

## CHAPTER 1 and APPENDIX I

[These provisions are revisions to the 6<sup>th</sup> Ed SBC 780 CMR 1 and 780 CMR Appendix I. Section and clause numbers are those of the 6<sup>th</sup> Edition. To be renumbered (or reformatted) to suit 7<sup>th</sup> Edition].

### 110.11 Independent Structural Engineering Review:

**110.11.1 Condition for Permit.** As a condition for the issuance of a building permit, the structural design of the following described structures shall be reviewed by an independent structural engineer to verify that the design of the primary structure is conceptually correct and that there are no major errors in the design:

1. New buildings and structurally separate additions which are five stories or more in *height* above the lowest floor, including stories below grade.
2. New buildings and structurally separate additions which enclose a total volume of 400,000 cubic feet, including stories below grade. The volume shall be measured using the outside dimensions of the *building*.
3. New or existing structures in or partially in Use Group A, ~~which will be~~ used for public assembly of 300 or more persons.
4. Existing buildings which enclose a total volume of 200,000 cubic feet, including stories below grade, for what Chapter 34 defines as Level 3, 4, and 5 Work.
5. Existing buildings which enclose a total volume of 200,000 cubic feet, including stories below grade, for what Chapter 34 defines as Level 2 Work, except that the required review shall be limited to the lateral load resisting system.
6. ~~4.~~ Structures of unusual complexity or design as shall be determined by the BBRs. A building official may apply to the BBRs for such a determination on a specific structure.

**Exemption:** Temporary structures erected for a period of one year or less.

**110.11.2 Requirements for the review.** The independent structural engineering review shall be in accordance with the requirements of *Appendix I*.

**110.11.3 Disputes.** Disputes between the structural engineer responsible for the design of the *building* or *structure* and the structural engineering peer reviewer shall be resolved by the Structural Peer Review Advisory Committee in accordance with ~~780 CMR 125.0~~. Section 125.

## **780 CMR 116.0 REGISTERED ARCHITECTURAL AND PROFESSIONAL ENGINEERING SERVICES - CONSTRUCTION CONTROL**

**116.1 General:** The provisions of 780 CMR 116.0 define the construction controls required for all *buildings* and *structures* needing registered architectural or registered professional engineering services, and delineate the responsibilities of such professional services together with those services that are the responsibility of the contractor during construction.

The following structures are exempt from the requirements of 780 CMR 116.0;

1. Any *building* containing less than 35,000 cubic feet of enclosed space, measured to the exterior surfaces of walls and *roofs* and to the top of a ground supported floor, or in the case of a crawl space, to the bottom surface of the crawl space. In the case of basement floors or levels, the calculation of enclosed space shall include such spaces. For additions to existing buildings, the volume of enclosed space shall include the entire existing building and all proposed additions.

## **APPENDIX I**

### **INDEPENDENT STRUCTURAL ENGINEERING REVIEW**

**I-1 Primary structure.** For the purposes of the independent structural engineering review, the primary structure shall be defined as the structural frame, the load supporting parts of floors, roofs, and walls, and the foundations. Cladding, cladding framing, stairs, equipment supports, ceiling supports, non-load bearing partitions, and railings are excluded from this definition of primary structure.

**I-2 Reviewing engineer.** The reviewing engineer shall be engaged by the owner.

**I-2.1 Qualifications.** The reviewing engineer shall be a registered professional engineer, registered in Massachusetts, qualified by experience and training and

who shall have had structural design experience with buildings or structures similar to that covered by the application for the building permit. The reviewing engineer shall be impartial, and shall be independent of the architect of record, structural engineer of record, and contractors and suppliers who will be involved in the construction of the structure.

**I-3 Criteria for review.** The reviewing engineer shall review the plans and specifications submitted with the application for the building permit for compliance with the structural and foundation design provisions of the Code. The reviewing engineer shall perform the following tasks:

1. Check to assure that the design loads conform with the State Building Code 780-CMR;
2. Check that other design criteria, and design assumptions, conform to the State Building Code 780-CMR and are in accordance with accepted engineering practice;
3. Review geotechnical and other engineering investigations that are related to the structural design to determine if the design properly incorporates the results and recommendations of the investigations;
4. Check that the organization of the structure is conceptually correct, including structural load paths; ~~and~~
5. Make an independent analysis of the lateral load resisting system of the structure as a whole, subjected to the loads required by the Code;
6. Make independent representative analyses of the gravity load resisting systems, subjected to the loads required by the Code;
7. 5. Make independent calculations for a representative fraction of systems, members, and details to check their adequacy. The number of representative systems, members, and details shall be sufficient to form a reasonable basis for the reviewer's conclusions; and.
8. For existing buildings, review the report required by Chapter 34 for the evaluation of an existing building by the structural engineer, for conformance to Code requirements and accepted engineering practice.

**I-3.1 Structural Calculations.** The structural calculations prepared by the structural engineer of record shall be submitted to the reviewing engineer, upon

the reviewing engineer's request, for his or her reference only. The reviewing engineer shall not be obligated to review or check these calculations. If the design criteria and design assumptions are not shown on the drawings or in the computations, the structural engineer of record shall provide a statement of these criteria and assumptions for the review.

**I-4 Structural engineer of record.** The structural engineer of record shall retain sole responsibility for the structural design, and the activities and reports of the reviewing engineer shall not relieve the structural engineer of record of this responsibility.

**I-5 Report and follow-up:**

1. The reviewing engineer shall prepare a report to the building official stating whether or not the structural design shown on the drawings and the specifications conform with the structural and foundation requirements of the State Building Code 780-CMR. Said report shall be based on the review as prescribed in this appendix and shall include a summary of all deficiencies, if any, which cannot be resolved with the structural engineer of record.
2. The structural engineer of record shall review the report of the reviewing engineer, and notify the building official in writing, whether or not he agrees with or disputes the conclusions and recommendations of the reviewing engineer.
3. Unresolved disputes between the structural engineer of record and the reviewing engineer shall be submitted by the building official, the owner, the structural engineer of record or the reviewing engineer to the Structural Peer Review Advisory Committee Board for resolution.
4. Any changes to the structural design subsequent to the original submission of the plans and specifications shall be shown on revised drawings and specifications, submitted with an amendment to the application for permit. The reviewing engineer shall review the changes on the revised drawings and specifications, and, if the original report does not account for the changes in said drawings and specifications, a supplementary report relating to the changes and prepared by the reviewing engineer shall be made to the building official.

**I-6 Foundation permits.** When the plans and specifications are partially complete and an application is made for a foundation permit, the reviewing engineer may review the foundation plans and specifications on a conditional basis, provided that the reviewing engineer is given sufficient documentation so that he or she can perform all Appendix I-3 tasks, except Task 7 ~~Tasks 1, 2, 3, and 4~~ for the whole structure, and so that he or she can perform Appendix I-3 Task 7 ~~5~~ for that part of the foundation covered by the application for foundation permit. The reviewing engineer shall prepare a report on that part of the foundation covered by the application for foundation permit, as prescribed in

Appendix I-5, stating all conditions upon which the report is based. When the reviewing engineer reviews the completed plans and specifications as prescribed in Appendix I-3, the reviewing engineer shall reperform the tasks of Appendix I-3, Tasks 1, 2, 3, and 4, as necessary, to include all the revisions to the design subsequent to the application for the foundation permit.