

Recent work of SEAMASS members on the Structural Advisory Committee regarding Existing Buildings

By Michael Fillion, PE, SECB

Shortly after the release of the 7th Edition of the Massachusetts State Building Code (MSBC) in 2009, the Board of Building Regulations and Standards of the Department of Public Safety for the Commonwealth of Massachusetts decided to pursue the adoption of the International Code Series documents complimented by Massachusetts specific front end amendments. As part of the process, the BBRs formed committees to review the International Codes, including the establishment of a Chapter 34 (Existing Buildings) Task force to examine the adoption of the 2009 International Existing Building Code.

Throughout the Winter and Spring of 2010, members of the select committee, including several members of SEAMASS, met on a regular basis to work out the implementation of Massachusetts amendments along with the Technical Director of BBRs, Michael Guigli. As part of this work, the committee decided to develop Massachusetts amendment 101.10, Masonry Walls, capturing the unique seismic hazard of unreinforced masonry walls present in abundance throughout Massachusetts through Appendix A1 of the IEBC. In August 2010, the 8th edition of the MSBC included the 2009 IEBC with the proposed committee amendments.

Since adoption of the 2009 IEBC in Massachusetts, the BBRs has been evaluating the newly promulgated MA amendments, particularly those that added cost over and above the referenced code. Amendment 101.10 (Masonry Walls), requires the use of Appendix A1 in IEBC and unintentionally went beyond the intent of capturing the scope of previous seismic provisions enacted in the Seventh Edition of 780 CMR. These unintentional triggers including in-plane shear evaluation of existing URM walls and an extensive program of in-situ masonry material testing if the code default minimum allowable stress values were exceeded. Because of this, and a desire to move towards a code with as few amendments as possible, the BBRs has decided that MA amendments 101.10, 606.2.1 & 606.3.1 will be deleted in the near future.

In response to the concerns of the BBRs, and the desire to streamline the code, the Structural Advisory Committee (SAC) to the BBRs formed a sub-committee to propose an alternate means to regulate seismic hazards in MA. The sub-committee decided that the proposed regulations should be as consistent as possible with the 2012 IEBC code language.

The sub-committee decided that the best method to affect changes would be to liaise with the National Council of Structural Engineers Association, Existing Building (NCSEA EB) Committee. This method was suggested by NCSEA EB and BASE member David Odeh as being the most direct involvement in the development of a National Code. As part of the code development process, member organizations of NCSEA such as SEAMASS may propose amendments to the nationally sanctioned code development body of NCSEA.

SEAMASS Directors and SAC members Richard Crowell, Mike Fillion and Joe Zona proposed language to alter the 2015 IEBC at the annual NCSEA EB meeting held at the office of Simpson Gumpertz and Heger in Waltham, MA on November 4th, 2011 to reflect specific Massachusetts concerns.

The proposal requested revising the 2015 IEBC to include requiring Seismic Design Categories (SDC) B and C in addition to the proposed SDC D, E and F when mitigating the specific hazards of masonry parapets and wall anchorage and to include these provisions in the prescriptive compliance method. This request was proposed due to two reasons: many buildings in Massachusetts are currently in Soil Site Class D or E which then dictates Seismic Design Category B and C based on current seismic mapping and the concern that the age of the unreinforced masonry building stock and severe weathering in the region results in deteriorated masonry or masonry joints not addressed in the code. By not having these buildings included, it was felt that Massachusetts would not be adequately covered in the event of a seismic event and that buildings renovated under the proposed new code would not perform as well as buildings renovated under previous codes.

As part of the discussion, NCSEA committee members felt that they could not endorse SDC B in the proposal but suggested that a front end amendment to the code specific to Massachusetts could be enacted. The resolution of this meeting is that the 2015 IEBC will include the Massachusetts proposals for unreinforced masonry parapets and wall anchorage for Seismic Design Category C buildings including the prescriptive compliance method. The front end amendment to 780 CMR will include Seismic Design Category B for these specific hazards as presently proposed. The work remains in committee and continues to be discussed.

Many thanks should be given to the SAC committee members involved in the process including Joe Zona, Richard Crowell, Mike Fillion, Jim Balmer, Bill Hagen, Richard Henige, Nick Mariani and Garrett McClean who volunteered many hours in developing the code language.