

ROADSTONE

EASY LEVEL SCC



 **roadstone**
A CRH COMPANY

ROADSTONE EASY LEVEL SCC

Roadstone Easy Level SCC (self-compacting concrete) is a flowing concrete that can be used in horizontal applications such as slabs and screeds where there are structural requirements.

Roadstone Easy Level SCC is designed through the use of innovative mix technology and the use of high-performance super plasticisers, anti-shrink additives and fibres.

Roadstone Easy Level SCC offers numerous advantages over conventional concrete mixes and can be installed

and finished effortlessly saving time and money while also reducing noise and eliminating vibration, improving conditions on site. Roadstone Easy Level SCC is produced at selected ready-mix plants nationally and in accordance with the requirements of I.S. EN 206:2013.

TECHNICAL DATA SHEET

APPLICATIONS

- Slabs
- Residential dwellings slabs
- Structural toppings
- Domestic floors
- Commercial slabs such as composite deck construction (rib metal decking)
- Low traffic industrial floor slabs

CHARACTERISTICS

- Roadstone self-compacting concrete enables the rapid and effortless fabrication of slabs and floors
- Roadstone design technology results in a high-quality surface finish
- Can eliminate power floating on site
- Floor finish tolerance to BS 8204 – 1 SR2
- The use of Fibremesh 300-e3 reduce the potential for plastic shrinkage cracking
- Drying shrinkage - <0.045%

SPECIFICATION

- Maintenance of fluidity – two hours
- Minimum thickness – 75mm
- Compressive strength at 28 days – 35N/mm² with higher strengths are also available.

INSTALLATION

PREPARATION

Roadstone Easy Level SCC can be laid over any stable substrate

BOND TO SUBSTRATE

- When the concrete is laid unbonded to the substrate, a polythene membrane of suitable thickness is required
- When the concrete is to be laid bonded a bonding compound (such as an SBR type product) should be applied

PERIMETER ISOLATION

- A compressible strip with a minimum thickness of 8mm and maximum of 15mm should be fixed around the walls
- The isolation strip is also required to be fixed around vertical features such as columns and pipe ducts
- Particular attention must be taken at re-entrant angles such as doorways, bays and alcoves
- Ensure the perimeter isolation is placed at right angles into all corners of the room
- On exterior angles it may be necessary to double up the isolation to ensure that the minimum thickness is maintained around the angle
- The most suitable material for this is a self-adhesive ethafoam strip

SUBSTRATE PREPARATION

- In unbonded and floating applications, a polythene membrane of 120 micron minimum thickness and 250 micron maximum thickness must be laid on the substrate
- Roadstone Easy Level SCC is highly fluid and therefore requires the membrane to be substantially watertight to prevent loss of material
- The sheet should be laid with a 300mm overlap, adhesive tape at least 50mm wide should be applied along overlapping joints of the sheets to seal them
- Care should be taken to ensure the membrane is folded, or cut and sealed, into a corner
- Around the perimeter of the room, the edges of the polythene membrane should extend well above the

intended level of topping or should be taped to the ethafoam strip

- Care should be taken to ensure no ridges or folds are left on the surface of the polythene

CONDITIONS

- Roadstone Easy Level SCC can only be laid when the air temperature is between 5°C and 30°C
- The substrate must not be frozen and ideally should be within the above temperature range

SETTING OUT LEVELS

- To adequately set out the levels before placing the concrete, the highest point should first be found
- A series of tripods with a height adjustable indicator should be used to easily identify the concrete thickness to be laid
- A tripod should be placed at the highest point to denote the top of the finished floor with a nominal minimum thickness of 75mm
- Other tripods should be placed at two to three metre intervals across the floor and the indicators set using a laser-levelling device with the first tripod as the datum

PLACEMENT

SLUMP-FLOW MEASUREMENT

When Roadstone Easy Level SCC arrives on site, the slump-flow of the material should be 600mm – 700mm when measured using the appropriate equipment. If the mix is outside of the target range, then advice should be sought from your Roadstone representative as to the appropriate course of action.

PUMP PRIMING

If the concrete is to be pumped, prior to pumping it is essential that the pump is primed. The pipes must be systematically 'lubricated' with a slurry. The slurry should be fed through the pipes and fully recovered at the other end before any of the concrete is discharged.

PUMPING

When placing the product, the hose should be held approximately 500mm from the substrate. The pipe should be moved in a sweeping motion and should not be held stationary above any fixed point. Roadstone Easy Level SCC should be poured until the preset levels, as denoted by the tripods, have been reached.

FINISHING AND AFTER CARE

DAPPLING

- When the material has been placed to the desired levels within a room/area, it should be dapped immediately to obtain the best surface finish. The T-bar should be moved across the surface of the concrete with a dapping motion to generate a wave-like ripple across the surface
- The dapping should occur in two directions, the second being perpendicular to the first. The first pass should be a deep pass to approximately two-thirds of the depth of the concrete; the second a light pass over the surface

CURING

- Following placement, a curing membrane should be sprayed over the surface using a mist sprayer. Care should be taken to follow all relevant health and safety procedures when using the curing membrane, including goggles and respiratory equipment where required
- It is essential to ensure complete coverage of the surface as per manufacturer's guidelines

FOLLOWING PLACING

- The surface will be suitable for light foot traffic after 24 hours and can be worked on after a period of 72 hours from placing
- The slab should not be loaded with palletised materials until at least seven days
- Partitions can be erected after a minimum of seven days from the time of placing
- The slab should be protected from excessive winds or drying for 48 hours after placing
- Where a floor finish is to be applied, the floor should be sanded to remove the curing compound and any surface laitance that may inhibit adhesion of the selected floor covering

BAY SIZES (WHEN INSTALLED WITHOUT CRACK CONTROL MESH REINFORCEMENT)

Saw cut joints should be detailed at 40 times the depth of the slab (in mm) e.g. a slab that is 75mm deep = $40 \times 75 = 3,000\text{mm}$, therefore joints must be at 3m x 3m. Particular care and attention should be taken with regards to expansion joints at doorways and reentrant corners.

DRYING TIMES

Screed with Under Floor Heating (UFH) will require a thermal cycle as highlighted in the diagram below (FIGURE 2.).

The maximum temperature of the heating can amount to 55 °C. Heating up can be carried out from the 14th

day after installation. Screeds can be forced dried, by commissioning the underfloor heating system or by utilising a dehumidifier.

DRYING SCREED USING UFH SYSTEM

| Age of Screed (14 to 21 Days) | Temperature Degrees Celsius | Age of Screed (14 to 21 Days) | Temperature Degrees Celsius |
|-------------------------------|-----------------------------|-------------------------------|-----------------------------|
| Day 1 of Heating cycle | 25 | Day 9 of Heating cycle | 55 Max |
| Day 2 of Heating cycle | 30 | Day 10 of Heating cycle | 50 |
| Day 3 of Heating cycle | 35 | Day 11 of Heating cycle | 45 |
| Day 4 of Heating cycle | 40 | Day 12 of Heating cycle | 40 |
| Day 5 of Heating cycle | 45 | Day 13 of Heating cycle | 35 |
| Day 6 of Heating cycle | 50 | Day 14 of Heating cycle | 30 |
| Day 7 of Heating cycle | 55 Max | Day 15 of Heating cycle | 25 |
| Day 8 of Heating cycle | 55 Max | | |

Prior to cycling the area should have natural ventilation for a min of 10 days Natural Ventilation and/or the use of dehumidifiers must be used during heating cycles Minimum time to receive floor coverings @ ≤ 2.0 CM-% is generally over 28 days after placing. Prior to laying the final floor finish the flooring contractor is responsible for measuring the residual humidity, moisture of the screed, adhesive selection and the use of other proprietary materials and/or treatments.

FLOOR COVERINGS

Roadstone Easy Level is compatible with all floor coverings, and also compatible with all cementitious adhesives and floor levellers. Ask for further information on compatibility and testing or see our post installation guidelines.

*Note: The environment in which the screed is placed may impact these figures. The floor covering contractor is responsible for measuring the residual humidity prior to laying the final floor finish.

HEALTH AND SAFETY

Some of the components of this product may be hazardous during mixing and application. Please consult the relevant Health and Safety data sheets, available from Roadstone on request and provided with each delivery

ENVIRONMENTAL/MATERIAL DATA

Roadstone SDS for concrete
Cement I.S. EN 197 Cement
Aggregates & Filler I.S. EN 12620 Aggregates for Concrete & SR 16
Admixtures I.S. EN 934 Admixtures for concrete, mortar and grout
I.S. EN 16001 Energy Management System
I.S. EN ISO 9001 Quality Management System
I.S. EN ISO 14001 Environmental Management
Ref - Contractor Flooring Association "Guide To Contractor Flooring"

FREQUENTLY ASKED QUESTIONS

1. HOW FAR WILL IT FLOW?

How far the concrete actually flows is dependent on the energy you put into it i.e. how fast or hard you 'push' when you start placing. For example, if you pour it directly from the truck into the slab, it will go further than if pumped because the initial motion 'energy' was higher.

2. DO I HAVE TO POWER FLOAT IT?

No, the main reason for using Roadstone Easy Level SCC is to avoid the need for this activity. By applying the appropriate method of placing, there is no need for power floating.

3. DO I HAVE TO VIBRATE IT?

No, the concrete is self-compacting, which means you don't have to vibrate it to compact it. In fact vibrating self-compacting concrete will cause the product to segregate and bleed.

4. HOW DO I FINISH IT?

When the concrete has been placed to the desired levels, it should be dapped (or tamped) using the T-bar. You should make two passes of the bar the second pass being at a right angle to the first. On the first pass the bar must be used vigorously to create 'big' waves to level the surface. The second pass must be done more gently, i.e. a light tamping, as this will create the best surface finish. During this pass the bar should remain in contact with the surface of the concrete. The curing agent must be applied without delay after the second pass.

5. CAN YOU PUMP IT?

Yes, Roadstone Easy Level SCC is ideal for placing by pump, provided the pump and pipeline have been properly primed using a cement slurry.

6. WHY DO YOU HAVE TO SPRAY A CURING AGENT ON THE FINISHED CONCRETE?

The curing agent has three purposes. Firstly, it is used to prevent plastic shrinkage cracking by preventing the evaporation of the water from the surface of the concrete. Secondly, by stopping the evaporation of water from the surface you prevent 'dusting' of the finished slab. Thirdly, good curing allows the concrete to develop its full potential strength.

7. WHAT HAPPENS IF YOU DO NOT CURE IT?

The concrete will potentially crack. Depending on the site conditions, the cracking can be from very light (two or three cracks per m²) to 'crazy paving'. As with any concrete with incorrect or no curing you may expect the strength to be significantly reduced and the risk of 'dusting' to increase.

8. WHEN CAN I WALK ON OR LOAD THE SLAB?

The surface of the slab will be suitable for light foot traffic after 24 hours. In terms of the initial loading of the slab the rate of strength gain is similar to conventional concrete. Where there are restrictions on loading, the designer or specifier's instructions must be followed.

9. HOW DO I PLACE IT?

The three main placing methods are:

- Using a concrete pump
- Straight from the mixer truck via chutes
- Using a crane and skip

10. WHAT PREPARATION IS REQUIRED BEFORE POURING?

Roadstone Easy Level SCC is to be laid on top of a watertight membrane when unbonded and a compressive strip with a minimum thickness of 8mm is required, to be fixed around vertical features such as columns, pipes and walls. When the slab is intended to be bonded, a primer – SBR latex or similar - must be applied to the substrate.

11. CAN I LAY IT TO FALLS?

No, Roadstone Easy Level SCC cannot be laid to falls because of its high fluidity.

12. WHAT IS THE SETTING TIME?

Depending on the temperature, the concrete will start to set 3-6 hours after placing. After 24 hours the strength will be sufficient for light foot traffic. Apart from the first few hours when self-compacting concrete is still fluid, the setting time is comparable to one of a 'traditional' concrete.

13. DO I NEED TO PUT STEEL IN THE CONCRETE?

It is recommended that either a reinforcement mesh or fibres are used in any horizontal application to control the stresses induced by the shrinkage of the concrete. When Roadstone Easy Level SCC is laid in certain unbonded situations, the use of mesh may be avoided by good site preparation as described in our guidance.

14. CAN I LAY IT BONDED?

Yes, but it is not our normal recommendation. The site preparation necessary to lay bonded Roadstone Easy Level SCC is more complicated than for unbonded. When bonded the contractor must use an adequate reinforcing mesh, must put a soft isolating joint around every vertical feature, must use a suitable primer before laying the concrete and must saw cut crack control joints within 24 hours.

15. CAN I PLACE ROADSTONE EASY LEVEL SCC DIRECTLY ONTO INSULATION BOARD?

No, because Roadstone Easy Level SCC is so fluid care is required to avoid floatation of the insulation boards, as such a layer of polythene membrane is required to isolate the insulation from the concrete. Avoid the use of aluminium foil faced board as the aluminium will react with any cement based product, which can cause surface defects.

16. WHY IS THE PREPARATION SO CRITICAL?

Good preparation is critical because it is the only way to reduce the risk of problems like cracking, poor surface finish, or a disaster like having a few cubic metres of concrete flowing through a gap in the formwork onto the level below.

17. IF THERE ARE GAPS IN THE FORMWORK, HOW MUCH PRODUCT WILL I LOSE?

That will depend on the size of the gaps, typically a gap of 2-8mm will result in the loss of some product, however this will block within a few minutes and the loss will stop. Where gaps are greater than 15mm the concrete will continue to flow until the gap is blocked by an operative.

18. CAN YOU PUT FIBRES IN IT?

Roadstone Easy Level SCC is produced with Fibremesh 300-e3 as standard.

19. IF IT RAINS WHEN THE CONCRETE IS STILL WET, WILL IT RUIN THE SURFACE?

As with all other forms of concrete heavy rain will damage the surface, once the curing membrane has been applied the surface will be partially protected and is unlikely to be damaged by light rain.

20. CAN I REWORK THE SURFACE IF I NEED TO?

Yes, but only if essential and it must take place before setting begins. The surface can be reworked using the T-bar before the curing agent is applied. If the curing agent has been applied it may be possible to refinish the surface, however, it will be very difficult to mix the curing film into the surface layer and may detract from the normal finish.

21. DO I HAVE TO PUT CONSTRUCTION JOINTS IN AND IF SO AT WHAT SECTIONS?

Yes, it is our recommendation to use construction joints. Normal concrete practice suggests inducing joints at intervals equivalent to 40 times the depth of the concrete. For example a slab 100mm thick should have joints every 4m. The length to width ratio shall not exceed 2:1.

22. WHAT AMBIENT CONDITIONS CAN I POUR IN?

You can place Roadstone Easy Level SCC at any time providing the temperature is between 5 and 30°C. At low temperatures, 5-10°C the setting time will be slightly longer.

23. DOES FROST AFFECT THE CONCRETE?

As for any concrete, Roadstone Easy Level SCC should not be placed in freezing conditions, or where the temperature is 5°C or less on a falling thermometer.

24. HOW LONG DOES THE CONCRETE STAY FLUID?

Roadstone Easy Level SCC is normally designed to retain its workability for in excess of two hours. For special situations this may be extended.

25. WHAT TYPE OF SURFACE FINISH CAN I OBTAIN?

The quality of surface finish is defined by two characteristics: its flatness and its smoothness. Roadstone Easy Level SCC is normally sold as 'equivalent to a power-float finish' but it is not identical. It will normally be flatter than a power float finish but not as smooth.



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