

# MAKING THE GRADE

Proper backfilling and grading help keep foundations dry.  
Here's how to do them right

By Richard Baker

**W**hen it comes to construction defects, wet basements and crawlspaces rank among the most serious. Possible consequences range from annoyances such as a slight musty smell, to serious health problems caused by mold. In extreme cases, a proper fix may mean digging up the yard, which can come with a serious blow to your reputation.

It's always better to do it right the first time, and a bone-dry basement or crawlspace is a sign of a quality builder. Most builders have a good handle on foundation waterproofing, but while that's crucial, it's also the last line of defense. The best plan is to keep water away from the foundation in the first place. Proper backfilling and landscape grading can go a long way toward achieving that goal.

The grade around the house is to the foundation as the siding is to the housewrap and sheathing: It needs to shed as much bulk water as possible before the water reaches those underlying elements. Getting this right is common sense. When it comes to grading, you just need to remember that water follows gravity and gravity never sleeps.

Where a downward sloping grade meets a flat grade or a rise in the landscape, you need to prevent storm water from puddling. Options include a grassy drainage swale that's sloped to carry water away, or an area drain. The latter is a gravel-filled trench with a perforated pipe at the bottom—like a foundation drain but without the foundation—that slopes to a retention pond or storm sewer. These features also earn their keep between closely spaced homes.

When it comes to backfilling, free-draining backfill that's free of any construction debris will relieve hydrostatic pressure on

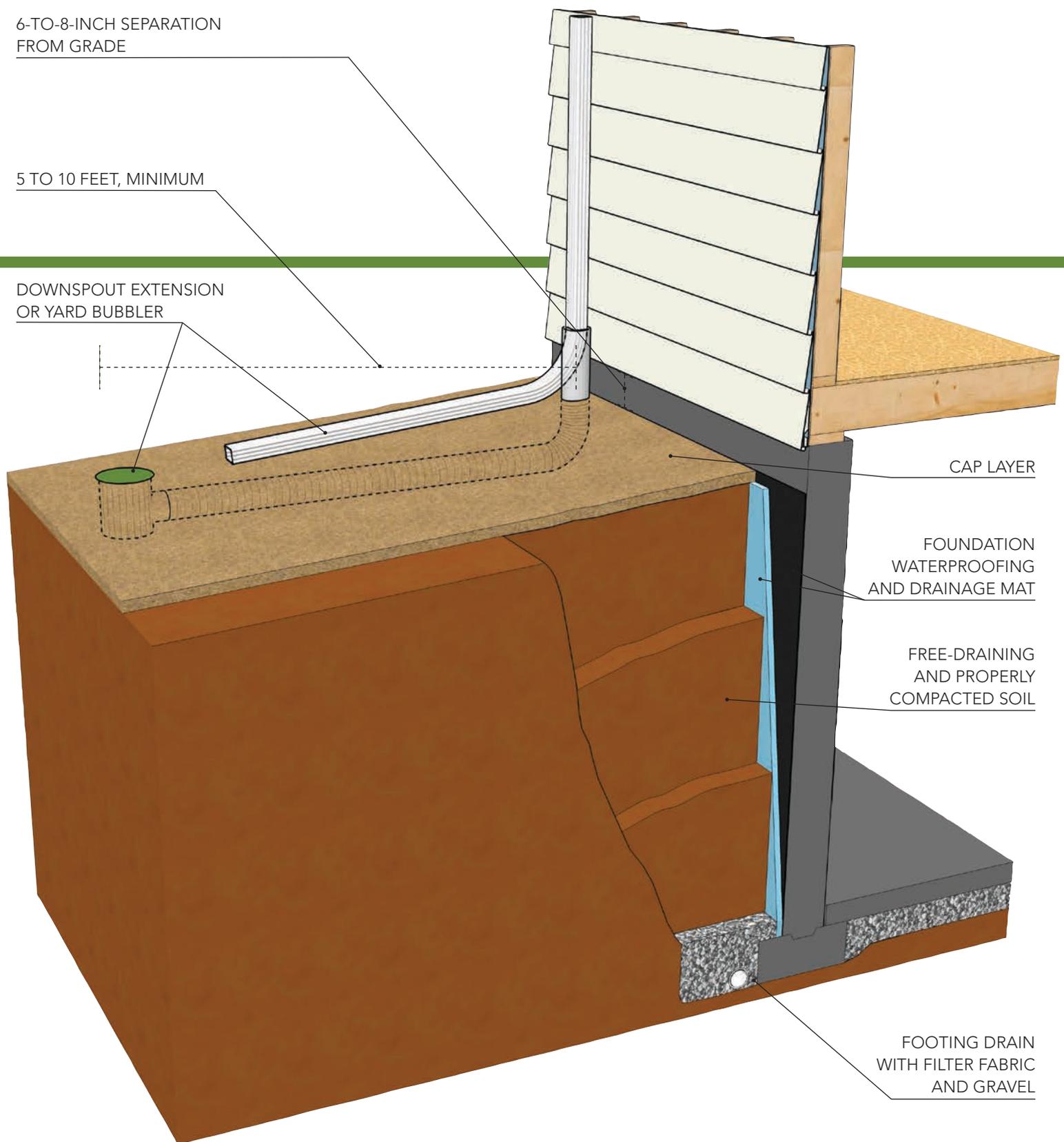
the foundation walls, minimizing the burden on your foundation waterproofing. This backfill should be properly compacted with a cap layer that will shed bulk water away from the foundation. The cap layer of fill can, of course, be covered with more attractive groundcover, but try to avoid plantings, particularly those with large root structures.

The grade must slope away from the house. This slope can be subtle: The IRC specifies a minimum slope of 5 percent, or 6 inches of fall per 10 horizontal feet.

Use the illustration and consider the following points in your efforts to keep bulk water away from your foundation:

- 1. Waterproofing:** Start with spray-on waterproofing in conjunction with a drainage mat on your foundation wall.
- 2. Footing drains:** Manage water reaching the foundation with footing drains protected with filter fabric and gravel.
- 3. Backfill:** Backfill in small lifts a few feet at a time and use a compactor on each lift. (This is the method used for highway grades to prevent roads from settling under heavy traffic.)
- 4. Cap layer:** Cap the backfilled area with a low-porosity soil, such as clay, sloped away from the home.
- 5. Downspouts:** Make sure that all downspout extensions direct water 5 to 10 feet away from the foundation. Underground downspouts to a yard bubbler can be a more attractive option.
- 6. Separation from grade:** Maintain 6 to 8 inches of separation between final grade and the siding material above. **PB**

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6-TO-8-INCH SEPARATION FROM GRADE

5 TO 10 FEET, MINIMUM

DOWNSPOUT EXTENSION OR YARD BUBBLER

CAP LAYER

FOUNDATION WATERPROOFING AND DRAINAGE MAT

FREE-DRAINING AND PROPERLY COMPACTED SOIL

FOOTING DRAIN WITH FILTER FABRIC AND GRAVEL