SECTION 600

FIRE SERVICES

601.00 FIRE HYDRANTS

601.01 Fire Hydrants

Fire hydrants shall conform to the "AWWA Standard for Dry-Barrel Fire Hydrants" AWWA C502 and subsequent revisions. Fire hydrants shall be connected only to water mains adequately sized to carry fire flows. The minimum size for a public fire main shall not be less than 8 inches. All fire hydrants and auxiliary valves shall be positively locked to the water main by restrained mechanical joints. The thread sizing on the 2 ½ inch hydrant nozzles shall be 3.187 x 7. All hydrants shall be provided with an integral 5" Storz fitting and cap with connecting cable. Hydrants shall have a dual rating of AWWA and FM-1510 approval. No chains connecting the 2 ½ inch caps to the hydrant or each other will be allowed.

Hydrants shall be permanently marked with the following information, which should be cast into the barrel.

a) Manufacturer's name or trademark.
b) Model or type designation.
c) Maximum rated working pressure.
d) Size of main valve opening.
e) Year of manufacture.
f) FM Approval mark.
g) The hydrant top shall the word "OPEN" and an arrow, showing the counterclockwise direction for opening.
h) The hydrant shall be a minimum rated working pressure of 250 psi.

All hydrants shall stand plumb and shall have their nozzles parallel with, or at right angles to the curb, with the pumper nozzle facing the curb. The horizontal centerline of the large outlet port shall be a minimum of 18 inches and a maximum of 30 inches above the final grade. In all cases the manufacturers recommended relative elevation of the break flange to the final grade shall be maintained. The barrel shall have a breakable safety section and/or bolts just above the ground line. Hydrants shall have a main valve opening of 5 ¼ inches; a 6 inch mechanical joint inlet to be suitable for setting in a trench 4 feet deep. Each hydrant must be equipped with an auxiliary valve with valve box. The valve shall be a compression type, opening against the pressure so the main valve remains closed if the barrel is broken off. The hydrant shall provide automatic drainage when the valve is closed. Hydrants shall be effectively blocked by the

placement of concrete thrust-blocking, or approved mechanical anchor. **See the Fire Hydrant Installation drawings on Pages 17 and 18 of the Standard Construction Drawings.** All underground water service pipe systems shall be thoroughly flushed before connection to any fire suppression system. **Refer to the "Disinfection of Water Mains" section 411.01.**

601.02 Color of Hydrants

Fire hydrants shall be coated by the manufacturer as per the City of Fairfield requirements with industrial epoxy exterior grade paint. Public fire hydrants shall be painted OSHA safety yellow. Private fire hydrants shall be painted OSHA safety red.

601.03 Spacing

a) Travel distance is defined as the route taken by fire apparatus on any surface to which it can support the weight of a fire apparatus not to be less than 75,000 lbs.
b) Spacing of fire hydrants shall be 400' in public rights-of-way.
c) In residential zoned areas, hydrants must be within 800 feet travel distance to a building with a flow rate of at least 1000 gpm.
d) In commercial and industrial zoned areas, hydrants must be within 400 feet of travel distance to all areas of the building with a flow rate of at least 1000 gpm. If the building is equipped throughout with an approved sprinkler system, the distance may be increased to 600 feet.
e) The number of hydrants to be provided shall be based on the required fire flow which also will be based on building construction and occupancy use.
f) All dead-end water mains shall have a hydrant. If the potential exists for an extension of the dead-end water main, a main line tee, valve and auxiliary valve shall be installed.
g) All the above-mentioned requirements under hydrant spacing are subject to change by the authority having jurisdiction.

601.04 Location

Fire hydrants shall be located to provide complete accessibility, and minimize the possibility of damage from vehicles or injury to pedestrians. When placed behind a curb, the hydrant barrel shall be set so that the pumper, or hose nozzle cap will be a maximum of 5 feet from the curb area. No fire hydrants shall be installed closer than 2 feet from the curb, street, driveway, or other traffic edge or 5 feet from any driveway apron or cross street. No portion of the hydrant or nozzle cap shall cause an obstruction to a sidewalk, or pedestrian traffic. Fire hydrants that are connected in close proximity to the public main and within the public right of way or public easement shall be considered a public fire hydrant. Fire hydrants that are connected to a private main, or

that are installed for the sole purpose of fire protection on private property shall be considered privately owned fire hydrants and labeled as such on any plans.

601.05 Fire Protection

The standard grading schedule of the American Insurance Association, the National Fire Protection Association Standards, and the ISO "*Guide for Determination of Needed Fire Flow*" should be followed in all cases for purposes of fire protection. Water mains that are not intended to carry fire flows, shall not be connected to fire hydrants.

Hydrants shall be provided in sufficient number and be located in a manner that will enable the needed fire flow to be delivered through hose lines to all exterior sides of any important structure. Hydrants shall conform to NFPA 24, or as directed by the City of Fairfield Fire Department.

601.06 Fire Line Vault

In all cases a fire line vault is preferred. However, when a structure is more than 200 feet from the public water main, a fire line vault is required. The vault shall be constructed of ODOT QC2 concrete for the accommodation of a DCDA, and shall conform to AWWA C510-92. All pipe and fittings for fire protection purposes shall comply with all applicable NFPA requirements. The pipe supplied from the public main to a point 10 feet beyond the vault shall be Ductile Iron class 53 and comply with Section 402.01 of this specification. Privately owned pipe materials supplied starting 10 feet beyond the vault must comply with all AWWA standards. If a non-metallic fire line is installed after the City's metering device, the fire line shall be buried with a continuous 12 ga tracer wire attached to the crown of the pipe. The tracer wire should be brought to grade in a valve box, meter pit or vault to allow for locating equipment connections. The vault shall have a sump pump or floor drain which must discharge at a point that provides positive drainage away from the vault. The access door to vault shall be an aluminum double hatch door Bilco JD-AL Series or Halliday H-W model. The size of the vault doors shall be determined by the vault proportions and approved by the Public Utilities Director. **See the Fire Line Meter Vault With Double Check Detector Assembly drawing on Page 23 of the Standard Construction Drawings.**

601.07 Double Check Detector Assembly (DCDA)

When it is necessary for any customer to have full line flow for fire protection purposes, there shall be installed in the line a device known as a "Double Check Detector Assembly". A metered by-pass shall be provided of sufficient size to carry normal usage without activating the assembly. The detector check valve shall be as manufactured by

Ames, Watts or an approved equal. A full flow meter may be used as approved by the Director of Public Utilities or his/her designee. **See the Double Check Detector Assembly drawings on Pages 22 and 23 of the Standard Construction Drawings.**

601.08 Post Indicator Valve (PIV)

Connections to public water systems shall be controlled by post indicator valves of an approved type, and located not less than 40 feet from the protected building. The post indicator valves shall be placed where they will be readily accessible in case of fire. Post indicator valves shall be set so that the top of the post will be 36 inches above the final grade. Included with each PIV shall be a wrench and break away lock. Post indicator valve shall be properly protected against mechanical damage. Post indicator valves shall conform to NFPA 24.

601.09 Operating Test

Each hydrant and watch valve shall be fully opened and closed under system water pressure, and dry barrel hydrants checked for proper drainage. Where fire pumps are available, this shall be done with the pumps running. All testing shall comply with the most current version of NFPA requirements.

601.10 Fire Department Connections (FDC)

All required fire department connections or hose couplings shall be 5-inch Storz fittings and shall be placed within 100 feet of an accessible fire hydrant. All FDC's shall be red in color and 36 inches to their top elevation. Each FDC shall be clearly labeled with a 12" x 12" reflective sign, which is red in color with 2-inch white lettering. FDC's mounted to a building are not approved. The FDC and PIV shall be located in close proximity to each other as approved by the Fire Chief or his/her designee. **See the Double Check Detector Assembly drawings on Pages 22 and 23 of the Standard Construction Drawings.**

602.00 KNOX BOX DEVICE

All commercial buildings shall have a Knox Box device for providing Fire Department access. The placement of the Knox Box device shall be approved by the Fire Chief or his/her designee.

603.00 EXTERIOR DOOR IDENTIFICATION

To aid first responders during emergency situations, educational facilities and other large residential, commercial, or industrial facilities may be required to supply 6-inch

letter/number identification on all exterior doors upon the request of the Fire Chief or his/her designee. Lettering will begin with the letter A on the street side of the building, then proceed to additional letters (B, C, D, etc.) on other sides of the building moving in a clockwise manner. Numbering will begin with the number 1 on the far-right side of any wall, then proceed to additional numbers (2, 3, 4, etc.) moving to the left. For example, the first door located on the far right of the street side of a building will be A1, then moving to the left will be A2, A3, etc. moving clockwise around the corner, the first door on the side of the building will be B1, then B2, B3, etc. **See the Exterior Door Identification Drawing on Page 41 of the Standard Construction Drawings.**