

Structural Engineering of a 4-Story, Combined Material Building Using the 2015 International Building Code

Purpose and Background

This 2-day seminar will walk participants through a fully worked out structural design example of a 4-story building where the bottom level is concrete, the next level up will be masonry, the next level up will be structural steel, and the uppermost level will be wood-frame. Design codes will include the 2015 International Building Code, ASCE 7-10, NDS-2015, SDPWS-2015, AISC 360-10, AISC 341-10, ACI 530-13, and ACI 318-14. Some of the topics covered will include the calculation and distribution of lateral forces; consideration of seismic irregularities; design of beams which also act as chords or drag struts; gravity-load design for girders, posts, and connections; horizontal diaphragms and vertical shear walls throughout; distribution of lateral forces based on the rigidities of resisting elements; collectors and chords; anchorage of shear walls to concrete; design of shallow-type foundations.

Seminar Instructor

DAVE K. ADAMS, P.E., S.E., M.ASCE has been practicing structural engineering since graduation from the University of California, San Diego in 1990. He is currently a Principal Associate with BWE in San Diego, CA, and continues to serve as a subject matter expert for the California engineer's licensing board (BPELSG). He regularly designs and details structures of all materials and collaborates with other engineers and draftspersons. Dave also investigates structural failures or damage for a variety of building types and has written comprehensive reports to summarize findings and retrofit recommendation. Mr. Adams is actively involved in the engineering community through committee membership, paper publication, and student mentoring.

- For group training, contact John Wyrick (JWyrick@asce.org) or Stephanie Tomlinson (STomlinson@asce.org)

Summary Outline

DAY 1

- **Session 1:** Introduction, Interpreting the Code, Determining Loads & Load Combinations
- **Session 2:** Design of Main Girders & Main Columns (Non-Lateral)
- **Session 3:** Distributing Wind & Seismic Loads to the Building Levels
- **Session 4:** Design of Horizontal Diaphragms & Drag Struts/Chords

DAY 2

- **Session 1:** Design of Wood-Frame Shear Walls & Steel Frames
- **Session 2:** Design of Masonry & Concrete Shear Walls
- **Session 3:** Design of Connections
- **Session 4:** Design of Shallow Foundations

Who Should Attend?

- Structural engineers
- Civil engineers
- Engineering students
- Building officials

CEUs/PDHs: ASCE has been approved as an Authorized Provider by the International Association for Continuing Education and Training (IACET), 1760 Old Meadow Road, Suite 500, McLean, VA 22102. In addition, ASCE follows NCEES guidelines on continuing professional competency. Since continuing education requirements for P.E. license renewal vary from state to state, ASCE strongly recommends that individuals regularly check with their state registration board(s) on their specific continuing education requirements that affect P.E. licensure and the ability to renew licensure. For details on your state's requirements, please go to: http://www.ncees.org/licensure/licensing_boards/.

Learning Outcomes

- Discover changes made in all of the updated relevant structural codes referenced in the 2015 IBC.
- Learn how to design gravity load supporting members using all building materials.
- Learn how to design lateral force resisting systems for all building materials.
- Understand how all the building materials connect and function together as a whole.
- Analyze the different requirements in different seismic design categories.
- Sort out the requirements for combining loads per ASCE 7-10.
- Study principles for code interpretation.
- Apply knowledge of the background behind code issues to make practical design decisions.

Assessment of Learning Outcomes

Achievement of the learning outcomes by attendees will be assessed through seminar evaluations, periodic material summaries, multiple question and answer sessions, personal contact between sessions, and a review at the end of the seminar.

ASCE seminars are available for On-Site Training. For details regarding On-Site Training and/or needs-based training opportunities, please contact:

John Wyrick, Director
On-Site Training Worldwide
ASCE Continuing Education
Tel.: 703-295-6184
Email: jwyrick@asce.org

