CODEWORD©

THE OFFICIAL NEWSLETTER OF THE BOARD OF BUILDING REGULATIONS & STANDARDS

~July 2002~

Thomas Gatzunis, P.E. Chairman | James Jajuga Secretary | Jane Swift Governor | Thomas L. Rogers Administrator

BBRS BECOMES PART OF THE DEPARTMENT OF PUBLIC SAFETY

The Fiscal Year 2003 State Budget contains legislative amendments to MGL c 143 Section 93 which places the Board of Building Regulations and Standards in the Department of Public Safety, headed by Commissioner Joseph Lalli. Other legislative amendments contained in the budget also place the Architectural Access Board in the Department of Public Safety.

The BBRS and its staff look forward to working with Commissioner Lalli and his staff and the AAB and its staff.

EXPANDED POLYSTYRENE USED IN INSULATING THE CORES OF HOLLOW UNIT MASONRY

by Dave Nickerson, PE
CBIS, West Brookfield, Massachusetts

Insulating the cores of concrete masonry units to improve their thermal efficiency is a technique that has been around for many years. The first products used to insulate cores were Vermiculite and Perlite masonry fills. In the early 1970's, expandable polystyrene (EPS) was used to mold insulation inserts to conform to the shape of the cells of hollow masonry units.

Also in the 1970's, urea formaldehyde foam (UFF) was introduced but was soon banned due to the health risks associated with formaldehyde. Although, in some areas, the ban was lifted on a technicality, many states, including Massachusetts, bans its use today.

Scrap EPS is a major problem for molders. Most landfills will not take scrap EPS and allegedly some of this product is finding its way onto construction sites and is being used as insulation in hollow unit masonry. In order for any material to be used as insulation, the material must be tested and listed in order to verify the material possesses the physical properties mandated by the building code, such as smoke developed and flame spread ratings (ASTM E84) and also the material's insulating qualities in order that an energy analysis can be performed.

Scrap EPS, due to its nature, is neither tested nor listed, therefore details of material properties are not available. This certification must be conducted by a third party - a manufacturer's, contractor's or supplier's certification is not valid. For this reason, scrap EPS should not be permitted to be used as insulation in the cores of hollow masonry units.

There are two (2) types of EPS, namely modified and unmodified. Unmodified EPS represents a fire hazard and is a code violation when placed in a masonry wall where it could be subjected to ignition by flame or electric spark. With the potential hazard of mixing scrap from several sources, including EPS brought into this country from overseas, proper certification must be provided in order to eliminate the fire potential. Also, if scrap EPS is used as insulation, it should be determined if the size of the scrap particles is producing a light density fill, providing little and unsubstantiated thermal resistance for the material.

As Energy Codes become more critical in our country's effort to reduce oil consumption, the enforcement of these Codes is a key to our conservation effort.

JOINT MEMORANDUM FROM THE BOARD OF BUILDING REGUALTIONS AND STANDARDS AND THE BOARD OF ELEVATOR REGULATIONS ON SPRINKLERING IN ELEVATOR MACHINE ROOMS

Date: June 18, 2002

Subject: Moratorium on the use of automatic sprinklers in new construction-only elevator machine rooms, hoistways and pits and Guidance on sprinkler shunt trip removal in existing equipment.

BY EMERGENCY CODE CHANGE TO THE MASSACHUSETTS STATE BUILDING CODE (780 CMR)

The State Board of Building Regulations and Standards (BBRS), acting under its authority (MGL c.143 93-100) and at the request of the State Board of Elevator Regulations (BER), has, by EMERGENCY AMENDMENT and MORATORIUM, temporarily precluded the use of automatic sprinkler protection in: (a) all new construction elevator machine rooms of traction/drum elevators; (b) all new construction elevator machine rooms of hydraulic elevators; (c) all new construction machine rooms of dumb waiters, and by default: (d) all new construction elevator hoistways and elevator pits.

In addition, via this Moratorium, elevator machine room fireresistance ratings are explicitly addressed in new construction elevator machine rooms without automatic sprinkler protection.

The Reader is cautioned to follow the requirements of the attached materials and not rely on the summary information provided in this JOINT MEMORANDUM front page.

If there are questions regarding this MORATORIUM, please feel free to contact the BBRS for matters relating to the State Building Code (780 CMR) and the BER for matters relating to the State Elevator Regulations (524 CMR).

NOTICE OF MORATORIUM

Scope: This Moratorium temporarily precludes automatic sprinkler protection in: (a) all new construction elevator machine rooms of traction/drum elevators; (b) all new construction elevator machine rooms of hydraulic elevators; (c) all new construction machine rooms of dumb waiters, and by default: (d) all new construction elevator hoistways and elevator pits (Also refer to "Guidelines", Page 3 of this Memorandum).

In addition, via this Moratorium, elevator machine room fireresistance ratings are explicitly addressed in new construction elevator machine rooms without automatic sprinkler protection.

Also refer to the governing State Elevator Regulations, 524 CMR, February 2, 2001 Edition, Chapter 35, Section 102.2 (c) noting that when automatic sprinklers are not utilized in elevator machine rooms, "means to automatically disconnect the main line power" (shunt trip breakers) are not required (nor intended allowed connected during the Moratorium period) as a result of preclusion of automatic sprinklers via this Moratorium.

Effective Period of the Moratorium*: May 14, 2002 to December 31, 2002, inclusive (further guidance will be provided during the next 6 months as to what actions may be required after the end of the Moratorium -*Note that capped, inactive sprinkler piping would be allowed installed pending the Moratorium outcome and such a system would not be viewed as a sprinkler system.

Reason(s): Potential for inadvertent sprinkler system water accumulation on traction/drum elevator braking systems and/or on and in electric/electronic elevator controls possibly rendering such brakes/controls unreliable and compromising the life safety of the traveling public and/or fire fighting forces, coupled with minimal historical evidence of machine room/hoistway/pit fires

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EMERGENCY CODE CHANGE LANGUAGE (Code Change 780CMR904.1- 5-02-E1)

(1) Amend 780 CMR, Chapter 9, Section 904.1 to read:

904.1 Where required: Automatic fire suppression systems shall be installed where required by 780 CMR and in the locations

indicated in 780 CMR 904.2 904.1 through 904.9

(II) Add an Exception 3. to the list of Exceptions in 780 CMR 904.1 to read:

3. By Moratorium*, effective May 14, 2002 to December 31, 2002, inclusive: automatic sprinkler protection is precluded in: (a) all new construction elevator machine rooms of traction/drum elevators; (b) all new construction elevator machine rooms of hydraulic elevators; (c) all new construction machine rooms of dumb waiters, and by default; (d) all new construction elevator hoistways and elevator pits. Such elevator/dumbwaiter machine rooms and hoistway/pit enclosures shall be constructed to afford at least the fireresistance rating specified in Table 602 and otherwise as required/allowed by the applicable portions of 780 CMR Chapter 7 (typically, but not always, the hoistway/pit and machine room will have a minimum fireresistance rating of 2 hours with elevator opening protectives rated at 1 1/2 hours but ratings of 1 hour for hoistway/pit and machine rooms and 3/4 hours for elevator opening protectives may be allowed).
*(Note that capped, inactive sprinkler piping would be allowed installed pending the Moratorium outcome) Where Table 602 requires a higher fireresistance rating, such rating must be provided.

For elevator installation within atriums also see 780 CMR 404 for additional fireresistance rating guidance.

Where the elevator machine room is determined to be a true penthouse roof structure, also refer to 780 CMR 1510 for additional fireresistance rating requirements.

MORATORIUM* IMPLEMENTATION GUIDELINES

Overview: This Moratorium only addresses new construction elevator/dumbwaiter machine rooms, hoistways and pit areas and cannot be directly utilized retroactively to argue removal of automatic sprinklers in either existing buildings or for buildings in the design/construction stage and for which automatic sprinklering of such elevator-related areas was required before the creation of this Moratorium (refer to "Guidelines" below): - on such bases:

(a) From May 14, 2002 through December 31, 2002 inclusive, applicable Construction Documents submitted for a building permit to construct a new construction traction/drum or hydraulic elevator or a new construction dumbwaiter shall indicate no sprinklers are provided or to be installed in the elevator machine room, hoistway or pit in compliance with the subject Moratorium. Such Construction Documents shall identify the fireresistance rating of such new construction elevator machine rooms, hoistways/pits and dumbwaiter shafts/machine rooms - *(Note that capped, inactive sprinkler piping would be allowed installed pending the Moratorium outcome).

(b) For Building permits obtained prior to the initiation of the Moratorium (5/14/02), but where the automatic sprinkler protection has not yet been installed, compliance with the requirements of the applicable portions of 780 CMR, requiring automatic sprinklering of elevator machine rooms, etc., are in effect (as are the applicable portions of 524 CMR Chapter 35, Section 102.2 (c) - Note, however, that a building owner could request that sprinkler protection not be installed in elevator machine rooms, etc. by submitting amended Construction Documents to the Building Official, per 780 CMR 110 arguing the intent of the Moratorium or otherwise seeking approval for amendment via State Building Code Appeal per 780 CMR 122. Any elevator machine room/hoistway/pit constructed without sprinkler protection must conform to the fireresistance rating requirements set forth in this Moratorium and amended Construction Documents are required to identify the fireresistance ratings of the machine room/hoistway/pit areas when automatic sprinklers are not installed.

(c) For buildings already constructed with automatic sprinkler protection in elevator machine rooms, etc., (1) a building permit to remove the subject sprinklers is required per 780 CMR, Section 102.5.4 in conjunction with the specific requirements

set forth in this Memorandum. (2) Shunt trip breakers must be removed or disabled during this Moratorium period and a Repair Permit from the Department of Public Safety (Elevator Inspection) is required per 524 CMR 103 and MGL c.143, 62, etc. to ensure proper elevator operation after shunt trip breaker removal/disabling, plus: (3) approval to disable such automatic sprinkler system from the Head of the Fire Department of jurisdiction in accordance with MGL c.148 27A must be obtained.

BBRS ISSUES OFFICIAL INTERPRETATION No. 54-2002

Date : June 19, 2002

Subject: Use Classification of Assisted Living Residence Facilities / 780 CMR 3, Section 310.1

At a regular meeting of the Board of Building Regulations and Standards held on Tuesday, June 11, 2002, the Board approved the following interpretation of the application of 780 CMR 310.1 of the Sixth Edition of the State Building Code as such applies to Assisted Living Residence Facilities.

Background/Discussion:

780 CMR 310.1 addresses RESIDENTIAL USE Classification and contains a specific note which reads: *"Assisted Living Residences certified as such by the Executive Office of Elder Affairs and pursuant to MGL c.19D shall be classified in the residential use group, R-1, R-2, R-3 or R-4 as applicable. Portions of an Assisted Living Residence which are used for any use other than residential shall be classified in accordance with the intended use."*

The intention of this note is to ensure that the RESIDENTIAL USES of an Assisted Living Facility are classified as RESIDENTIAL USE and not, for example, an INSTITUTIONAL USE; additionally the State Building Code, via this note, requires that for life-safety purposes, the non-residential areas of an Assisted Living Facility be appropriately classified as to use.

As an example, although it is obvious that the residential areas of an Assisted Living Facility must be classified as RESIDENTIAL USE (consistent with MGL c.19D, Section 18(d)), an area such as a boiler room constructed in the Assisted Living Facility presents a unique fire hazard to the occupants of the building.

Although a boiler room is essentially ancillary to a RESIDENTIAL USE Assisted Living Facility, a boiler room clearly cannot to be designed and constructed as simply a RESIDENTIAL USE.

The State Building Code (the Code) sets forth requirements for the construction of a boiler room that are specific and different than the Code requirements for the construction of RESIDENTIAL USES - again for life-safety purposes (refer to 780 CMR Section 302.1.1).

When one views an Assisted Living Residence, it is probable that such facility might consist of numerous different USES including: residential living areas, a dining room or restaurant, offices for conducting the day-to-day business of the facility, a boiler/mechanical room, electrical room, linen storage rooms, etc.

Such a hypothetical Assisted Living Facility, by actual use function, would, in part, be classified as a MIXED USE building - consistent with the use classification philosophy of all National Model Building Codes and the Massachusetts State Building Code (780 CMR).

The reasoning behind such mixed use classification is to ensure an equivalent level of life safety performance of the various uses in the building by first identifying the particular uses and then applying the specific Building Code-required life-safety requirements for each of the uses.

As a case in point, the sizing of EGRESS ELEMENTS is dependent on the USE Classification of the Building or portion thereof.

If a large dining facility, contained within an Assisted Living Facility, is erroneously classified as a RESIDENTIAL USE, rather than

as an ASSEMBLY (A-3) USE, the resulting required means of egress will be improperly sized, in part because the occupant load calculations required by the Building Code assume a much lower occupancy in a residential setting than in a true assembly setting (see 780 CMR Section 1008 and Table 1008.1.2).

Using the guidance of Table 1008.1.2, titled "Maximum Floor Area Allowances Per Occupant", one example for the calculation of the OCCUPANT LOAD for an A-3 USE, would require the designer to establish the A-3 OCCUPANT LOAD by assuming no more than 7 square feet (net) per person whereas for a RESIDENTIAL occupancy, this Table allows 200 square feet (gross) per person.

For a relatively large dining facility within an Assisted Living Facility (100' x 100') it is possible that 20 times as many people would have to be accommodated in laying out the REQUIRED EGRESS from the subject dining facility space in the building when the dining area is treated as an A-3 USE as opposed to being treated as an R USE or to state this in another way, necessary egress for the occupants of such a dining facility could be significantly undersized if the dining room is erroneously classified as a RESIDENTIAL USE.

There are numerous other life safety issues that arise as a result of erroneously classifying all portions of an Assisted Living Residence as a RESIDENTIAL USE when in reality such a building is truly a MIXED-USE OCCUPANCY.

For such reasons, the subject note in 780 CMR 310.1 is structured to recognize the USE Classification requirements of MGL c.19D, Section 18(d), but to also recognize the reality of the fire physics and life-safety ramifications associated with the non-residential uses of a MIXED USE OCCUPANCY Assisted Living Facility.

Question 1: Does the Note relating to Assisted Living Residences in 780 CMR 310.1 require that the residential portions of an Assisted Living Residence be classified as a RESIDENTIAL USE?

Answer 1: Yes, all portions of an Assisted Living Residence that function in a residential capacity are to be classified as RESIDENTIAL USE and not, for example, INSTITUTIONAL USE.

Question 2: Does the Note relating to Assisted Living Residences in 780 CMR 310.1 require that non-residential portions of an Assisted Living Residence be classified in accordance with their actual use?

Answer 2: Yes, non-residential uses must be classified in accordance with their actual use to ensure the minimum life safety requirements of the Building Code are incorporated into the design, construction and maintenance of such non-residential uses.

Question 3: If an Assisted Living Residence, in actuality has both residential uses and non-residential uses occurring within the building, should such building be classified as a MIXED USE OCCUPANCY in accordance with the criteria set forth within all applicable portions of 780 CMR Chapter 3?

Answer 3: Yes, except that no portion of an Assisted Living Residence duly certified by the Executive Office of Elder Affairs is to be classified as an INSTITUTIONAL USE; additionally any USE within such building where the actual or calculated occupant load is less than 50 persons and which is accessory to another USE GROUP shall be classified as part of that main USE GROUP and areas that are ancillary to a main USE would be classified as part of the main USE - note that SPECIAL OCCUPANCY AREAS such as boiler rooms, storage rooms of greater than 50 sq. ft or 100 sq. ft., as applicable, etc., as discussed in 780 CMR Table 302.1.1 are to be constructed in compliance with the requirements of Table 302.1.1 and not constructed solely as a RESIDENTIAL USE.

Question 4: Would a dining hall of a duly certified Assisted Living Residence be classified as RESIDENTIAL USE or ASSEMBLY USE?

Answer 4: It would depend on whether or not the actual and/or calculated occupant load was fewer than 50 persons. For the case where the dining hall occupant load is less than 50 persons, the dining hall would be classified as accessory to the main use, i.e., RESIDENTIAL USE. If the occupant load is greater than 49 persons (780 CMR Chapter 3, Section 303.1), then the dining hall should be classified as an

ASSEMBLY USE and all applicable State Building Code requirements for such ASSEMBLY USE must be incorporated into the design and construction of such ASSEMBLY space - egress size can be negatively affected if the required means of egress from a true ASSEMBLY USE is incorrectly sized for a RESIDENTIAL USE.

Question 5: If an Assisted Living Residence truly exhibits the characteristics of a MIXED USE OCCUPANCY can the building owner design and construct such building in accordance with any of the MIXED USE options presented in 780 CMR Chapter 3, Section 313 (i.e., Section 313.1.1 or 313.1.2 or 313.1.3 or with combination of such Subsections)?

Answer 5: Yes.

Question 6: Would an Assisted Living Residence of MIXED USE OCCUPANCY and designed as a NON-SEPARATED USE, per 780 CMR Section 313.1.1 be required to: (1) satisfy the HEIGHT AND AREA requirements of 780 CMR Table 503 for the most restrictive USE GROUP, and: (2) be required to incorporate all FIRE PROTECTION systems of 780 CMR Chapter 9 based on the most restrictive requirements of each USE GROUP?

Answer 6: (1) Relative to the use of Table 503 of the State Building Code, the HEIGHT AND AREA Table is utilized to determine CONSTRUCTION TYPE. 780 CMR 3, Section 313.1.1 in part states that the required TYPE OF CONSTRUCTION for the building shall be determined by applying the HEIGHT AND AREA LIMITATIONS (of 780 CMR 5, Table 503) for each of the applicable USE GROUPS (and) the most restrictive TYPE OF CONSTRUCTION so determined, shall apply. (2) Relative to required FIRE PROTECTION SYSTEMS (occupant notification, detection, suppression, smoke control, supervision, etc.), 780 CMR 3, Section 313.1.1, in part, states that the most restrictive applicable provisions of 780 CMR 9 shall apply to these non-separated USE GROUPS (i.e., should one USE require occupant notification but not suppression but another USE requires suppression but not occupant notification, both requirements, per 780 CMR, must be satisfied for the entire NON-SEPARATED USE building).

Question 7: If one or more of the various USES of an Assisted Living Residence of MIXED USE OCCUPANCY requires suppression in accordance with NFPA 13 and another USE within the building requires suppression in accordance with NFPA 13R, and the building is constructed as a NON-SEPARATED USE, per 780 CMR Section 313.1.1, is it necessary to design and install the more restrictive fire suppression system (NFPA 13) throughout the building?

Answer 7: Yes (per 780 CMR 3, Section 313.1.1)

Question 8: Would an Assisted Living Residence of MIXED USE OCCUPANCY and designed as a SEPARATED USE, per 780 CMR Section 313.1.2 be required to: (1) satisfy the HEIGHT-only requirements of 780 CMR Table 503 for each unique, separated USE based on the CONSTRUCTION TYPE of the building, and: (2) in each story of the building, is it required that the BUILDING AREA shall be such that the sum of the ratio of the floor areas of each USE GROUP divided by the allowable area from 780 CMR 5, Section 503, for each USE shall not exceed one, and: (3) if suppression of certain USES within the SEPARATED USE Assisted Living Residence is required by 780 CMR such that for certain USES an NFPA 13 system is required and for other USES an NFPA 13R system is allowed, is it acceptable to incorporate both suppression system types (NFPA 13 and NFPA 13R), as applicable, within the same building?

Answer 8: Yes* to all three (3) queries raised in the Question above (per 780 CMR 3, Section 313.1.2) - the affirmative answer to queries (1) and (2) addresses the overall issue of HEIGHT AND AREA by assuring that for a given construction type, no singular, separated use is allowed to be constructed to a HEIGHT greater than allowed per 780 CMR 5 and by also assuring that for area purposes that the summation of the area ratios of actual area per USE per floor divided by the ALLOWED AREA per USE (per 780 CMR 5) does not exceed one.

*The affirmative answer to query 3 raised in the Question above acknowledges that because of true fire separation between the various USES in the building, each USE is to be treated independently relative to State

Building Code requirements and this also includes how suppression is addressed - the caveat regarding this response is that where an Assisted Living Residence constructed per 780 CMR 3, Section 313.1.2 is either a high-rise building (780 CMR 4, Section 403) or has the RESIDENTIAL portion of the building classified as either R-1 or R-2 USE or has some other non-residential USE that requires suppression per the requirements of 780 CMR 9, Section 904.2 or 904.3, sprinklering per NFPA 13 or NFPA 13R, as applicable, will be required throughout the building. Note also that suppression requirements of Table 904.9 and the construction and suppression requirements as set forth in Table 302.1.1 will also apply as applicable.

Question 9: In an Assisted Living Residence of MIXED USE OCCUPANCY constructed in accordance with any of the allowed methods of 780 CMR 3, Section 313, would: (1) a windowless story as described in 780 CMR 3, Section 904.8 require suppression, and: (2) if such an Assisted Living Residence possesses a commercial kitchen, would the requirements of the BOCA Mechanical Code, 1993 apply to the design, construction and suppression of such commercial kitchen hoods, ducts, grease removal and suppression systems?

Answer 9: Yes to both queries posed in the Question above.

Question 10 For any Assisted Living Residence, do the applicable portions of 780 CMR 10 (Means of Egress) apply and in particular do the locking arrangements and special locking arrangements, as applicable, apply to all MEANS OF EGRESS?

Answer 10: Yes

PROTECTION OF WOOD BUILDING ELEMENTS FROM EXTERIOR MOISTURE (RAIN)

This article provides a general discussion of the exterior moisture (rain) protection of wood wall sheathing and roof sheathing, studs, rafters and sill plate utilized in residential and small commercial construction.

The information presented herein is not intended to be inclusive but rather is intended to heighten awareness of Designers, Contractors and Building Officials to the issue of exterior moisture protection of critical building elements.

Sections 3607 and 3609 of Chapter 36 of the Massachusetts State Building Code (780 CMR) address weatherization of building wall and roof elements: additionally, Chapter 14, Section 1403 and Chapter 15, Section 1504 address weatherization requirements for commercial buildings.

In designing and constructing for proper building weatherization, the "*exterior envelope*", typically consisting of siding, trim, windows, doors, shingles, roofing membranes, flashing and caulking, and the *"weather barrier"*, inboard of the "exterior envelope" and typically consisting of certain types of "house wrap" and/or asphalt building felt provide the first and second lines of defense respectively (exterior moisture protection) to the *"dry zone"* of sheathing, studs, rafters, sill plate, etc., of the building.

Moisture in wood sheathing is normal and it varies with season and climate: however, prolonged periods of elevated moisture beyond the fiber saturation level (approximately 25% to 30%) will promote fungal growth and structural decay with decay tending to be limited to the wet areas of the structure.

Prolonged exposure of portions of wood wall sheathing or roof sheathing, studs, rafters and/or sill plates to elevated levels of exterior moisture will result in wood decay with replacement of such damaged portions of these elements required and are a clear sign of a failure of both the *"exterior envelope"* and/or the *"weather barrier"* of the building.
Flashing, consisting of corrosion-resistant materials such as galvanized sheet metal, copper, aluminum, soft lead sheet, flexible rubber products and felt papers lead rain water away from joints of different building elements (chimney to roof, window and exterior door to wall, deck to wall, etc.) and can also be utilized to form a weather-resistant "skirt" (drainage plane) at the building-to-exterior stair landing-interface, ensuring no wall sheathing exterior moisture exposure at such interface (a common cause of sheathing and even sill plate failure particularly when masonry

landings are placed against the wood exterior of the building and no flashing provided at such interface).

In summary, it is critical that the combination of "*exterior envelope*" and "*weather barrier*" be designed and constructed to prevent exterior moisture (rain) damage to the building wall and/or roof sheathing, studs, rafters and/or sill plate.

Although neither an endorsement, nor intended to be comprehensive, for additional guidance on recommended exterior moisture protection design and construction practices the following organizations provide technical web sites:

National Association of Homebuilders (NAHB)
Brick Institute of America (BIA)
The Journal of Light Construction (JLC)
International Masonry Institute (IMI)

Additionally, numerous Construction Textbooks also provide valuable information on proper weatherization of wood buildings.

Acknowledgement A National Association of Homebuilders pamphlet addressing the moisture protection of wood sheathing has been utilized in the development of this article.

In This Issue of *Codeword:*

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"DISTRIBUTED ENERGY" IS SET TO GROW

Among the leading-edge concepts in the world of energy supply is the idea of "distributed energy." Instead of power being delivered to a building through the vast network of wires that crisscross the region, energy is supplied by a system that is located at the building. Fuel cells, microturbines, and photovoltaic arrays are such types of on-site systems, and are likely to become more common in the near future. This will bring new challenges to building officials as they become familiar with new the technologies.

The U.S. Department of Energy, the Northeast-Midwest Institute, and several local organizations are co-hosting a series of *Distributed Energy Resources Road Shows* in the Northeast. The Road Shows are one-day events that are designed to train building code officials, fire marshals, and utility interconnection engineers on the installation, interconnection, and operation of these new energy technologies. Depending on the selection by local officials, demonstration systems will be displayed during each event.

Two sessions will be held in Massachusetts this fall. Registration is free, and building officials will receive Continuing Education Credits for attending.

Western MA	October 7, 2002
Boston, MA	October 9, 2002

For more details or to register to attend one of the Roadshows, please contact:

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