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Visibility of Joints in Fibre Cement Sheet

With the increasing use of fibrous cement sheeting in modern construction, the requirement to completely conceal the joints where sheets abut one another has become an industry expectation.

Certainly the visibility of joints detracts significantly where the architectural intention is to emulate an uninterrupted masonry wall expanse achieved through use of lower cost pre-fabricated materials.

Is the expectation realistic?

Much has been written on the effect of glancing light on interior building surfaces, such as fibrous plaster and gypsum board. In a report on this aspect, the CSIRO advises that for an uninterrupted smooth finish, the surface must be absolutely flat, and in practice no building substrates are (CSIRO 1992 5th Edn.: Illumination and Decoration of Flat Surfaces).

This is most evident on joints, and the problem of joint visibility under applied finishes is well recognised. This situation can be exactly translated to exterior wall surfaces.

As well as the increased use of fibre cement sheeting, there is a fashion trend towards the finer textured “Mediterranean” style finishes and a decreasing use of eaves and other components, which cast shadows and interrupt sunlight striking the surface.

Again, it is in the joints where the problem manifests itself. For any number of reasons, including frame movement; sheet alignment; porosity of substrate; as well as jointing products and methods used, the actual joint may be slightly (several microns) raised or lowered compared to the adjoining sheets and/or have a different absorption factor.

Such joints may be clearly evident under glancing light (side lighting), where the incident light is nearly parallel to the surface, and casts visible shadows of the minute uneven projections of the joints.

Where the applied finish is a heavier, high profile texture or flat (no gloss) coating, the light is diffused and unevenness of the substrate is disguised.

With the fine textures and glossier finishes, even down to satin and low sheen, visibility of joints is a frequent result.

This situation must be accepted as part of the overall building system employed and does not constitute failure of the applied finish or untradesman-like application.

The inclusion into building design of visual breaks such as profiles and/or expansion joints assists not only with reducing the effect of glancing light, but also provides natural day-work joints for applicators to eliminate overlapping areas, which themselves are highlighted under side light conditions.

The selection of higher texture finishes and lower gloss top-coats also minimises the problem by diffusing the glancing light, but it should be noted that “flat” or no-gloss paints and membranes compare unfavourably with the glossier versions in dirt/mould pick-up, water resistance and longer term durability.

Reference

CSIRO Australia Division of Building Research 1960, revised 1990: ILLUMINATION AND DECORATION OF FLAT SURFACES, by M. J. Ridge

Refer also ROCKCOTE’s document “Levels of Finish for Cement Sheet Walls”