The Commonwealth of Massachusetts

State Board of Building Regulations and Standards

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CODEWORD

April, 1987

ONE COMMISSIONER'S OPINION - REGULATORY REFORM

by Joseph J. Cellucci, Building Commissioner, City of Cambridge

As many of you know, the Board has been working, along with two members of the General Court, for about 18 months on a legislatively mandated study of the Massachusetts Building Regulatory System. From my point of view, regulatory reform is essential to the continued health and growth of our building industry. As a Building Commissioner, I have experienced first hand the effects of conflict between regulations, state statutes and local ordinances. As a Board member, and particularly in my role on our Appeals Board, I can tell you that regulatory confusion hurts the designer, constructor, and building inspector equally, and adds needless cost to construction without any corresponding benefits.

During our study, we have looked at the successful regulatory programs in other states, so that we can learn from and select the best features of these other state systems. We have also looked inside Massachusetts to understand what it is we do best and build upon it, and to understand our failures and to learn from them and change for the better. To assist us in these matters, we have used the services of a consultant to research other state systems. We also sought the advice of a select committee of building inspectors, designers, contractors and construction experts. While we have frankly disagreed with some of the advice offered, we have attempted to select the best ideas put forth, and go forward from there. Our study has progressed to the point where we feel we have identified some key ideas that are a necessary part of regulatory reform. I would like to briefly outline for you these concepts and my thoughts about them.

A SINGLE DEPARTMENT of building regulation would make more efficient use of personnel, equipment, resources and supplies, and would allow for a more co-ordinated effort in adopting and maintaining all codes which affect building construction. At present, these different code agencies, boards, commissions and divisions are spread throughout five secretariats of state government. Preliminary studies have shown that

these regulatory bodies generate income sufficient to support their unification into a single Department of Building Regulations without imposing added cost. In fact, the added efficiency gained would make more funds available for additional technical services for code users.

ONE CO-ORDINATED BODY should enact all codes. Its membership should include a representation of all of the various disciplines, organizations, officials and trades which are affected by the various codes. Each existing code board should continue to function as a code advisory board in its area of expertise, and should propose recommended code amendments based on its expertise to the co-ordinating body. The co-ordinating body's job would be to enact all the various codes, and to ensure that conflicts of overlaps between codes do not occur, or are resolved equitably.

MODEL CODES should be the basis for all construction codes, since this is the best way to integrate the various codes with one another. Basing regulations on model codes does not mean that we should cease to be innovative in finding the best solutions for Massachusetts and changing portions of the models when necessary. However, we should be taking the best of our changes, and proposing them as changes to the model codes in the interest of uniformity and for the benefit of other states.

EDUCATION AND SUPPORT SERVICES are essential to make the system work. Inspectors should be educated through a continuing program of courses, which may be repeated as often as necessary without penalty, to achieve a minimum standard of proficiency to the key skills needed for the job. By providing a meaningful, structured educational ladder for inspectors to climb, we will become more professional, and will be so regarded and respected by others. In the long run, this will be reflected in the salaries we earn and the benefit we provide to our communities. Support services such as code interpretations or technical assistance should be made available to the construction community on a wider scale for all construction codes. The single department concept discussed earlier will provide a sole comprehensive support agency - no more bouncing around from department to department in search of the entire picture.

As we proceed, we welcome your thoughts and input to refine our concept of regulatory reform. We also ask your continued and enthusiastic support to help make this dream of a better system into reality.

C O D E W O R D

This issue's **CODEWORD** is: Mixed Use and Occupancy. Section 213 of the Code regulates mixed use and occupancy by giving the designer three options to select from in planning a mixed use. So long as the design and construction satisfy any option, the building complies with the Code. The options are:

SEPARATION BY FIRE WALLS: Separate the mixed uses completely with fire walls having a rating equal to the highest fire grading listed in Table 902 for the separate use groups. Each use group is then contained in a

separate building, and each building is regulated separately by the code according to the applicable use. (For a review of the important differences between fire walls and fire separation walls, see the May 1986 issue of **CODEWORD.**)

SEPARATION BY FIRE SEPARATION WALLS AND FLOOR-CEILING ASSEMBLIES: Separate the mixed uses completely with fire separation walls and/or rated floor-ceiling assemblies having ratings equal to highest fire grading listed in Table 902 for the separate use groups. The most restrictive height and area requirements of the different uses apply for the entire building. The space within each use area must satisfy code requirements for that use. In case of conflicting provision for common or shared buildings areas, the code requirements for the various uses which secure the greater public safety would apply. For example, an exit stairway serving both assembly and business uses would need to satisfy maximum riser and minimum tread dimensions for the assembly use, as these dimensions would satisfy both uses.

NO SEPARATION: Apply the provisions of each use to those parts of the building which come within that use. Where there are conflicting provisions, the requirements which secure the greater public safety should be applied to the entire building. Some examples of areas where conflicting provisions may occur are:

Determining height and area limits - Table 305
Calculating exitway access travel distance - Section 607
Calculating capacity of shared exit elements - Table 608
Determining fire suppression requirements - Section 1202
Determining fire alarm requirements - Section 1216 and 1217

HONORING BUILDING OFFICIALS

On March 25th, the Builders Association of Greater Boston honored our profession with a Building Inspectors Appreciation Night at the Sheraton Tara Hotel in Braintree. The program, modeled after the successful efforts of the Home Builders Association in Greater Springfield, attracted about 80 building officials from the metropolitan Boston Area in addition to over 200 Association members. Guest speakers at the affair were: Martin Mintz, Director - Technical Services, National Association of Home Builders; Garen Bresnick, Executive Director, Home Builders Association of Massachusetts; Charles J. Dinezio, Administrator, Board of Building Regulations and Standards; and David C. Macartney, Technical Director, Board of Building Regulations and Standards.

We think the Builders Association deserves credit for recognizing the mutual interests of home builders and building officials, and for promoting greater communication and understanding. There is much to be gained by builders in better understanding the building officials's responsibilities and much to be gained by building inspectors through the cooperation and support of builders. Particular credit for the Boston effort goes to President Joe Grignaffini, Chief Executive Officer

Ronald Frazier, Program Chairman Robert Green and Assistant Program Chairman Paul J. Moriarty.

SAFETY GLASS - WHY, WHO, WHEN, WHAT, WHERE, HOW

Our office receives many questions from designers, builders and owners about safety glass. Six of the most common questions (and answers) are:

Q - Why should safety glass be used?
A - Safety glass is used in specific instances to protect against cutting and piercing injuries to people resulting from collisions with and shattering of glass.

Q - Who regulates the use of safety glass?
A - Both the federal Consumer Product Safety Commission rules and Section 857 of the Building Code contain regulations, which are essentially the same, governing use of safety glass. Building officials are responsible for enforcing these regulations.

Q - When did these regulations go into effect?
A - The current regulations were adopted in 1979. Earlier requirements had been inserted in the General Laws in 1971.

Q - What exactly is safety glass?
A - Safety glass is glass which satisfies the performance standards and tests contained in the American National Standards Institute's (ANSI) Standard Z-97.1. Standard home types of safety glass are:

laminated	Consists of two or more sheets of glass held together by intervening layer(s) of plastic material. The glass will crack and break, but tends to adhere to the plastic and not to fly. Edges are usually less jagged than with ordinary glass breakage.
tempered	Consists of a single sheet of glass which has been heated or chemically treated. Tempered glass cannot be cut, ground, drilled or polished after treatment, and, if broken at any point, immediately breaks into numerous small granular pieces.
organic-coated	Consists of a sheet of glass coated on one or both sides with an applied organic coating or sheeting. Organic-coated glass behaves similarly to laminated glass when broken.
plastic safety glazing	Consists of organic (usually polycarbonate) based material shaped by flow during manufacture. The finished product may be formed as a single sheet or two or mone laminated sheets, with or without reinforcing fibers. Plastic safety glazing is marketed under various trade names, (e.g. "Lexan").

Q - Where is safety glazing required?
A - Section 857.5.6.1 specifies seven "hazardous locations" where safety glass must be used. They are:

1. Glass in all ingress and egress doors, except wired glass in fire doors.
2. Glass fixed and sliding panels of sliding doors.
3. Glass in storm doors.
4. Glass in all unframed swinging doors.
5. Glass in shower and bathtub doors and enclosures.
6. Fixed glass panels larger than 9 square feet which:
   a) are closer than 18 inches to the floor; and
   b) have walking surfaces within 3 feet of the glass on each side which are within 1 foot horizontally of each other
   - unless the glass is protected by a horizontal member at least 1 1/2 inches wide located 2 to 3 feet above the floor.
7. Glass located below the top edge of a door which is:
   a) within 4 feet vertically of the door in non-residential occupancies; or
   b) within 1 foot vertically of the door in residential occupancies
   - unless there is an intervening, permanent wall between the glass and the door.

Q - How can safety glass be identified in the field?
A - Chapter 143, Section 3U of the Massachusetts General Laws requires that each light of safety glass made, distributed, imported or sold for use in the state be <u>permanently</u> labeled as such by etching, sandblasting or fusing of ceramic material on the safety glass. Violation of Section 3U is punishable by a fine of $500 to $10,000 or a year's imprisonment, or both.

CHIMNEY AND FIREPLACE INSPECTION TIPS

One important area in residential building construction which is often overlooked during inspection is the construction of the fireplace and chimney. Probably the main reason for overlooking these elements is that inspection is difficult after construction is complete, and many important elements are most easily checked while construction is in progress. During today's building boom, that may present problems for even the best staffed building inspection department. However, there are some relatively easy steps that building officials can take to achieve code complying chimneys and fireplaces.

BEFORE CONSTRUCTION:

1. Remind the licensed construction supervisor of his responsibility to check and approve the work at the excavation/foundation stage, after construction of the smoke chamber and support of the flue liner, and upon completion. A good supervisor can act as your second set of eyes.

2. Require submittal of an adequate set of plans for the chimney, and check them carefully to be sure that key dimensions and elements are proper.

DURING CONSTRUCTION: *

1. Check to see that the fireplace/chimney footing is properly dimensioned, at least 12 inches wider than the outside width of the fire box, and never less than 40 inches wide. If there are less than 24 inches projecting outside the sheathing, chances are there is a problem.

2. Check to see if the hearth slab has the minimum 4 inch thickness required by code.

3. Check the firebox dimensions for the 20 inch minimum depth.

4. Check the hearth extension for the 16 inch minimum depth, and a width of at least 8 inches wider than the firebox at each side.

5. Check to see that the firebox is constructed of fire clay mortar and refractory brick. If these materials are not used, the wall thicknesses must be increased from 8 to 12 inches.

6. Check the placement of the angle iron over the fireplace opening, and make sure there is ample distance between the top of the opening and the damper.

7. Check to see that all walls in the smoke chamber are at least 8 inches thick.

8. Check to see that each flue is supported on masonry, has its own fire clay liner and that liner joints are smooth inside, with the 1 inch space between liner and surrounding masonry free of mortar. Each flue should also have its own cleanout.

FINISH INSPECTION:

1. Check the placement, seal and free operation of the damper.

2. Observe a smoke test of the fireplace.

* As stated in the introduction, it will not be possible to observe all "during construction" operations. However, several of these items can be checked after construction.

RECENT STATE BUILDING CODE APPEALS BOARD DECISIONS

Section 126.7.11 (Contents of Decision) of the Code states that, "Any decision shall not be considered by any person or agency as a precedent for future decision." Decisions of the Appeals Board, therefore, do not in any way alter or modify the

requirements of the Code as they are specific to the location and issues appealed, and the decisions of the Board may not be generally applied. The Board's decisions, however, are instructive of the types of decisions that are often appealed and the limits of relief that can be granted through the appeals process.

Appeal Docket 87-7 - The building official cited the appellant for failure to provide 12 inch high curbs or bumpers in his open parking structure, as required by Section 429.8 of the State Building Code. The bumpers are required to be substantially anchored and located to prevent any part of a motor vehicle from contacting a wall, partition or guard rail.

The Appellant agreed that the design did not meet the letter of the Code, but submitted structural calculations to show that the walls adjacent to parking spaces had been designed to withstand the impact loads for vehicles contained in Section 708.6. In addition, the appellant proposed to provide a 4 inch high wheel stop located 34 inches from the base of the wall. The Board granted the variance, since it considered the proposal an equivalent alternative design which satisfied the intent of the Code.

Appeal Docket 87-8 - The building official had granted a permit to allow alterations and repairs to an existing four family dwelling. Approximately two months after granting the permit, the building official revoked the permit, alleging that the current use and occupancy of the building was based on a permit granted improperly in 1972. The reasons given for the building official's determination that the 1972 permit was improper were wholly related to zoning.

The Appeals Board found no false statement or misrepresentation of fact on the part of the appellant, which are the causes set forth in Section 114.7 of the code for revocation of a building permit. Therefore the Board ordered the building permit reinstated. The Board also noted that its jurisdiction is limited to those matters governed in the State Building Code, including administration and enforcement of the Code, but excluding matters of zoning. Both parties to the appeal were directed to pursue zoning matters through their local Zoning Board of Appeals and then, if necessary, to a court of competent jurisdiction.

Appeal Docket 87-33 - The appellant is the designer of a 56 unit residential building. A portion of the building utilizes a scissor stairway arrangement to provide both means of egress for the dwelling units in that portion of the building. The building official cited that design as violating Section 607.3 of the Code, since he felt that means of egress were not as remote as practicable from one another.

The appellant argued that, although there was a small section of dead end corridor, the length of corridor which would be considered dead end was less than the 20 foot length which is allowable by Code Section 610.2. He also demonstrated that, although the dead end distance could be reduced, the result would be a corresponding increase in the travel distance to the second means of egress. Further he argued that the building is equipped with automatic and manual fire alarms, as well as a complete system of automatic sprinklers.

The Board ruled that the egress system as designed met the requirements of the Code, since the "dead end" portion of the corridor was less than 20 feet long.

CONSTRUCTION SUPERVISOR'S LICENSE REVOCATION

The Board of Examiners voted to revoke the Construction Supervisor's License of Mr. Victor Deslauries of Easton, MA., license number 036500, for a minimum period of two years. Mr. Deslauries is further required to petition the Board of Examiners to seek permission to be re-examined, should he ever wish to again obtain a Construction Supervisor's License. In its decision, the Examiners cited Mr. Deslauries' wanton disregard for the spirit and intent of the State Building Code as one factor in their decision.

LABORATORY UPDATE

The following are updated laboratory listings for concrete testing laboratories and solid fuel appliance testing laboratories:

LICENSED CONCRETE TESTING LABORATORIES - 1987

LABORATORY NAME	LICENSE #	LOCATION
The Thompson & Lichtner Co.	CTL-001	Cambridge, MA
R. J. Kenney and Associates	CTL-002	Plainville, MA
Haller Testing Laboratories	CTL-003	Westborough, MA
P. J. Keating Co.	CTL-004	Lunenburg, MA
MBTA Materials Laboratory	CTL-005	Dorchester, MA
Miller Engineering and Testing	CTL-008	Manchester, NH
UTS of Massachusetts	CTL-009	Stoneham, MA
Protze Materials Eng. & Testing	CTL-010	Newton Highlands, MA
R. F. Geisser and Associates	CTL-011	Dedham, MA
Briggs Associates, Inc.	CTL-012	Rockland, MA
Tibbetts Engineering Corp.	CTL-014	New Bedford, MA
MASSPORT Materials Laboratory	CTL-015	East Boston, MA
American Engineering and Testing	CTL-017	Braintree, MA
Allied Testing Laboratories	CTL-018	Springfield, MA
Rosenfeld Concrete Corp. Test. Lab.	CTL-019	Hopedale, MA
George J. Geisser, Jr. Co.	CTL-022	Riverside, RI
Miller Engineering and Testing	CTL-023	Northborough, MA
CWB Associates	CTL-024	Canton, MA

ACCREDITED SOLID FUEL BURNING HEATING APPLIANCE TESTING LABORATORIES

JULY 1, 1986 - JUNE 30, 1987

LABORATORY NAME	LOCATION	LICENSE # ROOM HEATER	LICENSE # CEN. HEATING
Arnold Greene Testing Lab.	Natick, MA	STL-002	CHTL-002
Energy Testing Lab. of ME	S. Portland, ME	STL-006	CHTL-003
PFS Corporation	Madison, WI	STL-003	CHTL-003
Omni Environmental Svcs	Beaverton, OR	STL-017	N/A