
STORM DRAINAGE

The IRC prescribes methods to direct surface water away from the foundation to an approved location. Water held against the foundation leads to wet or damp basements or crawl spaces and over time can cause damage to construction materials both inside and outside the structure. Mold thrives in such moist environments, contributing to an unhealthy living environment. In addition, water saturation of the soils adjacent to foundations increases the lateral pressure against the structure. Proper design of surface drainage also prevents nuisance ponding on the lot and possible flooding of structures during periods of heavy rain.

The IRC lends some discretion to the building official in determining alternate methods for adequate drainage. Department policy for verifying proper surface drainage on properties will likely vary depending on geographic location, permeability of soils, and local history of damage and nuisances created by inadequate drainage. The building official is authorized to require submittal documentation sufficient to demonstrate compliance with the code. If deemed necessary, this may entail a detailed drainage plan with existing and proposed topographic contours, elevations, points of discharge, and any containment features. The building official may require that a registered design professional prepare such drainage plans. In many cases, a drainage plan is already established as part of the master plan for the entire housing development, and additional plans are not necessary. Other jurisdictions may require only some indication of the direction of drainage flow on the required site plan or may verify drainage on site visually without measurement at the time of inspection (Figure 3-7).

The IRC is most concerned with drainage in the immediate vicinity of the structure. The surface of the final grade is required to fall a minimum of 6 inches within the first 10 feet away from the foundation (Figure 3-8). Depending on local site conditions, it is not always possible to achieve that much fall, and the code permits alternative designs to drain the water away from the foundation. In this case, the surface water may be directed to swales or drains to ensure adequate drainage away from the structure. Impervious surfaces within 10 feet of the foundation, such as concrete driveways, sidewalks, and patios, must be sloped not less than 2 percent away from the structure (Figure 3-9).

[Ref. R401.3, R404.1.6]

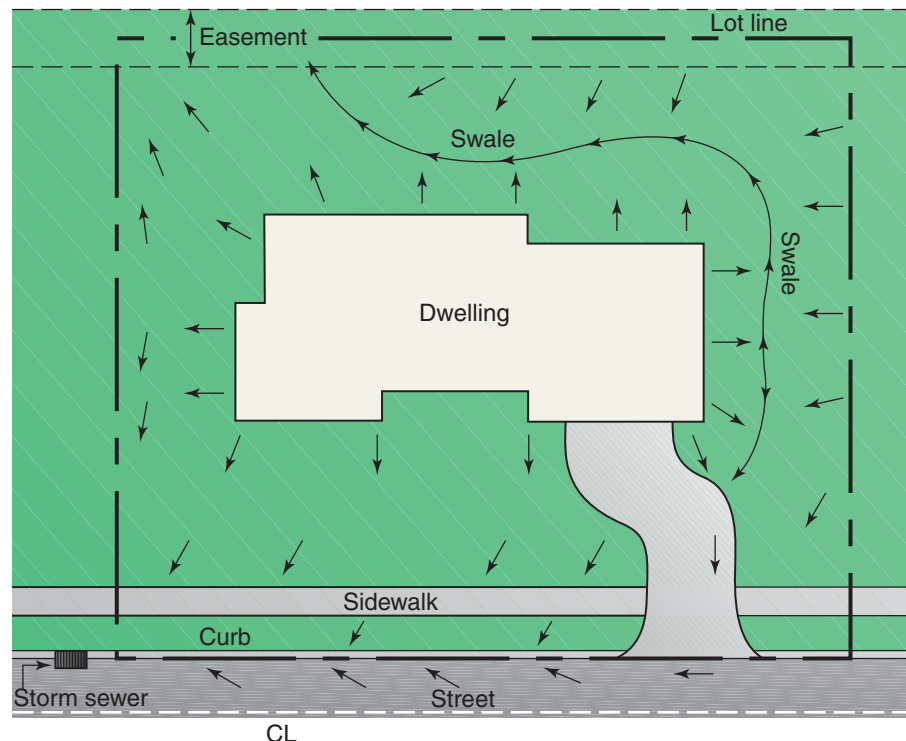


FIGURE 3-7 Drainage plan

Though the prescribed slopes as previously discussed are concerned with the first 10 feet away from the structure, the IRC also has requirements for drainage to an approved location such as a storm drain, storm sewer inlet, or the street gutter that leads to a storm drain. The drainage design must consider the entire lot for any impediments to drainage during heavy rains. [Ref. R401.3, R403.1.7.3]

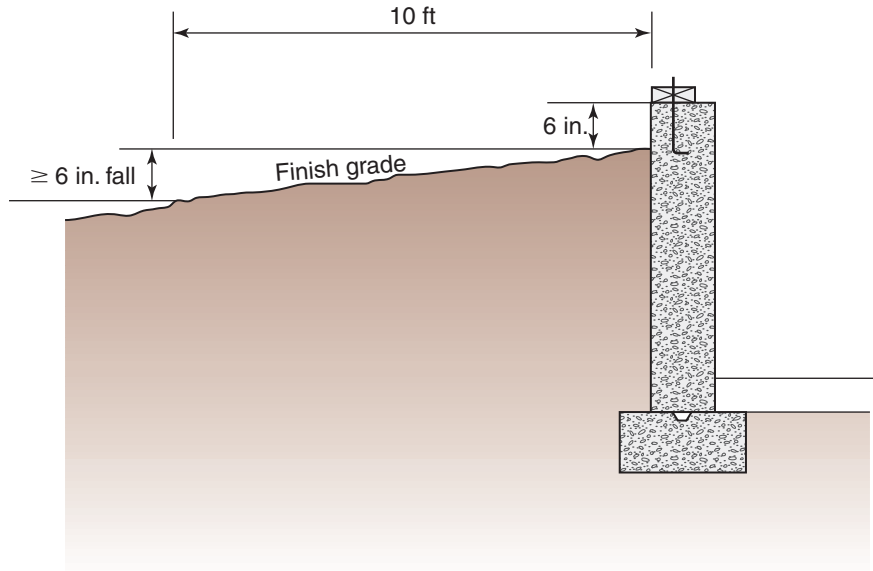


FIGURE 3-8 Grade sloped 6 inches in 10 feet to provide surface drainage away from foundation

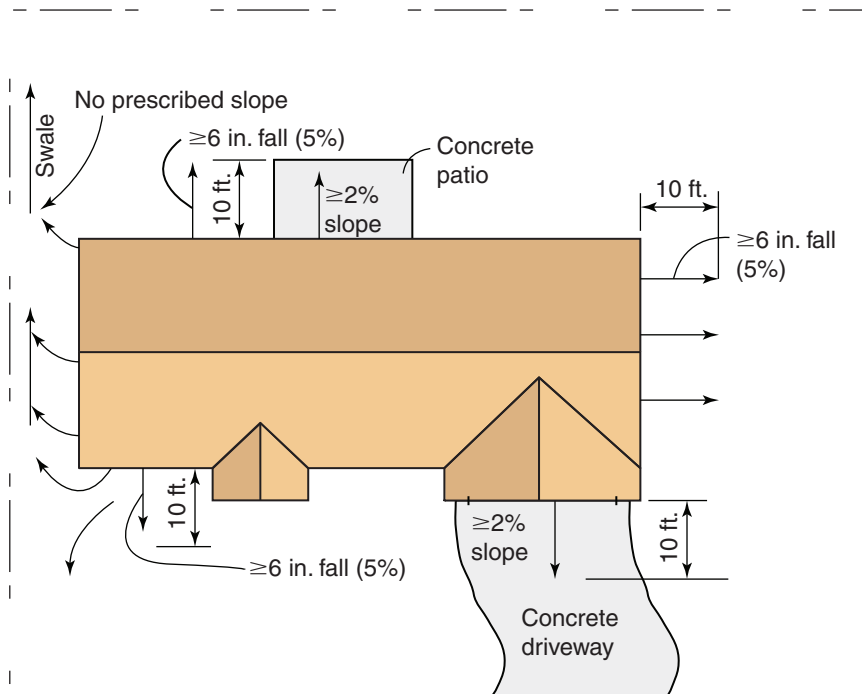


FIGURE 3-9 Grade to ensure surface drainage away from structure