

LETSDESIGN ENGINEERING

Structural Engineering Capability Profile



Analysis. Strength. Stability. Serviceability.

Conceptual Khemnichak frame response with bending-moment visualization

Illustrative engineering graphic - not a calculated stress result or design output

THREE-PHASE PROFILE

01 Technical project case studies

02 Engineering assignments and design checks

03 Client and project experience

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B.Tech Civil Engineering, DCE (2010) | M.Tech Structural Engineering, DTU (2015)

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METRO & STEEL

HUDA METRO STATION - FIRST EXTENSION



PROJECT VISUAL FROM COMPANY RECORD

Steel staircase and escalator-support structure developed for gravity, imposed, wind and lateral actions. The framing geometry and connections were coordinated with the architectural form, while member strength, stability and serviceability deflection were checked to the relevant provisions of IS 800 and IS 875.

ENGINEERING EMPHASIS

Strength | stability | architectural coordination | deflection | connection detailing

KOHAT ENCLAVE FOOT-OVER BRIDGE



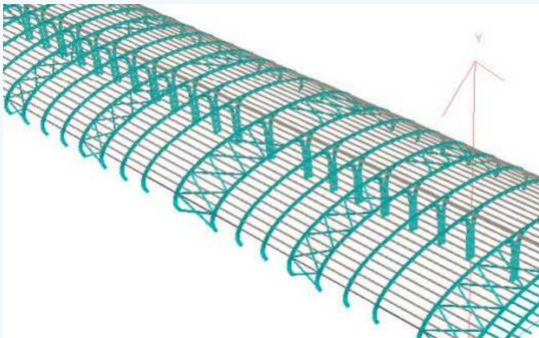
PROJECT VISUAL FROM COMPANY RECORD

Pedestrian bridge connecting the station building with the metro parking area. Design addressed pedestrian loading, wind action, member and connection strength, controlled deflection, movement and expansion-joint planning under relevant IRC provisions and IS 800. Structural designs and drawings were approved through Metro Bhawan.

ENGINEERING EMPHASIS

Pedestrian loads | deflection | movement joints | approvals | constructible detailing

METRO STRUCTURES



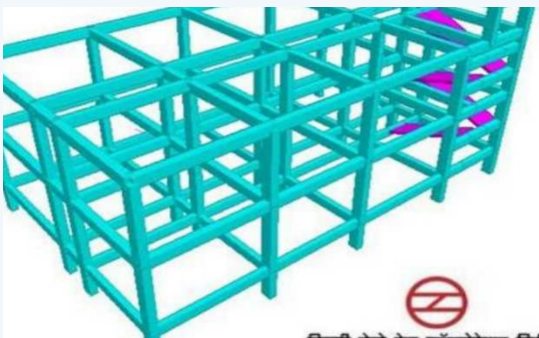
PROJECT VISUAL FROM COMPANY RECORD

KHEMNICHAK METRO STATION - PATNA

Curved steel station-roof framing checked for gravity, wind and seismic actions. Structural work focused on member stability, load transfer, deflection control, connection behaviour and expansion-joint planning under IS 800, IS 875 (Part 3) and IS 1893, together with project-specific metro criteria.

ENGINEERING EMPHASIS

Wind and seismic response | curved framing | stability | connections | expansion joints



PROJECT VISUAL FROM COMPANY RECORD

QUTAB MINAR METRO - CREW CONTROL BUILDING

RCC crew-control building designed to relevant Indian Standards and DMRC project criteria. The analysis considered gravity, earthquake and wind load combinations; member strength, storey drift, deflection, ductile detailing and movement-joint requirements under IS 456, IS 1893 and IS 13920.

ENGINEERING EMPHASIS

RCC strength | drift | ductile detailing | serviceability | foundation load transfer

Hand-Picked Clients & Assignments

Selected structural-engineering work with the assignment delivered for each client

DMRC

METRO INFRASTRUCTURE

HUDA station extension, Kohat Enclave foot-over bridge, Khemnichak curved station roof and Qutab Minar crew-control building - steel and RCC analysis, design and drawings.

SOLARWORLD - NTPC PROJECT

250 MW BIKANER SOLAR

Tracker pile-foundation calculations and drawings, revision for 300 mm pile diameter, consolidated pile schedule and comparison submission.

SOLARWORLD - SJVN PROJECT

50 MW ASSAM SOLAR

Main and switchyard gate structural design, sliding-gate revision, foundation details, client-comment closure and storm-water drainage design/layout.

MES

EDUCATION BLOCK - HYDERABAD

RCC structural design and drawings, third-party vetting coordination, AutoCAD deliverables, BOQ and estimate for departmental execution.

TATA MOTORS BODY SOLUTIONS

DHARWAD INDUSTRIAL PLANT

LCV Jigs Area Shop extension and low-height shed; review of existing PEB/foundation information and preparation of updated anchor-bolt and GA drawings.

CPWD / DRDO

GOVERNMENT & DEFENCE

Structural engineering and design proof-checking experience for government, institutional and defence-related assignments.

SAVITAR

NAVAL / UNDERSEA APPLICATION

Specialized structural-engineering assignment associated with an undersea sonar system for naval application.

SELECTED INDUSTRIAL CLIENTS

STEEL, SOLAR & INDUSTRIAL

KEC International / MSIL carport verification; Honda Motorcycle; India Expo Mart; Manitou; and Asahi India Glass warehouse-shed proof checking.

Major Engineering Services

Broad engineering heads taken on board from investigation through detailed design



STEEL STRUCTURES

Industrial sheds, trusses, platforms and connection systems.



RCC STRUCTURES

Buildings, slabs, walls, tanks, chimneys and reinforcement.



BRIDGES & FOOT-OVER BRIDGES

Bridge and FOB analysis, bearings, movement and serviceability.



GEOTECHNICAL INVESTIGATION

Boreholes, soil parameters and foundation recommendations.



HYDROLOGY & DRAINAGE REPORTS

Catchments, runoff, drain sizing and site drainage layouts.



SOLAR & POWER INFRASTRUCTURE

MMS, piles, MCR/control buildings and plant infrastructure.



STRUCTURAL ASSESSMENT

Capacity checks, solar loading and strengthening.



PROOF CHECKING

Independent review of models, calculations and drawings.



FOUNDATIONS & SPECIAL STRUCTURES

Rafts, piles, machine foundations and special structures.

Relevant Standards Applied as Required

IS 456:2000

Plain and reinforced concrete

IS 800:2007

General construction in steel

IS 875 Parts 1-5

Dead, imposed, wind and special loads

IS 1893 (Part 1):2016

Earthquake-resistant design criteria

IS 13920:2016

Ductile detailing of RCC structures

IS 1904 / IS 2911

General and pile foundation requirements

IS 2974 series

Machine foundations

IS 6533 / IS 4998

Steel and RCC chimneys

IS 3370 series

Concrete structures for retaining liquids

IS 801:1975

Cold-formed light-gauge steel members

Relevant IRC provisions

Bridge loading and foot-over bridge requirements

NBC 2016

Building safety and structural provisions

And other relevant Indian Standards, IRC provisions and client specifications, as applicable.

DESIGN OF TALL CHIMNEY FOR THERMAL POWER PLANT

Karan Dhall

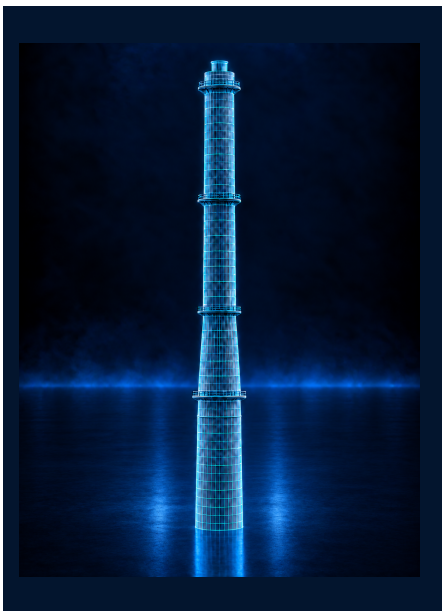
Delhi College of Engineering, India

International Journal for Research in Applied Science & Engineering Technology (IJRASET)

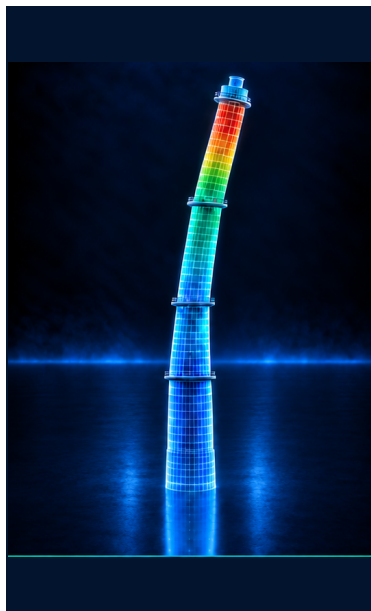
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MODAL RESPONSE UNDER HORIZONTAL WIND ACTION

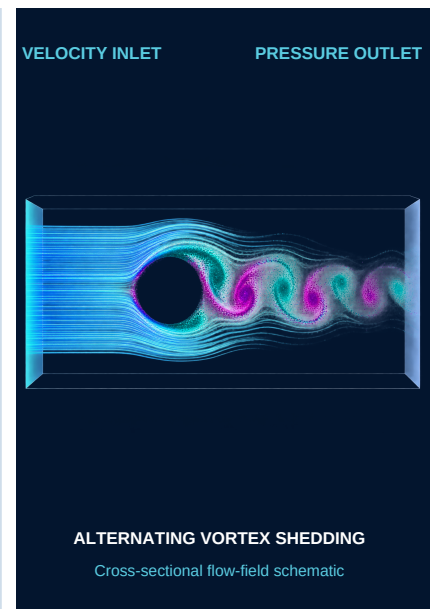
UNLOADED FEM MODEL



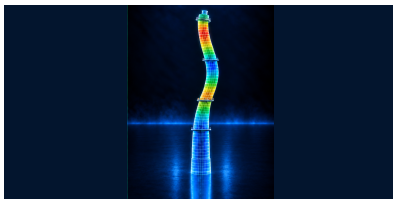
MODE 1 - FEM RESPONSE



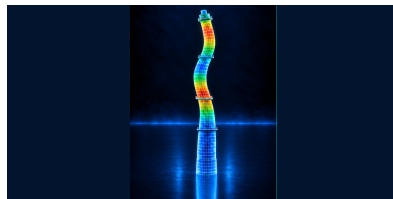
CFD WIND DOMAIN



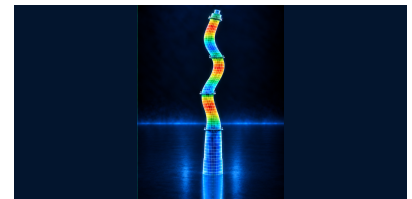
MODE 2 - ONE NODE



MODE 3 - TWO NODES



MODE 4 - THREE NODES



ENGINEERING INTERPRETATION - FEM AND CFD

The unloaded reference follows the published elevation: 14.0 m outside diameter from 0-16 m, a trapezoidal taper to 10.1 m between 16-58 m, and a constant 10.1 m circular shaft to approximately 145.5 m. The quadrilateral plate mesh represents shell-element discretization used in finite-element analysis to resolve deformation and stress/result variation. Mode 1 is the fundamental response; Modes 2-4 introduce successive nodes and curvature reversals. The RCC shell mesh begins at finished ground level; its raft and foundation continue below ground and are intentionally excluded from this elevation. The separate CFD domain indicates a velocity inlet, pressure outlet and alternating wake associated with vortex shedding. Contours and flow fields are engineering schematics, not extracted results.