CODEWORD ©

THE OFFICIAL NEWSLETTER OF THE BOARD OF BUILDING REGULATIONS & STANDARDS

~July 2003~

HOUSE BILL 1740 FILED TO REMOVE ALL FIRE PROTECTION SYSTEMS FROM THE STATE BUILDING CODE

The requirements for fire protection systems have been part of the State Building Code since its inception in 1975. Since that time we have seen vast changes in the State Building Code through the work of the Board and of the Fire Prevention-Fire Protection Advisory Committee to the point where fire deaths in the state have been steadily declining from year to year. The BBRS is justifiably proud of its efforts in this regard and also in the fact that the State Building Code has perhaps the most stringent fire safety standards of any state building code in the entire country.

Notwithstanding the preceding, a bill has been filed for the current legislative session by Mr. Toomey of Cambridge, and co sponsored by Anthony J. Verga and Christine E. Canavan which would remove the Fire Protection Requirements in Buildings from the State Building Code. This would be a direct change to the empowerment laws of the BBRS which have been in effect since 1975.

This would have the effect of bifurcating the "Building Construction Requirements" of the Building Code.

Included in this edition of Codeword is the full text of the bill and selected excerpts of the BBRS Chairman Tom Gatzunis written testimony at the Public Hearing held before the Joint Committee on Public Safety.

The text of the Bill follows

AN ACT RELATIVE TO FIRE PROTECTION SYSTEMS FOR BUILDINGS AND STRUCTURES HOUSE BILL 1740.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

SECTION 1. Section 94 of Chapter 143 of the Massachusetts General Laws, as appearing in the 2000 Official Edition, is hereby amended by adding the following sentence after the existing sentence in subsection (a): This shall not include standards for fire protection systems, as defined in Section 1 of Chapter 148, installed in new or substantially modifies buildings in accordance with regulations prescribed by the Board of Fire Prevention Regulations.

SECTION 2. Section 95 of Chapter 143 of the Massachusetts General Laws, as so appearing, is hereby amended by striking out, in subsection (a) the words: "and fire prevention".

SECTION 3. Section 96 of Chapter 143 of the Massachusetts General Laws, as so appearing, is hereby amended by inserting between the words "demolition" and "promulgated" the words: "or fire prevention".

SECTION 4. Section 1 of Chapter 148 of the Massachusetts General Laws, as so appearing, is hereby amended by inserting, between the definitions of "Department" and "Head of the Fire Department", the following new definition:

"Fire protection systems", any equipment or system relating to fire protection, fire detection, fire warning or fire suppression or

as otherwise defined by the Board through regulation.

SECTION 5. Section 201 of Chapter 6, as so appearing, is hereby amended by striking out in line the words "automatic Sprinkler appeals board" and substituting in place thereof the words: fire protection systems board.

SECTION 6. Section 28 of Chapter 148, as so appearing, is hereby amended by adding after subsection (3) the following new subsection: (4) to provide adequate standards for the design, installation, maintenance of fire prevention systems in building or structures.

SECTION 7. Section 26A of Chapter 148, as so appearing, is hereby amended by striking out, in lines 2 and 3, the words "in accordance with the provisions of the state building code" and substituting in place thereof the following words: in accordance with the provisions of the state fire code.

SECTION 8. Section 26A1/2 of Chapter 148, as so appearing, is hereby amended by striking out, in lines 4 and 5, the words "in accordance with the provisions of the state building code" and substituting in place thereof the following words: in accordance with the provisions of the state fire code.

SECTION 9. Section 26B of Chapter 148, as so appearing, is hereby amended by striking out, in lines 4 and 5, the words "in accordance with the provisions of the state building code" and substituting in place thereof the following words: in accordance with the provisions of the state fire code.

SECTION 10. Section 26G of Chapter 148, as so appearing, is hereby amended by striking out, in lines 5 and 6, the words "in accordance with the provisions of the state building code" and substituting in place thereof the following words: in accordance with the provisions of the state fire code.

SECTION 11. Section 26H of Chapter 148, as so appearing, is hereby amended by striking out, in lines 3 and 4, the words "in accordance with the provisions of the state building code" and substituting in place thereof the following words: in accordance with the provisions of the state fire code.

SECTION 12. Section 26I of Chapter 148, as so appearing, is hereby amended by striking out, in lines 8 and 9, the words "in accordance with the provisions of the state building code" and substituting in place thereof the following words: in accordance with the provisions of the state fire code.

SECTION 13. Section 26A of Chapter 148, as so appearing, is hereby amended by striking out, in lines 12 and 13, the words "to the board of appeals as provided in the state building code and section twenty-three of chapter twenty-three B" and substituting in place thereof the following words: to the board of appeals of the fire safety commission as provided in section two hundred and one of chapter six.

SECTION 14. Section 26B of Chapter 148, as so appearing, is hereby amended by striking out, in lines 13 and 14, the words "to the board of appeals as provided in the state building code and section twenty-three of chapter twenty-three B" and substituting in place thereof the following words: to the board of appeals of the fire safety commission as provided in section two hundred and one of chapter six.

SECTION 15. Section 26I of Chapter 148, as so appearing, is hereby amended by adding the following sentence to said section: Whoever is aggrieved by the head of the fire department's interpretation, order, requirement, direction or failure to act under the provisions of this section, may, within forty-five days after the service of notice thereof, appeal from such interpretation, order, requirement, direction or failure to act to the board of appeals as provided in section two hundred and one of chapter six.

TESTIMONY OF THE CHAIRMAN OF THE STATE BOARD OF BUILDING REGULATIONS AND STANDARDS IN OPPOSITION TO h 1740

The following represents excerpts from the written testimony in opposition to H1740 presented at the public hearing on March 13, 2003

- Before there was a singular statewide Building Code in the Commonwealth, there were instead 351 local building

codes which resulted in construction chaos and caused disparate levels of LIFE-SAFETY in the buildings required to be constructed in each of the cities and towns of the state.

- With very strong Fire Service input during its development, the current 6th Edition Massachusetts State Building Code, relative to required fire protection in new construction buildings, is one of the most progressive and is the most stringent state building code in the nation.

- The adoption of these stringent fire protection requirements in the current Massachusetts State Building Code was by unanimous vote of the 11 member BBRS.

- Fire protection requirements of both the Massachusetts State Building Code and national model building codes occupy a measurable percentage of a building code perhaps 60% of a building code is tied to structure and systems fire protection.

- Even though H-1740 proposes to remove such fire protection requirements from the uniform State Building Code, to do so is not as easy as one may think.

- Building required CONSTRUCTION TYPE; building ALLOWED HEIGHT or ALLOWED AREA; REQUIRED LENGTH OF EGRESS paths; TENANT SEPARATION between different USE GROUPS; interaction of locking systems, air handling systems, and ventilation systems, etc. can be intimately tied to required fire protection systems which is why all such criteria, including fire protection requirements are captured in a single Building Code, not two or more building codes (H-1740 will create multiple building codes).

- Building Code and Fire Code efficient interfacing under proposed H-1740 cannot be predicted at this time given the interrelationship of building non-fire and building fire protection systems.

- The proposal before you may inadvertently allow fire protection requirements to be controlled by both the Board of Fire Prevention and the local Heads of Fire Departments (Under MGL c.148 28, the Head of the local Fire Department is allowed "to make orders or rules not inconsistent with" the regulations of the State Fire Code). Such statutory freedom could mean that local municipal design and construction requirements at each of the 351 cities and towns will be legitimized a process which is not allowed relative to the uniform MSBC and for sound reason.

- H-1740 will create at least two, and perhaps as many as 351 separate building codes in the Commonwealth and it will cause a building designer to have to become technically proficient with two different "building codes" and potentially 351 variations of the Fire Code requirements just to establish the minimum requirements to construct a single building.

- The Insurance Standards Organization (ISO), which advises the insurance industry regarding national and regional property insurance rates, has recently reviewed the current version of the MSBC and determined that the Massachusetts Building Code is progressive, conservative and current relative to other contemporary Building Codes of the nation.

- The ISO de-rates states (de-rating may result in higher property insurance premiums) that do not have a uniform state building code and de-rates states where states allow local modification to the uniform state building code (H-1740 may result in de-rating if the proposal allows local municipal modification of what have been, in the MSBC, uniform fire protection requirements).

- The Worcester Cold Storage Building fire where 6 Firefighters were lost could not be constructed today without

being fully suppressed and the exposed insulation of that building could not have been left exposed under current MSBC requirements.

- The Newton, Massachusetts Business building where multiple civilian fire deaths occurred could not have been constructed today under the current SBC without full sprinklering and required means of egress would have had to conform to current MSBC requirements.

- The MSBC would not have allowed the flammable finish that is alleged to have been utilized in the W. Warwick nightclub.

LICENSED CONSTRUCTION SUPERVISOR DISCIPLINARY ACTIONS

Hearings Held May 14, 2003

Licensee	CSL Number	Disciplinary Action Taken	Effective Date
Robert Silva	74393	Letter of Reprimand	5-14-03
Robert O'Leary Jr	72779	Suspended 90 days must register as HIC prior to reinstatement	5-14-03
Thomas Woods	5290	Suspended until licensee pays $8000 penalty.	5-14-03
Richard Thomson	59199	Suspended and must pass CSL examination prior to reinstatement	5-14-03
Philip LaChapelle	9445	Suspended and must pass CSL examination prior to reinstatement	5-14-03

Hearings Held June 25, 2003

Licensee	CSL Number	Disciplinary Action Taken	Effective Date
Robert Silva	74393	Suspended 1 year and must re test	6-25-03
Norbert Brideau	6899	Letter of Reprimand	6-25-03
Kenneth Ryder	48208	Under Appeal	6-25-03
Earl Scott	6920	Suspended 1 year and must re test	6-25-03

Building Officials are reminded to ensure that a license must be presented at the time of permit application. ALL Construction Supervisor Licensees have picture identification

BBRS IS SADDENED TO ANNOUNCE THE DEATH OF FRANK HEGER, PE.

The BBRS is saddened to announce the death of Dr. Frank Heger who passed away on June 24, 2003.

In addition to being the long time chairman of the BBRS Loads Advisory Committee, Dr. Heger was recognized nationally as a leader in the structural engineering community. For those who worked with him he is best remembered as an outstanding engineer and mentor. He earned his S.B., S.M., and Sc.D. degrees at M.I.T. and taught there for several years before devoting himself full time to the firm of Simpson Gumpertz & Heger of which he was a founding principal. He received numerous awards for his contributions to structural engineering, including awards for the United States Pavilion Expo '67 in Montreal, for Spaceship Earth at Epcot Center, and for research on concrete pipe, buckling of shells, and structural plastics, to name a few. Frank was known both as an outstanding structural designer as an expert in failure investigations (Hotel Vendome, 2000 Commonwealth Avenue, and L'Ambiance Plaza). He was active in local and national technical committees of structural engineering societies, often as chairman, helping develop new codes and standards. He was past chairman of the Loads Advisory Committee to the Massachusetts State Building Code.

BBRS and Staff

A STAFF VIEW OF THE INTENT OF MGL C.112, SECTION 81R

by

Tom Riley - Code Development Manager

MGL c 112 Section 81R provides exemptions from plans which require the seal of a Massachusetts Registered Professional Engineer.

In the development of the current sixth Edition of the Massachusetts State Building Code, it was brought to the attention of the BBRS and its staff that MGL c.112, Section 81R existed as a law that has to be recognized and respected.

MGL c.143, Section 54A, titled: "Acceptance or approval of construction plans or specifications: seal or architect or professional engineer", in part, reads that: "no officer, board, or commission of the commonwealth or of any city or town, charged with enforcement of the state building code or laws, by-laws, ordinances, rules or regulations relating to the construction, reconstruction, enlargement or alterations of buildings or structures, shall accept or approve any plans or specifications that do not bear the seal of registration of an architect or a professional engineer, UNLESS (emphasis added) the plans and specifications are not required to be prepared by a registered architect or by a registered professional engineer, as set forth in sections sixty L and eighty-one R, respectively, of chapter one hundred and twelve"

Specifically addressing "81R" in this discussion, MGL c.112, section 81R, in part, reads: "Nothing in said sections shall be construed to prevent or to affect:- (a) the practice of any other legally recognized profession including the practice of any trade, including, in connection with the practice of the electrical, plumbing, heating, ventilating, air conditioning, refrigeration AND ALL OTHER TRADES, THE PREPARATION OF PLANS, SPECIFICATIONS OR SHOP DRAWINGS BY ANY PERSON, FIRM, PARTNERSHIP, CORPORATION OR ASSOCIATION PRACTICING ANY SUCH TRADE, FOR WORK TO BE INSTALLED OR BEING INSTALLED BY THE SAME PERSON, FIRM, PARTNERSHIP, CORPORATION OR ASSOCIATION PREPARING SUCH PLANS, SPECIFICATIONS OR SHOP DRAWINGS:" (emphasis added).

Staff views MGL c.112, Section 81R (a) as recognizing and allowing a licensed tradesperson to install what he/she designs provided that such design falls under the jurisdiction of the tradesperson's license.

Given the express language of MGL c.112, Section 81R (a), and based on discussions with organized professional trade associations, it is staff's further understanding that should a licensed tradesperson: (1) operate beyond the jurisdiction of his/her license (for example, where a trades person's system interfaces with a system beyond the jurisdiction of that tradesperson) or: (2) if they design within their jurisdiction but said design is installed by others or: (3) if they install what someone else designed, then the protection of "81R" is lost.

The current Sixth Edition State Building Code was written recognizing that "81R" exists thus the specific reference to "81R" both in the building permitting section of the Code (Chapter 1, Section 110.8) and also in Chapter 9 (Sections 903.1.3 DESIGN: 903.3 FIRE PROTECTION SYSTEM INSTALLATION and: 903.4 ACCEPTANCE).

In compliance with requirements of the State Building Code, licensed Trades people are reminded that, when applicable, to operate within the limitations of "81R" if "81R" protection is sought and Regulators are requested to honor the statutory rights that are granted licensed Trades people under "81R" and explicitly recognized in the State Building Code.

SECRETARY'S TASK FORCE ON FIRE AND BUILDING SAFETY

Following the Station Fire in Rhode Island, Massachusetts Department of Public Safety and the Massachusetts Department of Fire Services have been spearheading a task force to study the regulations currently in effect in Massachusetts in order to minimize the chances of such a tragedy occurring in Massachusetts.

The task force has focused on:

- Indoor Pyrotechnics
- Sprinklers
- Means of Egress
- Interior Finish and Trim

- Legal issues regarding code enforcement and
- Education and Training

The task force has held public forums in Springfield, Worcester, Boston, Hyannis and Stow and is now in the process of completing its final report. The report is expected to be submitted to Governor Romney by July 31, 2003. The report is expected to contain recommendations for both legislative and regulatory changes to the current laws and regulations.

THE NEED FOR CAREFUL MANAGEMENT AND INSPECTION OF ELEVATOR MACHINE ROOMS

(This article is intended to address both traction and hydraulic elevator machine rooms)

Currently on a national basis there is continued discussion as to whether or not the sprinklering of elevator machine rooms is desirable.

Advocates of sprinklering note the fire safety advantage of sprinklers but opponents remain concerned that firefighters utilizing a traction elevator might become trapped in the elevator car if shunt trip electrical breakers inadvertently trip and de-power the elevator machine: additionally, the wetting of a traction elevator braking system and/or the wetting of traction/hydraulic elevator electrical controllers could result in unpredictable performance due to the presence of water on such elevator machine components.

In Massachusetts a coalition of Building Code, Elevator Code and Fire Service personnel have opted to cause change to both the Building Code and Elevator Code such that sprinklers are now not permitted in elevator machine rooms, hoist ways and pits.

This approach, although eliminating concern for elevator machine performance in the presence of water, does not eliminate the risk to the elevator machine room and building in the event of an elevator machine room fire.

Due to this fire risk issue it is imperative that elevator machine rooms be properly managed and periodically inspected.

Elevator machine rooms, like electrical rooms, are not to be used for storage but are to be dedicated to elevator machine equipment.

The storage of rags, paper or plastics: the storage of combustible furniture or the storage of non-exempt quantities of lubricating/hydraulic oils, etc. are all violations of the requirements of 524 CMR and/or 780 CMR and/or 527 CMR and place both the elevator machine room and the building at risk of fire exposure due to the fuel load contributions of such non-compliant storage.

Elevator machine rooms are required to have fire rated floors, ceilings and walls and properly rated fire doors thus it is critical that any penetrations to such fire rated assemblies are properly fire stopped with approved through-wall penetration systems and that fire door systems (the door, its frame and hardware and door closers) are properly maintained.

Proper building owner management of elevator machine rooms and periodic inspection of same serve to ensure safe elevator use and minimize the risk of fire.

BBRS ADOPTS UPDATED NFPA STANDARDS BY EMERGENCY ACTION

At its regularly scheduled meeting of July 8, 2003 the Board of Building Regulations and Standards updated the following NFPA Standards. The following "amendment by emergency action" updates certain (but not all) NFPA reference standards listed in Appendix A of the current version of the 6th Edition of the Massachusetts State Building Code (780 CMR). The updating of these reference standards is done for the general welfare of the Commonwealth and its citizenry.

Check the Massachusetts Register for the actual adoption date which was not established at the time of printing of this edition of Codeword.

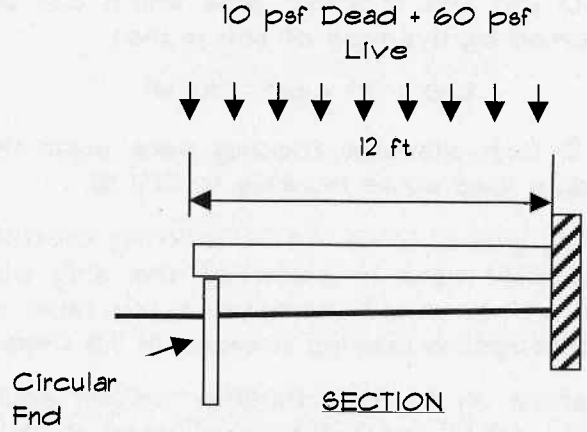
EXISTING REFERENCE STANDARD/DATE	AMENDED "BY EMERGENCY" REFERENCE STANDARD BY TITLE AND DATE
NFPA 11-1994	NFPA 11-2002 "Low, Medium and High Expansion Foam"
NFPA 13-1996	NFPA 13-2002 "Installation of

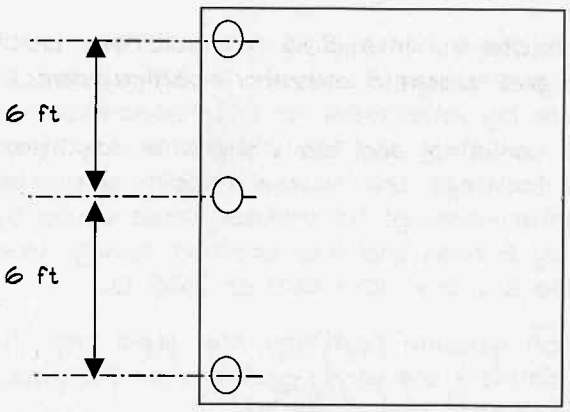
	Sprinkler Systems"
NFPA 13D-1994	NFPA 13D-2002 "Installation of Sprinkler Systems in One- and Two-Family Dwellings and Mobile Homes"
NFPA 13R-1996	NFPA 13R-2002 "Installation of Sprinkler Systems in Residential Occupancies Up to Four Stories in Height"
NFPA 14-1995	NFPA 14-2003 "Standpipe and Hose Systems"
NFPA 15-1996	NFPA 15-2001 "Water Spray Fixed Systems for Fire Protection"
NFPA 16-1995	NFPA 16-2003 "Deluge Foam-Water Sprinkler and Spray Systems"
NFPA 20-1996	NFPA 20-1999 "Installation of Centrifugal Fire Pumps"
NFPA 22-1996	NFPA 22-2002 "Standard for Water Tanks for Private Fire Protection"
NFPA 24-1995	NFPA 24-2002 "Installation of Private Fire Service Mains"
NFPA 25-1995	NFPA 25-2002 "Inspection, Testing and Maintenance of Water-Based Fire Protection Systems"
NFPA 30-1996	NFPA 30-2000 "Flammable and Combustible Liquids Code"
NFPA 72-1996	NFPA 72-2002 "National Fire Alarm Code"
NFPA 96-1998	NFPA 96-2001 "Ventilation Control and Fire Protection of Commercial Cooking Operations"
NFPA 231D-1994	Now also part of NFPA 13-2002 "Installation of Sprinkler Systems"
NFPA 409-1995	NFPA 409- 2001 "Aircraft Hangars"
NFPA 418-1995	NFPA 418-2001 "Roof Top Heliport Construction and Protection"
NFPA 750-1996	NFPA 750-2003 "Installation of Water Mist Fire Protectio Now also part of NFPA 13-2002 "Installation of Sprinkler Systems"n Systems"

FOOTINGS FOR RESIDENTIAL DECKS

The size of the footings required for a deck (or any other structure) depends upon the load and the soil conditions.

The code provides Presumptive Bearing Pressure for various types of soils. The presumptive bearing pressures provide a factor of safety against bearing failure.





Circular forms are readily available from most lumber suppliers. They are easily installed in the ground and strong enough for use as concrete forms.

As an example of sizing of such footings, assume that a deck is proposed to be constructed on a silty clay soil the presumptive bearing pressure is obtained from table 3604.1.4 is 2,000 psf.

Working backwards from say an 8 inch (0.67 feet) diameter concrete footing.

Footing Area, $A = (3.142 \times 0.67^2) / 4$

$A = 0.35$ sf

Using the presumptive bearing pressure of 2000 psf, for silty clay, the allowable bearing load is the footing area multiplied by the presumptive bearing pressure or,

$2000 \times 0.35 = 700$ lb

Assuming a dead load of 10 psf and live load of 60 psf the tributary area which can be supported by this type of soil is then

700 / (10 + 60) = 10 sf

If a 12 inch diameter footing were used the allowable load would increase to 1571 lb.

If sandy gravel (presumptive bearing pressure 5000 psf) were in place of the silty clay these values would increase in the ratio of the presumptive bearing stresses, or 2.5 times.

Therefore an 8 inch diameter column would support a fully loaded tributary area of 25 sf and a 12 inch footing 55 sf

As an example for a 12 feet by 12 feet deck (see figure page 7) which is supported on one side by attachment to the foundation wall of the building and on the other by three circular footings, the critical footing would be the center footing. Its tributary area would be 6feet by 6 feet and the applied design load would be 6 x 6 x (10 + 60) or 2520 lb.

If 12 inch circular footings are used and the soil conditions are sandy gravel then the size of footing required would be:

2520/5000 or 0.5 sf

This could be accomplished by using a 12 inch circular footing which has an area of 0.79 sf and an allowable load on the soil of 0.79 x 5000 or 3920 lb

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