

# Construction Code Communicator



State of New Jersey  
Philip D. Murphy, Governor

Department of Community Affairs  
Lt. Governor Sheila Y. Oliver, Commissioner

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## When Is A Rehab NOT A Rehab?

(Updated reprint -- originally published Spring 1999)

There have been several instances when design professionals have asked whether the Rehabilitation Subcode, N.J.A.C. 5:23-6, may be applied to a demolished building. In an attempt to provide clarity, here is a summary of demolished buildings and the Rehabilitation Subcode.

The Rehabilitation Subcode is comprised of categories of work. When a building has been demolished and another building is being rebuilt, it does not fit the rehabilitation categories: repair, renovation, alteration, reconstruction, change of use, or addition. Because a reconstruction project is comprised of work from the other categories, building on an existing foundation does not fit that category. The Rehabilitation Subcode is not intended to be applied to a site on which the building has been completely removed and a new building is being constructed. The foundation system may be reused, provided there are no additional loads being imposed. However, per N.J.A.C. 5:23-6.2(b)2i, new construction must comply with the requirements for new buildings. For a building that is partially removed, the part being rehabilitated must comply with the Rehabilitation Subcode. There is no specific percentage in the Rehabilitation Subcode as to when rebuilding a damaged or partially demolished building should be considered new. However, should it be obvious that the design professional or building owner is allowing a de minimis amount of the existing building to remain in order to circumvent the new building code, the local authority having jurisdiction has the right to require that the building be designed as new construction.

Source: Rob Austin  
Code Assistance Unit  
(609) 984-7609



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## Group Home - Use & Occupancy Classifications

All building designs start with a use “group” classification. Whether your project is new construction or a change of use, if you are unable to identify the group classification, you cannot determine what is required. One of the more challenging occupancy classifications to identify is a “group home.” By definition, a group home must provide “custodial care.” When an occupancy provides a type of care that is not included in the definition of “custodial care,” it cannot be defined as a group home. These terms are defined in the New Jersey International Building Code/2015 (IBC/2015) as follows:

*“GROUP HOME” A facility for social rehabilitation, substance abuse or mental health problems that contains a group housing arrangement that provides **custodial care** but does not provide medical care.*

*“CUSTODIAL CARE.” Assistance with day-to-day living tasks; such as assistance with cooking, taking medication, bathing, using toilet facilities and other tasks of daily living.*

Due to occupant load and occupant need, group homes can fall under four different use groups, so choosing the right one can be tricky. The table below provides a side-by-side comparison to help demonstrate the differences:

R-5 <sup>a.</sup>	R-3	R-4 <sup>b.</sup>	I-1 <sup>b.</sup>
5 or fewer occupants receiving custodial care.	5 or fewer occupants receiving custodial care.	6 to 16 occupants receiving custodial care (excluding staff).	More than 16 occupants receiving custodial care (excluding staff).
Occupants are primarily permanent.	Occupants are primarily permanent.	Occupants reside on a 24-hour basis in a supervised residential environment.	Occupants reside on a 24-hour basis in a supervised environment.
Self-evacuation less than 3 minutes.	Self-evacuation less than 3 minutes.	Slow Self-Evacuation: More than 3 but less than 13 minutes.	Slow Self-Evacuation: More than 3 but less than 13 minutes.
Sprinkler system required by Section 308.3.4. <sup>c.</sup>	Sprinkler system required by Section 308.3.4. <sup>c.</sup>	Sprinkler system required IBC/2015 Sections 903.2.8.2 or 903.2.8.3. <sup>d.</sup>	Sprinkler system required IBC/2015 Section 903.2.6. <sup>e.</sup>

**a.** Includes all detached one- and two-family dwellings not more than 3 stories in height with a separate means of egress for each dwelling and multiple single-family townhouses not more than 3 stories in height with a separate means of egress designed, all constructed in accordance with the International Residential Code (IRC/2015).

**b.** This occupancy includes condition 1, condition 2, or both:  
**Condition 1:** This occupancy condition includes buildings in which all persons receiving custodial care are capable of responding to an emergency situation to complete building evacuation **without any assistance**.

**Condition 2:** This occupancy condition includes buildings in which there are any persons receiving custodial care who require **limited verbal or physical assistance** while responding to an emergency situation to complete building evacuation.

**c.** Must comply with Section 308.3.4, Five or Fewer Persons Receiving Custodial care, of the IBC/2015 by providing an automatic sprinkler system installed in accordance with NFPA 13D or Section P2904, Dwelling Unit Fire Sprinkler Systems, of the IRC/2015 (as referenced at Section 310.7 of the IBC/2015 per N.J.A.C. 5:23-3.14(b)3xvii). Either system is acceptable.

**d.** A NFPA 13D sprinkler system may be installed in Group R-4, Condition 1 group homes. A NFPA 13R sprinkler system is required to be installed in Group R-4, Condition 2 group homes, and attic protection is required pursuant to Section 903.2.8.3.1, Attics Used for Living Purposes, Storage, or Fuel-Fired Equipment, or 903.2.8.3.2, Attics not Used for Living Purposes, Storage, or Fuel-Fired Equipment, of the IBC/2015.

**e.** A NFPA 13R sprinkler system may be installed in a Group I-1, Condition 1 group homes, in lieu of a NFPA 13 sprinkler system. A NFPA 13 sprinkler system is required in a for Group I-1, Condition 2 group home.

Other types of facilities that provide “care” with five or fewer occupants and capable of self-evacuation in under three minutes may include, but are not limited to: Alcohol and drug centers, Assisted living facilities, Care facilities, Congregate living facilities, Halfway Houses, Lodging Houses, Residential board and care facilities, and Social rehabilitation. These facilities are not required to comply with the sprinkler requirements of Section 308.3.4 of the IBC/2015.

Source: Keith Makai & Michael Whalen  
 Code Assistance Unit, (609) 984-7609

## Refunds

*(Reprint – Originally Published Spring 1999)*

N.J.A.C. 5:23-2.27 in the Uniform Construction Code explains the process whereby a permit holder can request and obtain a refund for a project where work has ceased. This section is quite clear in that plan review fees are nonrefundable and all out-standing penalties must be collected prior to a refund being processed. N.J.A.C 5:23-4.23 states that all fees paid to the department shall also be non-refundable. What is not clear is when a permit holder is not entitled to a refund. For instance, (1) can a permit holder request a refund three years after a project is abandoned? (2) What about a developer who obtains permits for 100 homes then never builds them, or commences construction on various lots then ceases construction for more than five months? (3) ... more than six months? The refund regulations cannot be applied without taking into consideration N.J.A.C. 5:23-2.16(b), Suspension of Permit.

In accordance with N.J.A.C. 5:23-2.16(b), a permit becomes invalid if the permitted work has not commenced within 12 months of issuance, or if the project is suspended or abandoned for a period of six months after the time of commencing the work. Therefore, if a permit becomes invalid for reasons of failure to commence work within 12 months, or if the work is abandoned or suspended for more than six months (question 3), then the permit holder is not entitled to a refund.

Now, let's answer the questions listed above utilizing both sections of the regulations. In scenario #1, the permit holder would not be entitled to a refund on permits which are three years old since the permits are invalid in accordance with N.J.A.C. 5:23-2.16(b). Also, in order to qualify for a refund, there must be a valid permit.

The next two examples above require different answers. The developer who requests a refund on the 100 permits which are still active (not older than one year) is entitled to a refund, while the developer who requests refunds on permits where work has ceased for more than six months is not entitled to a refund, since the permits have become invalid in accordance with N.J.A.C. 5:23-2.16(b).

In conclusion, a permit holder is only entitled to a refund on an active permit. A permit which has become invalid for failure to adhere to N.J.A.C. 5:23-2.16(b) no longer exists and, therefore, no refund is warranted.

Take note that N.J.A.C. 5:23-2.15(d) states that all issued permits shall remain the property of the owner, even if the application was made by a contractor or authorized agent. Should anyone other than the owner request a refund it would be prudent to request something in writing from the owner of the property that a refund may be given to the person requesting the refund.

Source: Chris Ferrara  
Office of Regulatory Affairs  
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## 2018 I-Codes, 2018 NSPC, and 2017 NEC Proposal

BIG NEWS...the 2018 I-Codes, 2018 National Standard Plumbing Code, and 2017 National Electrical Code were proposed March 4, 2019. On this date, a 60-day comment period started; the comment period ends May 3, 2019. During this comment period, additional, non-technical changes could be made upon adoption if the comment(s) is germane to the original proposal and requires modification(s). You can find the proposal and the adoption, which modifies the proposal, at [http://www.nj.gov/dca/divisions/codes/codreg/rule\\_proposals\\_adoptions.html](http://www.nj.gov/dca/divisions/codes/codreg/rule_proposals_adoptions.html) and scrolling to the "Mar 4, 2019" row in the chart provided.

As always, there is a six-month grace period starting from the day of adoption during which applicants may submit a complete permit application, including all prior approvals, to be reviewed under the code in force immediately preceding the subcode revision. Provided that the application is complete, the construction official and applicable subcode officials should perform the plan review and issue construction permit(s) based on the code in force immediately prior to the operative date of the subcode revision. To provide an example, the 2015 I-Code adoption was September 21, 2015, which meant that the last day for application submission under the 2009 I-Codes and 2011 NEC was March 20, 2016; apply accordingly when the 2018 I-Codes, etc. are adopted.

Source: Code Assistance Unit  
(609) 984-7609

## Escape/Puzzle Rooms

As some of you may be aware, the members of the International Code Council (ICC) approved code change G48-18 which will modify the International Building Code (IBC) and International Fire Code (IRC) 2021 editions. This code change essentially groups escape/puzzle rooms in the same category as a special amusement area. Without getting into the discussion of whether the approved change is appropriate or not, the Code Assistance Unit felt that now would be a good time to get some written guidance out regarding this.

The reason for bringing this to your attention now is due to a tragic event that occurred in Poland where five young ladies 15 years of age were killed, apparently by smoke inhalation, when the building they were in caught fire. News reports have stated the main reason they lost their lives was due to the door knob being removed from the room that they were playing the game in. The Fire Department of New York (FDNY) has recently started inspecting some of the facilities in their jurisdiction and have come up with fire safety concerns.

These rooms are meant to be used as a team building activity, which are monitored by an attendant. In some cases, once the puzzle is solved, the attendant directs the participants to go through a door so that they may enter another room to solve another puzzle. In some cases, the participants just stay in the same room and the attendant gives them another activity.

Most of the escape room activities have a duration of an hour. In drafting this article, we have inquired with a number of people that have attended these events and none have said they were locked in the rooms.

The Department has been providing guidance on these rooms for over five years; the guidance remains as follows:

### Fewer than 50 persons:

- The use classification is a Business occupancy (Group B) in accordance with the exception of Section 303.1 of the NJ International Building Code (IBC/2015).
  - Entry/exits doors are not locked and participants can move freely out of the room;
  - The exit door for the room must be in clear view;
  - The lighting must not be below one foot candle; and
  - Exit signs/emergency lighting are not required.

When factoring in typical occupant load, an automatic fire alarm system would never be required. Also, in no case can someone be locked (or restrained) in the rooms unless the special locking arrangements of Chapter 10 have been applied for, reviewed, and approved.

- IBC/2015, Sections 1010.1.9.8 (Sensor release of electrically locked egress doors or Section) and 1010.1.9.9 (Electromagnetically locked egress doors) may be applicable when someone wishes to lock a required egress door from the space.
  - Each of these sections have not less than six features that would need to be considered by the code official depending on the specific locking arrangement.
  - A fire alarm system is not required just because someone would like to install one of these locking systems
- Delayed egress locking provisions must never be used, the code specifically prohibits this type of locking in an assembly occupancy.

Source: Michael Whalen  
Code Assistance Unit  
(609) 984-7609

## Rehab Subcode Rescue Openings

*(Updated reprint -- originally published Spring 1999)*

Based on the number of telephone calls that we are still receiving regarding the window/openings requirements of the Rehabilitation Subcode, it is apparent that there is some confusion. It is important to remember that the requirements in the Rehab Subcode differ from the requirements for new buildings. When a permit applicant proposes to change the size of a window opening in an existing bedroom or a new bedroom is created, necessitating an opening per N.J.A.C. 5:23-6.6(e)11ii, the Rehabilitation Subcode requires that one of the windows/openings be operable, have a sill height of 44 inches, a width of 20 inches, a height of 24 inches, and a TOTAL area of 5.7 square feet. All of the minimum dimensions specified in this requirement are to be **measured from head to sill and from side to side of the framed opening**. I hope this resolves some of the issues you folks have been having. (Note: The referenced section above does provide two exceptions to the opening requirements; two remote exits or a sprinkler system.)

Source: Rob Austin, Code Assistance Unit  
(609) 984-7609

## BHI Technical Bulletins

The Bureau of Housing Inspection (BHI), administers the New Jersey Hotel and Multiple Dwelling Law, NJSA 55:13A-1 et seq. The Bureau is responsible for ensuring that hotels and multiple-family buildings of three or more dwelling units operating within the State of New Jersey are properly maintained and do not pose a threat to the health, safety and welfare of their residents, nor the community in general.

To achieve these objectives, the N.J.S.A. 55:13A requires that the Bureau conduct a five year cyclical inspection of these properties. BHI has thereby been given the authority to enforce the regulations for Maintenance of Hotels and Multiple Dwellings (N.J.A.C. 5:10) and, where applicable, Subchapters 3 and 4 of the New Jersey Uniform Fire Code (NJAC 5:70), by issuing citations for the violation of these requirements.

In some instances, the regulations have required interpretations to be issued in the form of a Technical Bulletin. These bulletins are to provide guidance in applying the regulations. They can be found at <https://www.nj.gov/dca/divisions/codes/offices/housinginspection.html> under the "Related Forms and Publications" heading and provide guidance for the following items:

- Rear Porch Enclosures;
- Door Closers;
- Exits That Do Not Discharge To A Public Way;
- Protection of Interior Exits; and
- Electrical Facilities in Bathrooms and Toilet Rooms.

If you have further questions regarding these bulletins, please contact Faye Fanik at (609) 633-6216.

Source: Bureau of Housing Inspection  
Division of Codes and Standards

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## Flood Plain Receptacle/Lighting Outlets

Well, some time has passed, and now is a great time to revisit the requirements that arose from Superstorm Sandy regarding electrical equipment below flood elevations.

First, let's review the sources, as required today:

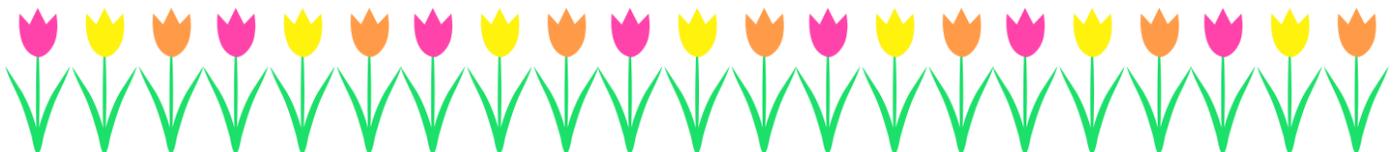
- 2014 National Electrical Code (NEC, aka NFPA 70), as adopted at N.J.A.C. 5:23-3.16;
- 2015 International Residential Code (IRC), as adopted at N.J.A.C. 5:23-3.21;
- 2014 American Society of Civil Engineers (ASCE) Standard 24, as referenced at R322 of the 2015 IRC; and
- Flood Insurance Rate Map (FIRM) for zones and elevations, as adopted by the municipality through a local floodplain ordinance in accordance with N.J.A.C. 7:13.

Our starting point with today's code is the 2015 IRC, with the following specific sections:

- The exception at Section R322.1.6, where it states that electrical equipment is allowed below design/base flood elevations provided the equipment is not in a Coastal A or V zone, equipment is water tight, wet location material(s) is used, and equipment is not mounted on breakaway walls.
- Section R322.3 applies to Coastal A and V zones and directs the IRC user to follow the ASCE 24.
- Section 7.2.5, Electrical Equipment BELOW Minimum Elevations, permits that this type of equipment when it is: (1) for Life Safety; (2) 120 volts or less; and (3) in accordance with 2014 NEC for wet Location.

Please note, the 2014 NEC is the used in both the ASCE 24 and IRC; most structures are classified as Type 2 for the interpretation of Table 7.2 from ASCE 24.

Source: Neil Nagy  
Bureau of Construction Project Plan Review



## Photovoltaic (PV) Line Taps

There have been questions regarding the wiring for photovoltaic systems. Specifically, the question has been the classification of the wiring that is tapped off the service conductors up to the point of the first overcurrent protection device for the photovoltaic system. The debate has been whether this wiring should be considered a feeder or whether it should be considered service conductor.

Article 705.12(A) of the National Electrical Code (NEC) allows the photovoltaic system to be connected on the supply side of the service disconnect for the building but does not designate whether the connection is a feeder or part of the service. Provided that the installation meets the requirements of article 230 part IV (service conductors) and part V (service equipment), and the bonding requirements of article 250 part V, the wiring is to be considered service conductor and can be installed in the service entrance conduit; this would not be in violation of article 230.7 or article 690.31(B).

Source: Michael Baier  
Code Assistance Unit  
(609) 984-7609

## License Check

Recently, we at the Department of Community Affairs, Division of Codes and Standards, have contacted the "other DCA," as in Division of Consumer Affairs within the Department of Law and Public Safety, regarding their licensing laws for licensed trades and professions that are referenced within the Uniform Construction Code (UCC), N.J.A.C. 5:23.

Before I get into the questions, please remember as code officials, your job is to check that the design professional/contractor(s) used, or not used in some residential applications, is licensed/registered per the regulations of the licensing law. This is done within the scoping of the UCC and we take the permit applicant for what they have submitted, unless there is specific reason to doubt what they have presented in the permit application.

That being said, we posed the following questions to the Board of Examiners of Master Plumbers, Board of Examiners of Heating, Ventilating, Air Conditioning and Refrigeration (HVACR) Contractors and Board of Examiners of Electrical Contractors regarding homeowners doing work in their own home/dwelling and as to their status of residency in the home/dwelling.

- 1a. In a single-family detached home where they own and reside, we understand that can do both, plans and the work.
- 1b. In a single-family detached home where they own but do not reside, may they do plans and/or work?
2. In a two-family detached home, may they do plans and/or work? Does owning/residing there change this?
3. In an attached single-family townhouse, may they do plans and/or work? Does owning/residing there change this?
4. In a building of three or more dwellings and condos/apartments, may they do plans and/or work? Does owning/residing there change this?

Response from the Board of Examiners of Master Plumbers:

- 1a. Yes, per N.J.A.C. 13:32-1.4(f)1.
- 1b. No, per N.J.A.C. 13:32-1.4(f)1, "in his or her own dwelling."
2. No to both questions. N.J.A.C. 13:32-1.4(f)1 only allows for "single family."
3. Yes if the single family townhome has a single sewer system; No if the townhome has a common sewer system.
4. No, as the work would affect other owners.

Response from the Board of Examiners of HVACR Contractors:

- 1a. The Board determined that the owner can do both plans and work, however they cannot do work that involves the use of chlorofluorocarbons (CFCs) or hydro chlorofluorocarbons (HCFCs), N.J.A.C. 13:32A-1.1b(3).
- 1b. The Board determined that the home owner cannot perform the work.
2. The Board determined that the owner cannot perform the work.
3. The Board determined that the residing owner can perform the work.
4. The Board determined that the owner cannot perform the work.

Response from the Board of Examiners of Electrical Contractors (they did not reply in similar bulleted fashion and supplied the following):

*(continued on next page)*

*(License Check)*

The Board of Examiners of Electrical Contractors has reviewed your email requesting clarification as to whether or not electrical work can be performed by a homeowner on a single-family home; two-family home; townhouse; condo; or apartment.

Please be advised that the Board's statute clearly states that the person performing the electrical work must occupy the dwelling for himself or a member of his immediate family at the time the work is being performed. However, because the word "dwelling" is not defined in the Statute, the Board cannot make a distinction between single-family, two-family, etc.

Therefore, pursuant to N.J.S.A. 45:5A-18(n), work performed by a person on a dwelling that is occupied solely as a residence for himself or a member or member of his immediate family is considered exempt from licensure and does not require the securing of a business permit issued by the Board.

For those that are visual learners, below is a chart version:

	Plumbing		HVACR		Electrical	
	Plans	Work	Plans	Work	Plans	Work
1a. Single-family detached home; own and reside	Yes	Yes	Yes*	Yes*	Yes	Yes
1b. Single-family detached home; own BUT not reside	No	No	No	No	No	No
2a. Two-family detached home; own and reside	No	No	No	No	Yes	Yes
2b. Two-family detached home where they own BUT not reside	No	No	No	No	No	No
3a. Attached single-family townhouse; own and reside	Yes if single sewer system; No if a common sewer system.		Yes	Yes	Yes	Yes
3b. Attached single-family townhouse; own BUT not reside	No	No	No	No	No	No
4a. Unit in building of three or more dwellings; own and reside	No	No	No	No	Yes	Yes
4b. Unit in building of three or more dwellings; own BUT not reside	No	No	No	No	No	No
	* Cannot do work that involves the use of chlorofluorocarbons (CFCs) or hydrochlorofluorocarbons (HCFCs)					

We felt that it was not necessary to contact the Board of Architects because they specifically state that only a single-family detached homeowner that resides (or intends to reside) in the home may draw the plans and do the work per N.J.A.C. 13:27-3.3.

As you can see, the rules and regulations regarding the licensed occupations/trades do not align per home/dwelling type. This does not make the UCC code official as the enforcer of these regulations. This means, you must ask the appropriate questions to see if they need to have the proper credentials to be exempt from the licensing. If they do not tell the truth, then they are reported to the appropriate Board at a later date.

Source: Code Assistance Unit, (609) 984-7609

## Installation of a Voluntary (Non-Required) Fire Protection System: What Level of Protection is Needed?

The Rehabilitation Subcode (N.J.A.C. 5:23-6) is silent on the voluntary installation of a fire protection system; however, the scope of work is considered an alteration. N.J.A.C. 5:23-6.6(i) refers the code user to Materials & Methods, Section 6.8(b)4. Here, it requires compliance with Section 901.2 of the Fire Protection Subcode. Section 901.2 provides an exception that allows for the installation of a **partial or complete** protection system when the system is being installed voluntarily. The caveat to this exception is that it requires the non-required system, whether partial or complete protection is provided, to be installed to meet the requirements of the Fire Protection Subcode.

When someone opts to install one detection device in each corridor or hallway of the common area within a building, this would be considered a partial system, and only those devices need to meet the requirements of the Fire Protection Subcode, NFPA 70, and NFPA 72, nothing more.

When the scope of work is a complete occupant notification system, (i.e. to alert the occupants), the new equipment (notification appliances) being installed would need to meet the requirements of the Fire Protection Subcode, NFPA 70, and NFPA 72.

When the scope of work is to install an "Occupant notification system," the applicant would need to meet the requirements of Section 907.5 for sound pressure levels. Electronic monitoring of the system off-site would not be required per Section 907.6.6, but on-site monitoring of the components being installed would need to meet all the other requirements of Section 907.6. As for the reference to NFPA 70 and 72, this would be used for the physical mounting, wiring and prohibited locations for the devices being installed. Location of the devices such as height on the wall or location on the ceiling would need to comply with NFPA 72. Additional protection locations **cannot** be required per NFPA 72.

When the scope of work is just to install a horn or bell in the common area or a warehouse section of a building by the sprinkler riser, that horn or bell would need to meet the requirements of the code, NFPA 70 and 72, nothing more.

When someone opts to install *only* a horn or bell, the installation of that device must meet the requirements of NFPA 70 and 72. They do not have to install a full occupant notification system, and need only to comply with the Fire Protection Subcode and referenced standard sound pressure levels for that device.

So, how does one "meet the requirements of the Fire Protection Subcode, NFPA 70 and 72" when the code requires additional protection of certain system components? These components can range from a fire alarm control unit, notification appliance circuit power extenders, and supervising station transmitting equipment, when installed. When any of this equipment is installed, additional smoke detection is required per Section 907.4.1.

The code requires construction documents and proposed system shop drawings be submitted for review and approval.

The following are applicable requirements of the Rehabilitation Subcode and the New Jersey International Building Code:

### **N.J.A.C. 5:23-6.6 Alterations has the following requirements.**

(b) All work shall be done in a workmanlike manner.

(i) All materials and methods used shall comply with the requirements specified in N.J.A.C. 5:23-6.8, Materials and methods.

### **N.J.A.C. 5:23-6.8 Materials and methods**

(b) Building and Fire Protection Materials and Methods: The following sections of the building subcode (N.J.A.C. 5:23-3.14) shall constitute the building and fire protection materials and methods requirements for this subchapter:

4. All of Chapter 9 entitled "Fire Protection Systems" **except** Sections 902, 903.2, 904.2, 905.3, 906.1, 907.2, 908, 910.2, 911, 916.1;

### **NJ IBC 2015**

**901.2 Fire protection systems.** *Fire protection systems* shall be installed, repaired, operated and maintained in accordance with this code and the *International Fire Code*.

Any *fire protection system* for which an exception or reduction to the provisions of this code has been granted shall be considered to be a required system.

**Exception:** **Any fire protection system or portion** thereof **not required** by this code shall be permitted to be installed for **partial or complete protection** provided that such system **meets the requirements of this code**.

Source: Michael Whalen, Code Assistance Unit  
(609) 984-7609

## State Permit Surcharge Fees, aka the DCA Training fee

Most technical assistants and building officials know they must collect a surcharge fee based on construction activity. Every three months, they are required to send a check payable to the "Treasurer, State of New Jersey" and a "State training fee report" to the Department. The quarterly State training fee report shows the dollar amount of alterations and the cubic feet of construction from permits for new structures and additions to existing ones. As a reminder, demolition permits are exempt; the fee applies only to alterations, additions, and new construction.

Like the price of stamps, the surcharge rates change (this usually means they go up). More than one building department has sent in training fee reports with rates from previous years. Don't make this mistake. The rates are published in the UCC at N.J.A.C. 5:23-4.19(b). It is your responsibility to make sure your reporting software has the right rates. If you use software from a private vendor, call them up. Make sure you have the latest rates. More importantly, make sure you know how to update your software to change them when needed. It is the building department's obligation to pay the surcharge rate on time and for the right amount, even if reporting software is not up to date.

Currently, additions and new construction permits are assessed a DCA training fee of \$0.00371 per cubic foot (or \$3.71 per 1,000 cubic feet of volume).

The surcharge for alterations is \$0.0019 per dollar of construction (or \$1.90 dollar per \$1,000).

What activities are exempt? These are specified at N.J.A.C. 5:23-4.19. No state training fee for:

- Demolitions;
- Commercial farm buildings;
- Lead or asbestos abatement;
- Work on deed-restricted, affordable housing (new, or existing);
- Work required because of natural disaster, but only if the local code enforcement agency waives fees, too.
- Public buildings, including public schools, pursuant to N.J.S.A. 52:27D-126c.

Churches are not exempt.

This section also specifies the minimum training fee shall be \$1.00.

If you have any questions regarding surcharge fees, please do not hesitate to call the Division of Codes and Standards at (609) 292-7899.

Source: John Lago  
Division of Codes and Standards

## The TCO Issue

*(Updated reprint – originally published Spring 1999)*

Over the years, I think the biggest complaint that design professionals and building owners have with regard to inconsistent enforcement is the issuance or in some municipalities the lack of issuance, of a Temporary Certificate of Occupancy (TCO). Per N.J.A.C. 5:23-2.23(g), the Uniform Construction Code (UCC) is clear as to when a TCO is warranted. When the permit holder requests it and the structure (or portions of the structure) may be occupied safely without endangering life or public welfare, the construction official may issue a TCO. The problem with this code language is the word "may." Does the term "may" in this case mean the issuance of a TCO is at the whim of the construction official? I think not. If it can be determined that the structure can be safely occupied, the construction official has an obligation to issue a TCO at the permit holder's request. The intent of the UCC is to base the denial of a TCO on code issues, not on personal preference.

I know there will be arguments. Who is going to keep track of the buildings that have a TCO? How will the conditions of a TCO be enforced? What should be done if the permit applicant does not follow up to complete a project? These issues will exist whether or not a TCO is issued! How are all of the requirements of the UCC enforced? This issue is no different. There are rules in place to deal with this and every other issue in the UCC. The comment "We don't issue TCOs in this town" flies in the face of the term "Uniform" in the Uniform Construction Code. And for those that would like precise instances when a TCO shall be issued, please see Bulletin 01-2 at <https://www.nj.gov/dca/divisions/codes/resources/bulletins.html>.

If you have further questions regarding the issuance of a TCO, please contact me at the number below.

Source: Rob Austin, Code Assistance Unit  
(609) 984-7609

## Use of Sealed Wire Connectors

There has been some confusion regarding the use and installation of sealed wire connectors. These connectors are being used in a variety of installations. You may call them Kup-el-taps, Polaris or the like and most are color-coded for dry/wet locations. However, many are not being installed as per their manufacturers installation instructions and/or their UL guidelines. Also, most are not sunlight-resistant. Therefore, if these connectors are installed on the exterior of a building/structure, be sure that the appropriate connector is being used and installed as per any instructions provided to insure the connectors are permitted in wet-locations and are sunlight resistant.

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

Source: Neil Nagy  
Bureau of Construction Project Plan Review

## Wireless Smoke Detection Systems

The Department has been hearing that some code officials are still not allowing wireless smoke detection systems as the primary dwelling detection system or a commercial detection system. When the building subcode, NJ International Building Code (IBC/2015) and one- and two-family dwelling subcode, NJ International Residential Code (IRC/2015) were adopted, two new sections were added: Section 907.2.11.7, Smoke detection system, to the IBC/2015 and Section R314.7, Fire alarm systems, to the IRC/2015.

A smoke detection system complying with the National Fire Alarm and Signaling Code, National Fire Protection Association standard 72/2013 (NFPA 72), can be installed instead of a single- or multiple-station smoke alarm system in accordance with IRC/2015 Section R314.7, Fire alarm systems, and IBC/2015 Section 907.2.11.7, Smoke detection system.

Both the residential code and the building code permit NFPA 72 compliant wireless detection systems to be installed. When smoke alarms are required by the code and someone opts to install a wireless detection system, they must comply with the provisions of the code and NFPA 72. Residential systems need to comply with IRC/2015, Section R314.7.1, General, for “household fire warning equipment,” and commercial residential properties must comply with NFPA 72, Section 29.6.2 “Household Fire Alarm Systems” number (5), Low-power wireless systems.

Other commercial occupancies may also install a NFPA 72 wireless smoke detection system in accordance with the IBC 2015 Section 907.6.1, Wiring. An approved fire alarm system installed in accordance with the provisions of this code and NFPA 72, Section 23.16, Special Requirements for Low Power Radio (Wireless) Systems.

Because wireless system transmitters have a sole power supply, NFPA 72 Section 23.16.2, Power Supplies, requires the following;

1. Each transmitter must be identified at the fire alarm control unit and only serve one device.
2. The battery must last at least a year before the depletion alarm activates.
3. The battery depletion signal shall transmit 7 days before the battery goes dead. The signal must be different than all other required signals and if silenced sound once every four hours.
4. In the event of a catastrophic battery failure a trouble signal must sound and if silenced sound once every four hours.
5. Only one transmitter can be effected by a failure of the battery.

Three other sections of NFPA 72/2013 should also be reviewed and complied with.

- **Section 23.16.3, Alarm Signals. 23.16.3.1 - 23.16.3.5**
- **Section 23.16.4, Monitoring for Integrity. 23.16.4.1 - 23.16.4.6**
- **Section 23.16.5, Output Signals from Receiver/Control. Items 1 – 5.**

**To demonstrate the interaction between the code and the referenced standard, the applicable sections have been provided below.**

### **NJ IBC/2015**

**907.2 Where required—new buildings and structures.** An *approved* fire alarm system installed in accordance with the provisions of this **code and NFPA 72** shall be provided in new buildings and structures in accordance with **Sections 907.2.1 through 907.2.23** and provide occupant notification in accordance with **Section 907.5**, unless other requirements are provided by another section of this code.

(continued on next page)

*(Wireless Smoke Detection Systems)*

**907.2.11.7 Smoke detection system.** Smoke detectors listed in accordance with UL 268 and provided as part of the building fire alarm system **shall be an acceptable alternative to single- and multiple-station smoke alarms** and shall comply with the following:

1. The fire alarm system shall comply with all applicable requirements in Section 907.
2. Activation of a smoke detector in a dwelling unit or sleeping unit shall initiate alarm notification in the dwelling unit or sleeping unit in accordance with **Section 907.5.2**.
3. **Activation of a smoke detector** in a **dwelling unit or sleeping** unit shall **not activate** alarm notification appliances **outside of the dwelling unit or sleeping unit**, provided that a **supervisory signal** is generated and **monitored** in accordance with Section 907.6.6.

**907.5.2 Alarm notification appliances.** Alarm notification appliances shall be provided and shall be *listed* for their purpose.

**907.5.2.1 Audible alarms.** Audible alarm notification appliances shall be provided and emit a distinctive sound that is not to be used for any purpose other than that of a fire alarm.

**907.5.2.1.1 Average sound pressure.** The audible alarm notification appliances shall provide a sound pressure level of 15 decibels (dBA) above the average ambient sound level or 5 dBA above the maximum sound level having a duration of not less than 60 seconds, whichever is greater, in every occupiable space within the building.

**907.5.2.1.2 Maximum sound pressure.** The maximum sound pressure level for audible alarm notification appliances shall be 110 dBA at the minimum hearing distance from the audible appliance. Where the average ambient noise is greater than 95 dBA, visible alarm notification appliances shall be provided in accordance with NFPA 72 and audible alarm notification appliances shall not be required.

**907.6 Installation and monitoring.** A fire alarm system shall be installed and monitored in accordance with Sections 907.6.1 through 907.6.6.2 and NFPA 72.

**907.6.1 Wiring.** Wiring shall comply with the requirements of NFPA 70 and NFPA 72. **Wireless protection systems utilizing radio-frequency transmitting devices shall comply with the special requirements for supervision of low-power wireless systems in NFPA 72.**

**NJ IRC/2015**

**R314.7 Fire alarm systems.** Fire alarm systems shall be permitted to be used in lieu of smoke alarms and shall comply with Sections R314.7.1 through R314.7.4.

**R314.7.1 General.** Fire alarm systems shall comply with the provisions of this **code and the household fire warning equipment provisions of NFPA 72**. Smoke detectors shall be listed in accordance with UL 268.

**R314.7.2 Location.** Smoke detectors shall be installed in the locations specified in Section R314.3

**R314.7.3 Permanent fixture.** Where a household fire alarm system is installed, it shall become a permanent fixture of the occupancy, owned by the homeowner.

**R314.7.4 Combination detectors.** Combination smoke and carbon monoxide detectors shall be permitted to be installed in fire alarm systems in lieu of smoke detectors, provided that they are *listed* in accordance with UL 268 and UL 2075.

**R314.7.5 Monitoring.** The system shall be **monitored by an approved supervising station and shall be maintained in accordance with NFPA 72**.

**NFPA 72/2013****18.4.5 Sleeping Area Requirements.**

**18.4.5.1\*** Where audible appliances are installed to provide signals for sleeping areas, they shall have a sound level of at least 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds or a sound level of at least 75 dBA, whichever is greater, measured at the pillow level in the area required to be served by the system using the A-weighted scale (dBA).

**18.4.5.2** If any barrier, such as a door, curtain, or retractable partition, is located between the notification appliance and the pillow, the sound pressure level shall be measured with the barrier placed between the appliance and the pillow.

**18.4.5.3\*** Effective January 1, 2014, audible appliances provided for the sleeping areas to awaken occupants shall produce a low frequency alarm signal that complies with the following:

- (1) The alarm signal shall be a square wave or provide equivalent awakening ability.
- (2) The wave shall have a fundamental frequency of 520 Hz  $\pm$  10 percent.

**Wireless systems must also comply with NFPA 72/2013 sections below.**

*(continued on next page)*

*(Wireless Smoke Detection Systems)*

**29.6.2 Household Fire Alarm Systems.** Power for household fire alarm systems shall comply with the following requirements:

**(5) Low-power wireless systems shall comply with the performance criteria of Section 23.16.**

**\*Section 23.16, Special Requirements for Low Power Radio (Wireless) Systems.**

**23.16.1\* Listing Requirements.** Compliance with Section 23.16 shall require the use of low-power radio equipment specifically listed for the purpose.

**23.16.2 Power Supplies.** A primary battery (dry cell) shall be permitted to be used as the sole power source of a low-power radio transmitter where all of the following conditions are met:

- (1) Each transmitter shall serve only one device and shall be individually identified at the receiver/fire alarm control unit.
- (2) The battery shall be capable of operating the low-power radio transmitter for not less than 1 year before the battery depletion threshold is reached.
- (3) A battery depletion signal shall be transmitted before the battery has been depleted to a level below that required to support alarm transmission after 7 additional days of nonalarm operation. This signal shall be distinctive from alarm, supervisory, tamper, and trouble signals; shall visibly identify the affected low-power radio transmitter; and, when silenced, shall automatically re-sound at least once every 4 hours.
- (4) Catastrophic (open or short) battery failure shall cause a trouble signal identifying the affected low-power radio transmitter at its receiver/fire alarm control unit. When silenced, the trouble signal shall automatically re-sound at least once every 4 hours.
- (5) Any mode of failure of a primary battery in a low-power radio transmitter shall not affect any other low-power radio transmitter.

**29.7.8 Wireless Devices.**

**29.7.8.1 Wireless Systems.** Household fire alarm systems utilizing low-power wireless transmission of signals within the protected dwelling unit shall comply with the requirements of Section 23.16.

The activation of a detector in a dwelling must initiate an audible sound pressure level complying with IBC/2015 Section 907.5.2.1.1 Average sound pressure, and IBC/2015 Section 907.5.2.1.2, Maximum sound pressure, inside the dwelling unit. NFPA 72/2013 also requires that sleeping room areas to meet the requirements of Section 18.4.5, Sleeping Area Requirements. Sound pressure levels need to be measured at the pillow level height. Section 18.4.5.3 also requires a low frequency 520 Hz alarm signal.

The detectors still need to be located in accordance with Section 907.2.11.2, Groups R-2, R-3, R-4, and I-1 occupancies, and Section R314.3, Location.

Source: Michael Whalen, Code Assistance Unit  
(609) 984-7609

### **Ordinary Maintenance and Minor Work changes – Impact on Historic Districts**

On March 5, 2018, several changes to the New Jersey Uniform Construction Code (UCC) were adopted in the New Jersey Register. The New Jersey Historic Preservation Office has received numerous inquiries about these recent code changes and how they will affect the preservation and protection of historic resources at the local level. The primary concern is with the qualification of roof and siding replacement projects that no longer require a municipal building permit.

The recent changes to the UCC do not eliminate the review authority of the local Historic Preservation Commission (HPC). If the local historic preservation ordinance states that this type of work requires HPC review, it must still be reviewed by the HPC, regardless of the requirement for other permits.

Building code officials in municipalities that have historic preservation ordinances should advise contractors and home owners that all exterior projects must be submitted to the HPC for review prior to commencing work. Additionally, municipal staff should advise homeowners in historic districts that the HPC review process remains intact and unaltered by the recent change to building permit requirements. As a longer-term solution, the Historic Preservation Office recommends that municipalities with local historic districts look into amending their historic preservation ordinances to include stronger and clearer language about the permit requirements and the types of activities that are subject to HPC review. For further details, please see the "NJ HPO Guidance Document" at <https://www.njht.org/dca/njht/resources/related/>.

Source: New Jersey Historic Preservation Office, (609) 984-0176

## Private Office Toilet/Bathing Room

All toilet and bathing rooms in buildings subject to the accessibility provisions of the Uniform Construction Code are required to be accessible. This is stated at Section 1109.2 of the International Building Code/2015 (IBC/2015). This section further states that at least one of each type of fixture, element, control, or dispenser in each accessible toilet room and bathing room shall be accessible.

So what happens when the president of the company says, "I want my own bathroom and I want it attached to my office"? This is where Exception 1 of Section 1109.2 comes into play. Here it states:

*Toilet rooms or bathing rooms accessed only through a private office, not for common or public use and intended for use by a single occupant, shall be permitted to comply with the specific exceptions in ICC A117.1.*

Because the exception just references you to the A117.1 (2009 edition, as referenced in Chapter 35 of the IBC/2015), I have provided you a Cheat Sheet for the allowances of the private accessible "lite" bathroom. Keep in mind, for this president's bathroom to be accessible "lite," it must be accessed only through his/her private office and not for common use or public use.

### **Door Swing Clearances**

603.2.2 Door Swing.

Doors shall not swing into the clear floor space or clearance for any fixture.

*EXCEPTION #1 - Doors to a toilet and bathing room for a single occupant, accessed only through a private office and not for common use or public use shall be permitted to swing into the clear floor space, provided the swing of the door can be reversed to meet Section 603.2.2.*

### **Water Closet Height**

604.4 Height.

The height of water closet seats shall be 17 inches minimum and 19 inches maximum above the floor, measured to the top of the seat. Seats shall not be sprung to return to a lifted position.

*EXCEPTION: A water closet in a toilet room for a single occupant, accessed only through a private office and not for common use or public use, shall not be required to comply with Section 604.4.*

### **Water Closet Grab Bars**

604.5 Grab Bars.

Grab bars for water closets shall comply with Section 609 and shall be provided in accordance with Sections 604.5.1 and 604.5.2. Grab bars shall be provided on the rear wall and on the side wall closest to the water closet.

*EXCEPTION #1: Grab bars are not required to be installed in a toilet room for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with Section 604.5.*

### **Knee and Toe Clearance.**

606.2 Clear Floor Space.

A clear floor space complying with Section 305.3, positioned for forward approach, shall be provided. Knee and toe clearance complying with Section 306 shall be provided. The dip of the overflow shall not be considered in determining knee and toe clearances.

*EXCEPTION #2: The requirement for knee and toe clearance shall not apply to a lavatory in a toilet and bathing facility for a single occupant, accessed only through a private office and not for common use or public use.*

### **Lavatory/Sink Height**

606.3 Height.

The front of lavatories and sinks shall be 34 inches (865 mm) maximum above the floor, measured to the higher of the rim or counter surface.

*EXCEPTION: A lavatory in a toilet and bathing facility for a single occupant, accessed only through a private office and not for common use or public use, shall not be required to comply with Section 606.3.*

### **Bath Tub Grab Bars**

607.4 Grab Bars.

Grab bars shall comply with Section 609 and shall be provided in accordance with Section 607.4.1 or 607.4.2.

*EXCEPTION: Grab bars shall not be required to be installed in a bathing facility for a single occupant accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with Section 607.4.*

(Continued on next page)

(Private Office Toilet/Bathing Room)

**Transfer-type Shower Seat**

## 608.2.1.3 Seat.

A folding or non-folding seat complying with Section 610 shall be provided on the wall opposite the control wall.

*EXCEPTION: A seat is not required to be installed in a shower for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of a shower seat.*

**Standard Roll-in-type Shower**

## 608.2.2.3 Seat.

A folding seat complying with Section 610 shall be provided on an end wall.

*EXCEPTION: A seat is not required to be installed in a shower for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of a shower seat.*

**Alternate Roll-in-type Shower**

## 608.2.3.3 Seat.

A folding seat complying with Section 610 shall be provided on the back wall.

*EXCEPTION: A seat is not required to be installed in a shower for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of a shower seat.*

**Shower Grab Bars**

## 608.3 Grab Bars.

Grab bars shall comply with Section 609 and shall be provided in accordance with Section 608.3. Where multiple grab bars are used, required horizontal grab bars shall be installed at the same height above the floor.

*EXCEPTION: Grab bars are not required to be installed in a shower facility for a single occupant, accessed only through a private office and not for common use or public use, provided reinforcement has been installed in walls and located so as to permit the installation of grab bars complying with Section 608.3.*

Source: Rob Austin, Code Assistance Unit  
(609) 984-7609

**Residential Kitchen Exhaust Hood Makeup Air  **

Section M1503.4 of the one- and two-family dwelling subcode (International Residential Code/2015 – IRC/2015) requires approximately the equal amount of makeup air to be brought back into the dwelling when the kitchen exhaust system exceeds 400 cubic feet per minute. You may now be asking...How can this provision of the code be met? In short, the code allows for an active or passive (i.e. mechanical or natural) type system. When an electrically-operated damper is installed, it must automatically open when the exhaust system is activated, or a gravity damper may be installed. Either damper must be accessible for inspection, servicing, and repairs without removing permanent construction.

Subsection M1503.4.1 of the IRC/2015 permits three different methods of obtaining makeup air. First, the makeup air can be brought into the kitchen where the exhaust hood is located. Second, rooms that communicate freely with the kitchen with permanent openings that allow makeup air to flow into the kitchen are allowed. Third, a *duct system* that communicates freely with the kitchen through any component of the *duct system* is allowed. A duct system is defined at Section 202 of the IRC/2015 as “A continuous passageway for the transmission of air that, in addition to ducts, includes duct fittings, dampers, plenums, fans and accessory air-handling equipment and appliances.” Combining the third option with this term applied means one could install a damper in the kitchen or the room or rooms adjacent to the kitchen as long as there are no doors which would block the flow path of the makeup air being supplied. The HVAC system for the home could supply the makeup air via a fresh air intake or a direct installation can be made to the hood with a wall or roof cap and damper.

Caution should be taken when making a connection to the return duct of the HVAC. The appliance manufacturer’s installation instructions must be reviewed. The introduction of outdoor air into the return duct may have a negative effect on the heat exchanger due to the different in temperature of the outdoor air. The manufacturer may have information about condensation forming which may lead to corrosion of the heat exchanger and failure could result.

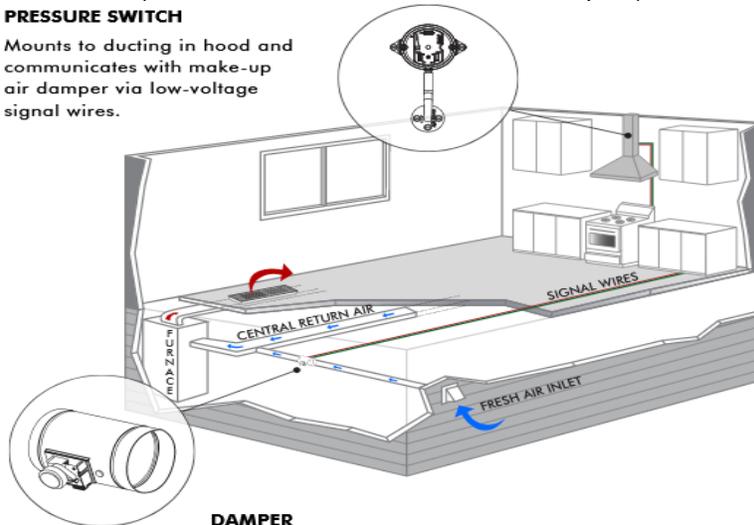
**M1307.1 General.** Installation of appliances shall conform to the conditions of their listing and label and the manufacturer’s instructions. The manufacturer’s operating and installation instructions shall remain attached to the appliance.

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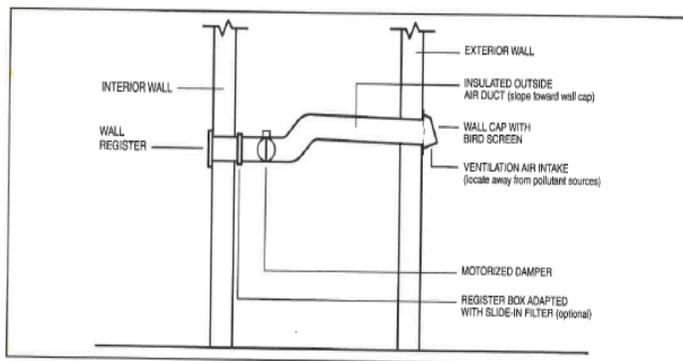
*(Residential Kitchen Exhaust Hood Makeup Air)*

**PRESSURE SWITCH**

Mounts to ducting in hood and communicates with make-up air damper via low-voltage signal wires.



**DAMPER**



(source: [www.zephyronline.com](http://www.zephyronline.com))

Source: Michael Whalen, Code Assistance Unit  
(609) 984-7609

**Defining the Building Thermal Envelope – Basement Update**

The original article published in the Spring 2018 edition is being updated to address the last statement: “In the case of newly installed or replaced ductwork in an unfinished basement with no insulation in the floor joists and no insulation on the basement walls, there is not a building thermal envelope (BTE) established per current code.” This defaults to having the new/replaced ducts insulated (obviously, if the walls were insulated, the new/replaced ducts would be within the BTE and not required to be insulated).

Let’s review the applicable definitions within the residential portion of the 2015 International Energy Conservation Code (IECC) and Chapter 11 of the International Residential Code: BTE and Conditioned Space

- BTE: The basement walls, exterior walls, floor, roof and any other building elements that enclose conditioned space or provide a boundary between conditioned space and exempt or unconditioned space.
- Conditioned Space: An area, room or space that is enclosed within the building thermal envelope and that is directly or indirectly heated or cooled. Spaces are indirectly heated or cooled where they communicate through openings with conditioned spaces, where they are separated from conditioned spaces by uninsulated walls, floors or ceilings, or where they contain uninsulated ducts, piping or other sources of heating or cooling.

In short, you cannot read the BTE definition without applying the Conditioned Space definition. For new construction, the Spring 2018 article explains this thoroughly and its application of the BTE being insulated in accordance with R402/N1102, entitled Building Thermal Envelope, with the emphasis on Section R402.2.8, Floors, and Section R402.2.9, Basement Walls.

For existing homes, reference N.J.A.C. 5:23-6.5(e)10 and 12 for Renovation N.J.A.C. 5:23-6.6(e)17 and 19 for Alteration. I’ll break it down into basements that have:

*(continued on next page)*

*(Defining the Building Thermal Envelope – Basement Update)*

- Insulation installed in floor above basement: Replacement or newly installed ductwork to be in insulated per R403.3.1/N1103.3.1 as the ductwork placed outside the conditioned space boundary;
- Insulation installed on basement wall: Replacement or newly installed ductwork does not have to insulated as ductwork with within the conditioned space boundary; or
- No insulation in either location: At first glance of the definitions above, it would appear that replacement or newly installed ductwork would be within the BTE. This would be correct if one ignored the connection to Section R402/N1102 which assumes BTE boundary to be insulated. However, we cannot do this in light of today's code and this is why the Spring 2018 article stated, "This defaults to having the new/replaced ducts insulated." The ICC has issued an interpretation that per Section R503/N1109, sections part of the "Existing Buildings" chapters **not** adopted per N.J.A.C. 5:23-3.18 and 3.21, respectively, one may install the ductwork without insulation. That being said, I will acquiesce to the ICC as the Rehabilitation Subcode can be read either way.

In the case of an existing home that has no insulation installed in the floor above the basement and no insulation installed on the basement wall, one may proceed without having to insulate the ductwork.

Source: Rob Austin, Code Assistance Unit  
(609) 984-7609

### Anchor Straps

*(Updated reprint – originally published Spring 1999)*

The Division has been seeing a number of problems with the incorrect installation of anchor straps. It appears that officials are not paying attention to this fundamental code issue. While it would seem that there is very little controversy with the code requirements for strapping, a comparison of the one- and two-family dwelling code (International Residential Code/2015 -- IRC/2015), building subcode (International Building Code/2015 -- IBC/2015) and the manufacturer's design criteria indicated that there are areas of controversy.

When plans call for conformance with the IRC/2015, the first issue is whether a home can be built with anchor straps installed in lieu of an anchor bolt?

Section R403.1.6 of the IRC/2015 specifies anchor bolts and permits anchor straps as an alternative regardless of whether IRC/2015 or Section 2308.3.1 of the IBC/2015 is being enforced. Bolts are to be spaced not more than 6 feet on center and there are to be not less than two bolts per piece with one bolt located not more than 12 inches or, IRC/2015 specific, less than seven bolt diameters from each end of the plate section or, IBC/2015 specific, less than 4 inches from each end of each plate section. As you can see, the only difference now, based on the 1999 article, is the bolt anchorage at the end of the plate section. Replace the word "bolt" with "strap that is spaced to provide equivalent anchorage to a ½" diameter bolt" above and you have your equivalency.

To put this in perspective, most builders are not special ordering 16-foot 2 by 4s for the sill plates (most are using 8 footers) and they essentially end up with the straps being located much closer than the allowable 8 feet.

Another issue of concern is how the manufacturer's design criteria affects the above-mentioned code requirements. Not all anchor straps are created equally. For example, one manufacturer has three different models, one of which is a direct replacement of an anchor bolt spaced 6 foot on center. A second model is also a direct replacement of an anchor bolt; however, this strap must be spaced 4-1/2 feet on center. Therefore, if this model is used, and spaced consistently with the code requirements stated above and not the design criteria, the anchor strap will have been installed in a manner which violates the design capabilities of the product in question. There is an assumption by IRC/2015 and IBC/2015 that the design limits will be consistent with the spacing requirements contained in the respective codes. If this is not the case, the product cannot be used unless one follows the manufacturer's installation requirements. Therefore, if an anchor strap has a spacing requirement of 4-1/2 feet and the code allows for a 6 or 8 foot on center spacing requirement, one must follow the manufacturer's requirement.

In conclusion, when inspecting anchor straps, make sure that the appropriate code is enforced and the anchor strap is appropriately designed for the intended installation.

Source: Rob Austin  
Code Assistance Unit  
(609) 984-7609

## Carbon Monoxide (CO) Detection Rules Adopted for New and Existing Buildings

*(Updated reprint – originally published Summer 2017)*

The new CO detection rules were adopted June 5, 2017. They address newly-constructed buildings, buildings undergoing a rehabilitation project and buildings regulated by Subchapter 4 of the Uniform Fire Code (UFC). Please see each section of the attached links for your specific scope of work or situation. The Uniform Construction Code enforcement effective date (end of the six-month grace period) is December 5, 2017. After that date, any applications for rehabilitation projects or new buildings must include CO alarms per the new rules. The effective date for enforcement in buildings regulated by Subchapter 4 of the UFC is September 3, 2017.

The proposal and notice of adoption can be found by clicking on [Rule Proposals and Adoptions](#) in the Rule Proposals and Notices of Adoption chart; go to the September 19, 2016 row within the chart at [http://www.nj.gov/dca/divisions/codes/codreg/rule\\_proposals\\_adoptions.html](http://www.nj.gov/dca/divisions/codes/codreg/rule_proposals_adoptions.html).

### **New Construction**

The building subcode now requires CO alarms in all buildings that contain a fuel-burning appliance or fireplace or have attached garages with communicating openings into the building. Newly-installed CO alarms must receive their primary power from the building wiring and have a secondary battery backup source. Where there is no commercial power source in the building, battery CO alarms can be used. You can find corrected pages 238 and 239 (Section 915) of the 2015 New Jersey International Building Code (NJ IBC) under the BUILDING SUBCODE heading within the Adopted Codes and Standards chart; click on [\\*Corrected pages \(NJ errata\)](#) at <http://www.nj.gov/dca/divisions/codes/codreg/>.

### **Existing Buildings – Rehab Subcode**

For existing buildings undergoing a rehabilitation project, the six-month grace period ends on December 5, 2017. For a building undergoing a rehabilitation project, battery-powered or plug-in type CO alarms are acceptable. “When alarms are installed in lieu of a detector, they shall be located such that the audible signal is not less than 15 dB above the average ambient sound level.” You can find the updated pages under the REHABILITATION SUBCODE heading within the Adopted Codes and Standards chart, by clicking on [NJUCC, Subchapter 6](#) at <http://www.nj.gov/dca/divisions/codes/codreg/>.

When a change in use occurs per N.J.A.C. 5:23-6.31 that involves Group I-1, I-2, I-4 or R or classrooms in Group E occupancies, systems complying with the building subcode Section 915 for new construction must be installed (battery-powered or plug-in type CO alarms are not acceptable).

### **Existing Buildings - UFC**

The effective date for enforcement of the UFC requirements is September 3, 2017. (See N.J.A.C. 5:70-4.9 (d) for the new installation requirements.) For a building being inspected in accordance with UFC Subchapter 4, battery-powered or plug-in type CO alarms are acceptable. You can find the new requirements of N.J.A.C. 5:70-4.9 by clicking on [Relationship to Uniform Construction Code](#) after March 15, 2017 at <http://www.nj.gov/dca/divisions/dfs/codes/>.

In addition, see Division of Fire Safety, Bulletin 2017-1 for the retro-fit installation requirements. [https://www.nj.gov/dca/divisions/dfs/alerts/bulletins/bulletin\\_2017-1\\_carbon\\_monoxide.pdf](https://www.nj.gov/dca/divisions/dfs/alerts/bulletins/bulletin_2017-1_carbon_monoxide.pdf)

### **Detection Systems**

It is important to note that detection systems are not required. As per the above, alarms are acceptable for meeting the requirements for carbon monoxide detection. When someone wishes to install a CO detection system, the system must comply with the installation requirements of these new rules and the balance of the system must comply with NFPA 720.

Source: Michael Whalen  
Code Assistance Unit  
(609) 984-7609

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Please direct any comments or suggestions to the NJDCA, Division of Codes and Standards, Attention: Code Development Unit, PO Box 802, Trenton, NJ 08625-0802 or [codeassist@dca.nj.gov](mailto:codeassist@dca.nj.gov).

### Installation of Chimney Liners in an Existing Structure

The Department has received numerous inquiries in regard to the installation of chimney liners in existing structures. The following is the Department's position:

Per N.J.A.C. 5:23-6.3, chimney liners are defined as a "System," and the replacement of the liner would be categorized as "Renovation Work." Under N.J.A.C. 5:23-2.17A(c)1ii and N.J.A.C. 5:23-2.17A(c)1iv, this is Minor Work; therefore, the inspection is limited to "what is visible at the time of inspection." The Certificate of Approval that is issued for this project must state this in accordance with N.J.A.C. 5:23-2.17A(d)2.

When the liner replacement is done at the same time a fuel-fired appliance is being replaced, the chimney verification form (UCC F-370) is required to be submitted at the time the application for minor work is made, pursuant to N.J.A.C. 5:23-2.20(d)1. This form is to be filled out in its entirety and signed by the contractor installing the fuel-fired equipment. This form has multiple verifications depending on the type of work being done. The only time the code official can require that the connector be disassembled is when the applicant does not verify the liner. If the homeowner is the applicant, he or she cannot do the verification.

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