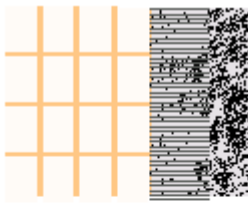


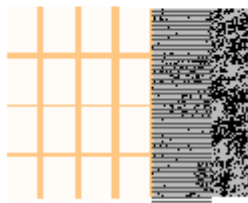
Tiling onto Plaster and Render

Tiling onto Gypsum Plasters

Gypsum plasters are very different to cement based plasters and may well require more extensive preparation to ensure a satisfactory job is completed. The general recommendation is that gypsum plasters are, where possible, not covered with tiling. In new construction if it is known that an area is to be tiled it should be left as a cement based plaster wall and not covered with gypsum.



Existing gypsum



New gypsum

Existing gypsum skimmed walls

Preparation

All plasterwork should be firm and soundly fixed to its substrate and be sufficiently strong to support the specified tiling. The maximum weight of tiling which can be supported by a dry, firmly adhered plaster background is 20kg/m². This is roughly equivalent to ceramic tiles with a thickness of 8mm. Ceramic tiles should only be fixed to a finishing coat and not any undercoat or bonding coat. Plasters other than finishing coats are inherently too weak to successfully hold the applied tiles. Plaster is not a satisfactory background for tiling in continuously damp areas as over time the plaster will become weakened. All plasterwork must be thoroughly dry in all situations.

The plasterer leaves many gypsum plasters with a highly polished surface. Though this may be considered aesthetically pleasing and is often considered a sign of a well-plastered wall, over trowelling of a finishing plaster (over flashing) will usually create problems. First it may produce a dusty surface with the finer particles being brought to the surface and second it will make the surface denser, which can reduce suction.

Given that the gypsum plaster is required to be tiled, the surface should be roughened up using a wire brush or other abrasive implement. This will then remove the surface laitance and produce a better surface to receive the tiles and adhesive. This abraded surface should then be primed or sealed.

Priming is different to sealing. If using cement based adhesives onto plastered surfaces then the plaster would need to be sealed, i.e. using **Flexibond** at the standard dilution ratio of 1: 5-6 parts clean water, but this operation must be repeated until there is no suction at the plaster surface (generally 4 coats minimum). When cement and gypsum are found together in the presence of water a chemical reaction takes place producing a product known as Ettringite. The formation of Ettringite is an expansive one in that the Ettringite requires a larger volume than the materials from which it is formed. It is therefore necessary to seal the gypsum plaster before the application of the adhesive. It is also vital thereafter that the construction is designed so as to reduce water penetration.

If a paste adhesive is to be used then the plastered surface must be primed, i.e. using **Flexibond** at the standard dilution ratio of 1: 5-6 parts clean water. Applying this primer to the gypsum surface will assist in holding down the dust formed through the abrading preparation. If the dust is not suppressed the adhesive may be stuck to this dusty layer which has no inherent strength to hold the tiling in place.

Gypsum plaster is sensitive to water and in wet areas care should be made to prevent water ingress. In this situation we would recommend tanking out the installation with **Bis-Watertite** Tanking System.

Adhesives

Adhesives may be of either cementbased powders or paste adhesive. As stated above.

Paste adhesives such as **Showerproof** or **Power Showerproof** are the preferred adhesives for tiling onto gypsum plaster as the problems associated with applying cementitious materials to a plaster background will be removed. If cementitious adhesives are used note should be taken of the extensive preparation required prior to the tiling being applied.

No additives should be required unless the installation is tanked or porcelain tiles are to be used where we would recommend **Bis-Xtra**. Rates of coverage would depend on both the surface regularity of the tile and plaster. Owing to the weight restrictions of gypsum to receive tiling, adhesive bed thickness should be no greater than 3mm. Drying times of the adhesives will vary with the suction of the tile and plaster and also to the type of adhesive, together with site conditions and grout joint widths.

Grouting

Grouting may commence once the adhesive bed has firmed up. Any grout may be used to suit the situation. Drying will vary according to the site and ambient conditions.

Movement Joints

Any movement joints visible should be followed through the tiling to the surface. Failure to do this may result in excessive movements within the structure being transferred to the tiles with the likelihood of resultant failure of the system. Owing to the complexity of this subject please refer to Technical Bulletin TB4.

The TTA Technical Committee has produced a valuable document on the subject of tiling onto plaster. This document is available from your Biscem representative or contact the TTA on 0208 6630946.

New Gypsum skimmed walls

Preparation

As stated in the introduction, if it is known that in new build work that an area is going to be tiled, gypsum plaster should not be applied to the wall. It is much better to tile directly onto a cement based plaster. However, if the decision to tile the wall is made after the plastering has been started the following information should be noted.

Tiling onto Gypsum Plasters

All plasterwork should be firm and soundly fixed to its substrate and be sufficiently strong to support the specified tiling. The maximum weight of tiling which can be supported by a dry, firmly adhered plaster background is 20kg/m². This is roughly equivalent to ceramic tiles with a thickness of 8mm. Ceramic tiles should only be fixed to a finishing coat and not to an undercoat or a bonding coat. Plasters other than finishing coats are inherently too weak to successfully hold the applied tiles.

Plaster is not a satisfactory background for tiling in continuously damp areas as over time the plaster will become weakened. All plasterwork must be thoroughly dry in all situations. The time to dry will depend upon factors such as absorbency of background, thickness of plaster, relative humidity and ambient conditions. If the plaster has been applied to the background too quickly water will be absorbed out of the plaster exhibiting as map cracking (random fine cracks across the surface). This is an unsatisfactory surface on which tiles can be applied and should be removed. The plasterer leaves many gypsum plasters with a highly polished surface.

Though this may be considered aesthetically pleasing and is often considered a sign of a well-plastered wall, over trowelling of a finishing plaster (over flashing) will usually create problems. First it may produce a dusty surface with the finer particles being brought to the surface and second it will make the surface denser, which can reduce suction.

Given that the gypsum plaster is required to be tiled, the surface should be roughened up using a wire brush or other abrasive implement. This will then remove the surface laitance and produce a better surface to receive the tiles and adhesive. This abraded surface should then be primed or sealed.

Priming is different to sealing. If using cement based adhesives onto plastered surfaces then the plaster would need to be sealed, i.e. using Biscem Flexibond at the standard dilution ratio of 1: 5-6 parts clean water, but this operation must be repeated until there is no suction at the plaster surface (generally 4 coats minimum) When cement and gypsum are found together in the presence of water a chemical reaction takes place producing a product known as Ettringite. The formation of Ettringite is an expansive one in that the Ettringite requires a larger volume than the materials from which it is formed. It is therefore necessary to seal the gypsum plaster before the application of the adhesive.

It is also vital thereafter that the construction is designed so as to reduce water penetration. If a paste adhesive is to be used then the plastered surface must be primed, i.e. using **Flexibond** at the standard dilution

ratio of 1: 5-6 parts clean water or **LFP5**. Applying this primer to the gypsum surface will assist in holding down the dust formed through the abrading preparation. If the dust is not suppressed the adhesive may be stuck to this dusty layer which has no inherent strength to hold the tiling in place. Gypsum plaster is sensitive to water and in wet areas care should be made to prevent water ingress. In this situation we would recommend tanking out the installation with **Bis-Watertite** Tanking System.

Adhesives

Paste or cement-based powder adhesives may be used.

Paste adhesives such as **Showerproof** or **Power Showerproof** are the preferred adhesives for tiling onto gypsum plaster as the problems associated with applying cementitious materials to a plaster background will be removed.

If cementitious adhesives are used note should be taken of the extensive preparation required prior to the tiling being applied.

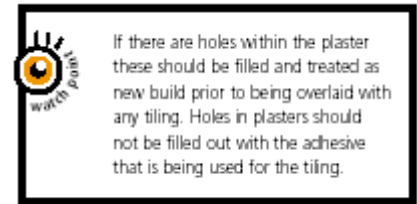
No additives should be required unless the installation is tanked or porcelain tiles are to be used where we would advise **Bis-Xtra** to be used. Rates of coverage would depend on both the surface regularity of the tile and plaster.

Grouting

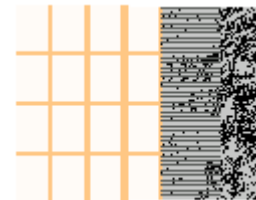
Grouting may commence once the adhesive bed has firmed up. Any grout may be used to suit the situation. Drying will vary according to the site and ambient conditions.

Movement Joints

Any movement joints visible should be followed through the tiling to the surface. Failure to do this may result in excessive movements within the structure being transferred to the tiles with the likelihood of resultant failure of the system. Owing to the complexity of this subject please refer to Technical Bulletin TB4. The TTA Technical Committee has produced a valuable document on the subject of tiling onto plaster. This document is available from your Biscem representative or contact the TTA on 0208 663 0946.



Tiling onto Sand Cement Renders (cement plasters)



Cement sand plasters are the preferred surface to receive ceramic wall tiles. In the ceramic tile industry these materials are traditionally termed renders to distinguish them from gypsum based plasters, which must be treated very differently. As with all other cementitious materials, cement based plasters must be treated differently depending upon

whether they are old existing materials or new build. For new build a render is often required to improve the regularity of masonry to a condition where it can appropriately receive ceramic tiling.

Existing sand/cement render

Preparation

The render must be sound and not show any signs of being debonded from the substrate. If the bond to the substrate is poor the additional weight of tiles and adhesive may be too great, causing delamination between the plaster and masonry or concrete interface. The suction (porosity) should be neither too high nor too low. High suction will remove the water in cement based adhesives and prevent the hydration process, thereby giving a weak bond between adhesive and plaster. Low suction renders will slow down setting times of the adhesives and tile slippage may occur.

Tiling onto Sand Cement Renders (cement plasters)

As existing render is not fresh no additional drying period is required. If the render is saturated from an external source such as leaking pipes or rising moisture, this should be rectified prior to the tiling commencing to prevent a weakening of any of the adhesive interfaces.

If there are holes within the render these should be filled and treated as new build prior to being overlaid with any tiling. Holes in renders should not be filled out with the adhesive that is being used for the tiling.

Depending on the suction of the render, priming using **Flexibond** at a dilution ratio of 1: 5-6 parts clean water will be necessary. High suction plasters may require 4+ treatments until excessive suction is controlled. Low suction should not require priming unless the surface is dusting.

Adhesives

Adhesives may be of either cement-based powders or paste adhesive. No additives should be required and rates of coverage would depend on both the surface regularity of the tile and plaster. Drying times would also vary with the suction of the tile and render and also to the type of adhesive, together with site conditions and grout joint widths. When using white grouts, light toned marble or natural stone tiles a white adhesive should be used.

It should be remembered that though cement based renders are resistant to the effects of water, some paste adhesives are not and selection of adhesive type should be made carefully.

Grouting

Grouting may commence once the adhesive bed has firmed up. Any grout may be used to suit the situation, but it must be remembered that for joints of 3mm width, floor grouts should be used. Drying will vary according to the site and ambient conditions.

Movement Joints

Any movement joints visible should be followed through the tiling to the surface. Failure to do this may result in excessive movements within the structure being transferred to the tiles with the likelihood of resultant failure of the system. Owing to the complexity of this subject please refer to Technical Bulletin TB4.

New sand/cement render

Preparation

Rendering should have been completed at least two full weeks or longer, depending on the weather and humidity, before commencement of tiling. Many render applications require more than one coat to be applied to build up a suitable thickness. It is important to remember that a week should be left between the application of successive coats and a further two weeks between the application of the last coat and the tiling. If these times are not held to, suction from the backing (masonry) can draw moisture through the render and indeed from the adhesive used. This will result in a weakening of the adhesive and could give rise to adhesive failure. Depending on the suction of the render, priming using **Flexibond** at a dilution ratio of 1: 5-6 parts clean water will be necessary. High suction renders may require 4+ treatments until excessive suction is controlled. Low suction should not require priming unless the surface is dusting.

Adhesives

Adhesives may be of either cement-based powders or paste adhesive. No additives should be required and rates of coverage would depend on both the surface regularity of the tile and plaster. Drying times would also vary with the suction of the tile and render and also to the type of adhesive, together with site conditions and grout joint widths. When using white grouts, light toned marble or natural stone tiles a white adhesive should be used.

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It is particularly important that any fresh render is permitted to dry out and stabilise correctly before tiling is started.

