

Construction Code Communicator



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2021/2020 Code Adoption Web Links

Well, the day is here! The 2021 I-Codes and 2020 NFPA 70 (National Electrical Code - NEC) were adopted September 6, 2022, and the 2021 National Standard Plumbing Code (NSPC) was adopted September 19, 2022. One can find the amendments to these codes by visiting the Uniform Construction Code (UCC) webpage at <https://www.nj.gov/dca/divisions/codes/codreg/ucc.html> for the subcodes within N.J.A.C. 5:23.

New Jersey (NJ) editions of the International Building Code (IBC), International Residential Code (IRC) and NSPC are currently being processed for publishing (looking like the end of 2022). Note that these editions are purely the base code modified by their applicable subcode in the UCC. For example, the NJ edition of the 2021 IBC is the base code modified by the building subcode at N.J.A.C. 5:23-3.14.

For all codes and until the NJ editions are published, please utilize the links provided for by their organizations.

NJAC 5:23-3.14, Building Subcode

- IBC/2021 – <https://codes.iccsafe.org/content/IBC2021P2>
- IFC/2021 (throughout) - <https://codes.iccsafe.org/content/IFC2021P1>
- A117.1-2017 (Ch 11) – <https://codes.iccsafe.org/content/ICCA11712017P2>
- ASME A17.1-2019 (Ch 30) - <https://www.asme.org/codes-standards> (no code book link)
- ISPSC/2021 (Ch 31) - <https://codes.iccsafe.org/content/ISPSC2021P2>

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(2021/2020 Code Adoption Web Links)

NJAC 5:23-3.15, Plumbing Subcode

- NSPC/2021 – <https://epubs.iapmo.org/NSPC/2021/>

NJAC 5:23-3.16, Electrical Subcode

- NEC/2020 (NFPA 70) – <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Codes-and-Standards>
 - (Scroll to NFPA 70 – you will need to set up a Login/Password)

NJAC 5:23-3.18, Energy Subcode

- IECC/2021 – <https://codes.iccsafe.org/content/IECC2021P2>
- ASHRAE 90.1-2019 - <https://www.ashrae.org/technical-resources/standards-and-guidelines/read-only-versions-of-ashrae-standards>
 - (Scroll to “Standard 90.1-2019”)

NJAC 5:23-3.20, Mechanical Subcode

- IMC/2021 - <https://codes.iccsafe.org/content/IMC2021P2>

NJAC 5:23-3.21 – One- and Two-Family Dwelling Subcode

- IRC/2021 - <https://codes.iccsafe.org/content/IRC2021P2>
- ISPSC/2021 - <https://codes.iccsafe.org/content/ISPSC2021P2>

NJAC 5:23, Fuel Gas Subcode

- IFGC/2021 - <https://codes.iccsafe.org/content/IFGC2021P2>

Source: Rob Austin

Code Assistance/Development Unit

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Grace Period for 2021/2020 Model Codes

As you were made aware above, the 2021 I-Codes, along with the 2021 National Standard Plumbing Code (NSPC) and 2020 National Electrical Code (NEC), were adopted in September 2022. With these adoptions come a six-month grace period for the previous model codes. This means starting the specified adoption date, 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. That being said, the 2021 I-Codes and the 2020 NEC were adopted September 6 and the 2021 NSPC was adopted September 19 placing the last day for application submission, separately, on March 5, 2023, for the I-Codes/NEC and March 18, 2023, for the NSPC.

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Copies may be read or downloaded from the division's website at: www.nj.gov/dca/divisions/codes.

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.

(Grace Period for 2021/2020 Model Codes)

Therefore, if a complete permit application was submitted on or between the dates of September 6, 2022, and March 5, 2023, the project would be permitted to be reviewed under the old codes (2018/2017). However, during the time period of March 6, 2023, to March 18, 2023, if a permit applicant would desire the 2018 NSPC, they may do so but would have to apply under the 2021 I-Codes and 2020 NEC. This essentially makes March 5, 2023, the last day for a complete permit application submission but wanted to acknowledge this slight nuance. In either case, the application should explicitly state which codes were used for the design. In the event the code edition is not explicitly stated, officials should ask what edition was used for the design of the project.

For completeness, the application would include items mentioned at N.J.A.C. 5:23-2.15, Construction permits—application, <https://www.nj.gov/dca/divisions/codes/codreg/ucc.html>. Section 2.15(a) is an absolute. However, Section 2.15(b) states, “In addition [to (a) above], the following information shall be required on any application for a construction permit when such information is available, but not later than the commencement of work.” Therefore, items listed in 2.15(b), such as the name of a sprinkler contractor to be used, would not be required at this time. Note:

Prototype plan releases based on the 2018 I-Codes, etc. remain valid until the end of the grace period. Therefore, March 5, 2023, would be the last day to apply for a permit with the released prototype.

Source: Rob Austin
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Energy Subcode Updates for the 2021 Codes

Another model code adoption, another energy code. In this case, the International Energy Conservation Code/2021 (IECC/2021) and the ASHRAE 90.1-2019 (ASHRAE/2019), adopted September 6, 2022, at N.J.A.C. 5:23-3.18, the Energy Subcode. And why two codes you may ask? Because low-rise residential buildings (i.e., IECC-R – residential portion of the IECC) typically operate completely different than all other. So, let's define the codes per building type:

Low-rise residential buildings are defined as one- and two-family dwellings or multiple-family buildings three stories or less in height. Compliance must be in accordance the Energy Subcode and the IECC-R, which parallels Chapter 11 of the International Residential Code (IRC-N). For purposes of this article, IECC-R references will be made.

Commercial buildings are defined as all buildings other than low-rise residential buildings. Compliance must be in accordance with the Energy Subcode and ASHRAE Standard 90.1; do not use the commercial portion of the International Energy Conservation Code (IECC-C) as it is deleted per N.J.A.C. 5:23-3.18.

The very basic notion of the energy subcode is, if thou heats it (or cools it), thou that insulate it! There are some caveats to that in the ASHRAE/2019 (read: electrical) but for this article, we will focus on the residential side. And remember, this is for new construction and additions, but rehabilitation projects start with N.J.A.C. 5:23-6 and apply energy subcode provisions per scope.

I mentioned two codes (well, three as you can see from above). The Energy Subcode separates the State into two climates zones too, per county, and are as below. Note that Mercer is no longer Zone 5A, it's 4A... climate change?

Zone 4A – Atlantic, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Mercer, Middlesex, Monmouth, Ocean, Salem and Union;

Zone 5A – Bergen, Hunterdon, Morris, Passaic, Somerset, Sussex and Warren.

The big changes for the 2021 IECC-R are some increased R-values in the thermal envelope (ceiling insulation), air barrier testing (required along with checklist), duct testing (regardless of where located) and an additional energy efficiency package (choice of five packages).

(Continued on next page)

(Energy Subcode Updates for the 2021 Codes)

Compliance remains typical with hand calculations, a prescriptive package, REScheck web, Clean Energy Program (formerly known as Energy Star) or other above code programs. Table R402.1.3, Insulation and Fenestration Requirements by Component, remains the typical wood-framed wall construction baseline for R-values and U-factors, which also equals the prescriptive package per zone. This also is the, so to say, starting point for those that would like to use REScheck web, which can be accessed at <http://www.energycodes.gov>.

INSULATION & FENESTRATION REQUIREMENTS BY COMPONENT ^a		
Component / Climate Zone	4A	5A
Fenestration U-Factor ^b	0.30	0.30
Skylight U-Factor ^b	0.55	0.55
Glazed Fenestration SHGC ^b	0.40	0.40
Ceiling R-Value	60	60
Wood Frame Wall R-Value ^g	30 or 20+5ci ^h or 13+10ci ^h or 0+20ci ^h	30 or 20+5ci ^h or 13+10ci ^h or 0+20ci ^h
Mass Wall R-Value ^h	8/13	13/17
Floor R-Value	19	30
Basement Wall R-Value ^{c, g}	10ci or 13	15ci or 19 or 13+5ci
Slab R-Value & Depth ^d	10ci, 4 ft	10ci, 4 ft
Crawl Space Wall R-Value ^{c, g}	10ci or 13	15ci or 19 or 13+5ci
a. R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R-value of the insulation shall be not less than the R-value specified in the table.		
b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestrations.		
c. "5ci or 13" means R-5 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "10ci or 13" means R-10 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "15ci or 19 or 13 + 5ci" means R-15 continuous insulation (ci) on the interior or exterior surface of the wall; or R-19 cavity insulation on the interior side of the wall; or R-13 cavity insulation on the interior of the wall in addition to R-5 continuous insulation on the interior or exterior surface of the wall.		
d. R-5 insulation shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation R-value for slabs, as indicated in the table. The slab-edge insulation for heated slabs shall not be required to extend below the slab.		
g. The first value is cavity insulation; the second value is continuous insulation. Therefore, as an example, "13 + 5" means R-13 cavity insulation plus R-5 continuous insulation.		
h. Mass walls shall be in accordance with Section N1102.2.5. The second R-value applies where more than half of the insulation is on the interior of the mass wall.		

- The above reflects the errata for Ch. 4 of 2021 IECC-R, <https://www.iccsafe.org/errata-central/>.

And I know the focus of this article was for low-rise residential but for those wondering about all other buildings (i.e., commercial), focus on Tables 5.5-4 and 5.5-5, as applicable, from the ASHRAE/2019 for your calculations. And yes, COMcheck web is still an option to demonstrate compliance; see <http://www.energycodes.gov>.

Source: Rob Austin
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NEC Article 680.4 and Return Inspections

With the adoption of the 2020 NEC on September 6, 2022, there appears to be a new article located in 680 that is already attracting considerable attention. Article 680.4 states that the authority having jurisdiction shall be permitted to conduct periodic inspections and tests AFTER the initial installation and inspection. Although this article makes no distinction as to where the pool is installed, it seems to include all occupancy types.

Following the hierarchy of how the codes should be applied, with the UCC coming before the model code, we must start at N.J.A.C. 5:23-2.18C, which refers to the need for annual pool inspections (which 680.4 seems to suggest), but it limits these inspections to properties of other than one- and two-family dwellings.

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(NEC Article 680.4 and Return Inspections)

The Department is looking to adopt an amendment that would delete this requirement, until such time, article 680.4 should not be interpreted as giving the AHJ authority to make return visits to one- and two-family dwellings after the certificate has been issued.

Source: Scott Borsos
Code Assistance Unit
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Municipal Availability

The Office of Regulatory Affairs (ORA) is the Division's investigative unit and as such, hears many things about local municipalities, typically through the complaint process found at <https://www.nj.gov/dca/divisions/codes/offices/regaffairs.html>. One of the most common complaints is that municipalities are not responsive and simply are not answering the telephone or are extremely hard to contact.

As employees of state and local government, we are literally in the business of public service and our jobs depend on contractors and homeowners filing for permits. It has come to our attention that many local construction offices are directed to not answer phones or leave in their outgoing messages that they do not answer the phone and their messages will be "listened to at the end of the business day."

Anyone see a problem with the above? Situations like this cause a special predicament that we see many times. Let's take John the Contractor, JC for short. JC has an inspection scheduled for Tuesday morning, but he needs to cancel; being the respectful contractor that he is, he tries and tries to call the local construction office, and even the municipal clerk to cancel that inspection. His calls go unanswered, and his message is not heard until the end of the day. By that point, an inspector has wasted his time and the municipality's funds for sending him out there for an inspection that is not ready.

Scenarios like this often lead to a failed inspection and an inspector who may now be a little disgruntled, feeling that his time was wasted even though the contractor did his due diligence to cancel. On the flipside, another permit applicant who was ready for inspection had to be pushed another day because a slot was full.

Additionally, when legitimate complaints are filed with the ORA, the Division runs into the same problems where many times we are forced to call the administration of the municipality to ask them to go speak to someone in the construction office that we are trying to reach. If the ORA/Division cannot reach the local construction department, it is not a far reach to believe there are many other JC's out there having the same issue. Employees of local construction offices should be fully aware that we are in fact public servants and are there to serve our constituents. Per N.J.A.C. 5:23-4.4(c), local construction offices should make themselves as available as possible during normal business hours and under no circumstances should these offices be directing technical assistants to skirt their phone duties, which we all know, is the frontline of public service.

Source: Office of Regulatory Affairs
(609) 984-7672

Code 420: Cannabis Facilities

These facilities are becoming increasingly popular and depending on what activity is occurring at the facility, it is likely that more than one use group classification will be incorporated within the building (i.e., a "mixed-use" building). So, within the International Building code (IBC), as adopted at N.J.A.C. 5:23-3.14, let's start at Chapter 3 for "Occupancy classification and Use designation."

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*(Code 420: Cannabis Facilities)***What it isn't**

A Greenhouse. Let's look at the facts: these facilities need special growing environments, especially for lighting. That, amongst many other items, is why it would not be a greenhouse. Per Section 202, a greenhouse is "a structure or thermally isolated area of a building that maintains a specialized sunlit environment used for and essential to the cultivation, protection or maintenance of plants." Yes, sunlight is used to grow the plants within a greenhouse, but that is not what is happening for cannabis. Further, the greenhouse provision from the commercial farm buildings allowances at N.J.A.C. 5:23-3.2(d) are also not applicable.

What it is...and then some

For starters, an indoor grow facility where cannabis plants are grown, processed, and packaged would most likely be classified as "Moderate-hazard factory industrial, Group F-1" (Section 306.2). And if this facility is used for extraction purposes also, it would still be treated as Group F-1. However, depending upon the extraction method utilized, it could be a "High-Hazard Group H" (Section 307) if an extraction facility uses flammable liquids or gases as solvents to extract the essential oils of the cannabis plant, such as butane. This is dependent on the quantities of solvent used. This would require the architect to provide the reviewing code official with a proposed chemical inventory and to design for control areas, similar to the type utilized in the design of a research laboratory.

Speaking of labs, there is a good possibility that the facility contains a testing laboratory or two. They would be classified as a Business Group B (Section 304.1) unless it uses and stores flammable liquids in greater amounts that would push it into the High Hazard Group H occupancy (see Tables 307.1(1) and 307.1(2)). If this is the case, these spaces would also be designed with many of the same considerations as above.

Of course, the facility may also include a dispensary or point of sale space. This is a Mercantile Group M use, like a butcher shop or a bakery, but with its own special considerations. While butchers need freezers and bakers need ovens, dispensaries tend to need enhanced security, whether it be for the profits stored onsite, or for the storage and sale of products (they are in high demand). These may be design considerations that need to be included.

That is the basic rundown of the many things a cannabis facility may be, depending on which functions it includes. And one thing is for sure, it is not a greenhouse.

Lastly, you may review this further via the ICC's website and consider purchasing their guide, "Applying the Codes to Cannabis Facilities."

Source: Rob Austin
Code Assistance/Development Unit
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Accessible and Type A Dwelling Units – 2021

How many Type A dwellings units are required in a building with four or more dwelling units? What features may be adaptable within the Type A dwelling unit? These questions continue to be asked of the Code Assistance Unit. Let me take this opportunity to straighten out the requirements for accessible and Type A dwelling units.

New code, same (or nearly the same) code references

With the adoption of the 2021 International Building Code (IBC), Chapter 11 became the Barrier Free Subcode. The previous requirements at N.J.A.C. 5:23-7.1 through 7.15 were incorporated into N.J.A.C. 5:23-3.14 to integrate New Jersey's accessibility requirements into Chapter 11 of the 2021 IBC (minus the recreation portions remaining in NJAC 5:23-7.16 through 7.32). This remains the same for the 2021 IBC, and even the ICC A117.1 stays the same, the 2017 edition (A117.1-2017). Note, in the 2021 IBC, Section 1102 Compliance, is where you'll find the NJ amendments to the A117.1-2017.

(Continued on next page)

(Accessible and Type A Dwelling Units – 2021)

What is the difference between accessible and Type A? A Type A dwelling unit is a dwelling unit that meets Section 1103 of the A117.1-2017 as amended by Chapter 11 of the 2021 IBC at NJAC 5:23-3.14(b)10. This is a dwelling unit with an accessible entrance, accessible clear floor space, accessible route into and through the dwelling unit, and adaptable features in the kitchen and bathroom. Chapter 11 of the 2021 IBC and the A117.1-2017 specify that a Type A dwelling unit must have (1) an accessible entrance, (2) an accessible interior route throughout the dwelling unit, (3) one full adaptable bath on an accessible route, (4) maneuvering space at all doors, and (5) adaptable features in the kitchen and bathroom.

An accessible dwelling unit is a dwelling unit that meets Section 1102 of A117.1-2017. As with a Type A dwelling unit, an accessible dwelling unit must have an accessible entrance and an accessible route into and throughout the dwelling unit. In an accessible dwelling unit, however, the toilet and bathing facilities must comply with general requirements for toilet room and bathing facilities that are in A117.1-2017, Section 603 through Section 610 inclusive. Similarly, kitchens are required to comply with the general requirements in A117.1-2017 at Section 804, Kitchens and Kitchenettes, and must also provide one 30-inch-long work surface that meets the requirements of Section 902, Dining surfaces and work surfaces, regarding clear floor space and height. Finally, storage facilities must also meet the general requirements in A117.1-2017, which are at Section 905 for clear floor space, height, and operable controls.

Which dwelling units are required to be Type A?

1a. In a building with four or more dwelling units, if the building has an elevator, all (100 percent) of the dwelling units must be Type A (2021 IBC, Sections 1108.6.2, 3 and 4).

1b. In a building with four or more dwelling units, if there is no elevator, all (100 percent) of the ground-floor dwelling units must be Type A (2021 IBC, Sections 1108.6.2, 3 and 4).

1c. Ground-floor dwelling units: In a building with dwelling units, the first floor containing dwelling units must be accessible and must contain Type A dwelling units, regardless of whether that floor is at grade (2021 IBC, Sections 1108.6.2, 3 and 4). Keep in mind, a building may have more than one ground floor due to sloping grade.

****** When applying the three items above to a typical condo/apartment building, Group R-2, please see the end of the article for its specific application and/or the example provided for on pages 21 and 22 of the Summer 2022 CCC, "Multifamily Dwellings and Elevators for Accessibility."

2. Generally speaking, townhouses are exempt from Chapter 11 of 2021 IBC. There is one exception: Townhouses for which credit as a low- or moderate-income unit (COAH credit) is awarded are required to comply and are discussed below. A townhouse is a single dwelling unit with two or more stories of dwelling space, exclusive of basement or attic, where each dwelling unit extends from foundation to roof. This dwelling unit is to have an independent entrance that serves one dwelling unit only and that is at or near grade; most or all the sleeping rooms are on one story; and most or all of the remaining habitable space, such as kitchen, living, and dining areas, are on another story (2021 IBC, Sections 1103.2.3.1 and 1108.6.5).

3. What level of accessibility is required for a townhouse that has "COAH credit?" When a townhouse or a multistory dwelling with fewer than four dwelling units in a single structure is being constructed with credit as low- or moderate-income housing, the dwelling unit must comply with the Chapter 11 of 2021 IBC.

There are two unique requirements that apply to these buildings: each dwelling unit must have a room that could be used as a bedroom on the entry level, and they may have either an accessible or an adaptable entrance. If an adaptable entrance is provided, the plans for making the adaptation to an accessible dwelling unit must be submitted and released through the standard plan review process. The funds to affect the adaptation of 10% of the entrances that are not accessible must be escrowed with the municipality. Note: COAH is part of the Fair Housing Act Administration within the Office of Local Planning and can be reached by visiting <https://www.nj.gov/dca/divisions/lps/>, phone at (609) 292-3000, or email at LPSmail@dca.nj.gov.

What features in the kitchen may be adaptable in a Type A dwelling unit?

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(Accessible and Type A Dwelling Units – 2021)

1. Adaptable work surface: There must be a 30-inch length of counter that is either set at 34 inches or that can be adjusted to an accessible height. The base cabinets in this section must be removable and the floor must be finished all the way to the wall. The 30-inch section of the counter does not have to be pre-cut; it can be “replaceable as a unit.” This means that it must be able to be cut and either lowered or replaced (A117.1-2017, Sections 1103.12.3.1 and 1103.12.3.2, as amended at 2021 IBC, Section 1102.1, items 25 & 26).

2. Kitchen cabinets: Exempt as per the exception at A117.1-2017, Section 1103.14.

3. Kitchen sink: This is almost a combination of the above two. The cabinets below the sink must be removable, and the floor must be finished all the way to the wall. Also, the sink and the counter are required to be adjustable or replaceable as a unit to an accessible height; rough-in plumbing that allows connections of supply and drain piping for sinks mounted at heights of 29-inches must be provided (A117.1-2017, Sections 1103.12.4.1 and 1103.12.4.2, as amended at 2021 IBC, Section 1102.1, items 27 & 28).

4. Can a microwave be mounted at standard height (e.g., over a range?) Yes, you’ll note that NJ amends A117.1-2017, Section 1103.12.5 Appliances, by deleting Section 1103.12.5.1 Operable Parts. This can be found in the 2021 IBC Section 1102.1 Design, item 29.

What features in the bathroom may be adaptable in a Type A dwelling unit?

1. At least one bathroom on the accessible route is to comply with A117.1-2017, Section 1103.11.2. In all bathrooms, grab bars do not have to be installed, but the wall must be reinforced to permit their later installation as per A117.1-2017, Section 1103.11.1; this applies to shower seat reinforcement as well.

2. The threshold in a transfer shower may be adaptable as long as the adaptation can be made easily without undertaking a construction project (A117.1-2017, Sections 1103.11.2.5.2, as amended at 2021 IBC, Section 1102.1, item 23.2).

3. The mirror or surface mounted medicine cabinets may be installed at a standard height as long as it is attached in such a way that it can be lowered without damaging the wall. Since the words “accessible lavatory” are used, the 40” maximum is not required until the lavatory is made accessible (A117.1-2017, Section 1103.11.2.3).

4. A vanity may be installed underneath the lavatory as long as it can be removed without requiring the removal or replacement of the lavatory (A117.1-2017, Section 1103.11.2.2).

Maneuvering Space at Doors.

There have been some projects that have been brought to the Department of Community Affairs’ attention in which no maneuvering space has been provided at doors.

Maneuvering space is critical to the usability of the dwelling unit. The requirements can be found in Section 1103.5, which requires compliance with Section 404, minus six exceptions.

In short, only those features that are provided with adaptive options may be adapted.

Lastly, please note that there is no reference to Type B dwelling units within this article. This is because the allowance of this type of dwelling unit is not permitted by N.J.A.C. 5:23.

**** Example of application to a typical Condo/Apartment building**

When applying the three items above to a typical condo/apartment building, Group R-2, Section 1108.6.2.2 is the “starting point” within the 2021 IBC, and more specifically Subsection 1108.6.2.2.1. Note that this subsection does not reference Table 1108.6.1.1 and states that a building containing 4 or more condo/apartments with:

- No elevator; units at ground level – all units at ground level must be Type A;
- No elevator; units not at ground level – vertical accessibility must be provided to at least the 1st level of residential units and be Type A units at this level;
- Elevator; all units must be Type A.

(Continued on next page)

(Accessible and Type A Dwelling Units – 2021)

The table referenced would apply to such places like an extended-stay hotel/motel that exceeds the transient limitation set forth in the 2021 IBC, and what might seem like a Group R-1 is now a Group R-2, which would require a specific number or a percentage of rooms to be accessible.

Source: Adam Matthews
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To “B” or Not To “B:” Classification of Distribution Centers, Warehouses, and Parking Decks

Many building officials and technical assistants know warehouses and distribution centers are one of the largest and fastest growing commercial uses in New Jersey. In 2021, building departments authorized, recorded, and reported 2,000 permits with either S-1 or S-2 building occupancy or use. These accounted for over \$1.5 billion of construction and more than 32 million square feet of new floor area. The year before, there were 1,734 building permits for storage buildings, accounting for \$1.4 billion of construction and 19.6 million square feet of new floor area.

Dollar Amount of Construction Authorized by Building Permits by Use, 2021			
Source: New Jersey Department of Community Affairs, 08/08/2022			
use group	Permits	Estimated Construction Costs	Square Feet
RESIDENTIAL	354,906	\$9,897,453,363	67,693,233
1 & 2 Family	333,213	6,842,099,563	40,992,534
Multifamily	21,693	3,055,353,800	26,700,699
NONRESIDENTIAL	59,128	\$7,763,592,309	50,338,453
Hotels, motels, guest houses	1,917	108,541,874	515,918
Assembly	4,131	640,279,819	1,690,670
Business / Office	20,564	2,658,846,340	5,074,155
Education	2,006	1,015,814,909	1,639,404
Hazardous uses	87	13,921,315	43,646
Industrial	675	295,460,747	1,364,892
Institutional	879	447,948,776	1,921,954
Retail	2,688	330,661,892	786,303
Storage	2,000	1,543,679,721	32,784,159
Signs, fences, miscellaneous	24,181	708,436,916	4,517,352
New Jersey	414,034	\$17,661,045,672	118,031,686

Most of this accounts for distribution centers and warehouses; some are parking decks. Section 311 of the 2018 and 2021 International Building Code (IBC) defines storage structures in two categories, depending on what they store. S-1 warehouses are for moderate hazardous items, things like aerosol products, aircraft, boats, clothing, furniture, and cardboard boxes. S-2 warehouse are for less hazardous things and include open and closed parking decks, as well as warehouses for food, cement, metal products, porcelain, and pottery. Section 307 has separate category for the storage of high hazardous material. There are five separate categories of “H” warehouses for high hazard material, all of which are intended to store items that are more dangerous than those in the “S” category of warehouses.

(Continued on next page)

(To "B" or Not To "B:" Classification of Distribution Centers, Warehouses, and Parking Decks)

Sometimes a permit is issued for a warehouse with no specific intent. It is just a large, empty shell, and what eventually gets stored is not yet known. For spec warehouses, you should record and report using the lowest order of use, S-2. When the use is known, if it is outside the S-2 building occupancy, an alteration permit is required for a fit up and change of use. The old use is S-2. Report the new use and apply the appropriate fire and building requirements. The new use might be for an indoor sports facility (an assembly use) or a warehouse for hazardous material (one of the H uses or an S-1). But the most important thing to note is that warehouses should not be classified as B uses.

Building classifications and uses are fundamental to what building departments do. They determine safe and appropriate building standards. It is important to get them right, so if you are ever unsure, call Code Assistance for guidance.

Source: John Lago
Division of Codes and Standards
(609) 984-7609

How Far from the House Does the Generator Need to Be?

The Department has received numerous questions from code officials, installers, and designers about the required distance that a generator must be from a residence. Since most of the inquiries received are about natural gas fired generators, this article will outline that procedure.

The International Residential Code (IRC), which as you all know does not reference generators, so the next place to find what is required is the International Fuel Gas Code (IFGC). And this is permitted per Section G2401.1/IRC, Application, where it states in part, "Fuel-gas piping systems, fuel-gas appliances and related accessories, venting systems and combustion air configurations not specifically covered in these chapters shall comply with the applicable provisions of the International Fuel Gas Code." This takes us to Section 616/IFGC, Engine and Gas Turbine-Powered Equipment, which states that [generators] shall be installed in accordance with manufacturer's instructions and NFPA 37, 2018 edition as referenced within Chapter 8 of the 2018 IFGC. This seems to be where the confusion starts.

The requirements in NFPA 37 deals with primarily two issues: (1) carbon monoxide fumes entering the building and (2) the distance to combustible material. The minimum distance of five feet deals with these issues, but as always, there are exceptions. Some of these exceptions are (1) if the structure is of non-combustible material, (2) if the designer utilizes the clearance reductions in the IFGC or IRC, or (3) if the weather-proof enclosure has a 1- hour minimum fire rating. However, these exceptions apply to distance from combustibles **only**, and the requirement for the openings into the structure would still need to be adhered to. Further confusion may come when one manufacturer requires that the generator must be a set distance from air intakes and openings into the building and then another manufacturer may require that the "exhaust end of the unit" must be at a set distance. The first example would apply to the entire generator assembly being a set distance from the structure while the latter example would apply to only one end of the generator. The manufacturer's installation instructions must be on-site and must be consulted to determine if the installation meets all the requirements.

If the generator is not powered by natural or LP gas, then the International Mechanical Code (Section 915, via M1301.1/IRC) would replace the IFGC.

Note: The 2018 code references above are the same in the 2021 codes.

Should you have further questions regarding this topic, please contact the Code Assistance Unit at (609) 984-7609.

Source: William B. Schmidt / Justin Henry
Office of Regulatory Affairs
(609) 913-4185

Outdoor Mazes

The leaves on the trees have started to change their color, and Halloween events are around the corner. With these fall months now approaching, we felt it was appropriate to provide some guidance on outdoor mazes. Whether these mazes are temporary or not – though most are temporary – they present unique life safety hazards. With that in mind, it is important that everyone is aware of their roles in ensuring that these outdoor mazes comply with all applicable requirements of the Uniform Construction Code (UCC).

When is a Permit Required?

By way of background, any outdoor maze that does not require a UCC permit is subject to the permitting requirements of the Uniform Fire Code (UFC), N.J.A.C. 5:70-2.7. The UCC was amended in 2006 to include permit requirements for any outdoor maze that is (1) six feet or greater in height, or (2) contains any electrical equipment; see N.J.A.C. 5:23-2.14(b)10. The UCC states that for the purposes of the permit requirements, an outdoor maze is an attraction that lacks a roof and is designed to disorient patrons, reduce vision, present barriers, or otherwise impede the flow of traffic and does not consist solely of living rooted plants such as corn stalks or trees, but includes mazes created from plants that have been cut and attached to an object to support them.”

This means that a permit is necessary for any outdoor maze that is six feet or greater in height, even if there is no electrical equipment.

A permit is also required for any outdoor maze which contains electrical equipment, even if the outdoor maze is under six feet in height. When applying these requirements, electrical equipment means that there is an extension of the premise wiring. Electrical equipment **does not** include the use of extension cords and existing, approved receptacles.

If the outdoor maze was created by clearing a path through a living, rooted corn field, then there is no UCC permit required when the “natural walls” are created by the living rooted corn. Any electrical equipment installed in such a maze would still need to a UCC permit as applicable.

What Requirements Must be Met?

An outdoor maze that is subject to a UCC permit must meet the applicable requirements of the 2018 or 2021 NJ International Building Code (IBC), as adopted at N.J.A.C. 5:23-3.14 (the 6-month grace period for the 2021 codes is currently underway, so either code may be used. For the purpose of outdoor mazes, the two editions are not substantially different). Since these fall mazes are temporary, they require minimum compliance with Section 3103/IBC, Temporary Structures. Under Section 3103.1.1, it states, “Temporary structures and uses shall conform to the structural strength, fire safety, means of egress, accessibility, light, ventilation and sanitary requirements of this code as necessary to ensure public health, safety and general welfare.”

Let’s take a closer look at what chapters of the IBC the text is referring to for each one of these areas:

- Structural Strength – Chapter 16;
- Fire Safety – Chapters 7, 8 and 9;
- Means of Egress – Chapter 10;
- Accessibility – Chapter 11; and
- Light, ventilation and sanitary requirements – Chapter 12. Please note that this is largely not applicable to outdoor mazes unless lighting is provided.

The appropriate subcode officials need to ensure that the design professional submits a proper permit application with plans that show conformance with these areas, as they are applicable, for each individual maze. Some mazes may only require plan review on one or two of the areas above, while other, larger mazes may trigger a more in-depth plan review driven by the size and intricacy of the maze.

Examples

We will use four different examples to assist the construction office in navigating a path for compliance.

(Continued on next page)

*(Outdoor Mazes)*Example 1

A farm wants to construct a temporary outdoor maze out of hay bales for daytime use. The hay bales are stacked two high and measure a vertical height of 3'. No electrical equipment will be installed, and the overall square footage restricts the largest path of travel to under 100' linear.

UCC Permit? No.

Action: Refer the owner to the local fire official to ensure UFC compliance.

Example 2

A farm wants to construct a temporary outdoor maze out of hay bales for daytime and nighttime use. The hay bales are stacked two high and measure a vertical height of 3'. A temporary electric service and electrical equipment is to be installed for site lighting. The overall square footage restricts the longest path of travel to under 100' linear.

UCC Permit? Yes, if the temporary electrical service and equipment extends the premise wiring. No if the owner intends to utilize extension cords and existing, approved receptacles.

Action: Provide owner with UCC permit application if needed and refer them to the local fire official to ensure UFC compliance.

Example 3

A business wants to construct a temporary Halloween outdoor maze and create the walls by attaching dry cornstalks (Interior finish/decorative materials) to mesh wire fencing. The overall height of the wall is over 6-feet high. Temporary electric service and electrical equipment is to be installed for site lighting and means of egress emergency lighting. The overall square footage restricts the longest path of travel to under 300' linear.

UCC Permit? Yes, for the temporary structure. Additionally, yes if the temporary electrical service and equipment extends the premise wiring. No if the owner intends to utilize extension cords and existing, approved receptacles.

Action: Provide owner with UCC permit application and then check submitted plans for compliance with the areas noted above, **as applicable**. Refer them to the local fire official to ensure UFC compliance.)

Example 4

A large farm wants to construct three temporary Halloween outdoor mazes and create the walls out of plywood. The overall height of the wall is over 6-feet high. A portable generator is used as the power supply for site lighting, decorative strobe lighting, animatronics, and means of egress emergency lighting. Each maze has an overall square footage that restricts the longest path of travel to under 300' linear.

UCC Permit? Yes, for the temporary structure, and yes if the temporary electrical service and equipment extends the premise wiring. No if the owner intends to utilize extension cords in conjunction with existing, approved GFCI receptacles.

Action: Provide owner with UCC permit application and then check submitted plans for compliance with the areas noted above, **as applicable**. Refer them to the local fire official to ensure UFC compliance.

Conclusion

Outdoor mazes are meant to be a fun, challenging activity. Our responsibility as officials should not impede the events from happening, but to ensure code compliance and the occupant's safety while using these structures. Alternative methods of compliance and tradeoffs may be documented in a variation on a case-by-case basis as appropriate, in accordance with N.J.A.C. 5:23-2.9 through 2.13.

Coordination between the Construction Official and the Fire Official is imperative for gaining compliance.

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

Source: Office of Regulatory Affairs and Code Assistance Unit
(609) 984-7609

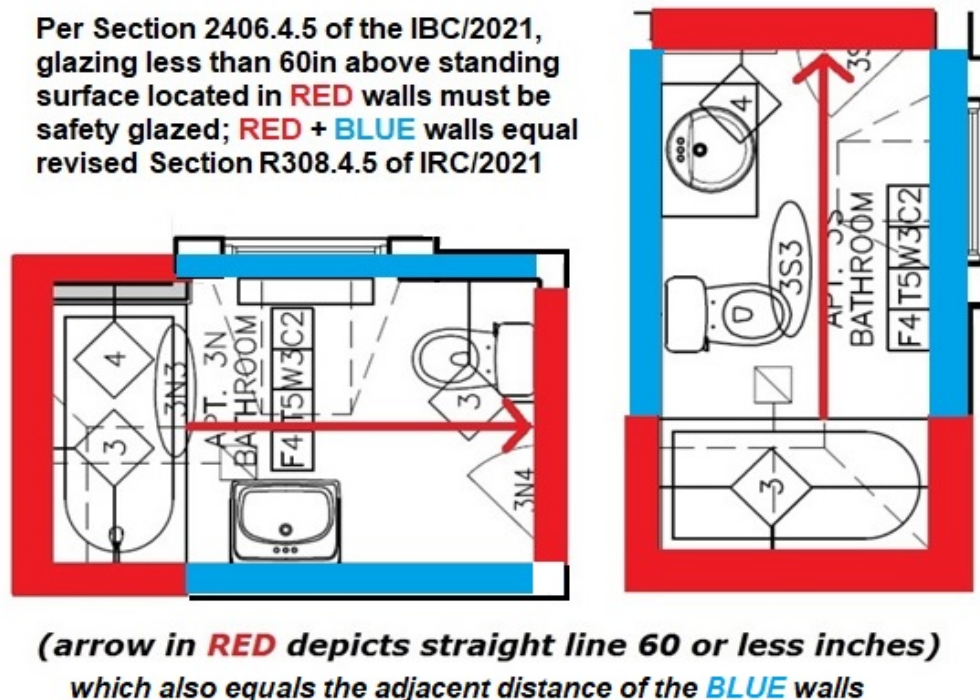
Safety Glazing for Wet Locations – 2021 Code Edition

Slippery When Wet! Yes folks, it was August 18, 1986, when the third studio album by Bon Jovi was released. It has no bearing on the content of this article except in title alone and well, the potential dangers of glazing in wet locations. For those that recall an earlier edition of this article from the Fall 2017 Construction Code Communicator, it needs an update, at least for application of the one- and two-family dwelling subcode. So, let's call this article the second studio album by DCA.

In some cases, one word can completely change the intent of a code section. For Section R308.4.5, Glazing and wet surfaces, of the 2021 International Residential Code (IRC), this is the case...not so much for Section 2406.4.5 of the 2021 International Building Code (IBC). For the 2021 IRC, the language addressing glazing in walls, enclosures or fences near tubs, showers and swimming pools has replaced the word "facing" with the words "adjacent to" for those elements related to wet surfaces. Further, the exception has deleted the words "and in a straight line."

As we all know, glazing installed in the vicinity of tubs, showers and swimming pools is considered to be in a hazardous location because of the increased likelihood of slips and falls on wet surfaces, with the potential for injury from falling into and breaking the glass. The code has established a zone that is within 60 inches horizontally of the water's edge as a potentially wet surface and a hazardous location. There has been much debate as how to properly interpret and apply this 60-inch measurement. For example, a majority of code users have determined that glazing within 60 inches in any direction requires safety glazing, unless there is a barrier in place in accordance with Exception 2 of Section R308.4.3, to separate the wet surface from the glazing and others have said that only glazing that faces the tub, shower or swimming pool is regulated in that 60-inch zone and exclude glazing that is perpendicular and not enclosing the fixture. The intent of this 2018 to 2021 IRC change is to remedy these differences by using the word "adjacent" rather than "facing" to describe the location of the glazing, and therefore, glazing installed on all walls, parallel or perpendicular, within a 60-inch horizontal measurement will require safety glazing unless the glazing is protected by a barrier.

One important item to note above the above, Section 2406.4.5 of the 2021 IBC did not change the language to "facing" to "adjacent to". Whether that was intended on the national level, only the person that proposed the modification knows. Maybe they will continue "Living on a Prayer" that no one will be injured by a slip and fall, but this article notes the difference, which many of you may "Raise Your Hands" to this... don't shoot the messenger. The following diagram demonstrates the difference



(Continued on next page)

(Safety Glazing for Wet Locations – 2021 Code Edition)

The previous info is for new construction, now let's talk Rehab. What does one do with existing window(s) in a rehabilitated bathroom? Well, there are two answers. Let's head to the Rehabilitation Subcode, N.J.A.C. 5:23-6. Each category of work under rehab (Repair, Renovation, Alteration and Reconstruction) contains the following requirement in subsection (e):

Replacement glass shall comply with the "Safety Glazing" requirements of the building subcode and shall be installed in the "Specific Hazardous Locations" as specified by Section 2406.4 of the building subcode or by Section R308.4 of the one- and two-family dwelling subcode, as applicable.

Notice that the above refers to instances when someone chooses to replace their windows, not their bathroom fixtures. This is why I say there are two answers.

If a bathroom is redone and the fixtures are swapped out with no rearrangement, a pre-existing window that does not meet the safety requirements of Sections 2406.4/R308.4 is permitted to remain as is.

This changes if a bathroom is redone, and the fixtures are moved. If a pre-existing window was compliant and a newly installed bathtub is placed under it during the rehabilitation, the window is no longer in compliance. This is a violation of N.J.A.C. 5:23-6.2(c) as it is no longer compliant as a result of the rearrangement. The window is subject to the safety glazing requirements of Sections 2406.4/R308.4. Please note that there may be a safety film that could be applied to the window in this case in accordance with N.J.A.C. 5:23-3.7.

Source: Adam Matthews (code context) and Rob Austin (music references)
Code Assistance Unit
(609) 984-7609

UCC Availability Update

The Department of Community Affairs has decided that the Uniform Construction Code, N.J.A.C. 5:23, will be an online publication only. Effective immediately, hard copy Uniform Construction Code books and subscription services for printed updates to the construction code are no longer available for purchase. We believe that this change in delivery of the construction code to a full online publication will serve all code users more effectively and efficiently.

On its website, the Division of Codes and Standards provides an online copy of the Uniform Construction Code by subchapter. The online text is updated regularly to ensure that all newly adopted rules are incorporated. In addition, an online version of the Uniform Construction Code (UCC) Act is available, and the Division posts rulemaking activity to provide code users with comprehensive information on proposals and notices of adoption that impact the construction code. All documents can be searched and printed.

To access the online copy of the UCC, UCC Act, rule proposals and notices of adoption from the Division of Codes and Standards' website, go to:

<https://www.nj.gov/dca/divisions/codes/codreg/ucc.html>

https://www.nj.gov/dca/divisions/codes/codreg/rule_proposals_adoptions.html

The Supplements of the past will be Updates for the future, posted like the Construction Code Communicator, seasonally. They can be found at:

<https://www.nj.gov/dca/divisions/codes/publications/updates.html>

In addition, the New Jersey Office of Administrative Law and LexisNexis provide free online public access to the New Jersey Administrative Code. The public access site for the Administrative Code is updated semi-monthly. The Code can be browsed, searched, and printed.

To access the Uniform Construction Code from the free public site, go to <https://www.state.nj.us/oal/rules/accesssp/> and select Title 5 (Community Affairs), Chapter 23 (Uniform Construction Code).

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

Group Home - Use & Occupancy Classifications – Updated

All building designs start with a use group classification, and this can sometimes be challenging when it comes to a “group home.” By definition, a group home must provide “custodial care”, but **not** “medical care.” If/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. For reference, the following terms are from Chapter 2 of the 2021 International Building Code (IBC), NJ edition:

“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. *Custodial care* includes persons receiving care who have the ability to respond to emergency situations and evacuate at a slower rate and/or who have mental and psychiatric complications.

“MEDICAL CARE.” Care involving medical or surgical procedures, nursing or for psychiatric purposes.

Depending on the occupant load and occupant’s needs, group homes can fall under one of four different use group classifications. The table below provides a side-by-side comparison.

	R-5^a (Section 310.6, 2021/IBC)	R-3 (Section 310.4, 2021/IBC)	R-4^b (Section 310.5, 2021/IBC)	I-1^b (Section 308.2, 2021/IBC)
Total number of occupants:	5 or fewer		More than 5 to 16 (Excluding staff)	More than 16 (Excluding staff)
Length of Stay:	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.
Time limit for self-evacuation:	Less than 3 minutes		“SLOW EVACUATION.” The movement of all occupants, residents, and staff to an exit in more than 3 minutes, but not more than 13 minutes.	
Automatic sprinkler system required:	In accordance with Section 308.2.4 of the 2021/IBC. ^c		In accordance with Sections 903.2.8.2 or 903.2.8.3 of the 2021/IBC. ^d	In accordance with Section 903.2.6 of the 2021/IBC. ^e

a. Section 310.6 of the 2021 IBC states, “shall include all detached one- and two-family dwellings not more than three stories in height with a separate means of egress and multiple single-family townhouses not more than 3 stories in height with a separate means of egress designed and constructed in accordance with the 2021 International Residential Code (IRC).”

(Continued on next page)

(Group Home - Use & Occupancy Classifications – Updated)

- 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. For R-3, in accordance with Section 903.3.1.3 NFPA 13D sprinkler system, of the 2021 IBC. For R-5, in accordance with Section P2904 Dwelling Unit Fire Sprinkler Systems, of the 2021 IRC (Either P2904 or NFPA 13D system, is acceptable for R-5).

- d. For Group R-4, Condition-1: An NFPA 13D sprinkler system shall be permitted to be installed in lieu of NFPA 13 system. For Group R-4, Condition-2: An NFPA 13R sprinkler system shall be permitted to be installed in lieu of a NFPA 13 system. (Note: Attic protection as per Section 903.3.1.2.3 of the 2021 IBC).

- e. An 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 2021.

For additional guidance please refer to:

UCC Bulletin 15-3, Group Classifications for Residential and Institutional Occupancies.

Source: Keith Makai
Code Assistance Unit
(609) 984-7609

Abandonment/Removal of LP Gas Containers

The Liquified Petroleum (LP) Gas regulations at N.J.A.C. 5:18-1.2 requires the issuance of permits for, and the inspection of, new liquefied petroleum gas vapor delivery systems via the local construction office or the Division of Codes and Standards as such:

- (a) systems of 2,000 gallons or less aggregate water capacity shall be the responsibility of the local construction official and plumbing subcode official (for existing Groups R-3 and R-5 homes, mechanical inspector is required in lieu of the plumbing subcode); or
- (b) systems greater than 2,000 gallons aggregate water capacity and all liquid withdrawal systems shall be the responsibility of the Division.

So, what happens when one abandons the equipment? N.J.A.C. 5:18-1.3(l) states that when LP gas equipment to be abandoned or temporarily placed out of service, the user/owner is required to comply with the provisions of Section F-3608.0, Abandonment of Equipment, of the Fire Prevention Code, N.J.A.C. 5:70-3. Yes folks, that is a reference to 1996 BOCA Fire Prevention Code and for reference, the procedure is provided below:

(Continued on next page)

(Abandonment/Removal of LP Gas Containers)

Per F-3608.2, tanks/containers "temporarily out of service" are required to have the fill line, gauge opening, any fuel line entering the structure and the pump connection secured against tampering. Relief and regulating devices are required to be maintained in accordance with the requirements of Chapter 36. Moving further, any tank/container not utilized for a period of 10 months is required to be properly safeguarded or removed in an approved manner. Lastly, any tank/container abandoned for a period of 1 year is required to be removed from the property in an approved manner and the site restored in an approved manner.

Back to the question above, and applying the need for permit at installation, tanks/containers temporary or permanent placed of services would apply as such:

- (a) 2,000 gallons or less aggregate water capacity shall be the responsibility of the local construction official and plumbing subcode official (for existing Groups R-3 and R-5 homes, mechanical inspector is required in lieu of the plumbing subcode); or
- (b) greater than 2,000 gallons aggregate water capacity and all liquid withdrawal systems shall be the responsibility of the Division.

We understand that in some cases, especially when the local construction office has jurisdiction, some providers are not removing the tanks/containers after they have discontinued service and the tank/container will no longer be utilized for any future use, especially after the one-year mark per F-3608.2 above. If this is the case, one should contact the LP Gas Safety Unit so they may address. This is very much like when a local fire official sends a referral to the construction official but in this case, the construction official will be referring to the LP Gas Unit.

Lastly, it should be noted that, as per N.J.A.C. 5:18-3.1(b), where any conflict occurs between the NFPA 58-2017 and the rules of N.J.A.C. 5:18, these rules shall prevail. In other words, N.J.A.C. 5:18-1.3(l) would overrule NFPA 58 on this situation.

Source: Code Assistance & LP Gas Units
(609) 984-7609 & (609) 984-4257

LPG System Installations – Jurisdiction, Code Enforcement, Permits & Procedures

The Liquefied Petroleum Gas Safety Unit has learned of various inconsistencies at the local level concerning jurisdiction, code enforcement, permits & procedures regarding LPG installations. There are reference tools available for code officials to make determinations on whom has jurisdiction dependent on system type and size as well as which discipline is required for permits and inspections. These references include N.J.A.C. 5:23, Bulletin 09-1, and the Construction Code Communicator. Also, the DCA/LP-Gas safety unit is always available for assistance with questions or concerns anyone may have.

Bulletin 09-1 is a useful guide that all local code enforcement officials should be referencing when making determinations on installations of an LPG system. In addition to the bulletin there is a code communicator article from fall 2019 which lays out a matrix pertaining to mechanical permits and when it applies to gas piping systems. The UCC specifies subcode responsibilities in N.J.A.C. 5:23-3.4; LPG marketers/installers have informed us that local enforcement agencies are asking for both plumbing and mechanical permits regarding new LPG installations which is not consistent with the UCC and as clarified in the code communicator matrix. To clarify, If the installation provides LPG service to an existing building, R-3, or R-5, then the mechanical permit applies. If the installation provides LPG service to a new building, then it would be a plumbing permit (See: N.J.A.C. 5:23-3.4(d)).

Another important issue that we encounter routinely is enforcement reserved to the Department and enforcement reserved to the local municipality. We can find the answer to this in the UCC reference below.

(Continued on next page)

(LPG System Installations – Jurisdiction, Code Enforcement, Permits & Procedures)

N.J.A.C. 5:23 3.11 Enforcement activities reserved to the Department.

N.J.A.C. 5:23 3.11(j) states that the department is the **SOLE** enforcing agency responsible for the following work:

- (j)4. L.P. gas installations except vapor delivery installations utilizing containers with an aggregate water capacity of 2000 gallon water capacity or less, which jurisdiction is retained by the municipal enforcing agency.

From this code reference we see the criteria is specific and the enforcement responsibilities reserved for the Department (**All Liquid withdrawal systems and vapor systems greater than 2000gal water capacity**) are not subject to permits or enforcement activities by the local enforcement agency as they're out of jurisdiction. The responsibilities reserved for the local enforcement agency apply **ONLY** to LP-Gas vapor systems with an aggregate water capacity of 2000 gallons or less. Any contractor or LPG system owner that is inquiring about a permit locally, for a system determined to be under DCA jurisdiction, should be directed to DCA for all inquiries and permits. In some instances, if a permit is required for a portion of construction under DCA jurisdiction by a local enforcement agency, the request shall come from DCA to the contractor/system owner to apply for a permit. These practices are consistent with the UCC and DCA will issue permits, provide inspections, and grant approvals for that system.

A procedural inconsistency found is when buildings associated with an LPG vapor system under DCA jurisdiction are constructed and the local construction official issues a certificate of occupancy premature of approvals being given by DCA for that system. We can find the answer to this in the UCC reference below.

N.J.A.C. 5:23 2.24(g) states whenever an LPG installation subject to the Departments jurisdiction pursuant to **N.J.A.C. 5:23 3.11(j)** is part of a project that requires a construction permit, **NO** certificate of occupancy or certificate of approval shall be issued except after filing by the owner with the construction official a photocopy of the permit to operate and fill issued by DCA.

As the front line in code enforcement, we all need to work together on a state and local level to ensure proper codes in line with UCC standards are being adhered to and enforced. If you are unsure, please call the DCA/LP-Gas safety unit for assistance on any LPG project prior to the issuance of permits.

Lastly, is the application of codes for the construction of LPG systems. From our investigations we have surmised that local code enforcement is not applying the correct codes regarding LPG installations.

NFPA 58 1.3.1 states this code shall apply to operation of all L.P. gas systems including the following.

- (1) containers, piping, and associated equipment when delivering L.P. gas to a building for use as a fuel gas.

This means that all LPG system construction work as well as gas piping before the outlet of the second stage regulator is under NFPA 58 enforcement. Also, in rare cases when the LPG piping system enters a building via the first stage regulator only, it's still under NFPA 58 enforcement until the service regulator. It is important to understand that NFPA 58 enforcement ends where the IFGC/IRC begins and vice versa.

This is consistent with **IFGC 401.2/G2412.2** which directs the official to NFPA 58 for these types of installations and **IFGC 401.1/G2412.1** which states that the applicability of these codes to piping systems extends from the point of delivery (See definitions IFGC 202- point of delivery = outlet of service pressure regulator) to the connections(appliances)...

Simply stated, under no circumstance do the regulations of the IFGC or IRC chapter 24 apply to LPG system construction including gas piping from the tank to the inlet of the second stage regulator or in a first stage regulator setup until the service regulator. Enforcing and applying the proper codes is crucial to ensuring the construction of an LPG system conforms to the standards adopted in NFPA 58 which govern these installations. If anyone requires more information to make a suitable determination on any LPG system, we ask you contact the DCA/LP-Gas Safety Unit at (609) 984-4257.

Source: Joseph Imburgia
L.P. Gas Safety Unit
(609) 984-4257

2021 I-Code Flood Hazard Construction and DEP Revisions

You've seen a similar article about this dating back to the Super Storm Sandy days (October 2012). Back then, we were on the 2009 I-Codes and the International Building Code (IBC) and International Residential Code (IRC) actually did not match in requirements – the A Coastal zone was the outlier (IBC said to treat like V and IRC said to treat like A). This was all fixed in New Jersey when the 2015 I-Codes were adopted (never adopted the 2012) and A Coastal zone was now treated as a V zone in both codes. Also, keep in mind, the I-codes reference the American Society of Civil Engineers (ASCE) Standard 24 (see "ASCE" in Chapter 35 of the IBC and Chapter 44 of the IRC). Note that since the 2015 I-codes, the 2014 ASCE 24 has been referenced and remains true for the 2021 I-Codes (adopted September 6, 2022).

Now you may be asking, why the title of this article says, "DEP revisions"? Again, for those that have been along for the ride, floodplain management is a prior approval to the issuance of a Uniform Construction Code (UCC) permit. In other words, the local floodplain administrator sets the flood zone and elevation based on the best data available from NJ DEP and FEMA and adopt this via a local ordinance. DEP provides model ordinances at <http://www.nj.gov/dep/floodcontrol/modelord.htm>. Note that this stems from DEP's rules at NJAC 7:13, http://www.nj.gov/dep/rules/rules/njac7_13.pdf, in which their rules require a mandatory 1-foot freeboard* which applies to the lowest floor of the home or building.

* Note – Freeboard is a factor of safety usually expressed in feet above a flood level for purposes of floodplain management. (<http://www.fema.gov/freeboard>)

Because floodplain management is a prior approval for a UCC permit application, one should see their local floodplain administrator as they will let you know the elevation and the flood zone applicable to the home or building in question. Combining the minimum elevations on that national level via ASCE 24 and incorporating the DEP freeboard provides for the follow "base" chart. I note base as a local floodplain ordinance may exceed this, hence why it is so important to start with the local floodplain administrator.

Oh, and PS, in addition to new construction, the elevations to properties have been "substantially damaged/improved." Per FEMA, this means that a structure is considered substantially damaged if the cost of restoration equals or exceeds 50 percent of the market value of the structure prior to the damage; this determination is made by the local floodplain administrator. Substantially improved means improvement(s) of a structure, the cost of which equals or exceeds 50 percent of the market value of the structure before the "start of construction" of the improvement. DEP has written many articles about this and other related subjects which can be viewed at <https://www.nj.gov/dep/floodcontrol/newsletters.htm>.

This leads to what you have all been waiting for... combining DEP's rules and the UCC's requirements in order to make the appropriate determination of the Design Flood Elevation (DFE). The breakdown of the elevation requirements in the applicable flood zone per the 2021 IBC and IRC is as below. This should be the baseline elevation unless the local floodplain administrator says otherwise by ordinance.

		IRC ^a	IBC ^b			
			Cat 1	Cat 2	Cat 3	Cat 4
A zone	Elevation of the lowest floor ^c	BFE +1 ft	BFE +1 ft	BFE +1 ft	BFE +1 ft	BFE +2 ft
Coastal A zone and V zone	Elevation of the bottom of lowest supporting horizontal structural member of lowest floor ^c	BFE +1 ft	BFE +1 ft	BFE +1 ft	BFE +2 ft	BFE +2 ft

(Continued on next page)

(2021 I-Code Flood Hazard Construction and DEP Revisions)

- a – Per Sections R309.3/IRC and R322.2.2/IRC and Section 1.5.2/ASCE 24, attached and detached enclosed areas used solely for parking of vehicles, building access or storage may be below the BFE.
- b – Category classifications are from Table 1-1 of the ASCE 24-14 (examples below).
- c – Minimum elevations are based on the model codes adopted by NJAC 5:23, in combination with NJAC 7:13; municipalities may adopt local ordinances for greater freeboard which increases the DFE.

ASCE 24-14 Table 1-1, Flood Design Class of Buildings and Structures examples (not and all-inclusive list)

- 1 – Accessory storage buildings and minor storage facilities (non-commercial);
- 2 – Most residential, commercial, and industrial buildings;
- 3 – Assembly, schools, non-surgical healthcare facilities; and
- 4 – Hospitals and emergency services buildings.

Note: This article is based on the current text of N.J.A.C. 7:13. The NJ Department of Environmental Protection is exploring the idea of adding another 2 feet to the existing 1 foot. Stay tuned at <https://www.nj.gov/dep/rules/notices.html>.

Source: Rob Austin
Code Assistance/Development Unit
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Rooftop Photovoltaic Solar Energy Systems – Access and Pathways Permit Fee 2022 Update

This article updates the permit/fee section from page 16 of the Fall 2021 Construction Code Communicator Article:

Section R324 is essentially divided into two installation types: R324.2 for solar thermal and R324.3 through R324.7.1 for PV. And R324.3 would be further broken down with R324.4 plus R324.6 or R324.5 plus R324.6 or R324.7.

Since R324.4 and R324.5 are pretty much equivalent for both roof systems, they would follow the same permit procedures, which would include R324.6 and the end result, using the final number of each section, would be: (3) electrical (4 or 5) building and (6) fire for the end result of three inspection and require all three tech sections and feed as such:

- Electrical would be charged as per N.J.A.C. 5:23-4.18(c)3;
- Building would be charged as per N.J.A.C. 5:23-4.18(c)1 -- alterations;
- Fire would be charged as per N.J.A.C. 5:23-4.18(c)4. Since this inspection does not cover any items addressed than a minimum fee shall be required as per N.J.A.C. 5:23-4.18(h); and
- Plan review is charged as per N.J.A.C. 5:23-4.18(b). This is not a separate fee, but a percentage of the permit.

For ground mount, again using the final number of the section, would be (3) electrical and (7) building would be the end result for inspection and feed as such:

- Electrical would be charged as per N.J.A.C. 5:23-4.18(c)3;
- Building would be charged as per N.J.A.C. 5:23-4.18(c)1 – alterations; and
- Plan review is charged as per N.J.A.C. 5:23-4.18(b). This is not a separate fee, but a percentage of the permit.

Lastly, as for the solar thermal (2), plumbing is the end result for inspection and would reflect a joint plan review with the plumbing tech card tech card building and fire and feed as such:

- Plumbing would be charged as per N.J.A.C. 5:23-4.18(c)2; and
 - Plan review is charged as per N.J.A.C. 5:23-4.18(b). This is not a separate fee, but a percentage of the permit.
- ➔ Since this is a joint review with plumbing, building and fire and a plumbing tech card is used than the building and fire fee would be encompassed with plumbing.

Source: Office of Regulatory Affairs and Code Assistance Unit
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Tentative Interim Amendments 13 and 19 – Where are we?

As you know, the 2020 edition of the National Electrical Code (NEC, aka NFPA 70) is now adopted as of September 6, 2022, for new construction projects. Within that adoption, the first nine Tentative Interim Amendments (TIA) were included. If you don't already have TIA 1-9 printed in your books, please be sure to add them. Since the initial review of the 2020 NEC by the Department, 11 more TIAs have been added. All 20 can be viewed at <https://www.nfpa.org/Codes-and-Standards/All-Codes-and-Standards/Codes-and-Standards>.

As discussed in the Summer 2021 CCC, an issued TIA automatically becomes a part of the next edition of the standard and is then subject to all of the procedures of the standards development process. This means that the 20 TIA would be included in the 2023 NEC. In a perfect world, NFPA would follow this process, and all TIAs would be held until the next edition of the code. This would make the code uniform and predictable.

However, this is not the case. If you look at the back of the cover page in your NEC, you will see the list of TIA that have been published within your book. The purpose of this article is to discuss two TIA which have been published revising Section 210.8(F), Ground-Fault Circuit-Interrupter Protection for Personnel, Outdoor Outlets, TIA 13 and 19:

- TIA-13 -- https://www.nfpa.org/assets/files/AboutTheCodes/70/TIA_70_20_13.pdf
- TIA-19 -- https://www.nfpa.org/assets/files/AboutTheCodes/70/TIA_70_20_19.pdf

As you will see, both TIAs relate to HVAC equipment. The issue came to light after several jurisdictions that adopted the 2020 NEC discovered repeated tripping of GFCI breakers on newly installed HVAC units, tracing it to GFCI device incompatibility with certain types of HVAC equipment. As more reports came in from builders, contractors, and inspectors of A/C units repeatedly shutting off, NFPA decided to postpone enforcement of Section 210.8(F) with the development and approval of TIA-13. This TIA added to the body of text that this requirement would become effective on January 1, 2023. TIA-19, was crafted understanding that these issues still exist, so the text from TIA-13 which postpones enforcement for GFCI on HVAC equipment was moved to create an Exception 2, and the enforcement date was moved again, this time to September 1, 2026.

From the above, it's clear that this item should not have been added to model code until compatibility issues were resolved. But that was not the case, so here we are trying to inform you on the next steps. It is worth noting that we are in the six-month grace period between the 2017 and 2020 NEC, so all projects involving this type of work should be permitted to utilize the 2017 text for this requirement. The Department will follow up with a code change proposal to acknowledge and adopt the final TIA on this subject, TIA-19, within NJAC 5:23-3.16.

Source: Scott Borsos
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Identifying Anodeless Risers

It has been brought to our attention that there are installers supplying and installing what they think are anodeless risers for plastic gas piping installed underground pursuant to the 2018 International Fuel Gas Code (IFGC) 403.6.1 and International Residential Code (IRC) G2414.6.1; and the 2021 IFGC 403.5.1 and IRC G2414.5.1. However, many of the risers being utilized are not actually anodeless risers. This means that they require anode bags to be placed in the ground to protect the risers. It seems many suppliers do not have the necessary anode bags in stock, and some inspectors are not requiring that the anode bag be placed in the ground before backfilling the area with the riser pursuant to the manufacturer's installation instructions. As a result, depending on the conditions of the soil, there have been risers which should have had anode bags that have corroded and are now leaking gas.

It is very easy to tell if the particular riser requires an anode bag once you know what to look for. If the riser shows plastic piping at the base of it, then it is an anodeless riser. If it does not, then it requires an anode bag. Please refer to the provided pictures to see the difference.

(Continued on next page)

(Identifying Anodeless Risers)



Because there is no plastic piping at the base on the photo on the left, that pipe requires an anode bag. The pipe on the right does not; the plastic piping at the base confirms that this riser is anodeless.

Source: Anthony Menafro
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