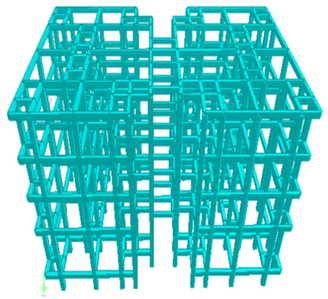
LDRP-ITR, 2019. B.E. CIVIL ENGINEERING

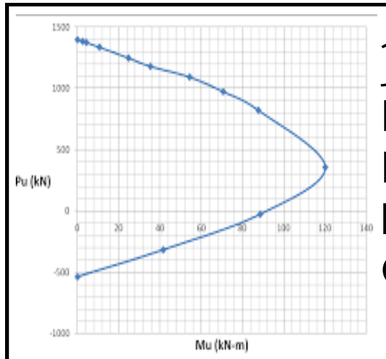
AMEY GADKARI

PORTFOLIO

P R O J E C T S

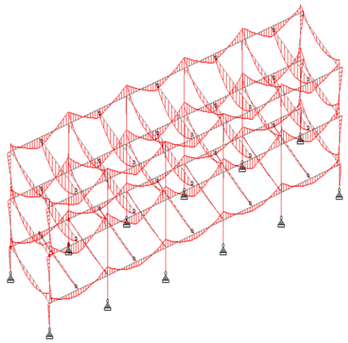


1
Analysis and Design of G+3 R.C.C. Building



3
Development of P_U-M_U Interaction Curves

5
Case Study of Precast Concrete Structures



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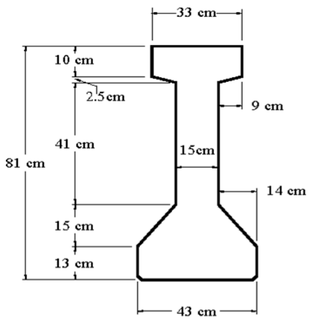
Cost Comparison based on Structural System



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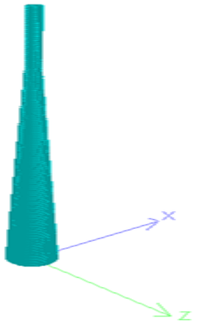
Comparative analysis of R.C.C. and Prestressed Girder

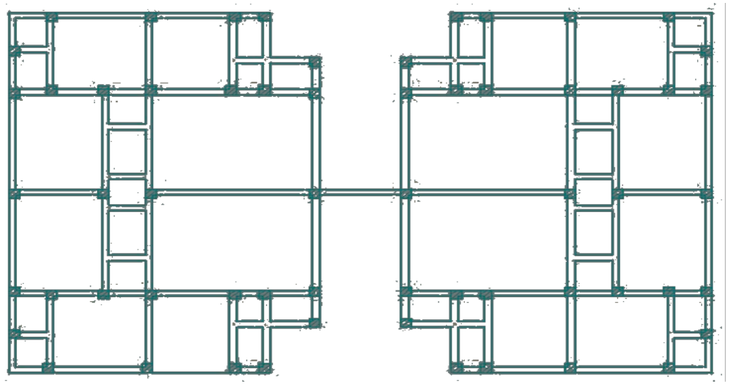


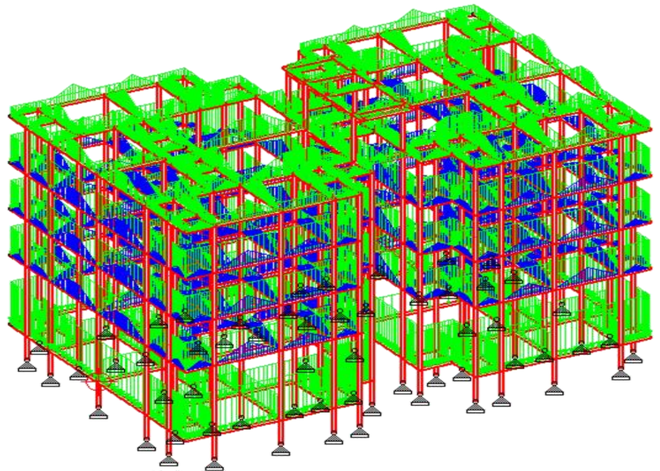
6
Analysis and Design of Tall R.C. Chimney

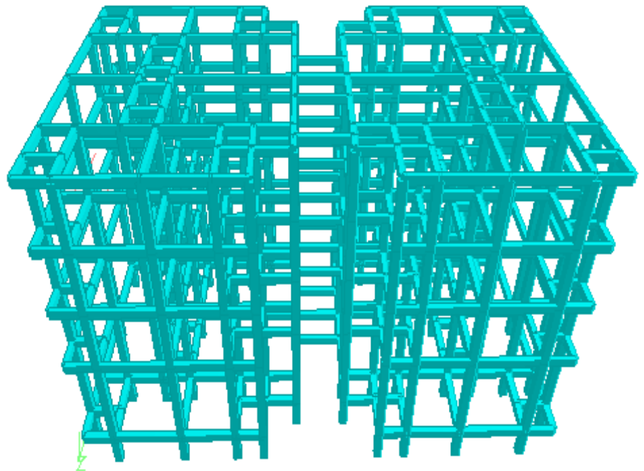
ANALYSIS AND DESIGN OF G+3 R.C.C. BUILDING

MANUAL AND SOFTWARE ANALYSIS DESIGN IN ACCORDANCE WITH I.S. 456 : 2000

The project was initialized by acquiring the architectural plans and developing a suitable structural layout. Based on the data provided, the loads to be considered for analysis and design were determined. Sequential analysis of components was carried out manually first and then using Staad Pro V8i. The designs were done using the limit state method following the guidelines given in I.S. 456: 2000. Microsoft Excel was used extensively to aid in the process.



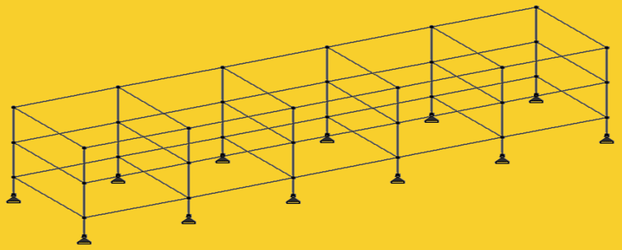


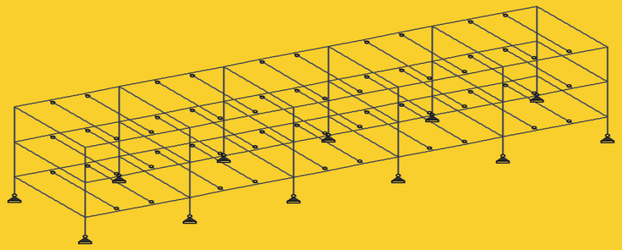


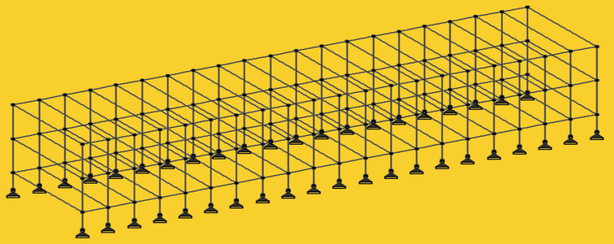
COST COMPARISON BASED ON STRUCTURAL SYSTEM

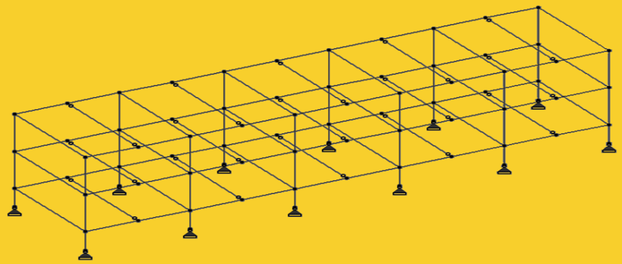
MANUAL AND SOFTWARE ANALYSIS DESIGN IN ACCORDANCE WITH I.S. 456 : 2000

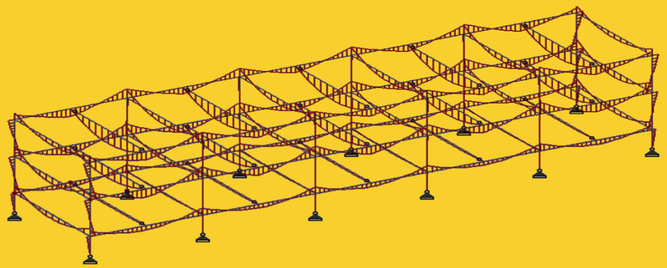
Six different structural systems were developed for the same architectural layout of an assembly hall.
The major motive behind undertaking this project was to understand the variations in economic considerations based on structural system variation.
Sequential analysis and design as per I.S. 456: 2000 of components was carried out using Staad Pro V8i and Microsoft Excel.
The quantities of materials were calculated considering the current market rates and comparison between all the six structural systems was done.

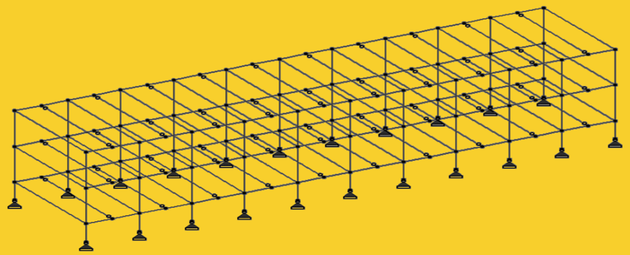


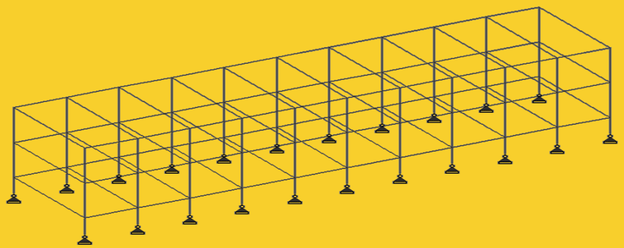








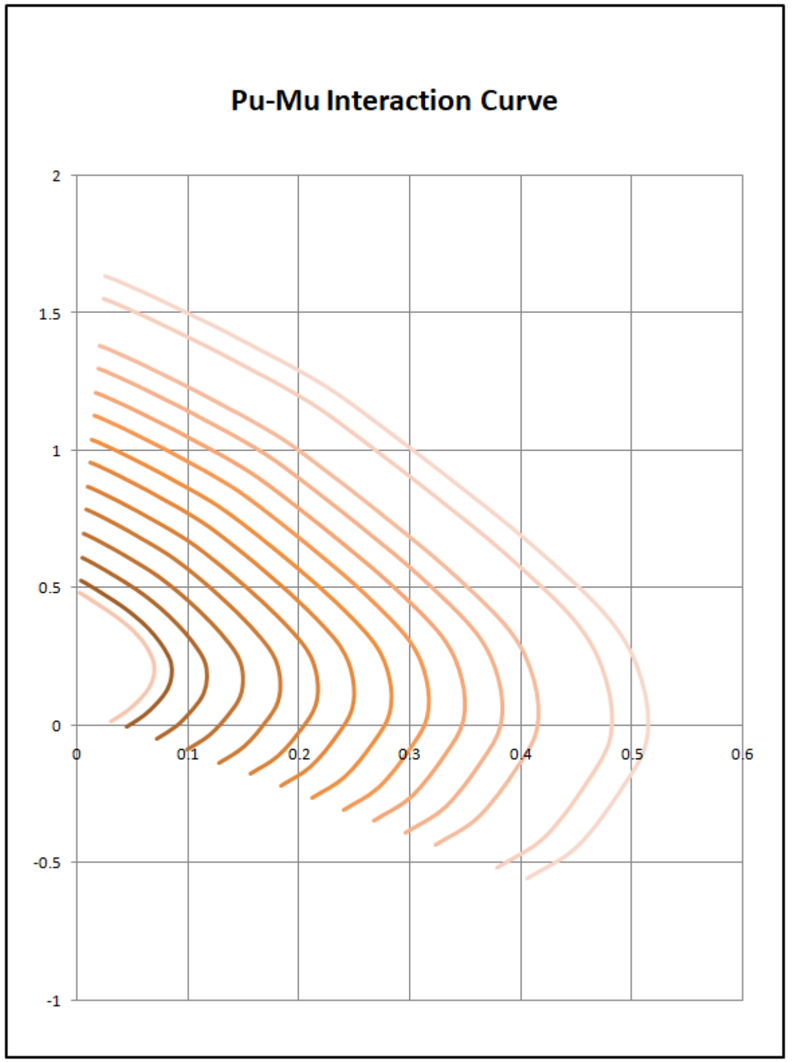




DEVELOPMENT OF PU-MU INTERACTION CURVES

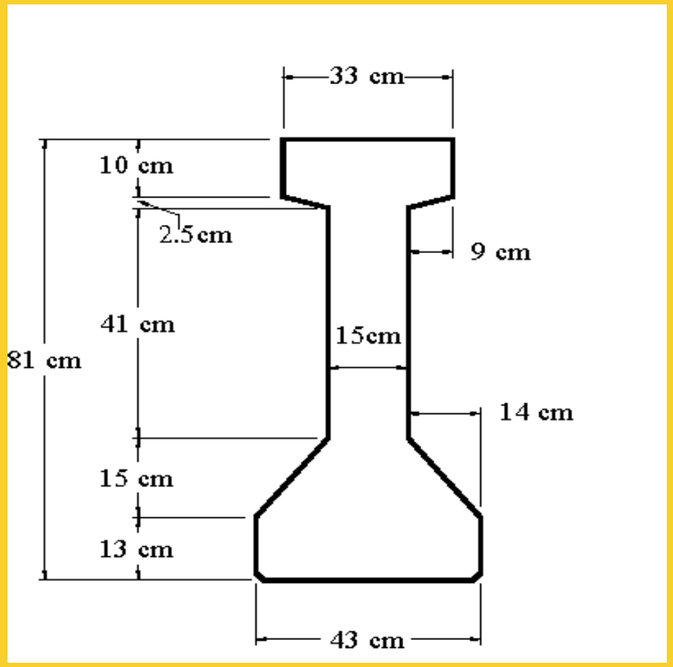
IN ACCORDANCE WITH I.S. 456 : 2000 AND DESIGN AIDS FOR REINFORCED CONCRETE TO I.S. 456 : 2000 - SP 16 : 1980

The Pu-Mu interaction curves are used as a design aid for designing the members subjected axial loads as well as bending moments. The graphs were plotted for two different grades of steel based on manual calculations. The excel sheets were then prepared to generalize the Pu-Mu graphs for different sizes of the column, area and arrangement of reinforcement, the grade of concrete and steel, length of the column and end condition. The validation of the procedure was done by correlating the results of the analysis with the existing interaction diagrams provided in design aids SP-16.



COMPARATIVE ANALYSIS OF R.C.C. AND PRESTRESS GIRDER

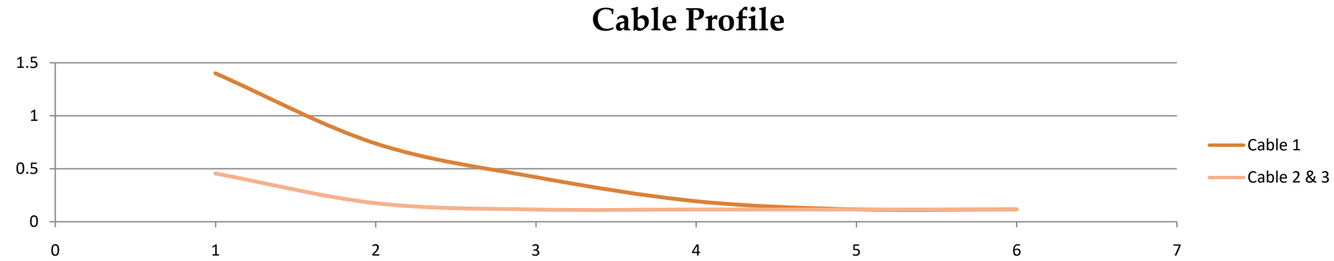
IN ACCORDANCE WITH I.S. 456 : 2000 AND I.S. 1343 : 2012

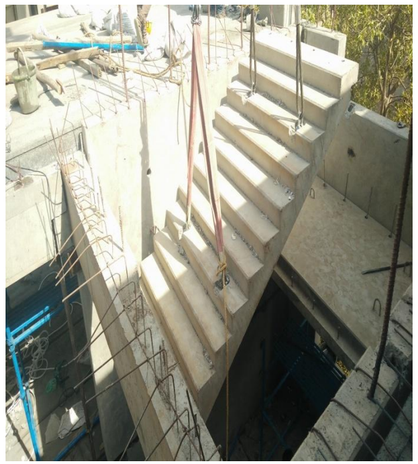


The R.C.C. and prestressed girder were analysed for same loading and support condition to compare the practical attributes of both the girders. The girders were analysed, sized and designed. For the prestressed girder, the cable profile and its configuration were decided based on the calculated prestress force required after incorporating all the prestress losses.

SITE VISTS

For better apprehension of prestress technology and its process three site visits were made one being Rang-Setu bridge near Dabhoi, Gujarat which was being externally pre-stressed for re-strengthening, while another site was of a hotel being constructed over Gandhinagar railway station which consisted pre-stressed beams and at last a multi-storey building in GIFT city which had pre-stressed flat slabs.





CASE STUDY OF PRECAST CONCRETE STRUCTURES

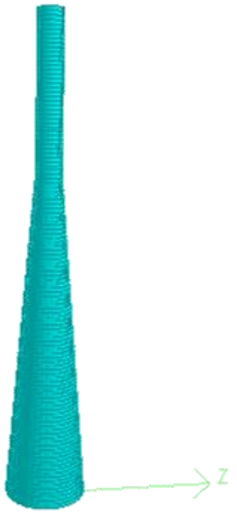
The case study involved construction site training at the Udgam School, a precast concrete structure and casting yard of box girders where the site observation comprising of study of casting and erection procedure and various connections and joints in the precast building members was diligently carried out. Various precast structure failures were understood by making more than 15 small scale models. This extensive study culminated into a comprehensive report.

F I N A L Y E A R P R O J E C T

ANALYSIS AND DESIGN OF TALL R.C. CHIMNEY

IN ACCORDANCE WITH I.S. 4998 : 2015, I.S. 875 : 2015 (PART I AND III) AND I.S. 1893 : 2016 (PART IV)

The project comprised of a live case study and a parametric study. The R.C. chimney is analysed and designed based on the given specifications for the live case. The parametric study is carried to infer the plausible criteria for analysis and design.



ABSTRACT:
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