

CHAPTER 15

WATER METER DESIGN

1. GENERAL

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3 A. This chapter covers the minimum design criteria to be used for designing water meters
4 for connections to the Public Water System as operated by Charlotte Water. All other
5 systems are the responsibility of the respective property owner unless otherwise
6 documented via agreement with Charlotte Water.
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- 8 B. All engineering plans for water pipelines must meet the Charlotte Water design
9 standards as presented in Chapter 10 and the State standards as indicated in the most
10 recent amended *North Carolina Administrative Code, Title 15A, Subchapter 18C,*
11 *Section .0900 Distribution Systems* administered by the North Carolina Department of
12 Environmental Quality (NCDEQ). In general, the Charlotte Water standards should be
13 the primary source for design guidance with the State standards as a supplement. In
14 some cases, the Charlotte Water standard is more stringent than the State standard.
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- 16 C. All calculations must be submitted and sealed by a North Carolina professional engineer.
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2. HYDRAULIC DESIGN

A. Demands

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22 1) Residential development, both single family and multi-family, domestic water
23 demands shall be calculated using the International Association of Plumbing and
24 Mechanical Officials (IAPMO) Water Demand Calculator found on IAPMO's website
25 and approved for public use.
26
- 27 2) Commercial development domestic water demands shall be calculated using
28 methodology in AWWA M22 - Sizing Water Service Lines and Meters, latest edition.
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B. Sizing

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32 1) Use Charlotte Water's *Domestic Meter Assembly Selection Guidelines* for meter
33 selection to achieve calculated domestic demand flow. The latest edition of the
34 guideline is provided in Appendix A and found on Charlotte Water's website,
35 www.charlottenc.gov/water under: Development Projects/Donated Projects/Design
36 Phase Resources/Domestic Meter Selection Guidelines.
37
- 38 2) The minimum service size shall be a 3/4-inch service line with a 5/8-inch meter. With
39 Charlotte Water approval, one service line may serve up to 2 common-ownership
40 units on a single parcel (i.e. duplex or auxiliary building).
41
- 42 3) A 1-inch (minimum) meter is required for service to 3 to 5 multi-family units from a
43 single meter on a single parcel (i.e. triplex or quadplex).
44
- 45 4) A 1.5-inch (minimum) meter is required for service for 6 or more multi-family units
46 from a single meter.
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1 C. Velocities
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- 3 1) The maximum rated velocity allowed within services and meters is 10 feet per
4 second.
5

6 D. Split Services
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- 8 1) Split services are allowed from combination fire/domestic service lines and dedicated
9 fire lines (with a maximum of 3 total off any one service line).
10

- 11 2) Split services are not allowed from dedicated domestic service lines 1-inch and
12 larger.
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- 14 3) Split services are not allowed on 1-inch and larger short side services. Short side
15 services 1-inch and larger shall connect directly to the public water main.
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17 **3. LOCATION AND DEPTH**
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- 19 A. Water meters and services shall be located at clearances and depths shown in the
20 Standard Water Meter Details.
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- 22 B. Charlotte Water must approve any meters to be located in sidewalks.
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- 24 C. Meters shall NOT be installed in ADA ramps nor impede ADA access requirements.
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26 **4. ABANDONMENT AND DISMANTLEMENT**
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- 28 A. All water mains and appurtenances, including water meters, to be abandoned per
29 Chapter 10.
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- 31 B. In general, when a water service dismantlement is requested, the water service and
32 meter shall be dismantled to the corporation stop at the water main, close the
33 corporation stop and install a brass plug or cap.
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END OF SECTION