

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 (4455). The DHSS proceedings to adopt regulations were initiated pursuant to 29 **Delaware Code** Chapter 101 and authority as prescribed by 16 **Delaware Code**, §7903.

On May 1, 2015 (Volume 18, Issue 11), DHSS published in the Delaware *Register of Regulations* its notice of proposed regulations, pursuant to 29 **Delaware Code** Section 10115. It requested that written materials and suggestions from the public concerning the proposed regulations be delivered to DHSS by June 5, 2015, or be presented at a public hearing on May 29, 2015, after which time the DHSS would review information, factual evidence and public comment to the said proposed regulations.

Written 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) State of Delaware Regulations Governing a Detailed Plumbing Code were published in the *Delaware State News*, the *News Journal* and the *Delaware Register of Regulations*.

Comments from the International Code Council:

My name is Bryan Soukup and I am the Regional Governmental Relations Manager for the Mid-Atlantic States at the International Code Council (ICC). Please allow this letter to serve as public comment in support of a final approval relative to the proposal to update the 2012 Delaware Plumbing Code to the published 2015 Delaware Plumbing Code.

The ICC is a member-focused association dedicated to helping the building safety community and the construction industry provide safe and sustainable construction through the development of codes and standards used in the design, build, and compliance process. Most U.S. states and communities, Federal agencies, and many global markets choose the International Codes to set the standards for regulating construction, fire prevention, and energy conservation in the built environment.

The International Plumbing Code (IPC) along with 15 other International Codes (I-Codes) are updated and revised every three years through a national consensus process that strikes a balance between the latest technology, new building products, installation techniques, economics, and cost while incorporating the most recent advances in public and first responder safety. It is an open, inclusive process that encourages input from all individuals and groups, and allows ICC Governmental Members¹ to determine the final code provisions.

The I-Codes are correlated to work together without conflicts so as to eliminate confusion in building design, inconsistent code enforcement, or differing interpretation among different jurisdictions. Jurisdictions that utilize the most current edition of the I-Codes thereby ensure the highest standards for safety, energy efficiency, sustainability, economic incentive, and long-term resiliency of their built environment.

I would like to commend the State of Delaware for its consistently outstanding work reviewing and now proposing to update the Delaware Plumbing Code that is based on the 2015 IPC. The proposed amendments and update of this code, while incorporating amendments that reflect the unique character and needs of Delaware, will ensure that the Delaware Plumbing rules remain technically viable relative to drinking water and plumbing fixtures, allow for economic investment in building construction, and provide for the greatest safety of the public and emergency responders, while embracing new technology and building practices.

Some of the significant changes included in the 2015 IPC include:

- Clarification on the definition of drinking fountains, water dispensers, and water coolers and their required use.
- "Mid-Story Pipe Guide" -revised language clarifies where one shall be required.
- Clarifications to the minimum number of plumbing fixtures, required public facilities, and requirements for footbaths, pedicure baths, and shampoo sinks.

- Clarifications to the requirements for Temperature and Pressure Relief discharge piping and pans.
- Added section on rehabilitation of piping systems by internal lining and more stringent limitations on lead content in materials.
- Changes to hot water temperature maintenance system controls and thermal expansion pressure control.
- Added provisions for the replacement of building sewers by the pipe-bursting method.
- Modified trap seal protection against evaporation to allow a variety of ways.
- Modified Vent Termination to outdoors to allow for consideration of different roof systems.
- Modified indirect/special waste provisions for food handling areas and hub drains now require a strainer.
- An exception to the requirement for public toilet facilities has been added to the code for tenant spaces intended for "quick transactions" such as takeout dining establishments of 300 square feet or less in area.
- Chapter 13 Gray Water Recycling Systems has been replaced with a broader new chapter entitled Non-Potable Water Systems. It includes updates to the gray water provisions and new requirements for rainwater harvesting systems and systems utilizing reclaimed water for non-potable applications. These provisions are correlated with the International Green Construction Code. (Chapter 13; PII-12)
- Requirements related to subsurface landscape irrigation systems that were previously found in the Gray Water Recycling Systems Chapter was updated and relocated to a new chapter entitled Subsurface Landscape Irrigation Systems. These provisions are correlated with the International Green Construction Code. (Chapter 13; PII-12)

Technical assistance and training from ICC is always available to groups including, but not limited to: Delaware Design Professionals, Delaware Plans Examiners, the Delaware State Board of Plumbing & HVACR and other entities. They will have access to ICC training programs and materials, product Evaluation Reports, certification programs, and ICC technical staff, who will assist with code opinions and interpretations based on the IPC.

Thank you for the opportunity to submit these comments. The ICC is honored to partner with the State of Delaware in support of the adoption and administration of the Delaware Plumbing Code that is based on the 2015 IPC and we look forward to continuing to serve your needs for many more years.

Please feel free to contact me via email or phone (information noted below) if you have any questions, concerns, or comments relative to the Plumbing Code adoption or anything else ICC-related.

Plumbing Program Response:

Thank you for your support in the promulgation of these regulations.

The public comment period was open from May 1, 2015 through June 5, 2015. One comment was received on the proposed regulations during the public comment period but no changes have been made to the proposed regulations.

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:

No changes were made to the proposed regulations based on the comments received. 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 (4455) is adopted and shall become effective August 11, 2015, after publication of the final regulation in the Delaware *Register of Regulations*.

Rita M. Landgraf, Secretary

4455 Delaware Regulations Governing a Detailed Plumbing Code

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/>~~

~~[http://regulations.delaware.gov/AdminCode/title16/Department%20of%20Health%20and%20Social%20Services/Division%20of%20Public%20Health/Health%20Systems%20Protection%20\(HSP\)/4455.shtml](http://regulations.delaware.gov/AdminCode/title16/Department%20of%20Health%20and%20Social%20Services/Division%20of%20Public%20Health/Health%20Systems%20Protection%20(HSP)/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 "**Loader**" 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)." This amendment does not negate the minimum requirements in chapter 11 of the International Building Code which still apply."
- 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.

15 DE Reg. 1724 (06/01/12)

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.

15 DE Reg. 1724 (06/01/12)

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.~~

1.0 State of Delaware Plumbing Code

The Delaware Division of Public Health shall hereby adopt the 2015 International Plumbing Code with following amendments. The code shall be known as the "2015 State of Delaware Plumbing Code". Every political subdivision within the State, including county, city or municipal governments, shall enforce the International Plumbing Code (IPC) as adopted or modified by the Division of Public Health. Local jurisdictions may have additional water, wastewater and administrative requirements that are not part of this code. The 2015 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 2015" as amended herein:

- 2.1 Amend **Subsection 101.1** by inserting "The 2015 Delaware Plumbing Code" in NAME OF JURISDICTION.
- 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, and relocation, and replacement, addition to, use or maintenance of plumbing systems within the State of Delaware."
- 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 Add new **Subsection 102.8.3** to read "ICC codes referenced in the Delaware Plumbing Code shall be enforced by jurisdictions adopting said codes".
- 2.5 Amend **Subsection 106.1** 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. Apartments and condominiums shall be charged \$100.00 per each individual unit. Local jurisdictions set their own fee schedule".
- 2.6 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 fixture, piece of equipment, backflow prevention assembly or system that connects to the potable water supply shall require a permit and shall meet the provisions of this Code."
- 2.7 Amend **Subsection 106.5.3** by deleting this subsection in its entirety and replacing it with the following "No permit shall be issued by the Division of Public Health for the same work on an active permit without cause 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. An active permit issued by the Division of Public Health is valid for 1 year".
- 2.8 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 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 or local jurisdiction."

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 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 or penalties of the local jurisdiction."
- 2.11 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 or penalties of the local jurisdiction."
- 2.12 Amend **Section 109** by deleting the section in its entirety and replacing it with "Any person shall have the right to appeal a decision of the Code Official to the Division of Public Health in accordance to law or to the local jurisdiction where a permit is issued."
- 2.13 **Section 202 General Definitions**
- 2.13.1 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 or local jurisdiction."
- 2.13.2 Amend **Section 202** by adding a new definition after the definition of approved agency to read as follows "**Approved heat transfer fitting**" A metal threaded fitting that transitions between the relief valve and the relief valve discharge pipe that is listed in table 605.4
- 2.13.3 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.
- 2.13.4 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."
- 2.13.5 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".
- 2.14 Amend **Subsection 305.4.1** by deleting the subsection in its entirety.
- 2.15 Amend **Section 312** by adding thereto a new subsection 312.5.1 "In lieu of the presence of the 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.
- 2.16 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 shall be available upon request by the local jurisdiction or plumbing program.
- 2.17 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) and the minimum requirements of the International Building Code.
- 2.18 Amend **Subsection 405.3.1** by adding an exception. Exception: Lavatories in residential occupancies shall **not** be required to be 15 inches from the center of the lavatory to any side wall.
- 2.19 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 metallic material or a material approved by the code official."
- 2.20 Amend **Subsection 504.6** by adding thereto a new numbered paragraph after numbered paragraph "13" to read as follows: "14. The relief valve shall be equipped with an approved heat transfer fitting and approved discharge piping or be metallic pipe."

- 2.21 Amend **Sections 602. and 610** to state The Delaware Division of Public Health Plumbing Permit and Inspection Program does **not** enforce potability requirements.
- 2.22 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."
- 2.23 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".
- 2.24 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".
- 2.25 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"
- 2.26 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 on storage water heaters installed between the hot water heater shut off valve and the hot water heater on the cold side."
- 2.27 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."
- 2.28 Amend **Subsection 608.16.7** to add 608.16.8 There shall be hot and cold water lines roughed in above all 3 bowl sinks and mop sinks for chemical dispensers.
- 2.29 Amend **Section 704** to add a new subsection 704.4.1 to read "plumbing in structures with basements shall have a future vent that runs below the joist and is labeled future vent."
- 2.30 Amend **Subsection 705.11.1** by deleting the second sentence.
- 2.31 Amend **Subsection 705.11.2** by deleting the exception.
- 2.32 Amend **Subsection 712.3.5** by deleting the phrase "10 pipe diameters" in the last sentence and replacing it with the phrase "10 feet and drop into a 4 inch pipe".
- 2.33 Amend **Subsection 802.1.6** by deleting "deck mounted air gap" from the last sentence.
- 2.34 Amend **Subsection 903.1** by adding 12 inches above the roof
- 2.35 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."
- 2.36 Amend **Subsection 904.3** by deleting the words "or to a stack-type air admittance valve in accordance with Section 918."
- 2.37 Amend **Subsection 915.1** by deleting the last sentence in its entirety.
- 2.38 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."
- 2.39 Amend **Section 919** by deleting the section in its entirety.
- 2.40 Amend **Section 920** by deleting the section in its entirety.
- 2.41 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."
- 2.42 Amend **Subsection 1101.1** by adding "The Delaware Division of Public Health Plumbing Program does not enforce the provisions of this chapter.
- 2.43 Amend **Chapter 12** by adding "The Delaware Division of Public Health does not enforce the provisions of this chapter."

3.0 Miscellaneous Provisions for the DE Division of Public Health

- 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 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 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 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.
- 3.3 **Private Sewage Code.** The private sewage code is enforced by the Department of Natural Resources and Environmental Control.

4.0 Information 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 **Miscellaneous Public wells.** Miscellaneous Public wells must comply with chemical and bacteriological standards; a satisfactory analysis is required before an operating permit may be issued to facilities regulated by the Division of Public Health.
- 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).
- 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. 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.
- 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 or air break as approved with a backwater valve.
- 4.4.4 **Backflow prevention device.** A backflow or back siphonage prevention device or assembly 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.
- 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.
- 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.
- 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.
- 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.
- 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. 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.

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 that does not open into a food preparation area. 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.

4.7.3.1 **Location.** Toilet rooms shall be conveniently located and accessible to employees during all hours of operation

4.7.3.2 **Customer Facilities.** Customer toilet facilities shall be required in all foods establishments based on occupant load except they are not required in takeout facilities with no customer dine in seating and having a customer access area less than or equal to 300 sq. ft.

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 toilet rooms.

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.** A food prep sink is required 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, and 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 unless otherwise approved.
- 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.
 - 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, and 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 prewash sink.
 - 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, prewash sinks for ware washers, woks, dishwashers without prewash sinks 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 Divide by 2 for the allowed 2 minute flow rate.
- 4.15.3.5 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. Divide by 2 for the allowed 2 min 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)

19 DE Reg. 138 (08/01/15) (Final)