

PART 1 - GENERAL

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|-------------------------|-----|--|
| <u>1.1 RELATED WORK</u> | .1  | Section 05 31 00 - Steel Deck  |
|                         | .2  | Section 05 21 00 - Steel Joists  |
|                         |     |  |
| <u>1.2 REFERENCES</u>   | .1  | ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dipped Galvanized) Coatings on Iron and Steel Products.                                       |
|                         | .2  | ASTM A153/A153M-2009, Standard Specification for Zinc (Hot-Dip) Coatings on Iron and Steel Hardware.   |
|                         | .3  | ASTM A307-2012, Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile.  |
|                         | .4  | ASTM A325-2013, Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength.   |
|                         | .5  | ASTM A449-2010, Standard Specification for Hex Cap Screws, Bolts and Studs, Steel, Heat Treated, 120/105/90 ksi Minimum Tensile Strength, General Use. |
|                         | .6  | ASTM A500/A500M-2010a, Standard Specification for Cold-Formed Welded and Seamless Carbon Steel Structural Tubing in Rounds and Shapes.                 |
|                         | .7  | ASTM A572/A572M-2012, Specification for High-Strength Low Alloy Columbium-Vanadium Structural Steel.   |
|                         | .8  | CISC/CPMA 2-75, Quick-Drying, Primer for use on Structural Steel.  |
|                         | .9  | CISC/CPMA Standard 1-73a, Quick Drying, One Coat Paint for Use on Structural Steel.  |
|                         | .10 | CSA G40.20/G40.21-04(R2009), General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.                             |
|                         | .11 | CSA S16-2009, Consolidation, Design of Steel Structures.   |
|                         | .12 | CSA W47.1-2009, Certification of Companies for Fusion Welding of Steel.  |

1.2 REFERENCES  
(Cont'd)

- .13 CSA W55.3-2008, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
- .14 CSA W59-03(R2008), Welded Steel Construction (Metal Arc Welding).

1.3 SOURCE QUALITY CONTROL

- .1 Prior to commencing work, submit two (2) certified copies of mill reports covering chemical and physical properties of steel used in this work.

1.4 DESIGN OF DETAILS AND CONNECTIONS

- .1 Design and detail connections in accordance with requirements of CAN/CSA-S16.1 and also to resist forces, moments and shears where indicated.
- .2 Where connection forces are not indicated, the connection shall be detailed to resist 50% of the total uniformly distributed factored load capacity of the members, and 75% of tensile capacity of bracing members.
- .3 For non-standard connections, submit sketches and design calculations stamped and signed by a qualified professional engineer registered in the Province of Nova Scotia.
- .4 For standard connections, select details from CISC Handbook of Steel Construction to ensure structural adequacy. Submit all standard connections for each structural steel member size. Connections shall be stamped and signed by a qualified professional engineer registered in the province of Nova Scotia.
- .5 Submit all connection designs and sketches as connections are available to review in order to expedite the review process.

1.5 SHOP DRAWINGS

- .1 Submit connection details and erection drawings in accordance with Section 01 33 00.
- .2 On erection drawings, indicate member size, base plate elevation, anchor bolt size and location and information necessary for assembly.
- .3 Submit shop details of all standard connections and non-standard connections to be used in the connection of structural steel members. Identify on erection

- 1.5 SHOP DRAWINGS (Cont'd)
- .3 (Cont'd)  
drawings the location of all non-standard connections.
  - .4 All submitted drawings to bear signature and seal of professional engineer registered in Province of Nova Scotia for all fabricator designed assemblies, components and connections.
  - .5 Indicate welds by welding symbols as defined in CSA W59.

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Structural steel: to CAN/CSA- G40.21 (Grade 345 MPa) and ASTM-A572 (Grade 350W) for columns and beams, Grade 300 W for angles, plates and channels, CAN/CSA G40.21 (Grade 250W) for bars, CAN/CSA- G40.21 (Grade 350W) and/or ASTM A500 (Grade 345 MPa), Class C for hollow structural sections.
  - .2 Anchor bolts: to ASTM A307 and to ASTM A449.
  - .3 Bolts, nuts and washers: to ASTM A325.
  - .4 Welding materials: to CSA W59 and certified by Canadian Welding Bureau.
  - .5 Shop paint primer: to CISC/CPMA 2.
  - .6 Galvanizing: Hot-dip method with minimum zinc coating of 600 g/m<sup>2</sup> conforming to ASTM A123/A123M and ASTM A153/A153M.
- 2.2 FABRICATION
- .1 Fabricate structural steel in accordance with CAN/CSA-S16.1 and in accordance with reviewed shop drawings.
  - .2 Continuously weld connection joints of architecturally exposed steel and grind smooth and flush with adjacent surfaces.
  - .3 Provide holes for attachment of other work only when and where approved by the Departmental Representative or as shown on the drawings.
  - .4 Provide bearing plates with anchor bolts for steel beams unless otherwise indicated.

- 2.2 FABRICATION  
(Cont'd)
- .5 Where finished surfaces of steel are to be left exposed to view, fabricate to AISC specifications for architecturally exposed steel including straightness.
  - .6 Remove mill marks, identification and surface imperfections of exposed steel by grinding smooth and flush with adjacent surfaces.
  - .7 Exposed welds to be continuous for length of each joint. File or grind exposed welds smooth and flush.
- 2.3 SHOP PAINTING
- .1 For locations where steel is to be top coated with an architectural paint, prime steel in accordance with CAN CISC/CPMA 2-75. Prime all other steel in accordance with CAN CISC/CPMA 1-73a except where members are to be field welded, are in contact at bolted friction type connections or are to be encased in concrete where no primer is required. For locations where an architectural top coat is required refer to architectural drawings.

PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Do welding in accordance with CSA W59.
  - .2 Companies must be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding of steel structures and/or CSA W55.3 for resistance welding of structural components.
  - .3 When requested by Departmental Representative, provide certification that all welded joints are qualified by the Canadian Welding Bureau.
- 3.2 MARKING
- .1 Mark materials in accordance with CSA-G40.20. Do not use die stamping. If steel is to be left in unpainted condition, place marking at locations not visible from exterior after erection.
  - .2 Match marking: shop mark for fit and match.
- 3.3 ERECTION
- .1 Erect structural steel, as indicated and in accordance with CAN/CSA- S16.1 and in accordance with reviewed erection drawings.

3.3 ERECTION  
(Cont'd)

- .2 Verify dimensions and conditions of existing work before commencing fabrication and report discrepancies or problems to the Departmental Representative. Do not proceed until notified by Departmental Representative.
- .3 Obtain written permission of Departmental Representative prior to field cutting or altering of structural members.
- .4 Clean with mechanical brush and touch up shop primer to bolts, welds and burned or scratched surfaces at completion of erection.
- .5 Assume full responsibility for the integrity of structure during erection. Make necessary provision for all erection loads and for sufficient temporary bracing to maintain structure safe, plumb and in true alignment until completion of erection and installation of necessary permanent bracing and frames.
- .6 Set column base plates and loose bearing plates with steel shims to proper elevation, true and level, ready for grouting-in.
- .7 Restrict drifting during assembly to minimum required to bring parts into position without enlarging or distorting holes and without distorting, kinking or sharply bending metal of any unit. If, in the opinion of the Departmental Representative, holes must be enlarged to admit bolts, they are to be reamed and larger size bolts used. Reamed holes not to exceed size of bolt used by more than 2mm.

3.4 FIELD QUALITY  
CONTROL

- .1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by Departmental Representative.
- .2 Testing laboratory may use ultra- sonic testing procedures to verify soundness of some representative shop and field welds. In principal structural members, shop and field welds will be X-rayed. Representative bolted connections will be checked with torque wrench. Departmental Representative will determine location and extent of all testing.

PART 1 - GENERAL

- 1.1 RELATED WORK
- .1 Submittals: Section 01 33 00
  - .2 Structural Steel: Section 05 12 23
  - .3 Steel Deck: Section 05 31 00
- 1.2 REFERENCES
- .1 CAN/CGSB-85.100-93, Painting.
  - .2 CAN/CGSB-1.40-97, Anticorrosive Structural Alkyd Primer.
  - .3 CAN/CGSB-1.105-M91, Quick Drying Primer.
  - .4 CSA G40.20/G40.21-2013, General Requirements for Rolled or Welded Structural Quality Steel/Structural Quality Steels.
  - .5 CSA S16-2009, Limit States Design of Steel Structures.
  - .6 CSA W47.1-2009, Certification of Companies for Fusion Welding of Steel Structures.
  - .7 CSA W55.3-2008, Resistance Welding Qualification Code for Fabricators of Structural Members Used in Buildings.
  - .8 CSA W59-03(R2008), Welded Steel Construction (Metal Arc Welding).
  - .9 CISC/CPMA 1-73A, Quick-Drying, Primer for Use on Structural Steel.
- 1.3 DESIGN OF STEEL JOISTS
- .1 Design steel joists to carry loads indicated on drawings.
- 1.4 SHOP DRAWINGS
- .1 Submit shop details and erection drawings in accordance with Section 01 33 00.
  - .2 Each drawing submission must bear the signature and stamp of qualified professional engineer registered in province of Nova Scotia.

- 1.4 SHOP DRAWINGS (Cont'd)
- .3 In erection drawings, indicate joist mark, depth, spacing, bridging lines, bearing and anchorage details.
  - .4 In shop details, provide particulars relative to joist geometry, framed openings, bearing and anchorage. Include member size, properties, stress load under various loadings, deflection and camber.

PART 2 - PRODUCTS

- 2.1 MATERIALS
- .1 Structural steel: to CAN/CSA- G40.21.
  - .2 Welding materials: to CSA W59.
  - .3 Shop paint primer: to CISC/CPMA 2.

- 2.2 FABRICATION
- .1 Fabricate steel joists and accessories in accordance with CAN/CSA- S16.1.
  - .2 Weld in accordance with CSA W59.
  - .3 Provide top and bottom chord extensions where indicated.
  - .4 Prepare joists for attachment of other work as required.
  - .5 Fabricate bridging with minimum material thickness of 3mm.
  - .6 Mark joists to indicate erection orientation when they are fabricated to special design or loading requirements and with identification corresponding to shop drawings.
  - .7 Incorporate shoes of proper depths to suit elevations of bearings in each location.
  - .8 Fabricate joists of uniform appearance for erection in areas exposed to view.
  - .9 Fabricate joists such that the intersection of the axes of the chord and end diagonals is located within the middle third of the supporting beam flange width.

- 2.3 SHOP PAINTING
- .1 Clean, prepare surface and shop prime steel to CAN/CSA-S16.1.
  - .2 All structural steel to be primed. For locations where steel is to be top coated with an architectural paint, prime steel in accordance with CISC/CPMA 2. Prime all other steel in accordance with CISC/CPMA 1, except where members are to be field welded, are in contact at bolted friction type connections or are to be encased in concrete where no primer is required. For locations where an architectural top coat is required, refer to Architectural drawings.
  - .3 Do not paint surfaces and edges to be field welded or bolted.

PART 3 - EXECUTION

- 3.1 GENERAL
- .1 Do welding in accordance with CSA W59.
  - .2 Companies to be certified under Division 1 or 2.1 of CSA W47.1 for fusion welding and/or CSA W55.3 for resistance welding.
  - .3 Provide certification that all welded joints are qualified by Canadian Welding Bureau.
  - .4 Provide information and assist, as required, to ensure proper installation of anchors at bearings.
  - .5 Remove paint to bare metal at surfaces of installed steel framing where welded connections are to be made, and clean down for a distance of 2ø beyond welds.
- 3.2 ERECTION
- .1 Erect steel joists and bridging as indicated in accordance with CAN/CSA- S16.1 and in accordance with approved erection drawings.
  - .2 Obtain written permission from Departmental Representative prior to field cutting or altering joists or bridging.
  - .3 Weld each joist to structural steel frame, steel bearing plates on concrete or masonry or as indicated on the Drawings.
  - .4 Install joists uniformly at indicated elevations with shims, packing or special shoes as required. Use



3.2 ERECTION  
(Cont'd)

- .4 (Cont'd)  
of shims, packing or special shoes must be submitted to the Departmental Representative for review.
- .5 Install steel bridging transverse to joist spans as follows:
  - .1 With number of lines as shown on Drawings, and to suit mechanical and electrical services and lighting. If not shown, install bridging in accordance with CAN/CSA S16.1.
  - .2 With slenderness ratio to conform to CAN/CSA-S16.1.
  - .3 With each line, bracing included, anchored to end walls.
  - .4 With bolted or welded connections.
  - .5 With bridging located at panel points.
- .6 Include framing for openings between joists.
- .7 Verify joists are located to allow for installation of ducts, piping, electrical system and other Work indicated on drawings with adequate clearances.
- .8 Attachments for mechanical, electrical and other services shall be made by using approved clamping devices or U-Bolt Type connectors. No drilling or cutting of the joist material is permitted.
- .9 Where large dimension mechanical ducts are located so as to pass through the steel joists, modify the open web panel accordingly.
- .10 Include in Work of this Section the necessary erection equipment, and temporary platforms as required for the Work of erection and to comply with safety regulations.

3.3 FIELD QUALITY  
CONTROL

- .1 Inspection and testing of materials and workmanship will be carried out by testing laboratory designated by the Departmental Representative.
- .2 Testing laboratory may inspect representative joists for integrity, accuracy of fabrication and soundness of welds. Representative field connections may be checked. Departmental Representative will determine extent of all inspections.

PART 1 - GENERAL

- 1.1 RELATED WORK .1 Structural Steel: Section 05 12 23
- .2 Steel Joists: Section 05 21 00
- 1.2 REFERENCES .1 ASTM A653/A653M-2011, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
- .2 CAN/CGSB 1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 CSA S136-2012, North American Specification for the Design of Cold-Formed Steel Structural Members.
- 1.3 DESIGN CRITERIA .1 Compute structural capacity of steel deck using limit states design.
- .2 Steel deck and connections to safely carry dead, live and diaphragm loads as indicated.
- .3 Deflection under specified live load to not exceed 1/360th of span for floor deck.
- .4 Deflection under specified live load is to not exceed 1/360th of span for roof deck.
- 1.4 SHOP DRAWINGS .1 Each drawing submitted to bear the signature and stamp of qualified professional engineer registered in Province of Nova Scotia.
- .2 Indicate deck plan, profile, dimensions, base steel thickness, metallic coating designation, connections to supports and spacings, projections, openings, reinforcement details and accessories.
- .3 Indicate position of temporary shoring of floor deck if required.

1.5 SOURCE  
QUALITY CONTROL

- .1 Prior to commencing work, submit two (2) certified copies of mill reports covering chemical and physical properties, including recycled content of steel used in this work.
- .2 Fabricator, as practicably as possible (preferably 90% or greater), to maximize the recycled steel content for all the floor and roof deck. Provide certification (mill reports) certifying breakdown of the pre-consumer, post- industrial and post-consumer content percentages of the steel deck.

1.6 WASTE  
MANAGEMENT AND  
DISPOSAL

- .1 Collect, separate and recycle all site generated waste materials in accordance with Section 01 74 21.
- .2 Coordinate all work related to Section 01 74 21 with Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Floor deck: 38mm and 76mm deep profile fabricated from zinc-iron alloy (ZF) wipe coated steel to ASTM A653/A653M, structural quality Grade A.
  - .1 22 gauge composite, as indicated on structural drawings.
  - .2 Connections: four (4) transverse 19mm effective diameter puddle welds per transverse support for each sheet unless otherwise shown.
  - .3 Sidelaps button-punched at 300mm o.c. unless otherwise shown.
  - .4 Weld deck to perimeter beams or perimeter angle with 19mm effective dia. puddle welds at 600mm o.c. unless otherwise shown.
- .2 Roof deck: 38mm deep profile fabricated from zinc-iron alloy (ZF) wipe coated steel to ASTM A653/A653M, structural quality Grade A. See Structural drawings for locations of the different profile deck locations.
  - .1 22 gauge (nominal thickness 0.76mm) or 20ga (nominal thickness 0.91mm) as indicated on Structural drawings.
  - .2 Connections: 4-19mm effective dia. puddle welds per transverse support (every flute)
  - .3 Sidelaps to be button- punched at 150mm o.c. unless otherwise shown.
  - .4 Weld deck to perimeter angle or beams with 19mm effective dia. Puddle welds at 150 mm c/c.

2.1 MATERIALS  
(Cont'd)

- .3 Deck manufacturer to provide:
  - .1 Continuous angle support at all support locations where deck changes span direction.
  - .2 20 gauge cold formed metal closures at perimeter free edges.
- .4 Cover plates, cell closures and flashings: steel sheet with minimum base steel thickness 22 gauge. Metallic coating same as roof deck material.
- .5 Closures to external walls.
- .6 Primer: zinc rich ready mix to CAN/CGSB-1.181.

2.2 FABRICATION

- .1 Include in Work of this Section steel angles, cover plates, cell closures, fasteners, stiffeners, and accessories as required. Fabricate sheet metal accessories of same material and finish as deck, and in not less than 18 ga.
- .2 Fabricate to meet specified requirements of CAN/CSA S136 and to support superimposed loading as shown on structural Drawings.
- .3 Form deck units to provide male and female interlocking side lap joints.
- .4 Fabricate units to provide for joints between abutting panel ends with:
  - .1 End laps to occur over supports only.
  - .2 50mm overlap, swaged and sized to provide smooth joint.
  - .3 Ends squared and finished to ensure minimum space between panels.
- .5 Span deck units over at least three or more supports wherever possible, but no less than two (2) spans. Increase thickness of metal to compensate for continuity when it is not possible to have deck span over two (2) or more supports.
- .6 Provide for ribs to bear on beams parallel to flutes when tops of such beams are at same elevation as deck bearing. Weld ribs of deck to beams at 50mm unless indicated otherwise.
- .7 Holes in deck:
  - .1 Incorporate as required for services, and as indicated on Drawings. Verify size and location of holes before commencing fabrication.

- .1 Include hoisting and erection equipment in Work of this Section.
- .2 Level and align deck units with panels parallel to each other and perpendicular to supports. Locate panel ends only over supports and to ensure minimum 50mm bearing. Install steel packing to level units if necessary. Install cover plates to provide full extent of supporting deck surface over each area, including expansion joints and intersections of panels that span in different directions.
- .3 Lap ends of panels no less than 50mm and fasten to steel bearing supports by welding as specified in clause 2.1.
- .4 Reinforce deck elements at top and bottom by a continuous web where they are cut longitudinally 50mm or more from a vertical web.
- .5 Secure closures, plates and accessories by screws or welding. Tack weld end closures at 1200mm o.c. and side closures at 900mm o.c.

3.2 ERECTION  
(Cont'd)

- .6 Install interior cell closures in flutes intersecting vertical surfaces exposed to view, at tops of interior walls and partitions extended to deck, and as otherwise indicated on Drawings. Secure cell closures by welding, sheet metal screws or adhesive as suitable for material.

3.3 ADJUSTMENT  
AND CLEANING

- .1 Touch up adjacent primed surfaces burned, scratched or otherwise damaged during erection with prime paint to match shop coat, when erection is completed.
- .2 Paint over bare areas on galvanized surfaces and welds and zinc rich paint.
- .3 Replace dented, punctured or weld perforated deck where exposed to view.

PART 1 - GENERAL

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| <u>1.1 RELATED SECTIONS</u> | .1 | Section 03 30 00 - Cast-in-Place Concrete.            |
|                             | .2 | Section 04 05 19 - Masonry Anchorage and Reinforcing. |
|                             | .3 | Section 04 05 00 - Common Work Results for Masonry.   |
|                             | .4 | Section 09 91 23 - Interior Painting.                 |
|                             | .5 | Section 09 91 13 - Exterior Painting.                 |

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| <u>1.2 REFERENCES</u> | .1 | American Society for Testing and Materials International, (ASTM)   |
|                       | .1 | ASTM A 53/A53M-07, Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated Welded and Seamless.                           |
|                       | .2 | ASTM A 307-07b, Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength.                                       |
|                       | .2 | Canadian General Standards Board (CGSB)  |
|                       | .1 | CAN/CGSB-1.40-97, Anti-corrosive Structural Steel Alkyd Primer.  |
|                       | .2 | CAN/CGSB-1.181-99, Ready-Mixed, Organic Zinc-Rich Coating.   |
|                       | .3 | Canadian Standards Association (CSA International)   |
|                       | .1 | CSA-G40.20-04/G40.21-04, General Requirements for Rolled or Welded Structural Quality Steel.                                       |
|                       | .2 | CAN/CSA-G164-M92(R2003), Hot Dip Galvanizing of Irregularly Shaped Articles.   |
|                       | .3 | CAN/CSA-S16-09, Limit States Design of Steel Structures.   |
|                       | .4 | CSA W48-06, Filler Metals and Allied Materials for Metal Arc Welding (Developed in co-operation with the Canadian Welding Bureau). |
|                       | .5 | CSA W59-03(R2008), Welded Steel Construction (Metal Arc Welding) (Imperial Version).   |
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<u>1.2 REFERENCES</u> (Cont'd)	.4	The Environmental Choice Program .1 CCD-047a-98, Paints, Surface Coatings. .2 CCD-048-98, Surface Coatings - Recycled Water-borne.
<u>1.3 SUBMITTALS</u>	.1	Product Data: .1 Submit two copies of WHMIS MSDS - Material Safety Data Sheets in accordance with Section 01 33 00 - Submittal Procedures. Indicate VOC's: .1 For finishes, coatings, primers and paints.
	.2	Shop Drawings .1 Submit shop drawings in accordance with Section 01 33 00 - Submittal Procedures. .2 Indicate materials, core thicknesses, finishes, connections, joints, method of anchorage, number of anchors, supports, reinforcement, details, and accessories. .3 Shop drawings to be stamped and signed by Professional Engineer licensed to practice in the Province of Nova Scotia.
<u>1.4 QUALITY ASSURANCE</u>	.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.
<u>1.5 DELIVERY, STORAGE AND HANDLING</u>	.1	Packing, Shipping, Handling and Unloading: .1 Deliver, store, handle and protect materials in accordance with Section 01 61 00 - Common Product Requirements.
<u>1.6 WASTE MANAGEMENT AND DISPOSAL</u>	.1	Separate and recycle waste materials in accordance with Section 01 74 21 - Construction/Demolition Waste Management System.



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| 1.6 WASTE<br>MANAGEMENT AND<br>DISPOSAL<br>(Cont'd) | .2 | Remove from site and dispose of packaging materials at appropriate recycling facilities.  |
|   | .3 | Collect and separate for disposal paper, plastic, polystyrene and corrugated cardboard packaging material for recycling in accordance with Waste Management Plan. |
|   | .4 | Divert unused metal materials from landfill to metal recycling facility.  |

## PART 2 - PRODUCTS

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|-----------------|----|---|
| 2.1 MATERIALS   | .1 | Steel sections and plates: to CAN/CSA-G40.20/G40.21, Grade 300W.  |
|                 | .2 | Steel pipe: to ASTM A 53/A53M-07, extra strong.   |
|                 | .3 | Welding materials: to CSA W59.  |
|                 | .4 | Welding electrodes: to CSA W48 Series.  |
|                 | .5 | Bolts and anchor bolts: to ASTM A 307.  |
| 2.2 FABRICATION | .1 | Fabricate work square, true, straight and accurate to required size, with joints closely fitted and properly secured. |
|                 | .2 | Use self-tapping shake-proof flat headed screws on items requiring assembly by screws or as indicated.                |
|                 | .3 | Where possible, fit and shop assemble work, ready for erection.   |
|                 | .4 | Ensure exposed welds are continuous for length of each joint. File or grind exposed welds smooth and flush.           |
| 2.3 FINISHES    | .1 | Galvanizing: hot dipped galvanizing with zinc coating 600 g/m <sup>2</sup> to CAN/CSA-G164, passivated.               |
|                 | .2 | Shop coat primer: to CAN/CGSB-1.40.   |

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| 2.3 FINISHES<br>(Cont'd) | .3 | Zinc primer: zinc rich, ready mix to CAN/CGSB-1.181.  |
|                          | .4 | Bituminous paint: to CAN/CGSB-1.108.  |
| 2.4 ISOLATION<br>COATING | .1 | Isolate aluminum from following components, by means of bituminous paint:<br>.1 Dissimilar metals except stainless steel, zinc, or white bronze of small area.<br>.2 Concrete, mortar and masonry.  |
| 2.5 SHOP PAINTING        | .1 | Apply one shop coat of primer to metal items, with exception of galvanized or concrete encased items.   |
|                          | .2 | Use primer unadulterated, as prepared by manufacturer. Paint on dry surfaces, free from rust, scale, grease. Do not paint when temperature is lower than 7°C.   |
|                          | .3 | Clean surfaces to be field welded; do not paint.  |
| 2.6 SCHEDULE OF<br>ITEMS | .1 | Miscellaneous metal fabrication items include, but are not limited to, the following:<br>.1 Lateral bracing: For lateral bracing of all concrete block walls, shop coat primed.<br>.2 Angle framing for vanity supports, as indicated. Notch ends of angles to ensure top surfaces of angles to receive vanity are all flush. Drill holes at 200 mm o.c. for attachment of vanity and front apron by section 06 40 00. Hot dipped galvanized.<br>.3 Steel pipe posts (bollards) at overhead doors: As shown on site drawings. Galvanized pipe, concrete filled, 1100 mm above finished grade, extend to footing. Hot dipped galvanized.<br>.4 Pit covers and frames: Frame of 76 mm x 76 mm x 6 mm angles, or as detailed. Covers of steel checkerplate, with lift handles, gas-tight gaskets, bolted in position. Hot dipped galvanized after fabrication. |

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| 2.6 SCHEDULE OF<br>ITEMS<br>(Cont'd) | .1 (Cont'd)  |
|                                      | .5 Bent plate and structural steel assemblies at overhead door frames, as indicated. Hot dipped galvanized.  |
|                                      | .6 Railings, pickets, stairs and lockable gate at platform.  |
|                                      | .2 22 ga., galvanized sheet metal closures to enclose concealed areas behind columns, where not closed off by other building elements. Closures to be continuous to underside of roof structure. |
|                                      | .3 Provide steel plate and supports for sectional metal door controls, operators, tracks and springs.  |
|                                      | .4 Galvanized steel frame for sorting tabel as per details. Table finish to be 14 ga., 304 with No. 4 finish stainless steel.  |
|                                      | .5 Plate, HSS and angles for supporting and bracing equipment.   |
|                                      | .6 Bent steel plate to conceal openings between bin cooler and adjacent walls.   |

### PART 3 - EXECUTION

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| 3.1 ERECTION | .1 Do welding work in accordance with CSA W59-03(R2008) unless specified otherwise.   |
|              | .2 Erect metalwork square, plumb, straight, and true, accurately fitted, with tight joints and intersections.   |
|              | .3 Provide suitable means of anchorage acceptable to Departmental Representative such as dowels, anchor clips, bar anchors, expansion bolts and shields, and toggles. |
|              | .4 Exposed fastening devices to match finish and be compatible with material through which they pass.   |
|              | .5 Provide components for building by other sections in accordance with shop drawings and schedule.   |

- 3.1 ERECTION  
(Cont'd)
- .6 Make field connections with bolts to CAN/CSA-S16.1-94(R2000), or weld.
  - .7 Hand items over for casting into concrete or building into masonry to appropriate trades together with setting templates.
  - .8 Touch-up rivets, field welds, bolts and burnt or scratched surfaces after completion of erection with primer.
  - .9 Touch-up galvanized surfaces with zinc rich primer where burned by field welding or damaged during erection.
- 3.2 CLEANING
- .1 Perform cleaning after installation to remove construction and accumulated environmental dirt.
  - .2 Upon completion of installation, remove surplus materials, rubbish, tools and equipment barriers.