

OPEN THIS DOCUMENT FIRST: Design Standards Process

Overview:

SCCD has established standards for design and construction to ensure equity and consistency in facilities and for efficiency in operations and maintenance. The Standards consist of **Design Standards** that are directives and information that Design Consultants should incorporate into their contract documents (drawings and specifications). A few disciplines have also provided **Construction Specifications** and **Typical Details**, which should be customized to the design project.

These Standards were developed by the District, with intensive input from District Facilities, Maintenance and Operations personnel, in addition to IT personnel and the Security shared governance Committee for relevant sections. The Standards are based on prior experience at the District and the best practices from other California Community Colleges, and the products selected were carefully evaluated based on criteria that included aesthetics & user comfort, durability, ease of maintenance, sustainable properties/practices and cost.

Purpose:

These Design Standards are a tool to clarify direction and streamline project execution for design professionals, construction managers and other participants in capital improvement projects. They represent the District's "strong preference" and should be applied, when possible, without compromising the creativity of the overall design. Final disposition, color, size, product choice etc. should conform to the best extent possible where equivalent substitutes are allowed in the Design Standard. If equivalent substitutes are allowed only "if performance and quality equivalency can be evidenced" or the consultant wishes to deviate from the written design standards for other reasons, then the consultant needs to provide evidence/justification and seek District approval as outlined below.

In all cases the written design standards do not diminish or eliminate the standard of care owed by the consultant to SCCD or relieve, in any manner whatsoever, a consultant from any professional responsibility, duty or due diligence required toward that work.

These Design Standards should be incorporated into all Solano Community College ("SCC", the "College") projects. Projects include but are not limited to new construction, Tenant Improvements (TI) projects, remodels, and renovations. It is understood that the College could not attempt to upgrade and retrofit all campus facilities in a single massive construction project; such a process would be prohibitively costly and disruptive. Rather, the strategy is for installations to be implemented continually and concurrently in a phased manner, over time and as funding allows, toward a goal of all campuses and campus buildings eventually meeting the same consistent Design Standards.



Design Standards Process:

The following Design Standards Process Guidelines incorporation and approval process provides procedural guidelines to ensure that project-specific design and contractor teams submit and receive approval by authorized SCCD departmental and administrator personnel at defined milestones. This allows for SCCD review, input, and approval as well as documentation of any approved deviations or variances to the Design Standards early in the design process.

Approved deviations and variances from the Design Standards should be conscious and justifiable, provide a solution for a site-specific need or replace outdated/obsolete requirements, and be compatible with other Design Standards. **Proposed deviations shall be submitted to SCCD in writing for review and approval prior to incorporation into the project.** Approved deviations may be project-specific or permanent; if an approved deviation or variance is intended to be permanent the change should be reflected in the associated Design Standard.

Review and Approval

Review and approval by SCCD is required at the conclusion of each of the design phases listed below prior to progressing to the next phase. Documentation required for review includes project drawings and specifications; manufacturer cutsheets, diagrams, and other product data; associated progress cost estimates and written identification of deviations/variances from District Standards. Not all projects will include all phases.

Schematic Design

Design professionals should become familiar with the **Architectural, Landscape, Sustainability and other Guidelines** (found in Book 1 of the Facilities Master Plan) and the **District Standards** (found in Book 2 of the Facilities Master Plan and on Facilities Website) prior to initiating the design process. While most of the specifics within the District Standards will be reflected in future design phases, there are some aspects reflected in the District Standards that require consideration from the onset of the design process. If any deviations/variations are apparent at this early phase, bring them to District attention for consideration.

Deliverables of this phase are as stipulated in the Contract with the District. In addition for system designs such as Electronic Security and Safety, Fire Alarm etc. provide the following: a written design narrative which describes planned system elements by function and overall design. The narrative should include conceptual device and system floor plan, site layout drawings and functional/operational project planning.

Design Development

This is the phase where the specifics within the Design Standards will need to be reflected and coordinated within the specific project, and any required deviations/variances should be apparent during this phase. Bring all deviations/variances to District attention, in written format, for



evaluation and action as soon as they are determined. Do not assume deviations/variations will be apparent to District personnel during their documentation review towards the end of this phase.

Deliverables of this phase are as stipulated in the Contract with the District. In addition for system designs such as Electronic Security and Safety, Fire Alarm etc. provide the following: refinement of schematic design conceptual elements to provide a greater level of detail of system floor plan, functional/operational project planning and site layout drawings as well as required supporting components such as physical, electrical, MEP, data network, etc.

Construction Documents

By this phase the deviations/variances should have already been resolved. If coordination and detailing efforts during this phase require previously unknown deviations/variances from District Standards, bring them to District attention, via written format, for evaluation and action as soon as they are determined.

Deliverables of this phase are as stipulated in the Contract with the District. In addition for system designs such as Electronic Security and Safety, Fire Alarm etc. provide the following: design drawings indicating location, installation details, cabling and interfaces for elements approved in the schematic design and design development phases. This phase includes written device and systems specifications in the current MasterFormat edition as issued by the Construction Specifications Institute. These specifications should clearly describe interfaces between systems or assemblies and interfaces to any other equipment and systems under other Design Standards.

Project Close-Out

Deliverables of this phase are as stipulated in the Contract with the District. District should endeavor to update District Standards for any deviations or variances that were approved as permanent during that particular project.

End of Document



DESIGN STANDARD for Basic Plumbing System Design

Purpose:

The purpose of this document is to standardize the basic elements of the Plumbing system design process. This design standard has the purpose of creating a consistent application of Plumbing system design throughout the Solano Community College District therefore achieving a standard of quality for maintenance, energy efficiency, and reliability throughout all renovation and new building projects.

Design Standard:

Codes – Systems will be designed in accordance with the latest edition of the following codes:

- Uniform Building Code; California Building Code.
- Uniform Mechanical Code; California Mechanical Code.
- Uniform Plumbing Code; California Plumbing Code.
- Uniform Fire Code; California Fire Code.
- National Electrical Code; California Electrical Code.
- State of California Code of Regulations (CCR).
- Energy Efficiency Standards and Title 24 Regulations.
- Local City of Newark Amendments and Regulations.
- DSA – Department of the State Architect.

Standards – The following reference standards shall be used for the design:

- ANSI – American National Standards Institute.
- ASME – American Society of Mechanical Engineers.
- ASSE – American Society of Sanitary Engineering.
- ASTM – American Society for Testing and Materials.
- AWS – American Welding Society.



- AWWA – American Water Work Association.
- CISPI – Cast Iron Soil Pipe Institute.
- CS – Commercial Standards.
- EPA – Environmental Protection Agency.
- NEMA – National Electrical Manufacturer’s Association.
- NFPA – National Fire Protection Association.
- NFPA 10 – Portable Fire Extinguishers.
- NFPA 101 – Life Safety Code
- NSF – National Sanitation Foundation.
- PDI – Plumbing and Drainage Institute.
- UL – Underwriters’ Laboratory.
- LEED – U.S. Green Building Council

Water Piping:

- Determine cold water service and building domestic hot and cold water demands for major buildings by the fixture unit method as outlined in the California Plumbing Code.
- Add known continuous demands to the total estimated demand.
- Size water piping with velocities not exceeding 7.5' per second and minimum of 35 pounds per square inch residual pressure at the highest, or last, fixture or hose rack. For copper pipe, size with velocities of 5' to 8' per second
- Take particular care in designing and sizing of cold water piping to any shower, or shower room, where the use of adjacent flush valve fixtures could affect the pressure and cause excessive temperature fluctuations. Consider the use of a pressure balancing valve between hot and cold water supplies, or separate line from a point that would not be affected by flushing of fixtures.

Soil and Waste, and Vent Piping

- Size soil and waste piping by the fixture unit method as outlined in the California Plumbing Code (CPC).



- Grade interior piping, above grade, at 1/4" per foot minimum; 1/8" is acceptable if the pipe size is increased to compensate for the 1% slope as required by California Plumbing Code (CPC)
- Vent all sanitary fixtures as required by code.
- Kitchen or Food Service Waste System: Design a separate waste system for any kitchen or food service and discharge through a grease trap/interceptor. Keep this system separate and connect at a point in the building sanitary sewer system where a stoppage below the connection will not back sewage up to kitchen or food service floor drains or sinks.
- Use corrosive-resistant pipe in any location where the waste may contain corrosives. Keep such waste and vent system separate from the building plumbing soil, waste and vent systems to a point outside the building. In buildings with minor isolated points of corrosive use, discuss the method of handling Solano Community College District.
- Use gravity flow for all building drainage systems. Where this appears to be impractical, discuss installation of pumps with Solano Community College District and obtain approval before proceeding with design.

Storm Piping

- Rainwater Leaders and Storm Drains: Compute rainwater quantity on the basis of 1.5" rainfall per hour minimum (.935 gallons per hour/square foot horizontal drainage area). Size all piping per CPC
- Grade interior piping, above grade, at 1/4" per foot minimum as required by California Plumbing Code (CPC)
- Insulate underbodies and horizontal mains.

Industrial Water Systems

- The industrial water system shall serve all points of water use that could cause contamination by their backflow into the domestic water system.
- Where an industrial water system is selected for a project, protect the domestic water system by installation of two approved reduced pressure backflow prevention devices in parallel at the point of connection.
- Detail the installation of the devices in an accessible location with the lower a minimum of 1' above the floor and the upper a maximum of 5'. Provide adequate drainage below the devices for testing or malfunction, via floor drains.



- Each outlet or connection to the industrial water system shall be posted with a sign reading Industrial Water - Do Not Drink. These may be waterproof cloth tape with printing protected by clear vinyl and self-adhesive back; 1/4" high, black letters on yellow background.

Connections to Kitchen Equipment

- Kitchen equipment is normally furnished under the specification section for kitchen equipment
- Include a schedule in the plumbing drawings for the rough-in and final connections to all kitchen equipment
- Coordinate the furnishing of all equipment trim, such as traps, faucets and valves, with the kitchen equipment drawings and specifications
- Provide a pressure regulating valve, pressure gauge, pressure relief valve, thermometer and shock absorber in the 180° rinse line to the dishwasher connection

Back Flow Prevention

- The proper design, selection, installation and maintenance of cross-connection control devices is imperative for the protection of potable drinking water and distribution systems. Appropriate backflow prevention assemblies shall be selected.
- Provide backflow protection at any building water system where there are connections, actual or potential, to a contaminating liquid. Examples include connection from domestic system to HHW makeup and cooling towers
- Backflow may be prevented by installing a backflow prevention device at each individual point of possible contamination, where devices such as vacuum breakers or air gaps may be employed, or at a single point where an industrial water piping system takes off from the domestic water piping.

Roof, Floor, and Areaway Drains

- Include provisions in the design for coordination of drain and clean-out elevations and other work such as concrete and waterproofing
- Locate toilet room floor drains out of foot traffic below water closet partitions or between urinals
- Where floor drains are roughed in for future use, cover with a flush plate and gasket for protection against fume leakage



- Provide trap primers to retain trap seals on floor drains installed in areas where floors are not washed periodically or there is no regularly used water outlet to replenish trap seal.
- All floor drains to have 3" or larger traps plus trap primers
- All horizontal drain runs to have cleanouts on the end of the run on every floor
- Main drain stacks must have cleanouts installed on each floor

Hose Bibbs and Landscape Irrigation Service

- Provide keyless hose bibbs at important outside entrances to a building along each side of the building and never more than 50' from a paved entrance for washing down purposes. Locate these as inconspicuously as possible consistent with accessibility. Provide a ground level hose bibb for wash-down at all large concrete areaways or shafts. Hose bibbs shall be supplied from an industrial water system or have separate RP device or vacuum breaker and backflow preventer on each hose bibb

Disinfection Of Water Systems

- Clean and disinfect the domestic hot and cold water systems, including fire systems connected to the domestic water systems, in accordance with the generally accepted standards and Codes. For remodeling work, modify the procedure as required to accommodate the occupants

Plumbing Isolating Valves

- Show all valves on drawings.
- Arrange and valve all utility services so that, as a minimum, each floor may be isolated
- Arrange and valve domestic hot and cold water piping so that toilet rooms can be isolated without interrupting service to other parts of the building
- Show sectionalizing valves in top center and bottom of risers in hot water supply and return systems
- Place valves on each side of backflow or check valve to permit servicing
- Show valves on all services left for future connections (tees, stubs, etc.) unless they are in a valved zone, or isolated by other valves, that permits only a minor loss of pipe contents when opened



Pipe Installation

- Specify a proper corrosion preventive wrapping for any black steel piping installed below grade (bituminous and paper wrapping or extruded plastic).
- Provide water hammer arrestors in water lines to equipment or fixtures having quick closing or flush valves and any equipment that might produce water hammer. Water hammer arrestors shall be certified by the Plumbing and Drainage Institute (PDI). Show location and size of all water hammer arrestors on plans and access for maintenance or replacement. Provide access panels if required.
- Show clean-outs in sewer lines as required by code. In addition, vertical to horizontal changes in main risers that occur above furred ceilings shall have a clean-out extended from the base to a floor clean-out or a wall clean-out above the change in direction
- Do not embed piping in concrete.

Kitchen Grease, Plaster, Sediment and Sand Traps

- In general, grease traps should be avoided except where required by code or other regulations. If required, locate for easy access and servicing, preferably outside, with proper venting
- Provide a sand and oil interceptor where required for separation of solids from the sanitary sewer system.

Fixtures, General

- Specify fixtures using a minimum of water consistent with fixture application. Install flow control devices to limit water use, except in tank and flushometer water closets and urinals.
- Vitreous ware shall be institutional quality
- Design cast iron enameled ware with acid-resisting enamel
- Design fixtures complete with trims, where applicable. Exposed trims shall be coordinated with finish of plumbing fittings
- Provide accessible fixtures per Architectural documentation.
- Provide stops in hot and cold water lines serving all fixtures, including hose bibs



Fixture Connections

- Exposed water supply pipe, tubing and waste piping connections shall be chrome-plated brass
- Fit supply pipe, tubing, and other connections with chrome-plated brass escutcheons at walls
- Cover exposed bolt heads in floor flanges of any fixture, in the back of any fixture, or in the fixture itself, with porcelain bolt caps securely held in place with putty
- Fit fixtures tight to walls and seal joint. Coordinate sealant with architectural
- Specify red brass for all nipples from copper water lines to fixture stops. Do not allow galvanized nipples

Sustainable Design Practices

- The Solano Community College District has a desire to build buildings utilizing sustainable design techniques. As part of the Plumbing Design Standards, sample sustainable design opportunities are provided in the table located in Sustainability Section of the Solano Community College District Standards. Each strategy needs to be integrated appropriately into their respective projects. Development of design strategies for each item is beyond the scope of this Design Standard and requires careful consideration for proper application. See table on following pages. The District will select on a case by case basis, which projects will be LEED™ Certified and to what level.

Approved Manufacturers:

Not Applicable

Substitutes Allowed:

Not Applicable

Associated Design Standards and Specifications

- All Division 22 Design Standards and Construction Specifications

End of Document



DESIGN STANDARD for Plumbing Pipe and Fittings

Purpose:

The plumbing piping materials are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing piping material requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, reliability, and energy efficiency throughout all renovation and new building projects.

Design Standard:

Work Included: Materials, installation and testing of pipe, tubing and fittings for complete and operable systems.

- **General Electrical Equipment Clearances:** Do not route piping through electrical rooms, transformer vaults, elevator equipment rooms, and other electrical or electronic equipment spaces and enclosures. Within mechanical or plumbing equipment rooms, provide minimum 3 feet lateral clearance from sides of electric switchgear panels, MCC's, etc. Do not route piping above any electric power or lighting panel, switchgear, or similar electric device. Coordinate with electrical and coordinate exact pipe routing to provide proper clearance with such items.
- **Welding Qualification:** Qualify welding procedures, welders and operators in accordance with ANSI B31.9 for shop and project site welding of piping work.
- All piping shall meet the piping material requirements set forth:
- **Equipment:** Provide pipe, tube and fittings of the type, fitting requirements, grade, class, size and weight indicated or required for each service, as indicated in other Division 22 Specifications.
- **Piping:** Piping shall conform to ASTM or ANSI Standards and be approved by the governing Code for the application intended.
- **Excavation:** Perform necessary excavation and backfill required for the installation of the plumbing work.
- **Tests:** Test piping according to the requirements of Plumbing Code and submit "Certificate of Accessibility" to Owner. Test water piping at 150 PSIG for a period of 2 hours with no loss in pressure.



- Steel Pipe:
 - ASTM A-53-84a, Electric Resistance Welded or Seamless, Grade B: Black, unless otherwise indicated, Schedule as specified.
 - ASTM A-135-84, Grade B: Black, unless otherwise indicated, Schedule as specified.
- Copper Tube:
 - Temper: Provide hard drawn temper.
 - Water Service: ASTM B-88, type as indicated for each service.
 - Drain, Waste, and Vent (DWV): ASTM B-306.
- Cast Iron Pipe:
 - ASTM A74, Hub-and-Spigot, service weight.
 - CISPI 301-75 Hubless (No-Hub), including coupling assembly.
- Insulating (Dielectric) Unions: Standard units recommended by manufacturer for use in the service indicated, which isolate ferrous from nonferrous piping, and prevent galvanic corrosion action. Minimum rated "flashover" voltage: 600 volts. Watts 3000 Series. Provide insulated flanges for flanged piping system connection to dissimilar metals.
- Welding Materials: Comply with Section 2-C of ASME Boiler Code, as applicable.
- Tin-Antimony Soldering Materials: ASTM B13.
- Copper-Brazed: Make brazed joints for copper tubing and fittings with code approved brazing filler alloys meeting ASTM and AWS standards and listings. Filler alloys of BCuP2 classification (e.g., "Phos-O" or "Fos-Copper") may not be used to make joints between copper tubing and cast brass or bronze fittings. Installations conform to accepted published procedures, i.e., CPC Installation Standard 3-75 and CDA Publications. Use of steel wool for cleaning tube and fittings is prohibited.
- Unions: Provide unions at all threaded connections to equipment, regulators, and controls that may have to be removed or replaced and at all points where necessary for the disassembly of piping for maintenance. Detail piping and unions to allow removal of equipment without springing pipe.
 - Steel Pipe Union: 150 PSI malleable iron, brass to iron seat, ground joint, black or galvanized to match pipe



- Copper Pipe Union: 200 PSI working pressure. Bronze body, solder or grooved ends. Pipes 2 inches and under use ground joint, pipes 2-1/2 inches and larger use flanged face or grooved ends
- Insulating Unions: 250 PSI working pressure. Pipe ends and material to match piping. Electric current below 1 percent of galvanic current. Gasket material as recommended by manufacturer. Epco or approved
- Escutcheons:
 - Brass material, chrome plated finish. Size sufficient to cover pipe openings through wall, floor or ceiling. Set screw or spring to secure to pipe. Coordinate opening sizes
- Sleeves: Provide sleeves on pipes passing through concrete or masonry construction. Extend sleeve 1 inch above finished floor. Caulk pipes passing through floor with non-shrinking grout or approved caulking compound. Provide "Link-Seal" sleeve sealing system for slab on grade or exterior wall penetrations. Caulk/seal piping and ductwork passing through fire rated building assembly with UL rated assemblies. Provide fire-rated assemblies per local AHJ requirements.
- Corrosion Control: Underground Steel Piping Corrosion Protection: Factory wrap un-insulated underground steel piping systems with protective coating composed of a coal-tar saturated wrapping tape over a 20 mil thick coal-tar epoxy coating, equivalent to "Republic X-Tru-Coat." Wrap joints spirally with a minimum overlap of 1/2 tape width. Extend wrap not less than 3 inches above grade. . Provide cathodic protection to meet requirements of NACE Standard RP0169-2002.
- Pipe Tests:
 - Make test before pipes are concealed
 - Fill system and remove air from system at least 24 hours before test begins
 - Correct leaks in screwed fittings by remaking the joint. Cut out leaks in welded joints and reweld; caulking is not permitted
 - Apply test pressure of 125 PSI and maintain for 1 hour with no visible leaks and no appreciable drop after the test pump has been disconnected

Approved Manufacturers:

Not Applicable



Substitutes Allowed:

Not Applicable

Associated Design Standards and Specifications

- 22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
- 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
- 22 11 13 – GENERAL PLUMBING PIPING SYSTEMS

End of Document



DESIGN STANDARD for Common Motor Requirements for HVAC Equipment

Purpose:

The motor requirements for plumbing equipment are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing equipment motor requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, reliability, and energy efficiency throughout all renovation and new building projects.

Design Standard:

Work Included: Materials, installation and testing for complete and operable motors and starters for plumbing equipment. These Design Standards are inclusive of motors that are field installed as well as integral to mechanical equipment.

All motors to meet the following requirements based on Code requirements and industry standard of care:

- Energy efficient, suitable for non-overloading operation, and capable of continuous operation at full nameplate rating. Motors 1 HP and larger must meet Energy Policy act of 1992. Motors to meet or exceed California Energy Commission Title 24 requirements.
- Take NEMA standards as minimum requirements for motor design and performance. Motors suitable for load, duty, voltage, frequency, hazard, and for service and location intended.
- For consistency and economy, motors, unless specified otherwise, to be general purpose open drip-proof type, ball bearing equipped, 40°C temperature rise, and rated for continuous duty under full load.
- To avoid unnecessary maintenance costs and early failure of equipment, all motors located outdoors to be TEFC motors (totally enclosed, fan cooled).
- Due to the harsh weather environment at Solano College, all motors exposed to the outside air stream (whether inside or outside of equipment) to be TEFC motors (totally enclosed, fan cooled).



- Motors smaller than 1/2 horsepower, 1 phase; and motors 1/2 horsepower and larger, 3 phase and voltage as indicated on Drawings. Maximum motor speed of 1750 RPM, unless otherwise noted. One phase motors to have internal thermal overload protection with automatic reset.
- Motors for belt drive to have adjustable bases with set screw to maintain belt tension.
- Provide inverter rated motors per NEMA MG1-31 where variable frequency drives are applied or where soft start starters are utilized.
- For consistency, all starters to be specified by Division 26.
- For consistency, all disconnects to be specified by Division 26.
- Motors to have name plate giving manufacturer's name, shop number, HP, RPM and current characteristics.

Approved Manufacturers:

- General Electric
- Westinghouse
- Baldor
- Reliance

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 05 48 - VIBRATION AND SEISMIC CONTROLS FOR PLUMBING PIPING AND EQUIPMENT
- 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
- 23 09 13 - VARIABLE FREQUENCY DRIVES

End of Document



DESIGN STANDARD for General Duty Valves for Plumbing

Purpose:

The plumbing valves are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing valve requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Materials, installation and testing of valves for a complete and operable systems.

All valves of a particular type and size range on any one project shall be the product of one manufacturer.

Valves shall be designed to be installed with the valve bonnet in an upright position to prevent deterioration or corrosion of the bonnet and packing.

Valve body materials shall be compatible with piping system materials.

A valve drain shall be provided at the base of each water piping riser and manual air vents shall be provided at the top of each riser and at the high point of the system.

All valves shall be provided with reusable strap-on insulation covers.

All exposed valves in finished areas shall be chrome-plated.

Insulation: Where insulation is indicated, install extended stem valves, arranged in proper manner to receive insulation

Design access panels, where a removal type ceiling is not planned, into the project so all valves are accessible

Locate isolation valves so that it is possible to isolate separate floors, separate wings, machinery rooms and other natural subdivisions of the building. Design isolation valves on each side of equipment to permit servicing or removal without draining system. Design valves at all services left for future connections (tees, stubs, etc.,) unless they are in a valved zone, or can be isolated by existing valves with minor loss of pipe contents when opened



All general duty plumbing valves shall meet the requirements set forth:

- **Ball Valves**
 - System supply and return piping shut-off and isolation valves for application in piping system up to and including 2-1/2" in diameter
 - Class 125, bronze body, screw-in bonnet, integral seat, renewable disc, straight body
- **Butterfly Valves**
 - System supply and return piping shut-off and isolation valves for application in piping system over 2-1/2" in diameter
 - 6 Inches and Smaller: 200 PSI, ductile iron body, extended neck, aluminum bronze disc, reinforced resilient EDPM seat, manual lever and lock
 - 8 Inches and Larger: 200 PSI, ductile iron body, extended neck, aluminum bronze disc, reinforced resilient EDPM seat, gear operator
- **Globe Valves**
 - Design for modulating services
 - 2 Inches and Smaller: Class 125, bronze body, screw-in bonnet, integral seat, renewable disc, straight body
 - 2-1/2 Inches and Larger: Class 125, iron body, bolted bonnet, flanged ends, renewable seat and disc, bronze mounted
- **Balancing Valves**
 - Provide balancing valves as required for proper balance and to maintain balance at part and full load conditions
 - Bronze with a machined orifice flow restriction, multi-turn globe type valve, internal O-rings, rated working pressure of at least 240 PSIG (175 PSI iron construction, 2-1/2 inches and larger), flow setting indicating pointer and calibrated nameplate, memory stops, and pressure readout port with integral check valve on each side of the orifice
- **Check Valves**
 - Where check valves are required, they shall be installed on the equipment side of all shutoff valves to facilitate servicing of the check valve



- 2 Inches and Smaller: Class 125, bronze body, horizontal swing, regrinding type, Y-pattern, renewable disc
- 2-1/2 Inches and Larger: Class 125, iron body, bolted bonnet, horizontal swing, renewable seat and disc, flanged ends
- Drain Valves
 - Class 125, bronze body, screw-in bonnet, rising stem, composition disc, 3/4-inch hose outlet

Approved Manufacturers:

- Ball, Butterfly, Globe Valves, Check Valves, Drain Valves
 - Nibco
 - Crane
 - Milwaukee
- Balancing Valves
 - Bell & Gossett
 - Armstrong
 - Nibco
 - Wheatley
 - Tour & Anderson

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT

End of Document



DESIGN STANDARD for Hangers and Supports for Plumbing Piping and Equipment

Purpose:

The plumbing piping and equipment hangers are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing piping and equipment hanger requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Material and installation of supports, anchors and sleeves including: horizontal piping hangers and supports; vertical piping clamps; hanger rod attachments; building attachments; saddles and shields; miscellaneous metals, miscellaneous materials; roof equipment supports; anchors; equipment supports; wall and floor sleeves; and escutcheon plates for a complete and operable systems.

- Design pipe hangers and supports whose materials, design and manufacture comply with MSS SP-58, "Pipe Hangers and Supports - Materials, Design and Manufacture," latest edition.
- Select and apply pipe hangers and supports complying with MSS SP-69, "Pipe Hangers and Supports - Selection and Application," latest edition. Use only one type by one manufacturer for each piping service. Select size of hangers and supports to exactly fit pipe size for bare piping, and to exactly fit around piping insulation with saddle or shield for insulated piping. Provide copper-plated hangers and supports for un-insulated copper piping systems.
 - Pipe Hangers Size 2 Inches and Smaller: Adjustable swivel ring hanger, UL listed
 - Pipe Hangers Size 2-1/2 Inches and Larger: Adjustable clevis type, UL listed
- The use of pipe hooks, chains, plumbers tape, or perforated iron for pipe supports is not acceptable
- All piping shall be designed to maintain the required pitch and shall provide for proper expansion and contraction
- Vertical runs of pipe shall be supported with steel, UL listed riser clamps made specifically for pipe or for tubing



- Due to the harsh outdoor environment at Solano College, all piping supports at Solano College that are in contact with the outdoor air shall be protected against corrosion.
- Piping supports shall be designed to withstand seismic forces.
- Roof equipment supports: Coordinate the location and type of each roof equipment support with the roofing system supplier. Coordinate systems to maintain roof warranty. Due to Solano College's harsh outdoor environment all exposed equipment supports or equipment supports in mechanical rooms with contact to the outdoor air shall be protected against corrosion.
 - Compensate for slope in roof so top of support is level
 - Construct curb to withstand seismic forces
- Roof Pipe Supports: Support piping on roof with polyethylene high-density U.V. resistant quick "pipe" block with foam pad. Recommended installation is for quick "pipe" blocks to be freestanding. Piping 3 inch and larger mounted on roller hangers. Wood block supports are not acceptable due to increased maintenance and low reliability.
- Escutcheon Plates: Design around horizontal and vertical piping at visible penetrations through walls, partitions, floors, or ceilings, including penetrations through closets, through below ceiling corridor walls, and through equipment room walls and floors.

Approved Manufacturers:

- Pipe Hanger Supports
 - B-Line
 - Michigan
 - Superstrut
 - Unistrut
- Roof Equipment Supports
 - Pate ES
 - Custom Curb
 - Vibrex
 - Thycurb



- Roof Pipe Supports
 - Erico Pipe Piers
 - Nelson-Olsen Inc.

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 11 13 – GENERAL PLUMBING PIPING SYSTEMS

End of Document



DESIGN STANDARD for Vibration and Seismic Controls for Plumbing Piping, and Equipment

Purpose:

The vibration and seismic controls for plumbing piping and equipment is an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of vibration and seismic control requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Materials and installation of seismic restraint devices, vibration isolation systems, and related items for complete and operable systems.

- Vibration Control
 - Mechanical and electrical equipment and associated piping shall be mounted by vibration isolators as required to minimize transmission of vibrations and noise to building structures or spaces.
 - Selection of isolator type shall be as given in Table 42, Selection Guide for Vibration Isolation, Chapter 47, “Sound and Vibration Control,” of the latest edition of the ASHRAE Applications Handbook.
 - All rotating equipment shall be balanced both statically and dynamically. Vibration shall not exceed the guidelines given in Table 42, Selection Guide for Vibration Isolation, Chapter 47, “Sound and Vibration Control,” of the latest edition of the ASHRAE Applications Handbook.
 - To minimize alignment problems, all motors over 5 hp must be designed to be solidly attached to a common base with the driven unit.
 - In order to minimize vibration, solid sheaves and band belts shall be designed to be used in multiple V-belt driven equipment over 15 hp.



Isolation Equipment

- Isolation shall be designed to be stable during starting and stopping of equipment without any transverse and eccentric movement of equipment that would damage or adversely affect operation of the equipment or appurtenances.
- Isolation shall be designed for the operating speed of the equipment.
- Isolators, including springs, exposed to the weather shall be hot dipped galvanized after fabrication. Hot dipped zinc coating shall comply with ASTM Method A-123 and shall not be less than 2 oz per square foot. Isolators at the Solano campus shall not be designed to be exposed to the environment, if absolutely impossible; the isolators will be required to have extra corrosion protection. A request to install isolators exposed to the elements shall be submitted to Solano Community College District.
- Isolators shall be selected and located to produce uniform loading and deflection even when equipment weight is not evenly distributed.
- Isolation equipment includes: neoprene pads, hanger spring and neoprene, travel limited floor spring and neoprene, inertia base, flexible pipe connections, thrust limits, grommets, and snubbers.
- Seismic Control and Restraint
 - Brace or anchor plumbing equipment to resist horizontal forces acting in any direction using the CBC latest edition.
 - Provide factory fabricated seismic restrained vibration isolating components. Earthquake resistant designs for equipment to conform to the regulations of the CBC, latest edition. It is the Districts desire to use standard factory fabricated components, if they are not available, provide properly designed custom components which meet the requirements herein.
 - Design shall include earthquake bumpers to prevent excessive motion during starting and stopping of equipment and for earthquake bracing. Install bumpers after equipment is in operation to allow proper placement and alignment and ensure that bumpers are not engaged during normal system operation
 - Design the seismic bracing and anchorage of piping per Section 22 05 29
 - Design piping and ductwork seismic restraints using the document "Seismic Restraints Manual Guidelines for Mechanical Systems." Secure piping, ductwork, and the like to withstand a force in any direction.



- Design restraints to meet CBC Seismic Restraint requirements. Provide structural engineering calculations sealed by a professional engineer registered in state of California.
- Seismic Pipe Loops and Pipe Expansion
 - The design shall examine the piping system and shall design expansion compensation into the system by use of expansion loops, flexible connectors or, where space is limited, self-aligning bellows-type expansion joints.
 - The design shall design all anchors and guide supports as needed.
 - Seismic connectors for straight pipe runs to be designed with sufficient live length on each flexible leg to provide the minimum movement in directions as required by movement allowed at joint. Verify with structural total movement required in planes.

Approved Manufacturers:

- Isolation Equipment
 - Amber Booth
 - Mason
 - Vibrex
- Seismic Pipe Loops and Expansion Joints
 - Amber Booth
 - Mason
 - Metraflex
 - Vibrex

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.



Associated Design Standards and Specifications

- 22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

End of Document



DESIGN STANDARD for Identification of Plumbing Piping and Equipment

Purpose:

The identification of plumbing piping equipment is an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of systems identification requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance and reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Materials and installation of mechanical systems identification for complete and operable systems.

- General: Adhere to ANSI A-13.1
- Piping
 - Wrap around plastic identification. Include arrows to show normal direction of flow. For hot non-insulated pipes, install a segment of pipe insulation with appropriate piping identification.
 - Locate identification as follows wherever piping is exposed to view in occupied spaces, machine rooms, accessible maintenance spaces (above removable ceilings and the like) and exterior non-concealed locations.
 - Near each valve and control device.
 - Near each branch, excluding short take-offs for fixtures and terminal units; mark each pipe at branch, where there could be question of flow pattern.
 - At locations where pipes pass through walls, floors, ceilings, or enter non-accessible enclosures.
 - At access doors, manholes and similar access points which permit view of concealed piping.
 - At major equipment items and other points of origination and termination.



- Spaced intermediately at maximum spacing of 20' in spaces with removable ceilings and at each access door in spaces with hard ceilings.
 - Identify non potable piping and outlets.
 - Color code piping: Fire protection – red; Gas – yellow; All others – white with appropriate identification.
- Valve Identification
 - Provide for brass valve tags on every valve cock and control device in each piping system; exclude check valves, valves within factory-fabricated equipment units, plumbing fixture faucets, convenience and lawn-watering hose bibs, and shut-off valves at plumbing fixtures. Rough-in connections of end-use fixtures and units. List each tagged valve in a valve schedule for each piping system.
- Plumbing Equipment Identification
 - Provide for engraved plastic laminate sign on or near each major item of plumbing equipment and each operational device. Provide signs for the following general categories of equipment and operational devices:
 - Main control and operating valves, including safety devices.
 - Meters, gauges, thermometers and similar units.
 - Fuel-burning units including boilers, furnaces, and heaters.
 - Pumps, compressors, chillers, condensers and similar motor-driven units.
 - Heat exchangers, coils, evaporators, cooling towers, heat recovery units and similar equipment.
 - Fans, blowers, primary balancing dampers and VAV boxes.
 - HVAC central-station and zone-type units.
 - Tanks and pressure vessels.
 - Air conditioning indoor and outdoor units.
 - AFD's and transmitters and Control Boxes.



Approved Manufacturers:

- Seton
- Brady

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT

End of Document



DESIGN STANDARD for Insulation of Plumbing Piping and Equipment

Purpose:

The plumbing systems insulation is an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of insulation requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, energy efficiency, and reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Materials and installation of insulation, jackets and accessories for a complete and operable system.

- General:
 - Adhere to the requirements of the California Energy Code – Title 24, latest edition.
 - Insulation shall be applied on clean, dry surfaces and only after tests and approvals required by the specifications have been completed.
 - All pipe insulation on piping operating below ambient temperature shall be continuous through wall and ceiling openings and sleeves.
 - Insulation on all cold surfaces must be applied with a continuous, unbroken vapor seal. Hangers, supports, anchors, etc., that are secured directly to cold surfaces shall be adequately insulated and vapor sealed to prevent condensation.
 - Specified adhesives, mastics, and coatings shall be applied at the manufacturer's recommended minimum coverage per gallon.
 - Edges of vapor barrier insulation at valve stems, instrument wells, unions, and other raw edges shall be sealed adequately to prevent moisture from penetrating the insulation.
- Fire Hazard Ratings: All insulation shall have composite (insulation jacket and adhesive used to adhere the jacket to the insulation) Fire and Smoke Hazard ratings as tested under procedure ASTM E 84, NFPA 225, and UL 723.
- Insulation Protection Shields



- To prevent crushing of insulation, insulation protection shields shall be installed at all pipe hangers and supports. Shields shall span an arc of 180°. Provide full size diameter hangers and shields (18 gauge minimum) for piping. Provide 18-inch long, non-compressible insulation section at insulation shields for lines 2 inches and larger.
- Insulation Jacketing
 - Provide aluminum jacketing for all piping located aboveground, outdoors.
- Piping
 - In general, piping systems shall be insulated with fiberglass piping insulation with an all-purpose jacket. Fittings, flanges, and valves shall be insulated with fiberglass inserts and premolded polyvinyl or PVC jackets.
 - Calcium silicate or high-temperature fiberglass shall be used in high temperature applications.
 - Special insulation protection shall be considered for areas subject to abuse and moisture, such as outside areas, washdown areas, public areas, and classrooms.
 - Removable insulated jackets shall be provided on all valves.
- Equipment: At a minimum, the following equipment shall be provided with insulation:
 - Hot water storage tanks
 - Heat exchangers
 - Flue pipe

Approved Manufacturers:

- Armacell LLC Armaflex
- Certainteed
- Johns Manville
- Knauf
- Owens-Corning Brady



Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 05 12 - PLUMBING PIPE AND FITTINGS

End of Document



DESIGN STANDARD for General Plumbing Piping Systems

Purpose:

The plumbing piping materials are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing piping material requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, reliability, and energy efficiency throughout all renovation and new building projects.

Design Standard:

Work Included: Materials, installation and testing of pipe, tubing and fittings for complete and operable systems.

- Above ground soil, waste and vent piping within buildings, including soil stacks, vent stacks, horizontal branches, traps, and connections to fixtures and drains.
- Underground building drain piping including mains, branches, traps, connections to fixtures and drains, and connections to stacks, terminating at connection to sanitary sewers 5 feet outside foundation wall.
- Storm building drain piping from conductor piping and area drains to storm sewers 5 feet outside inner face of foundation wall.
- Domestic cold water piping.
- Domestic hot water piping.
- Domestic re-circulating water piping.



- Schedules:

Pipe Service	Location	Material
Potable hot, cold and hot recirculation water.	Above ground	Copper: L
Potable hot, cold, and hot recirculation water	Below ground	Copper: K
Soil and waste, drainage	Above ground	CISP: No hub or service weight
Soil and waste, drainage	Below ground	CISP: No hub or service weight
Vents	Above and below ground	CISP: No hub
Storm drains	Above ground	CISP: No hub or service weight
Storm drains	Below ground	CISP: No hub or service weight

Approved Manufacturers:

Not Applicable

Substitutes Allowed:

Not Applicable

Associated Design Standards and Specifications

- 22 05 29 - HANGERS AND SUPPORTS FOR PLUMBING PIPING AND EQUIPMENT
- 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT
- 22 05 12 – PLUMBING PIPE AND FITTINGS

End of Document



DESIGN STANDARD for Plumbing Equipment

Purpose:

The plumbing equipment is an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing equipment requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, water efficiency, and reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Materials and installation of water heaters, circulation pumps, storage tanks, sump pumps, grease interceptors, and accessories for a complete and operable system.

- Pumps: Design, manufacture and install pumps in accordance with HI (Hydraulic Institute Standards).
- Water Heaters: Gas type with atmospheric vent. Commercial type heater, with minimum 5 year commercial warranty.
- Circulation Pumps: Provide in-line factory tested pumps, cleaned, and painted with enamel prior to shipment. Provide pumps of same type by same manufacturer.
- Sump Pumps: Submersible, heavy duty cast iron, float operated, visual/audible alarm/control panel.
- Grease Interceptors:
 - Prefabricated reinforced concrete grease interceptor structure in accordance with state and local agency code standards.
 - Coated cast iron grease interceptor with coated steel extension. Gasketed nonskid locking cover.
- Storage Tanks: Factory fabricated steel, glass lined, vertical tank with mounting supports.



Approved Manufacturers:

- Water Heaters (Gas, Storage)
 - Rheem, Ruud
 - A. O. Smith
 - State
 - Bradford-White
 - PVI
- Water Heaters (Gas, Instantaneous)
 - Takagi
 - A.O. Smith
 - Aerco
- Circulation Pumps
 - Amtrol
 - Armstrong
 - Bell & Gossett
 - Grundfos
 - Paco
 - Taco
- Sump Pumps
 - Paco
 - Hydromatic
 - Aurora
 - Grundfos



– Peerless

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 05 12 - PLUMBING PIPE AND FITTINGS
- 22 11 13 - GENERAL PLUMBING PIPING SYSTEMS

End of Document



DESIGN STANDARD for Plumbing Fixtures

Purpose:

The plumbing fixtures are an essential element of the plumbing systems. This design standard has the purpose of creating a consistent application of plumbing fixture requirements throughout the Solano Community College District therefore achieving a standard of quality for maintenance, water efficiency, and reliability throughout all renovation and new building projects.

Design Standard:

Work Included: Materials and installation of plumbing fixtures and accessories for a complete and operable system.

- Where possible consider the use of low flow fixtures and provide means of water conservation.
- Designer shall follow all requirement to meet ADA compliance for all fixtures.
- Preferred plumbing fixtures:
 - Lavatories: White, vitreous china (coordinate other finishes with Solano Community College District), hard wired sensor faucets, no more than 0.5 GPM, provide lower flow rate where deemed possible. No battery powered faucets unless solar powered.
 - Showers: Built up, tempering valve, low flow shower head.
 - Urinals (Public): White vitreous china, wall hung, automatic flush valve (hardwired), consider low flow .125 gallon per flush or waterless urinals (coordinate use with Solano Community College District).
 - Urinals (Staff): White vitreous china, wall hung, non-automatic flush valve, consider low flow .125 gallon per flush or waterless urinals (coordinate use with Solano Community College District). No waterless urinals.
 - Water Closets (Public): White vitreous china, tankless, wall hung, 1.28 gpf, automatic flush valve (hardwired). Consider dual flush or ultra-low flow and coordinate use with Solano Community College District.
 - Water Closets (Staff): White vitreous china, tankless, wall hung, 1.28 gpf, non-automatic flush valve. Consider dual flush or ultra-low flow and coordinate use with Solano Community College District.



- Sinks: Stainless steel, ADA sink depth, 0.5 gpm flow faucet.
- Service sinks: Composite, floor mounted, faucet with hose adapter, mop holder over service sink.
- Hose bibbs: Interior located with loose key and vacuum breaker. Exterior shall be non-freeze type. Provide hose bibbs in each restroom.
- Drains: Nickel bronze floor drains with trap primer. Provide drains in all restrooms.
- Emergency showers/eyewash: Tempered water supply, provide drained system. Provide test valve.
- Drinking fountains: No cooling, stainless steel construction, dual height for ADA compliance.
- Replacement faucets: Hard wired sensor faucets, no more than 0.5 GPM, provide lower flow rate where deemed possible, match existing lavatories and/or sinks. No battery powered faucets unless solar powered.

Approved Manufacturers:

- Lavatories: Kohler, American Standard, Eljer
- Showers: Moen, Kohler, American Standard
- Urinals: Kohler, American Standard, Eljer, Zurn, Waterless, Sloan, Falcon
- Water closets: Kohler, American Standard, Eljer, Zurn
- Sinks: Kohler, American Standard, Eljer
- Service sinks: Kohler, American Standard, Eljer
- Hose bibbs: Woodford, Nibco, Chicago
- Drains: JR Smith, Zurn, Josam
- Emergency showers/eyewash: Guardian, Viking, Haws
- Roof drains: JR Smith, Zurn, Josam
- Floor drains: JR Smith, Zurn, Josam



- Floor sinks: JR Smith, Zurn, Josam
- Drinking fountains: Haws, Elkay, Oasis
- Automatic Valves: Sloan
- Faucets: Speakman, Chicago

Substitutes Allowed:

Yes, if performance and quality equivalency can be evidenced.

Associated Design Standards and Specifications

- 22 11 13 - GENERAL PLUMBING PIPING SYSTEMS
- 22 00 00 - BASIC PLUMBING SYSTEM DESIGN

End of Document

Plumbing Fixtures

- L-1: Lavatory: American Standard Declyn Model 0321, 18-1/2" wide x 17" long, white vitreous china, wall mount lavatory with perforated grid drain and tailpiece for ADA compliance and Speakman model S-8801 hard wired sensor faucet, lead free, 0.50 gpm.
- SK-1: Sink: Just Model SL-ADA-1921-A-GR, 19" wide x 21" long x 5-1/2" deep, stainless steel, counter mount sink with J-ADA-35 crumb cup strainer and tailpiece for ADA compliance and Chicago model 786-E2805-5ABCP gooseneck faucet with wrist blade handles, lead free, 0.5 gpm.
- WC-1: Water closet: American Standard Model Madera 3461.712, white vitreous china, siphon jet, elongated bowl, floor mount. Flush valve with hard wired infrared sensor (1.28 gallons per flush), white open front seat (less cover), ADA compliant, water hammer arrestor.
- UR-1: Urinal: Falcon Model F-5000, white vitreous china, wall mount, waterless cartridge technology, ADA compliant
- SH-1: Shower: Moen model T8346EP15 Chrome plated single handle posi-temp handheld shower system with Moen model 8371 mixing valve (1.5 gpm). ADA compliant.
- DF-1: Drinking Fountain: Haws model 1011 MS dual bowl, recessed, removable access panel, filter model 6426, ADA compliant hi-low type, 304 stainless steel, mounting frame.
- MSK-1: Mop Sink: Stern Williams Corlow model SBC-1700 24"x24"x12" with 6" drop front corner, stainless steel cap on threshold, cast brass drain with stainless steel strainer, mop hanger and Chicago model 897-CP faucet with integral stops, top brace, 3/4" hose thread on spout with pail hook, vacuum breaker, 832-AA 30 inch long, heavy duty 5/8" cloth reinforced rubber hose and 18 gauge 304 stainless steel hose bracket with rubber grip.
- FS-1: Floor sink: Zurn model Z1900 12"x12"x6" with acid resistant coating, flange strainer & trap primer.
- FD-1: Floor drain: Zurn model FD-23215 2" cast iron body, adjustable bronze strainer head & trap primer.
- SHD-1: Shower Drain: Zurn model FD2251-CI 2" cast iron body, strainer and trap primer.

American Standard

Style That Works Better

BARRIER FREE

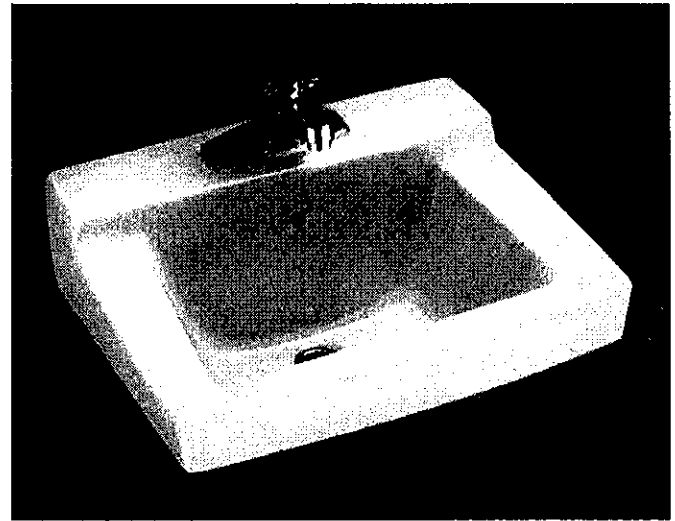
L-1
DECLYN™
WALL-HUNG LAVATORY
VITREOUS CHINA

DECLYN™ WALL-HUNG LAVATORY

- Wall-hung sink
- Vitreous china
- Rear overflow
- Soap depression
- Faucet ledge
Shown with 2000.101 Ceramix faucet
(not included)

0321.026 With wall hanger (Illustrated)
Faucet holes on 102mm (4") centers

0321.075 For concealed arms support ←
Faucet holes on 102mm (4") centers



Nominal Dimensions:

470 x 432mm
(18-1/2" x 17")

Bowl sizes:

362mm (14-1/4") wide
273mm (10-3/4") front to back
152mm (6") deep

Compliance Certifications -

Meets or Exceeds the Following Specifications:

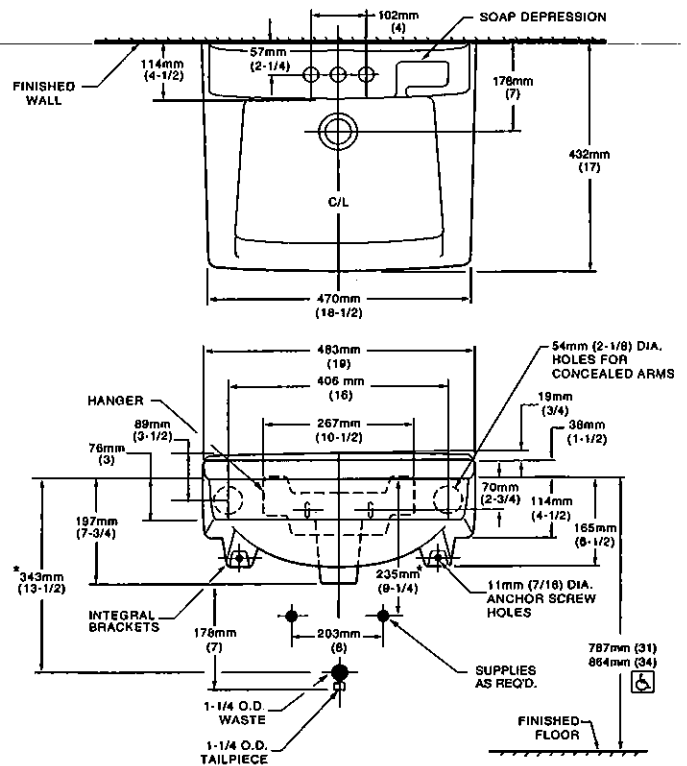
- ASME A112.19.2 for Vitreous China Fixtures

To Be Specified:

- Color: White Bone Silver
- Faucet*:
- Faucet Finish:
- Supplies:
- 1-1/4" Trap:
- Nipple:
- Concealed Arms Support (by others):

* See faucet section for additional models available

MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES - CHECK LOCAL CODES.
Top of front rim mounted 864mm (34") from finished floor.



NOTES:
* DIMENSIONS SHOWN FOR LOCATION OF SUPPLIES AND "P" TRAP ARE SUGGESTED.
PROVIDE SUITABLE REINFORCEMENT FOR ALL WALL SUPPORTS.
FITTINGS NOT INCLUDED AND MUST BE ORDERED SEPARATELY.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

SENSORFLO®

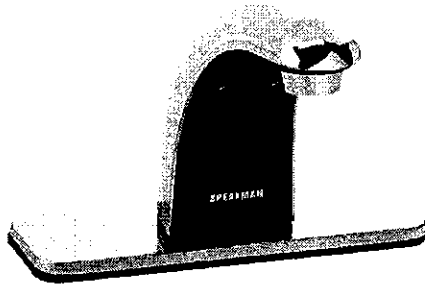
AC Powered Lavatory Faucet ♿



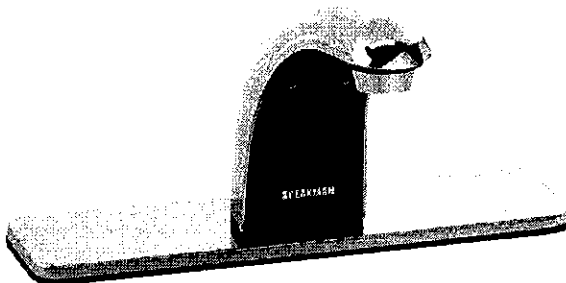
S-8800
S-8801



S-8810
S-8811



S-8820
S-8821



GENERAL SPECIFICATION

Polished chrome plated. Solenoid with built-in filter. UL/CSA approved transformer 120 VAC to 12 VDC with waterproof connectors. Spout consists of all metal chassis and removable cover. Vandal-resistant 60-second time out feature. Water conserving vandal-resistant flow control reduces flow to 1.5 gpm/5.7 L/min. To meet existing ASME A112.18.1/CSA B125.1 and WaterSense standards.

NOTE: Stainless steel flexible supply hose(s), 3/8" compression, to supply stop(s) not included, see options below.

S-8800

Single basin, low profile faucet.

S-8801

Single basin, low profile faucet, under counter mechanical mixer with built-in backflow check valves.

S-8810

Low profile faucet with 4" deck plate.

S-8811

Low profile faucet with 4" deck plate, under counter mechanical mixer with built-in backflow check valves.

S-8820

Low profile faucet with 8" deck plate.

S-8821

Low profile faucet with 8" deck plate, under counter mechanical mixer with built-in backflow check valves.

OPTIONS

SUFFIX	DESCRIPTION
BO	0.5 gpm flow control, vandal-resistant
CA**	No lead for CA AB1953 compliance
HS	Two (2) stainless steel flexible supply hoses to supply stops
HTS	One (1) stainless steel hose for tempered water systems (S-8800, S-8810, & S-8820 only)
LF	1.5 gpm laminar flow control outlet
LT	Less transformer
TMV-CA	Under counter thermostatic mixing valve (S-8800, S-8810, & S-8820 only)
VRS	Vandal-resistant screws for removable cover and custom wrench

** The following options are not available with the "CA" option: HS (Hose & Spray), SO, TWI, VB6, VB8, ST, SW, & TMV.

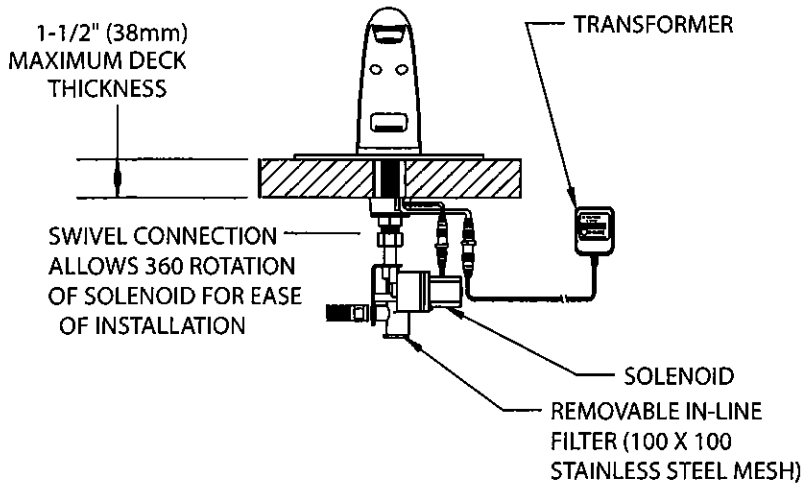
This space for Architect/Engineer approval. _____



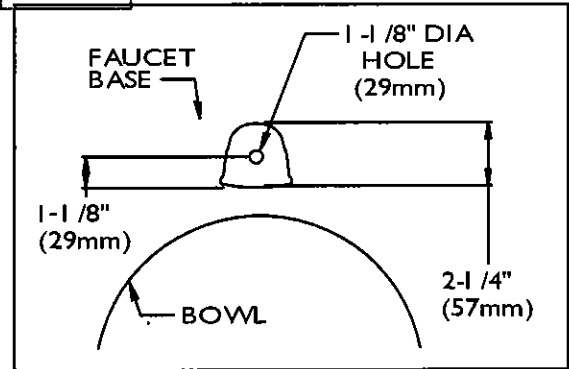
Management Systems Registered to ISO 9001

Sensorflo — Registered T.M. Speakman Company
 © Copyright, Speakman Company, 2013

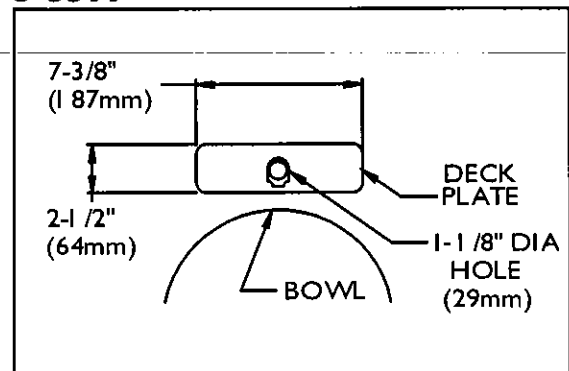
ROUGH-INS



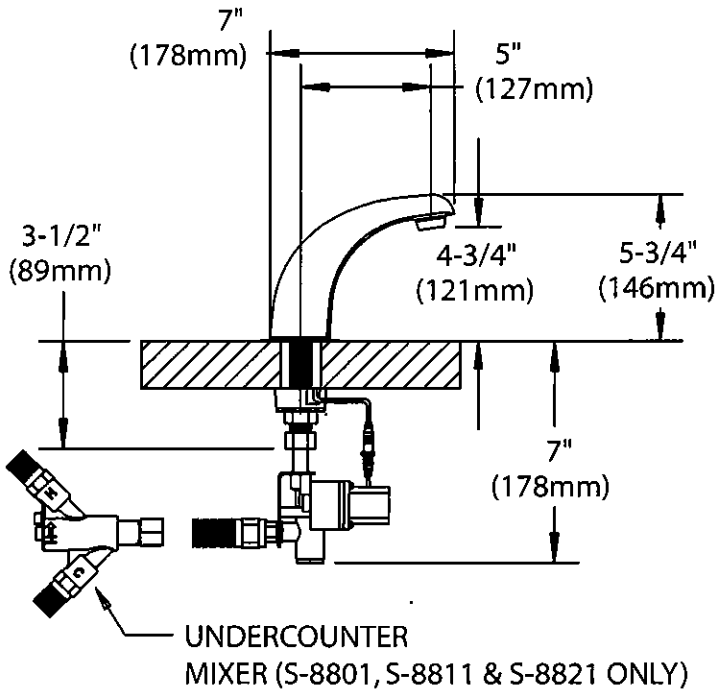
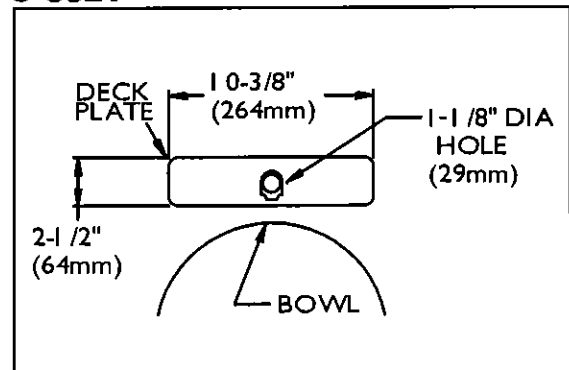
S-8800 S-8801



S-8810 S-8811



S-8820 S-8821



NOTE: Position faucet as close to the edge of the sink as possible. Ensure adequate clearance for wire protector, wires, washers and nut. Unless otherwise specified, all inlets are 3/8" compression with male threads. Unless otherwise specified, all dimensions are in inches and are subject to change without notice.

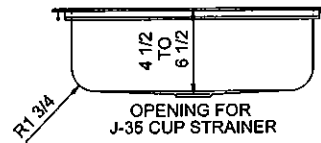
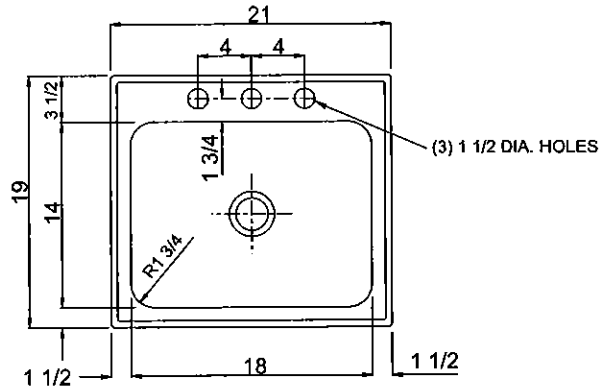
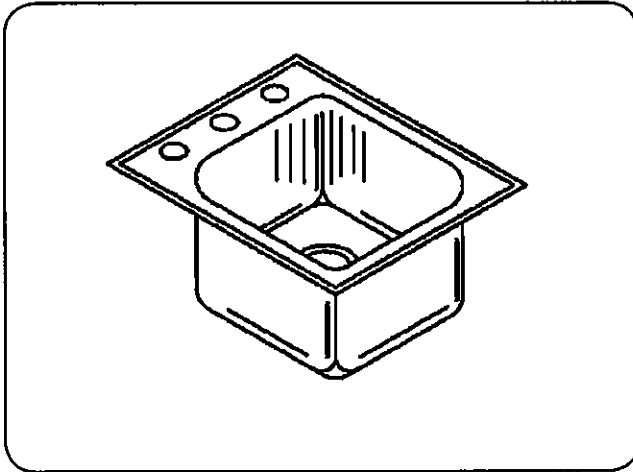


SK-1

SL-ADA-1921-A-GR



STYLIST GROUP
LEDGE TYPE - SINGLE BOWL
18 GAUGE



SPECIFICATION

Seamless die-drawn construction of Type 304, 18-8 stainless steel. Interior and top surfaces polished to a non-porous Hand-Blended Just Finish with highlighted bowl rim. Fully coated underside insulated for sound and reduces condensation. Straight-sided compartment with radius corners provides greater capacity. Self-rimming top mount Grip-Rim Plus with stainless steel mounting channels. Conforms to ASME/ANSI A112.19.3M. Certified conformance with ASME A112.19.3/CSA B45.4, Canadian Standards (CSA), Uniform Plumbing Code (UPC) and International Plumbing Code (IPC) and Americans with Disabilities Act(ADA). Drain punch 3-1/2" centered for Just J-35 drain.

TYPE 316 STAINLESS STEEL (Check if applicable)

CUTOUT DIMENSIONS		
Model Number	Front-to-Back	Left-to-Right
SL-ADA-1921-A-GR	18-1/4	20-1/4

APPROVED FOR MANUFACTURING

MODEL NO.: SL-ADA-1921-A-GR QTY: _____

JOB NAME: SCC Bldg 600

TAG/ITEM: SK-1

CUSTOMER: _____

SIGNATURE: _____

FAUCET PUNCHING - MUST BE SPECIFIED	
<input type="checkbox"/> (1) Hole Centered	
<input type="checkbox"/> (2) Holes on 4" centers	
<input type="checkbox"/> (3) Holes on 4" centers (illustrated)	
<input type="checkbox"/> Alternate Punching: Faucet Model: _____	Punching Required: _____

DEPTH - MUST BE SPECIFIED:					
<input type="checkbox"/> 4 1/2" DEEP	<input type="checkbox"/> 5" DEEP	<input checked="" type="checkbox"/> 5-1/2" DEEP	<input type="checkbox"/> 6" DEEP	<input type="checkbox"/> 6-1/2" DEEP	

DRAIN LOCATION - MUST BE SPECIFIED:			
<input type="checkbox"/> CENTER	<input type="checkbox"/> CENTER REAR	<input type="checkbox"/> LEFT REAR	<input type="checkbox"/> RIGHT REAR



JUST MFG. COMPANY CONTINUES TO MAKE QUALITY AND FUNCTIONALITY A MARK OF THE JUST PRODUCT LINE. TO DO SO REQUIRES THAT WE RESERVE THE RIGHT TO CHANGE PRODUCT INFORMATION WITHOUT NOTICE. DIMENSIONS MAY VARY AND ARE SUBJECT TO CHANGE WITHOUT NOTICE. NO RESPONSIBILITY IS ASSUMED FOR USE OF SUPERSEDED OR VOIDED DATA. FOR THE MOST CURRENT AND ACCURATE INFORMATION REGARDING THE COMPLETE LINE OF JUST SINKS, FAUCETS AND DRAINS, CLICK ON THE SPEC LINE DRAWINGS LINK ON OUR WEB SITE AT www.justmfg.com

JUST MANUFACTURING COMPANY 9233 KING STREET . FRANKLIN PARK . ILLINOIS . 60131-2111
 PH: 847-678-5150 . FAX: 847-678-6817 . E-MAIL: custserv@justmfg.com . www.justmfg.com

SUBMITTAL DATA

MECHANICAL FAUCETS

786-E2805-5ABCP

SK-1

**CHICAGO
FAUCETS**

a Gerberit company

Manual and Metering Faucets

Product Type

Deck Mounted 8" Fixed Centers Concealed Hot and Cold Water Sink Faucet

Features & Specifications

- 8" Fixed Centers
- 5-1/4" Rigid / Swing Gooseneck Spout
- 0.5 GPM (1.9 L/min) Vandal Proof Non-Aerating Spray Outlet
- 4" Wristblade Handle
- Quatern Compression Operating Cartridge
- 1/2" NPSM Supply Inlets and Coupling Nut for 3/8" or 1/2" Flexible Riser
- ECAST® design provides durable brass construction with total lead content equal to or less than 0.25% by weighted average
- CFNow! Item Ships in 5 Days

Job Name _____

Item Number _____

Section/Tag _____

Model Specified _____

Architect _____

Engineer _____

Contractor _____

Submitted as Shown Submitted with Variations

Date _____

Performance Specification

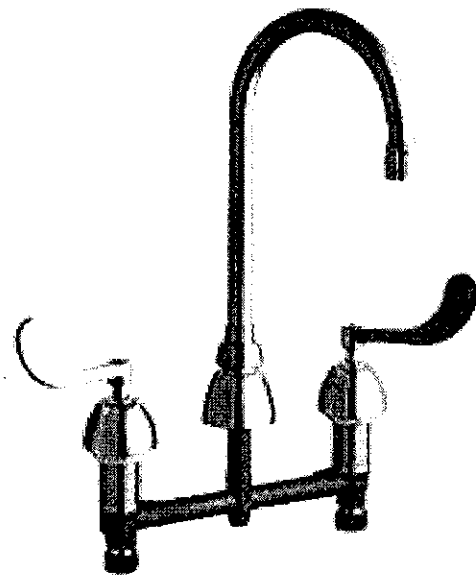
- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

Warranty

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

Codes & Standards

- ASME A112.18.1/CSA B125.1
- Certified to NSF/ANSI 61, Section 9 by CSA
- California Health and Safety Code 116875 (AB1953-2006)
- Vermont Bill S.152
- NSF/ANSI 372 Low Lead Content
- ADA ANSI/ICC A117.1
- CALGreen



ECAST

ECAST products are intended for installation where state laws and local codes mandate lead content levels or in any location where lead content is a concern.



2100 South Clearwater Drive
Des Plaines, IL
P: 847/803-5000
F: 847/803-5454
Technical: 800/TEC-TRUE
www.chicagofaucets.com

American Standard

Style That Works Better

 BARRIER FREE

WC-1

MADERA™ FloWise® 16-1/2" HIGH 1.28 GPF FLUSHOMETER TOILET SYSTEM

with EVERCLEAN®
SELECTRONIC® EXPOSED AC FLUSH VALVE

MADERA™ FloWise® 16-1/2" HIGH 1.28 GPF FLUSHOMETER TOILET SYSTEM with EVERCLEAN®

- 3461.712 1.28 gpf 16-1/2" High Top Spud Bowl and
Selectronic® Exposed AC Flush Valve ←

BOWL:

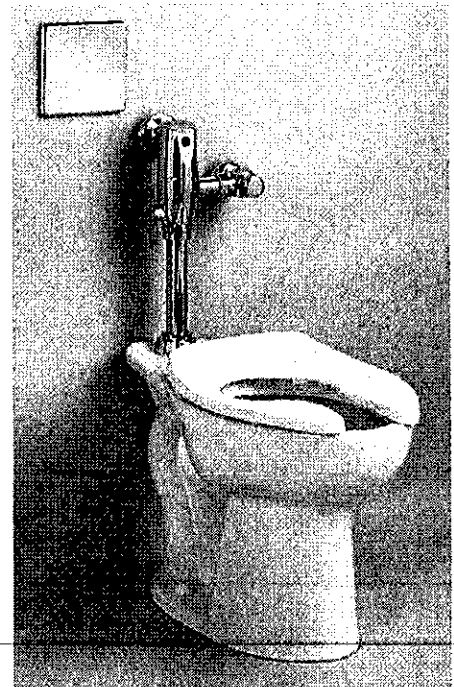
- Floor mount elongated flushometer valve toilet
- Vitreous china
- High Efficiency, Low Consumption. Operates in the range of 1.1 gpf to 1.6 gpf (4.2 Lpf to 6.0 Lpf)
- Permanent EverClean® surface inhibits the growth of stain- and odor-causing bacteria, mold, and mildew on the surface
- 16-1/2" rim height for accessible application
- Powerful direct-fed siphon jet action
- Fully glazed 2-1/8" trapway
- Condensation channel
- 10" or 12" rough-in
- 10" x 12" water surface area
- 1-1/2" inlet spud
- 100% factory flush tested
- Less toilet seat
- Model 3461.001

SELECTRONIC® FLUSH VALVE:

- Electronic flush valve with Selectronic® proximity system for hygienic "Hands Free" operation
- Self-Cleaning Piston with integral wiper spring helps prevent clogging and reduces maintenance
- Piston operation delivers superior flush accuracy and repeatability
- Fully Mechanical Manual Override - allows valve to flush during a power failure
- Fail-Safe Operation - valve automatically closes, and does not need to be reset, on loss of power or water pressure
- Adjustable Sanitary Flush - valve automatically flushes after 24 hours of non-use to clean fixture and maintain trap seal
- Chemical resistant EPDM seals are unaffected by chloramines
- Sensor & electronic controls are fully enclosed and water resistant
- Range can be adjusted manually or with optional remote control
- Includes UL approved hardwired AC transformer
- Input Voltage: 100 - 250 VAC, 50 / 60 Hz. Output Voltage: 6 VDC
- Adjustable tailpiece for rough-in flexibility
- Can be installed left or right hand
- Model 6067.121.002

Includes:

- 047007-0070A Inlet Spud (furnished with bowl)
- 481310-100 2 Bolt caps with retainers (furnished with bowl)
- Inlet includes 1" I.P.S. angle stop with back-flow protection, and vandal-resistant cap
- 1" Sweat solder kit, cover tube and wall flange
- Outlet includes 1-1/2" vacuum breaker with spud coupling and flange



SEE REVERSE FOR ROUGHING-IN DIMENSIONS

High-Efficiency Toilet System

- 20% water savings when compared to 1.6 gpf toilet systems

System MaP Score:

- 1000 grams of miso @ 1.28 gpf

Operating Pressure:

Overall Range: 20-125 psi**

Recommended: 25 psi (flowing)-80 psi (static)

** Water pressure over 80 psi is not recommended for most plumbing fixtures.

Flow Requirement:

25gpm (94.6 L/min.)

Nominal Fixture Dimensions:

718 x 356 x 419mm (28-1/4" x 14" x 16-1/2")

To Be Specified:

Color: White

Seat:

American Standard #5901.100
Heavy duty open front less cover

American Standard #5905.100
Extra heavy duty open front less cover

EVERCLEAN®
Surface



MADERA™ FloWise® 16-1/2" HIGH 1.28 GPF FLUSHOMETER TOILET SYSTEM

with EVERCLEAN®
SELECTRONIC® EXPOSED AC FLUSH VALVE

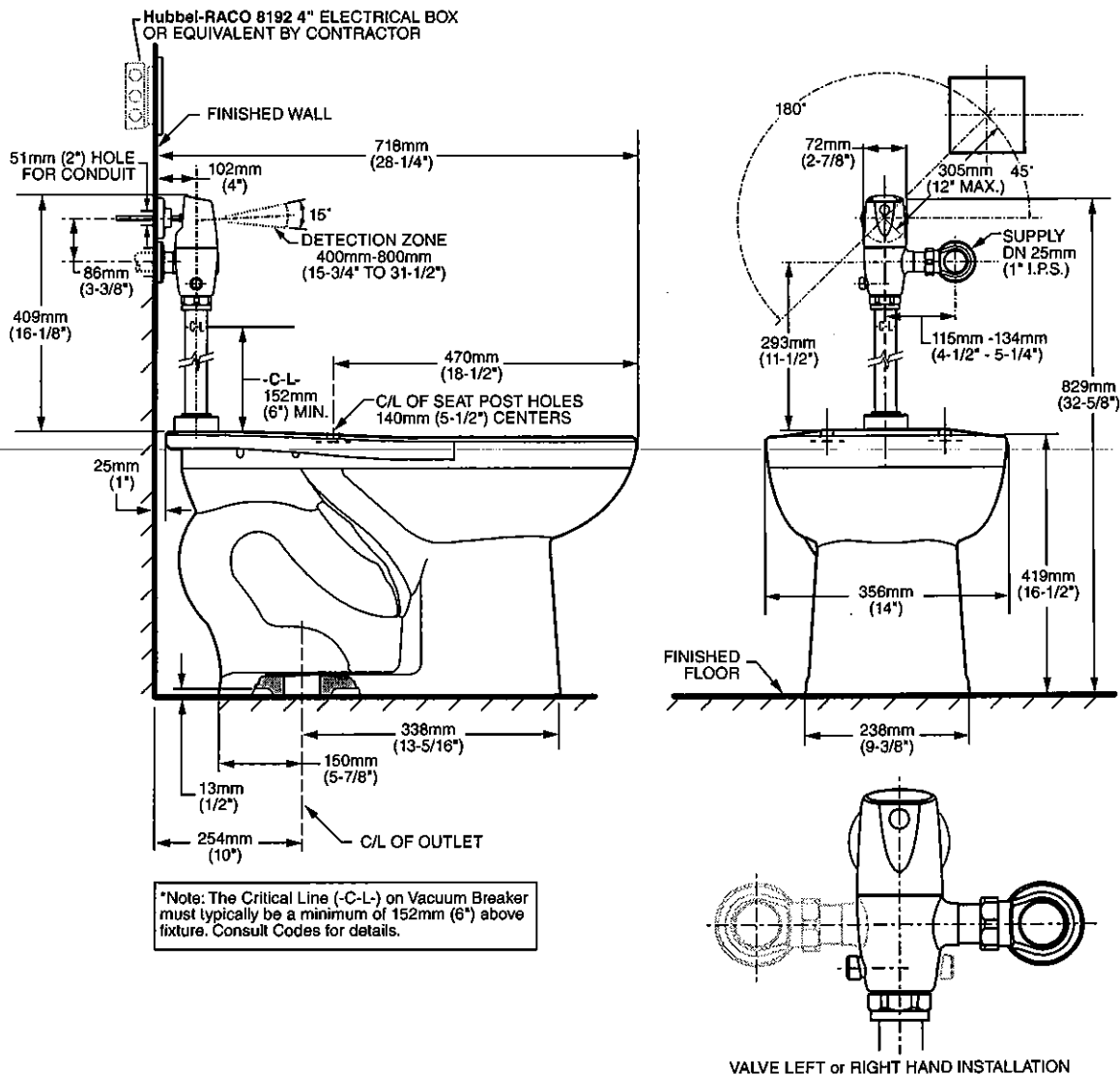
Fixture Compliance Certifications -

Meets or Exceeds the Following Specifications:

- ASME A112.19.2-2008 / CSA B45.1-08 for Vitreous China Fixtures

Valve Listings:

- ASSE 1037
- ANSI/ASME A112.19.2
- ADA Compliant



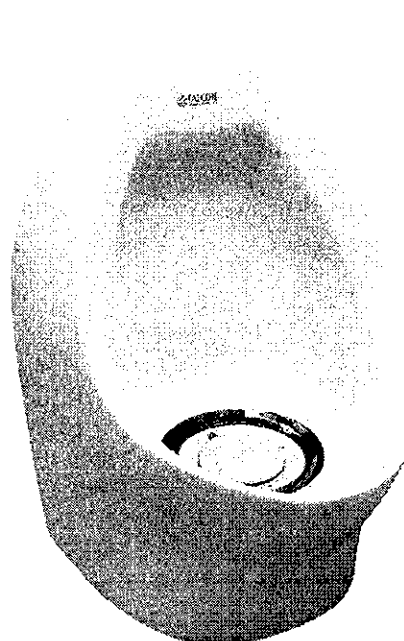
MEETS THE AMERICANS WITH DISABILITIES ACT GUIDELINES AND ANSI A117.1 REQUIREMENTS FOR ACCESSIBLE AND USABLE BUILDING FACILITIES - CHECK LOCAL CODES.

NOTES:

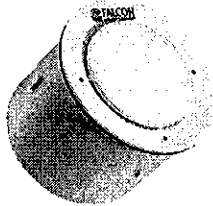
TO COMPLY WITH AREA CODE GOVERNING THE HEIGHT OF VACUUM BREAKER ON THE FLUSHOMETER VALVE, THE PLUMBER MUST VERIFY DIMENSIONS SHOWN FOR SUPPLY ROUGHING. THIS TOILET DESIGNED TO ROUGH-IN AT A MINIMUM DIMENSION OF 254MM (10") AND A MAXIMUM DIMENSION OF 305MM (12") FROM FINISHED WALL TO C/L OF OUTLET.

IMPORTANT: Dimensions of fixtures are nominal and may vary within the range of tolerances established by ANSI Standard A112.19.2. These measurements are subject to change or cancellation. No responsibility is assumed for use of superseded or voided pages.

MODEL F-5000 SPECIFICATIONS UR-1



**WATERFREE URINAL
VITREOUS CHINA**



SEALED CARTRIDGE

DESCRIPTION

The Falcon model F-5000 is a vitreous china wall hung, wall outlet waterfree urinal. It requires no flush valve or water supply, and plumbs to standard drain connections. The F-5000 utilizes a replaceable sealed locking cartridge, with bayonet tabs, is made of recyclable ABS plastic and utilizes a 100% biodegradable liquid sealant.

SPECIFICATIONS

- Vitreous china fixture
- Housing (H-1, Mod. 3)
- Cartridge kit*
- One piece wall bracket with anchors
- Uni-coupler
- Drain line test cap
- Instruction sheet

*Additional cartridges sold separately

COLORS

Standard white; available in other colors

NOMINAL DIMENSIONS (W x H x D)

13 x 19.625 x 14 inches [330 x 498 x 356 mm]

APPROXIMATE WEIGHT

27 lbs. [12.3 kg]

COMPLIANCE CERTIFICATIONS

Meets ANSI/ASME A112.19.19-2006 for vitreous china non-water urinals. Meets the American Disabilities Act guidelines and ANSI A117.1 for accessible and usable buildings and facilities. Complies with International Plumbing Code and National Standard Plumbing Code.



HOUSING

The factory installed housing is comprised of a bowl with a tailpiece and a mounting flange of 316 Stainless Steel. It is sealed into the bowl drain opening by a profile gasket made of a synthetic rubber. The housing and gasket are compressed into the drain opening by the installation of a retaining nut, and a friction washer.

CARTRIDGE KIT

The patented cartridge is engineered to last an average of three to four months in typical installations and to receive urine through drain holes. Urine passes through an immiscible layer of biodegradable sealant, continues through a siphon trap system, and flows out through a baffle to prevent the loss of sealant. A discharge tube in the housing directs the flow of urine into the building drain system. The cartridge is designed as a replaceable component when its function has been exhausted.

DRAIN COUPLER

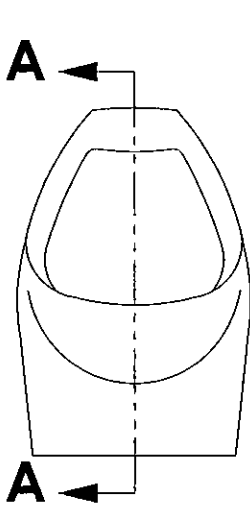
The housing is connected to the building drain system by means of the Falcon Uni-coupler. The coupler conforms to NSF 14 for plastic pipes and fittings. It is designed to be used in both retrofit and new installations. It offers a variety of configurations which allow it to couple to most existing drain openings.

DRAIN CONNECTION AND MATERIAL

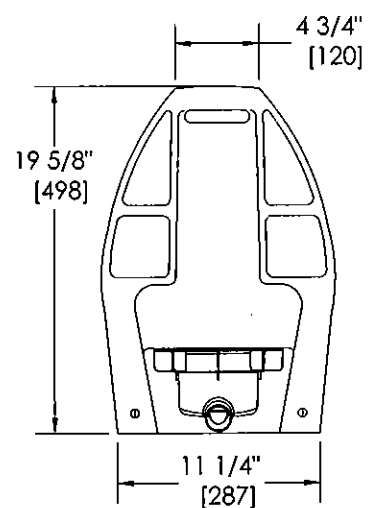
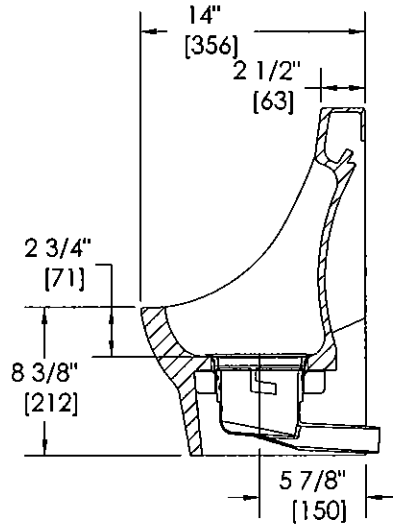
Installs on standard 2-inch drain connections with spud flange or threaded nipple. Suitable DWV materials include cast iron, galvanized steel, ABS, and PVC. Waterfree urinals are not recommended for installation on copper DWV due to copper's susceptibility to corrosion.

The information in this document is subject to change without notice.

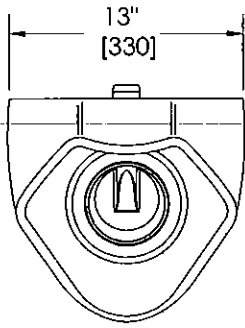
MODEL F-5000 SPECIFICATIONS



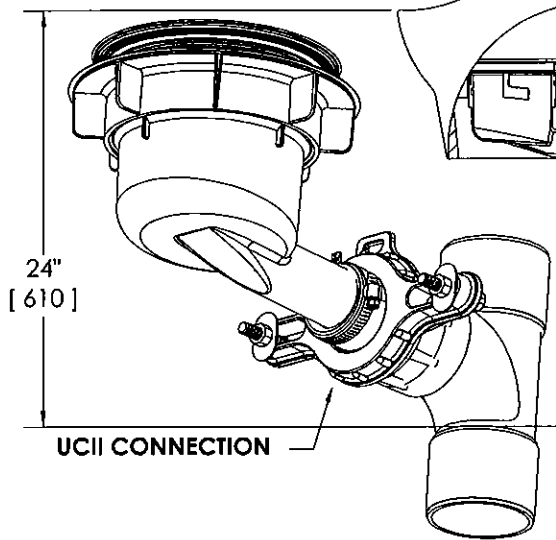
FRONT VIEW



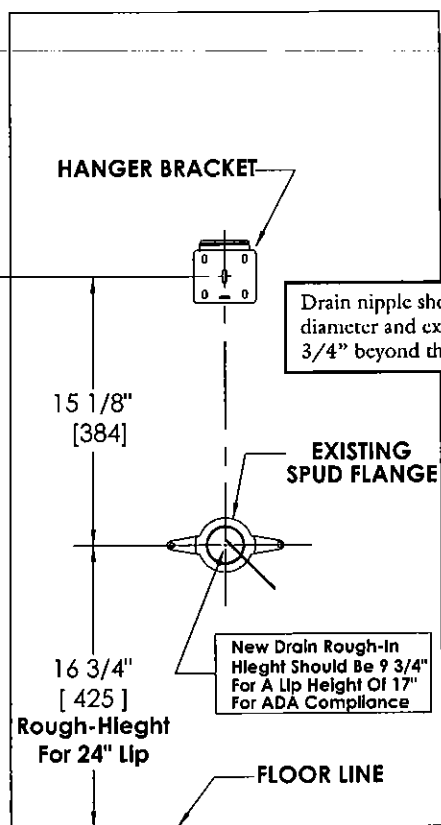
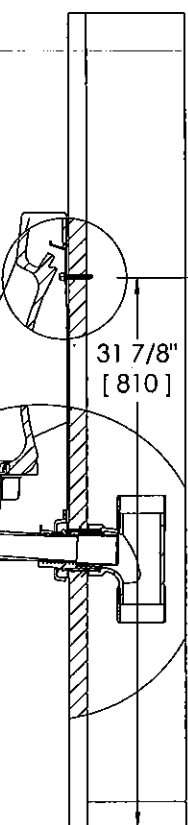
BACK VIEW



TOP VIEW



UCII CONNECTION



ROUGH-IN & BRACKET LOCATION

Revised 10/18/06

The information in this document is subject to change without notice.



Falcon Waterfree Technologies, LLC
 Tel: 866.275.3718 (toll-free) • Fax: 616.954.3579 • info@falconwaterfree.com

www.falconwaterfree.com

© Copyright 2008 Falcon Waterfree Technologies, LLC. All rights reserved.

012 (07/08)

DESCRIPTION

- Metal and brass construction with Chrome plated finish, also in Classic Brushed Nickel (CBN) finish
- Pressure balancing cycle valve
- Contains: hand-held shower, with non-positive pause, 30" slide bar, drop ell, vacuum breaker, 69" metal hose and mounting hardware
- **Slide bar is NOT DESIGNED TO BE A GRAB BAR**
- Supplied with vandal resistant screws
- Quick cleaning rubber nozzles

OPERATION

- Temperature valve has ADA compliant lever style handle
- Handle operates counterclockwise through a 270° arc with off at 6 o'clock, and maximum hot at the 9 o'clock position. Shut off in clockwise direction
- Adjustable temperature limit stop
- Pressure balancing mechanism maintains selected discharge temperature to ± 3.6°
- Single function spray pattern
- Easy to operate pause button (reduces the flow of water to a trickle)


FLOW

- T8346 (2.5gpm/9.5 lpm) - Chrome finish
- T8346CBN (2.5gpm/9.5 lpm) - CBN finish
- T8346EP15 (1.5gpm/5.7 lpm) - Chrome finish; **WaterSense® Certified**
- T8346EP15CBN (1.5gpm/5.7 lpm) - CBN finish; **WaterSense® Certified**

CARTRIDGE

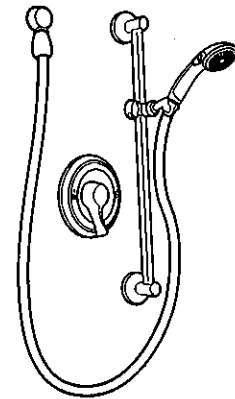
- Pair with a brass Posi-Temp rough-in valve:
- 8370HD*: 1/2" CC connection without integral stops
- 8371HD*: 1/2" CC connection with integral stops
- 8372HD*: 1/2" IPS connection with integral stops
- 8373HD*: 1/2" PEX connection with integral stops
- 8374HD*: 1/2" CPVC connection with integral stops
- 8375HD*: 1/2" UPONOR connection with integral stops
- *Includes the 1222HD Brass Posi-Temp Cartridge
- Accommodates back to back installations

STANDARDS

- Third party certified to WaterSense® (only applies to 1.5 gpm) ASME A112.18.1/CSA B125.1 and all applicable requirements referenced therein
- **ADA**  for lever handle

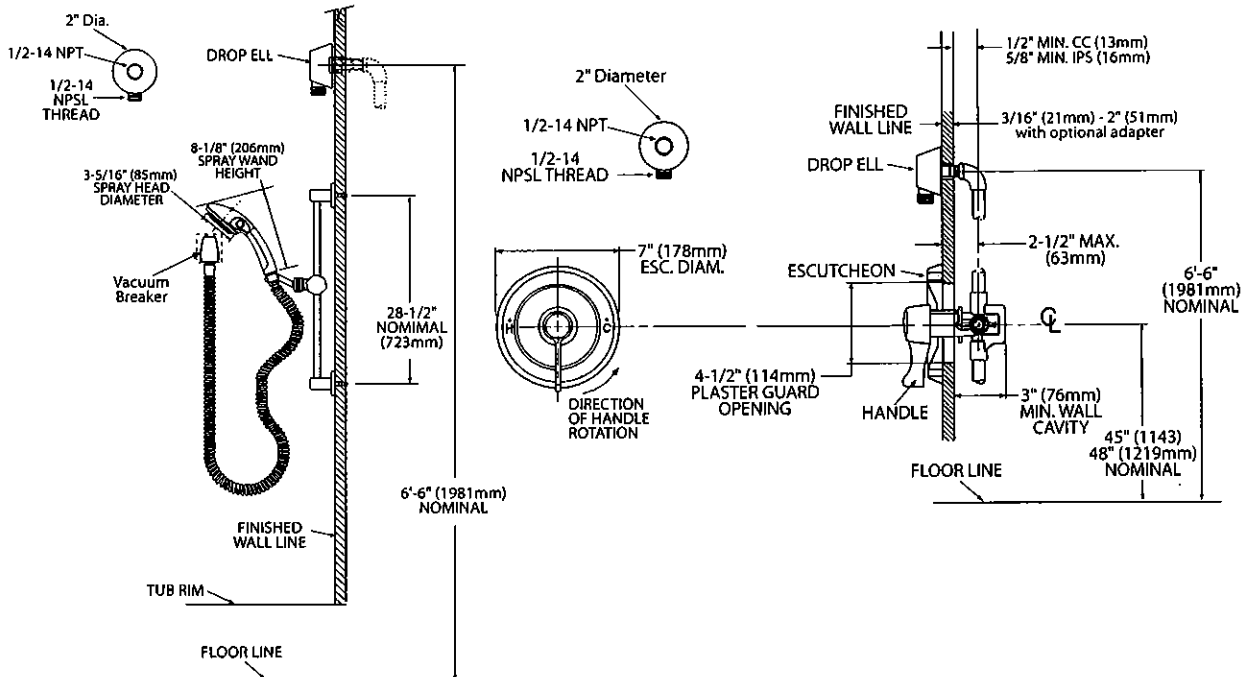
WARRANTY

- Warranted for 5 years against material or manufacturing defects



Single-Handle Posi-Temp Handheld Shower System

Model: T8346, T8346CBN



*Refer to (ADAAG) guidelines or local codes for proper ADA installation.

CRITICAL DIMENSIONS

(DO NOT SCALE)



model 1011MS

Wall-Mounted Drinking Fountain

FEATURES & BENEFITS

BACK PANEL

Stainless steel back panel helps to protect the wall from inadvertent splashing, and its decorative satin finish increases location visibility and completes the fountains attractive appearance.

QUALITY CONTROL

Both fountains are pre-built and fully water and pressure tested to ensure no leaks and proper function for reduced installation time and added peace of mind.

CONSTRUCTION

18 gauge Type 304 Stainless Steel swirl design bowl, 14 gauge Type 304 Stainless Steel bracket, and a vandal-resistant bottom plate provides a long lasting unit with added peace of mind.

BUBBLER HEAD

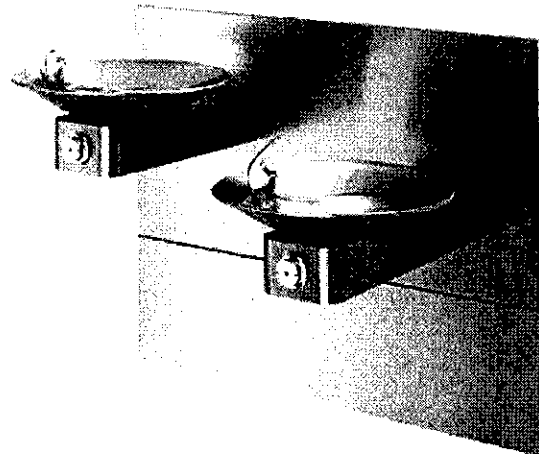
Polished chrome-plated brass bubbler head with integral laminar flow prevents splashing and provides a superior flow pattern. The integral basin shank and inserted roll pin adds vandal resistance strength to the design, and the shielded angled stream orifice produces a steady sanitary source of water.

MOUNTING

Galvanized frame and 10 gauge surface plate provide the maximum mounting strength for the 'Hi-Lo' MS style Haws drinking fountains.

PUSH BUTTON

With its patented (Pat. # 6,981,692) stainless steel, push-button activated valve assembly which allows for front access stream adjustment as well as cartridge and strainer access, this fountain offers 100% lead free waterways. The valve works at an operating pressure range of 30 to 90 psi (2.1 to 6.2 bar).



SPECIFICATIONS

Model 1011MS "Hi-Lo" wall mounted barrier-free drinking fountain shall include dual 18 gauge Type 304 Stainless Steel satin finish basins with integral swirl design, 14 gauge Type 304 Stainless Steel wall bracket, 100% lead-free waterways, push-button operated stainless steel valves with front-accessible cartridge and flow adjustment, polished chrome-plated brass vandal-resistant bubbler heads with integral laminar anti-squirt flow, chrome-plated brass vandal-resistant waste strainers, vandal-resistant bottom plates, stainless steel satin finish back and access panels allowing for front access of P-trap and stop, in-wall mounting frame, high and low fountain mounting levels, and 1-1/4" O.D. (3.2 cm) waste pipes. REQUIRES MODEL MTGFR.DF2 PRICED SEPARATELY.

OPTIONS

- ➔ Filter: Model 6426, 12" x 2" (30.5 x 5.1 cm), in-line lead removal element that reduces lead from incoming water supply.
- ☐ Chiller: Model HCR8, 8 gph (30.3 L) remote water chiller provides instantaneous cooling to meet a continuous demand for chilled water.
- ☐ Cone Touch Skirt: Model SK3, satin finish stainless steel cone touch skirt for installation on high unit to comply with ADA protruding objects guidelines.

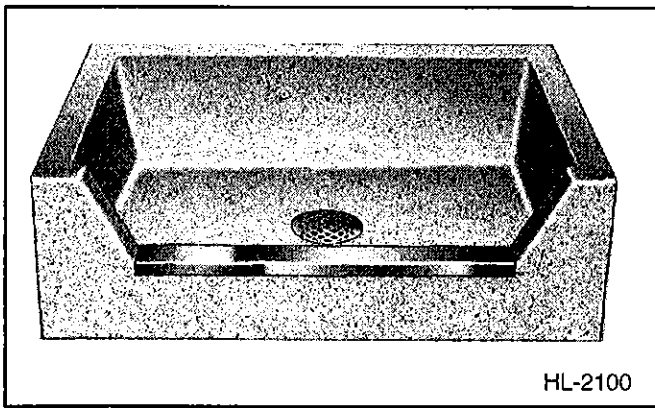
To see all options for this model, visit www.hawsc.com

APPLICATIONS

Perfect for either public or private indoor/outdoor settings, Model 1011MS is a great fit in areas where aesthetics are important to the overall appeal of the architecture. This series is precisely mounted, making it a nice addition to any surrounding. Beautiful satin finish helps to maintain the fountains overall appeal so it always remains looking as new as it did when it was installed. Specifically, this type of wall mounted drinking fountain may be placed in settings such as: schools and other locations in and around office buildings where the temperature remains above freezing.

Model meets all current Federal Regulations for the disabled including those in the Americans with Disabilities Act. Haws manufactures drinking fountains and electric water coolers to be lead-free by all known definitions including NSF/ANSI Standard 61, Section 9, NSF/ANSI 372, California Proposition 65, and the Federal Safe Drinking Water Act. Product is compliant to California Health and Safety Code 116875 (AB 1953-2006) as evaluated by CSA International.



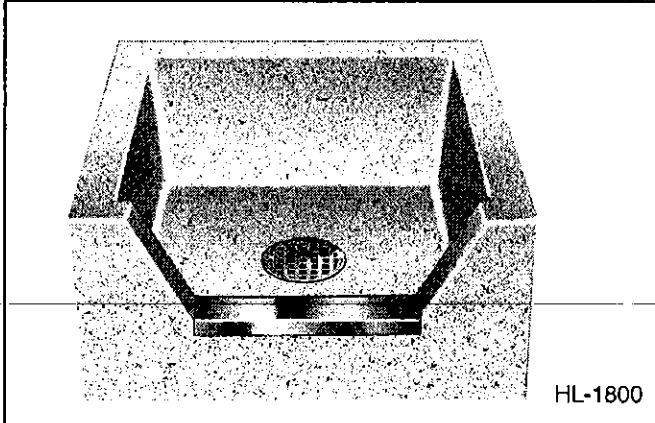


HL-2100

MSK-1

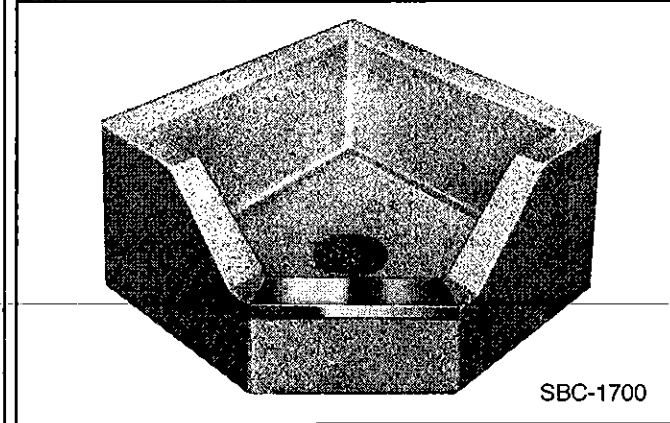
STERN
WILLIAMS
HILOW[®] CORLOW[®]
 MOP SERVICE BASINS
ARCHITECTURAL SPECIFICATIONS

HILOW[®]



HL-1800

CORLOW[®]



SBC-1700

6" FRONT DROP WITH STAINLESS STEEL CAP

MODEL	SIZE
HL-1800	24"x24"x12"
HL-1900	32"x32"x12"
HL-2000	36"x36"x12"
HL-2100	36"x24"x12"

6" FRONT DROP WITH STAINLESS STEEL CAP ALL SIDES

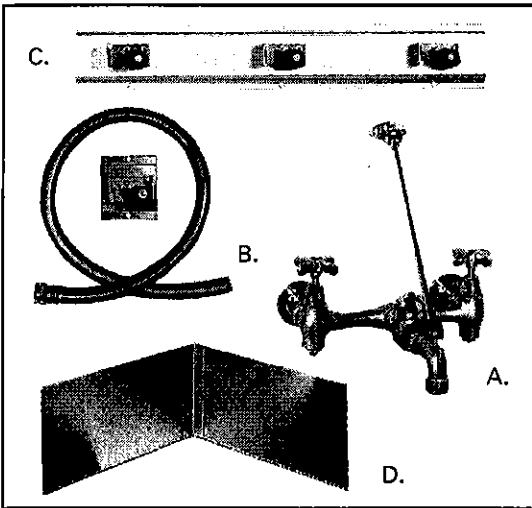
MODEL	SIZE
HL-1810	24"x24"x12"
HL-1910	32"x32"x12"
HL-2010	36"x36"x12"
HL-2110	36"x24"x12"

6" FRONT DROP WITH STAINLESS STEEL CAP

MODEL	SIZE
SBC-1700	24"x24"x12"
SBC-1702*	24"x24"x12"
SBC-1725	32"x32"x12"
SBC-1750	36"x36"x12"

*NOTE: 2 fling flanges extending 1" above shoulder on 2 sides.

Model No. () Size (), as manufactured by Stern-Williams Co., Inc. Shoulders shall not be less than 9-3/4" high inside measurement, and not less than 1-1/4" wide. All models have 6" drop at threshold. Drain shall be cast brass with stainless steel strainer cast integral and shall provide for a caulked lead connection not less than 1" deep to a 3" pipe. Receptor composed of pearl gray marble chips and white Portland cement ground smooth, grouted and sealed to resist stains. Stainless steel cap of one piece 20 ga. 302 stainless steel cast integral on threshold.



QUALITY OPTIONAL FITTINGS

- A. **T-10-VB** Mop-Service sink fitting with vacuum breaker, adjustable top brace, 3/4" hose thread on spout with bucket hook inlets 8" on center, chrome finish.
T-15 VB same as above with polished chrome finish.
- B. **T-35** Hose and wall hook. Hose 36" long, with 3/4" chrome couplings. Wall bracket of stainless steel.
- C. **T-40** Stainless Steel Mop Hanger of stainless steel with #4 finish. . . 24" long, with 3 rubber spring loaded grips.
- D. **BP** Splash Catcher Panels of 20 ga. type 304 stainless steel.

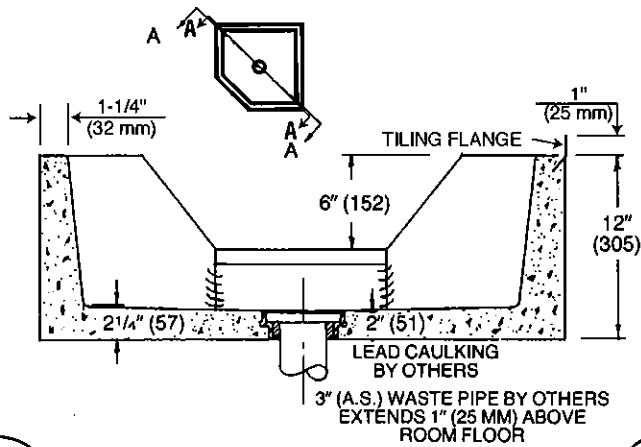
JOB

ARCHITECT

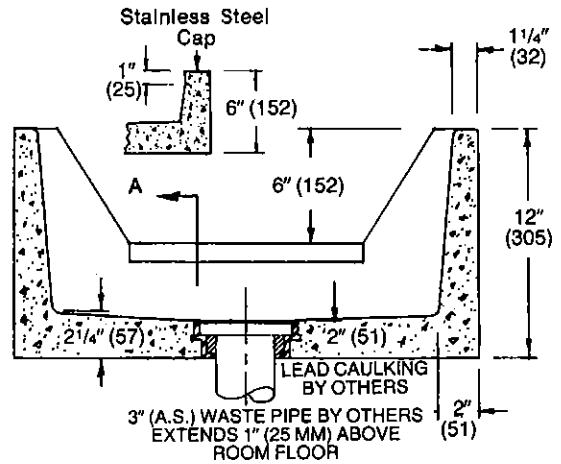
LOCATION

ENGINEER

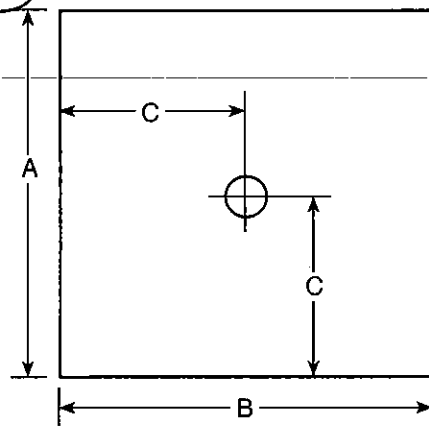
CROSS SECTION SERIES 1700



CROSS SECTION SERIES 1800, 1900, 2000, 2100



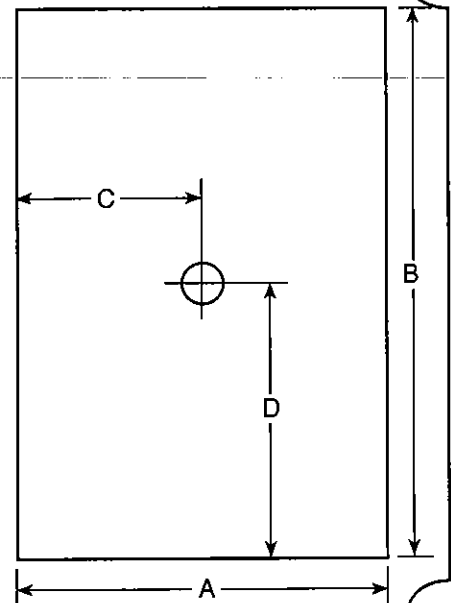
ROUGH-IN SERIES 1800, 1900, 2000, 2100



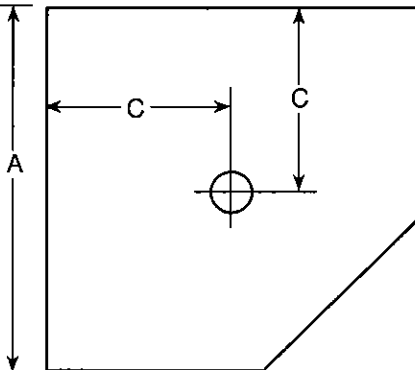
MODEL	A		B		C	
	IN	MM	IN	MM	IN	MM
1800	24	610	24	610	12	305
1900	32	813	32	813	16	406
2000	36	915	36	915	18	457

MODEL	A		B		C	
	IN	MM	IN	MM	IN	MM
1810	24	610	24	610	12	305
1910	32	813	32	813	16	406
2010	36	915	36	915	18	457

MODEL	A		B		C		D	
	IN	MM	IN	MM	IN	MM	IN	MM
2100	24	610	36	915	12	305	18	457
2110	24	610	36	915	12	305	18	457



ROUGH-IN MODEL 1700 SERIES



MODEL	A		B		C	
	IN	MM	IN	MM	IN	MM
SBC-1700	24	610	24	610	12	305
SBC-1702	24	610	24	610	12	305
SBC-1725	32	813	32	813	12	305
SBC-1750	36	915	36	915	12	305

Note: All dimensions subject to manufacturing variance of plus or minus 1/4" (6 MM).

MECHANICAL FAUCETS

897-CP

MSK-1

**CHICAGO
FAUCETS**

a Gaborit company

Manual and Metering Faucets

Product Type

Wall Mounted 8" Body, Adjustable Arms 7 5/8" - 8 3/4" Hot and Cold Water Sink Faucet

Features & Specifications

- 8" Body, Adjustable Arms 7 5/8" - 8 3/4"
- 2-3/8" Lever Handle
- Quatern Compression Operating Cartridge
- 1/2" NPT Adjustable Female Union Nut Supply Arms
- 3/4" Male Hose Thread Outlet
- Integral Stop Valves for Servicing the product
- Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications
- Vacuum Breaker Spout with Pail Hook and Wall Brace
- Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications
- CFNow! Item Ships in 5 Days

Job Name _____

Item Number _____

Section/Tag _____

Model Specified _____

Architect _____

Engineer _____

Contractor _____

Submitted as Shown Submitted with Variations

Date _____

Performance Specification

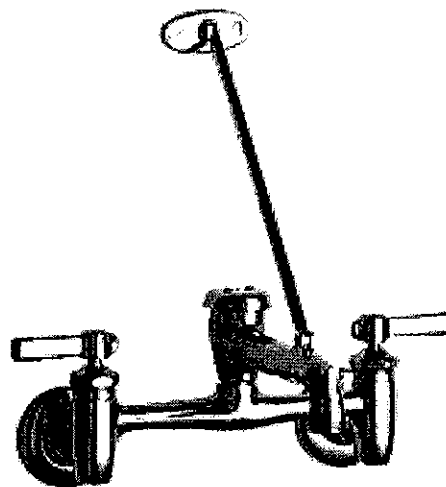
- Rated Operating Pressure: 20-125 PSI
- Rated Operating Temperature: 40-140°F

Warranty

- Lifetime Limited Faucet Warranty
- 5-Year Limited Cartridge Warranty
- 1-Year Limited Finish Warranty

Codes & Standards

- ASME A112.18.1/CSA B125.1
- ADA ANSI/ICC A117.1



2100 South Clearwater Drive
Des Plaines, IL
P: 847/803-5000
F: 847/803-5454
Technical: 800/TEC-TRUE
www.chicagofaucets.com

897-CP

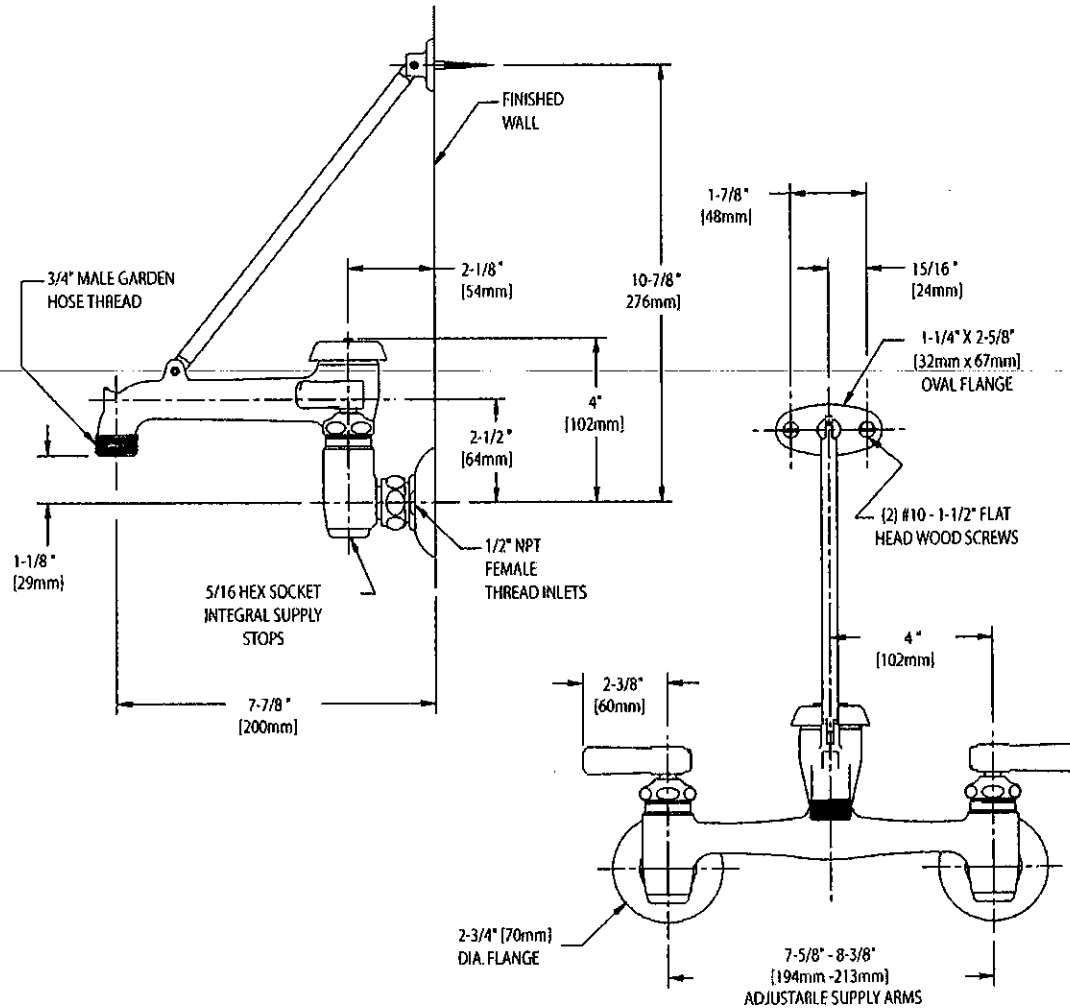
Manual and Metering Faucets



a Geberit company

Architect/Engineer Specification

Chicago Faucets No. 897-CP, Wall Mounted 8" Body, Adjustable Arms 7 5/8" - 8 3/4" Hot and Cold Water Sink Faucet, Chrome Plated solid brass construction. Vacuum Breaker Spout with Pail Hook and Wall Brace. 2-3/8" Metal Lever handle(s) with Eight Point Tapered Broach and Secured Blue and Red Buttons. Quatum™ rebuildable compression cartridge, opens and closes 90°, closes with water pressure, features square tapered stem. 1/2" NPT Adjustable Female Union Nut Supply Arms. 3/4" Male Hose Thread Outlet. Integral Stop Valves for Servicing the product. Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications. Atmospheric Vacuum Breaker, Not Intended for Continuous Pressure Applications. Secondary Control Valve: Vacuum Breaker Spout with Pail Hook and Wall Brace. .



Operation and Maintenance

Installation should be in accordance with local plumbing codes. Flush all pipes thoroughly before installation. After installation, remove spout outlet or flow control and flush faucet thoroughly to clear any debris. Care should be taken when cleaning the product. Do not use abrasive cleaners, chemicals or solvents as they can result in surface damage. Use mild soap and warm water for cleaning and protecting the life of Chicago Faucet products. For specific operation and maintenance refer to the installation instructions and repair parts documents that are located at www.chicagofaucets.com.

Chicago Faucets, member of the Geberit Group, is the leading brand of commercial faucets and fittings in the United States, offering a complete range of products for schools, laboratories, hospitals, office buildings, food service, airports and sport facilities. Call 1.800.TECTRUE or 1.847.803.5000 Option 1 for installation or other technical assistance.



2100 South Clearwater Drive
Des Plaines, IL
P: 847/803-5000
F: 847/803-5454
Technical: 800/TEC-TRUE
www.chicagofaucets.com



Z1900

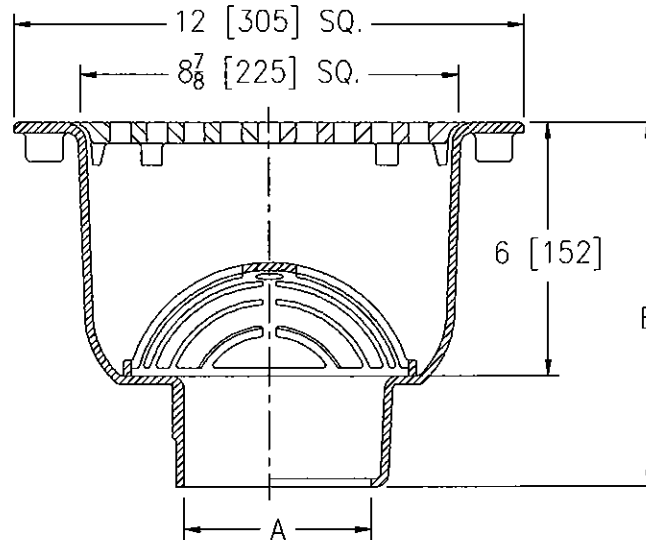
FD-1

SPECIFICATION SHEET

**12 x 12 [305 x 305] A.R.E. SANI-FLOR
RECEPTOR 6 [152] SUMP DEPTH**

TAG _____

Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



A Pipe Size In.	Approx. Wt. Lbs. [kg]	Grate Open Area Sq. In. [cm ²]
2-3-4 [51-76-102]	32 [15]	31 [200]

ENGINEERING SPECIFICATION: ZURN Z1900

Sani-Flor Receptor 12 x 12 x 6 [305 x 305 x 152] deep cast iron body and square, light-duty grate with 1/2 [13] slotted openings, white acid resisting porcelain enamel interior and top, complete with white ABS anti-splash interior bottom dome strainer.

OPTIONS (Check/specify appropriate options)

PIPE SIZE

- 2-3-4 [51-76-102]
- 2-3-4 [51-76-102]
- 2-3-4 [51-76-102]

(Specify size/type) **OUTLET**

- IC Inside Caulk
- NH No-Hub
- NL Neo-Loc

'E' BODY HT. DIMENSION

Z	ZN / ZS
8-5/8 [219]	9-1/8 [232]
8-5/8 [219]	9-1/8 [232]
8 [203]	8-1/2 [216]

PREFIXES

- Z Cast Iron Body with White A.R.E. Interior*
- ZN Cast Iron Body with White A.R.E. Interior, 12-1/2 [317] Square N.B. Frame and Full Grate with 1/2 [13] Openings (Add 1/2 [13] to 12 [305] Dim.)
- ZS Cast Iron Body with White A.R.E. Interior, 12-1/2 [317] Square Stainless Steel Frame and Full Grate with 1/2 [13] Openings (Add 1/2 [13] to 12 [305] Dim.)

SUFFIXES

- DX Dex-O-Tex Flange (ZN Only)
- HD Stainless Steel Frame w/ X-Heavy Duty Stainless Steel Grate (ZS Only)
- HP Heel-Proof Grate (ZN Only)
- K Anchor Flange
- KC Anchor Flange with Seepage Holes and Clamp Collar
- LD (Less) Bottom Dome Strainer
- P 1/2 [13] Trap Primer Connection (See Z1023)
- SA Stabilizer Assembly (See Z1903)
- TC Neo-Loc Test Cap Gasket (2-4 [51-102] NL Bottom Outlet Only)
- VPS Vandal-Proof Strainer
- 1 (Less) Grate
- 2 1/2 Grate
- 3 3/4 Grate
- 4 Full Grate w/ Center Opening (2 [51] Dia. for Z) and (3-1/32 [77] Square for ZN & ZS)
- 5 Grate w/ 4 [102] Dia. x 3-3/4 [95] High Funnel
- 6 Grate w/ 6 [152] Dia. x 6 [152] High Funnel
- 7 Grate w/ 6-3/4 x 3 x 1 [171 x 76 x 25] High Oval Funnel
- 8 Grate w/ 8-7/8 x 3-5/8 x 3-3/4 [225 x 92 x 95] High Oval Funnel
- 9 Angle Frame and Grate (ZN Only)
- 11 Vandal-Proof Secured Top (ZN & ZS Only)
- 12 Depressed Aluminum Grate (ZN Only)
- 15 Solid Loose Set Cover (Z & ZN Only)
- 16 1/2 Solid Loose Set Cover (Z & ZN Only)
- 17 3/4 Solid Loose Set Cover (Z & ZN Only)
- 18 Solid Loose Set Cover w/ Center Opening (2-1/4 [57] Square for Z Only) and (3 [76] Square for ZN Only)
- 19 Full Hinged Grate (ZN Only)
- 23 Aluminum Bucket
- 25 White A.R.C. Bucket
- 31 Stainless Steel Mesh Liner for Bucket
- 32 Aluminum Dome Strainer
- 33 White A.R.C. Anti-Splash Bottom Dome Strainer
- 34 N.B. Anti-Splash Bottom Dome Strainer

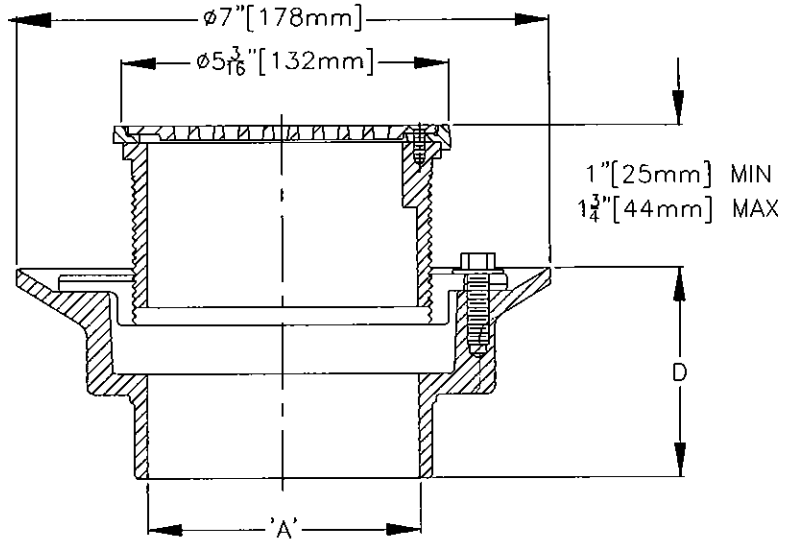
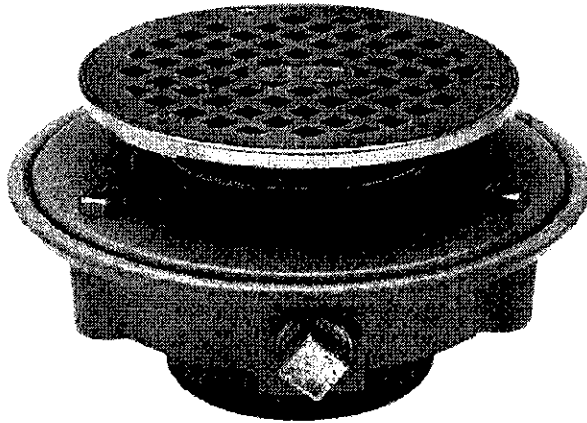
*REGULARLY FURNISHED UNLESS OTHERWISE SPECIFIED

REV. L	DATE: 9/20/11	C.N. NO. 122166
DWG. NO. 59341	PRODUCT NO. Z1900	

ZURN INDUSTRIES, LLC. ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514

Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com

In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292



FD-2321 Low Profile Adjustable Finished Area Floor Drain with Square Top

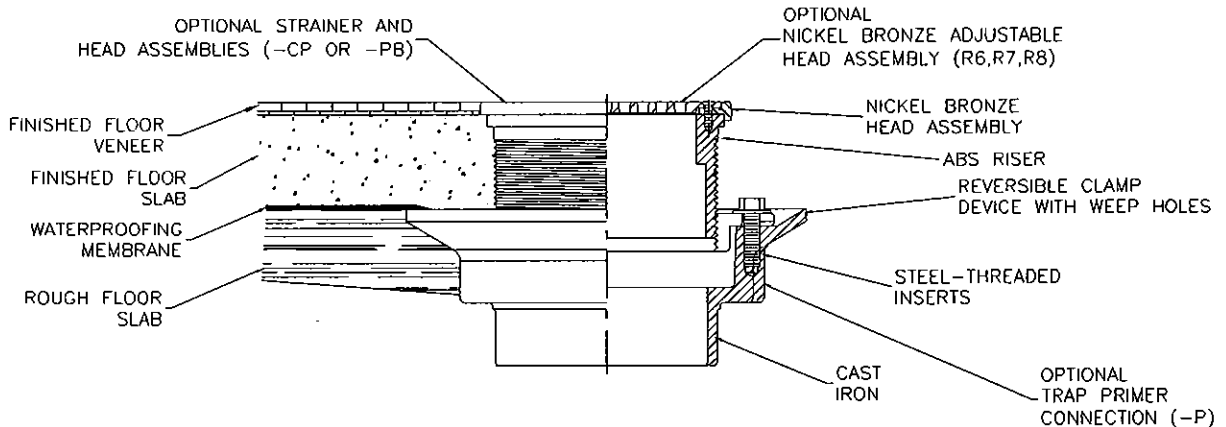
Recommended for finished floor areas where a membrane is generally used. This drain is designed for foot traffic and light cart applications. Complete with cast iron body, clamping collar and adjustable nickel bronze strainer assembly. 1/2" [13mm] trap primer connection provided with plug.

OPTIONS:

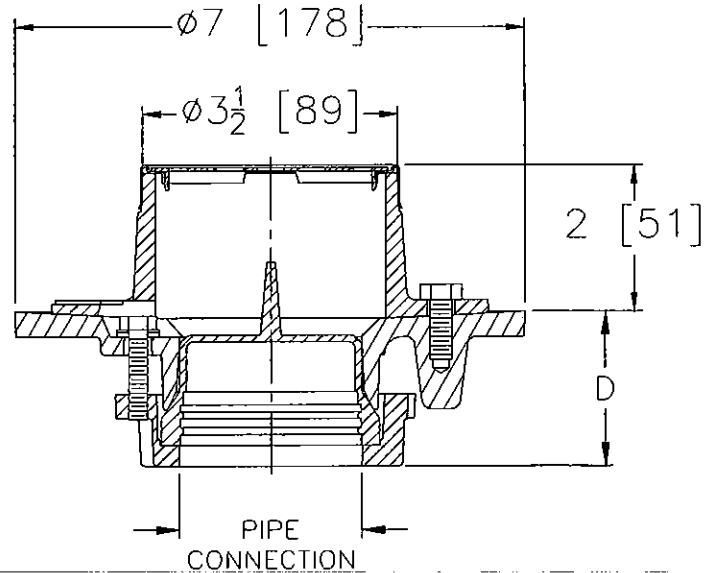
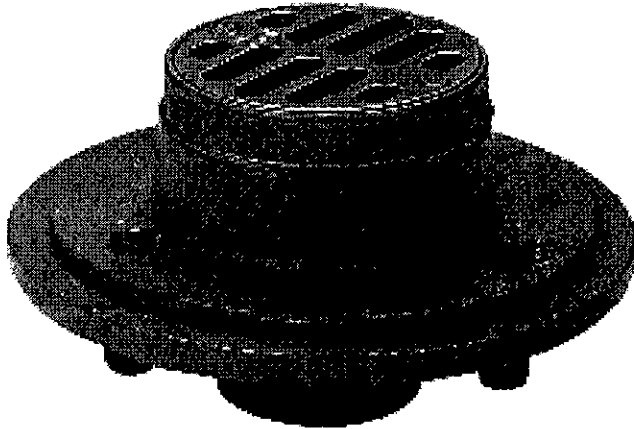
- ✓ -CP Chrome Plated Strainer
- -PB Polished Brass Strainer
- -R6 6" Dia. Nickel Head Assembly
- -R7 7" Dia. Nickel Head Assembly
- -R8 8" Dia. Nickel Head Assembly
- -VP Vandal Proof

Product	Connection 'A'	D
✓ FD-2321-NH2	2"[51mm] No-Hub	2-1/2"[64]
— FD-2321-NH3	3"[76mm] No Hub	2-1/2"[64]
— FD-2321-NH4	4"[102mm] No-Hub	2-1/2"[64]
— FD-2321-PO2	2"[51mm] Push-On	3-1/3"[85]
— FD-2321-PO3	3"[76mm] Push-On	4-1/3"[110]
— FD-2321-IP2	2"[51mm] IPS	2-1/2"[64]
— FD-2321-IP3	3"[76mm] IPS	2"[51]

Typical Installation



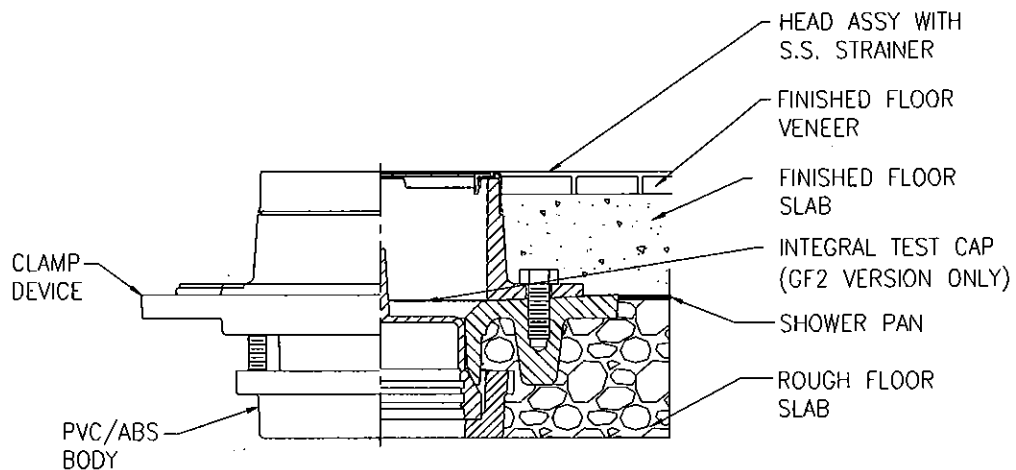
Dimensional Data (inches and [mm]) are Subject to Manufacturing Tolerances and Change Without Notice



Product	'A' Outlet Connection
___ FD2251-CI-NH2	2 [51] NO-HUB
___ FD2251-CI-QF2	2 [51] QUICK-FIT

FD2251-CI Cast Iron Shower Drain

Recommended for shower area installations where a water-proofing membrane is used. Each body is furnished with a slotted secured strainer and a 7 [178] diameter cast iron body and top assembly with weep holes.



Typical installation

ZURN INDUSTRIES, LLC. ♦ SPECIFICATION DRAINAGE OPERATION ♦ 1801 Pittsburgh Ave. ♦ Erie, PA 16514
Phone: 814/455-0921 ♦ Fax: 814/454-7929 ♦ World Wide Web: www.zurn.com
In Canada: ZURN INDUSTRIES LIMITED ♦ 3544 Nashua Drive ♦ Mississauga, Ontario L4V1L2 ♦ Phone: 905/405-8272 Fax: 905/405-1292