

ENGINEERING SERVICES OUT SOURCING











INTRODUCTION:



- ND Technical and Pinnacle Technologies Brings you the complete solution for Engineering
- It was founded and developed by a group of Engineering professionals; who has past experience in the Project Management and Engineering consultancy field for over 23+ years.
- It consists of a modest team of Engineering Professionals who have received project Design & Detail engineering experience and expertise from leading EPC and Engineering Consulting companies from India and abroad.
- We are focused on enhancing our client's engineering efficiency through Developing & adapting newly emerging technologies, vast domain knowledge & highly efficient work planning methodologies to ensure an effective global delivery model.
- Because of our "flat" organization Structure and private ownership, we have frequently demonstrated our ability to react quickly to our customers' needs. This is helping us to be one of the emerging partner of choice for leading Domestic & international companies.



Industries we Serve



We offer services in Two verticals.

Buildings & Infrastructures Engineering-

- Residential Buildings & Villas.
- High-Rise Mixed-Use Buildings.
- Commercial Buildings.
- Hospitality and leisure.
- Hospital Buildings.
- ■Institutional Buildings.
- Sports and recreational.
- ■Pharmacy and clean rooms.
- Aviation/Airports.
- Railways & Metros Facilities.

Process & Plant Engineering-

- Chemical Plants.
- Petrochemical Plants.
- Food & Pharmaceuticals.
- Utilities & Off sites.
- Power Plants.
- Water Treatment Plants.
- Material Handling Plants.
- Automobile Plants.



We provide following services under our Buildings Infrastructure Engineering Division.



Services we Provide-

- Pre –Bid (Tender Support) Engineering Services.
- Conceptual Design Engineering Services.
- Design & Development Engineering services.
- Design Validation services.
- Building Information Modeling.
- Construction Drawings & Documentation Services.
- As Built Engineering Services.
- Green Building Services.
- Environmental Analysis Services.
- Point Cloud to BIM Modeling Services.
- Facility Management Modelling Services.
- Facade Engineering

Our Expertise-

- Architectural Design & Drafting.
- 3-D Renderings & Walkthrough.
- Civil & Structural Engineering Design & Drafting.
- MEPF (HVAC, Plumbing, Electrical & Fire Protection) Design & Drafting.
- Building Information Modeling (BIM)-3D,
 4D, 5D and Facility Management
 Modeling (6D).



Details of Services-



Tender Engineering Services-

- Review of Tender Drawings / Documents, make site visit and collect necessary data.
- Conceive proposed Engineering Concepts.
- Preparation of Conceptual Layouts & Estimate Bill of Quantities.
- Obtain budgetary offer from vendors for supply, erection and commissioning.
- Prepare Detail Feasibility Report & Cost Analysis.

Building Information Modeling Services-

- Modeling services from LOD 100 To LOD 500.
- Architectural Modeling.
- Structural Modeling.
- Mechanical, Electrical, Plumbing, Fire Protection Modeling.
- Clash Detection & Resolution services.
- 4D Construction sequencing services.
- 5D Cost Management Services.
- 6D Project Life cycle (Facility Management) Services.
- Point Cloud to BIM Modeling Services.
- BIM Implementation Services.

Conceptual & Design Development Engineering-

- Architectural Concept & Detail Designing.
- Civil & Structural Design.
- Mechanical, Electrical, Plumbing, Fire Protection Engineering.
- BMS Engineering.
- Preparation of Design Drawings.
- Design Validation Services.
- Green Building Development Services.
- Environmental Analysis Services.
- Energy Analysis.

Construction Engineering Services-

- Preparation of Shop Drawings.
- Preparation of Fabrication Drawings.
- Calculation of Bill of Quantities.
- Preparation of Civil & Structural Fabrication Drawings.
- Preparation of Bar Bending schedules.
- Preparation of Ductwork drawings.
- Preparation of sheet Metal Fabrication drawings.
- As Built Engineering services.



Facilities & Infrastructure-









Engineering Resources	Avg. Years of Experience	Architectural , Civil & Structural	<u>MEPF</u>	BIM/Revit
Project Managers	12 to 20 years	1	1	2
Architects/ Engineers	3 to 10 years	6	4	5
Modelers/Draughtsm en	4 to 10 years	15	14	20

Our Key Projects-



- Mr. Abdullah Ahmed Almoosa Palm Jumeirah Resort Hotel, Dubai.
- Drug & Mental Hospital, Jordon.
- KFSH Hospital, Saudi Arabia.
- Changi Airport Terminal -1 & Terminal-2 Fixed Gangways Replacement E12 & F36, Singapore.
- Mumbai Airport Terminal-2-Renovation & Expansion.
- Yishun Community Hospital, Singapore.
- Tuas Biomedical Park, Singapore.
- D-Nest-Condominium Housing Development, Singapore.
- Suncity School, Singapore.
- Temasek Club, Singapore.
- Calaveras Adult Detention Center, California.
- UCSF Medical Center, Mission Bay.
- Deanza Community College, Cupertino, California.
- BING Concert Hall, Stanford University, Stanford, California.



Clientele & Strategic Partners



- SSA Architects, Pune.
- BIMAGE Consulting, Singapore.
- Cofreth (M) Sdn Bhd., Malaysia.
- ARUP DATTA ARCHITECT LTD., Canada.
- CSCEC, Dubai.
- Sanveo Inc, USA.



Architectural & Rendering Services



Designing-

- Overall Design Objectives.
- Design Criteria.
- Assumptions.
- System Design Concepts (Brief Outline).
- System Selection.
- Estimations (Rough).
- Other Matters with Significant Implications.

Detailed engineering-

- Foundation/framing plan.
- Plan at different levels.
- Roof plan.
- Reflected ceiling plan for all levels.
- Elevations and sections.
- Staircase, railing details.
- Architectural cladding details.
- Door/window schedule.
- Toilet layout and details.
- Architectural details.
- Schedule of finishes.



MEPF Engineering Services-HVAC, Plumbing & Fire Protection Services



- Overall Design Objectives.
- Cooling load Heating load Calculation.
- Ducting Layout & Duct sizing.
- CFM calculation and air distribution.
- Plant room design layout and details.
- Supply, Return and Exhaust air system designs.
- Hot water and Chilled water pipe layout and sizing.
- Mechanical Equipment Schedules.
- Detail drawing preparations.
- Plumbing fixture selection.
- Plumbing layout for HW, CW, HWR, TW, SW Pipes.

- Plumbing layout for Sanitary, Vent, Roof Drainpipes.
- Plumbing Riser diagram.
- Plumbing fixture schedule.
- Detail drawings.
- Pump and Fan Static Calculations.
- Fire Protection System Design.
- Sprinkler layout and pipe layout with sizing.
- Hydraulic calculation for Fire protection system.





Architectural Design & Drafting Projects



Project Description

- Design Brief: Engineers and scientists are to build a stately pleasure dome five times bigger than Cornwall's Eden Project. The project - run on renewable energy and using a minimum of water - is intended to revitalize tourism.
- Total area: 160 hectares.
- Total Built-up Area- 28 acres.

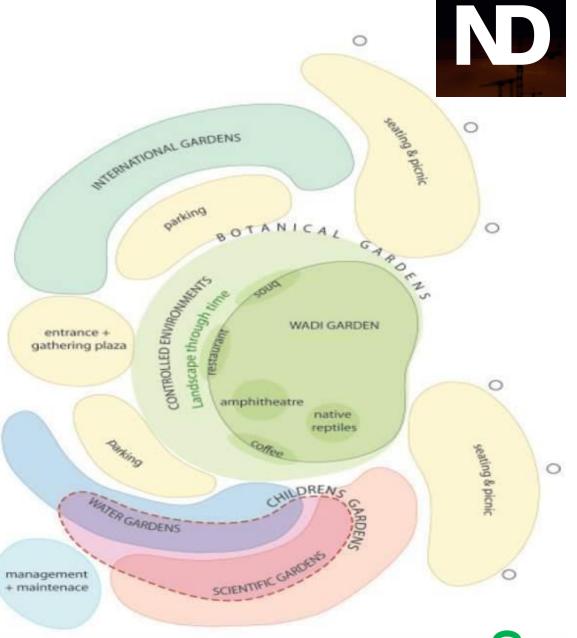
Scope Of Work



- Conceptual design for the International project in conjunction with design inputs to a U.K based architectural consultant.
- Preliminary Design.
- Design Development.
- Final Design.



Design Concept





Concept Plan

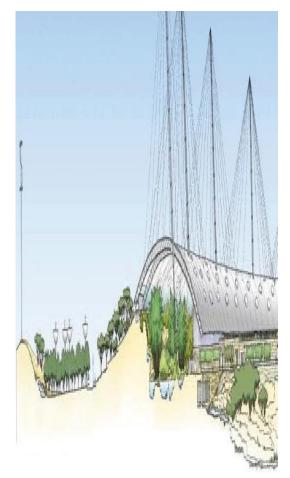




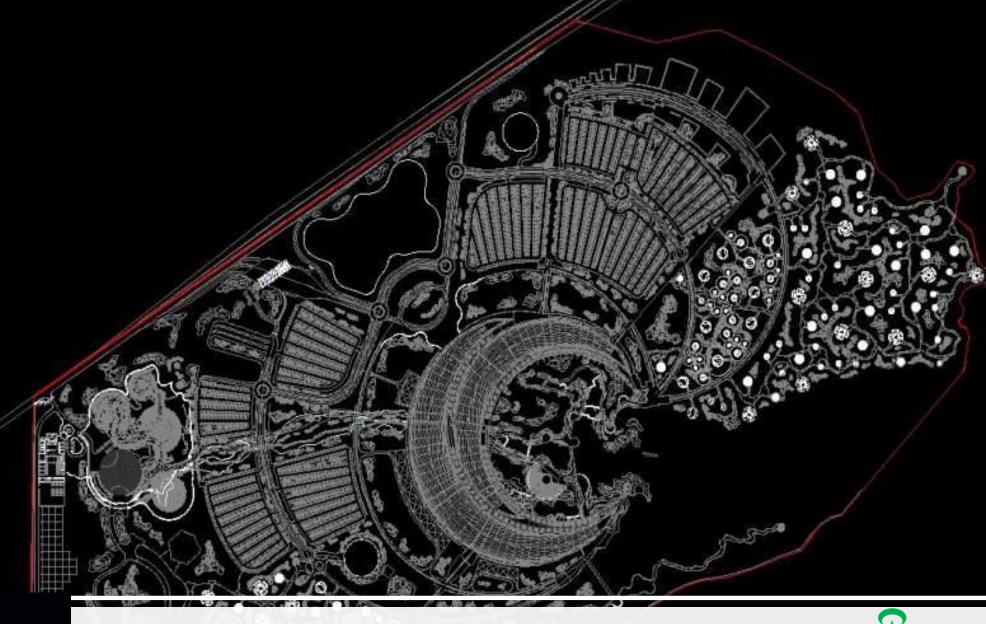
Concept Design









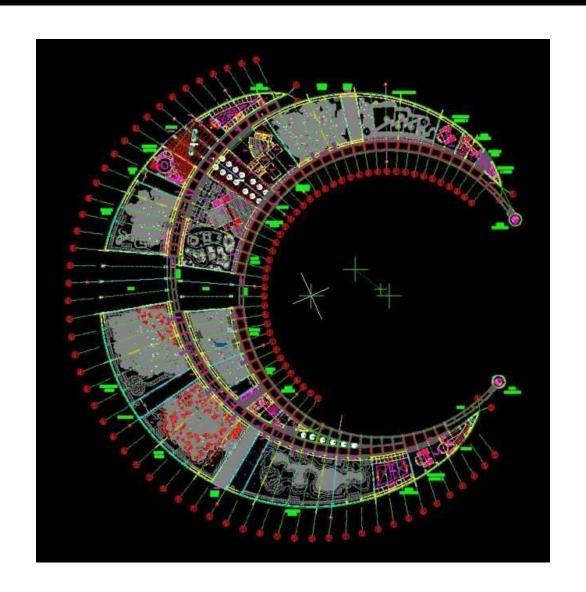






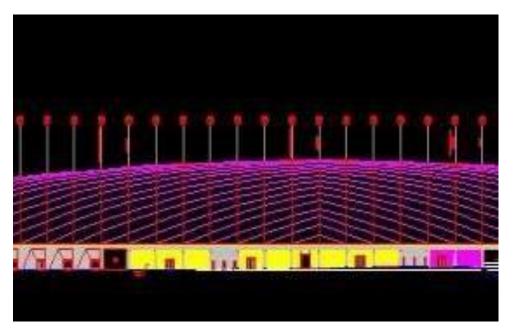


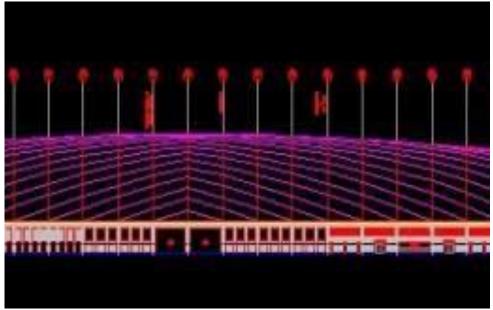
Design Development











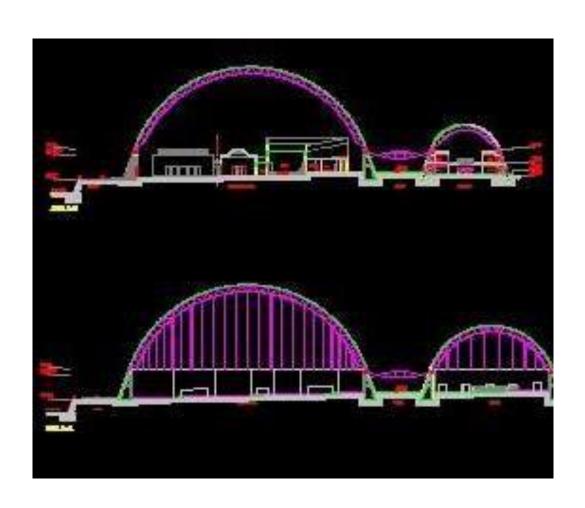
Elevations





Sections

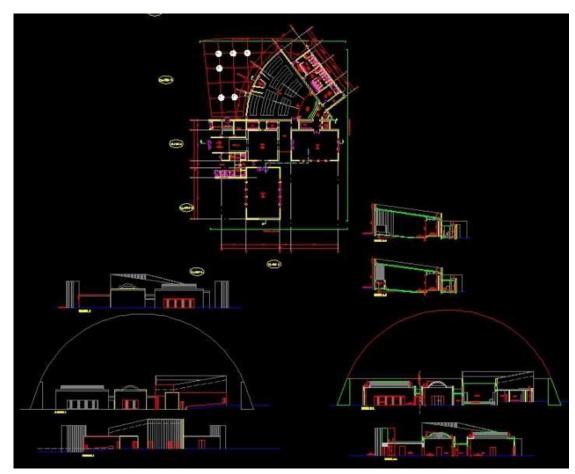








Structures inside the Main Building







Rendering & Interior Modeling Projects

























Structural Design & Detailing Projects



Structural Design Project



DESCRIPTION

- 16 storied residential building
- 50,000 sq. ft total floor area.
- Structural system comprised of frame structure with a central core housing vertical services.

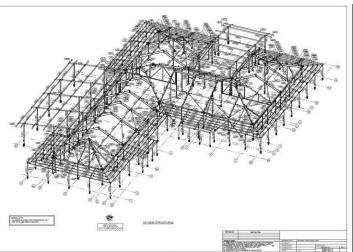
SCOPE

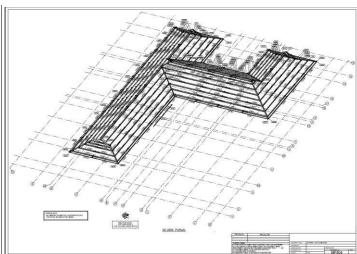
- Structural analysis & design for complete building.
- Structural analysis and design was done using STAAD-Pro.
- RC detailing was done in AutoCAD.

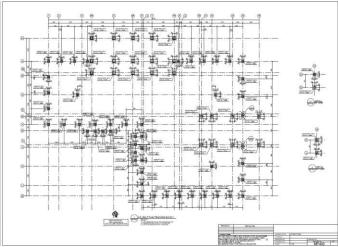




Structural Detailing Project



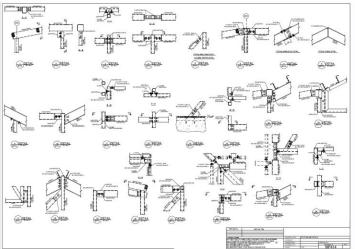




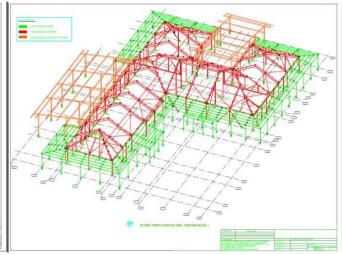
3D Steel Work View

Control of the second s

3D Cold Form View



Anchor Bolt Plan



Roof Framing Plan

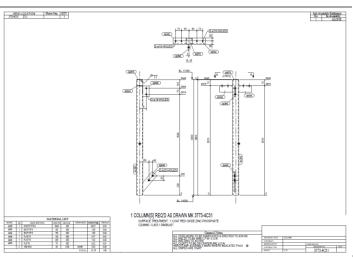


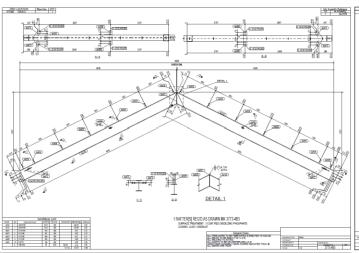
Sections & Details

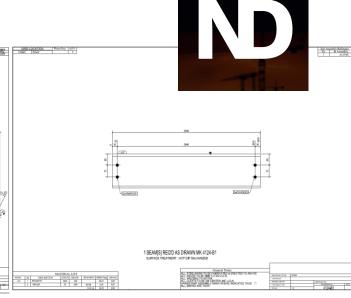
3D Paint Schedule View



Structural Detailing Project







Column Assembly

Clear Water Tank Assembly List

	1	l		l	Weight	Tot Wgt		
Mark	Qty	Profile	Material	Length mm	kg	kg	m ²	Notice
101		BEAM		3960	57.52			BEAM
1020		FL6*100	300PLUS	3887	18.31	18.31		BEAM
1017		UA45*50*5*	300PLUS	45	0.18	0.18		ANGLE
1018		UA45*50*5*	300PLUS	45	0.18	0.54		ANGLE
1042		25NB	250	1242	2.99	2.99		MID_RAIL
1043	2	25NB	250	1232	2.97	5.94	0.26	MID_RAIL
1047	4	STANCHION -	250	1029	3.66	14.63	0.63	HANDRAIL
1048	4	FL10*75	300PLUS	146	0.84	3.38	0.1	ENDPLATE
1064	1	32NB	250	1251	3.87	3.87	0.17	RB
1065	2	32NB	250	1242	3.84	7.68	0.33	RB
102	1	BEAM		6305	90.85	90.85	3.93	BEAM
1024	1	FL6*100	300PLUS	6305	29.7	29.7	1.34	BEAM
1018	5	UA45*50*5*	300PLUS	45	0.18	0.9	0.05	ANGLE
1019	1	UA45*50*5*	300PLUS	45	0.18	0.18	0.01	ANGLE
1044	5	25NB	250	1196	2.88	14.41	0.63	MID_RAIL
1047	6	STANCHION -	250	1029	3.66	21.95	0.94	HANDRAIL
1048	6	FL10*75	300PLUS	146	0.84	5.06	0.15	ENDPLATE
1066	5	32NB	250	1206	3.73	18.64	0.8	RB
103	1	BEAM		4504	59.29	59.29	2.58	BEAM
1031	1	FL6*100	300PLUS	4471	21.06	21.06	0.95	BEAM
1018	3	UA45*50*5*	300PLUS	45	0.18	0.54	0.03	ANGLE
1045	3	25NB	250	1337	3.22	9.66	0.43	MID_RAIL
1046	1	25NB	250	363	0.88	0.88	0.04	MID_RAIL
1047	3	STANCHION -	250	1029	3.66	10.97	0.47	HANDRAIL
1048		FL10*75	300PLUS	146	0.84	2.53		ENDPLATE
1056	3	32NB	250	1346	4.16	12.49	0.54	
1057		32NB	250	373	1.15		0.05	
104		BEAM		5987	80.8		3.5	BEAM
1023		FL6*100	300PLUS	5914	27.85	27.85		BEAM
1018		UA45*50*5*	300PLUS	45	0.18	0.9		ANGLE
1045		25NB	250	1337	3.22	12.88		MID_RAIL
1047	5	STANCHION -	250	1029	3.66	18 29	0.78	HANDRAII

Assembly List

Rafter Assembly

Clear Water Tank Part List								
					Weight	Tot Wgt	Tot Surf.	
Mark	Qty	Profile	Material	Length mm	kg	kg	m²	Notice
1032		25NB	250	504	1.21	3.64	0.16	
1033		25NB	250	549	1.32	3.97	0.17	
1034		25NB	250	1100	2.65	37.1	1.63	
1035		25NB	250	455	1.1	3.29	0.14	RB
1036		25NB	250	364	0.88	2.63	0.12	RB
1037	1	25NB	250	914	2.2	2.2	0.1	RB
1038	3	25NB	250	1022	2.46	7.39	0.32	RB
1039	3	25NB	250	1172	2.83	8.48	0.37	RB
1040	3	25NB	250	987	2.38	7.14	0.31	RB
1041	1	25NB	250	1118	2.69	2.69	0.12	RB
1042	1	25NB	250	1242	2.99	2.99	0.13	MID RAIL
1043	2	25NB	250	1232	2.97	5.94	0.26	MID RAIL
1044	- 5	25NB	250	1196	2.88	14.41	0.63	MID RAIL
1045	7	25NB	250	1337	3.22	22.55	0.99	MID RAIL
1046	- 1	25NB	250	363	0.88	0.88	0.04	MID RAIL
Total		25NB	250	51990		125.29	5.51	
1054	3	32NB	250	513	1.59	4.76	0.2	RB
1055	3	32NB	250	558	1.73	5.18	0.22	RB
1056	7	32NB	250	1346	4.16	29.14	1.25	RB
1057	4	32NB	250	373	1.16	4.62	0.2	RB
1058	14	32NB	250	1109	3.43	48.03	2.07	RB
1059	4	32NB	250	997	3.08	12.33	0.53	RB
1060	3	32NB	250	1182	3.66	10.97	0.47	RB
1061	3	32NB	250	1031	3.19	9.57	0.41	RB
1062	1	32NB	250	923	2.86	2.86	0.12	RB
1063	3	32NB	250	464	1.44	4.31	0.19	RB
1064	1	32NB	250	1251	3.87	3.87	0.17	RB
1065		32NB	250	1242	3.84	7.68	0.33	RB
1066		32NB	250	1206	3.73	18.64	0.8	RB
Total		32NB	250	52365		161.96	6.96	

Part List

Beam Assembly





MEPF Projects



Project Description



- Premier Hotel Project in Europe.
 - Introduction-
 - A 15 Storey Building. Which include Hotel & Apartments.
 - Hotel premises located at Basement up to Fifth floor. The apartment area starts from 6th floor onwards.
 - Scope was to provide Mechanical (HVAC & Plumbing) & Electrical services design for Hotel premises only.
 - Facilities -
 - Basement Meeting Rooms + Bar + Kitchen Store + Water Storage.
 - Ground Floor Kitchen+ Reception/Offices+ Restaurant.
 - 1 4 Floors Bed Rooms (18) + En-Suits (4).
 - 5th Floor Garden + Plant Room Area (HVAC & mechanical systems).



Scope of Work-HVAC-

Calculations –

- Heat Load Calculations.
- Heating System Design –
- Sizing Radiators & Piping, Boilers, Shunt Pumps, Radiator Circuit Pumps, AHU Circuit Pumps,
 Calorifier Pumps.
- Comfort Cooling System Design –
- Sizing AHU's, Chiller, Piping, Chilled water pumps.
- Ventilation System Design –
- Calculation of Supply & Extract Air requirements.
- Sizing of Extract fans & AHU's, Ducts.
- Selection of attenuators & Anti-Vibration pads.

Schematics –

- Heating System Schematics.
- Chilled Water Schematics.
- Ventilation Schematics (For AHU's & Toilet Core Extract fans).

Layouts –

- Heating & Cooling Layouts (Basement, Ground, Bedroom Floors).
- Ventilation Duct Layouts (Basement & Ground Floor).
- Plant Room Layout (5th Floor).





Scope of Work-Plumbing & Drainage-

ND

Calculations –

- Hot & Cold-water requirements for Hotel premises.
- Hot Water System Design –
- Sizing of Calorifier, Hot water return pumps, Pipe sizing for Hot water supply & Return.
- Cold Water System Design –
- Sizing of Cold-Water storage tank, Pumps & associated piping.
- Fire Fighting System Design –
- Capacity calculations for Fire hose reel Break Tank & Pump sizing.
- Gas Piping sizing.
- Soil & Waste system capacity calculations & Pipe sizing.

Schematics –

- Water Services Schematics.
- Soil & Waste Schematics.

Layouts –

- Water Services Layouts (Basement, Ground, Bedroom Floors).
- Soil & Waste Services Layouts (Basement, Ground, Bedroom Floors).



Scope of Work-Electrical Services-

Calculations –

- Lightning protection calculation.
- Electrical Load calculations.
- Lighting calculations.
- Cable sizing calculation.

Schematics –

Electrical Single Line Diagram.

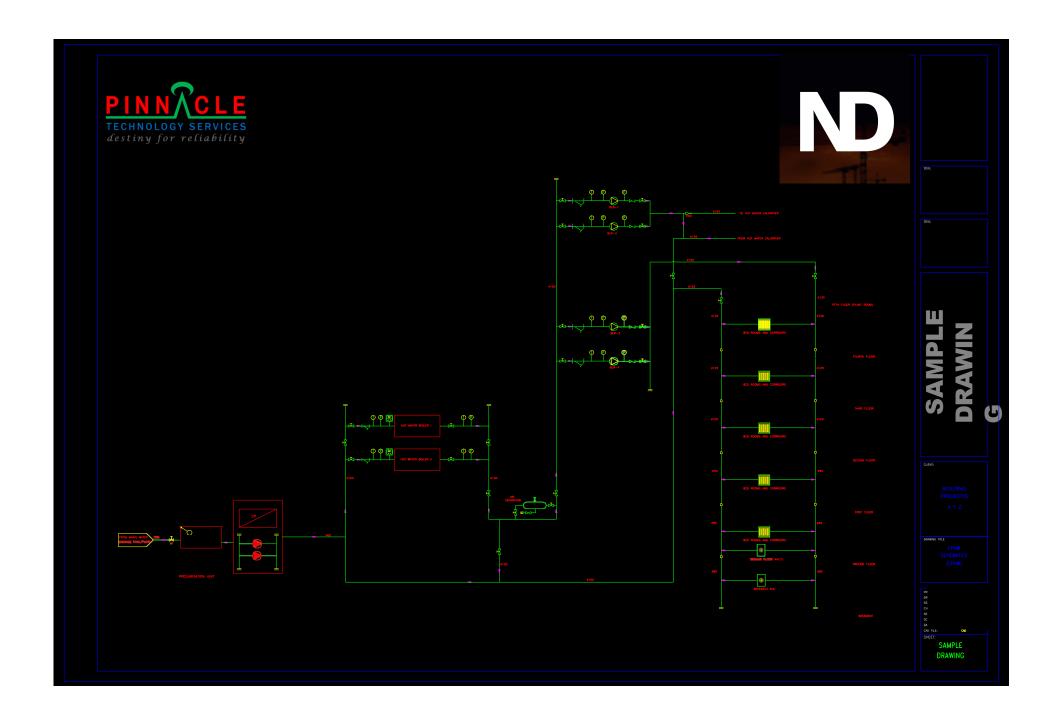
Layouts –

- Lighting layout (Basement, Ground floor, Bedroom floor and Plant area).
- Small power distribution layout (Basement, Ground floor, Bedroom floor and Plant area).
- Power distribution layout (Basement, Ground floor and Plant area).
- Electrical services layout for Typical Bedroom.
- Lightning protection layout.
- Security systems layout (Basement and Ground floor).

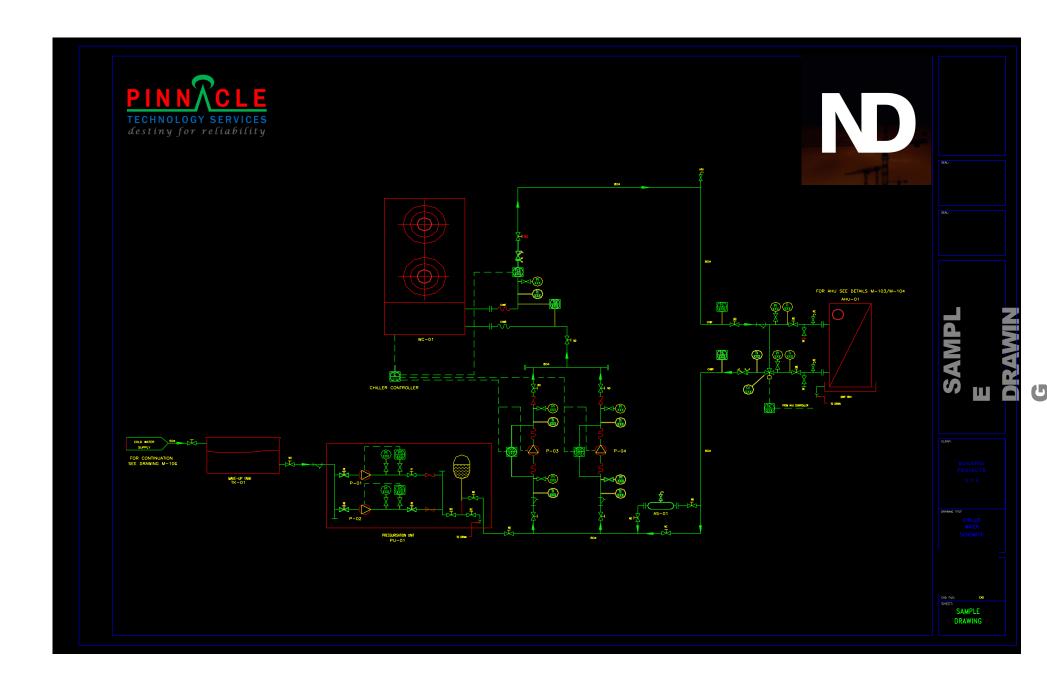




LPHW Schematic



Chilled Water schematics

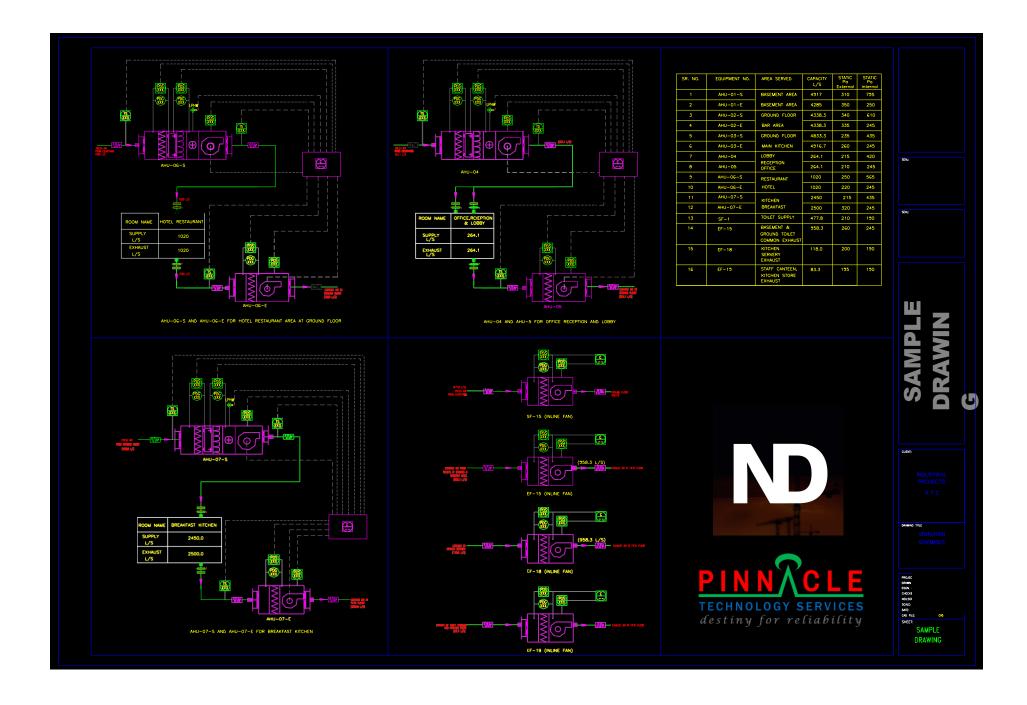


Ventilation Schematic (Toilet-Core)





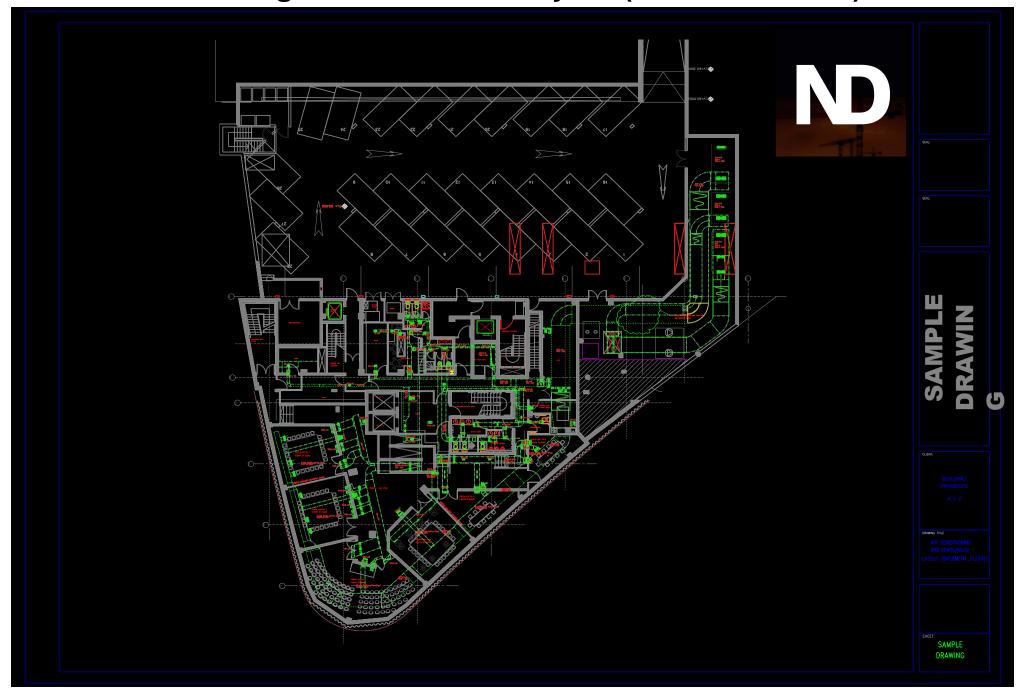
Ventilation Schematic



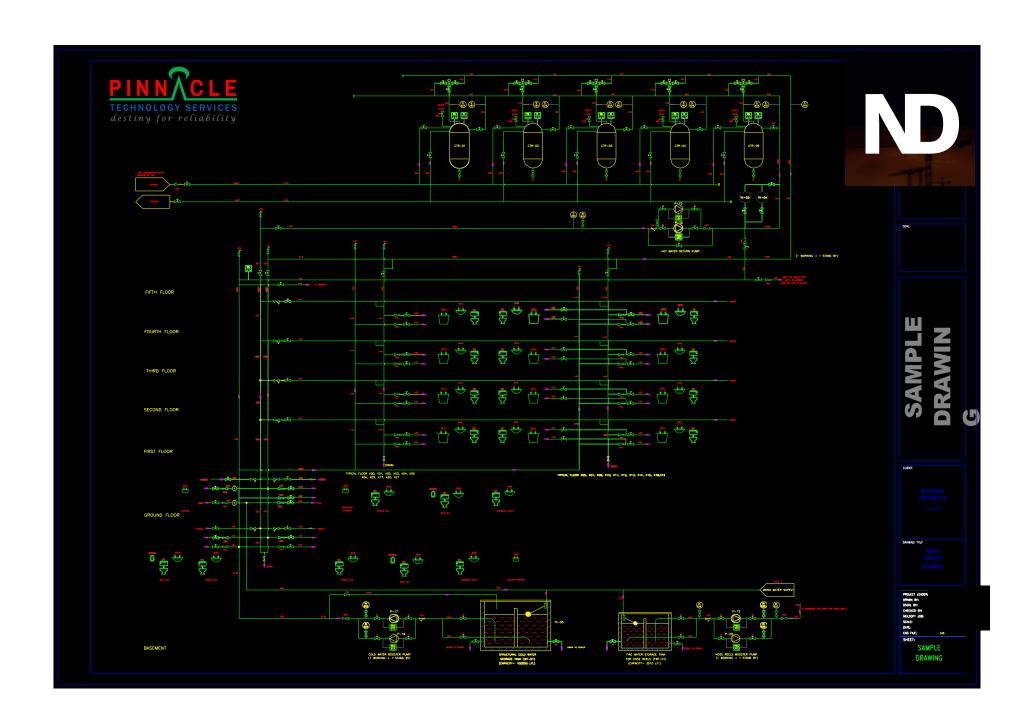
Heating and Cooling Layout (Hotel Floor)



Air Conditioning and Ventilation Layout (Basement Floor)



Water Service Schematic



Soil and Waste Schematic



Water Services Layout Basement



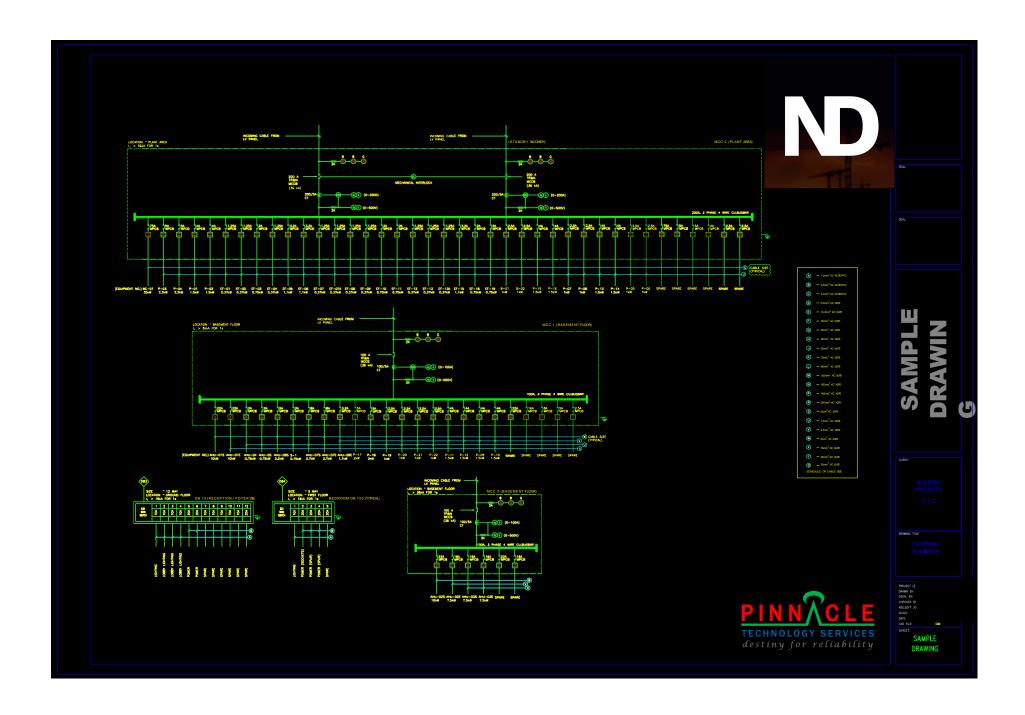
Water Services Layouts Typical Bedroom



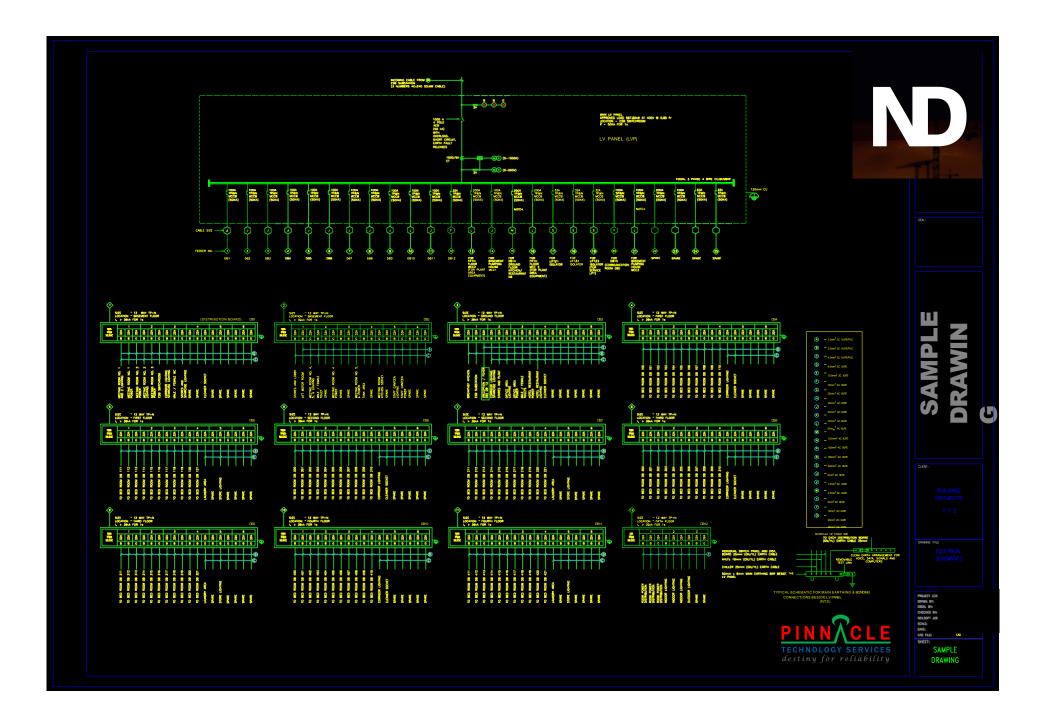
Gas Piping Layout Basement Floor



Electrical Schematic



Electrical Schematic



Lighting Layout Basement



Small Power Distribution Basement Floor



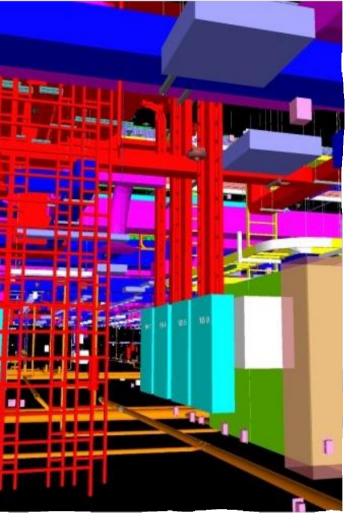
Plant Room Layout

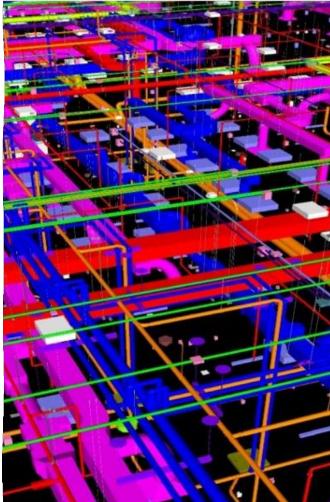




Building Information Modeling (BIM) **Projects**









KFSH Hospital, Saudi Arabia-

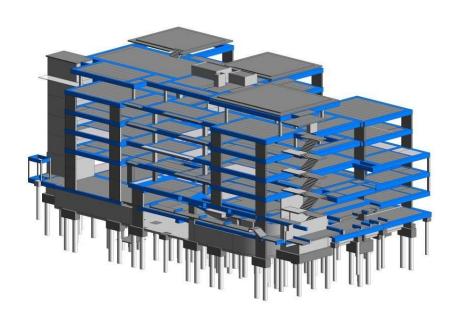
- Location-fiiyadh, Saudi Arabia.
- Area- 10,00,000 Sq. Ft.
- **Description-** The 3G0-bed Hospital for Cancer and Liver Disease, the National Biotechnology Center, a fioyal Wing, and the EMS Polyclinic Building.
- Scope of Work- Architectural, Structural, MEPF 3D Modelling, Clash Detection & fiesolution, MEPF Shop Drawing Creation, BOQ Calculations, 4D & 5D BIM Services during construction, AS Built Model & Drawing Updations.

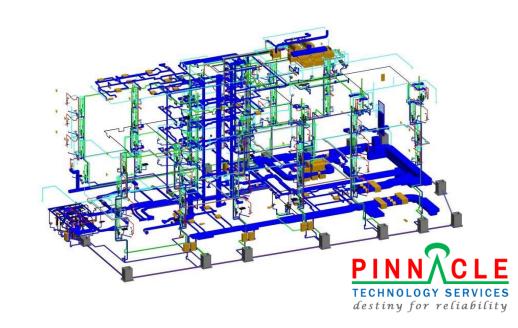
Bishan Nursing Home, Singapore-





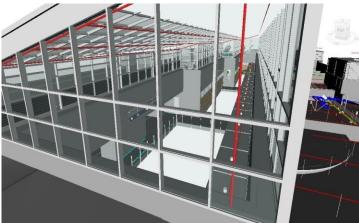
- Location-Singapore.
- **Area-** 70,000 Sq. Ft.
- Description- 6 Storey Building. 260
 Bedded Nursing Home.
- Scope of Work- Architectural, Structural, MEPF 3D Modelling, Clash Detection & Resolution, MEPF Shop Drawing Creation, BOQ Calculations, 4D & 5D BIM Services during construction, AS Built Model & Drawing Updations, Model Updations for Facility Management (6D).





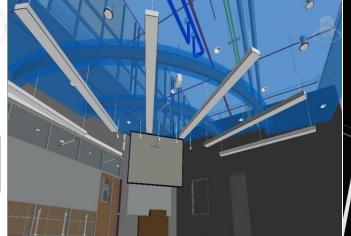
Community College, California-





- Location-Cupertino, California.
- Area- 666,900.Sq. Ft.
- Description- The Mediated Learning Center was designed to provide flexible general-purpose classrooms and labs, Distance Learning Center, technology and media resource center. With design intent to achieve LEED Platinum rating it was a very complicated project where there were a lot of compound angles in the shafts, changes in plane, and a lot of pieces and parts that had to be installed just right not just for the system to function properly, but because of access constraints as well. Using BIM on the project gave deep insight beforehand and made it easier for project team members to grasp the complexity of this building.
- Scope of Work- Architectural, Structural, MEPF 3D Modelling, Clash Detection & Resolution, MEPF Shop Drawing Creation, BOQ Calculations.



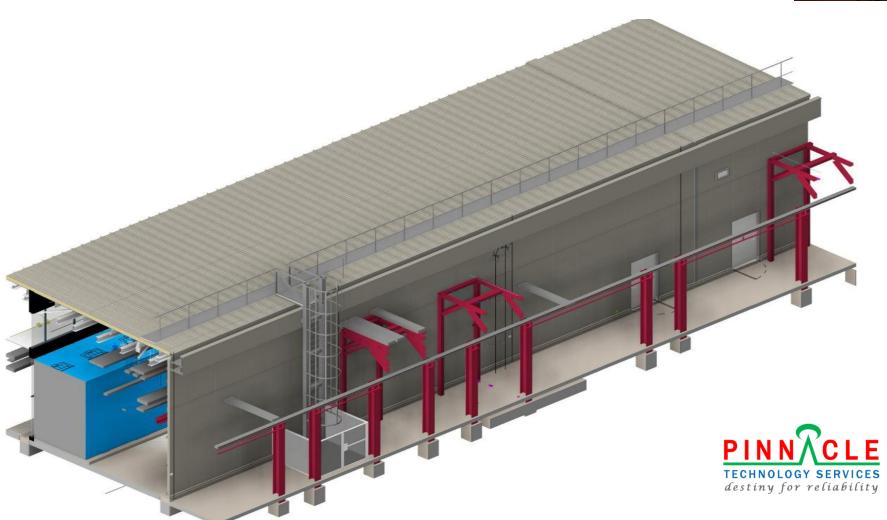






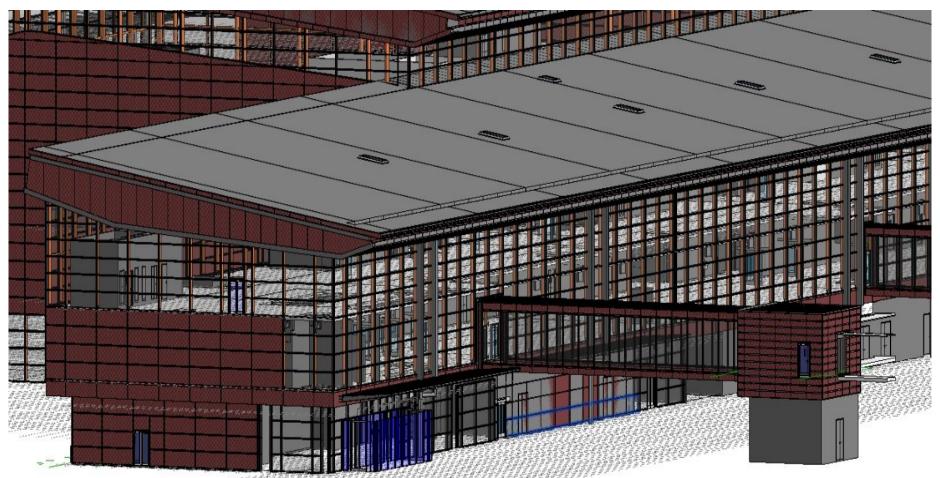
FAÇADE ENGINEERING SAMPLE-1



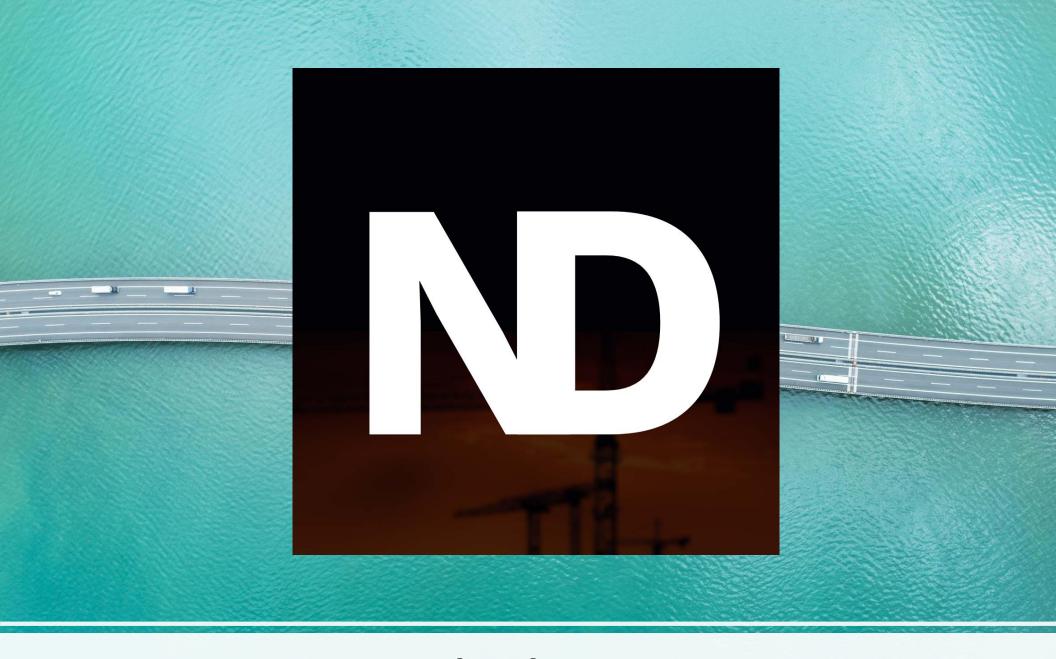


FAÇADE ENGINEERING SAMPLE-2









Thank You