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Guide to remedial measures associated with internal plastering

General Information



The methods of use and properties of cement or lime based plastering mortars are given in data sheet no. 5 of this series. This data sheet covers potential problems that, although rare, may occur and should be read in conjunction with MPA Mortar Data Sheet no. 5.

Plaster is applied to internal walling to cover varying backgrounds, correct irregularities and produce a surface suitable for final decoration. It is essential therefore that the final surface of the plaster should be of an acceptable standard with good adhesion to the substrate. Considering the amount of work carried out with plasterwork few problems occur. Nevertheless they do occasionally arise and are usually a result of incorrect specification and materials, poor workmanship, extreme site conditions or a combination of these factors.

This data sheet lists the most common causes of complaints and details remedies where appropriate.

Table 1: Failure caused by breakdown of adhesion of plaster to background

	Causes	Remedies
1.1	Very high suction of background.	Remove loose plaster; control background suction e.g. use a spatterdash and replaster.
1.2	Low suction background due to high density or water saturation.	Remove loose plaster. Test background for water content and suction. If caused by high density, apply a proprietary bonding agent. If caused by water saturation, use spatterdash, determine the reason for saturation and correct if necessary. Allow to dry out. Use a spatterdash and replaster in normal way.
1.3	Sulfate attack on bond between background and cement-based plaster. N.B. Sulfates will only attack the cement matrix in water-saturated conditions.	Remove loose plaster. Determine the reason for water saturation and correct if necessary. Allow to dry out. Remove any deposit by brushing and replaster in normal manner.
1.4	Excessive thickness.	Remove loose plaster. Replaster with coats of recommended thickness. Scratch and allow each layer to dry out thoroughly thus permitting shrinkage to take place before applying the next layer.
1.5	Application of a plastering coat which is too strong for background. Faces of blocks or bricks may have been removed with the plaster.	Remove loose material. Replaster with a weaker mix. For very weak backgrounds consider the use of metal lathing or polymer treatments to consolidate the substrate.
1.6	Contamination of Portland cement with gypsum plaster. Under damp conditions, such a plaster will degrade due to sulfate attack and expansion.	Remove all plaster. Brush off all dust from the wall. Replaster with normal cement-based plaster. Under damp conditions plasters containing gypsum are not recommended.
1.7	Application of a finishing coat which is too strong for the backing coat.	Remove loose material. Replaster with a suitable mix.

Table 2: Failure caused by breakdown of adhesion of finishing plaster to backing plaster

	Causes	Remedies
2.1	Application of a dense impermeable plaster over wet backing plaster, a common cause of finishing plaster failure.	Allow wall to dry out, remove all loose plaster. Replaster with a suitable finishing plaster.
2.2	Application of a finishing coat which is too strong for the backing coat.	Remove all loose plaster. Replaster with a weaker finishing plaster, or stronger backing coat.
2.3	Lack of adequate key on backing coat.	Remove finishing plaster and scratch backing coat to provide an adequate key. Remove dust with a damp brush and replaster.

Table 3: Fine hair cracking of finishing plaster

	Causes	Remedies
3.1	Application of a finishing coat to a cement:lime:sand or a cement:sand backing coat which has not dried out sufficiently.	Small areas may be made good by the use of proprietary fillers. Large areas may require a complete reskimming operation using a very thin coat of plaster. If the backing coat is too soft and dusty it may be necessary to remove and replaster completely.
3.2	Application of a finishing plaster to a cement-based backing coat which has lost too much water before setting completely.	As in 3.1 above.
3.3	Use of loamy (dirty) sands in backing coat.	As in 3.1 above. Loamy sands cause high drying shrinkage and should not be used for plastering

Table 4: Efflorescence on finished work

	Causes	Remedies
4.1	Efflorescence is a deposit on the surface of the plasterwork that is very often white in colour. It occurs when plaster is applied to saturated walls.	Prevent ingress of water that has caused the damp walls. Allow to dry out. Remove deposits by brushing. Never paint walls that are showing signs of efflorescence if they are still wet.

Table 5: Surface imperfections - blowing and blistering

Blowing: surface imperfections in the form of small lumps, bumps or eruptions that have occurred after the plastering process has been completed as a result of an expansive chemical reaction.

Blistering: surface imperfections in the form of small smooth 'blisters' that have formed during the application and finishing of the final coat.

	Causes	Remedies
5.1	Blowing in finishing and backing coats caused by unsound particles being present in plaster mixes at the time the work was carried out. These may be from gypsum plaster, lime, clay, or the use of partially hydrated (balled) cement.	Consult suppliers of raw materials used in plaster mixes. When it is certain that no further blowing is likely to occur, the plasterwork should be made good. Isolated patches of blowing may require a complete reskimming operation using a very thin coat of plaster.
5.2	Blowing in the background is caused by unsound particles being present in the materials used for construction of the background.	Seek advice of brick/block manufacturer.
5.3	Blistering in finishing coats caused by the entrapment of air or free water at the time of application.	Cut out or sand the small bubbles and fill any remaining imperfections with a proprietary filler.

Table 6: Pronounced cracking of a structural nature

These are large vertical or horizontal cracks passing through all layers of plaster. It will be necessary to determine the depth of the cracks and specifically to see whether the cracking is confined to the plasterwork or whether it also passes into the background.

	Causes	Remedies
6.1	Plasterwork only. This may be due to drying shrinkage of walling material because the wall has been plastered before it has dried out.	Small areas can be made good by the use of proprietary fillers. Large areas may require a complete reskimming operation using a thin coat of plaster.
6.2	Plasterwork and background. This is likely to be due to structural movement.	Seek the advice of a Structural Engineer or Designer.



MPA Mortar is part of the Mineral Products Association, the trade association for the aggregates, asphalt, cement, concrete, dimension stone, lime, mortar and silica sand industries.

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