

Technical Bulletin

20 October 2025

Subject: Curing Cement Render During Dry Weather

Overview

Dry weather conditions can affect the curing process of cement-based renders, potentially resulting in a soft or powdery surface. This can occur in both warm and cool conditions, particularly when combined with low humidity and wind.

Understanding the role of moisture in cement hydration, the effects of environmental conditions and appropriate curing practices is important for achieving optimal render performance.

Understanding Cement Hydration

Concrete is formed using three primary components:

Cement + Sand + Water = Concrete

Water plays an essential role in the chemical reaction required for cement to develop strength. This process is known as *hydration*.

During mixing, water reacts with the cement, initiating hydration and allowing the material to progressively harden and develop strength. Excess water is gradually lost through drying.

Cement hydration is a gradual process that requires sufficient moisture over time.

Under standard curing conditions, concrete typically takes approximately 28 days to develop its specified compressive strength. With adequate moisture, concrete can achieve approximately 80% of its strength within seven days at 25°C.

Temperature also influences the rate of hydration. At lower temperatures, initial setting and strength development are considerably slower. For example, at 5°C, it can take approximately five days to achieve the same strength as one day at 40°C.

Effects of Dry Weather on Cement Render

Dry weather can accelerate moisture loss from freshly applied cement render, affecting the hydration process and subsequent strength development.

Several environmental factors can contribute to this:

- **Substrate absorption:** Masonry substrates can draw moisture from freshly applied render, particularly when the substrate has low moisture content or high suction.
- **Low humidity:** Dry air increases the rate of moisture evaporation from the render surface.
- **Wind exposure:** Wind can accelerate surface drying and increase moisture loss.
- **Warm temperatures:** Higher temperatures can increase the rate of evaporation, reducing the moisture available for hydration.

- **Cool temperatures:** Lower temperatures slow the cement hydration process, extending the time required for the render to develop strength.

Overnight dew may provide some additional moisture to assist hydration. However, in persistently dry or windy conditions, this additional moisture may not be available.

When cement render loses moisture before sufficient hydration has occurred, the material may remain soft or powdery.

This can occur in both warm and cool, dry conditions, although the contributing factors may differ.

Identifying Insufficient Hydration

Soft or powdery render can occur due to a range of factors, including insufficient hydration during curing. Correct mixing, application and curing practices help promote the development of render strength and surface integrity.

The following methods can assist in identifying potential hydration-related issues.

Water Misting Assessment

1. Apply a heavy mist of clean water over most of the affected wall, ensuring the render is thoroughly dampened.
2. Leave the treated area overnight.
3. Assess the render after approximately 24 hours.
4. Compare the hardness of the dampened area with an untreated section.

If insufficient hydration is contributing to the issue, the dampened area should demonstrate improved hardness compared with the untreated section.

Additional misting may be required to support continued hydration and strength development.

Comparing Exposed Areas

Compare the condition of render across different elevations of the building.

Northern and western elevations may experience greater exposure to direct sunlight and wind, resulting in increased moisture loss.

If these areas are softer than more sheltered southern elevations, insufficient hydration may be a contributing factor.

Rockcote Cement Render Formulations

Rockcote incorporates technology into its cement render formulations to assist with moisture retention during the curing process.

However, excessive water retention can introduce other application challenges, including extended setting times and reduced workability.

Rockcote does not alter its cement render formulations between summer and winter. Products are supplied across a wide range of geographical locations and climatic conditions, making seasonal formulation adjustments difficult to control effectively.

Appropriate substrate preparation and curing practices are therefore important when applying cement render in varying environmental conditions.

Recommended Application and Curing Practices

The following practices can help reduce the risk of premature moisture loss and support adequate cement hydration.

1. Substrate Preparation

Lightly spray the wall with water and observe how quickly it is absorbed into the surface. If the water is

absorbed quickly, consider sealing the wall first with Rockcote Rockbond 27 or a mixture of Rockcote Acrybond and water at a ratio of 1 part Acrybond to 4 parts water.

For substrates with very high or variable suction, consider applying a Rockcote Keycote slurry to help manage moisture absorption.

2. Monitor Environmental Conditions

Consider the potential effects of temperature, humidity, wind and substrate absorption when planning render application.

Both warm and cool, dry conditions can affect hydration and may require additional attention to moisture management.

3. Maintain Adequate Moisture During Curing

If the cement render appears dry upon completion, apply a heavy mist of clean water to assist with hydration.

Depending on environmental conditions and the rate of moisture loss, additional misting may be required the following day.

Maintaining sufficient moisture during the early curing period supports continued hydration and strength development.

Mix the render for 3–5 minutes, then allow the mixture to stand for approximately 5 minutes before remixing and adjusting the consistency as required.

In hot, dry and/or windy conditions, re-wet the walls twice daily for two days after application to support proper curing.

Summary

Adequate moisture is essential for the hydration and strength development of cement-based renders.

Dry weather, particularly when combined with warm temperatures, wind or highly absorbent substrates, can accelerate moisture loss. Cooler temperatures can also slow hydration, increasing the time required for the render to develop strength.

Appropriate substrate preparation, consideration of environmental conditions and adequate moisture management during curing can help minimise the risk of soft or powdery render.

For further technical assistance, contact Rockcote.

**Regards,
Rockcote Technical Department**

