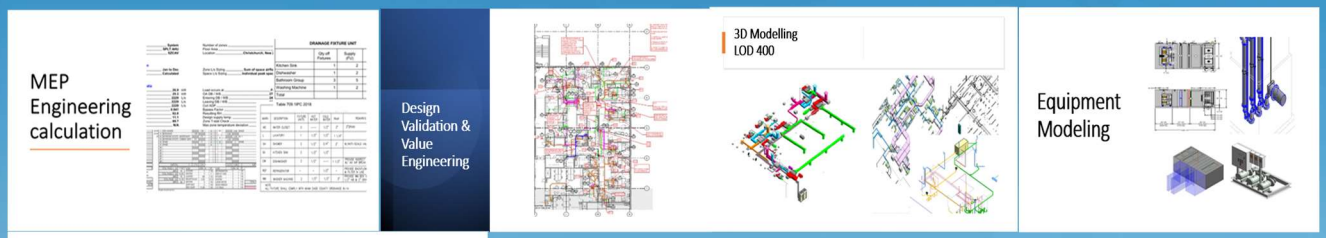
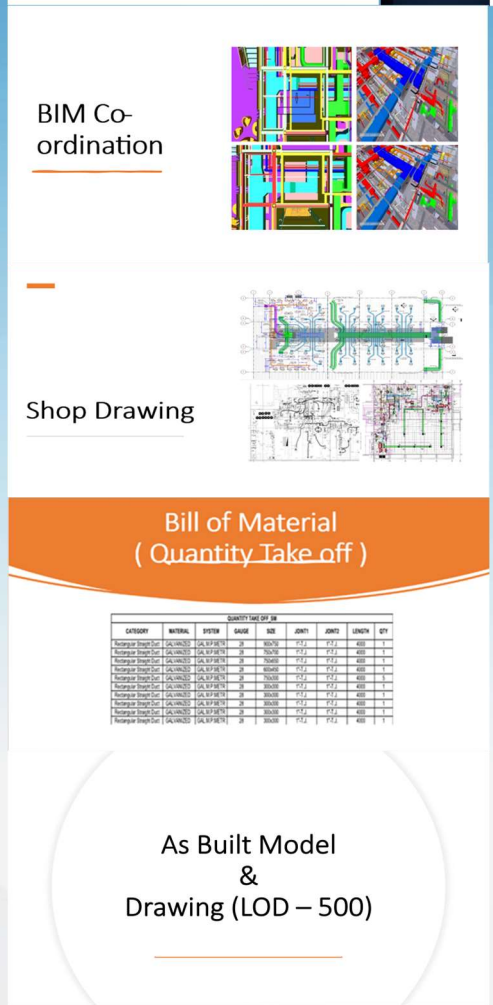
Year 2024-25

BIM Services

For

MEP SYSTEMS





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About us

DESIGN AND DRAWING SOLUTION offers BIM services MEP systems worldwide . Our MEP team is having good knowledge of International MEP engineering designs , Pre construction & construction document process & codes and guidelines .

We are familiar international BIM standard practice and requirement of MEP design for all type of buildings, Industrial warehouses & Infrastructure construction i.e. from Interior Fit outs, single family apartment, high rise apartment, commercial office buildings, hotels, restaurant, hospitals, School, College including infrastructure construction like Airport , metro stains etc.

Using our BIM and 2D CAD outsourcing services, our clients have numerous advantages i.e. including time and cost savings which are realized during the design phase and more importantly, during the installation and build stages of construction projects. We are certified Autodesk users and started in Mumbai, India from early 2018 and having our representative in US as well as channel Partner.

DESIGN AND DRAWING SOLUTION
ONE STOP BIM | CAD | MEP ENGINEERING SOLUTIONS

5+ Years' Experience

300+ Completed Projects

150+ Customer world wide

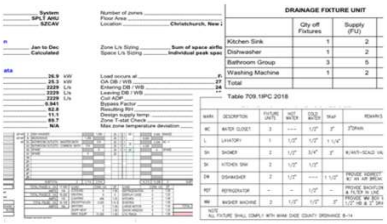
Building Types includes

- Interior Fit out for Commercial / Residential
- Bungalows /Residential Apartments
- High Rise Residential building
- Commercial IT / Banks
- Hotels
- Institutional Buildings like school, Libraries, Auditoriums
- Hospital
- Entertainment Zones, Malls and Multiplexe
- Data Centre
- Industrial ware house

MEP BIM Services we offer.

- MEP ENGINEERING CALCULATION
- DESIGN VALIDATION & VALUE ENGINEERING
- 3D MODELLING
- EQUIPMENT MODELLING
- BIM CO-ORDINATION
- SHOP DRAWING
- QUANTITY TAKE OFF
- AS BUIT DRAWING & MODEL

MEP Engineering calculation



MEP system consists of basically three systems Mechanical, Plumbing and Electrical including the Fire Protection system. In building, MEP engineering systems plays the major role parallel with the architect, structure from conceptual planning, detail designing stage to execution stage. All individual systems have its own sub system as follows.

Mechanical System
Mechanical ducting.
Mechanical piping.
Mechanical Ventilation

Plumbing System
Plumbing Drainage System
Plumbing Water Supply system

Fire protection System
Fire Hydrant System
Fire Sprinkler System

Electrical System
Lighting System
Power System
Fire Alarm:

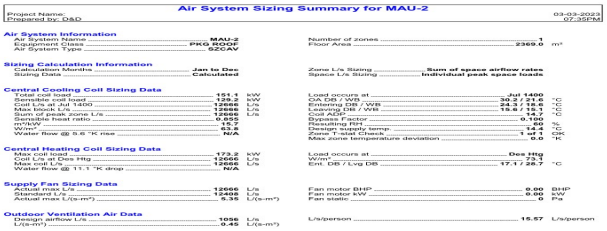
Specialized plumbing System:- In plumbing system Irrigation , Gas , Medical Gas , WTP (Water Treatment plant) , **Sewage** Treatment Plant (STP) , swimming pool systems considered as a specialized plumbing system .

MEP Codes and Standards we follow

MEP system contract/design drawings in strict compliance with contract specifications, technical submittals and the relevant codes which we use internationally.
Mechanical Codes
ASHRAE, ASME, ASTM, SMACNA
Plumbing Codes
IPC, ASPE
Electrical Codes
NFPA70 – NEC
Fire Protection
NFPA -1, 13, 14

MEP Engineering Calculation

Thermal Load calculation
As per the international standard and guidelines ASHRAE, ISHRAE standards, we do thermal load calculation through HAP which we use to deliver our clients


Air System Sizing Summary for MAU-2

Duct Sizing & Flow measurement
As per the ASHRAE standard, our engineering team calculate the duct size a per constant velocity method. Our team having the capability to evaluate the flow as per the project requirement. We also provide the proposed duct size as per the standard velocity method for any missing duct size of contract drawing.

L-2 OA INTAKE CONFLICT WITH JOIST

SR. NO	DESCRIPTION	NO OF DUCTS	OA DUCT SIZE	DUCT CROSS SECTIONAL AREA (SQ.INCH)	REMARKS
1	CURRENT SIZE	1	36"x110"	3960	
2	PROPOSED SOLUTION 1	2	38"x52"	3952	
3	PROPOSED SOLUTION 2	4	22"x46"	4048	

Plumbing drainage and water pipe sizing
As per IPC fixture chart and in line with friction chart, we do the drainage fixture calculation, drainage pipe size and water supply pipe sizing.

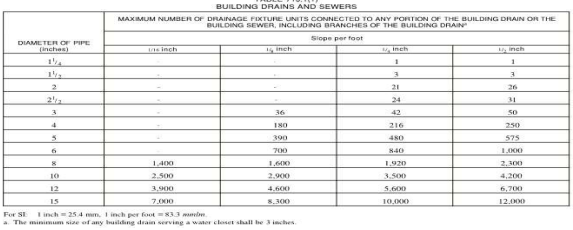


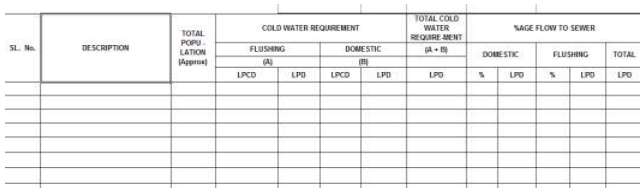
TABLE 710.1(1)
BUILDING DRAINS AND SEWERS

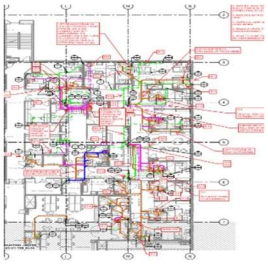
DIAMETER OF PIPE (inches)	MAXIMUM NUMBER OF DRAINAGE FIXTURE UNITS CONNECTED TO ANY PORTION OF THE BUILDING DRAIN OR THE BUILDING SEWER, INCLUDING BRANCHES OF THE BUILDING DRAIN[a]			
	Slope per foot			
	1/16 inch	1/8 inch	1/4 inch	1/2 inch
1 1/4	-	-	1	1
1 1/2	-	-	3	3
2	-	-	21	26
2 1/2	-	-	24	31
3	-	36	42	50
4	-	180	216	250
5	-	390	480	575
6	-	700	840	1,000
8	1,400	1,600	1,920	2,300
10	2,500	2,900	3,500	4,200
12	3,900	4,600	5,600	6,700
15	7,000	8,300	10,000	12,000

For SI: 1 inch = 25.4 mm, 1 inch per foot = 83.3 mm/m.
a. The minimum size of any building drain serving a water closet shall be 3 inches.

Pump Head Calculation
We do the pump head calculation through excel and through Pipe Net software as well in line with international standard process, codes and guidelines.

Electrical Cable size and voltage drop Calculation
We do electrical cable size and voltage drop calculation as per the schematic inline with NEC





Design Validation

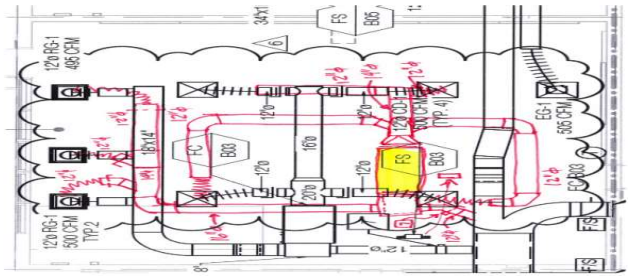
BIM enables the review of contract drawing and Specifications and validate the system to reduce the rework at later stage and increase the efficiency of BIM process. During the constructability review, our BIM team generates a series of RFI's with the proposed solution to help identify following type of constructability and operational issues before the actual 3D construction.

Missing pipe size and routing
Missing information / documents
Input inconsistencies
Conflicting data
Operation clearance issues
Maintenance access

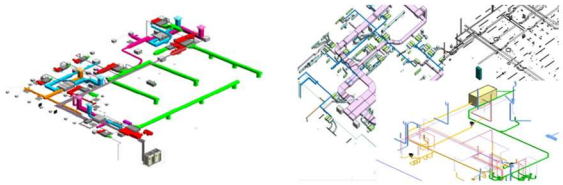
Value engineering (VE)

Virtual Construction of project in BIM enables Independent Review of the contract drawing in-line with requirement and technical specification we do internal value engineering with the following steps.

- Proposed re-rout with shortest distance for piping and ducting to reduce the material cost.
- Reduced the no of fitting and bends in the co-ordination.
- Optimization the design through constructability review.
- Reduce the duct size if require as per the specification and code.



3D Modelling
LOD 400



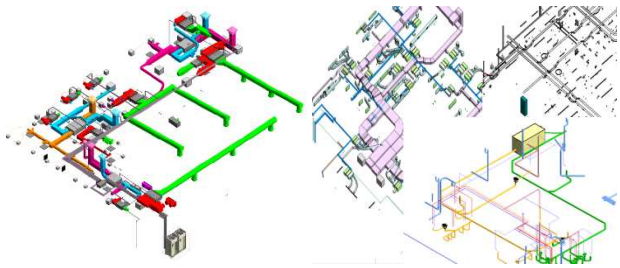
We create 3D models of ductwork; piping and electrical systems in order to make designed building more detailed an accurate and minimize design errors and unnecessary delays during construction. Our MEP Modeler having more than 10 years of experience in this MEP industry and can execute the all the models with the help BIM co-ordination process in fly zone as per our international standard.

Ducting: - as per standard process, we put the duct in the top of every system.

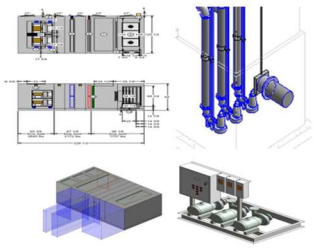
Cable Tray and conduit: - this also can be parallel to duct if space is available or can run below the ducting system.

Drainage piping (waste and vent piping): - Drainage piping also run at maximum height due to its slope nature.

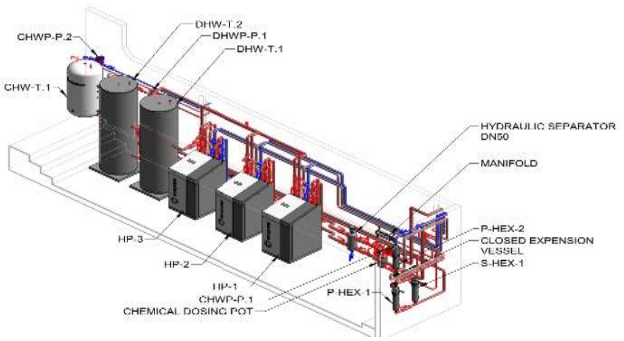
Plumbing & Mechanical pressure piping: - All pressure piping can run below the duct and cable tray as per standard practice



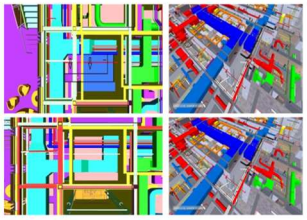
Equipment Modeling



We create 3D model of all the mechanical, plumbing and electrical equipment like, AHU, RTU, CU, FCU, VAV, Pump, Chiller, Fans, valves, transformer etc. from the manufacturer's 2D drawings and in line with specifications.

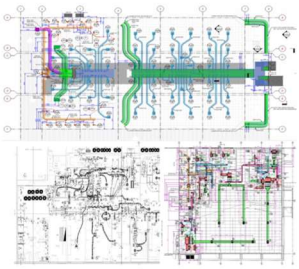


BIM Co-ordination

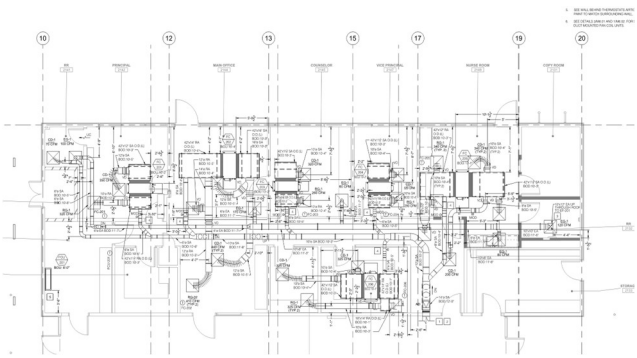


We generate a coordinated BIM model after resolving the clashes among all the trades (Architecture, Structure, Concrete, Mechanical, Electrical, Plumbing, Fire Protection, etc.).
Clashes are resolved through Webex meetings / sharing 3D clash snapshot. Clashes are resolved by re-routing utilities, changing elevation and re-sizing. Value Engineering is also offered to improve system efficiency, reduce costs and easier construction and maintenance.

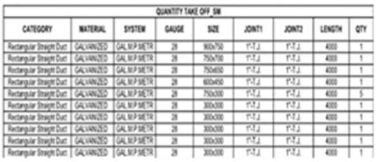
Shop Drawing



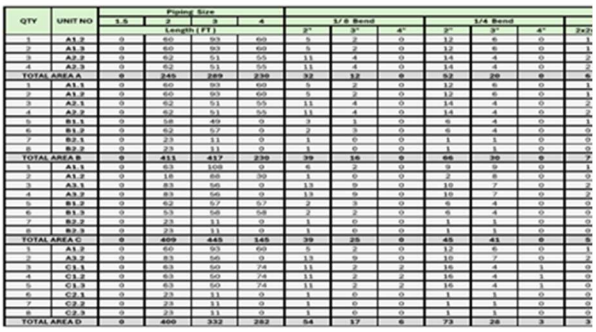
Shop Drawings are created based on project standards and are useful to contractors, fabricators, suppliers and manufacturers during construction. BIM is highly useful for construction of any irregular or complex structures. We generate accurate sleeves, penetration and hanger locations from the BIM model before start of construction. These drawings are generated directly from coordinated BIM models and are detailed enough for workshop fabrication and/or on-site construction. Advanced BIM tools help in revisions management.



Bill of Material (Quantity Take off)



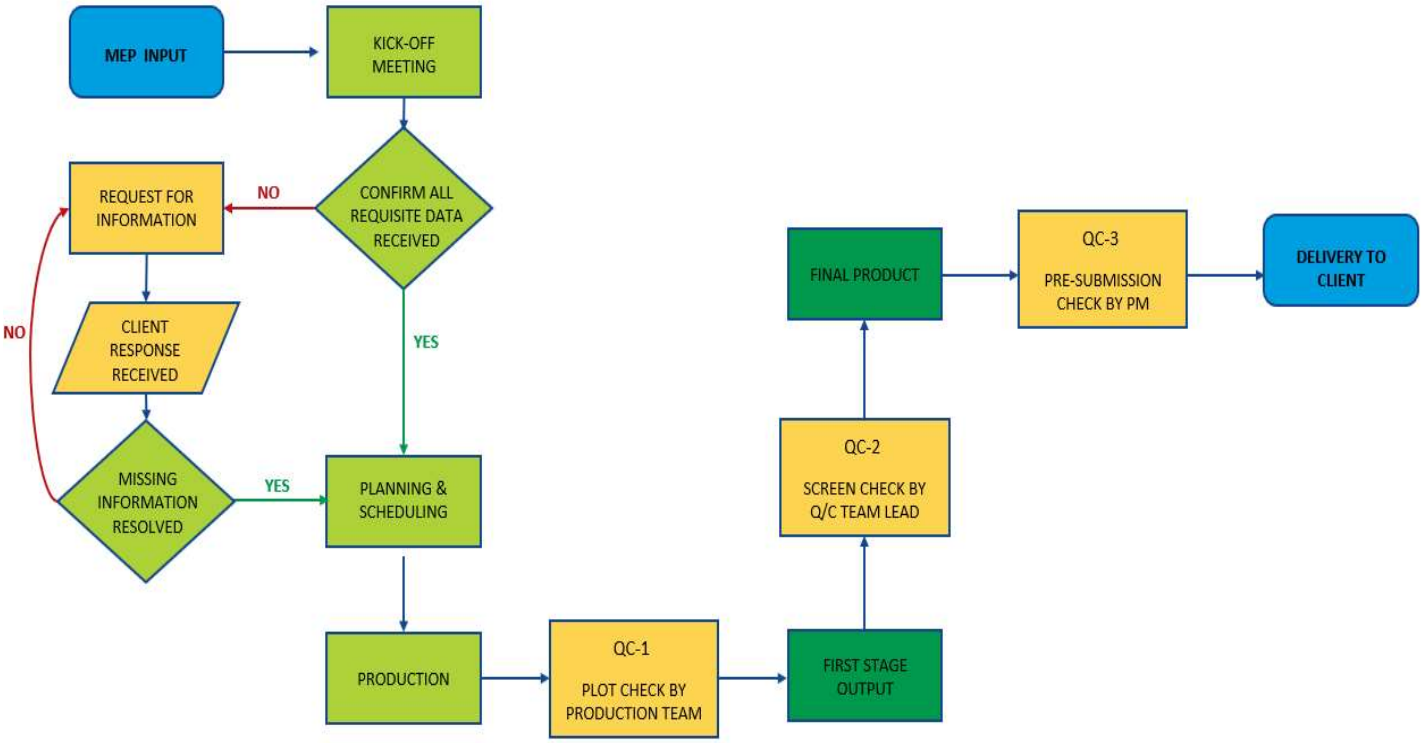
BIM model generates accurate quantity of all materials. These quantities are automatically updated with any changes in the BIM model. Quantity Take-Off (QTO) reports can be formatted in MS Excel and exported to a database for detailed analysis. Quantities can be generated for a specific time period or project area (4D/5D) to help manage material procurement and save inventory costs. It is an automated procedure on the MEP model and is 100% accurate as per the design.



As Built Model & Drawing (LOD– 500)

We do the model as per the mark-ups on the drawing and hand sketches from site team. Our BIM team update the shop drawing for final set of As Built drawings and 3D model.

BIM Execution Process



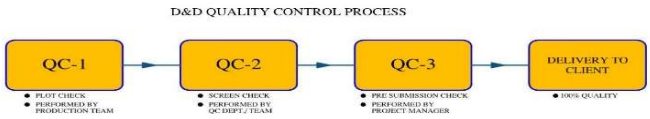
We use to implement our standard BIM/CAD execution process to deliver each and every project.

Stage 1: - We do kickoff meeting with our client for better understanding of the project to start.

Stage2: - We do project review, planning and prepare project specification checklist and delivery schedule and share with client.

Stage3: - We allocate our dedicated Team lead with team member inline with the services to start the production activities as per delivery schedule.

Final Stage: - We follow QC process in the execution process before delivered to the client. With the above process, we deliver the high-quality product to client.



Quality Check – 1

The model check is done comparing it with the original contract documents through Team Member.

Quality Check – 2

Team performs a more detailed comparison with specific checklist and project checklist the deliverables and main objective check the following Clashes (Old/New), Elevation, Routing, Fittings, etc. Construction point of view.

Quality Check – 3

The Project manager conducts the pre- shipment check before sending them to client.

Core Team

Irshad Ali Shaikh
CE0 – Co-Founder

Mr. Irshad Ali is the co-owner & founder of DESIGN AND DRAWING SOLUTION. He is having more than 15years of experience in Building services in construction Industry throughout AEC project execution process from Pre-construction, construction Processes like MEP engineering consulting, Designing, installation and handover process of the project.

He has completed BE in Mechanical Engineering from Pune University with Post Graduation in Project Management (PGPPM) from NICMAR Pune, India. In his small journey, he has successfully delivered the more than hundred BIM/CAD project for his satisfied client with the best quality and unique team effort.

He has experienced in all kinds of projects i.e., starting from Residential township, Commercial IT buildings and parks, Malls, High rise building, Hotel, Hospital & Institutional building. Including building Infrastructure projects like metro, airports, globally i.e. USA, Australia, New Zealand & India.

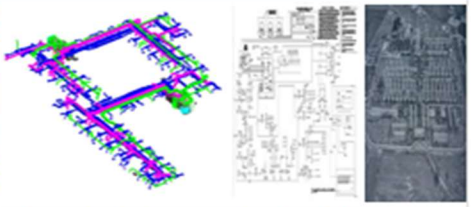
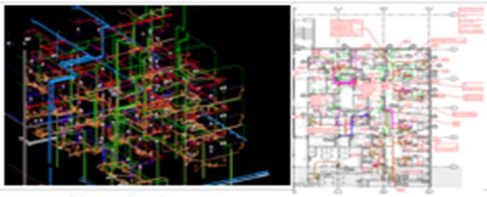
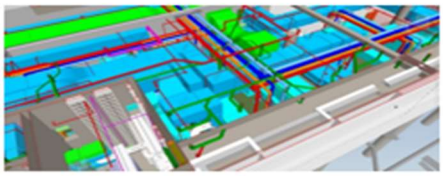
Karishma Bibi
Sales Head

She is the co-owner of DESIGN AND DRAWING SOLUTION and well experienced in offshore sales development initiatives. She is having a good knowledge of result-oriented sales development processes and customer retention. She is leading the complete sales team for B2B sales within the company and managing and monitoring the effectiveness of the entire sales cycle. She has implemented her interior design expertise to improve the technical expertise for client communication for offshore sales which helps her build a long-term relationship with new and existing clientele.

Rupam Mondal
Production Manager

He holds a Mechanical Engineering diploma form WBSCTE, India and having more than 7 years' experience in Building construction Industry for MEP engineering, Drafting, of 3D, 4D, 5D & 6D BIM service.
He is having expertise in MEP engineering calculation, with all Autodesk BIM/CAD tools like Revit, Fabrication, AutoCAD MEP, Navis works and AutoCAD and has complete knowledge of engineering and drafting services for all stages (Pre/post) of construction process.
He is working in DESIGNING AND DRAWING SOLUTION since from starting period of the company. With a short period of time, He has gained the managing process of the company, client communication, project management process and assisting with innovative (R & D) solution of new process, tools for new requirement of clients.

Project References

BIM Project Reference		
		
Bakers college Royal Oak Michigan , USA College	MEARTINSBURG VA MEDICAL CENTER Martinburg West Virgina, USA Health care facility	EMERLD ISLE POWAI Mumbai India High Rise Residential Building
		
Morgan Station Chicago, IL , USA Infrastructure - Utility	Sydney Metro SYDNEY Australia Infrastructure	Delhi International Airport DELHI India Infrastructure
		
Logan Hospital Meadowbrook Australia Health care	RACINE CONG Chicago, IL ,USA Infrastructure - Railway Station	Western sydney airport Badgerys Creek Australia Air port

Contact US

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