



**Mandatory Retrofit Program for Non-Ductile Concrete Buildings
And Pre-Northridge Steel Moment Frame Buildings
Ordinance 17-1011
SEISMIC DESIGN GUIDELINES**

ISSUED NOVEMBER 8, 2019

APPENDIX E: QUALITY ASSURANCE REQUIREMENTS

1.0 Introduction

Quality Assurance is the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met. In order to meet the intent of the seismic ordinance requirements, a Quality Assurance process must be followed to ensure that the building strengthening project is completed according to the ordinance, building code, contract documents and building code requirements. Quality assurance on a project is measured and completed by various stakeholders with varying levels of responsibility. The intent of the following guideline is to help clarify the roles and responsibilities that contribute to an effective Quality Assurance process.

The main roles and responsibilities of the Quality Assurance process are clarified in the following sections.

2.0 Contractor

Contractor is hired by the owner and responsible for constructing the retrofit according to the approved construction documents. It is recommended that the contractor have an internal Quality Control plan that can be reviewed by the Engineer of Record (EOR) and Inspectors, detailing their plans to ensure quality is maintained throughout the construction process. It is the contractor's responsibility to notify the Structural Observer when key construction phases are to occur for Structural Observation and to notify the City Building Inspector and Registered Deputy Inspector when work is ready for inspection.

3.0 Engineer of Record

The Engineer of Record (EOR) is a California Licensed Structural or Civil Engineer hired by the owner to evaluate, design, and provide construction documents for the seismic retrofit of a building. During construction the Engineer of Record is responsible for performing periodic structural observations. All structures to be retrofitted require



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structural observation during construction in accordance with the Building Code. The owner shall employ the Engineer of Record responsible for the structural design to perform structural observations as defined in the California Building Code. The Registered Design Professional who performs the Structural Observation is known herein as the “Structural Observer”.

3.1 Structural Observation

Structural Observation is the visual observation of the structural system by the designated Structural Observer for general conformance with the approved construction documents. Structural Observation is intended to assist and supplement the work of the Building Official. Structural Observation by itself does not certify, guarantee or ensure conformance with all of the specific requirements of the approved construction documents. It does not provide the quality assurance of continuous inspection by the Registered Deputy Inspector, nor does it include or waive the responsibility for progress or inspections by the City Building Inspector.

The requirement for having a Structural Observer present during key construction phases provides an additional observation of the gravity and/or lateral load structural systems by a knowledgeable observer. Key construction phases are identified by the Observer and may include completion of the foundation, walls, frames and/or floors/decks. Structural Observations will substantially increase the likelihood that the structural system will be in general conformance with the approved construction documents by tracking the load paths to prevent gross errors and omissions.

The Structural Observer shall visit the site to verify applicable existing materials and framing details in the location of the new work. Where the condition of the materials is observed to be deteriorated or structurally compromised the design professional shall submit a testing and/or repair program for City review and approval. Where access is not available, the design professional shall clearly identify on the construction drawings the elements that need to be verified in the field prior to fabrication and erection. The EOR shall list on the construction drawings the milestones of when the contractor shall notify the design professional to visit the site.



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3.2 Performing Structural Observation and Submission of Structural Observation Reports.

The Structural Observer shall perform Structural Observation(s) at the construction site in accordance with the EOR observation milestones and the approved plans. Upon completion of the Structural Observation at each construction stage, the Structural Observer shall complete the "Structural Observation Report Form". Observed deficiencies, if any, shall be reported at each significant construction stage. The form should indicate the date the site visit has been made, identify any new deficiencies, previous Structural Observation report deficiencies that have not been resolved. The form and report shall be submitted to the owner's representative, City Building Inspector, Registered Deputy Inspector, and Contractor.

A final Structural Observation Report form, submitted by the Structural Observer, shall state that all observed deficiencies have been resolved and will be required before acceptance of the work by the Building Official. The report shall be reviewed, completed, stamped and signed by the Structural Observer of Record, who takes responsibility for the report in order to satisfy the ordinance.

4.0 Registered Deputy Inspectors

Registered Deputy Inspectors are inspectors hired by the owner and are responsible for performing the special inspection and testing of construction according to the California Building Code requirements and approved construction documents. The EOR shall note on the approved plans all of the inspection and tests that need to be performed, per the California Building Code requirements, for which the Registered Deputy Inspectors are to ensure compliance has been obtained.

The Registered Deputy Inspector shall report to the EOR and Building Official all violations of the code and all correction notices, or other information as may be required, that has been communicated to the contractor in writing.

All construction work shall follow the approved set of plans and shall be subject to inspection by authorized inspectors that have been approved by the EOR. Work is generally inspected and approved in succession and no work may continue beyond the



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point indicated in each successive inspection without first obtaining the approval of the inspector.

The Registered Deputy Inspector shall file a report covering all work for which the Deputy is responsible and which has been approved by the Deputy for that week. Nothing shall preclude the City from requiring daily inspection reports or for each significant portion of the project. The inspection reports shall include any deficiencies the inspector encounters. A final inspection report indicating all deficiencies have been addressed to the satisfaction of the EOR and Building Official will be required as part of the final documentation to close the project and satisfy the ordinance.

5.0 City Building Inspector

City Building Inspector are inspectors working for the Building and Safety Division responsible for performing general inspections of construction according to the California Building Code requirements and approved construction documents. The contractor shall request an inspection when critical milestones are approached. The City Building Inspector shall provide documentation for every visit performed and indicate any deficiencies encountered. A final inspection shall be performed to verify that all that there are no remaining deficiencies and that the project is complete in accordance with the approved buildings plans.