DEPARTMENT OF HEALTH AND SOCIAL SERVICES

DIVISION OF PUBLIC HEALTH

Statutory Authority: 16 Delaware Code, Section 7903 (16 **Del.C.**, §7903)
16 **DE Admin. Code** 4455

FINAL

ORDER

4455 Delaware Regulations Governing a Detailed Plumbing Code

NATURE OF THE PROCEEDINGS:

Delaware Health and Social Services ("DHSS") initiated proceedings to adopt the State of Delaware Regulations Governing A Detailed Plumbing Code. The DHSS proceedings to adopt regulations were initiated pursuant to 29 **Del.C.** 101 and authority as prescribed by 16 **Del.C.** §7903.

On April 1, 2012 (Volume 15, Issue 10), DHSS published in the Delaware *Register of Regulations* its notice of proposed regulations, pursuant to 29 **Del.C.** 10115. It requested that written materials and suggestions from the public concerning the proposed regulations be delivered to DHSS by April 30, 2012, or be presented at a public hearing on April 25, 2012, after which time the DHSS would review information, factual evidence and public comment to the said proposed regulations.

Verbal comments were received during the public comment period and evaluated. The results of that evaluation are summarized in the accompanying "Summary of Evidence."

SUMMARY OF EVIDENCE

In accordance with Delaware Law, public notices regarding proposed Department of Health and Social Services (DHSS) Regulations Governing A Detailed Plumbing Code were published in the Delaware *State News*, the *News Journal* and the Delaware *Register of Regulations*.

Written and verbal comments were received on the proposed regulations during the public comment period (April 1, 2012 through April 30, 2012). Entities offering comments included:

- Mr. John Feltwater, Owner, The RainMaker Lawn Irrigation and Landscape Lighting
- Mr. Dale Carey, CLLI, Area Acoount Manager, Atlantic Irrigation
- Mr. David Baird, Delaware Rural Water Association
- Mr. Richard Williams, Owner, R&L Irrigation Services, Inc.

Public comments and the DHSS (Agency) responses are as follows:

- The wording for testing Backflow preventer affects me as a small lawn irrigation contractor. So you know back in May of 2011 I went through the ASSE certification training held by Delaware Water Association in Milford, Delaware. I passed the test and hold a certificate to test PVB, RPZ along with two other assemblies. The problem with the new law if passed would only allow Master Plumbers to test the devices. This would cause me to lose business because the backflow preventer would need to be tested before an irrigation system could be put in operation. I cannot afford to have a Master Plumber on my staff because I do not generate that kind of income. I went through the ASSE so I could test these assemblies myself!!! I am trying to make a living while others are trying to push me out of business. I am going to join with other irrigation contractors to voice our concerns!!

Agency Response: **The Agency appreciates and acknowledges your comment but respectfully will not adopt your recommendation. The requirement in the Delaware Plumbing Code for testing backflow assemblies requires the person testing the assembly to have an ASSE or CSA accredited course in backflow testing (16 DE Admin Code 312.10.2 and 16 DE Admin Code 2.14.2). The Board of Plumbing and HVAC Examiners (BOPE) has had ongoing discussions in their meetings about the testing of backflow devices and whether this is a plumbing service as defined in their regulations under 24 *Del. C.* § 1807. The Board of Plumbing and HVAC Examiners has the authority to determine if a licensed plumber is required to test backflow assemblies (24 *Del. C.* § 1806). As such, regulations adopted by the Department of Health and Social Services, Delaware Division of Public Health, cannot conflict with the authority of BOPE.**

Unlike other comments you may been receiving, I am a distributor of irrigation products in Delaware. Having been involved on the distribution side of things for 18 years, I deal with about 80 active irrigation contractors in the State of Delaware.

I believe that when you speak with the best of them, we are all concerned about backflow prevention. Most of these same contractors have been installing backflows long before the actual codes required them.

Atlantic has branches covering the entire east coast from Maine to Georgia, that said, many states have had requirements of backflows long before Delaware, but in many of these states the irrigation contractors meet or exceed the requirements to install and certify these devices without involving another person (plumber) on the site.

Simply put, I believe that if any legislation is passed for backflow, that anyone can pass and be certified to both install and test. This allows for everyone to allowed, if they pass and certify. Take New Jersey for an example, they actually use the irrigation association to govern the industry. Many of the irrigation contractors are very concerned about their livelihood, the competitiveness of the industry does not allow for additional charges that would be incurred if this is passed as the plumbers would like to see.

As a distributor, we try to educate and instruct contractors working in different regions as to the codes, etc.. But we see them receive material and install, not to code. This we cannot regulate but as you see in many industries, there will always be contractors and associates of contractors installing on the weekends, after hours not to code. Even the Master Plumbers have their employees moonlighting plumbing entire homes.

I just wanted to send in my comments that affect my industry greatly. I would like to see Delaware work as James City County, Virginia (Williamsburg, VA area), they are very fair to the industry allowing anyone to take their testing and if pass and meet requirements, they can install and test backflows. This is all we are asking for, fairness.

As someone that covers the entire State of Delaware on a regular basis, and a Delaware resident, I am a pro-backflow or proponent of safe drinking water. But I am also a keep is simple person and realize the reality of things in the real world. Delaware has a long way to go to catch up with other states, counties and townships. But we cannot get there overnight and jump into decisions quickly that affect a lot of people and their businesses. I do not see the infrastructure in place to even touch the inspections that obviously would be required to ensure that what is law is getting done.

I hope this helpful information to move forward on this. Reality is, last year, many contractors stated adhering to the new codes. These same contractors were losing contracts to other contractors that choose not to adhere to codes, ignore or all of the above. No matter the codes, etc., this will always happen. I witnessed this in Maryland. Worcester County, MD was a leader in the area of one of the first counties to require backflow, permitting and post inspection. My real life observations, they only inspected the systems that permits were pulled on, which were probably about 30%.

I witnessed this one day, when the inspector pulled up to, following up on an issued permit, two doors down, another contractor was installing an irrigation system, a known code violator, he was pointed out by the contractor to the inspector. The inspector left his job and drove right out of the development. This is what I see everyday.

Agency Response: **The Agency appreciates and acknowledges your comment but respectfully will not adopt your recommendation. The requirement in the Delaware Plumbing Code for testing backflow assemblies requires the person testing the assembly to have an ASSE or CSA accredited course in backflow testing (16 DE Admin. Code 312.10.2 and 16 DE Admin. Code 2.14.2). The installation of a backflow assembly to a potable water system requires a permit from the Delaware Division of Public Health in accordance with the Delaware Plumbing Code. The Board of Plumbing and HVAC Examiners (BOPE) has had ongoing discussions in their meetings about the testing of backflow devices and whether this is a plumbing service as defined in their regulations under 24 Del.C. §1807. The Board of Plumbing and HVAC Examiners has the authority to determine if a licensed plumber is required to test backflow assemblies (24 Del.C. §1806). As such, regulations adopted by the Department of Health and Social Services, Delaware Division of Public Health, cannot conflict with the authority of BOPE.**

I just have one comment for consideration. I guess maybe before I go on to the specific comment, we do applaud the work that's been done, and for the most part, and when I say "the most part," about 98 percent support the proposal as it's written.

There's just one question that we want clarification on, and that is Section 2.14.2 of the proposed amendment. It refers to subsection 312.10.2 of the 2012 plumbing code. That language adds -- it's related to testers of back-flow assemblies, and I'll just read it. "By adding a new sentence after the last sentence to read 'Testers of back flow assembly devices shall be certified under an ASSE or CSA backflow tester's course. Backflow assemblies shall be tested and test forms submitted prior to use of any backflow assembly."

I do want to say we fully support that language as it is written. However, I just would like some additional clarification that there's not an assumption or there's not a requirement for licensed plumbers to perform that work. It's our opinion that anyone who is certified under ASSE or CSA back-flow testers course should be able to perform that work because they have received certification through ASSE. So it's really a point of clarification that the certifications that stand, it shouldn't also be a requirement that they be a licensed plumber to do that.

Agency Response: **The Agency appreciates and acknowledges your comment but respectfully will not adopt your recommendation. The requirement in the Delaware Plumbing Code for testing backflow assemblies requires the person testing the assembly to have an ASSE or CSA accredited course in backflow testing (16 DE Admin. Code 312.10.2 and 16 DE Admin. Code 2.14.2). The Board of Plumbing and HVAC Examiners (BOPE) has had ongoing discussions in their meetings about the testing of backflow devices and whether this is a plumbing service as defined in their regulations under 24 Del.C. §1807. The Board of Plumbing and HVAC Examiners has the authority to determine if a licensed plumber is required to test backflow assemblies (24 Del.C. §1806). As such, regulations adopted by the Department of Health and Social Services, Delaware Division of Public Health, cannot conflict with the authority of BOPE.**

My comments are in regard to Section 2.14.2 of the Proposed Regulation which amends Subsection 312.10.2 of the 2012 International Plumbing Code by adding a new sentence after the last sentence to read "Testers of backflow assembly devices shall be certified under an ASSE or CSA backflow tester's course. Backflow assemblies shall be tested and test forms submitted prior to use of any backflow assembly". It is my position additional language should be added that would allow those who are certified under an ASSE or CSA backflow tester and repair course be authorized to test and repair backflow assemblies. In addition, the plumbing code should clarify that the testing and/or repair of backflow assemblies shall be performed by individuals with ASSE or CSA certifications to test or repair backflow assemblies without being recognized as a licensed plumber.

It is important that the above language is included in the 2012 Plumbing Code for a number of reasons. First, the language currently proposed would have an adverse impact on services currently provided by professionals in the municipal and private water utilities, irrigation companies and utility contractors throughout the State. These professionals are currently providing these services and many have previously or are in the process of receiving ASSE certifications in backflow testing, and repair along with ASSE certifications for cross connection surveying and administration of cross connection control programs.

Second, allowing individuals with the appropriate ASSE certifications to perform backflow work is good for the consumer as it has the potential to reduce the overall cost by having a single party perform the work. For instance, irrigation professionals with ASSE certifications would be able to test and/or repair assemblies at the same time they are on site performing system start up, maintenance or shut down. Additionally, ASSE certified personnel from the over 250 public water systems around the State would be able to perform work on backflow assemblies located within their respective water systems. This point is critical when it comes to ensuring that annual inspections and tests of assemblies (especially containment devices) are completed in an additional effort to protect the public drinking water supply. Not only is this approach good for the consumer from a cost perspective, it improves public health and the public drinking water supply because the utility is able to work closely with those individuals with ASSE certification in backflow testing and repair that are working in the public water system.

Finally, allowing ASSE backflow certified professionals perform this work creates business opportunities and jobs throughout the State. Individuals, along with new and existing businesses and current licensed plumbing contractors can expand their services into backflow testing and repair with the appropriate ASSE certifications.

Agency Response: **The Agency appreciates and acknowledges your comment but respectfully will not adopt your recommendation. The requirement in the Delaware Plumbing Code for testing backflow assemblies requires the person testing the assembly to have an ASSE or CSA accredited course in backflow testing (16 DE Admin. Code 312.10.2 and 16 DE Admin. Code 2.14.2). The same would be required for backflow assembly repair. The Board of Plumbing and HVAC Examiners (BOPE) has had ongoing discussions in their meetings about the testing of backflow devices and whether this is a plumbing service as defined in their regulations under 24 Del.C. §1807. The Board of Plumbing and HVAC Examiners has the authority to determine if a licensed plumber is required to test backflow assemblies (24 Del.C. § 1806). As such, regulations adopted by the Department of Health and Social Services, Delaware Division of Public Health, cannot conflict with the authority of BOPE.**

I would love to amend or talk about what Dave from Delaware Water said. The code, we're all in support of the amendment, subsection 312.10.2, adding the new sentence about an ASSE certified to test a back-flow preventer does not have to have a master plumber's license to do so. And that is what we're in favor of.

Agency Response: **The Agency appreciates and acknowledges your comment but respectfully will not adopt your recommendation. The requirement in the Delaware Plumbing Code for testing backflow assemblies requires the person testing the assembly to have an ASSE or CSA accredited course in backflow testing (16 DE Admin. Code 312.10.2 and 16 DE Admin. Code 2.14.2). The Board of Plumbing and HVAC Examiners (BOPE) has had ongoing discussions in their meetings about the testing of backflow devices and whether this is a plumbing service as defined in their regulations under 24 Del.C. §1807. The Board of Plumbing and HVAC Examiners has the authority to determine if a licensed plumber is required to test backflow assemblies (24 Del.C. §1806). As such, regulations adopted by the Department of Health and Social Services, Delaware Division of Public Health, cannot conflict with the authority of BOPE.**

Verifying documents are attached to the Hearing Officer's record. The regulation has been approved by the Delaware Attorney General's office and the Cabinet Secretary of DHSS.

FINDINGS OF FACT:

Based on public comments received, non-substantive changes were made to the proposed regulations. The Department finds that the proposed regulations, as set forth in the attached copy should be adopted in the best interest of the general public of the State of Delaware.

THEREFORE, IT IS ORDERED, that the proposed State of Delaware Regulations Governing A Detailed Plumbing Code are adopted and shall become effective June 11, 2012, after publication of the final regulation in the Delaware *Register of Regulations*.

4455 Delaware Regulations Governing a Detailed Plumbing Code

~~1.0 State of Delaware Plumbing Code~~

~~These Regulations shall hereby be known as the "State of Delaware Plumbing Code".~~

~~14 DE Reg. 37 (07/01/10)~~

~~2.0 Adoption of International Plumbing Code.~~

~~The State of Delaware Plumbing Code adopts, as if fully set forth herein, "The International Plumbing Code 2009" as amended herein:~~

~~2.1 Amend **Subsection 101.1** by deleting the subsection in its entirety.~~

~~2.2 Amend **Subsection 101.2** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "The provisions of this Code shall apply to the erection, installation, alteration, repair, relocation, replacement, addition to, use or maintenance of plumbing systems within this jurisdiction."~~

~~2.3 Amend **Subsection 102.2** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "The legal use and occupancy of any structure existing on the effective date of this Code, or for which it had been heretofore approved, may be continued without change except as may be specifically covered in this Code or deemed necessary by the Deputy Code Official(s) for the general safety and welfare of the occupants and the public.~~

~~**Exception:** Except that upon change of permit holder in facilities and operations regulated by the Delaware Division of Public Health such systems shall comply with the requirements of this Code and applicable regulations promulgated and standards established by the Delaware Division of Public Health."~~

~~2.4 Amend Subsection 102.4 by deleting the second paragraph in its entirety.~~

~~2.5 Amend **Subsection 102.10** by deleting the words "local, state or federal law" and inserting in lieu thereof the following: "the Delaware Code."~~

~~2.6 Amend **Subsection 104.1** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "For the purpose of this document the term "Code Official" refers to the Secretary of the Delaware Department of Health and Social Services, or his/her designee. "Plumbing Inspectors" shall have such duties and powers as are enumerated in Title 16, Section 7907 of the **Delaware Code** and shall have the authority of a Deputy Code Official as referenced in Section 103.3 of this Code."~~

~~2.7 Amend **Subsection 106.1** by adding a new sentence at the end of the subsection paragraph to read as follows: "The Division of Public Health shall issue plumbing permits and a $100 fee shall be assessed for all plumbing permits issued by the Division of Public Health. All revenue generated shall be retained by the Division of Public Health in order to defray costs associated with the plumbing inspection program."~~

~~2.7.1 Amend **Subsection 106.2** by adding thereto a new numbered paragraph following numbered paragraph "2" to read as follows: "3. No permit or fee is required by the Division of Public Health for the replacement of an existing fixture, piece of equipment or related piping, including but not limited to hot water heaters and water conditioning systems."~~

~~2.7.2 Amend **Subsection 106.2** by adding thereto a new numbered paragraph following paragraph "3" to read as follows: "4. The relocation of any plumbing fixture and related pipe requires a permit."~~

~~2.7.3 Amend **Subsection 106.2** by adding thereto a new numbered paragraph following paragraph "4" to read as follows: "5. Any new non potable fixture, piece of equipment, or system that connects to the potable water supply shall require a permit and shall meet the provisions of this Code."~~

~~2.7.4 Amend **Subsection 106.6.3** by adding thereto a new numbered paragraph following paragraph "3" to read as follows: "4. The Division of Public Health does not refund plumbing permit fees."~~

~~2.8 Amend **Subsection 108.1** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "It shall be unlawful for any person to work as a licensed plumber in the State of Delaware unless such person has received a license from the Delaware Department of Administrative Services, Division of Professional Regulation, showing that said person has been duly licensed as a plumber, except as provided by Title 24, Section 1807(c) of the **Delaware Code**, and has a permit issued by the Delaware Division of Public Health.~~

~~**Exception:** The homeowner of a single-family residence occupied, or to be occupied by the homeowner and not for sale, rent or lease, may perform plumbing work only on such residence itself or auxiliary structures, and in compliance with a permit issued by the Delaware Division of Public Health, or applicable authority, and in compliance with all provisions of these regulations."~~

2.9 Amend **Subsection 108.4** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "Any person who shall violate any provisions of this Code, or shall fail to comply with the requirements thereof, or who shall install plumbing work in violation of an approved plan or directive of the Code Official or the Deputy Code Official(s), or of a permit or certificate issued under the provisions of this Code, shall be subject to penalties as provided by Title 16, Chapter 79 of the **Delaware Code**."

2.10 Amend **Subsection 108.5** by deleting the words: "shall be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars" as it appears therein and inserting in lieu thereof the following: "shall be subject to penalties as provided by Title 16, Chapters 1 and 79 of the **Delaware Code**."

2.11 **Section 202 General Definitions**

2.11.1 Amend **Section 202** by adding thereto a new definition after the definition "**Leader**" and before the definition "Local Vent Stack" to read as follows: "**Licensed Plumber.** A person who has complied with the provisions of the Delaware Division of Professional Regulation and the Board of Plumbing Examiners, and has further met the certification, testing, bonding, and licensing requirements of the jurisdiction in which he/she plans to engage in the business of plumbing. A Licensed Plumber shall be recognized as being responsible for all work performed under a plumbing permit issued by the Delaware Division of Public Health."

2.11.2 Amend **Section 202** by adding thereto a new definition after the definition "**Soil Pipe**" and before the definition "**Spillproof Vacuum Breaker"** to read as follows: **"Solvent cement.** The sealant used to connect pipes and fittings. This Code prohibits the use of all purpose glue in any reference to solvent cement."

2.11.3 Amend **Section 202** by adding thereto a new definition after the definition "**Sump Vent**" and before the definition "**Supports**" to read as follows: **"Supervision of Work.** Work completed under the permit of a licensed plumber while employed by the licensed plumber, or the same firm, partnership, corporation, or owners of the company as the licensed plumber."

2.11.4 Amend **Section 202** by amending the definition of "**Building Drain"** by deleting the reference "30" between the words "extends" and "inches" and replacing with the words "5 feet"."

2.12 Amend **Subsection 305.6.1** by deleting the subsection in its entirety.

2.13 Amend **Subsection 312.3** by adding thereto after the last sentence the following: **"**In lieu of the presence of the Deputy Code Official witnessing the test, the Licensed Plumber may certify in writing upon a prescribed form that the plumbing system piping is in accordance with Section 312 of these regulations. This shall be applicable between November 1 and April 1 of each calendar year."

2.14 Amend **Subsection 312.4** by deleting the subsection in its entirety.

2.15 Amend **Subsection 404.1** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "All regulations pertaining to handicapped facilities in the International Plumbing Code will be governed by the most recent edition of the "American National Standards Institute (ANSI)."

2.16 Amend **Section 407** by adding thereto a new subsection after subsection 407.4 to read as follows: "**407.5 Overflow devices.** Overflow devices on all bathtubs shall be evaluated by the Division of Public Health on a case by case basis."

2.17 Amend **Subsection 502.1** by adding thereto after the last sentence the following: "The first 12 inches of both hot and cold water lines shall be thermally rated for maximum water temperature produced by the hot water heater."

2.18 Amend **Subsection 504.6** by adding thereto a new numbered paragraph after numbered paragraph "13" to read as follows: "14. The discharge valve shall be equipped with an approved heat transfer fitting or metallic pipe."

2.19 Amend **Table 604.3** by adding thereto in the second row, first column, after the words "Bathtub, balanced-pressure, thermostatic or combination balanced pressure/thermostatic mixing valve" the following: "for hand held shower fixtures."

2.20 Amend **Table 605.3** by deleting in the parenthetical in the seventh row, first column after the words "Copper or copper-alloy tubing" the letters "M" and "WM".

2.21 Amend **Table 605.4** by deleting in the parenthetical in the fifth row, first column after the words "Copper or copper-alloy tubing" the letters "M" and "WM".

2.22 Amend **Subsection 605.16.2** by adding thereto after the words "above or below ground" the following sentence: "The use of all purpose glue is prohibited."

2.23 Amend **Subsection 607.3** by adding thereto after the words "in accordance with Section 607.3.1 and 607.3.2" the following: "All public water installations shall be required to have an expansion tank installed."

2.24 Amend **Subsection 608.3** by adding thereto a new subsection after subsection 608.3.1 to read: "608.3.2 **Special equipment, water supply protection.** There shall be sufficient space around special equipment for accessibility."

2.25 Amend **Subsection 903.2** by adding thereto after the first sentence the following sentence: "The stack shall be no less than 2 inches in diameter."

2.26 Amend **Subsection 903.3** by deleting the words "or to a stack-type air admittance valve in accordance with Section 917."

2.27 Amend **Subsection 912.1** by deleting the last sentence in its entirety.

2.28 Amend **Subsection 917.1** by adding thereto after the last sentence the following: "Air admittance valves shall be approved by the Deputy Code Official prior to use or installation."

2.29 Amend **Section 919** by deleting the section in its entirety.

2.30 Amend **Subsection 1003.3.4** by adding thereto in the last sentence after the words "shall be installed in accordance with the manufacturer's instructions" the following: "or be otherwise approved by the Code Official."

2.31 Amend **Chapter 12** by deleting the Chapter in its entirety.

14 DE Reg. 37 (07/01/10)
14 DE Reg. 813 (02/01/11)

3.0 Miscellaneous Provisions

3.1 **Procedures for License.** Every person desiring to register as a plumber engaged in the business of plumbing in the State of Delaware shall file an application with the Delaware Division of Professional Regulation.

3.2 **Variances**

3.2.1 **Permission for a variance.** Upon receipt of a written application for a variance, the Deputy Code Official may recommend granting written permission to vary from particular provisions set forth in these Regulations, when the extent of the variation is clearly specified and it is documented to the Secretary of the Delaware Department of Health and Social Services or his/her appointed designee's satisfaction that:

3.2.1.1 Such variation is necessary to obtain a beneficial use of an existing facility;

3.2.1.2 The variation is necessary to prevent a practical difficulty or unnecessary hardship; and

3.2.1.3 Appropriate alternative measures have been taken to protect the health and safety of the public and assure that the purpose of the provisions from which the variation is sought will be observed.

3.2.2 **Time for recommendation.** Within thirty (30) business days of the receipt of a written application for a variance, the Deputy Code Official shall recommend either: granting the variance, denying the variance or requesting further information from the applicant.

3.2.3 **Appeal of denial.** If the applicant has been denied a variance upon the recommendation of the Deputy Code Official, the applicant may appeal the decision by filing a written Notice of Appeal to the Secretary of the Delaware Department of Health and Social Services, or his/her designee.

14 DE Reg. 37 (07/01/10)

4.0 Special Provisions Regarding Plumbing For Food Establishments

4.1 **Scope.** These Special Provisions shall be followed in addition to and shall not supersede the International Plumbing Code, the Delaware Food Code or these Regulations.

4.2 **Use of Licensed Plumber.** All plumbing shall be installed by a licensed plumber under a valid, current plumbing permit in accordance with these Regulations.

4.3 **Water Supply and Sewage Disposal**

4.3.1 **No further evaluation.** Water Supply and Sewage Disposal Facilities served by a public water supply and sewage system do not require further evaluation.

4.3.2 **Private wells.** Private wells must comply with chemical and bacteriological standards; a satisfactory analysis is required before an operating permit may be issued.

4.3.3 **Individual systems.** Individual sewage disposal systems require the approval of the Department of Natural Resources and Environmental Control prior to operating the food establishment.

4.4 **Backflow Prevention**

4.4.1 **Air gap, supply.** An air gap between the water supply and the flood rim level of the plumbing fixture, equipment, or nonfood equipment shall be at least twice the diameter of the water supply inlet and may not be less than 25 mm (1 inch). (*See also* DE Food Code, §5.202).

4.4.2 **Air gap, drainage**. A direct connection may not exist between the sewage system and a drain originating from equipment in which food, portable equipment, or utensils are placed, except that this requirement does not apply to floor drains that originate in refrigerated spaces that are constructed as an integral part of the building, and except that this requirement does not apply to a warewashing machine with a direct connection between its waste outlet and a floor drain when the machine is located within 1.5 m (5 feet) of a trapped floor drain and the machine outlet is connected to the inlet side of a properly vented floor drain trap. Equipment and fixtures utilized for the storage, preparation and handling of food shall discharge through an indirect waste pipe by means of an air gap. (*See also* IPC2009 § 802.1.1).

4.4.3 **Floor drains.** Floor drains located within walk-in refrigerators or freezers in food establishments shall be indirectly connected to the sanitary drainage system by means of an air gap except as allowed in IPC2009 § 2.24.3.2. (*See also* IPC2009, § 802.1.2)

4.4.4 **Backflow prevention device.** A backflow or back siphonage prevention device installed on a water supply system shall meet American Society of Sanitary Engineering (ASSE) standards for construction, installation, maintenance, inspection, and testing for that specific application and type of device. (*See also* DE Food Code, § 5-202.14).

4.4.5 **Plumbing fixtures.** The supply lines or fittings for every plumbing fixture shall be installed so as to prevent backflow. Plumbing fixture fittings shall provide backflow protection in accordance with ASSE A112.18.1. (*See also* IPC2009, § 608.2).

4.4.6 **Devices, appliances.** All devices that connect to the water supply shall be provided with protection against backflow. This includes devices used for food preparation and processing, steamers, the storage of ice or food, warewashing machines, and other food service equipment. (*See also* IPC2009, § 608.3)

4.4.7 **Hose connections.** Sillcocks, hose bibs, wall hydrants and other openings with a hose connection shall be protected by an atmospheric-type or pressure-type vacuum breaker or a permanently attached hose connection vacuum breaker. This subsection does not apply to water heater drain valve or clothes washing machines. (*See also* IPC2009, § 608.15.4.2).

4.4.8 **Beverage dispensers.** The water supply connection to carbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an air gap. The portion of the backflow preventer device downstream from the second check valve and the piping downstream therefrom shall not be affected by carbon dioxide gas. (*See also* IPC2009, § 608.16.1).

4.5 **Utility Service Installation**

4.5.1 **Installation location.** Utility lines including gas, plumbing and electrical shall be installed inside walls, above ceilings or below floors whenever structurally practical, and in accordance with applicable code requirements.

4.5.1.1 **Front of wall lines.** If lines are run in front of walls, lines shall be installed with stand-off brackets or other secure mounting method, such that a minimum clearance of one inch (1") exists between line and wall.

4.5.1.2 **No floor installation.** Exposed horizontal utility service, including water supply and drain lines, may not be installed on the floor.

4.6 **Joint Sealing**

4.6.1 **Joint sealing.** Joints formed by fixtures in contact with walls or floors shall be sealed with an approved sealant. Where installation does not allow access for cleaning, fixtures shall be sealed to walls or adjoining equipment. Where not structurally practical, a minimum gap of one inch (1") shall exist between the fixture and walls or adjoining equipment**.**

4.7 **Toilet Facilities**

4.7.1 **Number required.** At least one (1) toilet and not fewer than the toilets required by law shall be provided. If authorized by law and urinals are substituted for toilets, the substitution shall be done as specified by law. (*See also* DE Food Code, § 5-203.12).

4.7.2 **Handwashing facility.** A handwashing facility shall be located in, or immediately adjacent to, toilet rooms. (*See also* DE Food Code, § 5-204.11).

4.7.3 **Toilet room.** A toilet room shall be completely enclosed and provided with a tight-fitting and self-closing door, except that this requirement does not apply where a toilet room is located outside a food establishment and does not open directly into the food establishment such as a toilet room that is provided by the management of a shopping mall. (*See also* DE Food Code, § 6-202.14).

4.7.3.1 **Location.** Toilet rooms shall be conveniently located and accessible to employees during all hours of operation (*See also* DE Food Code, § 6-402-11).

4.8 **Sinks**

4.8.1 **Water supply.** All sinks shall be supplied with hot and cold running water under pressure.

4.8.2 **Splashguard Dividers.** Where less than 18 inches lateral separation exists between sinks and adjacent fixtures, food contact surfaces or open storage shelving, a splashguard divider constructed of a material which is durable, easily cleanable, non-toxic and impervious to moisture shall be installed; such divider may be wall-attached or fixture-attached, and shall extend outward to the leading edge of the sink and extend vertically a minimum of 18 inches above the level plane of the sink bowl.

4.8.3 **Handwashing sinks.** These fixtures, when located in food preparation, food dispensing, beverage dispensing (including bar service area), food storage and warewashing areas, must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.8.3.1 **Separate sink required.** A separate, single-compartment handwashing sink is REQUIRED in food preparation, food dispensing, and warewashing areas; and in, or immediately adjacent to, toilet rooms. Handsinks shall be installed within 25 travel feet within a direct line access of each primary work location.

4.8.3.2 **Temperature.** Tempered water temperature at a minimum of 100^{o}F and a maximum of 110^{o}F, delivered through a mixing valve or combination faucet, is REQUIRED.

4.8.3.3 **Faucets.** If installed, self-closing, slow-closing, or metering faucets shall provide a flow of water for at least 15 seconds without the need to reactivate the faucet.

4.8.3.4 **No other purpose.** A handwashing sink may not be used for any other purpose.

4.9 **Food Preparation Sinks**

4.9.1 **Food preparation sinks.** Any sink in which food is washed or thawed under running water as part of the food preparation process must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.9.2 **No disposal.** A food preparation sink may not be used for disposal of mop water or liquid wastes.

4.9.3 **Required indirect drain line.** An indirect drain line connection through an air-gap is REQUIRED.

4.9.4 **Grease trap connection.** Connection to a properly sized grease trap is REQUIRED.

4.9.5 **Multiple compartments.** If a food preparation sink has two or more compartments, a separate wasteline connection from each sink compartment through an air gap into a floor sink is REQUIRED.

4.10 **Warewashing Sinks**

4.10.1 **Industry standard.** Warewashing sinks must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.10.2 **Three compartments.** A sink of at least three separate compartments with covered corners and integral drainboards at each end shall be provided for manually washing, rinsing and sanitizing equipment and utensils. Each sink compartment shall be large enough to accommodate the immersion of the largest equipment item or utensil. **A chemical test kit that matches the type of sanitizing agent in use is required in the warewashing area.**

4.10.3 **No handwashing or disposal.** A warewashing sink may not be used for handwashing or disposal of liquid wastes.

4.10.4 **Grease trap connection.** Connection to a properly sized grease trap is REQUIRED.

4.10.5 **Alternative use provision for warewashing sink.** If the warewashing sink will be used for washing or thawing food, a separate wasteline connection from each sink compartment through an air-gap into a floor sink is REQUIRED. The installation of a properly sized grease trap downstream of the floor sink is REQUIRED. Alternative use of a warewashing sink for food preparation requires prior approval from the Delaware Division of Public Health.

4.11 **Service Sinks** (for use as a janitorial sink, utility sink or mop sink)

4.11.1 **Installation location.** Wherever practical, fixture service sink must be installed outside of the food preparation, food dispensing, food storage and warewashing areas.

4.11.2 **Industry standard.** Service sinks, when located in food preparation, food dispensing, food storage and warewashing areas, must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.11.3 **Minimum number required.** A minimum of one service sink or receptor is REQUIRED on each floor level of food operations. This fixture may be a sink or a curbed receptor.

4.11.4 **Dual use.** The dual use of a utility sink as a handwashing sink is not approved in new construction, conversion of a structure to a food establishment, nor remodeling of an existing facility.

4.11.5 **Grease trap connection.** Connection to a grease trap is not required.

4.12 **Prewash Sinks.**

4.12.1 **Industry standard.** Prewash sinks must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.12.2 **Grease trap connection.** Connection to a properly sized grease trap is REQUIRED.

4.12.3 **Food waste grinder.** If a food waste grinder is installed on fixture prewash sink, the grease trap must be designed and rated for such application, or a solids interceptor is required upstream of the grease trap.

4.13 **Mechanical Warewasher**

4.13.1 **Industry standard.** Mechanical warewashers must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, or equivalent.

4.13.2 **Warewashing machine.** A warewashing machine, using hot water or a chemical rinse to sanitize, may be installed. Large cookware which does not fit into the machine must be sanitized in a three compartment sink. Facilities without a three compartment sink whose warewashers are found functioning improperly may be directed to temporarily close until the machine is repaired. **If a chemical sanitizing agent is used, a test kit that matches the chemical sanitizing agent is required.**

4.13.3 **Grease trap connection.** Connection to a grease trap is NOT APPROVED due to high temperature, pressure and detergents.

4.13.4 **Indirect drainline connection.** An indirect drainline connection through an air-gap is REQUIRED. (See paragraph below for alternative installation provision.)

4.14 **Alternative Installation Provision**

4.14.1 **Alternative installation provision for mechanical warewasher.** If approved by the Delaware Division of Public Health, a direct drainline connection may be installed if the machine wastewater outlet is located within five feet of a properly trapped vented floor drain and the machine outlet is connected to the inlet side of the same properly vented floor drain trap.

4.15 **Water Heater**

4.15.1 **Hot water supply.** The water heater shall be sized to provide hot water as required to supply both the continuous requirements and the hourly peak demands of the facility. The continuous and hourly demands are based on the type of equipment and number of fixtures consuming hot water as required for food operations.

4.15.2 **Total availability.** The total hot water availability in gallons per hour (gph) from a water heater is the sum of the unit storage capacity plus the recovery rate at a 100×F rise.

4.15.3 **Minimum storage capacity.** A fuel-fired (gas or oil) water heater in a food establishment shall have a minimum storage capacity of thirty (30) gallons; an electric water heater shall have a minimum storage capacity of forty (40) gallons. Storage capacities larger than the minimum shall be required, based on the type of equipment and number of fixtures consuming hot water.

4.16 **Grease Trap**

4.16.1 **Sizing.** The grease trap must be sized in accordance with PDI standard G101.

4.16.2 **Grease trap connection.** Connection to a properly sized grease trap is REQUIRED for all fixtures that discharge grease-laden waste, e.g. warewashing sinks, food prep sinks, pre-wash sinks for warewashers, woks, and other cooking equipment.

4.16.3 **Sizing procedures.** Follow these procedures for sizing a grease trap to a specific fixture:

4.16.3.1 Determine the liquid volume of the fixture in cubic inches (cu in) draining to the grease trap.

4.16.3.2 Determine the liquid capacity of the fixture in gallons (gal).

4.16.3.3 Determine the actual drainage load (75% of fixture capacity).

4.16.3.4 Determine the unit flow rate minimum for drainage period of 2 minutes.

4.16.3.5 Determine the unit liquid holding capacity minimum (40% of fixture capacity).

4.16.3.6 Select a unit corresponding to minimum unit flow rate and liquid holding capacity.

Table 4.16.3a
EXAMPLE OF SIZING FOR GREASE TRAP SELECTION

Select a grease trap for a three compartment warewashing sink with bowl dimensions of 18" W x 24" L x 12" D

1. Volume = (18in x 24in x 12in) x 3 CMOS = (5,184 cu in) x 3 = 15,552 cubic inches
2. Capacity = Volume (cu in) / 231 (cu in/gal) = 15,552 / 231 = 67.3 gallons
3. Drainage load = 67.3 gal x 0.75 = 50.4, or approve. 50 gallons
4. Unit flow rate minimum = 50 gallons / 2 minutes = 25 gallons per minute (DPN
   Unit liquid holding capacity minimum = 67.3 x 0.40 = 26.9 gallons
5. Select a grease trap with a minimum flow rate equal to or greater than 25 DPN
   The selected trap also must have a minimum liquid holding capacity of 26.9 gal.

Table 4.16.3b
GREASE TRAP SIZING FOR TYPICAL SINK INSTALLATIONS

Bold column at far right applies PDI G101 formula to calculate minimum required grease trap flow rate in gallons per minute (gpm).

Width (in)	Length (in)	Depth (in)	Volume (cuin)	Volume (gal)	No of cmpts	Total vol (gal)	Working vol (75%)	Min Flow Rate (gpm)
W	**L**	**D**	**W x L x D = Vc**	**Vc / 231 = Vg**	**#C**	**Vg x #C = Vtg**	**Vtg x 0.75 = Vw**	**Vw / 2min = MFR**
16.0	19.0	10.5	3192	13.8	1	13.8	10	5
					2	27.6	21	10
					3	41.5	31	16
16.0	19.0	13.5	4104	17.8	1	17.8	13	7
					2	35.5	27	13
					3	53.3	40	20
16.0	20.0	14.0	4480	19.4	1	19.4	15	7
					2	38.8	29	15
					3	58.2	44	22
18.0	20.0	14.0	5040	21.8	1	21.8	16	8
					2	43.6	33	16
					3	65.5	49	25
18.0	24.0	12.0	5184	22.4	1	22.4	17	8
					2	44.9	34	17
					3	67.3	50	25
20.0	20.0	16.0	6400	27.7	1	27.7	21	10
					2	55.4	42	21
					3	83.1	62	31
22.0	24.0	16.0	8448	36.6	1	36.6	27	14
					2	73.1	55	27
					3	109.7	82	41
24.0	24.0	16.0	9216	39.9	1	39.9	30	15
					2	79.8	60	30

	~~3~~	~~119.7~~	~~90~~	~~45~~"

1.0 State of Delaware Plumbing Code

These Regulations shall hereby be known as the "2012 State of Delaware Plumbing Code". This is a state wide code that applies to all Delaware jurisdictions. Local jurisdictions may have additional water, wastewater and administration requirements that are not part of this code. The 2012 IPC is available at ICCSAFE.ORG. The Delaware amendments are available at:

http://regulations.delaware.gov/AdminCode/title16/4000/4400/4455.shtml.

Plumbing program information and documents are available at:

http://www.dhss.delaware.gov/dhss/dph/hsp/plumbing.html

2.0 Adoption of International Plumbing Code.

The State of Delaware Plumbing Code adopts, as if fully set forth herein, "The International Plumbing Code 2012" as amended herein:

2.1 Amend **Subsection 101.1** by deleting the subsection in its entirety.

2.2 Amend **Subsection 101.2** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "The provisions of this Code shall apply to the erection, installation, alteration, repair, relocation, and replacement, addition to, use or maintenance of plumbing systems within this jurisdiction."

2.3 Amend **Subsection 102.2** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "The legal use and occupancy of any structure existing on the effective date of this Code, or for which it had been heretofore approved, may be continued without change except as may be specifically covered in this Code or deemed necessary by the Deputy Code Official(s) for the general safety and welfare of the occupants and the public.

Exception: Upon change of permit holder in facilities and operations regulated by the Delaware Division of Public Health such systems shall comply with the requirements of this Code and applicable regulations promulgated and standards established by the Delaware Division of Public Health."

2.4 Amend **Subsection 102.4** by deleting the second paragraph in its entirety.

2.5 Amend **Subsection 102.10** by deleting the words "local, state or federal law" and inserting in lieu thereof the following: "the Delaware Code."

2.6 Amend **Section 103** by deleting the section in its entirety.

2.7 Amend **Subsection 104.1** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "For the purpose of this document the term "Code Official" refers to the Secretary of the Delaware Department of Health and Social Services, or his/her designee. "Plumbing Inspectors" shall have such duties and powers as are enumerated in Title 16, Section 7907 of the **Delaware Code** and shall have the authority of a Deputy Code Official as referenced in Section 103.3 of this Code."

2.8 Amend **Subsection 106.1** by deleting the phrase "owner, authorized agent" and replacing it with "Licensed Plumber as per Title 16 of the Delaware Code" and by adding a new sentence at the end of the paragraph to read as follows: "The Division of Public Health shall issue plumbing permits and a $100 fee shall be assessed for all plumbing permits issued by the Division of Public Health. All revenue generated shall be retained by the Division of Public Health in order to defray costs associated with the plumbing inspection program."

2.8.1 Amend **Subsection 106.2** by adding thereto three new numbered paragraphs following numbered paragraph "2" to read as follows: "3. No permit or fee is required by the Division of Public Health for the replacement of an existing fixture, piece of equipment or related piping, including but not limited to hot water heaters and water conditioning systems. 4. The relocation of any plumbing fixture and related pipe requires a permit. 5. Any new non potable fixture, piece of equipment, or system that connects to the potable water supply shall require a permit and shall meet the provisions of this Code."

2.8.2 Amend **Subsection 106.3** By deleting the phrase "owner or an authorized agent" in the second sentence and replacing it with the phrase "Licensed Plumber as per Title 16 of the Delaware Code."

2.8.3 Amend **Subsection 106.5** by adding after the last sentence the following: "No permit shall be issued for the same work on an active permit unless the permit holder relinquishes said permit or the permit expires or there is no work on the permit for a period exceeding 6 months."

2.8.4 Amend **Subsection 106.6.3** by adding thereto a new numbered paragraph following paragraph "3" to read as follows: "4. The Division of Public Health does not refund plumbing permit fees."

2.9 Amend **Subsection 107.2.4** by adding to the end of the last sentence the following: "and are approved by the Delaware Division of Public Health".

2.10 Amend **Subsection 108.1** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "It shall be unlawful for any person to work as a licensed plumber in the State of Delaware unless such person has received a license from the Delaware Department of State, Division of Professional Regulation, showing that said person has been duly licensed as a plumber, except as provided by Title 24, Section 1807(c) of the **Delaware Code**, and has a permit issued by the Delaware Division of Public Health. Licensed Plumbers shall display their DE master plumber license number on all company vehicles. The lettering shall be 3 inches high and shall be of a contrasting color of the vehicle to which it is affixed.

Exception: The homeowner of a single-family residence occupied, or to be occupied by the homeowner for not less than 1 year and not for sale, rent or lease, may perform plumbing work only on such residence itself or auxiliary structures, and in compliance with a permit issued by the Delaware Division of Public Health, or applicable authority, and in compliance with all provisions of these regulations."

2.10.1 Amend **Subsection 108.4** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "Any person who shall violate any provisions of this Code, or shall fail to comply with the requirements thereof, or who shall install plumbing work in violation of an approved plan or directive of the Code Official or the Deputy Code Official(s), or of a permit or certificate issued under the provisions of this Code, shall be subject to penalties as provided by Title 16, Chapter 79 of the **Delaware Code**."

2.10.2 Amend **Subsection 108.5** by deleting the words: "shall be liable to a fine of not less than [AMOUNT] dollars or more than [AMOUNT] dollars" as it appears therein and inserting in lieu thereof the following: "shall be subject to penalties as provided by Title 16, Chapters 1 and 79 of the **Delaware Code**."

2.11 Amend **Section 109** by deleting the section in its entirety.

2.12 **Section 202 General Definitions**

2.12.1 Amend **Section 202** by adding thereto a new definition after the definition "**Leader**" and before the definition "Local Vent Stack" to read as follows: "**Licensed Plumber.** A person who has complied with the provisions of the Delaware Division of Professional Regulation and the Board of Plumbing Examiners, and has further met the certification, testing, bonding, and licensing requirements of the jurisdiction in which he/she plans to engage in the business of plumbing. A Licensed Plumber shall be recognized as being responsible for all work performed under a plumbing permit issued by the Delaware Division of Public Health."

2.12.2 Amend **Section 202** by adding thereto a new definition after the definition "**Soil Pipe**" and before the definition "**Spill proof Vacuum Breaker"** to read as follows: **"Solvent cement.** The sealant used to connect pipes and fittings. This Code prohibits the use of all purpose glue in any reference to solvent cement."

2.12.3 Amend **Section 202** by adding thereto a new definition after the definition "**Sump Vent**" and before the definition "**Supports**" to read as follows: **"Supervision of Work.** Work completed under the permit of a licensed plumber while employed by the licensed plumber, or the same firm, partnership, corporation, or owners of the company as the licensed plumber."

2.12.4 Amend **Section 202** by amending the definition of "**Building Drain"** by deleting the phrase "30 inches (762 mm)" and replacing it with the words "5 feet".

2.13 Amend **Subsection 305.4.1** by deleting the subsection in its entirety.

2.14 Amend **Subsection 312.3** by adding thereto after the last sentence the following: **"**In lieu of the presence of the Deputy Code Official witnessing the test, the Licensed Plumber may certify in writing upon a prescribed form that the plumbing system piping is in accordance with Section 312 of these regulations. This shall be applicable between November 1 and April 1 of each calendar year."

2.14.1 Amend **Subsection 312.4** by deleting the subsection in its entirety.

2.14.2 Amend **Subsection 312.10.2** by adding a new sentence after the last sentence to read "Testers of back flow assembly devices shall be certified under an ASSE or CSA backflow tester's course. Backflow assemblies shall be tested and test forms submitted prior to use of any backflow assembly.

2.15 Amend **Subsection 404.1** by deleting the subsection in its entirety and by inserting in lieu thereof the following: "All regulations pertaining to handicapped facilities in the International Plumbing Code will be governed by the most recent edition of the "American National Standards Institute (ANSI)."

2.16 Amend **Subsection 502.1** by adding thereto after the last sentence the following: "The first 12 inches of both hot and cold water lines shall be thermally rated for maximum water temperature produced by the hot water heater."

2.17 Amend **Subsection 504.6** by adding thereto a new numbered paragraph after numbered paragraph "13" to read as follows: "14. The discharge valve shall be equipped with an approved heat transfer fitting or metallic pipe."

2.18 Amend **Table 604.3** by adding thereto in the second row, first column, after the words "Bathtub, balanced-pressure, thermostatic or combination balanced pressure/thermostatic mixing valve" the following: "for hand held shower fixtures."

2.19 Amend **Table 605.3** by deleting in the parenthetical in the seventh row, first column after the words "Copper or copper-alloy tubing" the letters "M" and "WM".

2.20 Amend **Table 605.4** by deleting in the parenthetical in the fifth row, first column after the words "Copper or copper-alloy tubing" the letters "M" and "WM".

2.21 Amend **Subsection 605.16.2** by adding thereto after the words "above or below ground" the following sentence: "The use of all purpose glue is prohibited."

2.22 Amend **Subsection 607.3** by adding thereto after the words "in accordance with Section 607.3.1 and 607.3.2" the following: "All public water installations shall be required to have an expansion tank installed between the hot water heater shut off valve and the hot water heater on the cold side."

2.23 Amend **Subsection 608.3** by adding thereto a new subsection after subsection 608.3.1 to read: "608.3.2 **Special equipment, water supply protection.** There shall be sufficient space around special equipment for accessibility."

2.24 Amend **Subsection 712.3.5** by deleting the phrase "10 pipe diameters" in the last sentence and replacing it with the phrase "10 feet".

2.25 Amend **Subsection 903.2** by adding thereto after the first sentence the following sentence: "The stack shall be no less than 2 inches in diameter."

2.26 Amend **Subsection 904.3** by deleting the words "or to a stack-type air admittance valve in accordance with Section 918."

2.27 Amend **Subsection 915.1** by deleting the last sentence in its entirety.

2.28 Amend **Subsection 918.1** by adding thereto after the last sentence the following: "Air admittance valves shall be approved by the Deputy Code Official prior to use or installation."

2.29 Amend **Section 919** by deleting the section in its entirety.

2.30 Amend **Section 920** by deleting the section in its entirety.

2.31 Amend **Subsection 1003.3.4** by deleting the phrase "shall be installed in accordance with the manufacturer's instructions" in the third sentence and replacing it with the following: "or be otherwise approved by the Code Official."

2.32 Amend **Subsection 1101.1** by adding thereto a new sentence after the last sentence to read as follows: "storm drainage and storm water management is regulated by the DE Department of Natural Resources and Environmental Control and local jurisdictions" at the end of the last sentence.

2.33 Amend **Chapter 12** by deleting the Chapter in its entirety.

3.0 Miscellaneous Provisions

3.1 **Procedures for License.** Every person desiring to register as a plumber engaged in the business of plumbing in the State of Delaware shall file an application with the Delaware Division of Professional Regulation.

3.2 **Permission for a variance.** Upon receipt of a written application for a variance, the Deputy Code Official may recommend granting written permission to vary from particular provisions set forth in these Regulations, when the extent of the variation is clearly specified and it is documented to the satisfaction of the Secretary of the Delaware Department of Health and Social Services or his/her appointed designee's that:

3.2.1 Such variation is necessary to obtain a beneficial use of an existing facility;

3.2.2 The variation is necessary to prevent a practical difficulty or unnecessary hardship; and

3.2.3 Appropriate alternative measures have been taken to protect the health and safety of the public and assure that the purpose of the provisions from which the variation is sought will be observed.

3.2.4 **Time for recommendation.** Within thirty (30) business days of the receipt of a written application for a variance, the Deputy Code Official shall recommend either: granting the variance, denying the variance or requesting further information from the applicant.

3.2.5 **Appeal of denial.** If the applicant has been denied a variance upon the recommendation of the Deputy Code Official, the applicant may appeal the decision by filing a written Notice of Appeal to the Secretary of the Delaware Department of Health and Social Services, or his/her designee.

4.0 Special Provisions Regarding Plumbing For Food Establishments

4.1 **Scope.** These Special Provisions shall be followed in addition to and shall not supersede the International Plumbing Code, the Delaware Food Code or these Regulations.

4.2 **Use of Licensed Plumber.** All plumbing shall be installed by a licensed plumber under a valid, current plumbing permit in accordance with these Regulations.

4.3 **Water Supply and Sewage Disposal**

4.3.1 **No further evaluation.** Water Supply and Sewage Disposal Facilities served by a public water supply and sewage system do not require further evaluation.

4.3.2 **Private wells.** Private wells must comply with chemical and bacteriological standards; a satisfactory analysis is required before an operating permit may be issued.

4.3.3 **Individual systems.** Individual sewage disposal systems require the approval of the Delaware Department of Natural Resources and Environmental Control prior to operating the food establishment.

4.4 **Backflow Prevention**

4.4.1 **Air gap, supply.** An air gap between the water supply and the flood rim level of the plumbing fixture, equipment, or nonfood equipment shall be at least twice the diameter of the water supply inlet and may not be less than 25 mm (1 inch). (*See also* DE Food Code, §5.202).

4.4.2 **Air gap, drainage**. A direct connection may not exist between the sewage system and a drain originating from equipment in which food, portable equipment, or utensils are placed, except that this requirement does not apply to floor drains that originate in refrigerated spaces that are constructed as an integral part of the building, and except that this requirement does not apply to a ware washing machine with a direct connection between its waste outlet and a floor drain when the machine is located within 1.5 m (5 feet) of a trapped floor drain and the machine outlet is connected to the inlet side of a properly vented floor drain trap. Equipment and fixtures utilized for the storage, preparation and handling of food shall discharge through an indirect waste pipe by means of an air gap. (*See also* IPC 2012 §802.1.1).

4.4.3 **Floor drains.** Floor drains located within walk-in refrigerators or freezers in food establishments shall be indirectly connected to the sanitary drainage system by means of an air gap except as allowed in IPC 2012 §2.24.3.2. (*See also* IPC 2012, §802.1.2)

4.4.4 **Backflow prevention device.** A backflow or back siphonage prevention device installed on a water supply system shall meet American Society of Sanitary Engineering (ASSE) standards for construction, installation, maintenance, inspection, and testing for that specific application and type of device. (*See also* DE Food Code, §5-202.14).

4.4.5 **Plumbing fixtures.** The supply lines or fittings for every plumbing fixture shall be installed so as to prevent backflow. Plumbing fixture fittings shall provide backflow protection in accordance with ASSE A112.18.1. (*See also* IPC 2012, §608.2).

4.4.6 **Devices, appliances.** All devices that connect to the water supply shall be provided with protection against backflow. This includes devices used for food preparation and processing, steamers, the storage of ice or food, ware washing machines, and other food service equipment. (*See also* IPC 2012, §608.3)

4.4.7 **Hose connections.** Sillcocks, hose bibs, wall hydrants and other openings with a hose connection shall be protected by an atmospheric-type or pressure-type vacuum breaker or a permanently attached hose connection vacuum breaker. This subsection does not apply to water heater drain valve or clothes washing machines. (*See also* IPC 2012, §608.15.4.2).

4.4.8 **Beverage dispensers.** The water supply connection to carbonated beverage dispensers shall be protected against backflow by a backflow preventer conforming to ASSE 1022 or by an air gap. The portion of the backflow preventer device downstream from the second check valve and the piping downstream there from shall not be affected by carbon dioxide gas. (*See also* IPC 2012, §608.16.1).

4.4.9 **Chemical dispensers.** Separate hot and cold water lines with back flow protection shall be installed over ware washing sinks and utility sinks where chemical dispensers are utilized. All chemical dispensers shall be ASSE certified or be equipped with an air gap fitting.

4.5 **Utility Service Installation**

4.5.1 **Installation location.** Utility lines including gas, plumbing and electrical, shall be installed inside walls, above ceilings or below floors whenever structurally practical, and in accordance with applicable code requirements.

4.5.1.1 **Front of wall lines.** If lines are run in front of walls, lines shall be installed with stand-off brackets or other secure mounting method, such that a minimum clearance of one inch (1”) exists between line and wall.

4.5.1.2 **No floor installation.** Exposed horizontal utility service, including water supply and drain lines, may not be installed on the floor.

4.6 **Joint Sealing**

4.6.1 **Joint sealing.** Joints formed by fixtures in contact with walls or floors shall be sealed with an approved sealant. Where installation does not allow access for cleaning, fixtures shall be sealed to walls or adjoining equipment. Where not structurally practical, a minimum gap of one inch (1") shall exist between the fixture and walls or adjoining equipment.

4.7 **Toilet Facilities**

4.7.1 **Number required.** At least one (1) toilet and not fewer than the toilets required by law shall be provided. If authorized by law and urinals are substituted for toilets, the substitution shall be done as specified by law. (*See also* DE Food Code, §5-203.12).

4.7.2 **Hand washing facility.** A hand washing facility shall be located in, or immediately adjacent to, toilet rooms. (*See also* DE Food Code, §5-204.11).

4.7.3 **Toilet room.** A toilet room shall be completely enclosed and provided with a tight-fitting and self-closing door, except that this requirement does not apply where a toilet room is located outside a food establishment and does not open directly into the food establishment such as a toilet room that is provided by the management of a shopping mall. (*See also* DE Food Code, §6-202.14).

4.7.3.1 **Location.** Toilet rooms shall be conveniently located and accessible to employees during all hours of operation (*See also* DE Food Code, §6-402-11).

4.8 **Sinks**

4.8.1 **Water supply.** All sinks shall be supplied with hot and cold running water under pressure.

4.8.2 **Splashguard Dividers.** Where less than 18 inches lateral separation exists between sinks and adjacent fixtures, food contact surfaces or open storage shelving, a splashguard divider constructed of a material which is durable, easily cleanable, non-toxic and impervious to moisture shall be installed; such divider may be wall-attached or fixture-attached, and shall extend outward to the leading edge of the sink and extend vertically a minimum of 18 inches above the level plane of the sink bowl.

4.8.3 **Hand washing sinks.** These fixtures, when located in food preparation, food dispensing, beverage dispensing (including bar service area), food storage and ware washing areas, must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.8.3.1 **Separate sink required.** A separate, single-compartment hand washing sink is REQUIRED in food preparation, food dispensing, and ware washing areas; and in, or immediately adjacent to, toilet rooms. Hand sinks shall be installed within 25 travel feet within a direct line access of each primary work location.

4.8.3.2 **No other purpose.** A hand washing sink may not be used for any other purpose.

4.8.3.3 **Grease traps connection.** Connection to a grease trap is not required.

4.9 **Food Preparation Sinks**

4.9.1 **Food preparation sinks.** Any sink in which food is washed or thawed under running water as part of the food preparation process must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.9.2 **No disposal.** A food preparation sink may not be used for disposal of mop water or liquid wastes.

4.9.3 **Required indirect drain line.** An indirect drain line connection through an air-gap is REQUIRED.

4.9.4 **Grease traps connection.** Connection to a properly sized grease trap is REQUIRED.

4.9.5 **Multiple compartments.** If a food preparation sink has two or more compartments, a separate wasteline connection from each sink compartment through an air gap into a floor sink is REQUIRED.

4.10 **Ware washing Sinks**

4.10.1 **Industry standard.** Ware washing sinks must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.10.2 **Three compartment sinks and Bar Sinks.** A sink of at least three separate compartments with covered corners and integral drain boards at each end may be provided for manually washing, rinsing and sanitizing equipment and utensils. Each sink compartment shall be large enough to accommodate the immersion of the largest equipment item or utensil.

4.10.3 **No hand washing or disposal.** A ware washing sink may not be used for hand washing or disposal of liquid wastes.

4.10.4 **Required indirect drain line.** An indirect drain line piped separately from each bowl through an air-gap is REQUIRED.

4.10.5 **Grease traps connection.** Connection to a properly sized grease trap is REQUIRED.

4.11 **Service Sinks** (for use as a janitorial sink, utility sink or mop sink)

4.11.1 **Installation location.** Wherever practical, a fixture service sink must be installed outside of the food preparation, food dispensing, food storage and ware wash areas.

4.11.2 **Industry standard.** Service sinks, when located in food preparation, food dispensing, food storage and ware washing areas, must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.11.3 **Minimum number required.** A minimum of one service sink or receptor is REQUIRED on each floor level of food operations. This fixture may be a sink or a curbed receptor.

4.11.4 **Dual use.** The dual use of a utility sink as a hand washing sink is not approved in new construction, conversion of a structure to a food establishment, nor remodeling of an existing facility.

4.11.5 **Grease traps connection.** Connection to a grease trap is not required.

4.12 **Prewash Sinks.**

4.12.1 **Industry standard.** Prewash sinks must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, BISSC, or equivalent.

4.12.2 **Required indirect drain line.** An indirect drain line connection through an air-gap is REQUIRED

4.12.3 **Grease traps connection.** Connection to a properly sized grease trap is REQUIRED.

4.12.4 **Food waste grinder.** If a food waste grinder is installed on a fixture prewash sink, the grease trap must be designed and rated for such application, or a solids interceptor is required upstream of the grease trap.

4.13 **Mechanical Warewasher**

4.13.1 **Industry standard.** Mechanical ware washers must be certified or classified under an approved industry standard for food equipment, such as NSF International, ETL Sanitation, UL for Sanitation, or equivalent.

4.13.2 **Ware washing machine.** A ware washing machine, using hot water or a chemical rinse to sanitize, may be installed. Large cookware which does not fit into the machine must be sanitized in a three compartment sink.

4.13.3 **Grease traps connection.** Connection to a grease trap is required for mechanical ware washers that do not have a pre wash sink. High temperature sanitizing warewashers (above 180 degrees) shall **not** be connected to an indoor grease trap.

4.13.4 **Indirect drain line connection.** An indirect drain line connection through an air-gap is REQUIRED.

4.14 **Water Heater**

4.14.1 **Hot water supply.** The water heater shall be sized to provide hot water as required to supply both the continuous requirements and the hourly peak demands of the facility. The continuous and hourly demands are based on the type of equipment and number of fixtures consuming hot water as required for food operations.

4.14.2 **Total availability.** The total hot water availability in gallons per hour (gph) from a water heater is the sum of the unit storage capacity plus the recovery rate at a 100×F rise.

4.14.3 **Minimum storage capacity.** A fuel-fired (gas or oil) water heater in a food establishment shall have a minimum storage capacity of thirty (30) gallons; an electric water heater shall have a minimum storage capacity of forty (40) gallons. Storage capacities larger than the minimum shall be required based on the type of equipment and number of fixtures consuming hot water.

4.14.4 **Instant or tankless hot water heaters.** Instant or tankless hot water heaters shall be sized to provide hot water as required to supply both the continuous requirements and the hourly peak demands of the facility. In some cases more than 1 instant or tankless hot water heater may be required.

4.15 **Grease Trap**

4.15.1 **Sizing.** The grease trap must be sized in accordance with PDI standard G101.

4.15.2 **Grease traps connection.** Connection to a properly sized grease trap is REQUIRED for all fixtures that discharge grease-laden waste, e.g. ware washing sinks, food prep sinks, pre-wash sinks for ware washers, woks, and other cooking equipment.

4.15.3 **Sizing procedures.** Follow these procedures for sizing a grease trap to a specific fixture:

4.15.3.1 Determine the liquid volume of the fixture in cubic inches (cu in) draining to the grease trap.

4.15.3.2 Determine the liquid capacity of the fixture in gallons (gal).

4.15.3.3 Determine the actual drainage load (75% of fixture capacity).

4.15.3.4 Select a unit corresponding to minimum unit flow rate.

Table 4.15.3a

EXAMPLE OF SIZING FOR GREASE TRAP SELECTION

Select a grease trap for a three compartment warewashing sink with bowl dimensions of 18" W x 24" L x 12" D

1. Volume = (18in x 24in x 12in) x 3 cmpts = (5,184 cu in) x 3 = 15,552 cubic inches
2. Capacity = Volume (cu in) / 231 (cu in/gal) = 15,552 / 231 = 67.3 gallons per min.
3. Drainage load = 67.3 gal x 0.75 = 50.4, or approximately a 50 gallons per min. grease trap is the minimum flow rate.
4. The rated capacity in pounds is twice the flow rate. A 50 gallon per minute grease trap is equal to a 100 pound grease trap.
5. For multiple fixtures add together 100% of the largest flow rate, 50% of the 2nd largest flow rate and 25% of all others.

9 DE Reg. 786 (11/01/05)
14 DE Reg. 813 (02/01/11)
15 DE Reg. 1724 (06/01/12) (Final)