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BuildingName
The Description of the Project
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SPECIFICATION DIVISION 22

NUMBER SECTION DESCRIPTION

DIVISION 22 PLUMBING
SECTION 224200 - PLUMBING FIXTURES

END OF CONTENTS TABLE

DIVISION 22 PLUMBING
SECTION 224200 - PLUMBING FIXTURES

APRIL 2018: REVISED TO LIST MFR.S FROM PML. R BENEDEK

AUGUST 2019: REVISED TO INCLUDE MICHIGAN MEDICINE HEALTHCARE SPECIFIC FIXTURE REQUIREMENTS.

AUG 2021: REVISED TO INCLUDE ADDITIONAL EMERGENCY FIXTURES

DECEMBER 2022: REVISED TO INCLUDE LOWER FLOW FIXTURES PER CARBON NEUTRALITY INITIATIVES

REVISED TO INCLUDE HEALTHCARE HANDWASHING SINK, TYPE SINK-F. ADDED CHICAGO AS ACCEPTABLE MANUF FOR EEWS-C COMBINATION EYE WASH/ FAUCET

SEPTEMBER 2026: REVISED TO INCLUDE NON REFRIGERATED WATER COOLER WC-D AND MOVED GARBAGE DISPOSAL TO HIDDEN TEXT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

INCLUDE PARAGRAPH 1.1.A AND B IN EVERY SPECIFICATION SECTION. EDIT RELATED SECTIONS 1.1.B TO MAKE IT PROJECT SPECIFIC.

A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 1 Specification Sections, and other applicable Specification Sections including the Related Sections listed below, apply to this Section.

B. Related Sections:

1. Section 123553 Laboratory Casework
2. Section 115313 Laboratory Fume Hoods
3. Section 220500 Common Work Results for Mechanical
4. Section 221113 Piping Materials and Methods
5. Section 220523 Valves
6. Division 26: Electrical.

SPEC EDITOR: WHEN EDITING THIS SPEC TO MAKE IT PROJECT SPECIFIC, REVISE THE SUMMARY SECTION BELOW ACCORDINGLY.

1.2 SUMMARY

A. Section Includes:

1. Water Closets
2. Water Closet Seats.
3. W.C. and Urinal Wall Carriers.
4. Urinals.
5. W.C. and Urinal Flush Valves.
6. Lavatories, Sinks, Service Sinks, and related Faucets and Trim.

7. Lavatory Support Systems.
8. Under-Sink Waste and Supply Pipe Guards.
9. Thermostatic Mixing Valves (for hand-wash facilities).
10. Scrub Sinks
11. Shower Heads and Shower Control Valves.
12. Electric Water Coolers.
13. Emergency Fixtures, Tempering Valve, Alarm System.
14. Washing Machine Valve Box.
15. Garbage Disposal
16. Supply Tubes and Stops.
17. Installation of fixtures including fixtures supplied by others for casework and fume hoods.

1.3 SUBMITTALS

A. Product Data: For each type of fixture product.

1. Construction details, material descriptions, rated capacities, operating characteristics dimensions of individual components and profiles, and finishes for fixtures.
2. Water consumption data.
3. Wiring diagrams for power, signal, and control wiring
4. Proof of compliance to NSF/ANSI 61.

1.4 QUALITY ASSURANCE

SPEC EDITOR: RETAIN PARAGRAPHS A AND B IN EVERY PROJECT SPECIFICATION.

A. Manufacturers and Products: The products and manufacturers specified in this Section establish the standard of quality for the Work. Subject to compliance with all requirements, provide specified products from the manufacturers named in Part 2.

B. The Contractor shall verify and resolve compatibility between separate components (e.g. that lavatory hole quantity and centering match that of the specified faucet, supports are compatible with respective urinals and water closets, etc.). **Model numbers, when provided, are partial model numbers for identifying style. Provide fixtures that meet all the specified requirements.**

SPEC EDITOR: REVISE THE REFERENCE STANDARDS FOR PROJECT REQUIREMENTS. INCLUDE CURRENT APPLICABLE CODES WITH YEAR/VERSION ON TITLE SHEET IN DRAWING SET OR IN SPECIFICATION BOOK FRONT END.

C. Reference Standards: Products in this section shall be built, tested, and installed in compliance with the Michigan Plumbing Code and the following quality assurance standards; latest editions, unless noted otherwise.

1. National Sanitation Foundation NSF/ANSI-61 (potable drinking water) and NSF-61 Annex G (listed as ≤ 0.25% weighted average lead content) (and/or NSF/ANSI-372) and Annex F.
2. U.S Safe Drinking Water Act.
3. ANSI Z358.1 Standard for Emergency Eyewash and Shower Equipment
4. ADA Standard for Accessible Design
5. ICC A117.1 Accessible and usable Building and Facilities

1.5 WARRANTY

A. Provide a complete parts and labor warranty for a minimum of one year from the date of Substantial Completion.

PART 2 - PRODUCTS

2.1 WATER CLOSETS - GENERAL

A. Vitreous china; color white unless noted otherwise. Elongated bowl, direct-fed siphon jet action. 1-1/2 inch top spud for external flush valve. China bolt covers. For 10 in. or 12 in. rough-in (floor mounted models). Dimensions within ASME Standard A112.19.2 tolerances.

B. Shall meet ASME A112.19.2 flush requirements at 1.28 gpf.

2.2 WATER CLOSETS - STANDARD AND BARRIER FREE

A. WC-A - Wall mounted.

1. ADA compliant when installed so top of seat is 17 in. to 19 in. from the finished floor.
2. Acceptable Manufacturers:
   a. American Standard "Afwall".
   b. Kohler
   c. Sloan
   d. Zurn

SPEC EDITOR: ITEM WC-B BOWL IS 15 IN. HIGH FOR STANDARD INSTALLATION. NOT ADA COMPLIANT.

B. WC-B: Floor mounted 15" nominal height, non-ADA compliant.

1. Acceptable Manufacturers:
   a. American Standard "Madera"
   b. Kohler "Wellcomme".
   c. Zurn

SPEC EDITOR: ITEM WC-C BOWL IS NOMINAL 17 IN. HIGH FOR ELDERLY, SPECIAL NEEDS, AND ADA INSTALLATIONS

C. WC-C-Floor mounted ADA compliant.

1. Acceptable Manufacturers:
   a. American Standard "Madera Right Height".
   b. Kohler "Highcliff".
   c. Zurn

WC-C (NEW CONSTRUCTION) AND WC-D (RENOVATION) ARE UM'S STANDARD FOR HOSPITAL PATIENT TOILET ROOMS

D. WC-D: Floor mounted, back outlet, ADA compliant.

1. Acceptable Manufacturers:
   a. American Standard "Huron"
   b. Kohler "Anglesey"
   c. Sloan

SPEC EDITOR: FLOOR MOUNTNED, TANK TYPE WATER CLOSETS ARE RARELY USED

E. WC-E: Floor mounted, floor outlet, close coupled (gravity tank), vitreous china, ADA Compliant.

1. Bowl:
   a. Standards: ASME A112.19.2/CSA B45.1, ASME A112.19.5/CSA B45.15 and ASSE 1037/ASME A112.1060/CSA B125.16.
   b. Bowl Type: Siphon jet.
   c. Height: Handicapped/elderly.
   d. Rim Contour: Elongated].
   e. Water Consumption: 1.28 gpf.
   f. Color: White.

2. Toilet Seat: 1 in. high: Solid white plastic, open front, extended back, self-sustaining stainless steel bolts and hinges, molded-in bumpers, with cover. Acceptable Manufacturers:
   a. Bemis.
   b. Church.
   c. Centoco

3. Supply Fittings:
   a. Standard: ASME A112.18.1/CSA B125.1.
   b. Supply Piping: Chrome-plated-brass pipe or chrome-plated-copper tube matching water-supply piping size. Include chrome-plated wall flange.
   c. Stop: Chrome-plated-brass, one-quarter-turn, ball-type or compression stop with inlet connection matching water-supply piping type and size.

2.3 WATER CLOSET FLUSH VALVES

SPEC EDITOR: THE BELOW DUAL FLUSH VALVE IS U-M'S STANDARD FOR APPLICATIONS WHERE RETROFITTING EXISTING WATER CLOSET CHINA.

A. WC-FLV-A: Manual, dual flush valve. Chrome plated, exposed, diaphragm type, water closet flushometer. ASTM classified as semi-red brass alloy. Chloramine resistant synthetic rubber diaphragms/seals. With 1-1/2 inch top spud, escutcheons, seat bumper, integral screwdriver stop and vacuum breaker. ADA compliant.

1. Lifting Handle up initiates reduced flush 1.1 gpf eliminating liquid waste. Pushing handle down initiates full flush of 1.6 gpf eliminating all waste.
2. Provide metal wall plate etched with flushing instructions.

SPEC EDITOR: PIPE SUPPORT RING, BELOW, IS RECOMMENDED FOR HIGH USE AREAS, FOR EXAMPLE, RESIDENCE HALLS. BLOCKING SHOULD BE SPECIFIED FOR NON-MASONRY WALLS IF THIS PIPE SUPPORT IS SPECIFIED.

3. With flush valve manufacturers chrome plated split ring wall pipe support accessory.
4. Acceptable Manufacturers and Models:
   a. Sloan "Uppercut".
   b. Zurn "AquaVantage".

B. WC-FLV-B: Manual, single flush valve. Chrome plated, exposed, diaphragm type, water closet flushometer. ASTM classified as semi-red brass alloy. Chloramine resistant synthetic rubber diaphragms/seals. With 1-1/2 inch top spud, escutcheons, seat bumper, integral screwdriver stop and vacuum breaker. ADA compliant.

1. Pushing handle down initiates full flush of 1.28 gpf eliminating all waste.
2. Provide metal wall plate etched with flushing instructions.

SPEC EDITOR: PIPE SUPPORT RING, BELOW, IS RECOMMENDED FOR HIGH USE AREAS, FOR EXAMPLE, RESIDENCE HALLS. BLOCKING SHOULD BE SPECIFIED FOR NON-MASONRY WALLS IF THIS PIPE SUPPORT IS SPECIFIED.

3. With flush valve manufacturers chrome plated split ring wall pipe support accessory.
4. Acceptable Manufacturers and Models:
   a. Sloan.
   b. Zurn "AquaVantage".

SPEC EDITOR: THE BELOW FLUSH VALVE IS TYPICALLY USED FOR HOSPITAL PATIENT TOILET ROOMS.

C. WC-FLV-C: Manual, dual flush valve with bedpan washer. Chrome plated, exposed, diaphragm type, water closet flushometer, 1.6 gpm. With bedpan washer diverter assembly. Flush valve, bedpan washer and assembly shall be ASTM classified as semi-red brass alloy. Chloramine resistant synthetic rubber diaphragms/seals. With 1-1/2 inch top spud, escutcheons, seat bumper, integral screwdriver stop and vacuum breaker. ADA compliant.

1. Lifting handle up initiates reduced flush 1.1 gpf eliminating liquid waste. Pushing handle down initiates full flush of 1.6 gpf eliminating all waste.
2. Provide metal wall plate etched with flushing instructions.
3. Provide flush valve manufacturer's chrome plated split ring wall pipe support accessory.
4. Where clearance around wall mounted grab bar is needed, provide offset configuration of same model specified below.
5. Acceptable Manufacturers and Models:
   a. Sloan “Uppercut” WES BPW 1000-1.6/1.1
   b. Zurn
   c. Kohler
   d. Delany

SPEC EDITOR: THE BELOW AUTOMATIC FLUSH VALVE IS NOT PREFERRED & IS TYPICALLY NOT USED. ONLY USE AS DIRECTED & VERIFY COMPATIBALITY WITH FIXURES

D. WC-FLV-D Flushometer Valves - Piston, Sensor Operated, Battery Powered

1. Minimum Pressure Rating: 125 psig.
2. Features: Include integral check stop and backflow-prevention device.
3. Material: Brass body with corrosion-resistant components.
4. Style: Exposed.
5. Exposed Flushometer-Valve Finish: Chrome-plated.

CAUTION: FLUSHOMETER-VALVE CONSUMPTION MUST MATCH THE WATER CONSUMPTION OF THE WATER-CLOSET BOWL. VERIFY THAT MANUFACTURER HAS SPECIFIC FLUSHOMETER VALVE FEATURE(S) PRIOR TO INCLUDING IN PROJECT.

6. Consumption: 1.28 gal per flush.
7. Minimum Inlet: NPS 1 (DN 25).
8. Minimum Outlet: NPS 1-1/4 (DN 32).

2.4 WATER CLOSET ACCESSORIES

A. WCS-A Standard Seat: 1 in. high: Solid white plastic, open front, extended back, self-sustaining stainless steel bolts and hinges, molded-in bumpers, without cover. Acceptable Manufacturers:

1. Bemis.
2. Church.
3. Centoco

B. WCS-B High Style ADA Seat: where required to meet ADA requirements; 2 in. high, solid white plastic, open front, extended back, self-sustaining stainless steel bolts and hinges, molded-in bumpers, without cover. Acceptable Manufacturers:

1. Bemis
2. Church
3. Centoco.

C. Water Closet Wall Carrier: Fully compatible with water closet installation, adjustable, high extension (barrier free), cast iron frame with integral drain hub and vent, lugs for floor and wall attachment and threaded fixture studs. Acceptable Manufacturers and Models:

1. Zurn.
2. Josam.
3. J.R. Smith.
4. Wade Drain.
5. Watts

2.5 Urinals - General:

A. Vitreous china with extended sides and 14 in. elongated rim. Color white unless noted otherwise. With wall hangers.

SPEC EDITOR: CLARIFY WHICH FLUSH VALVE IS TO BE USED WITH URINAL, EITHER THROUGH DRAWING SCHEDULE OR PROJECT SPECIFIC SPECIFICATION EDIT.

2.6 URINALS AND ACCESSORIES

A. UR-A: Shall meet ASME A112.19.2 flush requirements at 0.125 gpf. Washout action. 3/4 inch top spud, 2-inch back spud. Vandal resistant outlet strainer.

1. Acceptable Manufacturers:
   a. American Standard "Washbrook FloWise".
   b. Kohler "Bardon".
   c. Zurn "The Pint".
   d. Sloan

B. Urinal Wall Carrier: Fully compatible with urinal installation. Cast iron or steel frame, complying with load and deflection requirements of ASME Standard A112.6.1M. Tubular legs, lugs for floor and wall attachment, threaded fixture studs and hardware for hanger and bearing plate. Acceptable Manufacturers and Models:

1. Zurn.
2. Josam.
3. J.R. Smith.
4. Wade Drain.

2.7 URINAL FLUSH VALVES

SPEC EDITOR: AUTOMATIC BATTERY OPERATED URINAL FLUSH VALVE IS U-M STANDARD.

A. U-FLV-A: 0.125 gpf Sensor Activated Urinal Flush Valve. Chrome plated, exposed, diaphragm type, urinal flushometer. ASTM classified as semi-red brass alloy. Chloramine resistant synthetic rubber diaphragms/seals. With 3/4 inch top spud, escutcheons, integral screwdriver stop and vacuum breaker. ADA compliant. Infrared sensor, controls.

1. Shall meet ASME A112.19.2 flush requirements at 0.125 gpf.
2. Size AA size batteries, factory installed.
3. Acceptable Manufacturers:
   a. Sloan "ECOS".
   b. Zurn "AquaSense".
   c. Kohler 1/8 gpf touchless.

SPEC EDITOR: SELECT MANUAL URINAL FLUSH VALVE ONLY WHEN AUTHORIZED BY THE DESIGN MANAGER.

B. U-FLV-B: Manual Urinal Flush Valve. Chrome plated, exposed, diaphragm type, urinal flushometer. ASTM classified as semi-red brass alloy. Chloramine resistant synthetic rubber diaphragms/seals. With 3/4 inch top spud, escutcheons, integral screwdriver stop and vacuum breaker. ADA compliant.

1. Shall meet ASME A112.19.2 flush requirements at 0.125 gpf.
2. Acceptable Manufacturers and models:
   a. Sloan "Royal".
   b. Zurn "AquaVantage".

SPEC EDITOR: LAVS AND SINKS AND ASSOCIATED FAUCETS ARE TYPICALLY PROVIDED IN THIS SECTION FOR TOILET ROOMS AND KITCHENS. SINKS AND FAUCETS ARE SPECIFIED FOR LAB CASEWORK IN A DIVISION 12 SECTION AND PIPED UNDER THIS SECTION. MODEL NUMBERS INDICATED ARE PARTIAL MODEL NUMBERS FOR STYLE ONLY. DESIGNER MUST EDIT THE BELOW TO MATCH LAVS WITH LAV FAUCETS; FOR PROJECTS WITH MULTIPLE LAV AND FAUCET STYLES THIS IS BEST DONE WITH A SCHEDULE ON THE DRAWINGS.

LAVS ARE ADA COMPLIANT IF INSTALLED IN COUNTERTOP OR MOUNTED ON WALL IN COMPLIANCE WITH ADA REQUIREMENTS.

2.8 LAVATORIES - GENERAL

A. Lavatories: Vitreous china. Color white unless noted otherwise. With faucet ledge, overflow, and polished chrome plated brass strainer grid drain. ADA compliant.

2.9 LAV-A: COUNTERTOP LAVATORY (SINGLE CENTER FAUCET HOLE)

SPEC EDITOR: THE FOLLOWING BASIN IS TYPICALLY USED WITH FAUCET LF-A SENSOR FAUCET.

A. LAV-A: Countertop Self-rimming Lavatory: Oval, single center faucet hole.

1. Nominal overall: 20-3/8 in. wide by 17-3/8 in. front to back.
2. Bowl: depth varies 6-8".
3. Color: White
4. Acceptable manufacturers and models:
   a. American Standard "Aqualyn" 0475.
   b. Crane "Galaxy" 1287.
   c. Kohler "Bryant" K-2699.
   d. Zurn Z5110 Series.
   e. Sloan

2.10 LAV-B: COUNTERTOP LAVATORY (8-IN. CENTER FAUCET HOLES)

SPEC EDITOR: THE FOLLOWING BASIN IS TYPICALLY USED WITH FAUCET LF-B TWO HANDLED MANUAL FAUCET.

A. LAV-B: Countertop Self-rimming Lavatory: Oval, three hole with 8-in. center faucet holes.

1. Nominal overall: 20-3/8 in. wide by 17-3/8 in. front to back.
2. Bowl: depth varies 6-8".
3. Color: White
4. Acceptable manufacturers and models:
   a. American Standard "Aqualyn" 0475.
   b. Crane "Galaxy" 1287.
   c. Kohler "Bryant" K-2699.
   d. Zurn Z5110 Series.

2.11 LAV-C: WALL MOUNTED LAVATORY (SINGLE CENTER FAUCET HOLE)

SPEC EDITOR: THE FOLLOWING BASIN IS TYPICALLY USED WITH FAUCET LF-A SENSOR FAUCET. KOHLER "KINGSTON" IS THE ONLY KOHLER SINK AVAILABLE WITH SPLASH SHIELDS, HAS A HIGH BACKSPLASH COMPARED TO COMPETITORS, AND HAS A DATED LOOK.

A. LAV-C: Wall Mounted Lavatory D-shaped bowl: with single center faucet hole, self-draining deck area with contoured back and side splash shields.

1. Nominal overall dimensions: 20-1/2 in. wide by 18-1/4 in. front to back.
2. Bowl: depth varies 6-7".
3. Color: White
4. Acceptable manufacturers and models:
   a. American Standard "Lucerne" 0356.

b. Kohler "Kingston".
c. Zurn Z5340 Series.

2.12 LAV-D: WALL MOUNTED LAVATORY (8-IN. CENTER FAUCET HOLES)

SPEC EDITOR: THE FOLLOWING BASIN IS TYPICALLY USED WITH FAUCET LF-B TWO HANDLED MANUAL FAUCET. ORDER FOUR HOLE VARIATION IF SOAP DISPENSER TO BE USED ON LAV DECK (INTEGRAL SOAP DISPENSER NOT PREFERRED AT U-M). KOHLER "KINGSTON" IS THE ONLY KOHLER SINK AVAILABLE WITH SPLASH SHIELDS, HAS A HIGH BACKSPLASH COMPARED TO THE COMPETITORS, AND HAS A DATED LOOK.

A. LAV-D: Wall Mounted Lavatory, D-shaped bowl: three hole with 8 in. center faucet holes, self-draining deck area with contoured back and side splash shields.

1. Nominal overall dimensions: 20-1/2 in. wide by 18-1/4 in. front to back.
2. Bowl: depth varies 6-7".
3. Color: White
4. Acceptable manufacturers and models:
   a. American Standard "Lucerne" 0356.
   b. Kohler "Kingston".
   c. Zurn Z5340 Series.

SPEC EDITOR: THE FOLLOWING BASIN IS TYPICALLY USED WITHIN HOSPITAL PATIENT TOILET ROOMS AND STAFF TOILET ROOMS, IN COMPLIANCE WITH INFECTION PREVENTION REQUIREMENTS. PAIR WITH MANUAL FAUCET TYPE LF-C.

2.13 LAV-E: WALL MOUNTED LAVATORY (4-IN CENTER FAUCET HOLES)

A. LAV-E: Wall mounted vitreous china lavatory D-shaped bowl with single center faucet hole, self-draining deck area with contoured back and side splash shields, no-overflow hole.

1. Nominal overall dimensions: 21” wide by 18” front to back.
2. Bowl: 6-1/2” deep.
3. Color: White
4. Acceptable manufacturers and models:
   a. American Standard "Lucerne" 0355.912
   b. Kohler “Greenwich” (no overflow hole)
   c. Zurn

2.14 LF-A: LAVATORY FAUCET (SENSOR OPERATED)

SPEC EDITOR: AUTOMATIC FAUCET IS UNIVERSITY STANDARD IN PUBLIC TOILET ROOMS.

SPEC EDITOR: MODEL NUMBERS INDICATED ARE PARTIAL MODEL NUMBERS FOR STYLE ONLY. FEATURES LISTED BELOW REPRESENT THOSE FOUND IN A QUALITY COMMERCIAL FAUCET. THEREFORE, IF ALTERNATE STYLES ARE BEING CONSIDERED, THEY SHOULD PROVIDE THE SAME FEATURES. U-M PREFERS SOLID BRASS FAUCETS FOR VANDAL RESISTANCE; NOTE THAT SOME MFR.'S METAL FAUCETS ARE NOT BRASS.

A. LF-A Lavatory Faucet: Automatic sensor activated hand washing faucet, battery powered. Polished chrome plated solid brass construction. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
2. Nominal spout height: varies 5-5/8 to 6-1/2 in.
3. For use in single hole lavatory.

SPEC EDITOR: THE BASE PLATE REQUIREMENT FOR THE STYLES BELOW IS SO THAT ALL MFR.'S MODELS LOOK SIMILAR. NOTE THAT SLOAN EBF-85 HAS AN INTEGRAL BASE PLATE WHICH CAN'T BE OMITTED.

4. Chrome/brass trim plate base for 4 in. faucet centers.
5. Serviceable filtered solenoid valve.
6. Batteries included, factory installed.
7. 0.5 gpm vandal resistant spray head with pressure compensating flow control.
8. Trim: Rigid supplies with metal handled stops, flat grid strainer, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
9. Acceptable manufacturers and models:
   a. Sloan Model Optima.
   b. American Standard.
   c. Zurn AquaSense, or Aqua FIT
   d. Chicago Faucets
   e. Bradley

2.15 LF-B: LAVATORY FAUCET (TWO HANDLED MANUAL, 8" CENTERS)

SPEC EDITOR: MANUAL FAUCET BELOW IS FOR AREAS WHERE AUTOMATIC LAV FAUCETS ARE NOT DESIRED. SPECIFIED FAUCET IS UNDER-MOUNT (CONCEALED) "WIDESPREAD" (8" FAUCET CENTERS) TYPE SUITABLE FOR USE WITH LAVATORIES OR COUNTERTOP MOUNTED SINKS. NOTE THAT A GRID DRAIN IS SPECIFIED; MODIFY DESCRIPTION IF A POP-UP DRAIN IS REQUIRED.

SPEC EDITOR: MODEL NUMBERS INDICATED ARE PARTIAL MODEL NUMBERS FOR STYLE ONLY. FEATURES LISTED BELOW REPRESENT THOSE FOUND IN A QUALITY COMMERCIAL FAUCET. THEREFORE, IF ALTERNATE STYLES ARE BEING CONSIDERED, THEY SHOULD PROVIDE THE SAME FEATURES. U-M PREFERS SOLID BRASS FAUCETS FOR VANDAL RESISTANCE; NOTE THAT SOME MFR.S METAL FAUCETS ARE NOT BRASS.

A. LF-B Lavatory Faucet: Polished chrome plated brass valves, spout, handles, spray head. Concealed (under-mount) body. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.

SPEC EDITOR: EDIT FLAT GRID STRAINER TO POP-UP DRAIN, IF POP-UP REQ'D.

2. Chrome plated brass flat grid strainer.
3. Center of body to center of spout: 4" minimum.

4. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.
5. 8" rigid valve body centers (flexible tubing connections between valves and spout not allowed).
6. 0.5 gpm vandal resistant spray head.
7. Ceramic disc valve cartridges.
8. Trim: Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
9. Acceptable manufacturers and models:
   a. American Standard "Reliant"
   b. Moen "8413"
   c. Chicago 404 (for grid) with curved lever handles.

SPEC EDITOR: MANUAL FAUCET BELOW IS FOR HOSPITAL PATIENT AND/ OR STAFF STAFF TOILET LAVATORY, IN COMPLIANCE WITH INFECTION PREVENTION REQUIREMENTS.

2.16 LF-C: LAVATORY FAUCET (TWO HANDLED MANUAL, 4″ CENTERS)

A. LF-C Lavatory Faucet: Healthcare handwashing. Polished chrome plated brass valves, spout and handles. Deck mounted gooseneck spout with two-handle wrist blade control. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
2. Faucet shall not discharge directly over fixture drain strainer.
3. Center of body to center of spout: 6" minimum.
4. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.
5. 4" rigid valve body centers (flexible tubing connections between valves and spout not allowed).
6. 1.0 gpm laminar flow control in base of gooseneck spout.

SPEC EDITOR: SELECT EITHER 6″ OR 4-1/2″ GOOSENECK SPOUT SO THAT FAUCET DOES NOT DISCHARGE OVER GRID STRAINER. COORDINATE WITH SINK DIMENSIONS. EDIT BELOW AND MODEL NUMBER ACCORDINGLY

7. Heavy duty 6″ gooseneck with smooth end (no threads or means to attach an aerator).
8. Ceramic disc valve cartridges.
9. Trim: Chrome plated brass flat grid strainer. Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
10. Acceptable manufacturers and models:
    a. American Standard
    b. Delta 27C4974
    c. Moen
    d. Chicago

2.17 LAVATORY SUPPORT SYSTEMS

SPEC EDITOR: SELECT EITHER OR BOTH SUPPORT SYSTEMS LISTED BELOW. GENERALLY, USE WALL MOUNTING BRACKET (LOWER COST) IN LIEU OF CARRIER, EXCEPT WHERE WALL FRAMING CANNOT SUPPORT THE LOAD OF THE LAVATORY (DRYWALL, ETC).

A. Wall Mounting Bracket: Steel bearing plate anchored to wall, furnished by lavatory manufacturer. Use at masonry walls only.

B. Wall Mounted Concealed Carrier Arms: cast iron and steel frame with tubular legs, lugs for floor and wall attachment, concealed arm supports, bearing plate and studs. Use at all walls except masonry type. Acceptable manufacturers:

1. Josam.
2. J.R. Smith.
3. Wade.
4. Zurn.
5. Watts

2.18 SINK-A: COUNTERTOP (SINGLE BOWL STAINLESS STEEL SELF-RIMMING)

SPEC EDITOR: SINK-A IS USED FOR KITCHENETTES/ COFFEE ROOMS WITH SINGLE BOWL SINK. USE SWING ARM FAUCET WITH SIDE SPRAY. NOTE THAT SIDE SPRAY 6" HOLE CENTER HAS BEEN SPECIFIED TO ACCOMMODATE ADA LEVER HANDLES.

A. Sink-A: Countertop Single Bowl: Type 304 stainless steel, 18 gauge, self-rimming, chrome plated brass drain/removable strainer, sound deadening coating, with mounting clamps.

1. Nominal overall dimensions 22 in. long by 25 in. wide by 6 in. deep.
2. 4 faucet holes, three holes on 4-in. centers, forth on nominal 6" center to accommodate side spray.
3. Acceptable manufacturers and models:
   a. Elkay "Lustertone"
   b. Kohler "Toccata."
   c. Just"SL" Series.

2.19 SINK-B: COUNTERTOP (DOUBLE BOWL STAINLESS STEEL SELF-RIMMING)

SPEC EDITOR: SINK-B IS USED FOR KITCHENETTES/ COFFEE ROOMS. USE SWING ARM FAUCET WITH SIDE SPRAY. NOTE THAT SIDE SPRAY 6" HOLE CENTER HAS BEEN SPECIFIED TO ACCOMMODATE ADA LEVER HANDLES.

A. Sink-B: Countertop Double Bowl: Type 304 stainless steel, 18 gauge, equal compartment size, self-rimming, (2) chrome plated brass drains/removable strainers (delete (1) if sink equipped with disposer), sound deadening coating, with mounting clamps.

1. Nominal overall dimensions. 22 in. long by 33 in. wide by 6 in. deep.
2. 4 faucet holes, three holes on 4-in. centers, forth on nominal 6" center to accommodate side spray.
3. Acceptable manufacturers and models:
   a. American Standard "Colony".
   b. Elkay "Lustertone."

c. Kohler "Toccata"
d. Just "DL" Series

2.20 SINK-C: COUNTERTOP (SMALL SINGLE BOWL SS SELF-RIMMING)

SPEC EDITOR: SINK-C IS USED FOR SMALLER SCALE KITCHENETTES/ COFFEE ROOMS. USE SWING ARM FAUCET WITHOUT SIDE SPRAY. NOT TYPICALLY AVAILABLE IN 18 GA.

A. Sink-C: Countertop Single Bowl: Type 304 stainless steel, self-rimming, chrome plated brass drain/removable strainer, sound deadening coating, with mounting clamps.

1. Nominal overall dimensions: 15 in. long by 15 in. wide by 6 in deep.
2. 2 faucet holes on 4-in. centers.
3. Acceptable manufacturers and models:
   a. Kohler "Toccata."
   b. Elkay "Celebrity."
   c. American Standard "Colony".

2.21 SINK-D: COUNTERTOP (INTEGRAL)

SPEC EDITOR: THE FOLLOWING PARAGRAPH DESCRIBES ARCHITECTURALLY SPECIFIED BOWLS SUCH AS CORIAN SINK BOWL INTEGRAL WITH COUNTERTOP. COORDINATE WITH ARCHITECTURAL WORK.

SPEC EDITOR: AN INTEGRAL SOLID SURFACE SINK BOWL (WITH OFFSET STRAINER), COUNTER, BACKSPLASH AND SUPPORT IS THE STANDARD FOR ALL HOSPITAL PATIENT CARE HANDWASHING INSTALLATIONS. COORDINATE WITH ARCHITECTURAL WORK.

A. Sink-D: Countertop Sink and countertop shall be provided by architectural (general) trades and specified in another Section.

SPEC EDITOR: SINK-E IS USED FOR HOSPITAL APPLICATIONS WHERE AN INTEGRAL SINK IS NOT UTILIZED, REVIEW APPLICATION WITH HOSPITAL ENGINEERING. MINIMUM SIZE FOR HANDWASHING SINKS SHALL BE 16″ X 14″ X 6-1/2″. A/E TO SCHEDULE REQUIRED SINK DIMENSION BASED ON PROJECT NEEDS. COORDINATE FAUCET HOLE REQUIREMENTS BASED ON USE OF WRISTBLADES (8″ CENTERS) VS FOOTPEDALS (SINGLE CENTERED HOLE FOR SPOUT).

2.22 SINK E: UNDERMOUNT (SINGLE BOWL STAINLESS STEEL)

A. Sink-E: Undermount Single Bowl: Type 304 stainless steel, 18 gauge, undermount, coved corners, rear left or right offset strainer outlet (not centered across width of bowl), chrome plated brass drain/removable strainer, sound deadening coating, with mounting clamps.

1. Nominal overall dimensions: refer to drawings.
2. 3 faucet holes. 8-inch centers.
3. Faucet Type: SF-C
4. Acceptable manufacturers and models:
   a. Elkay "Lustertone"
   b. Just "US" Series

SPEC EDITOR: SINK-F IS USED FOR HOSPITAL APPLICATIONS WHERE A FREE-STANDING, WALL HUNG HANDWASHING SINK IS NEEDED. PROVIDE WITH HEALTHCARE HANDWASHING SINK FAUCET SF-C OR SF-D, COORDINATE 4" OR 8" CENTERS. WHERE APPLICATIONS REQUIRE INCORPORATING AN EYE WASH, USE COMBINATION EMERGENCY EYE WASH/ FAUCET, EEWS-C

2.23 SINK F: WALL-HUNG, HEALTHCARE HANDWASHING

A. Sink-F: Wall-hung Single Bowl: Non-porous, fully welded and seam free solid surface polymer material with antimicrobial protection. Sink shall have a deep internal sloping basin, offset sink grid strainer drain and no overflow. Provide with integral side & rear splash guards, made from same material as sink, and one-piece formed stainless steel or solid surface polymer trap cover w/ stainless steel mounting hardware. Provide with mounting carrier.

1. Nominal overall dimensions: approx. 22"x22"x 29"H.
2. 3 faucet holes. 4-inch centers.
3. Faucet Type: SF-C
4. Acceptable manufacturers and models:
   a. Whitehall "4151"
   b. Willoughby "WICS-2222"

SPEC EDITOR: SERVICE SINKS ARE USED IN MECHANICAL ROOMS AND JANITOR CLOSETS. SS-A IS FOR HEAVY DUTY LOCATIONS SUCH AS CHILLER AND BOILER ROOMS. SS-C IS FOR LIGHT DUTY LOCATIONS.

2.24 SS-A: SERVICE SINK (C.I. WALL MOUNTED)

A. SS-A: Wall mounted, concealed support, enameled cast iron, perforated grid strainer drain, with cast iron drain/trap.

1. Nominal 22 in. wide by 18- in. front to back by 9 in. high back by 11-1/4 in. high bowl.
2. Drilled back with 2 holes on 8 -in. centers.
3. Rim guard of stainless steel or chrome-plated brass on three sides.
4. Acceptable manufacturers and models:
   a. American Standard "Lakewell" Model 7692.008.
   b. Kohler "Bannon" Model K-6714 and 44602 rim guard.
   c. Zurn Z5898.

B. Cast iron P-trap with integral removable strainer, adjustable mounting foot, threaded brass cleanout plug. Supplied by sink manufacturer.

2.25 SS-B: SERVICE SINK (C.I. FLOOR MOUNTED CUSTODIAL)

A. SS-B: Floor mounted, enameled cast iron, corner model, strainer/drain, and vinyl-coated removable rim guard.

1. Nominal 28 in. wide by 28 in. long by 13 in. high at walls and 8 in. high rim at room side.
2. Acceptable manufacturers and models:
   a. American Standard "Florwell" Model 7745.811 with removable vinyl rim guard and flat grid drain 7721.038.
   b. Kohler K-6710 "Whitby" service sink with K-8940 Coated wire rim guard.

c. Zurn Z5850-RG with removable vinyl-coated rim guard.

B. Perforated flat grid strainer drain, polished chrome solid brass.

2.26 SS-C: SERVICE SINK (MOLDED FLOOR MOUNTED UTILITY)

A. SS-C: Floor mounted, fabricated from compression molded resin material with integral drain connection. Integral molded self-draining faucet ledge and 4 in. centered faucet holes.

1. Overall nominal outside dimensions at top of tub 23 in. by 23 in. by 13 in. tub depth. Nominal 20-gallon capacity.
2. 4 angular steel legs with levelers.
3. Acceptable manufacturers and models:
   a. The Swan Corporation Model MF-1F.
   b. E.L. Mustee and Sons Model 17F

2.27 SF-A SINK FAUCET (SWING GOOSENECK W/SIDE SPRAY)

SPEC EDITOR: MODEL NUMBERS INDICATED ARE PARTIAL MODEL NUMBERS FOR STYLE ONLY. FEATURES LISTED BELOW REPRESENT THOSE FOUND IN A QUALITY COMMERCIAL FAUCET. THEREFORE, IF ALTERNATE STYLES ARE BEING CONSIDERED, THEY SHOULD PROVIDE THE SAME FEATURES. U-M PREFERS SOLID BRASS FAUCETS FOR VANDAL RESISTANCE; NOTE THAT SOME MFR.S METAL FAUCETS ARE NOT BRASS.

SPEC EDITOR: USE FAUCET SF-A WITH COUNTERTOP SINK-A AND B. COULD ALSO BE USED WITH SINK-D.

A. SF-A Faucet: Polished chrome plated brass valves, spout, handles, aerator. Concealed (under-mount) body. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
2. Gooseneck swing spout with side spray.
3. 8" minimum center of body to spout center. Minimum 12" high spout.
4. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.
5. 8" rigid valve body centers (flexible tubing connections between valves and spout not allowed).
6. With aerator, maximum flow rate of 1.5 gpm.
7. Ceramic disc valve cartridges.
8. Trim: Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
9. Acceptable manufacturers and models:
   a. American Standard "Colony" with No. 550 lever handles and side spray.
   b. Moen "M-Dura"
   c. Chicago Faucets 200 (base/spout) with curved lever handles.

2.28 SF-B SINK FAUCET (SWING GOOSENECK, 4" CENTERS, NO SIDE SPRAY)

SPEC EDITOR: MORE COMPACT FAUCET SF-B FOR USE WITH SINK-C.

A. SF-B Faucet: Polished chrome plated brass valves, spout, handles, aerator. Deck mount. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
2. Gooseneck swing spout.
3. 5" minimum center of body to spout center. Nominal 11" high spout.
4. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.
5. 4-inch centers.
6. With aerator, maximum flow rate of 1.5 gpm
7. Ceramic disc valve cartridges.
8. Trim: Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
9. Acceptable manufacturers and models:
   a. American Standard "Colony" with No. 550 lever handles and side spray.
   b. Moen "M-Dura"
   c. Chicago Faucets 895 (base/spout) with lever handles.

SPEC EDITOR: MANUAL FAUCETS SF-C & SF-D BELOW ARE FOR HOSPITAL PATIENT CARE HANDWASHING USE, IN COMPLIANCE WITH INFECTION PREVENTION REQUIREMENTS. SF-C WRISTBLADE CONTROL IS STANDARD, SF-D FOOT PEDAL CONTROL IS BASED ON USER REQUEST. FAUCET IS TYPICALLY PAIRED WITH AN INTEGRAL SOLID SURFACE SINK WITH OFFSET OUTLET PROVIDED BY ARCHTECTURAL TRADES, IE SINK-D.

2.29 SF-C: HOSPITAL HANDWASHING SINK FAUCET (GOOSENECK WITH WRISTBLADES)

A. SF-C Faucet: Polished chrome plated brass valves, spout and handles. Concealed deck mount, gooseneck spout with two-handle wrist blade control. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
2. Faucet shall not discharge directly over fixture drain strainer.
3. Center of body to center of spout: 8" minimum.
4. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.

SPEC EDITOR: SELECT EITHER 8″ OR 4″ VALVE BODY CENTERS, IN COORDINATION WITH SINK TYPE. EDIT BELOW AND MODEL NUMBER ACCORDINGLY.

5. 8" rigid valve body centers (flexible tubing connections between valves and spout not allowed).
6. 1.0 gpm laminar flow control in base of gooseneck spout.

SPEC EDITOR: SELECT GOOSENECK SPOUT SO THAT FAUCET DOES NOT DISCHARGE OVER GRID STRAINER AND TO LIMIT SPLASHING. COORDINATE WITH SINK DIMENSIONS. EDIT BELOW AND MODEL NUMBER ACCORDINGLY.

7. Heavy duty, fixed position 8" gooseneck with smooth end (no threads or means to attach an aerator).
8. Ceramic disc valve cartridges.
9. Trim: Chrome plated brass flat grid strainer. Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
10. Acceptable manufacturers and models:
    a. American Standard
    b. Delta
    c. Moen
    d. Chicago 786-GN8FCABCP

2.30 SF-D HOSPITAL HANDWASHING SINK FAUCET (GOOSENECK WITH FOOT PEDALS)

A. SF-D Faucet: Polished chrome plated brass valves, spout and pedals. Concealed deck mount, gooseneck spout with dual foot pedal control. ADA compliant. With trim.

1. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
2. Faucet shall not discharge directly over fixture drain strainer.
3. Center of body to center of spout: 8" minimum.

SPEC EDITOR: BASED ON WALL MOUNTED EXTENDED PEDALS. IF SHORT PEDAL BOX FOR MOUNTING ON MILLWORK BELOW SINK IS DESIRED, EDIT BELOW AND MODEL # ACCORDINGLY.

4. Extended, chrome plated pedals for wall mounting, with hot and cold indicators, NAIAD metering fast cycle time closure cartridges for immediate shut-off, locking feature to keep pedals in raised position. Flexible tubing connections between valves and spout not allowed.
5. 1.0 gpm laminar flow control in base of gooseneck spout.

SPEC EDITOR: SELECT GOOSENECK SPOUT SO THAT FAUCET DOES NOT DISCHARGE OVER GRID STRAINER AND TO LIMIT SPLASHING. COORDINATE WITH SINK DIMENSIONS. EDIT BELOW AND MODEL NUMBER ACCORDINGLY.

6. Heavy duty, fixed position 8" gooseneck with smooth end (no threads or means to attach an aerator).
7. Ceramic disc valve cartridges.
8. Trim: Chrome plated brass flat grid strainer. Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
9. Acceptable manufacturers and models:
    a. American Standard
    b. Delta
    c. Moen
    d. Chicago GN8 gooseneck with 834-EPABCP extended footpedals

2.31 SSF-A SERVICE SINK-FAUCET (SINK WALL MOUNT)

SPEC EDITOR: USE SERVICE SINK-FAUCET SSF-A WITH SERVICE SINKS SS-A. SSF-A IS FOR MOUNTING ON VERTICAL SURFACE OF SINK BACK.

A. SSF-A: Utility Faucet: For mounting on vertical surface of sink back. Rough or polished chrome plated brass body, spout, handles. ADA compliant.

1. Metal lever handles with hot and cold indicators.
2. Compression or ceramic disc valve cartridges.
3. Integral vacuum breaker.
4. 8" centers.
5. Spout with 3/4 in. threaded hose end.
6. 3 ft. hose with one end a 3/4 in. threaded brass conn.
7. Minimum 5" wall-to-spout projection.
8. Acceptable manufacturers and models:
   a. American Standard Model 8350
   b. Chicago Faucets 540.
   c. Zurn AquaSpec Z842L1-RC

2.32 SSF-B SERVICE SINK-FAUCET (WALL MOUNT)

SPEC EDITOR: USE SERVICE SINK-FAUCET SSF-B WITH SERVICE SINKS SS-B.

A. SSF-B: Wall-Mount Utility Faucet: Chrome plated brass valves, spout, handles. ADA compliant.

1. Metal lever handles with hot and cold indicators.
2. Ceramic disc valve cartridges.
3. Vacuum breaker.
4. Wall-to-spout brace.
5. Integral check valves to prevent cross-flow.
6. Offset adjustable shanks capable of adjustment to 8" centers.
7. Spout with 3/4 in. threaded hose end and bucket hook.
8. Minimum 9" wall-to-spout projection.
9. Acceptable manufacturers and models:
   a. American Standard Model 8354
   b. Chicago Faucets 540.
   c. Zurn AquaSpec Z843M1-RC

2.33 SSF-C SERVICE SINK-FAUCET (4" CENTER DECK MOUNT)

SPEC EDITOR: USE SERVICE SINK-FAUCET SSF-C WITH SERVICE SINK SS-C.

A. SSF-C Deck-Mount Utility Faucet: Chrome plated brass valves, spout, handles. ADA compliant.

1. 4 in. centers.
2. Metal lever handles with hot and cold indicators.
3. Ceramic disc valve cartridges.
4. 6" minimum center of body to spout center.
5. Swivel spout with 3/4 in. threaded hose end and in-line or integral vacuum breaker.
6. Acceptable manufacturers and models:
   a. Chicago 891.

b. Zurn Z812N1.

2.34 SCRUB SINK

SPEC EDITOR: SCRUB SINK IS FOR USE IN HOSPITAL FACILITIES. DO NOT PROVIDE WITH INTEGRAL SOAP DISPENSERS, AS MICH MEDICINE WILL INSTALL WALL MOUNTED DISPENSERS. COORDINATE WITH SURGICAL STAFF ON USE OF SPLASH SCREEN DIVIDERS, WHICH ARE TYPICALLY NOT REQUIRED. ELECTRONIC INFRARED SENSOR FACUET IS STANDARD, DO NOT SPECIFY KNEE OPERATED OR DIGITALLY TIMED FAUCETS. EYEWASH UNITS ARE TYPICALLY NOT REQUIRED, CONSULT WITH UM SAFETY MANAGEMENT SERVICES (SMS) WHERE REQUIRED. IF REQUIRED, PROVIDE SEPARATE, DEDICATED EYEWASH UNIT COMPIANT WITH ANSI STANDARDS. DO NOT INTEGRATE EYEWASH AND HANDWASHING.

A. SCRUB-A: 16-gauge (min) 304 stainless steel anti-splash tub with horizontal and vertical 0.25” radius coved corners, fully welded and polished to #4 finish, underside sound deadened. 18-gauge (min) 304 stainless steel outer enclosure with removable stainless steel access panels. Stainless steel shall conform to ASTM A240.

1. Factory pre-piped with thermostatic, pressure balancing, anti-scald mixing valve to allow manual adjustment of temperature up to 115°F at each station. Valve shall conform to requirements stated under THERMOSTATIC MIXING VALVE - HAND WASHING FACILITIES, “Mixing Valve Specifications”. Provide with chrome plated brass adjustment handle mounted on backsplash control panel. All piping shall be concealed behind enclosure with maintenance access.

SPEC EDITOR: COORDINATE NUMBER OF STATIONS REQUIRED AND DIMENSION OF COMPLETE UNIT.

2. Stations: 2
3. Dimensions: 64” wide x 27” front to back.
4. Provide each station with an electronic infrared sensor-operated, laminar (non-rose spray) flow faucet set to flow tempered water with presence of operator within range of sensor, with time delay off. Provide with internally piped and wired solenoid valve, control module and 24VAC transformer for hard-wiring.
5. Provide with 2” drain with stainless steel flat grid strainer, one per station.
6. Provide with wall bracket(s) for installation on masonry wall. Provide chair carrier for all non-masonry wall installations.
7. Provide with integral digital timer, one per station, set to begin and stop with water flow.
8. Acceptable manufacturers and models:
   a. Steris AMSCO Flexmatic
   b. Continental Metal Products
   c. LogiQuip

2.35 UNDERSINK WASTE AND SUPPLY PIPE GUARDS

SPEC EDITOR: PROVIDE UNDER SINK PROTECTIVE INSULATION FOR ADA COMPLIANT WALL MOUNTED LAVATORIES

A. Provide ADA compliant undercounter protective covers on all supply and waste piping at barrier free lavatories. Covers shall be UV protected PVC, with reusable fastening system. Provide product type designed for the specific piping material over which it will be applied.

1. Acceptable manufacturers and models:
   a. Zurn.
   b. IPS Corporation Truebro.

SPEC EDITOR: CENTRAL DOMESTIC WATER MIXING VALVES ARE NOT INCLUDED IN THIS SPECIFICATION BECAUSE THEY NEED TO BE SELECTED SPECIFICALLY FOR PROJECT CONDITIONS IF THEY ARE TO WORK PROPERLY. IF SUCH A VALVE IS REQUIRED THE DESIGNER SHOULD CAREFULLY SELECT AN APPROPRIATE MODEL AND ADD IT TO THIS SPECIFICATION.

2.36 THERMOSTATIC MIXING VALVE - HAND WASHING FACILITIES

A. The Michigan Plumbing Code section 607.1 (2) (h) has been modified by local rule as follows:

1. A ASSE 1070 mixing valve (water temperature limiting device) is permitted to control up to 5 accessible plumbing fixtures within the same room. The ASSE 1070 mixing valve shall be certified for a minimum flow rate of 0.5 gpm or less.

B. Provide a thermostatic mixing valve at all public lavatories including at accessible plumbing fixtures. A maximum of 5 faucets within the same room may be served by 1 mixing valve.

1. At other locations identified in the Michigan Plumbing Code, provide individual water temperature limiting devices (thermostatic mixing valves) to individual fixtures.

C. Provide mixing valves based on the following selection criteria:

1. Mixing valve serving a single fixture: Valve pressure drop shall not exceed 5 psi at 1 gpm flow rate.
2. Mixing valve serving 2-5 fixtures: Valve pressure drop shall not exceed 5 psi at 4.0 gpm flow rate.

D. Mixing valve specification:

1. Manually adjustable thermostatically controlled domestic water tempering valve.
2. ASSE 1070 listed to control down to 0.5 GPM flow rate.
3. All bronze or brass body, rough finish, chrome plated if exposed. Brass and stainless steel internal components.
4. Chloramine resistant seals.
5. Integral check valves and stainless steel strainers (screens) in hot and cold water inlet connections.
6. Tamper resistant temperature adjustment handle.
7. Union with male or female NPT connections, or compression fittings.
8. Valves shall operate properly:
   a. At supply pressures between 20 PSIG and 125 PSIG.
   b. With up to 20 percent pressure differential between hot and cold water supplies.
9. Outlet temperature shall be adjustable to within 10 deg. F of inlet hot water temperature.

10. Hot inlet operating range: 120-180 deg. F.
11. Lower temperature adjustment range: not more than 95 deg. F.
12. Upper temperature adjustment range: not more than 140 deg. F.

E. Acceptable manufacturers and models:

1. Watts Hydroguard.
2. Symmons Maxline.
3. Zurn Aqua-Gard.

2.37 SHOWER HEADS, SHOWER CONTROL VALVES, AND TRIM

SPEC EDITOR: SELECT SH-A AND/OR SH-B TO SUIT PROJECT

A. SH-A: ADA Shower System: Including chrome plated brass supply ell, wall flange, and 30-inch slide bar. Chrome plated brass handheld shower head with on/off control having non positive shut off, chrome plated brass swivel cradle with adjusting knob, (min.) 69 in. chrome plated stainless steel hose, in line vacuum breaker. Shower head flow rate 1.5 gpm. All components shall be ADA compliant. Shower head shall be compatible with shower control valve range. Acceptable manufacturers:

1. American Standard.
2. Chicago Faucet.
3. Speakman.
4. Symmons.
5. Kohler.

B. SH-B Shower Head: Chrome plated brass shower head, shank, and ball joint. 1.5 GPM flow rate. Spray adjusting side handle. Shower head shall be compatible with shower control valve range. Acceptable manufacturers and models:

1. American Standard.
2. Chicago Faucet.
3. Speakman.
4. Symmons.
5. Kohler.

SPEC EDITOR: U-M HOUSING TYPICALLY USES A SYMMONS MODEL 4-500 "SAFETYMIX" SHOWER CONTROL VALVE IN A SYMMONS "HYDAPIPE" HOUSING. FOR HOUSING PROJECTS VERIFY IF THE AFOREMENTIONED SYMMONS SHOWER ASSEMBLY IS REQUIRED, AND REVISE BELOW ACCORDINGLY.

SPEC EDITOR: HOSPITAL PROJECTS SHALL ONLY EMPLOY COMBINATION BALANCED PRESSURE/THERMOSTATIC SHOWER VALVES, REVISE BELOW ACCORDINGLY.

C. Shower Control Valve, for SH-A & SH-B (including tub/shower combination valves): Balanced pressure, thermostatic, or combination balanced pressure/thermostatic valve. ADA compliant.

1. Vandal resistant chrome plated brass face plate, single handle, and tub spout (provide 4-port valve, diverter, and spout for bathtub applications).
2. Brass body mixing valve with integral check stops, for concealed piping connections, capable of back-to-back installation.

3. Adjustable limit stop factory set to 110 deg. F (120 deg. F max adjustment).
4. Shall provide anti-scald protection and temperature regulation at inlet pressures as low as 20 psig (flowing), at flows from 1.5 gpm, at supply temperatures from 40 deg. F to 160 deg. F.
5. Minimum static pressure rating: 125 psig.
6. Acceptable manufacturers and models:
   a. American Standard.
   b. Chicago Faucet.
   c. Speakman.
   d. Symmons.
   e. Kohler.
   f. Powers.

SPEC EDITOR: PATIENT BATHROOMS WITHIN HOSPITAL PROJECTS TYPICALLY REQUIRE BOTH A HANDHELD & FIXED SHOWER HEAD INSTALLATION. INCLUDE BELOW ACCORDINGLY.

D. SS-H Shower System: Shower control valve, fixed shower head, handheld shower head, diverter valve & trim. ADA. Supplied as a complete matching system by a single manufacturer.

1. Chrome plated brass fixed shower head, shank and trim. Provide with matching handheld shower head, including chrome plated brass supply ell, wall flange, and 30-inch slide bar. Chrome plated brass handheld shower head with on/off control having non-positive shut-off, chrome plated brass swivel cradle with adjusting knob, (min.) 69 in. chrome plated stainless steel hose, in line vacuum breaker. Shower head flow rate 2.5 gpm. All components shall be ADA compliant. Shower head shall be compatible with shower control valve range.
2. Shower Control Valve (including tub/shower combination valves): Combination balanced pressure/thermostatic valve. ADA compliant.
   a. Vandal resistant chrome plated brass face plate, single handle.
   b. Brass body mixing valve with integral check stops, for concealed piping connections, capable of back-to-back installation.
   c. Adjustable limit stop factory set to 110 deg. F (120 deg. F max adjustment).
   d. Shall provide anti-scald protection and temperature regulation at inlet pressures as low as 20 psig (flowing), at flows from 1.5 gpm, at supply temperatures from 40 deg. F to 160 deg. F.
   e. Minimum static pressure rating: 125 psig.
3. Provide a matching chrome-plated brass diverter valve meeting shower control valve requirements stated herein.
4. Acceptable manufacturers and models:
   a. American Standard
   b. Chicago Faucet
   c. Speakman SM-5460-E-15
   d. Symmons
   e. Kohler
   f. Powers "HydroGuard T/P Series e420"

2.38 ELECTRIC WATER COOLERS

SPEC EDITOR: CARBON WATER FILTERS ARE NOT TO BE PROVIDED WITH WATER COOLERS AT THE UNIVERSITY OF MICHGAN DUE TO INCREASED MAINTENENCE.

A. EWC-A Electric Water Cooler: Vandal-resistant, wall mounted, refrigerated water cooler. ADA compliant.

1. 14 gauge satin-finish stainless steel vented cabinet and integral basin, with removable access panel.
2. Self-closing button operated. Polished chrome-plated bubbler head with flow adjustment. In-line removable strainer.
3. Without carbon filter.
4. Cooling System: Integral to water cooler. Insulated stainless steel evaporator tank. Copper tube/aluminum fin condenser. Non-CFC/HCFC refrigerant. Adjustable thermostat. 115V/1Ph/60Hz. UL listed.
5. Delivers a minimum of 8 gph of water at 50 deg. F, cooled from 80 deg. F inlet water, at 90 deg. F, ambient.
6. Certified to NSF/ANSI 61-G.
7. Acceptable manufacturers and models:
   a. Halsey-Taylor "HVRHD" Series.
   b. Haws Model "H" Series.
   c. Oasis International "PG" Series.
   d. Elkay

B. EWC-B Electric Water Cooler: Bi Level, vandal-resistant, wall mounted, refrigerated water cooler. ADA compliant.

1. 14 gauge satin-finish stainless steel vented cabinet and integral basin, with removable access panel.
2. Self-closing button operated. Polished chrome-plated bubbler head with flow adjustment. In-line removable strainer.
3. Without carbon filter.
4. Cooling System: Integral to water cooler. Insulated stainless steel evaporator tank. Copper tube/aluminum fin condenser. Non-CFC/HCFC refrigerant. Adjustable, accessible thermostat. 115V/1Ph/60Hz. UL listed.
5. Delivers a minimum of 8 gph of water at 50 deg. F, cooled from 80 deg. F inlet water, at 90 deg. F, ambient.
6. Certified to NSF/ANSI 61-G.
7. Acceptable manufacturers and models:
   a. Halsey-Taylor "HVRHD" Series.
   b. Haws Model "H" Series.
   c. Oasis International Model "PG" Series.
   d. Elkay

SPEC EDITOR: ELECTRIC WATER COOLER WITH BOTTLE FILLER IS ACCEPTABLE IN NUMEROUS ACCEPTABLE CONFIGURATIONS (BI-LEVEL, "ARCHITECTURAL" RECESSED, STAND-ALONE BOTTLE-FILLER, ETC. IN ALL CASES, UNITS SHALL BE ALL STAINLESS STEEL, REFRIGERATED, VANDAL RESISTANT WHERE AVAILABLE AND ADA COMPLIANT. EDIT ACCORDINGLY.

SPEC EDITOR: HOSPITAL PROJECTS REQUIRE NON-FILTERED WATER COOLERS.

C. WC-C Electric Water Cooler with Bottle Filler: Vandal-resistant, wall mounted, refrigerated water cooler. ADA compliant.

1. 14 gauge satin-finish stainless steel vented cabinet and integral basin, with removable access panel.
2. One piece chrome plated with integral hood.
3. Type 300 series stainless steel cooler top with satin finish and anti-splash ridge.
4. Self-closing button operated. Polished chrome-plated bubbler head with flow adjustment. In-line removable strainer.
5. Provide with integral electronic bottle filler.
6. Bottle fill station to be sensor activated with user interface graphics. Quick fill rate is 1.1 gpm.
7. Cooling System: Integral to water cooler. Insulated stainless steel evaporator tank. Copper tube/aluminum fin condenser. Non-CFC/HCFC refrigerant. Adjustable thermostat. 115V/1Ph/60Hz. UL listed.
8. Delivers a minimum of 8 gph of water at 50 deg. F, cooled from 80 deg. F inlet water, at 90 deg. F, ambient.
9. Without carbon filter.
10. Certified to NSF/ANSI 61-G.
11. Acceptable manufacturers and models:
    a. Halsey-Taylor "HTHBHVR" Series.
    b. Haws
    c. Oasis International
    d. Murdock
    e. Elkay

D. WC-D Electric Water Cooler with Bottle Filler: Vandal-resistant, wall mounted, non-refrigerated water cooler. ADA compliant.

1. 14 gauge satin-finish stainless steel vented cabinet and integral basin, with removable access panel.
2. One piece chrome plated with integral hood.
3. Type 300 series stainless steel cooler top with satin finish and anti-splash ridge.
4. Self-closing button operated. Polished chrome-plated bubbler head with flow adjustment. In-line removable strainer.
5. Provide with integral electronic bottle filler.
6. Bottle fill station to be sensor activated with user interface graphics. Quick fill rate is 1.1 gpm.
7. Delivers a minimum of 8 gph of water.
8. Without carbon filter.
9. Certified to NSF/ANSI 61-G.
10. Acceptable manufacturers and models:
    a. Halsey-Taylor "HTHB-HRFSEBP" Series.
    b. Haws
    c. Oasis International
    d. Murdock
    e. Elkay

SPEC EDITOR: EMERGENCY FIXTURES SPECIFICATION MUST BE MODIFIED TO BE PROJECT SPECIFIC. BELOW SPECS COVER SOME COMMONLY USED TYPES.

2.39 EMERGENCY FIXTURES

SPEC EDITOR: THE PLUMBING CODE REQUIRES THAT TEPID WATER BE DELIVERED TO EMERGENCY FIXTURES. THE BELOW ARTICLE CALLS FOR A DEDICATED TEMPERING VALVE PER EMERGENCY FIXTURE, WHICH MAY NOT BE COST EFFECTIVE FOR EVERY PROJECT. DESIGNER SHALL CAREFULLY EVALUATE TEMPERING VALVE OPTIONS AND REVISE THE BELOW ACCORDINGLY. DESIGNER IS CAUTIONED IN PARTICULAR TO EVALUATE PRESSURE DROP ACROSS THE TEMPERING VALVE.

SPEC EDITOR: PLASTIC BOWLS, EYE WASH HEADS, AND SHOWER HEADS CAN SAVE CONSIDERABLE COST BUT MAY BE MORE SUSCEPTIBLE TO BREAKAGE AND BACTERIAL GROWTH, EVEN WITH ANTIMICROBIAL PROTECTION. BELOW EYEWASH/SHOWERS ARE SPECIFIED WITH THESE PARTS IN TRADITIONAL STAINLESS STEEL OR CHROME PLATED, FOR CLEANLINESS AND DURABILITY.

SPEC EDITOR: MULTIPLE SWING ARRANGEMENTS ARE AVAILABLE FOR EYE WASH COUNTERTOP MODELS, THEREFORE MODEL NUMBERS ARE NOT PROVIDED BELOW. REVISE THE BELOW TO SPECIFY THE SPECIFIC MFR.S MODEL NUMBERS THAT WILL ACCOMMODATE YOUR PROJECT'S MOUNTING LOCATION(S).

A. EEWS-A Emergency Eye Wash: Countertop mounted. Swing away when not in use. ANSI Z358.1-2009 compliant. Provide swing arrangement that accommodates mounting location. Barrier Free.

1. Stainless steel or chrome plated brass eye wash head(s) with tethered dust cover(s) and auto-flow control.
2. Chrome-plated brass pipe, fittings, deck escutcheon, and stay-open ball valve, with stainless steel ball and stem.
3. Universal emergency sign mounted on stainless steel ball valve paddle.
4. Test card to record weekly checks.
5. Emergency Fixture Tempering Valve.
6. Acceptable manufacturers and models:
   a. Haws.
   b. Bradley
   c. Speakman.

B. EEWS-B Emergency Eye/Face Wash: Pedestal mounted, self-supporting. ANSI Z358.1-2009 compliant. Barrier Free.

1. Stainless steel or chrome plated brass combination eye and face wash head(s) with tethered dust cover(s) and auto-flow control.
2. Chrome-plated brass fittings and stay-open ball valve, with stainless steel ball and stem.
3. Universal emergency sign mounted on stainless steel ball valve paddle.
4. Stainless steel bowl.
5. In-line strainer.
6. 1-1/4 in. sch. 40 hot-dipped galvanized steel pipe stand/waste tee and cast-iron floor flange. Stand and floor flange painted/powder coated.
7. Test card to record weekly checks.
8. Emergency Fixture Tempering Valve.
9. Acceptable manufacturers and models:
   a. Haws.

b. Bradley.
c. Speakman.

SPEC EDITOR: BELOW FLUSH CEILING-MOUNTED DRENCH SHOWER IS SPECIFIED W/SS SHOWER (AS OPPOSED TO PLASTIC) AND PULL ROD BASED ON THE ASSUMPTION THAT THIS TYPE SHOWER WAS SPECIFIED FOR AESTHETIC REASONS.

C. EEWS-C Emergency Eye Wash: Combination eye wash / faucet. ANSI Z358.1-2009 compliant.

1. Chrome-plated brass construction faucet with integral eyewash.
2. Chrome-plated brass eye wash head(s) with tethered dust cover(s) and auto-flow control. Independent water channel for eyewash.
3. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.
4. 3-hole rigid valve body centers (flexible tubing connections between valves and spout not allowed).
5. 1.5 gpm laminar flow control.
6. Faucet, supplies, and stops shall be NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content.
7. Faucet shall not discharge directly over fixture drain strainer.
8. Lever style handles, with hot and cold color indicators and vandal resistant mounting screws.
9. Ceramic disc valve cartridges.
10. Trim: Chrome plated brass flat grid strainer. Rigid supplies with metal handled stops, tailpiece, P-trap with clean-out, waste to wall, escutcheons; all chrome plated brass. Where concealed, trim under sinks may be unplated brass stops, plastic or rough brass supply tubes, PVC trap, and rough brass escutcheons.
11. Test card to record weekly checks.
12. Emergency Fixture Tempering Valve.
13. Acceptable manufacturers and models:
    a. Speakman “SEF”
    b. Chicago “8452-E64VPABCP”
    c. Bradley

D. EEWS-D Eye Wash - Wall Mounted

SPEC EDITOR: EEWS-G IS APPROVED BY U-M EHS FOR USE AT CHEMICAL TREATMENT EQUIPMENT

1. Wall mounted eye/face wash providing laminar flow, with universal emergency sign, wall hook, 12’ recoil swivel hose, chrome plated stay-open squeeze lever, with compatible manufacturer supplied, code compliant, vacuum breaker.
2. Minimum flow for plumbed and portable eyewash units is .4 gpm at 30 psi.
3. Units must be capable of delivering a minimum of 15 minutes of flushing fluid.
4. Eyewash units shall be capable of being activated in 1 second or less.
5. Stay open ball valves must be used to accommodate for hands-free rinsing.
6. Flushing fluid must be provided to both eyes simultaneously.

7. Dust caps or dust covers must be installed to protect the unit from contaminates.
8. Spray heads must be positioned between 33" and 45" from the floor.
9. Spray heads must be positioned at least 6" from the wall or nearest obstruction.
10. Eyewash stations must be located within 55' of hazard, with unobstructed travel path.
11. Eyewash must meet ANSI z358.1-2014 requirements.
12. Acceptable manufacturers and models
    a. Haws 8905
    b. Guardian G5026
    c. Bradley

E. EEWS-E Emergency Eye Wash: Portable. Self-Contained. ANSI Z358.1-2009 compliant.

1. Impact resistant plastic with pull down activation eyewash arm.
2. Flushes eyes for 15 minutes at 0.4 gpm.
3. Gravity Fed.
4. 7-9 gallon capacity.
5. Acceptable manufacturers and models:
    a. Haws.
    b. Bradley
    c. Speakman.

F. EEWS-F Emergency Eye Wash: Recessed Wall mounted. Swing away when not in use. ANSI Z358.1-2009 compliant. Provide swing arrangement that accommodates mounting location. Barrier Free.

1. Stainless steel or chrome plated brass eye wash head(s) with tethered dust cover(s) and auto-flow control.
2. Chrome-plated brass pipe, fittings, and stay-open ball valve, with stainless steel ball and stem.
3. Universal emergency sign mounted on stainless steel ball valve paddle.
4. Test card to record weekly checks.
5. Emergency Fixture Tempering Valve.
6. Acceptable manufacturers and models:
    a. Haws.
    b. Bradley

G. EEWS-G Emergency Eye Wash: Deck-mount drench hose, handheld eye/face wash. ANSI Z358.1-2009 compliant.

1. Stainless steel or chrome plated brass eye wash head(s) with tethered dust cover(s) and auto-flow control.
2. Chrome-plated brass pipe, fittings, deck escutcheon, and stay-open ball valve.
3. Provide with 8’ thermoplastic hose with swivel fitting. Min 250 psi rating.
4. Universal emergency sign for wall mounting.
5. Test card to record weekly checks.
6. Emergency Fixture Tempering Valve.
7. Acceptable manufacturers and models:
    a. Haws
    b. Bradley S19-460EFW
    c. Speakman

H. EEWS-H Emergency Shower: Drench shower, flush ceiling-mounted shower head with concealed horizontal supply pipe and valve. ANSI Z358.1-2009 compliant. Barrier Free.

1. Stainless steel shower head with 20 gpm flow control.
2. Stainless steel or brass stay-open ball valve, with stainless steel ball and stem.
3. Stainless steel triangular pull rod; provide length required to meet ANSI Z358.1 44-48" maximum distance to floor requirement.
4. Pull rod ceiling escutcheon.
5. 1.0 in. sch. 40 galvanized steel supply pipe/fittings.
6. Universal emergency sign and weekly test card.
7. Emergency Fixture Tempering Valve.
8. Acceptable manufacturers:
   a. Haws
   b. Bradley.
   c. Speakman.

I. EEWS-I Emergency Shower/Eye-Face Wash: Combination shower eye/face wash, self-supporting. ANSI Z358.1-2009 compliant. Barrier Free.

1. Stainless steel or chrome plated brass combination eye and face wash head(s) with tethered dust cover(s) and auto-flow control. Operated by stainless steel paddle with universal emergency sign.
2. Stay-open stainless steel or chrome plated brass ball valve, with stainless steel ball and stem, for eye/face wash and for shower.
3. Stainless steel bowl.
4. In-line strainer for eye/face wash.
5. 1-1/4 in. sch. 40 hot-dipped galvanized steel pipe stand/waste tee and cast floor flange. Stand and floor flange painted/powder coated.

SPEC EDITOR: COMBINATION SHOWER/EYE-FACE WASH UNITS ARE AVAILABLE WITH DRAIN AND SUPPLY CONNECTIONS LOCATED AT VARIOUS ELEVATIONS. EDIT THE BELOW TO PROVIDE CONNECTIONS SUITABLE FOR YOUR PROJECT.

6. Low waste connection, supply connection to be tee at top of pipe stand.
7. Universal shower emergency sign and weekly test card.
8. Stainless steel shower head with 20 gpm flow control.
9. Stainless steel or aluminum triangular pull rod; provide length required to meet ANSI Z358.1 69" maximum distance to floor requirement.
10. Emergency Fixture Tempering Valve.
11. Acceptable manufacturers and models:
    a. Haws.
    b. Bradley.
    c. Speakman.

SPEC EDITOR: NOTE THAT COMBINATION FAUCET/ EYE WASH FIXTURE REQUIRES THAT IT BE MOUNTED IN A SINK BOWL THAT IS A MINIMUM OF 13″ FRONT TO BACK (WITH STANDARD 5″ SPOUT) TO CONTAIN EYEWASH PLUME WITHIN SINK.

J. EEWS-J Emergency Shower: Drench shower, ceiling-mounted shower head with horizontal supply pipe and valve. ANSI Z358.1-2009 compliant. Barrier Free.

1. Stainless steel shower head with 20 gpm flow control.
2. Stainless steel or brass stay-open ball valve, with stainless steel ball and stem.
3. Stainless steel triangular pull rod; provide length required to meet ANSI Z358.1 44-48" maximum distance to floor requirement.
4. Pull rod ceiling escutcheon.
5. 1.0 in. sch. 40 galvanized steel supply pipe/fittings.
6. Universal emergency sign and weekly test card.
7. Emergency Fixture Tempering Valve.
8. Acceptable manufacturers:
   a. Haws
   b. Bradley.
   c. Speakman

SPEC EDITOR: TEMPERING VALVE CONSIDERATIONS: LOCATION? MOUNTING CABINET? ONE TEMPERING VALVE TO SERVE MULTIPLE FIXTURES? IS THERE ADEQUATE WATER SUPPLY PRESSURE FOR TEMPERING VALVE AND FIXTURE PRESSURE DROP?

K. Emergency Fixture Tempering Valve: ANSI Z358.1-2009 compliant and ASSE 1071 listed emergency fixture tempering valve. Provide one tempering valve per emergency fixture. Cold water bypass when hot supply lost; shut-off of hot supply when cold supply lost; shut off hot and allow cold flow if thermal actuator fails.

1. Select valve to control accurately across the entire flow range of the emergency fixture. Tempering valve pressure drop shall not exceed 10 PSI at the emergency fixture's maximum flow rate.
2. Tamper resistant temperature adjustment, range 65 deg. F to 95 deg. F, factory set at 85 deg. F.
3. Rough bronze finish. Brass and stainless steel internal components.
4. Chloramine resistant seals.
5. Integral check valves and stainless steel strainers (screens) in hot and cold water inlet connections.
6. Provide thermometer to measure the mixed temperature, range 0-140 deg. F. Thermometer may be integral to tempering valve or field supplied.
7. Approved manufacturers:
   a. Haws
   b. Bradley
   c. Powers Hydroguard XP
   d. Leonard Valve Company

SPEC EDITOR: THE BELOW EMERGENCY FIXTURE ALARM SPECIFICATION (IN HIDDEN TEXT) IS A SAMPLE SPECIFICATION ONLY. TURN ON TEXT IF USED. TYPICALLY AT U-M, EMERGENCY FIXTURE ALARMS ARE ONLY USED FOR SHOWERS IN AREAS HIGHLY PRONE TO VANDALISM. HAWS, BRADLEY, AND SPEAKMAN ALL MAKE ALARM PACKAGES WITH THE FEATURES DESCRIBED BELOW. DESIGN CONSIDERATIONS: LOCATION OF THE HORN/LIGHT? IS ADEQUATE FLOW-SWITCH-TO-ALARM CABLE LENGTH AVAILABLE FROM THE MFR? HORN/LIGHT MOUNTED TO WHAT? DOME COLOR? REMOTE MONITORING? FOR EYEWASHES, SHOWERS, OR BOTH?

L. Emergency Fixture Alarm System: Complete stand-alone alarm system with flow switch, horn, and flashing light or strobe. For non-hazardous locations.

1. 120 VAC single phase. UL listed electrical components. On-off horn silence switch. NEMA 3R rated electrical components. Factory pre-wired flow switch, silence switch, horn, and flashing light/strobe. Provide adequate cable length between flow switch and alarm devices to accommodate installation conditions.
2. Amber light dome.
3. Horn volume 85 dB at 10 feet.
4. Additional alarm contact for remote monitoring.
5. Vapor proof flow switch. Provide flow switch compatible with emergency fixture served.
6. Approved manufacturers:
   a. Haws
   b. Bradley
   c. Speakman

2.40 WASHING MACHINE VALVE BOX

A. ABS plastic outlet box and trim ring and with supply and drainage connections. Box shall allow piping from bottom or top. With separate quarter turn ball valve for each supply connection. Ball valves shall be brass body, 1/2 in. sweat inlet connection, stainless steel ball and stem, with 3/4 in. hose bib. Provide dual drain "Du-All" box or a separate supply and drain box "Ox Box" as convenient for installation. Provide fire rated outlet boxes when required.

1. Approved manufacturers:
   a. IPS Corporation ("Du-All")
   b. Sioux Chief ("Ox Box" and fire rated)

2.41 ACCESSORIES

A. Supply Tubes, Stop Valves, and Escutcheons for Faucets: Sweat, threaded or compression connection. Rigid supplies. Metal handled valves. Valves and escutcheons chrome plated brass where exposed, may be rough brass where concealed. Supply tubes chrome plated brass where exposed, may be rough brass or plastic where concealed. Brass tubes and valves NSF/ANSI-61-G listed as ≤ 0.25% weighted average lead content. Acceptable manufacturers:

1. Watts
2. Chicago.
3. BrassCraft.
4. Faucet manufacturer.

SPEC EDITOR: THE BELOW GARBAGE DISPOSAL (IN HIDDEN TEXT) IS A SAMPLE SPECIFICATION ONLY AND IS NOT TO BE INCLUDED IN THE SPECIFICATIONS, EXCEPT WITH PERSMISSION BY THE PROJECT MANAGER AND THE UM PLUMBING TEAM. TURN ON TEXT IF USED. TYPICALLY, AT U-M, GARBAGE DISPOSALS ARE TO ONLY BE INSTALLED IN COMMERCIAL KITCHENS.

2.42 GD-A - GARBAGE DISPOSAL

A. GD-A Garbage Disposal:

1. Corrosion proof polymer or stainless steel hopper and grinding chamber.
2. Compact shell, 14 in. maximum overall height. Sound insulated.
3. Stainless steel grind ring, swivel impellers, and turntable.
4. Motor: 3/4 HP, 120V single phase permanently lubricated. Built-in overload protection with manual reset.
5. Stainless steel 3-bolt sink flange connection, stainless steel stopper, and dishwasher drain connection.
6. For operation with wall switch (continuous feed).
7. Acceptable manufacturers and models:
   a. Insinkerator Evolution Compact Series.
   b. Waste King Legend 9940.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

A. Examine roughing-in of water supply and sanitary drainage and vent piping systems to verify actual locations of piping connections before fixture installation. Verify that walls and floor finishes are prepared and ready for installation of fixtures.

B. Review millwork/casework shop drawings. Confirm location and size of fixtures and openings before rough-in and installation. Confirm that millwork/casework is constructed with adequate provision for the installation of countertop lavatories and sinks.

C. Coordinate cutting and forming of roof and floor construction to receive drains to required invert elevations.

3.2 INSTALLATION OF PLUMBING FIXTURES AND LABORATORY SERVICE OUTLETS - GENERAL

A. Fixtures shall not be used for construction activities. Protect fixtures from damage during construction.

B. Install fixture supports securely to building substrate, utilizing bolts in every mounting hole provided in the fixture support. Provide additional blocking/backing when required.

C. Install Barrier Free water closets, urinals, lavatories, and other devices at mounting heights and with clearances in conformance with the applicable Building Code and ADA requirements.

D. Install supply, vent and drain connections to fixtures full size of fixture connection, unless larger required by code or indicated otherwise on drawings. Provide the following minimum branch piping and connection sizes:

1. Lavatory and Sink Faucets: 1/2 in. branch piping to wall, 3/8 in. connection between wall and fixture, length of each 3/8 in. supply not to exceed 30 in.
2. Wall Hydrants: 3/4 in. branch piping.

3. Fume Hood Cup Sinks: 1/2 in. branch piping.
4. Eye/Face Wash: 3/4 in. branch piping.

E. Install fixtures and fixture carriers level and plumb.

F. Countertop Lavs: Coordinate with architectural trades.

G. Install wall flanges or escutcheons at piping wall penetrations in exposed, finished locations and within cabinets and millwork. Install deep-pattern escutcheons if required to conceal protruding fittings.

H. Install each fixture with trap, easily removable for servicing and cleaning.

I. Provide rigid supply tubes and stops to all lavatories and sinks.

J. Provide accessible ball type isolation valves (construction per Related Section) in the supplies to shower control valves and electric water coolers.

K. Provide accessible ball type isolation valves and spring check valves (construction per Related Section) in the supplies to service sink faucets. These check valves are in addition to checks integral to the faucet. Locate isolation valves to isolate faucet and checks.

L. Provide plumbing fixtures complete with supply, waste and vent piping connections; together with all fittings, supports, fastening devices, and valves.

M. Use strap wrenches and padded tools to preclude injury to chrome plated and other decorative surfaces.

N. Exposed to view supply and drainage trim for fixtures and equipment shall be connected to the rough piping systems at the wall, unless noted otherwise.

O. Wall sleeves on supply and drain connections are not required at the immediate connection to plumbing fixtures. Provide escutcheons.

P. For faucets without an included gasket, seal areas between faucet base and sink top with non-hardening plumber's putty.

Q. Seal joints between plumbing fixtures and walls and floors using mildew-resistant 100% silicone sealant. Match sealant color to fixture color. Comply with sealant requirements specified in Division 07 section for Joint Sealants.

R. Install emergency fixture placards at approved location.

3.3 INSTALLATION OF WATER CLOSETS AND URINALS - STANDARD AND BARRIER FREE

SPEC EDITOR: COORDINATE MOUNTING HEIGHTS WITH ARCHITECTURAL DRAWINGS

A. Mounting Heights:

1. Water closets - standard: 15 in. to 17 in. from top of toilet seat to finished floor.
2. Water closets - barrier free: 17 in. from top of toilet seat to finished floor.
3. Urinals- standard: 24 in. from rim to finished floor.

4. Urinals - barrier free: 17 in. from rim to finished floor, 44 in. maximum from hand operated flush valve to finished floor.
5. Flush Valve: Mount flush valve handle on wide side of stall or room.

B. Apply dual flush instruction plates to wall centered above flushometer.

C. Install toilet seats on water closets.

3.4 INSTALLATION OF FIXTURES IN CASEWORK AND FUME HOODS

SPEC EDITOR: BACKFLOW PREVENTER MAY BE REQUIRED - SPECIFY IN 221119 DOMESTIC WATER SPECIALTIES

A. Fixtures (including tailpiece) and outlets to be installed in casework and fume hoods shall be furnished by others and installed by this contractor as part of the work under this section. Contractor shall install fixtures and outlets complete including all piping, supports, stops, etc. Contractor shall provide rough-in and shall make all final connections. Contractor shall coordinate his work with fume hood and casework manufacturers and with all other trades. Refer to Related Sections Laboratory Casework and Laboratory Fume Hoods. Refer to Architectural drawings for location and quantities of outlets and fixtures and for piping details within fume hoods.

3.5 INSTALLATION OF THERMOSTATIC MIXING VALVES (NON-EMERGENCY FIXTURES)

A. Install in a location readily accessible for cleaning, adjustment, and valve/cartridge replacement.

B. Install mixing valve after checks and stops are installed. Thoroughly flush all piping immediately prior to mixing valve installation.

C. Install isolation valves on the hot and cold water inlet pipe connections, near the mixing valve.

D. Install check valves between the mixing valve and the mixing valve isolation valves. These check valves are in addition to the mixing valve's integral check valves.

E. Adjust valve temperature set point to 110 deg. F, following manufacturer's adjustment instructions.

3.6 INSTALLATION OF EMERGENCY FIXTURE TEMPERING VALVES

A. Install in a location readily accessible for cleaning, adjustment, and valve/cartridge replacement.

B. Install tempering valve after checks and stops are installed. Thoroughly flush all piping immediately prior to tempering valve installation.

C. Install isolation valves on the hot and cold water inlet pipe connections, near the mixing valve.

D. Install check valves between the mixing valve and the mixing valve isolation valves. These check valves are in addition to the tempering valve's integral check valves.

E. Install individual fixture tempering valves a maximum of 10 feet from the emergency fixture served, closer if recommended by the manufacturer.

F. Install a downstream thermometer with a range of 0-140 deg. F, to measure the mixed temperature. Not required if tempering valve is supplied with an integral thermometer.

G. Remove isolation valve handles.

H. Adjust valve temperature set point to 85 deg. F +/- 3 deg. F, or as indicated on drawings. Follow manufacturer's adjustment instructions.

3.7 COMMISSIONING

A. Perform the commissioning activities as outlined in the Division 01 Section for Commissioning and other requirements of the Contract Documents.

3.8 ADJUSTING AND CLEANING

A. Flush all water closets and urinals and verify performance. Adjust or clean flush valves to produce proper flow.

B. Back-flush shower heads, faucet aerators/spray heads, and in-line strainers at electric water coolers, emergency fixtures, and wherever installed, and reinstall.

C. Adjust pop-up drains for proper operation.

D. Adjust eyewashes to provide proper flow.

E. Adjust shower control valve limit stops to deliver maximum 120 deg. water.

F. Adjust stops or valves for intended water flow rate to fixtures without splashing, noise or overflow.

G. Replace dead batteries in sensor operated flush valves and faucets. Adjust sensor operation to satisfaction of commissioner.

H. At completion of project, remove excess caulk and sealants and clean plumbing fixtures and equipment.

END OF SECTION 224200