



## City of Ashland Building Safety Division

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## Policies / Interpretations / Procedures

BD-PP-0029

### STORM WATER DRAINAGE SYSTEMS

#### **Procedure Summary:**

Defines the terms "adequate drainage" and "approved drainage system" as referenced in the Oregon Residential Specialty Code (ORSC).

#### **Background:**

The Oregon Residential Specialty Code (ORSC) contains very few specific provisions related to the collection and proper discharge of storm water. Section R405 contains language which addresses the installation of drains for concrete foundations enclosing habitable or useable space below grade. Section R401.3 states as follows:

*Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection so as to not create a hazard. Lots shall be graded so as to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches within the first 10 feet.*

*Exception: Where lot lines, walls, slopes or other physical barriers prohibit 6 inches of fall within the first 10 feet, drains or swales or other means shall be provided, and shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2 percent away from the building.*

Section R408.5 states as follows:

*The finished grade of underfloor space may be located at the bottom of the footings; however, where there is evidence that the groundwater table can rise to within 6 inches of the finished grade at the building perimeter or where there is evidence that surface water does not readily drain from the building site, the grade in the underfloor space shall be as high as the outside finished grade, unless an approved drainage system is provided.*

In the latter two sections the terms "approved point of collection" and "approved drainage system" are not defined. This implies the Building Official may define these terms in order to assure proper disposal of storm water based on local conditions.

Additionally, the Oregon Plumbing Specialty Code (OPSC) section 1101.1 pertaining to storm water drainage states as follows:

***Where Required.*** *Roofs, paved areas, yards, courts, courtyards, vent shafts, light wells, or similar areas having rainwater, shall be drained into a separate storm sewer system, or into a combined sewer system where a separate storm sewer system is not available, or to some other place of disposal satisfactory to the Building Official.*

#### **Discussion:**

The control of storm water runoff/discharge helps to assure that damage to adjacent buildings and properties will be minimized. Without a roof drain system, buildings can be adversely affected. Once the roof water is collected, a proper method of disposal must be assured to minimize potential effects on the structure from which it is collected and to surrounding properties. Appropriate lot drainage must also occur to minimize the potential for damage to structures. Additionally, proper underfloor drainage must be assured to minimize future structural damage.

NOTE: Because of soil types, natural drainage patterns, land contours, community expectations, and the potential for liability, we have concluded that storm water from all impervious surfaces and runoff associated with peak rainfalls must be collected on site and channeled to the City storm water collection system (curb gutter at public street, public storm pipe or public drainage way). The on-site collection system consists of roof gutters, downspout leaders, perimeter foundation



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drainage systems, catch basins, area drains, underground piping, and the channels created through the lot grading process. Additionally, the crawlspace areas must be well-drained in all cases.

### **Policy:**

The term "adequate drainage" as referenced in Section R401.3 of the Oregon Residential Specialty Code (ORSC) is defined as lot grading such that storm water runoff is (a) collected and channeled away from all structures on the lot and in a manner where the runoff will not cross a property line without proper approval, and in turn (b) discharged into the City storm water collection system (curb gutter at public street, public storm pipe or public drainage way).

The term "approved drainage system" as referenced in Section R408.5 of the Oregon Residential Specialty Code (ORSC) consists of three related systems:

- Roof Drain System - consists of roof gutters, downspout leaders, and underground piping system which collects and conducts this water to the City storm water collection system.
- Underfloor Drainage System - consists of an underfloor drain or sump placed at the lowest point or points of the crawl space, and piping which channels this water to the City storm water collection system.
- Perimeter Foundation Drainage System - consists of a perforated drainage pipe placed around the perimeter of the building or crawlspace at/or below footing level, and the related gravel backfill.

Backwater valves are required whenever drainage piping is subject to reverse flow (i.e.: at the connection between a low point crawlspace drain and perimeter foundation drains or roof drains, or at the connection between roof drains and perimeter foundation drains.)

The inspector is authorized to allow all or part of the perimeter or underfloor drain to be eliminated in cases where it would be of no practical use. Examples:

#### Perimeter Drain

- The downhill side of a foundation on a steeply sloped lot.
- Around a foundation on a flat lot which has a significant slope away from the foundation walls on all sides.

#### Underfloor Drain

- Small additions to structures that do not have an existing approved underfloor or perimeter drainage system.

The underfloor drain must be installed such that the drain inlet is turned at a minimum of 45 degrees from the horizontal in the underfloor space and must be protected by a strainer device with no openings exceeding ½" in the least dimension. The inspection of this drain will occur in conjunction with the foundation inspection or the post/beam inspection. Drywells, splash blocks, or any other alternate methods are permitted only through the approval of the Building Official.

*\*Note: In accordance with green building practices, this policy promotes the installation and incorporation of listed and approved engineered bioswale systems within the onsite storm drainage system.*