We are focusing and capable to deliver Design and Detailed Engineering of any project for the following areas

- Piping System - High Pressure & Low Pressure Steam, Water and Utility system
- Fire Fighting System
- Water Treatment Plants/Sewage Treatment Plants
- Horizontal & Vertical Storage Tanks
- HVAC System
- MEP System
Expertise and Deliverables

- Design Basis Report for Utility Piping System
- Pump Sizing Calculation
- Piping Size calculation
- Pipe Thickness Calculation (ASME B31.1, AWWA M11, ASME B31.3, etc.,)
- P&IDs and Control Philosophy / Operational Write-Up
- Equipment Layout Preparation
- Piping Layout – Above ground / Under Ground (We done up to Pipe Size – 2600 NB)
- GRP Piping Layout & Carbon Steel Piping Layout
- Piping Stress Analysis – CAESAR- II
- Piping Support Calculation – Zick Analysis
PIPING SYSTEM

Continue….

- 3D Modeling of Piping Layout
- Steam Piping - Low Pressure, Medium Pressure, High Pressure Steam Piping Layout & Stress Analysis as per ASME B 31.1
- DM Water Piping, Instrument Air Piping, Service Air Piping, Blow Down Piping, N-Pit Piping
- Pipe rack Piping Layout and BOQ preparation
- Isometric drawings with BOQ preparation
- Preparation of Technical Specification including Data Sheet for various equipment/system
- Preparation of Miter Bend Fabrication drawing as per AWWA C 208
- Preparation of Complete BOQ – Pipes, Valves, Fittings etc.,
- Vetting/Reviewing of Vendor documents / drawings
**FIRE FIGHTING SYSTEM**

**Expertise and Deliverables (As per TAC/NFPA/NBC)**

- P&ID of Fire Water Pump House
- Composite layout HYDRANT and SPRAY System
- Fire Escape Hydrant / Internal Hydrant
- Schematic diagram for HVWS system
- Layout of HVWS system for Transformers/Reactors
FIRE FIGHTING SYSTEM

Continue….

- Schematic diagram for MVWS system
- MVWS system for Oil Storage Tank/Farm & Solid Fuel Conveyors
- P&ID for FOAM system
- Fixed foam system for Oil storage tank
- HYDRAULIC calculations
- Fire Alarm & Detection System
SCHEMATIC OF DELUGE VALVE FOR AUTOMATIC
HVW SPRAY SYSTEM TRANSFORMER
SCHEMATIC FOR MVWS SYSTEM - SAMPLES

SCHEMATIC OF DELUGE VALVE FOR AUTOMATIC MVW SPRAY SYSTEM HFO & LDO TANK
P&ID FOR FOAM SYSTEM - SAMPLES
FIXED FOAM SYSTEM FOR HFO/LDO STORAGE TANK - SAMPLES
MVWS FOR CONVEYORS

Typ. Cross Section Conveyor
Gallery for Ground Portal

Section YY
**HYDRAULIC CALCULATIONS**

**DESIGN INFORMATION**

Waterspray System

<table>
<thead>
<tr>
<th>Pipe Type</th>
<th>Lining Type</th>
<th>Thickness (milli.m.)</th>
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<tbody>
<tr>
<td>9</td>
<td>IS:1239 Part 1</td>
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<tr>
<td>10</td>
<td>IS:3589, GR 410, 6.3</td>
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Design to NFPA Rules

Using the Hazen-Williams Equation

Velocity Pressure Model: NFPA formula

Pressure loss at entrance: Ignore

Pressure loss at entrance: Ignore
ELECTRICAL SYSTEM – FIRE ALARM SYSTEM
FIRE DETECTION SYSTEM CONVEYORS

ELEVATION FOR CONVEYOR 1A/1B
FIRE DETECTORS
Expertise and Deliverables

- Scheme arrival of WTP/ETP based on the water/effluent analysis
- Preparation of PFD
- Preparation of DBR & P&ID
- Preparation of Basic Sizing of Various Equipment like Clarifier, Tanks, Pumps, Blowers, Dosing system, PSF/MGF/DMF, UF, RO and MB vessels
- Preparation of Technical Specification including Data sheet for Various equipment
- Reviewing Vendor Documents/Drawings
- Updating of Layouts and Preparation Piping Layouts
- Piping cum Valve Schedule preparation
- Pressure drop Calculation
Expertise and Deliverables

- Design Calculation as per API 650
- GA Drawing
- Fabrication Drawing
- Shell Plate arrangement drawing
- Bottom Plate arrangement drawing
- Roof Plate arrangement drawing
- Rafter Design & Analysis
- Stair Case Drawing
- Nozzle Detector
HVAC- Expertise and Deliverables (As per ASHARE)

- Heat Load Calculation
- HAP Analysis
- Ducting Layout
- Chiller Circuit Layout
- AHU Unit
- Exhaust/Supply/Roof Extractor air Ventilation system
- Air Conditioning Selection and Layout preparation (Split AC/VFR type)
Electrical - Expertise and Deliverables

- SLD preparation
- Cable Sizing
- Cable Routing Layout
- Earthing & Lightening Protection Layout
- Lighting and Socket layout
- Conduit Plan
- Switchboard Schedule
- Sizing and Layout of Fire Alarm Panel & Detectors
Design of Plumbing as per NBC/IPC

**Plumbing- Expertise and Deliverables**

- Water Supply (Including Pumping) Design & Layout
- Sewage/Sanitary System Design and Layout
- Flushing water Design & Layout
- Cold Water & Hot Water Circuit
- Swimming pool and Gardening system layout
- Preparation of Bill of Materials
Thanking You

“Life is Engineering
Dream it and Experience It“