

Appendix M. Peer Review Salem Central Public Library Evaluation Report

In addition to the seismic evaluation of the City of Salem Civic Center, our office performed a cursory peer review of the evaluation report produced by BergerABAM dated 2/14/2014 for the City of Salem Central Public Library. This review focuses on the information provided by BergerABAM in the evaluation report (Ref. 3.3) as it relates to design code used, seismic parameters, material specifications, structural systems, gravity and lateral load path description, discussion regarding structural and non-structural deficiencies, and proposed upgrades. As described in the BergerABAM report, the analysis of the auditorium and parking structure was performed using hand calculations. The library structure was modeled using the computer software ETABS®. A copy of this model was provided to MSC Engineer, Inc. on 11/30/2016.

Our peer review entailed reviewing the design calculations and briefly reviewing the computer model created by BergerABAM. We were not authorized at this time to recreate or modify the calculations or model submitted. This review is intended to assist the City's representative in the determination of whether or not the proposed upgrades and described structural and non-structural deficiencies as described in the evaluation report have proper justification.

MSC Engineers, Inc. has conducted the peer review of the City of Salem Central Public Library evaluation report provided by BergerABAM (Ref. 3.3). Based on the considerations stated above, it is determined that the analysis was conducted using adequate code references and seismic parameters. The proposed seismic upgrades for the library, auditorium and parking structure correlate with the need to provide additional stiffness and strengthening to the existing structural systems. We recommend that an additional modal response spectrum analysis be performed to the library and auditorium including current code seismic loading levels. The modal analysis will provide a more representative idealization of the response of the structure. We consider once the auditorium is added to the structural model, the overall dynamic response will change. A shift in the center of rigidity will occur at the roof level and therefore inherit torsion will be added to the system. We anticipate that the resultant torsion force can result in a horizontal irregularity increasing the redundancy factor (ρ) from 1.0 to 1.3. Also, we think that the importance factor (I_e) associate with this structure is 1.25.

In addition, the proposed non-structural recommendations and the cost estimate appear to be accurate and appropriate for the scope of work presented in the report. We recommend that an adjustment factor for inflation should be added to the given cost to update the estimate to reflect current market prices.