

Foundations Walls

SECTION R404

R404.1 Concrete and Masonry Foundation Walls.

Concrete foundation walls shall be selected and constructed in accordance with the provisions of Section R404.1.2. Masonry foundation walls shall be selected and constructed in accordance with the provisions of Section R404.1.1.

R404.1.1.1 Masonry Foundation Walls. Concrete masonry and clay masonry foundation walls shall be constructed as set forth in Table R404.1.1(1) or R404.1.1(2), Tables R404.1.1(3) and R404.1.1(4) shall also comply with applicable provisions of Sections R606, R607 and R608. Rubble stone masonry foundation walls shall be constructed in accordance with Sections R404.1.8 and R606.2.2

SECTION R405

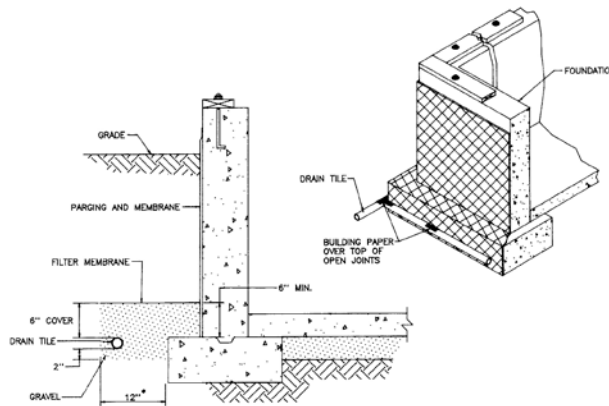
FOUNDATION DRAINAGE

R405.1 Concrete or Masonry Foundations. Drains shall be provided around all concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade. Drainage tiles, gravel or crushed stone drains, perforated pipe or other approved systems or materials shall be installed at or below the area to be protected and shall discharge by gravity or mechanical means into an approved drainage system. Gravel or crushed stone drains shall extend at least 1 foot beyond the outside edge of the footing and 6 inches above the top of the footing and be covered with an approved filter membrane material. The top of open joints of drain tiles shall be protected with strips of building paper. Perforated drains shall be surrounded with an approved filter membrane or the filter membrane shall cover the washed gravel or crushed stone covering the drain. Drainage tiles or perforated pipe shall be placed on a minimum of 2 inches of washed gravel or crushed rock at least one sieve size larger than the tile joint opening or perforation and covered with not less than 6 inches of the same material.

Exception:

1. A drainage system is not required when the foundation is installed on well-drained ground

or sand-gravel mixture soils according to the Unified Soil Classification System, Group I Soils, as detailed in Table R405.1.



SECTION R406

FOUNDATION WATERPROOFING AND DAMPPROOFING

R406.1 Concrete and Masonry Foundation Dampproofing.

Except where required to be waterproofed by Section R406.2, foundation walls that retain earth and enclose interior spaces and floors below grade shall be dampproofed from the top of the footing to the finished grade. Masonry walls shall have not less than 3/8 inch portland cement parging applied to the exterior of the wall. The parging shall be dampproofed in accordance with one of the following:

1. Bituminous coating,
2. 3 pounds per square yard of acrylic modified cement.
3. 1/8-inch coat of surface-bonding cement complying with ASTM C 887.
4. Any material permitted for waterproofing in Section R406.2.
5. Other approved methods and materials.

Exception:

1. Parging of unit masonry is not required where a material is approved for direct application to the masonry.

Concrete walls shall be dampproofed by applying any one of the above listed dampproofing materials or any

one of the waterproofing materials listed in Section R406.2 to the exterior of the wall.

R406.2 Concrete and Masonry Foundation

Waterproofing. In areas where a high water table or other severe soil-water conditions are known to exist, exterior foundation walls that retain earth and enclose interior spaces and floors below grade shall be waterproofed in accordance with one of the following:

1. 2-ply hot-mopped felts.
2. 55-pound roll roofing.
3. 6-mil polyvinyl chloride.
4. 6-mil polyethylene.
5. 40-mil (1 mm) polymer-modified asphalt.
6. 60-mil flexible polymer cement
7. 1/8-inch cement-based, fiber-reinforced, waterproof coating.
8. 60-mil solvent-free liquid-applied synthetic rubber.

Exception:

1. Organic-solvent-based products such as hydrocarbons, chlorinated hydrocarbons, ketones and esters shall not be used for ICF walls with expanded polystyrene form material. Use of plastic roofing cements, acrylic coatings, latex coatings, mortars and pargings to seal ICF walls is permitted. Cold setting asphalt or hot asphalt shall conform to Type C of ASTM D 449. Hot asphalt shall be applied at a temperature of less than 200F.

All joints in membrane waterproofing shall be lapped and sealed with an adhesive compatible to the membrane.

SECTION R408

UNDER-FLOOR SPACE

R408.1 Ventilation. The under-floor space between the bottom of the floor joists and the earth under any building (except space occupied by a basement or cellar) shall be provided with ventilation openings through foundation walls or exterior walls.

The minimum net area of ventilation openings shall not be less than 1 sq. ft. for each 150 sq. ft. of under-floor space area. One such ventilating opening shall be within 3 feet of each corner of the building.

R408.2 Openings for under-floor ventilation. The minimum net area of ventilation openings shall not be

less than 1 sq. ft. for each 150 sq. ft. of underfloor space area. One ventilating opening shall be within 3 feet of each corner of the building. Ventilation openings shall be covered for their height and width with any of the following materials provided that the least dimension of the covering shall not exceed ¼ in.:

1. Perforated sheet metal plates not less than 0.070 in. thick.
2. Expanded sheet metal plates not less than 0.047 in. thick.
3. Cast iron grills or grating.
4. Extruded load-bearing brick vents.
5. Hardware cloth of 0.035 in. wire or heavier.
6. Corrosion-resistant wire mesh, with the least dimension being 1/8 in.

Exception:

1. The total area of ventilation openings may be reduced to 1/1500 of the under-floor area where the ground surface is covered with an approved Class I vapor retarder material and the required openings are placed to provide cross-ventilation of the space. The installation of operable louvers shall not be prohibited.

R408.3 Unvented Crawl Space Ventilation openings in under-floor spaces specified in R408.1 and R408.2 are not required where:

1. The exposed earth is covered with an approved Class I vapor retarder and the joints are overlapped by 6-in., taped and sealed. The vapor retarder shall extend at least 6in. up the stem wall and shall be attached and sealed to the stem wall or insulation; and
2. One of the following is provided for the under-floor space:
 - a. Continuously operated mechanical ventilation is provided at a rate of 1 cfm for each 50 sq. ft. of crawlspace floor area, including an air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1103.2.1 of the KRC.
 - b. Conditioned air supply sized to deliver at a rate equal to 1 cfm for each 50 sq. ft. of under-floor area

including a return air pathway to the common area (such as a duct or transfer grille), and perimeter walls insulated in accordance with Section N1103.2.1 of the KRC.

- c. Plenums in existing structures complying with Section M1601.5
If the under-floor space is used as a plenum.

R408.4 Access. An access opening 18 in. by 24 in. shall be provided to the under-floor space. Where mechanical equipment is located under the floor, a 22 in. by 30 in. access opening is required, or large enough to remove the largest appliance. (M1305.1.4)

R408.5 Removal of Debris. The under-floor grade shall be cleaned of all vegetation and organic material. All wood forms used for placing concrete, and construction materials shall be removed before a building is occupied or used for any purpose.

R408.6 Finished Grade. The finished grade of under-floor surface 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 floor at the building perimeter or where there is evidence that the surface water does not readily drain from the building site, the grade in the under-floor space shall be as high as the outside finished grade, unless an approved drainage system is provided.

R408.6 Flood Resistance. For buildings located in flood hazard areas:

1. Walls enclosing the underfloor space shall be provided with flood openings in accordance with Section R322.2.2
2. The finished ground level of the under-floor space shall be equal to or higher than the outside finished ground level on at least one side.

Exception:

1. Under-floor spaces that meet the requirements of FEMA/FIA TB 11-1

Foundations



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Monday – Friday
8:00 AM to 4:30 PM