DAVID O. KNUTTUNEN, P.E.

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QUALIFICATIONS

Expertise

Structural Engineering
Analysis and design of structural systems for buildings and other structures, residential and commercial, new work and renovation, including steel, concrete, masonry and timber construction. Computerized st ural analysis including dynamic non-linear and stability analyses. Extensive nce with renovations of older New England structures.

Services

- ***Structural Design for Architects and Owner***
  New work or renovation; residential, commercial, other; re w lls; monumental stairs; creative solutions and ual materials or igns
- ***Structural Design for Contractors***
  Contractor's design/build items; corrective w lue en neering; shoring design; equipment suppo ign for s rawings
- ***Investigations and Reports***
  Structural peer reviews; due ce r structural home inspections; investigation of structural prob nd d f repairs
- ***Expert Tes ony***
  Analysis and testimon Expert es involving structural failures or compliance with ructu lding Code provisions.

Computing

Advanced stru nalysis and te element analysis software, CAD drafting wi Aut Architecture, numerous other special purpose analysis design pr some developed in house.

Education

U rsity f Californi , Berkeley, M.S. in Engineering
Ma usetts I stitute of Technology, B.S. in Civil Engineering

EXPERIENCE

Prior Employmen

M Knuttunen has been practicing structural engineering for over 4 and has been a licensed Professional Engineer since 1985. Prior empl yers have included LeMessurier Consultants and Weidlinger Associates Cambridge, MA, and Souza, True and Partners of Watertown, MA.

Building Code

Seismic Advisory Committee
Massachusetts State Board of Building Regulations and Standards
Co-authored building code provisions for seismic design requirements for existing buildings subject to alteration, addition or change of use.

Teaching

Boston Architectural Center
Lecturer, Structural Design, 1985-1987

TYPICAL PROJECTS

New Buildings

- **Tanglewood Concert Hall***, Lenox, MA – World class concert hall in masonry, steel, timber, and concrete with cantilevered balconies and architecturally exposed heavy timber trussed porticos
  *as project engineer with a prior employer
- **Courtyard at Westgate**, Burlington, MA – 28,000 SF, m 1 it residential development, light timber framed, with trus roofs

Existing Buildings

- **Foxboro State Hospital Adaptive Reuse,** Foxbo – "Sh renovation" and structural Code upgrades to co vert ea h Cen y masonry, concrete, steel and timber hospital buildings for se
- **Fed Corp Office Addition**, Dedham, M Two tory, 280 office addition, to a heavy equipment garage with ll, existin mezzanine office. Addition was framed with steel beams lumn plus wood framing. Wind bracing was a com n of wo ar walls and steel diagonal bracing. Foundations were p ally spread otings, and partially helical piles due to varying diti it
- **175 Purchase St**, Bost n MA rmin maximum density of filing/storage possibl uit exist r capacity in a converted, 19th century, heavy timber- asonry b ng in Boston's commercial district.
- **695 Atlanti** Boston M veral projects, including reinforcing first floor of arly ntury steel- ramed building to support a fitness center.

Repair

- **Publ Li rary,** nd, MA – Emergency repair of failed steel and timber trussed girde y rafter in an early 20th Century library building, owed by a general einforcement of the roof framing, after determining lysis tha other existing members were highly overstressed.
- **Pu ibrary** Holliston, MA – Temporary shoring and permanent repairs rge number of low-slope, long-span, metal plate connected light tim r roof trusses

  ping Mall, Holden, MA – Design of emergency shoring and p manent repair for partially collapsed roof trusses in big-box commercial facility

Residential

New residences, Cape Cod & Greater Boston areas – high square footage, luxury homes, usually framed with engineered lumber joists and beams and lumber rafters.

- **Additions & alterations** – Numerous alterations, such as using beams and posts to eliminate bearing walls, new engineered wood shear walls to enhance building wind resistance, as well as vertical or one- or two-story lateral additions.
- **Attic conversions** – Conversion of existing residential attics into occupiable third floor, sometimes using a long-span truss or other special

framing to avoid adding interior columns in the existing 1st floor condominium units.

- **Supported floor garage,** Weston, MA – Residential two-car garage built into a hill, with car-parking on the second, supported level, framed with a concrete slab on engineered lumber joists.
- **Residential decks** – Framing design or structural review of numerous single or multi-story decks, and roof decks, for single or mu ily residences.

Other

- **Silo Conversion**, Groton MA – Structural consulting con on of two old, precast concrete-plank grain silos i rt exhi ce.
- **Rooftop solar installations** – Structural i stigation and so mes reinforcement design for installations of r so ar ays, ballasted or mechanically fastened on residential, comme nd inst tional buildings.
- **Site Retaining Walls** – Desig of si taining wa in reinforced concrete or masonry for a n of r i ial and commercial properties.

Structural Reviews

Numerous structural ev ions, pee ws and due diligence studies, including schools, high ri e buildi nd residential structures. Examples include:

- One Tech y Drive (low ffice); Westborough, MA
- 31-33 S ate S high-rise b utique office); Boston, MA
- Copl y Marriot l (high-rise hospitality); Boston, MA
- 1100 Mass Ave (lo industrial); Boston MA
- loni l Plaza (shop ng mall); Waterbury, CT
- us si gle family homes in the Greater Boston area.

Expert Witness

- Tes on behalf of owner in suit against contractor re. faulty roof framin other repairs to timber barn.

Consulta on with attorneys on behalf of injured worker in suit against eowner re. collapse of a deteriorated multi-story wooden deck.

Selected Publications

"New Code Provisions for Existing Buildings in Massachusetts", *Fifth N tional Conference on Earthquake Engineering*, July 1994

"Electronic Spreadsheets in Structural Design", *Eighth Conference on Computing in Civil Engineering*, June 1992

"Beam Supported Slabs Subject to Edge Loading", *ASCE Structures Congress*, May 1989

"The Role of Ductility in Seismic Design", *Civil Engineering Practice*, Spring 1987