

Construction Code Communicator



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AAVs: Permitted or Not Permitted?

Does the Plumbing Subcode, the 2006 National Standard Plumbing Code (NSPC/2006), allow the installation of air-admittance valves (AAVs)?

The answer to this question may be found by referring to NSPC/2006, Appendix E, "Special Design Plumbing Systems," Section E.8, "Air-Admittance Valves." This section specifies that the installation of AAVs are allowed only when the special design plumbing system is designed by a registered design professional who is licensed to practice in the particular jurisdiction. Therefore, if AAVs are used, the system must be designed by a New Jersey Registered Architect or New Jersey Licensed Engineer.

Under a rehabilitation project, the code official may allow the installation of an AAV by considering a variation based on hardship caused by existing conditions. This is a judgment to be made by the code official. The code official may consider and may issue, but is not required to accept and approve, the variation.

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

Source: Thomas C. Pitcherello
Code Assistance Unit

Accessible Controls and Operable Parts

It has come to the Department of Community Affairs' attention that there is some confusion about whether controls and operable parts are required to be accessible — and if they are, what that means.

In the technical standard adopted in the Barrier Free Subcode, the International Code Council/American National Standards Institute (ICC/ANSI) A117.1-2003, Section 309 requires that operable parts be within the established reach ranges, 15 inches to 48 inches above the finished floor. This is the general rule; as always, there are specific questions that require additional thought.

- ♦ **Q:** If a light switch is mounted at 48 inches, but the toggle is at 48 1/8 inches when it is up, does that meet the reach ranges?
A: Yes.
- ♦ **Q:** If an outlet receptacle is mounted at 48 inches to the center line of the outlet, is it acceptable that one of the outlets is higher than 48 inches or lower than 15 inches?
A: Yes.
- ♦ **Q:** If there is a dedicated outlet for a single appliance and the appliance is permanently installed, or installed to be used without removal, may the outlet serving that specific appliance or device be installed outside the required reach ranges?

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A: Yes. Examples of this include outlets for a microwave oven that is permanently installed in a dwelling unit, the outlet for a refrigerator, and the outlet for office equipment that is installed for — and is not removed by — an employee.

If you have any questions, please contact the Code Assistance Unit at (609) 984-7609.

Source: Emily W. Templeton
Code Development Unit

Conflict-of-Interest Update

Effective May 7, 2007, *N.J.A.C. 5:23-4.5(j)*, Conflict of Interest, was expanded to include the project of any public official or employee having direct or indirect control over the funding or operations of the enforcing agency and any close relative or household member of any such public official or employee, where said person has an economic interest. A “close relative” is further defined as a parent, grandparent, son, daughter, brother, sister, or spouse of the public official or employee.

This new requirement needs a little explanation. If a project of a public official or employee, or any close relative or household member, is brought to the attention of the enforcing agency, the enforcing agency must make arrangements with another municipality to perform the required construction code enforcement. A written record concerning which municipality performed the construction code enforcement on the project should be kept.

These requirements are further explained in a rule proposal published in the *New Jersey Register* on June 2, 2008. This rule proposal provides that an official must not “knowingly” carry out any enforcement procedure designated to be a conflict situation under *N.J.A.C. 5:23-4.5(j)*1. Under the rule proposal, “the public official or employee having any direct or indirect control over the operation of the enforcing agency” part of the regulation is limited to the official himself and any household member, rather than a close relative as the regulation currently reads.

In a companion change, this rule proposal also amends *N.J.A.C. 5:23-5.25(c)* by including a Department of Community Affairs’ finding of a violation of *N.J.A.C. 5:23-4.5(j)*2 (the traditional conflict-of-interest regulation) as

constituting grounds for revocation of an official’s construction code licenses.

If you have any further questions, contact Robert Hilzer or William Ferguson at (609) 984-7768.

Source: Robert Hilzer
Office of Regulatory Affairs

NSPC Public Hearing to be Held in New Jersey

The National Standard Plumbing Code (NSPC) Committee is meeting in New Jersey! The NSPC Committee will consider proposed changes to the NSPC at a public hearing scheduled for **Thursday, August 21, 2008. The hearing will begin at 8:00 a.m. EST at the Sheraton Atlantic City Convention Center Hotel in Atlantic City, New Jersey.** The public is invited.

Proposed code changes were due April 24th. The code changes approved by the Committee at the public hearing, and the changes that were approved and included in the 2007 and 2008 Supplements, will be included in the 2009 edition of the NSPC, scheduled for publication in early 2009.

Our request that a public hearing be held in New Jersey has been granted. Now, **we must have a good showing** at this hearing. Please **mark your calendar for August 21**, Sheraton Atlantic City Convention Center Hotel, 8:00 a.m. and support having the NSPC public code change hearings in New Jersey.

The submitted proposed code changes will be considered and voted on at this public hearing. They will be available on the Plumbing-Heating-Cooling Contractors-National Association web site for your review. Visit <http://www.phccweb.org> under “Contractor Resources — Code and Technical Support.” For more information, contact Julie Turner at (800) 533-7694 or turner@naphcc.org.

Source: Thomas C. Pitcherello
Code Assistance Unit

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Fire-Suppression Systems for Balconies and Decks in Residential Construction 

As per Section 903.3.1.2.1 of the 2006 International Building Code (IBC/2006), sprinkler protection is required to be provided for exterior balconies, decks, and ground-floor patios of dwelling units where the building is of Type V construction. The code section also contains technical requirements for the installation of sidewall sprinkler heads in these locations. Because there are no sidewall sprinkler heads listed for installation under open wood joists, the purpose of this article is to clarify the Department of Community Affairs' position on this matter.

As a reminder, there is an established hierarchy concerning the relative importance of regulations, codes, and technical standards, including listings, to determine whether a requirement that is outside a specific category is acceptable and enforceable. At the top of the hierarchy of construction codes is the statute. Following that are the regulation, the model code itself, a technical standard, and at the bottom of the hierarchy is the listing. Listings are limited to those aspects of a device that have been tested. Tests are conducted in response to specific requests and contracts. Because the listing does not extend to all aspects or applications of a device does not necessarily mean that the device would not perform well in other applications; it may mean that the tests that would demonstrate effectiveness have not been requested or conducted.

With this hierarchy in mind, and based on the fact that the IBC/2006 clearly contemplates the installation of sidewall heads for exposed wood decking and describes installation techniques, it is the Department's opinion that the listing, or lack thereof, of sprinkler heads for this

application is superseded by its inclusion in the code. The IBC/2006, which is the adopted Building Subcode, clearly specifies the installation details for sidewall heads in this application, so that a head listed for this type of protection is not required.

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

Source: John N. Terry
Supervisor, Code Assistance Unit

List of Registered Builders

In the past, the Bureau of Homeowner Protection periodically mailed a list of revoked or suspended new home builders to the local construction official. Because Internet access is virtually universal and because none of us needs more paper, this list will no longer be mailed. A list of registered builders is available on the Division of Codes and Standards' web site at:

http://www.nj.gov/dca/codes/newhome_warranty/pdf/brlist.pdf
Please consult this list to ensure that any new home builder applying for a permit to build a new house currently is registered and has given a valid registration number.

Should you have any questions about the status of a builder, please call the New Home Warranty Builder Registration Section at (609) 984-7910.

Source: Bureau of Homeowner Protection

Gravel or Stone on Roofs

Section 1504.8 of the 2006 International Building Code (IBC/2006) does not allow gravel or stone to be used on the roof of a building located in a hurricane-prone region, or on any other building with a mean roof height exceeding that which is allowed by Table 1504.8, based on the exposure category and basic wind speed at the building site.

So, how does this pertain to the State of New Jersey? Well, a “hurricane-prone region” is defined as an area vulnerable to hurricanes, such as the United States Atlantic Ocean coast, where the basic wind speed is greater than 90 miles per hour. Therefore, gravel or stone is not allowed on new roofs in the portions of New Jersey east of the 90-mph line (see map at right, excerpted from Bulletin No. 03-4). And, for those portions of New Jersey on the 90-mph line and west where gravel or stone is allowed, there are still constraints (maximum mean roof height and exposure category) based on the roof design from Table 1504.8.

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

Source: Rob Austin
Code Assistance Unit



Hard-Wired, Interconnected Smoke Alarms vs. Low-Voltage Smoke-Detection Systems

The discussion that will follow is best begun by repeating the code sections that have been generating so many questions:

Section R313.1 of the 2006 New Jersey International Residential Code (IRC/2006) states, “All smoke alarms shall be listed in accordance with UL 217, and installed in accordance with the provisions of this code and the household fire-warning equipment provisions of NFPA 72. Household fire-alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire-alarm system shall provide the same level of smoke detection and alarm

as required by this section for smoke alarms in the event the fire-alarm panel is removed or the system is not connected to a central station.”

Section 907.2.10 of the 2006 New Jersey International Building Code (IBC/2006) states, “Listed single- and multiple-station smoke alarms complying with UL 217 shall be installed in accordance with the provisions of this code and the household fire-warning equipment provisions of NFPA 72. Household fire-alarm systems installed in accordance with NFPA 72 that include smoke alarms, or a combination of smoke detector and audible notification device installed as required by this section for smoke alarms, shall be permitted. The household fire-alarm system shall provide the same level of smoke detection and alarm as required by this section for smoke alarms in the

event the fire-alarm panel is removed or the system is not connected to a central station.”

So, what are the requirements of these sections?

- ◆ First, smoke alarms are required to be listed in accordance with UL 217.
- ◆ Second, the smoke alarms must be installed in accordance with the household fire-warning equipment provisions of National Fire Protection Association (NFPA) Standard 72 and the applicable code – IRC/2006 or IBC/2006.
- ◆ Third, low-voltage detection systems are permitted when they are installed in accordance with these code sections and the requirements of NFPA 72, household fire-alarm systems. When low-voltage systems are installed, they must provide the same level of protection as the smoke-alarm system if the fire-alarm panel is removed or the system is not connected to a central station.

Section R313.1 of the IRC/2006 and Section 907.2.10 of the IBC/2006 prohibit the use of low-voltage smoke-detection systems in lieu of hard-wired smoke alarms. Hard-wired, interconnected smoke alarms are required to be installed in all cases, unless the dwelling is large enough to require more than 12 smoke alarms.

NFPA 72 prohibits more than 12 hard-wired, interconnected smoke alarms from being installed. In the case where a dwelling requires more than 12 smoke alarms to be installed, the Department of Community Affairs recommends that the fire subcode official require permit applicants to apply for a variation for the installation of a low-voltage smoke-detector system. A variation should not be granted on the basis that the owner or occupant *chooses* to install more than 12 smoke alarms; the fire subcode official should grant the variation only when the design of the building is such that it *requires* more than 12 smoke alarms.

Here is an example: A contractor is constructing a new two-story home with a basement and ten bedrooms. The contractor will need to apply for a variation for the installation of a low-voltage smoke-detection system. A house of this size will require 13 smoke alarms, at a minimum.

NOTE: Other alarm devices, such as heat detectors, audible notification devices, and carbon-monoxide alarms, shall not be counted into the total number of smoke-alarm devices to be installed. NFPA 72 allows up to 18 devices, but limits smoke alarms to 12 devices.

The Department is preparing a bulletin to provide guidance to code officials on when to grant a variation for the installation of a low-voltage smoke-detection system. Please check our web site for the bulletin.

Source: Michael E. Whalen
Code Assistance Unit

Impact Protection for Appliances Located in Private Garages

What is the proper protection from motor vehicle impact for appliances located in a private garage? The 2006 International Residential Code (IRC/2006), Section G2408.3 contains an exception that directly addresses this question.

IRC/2006 Section G2408.3, Private Garages, states: “Appliances located in private garages shall be installed with a minimum clearance of 6 feet above the floor.” The exception then states: “The requirements of the section shall not apply where the appliances are protected from motor vehicle impact and installed in accordance with Section G2408.2.” Section G2408.2 requires that equipment and appliances that have an ignition source must be elevated to ensure the source of ignition is not less than 18 inches above the floor.

Therefore, if the equipment or appliance is located in a private garage, and the ignition source is elevated at least 18 inches above the floor and is protected from motor vehicle impact, the equipment or appliance does not have to be elevated a minimum of 6 feet above the floor.

Now for the larger question: What type of motor vehicle impact protection is required? The IRC is silent on this.

Although the IRC Commentary is not adopted for use in New Jersey, it can contain helpful information and guidance. In this case, the IRC Commentary recommends four ways to provide a means of protection. They are as follows:

1. Protected by walls of a room that extend from floor to ceiling;
2. Protected by guards made of concrete steel posts set in the floor, or flanged and bolted to the floor;
3. Protected by a platform or pad equivalent to vehicle “curb-stop” height; or
4. Protected by a concrete curb stop that is held in place with steel dowels.

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The code requires some type of protection to ensure that the protective device is hit before the equipment or appliance.

Because there is no cross-reference in the IRC to the 2006 International Fire Code Section 312, which addresses impact protection, it is recommended that any one of the four items listed above be used as a means to provide motor vehicle protection in a private garage.

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

Source: Thomas C. Pitcherello
Code Assistance Unit

Licensed Professional Contractors

The Division of Codes and Standards has had several meetings with the New Jersey State League of Master Plumbers, Inc. concerning the enforcement of plumbing licenses and all the professional licensed trades. The League has asked us to provide guidance to code officials concerning unlicensed individuals working under the Uniform Construction Code. This occurs more often than not, specifically relating to homeowners doing their own work. Many homeowners are persuaded by an unskilled handyman that it would be too costly to hire a licensed professional.

The reality is that the handyman has no formal training, has not passed tests, and does not attend code update seminars. He may not have insurance and, generally speaking, does not provide the homeowner with a contract. If the homeowner has a problem with the handyman (who, once on the job, may not be very handy), there is no State agency to turn to for assistance.

Hiring a licensed professional protects the homeowner and, in the long run, may save money because the quality of work is superior.

Now, can homeowners be helped when confronting this situation?

- ♦ If a homeowner states that he is going to do his own plumbing and/or electrical work, make sure he understands he must actually perform the work and may not simply supervise it.
- ♦ Make sure that the homeowner signs and dates the certification. Explain that the homeowner is accepting full responsibility for any violation that may be uncovered, but that hiring a licensed

professional shifts that responsibility onto the contractor.

What's the next step? What if we discover unlicensed contractors working on a construction site?

- ♦ Issue a Stop Work Order. This is our tool to gain compliance. Once the job is stopped, the general contractor or homeowner will be sure to have a licensed professional on the job site.
- ♦ Report the unlicensed contractor to the appropriate Division of Consumer Affairs' licensing board. Make sure the complaint is in writing. Do not just pick up the telephone and call; action will not be taken based on just a phone call.

Finally, once a year, every building department should request a copy of the current license from each contractor. This will not only prevent issuing permits to a contractor whose license has expired, it will also help to curb the use of false documents, including falsified raised seals.

If you have any questions, please contact me at (609) 984-7672.

Source: Louis J. Mraw
Supervisor, Office of Regulatory Affairs

Mixed Occupancies –

How to Separate per IBC/2006

For those of you looking for the occupancy separation table from the 2000 International Building Code (IBC) in Chapter 3, it is now in Chapter 5 of the IBC/2006, specifically Section 508.3.3.

Mixed occupancies are covered in Section 508.3 of the IBC/2006 where it states, "Each portion of a building shall be individually classified in accordance with Section 302.1. Where a building contains more than one occupancy group, the building or portion thereof shall comply with Sections 508.3.1 (accessory occupancies), 508.3.2 (non-separated occupancies), 508.3.3 (separated occupancies), or a combination of these sections." Since the criteria really hasn't changed for accessory occupancies and non-separated occupancies, this article will focus only on the separated occupancies. For starters, please take a look at Table 508.3.3 below; you'll notice the letter "N" for no separation requirement. You may be scratching your head as to why, because this is not the same application as the IBC/2000; yes, the IBC/2006 is different!

**TABLE 508.3.3
REQUIRED SEPARATION OF OCCUPANCIES (HOURS)**

OCCUPANCY	A ^a , E		I		R ^a		F-2, S-2 ^{a,d} , U ^d		B ^b , F-1, M ^b , S-1		H-1		H-2		H-3, H-4, H-5	
	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS
A ^a , E ^a	N	N	1	2	1	2	N	1	1	2	NP	NP	3	4	2	3 ^a
I	—	—	N	N	1	NP	1	2	1	2	NP	NP	3	NP	2	NP
R ^a	—	—	—	—	N	N	1	2	1	2	NP	NP	3	NP	2	NP
F-2, S-2 ^{a,d} , U ^d	—	—	—	—	—	—	N	N	1	2	NP	NP	3	4	2	3 ^a
B ^b , F-1, M ^b , S-1	—	—	—	—	—	—	—	—	N	N	NP	NP	2	3	1	2 ^a
H-1	—	—	—	—	—	—	—	—	—	—	N	NP	NP	NP	NP	NP
H-2	—	—	—	—	—	—	—	—	—	—	—	—	N	NP	1	NP
H-3, H-4, H-5	—	—	—	—	—	—	—	—	—	—	—	—	—	—	N	NP

For SI: 1 square foot = 0.0929 m².

- S = Buildings equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
- NS = Buildings not equipped throughout with an automatic sprinkler system installed in accordance with Section 903.3.1.1.
- N = No separation requirement.
- NP = Not permitted.
- a. For Group H-5 occupancies, see Section 903.2.4.2.
- b. Occupancy separation need not be provided for storage areas within Groups B and M if the:
 1. Area is less than 10 percent of the floor area;
 2. Area is equipped with an automatic fire-extinguishing system and is less than 3,000 square feet; or
 3. Area is less than 1,000 square feet.
- c. Areas used only for private or pleasure vehicles shall be allowed to reduce separation by 1 hour.
- d. See Section 406.1.4.
- e. Commercial kitchens need not be separated from the restaurant seating areas that they serve.

Step 1 – Occupancy Classification: Classify each occupancy in accordance with Section 302.1. Please keep in mind that the **fire area*** of each occupancy is to comply with the IBC/2006 based on the classification of that portion of the building.

*Fire Area - The aggregate floor area enclosed and bounded by fire walls, fire barriers, exterior walls, or fire-resistance-rated horizontal assemblies of a building.

Step 2 – Allowable Area: For each story, perform a simple calculation of areas to be such that the sum of the ratios of the actual floor area of each occupancy, divided by the allowable area of each occupancy, shall not exceed one.

$$\frac{\text{Actual Area A}}{\text{Allowable Area A}} + \frac{\text{Actual Area B}}{\text{Allowable Area B}} = 1 \text{ or less}$$

Step 3 – Allowable Height: The height limitations for each occupancy shall not exceed Table 503, based on the type of construction of the building. The height, in both feet and stories, of each **fire area*** shall be measured from grade plane; this measurement shall include the height, in both feet and stories, of intervening fire areas.

Step 4 – Separation: Occupancies are to be separated from adjacent occupancies, in accordance with Table 508.3.3.

Step 5 – Construction: If a rated separation(s) is required, the separation(s) shall be a fire barrier(s) constructed in accordance with Section 706, or horizontal assemblies constructed in accordance with Section 711, or both, so as to completely separate adjacent occupancies.

You will have noticed that the references to “fire area” are bolded, italicized, and defined above. This is to call attention to the fact that Section/Table 508.3.3 may not be the only reason for a separation. For example, automatic suppression systems (from Section 903) rely on fire area as trigger for their installation. Therefore, with the possibility of a fire barrier/horizontal assembly no longer required, this could increase your fire area and, in turn, require an automatic sprinkler system.

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An example applying Section 508.3.3 might help: Consider a one-story (with basement), Type VA construction building of moderate hazard storage of 4,651 square feet (basement) and office space of 9,967 square feet (1st floor), for a building total of 14,618 square feet.

Step 1: Moderate hazard storage – Group S-1; Office Space – Group B

Step 2: Table 503 for VA construction = S-1 – 14,000 s.f.; B – 18,000 s.f.

$$\frac{4,651}{14,000} + \frac{9,967}{18,000} = 0.886$$

Step 3: (Height not given for example.)

Step 4: Since the calculation from Step 2 is less than one, and Table 508.3.3 requires no separation (when one or less), Step 5 for the construction of a fire barrier is not required. However, it is important to note that you must apply the most restrictive provisions of each occupancy; the fire area is now 14,618 square feet without a separation and Section 903.2.8 (Group S-1) of the IBC/2006 would require an automatic sprinkler system throughout the building (fire area over 12,000 square feet).

Lastly, if the above example was a low-hazard storage (Group S-2), then a separation would be required by Table 508.3.3 regardless of calculations (non-separated occupancies would still be an option).

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

Source: Rob Austin
Code Assistance Unit

Multiple Permits for Multiple Dwellings Means Multiple Mistakes

There's an old adage that says, "Believe none of what you hear and half of what you see." It also might say, "Question what you read." Not long ago, the Census Bureau said a New Jersey municipality issued building permits for over 1,500 new houses. Let's call this place Anytown Township. The real number was considerably less, not even one-tenth of the amount reported by the Federal agency.

What happened? The construction official made a mistake that others have made. He issued multiple permits for multiple dwellings and, in the process, made multiple mistakes. Don't do what Anytown did.

The official wanted to authorize permits for three new apartment buildings, each with 24 units. Instead of three permits (one for each building), he issued 72 permits (one for each apartment). Each unit got its own building permit with its own permit number. The construction cost of each building, its area, volume, and related fees were split among 72 permits. The construction official was meticulous. He divided almost everything to get the correct figures for each permit. Almost everything. His only mistake was to repeat the total number of units in each building (24) on every permit. Instead of 72 new dwellings, he reported 1,728. The Census Bureau thinks there is a

housing boom in Anytown. So does anyone who uses this data.

The real mistake was to divide the buildings into parts in the first place. Anytown should have issued three building permits (one for each building), not 72 permits (one for each unit). Other towns make this same mistake every month.

These mistakes are onerous because they are hard to detect. They divide an error into multiple, usually smaller, parts. It takes time for these small parts to reach critical mass for detection. Further, when such mistakes occur, they are difficult to fix because each permit must be corrected, both by the office that issued them and by the Department of Community Affairs where this information is sent. It is a lot easier to fix three permits than to fix 72.

What happened in Anytown is not an isolated case. Over one-fourth of the State's population lives in multiple dwellings. In 1997, about 15 percent of the housing units authorized by permits were in buildings with three or more units. In 2007, the proportion is about 45 percent.

Why do construction officials issue multiple permits for multiple units? Some do it for record-keeping purposes: to track what needs to be done, where, and when. Separate permits are issued to provide a record of what is inspected — the plumbing code violations in apartment 3D or the

electrical violations in 12B.

A more common reason cited for condominiums and other for-sale dwellings is that new home warranty companies and banks require them to do so. Banks and warranty companies are reluctant to insure or finance the sale of condominiums without a Certificate of Occupancy (CO) for each unit in a multifamily building. Today's multifamily buildings are complex. They are built over long periods of time and occupied in phases over months, even years. An easy way to generate these COs is with a separate permit for each unit.

Some construction offices issue separate permits for the common area of multifamily buildings, as well as permits for each dwelling in these buildings. They take great pains to divide the building into distinct parts. Despite this effort, mistakes occur. Because these buildings are built over time, construction offices forget they reported one or more units on the permit for the common area and then report them again on the permits for the individual dwellings. This overstates the number of authorized dwellings in the municipality, a critical construction indicator -- one that is used to determine affordable housing obligations.

The Uniform Construction Code is clear about permits for multifamily buildings. These buildings may be built and occupied in phases, as life-safety requirements of the code are met. *N.J.A.C. 5:23-2.23* allows for occupancy in a multifamily building as long as the dwelling units in that building and the common area that serves those dwellings are safe prior to the entire building's completion. Banks and warranty companies must realize that people can move into and live in buildings that are not finished. The best way to report such buildings is to issue one permit for the entire structure. Temporary Certificates of Occupancy (TCOs) follow, as dwellings in the building are completed and ready for occupancy. These units are reported on the TCOs as they are issued, usually in phases, as the dwellings are completed. Take care not to repeat or over-count important features of the building on the TCOs, like the number of units, its construction costs, or area. Don't issue multiple permits for multiple dwellings. It often leads to multiple mistakes.

Source: John Lago
Division of Codes and Standards

Oil-Burner Safety Devices and Controls

Recently, the Department of Community Affairs has received some questions on whether there are requirements for a means to manually stop the flow of oil to the burner.

N.J.A.C. 5:23-3.20(b)3.iii, Section 301.16 of the International Mechanical Code, and *N.J.A.C. 5:23-3.21(c)10.i*, Section M1307.5 of the International Residential Code, require safety devices and controls for oil burners. These sections require that a means of manually stopping the flow of oil to the burner be provided. The device or devices are required to be placed in a readily accessible location that is a minimum of ten feet from the burner. Where there is electrically driven equipment, an identified switch in the burner supply circuit is required to be provided at the entrance to the room or area where the appliance is located. For equipment that is located in basements, the switch is required to be located at the top of the stairs that lead to the basement.

These code sections also state that an identifiable valve in the oil-supply line that is operable from a minimum of ten feet from the burner must be used for other than electrically driven or controlled equipment.

In short:

- ♦ If the burner is electrically driven, an identifiable switch is required and an identifiable valve is not required.
- ♦ For nonelectrically driven equipment, an identifiable valve must be installed and must be located a minimum of ten feet from the burner.

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

Source: Thomas C. Pitcherello
Code Assistance Unit

Precast Foundation Wall Panel

It has come to the Department of Community Affairs' attention that construction plans for precast foundation wall panel construction are being submitted without being signed and sealed by a design professional, and the construction plans are not drawn to any scale.

N.J.A.C. 5:23-4.26 deals with the certification of building elements. The requirements are as follows:

- (a) Building elements shall be certified in accordance with the following provisions:

(continued from page 11)

1. Building elements such as fire walls, fire-separation walls, **wall panels**, prestressed/prefabricated floor or roof panels, and pre-engineered structural frames, built in accordance with the New Jersey Uniform Construction Code, may be approved by any of the following options:

- i. *APPROVAL FOR BOTH DESIGN AND CONSTRUCTION BY A NATIONALLY RECOGNIZED LABORATORY OR A PRODUCT CERTIFICATION AGENCY* The municipal subcode official has the authority to accept such approvals based on the evidence, test, and/or documentation presented to him or her.
- ii. *APPROVAL FOR BOTH DESIGN AND CONSTRUCTION BY A PROFESSIONAL ENGINEER LICENSED EITHER IN THE STATE OF NEW JERSEY OR IN THE STATE OF MANUFACTURE* The municipal subcode official has the authority to accept such approvals based on the evidence, of test and/or documentation, presented to him or her.

N.J.A.C. 5:23-2.15(f) requires that the application for the permit must be accompanied by no fewer than two copies of specifications and of plans **drawn to scale**, with sufficient clarity and detail dimensions to show the nature and character of the work to be performed. Plans submitted shall be required to show only such detail and include only such information as shall be necessary to demonstrate compliance with the requirements of the code and these regulations, or to facilitate inspections for code conformity. When quality of materials is essential for conformity to the regulations, specific information shall be given to establish such quality. In addition, this code shall not be cited, or the term "legal" or its equivalent be used, as a substitute for specific information.

Therefore, as per *N.J.A.C. 5:23-2.15(f)*, all construction documents submitted for review must be drawn to scale. Furthermore, as per *N.J.A.C. 5:23-4.26*, the owner or his representative can submit evidence, testing, or documentation for both design and construction by a nationally recognized laboratory, a product certification agency, or a professional engineer licensed either in the State of New Jersey or in the state of manufacture. Examples of product certification are the International Code Council Evaluation Service Reports: ESR 1553 and ESR 1662.

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

Source: Marcel Iglesias
Code Assistance Unit

Price Increases for UCC

Please be advised that increased production costs have made it necessary to raise the price for new Uniform Construction Code books to \$55 (formerly \$40). In addition, the subscription service price will be going up to \$50 (previously \$35).

These price increases will be effective with the new fiscal year, which begins July 1, 2008. Thank you for your understanding.

Source: Mary Ellen Handelman
Office of Planning and Operations

Public and Common Area Visible Alarms

Some questions have been coming in recently about where visible alarm devices are required to be installed. Visible alarms must be installed in accordance with the 2006 International Building Code (IBC/2006), New Jersey edition. Section 907.9.1 requires that visible alarms comply with Section 907.9.1.1, Public and Common Areas, which simply states that alarms are required in public and common areas.

Now to address the area of confusion: What is considered a public or common area? Section 1102.1 of the IBC/2006, Definitions, has a very good definition of "Public Use Areas." Public Use Areas is defined as interior or exterior rooms or spaces that are made available to the general public. This definition should be used to determine the required location of visible alarm devices in accordance with the Building Subcode, specifically with IBC/2006, Section 907.9.1.1. Some examples of spaces available to the general public are: conference rooms, lobbies, restrooms outside an individual private office space, and classrooms. Public and common spaces are located in both publicly and privately owned buildings, so Section 907.9.1.1 must be applied in both.

If you have any questions, please feel free to call me at (609) 984-7609.

Source: Michael E. Whalen
Code Assistance Unit

Ramps in the IRC/2006

The 2006 International Residential Code (IRC/2006) was adopted February 20, 2007 at *N.J.A.C. 5:23-3.21*. Upon adoption, the maximum slope requirement for a ramp (Section R311.6.1) was inadvertently deleted from the IRC/2006. Subsequently, because one- and two-family dwellings are not covered by the Barrier Free Subcode, it was discovered that the code had a gap — there was no scoping for ramps installed at one- and two-family dwellings or townhouses. This was not the Department of Community Affairs' intent. The Department has corrected this error: effective April 7, 2008, the deletion was deleted and Section R311.6.1 was adopted. For your convenience, the language follows:

SECTION R311.6.1, MAXIMUM SLOPE: Ramps shall have a maximum slope of 1 unit vertical in 12 units horizontal (8.3 percent slope).

EXCEPTION: Where it is technically infeasible to comply because of site constraints, ramps may have a maximum slope of 1 unit vertical in 8 units horizontal (12.5 percent slope).

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

Source: Rob Austin
Code Assistance Unit

Requirements for Supplemental Smoke Detector or Heat Detector Installations for International Residential Code Dwellings

The Department of Community Affairs has received calls from contractors and code officials concerning permit requirements and inspection responsibilities for the installation of non-required, supplemental burglar-/fire-alarm systems.

Some questions that have been asked are: What type of permit is required? What code requirements apply to the installation? Can one device be installed to cover the entire dwelling and what type of device can be installed? What is the appropriate code reference in the Uniform Construction Code (UCC)?

A contractor installing supplemental equipment in a dwelling that already has a required system installed must comply with *N.J.S.A. 45:5A-18 et seq.* This is more specifically spelled out at *N.J.A.C. 5:23-2.15(b)7*. The license number of the contractor must be on the permit application. This section requires a certification permit from

the Division of Fire Safety, an Individual Alarm Installer's License issued by the Board of Examiners of Electrical Contractors, or a New Jersey licensed electrical contractor. The applicant must apply for a permit for electrical work only. Remember, this is a supplemental system for a dwelling being constructed under the International Residential Code, not a required system. When a system is being installed in an International Building Code structure, the system would need to follow the requirements of Section 901.2. This section requires that only the work being performed needs to comply with the provisions of the code.

National Fire Protection Association (NFPA) Standard 72, the Household Fire-Alarm Systems standard, and the manufacturer's installation instructions must be followed for the location and wiring of the detector(s). Section 760 of the 2005 National Electrical Code (NEC/2005) must also be followed for the installation of the wiring and the circuit supplying power.

Just because someone wishes to install a supplemental system doesn't mean they need to install a complete system throughout the dwelling. If the applicant is voluntarily installing a low-voltage system and wishes to install one detector on each floor or one detector on the main floor, there are no code requirements to install them anywhere other than where they wish to install them.

The UCC at *N.J.A.C. 5:23-6.6(i)* requires that materials and methods meet code requirements. *N.J.A.C. 5:23-6.8(d)8* requires that all of Chapter 7 of the NEC/2005 be followed, specifically in this case Article 760, Fire-Alarm Systems. This article references the 2002 edition of NFPA 72 for installation.

So, in short, an electrical permit is required; a fire permit is not required. The contractor/homeowner can test all the equipment installed in the presence of the electrical inspector. The installer can install any devices, as long as they are installed in accordance with the above-referenced codes and the manufacturer's installation instructions. Remember, this is not a required system; it is supplemental.

Source: Michael E. Whalen
Code Assistance Unit

Seismic Design Requirements for Fire-Protection Systems

There have been numerous inquiries as to the applicability of the seismic requirements with respect to fire-protection systems. The fire-protection system is considered a nonstructural component as per Chapter 16, Structural Design, of the 2006 International Building Code (IBC/2006).

Specifically, Section 1613, Earthquake Loads, addresses earthquake loads as follows: "All components that are permanently attached to structures and their supports and attachments shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7," which is adopted by reference in Chapter 35.

Chapter 13 of ASCE 7, Seismic Design Requirements for Nonstructural Components, establishes the minimum criteria for nonstructural components that are permanently attached to structures, and the minimum criteria for their supports and attachments. Nonstructural components are architectural, mechanical, and electrical components. A fire-suppression system's piping is considered a mechanical component.

Section 13.1.4 of ASCE 7, Exceptions, provides a list of the nonstructural components that are exempt from the seismic requirements. The exemptions are based on seismic design category and importance factor.

All mechanical components in Seismic Design Categories A and B are exempt. There are other components that are exempt in Seismic Design Categories C, D, E, and F, but there are additional criteria that must be met. Examples of additional criteria are: importance factor, flexible connections, component weight, and the height at which the components are mounted.

The requirements for Seismic Design Category C for fire-protection systems are found in Section 13.6.8.2 of ASCE 7. This section references National Fire Protection Association (NFPA) Standard 13 (2002 edition) for the design of the fire-protection sprinkler system's lateral supports.

The requirements for Seismic Design Categories D, E, and F for fire-protection systems are found in Section 13.6.8.3 of ASCE 7. Structures assigned to Seismic Design Categories D, E, or F must comply with the following requirements:

1. The hangers and sway bracing of the fire-protection systems must be deemed to meet the

requirements of this section when both of the following requirements are satisfied:

- a. The hanger and sway bracing are designed and constructed in accordance with NFPA 13, and
 - b. The force and displacement requirements of Section 13.3.1 and 13.3.2 are satisfied.
2. The fire-protection system piping itself must meet the force and displacement requirements of Section 13.3.1 and 13.3.2.
 3. The design strength of the fire-protection system piping for seismic loads, in combination with other service loads and appropriate environmental effects, must be based on the following material properties:
 - a. For piping and components constructed with ductile materials (e.g., steel, aluminum, or copper), 90 percent of the minimum specified yield strength.
 - b. For threaded connections in components constructed with ductile materials, 70 percent of the minimum specified yield strength.
 - c. For piping and components constructed with non-ductile materials (e.g., plastic, cast iron, or ceramics), 10 percent of the material minimum specified tensile strength.

When performing plan review, the code official is responsible for verifying that the seismic design category of a building is indicated on the construction documents submitted for review. The seismic design category indicated on the construction documents submitted by the design professional responsible for the fire-protection system must be identical to the one submitted by the design professional responsible for the design of the building. The fire-protection system must then be designed to the building's seismic design category.

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

Source: Marcel Iglesias
Code Assistance Unit

Sunrooms and the Energy Subcode  

The 2006 International Energy Conservation Code (IECC/2006) recognizes that sunrooms are difficult when it comes to compliance, especially when a sunroom is an addition (i.e., not calculated into the original home's overall thermal design of the building envelope). Therefore, the IECC/2006 prescribes ways to make a "thermally isolated sunroom."

The IECC/2006 defines a "sunroom" as: "A one-story structure attached to a dwelling with a glazing area in excess of 40 percent of the gross area of the structure's exterior walls and roof." It then defines "thermal isolation" as: "Physical and space conditioning separation from conditioned space(s). The conditioned space(s) shall be controlled as a separate zone for heating and cooling, or conditioned by separate equipment."

Moving past the definitions, Section 402.2.10 of the IECC/2006, Thermally Isolated Sunroom Insulation, states: "The minimum ceiling insulation R-values shall be R-19 in HDD 4500-5499 and R-24 in HDD 5500-6499. The minimum wall R-value shall be R-13 in all zones. A new wall(s) separating a sunroom from conditioned space shall meet the building thermal envelope requirements." Section 402.3.5, Thermally Isolated Sunroom U-Factor, states: "The maximum fenestration U-factor shall be 0.50 and the maximum skylight U-factor shall be 0.75. New windows and doors separating the sunroom from conditioned space shall meet the building thermal envelope requirements." Following is the breakdown of the referenced sections:

- ◆ **Ceiling Insulation**
 - ◆ HDD 4500-5499 -- R-19
 - ◆ HDD 5500-6499 -- R-24
- ◆ **Fenestration U-Factor**
 - ◆ All HDD 0.50
- ◆ **Wall Insulation**
 - ◆ All HDD R-13
- ◆ **Skylight U-Factor**
 - ◆ All HDD 0.75

Note that this is truly an exception for sunrooms that would be traditionally open to the rest of the home.

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

Source: Rob Austin
Code Assistance Unit

The Type III Construction Question 

Section 602.3 of the 2006 International Building Code (IBC/2006), as modified by *N.J.A.C. 5:23-3.14(b)7.ii*, states: "Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by this code."

Formal Technical Opinion 14 (FTO-14) further explains the intent of Section 602.3. Type III construction requires exterior walls to have similar structural properties to concrete (cast in place or precast) and concrete masonry units such as brick, stone, or glass block. (NOTE: FTO-14 was updated as recently as October 2007 – please visit our web site at <http://www.nj.gov/dca/codes> for the latest version.)

However, if you are still having difficulties, a further breakdown follows: If all masonry exterior walls (load bearing or non-load bearing) are used, the building is Type III construction. The rest of the building may be constructed of any material allowed by the IBC/2006.

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

Source: Rob Austin
Code Assistance Unit

New Jersey Register Adoptions

Date: December 17, 2007
Adoption: 39 *NJR* 5211(a)
Summary: The adopted amendment at *N.J.A.C. 5:23-1.4* corrects cross-references.

The adopted amendment at *N.J.A.C. 5:23-3.14* revises Table 307.1(2) of the Building Subcode, entitled "Maximum Allowable Quantity per Control Area of Hazardous Materials Posing a Health Hazard," to insert quantities for storage, use-closed systems, and use-open systems for radioactive materials.

The adopted amendment at *N.J.A.C. 5:23-3.16* adds accessory buildings or structures of one- and two-family dwellings to the uses allowed for Type NM, Type NMC, and Type NMA cables.

The adopted amendment at *N.J.A.C. 5:23-3.21* revises Section M2201.2 of the One- and Two-Family Dwelling Subcode, entitled "Above-Ground Tanks," to eliminate the 660-gallon restriction on the amount of fuel oil that can be stored outside of a building.

(continued from page 15)

The adopted amendment at *N.J.A.C. 5:23-4.3A* provides that Class 2 agencies shall be allowed to perform plan review for Group R-4 occupancies (therapeutic residences). The adopted amendment at *N.J.A.C. 5:23-1.4* includes companion changes to update cross-references in the definitions of "Class I Structure," "Class II Structure," and "Class III Structure."

The adopted amendment at *N.J.A.C. 5:23-4.20* changes the Department of Community Affairs' flat fee for electrical inspection of a private swimming pool, spa, hot tub, or fountain from \$46 to \$55.

The adopted amendment at *N.J.A.C. 5:23-5.5* applies the three-year prohibition period before reapplication for licensure that currently applies, as per *N.J.A.C. 5:23-5.21(g)1* in cases where there has been a revocation, to cases in which an application was previously denied for a reason that would justify revocation.

The adopted amendment at *N.J.A.C. 5:23-7.11* requires a bathroom on each accessible route in occupancies of Group R-1 containing six or more guest rooms. In addition, the adopted amendment at *N.J.A.C. 5:23-7.12* specifies that, where multiple examination rooms serve a common medical office area, five percent of

medical examination rooms shall be accessible, but not less than one. Finally, the adopted amendment at *N.J.A.C. 5:23-7.13* corrects a reference to Group A-4, changing it to Group A-3.

Date: March 3, 2008

Adoption: 40 *NJR* 1084(a)

Summary: The adopted amendments at *N.J.A.C. 5:23-2.15* and *5:23-3.14*, and adopted new rule at *N.J.A.C. 5:23-2.34* provide protection to the owners and occupants of structures that adjoin properties on which construction is being undertaken.

Date: May 5, 2008

Adoption: 40 *NJR* 2229(a)

Summary: The adopted amendments at *N.J.A.C. 5:23-3.4* update – and in some instances revise – the assignment of enforcement responsibilities for the Building, Plumbing, Energy, Mechanical, One- and Two-Family Dwelling, and Fuel Gas Subcodes of the Uniform Construction Code. In addition, the adopted amendments assign enforcement responsibilities for new code sections in the subcodes.

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