

## TECHNICAL INFORMATION



**D**rying of standard sand/ cement screeds. BS 8204-1 "Concrete bases and cementitious levelling screeds to receive floorings — Code of practice" section 6.11.1 suggests the following calculation for drying of screeds with no fast drying additive "with levelling screeds, one day should be allowed for each millimetre of thickness for the first 50 mm, followed by an increasing time for each millimetre above this thickness. It is therefore reasonable to expect a levelling screed 50 mm thick, drying under good conditions, to be sufficiently dry in about 2 months." It is generally accepted that between 50mm thickness and 75mm thickness, 2 days should be allowed for drying of each millimetre of thickness and a 75mm thick screed with no additive might be expected to take 100 days to dry to 75% humidity in good drying conditions. In poor drying conditions when humidity.

### Wood flooring – different dryness requirements

Please note that BS 8201:2011 Code of practice for installation of flooring of wood and wood-based panels refers to 75% screed humidity as being acceptable for installation of wood flooring, this is disputed by many wood flooring suppliers who say that this figure applied to floating wood flooring only, some of these suppliers recommend a variety of lower screed surface humidity figures or

# Drying of Screeds

Drying of standard sand/ cement screeds  
BS 8204-1 "Concrete bases and cementitious  
levelling screeds to receive floorings.

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screed moisture contents (some very low) as the maximum acceptable. Ronacrete products are not tested to determine the time taken for screed surface humidity to fall below 75% and we are unaware of any data which may be available. Some competitor products are sold as being suitable for early application of wood flooring but no claims are made for screed dryness at the stage when they claim wood flooring may be applied, such claims should be viewed with scepticism and evidence should be sought.

### Testing conditions

When comparing specific drying claims made by other producers, it is advisable to look at the drying conditions under which samples were tested. Ronacrete products are tested after drying at a room temperature of 20°C temperature and 60-65% air humidity. Tests carried out on samples cured at higher temperature and lower air humidity will produce apparently better drying data, the specifier or contractor should consider how close the curing conditions are to the reality of site conditions.

### Ronacrete faster drying screed products

Ronacrete produces a number of screed products, both pre-packed screeds, additives and a cement replacement, all of which produce faster drying screeds:

Ronafix polymer modified screed mix designs, site batched with Ronafix admixture, Ronafix Pre-packed Screeds, a range of two component factory produced polymer modified screed products, composed of a blend of CEM I RHPC and graded kiln-dried silica sand and a bottle of gauging liquid containing Ronafix admixture  
RonaScreed 1 Day Overlay Pre-packed Rapid Drying Screed, single component factory produced polymer modified screed product  
RonaScreed 1 Day Overlay Rapid Drying Screed, single component factory produced



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polymer modified cement replacement product, for batching on site with sand and water in accordance with the mix design

### **RonaScreed 4 Day Overlay Quick Drying Screed**

Powder additive for batching on site with sand, cement and water in accordance with the mix design

### **RonaScreed 8 Day Overlay Fast Drying Screed**

Liquid additive for batching on site with sand, cement and water in accordance with the mix design

### **Limiting factors**

There are a number of key factors involved in how quickly flooring may be applied to a screed:

- 1. Temperature in the room** – lower temperature will increase drying time
- 2. Humidity in the room** – higher air humidity will increase drying time
- 3. The mix design of the screed**, for example

RonaScreed 8 Day Overlay Standard Mix Design is 3 parts sand:1 part Portland cement by weight and will reach 75% RH after 8 days @ 50mm thickness and after 15 days @ 75mm thickness – increasing the sand content will increase drying time, a 4:1 (by weight) screed laid at 75mm thickness typically produces to following results:

Time to reach 80% RH 14 days

Time to reach 75% RH 21 days

**4. Mixing equipment**, the mixer must be a forced action mixer; free fall mixers are not acceptable.

**5. The use of retarders** – retarders added to the screed at a batching plant or in volumetric mixers will severely affect drying of the screed.

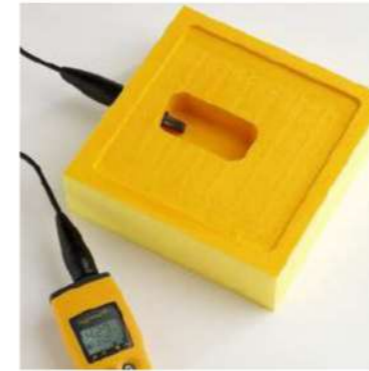
**6. Dryness requirements** of the flooring – most flooring products require a screed surface relative humidity of 75% for application. Bonded wood floorings generally require a considerably lower moisture content and RonaScreed 8 Day Overlay Mix Design 1 is not tested for the requirements of wood floorings.

**7. Dryness testing** – the following is the only equipment recognised by Ronacrete for accurate testing of screed surface relative humidity:



### **Drying of Ronacrete products cured at 20°C and approximately 60-65% relative air humidity**

When tested in the laboratory at  $\geq 50$ mm thickness, RonaScreed 1 Day Overlay screed will typically achieve 75% relative humidity in approximately 24 hours, when cured at 20°C and approximately 60-65% relative humidity, thinner screeds may take 36 hours. 75% relative humidity at the surface indicates that the screed is sufficiently dry for application of resilient floorings, carpet, quarry tiles, ceramic tiles and stone tiles. Lower temperature and higher humidity may extend the drying period.



Protimeter Hygromaster fitted to Protimeter Humidity Box BLD4711

### **RonaScreed 1 Day Overlay**

Rapid Drying Screed  $\geq 50$ mm thickness will typically achieve 75% relative humidity in approximately 24 hours, when cured at 20°C and approximately 60-65% relative humidity; thinner screeds may take 36 hours. 75% relative humidity at the surface indicates that the screed is sufficiently dry for application of resilient floorings, carpet, quarry tiles, ceramic tiles and stone tiles. Lower temperature and higher humidity may extend the drying period.

### **RonaScreed 4 Day Overlay Screed**

Will dry after 4 days of air curing at a thickness of 50mm, a temperature of 20°C and air humidity of 60-65% and 75mm – 100mm thickness of screed will dry to a screed humidity of  $\leq 75\%$  after 3 days of air curing. 75% screed humidity is the maximum acceptable level for application of vinyl flooring, carpet, tiles and stone flooring. Lower temperature and higher humidity may extend the drying period; changing the mix design to increase the sand content will increase drying time.

### **Drying of RonaScreed 8 Day Overlay Mix**

Design 1 (3:1 by weight) has been tested at 50mm and 75mm thickness. At 50mm thickness, 20°C temperature and 60-65% air humidity, RonaScreed 8 Day Overlay Mix Design 1 dries to 75% RH after 8 days of air curing and at 75mm thickness, 20°C temperature and 60-65% air humidity, RonaScreed 8 Day Overlay Mix Design 1 dries to 75% RH after 15 days of air curing. 75% relative humidity at the surface indicates that the screed is sufficiently dry for application of resilient floorings, carpet, quarry tiles, ceramic tiles and stone tiles. Ronacrete Laboratory tests and independent tests by Vinci Technology confirm the predictability of results shown in the technical data. Drying time on site will vary according to site conditions. Increased screed thickness, lower temperature and higher humidity will lengthen the drying period; increasing the aggregate/ cement ratio will also increase drying time.

When tested in the laboratory at 50mm thickness, Ronafix polymer modified screeds achieve 75% relative humidity at the screed surface after approximately 10 days of air curing at 20°C and approximately 60-65% relative humidity; 15mm thickness of Ronafix polymer modified screed will typically dry in 3 days. 75% relative humidity at the surface indicates that the screed is sufficiently dry for application of resin floorings and waterproof membranes, resilient floorings, carpet, quarry tiles, ceramic tiles and stone tiles. Increased screed thickness, lower temperature and higher humidity will lengthen the drying period; increasing the aggregate/ cement ratio will also increase drying time.

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Screeds should be sufficiently dry and strong before forced drying commences, at a temperature of 20°C and air humidity of 60-65%, RonaScreed 8 Day Overlay Mix Design 1 dries to 80% RH after approximately 10 days of air curing at a thickness of 75mm and will gain a high proportion of its ultimate strength after the same period of curing. At this stage, forced drying may commence. Forced drying should be delayed at lower temperature and when air humidity is high or when RonaScreed 8 Day Overlay has been added to a weaker mix design.

Screeds should be sufficiently dry and strong before commissioning of underfloor heating commences, at a temperature of 20°C and air humidity of 60-65%, RonaScreed 8 Day Overlay Mix Design 1 dries to 80% RH after approximately 10 days of air curing at a thickness of 75mm and will gain a high proportion of its ultimate strength after the same period of curing. At this stage, underfloor heating may be turned on and the temperature may be gradually increased in accordance with the instructions of the heating manufacturer. Commissioning should be delayed at lower temperature and when air humidity is high or when RonaScreed 8 Day Overlay has been added to a weaker mix design, but it should still be possible to use the heating system to reduce drying time at lower temperature, which may be important in thicker sections of screed.

