



Paint adhesion to white set plaster

The Building Commission has become aware of issues associated with paint coatings applied to internal white set plaster surfaces. The aim of this Industry Bulletin is to alert building and painting practitioners to this issue and encourage a best practice approach at all times regarding the preparation and application of both plaster and paint systems.

Note: Update made to AS/NZS 2311:2017 in 2019.

Background

An analysis of complaints made to the Building Commission shows that complaints about the failure of the paint system are lodged when the home or building owner detects peeling or flaking of the paint. When assessing these complaints, both the paint and plaster require investigation to determine if they have been applied in a proper and proficient manner. Whilst paint manufacturer guidelines and the recommendations of applicable paint standards are not always followed by painters, investigations have shown that in some instances the plaster substrate has not been finished to an acceptable standard, and this has been a contributing factor in the failure of the paintwork.

Plastering standards and finish

HB 161-2005 *Guide to plastering* (the Guide) was prepared as a result of a decision of the Standards Australia Committee, BD-096, *Plastering on solid backgrounds*, to produce a general guide to plastering. The Guide is published and sold by SAI Global (infostore.saiglobal.com).

The reason that it has been published as a Handbook and not a Standard is to enable the inclusion of “best practice” information and advice. Plastering is considered to be an art and requires the adjustment of the use of materials and the physical manner of the application dependent upon various site conditions to achieve a durable and visually pleasing surface.

Plasterers do still have to follow critical processes to avoid soft and weak surfaces that are unable to carry paint systems. The Guide provides general procedures for achieving a satisfactory plaster system for both exterior and interior environments, including white set plaster.

When assessing whether or not plaster has been installed in a proper and proficient manner or is faulty or unsatisfactory, the Building Commission will refer to the Guide. Builders and plasterers need to become familiar with this Guide and ensure that application processes are carried out in accordance with the recommendations contained within the Guide to prevent plaster problems.

The Guide makes comment that defective plaster to inner walls is mostly caused by lack of knowledge of the materials, precautionary skills and preparation, and not realising why the coating procedure is so important.

Checks during and after the white set application

During and after the white set application, builders need to check that:

- That plaster manufacturer’s or Table 8 of the Guide recommendations are being adhered to in regards to mix proportions.
- That a three coat plaster system achieving a nominal 3 mm thick finish coat is being provided.

- That the cement render substrate receives adequate wetting down before the application of setting plaster to ensure uniformity of suction.
- That plasterers take the necessary time to provide a burnished, well compacted surface.
- That newly plastered surfaces are given sufficient ventilation to enable them to adequately cure.
- After sufficient drying time, that the soundness of the white set plaster is checked that it has adequate strength and is not powdery.
- Gypsum/lime plaster must not be subjected to persistent dampness after it has set.

Appendix D of the Guide provides advice in regards to the treatment of soft plaster. This section also provides a method of test to assess the cohesiveness of the plaster. It is acknowledged that white set plaster is an inherently weak material and it is likely that there will always be some plaster removed when applying the test. The test needs to be carried out in a number of locations and is used as a guide by experienced and skilled persons to make an assessment of the level of plaster durability.

Painting standards and finish

Guidance and recommended good practice for the design, application and maintenance of decorative paint systems is provided in AS/NZS 2311:2017. This standard is used by the Building Commission when assessing whether or not a paint system has been applied to white set plaster in a proper and proficient manner or is faulty or unsatisfactory.

Section 5 of AS/NZS 2311:2017 provides recommendations in regards to suitable paint systems for buildings. Table 5.1, which relates to paint systems for internal new unpainted surfaces, recommends that set plaster receives one coat of solvent-borne sealer or water-borne binder and two top coats.

Part 5.1 however, notes that “paint systems other than those listed in Table 5.1 are not precluded; however, it is expected that when other systems are chosen, the specification writer will have had experience with the proposed system under the prevailing conditions of service.” Therefore, a water based sealer can be used in lieu of an oil based sealer; however, the person making that decision must be able to show that the manufacturer of the water based sealer recommends its use in the intended application as well as that the applicator can show they have had previous successful experience with the paint system under the prevailing conditions of service.

Who is responsible for determining if the white set plaster is suitable for painting?

Whilst the plasterer is required to provide a hard white set plaster with a burnished finish, painters are required to check and determine that the condition of the substrate is appropriate to accept the chosen paint system.

Painters are required to apply paint systems in a proper and proficient manner. One way of verifying that paint systems have been applied in this manner is to be able to show that they have followed the recommendations of AS/NZS 2311:2017. Paint manufacturers call up AS/NZS 2311:2017 in their product data sheets (PDS), and therefore painters should

consider the recommended testing of the white-set plaster to be requisite.

A painter cannot be blamed for the condition of the white-set plaster, but the painter must be satisfied that the surface is sound to accept the coatings they intend to apply. Three key comments from AS/NZS 2311:2017 that have a bearing on the painter's decision and subsequent liabilities when deciding to paint a particular substrate, are:

- AS/NZS 2311:2017 Section 3.1 Par 2: "Surface assessment and preparation are particularly important as the painter may be held liable for any future failure because the very act of painting a surface may be interpreted as accepting that surface as being suitable for painting".
- AS/NZS 2311:2017 Section 3.10.4. "Painters should resist any form of pressure to paint plaster prematurely, unless a statement of release is obtained, which transfers consequential risks to the party applying such pressure".
- AS/NZS 2311:2017 Section 9.4: NOTE: "Defects are to be limited to faulty paint materials and workmanship. Painters should not be held responsible for faults due to other trades, although a painter should not knowingly paint over faulty work".

Checks prior to painting white set plaster

The Guide to painting of buildings AS/NZS 2311:2009 lists a number of tests that the builder and/or painter should ensure are carried out before painting white-set plaster.

- Residual moisture testing (AS/NZS 2311:2017 Section 3.10.2).
- Residual alkalinity testing (AS/NZS 2311:2017 Section 3.10.3).
- Residual efflorescence testing (AS/NZS 2311:2017 Section 3.10.4).
- Plaster drumminess (AS/NZS 2311:2017 Section 3.10.6.2).
- Plaster incoherence and softness (AS/NZS 2311:2017 Section 3.10.6.3).
- Plaster powderiness (AS/NZS 2311:2017 Section 3.10.6.4).
- Assessment of surface soundness (AS/NZS 2311:2017 Section 7.3.1 par 6).

Where to from here

Builders need to ensure that plasterers follow best practice methods as recommended in the Guide and that completed plaster surfaces are checked by the builder for adequacy and fitness for purpose.

Where builders are not contracted to paint internal walls, they need to advise their clients about the requirement for white set plaster to be given time to cure prior to a paint system being applied.

Painters need to follow the testing and application requirements recommended in AS/NZS 2311:2017. Failure to take the precautions indicated in both AS/NZS 2311:2017 and the manufacturer's information and recommendations, exposes the painter to a risk of future complaints.

Disclaimer

The information contained in this bulletin may not represent all regulations, standards and codes that apply to this topic. As regulations, standards and codes are referred to in part, practitioners need to consider these regulations in full to ensure you meet the applicable building standards.

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