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10/12/09

CROSS CONNECTION MANUAL

This manual was created for the purpose of assisting plumbing inspectors in identifying cross connections and ordering proper backflow protection. The contents of this manual were obtained and compiled in May 2007. All information is considered current to this date and existing codes, at that time.

This manual is subject to additions, changes or corrections at any time per The City of Milwaukee Plumbing Department.

This manual contains product names & model numbers for specific devices. It is in no way an endorsement of product or manufacturer. All devices must meet A.S.S.E. & A.S.M.E. standards for their particular application.

MEMORANDUM OF UNDERSTANDING
Commercial Building Cross-Connection Inspection Program

October 3, 2005

General Program Scope

The Department of Neighborhood Services is to provide inspection services to Milwaukee Water Works for a Cross-Connection Inspection Program of Commercial Buildings on a ten-year periodic cycle. The Department of Neighborhood Services will provide personnel and facilities to accomplish this program. The cost of the program will be covered by Milwaukee Water Works.

Identification of Commercial Building Population

Milwaukee Water Works will provide the Department of Neighborhood Services a list of commercial buildings in an electronic format. It is estimated that Milwaukee Water Works bills approximately 15,000 commercial accounts.

The Commercial Buildings to be inspected under this program are to be defined as residential structures greater than four residential dwelling units and structures used for commercial purposes. The common use areas of residential structures with more than four residential dwelling units will be inspected as a part of this program, however, the interior space of any individual dwelling unit will not be inspected.

Listed are categories of buildings exempted from inspection and enforcement under the commercial building code and therefore will not be inspected under this program.

1. Any building or structure located on Indian reservation land held in trust by the United States.
2. Buildings and portions of buildings that are exempted by federal statutes or treaties.
3. Portions of buildings leased to the federal government.
4. A one or two family dwelling used as a foster home, treatment foster home, or group home, or as a child caring institution having a capacity for 8 or fewer

children, as defined in S. 48.02, Stats.

5. A one or two family dwelling in which a public or private day care center for 8 or fewer children is located.

Cross-Connection Program Inspections

As part of this program Milwaukee Water Works has requested the collection of specific data in addition to the performance of a Cross-Connection Inspection. The data to be collected includes; service size, meter size and location / point of water service entry into the structure.

The cross-connection inspection will be of all exposed supply piping from point of entry into the structure to the point of use.

The Department of Neighborhood Services will issue an Inspection Report and Orders to Correct Condition for any cross-connection violation observed as part of this inspection program and will pursue compliance through available code compliance methods.

In order to protect the health, safety and welfare of the building occupants, the Department of Neighborhood Services will issue an Inspection Report and Orders to Correct Condition for any of the listed conditions observed while conducting a cross-connection inspection.

1. Improper exhaust venting of a water heater.
2. Leaking pipes.
3. Open connection of waste piping or vents.
4. Plugged drain.
5. Improper material used as a water line.
6. Missing water meters and/or bypassed water meters.

The date of inspection shall be used to establish the ten-year periodic cycle date for the structure.

In addition to the purposeful inspection of existing commercial structures, a "status 1" closure of the interior plumbing permit for a newly constructed structure will be recognized as complying with a cross-connection inspection for the structure. The closure date of the plumbing permit shall establish the ten-year periodic cycle date for the structure.

Deliverables

The Department of Neighborhood Services will provide to Milwaukee Water Works a report containing the addresses of structures inspected, the date of inspection, service size, meter size, and location / point of water service entry into the structure. The frequency of report submittals shall be integrated to the routine billing of services provided. Additional information will be provided to the Water Works upon request. The report shall include the number of structures inspected per each cycle, the year to date number of structures inspected, and the number of structures inspected from project

service is being provided is done in retaliation for the tenant's complaint to the commissioner or for his or her compliance with this section and is declared void and subject to a forfeiture of not less than $100 nor more than $2,000 for each such attempt. In order to overcome such presumption, the lessor must show by a preponderance of the evidence that such acts were based upon good cause. In this paragraph "good cause" means that the lessor must show a good reason for his or her action, other than one related to or caused by the operation of this section, such as normal rental increases due to tax increases or increased maintenance costs. A tenant may be evicted for failure to pay rent into the escrow account when due or if the tenant commits waste upon the property.

5. PROSECUTION. Use of rent withholding shall not prohibit the city from pursuing any legal remedy available to it relative to delinquent water charges or from prosecuting violations of the code relating to the property.

6. COERCION. a. Any person who accepts, as a result of harassment or coercion, rental payments for premises subject to rent withholding under this section shall be subject to a forfeiture of not less than $100 nor more than $2,000, whether the rental payments are tendered by or on behalf of the tenant occupying the premises at the time rent withholding is authorized or by or on behalf of any subsequent or other tenant who occupies the premises during the existence of such rent withholding authorization. Each payment accepted shall constitute a separate violation.

b. Any tenant who willfully and maliciously uses or attempts to use this section to harass a lessor shall be subject to a forfeiture of not less than $100 nor more than $2,000.

97-12. Cross-Connection Control Regulations.

1. PURPOSE. The purpose of this section is to protect consumers and the public water supply system of the city from the possibility of contamination or pollution due to a backflow of contaminants into building plumbing and/or into the public water supply system.

2. ADOPTION OF STATE CODE. Chs. Comm 82 to 87 and 90, Wis. Adm. Code, as amended, and ch. 145, Wis. Stats., as amended, are adopted by reference and incorporated into this section to the extent and with the limitations provided by this section.

3. SUPPLEMENTARY PROVISIONS. This section shall not supercede the Wisconsin Administrative Code (plumbing code), ch. 225 or the water works rules and regulations governing water service and water service piping specifications, but is supplementary to them.

4. DEFINITIONS: In this section:

a. "Backflow" means the unwanted reverse flow of liquids, solids or grease due to backpressure or backsiphonage.

b. "Backpressure" means a pressure higher in the private consumer water piping system than in the public water supply system which may cause backflow.

c. "Backsiphonage" means a backflow created by a pressure lower in the public water supply system than in the private consumer water piping system.

d. "Commercial premises" means commercial or industrial premises or residential dwelling of 5 or more units.

e. "Cross-connection" means a connection or potential connection between any part of a water supply system and another environment containing any substance in a manner that, under any circumstances, would allow the substance to enter the public water supply system by means of backsiphonage or backpressure.

f. "Cross-connection control device" means any mechanical device that automatically prevents backflow from a contaminated source into a public water supply system.

g. "Person" means a natural person, sole proprietorship, partnership, limited liability company, corporation or association.

h. "Residential premises" means one, 2-3-and 4-family dwellings.

5. PROHIBITIONS. a. No person shall establish or permit to be established or maintain or permit to be maintained any cross-connection.

b. No person shall remove or permit to be removed a cross-connection control device.

c. No person shall establish an interconnection whereby any water from private, auxiliary or emergency water supply other than the regular public water supply of the city may enter building plumbing or the public water supply system of the city unless the private, auxiliary or emergency water supply and the method of connection and use of the supply shall have been approved by the water works and by the Wisconsin department of natural resources in accordance with s. NR 811.09, Wis. Adm. Code.

6. CROSS-CONNECTION CONTROL PROGRAM. a. The cross connection control program shall be the responsibility of the water works. The methods and devices that shall be used to protect the water supply are those cited in ch. Comm 82, Wis. Adm. Code. The water works or its representative shall have the power and authority to inspect all properties serviced by the public supply system where cross-connections with the public water supply system are deemed possible.

b. The cross connection control program shall consist of the following components:

b-1. Premises with new construction or occupancy shall participate through the permit process, with plan review, inspection and documentation of compliance.

b-2. Premises with cross-connection control devices shall be tested annually by a certified tester with documentation submitted to the water works or its representative per s. Comm 82.21, Wis. Adm. Code.

b-3. Inspection of commercial and industrial premises by the water works or its representative no less frequently than once every 10 years.

c. Records of the cross-connection program shall be complete and kept current and available for review.

7. INSPECTIONS. A representative of the water works shall have the power and authority at all reasonable times, for any proper purpose, to examine any property served by a connection to the public water supply system. If entry is refused, the representative may obtain a special inspection warranty under s. 66.0119, Wis. Stats. A copy of any testing conducted on any backflow preventer shall be provided to the water works. Upon request by a representative of the water works, the owner, lessee or occupant of any property so served shall furnish to the inspection agency any additional pertinent information regarding the piping system or systems on the property if the information is known to the owner, lessee or occupant.

8. REINSPECTIONS. Any person who shall fail or neglect to comply with any lawful order issued by the superintendent of water works or the superintendent's designee pursuant to this section, may be assessed a reinspection fee pursuant to s. 200-33-48.

9. DISCONTINUANCE OF SERVICE. a. The water works shall discontinue water service to any property wherein any connection in violation of this section exists and take any other precautionary measures deemed necessary to eliminate any danger of contamination of the public water supply system. Water service may be discontinued only after reasonable notice and opportunity for a hearing pursuant to s. 320-11, except as provided in par. b. Water service to the property shall not be restored until the cross-connection has been eliminated in compliance with this section.

b. If it is determined by the water works that a cross-connection or an emergency causes imminent danger to the public health, safety or welfare and required immediate action, service may be immediately discontinued or ordered disconnected. The person aggrieved shall receive notice of the disconnection and shall have the right to appeal pursuant to s. 320-11.

10. PENALTY. Any person who violates or fails to comply with this section shall be subject to a forfeiture of not less than $150 nor more than $5,000, together with the cost of prosecution, and in default of payment shall be imprisoned in the house of correction or in the Milwaukee county jail until such fine and costs are paid, such imprisonment not to exceed 90 days. Each day of violation shall constitute a separate offense.

installed in easements and owned and maintained by the waterworks owner.

(b) Water mains to be connected to the distribution system at more than one point may be privately owned and maintained provided that a check valve is installed on the water main at each point of connection to the distribution system to prevent water from flowing back into the publicly owned distribution system. Each check valve shall be located in a manhole or vault and shall be immediately preceded and followed by a shut–off valve on the main. The water supplier shall have access to the manholes and valves for inspection purposes.

Note: Refer to s. Comm 82.40 for standards for the construction of private water mains.

(2) NORMAL PRESSURE. System pumps, the distribution system and related storage facilities shall be operated to maintain a minimum of 35 pounds per square inch at ground level at all locations in the distribution system under normal operating conditions including maximum day demand averaged over a 24 hour period. In areas where this pressure cannot be maintained, corrective action shall be taken to maintain a minimum of 35 pounds per square inch. If the corrective action requires a reservoir or booster pumps, the requirements of ss. NR 811.60 (1) and 811.72 to 811.77 shall be met.

(3) FIRE FLOW PRESSURE. The system shall be operated so that under fire flow conditions the residual pressure in the distribution system is not less than 20 pounds per square inch at ground level. Fire pumpers may not be connected to fire hydrants if 20 psi cannot be maintained during operation of the pumpers. In addition, the system owner shall notify the fire chief in writing of the location of all fire hydrants that cannot be used by fire pumpers and color code or tag the affected hydrants.

(4) LOSS OF PRESSURE. The supplier of water shall be responsible for taking corrective action when positive distribution system pressure is lost in an area affecting 25% or more of the distribution system. In addition to restoring system pressure, the supplier of water shall perform the following as necessary:

(a) Notify the appropriate district office of the department as soon as possible, but no later than one working day, as to the extent of the problem, cause and corrective actions taken.

(b) Start emergency disinfection of the water supply if the system is not already continuously disinfected. At a minimum, the free chlorine residual shall be 0.2 mg/l at the entry point to the distribution system and detectable throughout the distribution system or the total combined chlorine residual shall be 1.0 mg/l at the entry point and detectable throughout the distribution system. Higher disinfectant residuals may be required by the department if deemed necessary to assure a safe water supply. Water mains and storage facilities in the area that lost pressure shall be flushed to remove contaminated water and to quickly establish an adequate disinfectant residual. Emergency disinfection shall be maintained until approval is obtained from the department to cease.

(c) Collect distribution system water samples for bacteriological analyses from the pressure loss area as soon as adequate pressure is returned to the system. The number of samples collected shall increase as the extent of problem areas increases, but in no case may less than 2 samples be collected. The department shall be contacted to determine the number of samples and sampling locations. The supplier shall comply with s. NR 809.31 when system sampling indicates the presence of coliform organisms.

(d) Issue an immediate boil water notice to all affected water consumers unless it is determined by the department that an acute threat to public health does not exist. The boil water notice shall be maintained until approval is obtained from the department to cease.

(e) Notify the public in the area affected as prescribed in s. NR 809.951 unless the department determines that no health hazard has existed.

(f) Take all corrective actions necessary to prevent additional significant pressure losses.

(5) MAINTENANCE. Each supplier of water shall perform routine maintenance to ensure proper operation of the water system. A schedule shall be established for flushing dead–end mains or mains in other areas to remove sediment or water of poor quality. A number of hydrants and valves shall be exercised each year depending on system size so that all are routinely exercised. Record keeping shall be established to insure routine scheduling and performance of valve and hydrant exercising and maintenance. Water storage facilities shall be emptied and inspected at least once every 5 years and maintenance provided as necessary. Interior and exterior paint coatings for steel elevated water storage tanks or treatment structures shall be inspected by a person trained to evaluate the integrity of the paint system at least once every 5 years and repainted as necessary to maintain structural integrity. The supplier of water may perform the inspection if experienced in paint inspection. Upon completion of the water storage facility inspection, a report shall be submitted to the department documenting the condition of the storage facility.

Note: The department recommends that each valve and hydrant be operated at least once every 2 years.

History: Cr. Register, April, 1992, No. 436, eff. 5–1–92; corrections in (4) made under s. 13.93 (2m) (b) 7., Stats., Register, August, 1994, No. 464; am. (5), Register, December, 2000, No. 540, eff. 1–1–01; CR 00–162: am. (4) (e) Register November 2002 No. 563, eff. 12–1–02.

NR 811.09 Cross–connections and interconnections. Installation or replacement of cross–connections is prohibited. Plumbing back–siphonage, cross–connection and potability control regulations are provided in s. Comm 82.41; water system interconnections are prohibited except as provided in sub. (2). In addition the following requirements shall be met:

(1) CROSS–CONNECTION CONTROL PROGRAM. The supplier of water for every municipal water system shall develop and implement a comprehensive control program for the elimination of all existing cross–connections and prevention of all future cross–connections. A record of the cross–connection control program shall be kept current and available for annual review by the department. The control program shall include but not be limited to:

(a) A complete description of the program and the administration procedures, including designation of the inspection or enforcement agency or agencies;

(b) Local authority for implementation of the program, such as ordinance or rule;

(c) A time schedule for inspection and reinspection of consumer premises for cross–connections including appropriate record keeping. Unless otherwise authorized by the department, each supplier of water shall inspect every service a minimum of once every 10 years. It is recommended that industrial and commercial services be inspected once every 2 years.

(d) A description of the methods and devices which will be used to protect the water supply by reference to or inclusion of ch. Comm 82;

(e) Provisions for denial or discontinuance of water service, after reasonable notice, to any premises where an unprotected cross–connection exists.

(f) Submission to the department of a copy of an ordinance establishing a cross–connection control program.

(2) INTERCONNECTIONS WITH OTHER ACCEPTABLE WATER SOURCES. Interconnections between the public water supply system and another source of water are prohibited unless permitted by the department in individual cases. Approval of the department shall be obtained prior to the interconnection.

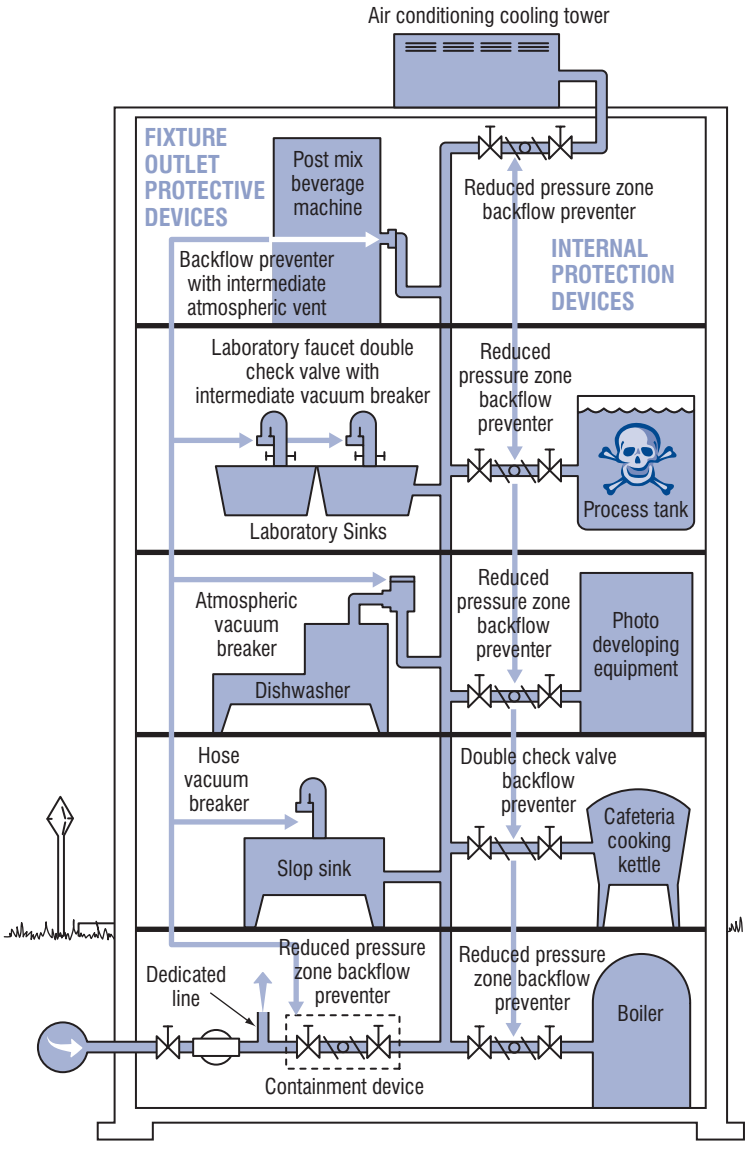
History: Cr. Register, April, 1992, No. 436, eff. 5–1–92; correction in (intro.) and (1) (d) made under s. 13.93 (2m) (b) 7., Stats., Register, December, 1998, No. 516.

NR 811.10 Private well abandonment ordinance. Suppliers of water for municipal water systems shall require the

Chapter Six

Administration of a Cross-Connection Control Program

FIGURE 43.



Responsibility

Under the provisions of the Safe Drinking Water Act of 1974, the Federal Government has established, through the EPA (Environmental Protection Agency), national standards of safe drinking water. The states are responsible for the enforcement of these standards as well as the supervision of public water supply systems and the sources of drinking water. The water purveyor (supplier) is held responsible for compliance to the provisions of the Safe Drinking Water Act, to include a warranty that water quality provided by his operation is in conformance with the EPA standards at the source, and is delivered to the customer without the quality being compromised as a result of its delivery through the distribution system. As specified in the Code of Federal Regulations (Volume 40, Paragraph 141.2, Section (c)) "Maximum contaminant level, means the maximum permissible level of a contaminant in water which is delivered to the free flowing outlet of the ultimate user of a public water system, except in the case of turbidity where the maximum permissible level is measured at the point of entry to the distribution system. Contaminants added to the water under circumstances controlled by the user, except those resulting from corrosion of piping and plumbing caused by water quality, are excluded from this definition."

Figure 43 depicts several options that are open to a water purveyor when considering cross-connection protection to commercial, industrial, and residential customers. He may elect to work initially on the "containment" theory. This approach utilizes a minimum of backflow devices and isolates the customer from the water main. It virtually insulates the customer from potentially contaminating or polluting the public water supply system. While it is recognized that "containment" does not protect the customer within his building, it does effectively remove him from possible contamination to the public water supply system. If the water purveyor elects to protect his customers on a domestic internal protective basis and/or "fixture outlet protective basis," then cross-connection control protective devices are placed at internal high hazard locations as well as at all locations where cross-connections exist at the "last free-flowing outlet." This approach entails extensive cross-connective survey work on behalf of the water superintendent as well as constant policing of the plumbing within each commercial, industrial and residential account. In large water supply systems, fixture outlet protection cross-connection control philosophy, in itself, is a virtual impossibility to achieve and police due to the quantity of systems involved, the complexity of the plumbing systems inherent in many industrial sites, and the fact that many plumbing changes are made within industrial and commercial establishments that do not require the water department to license or otherwise endorse or ratify when contemplated or completed.

In addition, internal plumbing cross-connection control survey work is generally foreign to the average water

Safe Drinking Water Act 30th Anniversary Understanding the Safe Drinking Water Act

EPA 816-F-04-030
June 2004

Overview

The Safe Drinking Water Act (SDWA) was originally passed by Congress in 1974 to protect public health by regulating the nation's public drinking water supply. The law was amended in 1986 and 1996 and requires many actions to protect drinking water and its sources . rivers, lakes, reservoirs, springs, and ground water wells. (SDWA does not regulate private wells which serve fewer than 25 individuals.) SDWA authorizes the United States Environmental Protection Agency (US EPA) to set national health-based standards for drinking water to protect against both naturally-occurring and man-made contaminants that may be found in drinking water. US EPA, states, and water systems then work together to make sure that these standards are met.

Millions of Americans receive high quality drinking water every day from their public water systems, (which may be publicly or privately owned). Nonetheless, drinking water safety cannot be taken for granted. There are a number of threats to drinking water: improperly disposed of chemicals; animal wastes; pesticides; human wastes; wastes injected deep underground; and naturally-occurring substances can all contaminate drinking water. Likewise, drinking water that is not properly treated or disinfected, or which travels through an improperly maintained distribution system, may also pose a health risk.

Originally, SDWA focused primarily on treatment as the means of providing safe drinking water at the tap. The 1996 amendments greatly enhanced the existing law by recognizing source water protection, operator training, funding for water system improvements, and public information as important components of safe drinking water. This approach ensures the quality of drinking water by protecting it from source to tap.

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All **public water systems** must have at least 15 service connections or serve at least 25 people per day for 60 days of the year.

Drinking water standards apply to water systems differently based on

Roles and responsibilities

SDWA applies to every public water system in the United States. There are currently more than 160,000 public water systems providing water to almost all Americans at some time in their lives. The responsibility for making sure these public water systems provide safe drinking water is divided among US EPA, states, tribes, water systems, and the public. SDWA provides a framework in which these parties work together to protect this valuable resource.

US EPA sets national standards for drinking water based on sound science to protect against health risks, considering available technology and costs. These National Primary Drinking Water Regulations set enforceable maximum contaminant levels for particular contaminants in drinking water or required ways to treat water to remove contaminants. Each standard also includes requirements for water systems to test for contaminants in the water to make sure standards are achieved. In addition to setting these standards, US EPA provides guidance, assistance, and public information about drinking water, collects drinking water data, and oversees state drinking water programs.

The most direct oversight of water systems is conducted by state drinking water programs. States can apply to US EPA for "primacy," the authority to implement SDWA within their jurisdictions, if they can show that they will adopt standards at least as stringent as US EPA's and make sure water systems meet these standards. All states and territories, except Wyoming and the District of Columbia, have received primacy. While no Indian tribe has yet applied for and received primacy, four tribes currently receive "treatment as a state" status, and are eligible for primacy. States, or US EPA acting as a primacy agent, make sure water systems test for contaminants, review plans for water system improvements, conduct on-site inspections and sanitary surveys, provide training and technical assistance, and take action against water systems not meeting standards.

their type and size:

Community water system (there are approximately 54,000) - A public water system that serves the same people year-round. Most residences including *h*omes, apartments, and condominiums in cities, small towns, and mobile home parks are served by Community Water Systems.

Non-community water system - A public water system that serves the public but does not serve the same people year-round. There are two types of non-community systems:

- **Non-transient non-community water system** (there are approximately 20,000) - A noncommunity water system that serves the same people more than six months per year, but not year-round, for example, a school with its own water supply is considered a non-transient system.

- **Transient non-community water system** (there are approximately 89,000) - A non-community water system that serves the public but not the same individuals for more than six months, for example, a rest area or campground may be considered a transient water system.

To ensure that drinking water is safe, SDWA sets up multiple barriers against pollution. These barriers include: source water protection, treatment, distribution system integrity, and public information. Public water systems are responsible for ensuring that contaminants in tap water do not exceed the standards. Water systems treat the water, and must test their water frequently for specified contaminants and report the results to states. If a water system is not meeting these standards, it is the water supplier's responsibility to notify its customers. Many water suppliers now are also required to prepare annual reports for their customers. The public is responsible for helping local water suppliers to set priorities, make decisions on funding and system improvements, and establish programs to protect drinking water sources. Water systems across the nation rely on citizen advisory committees, rate boards, volunteers, and civic leaders to actively protect this resource in every community in America.

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Protection and prevention

Essential components of safe drinking water include protection and prevention. States and water suppliers must conduct assessments of water sources to see where they may be vulnerable to

contamination. Water systems may also voluntarily adopt programs to protect their watershed or wellhead and states can use legal authorities from other laws to prevent pollution. SDWA mandates that states have programs to certify water system operators and make sure that new water systems have the technical, financial, and managerial capacity to provide safe drinking water. SDWA also sets a framework for the Underground Injection Control (UIC) program to control the injection of wastes into ground water. US EPA and states implement the UIC program, which sets standards for safe waste injection practices and bans certain types of injection altogether. All of these programs help prevent the contamination of drinking water.

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Setting national drinking water standards

US EPA sets national standards for tap water which help ensure consistent quality in our nation's water supply. US EPA prioritizes contaminants for potential regulation based on risk and how often they occur in water supplies. (To aid in this effort, certain water systems monitor for the presence of contaminants for which no national standards currently exist and collect information on their occurrence). US EPA sets a health goal based on risk (including risks to the most sensitive people, e.g., infants, children, pregnant women, the elderly, and the immuno-compromised). US EPA then sets a legal limit for the contaminant in drinking water or a required treatment technique . this limit or treatment technique is set to be as close to the health goal as feasible. US EPA also performs a cost-benefit analysis and obtains input from interested parties when setting standards. US EPA is currently evaluating the risks from several specific health concerns, including: microbial contaminants (e.g., Cryptosporidium); the byproducts of drinking water disinfection; radon; arsenic; and water systems that don't currently disinfect their water but get it from a potentially vulnerable ground water source.

US EPA sets primary drinking water standards through a three-step process: First, US EPA identifies contaminants that may adversely affect public health and occur in drinking water with a frequency and at levels that pose a threat to public health. US EPA identifies these contaminants for further study, and determines contaminants to potentially regulate. Second, US EPA determines a maximum contaminant level goal for contaminants it decides to regulate. This goal is the level of a contaminant in drinking water below which there is no known or expected risk to health. These goals allow for a margin of safety . Third, US EPA specifies a maximum contaminant level, the maximum permissible level of a contaminant in drinking water which is delivered to any user of a public water system. These levels are enforceable standards, and are set as close to the goals as feasible. SDWA defines feasible as the level that may be achieved with the use of the best technology, treatment techniques, and other means which US EPA finds (after examination for efficiency under field conditions) are available, taking cost into consideration. When it is not economically or technically feasible to set a maximum level, or when there is no reliable or economic method to detect contaminants in the water, US EPA instead sets a required Treatment Technique which specifies a way to treat the water to remove contaminants.

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Funding and assistance

US EPA provides grants to implement state drinking water programs, and to help each state set up a special fund to assist public water systems in financing the costs of improvements (called the drinking water state revolving fund). Small water systems are given special consideration, since small systems may have a more difficult time paying for system improvements due to their smaller customer base. Accordingly, US EPA and states provide them with extra assistance (including training and funding) as well as allowing, on a caseby- case basis, alternate water treatments that are less expensive, but still protective of public health.

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Compliance and enforcement

National drinking water standards are legally enforceable, which means that both US EPA and states can take enforcement actions against water systems not meeting safety standards. US EPA and states may

issue administrative orders, take legal actions, or fine utilities. US EPA and states also work to increase water systems. understanding of, and compliance with, standards.

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Public information

SDWA recognizes that since everyone drinks water, everyone has the right to know what's in it and where it comes from. All water suppliers must notify consumers quickly when there is a serious problem with water quality. Water systems serving the same people year-round must provide annual consumer confidence reports on the source and quality of their tap water. States and US EPA must prepare annual summary reports of water system compliance with drinking water safety standards and make these reports available to the public. The public must have a chance to be involved in developing source water assessment programs, state plans to use drinking water state revolving loan funds, state capacity development plans, and state operator certification programs.

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1996 SDWA Amendment Highlights

Consumer Confidence Reports
All community water systems must prepare and distribute annual reports about the water they provide, including information on detected contaminants, possible health effects, and the water's source.

Cost-Benefit Analysis
US EPA must conduct a thorough cost-benefit analysis for every new standard to determine whether the benefits of a drinking water standard justify the costs.

Drinking Water State Revolving Fund
States can use this fund to help water systems make infrastructure or management improvements or to help systems assess and protect their source water.

Microbial Contaminants and Disinfection Byproducts
US EPA is required to strengthen protection for microbial contaminants, including Cryptosporidium, while strengthening control over the byproducts of chemical disinfection. The Stage 1 Disinfectants and Disinfection Byproducts Rule and the Interim Enhanced Surface Water Treatment Rule together address these risks.

Operator Certification
Water system operators must be certified to ensure that systems are operated safely. US EPA issued guidelines in February 1999 specifying minimum standards for the certification and recertification of the operators of community and non-transient, noncommunity water systems. These guidelines apply to state Operator Certification Programs. All States are currently implementing EPA-approved operator certification programs.

Public Information & Consultation
SDWA emphasizes that consumers have a right to know what is in their drinking water, where it comes from, how it is treated, and how to help protect it. US EPA distributes public information materials (through its Safe Drinking Water Hotline, Safewater web site, and Water Resource Center) and holds public meetings, working with states, tribes, water systems, and environmental and civic groups, to encourage public involvement.

Small Water Systems

Small water systems are given special consideration and resources under SDWA, to make sure they have the managerial, financial, and technical ability to comply with drinking water standards.

Source Water Assessment Programs
Every state must conduct an assessment of its sources of drinking water (rivers, lakes, reservoirs, springs, and ground water wells) to identify significant potential sources of contamination and to determine how susceptible the sources are to these threats.

What is defined as plumbing?

Wisconsin Statutes, Chapter 145, state that:
Plumbing means and includes:

"(a) All piping, fixtures, appliances, equipment, devices and appurtenances in connection with the water supply, water distribution and drainage systems, including hot water storage tanks, water softeners and water heaters connected with such water and drainage systems and also includes the installation thereof.
(b) The construction, connection or installation of any drain or waste piping system from the outside or proposed outside foundation walls of any building to the mains or other sewage system terminal within bounds of, or beneath an area subject to easement for highway purposes, including private sewage systems, and the alteration of any such systems, drains or waste piping.
(c) The water service piping from the outside or proposed outside foundation walls of any building to the main or other water utility service terminal within bounds of, or beneath an area subject easement for highway purposes and its connections.
(d) The water pressure system other than municipal systems as provided in ch. 281.
(e) A plumbing and drainage system so designed and vent piping so installed as to keep the air within the system in free circulation and movement; to prevent with a margin of safety unequal air pressures of such force as might blow, siphon or affect trap seals, or retard the discharge from plumbing fixtures, or permit sewer air to escape into the building; to prohibit cross-connection, contamination or pollution of the potable water supply and distribution systems; and to provide an adequate supply of water to properly serve, cleanse and operate all fixtures, equipment appurtenances and appliances served by the plumbing system."

Penalties can be costly!

A state law was enacted in 2005 that added direct forfeiture to the plumbing license law penalties (See s. 145.12 (5), Wis. Stats.). Here's a summary of the forfeitures:

Violation	Offense		
	1st	2nd	3rd
Plumbing without the right license No MP in charge	$1,000	$1,500	$2,000
Plumbing without the right license MP in charge	$ 100	$ 500	$1,000
MP allowing someone to use their license to obtain a permit, without the MP assuming responsibility	$1,000	$1,500	$2,000
MP allowing another licensed plumber to install plumbing when the MP isn't in charge	$ 500	$1,000	$2,000
An MP allows an individual without the right license to install plumbing when the MP is in charge.	$1,500	$1,750	$2,000
Offering to, or superintending plumbing	$1,000	$1,500	$2,000

MP = Licensed Master Plumber

IT'S THE LAW

PLUMBING LICENSE LAWS IN WISCONSIN

A Safety and Buildings Division publication to help you understand legal limitations and penalties pertaining to plumbing.

SBD-10635P (R9/08)

State Law, Ch. 145 says:

"(1)(a) No person may engage in or work at plumbing in the state unless licensed to do so by the department. A master plumber may work as a journeyman. No person may act as a plumbing apprentice or pipe layer unless registered with the department. (b) No public utility shall engage in or perform plumbing unless exempted by sub. (4)

(2) No person shall install plumbing unless at all times a licensed master plumber is in charge, who shall be responsible for proper installation. Licenses shall be issued only to individuals, and no licnese shall be issued to or in the name of any firm or corporation. No such license shall be transferable. It is unlawful for any licensed master plumber to allow the use of his or her license, directly or indirectly, for the purpose of obtaining local permits for others or to allow the use of his or her license by others to install plumbing work.

(3) Each member or employe of a partnership or limited liability company or each officer or employe of a corporation engaging in the business of superintending plumbing installations shall be required to apply for and obtain a master plumber's license before engaging in the work of superintending plumbing installations." And. . .

"(4) This section shall not apply to:

(a) Plumbing work done by a property owner in a one-family building owned and occupied by him or her as his or her home or farm building, except where such license is required by local ordinance.

(b) Plumbing from the private water supply pump to and including the initial pressure tank and connection to an existing water distribution system, when installed by persons licensed under ch. 162.

(c) Installation of sewer and water service piping from the main to the property lot line, when installed by authorized municipal utility employes or sewer and water utility installers under a contract with a municipality.

(d) Making minor repairs to faucets, valves, pipes or appliances, repair or replacement of electrical or gas energy or other automatic valves or control devices or removing of stoppages in waste or drain pipes.

(e) Installation of sewer and water mains, as defined in ch. 144, when installed by sewer and water utility contractors and their employes.

(f) Installation, repair, or replacement of water service piping, from the property line to the meter, including meter installation, to service any building or structure or proposed building or structure when such installation, repair or replacement is accomplished by employes of a public municipal water utility, providing such utility regularly has engaged in such installation, repair or replacement for at least 5 years prior to January 1, 1964."

Government Backing

Before you install plumbing in your home, you must live there.

A plumbing license is required to install plumbing in Wisconsin, except when the plumbing work is performed by a property owner in a one-family dwelling he or she occupies.
A local license may be required.
Farmers may install plumbing in their own buildings.

Remember to check with local plumbing officials for local requirements that may not allow for this exemption from the license requirement.

Check the Safety and Buildings Website
for the Plumbing Consultant or
Wastewater Specialist nearest you:
http://www.commerce.wi.gov/sb/SB-DivContacts.html

You can install plumbing on your own property, if. . .

1. The plumbing is inside the building.

2. The work is in a one-family dwelling.

3. The home is your primary residence, not a cabin, summer home, rental property business, etc (primary residence is determined as the address where he or she claims permanent residency for voting and receipt of state or federal tax mailings, etc).

4. You occupy the home, so this exemption does not apply to new construction. There are code requirements for the installation of plumbing fixtures for a home connected to a sewer, including at least; one water closet (or substitute), one wash basin, one kitchen sink, one bathtub or shower and a water heater to meet the basic requirements of sanitation and personal hygiene.

5. The plumbing is in farm buildings, other than a new, one-family home, on property owned and occupied by the property owner, except where a license may be required by local ordinance.

6. Even in your own home, all plumbing installed meets the requirements of theWisconsin Uniform Plumbing Code.

608-266-3151
Department of Commerce
Safety and Buildings Division
201 W Washington Avenue
PO Box 2658
Madison, WI 53701

TDD in Wis. dial 711
Out 800-947-3529

CROSS CONNECTION ENTRY LETTER

This is to inform you that the City of Milwaukee is attempting to gain access to your property for a cross connection survey.

This survey is being required by the Wisconsin Department of Natural Resources NR 811.09 to look for the possible interconnection of the potable water system and contaminated sources. We are also required by the City Code of Ordinances Vol. 1 Section 97-12 to do these inspections. The inspector will need access to all areas of the building where water or water lines are present.

Please contact Plumbing Inspection at 414-286-3361. Thank you for your cooperation.

CROSS CONNECTION SURVEY GENERAL PROBLEMS

1. Submerged faucet – ballcock ex: bathtub.
2. Missing BFP on urinals and water closet and bidet.
3. Missing BFP on beverage dispenser (soda dispenser, coffee maker, ice, tea, cappuccino, etc.).
4. Missing BFP on soap dispenser including wasting tee.
5. Missing BFP on hose faucets, laundry trays & janitor closet.
6. Missing BFP on boilers, steamers, etc.
7. Missing BFP on irrigation systems.
8. Missing BFP on shampoo basins.
9. Missing BFP on equipment requiring requiring water.

Safety and Buildings Division
P. O. Box 7302
Madison, Wisconsin 53707
(608) 267-2497
FAX (608) 267-9723
http://www.commerce.state.wi.us/sb
http://www.wisconsin.gov

Wisconsin
Department of Commerce

Cross Connection Control Assembly Removal Notice

You can search on the Internet for information that the Safety and Buildings Division has concerning cross connection control devices: http://www.commerce.state.wi.us/SB/SB-PlumbingProgram.html

DATE:_____ PROJECT NAME:_____

ADDRESS:_____

PLAN ID NO. _____ CITY/ZIP_____

MANUFACTURER: _____ SIZE: _____SERIAL NO.: _____

RP LOCATION:_____

The terms “Out of Service” or “Removed from Service” do not provide sufficient information to define the situation. Please answer the following questions and return this form to the address above, Attention: Chris Severson.

1. IS THE REDUCED BACKFLOW ASSEMBLY STILL ON THE WATER LINE? YES _____ NO _____

   If reduced backflow assembly is on the water line, it must be tested even If the water has been turned off.

2. IF REDUCED BACKFLOW ASSEMBLY HAS BEEN TAKEN OFF THE WATER LINE, WHERE IS THE VALVE NOW?

   IN STORAGE _____ DESTROYED _____

3. HAS THE WATER LINE BEEN CAPPED OFF?

   YES _____ NO _____

4. IF REDUCED BACKFLOW ASSEMBLY IS OFF THE WATER LINE, WHAT IS PROTECTING THE DOWN STREAM WATER LINE?

   _____

   _____

   _____

_____ _____
PRINTED NAME SIGNATURE & TITLE

Personal information you provide may be used for secondary purposes [Privacy Law, s. 15.04 (1)(m)].

SBD-10766 (N.3/03)

commerce.wi.gov
Wisconsin Department of Commerce

Local Program

Cross Connection Control Performance Test

Safety and Buildings Division
P.O. Box 7302
Madison, WI 53707-7302
Fax: (608) 267-9723
TTY: (608) 264-8777
http://www.commerce.wi.gov
http://www.wisconsin.gov

Regulated Object Number: _____ _____ _____ _____ _____ _____ _____ _____

Personal information you provide may be used for secondary purposes [Privacy Law, s.1504 (1)(m)].

OWNER INFORMATION

Please print clearly in ballpoint pen.

Owner Name		Street Address	
City	State Zip Code	Owner's Contact Person	Telephone Number ( )

FACILITY INFORMATION

Facility Name		Street Address	
City	Zip Code	County	
Assembly Location		Assembly is Serving	
Manufacturer		Model	Serial Number

Size _____ Assembly Type ( ) RP ( ) RP Detector ( ) PVB ( ) SRVB

Water Supply Source: Check One ( ) Municipal Water System ( ) Other than municipal, non-community or private water system. See NR 811 and 812 for definitions.

INITIAL TEST

RP relief valve	1ST check	2nd check
Opened at _____ PSID	☐ Closed tight	☐ Closed tight
☐ Did not open	☐ Leaked	☐ Leaked
	Static _____ PSID	Static _____ PSID

FINAL TEST

Opened at _____ PSID	☐ Closed tight	☐ Closed tight
	Static _____ PSID	Static _____ PSID

DETECTOR BYPASS ASSEMBLY INITIAL TEST

RP relief valve	1ST check	2nd check
Opened at _____ PSID	☐ Closed tight	☐ Closed tight
☐ Did not open	☐ Leaked	☐ Leaked
	Static _____ PSID	Static _____ PSID

DETECTOR BYPASS ASSEMBLY FINAL TEST

Opened at _____ PSID	☐ Closed tight	☐ Closed tight
	Static _____ PSID	Static _____ PSID

PVB/SRVB INITIAL TEST

Air inlet valve	Check valve
Opened at _____PSID	☐ Closed tight
☐ Did not open	☐ Leaked
	Static _____ PSID

PVB/SRVB FINAL TEST

Air inlet valve	Check Valve
Opened at _____PSID	☐ Closed tight
	Static _____ PSID

ASSEMBLIES IN FIRE PROTECTION SYSTEMS Note: Include hose stream demand where applicable

Forward Flow Test

Designed flow rate_____GPM Actual flow rate _____GPM

Indicating Control Valves

☐ No. one control valve open ☐ No. two control valve open Valve supervision: ☐ Tamper switch ☐ Locked

Part (s) Replaced/Comments _____

I HEREBY CERTIFY THE TEST RESULTS ARE TRUE AND THE TEST WAS CONDUCTED BY ME PERSONALLY.

Tester Name (print) _____ Registration No. _____ Time of Day _____

Tester Signature _____ Phone No. _____ Date _____

OWNER INFORMATION

The backflow preventer is a mechanical device designed to protect the potable water supply system from being contaminated. There is a physical connection to equipment or water of either unknown or questionable quality, thereby requiring the installation of the backflow preventer. In order to ensure that this device is working as designed, it must be periodically tested.

A test shall be conducted on each backflow preventer prior to it being put into service, after any repairs, and a minimum of once a year thereafter.

It is the responsibility of the owner to make sure the device is tested. The test shall be performed by a department registered Cross Connection Control Device tester.

OWNER'S CONTACT PERSON: The owner's contact person is the name of the person responsible for the backflow preventer maintenance and records. (**Note: Please provide full name.)**

OLD VALVE REPLACEMENT INFORMATION

If this test is for a replacement valve, please include all information for the replacement valve on this form. The manufacturer, model no., serial no., size, and the assembly type of the "old" valve must included on the comment line of this form.

MINIMUM REQUIREMENTS FOR PASSING TEST

RP and RP Detector

- The first check must close tight, and the minimum static PSID must be 3 PSID greater than the recorded relief valve opening PSID.
- The second check must close tight, and have a minimum static 1 PSID.
- The relief valve must open at a minimum static 2 PSID.
- The relief valve must not be leaking upon completion of test.

Pressure Vacuum Breaker/SVB

- The air inlet valve must open at a minimum static 1 PSID.
- The check valve must close tight, and have a minimum static 1 PSID.

A toilet can be a source for a cross connection

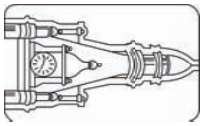
The toilet fill valve (ballcock) can be submerged below the water overflow line or a non-approved fill valve installed. Both situations can cause a cross connection.

What does this inspection entail?

A survey is required by the State of Wisconsin on all Commercial and Multi-family buildings, to look for the possible interconnection of potable (drinking) water and contaminated sources. This is a City required inspection. The inspector will have to follow the water lines to where ever they run. Therefore, they may need access to the entire building.

Action to take

- Read and understand this brochure
- Inspect hose connections on your house for proper back flow protection. (outside hose faucet and Laundry sink.)
- Call a plumber with questions on back flow protection for boiler or plumbing fixtures and appliances.
- Questions about cross connection or backflow issues call the Dept. of Neighborhood Services Cross Connection Section at 286-3361 Monday - Friday 7:30 A.M. - 3:30 P.M.



Department of
Neighborhood Services
Plumbing Section
841 N. Broadway Rm 104
Milwaukee Wi. 53202
(414) 286-3361
www.milwaukee.gov/dns

Protect Your Drinking Water

Local Program

CAUTION!

Your garden hose may be hazardous to your health. Learn how unprotected water can be a serious public health threat!

City of Milwaukee
Department of Neighborhood Services

DNS-666 V1 2/26/08

What is the most common form of a cross connection?

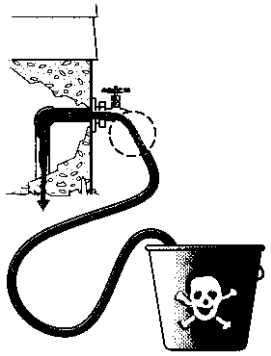
Locally, the ordinary garden hose is the most common offender as it can be easily connected to the potable (drinking) water supply and used for a variety of potentially dangerous applications.

What is Backflow?

Backflow occurs when the flow of water, in any pipeline or plumbing system, reverses and flows in the opposite direction than intended. The normal direction of water flow is from the utility water main to the homes or businesses. The backflow of water from home plumbing systems into the community's drinking water sometimes results from a pressure source, like a well pump. Signs of contaminated water range from water that is off-color and undesirably odorous to water that contains health threatening and even life threatening toxins.

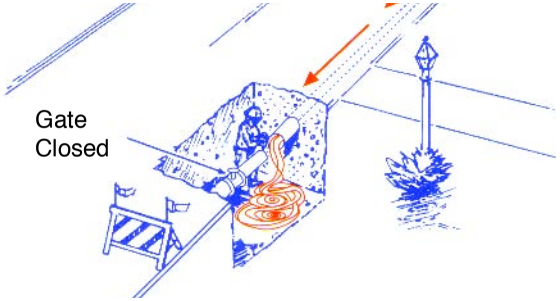
What is potentially dangerous about an unprotected hose faucet?

The purpose of a hose faucet is to allow easy attachment of a hose for outside watering purposes. However, garden hoses can be extremely hazardous because they are left submerged in swimming pools, laid in elevated locations (above the hose faucet) when watering shrubs, attaching chemical sprayers to hoses for weed-killing, etc.; and hoses are often left laying on the ground, which may be contaminated with fertilizer, cesspools, and garden chemicals.



What protection is required for a hose faucet?

A hose faucet vacuum breaker should be installed on every hose faucet to isolate garden hose applications thus protecting the water supply from contamination.

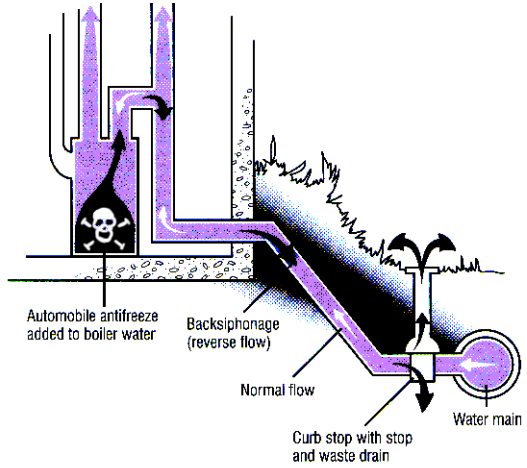


Backflow can occur if there is a pressure drop in a water supply system because of a pipe break in a water main or an opened hydrant, for testing or fire fighting .

Fertilizer, weedkiller, or something worse, can be sucked into water meant for your family. If someone drinks, cooks or bathes in contaminated water, it can cause serious illness or death.

What is a cross connection?

A cross connection is a direct arrangement of piping which allows the potable (drinking) water supply to be connected to one which contains a contaminant. An example is the common garden hose attached to a hose faucet with the end of the hose laying in a cesspool. Other examples are a garden hose attached to a service sink with the end of the hose submerged in a tub full of detergent, supply lines connected to bottom-fed tanks and supply lines to boilers.



Locust Point

*PARTIAL LIST OF BACKFLOW PROTECTION

AIR GAP ASME A112.1.2

The best form of backflow protection for high and low hazard applications.
As defined by Comm. 81.01(7), means the unobstucted vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank or plumbing fixture and the flood level rim or spill level of the receptacle.

A.S.S.E. 1001
EXAMPLES: Watts 188A, 288A

Atmospheric Vacuum Breaker (A.V.B.). For high-hazard cross connections **not** subject to continuous pressure. Pipe applied vacuum breaker, apply 6" min. above flood level rim, Found in process tanks, dishwashers, soap dispensers, washing machines, lawn sprinklers, handheld showers, pools, etc.
ATMOSPHRIC VACUUM BREAKER IS USED WHEN SHUT-OFF VALVES OR ZONE CONTROLS ARE **NOT** FOUND DOWNSTREAM.

A.S.S.E. 1011 & 1052
EXAMPLES: ASSE 1011 Watts 8, 8A & 8B Model NF8 for frost-free hydrants. ASSE 1052 Watts N9-CD

Hose connection vacuum breakers and hose connection backflow preventers. May use in campgrounds and marinas with continuous pressure. Use only downstream of faucet or hose bibb. Maximum 10 feet of head pressure. Hydrants that bleed into the ground and or are flush with the grade are **prohibited.** A.S.S.E. 1052 are self-draining units.

A.S.S.E 1012
EXAMPLES: Watts 9D

Backflow preventer with Intermediate Atmospheric Vent. Cross connection subject to backpressure or backsiphonage where there is a **low** health hazard. Continuous pressure. Maximum 150psig of backpressure. Small boilers, small cooling towers, autoclave sterilizer (with less than 15# steam or 30# water and **no toxic chemicals.** Also found on humidifiers and proofing ovens.

A.S.S.E. 1013
EXAMPLES: Watts Series 009, Series 909

These are REDUCED PRESSURE ZONE BACKFLOW PREVENTERS (R.P.Z.B.P.). All cross connections subject to backpressure or back siphionage where there is a high potential of health contamination. Continuous pressure. You will find these in main supply lines, commercial boilers, hospital equipment, laboratory equipment, waste digesters, car washes, dental chairs, pedicure chairs, water cooled compressors, etc…
If a RP is located within a building, a drain or receptor shall be provided to receive the discharge from the vent port(s).

A.S.S.E. 1014
EXAMPLES: Watts S-8, Alson 4910 & 4900

High hazard for handheld showers and shampoo & barber sinks if the faucet meets **ASME A112.18M** which includes backflow protection requirements. Maximum 2 feet of head and no valve downstream of the backflow preventer.

A.S.S.E. 1018
EXAMPLES: Watts A-200

Serves a trap primer only. This Atmospheric Vacuum Breaker is installed such that the bottom or critical level marked on the device, is at least **12 inches above** the following: the connection to the trap and the highest point downstream where backpressure would be created.

A.S.S.E. 1019 A & B **NOTE: 1019 C** IS NOT APPROVED
EXAMPLES: Woodford model #67 w/#37bfp

Vacuum Breaker serving a wall hydrant. The wall hydrant shall be freeze resistant, self draining, and have integral backflow protection. This wall hydrant may serve wading pools, theraputic pools, swimming pools, etc. Maximum of 10 feet of head pressure.

A.S.S.E. 1020
EXAMPLES: Watts 800M4QT & 800M4FR

Pressure Vacuum Breaker- Installed such that the bottom or critical level marked on device is at least **12 inches above** the flood level rim of receptor and at the highest point downstream where backpressure would be created. Install **outside** only.

A.S.S.E. 1022 & A.S.S.E. 1032
EXAMPLES: Watts 9BD, Chudnow S47OD & Carmen

Atmospheric Venting Device with double checks. This serves carbonated beverage dispensers, juice dispensers, coffee machines and expresso and cappuccino machines (must be less than 15# steam).
NOTE: Chudnow ASSE 1032 w/added check is approved as 1022.

A.S.S.E. 1025
EXAMPLES: Delta 550,552,575 & Kohler K6848, K6850

Side spray included on approved salon/shampoo basins.
NOTE: This ASSE is for sprayer, faucet must conform to ASSE 1014.

A.S.S.E. 1035
EXAMPLES: Watts NLF9

Vacuum Breakers – in line application. For high-hazard cross-connections **not** subject to continuous pressure- 6" above the flood level rim. Allowed on laboratory sink faucets with hose threads or serrated nipple. Protects against back-siphinage only. Maximum 6 ft. of head and no control downstream. Lab faucets **only.**

A.S.S.E. 1037
EXAMPLES: Sloan 110 & 186, Zurn

Pressurized flushing devices (flushometers) for plumbing fixtures. Approved flushometers have built in vacuum breakers ASSE 1001.

A.S.S.E. 1055
EXAMPLES: Eco-lab, Kay Chemical Soap Dispenser

Vacuum Breaker serving chemical dispensing systems which requires a separate water supply terminating without a hose thread or the manufacturer must provide a bleed device in order to connect to the janitor sink faucet spout. Also known as ASSE 1055 A or B.

A.S.S.E. 1056
EXAMPLES: Watts 008PCQT

Backsiphonage Backflow Vacuum Breaker (S.V.B.) Installed such that the bottom or critical level marked on device is at least **12 inches** above the flood level rim of receptor and above the highest point downstream where backpressure would be created. Designed for indoor use as a spill proof vacuum breaker. Protects against back-siphonage only.

*Any situation may be subject to alternate approval.

commerce.wi.gov
Wisconsin
Department of Commerce

Backflow Protection - List of

Cross Connection Control Performance Test

Safety and Buildings Division
P.O. Box 7302
Madison, WI 53707-7302
Fax: (608) 267-9723
TTY: (608) 264-8777
http://www.commerce.wi.gov
http://www.wisconsin.gov

Regulated Object Number: _____ _____ _____ _____ _____ _____ _____ _____

Personal information you provide may be used for secondary purposes [Privacy Law, s.1504 (1)(m)].

OWNER INFORMATION

Please print clearly in ballpoint pen.

Owner Name			Street Address	
City	State	Zip Code	Owner's Contact Person	Telephone Number ( )

FACILITY INFORMATION

Facility Name		Street Address	
City	Zip Code	County	
Assembly Location		Assembly is Serving	
Manufacturer		Model	Serial Number

Size _____ Assembly Type ( ) RP ( ) RP Detector ( ) PVB ( ) SRVB

Water Supply Source: Check One ( ) Municipal Water System ( ) Other than municipal, non-community or private water system. See NR 811 and 812 for definitions.

INITIAL TEST

RP relief valve	1ST check	2nd check
Opened at _____ PSID	☐ Closed tight	☐ Closed tight
☐ Did not open	☐ Leaked	☐ Leaked
	Static _____ PSID	Static _____ PSID

FINAL TEST

Opened at _____ PSID	☐ Closed tight	☐ Closed tight
	Static _____ PSID	Static _____ PSID

DETECTOR BYPASS ASSEMBLY INITIAL TEST

RP relief valve	1ST check	2nd check
Opened at _____ PSID	☐ Closed tight	☐ Closed tight
☐ Did not open	☐ Leaked	☐ Leaked
	Static _____ PSID	Static _____ PSID

DETECTOR BYPASS ASSEMBLY FINAL TEST

Opened at _____ PSID	☐ Closed tight	☐ Closed tight
	Static _____ PSID	Static _____ PSID

PVB/SRVB INITIAL TEST

Air inlet valve	Check valve
Opened at _____PSID	☐ Closed tight
☐ Did not open	☐ Leaked
	Static _____ PSID

PVB/SRVB FINAL TEST

Air inlet valve	Check Valve
Opened at _____PSID	☐ Closed tight
	Static _____ PSID

ASSEMBLIES IN FIRE PROTECTION SYSTEMS Note: Include hose stream demand where applicable

Forward Flow Test

Designed flow rate_____GPM Actual flow rate _____GPM

Indicating Control Valves

☐ No. one control valve open ☐ No. two control valve open Valve supervision: ☐ Tamper switch ☐ Locked

Part (s) Replaced/Comments _____

I HEREBY CERTIFY THE TEST RESULTS ARE TRUE AND THE TEST WAS CONDUCTED BY ME PERSONALLY.

Tester Name (print) _____ Registration No. _____ Time of Day _____

Tester Signature _____ Phone No. _____ Date _____

OWNER INFORMATION

The backflow preventer is a mechanical device designed to protect the potable water supply system from being contaminated. There is a physical connection to equipment or water of either unknown or questionable quality, thereby requiring the installation of the backflow preventer. In order to ensure that this device is working as designed, it must be periodically tested.

A test shall be conducted on each backflow preventer prior to it being put into service, after any repairs, and a minimum of once a year thereafter.

It is the responsibility of the owner to make sure the device is tested. The test shall be performed by a department registered Cross Connection Control Device tester.

OWNER'S CONTACT PERSON: The owner's contact person is the name of the person responsible for the backflow preventer maintenance and records. (**Note: Please provide full name.)**

OLD VALVE REPLACEMENT INFORMATION

If this test is for a replacement valve, please include all information for the replacement valve on this form. The manufacturer, model no., serial no., size, and the assembly type of the "old" valve must included on the comment line of this form.

MINIMUM REQUIREMENTS FOR PASSING TEST

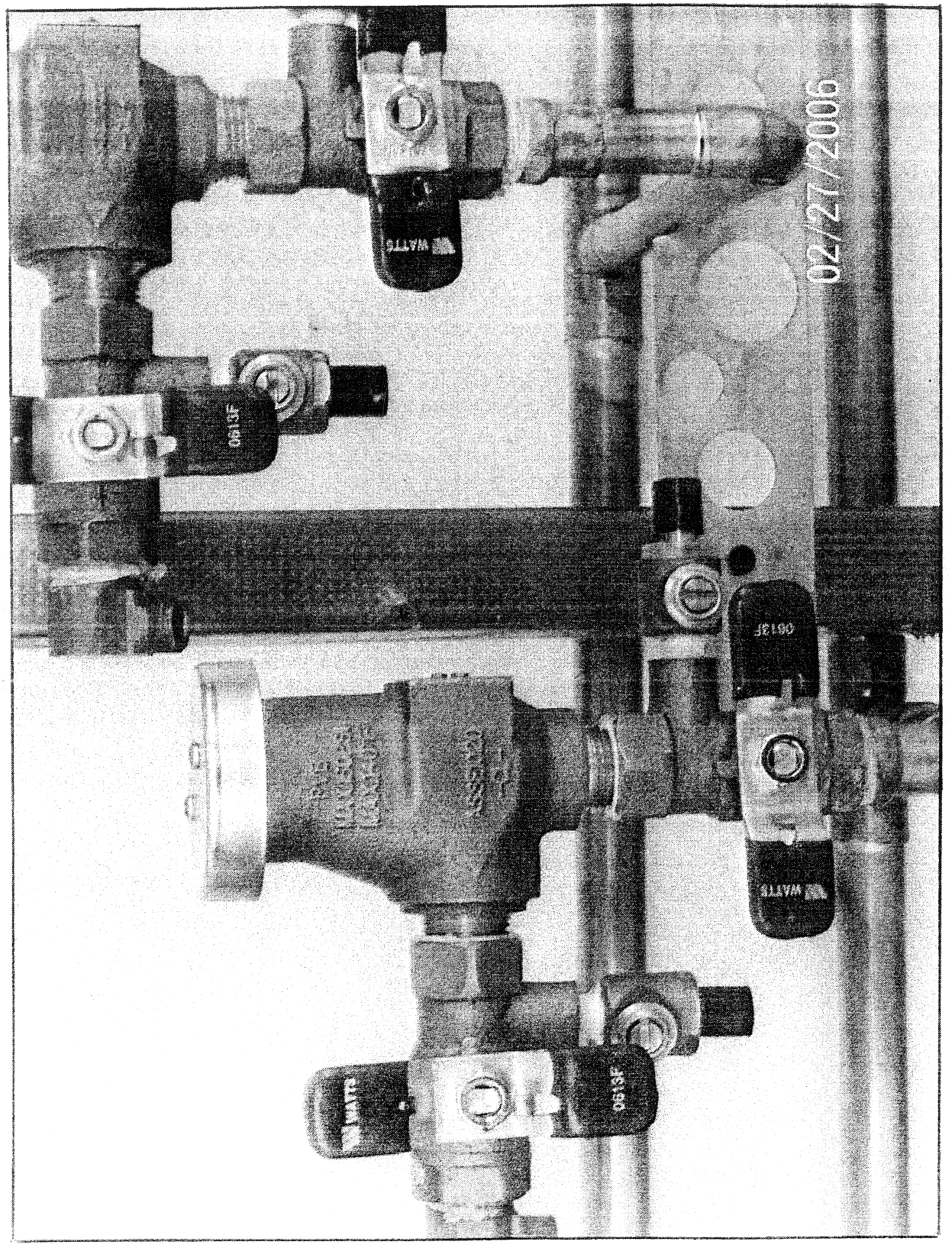
RP and RP Detector

- The first check must close tight, and the minimum static PSID must be 3 PSID greater than the recorded relief valve opening PSID.
- The second check must close tight, and have a minimum static 1 PSID.
- The relief valve must open at a minimum static 2 PSID.
- The relief valve must not be leaking upon completion of test.

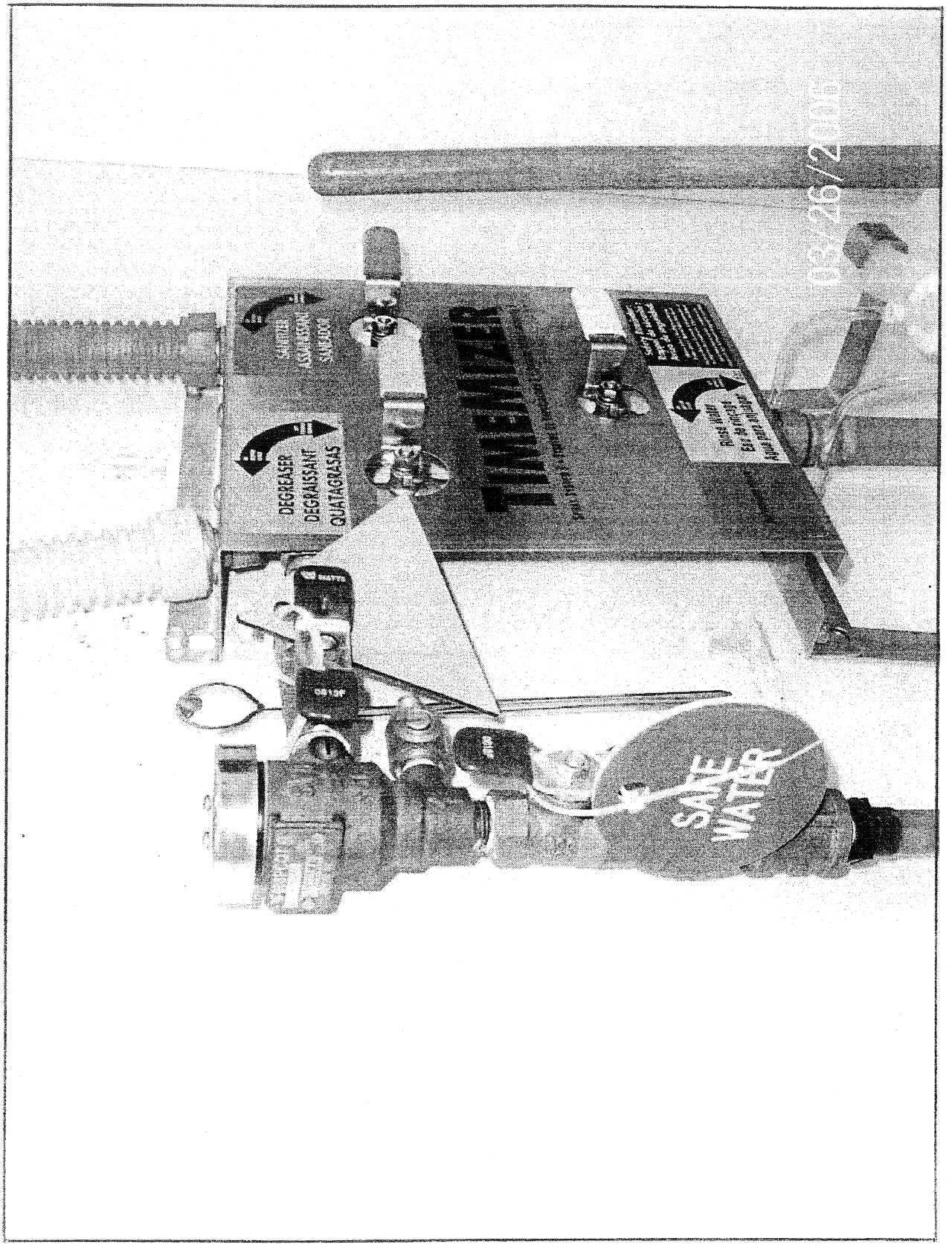
Pressure Vacuum Breaker/SVB

- The air inlet valve must open at a minimum static 1 PSID.
- The check valve must close tight, and have a minimum static 1 PSID.

PVB ASSE 1020 OUTDOOR USE ONLY



S.V.B. ASSE 1056 INDOOR USE ONLY



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A PARTIAL TABLE FOR THE SELECTION OF BACKFLOW PROTECTION *

Situation	Hazard	Air−gap	ASSE 1001	ASSE 1011	ASSE 1012	ASSE 1013	ASSE 1014	ASSE 1019	ASSE 1020	ASSE 1022	ASSE 1035	ASSE 1052	ASSE 1055	ASSE 1056
Autoclave/sterilizer[1]	Low				X									
Autoclave/sterilizer[2]	High					X								X
Boiler	Low				X									
Boiler	High					X								
Building maintenance sink[3]	High		X	X		X						X		X
Carbonated beverage dispenser	High									X				
Cappuccino machine	Low				X					X				
Chemical dispensing system[4]	High	X	X			X							X	X
Commercial dish-washer	High		X			X								X
Commercial clothes washer	High	X	X			X								X
Commercial overhead hose reel	High					X								
Dental unit/chair[5]	High					X								X
Expresso machine	Low				X					X				
Exterior wall hydrants	High							X						
Food waste grinder	High		X			X								X
Handheld showers	High		X				X							
Hose threaded outlets[6]	High			X								X		
Humidifier	Low	X			X									
Kidney dialysis machine	High					X								X
Laboratory sink faucet[7]	High		X								X	X		
Photo developing machine	High					X								X
Proofing oven	Low				X									
Shampoo/barber sink[8]	High		X			X	X							X
Swimming pools	High	X	X	X		X		X	X			X		X
Therapeutic pools	High	X	X	X		X		X	X					X
Wading pools	High	X	X	X		X		X	X					X
Water cooled compressors	High					X								X
X−ray developing machine	High					X								X
Yard hydrants[9]	High			X								X		

*Any situation may be subject to an alternate approval.

[1] If less than 15 pounds steam or 30 pounds water and nontoxic chemicals.

[2] If greater than 15 pounds steam or 30 pounds water and toxic chemicals.

[3] Requires backflow protection even if there is a plain end spout.

[4] Requires separate water supply terminating without a hose thread, or the manufacturer must provide a bleed device to connect to the janitor sink faucet spout.

[5] Or, provide bottled water conversion unit.

[6] For outlets other than the required ASSE 1019 hydrants.

[7] If provided with hose threads or serrated nipple.

[8] Faucet meeting ASME A112.18.1M that includes backflow protection requirements.

[9] Hydrants that bleed into the ground and hydrants that are flush with the grade are prohibited.

A−82.41 (3) CROSS CONNECTION CONTROL HISTORY.

CROSS CONNECTION CONTROL HISTORY TABLE

Application	Date	Code or Interpretation
Atmospheric vacuum breaker installation	1954	4 inch elevation above flood level of fixtures
	1979	6 inch elevation above flood level of fixtures
Shampoo Sinks	1977	ASSE 1001 6 inches above the flood level rim ASSE 1013 or ASSE 1012 serving several sinks
	3/1/94	Individual CCC required for each sink ASSE 1001 6 inches above highest point of use (19 inches) ASSE 1013 or ASSE 1056 12 inches above highest use ASSE 1014 approved faucet
Boilers	1977	ASSE 1012 for low pressures: 15 psig steam 30 psig water
	February 1986	ASSE 1012 for boilers: Pressure ≤ 160 psig Rated working temperature ≤ 250 degrees Actual temperature ≤ 160 Pressure relief valve set at 30 psig max. Non−toxic additives Must not be in a hospital (hospital boilers require ASSE 1013)
	3/1/94	ASSE 1012 for low pressure (same) and non−toxic in mixed condition ASSE 1013 for high pressure or toxic
	12/1/04	Chemical pot feeder creates high hazard situation automatically
Laundry trays	1977	Residential – no CCC required on hose threads Commercial – ASSE 1001 required at 7′6″
	1987	Residential without hose threads – no additional device required Residential with hose threads – AS‘SE 1011 Commercial – ASSE 1001 @ 7′6″or ASSE 1011
	3/1/94	Residential without hose threads – no additional device required Residential with hose threads – ASSE 1011, ASSE 1001 @ 7′6″ or ASSE 1052 Commercial – used for building maintenance with or without hose threads, same as residential with hose threads
Hose bibb for maintenance	1987	ASSE 1011 or ASSE 1001 @ 7′6″
	3/1/94	ASSE 1011 or ASSE 1019
Hose reels	1977	ASSE 1001 with stipulations or ASSE 1013
	3/1/94	ASSE 1020 (exterior only) with stipulations ASSE 1056 with stipulations or ASSE 1013
Sink overhead	1987	ASSE 1012 **or** Spring making cross connection impossible
Heat exchangers	1986	Double wall draining to atmosphere with toxic heat transfer fluids Single wall when non−toxic heat transfer fluids
Yard hydrants	July 1987	Sanitary hydrant with ASSE 1011 **or** ASSE 1012 serving only that hydrant and label hydrant as “non−potable” and hose threads protected with ASSE 1011
	9/1/01	Must be sanitary hydrant **without below ground bleed**
ASSE 1012	3/1/94	Limited to low degree of hazard

Application	Date	Code or Interpretation
ASSE 1019	3/1/94	Exterior wall hydrants must be frost proof and self draining The backflow protection must be integral to the hydrant
Dental units	October 1987	ASSE 1012 for each individual dental unit
	3/1/94	ASSE 1013 (high hazard designation)
Existing fire protection	2/1/94	Allow existing CCC to remain unless increase in diameter of H2O dist, or remove or replace CCC

A−82.41 (5) (a) AIR−GAP. An air−gap for cross connection control for water supply systems conforming to ASME 112.1.2.

Section Comm 81.01 (7) reads: "'Air−gap, water supply system,' means the unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank or plumbing fixture and the flood level rim or spill level of the receptacle."

A pipe/spout that terminates with its outlet above the flood level rim of a receptacle/fixture:

1. Shall terminate a minimum of one inch above the flood level rim of the receptacle/fixture, or
2. Shall terminate a minimum distance of two times the diameter of the effective opening from the end of the pipe/spout to the flood level rim of the receptacle/fixture.

Note: In any case, **regardless** if the end of the pipe/spout is cut square or at an angle, the air−gap is the distance between the lowest end of the pipe/spout and the flood level rim of the receptacle/fixture**.**

The following water supply air−gap, although the least desirable, is acceptable to the ASME 112.1.2 standard. A pipe/spout that terminates with its outlet completely below the flood level rim of a receptacle/fixture:

1. Must have an opening in the receptacle/fixture that discharges to the atmosphere through an air−gap.
2. This air−gap must be located as close as possible to the receptacle/fixture.
3. The rate of discharge through this opening as compared to the rate of water entering the receptacle/fixture establishes a "spill level" that is the level at which water entering the receptacle/fixture seeks a balance and does not raise any higher. (A level is established where the flow of water entering equals the flow of water exiting.)
4. The distance then, between this established "spill level" and the end of the lowest water supply pipe/spout, is the air−gap.
5. The minimum air−gap ("Y") is the distance between the supply pipe/spout and the "spill level" established in the receptacle/fixture.
6. The "spill level" shall be a distance no greater that one half of the distance measured as "Y," (½ "Y") above the discharge opening in the receptacle/fixture. Therefore, the air−gap between the supply pipe/spout and the highest portion of the opening that discharges to the atmosphere shall be a distance no greater than one and one half "Y" (1 ½ "Y").

Note: In any case, **regardless** if the end of the pipe/spout is cut square or at an angle, the air−gap is the distance between the lowest end of the pipe/spout and the "spill level" of the receptacle/fixture.

The measurement for this air−gap, however, could be as much as 3 times the diameter of the pipe/spout depending upon the number of near walls. The distance of a near wall is a relationship to the diameter of the pipe/spout and the measurement from the wall to the closest side of the pipe/spout:

1. If there is one near wall, and the distance between that near wall and the closest edge of the supply pipe/spout is greater than 3 times the diameter of the supply pipe/spout, then the minimum air−gap is 2 times the diameter of the supply pipe/spout.
2. If there is one near wall, and the distance to the closest edge of the supply pipe/spout is less than 3 times the diameter of the pipe/spout, then the minimum air−gap is 3 times the diameter of the supply pipe/spout.

COMMERCIAL KITCHEN REQUIREMENTS

ITEM	*REQUIREMENT*
BAR COOLER	1” TRAP IF GREATER THAN 30 INCHES MAX LENGTH 20 FT (AIR BREAK)
BEER TAP	LESS THAN 30 INCHES NO TRAP (AIR BREAK) GREATER THAN 30 INCHES 1¼ INCH WASTE (AIR BREAK)
BOILER	MORE THAN 15# OF STEAM OR 30# OF WATER- ASSE 1013
BOILER	LESS THAN 15# OF STEAM OR 30# OF WATER- ASSE 1012
BOILER-CHEMICALS	ASSE 1013
CAPPUCCINO/EXPRESSO MACHINE	ASSE 1012 OR ASSE 1022
COFFEE MAKER	ASSE 1012 OR ASSE 1022
HOSE REEL	OVERHEAD CHEMICAL ASSE 1013 OR ASSE 1056 (INDOOR)
ICE BIN	GREATER THAN 30 INCHES (AIR GAP) TO LOCAL WASTE MIN 1½ INCH TO RECEPTOR (AIR BREAK)
ICE BIN	LESS 30 INCHES (AIR GAP)
ICE MACHINE	SAME AS ICE BIN
ICE MACHINE	SINGLE WALL WATER COOLED- ASSE 1013
ICE TEA	ASSE 1012 OR ASSE 1022
JUICE MACHINE	ASSE 1012 OR ASSE 1022
MANUAL FEED CHEMICAL TO BOILER	ASSE 1013
PASTA COOKER	ASSE 1012 / WASTE (AIR GAP)
POTATO PEELER	WATER (AIR GAP) / WASTE (AIR GAP)
SOAP DISPENSER MOP SINK	WASTING TEE WITH ASSE 1055B
SOAP DISPENSER-SEPERATE SUPPLY	ASSE 1055 A OR B
STEAMER	ASSE 1012
STEAMER W/HOSE & SPRAY	ASSE 1013

COMMERCIAL KITCHEN REQUIREMENTS

* **ALL ASSE 1012 REQUIRE AN AIR GAP OR A DRAIN**

APPLICATIONS

To apply proper backflow protection, understand the causes of ***backflow.***

Plumbing systems may be subject to backflow caused by backpressure only, backsiphonage only or a combination of both.

When there is a loss of supply pressure, backflow can be induced by either backsiphonage or backpressure depending on the piping configuration.

Backpressure will also be created when a pressure higher than the supply pressure, which may due to pumps, boilers, gravity or other sources of pressure, is applied to the system.

Backsiphonage results from a siphon in the plumbing system. A siphon is a hydraulic pressure condition. It occurs when the system pressure is below atmospheric pressure or a negative gauge pressure exists.

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Hose bibb for maintenance	1987	ASSE 1011 or ASSE 1001 @ 7′6″
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2. This air−gap must be located as close as possible to the receptacle/fixture.
3. The rate of discharge through this opening as compared to the rate of water entering the receptacle/fixture establishes a "spill level" that is the level at which water entering the receptacle/fixture seeks a balance and does not raise any higher. (A level is established where the flow of water entering equals the flow of water exiting.)
4. The distance then, between this established "spill level" and the end of the lowest water supply pipe/spout, is the air−gap.
5. The minimum air−gap ("Y") is the distance between the supply pipe/spout and the "spill level" established in the receptacle/fixture.
6. The "spill level" shall be a distance no greater that one half of the distance measured as "Y," (½ "Y") above the discharge opening in the receptacle/fixture. Therefore, the air−gap between the supply pipe/spout and the highest portion of the opening that discharges to the atmosphere shall be a distance no greater than one and one half "Y" (1 ½ "Y").

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1. If there is one near wall, and the distance between that near wall and the closest edge of the supply pipe/spout is greater than 3 times the diameter of the supply pipe/spout, then the minimum air−gap is 2 times the diameter of the supply pipe/spout.
2. If there is one near wall, and the distance to the closest edge of the supply pipe/spout is less than 3 times the diameter of the pipe/spout, then the minimum air−gap is 3 times the diameter of the supply pipe/spout.

CROSS CONNECTION CONTROL PLAN

DESIGN Create a program to include a thorough inspection of water lines from water meter to all points of use fixtures and equipment. All water using equipment should be inspected for possible cross connections and back flow protection devices. Other equipment to be inspected should include water treatment equipment, water cooling equipment, etc. Program should include recording all back flow protection devices and keeping all records on these devices.

IMPLEMENT Inspection and records must be followed-up in a timely manner. Testable back flow protection assemblies must be tested annually, per State Code. Inspections should be done at a minimum annually. Follow-up inspections are recommended more frequently. Inspections must also be performed when modifications or additions are made on water piping or equipment using water. Having a testable back flow assembly repaired will require a test of assembly by a Certified Cross Connection Tester.

FOLLOW-UP One person should be in charge of over seeing back flow protection plan. This person should keep updated records of all testable assemblies as well as a list of all equipment hooked-up to water piping. This same person must initiate inspections following modifications, additions and repairs to water system. It is also important for this person to have an ***Incident response plan*** in place should there be an incident concerning any type of back flow on site.

NOTE: It is recommended to test all assemblies at the same time every year.

CROSS CONNECTION INCIDENT RESPONSE PLAN

1. Identify Source:
   (A) Possible contamination from piping or equipment

2. Isolation:
   (A) Turn off water to source/equipment
   (B) Turn off water to building.

3. Notification:
   (A) Tell tenants/employees and notify fire department if water has been shut off. (When building has a sprinkler system)

4. Correction:
   (A) Hire plumber to correct conditions.
   (B) Call city plumbing inspection for information or assistance

5. Restore system:
   (A) Turn on all water
   (B) Notify fire department if necessary.

TAGGING AND LABELING

Comm 82.40(3)(c) Protection. 1. Pursuant to s. NR 811.09 (2) the inter - connection of 2 or more water supply systems, one system served by a public supply source and the other system served by another supply source is prohibited, unless approved in writing by the Department of Natural Resources.

Comm 82.40(3)(d) Identification. 1. Where buildings or facilities contain water supply systems where the water supply systems have different degrees of hazard, all water supply systems shall be labeled in accordance with section **Comm 82.40.** This provision was effective 1994.

Comm 82.40(3)(d) Identification. 3. The installation of each reduced pressure principle backflow preventer, reduced pressure detector backflow preventer, pressure vacuum breaker assembly, and back siphonage backflow vacuum breaker shall display a department assigned identification number. This provision was effective September 1, 2001.

Comm 82.41(3)(b) Classifications. 6 a. A high hazard situation shall be considered to exist for a connection of 2 water supply systems one supplied by a public water supply and the other system supplied by a private well. **Note:** The interconnection of a public water supply system and another source of water is addressed in s. NR 811.09 and must be approved by the Department of Natural Resources.

Comm. 81.01(280) "Water distribution systems" means that portion of a water supply system from the building control valve to the connection of a fixture supply connector, plumbing fixture, plumbing appliance, water-using equipment or other piping systems to be served.

Comm. 81.01(284) "Water supply system" means the piping of a private water main, water service and water distribution system, fixture supply connectors, fittings, valves, and appurtenances through which water is conveyed to points of usage such as plumbing fixtures, plumbing appliances, water-using equipment or other piping systems to be served.

"Process piping" means piping that conveys potable water that has been altered or modified by the addition of a product, chemical or ingredient such that it has been degraded to where it would cause a nuisance, be aesthetically objectionable, or could cause minor damage to a person ingesting the water.

AUTHORITY:

In case of ***imminent health hazard*** the Plumbing Inspector has unrestricted authority to require tagging and labeling.

SUMMARY:

Potable water system <u>only</u> – labeling not required

Two (2) system piping – labeling required on both systems
EX: Municipal water <u>and</u> well, river water or other source.

Potable water and process piping systems – labeling **both** systems required

Potable water w/branches to protective devices – label protected piping required

NOTE: Labeling not required to be done under permit or by licensed personnel.

Subchapter IV — Water Supply Systems

Comm 82.40 Water supply systems. (1) SCOPE. The provisions of this section set forth the requirements for the design and installation of water supply systems.

Note: Chapter NR 811 governs the design and construction of community water systems or waterworks.

(2) MATERIALS. All water supply systems shall be constructed of approved materials in accordance with ch. Comm 84.

(3) GENERAL. (a) *Potable water required.* 1. Every outlet providing water shall be provided with water of the quality as specified under s. Comm 82.70 (3) for the intended use.

2. Nonpotable water may be supplied to water treatment devices or systems designed to treat water for compliance with Table 82.70−1.

(b) *Hot water required.* Except as provided in subds. 1. and 2., hot water shall be provided to all plumbing fixtures, appliances and equipment used for personal washing, culinary purposes or laundering.

1. Tempered water. a. Tempered water or hot water shall be provided to lavatories, wash fountains and shower heads which are not located in dwelling units or living units.

b. Tempered water supplied to serve multiple lavatories, wash fountains and shower heads shall be provided by means of temperature−actuated mixing valves that comply with ASSE 1017.

2. Lavatories located in park shelters and bath houses which are not open during the period from November 15 to March 15 and which are not places of employment shall not be required to be provided with hot water.

3. Lavatories located in waysides which are not places of employment shall not be required to be provided with hot water.

Note: The exception of providing hot water under subds. 1. to 3. does not supercede the requirements of other state agencies for providing hot water.

(c) *Protection.* 1. Pursuant to s. NR 811.09 (2) the interconnection of 2 or more water supply systems, one system served by a public supply source and the other system served by another supply source is prohibited, unless approved in writing by the department of natural resources.

2. A water supply system shall be designed and installed in accordance with s. Comm 82.41 and maintained to prevent nonpotable liquids, solids or gases from being introduced into the potable water supply system through cross connections.

3. a. Except as provided in subd. 3. b., when a connection between 2 water supply systems exists, one system having a higher degree of hazard than the other system as specified in s. Comm 82.41, the water supply system with a lower degree of hazard shall be protected as specified in s. Comm 82.41.

b. When a water treatment device is provided to lower the concentration of a health−related contaminant, cross connection control shall not be required to protect the water supply system downstream of the treatment device from the upstream contaminated source.

(d) *Identification.* 1. Where buildings or facilities contain water supply systems where the water supply systems have different degrees of hazard, all water supply systems shall be labeled in accordance with this section.

a. All aboveground piping supplying nonpotable water shall be labeled by tags or yellow bands. The yellow bands shall be at least 3 inches wide and shall bear text identifying the water and the specific use or uses.

b. The tags or colored bands shall be placed at intervals of not more than 25 feet. Where piping passes through a wall, the piping shall be so identified on each side of the wall and within each compartment.

c. The tags or colored bands identifying nonpotable water and potable water piping shall be placed at intervals of not more than 25 feet and at each side where the piping passes through a wall, floor or roof.

d. All valves and outlets supplying nonpotable water shall be identified nonpotable by tags.

e. All valves, except fixture stop valves, supplying potable water shall be identified potable by tags.

f. Tags used to identify nonpotable water outlets, valves and piping shall be of metal or plastic in the shape of an equilateral triangle with 4 inch sides and bearing the legend "water unsafe" or other similar wording approved in writing by the department. The lettering on the tags shall be raised or indented and at least 1/2″ in height.

g. Tags used to identify potable water valves shall be of metal or plastic in the shape of a 3−inch diameter circle bearing the legend "safe water" or other similar wording approved in writing by the department. The lettering on the tags shall be raised or indented and at least 1/2″ in height.

h. A hose bibb intended to discharge water that does not meet drinking water quality as specified in s. Comm 82.70, shall be labeled as nonpotable or so identified for the specific use or uses, and shall be equipped with a removable key handle.

2. Where a building or a structure is served by 2 distribution systems, one system supplied by a public water supply and the other system supplied by a private well, each water distribution system shall be identified to indicate the supply source.

3. The installation of each reduced pressure principle backflow preventer, reduced pressure fire protection principle backflow preventer, reduced pressure detector fire protection backflow preventer, spill resistant vacuum breaker and pressure vacuum breaker shall display a department assigned identification number.

a. The method to display the department assigned identification number shall be a weather−resistant tag, securely attached to the cross connection control assembly.

b. The tag shall contain at least the following information.

Wisconsin Department of Commerce Identification/Object Number _____ Cross Connection Control Assembly Do Not Remove This Tag

c. The department assigned identification number shall be printed in the blank area with a permanent, waterproof marker or similar indelible method.

Note: To obtain a department assigned identification number for a cross connection control assembly contact the department at the Safety and Buildings Division; P.O. Box 7302; Madison, Wisconsin 53707−7302; telephone (608) 266−0521; Fax (608) 267−0592; TTY (608) 264−8777.

(e) *Multipurpose piping system.* 1. Except as provided in subd. 2., a multipurpose piping system shall be designed and installed in accordance with this section and NFPA 13D.

Note: Pursuant to this subdivision and sub. (2), materials for multipurpose piping systems need to be acceptable under the NFPA 13D standard and s. Comm 84.30, Table 84.30–9.

2. a. Fire department connections are prohibited in a multipurpose piping system.

b. Sections 7.6, 6.3(4), 8.1.3 and 8.6 of NFPA 13D do not apply in Wisconsin.

c. A multipurpose piping system conforming with all sections of NFPA 13D shall add the following wording to the warning sign required in 6.3(5) of NFPA 13D: "The number and location of sprinklers in this system conform with NFPA 13D."

Note: See Appendix A–82.40 (4) for further explanatory material.

d. A multipurpose piping system that does not conform with all sections of NFPA 13D shall add the following wording to the warning sign required in 6.3(5) of NFPA 13D: "The number and location of sprinklers in this system does not conform with NFPA 13D."

(4) CONTROL VALVES. (a) *Private water mains.* Private water mains shall be provided with control valves as specified in this subsection.

RP valves don't magically change potable water to nonpotable

by Jim Wehinger, S&B Plumbing Consultant,
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Recent inquiries to the Safety and Buildings Division asked when and how to label piping downstream of a backflow preventer such as a reduced pressure principle backflow preventer (RP).

If you are confused, you are not alone. There is a misconception about this issue.

The misconception is; "Anytime a RP is installed in a piping system, the downstream piping must be labeled as "Nonpotable." **That's not correct.**

The RP in itself does not miraculously change the downstream water from potable to nonpotable. The purpose of a RP is to stop the unwanted reverse flow in a piping system. The materials used in the construction of the piping system, and what the water is actually being used for, determine whether the water is potable or nonpotable.

For example, a piping system installed to provide potable water to plumbing fixtures or appliances, and having individual protection at each point of use, would comply with the code as a potable water piping system. The installation of a RP in this system in advance of the connection of any fixture or appliance would change nothing; the use remains potable.

An RP can be installed as a containment assembly, in addition to the required isolation backflow protection at each point of use. It is sort of an insurance policy or back-up to the isolation. The RP for this type of installation should be labeled "FOR CONTAINMENT PURPOSES ONLY" to indicate its use on a potable system, and hopefully to help prevent mistaken nonpotable connections downstream.

Comm 82.41(3) requires "Isolation," or individual protection of the potable water supply at each point of use for each fixture, each piece of equipment, or each appliance requiring potable water.

As the designer or installer, you may chose to use containment in addition to isolation for a particular piping system. However, the choice of labeling would not change to nonpotable because of the containment installation of an RP. Remember, the code requires that plumbing fixtures and appliances be provided with only potable water.

Note: Comm 82.41(3)(c) requires containment in addition to isolation only for waste water treatment plants and marinas.

A single RP installed to serve multiple outlets not requiring potable water would be a nonpotable piping system. A nonpotable piping system could supply water to things such as seal lubricating water on raw sewage pumps, or boilers for heat.

Looking at other code requirements, in part: Comm 82.40(3)(a) *Potable water required.* Every piece of equipment used in the preparation or processing of food, medical or pharmaceutical products ,and every plumbing fixture and appliance which demands a supply of water, shall be provided with only potable water.

Comm 82.40(3)(d), *Identification.* 1. Where a building or a structure is served by a nonpotable water distribution system and a potable water distribution system, each distribution shall be identified in accordance with this subdivision.

a. All above ground piping supplying nonpotable water shall be identified nonpotable by tags or yellow bands. The yellow bands shall be at least 3 inches wide.

b. All above ground piping supplying potable water shall be identified by tags or green bands. The green bands shall be at least 3 inches wide.

continued on next page

HOSPITAL CHECKLIST: CROSS CONNECTION SURVEY

Note – If any other fixtures are found that are not included in this list, take notes for future inspections

ADDRESS:

Water Meters:

1.) Check for Multiple Meters and Mark Locations. Every Hospital has a minimum of 2 services
   a. Basement
   b. First Floor
   c. Pit

Mechanical Rooms:

1.) Boilers (Make up water) Check BFP
2.) High or Low Pressure Steam
   a. High – RP/ASSE 1013
   b. Low – ASSE 1012/9D
   c. Chemicals - RP/ASSE 1013
3.) Chillers – What type of BFP
4.) Cooling Tower – What Type of BFP
5.) Water-cooled Air Compressors Check BFP
6.) Water-cooled Generator Check BFP
7.) Deionizer – Check BFP
8.) Water Softener - Check BFP
9.) Vacuum Pumps - Check BFP
10.) Water Sterilization - Check BFP
11.) Humidifiers-Check BFP

Backflow Preventers:

1.) Receive List of All Testable Devices
   a. Ask Foster, Jim, Hal or Richard for list
   b. Ask for list from Maintainance Staff
2.) Document Serial Numbers and Locations
3.) Update Test Reports

Sprinklers:

1.) Check Sprinkler DDCV
2.) Update DDCV Test Reports

PAGE 1

Page 2

HOSPITAL CHECK-OFF

Irrigation:

1. Check for Proper BFP for Lawn Sprinklers and Irrigation
2. Outside Hose Bibbs
3. Water Features

Kitchen:

1. Pot Fillers – Hose fills ASSE 1011 Needed
2. Steamers – Check BFP
3. Soap Dispensers – Approved 1055
4. Dishwashers
   a. Soap Dispensers
   b. Shock Arrestor
   c. Air Gap/Break Drain
5. Hose Reels - Check BFP
6. Water-cooled Compressors - Check BFP
7. Sinks
   a. Hose and Spray on Faucets
   b. Check BFP
8. Coffee Makers - Check BFP
9. Beverage Dispenser – Check BFP
10. Ice Machines –
    a. Dual Feed – Check BFP Possible ASSE 1013
    b. Air Gap Drain
11. Combi- Ovens – Check BFP

Patient Floors:

1. Nurses Station - Ice Machines – Check for Air Gap
2. Mop sinks and Soap Dispensers – Check BFP
3. Patient Rooms - Check Vacuum Breakers for Toilets (Ballcock if Tank Type)
4. Hand-held Showers (ASSE 1014 BFP)
5. Bathtub/Therapy Bath Tubs – Check BFP
6. Hand Wash Sink at Nurses' Station – Check BFP
7. Bedpan Washer – Check BFP

X-Ray and MRI Machines:

1. X-Ray Film Processors – Check BFP
2. MRI Machines – Check BFP

Page 3

HOSPITAL CHECKLIST

Dialysis Machines:

1.) Water Connections – Air Gap or RP
2.) Check Portable Units – Check BFP

Labs:

1.) Blood Analyzer – Check BFP
2.) Lab Faucets – Check BFP
3.) Lab Hoods – Check BFP

Surgery Rooms:

1.) Check Wash/Scrub Sinks – Check BFP
2.) Sterilizers – Check BFP
3.) Autoclaves – Check BFP

Autopsy Rooms:

1.) Check for Water-assisted Equipment (Take Notes and Pictures)

Soiled Linen:

1.) Check for BFP on Equipment

Laundry:

1.) Washing Machines – Check BFP
   a. Soap Dispenser – Check BFP
   b. Shock Arrestors
2.) Dryers
   a. Check BFP on Possible Water Feed
3.) Soap Dispensers
   a. ASSE 1055
   b. Check BFP

Emergency Rooms:

1.) Check Hand Wash Sinks BFP
2.) Ice Machines – Check BFP
3.) Restrooms and Bedpan Washers

HOSPITAL CHECKLIST

Casting Room:

1.) Check for BFP

Equipment Room:

1.) Cart Wash – Check BFP
2.) Garbage Can Wash – Check BFP

CONDUCTING A CROSS CONNECTION SURVEY AT A LARGE FACILITY

As we move forward with the Cross Connection Control Program, we are beginning to add Milwaukee's larger and more complex buildings to our route sheets. Facilities such as hospitals, high-rise office towers, university campuses, and major manufacturing plants will require a little extra planning and communication with the facility owners/operators.

The cross connection survey is a more thorough inspection than many building owners anticipate. Most have never heard of a cross connection survey before. A good starting point is a phone call to the building engineer or maintenance supervisor. Let them know what the program is about and why it is required. Offer to meet with the maintenance and management staff to answer all their questions prior to scheduling an actual inspection. Hal Jenkins and Richard Paur should be notified of such meetings as they may wish to attend. The PowerPoint presentation may also be helpful to the customer. Some larger facilities may be given some time to do a little "housekeeping", such as having multiple piping systems properly labeled and tagged to make it possible for us to conduct the inspection.

A lead inspector to represent the City of Milwaukee should be established to minimize confusion between the inspection team and the customer. Any clarifications should be made by the lead inspector.

Below is a list of things you can do to help keep large jobs manageable:

1. Require that all piping systems be properly labeled and tagged per Comm 82.40 (3) (d) before conducting the inspection.
2. Work methodically floor by floor and take your time. Do not let your escort "steer" you away from an area you want to inspect. Make sure you understand what you are looking at and how it relates to the potable water supply. Take pictures and thorough notes if you are not certain of a particular piping arrangement or piece of equipment. Don't be afraid to ask the building engineer or mechanic what something is and how it works—nobody knows everything!
3. Visually trace all exposed piping from the main or main branch to the point of use to verify whether cross-connections exist.
4. Allow yourself some time immediately following the completion of each building to write orders before you forget what you saw.
5. Ask the other inspectors about unfamiliar fixtures or equipment—someone may have dealt with the same situation before. This is the information we need to update our cross connection manual.
6. If necessary, make clarifications of your notes and keep them for your files. You will need them for follow-up inspections which may be several weeks after the initial inspection.

CONTACTS FOR PLUMBING & CROSS-CONNECTION

Tom Braun (State)	715-340-5387
Herman Delfosse (State)	715-524-3630
Tim Joyce (State)	608-235-0557
Jim Miller (State)	608-266-8072
Jerry Thompson (State)	608-266-6742
Thomas Cottreau (Milw. Plan Review)	414-286-3116
Kent Wilde (Milw. Plan Review)	414-286-2596
Hallet Jenkins (Milw. Insp. Sup.)	414-286-8221
Richard Husar (Milw. Insp. Sup.)	414-286-8219
Foster Finco (Backflow Inspector/South)	414-286-8220
Michele Burke (east side)	414-286-3357
Jim Winterhalter(Backflow Inspector/North)	414-286-8224
Jeff Wroblewski (south east)	414-286-8237
Andy Witczak (west central)	414-286-3364
Abraham Jones (north west/central)	414-286-3356
Chris Krowski (south west)	414-286-8257
Dave Mattox (north west)	414-286-8262

AUTO CLAVE STERILIZER

Cross-connection control for auto clave sterilizers is based on a high degree and low degree of hazard for the protection of the potable water supply. Comm. 82.41(4)(d)2

TYPES

There are auto clave units hooked up to the water supply and self-contained units (filled by hand).

There are auto clave units that sterilize with hot water and units that sterilize with steam.

APPROVED METHOD OF BACK FLOW PROTECTION

Each water line to each auto clave unit shall be protected.

Note: If unit sterilizes with water over 30lbs pressure it requires high hazard protection.
If unit sterilizes with steam over 15lbs pressure it requires high hazard protection.

LOW
1. ASSE 1012

HIGH
1. ASSE 1013
2. ASSE 1056

BATTERY FILL STATION

Cross-connection control for a **battery fill station** is based on a high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

There can be different types of **battery fill stations** but commonly a hose with a spray nozzle is used. Any other types must be looked at closely and backflow protection must be considered on a case by case basis.

BACK FLOW PROTECTION

The water supply serving the **battery fill station** must be protected to the highest degree to prevent battery acid and other toxins from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A.	A.S.S.E. 1001	Pipe applied atmospheric vacuum breaker
B.	A.S.S.E. 1011	Hose connection vacuum breaker
C.	A.S.S.E. 1013	Reduced pressure principle back flow preventer
D.	A.S.S.E. 1056	Spill proof vacuum breaker

BEVERAGE DISPENSERS

Cross-connection control for **beverage dispensers** is based on low and high degree of hazard for the protection of the potable water supply. Comm 82.41

NOTE: The high hazard classification is given to the carbonated beverage dispensers. Also to cappuccino/expresso machines with actual boilers exceeding 15 pounds of steam or 30 pounds of water pressure.

TYPES

The most common types of **beverage dispensers,** with water connections, are carbonated beverages, juice dispensers, coffee/cappuccino/expresso machines and hot chocolate dispensers. **Beverage dispensers** not connected to the water supply are not of concern for cross-connection. This would include carbonated beverages dispensed from charged tanks and any **beverage dispenser** that water is filled by hand.

BACK FLOW PROTECTION

The water supply serving **beverage dispensers** must be protected to the highest degree to prevent CO2 (carbonated gases) from entering the water supply. The highest degree of protection is also used on cappuccino and expresso machines with actual boilers. This protection is to prevent any contents of boiler from over powering the water supply line and entering water supply system. The low hazard classification is used on all other **beverage dispensers** to prevent any contaminants from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

Low Hazard

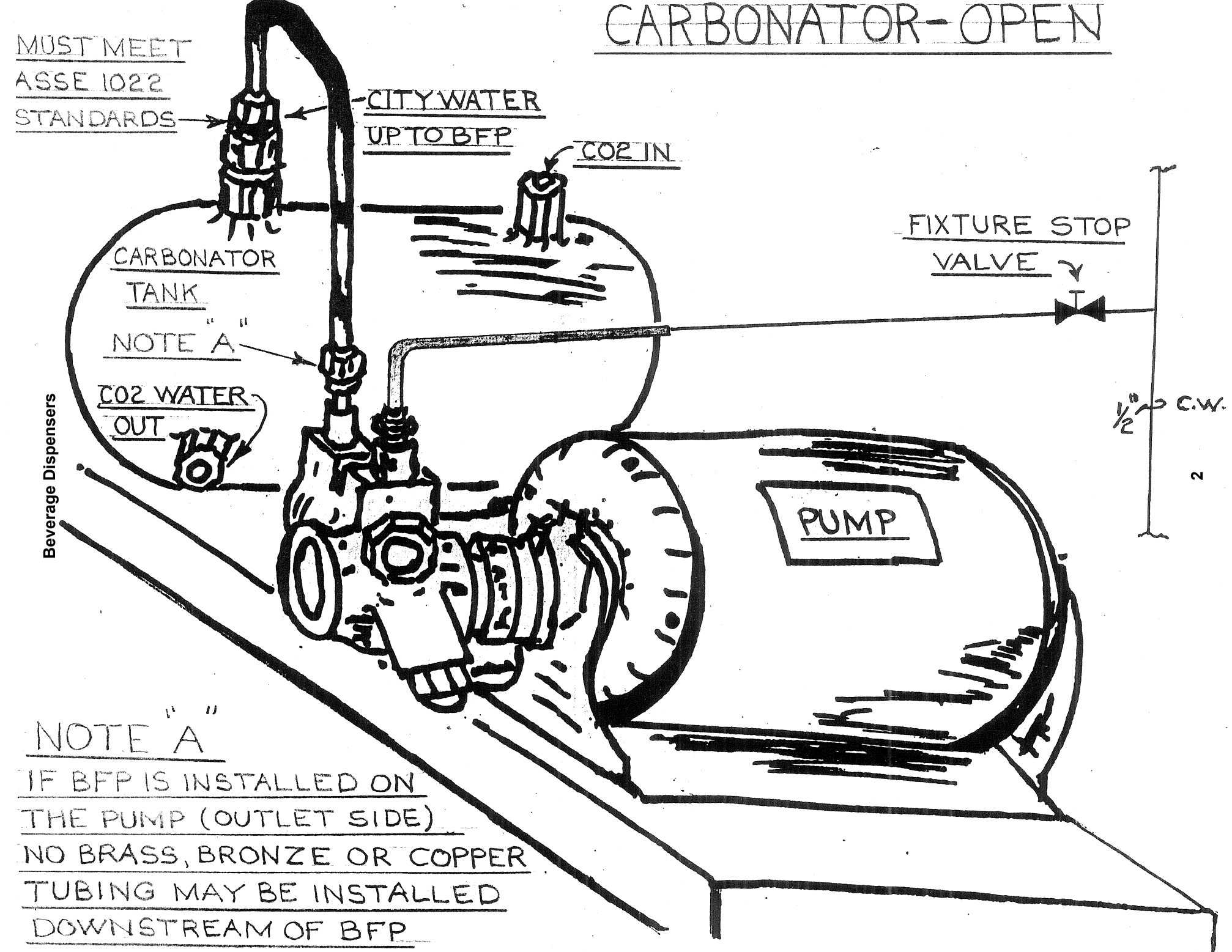
A. A.S.S.E. 1012 Intermediate atmospheric vent

High Hazard

B. A.S.S.E. 1022 Dual check valve w/atmospheric vent

C. A.S.S.E. 1013 Reduced pressure principle back flow preventer

CARBONATOR-OPEN



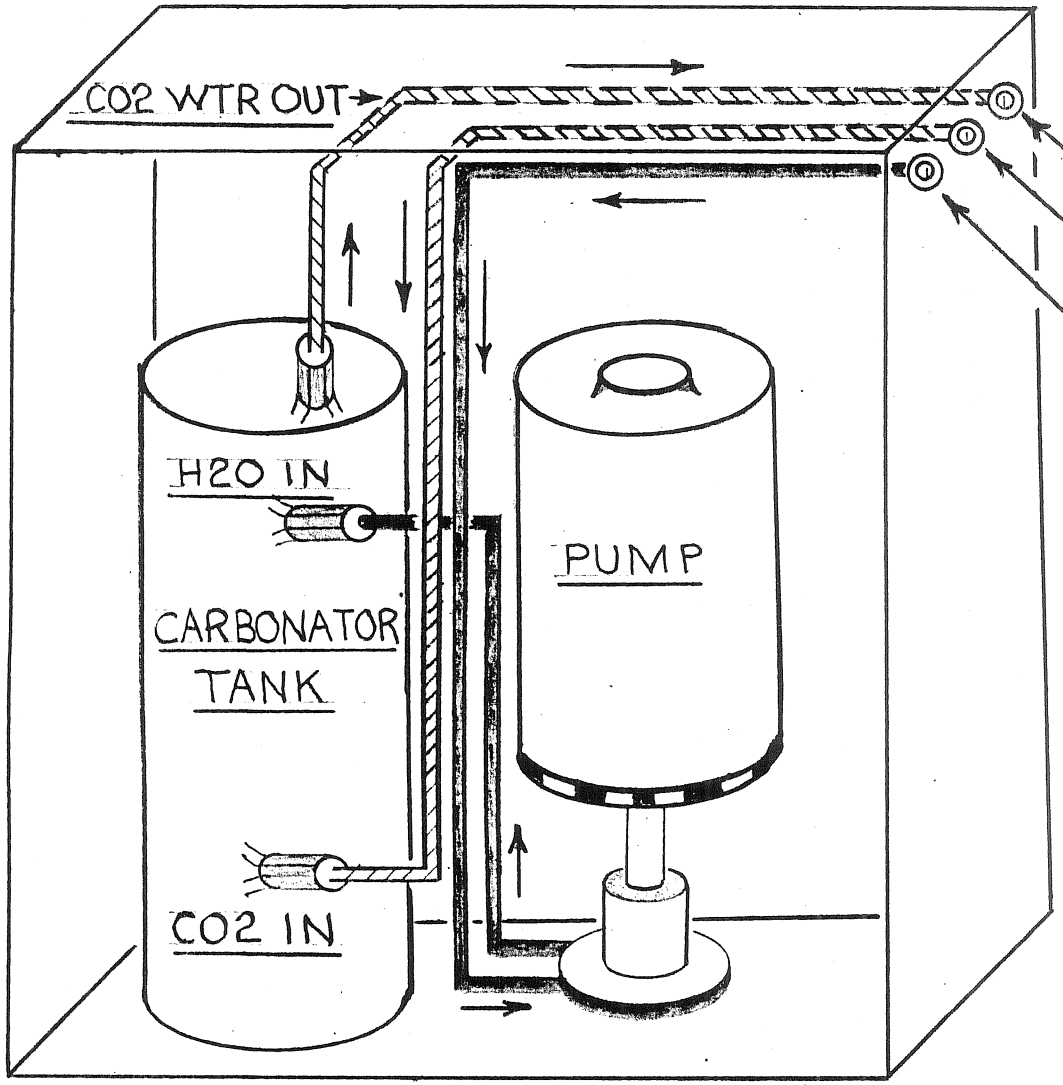
Beverage Dispensers

2

NOTE "A"

IF BFP IS INSTALLED ON THE PUMP (OUTLET SIDE) NO BRASS, BRONZE OR COPPER TUBING MAY BE INSTALLED DOWNSTREAM OF BFP

CARBONATOR (UNIT IN CASE)



CO2 WATER OUT

CO2 IN

CITY WATER IN W/ PROPER BFP. SHALL MEET ASSE 1022 STANDARD INSTALLED AT WATER CONNECTION

NOTE: NO BRASS, BRONZE, OR COPPER AFTER BACKFLOW PREVENTER

NOTE: LINES INSIDE OF CASE ARE NSF 51 OR EQUAL (FOOD GRADE)

Chudnow
We keep the flow going!

AUTOMATIC VENTING DEVICES

for prevention of back flow of gas (CO2) into water supply lines in carbonated water systems. Three series of vent valves to fit any make carbonator.

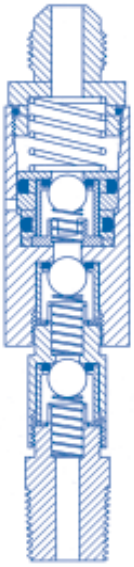
911 SERIES
Venting device only. For installation on existing check valves.

914 SERIES
Venting device with integral check valve built in.

S470 - VV SERIES
Venting device with integral double check valve.

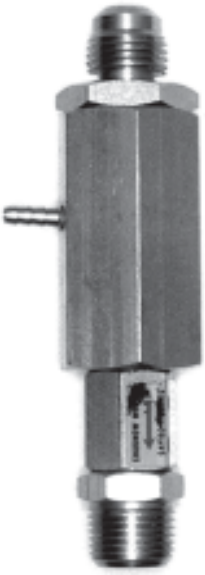
911 - 69

914 - P66



S470D-VV6P6

S470D-VV66



S470D-VV6P6X *

x-designation indicates 1/8 hose barb for external venting

When ordering vent valves
Please Designate INLETS and OUTLETS with the following CODES:

INLET FITTINGS		911 OUTLETS		914 AND S470VV OUTLETS			
CODE	**/ FITTING**	**CODE**	**/ FITTING**	**CODE**	**/ FITTING**	**CODE**	**/ FITTING**
4	1/4 MALE FLARE	9	9/16-27*	4	1/4 MALE FLARE	FP2	1/8 FEMALE PIPE
6	3/8 MALE FLARE	F4	1/4 FEMALE FLARE	5	5/16 MALE FLARE	FP4	1/4 FEMALE PIPE
P4	1/4 MALE PIPE	F6	3/8 FEMALE FLARE	6	3/8 MALE FLARE	FP6	3/8 FEMALE PIPE
P6	3/8 MALE PIPE			F4	1/4 FEMALE FLARE	H4	1/4 HOSE BARB
FP4	1/4 FEMALE PIPE			F5	5/16 FEMALE FLARE	H6	3/8 HOSE BARB
FP6	3/8 FEMALE PIPE			F6	3/8 FEMALE FLARE		
F4	1/4 FEMALE FLARE	* Thread fits Chudnow ballcheck outlets.		P2	1/8 MALE PIPE		
F6	3/8 FEMALE FLARE			P4	1/4 MALE PIPE		
				P6	3/8 MALE PIPE		

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Department of Commerce

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658
TTY: Contact Through Relay

Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

December 29, 2008

CHUDNOW MFG
ROD HEARST
3055 NEW ST BOX 10
OCEANSIDE NY 11572

Re: Description: BACKFLOW PREVENTER FOR CARBONATED BEVERAGE MACHINES - ASSE 1022
Manufacturer: CHUDNOW MFG
Product Name: AUTOMATIC VENTING DEVICE
Model Number(s): S470D-VV**** ASTERISKS DENOTE NUMBERS OR LETTERS OF VARIATIONS WHICH DO NOT CHANGE THE APPROVED OPERATION OF THE BASE MODEL NUMBER SHOWN
Product File No: 20080370

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.41 (3) (a) 1 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 2014.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This device may only serve beverage dispensing equipment. When this device serves carbonated dispensing equipment copper pipe and/or tubing may not be used down stream of this device.

This approval supersedes the approval issued on May 20, 2004 under product file number 20040273.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040273.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: Jerry.Thompson@wi.gov

BOILERS

82.41 (3) 2 (b) **A** high hazard cross connection situation shall be considered for a connection of the water supply system to a chemical pot-feed or automatic chemical feeder installed to serve a boiler, cooling tower or chilled water system.

Backflow standard: **A.S.S.E.**10 13 or air gap.

82.41 (4) 2 (d) Limitations: A backflow preventor with an intermediate atmospheric vent may not be employed in backpressure situations of more than 150 psig and may not serve boilers having a maximum **steam** pressure greater than 15 psig or a maximum **water** pressure setting greater 30 psig. This backflow preventor may serve more than one unit.

Backflow standard: **A.S.S.E.** 10 12.

NOTE: Per 82.41 (5) (d) A cross connection control device which has one or more vent ports may not be located in a pit, vault, or depression which is below the adjacent grade or floor level
(e) Vent ports of cross connection control devices shall be positioned away from areas where toxic gases and fumes may accumulate, downward or protected to protect the ports from falling debris and so as to drain.

82.41 (5) 2 Cross connection control devices shall be so located that any vent ports of the device shall be provided with an air gap.

Boiler blowdown tanks should be checked for any interconnection of the potable water system.

*Discharges require **AIR GAP.**

BACK FLOW PROTECTION

Heat exchangers can be classified into two categories, single wall and double wall units. Double wall units have a visible vent port for leak detection. The only way to protect the potable water supply serving a **heat exchanger** is with a double wall **heat exchanger.** Single wall **heat exchangers** should only be used when both heat source and heated water are domestic use. Double wall **heat exchangers** are required in all other situations involving domestic hot water.

82.41(3)(d) Prohibitions. The use of a toxic solution as a heat transfer fluid in single-wall heat exchanger for potable water is prohibited.

EXAMPLE 1 **A boiler with a side arm heat exchanger for domestic use.** Boiler must be protected per specs in boiler chapter and heat exchanger must be double wall. All double wall heat

NOTE: A leak hole) on double wall heat exchangers signifies a problem and requires immediate attention. This condition is similar to a

valve leaking, which also requires immediate attention.

EXAMPLE 2 **Domestic single wall heat exchanger.** Use of a high temperature water heater for kitchen use with heat exchanger to lower temperature for domestic sink use. Or, reverse and use heat exchanger to raise temperature for kitchen use. No back flow protection required on heater and heat exchanger can be single wall. (Both heater and heat exchanger are for domestic use)

APPROVED METHOD OF BACK FLOW PROTECTION NOTE: listed below are common BFP for boilers (see **BOILER** chapter)

Low hazard

A. A.S.S.E. 1012 Intermediate atmospheric vent

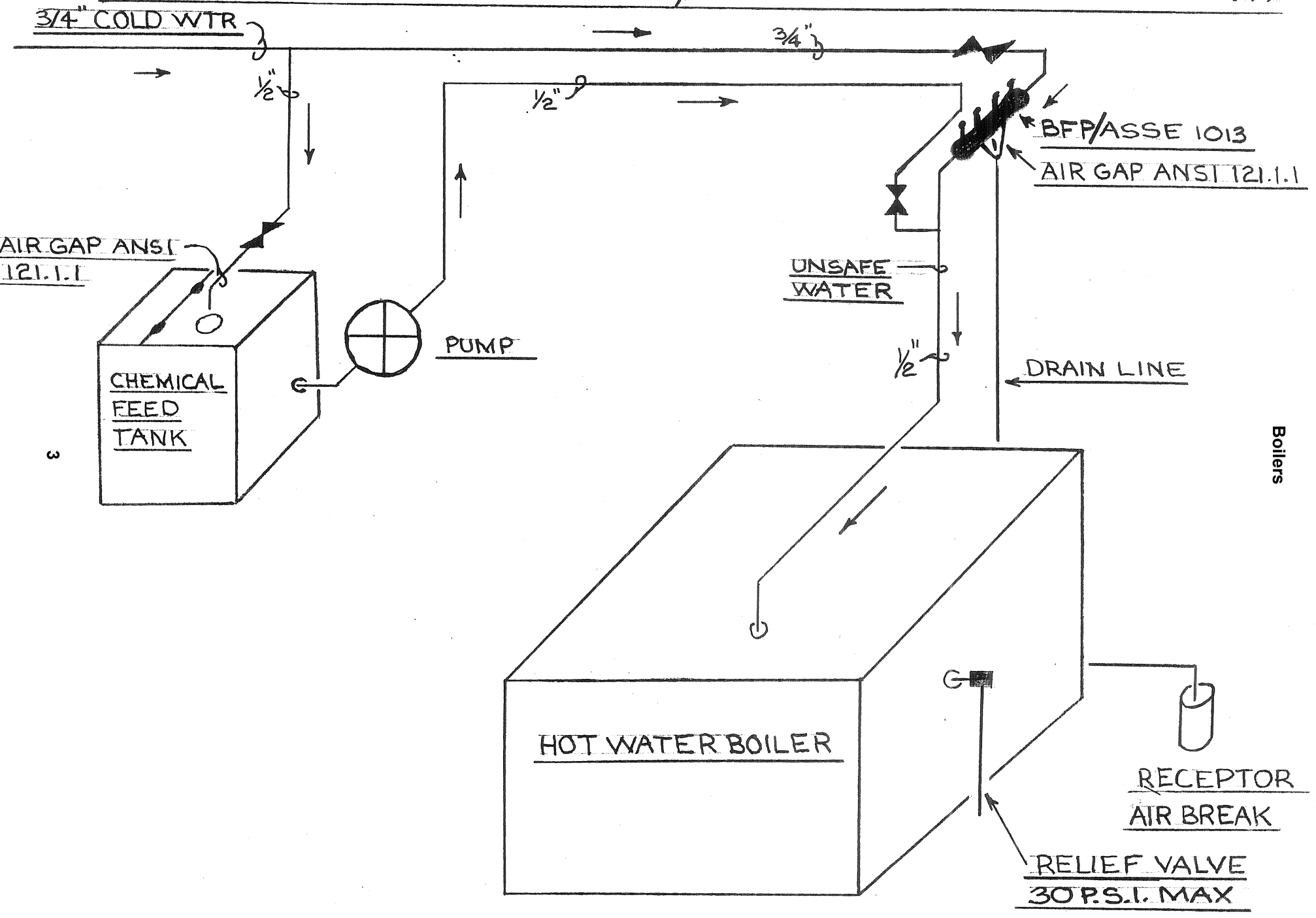
High hazard

B. ASME A112.1.2 Air gap on potable water line

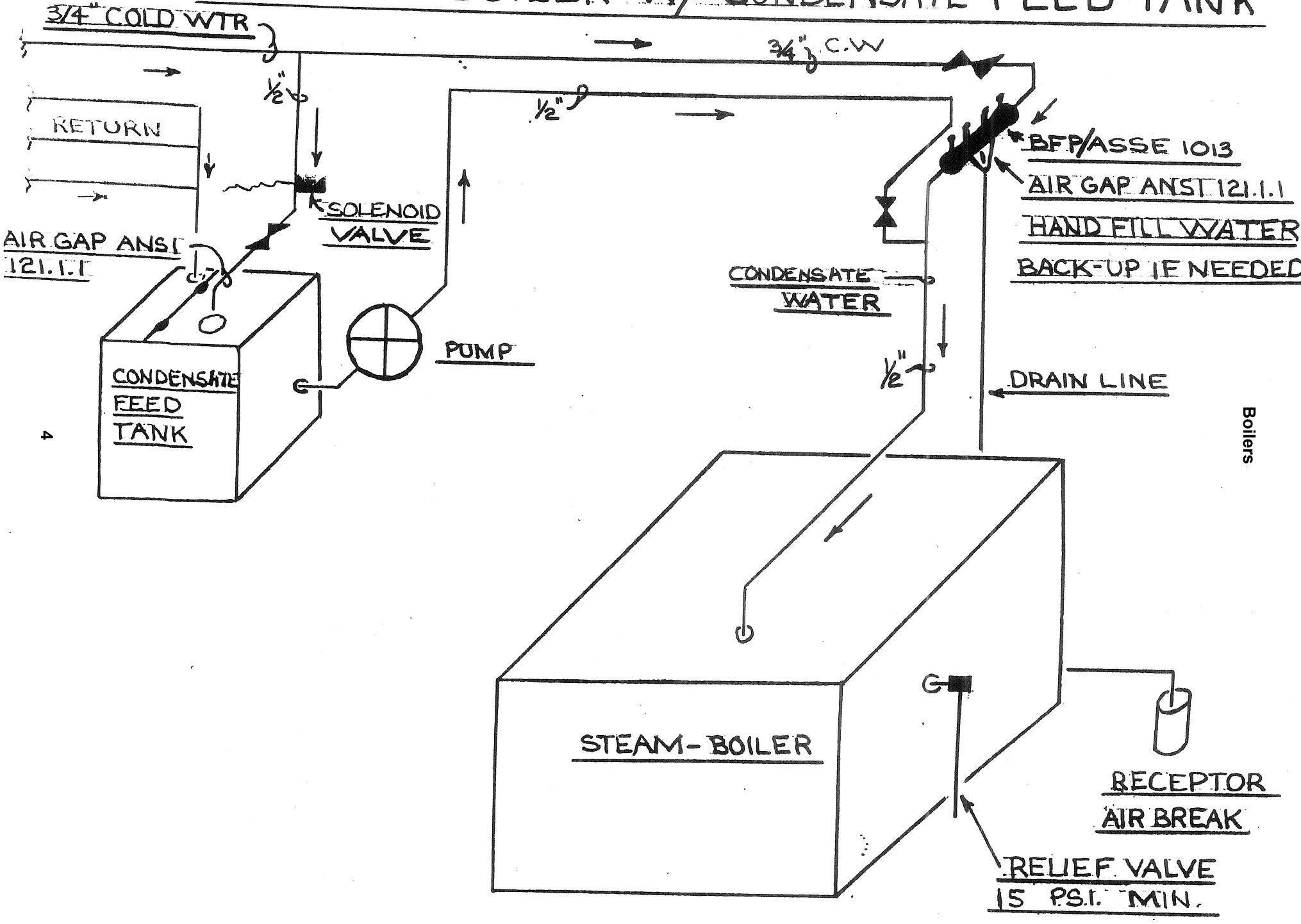
C. A.S.S.E. 1013 Reduced pressure principle back flow preventer

D. A.S.S.E. 1056 Spill proof vacuum breaker

HOT WATER BOILER W/ CHEMICAL FEED TANK



STEAM - BOILER W/ CONDENSATE FEED TANK



CAR WASH

Cross-connection control for car washes is based on a **high** degree of hazard for the protection of the potable water supply. Comm. 82.41

If an air gap is not used, the only other method of protection is the A.S.S.E. 1013 reduced pressure zone backflow preventer.

Remember **ALL** hose faucets require vacuum breakers A.S.S.E. 1011.

NOTE: One RP valve can serve all car wash equipment. Hot water must be protected and **only** serving car wash equipment.

CHEMICALS IN WATER DISTRIBUTION

WHERE: Boilers, car/truck wash, lawn care, hospitals/health care facilities, apartments w/large galv. piping systems, treated recycled water and others.

WHAT: Ethylene glycol (anti-freeze), propylene glycol (non-toxic anti-freeze), Oxytrol, Colci-solv (rust inhibitors), bleach, chlorine, soaps, detergents and others.

WHEN: Seasonal (maintenance, schedule, lawn care, etc.), constant injection, one time application and others.

What to look for - Bottles of chemicals, pumps, chemical pot feeder, odd looking fittings, open pipes, by-pass/loops, etc.

What to ask - Do you treat the water?
What gets attached to special fittings?
Do you use chemicals to treat the boiler or galv. piping?
Do you use chemicals for lawn care or other maintenance?

What to do - Order RP valves, recommend/order removal of chemicals & explain hazard to owner/maint. personnel and more.

HOT WATER CHEMICAL TREATMENT (HOSPITAL)

Cross-connection control for a **Hot water chemical treatment** is based on a high degree of hazard for the protection of the potable water supply. Comm 82.41 & 82.50.

TYPES

The main intent for sterilization of hot water is for bacterial control. There are units which are chemically treated and units that are electrode charged (which needs no backflow protection). This chapter deals with the hot water that is chemically treated and the water supply feeding the heaters. The most common chemical used for sterilization is chlorine dioxide.
NOTE: Comm 82.50 (3)(b) 6.b. Water chlorinated at 2 mg/L residual.

BACK FLOW PROTECTION

The water supply serving the **Hot water chemical treatment** must be protected to the highest degree. The highest degree of protection is required to prevent toxins (chemicals and bacteria) from getting back into the cold water supply.

APPROVED METHOD OF BACK FLOW PROTECTION

A. ASSE 1013 Reduced pressure principle back flow preventer

B. ASSE 1056 Spill proof vacuum breaker

CHILLERS

Cross-connection control for **chillers & cooling towers** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41(4)(e)1

TYPES

Chillers & cooling towers are used for cooling buildings and equipment. Most applications are found in commercial and industrial facilities.

Air conditioning – cooled water is distributed to chillers, or coils, in air handling units. The used water is recirculated back to cooling tower.

Equipment cooling – industrial chillers are used for controlled cooling of products. Uses include: welding equipment, generation stations, analytical equipment as well as high heat items such as lasers, MRI machines and more.

Cooling towers – used to draw heat from the cooling water circulating through the condenser of a chiller. The cooled water is recycled back to the chiller. Often times chemicals are added to the water. Some of these chemicals include glycol, corrosion inhibitors and others. When connected to domestic water it will require high degree of hazard protection.

Potable water is added to cooling towers to replenish water lost by evaporation. Water is introduced either by an air gap or by a submerged inlet on reservoir or by a direct pipe connection to cooling piping.

NOTE: Follow make-up water line to make certain it is connected to the potable water supply.

BACK FLOW PROTECTION

Back flow protection is required to protect potable water from chemicals and recycled water in system.
Attention must be made to where **(locate)** chemicals tie into system.
When potable water line ties into system-**exchangers must be double wall.**

STEPS TO FOLLOW TO DETERMINE IF PROPER BFP EXISTS

1. Locate water inlet at cooling tower & confirm air gap exists.

2. Trace water inlet back to plumbing system to confirm it is potable water.
   a. Air gapped pipe is connected to potable water – system protected.

   b. Air gapped pipe is part of recycled system – confirm potable connection elsewhere on system.

3. Inspect chillers & exchangers for possible connections to potable water.

4. Where chemicals are present in system – confirm point of chemical introduction in system is downstream of any backflow protection.

NOTE: If potable water feeds system directly (not air gapped), all exchangers must be double wall.

APPROVED METHOD OF BACK FLOW PROTECTION

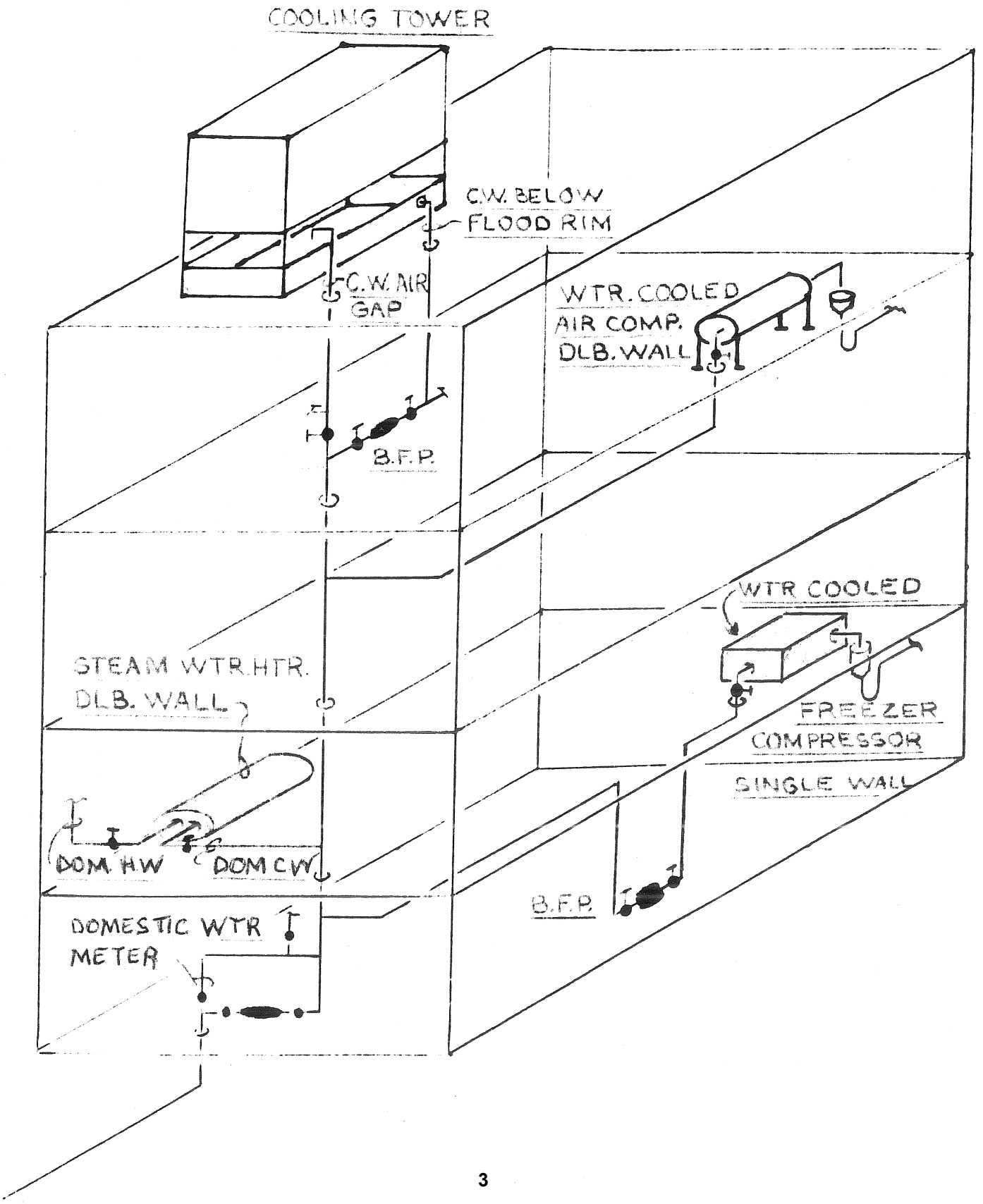
A. Air gap on make-up water line

B. A.S.S.E. 1001 Pipe applied atmospheric vacuum breaker.

C. A.S.S.E. 1013 Reduced pressure principle back flow preventer.

D. A.S.S.E. 1020 Pressure vacuum breaker – not spill proof (typical exterior applications)

E. A.S.S.E. 1056 Spill proof vacuum breaker.


COOLING TOWER
C.W. BELOW FLOOD RIM
C.W. AIR GAP
WTR. COOLED AIR COMP. DLB. WALL
B.F.P.
WTR COOLED
STEAM WTR. HTR. DLB. WALL
FREEZER COMPRESSOR
SINGLE WALL
DOM. H.W
DOM C.W
B.F.P.
DOMESTIC WTR METER

CHINESE WOK and COOKING SURFACES

Cross-connection control for **Chinese wok and cooking surfaces** is based on a low and high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The types of **Chinese woks and cooking surfaces** can be split into a few categories. A pot filler located on the back of a range typically handles water serving woks. This is a faucet that is high enough to fill pots and maintain an air gap. Water serving **cooking surfaces** can vary in design of ranges. These ranges typically have front, rear or side gutters to aid in cleaning **cooking surfaces.** In addition, ranges may have a waterfall backsplash. This feature is used to cool down **cooking surface** as well as aid in cleaning the unit.

BACK FLOW PROTECTION

The water supply serving the **Chinese wok and cooking surfaces** must be protected to the highest degree to prevent any contaminants/toxins from entering the water supply. The use of de-greasing chemicals and surface cleaners are the reason for high hazard protection. The arrangement of nozzles, sprayers and fill ports on a range will determine the type of back flow protection required.
NOTE: The drain on a **Chinese wok and cooking surface** must dis-charge to a grease trap. This drain must flow to a receptor and have an air gap at point of discharge into receptor.

APPROVED METHOD OF BACK FLOW PROTECTION

See chapter on **"Hood wash & Chinese range"** for proper back flow protection requirements.

CLOTHES WASHER – COMMERCIAL

Cross-connection control for **commercial clothes washer** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The types of **clothes washers** usually include top load, front load & oversize load. **Clothes washers** have hoses hooking up to the back & run through a vacuum breaker or an air gap.

BACK FLOW PROTECTION

Soaps & detergents added to laundry are what make this situation a high hazard. All back flow protection must be in place (in line) before soap or detergent.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Air gap where hoses hook-up to washer.

B. A.S.S.E. 1001 pipe vacuum breaker

C. A.S.S.E. 1013 reduced pressure principle back flow protector

D. A.S.S.E. 1056 spill proof vacuum breaker

COMPRESSOR - WATER COOLED

Cross-connection control for **water cooled compressors** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

There are different ways to cool compressors, this will determine the type of backflow protection to be used. Cooling lines that run into compressor with a single wall jacket will require high hazard protection.
NOTE: Pipes wrapped around the compressor and double wall cooling jackets are considered protected. These conditions require an air gap where cooling line discharges into receptor. No additional backflow protection is required in these situations.

BACK FLOW PROTECTION

The water supply serving the **water cooled compressor** must be protected at a high degree of hazard to prevent drain water or lubricant fluids from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.M.E. A112.1.2 Air gap on discharge cooling line

B. A.S.S.E. 1013 Reduced pressure principle back flow preventer

C. A.S.S.E. 1056 Spill proof vacuum breaker

COOLING TOWER

Cross-connection control for **chillers & cooling towers** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41(4)(e)1

TYPES

Chillers & cooling towers are used for cooling buildings and equipment. Most applications are found in commercial and industrial facilities.

Air conditioning – cooled water is distributed to chillers, or coils, in air handling units. The used water is recirculated back to cooling tower.

Equipment cooling – industrial chillers are used for controlled cooling of products. Uses include: welding equipment, generation stations, analytical equipment as well as high heat items such as lasers, MRI machines and more.

Cooling towers – used to draw heat from the cooling water circulating through the condenser of a chiller. The cooled water is recycled back to the chiller. Often times chemicals are added to the water. Some of these chemicals include glycol, corrosion inhibitors and others. When connected to domestic water it will require high degree of hazard protection.

Potable water is added to cooling towers to replenish water lost by evaporation. Water is introduced either by an air gap or by a submerged inlet on reservoir or by a direct pipe connection to cooling piping.

NOTE: Follow make-up water line to make certain it is connected to the potable water supply.

BACK FLOW PROTECTION

Back flow protection is required to protect potable water from chemicals and recycled water in system.
Attention must be made to where **(locate)** chemicals tie into system.
When potable water line ties into system-**exchangers must be double wall.**

STEPS TO FOLLOW TO DETERMINE IF PROPER BFP EXISTS

1. Locate water inlet at cooling tower & confirm air gap exists.

2. Trace water inlet back to plumbing system to confirm it is potable water.
   a. Air gapped pipe is connected to potable water – system protected.

   b. Air gapped pipe is part of recycled system – confirm potable connection elsewhere on system.

3. Inspect chillers & exchangers for possible connections to potable water.

4. Where chemicals are present in system – confirm point of chemical introduction in system is downstream of any backflow protection.

NOTE: If potable water feeds system directly (not air gapped), all exchangers must be double wall.

APPROVED METHOD OF BACK FLOW PROTECTION

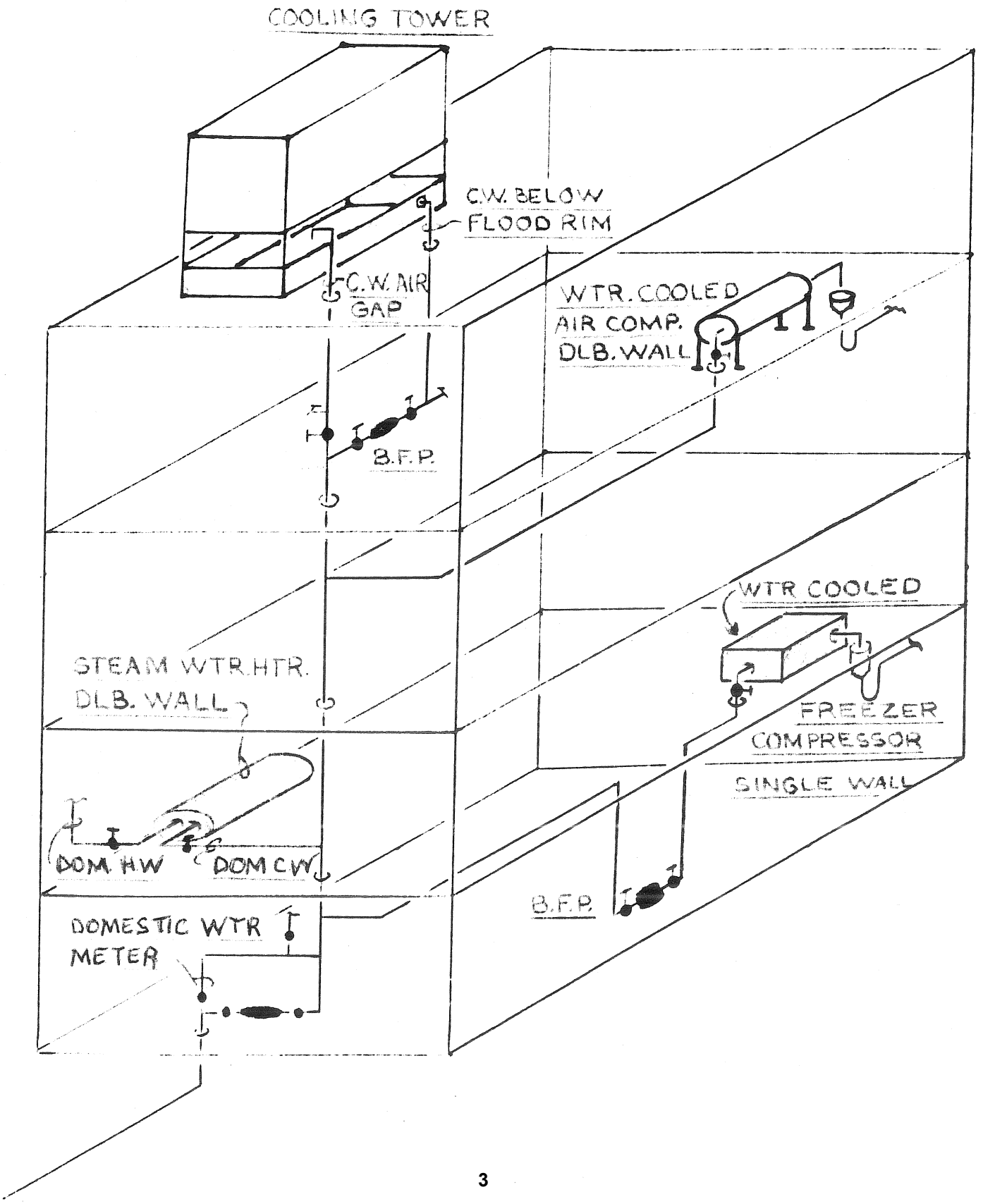
A. Air gap on make-up water line

B. A.S.S.E. 1001 Pipe applied atmospheric vacuum breaker.

C. A.S.S.E. 1013 Reduced pressure principle back flow preventer.

D. A.S.S.E. 1020 Pressure vacuum breaker – not spill proof (typical exterior applications)

E. A.S.S.E. 1056 Spill proof vacuum breaker.


COOLING TOWER
C.W. BELOW
FLOOD RIM
C.W. AIR
GAP
WTR. COOLED
AIR COMP.
DLB. WALL
B.F.P.
WTR COOLED
STEAM WTR. HTR.
DLB. WALL
FREEZER
COMPRESSOR
SINGLE WALL
DOM. H.W
DOM C.W
B.F.P.
DOMESTIC WTR
METER

COSEMETOLOGY SINKS

Cross connection control for barber and beauty shop sinks, is based on their assigned “high” degree of hazard for the protection of drinking water supply.

Installations of cosmetology sinks prior to March of 1994 needed backflow protection on water supply lines. It was acceptable to gang fixtures on the same device and a backflow preventer with an intermediate atmospheric vent (ASSE 1012) was acceptable. At present if such devices are found on inspection on cosmetology sinks installed prior to 1994 they are considered not to be in violation. However if at time of inspection no backflow devices are found on cosmetology sinks installed prior to March of 1994, or improper devices are found on cosmetology sinks installed after March of 1994 their water supply lines must be protected from backflow with Wisconsin approved devices allowed under current code. Also any revisions in plumbing of cosmetology sinks, such as new sinks or piping require an upgrade to current backflow protection code.

At present cosmetology sinks must have individual cross connection control devices. Comm 82.41(3)

The following two ways are the most common ways of protection for cosmetology sinks:

1) Water supply line protection – on both hot & cold lines. A.S.S.E. 1013 RPZ valve

2) Back flow protection for the spray hose on salon faucets.
a. Pipe-applied atmospheric vacuum breaker (ASSE 1001), must be 18 inches above the top edge of the fixture.

b. The following are Wisconsin approved backflow prevention devices.

NOTE: Devices spill water and must be plumbed for spillage.

Manufacture	Model numbers
Interbath	90025, 90026, 90027, and 28716
Alsons	4910 and 4900
Walls	S-8 and S-8C

3) Built-in faucet protection that is Wisconsin approved

Manufacture	Model numbers
Delta	550, 552, 575, 750 and 752
Eljer	552, 555, and 557
Kohler	K-6848, K-6850, K6856, K6962, and K7449
Long-Tai Copper Co	L-1014 U (this model does not have V.B.)
Belvedere	522 w/ 503 vacuum breaker
Belvedere	622T NOTE: Moen manufactures this faucet

Shampoo bowls/barber sinks

1. High degree of hazard.

2. Atmospheric vacuum breaker (AVB) 6” higher than the highest point of use (usually 18-20” above the top of the fixture)

3. “Shampoo faucet” which has received an alternate approval. This includes individual backflow protection that meets a standard that the state has not formally adopted.

4. Approved inline handheld shower backflow preventers mounted above the top of the fixture (Watts S-8, Alson 4900, 4910, Interbath 90025, 90026, 90027 & 28716.

5. Individual protection for each fixture.

6. Shampoo faucet must meet ASME A112.18.1M & ASSE 1014 as well as ASSE 1025 for sprayer.

NOTE:
NORMAL INSTALLATION
HEIGHT IS 18"-20"
ABOVE TOP OF
SHAMPOO BOWL —
18"-20"
SUPPLY VALVE
HOSE LINE

TAKARA/BELMONT—LONG TAI

SINGLE HANDLE FAUCET WITH PULL-OUT SPOUT (MODEL L-1014U)

THE STATE OF WISCONSIN ALTERNATE APPROVAL FOR THIS FAUCET EXPIRED ON OCTOBER, 2007. This faucet is required to be stamped with ASTM 112.1M, if not is rejected. Also the check for this is required to be accessible and if not rejected.

DEIONIZATION FILTER

Cross-connection control for **deionization filter** is based on a low degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The type of protection will be based on the fixture being served by the **deionization filter.**

BACK FLOW PROTECTION

The water supply serving the **deionization filter** must be protected to the degree necessary to protect water from the fixture being served after the **deionization filter. Deionization filters** remove minerals from the water and can have an effect on metallic piping. This is considered low hazard and will require proper back flow protection installed before **deionization filter.**
NOTE: Metallic piping should not be used after deionization filter.

APPROVED METHOD OF BACK FLOW PROTECTION

Low hazard

A.	A.S.S.E. 1012	Intermediate atmospheric vent

High hazard

A.	A.S.S.E. 1001	Pipe applied vacuum breaker
B.	A.S.S.E. 1013	Reduced pressure principle back flow preventer
C.	A.S.S.E. 1056	Spill proof vacuum breaker

DENTAL CHAIRS

Cross-connection control for **dental chairs** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

There are (3) three types of chairs; back, side and cabinet. The back and side types refer to the position of the dentist in relation to the patient. This type conceals all of the equipment in a cabinet.

BACK FLOW PROTECTION

The equipment that generally needs back flow protection are the spray wand and cuspidor (spit bowl).

NOTE: The spray wand can be fed by bottle water. The cuspidor can have an above the rim filler for rinse. In either case additional BFP is **not required.**

APPROVED METHOD OF BACK FLOW PROTECTION

Each water line to each chair shall be protected.

1. ASSE 1013 Reduced pressure principle back flow preventer

2. ASSE 1056 Spill proof vacuum breaker

DENTAL VACUUM SYSTEMS

Cross-connection control for dental vacuum systems is based on high degree of hazard for the protection of the potable water supply. Comm. 82.41(4)(e)1

TYPES

Types of vacuum systems include wet system and dry system. Sizes vary in compressor motors and tank sizes. Units may also include amalgam collectors (mercury separators) built on compressor unit.
Note: Amalgam collectors will become state law in Feb. 2008.

Wet vacuum systems use water for cooling and flushing. National code requires atmospheric vacuum breaker built on unit. Wisconsin State Code requires reduced pressure principle back flow preventer.

APPROVED METHOD OF BACK FLOW PROTECTION

Each water line to each vacuum system must be protected.

1. ASSE 1001 Pipe applied atmospheric vacuum breaker.

2. ASSE 1013 Reduced pressure principle back flow preventer.

3. ASSE 1056 Spill proof vacuum breaker.

KIDNEY DIALYSIS

Cross-connection control for a kidney dialysis machine is based on a **high** degree of hazard for the protection of the potable water supply.

Containment and isolation are required BFP for this situation. A reduced pressure zone backflow preventer (RPZBP) is required for containment. Isolation is achieved by an air gap or another RPZBP at each chair.

The R.O. water does not require any backflow protection. Brass backflow protectors installed before R.O. system however, create a change in the ph of the water. Approved non-metallic water distribution piping is required.

The FDA has input on chair standards, it is important to check this standard and specification before installing chair.

See attached State of Wisconsin Product Approval listings for chairs. STATE OF WISCONSIN PRODUCT APPROVAL IS **REQUIRED.** Also check Approval Stipulations. Check back of chair for nameplate.

APPROVED METHOD OF BACKFLOW PROTECTION

1. Air gap on water to chair

2. ASSE 1013 Reduced pressure zone backflow preventer

COMMERCIAL DISHWASHER

Comm. 82.41 Cross connection control for commercial dishwasher is based on a high degree of hazard for the protection of the potable water supply.

GENERAL REQUIREMENTS

A. Hot water wash solution temperatures in a mechanical operation: The temperature of the wash solution in the spray type washers is 165 degress for a stationary rack single temperature machine and 120 degree for the ones using chemicals to sanitize.

B. Hot water sanitization temperatures in a mechanical operation: The temperature of hot water sanitizing rinse shall not be more than 1 94 degrees or less than 1 65 degrees for a stationary rack or 1 80 degrees for all other machines.

C. Hot water supply shall have water hammer arrestor and a temperature gauge.

MANUFACTURER TYPE:
Commercial type D.W. machines shall conform to A.S.S.E. 1004.

APPROVED METHOD OF BACKFLOW PROTECTION:

A. Atmospheric Vacuum Breaker A.S.S.E. 1001 -CHEMICALS MUST BE **DOWNSTREAM** OF VACUUM BREAKER.

B. Reduced Pressure Principle Back Flow Preventer. A.S.S.E. 10 13

C. Spill Proof Vacuum Breaker A.S.S.E. 1056.

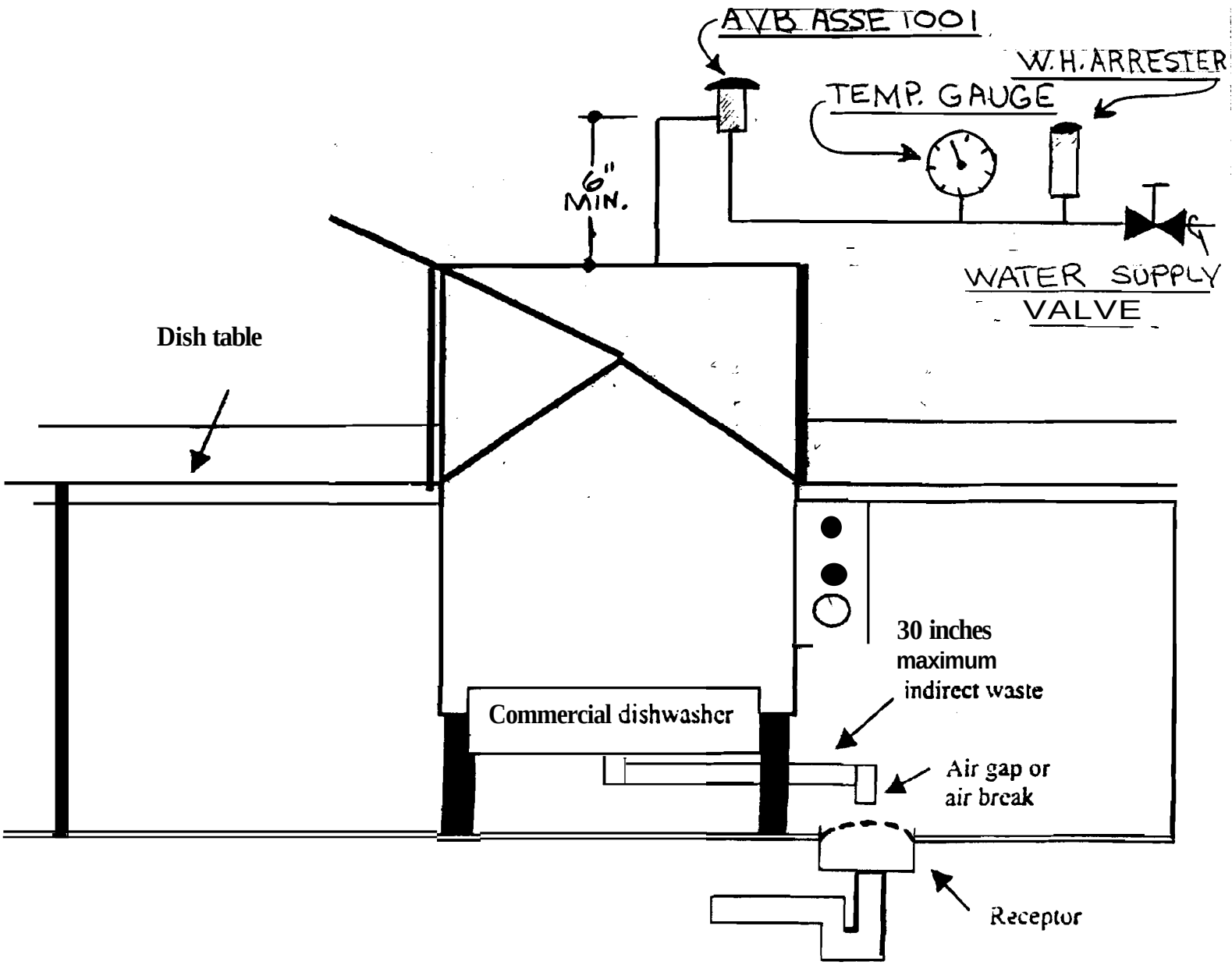
D. Air gap on water supply.

E. Discharge can be air gap or break.

F. Canadian Standards-For A.S.S.E. use B64.1. For A.S.S.E. 1013 use 64.4. No C.S.A. FOR AS.S.S.E 1056

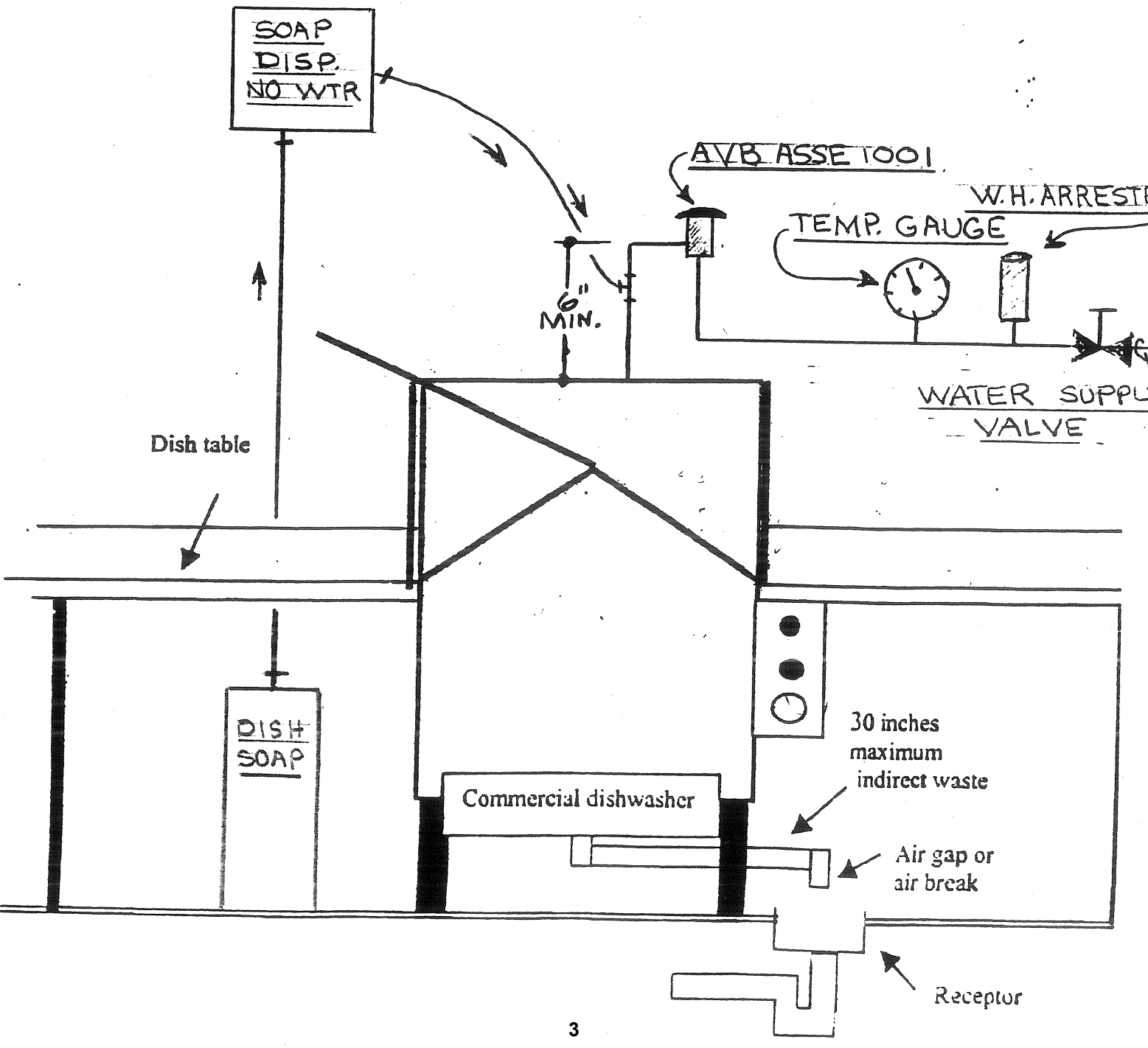
COMMERCIAL DISHWASHERS

Dishwasher



COMMERCIAL Dishwasher DISHWASHERS

WITH SOAP DISPENSING SYSTEM



ELEVATOR - WATER POWERED

Cross-connection control for a **water powered elevator** is based on a high degree of hazard for protection of the potable supply. Comm 82.41

TYPES

This is not a very common piece of equipment in this area. The **water powered elevator** has a connection to the water supply. The water is used and re-used from the pit to maintain pressure in the elevator pumping system.

BACK FLOW PROTECTION

The water supply serving the **water powered elevator** must be protected to the highest degree to prevent any oils, or other contaminants from pit, from entering the water supply system. With the presence of oils, lubricants and possible chemicals it is important to protect all connections on the water supply system. **NOTE:** Back flow protector will be subject to backpressure.

APPROVED METHOD OF BACKFLOW PROTECTION

A. **A.S.S.E.**1013 Reduced pressure principle back flow preventer

FIRE HYDRANTS

Cross-connection control for **fire hydrants** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Fire hydrants can be either on public land or private land and will require the same back flow protection. Use of hydrants and metering is done through The City of Milwaukee Water Department. Inspecting and policing of hydrants is the plumbing inspection department's responsibility.

BACK FLOW PROTECTION

Hydrants must be protected from contamination caused from ground water, chemicals in tankers & back flushing of sewers to name a few. The use of R.P. valves will require testing annually and filing reports w/city only.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Air gap on tanker connections.

B. A.S.S.E. 1001 pipe vacuum breaker

C. A.S.S.E. 1013 reduced pressure principle back flow protector

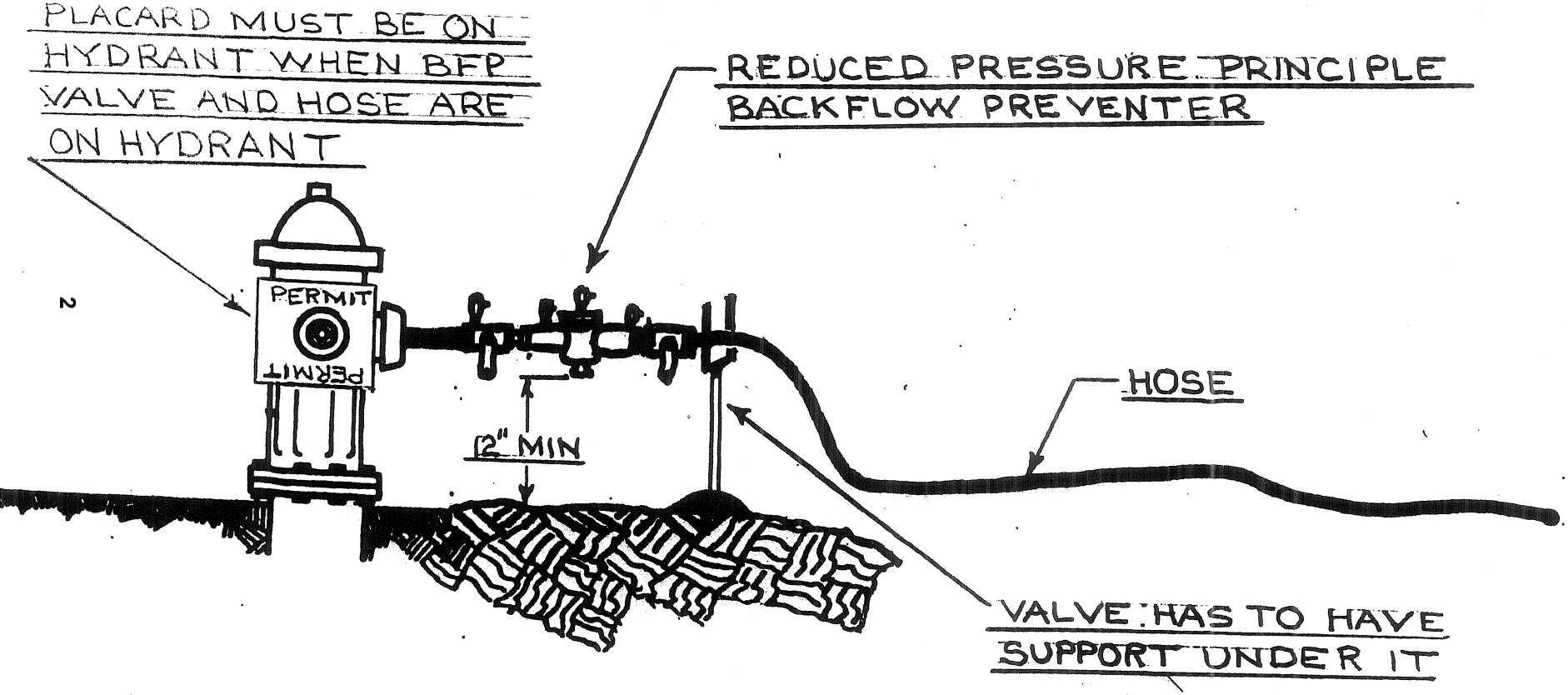
D. A.S.S.E. 1015 double check fire protection backflow prevention assembly.

E. A.S.S.E. 1047 reduced pressure detector fire protection backflow prevention assembly.

F. A.S.S.E. 1048 double check detector fire protection backflow prevention assembly.

TEMPORARY HYDRANT CONNECTIONS

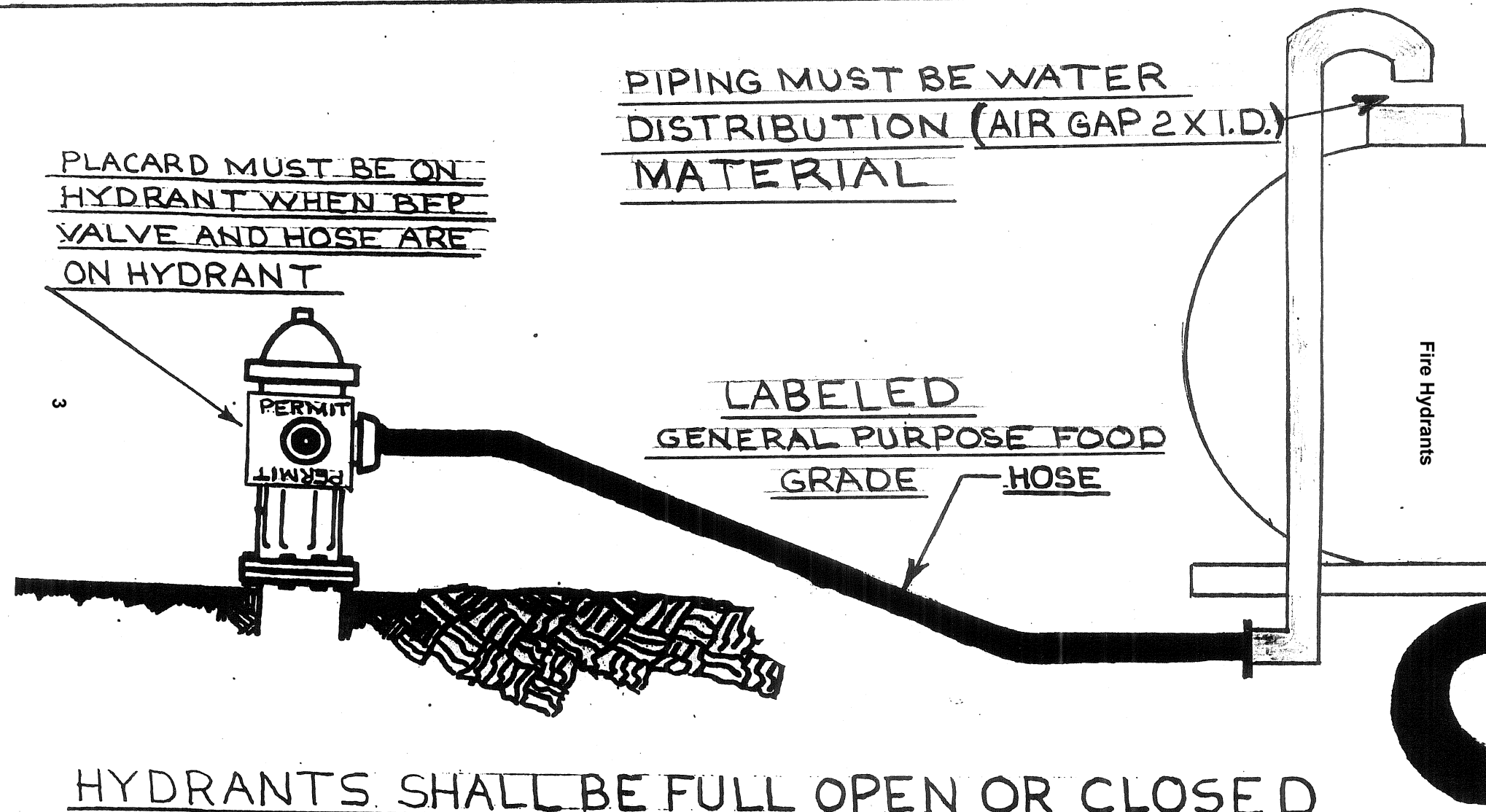
HOSE GUARDS SHALL BE USED ON ALL ROADWAYS



HYDRANTS SHALL BE FULL OPEN OR CLOSED
DO NOT USE HYDRANT FOR FLOW CONTROL
PER: CITY OF MILWAUKEE WATER DEPARTMENT

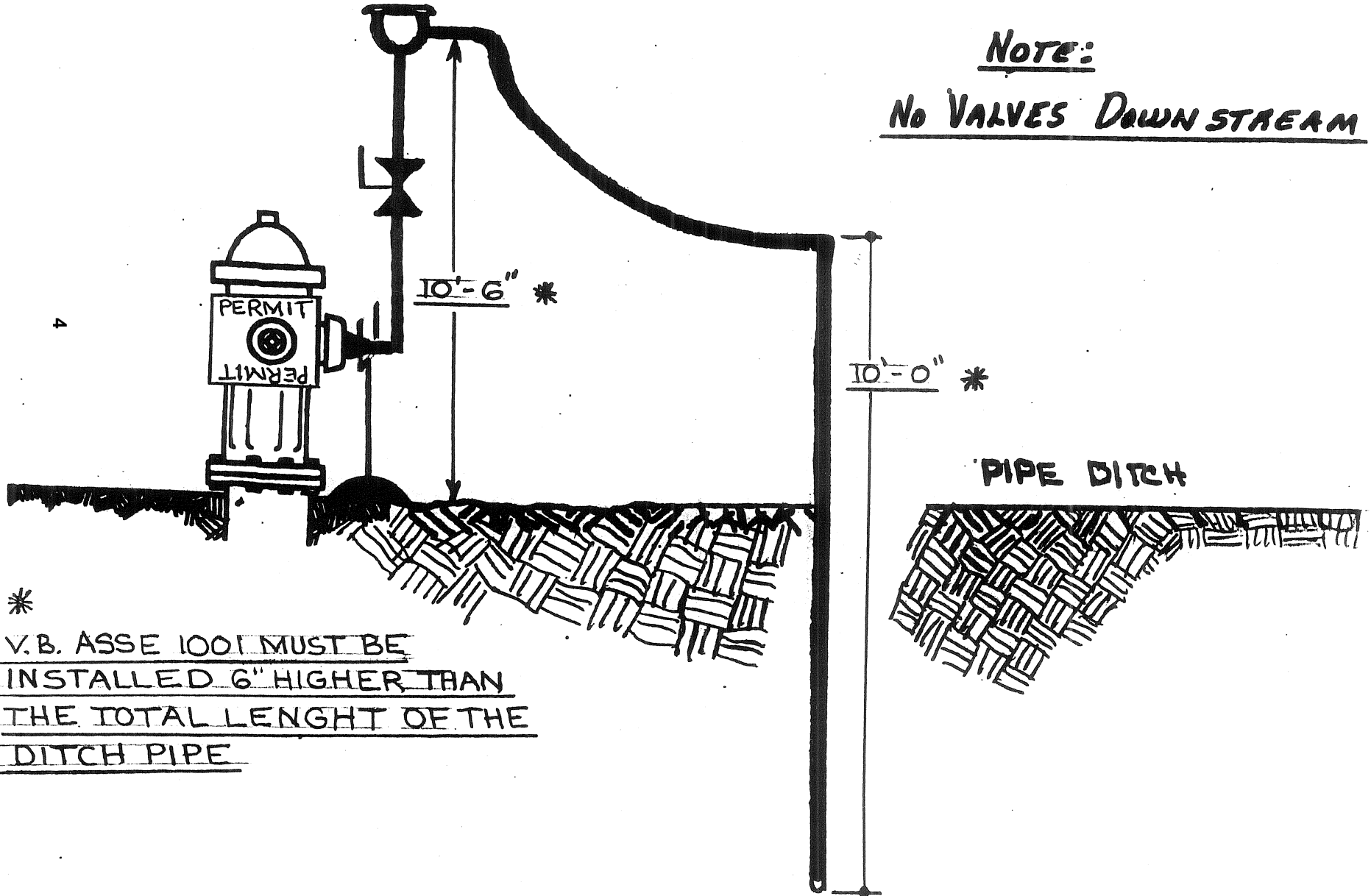
TEMPORARY HYDRANT CONNECTIONS

FOR TANKER TRUCKS W/ BUILT IN AIR GAP ON TANK



HYDRANTS SHALL BE FULL OPEN OR CLOSED
DO NOT USE HYDRANT FOR FLOW CONTROL
PER: CITY OF MILWAUKEE WATER DEPARTMENT

TEMPORARY HYDRANT CONNECTION W/ V.B



NOTE:

NO VALVES DOWN STREAM

* V.B. ASSE 1001 MUST BE INSTALLED 6" HIGHER THAN THE TOTAL LENGHT OF THE DITCH PIPE

FIRE SPRINKLER BACKFLOW DEVICES

WHAT TO LOOK FOR-(includes assemblies and by-passes).

A. Identify the Manufacturer, Model Number and Serial Number.

B. Assembly size and type.

C. If all the numbers are the same there is something wrong.
(**ALWAYS** check forward and actual flow rate).

D. You do not need a Regulated Object Number for test reports for sprinkler systems.

E. Person testing fire sprinkler protection devices needs two credentials. You need the Cross Connection Control Tester Registration and the Sprinkler Fitter Credential.

COMMERCIAL FOOD WASTE GRINDER

Cross-connection control for **food waste grinder (fwg)** is based on a high degree of hazard for the protection of the potable water supply.
Comm. 82.41

MANUFACTURER TYPE

A. Residential 2hp or less

B. Commercial 3hp or more

C. Commercial F.W.G. shall conform to ASSE 1009

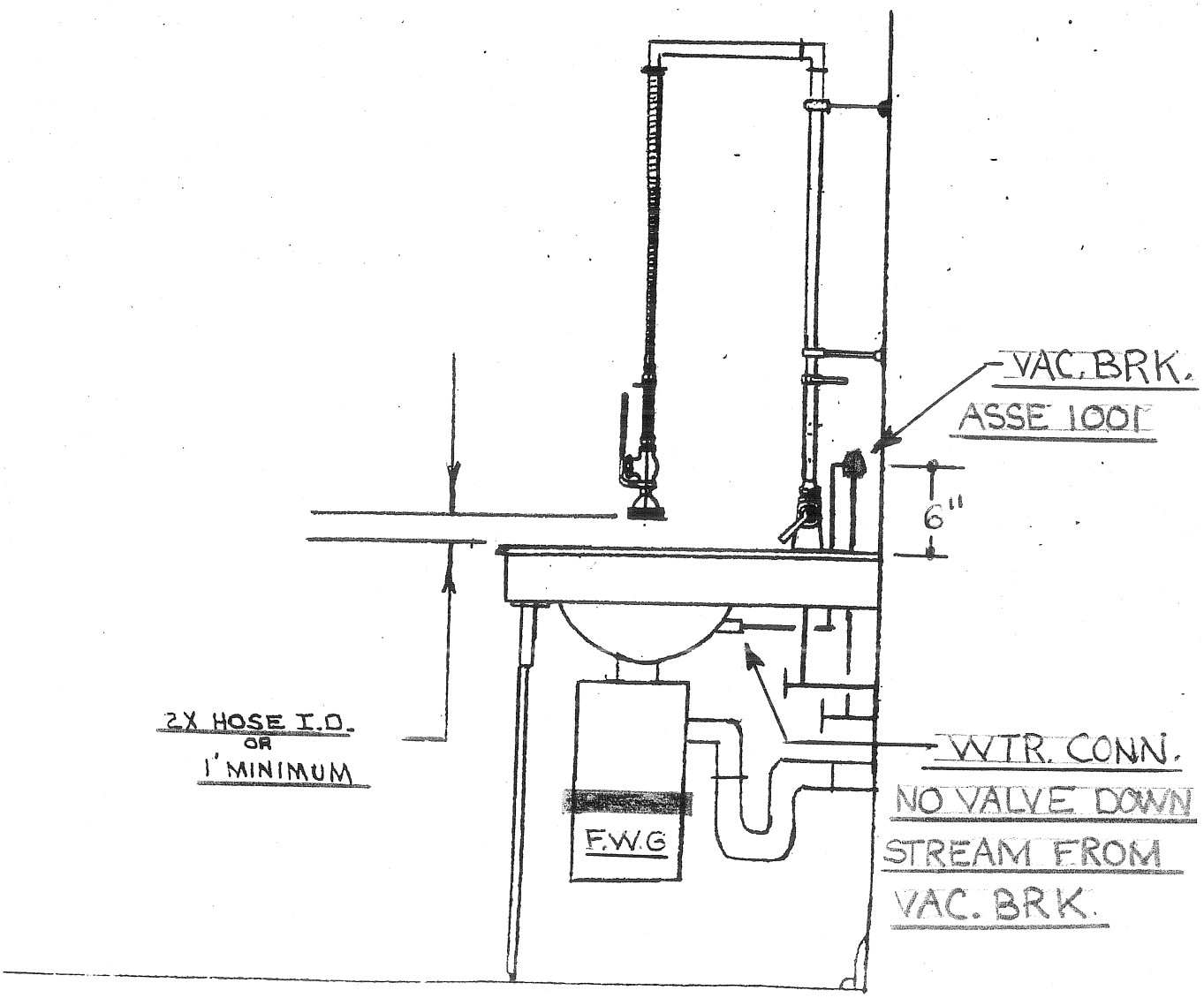
APPROVED METHOD OF BACK FLOW PROTECTION

A. ASSE 1001 pipe vacuum breaker

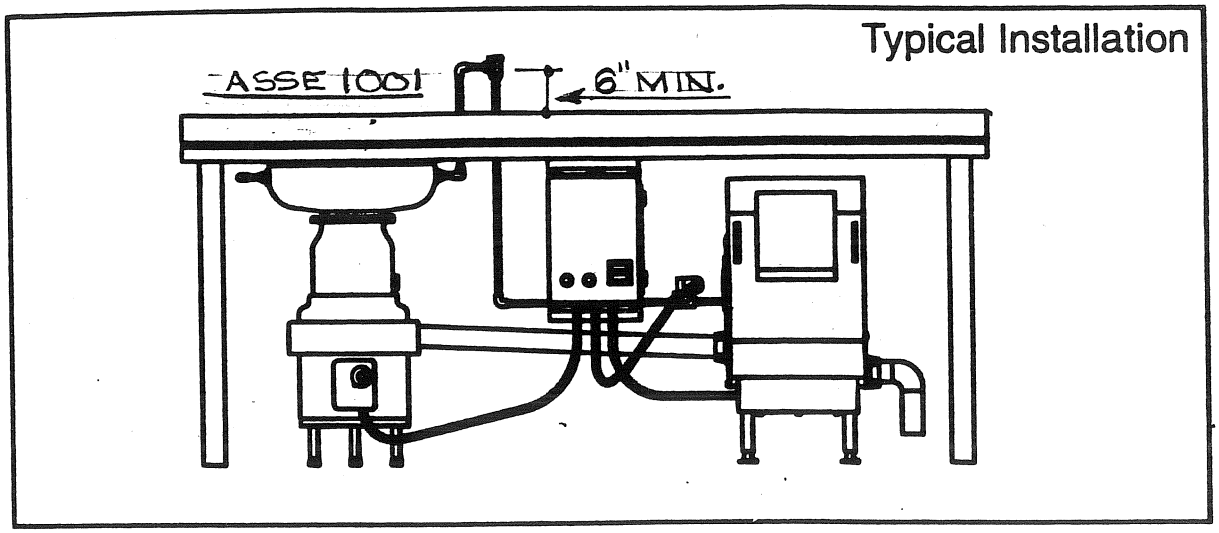
B. ASSE 1013 reduced pressure principle back flow preventer

C. ASSE 1056 Spill proof vacuum breaker

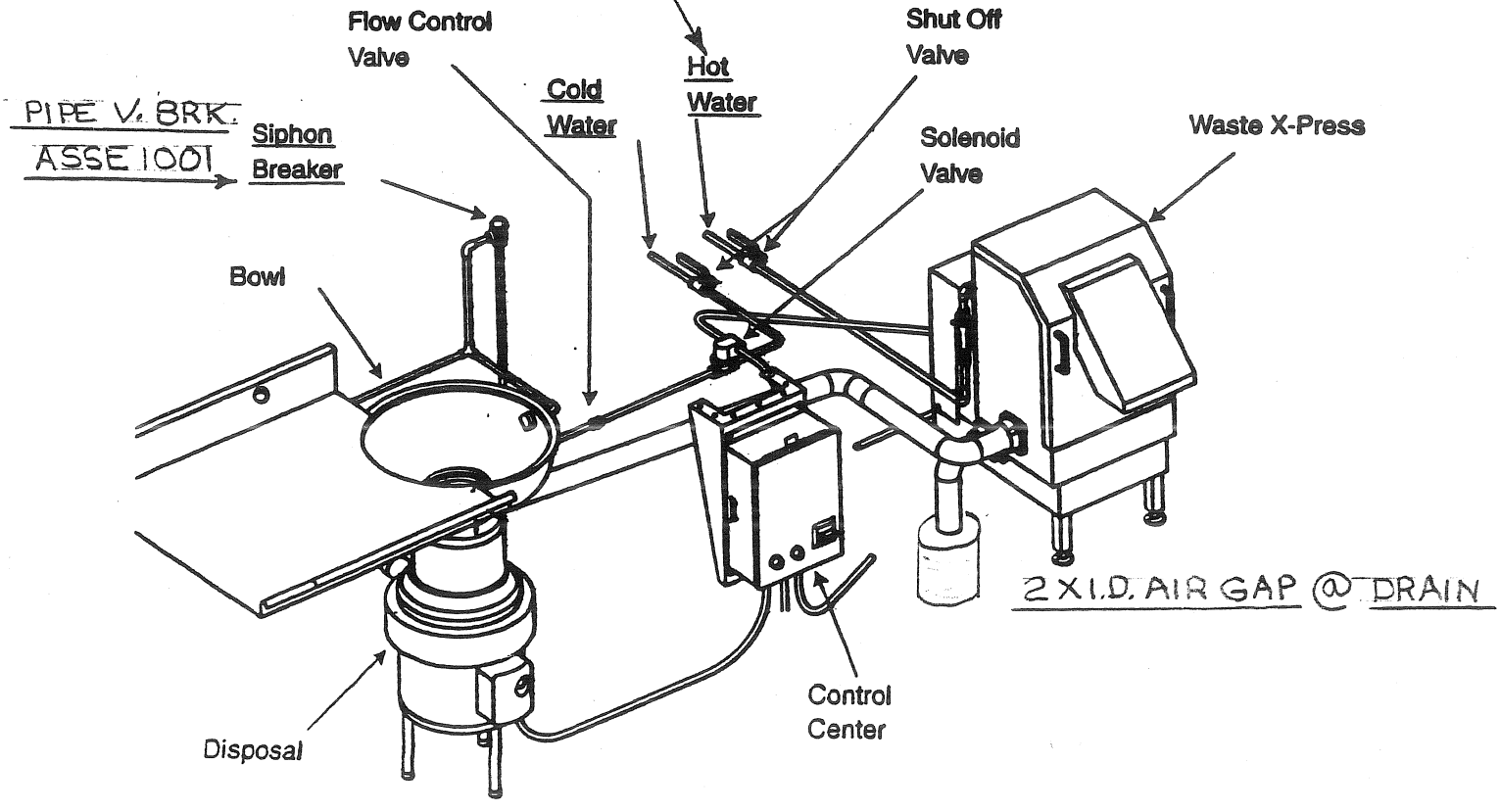
FOOD WASTE GRINDER



FOOD WASTE REDUCTION SYSTEM



HOT WATER SUPPLY IS ABOVE FLOOD RIM NO BFP REQ.



FUNERAL HOMES

Cross connection for equipment in **Funeral Homes** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

When inspecting **Funeral Homes,** in addition to restrooms and sinks, there are several areas to look for. These areas include, but are not limited to:

1. **Embalming Machine –** Water is used for mixing with embalming fluids.

2. **Embalming Table –** Water is provided to rinse and clean table.

3. **Aspirator –** Water is used to assist with the evacuation of body tissues and fluids.

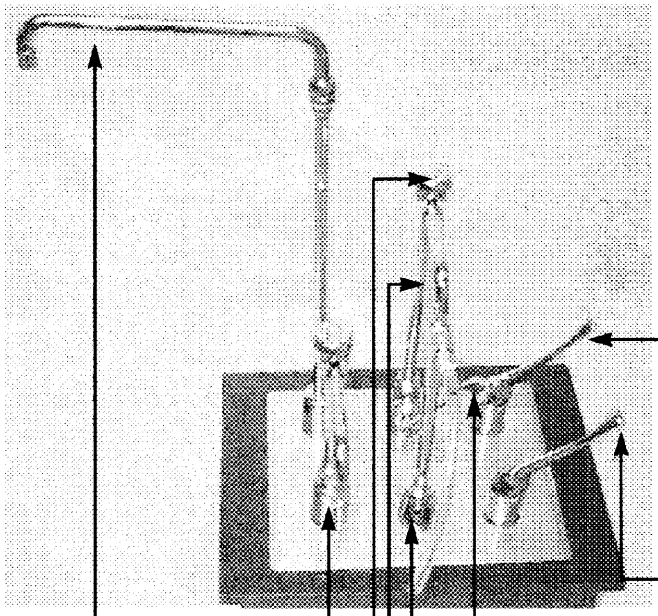
4. **Salon Sinks –** Look for proper BFP on salon sinks, if present.

BACK FLOW PROTECTION

The water supply serving **Funeral Home** equipment must be protected for a high degree of hazard to prevent chemicals, body fluids and tissues from entering the water supply.

APPROVED METHODS OF BACKFLOW PROTECTION:

1. Embalming Machine	A.S.S.E. 1001-PAVB
(Depending on situation)	A.S.S.E. 1011-HCVB
	A.S.S.E. 1013-RPZBP
	A.S.S.E. 1056-SPVB
2. Embalming Table	A.S.S.E. 1001-PAVB
	A.S.S.E. 1011-HCVB
3. Aspirators	A.S.S.E. 1011-HCVB
	A.S.S.E. 1013-RPZBP
	A.S.S.E. 1056-SPVB



Pierce
WATER CONTROL UNIT

DELTA FAUCET MIXING VALVE HOT & COLD WATER - FILL SPOUT FOR MACHINE

DELTA FAUCET MIXING VALVE HOT & COLD WATER FOR TABLE

VALVE TO TURN ON ASPIRATOR COLD WATER OPERATED

OPEN SIGHT DRAIN WITH 3" AIR GAP

ASPIRATOR - 24" TO 26" VACUUM 48 TO 52 LBS. OF WATER PRESSURE MINIMUM; 60 LBS. OF PRESSURE RECOMMENDED; QUICK COUPLER TO REMOVE HOSE USED FOR ASPIRATING

BACKFLOW PREVENTOR ON ASPIRATOR - CHICAGO FAUCET (APPROVED BY BOARD OF STANDARDS AND APPEALS NEW YORK CITY 726-545M) 892-1/2" - 893-3/8"

WATER SUPPLY TO TABLE - BACKFLOW PREVENTOR CHICAGO FAUCET (APPROVED BY BOARD OF STANDARD AND APPEALS NEW YORK 726-545M) 892 1/2" - 893 3/8"

FILL SPOUT FOR MACHINE HOT OR COLD WATER 3" AIR GAP ABOVE EMBALMING FLUID

The Water Control Unit -- isolates the Embalming Room Water Supply from the Funeral Home. All Supply lines coming in contact with the morgue table have a backflow preventor or 3" air gap. The aspirating of waste is visible to operator - - no splash or odor. Aspirates through air gap directly into drain.

Everything you need for water service during embalming is available at your finger-tips with this popular **WATER CONTROL UNIT!** The **WATER CONTROL UNIT** quickly installs for precisely trouble free service, and our new, improved model includes even more features to make your professional work easier and cleaner!

FILLER - Gooseneck filler spout now provides both hot and cold water to embalming machine and it's easily controlled by a single lever mix valve!

OPEN END ASPIRATOR - This has been moved closer to the front so it is even easier to see waste.

QUICK COUPLER - New coupling method for aspirating hose allows snap-on/off connections, so hose can now be stored out of sight until ready for use!

DROP-IN - Just drop the pre-assembled, pre-plumbed unit into a cut-out on your counter top! The unit has a **stainless steel plate** of a 15 gauge material allowing for installation on a counter as shallow as 18 inches. The stainless steel plate is now fastened with a new method for easy installation. Just have your plumber supply 1" cold water, 1/2" hot water, and 1-3/4" waste lines. (A volume of water plus 60 lbs.. of water pressure is needed to obtain maximum vacuum.)

PIERCE CHEMICALS ROYAL BOND

1-800-527-6419

Atlanta - Jeffersonville - Los Angeles - St. Louis

Operating Instructions For The Embalmer

No. 08000B Water Control Unit

The Water Control Unit serves many useful functions:

1. Hot and Cold Water To Morgue Table
2. Hot and Cold Water to Embalming Machine
3. Aspirator With Direct Waste Disposal
4. Open-sight Drain
5. Quick Coupler For Aspirator Hose Connections

Be sure Water Control Unit has been properly installed. This unit must have at least a 1 inch cold water line to the aspirator for volume of water and a pressure of 50 to 60 lbs. on the line.

Should your water pressure not reach the minimum level then a pressure pump may be installed in cold water line to boost pressure to the maximum pressure.

NOTE: Be sure your pump is adjusted to come on before your pressure on the line drops below 50 lbs.

Directions for Use:

2-10 ft. pieces of P-4 tubing 3/8 x 3/32 size. Attach one piece to aspirator nozzle. Attach one piece to water for table nozzle.

The Water Control Unit when used for running water on table should be adjusted through mixing valve to correct temperature and size of stream. This hose is used to wash down the body, hair and keep the table clean while embalming.

The trocar is connected to the aspirator hose and valve is opened to full extent. As the water goes through the aspirator a vacuum is formed in your hose and trocar. You can see the water through the open-sight drain. Trocar size should be a 3/8" OD or 5/16" OD.

As you insert the trocar into the thoracic and abdominal cavities to properly aspirate the body, you will see the color of the material being aspirated in the hose and the open-sight drain. Your vacuum should range from 24 to 26 inches depending on your water pressure and volume.

The embalmer should be alert at all times. Should you insert your trocar into some solid tissue, pressure in your line will continue to build up and could draw some water back into your aspirating line. By removing your trocar a few inches, you may re-establish your vacuum and clear the water from your hose.

This backing up of water may also occur when you have established a good vacuum in the body, with a sudden loss of water pressure, such as someone flushing a toilet, urinal or other units on the same line as the preparation room. By partially removing the trocar from the body, clear the aspirating hose until your pressure is restored and vacuum is re-established.

When aspirator is being used with autopsy tube on an autopsy case, you may aspirate into the unit large blood clots, string, cotton, etc. Should these objects stop up your autopsy tube or clog the nozzle of the aspirator, turn off water. Place your finger over the tube in the open-sight drain and back flush the unit. By turning on the water, you will force water back through your aspirating hose and clear out the aspirating nozzle, trocar, or autopsy tube.

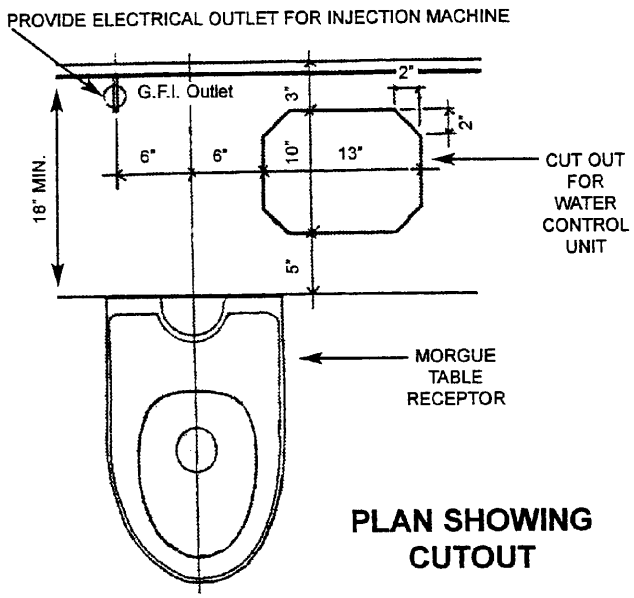
The embalmer will have maximum vacuum and do a thorough job of aspirating. The Water Control Unit is equipped with backflow preventors on aspirator and water line to the table. This will isolate the water system used in your preparation room from the other parts of the funeral home.

The Water Control Unit will give you many years of safe use. Learn to use it correctly by back flushing or place the trocar in clean water and aspirate water through unit to properly clean.

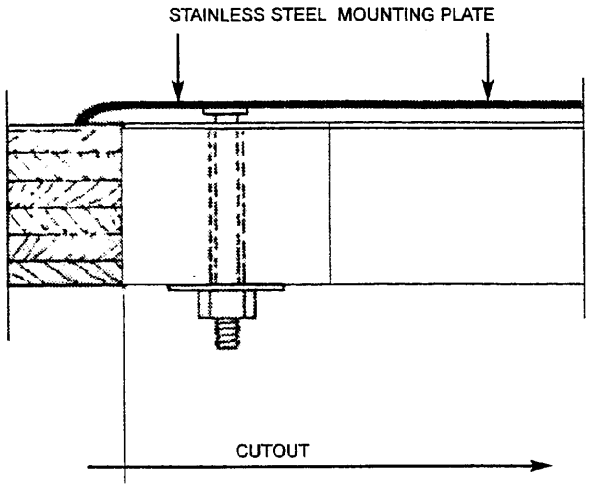
The Water Control Unit aspirates waste from the body directly into the sewer. This eliminates odors, waste and bacteria from the common slop sink. This unit is a modern necessity in a properly designed preparation room.

WATER CONTROL UNIT 8000B

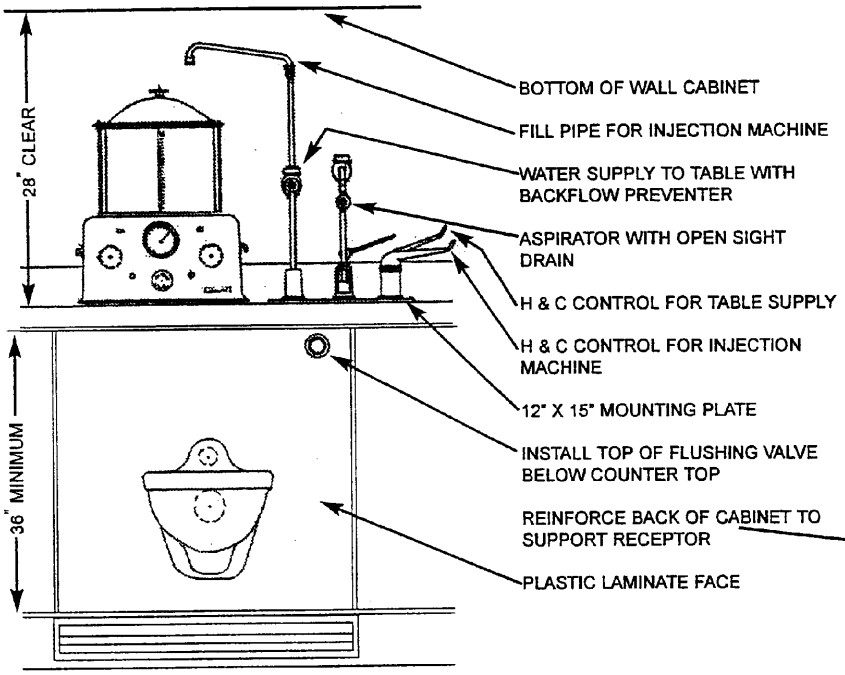
PIERCE CHEMICALS ROYAL BOND
4722 BRONZE WAY - DALLAS. TEXAS 75236



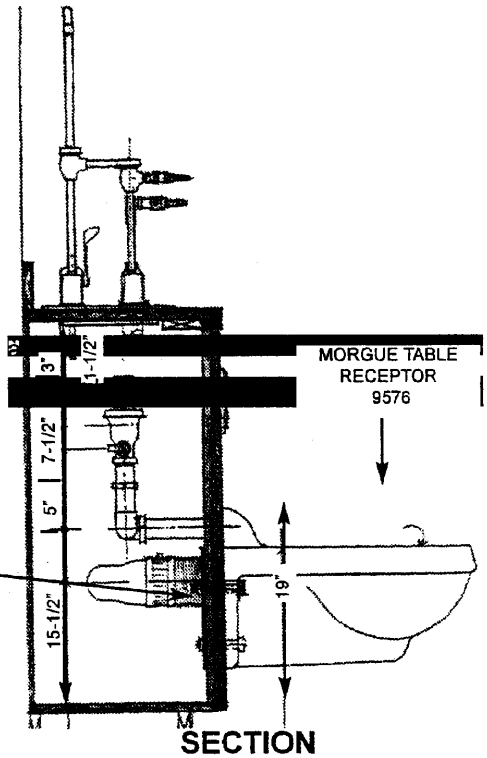
PLAN SHOWING CUTOUT



CUTOUT DETAIL



FRONT ELEVATION



SECTION

NOZZLE FOR TABLE WATER SUPPLY IS 10" ABOVE MOUNTING PLATE. SOME LOCAL CODES AND STATE CODES ESTABLISH NOZZLE HEIGHT ABOVE BODY. CHECK BEFORE SETTING COUNTER HEIGHT.

RECEPTOR HAS 3" WASTE CONNECTION. WATER STANDS IN BASIN, NO STRAINER. PLUMBER SHALL FURNISH A 1 1/2" P-TRAP AND VENT TO THE WASTE LINE SERVING OPEN SIGHT DRAIN UNDER COUNTER.

THE HYDRO-ASPIRATOR AND THE FLUSH VALVE FOR THE MORGUE TABLE RECEPTOR BOTH REQUIRE A LARGE VOLUME OF WATER AND HIGH PRESSURE (55 TO 75 POUNDS, CAPABLE OF DELIVERING 3.5 GALLONS IN 8 SECONDS WHILE MAINTAINING A MINIMUM OF 25 POUNDS RUNNING PRESSURE DURING THE FLUSHING CYCLE. ADD PUMP AND PRESSURE TANK IF PRESSURE IS TOO LOW.

CARRY MIN. OF 1" CW AND 1/2" HW TO UNIT. ACTUAL UNIT CONNECTIONS ARE 3/8" HW, 3/4" CW and 1-1/2".

WASTE HOSE DISCONNECTS ARE FURNISHED ON TABLE WATER SUPPLY AND ASPIRATOR CONNECTIONS.

PIERCE CHEMICALS/ROYAL BOND

Installation Instructions

No. 8000B—Single Water Control Unit

Manufactured exclusively for PIERCE CHEMICALS/ROYAL BOND, to provide water and aspirating needs to the morgue table. This unit greatly simplifies the installation of the aspirator and the table-water supply by combining them, along with a special filler-pipe, for the injector machines—all into one, complete drop-in unit.

The 8000B Single Water Control Unit consists of:

1. Open-sight aspirator—which creates adequate vacuum to aspirate the body properly.
2. Single-lever hot and cold mixing valve for the table-water supply.
3. Goose-Neck filler for embalming machine with single-lever hot and cold mixing valve.
4. Stainless steel self-rimming top, complete with hold down washers.

The Goose-Neck filler pipe has a swivel nozzle so the embalming machine must be located on the left side of the unit. The aspirator and water supply to the table are both protected by the back-flow preventor to eliminate the possiblity of cross-contamination of your water supply system. (This is required by many states and local health codes). The unit is pre-assembled and pre-plumbed—reducing the connection requirements to:

A volume of water plus 50 to 60 lbs. of water pressure is necessary to obtain maximum vacuum to aspirate a body. (22 is minimum vacuum). To assure adequate volume of water run a 1 inch cold water supply to the unit, reducing to ¾ inch, on the cold water connection on the unit. Do not connect other fixtures between the house supply and the Water Control Unit, as any interruption of flow will temporarily drop the vacuum allowing the water to reverse and flow back into the aspirating hose.

Adequate water pressure is necessary for any open-sight aspirator to work properly. 50 to 60 lbs. of pressure is desirable. In communities where there is low water pressure, a pump and pressure tank must be added. Be sure gauge on pressure pump is regulated to maintain pressure at desired level. (50 to 60 lbs.)

The size of the cut-out in the counter top is 10″x 13″. Cutting corners to allow for 4 - ½″ holes on 9″x 12″ centers. (See Diagram for cut-out).

* Flow Volume: The discharge from unit will average 6 gallons per minute.

WATER COOLED GENERATOR

Cross-connection control for **water cooled generators** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

There are different ways to cool generators and this will determine the degree of hazard and therefore the type of back flow protection. Cooling lines run through single wall jackets must be protected to a high degree of hazard.
NOTE: Pipes wrapped around the generator and double wall cooling jackets are considered low hazard and need no back flow protection other than an air gap on discharge of cooling line.

BACK FLOW PROTECTION

The water supply serving the **water cooled generator** must be protected at both low and high degrees of hazard to prevent drain water or lubricant fluids from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.M.E. A112.1.2 Air gap on discharge cooling line

B. A.S.S.E. 1013 Reduced pressure principle back flow preventer

GLASS WASHER

Cross-connection control for **glass washers** is based on a high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

Glass washer units are generally found behind bars or at waitress stations in taverns & restaurants. The **glass washer** can be of a conveyor type or a rack type similar to residential dish washers. The **glass washer** is used to handle a high volume of glasses in an area other than the dishwasher without tying up the dishwasher.

BACK FLOW PROTECTION

The water supply serving the **glass washer** must be protected to the highest degree to prevent detergents from entering the water supply system. Some **glass washers** have factory installed vacuum breakers. The vacuum breakers installed at the factory can be concealed and may need an extra look.

NOTE: Ecolab models ET-1 and ET-2 as well as Moyer Diebel model MD-6 has ASSE & NSF listing. This listing is given to units with built-in back flow protection. Perlick has a model PKRB glass washer which **does not** meet our standards for State approval. The State recognizes ASSE 1004 commercial & 1006 residential as approved under-counter mount dishwashers.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1001 Pipe applied vacuum breaker

B. A.S.S.E. 1013 Reduced pressure principle back flow preventer

C. A.S.S.E. 1056 Spill proof vacuum breaker

HAND HELD SHOWERS

Cross-connection control for **hand held shower** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Any shower head attached to a hose will fall into this category. If unit attaches to a slide bar or stationary bracket it is looked at the same way for backflow protection.

BACK FLOW PROTECTION

Hand held showers must be protected to the highest degree to prevent any toxins or contaminants from being siphoned into potable water supply. The concern here is the same as is with any fixture involving a hose. The end of a **hand held shower** could be left in a bucket of cleaner or in a plugged drain.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1014 In line hose vacuum breaker specific for hand held devices.

BACK FLOW PROTECTION

Heat exchangers can be classified into two categories, single wall and double wall units. Double wall units have a visible vent port for leak detection. The only way to protect the potable water supply serving a **heat exchanger** is with a double wall **heat exchanger**. Single wall **heat exchangers** should only be used when both heat source and heated water are domestic use. Double wall **heat exchangers** are required in all other situations involving domestic hot water.

82.41(3)(d) Prohibitions. The use of a toxic solution as a heat transfer fluid in single-wall heat exchanger for potable water is prohibited.

EXAMPLE 1 A boiler with a side arm heat exchanger for domestic use.

- Boiler must be protected per specs in boiler chapter and heat exchanger must be double wall. All double wall heat exchangers have vent port to show leak on inner wall.

NOTE: A leak from vent(weep hole) on double wall heat exchangers signifies a problem and requires immediate attention. This condition is similar to a RP valve leaking, which also requires immediate attention.

EXAMPLE 2 Domestic single wall heat exchanger.

- Use of a high temperature water heater for kitchen use with heat exchanger to lower temperature for domestic sink use. Or, reverse and use heat exchanger to raise temperature for kitchen use. No back flow protection required on heater and heat exchanger can be single wall. (Both heater and heat exchanger are for domestic use)

APPROVED METHOD OF BACK FLOW PROTECTION
NOTE: listed below are common BFP for boilers (see **BOILER** chapter)
Low hazard

A. A.S.S.E. 1012 Intermediate atmospheric vent

High hazard

B. ASME A112.1.2 Air gap on potable water line

C. A.S.S.E. 1013 Reduced pressure principle back flow preventer

D. A.S.S.E. 1056 Spill proof vacuum breaker

HOOD WASH DOWN SYSTEMS

Cross-connection control for **hood wash down systems** is based on a high degree of hazard for the protection of the potable water supply. Comm 82.41

NOTE: The drain on unit must remain full size from tapping to receptor w/ air gap. Drain line serving receptor must discharge to grease trap.

TYPES

The **hood wash down systems,** of concern, have spray nozzles in hood which are connected to the potable water system. Some systems have chemical injectors while others require manual spray of chemicals.

BACK FLOW PROTECTION

The water supply serving **hood wash systems** must be protected to the highest degree to prevent toxins from entering the water supply. By using the highest degree of protection this will prevent any toxins from chemicals being used to clean grease as well as any contaminants in the grease from getting back into the water supply.

APPROVED METHOD OF BACKFLOW PROTECTION:

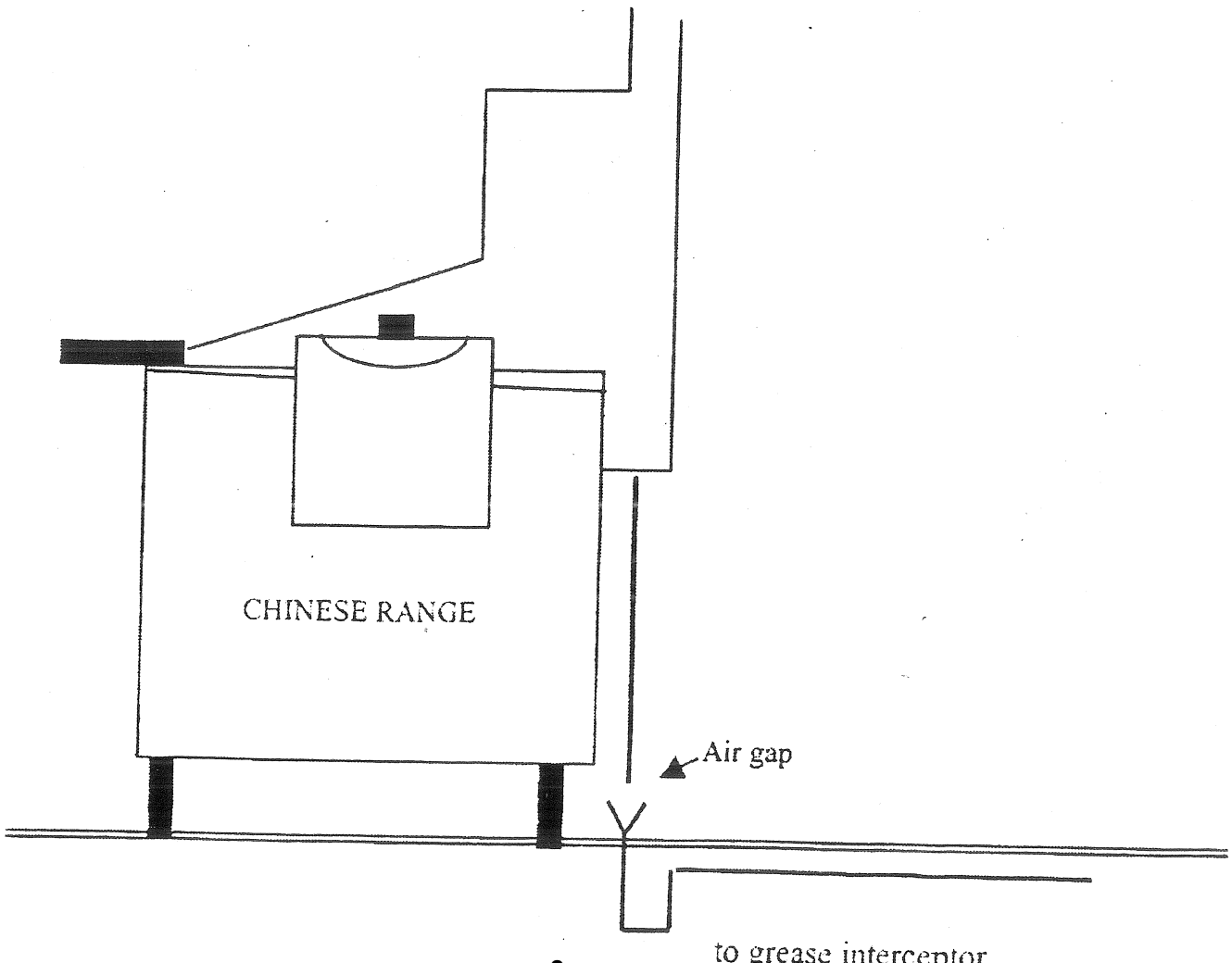
High Hazard

A. Atmospheric Vacuum Breaker A.S.S.E. 1001

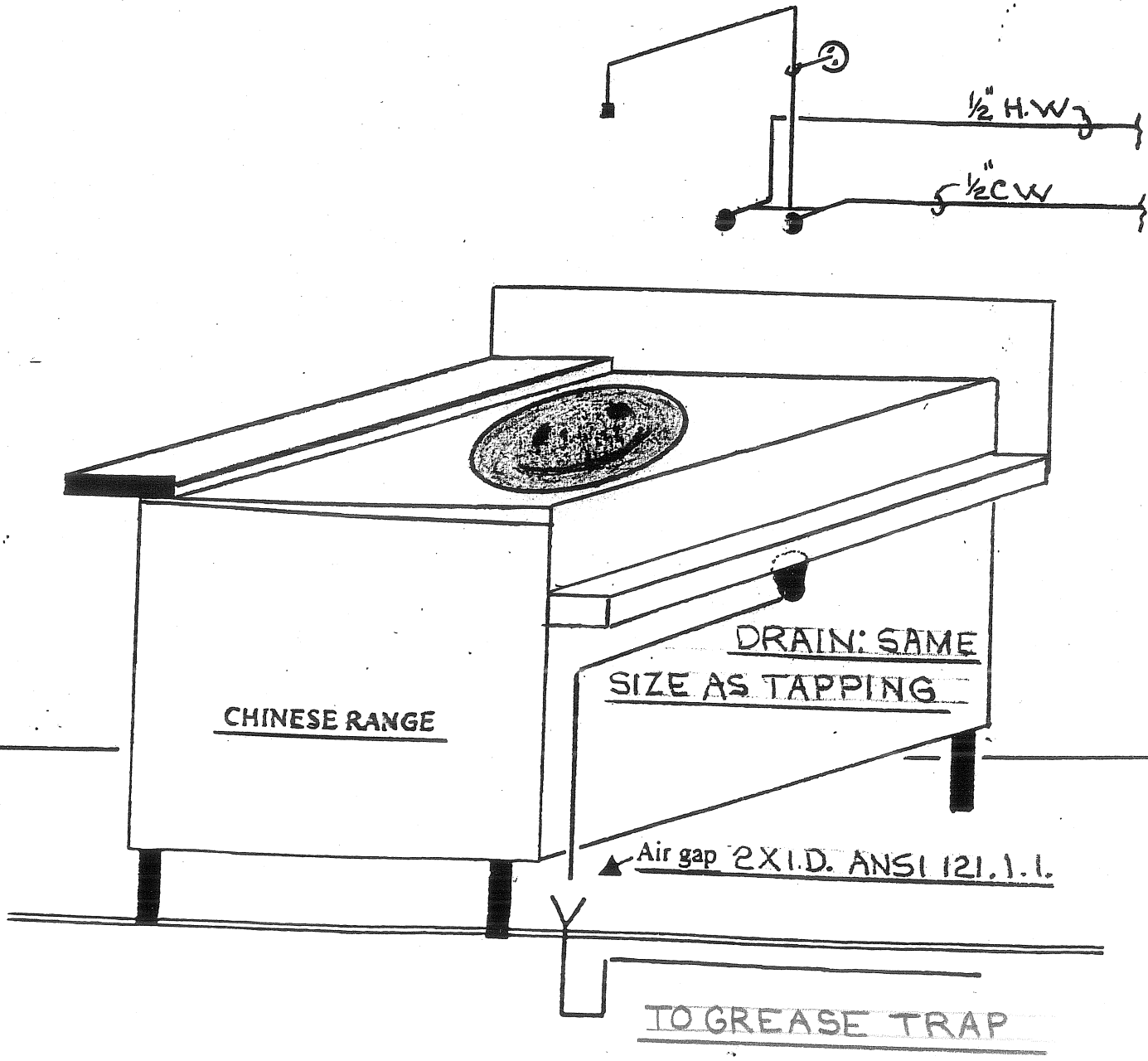
B. Reduced Pressure Principle Back Flow Preventer. A.S.S.E. 1013

C. Spill proof vacuum breaker. A.S.S.E. 1056

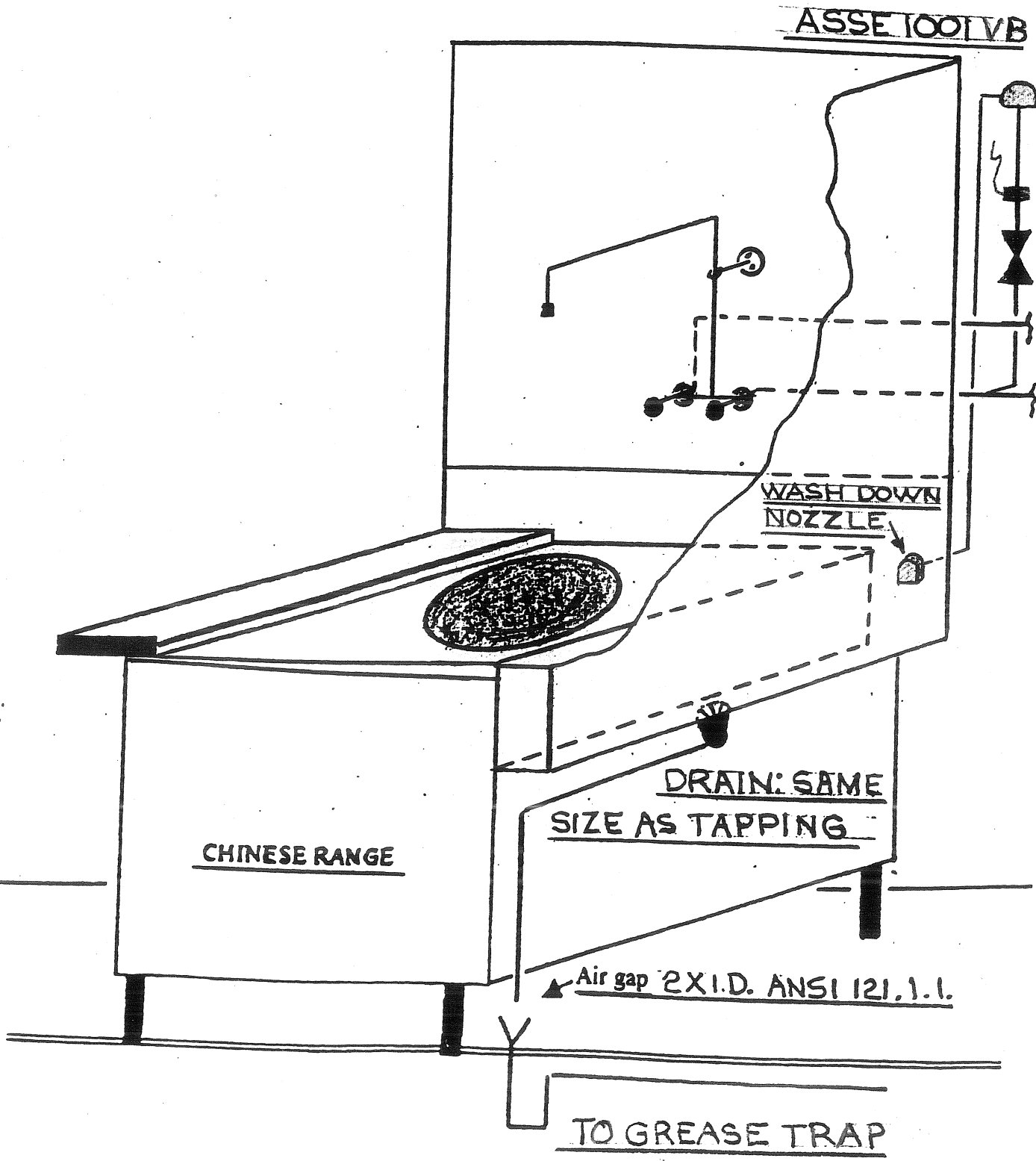
EXHAUST HOOD WATER WASH DOWN FOR CHINESE RANGE



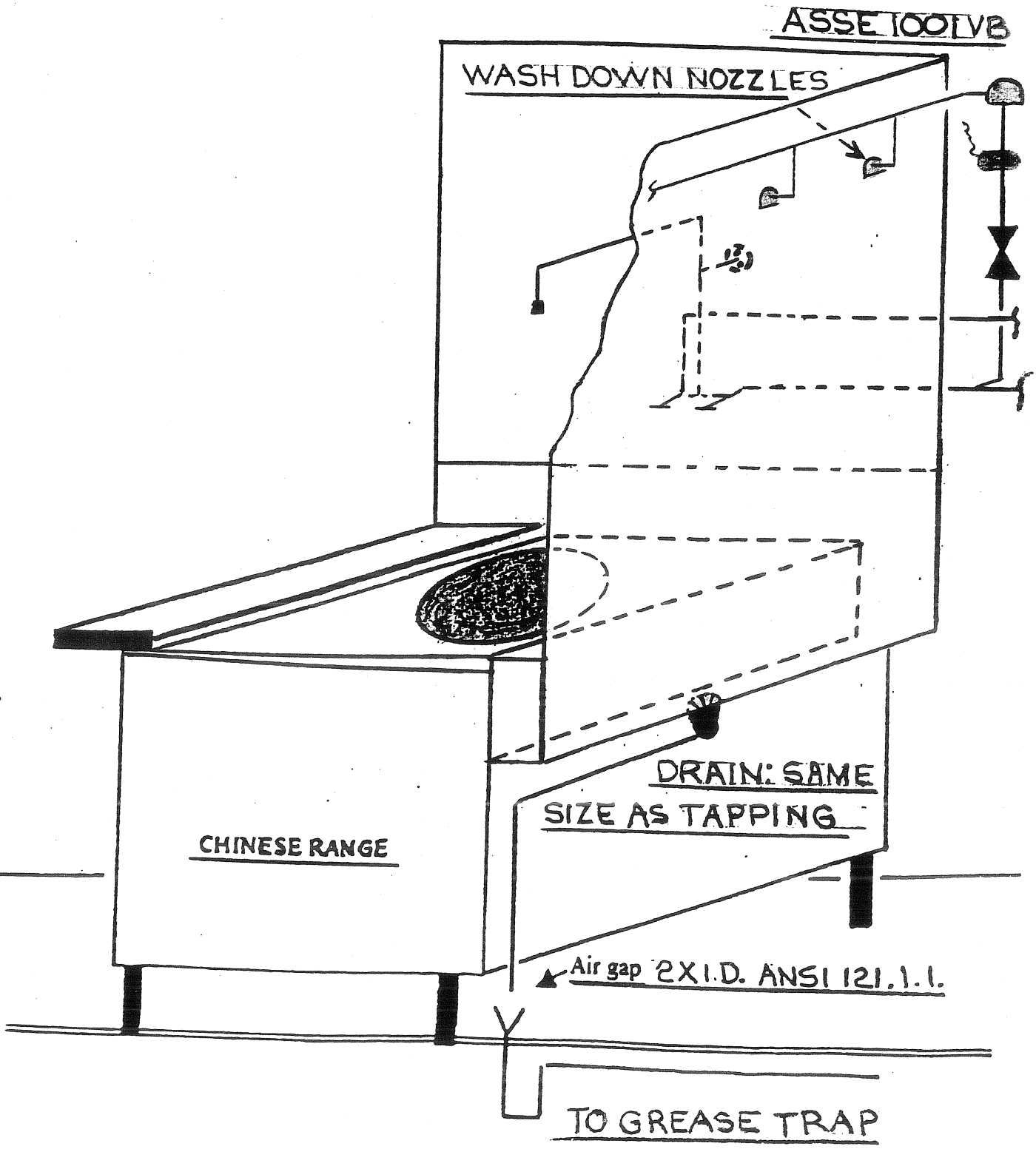
CHINESE RANGE TOP WATER WASH DOWN



EXHAUST HOOD W/WATER WASH DOWN FOR CHINESE RANGE



EXHAUST HOOD W/WATER WASH DOWN FOR CHINESE RANGE



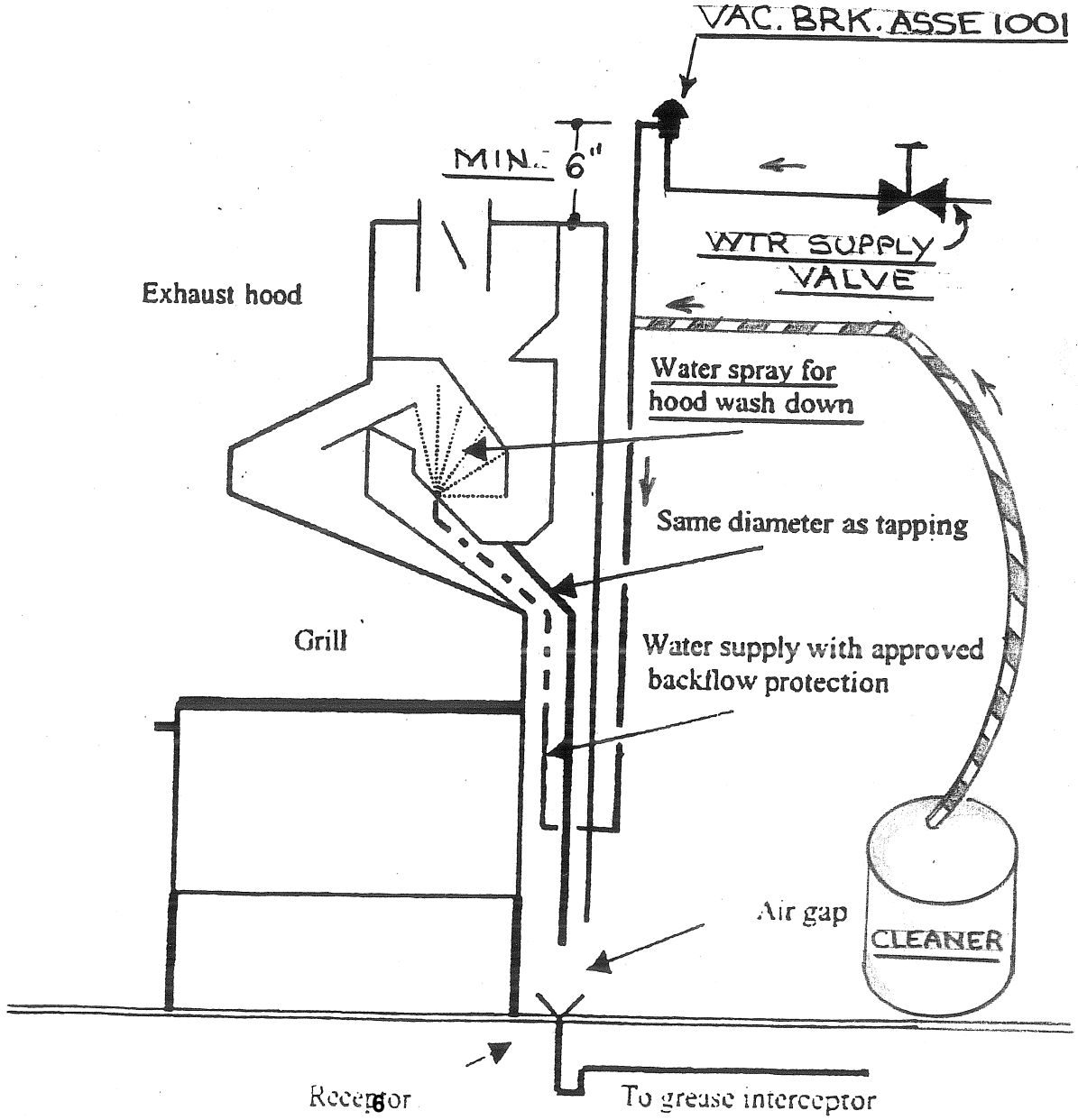
EXHAUST HOOD WATER WASH DOWN

FOR GRILLS

W/ ATMOSPHERIC VACUUM BREAKER

ASSE 1001

DEGREASER MAY BE USED AFTER VAC. BRK.

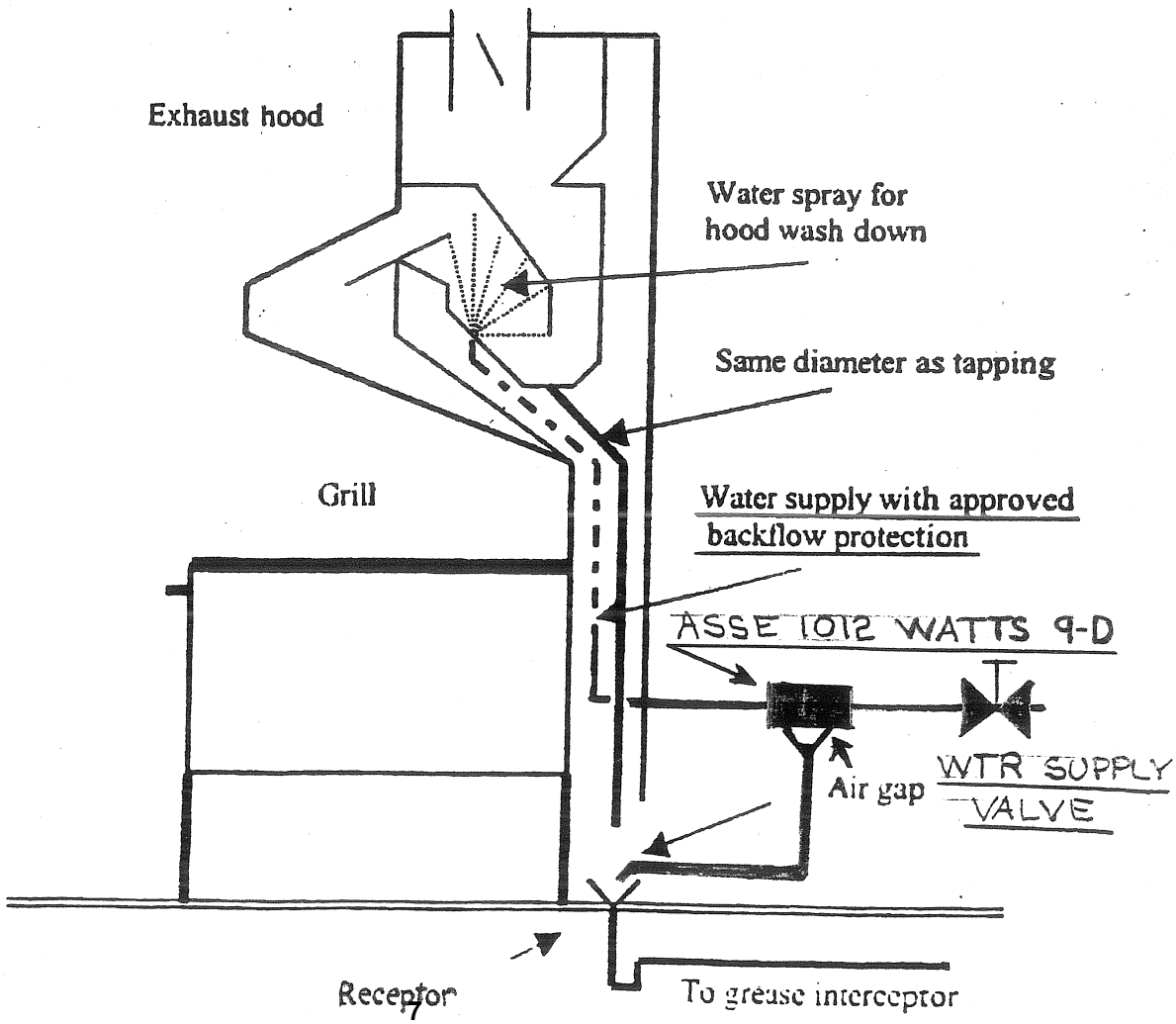


EXHAUST HOOD WATER WASH DOWN

FOR GRILLS

W/ BACKFLOW PREVENTER WITH INTERMEDIATE ATMOSPHERIC VENT ASSE 1012

NO DEGREASER USED W/ WATTS 9D

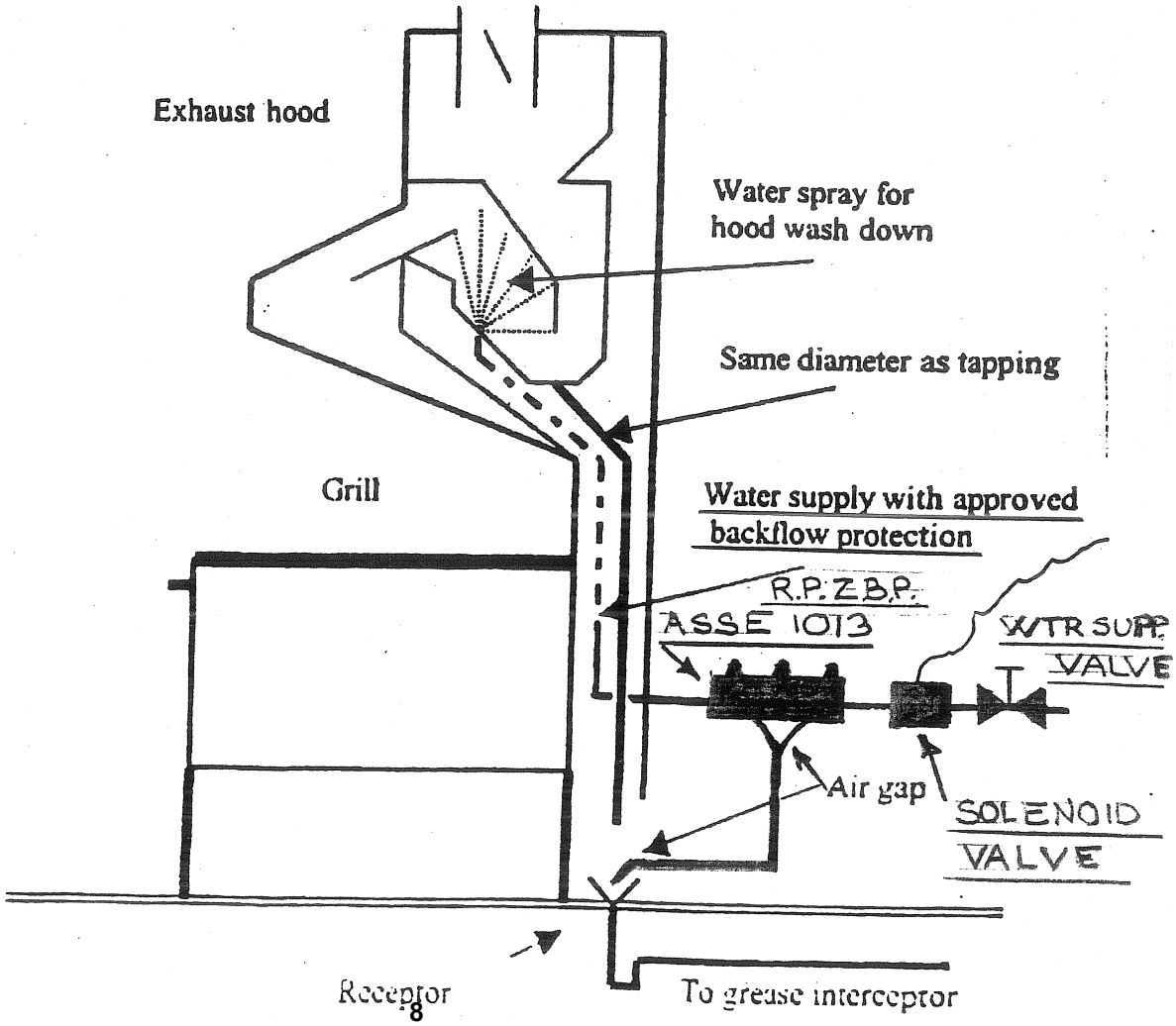


EXHAUST HOOD WATER WASH DOWN

FOR GRILLS

W/ REDUCED PRESSURE ZONE BACKFLOW PREVENTERS ASSE 1013

DEGREASER MAY BE USED AFTER B.F.P.



HOSE BIBBS

Cross-connection control for a **hose bibb** is based on a **high** degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

Hose bibbs are generally protected by ASSE1011 vacuum breakers (ex: Watts 8a). Generally used on service sinks, laundry trays and outside gardening uses. May not be used in back-pressure situations of more than 10 feet of water column. Limited to non-continuous pressure, 12 hours or less.
NOTE: An exception to the 12 hour rule are campgrounds and marinas. (Campgrounds and marinas require a RP valve upstream of hose bibbs)

BACK FLOW PROTECTION

The water supply serving **hose bibbs** must be protected to the highest degree to prevent any toxins from entering the water supply. The uncertainty & concern of where the end of the hose could be left is what creates a high hazard situation.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1001 Pipe applied vacuum breaker

B. A.S.S.E. 1011 Hose connection vacuum breaker

C. A.S.S.E. 1052 Self draining hose connection vacuum breaker

NOTE: Commercial hose reels must be protected with a RP valve, PVB or a SPVB.

The following pages contain photos of various installations. Remember, hose faucets **w/built-in** vacuum breakers **require** an additional hose connection vacuum breaker (The State does not have approval for any manufactured faucets w/built-in vacuum breakers). Unless a pipe applied vacuum breaker is mounted 7'-6" above finish floor.

OVERHEAD HOSE REEL

Cross-connection control for overhead hose reels is based on a **high** degree of hazard for the protection of the potable water supply. Comm. 82.41

Due to the location of valves, height of the hose creating back pressure and hoses being left on for long periods – a reduced pressure principle backflow preventer (ASSE 1013) must be used.

In addition to the RPZ assembly, all hose connections need vacuum breakers (ASSE 1011). This is to eliminate any contamination from hose bibb to hose bibb.

COMMERCIAL KITCHEN HOSE SPRAYERS

Cross-connection control for **commercial kitchen hose sprayers** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

MANUFACTURER TYPE

A. Chicago faucet #502, # 610-GC or equal.

B. All faucets used w/hose sprayers must have built in check valves.

BACK FLOW PROTECTION

The water supply serving the **commercial kitchen hose sprayer** must be protected to the highest degree of hazard to prevent drain water or water with detergents from entering the water supply.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Air gap on sprayer w/rigid arm ASME A112.1.2

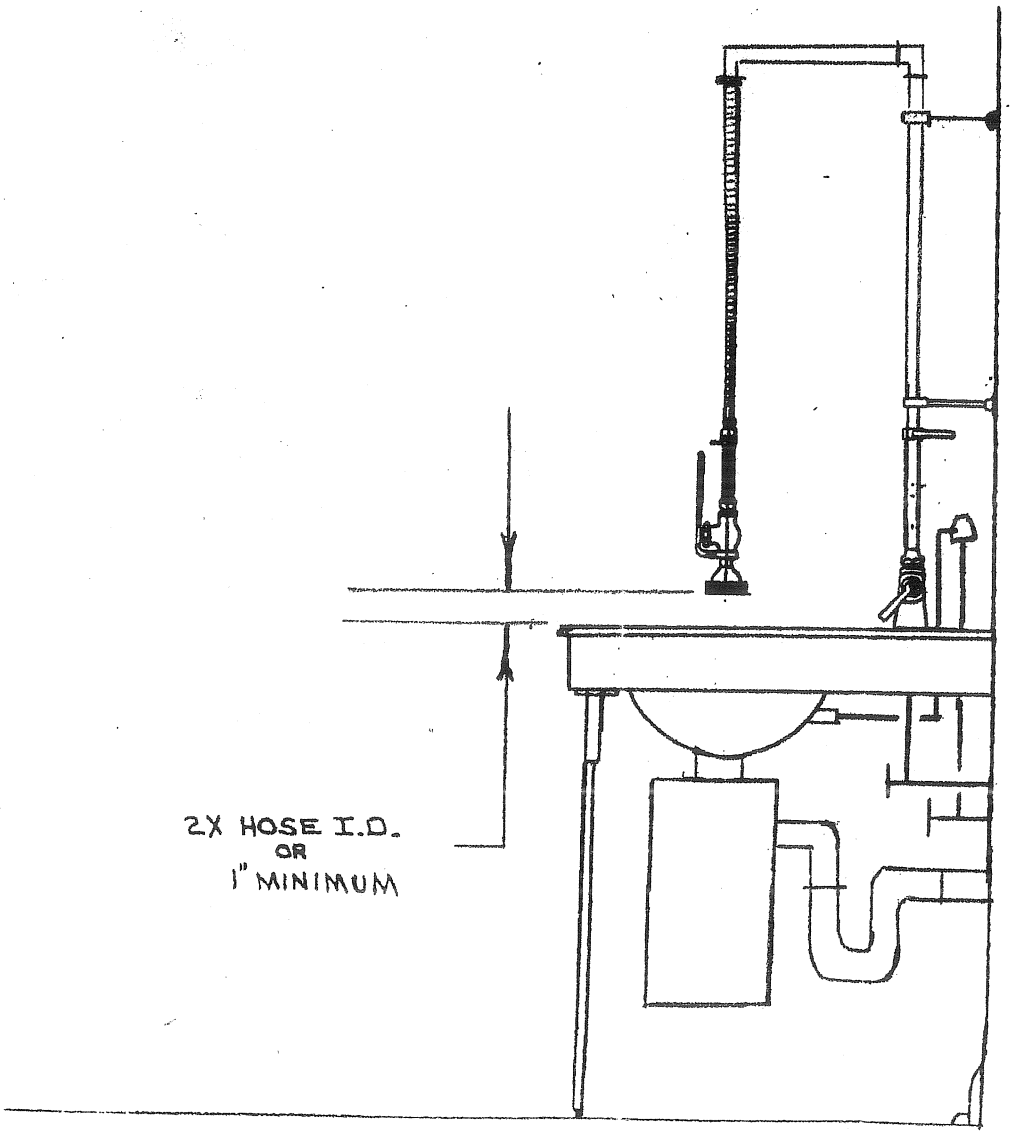
B. Vacuum breaker ASSE 1001 (sprayer below sink rim)

C. Reduced pressure principle back flow preventer ASSE 1013 (sprayer below rim)

D. Pressure vacuum breaker ASSE 1056 (sprayer below rim)

KITCHEN HOSE SPRAYERS

Cross- connection control for kitchen hose sprayers is based on their high degree of hazard for the protection of the drinking water. The ANSI 112.1.2 air gap is the most common way of protecting the drinking water supply from the kitchen sink basin. The sprayer when hanging free must maintain an airgap between the end of the sprayer and the rim of the sink of at least 2 times the diameter of the effective opening of the sprayer hose. There is a 1" minimum, or in other words if the sprayer hose inside diameter is 1/4" the air gap is not ½" but is 1".



AIR GAP

HUMIDIFIERS

Cross-connection control for **humidifiers** is based on both a high and low degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

There are several types of **humidifiers**; residential, commercial, water supplied and steam injected. Some of these units will have built-in air gaps while others will have submerged inlets. To determine what back flow protection is required may involve opening the unit or obtaining schematics to see how water flows through the unit.

BACK FLOW PROTECTION

The water supply serving the **humidifiers** must be protected to the highest degree for units that are steam injected. The concern here would be for the steam to over power the water supply creating a backpressure situation. **Humidifiers** are also protected to a low degree of hazard in most situations to prevent contaminants that may grow in unit, from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.M.E. A112.1.2 Air gap inside humidifier

B. A.S.S.E. 1012 Intermediate atmospheric vent

C. A.S.S.E. 1013 Reduced pressure principle backflow preventer

HYDRANTS

Cross-connection control for **hydrants (wall or yard)** is based on high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Wall Hydrants – A.S.S.E. 1019 A & B. This hydrant shall be freeze resistant, self-draining and have integral backflow protection. This hydrant will typically serve wading pools, therapeutic pools, swimming pools, gardening hoses, etc. Maximum of 10 feet of head pressure.

Yard Hydrants – A.S.S.E. 1011, 1052 hydrants that bleed (drain) into ground as well as hydrants that are flush with the grade are **prohibited.** These are typically found at garden centers, garbage dumpster sites, farms, etc. The new standard, as of 2001, A.S.S.E. 1057 is for freeze-resistant sanitary yard hydrants w/backflow protection.

YARD AND WALL HYDRANTS NEED STATE OF WISCONSIN PRODUCT APPROVALS.

See handouts for product approvals & approval stipulations.

NOTE: Commercial hose reels must be protected with a RP valve(A.S.S.E. 1013), spvb (A.S.S.E. 1056) or a pvb (A.S.S.E. 1020).

ICE MACHINES

Cross-connection control for **Ice Machines** is based on a high degree of hazard. Comm 82.41

TYPES

Ice machines with a single water connection, water supply used for making ice only, does not require additional backflow protection. **Ice machines** with more than one connection from the water supply may be considered **high** hazard. The additional connection to the water supply is typically used for water cooling the refrigeration unit. In some cases the water feed to cooling unit may have an air gap. This would be considered adequate protection for a high hazard situation.

BACK FLOW PROTECTION

The water supply serving **Ice Machines** must be protected to prevent ice from being contaminated from drain water. Additionally, the water supply must be protected to prevent any growth or contamination (from cooling unit) from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

- Water for making ice only (single water connection)
  Air gap required on ice chest drain

High Hazard

- Air gap on feed to cooling unit A.S.M.E. A112.1.2
- Atmospheric Vacuum Breaker A.S.S.E. 1001
- Reduced pressure principle back flow preventer
  A.S.S.E. 1013
- Spill proof vacuum breaker A.S.S.E. 1056

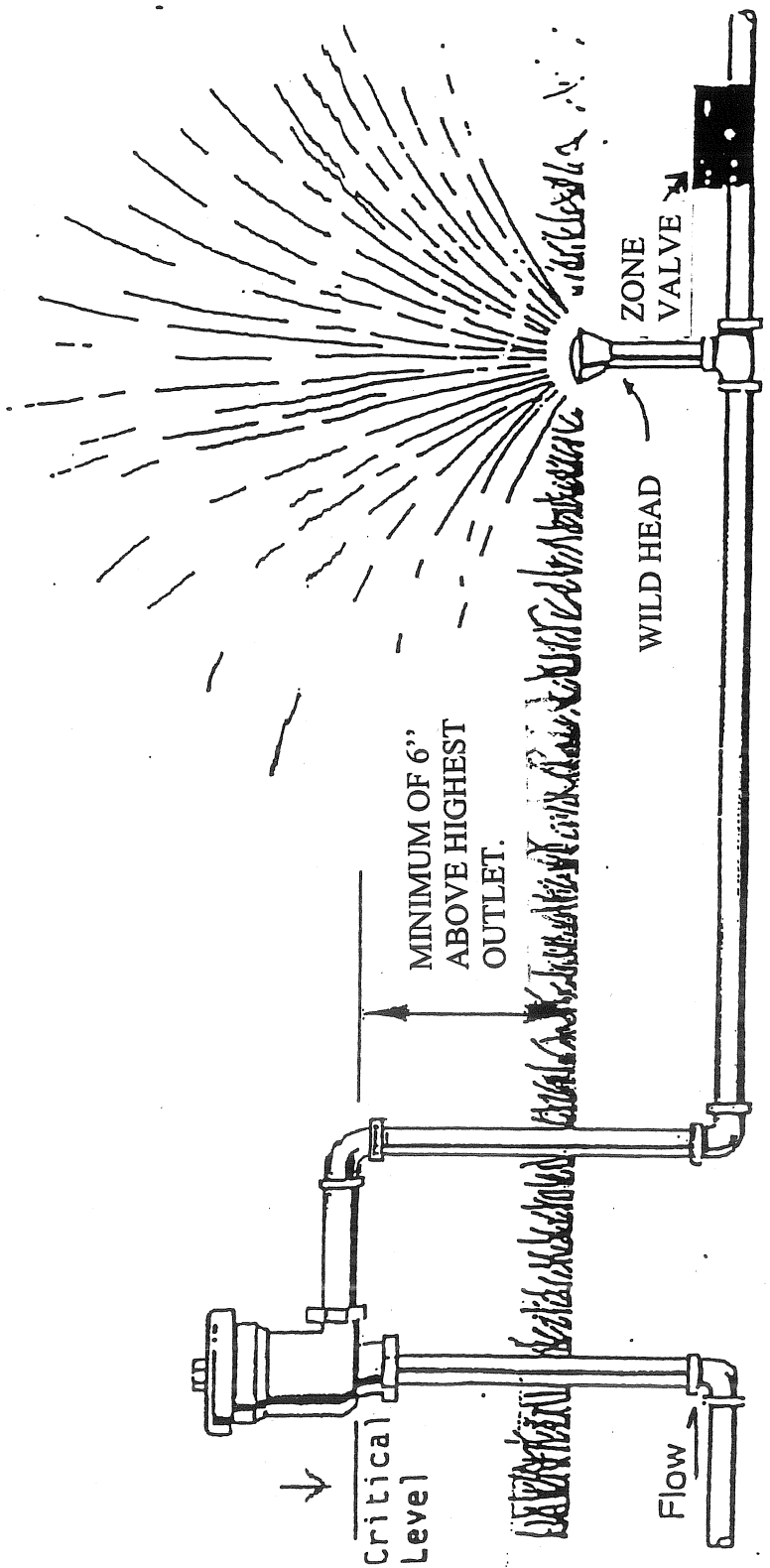
IRRIGATION SYSTEMS

Cross-connection control for irrigation systems is based on a **high** degree of hazard for the protection of the potable water supply. Comm. 82.41

The main concern for back flow protection is to protect against back-siphonage w/lawn fertilizers and chemicals.

APPROVED METHOD OF BACK FLOW PROTECTION

1. ASSE 1001 Pipe applied vacuum breaker/no valves permitted downstream.
2. ASSE 1013 Reduced pressure principle back flow preventer.
3. ASSE 1020 Pressure vacuum breaker
4. ASSE 1056 Spill proof vacuum breaker

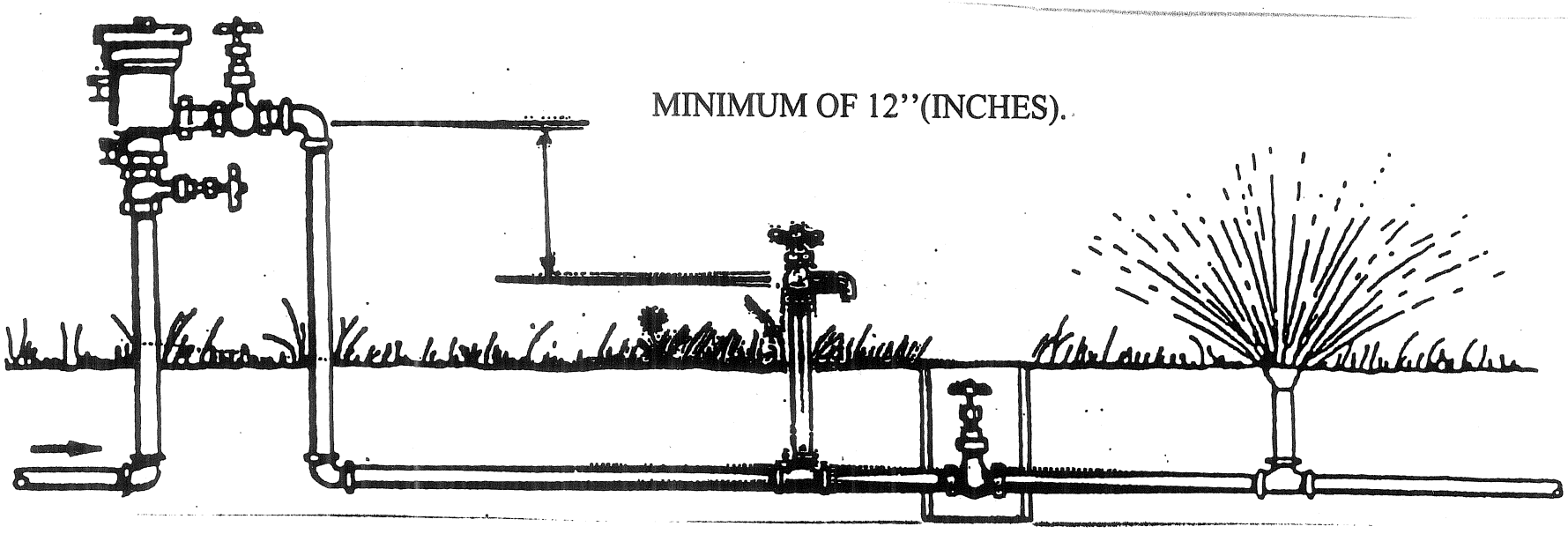


ATMOSPHERIC TYPE VACUUM BREAKER WITH TURF SPRINKLER

A.S.S.E. 1001

APPROVED INSTALLATION OF PRESSURE VACUUM BREAKER

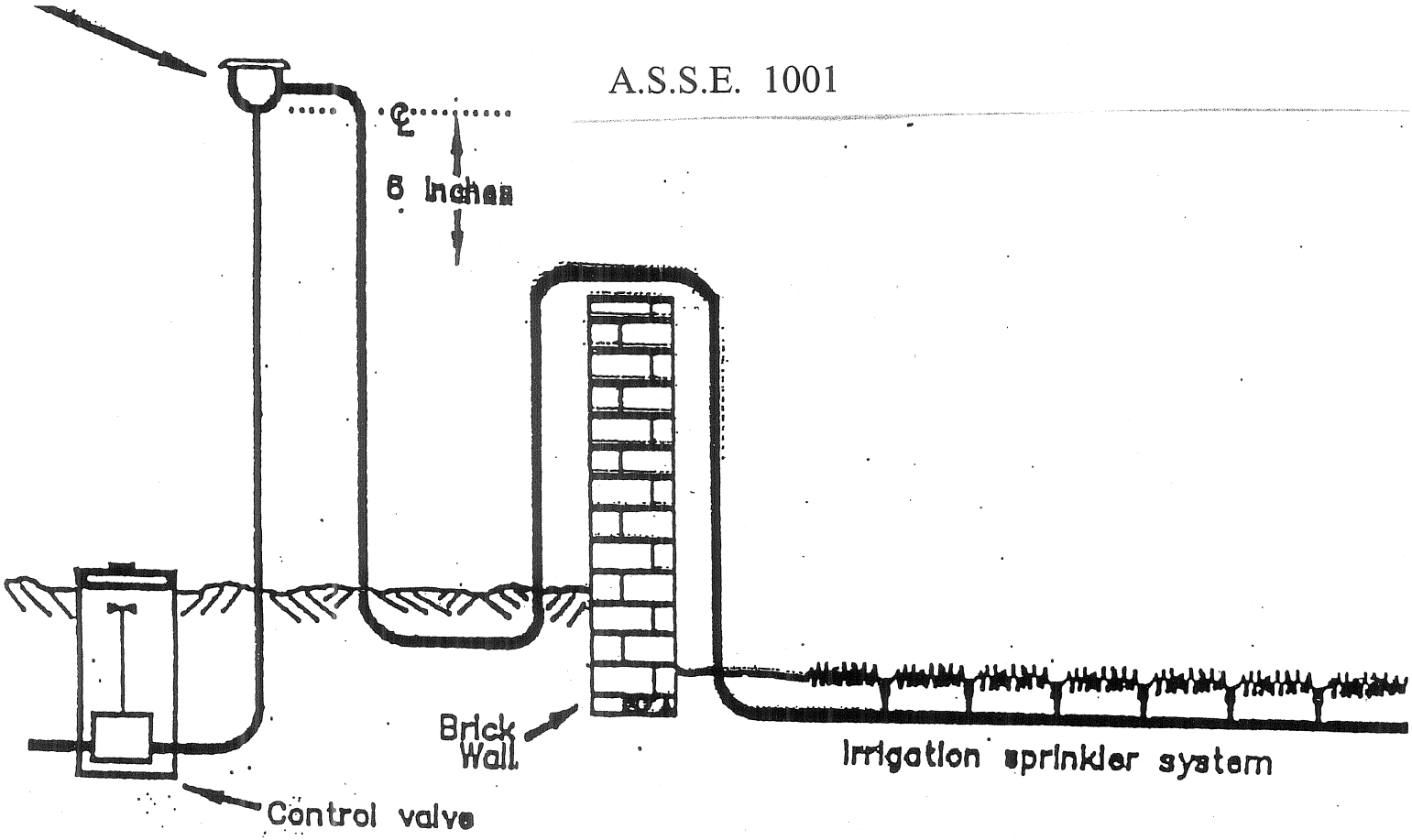
A.S.S.E. 1020



DOWNSTREAM SIDE OF VACUUM BREAKER MAY BE MAINTAINED UNDER PRESSURE BY A VALVE BUT THERE SHOULD BE **ABSOLUTELY** NO POSSIBILITY OF IMPOSING **BACKPRESSURE** BY A PUMP OR OTHER MEANS.

ATMOSPHERIC VACUUM BREAKER

A.S.S.E. 1001



P.V.B...PRESSURE VACUUM BREAKER ASSE 1020

-Only one PVB required to protect the whole system; (on/off valves) can be located downstream of the PVB.

-PVB's must be installed a minimum of (12'') above the highest point of water in the sprinkler system.

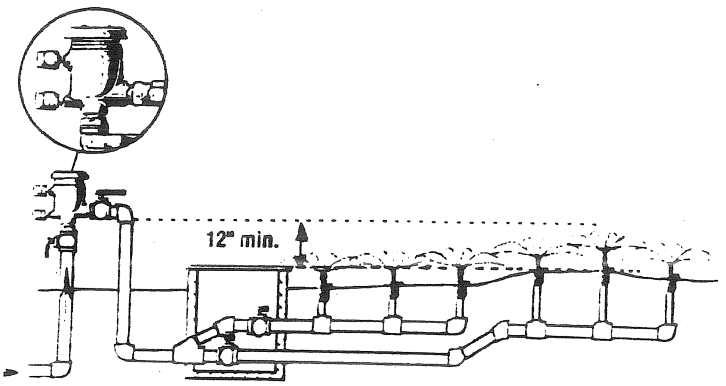
-PVB's **must** be tested by a State-certified Backflow Assembly tester...when installed..then annually or when moved or repaired.

-**NO** chemical or fertilizer can be introduced into an irrigation system protected with PVB's.

-**NO** pumps or sources for back pressure on down-stream side of (after) an PVB.

-Anti-siphon, multi zone.

Can be pressurized for a full **24 hours.**



A.S.S.E. 1020

KITCHEN EQUIPMENT (SPECIALIZED)

Cross-connection control for kitchen equipment is based on a low and high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

This category is made up of all kitchen equipment not listed in their own category. This category is not limited to equipment listed below. Any kitchen equipment can be protected and protection device selected by guidelines listed below.

Kettle Filler
Pasta Cooker
Potato Peeler
Proofer / Steamer

APPROVED METHOD OF BACK FLOW PROTECTION

A. Air gap – water fill above rim of equipment.

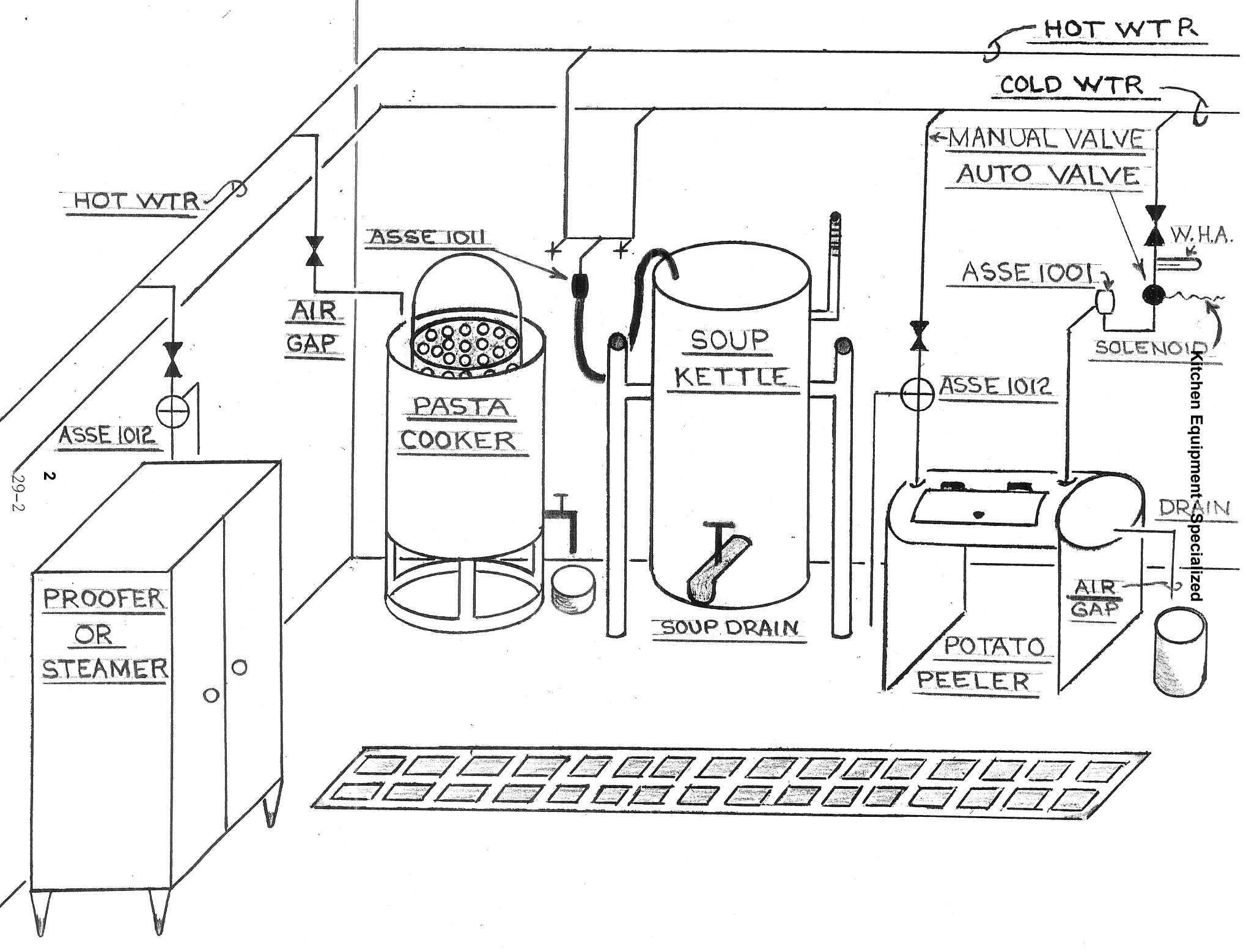
B. ASSE 1001 Pipe applied atmospheric vacuum breaker. No valves allowed downstream of vacuum breaker. Often used with below rim filler.

C. ASSE 1011 Hose connection vacuum breaker.

D. ASSE 1012 **Low Hazard** Intermediate atmospheric vent. Used on equipment w/o chemicals and low pressure boilers.

E. ASSE 1013 Reduced pressure principle back flow preventer. Used on equipment w/ chemicals, attached hoses and boilers w/pressure higher than 30# water or 15# steam.

F. ASSE 1056 Spill proof vacuum breaker. Can only work in back siphonage situations, can not use in back pressure conditions.



LAB HOOD

Cross-connection control for **lab hoods** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Lab hoods are used for experimenting and testing in laboratories. Their primary function is to remove fumes that are created during mixing process of chemicals. Water use is limited in this process to dilution and clean up. For this reason many **lab hoods** have had the water disconnected and capped.

BACK FLOW PROTECTION

The water supply serving the **lab hood** must be protected to the highest degree of hazard to prevent chemicals and chemical fumes from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1001 Atmospheric Vacuum breaker
NOTE: All backflow devices must be located outside of hood.

B. A.S.S.E. 1013 Reduced pressure principle back flow preventer

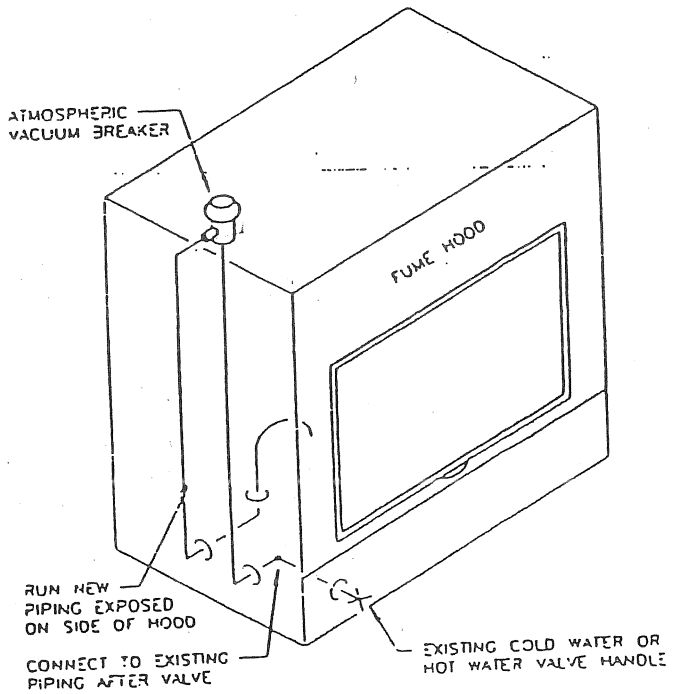
C. A.S.S.E. 1056 Spill proof vacuum breaker

LAB HOODS

Cross-connection control for lab hoods is based on their high hazard for the protection of the drinking water. Lab hoods are used for tests and experiments. Water supply lines for hoods must be protected with a high hazard backflow device or assembly that is exterior to the hood to prevent backflow of toxic fumes.

The most common way is by piping a atmospheric vacuum breaker (ASSE1001) outside the cabinet of the hood. Note that many labs find water supply is not necessary and decide to discontinue piping to the hood.

In some cases a reduced pressure zone valve (ASSE1013) or a pressure vacuum breaker (ASSE1056) must be used on the water supply line.



LABORATORY FAUCETS

Cross-connection control for **laboratory faucets** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The **laboratory faucets** of concern have serrated hose adapters at end of spout. The type of faucet may be deck mounted or back mounted in counter or sink.

BACK FLOW PROTECTION

The water supply serving the **laboratory faucets** must be protected to the highest degree to prevent any contaminants that the hose may come into contact with from entering the water supply system. Faucets with atmospheric vacuum breaker built-in on spout **are not permitted**. Attached hose can be lifted higher than vacuum breaker causing discharge.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1035 In-line vacuum breaker
NOTE: Max. 6' of head pressure.

LAUNDRY SINKS

Cross-connection control for **laundry sinks** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The types of **laundry sinks** are limited to wall mount, floor mount and cabinet styles. Similar to mop sinks that typically have wall mounted faucets, **laundry sinks** have attached, above the rim fillers. The high hazard is present due to hose threads on the spout of the faucet. When the faucet has an aerator, no hose thread, no additional back flow protection is required.
NOTE: As of 2002, the Wisconsin State Plumbing Code requires every commercial building to have a building maintenance sink, mop sink or laundry sink, with proper back flow protection.
Reference: Comm 82.41(3)(b)4.c.

BACK FLOW PROTECTION

The water supply serving the **laundry sink** must be protected to the highest degree to prevent any contaminants/toxins from entering the water supply. The main concern with these fixtures is a hose attached to the spout. The other end of the hose has the possibility of being left in a drain or in a bucket of detergent. Soap dispensing systems may be present on **laundry sinks.** These units must be approved and installed properly to meet all back flow requirements.
NOTE: If addition of vacuum breaker on spout creates less than a 1" air gap between spout and flood level rim of sink, the **laundry sink** faucet must be raised up to meet 1" minimum requirement.

APPROVED METHOD OF BACK FLOW PROTECTION

See chapter on **"Mop Sinks"** for proper back flow protection requirements.

MOP SINKS

Cross-connection control for **mop sinks** is based on a high degree of hazard for the protection of the potable water supply. When soap-dispensing systems are attached a high degree of hazard is observed for both the soap dispensing unit and the mop sink. Comm 82.41(4)(c)1.a.b.

TYPES

Mop sinks are commonly used as either floor mount or wall mount (service sinks) units. Faucets serving these units can be a mixing valve in the wall or a two handle-mixing valve outside the wall. It was common for a period of time for an atmospheric vacuum breaker to be piped in above **mop sink** at a min. 7'6" above finish floor. This vacuum breaker will serve as protection for the **mop sink.** If a soap dispenser is added it would require its own backflow protection (see sketch in this chapter). A faucet with atmospheric vacuum breaker built in is not an approved faucet and would therefore require additional backflow protection.
NOTE: As of 2002, the Wisconsin State Plumbing Code requires every commercial building to have a building maintenance sink, mop sink or laundry sink, with a hose thread and proper backflow protection.
Reference: Comm 82.41(3)(b)4.c.

BACK FLOW PROTECTION

The water supply serving the **mop sink** must be protected to the highest degree of hazard to prevent any toxins or contaminants from entering the water supply system. Prevention of any soaps or detergents from entering the water supply is a great concern as well as any backflow due to hoses being left in drains, buckets, etc.

APPROVED METHOD OF BACK FLOW PROTECTION

NOTE: Each hose thread shall have back flow protection.

1. ASSE 1001 Pipe applied vacuum breaker
2. ASSE 1011 Hose connection vacuum breaker
3. ASSE 1013 Reduced pressure principle back flow preventer
4. ASSE 1052 Self draining hose connection vacuum breaker
5. ASSE 1056 Spill proof vacuum breaker
6. Soap dispensers ASSE 1055 A&B.

Don't get burned on a water closet

Misuse of mixing faucet for chemical dispenser

by Mike Beckwith, S&B Plumbing Products Reviewer, 608-266-6742, mbeckwith@commerce.state.wi.us

How would you like to flush a toilet that you're sitting on and get burned by hot water?

You may be asking yourself, who would pipe hot water to a water closet? Good question, but that was not the cause of this accident. The cause was the misuse of a mixing faucet and improper installation of a chemical dispenser.

The following is from an article published in the fall 1999 North American Backflow Association's *Cross Examiner*. A plumbing contractor's repairman was servicing a flushometer valve on a urinal in a large supermarket. A man in a nearby stall started to yell after he flushed the water closet he was sitting on and he was severely burned by hot water.

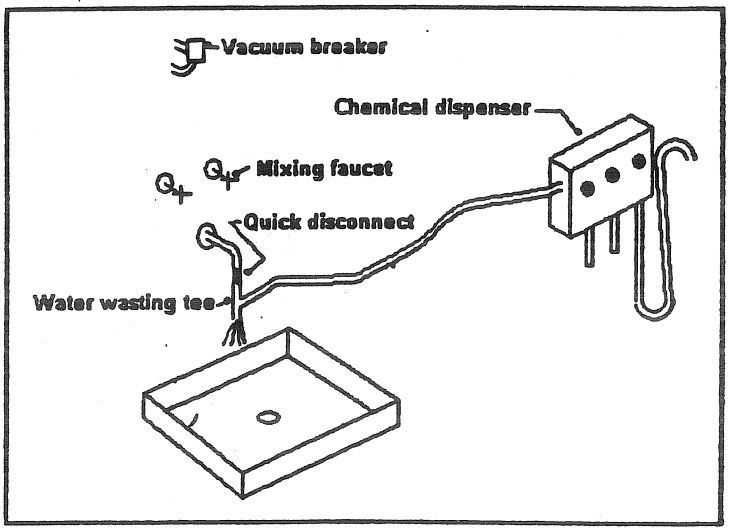
The store manager blamed the man's injury on the contractor.

Denying any responsibility, the contractor immediately started to look for the cause of the man's burn. The repairman discovered a chemical dispenser mounted near a janitor's sink in the janitor's room near the restroom. The sink's faucet was equipped with an integral atmospheric vacuum breaker, and a 2-way valve mounted on the faucet's outlet. The dispenser was connected to one side of the 2-way valve.

The hot and cold water valves of the faucet were left full open, under the direction of the chemical dispenser salesman who advised the store manager. The repairman was told the salesman installed the 2-way valve and wanted the faucets left full open so the dispenser would be pressurized at all times.

The contractor checked the cold water temperature in the restroom where the man was burned, and found the "cold water" to be 138°F. The contractor told the manager that the man was burned because the hot water was drawn into the cold water system and flowed to the water closet when it was flushed. The contractor told the manager that his installation was prohibited by the plumbing code and removed the 2-way valve from the faucet. He informed the manager that the dispenser required its own dedicated pressure vacuum breaker or reduced pressure principle assembly.

continued on next page

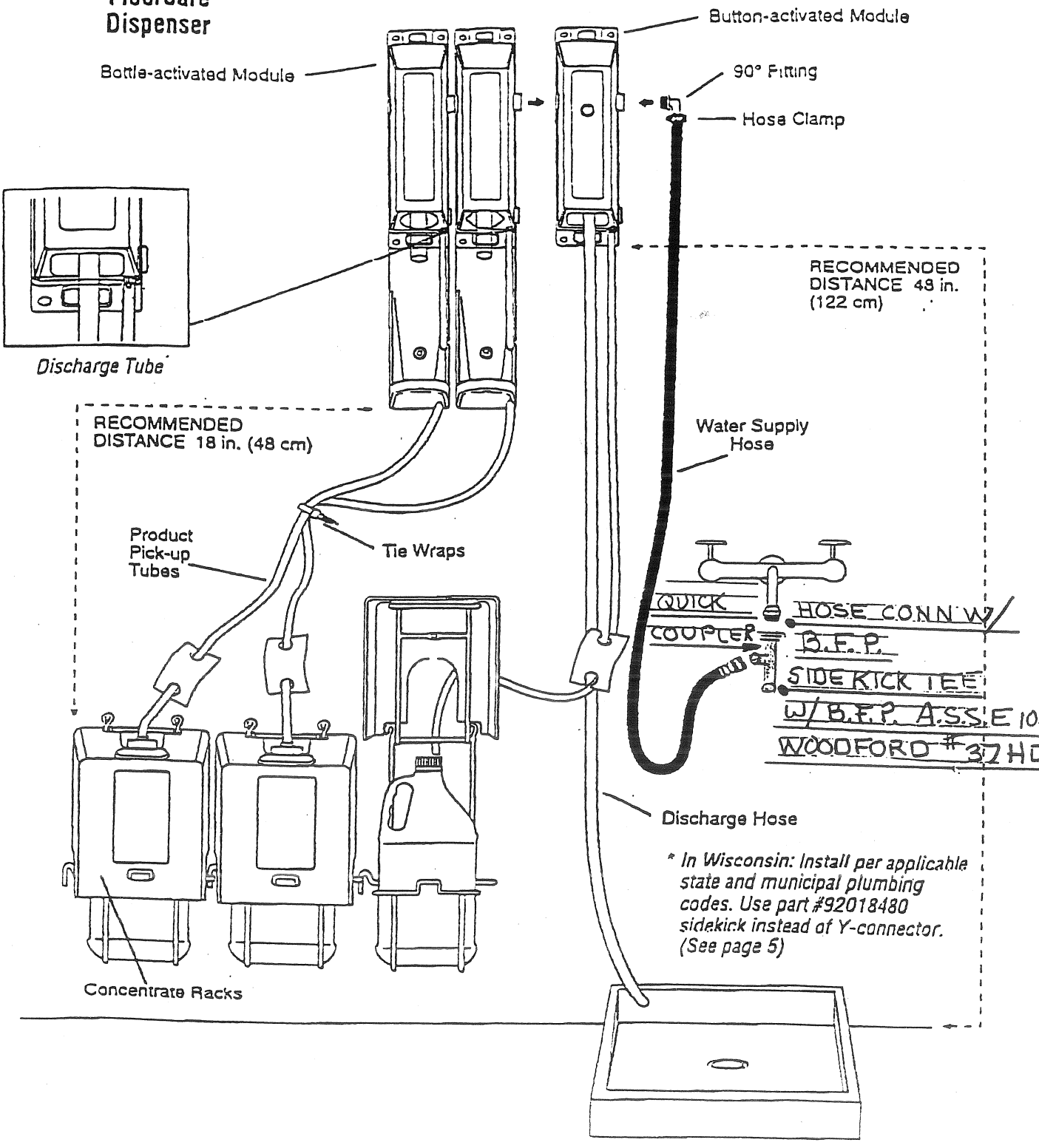


Note: Installing faucets with check valves in the water supply piping provides additional protection against cros- flow.

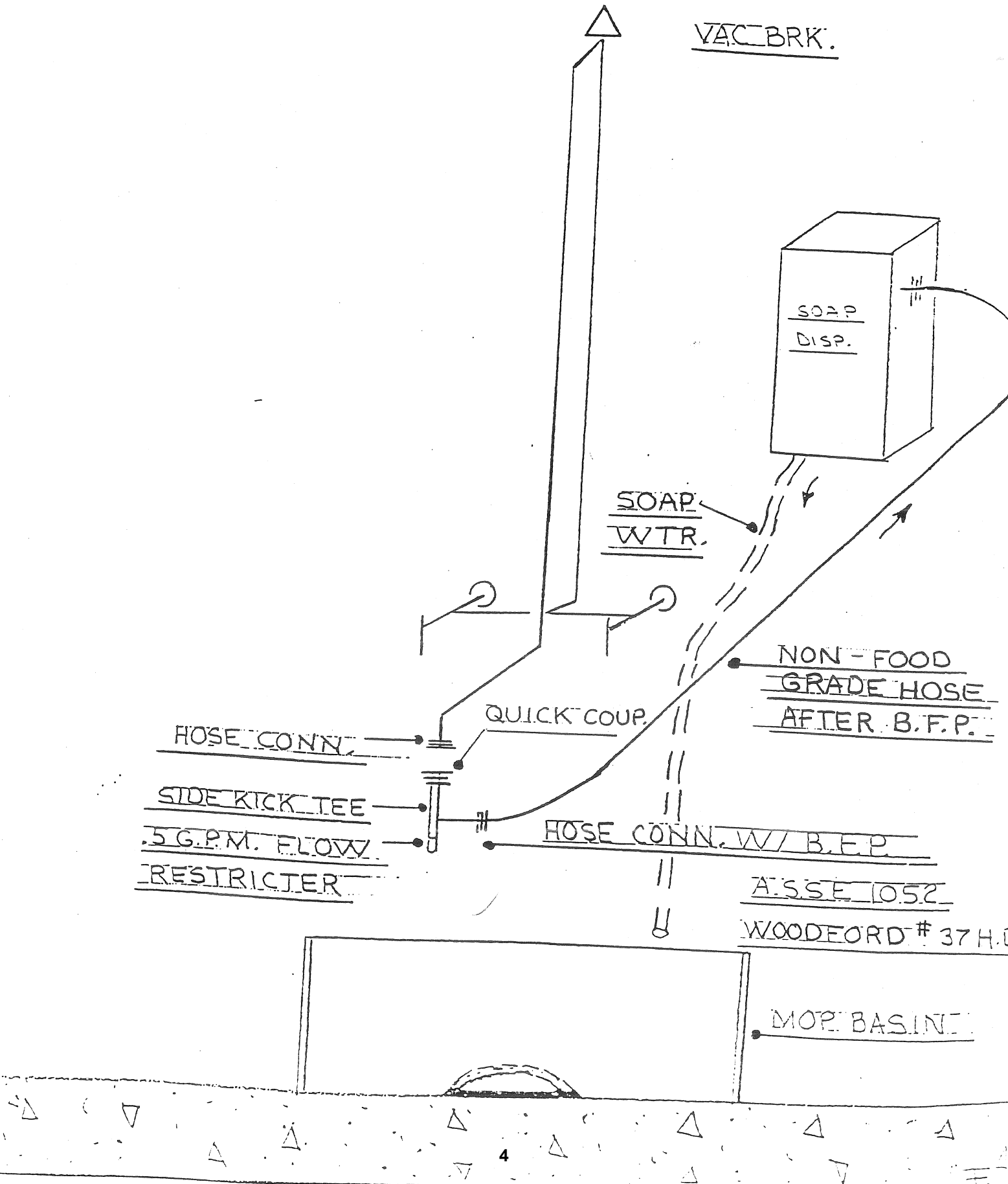
Safety and Buildings-related codes are on the Internet
http://www.legis.state.wi.us/rsb/code/comm

Paper copies may be purchased from Document Sales, 800-362-7253, for credit card purchases, or 608-266-3358.

MASTER DIAGRAM for Spray Bottle/ FloorCare Dispenser

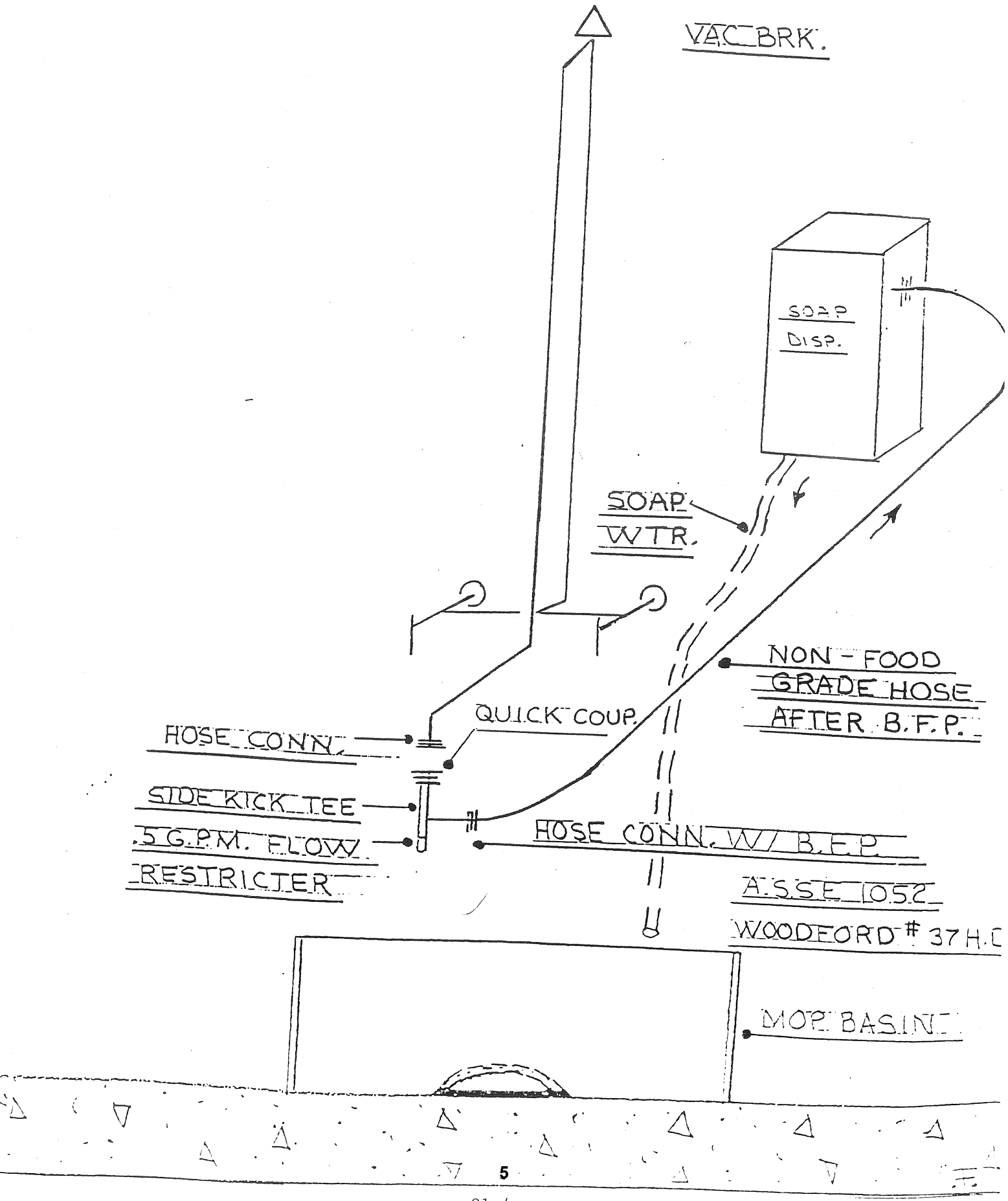


MOP BASIN W/ VACUUM BREAKER

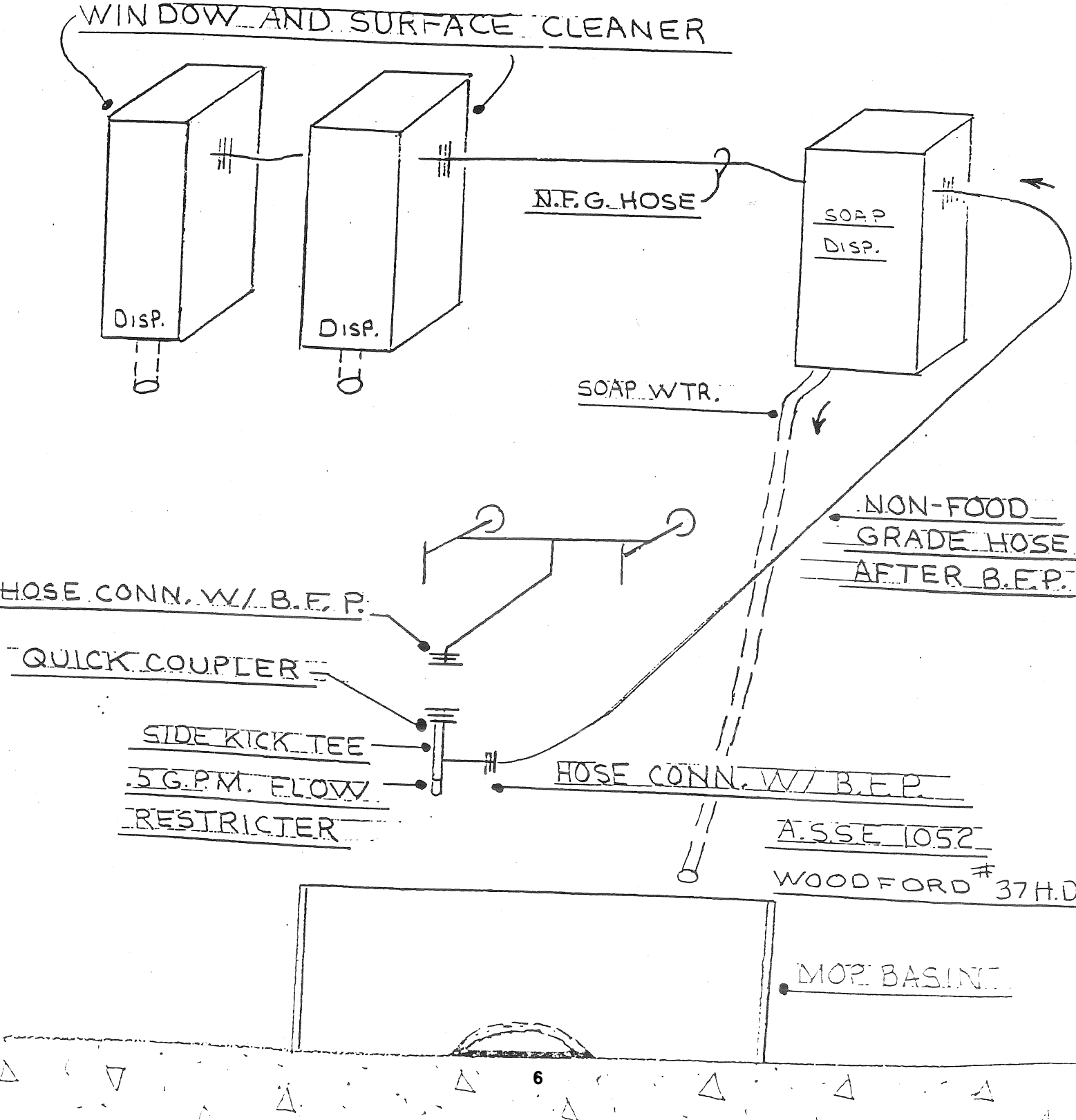


MOP BASIN W/ VACUUM BREAKER

Mop Sinks

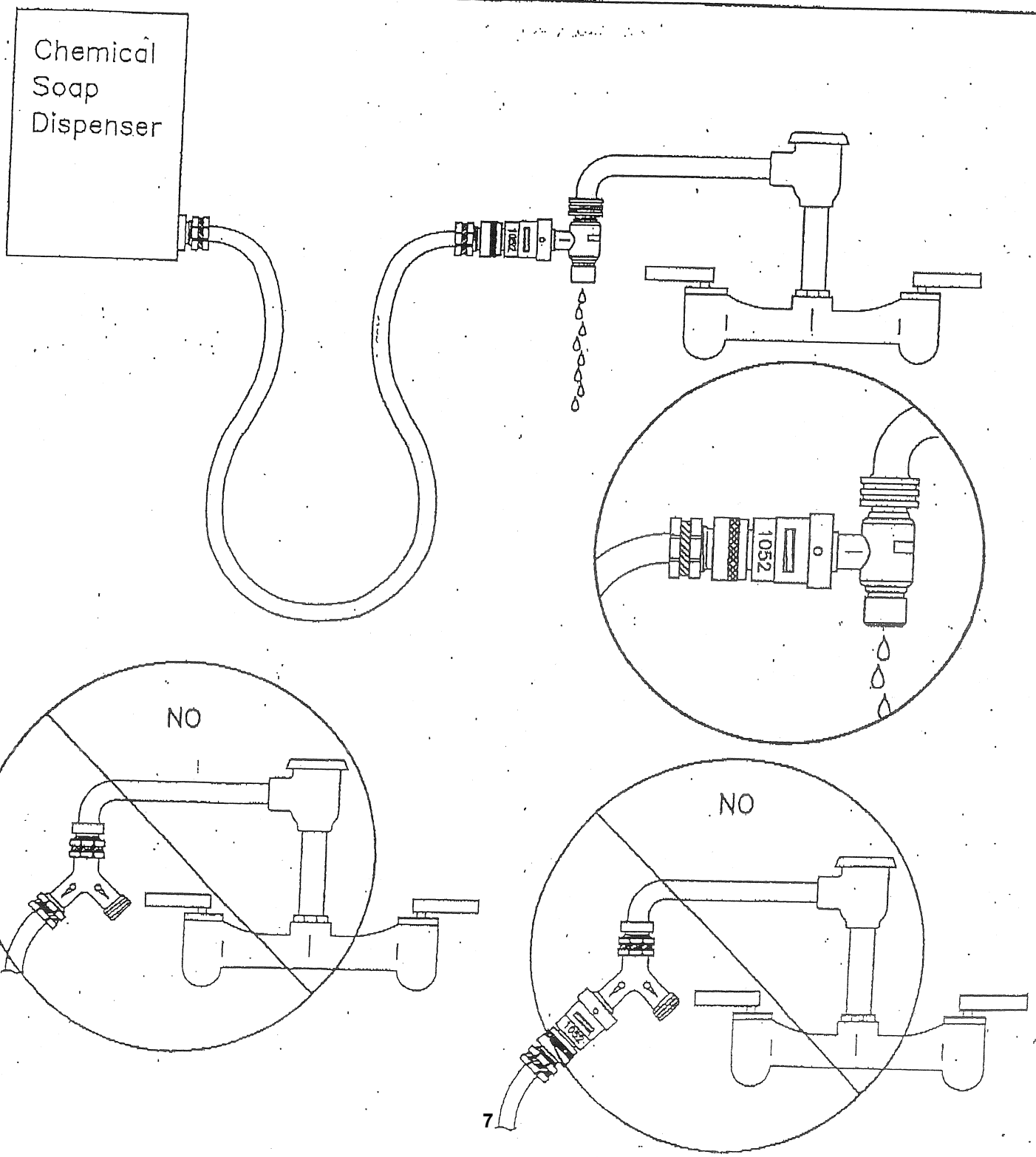


MOP BASIN W/ B.F.P ON SPOUT



JOHNSON WAX PARTS DEPT. 1-800 492-4422
FLOW THRU KIT # 930225 $11.50

An atmospheric vacuum breaker integrally mounted on a faucet that is connected to a chemical/soap dispenser shall be protected against back pressure by the installation of a pressure bleeding device (side-ki and a backflow preventer complying with ASSE Std. 1052. The backflow preventer shall be installed on the side outlet of the pressure bleeding device. This requirement together with ASSE Std. 1055 shall dictate installation requirements for chemical/soap dispensers. No wye connecto that has an integral shutoff shall be connected to a faucet that has ar integral atmospheric vacuum breaker.



Test for Approved Dispensers

1. The chemical dispenser is labeled ASSE 1055A and is provided with a dedicated water supply that terminates with other than a hose thread;

2. The chemical dispenser is labeled ASSE 1055B, is connected to a janitor sink faucet and is served by a pressure bleeding device (wasting tee);

3. The chemical dispenser model is listed in the "*Wisconsin Plumbing Product Register*" and meets the listed stipulations.

Internal air gaps

PEDICURE CHAIRS

Cross-connection control for **pedicure chairs** is based on their high degree of hazard for the protection of the potable water supply. Comm 82.41

Currently only one manufacturer of whirlpool foot spas is approved for use with-out back flow protection in Wisconsin.

Manufacturer Name

EUROPEAN TOUCH LTD II

Product Name

PEDICUIRE WHIRLPOOL FOOT SPA

Models

-SOLACE SPAS-
-ALTERA
-FORTE
-PLANTINO

Approval stipulations

Wisconsin plumbing products register-Wisconsin Department of Commerce Division of Safety & Buildings #1830

“when this product is installed using the Power Drain Pump Line, the discharge piping must comply with the requirements of Comm. 82.33(2),(3),(4),(6),(7) & (8) of the Wisconsin Administration Code.

Good thru 04, 2011

APPROVED METHOD OF BACK FLOW PROTECTION

INDIVIDUAL PROTECTION FOR EACH CHAIR IS REQUIRED

A. ASSE 1013 Reduced pressure principle back flow preventer

B. ASSE 1056 Spill proof vacuum breaker

C. Fixed spout w/air gap & no spray. Mixing valve must have State Product Approval. A.S.M.E. 112.18.1M & A.S.M.E. 112.18.3M

D. Salon sink faucets, kitchen sink faucets & any faucet with A.S.M.E. 112.18.1M or A.S.M.E. 112.18.3M are allowed on pedicure chairs & do not require additional back flow protection.

NOTE: Drains on chairs smaller than 1¼", with gravity discharge, or any size drain with pumped discharge must drain indirect to a receptor.

Drains 1¼" or larger, that flow by gravity, shall be connected direct to drain/vent system with vented trap.

POOLS

Cross-connection control for **pools** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Pools will have a fill pipe located somewhere in the system, either at poolside or in equipment room. Generally a fill pipe will discharge directly into the pool or into a large fill tube (ex: 4" pvc pipe). Discharge into fill tube or directly into **pool** shall be done with an air gap. If air gap is not present, additional high hazard protection is required.

Hose bibbs are common in these areas and need ASSE 1011 protection.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Air gap on pool fillers ASME A 112.1.2

B. ASSE 1001 Pipe applied vacuum breaker

C. ASSE 1012 Intermediate atmospheric vent

D. ASSE 1013 Reduced pressure principle back flow preventer

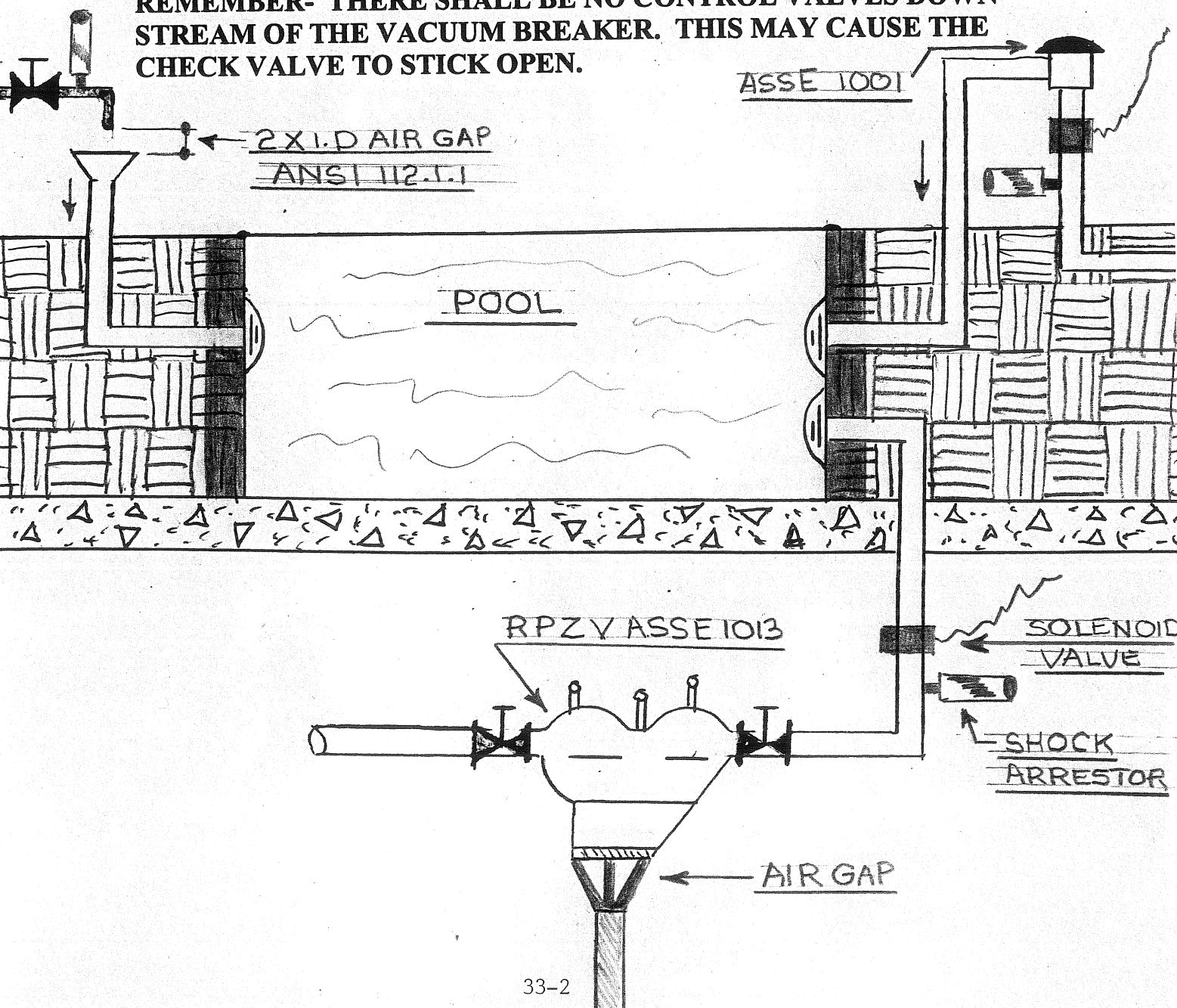
E. ASSE 1020 Pressure vacuum breaker

F. ASSE 1056 Spill proof vacuum breaker

POOL FILLING:

Cross-connection control for pools is based on their high degree of hazard for the protection of the drinking water. The A.N.S.I. 112.1.1 air gap is the most common way of protecting the drinking water from pool water. The most common methods of backflow are the pipe applied vacuum breaker (A.S.S.E. 1001) and the reduced pressure zone valve assembly (A.S.S.E. 1013).

REMEMBER- THERE SHALL BE NO CONTROL VALVES DOWN-STREAM OF THE VACUUM BREAKER. THIS MAY CAUSE THE CHECK VALVE TO STICK OPEN.



POT AND PAN SINKS

Cross-connection control for pot and pan sinks is based on a high degree of hazard for the protection of the potable water supply when a soap dispensing system is attached. A low degree of hazard is observed without soap dispenser. Comm 82.41

GENERAL REQUIREMENTS

A. Hot and cold potable water supply shall be designed, installed and maintained in such a manner to prevent the contamination of the water supplies, by means of cross connections.

MANUFACTURER TYPE

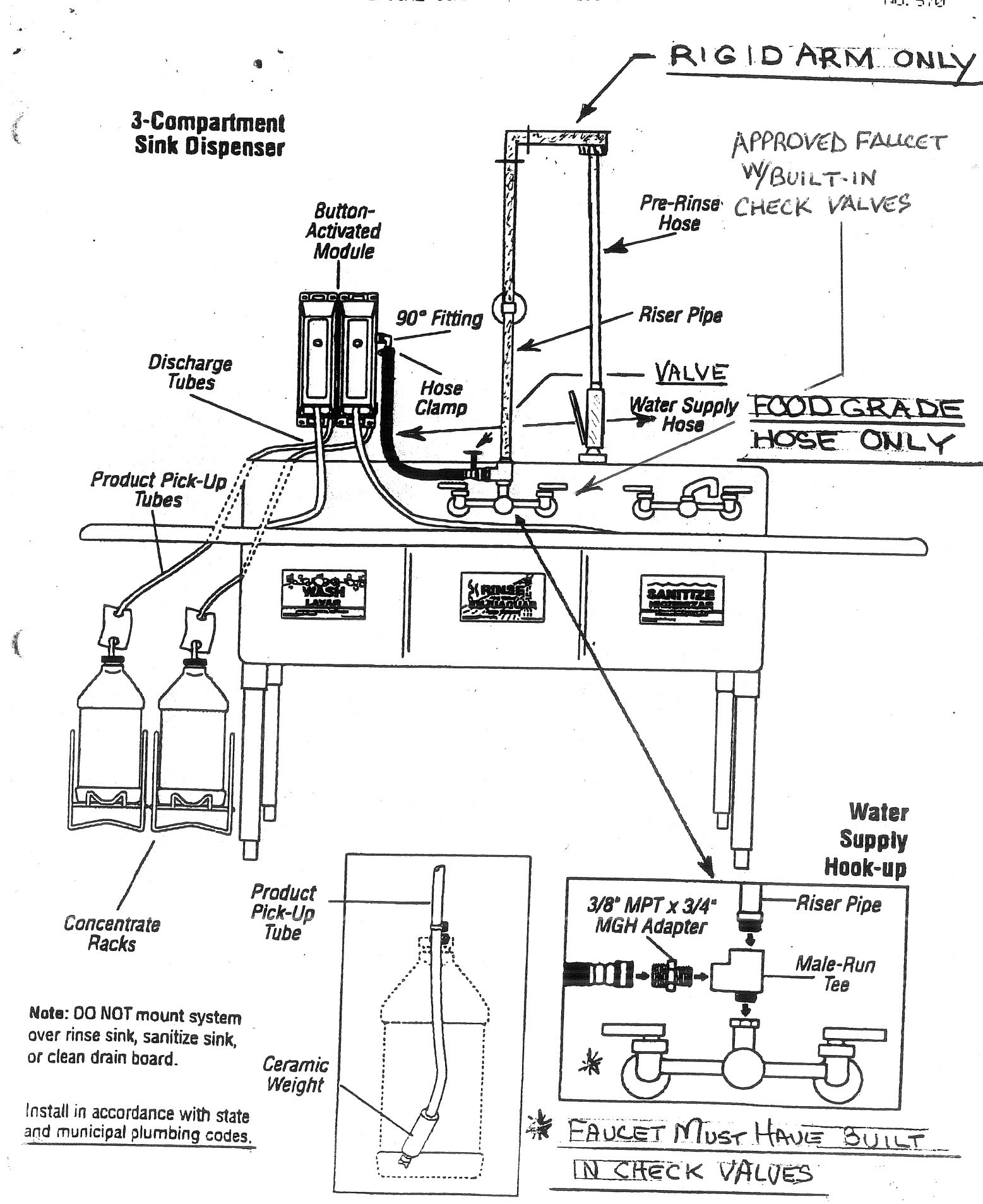
A. Stainless steel sink. ASME A112.19.3

B. One, two, three and four compartment sinks.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Air gap on faucets. ASME A112.1.2

B. Air gap on hose & spray (Rigid Arm).



Note: DO NOT mount system over rinse sink, sanitize sink, or clean drain board.

Install in accordance with state and municipal plumbing codes.

PRESSURE WASHER

Cross-connection control for pressure washers is based on a high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

The two types of pressure washers are portable units and permanently installed fixtures. The portable unit is generally connected to a hose faucet when needed. The hose faucet is turned on when unit is being used and shut off when not in use. A hose connection vacuum breaker ASSE 1011 protects this application. By rule this vacuum breaker can not be subject to pressure more than 12 continuous hours. Permanent installations will require ASSE 1013 reduced pressure principle back flow preventer or ASSE 1056 spill proof vacuum breaker.

APPROVED METHOD OF BACK FLOW PROTECTION

1. ASSE 1011 Hose connection vacuum breaker

2. ASSE 1013 Reduced pressure principle back flow preventer

3. ASSE 1056 Spill proof vacuum breaker

PROOFERS, RETHERMALIZERS AND STEAM TABLES

Cross-connection control for **proofers, rethermalizers and steam tables** are based on a high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

This chapter addresses back flow protection needed on equipment used primarily for heating/warming food. These types of equipment use water/steam to create heat for warming. **Proofers** use water to maintain desired humidity levels in the cooking/heating process. Most **steam tables** and some **proofers** and some **rethermalizers** have submerged inlets. This is the primary reason for a high hazard classification.

BACK FLOW PROTECTION

The water supply serving **proofers, rethermalizers and steam tables** must be protected to the highest degree to prevent food (possibly contaminated food) but more importantly cleaning chemicals from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.M.E. A112.1.2 Air gap on water feed to unit
Proofer – Air gap on any discharge (drain) pipe

B. A.S.S.E. 1001 Atmospheric vacuum breaker
NOTE: No valves allowed downsteam of this devise.

C. A.S.S.E. 1012 Intermediate atmospheric vent
Low hazard–This device can be used on **proofers** without submerged inlet.

D. A.S.S.E. 1013 Reduced pressure principle back flow preventer

E. A.S.S.E. 1020 Pressure vacuum breaker

F. A.S.S.E. 1056 Spill proof vacuum breaker

PULPER - FOOD WASTE

Cross-connection control for a **food waste pulper** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The common types of **food waste pulpers** are reclaim waste units and units that discharge into the sewer pipe or disposal system. The main purpose of **food waste pulpers** is to reduce waste before termination point.

BACK FLOW PROTECTION

The water supply serving the **food waste pulper** must be protected to the highest degree to prevent any food waste contaminants from entering the water supply system. Any hose connections in or around **food waste pulpers** must be separately protected.
NOTE: Check for factory installed back flow protection.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1001 Pipe applied vacuum breaker

B. A.S.S.E. 1013 Reduced pressure principle back flow preventer

C. A.S.S.E. 1056 Spill proof vacuum breaker

SOAP PROPORTIONERS

Cross-connection control for **soap proportioners** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The **soap proportions** are attached to the spout of faucets in commercial kitchens. The purpose is to dispense soap w/water in controlled portions. These units screw onto the spout in place of aerator and have a hose attached to back of proportioner then to soap bottle.

BACK FLOW PROTECTION

The water supply serving the **soap proportioner** must be protected to the highest degree to prevent any contaminants (detergent) from entering the water supply. State of Wisconsin recognizes DEMA model #153 & #154 as approved **soap proportioners** needing no further back flow protection.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Soap Proportioners DEMA #153 & #154

commerce.wi.gov
Wisconsin
Department of Commerce

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

April 21, 2005

HYDRO SYSTEMS
TIM BUTLER
3798 ROUND BOTTOM RD.
CINCINNATI OH 45244

SPARTAN CHEMCIAL COMPANY, INC.
ANN FLAGG
1110 SPARTAN DR.
MAUMEE OH 43537

Re: Description: PROPORTIONER
Manufacturer: SPARTAN CHEMCIAL COMPANY, INC.
Product Name: PRESS AND FILL DISPENSING SYSTEMS
Model Number(s): SP3135, SP3137, SP3138, SP3139, SP3144 and SP3639
Product File No: 20050194

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.41 (3)(a) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of October 2010.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with a Spartan Chemical Co., Inc. model 9111 Vent T Connector fitting permanently connected to the inlet of the hose serving this product when the product is not served by a separate water supply connection.

This approval supercedes the approval issued on INSERT DATE under product file number ######.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number ######.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mbeckwith@commerce.state.wi.us

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658

commerce.wi.gov
Wisconsin
Department of Commerce

Jim Doyle, Governor
Mary P. Burke, Secretary

April 21, 2005

HYDRO SYSTEMS
TIM BUTLER
3798 ROUND BOTTOM RD.
CINCINNATI OH 45244

Re: Description: PROPORTIONER
Manufacturer: HYDRO SYSTEMS
Product Name: STREAMLINE SERIES/ACCUDOSE
Model Number(s): AIR GAP SERIES -
830AG, 831AG, 832AG, 833AG, 834AG, 835AG, 842AG, 843AG, 844AG, 845AG, 846AG, 847AG, 850AG, 851AG, 852AG, 853AG, 854AG, 855AG, 8251AG, 857AG, 858AG, 859AG, 861AG, 862AG, 863AG, 864AG, 865AG, 866AG, 867AG, 868AG 869AG, 871AG, 872AG, 873AG, 874AG, 875AG, 876AG, 881AG, 882AG, 1830AG, 1831AG, 1832AG, 1833AG, 1834AG, 1835AG, 1841AG, 1842AG, 1843AG, 1844AG, 1845AG, 1846AG, 1847AG, 1848AG, 1850AG, 1851AG, 1852AG, 1853AG, 1854AG, 1855AG, 18251AG, 1857AG, 1858AG, 1860AG, 1861AG, 1862AG, 1863AG, 1864AG, 1865AG, 1866AG, 1867AG, 1868AG, 1871AG, 1872AG, 1873AG, 1874AG, 1875AG, 1876AG, 861-8AG, 862-8AG, 863-8AG, 864-8AG, 865-8AG, 866-8AG, 867-8AG, 868-8AG, 869-8AG, 861-9AG, 862-9AG, 863-9AG, 864-9AG, 865-9AG, 866-9AG, 867-9AG, 868-9AG, 869-9AG, 871MAG, 872MAG, 873MAG,874MAG, 875MAG, 876MAG, COMMAND CENTER AG, COMMANDER AG,
QUATTRO AG, SOLO AG AND SOLUTION CENTER AG, 2830AG, 2833AG, 2841AG, 2844AG, 2846AG, 2848AG, 2850AG 2853AG, 28251AG, 2858AG, 2860AG, 2864AG
2865AG, 2866AG, 2867AG, 2871AG, 2872AG 2874AG, 2875AG, 2876AG
QUTTRO SELECT AG
ACCU DOSE; 3830AG, 3833AG, 3841AG, 3844AG, 3845AG, 3846AG, 3850AG, 3853AG, 38251AG, 3858AG, 3871AG, 3872AG, 3874AG, 3875AG, 3876AG, SYSTEM 2000
QUICK FILL MIX; QFM
EGAPS SERIES - STREAMLINE MODELS:
8321;8351;8421;8451;8471;8521;8551;8571;8591;8611;8621;8631;8681;8691;18321;18351;`8471;18681;18761;28301;28331;28441;28461;28481;28501;28531;282511;28581;28601;28641;28651;28661;28671;28711;28721;28741;28751;28761;487771;48781;48791
ACCUDOSE MODELS:
38301;38331;38411;38441;38461;38501;38531;382511;38581;38711;38721;38741;38751;38761
TASKI ULTRA EASY MODEL K3000A
Product File No: 20050195

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of September 2010.

This approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with a Hydro Systems Co., model 195 vented T connection fitting permanently connected to the inlet of the hose serving this product when the product is not served by a separate water supply connection.

This approval supercedes the approval issued on September 5, 2000, under product file number 20001029.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20001029.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mbeckwith@commerce.state.wi.us

commerce.wi.gov
Wisconsin
Department of Commerce

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

April 21, 2005

KNIGHT, LLC
ANTHONY BOUSE
20531 CRESCENT BAY DRIVE
LAKE FOREST CA 92630

Re: Description: PROPORTIONER
Manufacturer: KNIGHT, LLC
Product Name: MAX-IT CENTER WITH AIRE GAP
Model Number(s): MX-101, PART # 7114121-A; MX-101P, PART # 7114121-PA;
MX-102, PART # 7114122-A; MX-102P, PART # 7114122-PA;
MX-103, PART # 7114123-A; MX-103P, PART # 7114123-PA;
MX-104, PART # 7114124-A; MX-105, PART # 7114125-A;
MXC-401, PART # 7116341; MXC-401-2, PART # 7116342; AND
MXC-404, PART # 7116344
Product File No: 20050196

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.41 (3) (a) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of April 2010.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with a non-valve "Y" connector with one outlet of the connector permanently connected to the inlet hose serving this product and the other outlet of the connector permanently capped with a cap having a 0.078 diameter hole when this product is not served by a separate water supply connection.

This approval supercedes the approval issued on October 27, 2000, under product file number 20002121.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20002121.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mbeckwith@commerce.state.wi.us

commerce.wi.gov
Wisconsin
Department of Commerce

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

August 30, 2005

ECOLAB, INC.
REGULATORY AFFAIRS
ANI SEUMALO
370 N. WABASHA ST.
ST.PAUL MN 55102

Re: Description: PROPORTIONER
Manufacturer: ECOLAB, INC.
Product Name: ECOLAB LAUNDRY PRODUCT DISPENSERS
Model Number(s): SOLID SYSTEM I, SOLID SYSTEM II, SOLID SYSTEM III, NAVIGATOR, NAVIGATOR IV and FORMULA 1
Product File No: 20050637

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of August 2010.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This chemical dispensing system shall be connected to the water distribution system in either of the following manners:
  1. The fixture supply shall be individually connected to the water distribution system.
  2. The fixture supply shall be installed with a pressure bleeding device. The pressure bleeding device shall create a visually free flow of water through the atmosphere from the faucet connection into the fixture drain. The fixture supply must comply with either s. Comm 84.20 (6)(c) and 84.30 (4) or an acceptable backflow preventer must be installed on the inlet of the fixture supply connector and the outlet of the pressure bleeding device.

This approval supercedes the approval issued on August 11, 2004, under product file number 20040032.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040032.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mbeckwith@commerce.state.wi.us

commerce.wi.gov
Wisconsin
Department of Commerce

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Jack L. Fischer, A.I.A., Secretary

August 26, 2008

REVISED COPY

DEMA ENGINEERING CO.
ENGINEERING
SONE CHAN
10020 BIG BEND BLVD.
ST.LOUIS MO 63122

Re: Description: PROPORTIONER
Manufacturer: DEMA ENGINEERING CO.
Product Name: BLEND CENTERS
Model Number(s): 633AG-1, 633AG-4, 635AG-1, 635AG-4, 637AG-1, 637AG-4, 639AG-1, 639AG-4, 661AG-4, 661AGB, 661AGDB, 662-AG-1, 662-AG-4, 662-2AGDB-11, 662-2AGDB-14, 662-2AGDB-44, 662-2AG-11, 662-2AG-14, 662-2AG-44, 662-3AG-1, 662-3AG-114, 662-3AG-144, 662-3AG-4, 662-4AG-1111-2, 662-4AG-1114-2, 662-4AG-1144-2, 662-4AG-1111-4, 662-4AG-1114-4, 662-4AG-1144-4, 662-635AG-1, 662-635AG-4, 662-637AG-1, 662-637AG-4, 662-639AG, 681AG-1, 681AG-2, 681AG-3, 681AG-4, AND 681AG-5
Product File No: 20050797

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.41 (3) (a) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of November 2010.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with the pressure indicating tee permanently attached to the inlet of the supply hose serving this product.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: Jerry.Thompson@wi.gov

commerce.wi.gov
Wisconsin
Department of Commerce

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658
TTY: Contact Through Relay
Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

May 14, 2009

ECOLAB, INC.
REGULATORY AFFAIRS
JAMISON KORTAS
370 N. WABASHA ST.
ST.PAUL MN 55102-1390

ECOLAB,INC.
INSTITUTIONAL
ANI SEUMALO
370 N. WABASHA ST.
ST. PAUL MN 55102

Re: Description: PROPORTIONER
Manufacturer: ECOLAB,INC.
Product Name: ECOLAB PRODUCT DISPENSERS FOR MANUAL WAREWASHING
Model Number(s): AS-1; GEO II HYDRAULIC PRESOAK; GEO II SOLID RINSE ADDITIVE; GEO II ELECTRONIC POT AND PAN; GEO II HYDRAULIC POT AND PAN; AND GE II DETERGENT
Product File No: 20090199

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of August 2014.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This chemical dispensing system shall be connected to the water distribution system in either of the following manners:
  1. The fixture supply shall be individually connected to the water distribution system.
  2. The fixture supply shall be installed with a pressure bleeding device. The pressure bleeding device shall create a visually free flow of water through the atmosphere from the faucet connection into the fixture drain. The fixture supply must comply with either s. Comm 84.20 (6)(c) and 84.30 (4) or an acceptable backflow preventer must be installed on the inlet of the fixture supply connector and the outlet of the pressure bleeding device.

This approval supersedes the approval issued on August 11, 2004 under product file number 20040033.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040033.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: jerry.thompson@wi.gov

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Department of Commerce

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Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

May 14, 2009

ECOLAB, INC.
REGULATORY AFFAIRS
JAMISON KORTAS
370 N. WABASHA ST.
ST.PAUL MN 55102-1390

ECOLAB,INC.
INSTITUTIONAL
ANI SEUMALO
370 N. WABASHA ST.
ST. PAUL MN 55102

Re: Description: PROPORTIONER
Manufacturer: ECOLAB,INC.
Product Name: ECOLAB SOLID PRODUCT DISPENSERS FOR COMMERCIAL DISMACHINES
Model Number(s): WASH MAX; KLENE VIEW and RINSE MAX II
Product File No: 20090198

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of August 2014.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This chemical dispensing system shall be connected to the water distribution system in either of the following manners:
  1. The fixture supply shall be individually connected to the water distribution system.
  2. The fixture supply shall be installed with a pressure bleeding device. The pressure bleeding device shall create a visually free flow of water through the atmosphere from the faucet connection into the fixture drain. The fixture supply must comply with either s. Comm 84.20 (6)(c) and 84.30 (4) or an acceptable backflow preventer must be installed on the inlet of the fixture supply connector and the outlet of the pressure bleeding device.

This approval supersedes the approval issued on August 11, 2004 under product file number 20040034.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040034.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: jerry.thompson@wi.gov

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Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

May 13, 2009

ECOLAB, INC.
REGULATORY AFFAIRS
JAMISON KORTAS
370 N. WABASHA ST.
ST.PAUL MN 55102-1390

ECOLAB,INC.
INSTITUTIONAL
ANI SEUMALO
370 N. WABASHA ST.
ST. PAUL MN 55102

Re: Description: PROPORTIONER
Manufacturer: ECOLAB,INC.
Product Name: ECOLAB HOUSEKEPING PRODUCT DISPENSERS
Model Number(s): FX-3, FX SELECT
Product File No: 20090196

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of August 2014.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This chemical dispensing system shall be connected to the water distribution system in either of the following manners:
  1. The fixture supply shall be individually connected to the water distribution system.
  2. The fixture supply shall be installed with a pressure bleeding device. The pressure bleeding device shall create a visually free flow of water through the atmosphere from the faucet connection into the fixture drain. The fixture supply must comply with either s. Comm 84.20 (6)(c) and 84.30 (4) or an acceptable backflow preventer must be installed on the inlet of the fixture supply connector and the outlet of the pressure bleeding device.

This approval supersedes the approval issued on August 11, 2004 under product file number 20040036.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040036.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: jerry.thompson@wi.gov

commerce.wi.gov
Wisconsin
Department of Commerce

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Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

May 15, 2009

KAY CHEMICAL COMPANY
FRANK A BOCCI
8300 CAPITAL DR
GREENSBORO NC 27409

Re: Description: PROPORTIONER
Manufacturer: KAY CHEMICAL COMPANY
Product Name: SMART WASH SOLID LAUNDRY SYSTEM
Model Number(s): NONE
Product File No: 20090161

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.40(4) (c) 1 and 82.40(7) (f) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 2014.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed and maintained in accordance with the manufacturer's instructions.
- This product may connect to the hot water fixture supply serving the washing machine, which receives the detergent from this product.

This approval supersedes the approval issued on September 21, 2004 under product file number 20040300.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040300.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: jerry.thompson@wi.gov

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Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

April 6, 2009

JOHNSON DIVERSEY
DISPENSING TECHNOLOGY
CHRIS LANG
8310 16TH ST
STURTEVANT WI 53177

JOHNSON DIVERSEY
DISPENSING TECHNOLOGY
DAN GILLESPIE
8310 16TH ST
STURTEVANT WI 53177

Re: Description: PROPORTIONER
Manufacturer: JOHNSON DIVERSEY
Product Name: BUTCHER RTD
Model Number(s): RTD
Product File No: 20090147

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of April 2014.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with a S.C. Johnson & Son, Inc., Flo-Thru device permanently connected to the inlet of the hose serving this product when this product is not served by a separate water supply connection.

This approval supersedes the approval issued on March 25, 2004 under product file number 20040130.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20040130.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: jerry.thompson@wi.gov

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Jim Doyle, Governor
Richard J. Leinenkugel, Secretary

February 11, 2009

REVISED 07/20/09

KAY CHEMICAL COMPANY
FRANK A BOCCI
8300 CAPITAL DR
GREENSBORO NC 27409

Re: Description: PROPORTIONER
Manufacturer: KAY CHEMICAL COMPANY
Product Name: CHEMICAL DISPENSING SYSTEMS
Model Number(s): SINK RITE,CLICK & CLEAN, EXACTA, SMARTSHAPE AND SOLIDSENSE
Product File No: 20090057

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of February 2014.

This approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with part number 92018480/ pressure bleeding device permanently attached to the inlet of the supply tubing serving this product when this product is connected to a faucet outlet being protected by a cross-connection control device that is not recognized to be installed under continuous pressure conditions.

- Approval is issued for this product because the design of the product meets the intent of s. Comm 82.41 (3) (a)1, Wis. Adm. Code that requires potable water supplies protected against contamination due to backflow. The intent of the code is met since this product provides an acceptable means of backflow protection.

- This product may utilize either a Hydro Systems Company or Dema Engineering Company air gap fitting.

- When this product is installed between the faucet outlet and the overhead spray, the following will apply:

  1. The faucet manufacturer must have given written permission to allow the installation of the tee that alters their product.
  2. The faucet should have built-in check valves or check valves will need to be installed on the cold and hot fixture supplies.
  3. The chemical dispenser shall have the ASSE 1055 designation clearly visible on the dispenser or have alternate approval by the Department.
  4. The water supply to the chemical dispenser shall be of approved materials utilizing approved methods of connection.

  a. Per Comm 84.30(4) (c), Plastic pipe for a water supply system shall be certified for potable water contact by a nationally recognized listing agency acceptable by the department (pipe must be labeled).
  b. Per 84.20(6) (c), All fixture supply connectors shall be designed and constructed to withstand a minimum pressure of 100 psi at 1800 F (pipe must be labeled).
  c. All joints and connections shall be per Comm 84.40.

i. Hose thread connections are not allowed
ii. A washing machine hose is not allowed.

- When this product is installed to a faucet outlet, a pressure bleeding device shall be connected to the faucet outlet.

This approval supersedes the approval issued on April 29, 2008 under product file number 20080126.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20080126.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Jerry Thompson
Plumbing Product Reviewer
Phone: 608-266-6742
Fax: 608-267-9566
E-mail: jerry.thompson@wi.gov

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SAFETY AND BUILDINGS DIVISION
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P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Jack L. Fischer, A.I.A., Secretary

December 20, 2007

DEMA ENGINEERING CO.
ENGINEERING
SONE CHAN
10020 BIG BEND BLVD.
ST.LOUIS MO 63122

Re: Description: PROPORTIONER
Manufacturer: DEMA ENGINEERING CO.
Product Name: FAUCET ADAPTER
Model Number(s): 68-4-2, 68-4-2A, 68-4-3, 68-4-3A, 68-4-4, 68-4-4 AND 68-21
Product File No: 20070546

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of December 2012.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product may be installed in conjunction with faucets manufactured by Chicago, Fisher, and T&S to allow for connection to DEMA Blend Center units with a 163AG and/or 164AG air-gap proportioners that comply with ch. Comm 82 and 84 of the Wis. Adm. Code.

- The NSF 51 hose that is used to connect the proportioner to this product must have a pressure rating equal to or greater than 100 pisg @ 180 degree F.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wi.gov

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Department of Commerce

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P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

May 24, 2007

JOHNSON DIVERSEY
VAN WALTER
1326 WILLOW RD MS# 492
STURTEVANT WI 53177

Re: Description: PROPORTIONER
Manufacturer: JOHNSON DIVERSEY
Product Name: TIME MIZER III
Model Number(s): 04352 AND 04381
Product File No: 20070245

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 2012.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed downstream of a Watts Anti-Siphon, Spill Resistant, Vacuum Breaker model 008PCQT. The critical level mark on the 008PCQT must be at least 12 inches higher than the chemical injection point of the TimeMizer III and the highest intended use of the spray hose.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

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SAFETY AND BUILDINGS DIVISION
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P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

May 1, 2007

BUILDING AND COMMERCIAL SERVICES DIV.
3M
JUDI PETERSON
3M CENTER, BLDG 250-3W-03
ST PAUL MN 55144-1000

Re: Description: PROPORTIONER
Manufacturer: BUILDING AND COMMERCIAL SERVICES DIV.
Product Name: TWIST'N FILL CLEANING CHEMICAL MANAGEMENT SYSTEM
Model Number(s): 23593 3M TWIST'N FILL DISPENSER-GREY
25932 3M TWIST'N FILL DISPENSER-BLACK
Product File No: 20070179

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 2012.

This approval supersedes the approval issued on January 23, 2006, under product file number 20060011.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20060011.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with the 3M pressure relief bleeder fitting permanently connected to the inlet of the hose serving this product when this product is not served by a separate water supply connection.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

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SAFETY AND BUILDINGS DIVISION
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Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

May 14, 2007

ECOLAB, INC.
REGULATORY AFFAIRS
JAMISON KORTAS
370 N. WABASHA ST.
ST.PAUL MN 55102-1390

Re: Description: PROPORTIONER
Manufacturer: ECOLAB, INC.
Product Name: ELECTROMATIC AND SOLITRON 1000
Model Number(s): ELECTROMATIC MODELS: 9257-1439 ELECTROMATIC; 9257-1520 ELECTROMATIC SOLITAIRE; 9257-1538 ELECTROMATIC STAINLESS POWER; 9257-1587 ELECTROMATIC SOLID FUN; 9257-1769 ELECTROMATIC SILVER POWER AND SOLITRON 1000 MODELS: 9257-1157 AND 9257-1645
Product File No: 20070061

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of May 2012.

This approval supersedes the approval issued on August 11, 2004, under product file number 20030282.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20030282.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This chemical dispensing system shall be connected to the water distribution system in either of the following manners:
  1. The fixture supply shall be individually connected to the water distribution system.
  2. The fixture supply shall be installed with a pressure bleeding device. The pressure bleeding device shall create a visually free flow of water through the atmosphere from the faucet connection into the fixture drain. The fixture supply must comply with either s. Comm 84.20 (6)(c) and 84.30 (4) or an acceptable backflow preventer must be installed on the inlet of the fixture supply connector and the outlet of the pressure bleeding device.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
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Madison, Wisconsin 53701-2658

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Department of Commerce

Jim Doyle, Governor
Mary P. Burke, Secretary

January 12, 2007

JOHNSON DIVERSEY
TIM S. JONES
8310 16TH ST
STURTEVANT WI 53177-0902

Re: Description: PROPORTIONER
Manufacturer: JOHNSON DIVERSEY
Product Name: J-FILL DISPENSING UNIT
Model Number(s): NONE ASSIGNED
Product File No: 20070017

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.41(3) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of January 2012.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with a S.C. Johnson & Son, Inc., Flo-Thru device permanently connected to the inlet of the hose serving this product when this product is not served by a separate water supply connection.

This approval supersedes the approval issued on March 25, 2004, under product file number 20010558.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20010558.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

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SAFETY AND BUILDINGS DIVISION
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P.O. Box 2658
Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P. Burke, Secretary

November 15, 2006

KAY CHEMICAL COMPANY
TIM BOTTS
8300 CAPITAL DR
GREENSBORO NC 27409

Re: Description: PROPORTIONER
Manufacturer: KAY CHEMICAL COMPANY
Product Name: TWO BUTTON FILLER ASSEMBLY
Model Number(s): NONE
Product File No: 20060447

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 82.40 (4) (c) & (7)(f) based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of November 2011.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be connected to an individual water supply or downstream of a diverter valve on a T&S pre-rinse faucet that has been modified in accordance with T&S Brass and Bronze Works, Incorporated.

This approval supersedes the approval issued on October 22, 2001, under product file number 20010337.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number 20010337.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

SAFETY AND BUILDINGS DIVISION
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Madison, Wisconsin 53701-2658

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Department of Commerce

Jim Doyle, Governor
Mary P. Burke, Secretary

December 28, 2006

U S CHEMICAL
JOHNSON DIVERSEY
DICK SPENCER
316 HART ST
WATERTOWN WI 53094

Re: Description: PROPORTIONER
Manufacturer: U S CHEMICAL
Product Name: FREEDOM SYSTEM WAREWASH DETERGENT HOPPER (BOWL)
Model Number(s): SKU # 3338568
Product File No: 20060391

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of December 2011.

This alternate approval is contingent upon compliance with the following stipulation(s):

- This product must be installed with only the brass ball in the flapper valve.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

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SAFETY AND BUILDINGS DIVISION
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Madison, Wisconsin 53701-2658

Jim Doyle, Governor
Mary P.Burke, Secretary

April 28, 2006

ECOLAB,INC.
INSTITUTIONAL
ANI SEUMALO
370 N. WABASHA ST.
ST. PAUL MN 55102

Re: Description: PROPORTIONER
Manufacturer: ECOLAB,INC.
Product Name: APEX DISPENSER
Model Number(s): APEX CENTER, APEX ELECTROMATIC POT & PAN DISPENSER, APEX RINSE DISPENSER, APEX DETERGENT DISPENSER, APEX HYDRAULIC POT & PAN DISPENSER and APEX HYDRAULIC PRESOAK DISPENSER
Product File No: 20060122

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11, Wis. Adm. Code based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of April 2011.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

SAFETY AND BUILDINGS DIVISION
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Department of Commerce

Jim Doyle, Governor
Mary P. Burke, Secretary

April 26, 2006

ECOLAB, INC.
REGULATORY AFFAIRS
ANI SEUMALO
370 N. WABASHA ST.
ST.PAUL MN 55102-1390

Re: Description: PROPORTIONER
Manufacturer: ECOLAB, INC.
Product Name: BARGUARD
Model Number(s): BARGUARD
Product File No: 20060061

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an alternate approval to s. Comm 84.11 based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of April 2011.

This alternate approval is contingent upon compliance with the following stipulation(s):

- The reduced pressure principle backflow preventer (ASSE 1013 or CAN/CSA B64.4) that is included with this product must be installed on the water supply pipes serving this product.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mike.beckwith@wisconsin.gov

SAFETY AND BUILDINGS DIVISION
Plumbing Product Review
P.O. Box 2658
Madison, Wisconsin 53701-2658

commerce.wi.gov
Wisconsin
Department of Commerce

Jim Doyle, Governor
Mary P. Burke, Secretary

January 19, 2006

ECOLAB, INC.
REGULATORY AFFAIRS
ANI SEUMALO
370 N. WABASHA ST.
ST.PAUL MN 55102-1390

Re: Description: PROPORTIONER
Manufacturer: ECOLAB, INC.
Product Name: INSTRUMENTS SOLIDS
Model Number(s): ENZYME DISP, ENZYME DISP RFB, NEUTRAL DISP, NEUTRAL DISP RFB, RINSE DISP, RINSE DISP RFB
Product File No: 20050909

The specifications and/or plans for this plumbing product have been reviewed and determined to be in compliance with chapters Comm 82 through 84, Wisconsin Administrative Code, and Chapters 145 and 160, Wisconsin Statutes.

The Department hereby issues an approval based on the Wisconsin Statutes and the Wisconsin Administrative Code. This approval is valid until the end of January 2011.

This approval supersedes the approval issued on INSERT DATE under product file number ######.

This approval letter shall be incorporated with your previously approved plans and/or specifications approved under product file number ######.

The department is in no way endorsing this product or any advertising, and is not responsible for any situation which may result from its use.

Sincerely,

Michael J. Beckwith, CIPE
Plumbing Product Reviewer
phone: 608-266-6742
fax: 608-267-9566
e-mail: mbeckwith@commerce.state.wi.us

STEAM ROOMS

Cross-connection control for **steam rooms** is based on both a low and a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Steam rooms will have a steam generator located near **steam room**. Generators are usually small units w/relief valves set at 15 psig. If relief is higher than 15 psig or, any chemicals are being used, a high hazard back flow protector is required.

Hose bibbs are common in these areas and need ASSE 1011 protection.

BACK FLOW PROTECTION

A low hazard device may be used when relief valve is set for 15 psig (or less) and **no** chemicals are being used.

The water supply serving **steam generators** must be protected to the highest degree to prevent toxins from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. ASSE 1001 Pipe applied vacuum breaker

B. ASSE 1012 Intermediate atmospheric vent **(low hazard)**

C. ASSE 1013 Reduced pressure principle back flow preventer

D. ASSE 1020 Pressure vacuum breaker

E. ASSE 1056 Spill proof vacuum breaker

STRAHMAN TYPE VALVES (MIXING VALVE)

Cross-connection control for **Strahman type valves** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Strahman valves come in three variations for hose station mixing valves:

- Instant hot water from steam and cold water (M5000 / M5700 Series)
- Blended hot and cold water (M159 / M750 Series)
- Hot or cold water (M156 N / M756 / M358 Series)

BACK FLOW PROTECTION

The water supply serving **Strahman type valves** must be protected to the highest degree to prevent any toxins from entering the water supply. The uncertainty and concern of where the end of the hose could be left is what creates a high hazard situation.

APPROVED METHOD OF BACK FLOW PROTECTION

A.	A.S.S.E. 1001	Pipe applied vacuum breaker
B.	A.S.S.E. 1013	Reduced pressure principle back flow preventer
C.	A.S.S.E. 1020	Pressure vacuum breaker
D.	A.S.S.E. 1056	Spill proof vacuum breaker

WATER POWERED SUMP PUMPS

Cross-connection control for **water powered sump pumps** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

There are several manufactures of **water powered sump pumps.** These units are piped in-line and rely on house pressure to assist in creating a suction to create discharge.

BACK FLOW PROTECTION

The water supply serving the **water powered sump pumps** must be protected at a high degree of hazard to prevent sump water from entering the water supply system. These devices usually have built-in back flow protection. The State **does not** recognize factory installed backflow protection on these devices.

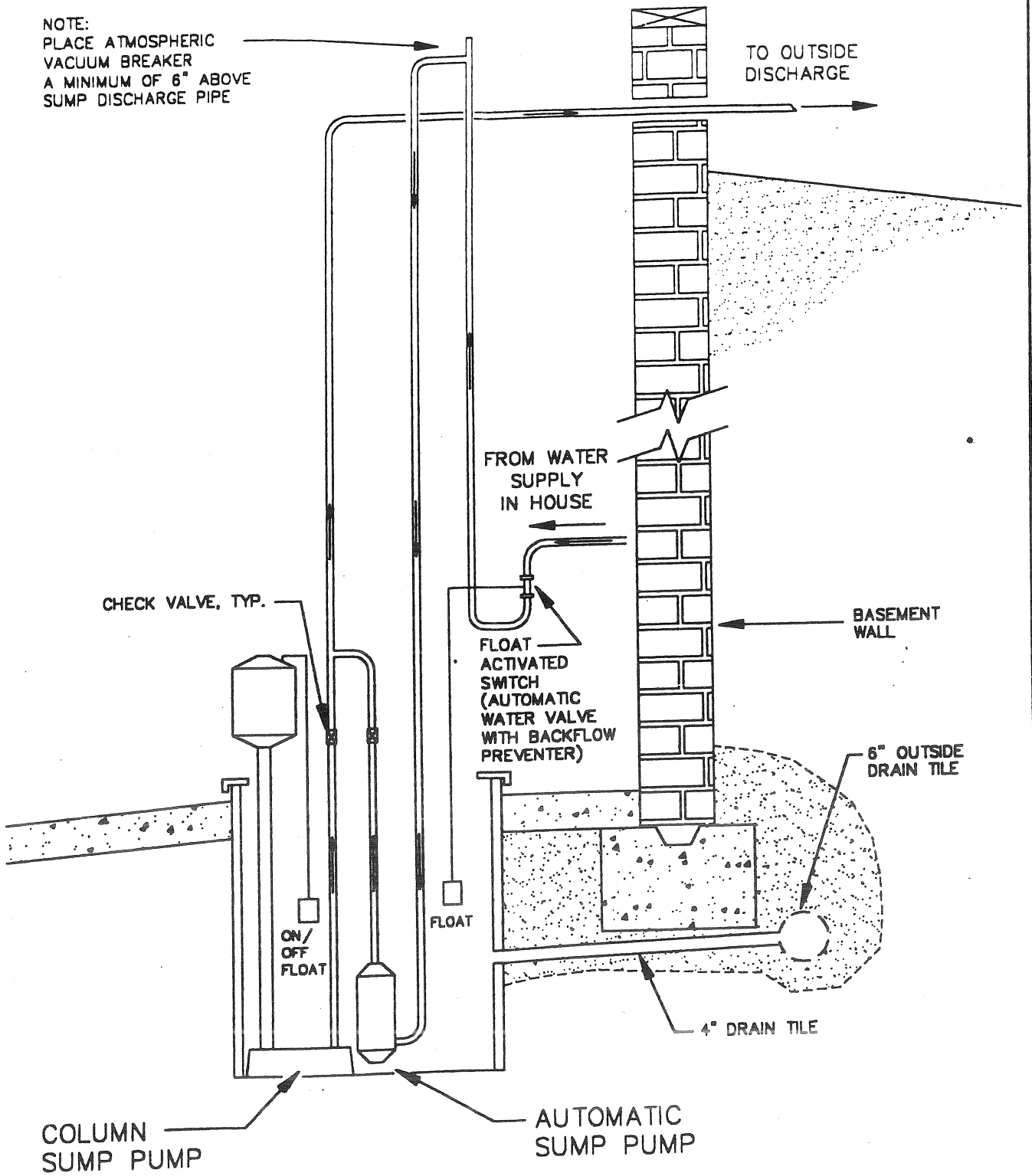
APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1001 Atmospheric vacuum breaker

B. A.S.S.E. 1011 Hose connection vacuum breaker

NOTE: Zoeller pump model 502 can be installed with an ASSE 1001 atmospheric vacuum breaker. The atmospheric vacuum breaker must be installed above the horizontal discharge line pumped from crock.

Sump Pump - Water Powered



"HOME GUARD"
AUTOMATIC SUMP PUMP
from Zoeller Pump Company

NOT TO SCALE

SURGICAL WASTE UNIT

Cross-connection control for **surgical waste units** is based on a high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

Two types of **surgical waste units,** discussed in this chapter, are stationary units and docking systems. The stationary units are permanently installed in the surgical area. These units are piped in place with hoses and apparatus extending to the surgical area. All filtering, flushing and containment is done in this unit. The docking units have flexibility and convenience in their design. These units have two components, the docking station and the rover unit. The rover is the part of the equipment that is used during medical procedure. Upon completion of procedure, the rover is returned to docking station. When the rover is properly connected to the docking station, flushing and disposal of fluids will occur.

BACK FLOW PROTECTION

The water supply serving the **surgical waste unit** must be protected to the highest degree to prevent human body fluids and surgical medicines as well as other toxins from entering the water supply system.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1013 Reduced pressure principle back flow preventer

TOILETS (WATER CLOSETS)

Cross-connection control for **water closets** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

Water closets flush in three ways; tank type (ballcock), tank type (power or assisted flush) & flush valve.

BACK FLOW PROTECTION

Follow lists of approved products for ballcocks & flush valves. In addition to approved products, ballcock refill tube must be higher than tank overflow and flush valves must have vacuum breaker between valve & water closet.

APPROVED METHOD OF BACK FLOW PROTECTION

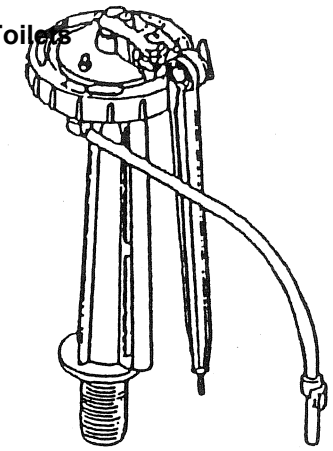
Tank type (ballcock)	A.S.S.E. 1002 Approved ballcocks
Tank type (power flush)	A.S.S.E. 1037 Approved flush device
Flush valve	A.S.S.E. 1037 Approved flush device

TO BE WISCONSIN APPROVED ALL BALLCOCKS MUST HAVE A SEAL ON THEM

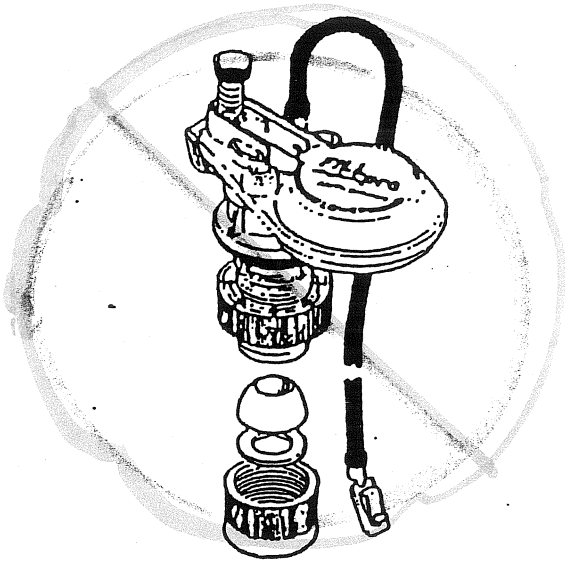
UPC

CSA

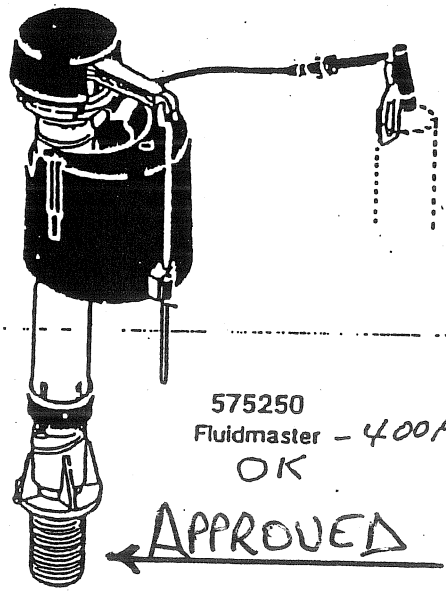
ASSE



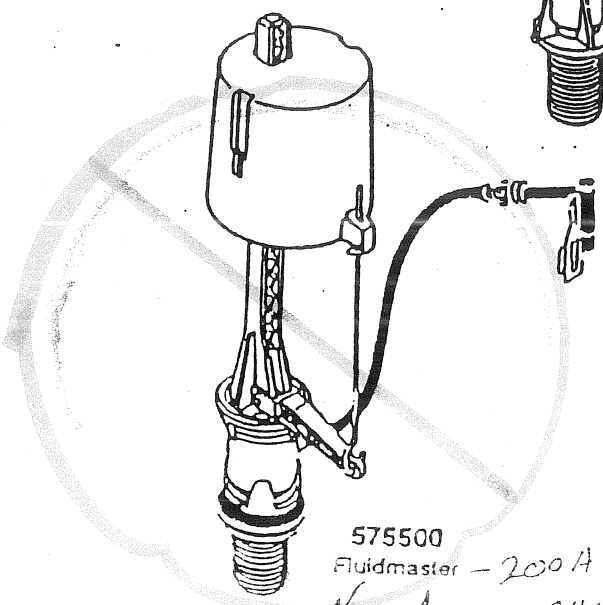
574850
Coast OK
APPROVED



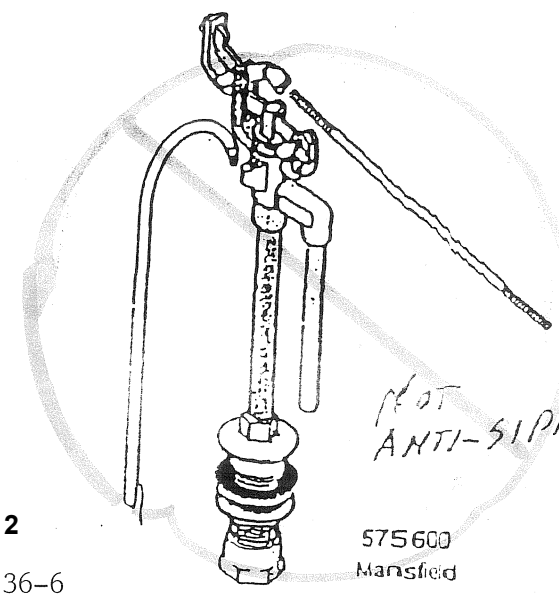
575000
Fillpro
NOT ANTI-SIPHON



575250
Fluidmaster – 400A
OK
APPROVED



575500
Fluidmaster – 200A
NOT ANTISIPHON



NOT ANTI-SIPHON

575600
Mansfield

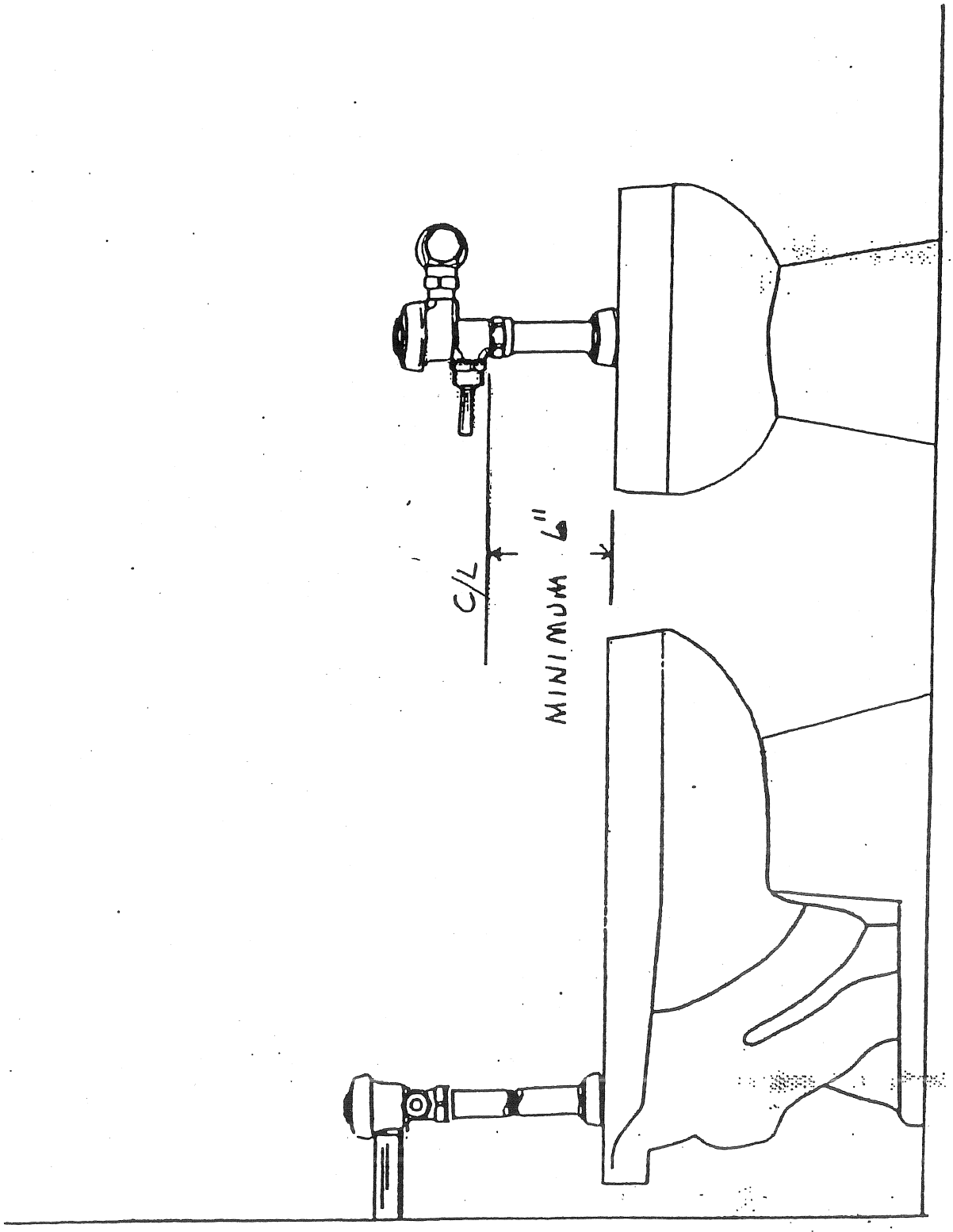
A.S.S.E. Approved Anti-Siphon Ballcock Assemblies A.S.S.E. Standard #1002.

Coast Foundry	Model: 1B1 / 1B1(P) / 1B1A / 1B1-MKIII
Delta Faucet Co.	Model: F-95A
Great Water Closet Corp.	Model: 1316
Hunter Plumbing Products	Model: 528
Moen	Model: Hoov-R-Line 8121
Watts	Model: "Governor" 80
Waxman Consumer Products	Model: B1026 / B2026 / B1046 / B2046 / B3111 / B3121
WDI International, Inc.	Model: B1026 / B2026 / B1046 / B2046 / B3111 / B3121
Wolverine	Model: 50577 / 50579 / 92

approved Ballcock Assemblies
(Water Closet Flush Tank Ballcocks)

American Standard	Model: 3025 / 3045 / 3046 / 3140 / 3142 / 3198 (Smart Valve)
Fluid Master	Model: 400A
Geberite Manf., Inc	Model: 13.781 Float cock Model: 13.918 Flush Valve
Hoover Universal	Model: 8121
Kohler Company	Model: 30652 (K-9263) / 30653 (K-9264) Model: 30654 (K-9267) / 30668 (K-9235 , K9242) Model: 30671 (K-9262) / 30672 (K-9268) Model: 30673 (K-9269) / 30730 (previous numbers)
Mansfield Sanitary Inc.	Model: 07-A / 08 / 12
Venceramica	Model: 1326
Wolverine	Model: 8 Nonsiphon Ballcock WB-2

NOTE: These devices are availabe at most hardware stores. The device must display three items. The name of the manufacturer,the model number of the device and the A.S.S.E. stamp.


C/L
MINIMUM 6"

URINALS

Cross-connection control for urinals is based on a low degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

There are three types of urinal flushes; tank type, flush valve & waterless.
NOTE: The waterless has no water connection, therefore it has no cross-connection concerns.

BACK FLOW PROTECTION

The tank type flush must have an air gap between the top of tank & water (valve) feeding tank. The flush valve must have a vacuum breaker between the flush valve and the urinal.

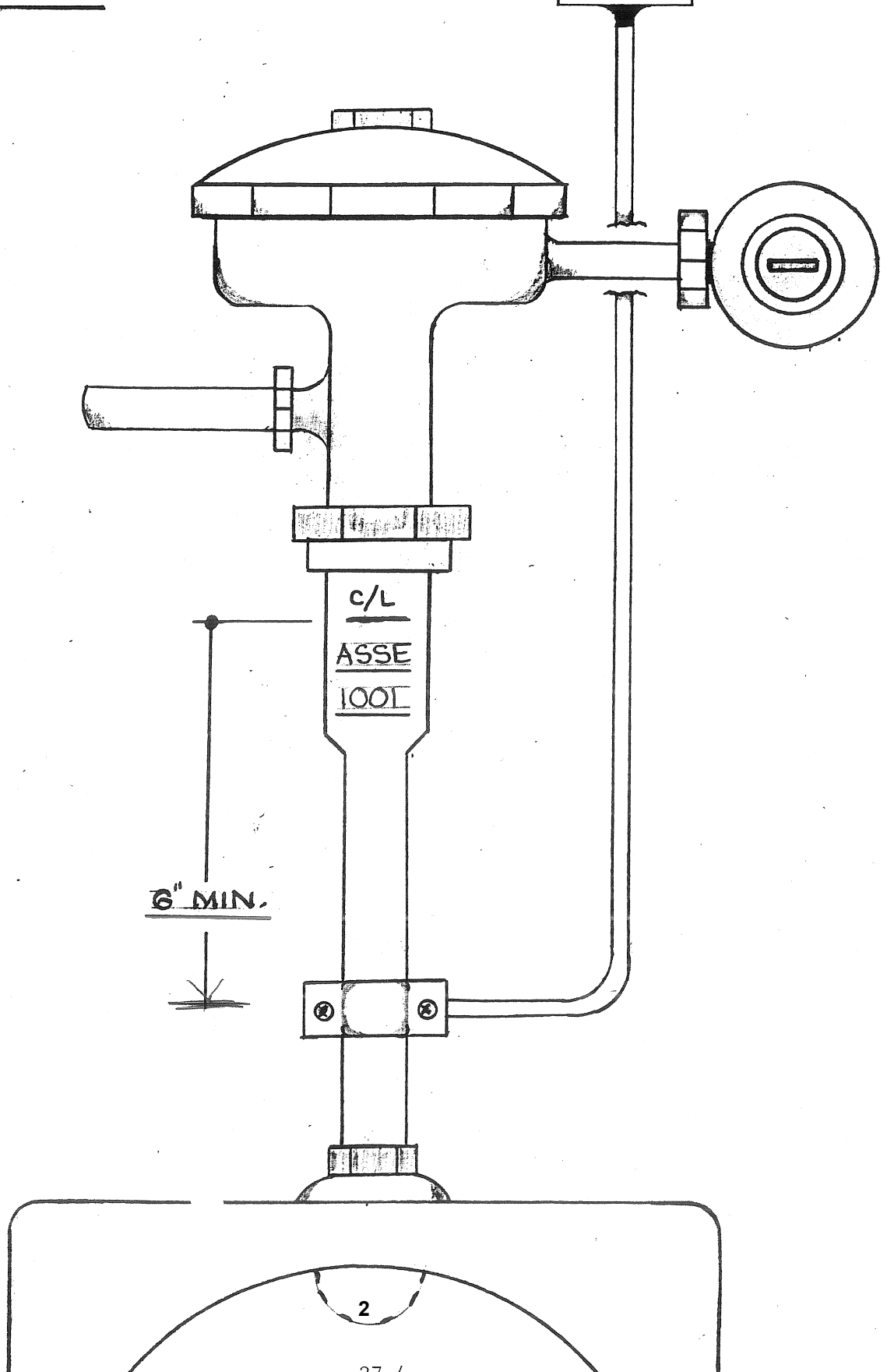
APPROVED METHOD OF BACK FLOW PROTECTION

Tank type	Air gap
Flush valve	A.S.S.E. 1037

AUTOMATIC FLUSH VALVE DRIP SYSTEM CLEANER

Urinals

D.N.S.
SOAP
CO.



_____ FLOOR TO URINAL LIP

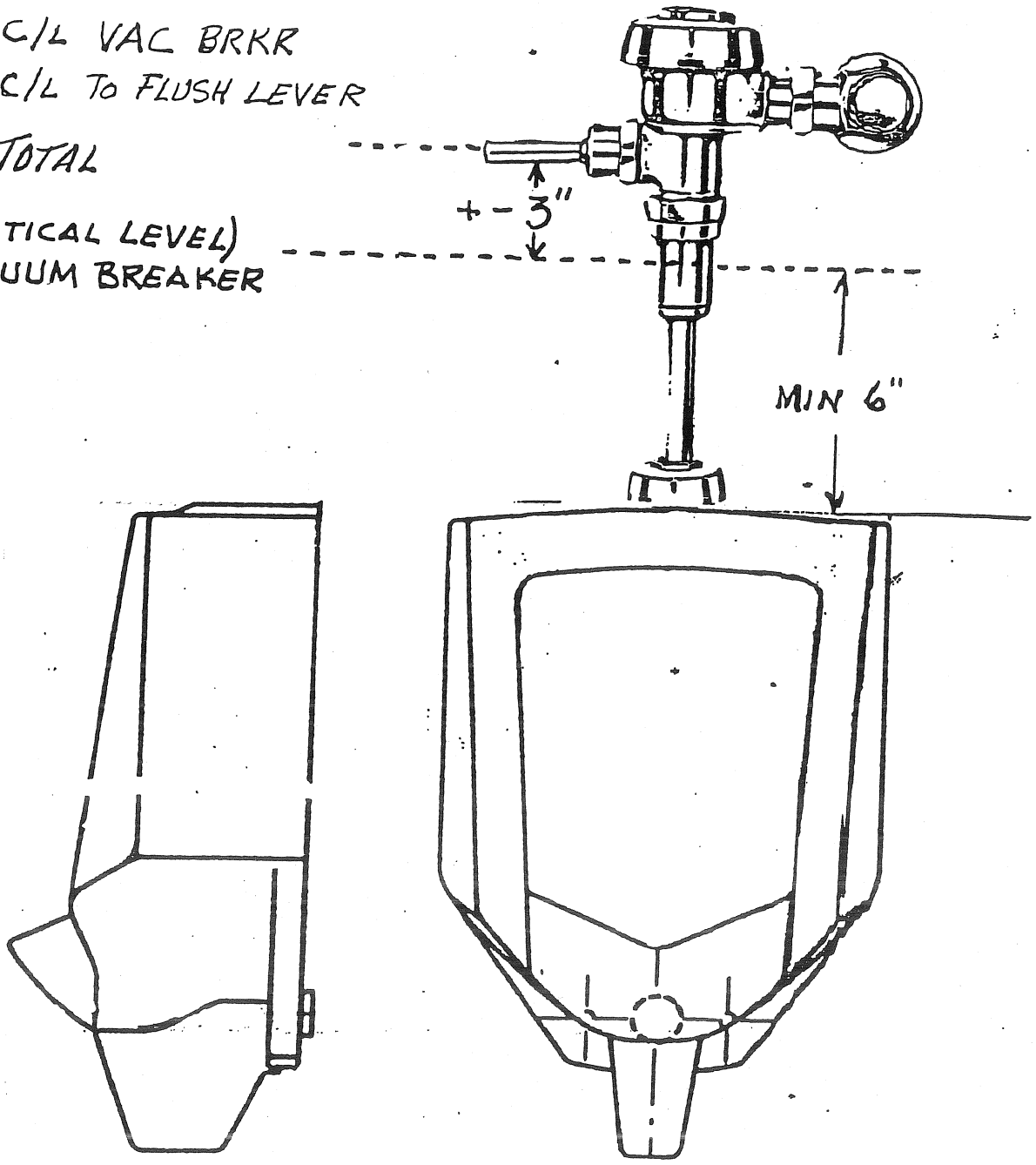
_____ URINAL HEIGHT

_____ C/L VAC BRKR

_____ C/L TO FLUSH LEVER

_____ TOTAL

C/L (CRITICAL LEVEL) OF VACUUM BREAKER



VENDING MACHINES

Cross-connection control for a **vending machine** is based on a low and high degree of hazard for the protection of the potable water supply. Comm.82.41

NOTE: A low degree of hazard is typical for **vending machines** and beverage dispensers in general. What prompts a high degree of hazard in some **vending machines** is a hose and spray.

TYPES

The most common type of **vending machines**, with a water connection, are hot chocolate, coffee and cappuccino dispensers. Any other **vending machine,** connected to the water system, will need to be looked at for proper backflow protection.

BACK FLOW PROTECTION

The water supply serving a **vending machine** must be protected to the highest degree to prevent any contaminants (coffee products) or toxins (cleaning chemicals) from entering the water supply. A **vending machine** that does not have a hose and spray may be considered low hazard. This will be determined by the way the water enters the coffee making process. In some **vending machines** you will find an air gap or some form of back flow protection.

APPROVED METHOD OF BACK FLOW PROTECTION

Low Hazard

A.	A.S.S.E. 1012	Intermediate atmospheric vent
B.	A.S.S.E. 1022	Dual check valve w/atmospheric vent

High Hazard

C.	ASME A112.1.2	Air gap on potable water line
D.	A.S.S.E. 1011	Hose connection vacuum breaker A valve installed on water line serving hose & spray, then the vacuum breaker and then hose & spray. Valve can not be on more than 12 hours.

VETERINARY CLINICS

Cross-connection control for **veterinary clinics** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

NOTE: The degree of hazard is determined by the type of equipment connected to the water distribution system. The nature of **veterinary clinics** deals with possible body fluids (from animals) as well as chemicals which create the high degree of hazard in most of the equipment being used.

TYPES
(Common Equipment)

Animal dental care equipment – see requirements listed below (including dental vacuum systems)

Animal wash tub w/hose & spray–see chapter on **Hand Held Shower**

Animal wash tub w/pot and pan sink sprayer-see req. listed below

X-Ray Film Processor – see chapter on **X-Ray Film Processor**

Hose Faucets – see chapter on **Hose Bibb**

Mop Sink – see chapter on **Mop Sink**

BACK FLOW PROTECTION

The water supply serving the **veterinary clinic** equipment listed above must be protected to the highest degree to prevent any contaminants from entering the water supply. The "**NOTE**" printed above explains concerns of contaminants that could enter the water system.

Protection for the "animal dental equipment" is based similar to the protection used in the chapter on **Dental Chairs**. The major concern for this equipment is the contact between equipment and the fluids in an animals mouth.

APPROVED METHOD OF BACK FLOW PROTECTION

NOTE: Look in “other chapters” for approved BFP for equipment.

Animal dental equipment and wash tub w/pot & pan sink sprayer:

1. ASSE 1013 Reduced pressure principle back flow preventer
2. ASSE 1056 Spill proof vacuum breaker

WATER CONDITIONING AND SOFTENING

Cross-connection control for water conditioning & softening is based on a low degree of hazard for the protection of the potable water supply. Comm. 82.41

NOTE: The conditioning equipment is low hazard, the type of back flow protection is decided by the equipment (fixtures) being served after the water-conditioning device.

TYPE

Types of equipment include softeners, filters and treatment systems. All devices shall discharge w/air gap & have a valved by-pass.

BACK FLOW PROTECTION

The type of back flow protection and location of back flow device is determined by the equipment or fixture being served by treated water.

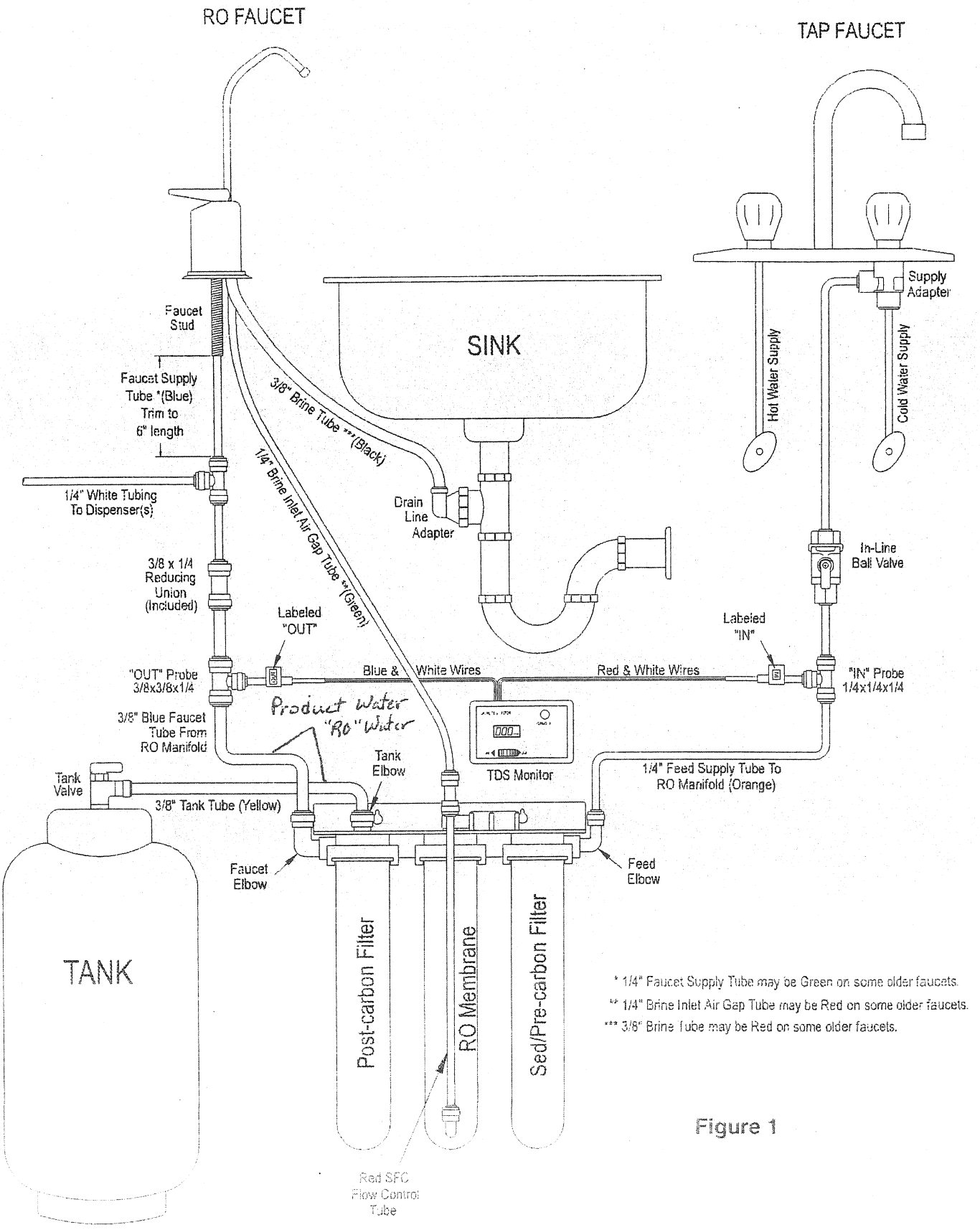
APPROVED METHOD OF BACK PROTECTION

Back flow device to be selected to fit end use. The highest level of protection is:

1. Air gap

2. A.S.S.E. 1013 Reduced pressure principle back flow preventer.

RO SYSTEM INSTALLATION DIAGRAM



* 1/4" Faucet Supply Tube may be Green on some older faucets.

** 1/4" Brine Inlet Air Gap Tube may be Red on some older faucets.

*** 3/8" Brine Tube may be Red on some older faucets.

Figure 1

WATER HEATER (DUAL USE)

Cross-connection control for **Dual use Water Heaters** is based on a low and high degree of hazard for the protection of the potable water supply. Comm 82.41

TYPES

Dual use Water Heaters are typically used for heating both domestic hot water and heating water for building heat. The low or high degree of hazard is determined by the use of chemicals in heating system. With chemicals and high hazard classification, the water line feeding the heating chamber (closed loop) must have an RP valve as well as double wall construction of inner tank to protect against backflow into the water distribution system. This will protect domestic water from chemicals inside the tank. High hazard must also be adhered to if relief valve on heating chamber is rated higher than 30 psi.
NOTE: All domestic water piping and piping to backflow protectors must conform to State standards for water distribution piping material.

BACK FLOW PROTECTION

82.41 (3)(d) *Prohibitions.* The use of a toxic solution, as a heat transfer fluid, in single-wall heat exchanger for potable water is prohibited.

APPROVED METHOD OF BACK FLOW PROTECTION

Low Hazard

A. A.S.S.E. 1012 Intermediate atmospheric vent

High Hazard

B. A.S.S.E. 1013 Reduced pressure principle back flow preventer

C. A.S.S.E. 1056 Spill proof vacuum breaker

D. Double wall inner tank-in addition to one of the“High Hazard”devices

WATER SUPPLIED TOILET SEATS

Cross-connection control for water supplied toilet seats is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The State of Wisconsin has approved several manufacturers model of seats. These approvals are for seats w/ back flow protection built-in. Check updated product approval for current models on approval list.

APPROVED METHOD OF BACK FLOW PROTECTION

A. Approved product in State's registry.

B. A.S.S.E. 1001 pipe vacuum breaker / no valve downstream

C. A.S.S.E. 1013 reduced pressure principle back flow protector

WELDER – WATER COOLED TIG TORCH

Cross-connection control for **Tig Welder** is based on a high degree of hazard for the protection of the potable water supply. Comm. 82.41

TYPES

The water cooled **Tig Welder** that is connected to the building water supply is becoming obsolete. The new units come w/self contained cooling systems that **do not** connect to the city's water supply.

BACK FLOW PROTECTION

The water supply serving the water-cooled **Tig Welder** must be protected to the highest degree to prevent gases and contaminants from welder to enter water supply systems. The **EPA** has regulations in place to prevent wastewater contaminants from entering city sewers. This is a big factor in the push toward self-contained cooling units.

APPROVED METHOD OF BACK FLOW PROTECTION

A. A.S.S.E. 1013 Reduced pressure principle back flow preventer

B. A.S.S.E. 1056 Spill proof vacuum breaker

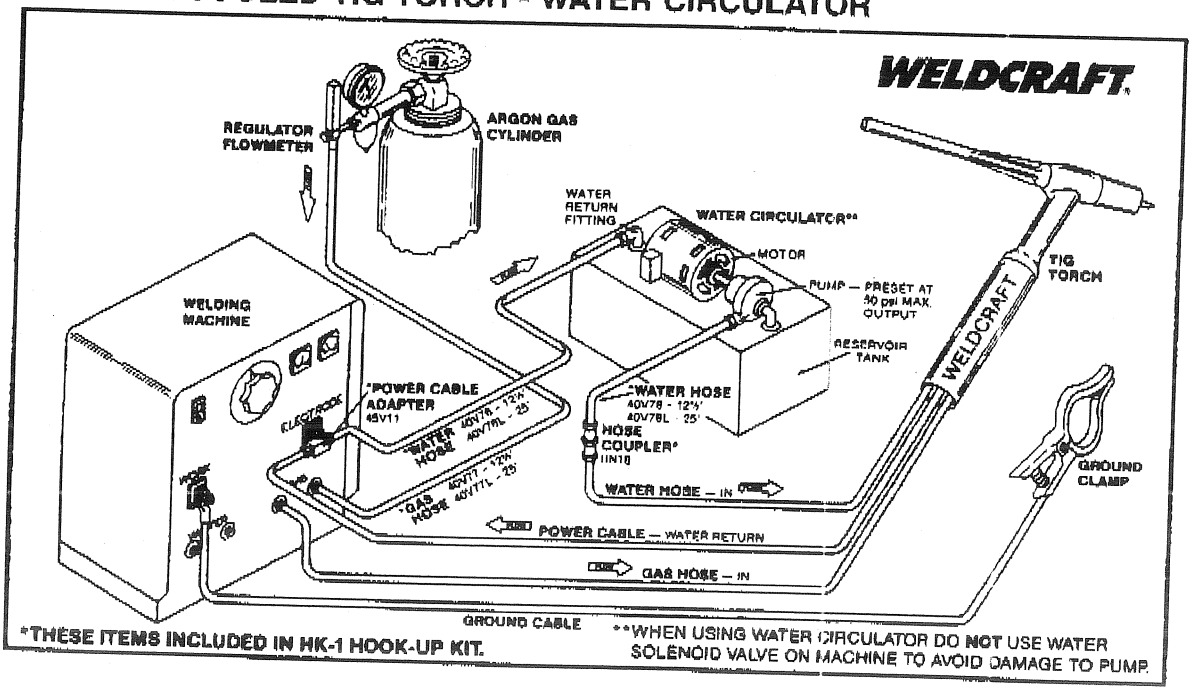
WELDCRAFT®

TIG TORCH HOOK-UP DIAGRAMS

The following illustrations show typical TIG torch hook-up connections for both water cooled and air cooled torches.

WELDCRAFT offers several ready-made hook-up kits which contain the required hoses, connectors, etc. Those kits are noted on the appropriate diagrams.

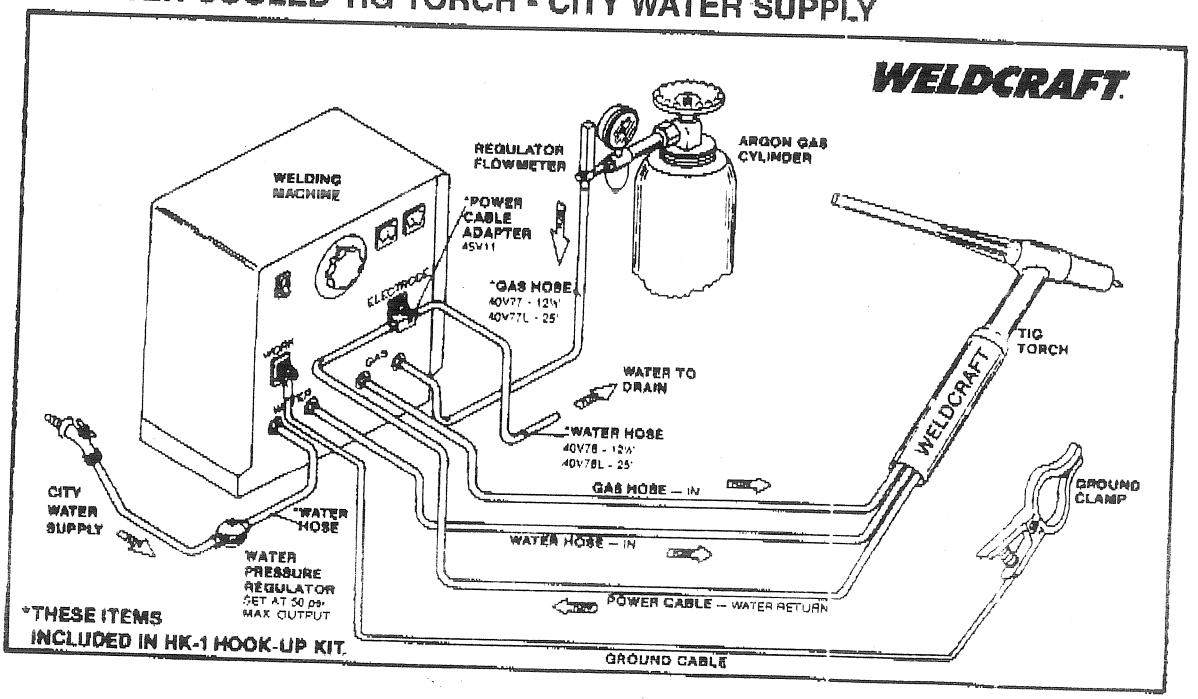
A. WATER COOLED TIG TORCH - WATER CIRCULATOR



*THESE ITEMS INCLUDED IN HK-1 HOOK-UP KIT.

**WHEN USING WATER CIRCULATOR DO NOT USE WATER SOLENOID VALVE ON MACHINE TO AVOID DAMAGE TO PUMP.

B. WATER COOLED TIG TORCH - CITY WATER SUPPLY



*THESE ITEMS INCLUDED IN HK-1 HOOK-UP KIT.

X-RAY & FILM PROCESSOR

Cross-connection control for X-Ray & Film processors is based on high degree of hazard for the protection of the potable water supply. Comm. 82.41(4)(e)1

TYPES

There are film processors hooked up to the water supply and self-contained units (filled by hand).
Note: The medical field has changed to digital photos. The dental field is following. (Digital photos do not require water)

MANUFACTURER TYPE

Currently only one film processor has Wisconsin State approval w/No additional back flow protection required.

Manufacturer

Air techniques

Model

A/T 2000 XR

APPROVED METHOD OF BACK FLOW PROTECTION

Each water line to each film processor shall be protected.

1. ASSE 1013 Reduced pressure principle back flow preventer
2. ASSE 1056 Spill proof vacuum breaker
3. ASSE 1001 (NO VALVES DOWNSTREAM OF VACUUM BREAKER).