



## Concrete Cracks - Poured Wall Foundations

Cracks in poured concrete foundations are a common occurrence in new home construction. While some minor cracking is often a normal part of the curing and settling process, it is important for homeowners, builders, and contractors to understand the significance of these cracks and when they indicate a need for further evaluation or corrective action. This bulletin outlines the types of cracks that may appear in poured concrete foundations, their potential causes, and when they should prompt attention.

Types of Cracks in Poured Concrete Foundations:

### 1. Hairline Cracks

- **Description:** These are thin cracks, often less than 1/16" wide, that can appear in concrete walls.
- **Causes:** Hairline cracks typically result from the normal curing process of concrete, which can shrink as it dries and hardens.
- **Action Required:** These cracks generally do not pose a structural risk and typically do not require immediate action, although they should be monitored to ensure they do not worsen over time.

### 2. Vertical Cracks

- **Description:** Vertical cracks run straight up or down along the foundation wall.
- **Causes:** These cracks are common in poured concrete walls and may develop due to natural settling, thermal movement, or shrinkage during curing.
- **Action Required:** Vertical cracks are often benign and may not affect the stability of the structure. However, if the cracks widen or if there is visible movement (e.g., displacement of the wall), further investigation is needed.

### 3. Horizontal Cracks

- **Description:** Horizontal cracks run parallel to the ground and can sometimes be wider than vertical cracks.
- **Causes:** These cracks are typically caused by lateral pressure on the foundation walls, which could result from issues such as water buildup, soil compaction, or expansive soil conditions.
- **Action Required:** Horizontal cracks are more concerning than vertical or hairline cracks and should be evaluated immediately. They may indicate structural instability or water infiltration risks and may require reinforcement, drainage improvements, or soil stabilization.

### 4. Diagonal Cracks

- **Description:** Diagonal cracks appear at an angle, often at the corners of windows, doors, or along intersections of walls.
- **Causes:** Diagonal cracks are typically caused by uneven settling of the foundation, which can result from variations in soil compaction or moisture content.
- **Action Required:** Diagonal cracks should be monitored closely, as they may indicate a more serious settlement issue. If these cracks widen, they may require further investigation and potential remedial measures.



## Concrete Cracks Continued

### When to Take Action

While many cracks in poured concrete foundations are considered normal, the following situations warrant closer attention and may require corrective action:

1. **Cracks Larger than 1/4 Inch:** Cracks that exceed 1/4 inch in width, particularly horizontal or diagonal cracks, should be evaluated. These could be signs of shifting or movement within the foundation, and it's crucial to assess whether structural integrity is compromised.
2. **Visible Movement or Displacement:** Any visible displacement, such as one side of a crack appearing higher or lower than the other, could indicate significant foundation movement. In such cases, the foundation should be inspected by a professional to determine the extent of the issue.
3. **Cracks with Water Infiltration:** Cracks that allow water to enter the basement or crawlspace can lead to moisture problems and long-term structural damage. Waterproofing and crack repair may be necessary.
4. **Rapid Expansion of Cracks:** Cracks that begin to widen quickly within a short period of time should be investigated. Rapid crack expansion can be a sign of foundation movement, requiring professional intervention.

Causes of Cracking in Poured Concrete Foundations:

1. **Curing Shrinkage:** During the curing process, concrete naturally shrinks as it hardens. This shrinkage can lead to hairline and minor vertical cracks, which are usually not a concern.
2. **Soil Conditions:** The type and condition of the soil around the foundation can influence cracking. Expansive soils, which swell when wet and shrink when dry, are a common cause of foundation cracks.
3. **Water Pressure:** Excess water around the foundation can exert pressure on the walls, particularly if drainage systems are inadequate or if the soil is poorly graded. This can lead to horizontal cracking, especially in basements.
4. **Foundation Settlement:** Over time, new foundations may settle as the surrounding soil adjusts to the weight of the structure. This can result in minor cracking, which is typically not a cause for alarm unless it is excessive or affects the structure's stability.

*Cracks in poured concrete foundation walls are not uncommon in new home construction, but not all cracks are cause for concern. Minor cracks are often a result of normal settling and curing processes. However, cracks that are large, actively widening, or accompanied by signs of structural movement should be evaluated by a qualified professional. Early detection and timely intervention can help mitigate the risk of more serious foundation issues and prevent costly repairs down the road.*

*For further information, consult the **National Association of Home Builders (NAHB) Residential Construction Guidelines** and consider seeking your homebuilder for a thorough evaluation.*

Technical Services Team

This bulletin is intended to provide guidance to homeowners, builders, and contractors to help identify and assess foundation cracking issues in new home construction. It is always advisable to consult with a structural engineer for a more in-depth evaluation when concerns arise.