

NEW JERSEY DEPARTMENT OF
COMMUNITY AFFAIRS



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Wood Preservatives – What's Up?

As most of you know by now, Chromated Copper Arsenate (CCA) treated lumber is no longer registered with the United States Environmental Protection Agency as a wood preservative pesticide. Based on this fact, the use of CCA treated lumber will be eliminated for all but some special products. In place of CCA, Alkaline Copper Quaternary (ACQ) treated lumber is now being used.

The purpose of this article is to inform code users of some of the issues that have been identified as a result of the use of ACQ. Much of the information contained in this article is anecdotal. ACQ treated lumber has not been used for a sufficient length of time to establish requirements. However, the industry has established recommendations regarding the alleged corrosive effects of this product. Much of this information is being provided by the industry and may or may not be provided for proprietary reasons. With all of the disclaimers in place, let's look at the problem:

It has been claimed that ACQ treated lumber corrodes certain steel, iron, and aluminum products at an alarming rate. Because of these allegations, most lumber suppliers and fastener manufacturers are recommending the use of hot-dipped zinc galvanized, triple zinc-coated (electroplated) or stainless steel fasteners and connectors. Additionally, direct contact of ACQ treated lumber with aluminum, steel, or iron products is not recommended. This includes flashing, lag, and anchor bolts. Since there is no building code provision regulating the fastener type when ACQ treated lumber is being used, the Department of Community Affairs recommends that the building subcode official utilize the fastener manufacturer or lumber recommendations. This information should be readily available from the fastener supplier.

It should be noted that the use of CCA is not prohibited; it is merely unavailable for purchase. Projects utilizing CCA treated lumber need not be concerned with this issue. Should you have any questions on this matter, please contact the Code Assistance Unit at (609) 984-7609.

Source: John N. Terry
Code Assistance Unit

When are Soil Borings Required?

The 2000 edition of the International Building Code (IBC/2000), Section 1802, entitled "Foundation and Soils Investigations," details when soil borings are required. Section 1802.2.8, "Building Height," states that soil borings are required for buildings that are more than three stories, or 40 feet or more in height. When borings are required, Section 1802.4.1 provides the number of soil borings that are to be performed.

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James E. McGreevey
Governor



Susan Bass Levin
Commissioner

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The confusion arises because, in IBC/2000, Section 1802.2.8 has been indented and it gives the appearance that it is a subsection of Section 1802.2.7, "Seismic Design Category D, E, or F." This is not the case. Numerically, Section 1802.2.8 cannot be a subsection of Section 1802.2.7.

Soil borings are required only for buildings that are more than three stories, or 40 or more feet in height and are not based upon seismic design.

If you have any questions on this, please direct your calls to me at (609) 984-7609.

Source: Marcel Iglesias
Code Assistance Unit

Are Exterior Windows and Exterior Doors Required to Comply with the Wind Loads of the One- and Two-Family Dwelling Subcode?

There seems to be some confusion regarding the design wind-load requirements for exterior windows and doors in residential construction. The confusion arises in buildings or structures that are *not* within the wind-borne debris region. Are exterior openings (windows and doors) that are not in the wind-borne debris regions required to be designed to resist wind load?

Let's look at the code requirements in the 2000 edition of the International Residential Code (IRC/2000) with respect to wind loads on exterior windows and exterior doors.

Section R301.1, entitled "Design," requires that all "buildings and structures, and all parts thereof, be constructed to safely support all loads, including dead loads, live loads, roof loads, flood loads, snow loads, *wind loads*, and seismic loads." This section clearly indicates that all exterior components of a building or structure must be designed to support the wind load.

Section R301.2.1, entitled "Wind Limitation," states "Where loads for windows, skylights, and exterior doors are not otherwise specified, the loads listed in Table R301.2(2), 'Component and Cladding Loads for a Building With a Mean Roof Height of 30 Feet Located in Exposure B,' adjusted for height and exposure per Table R301.2(3),

'Height and Exposure Adjustment Coefficients for Table 301.2(2),' shall be used to determine design load performance requirements for exterior windows and exterior doors." This section specifically addresses all exterior windows and exterior doors, and requires that they be designed to the specific site condition for wind load.

Therefore, all exterior windows and exterior doors must be designed to the applicable wind load.

If you have any questions on this, please direct your calls to me at (609) 984-7609.

Source: Marcel Iglesias
Code Assistance Unit

New Jersey Register Adoptions

Date: January 20, 2004

Adoption: 36 *N.J.R.* 466(a)

Summary: This adopted amendment makes an administrative correction to the Uniform Construction Code (UCC) at *N.J.A.C.* 5:23-4.9, State Enforcing Agencies — Establishment, to reflect the scope of the Department of the Treasury, Division of Building and Construction's plan review authority with respect to buildings built under the authority of the Division.

Date: January 20, 2004

Adoption: 36 *N.J.R.* 467(a)

Summary: These adopted amendments at *N.J.A.C.* 5:23A include references to P.L. 1995, c. 54 and P.L. 1999, c. 11 to make clear the jurisdiction already assigned by statute to county construction boards of appeals in cases involving municipal utility authority and sewerage authority escrows.

Date: February 2, 2004

Adoption: 36 *N.J.R.* 648(b)

Summary: The adopted amendments at *N.J.A.C.* 5:10-25.2, 25.3, and 25.4 make an administrative correction to the Regulations for Maintenance of Hotels and Multiple Dwellings to replace the references to the "Construction Code Element" with the "Bureau of Construction Project Review," which is the State office responsible for plan review, and update the mailing address for the Bureau of Construction Project Review of the Division of Codes and Standards.

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Date: February 2, 2004
Adoption: 36 *N.J.R.* 649(a)
Summary: These adopted amendments at *N.J.A.C.* 5:23-7.2 revise the requirements in the 1998 edition of the International Code Council/American National Standards Institute (ICC/ANSI) A117.1 for reach ranges and electrical outlets for adaptable kitchens in dwelling units. In addition, these adopted amendments delete the requirements for alarms in ICC/ANSI A117.1-1998, and the requirements for ranges and stoves, refrigerators and freezers, and dishwashers for commercial kitchens.

Date: February 2, 2004
Adoption: 36 *N.J.R.* 649(b)
Summary: This adopted amendment at *N.J.A.C.* 5:23-9.3 provides that the installation of battery-powered and plug-in type carbon monoxide alarms is considered ordinary maintenance.

Date: February 17, 2004
Adoption: 36 *N.J.R.* 949(b)
Summary: These adopted amendments at *N.J.A.C.* 5:23-2.14, 3.11, 3.20, 4.4, 4.18, 4.20, 4.24, 5.3, 5.5, 5.19A, 7.3, 7.5, 7.9, 7.10, 9.8, 9.9, 12.2, 12.3, 12.4, 12.5, 12.6, and 12.9 insert "Group R-5" into the UCC, which is the designation for one- and two-family dwellings constructed in conformance with the One- and Two-Family Dwelling Subcode, and is equivalent to "old" Use Group R-4 in the previously adopted One- and Two-Family Dwelling Subcode. In addition, these adopted amendments delete "Use" from "Use Group" to provide consistency with the terminology used in the Building Subcode.

Date: February 17, 2004
Adoption: 36 *N.J.R.* 952(a)
Summary: These adopted amendments at *N.J.A.C.* 5:23-3.11A provide that municipalities in which public schools are located have the right of first refusal to perform the plan review of a proposed construction project provided that the agency is appropriately classified to perform the plan review.

Source: Megan K. Sullivan
 Code Development Unit

Communicator Index Available on the DCA Website

How many times have you dealt with an issue on which you knew there was an article published in the *Construction Code Communicator*? Oftentimes when this happens, you pick up the telephone, call a colleague, and ask them if they remember the article. This could go on for days if the article was published years ago.

Those days are gone! Now available on the Department of Community Affairs' web site is an index of the *Communicator*. Just go to <http://www.state.nj.us/dca/codes/> and click on the link, "View the index of the Construction Code Communicator," and a pdf file will open, which gives you the ability to search for articles by title or by subcode matter.

If you need a copy of a particular article, contact the Code Assistance Unit at (609) 984-7609.

Source: John N. Terry
 Code Assistance Unit

Bathroom Exhaust Fans

The Department of Community Affairs has received many telephone calls pertaining to bathroom ventilation and bathroom exhaust fans for residential dwellings that address the question, "When is a bathroom exhaust fan required?"

There are two types of bathroom ventilation: natural and mechanical. Requirements for both types are contained in the 2000 edition of the International Residential Code (IRC/2000).

IRC/2000, Section R303.3, entitled "Bathrooms," requires that bathrooms be provided with an aggregate glazing area in windows of not less than three square feet and that one-half must be operable. This section also contains an exception which states that, where a mechanical ventilation system is provided, the glazed areas are not required. If mechanical ventilation is provided, the minimum ventilation rates required are 50 cfm for intermittent ventilation and 20 cfm for continuous ventilation. Ventilation air from the space must be exhausted directly to the outside.

Therefore, if a residential building is constructed in accordance with the IRC/2000 and the bathroom includes the aggregate glazing area in windows per Section R303.3 as mentioned above, a bathroom exhaust fan would not be required.

Please note that IRC/2000, Section R303 does not reference the 2000 edition of the International Mechanical Code (IMC/2000) for ventilation. Ventilation requirements for residential buildings are to be in accordance with the IRC/2000 and not the IMC/2000.

Should you have any questions, you may contact me at (609) 984-7609.

Source: Thomas C. Pitcherello
 Code Assistance Unit

Location of Gas Shutoff Valves

The Code Assistance Unit has received many questions on the requirements for placement of gas shutoff valves, particularly those for vented decorative appliances and decorative appliances for installation in vented fireplaces.

The question is, “Where may the required equipment shutoff valve for a vented decorative appliance or a decorative appliance for installation in vented fireplaces be located in order to be in compliance with the code?”

The 2000 edition of the International Fuel Gas Code (IFGC/2000), Section 409.5, “Equipment Shutoff Valve,” provides that, when installing a shutoff valve to operate in conjunction with an appliance, the shutoff valve must be located in the same room and within a prescribed distance to the appliance. However, Section 409.5 also includes an exception for vented decorative appliances and decorative appliances for installation in vented fireplaces. This exception would allow the gas shutoff valve to be installed in an area remote from the appliance provided that the valve is readily accessible, does not serve any other equipment, and is permanently identified.

The IFGC/2000 defines a “vented decorative appliance” as “a vented appliance wherein the primary function lies in the aesthetic effect of the flames.” A “decorative appliance for installation in vented fireplaces” is defined as “a vented appliance designed for installation within the fire chamber of a vented fireplace, wherein the primary function lies in the aesthetic effect of the flames.” A “valve – equipment shutoff” is a “valve located in the piping system used to isolate individual equipment for purposes such as service or replacement” (and not used as an emergency shutoff valve).

As stated above, according to the exception provided in Section 409.5, the equipment shutoff valve for the decorative appliances listed may be located in an area remote from the appliance. This exception would allow the shutoff valve to be located in a basement or another area that is not located in the same room as the appliance. This valve, as defined in the IFGC/2000, would be used as a shutoff valve for servicing the equipment; but remember, the valve must be provided with ready access, serve no other equipment, and be permanently identified. Based on the definition of an equipment shutoff valve, the valve would be used for servicing or replacement of the appliance and not used as an emergency shutoff valve.

Should you have any questions, you may contact me at (609) 984-7609.

Source: Thomas C. Pitcherello
Code Assistance Unit

Homeowners Signing Energy Calculations

The Code Assistance Unit has received a number of calls from code users with the question, “Who may sign and seal the energy calculations to be submitted with the permit jacket?” For instance, the REScheck energy calculation program prints a signature line for the “Builder/Designer” to sign. The purpose of this article is to provide additional clarification in such instances.

N.J.A.C. 5:23-2.15, “Construction Permits – Application,” at Subsection (e)1vi states that energy calculations showing compliance with the Energy Subcode are to be submitted for all new buildings and for additions to existing buildings. It also states that these calculations for Class I and Class II are to be signed and sealed by the design professional. Calculations for Class III structures may be submitted by the mechanical contractor.

Class I and Class II structures must have energy calculations signed and sealed by a licensed engineer or a registered architect. Class III structures may have a licensed engineer, a registered architect, *or* a mechanical contractor sign and seal the energy calculations. In the case of a single-family homeowner who has prepared his or her own plans, including energy calculations, for the construction of a structure used or intended to be used exclusively as his or her private residence [see *N.J.A.C. 5:23-2.15(e)1ix* and *N.J.A.C. 13:27-3.3(a)*], the homeowner is permitted to sign the energy calculations.

The REScheck software does offer a signature line for the “Builder/Designer” to sign. Keep in mind, the REScheck software is created by the United States Department of Energy for distribution and use throughout the country. So, the design professional/mechanical contractor/owner, as appropriate, signature line is a generic clause in the program for the “design professional” to sign when related to the State of New Jersey.

NOTE: The New Jersey edition of REScheck can be found at www.energycodes.gov.

If you have any questions, you may reach me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit

Hotel and Multiple Dwelling Security Requirements

In August of 1979, the Department of Community Affairs issued Bulletin No. 79-6, entitled "Hotel and Multiple Dwelling Security Requirements." This bulletin states that the issuance of a Certificate of Occupancy for a new hotel or multiple dwelling is considered equivalent to the Certificate of Inspection issued for the initial hotel or multiple dwelling inspection. This means that the construction department is responsible for verifying that the new hotel or multiple dwelling complies with all of the requirements of the Regulations for Maintenance of Hotels and Multiple Dwellings.

The Uniform Construction Code addresses all of these regulations except one: building security. The text of the Regulations for Maintenance of Hotels and Multiple Dwellings applicable to building security can be found in *N.J.A.C. 5:10-19.1*, "Hotels," and *19.2*, "Multiple Dwellings." It is not necessary for you to go find these requirements; they are reprinted in Bulletin No. 79-6 for your use.

This is not new information. It is a reminder that code officials are responsible for the enforcement of these requirements and that Bulletin No. 79-6 remains active.

Should you have any questions on this matter, please contact the Code Assistance Unit at (609) 984-7609.

Source: John N. Terry
Code Assistance Unit

New Jersey Energy Star® Homes and the Energy Subcode

N.J.A.C. 5:23-2.15(e)1vi(1) requires detached one- and two-family residential buildings, and other residential buildings three stories or less in height, to comply with the Energy Subcode by using one of four methods: [1] Submission of New Jersey Energy Star® Homes (NJESH) compliance documentation, [2] Submission of REScheck software printouts (<http://www.energycodes.gov>), [3] Conformance with the prescriptive packages (Bulletin No. 03-2), or [4] Submission of hand calculations (*guidance* can be found in the appendices of the 1993 Building Officials and Code Administrators Energy Conservation Code).

When focusing on NJESH, the local construction department needs to look for only two things. [1] The permit application must contain the "Builder Acknowledgement" form. This form is provided to the permit applicant (usually the building contractor) from the local utility or the utility's consultant (for example, McGrann Associates and EAM Associates). [2] The "Home Energy Rating Scale" (HERS) compliance certificate must be submitted to the construction office before the Certificate of Occupancy (CO) can be issued. **HOWEVER**, a "passing" final inspection report may be submitted in lieu of the HERS certificate, since this certificate is normally not available until long after the home is ready for its CO. The passing

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final inspection report demonstrates conformance with NJESH and proves to the local code official that the home meets or exceeds the guidelines of NJESH. For more information on NJESH, please visit their web site at www.njenergystarhomes.com.

Note: If the owner or person in responsible charge decides mid-project not to continue with the NJESH program, the residence must still comply with one of the other methods listed above as per the Energy Subcode, *N.J.A.C. 5:23-3.18*.

If you have any questions, you may reach me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit

Playground Equipment – “A Public Service Message”

As you may have noticed in 1999, the Playground Safety Subcode was added to the Uniform Construction Code (UCC) as *N.J.A.C. 5:23-11*. This new subcode did not create any new enforcement obligations for the code officials. As has always been the case, permits are required for any element of playground construction that is subject to the permit requirements of the UCC. The owners of the playgrounds are responsible for compliance with all of the requirements of these rules. This article is to let you know that the first of the compliance deadlines contained in these rules is approaching. As a public service, you may want to pass the word along to those who manage playgrounds in your town.

The Playground Safety Subcode requires the upgrade and improvement of all playgrounds. **The upgrade of surfaces is required by October 18, 2004.** The definition of a playground is “an improved area designed, equipped, and set aside for play of six or more children, which is not intended for use as an athletic playing field or athletic court, and shall include any play equipment, surfacing, fencing, signs, internal pathways, internal land forms, vegetation, and related structures.”

The compliance deadlines are as follows:

- ◆ **APRIL 18, 2000** -- All newly constructed playgrounds built, and all new and replacement equipment installed, by a governmental, nonprofit, or private for-profit entity shall conform to the requirements of this subcode.
- ◆ **OCTOBER 18, 2004** -- All governmental, nonprofit, and for-profit private entities operating playgrounds shall upgrade their playgrounds by replacement or

improvement as necessary to comply with this subcode for surfacing.

- ◆ **OCTOBER 18, 2007** -- All governmental and for-profit private entities operating playgrounds shall upgrade their playgrounds by replacement or improvement as necessary to comply with this subcode for all other elements, or in the case of governmental entities, at such earlier date as State funds are made available for such purpose.
- ◆ **OCTOBER 18, 2014** -- All nonprofit entities operating playgrounds shall upgrade their playgrounds by replacement or improvement as necessary to comply with this subcode for all other elements.

NOTE: All construction or alteration of playgrounds, playground equipment, and surfacing that are subject to the Playground Safety Subcode shall comply with the applicable provisions of the Barrier-Free Subcode (*N.J.A.C. 5:23-7*). Also, in accordance with *N.J.A.C. 5:23-7.18(d)* and ICC/ANSI A117.1-98, Sections 302 and 303, surfaces of all routes and spaces required to be accessible shall be stable, firm, and slip-resistant. Sand and gravel shall therefore not be used as surfacing materials when new equipment is being installed, or a new safety surface is being put in place, and the Barrier-Free Subcode is applicable.

Playground upgrades and new installations are required to comply with the 1997 edition of the “Handbook for Public Playground Safety” (HPPS), Pub. No. 325, which is produced by the United States Consumer Product Safety Commission and adopted by reference as the Playground Safety Subcode. The HPPS guidelines govern design, installation, inspection, and maintenance of playgrounds and playground equipment. These guidelines can be found on the Internet at: <http://www.cpsc.gov/cpsc/pub/pubs/325.pdf>.

Source: Rob Austin
Code Assistance Unit

Energy: Recessed Lighting Fixtures

Recessed lighting fixtures (RLFs) have been a topic of discussion lately, especially in relation to the Energy Subcode (*N.J.A.C. 5:23-3.18*). Questions have arisen as to what the code requirements are for RLFs and which subcode is responsible for regulating these fixtures.

N.J.A.C. 5:23-3.18 adopts by reference the 1995 edition of the Council of American Building Officials’ Model Energy Code (CABO MEC/1995) as New Jersey’s Energy Subcode of the Uniform Construction Code. Sections

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502.3.4 and 602.3.3 of CABO MEC/1995, both entitled “Recessed Lighting Fixtures,” contain requirements for RLFs in relation to the Energy Subcode. The following are the three options for the installation of RLFs when installed in the building envelope. Only one must be followed to meet the requirements of the Energy Subcode:

1. Type IC rated, manufactured with no penetrations between the inside of the recessed fixture and ceiling cavity, and sealed or gasketed to prevent air leakage into the unconditioned space; or
2. Type IC rated or non-IC rated, installed inside a sealed box constructed from a minimum ½-inch-thick gypsum wall board or constructed from preformed polymeric vapor barrier, or other air-tight assembly manufactured for this purpose, while maintaining required clearances of not less than ½ inch from combustible material and not less than three inches from insulation material; or
3. Type IC rated, in accordance with ASTM E 283-91 (Standard Method of Test for Rate of Air Leakage Through Exterior Windows, Curtain Walls, and Doors), with no more than 2.0 cfm air movement from the conditioned space to the ceiling cavity. The lighting fixture shall be tested at 75 Pa or 1.57 lbs/ft² pressure difference and shall be labeled.

Sections 502.3.4 and 602.3.3 of CABO MEC/1995 are the responsibility of the building subcode official, who inspects RLFs to ensure that they are either insulation cover rated (IC rated), or installed in a sealed box that has the insulation at least three inches from the light fixture. It is the building subcode official’s responsibility to ensure compliance, both in the inspection plan review and inspection plan review stages, because RLFs pose a potential fire hazard if installed incorrectly with insulation. These fixtures also act as chimneys, transferring heat loss and moisture through the building envelope into attic spaces if not installed properly. The heat loss resulting from improperly insulated RLFs can be significant.

NOTE: Electrical subcode officials are responsible for the wiring methods of RLFs.

If you have any questions on this issue, you may reach me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit

Energy – Can’t Download? No Problem! (Corrections to Web Site Links)

The correct web site for free downloads of the energy compliance tools REScheck, New Jersey edition and COMcheck-EZ is www.energycodes.gov. Please make this correction to your *Construction Code Communicator* article found on page 11 of Volume 15, Number 3, Winter 2003.

Also, the links for REScheck and COMcheck Package Generators allow you to generate your own code-compliant packages based on your building location and window-to-wall ratio. They do not print out a compliance certificate showing compliance with the Energy Subcode of the Uniform Construction Code. When speaking to the United States Department of Energy, it was discovered that only REScheck can be used online for compliance; however, the web site to visit is <http://bldgcode.pnl.gov/REScheckWeb/>.

Lastly, the reference to the “1995 Mechanical Energy Code” should read “1995 Model Energy Code.”

I apologize for any inconvenience. If you have any questions, you may reach me at (609) 984-7609.

Source: Rob Austin
Code Assistance Unit

The Atrium

“The Atrium” – A different thing to different people.

To the building user, it may be a grand entrance to a building.

To the building owner, it may be a pronouncement – “Look to see how significant my building is.”

To the architect, it may be a statement of grandeur in a work of art.

To the code official, it may be a challenge in providing life safety to the building users.

Life-safety requirements for atriums have been set forth in the Uniform Construction Code for as long as I have been in code enforcement; and with a number of major code adoptions have come a number of significant changes, each time providing for improved “constructability,” increased life safety, and more usability. Now, since the adoption of the 2000 edition of the International Building Code (IBC/2002), more changes have occurred.

The changes are a result of both the normal code change process and of combining three independent publications into one code. Trade-offs that were only in the Building Officials and Code Administrators National Building Code have been lost, while new and somewhat more stringent requirements have come from other codes. Let's take this time to revisit the requirements for atriums.

First, let's define an atrium. An atrium is a space that is two or more stories in height with a low fire-hazard use, such as an entrance with a lobby.

Second, let's look at what an atrium is *not*. It is not a shaft such as a stair shaft, elevator shaft, or mechanical shaft. It is not a tall room or auditorium with or without mezzanines or balconies. All of these structures have their own code requirements and the requirements set forth for atriums do not apply.

Third, I'd like to discuss the three major code issues concerning the atrium: (1) automatic sprinkler protection, (2) smoke control, and (3) the enclosure of the atrium.

(1) AUTOMATIC SPRINKLER PROTECTION (See IBC/2000, Section 404.3):

Automatic sprinkler protection is required in all atriums and throughout buildings containing atriums, *except* (there's always an exception or two in the code) sprinklers are not required at the ceiling of an atrium where the ceiling of the atrium is 55 feet or greater above the atrium's finished floor, or in portions of the building where those portions are separated from the atrium by two-hour fire-rated assemblies, either vertical or horizontal. A two-hour rating provides adequate separation between sprinklered and unsprinklered areas, just as they provide effective separation between uses. This exception might be used when an addition which contains an atrium is added to an unsuppressed existing building.

(2) SMOKE CONTROL (See IBC/2000, Section 404.4): All atriums are required to have a smoke control system capable of controlling the smoke within the complete volume of the atrium, except for four specific cases, which are indicated in two exceptions.

The first exception is when an atrium complies with Exception 7 of Section 707.2, which sets forth provisions for shaft enclosures. This exception provides four specific items with which the atrium must comply and it must comply with ALL of the items. The four items are:

- (1) It cannot connect more than two floors,
- (2) It is not part of a required means of egress,
- (3) It is not open to a corridor in Group I or R uses,
- (4) It is separated from other atriums or floor openings serving other floors.

The second exception: The atrium is not required to have smoke control when it complies with Exception 2, 8, or 9 of Section 707.2.

- ◆ Exception 2 allows escalator openings and non-egress stairs to have unenclosed floor openings in fully sprinklered buildings.
- ◆ Exception 8 addresses parking garages.
- ◆ Exception 9 addresses floor openings between a mezzanine and the floor below.

(3) THE ENCLOSURE OF THE ATRIUM (See IBC/2000, Section 404.5):

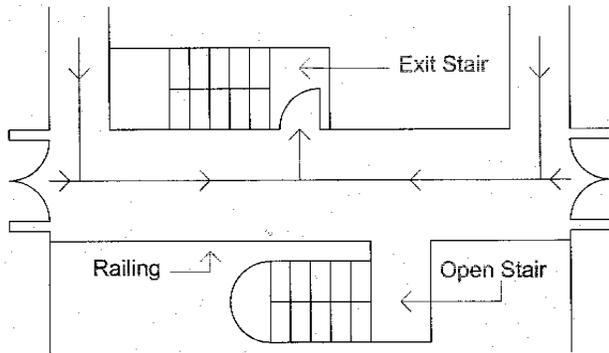
The volume of an atrium is defined by one-hour enclosure assemblies. The enclosure is permitted to be of a tested fire-resistive rated fire barrier or of glass that is completely wetted by an automatic sprinkler system. If the glass exception is used, then the glass must be either set in gasketed frames to allow for the expansion and contraction of the glass when heated by the fire and cooled by the sprinkler system or, as indicated in Section 404.5, Exception 1.2, the glazing may be of glass block construction having a tested rating of ¾ of an hour.

The above provisions require any atrium that has an egress element passing through it to have smoke control. This includes a lobby in an atrium when the design requires that the occupants pass through the atrium at the first level to get from an exit stair to the exit discharge, or when the occupants are required to cross the atrium at an upper level to get to an exit stair. (See Figure A.) These requirements also allow the construction of an atrium of more than two stories without requiring a smoke control system, provided the atrium is not open to more than two stories. (See Figure B.) If two or more atriums and/or floor openings are interconnected, then the volume will be determined by the separation or lack of separation from each other.

If more than three floors are penetrated and are open to a combination of atriums and/or floor openings, the maximum number of atriums or floor openings that may be connected together is three. They must be separated from any other atriums or floor openings by construction conforming to the requirement for shaft enclosures. A one-hour assembly is required in buildings

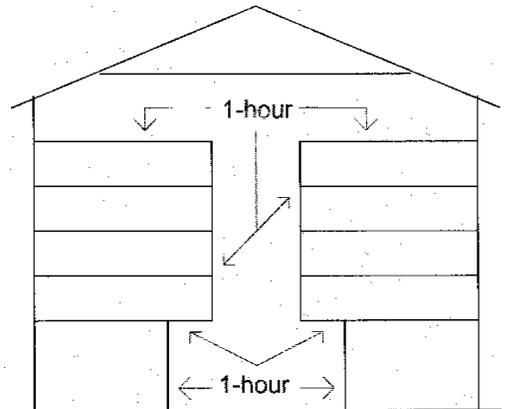
(continued from page 9)

Figure A



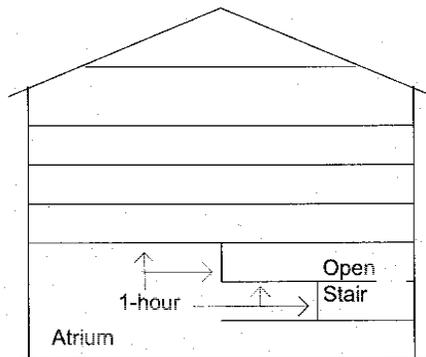
2-STORY ATRIUM

Figure B



OPEN TO 2 STORIES

Figure C



2 HOURS OF SEPARATION REQUIRED
IN PLACE OF 1 HOUR ASSEMBLY

up to three stories and a two-hour assembly for buildings greater than three stories. (See Figure C.) This is required by Section 707.2, "Shaft Enclosure Required," Exception 7.

Care must be taken when determining compliance with the atrium sections because so many exceptions and options exist. If not properly protected, multiple floor openings on connected floors can cause a chimney effect that could block the means of egress and make exiting from a building difficult, if not impossible.

If you have any questions on this article, you may contact the Code Assistance Unit at (609) 984-7609.

Source: Jeffrey Applegate
Code Assistance Unit

Uniform Construction Code Penalties

A recent amendment (P.L. 2003, c. 228) was made to the Uniform Construction Code (UCC) Act (P.L. 1975, c. 217) that increases the maximum penalty that can be issued by local enforcing agencies for violations of the UCC from \$500 to \$2,000. This amendment was signed into law by Governor James E. McGreevey on January 9, 2004 and is immediately enforceable.

There are four conditions under which penalties greater than \$500 may be levied by local enforcing agencies as follows:

- 1) Up to \$1,000 per violation for failure or refusal to comply with any lawful order, unless the failure or refusal to comply is done with the knowledge that the failure or refusal to comply will endanger the life or safety of any person, in which case the penalty shall be up to \$2,000 per violation;
- 2) Up to \$2,000 per violation for failure to obtain a required permit prior to commencing construction, or for allowing a building to be occupied without a Certificate of Occupancy;
- 3) Up to \$2,000 per violation for failure to comply with a Stop Construction Order;
- 4) Up to \$2,000 per violation for willfully making a false or misleading written statement, or willfully omitting any required information or statement in any application or request for approval.

Note: In an occupied building, a code violation involving fire safety, structural soundness, or the malfunctioning of mechanical equipment that would pose a life-safety hazard shall be deemed to endanger the life or safety of a person. In an unoccupied building, a code violation of a requirement intended to protect members of the public who are walking by the property shall be deemed to endanger the life or safety of a person.

Amendments to the UCC to make it conform to the Act will follow shortly. If a violation of the UCC falls under one of the conditions outlined above, code officials should apply the higher penalty.

If you have any questions regarding issuing penalties for violations of the UCC, contact the Office of Regulatory Affairs at (609) 984-7672.

Source: Louis Mraw
Supervisor, Office of Regulatory Affairs

Water Heaters and Bonding

Bonding jumpers are required for water heaters in accordance with the 2002 edition of the National Electrical Code, Section 250.104, entitled "Bonding of Piping Systems and Exposed Structural Steel." Section 250.104(B), "Other Metal Piping," states that "metal piping systems that may become energized shall be bonded to the service equipment enclosure, the grounded conductor at the service, the grounding electrode conductor where of sufficient size, or to the one or more grounding electrodes used."

The bonding jumper shall be sized in accordance with Section 250.122, "Size of Equipment Grounding Conductors," using the rating of the circuit that may energize the piping system. The equipment grounding conductor for the circuit is to be allowed to serve as the bonding means. The points of attachment of the bonding jumper must be accessible.

If, at the time of replacement, an existing water heater has no bonding jumper but has an equipment grounding conductor present, then no bonding jumper would be required to be installed because the equipment grounding conductor is allowed to serve as the bonding means.

However, if there is no bonding jumper or equipment grounding conductor present at the time of replacement, particularly with gas water heaters, then a bonding jumper must be installed and an electrical permit is required.

If you have any questions on this matter, you may reach me at (609) 984-7609.

Source: Suzanne Borek
Code Assistance Unit

Wells Used as the Grounding Electrode

The Code Assistance Unit has received questions concerning wells that are used as grounding electrodes. Where a well pump that had served as the sole grounding electrode for the electrical service has been removed, a new grounding electrode and conductor are required to be installed. The installation requires an electrical permit.

If the well did not serve as the grounding electrode and no grounding electrode conductor was connected to it at the time of removal, then a new grounding electrode and conductor are not required to be installed, and an electrical permit is not required. If you have any questions on this matter, you may reach me at (609) 984-7609.

Source: Suzanne Borek
Code Assistance Unit

Greetings from Governor James E. McGreevey and Commissioner Susan Bass Levin

One fundamental principle of the New Jersey State Uniform Construction Code (UCC) is that New Jersey citizens are provided with safe and affordable housing and buildings. This is achieved through local code enforcement agencies working in partnership with design professionals, builders and developers.

Three times per year, the Department of Community Affairs' (DCA) Division of Codes and Standards publishes the *Construction Code Communicator*. This newsletter provides subscribers - both public and private - with information on emerging construction issues. It also provides code officials with guidance on UCC administration and enforcement.

Through the *Construction Code Communicator* and all of our programs and services, we remain committed to providing safe and affordable housing and buildings to New Jersey citizens.

With all good wishes,



James E. McGreevey
Governor



Susan Bass Levin
Commissioner

Susan Bass Levin
Commissioner
NJ Department
of Community Affairs



James E. McGreevey
Governor
State of New Jersey



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