

## INDEPENDENT STRUCTURAL ENGINEERING REVIEW GUIDANCE

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*The purpose of this document is to provide guidance to those performing an independent structural engineering review in accordance with 780 CMR (The State Building Code), Section 105.9.*

**Primary Structure:** For the purposes of the independent structural engineering review required in 780 CMR 105.9, 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.

**Reviewing Engineer Qualifications:** The reviewing engineer shall be engaged by the owner and shall be a Massachusetts registered professional engineer with structural design training and experience on structures similar to that covered by the building permit application. The engineer shall be impartial, and independent of the architect of record, structural engineer of record, and contractors and suppliers involved with the structure.

**Review Criteria:** The reviewing engineer shall review the plans and specifications submitted with the building permit application for compliance with the structural and foundation design provisions of the Code including the following tasks:

1. Check to assure that design loads conform to the Code;
2. Check that other design criteria and assumptions conform to the Code and with accepted engineering practice;
3. Confirm that the structural design incorporates pertinent results and recommendations of geotechnical and other engineering investigations.
4. Check that the organization of the structure is conceptually correct; and
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 basis for the reviewer's conclusions.

**Review of Structural Calculations:** The structural calculations prepared by the structural engineer of record shall be submitted to the reviewing engineer, upon request, for reference only. The reviewing engineer is not obligated to review or check these calculations. The structural engineer shall also provide a statement with the design criteria and design assumptions if they are not shown on the drawings or in the calculations.

**Structural Responsibility:** The structural engineer of record shall retain sole responsibility for the structural design. The activities and reports of the reviewing engineer shall not relieve the structural engineer of record of this responsibility.

**Review 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 in the specifications conforms with the structural and foundation requirements of the Code, based on the review as prescribed in this

guidance document, 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 of agreement or of dispute with 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 Board of Building Regulations and Standards 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 reviewing engineer 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.

**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 can perform Tasks 1, 2, 3, and 4 of the 'Review Criteria' for the whole structure, and so that he can perform Task 5 of the 'Review Criteria' for that part of the foundation covered by the application for foundation permit. The reviewing engineer shall prepare a 'Review Report' on that part of the foundation covered by the application for foundation permit, as prescribed in this guidance document, stating all conditions upon which the report is based. When the reviewing engineer reviews the completed plans and specifications as prescribed in this guidance document, the reviewing engineer shall re-perform Tasks 1, 2, 3, and 4, as necessary, to include all the revisions to the design subsequent to the application for the foundation permit.