

6781 HOT DIP GALVANIZING

Masterspec sections must be customised to suit the project being specified, by removing irrelevant information and adding project-specific information and selections.

1. GENERAL

This section relates to hot dip galvanizing of structural steel framing, general steel articles and fabricated steel assemblies.

Modify or extend the above description to suit the project being specified.

Note, for salt spray zones and very corrosive environments exposed steel may need galvanising plus added protection.

Related work

1.1 RELATED SECTIONS

Refer to Structural Steelwork section for fabrication of structural steelwork.

Refer to 4911 STEEL METALWORK for non structural steelwork.

Include cross references to other sections where these contain related work.

Refer to 6745 PROTECTIVE COATINGS - STEELWORK for specialist paint finishes to structural steelwork.

Refer to 6782 METAL SPRAY CORROSION PROTECTION for zinc and aluminium/zinc spray finishes.

For standard finishes refer to the painting section/s and 6745 PROTECTIVE COATINGS - STEELWORK.

Documents

1.2 DOCUMENTS REFERRED TO

Documents referred to in this section are:

| | |
|-----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------|
| AS/NZS 2312 | Guide to the protection of structural steel against atmospheric corrosion by the use of protective coatings |
| AS/NZS 4680 | Hot-dip galvanized (zinc) coatings on fabricated ferrous articles |
| AS 1627.1 | Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Removal of oil, grease and related contamination |
| AS 1627.2 | Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Power tool cleaning |
| AS 1627.4 | Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Abrasive blast cleaning |
| AS 1627.9 | Metal finishing - Preparation and pretreatment of surfaces - Method selection guide - Pictorial surface preparation standards for painting steel surfaces |
| AS 1897 | Electroplated coatings on threaded components (metric coarse series) |
| AS/NZS ISO 9001 | Quality management systems - Requirements |
| OSH | Guidelines for the provision of facilities and general safety in the construction industry |

Delete from the DOCUMENTS clause any document not cited. List any additional cited documents.

RELATED DOCUMENTS

Refer to the following related documents when preparing this section:

AS/NZS 4791 Hot-dip galvanized (zinc) coatings on ferrous open surfaces - applied by an in-line process

AS/NZS 4792 Hot-dip galvanized (zinc) coatings on ferrous hollow sections

Galvanizing Association of New Zealand - After-Fabrication Hot Dip Galvanizing. A practical reference for designers, specifiers, engineers, consultants, manufacturers and users

1.3 MANUFACTURER'S DOCUMENTS

Manufacturer's and supplier's documents relating to work in this section are:

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Copies of the above literature are available from ~

Web: ~

Email: ~

Telephone: ~

Facsimile: ~

It is important to ensure that all personnel on site have access to accurate, up to date technical information on the many products, materials and equipment used on a project. In most cases

individual products are not used in isolation, but form part of a building process. Also a particular manufacturer's and/or supplier's requirements for handling, storage, preparation, installation, finishing and protection of their product can vary from what might be considered the norm. Access to technical information can help overcome this potential problem.

Requirements

- 1.4 **QUALIFICATIONS**
Galvanizers to be experienced, competent workers, qualified and familiar with the materials and techniques specified. Provide evidence of qualifications on request.
- 1.5 **VENT HOLES**
Galvanizer to provide appropriate vent holes and drains if required, to hollow sections and enclosed elements, to AS/NZS 4680.
- 1.6 **AGREE VENT HOLE LOCATIONS**
Galvanizer to provide layout, for approval, of appropriate vent holes and drains to exposed, hollow sections and enclosed elements. Do not make vent holes until approved. Refer to SELECTIONS for elements requiring approval.
*For exposed elements where appearance is important. As vent holes are a serious safety issue always take the advice of the Galvaniser.
Delete this clause if vent hole locations are not an issue.*
- 1.7 **TEMPORARY MEMBERS**
If necessary to minimise distortion during galvanizing, galvanizer to provide appropriate temporary support members.

Performance

- 1.8 **QUALITY ASSURANCE**
Maintain quality assurance programmes to AS/NZS ISO 9001 for both galvanizing and other specialist coatings as necessary to assure that work is performed in accordance with this specification and the qualifying requirements of the contract documents.

2. PRODUCTS

Materials

- 2.1 **GALVANIZED COATING**
Zinc coating by the hot-dip process to the requirements of AS/NZS 4680.
- 2.2 **BOLTS, NUTS AND WASHERS**
Hot-dip galvanize to AS/NZS 4680, bolts, nuts and washers forming a permanent part of a structure subject to a protective coating.
- 2.3 **BOLTS, NUTS AND WASHERS - DRY INTERNAL USE**
Electrogalvanize to AS 1897 or hot-dip galvanize to AS/NZS 4680.

3. EXECUTION

Conditions

- 3.1 **GENERALLY**
The galvanized coating on all steel articles shall conform to the requirements of AS/NZS 4680 and as specified.
- 3.2 **DEFECTS**
Discard any material or fabricated items showing defects affecting its structural integrity.
- 3.3 **SURFACE PREPARATION**
Grind off burrs, welding slag and sharp arrises and all other defects that could affect appearance.
*Take care to avoid fabrication techniques that could cause distortion or embrittlement of the steel.
Holes and/or lifting lugs to facilitate handling, venting and draining during the galvanizing process*

shall be provided at positions as agreed between engineer and galvanizer. Unsuitable marking paints to be avoided.

Architectural exposed steelwork may warrant more stringent specification.

Galvanizing

3.4 STEELWORK BEING GALVANIZED

Clean sections thoroughly and apply zinc coating by the hot-dip process to the requirements of AS/NZS 4680. Zinc coating thickness to be not less than the following:

| Structural steelwork | Average coating | Minimum coating | Average Mass |
|-------------------------------------------------------|-----------------|-----------------|----------------------|
| ≤ 1.5mm | 45 microns | 35 microns | 320 g/m ² |
| > 1.5mm - ≤ 3mm | 55 microns | 45 microns | 390 g/m ² |
| > 3mm - ≤ 6mm | 70 microns | 55 microns | 500 g/m ² |
| > 6mm | 85 microns | 70 microns | 600 g/m ² |
| Bolts and washers | | | |
| Bolts and washers (exposed or corrosive environment) | 85 microns | 70 microns | 600 g/m ² |
| Bolts and washers (centrifuged and internal) < 8mm | 35 microns | 25 microns | 250 g/m ² |
| Bolts and washers (centrifuged and/or internal) ≥ 8mm | 55 microns | 40 microns | 390 g/m ² |

Bolts and washers are recommended at 600g/m² for the appropriate, exposed and other corrosive situations. This can be reduced for less corrosive environments. Although some existing standards use lesser levels, current recommendations are tending towards 600g/m². Do not specify a level for bolts and washers less than the structural steel.

Ensure that tolerances in screw cutting have made allowance for galvanizing.

Degrease and sweep abrasive blast using a non metallic media galvanized steelwork to be painted to NZS 4680, Appendix I, Information on the use of sweep (brush) blast cleaning of galvanized steel prior to painting

3.5 INSPECTION

Integrity of the coating to be determined by visual inspection and coating thickness measurement, to AS/NZS 4680.

For critical locations, with exposed or painted finish, all spikes to be removed and all edges free from lumps and runs.

Repairs

3.6 REPAIR METHODS

All repairs to AS/NZS 4680, Appendix E:

Small repairs : Colour matched zinc rich paint.

Large repairs: With approval colour matched zinc rich paint or other agreed option.

If the repairs are major, investigate other options including replacement.

Priming

3.7 PREPARATION, PRIMING AND PAINT SYSTEM

Refer to the painting section/s for preparation, primer and paint system.

Amend this clause to suit which section the primer and paint system are specified in.

Completion

3.8 ENSURE

Ensure all elements are free of marks or blemishes.

3.9 REPLACE

Replace damaged, cracked or marked elements.

3.10 LEAVE
Leave work to the standard required by following procedures.

4. SELECTIONS

4.1 VENT HOLE LOCATION APPROVAL
Items that need approval for vent hole locations.
Items: ~
Delete if not required.

4.2 STEELWORK BEING GALVANIZED
Items: ~
List items

SAMPLE