

**NATURAL RESOURCES CONSERVATION SERVICE  
CONSERVATION PRACTICE STANDARD**

**ROOF RUNOFF STRUCTURE**

(no.)  
CODE 558

**DEFINITION**

Structures that collect, control, and transport precipitation from roofs.

**PURPOSES**

This practice may be applied as a part of a resource management system to support one or more of the following purposes:

- Improve water quality;
- Reduce soil erosion;
- Increase infiltration;
- Protect structures;
- Increase water quantity.

**CONDITIONS WHERE PRACTICE APPLIES**

This practice applies where:

Roof runoff structures are a component of an overall resource management system;

Roof runoff needs to be diverted away from structures or contaminated areas;

There is a need to collect, control, and transport runoff from roofs to a stable outlet;

Roof runoff is collected and used for other purposes.

**CRITERIA**

**GENERAL CRITERIA APPLICABLE TO ALL PURPOSES**

**Laws and Regulations.** This practice must conform to all federal, state, and local laws and regulations. Laws and regulations of particular concern include those involving pollution control, property easements, wetlands, preservation of cultural resources, and endangered species.

**Design Capacity.** A 10-year frequency, 5-minute duration or larger rainfall shall be used to design roof structures, except where the purpose is to exclude roof runoff from polluted areas. In that case, a 25-year frequency, 5-minute duration or larger rainfall shall be used to design roof runoff structures (refer to Agricultural Waste Management Field Handbook, National Engineering Handbook, Part 651, Appendix 10B). When gutters are used, the capacity of the downspout (including entrance) must equal or exceed the gutter flow rate.

**Outlets.** Outlets must not discharge near wells, septic system drain fields, basements, or buried tanks. Direct runoff away from structure foundations to avoid wetness and hydraulic loading. Discharge runoff a minimum of five feet from the structure, and slope the discharge area away from the structure.

Outlet clean-outs must be provided as appropriate. Outlets must be protected from erosion.

**Supports.** Supports to withstand anticipated snow and other loads shall be included.

**Materials.** Roof runoff structures shall be made of durable materials. Roof gutters and downspouts may be made of 0.02 inch or thicker aluminum, 28 gauge or thicker galvanized steel, 1/8 inch or thicker plain steel, pressure treated wood, concrete, or plastic. Plastics shall contain ultraviolet stabilizers. Dissimilar metals shall not be in contact with each other.

Subsurface drains or outlets shall meet Natural Resources Conservation Service (NRCS) standard 606 Subsurface Drain.

**Protection.** Roof runoff structures shall be protected from damage by livestock and equipment.

Conservation practice standards are reviewed periodically and updated if needed. The current version of this standard is on our eFOTG web site available at [www.sd.nrcs.usda.gov](http://www.sd.nrcs.usda.gov) or may be obtained at your local Natural Resources Conservation Service.

**Additional Criteria To Increase Infiltration**

Where added infiltration is a purpose, route runoff to areas capable of infiltrating the runoff to replenish soil moisture without adversely affecting desired plant species.

**Additional Criteria To Increase Water Quality**

Storage structures must meet appropriate NRCS conservation practice standards.

Potable water storage structures must meet South Dakota Department of Environment and Natural Resources regulations and recommendations. The storage structure must not increase contamination of the stored water. Roof runoff collected and stored for potable uses must be treated prior to consumption, and should be tested periodically to assure that adequate quality is maintained for human consumption.

**CONSIDERATIONS**

Avoid discharging outlets directly to surface waters or to structures that discharge directly into surface waters.

**PLANS AND SPECIFICATIONS**

Plans and specifications for installing roof runoff structures shall meet this standard and shall describe the requirements for achieving its intended purposes. Plans and specifications shall show the location, size, spacing, and grade of all items to be built and the quality of materials to be used.

**OPERATION AND MAINTENANCE**

An operation and maintenance plan shall be developed that is consistent with the purposes of the practice, intended life, safety requirements, and criteria for the design. The plan shall include the following:

Keep roof runoff structures clean and free of obstructions that reduce flow;

Make regular inspections and repairs as needed to insure proper functioning of the roof runoff structures.