

**4715.2790 SIPHONIC ROOF DRAINAGE SYSTEM.**

Subpart 1. **General requirements.** In lieu of sizing the storm drainage system from conventional methods as required in part 4715.2710, the roof drainage may be designed as an engineered siphonic roof drainage system when allowed by the administrative authority. The engineered siphonic roof drainage system must meet the requirements of subparts 2 and 3.

Subp. 2. **Design criteria.** The siphonic roof drainage system must be designed and certified by a professional engineer licensed in the state of Minnesota.

A. The system must be sized on the basis of a minimum rate of rainfall of four inches per hour.

B. The drainage system must be designed according to ASPE Standard 45, Siphonic Roof Drainage, and according to the manufacturer's recommendations and requirements. Manufacturer design software must be in accordance with ASPE Standard 45.

C. Roof drains must meet ASME A112.6.9, Siphonic Roof Drains.

D. When designed for water accumulation, the roof must be designed for the maximum possible water accumulation according to chapter 1305 and part 4715.2780, subpart 1, item C.

E. Minimum pipe size must be 1-1/2 inches. All pipe sizes and cleanouts in the drainage system must be designed and installed according to ASPE Standard 45.

F. Horizontal pipe size must not reduce in the direction of flow.

G. The plans and specifications for the drainage system shall indicate the siphonic roof drainage system as an engineered method used for the design.

H. The installed drainage system must be permanently and continuously marked as a siphonic roof drainage system at approved intervals and clearly at points where piping passes through walls and floors. Roof drains must be marked in accordance with ASME A112.6.9.

I. The transition locations from the siphonic roof drainage system to a gravity system must be determined by the design engineer at a location acceptable to the administrative authority. The design, sizing, and venting of the transition location must be in accordance with ASPE Standard 45. The velocity at the transition location to gravity shall be reduced to less than three feet per second. The gravity portion of the building storm sewer system receiving the siphonic roof drainage system must be sized for the design rate but no less than a rainfall rate of four inches per hour and in accordance with part 4715.2710.

J. All plans, specifications, and calculations must be submitted to the administrative authority and signed and sealed by the design engineer. The submitted calculations must include performance data for the drainage system for the required rainfall rate, including the minimum and maximum calculated operating pressures and velocities verifying that the design solution is within the operating parameters required by the design standard. All performance data must be reported as the extreme maximum and minimum calculations and shall not be presented with "averaged" data.

Subp. 3. **Proof of suitability.** Upon completion of the project, proper tests, inspections, and certification of the siphonic roof drainage system must be performed according to items A and B.

A. Testing must be performed according to ASPE Standard 45.

B. Prior to the final plumbing inspection, the design engineer must provide written certification to the administrative authority that the system has been visually inspected by the design engineer and the installation has been properly implemented according to the certified design, plans, calculations, and specifications. The submitted written certification must include any field modification from the initial design involving dimensions, location, or routing of the siphonic drainage system that must be reapproved and recertified by the design engineer and be accompanied by a final as-built design of the altered system and supported by calculated data to show that the overall system remains in accordance with ASPE Standard 45.

**Statutory Authority:** *MS s 326B.43; 326B.435; 326B.52*

**History:** *36 SR 1479*

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