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Technical Guidance Sheet

Installation of Isocrete and Tremco Cementitious Screeds in Cold and Hot Weather Conditions

Contents

1. Purpose

This guidance sheet provides best practice recommendations for the storage, mixing, installation, protection, and curing of cementitious screeds in both cold and hot weather conditions. Following these precautions will help ensure the screed achieves its intended strength, durability, surface finish, and dimensional stability.

European standards stipulate (EN 8204-7:2003 Section 7.2.2 Temperature) that the temperature of both the base slab and the air in the area that the screed is to be installed should always remain in the range 5°C to 30°C. This applies to the period that the material is being installed and subsequently for at least 72 hours.

NHBC Regulations 2025 (Section 9.3.4) also advise that the screed should not be installed during weather conditions which could adversely affect the finished construction, and suggest that in cold weather, they should not be installed. Material that is damaged by cold weather should be removed and replaced.

Successful installation of cementitious screeds in adverse weather depends on proper material storage, correct mixing, controlled installation conditions, effective protection, and appropriate curing practices. Preventing freezing in cold weather and excessive moisture loss in hot weather are critical to achieving the specified performance and long-term durability of the screed.

2. General Principles

Cementitious screeds rely on proper hydration of cement to develop strength. Environmental conditions can significantly affect:

- Setting times
- Strength development

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- Bond performance
- Surface finish quality
- Drying rates
- Risk of cracking and curling

Careful control of material temperatures, substrate conditions, ambient temperatures, and curing procedures is essential during adverse weather conditions.

3. Cold Weather Installation

Typical Cold Weather Risks

Cold weather conditions generally occur when:

- Air temperature falls below 5°C
- Substrate temperature falls below 5°C
- Frost is expected within 24–48 hours of installation

Potential problems include:

- Delayed setting and hardening
- Reduced early strength development
- Frozen mixing water
- Frost damage to immature screeds
- Debonding
- Surface dusting and weakness

Material storage

- ✅ Store bagged materials in a dry, enclosed environment.
- ✅ Protect materials from rain, snow, condensation and ground moisture.
- ✅ Maintain storage temperatures between 5°C and 30°C where possible.
- ✅ Rotate stock to ensure older materials are used first.

- ❌ Storing materials directly on cold concrete floors.
- ❌ Using frozen, damp or partially hydrated materials.
- ❌ Exposure to prolonged temperatures below 5°C.

Mixing

- ✅ Use clean water at temperatures between 10°C and 25°C where practical.
- ✅ Ensure mixing equipment is free from ice and standing water.
- ✅ Warm stored materials naturally before use if stored in very cold conditions.
- ✅ Follow manufacturer's specified water addition rates.

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- ❌ Mixing with frozen water.
- ❌ Adding excess water to improve workability.
- ❌ Using materials containing ice crystals or frozen aggregates.

Installation

- ✅ Confirm substrate and ambient temperatures are above 5°C and rising.
- ✅ Ensure substrates are free from frost, ice and standing water.
- ✅ Close openings to minimise cold draughts.
- ✅ Use temporary heating to maintain suitable temperatures if required.
- ✅ Install screed as early as practical during the warmest period of the day.

- ❌ Installing onto frozen substrates.
- ❌ Laying screed when temperatures are expected to fall below 5°C during the first 24–48 hours.
- ❌ Direct exposure to cold winds during installation.

Protection after installation

- ✅ Maintain ambient temperatures above 5°C throughout the initial curing period.
- ✅ Use insulated coverings where necessary.
- ✅ Employ indirect-fired heaters if temporary heating is required.
- ✅ Monitor temperatures continuously during cold spells.

- ❌ Direct-fired gas heaters without adequate ventilation, excess carbon dioxide and moisture can affect curing.
- ❌ Allowing freshly installed screed to freeze.
- ❌ Rapid temperature fluctuations.

Curing in cold weather

- ✅ Extend curing periods where temperatures are low.
- ✅ Maintain consistent environmental conditions.
- ✅ Protect newly installed screeds from frost until sufficient strength has developed.
- ✅ Follow product-specific curing recommendations.

Potential issues if not controlled

- Reduced early and ultimate strength
- Surface laitance
- Dusting
- Delamination
- Irreversible frost damage

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4. Hot Weather Installation

Typical hot weather risks

Hot weather conditions generally occur when:

- Air temperatures exceed 25°C
- Substrate temperatures exceed 25°C
- Strong sunlight or drying winds are present

Potential problems include:

- Rapid moisture loss
- Plastic shrinkage cracking and thermal cracking
- Reduced working time
- Reduced or rapid loss of workability/flow
- Difficulty achieving finish quality
- Curling and warping
- Reduced bond strength
- Reduced durability
- Difficulty in controlling air entrainment
- Increased permeability of the cured screed

Material Storage

- ✅ Store materials in shaded, well-ventilated areas.
- ✅ Protect bags from direct sunlight.
- ✅ Keep materials dry and away from heated surfaces.
- ✅ Store liquids and admixtures within manufacturer temperature limits.
- ✅ Monitor substrate, screed and air temperature throughout the installation and during curing

- ❌ Storing materials in metal containers exposed to direct sun.
- ❌ Using materials that have overheated during storage.
- ❌ Allowing bagged products to become damp through condensation.

Mixing

- ✅ Use cool, clean water where permitted.
- ✅ Mix only quantities that can be placed within the specified working time.
- ✅ Keep mixing equipment shaded where possible.
- ✅ Maintain strict compliance with water addition requirements.

- ❌ Adding extra water to compensate for rapid stiffening.
- ❌ Re-tempering partially hardened material.
- ❌ Mixing excessively large batches.

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Installation

- ✅ Schedule installation during cooler periods of the day.
- ✅ Shade work areas where practical.
- ✅ Ensure substrate temperatures are within manufacturer limits.
- ✅ Pre-condition substrates if permitted by the product instructions.
- ✅ Install, compact and finish without delay.

- ❌ Installation onto excessively hot substrates.
- ❌ Working in direct sunlight where avoidable.
- ❌ Leaving mixed material standing before placement.
- ❌ Allowing strong air movement across fresh screed surfaces.

Protection after installation

- ✅ Protect freshly laid screeds from direct sunlight.
- ✅ Prevent rapid drying using suitable coverings or curing methods.
- ✅ Restrict air movement immediately after placement.
- ✅ Maintain stable environmental conditions.
- ✅ Follow Tremco's recommendation when using curing agents (ie Kuraseal)

- ❌ Sudden exposure to high airflow from fans or ventilation systems.
- ❌ Premature opening of doors and windows.
- ❌ Rapid moisture loss from exposed surfaces.
- ❌ Avoid thermal shock where temperatures can fluctuate rapidly from day and night

Curing in hot weather

- ✅ Begin curing procedures as soon as system requirements allow.
- ✅ Maintain moisture within the screed during the curing period.
- ✅ Use approved curing methods in accordance with product recommendations.
- ✅ Extend protection periods during exceptionally hot, dry or windy conditions.

Potential issues if not controlled

- Plastic shrinkage cracking
- Surface crazing
- Curling
- Reduced strength development
- Bond failure
- Uneven drying

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5. Environmental monitoring

Prior to installation, record:

- Ambient air temperature
- Relative humidity
- Substrate temperature
- Materials and screed temperatures
- Dew point (where relevant)
- Forecast weather conditions

During installation:

- Monitor temperatures regularly.
- Record any temporary heating or cooling measures.
- Maintain site records for quality assurance purposes.

6. Summary of temperature recommendations

Condition	Recommended action
Ambient temperature below 5°C	Do not install unless suitable environmental controls are in place
Frost forecast within 24–48 hours	Postpone installation or provide protection
Ambient temperature above 25°C	Implement hot weather precautions
Ambient temperature above 30°C	Do not install unless suitable environmental controls are in place
High winds or direct sun	Protect screed from rapid drying
Frozen substrate	Do not install
Excessively hot substrate	Cool or protect before and during installation

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