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Is the cold-joint interface effective

Overview

This intentional interface is designed to manage shear forces and is structurally superior to an unplanned cold joint. While often dismissed as purely aesthetic blemishes, a cold joint is, fundamentally, a failure of integration—a plane of weakness that interrupts the essential structural continuity in columns that is vital for resisting bending, shear, and axial compression. This comprehensive guide from B. This discontinuity occurs because the older material has passed its initial setting time, preventing a true chemical bond with the fresh mix. Understanding the causes and implications of cold joints is essential for implementing effective preventive measures and ensuring the long-term performance of concrete structures. A cold joint occurs when fresh concrete is placed against hardened concrete, creating a weak bond between the two. The behaviour of the interface between two concrete layers, subjected to shear, is a complex process that is influenced by many different parameters. Title: Modeling Reinforced Interfaces—Cold Joints Subjected to.

Article Content

Mechanics-based model for cold joints in reinforced concrete members

Validation against a comprehensive experimental database, including slant shear and push-off tests, demonstrated the model''s accuracy in predicting interface shear strength and overall ...

What Are Cold Joints in Concrete and Are They Bad?

Cold joints create critical flaws in concrete. Learn how these weaknesses develop, their structural impact, and practical methods for prevention and repair.

An experimental and numerical study on the effects of cold joint ...

Cold joints, formed due to interruptions in the concrete placement process, significantly impact the mechanical behavior of concrete structures. This study comprehensively examines the ...

Mechanical Behavior of Hardened Printed Concrete and the Effect of ...

This experimental study investigates the influence of interlayer orientation and the presence of cold joints (CJ) on mechanical properties, such as stiffness and strength.

Analytical Method and Analysis of Cold-Joint Interface

This analytical method is mostly suitable for determining the behaviour of the interface between the layers of normal concrete with a smooth interface surface with and without transverse ...

The Critical Threat of Cold Joints in Concrete Columns: Ensuring ...

By minimizing the number of construction joints and ensuring that any unavoidable joints are treated meticulously with construction joint preparation techniques and concrete bonding agents, ...

Cold Joints In Concrete: Are They Harmful Or Harmless?

Cold joints in concrete occur when new concrete is placed against hardened concrete, creating a weak interface that can compromise structural integrity. Repairing these joints is essential ...

Enhancing Cold Joint Shear Strength Prediction in Concrete ...

This research explores the application of ensemble spiking neural network models for predicting interface shear strength in concrete structures, a crucial parameter in civil engineering.

Modeling Reinforced Interfaces—Cold Joints Subjected to Cyclic Shear

In this work, the mechanisms mobilizing the shear resistance of interfaces, both under monotonic and cyclic actions, are described. Constitutive relationships based on previous research are adopted for ...

Effect of Cold Joint and Its Direction on The

This study would to test the compressive and flexural strength due to the effect of cold joint in the concrete.

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