

STATE BUILDING CODE INTERPRETATION NO. I-2-02

January 14, 2002

The following is offered in response to your letter to me dated January 8, 2002, requesting a formal interpretation of Tables 301.4, 502.3.1b and 802.4 (a through d) of the 1995 CABO One and Two Family Dwelling Code portion of the 1999 State Building Code.

Question 1a: "Consider an attic that has a code compliant stair for access, windows for light and ventilation, and framing such that a habitable room could easily be finished in the future. This room could be above the first floor such as over a garage, or it could be over the second floor. The space is intended for future finish, but the use is not known. Using Table 301.4 from CABO 1995, could the floor joists of this attic be designed for a 20 lb./ft.² live load assuming limited storage?"

Answer 1a: No, the appropriate design live load for this scenario is 30 pounds per square foot (psf). Table 301.4 must be used in conjunction with Tables 502.3.1b and 802.4 (a through d) to determine the appropriate live load for design of any attic floor. Tables 802.4 (a and b) only allow the use of a 20 psf live load where attic storage is limited and development of future rooms is not possible. In the scenario you depict, there is no practical limit to the amount of storage, and the development of future rooms is possible, so you must utilize Table 502.3.1b which is appropriate both for rooms used for sleeping purposes and for attic floors, and which specifies a 30 psf design live load.

Question 1b: "If not, must the design assume that the space will be used in the future for sleeping rooms (30 lb./ft.²), or must the design allow for 40 lb./ft.² assuming a use other than storage or sleeping?"

Answer 1b: 30 psf is the appropriate design live load per Table 502.3.1b when the future use is unknown. Only if the client indicates that at some time in the future the space will be utilized for purposes other than sleeping rooms, would 40 psf be the appropriate design live load.

Question 2: "Consider an attic identical to #1 above, except that there is no code compliant stair for access and egress. Must the design assume that a stair will be constructed in the future, and if so, what is the appropriate live load per sq. ft.?"

Answer 2: Given the information supplied, the answer is yes, the design must assume that a code compliant stair can be constructed in the future, so the appropriate design live load is 30 psf per Table 502.3.1b. If, however, it can be proven that construction of a code compliant stair is impossible based on other design constraints, it may be appropriate to design to a 20 psf live load. In general, if the attic configuration as constructed allows sufficient volume of space and the ability to install windows for light, ventilation and rescue/egress so that code compliant rooms may be constructed, one must utilize Table 502.3.1b and design for a 30 psf live load. This is also true if the amount of storage planned for the attic goes beyond "limited", a term that is not defined in the code, but would probably be exceeded in the case of an attic with sufficient volume to develop future rooms.

Question 3: "Consider an attic similar to #1 above, except that there are no windows, no stairs, and a roof pitch such that a habitable space could not be finished within the existing attic. Must the design assume that a stair will be constructed in the future for access, that windows will be provided, that a dormer will be added to achieve proper headroom (all "possible") and if so, what is the appropriate live load per sq. ft.?"

Answer 3: No. As outlined in Answer 2, in order to trigger the 30 psf live load requirement, the volume of the attic must be sufficient as constructed such that code compliant rooms could be

developed in the attic. Code compliant stairs and windows can frequently be added without changing the volume of the attic, so they are not usually the constraints that would make it impossible to develop future rooms. It is not the intent of the code, however, to require use of the 30 psf live load when it would be necessary to add dormers or re-frame the roof with a higher slope in order to obtain sufficient volume to construct rooms in the attic.

Comment: In addition to a 30 psf live load requirement for attics where development of future rooms is possible and a 20 psf live load for limited attic storage where development of future rooms is not possible, Tables 802.4 (c and d) allow for a 10 psf design live load where there is no attic storage and the roof slope is not steeper than 3 in 12. Note that this is a two-part requirement: no attic storage in addition to the slope limits. In order for the designer to utilize the 10 psf design live load, the attic space in question would have to be 30 inches or less in clear height so that section 807.1 did not require attic access. This is because the only way one can ensure no attic storage is to deny access to the attic space.