

SECTION .0400 – WATER SUPPLY DESIGN CRITERIA**15A NCAC 18C .0401 MINIMUM REQUIREMENTS**

The design criteria given in this Section are the minimum requirements for approval of plans and specifications by the Department. The Department provides supplemental criteria for design of water systems in Sections .0500-.1000 of this Subchapter.

History Note: Authority G.S. 130A-315; 130A-317; P.L. 93-523; Eff. January 1, 1977; Readopted Eff. December 5, 1977; Amended Eff. April 1, 2014; July 1, 1994; September 1, 1979; Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. November 23, 2015.

15A NCAC 18C .0402 WATER SUPPLY WELLS

- (a) Well Construction. The construction of water supply wells shall conform to well construction regulations and standards of the Department, codified in 15A NCAC 02C.
- (b) Upper Terminal of Well. A well casing shall terminate neither below ground nor in a pit. The pump pedestal for above ground pumps of every water supply well shall project not less than six inches above the concrete floor of the well house or the concrete slab surrounding the well. A well casing shall project at least one inch above the pump pedestal. For submersible pumps, the casing shall project at least six inches above the concrete floor or slab surrounding the well head.
- (c) Sanitary Seal. The upper terminal of a well casing shall be sealed watertight, with the exception of a vent pipe or vent tube having a downward-directed, screened opening.
- (d) Concrete Slab or Well House Floor. A water supply well shall have a continuous bond concrete slab or well house concrete floor extending at least three feet horizontally around the outside of the well casing. Minimum thickness for the concrete slab or floor shall be four inches.
- (e) Sample Tap and Waste Discharge Pipe. Faucets or spigots shall be provided for sampling both raw water prior to treatment and treated water prior to delivery to the first customer. Sample spigots shall not be threaded for hose connection. Threaded hose bibs shall be equipped with anti-siphon devices. A water sample tap and piping arrangement for discharge of water to waste shall be provided.
- (f) Physical Security and Well Protection. A water supply well shall be secured against unauthorized access and protected from the weather. One of the following structures shall be provided:
 - (1) Well house. A well house shall be constructed as follows:
 - (A) Structures shall comply with applicable provisions of state and local building codes.
 - (B) Drainage shall be provided by floor drain, wall drain, or slope to door.
 - (C) Access into the structure shall be a doorway with minimum dimensions of 36 inches wide and 80 inches high.
 - (D) The structure shall have adequate space for the use and maintenance of the piping and appurtenances. If treatment is provided at the well, the provisions of Rule .0404(a) of this Section shall apply.
 - (E) The structure shall be secured with lock and key.
 - (2) Prefabricated structures. A prefabricated structure shall be constructed as follows:
 - (A) A well-head cover shall be hinged and constructed so that it can be lifted by one person.
 - (B) A locking mechanism shall be provided.
 - (C) The structure shall not be permanently fastened to the slab.
 - (3) Fencing and temperature protection. Fencing and temperature protection shall be constructed as follows:
 - (A) The fence height shall be a minimum of six feet.
 - (B) The fence shall be constructed of chain link with locked access.
 - (C) The fence shall enclose the well, hydropneumatic tank, and associated equipment.
 - (D) Access shall be provided for maintenance and operation.
 - (E) The well, piping, treatment equipment, and electrical controls shall be protected against freezing. Wrapping with insulation shall be acceptable for appurtenances such as the air vent, meter, valves, and sample taps, provided they are visible and accessible. Insulation shall be jacketed.

- (g) Yield:
- (1) Wells shall be tested for yield and drawdown. A report or log of at least a 24-hour drawdown test to determine yield shall be submitted to the Department for each well.
 - (2) Wells shall be located so that the drawdown of any well shall not interfere with the required yield of another well.
 - (3) The combined yield of all wells of a public water system shall provide in 12-hours pumping time the daily flow requirements as determined in Rule .0409 of this Section.
 - (4) The capacity of the permanent pump to be installed in each well shall not exceed the yield of the well as determined by the drawdown test.
 - (5) A residential community water system using well water as its source of supply and designed to serve 50 or more connections shall provide at least two wells. A travel trailer park or campground designed to serve 100 or more connections shall provide at least two wells. In lieu of a second well, another approved water supply source may be accepted.
 - (6) A totalizing meter shall be installed in the piping system from each well.
- (h) Initial Chemical Analyses. A representative sample of water from every new water supply well shall be collected and submitted for chemical analyses to the State Laboratory of Public Health or to a certified laboratory. The results of the analysis shall demonstrate that the water is treatable to meet the water quality standards in Section .1500 of this Subchapter, and this treatment shall be provided before the well is placed into service.
- (i) Continuous Disinfection. Continuous application of chlorine, hypochlorite solution, or another approved and equally efficient disinfectant shall be provided for all well water supplies introduced on or after January 1, 1972. Equipment for determining residual chlorine concentration in the water shall be included in the plans and specifications.

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15A NCAC 18C .0403 SURFACE WATER FACILITIES

- (a) Unimpounded Stream. Both the minimum daily flow of record of the stream and the estimated minimum flow calculated from rainfall and run-off shall exceed the maximum daily draft for which the water treatment plant is designed, with due consideration given to requirements for future expansion of the treatment plant. The Department shall approve a water plant capacity greater than the minimum daily flow of record of the stream if rules or regulations of other government agencies will not be violated.
- (b) Impoundments. Raw water storage capacity shall be sufficient to reasonably satisfy the designed water supply demand during periods of drought.
- (c) Clearing of Land for Impoundment. The area in and around the proposed impoundment of class I and class II reservoirs shall be cleared as follows:
- (1) The area from normal full level to five feet below the normal pool elevation of the impoundment shall be cleared and grubbed of all vegetation and shall be kept cleared until the reservoir is filled. Secondary growth shall be removed prior to flooding.
 - (2) The entire area below the five-foot water depth shall be cleared and shall be kept cleared of all growth of less than six inches in diameter until the reservoir is filled. Stumps greater than six inches in diameter shall be cut off at ground level.
 - (3) All brush, trees, and stumps shall be burned or removed from the proposed reservoir.
- (d) Existing Impoundments. Existing impoundments shall be approved as raw water sources if the following conditions are met.
- (1) The requirements of Paragraph (c) of this Rule and Section .0200 of this Subchapter shall be met.
 - (2) A class I or class II reservoir shall meet the requirements of Section .1200 of this Subchapter.
 - (3) The supplier of water shall have an engineer, along with other consultants as needed, conduct a study of the impoundment and provide the Department with information to determine whether the requirements of this Subchapter are met. The study shall include:
 - (A) plans and specifications of the impounding structure;
 - (B) information concerning clearing of the land for the impoundment, as provided in Paragraph (d) of this Rule;

- (C) information concerning sources of pollution on the watershed;
- (D) documentation of control by the supplier of water of the impoundment and 50-foot margin around the impoundment measured from the normal pool elevation;
- (E) information concerning the quality of the water and sediments which could cause water quality fluctuations, such as lake stratification, turnover, and algae bloom; and
- (F) other information necessary to show that the proposed source will meet the requirements of this Subchapter.

(e) A margin of at least 50 feet around a class I and class II reservoir, measured from the normal pool elevation, shall be owned or controlled by the supplier of water.

(f) Intakes, Pumps, Treatment Units, and Equipment. Raw water intakes, pumps, treatment units, and equipment shall be designed to provide water of potable quality that meets the water quality requirements stated in Section .1500 of this Subchapter.

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Amended Eff. July 1, 1994; July 1, 1992; September 1, 1990;
Readopted Eff. July 1, 2019.*

15A NCAC 18C .0404 WATER TREATMENT FACILITIES

(a) Physical Security and Facility Protection. Treatment equipment and chemicals shall be secured against unauthorized access and shall be protected against the weather as follows:

- (1) Structures shall comply with provisions of state and local building codes.
- (2) Drainage shall be provided by floor drain, wall drain, or slope to door.
- (3) Access to the structure shall be a doorway with minimum dimensions of 36 inches wide and 80 inches high. The doorway shall be large enough to accommodate installation or removal of equipment.
- (4) The structure shall have space to facilitate operation and maintenance of treatment equipment, storage of chemicals, required piping and appurtenances, electrical controls, and laboratory testing.

(b) Mixing and Dispersion of Chemicals. Provisions shall be made for mixing and dispersion of chlorine and other chemicals applied to the water. Facilities treating surface water or ground water influenced by surface water shall comply with the disinfection requirements in Rule .2002 of this Subchapter.

(c) Chemical Feed Machines:

- (1) Durable chemical feed machines designed for adjustable accurate control of feed rates shall be installed for application of all chemicals necessary for treatment of the water. Sufficient stand-by units to assure uninterrupted operation of the treatment processes shall be provided. Continuous chemical application shall be protected from electrical circuit interruption that could result in overfeed or underfeed or otherwise interrupt the feed of chemicals.
- (2) Chemical feed lines from the feeders to the points of application shall be of material sized for the design flow rate and corrosion resistant and shall be accessible for cleaning and protected against freezing. The length and the number of bends shall be reduced to a minimum.
- (3) Piping and appurtenances shall be constructed of suitable material for the chemical being added and the specific application.
- (4) A separate feeder shall be used for each chemical applied.

(d) Disinfection Equipment:

- (1) Equipment designed for application of chlorine or some other approved, equally efficient disinfectant shall be provided. Spare units shall be available. The plans and specifications shall describe the equipment.
- (2) Chlorinators shall be installed in tightly constructed, above ground rooms with mechanical ventilation to the outside air. The capacity of exhaust fans shall be sufficient to discharge all air in the rooms every 60 seconds. The fans or their suction ducts shall be located not more than eight inches above floor level. Provisions for entrance of fresh air shall be made. The point of discharge shall be so located as not to contaminate the air in any building or inhabited areas. Electrical switches for operation of fans shall be located outside the chlorinator rooms. Rooms used for storage of chlorine cylinders shall be designed as described in this Subparagraph.

- (e) Meters and Gauges. Meters and gauges, including raw and finished water meters, shall be installed to indicate and record water flow entering the treatment facility and water pumped or conducted to the distribution system.
- (f) Prevention of Backflow and Backsiphonage. Water treatment facilities shall not have submerged inlets and interconnections whereby non-potable water, water of questionable quality, or other liquids may be siphoned or forced into or otherwise allowed to enter the finished water supply.
- (g) Chemical Storage. Separate space for storing at least a 30-day supply of chemicals shall be provided. A separate room or partitioned space shall be provided for storage of dry fluoride chemicals or liquid fluoride chemicals in portable containers.
- (h) Laboratory. Space, equipment, and supplies shall be provided for daily chemical and bacteriological tests. A layout of laboratory furniture and equipment shall be included in the plans.
- (i) Waste Handling and Disposal:
- (1) Provisions shall be made for disposal of water treatment plant wastes, such as clarification sludge, softening sludge, iron-manganese sludge, filter backwash water, and brines. Untreated waste shall not be returned to the head of the water treatment plant.
 - (2) Recycling of supernatant or filtrate from waste treatment facilities treating filter wash water, sedimentation basin sludge, or clarifier basin sludge to the head of the water treatment plant may be allowed if the following conditions are met:
 - (A) The water recycled shall be less than 10 percent by volume of the raw water entering the water treatment plant.
 - (B) A permit has been issued by the appropriate regulatory authority for discharge of wastes to sanitary sewer, stream, lagoon or spray irrigation.
 - (C) The raw water does not contain excessive algae, finished water taste and odor problems are not encountered, and contaminant levels do not exceed allowable levels as set forth in this Subchapter.

*History Note: Authority G.S. 130A-315; 130A-317; P.L. 93-523;
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15A NCAC 18C .0405 STORAGE OF FINISHED WATER

- (a) Ground Level Storage:
- (1) Finished Water Ground Storage Tank. Finished water ground storage tanks shall be provided with a light-proof and insect-proof cover of concrete, steel, or equivalent material approved by the Department. The construction joints between side walls and the covers of concrete tanks or reservoirs shall be above ground level and above flood level, except that clearwells constructed below filters may be excepted from this requirement if total design, including waterproof joints, gives equal protection from flooding.
 - (2) Access Manholes. The access manholes for finished water ground storage tanks or reservoirs shall be framed at least four inches above the tank or reservoir covers at the opening and shall be fitted with solid covers of materials that overlap the framed openings and extend down around the frames at least two inches. The covers for the openings shall be hinged at one side and fitted with a locking device.
 - (3) Venting. Finished water ground storage tanks or reservoirs shall have vents with screened, downward directed openings. The vent and screen shall be of corrosion resistant material.
 - (4) Overflow. The overflow pipes for finished water ground storage tanks or reservoirs shall not be connected directly to sewers or storm drains. Screens or other devices to prevent access by vermin, such as rodents and insects, shall be provided in the overflow pipe.
 - (5) Inlets and Outlets. Water supply inlets and outlets of finished water ground storage tanks and reservoirs shall be located and designed to provide circulation of the water and to meet the CT requirements in Section .2000 of this Subchapter. Baffles shall be constructed where necessary to provide thorough circulation of the water.
 - (6) Drain Valves. All finished water ground storage tanks and reservoirs shall be equipped with drain valves that allow for unobstructed emptying of the tank.
- (b) Elevated Storage Tanks:

- (1) Standards. The specifications for elevated tanks, stand-pipes, towers, paints, coatings, and other appurtenances shall meet the appropriate ANSI/AWWA Standards D100 11, D102 17, and D103 09 of the American Water Works Association, Inc., incorporated by reference including any subsequent amendments and editions. Copies may be obtained for public inspection as set forth in Rule .0503 of this Subchapter.
 - (2) Elevation of Storage Tanks. The elevation of storage tanks shall be sufficient to produce a designed minimum distribution system pressure of 20 pounds per square inch at peak demand (fire flow) and 30 pounds per square inch during peak flow.
 - (3) Elevated storage tanks shall be designed to minimize water age by avoiding short-circuiting of flows and dead-zones.
 - (4) Drain. Elevated storage tanks shall be equipped with drain valves that allow for unobstructed emptying of the tank.
- (c) Hydropneumatic Storage Tanks, referred to in this Rule as Pressure Tanks:
- (1) Use of Pressure Tanks. Where well yields and pumping capacities are sufficient, pressure tanks may be used to control pumps, stabilize pressures, and provide a minimum of storage. Pressure tanks shall have the capacity to maintain a minimum pressure of 30 pounds per square inch throughout periods of peak flow. Pressure tanks shall not be considered acceptable for meeting total storage requirements for public water systems of over 300 connections, except as provided in Paragraph (d) of this Rule.
 - (2) Corrosion Control. Pressure tanks shall be galvanized after fabrication and provided with an ANSI/NSF approved liner or coating in accordance with Rule .1537 of this Subchapter.
 - (3) Required Parts. Pressure tanks shall have access manholes, bottom drains, pressure gauges, and properly sized safety and vacuum relief valves.
 - (4) Controls. Automatic pressure and start-stop controls for the operation of pumps shall be provided.
 - (5) Hydropneumatic Storage Tanks. Hydropneumatic storage tanks shall conform to the construction and inspection requirements for pressure vessels adopted by the North Carolina Department of Labor and codified in 13 NCAC 13, incorporated by reference including any subsequent amendments and editions.
 - (6) Appurtenances to pressure tanks, such as valves, drains, gauges, sight tubes, safety devices, air-water volume controls, and chemical feed lines, shall be protected against freezing.
- (d) High Yield Aquifers:
- (1) Equipment. In lieu of providing elevated storage for public water systems over 300 connections in areas where aquifers are known to produce high yields, such as 400-500 gpm from an eight-inch well, a system of extra well pumping capacity, auxiliary power generating equipment, pressure tanks, controls, alarms, and monitoring systems may be provided. The design and installation of such system shall assure that reliable, continuous service is provided.
 - (2) Auxiliary Power. A system relying on high-yield aquifers under Paragraph (d) of this Rule shall have an adequate number of wells equipped with sufficient pumping capacity so that the required flow rate will be maintained if the single largest capacity well and pump are out of operation. Auxiliary power generating equipment shall be provided for each well sufficient to operate the pump, lights, controls, chemical feeders, alarms, and other electrical equipment.
 - (3) Pump Control. Pressure tanks designed in accordance with Paragraph (c) of this Rule and Section .0800 of this Subchapter shall be provided to maintain pressure and control the pump operation.
 - (4) Alarm System. An alarm system shall be provided that will send a visual or audible signal to a constantly monitored location so that the water system operator will be advised of a primary power failure.

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15A NCAC 18C .0406 DISTRIBUTION SYSTEMS

(a) Water Pipe Materials. Water pipes shall be cast iron, ductile iron, reinforced concrete, plastic, or other material designed for potable water system service and shall meet AWWA standards, section C, or be certified as meeting the

specifications of ANSI/NSF Standard 61 Drinking Water System Components – Health Effects, which is incorporated by reference including any subsequent amendments and editions. Copies of AWWA standards may be obtained for public inspection as set forth in Rule .0503 of this Subchapter. Copies of ANSI/NSF Standard 61 may be obtained for public inspection as set forth in Rule .1537 of this Subchapter. The pressure rating class of the pipe shall be in excess of the maximum design pressure within that section of the water distribution system. The quality of pipe to be used shall be stated in the project specifications.

(b) Cross-Connections. No person shall construct, maintain, or operate a physical arrangement whereby a public water system has a cross-connection without the use of proper backflow protection.

- (1) No person shall introduce any water into the distribution system of a public water supply through any means other than from a source of supply duly approved by the Department or its representatives or make any physical connection between an approved supply and unapproved supply unless authorized in an emergency by the Department or its representative.
- (2) Service Connection Relation to Plumbing Code. No supplier of water shall provide a service connection to any plumbing system that does not comply with the North Carolina State Building Code, Volume II, and all applicable local plumbing codes. Where required, the supplier of water shall install or require to be installed an appropriate testable backflow prevention assembly prior to making the service connection. Design of backflow prevention assemblies for service connections shall not require Department review.
- (3) Connections Requiring Departmental Review. Connections between a public water system and the connection types in Parts (A) through (D) of this Subparagraph shall require review and approval by the Department prior to making the connection. Installation of a testable backflow prevention assembly or air gap shall be required if the connection is non-potable or unapproved. Engineering plans and specifications shall be submitted in accordance with Section .0300 of this Subchapter.
 - (A) Any regulated public water system;
 - (B) any community non-regulated public water system. Before providing a connection, a supplier of water shall ensure that the construction of the non-regulated public water system either was approved in accordance with Rule .0301(a) of this Subchapter or that backflow prevention is provided in accordance with this Rule;
 - (C) non-potable water treatment processes within a potable water treatment plant; and
 - (D) all cross-connections between potable water supplies and non-potable or unprotected supplies that are not specifically addressed in this Rule or AWWA M-14 Backflow Prevention and Cross Connection Control.
- (4) Backflow Prevention Not Addressed by the Plumbing Code. The following requirements shall apply to backflow prevention not addressed by the plumbing code.
 - (A) Testable backflow prevention assemblies shall meet American Society of Sanitary Engineering (ASSE) standards and carry an ASSE seal, be on the University of Southern California approval list for testable backflow prevention assemblies, or be on the North Carolina State Plumbing Code approval list for approved testable backflow prevention assemblies.
 - (B) For each identified water treatment process-related hazard, the supplier of water shall provide the appropriate backflow prevention assembly or method to protect the water supply and water treatment employees, in accordance with AWWA M-14 Backflow Prevention and Cross Connection Control.
 - (C) No person shall fill special use tanks or tankers containing pesticides, fertilizers, other toxic chemicals, or their residues from a public water system except at a location equipped with an over-the-rim free discharge of water or a reduced pressure backflow preventer properly installed on the public water supply. No supplier of water shall permit the filling of such special use tanks or tankers except at locations so equipped.
 - (D) A supplier of water shall not authorize for construction or other temporary, non-emergency use connections to hydrants that are not equipped with an approved air gap or an installed reduced pressure principle backflow prevention assembly.
 - (E) If storage capacity is used only for non-potable purposes and there is installed either an elevated or ground tank or a ground reservoir, the following precautions shall be taken:
 - (i) If the reservoir or tank is filled from a supply other than a public water supply and the public water supply is used as a supplemental supply, the pipeline from the public water supply shall be installed with an air gap.

- (ii) If the reservoir or tank is filled entirely by water from a public water supply and:
 - (I) a covered ground reservoir or covered elevated tank is used, an approved reduced pressure back-flow preventer or an approved double check valve assembly shall be used; or
 - (II) an uncovered ground reservoir or uncovered elevated tank is used, an air gap shall be required.
 - (F) Installation. The following installation requirements shall be met, where applicable.
 - (i) Backflow prevention assemblies shall be installed in accordance with manufacturers' recommendations and specifications and shall not be modified in the field.
 - (ii) Back-flow prevention assemblies shall be located and installed in such a manner as to function as designed; be accessible for testing, maintenance, and inspection; and include all necessary test cocks and drains for testing. Valves shall be installed in the line at both ends of the back-flow prevention device to provide for replacement and maintenance.
 - (iii) Bypass lines parallel to a backflow prevention assembly shall have an approved backflow prevention assembly installed that is equal to that on the main line.
 - (iv) Reduced pressure principle assemblies shall be installed above ground or below ground in a vault with positive gravity drainage to atmosphere employing a drain of sufficient size to handle the full flow of discharge from a discharging assembly, 12-inch minimum clearance from vault walls and floor, and in accordance with manufacturer's recommendations. A reduced pressure principle assembly may be installed as protection for either a high-health or low-health hazard.
 - (v) Double check valve assemblies shall be installed either vertically or horizontal and above ground or below ground in a vault with positive gravity drainage to the atmosphere. A double check valve assembly shall be installed as protection for a low-health hazard only.
 - (vi) Pressure vacuum breaker assemblies shall be installed only where there is no possibility of a pressure higher than the supply pressure caused by a pump, elevated tank, boiler, air or steam pressure, or any other means which may cause backflow, and in accordance with manufacturer's recommendations. A pressure vacuum breaker shall be installed as protection for a high-health or low-health hazard that is subject to backsiphonage only and with no backpressure.
- (5) Interconnection to a public water system shall be subject to the approval of the supplier of water and shall not be made until authorized by the supplier of water.
- (6) A community or non-transient non-community public water system with five or more testable backflow prevention assemblies protecting the distribution system, as required pursuant to this Rule, shall maintain the following records beginning on January 1, 2020:
 - (A) records of the location, type, installation date, size, and the associated degree of hazard of backflow prevention devices whose failure would create a high-health hazard;
 - (B) a description of specific ongoing plans, actions, or schedules to inventory existing backflow prevention devices under Part (b)(5)(A) of this Rule and to identify and address all uncontrolled cross-connection hazards;
 - (C) final results of all backflow prevention assembly field testing and air gap inspections; and
 - (D) review of new service connections and existing service connections during a change of the account owner to ensure all required backflow prevention devices are properly installed and tested.
 - (E) a supplier of water which contracts with a third-party to implement any part of their cross-connection program may allow records required by this Paragraph to be maintained on the premises of the third-party, as long as the records are available on demand by the supplier of water.
 - (F) program records under Part (C) of this Subparagraph shall be maintained for a minimum of four years. Remaining records referred to in this Paragraph shall be maintained while still current or in use.

- (7) Each supplier of water shall notify the Department of any known incident of backflow into the public water system that creates a risk of contamination as soon as practical upon discovery of the incident but no later than the end of the next business day. If requested by the Department, the supplier of water shall submit a written report of the incident describing the nature and severity of the backflow, the actions taken by the supplier of water in response to the incident, and the action plan intended to prevent such incidents in the future.

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15A NCAC 18C .0407 ELECTRICAL SYSTEMS

Electrical wiring and equipment shall comply with applicable provisions of the national, state, and local electrical codes. Protection against moisture and overheating shall be provided.

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 Pursuant to G.S. 150B-21.3A, rule is necessary without substantive public interest Eff. November 23, 2015.

15A NCAC 18C .0408 LEAD FREE CONSTRUCTION

- (a) All pipe, pipe fitting, solder or flux used in the installation or repair of a public water system shall be lead free.
- (b) "Lead free" means:
 - (1) not containing more than 0.2 percent lead when used with respect to solder and flux; and
 - (2) not more than a weighted average of 0.25 percent lead when used with respect to the wetted surfaces of pipes, pipe fittings, plumbing fittings, and fixtures.

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15A NCAC 18C .0409 SERVICE CONNECTIONS

- (a) Local Water Supply Plan. Units of local government that are operating under a local water supply plan in accordance with G.S. 143-355(l) shall not be limited in the number of service connections.
- (b) No local water supply plan. A public water system that does not have a local water supply plan as stated in Paragraph (a) shall limit its number of service connections as follows:
 - (1) A public water system shall meet the daily flow requirements specified in Table 1:

Table 1: Daily Flow Requirements

Type of Service Connection	Daily Flow for Design
Residential	400 gallon/connection
Mobile Home Parks	250 gallon/connection
Campgrounds and Travel Trailer Parks	100 gallon/space
Marina	10 gallon/boat slip
Marina with bathhouse	30 gallon/boat slip
Rest Homes and Nursing Homes	
with laundry	120 gallon/bed
without laundry	60 gallon/bed
Schools	15 gallon/student
Day Care Facilities	15 gallon/student

Construction, work, or summer camps	60 gallon/person
Business, office, factory (exclusive of industrial use)	
without showers	25 gallon/person/shift
with showers	35 gallon/person/shift
Hospitals	300 gallon/bed

or;

- (2) A public water system shall meet the daily flow requirements calculated as follows:
- (A) If records of the previous year are available that reflect daily usage, the average of the two highest consecutive days of record of the water treated shall be the value used to determine if there is capacity to serve additional service connections. Unusual events, such as massive line breaks or line flushings, shall not be considered.
- (B) If complete daily records of water treated are not available, the public water system shall multiply the daily average use based on the amount of water treated during the previous year of record by the appropriate factor to determine maximum daily demand, as follows:
- (i) A system serving a population of 10,000 or less shall multiply the daily average use by 2.5; or
- (ii) A system serving a population greater than 10,000 shall multiply the daily average use by 2.0.
- (c) A supplier of water shall include the impact that demands from anticipated in-ground irrigation systems, multi-family units, or vacation rental homes will have on the daily flow needs determined in Paragraph (b) of this Rule.
- (d) If two years of metered usage data exists, a supplier of water may recalculate the daily flow requirements based on the actual usage. If actual demands are lower than the projected demand, recovered supply may be used to support additional connections in accordance with Paragraph (b) of this Rule.
- (e) A supplier of water shall be exempt from using Table 1 in Subparagraph (b)(1) of this Rule and any other design flow standards established by the Department or the Commission to determine the daily flow requirements, provided that a professional engineer licensed pursuant to G.S. 89C prepares, seals, and signs documentation supporting alternative daily flow requirements that are sufficient to sustain the water usage required in the engineering design by using low-flow fixtures or flow reduction technologies.

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