

**Oregon**  
**Interpretive Ruling No. 95-14**  
**SIZING OF WATER SUPPLY TO LANDSCAPE IRRIGATION SYSTEMS**

**Initiated By:** JOHN C. WILLIAMS, PLUMBING INSPECTOR, CITY OF BEAVERTON

**QUESTION CONSIDERED**

Regarding a landscape irrigation system having multiple “zones” that have electrically operated “zone” valves and a “programmable controller,” may Plumbing Code chapter 2, section 201 (e) through 201 (h) be used to compute the total demand of both the building potable water supply and the largest “zone” of the landscape irrigation system to comply with the requirements of chapter 10, section 1009 (n) (7)?

**APPLICABLE CODE SECTIONS**

The 1992 Oregon State Plumbing Specialty Code (OSPSC), Chapter 10, Table 10-1, Appendix A.

Chapter 10, Section 1009 — Size of Potable Water Piping. Subsection (a) says: “(a) The size of each water meter and each potable water supply pipe from the meter or other source of supply to the fixture supply branches, risers, fixtures, connections, outlets, or other uses shall be based on the total demand and shall be determined according to the methods and procedures outlined in this section.”

Chapter 10, Section 1009 — Size of Potable Water Piping. Subsection (c), says: “(c) The quantity of water required to be supplied to every plumbing fixture shall be represented by fixture units, as shown in Table 10-1. Equivalent fixture values shown in Table 10-1 include both hot and cold water demand.”

Chapter 10, Table 10-1, under the heading “Lawn sprinklers (standard type, each head)” it shows one fixture unit for each head for both private and commercial uses.

Chapter 10, Section 1009 — Size of Potable Water Piping. Subsection (n) (7), says: “(n) **Exceptions.** The provisions of this section relative to size of water piping need not apply to the following: (7) The size and material of irrigation water piping installed outside of any building or structure and separated from the backflow prevention device is not regulated by this Code. The potable water piping system supplying each such irrigation system shall be adequately sized as required elsewhere in this chapter to deliver the full connected demand of both systems.”

Chapter 10, Section 1009 (n) (1) says: “(n) **Exceptions.** The provisions of this section relative to size of water piping need not apply to the following: (1) Water supply piping systems designed in accordance with recognized engineering procedures acceptable to the Administrative Authority.”

Appendix A, Section A-2, Demand Load, Subsection A 2.2 says: “Estimate continuous supply demands in gallons per minute (liters per second) for lawn sprinklers, air conditioners, etc., and add the sum to the total demand for fixtures. The result is the estimated supply demand of the building supply.”

**BACKGROUND**

A written request for interpretation was made by John C. Williams, City of Beaverton plumbing inspector. The City of Beaverton noted that the Plumbing Code does not address the consideration of irrigation systems when divided into “zones” of sprinkler heads which limit the water supply demand. Also, irrigation systems may have various water supply outlets other than “standard type lawn sprinkler heads” which are addressed in the code. If the City of Beaverton takes into account, for the purpose of determining the water meter size, all sprinkler and irrigation devices, without consideration of which “zones” are on at any given time, the sizes of the meters are very large.

**FINDINGS**

The Plumbing Code water meter sizing requirements are based upon the total demand. The Plumbing Code requires that the continuous demand for irrigation systems be estimated when using Appendix A

and a value of one fixture unit per each standard type lawn sprinkler head be used when sizing by Chapter 10. The size and material of irrigation water piping installed outside of any building or structure which is adequately protected with an approved backflow device is not regulated by the Plumbing Code. If an irrigation system is divided into "zones," the total demand of the largest zone or zones in operation at any one time should be used to size the water supply connection. For Appendix A sizing this demand should be by an estimate in gallons per minute and for Chapter 10 the demand should be determined in fixture units based upon one fixture unit for each standard type sprinkler head in operation at one time. The intent of the code is to size a potable water system to ensure it is adequate to maintain sufficient water to meet the continuous demand of the system. Section 201 of the code addresses alternate methods of material and installation when they are not referenced in the code. Lawn sprinkler irrigation is addressed in the code in Chapter 10 and Appendix A.

## **RULING**

The total demand for potable water connections to irrigation systems should be based upon the largest estimated continuous demand. When using Chapter 10 of the Plumbing Code, one fixture unit for each standard type lawn sprinkler head can be applied to the number of heads in operation at one time. When using Appendix A the continuous demand of the irrigation connection should be estimated in gallons per minute and based upon the largest number of heads in operation at one time. Water systems designed by an Oregon registered engineer or certified in plumbing engineering by the American Society of Plumbing Engineers (ASPE) are exempt from the code sizing provisions under Section 1009 (n) (1). Although the provisions of Section 201 may be used, it is not necessary to apply Section 201 because the code provides sizing provisions for lawn irrigation systems in Section 1009 (a) and Appendix A. It is a matter of interpretation rather than use of an alternate method.

The Plumbing Board approves this interpretive ruling as an interpretation of Section 1009 (a) of the OSPSC.

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(signed August 18, 1995)  
Harry C. Reeder, P.E. Chairman  
State Plumbing Board

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Date

The recommendations and findings of the State Plumbing Board are accepted and the interpretations are adopted as stated above.

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(signed August 21, 1995)  
Joseph A. Brewer III, Administrator  
Building Codes Division

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Date