NORTHWESTERN UNIVERSITY

DESIGN GUIDELINES
AND
TECHNICAL STANDARDS

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DIVISION 22 – PLUMBING

SECTION 22 1118 – DOMESTIC WATER DISTRIBUTION SYSTEM

1. General: This section outlines general requirements for domestic water distribution systems.

2. Design Considerations:

    a. Potable water pipe shall be routed so that the circuit terminates at high use areas, such as washrooms. The purpose is to avoid stagnation leading to a high bacteria count.

    b. Piping shall be routed orthogonally (no diagonal shortcuts).

    c. Domestic cold water, domestic hot water supply and recirculation, laboratory cold water, laboratory hot water and recirculation, and fill/makeup water lines shall be copper.

    d. Faucets and fixtures, such as emergency showers, eye wash, dishwashers, and autoclaves shall have local shutoff valves within five feet of the faucet/fixture. Valves must be accessible.

    e. No piping with a fluid shall be routed over electrical busway housings. For electrical busway housings provide a minimum 24 inches on top, both sides and the bottom.

    f. An excellent table giving the chemical resistance of four commonly used thermoplastic piping materials can be found in the Technical Manual published by the Charlotte Pipe and Foundry Company, Industrial Division (800-438-6091).

    g. In lab buildings, consider a redundant distribution system such as a pair of risers cross connected at the floors.

3. Materials:

    a. Steel and copper pipe shall be built and stamped to meet ASTM standards.

    b. Copper Tubing:

        i. Copper tubing shall be type L hard drawn.

        ii. Copper tubing shall be 95-5 soldered. Solder shall be lead free.

        iii. Grooved copper tubing is not permitted.

    c. Galvanized pipe is not permitted.

d. Laboratory Drain and Vent Piping:

i. General:

1. Joints shall be mechanical. Beading, fusing caulking, or welding of joints is not acceptable.

2. Review requirements for neutralizing basins.

ii. Material: PP (polypropylene).

iii. Acceptable Manufactures for Polypropylene:

1. Enfield Industrial Corp.

END OF SECTION

DIVISION 22 – PLUMBING

SECTION 22 2114 – PLUMBING SPECIALTIES

1. General: this section outlines general requirements for plumbing specialties.
2. Materials:
    a. Ball Valves:
        i. Ball valves shall be bronze, 600 psig WOG, full port, with a 316 stainless steel ball and stem.
        ii. Insulated valves shall have a 2-1/4 in. stem extension.
        iii. Acceptable Manufacturers:
            1. Conbraco Industries, Inc. (APOLLO)
            2. Neles-Jamesbury, Inc.
            3. Watts Regulator Co.
    b. Gate Valves:
        i. Gate valves are not permitted.
    c. Backflow Preventers:
        i. Backflow preventers shall be by the Watts Regulator Company, Series 909.
            1. Exception: Fire Protection Systems.
    d. P-Traps:
        i. Trim P-traps and accessories shall be 17 gauge minimum.

END OF SECTION

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DIVISION 22 – PLUMBING

SECTION 22 4000 – PLUMBING FIXTURES

1. General: This section outlines general requirements for plumbing fixtures.
2. Design Considerations:
    a. When possible sinks, urinals and closets should match existing fixtures for renovation projects.
    b. Review project specific requirements with NU Project Manager.
3. Materials:
    a. Sinks, Urinals, and Closets:
        i. Acceptable Manufacturers:
            1. American Standard, Inc.
            2. Crane Company.
            3. Eljer Plumbingware.
            4. Kohler Company.
    b. Faucets, Except Laboratories:
        i. Electronic eye faucets are preferred in public washrooms. The transformer shall be hard wired. Spring loaded non-electric faucets are not acceptable.
        ii. Coordinate power requirements and indicate on electrical power drawings.
        iii. Acceptable Manufacturers:
            1. The Chicago Faucet Company.
            2. Kohler.
            3. Sloan Valve Company.
    c. Laboratory Faucets and Hardware:
        i. Laboratory, eyewash and shower faucets, vacuum breakers, and appurtenances shall be furnished by The Chicago Faucet Company.

d. Urinal Flush Valves:

    i. Acceptable Manufacturer:

        1. Sloan Valve Company, Model 8186-1 (1.0 gpf).

e. Water Closet Flush Valves:

    i. Toilet flush valves shall have a transformer and shall be hard wired with a courtesy flush override button. Coordinate power requirements and indicate on electrical power drawings.

        1. Exception: Tank-type toilets.

    ii. Acceptable Products:

        1. Chicago and Evanston campus: 111ES-S (1.6 gpf)

    iii. Acceptable Manufacturers:

        1. Sloan Valve Company.

f. Drinking Fountains:

    i. Design Considerations:

        1. Provide dual-height drinking fountains with bottle fillers.

        2. Coordinate power requirements and indicate on electrical power drawings.

    ii. Acceptable Manufacturers:

        1. Halsey Taylor.

            a. Basis-of-Design Product: HAC Hydro-Boost, barrier-free, Model HTHB-HAC8BL-WF.

        2. Elkay Mfg. Co.

g. Hand Dryers:

    i. Northwestern prefers paper towels over electric hand dryers. Review specific requirements with NU Project Manager.

    ii. If provided, hand dryers shall be surface mounted equipped with an infra-red sensor and an automatic 60 second cut-off switch, 120 Vac. Coordinate power requirements and indicate on electrical power drawings.

iii. Acceptable Manufacturer:

1. Sloan Valve Company, Model EHD-401.

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DIVISION 22 – PLUMBING

SECTION 22 4500 – PLUMBING EQUIPMENT

1. General: This section outlines general requirements for plumbing equipment.
2. Materials:
    a. Domestic Water Booster System:
        i. No encased (can type) pumps are permitted.
        ii. Above 10 hp domestic water booster pumps shall be variable speed.
        iii. Acceptable Manufacturers:
            1. Metropolitan Industries, Inc.
    b. Sump and Ejector Pumps:
        i. Acceptable Manufacturers:
            1. Metropolitan Industries, Inc.
            2. Hydro·O·Matic Pumps, A Division of Wylain, Inc.
            3. No submersible sump pumps are permitted, except in elevator shafts.

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