Element D Services

# Plumbing D2035 Laboratory Waste and Vent

# PART 1 - GENERAL

#### 1.01 OVERVIEW

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

### PART 2 - DESIGN CRITERIA

#### 2.01 GENERAL

- A. Laboratory waste and vent systems shall be provided for all fixtures, floor drains, and equipment that may discharge corrosive liquids, spent acids or other harmful chemicals that could potentially destroy or injure cast iron or copper drainage and vent piping.
- B. The A/E shall obtain all necessary information from the Owner to determine system design, materials selection and waste treatment requirements. A proposed system design in either diagrammatic or narrative form shall be submitted to the Owner's Project Manager during the schematic phase of the Project.
- C. MD Anderson Cancer Center Department of Environmental Health and Safety maintains established policies that prohibits introduction of hazardous or corrosive waste into piping systems. However, as a precaution, chemically resistant waste and vent piping is required for all sinks, hub drains and floor drains within laboratory areas in the event that chemicals are inadvertently discharged into the piping system.
- D. When effluent is expected to have a pH less than 6 or more than 10, waste treatment shall be provided to render the waste to a neutral pH before discharging into building sanitary or municipal sewer systems.
- E. All piping shall be selected based upon the characteristics of the effluent expected to be introduced and be of such material and design as to adequately perform its intended function as required by code and to the satisfaction of the Owner's Environmental Health and Safety Group and the Building Operation and Maintenance Director.
- F. All materials located within spaces utilized as air plenums shall meet ASTM E84 25/50 for flame spread and smoke development and UL723 and UL910 for flame propagation and smoke density in environmental spaces.
- G. Waste and vent systems shall be designed using fixture drain loads established by code and equipment manufacturers discharge flow rates. Waste and vent systems design shall provide proper operation during periods of peak demand.

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- H. Main waste and vent stacks shall utilize chases or be located adjacent to columns where possible for vertical routing to multiple floor levels.
- I. The building system is anticipated to flow by gravity to the exterior municipal sanitary sewer. Laboratory waste serving fixtures and/or equipment 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 laboratory waste drain capable of gravity flow. Laboratory waste 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 laboratory waste shall not receive sanitary, storm or subsoil/foundation drainage. All components of basins and pumping systems shall be constructed of materials designed and approved for laboratory waste usage.
- J. Provide cleanouts at locations and with clearances as required by the International Plumbing 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. Coordinate the location of all cleanouts with the architectural features of the building and obtain approval of locations from the Project Architect.
- K. 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.
- L. 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.
- M. Do not locate drainage or vent piping within stairways, over or proximate to electrical or telecommunications rooms, Cath Labs, Operating/C-section Rooms, Radiology Rooms, or other rooms with high value equipment susceptible to water damage. The use of shields or drain pans to protect the above systems is not allowed.
- N. Do not locate floor drains within pharmacy drug preparation areas, operating rooms or areas where hazardous materials are handled or stored.
- O. All traps shall be properly vented in accordance with the Uniform Plumbing Code.
- P. Provide automatic trap primer for all floor and hub drains that may susceptible to trap seal evaporation.

#### 2.02 NEW BUILDINGS

A. Laboratory waste and vent piping shall be independent of all other waste and vent systems within the building.

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B. Intersection of laboratory waste and sanitary waste shall occur at exterior of building within a sampling manhole. Invert of laboratory waste piping shall be a minimum of 8 inches above bottom of sampling manhole.

#### 2.03 RENOVATION WORK

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- A. New laboratory waste and vent piping shall connect to existing chemically resistant piping within renovated laboratory areas.
- B. Where existing chemically resistant piping is not located within Project boundaries, new laboratory waste and vent piping shall connect to existing sanitary waste and vent stacks occurring within Project boundaries.

## **PART 3 - SPECIAL CONTRACT DOCUMENT REQUIREMENTS**

#### 3.01 GENERAL

- A. Develop plans, isometric or flat riser diagrams, schedules 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 laboratory waste piping from fixtures and equipment to connection to exterior sewer or existing interior piping; all vent piping from fixtures and stacks to termination through roof or connection to existing piping; 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 waste treatment tank or sampling well inlet.
- 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, waste treatment systems, sampling wells, cleanouts, waste ejector pump systems, roof penetrations, floor and wall penetrations, and all other

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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 waste treatment tanks, waste ejector pump equipment; Piping materials and piping support spacing.

## **PART 4 - PRODUCTS**

#### 4.01 GENERAL

A. Refer to Master Construction Specifications.

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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

The University of Texas MD Anderson Cancer Center ODG 20190301 LABORATORY WASTE AND VENT D2035 4 OF 5



**END OF ELEMENT D2035** 

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