

# Element D Services

Plumbing

## D2030 Sanitary Waste and Vent

---

### PART 1 - GENERAL

---

#### 1.01 OVERVIEW

- A. This section addresses sanitary waste and vent systems within and to five feet beyond building perimeter.

---

### PART 2 - DESIGN CRITERIA

---

#### 2.01 GENERAL

- A. Sanitary waste and vent systems shall be provided for all plumbing fixtures, floor drains, food service fixtures and equipment, and all other domestic waste producing equipment, systems and devices that are required by code to discharge into the sanitary sewer.
- B. Waste and vent systems shall be designed using fixture drain loads established by code and provide proper operation during periods of peak demand.
- C. Main waste and vent stacks shall utilize chases or be located adjacent to columns where possible for vertical routing to multiple floor levels.
- D. Capped waste and vent connections for future extensions shall be located accessibly and not extend more than 24 inches from an active line. Waste and vent connections shall be located at elevations that will allow future installation of properly sloped piping without the need to dismantle or relocate installed ductwork, piping, conduit, light fixtures, etc.
- E. The building system is anticipated to flow by gravity to the exterior municipal sanitary sewer. Sanitary waste serving fixtures located below the 500 year flood plain or waste that cannot be discharged by gravity shall flow into a gas-tight, covered and vented sump from which the waste shall be lifted by automatic pumping equipment and discharged into a sanitary waste drain capable of gravity flow. Sewage ejector pumps shall be minimum duplex system sized to discharge peak calculated load with one pump out of service. Pumps shall be connected to emergency power source. Sumps and ejectors handling sewage shall not receive storm or subsoil/foundation drainage.
- F. Above ground floor drains, P-traps and first 20 feet of connected drainage piping receiving condensate or ice machine waste shall be properly insulated to prevent condensation.
- G. Provide cleanouts at locations and with clearances as required by the code, at the base of each waste stack and at intervals not exceeding 75 feet in horizontal runs. All interior cleanouts shall be accessible from walls or floors. Provide wall cleanouts in lieu of floor cleanouts wherever possible. A floor cleanout shall be installed only where installation of a wall cleanout is not practical. Provide a wall cleanout for each water closet or battery of water closets. Locate wall cleanouts above the flood level rim of the highest water closet but no more than twenty four inches above the finished floor. Coordinate the location of all cleanouts with the architectural features of the building and obtain approval of locations from the Project Architect.

# Element D Services

Plumbing

## D2030 Sanitary Waste and Vent

- H. No buried waste line shall be smaller than 2 inches. No vent line shall be smaller than 1-1/2 inches. No roof vent terminal shall be smaller than 3 inches. Waste piping serving water closets shall not be smaller than 4 inches.
- I. Locate all sanitary vent terminals a minimum of 25 feet horizontally from or 3 feet vertically above all air intakes, operable windows, doors and any other building openings.
- J. Drain lines serving automatic blood-cell counters shall be of carefully selected material that will eliminate potential for undesirable chemical reactions (and/or explosions) between sodium azide wastes and copper, lead, brass, and solder, etc.
- K. Avoid locating drains above sensitive equipment or areas where water leakage would cause major property loss or contamination. Refer to Design Guideline Element Z2050 for additional related requirements.
- L. Do not locate drainage or vent piping within stairways, electrical or telecommunications rooms.
- M. Provide floor drains in all toilet rooms designed to be occupied by more than one user at a time (i.e., containing two or more water closets or a combination of one water closet and one urinal).
- N. Do not locate floor drains within pharmacy drug preparation areas, operating rooms or areas where hazardous materials are handled or stored.
- O. All drain traps shall be properly vented in accordance with the Uniform Plumbing Code.
- P. Provide water supplied trap primers for all floor drains, floor sinks and hub drains, that may be susceptible to trap seal evaporation.
  - 1. Trap seal protection inserts may be provided in lieu of water supplied trap primers only where job conditions prevent the installation of water supplied primers.
  - 2. Trap seal protection insert shall not be installed in drains receiving waste that may have a temperature greater than 140 degrees F.
  - 3. Trap seal protection insert shall not be installed in drains receiving waste discharge flow of greater than 30 gallons per minute.
  - 4. Trap seal protection insert shall not be installed in drains receiving corrosive or chemical waste.
- Q. Provide submersible sump pump(s) in each elevator pit in accordance with the 2007 edition of ASME A17.1 and the State of Texas Elevator Safety and Licensing requirements. Pump effluent shall discharge indirectly into the sanitary waste system. The elevator pit pumping system shall be designed to prevent pump effluent, sewage, odors and gases from entering building spaces and the elevator pit. Provide a sanitary indirect waste receptor having a capacity greater than the maximum flow rate discharge of the pump(s). Pump electrical service shall be connected to emergency power source.

# Element D Services

Plumbing

## D2030 Sanitary Waste and Vent

- R. Design and size indirect waste receptors and associated piping receiving discharge from equipment and relief valves to evacuate the maximum possible flow. The design shall prevent flooding, splashing and ponding.

---

### PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS

---

#### 3.01 GENERAL

- A. Develop plans, schedules, isometric or flat riser diagrams and details indicating all information required to clearly illustrate the intent of system design. All piping shall be located and sized on the Contract Drawings.
- B. Floor plans and riser diagrams shall include, but not be limited to identification of all sanitary waste piping from fixtures to connection to exterior sewer, all vent piping from fixtures and stacks to termination through roof, cleanouts, fixture and equipment identification, traps and trap primer lines.
- C. Calculated fixture units used for system design shall be noted at house drains exiting the building, base of stacks, floor branch connections at stacks, ejector pump system discharge and interceptor inlets.
- D. Invert elevations shall be noted at all drains exiting the building perimeter, connections to exterior sewers, uppermost point of each main and branch line located below ground level, and all other points where required to clearly establish proper slope and coordination with other piping systems and building components.
- E. Bottom of pipe elevations shall be noted for unburied piping at locations where close coordination is required to prevent conflicts with other systems and/or building components.
- F. Graphically identify each stack on plans and riser diagrams. Stack identification on riser diagrams shall correspond to stack identification on plans. Graphically indicate floor levels and floor elevations on riser diagrams.
- G. Details shall be provided for, interceptors, cleanouts, roof penetrations, floor and wall penetrations, sewage ejector pump systems and all other components that require installation explanation beyond the information included within plans and riser diagrams.
- H. Schedules shall clearly identify: Capacity, size, model, options and other requirements for all interceptors and sewage ejector pump equipment.

---

### PART 4 - PRODUCTS

---

#### 4.01 GENERAL

- A. Refer to Owner's Master Construction Specifications. These are available on the Owner's Design Guidelines website: <http://www2.mdanderson.org/depts/cpm/standards/specs.html>

# Element D Services

Plumbing

## D2030 Sanitary Waste and Vent

- B. System design and piping specified for renovation of existing facilities shall be compatible with existing installation.

### PART 5 - DOCUMENT REVISION HISTORY

Issue	Date	Revision Description	Reviser
	01-01-07	Initial Adoption of Element	
Rev. 1	11-10-09	Changed maximum distance between cleanouts in horizontal drainage piping to 75 feet (previously 90 feet) and added verbiage regarding cleanout locations to match master specifications. Paragraph 2.01 G. Revised elevator pit sump pumping requirements to comply with the 2007 edition of ASME A17.1. Paragraph 2.01 Q.	DOS
Rev. 2	03/02/10	Added requirement for proper design of evacuating equipment and relief valve discharge. Paragraph 2.01 R.	DOS
Rev. 3	04/05/12	Added requirements that restrict the use of trap seal protection inserts. Paragraph 2.01 P.	DOS
Rev. 4			
Rev. 5			

END OF ELEMENT D2030