

1 General

1.1 **DESIGN REQUIREMENTS**

- .1 Design pressures:
 - .1 Line posts Type 2: 874 Pa

1.2 **REFERENCES**

- .1 American Society for Testing and Materials International, (ASTM):
 - .1 ASTM A123/A123M-09, Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products.
- .1 Canadian General Standards Board (CGSB):
 - .1 CAN/CGSB-1.181-99, Ready-Mixed Organic Zinc-Rich Coating.
 - .2 CAN/CGSB-138.1-96, Fabric for Chain Link Fence.
 - .3 CAN/CGSB-138.2-96, Steel Framework for Chain Link Fence.
 - .4 CAN/CGSB-138.3-96, Installation of Chain Link Fence.
- .2 Canadian Standards Association (CSA):
 - .1 CSA A23.1-09/A23.2-09, Concrete Materials and Methods of Concrete Construction/Test Methods and Standard Practices for Concrete.

1.3 **SUBMITTALS**

- .1 Submit in accordance with Sections 01 33 00 and 01 78 00.
- .2 Shop drawings:
 - .1 Submit shop drawings in accordance with Sections 01 33 00 and 01 78 00.
 - .2 Submit shop drawings for each type locking device to show fabrication, layout, setting and erection details.
- .3 **Samples:**
 - .1 ***Submit samples in accordance with Section 01 33 00 of the following.***
 - .2 ***Duplicate 300 mm square samples of wire fabric mesh demonstrating finish and colour for the approval of the Departmental Representative.***
- .4 LEED submittals: Submit applicable supporting documentation in accordance with Section 01 33 00.01 for approval of the Departmental Representative.

2 Products

2.1 **MATERIALS**

- .1 General: All materials under Work of this Section, including but not limited to, primers, are to have low VOC content limits in accordance with Section 01 35 21.01.

- .2 Concrete for footings: to CSA-A23.1/A23.2, Concrete materials and methods of concrete construction/Test methods and standard practices for concrete.
 - .1 Compressive strength: 30 MPa at 28 days.
 - .2 Exposure classification: F-1.
 - .3 Slump: 80 mm at time of deposit +/-30 mm.
 - .4 Air entrainment: 6%.
 - .5 Aggregate size: 38 mm maximum, 9.5 mm minimum.
- .3 ~~Fabric: to CAN/CGSB-138.1, galvanized, Table 1.~~
 - ~~.1 Fabric Type 1, Class A, Style 1-heavy.~~
 - ~~.2 Height of fabric: as indicated.~~

Vinyl-coated fence Fabric: CAN/CGSB 138.1, Black vinyl coated No. 9 gauge steel wire woven in a 50 mm mesh, with knuckled finish top and bottom selvage edges. Height of fabric: as indicated.
- .4 Posts, braces and rails: to CAN/CGSB-138.2, galvanized steel pipe ***with black powder coating.***
 - .1 Post Type 1 hot-rolled, butt or electrical resistance welded, dimensions to Table 2, Style A heavy. Minimum yield strength: Type 2, 344 MPa.
 - .2 Rail Type 2, Style A Heavy, dimensions to Table 3, minimum yield strength 344 MPa.
- .5 ~~Bottom tension wire: single strand, galvanized, 5 mm diameter.~~ ***Bottom rail: to CAN/CGSB-138.2, galvanized steel bottom rail with black powder coating.***
- .6 Tie wire fasteners: single strand, galvanized, 3.7 mm diameter.
- .7 Bottom tension bar: 5 x 20 mm minimum galvanized steel.
- .8 Tension bar bands: 3 x 20 mm minimum galvanized steel.
- .9 Fittings and hardware: cast aluminum alloy, galvanized steel or malleable or ductile cast iron. Post caps to provide waterproof fit, to fasten securely over posts and to carry top rail. Turnbuckles to be drop forged.
- .10 Zinc rich paint: zinc rich, readymix to CAN/CGSB-1.181, low VOC.
- .11 Clips: galvanized sheet metal, 3.8 mm.
- .12 Grounding rods: 16 mm diameter copperweld rod, 3 m long.
- .13 ***Finish coating: Epoxy Polyester coating conforming to AAMA 2603 with gloss finish for chain link fencing and associated components. Colour: black. Provide manufacturers recommended primer. Provide sample for the Departmental Representative's approval.***

2.2 GALVANIZED FINISH

- .1 For chain link fabric: to CAN/CGSB-138.1, Grade 2.

- .2 For pipe: to CAN/CGSB-138.2.
- .3 For other fittings: to ASTM A123/A123M, minimum Coating Grade 85, minimum 600 g/m².

2.3 POWDER COAT FINISH

- .1 Shop apply electrostatic coating in strict accordance with manufacturer's printed instructions.**
- .2 Provide primer where required and one finish coat.**
- .3 Ensure application of each coat into all corners, pinholes and other difficult areas and ensure full coverage to all surfaces.**
- .4 Ensure a smooth finish, free of laps, sags, runs, pin holes, crawls and skips. Back lap all edges to achieve full coverage.**

3 Execution

3.1 GRADING

- .1 Remove debris and correct ground undulations along fence line to obtain smooth uniform gradient between posts. Provide clearance between bottom of fence and ground surface neither less than 40 mm nor more than 75 mm.

3.2 ERECTION OF FENCE

- .1 Install chain link fence in accordance with CAN/CGSB-138.3 unless otherwise specified.
- .2 Drill post holes to dimensions and depth shown on Figure 1, 2 and 3 of CAN/CGSB-138.3.
- .3 Space line posts maximum 3 m apart, measured parallel to ground surface.
- .4 Space straining posts at equal intervals not exceeding 150 m if distance is greater than 150 m between end or corner posts on straight continuous lengths of fence over reasonably smooth grade.
- .5 Install additional straining posts at sharp changes in grade and where directed.
- .6 Install corner post where change in alignment exceeds 20°.
- .7 Install end posts at end of fence.

- .8 Place concrete in post holes then embed posts into concrete. Extend concrete 50 mm above ground level and slope to drain away from posts. Brace to hold posts in plumb position and true to alignment and elevation until concrete has set.
- .9 Do not install fence fabric until concrete has cured a minimum of 5 days.
- .10 Install brace between end posts and nearest line post, placed in centre of panel and parallel to ground surface. Install braces on both sides of corner and straining posts in similar manner.
- .11 Install top between posts and fasten securely to posts with waterproof caps.
- .12 Install bottom ~~tension wire, stretch tightly~~ **rail** and fasten securely to end, corner, and straining posts with turnbuckles and tension bar bands.
- .13 Lay out fence fabric. Stretch tightly to tension recommended by manufacturer and fasten to end, corner, and straining posts with tension bar secured to post with tension bar bands spaced at 300 mm intervals. Knuckled selvedge on bottom. Nuts facing exterior of compound.
- .14 Secure fabric to top rails, line posts and bottom ~~rail tension wire~~ with tie wires at 450 mm intervals. Give tie wires minimum two twists.
- .15 Secure bottom rail to ground barrier with galvanized anchor clamp.

3.3 TOUCH-UP

- .1 Repair damaged galvanized surfaces. Clean damaged surfaces with wire brush removing loose and cracked spelter coatings. Apply two coats of approved zinc rich paint to damaged areas.

3.4 CLEANING

- .1 Clean and trim areas disturbed by operations. Dispose of surplus excavated material and replace damaged sod.

END OF SECTION