

STATE BUILDING CODE INTERPRETATION NO. I-4-03

April 25, 2003

The following is offered in response to your April 15, 2003 letter to me in which you seek a formal interpretation of the provisions of sections 1614.0 and 3408.2.4 of the BOCA National Building Code/1996 portion of the 1999 State Building Code as they apply to the repair of a failed column connection in an existing parking garage.

The scenario you describe is a Type 2C parking structure constructed in 1977. A beam/column connection failed shortly after completion of the structure as indicated by localized column buckling at the moment connection between the primary support beam and the column to which it is attached. Apparently various proposals to repair the connection have been proposed over the years but no repairs have been implemented. It is the intention of the owner to perform the necessary repairs now.

Question: Given the provisions of Sections 3408.2.4 and 1614.4 and the circumstances described above, is it the intention of Section 1614.3 that the structural members being repaired shall be made to conform to the requirements for new structures with respect to seismic loading requirements, when there were no seismic loading requirements in effect at the time of the original permit?

Answer: No. First of all, let me explain that Section 3408.2.4 is not applicable in this case since there is no intention to utilize the compliance alternative approach offered by Section 3408.0 to govern the repair to the column. The appropriate section of Chapter 34 to govern this repair would be Section 3401.2 which states in part that all systems (including the structural system) required by a previous code shall be maintained in good working order. This provides the scoping requirement that dictates that the original defect must, in fact, be repaired. The repair of the column itself is governed by Sections 1614.3 and 1614.4. Section 1614.4 requires that when repairs are made to an existing structure, the design loads to be used are those that were in effect at the time of erection, provided that public safety is not endangered thereby. As stated, seismic design was not required when the building was originally designed (Section 719.0 of the 1971 State Building Code required seismic design where local experience showed loss of life or damage of buildings resulting from earthquakes. It is reasonable to expect that in the municipality in which the garage is located, there was no such experience). Therefore, Section 1614.4 would not require the evaluation of seismic loads for the repair. While the column connection is an important part of the structural system, it is a relatively small part when compared to the structural frame as a whole. From a common sense standpoint, little value would be gained by making the connection seismically safe if the balance of the structural system is not so protected. Section 1614.3 requires that repairs be made to conform to the requirements for new structures, but since Section 1614.4 exempts the requirement to evaluate seismic loading, one can ignore the seismic provisions of the code as not applicable to the repair in question.