

Hints to Successful Tile Grout Installation

Tile grout is a mixture of portland cement, fillers, pigments and additives which when mixed with water is used to fill in the gaps between tiles on walls and floors. Portland cement grouts react with water to produce complex calcium silicate and calcium aluminate hydrates which are hard and crystalline and are primarily responsible for giving the grout its strength. However, due to the very nature of the Portland cement, the reaction products are numerous and varied, but all contribute to the overall performance and appearance of the finished product.

There are three basic requirements for a tile grout.

1. To provide an attractive finish and colour
2. To have a good physical performance
3. To be easily applied

FOUR STEPS TO SUCCESSFUL GROUTING

1. Allow the adhesive bed to set firmly before commencing grouting.

Uncured adhesive may bleed through the joints and discolour the grout. Also, there is a risk of destroying the bond by moving tiles. Allow as much time between setting and grouting as possible.

Allow at least 24 hours for a normal setting adhesive. Fast setting adhesives can be grouted sooner (according to the manufacturer's instructions), but even with these the longest possible interval should be allowed. Always be consistent with the period between fixing and grouting.

2. Control the job conditions.

When grout cures at different rates, shade variations will result. If various areas of an installation are exposed to heat (e.g. direct sunlight, radiators), or ventilation (e.g. draughts, air conditioning) in different amounts, grouts will cure unevenly. For example, cooler temperatures make grouts dry slower and darker whilst warmer temperatures cause faster curing and consequently lighter joints. High humidity levels will also produce a lighter colour.

3. Properly mix the grout.

The amount of water used to mix the grout is very important. The right amount of water produces a firm mix. An overly wet mix dilutes the grout, causing shade variations and leads to reduced strength. Do not add extra water to a mix that has started to go off as this will also lead to shade variation and a reduction in strength. Always maintain consistent water : powder ratios for every batch. Try to maintain the same mixing time with every batch. A slow speed electric drill will give more consistent results than mixing by hand.

If the grout is left too long after mixing and starts to stiffen in the bucket, the finished application of grout in the joint will produce a rougher surface. This texture can appear as a discolouration on the surface and it may appear darker than grout in surrounding areas.

4. Application and cleaning of the grout.

Prior to grouting joints between the tiles must be clean, dry and free of loose material. Apply the grout with a rubber grout float, forcing it into joints to fill them completely. Remove surplus grout from the surface of the tile, using the grout float. Wait until the grout achieves an initial set and then, avoiding excessive water, wipe the complete area thoroughly with a damp (not wet) sponge to obtain a

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smoother joint. Rinse the grout sponge and replenish the water as often as possible. Polish the tiles with a clean, dry cloth when the film of grout on the surface has only just dried.

If the grout is finished off to produce a smooth surface whilst still wet, the fines (usually cement), commonly known as laitance will be brought to the surface where they dry with a characteristic light colour. This may be removed to expose the true colour of the grout by washing with a proprietary grout cleaner, such as Coloro C26. Try a test area before carrying out this procedure.

FACTORS AFFECTING THE GROUT

There is nothing within the manufacturing process of the grout that can either cause or prevent colour variation within the grout. The primary factors affecting colour are:-

1. Mixing the grout; ie the type, quantity and quality of water used
2. The application technique
3. The cleaning off procedure

FACTORS AFFECTING THE APPEARANCE AND/OR TEXTURE

1. Absorbency of the tile and substrate
2. Water content of the grout
3. Time between mixing of the grout and application to the joints
4. Time between application of the grout and finishing
5. Method of tooling and cleaning.

WHY DOES GROUT DISCOLOUR?

Grout discolours because of poor installation techniques, improper cleaning methods, laitance, and improperly cured setting beds. Colour differences can occur in different parts of an installation because the grout is allowed to cure at different rates. Uneven curing causes uneven colour. Inconsistent mixing and installation techniques also cause uneven colour.

EFFLORESCENCE

Efflorescence is the movement of moisture upward through Portland cement beds and concrete slabs, resulting in a white deposit of salts on the surface. Efflorescence causes grout discolouration. Prevent efflorescence by keeping the grout surface free from standing water or dampness. It may be treated with commercially available cleaners but care should be exercised and the manufacturer's instructions followed.

COMMON CAUSES OF GROUT DISCOLORATION

Darker Colour

Absorbent Tile
Low Humidity
Dry Grout Mix
Late Finishing Process
Deep Joints

Lighter Colour

Non-Absorbent Tile (Fully Vitrified/Porcelain)
High Humidity
Wet Grout Mix
Early (Wet) Finishing Process
Shallow Joints