

How to carry out Structural audits of a Building

By

Subrahmanaya S Murthy TATA

B.E;M.Tech; MCIOB,M.ASCE,M.CI,MISE((I),MICE(I),FIE,FIIV,C.Engr,CV,CCM.

Aim: The aim of the paper is to set up a procedure which will be quite useful for structural Engineers to carryout the audits of buildings in a systematic way.

What inputs required ?

- 1) As Built Drawings for Architectural and structural, MEP, Landscaping, drawings and Interior drawings duly signed and stamped.
- 2) Record of past quality records of all construction material.
- 3) Address and Details of Architect, Structural Consultant, MEP Consultant, Interior Consultant, Builder,Contractors etc
- 4) MSDS Certificates etc if any.
- 5) Specification of materials and final contract documents.
- 6) Proof Checking Reports, DBR Report, Soil Investigation Report.
- 7) Other Records like Safety Information if any etc and any changes made after construction and copies of approvals from all concerned departments.

What Society Need to Check?

The Society needs to select a competent and qualified and experienced Registered Chartered engineers.

What is the Inspection Procedure?

The Structural Engineer needs to check the condition of all columns and beams, shear walls Slabs etc on each and every floor and shall check for any cracks development including condition of concreting.

The Ground development and apron shall check properly.

All photographs needs to be captured.

Structural engineer has to ensure no structural element is missed from his inspection.

If required Microscopic observation has to be carried out.

What Testing to be Recommended?

NDT and other allied techniques like thermography etc at critical locations and it shall be tested in an approved laboratory and shall obtain testing records.

What Design Needs to be Checked?

If required Proof checking to be done once again based on the as built drawings.

What Records to be analyzed?

All actual test reports to be compared with original specifications and quality records. All important structural material needs to be covered.

What is to be Reported?

1) Copy of all findings, Inspection report with photographs, Actual quality reports, Comparison of quality reports, Design verification copy and report etc plus others documents as an amendments.

What Is to be Concluded and recommended?

Based on the above documentation, Field inspection, analysis of reports, comparison of quality reports etc he can conclude whether building is safe or unsafe. The Buildings to be declared unsafe when any major cracks develop in columns or quality failures including illegal modifications etc.