

Section Q – METALWORK

LIST OF CLAUSES Q

BUILDING CONTROL

Q.0 Compliance with the Building Regulations

GENERALLY

Q.1 Shop Drawings
Q.2 Nil
Q.3 Nil
Q.4 Materials
Q.5 Pre Galvanised steel
Q.6 Cast Iron
Q.7 Stainless Steel
Q.8 Aluminium
Q.9 Nil
Q.10 Galvanised Pressed Steel Lintols
Q.11 Galvanised Steel Hangers and Straps
Q.12 Bed joint reinforcement
Q.13 Nil
Q.14 Nil
Q.15 Conditions of Surfaces
Q.16 Metallic Coatings
Q.17 Paint
Q.18
To Nil
Q.20
Q.21 Cavity Trays
Q.22 Chimney tray damp proof course
Q.23 Nil
Q.24 Gallows Gates
Q.25 Steel Doors
Q.26 Frames to Steel Doors
Q.27
To Nil
Q.30

WORKMANSHIP

Q.31 Welding
Q.32 Smithing etc.
Q.33 Forging
Q.34 Painting at Works
Q.35 Erecting and Positioning of Galvanised Pressed Steel Lintols

APPENDIX A: LIST OF REFERENCES AND STANDARDS

APPENDIX B: AMENDMENT LIST

Section Q – METALWORK

Section Q – METALWORK

Q.0 **Compliance with the Building Regulations**

In order to demonstrate conformity with the Building Regulations (Part D; Materials and Workmanship), and with the Construction Products Regulation (Regulation (EU) No.305/2011) as set out in national rules for Ireland (S.I. no.225 of 2013), the contractor shall provide proof (a Declaration of Performance (DoP)) and (where applicable) a CE marking for all building products to be placed in the works.

The Contractor shall ensure that the product to be incorporated in the works, while complying with CPR, is fit for the use for which it is intended. The Contractor may be required to demonstrate this by means of manufacturer's confirmation, or independent certificate.

GENERALLY

Q.1 **Shop Drawings**

The Contractor shall submit detail drawings when required by the Architect for his inspection.

Q.2 to Q.3 **Nil**

Q.4 **Materials**

Mild steel shall comply with IS EN 10025-1:2004, IS EN 10025-2:2004 and IS EN 10029:2010.

Tubes shall comply with IS EN 10296-1:2003 and IS EN 10297-1:2003 shall be of the type of steel and method of manufacture described.

Bolts, nuts and fixing accessories shall comply with BS 4190:2001 and BS 4933:2010.

Structural sections shall comply with IS EN 10056-1:1999, IS EN 1993-1-1:2005 and IS EN 1993-1-1 National Annex:2007.

Q.5 **Pre Galvanised Steel**

Pre galvanized steel sheet and strip shall comply with IS EN 10346:2009 edges to be zinc coated.

Q.6 **Cast Iron**

Cast iron shall comply with IS EN 1561:2011.

Q.7 **Stainless Steel**

Stainless steel shall be in accordance with IS EN 10088-1:2005. Surface finishes shall be as described.

Stainless steel plate and strip shall comply with IS EN 10088-2:2005.

Stainless steel bars, rods, wire, sections and bright products shall comply with IS EN 10088-3:2005.

Stainless steel tube shall comply with IS EN 10296-2:2005 and IS EN 10297-2:2005.

Q.8 **Aluminium**

Wrought aluminium shall be of the alloys described and shall comply with IS EN 485-1:2008 (+A1:2009) for sheet, strip and plate, IS EN 754-1:2008 for cold drawn rod/bar and tube and IS EN 755-1:2008 extruded drawn rod/bar and tube and profiles.

Q.9 **Nil**

Section Q – METALWORK

Q.10 **Galvanised Pressed Steel Lintols**

Where shown on drawings provide galvanised mild steel lintols. The supplier and type of lintols are to be approved by the Architect before ordering. The lintols are to be suitable for the span and loading above and shall be of a profile suitable for the location specified. See clause Q.35 for fore erection and positing of steel lintols.

All lintols shall be manufactured in accordance with IS EN 845-2:2013 and shall not require any additional on site protective coatings to comply with this standard.

All cavity lintols are to be insulated to prevent cold bridging.

Where the underside of lintols are to be plastered internally or externally they shall be provided with a keyed surface.

Q.11 **Galvanised Steel Hangers and Straps**

All ancillary components for masonry i.e. restraint straps, cleats, angle brackets, joist hangers and, unless otherwise specified, structural timber connections shall comply with IS EN 845-1:2013. They shall be fabricated from pre-galvanised mild steel as Clause Q.5 or stainless steel as clause Q.7 and be of approved manufacture and to the dimensions shown on the drawings.

Q.12 **Bed Joint Reinforcement**

Bed joint reinforcement shall be stainless steel complying with IS EN 845-3:2013.

Q.13
to
Q.14

Nil

Q.15 **Conditions of Surfaces**

All surfaces of metalwork shall be clean, free from loose millscale and loose rust.

Q.16 **Metallic Coatings**

Unless otherwise described galvanised coatings for iron and steel shall be hot dip galvanising complying with IS EN ISO 1461:2009 and carried out after fabrication by complete immersion in a zinc bath in one operation and with excess zinc carefully removed.

Q.17 **Paint**

Ferrous metalwork not protected by a metallic coating and which is to be protected at works shall be painted as Clause V25.

Bituminous paint shall be a black bituminous paint as Clause V22.

Paint for Galvanised steel shall be as Clause V25.

Q.18
to
Q.20

Nil

Q.21 **Cavity Trays**

Cavity trays and stopped cavity gutters shall be supplied complete with integrated apron flashings attached by means of a compressed double welt, stapling will not be allowed.

Section Q – METALWORK

The units shall be fabricated from stainless steel with lead flashings as specified in Section M: Roofing.

Q.22 Chimney tray damp proof course

Damp proof course to chimneys at roof intersection shall consist of a metal tray complete with integrated apron flashing, factory welded, as shown on the detailed drawings. Trays shall have 50mm upstands to edges not intersecting roof and flue apertures.

The metal tray shall be fabricated from lead (Code 5) or stainless steel as specified under Section M: Roofing. Where manufactured from stainless steel trays shall have expanded steel mesh welded to all surfaces in contact with masonry. Lead trays shall be coated both sides in bitumen paint.

Q.23 Nil

Q.24 Gallows Gates

The gallows gates shall be fabricated from structural hollow sections to the details shown on the drawings. The gates shall be inspected by the Architect before weld dressing and galvanizing. The Contractor shall inform the Architect when they gates are ready for inspection.

The gates shall be provided with an approved locking device using as Clause N.131 shall also be supplied.

The Contractor shall be responsible for the correct operation of the gates at completion of the contract.

Q.25 Steel Doors

Steel doors as the detailed drawings shall be fabricated with the front plate welded to all frame members. The back plate or plates shall be welded to the perimeter frame and to at least two horizontal members at lock height.

Q.26 Frames to Steel Doors

Galvanized steel frames to doors shall be built into wall as work proceeds by means of integral 100 x 25 x 2.5mm dovetail cramps. The fixings shall be located 200mm from top and bottom of frame and at not more than 600mm centres.

Q.27 to Q.30 Nil

WORKMANSHIP

Q.31 Welding

Welding generally shall be carried out in accordance with IS EN 1011-1:2009

Welding of ferritic steels shall comply with IS EN 1011-2:2001 unless otherwise stated.

Welding of stainless steels shall comply with IS EN 1011-3:2000 unless otherwise stated.

Section Q – METALWORK

Welding of aluminium and aluminium alloys shall comply with IS EN 1011-4:2000 unless otherwise stated.

Welders shall have satisfactorily completed approval testing in accordance with BS 4871-3:1985 or BS 4872-1:1982 or BS 4872-2:1976.

Where hollow sections are used all welds shall continue completely around the sections to be joined unless otherwise stated.

All gates exceeding 1.5m in any dimension shall be inspected by the Architect before weld dressing and surface coating. The Contractor shall inform the Architect when products are ready for inspection.

Those involved in any hot works must hold a certified permit to work in all hot works on site and shall comply with site health and safety rules.

Q.32 Smithing etc.

All smithing and bending shall be soundly and neatly executed, care being taken not to overheat.

Q.33 Forging

All straps, bolts and similar work shall be forged neat and clean from the anvil.

Q.34 Painting at Works

Where described as primed at works, ferrous metalwork shall be freed of rust, millscale, welding slag and flux residue and shall be dry immediately prior to painting with primer as Clause Q.17. Galvanized surfaces to receive bituminous paint shall be clean, dry and free from grease and salts.

The primer shall be touched up with similar primer if damaged by subsequent handling.

Q.35 Erecting and Positioning of Galvanised Pressed Steel Lintols

Lintols shall have a minimum bearing on the supporting structure of 150mm at each end. Bearing surfaces shall be flat and level.

Lintols shall be positioned so that the subsequent brickwork maintains regular horizontally continuous courses and true plane of the face of the surrounding wall.

Lintols shall not be erected until the supporting structure has achieved adequate working strength.

Section Q – METALWORK

Appendix A: List of References and Standards. (Part 1)

Item	Clause no.	Reference	Comment
1.	Q.4	IS EN 10025-1:2004 IS EN 10025-2:2004	Hot rolled products of structural steels – Part 1: General technical delivery conditions. Hot rolled products of structural steels – Part 2: Technical delivery conditions for non-alloy structural steels.
2.	Q.4	BS EN 10029:2010	Hot rolled steel plates 3mm thick or above. Tolerances on dimensions and shape. (replaces BS EN 10029:1991)
3.	Q.4	IS EN 10296-1:2003	Welded circular steel tubes for mechanical and general engineering purposes. Technical delivery conditions. Non-alloy and alloy steel tubes. (replaces typo IS EN 10296-1:2003)
4.	Q.4	IS EN 10297-1:2003	Seamless circular steel tubes for mechanical and general engineering purpose. Technical delivery conditions. Non-alloy and alloy steel tubes. (replaces typo IS EN 10297-1:2003)
5.	Q.4	BS 4190:2001	ISO metric black hexagon bolts, screws and nuts – Specification.
6.	Q.4	BS 4933:2010	Specification for ISO metric black cup and countersunk head bolts and screws with hexagon nuts. (replaces BS 4933:1973)
7.	Q.4	IS EN 10056-1:1999	Specification for structural steel equal and unequal angles and dimensions.
8.	Q.4	IS EN 1993-1-1:2005	Eurocode 3: Design of steel structures – Part 1 – 1: General rules and rules for buildings.
9.	Q.4	IS EN 1993-1-1 National Annex: 2007	Eurocode 3: Design of steel structures. General rules and rules for buildings (including Irish National Annex 2007) (corrigendum 2009), 2005.
10.	Q.5	IS EN 10346:2009	Continuously hot-dip coated steel flat products – technical delivery conditions, 2009. (replaces IS EN 10327:2004)
11.	Q.6	BS EN 1561:2011	Founding: Grey cast irons. (replaces IS EN 1561:1997)
12.a	Q.7	IS EN 10088-1:2005 IS EN 10088-2:2005	Stainless steels – Part 1: list of stainless steels. Stainless steels – Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes.

Section Q – METALWORK

Appendix A: List of References and Standards, continued...(Part 2)

Item	Clause no.	Reference	Comment
12.b	Q.7	IS EN 10088-3:2005	Stainless steel; Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes.
13.	Q.7	IS EN 10296-2:2005	Welded circular steel tubes for mechanical and general engineering purposes. Technical delivery conditions stainless steel. (replaces typo 2006 date)
14.	Q.7	IS EN 10297-2:2005	Seamless circular steel tubes for mechanical and general engineering purposes. Technical delivery conditions stainless steel. (replaces typo 2006 date)
15.	Q.8	BS EN 485-1:2008 + A1 2009	Aluminium and aluminium alloys. Sheet, strip and plate. Technical conditions for inspection and delivery. (replaces IS EN 485-1:1994)
16.	Q.8	BS EN 754-1:2008	Aluminium and aluminium alloys. Cold drawn rod/bar and tube. Technical conditions for inspection and delivery. (replaces 754-1:1997)
17.	Q.8	BS EN 755-1:2008	Aluminium and aluminium alloys. Extruded rod/bar, tube and profiles. Technical conditions for inspection and delivery.
18.	Q.10	IS EN 845-2:2013	Specification for ancillary components for masonry lintels. (replaces IS EN 845-2:2003)
19.	Q.11	IS EN 845-1:2013	Specification for ancillary components for masonry – wall ties, tension straps, hangers and brackets (including Irish National Annex), 2013. (replaces IS EN 845-1:2003)
20.	Q.12	IS EN 845-3:2013	Specification for ancillary components for masonry – bed joint reinforcement of steel meshwork (Including Irish National Annex), 2013. (replaces IS EN 845-3:2003)
21.	Q.16	IS EN ISO 1461:2009	Hot dip galvanized coatings on fabricated iron and steel articles – specifications and test methods.

Section Q – METALWORK

Appendix A: List of References and Standards, continued... (Part 3)

Item	Clause no.	Reference	Comment
22.	Q.31	IS EN 1011-1:2009	Welding – recommendations for welding of metallic materials. General guidance for arc welding.
		IS EN 1011-2:2001	Welding – recommendations for welding of metallic materials. Arc welding of ferritic steels (Amd 1).
		IS EN 1011-3:2000	Welding – recommendations for welding of metallic materials. Arc welding of stainless steels (Amd 1).
		IS EN 1011-4:2000	Welding – recommendations for welding of metallic materials. Arc welding of aluminum and aluminium alloys (Amd1).
23.	Q.31	BS 4871-3:1995	Specification for approval testing of welders working to approved welding procedures. Arc welding of tube to tube-plate joints in metallic materials.
24.	Q31.	BS 4872-1:1982	Specification for approval testing of welders were welding procedure approval is not required. Fusion welding of steel.
		BS 4872-2:1976	Specification for approval testing of welders when welding procedure approval is not required. TIG or MIG welding of aluminium and its alloys.

Section Q – METALWORK

Appendix B: Amendment List	
Date of Amendment	Amendments
1/05/2014	This section was amended by Barry Sheils and approved by David Byrne, Senior Architect, Fingal County Council.