

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 04 05 00 – Common work results for masonry.
- .2 Section 04 05 12 – Masonry mortar and grout.
- .3 Section 04 05 23 – Masonry Accessories
- .4 Section 04 21 13 – Brick Masonry

1.2 REFERENCES

- .1 ASTM International Inc.
 - .1 ASTM A167-99 (2009), Standard Specification for Stainless and Heat-Resisting Chromium-Nickel Steel Plate, Sheet, and Strip.
 - .2 ASTM A307-14, Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength.
 - .3 ASTM A580/A580M-15, Standard Specification for Stainless Steel Wire.
 - .4 ASTM A641/A641M-09a (2014), Standard Specification for Zinc-Coated (Galvanized) Carbon Steel Wire.
 - .5 ASTM-A666-15, Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
 - .6 ASTM D2240-15, Standard Test Method for Rubber Property - Durometer Hardness.
- .2 Canadian Standards Association (CSA International)
 - .1 CSA-A23.1/A23.2-14, Concrete materials and methods of concrete construction / Test methods and standard practices for concrete.
 - .2 CSA-A165-14, CSA Standards on Concrete Masonry Units.
 - .3 CAN/CSA A179-14, Mortar and grout for unit masonry.
 - .4 CAN/CSA-A370-14, Connectors for masonry.
 - .5 CAN/CSA-A371-14, Masonry construction for buildings.
 - .6 CSA-S304.1-14, Design of Masonry Structures.
 - .7 CSA-G30.18-09 (R2014), Carbon steel bars for concrete reinforcement.
 - .8 CSA-W186-FM1990(R2012), Welding of Reinforcing Bars in Reinforced Concrete Construction.
- .3 National Research Council Canada (NRC)
 - .1 National Building Code of Canada 2015 (NBC).
- .4 Reinforcing Steel Institute of Canada (RSIC)
 - .1 Reinforcing Steel Manual of Standard Practice, 2004.

1.3 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Data sheets
 - .1 Submit required data sheets as well as manufacturer's product specifications and documents in accordance with Section 01 33 00 – Submittal Procedures.
 - .2 Submit a copy of Material Safety Data Sheets (MSDS) required under Workplace Hazardous Materials Information System (WHMIS).
- .2 Shop drawings
 - .1 Submitted shop drawings shall bear seal and signature of a qualified engineer recognized or licensed to practise in the province of Quebec, Canada.
 - .2 Submitted drawings shall include details of rebar folding as well as details of anchorages, nomenclatures and layout drawings.
 - .3 Layout drawings shall indicate required number of reinforcing elements and connectors as well as dimensions, spacing and location of these items.
- .3 Submit instructions for installation or use from manufacturer of each product.

1.4 QUALITY ASSURANCE

- .1 Test Reports: certified test reports showing compliance with specified performance characteristics and physical properties.
- .2 Certificates: product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements.
- .3 Pre-Installation Meetings: conduct pre-installation meeting to verify project requirements, manufacturer's installation instructions and manufacturer's warranty requirements. Comply with Section 04 05 00 - Common Work Results for Masonry.

1.5 FIELD MEASUREMENTS

- .1 Make site measurements necessary to ensure proper fit of members.

1.6 DELIVERY, STORAGE, AND HANDLING

- .1 Transport, store and handle masonry anchorage, reinforcing and accessories in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
 - .1 Deliver reinforcements, connectors and anchorages identified on shop drawings and installation drawings.

Part 2 Products**2.1 MATERIALS**

- .1 Connectors: to CAN/CSA-A370 and CSA S304.1.
- .2 Corrosion protection: to CSA-S304.1, galvanized to CSA-S304.1 and CAN/CSA A370.
- .3 Fasteners: installed post-construction:

- .1 Screw Shields and Plugs: plastic fibre rubber nylon lead, vibration-resistant chemical-resistant water-resistant install in mortar joints placed directly into solid masonry units.
- .2 Adhesives: epoxies, mastics and contact cements for fastening applications, use in accordance with manufacturers' recommendations.
- .4 Anchors: in accordance with CAN/CSA A370.
 - .1 Adjustable Unit Ties: to CAN/CSA-A370: proprietary type ties, type, style and size to suit application in accordance with manufacturer's recommendations.
 - .2 Joint Reinforcement Ties: to CAN/CSA-A370:
 - .1 Single Wythe Joint Reinforcement: ladder type :
 - .1 3,7 mm welded steel wire, hot dip galvanized: to ASTM A641, after fabrication.
 - .2 Multiple Wythe Joint Reinforcement: ladder type, without moisture drip adjustable.
 - .1 Steel wire, hot dip galvanized: to ASTM A641 after fabrication.
- .5 Conventional Bolts:
 - .1 Bolts: to ASTM A36, bar stock shop threaded, straight bolts with square or hex-headed nuts bent bar anchors, J L shaped.
 - .2 Plate anchors: steel to ASTM A36, weld square of circular steel plate perpendicular to axis of steel bar threaded on opposite end.
 - .3 Through bolt rods: to ASTM A307 threaded rod or threaded ASTM A36 bar stock.
- .6 Adhesive Anchors: proprietary systems, pre-mixed, self-contained system with double glass vial system to contain epoxy, consisting of resin, hardener and aggregate measure and mix system where epoxy materials are hand-measured and mixed in accordance with manufacturers' written instructions.
- .7 Sealants: in accordance with Section 07 92 00 – Joint Sealing.

2.2

FABRICATION

- .1 Fabricate reinforcing in accordance with CSA A23.1/A23.2 and Reinforcing Steel Manual of Standard Practice by the Reinforcing Steel Institute of Canada.
- .2 Fabricate connectors in accordance with CAN/CSA-A370.
- .3 Obtain Departmental Representative's approval for locations of reinforcement splices other than shown on placing drawings.
- .4 Obtain Departmental Representative's approval for locations of reinforcement splices other than shown on placing drawings.
- .5 Upon approval of Departmental Representative, weld reinforcement in accordance with CSA W186.

Part 3 Execution**3.1 MANUFACTURER'S INSTRUCTIONS**

- .1 Comply with manufacturer's written recommendations, including product technical bulletins, handling, storage and installation instructions, and datasheets.

3.2 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for anchorage and reinforcing materials installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative.
 - .2 Inform Departmental Representative of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative.

3.3 PREPARATION

- .1 Direct and coordinate placement of metal anchors for masonry supplied to other Sections.

3.4 INSTALLATION

- .1 Supply and install masonry connectors and reinforcement in accordance with CAN/CSA-A370-04, CAN/CSA-A371, CAN/CSA A23.1 and CSA S304.1 unless indicated otherwise.
- .2 Prior to placing mortar, obtain Departmental Representative's approval of placement of reinforcement and connectors.
- .3 Supply and install additional reinforcement to masonry as indicated.

3.5 BONDING AND TYING

- .1 Bond walls of two or more wythes using metal connectors in accordance with CSA-S304, CAN/CSA A371 and as indicated.
- .2 Tie masonry veneer to backing in accordance with NBC, CSA-S304.1, CAN/CSA A371 and as indicated.
- .3 Install unit, adjustable, single wythe and multiple wythe joint reinforcement where indicated and in accordance with CAN/CSA A370 and CAN/CSA A371 manufacturer's instructions.
 - .1 Install horizontal joint reinforcement 400 mm on centre.
 - .2 Place masonry joint reinforcement in first and second horizontal joints above and below openings. Extend minimum 400 mm each side of opening.
 - .3 Place joint reinforcement continuous in first and second joint below top of walls.
 - .4 Lap joint reinforcement ends minimum 150 mm.
 - .5 Bond corners and intersections of checkerboard elements using anchor tabs spaced at 400 mm on each side vertically and 600 mm on each side horizontally.

3.6 ANCHORS

- .1 Supply and install metal anchors in accordance with CAN/CSA A370 and CAN/CSA A371 as indicated.

3.7 LATERAL SUPPORT AND ANCHORAGE

- .1 Supply and install lateral support and anchorage in accordance with CSA-S304.1 and as indicated.

3.8 MOVEMENT JOINTS

- .1 Reinforcement will not be continuous across movement joints unless otherwise indicated.

3.9 FIELD BENDING

- .1 Do not field bend reinforcement and connectors except where indicated or authorized by Departmental Representative.
- .2 When field bending is authorized, bend without heat, applying a slow and steady pressure.
- .3 Replace bars and connectors which develop cracks or splits.

3.10 FIELD QUALITY CONTROL

- .1 Site inspections in accordance with Section 04 05 00 - Common Work Results for Masonry.
- .2 Obtain Ministerial Representative approval of placement of reinforcement and connectors, prior to placing mortar grout.

3.11 FIELD TOUCH-UP

- .1 Touch up damaged and cut ends of epoxy coated or galvanized reinforcement steel and connectors with compatible finish to provide continuous coating.
- .2 Brick colouring: wait a minimum of 12 hours before returning to areas judged unacceptable by Departmental Representative.

3.12 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION