

**Project No.** 150457

**Client:** Council of the Isles of Scilly

**Tender Issue** 10/11/2017

**STRIDE TREGLOWN**  
ARCHITECTURE

## **Carn Gwavel School**

**10 November 2017**

**This document includes:**

Code	Section	Revision	Dated
M10	Cement based levelling/ wearing screeds		

## **M10 Cement based levelling/ wearing screeds**

### **TYPES OF SCREED**

#### **131 PROPRIETARY QUICK DRYING LEVELLING SCREEDS TO GROUND FLOOR AREAS - FOR USE WITH UNDERFLOOR HEATING**

- Substrate: Insulation over in-situ concrete slab. Insulation must be tightly butted and laid flat. Provide protection boards if insulation is to be temporarily left exposed prior to screed laying.
- Screed manufacturer: Ardex.
  - Product reference: A35.
- Screed construction: Floating as M10/290.
  - Reinforcement for crack control: As required by manufacturer..
- Thickness:
  - Nominal: 95mm.
  - Minimum: 75mm.
- Mix:
  - Cement: Proprietary rapid setting and drying cement.
  - Proportions: To manufacturer's recommendations. ( n.b. where screed over 50mm thick a fine concrete mix can be used by partially replacing some of the screeding sand with the suitable amount of 8 - 10mm single sized aggregate - consult manufacturer for guidance)
- In situ crushing resistance (ISCR) category: A (3 mm maximum indentation).
  - Mass of test weight: 2 kg.
- Flatness/ Surface regularity class: SR2.
- Finish: Trowelled, as clause 540.
  - To receive: Varies, Refer to finishes drawing / schedule.
- Edge Insulation: Proprietary compressible Polyethylene foam strip to entire perimeter of floating screed. To contractors choice.
- Other requirements: Day joints to be positioned centrally under sole tracks of plasterboard partitions

The soundness of all screeds shall be tested by the contractor using a BRE Screed Tester.

- Testing

to commence 6-24 hrs after applying the screed AND BEFORE ANY PARTITIONS ARE LAID

All tests to be witnessed by the CA and the floor screed manufacturer.

A record of all tests to be kept and the positions of tests and results indicated accurately on a plan

by the contractor and forwarded to the CA

Any area of the screed failing the above test is to be taken up to limits of faulty screed and re-laid.

Repair products for failed screeds will not be considered.

Contractor to fill indentation caused by screed testing with latex levelling and smoothing compound -

type Arditex NA.

## **GENERALLY/ PREPARATION**

### **210 SUITABILITY OF SUBSTRATES**

- General:
  - Suitable for specified levels and flatness/ regularity of finished surfaces. Consider permissible minimum and maximum thicknesses of screeds.
  - Sound and free from significant cracks and gaps.
- Concrete strength: In accordance with BS 8204-1, Table 2.
- Cleanliness: Remove plaster, debris and dirt.
- Moisture content: To suit screed type. New concrete slabs to receive fully or partially bonded construction must be dried out by exposure to the air for minimum six weeks.

### **250 CONDUITS UNDER FLOATING SCREEDS**

- Haunching: Before laying insulation for floating screeds, haunch up in 1:4 cement:sand on both sides of conduits.

### **255 PIPE DUCTS/ TRUNKING**

- Preformed access ducts: Before laying screed, fix securely to substrates and level accurately in relation to finished floor surface.

### **290 FLOATING CONSTRUCTION**

- Insulation:
  - Type: As spec P10/169A .
  - Installation: Lay with tight butt joints. Continue up at perimeter abutments for full depth of screed.
- Separating layer:
  - Type: As spec P10/316.
  - Installation: Lay over insulation and turn up at perimeter abutments. Lap 100 mm at joints.

## **BATCHING/ MIXING**

### **302 CEMENTS**

- Cement types: In accordance with BS 8204-1, clause 5.1.3.

### **305 AGGREGATES**

- Sand: To BS EN 13139.
  - Grading limits: In accordance with BS 8204-1, Table B.1.
- Coarse aggregates for fine concrete levelling screeds:
  - Standard: To BS EN 12620.
  - Designation: 4/10.
- Lightweight aggregates: In accordance with BS 8204-1, Annex A.

### **306 PROPRIETARY POLYMER MODIFIED SCREEDS**

- Cement types: In accordance with BS 8204-3.
- Sand: To BS EN 13139:
  - Grading limits: 0/2 mm (MP) category 1.
- Aggregates: In accordance with BS 8204-3.

**307 ADMIXTURES**

- Standard: In accordance with BS 8204-1, Table 1.
- Calcium chloride: Do not use in admixtures.

**310 BATCHING WITH DENSE AGGREGATES**

- Mix proportions: Specified by weight.
- Batching: Select from:
  - Batch by weight.
  - Batch by volume: Permitted on the basis of previously established weight:volume relationships of the particular materials. Use accurate gauge boxes. Allow for bulking of damp sand.

**330 MIXING**

- Water content: Minimum necessary to achieve full compaction, low enough to prevent excessive water being brought to surface during compaction.
- Mixing: Mix materials thoroughly to uniform consistency. Mixes other than no-fines must be mixed in a suitable forced action mechanical mixer. Do not use a free fall drum type mixer.
- Consistency: Use while sufficiently plastic for full compaction.
- Ready-mixed retarded screed mortar: Use within working time and site temperatures recommended by manufacturer. Do not retemper.

**335 IN SITU CRUSHING RESISTANCE (ISCR)**

- Standards and category: In accordance with BS 8204-1, table 4.
  - Testing of bonded and unbonded screeds: To Annex D.
  - Testing of floating levelling screeds: To Annex E.

**340 ADVERSE WEATHER**

- Screeds surface temperature: Maintain above 5°C for a minimum of four days after laying.
- Hot weather: Prevent premature setting or drying out.

**LAYING**

**345 LEVEL OF SCREED SURFACES**

- Permissible deviation: (allowing for thickness of coverings)  $\pm 5$  mm from datum.

**355 FLATNESS/ SURFACE REGULARITY OF FLOOR SCREEDS**

- Standard: In accordance with BS 8204-1, Table 5.
- Test: In accordance with BS 8204-1, Annex C.
- Sudden irregularities: Not permitted.

**365 FLATNESS/SURFACE REGULARITY OF ROOF SCREEDS**

- Sudden irregularities: Not permitted.
- Deviation of surface: Measure from underside of a 2 m straightedge (between points of contact), placed anywhere on surface.
  - Permissible deviation (maximum): 6 mm.

**375 COMPACTION OF SCREEDS**

- General: Compact thoroughly over entire area.
- Screeds over 50 mm thick: Lay in two layers of approximately equal thickness. Roughen surface of compacted lower layer then immediately lay upper layer.

**382 STAIR SCREEDS**

- Construction: Fully bonded to treads, risers and landings.
- Risers: Form using fine finish formwork.
- Wearing screed surfaces: Make good with compatible cement:sand mix. Wood float. When hardened remove laitance.

**405 JOINTS IN LEVELLING SCREEDS GENERALLY**

- Laying screeds: Lay continuously using 'wet screeds' between strips or bays. Minimize defined joints.
- Daywork joints: Form with vertical edge.

**428 HEATED SCREEDS**

- Substrate slab: Irregularities not permitted.
- Screed bays, movement joints and other joints: Coordinate with heating circuits.
- Heating elements: Secure properly. Prevent displacement.
- Screed laying: Compact thoroughly around heating elements. Do not damage them.

**435 FORMED JOINTS IN WEARING SCREEDS**

- Temporary forms: Square edged with a steel top surface and in good condition.
- Placing screed: Compact thoroughly at edges to give level, closely abutted joints with no lipping.

**445 CRACK INDUCING GROOVES IN WEARING SCREEDS**

- Groove dimensions:
  - Depth: At least half the depth of wearing screed.
  - Width: 6 mm.
- Cutting grooves: Straight, vertical and accurately positioned. Saw cut sufficiently early after laying to prevent random cracking.

**FINISHING/CURING**

**510 FINISHING GENERALLY**

- Timing: Carry out all finishing operations at optimum times in relation to setting and hardening of screed material.
- Prohibited treatments to screed surfaces:
  - Wetting to assist surface working.
  - Sprinkling cement.

**530 SMOOTH FLOATED FINISH**

- Finish: Even texture with no ridges or steps.

**540 TROWELLED FINISH TO LEVELLING SCREEDS**

- Floating: To an even texture with no ridges or steps.
- Trowelling: To a uniform, smooth but not polished surface, free from trowel marks and other blemishes, and suitable to receive specified flooring material.

**550 TROWELLED FINISH TO WEARING SCREEDS**

- Floating: To an even texture with no ridges or steps.
- Trowelling: Successively trowel at intervals, applying sufficient pressure to close surface and give a uniform smooth finish free from trowel marks and other blemishes.

**650 CURING**

- General: Prevent premature drying. Immediately after laying, protect surface from wind, draughts and strong sunlight. As soon as screed has set sufficiently, closely cover with polyethylene sheeting.
- Curing period (minimum): Keep polyethylene sheeting in position for: seven days.
- Drying after curing: Allow screeds to dry gradually. Do not subject screeds to artificial drying conditions that will cause cracking or other shrinkage related problems.

**670 ROOF SCREEDS**

- Protection: Cover screeds during wet weather. When weathertight coverings are laid, screeds must be as dry as practicable.

**680 SURFACE SEALER TO WEARING SCREEDS**

- Manufacturer: Ardex UK Ltd.
  - Product reference: Ardex P51 Primer.
- Preparation: Clean cured screed surface to remove dirt, grease, oil and other surface contaminants.
- Moisture content of screed: As recommended by sealer manufacturer. Test relative humidity in accordance with BS 8203, Annex A if required to verify suitability to receive sealer.
- Application: Evenly to dry surfaces using sufficient coats to form an effective seal but without a glossy finish.

**700 ABRASION TESTING OF WEARING SCREEDS**

- Test method: To BS EN 13892-4.