

SITE GRADING FOR DRAINAGE AROUND BUILDING

EFFECTIVE DATE 05/15/2017
UPDATED DATE 11/07/2024

BACKGROUND:

1. Section 1804.4 of the 2022 California Building Code stated, "The ground immediately adjacent to the foundation shall be sloped away from the building at a slope of not less than one unit vertical in 20 units horizontal (5-percent slope) for a minimum distance of 10 feet measured perpendicular to the face of the wall. If physical obstructions or lot lines prohibit 10 feet of horizontal distance, a 5-percent slope shall be provided to an approved alternative method of diverting water away from the foundation. Swales used for this purpose shall be sloped a minimum of 2 percent where located within 10 feet of the building foundation. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum of 2 percent away from the building. CBC also provided the following exceptions, " Where climate or soil condition warrant, the slope of the ground away from the building foundation shall be permitted to be reduced to not less than one unit vertical in 48 units horizontal (2-percent slope). Impervious surfaces shall be permitted to be sloped less than 2 percent where the surface is a door landing or ramp that is required to comply with section 1010.1.5, 1012.3 or 1012.6.1.
2. Section R401.3 of the 2022 California Residential Code stated, "Surface drainage shall be diverted to a storm sewer conveyance or other approved point of collection that does not create a hazard. Lots shall be graded to drain surface water away from foundation walls. The grade shall fall a minimum of 6 inches within the first 10 feet." CRC also provided an exception, "Where lot lines, walls, slopes or other physical barriers prohibit 6 inches of fall within 10 feet, drains or swales shall be constructed to ensure drainage away from the structure. Impervious surfaces within 10 feet of the building foundation shall be sloped a minimum 2 percent away from the building."
3. Section 4.106.3 of 2022 California Green Building Standards Code stated in part, "Construction plans shall indicate how the site grading or drainage system will manage all surface water flows to keep water from entering buildings."

POLICY:

Since the prescribed requirements in CBC and CRC maybe difficult to achieve in some cases, we have developed the following policy as an alternative method under Section 104.11 of 2022 CBC and R104.11 of 2022 CRC.

The pervious surfaces immediately adjacent to the foundation may be sloped away from the building at a slope of 2-percent and the impervious surfaces may be sloped away from the building at a slope of 1-percent for a minimum distance of 10 feet measured perpendicular to the face of the wall, and also the swale within 10 feet of the building foundation may be sloped at a minimum of 1-percent if all the following conditions are met:

1. The surface soil is classified as having "very low" to "medium" expansion potential per project County approved Geotechnical report.
2. Soil design parameters for foundation provided by the Geotechnical report, have considered the effects of external environmental factors and the associated moisture content variations under the slab with respect to the initial condition.
3. Sufficient area drains shall be provided with maximum 20 feet on center to facilitate site drainage adjacent to the building.
4. All aspects of the surface drainage design shall be surveyed and verified by the Civil Engineer of Records and submitted to Grading Inspector prior to precise grading permit final.

Note: Within side-yard setback where less than 10 feet is provided between face of the wall and property line, area drain shall be spaced at maximum of 10 feet on center.

Approved by:

Hadi Tabatabaee, P.E., CBO
Building Official