DPD		Director's Rule 32-96	
Applicant: City of Seattle Department of Construction and Land Use		**Page: N/A**	**Supersedes:** N/A
Subject: Seismic Survey and Report Requirements		**Publication:** Aug. 8, 1996	**Effective:** Sept. 16, 1996
Ordinance Authority: SMC 3.060.040		**Code and Section Reference:** Section 3403.11 Seattle Building Code	
Building Code/Technical Requirements		**Type of Rule:** Code Interpretation	

A. BACKGROUND

The purpose of this rule is to describe the requirements of a seismic survey and report for existing buildings undergoing a seismic retrofit, as required by Section 3403.11 of the Seattle Building Code.

For substantial alterations to existing buildings, the seismic safety objective of the Department of Construction and Land Use is to provide substantial life safety to the occupants. In an earthquake, a building which has been substantially altered is not expected to significantly jeopardize life due to structural collapse, falling hazards or blocked routes of entrance or egress. Buildings which meet this objective may still suffer significant damage in an earthquake.

B. RULE

I. Report standards

A seismic survey and report when required by Section 3403.11 shall address the existence, nature and extent of structural deficiencies and shall recommend solutions for mitigation of all structural deficiencies found. Minimum design forces to be used for analysis shall be 1994 SBC force levels or, if approved by the building official, both the force levels and evaluation procedure of an alternate approach may be used.

Typically approved alternates may be one of the following:

NEHRP Handbook for the Seismic Evaluation of Existing Buildings (also known as FEMA Document Number 178).

The 1991 Uniform Code for Building Conservation (for unreinforced masonry buildings only).

Methods for Evaluating the Seismic Strength of Existing Buildings (also known as ATC -14).

Department of Defense Tri-services manual

Other alternate methodologies may be submitted for review and approval, provided adequate documentation is included to justify their approval.

II. Report contents

1. The seismic survey and report shall be prepared by a structural engineer licensed in the state of Washington.

2. General information. When a structural survey is performed and a structural report prepared, the report shall, as a minimum, contain the following information:

A. The street address of the building.

B. A description of the building including the number of stories and the floor area of each floor.

C. The date the building was constructed and the dates of any significant additions, if known.

D. A list of all occupancy types, both existing and proposed.

E. Identification of all lateral force resisting systems with plans and elevations indicating locations as appropriate.

F. Condition of structural systems, such as identification of dry rot, deteriorated brick or mortar, cracked or spalled concrete, etc.

G. Testing requirements needed to substantiate the conclusions of the structural report. Unless otherwise approved by the building official, test reports shall be submitted prior to permit issuance.

H. Conclusions. The report shall include identification and prioritization of all significant deficiencies based on earthquake hazard. The report must also include a conceptual remediation proposal for each deficiency. If the recommendations do not include full mitigation of identified deficiencies, then a separate request for a waiver or modification must be submitted which justifies such a waiver or modification. Justification may include cost benefit analysis, functional issues, total costs, testing, engineering judgment, redundancy, etc. The engineer shall also include a statement that indicates whether or not the intent of the recommendations is to meet the substantial life safety objective of this rule. If there are significant waivers or modifications such that the project will fail to meet the substantial life safety objective, then the engineer shall specify the level of risk reduction that is intended to be achieved.

III. Test requirements for Unreinforced Masonry buildings

The following special requirements shall apply to all unreinforced masonry buildings (URM) to which this rule applies.

1. GENERAL. All unreinforced masonry walls used to carry vertical loads or seismic forces

parallel and perpendicular to the wall plane and which exceed the thresholds for testing for the standard used, shall be tested as specified in this subsection.

2. MORTAR.

a. TESTS. The quality of mortar in all masonry walls shall be determined by performing in-place shear tests in accordance with U.B.C. Standard 21-6. Alternative methods of testing may be approved by the building official for masonry walls other than brick.

b. LOCATION OF TESTS. The shear tests shall be taken at locations representative of the mortar conditions throughout the entire building, taking into account variations in workmanship at different building height levels, variations in weathering of the exterior surfaces, and variations in the condition of the interior surfaces due to deterioration caused by leaks and condensation of water and/or by the deleterious effects of other substances contained within the building. The exact test location shall be determined at the building site by the engineer responsible for the structural design work. An accurate record of all such tests and their location in the building shall be recorded and these results shall be accepted by the structural engineer and then submitted to the Department of Construction and Land Use for approval as part of the structural survey and report.

3. URM Wall Ties

Existing URM wall ties shall be tested in accordance with UBC Standard 21-7.

IV. Special requirements for URM buildings

Roof-to-wall ties and floor-to-wall ties shall be provided around the entire perimeter of a URM building. Existing anchors must meet, or shall be upgraded to meet, the minimum requirements of Section A110(a) of the UCBC Appendix Chapter 1, or new anchors meeting the minimum requirements of Section A110(a) shall be installed. If the building is a historic building as defined in Section 3403.8, wall anchors conforming to Item 5.b. in Table No A-1-D of the UCBC Appendix Chapter 1 may be used.

V. Parapets

Parapets which exceed the H/T thresholds of the standards used for analysis shall be braced.