



Certificate Course on ‘Testing and Maintenance of Electrical Equipment’

The ‘Centre for Collaborative and advanced Research (CCAR)’ is a new facility created at CPRI. This centre will address advanced research pertaining to power sector and be a hub for collaborative research activities involving utilities, academia, R&D Institutions and industries. It is intended to function as a centre of Excellence in collaborative and advanced research in the power sector.

CCAR is formulating a certificate course for practicing engineers on Testing and Maintenance of electrical equipment. The course is mainly designed for practicing engineers with a view to upgrade the practical skills. The National level certificate course will help in developing a cadre of competent engineers for Testing and Maintenance of electrical equipment having the requisite knowledge on the subject. The course covers theory and practical covering: (i) System Grounding (ii) Substation Maintenance and Operation (iii) Power System Relaying (iv) Switchgear (v) Transformers (vi) Cables and (vii) Transmission lines. The practical training shall be arranged in CPRI laboratories.

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National Round Robin Exercise for Analysis and Experiment on full scale four-storeyed RCC structure

The greatest economic losses caused by earthquakes are typically inflicted upon structures, such as buildings, bridges, power plants and other life support systems critical to a modern civilization. These events have focused the attention of

government agencies, the scientific community and the general public on safety hazards and potential losses associated with structures that perform poorly during earthquakes. As a result, there is growing national emphasis on seismic risk assessment, seismic design requirement for new structures, and seismic retrofit of existing structures. To make such assessment, simplified linear-elastic methods are not adequate and hence new generation of design and seismic procedures have been developed.

The pushover analysis, the most widely used procedure provides the inelastic limit as well as lateral load capacity of the structure. This information can be used effectively to assess the damage vulnerability of buildings. The accuracy of the pushover analysis is largely dependant on the accuracy of pushover curve. However, there is a lack of experimental data available in the literature to evaluate different methods recommended to develop the pushover curve.



Dr Anil Kakodkar, the Chairman, Atomic Energy commission and Secretary, Department of Atomic Energy inaugurates the Round Robin exercise and push over test on full scale structure at CPRI.

With this back ground a collaborative research project titled “Seismic pushover tests on prototype RCC framed Structure” was taken up jointly by Bhabha Atomic Research Centre (BARC), Mumbai and Central Power Research Institute (CPRI), Bangalore to compare different analytical procedures proposed by various researchers and recommended by various codes. The scope of the project is to construct a full-scale four storeyed RC frame structure and to conduct pushover test to evaluate the accuracy of different methods followed in developing pushover curves by comparing the analytical results with that of experimental investigation. In this connection, a round robin exercise was planned under this research project.

A reinforced concrete structure consisting of a single bay four storeyed frame was constructed. The structure is an as-it-is replica of a part of an existing office building at BARC, Mumbai. The sizes, reinforcement details, layout and other design details are replicated from the design of the original structure. The structure was constructed over a raft foundation anchored to the bedrock.

A national round robin exercise for analysis and experiment on full scale four-storeyed RCC structure under monotonically increasing lateral loads was planned mainly to synergize the expertise of various researchers working in the field of pushover analysis and to identify the effective analytical methodology that predicts the pushover curve more closely under monotonically increasing lateral loads. BARC had invited academic and research institutes to take part in this exercise.

Many academic institutes like Indian Institute(s) of Technology, Thapar Institute of Technology, Thiagarajar College of Engineering, National Institute

of Technology Surathkal, Research Institutes like Structural Engineering Research Centre and NPCIL participated in this exercise along with BARC and CPRI. These institutes have presented the methodologies adopted by them and the corresponding pushover curve before actual pushover test on the structure.

The Round Robin exercise and push over test on full scale structure at Central Power research Institute was inaugurated by Dr Anil Kakodkar, Chairman, Atomic Energy commission and Secretary, Department of Atomic Energy on 30.4.2008. Dr S Banerjee, Director, BARC had graced the Occasion. Push over test was successfully carried out. This research project is sponsored by BARC.

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