

# THE IMPORTANCE OF GOOD DRAINAGE AROUND YOUR HOME FOR FOUNDATION PROTECTION

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## Introduction

The foundation of a house is its most essential structural component, yet homeowners often ignore the hidden dangers posed by poor drainage systems. In Malaysia's tropical climate, where frequent heavy rains are commonplace, effective water management on your property is crucial. It's not solely about preventing puddles, but also about keeping your home's structure intact. Failing to redirect water away from the building can lead to significant foundation issues, flooding in the basement, persistent dampness, and related problems such as wall cracks, water leaking, and damage that may require building repair or waterproofing repair. Grasping how drainage can damage your house and implementing some simple measures to prevent it can save you costs on repairs in the future.

## How Poor Drainage Leads to Foundation Damage

Water naturally follows the path of least resistance, and when drainage systems fail, that route usually leads directly towards your foundation. If gutters are blocked or the land slopes towards the house rather than away, rainwater will accumulate around the foundation of the building. Continuous exposure to moisture over time, can cause the soil to expand and contract, creating uneven pressure on the foundation. This effect is particularly pronounced due to high clay content soils found throughout Malaysia. The consequences might include cracks in the foundation, uneven settling of the home, and in extreme instances, structural instability that requires expensive expert assistance.

## The Relationship between Drainage and Indoor Dampness

Inadequate drainage can lead to significant issues both outside and inside your home. Water that accumulates near the foundation infiltrates the structure, can result in damp ground-level floors or basements. This moisture provides perfect conditions for mould and mildew to flourish, which can negatively impact indoor air quality and potentially cause health problems for residents.

In many Malaysian households, the first symptoms will appear as damp spots, flaking paint, or sagging floors. The illustration below depicts paint peeling off the wall, which suggest that moisture is infiltrating the building envelope. This is typically caused by an inadequate drainage system around the property's perimeter.



*Figure 1: Peeling paints from the wall <sup>[1]</sup>*

## Maintaining Gutters and Downspouts for Effective Water Flow

One of the simplest yet most efficient methods to safeguard your foundation is by keeping your gutters well-maintained. Overflowing gutters filled with leaves and debris lead to water spilling over the edges, flowing down the sides of your building and infiltrating the soil around the foundation. Figure 2 illustrates an overflowing gutter that is not maintained, spilling water onto the house foundation.

Consistent cleaning, ideally prior to the initial rains, guarantees that water drains away from the structure. Equally significant are the downspouts, which ought to be situated at least three to six feet away from the home. Many homeowners overlook this detail and allow downspouts to discharge too close to the foundation, negating the original purpose of having gutters. Installing splash blocks or connecting downspouts to underground pipes can provide additional protection.



*Figure 2: Unmaintained gutter overflowing water on house foundation <sup>[2]</sup>*

## The Role of Proper Grading in Exterior Water Management

The elevation of the land surrounding your house is essential for protecting the foundation. It should slope away from the house with a minimum gradient of six inches over the first ten feet. Many houses, particularly older ones, suffer from poor grading as time goes by due to soil settling or landscaping changes. This causes the water to move back toward the foundation rather than away from it.

Fixing the problem could involve adding soil to create the proper slope or placing French drains, which are gravel-filled perforated pipes that divert water from at-risk zones. Both solutions necessitate some work, yet they are considerably cheaper than dealing with foundation repairs later on.

## Additional Drainage Solutions for Complete Protection

For homes located in extremely damp areas or with ongoing drainage problems, additional solutions might be necessary. Swales, or shallow grassy channels, can guide surface water away from the house in a more natural manner. For homes with dense clay soil that cannot absorb water, dry wells or catch basins may serve as an effective solution. It's important to consider permeable paving for driveways and walkways, which allows water to pass through instead of flowing away from your home. Figure 3 illustrates permeable paving designed for driveways. These measures are more effective when combined with routine upkeep of existing drainage elements, creating a cohesive approach to maintain water location and prevent it from reaching the foundation.



Figure 3: Permeable paving for driveways <sup>[3]</sup>

## Conclusion

Safeguarding your home's foundation through proper drainage is not merely a matter of reacting to issues when they occur. It's involves taking preventive actions that avert issues from the beginning. In Malaysia, where heavy rains are commonplace, ensuring that gutters are maintained, grading is accurate, and installing suitable drainage components can prevent water leaking, wall cracks, basement dampness, or even the need for PU injection, roof repair, or balcony repair. These measures can determine whether a home remains structurally sound or suffers from serious structural problems. The relatively minimal investment of time and money in efficient drainage solutions pales in comparison to the expenses and troubles associated with foundation repairs. By understanding how water flows across your land and implementing proactive measures, you will not only maintain your home's structural soundness but also ensure your property remains drier, healthier, and more valuable in the long run.

## References:

- [1] Stephens, C. (2016). *Commercial Painting Topics: Lead Paint*. Pacific Western Painting & Construction. Retrieved on 26<sup>th</sup> January 2024 from <https://pacwestpainting.com/commercial-painting-topics-lead-paint/>
- [2] White, E. (2019). *When Water Collects at the Foundation of Your Building*. Tidewater Roofing. Retrieved on 26<sup>th</sup> January 2024 from <https://tidewaterroofing.com/advice-for-homeowners/what-happens-when-water-sits-at-your-foundation/>
- [3] National Park City Front Gardens. (n.d.). *The myth of permeable living*. Retrieved on 26<sup>th</sup> January 2024 from <https://frontgardens.nationalparkcity.org/blog/the-myth-of-permeable-paving/>