

Element D Services

Plumbing

D2040 Storm Water Drainage

PART 1 - GENERAL

1.01 OVERVIEW

- A. This section addresses storm water drainage systems within and to five feet beyond building perimeter.

PART 2 - DESIGN CRITERIA

2.01 GENERAL

- A. Storm water drainage systems shall be provided to convey rainwater from roof and area drains to the site municipal storm sewer system. Secondary emergency overflow systems shall be installed to protect parapeted roof structures in the event of primary system blockage. The overflow system shall utilize parapet scuppers or secondary piping discharging through the exterior building wall. Storm over flows/scuppers to atmosphere shall be directed away from building perpendicular to building face. Avoid vertical soffit overflows, direct flow away from building face. Aesthetics of scuppers and/or secondary piping termination shall be determined by the Project Architect.
- B. Secondary emergency overflow piping shall discharge immediately below the roof level or at grade.
- C. Primary and secondary roof drain systems shall be designed using 8 inch per hour rainfall intensity in conjunction with code established areas-to-pipe sizes allowed.
- D. Storm drains that cannot be discharged by gravity shall flow into a gas-tight, covered and vented sump from which the drainage shall be lifted by automatic pumping equipment and discharged into a storm drain capable of gravity flow. Storm water lift pumps shall be minimum duplex system sized to discharge maximum calculated load with one pump out of service. Pumps shall be connected to emergency power source. Sumps and lift pumps handling storm drainage shall not receive sanitary or subsoil/foundation drainage.
- E. Roof drainage system shall not connect to subsoil/foundation drainage or any open storm drain piping located within the building.
- F. Roof drain and emergency overflow drain sumps and horizontal piping to first vertical downspout shall be insulated to prevent condensation.
- G. No roof drain shall have an outlet connection smaller than 3 inches.
- H. Avoid locating drain sumps or piping 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.

Element D Services

Plumbing

D2040 Storm Water Drainage

- I. Do not locate drain sumps or piping within stairways, electrical or telecommunications rooms.
- J. Appropriate subsoil and foundation drainage shall be provided as required by the geo-technical report. Due to elevations of foundations and city utilities, all subsoil drainage shall be discharged from the building through a lift station with duplex pumps. Each pump shall be sized for 100 percent of design capacity. Sumps and pumps handling sub-soil/foundation drainage shall not receive any sewage or roof drainage.

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 roof drains, area drains and piping.
- C. Area square footages used for system design shall be noted at each roof drain, area drain, house drains exiting the building, base of downspouts, branch connections at downspouts, and sump pump system.
- 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 roof drain, area drain and downspout on plans and riser diagrams. Identification on riser diagrams shall correspond to identification on plans. Graphically indicate floor levels and floor elevations on riser diagrams.
- G. Details shall be provided for, cleanouts, roof drains, secondary emergency overflow piping terminals, area drains, sump pump systems, roof penetrations, floor and wall penetrations, 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 sump pump equipment.

PART 4 - PRODUCTS

Element D Services

Plumbing

D2040 Storm Water Drainage

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>
- 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
Rev. 1			
Rev. 2			
Rev. 3			
Rev. 4			
Rev. 5			

END OF ELEMENT D2040