# Brisbane City Council

# Reference Specifications for Engineering Work

# S607 Traffic Signal Hardware – Rag Bolts

## Amendment Register

|  |  |  |  |
| --- | --- | --- | --- |
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| 1.0 |  | Original issue | Apr 2014 |
| 2.0 | 1.3 | Referenced documents list updated | May 2016 |
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## GENERAL

### Scope

This specification outlines the technical acceptance criteria for Rag Bolts and their assemblies.

### Interpretation

Definitions

Superintendent: Refer *Reference Specification for Engineering Works S110 General Requirements – Clause 1.1*.

Contractor: Refer *Reference Specification for Engineering Works S110 General Requirements – Clause 1.1*.

Interested parties:

* Where the Principal is Brisbane City Council: the Contractor and the Superintendent;
* Where the Principal is any other person or agency: Brisbane City Council, the Superintendent, and the Contractor.

### Referenced Documents

|  |  |  |
| --- | --- | --- |
| Australian Standard | AS1111.1 | ISO metric hexagon bolts and screws – Product grade C – Bolts |
| Australian Standard | AS1111.2: | ISO metric hexagon bolts and screws – Product grade C – Screws |
| Australian Standard | AS1112.1 | ISO metric hexagon nuts – Style 1 – Product grades A and B |
| Australian Standard | AS1112.2 | ISO metric hexagon nuts – Style 2 – Product grades A and B |
| Australian Standard | AS1112.3 | ISO metric hexagon nuts – Product grade C |
| Australian Standard | AS1112.4 | ISO metric hexagon nuts – Chamfered thin nuts – Product grades A and B |
| Australian/New Zealand Standard | AS/NZS1170.2 | Structural design actions – Wind actions |
| Australian/New Zealand Standard | AS/NZS1214 | Hot-dip galvanized coatings on threaded fasteners (ISO metric coarse thread series) (ISO 10684:2004, MOD) |
| Australian Standard | AS1237 | Flat washers |
| Australian Standard | AS1237.1 | Plain washers for metric bolts, screws and nuts for general purposes – General plan |
| Australian Standard | AS1237.2 | Plain washers for metric bolts, screws and nuts for general purposes – Tolerances |
| Australian/New Zealand Standard | AS/NZS1252 | High strength steel bolts with associated nuts and washers |
| Australian/New Zealand Standard | AS/NZS4680 | Hot dip galvanised coatings on fabricated ferrous articles |
| Australian Standard | AS2159 | Piling – Design and installation |
| Australian Standard | AS3600 | Concrete structures |
| Australian Standard | AS2339 | Traffic signal posts and attachments |
| Australian Standard | AS2979 | Traffic signal mast arms |
| Australian Standard | AS4100 | Steel structures |
| Australian/New Zealand Standard | AS/NZS1554.1 | Structural steel welding – Welding of steel structures |
| Australian/New Zealand Standard | AS/NZS1554.2 | Structural steel welding – Stud welding (steel studs to steel) |
| Australian/New Zealand Standard | AS/NZS1554.3 | Structural steel welding – Welding of reinforcing steel |
| Australian/New Zealand Standard | AS/NZS1554.4 | Structural steel welding – Welding of high strength quenched and tempered steels |
| Australian/New Zealand Standard | AS/NZS1554.6 | Structural steel welding – Welding stainless steels for structural purposes |
| Australian/New Zealand Standard | AS/NZS1554.5 | Structural steel welding – Welding of steel structures subject to high levels of fatigue loading; |
| Australian/New Zealand Standard | AS/NZS1554.6 | Structural steel welding – Welding stainless steels for structural purposes |
| Australian/New Zealand Standard | AS/NZS1554.7 | Structural steel welding – Welding of sheet steel structures |
| Australian/New Zealand Standard, International Standards Organization | AS/NZS ISO 9001 | Quality management systems – Requirements |

### References

Refer to the following other Brisbane City Council Reference Specifications for Engineering Work:

|  |  |
| --- | --- |
| S120 | Quality |
| S230 | Structural Steel |
| S606 | Traffic Signal Hardware – Poles, Mast Arms & Columns |

Refer to the following Standard Drawing:

|  |  |
| --- | --- |
| BSD-4152 | Ragbolt Assemblies Pedestal |
| BSD-4153 | Spread Footing Details 4.1m Traffic Signal And 1.7m Push Button Posts |
| BSD-4154 | Ragbolt Assemblies Mast Arm 2.5 & 5m Outreach |
| *BSD-4155* | *2.5m & 5.0m Joint Use Mast Arms Footing Details And Notes (Proposed)* |
| BSD-4156 | 8.5m & 11.0m Joint Use Mast Arms Footing Details and Notes |
| *BSD-4157* | *Ragbolt Assemblies for Joint Use Poles (Proposed)* |
| *BSD-4158* | *Joint Use Poles Footing Details & Notes (Proposed)* |

Refer to the following Queensland Department of Transport and Main Roads Standard Drawing:

|  |  |
| --- | --- |
| SD 1403 | Traffic Signals – Mast Arm Footing Installation Details |

## QUALITY SYSTEMS

### General

The Superintendent responsible for the management of the quality of work under the contract must maintain a Quality Assurance System with third party accreditation to *AS/NZS ISO 9001*.

Responsibility for preparation of an inspection and test plan may rest with the Contractor or the Superintendent. Where the Contractor is responsible for the plan, submit it to the Superintendent for approval. Where the Superintendent is responsible for the plan, submit it to the Principal for approval. *Refer annexure.*

## TECHNICAL REQUIREMENTS

### General

Rag Bolt assemblies shall be capable of supporting posts, joint use poles, mast arms and fold down columns.

The rag bolts shall be supplied with the appropriate number of nuts and washers.

### Compliance Testing

All materials and manufacturing of Rag Bolts and their components are to comply with all standards and specifications referenced in this document. Conformance shall be demonstrated by submitting current certificates of all specified test results issued by a registered NATA laboratory.