Course Title: "*Structural Engineering of a Single-Story Warehouse*"

Design Criteria: 2020 FBC, ASCE 7-16, TMS 402-16, AISC 360-16, ACI 318-14, NDS-2018
Risk Category II, Miami-Dade County
Seismic Design Category A
Basic 3-second gust wind speed = 175 MPH, Exposure Category D

Building: Wood-framed roof with plywood diaphragm
Structural steel columns
Concrete masonry unit walls
Concrete slab-on-grade with shallow concrete footings

Features: Interior bridge crane, supported by steel columns and the masonry wall
Steel storage racks supported by the concrete slab-on-grade
Roof-mounted HVAC unit

Subject Outline:

1. How building materials are selected for a project
2. Economic considerations for wood, steel, concrete, and masonry specifications
3. Incorporating sustainability in material specification (wood, concrete, steel)
4. Summary of relevant High Velocity Hurricane Zone provisions of the FBC
5. Steps for designing lateral force resisting systems
6. Guidelines for designing and specifying concrete slabs-on-grade
7. Structural design requirements and recommendations for crane systems
8. Design example: wood roof girder supporting HVAC equipment
9. Design example: steel and masonry supports for crane system
10. Design example: concrete slab to support post load from storage rack
11. Design example: wind loading to building shear walls
12. Design example: concrete masonry lintel beam and collector
13. Design example: concrete masonry shear wall and anchorage to foundation

9449 Balboa Avenue • Suite 270 • San Diego • CA • 92123
P 619 299 5550 • F 619 299 9934 • www.bwesd.com

DAVID K. ADAMS *Structural Engineer*
BWE, Inc. 9449 Balboa Avenue, Suite 270, San Diego, CA 92123; dadams@bwesd.com

EDUCATION

University of California, San Diego: B.S., Structural Engineering, 1990

REGISTRATION/CERTIFICATION

- Civil Engineer, California, 1994
- Structural Engineer, California, 1998
- I.C.C. Certified Plans Examiner
- Seismic Safety Assessment Program Evaluator, California O.E.S.

PROFESSIONAL HISTORY

- BWE, Inc., San Diego, CA: Project Manager / Principal Associate (structural), 2012 - Present
- Lane Engineers, Inc., Tulare, CA: Staff Engineer (structural), 1990 - 2012
- Coneer Engineering, San Diego, CA: Engineer-in-Training, 1989 - 1990

REPRESENTATIVE EXPERIENCE

Dave performs structural calculations and completes working drawings on buildings and other structures of wood, steel, masonry, concrete and reinforced plastic for commercial, residential, educational, institutional and industrial uses. As a Principal Associate with BWE, Inc., Dave supervises the work of other engineers and project draftspersons within the Structural Engineering Department. During his time at Lane Engineers, Inc., Dave also provided plan checking services for local municipalities to determine building compliance with life/fire safety, accessibility and structural requirements of current codes. He also performs structural investigations of damaged buildings and prepares comprehensive conclusions and recommendations for retrofit.

AFFILIATIONS/ACTIVITIES

- American Society of Civil Engineers
- International Code Council

- Building Seismic Safety Council (Corresponding): 2003 & 2009 NEHRP Update Committees for Wood and Non-Building Structures
- California Board for Professional Engineers, Land Surveyors, and Geologists: Subject Matter Expert (structural) for exam development and complaint case review (2003 – Present)
- National Council of Structural Engineers Associations (NCSEA): Advocacy Committee Chair (2004 – 2008)
- National Council of Examiners for Engineering & Surveying (NCEES): Subject Matter Expert (structural) for exam development (2005 – 2010)
- Tulare Union High School: AVID Tutor (2008 – 2012)
- City of Visalia: Member, Construction Review Committee and Appeals Board (2009 – 2012)
- University of California, San Diego (UCSD) Jacobs School: Research Expo, Structural Engineering Department Judge (2010, 2011, 2012, 2013)
- California Building Standards Commission: Member, Lateral Forces Code Advisory Committee (2012 - 2017)
- University of California, San Diego (UCSD): Adjunct Professor, SE 154 "Timber Design" (Summer Session II, 2016, 2017, 2018, 2019, 2020, 2021)

PUBLICATIONS/PRESENTATIONS

- "*Structural Design and Investigation of Steel Transmission and Antenna Towers*". Proceedings of the 70th Annual Convention of the Structural Engineers Association of California; SEAOC, San Diego, CA, September 2001

- "*What Happened? An Analysis of the Performance of Structures Before and During Failure*". Proceedings of the 2002 Structural Engineering Institute Structures Congress; SEI, Denver, CO, April 2002

- "*Making Responsible Decisions Regarding Conventional Construction and Engineered Design*". Proceedings of the 71st Annual Convention of the Structural Engineers Association of California; SEAOC, Santa Barbara, CA, September 2002

- "*Modern Marvels – Engineering Disasters 5*". Actuality Productions, December 30, 2003 (original air date)

- "*Training Engineering Graduates for Structural Engineering Projects*". Proceedings of the 2005 Structural Engineers Buildings Conference and Exposition; *Structural Engineer*, Chicago, IL, December 2005

- Instructor: "*Structural Design of Residential Buildings Using the 2003/2006/2009/2012 International Residential Code*". ASCE Continuing Education, 2005 - 2015

- "*Performance of Structures Before and During Failure*". ASCE Practice Periodical on Structural Design & Construction, February 2006

- "*Mentoring Engineering Graduates*". NCSEA Structure, April 2007

- "*Increasing the Confidence and Competence of Structural Engineering Graduates*". Proceedings of the 2007 Structural Engineering Institute Structures Congress; SEI, Long Beach, CA, May 2007

- "*The Structural Engineer's Professional Training Manual*". McGraw-Hill, New York, November 2007

- Instructor: "*Design of Lateral Force Resisting Systems Using the 2006/2009/2012/2015 International Building Code*". ASCE Continuing Education, 2008 – Present

- "*Continuity of Concept and Creativity*". Newsletter of the San Joaquin Chapter of the American Institute of Architects, Issue No. 10_Q4 (October 2010)

- "*Philosophy of Structural Building Codes*". Proceedings of the 2011 Structural Engineering Institute Structures Congress; SEI, Las Vegas, NV, April 2011

- Instructor: "*Design of Non-Building Structures Using ASCE 7-10 & ASCE 7-16*". ASCE Continuing Education, 2012 – Present

- Instructor: "*Structural Design of a 4-Story, Multi-Material Building Using the 2015 International Building Code*". ASCE Continuing Education, 2015 - Present

- "*All-in-One Structural Engineering SE Breadth and Depth Exam Guide*". McGraw-Hill, New York, March 2017

- "*Ethics for Civil and Structural Engineers: Professional Responsibility and Standard of Care*". Mcraw-Hill, New York: February 2022