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P/N 2670

James T. Guarino, AIA
60 North Main Street
Sherborn, Massachusetts 01770-1513

Dear Jim:

Subject: Basis for Limited Sprinkler Requirements
16 Nason Lane, Sherbon

This memorandum will summarize my research into the requirements of the Eighth Edition of the Massachusetts State Building Code concerning potential requirements for sprinklers in part or all of the Wildstar Farm arena and stable building proposed for 16 Nason Lane in Sherborn.

I understand that all parties agree that the apartment is of Use Group R and is an *accessory* occupancy of the main Use Group U occupancy of the building. I further assume that all parties agree that the primary occupancy of the building is Use Group U based on its limited equestrian functions.

The provisions of the MSBC8 concerning accessory uses are provided in Section 508.2 and are the following:

508.2 Accessory occupancies. Accessory occupancies are those occupancies that are ancillary to the main occupancy of the building or portion thereof. Accessory occupancies shall comply with the provisions of Sections 508.2.1 through 508.2.5.3.

508.2.1 Area limitations. Aggregate accessory occupancies shall not occupy more than 10 percent of the building area of the story in which they are located and shall not exceed the tabular values in Table 503, without building area increases in accordance with Section 506 for such accessory occupancies.

508.2.2 Occupancy classification. Accessory occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space.

508.2.3 Allowable building area and height. The allowable building area and height of the building shall be based on the allowable building area and height for the main occupancy in accordance with Section 503.1. The height of each accessory occupancy shall not exceed the tabular values in Table 503, without increases in accordance with Section 504 for such accessory occupancies. The building area of the accessory occupancies shall be in accordance with Section 508.2.1.

508.2.4 Separation of occupancies. No separation is required between accessory occupancies and the main occupancy.

Exceptions:

1. Group H-2, H-3, H-4 and H-5 occupancies shall be separated from all other occupancies in accordance with Section 508.4.
2. Incidental accessory occupancies required to be separated or protected by Section 508.2.5.
3. Group I-1, R-1, R-2 and R-3 dwelling units and sleeping units shall be separated from other dwelling or sleeping units and from accessory occupancies contiguous to them in accordance with the requirements of Section 420.

These provisions of Section 508.2 are not modified by the Massachusetts amendments of the IBC-09.

The MSBC8 provisions concerning non-separated and separated mixed uses include the following requirements concerning application of the code to those uses when they are principle or primary uses rather than accessory or incidental uses of a building:

508.3.1 Occupancy classification. Nonseparated occupancies shall be individually classified in accordance with Section 302.1. The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space except that the most restrictive applicable provisions of Section 403 and Chapter 9 shall apply to the

building or portion thereof in which the nonseparated occupancies are located.

508.4.1 Occupancy classification. Separated occupancies shall be individually classified in accordance with Section 302.1. Each separated space shall comply with this code based on the occupancy classification of that portion of the building.

The underlined sentences of the code excerpts above address the extent to which occupancy based requirements of the code are to be applied. For both accessory uses (even without separation from a main use) and for separated mixed uses, the code requirements are applicable on a space-by-space basis. The non-separated mixed-use provisions are explicit with their requirement that fire protection requirements of Chapter 9 are applicable throughout the building. That distinction leads me to conclude the mixed-use provisions of Section 508 would require sprinklers in the apartment as a space of Use Group R but would allow the remainder of the building to be unsprinklered.

Building Inspector Canney also reviews the requirements of MSBC8 Section 903 concerning sprinkler requirements that are the IBC Section 903 provisions heavily modified by Massachusetts amendments. Those requirements are concentrated in Table 903 in which the left hand column is headed "Buildings Having Occupancy" and lists the various occupancies of the building code. The heading of the Table 903 columns containing area, occupant load or height thresholds indicates:

Provide automatic fire sprinkler system throughout building if one of the following conditions will exist (see Note a):

Note a does not directly speak to the "where required" basis for providing sprinklers at 16 Nason Lane but rather identifies the "how to" basis for providing sprinklers (NFPA 13, 13R, 13D).

As Table 93 does not include a listing for Use Group U, it is concluded that a building with Use Group U as its primary occupancy would not be required to be sprinklered.

The base requirement of MSBC8 Table 903 is that sprinklers shall be provided in "buildings having occupancy" of Use Group R occupancy based on an area threshold of zero square feet.

I believe the question of the extent of sprinkler requirements for the arena building may be based on the distinction between the accessory and primary uses of the building. On the basis of the provisions of Sections 508.2, 508.3 and 508.4 discussed above, I conclude that the primary occupancy of the building is Use Group U and that the fire

protection requirements are driven by that occupancy rather than the accessory Use Group R-3 occupancy. The sentence "The requirements of this code shall apply to each portion of the building based on the occupancy classification of that space" in the accessory use section indicates the sprinkler requirement would be limited to the spaces of Use Group R. If that section had included a reference to the requirements of Chapter 9, as the non-separated mixed-use section does, then we would have to apply the sprinkler requirement throughout the building.

NFPA 13R and 13D both require sprinklers of limited capability (number of operating sprinklers) and limited coverage (no coverage of concealed spaces, the protection provides by such systems is primarily for life safety, especially of sleeping occupants, rather than property protection).

Given that the NFPA 13R or 13D sprinkler requirement for small Use Group R spaces or buildings is primarily a life safety system rather than a property protection provision, the intent of the code will be satisfied by sprinklering of the Use Group R space to protect occupants of the residential space. For individual dwelling units, it is reasonable to conclude that either an NFPA 13R or NFPA 13D system would be appropriate for the apartment of the building.

If you have any questions concerning this summary of our discussion and its conclusions, please do not hesitate to get back to me.

Very truly yours



Harold R. Cutler