

## STATE BUILDING CODE INTERPRETATION NO. I-5-03

May 6, 2003

The following is offered in response to your April 29, 2003 letter to me in which you seek an official interpretation of the provisions of Section 3404.2 of the BOCA National Building Code/1996 portion of the 1999 State Building Code, which states in part that alterations to any structure shall conform to the code requirements for a new structure and shall not result in an increase in hazard to the occupants.

**Question 1:** The top floor of an existing five story building with an existing flat roof is being altered. A new suspended ceiling with lighting fixtures weighing a total of approximately 2 psf is planned to be supported from the existing roof structure (no such ceiling was supported in the past). The existing roof framing has been analyzed and the live load capacity is less than that required by the current code. Can the ceiling be supported from the existing roof structure without modifying the structure?

**Answer 1:** No. Since the existing roof structure is already incapable of supporting the current design loads, increasing the weight to be borne by the existing structure without strengthening it is not code-compliant, due to the potential for increase in hazard to the occupants.

**Question 2:** If the answer to Question 1 is no, is it acceptable to modify the roof structure only as required to carry the additional 2 psf load or must the roof structure be improved to carry loads in accordance with the current code?

**Answer 2:** Section 3404.2 of the referenced code requires that alterations to a structure shall conform to the code requirements for a new structure, therefore once alteration of the existing roof structure is contemplated, the current code requirements for environmental and dead loads must be used in the design of the alteration. Section 1614.4 of the referenced code seems to contradict this when it states "Where an existing structure heretofore is altered or repaired, the minimum design loads for the structure shall be the loads applicable at the time of erection, provided that the public safety is not endangered." This language may lead the code reader to believe that only those loads recognized 100 years ago must be considered in the alteration of the roof structure. It is important to note, however, that the title of the section, "Existing live load" limits the application of the section to live loads, which by definition, do not include environmental loads such as snow and wind loads and likewise do not include dead loads. Thus, when designing alterations to the existing roof structure, one must apply the current code requirements for snow load and dead load.