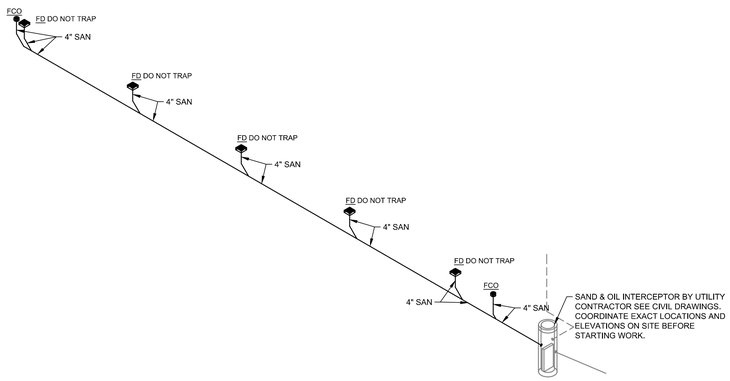
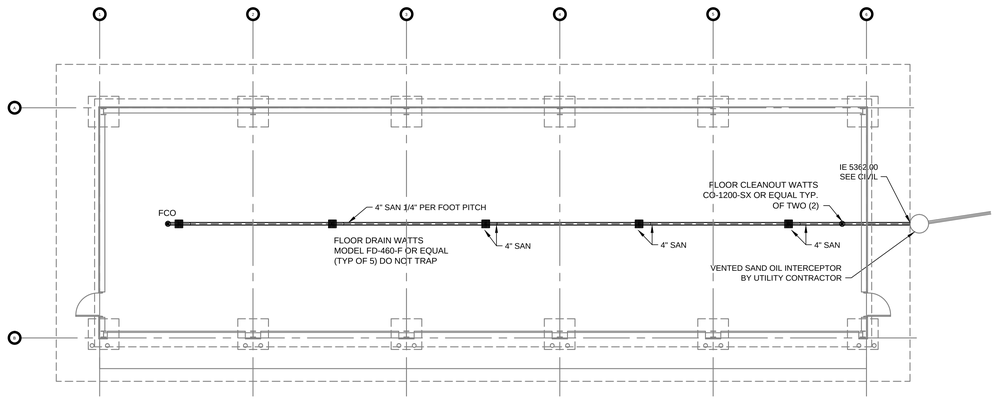


2 P-100 WASTE AND VENT PIPING ISOMETRIC
SCALE: N.T.S.



1 P-100 PLUMBING FLOOR PLAN
SCALE: 1/8" = 1'-0"

DIVISION 22 PLUMBING SPECIFICATIONS

GENERAL:

Division 01 shall apply to this specification.

All work shall be accomplished by skilled tradesmen ordinarily involved in the work performed. All work shall be neat and professional in appearance. All plumbing work shall meet the requirements of the IPC, International Plumbing Code. Unless otherwise required herein, perform plumbing work in accordance with the latest version of the IPC. For IPC codes referenced in the contract documents, advisory provisions shall be considered mandatory, the word "should" shall be interpreted as "shall". Reference to the "code official" or "owner" shall be interpreted to mean the COR.

QUALITY ASSURANCE:

All work shall be coordinated with all effected trades prior to starting work. Rework required due to coordination issues shall be done by the installation contractor without increased cost to the government.

Care shall be exercised in the storage and handling of equipment and piping material to be incorporated in the work. Debris arising from cutting, threading and welding of piping shall be removed.

Equipment and material placed on the job site shall remain in the custody of the Contractor until phased acceptance, whether or not the Government has reimbursed the Contractor for the equipment and material. The Contractor is solely responsible for the protection of such equipment and material against any damage.

Damaged equipment shall be replaced with an identical unit as determined and directed by the COR. Such replacement shall be at no additional cost or additional time to the Government.

Interiors of new equipment and piping systems shall be protected against entry of foreign matter. Both inside and outside shall be cleaned before painting or placing equipment in operation

SUBMITTALS

Submit pipe type and listing certificate, piping assembly methods and fitting types to be installed and floor drains to the Engineer. All submittals in accordance with Section 01 00 00 GENERAL REQUIREMENTS and Section 01 33 23 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

Maintenance and operating manuals in accordance with Section 01 00 00, GENERAL REQUIREMENTS, Article, INSTRUCTIONS, for systems and equipment. Include complete list indicating all components of the systems with diagrams of the internal wiring for each item of equipment. Include listing of recommended replacement parts for keeping in stock supply, including sources of supply, for equipment shall be provided. The listing shall include belts for equipment: Belt manufacturer, model number, size and style, and distinguished

The installing contractor shall maintain as-built drawings of each completed phase for verification; and, shall provide the complete set at the time of final systems certification testing.

Certification documentation shall be provided prior to submitting the request for final inspection. The documentation shall include all test results, the names of individuals performing work for the testing agency on this project, detailed procedures followed for all tests, and a certification that all results of tests were within limits specified.

PRODUCTS AND MATERIALS :

Polyvinyl Chloride (PVC):

Polyvinyl chloride (PVC) pipe and fittings are permitted where the waste temperature is below 60 degrees C (140 degrees F). Polyvinyl chloride sanitary waste, drain, and vent pipe and fittings shall be solid core sewer piping conforming to ASTM D2665, sewer and drain series with ends for solvent cemented joints. Fittings shall be solvent welded socket type using solvent cement conforming to ASTM D2564.

Cast iron waste, drain, and vent pipe and fittings.

Cast iron waste, drain, and vent pipe and fittings shall be used for Sanitary pipe extensions to a distance of approximately 1500 mm (5 feet) outside of the building. But at contractor's option may be used for the entire system. Cast iron Pipe shall be bell and spigot or hubless (plain end or no-hub or hubless). The material for all pipe and fittings shall be cast iron soil pipe and fittings and shall conform to the requirements of CISPI 301, ASTM A888, or ASTM A74. Joints for hubless pipe and fittings shall conform to the manufacturer's installation instructions. Couplings for hubless joints shall conform to CISPI 310. Joints for hub and spigot pipe shall be installed with compression gaskets conforming to the requirements of ASTM C564

Floor Cleanouts (FCO)

Floor cleanouts shall be gray iron housing with clamping device and round, secured, scoriated, gray iron cover conforming to ASME A112.36.2M. A gray iron ferrule with hubless, socket, inside calk or spigot connection and counter sunk, taper-thread, brass or bronze closure plug shall be included. The cover material and finish shall be extra heavy duty stainless steel alloy with a square shape. The cleanout shall be vertically adjustable for a minimum of 50 mm (2 inches). When a waterproof membrane is used in the floor system, clamping collars shall be provided on the cleanouts. Cleanouts shall consist of wye fittings and eighth bends with brass or bronze screw plugs. The loading classification for cleanouts in sidewalk areas or subject to vehicular traffic shall be heavy duty type.

Floor Drains (FD)

Floor drain shall comply with ASME A112.6.3. The floor drain shall have a heavy, cast iron body, double drainage pattern, heavy non tilting ductile iron grate not less than 300 mm (12 inches) square, removable sediment bucket. Clearance between body and bucket shall be ample for free flow of waste water. For traffic use, an extra heavy duty load classification ductile iron grate shall be provided.

EXECUTION

General:

Perform all Underground piping work per Section 31 20 11 EARTH MOVING

Piping

Cast iron or zinc coated pipe sleeves shall be provided for pipe passing through exterior walls below grade. The space between the sleeve and pipe shall be made watertight with a modular or link rubber seal. The link seal shall be applied at both ends of the sleeve.

Holes through concrete and masonry shall be cut by rotary core drill. Pneumatic hammer, impact electric, and hand or manual hammer type drill will not be allowed, except as permitted by COR where working area space is limited.

Pipe shall be round and straight. Cutting shall be done with proper tools. Pipe shall be reamed to full size after cutting.

All pipe runs shall be laid out to avoid interference with other work.

Changes in direction for soil and waste drainage and vent piping shall be made using appropriate branches, bends and long sweep bends. Sanitary tees and short sweep quarter bends may be used on vertical stacks if change in direction of flow is from horizontal to vertical. Long turn double wye branch and eighth bend fittings shall be used if two fixtures are installed back to back or side by side with common drain pipe. Straight tees, elbows, and crosses may be used on vent lines. Do not change direction of flow more than 90 degrees. Proper size of standard increaser and reducers shall be used if pipes of different sizes are connected. Reducing size of drainage piping in direction of flow is prohibited.

Buried soil and waste drainage and vent piping shall be laid beginning at the low point of each system. Piping shall be installed true to grades and alignment indicated with unbroken continuity of invert. Hub ends shall be placed upstream. Required gaskets shall be installed according to manufacturer's written instruction for use of lubricants, cements, and other installation requirements.

Cast iron piping shall be installed according to CISPI's "Cast Iron Soil Pipe and Fittings Handbook," Chapter IV, "Installation of Cast Iron Soil Pipe and Fittings"

Underground PVC piping shall be installed according to ASTM D2321.

If an installation is unsatisfactory to the COR, the Contractor shall correct the installation at no cost to the Government.

Joint Construction

Hub and spigot, cast iron piping with gasket joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for compression joints. Hub and spigot, cast iron piping with calked joints shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for lead and oakum calked joints.

Hubless or No-hub, cast iron piping shall be joined in accordance with CISPI's "Cast Iron Soil Pipe and Fittings Handbook" for hubless piping coupling joints.

For threaded joints, thread pipe with tapered pipe threads according to ASME B1.20.1. The threads shall be cut full and clean using sharp disc cutters. Threaded pipe ends shall be reamed to remove burrs and restored to full pipe inside diameter. Pipe fittings and valves shall be joined as follows:
Apply appropriate tape or thread compound to external pipe threads unless dry seal threading is required by the pipe service.
Pipe sections with damaged threads shall be replaced with new sections of pipe.

For PVC piping, solvent cement joints shall be used for joints. All surfaces shall be cleaned and dry prior to applying the primer and solvent cement. Installation practices shall comply with ASTM F402. The joint shall conform to ASTM D2855 and ASTM D2665 appendixes.

Specialty Pipe Fittings

Transition coupling shall be installed at pipe joints with small differences in pipe outside diameters.

Dielectric fittings shall be installed at connections of dissimilar metal piping and tubing.

Final Tests:

Waste and Vent piping Final tests can be done through smoke test or peppermint test at the contractor's option. For the smoke test, after fixtures are permanently connected and traps are filled with water, fill entire drainage and vent systems with smoke under pressure of .25 kPa (1 inch of water) with a smoke machine. Chemical smoke is prohibited. For the peppermint Test, introduce 60 ml (2 ounces) of peppermint into each line or stack. Record results and submit final results with closeout documents.

CONSTRUCTION DOCUMENTS

Revisions	Date

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Drawing Title: PLUMBING PLANS AND SPECIFICATIONS

Approved: Project Director

Project Title: FORT LOGAN NATIONAL CEMETERY MATERIAL OR EQUIPMENT STORAGE BUILDING AND RENOVATE MAINTENANCE YARD

Location: DENVER, COLORADO

Date: 3/26/2015 | Checked: JDG | Drawn: JDG

Project Number: VA888CM-3039

Building Number: N/A

Drawing Number: P-100
Dwg. 28 of 28

NCA DESIGN AND CONSTRUCTION SERVICE

Department of Veterans Affairs

VA FORM 08-6231

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