



## Technical Guidance Note No. 7

### Coating Ironwork

## 1.0 Introduction

Coating ironwork is an area which prompts much debate and discussion. There are several factors at work here :

- ?? Clients expect a 'life' from their coating systems.
- ?? Paint companies are happy to oblige – low maintenance appeals to the customer.
- ?? No research of substance has considered the needs of historic ironwork.
- ?? Wrought and Cast iron have different needs.
- ?? Fine detail is often one of the appeals of ironwork, and needs to be preserved.

The following is our opinion only. This opinion is formed from experience, certainly, but much research is needed in this area.

## 2.0 Paint systems

In coating ironwork, we must remember that all ironwork is making a valiant attempt to return to it's ore state by oxidization. What is required for this is air and moisture. Good quality wrought and cast iron does have a degree of natural corrosion resistance, but is almost always coated in some form in an exterior environment. What we are doing is trying to keep the air and moisture away from the metal surface as best we can.



Canopy painted in workshop environment (Image courtesy of Heritage Engineering)

In our opinion, both cast and wrought may be painted with the same system to good effect. This is essentially a layered system to provide a prime coat, build and a shell protection. For cast iron our experience tells us not to use heavy epoxy systems. Commonly used on steelwork for low maintenance, it is our theory that as an absorbant material, cast iron needs to act as a moisture sink and release in relation to it's surrounding atmosphere. If the coating system does not allow this by creating an impermeable shell, the iron can corrode from within, and sometimes shed the hard shell. It is also poor for impact damage, cracking to base metal, and being difficult to repair.


We have to assume that no system will last forever.

Preparation is the key for ironwork. Moisture control and air temperature go hand in hand and are very important. Coating in a controlled environment is crucial to success. Coating components prior to assembly, preventing water ingress, and allowing adequate drying times are also important.

Cleaning is covered elsewhere. It is sometimes useful to consider a holding primer compatible with the base primer to offer some immediate protection whilst repairs etc. are undertaken.

The following system is recommended :

***Micaceous Iron Oxide***  
***Zinc Phosphate Primer***  
***Top Coat Gloss***



The application and DFT (Dry Film Thickness) should be considered in relation to the manufacturers recommendations balanced against potential loss of detail.

We would suggest an average DFT of 2-250 um in total. Checking the DFT during coating by gauge is useful, and again enforce drying times. Ensure the painting area is temperature controlled to some degree, and free from windblown debris.

Two coats of gloss are recommended. Gloss is useful since it creates a tougher film than matt or eggshell finishes.

All of the major manufacturers supply such a system in some respect, available in almost any colour configuration. Red lead is still readily available and is a very useful paint system, also good as a jointing material. Red lead paste is often seen on original joints – still performing well after 150 – 200 years – so why not continue to use it ?

Should gilding be undertaken, the practitioner should use 24 carat gold, and not an inferior version. A light gloss basecoat is useful prior to size being applied (often cream).

Damage in handling can be touched up unlike hard shell epoxy systems, and this system to our mind allows the cast iron to breathe to an extent.

### 3.0 Colour schemes

Whilst the technical issues of dealing with ironwork are plentiful, ask the practitioner and they will advise that choosing the scheme takes forever !

There are several approaches :

- ?? Take a historic approach using paint sampling and archive images / notes.
- ?? Use town colours or colours that fit with the environment or context.
- ?? Paint everything black (groan.....)
- ?? Any colour so long as it is non – partisan.
- ?? Go OTT.

Our preference is for a scheme that can be justified in some context. Bandstands were often painted in town colours, for example. Light is important. Light creams which work well for ironwork in Tasmania may not work so well in Inverness.....The images below show a Saracen Canopy with different treatments.



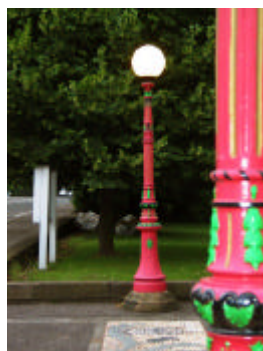
National Museum of Scotland



Newport on Tay



Shildon



Or you could just go for it.....

Painting sample sections is useful. The image below shows a mocked – up example for client evaluation :

