A wide range of packed cements and premixed products is currently available from builders’ merchants throughout the UK.

This Guide therefore includes:

- Basic information on each packed cement and premixed products.
- Guidance on appropriate applications for:
  - General Concreting
  - Mortars
  - Rendering
  - Floor Screeds
  - Ready-to-Use products
- Advice on recommended mixes for these applications.
- Ready reckoner and tables for estimating quantities.
- Technical matters for consideration during a project, and associated application details.
- Health and safety issues.

If you wish to enquire about a specification or need more information to decide which product to use, we can help you further.

We aim to ensure that you are kept fully aware of new products and developments, as and when they arise. Once you have received literature from us, this will trigger automatic updating with any new publication relevant to your business.

Alternatively, a simple check on our website www.tarmac.com will ensure you have the most up-to-date information.

Whilst all reasonable care has been taken in the preparation of this guide to give sound advice, Tarmac Cement and Lime Ltd can take no responsibility for any loss, damage or injury, however caused, in using it. Please refer to detailed technical information from Tarmac Cement and Lime Ltd.

Please ensure you have the latest literature as we update these publications on a regular basis.
GENERAL CONCRETING

INTRODUCTION

Concrete has a wide range of end uses, from the small DIY job to the largest civil engineering project.

This section describes general purpose, foundation and paving concretes mixed on site using Blue Circle cements in bags. Advice on the use of ready-mixed concretes for larger jobs may be obtained on request. For information on Blue Circle premixed concretes, refer to Part 6 of this guide.
<table>
<thead>
<tr>
<th>Blue Circle Mastercrete</th>
<th>Blue Circle Procem</th>
<th>Blue Circle General Purpose Cement</th>
<th>Blue Circle Extra Rapid</th>
<th>Blue Circle Sulfacrete</th>
<th>Blue Circle Snowcrete</th>
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**TABLE 1: CEMENTS FOR CONCRETE**

- **General purpose concreting**
- **Enhanced freeze/thaw resistance**
- **Improved workability**
- **Sulfate resistance**
- **Architectural Concrete**
- **Structural concrete**
- **Fast setting/rapid hardening**
ASPECTS TO CONSIDER PRIOR TO STARTING WORK

Accurate proportioning (or batching) of materials and thorough mixing are essential for making good quality concrete. Either method of batching, by weight or by volume, may be used.

When using the batching by volume method, it is important that the materials are measured with the aid of a batch gauge box. A batch box has four sides and no bottom. It is placed on a mixing platform before being filled, and so never needs lifting when full. If preferred, a smaller gauge box with a bottom may be used, which is light enough to be lifted by two people and carried to the mixing platform.

During the mixing and placing of concrete, air is entrapped in the form of voids. The voids lower the performance of concrete and may lead to the following problems:

- Reduced strength.
- Increased permeability and reduced durability (the concrete will be less watertight and also more vulnerable to aggressive materials).

To produce a concrete that is strong, dense and impermeable, the mix should be thoroughly compacted to remove the entrapped air. Compaction may be achieved by hand tamping, but the best method is by mechanical vibration.

ADVICE ON RECOMMENDED MIXES

Table 2 (page 7) indicates the recommended concrete mixes for general purpose use, foundations and pavings, followed by information on the materials that may be used.
**TABLE 2: MIXES SUITABLE FOR CONCRETE**

<table>
<thead>
<tr>
<th>Use</th>
<th>Proportions by volume</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Portland cement</td>
</tr>
<tr>
<td><strong>Paving</strong> (all exposed flat slabs including paths, garage drives, yards and hardstanding)</td>
<td>1</td>
</tr>
<tr>
<td><strong>General purpose</strong> (most uses except foundations and exposed paving)</td>
<td>1</td>
</tr>
<tr>
<td><strong>Foundations</strong> (footings, foundations and bases for precast paving)</td>
<td>1</td>
</tr>
</tbody>
</table>

**Portland Cement =** • Blue Circle Mastercrete • Blue Circle Procem
• Blue Circle General Purpose Cement
• Blue Circle Sulfacrete • Blue Circle Snowcrete

**MATERIALS TO USE**

- **Cements:** Refer to application Table 1 (pages 4 and 5) and the appropriate product range pages.

- **Aggregates:**
  - **Coarse aggregate:** Graded or single sized natural gravel, crushed gravel or crushed rock to BS EN 12620.
  - **Fine aggregate (sand):** Natural sand or crushed rock fines to BS EN 12620.
  - **All-in aggregate:** Clean and well-graded with about 60% of particles over 5mm.

- **Water:** Only clean mains water should be used.

**Note:** Aggregate is the term used to describe gravels, crushed rocks and sands, and they are classified as coarse or fine.

Fine aggregate (sand) is material passing through a 5mm sieve. Combined coarse and fine aggregate is described as all-in or ballast.
READY RECKONER FOR CONCRETE MIXES

Working out quantities

The concrete ready reckoner provides a quick and simple way of determining the amount of concrete required for a particular job.

For example, an area of 25m² and a thickness of 100mm requires 2.5m³ of concrete.

When the total amount of concrete has been determined from the ready reckoner, the materials quantities tables immediately below it can be used to determine the amount of cement and aggregates required for foundations, general purposes and pavings.
GENERAL CONCRETING

READY RECKONER FOR CONCRETE MIXES

<table>
<thead>
<tr>
<th>Area (m²)</th>
<th>Volume (m³)</th>
<th>Quantities</th>
<th>Materials</th>
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<td>Coarse aggregate (m³)</td>
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<td>All-in aggregate - ballast (m³)</td>
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<th>Thickness (mm)</th>
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For 2.5m$^3$ of concrete the following quantities are:

**Foundation mix**
- 30 bags of Blue Circle Procem (nominal 25 kg)
- 1.25m$^3$ damp sand
- 2.0m$^3$ coarse aggregate or
- 2.5m$^3$ all-in aggregate – ballast.

**General purpose mix**
- 35 bags of Blue Circle General Purpose Cement (nominal 25 kg)
- 1.25m$^3$ damp sand
- 1.8m$^3$ coarse aggregate or
- 2.5m$^3$ all-in aggregate – ballast.

**Paving mix**
- 40 bags of Blue Circle Mastercete (nominal 25 kg)
- 1.0m$^3$ damp sand
- 1.75m$^3$ coarse aggregate or
- 2.5m$^3$ all-in aggregate – ballast.

These quantities do not include any allowance for wastage.

When purchasing materials, however, it is recommended that the quantities of aggregates are rounded up to the nearest half or full cubic metre and an extra 10% of cement is added to allow for wastage.
HOW TO MIX CONCRETE

**Machine mixing**

A 100 litre tilting drum mixer (generally known as a 5/3½ or half-bag mixer) is a convenient size for general concreting.

The following procedure is recommended:

- Load half the coarse aggregate and half the anticipated amount of water into the mixer.
- Add most of the cement and sand.
- Add the rest of the materials alternately, avoiding build-up of dry or hardened material on the blades and drum.
- Mix for at least 2 minutes to obtain a concrete of uniform consistency and colour.

**Hand mixing**

Mixing by hand is hard work, but is satisfactory if the correct procedures are followed. Always work on a hard and reasonably smooth surface such as a sheet of plywood or a concrete drive or yard.

The following procedure is recommended:

- Measure out the aggregate into a compact pile.
- Form a crater in the top and add the measured quantity of cement.
- Turn over at least 3 times in the dry state until uniform in colour and texture.
- Form a crater in the pile and add some of the water. Bring the dry material to the water and keep mixing, adding water as necessary until uniform in consistency and colour.

For both machine and hand mixing, use only sufficient water in the mix to ensure workability and allow thorough compaction.
HOW TO PLACE AND COMPACT CONCRETE

The following procedure is recommended:

• After mixing, deposit the concrete at, or as near as possible to, its final position.
• Place the concrete quickly, evenly and steadily without causing segregation.
• Place the concrete in uniform layers.

Ensure that the concrete is well compacted, especially into corners as follows:

• For deep sections such as trench foundations, a poker vibrator should be moved between the trench sides or formwork (and any reinforcement) so that all areas of the concrete mix are vibrated. Alternatively, use a ‘punner’ for unreinforced work.
• For unreinforced ground floor slabs or in situ concrete paving and drives, the mix should be spread just above the level of the edge formwork and compacted with a tamping beam (a length of timber on edge). Alternatively, a vibrating beam will achieve faster compaction more efficiently.

For all concrete elements, fully compact each layer before placing the next one, ensuring that the lower layer can still be vibrated.

Types of surface finish to floor slabs

There are several different types of surface finish to consider, and these are set out below.

Tamped
A rippled finish left by tamping. The final finish can range from fine to bold, depending on how the tamping beam is used.

Brushed
A variety of finishes can be achieved by brushing the concrete surface. For example:
A smooth finish is obtained with a soft broom used on fresh concrete immediately after compaction.
A lightly rippled finish is obtained with a stiff brush or nylon broom as the concrete starts to stiffen.
Exosed aggregate
A textured finish is obtained by brushing and washing the surface when the concrete has stiffened sufficiently to hold the coarse aggregate firmly in place, ie, when the concrete is just hard enough to walk on.

Float
A variety of finishes can be achieved by using a wood or steel float.

HOW TO CURE AND PROTECT CONCRETE
The following procedure is recommended:

• Cover with polythene sheeting as soon as the concrete is hard enough not to be marked by the sheeting.

• Weigh down the edges of the sheeting so that the wind cannot blow underneath.

• Leave the covering in place for at least 7 days.

Inclement weather precautions may need to be followed during the carrying out of the work:

• Do not mix concrete when the air temperature is at or below 5°C.

• Do not place concrete during heavy rain.

• If there is a risk of frost once the concrete has been placed, protect with an insulation quilt sandwiched between two sheets of polythene sheeting and weighted down; or protect with a layer of sand.

• Equally, during hot and/or windy weather, the concrete mix should be protected from drying out too quickly to avoid surface crazing and shrinkage cracking.
GENERAL CONCRETING

Mixing shovel test

Compacting with a punner

Soft broom finish

Wood float finish

Curing

Tools

Barrow

Shovel

Punner

Broom

Wood float

Steel trowel
Setting outlines for a simple slab using pegs and string. Locate the pegs outside the working area to let work continue. To ensure squareness of slab, check that the diagonals are equal.

Setting outlines for a simple foundation using profile boards and string. (Only foundation centre lines shown). Locate the profile boards outside the working area to let work continue.

A profile board and string lines. Mark the centre line of the wall on the profile board then measure out to establish the width of the foundation. Cut notches to locate string lines.
MORTARS

TABLE 3: CEMENTS FOR MORTARS

<table>
<thead>
<tr>
<th>Blue Circle Cement Product</th>
<th>Improved plasticity</th>
<th>Enhanced freeze/thaw resistance</th>
<th>Sulfate resistance</th>
<th>Compatible with admixtures</th>
<th>White colour</th>
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</thead>
<tbody>
<tr>
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<td>✔</td>
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<td>Blue Circle Procem p.37</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>✔</td>
</tr>
<tr>
<td>Blue Circle General Purpose Cement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Circle Sulfacrete p.39</td>
<td></td>
<td></td>
<td>✔</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blue Circle Snowcrete p.39</td>
<td></td>
<td></td>
<td>✔</td>
<td>✔</td>
<td>✔</td>
</tr>
</tbody>
</table>

Note: The addition of Blue Circle Hydralime improves plasticity, cohesiveness and water retention in Portland cement mortars.

GENERAL INTRODUCTION

A mortar is a mixture of materials for joining masonry units. The basic materials are cement, sand and water, but other materials such as lime or air-entraining agents (plasticisers) may also be used to improve working properties and durability.

Aspects to consider prior to starting work

Types of mortar

*There are several different types of mortar to consider, and these are set out below.*

Cement mortar

This type of mortar in the proportions of 1:3 to 4 cement : sand is generally only used for foundations and below damp proof course.

Please ensure that additives other than lime are compatible for the cement type used with the manufacturer.
Cement: hydrated lime mortar
This has good plasticity and is easy to spread. It also has good water retention and bonding properties.

Air-entrained (plasticised) mortar
This has similar working properties to cement hydrated lime mortar. The entrained air also gives the hardened mortar improved freeze/thaw resistance.

Sulfate-resisting mortar
This type of mortar may be required in some ground conditions or with bricks containing sulfates. Improved resistance to sulfate attack can be provided with Blue Circle Sulfacrete (advice is available on request).

Mortar properties to be achieved
A good mortar should:

• Hang on the trowel (a cohesive mix) and spread easily.
• Remain workable long enough for bricks or blocks to be placed easily and adjusted to line and level.
• Adhere to the bed face of the brick or block.
• Stiffen sufficiently quickly to allow a reasonable rate of working without excessive mortar being squeezed from the joint.
• Have similar compressive strength to the bricks or blocks, but should not be stronger than is necessary to provide masonry of adequate strength to meet structural and durability requirements.
• Have adequate tensile strength to support flexural and shear loads.
• Resist frost and water penetration in external positions.
• Not detract from the appearance of the brick or block.
**MORTARS**

**ADVICE ON RECOMMENDED MIXES**

Table 4, below indicates recommended mortar mixes for general purpose use and for high durability.

**TABLE 4: MIXES SUITABLE FOR MORTAR**

<table>
<thead>
<tr>
<th>Mortar Designation</th>
<th>Portland cement: Blue Circle Hydralime: Sand</th>
<th>Portland cement: sand (+ plasticiser)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(I)</td>
<td>1:0:25:3</td>
<td></td>
</tr>
<tr>
<td>(II)</td>
<td>Strong 1:0:5:4 to 4.5</td>
<td>1:3 to 4</td>
</tr>
<tr>
<td>(III)</td>
<td>General use 1:1:5 to 6</td>
<td>1:5 to 6</td>
</tr>
<tr>
<td>(IV)</td>
<td>1:2:8 to 9</td>
<td>1:7 to 8</td>
</tr>
</tbody>
</table>

**Portland Cement** = • Blue Circle Mastercrete  • Blue Circle Procem  • Blue Circle General Purpose Cement  • Blue Circle Sulfacrete  • Blue Circle Snowcrete

Strong mix for footings, sill, copings and retaining walls with dense masonry. General mix for most ‘normal’ situations.

**MATERIALS TO USE**

**Cements:** Refer to application Table 3 (page 16) and the appropriate product range pages.

**Hydrated lime:** Blue Circle Hydralime.

**Admixtures:** Air-entraining plasticisers to BS EN 934-3: 2003.

**Sands:** Clean: well-graded, free from impurities to BS 1200.

**Water:** Only clean mains water should be used.
QUANTITIES

Table 5, below indicates the quantities required for the recommended mixes set out in Table 4 (page 18). All quantities in Table 5 are approximate and no allowance has been made for wastage. Sand is assumed to be damp and a 20% allowance has been made for bulking.

TABLE 5: QUANTITIES OF MATERIALS FOR MIXES USING PORTLAND CEMENT: BLUE CIRCLE HYDRALIME:SAND

<table>
<thead>
<tr>
<th>Quantities of materials</th>
<th>Proportions by volume</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 : 1/4 : 3</td>
</tr>
<tr>
<td>For a 25 kg bag of cement use:</td>
<td>1/8 bag Blue Circle Hydralime 0.065m³ sand</td>
</tr>
<tr>
<td>For 1m³ of mortar use:</td>
<td>16 bags cement 2 bags Blue Circle Hydralime 1.0m³ sand</td>
</tr>
</tbody>
</table>

Notes for Table 5

1m³ of mortar is approximately equivalent to the following quantities of bricks and blocks:

**Brickwork**
- 1800-2000 bricks, 10mm joint, frog up, 102.5mm wall thickness
- 1400-1600 bricks, 10mm joint, frog up, 215mm wall thickness

**Blockwork single leaf wall, 440mm x 215mm units**
- 2500 blocks, 10mm joint, 50mm wall thickness
- 2000 blocks, 10mm joint, 75mm wall thickness
- 1500 blocks, 10mm joint, 100mm wall thickness
- 1000 blocks, 10mm joint, 150mm wall thickness
HOW TO GAUGE AND MIX MORTARS

When the appropriate mix has been chosen, the materials should be carefully gauged. Weigh-batching gives the most accurate form of gauging.

If the materials are to be measured by volume then gauge boxes or other containers should be used for each of the materials.

Measuring by shovel is not recommended. Sand is normally damp and cohesive, and will stand up on the shovel, whereas cement, being a dry and fine powder, will fall off the shovel. Mixes measured by volume in this way would be deficient in cement.

Variability in mix proportions is also likely to affect colour, strength and durability.

Mechanical mixing, using for example, small tilting drum mixers, produces good results and is preferred to hand mixing. When all the materials are in the mixer a mixing time of 3 to 5 minutes is generally satisfactory. Short mixing times can lead to poor uniformity and workability. Long mixing times can lead to excessive air-entrainment with plasticised mortar.

When mixing by hand, the materials should be thoroughly mixed in the dry state (turn over at least 3 times) to obtain uniformity and consistency before adding water.

HOW TO APPLY MORTARS

Mortar should generally be used within about 2 hours of mixing, otherwise it should be discarded. It should not be retempered. Hot weather may shorten the working life of the mortar due to water loss. The working life can be extended by covering the mortar.

Bricks or blocks should be laid on freshly spread mortar. Once brick or block has been positioned, it should not be disturbed as this can readily break the bond.
HOW TO CURE AND PROTECT MORTARS

Cover completed brickwork and blockwork with polythene for 3 to 7 days depending on conditions to protect it from:

- Rapid drying out during hot weather and/or exposure to drying winds.
- Freezing and the chilling effect of cold winds. In severe cold weather, an insulation quilt may be provided under the covering.

Rain-soaked brickwork will be slow to dry, and this could lead to lime bloom (efflorescence).

A robust and easy to read mercury thermometer is recommended for temperature measurement.

Do not use frost-laden sand.

Do not mix mortar when the air temperature is at or below 5°C.
MORTARS

Tools

Machine mixing

Hand mixing

Cohesive mix

Laying bricks

Laying blocks

Curing

Mixer

Gauge box

Bucket

Bricklaying trowel

Level
1. INTRODUCTION

A number of Blue Circle cement products can be used for rendering including:

- Blue Circle Procem
- Blue Circle Mastercrete
- Blue Circle General Purpose Cement
- Blue Circle Snowcrete

All these products conform to BS EN 197-1, are CE Marked, and are suitable for use in rendering if the correct practices are followed. These cements do however all have slightly different properties, and this publication gives some guidance on how to get the best performance from these products when used in rendering. This is particularly important if the end-user is unfamiliar with the characteristics of a particular product.

2. THE KEY STEPS

The key steps for a successful rendering job can be summarised as:

- Understanding the nature of the substrate (wall).
- Preparing the substrate.
- Selecting the most appropriate render mix.
- Applying a suitable scratchcoat.
- Curing the scratchcoat.
- Applying a suitable topcoat / finishing coat.
- Curing the topcoat.

We will look at each of these aspects in turn.

2.1 The Substrate

Understanding the nature of the substrate (the wall to be rendered) is critical to the success of any rendering job. The key properties of the substrate are:

- Strength.
- Water absorption or ‘Suction’.

In general, stronger substrates will require stronger render mixes. Whilst a degree of suction is required to enable the scratchcoat to bond to the substrate, excessive suction (as might be found with aerated concrete blocks) may suck too much water out from the scratchcoat or any applied spattercoat. This in turn will inhibit cement hydration (particularly with Blue Circle General Purpose Cement and Blue Circle Mastercrete which are relatively slow setting) and cause a significant reduction in both the bond and the strength of the scratchcoat and/or spattercoat. Excessive suction can usually be prevented by dampening the surface of the substrate before applying the scratchcoat.
2.2 The Render Mix

The first point to consider is: What type of cement do I have?

- **Blue Circle Procem:**
  A Portland cement of strength class 52,5N (CEM I 52,5N).

- **Blue Circle Mastercrete:**
  A Portland-limestone cement of strength class 32,5R (CEM II/A-L (or LL) 32,5R).

- **Blue Circle General Purpose Cement:**
  A Portland-fly ash cement of strength class 32,5R (CEM II/B-V 32,5R) or Portland-limestone cement of strength class 32,5R (CEM II/A-L (or LL) 32,5R).

- **Blue Circle Snowcrete:**
  A White Portland cement of strength class 52,5N (CEM I 52,5N).

Check the colour coding of the bag and the cement type (on the CE Panel on the front of the bag) before use.

The traditional mix proportions for render are given in Table 6, below.

### TABLE 6: TRADITIONAL MIX PROPORTIONS FOR RENDER

<table>
<thead>
<tr>
<th>Designation</th>
<th>Cement: Sand (plasticised)</th>
<th>Cement: Hydrated Lime: Sand</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>1 : 3</td>
<td>1 : ⅓ : 3</td>
</tr>
<tr>
<td>ii</td>
<td>1 : 3-4</td>
<td>1 : ½ : 4-4 ½</td>
</tr>
<tr>
<td>iii</td>
<td>1 : 5-6</td>
<td>1 : 1 : 5-6</td>
</tr>
<tr>
<td>iv</td>
<td>1 : 7-8</td>
<td>1 : 2 : 8-9</td>
</tr>
<tr>
<td>v</td>
<td>-</td>
<td>1 : 3 : 10-12</td>
</tr>
</tbody>
</table>

The same proportions can be used for all the Blue Circle cement products listed above.

**Note:** Tarmac Cement and Lime supplies Hydrated Lime under the **Blue Circle Hydralime** brand name.

The Choice of sand is also an important factor in successful rendering, whatever type of cement is used. Clean sharp sand is generally preferred for the scratchcoat, and a ‘rendering sand’ based on a mix of building sand and sharp sand is often used for the topcoat. Sand containing high levels of clay must be avoided as this results in high shrinkage, leading to cracking and crazing of the render as well as reduced bond between coats.
2.3 Batching

Correct selection of mix proportions and batching are key to successful use of all cement-based materials.

Render is traditionally batched by volume. When batching by volume, the use of ‘batch boxes’ or buckets is preferred to batching ‘by the shovel’ as it gives better control over the final mix proportions.

2.4 Mixing

For optimum performance, it is important that all the constituents are thoroughly and uniformly mixed together. Mixing using a mechanical mixer is generally preferred to hand mixing as it gives a more uniform mix.

Always use the minimum quantity of clean potable water needed to achieve the desired workability or consistency.

If mixing by hand, mixing should take place on a clean hard surface (wood or metal). It is important that water is contained in the mix as it will carry cement with it if it spills over, and reduce the final strength of the mix.

2.5 Render Application

The need to understand the nature of the substrate and its suction was highlighted in section 2.1 and the typical suitability of different render designations is shown in Table 7, below. Typically the same cement type would be used for both the scratchcoat and the topcoat.

### TABLE 7: TYPICAL SUITABILITY OF DIFFERENT RENDER DESIGNATIONS

<table>
<thead>
<tr>
<th>Render Designation</th>
<th>Render Characteristics</th>
<th>Typical Substrates</th>
</tr>
</thead>
<tbody>
<tr>
<td>i</td>
<td>Strong, relatively impermeable with high drying shrinkage</td>
<td>Engineering bricks, In-situ concrete, Dense concrete blocks</td>
</tr>
<tr>
<td>ii</td>
<td>Moderately strong</td>
<td>Calcium silicate bricks, some facing bricks</td>
</tr>
<tr>
<td>iii</td>
<td>Medium strength with greater permeability than Designation, but less likely to craze and crack</td>
<td>Lightweight aggregate blocks, some common bricks, Aerated concrete blocks</td>
</tr>
<tr>
<td>iv</td>
<td>Moderately low strength</td>
<td>Aerated concrete blocks, some softer bricks</td>
</tr>
<tr>
<td>v</td>
<td>Low strength</td>
<td>Weak materials in sheltered locations</td>
</tr>
</tbody>
</table>
2.5.1 Spattercoat/Scratchcoat
Slower setting cements such as Blue Circle General Purpose Cement and Blue Circle Mastercrete in particular, require effective control of the suction from the substrate in order that the spattercoat/scratch coat bonds effectively to the substrate.

Once the scratchcoat is applied (and mechanically keyed to receive the topcoat), it must be promptly and effectively cured. A strong key (‘wavy line’) is preferred, but it should not penetrate right through to the substrate. Curing is the prevention of excessive water loss from the render to its surroundings and to the atmosphere. If water is lost from the render at an early age, the continued hydration and strength development of the render is impaired. It is inadvisable to apply render in full sun. Suitable curing techniques include:

- Covering the exposed surfaces with polythene sheeting.
- Covering the exposed surfaces with wet hessian (sacking). The sacking should be maintained in a continuously damp condition.
- Keeping exposed surfaces damp by using a water mist spray.

Whichever method of curing is used, it should be kept in place for at least 7 days before applying the next coat.

The early-age strength development of the different Blue Circle products is typically (fastest first):

Blue Circle Snowcrete > Blue Circle Procem > Blue Circle Mastercrete > Blue Circle General Purpose Cement

Consequently, render scratchcoats containing Blue Circle Mastercrete or Blue Circle General Purpose Cement will require more curing time in order to develop sufficient strength to support the topcoat than renders based on Blue Circle Snowcrete or Blue Circle Procem.

2.5.2 Topcoat/Finishcoat
Once the scratchcoat has been properly cured, the topcoat or finishcoat can be applied. Good practice is that the topcoat should be weaker (higher designation number) or thinner than the scratchcoat, or possibly both.

Again, any potential suction between the scratchcoat and the topcoat must be controlled. The use of fibre mesh over joints and lintels etc will reduce the risk of cracking in these areas.

When the topcoat has been applied and finished, using pressure to push the topcoat into the keyed scratchcoat, curing measures should be put in place promptly, using one of the methods described above. The curing should remain in place for at least 3 days (and longer if practical) in order to prevent surface crazing or dusting.

3. Summary
Although this leaflet is not a comprehensive or definitive guide to rendering, it does provide guidance on how best to ensure a successful rendering job using Blue Circle packed cements. It is particularly important to recognise the different characteristics of the different products and to appreciate the critical role of curing in developing optimum cement performance.

Further information can be obtained from codes and standards, Tarmac technical literature or from the Tarmac Cement Technical Helpline (0845 812 6232 or info-cement@tarmac.com).
FLOOR SCREEDS

TABLE 8: CEMENTS FOR FLOOR SCREEDS

<table>
<thead>
<tr>
<th>Blue Circle Cement Product</th>
<th>For general use</th>
<th>For improved workability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue Circle Mastercrete</td>
<td>p.37</td>
<td>✓</td>
</tr>
<tr>
<td>Blue Circle Procem</td>
<td>p.37</td>
<td>✓</td>
</tr>
<tr>
<td>Blue Circle General Purpose Cement</td>
<td>p.38</td>
<td>✓</td>
</tr>
<tr>
<td>Blue Circle Sulfacrete</td>
<td>p.39</td>
<td></td>
</tr>
<tr>
<td>Blue Circle Snowcrete</td>
<td>p.39</td>
<td></td>
</tr>
</tbody>
</table>

✓ Recommended

GENERAL INTRODUCTION

A floor screed is a layer of mortar consisting of Portland cement and clean sharp concreting sand laid on a prepared concrete base slab. Alternatively, a 10mm aggregate concrete may be used. Both types are not intended to act as a wearing surface, but floated or trowelled smooth to provide a suitable surface to take a floor covering or other type of surface finish.

This section describes floor screeds mixed on site using Blue Circle cements in bags.

Aspects to consider prior to starting work

The method of floor construction and the condition of the concrete slab at the time of laying the screed will determine the type of screed to be used. There are 3 types of screed.
BONDED SCREED

The screed is bonded to the exposed aggregate surface of the concrete base slab. The method of aggregate exposure will depend on the condition of the slab:

Screed laid on a newly cured concrete floor
A key is provided by mechanically roughening the concrete slab by shot blasting, scabbling or grinding. The screed thickness should be 20mm to 40mm.

Screed laid on a ‘green’ concrete floor
A key is provided by brushing the surface, just after it has stiffened, to remove laitance/excess water. This results in a fully monolithic bonding of the screed to the concrete floor slab within 3 hours (the screed is physically part of the slab). A screed thickness of 12mm will be sufficient.

The risk of curling, hollowness and cracking is minimised when both variations of the bonded screed are used.

Unbonded screed
An unbonded screed is used when the concrete slab cannot be prepared to provide a good key or the screed is laid onto a damp proof membrane. The minimum thickness should be 50mm.

With this type of screed there is a risk of concrete curling and hollowness, as the poorly prepared concrete base or damp proof membrane prevents bonding. This curling may be minimised by increasing the thickness to 100mm and using a 10mm aggregate.

Floating screed
The screed is laid on a resilient layer of insulating material. The minimum screed thickness should be 65mm, but increased to 75mm if heating cables are incorporated.

There is a risk of some curling at joints which can be minimised by increasing the thickness to 100mm and using a 10mm aggregate. A light structural mesh reinforcement may reduce shrinkage cracking but not necessarily prevent curling.
**FLOOR SCREEDS**

**ADVICE ON RECOMMENDED MIXES**

Table 9, below indicates recommended floor screed mixes, and is followed by information on the materials that may be used. For the greatest accuracy, sand should be batched by weight. However, if equipment for weigh batching is not available, then volume batching with whole bags of cement should be used. Sand must be measured in a container having a known volume (eg, box, bucket or wheelbarrow) to maintain a consistent and accurate mix.

**TABLE 9: MIXES SUITABLE FOR SCREEDS**

<table>
<thead>
<tr>
<th>Floor or Finish</th>
<th>Screed Mix Proportions</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>By weight</td>
<td>By volume</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Cement: sand</td>
<td>Cement</td>
</tr>
<tr>
<td>Thin or flexible (eg, PVC tiles or carpet)</td>
<td>1:3</td>
<td>25 kg</td>
<td>0.06m³</td>
</tr>
<tr>
<td>Thick or rigid (eg, concrete or quarry tiles)</td>
<td>1:4</td>
<td>25 kg</td>
<td>0.08m³</td>
</tr>
</tbody>
</table>

**Portland Cement**

- Blue Circle Mastercrete
- Blue Circle Procem
- Blue Circle General Purpose Cement
- Blue Circle Sulfacrete
- Blue Circle Snowcrete

For damp sand a 20% allowance has been made for bulking.

**Materials to use**

- **Cements:** Refer to application Table 8 (page 27) and the appropriate product range pages.
- **Sand:** Clean sharp concreting sand to BS 8204–1: 2002.
- **Water:** Only clean mains water should be used.
QUANTITIES

Table 10, below indicates the quantities required for the recommended mixes set out in Table 9 (page 29). In addition, Table 10 also provides quantities for a 10mm aggregate concrete screed mix based on 1 part cement to 1½ parts concreting sand to 3 parts aggregate.

All quantities in Table 10 are approximate and no allowance has been made for wastage. Sand is assumed to be damp and a 20% allowance has been made for bulking.

TABLE 10: QUANTITIES OF MATERIALS

<table>
<thead>
<tr>
<th></th>
<th>Cement : sand screed mortar</th>
<th>10mm aggregate concrete screed</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1:3 (by wt)</td>
<td>1:2.6 (by vol)</td>
</tr>
<tr>
<td>For a 25 kg bag of cement, use:</td>
<td>80 kg sand or 0.06m³ sand</td>
<td>150 kg sand or 0.08m³ sand</td>
</tr>
<tr>
<td>For 1m³ of screed, use:</td>
<td>18 bags of cement + 1.1m³ sand</td>
<td>16 bags of cement + 1.2m³ sand</td>
</tr>
</tbody>
</table>

Note: 1m³ of screed is approximately equivalent to any of the following:
- 40mm thick screed over an area of 25m².
- 60mm thick screed over an area of 17m².
- 80mm thick screed over an area of 12m².
- 100mm thick screed over an area of 10m².
HOW TO MIX SCREEDS

The sand, cement and water should be mixed thoroughly in a forced action, mechanical mixer. The sand should be placed in the mixer first, then the cement and then sufficient water to give the required consistency.

Just sufficient water must be used to enable the cement and sand to be thoroughly mixed and to allow the screed to be fully compacted over its full depth. A screed which is too dry cannot be fully compacted, and a screed which is too wet will lead to difficulty in controlling screed levels.

The consistency can be judged by a simple test of pressing a ball of mixed screed in a gloved hand. It should be moist enough for the ball to hold together and not too dry so that it crumbles.

Hand mixing is not generally recommended as the end result is not consistent. If hand mixing has to be used then the materials should be mixed at least 3 times in the dry state to ensure thorough mixing.

For 10mm aggregate concrete the mix and water content should be normal for concrete, ie, the mix will be wetter than the screed mix.

HOW TO PLACE AND COMPACT SCREEDS

General

Lay screeds in strips about 3 or 4 metres wide. The length of the bay is not important and is only limited by convenience or room size. Vertical butt joints should be made between strips and at stop ends.

Use rectangular timber screed battens, set at the correct level, to rule off the screed. ‘Wet screeds’, ie, bands of fresh screed set to levels, are equally acceptable.

Bonded screed

The following procedure is recommended:

- Mechanically roughen the base concrete by shot blasting, scrabbling or grinding to expose the aggregate and to give a good key.

- Clean the roughened concrete thoroughly with an industrial vacuum cleaner. Simply brushing the floor may result in dust resettling on the floor.
Soak the concrete base with water for several hours, but preferably overnight.

Remove any excess water before starting to lay the screed.

Scrub a cement grout of creamy consistency into the base concrete. It is vitally important that the grouted area is not left uncovered for more than 20 minutes (10 minutes or less in hot weather or heated buildings) otherwise the grout will set and lose its bonding power. For this reason do not grout too far ahead of screed laying. PVA or SBR based bonding agents should be used strictly in accordance with the manufacturer’s instructions.

Immediately spread the screed over the grout to a level 10mm above the level of the finished screed. Heavily tamp down the screed using a hand rammer, roller or plate vibrator to ensure full compaction.

Rule off excess compacted material to the set levels. Fill in any low areas, compact and rule off again.

If screeding battens have been used to set levels, do not remove the battens until at least 24 hours after the first areas of screed have been laid.

Finish with a wood float or steel trowel according to the required finish.

A smooth, dense surface obtained with a steel trowel may be required for many floor finishes.

Avoid over-trowelling as this will bring fine sand and cement to the surface, where on drying out may craze and dust.

Unbonded and floating screeds

The procedures are the same as for bonded screeds except that the base concrete is not roughened or grouted.

Take care not to damage dpcs or insulating layers whilst laying or compacting the floor screed.

Waterproof building paper should be laid over porous types of insulation to ensure that the screed mix does not penetrate the pores.
If the quality of a concrete floor is unknown (e.g., during refurbishment work), or the concrete is judged to be of weaker strength than the screed, the best procedure will be to install a membrane and create an unbonded screed.

HOW TO CURE AND PROTECT SCREEDS

The following procedure is recommended to prevent the screed from premature drying:

• Newly laid screeds should be cured under polythene sheeting for at least 7 days.
• Screeds should then be allowed to dry out as naturally and slowly as possible.
• Rapid drying out will increase the risk of cracking and curling.
• Work should be scheduled so that the screeds are protected from foot traffic for as long as possible.
• The floor finish should not be laid until moisture in the screed has largely evaporated. Damp screeds will cause the early failure of floor finishes or their adhesives.
• A rough guide to drying out is one month for each 25mm of screed depth. Test with a hydrometer to ensure the vapour pressure is less than 75% before the flooring finish is laid (such as vinyl tiles, lino, carpet, etc).

Inclement weather precautions may need to be followed during the carrying out of the work:

• Cover sand, aggregates and cement to protect them from frost.
• Keep the mixer and other handling equipment free from frost.
• Do not mix or lay the screed when the air temperature is below 5°C or is expected to be during these operations.
**Concrete slab being scabbled**

**Setting the correct screed level**

**Laying**

**Compacting with a punner**

**Wood float finish**

**Curing**

**Tools**

- Forced action mixer
- Scabbler
- Trowel
- Float
- Level
- Punner
- Rule or straight edge
INTRODUCING NEW BLUE CIRCLE CEMENTS, GEARED TO THE SPECIFIC NEEDS OF THE END USER

Blue Circle cements offer builders an unparalleled range of conveniently packaged cement-based products, available from builders’ merchants throughout the UK. These include packed cements and premixed products in tear and weather resistant plastic packaging and tubs for ultimate convenience and avoidance of waste.

Full details of the unparalleled range of Blue Circle cement-based products for the end user are covered in the following pages.
Some ready-to-use mortars and concretes are available in resealable plastic tubs, ideal for smaller scale jobs. Just use the quantity of material required, then reseal the tub for later use. Prevents wastage and spoilt product.
BLUE CIRCLE MASTERCRETE
The ultimate professional solution
An multipurpose enhanced cement with additives – perfect for concrete, rendering, mortars and screeds.

Characteristics and benefits
• Enhanced resistance to freeze/thaw attack.
• Lower water demand.
• A more cohesive mix.
• Easier to compact, spread and finish.
• Less tendency for water to segregate and bleed.
• Tear and weather resistant plastic packaging.

Availability
25 kg plastic bags throughout the UK.

BLUE CIRCLE PROCEM
Perfect for structural applications
A packed Portland cement that is ideal for applications such as structural concrete, piling and screeds.

Characteristics and benefits
• Consistent strength and performance.
• Compatible with admixtures such as air-entraining agents and workability aids, with cement replacement materials such as fly-ash and ground granulated blastfurnace slag, and with pigments. Trial mixes are recommended to determine the optimum mix proportions.

Availability
25 kg bags throughout the UK.
PRODUCT RANGE

BLUE CIRCLE GENERAL PURPOSE CEMENT

The ideal general purpose cement

A range of cements offering exceptional performance across a wide range of standard uses – including concrete, mortar, rendering and screeds. Ideal for many different applications from small DIY jobs to the largest projects.

Characteristics and benefits
- Consistent strength and performance.
- Compatible with admixtures such as air-entraining agents, workability aids and pigments.

Availability
25 kg bags throughout the UK.

BLUE CIRCLE EXTRA RAPID

With rapid hardening and setting properties, making it suitable for repairs and maintenance work.

Tubs also available.

Characteristics and benefits
- For repair and maintenance where rapid setting and hardening is required, eg, fence posts, setting manholes, repairs to paths and steps.
- Takes foot traffic in 4-6 hours and vehicular traffic in 8-12 hours.
- Tear and weather resistant plastic packaging.

Availability
25 kg plastic bags and tubs throughout the UK.
**PRODUCT RANGE**

**BLUE CIRCLE SULFACRETE**

A low alkali cement with a high sulfate resistance and a moderate heat of hydration.

**Characteristics and benefits**

- Reduces damage to concrete, mortar and grout exposed to sulfate attack.
- Minimises the risk of alkali silica reaction.
- Reduces the thermally-induced stresses in large concrete pours.

**Availability**

25 kg bags throughout the UK.

**BLUE CIRCLE SNOWCRETE**

Blue Circle Snowcrete is a white Portland cement, without pigments or additives, for concretes intended to remain visible; also rendering, mortars and grouts.

**Characteristics and benefits**

- Produces a wide variety of white and coloured finishes when combined with selected aggregates or with BS EN 12878 pigments.
- Wide application including structural in situ and precast concrete, cast stone, rendering, pointing mortars, tile grouts, terrazzo, street furniture.
- Requires white aggregates for a white finish.
- Trial mixes should be made to test for desired colour.

**Availability**

25 kg bags throughout the UK.
BLUE CIRCLE HYDRALIME

A high calcium, non-hydraulic, hydrated lime for use with Portland cement, mortars and rendering.

**Characteristics and benefits**
- Gives excellent plasticity, cohesiveness and water retention to Portland cement mortars and rendering.
- Particularly useful in areas with poor sand quality.

**Availability**
25 kg bags throughout the UK.

BLUE CIRCLE LIMELITE NATURAL HYDRAULIC LIME

A range of Natural Hydraulic Limes conforming to EN 459-1

**Characteristics and benefits**
- Contains no additives.
- For use in rendering, mortar jointing and pointing.
- Ideal for repair work to older buildings.

**Availability**
25 kg bags throughout the UK.
BLUE CIRCLE POSTCRETE
Blue Circle Postcrete is a rapid-setting blended mix of cement, silicates and hardeners specifically designed for fixing wooden, concrete and metal posts in all types of soil.

Characteristics and benefits
- It is used without any form of mixing and is simple to apply and use. Just add to water.
- Sets in ten minutes.
- Tear and weather resistant plastic packaging.

Availability
Weatherproof plastic bags throughout the UK.

BLUE CIRCLE SLABLAYER
Blue Circle Slablayer is a cement-based material containing specially selected sand and cement for use under patio paving slabs.

Characteristics and benefits
- It is easy to use and requires no mixing and gradually over a period of time develops hardness to support the slabs.
- Just sprinkle with water and lay slabs.
- Tear and weather resistant plastic packaging.

Availability
Weatherproof plastic bags throughout the UK.
**BLUE CIRCLE MORTAR MIX**
A Designation III, premixed, quality assured mortar comprising cement, specially graded sand, lime and admixtures. For professional bricklayers seeking speed and convenience with no compromise on quality. Not for use in high sulfate conditions.

**Characteristics and benefits**
- Ready to use, just add water.
- Highly workable, long board life.
- Also ideal for pointing and gable ends.
- Tear and weather resistant plastic packaging.

**Availability**
Weatherproof plastic bags and tubs throughout the UK.

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**BLUE CIRCLE HIGH STRENGTH CONCRETE (40N)**
A premixed strong and hardwearing concrete that typically achieves a 28-day compressive strength of 40 N/mm².

**Characteristics and benefits**
- High strength - suitable for structural concrete, bedding manholes, driveways and other heavy-duty applications.
- Premixed ready to use, just add clean water.
- Tear and weather resistant plastic packaging.

**Availability**
Weatherproof plastic bags throughout the UK.
BLUE CIRCLE MULTI-PURPOSE CONCRETE
A premixed concrete manufactured from cement and specially selected and graded sand, and 10 mm coarse aggregate for general concreting applications.

Characteristics and benefits
• Suitable for all small concrete jobs.
• Premixed ready to use, just add clean water.
• Tear and weather resistant plastic packaging.

Availability
Weatherproof plastic bags and tubs throughout the UK.

BLUE CIRCLE QUICKSET CONCRETE
A premixed quick-setting concrete manufactured from cement, specially selected sand and admixtures.

Characteristics and benefits
• Ideal for any repairs to concretes where rapid setting and hardening is required.
• Just sprinkle with clean water.
• Sets within approximately 30 minutes.
• Use to max depth of 50mm.
• Tear and weather resistant plastic packaging.

Availability
Weatherproof plastic bags throughout the UK.
BLUE CIRCLE REPAIR CONCRETE
A premixed concrete suitable for general repairs up to a depth of 50mm.

Characteristics and benefits
- Suitable for all small concrete repair jobs.
- Premixed ready to use, only requires sprinkling with clean water.
- Use to a maximum depth of 50mm and up to an area of 2 m².
- Tear and weather resistant plastic packaging.

Availability
Weatherproof plastic bags and tubs throughout the UK.
GENERAL INTRODUCTION
The Blue Circle packed product range includes premixed ready-to-use cements and concretes formulated specifically to help the builder save time on small-scale jobs.

PREMIXED MORTARS

Blue Circle Quality Assured Mortar Mix
A ready-to-use mortar that is suitable for most brick and block applications, and requires only the addition of clean water.

Ready-to-Use products are supplied in tear and weather resistant plastic packaging.

PREMIXED CONCRETES

Blue Circle High Strength Concrete (40N)
A premixed strong and hardwearing concrete that typically achieves a 28-day compressive strength of 40 N/mm².

Blue Circle Multi-Purpose Concrete
A premixed concrete manufactured from cement and specially selected and graded sand, and 10 mm coarse aggregate for general concreting applications.

Blue Circle Quickset Concrete
A premixed quick-setting concrete manufactured from cement, specially selected sand and admixtures.

Blue Circle Repair Concrete
A premixed concrete suitable for general repairs up to a depth of 50mm.

Blue Circle Postcrete
A rapid setting blend of cement, silicates and hardeners for fixing all kinds of posts into the ground. No mixing is required.

Blue Circle Slablayer
A blend of cement and specially selected sand for use under patio slabs to provide a level surface.
BLUE CIRCLE POSTCRETE

Uses
For fixing all types of wood, metal and concrete posts into soil.

Description
Blue Circle Postcrete is ready to use. No mixing is required.

Packaging
Blue Circle Postcrete is supplied in tear and weather-resistant plastic packaging.
- Blue Circle Postcrete is a cement-based material and should be handled and stored with care.
- Storage temperatures should be above 3°C and below 30°C.

Sitework
For best results follow these instructions:
1) Dig hole to correct depth and width relevant to post size.
2) Fill hole between a third and halfway with water. Place post in hole.
3) Pour in Blue Circle Postcrete evenly around post up to water surface. Sprinkle water on top of any visible powder.
4) Position and level post as required. Setting will take place in 5 to 10 minutes.
5) When set, cover top of hole with soil or grass.

Do not mix Blue Circle Postcrete with water by hand or machine.
Please consult table 11 (page 47) for guidance on the quantity of Blue Circle Postcrete to use.

Cleaning
All equipment should be cleaned with water. Do not flush down drains.

Availability
Blue Circle Postcrete is available in weatherproof plastic bags at Blue Circle Cement UK stockists.

Bags are delivered on pallets, 1.2 x 1.0m, 70 bags per pallet. A full pallet weighs 1.4 tonnes.
### TABLE 11: HOW MUCH BLUE CIRCLE POSTCRETE WILL I NEED?

<table>
<thead>
<tr>
<th>Post size</th>
<th>Hole size (width x depth)</th>
<th>Number of bags required</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Round 5cm (2”)</strong></td>
<td>15cm (6”) x 30cm (12”)</td>
<td>1/3 bag</td>
</tr>
<tr>
<td></td>
<td>15cm (6”) x 45cm (18”)</td>
<td>1/2 bag</td>
</tr>
<tr>
<td></td>
<td>15cm (6”) x 60cm (24”)</td>
<td>3/4 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 30cm (12”)</td>
<td>2/3 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 45cm (18”)</td>
<td>1 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 60cm (24”)</td>
<td>1 1/2 bag</td>
</tr>
<tr>
<td><strong>Round 7.5cm (3”)</strong></td>
<td>15cm (6”) x 45cm (18”)</td>
<td>1/3 bag</td>
</tr>
<tr>
<td></td>
<td>15cm (6”) x 60cm (24”)</td>
<td>1/2 bag</td>
</tr>
<tr>
<td></td>
<td>15cm (6”) x 75cm (30”)</td>
<td>3/4 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 45cm (18”)</td>
<td>3/4 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 60cm (24”)</td>
<td>1 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 75cm (30”)</td>
<td>1 1/2 bag</td>
</tr>
<tr>
<td></td>
<td>25cm (10”) x 45cm (18”)</td>
<td>1 1/2 bag</td>
</tr>
<tr>
<td></td>
<td>25cm (10”) x 60cm (24”)</td>
<td>2 bags</td>
</tr>
<tr>
<td></td>
<td>25cm (10”) x 75cm (30”)</td>
<td>2 1/2 bag</td>
</tr>
<tr>
<td></td>
<td>30cm (12”) x 45cm (18”)</td>
<td>2 1/4 bag</td>
</tr>
<tr>
<td></td>
<td>30cm (12”) x 60cm (24”)</td>
<td>3 bags</td>
</tr>
<tr>
<td></td>
<td>30cm (12”) x 75cm (30”)</td>
<td>3 1/4 bags</td>
</tr>
<tr>
<td><strong>Round 10cm (33/4”)</strong></td>
<td>15cm (6”) x 45cm (18”)</td>
<td>1/4 bag</td>
</tr>
<tr>
<td></td>
<td>15cm (6”) x 60cm (24”)</td>
<td>1/3 bag</td>
</tr>
<tr>
<td></td>
<td>15cm (6”) x 75cm (30”)</td>
<td>1 1/2 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 45cm (18”)</td>
<td>2/3 bag</td>
</tr>
<tr>
<td></td>
<td>20cm (8”) x 60cm (24”)</td>
<td>3/4 bag</td>
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<tr>
<td></td>
<td>20cm (8”) x 75cm (30”)</td>
<td>1 bag</td>
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<tr>
<td></td>
<td>25cm (10”) x 45cm (18”)</td>
<td>1 1/2 bag</td>
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<tr>
<td></td>
<td>25cm (10”) x 60cm (24”)</td>
<td>1 1/4 bag</td>
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<tr>
<td></td>
<td>25cm (10”) x 75cm (30”)</td>
<td>2 bags</td>
</tr>
<tr>
<td></td>
<td>30cm (12”) x 45cm (18”)</td>
<td>2 bags</td>
</tr>
<tr>
<td></td>
<td>30cm (12”) x 60cm (24”)</td>
<td>2 3/4 bags</td>
</tr>
<tr>
<td></td>
<td>30cm (12”) x 75cm (30”)</td>
<td>3 1/2 bags</td>
</tr>
</tbody>
</table>

**Note:** The recommended depth of hole depends on the height of the post, the load it will support and the soil condition. As a guide, a 3” square post 5 ft high should be placed 18” deep in heavy soil or 24” in light soil or an exposed position.
BLUE CIRCLE SLABLAYER

Uses
Blue Circle Slablayer can be used under most types of patio slabs to provide a level surface.

Description
Blue Circle Slablayer consists of cement and selected aggregates.

Packaging
Blue Circle Slablayer is supplied in tear and weather-resistant plastic packaging.
- Blue Circle Slablayer is a cement-based material and should be handled and stored with care.
- Storage temperatures should be above 5°C and below 30°C.

Sitework
For best results follow these instructions:
1) Prepare the area to the required depth. Remove turf and any other material which will interfere with the surface being flat and level.
2) Place Blue Circle Slablayer to the required depth (optimum 25 mm), and rake level. Sprinkle with water using a fine rose until the Blue Circle Slablayer is wet through and rake level again.
3) Place the paving slabs ensuring they are level and flat.
4) Ensure that no cement material is on the slabs as this will result in staining.

Cleaning
All equipment should be cleaned with water. Do not flush down drains.

Coverage
This will depend on the depth of material used but as a guide three 440 mm x 440 mm paving slabs can be laid with one bag when the Blue Circle Slablayer is used at 25 mm thick.

Availability
Blue Circle Slablayer is available in weatherproof plastic bags at Tarmac Cement UK stockists.
Bags are delivered on pallets, 1.2 x 1.0 m, 70 bags per pallet.
A full pallet weighs 1.4 tonnes.
BLUE CIRCLE QUALITY ASSURED
MORTAR MIX

Uses
For most general-purpose brickwork, but not if sulfate conditions are present.

Description
Blue Circle Quality Assured Mortar Mix comprises a blend of selected sand, lime, cement and admixtures. (Designation iii, 1:1:6 equivalent, M4 Mortar).

Packaging
Blue Circle Quality Assured Mortar is supplied in tear and weather-resistant plastic packaging.

Sitework
For best results follow these instructions:
Preferably mix by machine until required workability and consistency is achieved. This can be normally obtained by the addition of 4 litres of water per bag and a machine mixing time of approximately 3-5 minutes.
The use of additional cement, sand, lime or admixtures is not recommended.
Only mix enough material for a maximum of 2 hours usage and do not retemper after setting.

Cleaning
All equipment should be cleaned with water. Do not flush down drains.

Availability
Blue Circle Quality Assured Mortar Mix is available in weatherproof plastic bags at Blue Circle Cement UK stockists.
FIRST AID TREATMENT

Eye Contact
• Wash eyes immediately with clean water for at least 15 minutes and seek medical advice without delay.

Skin Contact
• Wash the affected area thoroughly with soap and water. If skin irritation, or pain continues, seek medical advice.
• Clothing contaminated by wet cement, concrete or mortar should be removed and washed thoroughly before re-use.

Ingestion
• Do not induce vomiting. Wash out mouth with water and give patient plenty of water to drink.

Inhalation
• If irritation occurs, move patient to fresh air. If nose or airways become inflamed seek medical advice.

STORAGE AND HANDLING

Storage
• Bags should be stacked in a safe and stable manner.

Handling
• When handling cement bags, due regard should be paid to the risks outlined in the Manual Handling Operations Regulations 1992.
• Some bags may have a small amount of cement on the outer surface. Appropriate personal protective clothing (see below) should therefore be used whilst handling.

EXPOSURE CONTROLS

Occupational Exposure Standard (OES)
• Total inhalable dust 10 mg/m³ 8 hrTWA.
• Respirable dust 4 mg/m³ 8 hrTWA.
where TWA = Time Weighted Average.

Engineering measures
• Where reasonably practicable, dust exposures should be controlled by engineering methods.

Note: For further reading refer to the relevant Tarmac Cement Health & Safety Information Sheet.

RECOMMENDED PROTECTIVE EQUIPMENT

Respiratory Protection
• Suitable respiratory protection should be worn to ensure that personal exposure is less than the OES.

Hand and Skin Protection
• Protective clothing should be worn which ensures that cement, or any cement/water mixture, eg concrete or mortar, does not come into contact with the skin.
• In some circumstances such as when laying concrete, waterproof gloves, waterproof trousers and wellingtons may be necessary.

• Particular care should be taken to ensure that wet concrete does not enter the boots and persons do not kneel on the wet concrete so as to bring the wet concrete into contact with unprotected skin.

• Should wet mortar or wet concrete get inside boots, gloves or other protective clothing then this protective clothing should be immediately removed and the skin thoroughly washed as well as the protective clothing/footwear.

Eye Protection
• Dust-proof goggles should be worn wherever there is a risk of cement powder or any cement/water mixture entering the eye.

REGULATORY INFORMATION

Chemicals (Hazard Information & Packaging) Regulations 1999
• Classification – Irritant.

Risk Phrases
• Contact with wet cement, wet concrete or wet mortar may cause irritation, dermatitis or burns.

• Contact between cement powder and body fluids (eg, sweat and eye fluids) may also cause irritation, dermatitis or burns.

• There is a risk of serious damage to eyes.

Safety Phrases
• Wear suitable protective clothing, gloves and eye/face protection.

• In case of contact with eyes, rinse immediately with plenty of clean water and seek medical advice.

• After contact with skin, wash immediately with plenty of clean water.

• Keep out of reach of children.

FURTHER INFORMATION

Technical helpline: 0845 812 6232
Facsimile: 0845 812 6420
E-mail: info-cement@tarmac.com

Customer services: 0845 812 6300
Facsimile: 0845 812 6250
E-mail: customerservice@Tarmac.com
Website: www.tarmac.com
Technical helpline: 0845 812 6232
Facsimile: 0845 812 6420
E-mail: info-cement@tarmac.com
Customer services: 0845 812 6300
Facsimile: 0845 812 6250
E-mail: customerservice@Tarmac.com
Website: www.tarmac.com