr. QS Engineer) followed by the final review (Team leader/Design Manager). In the final review details are checked at random and the details are recorded in the checklists

#### **E. Project tracking**

The work completed is recorded in the **project log** and progress of the design is reviewed every day by Team Leaders.

The milestone achievement is reviewed and actions are taken to complete the project in schedule wherever necessary.

#### **F. QA Checks**

Each drawing generated at each stages are self-checked by the designer and then second reviewer followed by the final review. In the second and final review details are checked at random and the details are recorded in the **checklists**.

The steel detailing projects which are done in Tekla software, the corresponding model is checked thro' model audit tool where the errors are captured as snapshots and recorded by the checker. Later the same is corrected by the concern detailer.

Similarly the structural engineering designs done by the team are reviewed by a Sr. Engineer/Manager by rechecking the entire calculation and the results designed by the team are verified.

Any error in design, mistake in drawing / dimensioning, deviation from design standards are immediately corrected after each check.

All drawings are delivered to the client after the final review and all identified points are corrected. In any project is released to client partially or with any known deficiency, this is informed to the client.

#### **G. Action on the feedback from the clients**

All the comments and errors reported by the client are reviewed and actions are initiated to meet the revised requirement or correct the errors.

Details of the action taken are recorded in the **Design Audit log sheet**. Any point which are not technically feasible are reported to the client for approval

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#### **H. Control of design changes**

When a design change becomes necessary, the details of the change required is recorded in a **change request form** and submitted for the review of TM and team Leaders.

The requested change is reviewed for the potential impact on the completed design and the related drawings as well as the project implementation.

The changes are incorporated after getting the approval of TM and where required from the client.

The drawings and documents are revised and released with a new revision number,

#### **I. Control of drawings**

All drawings are controlled for version numbering as per the procedure for documented information.

All the drawings and documents in softcopies are managed by creating separate folders in the server. The list of drawings is maintained as **Drawing/Document register** for each project.

All check prints drawings and documents in hardcopies are maintained for five years in a file folder.

Backup of the drawings and other documents are taken as per the backup plan.

#### **I Control of errors (Non-conforming services)**

Errors identified during the internal QA check are recorded in the check prints. Corrections are initiated after reviewing the error.

Errors reported after the transmittal of the drawings are recorded in the design audit sheet and corrections are made after review of the nature / reason of the error.

After completion of the correction QA checks it for correctness before transmittal.

#### **J. Transmittal of drawing and documents**

The team leaders are authorized to transmit the completed and approved documents and drawings to the customer.

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Details of the documents for transmittal is added in the “documents transmittal” and the “Fabrication order transmittal”.

Details of all the documents transmitted to the customer is recorded in the “**Transmittal Register**” with the drawing /document number, version number , date and time of transmittal and the person who does the transmittal.

### Records

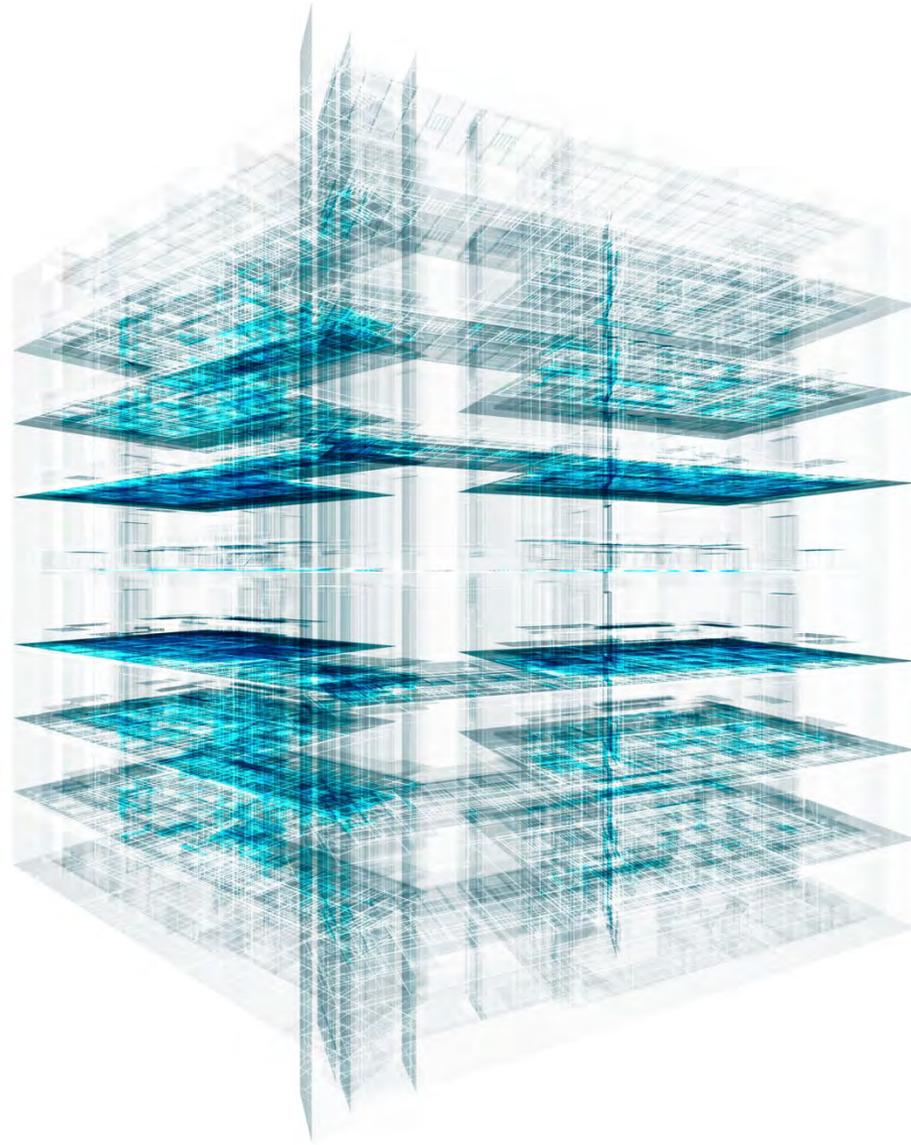
SL NO.	RECORDS	FORMAT NO.	RESPONSIBILITY	RECORD KEEPING	RETENTION PERIOD
1	Input Register	075.0-26052016	Team Members	Soft Copy	3 Years
2	Input reviewCheck List	085.0-26052016	Team Representative / Project In Charge	Hard copy	3 Years
3	RFI – Request For Information	026.5.26052016	Team Representative / Project In Charge	Soft Copy	3 Years
4	Minutes of Meeting	002.7-26052016	Team Representative / Project In Charge	Hard Copy	3 Years
5	Project Milestone	076.0-26052016	Team Representative / Project In Charge	Soft Copy	3 Years
6	Project Plan	070.1-26052016	Team Members	Soft Copy	3 Years
7	Structural Document Check List	078.0-26052016	Structural Engineer	Hard Copy	3 Years
8	Structural Steel Shop Drawing Check List	079.0-26052016	Steel Detailer	Hard Copy	3 Years
9	Shop drawing Internal check list	077.0-26052016	Design Engineers	Hard Copy	3 Years
10	Project Log	073.1-26052016	Team Members	Soft Copy	3 Years
11	Design Audit Log Sheet	080.0-26052016	Team Representative / Project In Charge	Soft Copy	3 Years
12	Drawing/Document Register	025.5-26052016	Team Representative / Project In Charge	Soft Copy	3 Years
13	MTO Document Check List	117.0.01122020	Team Representative / Project In Charge	Soft Copy	3 Years
14	MTO Register	118.0.01122020	Team Representative / Project In Charge	Soft Copy	3 Years
15	Document Transmittal	022.6-26052016	Team Representative /	Hard copy	3 Years

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			Project In Charge		
16	Fabrication Order Transmittal	081.0-26052016	Team Representative / Project In Charge	Soft Copy	3 Years
17	Transmittal Register	094.0.26052016	Team Representative / Project In Charge	Soft Copy	3 Years
18	Change request format	110.0-23062016	Team Representative / Project In Charge	Hard/Soft copy	3 years
19	Model Audit Tool	029.0-30082017	Team Representative / Project In Charge	Hard/Soft Copy	3years

### Revision History

Revision Details	Date	Rev.no
Section G,H, I and J revised	23 / 06 / 2016	1
Added Record Keeping column	23 / 06 / 2016	1
Section E is revised	06 / 09/ 2018	2
Section D - Quantity Survey added	01 / 12/ 2020	3



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