



## September 2010 Course Outline

### ***E12 Seismic Design of Steel Structures***

#### ***Offered via the classroom and web cast***

**Purpose:** The 7<sup>th</sup> edition of CSA standard S16-09 “Limit States Design of Steel Structures” supersedes the previous limit states editions published in 2001. The 2009 Edition contains numerous additions to the Standard that deal with new seismic systems (e.g., restrained buckling bracing systems, protected zones), design of single angles in various situations, steel plate walls with perforated infill plates, steel deck diaphragm behaviour on the seismic design of low-rise steel buildings and new Annexes on topics such as Design to prevent brittle fracture.

This course seeks to summarize the relevant new information on the seismic design of steel structures into different lectures on materials, plastic sections, capacity design, and component and system response, while providing useful guidance on detailing. Emphasis will be on earthquake-resistant design of steel structures. This is because the provision of ductile structures is crucial to seismic survival. Clause 27 of the code, and all different classes of frames with various energy dissipation capacities or ductility ratios, will be discussed.

**Selected Topics:** Topics to be covered will include: Common properties of steel materials; plastic behaviour, hysteresis models; analysis and design of moment resisting frames; concentric braced frames, eccentric braced frames, steel plate walls, impact of diaphragm behavior on the seismic design of low-rise steel buildings, connection design and detailing, capacity design for components including pedestals, anchor bolts, footings, and connections (gussets, bolts and welds).

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**Communications:** Notices to students and questions outside of class will be handled strictly through e-mail.

**Schedule:** 12 Thursdays, 4:30 P.M. to 6:30 P.M., September 16 to December 9, 2010. (Mid-term break: Oct. 21).  
**Exception:** Class will be held on Wednesday, November 10, rather than Thursday, November 11.

**Venue:** Alma Van Dusen Room, Vancouver Public Library, 350 West Georgia Street, Vancouver

### **Internet**

This course is being offered **via the internet** as well as in the classroom. As it is a live transmission, the dates and times of the classes are the same as in the classroom. Should you wish to take this course via the internet, please complete the application form provided for internet courses.

System requirements for CSE Program LIVE e-learning Training:

- ✓ Any DSL or Cable Connection better than 56K. (Boosted 56K also works. Please test to be sure)
- ✓ A microphone and speakers or headset plugged into your PC.
- ✓ PC with Windows 2000 or XP running a processor greater than 750 MHz. with Ram of 256 or greater.