



Avoiding Surface Imperfections in Concrete: **Dusting concrete surfaces**

WHAT IS DUSTING?

When there is an accumulation of fine material on a concrete surface – typically a floor after it has been trafficked – the surface is said to be ‘dusting’. A hand rubbed over such a surface will be coated with a fine powder.

WHY DOES DUSTING OCCUR?

Dusting occurs when the wearing surface is too weak for the intended use.

One of the major reasons for this is the presence of too much water in this layer at the time of placing and/or during the early life of the slab. This may result from:

- The addition of water to the concrete – before placing – in excess of that required by the mix design. *Increases bleeding which results in too much water and fines in the surface layer.*
- Finishing (trowelling, etc) the slab whilst bleed water is on the surface. *The bleed water will be worked back into the surface layer.*
- Spraying the surface with water to facilitate finishing, or to wet a surface that has prematurely dried out due to hot, dry or windy conditions.
- Rainwater falling onto the slab before the concrete has achieved final set.



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Other poor site practices that may cause dusting are:

- Inadequate curing. *Allowing rapid drying of the surface (especially in hot, dry, windy conditions) can result in a surface that will dust even under foot traffic.*
- Inadequate compaction. *Will result in poor wearing surface.*
- Use of dry cement. *Sprinkling cement over the surface to soak up surface water – to allow earlier finishing – will weaken the surface layer.*
- Inadequate protection against freezing. *If the temperature falls below freezing point before the concrete has fully set, any water still present in the surface layer will freeze; the resulting expansion will damage this layer and prevent it reaching its potential strength.*

JANUARY 2006



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WHAT SITE PRACTICES CAN MINIMISE THE RISK OF DUSTING?

As can be seen from the list of causes of dusting, the avoidance of too much water in the surface layer is an important consideration.

To achieve this:

- 1 DO NOT add excess water to the concrete mix.

- 2 DO NOT undertake any finishing operations whilst bleed water (or rainwater) is present on the surface.

- 3 DO NOT sprinkle water onto the slab to facilitate movement of the trowelling machine from one area to another – or to wet an area that has been allowed to dry too quickly.

Other important measures are to:

- 4 Cure the concrete properly. This can be done either by; keeping the surface continuously damp for 3 to 7 days; by coating it with a membrane forming curing compound; or by covering it with a polythene sheet.

- 5 Compact the concrete properly. In addition to of the full depth of the slab, the use of a surface vibrator or helicopter float is recommended.

- 6 Use a garden hose dragged across the surface, or a rubber squeegee, to remove bleed water. DO NOT sprinkle cement onto the surface.

- 7 Protect the slab against rainwater until the concrete has achieved final set.