ABHT
STRUCTURAL ENGINEERS

1640 NW Johnson St.
Portland, OR 97209
Tel 503.243.6682
Fax 503.243.6622
www.abht-structural.com

DRAFT

October 29, 2007

Mr. Peter R. Meijer, AIA, NCARB
Peter Meijer Architect, LLC
710 NE 21st Ave., Suite 200
Portland, OR 97232

RE: Medford School District – Roosevelt and Jackson Elementary Schools Structural Peer Review

Dear Peter,

Per your request, we have performed a peer review of the structural/seismic reports prepared for the Roosevelt and Jackson Elementary Schools by DCI Engineers dated May 29, 2007 and June 10, 2007 respectively. We have also reviewed the available as-built structural drawings for both schools provided to us as well as the Feasibility Study drawings prepared by DCI Engineers for the Roosevelt Elementary School dated October 12, 2007.

As part of our peer review process, on October 29, 2007, we performed a site visit to the Roosevelt and Jackson Elementary Schools to observe the as-built conditions readily accessible to view. During our review of the Jackson Elementary School, Mark Button of the Medford School District Facilities Department arrived on-site and walked the site with us. We also spoke via telephone with Harry Jones II (DCI Engineers) to discuss the project and clarify items in the reports and drawings which were unclear to us.

The documents prepared by DCI Engineers which were peer reviewed by us are as follows:

1. Structural/Seismic Report, Roosevelt Elementary School dated May 29, 2007.
2. Structural/Seismic Report, Jackson Elementary School dated June 10, 2007.
3. Feasibility Study, Roosevelt Elementary School dated October 12, 2007, S2.1-S4.1.

It is our understanding that no feasibility study drawings were prepared for the Jackson Elementary School, and that no structural calculations were submitted with the Structural/Seismic Reports or Feasibility Study drawings.

Roosevelt Elementary School

DCI Engineer's report highlighted existing seismic force resisting system deficiencies as well as gravity load resisting system deficiencies based on their visual observations and review of available as-built drawings. Their review was predicated upon a "life safety" assessment. The major deficiencies described were as follows:

1. The walls of the 1911 building (Original School) and 1931 building (Gymnasium) are constructed of un-reinforced brick masonry. These walls lack ductility and perform

poorly during an earthquake. Furthermore, the bricks used in the walls of the 1911 building show signs of cracking (assumed to be a result of the original firing process).

2. The gymnasium wood-framed bow-string trusses have undergone repairs. There is a high probability that further retrofit of the trusses would be required.

3. The 1982 building (Library) was constructed between the gymnasium and 1949 classroom wing. The library addition was laterally braced to the 1949 building at the south. Since the floor elevations between the library and 1949 classroom addition are offset vertically, there is potential for damage to the 1949 classroom wall to occur.

The report then summarizes approximate cost per square foot for seismic renovation of each "building" segment. The approximate cost ranged between $20/SF to $50/SF depending on the assumed extent of retrofit work required. In conclusion, DCI Engineer's report states that the only the 1949 building and stand alone 1995 Cafeteria building are worth saving. The report also suggests that the school be closed due to the life safety threat imposed by the un-reinforced brick masonry and other structural deficiencies described above.

Jackson Elementary School

DCI Engineer's report highlighted existing seismic force resisting system deficiencies as well as gravity load resisting system deficiencies based on their visual observations and review of available as-built drawings. Their review was predicated upon a "life safety" assessment. The major deficiencies described were as follows:

1. The walls of the 1911 building (Original School) and 1937 building (Gymnasium) are constructed of un-reinforced brick masonry. These walls lack ductility and perform poorly during an earthquake. Furthermore, the bricks used in the walls of the 1911 building show signs of cracking (assumed to be a result of the original firing process).

2. The gymnasium wood-framed trusses appear to be undersized for the span. Furthermore, the web to chord connections were nailed and also appeared undersized. There is a high probability that further analysis and strengthening of the trusses would be required.

The report states that the 1949 classroom building, the 1995 Media Center and 1995 stand alone Cafeteria building could be saved. The report then summarizes approximate cost per square foot for seismic renovation of the 1911 Classroom building and 1937 Gymnasium building segments. The approximate cost ranged between $30/SF to $50/SF depending on the assumed extent of retrofit work required. In conclusion, DCI Engineer's report suggests that the school be closed due to the life safety threat imposed by the un-reinforced brick masonry and other structural deficiencies described above.

ABHT Summary

Based on our own review of the available as-built drawings and our site observations of both schools, we believe that the statements, descriptions and recommendations made by DCI Engineers in their Structural/Seismic reports for the Roosevelt and Jackson Elementary Schools are consistent with good engineering judgment and design principles. The cost estimates appear to be consistent with similar seismic retrofit projects which we have performed.

The seismic retrofit approach for the Roosevelt Elementary School in DCI Engineer's Feasibility Study documents S2.1 through S4.1 is also consistent with similar seismic retrofit projects which we have performed.

We would like to note the following added structural deficiencies observed during our review:

1. The existing wood floor and roof diaphragms at both schools appear to be currently constructed of 1x decking. In order to adequately resists the seismic loads, new plywood floor sheathing will likely be required.

2. At the Jackson Elementary Gymnasium, we observed cracks in the exterior brick pilasters at the truss bearing locations. The cracks appear to be caused by rotation of the existing roof trusses.

Please call us if you have any questions or require further information.

Sincerely,

Clinton J. Ambrose, P.E., S.E.
Principal

k:/projects/2007/31007.02/peer review summary letter 10-29-07