

MEP Engineering Services For MEP Systems

**PRECONSTRUCTION CONSULTING
MEP DESIGN AND ENGINEERING
DESIGN REVIEW AND CODES COMPLIENCES
SUSTAINABLE DESIGN
FEASIBILITY STUDY**

Mechanical/HVAC



Electrical



Plumbing



Fire Protection



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MEP ENGINEERING CODES AND CONSTRUCTION PROCESS

MEP Engineering Codes

MEP consists of basically three systems Mechanical, Plumbing and Electrical including the Fire Protection system. In building, MEP engineering systems plays the vital role parallel with the architect & structure from conceptual planning, detail designing stage and up to the execution stage. All individual systems having different codes & guidelines for designing and engineering analysis .

Mechanical System Codes - NBC , ASHRAE, ASME, ASTM, SMACNA , AS1668.2 – 2012, AS 4254.2-2012

Plumbing System Codes- NBC, IPC , ASPE , AS3500

Electrical System Codes - NBC NFPA70 – NEC

Fire Protection System Codes - NBC NFPA -1, 13, 1

Construction Process

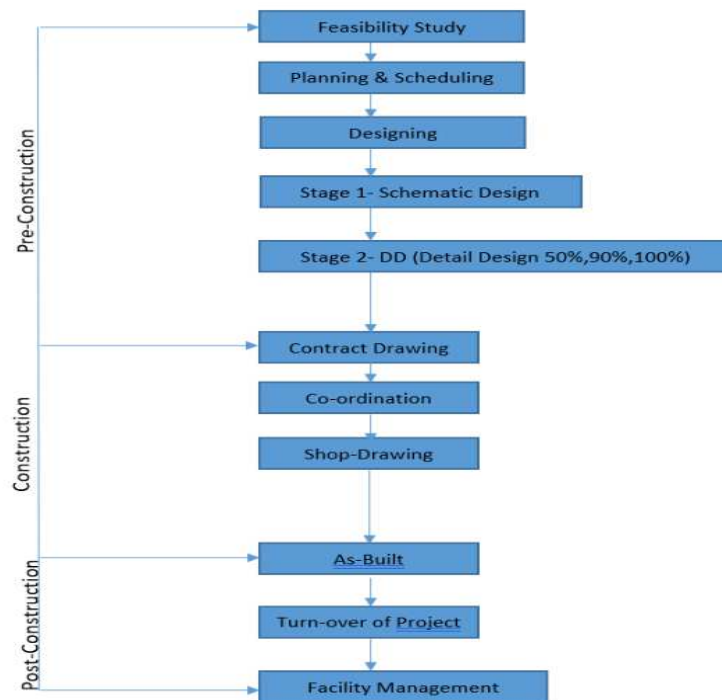
Pre – Construction – In this process includes the feasibility study , designing , planning and cover up to the project BID/Tender Stage .

In this stage basic involvement of Engineering firms or consultants .

Construction - This phase includes the co-ordination and production of shop drawing for installation of each accessories of MEP systems .

In this stage basic involvement of GC , Sub- contractors .

Post – Construction- This phase includes the turnover of projects (TOP) of documents and drawings and involvement of facility management (FM).



SERVICES WE OFFER

PRECONSTRUCTION CONSULTING

Project Time & Cost

MEP Drawing on our extensive development and MEP expertise, we provide detailed estimating to validate a proposed project. By producing a conceptual development budget before a client invests significant time and money pursuing a project, we enable them to focus their resources on the most promising opportunities and we dig deep to identify potential issues or misalignments with our client's goals.



Adding value early in the process

Drawing validation and value engineering can enhance project planning by providing detailed cost estimates and schedules as they advance through design and entitlements and this leads to identify cost or risk reduction opportunities.



MEP DESIGN AND ENGINEERING SERVICES

HVAC / Mechanical Engineering

Our Mechanical/HVAC engineering services apart is the high value engineering solution that best fits them for their specific project. Design And Drawing Solution (D & D) mechanical engineers strive to understand each owner's needs early in a project, then use their vast experience to identify a mechanical engineering solution that best fits those unique needs. Our mechanical engineers work closely with facility staff to integrate their design standards and equipment preferences into the solution, while also identifying value-added options for consideration when we deem appropriate. We work closely with the architect to document key elements that might impact engineering design, avoiding surprises later in the project.

We leverage design technologies such as BIM, energy modeling and several internally developed design tools to create engineered solutions that are uniquely Design And Drawing Solution . We pride ourselves on collaborating effectively with installing contractors, which results in systems which are both more constructible and maintainable. Mechanical Engineering services as follows .

- Analysis of Building thermal loads
- Energy Modeling
- Optimized Equipment selection
- Plant room layouts
- Schematics drawings - chilled water, condenser water system,
- Air Distribution system
- Heat Recovery & TFA.
- Chiller , Split AC , VAV, VFD
- Humidification and Dehumidification.
- Ventilation and exhaust system for basement .
- Smoke Extraction & Pressurization System
- Kitchen & Toilet Exhaust

Plumbing /Hydraulic Engineering

Design And Drawing Solution (D & D) is always coming up with the most practical and cost effective Plumbing /hydraulic design solutions when planning drainage , water and gas services for building project . Our Plumbing engineers have over 10 years' experience in the plumbing drainage ,water supply & gas systems. Their specialist experience puts them at the forefront of innovative design solutions for hydraulic design . Their focus – and a key motivation behind Fluid's success – is to ensure the plumbing design step is seamless for Architects, Construction Companies and Clients.

We leverage design technologies such as BIM and several internally developed design tools to create engineered solutions that are uniquely in Design and Drawing Solution. We pride ourselves on collaborating effectively with installing contractors, which results in systems which are both more constructible and maintainable. Plumbing engineering covers as follows

- Water Demand for Domestic, Flush water
- Hydraulic piping design for water supply and Drain
- Water tanks sizing
- Storm water systems with Harvesting technologies
- Drainage - Soil, Waste & Vent Systems
- Cold water systems
- Hot waster system
- Gas System

Special Plumbing System

STP – Sewage Treatment Plant

WTP – Water Treatment Plant

Swimming Pool treatment Plant

Medial Gas system

Fire Protection Engineering

Fire protection and life safety systems are an integral part in building design and Design And Drawing Solution provides innovative solutions for complex fire protection design challenges.

Our fire protection design engineers have spent many years perfecting their services by navigating the intricacies of building and fire code regulations through managing, handling and solving a variety of fire protection projects. D & D has a team Experience Engineers who provide code consulting for fire system design, hydraulics calculations .

Whether you are a building owner, insurance carrier, systems manufacturer, architect, developer, engineer or general contractor, Design and drawing solution Engineering services will help you identify savings and risks, keep you informed, save you time, and ensure code compliance.

Fire Fighting Systems

- Fire water capacity
- Fire Pumps
- Sprinkler System
- Hydrant system
- Water Curtains & Drencher Systems
- Gas Based , Foam Based protection system
- Fire Extinguishers
- Code compliance Assessment
- Fire Detection System

Fire Alarm System

- Public Address System
- Smoke Detection System

Electrical Engineering

Design and Drawing solution experienced electrical engineers understand the importance of balancing cost, reliability, and flexibility for future growth. Our ability to listen and collaborate with owners, architects, and facility staff helps us deliver a design that unites aesthetics and function.

We believe in being a partner with our clients throughout the entire project, from the beginning design concepts all the way through construction to the finish line. We strive to document all key elements for a complete engineering design helping avoid surprises later in the project. We value the importance of working with installing contractors to assure the constructability of our design.

We have a wide range of experience from small office renovations to high rise buildings, Office buildings , hotels , school to entire college campuses, which allows us to help our clients find the right solution to fit their unique needs. We understand that energy costs and sustainability are important to our clients. We leverage our experience with green building requirements and load analysis to determine opportunities for energy savings.

Electrical Engineering covers as follows

- Electrical Load Estimation
- Receiving Station and Substation Design
- Switch Gears and Panels
- Electrical Equipment's Selection like Transformer ,DG sets, AMF panel .
- Power Distribution (HT/LT)
- Lighting Design and Emergency Lighting
- Voltage drop, Short circuit calculations
- cable sizing and Breaker sizing and Bus Ducts.

- Distribution Boards
- Earthing systems
- Lightning Protection System.
- UPS & battery system
- Power factor correction systems
- Solar Power Plants and Distribution & Solar Lighting

Extra Low Voltage (ELV) Systems

- Telephones , Data
- CCTV System
- Access control Door system
- Integrated Building Management System

External / UG Utilities Engineering

Design and Drawing solution experienced MEP engineers understand the importance site utility systems with balancing cost, reliability, and flexibility for future growth. Our ability to listen and collaborate with owners, landscape architects, and facility staff helps us deliver a design that unites aesthetics and function.

Site Utilities means improvements and infrastructure that facilitate the distribution and collection of public utility services, including water facilities, fire hydrants, sanitary sewer facilities and stormwater facilities (including catchment, conveyance, treatment and storage facilities such as tanks and ponds. .

Basic site utilities covers with the following

- Designs of culverts
- Design of storm water drainage network integrated with Harvesting system
- Design of Sewer Network
- External Electrical System Designing
- Gas Network designing
- Fire-fighting designin

PROJECT METHODOLOGY

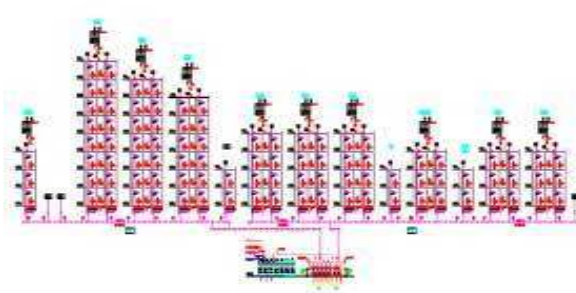
DBR & Schematic (Planning Stage)

The Intent of this Design Basis Report (DBR) of MEP systems is to descriptively provide the proposals of Design for Mechanical, Electrical, ELV, Plumbing & Fire Fighting Engineering services for the specific Project.

DBR is been prepared the complete basic information of proposed system for a particular building and project and always include the basic calculation like major equipment details like water tank, pumps .chiller & Transformer with DG .

DBR will have proposed MEP system brief with basic calculation & required schematic .

| Sr. No | Mechanical Calculation | Plumbing Calculation | Fire Protection | Electrical Calculation |
|--------|---|--|--|---|
| 1 | Heat Load Calculation , Equipment sizing and space clearances | Water demand Calculation , Tank Sizing , Equipment capacities and Space clearances | Water Demand , Tank Sizing , Equipment capacities and Space clearances | Electrical Load calculation , Equipment capacities and space clearances |
| 2 | Required Shaft /Cut-out Details | Required Shaft /Cut-out Details | Required Shaft /Cut-out Details | Required Shaft /Cut-out Details |



Detail Design Stage

Detail Design calculation

DD (Detail Design) stage is to describe the schematic with all the information line sizes and capacity of each elements of MEP systems. Design Engineering team use to produce the detail calculation for sizing with all unit capacity for drafting the detail drawings. Following calculations to be submitted in the process of detail engineering .

| Sr. No | Mechanical Calculation | Plumbing Calculation | Fire Protection | Electrical Calculation |
|--------|--|--------------------------------|----------------------------|---|
| 1 | Static Pressure Calculation for Mechanical Units | Pump Head | Pump Head | Detail Load report , Transformer , DG and DB sizing |
| 2 | Pump Head | Drainage Fixture , Storm drain | Sprinkler Pipe Sizing | Cable Sizing |
| 3 | Duct Sizing | Water supply Fixture | Pressure , PRV calculation | Voltage Drop |
| 4 | Pipe Sizing | External Drainage | Orifice plate Calculation | Short Circuit , Earthing Strip |

Detail Drawing (50 % & 100 % Detail Drawing)

DD (Detail Design) stage is to describe the schematic with all the information line sizes and capacity of each elements of MEP systems. Also to prepare the plans with all information like the size and routine with detail sections, required cutouts and capacities. MEP systems detail drawing always a package of plan, schematic drawings with detail calculation like pipe , duct size , pressure calculation and cable sizes etc. .Basically the MEP elements to specify in details plans and schematic.



BOQ with Specification (Tender Document)

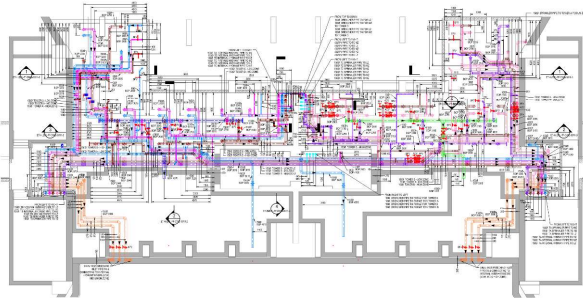
Approved DD drawings can be proceeded for quantification and tendering stages. Based on the approved Detail drawing, quantity of all elements of MEP systems generated which called BOQ (Bill of Quantity). And specify all equipment's, elements and accessories is called the specification. Tender package is always release with approved detail drawing & BOQ with specification.



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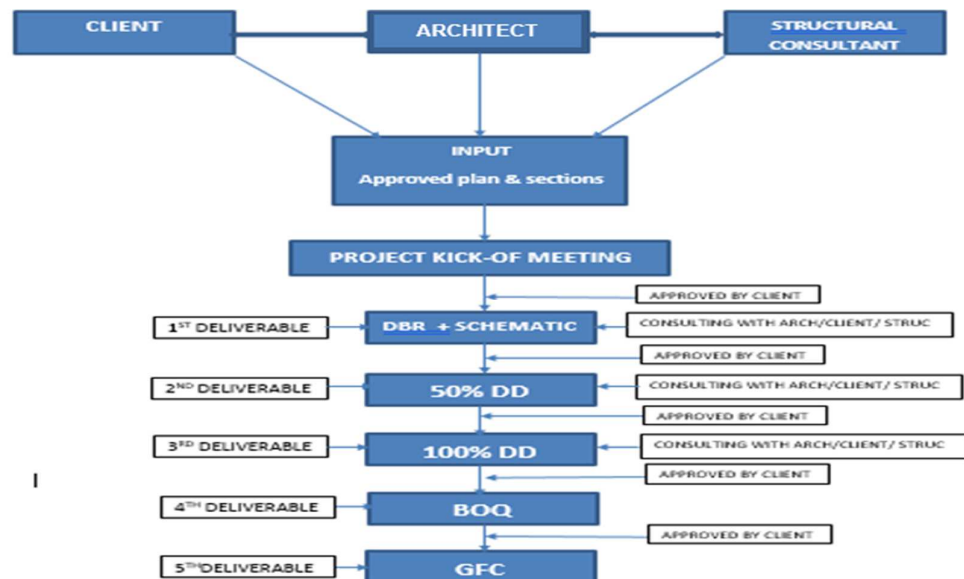
Shop Drawing

We generate accurate 2D shop drawing 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.

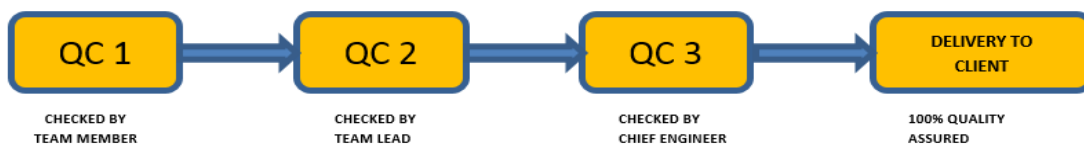


PROCESS WE FOLLOW

We have a international standard MEP Engineering Delivery Process, which has been prepared, based on our experience & expertise, which we follow for all the MEP projects, unless the project has other requirements. Below is a simple flow chart, which explains the process in detail.



QUALITY CONTROL



The main objective of the quality control (QC) process is to detect errors and rectify it. Ensuring quality is a team effort which is led by a highly qualified and experienced MEP manager for Coordination and Quality Control. The entire QC process is handled in three phases as mentioned above QC1,2 & 3

ABOUT CEO

Irshad Ali Shaikh is the Co-founder of the **DESIGN AND DRAWING SOLUTION** and 1st Generation Entrepreneur. He had worked with each role of MEP construction industry worldwide and accumulates the extensive 13 years of experience in **MEP design and drawing services industries**. He has researched the **USA, India & Gulf market AEC industry** and started to provide the **BIM /CAD & MEP Engineering services** to **US, Hawaii, Gulf and Indian clients** since early 2018.

He made the company presence in US through channel partner in New Mexico, **US**. 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 thirty BIM/CAD project for his satisfied client with the best quality and unique team effort.

He has brought the vision of BIM technologies with integration of MEP Engineering, Execution documentation process and built a professional team to provide the unique services for the clients.

He had engaged in his past career more than **100 different building Projects in Mumbai , Gulf and provide the services for prestigious Client like Indiabulls , Lodha , Oberoi , DLF , K Raheja ,Reliance & Architect like Sanjay Puri , Hafeez Contractor , Hiten Sethi , Qutubmandiwala etc**

Land mark project like – **IN Mumbai :- Sky towers , SBUT all clusters including Infrastructure , Airoli Mindspace , Relaince Twin Tower , Gulf – KKMC – 500 beds, Kingdom Tower .**

Previous Career

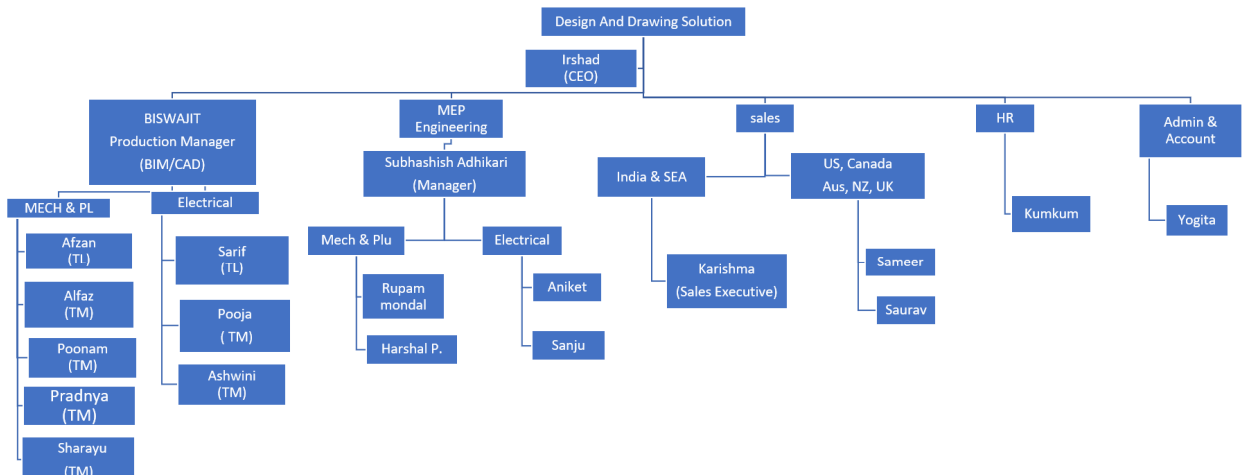
| | |
|--|------------------------|
| Company:- Pinnacle Infotech Designation:- Manger – MEP | Sept- 2015 to Feb 2018 |
| Company:- AECOM Designation:- Senior Project Engineer –MEP | Dec - 2012 to Aug 2015 |
| Company:- BLUESTAR Designation:- Senior Engineer – Planning & Sales | Feb- 2012 to Dec 2012 |
| Company:- MEP CONSULTING ENGINEERS Designation:- Senior Engineer – Plumbing& Fire fighting | Nov 2010 to Dec 2011 |
| Company:- ANIL VERMA CONSULTANT Designation:- Design Engineer – Plumbing& Fire fighting | March 2010 to Oct 2010 |
| Company:- CLANCY GLOBAL CONSULTING ENGINEER | April 2008 to Feb 2010 |

Previous Career Landmark MEP Engineering Project

| | | |
|----------------------------|---|--|
| Project Name | Sky Forest & Sky Tower | SBUP |
| Client /Location: - | Indiabulls /Mumbai, India | SBUT/Mumbai ,India |
| Images |  |  |
| Project Name | Airoli IT Park | Reliance Twin Tower |
| Client /Location: - | K RAHEJA /Mumbai, India | Reliance /Mumbai, India |
| Images |  |  |
| Project Name | KKMC Hospital | Kindom Tower |
| Client /Location: - | KKMC /Saudi Arebia | Jeddah Economic Company /Saudi Arebia |
| Images |  |  |

TEAM



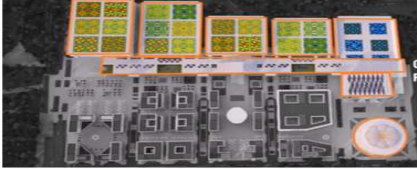

Organization CEO having the qualification of BE mechanical with Post Graduation in Project management (PGPPM) from NICMAR with more than 13 years of experience in the MEP systems and services. We have team of more than 15 members and all senior people having more than 5 years of experience in MEP industry project execution process. Our key team details are as follows .



PROJECT SNAP

Our team has executed more than 100 project throughout the world of MEP Engineering , BIM & CAD Services , few land mark projects are listed below from India , USA , Australia & New Zealand areas .

• Mumbai, India

| | | |
|----------------------------|---|---|
| Project Name | DIAL - PH -III | Eternia Tower |
| Client /Location: - | GMR / Delhi, India | Obero |
| GC / MEP contractor | L & T / Godrej | H Jasantra Engineering |
| Scope | BIM | Value Engineering & BIM |
| Project Type | Infrastructure - Airport | Highrise Residential Building |
| Images |  |  |
| Project Name | IICC Dwarka | HIAL |
| Client /Location: - | DMICDC / Delhi, India | GMR / Delhi, India |
| GC / MEP contractor | L & T / Godrej | L & T / Godrej |
| Scope | BIM | BIM |
| Project Type | I Conventional & Expo Centre | Infrastructure - Airport |
| Images |  |  |

• USA





| Sr No | Project Name | Location | Project Type | Area (SFT) | Year |
|-------|----------------------------|----------|-----------------------|--------------|---------|
| 1 | Laybal CMC | CA, USA | Hospital | 40000 | Running |
| 2 | Villa Sendero | NM, USA | Residential Apartment | 85000 | Running |
| 3 | Tremont | CO, USA | Residential Apartment | 48000 | Dec-20 |
| 4 | Sheridan Station Apartmets | CO, USA | Residential Apartment | 30000 | 20-Sep |
| 5 | Madera_Apartments | NM, USA | Residential Apartment | 105000 | May-20 |
| 6 | York_Street_Apartments | CO, USA | Residential Apartment | 48500 | Mar-20 |
| 7 | 29th Corner Flats | CO, USA | Residential Apartment | 30000 | Sep-19 |
| 8 | 12 Pack Flats | CO, USA | Residential Apartment | 30000 | Sep-19 |
| 9 | Wilson Industrial | NM, USA | Residential Apartment | 43000 | Sep-19 |
| 10 | VIZCAYA III | NM, USA | Residential Apartment | 45000 | Apr-19 |
| 11 | ABQ CHRISTIAN SCHOOL | NM, USA | SCHOOL | 20300 | Apr-18 |
| 12 | ZHA IHS Housing | NM, USA | Residential Apartment | 13000 | Jun-18 |
| 13 | Makah Housing | NM, USA | Residential Apartment | 18000 | Jul-18 |






• Australia & New Zealand

| Sr. No | Project Name | Location | Project type | Area (SFT) | Year |
|--------|-----------------------------|---------------------------|-----------------------|------------|---------|
| 1 | Stenly Student Accomodation | Auckland , New Zealand | Residential Apartment | 90000 | Running |
| 6 | ADHB | Auckland , New Zealand | Healthcare Facility | 10000 | Nov-20 |
| 7 | Hotham | VIC, Australia | Residential Apartment | 10500 | Nov-20 |
| 3 | 49 Brunel St | VIC, Australia | Residential Apartment | 12000 | Sep-20 |
| 5 | East School | Christchurch, New Zealand | School | 15000 | Jul-20 |
| 2 | Avonbury | VIC, Australia | Residential Apartment | 11000 | Jul-20 |
| 1 | 42 Draper St | VIC, Australia | Residential Apartment | 12000 | Mar-20 |
| 4 | Tekapo Retail | Christchurch, New Zealand | Retail Building | 13500 | Jun-20 |
| 8 | Sydney Metro | Sydney, Australia | Metro | NA | Mar-20 |

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| | |
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