

## Planning to Lay Concrete

### **UNDERSTANDING CONCRETE**

Concrete is a stone-like material consisting of coarse and fine aggregates (particles of natural stone or sometimes man-made materials) bound together by a matrix of hardened Portland Cement paste. Mortar, strictly speaking is simply a concrete containing fine aggregates, but the word is commonly used to mean a mix intended for bedding masonry, paving or for finishing masonry.

**PORTLAND CEMENT**, when mixed with water, reacts to form a dense, hard mass, which is virtually insoluble in water and unaffected by most other substances, except acids and some other chemicals. Ordinary Portland Cement (OPC), light grey in colour, is suitable for almost all concrete work and masonry mortar. We stock Ordinary Portland Cement in easily managed 25kg bags and also in smaller pre-packed quantities, handy for repairs and other small jobs.

**WHITE PORTLAND CEMENT**, apart from its colour is closely similar to OPC, and may be used for white or light-coloured concrete, mortar or rendering mixes.

**SULPHATE-RESISTING CEMENT** may be needed in special concrete mixes used for foundations in soil containing soluble sulphates harmful to concrete. Some soils, particularly made-up reclaimed sites and ground waters contain sulphates, which can attack concrete. Under certain circumstances mix proportions may have to be altered in addition to the use of these special cements.

**MASONRY CEMENT** is suitable only for use in mortars or rendering mixes. It should not be used in concrete or floor screeds.

### **AGGREGATES**

Aggregates are classified as coarse or fine and are graded by passing them through a standardised series of screens or sieves. Ordinary concretes contain both coarse and fine aggregates. The maximum size is usually specified. 20mm for most work, but sometimes 40mm or 10mm. Different gradings of sand are used as fine aggregate in concrete and mortar mixes depending on their use. Concreting "sharp" sand should be used for concrete and floor screed mixes. Builders or bricklayers "soft" sand is more finely and evenly graded and should be used in masonry mortar. Mortar for rendering masonry walls should be made with clean, washed plasterers sand which is "sharper" than builder's sand, but not as coarse as concreting sand. Sources for suitable sands for rendering are not plentiful. Many builders have found a mix of our "sharp washed sand" and ordinary "builder's sand" as suitable for their purposes.

Combined or "all-in" aggregates (sometimes called ballast) may be used in place of separate coarse and fine material for many DIY jobs, though separate aggregates are still to be preferred. If you use "all-in" material avoid unwashed, "as dug" pit-ballast. All our aggregates are supplied in clean, easy-to-handle plastic bags. These materials are used by us in our "Ready-Mix Concrete" plant. Larger quantities can be delivered by our lorries in bulk bags. Even larger quantities are available at a more economical rate, direct from the quarry charged per tonne and tipped at your site.

### **CHEMICAL ADMIXTURES**

Chemical admixtures can be used to modify the properties of concrete and mortars and are sometimes useful in DIY work. All of them require careful proportioning and most of them are added at the mixing stage. These chemicals should only be used in accordance with maker's instructions. Most additives are obtainable from our sales office and our staff will be happy to discuss any requirements with you. We offer such additives as polypropylene fibre reinforcing, chemical retarders or accelerators, pigments in five popular colours and other materials.