

GLANCING LIGHT

This edition of OnBoard reviews what is commonly known in the building industry as the 'Glancing Light' condition.



Glancing Light – an overview

In a perfect world, drywall lining building materials would be flat, creating a faultless appearance. In the real world, however, building materials are not flat and many people may be disappointed with the finished result due to Glancing Light conditions.

Glancing Light refers to light being cast along the face of a surface showing any minute undulation. As a result of this light being cast, a shadow is produced on the other side of the undulation. This draws attention to surface texture variations, such as plasterboard joints and patches, which under more diffused light would not be visible.

The Glancing Light condition is demonstrated in Figures 1 and 2 on the right hand side. The photos are of the same wall taken 30 minutes apart. The best way to overcome the effects of Glancing Light is to consider the following factors which will help in achieving the appearance of flatness.

Design

The modern design of homes, offices and commercial facilities has created larger open plan areas as well as the inclusion of more lighting, larger windows and skylights.

This shift in design for drywall lining material has also meant it is now being increasingly used as a feature. With the use of drywall lining materials in modern design, its limitations are being highlighted and as such, designers, architects and home owners often do not realise that certain designs will be affected by Glancing Light conditions.

When Glancing Light conditions occur, in many cases it is the result of a design fault rather than poor workmanship. Even the most skilled drywall tradesmen cannot completely remove the smallest imperfections. They can, however, use products to minimise the impact of Glancing Light, as well as the correct application and sanding of compounds.



Pre-planning must take place before applying drywall lining materials. Identifying areas that may be affected by Glancing Light to a client before a job has started, may well avoid disagreements before they arise.

Natural and artificial lighting

Natural lighting

The angle of natural light that projects onto a surface will vary during the day. Surface variations, such as the joints, may be apparent only at certain times of the day. The most pronounced Glancing Light conditions will occur in the early morning or late afternoon. The reflection of natural light from water will also cause the effect.

Artificial lighting

Artificial lighting can have the same effect as natural light, especially non-diffused lighting. Surface mounted lights without a shade to diffuse the light may produce the Glancing Light effect because the light source emanates from a point that is very close to the surface. Recessed downlights tend to project light away from the ceiling and therefore do not create Glancing Light. However, care should be taken not to place them too close to walls because light will extend down the face of the wall.

Paint effects

The difference between matt, semigloss and high gloss paint finishes can have a dramatic effect on the Glancing Light condition.

Gloss and semi-gloss paints will return more light than matt finished surfaces. Glossy surfaces reflect a blurred image of the light source and this blurred reflection will be distorted by irregularities on the surface, producing unsightly results. These irregularities also become more apparent when moving in relation to the surface. This is because the light reflection changes, depending on where you're standing.

The colour of the paint is just as important as the gloss level. The darker the colour, the more the light will be absorbed by the surface. Darker colours also appear shinier than muted colours. Dark coloured walls and ceilings tend to show joints more than light coloured walls.



To help reduce the impact caused by natural light: avoid running windows right to the edge of the ceiling or wall line.



Install multiple, lower intensity lighting. This is because one light source can cancel another light source's shadow. Decorations, curtains, wall hangings and paintings can also help to diffuse strong light sources as they cast long shadows and take the focus away from drywall linings.



Knauf recommends the application of a sealer/undercoat for the best painting results. A sealer/undercoat will assist in equalising variations in surface porosity over jointed and non-jointed areas, before the two top coats of paint are applied. Another tip is to use a roller to apply the paint or, at the very least, back-roll spray applied paint. This action produces a more uniform texture over the entire surface. It may not hide the Glancing Light phenomenon in severe conditions, but it will help to minimise it. For the best result, ensure a quality roller 'nap' is selected to impart an appropriate texture on the plasterboard/joint surface. The only other option to minimise the effects of Glancing Light is to consider applying one of the many suitable 'decorative effects' offered by major paint manufacturers.

Texture and porosity

All drywall lining materials have size limitations due to the manufacturing process or for the practical application of the product. Due to these limitations, walls and ceilings must have joints between the lining materials. These joints are either recessed joints along the length of the lining sheet or they are butt joints at the end of the sheet.

A good drywall lining practice is to minimise the amount of joints by using the largest size sheets available for the particular room. By placing the sheets horizontally in most wall situations, the recessed joint will likely be diffused by natural light. Vertically oriented sheets tend to show every recessed joint because they run perpendicular to the source of natural light and therefore emphasise every recessed joint. In either case, if the method for diffusing light is not adequate, the Glancing Light condition may occur.

Where drywall lining joints exist, a texture and porosity (suction rate) difference can be observed between the compound used to cover the joint and the face of the drywall lining, whether it be plasterboard or fibre cement. The face of the drywall lining sheet tends to have a dull, flat and coarser texture when compared to the jointing compound. The jointing compound is usually raised to a gentle crown and is finer, smoother and shinier. Due to these differences in texture and porosity, when the light is cast parallel across the face of the joint, the Glancing Light condition may occur.

Levels of Finish

The terminology for the type of finish that can be achieved with plasterboard or fibre cement is defined in AS/NZS 2589.1:2007. There are 3 Levels of Finish to describe the method for drywall lining.

Level 3 is for temporary installations or where the appearance is of no concern.

Level 4 is generally accepted for most forms of construction. It describes the specification for framing, plasterboard/fibre cement lining, jointing, finishing and preparing the sheets for painting. It also details that in critical lighting areas, flat paints applied over light textures tend to conceal joints, whereas gloss and semi-gloss paints are not generally suitable over this Level of Finish.

Level 5 Finish is recommended for a smooth finish or where gloss paint will be used. A skim coat of compound is required to cover the entire drywall lining to remove any differential surface texture and porosity. However, even a Level 5 Finish will not give a perfectly flat and uniform surface.

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