

The following standard specification is intended to be edited according to the specifics of the project. Brackets [] and areas shaded in gray [e.g. format] indicate requirements that are optional depending upon the type of system being provided or per instructions associated with the [] and project requirements. Consult with University's Representative and campus stakeholders.

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SECTION 33 12 33 WATER UTILITY METERING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Meters for water utility service.

1.2 RELATED SECTIONS

- A. Section 01 33 23 Shop Drawings, Product Data and Samples
- B. Section 01 43 00 Quality Assurance
- C. Section 33 08 10 Commissioning of Water Utilities

1.3 REFERENCES

- A. American Water Works Association (AWWA) C702 – Cold Water Meters – Compound Type
- B. AWWA M6 – Water Meters – Selection, Installation, Testing, and Maintenance

1.4 SUBMITTALS

- A. See Section 01 33 23 Shop Drawings, Product Data and Samples for submittal procedures.
- B. Product Data: Provide data acknowledging that products meet requirements of standards referenced.
- C. Manufacturer's Installation Instructions: Indicate special procedures required to install Products specified.
- D. Manufacturer's Certificate: Certify that products meet or exceed specified requirements.
- E. Project Record Documents:
 - 1. Record location of meters
 - 2. Provide copy of commissioning report per section 33 08 10 Commissioning of Water Utilities.

PART 2 - PRODUCTS

2.1 FLOW METERS

- A. Flow Meters, 3/4 inch to 1 inches:
 - 1. Meters shall be of the positive displacement type with an oscillating piston and integral thermoplastic strainer.
 - 2. Meters shall contain a single non-resettable register which totalizes the flow. Registers shall be a Sensus Impulse Contactor Transmitting Register, 10 gallons/contact or equal.
 - 3. 1 1/2 inch and 2 inch flow meters shall be flanged.
 - 4. Domestic water flow meters 3/4 inch through 1-inch shall be Sensus iPerl, or equal.
- B. Flow Meters, greater than 1-1/2 inches:

1. Meters shall be of the single register compound type which totalizes the output from two interacting measuring chambers. One chamber shall be of the turbine type for measuring high flows, the other a displacement chamber of the oscillating piston type for measuring low flows.
2. An automatic valve mechanism shall direct flow through the chambers to function within their normal design limits.
3. Meters shall contain a single non-resettable register which totalizes the flow. Registers shall be a Sensus Impulse Contactor Transmitting Register, 10 gallons/contact or equal.
4. Domestic water flow meters greater than 1-1/2-inches shall be Sensus SRH Omni C2, or equal.

C. Flow meter materials shall be as follows:

1. Meter Maincase and Chambers: Waterworks Bronze
2. Register Box: Waterworks Bronze
3. Bearings: Tungsten carbide
4. Turbine: Polypropylene on a Type 316 stainless steel shaft
5. Automatic Valve: Waterworks Bronze with Type 316 stainless steel shaft
6. Fasteners: Type 316 stainless steel

2.2 REPEATER TOTALIZER

- A. Provide a Sensus ACT-PAK Model 713AC or equal Repeater Totalizer if the meter is installed where it cannot be easily read directly.

2.3 METER BOXES

Note to specifier: Refer to University Standard Detail Drawing DW-04 for meters 3/4 inch to 2 inches and DW-XX for meters greater than 2 inches. Coordinate usage with Drawings

- A. Meter boxes and vaults shall be precast concrete and set so that the reading lids are aligned over the meter registers as closely as possible. Boxes or vaults located in natural areas shall have a steel or cast iron lid. Boxes and vaults located in traffic areas shall have lids appropriate for H-20 loading. Meter boxes shall comply with details.

2.4 STRAINERS

- A. Meters greater than 2 inches shall be provided with a Sensus AWWA or equal type bronze strainer upstream of the meter, including a valved meter by-pass assembly.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Meters shall be installed per manufacturer's recommendation and have proper upstream and downstream straight pipe lengths for meter accuracy.
- B. Meter to be accessible for maintenance personnel. Provide valved by-pass around meter for removal for maintenance.
- C. Connect the impulse contactor to the repeater totalizer (if provided) or the power meter. Connect the repeater totalizer (if provided) or the power meter.

3.2 TESTING

- A. Water meters shall meet the factory, laboratory and field test provisions of AWWA C702 and AWWA M6.
- B. Perform field inspection and testing in accordance with Section 01 43 00 Quality Assurance.

PROJECT TITLE
CONTRACT TITLE
UNIVERSITY OF CALIFORNIA, DAVIS
CITY, CALIFORNIA

PROJECT NO: 000000
GRANT NO: 000000

END OF SECTION 33 12 33