

Restoration Specification for Wrought Iron

Technical Information No: 4

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Further assistance is available by emailing - enquiry@christopp.co.uk

QUALITY ASSURANCE

There is a wide disparity in cost between the cheapest of work, and the best. Without a sufficiently tight specification, work acquired on a competitive basis will tend towards the lower order. There is a need for a standard form of words which can be used to specify ironwork of the highest order.

Definition of the materials is a good start, for example 'puddled wrought iron' rather than just 'wrought iron', which is often misinterpreted as there is no current BS standard that is specific to either the material or to workmanship. Our view is that a proper specification is essential for this type of work, because without one, invariably the work is quoted by fabricators using mild steel and electric welding or, because blacksmiths know this is likely to happen they may quote for a lower standard of work to that which is really required. At least if a standard specification is used, everybody knows what to price for. If subsequently the customer cannot afford the cost, a proper judgement can then be made if the historic importance of the piece warrants the expenditure, whether additional monies can be found or if a delay for a year or two may be appropriate in order to get funds in place. Currently without proper guidelines, wrought ironwork can be poorly restored by default.

Mention of specific techniques is important, 'all welding to be done in the fire' is often used, or less positively, 'no use of electric welding'. Assurance of quality, however, can only be guaranteed by examination of the track record of the contractor or from the submission of samples as explained in the specification below.

Whilst the overall specification is essential, it is also vital that works are properly priced and that any bill of quantity is accurate. Grants are often sought for restoration of ironwork from bodies such as *The Heritage Lottery Fund*. However, wrought iron is a specialist material and therefore requires specialist knowledge as is recommended in the *Guide to: The principles of the conservation of historic buildings (BS7913:1998 6.2.2 a)*.

Material costs, the high level craft skills needed and the labour required to undertake such work is not widely understood and we frequently find that bids for the ironwork element for major refurbishments are severely underestimated and poorly specified. This often results in insufficient funds being allocated for the works.

It is therefore strongly advised that specialists are brought in to undertake a proper report, budget costing and an accurate bill of quantities. Such reports are not expensive and will have major benefits to the customer in

terms of receiving realistic funding, obtaining the required quality of workmanship, preventing future time consuming disputes and ensuring tenderers are bidding for the works that are actually desired.

SPECIFYING PURPOSE MADE FORGED WROUGHT IRON

Please also read Technical Information Sheet No 3

It is strongly recommended that the following specification, or something very similar, is used by specifiers to ensure that there is no confusion over the term wrought iron which is often mistaken to mean mild steel by tenderers and results in numerous problems in respect of material usage, method of fabrication and cost. As far as we are aware, Chris Topp & Company is the world's only supplier of wrought iron and therefore it is also suggested that we are put in specifications as nominated suppliers. If architects, smiths, etc. require advice on the use of wrought iron, working techniques and design considerations, we are always willing to offer assistance.

SPECIFICATION

It must be fully realised by all contractors before estimating that the employer and architect are expecting the work to be carried out to the best traditions and methods of the craft. The interest of the metal craftsmen in the execution of this work must be that of an artist taking personal pride in his craft, and not merely a commercial undertaking. The architect will enforce the word and spirit of these specifications.

Samples

Samples of an executed piece of work done by the blacksmith may be required to accompany the tender. In all situations samples of appropriate details will be required prior to the work being carried out, specified shop drawings may also be required prior to manufacture.

Materials and Workmanship

All work included herein shall be executed of true wrought iron. No mild steel or other substitute materials will be allowed without the prior approval of the Architect and employer. All wrought iron shall be best quality forged iron, tough, ductile and fibrous in character, of even texture. All work shall be executed by craftsmen skilled in the trade.

All ornamental work shall be carefully forged, hand wrought and incised where and as required to produce the design and effect desired.

All work shall be substantially framed together and closely fitted. All joinings shall be neatly and strongly tenoned and riveted together, or forge welded. Heads of rivets and tenons are to be finished appropriately to the spirit of the piece, viz. normally they will be expressed proud of the surface unless countersinking is specifically asked for.

All spindles shall be forged; collars where required shall be forge welded onto the spindles. All leaves, rosettes or other free ornament shall be forged from substantial iron and forge welded where connected with stems or other ironwork. All welding shall be done at the forge and all shall be clean and perfect. No cast parts will be accepted without prior consent from the architect. All solid ornamental works shall be worked and incised as required by approved design.

Prior to assembling/reassembling ironwork, joints & meeting surfaces will be coated with a suitable protective coating such as red lead, zinc phosphate, mastic, bitumastic, as appropriate.

Restoration works

When building up of wasted/pitted bars or for structural purposes, where part replacement is required, as, for example in the case of a gate backstile (which may be rusted away at the bottom), electric welding may then be permitted. In all such cases, the express permission of the employer/architect is required. All such welding must be undertaken using a non-corrodable ferrous alloy, mild steel electrodes or wires are strictly prohibited. Where tenons are corroded and can no longer be used or other fixings are required, screws may be used as an alternative fixing method these must be stainless steel (mild steel is prohibited).

SAFETY NOTE: Wrought iron is frequently coated with lead based paints, often with a 75% lead content. Care must therefore be taken when removing. For specification, see www.coatings.org.uk look under *FAQS* for lead paint and then in text click on "Old Lead Painted Surfaces"