



Concretes for Housing

Designated concrete

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Designated concretes are quality assured designed concretes that conform to a specification detailed in BS 8500-2: *Concrete - Complementary British Standard to BS EN 206-1 - Part 2: Specification for constituent materials and concrete*.

These concretes have been selected by governmental bodies and industry to be fit for their intended end uses and they can only be supplied by ready-mixed concrete producers who have third-party product conformity certification.

A QSRMC or BSI logo on the delivery ticket provides this confirmation. Purchasers can therefore be confident that the concrete will be delivered as specified and ordered.

Selecting the appropriate concrete

Decide which of the 'typical applications' matches your application and site conditions. For reinforced concrete structural frames, see the recommendations by the designer. If these are not specified as a designated concrete, ask the designer or concrete producer to determine the equivalent designated concrete.

Many soils are potentially aggressive to concrete and the designer of the foundations should have selected a concrete that is capable of resisting this aggression. The concrete may be specified using one of the FND series of designated concretes or they may simply have identified the design chemical class (DC-class) needed to resist this aggression.

In the second case, simply replace the letters 'DC' with 'FND' and you have the appropriate designated concrete. For example for a design chemical class DC-3z, the appropriate designated concrete is FND3z. For further advice, see BRE SD1: *Concrete in aggressive ground*.

Measure the prepared location and calculate the volume of concrete required. Slightly over-estimate the volume required as it is annoying to run short and expensive to order a very small volume. Ensure a suitable and safe access for the ready-mixed concrete truck, the largest of which may be up to 10.5m long, 2.5m wide and 3.8m high and weigh 32 tonnes when fully loaded.



Concrete truck with built-in conveyor system

If the truck cannot discharge directly into the works, provide transport to move the concrete from the delivery truck to the works or ask the ready-mixed concrete producer for advice. They may be able to provide a truck that has a pump or conveyor or recommend a company that may supply such equipment.

A few days prior to requiring the concrete, ask for a quotation. Provide the information given below in 'What to specify'. At this stage you may not know the exact volume of concrete so give an estimate and say that you will confirm the volume the day prior to delivery. Confirm the order and time of delivery the day prior to delivery.

What to specify

Specify the designated concrete, the volume required, the date required and the time when you want the first truck on site. Also specify:

- The nominal maximum aggregate size only if it needs to be different from 20mm (you will get a maximum aggregate size of 20mm if you do not specify a different size). Options, if available, will be 40 or 10mm.
- The slump class as recommended in the table below.

Typical applications for designated concretes

Typical application	Designated concrete	Recommended slump class
Foundation (fully buried)		
Unreinforced foundations in DC-1 soils	GEN1	S3 ^{A)}
Reinforced foundations in DC-1 soils	RC25/30	S3 ^{A)}
Unreinforced or reinforced foundations in DC-2 soils	FND2	S3 ^{A)}
Unreinforced or reinforced foundations in DC-xyz soils	FNDxyz	S3 ^{A)}
Floors^{B)}		
Unreinforced floor with permanent finish to be added e.g. screed of floating floor	GEN1	S2
Unreinforced floor with no permanent finish to be added e.g. carpeted	GEN2	S2
Unreinforced garage floor	GEN3	S2
Reinforced house floor	RC20/25	S2
Reinforced garage floor with at least 40mm nominal cover to reinforcement	RC28/35	S2
Other applications		
Infill to insulated concrete formwork used above ground	RC20/25 ^{C)}	D)
Oversite	GEN1	S3
Kerb bedding and backing	GEN0	S1
Drainage works on DC-1 soils to give immediate support	GEN1	S1
Drainage works on DC-1 soils	GEN1	S3
House drives, domestic parking and external paving	PAV1	S2
Heavy-duty external paving for rubber-tyred vehicles	PAV2	S1 or S2 ^{E)}

A) For trench fill, use S4

B) Floors with any embedded metal should be treated as being reinforced

C) Specify a 10mm maximum aggregate size

D) Follow the recommendation of the manufacturer of the insulated concrete formwork system being used

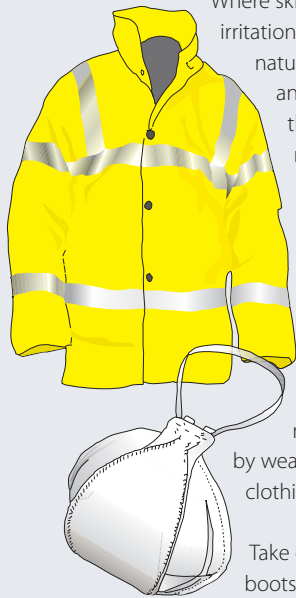
E) When to be placed by hand

Health and Safety

Health and safety, BS 8500: Hazard warnings

Where skin is in contact with fresh concrete, skin irritations are likely to occur owing to the alkaline nature of cement. The abrasive effects of sand and aggregate in the concrete can aggravate the condition. Potential effects range from dry skin, irritant contact dermatitis, to - in cases of prolonged exposure - severe burns.

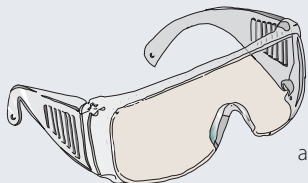
Take precautions to avoid dry cement entering the eyes, mouth and nose when mixing mortar or concrete by wearing suitable protective clothing.



Take care to prevent fresh concrete from entering boots and use working methods that do not require personnel to kneel in fresh concrete. Unlike heat burns, cement burns might not be felt until some time after contact with fresh concrete, so there might be no warning of damage occurring.



If cement or concrete enters the eye, immediately wash it out thoroughly with clean water and seek medical treatment without delay. Wash wet concrete off the skin immediately. Barrier creams may be used to supplement protective clothing but are not an alternative means of protection.



Lifting and placing concrete

Ready-mixed concrete is heavy, with a standard barrow load weighing over 100 kg, so lifting/carrying just a small volume may cause physical injury.

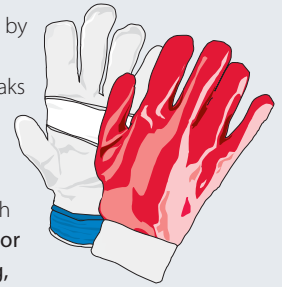
It is therefore essential that you follow health and safety regulations in order that you may place, compact and finish the work without straining yourself.

Use of vibrating pokers and equipment

Certain types of plant create a large amount of vibration during use (for example pneumatic hammers, drills, grinders and vibrating pokers).

Prolonged exposure to vibration can cause carpal tunnel syndrome and hand arm vibration syndrome (HAVS).

It is possible to reduce the effects of vibration by selecting plant with vibration dampeners, by using anti-vibration gloves, taking regular breaks and/or by keeping your hands warm in cold weather.



Please seek advice from the manufacturer with regard to the use of this type of equipment. **For advice on safe handling of concrete, placing, compaction and curing of concrete, see 'further reading'.**

For further reading refer to

- *British Standards Institution*, BS 8500: 2006. Concrete - Complementary British standard to BS EN 206-1, Part 1: Method of specifying and guidance for the specifier; Part 2: Specification for constituent materials and concrete, London, BSI.
- *BRMCA*, 'Do's and Don'ts' brochure ref. BRMCA/02/09, February 2009.
- *The Concrete Society*. Good Concrete Guide 8: Concrete Practice, November 2008, Camberley.



BRMCA is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, lime, mortar and silica sand industries

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