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A-Z OF TILING

Every week as part of our “Stay Positive, Back Stronger” campaign we will be providing you with our A-Z of Tiling Terms. Get in-depth description of many of the common tiling terms, plus some expert insight or top tips from our team.

S

SANDSTONE

A natural stone, comprising mainly sand-size grains of rock or mineral and usually composed of quartz, feldspar or a mixture of the two. Its typical resistance to weathering but easy workability makes it a popular material for tiles. Sandstone occurs naturally in a variety of colours, including browns, yellow, red, grey and white. Not all types of sandstone are suitable for use as tiles, with the once-popular Collyhurst sandstone no longer being used because of its lesser durability. Sandstone is a common choice of material for kitchen floor tiles, although sealing is advisable for protection against spillages.

BAL INSIGHT

As with any light-coloured natural stone, the use of a white rapid-setting adhesive and fully back buttering is recommended because the material’s porous nature means that otherwise there could be a risk of discolouring of the stone.

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SCREED

A layer or strip of material used either for levelling a floor or to give it a smooth finish prior to tiling. Sand-and-cement mixtures and concrete are both commonly used. Can also mean flat, level strips of wood or other material at the edges of a screed, used to guide a straight edge in levelling.

BAL INSIGHT

With Calcium Sulfate based and pumped screeds becoming more commonly used in the domestic market, as with any type of screeds, it is important to ensure that the correct preparation of all substrates is carried out prior to tiling.

For cement; sand screed, the minimum recommended thicknesses are;

Bonded screed – A design thickness of 40mm to ensure a minimum thickness at any point of 25 mm

Unbonded screed – 50 mm, when laid on a suitable damp-proof membrane (See also separating membrane

Floating screed – 65 mm for domestic and similar locations where light loading is expected otherwise a minimum of 75 mm

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S SELF-SMOOTHING COMPOUND

Self-smoothing compound, also known as self-levelling compound, is used on both new and existing sand-and-cement or concrete substrates to take out any surface irregularities and provide a smooth finish. It is available in powder form and, mixed with water, finds its own level. If the surface to be levelled has flaking or cracks, these should be raked out. Not all compounds are suitable for use with underfloor heating, so manufacturers' instructions should be checked before purchase. The compound should be allowed to dry thoroughly according to the manufacturer's instructions, which will normally take between one and six hours, before it can be walked upon. Some will then require sealing before fixing can commence.

BAL INSIGHT

There is a difference between dry and fully cured. Some self-smoothing compounds (levellers) can take days to fully cure before tiling can commence depending on depth etc. As this is a base layer if this hasn't fully cured it can impact on adhesive choices and potentially cause inconsistencies in final grout finishes.

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SEPARATING LAYER

Designed to separate two layers of different materials. One example of such use would be when considering tiling onto an existing concrete substrate which has become contaminated in some way. A cement;sand screed would be laid unbonded over the concrete, by the use of a separating layer.

BAL INSIGHT

Separating layers can also be applied onto a damp-proof membrane except for an epoxy resin based membrane which can also function as a bonding agent .

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SETTING TIME

The time taken, for example for an adhesive to become fully hardened. It is measured from the point of application for ready-mixed adhesives, for which it is typically a minimum 24 hours. For powder adhesives, it is measured from the point of mixing and, whilst it can be in excess of 24 hours, it can be as little as two hours for rapid-setting adhesives. Not to be confused with working time or pot life.

BAL INSIGHT

Setting times need to be followed to ensure longevity of any tile installation. For dispersion (ready-mixed) based tile adhesives, where the background porosity is low i.e. primed surfaces or tiling onto existing glazed wall tiles, for example, can extend the setting time of the adhesive prior to the commencement of grouting i.e. at least 3 days at 20°C.

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SHEAR ADHESION STRENGTH

Shear adhesion strength describes an adhesive's resistance to a force applied along a plane in parallel to the direction of that force.

BAL INSIGHT

Dispersion (D) and Reaction Resin (R) tile adhesive are tested for shear adhesion strength under various conditions as per the test methods described within BS EN 12004: Part 2; 2017.

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SHOWERS

Any shower, ranging from taps over a domestic bath to a communal shower, could be exposed to water varying from splash contact to the full force of a power shower directly onto tiling. The use of correct adhesives and grouts will be essential, and fixing should be carried out in accordance with BS 5385 Part 4 1992 - Code of practice for tiling and mosaics in specific conditions.

BAL INSIGHT

It is good practice to apply waterproof tanking to wall or floor background in showers (See BS 5385: Part 1 & Part 4) Many homes now have combination boilers so even the most basic shower could have mains pressure for both the hot & cold feeds resulting in more water flowing through the system.

The preferred background is cement-and-sand render, provided that it is at least two weeks old. Existing ceramic tiles in sound condition and suitably braced cement backer boards will also be suitable. Plaster and plasterboard are not normally suitable, but may be acceptable for domestic installations, if the plaster is at least four weeks old.. For plaster and plasterboard tanking is recommended.

The floor should be checked for soundness, flatness and smoothness before the shower tray is installed, primed and allowed to dry. A specialist waterproof coating should be applied with a 1 mm thickness over the whole floor and up the walls. This should be to at least a one-metre height, but it may be preferable to continue it to the ceiling line. In areas of heavy use or where vibration is likely, matting reinforcement should be laid. The waterproof coating should be reinforced with suitable waterproof tape at corners, junctions, penetrations, cracks and joints. A further application of waterproof coating should then be laid over the tape and allowed a minimum of 24 hours to dry.

There must be no voids beneath the tiles, so solid bed fixing will be necessary, using the correct adhesive applied with an appropriate solid bed trowel. Grouting should not be commenced until at least 24 hours, or preferably longer, after tiling.

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SHRINKAGE

Contraction or decrease in volume of a material, such as cement based systems i.e. concrete, cement: sand screeds etc caused by a physical or chemical change in the material or escape of substances from it i.e. water.

BAL INSIGHT

If adhesives are used thicker than their intended bed depths they can suffer from excessive shrinkage. This can result in things like tiles “pulling back” where they are no longer flat once the adhesive has cured or in extreme cases cracked glazes.

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SILICONE SEALANT

An elastomeric material used to fill and seal expansion joints to allow movement at the joint while preventing the passage of moisture. It is only suitable when a non-epoxy grout has been used. Typical applications include sealing the joints between sinks, baths or shower trays and surrounding tiling. When using silicone sealant between a bath and a wall, the bath should be filled with water before starting to apply the sealant. Some baths will give slightly when full, stretching and eventually weakening the seal.

BAL INSIGHT

Clean tools, dipped in water should be used when tooling in any silicone. Wet fingers and saliva can introduce bacteria into the silicone resulting in mould growth soon after installation.

As a general rule, Acetoxy based silicone sealant are suitable for use with ceramic and porcelain tiles. However, for natural stone such as limestone, travertine or marble, always use a suitable neutral curing silicone sealant where perimeter movement joints are required.

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SLATE

A metamorphic natural stone, slate is typically very durable and will resist severe weathering for many years and rarely exhibits any degradation. Frequently grey in colour, although a range of colours can occur even within slate obtained from a single source. Slate from North Wales, for example, can be obtained in shades of cyan, green or purple as well as pale to dark grey. Slate is very durable with a high flexural strength, low porosity, making it ideal for use on floors.

BAL INSIGHT

When installing uncalibrated slate, it is always a good idea to separate the slate into three thicknesses, (thick, medium and thinness. When fixing use the thick medium thicknesses over the main floor areas and the thinness to be fixed around the perimeter and for any cutting.

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SLIP RESISTANCE

The level of slip resistance of floor tiles describes the degree to which tiles resist slipping. It is the coefficient of dynamic friction, as related to somebody walking on it. The greater the amount of friction between any floor surface and the shoes of a person walking on it, the less likely they are to slip.. However, slip resistance can be affected by contaminants. Most typically, this will be water, which acts as a lubricating film, for example in bathrooms, showers or swimming pool surrounds.

BAL INSIGHT

The dangers of flooring with low slip resistance were recognised in the Workplace (Health, Safety and Welfare) Regulations 1992, which stipulated that floors should not be slippery enough to create a safety risk. Several methods are available which can be used to determine the slip resistance of tiles. However, the preferred method of both the Health and Safety Executive and the UK Slip Resistance Group is the Pendulum Test, which simulates the action of a slipping foot. This test is used by such standards as BS 7976 (pedestrian surfaces), EN 1341 (external paving) and EN 14231 (natural stone modular tiles).

Always refer to the tile manufacturer or supplier for further advice as to the suitability of the tile for its intended application.

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SLURRY COAT

A coating of a soft, paint-like consistency which may comprise a mixture of water with a finely granulated insoluble material, such as cement, slag, or clay in suspension or cement mixed with a suitable polymer additive i.e. BAL Bond SBR. A slurry coat can be used, for example, as a primer or to increase bond strengths i.e. between cement-based screeds/renders and the substrate to which they will be applied.

BAL INSIGHT

Sometimes known as a bonding grout or slurry bonding coat and comprises of typically 1 part cement to 1 part screed sand aggregate , mixed by weight. The aqueous polymer additive is then added to the cement; sand aggregate mix until a creamy consistency is achieved. A bonding slurry can also be achieved by mixing the cement only with a proprietary bonding agent.

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SOFT WATER

In chemical terms, this is water containing low calcium or magnesium cations. Soft water has a calcium carbonate content of less than 50 mg/l. In swimming pools, as defined in BS 5385: Part 4: 2015, “Where the pool water is hard or can be maintained at a calcium level over 250 mg/l, expressed as calcium carbonate” , a cementitious based grout may be used for joints between the tiles. This is still dependant fundamentally upon the ability to maintain the pool water in a balanced condition.

BAL INSIGHT

Soft water is particularly aggressive towards cementitious grouts. If the mains water supply for swimming pools is soft water, an epoxy grout is recommended to reduce the risk of erosion of the joints.

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SOLID BED FIXING

When tiling small format tiles on walls in dry internal locations, it is not normally necessary for the backs of tiles to be completely in contact with adhesive. Adhesive is applied to the substrate and then combed into ribs using a suitably sized notched trowel. Best practice is that a minimum of at least 50 per cent of the back of each tile should be in contact with adhesive (spread evenly over the tile), Some internal dry use wall trowels will provide approximately 70-80 per cent adhesive coverage offering maximum performance. In all other applications — external walls, wet area walls, all flooring — solid bed fixing is necessary because of the nature of the environment, the load upon the tiles or both. It means that the back of every tile has to be completely adhered, with no gaps or voids. Depending upon the amount of adhesive applied to the substrate and the profile on the back face of the tile to be fixed, additional back buttering with adhesive may be required.

BAL INSIGHT

When fixing large format wall tiles greater than 600mm in one length a solid bed must be achieved in all environments Solid bed fixing is a requirement on all floors and external tiling. For the fixing of large format tiles, the notched trowel and buttering method is advised. In this method, the tile adhesive is applied to the back of the tiles in a thin coating. The tile adhesive is also applied to substrate using a suitable notched trowel i.e. a thick-bed solid bed trowel. The back-buttered tile is applied to the notches of tile adhesive 'wet on wet'. The overall final bed thickness underneath the tiles should be a 3-4 mm solid bed.

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SPA

A spa pool may be described as a thermal bath for the use of health treatment using warm water, often including the use of moving water, i.e. multiple water jets or whirlpool effect. In terms of tiling they must be considered a wet area and should be tiled using the same degree and of planning and preparation as for a shower or swimming pool.

BAL INSIGHT

Saline water is used in medicinal spa water. For pools with water features such a wave making facilities or other rapid moving water facilities, this can expose a cementitious based grout to more intensive attrition. Therefore careful consideration should be given to the use of an epoxide resin based grout under these conditions.

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SPACERS

Plastic spacers are inserted between tiles as they are placed in position on walls and floors to ensure consistently accurate width of the gaps between the tiles. Widths of 1 mm, 2 mm, 3 mm, 4 mm, 5 mm, 6 mm, 8 mm and 10 mm are generally available, as straight spacers and in ‘T,’ ‘Y’ and cross shapes. Plastic wedges are also offered for use when fixing wall tiles above an uneven surface, such as rough concrete. They enable precisely level positioning of a row of tiles and prevent them slipping down the wall while the adhesive dries.

BAL INSIGHT

When using any spacers, it is always recommended to remove the spaces when required before grouting. Spacers should not be left in the joint and grouted over. This is to help with movement within the environment once the tiling is completed.

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SPECIFICATION

The use of standard specification templates to describe building projects can remove ambiguities and misunderstandings. It allows a particular job to be described in great detail by an architect, using standard, pre-defined terms which can be understood not just by other architects but by contractors and sub-contractors. In effect, it means that the person or company creating a design can say, “Here is what has to be done, the materials to be used and the ways in which the work is to be done,” in a manner that is readily understood by whoever will be carrying out the work.

BAL INSIGHT

In the UK, there is a recognised national standard specification service for building construction, produced by National Building Specification (NBS), which has more than 100 staff and is owned by the Royal Institute of British Architects. Its wide range includes the standard M40 Tiling Specification in two formats: architects’ specification and contractors’ specification. For any given job, the information will be consistent between the two, but emphasis and level of detail will differ.

It is important to also ensure that those recommendations given are also aligned with the appropriate, recognised industry guidelines and standards e.g. relevant BS EN codes of practice e.g. BS 5385 Parts 1-5, BS 8000 Part 11.1, TTA technical specifications etc.
An M40 Tiling Specification will cover much more than merely an overview of the specific tiles to be used, the background, preparation, bedding, adhesives, grouts and joint widths. It will address every possible aspect of the project in fine detail, laying out exactly what is to be done — and including what should not be done. As an example, a typical specification could address the issue of adverse weather thus:

- Tiles will not be fixed if the temperature is below 5°C or in damp conditions.
- Frozen materials will not be used nor will adhesives be applied to frozen or frost covered surfaces.
- Tiles will not be fixed if the temperature of the background/base is in excess of 65°C.
- Adequate precautions will be taken to protect work from inclement weather, frost and premature drying out.

SPECIFICATION (CONT...)

BAL INSIGHT

This might seem obvious common sense to the experienced fixer but including this level of detail serves two valuable purposes. It ensures that everything is understood and agreed, in advance of work starting, by all involved parties: there is no possibility, after project completion, of anyone claiming not to have realised at the outset that bad weather might cause delays. Equally importantly, the end customer seeing a comprehensive formal specification is immediately reassured of the fixer's expertise, thoroughness and professionalism. This is why BAL Quote Builder, when creating an instant professional quotation for a fixer always includes a Contractors Specification. It not only ensures that every aspect of a project has been considered, it demonstrates this for the prospective customer — which could give the fixer enough of an edge over less prepared competitors to win the job.

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SQUEEGEE

A tool used for the rapid application of grout. The typical squeegee comprises a stiff, flat plastic blade with a more flexible rubber edge. It is used to push grout across tiles. The rubber edge ensures that grout is removed from the tile surfaces but forced into the joints between tiles.

BAL INSIGHT

This is another tool that can be used instead of a grout float, to apply grout to wall and floor areas, ideal when grouting isolated areas.

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STEAM ROOM

As the purpose of a steam room is to provide a hot, constantly highly humid atmosphere, it must always be treated as a wet area. Tiling should be carried out with the same planning and preparation as for a shower or swimming pool.

BAL INSIGHT

The ideal backgrounds for tiling to in steam rooms is cement;sand render or dense concrete. Additional protection can be given by selecting an impervious grout such as an epoxide resin.

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STRAIGHT EDGE

As the name suggests, this is a piece of material used to provide a straight edge for the correct alignment of tiles. A straight edge is traditionally made of wood, but steel and other materials are also used. It is not unusual for a straight edge to bear markings allowing it to be used for measuring length or to incorporate the necessary fittings for it to be used as a spirit level.

BAL INSIGHT

Ideal to be used when checking surface alinement for walls and floors (flat) and when installing tiles to provide a straight edge when fixing.

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STRESS RELIEVING JOINTS

Also known as movement joints or stress relieving profiles, these are manufactured joints designed to compensate for the movement of tiles and substrates. If such joints are not used, shear stress arising from movement can cause debonding, bulging and cracking. They work by splitting a large tiled area into discrete fields which can move independently of each other. The degree of relief offered will depend upon the joint's size and material, although a useful guide is to expect a joint to typically accommodate movement of up to one-fifth of its movement zone width.

BAL INSIGHT

The necessary distance between joints will also depend upon the individual application . For floors BS 5383; Part 3 recommends 10 x 10 metre bays for large floors. These bay sizes should be reduced for floors subjected to thermal movement i.e. sun rooms, atria and underfloor heating etc. or thermal and moisture expansion such as in external applications and suspended floors i.e. over supporting walls or beams. Different widths of pre-formed joint are available to suit differing applications and they can be made of a variety of materials. Brass and stainless steel are normally specified for heavy duty industrial applications, such as factories and warehouses, and in laboratories and similar locations subject to chemical spillages. Aluminium is more commonly seen in light commercial applications, while PVC is typically employed in residential applications.

Where there is a stress relieving joint in a substrate, the corresponding joint in the tiling must be positioned exactly above it. Offsetting the joint by just a few millimetres will render it useless.

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STUDWORK

The supporting frame within a wall or partition, typically comprising a lattice of horizontal, vertical and diagonal beams to which boards have been fixed.

BAL INSIGHT

When used to prepare the background for tiling, the studwork should be ideally fixed at a maximum of 300mm centres in order to provide a rigid and stable background when installing a board before tiling. For proprietary tile backing boards and plasterboard, seek additional advice from the board manufacturer.

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STYRENE BUTADIENE RUBBER (SBR)

A synthetic rubber comprising of combined styrene and butadiene monomers. SBR was developed as a man-made alternative to natural rubber latex and used in a wide variety of materials.

BAL INSIGHT

SBR is widely used in the construction industry as a polymer additives to improve the general physical and mechanical strength of cement mortars. For example as a polymer additive in cement: sand render and screed as well as for use as a slurry bonding and priming agent for t.

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SUBSTRATE

The underlying support for a tile installation; in other words, the background onto which tiles are to be fixed, such as timber flooring, concrete, plaster or plasterboard walls, brickwork and including existing tiles.

BAL INSIGHT

General term used for background/base, for internal and external walls and floors. The essential requirements for the type, application and preparation of substrates which are suitable for receiving a rigid tiled finish are described in BS 5385; Parts 1 to 5.

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SURFACE QUALITY

The most commonly seen defects on tile surfaces include optical hazing, grinding marks, shade or colour variations, curvature or warpage and dimensional faults. Very little variation is necessary for a fault to be noticeable. Warpage of as little as 0.5% over the length of a tile can mean surface warping of up to 3 mm for a 600 mm x 600 mm tile. BS EN 14411: 2006 lays out standards for the surface quality of ceramic tiles.

BAL INSIGHT

Expressed as a percentage of defect free tiles, and tested in accordance with the method described in EN ISO 10545; Part 2, “a minimum of 95% of the tiles shall be free from visible defects”.

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SWIMMING POOL

Tiling a swimming pool requires the same skills, techniques and, generally, product types as tiling any other surface, with the exception that waterproofing is of fundamental importance. Correct preparation is vital. Before tiling begins, the concrete shell must be watertight, i.e. Over a seven day test period, the water level, after allowing for evaporation should not drop below 1/500 of the average water depth of the full tank or 20 mm or as specified by SPATA The Swimming Pool and Allied Trades Association).

If the concrete shell is cast to a high degree of accuracy, it may be possible to fix tiles directly to the watertight concrete in a solid bed of tile adhesive. However, in the majority of cases, cement: sand renders and screeds are normally applied to the concrete shell to achieve the required accuracy for tiling.

The concrete surface will need to be mechanically keyed and thoroughly clear of contaminants, which could include laitance or concrete curing compounds. In such cases, removal may require pressure washing or shot blasting

Timings will be critical, to avoid the effects of drying shrinkage movement that occurs as concrete and render and screed dries out.. For swimming pools the recommended drying times in BS 5385; Part 4: 2015 are:

- Between curing of the concrete shell and applying renders and screeds – 6 weeks
- Curing and drying of renders and screeds before tiling – 3 weeks
- Completion of tiling and commencement of grouting – 3 days
- Completion of grouting and movement joints before filling the pool – 3 weeks

BAL INSIGHT

In choosing the correct adhesive and grout, seek further professional advice from the manufacturer.

In selecting the grout, further consideration should be given to the pool water and any cleaners that may be used during the pool's lifetime. The pool water should be maintained in a balanced condition.

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SWIMMING POOL (CONT…)

BAL INSIGHT

If the water supplied to the pool is hard or the pool water can be maintained at a Calcium level of at least 250mg/l and a Total Alkalinity of at least 80mg/l expressed as CaCO3), a polymer-modified cementitious-based grout may be used.

Where the water supply is soft (low Calcium levels), consideration should be given to the use of a reaction resin grout e.g. epoxide.

The use of sulfate containing chemicals, e.g. sodium bisulfate (dry acid), should be discouraged due to the need to keep sulfate levels as low as practicable. This is in order to reduce the risk of sulfate attack on cementitious based grouts, tile beds, screeds, rendering and concrete.

The use of aggressive acidic or strong alkaline based cleaners can also affect cementitious based grouts.

Movement joints, in accordance with BS 5385: Part 4:2015 should be fitted, with their location finalised before tiling begins.

The pool filling and emptying rate should be undertaken slowly. This is to minimises stresses arising from loading and thermal changes.