

# Construction Code Communicator



State of New Jersey  
Philip D. Murphy, Governor

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Lt. Governor Sheila Y. Oliver, Commissioner

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## Ordinary Maintenance and Minor Work

Ordinary maintenance, N.J.A.C. 5:23-2.7, and minor work, N.J.A.C. 5:23-2.17A, require less oversight than do construction projects that require a full permit application and inspection. The rule changes adopted on March 5, 2018 redesignate some work that was formerly categorized as minor work as ordinary maintenance, and some work that formerly required a full permit as minor work.

The major changes to ordinary maintenance and minor work follow.

1. **Prior approvals:** The definition of minor work no longer includes “prior approval.” This means that homeowners may begin work without a permit even when a prior approval is required. In response to public comment, the Department made changes upon adoption to minimize the impact of this change. Specifically, the proposed recategorization of deck replacement or construction (discussed below) was not adopted because the Department was persuaded that local land use ordinances regarding setbacks could result in a homeowner undertaking a deck project without knowing that it did not meet the local requirements. The Department believes that the other items that are categorized as minor work are unlikely to conflict with local zoning ordinances. Each municipality may identify a way of informing its residents of local requirements that were formerly enforced as prior approvals.

2. **Decks:** The construction or total replacement of a deck. As adopted, the repair or replacement of a part of a deck that does not provide structural support is designated as ordinary maintenance; the construction or complete replacement of a deck requires a full permit. This reflects no change from the previous requirements.

3. **Partitions:** The Department was persuaded by commenters who expressed concern that allowing partitions to be replaced conflicted with the Rehabilitation Subcode and so did not adopt the proposed amendment allowing for the installation of partitions without a plan review or an inspection when such work would reconfigure the space.

4. **Notice:** The notice of minor work may be submitted to the enforcement agency in oral and written form, including through electronic mail.

5. **Inspections:** The inspection timeframe for minor work projects has been changed from within 30 days to within three business days after completion of the work, recognizing the concern for safety that the inspection requirement implies.

All other changes can be found at the Division’s “Alerts and Issues” webpage, <http://www.nj.gov/dca/divisions/codes/alerts>. Please select the “Permit Requirements – Updated 3/5/18” link to view the changes grouped by building type. For those who would like to see these items grouped by subcode, please read the corresponding articles within this edition of the *Construction Code Communicator*.

Source: Jose Paulino, Code Development Unit, (609) 984-7609

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## Building Projects of Ordinary Maintenance and Minor Work

Ordinary building maintenance projects, at N.J.A.C. 5:23-2.7(c)1, do not require a permit application to be filed with the local enforcing agency and therefore, no inspection is required. Even though there is no permit issued, it is expected that the following projects will still meet minimum requirements of the Uniform Construction Code. Building projects not listed below would require, at a minimum, a minor work permit or full permit:

- Painting (interior and exterior) ANY building;
- Interior finishes (installation, repair, or replacement) of less than 25 percent of the total wall area or ceiling of ONE- or TWO-FAMILY DWELLINGS. This includes plastering and drywall installation. It also includes vinyl wall or ceiling covering of any amount. This does NOT include paneling;
- Wall papering at ANY location;
- Glass (replacement) in ANY window or door, being of a type and quality that complies with code;
- ANY window or door (replacement), including storm windows, storm windows and garage doors, in the same opening without altering the dimensions or framing of the original opening. More specifically, means of egress doors and emergency escape openings may be made in the same opening without altering the dimensions or framing of the original opening, as long as there is no reduction in the required height, width, or net clear opening of the previous window or door assembly;
- ANY non-structural component (repair or replacement), such as a partition railing in one- and two-family dwellings;
- ANY non-structural elements, such as cabinets;
- ANY interior or exterior trim, decoration, or moldings;
- ANY flooring material with a new material;
- Roof covering (repair or replacement) on **DETACHED** ONE- and TWO-FAMILY DWELLINGS;
- Siding (repair or replacement) of like material on ONE- and TWO-FAMILY DWELLINGS. Siding (repair or replacement) of like material on all OTHER buildings is limited to 25% of the total building area. In ALL cases, the repair or replacement of polypropylene siding shall not be ordinary maintenance;
- ANY **PART** of a deck, porch, or stoop (repair or replacement) that does not provide structural support for any roof or portion of a building (see minor work, below, for TOTAL replacement);
- Screens on ANY building;
- ANY insulation, except foam plastic insulation, when installed adjacent to or not more than one and a half inches from an interior finish;
- ANY exterior gutters and leaders; and
- ANY storable spa or hot tub that is provided with a lockable safety cover that complies with ASTM F1346.

Building projects that fall between ordinary maintenance and full-blown projects would be described as “minor work” at N.J.A.C. 5:23-2.17A(c). These types of projects include:

- ANY porch or stoop (construction or **TOTAL** replacement) that does not provide structural support for any roof or portion of a building;
- Renovation or alteration work in an existing ONE- or TWO-FAMILY DWELLING, provided that no primary structural members are altered in any way, and further provided that the work does not constitute reconstruction; and
- Non-structural components (repair or replacement with no reconfiguration of space) such as a partition in structures OTHER THAN ONE- and TWO-FAMILY DWELLINGS;
- Installation of a radon mitigation system provided no new electrical work is required; and
- Repair and/or renovation work in a Group B, Group F, Group M, or Group S occupancy.

Source: Code Assistance Unit and Code Development Unit  
(609) 984-7609

## Plumbing Projects of Ordinary Maintenance and Minor Work

Ordinary plumbing maintenance projects, at N.J.A.C. 5:23-2.7(c)2, do not require a permit application to be filed with the local enforcing agency and therefore, no inspection is required. Even though there is no permit issued, it is expected that the following projects will still meet minimum requirements of the Uniform Construction Code. Plumbing projects not listed below would require, at a minimum, a minor work permit or full permit:

*(continued on next page)*

*(Plumbing Projects of Ordinary Maintenance and Minor Work)*

- ANY hose bib valve replacement as long as they are provided with an approved atmospheric vacuum breaker;
- ANY existing fixture refinishing. This does not include relining of fixtures (which would not be considered to be ordinary maintenance);
- ANY ball cock replacement as long as they are an approved anti-siphon type;
- ANY repair of leaks involving the replacement of piping;
- ANY clearance of stoppages;
- ANY faucet replacement or working parts of faucets;
- ANY valve replacement, including shower or combination bath/shower valves;
- ANY replacement of working parts of valves, including, but not limited to, shower or combination bath/shower valves;
- ANY trap replacement;
- Any fixture replacement as long as it is similar fixture and there is no change in the piping arrangement; and
- ANY domestic clothes washer and domestic dishwasher replacement.

In addition to the above, plumbing subcode officials should review the heating, ventilation and air conditioning maintenance projects at N.J.A.C. 5:23-2.7(c)5, which is also covered on Page 5 within this edition of the Construction Code Communicator.

Plumbing projects that fall between ordinary maintenance and full-blown projects would be described as “minor work” at N.J.A.C. 5:23-2.17A(c). These types of projects include:

- Replacement of ANY existing plumbing piping work with new and approved material of like capacity
- The installation of ANY drinking fountain and condensate drain in existing structures;
- Replacement of ANY existing water heaters with new ones of like capacity;
- Replacement of ANY existing boilers, warm air furnaces, air conditioning units, and air conditioning condensing units with new appliances of like capacity;
- New electrical work incidental to the installation of air conditioning, equipment, clothes dryers, and ranges or ovens in ONE- and TWO-FAMILY DWELLINGS; and
- Installation of fixtures in existing space of DWELLINGS where the new installation of additional fixtures can be accommodated with no increase in the size of the water distribution system, water service, or house drain; and
- Repair and/or renovation work in a Group B, Group F, Group M, or Group S occupancy.

Source: Code Assistance Unit and Code Development Unit  
(609) 984-7609

### **Electrical Projects of Ordinary Maintenance and Minor Work**

Ordinary electrical maintenance projects at N.J.A.C. 5:23-2.7(c)3 do not require a permit application to be filed with the local enforcing agency and therefore, no inspection is required. Even though there is no permit issued, it is expected that the following projects will still meet minimum requirements of the Uniform Construction Code. Electrical projects not listed below would require, at a minimum, a minor work permit or full permit:

- Replacement of ANY receptacle, switch, or lighting fixture, or part thereof, not containing emergency battery packs with a like or similar item. Receptacles in locations where ground-fault circuit interrupter protection, damp/wet, or tamper-resistant are required shall comply with Section 406.4(D) of the electrical subcode;
- Repairs to ANY installed electrically operated equipment such as doorbells, communication systems, and any motor operated device. Provided, however, that if fire protection systems are interrupted for repairs the fire official shall be notified in accordance with the building subcode;
- Installation of communications wiring (wiring methods of Chapter 8 and data circuits between IT equipment per Article 725 of the electrical subcode) in ANY Class 3 structure, provided that the rearrangement does not involve penetration of a fire-rated assembly and is not in a hazardous location as defined in Chapter 5 of the electrical subcode;
- Replacement of ANY domestic dishwasher;
- Replacement of kitchen range hoods in DWELLING UNITS, provided that the replacement hood exhaust rate does not exceed the exhaust rate of the existing hood or the exhaust rate of the replacement hood does not exceed 400 cubic feet per minute (cfm);
- Installation of a burglar alarm, security system, or doorbell in ONE- and TWO-FAMILY DWELLINGS; and
- Installation of a plug-in landscape irrigation unit under 30 volts at ONE- and TWO-FAMILY DWELLINGS.

*(continued on next page)*

*(Electrical Projects of Ordinary Maintenance and Minor Work)*

Electrical projects that fall between ordinary maintenance and full-blown projects would be described as “minor work” at N.J.A.C. 5:23-2.17A(c). These types of projects include:

- New electrical work incidental to the installation of air conditioning, equipment, clothes dryers, and ranges or ovens in ONE- and TWO-FAMILY DWELLINGS;
- Installation of five or fewer outlets where existing circuits and/or available space for circuits and service are adequate to support the load in ONE- and TWO-FAMILY DWELLINGS (fishing is considered minor work regardless of the number of fixtures/receptacles);
- Replacement of existing wiring with new wiring of the same capacity in ONE- and TWO-FAMILY DWELLINGS provided that the new wiring shall be of a type approved for the use by the code.
- Installation of a burglar alarm, security system, or doorbell in structures OTHER THAN one- and two-family dwellings. The exception to this (full permit) is controlled, delayed, or sensor released egress doors;
- ANY change of an existing transmission means from a digital alarm communicator transmitter to a fire alarm supervising station. (“Transmission” means the existing phone line(s) that transmit fire alarm signals from a digital alarm communicator transmitter to the supervising station.) Note that a certified fire alarm service company, licensed fire alarm company or licensed electrical contractor is required to submit Form F-391 signed by the contractor to provide a verification statement in writing to the fire subcode official within 24 hours that all required signals remain operational after the new transmission means is installed; and
- Repair and/or renovation work in a Group B, Group F, Group M, or Group S occupancy.

Source: Code Assistance Unit and Code Development Unit  
(609) 984-7609

### **Fire Protection Projects of Ordinary Maintenance and Minor Work**

Ordinary fire protection maintenance projects at N.J.A.C. 5:23-2.7(c)4 do not require a permit application to be filed with the local enforcing agency and therefore, no inspection is required. Even though there is no permit issued, it is expected that the following projects will still meet minimum requirements of the Uniform Construction Code. Fire protection projects not listed below would require, at a minimum, a minor work permit or full permit:

- Replacement of ANY sprinkler or smoke alarm, smoke detector, or heat detector head with a like device;
- Repair or replacement of ANY component of a fire alarm or smoke and heat detection equipment (other than the replacement of a fire alarm control panel);
- Installation of ANY battery-powered smoke alarm; and
- Installation of ANY battery-powered or plug-in type carbon monoxide alarm.

Fire protection projects that fall between ordinary maintenance and full-blown projects would be described as “minor work” at N.J.A.C. 5:23-2.17A(c). These types of projects include:

- Installation of any fire detection or suppression device in any ONE- or TWO-FAMILY DWELLING;
- Installation of a burglar alarm, security system, or doorbell in structures OTHER THAN one- and two-family dwellings. The exception to this (full permit) is controlled, delayed, or sensor released egress doors;
- ANY change of an existing transmission means from a digital alarm communicator transmitter to a fire alarm supervising station. (“Transmission” means the existing phone line(s) that transmit fire alarm signals from a digital alarm communicator transmitter to the supervising station.) Note that a certified fire alarm service company, licensed fire alarm company or licensed electrical contractor is required to submit Form F-391 signed by the contractor to provide a verification statement in writing to the fire subcode official within 24 hours that all required signals remain operational after the new transmission means is installed; and
- Repair and/or renovation work in a Group B, Group F, Group M, or Group S occupancy.

Source: Code Assistance Unit and Code Development 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).

## HVAC Projects of Ordinary Maintenance and Minor Work

Ordinary heating, ventilation and air conditioning maintenance projects at N.J.A.C. 5:23-2.7(c)5 do not require a permit application to be filed with the local enforcing agency and therefore, no inspection is required. Even though there is no permit issued, it is expected that the following projects will still meet minimum requirements of the Uniform Construction Code. Heating, ventilation and air conditioning maintenance projects not listed below would require, at a minimum, a minor work permit or full permit:

- Replacement of ANY motor, pump and fan of the same capacity;
- Repair and replacement of ANY heating, supply and return piping and radiation elements, which does not require rearrangement of the piping system;
- Repair and replacement of ANY duct work;
- Repair of ANY air conditioning equipment and system;
- Repair or replacement of ANY control device for heating and air conditioning equipment;
- Replacement of kitchen range hoods in DWELLING UNITS, provided that the replacement hood exhaust rate does not exceed the exhaust rate of the existing hood or the exhaust rate of the replacement hood does not exceed 400 cfm;
- Replacement of domestic clothes dryers serving, and located within, DWELLING UNITS, provided that no change in fuel type, pipe size, or location or electrical characteristics is required;
- Replacement of domestic stoves and domestic ovens in DWELING UNITS, provided no change in fuel type, pipe size, or location or electrical characteristics is required;
- Replacement of bathroom exhaust fans in DWELLING UNITS; and
- Applying liquid lining material inside ANY existing chimney.

In addition to the above, mechanical inspectors should familiarize themselves with plumbing maintenance projects at N.J.A.C. 5:23-2.7(c)2, which is also covered on Page 3 within this edition of a Construction Code Communicator.

Heating, ventilation and air conditioning maintenance projects that fall between ordinary maintenance and full-blown projects would be described as “minor work” at N.J.A.C. 5:23-2.17A(c). These types of projects include:

- Replacement of ANY existing boiler, warm air furnace, air conditioning unit, and air conditioning condensing unit with new appliances of like capacity.
- New electrical work incidental to the installation of air conditioning, equipment, clothes dryers, and ranges or ovens in ONE- and TWO-FAMILY DWELLINGS; and
- Repair and/or renovation work in a Group B, Group F, Group M, or Group S occupancy.

Source: Code Assistance Unit and Code Development Unit  
(609) 984-7609

## Emergency Escape and Single-Exit Buildings

Section 1030.1, the “General” section for the emergency escape and rescue openings (EERO) requirements of the International Building Code/2015, has created some confusion. Here it states, “In addition to the means of egress required by this chapter, provisions shall be made for emergency escape and rescue openings in Group R-2 occupancies in accordance with Tables 1006.3.2(1) and 1006.3.2(2) and Group R-3 occupancies.”

All Group R-3 occupancies, and certain Group R-2 occupancies, are permitted to have one means of egress. The above code, which references requirements for EEROs, is applicable only to those R-2 and R-3 occupancies with one means of egress.

For example, a 3-story Group R-2 with no more than 4 dwelling units per story is permitted to have one means of egress as long as common travel distances are maintained to 125 feet (see Table 1006.3.2(1)). If the designer chooses to use this option, then the building is required to have EEROs installed in sleeping areas. Note that I do not reference Table 1006.3.2(2); this is because, as per Note C, this table is used for R-2 occupancies consisting of sleeping units, and I specifically state dwelling units in my example.

In all cases, if there are two means of egress provided, then EEROs are not required.

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

## Consumer Fireworks Sale and Storage

Questions have been coming in lately regarding whether consumer fireworks can be offered for sale and the quantity that can be stored inside of buildings before the Group Classification of the building must change. The simple answer is that they can be sold and stored in any amount, in any business, per P.L. 2017, c. 92. This Law took effect June 28, 2017.

Some code officials have asked if the Group Classification of the occupancy would need to change if the maximum allowable quantity of consumer fireworks listed in Table 307.1(1) of the 2015 International Building Code (IBC) was exceeded. The answer is NO. When Senate Bill S3034 was signed last year (P.L. 2017, c. 92) it superseded this requirement. We will be modifying the 2018 NJ IBC to reflect these changes.

Any firework not defined as a dangerous firework is allowed to be stored, displayed, and sold under this Law change.

The following excerpt is taken directly from the definitions in P.L. 2017, c. 92. The full text of this law can be found online at: [http://www.njleg.state.nj.us/2016/Bills/PL17/92\\_.HTM](http://www.njleg.state.nj.us/2016/Bills/PL17/92_.HTM)

*"Sparkling devices and novelties mean:*

- a. Wood sticks or wire sparklers of not more than 100 grams of pyrotechnic mixture per item;*
- b. Hand held or ground based sparkling devices which are non-explosive and non-aerial, which may produce a crackling or whistling effect, and contain 75 grams or less of pyrotechnic composition per tube or a total of 500 grams or less for multiple tubes; and*
- c. Snakes and glow worms, smoke devices, and trick noisemakers, which include party poppers, snappers, and drop pops, each consisting of 25/100 grains or less of explosive mixture."*

As you can see from the above, sparklers with not more than 100 grams of pyrotechnic mixture per item, hand held or ground based sparkling devices non-explosive and non-aerial type that contain 75 grams or less of pyrotechnic composition per tube or a total of 500 grams or less for multiple tubes, and snakes and glow worms, smoke devices, and trick noisemakers each consisting of 25/100 grains or less of explosive mixture are now legal.

The law further allows the following types of devices to be sold, stored, possessed, or used, as provided below.

*"(1) A toy pistol, toy cane, toy gun, or other device in which paper or plastic caps containing .25 grain or less of explosive compound per cap are used, providing they are so constructed that the hand cannot come in contact with the cap when in place for use, and toy pistol paper or plastic caps which contain less than .20 grains of explosive mixture per cap;*

*(2) Sparkling devices and novelties as defined in R.S.21:2-2 if the person is 16 years of age or older. Sparkling devices and novelties, including their sale or use, shall not be subject to further regulation by a municipality pursuant to R.S.40:48-1, except that the storage and sale of items listed in this paragraph shall be consistent with the standards set forth in NFPA 1124 National Fire Protection Association Code for the Manufacture, Transportation, Storage and Retail Sales of Fireworks and Pyrotechnic Articles, 2006 edition; and*

*(3) Any item or device as otherwise provided in this chapter."*

The following is the definition of dangerous fireworks.

*21:2-3. "Dangerous fireworks" mean the following:*

*Toy torpedoes containing more than 5 grains of an explosive composition.*

*Paper caps containing more than .35 grain of explosive composition.*

*Firecrackers or salutes exceeding 5 inches in length or 3/4 inch in diameter.*

*Cannons, canes, pistols or other devices designed for use otherwise than with paper caps.*

*Any fireworks containing a compound or mixture of yellow or white phosphorous or mercury.*

*Any fireworks that contain a detonator or blasting cap.*

*Fireworks compositions that ignite spontaneously or undergo marked decomposition when subjected for 48 consecutive hours to a temperature of 167 degrees Fahrenheit.*

*Fireworks that can be exploded en masse by a blasting cap placed in one of the units or by impact of a rifle bullet or otherwise.*

*Fireworks, such as fuses, containing a match tip, or head, or similar igniting point or surface, unless each individual tip, head or igniting point or surface is thoroughly covered and securely protected from accidental contact or friction with any other surface.*

*Fireworks containing an ammonium salt and a chlorate."*

P.L. 2017, c. 92 allows a 16 year old individual to purchase, possess, and use sparkling devices or novelties and prohibits municipalities from establishing more restrictive requirements. It also prohibits the sale of dangerous fireworks, which are fireworks that contain more than 25 grams of explosive compound per cap. The storage and sale must be maintained in accordance with the 2006 edition of NFPA 1124.

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

## Construction Trailers

One of the questions that frequently comes up is whether construction trailers need an Industrialized Building Commission (IBC) label. Construction trailers are not defined in the code, but for the purposes of this article, the term construction trailer is any premanufactured construction on a chassis that is used for the storage of materials or for the use of construction personnel on a construction project. A construction trailer is not a sales trailer, nor is it a trailer that serves a function not connected with the building construction.

It has long been the Department's position that these trailers are part of the construction project and do not require a separate permit. These structures should be regulated under Chapter 33 in the Building Subcode, "Safeguards During Construction" and N.J.A.C. 5:23-2.34, "Protection of Adjoining Properties and Public Rights of Way." Therefore, proper safeguards should be required such as making sure the unit is tied down and making sure the utility connections (if any) to the trailer are proper.

Because the trailer is not subject to a separate building permit, it does not need an IBC label.

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

## Cantilever Confusion

For those of you confused by Section R507.5, Deck Joist Spans for Common Lumber, of the International Residential Code/2015, you are not alone. This section contains the requirements for the maximum allowable spans for wood deck joists. When it comes to a cantilever situation, this section states that deck joists are permitted to cantilever no more than  $\frac{1}{4}$  of the actual, adjacent joist span. This means that if one did not go to the maximum span permitted, they can only use the actual span, multiply this by 0.25, and the result would be the cantilever. In other words:

- If the max span is 10', then 2.5' is the cantilever.
- If the span is 10' but the design would permit a larger span, the cantilever is still only permitted 2.5'.

And please don't let "Note F" add to the confusion; it is merely a reminder that the cantilever spans are based on the approximate or rough-cut dimensions, and you may be able to eke out a little more cantilever span if you use the actual dimensions (as we all know, a 2x4 is actually smaller).

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

## Landscape Irrigation Systems: Permit and Inspection Update

The changes to Ordinary Maintenance and ordinary repairs will have some impact on permit applications for landscape irrigation systems. Systems that are of the plug in type are now considered electrical ordinary maintenance provided that the system uses an existing receptacle. However, there are some related code issues that still require that a permit be issued.

The first, and more obvious reason that a permit is required is the installation of a backflow preventer. Therefore, a plumbing technical section is required. The second, less obvious reason that a permit is still required for an irrigation system is the rain sensor. By Statute, when an irrigation system is installed, an inspection for the presence of a rain sensor is required under the Uniform Construction Code. Because of this statutory requirement, an item was added to the electrical subcode technical section, to verify that the rain sensor was installed. The changes to the ordinary maintenance and minor work provisions have, in most cases, taken the electrical subcode official out of the game. However, the plumbing subcode official is still in the game.

Therefore, we will be amending the plumbing technical section to include rain sensors as an inspection item and will provide a place for the signature and license number of the landscape irrigation contractor. When a permit application is made for an irrigation system of the plug in type, where there is no electrical work associated with providing a new receptacle, only a plumbing technical section is required. It is permissible to have both the plumbing contractor and irrigation contractor sign and seal the same technical section provided that the description of work clearly indicated which contractor is responsible for which portion of the work.

Until the standard forms are changed, the plumbing tech section should be used. The fee should be listed as other, and the inspection of the rain sensor should be recorded using the blank line at the bottom of the inspection box. Both the licensed plumbing contractor and the licensed irrigation contractor should sign and seal the technical section.

Source: Michael Baier, Code Assistance Unit, (609) 292-7899

## Manual J Software

Let me start off by saying, I am **NOT** promoting a product. As I come across usable and user-friendly software, I like to inform people of its existence. Therefore, I am **merely** providing a link to usable software regarding Manual J calculations. The software I speak of is Cool Calc, [www.coolcalc.com](http://www.coolcalc.com) (soon to include Manual S software also). In short, create a user name and password and begin your Manual J calculations. You can even access it from a tablet or smart phone.

Per their website:

“Cool Calc Manual J allows a contractor to remotely perform an ACCA approved manual J load calculation in a matter of minutes by leveraging Google maps, local building code databases, and thousands of unique algorithms.

Cool Calc revolutionizes the Manual J process by completely automating the surface area measurement and building material gathering processes required to perform a load calculation.

Our proprietary software allows the user to trace a home from Google Maps and then uses complex algorithms to determine the surface area and orientation of all walls, ceilings, floors, and windows.

Next, the software accesses public property tax data to determine the age of the house, and then cross-references that data against the building code for that year and region to determine the most likely construction materials used.

From there the software generates a detailed ACCA approved Manual J Report complete with and Adequate Exposure Diversity (AED) chart that can be used to identify when zoning or variable speed equipment is recommended.”

Feel free to check it out. Again, the website address is [www.coolcalc.com](http://www.coolcalc.com).

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

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## Update on Emergency Responder Radio Coverage System Requirements

Included in the Spring 2015 edition of the *Construction Code Communicator*, I wrote an article to provide basic information on when Emergency Responder Radio Coverage Systems would be required. Recently, I have been advised that during final inspections, code officials have been failing the final fire protection inspection due to radio coverage systems not being installed. I am also hearing that the certificates of occupancy are not being issued. This should **not** be happening at a final inspection. The Code Assistance Unit suggests that a Temporary Certificate of Occupancy (TCO) be issued if all other fire protection systems are compliant and a plan to install an Emergency Responder Radio Coverage System or a plan to modify an existing system to meet required signal strength is submitted with a time table for completion.

Locally, code officials need to know about radio coverage issues inside building around the towns they work in. When code officials are aware that the fire department is having radio issues in existing buildings, they should be asking for design plans during the plan review process of similar type building designs; this is not an issue to bring up at the final inspection. This way provides a mechanism so that the system will be in place, and if there are minor issues at the final inspection, they should be much easier to address/fix. Bringing up this issue on final inspection may require destruction of ceiling and wall finishes to run wire for these systems.

Most of the examples brought to my attention are in basements or buildings of concrete and steel construction. Some areas are not meeting the minimum signal strength required by the International Fire Code (IFC). Please contact the emergency responders and the radio technicians to identify the coverage problem areas within buildings in your municipality. This will give you a better understanding of when you need to ask for these systems. Below is a link to the original article: [http://www.nj.gov/dca/divisions/codes/publications/pdf\\_ccc/ccc\\_2015\\_spring.pdf](http://www.nj.gov/dca/divisions/codes/publications/pdf_ccc/ccc_2015_spring.pdf)

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

## Basis for Occupant Load Calculations

Since I have been getting an increasing amount of phone calls regarding this, I'm hoping an article will help. When looking at Section 1004, Occupant Load of the International Building Code/2015 and applying Table 1004.1.2 (Maximum Floor Area Allowances Per Occupant), remember to check your definitions in Section 202. This table uses two terms that are extremely important in how to calculate:

- FLOOR AREA, GROSS. The floor area within the inside perimeter of the exterior walls of the building under consideration, exclusive of vent shafts and courts, without deduction for corridors, stairways, ramps, closets, the thickness of interior walls, columns or other features. The floor area of a building, or portion thereof, not provided with surrounding exterior walls shall be the usable area under the horizontal projection of the roof or floor above. The gross floor area shall not include shafts with no openings or interior courts.
- FLOOR AREA, NET. The actual occupied area not including unoccupied accessory areas such as corridors, stairways, ramps, toilet rooms, mechanical rooms and closets.

For example, office space (business areas per the table) states 100 gross. This essentially means you are counting everything from the interior side of the exterior walls except for shaft and courts. Another example is a restaurant (assembly without fixed seats; unconcentrated; table and chairs) at 15 net. This permits you to exclude such things as corridors, toilet rooms, etc. Also note that I am not referring to use Group Classifications per Chapter 3; even though it's related, they are not the same thing, and one should apply the actual use of the space per Table 1004.1.2 regardless of the classification in Chapter 3.

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

## AC Power Disconnect/Reconnect, Who can do it?

It has come to the attention of the Department that there is some confusion among Electrical Subcode Officials and Inspectors. Some officials are not allowing licensed Fire Alarm Contractors to disconnect and reconnect the AC power to existing fire alarm equipment or burglar alarm systems when they are replacing equipment. When an existing branch circuit was previously installed by an electrical contractor, a licensed Fire/Burglar Alarm Contractor may disconnect and reconnect the AC power. A licensed Electrical Contractor is NOT required to perform this work so long as it involves disconnection and reconnecting the line voltage power without the need to alter, extend, rewire, or modify the branch circuit.

Replacement of the fire alarm panel requires permits for both fire and electrical subcode technical sections since both fire protection subcode (devices/appliances) and electrical subcode (wiring) work are involved. The licensed alarm company simply checks the box in the upper right hand corner "[ ] EXEMPT APPLICANT" on the electrical subcode technical section and includes their Consumer Affairs license number on both technical sections.

The following rule was adopted on April 3, 2017:

### N.J.A.C. 13:31A-1.15 PROHIBITED PRACTICES

a) A licensee shall be deemed to have engaged in professional misconduct and shall be subject to the penalties set forth in N.J.S.A. 45:1-21 et seq., for engaging in any of the activities set forth in N.J.S.A. 45:1-21 and any of the following prohibited acts or practices:

6. Installing, servicing or maintaining branch circuit wiring. For purposes of this section, "branch circuit" means the circuit conductors between the final overcurrent device protecting the circuit and the outlet(s).

**i. Nothing in this subsection shall be construed to preclude a licensee from connecting to or disconnecting from a branch circuit that was previously installed by an electrical contractor licensed by the Board pursuant to N.J.S.A. 45:5A-1 et seq.**

If you have any questions, please feel free to contact me at the number below.

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

## Defining the Building Thermal Envelope

The Code Assistance Unit has been receiving questions related to how a building thermal envelope (BTE) is defined. For starters, let's look at the definitions.

The residential portion of the 2015 International Energy Conservation Code (IECC) and Chapter 11 of the International Residential Code define 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.

Note that this definition uses the term Conditioned Space, which is defined as:

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, and it's best to show its application through an example. Say there is a basement space with ducts running under the floor joists of the first floor, and the designer/homeowner does NOT want to insulate the ductwork (maybe for an industrial look, who knows). This would meet the definition of Conditioned Space by indirectly heating the space and the walls of this basement would be required to be insulated (and to the contrary, the floor joists above the basement would NOT be insulated); this would also apply if they chose to directly heat the space or if no insulation was provided in the floor joists above. If the designer/homeowner would rather not insulate the basements walls, then the BTE is to be "cut off" at the floor joists with insulation; ductwork and piping below this insulation would also be insulated.

You will note that I answered these scenarios without using Chapter 4. For those that want a direct code reference, Section R402.2.9, Basement Walls, of the IECC supports the example above.

You may ask: if the above applies to new construction, what about existing homes? Well, that depends on the scope of work. If a project is scoped at a minimum of Renovation, N.J.A.C. 5:23-6.5(e)10 and 12 answer this question. If one chooses to finish a basement by furring out the walls with no insulation in the floor joists, the walls are to be insulated to whichever level the designer/homeowner chooses based on the thickness established by the studs chosen (the exception at Section 6.5(e)10i permits this). 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 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).

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

## Building Permits: Seeing the Leaves in the Forest

Has anyone ever asked for a list of permits at a site? Maybe they want to know how many swimming pools were built. They can request this information under New Jersey's Open Public Records Act (OPRA). Construction officials and technical assistants get these questions because they deal with a rare commodity: building permits. Permits are one of the few sources of information available every month for every municipality. They say a lot about a key sector of the economy, the construction industry, and settlement patterns, where houses, offices, shops, schools, hospitals, warehouses, and other structures are built, refurbished, or torn down.

Here are things to consider when asked about buildings permits.

Not all information is reportable: Some people want the names of permit applicants, contractors, or a detailed description of work. While permits have lots of information, not all of it is reportable. The reporting software building departments use was designed to schedule inspections, calculate fees, and track work; they focus on economic and demographic indicators, not how many sheds, pools, solar panels, decks, and the like are built.

We can help: The New Jersey Department of Community Affairs (DCA) publishes monthly and yearly data for every municipality in the State. These summary indicators include:

- Authorized housing, the number of new dwellings authorized by building permits;
- The dollar amount of construction; and
- The square feet (total floor area) authorized by permits issued for new buildings or additions to existing ones.

*(continued on next page)*

*(Building Permits: Seeing the Leaves in the Forest)*

These data are in the New Jersey *Construction Reporter* on the DCA website at <http://www.nj.gov/dca/divisions/codes/reporter/>. They appear every month, for every municipality, back to 1996.

More detail: Some people want information on individual permits. In 2015, DCA began to publish “big permits,” a monthly file listing permits with a dollar amount of work equal to or more than \$250,000. This is a running inventory. The December file has big permits for the year. Major data fields are:

- Permit number
- Permit date
- Permit type (new, addition, alteration, demolition)
- Building uses in broad categories (business, storage, mercantile, etc.)
- Block and lot
- Dwelling units gained and lost
- Square feet
- Dollar amount of work

What's NOT available: There is no information about who applied for the permit. Contractor information, street addresses, and phone numbers are not available. While these items are on permits, they are not reportable.

Individual permits show only part of the picture: Not every municipality sends permit-level data; most do. As of 2018, only fifteen municipalities send paper reports that summarize individual permits. Ten years ago, many more did so. Anyone who looks only at individual permits gets an incomplete picture of construction in New Jersey. While this gap has gotten smaller with time, it is still only part of all the work authorized in the State.

Permit records are archived: The permit-level database DCA maintains is large and unwieldy. Depending on economic conditions, New Jersey municipalities issue between 350,000 and 450,000 permits every year; that's a lot of records, even for big, mainframe computers. To efficiently manage them, DCA must archive old permits 18 months after they get certificates of approval or occupancy. This limits direct access to only about 2 million records at any point in time, making the permit-level database a poor choice for historical information.

CDs available: For several years, DCA has captured on CD all the individual permits directly accessible on the mainframe computer. This provides an historical record, but only for the municipalities that sent data this way. The 2017 edition will be available June 2018, after DCA completes its audit and publication processes. The price is \$100. To order it, contact Division of Codes and Standards at (609) 292-7898.

Source: John Lago  
Division of Codes and Standards  
(609) 292-7898

### **Changes in the Uniform Construction Code (UCC) Amendments Adopted January 16, 2018**

In February of 2017, the Department proposed various amendments to the UCC. These proposals were then adopted January 16, 2018 with three changes to note, as follows:

- Corrections were made at N.J.A.C. 5:23-3.4(d), 3.4(d)1, and 5.3(a) to delete Group R-4 as it does not have the same type of occupants same as a one- or two-family dwelling.
- Corrections were made at N.J.A.C. 5:23-3.14(b) to avoid duplicate numbering for the accessibility chapter of the building subcode. The new section number is 1107.5.2.3, and related sections are renumbered accordingly.
- Proposed changes to N.J.A.C. 5:23-2.15(b) and 2.15A(b)4 were **NOT** adopted. These proposed changes (again, **NOT** adopted) incorporated the requirement for HVACR contractors to be licensed into the UCC by requiring proof of licensure from the Division of Consumer Affairs as a condition for obtaining a construction permit for work covered by the scope of the license.

This means that a permit applicant with a Home Improvement Contractor (HIC) registration may still be used to issue a permit for heating, ventilation, air conditioning, and refrigeration (HVACR) work. The permit applicant is not required to hold or present an HVACR license in order to *obtain* a permit for work in residential structures until such time that the HVACR license is adopted into the UCC.

Source: Code Development Unit  
(609) 984-7609

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