

PART 1 - GENERAL

1.1 REFERENCES

- .1 ASTM International
  - .1 ASTM A 123/A 123M-17, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
  - .2 ASTM A 653/A 653M-18, Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process.
  - .3 ASTM A 792/A 792M-10, Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process.
- .2 Canadian General Standards Board (CGSB)
  - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
- .3 CSA International
  - .1 CSA W47.1-09, Certification of Companies for Fusion Welding of Steel Structures.
  - .2 CSA W55.3-08, Certification of Companies for Resistance Welding of Steel and Aluminum.
  - .3 CSA W59-18, Welded Steel Construction (Metal Arc Welding) Metric.
  - .4 CAN/CSA S136-16, North American Specification for the Design of Cold Formed Steel Structural Members.
- .4 Canadian Sheet Steel Building Institute (CSSBI)
  - .1 CSSBI 50M, Lightweight Steel Framing Manual.
  - .2 CSSBI Fact Sheet #3, Care and Maintenance of Prefinished Sheet Steel Building Products.
  - .3 CSSBI Technical Bulletin Vol. 7, No. 2, Changing Standard Thicknesses for Canadian Lightweight Steel Framing Applications.
  - .4 CSSBI S5-2011, Guide Specification for Wind Bearing Steel Studs.
- .5 Master Painters Institute (MPI)
  - .1 Architectural Painting Specification Manual - current edition.

1.2 ACTION AND  
INFORMATIONAL  
SUBMITTALS

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- .1 Submit in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
  - .1 Submit manufacturer's instructions, printed product literature and data sheets for structural metal studs and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in the Province of Newfoundland and Labrador, Canada.
  - .2 Indicate design loads, member sizes, materials, design thickness exclusive of coatings, coating specifications, connection and bracing details, screw sizes and spacing, and anchors.
  - .3 Indicate locations, dimensions, openings and requirements of related work.
  - .4 Indicate welds by welding symbols as defined in CSA W59.
- .4 Certificates: prior to beginning Work, submit: 2 certified copies of mill reports covering material properties.
- .5 Manufacturer Reports:
  - .1 Submit manufacturer's written report, within 3 days of review, verifying compliance of Work, as described in PART 3 - FIELD QUALITY CONTROL.

1.3 DELIVERY,  
STORAGE AND  
HANDLING

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- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
  - .2 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
  - .3 Storage and Handling Requirements:
    - .1 Store materials off ground and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.
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| 1.3 DELIVERY,<br>STORAGE AND<br>HANDLING<br><u>(Cont'd)</u> | .3 (Cont'd) |   |
|   | .2          | Store and protect structural metal studs from nicks, scratches, and blemishes.  |
|   | .3          | Protect steel studs during transportation, site storage and installation in accordance with CSSBI Sheet Steel Facts #3. |
|   | .4          | Handle and protect galvanized materials from damage to zinc coating.  |
|   | .5          | Replace defective or damaged materials with new.  |

## PART 2 - PRODUCTS

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| <u>2.1 MATERIALS</u>                   | .1 | Steel: to CAN/CSA S136, fabricated from ASTM A 653/A 653M, Grade 340 steel.  |
|  | .2 | Zinc coated steel sheet: quality to ASTM A 653/A 653M, with Z275 designation coating.  |
|  | .3 | Aluminum-zinc alloy coated steel sheet: quality to ASTM A 792/A 792M, with AZM180 designation coating.   |
|  | .4 | Welding materials: to CSA W59 and certified by Canadian Welding Bureau.  |
|  | .5 | Screws: hex washer head (HWH), self-drilling, self-tapping sheet metal screws, corrosion protected with minimum zinc coating thickness of 0.008 mm, length and diameter as per drawings and fabricator requirements. |
|  | .6 | Anchors: hex washer head, concrete screws, corrosion protected with minimum zinc coating thickness of 0.008mm, embedment 64 mm, diameter 6.35 mm, head diameter 11 mm.   |
|  | .7 | Bolts, nuts, washers: hot dipped galvanized to ASTM A 153/A 153M, 380 g/m <sup>2</sup> zinc coating.   |
|  | .8 | Touch up primer: zinc rich, to CAN/CGSB-1.181 MPI #18.   |
| <u>2.2 STEEL STUD<br/>DESIGNATIONS</u> | .1 | Colour code: to CSSBI Technical Bulletin Vol.7, No. 2.   |

- 2.3 METAL FRAMING
- .1 Steel studs: to CAN/CSA S136, fabricated from metallic coated steel, depth as indicated.
    - .1 Minimum steel thickness of 1.81 mm.
  - .2 Stud tracks: fabricated from same material and finish as steel studs, minimum steel thickness of 2.58 mm, depth to suit.
    - .1 Top track: single piece.
  - .3 Bridging: fabricated from same material and finish as studs, 38 x 12 x 1.09 mm minimum thickness.
  - .4 Angle clips: fabricated from same material and finish as studs, 38 x 38 mm x depth of steel stud, 1.37 mm minimum thickness.
  - .5 Tension straps and accessories: located at minimum of every 4th bay and end bay. Install back-to-back structural metal stud on either of tension straps. Design tension  $T_f = 5\text{KN}$

- 2.4 SOURCE QUALITY CONTROL
- .1 Ensure mill reports covering material properties are reviewed by Departmental Representative.

PART 3 - EXECUTION

- 3.1 EXAMINATION
- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for precast concrete 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.
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- 3.2 GENERAL
- .1 Weld in accordance with CSA W59.
  - .2 Do structural metal stud framing work to CSSBI S5.

- 3.3 ERECTION
- .1 Erect components to requirements of reviewed shop drawings.
  - .2 Anchor tracks securely to concrete structure at 300 mm on centre maximum, unless lesser spacing prescribed on shop drawings.
  - .3 Erect studs plumb, aligned and securely attached with 2 screws minimum.
  - .4 Seat studs into single piece top track.
  - .5 Install studs at not more than 50 mm from abutting walls, openings, and each side of corners and terminations with dissimilar materials.
  - .6 Brace steel studs with horizontal internal bridging at 1200 mm maximum.
    - .1 Fasten bridging to steel clips fastened to steel studs with screws or by welding.
  - .7 Frame openings in soffit to adequately carry loads by use of additional framing members and bracing as detailed on shop drawings.
  - .8 Touch up welds with coat of zinc rich primer.

- 3.4 ERECTION TOLERANCES
- .1 Plumb: not to exceed 1/500th of member length.
  - .2 Camber: not to exceed 1/1000th of member length.
  - .3 Spacing: not more than +/- 3 mm from design spacing.
  - .4 Gap between end of stud and track web: not more than 4 mm.
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### 3.5 CUTOUTS

- .1 Maximum size of cutouts for services as follows:
- | Member<br>Depth | Across<br>Member<br>Depth | Along<br>Member<br>Length | Centre to<br>Centre<br>Spacing<br>(mm) |
|-----------------|---------------------------|---------------------------|--|
| 92              | 40 max.                   | 105 max.                  | 600 min.                               |
| 102             | 40 max.                   | 105 max.                  | 600 min.                               |
| 152             | 65 max.                   | 115 max.                  | 600 min.                               |
- .2 Limit distance from centerline of last unreinforced cutout to end of member to less than 300 mm.

### 3.6 FIELD QUALITY CONTROL

- .1 Manufacturer's Field Services:
- .1 Obtain written report from manufacturer's verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.
  - .2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.
  - .3 Schedule site visits to review Work as follows.
    - .1 After delivery and storage of products, and when preparatory Work is complete but before installation begins.
    - .2 Twice during progress of Work at 25% and 60% complete.
    - .3 Upon completion of Work, after cleaning is carried out.

### 3.7 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .1 Leave Work area clean at end of each day.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

- 3.8 PROTECTION
- .1 Protect installed products and components from damage during construction.
  - .2 Repair damage to adjacent materials caused by structural metal stud installation.