Architecture / Planning / Interior Design

ZIMMER·GUNSUL·FRASCA PARTNERSHIP

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April 27, 2004

Ted Wenta
YMCA of Snohomish County
Everett Family Branch
2720 Rockefeller AVE
Everett, WA 98201

Reference: YMCA Everett Facilities Assessment
ZGF Job No. 21422.01

Subject: Summary of Seismic Evaluation

Dear Ted:

Enclosed is the Summary of Seismic Evaluation which should be inserted into the Draft Report under the tab "Structural & Seismic Evaluation". We will forward 10 hard copies.

Sincerely,

ZIMMER GUNSUL FRASCA PARTNERSHIP

Daniel J. Huberty, FAIA
Partner

Enclosures as stated

DJH/cmj

cc: Master File

Everett YMCA
Summary of Seismic Evaluation

The following is a summary of the Everett YMCA Seismic Evaluation Report prepared by Coughlin Porter Lundeen per the Life Safety criteria of ASCE 31-03.

General Building Description

The Everett YMCA consists of the original unreinforced masonry (URM) building built in 1920, a concrete masonry unit (CMU) building built in 1960, and another CMU building addition built in 1980.

Vertical-Load-Resisting Systems

1920 Building

The building is a four-story wood framed structure over a one-story concrete basement. The roof and floor structures consist of tongue-in-groove decking spanning between wood beams that are supported on exterior URM walls and wood posts. At the basement level, the floor structure consists of a concrete slab spanning between concrete beams that are supported on exterior concrete walls and concrete columns located below the wood posts.

1960 Building

The building is a four-story structure built directly north of the 1920 building. The roof structure consists of tongue-in-groove decking spanning between glu-laminated beams that are supported on steel columns and exterior CMU walls. The floor structures consist of concrete slabs spanning between concrete beams that are supported on concrete columns and exterior CMU walls. The foundation system consists of spread footings below the columns and continuous strip footings below the CMU walls.

1980 Building

The building is a four-story structure built north and east of the 1960 building. The roof and floor structures consist of concrete on metal deck spanning between open web steel joists that are supported on the exterior CMU walls. The foundation system consists of spread footings below the columns and continuous strip footings below the CMU walls.

Lateral-Load-Resisting Systems

1920 Building

Lateral loads due to earthquake inertial forces are distributed to the diaphragms which are in turn transferred to the exterior URM walls at the floor levels and the exterior concrete walls at the basement. The walls transfer these lateral loads to the foundation which resists these forces through a combination of passive pressure and friction.

1960 and 1980 Building

Lateral loads due to earthquake inertial forces are distributed to the diaphragms which are in turn transferred to the exterior CMU walls. The walls transfer these lateral loads to the foundation which resists these forces through a combination of passive pressure and friction.

Results

Based on the ASCE 31-03 methodology, the Everett YMCA does not currently meet the requirements for a complete lateral-force-resisting-system. The main deficiencies identified in the buildings include overstressed wood diaphragms; inadequate connections between the wood diaphragms and exterior walls; and overstressed URM and CMU walls. The recommendations provided to mitigate these deficiencies include strengthening the wood diaphragms, reducing the forces in the existing URM and CMU walls by providing new interior braced frames or adding shotcrete; and providing new floor attachments to tie the wood diaphragms to the exterior walls.

In addition, the 1980 building was evaluated to see if it has the capacity to resist loads from the addition of a new roof above the existing roof level and a new floor between the existing fourth level and roof. The results of the evaluation show that the existing roof level is capable of handling higher loads that result from the new occupancy, however, the existing foundation is not capable of handling higher loads from the added levels without being strengthened. Therefore, these changes are feasible but may not be economically viable.