

DAVID O. KNUTTUNEN, P.E.

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QUALIFICATIONS

- Expertise** **Structural Engineering**
Analysis and design of structural systems for buildings and other structures, both new work and renovation, including steel, concrete, masonry and timber construction. Computerized structural analysis including dynamic and stability analysis. Structural investigations and reports.
- Services**
- **Structural Design for Architects and Owners**
New work or renovation; residential, commercial, other; retaining walls; monumental stairs; creative solutions and unusual materials or designs
 - **Structural Design for Contractors**
Contractor's design/build items; corrective work; value engineering; shoring; equipment supports; design for shop drawings
 - **Investigations and Reports**
Structural peer reviews; due diligence reports; structural home inspections; investigation of structural problems and design of repairs
 - **Expert Witness Testimony**
Analysis and testimony as an Expert in cases involving structural failures or compliance with structural Building Code provisions.
- Computing** Computer capabilities include GT STRUDL, one of the most advanced structural analysis and design programs available, and CAD drafting with AutoCAD Architecture 2008, as well as a number of other special purpose analysis & design programs, some developed in house.
- Education** **University of California, Berkeley**, M.S. in Engineering
Massachusetts Institute of Technology, B.S. in Civil Engineering

EXPERIENCE

- Prior Employment** Mr. Knuttunen has been practicing structural engineering for over 30 years, and has been a licensed Professional Engineer since 1985. Prior employers have included LeMessurier Consultants and Weidlinger Associates of 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

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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
 - **Courtyard at Westgate**, Burlington, MA – 28,000 SF, multi-unit residential development, light timber framed, with truss roofs.
- Renovation***
- **Foxboro State Hospital Adaptive Reuse**, Foxboro, MA – “Shell renovation” and structural Code upgrades to convert early 20th Century masonry, concrete, steel and timber hospital buildings for office use.
 - **Shiners’ Hospital Transfer Trusses***, Boston, MA – Trusses supporting new addition over the existing hospital, which was then demolished and replaced; the hospital remained in service during construction.
 - **Fed Corp Office Addition**, Dedham, MA – Two story structural steel and light timber lateral office addition to existing equipment barn. A portion of the ground floor was structural concrete slab, supported on drilled-pier foundation elements, due to localized poor soil conditions.
 - **Brownstones**, Boston, MA – Renovations to a number of wood framed, masonry bearing wall “brownstones” in Boston’s back bay.
- Repair***
- **695 Atlantic Ave**, Boston, MA – Restoration of masonry façade on one of earliest steel framed buildings in Boston, including repair of rusting steel framing, and relieving a portion of the façade to control cracking due to thermal expansion.
 - **Dedham High School Pool Facility**, Dedham, MA – Investigation and design of repairs for corroded structure in public pool facility, and reinforcing of roof for HVAC loads.
- Other***
- **Burns Connector Study**, Cambridge MA – Study of structural feasibility of constructing a multi-story pedestrian bridge between two adjacent midrise apartment buildings.
 - **Northern Avenue Bridge Replacement***, Boston, MA – Design of rigging for erecting 200-foot-long precast concrete girders from a barge and external post-tensioning of abutments to increase capacity.
 - **The Montrose**, Brookline, MA – Structural design and detailing of cold formed steel curtainwall studs for multi-story residential building.
 - **Hood Business Park**, Charlestown, MA – Design of bracing connections for structural steel fabricator. The AISC uniform force method had to be modified to conform to the required detail geometry.
 - **Monumental Stairs** – Design and detailing of cantilevered steel stair structures at New England Telephone’s Burlington VT headquarters*, and at Wheaton College*, among others.
 - **Equipment Supports** – Design of supporting frames and review of existing building structures to carry HVAC equipment.
- * as project engineer with a prior employer (where indicated)

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Light Timber

Numerous light timber housing projects, including single family homes and townhouse condominiums. Examples include:

- Private residence, Denis, MA – 10,000 square foot, \$2.5 million “summer home”, framed with engineered lumber joists and dimension lumber rafters.
- Private residence, Wellesley, MA – extensive addition including a floor framed with steel C-joists to minimize depth and match existing ceilings.
- Private residence, Newton, MA – Removal and replacement of rear foundation wall of garage (which was a retaining wall), including temporary shoring of 2nd story and roof above.

Structural Reviews

Numerous structural evaluations, peer reviews and due diligence studies, including schools, high rise office buildings and residential structures. Examples include:

- One Technology Drive (low-rise office); Westborough, MA
- 10 Dorrance St (high-rise office); Providence, RI
- 725 Concord Ave. (high-rise medical office); Cambridge, MA
- Copley Marriott Hotel (high-rise hospitality); Boston, MA
- Village Crest (low-rise residential); Commerce City, CO
- Colonial Plaza (shopping mall); Waterbury, CT
- Various single family homes in the Greater Boston area.

Expert Witness

- Technical research for attorneys in class action suit involving steel roof deck corrosion.
- Consultation with attorneys in suit of owner against designer and builder of equestrian barn.
- Testimony on behalf of owner in suit against residential contractor re. faulty framing of roof alterations for multi-family house.
- Testimony on behalf of owner in suit against contractor re. faulty roof framing and other repairs to timber barn.

Selected Publications

“New Code Provisions for Existing Buildings in Massachusetts”, *Fifth National 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