



## **Water, Wastewater, Stormwater and Non-Potable Water Standards**

This document includes general utility requirements for all Water, Wastewater, Stormwater and Non-Potable Water utilities. See the Stormwater and Non-Potable Water Design Standards for the utility specific design standards.



## **Demolition**

Water, wastewater, non-potable water, reclaimed water, stormwater piping and facilities which are being permanently removed from service must be fully removed, and not abandoned in place. Exceptions will be considered for cases where these are located under trees, walls or buildings which are to remain. All piping and facilities which can be removed up to the point that damage would be caused to what is to remain, as noted above, must be removed. That which is to remain must be permanently and completely filled and sealed, including any possible void spaces which may have formed around the exterior of these utilities. This information will then need to be included on the project as-built plans.

## **Access**

Access must be considered and incorporated into the design for all water, wastewater, non-potable water, reclaimed water, and stormwater facilities.

Provide access at all ends, corners, changes in direction, and junctions of underground storage vaults and pipes, at all pipe junctions, and all pipe tie-in points to underground structures. Provide steps at access points to the bottom of the structure.

## **Water, Non-potable Water, and Reclaimed Water Utility Lines**

Provide valves on all sides of all tees and crosses.

All utility boxes and lids shall be designed for a minimum loading of H<sub>2</sub>O, unless a higher loading is required. This applies to all meter, blow-off, valve, and any other appurtenance, or access point box.

Install all pipe materials per manufacturer's recommendations. For materials subject to expansion and contraction, design and layout must take into consideration full life of the installation, and the temperature ranges which may occur when the piping is in an unconditioned space. Interior piping must be designed taking full possible temperature ranges into consideration, assuming the space is unconditioned at a time during the life of the installation.

## **Water Supply Piping**

Water supply piping shall comply with OWASA standards, plus additional requirements, as noted.. Water supply piping shall also be ductile iron restrained joint pipe.

Provide valves at all sides of tees and crosses. This applies to all tees and crosses, including, but not limited to, mains, laterals, fire hydrants, irrigation systems, and other water service uses.

RPZ shall be located inside a building on an outside wall, and shall drain to natural grade in a manner which is non-erosive, does not pool, and is not a slip or winter ice hazard.

Internal to buildings, water supply piping shall be designed to provide high quality water for human consumption. This includes carefully routing the water so that the water supplied to break-room sinks and drinking fountains is located on a high turn-over part of the pipe, and not off a long, stagnant length of pipe or dead end.



## **Fire Systems**

Fire supply flow testing, and drain down points shall be designed to not create erosion problems, flooding, water hazard, or ice hazard problems.

## **Sanitary Sewer**

Sanitary sewer piping and laterals shall comply with OWASA standards, plus additional requirements, as noted. UNC owned OWASA manholes shall be provided with steps to the bottom of the manhole.

Design sanitary sewer within building to drain by gravity out of building without pumping. Where a building has an area below the grade of the outside sanitary sewer, design everything which can drain by gravity to exit the building by gravity, so that the subgrade sewer pump is only responsible for the waste which cannot get out of the building by any other method.

Existing buildings shall be evaluated by the designer to determine whether the floor drains are connected to the sanitary sewer system. If the floor drains are not connected to the sanitary sewer system, they must be connected to the sanitary sewer system.

Existing buildings also need to be evaluated to confirm that the roof drains are connected to the storm system, and correct to connect to the storm system, if connected to the sanitary sewer system.

Elevators shall be equipped with a sump pump with an oil sensing shut off, and the sump pump shall be connected to the sanitary sewer.

Dumpster and waste handling areas shall be drained to the sanitary sewer. These areas shall be graded so that only the area which needs to drain to the sanitary sewer is drained to the sanitary sewer. This is to keep contaminants out of the storm system.

## **Non-Potable Water**

Refer to Non-Potable Water Design Standards

## **Stormwater Standards**



Refer to Stormwater Design Standards