**WATER DISTRIBUTION SYSTEMS**

**U of I Distribution System:** The University of Illinois at Urbana-Champaign owns, operates and maintains the underground water distribution system that serves the majority of campus facilities. This system provides treated potable water for domestic water systems, fire protection systems, irrigation systems, HVAC systems (especially cooling towers), and non-potable water systems (for laboratory use). The U of I water distribution system is supplied from Illinois American Water Company (IAWC) through five separate metering stations. A smaller percentage of campus facilities are fed directly from the IAWC distribution system. As opportunities to re-feed these facilities from the U of I system arise, they should be pursued when cost effective. It is a goal of the University to eventually serve all campus facilities from the U of I water distribution system.

**Water Quality:** Water quality is monitored at the point of distribution by IAWC. In addition, the U of I monitors the water quality within its own distribution system. The water quality data collected is summarized and published in the Consumer Confidence Report (CCR), which is available to the public. The CCR contains information such as the water source, treatments used to purify the water, and contaminants identified in the water.

**Water Chemistry:** Requests for data about specific characteristics of water on the campus or water chemistry should be directed to the Energy Service Division within F&S. Current data will be provided upon request.

**Compliance:** The design and construction of all water distribution systems on campus shall be in complete compliance with the current revision of the Standard Specifications for Water and Sewer Main Construction in Illinois. These standards are to be viewed as the “final authority” for establishing the minimum requirements of water distribution systems. The requirements of these documents often exceed the minimum requirements of these standards. When they do, compliance with the Standard Specifications for Water and Sewer Main Construction in Illinois is required.

**Distribution Piping:** The water distribution system on campus is currently a grid-type system and shall continue to be developed as such. The number of dead ends in the distribution system shall be kept to a minimum to avoid the reduced water quality that typically accompanies them. A means for flushing the system (e.g. a fire hydrant) shall be provided at each unavoidable dead end. All distribution piping shall be sized and configured appropriately to serve the ultimate future need for water in the geographical area being served. The direct-buried distribution system shall be constructed of piping that is fully mechanically restrained, requiring no thrust blocking. 48 inches shall be maintained as a minimum depth of cover. Pipe connecting buildings shall originate from a loop that provides two directions in order to provide the building reliability and optimal water quality. Three isolation valves shall be installed at each branch connection to the main piping in order to maximize reliability and operational flexibility. Valves shall be installed beneath grass areas and/or parkways where possible. Location beneath streets, sidewalks or other paved areas shall be avoided. Branch valves shall be located as near the mains as practical.

**Hydrants:** Fire hydrants shall be installed at locations throughout the water distribution grid across campus as required to limit the distance between any two hydrants to 300 ft. (maximum) in the vicinity of any facility that requires fire protection.

**Building Services:** Each building shall be provided with one water service that provides domestic water and fire protection water.

**Metering / Backflow Prevention:** The domestic water service must incorporate a meter at the building service entrance within the building being served. The fire protection service must incorporate a double check backflow prevention assembly at the building service entrance within the building being served. Installation of meters and/or backflow preventers in outdoor pits is not
permitted. Each meter shall be connected to the network and provide data directly to the Electronic Billing System utilized on this campus.

**Irrigation Systems:** Each permanently installed irrigation system shall be fed directly from the water distribution system and shall be metered separately. An RPZ type backflow preventer shall be incorporated.

**Temporary Systems:** When it is necessary to use water from a fire hydrant for a temporary purpose, such as irrigation or filling an outdoor piping system, the temporary water supply system shall incorporate a portable meter and appropriate backflow prevention device. Those involved in installing and using a temporary water supply system must check with the Energy Service Division within F&S via the U of I Project Manager for direction, rates, and assistance. It is against the law in Illinois to tamper with or utilize a fire protection hydrant without permission of the owner of the water system.

**Raw Water System:** The campus is now installing the beginning of a raw or untreated water system. This system will eventually be used to supply water for applications that do not require treated water, such as cooling towers, irrigation systems, greenhouse plant watering systems and various agricultural applications.

**Specific Design Information:** The actual pressure within the distribution system at a specific building/site at any given time depends upon that building’s location within the distribution system, its elevation, and the usage of water throughout the system. The system pressure that should be used for design purposes at a specific building/site should be obtained from the *Utility Program Statement*. Hydrant flow tests are provided upon request by the Energy Service Division within F&S. Information regarding pipe size/location/configuration, hydrant location and valve location/configuration should be obtained in the same manner. Clarifications and additional information are available from the Energy Service Division within F&S via the U of I Project Manager.

**Documentation and Submittals:** The AE shall review the *Project Submittal Requirements*. 