

ADMINISTRATIVE BULLETIN

NO. AB-082

DATE : March 25, 2008
SUBJECT : Permit Processing and Issuance
TITLE: : **Guidelines and Procedures for Structural Design Review**

PURPOSE : The purpose of this Administrative Bulletin is to present guidelines and procedures for Structural Design Review. Structural Design Review may be required by the San Francisco Building Code, by another Administrative Bulletin, or at the request of the Director of the Department of Building Inspection.

REFERENCES : 2007 San Francisco Building Code
- Section 101A.2, Purpose
- Section 104A.2, Powers and Duties of Building Official
- Section 104A.2.8, Alternate materials, design, and methods of construction
- Section 105A.6, Structural Advisory Committee
- Chapter 16, Structural Design

ASCE 7-05

- Section 16.2.5 Design Review, Seismic Response History Procedures
- Section 17.7 Design Review, Seismically Isolated Structures
- Section 18.8 Design Review, Structures with Damping Systems

DISCUSSION : **1. STRUCTURAL DESIGN REVIEWER**

The Director may request the assistance of a Structural Design Reviewer to provide additional and specialized expertise to supplement the Department of Building Inspection plan review. The Structural Design Reviewer is distinct from a Structural Advisory Committee, which is a formal, public body that the Director may convene regarding matters pertaining to special features or special design procedures. The Structural Design Reviewer meets with the Engineer of Record and with Department of Building Inspection staff as the need arises throughout the design process, providing the Director with a report of its findings after completion of their work.

Review by the Structural Design Reviewer is not intended to replace quality assurance measures ordinarily exercised by the Engineer of Record in the structural design of a building. Responsibility for the structural design remains solely with the Engineer of Record, and the burden to demonstrate conformance of the structural design to the letter and intent of San Francisco Building Code provisions resides solely with the Engineer of Record. The responsibility for conducting the structural review for the plan check resides with the Director and any plan review consultants.

The San Francisco Building Code (through reference to ASCE 7) requires design review by independent registered design professionals in several cases. These include use of seismic response history procedures, use of seismic isolation, and use of seismic dampers. The Structural Design Reviewer will provide this review where required by the San Francisco Building Code. The Structural Design Reviewer will also provide review as required by other Department of Building Inspection Administrative Bulletins and when otherwise deemed necessary by the Director. Structural Design Review, as discussed herein, and design review, as discussed in ASCE 7, are equivalent.

Qualifications and Selection of Structural Design Reviewer

The Structural Design Reviewer shall be a recognized expert in relevant fields such as structural engineering, earthquake engineering, performance-based earthquake engineering, nonlinear response history analysis, building design, earthquake ground motion, geotechnical engineering, geological engineering, and other areas of knowledge and experience relevant to the project.

The Structural Design Reviewer shall be selected by the Project Sponsor from a project specific list provided by the Director. The Project Sponsor may then engage a Structural Design Reviewer as a consultant for assistance as appropriate. The Structural Design Reviewer shall bear no conflict of interest with respect to the project and shall not be considered part of the design team for the project. The responsibility of the Structural Design Reviewer is to assist the Department of Building Inspection in ensuring compliance of the structural design with the San Francisco Building Code. While the Structural Design Reviewer will contract with the Project Sponsor, their responsibility is to the Department of Building Inspection.

The Structural Design Reviewer shall be registered as a Professional Engineer in California. The Structural Design Reviewer shall sign all written communication to the Director.

Administration of Structural Design Review

The Project Sponsor is responsible for the payment of hourly fees and other expenses for the professional services of the Structural Design Reviewer. The Structural Design Reviewer shall provide to the Department of Building Inspection a written copy of a proposed scope of work of their contract with the Project Sponsor. The proposed scope of services in the contract and any changes proposed to be made thereto shall be approved by the Director.

2. PROJECTS REQUIRING STRUCTURAL DESIGN REVIEW

The Director may require Structural Design Review for any project at his discretion. The following types of projects will generally require Structural Design Review:

1. Projects incorporating non-prescriptive or performance-based design.
2. Projects incorporating building heights that exceed 240 feet.
3. Projects incorporating seismic response-history analyses per Chapter 16 of ASCE 7.*
4. Projects incorporating seismic isolation per Chapter 17 of ASCE 7.*
5. Projects incorporating seismic damping per Chapter 18 of ASCE 7.*
6. Projects with irregular and unusual configurations or systems.

Project Sponsors are strongly encouraged to contact the Department of Building Inspection early in the design to determine Structural Design Review requirements.

*Note: To the extent design review is required under ASCE 7-05, Sections 16.2.5, 17.7 or 18.8, such review process shall be conducted in accordance with the specific requirements of the Building Code and all applicable law."

3. SCOPE OF STRUCTURAL DESIGN REVIEW SERVICES

The scope of services for the Structural Design Reviewer shall be indicated by the Director to provide required expertise to supplement the Department of Building Inspection plan review. It may, therefore, be only for specific portions or structural elements of a project. This scope of services may include, but shall not be limited to, review of the following:

1. Earthquake hazard determination.
2. Site-specific ground motion characterization.
3. Seismic performance goals.
4. Basis of design, design methodology and acceptance criteria.
5. Mathematical modeling and simulation.
6. Interpretation of results of analysis.
7. Member selection and design.
8. Detail concepts and design.
9. Construction Documents, including drawings and specifications.
10. Isolator or damper testing requirements and quality control procedures.
11. At the discretion of the Director, the scope of services for the Structural Design Reviewer may include the review of other building aspects, including design for wind resistance, design of special foundation or earth retaining systems, or the design of critical non-structural elements.

4. STRUCTURAL DESIGN REVIEW PROCESS

The Structural Design Reviewer should be engaged as early in the structural design phase as practicable. This affords the Structural Design Reviewer an opportunity to evaluate fundamental design decisions, which could disrupt design development if addressed later in the design phase. Early in the design process, the Engineer of Record and the Structural Design Reviewer should jointly establish the frequency and timing of Structural Design Reviewer review milestones, and the degree to which the Engineer of Record anticipates the design will be developed for each milestone.

The Structural Design Reviewer shall provide written comments to the Engineer of Record, and the Engineer of Record shall prepare written responses thereto. The Structural Design Reviewer shall maintain a log that summarizes Structural Design Reviewer comments, Engineer of Record responses to comments, and resolution of comments. The Structural Design Reviewer shall make the log available to the Engineer of Record as requested. The Structural Design Reviewer may also issue interim reports as appropriate relative to the scope and project requirements. At the conclusion of the review the Structural Design Reviewer shall submit to the Director a written report that references the scope of the review, includes the comment log and supporting documents, and indicates the professional opinions of the Structural Design Reviewer regarding the design's general conformance to the requirements and guidelines in this bulletin.

Commentary: None of the reports or documents from the Structural Design Reviewer are Construction Documents. Under no circumstances should letters or other documents from the Structural Design Reviewer be put into the Engineer of Record's drawings or reproduced in any other way that makes Structural Design Reviewer documents appear to be part of the Construction Contract Documents. The Engineer of Record is solely responsible for the Construction Contract Documents. Documents from the Structural Design Reviewer will be retained as part of the Department of Building Inspection's project files.

5. DISPUTE RESOLUTION

The Engineer of Record and the Structural Design Reviewer shall work in a collegial manner, as independent and reasonable professionals. The Structural Design Reviewer shall prepare comments in a respectful manner and shall make reasonable requests of the Engineer of Record for additional analyses or backup information. The Engineer of Record shall address the Structural Design Reviewer comments cordially and respond directly and clearly.

The Engineer of Record and the Structural Design Reviewer shall attempt to develop a consensus on each issue raised by the Structural Design Reviewer. If the Engineer of Record and the Structural Design Reviewer are unable to resolve particular comments, the Structural Design Reviewer shall report the impasse to the Director.

The Director, as Building Official, shall make final decisions concerning all permits. The Director, should the need arise, may address differences of opinion between the Engineer of Record and the Structural Design Reviewer in whatever method he deems appropriate. The Director also may engage additional outside experts to assist in issue resolution.

Approved by the Building Inspection Commission on March 19, 2008

Originally signed by:

Isam Hasenin, P.E., C.B.O., Director
Department of Building Inspection