Structural design of building to prevent progressive collapse Training program

Introduction

Design of building to resist progressive collapse became an essential topic especially for building with high importance. After 9/11 many specified codes and guidelines were issued specially in USA. For contemporary structural engineering, it became essential to be awarded with how to design a building under progressive collapse.

Objectives

This training course provides participants with the essential design tools and techniques for design of building to resist abnormal cases of loading and prevent it from progressive collapse.

In particular, at the end of this program, the participants will be able to:

- Background and definition of progressive collapse.
- Be familiar with guidelines and codes issued for that topic.
- Learn different methods for design building under column loss scenario.
- Applying these methods on SAP2000 software.
- Overview on ELS software and Applied Element Method (AEM).
- Overview on blast loads and method for calculating equivalent load pressure.
- Innovative structures that can sustain progressive collapse
- Some tips for designing structures subjected to progressive collapse and rehabilitation techniques for existing buildings.

Who Should Attend?

Structural engineers, consultant engineering companies, and companies that deal with abnormal loading, blast loading or demolition.

Methodology

This interactive Training will be highly interactive, with opportunities to advance your opinions and ideas and will include;

- Lectures
- Workshop & Work Presentation
- Case Studies and Practical Exercise
- Videos and General Discussions

Certificate

BTS attendance certificate will be issued to all attendees completing minimum of 80% of the total course duration

Contents

Day 1:

- Background of progressive collapse.
- Definition of progressive collapse.
- Different guidelines (GSA & DOD guidelines) and codes that relate to this topic.
- Integrity of Structure and reinforcement of beams subjected to progressive collapse.
- Tie Force Method (TFM)
- Load Resistance Method (LRM)

Day 2:

- Alternative Path Method (APM)
- Different methods for analysis of structure by (APM)
- Linear and nonlinear static analysis method.
- Linear and nonlinear dynamic analysis method.

Day 3:

- Applying the different methods of analysis on SAP2000 software.
- Extreme Loading for Structures (ELS software)
- Theory of Applied Element Method (AEM)
- Overview on modeling using ELS software.

Day 4:

- Overview on blast loading
- Method to calculate equivalent load on structure element due to blast load pressure.
- Innovative structures for sustaining extreme loading

Day 5:

- Important tips on designing structures for sustaining extreme loadings.
- Rehabilitation techniques for existing buildings subjected to progressive collapse.