Resene

Resene Paints Limited

Architects Memo

No 4. October 1980

This month: Acrylic Roof Paints for Galvanised Steel

Architectural Memo No. 2 dealt with Galvanised Steel as a substrate for paint and the measures needed to protect it from corrosion and thus extend its useful life. In this memo we shall deal with the decorative finishing coats.

The two subjects cannot be completely divorced because they have each affected the other.

When it used to be possible to paint galvanised steel directly with acrylic paints, such paints used to be modified with anti-corrosive pigments, oils etc. to improve their performance on galvanising; often to the detriment of their durability. When Resene Paints Limited, realising the shortcomings of the present galvanised/acrylic system, decided on the policy of using a primer over all galvanised steel — the emphasis of corrosion resistance was taken off the topcoat. This allowed the topcoats to be formulated with durability as the single most important factor.

Work in this area of improved durability lead to the present formulation (these improvements were subsequently incorporated into the house paint formulation which lead to the combining of the two products into Resene Hi Glo House and Roof Paint).

The requirement for durability becomes obvious when it is realised that a surface exposed at 45° gets about twice as much radiant energy as one exposed in the vertical. (This does not take into account further reductions in radiation to the vertical surface afforded by soffits, awnings, etc.). Of the paint vehicles commonly available for on-site application, the acrylic family has the best potential for U.V. resistance; and within this class vehicles of superior durability can be formulated.

Not only have the acrylics U.V. resistance, they also have the ability to resist thermal hardening. This is especially important in the roof paint area where strong colours are the norm. Heat-reflectively values of the average roof paint colour would lie between 2-10& i.e. they absorb from 90-92% of the heat striking them. This can result in surface temperatures up to 80%C.

In discussing durability, special reference must be made to the role of micaceous iron oxide (MIOX). Paints incorporating this pigment are well known for their characteristic metallic glint, and have often been used for this aesthetically pleasing effect. What may not be so well known in the very high durability this pigment affords paints formulated with it. MIOX (or flaky haemetite) has a lamella structure which overlaps within the paint film providing excellent water resistance. It is also an extremely efficient filter for U.V. light, protecting the paint vehicle from its damaging influence and thus greatly extending the useful life of the coating.

Pigmentation plays a significant role in the durability of roof paints and would be classified roughly as follows (in order of durability):

- Micaceous Iron Oxide
- Chromium Oxide
- Iron Oxide
- Carbon black/white Greys)
- Phthalo blue/white Blues)
- Organic Pigments in bright red and orange

Acrylics have been discussed as the best materials for durability and maintenance of aesthetic appeal. Where aggressive environments demand more corrosion protection than can be offered by acrylics, chlorinated rubber should be considered for their better anti-corrosive properties although lacking the U.V. durability of the acrylics.

Next month we'll be discussing the Mason Handprinted Wallpaper Range.

GOUGH STREET, LOWER HUTT, NEW ZEALAND. P.O. BOX 36-006.
TELEPHONE (04) 684-319.
TELEGRAMS "RESENE".
TELEX: WELLINGTON NZ 3353 SEEK (RPL).
FAX: (04) 686-987.
BRANCHES: WHANGAREI, AUCKLAND, HAMILTON, TAURANGA, ROTORUA, NAPIER, HASTINGS, NEW PLYMOUTH, PALMERSTON NORTH, LEVIN, PARAPARAUMU, NELSON, CHRISTCHURCH, TIMARU, DUNEDIN, QUEENSTOWN, INVERCARGILL, FIJI.