

SEAOC Field Act White Paper

A SEISMIC SAFETY PROGRAM FOR CALIFORNIA COMMUNITY COLLEGES

July 12, 2007

To support the efforts of the California Community Colleges Chancellor's Office and the many Community College District Boards and administrators, we have identified essential components necessary to achieve the level of earthquake protection generally equivalent to that achieved by the enforcement of the Field Act for community college buildings. The proposed program offers Districts guidance in the administration of their construction projects which will provide a level of earthquake safety protection for the over 2.5 million California Community College students statewide that is consistent with their stewardship responsibilities. The program provides guidance on design professional selection, structural design requirements, plan review and construction quality assurance. The essential components of those protections are described in the program elements that follow:

Design Professional Selection

The selection of design professionals should be based on qualifications and competence in relation to the scope and needs of each particular project. Effective January 1, 1990, Chapter 10 of the California Government Code, Sections 4526 – 4529 (Mini-Brooks Act) mandated local agencies in California select applicable professional consultant services on the basis of demonstrated competence and professional qualifications. Additional information is available in Qualification-Based Selection, Architect and Engineers Conference Committee, October 1993, as well as Chapter 6, "Selection of Structural Engineering Services" in the Structural Engineer's Association of California publication Guidelines for the Practice of Structural Engineering in California. Standard contract forms of agreement are available from the American Institute of Architects, the Engineers' Joint Contract Documents and numerous other professional organizations.

The design professional responsible for the structural engineering must be a California Registered Structural Engineer. A Structural Engineer's additional focused training and testing in the application of structural engineering principles is necessary to ensure earthquake design requirements are properly understood and executed.

Structural Design Requirements

The general structural requirements of the California Building Code are intended for application to all occupancies. Through years of application of these rules to school occupancies, DSA has developed numerous amendments to the basic provisions that enhance the level of structural protection provided for applicable Field Act occupancies. In recognition, SEAOC recommends the minimum structural design requirements for Community Colleges include:

- California Building Code with Amendments for Schools
- Interpretive Regulations as published by DSA
- Other published DSA Policies

Structural Plan Review

Community Colleges should provide an independent structural plan check review by a California Registered Structural Engineer who is retained by and reports to an entity without direct monetary or schedule responsibility for the project. The plan check engineer should be experienced in public school and/or community college design.

The plan check submittal should include a Seismic Hazard Study for the site, provided in accordance with the California Building Code with amendments and approved by the California Geologic Survey (CGS) or a qualified specialist licensed to provide seismological and geotechnical opinions.

The scope of the structural plan check should include both the building structural system and the seismic anchorage and bracing of nonstructural systems (e.g. architectural, mechanical, electrical, plumbing) and equipment. Plan check for compliance with applicable building code and published DSA regulations should be to the same extent provided by DSA's "Structural Plan Review Guidelines."

The use of deferred approvals should be kept to a minimum and follow the guidelines and requirements published by DSA.

Disputes between the SEOR and plan check engineer should be resolved by an independent three-member panel of California Registered Structural Engineers. The panel members should be experienced in public school and/or community college design and familiar with DSA requirements.

Construction Quality Assurance

The Structural Engineer of Record should provide structural observation during construction as defined in CBC 1702. The SEOR's responsibility includes review of deferred approval items whose responsibility for structural design has been delegated to Specialty Structural Engineers based on performance specifications in the construction documents, such as elevator guide rails and support brackets, exterior walls systems, etc.

The District should engage a qualified independent inspector (Project Inspector), certified by DSA or OSHPD and approved by the Architect and SEOR. The Project Inspector's qualifications and duties should be the same as set forth in the California Building Code for public schools.

Within 120 days of completion of the project, close-out documentation the same as required by DSA for public schools (including Notice of Completion; final verified reports from the Contractor, Inspectors, Testing Laboratory, Architect and engineers; copies of all change orders as approved by the Architect and Structural Engineer) should be filed with the District.

Disputes during construction between the SEOR and the independent project inspector should be resolved by the same three-member panel of California Registered Structural Engineers retained by the College District for the plan check phase.

July 12, 2007

RE: Seismic Safety for California Community Colleges

To Whom it may concern:

California has historically been a leader in seismic safety both nationally and internationally. The Structural Engineers Association of California (SEAOC) is an association of nearly 3000 California engineers founded in 1930. SEAOC is committed to advancing the art and science of structural engineering and enhancing seismic safety through involvement in building codes, community education and consultation with legislative and regulatory agencies. Throughout its history SEAOC has assisted local, State and Federal agencies on a number of legislative matters pertaining to Structural Engineering and earthquake safety. SEAOC is dedicated to protecting the public through safer design and construction.

SEAOC, in conjunction with the California Legislature and Division of the State Architect was instrumental in protecting California schools through the passing of the Field act in 1933. We believe that this program has been one the most significant and effective public policy commitments of the last three generations of Californians. We are concerned that the recent legislative change enacted in a 2006 ballot measure may compromise the seismic safety of future generations of California students. AB 127 was signed by the Governor on May 20, 2006 as a budget trailer bill. The bill had been amended into education funding and had proceeded to the Governor's desk without committee hearings as part of the infrastructure bond package. Measure 1D on the November 2006 ballot provided financing for construction and modernization of education facilities from K-12 to community colleges and universities. The bill also contained a provision that allowed community colleges to choose between the Field Act and the California Building Code when conducting building projects. The bond measure was approved by voters, thus enabling the provision allowing community colleges to opt out of DSA enforcement of the Field Act. The Field Act Requirements are intended to protect California students from earthquake dangers by requiring these occupancies to be explicitly designed for earthquake induced demands. The Division of the State Architect (DSA) implements the Field Act provisions. The current DSA program requires structural design for earthquake forces higher than those required by the building code. It includes a rigorous program of design verification (plan check) administered by the Structural Safety Section of DSA and requires an onsite inspection program. The effect of this has been to produce a significantly higher standard of structural design and construction than that found in general occupancy construction. Historically, these standards have protected the safety of the occupants of California schools and community colleges. As a secondary benefit, California public schools have frequently served as post-earthquake shelters and earthquake response centers.

SEAOC strongly recommends consistency in design, plan check, and construction throughout the state for all K-12 schools and community colleges. Furthermore we believe that there should be minimum standards maintained for all community college buildings. For this reason we have attached a document recommending key criteria to be followed for the construction of community college buildings opting out of the Field Act. SEAOC is ready to assist California Community Colleges in implementing procedures which maintain high standards of seismic safety.

SEAOC is opposed to further weakening the application of the Field Act and is committed to helping maintain the high levels of protection historically provided to all students in California K-12 schools and Community Colleges. We strongly urge Community College Districts to continue to protect the safety of their students in a responsible way, consistent with the standard of care that has served our school communities for the past three generations. We further believe a minimum level of seismic safety protection is required in schools and should not be compromised. Please contact SEAOC if you wish to discuss further, or for further information.

Sincerely,

Norman Scheel
President