



No.4

Guide to the Repair of Powder Coated Architectural Products

Guidance Notes

November 2009

Scope

These recommendations cover guidance for painted aluminium extrusions, sheet and hardware products. The guidance notes can also be used when repairs to steel and galvanised steel are required.

This guide is intended to assist specifiers who wish to repair damage to powder coated, architectural and aluminium extrusions such as window frames, door frames, railings and trim as well as curtain systems, cladding panels, column covers, spandrels, mullions, louvres, vertical trim, etc.

Purpose

These recommendations are intended to assist architects, contractors, owners and building managers who are involved with the maintenance of powder coated architectural aluminium.

General

Powder coating was introduced into the UK in the early 1970's and has developed into one of the most popular of the surface finishing techniques used today. The finish is widely used in various applications that includes white goods, automotive, furniture and general engineering as well as in construction.

Powder coating is the technique of applying a dry coating in the form of a fine powder which is electro-statically charged to a metal surface. The surface is 'earthed' so that the powder is electrically attracted and stays in place through static charge. The item is then placed in an oven and is subject to temperature which melts the powder coating and allows it to flow and cure forming an extremely durable, aesthetic finish.

One of the main advantages of using powder coating is the reduced impact to the environment as powder coating uses no solvents in the application process. Alternatives, such as 'wet paints', typically use a solvent where the solids are in suspension in a liquid carrier which must fully evaporate before the finish is ready to use.

Polyester powder coating is the most commonly used system when coating architectural aluminium.

Important Considerations

The process of pre-treatment and powder coating on aluminium forms a very durable finish even the most severe environmental conditions. Heavy abrasive wear or impact damage could expose the bare metal which would then be subject to oxidation. Aluminium is well known for its oxidation which forms a protective film which is resistant to further corrosion in normal atmospheres.

Repairs that are requested for aluminium substrates are therefore mainly for aesthetic reasons and not for structural protection of the aluminium. Aluminium has shown that it can withstand over 100 years exposure to city environments as can be seen by the statue of Eros at Piccadilly Circus unveiled to the public in 1893.

Powder coating which is applied to steel will require urgent attention as bare steel exposed to the elements can corrode rapidly. It is suggested that in these cases weather protection is provided to the damaged areas to minimise corrosion until a suitable repair can be undertaken.

Repairing of powder coat finishes is a job for specialist applicators who fully appreciate the materials they are working with and in order to provide a long lasting matching finish and customer warranty.

Identification

Repairs fall into three basic categories, a repair due to a sub-standard finish, a repair due to lack of cleaning or staining and a repair required after external damage has occurred.

Sub-Standard Finish

One of the main reasons to specify a Qualicoat applicator is to ensure the highest standard of finish at all times. The expertise of a Qualicoat applicator can be called upon for repair advice should the original applicator not be found or has ceased trading.



The cause of a sub-standard coating is invariably the result of the poor application of the pre-treatment and the subsequent powder coating not being strictly controlled by the applicator.

When applied correctly, powder coating only requires simple cleaning on a regular basis to retain its aesthetic properties, and this can normally be undertaken at the time of cleaning glazed areas.

Information on routine cleaning is always provided in the handover documents after an installation has been completed. It is very important that the simple maintenance regime is adhered to in order to maintain powder coat guarantees and warranties.

Staining

In industrial or city centre atmospheres staining of the powder coating can occur particularly on light coloured finishes. Routine cleaning will all but eliminate this occurring. However, even for heavy staining, assuming it is not left too long, can be rectified using some of the excellent remedial products that are current available.

Solvents containing esters, ketones, or chlorinated solvents must not be used without consultation with the paint manufacturer, as these are usually too aggressive and can damage the coating. Such products can invalidate warranties and will almost certainly shorten the original powder coating life expectancy.

The main advice on staining is not to let it occur in the first Place. If this is unavoidable, you should consult the powder coating applicator prior to corrective work being carried out.

External Damage

Obvious impact damage may require replacement of parts of the installation in order to ensure weathering and structural performance. The provider of the systems used in the installation should be approached to offer guidance. If this is unknown then a Qualicoat member may well be able offer advice.

If it is confirmed that structural damage has not occurred then the profiles and sheets may be able to be repaired in-situ in order to provide an aesthetic long lasting finish.

Repair Process

The first company you should contact to initiate a repair must always be the initial coater of the architectural metalwork - should they be known. All Qualicoat members either have an in-house repair facility which can visit site to undertake the repair or who work closely with an independent company who provides this service.

The most important consideration is the repair warranty. This may vary based on the age of the installation and the materials used to effect a visual repair. Should the area of the repair become extensive it may be worthwhile to involve the powder coat manufacturer to offer advice.

Repair Materials

Damage to the coating may have been caused during Transportation to site, installation or as the result of the action of other trades (e.g. scaffold damage) during construction. Rectification on site is possible for both small and large areas that may have suffered damage.

Where the damage has exposed the metal then a suitable primer will need to be applied before over-coating with an appropriately durable topcoat that that has been matched to the existing powder coating.

Usually the wet paint systems will be a two component polyurethane or two component non-isocyanate acrylic based product. Again, to ensure a high quality, long lasting, finish is achieved an experienced and professional coater should be used. The Qualicoat Approved applicator can help and advise with this.

Further Information

Current approved powder coaters can be found at:
www.qualicoatuki.org

Current Qualicoat standards and updates from the European website at:
www.qualicoat.net

Disclaimer

The information provided in this document is for guidance only and is not intended to replace any manufacturers recommended procedures. Qualicoat UK & Ireland strongly recommend that a qualified member of the association is contacted and underwrites any procedures which apply to powder coated finishes.

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