The Commonwealth of Massachusetts
STATE BOARD OF BUILDING REGULATIONS AND STANDARDS

CODEWORD

March, 1992

Charles J. Dinezio
Administrator

REGISTRATION OF HOME IMPROVEMENT CONTRACTORS

Most people are probably aware that an act regulating the practice of home improvement contractors has recently been passed in the Commonwealth. This act amends Massachusetts General Law by inserting Chapter 142A, which sets forth requirements for individuals involved in home improvement work for owner occupied residences of one to four units.

Basically, the act contains two parts. First, it provides for the registration of contractors and subcontractors with the Administrator of the Board of Building Regulations and Standards (BBRS). The Administrator is referred to as the Director of the program in the act. The Director is responsible for disciplining registrants who violate any of the provisions of the act. Second, the act establishes a guaranty fund which is to be administered by an individual appointed by the Secretary of Consumer Affairs. This fund is endowed by scaled contributions (based on number of employees of a company) provided by all those who take part in the program. The fund is intended to repay damages up to a maximum figure suffered by consumers who have been mistreated by registered contractors. It is important to note that only individuals who have entered into a contract with a registered home improvement contractor can gain access to the fund. Before any monies are disbursed, however, the parties must settle the dispute either by arbitration or in the courts.

The act was passed at the of end the last calendar session. Regulations are currently being written and should be completed shortly. There **will be a delay in the implementation of the program**, however. To this point, the program has not been funded or provided staff, so an effective date has not been established. These essentials should be acquired within the next few months, and a definite date can be set. When determined, this date will be published in CODEWORD (hopefully the next issue).

The next logical question is, who is required to register in this program? The act states that all persons, partnerships and corporations who do residential contracting work as a contractor or subcontractor on **one to four-unit owner-occupied residential buildings** [emphasis added] shall register in the program. Residential contracting work is defined by regulation as "the reconstruction, alteration, renovation, repair, modernization, conversion, improvement, removal, or demolition or the construction of an addition to any pre-existing owner-occupied building containing at least one but not more than four dwelling units, which buildings or portion thereof is used or designed to be used as a residence or dwelling unit, or to structures which are adjacent and accessory to such residence or building, including but not necessarily limited to: garages, sheds, cabanas, poolhouses, gazebos".

Local building departments will be affected by this process. Each building permit and application must provide space for the contractor's registration number, and must inform all permit applicants that individuals who contract with **unregistered** persons are **not** entitled to access the guarantee funds. In lieu of creating new permit cards and applications, this information may be produced on a rubber stamp and applied to each document as necessary. Like the construction supervisor's program, the building official should always check the individual's registration name and number against his picture identification during this process.

REGISTRATION - CONTINUED FROM PAGE 1

The following two pages illustrate a **draft** of the application for registration as a home improvement contractor or subcontractor. The first page depicts the front of the two sided application, which addresses background information of the applicant. The second page, shows the reverse side of the application which provides detailed instructions to the applicant and identifies certain exemptions to the law.

Although the role of the building official will be somewhat limited in this process of registering home improvement contractors, we urge each official to become familiar with both the law and the corresponding regulations. An examination of the following pages is a good first step to this end.

REGARDING WORKERS' COMPENSATION INSURANCE

On October 17, 1991 a letter was issued from the Department of Industrial Accidents (the department) regarding workers' compensation insurance. The letter makes reference to Massachusetts General Law c 152 § 25C. This section of law states that any state or local licensing agency shall withhold the issuance of or renewal of a license or permit to operate a business or to construct buildings in the Commonwealth **unless** the applicant provides acceptable evidence that he has properly complied with the workers compensation insurance requirements.

Although this law has been in effect since 1987, it was not generally enforced. In recent years, the lagging economy has sparked a rash of claims against compensation funds. Many of these claims were filed against companies or individuals who were not properly insured. As is the case in the auto insurance industry, the burden of these claims was suffered by those who were legitimately insured, not by those who were responsible. In order to ease the drain on compensation funds, the Commissioner of the Department of Industrial Accidents has made it clear that the provisions of this law must been enforced.

Since a building official is in the business of issuing permits for construction, he must pay close attention to this topic. However, the department realizes that the building official is already overrun with his current duties, and does not wish to add to his workload. Yet, the fact remains that the law dictates that nearly all individuals involved in the construction industry must be protected by this insurance and the most expedient method to control this requirement is through the permitting and licensing process. Therefore, the building official must become involved.

In an effort to streamline the process, the department has generated an affidavit program. This affidavit places the onus on the applicant to honestly profess whether or not he is properly insured under the provisions of c 152 § 25C, or that the provisions of this law do not apply to him. The applicant's signature on this document bears witness, under the pains and penalties of perjury, that he is truthful in his assertion.

The affidavit is currently being refined by the department and will be ready for distribution shortly. When complete, it will be forwarded to each municipality. The building official must present the affidavit to each permit applicant for signature, and store the original with each job file. A copy may be provided to the applicant upon request.

There may be occasions when a building official is suspect as to the legitimacy of an applicant's claim to proper insurance coverage under this law. If this happens, he only needs to call the information line established by the department. Through this service he can quickly verify whether or not an individual (or company) is adequately covered and if his policy is current. The number to dial is (617) 727-4900; extensions 401 through 405 are available to ensure rapid assistance.

Almost every individual and company needs to carry workers' compensation insurance. The only exception is an individual who is classified as a **sole proprietor**. However, if he were to incorporate, he too would need this insurance. The provisions of MGL c152 § 25C, then, merely attempts to create a means to monitor a system that has been in place for years.

Publication No. 17,061-10-1100--3-92-est. cost per. copy-.21-C.R.
Approved by: Philmore Anderson III, State Purchasing Agent

THE COMMONWEALTH OF MASSACHUSETTS
Home Improvement Contractor Registration
One Ashburton Place - Room 1301
Boston, Massachusetts 02108

Registration No.
Check numbers
Effective Date
Expiration Date

FOR OFFICE USE ONLY

Application for Registration as a
Home Improvement Contractor or Subcontractor
MGL Chapter 142A, CMR 780-6

Date _____

1. Applicant name _____
   Print the name of the individual or business applying for the registration

2. Applicant type: ☐ Individual ☐ DBA ☐ Partnership ☐ Trust ☐ Private Corporation ☐ Public Corporation

3. Social Security or Federal ID Number _____ Number of Employees _____

4. Address _____ ( ) _____
   Print street and Number (P.O. Box not acceptable) City State Zip Telephone Number

5. Individual responsible for Home Improvement Contracts _____ _____ _____ _____
   Last First Mi Social Security No.

6. Title of individual responsible for Home Improvement Contracts _____

7. Does the applicant or responsible individual hold any other construction related state, city, town licenses or registrations? _____ ☐ Yes ☐ No
   If yes, complete the table below. Use additional paper if necessary.

Type license or registration	Issued By	License or registration number	Expiration Date	Name of License Holder

8. List all partners, trustees, officers, directors and major owners (10% or greater of ownership) of an applicant partnership or corporation below. Use additional paper if necessary. (See instructions on the back)

Last First, Middle initial	Title in Applicant Business	% Owner	Address

9. Is the applicant claiming exemption from the registration fee? (See the instructions on the back) _____ ☐ Yes ☐ No
   If yes, include a copy of a current Construction Supervisor license or motor vehicle repair shop license or registration.

10. Registration fee enclosed. $ _____ Guaranty Fund fee enclosed. $ _____

Pursuant to Massachusetts General Laws Chapter 62C section 49A, I certify under the penalties of perjury that I, to my best knowledge and belief, have filed all state tax returns and paid all state taxes required under law.

_____ _____
Signature of applicant or applicant's representative Title held with applicant

A false answer to any question in this application constitutes grounds for suspension or revocation of the applicants' registration.

2/11/92

APPLICATION FOR REGISTRATION AS A HOME IMPROVEMENT CONTRACTOR OR SUBCONTRACTOR

Requirements and Instructions

Summary Requirements of the Law

Registration & Enforcement Action

MGL Ch. 142A (Ch. 453, Acts of 1991) provides for the registration of home improvement contractors and subcontractors who accomplish hom improvements on pre-existing owner-occupied one to four family residential buildings. Registrants who violate the provisions of this law are subject to enforcement action by the Administrator of the State Board of Building Regulations and Standards. Complete rules and regulations on registration and enforcement actions (780CMR-6) are available from the State Bookstore, Room 116, State House, Boston, MA 02133.

Exemptions from registration include: workers who work for contractors or subcontractors for a wage; in general, all licensed professionals or tradesmen, when they are working solely within the scope of their license, such as architects, electricians, plumbers (except for construction supervisors); the Commonwealth or its subdivisions; schools offering voc-ed courses or training in home construction or improvements; persons building their own home or personally doing their own renovations; where aggregate sum of payments for any bona-fide single job is under $1,000; part-time contractors or subcontractors whose gross revenue is less than $5,000 in the previous 12 months; persons enrolled as a full-time student for the last and next academic terms, and 2/3 of whose employees are so enrolled, and whose gross revenue is anticipated to be or has been under $5,000; persons who install air-conditioning systems, central heating, energy conservation devices, provide conservation services on behalf of a public utility, landscaping, interior painting, paper hanging, finished floor covering, tile, fencing, freestanding masonry walls, above-ground swimming pools, shutters, awnings, patios, driveways.

Consumer Complaints, Arbitration, Guaranty Fund

The law also provides for a Guaranty Fund out of which consumers who have been aggrieved by registrants as determined by arbitration or court order may be repaid part or all of their damages under certain conditions. Complete rules and regulations covering arbitration, and the operation of the Guaranty Fund are promulgated by the Secretary, Executive Office of Consumer Affairs, and are available from the State House Bookstore.

Instructions for Application

Fill out front side of application printing with pen or typewriter.

3. Number of employees: For the purposes of this application and 780CMR-6, the number of employees shall include all construction related employees who worked 20 or more hours on the payroll in the weekly pay period prior to date of application.

5. If applicant's responsible person holds a valid construction supervisor's license under MGL C.143, S94(i), and is also a substantial owner of th applicant entity (10% or more), the applicant entity is exempt from the registration fee. Enter license data in Question 7, and check "Yes" in Questic 9 if claiming exemption from the registration or renewal fee.

8. Corporations or partnerships may include any official document which lists the required information, such as pertinent sections of the Articles o Incorporation, current Annual Report, registration as a foreign corporation as filed with the MA Secretary of State, or a copy of the current partnership agreement in lieu of listing the required information.
Organizations other than corporations must submit copies of any business certificates filed in cities and towns pursuant to MGL Chapter 110, Section 5.

9. If applicant or responsible individual is a licensed construction supervisor under MGL C.143, S.94(i) or a registered motor vehicle repair shop operator and is claiming exemption from the registration or renewal fee, check yes on Question 9, and include a copy of the current license/registration certificate with this application. (See instructions for Question 5, above).

10. Enclose a certified check or money order for the registration fee (if the applicant is not exempt), and a separate check or money order for the guaranty fund. Please note on the check(s) which is for the Registration Fee and which is for the Guaranty Fund. Make checks and money orders payable to the Commonwealth of Massachusetts.

Mail completed application form, required documentation and check(s) to:

Director, Contractor Registration
State Board of Building Regulation and Standards
One Ashburton Place - Room 1301
Boston, MA 02108

Application Fee and Guaranty Fund Contribution

Registration Fee: **$100.00 (Renewable every two years)** See Note 1

Note 1: Individual Licensed Construction Supervisors in good standing under Chapter 143, Section 94 who register as an individual or as indicated in the instructions to Question 5, above, and individual motor repair shops registered in accordance with Chapter 100A, Section 2, are exempt from the registration fee only. To qualify for this exemption, the applicant must check "yes" in Question 9 and submit documentation that the license o registration fee has been paid along with its expiration date. (copy of the current license or registration certificate will fulfill this requirement).

Guaranty Fund Contributions:		
	Zero to 3 employees	**$100.00**
	4 to 10 employees	**200.00**
	11 to 30 employees	**300.00**
	More than 30 employees	**500.00** See Note 2

Note 2: The Guaranty Fund Contribution is a one-time fee at initial registration unless the fund becomes deleted. In such a case, all registrants can be assessed for an additional contribution in accordance with 780CMR-6 and MGL C. 142A. **ALL APPLICANTS MUST SUBMIT THIS FEE.**

UPDATE ON CERTIFICATION

As reported in the December 1991 issue of **CODEWORD**, legislation has been filed to allow the Board of Building Regulations and Standards to "grandfather" all currently employed, qualifi[illegible]viduals into their positions as building officials. The legislation has been filed by Senator William Q. MacLean, Jr. a[illegible] has been assigned the number S 1431. It is currently in the Committee on Local Affairs. The co-chairmen of this Committee are Senator Martin Dunn of Holyoke and Byron Rushing of Boston. The bill has been scheduled to be heard **Tuesday, March 24, 1992 @ 11:00 am in Room A-1 of the State House**. The three associations will undoubtedly want to attend this hearing to show their support of the bill.

CODEWORD

This issue's **CODEWORD** is **modulus of elasticity**. To understand the meaning of the term, it is best to define each word separately. Modulus, according to The American Heritage Dictionary, Second College Edition, is a constant or coefficient that expresses the degree to which a substance possesses some property. Elasticity, according to this same source, is the condition of being elastic, or the property of returning to an initial form or state following deformation. Together, the modulus of elasticity is the measure of deformation of a material and its ability to return to its original shape. Simply put, it is the measure of stiffness or rigidity of a material. But what is the importance of this term with respect to the building code, and how is it applied?

Understanding the modulus of elasticity is important when determining the size and spacing of structural members for a building. If, for instance, we wanted to determine the **maximum** spacing and the **minimum** joist size for a new home, knowing only that the typical span dimension is 13'-0", how would this be accomplished?

First, we must determine the type of lumber that will be used in the construction of the floor. A common type of structural lumber in the New England area is spruce-pine-fir, so we will use this in our example. There are, however, a number of different species that are available in this area, so be sure to check the species and grade stamp that is marked on each structural member. Once the lumber type is established, we can turn to the visual grading tables located on pages 34-54 through 34-57 of the One- and Two-Family Dwelling Code.

Table 3403-8D (a portion of which is duplicated on the following page), illustrates the values for spruce-pine-fir with respect to size and grade. Although we may find some number 1 grade lumber in a given lot when purchasing stock, most often the grade will be not better than number 2. To be on the safe side, it is best to use the values for this grade in the analysis. Here, we see that for number 2 grade lumber of nominal dimension of 2 x 5 or wider, the modulus of elasticity is 1,300,000. (Each of these numbers is highlighted in the Table for ease of view.)

Armed with this knowledge, we can turn to the span tables for floor joists located on pages 34-70 through 34-73 of the code. Table 3405-1 (a portion is shown on the following page) illustrates the required modulus of elasticity in the far right column. The value is expressed in decimal form (1.3), but this is multiplied by 1,000,000 psi to equal 1,300,000, the figure that we want. Quickly assessing the table, it appears that we may design our structure using 2 x 8 joists spaced sixteen inches on center (16" o.c., shown highlighted). However, there is one more piece to this puzzle.

If we turn back to Table 3403-8D, we find that the value for normal duration in bending equals 1,000 (shown underlined). In Table 3405-1, the bending stress is shown just below the span. For a span of 13'-2", the figure is 1060 (highlighted), which is greater than the allowed value. If we move up one row, we see that we satisfy the span, with a dimension of 13'-11", but once again, we exceed the bending stress. Therefore, we must move to the top row which shows that we satisfy all pieces of the puzzle; the span exceeds the desired 13'-0" (at 14'-6"), the bending stress, F_b, is less than required (at 960), and the modulus of elasticity remains at 1.3. The true answer to our question, then, is 2 x 8's spaced at 12.0" o.c (sown bolded and underlined).

This example does not illustrate the most economical solution to the problem, for we end up with a floor system that exceeds the requirements of the code, and uses an excess of material. But the case clearly illustrates that each figure in each table has an express meaning. In this example, we achieve the desired results, but at an increased cost. Without knowing the significance of the modulus of elasticity (or the associated values), however, we could have been left with a structural system that was under-designed.

WHAT ABOUT THE NEW TABLES?

As a follow-up to the above story, the December 1991 issue of CODEWORD related a story about in-grade testing of dimensional lumber. As indicated in that story, some changes are imminent in structural span tables. However, the Board Building Regulations and Standards has not yet adopted these changes, and even if they are adopted, the process described above will not change, only the number of choices.

TABLE 3403-8D
DESIGN VALUES FOR JOISTS AND RAFTERS - VISUAL GRADING

Species and Grade	Size	Design Value in Bending "F_b"			Modulus of Elasticity "E"
		Normal Duration	Snow Loading	7 Day Loading	
SPRUCE-PINE-FIR (surfaced dry or surfaced green)					
Select structural	2 x 5 and wider	1450	1670	1810	1,500,000
No. 1 & appear.		1200	1380	1500	1,500,000
No. 2		1000	1150	1250	1,300,000
No. 3		575	660	720	1,200,000
Stud		575	660	720	1,200,000

TABLE 3405-1
ALLOWABLE SPANS FOR FLOOR JOISTS

size (in.)	Joist spacing (in.)	Modulus of Elasticity, "E", in 1,000,000 psi									
		0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.1	1.2	1.3
2 x 8	12.0	9-10 440	10-7 510	11-3 570	11-10 640	12-4 700	12-10 750	13-4 810	13-9 860	14-2 910	14-6 960
	13.7	9-4 460	10-1 530	10-9 600	11-4 670	11-10 730	12-3 790	12-9 840	13-2 900	13-6 950	13-11 1010
	16.0	8-11 480	9-7 560	10-2 630	10-9 700	11-3 770	11-8 830	12-1 890	12-6 950	12-10 1000	13-2 1060

FIRE SEPARATION ASSEMBLIES

Where a fireresistance rating is required by the Code, Sections 903.1.1 and 903.1.2 are very explicit in their requirements that the assembly is to be tested in accordance with ASTM E119, or detailed in GA 600 or the Underwriters Laboratories Fire Resistance Directory. The test requirements of ASTM E119 subjects the entire assembly to the effects of a fire of controlled extent and severity, and monitors the temperature rise on the side remote from the flame. Also, the test subjects the assembly to a controlled stream of water from a fire hose to examine its integrity. The assembly is considered to have performed satisfactorily if: one, the structural character is maintained for the duration of the test and, two, there is no evidence that flames or hot gases have passed through the assembly. Once the test is complete, the assembly is assigned a fireresistance rating number, in hours. This number represents the length of time of the test.

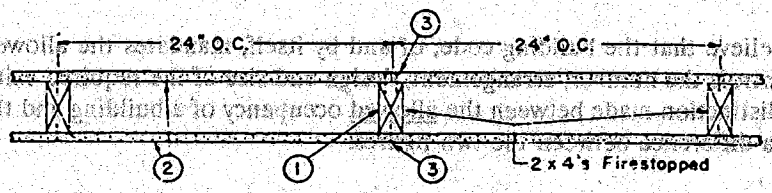
The reason the Code requires that the assembly be tested to ASTM E119 is to provide a level of assurance that it will perform as anticipated under actual fire conditions. As a comparison, consider the question; what distance can a 2 x 10 span? Before the question can be answered, a number of parameters need to be known. For example, what is the applied load and what are the structural properties of the 2 x 10? (See CODEWORD, this issue.) Design properties of the lumber are obtained by testing. Knowing the design load and the structural properties of the lumber permits the question to be answered.

Now consider this question; what is the fireresistance rating of a loadbearing wall assembly consisting of 2 x 4 wood studs at 24" on center, with one layer of 5/8" gypsum wallboard on each side, fastened according to label requirements? Just as the structural design properties of wood are obtained by testing, so too are the fireresistive properties of the assembly. Tests of this assembly performed in accordance with ASTM E 119 have been made and the design is listed in the UL Fire

Resistance Directory as Design No. U309 (assembly shown on following page). The indicated fireresistance rating is one hour. Note, however, that the Finish Rating for this assembly is 27 minutes, but the fireresistance rating is one hour. The Finish Rating is supplemental information developed from ASTM testing. This rating is the time that it takes for the combustible studs to reach 250 degrees F above ambient temperature. This figure indicates of the amount of protection offered to the combustible components (the studs) by the membrane (the gypsum wallboard).

The word assembly is intentionally highlighted because, in the final analysis, in a fire situation it is the assembly that provides the barrier to the spread of fire, not individual components. So, remember always look for the UL Design Number or the design listing in GA-600.

Design No. U309
Bearing Wall Rating - 1 HR.
Finish Rating - 27 Min.



1. **Wood Studs** - Nominal 2 by 4 in., spaced 24 in. o.c., effectively firestopped.
2. **Wallboard, Gypsum** - ⅝ in. thick, 4 ft. wide, nailed to studs and bearing plates with 6d cement-coated nails 1⅞ in. long, 0.0915 in. shank diam. and ¼ in. diam heads spaced 7 in. o.c.
   - **Georgia-Pacific Corp., Gypsum Div. - Type GPFS-C**
   - **Gold Bond Building Products - Type FSW, FSW-G**
   - **Pabco Gypsum Co. - Type C or PG-C**
   - **Standard Gypsum Corp. - Type SGC or SGC-G**
   - **Weyerhauser Co., Gypsum Div. - Type "DDN1"**
3. **Joints and Nailheads** - Wallboard joints covered with paper tape and joint compound. Nailheads covered with joint compound. Gypsum plaster not more than ⅛ in. thick may be applied over the wallboard in addition to the specified joint treatment.
4. **Batts and Blankets*** - (Not Shown) - optional glass fiber insulation.
   - **Owens-Corning Fiberglas Corp.**

*Bearing the UL Classification Marking

READING THE DIRECTORY

While we are on the subject, the Underwriters Laboratory Fire Resistance Directory has always been a document that many people have found difficult to decipher. Often, much time is wasted attempting to track down a particular assembly number. Most likely, the reason for this time consuming effort is that the reader is not familiar with the meaning of the prefix designations. Once this secret is discovered, the labor is greatly reduced.

The 1991 directory, resolves this mystery on page five (5), as reproduced below. Although this information may appear on a different page in other editions of this directory, the material remains the same.

Prefix Letters	Group of Classification
A, B* or C*	Floor-Ceiling Designs - Concrete and (Cellular only) Steel Floor Units
D, E* or F*	Floor-Ceiling Designs - Concrete and Steel Floor Units
G, H* or I*	Floor-Ceiling Designs - Concrete and Steel Joists
J or K*	Floor-Ceilings Designs - Concrete
L or M*	Floor-Ceiling Designs - Wood Joist or Combination Wood and Steel Assemblies
N or O*	Beam Designs - For Floor-Ceiling Assemblies
P, Q* or R*	Roof-Ceiling Designs
S or T*	Beam Designs - For Roof-Ceiling Assemblies
U, V*, or W	Wall and Partition Designs
X, Y* or Z*	Column Designs

*Indicates that the prefix letters are reserved for future use.

The design assemblies are arranged alphabetically by the prefix and in ascending numerical order with respect to the design number. From this list, one can easily determine where to turn in the directory to find a desired design assembly. Here, we see that the assembly shown on the previous page begins with a U, which correctly corresponds to the highlighted design.

SIZING-UP THE SITUATION

People frequently call our office inquiring as to the correct method to determine the occupancy of a building. Typically, the caller will comment that there seems to be a conflict between Section 806 of the Fifth Edition of the code and occupancy requirements dictated by other licensing agencies of the State. In actuality there is a misconception, not a conflict.

It is a common error to believe that the building code, of and by itself, mandates the allowed occupancy of a building. The building code only controls the number, arrangement, design and size of the required exit facilities for the maximum occupant load. Note the distinction made between the allowed occupancy of a building and the maximum occupant load of the building. There is a difference between the two figures.

In order to properly establish the number, size and arrangement of required exit facilities, a designer must identify the maximum occupant load of the building. Section 806.0 provides the rules for developing this load. However, these rules are only for purposes of sizing the required exit facilities and do not necessarily relate to establishing the occupancy of the structure.

In explanation, Section 806.1 states that "in determining required [exit] facilities, the number of occupants **for whom exit facilities shall be provided** [emphasis added] shall be established by the **largest number** [emphasis added] computed in accordance with each of Sections 806.1.1 through 806.1.3". Again, notice that this section accents the required exit facilities, not the control of occupancy.

If the building code were meant to dictate the allowed occupancy of a building, Section 806.1.1 would be unnecessary. As the title of this section suggests, it clearly affords the designer the opportunity to present the *Actual Number* (or actual occupancy of the building) of occupants in the building. Once this is established, the designer merely needs to base his calculations for egress facilities on this figure.

Although this appears fairly easy to understand, the presence of Table 806 seems to add confusion to the issue. This table attempts to set **minimum**, not **maximum** occupant loads for the purpose of establishing required exit facilities for a particular use. The table may be used to set the maximum occupant load if no other criteria is offered, but, again, this is not the true intent of the table.

Based on this information, consider the case of a day care center for children 2 years and 9 months or younger (Use Group I-2). The Code of Massachusetts Regulations (CMR) 102 Section 7.00 specifies requirements for the licensure and approval of day care centers. Just as the state building code (780 CMR) sets minimum standards for building construction, these regulations dictate standards for the operation of day care centers. The scope of the requirements range from the procedure for licensing the center to the criteria governing necessary physical activity of the program participants.

These regulations are quite detailed and, under Section 7.11(4), the document sets forth spatial requirements for certain areas within the day care center. This section, entitled *Indoor Space*, states that "the licensee shall have a minimum of **thirty-five (35) square feet of activity space per child**, exclusive of hallways, lockers, wash and toilet rooms, isolation rooms, kitchen, closets, offices or areas regularly used for other purposes . . .". Here the designer is given explicit guidance as to the minimum spacial requirements for the center. With this data, he can determine the **actual number** of persons that will occupy the facility and size his exit facilities accordingly.

If one relied on the guidance set forth in Table 806 to determine the number of occupants of the day care,

center, the results would be quite different. The table requires that sleeping areas for institutional uses shall consist of 120 square feet per occupant. Obviously, if one were to use this figure to determine his occupancy and occupant load, the number would be greatly reduced, but so, too, would the size of the exit facilities. The building code does not mean to punish designers who "load-up" buildings with occupants. Instead, it wants to assure that these individuals are afforded adequate opportunity to exit the building in a timely fashion should an emergency arise. It can be argued, in fact, that the code **wishes** to "load-up" each building to its maximum capacity. After all, the more occupants that are allowed in the building, the greater the size and number of the exits.

In summary, then, it is the designer who has the ability to determine the occupancy of his building, as long as all provisions of the code requirements fall in line. In terms of occupancy, the only real restriction that is implemented by the code is found in Section 806.1.5, Maximum occupant load, which states: "the occupant load of any space or portion thereof shall not exceed one occupant per 3 square feet of occupiable floor space". An occupied building may not be designed for a spatial relation less than this.

THE BUSINESS OF EDUCATION

The adoption of the Fifth Edition of the State Building Code, introduced many new concepts in construction regulation. Since construction technology changes with time, building codes must also change in order to keep pace. Some of the ideas presented in the Fifth Edition are merely common sense additions. Others are more difficult to understand.

One topic that seems to create confusion is the issue of educational uses. In a sense, this category is a foreign term to many who were used to the Fourth Edition, which did not recognize such a category. Previously, all educational facilities were classified under the provisions of assembly uses. Now, Section 304.0 tells the reader that there is a new category called the Educational Use (Use Group E). In itself, this information is not difficult, but then the code continues to state that all educational facilities do not fall under Use Group E. This is where the difficulty begins.

As indicated in an earlier article in this publication, things often appear to be mysterious when certain information is missing. Once the missing data is provided, the subject becomes clear. This seems to be the case with this topic.

In order to provide some missing information, let us first turn to the definition of the educational use. Section 304.1 states that all buildings or structures, or parts thereof, that are used by more than five persons at one time (including the instructor) for educational purposes through the twelfth (12th) grade are considered educational uses. However, this same section continues to reveal that "educational type uses with a total occupant load less than 50 shall be classified as Use Group B". Immediately, the code makes an exception to the use group for small facilities. Practically speaking, this exception would only work for the proverbial one-or two room school house.

Also, Section 304.1 states that school buildings "for business training or vocational training shall be classified in the same use group as the business or vocation being taught". In other words, if a technical school teaches **only** automotive repair the entire building would be classified as Use Group S-1. If, however, the school also contained classrooms for text book learning, the building would be classified as a mixed use facility (Use Groups E and S-1).

EDUCATION - CONTINUED FROM PAGE 9

To this point, learned how to classify educational uses up to the last years of high school, but what about beyond this level? The Fourth Edition lumped colleges into Use Group A-4, along with all other educational uses. Now colleges are generally classified as business uses. The reason for the qualifier is that, like the vocational school, a college must be broken down into its parts in order to determine the use of a building. Unlike most high schools, however, college campuses consist of many different buildings designed for varied purposes. Almost without fail, these buildings will bear a mixed use classification.

Sometimes, it is easier to explain one thing by referencing another. As proof, if we wanted to determine the correct use group classification for a police station, we only need to reference Table 303.2 of the Fifth Edition to find that it is considered a business. But if we consider the actual function of a police station, we realize that it is multi-dimensional. In most instances the station will provide areas of confinement, which is an institutional use, or the station may contain a courtroom, an assembly use. The station is only a business in theory. In order to truly establish its use, we must examine its operation. Then it is clear that the building is a mixed use facility.

The same logic applies to college facilities. As the code suggests, only classrooms with an occupant load of less than fifty (50) are considered business uses. However, most college buildings contain at least one large lecture hall or a laboratory that has the capacity for numbers greater than fifty. These areas **would** be classified as assembly uses. Therefore, the building would be a mixed use facility, not merely a business use.

It seems that the most confusing aspect of this dissertation is: why would we want to classify any part of college as a business use? If we stop to think about this, things may begin to fall into place. Generally speaking, individuals who attend college are mature young adults. The atmosphere in the classroom (at least theoretically) is one of intensity; where the students are alert and aware of their surroundings. It is assumed that such individuals will react quickly and orderly in the face of an emergency. This same correlation applies to the occupants of office buildings where employees are attentive and intimate with the building. The code, then, treats college classrooms as the use group that they most closely resemble, a business use.

Conversely, individuals who attend lower grades tend to be less mature, and less attentive to their surroundings. These children, it is believed, need to be afforded more protection by the code in order to assure their safety. So, again the code chooses to classify the group into the use that it most resembles. In this case, it is a new category (at least to readers of the Fourth Edition): the Educational Use.

It makes sense to divide educational uses into these categories, rather than group them together into one assembly use. After all, it is the intent of the code to provide minimum life safeguards to all those who occupy certain buildings. These precautions are expected to be reasonable and commensurate with the presumed hazard of the structure. They are not designed to impose excessive demands on all structures without regard to the inherent value of the structure or the level of freedom and intelligence of the occupants.

EDITOR IN CHIEF Charles Dinezio
ASSISTANT EDITOR Pauline Stanton
SUPERVISING EDITOR Robert Anderson
OTHER CONTRIBUTING STAFF
Brian Gore
Tom Riley
Bill Plouffe