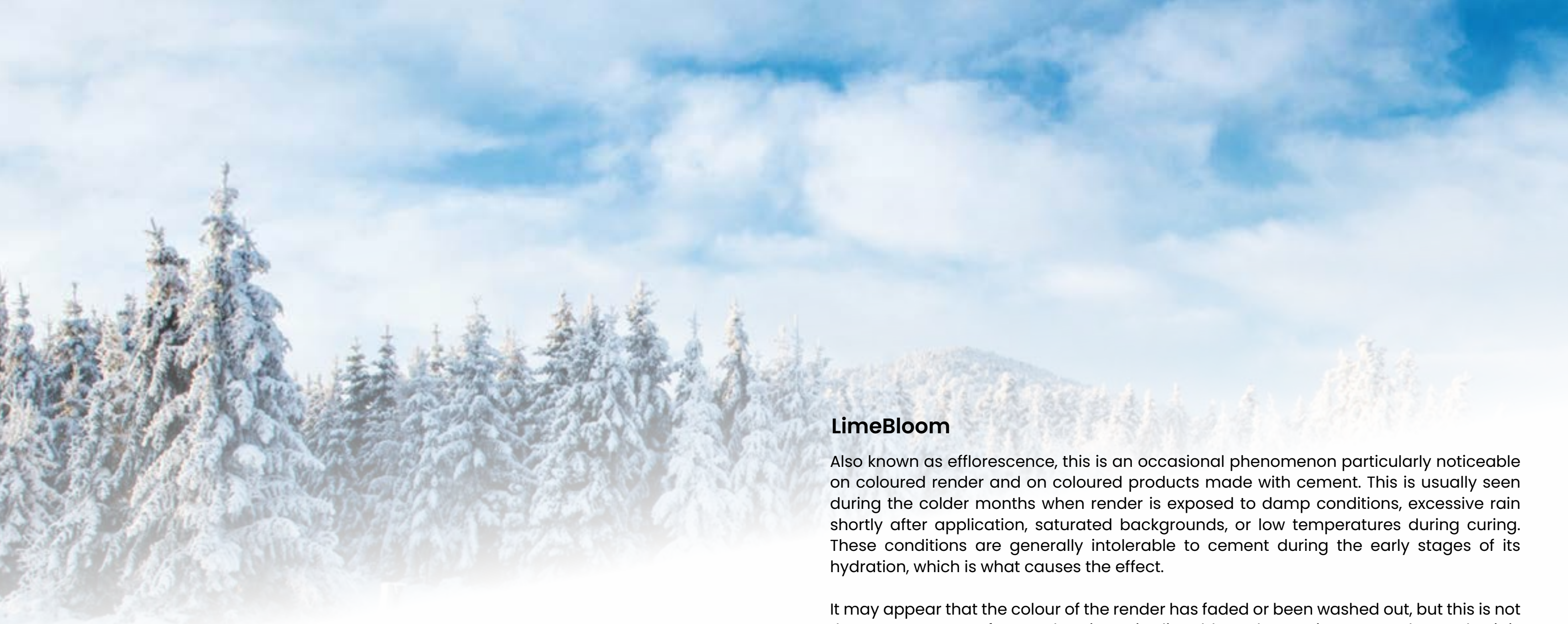




Your Guide to Winter



With the winter months upon us, the rendering season enters a difficult period where we will be governed by the weather. Winter is no doubt a challenging time for rendering contractors. Working outdoors, especially when applying render, can be very uncomfortable due to shorter, darker days, and the damp, cold weather.

Poor substrate or weather conditions should be avoided unless appropriate precautions are taken, for several reasons. Having poor weather conditions can affect the project, materials, and quality of the finished product. Poor or incorrect substrate preparation can affect the render finish

## **LimeBloom**

Also known as efflorescence, this is an occasional phenomenon particularly noticeable on coloured render and on coloured products made with cement. This is usually seen during the colder months when render is exposed to damp conditions, excessive rain shortly after application, saturated backgrounds, or low temperatures during curing. These conditions are generally intolerable to cement during the early stages of its hydration, which is what causes the effect.

It may appear that the colour of the render has faded or been washed out, but this is not the case. In terms of strength or integrity, lime bloom has no impact on the render, it is strictly an aesthetic issue. It is a white deposit which is apparent either as white patches or gives the effect as an over-all lightening in colour.

By dampening the surface with water first, you can check if you have lime bloom. If the colour of the render finish unifies, but when it dries the patchy effect returns, then you are likely to have lime bloom. Though lime bloom will weather away naturally over time, it is often a concern for property owners. In order to remove the white deposits, apply a diluted solution of 15% to 20% water-based hydrochloric acid cleaner, sometimes called masonry cleaner, to the affected area, allowing it to penetrate the lime bloom before cleaning the surface. It may be necessary to apply a second coat, but always wash the surface after each application. Do not rub the render surface as this will mark it.

Please Note: It is recommended that an inconspicuous area is patch tested first to ensure the application is suitable and avoid multiple applications as this could damage the render surface. Protect adjacent surfaces such as metalwork, enamel and painted or coated surfaces etc due to the corrosive nature of the acid cleaner.

When the render remains stained, PRB Color Acryl, PRB Color Silocryl or PRB Color Siloxane can be considered to unify the colour, assuming the render's integrity has not been compromised.

## Rain

Cementitious products such as PRB Superbrut, ALG, OZÉ, Classic Tal and SC Gris will set initially within a few hours of application (though this can increase subject to lower temperatures and damp conditions) but will take approximately 28 days to fully cure and reach its designated strength. Whereas thin coat ready made renders can take roughly 24-48 hours to dry subject to how dry the air is and the substrate is suitably prepared and dry. For example, in 23°C temperatures, PRB Crépissix was tested and achieved a touch dry surface within 10 minutes, core dry within 2 hours and fully cured within 24 hours.

However, at the opposite end of the scale during the winter months, applying a render whilst it is raining or where there is a potential for rainfall occurring, is not recommended as this can affect the colour and texture of the finish. There is even the possibility of a wash off with thin coat renders in the worst case scenario. Also be aware, in damp climates where the air is 80% - 100% moisture saturated e.g., high humidity, then the moisture in the product cannot evaporate and thus cannot begin curing or drying until the humidity level drops. Therefore, the higher the humidity the longer the render will take to create an initial set. This could mean that in a very damp rainy period the render may not cure for days which leaves it vulnerable to wash off should it rain during this period. Therefore excessive water will affect the bond and adhesion capabilities of the render.

The accepted guidance of a dry substrate that is suitable for covering is to ensure the moisture content of the substrate before applying the primer and topcoat is not exceeding 18 - 20% though for paint finishes this could be as low as 12 - 14%. This can be checked using a standard moisture meter.

## Temperature

Do not apply render if the curing period will be affected by frost. In temperatures below 5°C or if freezing is imminent, render should not be applied as frozen render will not meet its performance criteria. Protect curing render from temperatures below 5°C by covering it with protective sheeting when the air temperature is at or likely to fall below that level. Render products should not be applied to substrates which are frost laden or which have recently been subject to prolonged rain.

## The Winter Solution

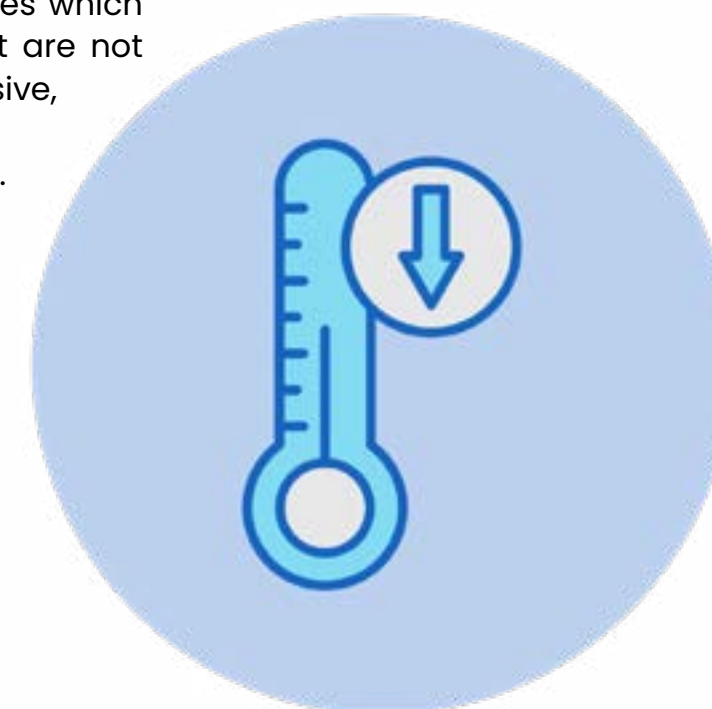
In colder weather conditions, to assist the render gain a quicker initial set (between 1½ to 2 hours at 5°C) the use of PRB accelerators is recommended. PRB Accélérateur Flash, which only works with cement based products, can be added directly to the mixing water for the render. As a guide, 0.1 L per 20 kg - 25 kg bag.

PRB SR Additif can be added directly to ready mixed, basecoats, renders and coatings in buckets. As a guide, one 250 ml bottle per 17 to 25 kg bucket.

Follow the recommended dosage on the product data sheets and ensure this remains the same for the application otherwise shade variations may occur.

PRB Accélérateur Flash or PRB SR Additif does not speed up the overall drying time of the render or coating and does not act as an antifreeze. Its effect is reduced above 10°C.

Please note: The use of Sodium Chloride or Calcium Chloride flakes or additives which are available on the open market are not permitted as they are highly corrosive, will affect the render performance and will void any product warranty.



## Applying a Cementitious Basecoat When the Substrate is Wet

When rendering is required to a wet substrate there is a need to control suction, to prevent the moisture within the substrate affecting the newly applied render from the possible impact of lime blooming occurring through the render. This can be achieved by applying a suitable basecoat. PRB can offer two solutions to assist with this.

Using as examples, the PRB SC Gris, Classic Tal, Superbrut, ALG and OZÉ, replace 0.5L of water volume for the product with 0.5L of PRB Latex Facade, mixing the liquids together thoroughly, then apply a 6 – 7 mm basecoat application and incorporate within the render, the PRB Orange Mesh or AVE Mesh as either a full mesh or to stress locations. Allow the basecoat to dry fully before applying the topcoat.

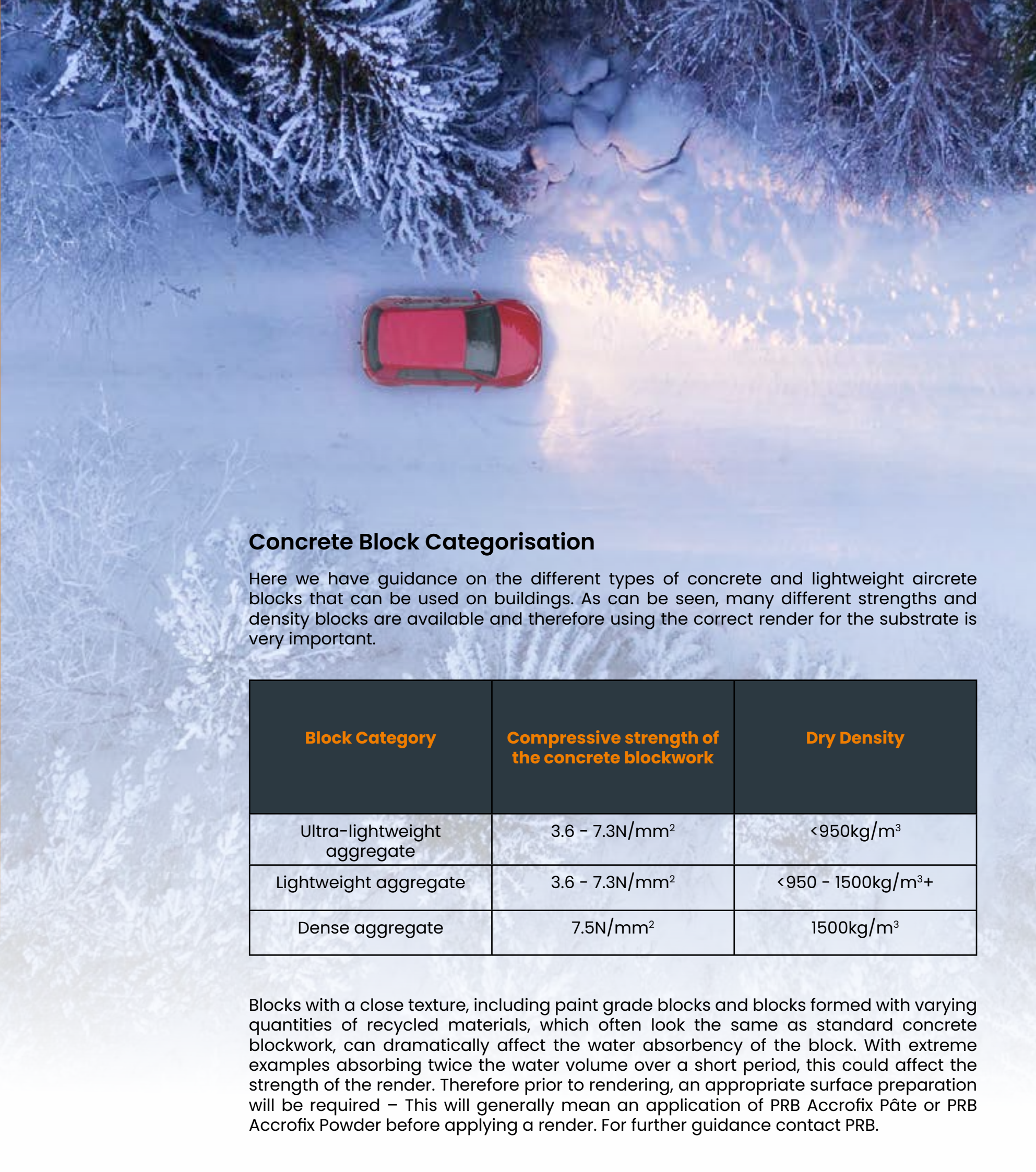
Alternatively, apply a preparatory sealer coat of enhanced PRB Accrofix powder and apply either by hand or spray machine a thickness of 3 – 5 mm as a stipple coat or leave the surface with a notched trowel finish in preparation to receive the topcoat. Allow to dry before applying the topcoat. With this application the PRB Orange Mesh or AVE Mesh will need to be embedded into the topcoat finish.

## Winter Suggestions and Assistance for Cement Renders

PRB has a range of basecoat and topcoat renders which can also be applied as one coat renders and which are suitable for a range of concrete and lightweight aircrete concrete blocks, bricks, stone, render, concrete, and painted substrates.

During the winter months, the setting time of renders can vary due to the outside temperature, humidity, and the renders composition, e.g., dense, semi-lightweight or lightweight render. For example, a dense render which will have a higher cement content than a semi-lightweight or lightweight render, will cure quicker and therefore may appear to be the cheapest solution but being a dense render may not be the correct render for the substrate as it may require an additional preparation coat before the dense render can be applied, therefore costing more money to purchase and apply.

In addition, using the wrong render onto the wrong substrate could cause the render to crack or cause cracking within the substrate so it is important to know what substrate is being applied to so this can be avoided, PRB will always be able to advise you which render system to use.



## Concrete Block Categorisation

Here we have guidance on the different types of concrete and lightweight aircrete blocks that can be used on buildings. As can be seen, many different strengths and density blocks are available and therefore using the correct render for the substrate is very important.

| Block Category              | Compressive strength of the concrete blockwork | Dry Density                    |
|-----------------------------|------------------------------------------------|--------------------------------|
| Ultra-lightweight aggregate | 3.6 – 7.3N/mm <sup>2</sup>                     | <950kg/m <sup>3</sup>          |
| Lightweight aggregate       | 3.6 – 7.3N/mm <sup>2</sup>                     | <950 – 1500kg/m <sup>3</sup> + |
| Dense aggregate             | 7.5N/mm <sup>2</sup>                           | 1500kg/m <sup>3</sup>          |

Blocks with a close texture, including paint grade blocks and blocks formed with varying quantities of recycled materials, which often look the same as standard concrete blockwork, can dramatically affect the water absorbency of the block. With extreme examples absorbing twice the water volume over a short period, this could affect the strength of the render. Therefore prior to rendering, an appropriate surface preparation will be required – This will generally mean an application of PRB Accrofix Pâte or PRB Accrofix Powder before applying a render. For further guidance contact PRB.

## Aircrete Block Categorisation

| Block Category          | Compressive strength of the aircrete lightweight blockwork | Dry Density            |
|-------------------------|------------------------------------------------------------|------------------------|
| *Low density aircrete   | 2.9 - 3.6N/mm <sup>2</sup>                                 | <500kg/m <sup>3</sup>  |
| Normal density aircrete | 3.6 - 9N/mm <sup>2</sup>                                   | 500kg/m <sup>3</sup> + |

\*For Low density aircrete use PRB ALG GF.

Aircrete blocks should not be rendered without an application of the substrate porosity regulator PRB Accrofix Pâte before applying a render. For further guidance, contact PRB.

To summarise, even though cement based renders will cure (set) in winter, if the temperature is cold and damp then the render will take longer to set, and this scenario will be more prominent during the months of December, January, and February when we have very damp days and perhaps 95 – 100% humidity. The moisture from the render cannot evaporate as quickly and the catalyst (cement) will take longer to harden the render. If unsure when to apply during the winter months, it is better to apply later in the day and finish the following morning. This can be particularly suitable with semi-lightweight or lightweight renders. Before application always take into consideration the temperature and the potential for frost – see above.

For the winter months, take note of the weather conditions for the day before, during and after application and expect render to take longer to cure. It is important not to rush the application. Applying a topcoat onto an uncured basecoat could cause slumping to occur, or if applying a render that is too thick over the first coat, could cause it to all fall away from the surface.

## System Build-Up

Below are some render system build-up recommendations onto a range of substrates. All renders stated can be hand or machine applied.

- On lightweight, semi-lightweight or dense aggregate concrete block when using a one coat render
1. Masonry substrate – Concrete blocks of above criteria constructed with cement mortar
  2. Basecoat/1st pass PRB Superbrut, ALG or PRB OZÉ with PRB Accelérateur Flash and either apply mesh to stress locations or fully mesh using PRB Orange Mesh or AVE Mesh
  3. Topcoat/2nd pass comprising of PRB Superbrut, ALG or PRB OZÉ with PRB Accelérateur Flash



- On lightweight, semi-lightweight or dense aggregate concrete block when a basecoat and topcoat render
1. Masonry substrate – Concrete blocks of above criteria constructed with cement mortar
  2. Basecoat comprising of PRB SC Gris with PRB Accelérateur Flash and either apply mesh to stress locations or fully mesh using PRB Orange Mesh or AVE Mesh
  3. Topcoat comprising of PRB Superbrut or PRB OZÉ with PRB Accelérateur Flash



- On 7.5N/1500kg/m<sup>3</sup> dense aggregate concrete block if using dense basecoat render and topcoat render
1. Masonry substrate – Concrete blocks of above criteria constructed with cement mortar
  2. Basecoat PRB Classic Tal\* or PRB SC Gris with PRB Accelérateur Flash and either apply mesh to stress locations or fully mesh using PRB Orange Mesh or AVE Mesh
  3. Topcoat comprising of PRB Superbrut, ALG or OZÉ with PRB Accelérateur Flash

\* PRB Classic Tal should only be used on dense hard substrates e.g. dense concrete blocks, concrete\*\*, engineering bricks\*\*  
\*\* with an application of PRB Accrofix Pâte first



On 7.5N/1500kg/m<sup>3</sup> dense aggregate concrete block when using a one

1. Masonry substrate – Concrete blocks of above criteria constructed with cement mortar
2. Basecoat/1st pass PRB Superbrut, ALG or OZÉ with PRB Accélérateur Flash and either apply mesh to stress locations or fully mesh using PRB Orange Mesh or AVE Mesh
3. Topcoat/2nd pass comprising of PRB Superbrut, ALG or OZÉ with PRB Accélérateur Flash



On normal density aircrete blocks or brickwork when using a basecoat and topcoat render

1. Masonry substrate – Aircrete blocks of above criteria or brickwork constructed with cement mortar
2. Substrate preparation comprising of PRB Accrofix Pâte or Accrofix powder
3. Basecoat comprising of PRB SC Gris with PRB Accélérateur Flash and either apply mesh to stress locations or fully mesh using PRB Orange Mesh or AVE Mesh
4. Topcoat comprising of PRB Superbrut or PRB OZÉ with PRB Accélérateur Flash



On low density aircrete blocks or brickwork when using a one coat render

1. Masonry substrate – Aircrete blocks of above criteria or brickwork constructed with cement mortar
2. Substrate preparation comprising of PRB Accrofix Pâte or Accrofix powder
3. Basecoat/1st pass PRB Superbrut, ALG or OZÉ and either apply mesh to stress locations or fully mesh using PRB Orange Mesh or AVE Mesh
4. Topcoat/2nd pass comprising of PRB Superbrut, ALG or OZÉ with PRB Accélérateur Flash



For other substrate applications please consult with the PRB Technical Team.



## Winter Suggestions and Assistance for Belle Epoque Lime Renders

PRB Belle Epoque Sous Enduit basecoat and Belle Epoque Finition topcoat are hydraulic lime renders. PRB Belle Epoque can receive the PRB Belle Epoque Finition topcoat as soon as it has initially cured (set) but certain precautions must be observed.

During the winter months, the setting time of lime renders can vary due to the outside temperature and humidity. This is because it requires the water from the render to evaporate into the air, therefore it will cure quicker in warm dry air as water in the render can evaporate easily and during the winter months will take longer to cure as the temperature drops and the humidity increases.

Because lime render does not have a catalyst e.g. cement within its composition to create the chemical reaction to cure, if the temperature is cold and damp then the render will take longer to set, possibly additional hours as a minimum or maybe 3 – 4 days before a second or top coat can be applied. This scenario will be more prominent during December, January, and February when we have very damp days and perhaps 80 – 100% humidity, because the moisture from the render cannot evaporate and therefore the render will not cure very quickly. However, when the lime is mixed with water this will begin a process which causes the lime to heat up which does help its curing process a little bit as this will cause a micro climate at the render surface allowing some moisture to evaporate. If unsure when to apply, it is better to apply later in the day and finish the following morning. Before application always take into consideration the temperature and the potential for frost.

**There is no benefit in adding an accelerator to lime renders as there is no cement for the additive to react with.**

As a summary, for the winter months. It is normal to expect at least 12 – 24 hrs for the first basecoat of PRB Belle Epoque Sous Enduit to dry and initially harden. Thereafter, particularly during cold damp weather conditions, the lime render could take up to one week for each additional coat/topcoat applied because the moisture will take longer to evaporate to allow the render to harden. It is important not to try and rush the application. Applying a fresh coat onto an uncured coat could cause slumping to occur or if applying a render that is too thick over the first coat could cause it to all fall away from the surface.

### Lime Render System Build Up | All renders stated can be hand or machine applied

1. Masonry substrate – constructed with either lime mortar or cement mortar
2. Substrate primer comprising of PRB Primchaux PE
3. Basecoat comprising of PRB Belle Epoque Souse Enduit and fully meshed using PRB Orange Mesh or AVE Mesh
4. Topcoat comprising of PRB Belle Epoque Finition
5. Rising damp within the old lime mortar substrate? Use PRB SC 150 preparation coat



## Winter System for External Wall Insulation and Render Board Systems using PRB Fondisol PE

PRB Fondisol F is a thin coat high performance basecoat render, used for EWI and render board systems, which will dry similar to cementitious renders. To speed up the application, use the PRB Fondisol PE, which also has greater impact resistance.

PRB Fondisol PE which can receive the SR Additive accelerator, is an organic basecoat which is compatible with application, use the Fondisol without the need of a primer. With a 48 – 72 hour drying time, subject to weather conditions, to reach full strength, this can dramatically reduce site time and save money, and because it is pre-mixed in 20 kg buckets, there is less wast and mess too.

### External Wall Insulation and Render Board System using Fondisol PE

1. Cement board or EWI system
2. For EWI systems use the Fondisol PE as an adhesive coat for the EPS insulation.
- 3.. Basecoat comprising of PRB Fondisol PE mixed with SR Additif if required, and fully meshed using PRB AVN Mesh
- 4.. Topcoat comprising of PRB Crépisix M or PRB Crépoxane F or M with SR Additif or use PRB Thermolook which is a mineral render – There is no benefit using an accelerator with Thermolook



For further technical information on systems or products, speak directly with our Technical Team who will be happy to help.

